

The Endemic Plant Taxa of the Köprülü Kanyon National Park and Its Surroundings (Antalya-Isparta)

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Abstract: This study has been conducted in 2003-2004 in order to identify the endemic plants of the Köprülü Kanyon National Park (Antalya-Isparta) and its surroundings. A total of 230 endemic taxa belonging to 29 families were determined in the national park and its surroundings. There are 229 taxa belonging to *Angiospermae* subdivision and 1 taxon belonging to *Gymnospermae* subdivision in these collected and identified endemic taxa from the research area. There is no endemic taxon in the Bryophyta and Pteridophyta divisions of the park. 218 of the 229 taxa belonging to the *Angiospermae* subdivision are in the *Magnoliopsida* (Dicotyledoneae) class and other 11 are in the *Liliopsida* (Monocotyledoneae) class. 18 taxa of the vascular plants are specific to the research area. 44 of endemic taxa are included in the endangered category. The number of priority conservation requiring taxa is 21. Endemic taxon number is almost 25% of total flora of the area.

The top five families with the highest number of taxa in the study area are **Lamiaceae** (38), **Caryophyllaceae** (37), **Asteraceae** (26), **Scrophulariaceae** (20), **Fabaceae** (16) (Table 2).

The 10 largest genera with the highest number of taxa are as follows: **Silene** (15), **Astragalus** (9), **Sideritis** (8), **Verbascum** (7), **Centaurea** (7), **Stachys** (6), **Helichrysum** (6), **Alkanna** (6), **Veronica** (5) and **Minuartia** (5).

The distributions according to the phytogeographical regions of the endemic plants identified from the area is as follows: 59.565% **Mediterranean elements** (137 taxa), 23.478% **Irano-Turanian elements** (54 taxa), 0.304% **Euro-Siberian elements** (7 taxa) and 13.913% with **unknown** phytogeographical region (32 taxa).

The distributions of these taxa according to the conservation status is as follows: **CR** (Critically Endangered): 3, **EN** (Endangered): 22, **VU** (Vulnerable): 34, **LR** (Low Risk): 164, **(cd)** (Conservation Dependent): 29, **(lc)** (Least Concern): 106, **(nt)** (Near Threatened): 29. In this study, menacing factors on the flora and vegetation of the area and suggestions against to the factors are given.

In this paper, coordinates, habitats, altitudes, risk categories, to be which phytogeographical element of endemic plant taxa of the area, list of endemics grown only in the area were given. Almost 25 endemic taxa which were known from only type gathering have collected for the first time except for their type localities in the work. For more or less 30 endemic taxa were determined to their which phytogeographical region, for 5 of them changed risk categories.

Key words: Endemic Plant Taxa, Köprülü Kanyon National Park, Risk Category, conservation status, GEF II Project.

Köprülü Kanyon ve Çevresinin(Antalya-Isparta) Endemik Bitki Taksonları

Özet: Bu çalışma, 2003–2004 yılları arasında, Köprülü Kanyon Milli Parkı(Antalya-Isparta) ve çevresinde yetişen endemik bitkileri belirlemek amacıyla yapılmıştır. Milli park ve çevresinde 29 familyaya ait toplam 230 endemik bitki taksonu tespit edilmiştir. Karayosunları ve eğrelti bölümlerine ait herhangi bir endemik bulanmamıştır. Bu endemik bitkilerden 18'i araştırma alanına özgüdür. 44 endemik takson tehlike kategorisine dahil edilmiştir. Öncelikli olarak korunması gereken takson sayısı 21'dir. Endemik taksonların sayısı çalışma alanının toplam florasının yaklaşık %25'ini oluşturmaktadır.

Çalışma alanında en çok takson taşıyan 5 büyük familya şunlardır: **Lamiaceae** (38), **Caryophyllaceae** (37), **Asteraceae** (26), **Scrophulariaceae** (20), **Fabaceae** (16) (Table 2).

Çalışma alanında en çok takson taşıyan 10 büyük cins şunlardır: **Silene** (15), **Astragalus** (9), **Sideritis** (8), **Verbascum** (7), **Centaurea** (7), **Stachys** (6), **Helichrysum** (6), **Alkanna** (6), **Veronica**(5) and **Minuartia** (5).

Alanda bulunan endemik bitkilerin fitocoğrafi bölgelere dağılımı şöyledir: Akdeniz elementleri 137 (%59.565), İran-Turan elementleri 54(% 23,478), Avrupa-Sibirya elementleri 7 (% 0.304) ve fitocoğrafik bölgesi belirlenemeyenler ise 32(% 13.913) dir.

Bu taksonların koruma statülerine göre dağılımı şöyledir: **CR** (Kritik, tehlikede): 3, **EN** (Tehlikede): 19, **VU** (Zarar görebilir): 31, **LR** (Düşük Riskte): 173, **(cd)** (Conservation Dependent): 32, **(lc)** (En az endişe verici): 110, **(nt)** (Near Threatened): 31. Çalışmada, flora ve vejetasyon üzerindeki tehdit faktörleri ve bu tehditleri ortadan kaldırmak için yapılan öneriler yer almaktadır.

Alanda yayılış gösteren tüm endemiklerin koordinatları, habitatları, dikey yayılış gösterdiği yükseltiler, tehlike kategorileri, hangi coğrafi bölgenin elementi oldukları, sadece çalışma alanında yetişen endemikler makalede yer almaktadır. Bu çalışmada, sadece tip toplamadan bilinen yaklaşık 25 endemik takson ikinci kez toplanmıştır. Yaklaşık 30 endemik taksonun hangi bitki coğrafyası bölgesi elementi olduğu belirlenmiştir. Bunlardan 5 taksonun risk kategorisi değiştirilmiştir.

Anahtar Kelimeler: Endemik Bitki Taksonları, Köprülü Kanyon Milli Parkı, Tehlike Kategorisi, Koruma Statüsü, GEF II Projesi.

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Introduction

Due to the fact that Türkiye locates in the intersection region of three pythogeographical regions and due to the effect of various factors including the history of vegetation, different climates and topographies, it possesses a rich and a distinctively different flora from its neighboring countries. It is also among the few phytoendemically prosperous countries. The endemism reaches up to nearly 35 %. Türkiye is also the gene center for some cultivated plants including spinach, wheat, cantaloupe melon and most of fruit trees as well as for some natural species such as *Astragalus*, *Verbascum*, *Cousinia*, *Gypsophila*, *Bolanthus* etc. (Özçelik, 2000; Özçelik *et al.*, 2001).

Unfortunately, for the past 50 years the natural resources of the country have been under the influence of anthropogenic stress factors such as field formation, over-grazing, fire, cutting, being used as construction supplies, urbanization, industrialization and the use of herbicides. As the result of these reasons, some endemic and rare plants become endangered and some are damaged (Küçük, 1995). In order to bring this problem up, a list of danger categorization of the rare and endemic species has been prepared. In that list, 12 endemic species has been identified to be extinct (Ex) (Ekim *et al.*, 1989; 2000). In recent years, some taxa that about them were data deficient collected again by floristic researches from Türkiye and have been determined their habitats and risk categories (*Silene*

oligotricha, *Gypsophila muralis*, *Echinops pannosus* etc.). As oppozite to this, some taxa had recorded in Türkiye have not been found in recent years(*Gypsophila linearifolia*, *Silene flavescens*, *Ankyropetalum* spp. etc.).

The area of research is within the borders of the Sütçüler borough in the city of Isparta and the Serik and Manavgat boroughs in the city of Antalya. It resides within the 37° 17' N and 31° 06' E geographical coordinates. The total area of the national park is 36,614 hectares and it has been announced as a national park on December 12th, 1973. The regional flora is very rich and generally of natural build. The national park begins around Beşkonak at an altitude of 130 m and ends at the peak of Mount Bozburun at 2504 m altitude. The majority of the area is conglomeric, composed of alluvial deposits and river beds. Occasional presence of limestone, chalk, andesite, sandstone and other rock types are also observed. The canyon path is approximately 14 km long. In some areas, the perpendicularity reaches up to 90 %. As a whole, the national park and its surroundings are under the influence of the Mediterranean climate. Nonetheless, transitional climate is observed at high altitudes. The study area is in the C3 box of the checkering system used by P.H. Davis (1965-1988) for the Türkiye Flora.

In this study, the endemic plants and their endangered categories in the Köprülü Kanyon National Park and its surroundings are depicted.

