



Flora of gypsiferous and marl soils in Eskisehir (Turkey)

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Abstract

The investigation area covers areas with gypsum and marl soils located within the borders of Eskişehir. According to Davis' squaring system, a large part of the research area is located on the B3 surface. 1750 samples were collected from the research area between 2012 and 2015 for the determination of florana. The APG III system was monitored while preparing the floristic list. As a result of the diagnoses made; 354 genus belonging to 72 families, 673 species and total 738 taxa were identified. Of the plant samples that were diagnosed, 738 taxa belong to the Spermatophyta divisosus. 42% (5,6%) of the total taxa in the area are Mediterranean, 152 (20.6%) Iranian-Turanian, 38 (5.1%) Euro-Siberian element, 27 (3.6%) E. Mediterranean elements and 478 (64,7%) are multi-regional or phytogeographic regions of unknown taxa. 129 (17.5%) endemic taxa were found in the research area.

Key words: B3 square , Eskişehir , Gypsum , Marl , Flora

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Eskişehir'deki jipsli ve marnlı toprakların florası

Özet

Araştırma alanı Eskişehir sınırları içerisinde yer alan jipsli ve marnlı toprakların bulunduğu alanları kapsamaktadır. Davis'in kareleme sistemine göre araştırma alanının büyük bir bölümü B3 karesinde yer almaktadır. Floranın belirlenmesi için 2012-2015 yılları arasında araştırma alanından 1750 örnek toplanmıştır. Floristik liste hazırlanırken APG III sistemi izlenmiştir. Yapılan teşhisler sonucunda; 72 familyaya ait 354 cins, 673 tür ve toplam 738 takson tespit edilmiştir. Teşhisi yapılan bitki örneklerinden 738 takson Spermatophyta divizyosuna aittir. Alandaki toplam taksonların 42'si (% 5.6) Akdeniz elementi, 152'si (% 20.6) İran-Turan elementi, 38'i (% 5.1) Avrupa-Sibirya elementi, 27'si (% 3.6) D. Akdeniz elementi ve 478'i (% 64.7) çok bölgeli veya fitocoğrafik bölgesi bilinmeyen taksonlardır. Araştırma alanında 129 (% 17.5) endemik takson bulunmuştur.

Anahtar kelimeler: B3 karesi, Eskişehir, jips, marn, flora

1. Introduction

The Study area is located in Eskişehir in the Northwest Central Anatolian Region between 29°58' and 32°04' Eastern longitudes and 39°06' and 40°09' Northern latitudes. According to the Grid System set by P. H. Davis (1965) for Eskişehir province, a large part is located in B3, a small part in south-east is located in B4, and a small part in north is located within A3 square (Figure 1). According to this system, The study area is within the square of B3. The study area Eskişehir is neighboring Bolu in the north, Ankara in the east, Afyon and Konya in the south, Kütahya in the west and Bilecik in the northwest (Report, 2011).

Gypsum is a mineral and its chemical composition is calcium sulfate. The type whose compound has two molecules of crystal water is called gypsum ($\text{CaSO}_4 + 2\text{H}_2\text{O}$) (Özdeniz et al., 2016). It is a mixture consisting naturally of marn, clay and calcium carbonate at various proportions (Akpulat and Celik, 2005). When the amount of calcium carbonate is more than clay, it is called limestone. Gypsiferous and gypsiferous-marn type bedrocks are very suitable for the settlement of endemic species (Akman et al., 2014).

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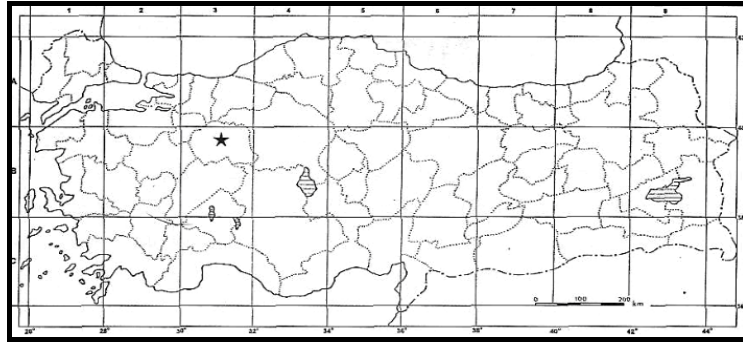


Figure 1. The Map of Turkey according to the Grid System of P. H. Davis (1965)

Gypsum outcrops are widely distributed globally and strongly affect the flora that grows on them. In fact, many plant species only grow on this type of rock (García, F,J,P., et al. 2018). Gypsum soils show a suite of chemical and physical properties that render them particularly restrictive for plant life (Bolukbasi et al.,2016).

