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Vascular flora associated to Mediterranean temporary ponds on the island of Minorca

by

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Abstract

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Mediterranean temporary ponds are a habitat with a high interest for conservation due to their particular characteristics and especially to their biodiversity. Vascular flora is a feature that stands out for its richness and diversity. Minorca has a high representation of this habitat. A complete inventory of vascular plants related to this habitat on the island is presented here for the first time. 360 taxa have been recorded in the pond areas. Most of them are usually found outside the water influence, and just 35 have been found to be exclusive to the inundation area. The quantitative analysis of additional information like abundance within the island, chorology and life forms, compared with that of all the flora on the island, reveals some particular traits for the flora of this habitat, and especially for the plants of the inundated area.

Keywords: Mediterranean temporary ponds, vascular plants, chorology, life forms, Minorca Island, Spain.

Resumen

Fraga i Arguimbau, P. 2008. Flora Vascular asociada a los humedales temporales mediterráneos en la isla de Menorca. *Anales Jard. Bot. Madrid* 65(2): 393-414 (en inglés).

Los humedales temporales mediterráneos están catalogados como hábitats prioritarios de conservación en la Unión Europea por sus características ambientales y por su elevada biodiversidad, en la que destaca su interesante flora vascular. En la isla de Menorca se encuentra una notable representación de este tipo de ecosistema acuático. En este trabajo se ofrece, por primera vez, un inventario completo de la flora asociada a estos ambientes. Se han identificado 360 táxones, de los cuales solamente 35 están relacionados con las zonas inundadas. El análisis realizado para cada taxon –abundancia en la isla, corología y biotipos–, comparado con el realizado para el conjunto de la flora de la isla, pone de manifiesto algunos aspectos peculiares de la mencionada flora de estos hábitats, especialmente para los táxones exclusivos de la zona inundada.

Palabras clave: humedales temporales mediterráneos, flora vascular, corología, distribución, isla de Menorca, España.

Introduction

Mediterranean temporary ponds are a habitat that stand out for their biodiversity, both in a quantitative and in a qualitative sense. This main feature is a result of its particular water dynamic that relies mainly on rainfall (Zedler, 1987; Keeley & Zedler, 1998). The alternation of wet and dry phases, often irregular, creates an environment with extreme living conditions that favour the presence of a unique biodiversity exclusive or mostly restricted to this habitat (Holland & Jain, 1981a, b; Zedler, 1987; Holland & Jain, 1988, 1990; Keeley & Zedler, 1998; Grillas, 2004). Especially the vascular flora shows a richness of species that

make these seasonal ponds like small singular islands in its surrounding vegetation (Stone, 1990; Baskin, 1994). Moreover, this habitat also shows a diversity of types according to factors like geology or landform (Jones & Stokes, 1990; Smith & Verrill, 1998; Yaverovsky & al., 2004), another factor that contributes to its high biodiversity. All these particular characteristics together with their typically reduced dimension and strong dependence on rain water makes them highly sensitive to alterations, even those of apparent low intensity (Barry, 1996; Rhazi & al., 2001; Gauthier & al., 2004). Due to all these characteristics this habitat is included in the Habitats Directive of the European Union.

Particular features like geological diversity, the presence of impermeable soils, and rainy winters provide Minorca with an important representation of this habitat, not only in number, but also in diversity (Fraga & al., 2007), and up to six main types can be distinguished (Figs. 1-3). An elevated number of seasonal ponds have been related to human activity since ancient times. Some of the most important are close to archaeological sites from the megalithic culture and until not so many years ago they were still used and appreciated as a natural fresh water source for cattle. Despite this importance little was known about the state of conservation and real distribution of this habitat on the island. Only an unpublished paper on wetlands (Pretus, 1990) included some information. Aware of this situation in 2004, the Consell Insular de Menorca promoted a proposal for a LIFE Nature project ("Management and conservation of Mediterranean temporary ponds in Minorca" - LIFE05/NAT/ES/000058 LIFE BASSES) with one primary objective: the long-term conservation of this habitat on the whole island. Improving awareness of the associated vascular flora is an essential step in the implementation of management plans for this habitat.

Material and methods

As many as 63 temporary ponds are catalogued in the project (Fig. 4). For each of these ponds, at least the completion of two inventories of vascular flora has been accomplished, one in the inundation phase and another in the dry phase. But for the majority, additional inventories and annotations were occasionally carried out during the periodical visits made for other activities of the project. The plant checklist of each pond was introduced into a database which contains other information related to the flora of Minorca like the abundance within the island, biogeography, life forms, or legal protection. All these data sets were compiled before for the elaboration of the checklist of vascular flora on the island (Fraga & al., 2004), so any further analysis of the collected data could be relevant to the flora as a whole.

Several studies have shown that species distribution within a pond is related to the duration of inundation and water influence (Zedler, 1987; Holland & Jain, 1988; Crowe & al., 1994; Bauder, 2000; Barbour & al., 2003; Barbour & al., 2005). At the same time, there seems to be reciprocal influence between the vegetation of the pond and that of the surrounding area (Rhazi & al., 2001). Taking these facts into account, the inventory of the vascular flora was not limited to the inundation area. The immediate bordering area and a strip of vegetation around each pond were also surveyed with hopes of obtaining additional in-

formation about the environment in which the pond is located. In this way the plant taxa recorded could be classified into four groups according to their distribution and annual life cycle: plants that usually grow in the inundation area during the aquatic phase (IFA), plants that usually grow in the inundation area during the dry phase (IFS), plants that usually grow in the border zone (MG), which is the strip of land adjacent to the inundation area but rarely becomes inundated, and plants that usually grow in the terrestrial vegetation surrounding the pond (OR).

In order to perform a comparison with the flora from the rest of the island, the nomenclature, the abundance, life forms and chorological type for each taxa follows those established by Fraga & al. (2004). Collected specimens are stored in the Herbarium Generale Minoricae.

Results and discussion

The general results of the inventories of vascular plants in 63 Mediterranean temporary ponds of Minorca show that at least 360 taxa of vascular plants are related to this habitat (see appendix), this makes up 27% of all that on the island. Most of them (69%) grow outside the inundation areas (MG and OR), and among plants growing in the inundation area (IFS and IFA), just 35 taxa are area exclusive (Fig. 5). The table in the appendix shows the list of recorded taxa with additional information (abundance, chorological type, life form) and their habitual presence in the zones defined above.

A simple quantitative analysis of this information, especially when compared to that from the catalogue of vascular flora (Fraga & al., 2004), helps to learn more about the scientific and ecological importance of this habitat and its state of conservation.

Abundance

The results for abundance (Table 1) show that plants widely distributed within the island (common and very common) are the most significant group (75%). This is quite different from the flora of the whole island where they make up only 45%. These results could be either a confirmation of good representation of this habitat in Minorca, or that it is simply located in areas with plant communities widespread throughout the island.

An analysis of the abundance only for the plants growing in the inundation area may help to solve this question. Although these results (Table 1) still show the most common plants as the most represented, all the values are more equilibrated. Thus it can be said that most of the vegetation surrounding temporary



Fig. 1. a, Coastal temporary pond on rocky outcrops. **b,** Inland temporary pond on deep sandy soils.



Fig. 2. a, Temporary ponds on siliceous sandstone derived soils. **b,** Rockpool.



Fig. 3. a, Temporary pond in shallow depressions on palaeozoic soils. **b,** Ephemeral temporary ponds on sandy coastal soils.