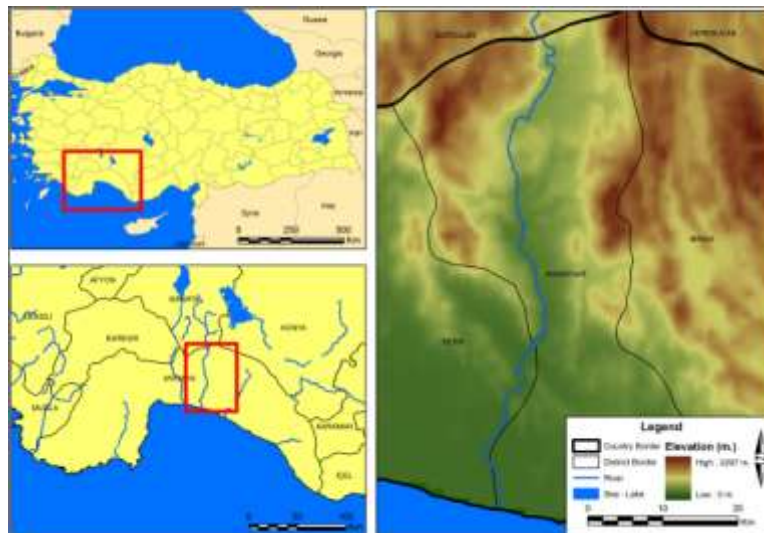


Figure 1. A map of Köprülü Kanyon National Park

Materials and Methods

A total of 1500 plant specimens were collected between April 2003 and December 2004 at varying times depending on the development cycles of different plants from the Köprülü Kanyon National Park in the Western Anatolia. All herbarium specimens are natural or naturalized plants of that area. “Flora of Turkey and the

East Aegean Islands” (Davis, 1965-1988) has been use in the identification of the collected plants. The identified specimens have been placed in the **GUL Herbarium** (in the Department of Biology of Süleyman Demirel University). Following formation of the endemic plant list, the risk assessments have been carried out based on literature and through personal observations. The coordinates and the altitudes of all endemic plants were

recorded by GPS, not given their detailed localities addresses.

The obtained data has been tabulated. The terrain plants have been organized by alphabetically arranging the families and all taxa into the families in Coniferopsida of Coniferophyta(Gymnospermae), Liliopsida and Magnoliopsida of Magnoliophyta (Angiospermae) and by categorizing genus and species according to “Flora of Turkey and the East Aegean Islands” by Davis (1965-1988). The relevant literature and other required information has been included in the tables. The phytogeographical identification of the plants has been carried out according to Davis, 1965-1988, and the risk categories have been evaluated through personal observations and other observations carried out by Ekim et al., 2000.

The abbreviations used in the risk categories are given as follows; **EX**: Extinct, **CA**: Critically endangered, **EN**: Endangered, **VU**: Vulnerable, **NT**: Near threatened, **LC**:

Least concern, **DD**: Data deficient, **NE**: Not evaluated. Genera names are abbreviated by first capital letter, others first small letter.

Table 2 was arranged in alphabetical family row. Regenus names abbreviated as first capital letter.

Results

230 endemic plant taxa that are members of 29 families in total have been identified in the Köprülü Kanyon National Park and its surroundings. 18 of these endemic plants are specific to the region that the research has been conducted. The conservation status and the geographical distribution of the endemic species has been listed in Table 1 and the list of the endemic species, their conservation status and the localization were given in Table 2.

Table 1. The observed endemic plant taxa, their conservation status and geographical distributions in the Köprülü Kanyon National Park and its surroundings.

(Davis, 1965-88; Güner *et al.*, 2000; Fakir, 2002; Ekim *et al.*, 2000; Özçelik, 2000 for Risk categories and phytogeographical regions).

Risk Categories	Category Symbol	Potential		Phytogeographical Region	Potential	
		Number	Ratio (%)		Number	Ratio (%)
Extinct	EX	-	-	Mediterranean	137	59.565
Extinct in the Natura	EW	-	-			
Critically endangered	CR	03	1.304			
Endangered	EN	22	9.565	Irano-Turanian	54	23.478
Vulnerable	VU	34	14.782			
Lower Risk	LR	164	71.304			
Conservation Dependent	(cd)	29	12.608	Euro-Siberian	07	3.043
Least concern	(lc)	106	46.086			
Near threatened	(nt)	29	12.608	Unknown	32	13.913
Data deficient	DD	07	3.043			
Not evaluated	NE	-	-			
Total		230	100		230	100.0

Table 2. Conservation status and geographical distributions of the identified endemic plant taxa growing in the Köprülü Kanyon National Park and its surroundings.

(Davis, 1965-1988; Güner *et al.*, 2000; Fakir, 2002; Ekim *et al.*, 2000; Özçelik, 2000; Özhatay *et al.*, 2005 and according to field observation; families, genera and species in alphabetic row) (N= North, E= East, A: Altitudes (m). *: The taxon is special to the area.

Endemic Taxa for Türkiye	Familias	Conservation Status (IUCN)	Coordinates and Altitudes	Phytogeographical Regions
Coniferopsida				
<i>Abies cilicica</i> (Ant. & Kotschy) Carr. subsp. <i>isaurica</i> Coode & Cullen	Pinaceae	LR (lc)	N: 37 15 841 E: 31 02 019 A: 1350-1700 m	Mediterranean element

Magnoliopsida				
<i>Acanthus hirsutus</i> Boiss.	Acanthaceae	LR (Ic)	N: 37 071 453 E: 31 12 820 A: 200 m	Mediterranean element
<i>Astrantia maxima</i> Pallas. subsp. <i>haradjianii</i> (Grintz.) Rech.	Apiaceae	LR (Ic)	N: 045 72 461 E: 025 13 692 A: 1250 m	Euro-Siberian element
<i>Bupleurum anatolicum</i> Hub.- Mor. & Reese	Apiaceae	LR (nt)	N: 37 13 E: 31 03 A: 775 m	Mediterranean element
<i>B. subuniflorum</i> Boiss. & Heldr.	Apiaceae	LR (nt)	N: 045 72 E: 025 13 A: 800-900 m	Mediterranean element
<i>B. sulphureum</i> Boiss. & Bal.	Apiaceae	LR (Ic)	N: 37-08 E: 031 11 A: 470-500 m	Irano-Turanian element
<i>Eryngium palmito</i> Boiss. & Heldr.	Apiaceae	VU	N: 045 72 E: 025 13 A: 1200 m	Mediterranean element
<i>Johrenia dichotoma</i> DC. subsp. <i>sintenisii</i> Bornm.	Apiaceae	LR (nt)	N: 045 72 E: 025 13 A: 1400 m	Unknown
<i>Laserpitium petrophilum</i> Boiss. & Heldr.	Apiaceae	LR (nt)	N: 045 72 461 E: 025 19 997 A: 2000 m	Mediterranean element
<i>Pimpinella cappadocica</i> Boiss & Bal. var. <i>cappadocica</i>	Apiaceae	LR (Ic)	N: 045 72 E: 025 13 A: 1200 m	Irano-Turanian element
<i>Tordylium brachytaenum</i> Boiss. & Heldr.	Apiaceae	EN	N: 37 08 E: 031 11 A: 200 m	Unknown
<i>T. pestalozzae</i> Boiss.	Apiaceae	VU	N: 37 13 E: 31 07 A: 900 m	Mediterranean element
<i>Vincetoxicum canescens</i> (Willd.) Decne subsp. <i>pedunculata</i> Browicz	Asclepiadaceae	VU	N: 37 21 E: 031 021 A: 1095 m	Mediterranean element
<i>Achillea nobilis</i> L. subsp. <i>sipylea</i> (O. Schwarz) Bassler	Asteraceae	LR (nt)	N: 045 72 E: 025 19 A: 1400 m	Mediterranean element
<i>A. phrygia</i> Boiss. & Bal.	Asteraceae	LR (Ic)	N: 045 77 E: 025 19 A: 1500-1800 m	Irano-Turanian element
<i>A. wilhelmsii</i> C. Koch.	Asteraceae	LR (Ic)	N: 37 15 E: 31 07 A: 1000 m	Irano-Turanian element
<i>Anthemis rosea</i> Sm. subsp. <i>carnea</i> (Boiss.) Grierson	Asteraceae	LR (cd)	N: 37 15 596 E: 031 061 989 A: 1100 m	Mediterranean element
<i>Centaurea calolepis</i> Boiss.	Asteraceae	LR (Ic)	N: 37 21 E: 031 021 A: 2400 m	Mediterranean element
<i>C. drabifolia</i> Sm. subsp. <i>austro-occidentalis</i> Wagenitz	Asteraceae	LR (Ic)	N: 045 77 E: 025 19 A: 2300 m	Mediterranean element
<i>C. d.</i> subsp. <i>detonsa</i> (Bornm.) Wagenitz	Asteraceae	LR (Ic)	N: 045 72 E: 025 13 A: 2000 m	Unknown

