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The flora of Psara (E. Aegean Islands, Greece) – an annotated catalogue[1]

WERNER GREUTER

Résumé

Greuter, W. (1976). La flore de l'île de Psara (Egée orientale, Grèce) – un catalogue commenté. *Candollea* 31: 191-242. En anglais.

Des chapitres introductifs sur la géographie, la végétation et l'histoire de l'exploration botanique sont suivis par un catalogue de 331 espèces de plantes vasculaires sauvages, dont 90% sont attestées pour la première fois sur l'île. La synonymie, les références, les localités et les données écologiques propres à chaque espèce sont fournies sous forme synthétique. La taxonomie, la nomenclature et la distribution de certains taxons sont discutées; dans le cas du *Silene cythnia* un dessin et une carte de distribution sont soumis. Des nouveautés nomenclaturales sont validées dans les genres *Centaurea, Matricaria, Melica* (par W. Hempel) et *Trifolium.* L'analyse phytogéographique et écologique de la flore montre sa frappante banalité et une proportion étonnamment haute d'anthropophytes. Il n'existe aucun lien phytogéographique avec les autres îles orientales de l'Egée et l'Anatolie, alors qu'on constate certaines affinités avec les Cyclades. Les faits observés étayent l'hypothèse d'une longue insularité aboutissant à l'appauvrissement, voire à la destruction de la flore originale remplacée par des éléments dispersés à la longue distance et des anthropophytes.

Abstract

Greuter, W. (1976). The flora of Psara (E. Aegean Islands, Greece) – an annotated catalogue. *Candollea* 31: 191-242. French abstract.

Introductory chapters on the geography, vegetation and history of botanical exploration are followed by a catalogue of 331 species of wild vascular plants, 90% of which represent first records for the island. Synonymy, references, localities and ecological data are given for each species in a condensed form. The taxonomy, nomenclature and distribution of some taxa are discussed; in one case *(Silene cythnia)* a drawing and a distribution map are supplied. Nomenclatural novelties are validated in the genera *Centaurea, Matricaria, Melica* (by W. Hempel) and *Trifolium.* A phytogeographical and ecological analysis of the flora demonstrates its striking banality and the unexpectedly high proportion of anthropophytes. No phytogeographical link with the other E. Aegean Islands and Anatolia exists, but there are some affinities with the Cyclades. The observations are consistent with the hypothesis of a long insular isolation leading to a strong depletion or even destruction of the original flora, which has been replaced by long-distance dispersed and anthropophytic elements.

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[1] I take pleasure in dedicating this catalogue to my friend and mentor, Professor Karl Heinz Rechinger, on the occasion of his 70th birthday. No other botanist before or after him has contributed as much to the knowledge of the flora and phytogeography of the Aegean region as he did in his "Flora aegaea", "Phytogeographia aegaea" and correlated works.

Στῶν Ψαρῶν τήν ὁλόμαυρη ράχη
Περπατῶντας ἡ Δόξα μονάχη,
Μελετᾶ τά λαμπρά παλληκάρια
Καί'ς τήν κώμη στεφάνι φορεῖ
Γεναμένο ἀπό λίγα χορτάρια
Ποῦ εἶχαν μεῖνει 'ς τήν ἔρημη γῆ.

Διονύσιος Σολωμός

The island of Psara is well-known in Greek history and poetry: here, on the narrow peninsula named Mavri Rahi, south of the harbour, the whole population of the island, during the Greek liberation war in 1824, preferred death to surrendering to the Turks – a fact which was immortalized in the splendid, very popular poem by Solomos quoted above. However, the botanical exploration of the island lagged far behind its national fame: Psara had to be classified, in fact, among the few virtually unexplored islands of the Aegean.

My interest in Psara started with a letter from Peter Davis, dated 10th March, 1972, where he suggested that I visit the island which, he wrote, "is covered by the Flora of Turkey but has been scarcely collected and looks rather promising from the air – both sand dunes and cliffs". A little more than a year later I was, indeed, there, with my tent and two of my children, and started exploring the island. If the result, from a plant hunter's viewpoint, was rather discouraging, it was highly surprising, not to say fascinating, to a phytogeographer: I would never have suspected that an island with such a dull, banal and phytogeographically meaningless flora could exist in the Aegean! But this aspect will have to be considered later on.

Geography

Psara belongs to the nomos (province) Hios and is separated by 18 km of open sea from the N.W. point of that island. In the other directions Psara is much more isolated: the distance to the nearest island in the W. Aegean region, Skiros, is more than 75 km, and that to Andhros in the Cyclades is almost 90 km. Geographically, therefore, Psara clearly belongs to the E. Aegean region, *i.e.* to Asia.

In fact, Psara consists of a group of about a dozen islands of all sizes – a frequent phenomenon in the Aegean. The main island, and the only one to be permanently inhabited, has an irregularly trapezoidal shape, being broader toward the north and measuring 10 km along its major diagonal, running N.W. to S.E. The second island, Andipsara, has a similar but inverted shape and measures 3.5 km along its N.E.-S.W. axis. South of Andipsara, Kato Nisi almost reaches 1 km in length. All the other islets (Ai Nikolaki, Dhaskalio, Mastrojeorji, Prasonisi, and some unnamed ones) are comparatively minute, at most 100 m across. Only the main island and Kato Nisi have been botanically investigated so far.

The hills which constitute Psara culminate at 531 m (Mt. Ajios Ilias, in the N.E. part of the island). They consist exclusively and invariably of metamorphic schists (phyllites), which also constitute the steep coastal cliffs to the south and – as far as could be ascertained from the boat – to the east and north-east. Only at some points on the west coast, and notably opposite the Dhaskalio islet, does a bar of hard, unbanked, seemingly volcanic rock appear. Around Arhondiki

bay in the west, and in the low areas toward the south coast, colluvial, sandy, clayey and gravelly soils provide the only arable land, but most of the former cultivated fields and vineyards are now abandoned: pasture (sheep) and fishing are the main, not to say the only economic resources of the inhabitants. Sandy shores (not actually dunes) are found in Arhondiki bay and in some smaller creeks on the south coast, west of the harbour.

No meteorological data are known to me, but the island seems to be exceedingly dry. In 1973, none of the small, shallow torrents carried any water in April – they probably do so only immediately after substantial rainfalls. The only natural water points observed were a few small puddles in a gully toward Cape Ajios Jeorjios, with lots of caddis-fly larvae in them.

Vegetation

Forest vegetation is conspicuously lacking, and even isolated, planted trees are restricted to a few sheltered localities. The semi-natural vegetation of the hillsides is a poor, monotonous phrygana which, in its dry facies, consists of widely spaced cushions, 15-30 cm high, of *Centaurea spinosa, Sarcopoterium spinosum, Cistus creticus, Thymelaea hirsuta, Asparagus aphyllus,* etc., while in less extreme situations the scrub may become denser, up to 1 m high, and be dominated by *Calicotome villosa, Anthyllis hermanniae,* etc.

The absence of a considerable number of widespread and characteristic phrygana species (*Phlomis* spp., *Euphorbia acanthothamnos, Hypericum empetrifolium, Rhamnus oleoides, Quercus coccifera, Cistus salviifolius* and *parviflorus, Fumana thymifolia,* etc.) and the surprising rarity of others *(e.g., Coridothymus capitatus* and *Satureja thymbra)* are responsible for the monotony of the semi-natural plant cover. To this must be added the complete lack of maquis elements, which are elsewhere widespread on schistaceous ground: *Erica arborea, Arbutus unedo, Lavandula stoechas;* of the sclerophyllous elements more often associated with a calcareous substrate: *Arbutus andrachne, Phillyrea latifolia, Pistacia terebinthus, Quercus ilex, Ceratonia siliqua;* of the coastal scrub constituted by *Pistacia lentiscus* and *Juniperus phoenicea;* of the caducifolious, woody species of genera like *Crataegus, Rosa, Quercus, Paliurus* and *Cercis* (*Anagyris* being an exception); and of the climbers which elsewhere are abundant in thickets, where there is sufficient air humidity: *Clematis, Smilax* and *Thamus.* Not even the weedy blackberry *(Rubus sanctus)* has been found on the island.

The monotony of the island vegetation is further accentuated by the absence of several types of specialized habitats: watercourses, ponds, wetlands, salt marshes, dunes, open scree. Solid rockfaces, suitable for chasmophytes, were found in a single place, and the corresponding flora was exceedingly poor. The schistose rocks, falling almost vertically to the sea along most of the island's coast, are completely barren, since the crumbling substratum does not permit the establishment of plants. Along the south coast, the only exception which I could observe was an isolated, inaccessible tuft of *Capparis spinosa* subsp. *rupestris.* Apart from the volcanic rocks mentioned above, the only non-anthropic specialist habitats appear to be sand shores and rocky coasts with their psammo- and halophytic vegetation, and dry river beds bordered with *Nerium oleander* and *Vitex agnus-castus.*

On the other hand, anthropic habitats like fields, field margins, moist grassland, ruderal sites and walls present a rich and varied weed flora, which penetrates into the semi-natural phrygana in heavily grazed areas near human settlements. This interpenetration, which is probably accentuated in some places by the enrichment of the soil with ammonia from the accumulated sheep excrement, often makes it difficult to characterize a given species as a weedy element rather than as a component of the semi-natural phrygana vegetation.

History of botanical exploration

The earliest botanical explorer to visit Psara appears to have been Dumont d'Urville, during the first of his cruises to the Aegean and Black Sea in 1819. In his "Enumeratio" (Mém. Soc. Linn. Paris 1: 255-387. 1822) he mentions "Psyra" on p. 255, and lists a single species collected there on p. 361: *"Onopordum macrocanthum.* Wild. In arvis insulae Psyrae, copiosissimè julio floret". A duplicate of his gathering is kept in the Candolle herbarium (G-DC) and proved to belong to *Onopordum tauricum.* Obviously, Urville did not care much for exploring the flora of that sun-burnt, dry island in as unrewarding a month as July.

The zoologist Franz Werner visited Psara in June 1936 and collected specimens, or rather scraps, which he handed over to Rechinger. This led to the inclusion of 32 records from Psara in the "Flora aegaea" (to which a 33rd, *Chrysanthemum segetum,* might have been added). The vouchers are kept in Rechinger's herbarium, presently deposited at Vienna (W), and were checked by me. Actually, in 9 cases no specimen could be traced: they may be lost or misfiled, or the relevant records may be based upon Werner's field notes; with a single exception *("Juncus maritimus")* they raise no problems and concern easily recognizable species.

Runemark and Nordenstam stopped at Kato Nisi on 31 July 1960 and collected a glorious 3 species (specimens at LD). One of them, *Elymus rechingeri,* was cited and mapped in a paper by Heneen & Runemark (in Hereditas 48: 545-564. 1962). The other two are included in this catalogue, thanks to the kindness of Roland von Bothmer who went through Runemark's field notes and sent me one of the specimens for checking.

Before my visit to Psara, 34 species were therefore known to occur on the island. My own gatherings and field notes bring this figure to a total of 331 numbered species, disregarding the cultivated, subspontaneous and xenophytic ones. I landed with the weekly boat from Hios on April 18th, 1973, and left one week later, having gathered 313 specimens numbered *10758-11070.* The complete, original set of these is kept at the Goulandris Natural History Museum, Kifisia (ATH); duplicate sets are in my personal herbarium and at the Conservatoire botanique, Genève (G). The collecting localities, which I have numbered from 1 to 9 for practical purposes, are given below (p. 196 and map, fig. 1). First records based on these gatherings, of which a list was sent to Peter Davis, appear in the 5th volume (Compositae) of "Flora of Turkey", published in 1975.

The present catalogue cannot of course be exhaustive. The geographical coverage is still incomplete: apart from Andipsara and the small islets, the whole north and north-east of the main island, including all its higher elevations, have not yet been visited. Furthermore, the early spring flora as well as the autumn flora are unknown: this results, *i.a.,* in a low number of Orchidaceae (which may or may not

reflect the true situation). On the other hand, the areas around human settlements and cultivated land are by far the richest, the number of new records decreasing sharply with increasing distance from the harbour: these rich areas were studied in detail, and even incompletely developed plants have been recorded if they were in a recognizable state – which was not the case for, notably, *Carthamus* and *Verbascum*. Therefore, I estimate that the actual number of Tracheophyte species present on Psara is probably not much more than 400.

Plan of the catalogue

The catalogue comprises all vascular plant taxa collected or observed by earlier botanists and myself on the island, with the exception of obviously cultivated plants which are not or only questionably subspontaneous: cereals, *Vitis vinifera, Ficus carica, Punica granatum, Elaeagnos angustifolia* and some other ones which I have omitted to note. Subspontaneous species and xenophytes have not been numbered, while non-xenophytic weeds have been treated as indigenous in accordance with my earlier suggestions (in Boissiera 19: 329-337. 1971).

The taxa are arranged in the sequence of Hayek's "Prodromus" (in Repert. Spec. Nov. Regni Veg. Beih. 30/1-3. 1924-1933), which is the same as in other recent floras devoted to the area (*FAe, FK;* see below). The nomenclature of the taxa has been updated as far as possible without exhaustive study. However, most names have not been checked to the source, and full nomenclatural citations have not been provided. These may be found, as a rule, in the four reference works which have been cited throughout the catalogue, whenever possible, and whose symbols *(FAe, FE, FK, FT)* are explained below. Synonymies are limited to names adopted in these reference works. Additional references to recently published papers are provided to support the nomenclature and/or taxonomy adopted here.

The locality and specimen citations have been condensed as far as possible. My own collecting areas have been numbered 1-9, numbers which appear on the map (fig. 1) and which are defined below. My collecting numbers follow parenthetically, *in italics,* after the corresponding locality number. If a locality number is not followed by a collecting number, the record is based on my field notes only. Hyphened numbers refer to an area in-between the numbered localities.

The habitat in which each species is found on Psara is referred to by capital letters defined below; it may, of course, differ from the usual habitat of the species elsewhere in the Aegean region. In a few exceptional cases, a special ecological definition is supplied.

Material which has been used in the preparation of the catalogue may be summarized as follows:

Collector	*Collecting dates*	*Herbarium*
Dumont d'Urville	July 1819	CN or P?, G-DC!
Franz Werner	June 1936	herb. Rechinger (at W)!
Hans Runemark & Bertil Nordenstam	31.7.1960	LD!
Werner Greuter	19.-25.4.1973	ATH, herb. Greuter (at G), G.

Abbreviations and symbols

Synonymy

FAe = K. H. Rechinger (1943). Flora aegaea... *Akad. Wiss. Wien, Math.-Naturwiss. Kl., Denkschr.* 105/1.

FE = T. G. Tutin, V. H. Heywood, N. A. Burges, D. H. Valentine, S. M. Walters & D. A. Webb, ed. (1964-1976). *Flora europaea.* Vol. 1-4. Cambridge.

FK = W. Greuter & K. H. Rechinger (1967). Flora der Insel Kythera... *Boissiera* 13.

FT = P. H. Davis, ed. (1965-1975). *Flora of Turkey and the East Aegean Islands.* Vol. 1-5. Edinburgh.

cit. = citation; precedes reference to a recent publication relevant to the author citation of the name.

nom. = nomenclature; precedes reference to a recent publication relevant to the nomenclatural treatment adopted here.

tax. = taxonomy; precedes reference to a recent publication relevant to the taxonomic treatment adopted here.

* precedes unnumbered, xenophytic or subspontaneous species or records of not accurately identified material.

≡ precedes homotypic synonyms.

= precedes heterotypic synonyms.

– precedes misapplied or invalid names.

NB. The abbreviation of authors' names and of book titles follows the standards of *FE* (and *FK*); titles of periodicals are abbreviated in accordance with the *"Botanico-Periodicum-Huntianum"* (Pittsburgh 1968).

Localities (see location on map, fig. 1)

1 = Ahladhokambos plain; grassland and cultivated areas on alluvial soil, including some surfaces of degraded phrygana; alt. c. 20 m; coll. dates 19.-25.4.

2 = around Evangelistria chapel; sandy fields, coastal hillsides with ± degraded phrygana, sandy shore; alt. 0-10 m; coll. date 20.4.

3 = at and behind Limnos bay: sandy shore, alluvial plain with fields, dry river bed, hillside with semi-natural phrygana; alt. 0-20 m; coll. dates 21./23.4.

4 = peninsula Mavri Rahi; heavily overgrazed phrygana with strong anthropic influence, ruderal sites; alt. 10-100 m; coll. date 22.4.

5 = hill and coast 1-2 km N. of the harbour; semi-natural phrygana, rocky and sandy shore; alt. 0-50 m; coll. date 22.4.

6 = hills and gullies between Limnos bay and Cape Ajios Jeorjios; semi-natural phrygana; alt. 20-100 m; coll. date 23.4.

7 = Arhondiki bay: low hills with ± degraded phrygana, partly cultivated alluvial plain, sand shore; alt. 0-20 m; coll. date 24.4.