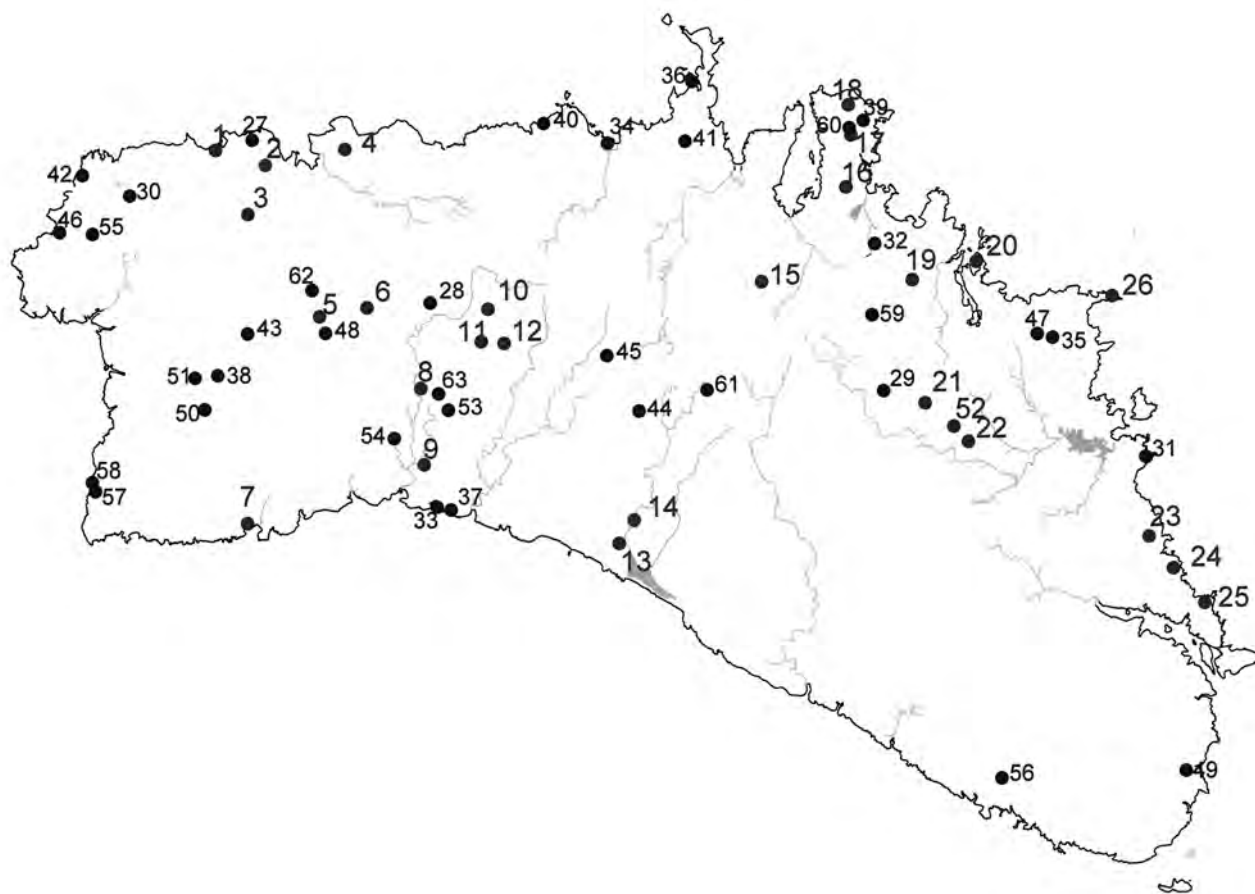


Fig. 4. Distribution of temporary ponds of Minorca Island studied in this work.

Table 1. Representation (%) of the abundance categories within the inundation area, the whole pond area and the vascular flora of Minorca (Fraga & al., 2004).

Abundance	Inundation area	Whole pond area	Flora of Minorca
Very common	18,7	34,0	15,4
Common	36,4	41,0	29,2
Rare	23,4	15,0	23,3
Very rare	21,5	10,0	30,3

ponds in Minorca is mainly formed by plant species with a wide distribution within the island, but in the areas of inundation the species are quite less widespread or even quite rare, most being found in less than 10 localities known on the island.

Related to the abundance is the frequency in which a taxon is recorded in each pond. The results with regard to taxa in the inundation area can be seen in Table 2. Most of the taxa are found in less than 5 ponds (68%). And only 14 taxa are present in more than 10. These more common plants are not exclusive to this habitat, but are also found in other habitats that

share factors of extreme conditions of inundation and drought like seasonal streams or the margins of marshlands. Among these more frequent plants are the only two endemics that have been found in the inundation area: *Romulea assumptionis* and *Polygonum romanum* subsp. *balearicum*, both Gymnesian endemics.

Chorology

The chorological pattern of the plants recorded is quite similar to that of all the flora on the island (Tab. 3). Plants with a distribution limited to the area

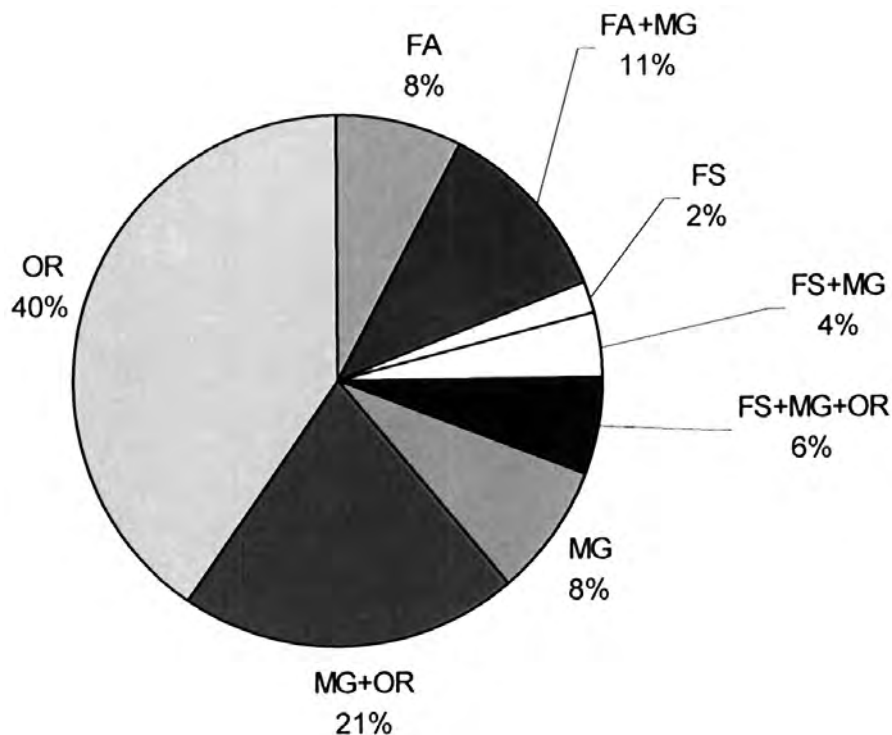


Fig. 5. Distribution of the taxa within the different zones of the pond area. FA: aquatic phase of the inundation area; FS: dry phase of the inundation area; MG: marginal area; OR: terrestrial vegetation around the pond.

Table 2. Most frequent taxa in the temporary ponds of Minorca.

Taxon	Number of ponds
<i>Cynodon dactylon</i>	33
<i>Lythrum hyssopifolia</i>	24
<i>Mentha pulegium</i>	23
<i>Plantago weldenii</i>	22
<i>Eleocharis palustris</i>	16
<i>Carex divisa</i>	15
<i>Carex divulsa</i>	14
<i>Agrostis stolonifera</i>	14
<i>Rumex pulcher</i> subsp. <i>woodsii</i>	12
<i>Polygonum romanum</i> subsp. <i>balearicum</i>	12
<i>Aster squamatus</i>	11
<i>Romulea assumptionis</i>	11
<i>Polypogon maritimus</i> subsp. <i>maritimus</i>	10
<i>Dittrichia viscosa</i> subsp. <i>viscosa</i>	10

around the Mediterranean Sea (Stenomediterranean and Eurimediterranean) are the most important group, with an even higher representation than all the flora on the island. Other groups like Atlantic and

widely distributed plants also show a significant increase in their representation. Exotic and narrowly distributed species have a significant decrease instead. This data leads us to believe that vegetation of the temporary ponds is typically Mediterranean and shows a low rate of specificity in its distribution rate.

