

Flora inventory of Köprülü Kanyon National Park (Antalya-Isparta)

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Abstract: In this study, vascular flora of Köprülü Kanyon National Park had been investigated. Results according to identification of samples are as follows: 230 vascular endemics of the area and their conservation status were published previously. Pteridophyta 16, Gymnospermae 14, Magnoliopsida 595 and Liliopsida 82, totally 707 (950 if included its environs) taxa have determined. About 150 of these taxa are new registrations for square C3. The distributional rates of the taxa according to phytogeographic regions: Mediterranean 219 (30.97 %), Irano-Turanian 74 (10.46 %) and Euro-Siberian 50 (07.07 %). Vascular plant list of the natural park and its environs are reported. Genera: 8 Pteridophyta, 6 Gymnospermae, 318 Dicotyledoneae, 42 Monocotyledoneae (totally 374 genera); Families: 8 Pteridophyta, 3 Gymnospermae, 76 Dicotyledoneae, 8 Monocotyledoneae (totally 95 families). The families and genera which including the most taxa: Families: *Lamiaceae* (Labiatae) 87 (12.30 %), *Fabaceae* (Leguminosae) 78 (11.03 %), *Asteraceae* (Compositae) 71 (10.04 %), *Brassicaceae* (Cruciferae) 47 (6.64 %), *Scrophulariaceae* 39 (5.51 %), *Rosaceae* 35 (4.95 %), *Liliaceae* 34 (4.80 %), *Ranunculaceae* 33 (% 4.66 %), *Boraginaceae* 32 (4.52 %), *Apiaceae* (Umbelliferae) 31 (4.38 %) and *Caryophyllaceae* 28 (3.96 %). Genera: *Ranunculus* 18 (2.54 %), *Veronica* and *Geranium* 13 (1.83), *Vicia* 12 (1.69), *Trifolium* 11 (1.55 %), *Rosa*, *Verbascum* and *Sedum* 10 (1.41), *Galium* 9 (1.27), *Euphorbia* and *Stachys* 8 (1.13), *Sideritis*, *Hypericum*, *Trigonella* and *Astragalus* 7 (0.99 %), for each *Lathyrus*, *Thymus*, *Micromeria* and *Silene* 6 (0.84 %). Total taxa in dangerous: 48, endemic taxa in dangerous in the park: 44, total endemic taxa: 230; local endemic taxa number for the area and near surroundings: 19, total vascular plant taxa: 707 (950 all together near fields). By Bern Convention: A1 (Number of globally threatened species): 5, A2 (Number of endangered species in European scale): 39. C2 (Number of threatened habitats): 6 (42.A17, 421951, 42B12, 42.6643, 4285B1, 45.11).

Keywords: Flora, Köprülü Kanyon National Park, Biodiversity, Systematics, Biogeography

Köprülü Kanyon Milli Parkı'nın (Antalya-Isparta) flora envanteri

Özet: Bu çalışmada, Köprülü Kanyon Milli Parkı'nın ve çevresinin vasküler florası araştırılmıştır. Toplanan örneklerin yapılan teşhislerinin sonucuna göre sonuçlar aşağıdaki gibidir: Alandan 230 endemik iletim demetli bitki taksonu ve koruma statüleri daha önce yayımlandı. Bu makalede, vasküler(damarlı) bitkilerin listesi rapor edilmiştir. Cins sayıları: 8 Pteridophyta 6 Gymnospermae, 318 Dicoyledoneae, 42 Monocotyledoneae, genel toplam 374; Familyalar: 8 Pteridophyta, 3 Gymnospermae, 76 Dicotyledoneae, 8 Monocotyledoneae, genel toplam 95. Pteridophyta 16, Gymnospermae 14, Magnoliopsida 595 ve Liliopsida 82, toplam olarak 707 (çevresiyle birlikte 950) takson ihtiva eder. Bu taksonlardan yaklaşık 150'si C3 karesi için yeni kayıttır. Taksonların fitocoğrafi bölgelere dağılımı ve dağılım oranları şöyledir: Akdeniz 219 (% 30.97), İran-Turan 74 (% 10.46) ve Avrupa-Sibirya 50 (% 07.07). Endemik taksonların sayısı 230 olup toplam floraya oranı % 24.21'tür. Cins sayısı: Pteridophyta 8, Gymnospermae 6, Dicoyledoneae 318 ve Monocotyledoneae 42 (toplam olarak 374); Familyalar: Pteridophyta 8, Gymnospermae 3, Dicoyledoneae 76 ve Monocotyledoneae 8 (toplam olarak 95). En çok takson içeren familya ve cinsler şunlardır: Familyalar: *Lamiaceae* (Labiatae) 87 (% 12.30), *Fabaceae* (Leguminosae) 78 (% 11.03), *Asteraceae* (Compositae) 71 (% 10.04), *Brassicaceae* (Cruciferae) 47 (% 6.64), *Scrophulariaceae* 39 (% 5.51), *Rosaceae* 35 (% 4.95), *Liliaceae* 34 (% 4.80), *Ranunculaceae* 33 (% 4.66 %), *Boraginaceae* 32 (% 4.52), *Apiaceae* (Umbelliferae) 31 (% 4.38) ve *Caryophyllaceae* 28 (% 3.96) Cinsler: *Ranunculus* 18 (% 2.54), *Veronica* and *Geranium* 13 (% 1.83), *Vicia* 12 (% 1.69), *Trifolium* 11 (1.55 %), *Rosa*, *Verbascum* and *Sedum* 10 (1,41 %), *Galium* 9 (1.27), *Euphorbia* and *Stachys* 8 (% 1.13), *Sideritis*, *Hypericum*, *Trigonella* and *Astragalus* 7 (% 0.99), *Lathyrus*, *Thymus*, *Micromeria* and *Silene* için 6 (% 0.84). Tehlikedeki takson sayısı: 48, Milli Parkta tehlikede endemik takson sayısı: 44, toplam endemik takson sayısı: 230; çalışma alanı ve çevresine özgü endemik takson sayısı: 19. Bern Sözleşmesine göre: A1 (Küresel Ölçekte tehlike altındaki habitatlar): 39. C2 (Tehlike altındaki habitatlar): 6 (42.A17, 421951, 42B12, 42.6643, 4285B1, 45.11).

Anahtar kelimeler: Flora, Köprülü Kanyon Milli Parkı, Biyoçeşitlilik, Sistematik, Biyocoğrafya

1. Introduction

Türkiye has a distinctly unique and rich flora in the neighbouring countries because of situated on the crossroads of three phytogeographical regions; also its vegetation history, different climatical, topographical conditions etc. In this sense, it is like an open-air museum. It is one of a few rich countries in terms of endemic plants, their percentage

rate being about 35 %. The country is also being rich in monotypical genera and endemic taxa. The country is also the birthplace of some cultural plants and the gene centre of some genera like *Astragalus*, *Verbascum* etc. Lakes District may be a gene centre for the genera *Silene* and *Rosa* and *Bolanthus* (Özçelik, 1995; 2000).

Unfortunately, over the last 50 years these natural richness of the country have been threatened by over-

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pasturing, grazing, moving, fires, cutting, construction, urbanization, industrialization and antropogenic factors like herbicide using. As a result of the above mentioned reasons while some endemic and rare plants are undergoing a substantial decline in numbers, others are being destroyed (Küçükler, 1995). To bring the problems to light, a list of threat categories for rare and endemic plants has been made. According to this list, 12 endemic species are extinct (Ekim et.al., 2000).

The area is located in Sütçüler (Isparta), Manavgat and Serik (Antalya) districts; mostly in Antalya province. The area according to the Davis's grid system is in the C3 square. The area is located in 37° 17' N and 31° 06' E. The people of the region earn their lives from the production of farm animals and agricultural plant cultivations in general. Animals kept for production were small ruminants and have been grazing on the pastures from the spring to the beginning of winter. The geological and geomorphologic status of the canyon have revealed a natural wonder when it is integrated with the richness of regional flora, and the whole area has been named as a National Park in 12th December, 1973. It has total area of 36. 614 ha and administrated by the Antalya-Isparta Directorate of Nature Protection and National Parks (Özçelik, 2012).