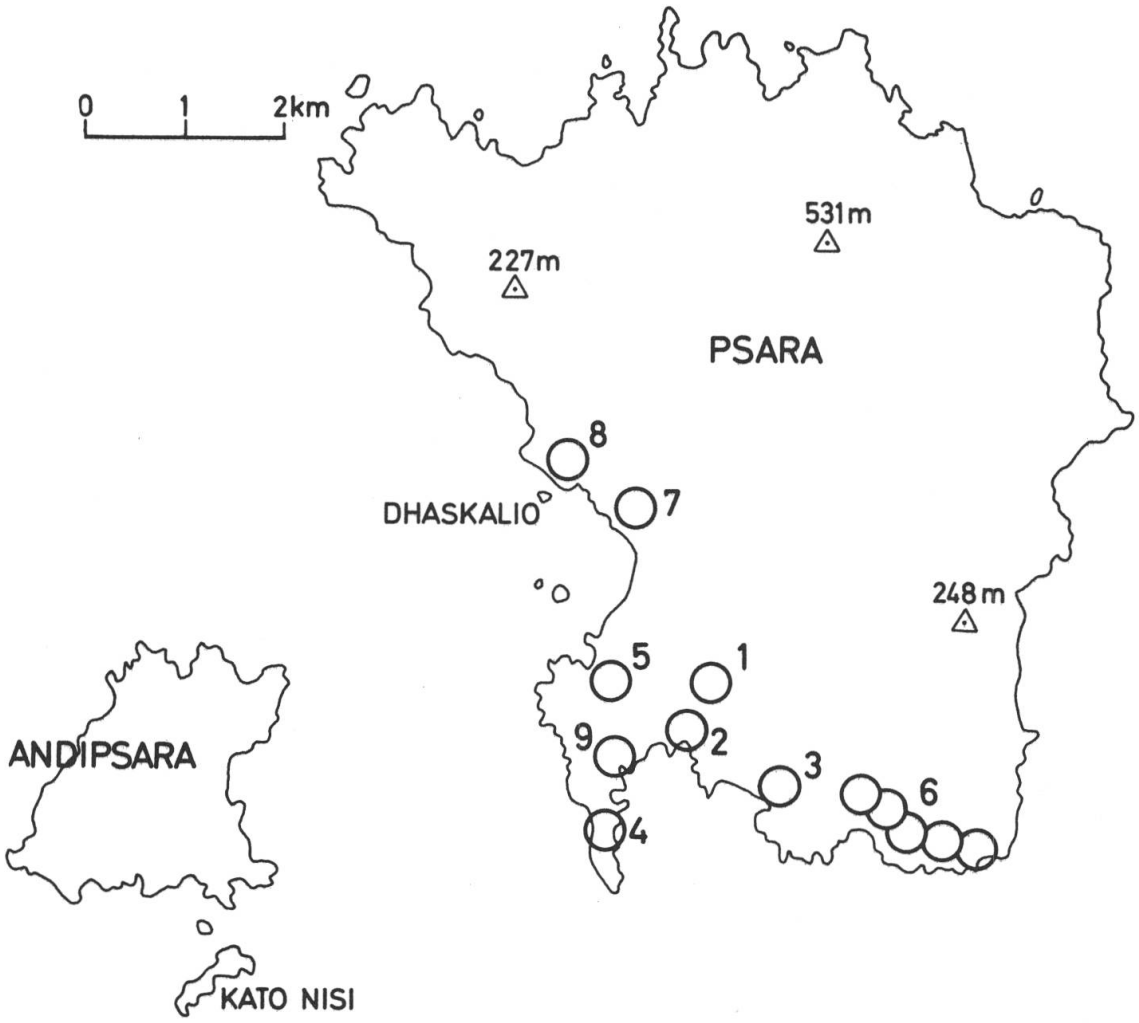

Fig. 1. – Map of Psara, showing collecting localities numbered 1 to 9 (same numbering as in the text, pp. 196-197, and throughout the catalogue).

8 = coast opposite Dhaskalio islet and hill Karajianni; rocky coast, cliffs of hard (volcanic?) rock, hillsides with semi-natural phrygana; alt. 0-100 m; coll. date 24.4.

9 = the harbour of Psara; ruderal sites around and between the houses; alt. 5-10 m; coll. date 22.4.

Habitats

A = ruderal sites: stony places, rich in nitrates, around and between houses and stables.

B = walls, stone heaps, fences.

C = cultivated fields.

D = sandy fields and field margins close to the sea, with a slightly saline soil.

E = grassland and former vineyards in depressed areas on deep, clayey soil, flooded after rainfall.

F = field and path margins, fallow fields.

G = degraded, strongly overgrazed phrygana in the vicinity of human settlements, with a marked gramineous, weedy cover; soil often enriched with nitrates.

H = semi-natural phrygana of hillsides, on schistaceous ground.

I = rocky, schistaceous outcrops in semi-natural phrygana.

K = cliffs of hard (volcanic?) rock.

L = gravelly alluvia along the bed of torrents.

M = stony or sandy alluvial plains close to the coast.

N = stony or rocky coast.

O = saline sandy areas rich in nitrates, along the coast.

P = sandy shores.

Catalogus trachaeophytorum insulae Psara

Pteridophyta

1. **Cheilanthes pteridioides** (Reichard) C. Chr. – *FK:* 27.
≡ *Ch. fragrans* Swartz, nom. illeg. – *FAe:* 77; *FE* 1: 10; *FT* 1: 41.
8 *(11057).* – I.

Urticaceae

2. **Urtica urens** L. – *FAe:* 98; *FE* 1: 68.
1 *(10857).* – A.

3. **Urtica pilulifera** L. – *FAe:* 98; *FE* 1: 68.
3, 9. – A.

4. **Parietaria cretica** L. – *FAe:* 98; *FE* 1: 69; *FK:* 33.
4 *(10981),* 6. – B, I.

5. **Parietaria judaica** L. – Nom. & tax.: Mennema & Segal in Gorteria 3: 96-104, 109-118. 1967; Townsend in Watsonia 6: 365-370. 1968.
= *P. vulgaris* Hill, nom. inval. – *FAe:* 99.
= *P. punctata* Willd. – *FK:* 33.
= *P. diffusa* Mert. & Koch – *FE* 1: 69.
3 *(10936),* 8. – B, K.

Santalaceae

6. **Osyris alba** L. – *FAe:* 100; *FE* 1: 70.

Werner!; 2 *(10882).* – G.

Polygonaceae

7. **Rumex tuberosus** L. subsp. **creticus** Rech. fil. – *FE* 1: 84; *FK:* 33; *FT* 2: 286.
≡ *R. creticus* Boiss. (non Campd.), nom. illeg. – *FAe:* 103.

1 *(10813),* 4, 5, 7. – B, G, H.

8. **Rumex pulcher** L. – *FAe:* 104; *FE* 1: 87; *FK:* 33; *FT* 2: 291.

Werner!; 1 *(10805).* – F.

My gathering belongs to subsp. **pulcher** (rev. Rechinger); Werner's specimen is intermediate between subsp. *pulcher* and subsp. **divaricatus** (L.) Murb., and was listed in *FAe* as subsp. *divaricatus,* with the remark: "nicht typisch".

9. **Rumex bucephalophorus** L. subsp. **aegaeus** Rech. fil. – *FAe:* 105; *FE* 1: 89; *FK:* 34.
– *R. bucephalophorus* sensu *FT* 2: 292, partim.

2 *(10876),* 4, 7, 8. – G, H, M.

Platanaceae

* **Platanus orientalis** L. – *FAe:* 109; *FE* 1: 384; *FK:* 34.

1 *(10774).* – A single old tree planted at the cistern; a few smaller ones, in the vicinity, probably subspontaneous.

Euphorbiaceae

10. **Mercurialis annua** L. – *FAe:* 110; *FE* 2: 212; *FK:* 34.

1 *(11015),* 3. – B, F.

11. **Euphorbia helioscopia** L. – *FAe:* 114; *FE* 2: 221; *FK:* 35.

1 *(10777).* – A, B.

12. **Euphorbia pterococca** Brot. – *FE:* 221.

5 *(10992).* – H.

A Macaronesian and W. Mediterranean species, whose main area ends in Sicily, but which has a few scattered outposts to the east, in Greece. Two of them were known, so far, on the islands of Zakinthos (Ionian) and Ejina (Aegean; owing

to an oversight, the species was omitted from *FAe*). This third one appears to be the easternmost occurrence of the species, and the first and only one situated in the *FT* area, *i.e.,* phytogeographically, in Asia. However, the plants are minute and easily overlooked, and the species might be more widespread than the present record suggests.

13. Euphorbia characias L. – *FAe:* 114; *FE* 2: 226; *FK* 35.
– *E. veneta* var. *sibthorpii* sensu *FAe:* 115, partim (non (Boiss.) Hayek).

Werner! (sterile branch); 1 *(10773).* – G.

My specimens from Psara, and those from Hios *(Greuter 10706)* as well, do not belong to *Euphorbia wulfenii* Koch (of which *E. sibthorpii* Boiss. is best considered as a simple synonym): on the basis of their dark red glands, spathulate leaves and almost flattened involucels they must be identified with *E. characias* L. The latter species, even if taken in a narrow sense (*i.e.,* excluding *E. wulfenii* = *E. characias* subsp. *wulfenii* (Koch) A. R. Sm.), is extremely polymorphic, but its variability is of a complex nature and does not appear to follow easily recognizable geographical patterns. The presence of genuine *E. wulfenii* in the *FT* area is doubtful in my opinion and requires verification.

14. Euphorbia paralias L. – *FAe:* 115; *FE* 2: 225; *FK:* 35.

Werner! – P.

15. Euphorbia peplus L. var. **minima** DC. – *FK:* 35.
= *E. peploides* (auct. an?) Gouan – *FAe:* 116; *FE* 2: 222, in obs.

1 *(10825),* 4, 5. – F, G, H.

16. Euphorbia exigua L. – *FAe:* 117; *FE* 2: 222; *FK:* 36.

3, 5 *(10946).* – H.

The plants of my gathering have obtuse stem leaves, like most of the Aegean material, and thereby correspond to subf. **heterophylla** (Vis.) Hayek (var. *retusa* sensu *FK:* 36, an L.?).

Chenopodiaceae

17. Beta macrocarpa Guss. – *FE* 1: 92.

1 *(10867),* 5, 7. – O.

This appears to be the second Aegean locality of this rare species (the first one is on Karpathos: see Mem. Soc. Brot. 24: 146. 1975), and the first within the *FT* area. According to my field experience, *B. macrocarpa* is a morphologically clearcut, homogeneous unit, well differentiated from other related taxa of *Beta* sect. *Vulgares.* At any rate, its classification at varietal level under *B. vulgaris* subsp. *maritima,* recently proposed by Ford-Lloyd & Williams (in Bot. J. Linn. Soc. 71: 89-102. 1975) without suitable experimental evidence, is clearly inadequate. At most, if the alleged full crossability of *B. macrocarpa* with other taxa of the *B. vulgaris* complex can be confirmed, it could be envisaged to reduce it to subspecific status as *B. vulgaris* subsp. *macrocarpa* (Guss.) Thell.

18. Chenopodium murale L. – *FAe:* 120; *FE* 1: 94; *FK:* 36; *FT* 2: 302.

1 *(10858).* – A.

19. Salsola kali L. – *FAe:* 124; *FE* 1: 105; *FK:* 37; *FT* 2: 329.
= (incl.) *S. tragus* L. – *FT* 2: 330 ≡ *S. kali* subsp. *tragus* (L.) Nyman – *FE* 1: 105 = *S. kali* var. *brevimarginata* Koch – *FAe:* 124.
= (incl.) *S. ruthenica* Iljin – *FT* 2: 329 ≡ *S. kali* subsp. *ruthenica* (Iljin) Soó – *FE* 1: 105.

3 *(10976).* – O, P.

My material consists of seedlings and previous year's stem fragments, and is inadequate for a more refined determination. According to Aellen's treatment in *FT, S. ruthenica* would be the most widespread of the three recognized "species", in the Turkish neighbourhoods. But curiously enough none of the three is reported from the E. Aegean Islands, in spite of numerous records of *S. kali* (s.l.) in *FAe.*

Theligonaceae

20. Theligonum cynocrambe L. – *FAe:* 126; *FE* 2: 312; *FK:* 37; *FT* 2: 344.

1 *(10853).* – B.

Aizoaceae

21. Mesembryanthemum nodiflorum L. – *FAe:* 127; *FE* 1: 113; *FK:* 37; *FT* 2: 345.

Werner!; 1 *(10875),* 7. – D, N.

Caryophyllaceae

22. Herniaria cinerea DC. – *FE* 1: 152, in obs.; tax.: Chaudhri in Meded. Bot. Mus. Herb. Rijksuniv. Utrecht: 285. 1968.
≡ *H. hirsuta* var. *cinerea* (DC.) Loret & Barr. – *FAe:* 128.
– *H. hirsuta* auct. (non L.) – *FE* 1: 152, partim; *FT* 2: 248, partim.

2 *(10907).* – M.

23. Paronychia echinulata Chater – *FE* 1: 150; *FT* 2: 254.
– *P. echinata* auct. (non Lam. s.str., nom. illeg.) – *FAe:* 130.

5 *(10993),* 8. – H.

24. Paronychia macrosepala Boiss. – *FAe:* 130; *FE* 1: 150, in obs.; *FT* 2: 254.
– *P. capitata* sensu *FAe:* 150 (non (L.) Lam.: cf. Candollea 20: 172-178. 1965).

3 *(10930),* 4, 5, 8. – G, H, I.

25. Polycarpon tetraphyllum (L.) L. subsp. **alsinifolium** (Biv.) Ball
≡ *P. alsinifolium* (Biv.) DC. – *FE* 1: 153; *FK:* 38.
≡ *P. tetraphyllum* var. *alsinifolium* (Biv.) Arcangeli ex Briq. – *FAe:* 132.
– *P. tetraphyllum* sensu *FT* 2: 96, partim.

3 *(10967).* – O.

The plants resemble subsp. *alsinifolium* in habit, ecology and flower size, but approach subsp. *tetraphyllum* by the reduced number of stamens (± 3) and the punctulate, 0.5 mm long seeds.

26. Spergularia salina J. & C. Presl – *FAe:* 132; *FK:* 38.
= *S. marina* (L.) Griseb. – *FE* 1: 155; *FT* 2: 94.

1 *(10868).* – D.

27. Spergularia bocconei (Scheele) Ascherson & Graebner – *FE* 1: 156; *FK:* 39; *FT* 2: 95.
= *S. atheniensis* Ascherson – *FAe:* 133.
– *S. rubra* sensu *FAe:* 133, saltem partim (non (L.) J. & C. Presl).

1 *(10791, 10866).* – A, D.

28. Sagina maritima G. Don – *FAe:* 142; *FE* 1: 148; *FK:* 40; *FT* 2: 91.

1 *(10761).* – Between stones around the cistern.

29. Cerastium glomeratum Thuill. – *FAe:* 146; *FE* 1: 144; *FK:* 40; *FT* 2: 82.

1 *(10783),* 4. – F, G.

30. Cerastium comatum Desv. – *FAe:* 146.
≡ *C. illyricum* subsp. *comatum* (Desv.) P. D. Sell & Whitehead – *FE* 1: 142; *FT* 2: 85.

4 *(10985),* 5 *(10994),* 8. – H.

No. *10985* corresponds to var. **congestum** Lonsing, the other plants to var. **comatum**. These two variants, defined exclusively by pedicel length which is a variable character throughout the range of the species, hardly deserve taxonomic recognition.

31. Stellaria pallida (Dumort.) Piré – *FE* 1: 134; *FK:* 41.
≡ *S. media* subsp. *pallida* (Dumort.) Ascherson & Graebner – *FAe:* 149; *FT* 2: 70.

1 *(10771).* – B.

32. Petrorhagia velutina (Guss.) P. W. Ball & Heywood – *FE* 1: 188; *FK:* 41; *FT* 2: 135.
≡ *Kohlrauschia velutina* (Guss.) Reichenb. – *FAe:* 151.

3 *(10919),* 7. – H.

33. Velezia quadridentata Sm. – *FAe:* 160; *FE* 1: 204; *FT* 2: 136.

8 *(11060).* – H.

34. Silene gallica L. – *FAe:* 167; *FE* 1: 179; *FK:* 42; *FT* 2: 238.

1 *(10770),* 4, 7. – G, H, M.

35. Silene nocturna L. – *FAe:* 167; *FE* 1: 179; *FK:* 42; *FT* 2: 237.

1 *(10861)*, 4. – F, G.

36. Silene colorata Poiret – *FAe:* 168; *FE* 1: 180; *FK:* 42; *FT* 2: 239.

1 *(10840)*, 4, 5, 7. – D, F, M, O.

37. Silene sedoides Poiret – *FAe:* 170; *FE* 1: 176; *FK:* 42; *FT* 2: 230.

2, 3 *(10886)*, 4, 7. – N, O.