If we repeat the same analysis restricted to the inundation area, the information provided changes greatly. Now widespread (cosmopolitan, subcosmopolitan) taxa are the most significant group. Those strictly Mediterranean decrease to less than a half, however plants with a wider distribution (eurimediterranean) maintain a high representation, and those with a preference for cooler or wetter habitats (Atlantic) become even more important. These results agree with some common characteristics of aquatic habitats where long-distance dispersed species are most common due to the presence of active dispersals like migrant birds. But the anthropic origin of most of these species has also been under discussion (Bauder, 2000). The data from the taxa in the inundation area reveal another significant change. Now the alien species, mainly from America, are more important. This fact opposes the observations made in the same habitat in other regions like California where temporary ponds are said to have some resistance to plant invasions (Holland & Jain, 1988; Cox, 1999). The contrasting results in the chorology of the

Table 3. Distribution (%) of chorological types within the taxa of the inundation area, the whole pond area and the vascular flora of Minorca (Fraga & al., 2004).

Chorological type	Inundation area	Whole pond area	Flora of Minorca
Africa	0	0,3	1,7
America	8,4	2,8	4,7
Asia	0,9	0,3	1,3
Atlantics	9,3	7,3	4,6
Boreal	1,9	1,4	1,5
Wide distribution	26,2	13,0	10,1
Endemics	0,9	4,0	6,3
Eurasiat.	5,6	4,2	6,4
Euri-medit.	19,6	24,5	22,2
Medit.-Turan.	6,6	6,3	5,7
Paleotemp.	5,6	5,1	4,6
Esteno-medit.	12,1	30,2	28,7
Tropical	2,8	0,6	1,1

flora for the whole studied area and that restricted to the inundation area, show again clear differences between these two parts.

Life forms

The representation of Raunkiaer's life forms (Table 4) reveals some interesting information about the characteristics of the vascular flora associated to this habitat. In the spectrum of the entire pond area the values are quite similar to those of the vascular flora on the island. That is, herbaceous plants are the most significant groups, especially the short lived ones (therophytes). Also woody plants (chamaephytes and phanerophytes) have some importance, but again there are extreme changes when considering only the inundation area. Now the annual plants are still the most notable group, with a value similar to that of the

vascular flora on the island, but representation of woody forms decrease dramatically and, as could be expected, aquatic plants (hydrophytes) show a dramatic increase. Herbaceous perennial plants also show a significant increase in their representation.

These results, although somewhat predictable, are illustrative of the differences in vegetation among the different zones related to the temporary pond. The predominance of therophytes in the three analyses can be explained by their importance in the whole Mediterranean area as a consequence of the xeric character of its climate (Orshan & al., 1988; Danin & Orshan, 1990; Floret & al., 1990; Heywood, 1995) or as another consequence of human influence (Fraga & al., 2004). But in the inundation area there may be another explanation. Unlike the flora as a whole, where predominance of annuals seems to be a feature of the Mediterranean region (Madon & Médail, 1997), tem-

Table 4. Representation (%) of each Raunkiaer life form within the taxa of the inundation area, the whole pond area and the vascular flora of Minorca (Fraga & al., 2004).

Life form	Inundation area	Whole pond area	Flora of Minorca
Chamaephytes	2,8	8,6	11,4
Geophytes	9,3	8,4	11,7
Hemicryptophytes	26,2	22,3	19,6
Hydrophytes	15,9	4,7	3,0
Lianas	0	2,0	1,1
Phanaerophytes	1,9	7,5	8,9
Therophytes	43,9	46,5	44,3

porary ponds show a predominance of this life form in other regions like California (Zedler, 1987; Holland & Jain, 1988). Thus, in the inundation area this result can be explained by some specific characteristics of this habitat that also favour this life form. These characteristics may be the dynamism and irregularity of hidroperiods in the time or the irregularity of the borders of the inundation area. The physical and environmental conditions created by both phenomena are more suitable for plants with a short life span than for those with a long one. The increase of hemicryptophytes may be attributed to similar reasons. These herbaceous perennials prefer open spaces, with few wood species, like those created by water dynamism in temporary ponds, also more resilient to periods of inundation.

This data about life forms again shows a differentiation between the flora of the inundation area of temporary pools and that of the surrounding area or with respect to the all the flora on the island.

Exotic species

Alien or exotic species are a group of plants that must be considered for their probable negative impact on the habitat as some can develop invasive behaviour. Several studies have shown the importance of alien species in the conservation of temporary ponds (Bauder, 1996; Gerhardt & Collinge, 2003; Zedler & Black, 2004). In fact, alien invasive plants are seen as a main threat for the conservation of this habitat within the LIFE BASSES project. Ten naturalised alien species have been found in the inundation area of the ponds. None of them are hydrophytes, so all their growing seasons coincide mainly during the dry phase. All but two are therophytes: *Amaranthus albus*, *A. hybridus*, *A. retroflexus*, *A. viridis*, *Aster squamatus*, *Chamaesyce postrata*, *Conyza sumatrensis* and *Heliotropium curassavicum*. The two hemicryptophytes: *Arundo donax* and *Paspalum paspalodes* have a clearly invasive behaviour. The latter is the most widespread in this habitat. The aggressive capacity of this species as an invader has been seen in other aquatic habitats (Aguiar & al., 2001; 2005; Bernez & al., 2005; 2006) and in some ponds it has completely changed the ecology forming a monotypic vegetation at the expense of the native plants.

Conclusions

The vascular flora associated to Mediterranean temporary ponds in Minorca has two main groups of taxa, those that grow without the direct influence of the standing water, and those that grow within the inundation area, in the aquatic or even in the dry phase.

The former show characteristics similar to the flora of the entire island in terms of abundance, life forms and chorology. On the other hand, the taxa that usually grow in the inundation area have a different pattern within the same parameters. Despite the alternation between the inundation and drought phases, the flora of the inundation area has a vegetation whose primary traits are similar to those of other aquatic habitats, i.e. the importance of widely distributed taxa or the predominance of herbaceous life forms.

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Appendix

Checklist of the vascular plants recorded.

Key. FA, aquatic phase of the inundation area; FS, dry phase of the inundation area; MG, marginal area; OR, terrestrial vegetation around the pond.

Taxon	Abundance	Chorological type	Life form	FA	FS	MG	OR
<i>Aegilops geniculata</i> Roth	Very common	Medit.-Turán.	Therophytes				X
<i>Aetheorhiza bulbosa</i> subsp. <i>bulbosa</i> (L.) Cass.	Very common	Steno-Medit.	Hemicryptophytes				X
<i>Agrostis stolonifera</i> L.	Common	Boreal	Hemicryptophytes	X			X
<i>Allium ampeloprasum</i> L.	Common	Euri-Medit.	Geophytes				X
<i>Allium roseum</i> L.	Very common	Euri-Medit.	Geophytes				X
<i>Allium triquetrum</i> L.	Very common	Steno-Medit.	Geophytes				X
<i>Aloe maculata</i> All.	Very rare	Africa	Chamaephytes				X
<i>Athenia orientalis</i> subsp. <i>orientalis</i> (Tzvelev) García Murillo & Talavera	Very rare	Medit.-Turán.	Hydrophytes	X			
<i>Amaranthus albus</i> L.	Very common	America	Therophytes		X		X
<i>Amaranthus hybridus</i> L.	Common	America	Therophytes		X		X
<i>Amaranthus retroflexus</i> L.	Very common	America	Therophytes		X		X
<i>Amaranthus viridis</i> L.	Common	America	Therophytes		X		X
<i>Ammi majus</i> L.	Common	Euri-Medit.	Therophytes				X
<i>Ampelodesmos mauritanica</i> (Poir.) T. Durand & Schinz	Very common	Steno-Medit.	Hemicryptophytes				X
<i>Anagallis arvensis</i> subsp. <i>arvensis</i> L.	Very common	Euri-Medit.	Therophytes				X
<i>Anagallis arvensis</i> subsp. <i>parviflora</i> (Hoffmanns. & Link.) Arcang.	Rare	Steno-Medit.	Therophytes				X
<i>Anthemis maritima</i> subsp. <i>maritima</i> L.	Common	Steno-Medit.	Chamaephytes				X
<i>Anthoxanthum aristatum</i> Boiss.	Common	Atlantic	Therophytes				X
<i>Arbutus unedo</i> L.	Common	Euri-Medit.	Phanerophytes				X
<i>Arisarum vulgare</i> subsp. <i>vulgare</i> Targ. Tozz.	Very common	Steno-Medit.	Geophytes				X
<i>Artemisia caerulescens</i> subsp. <i>gallica</i> (Willd.) K.M. Perss.	Common	Steno-Medit.	Chamaephytes				X
<i>Arum italicum</i> subsp. <i>italicum</i> Mill.	Very common	Steno-Medit.	Geophytes				X
<i>Arundo donax</i> L.	Common	Asia	Phanerophytes	X			
<i>Asparagus acutifolius</i> L.	Very common	Steno-Medit.	Geophytes				X
<i>Asparagus albus</i> L.	Very common	Steno-Medit.	Geophytes				X
<i>Asparagus stipularis</i> Forssk.	Very common	Steno-Medit.	Geophytes				X
<i>Asperula laevigata</i> L.	Common	Steno-Medit.	Hemicryptophytes				X