The mountain range in which the study area is located is very important for the Lakes Region (Figure 1). Flora of the region is very rich, vast and generally in a natural form. And it is also rich in economical importance plants especially medicinal. This area begins around Beşkonak village of National Park with the area of 130 (-110) m altitude and up to the peak of Bozburun mountain at 2505 m. Main land is generally in a conglomerate structure which can be found in flat land of alluvial and river beds. The total length of the canyon is about 14 km. The slope of hill sides has a 90 % inclination in some places. As a whole, Köprülü Kanyon National Park has the Mediterranean climatic type. However, in high altitudes, a continental climate is dominant especially in borders Konya and Isparta (Özçelik, 2012). There are importance of the topographic and floristic structures of this area in the formation of the microclimate of the region. Therefore the formation of agricultural biodiversity in the region, the use of plants for various purposes, the using cultures and their trades due to the research area. The area is the gene center of *Rosa dumalis* subsp. *boissieri* var. *antalyensis*. The Mediterranean region is also Rosaceae, Apiaceae and Lamiaceae. It is very rich in terms of fruit trees. This has been a major factor in the development of fruit agriculture in the region. It is one of the 4 sections under the GEF II Project.

For the reasons, the essential aims of the study are to determine and protect the biological diversity of the area. It is to continue generations of rare and endemic plants in the area. Three 3 important aims of the project by us are:

1. To determine and protect important plants (generations of the endemics, rare and economics etc.) and to work various ecosystems in the park at first step,
2. To reduce up to minimum degree negative effects of human (local people and visitors etc.) on the area and its environs by means of a good management strategy of the national park,
3. To supply new financial sources for local people and to strengthen the socio-economical situation.

In the paper, it is aimed only to give vascular plant list of the national park. Other results of the project will be published in near time.

2. Material and method

In respect to growing period of plants, the Köprülü Kanyon National Park has been surveyed since April 2003. Floristic inventory studies were occurred from specialists in different work areas. Nearly 2000 plant samples are collected from the area. Only native or naturalized plants have been collected from the area. Almost 50 specimens couldn't be identified. In general, as a good rule of thumb is to collect only a small set of samples from a large population. It was been avoided collecting of abundant plant samples for each taxon. Only a few samples of a species in flower or fruit collected from the local habitat for scientific identification and the show room of the National Park visitors. The voucher herbarium samples belonging to vascular plants which formed basic of our research material, were dried, labelled and written corresponding to the rules. In identifying of the samples, it was been mostly used from Flora of Turkey and East Aegean Islands (Davis, 1965-1985; Güner et al., 2000). The specimens have been collected from various localities of the park in the years 2003-2004. The samples of dried vascular plants deposited in the **GUL Herbarium** at S. Demirel University (Isparta). But in vascular plant list in the paper, only plant taxa could being reported. In all account of it approximately gives following plant list. In the text, under headings pteridophytes, gymnosperms, dicots and monocots, vascular plants are listed alphabetically in the sequence of families, but genera, species rows and numbered according to Flora of Turkey and the East Aegean Islands written by Davis (1965-1985). It was shortly discussed after floristical lists. New record taxa for C3 square were determined in the light of the references (Donner, 1985; Huber-Morath, 1987; 1988; Nydegger-Hügli, 1994; Özçelik and Korkmaz, 2002; Özhatay et al., 2005; Serin, 1984; Fakir, 2006a; 2006b).

Abbreviations in the text:

* : New record taxon for C3 square,

** : Plant has economic importance in the region,

Cult : Cultivated in the research area or cultured in general.

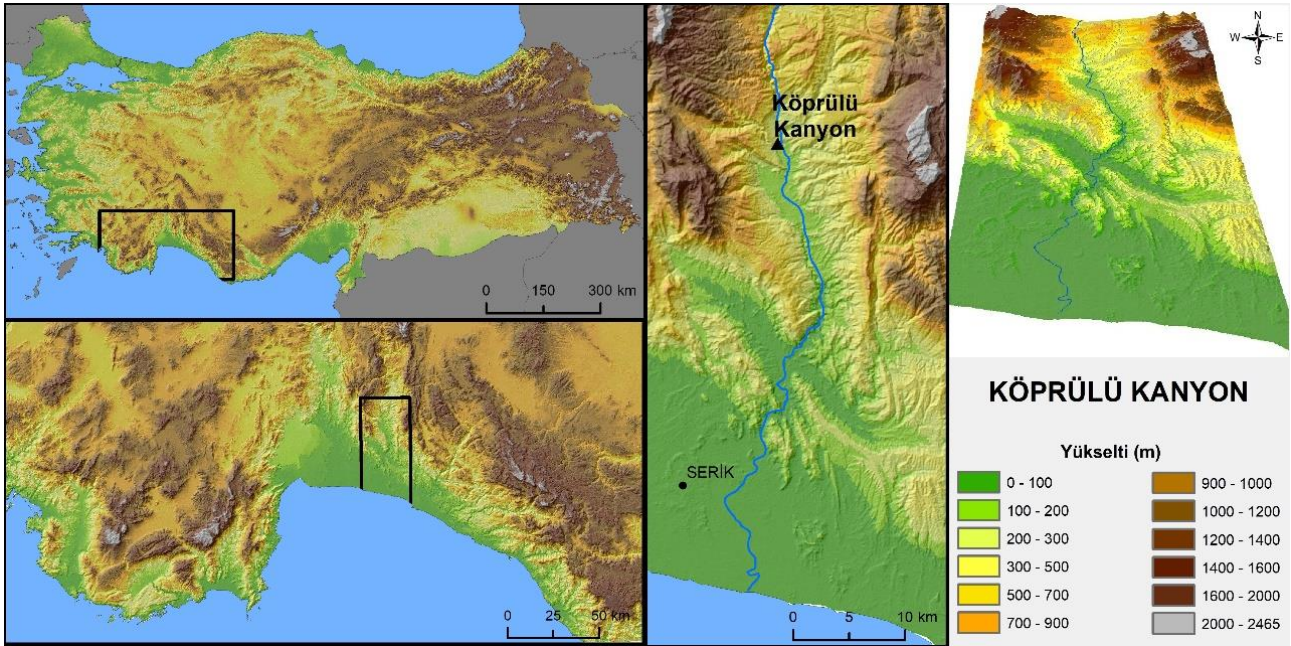


Figure 1. View from satellite of research area (<https://earth.google.com/web>).

3. Results (Vascular plants of the study area)

Division 1: Pteridophyta

Adiantaceae

Adiantum capillus-veneris L.**

Aspidiaceae

Dryopteris filix-mas (L.) Schott**, *D. pallida* (Bory)

Fomin subsp. *pallida*** , *D. pallida* (Bory) Fomin

Aspleniaceae

Asplenium trichomonas L., *A. bourgaei* Millde, *A. onopteris* L., *A. ceterach* L. subsp. *ceterach***.

Athyriaceae

Cystopteris fragilis (L.) Bernh**

Equisetaceae

***Equisetum hyemale* L.* , *E. ramosissimum* Desf.** ,
***E. arvense* L.*

Hypolepiadaceae

Pteridium aquilinum (L.) Kuhn**

Selaginellaceae

Selaginella denticulata (L.) Link

Sinopteridaceae

Cheilanthes fragrans (L. fil.) Sw., *C. persica* (Bory) Kuhn

Division 2: Spermatophyta

Subdivision 1: Gymnospermae

Cupressaceae

Cupressus sempervirens L. var. *horizontalis* Mill.** , *C. s. cv. "pyramidalis"*** , *Juniperus oxycedrus* L. subsp. *oxycedrus*** , *J. foetidissima* Willd.** , *J. sabina* L.* , *J. excelsa* Bieb.**

Pinaceae

Abies cilicica (Ant. & Kotschy) Carr. subsp. *isaurica* Coode & Cullen.** , *Cedrus libani* A. Rich.** , *Pinus nigra* Arn. subsp. *pallasiana* (Lamb.) Holmboe** , *P. brutia* Ten** , *P. pinea* L.**

Ephedraceae

***Ephedra major* Host* , ***E. campylopoda* C.A. Meyer*

Subdivision 2: Angiospermae

Classis 1: Magnoliopsida /Dicotyledoneae

Acanthaceae

Acanthus hirsutus Boiss.** , *A. spinosus* L.**

Aceraceae

Acer monspessulanum L. subsp. *monspessulanum*** , *A.m. subsp. microphyllum* (Boiss.) Bornm.* , *A. negundo* L.*

Anacardiaceae

***Cotinus coggyria* Scop.* , *Rhus coriaria* L.** , *Pistacia lentiscus* L.** , *P. terebinthus* L. subsp. *palaestina* (Boiss.) Engler**

Apiaceae (Umbelliferae)