38. Silene cretica L. – *FAe:* 171; *FE* 1: 176; *FT* 2: 232.

1 *(10838)*. – F.

39. Silene behen L. – *FAe:* 171; *FE* 1: 177; *FT* 2: 231.

2, 3 *(10902)*. – M.

40. Silene cythnia (Halácsy) Walters – *FE* 1: 164.
≡ *S. italica* var. *cythnia* Halácsy – *FAe:* 173.

8 *(11043)*. – K.

S. cythnia was described at varietal level by Halácsy in 1900, on the basis of a gathering made by Tuntas on Kithnos, in 1892. Heldreich, who distributed Tuntas' exsiccata, had immediately realized their specific distinctness from both *S. italica* (L.) Pers. and *S. sieberi* Fenzl and proposed the manuscript name *S. cythnia.* While preparing the *FE* account of *Silene,* Walters rightly accepted Heldreich's view and validated his binomial.

A large material of *S. cythnia* was collected in recent years by Runemark and his staff on several Aegean islands, and was generously put at my disposal for study. The main characters constantly distinguishing *S. cythnia* from *S. italica* and related taxa appear to be: an eglandular calyx which is glabrous except for the marginal ciliation of its teeth (always glandular-pubescent in *S. italica*) and expanded, large, broadly obovate petal limbs which are bright pink inside, pale pink with a darker venation outside (incurved, narrower and dirty white in *S. italica*). Less reliable characters are the mat-forming growth, owing to decumbent, non-rooting, perennating shoots; the few-flowered, often asymmetrical inflorescence; and the usually acute, relatively narrow calyx teeth. As noticed already by Walters, *S. goulimyi* Turrill, a rare stenendemic species from the Taijetos range in Laconia (Peloponnesus), shares all these diagnostic features with *S. cythnia,* from which it may be distinguished chiefly by a higher degree of lignification, by shorter carpophores (up to 4 mm) and calyces (up to 13 mm) and by somewhat narrower capsules. For the time being, it seems advisable to keep these two taxa distinct at specific level, though stressing their close affinity and the parallelism of their distributional pattern with that of the species pair *Achillea taygetea* Boiss. & Heldr. (restricted to Mt. Taijetos) and *A. aegyptiaca* L. (endemic to the Cyclades).

The variability of *S. cythnia* is relatively weak. A single specimen from Paros *(Runemark & Bentzer 24492)* has some of the calyces pubescent along the main nerves and on the back of the teeth. This pubescence is eglandular, the hairs

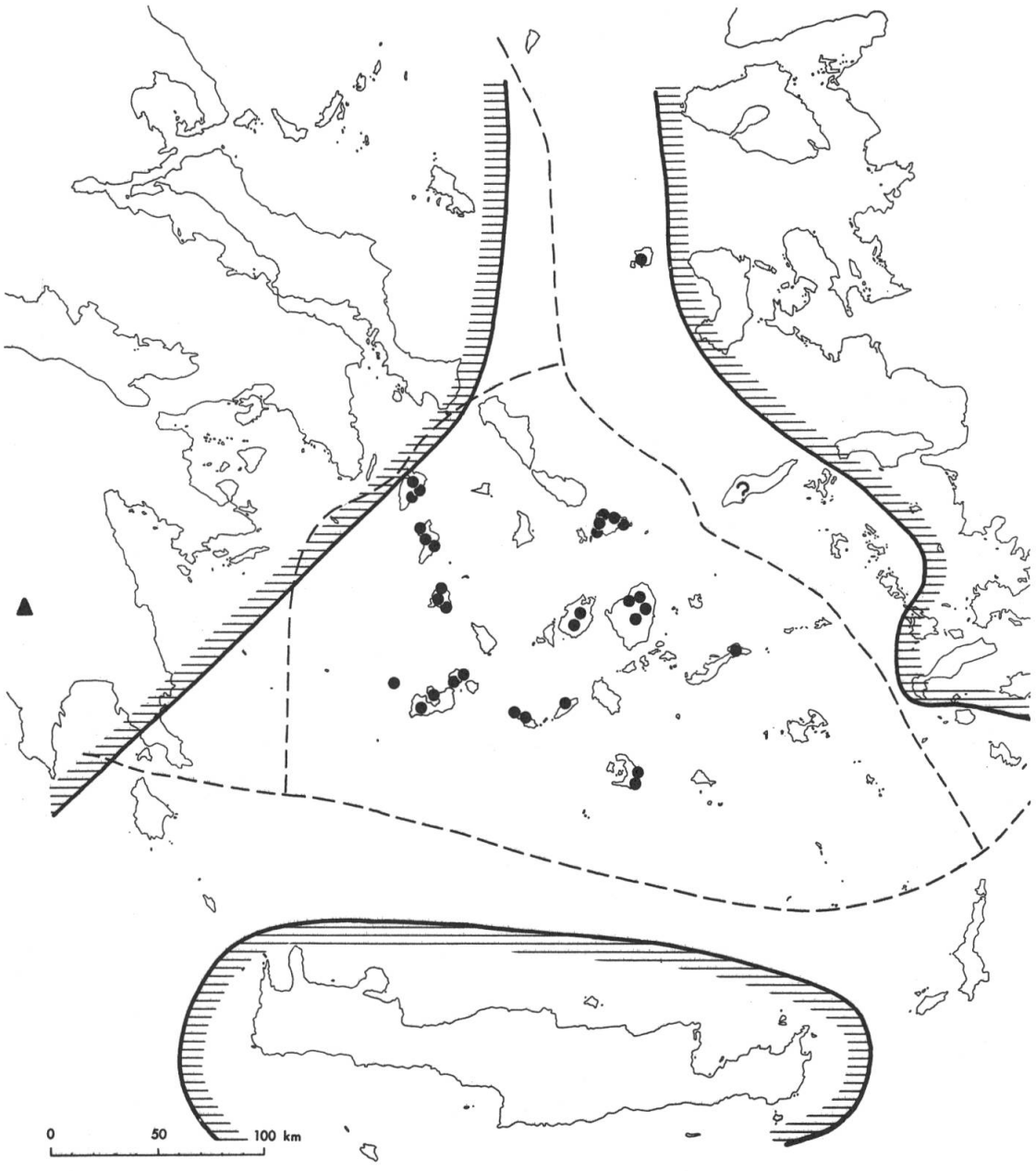

Fig. 2. – Map showing the total distribution of *Silene cythnia* (dots, based on checked herbarium specimens) and *S. goulimyi* (triangle). The hachured contours delimite the area of *S. italica* and, for Crete, *S. sieberi;* the broken line denotes the phytogeographic subdivision of the Aegean as proposed by Rechinger *(FAe).*

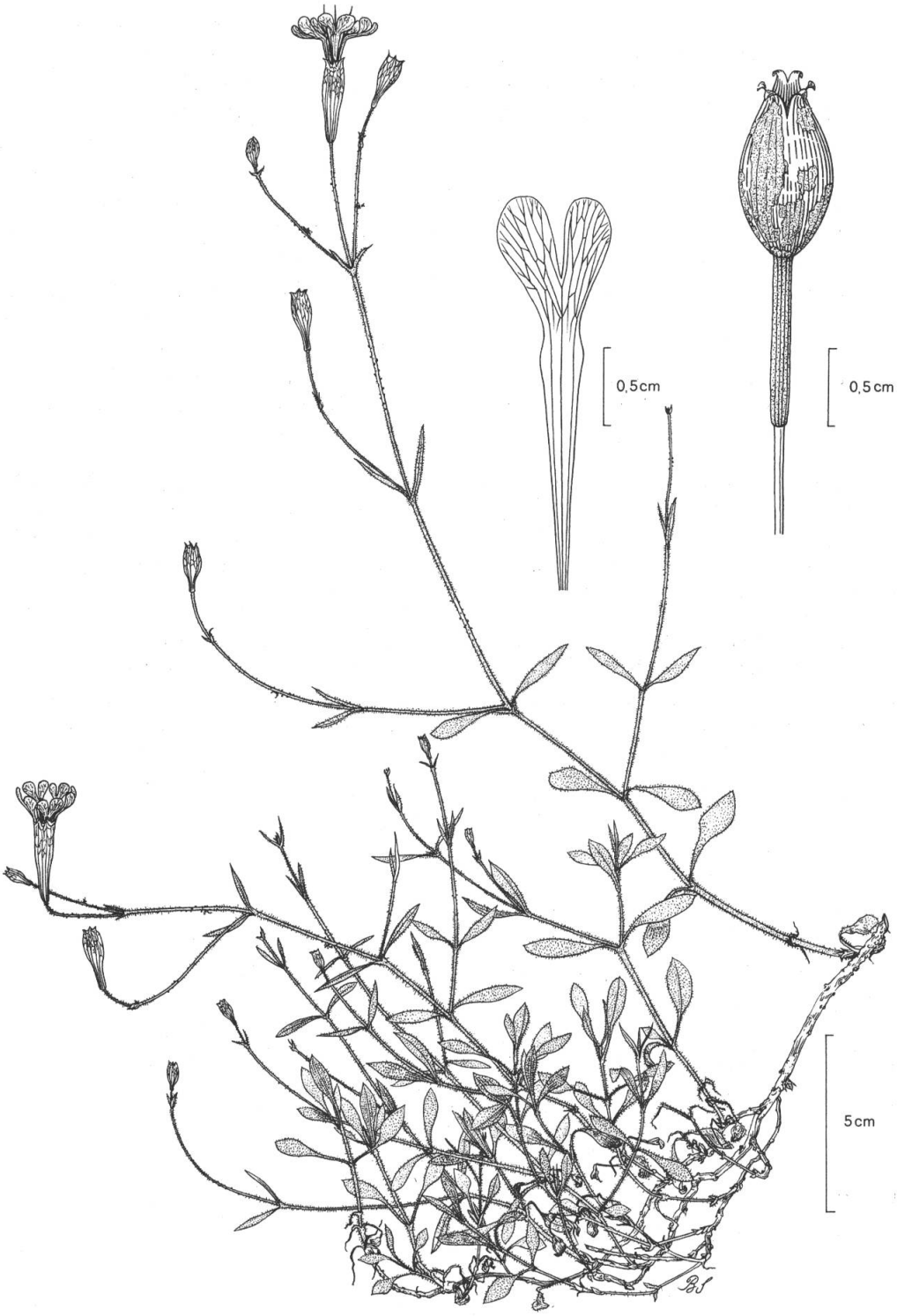

Fig. 3. – *Silene cythnia:* habit and, enlarged, petal and previous year's capsule. Drawn from the specimen *Greuter 11043* collected on Psara (original drawing by B. Struchen, reproduced by courtesy of the Goulandris Natural History Museum, Kifisia, Greece).

being similar to the marginal cilia but quite different from the glandular hairs found in *S. italica.* Apart from this casual deviation, one might mention the unusually short carpophores and calyces characterizing the whole population of the island of Naxos: 4.5-7 mm (carpophore) and 14.5-20 mm (calyx), as compared to usual values of 8-10 mm and 20-24 mm, respectively, on other islands. But if individual measures rather than average values are compared, the figures overlap considerably and do not warrant the recognition of distinct taxa.

The overall distributional picture is that *S. italica* occurs in continental Greece and Anatolia and on many of the marginal Aegean islands (W., N., N.E. and E. Aegean regions), being replaced in Crete (S. Aegean) by *S. sieberi* which is hardly distinct at species level; while the Central Aegean area is the domain of *S. cythnia* (see map, fig. 2). This distributional pattern coincides remarkably well with Rechinger's phytogeographical subdivision of the Aegean, and is particularly illustrative of what has been called the "Cycladean gap" distribution type. However, the neatness of the picture is affected by two major anomalies.

- A single occurrence of genuine *S. italica* is known on Naxos (Mt. Fanari, *Runemark & Snogerup 11917,* confirming an earlier record by Rechinger in *FAe*), where it coexists with *S. cythnia.* It may be noted that, in spite of this sympatric occurrence, the morphological boundaries between the species are by no means blurred.
- The occurrence of *S. cythnia* in an absolutely typical form (fig. 3), on Psara, extends its range to the *FT* area and, phytogeographically, to Asia. One may add that a sterile specimen from Ikaria *(Runemark & Snogerup 12622),* which cannot be identified with certainty, might just possibly belong to *S. cythnia* rather than to *S. italica.*

Ranunculaceae

41. Delphinium peregrinum L. – *FAe:* 180; *FE* 1: 215; *FT* 1: 117.

Werner!

42. Anemone coronaria L. – *FAe:* 182; *FE* 1: 219; *FT* 1: 136.

6 *(11030).* – H.

43. Ranunculus paludosus Poiret – *FE* 1: 231; *FK:* 44; *FT* 1: 171.
= *R. flabellatus* Desf. – *FAe:* 189.

3. – H.

44. Ranunculus muricatus L. – *FAe:* 193; *FE* 1: 230; *FK:* 44; *FT* 1: 189.

1 *(10767).* – Wet places around the cistern.

Papaveraceae

45. Glaucium flavum Crantz – *FAe:* 196; *FE* 1: 251; *FK:* 44; *FT* 1: 216.

9. – A.

46. Papaver rhoeas L. – *FAe:* 198; *FE* 1: 248; *FK:* 45; *FT* 1: 231.

1 *(10778, 10793),* 5, 7. – D, F, G, M.

Meagre individuals, as sampled in no. *10793,* have small flowers lacking the black basal blotch on the petals, having red instead of blackish violet filaments and a reduced number of stigmatic lobes (7-10 instead of 10-11). Both forms grow side by side in a single population and are connected by intermediates. They are of no taxonomic value.

47. Papaver hybridum L. – *FAe:* 200; *FE* 1: 249; *FK:* 45; *FT* 1: 235.

1 *(10779).* – C.

48. Hypecoum procumbens L. – *FAe:* 201; *FE* 1: 252; *FK:* 45; *FT* 1: 236.

1 *(10772),* 3. – C, M, O.

The correlation of the characters supposed to separate this species from *H. imberbe* Sm. (*H. grandiflorum* Bentham) is very poor!

49. Fumaria judaica Boiss. – *FAe:* 203; *FE* 1: 256; *FT* 1: 244.

1 *(10760).* – B, C.

50. Fumaria bastardii Boreau – *FAe:* 203; *FE* 1: 257; *FT* 1: 245.

1 *(10836).* – B, C.

51. Fumaria densiflora DC. – *FE* 1: 257; *FT* 1: 245.
≡ *F. officinalis* var. *densiflora* (DC.) Parl. – *FAe:* 205.

1 *(10780).* – C.

Capparaceae

52. Capparis spinosa L. subsp. **rupestris** (Sm.) Nyman – *FK:* 46.
≡ *C. rupestris* Sm. – *FAe:* 205.
= *C. spinosa* var. *inermis* (Turra) Fiori (≠ Pers., nom. nud.; ≠ Moris, nom. illeg.). – *FE* 1: 259, in obs.; *FT* 1: 496.

6. – A single, inaccessible tuft in schistous, barren coastal cliffs.

Cruciferae

53. Sisymbrium orientale L. – *FAe:* 206; *FE* 1: 265; *FK:* 46; *FT* 1: 484.

1 *(10769).* – B, F.

54. Sisymbrium officinale (L.) Scop. – *FE* 1: 266; *FK:* 46; *FT* 1: 483.
≡ *Chamaeplium officinale* (L.) Wallr. – *FAe:* 207.

3 *(10943).* – A, F.

55. Malcolmia flexuosa (Sm.) Sm. subsp. **naxensis** (Rech. fil.) Stork – Tax. & nom.: Stork in Opera Bot. 33. 1972.
≡ *M. flexuosa* var. *naxensis* (Rech. fil.) Rech. fil. – *FAe:* 216.
– *M. flexuosa* auct. (non (Sm.) Sm. s.str.) – *FAe:* 216, partim; *FE* 1: 278, partim; *FK:* 48; *FT* 1: 461, partim.

6 *(11029)*. – N.

56. Matthiola sinuata (L.) R. Br. subsp. **glandulosa** (Vis.) Vierh. – *FAe:* 219; *FK:* 50.
– *M. sinuata* auct. (non (L.) R. Br. s.str.) – *FAe:* 218; *FE* 1: 280, partim; *FT* 1: 488.

8 *(11045)*. – K.

57. Matthiola tricuspidata (L.) R. Br. – *FAe:* 219; *FE* 1: 280; *FT* 1: 449.

3 *(10968)*, 5, 7. – O, P.

58. Alyssum umbellatum Desv. – *FAe:* 224; *FE* 1: 300; *FT* 1: 379.

1 *(10854)*, 8. – H, I.

59. Clypeola jonthlaspi L. – *FAe:* 228, incl. var.; *FE* 1: 307; *FT* 1: 410.
= (incl.) *C. microcarpa* Moris – *FAe:* 228, incl. var.

3 *(10953)*. – H.

60. Brassica cretica Lam. – *FAe:* 232, incl. var.; *FE* 1: 337; *FK:* 52; *FT* 1: 264.

8 *(11044)*. – K.