This study was conducted to emphasize the importance of edaphic and geological isolation in terms of floristic diversity and endemism. Some of the important reasons of floristic diversity of Turkey are the intense endemism that develops from edaphic and geological rocks; and is explained by the term “geological island”; and such areas are called “geological island” or “edaphic island”. The main factors affecting the diversity of the species in the areas where gypsophila live are electrical conductivity, soil pH and soil anion and cation concentrations (Smith, H. W., & Weldon, M. D., 1941). These factors also determine the degree of influence of the biotic factors (Akman et al., 2014). In the context of the study, gypsiferous soils in Eskişehir and the vegetation cover, species diversity and ecological effects were determined (Türe, C. 2000). In the present study, the aim is to complete the lack of literature data on gypsiferous soils and plant cover in Eskişehir. It has been determined that some local floristic studies have been conducted around the study area (Özaydın and Yücel, 2004; Umay and Uğurlu, 2010; Özgişi et al., 2015).



Figure 2. Study area map

2. Materials and methods

In the study area, a total of 1750 samples were collected from 56 different fields which coincided with the vegetation period in all seasons of the year between 2012 and 2015. It was cared to collect at least three samples for each species together with organs like roots, leaves, flowers and fruits as much as possible. The localities of the samples collected in the field work were identified with the Garmin GPS device and the photographs were taken with Canon D5300 brand camera. The samples that were collected were pressed and dried in line with the relevant rules (Seçmen et al., 2004). The stations where the samples were collected were numbered and the altitude, locality, habitat, date, and latitude-longitude coordinates (GPS) of the area were noted in the land register. Although the determination of the samples was made on materials that were not dried during field works, it was mostly made on the materials dried in the laboratory environment. Olympus brand binocular stereo microscopes were used during the diagnoses. Several studies were made use of during the diagnoses of the plants that were collected like the Flora of Turkey and the East Aegean Islands (Davis, 1965-1988), Flora Europae (Tutin, 1965-1980), Flora Palaestina Vol. I-II (Zohary, 1966-1987), Flora Palaestina Vol. III-IV (Freibrun-Dothan, 1977-1986), Ankara City Flora (Erik, S. 1993), List of Turkey Plants (Vascular Plants) (Güner et al., 2012). Eskişehir Osmangazi University (OUFE) herbarium was used in the diagnosis of some of the collected samples which were difficult to control and name. In some of the samples that were difficult to

diagnose, experts of the area were consulted. After the naming, all the samples that were made into herbarium material were placed in the Herbarium Center of the Eskişehir Osmangazi University Science and Literature Faculty (OUFE).

When the floristic findings were given, they were based on APG III, and the families were arranged in accordance with the evolutionary sequence given in the “Linear Angiosperm Phylogeny Group (APG III): A Linear Sequence of the Families in APG III” (Haston et al., 2009). Since there is no evolutionary classification made according to the APG System in terms of genus, species and subspecies, the subfamily categories were listed in alphabetical order. In writing the floristic list, the names of the family and species and the subspecies taxon names were written in bold and italic (Yeşilyurt et al., 2008). The locality data of the taxa whose localities were given in front of the floristic list were numbered in box brackets. The endemism status of the species, the defined phytogeographical regions and the collective numbers were also given.

3. Results

A total of 56 days of field work was carried out in the study area from March 2012 to October 2015. As a result of the field work, 1750 samples were collected; and as the result of the diagnoses, it was determined that there were 354 genera of 72 families and 738 species and subspecies taxa of these species. Of the families identified, 69 were Angiosperm, 3 were Gymnosperm, and 60 of the Angiosperm were dicotyl 9, which is Monocotyledon. 351 of the species are Angiosperm, 3 are Gymnosperm. 329 of the species are dicotyledonous, 22 are monocotyledonous. Of the identified taxa, 152 belong to Iranian Turan, 42 to Mediterranean, 27 to E. Mediterranean, 38 to Siberia and 1 to Black Sea phytogeographical regions and 478 to phytogeographical regions are unknown or very regional (Table 3). Up to now 129 endemic taxa have been identified in the region and the endemism rate is approximately 17.5%. 4 of endemic taxa are in EN, 3 in VU, 1 in CR, 3 in NT and 36 in LC category.

PINACEAE

Pinus nigra J.F. Arnold subsp. *pallasiana* (Lamb.) Holmboe [33], 15.10.2014, OUFE: 20200.

CUPRESSACEAE

Juniperus excelsa M.Bieb. [141], 15.04.12, OUFE: 20071.

J. oxycedrus L.

[15], 07.08.13, OUFE: 20072.