Astrantia maxima Pallas subsp. *haradjianii* (Grintz.) Rech. fil.** , *Eryngium campestre* L.** , *Lagoecia cuminioides* L. , *Echinophora tournefortii* Jaub. & Spach.** , *Scandix iberica* M. Bieb. , *S. pecten-veneris* L. , *S. australis* L. subsp. *grandiflora* (L.) Thell. , *S. turgida* (Boiss. & Bal.) Boiss. , *Bunium microcarpum* (Boiss.) Freyn subsp.

bourgaei (Boiss.) Hedge & Lamond, ***Pimpinella corymbosa* Boiss.*, ***Conium maculatum* L.*, *Lecokia cretica* (Lam.) DC.*, *Bupleurum croceum* Fenzl. *B. odontites* L.*, *B. sulphureum* Boiss. & Bal., *B. anatolicum* Hub.-Mor. & Reese*, *Falcaria vulgaris* Bernh.*, *Malabaila secacul* Banks & Sol.**, ***Heracleum pastinacifolium* C. Koch*, *Tordylium apulum* L., *T. brachytaenum* Boiss. & Heldr., *T. pestalozzae* Boiss.* South, *Ainsworthia trachycarpa* Boiss.*, ***Glaucosciadium cordifolium* (Boiss.) Brutt & Davis*, *Laserpitium petrophilum* Boiss. & Heldr.**, *Torilis arvensis* (Huds.) Link subsp. *elongata* (Hoffmans. & Link) Cannon, *T. leptophylla* (L.) Reichb., *Caucalis platycarpus* L., *Turgenia latifolia* (L.) Hoffm., *Daucus guttatus* Sm.

Apocynaceae

Nerium oleander L.**

Araliaceae

Hedera helix L.**

Aristolochiaceae

***Aristolochia clematitis* L.*, *A. maurorum* L.**, *A. bodamae* Dingler*

Asclepiadaceae

Cynanchum acutum L. subsp. *acutum*, *Vincetoxicum canescens* (Willd.) Decne subsp. *pedunculata* Browicz*, *Cionura erecta* (L.) Griseb.*

Asteraceae (Compositae)

Xanthium spinosum L.*, ***Inula orientalis* Lam.*, *I. anatolica* Boiss.**, *I. graveolens* (L.) Desf., *I. viscosa* (L.) Aiton**, *Pulicaria dysenterica* (L.) Bernh.**, *Helichrysum pamphylicum* Davis & Kupicha**, *H. stoechas* (L.) Moench subsp. *barrelieri* (Ten.) Nyman**, *H. chasmolycicum* P H. Davis, *H. compactum* Boiss.*, *H. plicatum* DC. subsp. *plicatum***., *Filago vulgaris* Lam*, *Bellis perennis* L.**., *Senecio vulgaris* L.*, *S. vernalis* Waldst. & Kit., *Tussilago farfara* L.**., ***Calendula officinalis* L.*, *C. arvensis* L., *Anthemis rosea* Sm. subsp. *carnea* (Boiss.) Grierson**, *Achillea wilhelmsii* C. Koch.**., ***A. vermicularis* Trin.*., ***A. nobilis* L. subsp. *sipylea* (O. Schwarz) Bassler**, *Artemisia absinthium* L.*, *A. campestris* L.*, *Arctium minus* (Hill.) Bernh. subsp. *pubens* (Babiryeton) Arènes*, *Onopordum anatolicum* (Boiss.) Eig.**., *Silybium marianum* (L.) Gaertner*, *Cirsium libanoticum* DC. subsp. *lycaonicum* (Boiss. & Heldr.) Davis & Parris, *C. arvense* (L.) Scop., *Picnomon acarna* (L.) Cass.**., *Ptilostemon afer* (Jacq.) Greuter subsp. *eburneus* Greuter, *Carduus nutans* L.**., *Centaurea virgata* Lam., *C. calolepis* Boiss., *C. solstitialis* L. subsp. *carneola* (Boiss.) Wagenitz, *C. iberica* Trev. ex Sprengel, *C. depressa* Bieb., *Crupina vulgaris* Cass.*, *C. crupinastrum* (Moris) Vis., *Cnicus benedictus* L. var. *kotschyi* Boiss.**., *Carthamus lanatus* L.**., *C. dentatus* Vahl.**., *Xeranthemum annuum* L.**., *Echinops ritro* L., *E. pannosus* Rech. fil.*, *E. viscosus* DC. subsp. *bithynicus* (Boiss.) Rech. fil., *E. orientalis* Trautv.*., *Scopolym hispanicus* L.**., *Cichorium intybus* L.**., *Scorzonera cana* (C.A. Meyer) Hoffm. var. *radicosa* (Boiss.) Chamberlain**, *Tragopogon longirostris* Bisch. ex. Schultz Bip.**., *T. dubius* Scop.**., *T. pratensis* L., *T. buphthalmoides* (DC.) Boiss. var. *buphthalmoides**, *T. aureus* Boiss.*, *Picris*

strigosa Bieb., *Sonchus asper* (L.) Hill.**., *S. oleraceus* L.**., *Pilosella hoppeana* (Schultes) C.H. & F.W. Schultz, *P. piloselloides* (Vill.) Sojak. subsp. *piloselloides*, *P.* subsp. *megalomastix* (NP.) Sell & West, *Lactuca serriola* L.*, *Lapsana communis* L., *Taraxacum syriacum* Boiss.*., *Chondrilla juncea* L. var. *juncea***., *Crepis foetida* L. subsp. *rhoadifolia* (Bieb.) Celak., *C. sancta* (L.) Babcock.

Berberidaceae

Berberis crataegina DC.**

Boraginaceae

Heliotropium bovei Boiss.*, *H. europaeum* L.*, *Rochelia disperma* (L. fil.) C. Koch subsp. *disperma*, *Myosotis incrassata* Guss., *M. ramosissima* Rochel ex Schultes subsp. *ramosissima**, *Omphalodes ripleyana* Davis**, *Paracaryum cappadocicum* Boiss. & Bal., *Solenanthus stamineus* (Desf.) Wettst.**., *Cynoglossum creticum* Miller, *Lithospermum officinale* L.*, *L. purpureocaeruleum* L.*, *Buglossoides arvensis* (L.) Joksten, *Echium italicum* L.**., *Moltkia coerulea* (Wild.) Lehm., *M. aurea* Boiss., *Onosma gracile* Trautv.*, *Cerinthe glabra* Miller*, *Symphytum orientale* L., *Anchusa leptophylla* Roemer & Schultes subsp. *tomentosa* (Boiss.) Chamb.*., *A. officinalis* L.*, *A. undulata* L. subsp. *hybrida* (Ten.) Coutinho.**., *A. limbata* Boiss. & Heldr., *A. aggregata* Lehm., *Nonea rosea* (Bieb.) Link*, *N. vesicolor* (Steven) Sweet*, *N. anchusoides* Boiss. & Buhse*, *Alkanna tinctoria* (L.) Tausch. subsp. *anatolica* Hub.-Mor.**., *A. t.* subsp. *subleiocarpa* (Hub.-Mor.) Hub.-Mor., *A. areolata* Boiss. var. *areolata***., *A. areolata* Boiss. var. *subleavis* Hub.-Mor.*., *A. oreodaxa* Hub.-Mor., *A. punctulata* Hub.-Mor.*

Brassicaceae (Cruciferae)

***Sinapis alba* L.*, *S. arvensis* L.**., *Hirschfeldia incana* (L.) Lag.-Foss, *Diplotaxis tenuifolia* (L.) DC.**., *Conringia orientalis* (L.) Andrz.*, *Cardaria draba* (L.) Desv. subsp. *chalepensis* (L.) O.E. Schultz*, *Isatis cappadocica* Desv. subsp. *alyssifolia* (Boiss.) Davis**, *Iberis attica* Jord.*, *Biscutella didyma* L.**., *Aethionema arabicum* (L.) Andrz. ex DC.**., *Thlaspi perfoliatum* L., *T. alliaceum* L.*, *Capsella bursa-pastoris* (L.) Medik**, *Neslia apiculata* Fisch., Mey. & Ave-Lall., *Fibigia clypeolata* (L.) Medik., *F. macrocarpa* (Boiss.) Boiss.*, *Alyssum dasycarpum* Steph ex Willd.*., *A. desertorum* Stapf. var. *desertorum*, *A. minus* (L.) Rothm. var. *minus*, *A. lepidotum* Boiss., *A. condensatum* Boiss. & Hausskn subsp. *condensatum*, *A. filiforme* Nyar*, *Clypeola jonthlaspi* L., *Erophila verna* (L.) Chevall., *Arabis andosacea* Fenzl*, *A. deflexa* Boiss., *A. ionocalyx* Boiss., *A. caucasica* Willd. subsp. *brevifolia* (DC.) Cullen, *A. abietina* Bornm*, *A. nova* Vill., *Turritis glabra* L.*, *T. laxa* (Sibth. & Sm.) Hayek*, *Nasturtium officinale* R.Br.**., *Barbarea verna* (Mill.) Aschrt., *Cardamine graeca* L., *Aubrieta canescens* (Boiss.) Bornm. subsp. *canescens*, *A. pinardii* Boiss., *Matthiola longipetala* (Vent.) DC. subsp. *bicornis* (Sibth. & Smith) P.W. Ball.**., *Malcolmia africana* (L.) R.Br.*., *M. chia* (L.) DC., *M. flexuosa* (Sibth. & Sm.) Sibth. & Sm., *M. micrantha* Boiss. & Reut.*, *M. crenulata* (DC.) Boiss.*, *Erysimum leucanthemum* (Steph.) Fedtsch.*, *Alliaria petiolata* (Bieb.) Cavara & Grande*, *Sisymbrium officinale* (L.) Scop.**., *S. altissimum* L., *Descurainia sophila* (L.)