<i>C. germanipolitana</i> Bornm.	Asteraceae	VU	N: 045 77 E: 025 19 A: 2200-2500 m	Irano-Turanian element
<i>C. kotschy</i> (Boiss.& Heldr.) Hayek var. <i>kotschy</i>	Asteraceae	LR (Ic)	N: 045 77 E: 025 19 A: 2200 m	Unknown
<i>C. libanoticum</i> DC. subsp. <i>lycaonicum</i> (Boiss. & Heldr.) Davis & Parris	Asteraceae	LR (Ic)	N: 045 72 E: 025 13 A: 2000 m	Mediterranean element
<i>C. solstitialis</i> L. subsp. <i>carneola</i> (Boiss.) Wagenitz	Asteraceae	LR (nt)	N: 37 21 E: 031 21 A: 1350 m	Mediterranean element
<i>Echinops pannosus</i> Rech. fil.	Asteraceae	EN	N: 37 11 E: 031 10 A: 775 m	Mediterranean element
<i>Helichrysum arenarium</i> (L.) Moench subsp. <i>aucheri</i> (Boiss.) Davis & Kupich	Asteraceae	LR (Ic)	N: 045 77 E: 025 19 A: 2100 m	Irano-Turanian element
<i>H. chasmolycicum</i> P.H. Davis	Asteraceae	LR (Ic)	N: 37 21 E: 031 021 A: 1350 m	Mediterranean element
<i>H. chionophilum</i> Boiss. & Bal.	Asteraceae	LR (Ic)	N: 045 77 E: 025 19 A: 2100 m	Mediterranean element
<i>H. compactum</i> Boiss.	Asteraceae	EN	N: 045 72 461 E: 025 13 692 A: 1450 m	Mediterranean element
<i>H. compactum</i> Boiss.	Asteraceae	LR (cd)	N: 37 21 E: 031 021 A: 2000 m	Mediterranean element
<i>H. heywoodianum</i> P.H. Davis	Asteraceae	CR	N: 045 77 E: 025 19 A: 2400 m	Mediterranean element
<i>H. pamphylicum</i> Davis & Kupicha	Asteraceae	LR(Ic)	N: 37 21 199 E: 031 021 66 A: 930 m	Mediterranean element
<i>Inula anatolica</i> Boiss.	Asteraceae	LR (Ic)	N: 37 12 E: 031 09 A: 510 m	Mediterranean element
<i>Onopordum anatolicum</i> (Boiss.) Eig.	Asteraceae	LR (Ic)	N: 037 21 E: 031 21 A: 1800 m	Irano-Turanian element
<i>Ptilostemon afer</i> (Jacq.) Greuter subsp. <i>eburneus</i> Greuter	Asteraceae	LR (Ic)	N: 37 21 E: 031 021 A: 1350-1500 m	Mediterranean element
<i>Scorzonera eriophora</i> DC.	Asteraceae	LR (Ic)	N: 045 77 E: 025 19 A: 2400 m	Unknown
<i>Tanacetum praeteritum</i> (Horwood) Heywood subsp. <i>praeteritum</i>	Asteraceae	LR (cd)	N: 045 72 E: 025 19 A: 1600 m	Mediterranean element
<i>T. argenteum</i> (Lamb.) Willd. subsp. <i>canum</i> (C.Koch) Grierson	Asteraceae	LR (Ic)	N: 045 72 E: 025 19 A: 1800 m	Irano-Turanian element
<i>Tragopogon aureus</i> Boiss.	Asteraceae	LR (Ic)	N: 37 09 E: 031 11 A: 250 m	Euro-Siberian element
<i>Alkanna areolata</i> Boiss. var. <i>areolata</i>	Boraginaceae	LR (Ic)	N: 37 15 E: 031 061 A: 300-400 m	Mediterranean element

<i>A. a.</i> var. <i>subleavis</i> Hub.-Mor.	Boraginaceae	EN	N: 37 13 E: 31 07 A: 950 m	Mediterranean element
<i>A. oreodaxa</i> Hub.-Mor.	Boraginaceae	EN	N: 37 11 E: 031 10 A: 250 m	Mediterranean element
<i>A. punctulata</i> Hub-Mor.	Boraginaceae	VU	N: 37 14 E: 31 07 A: 1100 m	Mediterranean element
<i>A. sieheana</i> Rech. fil.	Boraginaceae	LR (cd)	N: 37 21 E: 031 07 A: 1200 m	Mediterranean element
<i>A. tinctoria</i> (L.) Tausch. subsp. <i>subleiocarpa</i> (Hub.-Mor.) Hub.-Mor.	Boraginaceae	LR (Ic)	N: 37 09 E: 031 11 A: 150-400 m	Mediterranean element
<i>Anchusa leptophylla</i> Roemer & Schultes subsp. <i>tomentosa</i> (Boiss.) Chamb.	Boraginaceae	LR (Ic)	N: 37 17 E: 31 06 A: 870 m	Irano-Turanian element
<i>Moltkia aurea</i> Boiss.	Boraginaceae	LR (Ic)	N: 37 17 E: 31 06 A: 1050 m	Irano-Turanian element
<i>Myosotis ramosissima</i> Rochel ex Schultes subsp. <i>uncata</i> (Boiss.& Bal.) Grau	Boraginaceae	EN	N: 37 21 E: 031 021 A: 1000 m	Mediterranean element
<i>Omphalodes ripleyana</i> Davis	Boraginaceae	VU	N: 025 13 E: 045-72 A: 2300 m.	Mediterranean element
<i>Onosma bornmuelleri</i> Hausskn.	Boraginaceae	LR (Ic)	N: 045 72 E: 025 13 A: 2000 m	Irano-Turanian element
<i>Paracaryum cappadocicum</i> Boiss.& Bal.	Boraginaceae	LR (Ic)	N: 37 13 E: 31 07 A: 950 m	Irano-Turanian element
<i>P. paphlagonicum</i> (Bornm.) R. Mill	Boraginaceae	LR (cd)	N: 37 21 E: 031 021 A: 1000 m	Irano-Turanian element
<i>Alyssum cephalotes</i> Boiss.	Brassicaceae	VU	N: 37 21 E: 031 021 A: 2100 m	Mediterranean element
<i>A. discolor</i> Dudley & Hub.- Mor.	Brassicaceae	VU	N: 045 77 E: 025 19 A: 2300 m	Mediterranean element
<i>A. filiforme</i> Nyár	Brassicaceae	LR (Ic)	N: 37 21 E: 031 021 A: 1400 m	Irano-Turanian element
<i>A. lepidotum</i> Boiss.	Brassicaceae	LR (Ic)	N: 37 14 E: 031 07 A: 500-1100 m	Irano-Turanian element
<i>Arabis abietina</i> Bornm	Brassicaceae	VU	N: 37 21 E: 031 021 A: 1200-1400 m	Euro-Siberian element
<i>A. androsacea</i> Fenzl	Brassicaceae	LR (cd)	N: 37 17 E: 31 21 A: 385-550 m	Unknown
<i>A. drabiformis</i> Boiss.	Brassicaceae	VU	N: 37 21 E: 031 021 A: 850-900 m	Unknown
<i>Aubrieta canescens</i> (Boiss.) Bornm. subsp. <i>canescens</i>	Brassicaceae	LR (Ic)	N: 37 21 E: 031 021 A: 900 m	Mediterranean element