61. Sinapis arvensis L. – *FAe:* 233; *FE* 1: 339; *FT* 1: 266.

1 *(10870)*. – C.

62. Hirschfeldia incana (L.) Lagrèze-Fossat – *FAe:* 234; *FE* 1: 342; *FK:* 52; *FT* 1: 267.

1 *(10768)*. – A, F.

63. Cakile maritima Scop. – *FAe:* 235; *FE* 1: 343, incl. subsp.; *FK:* 52; *FT* 1: 275.

3 *(10971)*, 5, 7. – O, P.

64. Raphanus raphanistrum L. – *FAe:* 237; *FE* 1: 346; *FT* 1: 270.

1 *(10869)*, 9. – A, C.

My specimens agree fairly well with subsp. **raphanistrum**, as defined and keyed out in *FE*, although the petal size is at the upper limit and the seed number (2-5 per lomentum) is unusually low. Those two deviating features point to subsp. *rostratus* (DC.) Thell., to which the Psara plants may be somewhat transitional. The petal colour is pale yellow, with a violet venation which is sometimes lacking.

65. Cardaria draba (L.) Desv. – *FAe:* 239; *FE* 1: 333; *FT* 1: 285, incl. subsp.

1 *(10864).* – F.

66. Biscutella didyma L. – *FE* 1: 329; *FK* 53; *FT* 1: 314.
= *B. ciliata* DC. – *FAe:* 239, incl. var.

3, 4 *(10950),* 5, 8. – G, H.

67. Capsella rubella Reuter – *FAe:* 244; *FE* 1: 316; *FK:* 53; *FT* 1: 344.

1 *(10830),* 4. – F, G.

Resedaceae

68. Reseda lutea L. – *FAe:* 246; *FE* 1: 348; *FK:* 53; *FT* 1: 502, incl. var.

1 *(10863).* – A, F.

Cistaceae

69. Cistus creticus L. – *FK:* 53, incl. var.; *FT* 1: 507.
– *C. villosus* auct. (vix L.) – *FAe:* 247, incl. subsp.
– *C. incanus* auct. (an L.?) – *FE* 2: 283, incl. subsp.

Werner!; 3 *(10958),* 5. – H.

All specimens belong to var. **creticus** – *FK:* 53 (≡ *C. villosus* subsp. *creticus* (L.) Arcangeli – *FAe:* 247 ≡ *C. incanus* subsp. *creticus* (L.) Heywood – *FE* 2: 283).

70. Tuberaria guttata (L.) Fourr. – *FAe:* 249, incl. f.; *FE* 2: 286; *FK:* 54; *FT* 1: 523, incl. var.

3 *(10935),* 5, 8. – H.

My gathering comprises plants of both f. **guttata** and f. **clandestina** Vierh. – *FAe:* 249 (≡ var. *clandestina* (Vierh.) Davis & Coode – *FT* 1: 523). It is doubtful whether these forms deserve taxonomic recognition.

71. Helianthemum salicifolium (L.) Miller – *FAe:* 250; *FE* 2: 289; *FK:* 55; *FT* 1: 516.

6 *(11025).* – H.

72. Fumana arabica (L.) Spach – *FAe:* 252; *FE* 2: 291; *FK:* 58; *FT* 1: 518.

5 *(10999).* – H.

Frankeniaceae

73. Frankenia hirsuta L. – *FAe:* 258, incl. var.; *FE* 2: 295; *FK:* 59; *FT* 2: 352.

4, 7 *(11065).* – N.

Cucurbitaceae

74. Ecballium elaterium (L.) A. Richard – *FAe:* 259; *FE* 2: 297; *FK:* 60; *FT* 4: 203.

9. – A.

Hypericaceae

75. Hypericum triquetrifolium Turra – *FE* 2: 269; *FK:* 61; *FT* 2: 400.
≡ *H. crispum* L., nom. illeg. – *FAe:* 263.

Werner!; 1 *(11067),* 3. – B, F, M.

Malvaceae

76. Malva cretica Cav. – *FAe:* 266; *FE* 2: 250; *FK:* 61; *FT* 2: 405.

3 *(10952).* – H.

77. Malva sylvestris L. – *FAe:* 267, incl. var.; *FE* 2: 250; *FK:* 61; *FT* 2: 406.
= *M. ambigua* Guss. – *FAe:* 267, incl. var.

Werner!; 1 *(11035).* – A, B.

My specimens belong to the variant with hairy mericarps (var. **incanescens** Griseb. – *FAe:* 267; *FK:* 61) which is by far the commonest form occurring in the Aegean area.

78. Malva parviflora L. – *FAe:* 268; *FE* 2: 251; *FK:* 62; *FT* 2: 407.

1 *(10847),* 9. – A.

Linaceae

79. Linum trigynum L. – *FE* 2: 210; *FT* 2: 436.
≡ *L. gallicum* L., nom. illeg. – *FAe:* 272.

3 *(10934),* 5. – H.

80. Linum strictum L. subsp. **spicatum** (Pers.) Nyman – *FK:* 62.
≡ *L. strictum* var. *spicatum* Pers. – *FAe:* 272; *FT* 2: 437.
– *L. strictum* subsp. *strictum* sensu *FE* 2: 210, partim (non *L. strictum* L. s.str.).

1 *(11019),* 8. – G, H.

81. Linum bienne Miller – *FE* 2: 209; *FK:* 62; *FT* 2: 447.
= *L. angustifolium* Hudson – *FAe:* 274.

1 *(10816).* – F, G.

Oxalidaceae

* **Oxalis pes-caprae** L. – *FE* 2: 193; *FK:* 63; *FT* 2: 488.
= *O. cernua* Thunb. – *FAe:* 274.

1 *(10814).* – Introduced from S. Africa and naturalized.

Geraniaceae

82. **Geranium molle** L. – *FAe:* 276; *FE* 2: 198; *FT* 2: 459 (excl. subsp.).

1 *(10765),* 4. – F, G.

83. **Geranium dissectum** L. – *FAe:* 276; *FE* 2: 198; *FT* 2: 461.

1 *(10817).* – E.

84. **Erodium gruinum** (L.) L'Hér. – *FAe:* 279; *FE* 2: 201; *FK:* 63; *FT* 2: 478.

1 *(11006).* – F.

85. **Erodium moschatum** (L.) L'Hér. – *FAe:* 280; *FE* 2: 203; *FT* 2: 486.

1 *(11007).* – F.

86. **Erodium cicutarium** (L.) L'Hér. – *FAe:* 281; *FE* 2: 202 (excl. subsp.); *FK:* 64; *FT* 2: 485 (excl. subsp.).

4 *(10977).* – G.

Crassulaceae

87. **Sedum litoreum** Guss. – *FAe:* 293; *FE* 1: 362; *FK:* 69; *FT* 4: 239.

3 *(10964),* 6, 7. – I, N.

88. **Sedum rubens** L. – *FAe:* 294; *FE* 1: 363; *FK:* 69; *FT* 4: 243.

8 *(11056).* – H.

89. **Umbilicus horizontalis** (Guss.) DC. – *FE* 1: 352; *FK:* 69; *FT* 4: 213 (excl. var.).
≡ *Cotyledon horizontalis* Guss. – *FAe:* 295.

3 *(10942).* – B, J.

90. **Umbilicus rupestris** (Salisb.) Dandy – *FE* 1: 352; *FT* 4: 212.
= *Cotyledon pendulinus* (DC.) Batt. – *FAe:* 296.

3 *(10954).* – I.

On one spot, the two species were growing side by side, looking perfectly distinct though very similar. A single plant *(Greuter 10954 a)* was morphologically intermediate and corresponds, in all probability, to the hybrid *U. horizontalis* x *rupestris.*

Rosaceae

91. Sanguisorba minor Scop. subsp. **verrucosa** (Decne) Holmboe – *FK:* 70.
≡ *S. verrucosa* (Decne) A. Braun & Bouché – *FAe:* 304.
= *S. minor* subsp. *magnolii* (Spach) Briq. – *FE* 2: 34; *FT* 4: 79.

1 *(11018)*. – F, G.

92. Sarcopoterium spinosum (L.) Spach – *FE* 2: 34; *FK:* 70; *FT* 4: 76.
≡ *Poterium spinosum* L. – *FAe:* 304.

1 *(11021)*, 2, 3, 5, 6, 7. – G, H, M.

93. Pyrus spinosa Forsskål – *FK:* 71.
= *P. amygdaliformis* Vill. – *FAe:* 309; *FE* 2: 66; *FT* 4: 163.

1-2 *(11042)*. – G.

Leguminosae

94. Anagyris foetida L. – *FAe:* 314; *FE* 2: 85; *FK:* 72; *FT* 3: 12.

1, 2 *(10879)*. – G.

95. Astragalus hamosus L. – *FAe:* 317; *FE* 2: 113; *FK:* 72; *FT* 3: 67.

1 *(10827)*. – F.

96. Biserrula pelecinus L. – *FAe:* 320; *FE* 2: 127; *FT* 3: 48.

1 *(10828)*. – F.

97. Psoralea bituminosa L. – *FAe:* 321; *FE* 2: 127; *FK:* 72; *FT* 3: 264.

2 *(10915)*, 5, 7. – G, H, M.

98. Vicia lathyroides L. – *FAe:* 325; *FE* 2: 135; *FT* 3: 317.

3 *(10922)*. – H.

99. Vicia lutea L. var. **hirta** (Balbis) Loisel. – *FAe:* 325; *FT* 3: 311.
– *V. lutea* subsp. *lutea* sensu *FE* 2: 135, partim.

1 *(10862)*. – C.

100. Vicia sativa L. – *FAe:* 326, incl. subsp.; *FE* 2: 134, incl. subsp.; *FT* 3: 318, incl. subsp.

1 *(10834)*, 3 *(10948)*, 5. – C, F, H.

No. *10834* belongs to subsp. **sativa** – *FE* 2: 135; *FT* 3: 319 *(V. sativa* sensu *FK:* 72; *V. sativa* subsp. *notata* Ascherson & Graebner – *FAe:* 326, excl. var. *macrocarpa)*, which is frequently cultivated and subspontaneous. No. *10948* is subsp. **nigra** (L.) Ehrh. – *FE* 2: 134; *FT* 3: 319, incl. var. (*V. sativa* subsp. *angustifolia* (L.) Ascherson & Graebner – *FAe:* 327, incl. var.).

101. Vicia hybrida L. – *FAe:* 327, incl. var.; *FE* 2: 135; *FK:* 73; *FT* 3: 314.

1 *(10799)*, 4, 7. – F, G.

102. Vicia bithynica (L.) L. – *FAe:* 328; *FE* 2: 135; *FT* 3: 321.

1 *(10782)*. – F.

103. Vicia eriocarpa (Hausskn.) Halácsy – *FAe:* 329.
≡ *V. villosa* subsp. *eriocarpa* (Hausskn.) P. W. Ball – *FE* 2: 132; *FT* 3: 292.

2 *(10901)*, 5. – G, H.

104. Vicia microphylla Urv. – *FAe:* 329; *FK:* 73.
≡ *V. villosa* subsp. *microphylla* (Urv.) P. W. Ball – *FE* 2: 132; *FT* 3: 292.

2 *(10878)*, 4. – G, H.

Seems perfectly distinct from the foregoing species by its few-flowered, lax racemes and relatively big, blue-violet flowers. No transitional forms have been observed.

105. Vicia cretica Boiss. & Heldr. – *FAe:* 330; *FE* 2: 132 (excl. subsp.); *FK:* 73, incl. var.; *FT* 3: 294.
= *V. spruneri* Boiss. – *FAe:* 330.

2 *(10884)*, 5. – H.

106. Lathyrus aphaca L. – *FAe:* 334; *FE* 2: 143; *FK:* 73; *FT* 3: 367, incl. var.

1 *(10766)*. – F.

According to the treatment in *FT*, my plants belong to var. **affinis** (Guss.) Arcangeli.

107. Lathyrus clymenum L. – *FAe:* 334, incl. var.; *FE* 2: 142; *FK:* 73, incl. subsp.; *FT* 3: 365.
= *L. articulatus* L. – *FE* 2: 142.

2 *(10883)*, 4, 8. – G, H.

The specimen is intermediate between the traditionally recognized "species" *L. clymenum* and *articulatus*, having the blunt style, dorsally unchannelled legume and narrow leaflets of the latter, but the blue-violet wings and emarginate standard of the former.

* **Lathyrus ochrus** (L.) DC. – *FAe:* 335; *FE* 2: 142; *FK:* 74; *FT* 3: 365.

1 *(11023)*. – Cultivated, perhaps occasionally subspontaneous.

108. Lathyrus cicera L. – *FAe:* 335; *FE* 2: 142; *FK:* 74; *FT* 3: 358.

1 *(10785)*. – F.

109. Lathyrus annuus L. – *FAe:* 335; *FE* 2: 142; *FK:* 74; *FT* 3: 356.

1 *(10893)*, 2. – F, M.

110. Trigonella balansae Boiss. & Reuter – *FAe:* 344; *FE* 2: 151; *FT* 3: 460.
= *T. corniculata* L. subsp. *corniculata,* nom. ambig. – *FK:* 77.
1 *(10859),* 5, 7. – F, M, N, O.

111. Trigonella monspeliaca L. – *FAe:* 346; *FE* 2: 152; *FK:* 78; *FT* 3: 476.
4 *(10979).* – G.

112. Medicago marina L. – *FAe:* 348; *FE* 2: 156; *FK:* 78; *FT* 3: 501.
2 *(10887),* 5, 7. – P.

113. Medicago orbicularis (L.) Bartal. – *FAe:* 349; *FE* 2: 155; *FK:* 79; *FT* 3: 486.
1 *(10831).* – F.

114. Medicago polymorpha L. – *FE* 2: 156; *FT* 3: 499, incl. var.
= *M. nigra* (L.) Krocker – *FK:* 79
≡ *M. hispida* Gaertner, nom. illeg. – *FAe:* 349, incl. var.
1 *(10807).* – F.

115. Medicago praecox DC. – *FAe:* 350; *FE* 2: 157; *FT* 3: 497.
4 *(10988),* 8, – G, H.

116. Medicago disciformis DC. – *FAe:* 350; *FE* 2: 157; *FK:* 80; *FT* 3: 498.
3 *(10963),* 4, 8. – G, H.

117. Medicago coronata (L.) Bartal. – *FAe:* 350; *FE* 2: 157; *FK:* 80; *FT* 3: 496.
3 *(10962),* 8. – H.

118. Medicago truncatula Gaertner – *FE* 2: 157; *FK:* 80; *FT* 3: 502, incl. var.
= *M. tribuloides* Desr. – *FAe:* 351, incl. var.
1 *(10786).* – F.

119. Medicago litoralis Loisel. – *FAe:* 351, incl. var.; *FE* 2: 156; *FK:* 80; *FT* 3: 502.
2 *(10885),* 7. – M, P.

120. Melilotus sulcata Desf. – *FAe:* 354; *FE* 2: 150; *FT* 3: 449.
1 *(10873).* – E.

121. Trifolium campestre Schreber – *FAe:* 358, incl. var.; *FE* 2: 166; *FK:* 81; *FT* 3: 404.
= *T. lagrangei* Boiss. – *FAe:* 360; *FE* 2: 165.
1 *(10808),* 4, 5, 7, – F, G, H, M.

122. Trifolium grandiflorum Schreber – Nom.: Stearn & Gruenberg-Fertig in Israel J. Bot. 21: 7-8. 1972.
= *T. speciosum* Willd. – *FAe: 359; FE* 2: 165; *FK:* 81; *FT* 3: 398.
3 *(10951).* – H.

123. Trifolium nigrescens Viv. subsp. **petrisavii** (G. C. Clementi) Holmboe – *FE* 2: 163; *FT* 3: 396.
≡ *T. petrisavii* G. C. Clementi – *FAe:* 360.
– *T. nigrescens* sensu *FAe:* 360, partim (non Viv. s.str.).
1 *(10809)*, 7. – F, M.

124. Trifolium glomeratum L. – *FAe:* 361; *FE* 2: 164; *FT* 3: 406.
1 *(10844)*. – F.

125. Trifolium uniflorum L. – *FAe:* 361, incl. var.; *FE* 2: 164; *FK:* 81; *FT* 3: 391.
2 *(10888)*, 4, 5, 7, – G, H.

126. Trifolium spumosum L. – *FAe:* 362; *FE* 2: 164; *FT* 3: 407.
1 *(10802)*. – F.

127. Trifolium resupinatum L. var. **microcephalum** Zoh. – *FT* 3: 412; tax.: Zohary & Heller in Israel J. Bot. 19: 314-335. 1970.
– *T. resupinatum* auct. partim (non L. s.str.) – *FAe:* 363, partim (excl. var.); *FE* 2: 165, partim.
– *T. resupinatum* var. *minus* auct. (non Boiss.) – *FK:* 82.
3 *(11034)*. – E.