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Asphodelus aestivus</i> Brot.	Very common	Steno-Medit.	Geophytes			X
<i>Asphodelus fistulosus</i> L.	Common	Wide distributed	Geophytes			X
<i>Asplenium balearicum</i> Shivas	Common	Endemic	Hemicyptophytes			X
<i>Asplenium marinum</i> L.	Rare	Atlantic	Hemicyptophytes			X
<i>Aster squamatus</i> (Spreng.) Hieron	Very common	America	Therophytes	X	X	
<i>Asteriscus aquaticus</i> (L.) Less.	Common	Steno-Medit.	Therophytes			X
<i>Atriplex prostrata</i> Boucher ex DC.	Very common	Boreal	Therophytes			X
<i>Avena sterilis</i> subsp. <i>ludoviciana</i> (Durieu) Nyman	Very common	Medit.-Turan.	Therophytes			X
<i>Baldellia ranunculooides</i> (L.) Parl.	Rare	Atlantic	Hydrophytes	X		
<i>Bellardia trixago</i> (L.) All.	Common	Euri-Medit.	Therophytes			X
<i>Bellis annua</i> subsp. <i>annua</i> L.	Very common	Steno-Medit.	Therophytes			X
<i>Bellium belliioides</i> L.	Common	Endemic	Hemicyptophytes			X
<i>Beta maritima</i> L.	Very common	Euri-Medit.	Hemicyptophytes			X
<i>Beta vulgaris</i> L.	Rare	Euri-Medit.	Hemicyptophytes			X
<i>Blackstonia perfoliata</i> subsp. <i>serotina</i> (Koch ex Rchb.) Vollm.	Common	Euri-Medit.	Therophytes			X
<i>Brachypodium distachyon</i> (L.) Beauv.	Very common	Medit.-Turan.	Therophytes			X
<i>Brachypodium phoenicooides</i> (L.) Roem. & Schult.	Very common	Euri-Medit.	Hemicyptophytes			X
<i>Brachypodium sylvaticum</i> subsp. <i>sylvaticum</i> (Huds.) Beauv.	Common	Paleotemp.	Hemicyptophytes			X
<i>Briza maxima</i> L.	Very common	Wide distributed	Therophytes			X
<i>Briza minor</i> L.	Common	Wide distributed	Therophytes			X
<i>Bromus pseudothominii</i> P. Sm.	Common	Euroasiat.	Therophytes			X
<i>Bupleurum semicompositum</i> L.	Common	Medit.-Turan.	Therophytes			X
<i>Callitriche brutia</i> Petagna	Rare	Atlantic	Hydrophytes	X		
<i>Callitriche stagnalis</i> Scop.	Common	Euroasiat.	Hydrophytes	X		
<i>Callitriche truncata</i> subsp. <i>occidentalis</i> (Rouy) Schotsman	Rare	Atlantic	Hydrophytes	X		
<i>Capparis spinosa</i> subsp. <i>rupestris</i> (Sm.) Nyman	Common	Euri-Medit.	Phanerophytes			X
<i>Carduncellus caeruleus</i> (L.) C. Presl.	Rare	Steno-Medit.	Hemicyptophytes			X
<i>Carex distans</i> L.	Rare	Euri-Medit.	Hemicyptophytes	X		X
<i>Carex divisa</i> Huds.	Very common	Paleotemp.	Hemicyptophytes	X		X
<i>Carex divulsa</i> subsp. <i>leersii</i> (Kneuck.) W. Koch	Common	Euri-Medit.	Hemicyptophytes			X
<i>Carex flacca</i> Schreb.	Very common	Euroasiat.	Hemicyptophytes	X		X

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Carlina corymbosa</i> subsp. <i>corymbosa</i> L.	Very common	Steno-Medit.	Hemicryptophytes			X
<i>Carlina lanata</i> L.	Common	Steno-Medit.	Therophytes			X
<i>Carthamus lanatus</i> L.	Very common	Euri-Medit.	Therophytes			X
<i>Centaurea calcitrapa</i> L.	Common	Euri-Medit.	Hemicryptophytes			X
<i>Centaureum spicatum</i> (L.) Fritsch	Common	Atlantic	Therophytes		X	X
<i>Centaureum tenuiflorum</i> (Hoffmanns. & Link) Fritsch	Common	Atlantic	Therophytes		X	X
<i>Centunculus minimus</i> L.	Very rare	Euroasiat.	Therophytes	X		X
<i>Chamaesyce canescens</i> subsp. <i>canescens</i> (L.) Prokh.	Very rare	Euri-Medit.	Therophytes		X	X
<i>Chamaesyce prostrata</i> (Aiton) Small	Common	America	Therophytes	X	X	X
<i>Chenopodium album</i> L.	Very common	Wide distributed	Therophytes	X	X	X
<i>Chenopodium murale</i> L.	Very common	Wide distributed	Therophytes	X	X	X
<i>Chenopodium vulvaria</i> L.	Very common	Euri-Medit.	Therophytes	X	X	X
<i>Chrozophora tinctoria</i> (L.) Raf.	Common	Medit. -Turán.	Therophytes	X	X	X
<i>Cicendia filiformis</i> (L.) Delarbre	Rare	Atlantic	Therophytes		X	X
<i>Cichorium endivia</i> subsp. <i>divaricatum</i> (Schousb.) P.D. Sell	Common	Steno-Medit.	Therophytes		X	X
<i>Cichorium intybus</i> L.	Very common	Wide distributed	Hemicryptophytes			X
<i>Cistus albidus</i> L.	Common	Steno-Medit.	Phanerophytes			X
<i>Cistus monspeliensis</i> L.	Very common	Steno-Medit.	Phanerophytes			X
<i>Cistus salviifolius</i> L.	Very common	Steno-Medit.	Phanerophytes			X
<i>Clematis cirrhosa</i> L.	Very common	Medit. -Turán.	Liana			X
<i>Convolvulus arvensis</i> var. <i>arvensis</i> L.	Very common	Paleotemp.	Geophytes	X	X	X
<i>Conyza sumatrensis</i> (Retz.) E. Walker	Very common	America	Therophytes	X	X	X
<i>Coronopus squamatus</i> (Forssk.) Asch.	Rare	Euri-Medit.	Therophytes	X		
<i>Corrigiola litoralis</i> L.	Very rare	Euri-Medit.	Chamaephytes	X		
<i>Crassula tillaea</i> Lest. -Garl.	Common	Euri-Medit.	Therophytes		X	X
<i>Crassula vaillantii</i> (Wild.) Roth	Rare	Wide distributed	Therophytes		X	X
<i>Crepis vesicaria</i> subsp. <i>vesicaria</i> L.	Common	Steno-Medit.	Hemicryptophytes			X
<i>Crypsis aculeata</i> (L.) Aiton	Rare	Wide distributed	Therophytes	X		
<i>Gynodon dactylon</i> (L.) Pers.	Very common	Wide distributed	Hemicryptophytes	X	X	X
<i>Cynosurus echinatus</i> L.	Common	Euri-Medit.	Therophytes			X
<i>Cyperus longus</i> subsp. <i>longus</i> L.	Rare	Paleotemp.	Hemicryptophytes	X		X