Webb ex Prantl, *Camelina hispida* Boiss. var. *grandiflora* (Boiss.) Hedge.

Capparaceae

Capparis ovata Desf.**, *C. spinosa* L.**

Caprifoliaceae

***Lonicera etrusca* Santi var. *etrusca*.*

Campanulaceae

Campanula iconia Phitos.*, *C. lyrata* Lam. subsp. *lyrata*, *C. cymbalaria* Sm., *Asyneuma linifolium* (Boiss. & Heldr.) Bornm. subsp. *linifolium*, *A. michauxioides* (Boiss.) Dambold., *Legousia falcata* (Ten.) Fritsch**, *L. pentagonia* (L.) Thellung**.

Caryophyllaceae

Arenaria deflexa Dec. subsp. *microsepala* McNeill, *A. pamphylica* Boiss. & Heldr. subsp. *pamphylica* var. *turcica* McNeill, *A. sabulina* Gris. ex Fenzl*, *A. serpyllifolia* L., *Minuartia glandulosa* (Boiss. & Huet.) Bornm*, *M. umbellulifera* (Boiss.) McNeill subsp. *umbellulifera* var. *umbellulifera*, *C. macranthum* Boiss.*, *Holosteum umbellatum* L. var. *umbellatum**, *Moenchia mantica* (L.) Bartl. subsp. *mantica**, *Bufonia calyculata* Boiss. & Bal.**, *B. tenuifolia* L.*, *Spergularia bocconii* (Scheele) Aschers. & Graebn., *Telephium imperati* L. subsp. *orientale* (Boiss.) Nyman**, *Dianthus* spp.**, *Petrorhagia hispidula* (Boiss. & Heldr.) Ball & Heywood, *Velezia rigida* L., *V. pseudorigida* Hub.-Mor., ***Saponaria syriaca* Boiss.*, *S. kotschy* Boiss.**, *Vaccaria pyramidata* Medik. var. *pyramidata**, *Silene spergulfolia* (Desf.) Bieb., *S. vulgaris* (Moench.) Garcke var. *macrocarpa* (Turrill) Coode & Cullen**, *S. leptoclada* Boiss., *S. flavescens* Waldst. & Kit.*, *S. balansae* Boiss.*, *S. colorata* Poiret**, *Agrostemma githago* L.**

Chenopodiaceae

Chenopodium botrys* L.*, *C. foliosum* (Moench) Aschers**, *C. album* L. subsp. *album* var. *album

Cistaceae

Cistus creticus L.**, *C. salviifolius* L.**, ***C. laurifolius* L.*, *Fumana arabica* (L.) Spach. var. *arabica*, *Tuberaria guttata* (L.) Fourr. var. *clandestina* (Vierh.) Davis & Coode

Convolvulaceae

Convolvulus dorycnium L. subsp. *oxysepalus* (Boiss.) Rech.*, *C. scammonia* L.**, ***Ipomoea purpurea* (L.) Roth.*

Cornaceae

Cornus mas L.**

Crassulaceae

Umbilicus erectus DC., *U. rupestris* (Salisb.) Dandy, *U. horizontalis* (Guss.) DC. var. *horizontalis*, *Rosularia serpentinica* (Wendermann) Muirhead**, *Sedum sediforme* (Jacq.) Pau, *S. amplexicaule* DC., *S. acre* L.*, *S. lydium* Boiss.*, *S. cepaea* L.*, *S. annuum* L.*, *S. caespitosum* (Cav.) DC., *S. hispanicum* L. var. *hispanicum**, *S.*

hispanicum L. var. *planifolium* Chamberlain*, *S. rubens* L.**

Cucurbitaceae

***Ecballium elaterium* (L.) A. Rich.*, *Bryonia cretica* L.**, ***B. alba* L.*

Cuscutaceae

Cuscuta campestris Yuncker*.

Dipsacaceae

Dipsacus laciniatus L.**, *Cephalaria lycica* Matthews*, *Scabiosa micrantha* Desf.*, *S. persica* Boiss.*, *S. rotata* Bieb., *Tremastelma palaestinum* (L.) Janchen*

Elaeagnaceae

***Elaeagnus angustifolia* L.*

Ericaceae

Erica manipuliflora Salisb.**, *Arbutus andrachne* L.**

Euphorbiaceae

Chrozophora tinctoria (L.) Rafin.**, *Euphorbia peplis* L., *E. dendroides* L.*, *E. apios* L., *E. peplus* L. var. *peplus*, *E. falcata* L. subsp. *macrostegia* (Bornm.) O. Schwarz, *E. rigida* Bieb., *E. lucida* Waldst. & Kit.*, *E. characias* L. subsp. *wulfenii* (Hoppe ex W. Koch) A.R. Smith.

Fabaceae (Leguminosae)

Ceratonia siliqua L.**, *Cercis siliquastrum* L. subsp. *hebecarpa* (Bornm.) Yalt.**, *Acacia retinoides* Schlecht*, *Chamaecytisus eriocarpus* (Boiss.) Rothm.**, *Gonocytisus angulatus* (L.) Spach, *Genista burdurensis* P.Gibbs*, *G. aucheri* Boiss.*, *Spartium junceum* L., *Calicotome villosa* (Poirlet) Link, *Lotononis genistoides* (Fenzl) Benth.**, ***Lupinus albus* L. subsp. *albus**, *L. a.* subsp. *graecus* (Boiss. & Sprun.) Franco & Silva*, ***Colutea cilicica* Boiss. & Bal.*, *C. melanocalyx* Boiss. & Heldr. subsp. *melanocalyx****, *C. m.* subsp. *davisiana* (Browicz) Chamb.*, *Astragalus suberosus* Banks & Sol. subsp. *haarbachii* (Sprun.) Matthews**, *A. panduratus* Bunge*, *A. echinops* Aucher ex Boiss.*, *A. lycius* Boiss., *A. gaeobotrys* Boiss. & Bal.*, *A. schizopterus* Boiss., *A. barbarae* Bornm.*, *Psoralea bituminosa* L.**, *P. jaubertina* Fenzl*, *Vicia freyniana* Bornm*, *V. cracca* L. subsp. *atroviolaceae* (Bornm.) Davis*, *V. cracca* L. subsp. *stenophylla* Vel., *V. villosa* Roth. subsp. *villosa*, *V. v.* subsp. *eriocarpa* (Hausskn.) P.W. Ball**, *V. cassia* Boiss., *V. pubescens* (DC.) Link., *V. peregrina* L., *V. lutea* L. var. *lutea* (Balbis) Lois.**, *V. pannonica* Crantz var. *purpurascens* (DC.) Ser.*, *V. sativa* L. subsp. *sativa****, *V. narbonensis* L.**, *Lens montbretii* (Fisch. & Mey) Davis & Plitm.*, *L. nigriscans* (Bieb.) Godr.*, *L. ervoides* (Brign.) Grande**, *Lathyrus digitatus* (Bieb.) Fiori, *L. laxiflorus* (Desf.) Kuntze subsp. *laxiflorus**, *L. setifolius* L., *L. gorgoni* Parl. var. *gorgoni*, *L. aphaca* L. var. *aphaca**, *Pisum sativum* L. subsp. *elatius* (Bieb) Aschers & Graebn. var. *elatius****, *Ononis adenotricha* Boiss. var. *adenotricha****, *O. natrix* L. subsp. *hispanica* (L. fil.) Coutinho, *O. pubescens* L., *O. pusilla* L., *O. spinosa* L. subsp. *leiosperma* (Boiss.) Sirj.***, ***Trifolium repens* L. var. *repens**, *T. r.* var. *giganteum* Lag-Foss*, *T. campestre* Schreb.***, *T. physodes* Stev. ex Bieb. var. *physodes*, *T. resupinatum* L. var. *microcephalum*