<i>A. pinardii</i> Boiss.	Brassicaceae	LR (Ic)	N: 37 72 E: 025 21 A: 1300 m	Irano-Turanian element
<i>Camelina hispida</i> Boiss. var. <i>grandiflora</i> (Boiss.) Hedge	Brassicaceae	LR (Ic)	N: 37 21 E: 31 21 A: 1400 m	Unknown
<i>Hesperis matronalis</i> L. subsp. <i>cilicica</i> (Siehe ex Bornm.) Cullen	Brassicaceae	LR(nt)	N: 37 21 E: 031 021 A: 1050 m	Mediterranean element
<i>H. pisidica</i> Huber-Morath	Brassicaceae	EN	N: 045 72 E: 025 13 A: 1100-1400 m	Mediterranean element
<i>Iberis carica</i> Bornm.	Brassicaceae	LR (nt)	N: 37 21 E: 031 021 A: 950-1000 m	Mediterranean element
<i>Isatis cappadocica</i> Desv. subsp. <i>alyssifolia</i> (Boiss.) Davis	Brassicaceae	LR (nt)	N: 045 72 E: 025 13 A: 1500 m	Irano-Turanian element
<i>Matthiola montana</i> Boiss.	Brassicaceae	LR (nt)	N: 37 17 E: 31 10 A: 400 m	Unknown
<i>Asyneum compactum</i> (Boiss.&Heldr.) Dumboldt	Campanulaceae	LR(nt)	N: 045-72-461 E: 025-13-692 A: 1550 m	Mediterranean element
<i>A. linifolium</i> (Boiss. & Heldr.)Bornm. subsp. <i>linifoium</i>	Campanulaceae	LR (Ic)	N: 45-72 E: 025-13 A:1500 m	Mediterranean element
<i>A. rigidum</i> (Willd.) Grossh. subsp. <i>sibthorpiatum</i> (Roemer & Schultes) Damboldt	Campanulaceae	LR (Ic)	N: 37-12 E: 31-09 A: 690 m	Mediterranean element
<i>A. michauxioides</i> (Boiss.) Dambold.	Campanulaceae	LR (Ic)	N: 45 77 E: 025 19 A: 1500 m	Mediterranean element
<i>Campanula iconia</i> Phitos.	Campanulaceae	EN	N: 37 13 E: 31 01 A: 470 m	Irano-Turanian element
<i>C. lyrata</i> Lam. subsp. <i>lyrata</i>	Campanulaceae	LR(Ic)	N: 045 72 461 E: 025 13 692 A: 1250 m	Unknown
<i>Arenaria armeniaca</i> Boiss.	Caryophyllaceae	LR (Ic)	N: 045 77 E: 025 19 A: 2200 m	Irano-Turanian element
<i>A. deflexa</i> Dec. subsp. <i>microsepala</i> McNeill	Caryophyllaceae	LR (nt)	N: 37 21 E: 031 021 A: 2000 m	Mediterranean element
<i>A. ledebouriana</i> Fenzl. var. <i>pauciflora</i> McNeill	Caryophyllaceae	LR (Ic)	N: 045 77 E: 025 19 A: 2200 m	Mediterranean element
<i>A. pamphylica</i> Boiss. & Heldr. subsp. <i>pamphylica</i> var. <i>turcica</i> McNeill	Caryophyllaceae	VU	N: 37 12 E: 31 09 A: 850-900 m	Mediterranean element
<i>Bolanthus minuartioides</i> (Jaub. & Spach) Hub.-Mor.	Caryophyllaceae	LR (Ic)	N: 37 21 E: 031 021 A: 1200-1350 m	Mediterranean element
<i>Bufonia calyculata</i> Boiss. & Bal.	Caryophyllaceae	LR (Ic)	N: 37 13 E: 031 03 A: 880 m	Mediterranean element
<i>Cerastium macranthum</i> Boiss.	Caryophyllaceae	LR (cd)	N: 045 77 E: 025 19 A: 1500-1700 m	Mediterranean element

<i>Dianthus anatolicus</i> Boiss.	Caryophyllaceae	LR (Ic)	N: 045 77 E: 025 19 A: 2400 m	Unknown
<i>D. eldivanus</i> Czezz.	Caryophyllaceae	LR (cd)	N: 045 77 E: 025 19 A: 2400 m	Unknown
<i>Gypsophila arrostii</i> Guss. var. <i>nebulosa</i> (Boiss. & Heldr.) Bark.	Caryophyllaceae	LR (cd)	N: 37 21 E: 031 021 A: 1200 m	Irano-Turanian element
<i>Gypsophila curvifolia</i> Fenzl.	Caryophyllaceae	LR(Ic)	N: 045 72 461 E: 025 13 692 A: 1700 m	Mediterranean element
<i>Minuartia erythrosepala</i> (Boiss.) Hand.-Mazz.	Caryophyllaceae	LR (Ic)	N: 045 77 E: 025 19 A: 1500-1700 m	Irano-Turanian element
<i>M. glandulosa</i> (Boiss. & Huet.) Bornm	Caryophyllaceae	LR (Ic)	N: 37-21 E: 031-021 A: 1350 m	Irano-Turanian element
<i>M. leucocephala</i> (Boiss.) Mattf	Caryophyllaceae	LR (Ic)	N: 045 77 E: 025 19 A: 1500-1700 m	Unknown
<i>M. umbellulifera</i> (Boiss.) McNeill subsp. <i>salbacica</i> McNeill	Caryophyllaceae	EN	N: 045 77 E: 025 19 A: 1700-2000 m	Mediterranean element
<i>M. u.</i> subsp. <i>umbellulifera</i> var. <i>umbellulifera</i>	Caryophyllaceae	LR (Ic)	N: 045 77 E: 025 19 A: 2000 m	Unknown
<i>Petrorhagia lycica</i> (Davis) Ball & Heywood	Caryophyllaceae	VU	N: 045 77 E: 025 19 A: 2400 m	Mediterranean element
<i>Petrorhagia hispidula</i> Boiss. & Heldr.) Ball & Heywood	Caryophyllaceae	VU	N: 045 77 E: 025 19 A: 2000 m	Mediterranean element
<i>Saponaria chlorifolia</i> Kunze	Caryophyllaceae	LR (Ic)	N: 045 77 E: 025 19 A: 1300-1500 m	Unknown
<i>S. kotschy</i> Boiss.	Caryophyllaceae	LR (Ic)	N: 37 21 E: 031 021 A: 1800-2200 m	Mediterranean element
<i>S. syriaca</i> Boiss.	Caryophyllaceae	DD	N: 37 17 E: 31 31 06 A: 880 m	Mediterranean element
<i>Silene amana</i> Boiss.	Caryophyllaceae	EN	N: 045 77 E: 025 19 A: 1300-1500 m	Mediterranean element
<i>S. armena</i> Boiss. var. <i>armena</i>	Caryophyllaceae	LR (Ic)	N: 045 77 167 E: 025 19 997 A: 1500-1620 m	Irano-Turanian element
<i>S. balansae</i> Boiss.	Caryophyllaceae	EN	N: 045 72 E: 025 13 A: 1400-1800 m	Irano-Turanian element
<i>S. brevicaulis</i> Boiss.	Caryophyllaceae	LR (Ic)	N: 045-77 E: 025-19 A: 1400-1700 m	Irano-Turanian element
<i>S. capitellata</i> Boiss.	Caryophyllaceae	LR (Ic)	N: 045 77 E: 025 19 A: 1500 m	Mediterranean element
<i>S. caryophyllodeies</i> (Poiret) Oth. subsp. <i>stentoria</i> (Fenzl)Coode & Cullen	Caryophyllaceae	LR (Ic)	N: 045 77 E: 025 19 A: 1400-1700 m	Irano-Turanian element