EPHEDRACEAE

Ephedra major Host [3], 18.5.13, OUFE: 19945.

ARISTOLOCHIACEAE

Aristolochia maurorum L. [30], 10.07.13, OUFE: 19707.

A. pallida Willd.

[161], 18.05.12, OUFE: 19708.

ARACEAE

Arum elongatum Steven [76], 26.06.15, OUFE: 19715.

COLCHICACEAE

Colchicum atticum Spruner ex Tommas (Syn: *Merendera attica* (Spruner ex Tommas.) Boiss. & Spruner) [49], 26.02.13 D. Akd., OUFE: 19854.

C. burtii Meikle

[13], 1.04.15 D. Akd., End., LC, OUFE: 19855.

C. triphyllum Kunze

[49], 26.02.13, Akd., OUFE: 19856.

C. umbrosum Steven

[137], 23.09.12, Karadeniz, LC, OUFE: 19857.

LILIACEAE

Fritillaria fleischeriana Steud. & Hochst. ex Schult. & Schult.f. [20], 25.04.15, İr.-Tur., End., NT, OUFE: 19982.

Gagea bohémica (Zauschn.) Schult. & Schult.f. [65], 3.05.13, OUFE: 19993.

Gagea fibrosa (Desf.) Schult. & Schult.f.

[65], 3.05.13, OUFE: 19994.

Gagea granatellii (Parl.) Parl.

[48], 15.04.12, OUFE: 19995.

Gagea peduncularis (C.Presl) Pascher

[23], 14.03.15, D.O. 802, OUFE: 19996.

Gagea taurica Steven

[48], 14.03.12, OUFE: 19997.

Gagea villosa (M.Bieb.) Sweet

[47], 15.04.12, Akd., OUFE: 19998.

Tulipa armena Boiss. var. *lycica* (Baker) Marais

[19], 22.04.13, End., LC, OUFE: 20358.

ORCHIDACEAE

Cephalanthera longifolia (L.) Fritsch [23], 27.05.12, Avr.-Sib., OUFE: 19823.

C. rubra (L.) Rich.

[17], 7.06.15, OUFE: 19824.

Dactylorhiza romana (Seb.) So'o subsp. *romana*

[13], 21.04.14, Akd., OUFE: 19914.

Epipactis helleborine (L.) Crantz

[28], 9.07.15, Akd., OUFE: 19914.

Orchis mascula (L.) L. subsp. *mascula* (Boiss. & Kotschy) G. Camus (Syn:

Orchis mascula subsp. *pinetorum* (Boiss. & Kotschy) G. Camus)

[3], 18.05.13 E. Med., OUFE: 20158.

O. purpurea Huds.

[13], 21.04.14, Avr.-Sib., OUFE: 20159.

Iridaceae

Crocus ancyrensis (Herb.) Maw

[14], 22.02.12, İr.-Tur., End., LC, OUFE: 19891.

C. chrysanthus (Herb.) Herb.

[49], 26.02.13, OUFE: 19892.

C. danfordiae Maw

[49], 26.02.13, End., LC, OUFE: 19893.

Crocus flavus subsp. *dissectus* T.Baytop & B.Mathew

[49], 26.02.13, OUFE: 19894.

C. olivieri J. Gay

[160], 15.04.12, OUFE: 19895.

C. pallasii Goldb.

[160], 15.04.12, OUFE: 19896.

Gladiolus atroviolaceus Boiss.

[31], 9.07.15, İr.-Tur., OUFE: 20008.

I. kerneriana Asch. & Sint. ex Baker

[49], 26.02.13, OUFE: 20064.

I. pumila subsp. *attica* (Boiss. & Heldr.) K.Richt.

[134], 23.04.13, OUFE: 20065.

I. schachtii Markgr.

[1], 18.04.15, İr.-Tur., End., LC, OUFE: 20067.

AMARYLLIDACEAE

Allium ampeloprasum L.

[107], 03.07.13, Akd., OUFE: 19652.

A. atroviolaceum Boiss.

[24], 22.07.13, OUFE: 19653.

Allium flavum L.

[24], 02.07.13, Akd., OUFE: 19654.

Allium flavum subsp. *tauricum* (Besser ex Rchb.) K.Richt.

[23], 22.06.15, Medit.,: 19656.

Allium guttatum Steven

[81], 28.06.15, OUFE: 19657.

A. hirtovaginatun Kunth. (Syn: *Allium cupani* subsp. *hirtovaginatun* (Kunth) Stearn)

[82], 25.07.15, Medit.,OUFE: 19658.

A. lycanicum Siehe ex Hayek

[44], 25.06.15, OUFE: 19659.