Zoh.*, *T. g.* var. *nervulosum* (Boiss. & Heldr.) Zoh., *T. pratense* L. var. *pratense**, *T. medium* L. var. *medium**, *T. sylvaticum* Guard ex Lois., *T. arvense* L. var. *arvense**, *T. angustifolium* L. var. *angustifolium****, *Melilotus indica* (L.) All., *M. officinalis* (L.) Desr., ***Trigonella balansae* Boiss. & Reuter*, *T. spinosa* L.*, *T. fischeriana* Ser., *M. orbicularis* (L.) Bart.***, *M. sativa* L. subsp. *sativa****, ***M. x. varia* Martyn*, *M. minima* (L.) Bart. var. *minima*, *M. polymorpha* L. var. *polymorpha*, *Lotus corniculatus* L. var. *alpinus* Ser.***, *Anthyllis vulneraria* L. subsp. *praepropera* (Kerner) Bornm.*, *A. tetraphylla* L., *Securigera securidaca* (L.) Degen. & Dörf., *Coronilla emerus* L. subsp. *emeroides* (Boiss. & Sprun) Uhrova**, *C. grandiflora* Boiss., *Ornithopus* L., *O. compressus* L., *Scorpiurus muricatus* L. var. *subvillosus* (L.) Fiori, *Onobrychis ptolemaica* (Del.) DC.*

Fagaceae

Castanea sativa Miller**, ***Quercus robur* L. subsp. *pedunculiflora* (C. Koch) Menitsky*, *Q. infectoria* Olivier subsp. *boissieri* (Reuter) O. Schwarz**, *Q. cerris* L. var. *cerris****, ***Q. libani* Olivier*, *Q. coccifera* L.**

Fumariaceae

Corydalis wendelboi Liden subsp. *wendelboi****, ***C. solida* (L.) Clairv. subsp. *incisa* Liden*, *C. rutifolia* (Sibth. & Sm.) DC., ***C. erdelii* (Zacc.) Cullen & Davis* *C. conorhiza* Ledeb., *Fumaria capreolata* L., ***F. microcarpa* Boiss. ex Hausskn., *F. parviflora* Lam.***, ***F. asepalata* Boiss.*

Gentianaceae

Centaurium erythraea Rafin subsp. *erythraea**, *C. e.* subsp. *rumelicum* (Velen) Melderis*, *C. spicatum* (L.) Fritsch, *C. maritimum* (L.) Fritsch*

Geraniaceae

Geranium lucidum L.***, *G. purpureum* Vill.***, *G. rotundifolium* L.***, *G. molle* L. subsp. *molle****, *G. m.* L. subsp. *brutium* (Gasp.) Davis*, *G. divaricatum* Ehrh., *G. columbinum* L., *G. tuberosum* L. subsp. *tuberosum****, ***G. stepporum* Davis*, *G. macrostylum* Boiss.*, *G. asphodeloides* Burm. fil. subsp. *asphodeloides**, *G. pyrenaicum* Burm. fil., *G. ibericum* Cav. subsp. *jubatatum* (Hand.-Mazz.)*, *Erodium ciconium* (L.) L'Herit, *E. moschatum* (L.) L'Herit, *E. acaule* (L.) Bech erer & Thell.*, *Pelargonium endlicherianum* Fenzl.**

Globulariaceae

Globularia trichosantha Fisch. & Mey.**

Hamamelidaceae

Liquidambar orientalis Miller var. *integriloba* Fiori**

Hypericaceae

Hypericum ternatum Poulter**, *H. scabrum* L., *H. hirsutum* L.*, ***H. venustum* Fenzl*, *H. lanuginosum* Lam. var. *lanuginosum****, *H. l.* var. *scabrellum* (Boiss.) Robson*, *H. cuisii* Barbey*, *H. aviculariifolium* Jaub. & Spach subsp. *depilatum* (Freyn & Bornm.) Robson var. *depilatum*.

Illecebraceae

Herniaria glabra L.***, *H. micrantha* A.K. Jackson & Turrill*, *H. incana* Lam.***, *Paronychia argentea* Lam. var. *argentea**, *P. davisii* Chaudhri, *P. carica* Chaudhri.

Juglandaceae

Juglans regia L.**

Labiatae (Lamiaceae)

Ajuga chamaepitys (L.) Schreber subsp. *cuneifolia* (Stapf) P.H. Davis**, *A. bombycina* Boiss.***, *Teucrium chamaedrys* L. subsp. *chamaedrys****, *T. c.* subsp. *lydium* O. Schwarz**, *T. divaricatum* Sieber subsp. *villosum* (Celak.) Rech. fil., *T. montanum* L., *T. polium* L.***, *T. lamifolium* d'Urv. subsp. *lamifolium****, ***Rosmarinus officinalis* L.*, *Scutellaria megalaspis* Rech. fil.***, ***S. orientalis* L. subsp. *orientalis**, ***Phlomis lunariifolia* Sm., *P. grandiflora* H.S. Thompson**, *P. longifolia* Boiss. & Bl. var. *bailanica* (Vierh.) Hub.-Mor.*, *P. armeniaca* Willd.***, *P. kurdica* Rech. fil.*, *Lamium pisidicum* R. Mill., *L. eriocephalum* Benth. subsp. *glandulosidens* (Hub.-Mor.) R. Mill*, *L. amplexicaule* L., *L. purpureum* L. var. *aznavorii* Gand. ex Aznov., *L. album* L.*, *Ballota cristata* P.H. Davis**, ***B. nigra* L. subsp. *anatolica* P.H. Davis*, *Marrubium vulgare* L., *M. heterodon* (Benth.) Boiss. & Bal.*, ***Sideritis siphylea* Boiss.*, *S. erythrantha* Boiss. & Heldr. var. *erythrantha****, *S. stricta* Boiss. & Heldr.***, *S. condensata* Boiss. & Heldr. apud.***, *S. congesta* P.H. Davis & Hub.-Mor.***, *S. libanotica* Labill. subsp. *linearis* (Benth.) Bornm.***, *S. serratifolia* Hub.-Mor.*, *Stachys cretica* L. subsp. *vasillans* Rech. fil., *S. longispicata* Boiss. & Kotschy*, *S. pumilia* Banks & Sol.*, *S. antalyensis* Y.Ayaşgil & P.H. Davis, *S. pseudopinardii* Bhattacharjee & Hub.-Mor.*, *S. chamosericea* Ayaşgil & P.H. Davis, *S. iberica* Bieb. subsp. *iberica* var. *densipilosa* Bhattacharjee*, *S. arvensis* (L.) L., ***Melissa officinalis* L. subsp. *officinalis**, *Nepeta sulfuriflora* P.H. Davis*, *N. flavida* Hub.-Mor.*, *N. pilinix* P.H. Davis, *N. nuda* L. subsp. *albiflora* (Boiss.) Gams.***, *N. caesarea* Boiss*, *N. cilicia* Boiss. apud. Benth., *Lallamentia iberica* (Bieb.) Fisch. & Mey., *Prunella vulgaris* L.***, *P. orientalis* Bornm., *P. laciniata* (L.) L.***, *Origanum sipyleum* L.***, *O. minutiflorum* O. Schwarz & P.H. Davis**, ***O. majorana* L.*, *O. onites* L.***, *O. vulgare* L.***, *Satureja thymbra* L.***, *S. cuneifolia* Ten***, ***Calamintha nepeta* (L.) Savi subsp. *nepeta**, *C. n.* subsp. *glandulosa* (Req.) P.W. Ball*, *Clinopodium vulgare* L. subsp. *vulgare****, *Acinos rotundifolius* Pers., *Micromeria nervosa* (Desf.) Benth**, *M. myrtifolia* Boiss. & Hohen**, *M. juliana* (L.) Benth. ex Reichb.*, *M. graecae* (L.) Benth. ex Reichb. subsp. *graeceae**, *M. elliptica* C. Koch., *M. cristata* (Hampe) Griseb., *Thymus cilicicus* Boiss. & Bal.***, *T. cherlerioides* Vis. var. *cherlerioides****, ***T. samius* Ronniger. & Rech. fil.*, ***T. zygioides* Griseb. var. *zygioides**, ***T. sibthorpii* Bentham.*, ***T. longicaulis* C. Presl. subsp. *longicaulis**, *Thymbra spicata* L. var. *spicata****, ***T. s.* var. *intricata* P.H. Davis*, *Mentha aquatica* L.***, ***M. longifolia* (L.) Hudson subsp. *longifolia**, *M. l.* subsp. *typhoides* (Briq.) Harley var. *typhoides****, ***M. spicata* L. subsp. *tomentosa* (Briq.) Harley*, *Lycopus europaeus* L., *Ziziphora clinopodioides* Lam.***, *Z. capitata* L.***, *Salvia tomentosa* Miller**, ***S. adenophylla* Hedge & Hub.-Mor.*, *S.*

cadmica Boiss.**, *S. sclarea* L.**, *S. virgata* Jacq.**,
Ocimum basilicum L.*

Lauraceae

Laurus nobilis L.**

Linaceae

Linum bienne Miller

Loranthaceae

Arceuthobium oxycedri (DC.) Bieb.**, *Viscum album* L.
subsp. *austriacum* (Wiesb.) Vollman**