<i>S. caryophylloides</i> (Poiret) Otth	Caryophyllaceae	DD	N: 37 21 199 E: 031 021 466 A: 1550 m	Unknown
<i>S. flavescens</i> Waldst. & Kit	Caryophyllaceae	DD	N: 37 16 E: 31 01 A: 1050 m	Mediterranean element
<i>S. guerbuezii</i> Ozcelik	Caryophyllaceae	LR (Ic)	N: 045 72 E: 025 13 A: 1400-1800 m	Mediterranean element
<i>S. haradjianii</i> Chowdh.	Caryophyllaceae	DD	N: 045 77 E: 025 19 A: 1500 m	Mediterranean element
<i>S. leptoclada</i> Boiss.	Caryophyllaceae	LR (nt)	N: 37 16 E: 31 01 A: 1050 m	Mediterranean element
<i>S. oreades</i> Boiss.& Heldr.	Caryophyllaceae	LR (nt)	N: 045 77 E: 025 19 A: 1700 m	Mediterranean element
<i>S. sclerophylla</i> Chowdh	Caryophyllaceae	LR (Ic)	N: 045 72 E: 025 13 A: 1500 m	Irano-Turanian element
<i>S. tunicoides</i> Boiss.	Caryophyllaceae	LR (nt)	N: 045 72 461 E: 025 13 692 A: 1700 m	Mediterranean element
<i>Velezia pseudorigida</i> Hub.-Mor	Caryophyllaceae	VU	N: 37 21 199 E: 031 021 466 A: 1350 m	Mediterranean element
<i>Rosularia davisii</i> Muirhead	Crassulaceae	LR (cd)	N: 045 72 461 E: 025 13 692 A: 1400-1700 m	Irano-Turanian element
<i>R. serpentinica</i> (Wendermann) Muirhead	Crassulaceae	EN	N: 37 15 E: 31 07 A: 1100 m	Mediterranean element
<i>Sedum hispanicum</i> L. var. <i>planifolium</i> Chamberlain	Crassulaceae	EN	N: 045 72 461 E: 025 13 692 A: 1450 m	Unknown
<i>S. lydium</i> Boiss.	Crassulaceae	DD	N: 37 16 E: 31 01 A: 1100 m	Mediterranean element
<i>Sempervivum brevipilum</i> Muirhead	Crassulaceae	LR (nt)	N: 045 72 461 E: 025 13 692 A: 2000 m	Irano-Turanian element
<i>S. psidicum</i> Peşmen & Güner	Crassulaceae	EN	N: 045 77 E: 025 19 A: 1820 m	Mediterranean element
<i>Cephalaria lycica</i> Matthews	Dipsacaceae	LR (nt)	N: 37 21 199 E:031 021 466 A: 1550 m	Mediterranean element
<i>Euphorbia cardiophylla</i> Boiss. & Heldr.	Euphorbiaceae	LR (Ic)	N: 37 21 199 E: 031 021 466 A: .950-1000 m	Unknown
<i>E. falcata</i> L. subsp. <i>macrostegia</i> (Bornm.) O.Schwarz	Euphorbiaceae	LR (Ic)	N: 37 17 E: 31 06 A: 400 m	Mediterranean element
<i>Astragalus barbarae</i> Bornm.	Fabaceae	EN	N: 37 10 E: 031 10 A: 150-400 m	Irano-Turanian element ?
<i>A. panduratus</i> Bunge	Fabaceae	EN	N: 37 21 E: 031 021 A: 1200-1400 m	Irano-Turanian element

<i>A. sorgerae</i> Hub.- Mor. & Chamb.	Fabaceae	VU	N: 045 77 E: 025 19 A: 1500-1800 m	Irano-Turanian element
<i>A. sparsipilis</i> Hub.- Mor. & Chamb.	Fabaceae	LR (cd)	N: 37 21 E: 031 021 A: 1800-2000 m	Irano-Turanian element
<i>A. zederbaueri</i> Stadlmann	Fabaceae	LR (lc)	N: 045 77 E: 025 19 A: 1820 m.	Irano-Turanian element
<i>A. gaeobotrys</i> Boiss. & Bal.	Fabaceae	EN	N: 37 11 E: 031 10 A: 200 m.	Unknown
<i>A. gymnolobus</i> Fischer	Fabaceae	LR (lc)	N: 045 77 E: 025 19 A: 1800 m	Irano-Turanian element
<i>A. leptothamnus</i> Bunge	Fabaceae	DD	N: 045 77 E: 025 19 A: 2100 m	Irano-Turanian element
<i>A. lycius</i> Boiss.	Fabaceae	LR (lc)	N: 37 13 E: 31 07 A: 950- 1000 m	Unknown
<i>Colutea melanocalx</i> Boiss. & Heldr. subsp. <i>davisiana</i> (Brawicz) Chamb.	Fabaceae	LR(lc)	N: 37 10 765 E: 031 08 185 A: 500 m	Mediterranean element
<i>Coronilla grandiflora</i> Boiss.	Fabaceae	LR (lc)	N: 37 14 E: 31 07 A: 1100 m	Mediterranean element
<i>Genista burdurensis</i> P. Gibbs	Fabaceae	LR (cd)	N: 37 21 199 E: 031 021 A: 1300-1500 m	Irano-Turanian element
<i>G. aucheri</i> Boiss.	Fabaceae	LR (lc)	N: 37 13 E: 31 07 A: 950- 1000 m	Irano-Turanian element
<i>Lathyrus tukhtensis</i> Czecz.	Fabaceae	LR (lc)	N: 045 77 167 E: 025 19 997 A: 1800 m	Irano-Turanian element
<i>Trigonella cretica</i> (L.) Boiss.	Fabaceae	LR (cd)	N: 37 21 E: 031 021 A: 900 m	Mediterranean element
<i>Vicia freyniana</i> Bornm.	Fabaceae	LR (lc)	N: 045 72 461 E: 025 13 692 A: 1200 m	Euro-Siberian element
<i>Erodium pelargonifolium</i> Boiss. & Heldr.	Geraniaceae	VU	N: 37 21 E: 031 021 A: 900 m	Mediterranean element
* <i>Geranium glaberrimum</i> Boiss. & Heldr.	Geraniaceae	LR (cd)	N: 045 77 E: 025 19 A: 1800 m	Mediterranean element
<i>Geranium ibericum</i> Cav. subsp. <i>jubatatum</i> (Hand.-Mazz.) Davis	Geraniaceae	LR (lc)	N: 37 08 E: 031 11 A: 1800 m	Euro-Siberian element
<i>Hypericum aviculariifolium</i> Jaub. & Spach. subsp. <i>depilatum</i> (Freyn & Bornm.) Robson var. <i>bourgaei</i> (Boiss.) Robson	Hypericaceae	LR(lc)	N: 37 21 E: 031 021 A:850-1000 m	Mediterranean element
<i>H. a.</i> subsp. <i>depilatum</i> (Freyn & Bornm.) Robson var. <i>depilatum</i>	Hypericaceae	LR(lc)	N: 37 21 E: 031 021 A: 1200-1460 m	Irano-Turanian element
<i>H. lanuginosum</i> Lam. var. <i>scabrellum</i> (Boiss.) Robson	Hypericaceae	LR(lc)	N: 37 21 E: 031 021 A: 1300 m	Mediterranean element

<i>H. ternatum</i> Poulter	Hypericaceae	VU	N: 37 11 241 E: 031 10 763 A: 150 m	Mediterranean element
<i>Herniaria argaea</i> Boiss.	Illecebraceae	VU	N: 37 21 E: 031 021 A: 1400 m	Unknown
<i>Paronychia carica</i> Chaudhri	Illecebraceae	LR(cd)	N: 37 21 E: 031 021 A: 1200 m	Mediterranean element
<i>P. davisii</i> Chaudhri	Illecebraceae	EN	N: 37 13 E: 31 07 A: 900-950 m	Mediterranean element
<i>P. mughlaii</i> Chaudhri	Illecebraceae	VU	N: 37 21 E: 031 021 A: 2100 m	Mediterranean element
<i>Ajuga bombycina</i> Boiss.	Lamiaceae	LR(nt)	N: 37 21 E: 031 021 A: 1400 m	Mediterranean element
<i>Ballota cristata</i> P.H. Davis	Lamiaceae	LR(cd)	N: 37 21 E: 031 021 A: 1350 1500 m	Mediterranean element
<i>B. nigra</i> L. subsp. <i>anatolica</i> P. H. Davis	Lamiaceae	LR(lc)	N: 045 77 E: 025 19 A: 1900 m	Irano-Turanian element
<i>Lamium lycicum</i> Boiss.	Lamiaceae	LR(cd)	N: 37 21 E: 031 021 A: 450-550 m	Mediterranean element
<i>L. eriocephalum</i> Benth. subsp. <i>glandulosidens</i> (Hub.-Mor.) R. Mill.	Lamiaceae	LR(nt)	N: 37 12 E: 31 09 A: 950 m	Mediterranean element
<i>L. pisidicum</i> R. Mill.	Lamiaceae	LR(cd)	N: 37 09 E: 031 11 A: 1200 m	Mediterranean element
<i>L. purpureum</i> L. var. <i>aznavorii</i> Gand. ex Aznov.	Lamiaceae	CR	N: 37 16 E: 31 01 A: 700-800 m	Euro-Siberian element
<i>Marrubium globosum</i> Montbret & Aucher ex Benth. subsp. <i>globosum</i>	Lamiaceae	LR (lc)	N: 37 21 199 E: 031 021 466 A: 1600-1850 m	Irano-Turanian element
<i>M. heterodon</i> (Bentham)Boiss.& Bal.	Lamiaceae	LR(lc)	N: 045 72 E: 025 13 A: 2000 m	Mediterranean element
<i>Micromeria elliptica</i> C. Koch.	Lamiaceae	LR(lc)	N: 37 17 E: 31 06 A: 900-950 m	Irano-Turanian element
<i>Nepeta cadmea</i> Boiss.	Lamiaceae	LR (lc)	N: 045 72 461 E: 025 13 692 A: 1450 m	Mediterranean element
<i>N. caesarea</i> Boiss.	Lamiaceae	LR (nt)	N: 045 72 461 E: 025 13 692 A: 1550 m	Mediterranean element
<i>N. pilinix</i> P. H. Davis	Lamiaceae	LR(cd)	N: 37 21 199 E: 031 021 466 A: 1500-1700 m	Mediterranean element
<i>N. sulfuriflora</i> P. H. Davis	Lamiaceae	LR(cd)	N: 37 17 305 E: 031 09189 A: 1050 m	Mediterranean element
<i>Origanum minutiflorum</i> O. Schwarz & P.H. Davis	Lamiaceae	LR(nt)	N: 37 15 E: 031 06 A: 1200 m	Mediterranean element