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Dactylis glomerata</i> subsp. <i>glomerata</i> L.	Rare	Paleotemp.	Hemicryptophytes			X
<i>Damasonium alisma</i> subsp. <i>bourgaei</i> (Coss.) Maire	Very rare	Steno-Medit.	Hydrophytes	X		
<i>Daucus carota</i> subsp. <i>carota</i> L.	Very common	Paleotemp.	Hemicryptophytes			X
<i>Daucus carota</i> subsp. <i>hispanicus</i> (Gouan) Thell.	Common	Steno-Medit.	Hemicryptophytes			X
<i>Desmazeria marina</i> (L.) Druce	Very common	Atlantic	Therophytes			X
<i>Digitaria sanguinalis</i> (L.) Scop.	Common	Wide distributed	Therophytes	X	X	
<i>Ditrichia graveolens</i> (L.) Greuter	Common	Medit. -Turán.	Therophytes	X	X	
<i>Ditrichia viscosa</i> subsp. <i>viscosa</i> (L.) Greuter	Very common	Steno-Medit.	Phanerophytes	X	X	
<i>Dorycnium fulgurans</i> (Porta) Lassen	Rare	Endemic	Chamaephytes			X
<i>Dorycnium hirsutum</i> (L.) Ser.	Common	Euri-Medit.	Chamaephytes			X
<i>Echinochloa colonum</i> (L.) Link	Common	Tropical	Therophytes	X	X	
<i>Echium italicum</i> subsp. <i>italicum</i> L.	Common	Euri-Medit.	Hemicryptophytes			X
<i>Echium plantagineum</i> L.	Common	Euri-Medit.	Therophytes			X
<i>Elatine macropoda</i> Guss.	Very rare	Steno-Medit.	Therophytes	X		
<i>Eleocharis acicularis</i> Roem. & Schult.	Very rare	Wide distributed	Hemicryptophytes	X		
<i>Eleocharis palustris</i> (L.) Roem. & Schult.	Common	Wide distributed	Hemicryptophytes	X	X	
<i>Eleocharis unigulumis</i> (Link) Schult.	Very rare	Wide distributed	Hemicryptophytes	X	X	
<i>Elymus elongatus</i> (Host) Runemark	Very rare	Medit. -Turán.	Hemicryptophytes			X
<i>Elymus pungens</i> subsp. <i>campestris</i> (Gren. & Godron) Melderis	Rare	Euri-Medit.	Hemicryptophytes			X
<i>Elymus repens</i> subsp. <i>repens</i> (L.) Gould	Rare	Boreal	Hemicryptophytes			X
<i>Epilobium parviflorum</i> Schreb.	Rare	Paleotemp.	Hemicryptophytes	X	X	
<i>Erica arborea</i> L.	Common	Wide distributed	Phanerophytes			X
<i>Erica multiflora</i> L.	Very common	Steno-Medit.	Phanerophytes			X
<i>Erica scoparia</i> L.	Common	Steno-Medit.	Phanerophytes			X
<i>Erodium chium</i> subsp. <i>chium</i> (L.) Willd.	Common	Euri-Medit.	Therophytes			X
<i>Eryngium campestre</i> L.	Common	Euri-Medit.	Hemicryptophytes		X	
<i>Euphorbia dendroides</i> L.	Common	Steno-Medit.	Phanerophytes			X
<i>Euphorbia pithyusa</i> subsp. <i>pithyusa</i> L.	Common	Steno-Medit.	Chamaephytes			X
<i>Euphorbia segetalis</i> var. <i>segetalis</i> L.	Common	Steno-Medit.	Chamaephytes			X
<i>Evax pygmaea</i> (L.) Brot.	Common	Steno-Medit.	Therophytes			X
<i>Exaculum pusillum</i> (Lam.) Caruel	Very rare	Atlantic	Therophytes	X		

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Ficus carica</i> L.	Very common	Medit.-Turan.	Phanerophytes			X
<i>Frankenia composita</i> Pau & Font Quer	Common	Steno-Medit.	Chamaephytes		X	X
<i>Frankenia hirsuta</i> L.	Common	Medit.-Turan.	Chamaephytes		X	X
<i>Frankenia laevis</i> L.	Very rare	Atlantic	Chamaephytes		X	X
<i>Frankenia pulverulenta</i> L.	Common	Wide distributed	Therophytes	X		
<i>Fumaria capreolata</i> L.	Common	Euri-Medit.	Therophytes			X
<i>Galactites tomentosa</i> Moench	Very common	Steno-Medit.	Therophytes			X
<i>Galium debile</i> Desv.	Very rare	Atlantic	Hemicryptophytes	X		X
<i>Galium murale</i> (L.) All.	Common	Steno-Medit.	Therophytes			X
<i>Gastroidium ventricosum</i> (Gouan) Schinz & Thell.	Common	Atlantic	Therophytes		X	X
<i>Gaudinia fragilis</i> (L.) Beauv.	Common	Euri-Medit.	Therophytes		X	X
<i>Geranium columbinum</i> L.	Rare	Euroasiat.	Therophytes		X	X
<i>Geranium dissectum</i> L.	Common	Euroasiat.	Therophytes		X	X
<i>Geranium purpureum</i> Vill.	Very common	Euri-Medit.	Therophytes			X
<i>Gladiolus illyricus</i> Koch	Very common	Euroasiat.	Geophytes		X	X
<i>Gleditsia triacanthos</i> L.	Very rare	America	Phanerophytes		X	X
<i>Hainardia cylindrica</i> (Willd.) Greuter	Rare	Euri-Medit.	Therophytes	X		X
<i>Hedera helix</i> L. subsp. <i>helix</i>	Common	Atlantic	Liana			X
<i>Hedynois rhagadioloides</i> (L.) F.W. Schmidt	Very common	Steno-Medit.	Therophytes			X
<i>Hedysarum coronarium</i> L.	Very common	Steno-Medit.	Hemicryptophytes		X	X
<i>Heliotropium curassavicum</i> L.	Rare	America	Therophytes	X		
<i>Heliotropium europaeum</i> L.	Very common	Medit.-Turan.	Therophytes	X	X	X
<i>Heliotropium supinum</i> L.	Very rare	Euri-Medit.	Therophytes	X		
<i>Hippocrepis biflora</i> Spreng.	Common	Euri-Medit.	Therophytes			X
<i>Holcus lanatus</i> L.	Rare	Boreal	Hemicryptophytes		X	
<i>Hordeum marinum</i> subsp. <i>gussoneanum</i> (Pari.) Thell.	Very rare	Medit.-Turan.	Therophytes		X	X
<i>Hordeum marinum</i> subsp. <i>marinum</i> Huds.	Common	Euri-Medit.	Therophytes		X	X
<i>Hordeum murinum</i> subsp. <i>leporinum</i> (Link) Arcang.	Very common	Euri-Medit.	Therophytes			X
<i>Hyoseris radiata</i> subsp. <i>radiata</i> L.	Very common	Steno-Medit.	Hemicryptophytes			X
<i>Hypochoeris achyrophorus</i> L.	Very common	Steno-Medit.	Therophytes			X
<i>Isoetes durieui</i> Bory	Common	Steno-Medit.	Geophytes	X		X