Allium pallens L.

[62], 03.07.13, OUFE: 19660.

Allium paniculatum L.

[44], 23.06.13, OUFE: 19661.

A. rotundum L. (Syn: *Allium scorodoprasum* L. Stearn subsp. *rotundum* (L.) Stearn)

[21], 06.06.12, Avr.-Sib., OUFE: 19663.

Allium scorodoprasum L.

[21], 06.06.12, OUFE: 19664.

Allium sibthorpiatum Schult. & Schult.f.

[18], 23.06.15, OUFE: 19665.

Allium stamineum Boiss.

[18], 23.06.15, OUFE: 19666.

Allium wiedemannianum Regel

[44], 25.06.15, OUFE: 19667.

Galanthus elwesii Hook.f.

[8], 26.02.13 D. Akd., OUFE: 19999.

Xanthorrhoeaceae

Asphodeline taurica (Pall.) Endl.

[18], 20.04.14 D. Akd., OUFE: 19721.

ASPARAGACEAE

Asparagus officinalis L.

[13], 21.04.14, OUFE: 19716.

Hyacinthella lineata (Steud. ex Schult. & Schult.f.) Chouard

- [25], 25.04.15 D. Akd., End., LC, OUFE: 19716.
- Hyacinthella micrantha* (Boiss.) Chouard [25], 25.04.15, İr.-Tur., End., NT, OUFE: 20050.
- Leopoldia longipes* (Boiss.) Losinsk. (Syn: *Muscari longipes* Boiss.) [13], 10.06.15, İr.-Tur., OUFE: 20085.
- L. tenuiflora* (Tausch) Heldr. (Syn: *Muscari tenuiflorum* Tausch.) [25], 03.06.15, OUFE: 20086.
- Muscari armeniacum* Leichtlin ex Baker [48], 02.05.15, OUFE: 20128.
- M. neglectum* Guss. ex Ten. [15], 28.04.13, OUFE: 20129.
- M. sivrhisardaghlaensis* Yild. & B.Selvi [99], 23.04.13, OUFE: 20130.
- Ornithogalum alpinum* Stapf [89], 03.05.13 D. Akd., End., NT, OUFE: 20161.
- O. comosum* L. [2], 18.05.13, OUFE: 20162.
- O. fimbriatum* Willd. [43], 23.05.12, OUFE: 20163.
- O. montanum* Cirillo [18], 06.06.12 D. Akd., OUFE: 20164.
- O. neurostegium* Boiss. & Blanche [23], 07.06.15, OUFE: 20165.
- O. pyrenaicum* L. [13], 21.04.14, OUFE: 20167.
- O. sigmoideum* Freyn & Sint. [15], 28.04.13, OUFE: 20168.
- O. sphaerocarpum* A.Kern. [15], 23.06.15, OUFE: 20169.
- O. umbellatum* L. [25], 03.06.15, OUFE: 20170.
- Prospero autumnale* (L.) Speta (Syn: *Scilla autumnalis* L.) [17], 25.08.13, Akd., OUFE: 20218.
- Scilla bifolia* L. [23], 22.04.12, Akd., OUFE: 19655.
- POACEAE
- Aegilops cylindrica* Host [44], 09.07.15, İr.-Tur., OUFE: 19632.
- Aegilops geniculata* Roth [25], 07.06.15, ; 19633.
- A. triuncialis* L. [19], 03.06.15, OUFE: 19634.
- Aeluropus litoralis* (Gouan) Parl. [60], 22.06.15, OUFE: 19635.
- Agropyron cristatum* (L.) Gaertn. [21], 03.06.15, OUFE: 19876.
- Alopecurus arundinaceus* Poir. [138], 26.04.15, OUFE: 19668.
- A. gerardii* (All.) Vill. [149], 03.05.15, OUFE: 19669.
- A. myosuroides* Huds. [22], 03.06.15, OUFE: 19670.
- Avena barbata* Pott ex Link [75], 25.08.13, Akd., OUFE: 19757.
- Bothriochloa ischaemum* (L.) Keng [79], 31.05.15, OUFE: 19769.
- Briza humilis* M.Bieb. [90], 25.06.15, OUFE: 19772.
- B. media* L. [21], 07.06.15, ; 19773.
- Bromus erectus* Huds. [79], 31.05.15, OUFE: 19774.
- B. hordeaceus* L. [90], 03.05.15, OUFE: 19775.
- B. japonicus* Thunb. [19], 03.06.15, OUFE: 19776.
- B. tectorum* L. [21], 03.06.15, OUFE: 19777.
- Calamagrostis pseudophragmites* (Haller f.) Koeler [88], 28.06.15, OUFE: 19788.
- Chrysopogon gryllus* (L.) Trin. [22], 03.06.15, OUFE: 19902.
- Cynodon dactylon* (L.) Pers. [18], 02.07.13, OUFE: 19911.
- Dactylis glomerata* subsp. *hispanica* (Roth) Nyman [20], 02.06.13, OUFE: 19899.
- Elymus hispidus* (Opiz) Melderis subsp. *barbulatus* (Schur) Melderis [17], 07.06.15, OUFE: 19802.
- Echinaria capitata* (L.) Desf. [74], 31.05.15, OUFE: 19935.
- Eremopyrum bonaepartis* (Spreng.) Nevski [16], 03.06.13, OUFE: 19655.
- Festuca arundinacea* Schreb. [19], 03.06.15, OUFE: 19976.
- Festuca valesiaca* Schleich. ex Gaudin [19], 23.06.15, OUFE: 19977.
- Hordeum murinum* L. [20], 02.06.13, OUFE: 20048.