<i>O. sipyleum</i> L.	Lamiaceae	LR(lc)	N: 37 15 E: 31 06 A: 1200 m	Mediterranean element
<i>Phlomis armeniaca</i> Willd.	Lamiaceae	LR (lc)	N: 37 21 199 E: 031 021 466 A: 1400 m	Irano-Turanian element
<i>P. grandiflora</i> H.S. Thompson	Lamiaceae	LR(nt)	N: 37 21 E: 031 021 A: 1800 2200 m	Mediterranean element
<i>P. longifolia</i> Boiss. & Bl. var. <i>bailanica</i> (Vierh.) Hub._Mor.	Lamiaceae	LR(cd)	N: 37 21 E: 031 021 A: 600 m	Mediterranean element
<i>Salvia. adenophylla</i> Hedge & Hub.-Mor.	Lamiaceae	VU	N: 37 08 E: 031 11 A: 150-200 m	Mediterranean element
<i>S. cadmica</i> Boiss.	Lamiaceae	LR(lc)	N: 045 77 E: 025 19 A: 2400 m	Unknown
<i>Sideritis sipylea</i> Boiss	Lamiaceae	LR(nt)	N: 37 21 E: 031 021 A: 1400 m	Mediterranean element
<i>S. eryhrantha</i> Boiss. & Heldr. var. <i>eryhrantha</i>	Lamiaceae	LR(cd)	N: 37 16 E: 031 01 A: 900 m	Mediterranean element
<i>S. stricta</i> Boiss. & Heldr	Lamiaceae	LR(cd)	N: 37 17 E: 31 10 A: 930 m	Mediterranean element
<i>S. condensata</i> Boiss. & Heldr. apud. Bentham	Lamiaceae	LR(cd)	N: 37 16 E: 031 01 A: 900 m	Mediterranean element
<i>S. congesta</i> P.H.Davis & Hub.-Mor.	Lamiaceae	LR(nt)	N: 37 13 E: 031 12 A: 300 m	Mediterranean element
<i>S. dichotoma</i> Huter	Lamiaceae	LR(lc)	N: 045 77 E: 025 19 A: 1500-1800 m	Unknown
<i>S. libanotica</i> Labill. subsp. <i>linearis</i> (Bentham) Bornm.	Lamiaceae	LR(lc)	N: 37 13 E: 031 12 A: 470-500 m	Unknown
<i>S. serratifolia</i> Hub.-Mor.	Lamiaceae	VU	N: 37 10 E: 31 11 A: 500 m	Mediterranean element
<i>Stachys antalyensis</i> Y. Ayaşlıgil & P.H. Davis	Lamiaceae	VU	N: 37 12 E: 31 09 A: 150-850 m	Mediterranean element
<i>S. chasmosericea</i> Ayaşlıgil & P.H. Davis	Lamiaceae	CR	N: 37 14 E: 31 07 A: 800-1000 m	Mediterranean element
<i>S. cretica</i> L. subsp. <i>mersiana</i> (Boiss.) Rech. fil.	Lamiaceae	LR(lc)	N: 37 21 E: 031 021 A: 400 m	Mediterranean element
<i>S. iberica</i> Bieb. subsp. <i>iberica</i> var. <i>densipilosa</i> Bhattacharjee	Lamiaceae	LR(lc)	N: 37 14 E: 31 07 A: 800-1000 m	Mediterranean element
<i>S. pumilia</i> Banks & Sol.	Lamiaceae	LR(nt)	N: 37 21 E: 031 021 A: 1400 m	Mediterranean element
<i>S. pseudopinardii</i> Bhattacharjee & Hub.-Mor.	Lamiaceae	VU	N: 37-14 E: 31-07 A: 900 m	Mediterranean element

<i>Thymus cilicicus</i> Boiss. & Bal.	Lamiaceae	LR(Ic)	N: 45 77 E: 25 19 A: 2000 m	Mediterranean element
<i>T. samius</i> Ronniger & Rech. fil.	Lamiaceae	DD	N: 37 21 E: 31 21 A: 1300-1500 m	Mediterranean element
<i>T. spicata</i> L. var. <i>intricata</i>	Lamiaceae	LR(cd)	N: 37 21 E: 31 21 A: 1300-1500 m	Mediterranean element
<i>Alcea calvertii</i> (Boiss.) Boiss.	Malvaceae	LR (Ic)	N: 045 77 167 E: 025 19 997 A: 1520 m	Irano-Turanian element
<i>Papaver apokrinomenon</i> Fedde	Papaveraceae	LR (Ic)	N: 045 72 E: 025 13 A: 1550 m	Mediterranean element
<i>Cyclamen cilicium</i> Boiss. & Heldr. var. <i>cilicium</i>	Primulaceae	LR (nt)	N: 37 10 E: 031 07 A: 960 m	Mediterranean element
<i>C. mirabile</i> Hildebr.	Primulaceae	EN	N: 37 17 E: 31 06 A: 1100 m	Mediterranean element
<i>C. trachopterantherum</i> O. Schwarz	Primulaceae	LR(Ic)	N: 37 13 E: 31 07 A: 910 m	Mediterranean element
<i>Consolida glandulosa</i> (Boiss. & Huet.) Bornm.	Ranunculaceae	LR (Ic)	N: 37 21 199 E:031 021 466 A: 1300 m	Irano-Turanian element
<i>Delphinium gueneri</i> P.H. Davis	Ranunculaceae	LR(cd)	N: 45 77 E: 25 19 A: 1500-1800 m	Mediterranean element
<i>Ranunculus demissus</i> DC. var. <i>major</i> Boiss.	Ranunculaceae	LR (Ic)	N: 37 15 E: 31 01 A: 1050-1250 m	Unknown
<i>R. gueneri</i> Ayaşlıgil & P.H. Davis	Ranunculaceae	VU	N: 37 16 E: 31 01 A: 1100 m	Mediterranean element
<i>R. heterorhizus</i> Boiss. & Ball.	Ranunculaceae	LR(cd)	N: 45 77 E: 25 19 A: 1500-1800 m	Unknown
<i>Ranunculus reuterianus</i> Boiss.	Ranunculaceae	LR (Ic)	N: 37 21 199 E: 031 021 466 A: 1300 m	Unknown
<i>Amelanchier parviflora</i> Boiss.	Rosaceae	VU	N: 37 17 E: 31 03 A: 1500 m	Mediterranean element
<i>Crataegus. aronia</i> (L.) Bosc. var. <i>minuta</i> Browicz.	Rosaceae	LR(Ic)	N: 045 77 167 E: 025 19 997 A: 1600 m	Mediterranean element
<i>Pyrus syriaca</i> Boiss. var. <i>microphylla</i> Zoh.ex Browicz.	Rosaceae	VU	N: 37 13 E: 31 07 A: 1000 m	Unknown
<i>Galium dumosum</i> Boiss.	Rubiaceae	LR(Ic)	N: 37 16 E: 31 01 A: 510 m	Unknown
<i>Haplophyllum pumiliforme</i> Hub.-Mor. & Reese	Rutaceae	LR(cd)	N: 37 09 E: 031 11 A: 150-400 m	Unknown
<i>Digitalis cariensis</i> Boiss. ex Jaub. & Spach	Scrophulariaceae	LR (Ic)	N: 37 10 765 E: 031 08 185 A: 750 m	Mediterranean element