128. Trifolium tomentosum L. – *FAe:* 363; *FE* 2: 165; *FK:* 82; *FT* 3: 413.
1 *(10803, 10804)*. – F.
Variable in calyx indumentum, which is evanescent in the first-named specimen.

129. Trifolium scabrum L. – *FAe:* 364; *FE* 2: 167; *FK:* 82; *FT* 3: 428.
1 *(10824)*, 5, 7. – F, G, M.

130. Trifolium arvense L. – *FAe:* 365; *FE* 2: 167; *FK:* 82; *FT* 3: 431 (excl. var.).
3 *(11033)*, 7. – G, H.

131. Trifolium stellatum L. – *FAe:* 366; *FE* 2: 168; *FK:* 82; *FT* 3: 424 (excl. var.).
1 *(10833)*, 4, 5. – F, G, H.

132. Trifolium infamia-ponertii Greuter, **nom. nov.**[1]
≡ *T. intermedium* Guss., Cat. Pl. Boccad.: 82. 1821 (non Lapeyr. 1813), nom. illeg. – *FE* 2: 170, in obs.; *FK:* 82.
≡ *T. angustifolium* var. *intermedium* Gib. & Belli – *FAe:* 367; *FT* 3: 434.
≡ *T. angustifolium* subsp. *intermedium* (Gib. & Belli) Ponert.
2 *(10908)*, 5, 7. – G, M.

[1] Nomen inventorem rationis plantas nunquam visas denominandas commemorat (cf. Ponert in Feddes Repert. 83: 617-644. 1973; Huber-Morath in Bauhinia 5: 153-159. 1975).

133. Trifolium sylvaticum Loisel. – *FT* 3: 425; nom.: Zohary in Candollea 27: 132-133. 1972.
= *T. smyrnaeum* Boiss. – *FAe:* 367; *FE* 2: 171.

8 *(11058).* – H.

134. Trifolium cherleri L. – *FAe:* 367; *FE* 2: 169; *FT* 3: 431.

3, 8 *(10921).* – H.

135. Trifolium subterraneum L. – *FAe:* 368; *FE* 2: 172; *FK:* 82, incl. var.; *FT* 3: 446.

3 *(10918).* – H.

136. Lotus peregrinus L. – *FAe:* 371; *FE* 2: 176; *FK:* 83; *FT* 3: 522.

2 *(10903).* – M.

137. Lotus halophilus Boiss. & Spruner – *FE* 2: 176; *FK:* 83; *FT* 3: 522.
= *L. villosus* Forsskål (non Burm. fil.), nom. illeg. – *FAe:* 371.

3, 7 *(10974).* – P.

138. Lotus cytisoides L. (saltem sensu auct.!) – *FE* 2: 176; *FT* 3: 521.
≡ *L. creticus* subsp. *cytisoides* (L.) Arcangeli – *FAe:* 371.
– *L. creticus* auct. (non L.) – *FK:* 83.

2 *(10906),* 4, 5, 7. – G, H, M, N.

139. Lotus edulis L. – *FAe:* 373; *FE* 2: 175; *FK:* 84; *FT* 3: 520.

2 *(10904),* 7. – M.

140. Tetragonolobus purpureus Moench – *FE* 2: 177; *FK:* 84; *FT* 3: 532.
≡ *Lotus tetragonolobus* L. – *FAe:* 374.

1 *(10800).* – F.

141. Hymenocarpos circinnatus (L.) Savi – *FAe:* 374; *FE* 2: 177; *FK:* 84; *FT* 3: 533.

1 *(10843),* 5, 7, 8. – F, G, H, M.

142. Anthyllis hermanniae L. – *FAe:* 375; *FE* 2: 178; *FK:* 84; *FT* 3: 534.

6 *(11031).* – H.

143. Anthyllis vulneraria L. subsp. **rubriflora** (DC.) Arcangeli – *FK:* 84.
= *A. spruneri* (Boiss.) G. Beck – *FAe:* 375.
= *A. vulneraria* subsp. *praepropera* (A. Kerner) Bornm. – *FE* 2: 181; *FT* 3: 536.

5 *(10997).* – H.

The plants belong to the widespread variant: short-lived perennials with appressed indumentum on the lower stem internodes, as contrasting with typical *A. spruneri* which is an annual with spreading-pubescent stem bases (cf. *FK*).

144. Lupinus angustifolius L. – *FAe:* 377; *FE* 2: 105; *FT* 3: 39.

1 *(10781).* – C, F.

145. Calicotome villosa (Poiret) Link – *FAe:* 379; *FE* 2: 86; *FK:* 85; *FT* 3: 33.

3 *(10966),* 5, 8. – H.

146. Genista acanthoclada DC. – *FAe:* 380, incl. subsp.; *FE* 2: 100; *FK:* 85; *FT* 3: 31.

Werner!; 5. – H.

Werner's specimen belongs to subsp. **acanthoclada** (≡ subsp. *graeca* Vierh., nom. illeg. – *FAe:* 381).

147. Ornithopus compressus L. – *FAe:* 383; *FE* 2: 182; *FK:* 86; *FT* 3: 544.

1 *(10810).* – F.

148. Coronilla scorpioides (L.) Koch – *FAe:* 385; *FE* 2: 183; *FK:* 86; *FT* 3: 540.

1 *(10846).* – F.

149. Hippocrepis biflora Sprengel – Nom. & tax.: Domínguez in Lagascalia 5: 225-261. 1976.
– *H. unisiliquosa* sensu L. et auct. partim (non L. s.str.) – *FAe:* 386, partim; *FE* 2: 185; *FK:* 87; *FT* 3: 547, partim.

1 *(11016).* – G.

150. Scorpiurus muricatus L. – *FAe:* 386, incl. var.; *FE* 2: 185; *FK:* 87, incl. var.; *FT* 3: 548.
= (incl.) *S. subvillosus* L. – *FAe:* 386; *FK:* 87.
= (incl.) *S. sulcatus* L. – *FAe:* 387.

1 *(10865),* 3. – D, H.

My specimens correspond to var. **muricatus**, while the plants observed in (3) belong to var. **subvillosus** (L.) Fiori.

151. Onobrychis aequidentata (Sm.) Urv. – *FAe:* 389, incl. subsp.; *FE* 2: 191; *FK:* 87; *FT* 3: 565.

2 *(10898).* – M.

152. Onobrychis caput-galli Lam. – *FAe:* 390; *FE* 2: 191; *FK:* 88; *FT* 3: 565.

1 *(10851),* 2 *(10905).* – F, M.

Thymelaeaceae

153. Thymelaea hirsuta (L.) Endl. – *FAe:* 391; *FE* 2: 259.

1 *(11014),* 2, 3, 5, 7. – G, H, M.

Umbelliferae

154. Eryngium maritimum L. – *FAe:* 398; *FE* 2: 322; *FT* 4: 294.

7. – P.

155. Eryngium campestre L. – *FAe:* 399, incl. var.; *FE* 2: 323; *FK:* 89; *FT* 4: 303, incl. var.

Werner (specimen deest); 5. – G.

156. Lagoecia cuminoides L. – *FAe:* 400; *FE* 2: 324; *FK:* 89; *FT* 4: 304.

3 *(10925)*, 4, 7, 8. – G, H, M.

157. Ammi majus L. – *FAe:* 404, incl. var.; *FE* 2: 353; *FK:* 90; *FT* 4: 427.

Werner!

158. Crithmum maritimum L. – *FAe:* 408; *FE* 2: 333; *FK:* 90; *FT* 4: 367.

4, 8. – K, N.

159. Tordylium apulum L. – *FAe:* 414; *FE* 2: 367; *FK:* 90; *FT* 4: 505.

1 *(10829)*, 4, 5, 7. – F, G, M.

160. Pseudorlaya pumila (L.) Grande – *FE* 2: 375; *FK:* 91; *FT* 4: 536.
≡ *Daucus pumilus* (L.) Hoffmannsegg & Link – *FAe:* 415.

3 *(10972)*, 7. – P.

161. Daucus involucratus Sm. – *FAe:* 416: *FE* 2: 374; *FK:* 91; *FT* 4: 534.

8 *(11059)*. – H.

162. Daucus carota L. subsp. **maximus** (Desf.) Ball – *FAe:* 417; *FE* 2: 374; *FK:* 92; *FT* 4: 532, in obs. sub "group D".

Werner (specimen deest); 1-2 *(11036)*. – M.

My specimen is in flower, and the identification is tentative at subspecies level.

163. Torilis nodosa (L.) Gaertner – *FAe:* 419; *FE* 2: 371; *FK:* 93; *FT* 4: 519.

1 *(10795)*, 4. – F, G.

164. Scandix pecten-veneris L. – *FAe:* 422; *FE* 2: 327 (excl. subsp.); *FK:* 94; *FT* 4: 328.

1 *(10787)*. – C, F.

165. Scandix australis L. – *FAe:* 422, incl. subsp.; *FE* 2: 327 (excl. subsp.); *FK:* 94; *FT* 4: 329 (excl. subsp.).

3 *(10923)*. – H.

The plants agree with subsp. **australis** – *FK:* 94 (= subsp. *gallica* Vierh. – *FAe:* 422).

166. Scaligeria napiformis (Sprengel) Grande – *FK:* 94; *FT* 4: 334.
≡ *S. cretica* Boiss., nom. illeg. – *FAe:* 423; *FE* 2: 328 (excl. subsp.).

3 *(10959)*. – I.

167. Bifora testiculata (L.) Schultes – *FAe:* 426; *FE* 2: 328; *FT* 4: 332; cit.: Gruenberg-Fertig & Zohary in Israel J. Bot. 19: 302. 1970.

1 *(10815).* – C.

Plumbaginaceae

168. Limonium sinuatum (L.) Miller – *FAe:* 427, in obs.; *FE* 3: 40; *FK:* 96.
≡ *Statice sinuata* L. – *FAe:* 428.

1 *(10983),* 7. – D, M.

169. Limonium vulgare Miller subsp. **serotinum** (Reichenb.) Gams – *FE* 3: 42.
= *L. angustifolium* (Tausch) Turrill – *FAe:* 427, in obs.
≡ *Statice angustifolia* Tausch – *FAe:* 428.

Kato Nisi, *Runemark & Nordenstam 16905!* – N.

170. Limonium sieberi (Boiss.) O. Kuntze – *FAe:* 427, in obs.; *FK:* 97.
≡ *Statice sieberi* Boiss. – *FAe:* 429.
– *L. graecum* sensu *FE* 3: 46, partim (non (Poiret) O. Kuntze).

7 *(11049).* – N.

Ericaceae

171. Erica manipuliflora Salisb. – *FE* 3: 7; *FK:* 98 *("manipulifera").*
≡ *E. verticillata* Forsskål (non Bergius), nom. illeg. – *FAe:* 432.

7 *(11050).* – G.

Primulaceae

172. Asterolinon linum-stellatum (L.) Duby – *FAe:* 436; *FE* 3: 27; *FK:* 99.

3 *(10949),* 8. – H.

173. Anagallis arvensis L. – *FAe:* 436, incl. var.; *FE* 3: 28; *FK:* 99, incl. subsp.

1 *(10794, 10801),* 5, 7. – C, F, G, H, M.

No. *10801* is var. **arvensis** (≡ subsp. *arvensis* – *FK:* 99); no. *10794* is var. **caerulea** (L.) Gouan (subsp. *latifolia* sensu *FK:* 99, non (L.) Arcangeli s.str.; nom. & tax.: Kollmann, Feinbrun & Burtt in Notes Roy. Bot. Gard. Edinburgh 28: 173-186. 1968).

Convolvulaceae

174. Convolvulus oleifolius Desr. – *FAe:* 439; *FE* 3: 80; *FK:* 99.

5 *(10996).* – H.

175. Convolvulus arvensis L. – *FAe:* 440; *FE* 3: 81.

Werner (specimen deest); 3. – F, M.

176. Cuscuta palaestina Boiss. – *FE* 3: 76; *FK:* 100.
= *C. globularis* Bertol. – *FAe:* 443.

1-2 *(11041)*, 5. – G, H.

Boraginaceae

177. Anchusa hybrida Ten. – *FAe:* 448; *FK:* 101.
≡ *A. undulata* subsp. *hybrida* (Ten.) Coutinho – *FE* 3: 107.

Werner!

178. Myosotis congesta Shuttlew. – *FE* 3: 113; tax.: Blaise in Compt. Rend. Hebd. Séances Acad. Sci. 270: 502-505. 1970.
= *M. collina* var. *grandiflora* (Boiss.) Halácsy – *FAe:* 454.

3 *(10924)*. – H.

179. Neatostema apulum (L.) I. M. Johnston – *FE* 3: 86.
≡ *Lithospermum apulum* (L.) Vahl – *FAe:* 455; *FK:* 102.

3, 5 *(11000)*. – H.

180. Echium lycopsis L. – *FK:* 102.
= *E. plantagineum* L. – *FAe:* 459; *FE* 3: 99; nom.: Gibbs in Lagascalia 1: 57-61. 1971 (dissentio!).

1 *(10759)*, 5, 7, 9. – A, F, G, M.

181. Echium arenarium Guss. – *FAe:* 460; *FE* 3: 100; *FK:* 103.

2 *(10916)*. – M.

Solanaceae

182. Hyoscyamus albus L. – *FAe:* 461; *FE* 3: 195; *FK:* 103.

9. – A

183. Solanum nigrum L. – *FAe:* 463, incl. var.; *FE* 3: 197 (excl. subsp.).

3 *(11024)*. – L.

Scrophulariaceae

184. Verbascum lasianthum Bentham – *FAe:* 468; *FE* 3: 213.

Werner! (det. Murbeck); 1-2? (sterile). – G.

185. Misopates orontium (L.) Rafin. – *FE* 3: 224.
≡ *Antirrhinum orontium* L. – *FAe:* 472; *FK:* 105.

2, 3 *(10900)*, 8. – H, M.

186. Linaria pelisseriana (L.) Miller – *FAe:* 473; *FE* 3: 232.

3 *(10926)*, 8. – H.

187. Kickxia elatine (L.) Dumort. subsp. **crinita** (Mabille) Greuter – *FE* 3: 238; *FK:* 108.
= *Kickxia sieberi* (Reichenb.) Rech. fil. – *FAe:* 476.

1 *(10917)*. – F.

188. Scrophularia canina L. subsp. **bicolor** (Sm.) Greuter – *FE* 3: 220; *FK:* 109.
– *S. canina* auct. partim (non L. s.str.) – *FAe:* 480 (excl. subsp.).

3 *(10937)*. – L.

Orobanchaceae

189. Orobanche ramosa L. – *FAe:* 488; *FE* 3: 288 (excl. subsp.); *FK:* 110 (excl. var.).

3 *(10933)*. – H.

190. Orobanche nana (Reuter) G. Beck – *FAe:* 488.
≡ *O. ramosa* subsp. *nana* (Reuter) Coutinho – *FE* 3: 288.

1 *(10841)*, 2. – F, M.

191. Orobanche oxyloba (Reuter) G. Beck – *FAe:* 489; *FE* 3: 288.

7 *(11048)*. – M.

Admittedly one feels rather uneasy in maintaining those three sympatrically occurring variants (nos. 189-191, above), which are distinguished by minor flower characters only, as different species. However, the three looked distinct in the field (much more than now in the dried state). Furthermore, I am unable to agree with the treatment in *FE,* keeping *O. oxyloba* distinct while merging *O. nana* as a subspecies under *O. ramosa.* Rather than to propose yet another treatment resting on an inadequate base, I have preferred to adopt a conservative view, following Beck's classical monograph.

192. Orobanche pubescens Urv. – *FE* 3: 290; *FK:* 111.
= *O. versicolor* F. Schultz – *FAe:* 490.

3 *(10975)*, 7. – M, O.

193. Orobanche minor Sm. – *FAe:* 490; *FE* 3: 291; *FK:* 111.

1 *(11005)*, 2 *(10877)*. – G, M.

No. *10877* is a variant lacking anthocyanin, with pale yellow corolla and stigma, parasitizing *Onobrychis caput-galli* Lam.

Verbenaceae

194. Vitex agnus-castus L. – *FAe:* 492; *FE* 3: 122; *FK:* 111.

Werner (specimen deest); 3 *(10938).* – L.

Labiatae

195. Teucrium divaricatum Heldr. – *FAe:* 496, incl. subsp.; *FE* 3: 132, incl. subsp.; *FK:* 112, incl. var.

5, 8. – H.

The plants observed in (5) – and possibly also those in (8) – correspond to var. **humilius** (Bory & Chaub.) Greuter & Rech. fil. – *FK:* 113, as *"humilior"* (= subsp. *sieberi* (Čelak.) Holmboe – *FAe:* 497; subsp. *divaricatum* sensu *FE* 3: 132, non *T. divaricatum* Heldr. s.str.).

196. Teucrium polium L. – *FAe:* 500, incl. var.; *FE* 3: 134; *FK:* 113.

Werner!; 5. – H.