- Koeleria pyramidata* (Lam.) P.Beauv. (Syn: *Koeleria cristata* (L.) Pers.) [18], 02.07.13, OUFE: 19803.
- Lolium multiflorum* Lam. [17], 07.06.15, OUFE: 20098.
- Lolium perenne* L. [17], 07.06.15, Avr.-Sib., OUFE: 20100.
- Melica ciliata* L. [1], 18.05.13, OUFE: 20119.
- Nardus stricta* L. [108], 02.05.15, OUFE: 20113.
- Phleum bertolonii* DC. [66], 18.04.15, OUFE: 20190.
- P. phleoides* (L.) H.Karst. [17], 07.06.15, OUFE: 20191.
- P. pratense* L. [11], 03.06.15, Avr.-Sib., OUFE: 20192.
- Phragmites australis* (Cav.) Trin. ex Steud. [54], 04.08.13, Avr.-Sib., OUFE: 19655.
- Poa alpina* L. [60], 18.04.15, OUFE: 20206.
- P. bulbosa* L. [73], 31.05.15, OUFE: 20207.
- P. compressa* L. [74], 31.05.15, OUFE: 20208.
- P. pratensis* L. [10], 02.07.13, OUFE: 20209.
- Setaria viridis* (L.) P.Beauv. [18], 02.07.13, OUFE: 20273.
- Stipa arabica* Trin. & Rupr. [6], 18.05.13, OUFE: 20320.
- S. bromoides* (L.) Dörfel. [24], 07.06.15, Akd., OUFE: 20321.
- S. lessingiana* Trin. & Rupr. [112], 23.05.15, OUFE: 20322.
- Stipagrostis ciliata* (Desf.) De Winter [73], 31.05.15, OUFE: 20323.
- Taeniatherum caput-medusae* (L.) Nevski [11], 07.06.15, OUFE: 20326.
- PAPAVERACEAE
- Chelidonium majus* L. [16], 18.04.15, Avr.-Sib., OUFE: 19611.
- Corydalis solida* (L.) Clairv. [16], 18.04.15, OUFE: 20387.
- Fumaria officinalis* L. [57], 23.04.12, OUFE: 19987.
- Fumaria parviflora* Lam. [16], 06.06.12, OUFE: 19992.
- Glaucium corniculatum* (L.) Curtis [75], 31.05.15, OUFE: 20009.
- Glaucium grandiflorum* subsp. *refractum* (Nábělek) Mory [16], 06.06.12, OUFE: 20012.
- G. leiocarpum* Boiss. [141], 07.08.13, OUFE: 20013.
- Hypecoum imberbe* Sm. [45], 15.04.12, OUFE: 20053.
- H. procumbens* L. [16], 06.06.12, OUFE: 20054.
- Papaver apokrinomenon* Fedde [44], 25.06.15, End., LC, OUFE: 20179.
- P. argemone* L. [19], 03.07.13, OUFE: 20180.
- P. dubium* L. [9], 03.06.15, OUFE: 20181.
- P. lacernum* Popov [1], 18.05.13, OUFE: 20182.
- P. postii* Fedde [10], 03.06.15, OUFE: 20183.
- P. rhoeas* L. [141], 07.08.13, OUFE: 20184.
- P. trinifolium* Boiss. [11], 25.08.12, OUFE: 20185.
- Roemeria hybrida* (L.) DC. [79], 31.05.15, OUFE: 20235.
- Berberidaceae
- Berberis crataegina* DC. [16], 20.04.14, OUFE: 19760.
- Ranunculaceae
- Adonis aestivalis* L. [42], 26.04.15, OUFE: 19629.
- A. annua* L. [42], 26.04.15, OUFE: 19630.
- A. flammea* Jacq. [7], 02.07.13, OUFE: 19631.
- Ceratocephala falcata* (L.) Pers. [47], 18.04.15, OUFE: 19831.
- Consolida aconiti* (L.) Lindl. [98], 08.07.15, OUFE: 19865.
- C. hellespontica* (Boiss.) Chater [58], 23.06.15, OUFE: 19866.
- C. orientalis* (J.Gay) Schrödinger [63], 07.06.15, OUFE: 19868.
- C. raveyi* (J.Gay) Schrödinger [58], 23.06.15, İr.-Tur., End., LC, OUFE: 19869.
- C. regalis* subsp. *paniculata* (Host) Soó [13], 02.07.13, OUFE: 19870.
- Delphinium fissum* subsp. *anatolicum* Chowdhuri & P.H.Davis [18], 02.07.13, OUFE: 19916.
- D. peregrinum* L. [1], 18.05.13, OUFE: 19917.
- Nigella arvensis* L. [99], 08.07.15, OUFE: 20140.
- N. arvensis* subsp. *glauca* (Boiss.) N.Terracc. (Syn: *Nigella arvensis* L. var. *glauca* Boiss.) [99], 08.07.15, OUFE: 20141.
- N. elata* Boiss. [100], 08.07.15, OUFE: 20142.
- N. segetalis* M.Bieb. [100], 08.07.15, OUFE: 20143.
- Ranunculus argyreus* Boiss. [14], 18.04.15, OUFE: 20390.
- R. constantinopolitanus* (DC.) d'Urv. [13], 02.07.13, OUFE: 20388.
- R. damascenus* Boiss. & Gaill. [13], 02.07.13, İr.-Tur., OUFE: 20389.
- Platanaceae
- Platanus orientalis* L. [28], 09.07.15, OUFE: 20391.
- Paeoniaceae
- Paeonia mascula* (L.) Mill. [44], 25.06.15, OUFE: 20392.
- CRASSULACEAE