<i>D. davisiana</i> Heywood	Scrophulariaceae	LR(cd)	N: 37 17 E: 031 08 A: 870 m	Mediterranean element
<i>Linaria corifolia</i> Desf.	Scrophulariaceae	LR (Ic)	N: 37 08 E: 031 11 A: 120-160 m	Irano-Turanian element
<i>L. genistifolia</i> (L.) Mill. subsp. <i>confertiflora</i> (Boiss.) Davis	Scrophulariaceae	LR (Ic)	N: 45 72 E: 025 13 A: 1500 m	Irano-Turanian element
<i>Pedicularis cadmea</i> Boiss.	Scrophulariaceae	LR (Ic)	N: 45 77 E: 025 19 A: 2400 m	Mediterranean element
<i>Scrophularia cryptophila</i> Boiss. & Heldr.	Scrophulariaceae	LR (Ic)	N: 37 10 E: 31 11 A: 1300 m	Mediterranean element
<i>S. depauperata</i> Boiss.	Scrophulariaceae	LR (Ic)	N: 37 13 E: 031 12 A: 500 m	Mediterranean element
<i>S. floribunda</i> Boiss. & Bal.	Scrophulariaceae	LR (nt)	N: 37 13 E: 31 07 A: 910 m	Mediterranean element
<i>Verbascum chrysorrhacos</i> Boiss.	Scrophulariaceae	VU	N: 37 10 765 E: 031 08 185 A: 700 m	Mediterranean element
<i>V. cilicicum</i> Boiss.	Scrophulariaceae	VU	N: 37 09 924 E: 031 10 703 A: 250 m	Mediterranean element
<i>V. cucullibracteum</i> Hub.-Mor.	Scrophulariaceae	VU	N: 37 13 E: 031 01 A: 950 m	Mediterranean element
<i>V. glomerulosum</i> Hub.-Mor.	Scrophulariaceae	LR(nt)	N: 045 77 167 E: 025 19 997 A: 1600 m	Mediterranean element
<i>V. leiocarpum</i> Murb.	Scrophulariaceae	EN	N: 37 17 E: 31 06 A: 700-850 m	Irano-Turanian element
<i>V. pumiliforme</i> Hub.-Mor.	Scrophulariaceae	VU	N: 37 21 E: 31 21 A: 1400 m	Mediterranean element
<i>V. spodiotrichum</i> (Hub.-Mor.) Hub.-Mor.	Scrophulariaceae	EN	N: 45 72 E: 025 13 A: 1240 m.	Mediterranean element
<i>Veronica caespitosa</i> Boiss. var. <i>caespitosa</i>	Scrophulariaceae	LR (Ic)	N: 37 09 E: 031 11 A: 150-200 m	Mediterranean element
<i>V. cuneifolia</i> D. Don subsp. <i>cuneifolia</i>	Scrophulariaceae	LR (Ic)	N: 37 13 E: 31 07 A: 900 m	Unknown
<i>V. macrostachya</i> Vahl. subsp. <i>sorgarae</i> M.A. Fischer	Scrophulariaceae	VU	N: 37 21 E: 031 21 A: 1400 m	Mediterranean element
<i>V. multifida</i> L.	Scrophulariaceae	LR (Ic)	N: 045 77 E: 025 19 A: 600-2800 m	Irano-Turanian element
<i>V. orientalis</i> Miller subsp. <i>nimrodi</i> (Richter ex Stapf) M.A. Fischer	Scrophulariaceae	LR (Ic)	N: 37 16 E: 031 01 A: 700-1100 m	Unknown
<i>Valeriana oligantha</i> Boiss & Heldr.	Valerianaceae	VU	N: 37 21 E: 031 021 A: 2400 m	Mediterranean element

Liliopsida				
<i>Allium scabriflorum</i> Boiss.	Liliaceae	LR (Ic)	N: 37 10 E: 31 11 A: 450- 510 m	Irano-Turanian element
<i>Asphodeline rigidifolia</i> (Boiss.) Baker	Liliaceae	LR (Ic)	N: 045 77 E: 025 19 A: 2400 m	Irano-Turanian element
<i>Bellevalia rixii</i> Wendelbo	Liliaceae	EN	N: 37 21 E: 031 21 A: 1300 m	Irano-Turanian element
<i>Crocus biflorus</i> Miller subsp. <i>punctatus</i> Mathew	Iridaceae	LR (nt)	N: 045 72 E: 025 13 A: 950-1250 m	Euro-Siberian element
<i>Fritillaria whittalii</i> Baker	Liliaceae	VU	N: 37 21 E: 031 21 A: 1600 m	Mediterranean element
<i>Muscari bourgaei</i> Baker	Liliaceae	LR (Ic)	N: 37 17 E: 031 01 A: 615 m	Mediterranean element
<i>M. muscarimi</i> Medicus	Liliaceae	VU	N: 37 21 E: 031 021 A: 400 m	Mediterranean element
<i>Ornithogalum nivale</i> Boiss.	Liliaceae	LR (Ic)	N: 37 17 E: 031 01 A: 1800 m	Mediterranean element
<i>Phlomis grandiflora</i> H.S. Thompson var. <i>grandiflora</i>	Liliaceae	LR (Ic)	N: 37 21 E: 031 021 A: 1200 m	Mediterranean element
<i>Tulipa armena</i> Boiss. var. <i>lycica</i> (Baker) Marais	Liliaceae	LR (Ic)	N: 37 21 E: 031 21 A: 1100 m	Mediterranean element
<i>Dactylorhiza osmanica</i> (Kl.) Soo var. <i>osmanica</i>	Orchidaceae	LR (Ic)	N: 37 09 E: 031 11 A: 150-400 m	Irano-Turanian element

Alyssum lepidotum, *Aubrieta canescens* subsp. *canescens*, *Hesperis matronalis* subsp. *cilicica*, *H. pisidica*, *Silene flavescens*, *S. oreades*, *Arenaria ledebouriana* var. *pauciflora*, *A. pamphylica* subsp. *pamphylica* var. *turcica*, *Erodium pelargonifolium*, *Bufoia calyculata*, *Cerastium macranthum*, *Gypsophila curvifolia*, *G. arrostii* var. *nebulosa*, *Petrorhagia hispidula*, *Minuartia umbellulifera* subsp. *salbacica*, *Bolanthus minuartioides*, *Lathyrus tukhtensis*, *Sempervivum brevipilum*, *Tragopogon aureus*, *Ptilostemon afer* subsp. *eburneus*, *Centaurea drabifolia* subsp. *austro-occidentalis*, *Helichryssum heywoodianum* and *Lamium pisidicum* were unknown. Most of these taxa are called as Mediterranean elements. Mediterranean district in Türkiye is located in East Mediterranean subregion of phytogeographical regions. New gathering records for the taxa were added to the literatures. These taxa were being known only from one locality before the study.

Alyssum cephalotes was known from type gathering; but its habitats and which phytogeographical region element unknown. *Echinops pannosus* was known only type locality, named as Irano-Turanian element and its dangerous category was called as **EN by me**. *Astragalus barbarae* was known only from Çankırı province, because of it was named as Irano-Turanian element. But now it

was determined from Antalya province so that it is doubt to Irano-Turanian element. Its risk category was **DD**, now accepted as **EN**.

Cerastium psidicum, *Herniaria psidica*, *Stefanolfa insoluta*, *Bupleurum davisii*, *Hellenocordum psidicum*, *Amphoricarpos paredictus*, *Echinops onopordum*, *Echinops pannosus*, *Tanacetum argenteum* subsp. *canum* var. *pumilum*, *Omphalodes ripliana*, *Campanula antalyensis*, *Cerastium psidicum*, *Silene delicatula* subsp. *psidica*, *Hypericum ternatum*, *Crocus asumaniae*, *Iris pamphylica*, *Stachys antalyensis*, *S. chamosericea*, *Gaudiniopsis macra*, *Nigella arvensis* var. *oblanceolata*, *Scrophularia libanotica* subsp. *libanotica* var. *antalyensis*, *Rhamnus nitidus*, *Rosa dumalis* subsp. *boissieri* var. *antalyensis* are special to the study area. Some of these were determined for the first time about the area.

Acer hyrcanum subsp. *sphaerocaryum*, *Achillea kotschyi* subsp. *canescens*, *Amphoricarpos praedictus*, *Asperula stricta* subsp. *elmaliensis*, *Asphodeline turcica*, *Bupleurum davisii*, *Campanula antalyensis*, *Cerastium psidicum*, *Crocus asumaniae*, *Eremopoa attalica*, *Ranunculus gueneri*, *Delphinium gueneri*, *Silene guerbuezi*, *Alyssum cephalotes*, *Eryngium palmito*, *Abies cilicica* subsp. *isaurica* are growing in near of the

area and its environs. Some of these were determined in light of literature and field observations for the first time about the area.