Malvaceae

Malva sylvestris L.**, *Lavatera thuringiaca* L.*,
***Alcea calvertii* (Boiss.) Boiss.*

Moraceae

***Morus alba* L.*, *Ficus carica* L.**

Myrtaceae

Myrtus communis L. subsp. *communis***.

Oleaceae

Jasminum fruticans L.**, *Fontanesia phylliraeoides*
Labill. subsp. *phylliraeoides****, Fraxinus ornus* L. subsp.
cilicica (Lingels) Yalt.**, ***F. angustifolia* Vahl. subsp.
*syriaca**, *Phillyrea latifolia* L.**

Onagraceae

Epilobium hirsutum L.***, **E. montanum* L.*

Orobanchaceae

Orobanche heldreichii (Reuter) G.Beck.**, O. cernua*
Loefl., *O. minor* Sm.

Oxalidaceae

***Oxalis acetosella* L.**, O. pes-caprae* L.*

Paeoniaceae

Paeonia mascula (L.) Miller subsp. *mascula***

Papaveraceae

***Glaucium corniculatum* (L.) Rud. subsp.
*corniculatum**, *G. leiocarpum* Boiss.***, **Papaver*
apokrinomenon Fedde, ***P. strictum* Boiss. & Bal.**, **P.*
macrostomum Boiss. & Huet ex Boiss.**, P. rhoeas* L.***,*
***P. postii* Fedde, ***P. dubium* L.**, Hypecoum procumbens*
L.

Parnassiaceae

Parnassia palustris L.**

Plantaginaceae

Plantago major L. subsp. *intermedia* (Gilib.) Lange***,*
P. holosteum Scop., *P. lanceolata* L.***, P. lagopus* L., *P.*
cretica L.

Platanaceae

Platanus orientalis L.**

Plumbaginaceae

Plumbago europea L., *Acantholimon confertiflorum*
Bokhari*

Polygalaceae

Polygala pruinosa Boiss. subsp. *pruinosa*, *P. anatolica*
Boiss. & Heldr.

Polygonaceae

Atraphaxis billardieri Jaub. & Spach. var. *billardieri*,
Polygonum amphibium L.***, P. cognatum* Meissn.***, P.*
arenarium Waldst & Kit.**, Rumex acetosella* L.***, R.*
scutatus L.***, R. gracilescens* Rech.**, R. patientia* L.***, R.*
obtusifolius L. subsp. *subalpinus* (Schur) Celak.**, R.*
pulcher L.***, R. nepalensis* Sprengel.*

Primulaceae

Primula elatior (L.) Hill.***, P. auriculata* Lam.***,*
Androsace maxima L., *Cyclamen mirabile* Hildebr.***, **C.*
trachopterantherum O.Schwarz**, Lysimachia atropurpurea*
L., *Anagallis arvensis* L. var. *arvensis***, A. a. var. caerulea*
(L.) Gouan.

Ranunculaceae

Eranthis hyemalis (L.) Salisb.***, **Nigella sativa* L.**,*
Nigella arvensis L. var. *oblanceolata* P.H. Davis**
Delphinium gueneri P.H. Davis***, Consolida orientalis*
(Gay) Schröd***, **C. glandulosa* (Boiss. & Huet) Bornm.**,*
Anemone blanda Schott. & Kotschy***, A. coronaria* L.***,*
Clematis cirrhosa L.***, Adonis aestivalis* L. subsp.
*aestivalis****, **A. a. subsp. parviflora* (Fisch ex DC.)
Busch**, **Ranunculus brutius* Ten.**, R. neapolitanus* Ten.
R. damascenus Boiss. & Gaill.**, R. argyreus* Boiss., *R.*
cuneatus Boiss.**, R. reuterianus* Boiss., *R. rumelicus*
Griseb.**, R. illyricus* L., *R. i. subsp. illyricus*, *R. cadmicus*
Boiss., *R. heterorhizus* Boiss. & Ball.**, R. isthmicus* Boiss.
subsp. *stepporum* Davis, *R. marginatus* d'Urv. var.
trachycarpus (Fisch. & Mey.) Azn., *R. scandiacus* (Boiss.)
Davis**, R. gueneri* Ayaşlıgil & P.H. Davis, *R. muricatus* L.,
R. chius DC., *R. arvensis* L., *R. ophioglossifolius* Vill., *R.*
ficaria L. subsp. *ficariiformis* Rouy & Fouc.***,*
Ceratocephalus falcatus (L.) Pers.***, **Thalictrum*
orientale Boiss.*

Resedaceae

Reseda lutea L. var. *lutea***

Rhamnaceae

Paliurus spina-christi Miller**

Rosaceae

Prunus x domestica L.***, P. divaricata* Ledeb. subsp.
*divaricata***, **Amygdalus communis* L.**, **Rubus caesius*
L.**, R. sanctus* Schreber***, R. canescens* DC.***, R. c. var.*
*canescens****, Potentilla inclinata* Vill.**, P. recta* L., *P.*
reptans L.***, P. speciosa* Willd. var. *speciosa***, Geum*
urbanum L., *Agrimonia eupatoria* L.***, Sarcopoterium*
spinosum (L.) Spach***, Sanguisorba minor* Scop.***, S. m.*
subsp. *muricata* (Spach) Briq., *Rosa pulverulenta* Bieb.***,*
R. canina L.***, R. heckeliana* Tratt. subsp. *vanheurekiana*
(Crepin) Ö. Nilsson**, R. villosa* L.***, R.*
hirtissima Lonacz***, R.*
hemispherica J.Herrmann***, R. phoenicia* Boiss.***,*

R. arvensis Huds.**,
subsp. *boissieri* (Crepin) Nillson
var. *antalyensis* (Manden) Ö. Nillson**, *R. gallica* L.**,
R. horrida Fischer**, *Cotoneaster nummularia* Fisch. &
Mey.**,
Crataegus aronia (L.) Bosc. ex DC. var. *aronia**,
C. monogyna Jacq. subsp. *monogyna*, *C. m.* subsp. *azarella*
(Gris.) Franco.**,
C. orientalis Pall. ex M. Bieb.**,
Cydonia oblonga Miller**, *Malus sylvestris* Mill. subsp.
orientalis (A.Uglit) Brow.**,
Pyrus syriaca Boiss. var. *microphylla* Zoh. ex Browicz**,
Amelanchier parviflora Boiss.**,
Cerasus mahaleb (L.) Miller**

Rubiaceae

Crucianella angustifolia L., *Asperula arvensis* L., *A. setosa* Jaub. & Spach, *Galium odoratum* (L.) Scop.*, *G. debile* Desf.*, *G. verum* L. subsp. *verum***,
G. album Miller subsp. *amani* Ehrend. & Schönb.-Tem.*, *G. graecum* L. subsp. *graecum**, *G. dumosum* Boiss., *G. canum* Req. ex DC. subsp. *canum**, *G. c.* subsp. *ovatum* Ehrend., *G. cassium* Boiss., *Cruciata leavipes* Opiz*, *C. taurica* (Pallas ex Willd.) Ehrend., *C. pedemontana* (Bellardi) Ehrend., ***Rubia tinctorum* L.*