According to the *FE* treatment, the Aegean plants would all correspond to subsp. **capitatum** (L.) Arcangeli – *FE* 3: 134; but this appears to be rather an oversimplification in view of the extremely complex variation pattern of the species throughout the Mediterranean area.

197. Prasium majus L. – *FAe:* 501; *FE* 3: 137; *FK:* 113.

8 *(11062).* – H.

198. Marrubium vulgare L. – *FAe:* 505, incl. var.; *FE* 3: 138; *FK:* 114.

9 *(10987).* – A.

199. Lamium amplexicaule L. – *FAe:* 512; *FE* 3: 148 (excl. subsp.).

4 *(10982).* – G.

200. Ballota acetabulosa (L.) Bentham – *FAe:* 513; *FE* 3: 150; *FK:* 117.

Werner!; 1, 1-2 *(11037),* 3, 5, 6, 9. – A, F, G, H, M.

201. Stachys arvensis (L.) L. – *FAe:* 518; *FE* 3: 157.

8 *(11055).* – H.

202. Salvia verbenaca L. – *FAe:* 520, incl. subsp.; *FE* 3: 192; *FK:* 120, incl. subsp.

1 *(11017),* 2, 3, 4, – F, G, M.

Following Hedge's opinion (in Notes Roy. Bot. Gard. Edinburgh 33: 95-99. 1974) I have renounced, for the time being, to recognize infraspecific units within this extremely variable and complex species.

203. Satureja thymbra L. – *FAe:* 523; *FE* 3: 164; *FK:* 121.

Werner!; 1 *(11004),* 6. – G, H.

204. Coridothymus capitatus (L.) Reichenb. fil. – *FAe:* 533; *FK:* 122.
≡ *Thymus capitatus* (L.) Hoffmannsegg & Link – *FE* 3: 174.

Werner!; 1, 6. – G, H.

205. Mentha pulegium L. – *FAe:* 547; *FE* 3: 184.

Werner (specimen amissus).

According to Petrak's determination in *FAe:* 184, Werner's plants belonged to var. **hirsuta** Guss., which is the taxon commonly growing in the Aegean area.

Plantaginaceae

206. Plantago afra L. – *FE* 4: 44; *FK:* 122.
= *P. psyllium* L. 1762 (non L. 1753), nom. illeg. – *FAe:* 549.

2 *(10899),* 8. – H, M.

207. Plantago lanceolata L. – *FAe:* 550, incl. var.; *FE* 4: 42; *FK:* 122.

5 *(10998).* – H.

The specimen belongs to var. **sphaerostachya** Mert. & Koch – *FAe:* 550 (incl. var. **eriophylla** Decne – *FAe:* 550), which is the common variant of semi-natural dryland habitats in the Aegean area.

208. Plantago lagopus L. – *FAe:* 551, incl. var.; *FE* 4: 43; *FK:* 123.

1 *(10806),* 4, 7. – F, G, M.

209. Plantago bellardii All. subsp. **deflexa** (Pilger) Rech. fil. – *FE* 4: 43.
≡ *P. bellardii* var. *deflexa* Pilger – *FAe:* 553.

5 *(10995),* 8. – H.

210. Plantago cretica L. – *FAe:* 553; *FE* 4: 43.

1-2 *(11040),* 7. – M.

211. Plantago commutata Guss. – Tax.: Runemark in Bot. Not. 120: 10-12. 1967.
≡ *P. coronopus* subsp. *commutata* (Guss.) Pilger – *FAe:* 554; *FE* 4: 40.
– *P. weldenii* sensu *FK:* 123 (an Reichenb.?).

1 *(10790),* 4, 7. – A, G, N, O.

According to the *FE* treatment, the type of *P. weldenii* does not, as was usually assumed, belong to *P. commutata* (over which it would have priority, both at specific and subspecific levels), but represents a dwarfed form of genuine *P. coronopus* L. I still have some doubts as to whether this view is correct.

However, pending a revision of the type specimen, I refrain from giving the little known name *P. weldenii* a publicity which might well be premature, and revert provisionally to the more popular Gussone binomial. But I still believe that specific rank is appropriate for this taxon which is well characterized by its morphology, chromosome number and distribution.

Apocynaceae

212. Nerium oleander L. – *FAe:* 559; *FE* 3: 68; *FK:* 126.

3 *(10940).* – L.

Oleaceae

213. Olea europaea L. var. **sylvestris** Brot. – *FE* 3: 55, in obs.
= *O. europaea* subsp. *sylvestris* (Miller) Rouy, comb. illeg. – *FK:* 127.
= *O. europaea* subsp. *oleaster* (Hoffmannsegg & Link) Negodi – *FAe:* 562.

7, 8 *(11063).* – H.

Rubiaceae

214. Sherardia arvensis L. – *FAe:* 563; *FE* 4: 3; *FK:* 127.

1 *(10796),* 5. – C, F, G, H.

215. Galium aparine L. – *FAe:* 577; *FE* 4: 35; *FK:* 128.

1 *(10758),* 5, 9. – A, B, F, H.

216. Galium verrucosum Hudson – *FE* 4: 35; *FK:* 128.
= *G. valantia* Wiggers – *FAe:* 579.

1 *(10839).* – C, F.

217. Galium tricornutum Dandy – *FE* 4: 35.
– *G. tricorne* auct. (non Stokes, nom. illeg.) – *FAe:* 579

1 *(10784).* – C, F.

218. Galium murale (L.) All. – *FAe:* 579; *FE* 4: 36; *FK:* 128.

1 *(10789),* 4. – B. F.

219. Valantia muralis L. – *FAe:* 581; *FE* 4: 38; *FK:* 128.

2 *(10895),* 4, 5. – G, H, M.

220. Valantia hispida L. – *FAe:* 581; *FE* 4: 38; *FK:* 128.

1 *(10826),* 4, 5, 8. – B, G, H, I.

Valerianaceae

221. Valerianella discoidea (L.) Loisel. – *FAe:* 586; *FE* 4: 50; *FT* 4: 577.

2 *(10909)*, 8. – H, M.

222. Valerianella microcarpa Loisel. – *FAe:* 587; *FE* 4: 51.
– *V. dentata* auct. partim (non (L.) Pollich s.str.) – *FT* 4: 580.

3 *(10947)*, 7. – G, H.

Campanulaceae

223. Campanula erinus L. – *FAe:* 601; *FE* 4: 88; *FK:* 135.

2 *(10894)*. – M.

Compositae

224. Bellis annua L. – *FAe:* 608; *FE* 4: 111; *FT* 5: 135.

4 *(10986)*, 7. – G, M.

225. Bellium minutum L. – *FAe:* 608; *FE* 4: 112; *FK:* 136; *FT* 5: 132.

6 *(11028)*. – On small flats of schistaceous detritus in the lower part of a gully toward the sea.

226. Filago pygmaea L. – Tax.: Wagenitz in Willdenowia 5: 395-444. 1969.
≡ *Evax pygmaea* (L.) Brot. – *FAe:* 609; *FE* 4: 124; *FK:* 136; *FT* 5: 111.

4 *(10984)*, 7. – G, M.

227. Filago contracta (Boiss.) Chrtek & Holub – Tax.: Wagenitz, l.c. et in Willdenowia 6: 115-138. 1970.
≡ *Evax contracta* Boiss. – *FAe:* 609; *FE* 4: 125; *FT* 5: 111.

3 *(10945)*, 5. – H.

228. Filago eriocephala Guss. – *FE* 4: 121; *FT* 5: 103.
= *F. germanica* var. *lanuginosa* (Duby) DC. – *FAe:* 610.

3 *(10955)*, 7. – H, M.

229. Filago gallica L. – *FAe:* 612; *FK:* 138; tax.: Wagenitz, l.c.
≡ *Logfia gallica* (L.) Cosson & Germ. – *FE* 4: 124, incl. subsp.; *FT* 5: 109.

3 *(10920)*, 5, 8. – H.

230. Helichrysum barrelieri (Ten.) Greuter – *FK:* 138.
≡ *H. stoechas* subsp. *barrelieri* (Ten.) Nyman – *FE* 4: 129; *FT* 5: 83.
= *H. siculum* (Sprengel) Boiss. (non Jordan & Fourr.), nom. illeg. – *FAe:* 613.

1-2 *(11038)*, 5, 7. – H, M.

231. Phagnalon graecum Boiss. & Heldr. – *FAe:* 615; *FE* 4: 133; *FK:* 139; *FT* 5: 79.

Kato Nisi, *Runemark & Nordenstam 16904?* (as *"Phagnalon* sp."; non vidi); 1-2 *(11039),* 3 *(10957),* 5. – G, H, I.

I am still very hesitant about the specific status of this taxon which, according to the *FT* interpretation, would be largely sympatric with the closely related *Ph. rupestre* (L.) DC.

232. Dittrichia viscosa (L.) Greuter – *FE* 4: 137.
≡ *Inula viscosa* (L.) Aiton – *FAe:* 618, incl. var.; *FK:* 141; *FT* 5: 73.

Werner! (a young, sterile shoot); 3, 8. – L, M.

233. Pallenis spinosa (L.) Cass. – *FAe:* 620; *FE* 4: 139; *FK:* 141; *FT* 5: 51.

1, 3 *(10960),* 5. – G, H.

As Grierson states in the *FT* treatment, "throughout its range *P. spinosa* has given rise to recognizable races". From the Aegean area, only one such taxon has been so far described: subsp. *microcephala* (Halácsy) Rech. fil. This subspecies, which predominates in the S. and C. Aegean area, is not, however, identical with my material from Psara. Unfortunately, the plants are too young to allow for a reliable assessment of their identity, especially as compared to other Anatolian and E. Aegean material.

234. Asteriscus aquaticus (L.) Less. – *FAe:* 621; *FE* 4: 139; *FK:* 141; *FT* 5: 50.
= (incl.) *A. citriodorus* Heldr. & Halácsy – *FAe:* 621.

Werner!; 2 *(10889).* – M.

235. Anthemis chia L. – *FAe:* 627; *FE* 4: 155; *FK:* 141; *FT* 5: 207.

1 *(10832).* – F.

236. Anthemis rigida Heldr. – *FE* 4: 154; *FT* 5: 204; nom.: Candollea 23: 258-263. 1968.
= *A. cretica* (L.) Nyman (non L.), nom. illeg. – *FAe:* 627.
= *A. pusilla* Greuter – *FK:* 142.

2 *(10897),* 4, 6, 7. – G, H, M.

All plants belong to the eligulate subsp. **rigida** (= *A. pusilla* subsp. *pusilla* – *FK:* 142).

237. Chrysanthemum segetum L. – *FAe:* 630; *FE* 4: 168; *FK:* 143; *FT* 5: 253.

Werner! (mixed with *Ch. coronarium;* not cited in *FAe*); 1 *(10762).* – B, F.

238. Chrysanthemum coronarium L. – *FAe:* 631, incl. var.; *FE* 4: 169; *FK:* 144, incl. var.; *FT* 5: 254.

Werner!; 1 *(10764).* – A, F.

Werner's specimen is in fruit but probably belongs, along with my flowering plants, to var. **discolor** Urv. – *FAe:* 631; *FK:* 144 – which, as rightly pointed out by Grierson in the *FT* treatment, might be more appropriately reduced to the rank of a simple "forma".

239. Matricaria recutita L. – *FK:* 144; nom.: Rauschert in Folia Geobot. Phytotax. (Praha) 9: 249-260. 1974; Grierson in Notes Roy. Bot. Gard. Edinburgh 33: 252-254. 1974 (dissentio!).
≡ *Chamomilla recutita* (L.) Rauschert – *FE* 4: 167.
= *M. chamomilla* L. 1755 (non L. 1753), nom. illeg. – *FAe:* 633, incl. var.; *FT* 5: 293, incl. var.

1 *(11022)*, 9. – A.

The nomenclature of this unfortunate species has given rise to so many controversies that I refrain from going into it any further. Having carefully studied the relevant sources and comments, I reluctantly come to the conclusion that the arguments in favour of retaining the name *M. chamomilla* for the scented camomile, as recently summarized by Grierson, pertain to opportunism and not to sound nomenclatural procedure. On the other hand, I refrain from following Rauschert and replacing the generic name *Matricaria,* in its usual sense, by *Chamomilla* S. F. Gray, as long as (a) the controversial question of the essence of generic typification (names or "species"?) has not been clarified, and (b), once this problem settled, the possibility of conserving *Matricaria* in its traditional sense has not received due consideration.

The plants of my gathering (no. *11022*) have marginal achenes with coronas and disk achenes naked. According to the *FT* treatment, they belong to a distinct variety for which – again reluctantly! – I have to propose a new name: **M. recutita** var. **kochiana** (Schultz Bip.) Greuter, **comb. nova** (≡ *M. kochiana* Schultz Bip., Tanaceteen: 26. 1844; *M. chamomilla* var. *pappulosa* sensu *FAe:* 633, partim (non Margot & Reuter s.str.); *M. chamomilla* var. *chamomilla* sensu *FT* 5: 293).

240. Senecio vulgaris L. – *FAe:* 638; *FE* 4: 204; *FK:* 144; *FT* 5: 165.

1 *(10811)*, 8. – B, F, G.

241. Calendula arvensis L. – *FAe:* 639; *FE* 4: 207; *FK:* 144; *FT* 5: 171; tax.: Heyn & al., Israel J. Bot. 23: 169-201. 1974.
= *C. aegyptiaca* Pers. – *FAe:* 639.
– *C. bicolor* sensu *FAe:* 640 (an Raf.?).

2 *(10910)*, 9. – A, M.

242. Echinops spinosissimus Turra subsp. **spinosissimus** – *FE* 4: 213.
= *E. viscosus* DC. (non Reichenb.) subsp. *viscosus* – *FT* 5: 619.
= *E. viscosus* subsp. *glandulosus* (Weiss) Rech. fil. – *FAe:* 641.

3, 4, 8. – G, K, M.

243. Carlina corymbosa L. subsp. **graeca** (Heldr. & Sart.) Nyman – *FAe:* 644; *FE* 4: 209; *FK:* 144.
≡ *C. graeca* Heldr. & Sart. – *FT* 5: 599.

1 *(11070)*, 3, 4, 5. – F, G, H, M.

244. Atractylis cancellata L. – *FAe:* 645; *FE* 4: 211; *FK:* 145; *FT* 5: 604.

3, 4 *(10989),* 8. – G, H.

245. Carduus pycnocephalus L. – *FAe:* 650, incl. var.; *FE* 4: 231, incl. subsp.; *FK:* 145; *FT* 5: 435, incl. subsp.

1 *(10763),* 4. – A, B, F.

My gathering, according to the *FT* treatment, is referable to subsp. **arabicus** (Murray) Nyman – *FT* 5: 436.

246. Notobasis syriaca (L.) Cass. – *FAe:* 651; *FE* 4: 242; *FK:* 145; *FT* 5: 419.

1 *(11020).* – A, F.

247. Picnomon acarna (L.) Cass. – *FAe:* 654; *FE* 4: 242; *FK:* 148; *FT* 5: 413.

1, 3. – A, F, M.

248. Silybum marianum (L.) Gaertner – *FAe:* 655; *FE* 4: 249; *FT* 5: 369.

3 *(10965).* – M, O.

249. Tyrimnus leucographus (L.) Cass. – *FAe:* 655; *FE* 4: 244; *FK:* 148; *FT* 5: 439.

3 *(10944).* – F.

250. Onopordum tauricum Willd. – *FAe:* 656, incl. var.; *FE* 4: 246; *FT* 5: 366.
– *O. macracanthum* sensu Urville in Mém. Soc. Linn. Paris 1: 361. 1822 (non Schousb., nec Willd.).
– *O. horridum* sensu DC., Prodr. 6: 618. 1838, partim (non Viv.).

Urville!; 1 *(11069).* – A, F.

My plants, which are incompletely developed, were originally identified with var. *elatum* (Sm.) Boiss. – *FAe:* 656. After examination of Urville's specimen I hesitate to associate the Psara material with one of the described varieties. It is referred to *O. tauricum* on the base of the glandular pubescence of the leaves and phyllaries, and its pinnatifid leaves point indeed to var. *elatum,* but the marked arachnoid indumentum and the very broad and relatively short phyllaries are original features which could not be matched by material from other proveniences.

251. Crupina crupinastrum (Moris) Vis. – *FAe:* 658; *FE* 4: 301; *FK:* 148; *FT* 5: 587.

3 *(10961),* 5. – H, M.

252. Centaurea raphanina Sm. subsp. **mixta** (DC.) Runemark – *FE* 4: 269; *FT* 5: 549; tax.: Runemark in Bot. Not. 120: 168-175, 486. 1967.
≡ *C. mixta* DC. – *FAe:* 664 (excl. var.); *FK:* 151.

2 *(10881),* 4, 5, 7, 8 *(11064).* – G, H.

This is the second place, after Ikaria, where this western species is known to cross the boundary of Asia, reaching the *FT* area. With a single exception, the Psara plants are entirely typical and cannot be distinguished from those of the Greek mainland (ditio classica).