Discussion and Conclusions

Totally 230 endemic taxa at the level of species, subspecies and varieties belonging to 29 families have been identified from the study area. There are 229 taxa belonging to *Angiospermae* subdivision and 1 taxon belonging to *Gymnospermae* subdivision in these collected and identified endemic taxa from the research area. Of the 229 taxa belonging to the *Angiospermae* subdivision, 218 are in the *Magnoliopsida* (Dicotyledoneae) class and 11 are in the *Liliopsida* (Monocotyledoneae) class.

The distribution according to the phytogeographical regions of the endemic plants identified from the area is as follows: 59.565 % **Mediterranean elements** (137 taxa), 23.478% **Irano-Turanian elements** (54 taxa), 3.043% **Euro-Siberian elements** (7 taxa) and 13.913% with **unknown** phytogeographical region (32 taxa). It was detailed in table 1.

The top five families with the highest number of taxa in the study are **Lamiaceae** (38), **Caryophyllaceae** (37), **Asteraceae** (26), **Scrophulariaceae** (20), **Fabaceae** (16);

The 10 largest genera with the highest number of taxa are as follows: *Silene* (15), *Astragalus* (9), *Sideritis* (8), *Verbascum* (7), *Centaurea* (7), *Stachys* (6), *Helichrysum* (6), *Alkanna* (6), *Veronica* (5) and *Minuartia* (5). It was detailed in table 1 and 2.).

The distribution of these taxa according to the conservation status is as follows: **CR** (Critically Endangered): 3(1.304%), **EN** (Endangered): 22(9.565%), **VU** (Vulnerable): 34(14.782%), **LR** (Low Risk): 164(71.304%), **(cd: Conservation Dependent):** 29(12.608%), **(lc: Least Concern):** 106(46.086%), **(nt: Near Threatened):** 29(12.608%) and **DD**(Data deficient): 07(3.043%). **NE** (Not evaluated): 0.0(0.00%).

The number of priority conservation requiring taxa is 21 and the names, locations, habitats and the altitudes of survival for these taxa are given in table 3.

Table 3. The endemic taxa requiring priority conservation.

***: Known from type locality; **:known its study area and its environs** (from Özhatay et al., 2003; 2005 and the report(Özelik et al., 2006) written by us).

Taxa	Familias	Localities	Habitats	Altitudes
* <i>Bupleurum davisii</i> Snogerup	Apiaceae	Bozburun Mountain, between Tazlıyayla-Tozludere	On limestone rocks and opens of forest	1600 m.
** <i>Hellenocarum pisidicum</i> Kit Tan	Apiaceae	Bozburun Mountain	Limestone rocks	450-520 m.
** <i>Amphoricarpos paredictus</i>	Asteraceae	Bozburun Mountain	Limestone rocks	1600 m.
<i>Echinops onopordum</i> P.H. Davis	Asteraceae	Around Beşkonak village	On limestone rocks and opens of forest	150-450 m.
<i>Echinops pannosus</i> Rech. fil.	Asteraceae	Around the Kanyon	On limestone rocks and redpine forest	150-775 m.
<i>Tanacetum argenteum</i> (Lam.) Willd. subsp. <i>canum</i> (C. Koch.) Grierson var. <i>pumilum</i> Grierson	Asteraceae	Bozburun Mountain, Tozluçukuryayla	Alpinic steppe	1900 m.
<i>Omphalodes riplyana</i> Davis	Boraginaceae	Bozburun Mountain, Kurucaova, Taşlıyayla	shadows of limestone and conglomerate rocks	1700-2200 m.
** <i>Campanula antalyensis</i> Ayaslıgil et Kit Tan	Campanulaceae	Bozburun Mountain	Limestone	1900 m.
** <i>Cerastium pisidicum</i> Ayaslıgil & Kit Tan	Caryophyllaceae	Bozburun Mountain	Limestone	2000 m.
* <i>Silene delicatula</i> Boiss. subsp. <i>pisidica</i> Coode & Cullen	Caryophyllaceae	Bozburun Mountain, Northern sides	Alpinic steppe	2000 m.
* <i>Silene guerbuezii</i> Özcelik	Caryophyllaceae	Around Aksu, Pınargözü location	Hedge and under pine forest	1300-1750 m.

<i>Hypericum ternatum</i> Poulter	Hypericaceae	Around the Kanyon and Altinkaya village	On conglomerate rocks	200-600 m.
** <i>Crocus asumaniae</i> Mathew	Iridaceae	Bozburun Mountain	Hedge and under oak forest	900-1200 m.
** <i>Iris pamphylica</i> Hedge	Iridaceae	Bozburun Mountain	Hedge and under pine and oak forests	700-850 (1500) m.
* <i>Stachys antalyensis</i> Y. Ayaşlıgil & P.H. Davis	Lamiaceae	Altinkaya village, 500 m. from the observation tower Kestanelik location	On conglomerate rocks	150-950 m.
* <i>Stachys chamosericea</i> Ayaşlıgil & P.H. Davis	Lamiaceae	Above Oluk ward, Altinkaya village, Kestanelik location, Sumbültepe	On conglomerate rocks	800-1100 m.,
* <i>Gaudiniopsis macra</i> (Bieb.) Eig subsp. <i>micropyroides</i> (H. Scholz) Ayaşlıgil & Kit Tan	Poaceae	Beşkonak village, Özütaşı location	Maquis	700-850
** <i>Nigella arvensis</i> L. var. <i>oblanceolata</i> P.H. Davis	Ranunculaceae	Bozburun Mountain,	Maquis	700-1300 m.
<i>Rhamnus nitidus</i> Davis	Rhamnaceae	Bozburun Mountain, Kozludere location	On limestone rocks under pine forest	700-1300 m.
<i>Rosa dumalis</i> Bechst. subsp. <i>boissieri</i> (Crepin) Ö. Nilsson var. <i>antalyensis</i> (Manden.) Ö. Nilsson	Rosaceae	Bozburun Mountain, high plateau	Alpinic steppe	1700 m.
** <i>Scrophularia libanotica</i> Boiss. subsp. <i>libanotica</i>	Scrophulariaceae	Bozburun Mountain, high plateau	Limestone	2000 m.

There are a lot of stress and menacement factors on the study area which has a notable floral diversity: The threat imposed by the dam construction on Köprü Rivulent has been previously reported in the literature (Duman, 2005). It is listed 5 species of threatened and 39 plant taxa European Conservation concern spp. species in the literature. The increasing numbers observed in the forest fires in recent years is also a huge concern. Table 3 contains some of these taxa. Most of studies about the area had being done by Ayaşlıgil(1987). Some of important species in threatened were named by him. Moss flora of the area was published by project team(Kırmacı & Özçelik, 2010). Any moss and pteris taxa were not included in the table 1-3.

One of these forest fires longed just one week and shipwrecked the park's environs. Especially redpine forests very damaged. There is an increase in the construction attempts for touristic purposes. This fact is a common problem in the Aegean and Mediterranean regions where tourism accounts for a large percent of the economical activities. Antalya vilayet is known as capital city of tourism in Türkiye. In recent times, at least ten millions tourists in every year visit the city and its

environs. A large number of them come to the area for water-travels, water sports(rafting) and ecotourism. The vegetal gene sources are consumed, specifically for medicinal and decorative purposes. Many plant species known for its medicinal properties and used by the locals for cure grow in the national park land as in most of the rest of Türkiye. The plants taken as they appear naturally are either used domestically or are exported in not so insignificant amounts. Over-grazing and cutting have imposed an early threat on the plant diversity and the population in the National Park in some areas. Urgent precautionary action is required.

Our study indicates that the region of interest is in endemically well conditions. This indicates that the geography, climate and the topographical conditions of the region all establish a suitable environment for natural vegetation to blossom and to grow. However, an important habitat of *Liquidambar orientalis* (sığla, günlük in Turkish), the watercourse near Pnargözü village (Serik) has been heavily damaged by potable water with drawal and subsequent decreases in the relative humidity as well as the cutting down of the trees for shallaki (Kırmacı ve Özçelik, 2006). Although the

study area is a national park and its territory is conservation area as formal, ecosystems of it may be damaged still. The legal conservation of the area is poor against to local people and tourism. Local people is very poor as economic and knowledge levels. For a good conservation of the area is necessary international helps as science and finance.

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