- Sedum acre* L.
[52], 10.07.13, OUFE: 20293.
- S. album* L.
[52], 10.07.13, OUFE: 20294.
- ZYGOPHYLLACEAE
- Tribulus terrestris* L.
[2], 17.06.12, OUFE: 20393.
- Zygophyllum fabago* L.
[98], 08.07.15, İr.-Tur., OUFE: 20386.
- FABACEAE
- Alhagi pseudalhagi* (M. Bieb.) Desv. ex B. Keller & Shap.
[32], 21.10.12, İr.-Tur., LC, OUFE: 19648.
- Anthyllis vulneraria* subsp. *boissieri* (Sagorski) Bornm.
[11], 02.07.13, OUFE: 19702.
- Astracantha acicularis* (Bunge) Podlech (Syn: *Astragalus acicularis* Bunge)
[97], 25.06.15, İr.-Tur., End., LC, OUFE: 19722.
- A. condensata* (Ledeb.) Podlech (Syn: *Astragalus condensata* Bunge)
[101], 08.07.15, İr.-Tur., End., LC, OUFE: 19723.
- A. strictispina* (Boiss.) Podlech (Syn: *Astragalus strictispina* Bunge)
[144], 07.08.13, End., NT, OUFE: 19724.
- Astragalus aduncus* Willd.
[17], 03.06.15, OUFE: 19725.
- A. angustifolius* subsp. *pungens* (Willd.) Hayek
[4], 18.05.13, OUFE: 19726.
- A. campylosema* Boiss.
[13], 18.04.15, İr.-Tur., End., LC, OUFE: 19727.
- A. flavescens* Boiss.
[13], 18.04.15, OUFE: 19728.
- A. hamosus* L.
[151], 08.07.15, OUFE: 19729.
- A. hirsutus* Vahl.
[121], 03.05.15, OUFE: 19730.
- A. hololeuroides* (Boiss.) Podl. & Sytin (Syn: *Astragalus mesogitanus* Boiss.)
[56], 03.05.15, End., LC, OUFE: 19731.
- A. kochakii* Aytac & H.Duman
[18], 23.06.15, İr.-Tur., End., LC, OUFE: 19732.
- A. lydius* Boiss.
[65], 03.05.13, İr.-Tur., End., LC, OUFE: 19732.
- A. macrocephalus* subsp. *finitimus* (Bunge) D.F.Chamb.
[71], 22.06.15, İr.-Tur., End., NT, OUFE: 19734.
- A. nutallii* (Torr. & A.Gray) J.T.Howell
[19], 02.07.13, OUFE: 19736.
- A. odoratus* Lam.
[72], 31.05.15, OUFE: 19737.
- A. oxyglottis* M.Bieb.
[94], 25.06.15, OUFE: 19738.
- A. oxytropifolius* Boiss.
[54], 23.05.15, İr.-Tur., OUFE: 19739.
- A. ponticus* Pall.
[154], 21.04.14, OUFE: 19740.
- A. stella* L.
[55], 23.05.15, OUFE: 19741.
- A. triradiatus* Bunge
[16], 23.06.15, İr.-Tur., OUFE: 19742.
- A. vulnerariae* DC.
[19], 02.07.13, End., LC, OUFE: 19743.
- A. xylobasis* var. *angustus* (Freyn & Sint.) Freyn & Bornm.
[61], 25.05.15, İr.-Tur., End., LC, OUFE: 19744.
- Bituminaria bituminosa* (L.) C.H.Stirt. (Syn: *Psoralea bituminosa* L.)
[16], 23.06.15, Akd., D.O. 1457, OUFE: 19764.
- Cicer anatolicum* Alef.
[154], 21.04.14, OUFE: 19843.
- Colutea cilicica* Boiss. & Balansa
[1], 18.05.13, OUFE: 19858.
- Coronilla scorpioides* (L.) Koch
[55], 09.07.15, OUFE: 19880.