In one locality (8), caulescent plants were collected which, although they agree in most of the diagnostically important features (napiform root, indumentum, leaf dissection, involucral and floral characters) with subsp. *mixta,* deviate strikingly in their aspect from normal specimens of the latter, whose capitula are sessile in the centre of the leaf rosette. Especially individuals growing in the shelter and shade of *Calicotome villosa* bushes look quite forbidden, having 30-40 cm high, leafy stems which may be branched in the upper half. The taxonomic weight of this difference may be almost negligible, and individuals found in open habitats, close by, are indeed transitional to typical subsp. *mixta,* having unbranched, leafless stems 5-10 cm high. Nevertheless, this variant is striking enough to call for taxonomic recognition, at least at the level of a forma: **C. raphanina** f. **interdicta** Greuter, **f. nova** – Differt a f. **mixta** (DC.) Greuter (≡ *C. mixta* DC., Prodr. 6: 594. 1838) foliorum teneriorum longissimorum lobis sub angulo acuto nec recto abeuntibus, capitulis basi angustatis nec truncatis, praecipue autem caulibus elongatis (10-)30-40 cm altis foliatis, in parte superiore saepe ramosis. ***Typus:*** *Greuter 11064* (ATH; isotypus: herb. Greuter).

It is but fair to add that this is not the first caulescent variant described within the *C.-raphanina-mixta*-complex. In *FAe,* three caulescent varieties are listed under *C. mixta.* Two of these – var. *halacsyi* (Dörfler) Rech. fil. and var. *nigrotriangulata* (Rech. fil.) Rech. fil. – were recently shown by Runemark (l.c.: 168) to belong to a hybrid swarm *C. oliveriana* DC. x *C. raphanina* Sm. The third, *C. mixta* var. *myconia* (Boiss. & Sart.) Hayek (= var. *caulescens* Halácsy, subf. *caulescens* (Halácsy) Hayek) has stems 2-8 cm high and may indeed be transitional, to an extent, between *C. raphanina* f. *mixta* and f. *interdicta.* At any rate, the Psara plants cannot possibly be of hybrid origin, since no other species of *Centaurea* sect. *Acrocentron* are found on the island.

253. Centaurea spinosa L. – *FAe:* 667, incl. subsp.; *FE* 4: 282, incl. subsp.; *FT* 5: 499.

1 *(11068),* 2, 3, 4, 5, 7. – G, H, M.

The Psara plants belong to the tomentose variant which is typical of the species (subsp. *spinosa* – *FE* 4: 282 = subsp. *tomentosa* (Halácsy) Hayek – *FAe:* 667) but which, according to Runemark in Bot. Not. 120: 162-164. 1967, does not deserve formal taxonomic recognition.

* **Carthamus** sp.

1 (plants not yet in flower, belonging to this genus, which could not be identified to the species). – F.

254. Scolymus hispanicus L. – *FAe:* 671; *FE* 4: 304; *FK:* 152; *FT* 5: 624.

Werner (specimen deest).

255. Cichorium intybus L. – *FAe:* 672, incl. var.; *FE* 4: 304; *FK:* 152; *FT* 5: 627.

Werner!; 3. – F, M.

The Werner specimen was determined by Rechinger as "var. *glabratum* (C. Presl) Gren. & Godron" – *FAe:* 672, a variant of doubtful taxonomic value. Furthermore, the determination is open to some doubt, since the leaves and the lower stem portion are lacking and it is not at all sure that they were actually glabrous.

256. Cichorium spinosum L. – *FAe:* 673; *FE* 4: 305; *FK:* 152; *FT* 5: 627.

4, 5, 6. – G, H, N.

257. Tolpis barbata (L.) Gaertner – *FAe:* 674; *FE* 4: 306; *FT* 5: 629.
= (incl.) *T. umbellata* Bertol. – *FAe:* 675; *FE* 4: 306, in obs.

3 *(10929),* 7. – G, H.

The only variant of this polymorphic species occurring in the Aegean area has been treated at various taxonomic levels in the past. Although it is reduced to plain synonym status in modern floristic treatments *(FE, FT),* it may well deserve recognition as subsp. **umbellata** (Bertol.) Jahandiez & Maire.

258. Hyoseris scabra L. – *FAe:* 676; *FE* 4: 307; *FK:* 152; *FT* 5: 631.

4 *(10980).* – G.

259. Rhagadiolus stellatus (L.) Gaertner – *FAe:* 676, incl. var.; *FE* 4: 308; *FK:* 152; *FT* 5: 687, incl. var.

1 *(10848),* 2. – F, M.

According to the *FT* treatment, the plants of my gathering belong to var. **stellatus.**

260. Hedypnois rhagadioloides (L.) F. W. Schmidt – *FAe:* 677, incl. subsp.
= *H. cretica* (L.) Dum. Courset – *FE* 4: 307; *FK:* 152, incl. subsp.; *FT* 5: 686.

1 *(10812),* 2 *(10891),* 4 *(10991),* 5, 7. – F, G, H, M.

Of the two Linnean epithets competing at species level, I had accepted *cretica* as correct in *FK,* on the basis of the choice made by Boissier in 1875 when he united *Hyoseris cretica* L. 1753 and *Hyoseris rhagadioloides* L. 1753 into a single species. As Wagenitz (in litt.) has pointed out to me, Sprengel made a much earlier choice in 1826, preferring *rhagadioloides.* A still earlier attempt at a synthesis, by Dumont de Courset in 1802, who would have given preference to *cretica,* was not definitely accepted by that author and cannot be considered to constitute nomenclaturally valid action under Art. 57 of the *Code.*

As Rechinger suggests in his *FAe* treatment, the morphological variation observed within this species can be interpreted in terms of two relatively clear-cut, uniform taxa corresponding to *Hyoseris hedypnois* L. and to *Hedypnois tubaeformis* Ten., respectively, which are connected by a swarm of intermediate variants. If, again following Rechinger, we formally recognize these three groups at subspecies level, the Psara material can be named as follows.

No. *10891* is subsp. **monspeliensis** (Murb.) Hayek – *FAe:* 677 (≡ *H. cretica* subsp. *monspeliensis* Murb. – *FK:* 153; ≡ *Hyoseris hedypnois* L.).

No. *10812,* and the plants observed in (5) and (7), can be attributed to subsp. **cretica** (L.) Hayek – *FAe:* 677 (≡ *H. cretica* subsp. *cretica* – *FK:* 152), which is possibly synonymous to subsp. *rhagadioloides.*

No. *10991* corresponds to subsp. **tubaeformis** (Ten.) Hayek – *FAe:* 678 (≡ *H. cretica* subsp. *tubaeformis* (Ten.) Nyman – *FK:* 153).

However, recent data submitted by Nordenstam (in Bot. Not. 124: 483-489. 1971) make one suspect that the real situation might be much more complicated than the above treatment suggests. Several aneuploid chromosome numbers were found which cannot be satisfactorily correlated with the traditional classification, but seem to be constant within small populations characterized each by a particular combination of characters, and probably propagating at least in part apomictically. It is not excluded that, in the years to come, *Hedypnois* systematics will develop into a second *Taraxacum* case.

261. Hypochoeris glabra L. – *FAe:* 679; *FE* 4: 309; *FT* 5: 670.

1, 7 *(10845).* – F, M.

262. Hypochoeris radicata L. – *FAe:* 679, incl. var.; *FE* 4: 309; *FT* 5: 669.

7 *(11046).* – M.

263. Hypochoeris achyrophorus L. – *FE* 4: 309; *FK:* 153; *FT* 5: 671.
≡ *H. aetnensis* Ball, nom. illeg. – *FAe:* 680.

2 *(10912),* 4, 5, 8. – G, H, M.

264. Leontodon tuberosus L. – *FAe:* 681, incl. var.; *FE* 4: 315; *FK:* 153; *FT* 5: 673.

1 *(10874),* 4, 5. – E, G, H.

265. Urospermum picroides (L.) F. W. Schmidt – *FAe:* 683; *FE* 4: 308; *FK:* 154; *FT* 5: 685.

2 *(10914),* 4. – G, M.

266. Tragopogon sinuatus Avé-Lall. – *FK:* 154.
= *T. porrifolius* subsp. *australis* (Jordan) Nyman – *FE* 4: 323.
– *T. porrifolius* auct. partim (non L. s.str.) – *FAe:* 684; *FT* 5: 658.

1 *(10880),* 8. – F, G, H.

267. Taraxacum hellenicum Dahlst. – *FT* 5: 800.
– *T. megalorhizon* sensu *FAe:* 691, partim (non (Forsskål) Hand.-Mazz. s.str.).
– "*T. bithynicum* group" – *FE* 4: 334, partim.

4 *(10990,* det. van Soest). – G, H.

Field notes of "*T. megalorhizon* aggr." from localities (5) and (6) may refer to this species, or to one of the other microspecies of *T.* sect. *Scariosa.*

268. Reichardia picroides (L.) Roth – *FAe:* 692, incl. var.; *FE* 4: 325; *FK:* 155; *FT* 5: 694.

2 *(10890)*, 4, 5, 7. – G, M, N, O.

269. Sonchus oleraceus L. – *FAe:* 694; *FE* 4: 327; *FK:* 156; *FT* 5: 691.

1 *(10797)*. – A, F.

270. Aetheorrhiza bulbosa (L.) Cass. subsp. **microcephala** Rech. fil. – *FE* 4: 327; *FT* 5: 696; tax.: Rechinger in Phyton (Horn) 16: 211-220. 1974.
– *Ae. bulbosa* auct. partim (non (L.) Cass. s.str.) – *FK:* 157.
– *Crepis bulbosa* auct. partim (non L. s.str.) – *FAe:* 698.

1 *(10856)*, 4, 5, 6. – B, G, H, I.

271. Crepis commutata (Sprengel) Greuter
≡ *C. foetida* subsp. *commutata* (Sprengel) Babc. – *FAe:* 700-701, in obs.; *FE* 4: 354; *FT* 5: 833.
≡ *Rodigia commutata* Sprengel – *FAe:* 688.

2 *(10913)*. – M.

272. Crepis multiflora Sm. – *FAe:* 702; *FE* 4: 355; *FK:* 158; *FT* 5: 835.

2 *(10892)*, 4, 5, 7. – G, M, N, O.

273. Crepis zacintha (L.) Babc. – *FE* 4: 355; *FK:* 158; *FT* 5: 836.
≡ *Zacintha verrucosa* Gaertner – *FAe:* 676.

2 *(10911)*. – M.

Liliaceae

274. Asphodelus microcarpus Viv. – *FAe:* 710; *FK:* 158.

Werner (specimen deest); 1 *(10792)*, 5, 7. – F, G, H, M.

275. Gagea graeca (L.) A. Terracc. – Nom. & tax.: Israel J. Bot. 19: 155-160. 1970.
≡ *Lloydia graeca* (L.) Kunth – *FAe:* 722; *FK:* 159.

3 *(10928)*, 5. – H, I.

276. Allium subhirsutum L. – *FAe:* 717; *FK:* 159.

6 *(11032)*. – H.

277. Allium roseum L. – *FAe:* 719, incl. var.; *FK:* 159.

1 *(10818)*. – E.

The plants belong to var. **bulbilliferum** Vis. – *FAe:* 719.

278. Allium pilosum Sm. – *FAe:* 719.

8 *(11061)*. – H.

The plants were in bud, and the determination must be considered as tentative.

279. Urginea maritima (L.) Baker – *FAe:* 723; *FK:* 160.

Werner (specimen deest); 3, 5, 7. – H, M.

280. Scilla autumnalis L. – *FAe:* 724.

8 (bulbs only, which flowered later at Kifisia). – H.

281. Leopoldia comosa (L.) Parl. – Tax.: Bentzer in Bot. Not. 126: 69-132. 1973.
≡ *Muscari comosum* (L.) Miller – *FAe:* 730; *FK:* 161.

1 *(10776)*, 5. – C, F, H.

282. Asparagus aphyllus L. – *FAe:* 733; *FK:* 161.
– *Asparagus acutifolius* sensu *FAe:* 732, saltem partim (vix L. s.str.).

3 *(10941)*, 5, 7. – H, L, M.

Iridaceae

283. Gladiolus italicus Miller – *FK:* 165.
= *G. segetum* Ker-Gawler – *FAe:* 742.

1 *(10871)*, 3. – C, E.

Juncaceae

284. Juncus heldreichianus Parl. – *FK:* 165.
= *J. acutus* var. *heldreichianus* (Parl.) Heldr. – *FAe:* 746.
– *J. maritimus* sensu *FAe:* 746, partim (non Lam.).

Werner? (*"J. maritimus"* in *FAe;* specimen deest); 3 *(10970)*. – O.

Cyperaceae

285. Scirpoides holoschoenus (L.) Soják – Nom.: Rauschert in Feddes Repert. 83: 659. 1973.
= *Holoschoenus romanus* (L.) Fritsch – *FK:* 166, incl. subsp.
≡ *H. vulgaris* Link, nom. illeg. – *FAe:* 751, incl. subsp. et var.

1 *(11066)*, 3. – E, F, M.

286. Carex divisa Hudson – *FAe:* 754; *FK:* 167.

1 *(10819)*, 7. – E, M.

Gramineae

287. Bromus madritensis L. – *FAe:* 759; *FK:* 168.

4, 5 *(11002)*, 7. – G, H, M.

288. Bromus fasciculatus C. Presl – *FAe:* 759; *FK:* 168.

1 *(11003)*, 5, 7. – F, G, H, M.

289. Bromus tectorum L. – *FAe:* 760, incl. var.; *FK:* 168.

4 *(10978)*, 8 – G, H, I.

290. Bromus sterilis L. – *FAe:* 760; *FK:* 168.

1 *(10822)*. – F.

291. Bromus intermedius Guss. – *FAe:* 761, incl. var.; *FK:* 169.

1 *(10852)*, 5, 7 *(11051)*, 8. – F, G, H.

292. Bromus scoparius L. – *FAe:* 762, incl. var.

7 *(11052)*. – F.

293. Trachynia distachya (L.) Link – *FK:* 169.
≡ *Brachypodium distachyon* (L.) Beauv. – *FAe:* 763.

1 *(10842)*, 8. – F, G, H.

294. Elymus rechingeri (Runemark) Runemark – *FK:* 169; tax.: Heneen & Runemark in Hereditas 48: 545-564. 1962.

Kato Nisi, *Runemark & Nordenstam 16906, 16907* (det. Runemark) – N.

295. Triticum lorentii (Hochst.) Zeven – Nom.: Zeven in Taxon 22: 321. 1973.
= *T. macrochaetum* subsp. *archipelagicum* (Eig) Greuter – *FK:* 171.
= *Aegilops biuncialis* Vis. – *FAe:* 767, incl. var.

1 *(10835)*, 5, 8. – F, G, H.

296. Taeniatherum crinitum (Schreber) Nevski – Tax.: Runemark & Heneen in Bot. Not. 121: 51-79. 1968.
≡ *Hordeum crinitum* (Schreber) Desf. – *FAe:* 768.

8 *(11053)*. – H.

297. Hordeum bulbosum L. – *FAe:* 769; *FK:* 173.

1 *(11013)*. – F, G.

298. Hordeum leporinum Link – *FAe:* 769; tax.: Booth & Richards in Bot. J. Linn. Soc. 72: 149-159. 1976.
≡ *H. murinum* subsp. *leporinum* (Link) Arcangeli – *FK:* 173.

1 *(10775)*, 9. – A, F.

Spikelet measurements suggest that my specimen belongs to subsp. **leporinum**, as contrasted to the diploid subsp. *glaucum* (Steudel) Booth & Richards.

299. Echinaria capitata (L.) Desf. – *FAe:* 770; *FK:* 174.

5 *(11001)*. – H.

* **Arundo donax** L. – *FAe:* 771; *FK:* 174.

3 – Cultivated as a wind shelter, and probably subspontaneous.

300. Melica ramosa Vill. subsp. **major** (Sm.) Hempel
– *M. minuta* auct. partim (non L. s.str.) – *FAe:* 773, incl. var.; *FK:* 175.

3 *(10956)*, 5, 8. – H, I, K.

The taxonomy of the *M. minuta* complex was thoroughly revised by Hempel (in litt.), but his revision is, unfortunately, still unpublished. Hempel kindly revised my gathering and attributed it to var. **saxatilis** (Sm.) Boiss. According to Hempel, *M. ramosa* subsp. *major* is endemic to Greece, the Aegean Islands and S.W. Anatolia, where it replaces completely both *M. minuta* and *M. ramosa* subsp. *ramosa*. The two varieties recognized within subsp. *major* (var. *major* (Sm.) Hempel and var. *saxatilis* (Sm.) Boiss.) occur sympatrically.[1]

301. Briza maxima L. – *FAe:* 774; *FK:* 175.

1 *(10837)*, 5, 8. – F, G, H.

302. Briza minor L. – *FAe:* 775; *FK:* 175.

1 *(11011)*. – F.