Rutaceae

Haplophyllum pumiliforme Hub.-Mor. & Reese

Salicaceae

Salix alba L.**,
Populus tremula L.**,
***P. nigra* L. subsp. *nigra**

Santalaceae

Thesium bertramii Aznav.*

Scrophulariaceae

Verbascum spodiotrichum (Hub.-Mor.) Hub.-Mor., *V. levanticum* I.K. Ferguson, *V. oreophilum* C. Koch*, *V. pumiliforme* Hub.-Mor., *V. chrysorrhacos* Boiss.*, *V. purpureum* (Janka) Hub.-Mor.*, *V. cilicium* Boiss.*, *V. leiocarpum* Murb.*, *V. glomerulosum* Hub.-Mor., *V. cucullibracteum* Hub.-Mor., *Scrophularia cryptophila* Boiss. & Heldr., *S. depauperata* Boiss., *S. canina* L. subsp. *bicolor* (Sm.) Greuter, *S. floribunda* Boiss. & Bal.*, *Anarrhinum orientale* Benth., *Linaria genistifolia* (L.) Mill. subsp. *confertiflora* (Boiss.) Davis**, *L. corifolia* Desf.**,
L. simplex (Willd.) DC.**,
Digitalis ferruginea L. subsp. *ferruginea***,
D. ferruginea L. subsp. *schischkini* (Ivan.) Werner*, *D. davisiana* Heywood**, *Veronica praecox* All.*, *V. persica* Poiret*, *V. trichadena* Jordan & Fourr., *V. anagallis-aquatica* L., *V. oxycarpa* Boiss., *V. jacquinii* Baumg.*, *V. caespitosa* Boiss. var. *caespitosa*, *V. macrostachya* Vahl subsp. *macrostachya**, *V. m.* subsp. *sorgariae* M.A. Fischer*, *V. cuneifolia* D.Don subsp. *cuneifolia*, *V. multifida* L., *V. peduncularis* Bieb.*, *V. serpyllifolia* L., *Lagotis stolonifera* (C. Koch) Maxim*, *Pedicularis caucasica* Bieb.*, *P. cadmea* Boiss., *Rhinanthus angustifolius* C.G.Gmelin subsp. *grandiflorus* (Wallr.) D.A.Webb*, *Rhynchocorys elephans* (L.) Griseb. subsp. *elephans*.

Solanaceae

Solanum nigrum L. subsp. *nigrum***,
S. n. subsp. *schultesii* (Opiz) Wessely, ***S. luteum* Miller*, *Physalis alkekengi* L.**,
Hyoscyamus niger L.**,
H. reticulatus L.**

Styracaceae

Styrax officinalis L.**

Tamaricaceae

***Tamarix parviflora* DC.*, ***T. smyrnensis* Burge*

Thymelaeaceae

Daphne sericea Vahl.**,
D. oleoides Schereber subsp. *oleoides**,
D. o. subsp. *kurdica* (Bornm.) Bornm.*,
D. gnidioides Jaub. & Spach.

Tiliaceae

Tilia rubra DC. subsp. *caucasica* (Rupr.) V. Engler*,
T. platyphyllos Scop.**

Ulmaceae

Celtis australis L.**

Urticaceae

Urtica pilulifera L.**,
U. dioica L.**,
Parietaria judaica L., *P. lusitanica* L.

Valerianaceae

Valeriana oligantha Boiss & Heldr., *V. sisymbriifolia* Vahl*,
V. officinalis L.*,
V. dioscoridis Sm.**,
V. cf. dioscoridis Sm., *Centranthus calcitrapa* (L.) Duf.,
Valerianella orientalis (Schlecht) Boiss. & Bal., *V. turgida* (Stev.) Betcke

Verbenaceae

Verbena officinalis L.**,
Vitex agnus-castus L.**

Violaceae

***Viola odorata* L.*,
V. heldrechiana Boiss., *V. gracilis* Sibth. & Sm.*

Vitaceae

***Vitis vinifera* L.*

Zygophyllaceae

Tribulus terrestris L.**,
Peganum harmala L.**

Subdivision 2: Liliopsida / Monocotyledoneae

Amaryllidaceae

***Galanthus plicatus* Bieb. subsp. *byzantinus* (Baker) D.A. Webb*,
Pancratium maritimum L.**,
Stenbergia lutea (L.) Ker-Gawl. ex Sprengel**

Araceae

Arum maculatum L.**,
A. dioscoridis Sm. var. *dioscoridis***,
A. d. var. *liepoldtii* (Schott) Engler*

Cyperaceae

Carex cf. vulpinoidea Michaux*,
C. otrubae Podp**

Iridaceae

***Iris sintenisii* Janka*,
Crocus chrysanthus (Herbert) Herbert**,
C. biflorus Miller subsp. *punctatus* Mathew**,
C. scharojanii Rupr.*,
Gladiolus anatolicus (Boiss.) Stapf.**,
***G. atrovioleaceus* Boiss.*

Liliaceae

Smilax aspera L.**, *Ruscus aculeatus* L. var. *aculeatus**, *Asparagus acutifolius* L., *Polygonatum orientale* Desf.**, *Asphodelus aestivus* Brot.**, *Asphodeline lutea* (L.) Reichb.**, *A. taurica* (Pallas) Kunth, *A. rigidifolia* (Boiss.) Baker, *Allium chloranthum* Boiss.*, *A. bassitense* Thieb., *A. scorodoprasum* L. subsp. *rotundum* (L.) Stearn, *Urginea maritima* (L.) Baker**, *Scilla bifolia* L., *S. bithynica* Boiss.*, *S. autumnalis* L., *Ornithogalum oligophyllum* E.D.Clarke, *O. montanum* Cyr., *O. nivale* Boiss.*, *Muscari muscarimi* Medicus**, *M. comosum* (L.) Miller, *M. caucasicum* (Griseb.) Baker, *M. neglectum* Guss., *Bellevalia bourgaei* Baker**, *B. rixii* Wendelbo*, *Fritillaria whittallii* Baker**, *F. latakiensis* Rix**, *Tulipa armena* Boiss.**, *T. a.* var. *lycica* (Baker) Marais**, *Gagea bulbifera* (Pallas) Schultes & Schultes fil.*, *G. foliosa* (J. & C. Presl) Schultes & Schultes fil., *G. peduncularis* (J. & C. Presl) Pascher, *G. granatellii* (Parl.) Parl., *Colchicum troodii* Kotschy**, *Merendera sobolifera* C.A. Meyer*, *M. trigyna* (Steven ex Adam) Stapf**

Orchidaceae

Cephalanthera rubra (L.) L.C.M. Richard**, *Orchis papilionacea* L. var. *rubra* (Jacq. ex Murray) Brot.**, *O. anatolica* Boiss.**, *O. palustris* Jacq.**, *Dactylorhiza romana* (Seb.) Soo subsp. *romana**, *D. osmanica* (Kl.) Soo var. *osmanica**, *D. umbrosa* (Kar. & Kir.) Nevski*

Poaceae (Gramineae)

Aegilops umbellata Zhukovsky subsp. *umbellata****, Ae. triuncialis* L. subsp. *triuncialis****, **Triticum aestivum* L.**, **Secale montanum* Guss.**, Hordeum murinum* L. subsp. *glaucum* (Steudel) Tzvelev, *H. bulbosum* L.***, Bromus hordeaceus* L. subsp. *hordeaceus****, B. tectorum* L.***, B. sterilis* L.***, **Avena fatua* L. var. *fatua***, A. fatua* L. var. *glabrata* Peterm.**, Alopecurus myosuroides* Hudson var. *tonsus* (Blanche ex Boiss.) R. Mill., *Lolium rigidum* Gaudin var. *rigidum*, *L. rigidum* Gaudin var. *rotbollioides* Heldr. ex Boiss., *Poa trivialis* L.***, **P. bulbosa* L., *Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman***, D. g.* subsp. *lobata* (Drej.) Lindb.**, Briza media* L., *B. maxima* L., *B. humilis* Bieb., *Melica persica* Kunth. subsp. *inaequiglumis* (Boiss.) Bor., *Phragmites australis* (Cav.) Trin ex Steudel***, Cynodon dactylon* (L.) Pers. var. *villosus* Regel***, Seteria viridis* (L.) P. Beauv., *S. glauca* (L.) P. Beauv., *Sorghum halepense* (L.) Pers.**

Thyphaceae

***Typha latifolia* L.*

4. Conclusion

The national park which located in Western Anatolia has different ecological conditions and high mountainous fields in general. In point of phytogeographical view the area is located in Mediterranean region. It has more primary vegetation more than other areas of Türkiye. It has quite a lot wealth floristically. Isparta is an important province of the Lakes Region which is containing endemic number of taxa about 650, and nonendemic (rare and multiregional) taxa number are almost 1650; totally 2300 vascular plant taxa (Özçelik and Serdaroglu, 2000). Antalya district is unknown for this aspect. Burdur is poor in flora than Isparta

and Antalya provinces. The botanical inventory of Burdur province was made by us; a total of 1600 transmissible plant taxa were identified, including 450 endemic species (Özçelik, 2016). Some of the study area is adjacent to this province.