- Cytisopsis pseudocytisus* subsp. *reeseana* (Guyot) Lassen
[110], 25.06.15, OUFE: 19912.
- Cytisus hirsutus* L. (Syn: *Chamaecytisus hirsutus* (L.) Link)
[1], 18.05.13, OUFE: 19913.
- Dorycnium graecum* (L.) Ser.
[151], 23.09.12, Avr.-Sib., OUFE: 19929.
- Ebenus bourgeaui* subsp. *cappadocica* (Hausskn. & Siehe ex Bornm.) Ponert
[14], 07.06.15, OUFE: 19933.
- E. hirsuta* Jaub. & Spach
[10], 28.07.13, İr.-Tur., End., LC, OUFE: 19934.
- Genista albida* Willd.
[45], 25.06.15, OUFE: 20003.
- G. aucheri* Boiss.
[14], 07.06.15, İr.-Tur., End., LC, OUFE: 20004.
- G. lydia* Boiss.
[55], 09.07.15, Akd., OUFE: 19735.
- G. sessilifolia* DC.
[55], 09.07.15, Akd., OUFE: 20005.
- Glycyrrhiza glabra* L.
[44], 09.07.15, OUFE: 20018.
- Hedysarum cappadoccicum* Boiss.
[62], 28.06.15, End., LC, OUFE: 20030.
- H. varium* Willd.
[52], 31.05.15, İr.-Tur., OUFE: 20032.
- H. varium* subsp. *pestalozzae* (Boiss.) Ponert
[55], 31.05.15, End., LC, OUFE: 20031.
- Hippocrepis unisiliquosa* L.
[44], 09.07.15, OUFE: 20046.
- Lotus tenuis* Waldst. & Kit. (Syn: *Lotus corniculatus* var. *tenuifolius* L.)
[14], 07.06.15, OUFE: 20101.
- Medicago crassipes* (Ser.) Trautv. (Syn: *Trigonella crassipes* Boiss.)
[14], 07.06.15, İr.-Tur., OUFE: 20112.
- M. fischeriana* (Boiss.) E.Small (Syn: *Trigonella fischeriana* Ser.)
[73], 25.06.15, OUFE: 20113.
- M. minima* (L.) L.
[16], 03.06.15, OUFE: 20114.
- M. monspeliaca* (L.) Trautv. (Syn: *Trigonella monspeliaca* L.)
[31], 07.08.12, Akd., OUFE: 20115.
- Medicago radiata* L.
[65], 05.05.13, OUFE: 20116.
- M. rigidula* (L.) Ail.
[1], 18.05.13, OUFE: 20117.
- M. sativa* L.
[32], 07.08.12, OUFE: 20118.
- Melilotus officinalis* (L.) Pall.
[116], 26.06.13, OUFE: 20120.
- Onobrychis arenaria* subsp. *cana* (Boiss.) Hayek
[79], 31.05.15, OUFE: 20147.
- O. argyrea* Boiss. (Syn: *Onobrychis argyrea* Boiss. subsp. *argyrea* Boiss.)
[16], 10.06.15, End., LC, OUFE: 20148.
- O. paucijuga* Bornm.
[82], 08.07.15, İr.-Tur., End., VU, OUFE: 20149.
- O. tournefortii* (Willd.) Desv.
[83], 25.07.15, End., LC, OUFE: 20150.
- Ononis pusilla* L.
[3], 18.05.13, OUFE: 20151.
- O. spinosa* subsp. *antiquorum* (L.) Briq.
[3], 18.05.13, OUFE: 20152.
- Pisum sativum* L. subsp. *sativum* L.
[1], 24.05.13, OUFE: 19732.
- Oxytropis argyroleuca* Bornm.
[12], 06.06.12, OUFE: 20177.
- Securigera varia* (L.) Lassen (Syn: *Coronilla varia* subsp. *hirta* (Boiss.) Rech.f.)
[8], 07.06.15, OUFE: 20292.
- Tragacantha densifolia* (Lam.) Kuntze (Syn: *Astragalus densifolius* Lam.)