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Isoetes histrix</i> Bory	Very rare	Atlantic	Geophytes	X		X
<i>Isoetes velatum</i> subsp. <i>velatum</i> A. Braun	Very rare	Euri-Medit.	Geophytes	X		
<i>Juncus acutus</i> subsp. <i>acutus</i> L.	Very common	Euri-Medit.	Hemicryptophytes	X		X
<i>Juncus articulatus</i> L.	Common	Boreal	Hemicryptophytes	X		
<i>Juncus bufonius</i> L.	Common	Wide distributed	Therophytes			X
<i>Juncus capitatus</i> Weigel	Common	Euri-Medit.	Therophytes			X
<i>Juncus effusus</i> L.	Rare	Wide distributed	Hemicryptophytes	X		X
<i>Juncus hybridus</i> Brot.	Common	Atlantic	Therophytes			X
<i>Juncus littoralis</i> C.A. Mey.	Rare	Medit.-Turan.	Hemicryptophytes	X		X
<i>Juncus maritimus</i> Lam.	Common	Wide distributed	Hemicryptophytes	X		X
<i>Juncus pygmaeus</i> Rich.	Very rare	Atlantic	Therophytes	X		X
<i>Juncus subulatus</i> Forssk.	Common	Medit.-Turan.	Hemicryptophytes	X		X
<i>Juniperus phoenicea</i> subsp. <i>turbinata</i> (Guss.) Nyman	Common	Euri-Medit.	Phanerophytes			X
<i>Kickxia cirrhosa</i> (L.) Fritsch	Common	Steno-Medit.	Therophytes			X
<i>Kickxia commutata</i> subsp. <i>commutata</i> (Bernh. ex Rchb.) Fritsch	Rare	Steno-Medit.	Chamaephytes			X
<i>Kickxia spuria</i> subsp. <i>integrifolia</i> (Brot.) R. Fern.	Common	Euroasiat.	Therophytes			X
<i>Kundmania sicula</i> (L.) DC.	Common	Steno-Medit.	Hemicryptophytes			X
<i>Lagurus ovatus</i> L.	Very common	Euri-Medit.	Therophytes			X
<i>Launaea cervicornis</i> (Boiss.) Font Quer & Rothm.	Common	Endemic	Chamaephytes			X
<i>Lavatera cretica</i> L.	Common	Steno-Medit.	Chamaephytes			X
<i>Lavatera punctata</i> All.	Rare	Steno-Medit.	Therophytes			X
<i>Lemna gibba</i> L.	Common	Wide distributed	Hydrophytes	X		
<i>Lemna minor</i> L.	Common	Wide distributed	Hydrophytes	X		
<i>Leontodon tuberosus</i> L.	Very common	Steno-Medit.	Hemicryptophytes			X
<i>Leucojum aestivum</i> subsp. <i>pulchellum</i> (Salisb.) Briq.	Very common	Endemic	Geophytes			X
<i>Limonium companyonis</i> (Gren. & Billot) Kuntze	Common	Endemic	Chamaephytes			X
<i>Limonium echioides</i> (L.) Mill.	Common	Steno-Medit.	Therophytes			X
<i>Limonium ferulaceum</i> (L.) Chaz.	Common	Steno-Medit.	Chamaephytes			X
<i>Limonium minutum</i> (L.) Chaz.	Common	Endemic	Chamaephytes			X
<i>Limonium saxicola</i> Erben	Common	Endemic	Chamaephytes			X
<i>Limonium virgatum</i> (Willd.) Fourr.	Common	Euri-Medit.	Chamaephytes			X

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Linum bienne</i> Mill.	Common	Atlantic	Hemicryptophytes			X X
<i>Linum strictum</i> subsp. <i>strictum</i> L.	Common	Steno-Medit.	Therophytes			X
<i>Lippia nodiflora</i> (L.) Michx	Rare	Tropical	Hemicryptophytes	X		X
<i>Lobularia maritima</i> subsp. <i>maritima</i> (L.) Desv.	Very common	Steno-Medit.	Chamaephytes			X
<i>Logfia gallica</i> (L.) Coss. & Germ.	Common	Euri-Medit.	Therophytes			X X
<i>Lolium perenne</i> L.	Very rare	Boreal	Hemicryptophytes			X X
<i>Lolium rigidum</i> Gaudin	Very common	Euri-Medit.	Therophytes			X
<i>Lonicera implexa</i> Aiton	Common	Steno-Medit.	Liana			X
<i>Lophochloa cristata</i> (L.) Hyl.	Very common	Medit.-Turán.	Therophytes			X
<i>Lotus angustissimus</i> L.	Rare	Euri-Medit.	Therophytes	X		X
<i>Lotus cytisoides</i> L.	Very common	Steno-Medit.	Chamaephytes			X
<i>Lotus glaber</i> Mill.	Common	Paleotemp.	Hemicryptophytes	X		X
<i>Lotus hispidus</i> Desf. ex DC.	Rare	Euri-Medit.	Therophytes	X		X
<i>Lotus ornithopodioides</i> L.	Common	Steno-Medit.	Therophytes			X
<i>Lotus parviflorus</i> Desf.	Rare	Steno-Medit.	Therophytes			X
<i>Lythrum borysthenicum</i> (Schrank) Litv.	Rare	Euri-Medit.	Therophytes	X		
<i>Lythrum hyssopifolia</i> L.	Common	Wide distributed	Therophytes	X		X
<i>Lythrum junceum</i> Banks & Sol.	Common	Steno-Medit.	Chamaephytes	X		X
<i>Lythrum thymifolia</i> L.	Very rare	Steno-Medit.	Therophytes	X		X
<i>Lythrum tribracteatum</i> Spreng.	Very rare	Euri-Medit.	Therophytes	X		
<i>Marsilea strigosa</i> Willd.	Very rare	Steno-Medit.	Geophytes	X		
<i>Medicago intertexta</i> (L.) Mill.	Rare	Steno-Medit.	Therophytes			X X
<i>Medicago murex</i> Willd.	Common	Steno-Medit.	Therophytes			X X
<i>Medicago polymorpha</i> L.	Very common	Euri-Medit.	Therophytes	X		X X
<i>Medicago truncatula</i> Gaertn.	Common	Euri-Medit.	Therophytes			X
<i>Melica major</i> Sibth. & Sm.	Common	Steno-Medit.	Hemicryptophytes			X
<i>Melilotus indicus</i> (L.) All.	Very common	Euroasiat.	Therophytes			X
<i>Melilotus infestus</i> Guss.	Very rare	Steno-Medit.	Therophytes			X
<i>Melilotus sulcata</i> Desf.	Very common	Steno-Medit.	Therophytes			X
<i>Mentha pulegium</i> L.	Very common	Euri-Medit.	Hemicryptophytes	X		X
<i>Micromeria rodriguezii</i> Freyn & Janka	Common	Endemic	Chamaephytes			X