The vascular plants collected from the areas are divided into 3 groups as follows:

1. Endemics: The plants may be local or widespread endemics in Türkiye,
2. Nonendemics (rare): The plants of narrow dissemination which they found only in small areas. For example, these rare plants are not endemic but were being accepted as distributed only in the Lakes Region for Türkiye.
3. Economics: The plants have economic value like food, dyeing, spices, medicinal etc.

(Ranunculaceae, Brassicaceae, Caryophyllaceae, Lauraceae, Fagaceae, Lamiaceae, Rosaceae, Fabaceae, Papaveraceae, Poaceae, Orchidaceae, Liliaceae, Iridaceae families in particular). These plants are known by local people and are used for domestic needs. Some are endemic and some of them are recorded for the first time for economic purposing. However, they are generally widespread. At least 25% of plants showing natural distribution in the park are economic purposes. There are two main sources of this information:

Firstly it is the geographical location of the area concerned with respect to the floristic richness and economic plants.

Secondly it is that the experience of nomadism, an ancient tradition of the Turkish people, is still underway by the local people in the area concerned. Even so, even if there is no agricultural production, the local people can meet the needs of plants, such as food, medicine, paint and spices. A significant portion of the cultivated plants have already been obtained from natural plants of the area concerned. It is obvious that these economic plants have an important place in the health of the local people.

The Lakes Region has an important potentiality in terms of economic plants. There are 190 medicinal and aromatics, 180 foods, 170 horticultural plant taxa in only Isparta province (Özçelik and Serdaroglu, 2000). A great amount of collected samples from the study area are valuable in medicinal purposes, food, horticulture, dyeing, spices and cultural plants which contribute greatly to the economy of Türkiye. Most of geophytes in Türkiye are known for ornamental values and pharmaceutical purposes. It generally known that Türkiye exports bulbous plants and certain seeds for the horticultural and mainly pharmaceutical purposes. Majority of geophytes and their seeds are taken from the nature by local people (Özçelik, 1995; 2000; 2012; Küçüker, 1995; Ekim et al., 2000). The area was being seen very rich in economic plants.

The study area is part of a long mountain range in the Toros. Other national parks are also connected with this area. Beyşehir Lake National Park, Kovada Lake National Park is the nearest neighbors. Dedegül Mountain is not a national park, but the floristic variety of the Lake District is a very rich mountain. These areas have a similar microclimate. The gene center of rose (*Rosa* L.) in the world

is the sum of these areas. *R. dumalis* subsp. *boissieri*. For *antalyensis*, the field type is local and is the gene center (Özçelik, 2017). Again in these areas the *Papaver* genus develops very well and reaches a high number of varieties.

The same is true for monumental trees. Total number of them in the Lakes Region is about 300 (Özçelik et al., 2001). We guess so, there are about 50 monumental trees belonging to *Cupressus sempervirens*, *Castanea sativa*, *Cedrus libani*, *Pinus brutia*, *P. nigra* and *Ficus carica*, *Castanea sativa*, as scarcely *Myrtus communis*, *Laurus nobilis*, *Cercis siliquastrum*, *Quercus coccifera*, *Arbutus andrachne* and *Celtis australis* in the park area. It is seem as interesting to be monumental trees from maquis and fruit trees like *Castanea sativa*, *Ficus carica*, *Myrtus communis*, *Laurus nobilis*, *Cercis siliquastrum*, *Quercus coccifera*, *Arbutus andrachne* and *Celtis australis*. The region is quite little known floristically. Till now, a large number of new plant taxa for the scientific world were described from the area. It shows a large number of plant taxa which were described from the lakes region and grown only in this area.

Total taxa in dangerous: 48, for the park, endemic taxa in dangerous: 44, total endemic taxa: 230; local endemic taxa number for the area and near surroundings: 19, total vascular plant taxa: 707 (950 all together near fields).

By Bern Convention: A1 (Number of globally threatened species): 5, A2 (Number of endangered species in European scale): 39. C2 (Number of threatened habitats): 6 (42.A17, 421951, 42B12, 42.6643, 4285B1, 45.11). In the reason, the national park is one of the 122 important plant areas of the country. The situation is very important floristically. If the area is studied in more detail, the number of plants, hence the numbers of endemic and economic plants, will also increase.

Vascular plant taxa endemic to the area (local) are given as below:

Gaudiniopsis macra subsp. *micropyroides*, *Hellenocordum psidicum*, *Nigella arvensis* var. *oblanceolata*, *Rosa dumalis* subsp. *boissieri* var. *antalyensis*, *Scrophularia libanotica* subsp. *libanotica* var. *antalyensis*, *Silene deliculata* subsp. *psidica*, *Stachys antalyensis*, *Stachys chamosericea*, *Tanacetum argenteum* subsp. *canum* var. *pumilum*, *Echinops onopordum*, *Amphoricarpos paretictus*, *Bupleurum davisii*, *Campanula antalyensis*, *Cerastium psidicum*, *Hypericum ternatum*, *Omphalodes ripliana*, *Rhamnus nitidus*, *Iris pamphylica* and *Crocus asumaniae* (this species doubtful). Some of these taxa could not be observed by us in the area.

Almost 150 taxa are new records to to C3 square. Some taxa may not be new record in light of new references. In result of the research, the taxa for the square were being done certain and the taxa were added to Isparta and Antalya floras.

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. Endemism ratio in flora of the area is almost 25 %. 218 of the 229 taxa belonging to the Angiospermae are in the Magnoliopsida (Dicotyledoneae) and other 11 are in the Liliopsida Monocotyledoneae) classes. There is no endemic taxon in the Bryophyta and Pteridophyta divisions. The number of priority conservation requiring taxa is 21. Total

taxa in dangerous: 48, endemic taxa in dangerous: 44, local endemic taxa for the area and near surroundings: 19, total vascular plant taxa: 707 (950 all together near fields).

Number of genus in vascular plant specimens of the natural park and its environs: Pteridophyta: 8, Gymnospermae: 6, Dicotyledoneae: 318, Monocotyledoneae: 42 and other taxa 333, totally 707 in the park and 950 if included its environs; Number of family: Pteridophyta: 8, Gymnospermae: 3, Dicotyledoneae: 76, Monocotyledoneae: 8 (totally 95 familias).

The distributional rates of the taxa according to phytogeographic regions:

Mediterranean 219 (30.97 %), Irano-Turanian 74 (10.46 %) and Euro-Siberian 50 (07.07 %).

The families and genera which including the most taxa:

Families: Lamiaceae 87 (12.30 %), Fabaceae 78 (11.03 %), Asteraceae 71 (10.04 %), Brassicaceae 47 (6.64 %), Scrophulariaceae 39 (5.51 %), Rosaceae 35 (4.95 %), Liliaceae 34 (4.80 %), Ranunculaceae 33 (4.66 %), Boraginaceae 32 (4.52 %), Apiaceae 31 (4.38 %) and Caryophyllaceae 28 (3.96 %).

Genera: *Ranunculus* 18 (2.54 %), *Veronica* and *Geranium* 13 (1.83), *Vicia* 12 (1.69), *Trifolium* 11 (1.55 %), *Rosa*, *Verbascum* and *Sedum* 10 (0.14), *Galium* 9 (1.27), *Euphorbia* and *Stachys* 8 (1.13), *Sideritis*, *Hypericum*, *Trigonella* and *Astragalus* 7 (0.99 %), *Lathyrus*, *Thymus*, *Micromeria* and *Silene* 6 (0.84 %).

The distributions according to the phytogeographical regions of the endemic plants identified from the area is as follows:

Mediterranean element 219 (30.97 %), Irano-Turanian element 74 (10.46 %) and Euro-Siberian element 50 (07.07 %). Phytogeographical regions of 365 taxa (51.62 %) are unknown. 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. Almost 25 endemic taxa which were known from only type gathering have collected for the first time except for their type localities. For more or less 30 endemic taxa were determined to their which phytogeographical region, for 5 of them changed risk categories (Ayaşlıgil, 1987, 1990).

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