303. Dactylis glomerata L. subsp. **hispanica** (Roth) Nyman – *FK:* 175.
≡ *D. hispanica* Roth – *FAe:* 775.

1 *(10855)*, 4, 7. – F, G.

304. Cynosurus echinatus L. – *FAe:* 777: *FK:* 175.

1 *(11008)*. – F.

305. Poa bulbosa L. – *FAe:* 779; *FK:* 175.

8. – H.

306. Vulpia ciliata Dumort. – *FAe:* 785; nom.: Kerguélen in OPTIMA Newslett. 3: 19. 1976.

3 *(10931)*, 5, 8. – H.

307. Catapodium marinum (L.) Hubbard – *FK:* 175.
≡ *C. loliaceum* Link, nom. illeg. – *FAe:* 785.

6 *(11027)*, 7. – N, O.

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[1] Hempel kindly agreed to validate the required new combinations in the context of this paper, as follows:

M. ramosa subsp. **major** (Sm.) Hempel, **comb. nova** (≡ *M. major* Sm., Fl. Graec. Prodr. 1: 51. 1806), var. **major** (Sm.) Hempel, **comb. nova** (≡ *M. major* Sm., l.c.).

308. Catapodium rigidum (L.) Dony – *FK:* 176.
≡ *Scleropoa rigida* (L.) Griseb. – *FAe:* 786.

1 *(10823).* – F.

309. Lolium temulentum L. – *FAe:* 787, incl. f.
– *L. loliaceum* f. *aristatum* sensu *FAe:* 788 (non (Lindb. fil.) Hayek).

Werner! (rev. Terrell). – C.

310. Lolium rigidum Gaudin – *FK:* 176.
= *L. strictum* C. Presl – *FAe:* 787.

1 *(11010),* 7. – F, M.

311. Lolium loliaceum (Bory & Chaub.) Hand.-Mazz. – *FAe:* 788 (excl. f.); *FK:* 177.

1 *(10788).* – Among stones around the cistern.

312. Parapholis incurva (L.) Hubbard – *FK:* 178.
≡ *Pholiurus incurvatus* A. S. Hitchc., nom. illeg. – *FAe:* 789, partim.

3 *(10973),* 5, 7. – H, M, N, O.

313. Parapholis marginata Runemark – *FK:* 178, in obs.
– *Pholiurus incurvatus* sensu *FAe:* 789, partim (non A. S. Hitchc., nom. illeg.).

6 *(11026),* 7. – N.

314. Psilurus incurvus (Gouan) Schinz & Thell. – *FK:* 178.
= *Ps. aristatus* (L.) Duval-Jouve – *FAe:* 789.

2 *(10896),* 5, 8. – H, M.

315. Trisetaria cristata (L.) Kerguélen – Nom. & tax.: Kerguélen in Lejeunia ser. 2, 75: 30, 272-275. 1975.
≡ *Lophochloa cristata* (L.) Hyl. – *FK:* 178.
= *Koeleria phleoides* (Vill.) Pers. – *FAe:* 790, incl. var.

1 *(10850),* 4, 7, 8. – F, G, H, M.

316. Avellinia michelii (Savi) Parl. – *FAe:* 791.

3, 5 *(10932).* – H.

317. Avena sterilis L. – *FAe:* 792; *FK:* 179.

1 *(11009).* – F.

318. Avena barbata Link – *FAe:* 792; *FK:* 179.

1 *(10821),* 4, 5, 8. – F, G, H.

319. Aira elegantissima Schur – *FK:* 179.
= *A. capillaris* Host (non Savi), nom. illeg. – *FAe:* 794, incl. var.

1 *(10820),* 5. – G, H.

Like other Aegean populations usually referred to this species, the Psara plants are somewhat intermediate, in spikelet size and mean pedicel length, between typical *A. elegantissima* and *A. caryophyllea* L. Their exact taxonomic status ought to be determined by numerical studies carried out on a great number of specimens.

In my gathering, the number of awns per spikelet is unusually variable: on each individual, spikelets with one or both flowers awned occur together, and intermediate spikelets (one well developed plus one reduced awn) are frequently found.

320. Lagurus ovatus L. – *FAe:* 797; *FK:* 180.

Werner!; 1 *(10860),* 4, 5, 7. – F, G, H, M.

321. Phleum subulatum (Savi) Ascherson & Graebner – *FAe:* 801; *FK:* 182.

1 *(10849),* 7. – F, M.

322. Stipa bromoides (L.) Dörfler – *FAe:* 801; cit.: Kerguélen in Lejeunia ser. 2, 75: 267. 1975.

5. – H.

323. Stipa capensis Thunb. – *FK:* 182.
= *S. tortilis* Desf. – *FAe:* 802.

8 *(11054).* – H.

324. Piptatherum miliaceum (L.) Cosson – Tax.: Freitag in Notes Roy. Bot. Gard. Edinburgh 33: 341-408. 1975.
≡ *Oryzopsis miliacea* (L.) Ascherson & Schweinf. – *FAe:* 802; *FK:* 183.

1 *(11012),* 3. – F, M.

The plants of my gathering belong to subsp. **miliaceum**, which seems to be less abundant and widespread, in the Aegean area, than subsp. *thomasii* (Duby) Freitag (≡ *O. miliacea* var. *thomasii* (Duby) Heldr. – *FAe:* 803). These two taxa are sharply distinct, not only by the characters of the inflorescence, but also by the shape and colour of the mature lemma; they may deserve specific rather than subspecific status.

325. Anthoxanthum odoratum L. – *FAe:* 804.

3 *(10939),* 5. – H.

326. Phalaris minor Retz. – *FAe:* 805.

1 *(10798).* – F.

Orchidaceae

327. Ophrys bombyliflora Link – *FAe:* 811.

1-2. – G.

328. Serapias vomeracea (Burm. fil.) Briq. subsp. **orientalis** Greuter – Nom.: Greuter, Fl. Rep. Cretan Area: 19. 1972.
= *S. vomeracea* f. *platypetala* Vierh. – *FAe:* 825; *FK:* 190.

1 *(10872)*, 5. – E, H.

329. Serapias columnae (Ascherson & Graebner) Fleischm. – *FK:* 190.
≡ *S. laxiflora* Chaub., nom. illeg. – *FAe:* 822.

3 *(10927)*, 5. – H.

330. Orchis sancta L. – *FAe:* 838.

2, 3, 5, 7 *(11047)*. – H, M.

Araceae

331. Arisarum vulgare O. Targ.-Tozz. – *FAe:* 845; *FK:* 195.

7 (leaves only). – G.

Phytogeographical considerations

Even with such an incomplete and imperfect a catalogue as this, it is tempting and perhaps rewarding to attempt to reach some phytogeographical conclusions. In the introductory chapter on the vegetation I have mentioned the general poverty of the flora, its overall banality and the very strong representation of the anthropic element. These statements were based on general impression rather than on concrete facts and figures. We shall now analyze the data given in the catalogue with respect to these impressions.

The habitats I have distinguished on the island and designated by the letters A to P fall roughly into 4 different categories:

- Anthropic habitats, created and maintained by human activity, correspond to letters A to F.
- H, I, K, and to a lesser extent L, are semi-natural habitats moderately to weakly influenced by man, mainly through the grazing of sheep and goats and possibly through periodic burning.
- N, O and P represent specialized coastal habitats influenced by salt water, but not, or only moderately, modified by human action.
- G and M are plainly transitional habitats, where strong human influence radically modifies the semi-natural vegetation and leads to a complete interpenetration of the anthropophytic and indigenous floristic elements.

Of the 331 species recorded, 78 (23.6%) have been found only in anthropic habitats and must be regarded as aliens (anthropophytes); 71 (21.5%) appear to be limited to semi-natural vegetation types and must consequently be regarded as

native; 19 (5.7%) are coastal halophytes limited to habitats N-P, and are also part of the native flora. The status of the remaining 163 species (49.2%) is more difficult to assess: they comprise 5 cases (1.5%) where no ecological information is available, 33 species (10%) so far only recorded from transitional habitats, and 125 (37.8%) which are found in different habitat types. Obviously, the proportion of the latter will have a tendency to increase if more field data are added.

Applying less strict criteria, we can divide the species into the following three categories:

- "Presumably alien" species, which occur in anthropic and often also in transitional habitats, but have not been found in semi-natural or specialized halophytic vegetation.
- "Presumably native" species, occurring in semi-natural and/or specialised habitats, and sometimes also in transtiional habitats, but unknown from plainly anthropic vegetation.
- "Indeterminate" species, which either occur in both anthropic and semi-natural or specialized habitats, or are so far known only from transitional habitats, or for which no ecological data are available.

The representation of these three categories in the total flora is as follows:

Species	*Presumably alien*	*Presumably native*	*Indeterminate*	*Total*
number	112	146	73	331
%	33.8	44.1	22.1	100

If we distribute the indeterminate species, proportionally, between the native and the alien element, we obtain a reasonably reliable estimate of 43.4% alien species in the flora of Psara. This is an unusually high figure, even for an island; it exceeds considerably the recent estimate of one third alien species in the flora of Crete (Greuter in Boissiera 19: 331. 1971). However, since no equally detailed information on the ecological behaviour of whole island floras is at present available for the Aegean, an exact comparison with other Aegean islands is impossible.

Another kind of comparison has been carried out between the flora of Psara and that of Kithira/Andikithira, two islands in the S.W. Aegean which have been recently investigated to a similar degree. Their combined flora is considerably richer (564 species, according to *FK*), which can be explained by their size and greater ecological diversity; it also appears to be better balanced and includes several clearly relict species, either endemic or fitting into coherent, old distribution patterns.

A biological "Raunkiaer" spectrum was prepared for the flora of both Psara and Kithira/Andikithira, based on the present catalogue and on *FK* (thus disregarding, for practical reasons, some more recent additions). The life form categories were slightly redefined and adapted to specifically Mediterranean requirements: parasites and lianas (woody climbers) were recognized as separate groups, the biennials were included with the therophytes, and the chamaephyte definition was extended to include all phrygana shrubs, *i.e.* woody perennials not usually exceeding 1 m in height. For Psara, in addition to the total flora, the "presumably native" and "presumably alien" species, as defined above, were considered independently. The results are as follows:

	Psara						Kithira and Andikithira	
	total flora		alien flora		native flora			
	number	%	number	%	number	%	number	%
Therophytes	217	65.6	89	79.5	78	53.4	284	50.4
Hemicryptophytes	54	16.3	20	17.9	27	18.5	121	21.5
Geophytes	23	6.9	2	1.8	12	8.2	65	11.6
Chamaephytes	26	7.9	–		23	15.8	62	11.0
Phanerophytes	5	1.5	–		3	2.1	18	3.2
Parasites	6	1.8	1	0.9	3	2.1	7	1.2
Lianas	–		–		–		7	1.2
Total	331	100	112	100	146	100	564	100

The spectra of Psara and of Kithira/Andikithira differ rather strikingly, considering that both are low, non-mountainous islands of the same phytogeographical region. In particular, the proportion of therophytes is much higher on Psara. However, if only the native element is considered, we observe a rather close agreement with the total spectrum of Kithira/Andikithira. The distortion obviously comes from the alien element, which is highly unbalanced biologically, consisting almost exclusively of therophytes (nearly 80%) and hemicryptophytes. Here again, it appears that the alien element is heavily overrepresented on Psara as compared to Kithira/Andikithira.

A detailed floristic analysis shows, at a first glance, that the large majority of the flora of Psara consists of widespread, banal species whose presence is phytogeographically irrelevant. In a few cases *(Pallenis, Onopordum?)* further taxonomic studies may reveal meaningful patterns of variation, but nothing definite can be said at present. 13 species with a more informative type of distribution will have to be considered and discussed below, all of which – excepting the "indeterminate" *Verbascum lasianthum* – belong to the presumably native element.

– 4 widespread species have a very scattered type of distribution, either in the Aegean area or throughout their range. These are: *Taeniatherum crinitum* (ranging from the S. and E. Mediterranean to C. Asia; rare in the W., C. and E. Aegean areas, not recorded from the N. and S. Aegean); *Trifolium sylvaticum* (scattered along the N. Mediterranean border and through Anatolia to Syria and N. Iraq; no previous records from the W., C. and E. Aegean Islands, rare in the N. and S. Aegean areas); *Paronychia echinulata* (circum-Mediterranean, from Macaronesia to Lebanon, but rare to the east; a few scattered records from the W., S., C. and E. Aegean areas, and but a single one from Anatolia); *Myosotis congesta* (disjunct circum-Mediterranean occurrences from Morocco to Lebanon, but distribution imperfectly known owing to former confusion with *M. ramosissima;* unknown from Anatolia, recorded from Kriti, the Peloponnisos and the N. Sporadhes). These 4 species, though adding to the individuality of the flora of Psara, are not very helpful for its phytogeographic interpretation.
– 2 species have areas centered in the Aegean region, although they are not, strictly speaking, Aegean endemics: *Bellium minutum* (also on the island of

Linosa S. of Sicily; Evvia, C., S. and especially E. Aegean areas) and *Parapholis marginata* (map: Runemark in Bot. Not. 115: 9. 1962; scattered localities around the E. Mediterranean basin; in the Aegean, it is distinctly centered in the Cardaegean region, spreading sparingly to the E. and W.). Neither species is helpful in deciding whether the floristic affinities of Psara lie to the east or to the west; but both, somewhat surprisingly, point to the south: the Psara records represent a northward extension of their respective distribution ranges.

– 2 species are Aegean endemics with a restricted distribution area: *Allium pilosum* is known from a few localities in the C. and E. Aegean areas (since the determination is provisional and the taxonomy of the Aegean *Allia* is still imperfectly understood, it will not be considered further); *Silene cythnia* (see map, fig. 2) was hitherto unknown outside the Cyclades, and its discovery on Psara is one of the few phytogeographically relevant facts reported here.

– 3 taxa reach the eastern and north-eastern boundaries of their range in Psara. Two of them show a widely scattered type of distribution and cannot be used for the establishment of direct phytogeographical relationships: these are *Beta macrocarpa* (closest localities in Attica and on Karpathos) and *Euphorbia pterococca* (Ejina, Zakinthos). The third, *Centaurea raphanina* subsp. *mixta,* has a highly significant distribution, being endemic to continental Greece and the W. and C. Aegean Islands; it crosses the geographic borderline to Asia at only two points: the islands of Ikaria (which, according to Runemark in Opera Bot. 30: 26. 1971, may deserve recognition as a separate phytogeographic region) and Psara; on other E. Aegean islands it is replaced by its Anatolian vicariant, *C. urvillei* DC.

– 2 species are of a mainly eastern (Asiatic) distribution type. *Filago contracta* ranges from Anatolia through the Near East to Egypt and S. Iran; it has recently been reported from several S. and C. Aegean localities by Wagenitz (in Willdenowia 6: 133. 1970). *Verbascum lasianthum* has an area clearly centered in Anatolia (Huber-Morath in Denkschr. Schweiz. Naturf. Ges. 87: 60-61. 1971), but also occurs on a few islands in the N. and C. Aegean regions.

– Not one single species is endemic to Psara; all of them are known to occur elsewhere in the W., S. or C. Aegean areas; at least 5 *(Trifolium sylvaticum, Myosotis congesta, Silene cythnia, Beta macrocarpa* and *Euphorbia pterococca)* had not so far been recorded from the E. Aegean Islands.

From the above data, it appears that nothing justifies the inclusion of Psara into the same phytogeographic region as the E. Aegean Islands. Its flora is overwhelmingly banal and, if anything, rather European than Asiatic. The only positive phytogeographic links point to the south and south-west, *i.e.,* primarily, to the Cyclades (C. Aegean area); but these links are few. On the other hand, the mere geographic position of Psara points to its belonging to the E. Aegean area and does not allow the alternative of a direct connection with the Cyclades.

The phytogeographic peculiarity of the E. Aegean Islands and their strong floristic link with the Anatolian mainland are due to the fact that, owing to the isostatic regression of the sea during the ice ages, these islands were fused to Anatolia in the geologically recent past. However, contrary to most of the other eastern islands, Psara is separated from the Anatolian shelf by open sea almost 300 m deep,

while recent data suggest c. 100 m as a likely figure for the glacial-eustatic lowering of the sea level (map: Greuter in Feddes Repert. 81: 238. 1970). Therefore, it is a plausible assumption that Psara has remained isolated from the continents throughout the Pleistocene (and, most possibly, the Pliocene).

This hypothesis would account for the lack of Anatolian and E. Aegean floristic elements on the island, but also for the banality of the flora and the high proportion of anthropophytes. It must be inferred that, during the long isolation period, the original flora of the island was strongly depleted, possibly even annihilated, and that the modern flora is the result of subsequent (or concurrent) recolonization by long-distance dispersal and, more recently, of massive introduction of weedy species by man. In this view, the apparent phytogeographic links of Psara with the Cyclades would not actually be proof of a former direct connection, but rather an indication of a common past as long isolated insular areas.

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