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Myriophyllum alterniflorum</i> DC.	Very rare	Atlantic	Hydrophytes	X		
<i>Myrtus communis</i> L.	Very common	Steno-Medit.	Phanerophytes		X	X
<i>Olea europaea</i> var. <i>sylvestris</i> Brot.	Very common	Steno-Medit.	Phanerophytes			X
<i>Ononis crispa</i> L.	Rare	Endemic	Chamaephytes			X
<i>Ononis mitissima</i> L.	Common	Steno-Medit.	Therophytes			X
<i>Ophioglossum lusitanicum</i> L.	Rare	Atlantic	Geophytes		X	X
<i>Ornithopus compressus</i> L.	Common	Steno-Medit.	Therophytes		X	X
<i>Ornithopus pinnatus</i> (Mill.) Druce	Rare	Euri-Medit.	Therophytes		X	X
<i>Osyris alba</i> L.	Rare	Euri-Medit.	Phanerophytes			X
<i>Parapholis filiformis</i> (Roth) C.E. Hubb.	Common	Atlantic	Therophytes		X	
<i>Parapholis incurva</i> (L.) C.E. Hubb.	Common	Atlantic	Therophytes			X
<i>Parentuccella viscosa</i> (L.) Caruel	Common	Atlantic	Therophytes			X
<i>Parietaria judaica</i> L.	Very common	Euri-Medit.	Chamaephytes			X
<i>Paronychia echinulata</i> Chater	Common	Steno-Medit.	Therophytes		X	X
<i>Paspalum paspalodes</i> (Michx) Scrib.	Common	America	Hemicryptophytes	X	X	
<i>Petrohragia nanteuilii</i> (Burnat) P.W. Ball & Heywood	Common	Euri-Medit.	Therophytes			X
<i>Phalaris aquatica</i> L.	Rare	Steno-Medit.	Hemicryptophytes		X	
<i>Phalaris coeruleascens</i> Desf.	Common	Steno-Medit.	Hemicryptophytes		X	
<i>Phalaris minor</i> Retz.	Very common	Wide distributed	Therophytes		X	X
<i>Phalaris paradoxa</i> L.	Rare	Medit.-Turan.	Therophytes		X	
<i>Phillyrea angustifolia</i> L.	Common	Steno-Medit.	Phanerophytes			X
<i>Phillyrea media</i> var. <i>media</i> L.	Very common	Steno-Medit.	Phanerophytes			X
<i>Picris echioides</i> L.	Rare	Euri-Medit.	Therophytes		X	
<i>Pilularia minuta</i> Durieu ex A. Braun	Very rare	Steno-Medit.	Geophytes	X		
<i>Pinus halepensis</i> var. <i>halepensis</i> Mill.	Very common	Euri-Medit.	Phanerophytes			X
<i>Piptatherum miliaceum</i> (L.) Coss.	Very common	Steno-Medit.	Hemicryptophytes			X
<i>Pistacia lentiscus</i> L.	Very common	Steno-Medit.	Phanerophytes			X
<i>Plantago coronopus</i> subsp. <i>coronopus</i> L.	Very common	Euri-Medit.	Therophytes		X	X
<i>Plantago crassifolia</i> Forssk.	Common	Steno-Medit.	Hemicryptophytes		X	X
<i>Plantago lagopus</i> L.	Very common	Steno-Medit.	Therophytes			X
<i>Plantago lanceolata</i> L.	Very common	Euroasiat.	Hemicryptophytes			X

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Plantago major</i> subsp. <i>major</i> L.	Rare	Euroasiat.	Hemicryptophytes			X
<i>Plantago weldenii</i> Rchb.	Rare	Euri-Medit.	Therophytes		X	X
<i>Poa annua</i> L.	Very common	Wide distributed	Therophytes			X
<i>Poa bulbosa</i> L.	Common	Paleotemp.	Hemicryptophytes			X
<i>Polygonum aviculare</i> L.	Very common	Wide distributed	Therophytes		X	
<i>Polygonum romanum</i> subsp. <i>baleaicum</i> Raffaelli & L. Villar	Rare	Endemic	Chamaephytes		X	
<i>Polygonum maritimum</i> subsp. <i>maritimum</i> Willd.	Common	Steno-Medit.	Therophytes	X		X
<i>Polygonum maritimum</i> subsp. <i>subspatheceus</i> (Req.) Bonnier & Layens	Rare	Steno-Medit.	Therophytes	X		X
<i>Polygonum monspeliensis</i> (L.) Desf.	Common	Wide distributed	Therophytes			X
<i>Portulaca oleracea</i> subsp. <i>oleracea</i> L.	Very common	Wide distributed	Therophytes		X	X
<i>Potamogeton pectinatus</i> L.	Common	Wide distributed	Hydrophytes	X		
<i>Potentilla reptans</i> L.	Common	Paleotemp.	Hemicryptophytes			X
<i>Psoralea bituminosa</i> L.	Very common	Medit. -Turan.	Hemicryptophytes			X
<i>Pulicaria sicula</i> (L.) Moris	Common	Steno-Medit.	Therophytes	X		X
<i>Pulicaria vulgaris</i> Gaertn.	Very rare	Paleotemp.	Therophytes		X	
<i>Quercus ilex</i> subsp. <i>ilex</i> L.	Very common	Steno-Medit.	Phanerophytes			X
<i>Radiola linoidea</i> Roth	Rare	Paleotemp.	Therophytes			X
<i>Ranunculus macrophyllus</i> Desf.	Very common	Steno-Medit.	Hemicryptophytes			X
<i>Ranunculus muricatus</i> L.	Common	Medit. -Turan.	Therophytes	X		X
<i>Ranunculus ophioglossifolius</i> Vill.	Rare	Euri-Medit.	Therophytes	X		X
<i>Ranunculus peltatus</i> subsp. <i>baudotii</i> (Godron) C.D.K. Cook	Rare	Wide distributed	Hydrophytes	X		
<i>Ranunculus peltatus</i> subsp. <i>saniculifolius</i> (Viv.) C.D.K. Cook	Common	Euri-Medit.	Hydrophytes	X		
<i>Ranunculus sardous</i> Crantz	Rare	Wide distributed	Therophytes	X		X
<i>Ranunculus trilobus</i> Desf.	Common	Euri-Medit.	Therophytes	X		X
<i>Reichardia picroides</i> (L.) Roth	Very common	Steno-Medit.	Hemicryptophytes			X
<i>Reseda alba</i> L.	Very common	Steno-Medit.	Hemicryptophytes			X
<i>Rhamnus alaternus</i> L.	Very common	Steno-Medit.	Phanerophytes			X
<i>Romulea assumptionis</i> Garcias Font	Common	Endemic	Geophytes			X
<i>Romulea ramiflora</i> subsp. <i>ramiflora</i> Ten.	Common	Steno-Medit.	Geophytes	X		X
<i>Rosa sempervirens</i> L.	Very common	Steno-Medit.	Liana			X
<i>Rosmarinus officinalis</i> var. <i>officinalis</i> L.	Very common	Steno-Medit.	Phanerophytes			X

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Rubia perigrina</i> var. <i>longifolia</i> (Poir.) Rouy	Very common	Steno-Medit.	Liana			X
<i>Rubus ulmifolius</i> Schott	Very common	Euri-Medit.	Liana		X	X
<i>Rumex bucephalophorus</i> subsp. <i>gallicus</i> (Steinh.) Rech f.	Very common	Steno-Medit.	Therophytes			X
<i>Rumex conglomeratus</i> Murray	Common	Euroasiat.	Hemicryptophytes	X	X	
<i>Rumex crispus</i> L.	Common	Wide distributed	Hemicryptophytes	X	X	
<i>Rumex pulcher</i> subsp. <i>woodsii</i> (De Not.) Arcang.	Very common	Euri-Medit.	Hemicryptophytes	X	X	
<i>Ruppia cirrhosa</i> (Petagna) Grande	Common	Wide distributed	Hydrophytes	X		
<i>Ruppia maritima</i> L.	Very rare	Wide distributed	Hydrophytes	X		
<i>Ruscus aculeatus</i> L.	Very common	Euri-Medit.	Geophytes			X
<i>Sagina apetala</i> Ard.	Very common	Euri-Medit.	Therophytes		X	X
<i>Sagina maritima</i> G. Don	Common	Wide distributed	Therophytes		X	X
<i>Samolus valerandi</i> L.	Common	Wide distributed	Hemicryptophytes	X	X	
<i>Sanguisorba minor</i> subsp. <i>balearica</i> (Bourg. ex Nyman) Muñoz Garm. & C. Navarro	Common	Euri-Medit.	Hemicryptophytes			X
<i>Scabiosa atropurpurea</i> var. <i>amansii</i> (Rouy) O. Bolòs & J. Vigo	Very common	Steno-Medit.	Chamaephytes			X
<i>Schoenus nigricans</i> L.	Very common	Wide distributed	Hemicryptophytes		X	X
<i>Scirpus cernuus</i> Vahl	Common	Wide distributed	Therophytes	X	X	
<i>Scirpus holoschoenus</i> var. <i>holoschoenus</i> L.	Common	Atlantic	Hemicryptophytes	X	X	
<i>Scirpus littoralis</i> Schrad.	Very rare	Wide distributed	Geophytes	X		
<i>Scirpus maritimus</i> subsp. <i>maritimus</i> L.	Common	Wide distributed	Geophytes	X	X	
<i>Scolymus hispanicus</i> subsp. <i>occidentalis</i> F.M. Vázquez	Very common	Euri-Medit.	Hemicryptophytes			X
<i>Scorpiurus subvillosus</i> L.	Very common	Euri-Medit.	Therophytes			X
<i>Selaginella denticulata</i> (L.) Spring	Very common	Atlantic	Chamaephytes		X	X
<i>Serapias lingua</i> L.	Very common	Euri-Medit.	Geophytes		X	X
<i>Serapias parviflora</i> Parl.	Very common	Steno-Medit.	Geophytes			X
<i>Sideritis romana</i> subsp. <i>romana</i> L.	Common	Steno-Medit.	Therophytes			X
<i>Silene gallica</i> L.	Very common	Wide distributed	Therophytes			X
<i>Silene sclerocarpa</i> L. Dufour	Common	Euri-Medit.	Therophytes			X
<i>Silene vulgaris</i> (Moench) Garcke subsp. <i>vulgaris</i>	Very common	Euri-Medit.	Hemicryptophytes			X
<i>Silybum marianum</i> (L.) Gaertn.	Very common	Medit.-Turan.	Hemicryptophytes			X
<i>Sisymbrium officinale</i> (L.) Scop.	Common	Paleotemp.	Therophytes			X
<i>Smilax aspera</i> var. <i>aspera</i> L.	Very common	Euri-Medit.	Liana			X

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Solanum nigrum</i> subsp. <i>nigrum</i> L.	Common	Wide distributed	Therophytes			X
<i>Solenopsis minuta</i> (L.) C. Presl	Rare	Steno-Medit.	Therophytes			X
<i>Sonchus asper</i> subsp. <i>asper</i> (L.) Hill	Common	Wide distributed	Therophytes			X
<i>Sonchus oleraceus</i> L.	Very common	Euroasiat.	Therophytes	X		X
<i>Sonchus tenerimus</i> L.	Very common	Steno-Medit.	Chamaephytes			X
<i>Spergularia bocconei</i> (Scheele) Graebn.	Rare	Wide distributed	Therophytes			X
<i>Stellaria pallida</i> (Dumort.) Piré	Very common	Wide distributed	Therophytes			X
<i>Stipa capensis</i> Thunb.	Very common	Wide distributed	Therophytes			X
<i>Tamarix africana</i> var. <i>africana</i> Poir.	Common	Steno-Medit.	Phanerophytes			X
<i>Tamarix gallica</i> var. <i>gallica</i> L.	Rare	Steno-Medit.	Phanerophytes			X
<i>Tamus communis</i> L.	Very common	Euri-Medit.	Geophytes			X
<i>Teucrium capitatum</i> subsp. <i>majoricum</i> (Rouy) T. Navarro & Rosúa	Very common	Endemic	Chamaephytes			X
<i>Teucrium marum</i> subsp. <i>spinescens</i> (Porta) Valdés-Berm.	Very common	Endemic	Chamaephytes			X
<i>Teucrium scordium</i> subsp. <i>scordioides</i> (Schreb.) Maire & Petitm.	Very rare	Euroasiat.	Hemicryptophytes	X		X
<i>Thymelaea gussonei</i> Boreau	Very rare	Steno-Medit.	Therophytes			X
<i>Thymelaea hirsuta</i> (L.) Endl.	Common	Steno-Medit.	Phanerophytes			X
<i>Torilis nodosa</i> (L.) Gaertn.	Common	Medit.-Turan.	Therophytes			X
<i>Torilis webbii</i> Jury	Common	Medit.-Turan.	Therophytes			X
<i>Tribulus terrestris</i> L.	Common	Wide distributed	Therophytes	X		X
<i>Trifolium angustifolium</i> L.	Very common	Euri-Medit.	Therophytes			X
<i>Trifolium campestre</i> Schreb.	Very common	Paleotemp.	Therophytes			X
<i>Trifolium cherleri</i> L.	Common	Euri-Medit.	Therophytes			X
<i>Trifolium glomeratum</i> L.	Common	Euri-Medit.	Therophytes			X
<i>Trifolium micranthum</i> Viv.	Very rare	Paleotemp.	Therophytes			X
<i>Trifolium nigrescens</i> subsp. <i>nigrescens</i> Viv.	Very common	Euri-Medit.	Therophytes			X
<i>Trifolium ornithopodioides</i> L.	Very rare	Atlantic	Therophytes			X
<i>Trifolium resupinatum</i> L.	Rare	Paleotemp.	Therophytes			X
<i>Trifolium scabrum</i> L.	Very common	Euri-Medit.	Therophytes			X
<i>Trifolium squamosum</i> L.	Rare	Euri-Medit.	Therophytes			X
<i>Trifolium stellatum</i> L.	Very common	Euri-Medit.	Therophytes			X
<i>Trifolium striatum</i> subsp. <i>brevirens</i> (Lange) Muñoz Rodr.	Very rare	Paleotemp.	Therophytes			X

Taxon	Abundance	Chorological type	Life form	FA	FS	MGOR
<i>Trifolium subterraneum</i> subsp. <i>oxalooides</i> Nyman	Common	Euri-Medit.	Therophytes			X
<i>Trifolium subterraneum</i> subsp. <i>subterraneum</i> L.	Common	Euri-Medit.	Therophytes			X
<i>Trifolium suffocatum</i> L.	Common	Steno-Medit.	Therophytes			X
<i>Triglochin bulbosum</i> subsp. <i>laxiflora</i> (Guss.) Rouy	Common	Steno-Medit.	Geophytes	X		X
<i>Trisetum paniceum</i> (Lam.) Pers.	Common	Steno-Medit.	Therophytes			X
<i>Tuberaria guttata</i> (L.) Fourr.	Very common	Euri-Medit.	Therophytes			X
<i>Typha domingensis</i> (Pers.) Steud.	Common	Tropical	Geophytes	X		
<i>Urginea maritima</i> (L.) Baker	Very common	Steno-Medit.	Geophytes			X
<i>Urospermum dalechampii</i> (L.) Scop. ex F.W. Schmidt	Very common	Euri-Medit.	Hemicryptophytes			X
<i>Urospermum picroides</i> (L.) Scop. ex F.W. Schmidt	Very common	Euri-Medit.	Therophytes			X
<i>Urtica membranacea</i> Poit.	Very common	Steno-Medit.	Therophytes			X
<i>Valantia muralis</i> L.	Very common	Steno-Medit.	Therophytes			X
<i>Verbascum sinuatum</i> L.	Very common	Euri-Medit.	Hemicryptophytes			X
<i>Verbena officinalis</i> L.	Common	Paleotemp.	Hemicryptophytes			X
<i>Verbena supina</i> L.	Very rare	Steno-Medit.	Hemicryptophytes	X		X
<i>Veronica anagalloides</i> Guss.	Rare	Euri-Medit.	Hydrophytes			
<i>Vicia angustifolia</i> L.	Very common	Euroasiat.	Therophytes			X
<i>Vicia parviflora</i> Cav.	Common	Euri-Medit.	Therophytes			X
<i>Vicia sativa</i> subsp. <i>sativa</i> L.	Rare	Euri-Medit.	Therophytes			X
<i>Vulpia geniculata</i> (L.) Link	Very common	Steno-Medit.	Therophytes			X
<i>Zannichellia obtusifolia</i> Talavera, García Murillo & Smit	Very rare	Atlantic	Hydrophytes	X		
<i>Zannichellia palustris</i> L.	Common	Wide distributed	Hydrophytes	X		

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