[2], 17.06.12, İr.-Tur., End., LC, OUFE: 20344.
- Trifolium arvense* L.
[3], 26.04.15, OUFE: 20349.
- T. campestre* Schreb.
[115], 11.06.13, OUFE: 20350.
- T. ochroleucon* Huds. (Syn: *Trifolium ochroleucum* Huds.)
[3], 26.04.15, OUFE: 20351.
- T. pratense* L.
[1], 18.5.13, OUFE: 20352.
- T. repens* L.
[1], 18.5.13, OUFE: 20353.
- Trigonella astroides* Fisch. & C.A.Mey.
[16], 23.06.15, OUFE: 20355.
- T. capitata* Boiss.
[50], 31.05.15, İr.-Tur., OUFE: 20356.
- T. spruneriana* Boiss.
[65], 05.03.13, İr.-Tur., OUFE: 20357.
- POLYGALACEAE
- Polygala anatolica* Boiss. & Heldr.
[5], 18.05.13, OUFE: 20211.
- P. pruinosa* Boiss.
[6], 18.05.13, OUFE: 20212.
- ROSACEAE
- Agrimonia eupatoria* L.
[132], 23.09.12, OUFE: 19644.
- Cotoneaster nummularius* Fisch. & C.A. Mey.
[61], 10.07.13, OUFE: 19882.
- Crataegus monogyna* Jacq.
[23], 20.04.14, OUFE: 19887.
- C. orientalis* Pall. ex Bieb.
[24], 20.04.14, D.O. 739, OUFE: 19888.
- Potentilla recta* L.
[31], 09.07.15, OUFE: 20216.
- Prunus orientalis* (Mill.) Koehne
[20], 02.06.13, OUFE: 20219.
- P. spinosa* L.
[13], 07.08.12, Avr.-Sib., OUFE: 20220.
- Rosa canina* L.
[142], 07.08.13, OUFE: 20236.
- R. foetida* Herrm
[7], 18.05.13, OUFE: 20237.
- R. horrida* Fisch.
[7], 18.05.13, OUFE: 20238.
- R. turcica* Rouy (Syn: *Rosa horrida* Fisch. ex Crep.)
[61], 28.07.12, OUFE: 20357.
- Rubus canescens* DC. (Syn: *Rubus canescens* var. *canescens*)
[14], 18.04.15, Avr.-Sib., OUFE: 20354.
- R. sanctus* Schreb (Syn: *Rubus sanctus* DC.)
[14], 18.04.15, Avr.-Sib., OUFE: 20394.
- Sanguisorba minor* subsp. *muricata* Briq.
[20], 02.07.13, OUFE: 20395.
- RHAMNACEAE
- Paliurus spina-christi* Mill.
[19], 03.07.13, OUFE: 20396.
- Rhamnus thymifolia* Bornm.

- [12], 07.06.15, End., LC, OUFE: 20231.
FAGACEAE
Quercus cerris L.
[141], 07.08.12, Akd., OUFE: 20223.
Q. pubescens Willd.
[141], 07.08.12, OUFE: 20224.
CUCURBITACEAE
Ecballium elaterium (L.) A.Rich.
[74], 31.05.15, OUFE: 20397.
EUPHORBIACEAE
Andrachne telephioides L.
[14], 03.06.15, OUFE: 20398.
Chrozophora tinctoria (L.) A.Juss.
[46], 25.06.15, OUFE: 19842.
Euphorbia anacampseros Boiss.
[79], 31.05.15, End., LC, OUFE: 19959.
E. apios L.
[159], 25.04.15 D. Akd., OUFE: 19960.
E. erythron Boiss. & Heldr.
[66], 28.06.15, OUFE: 19961.
E. esula subsp. *tommasiniana* (Bertol.) Kuzmanov (Syn: *Euphorbia virgata* Waldst. et Kit.)
[66], 28.06.15, OUFE: 19962.
E. falcata L.
[111], 09.07.15, D.O. 1754, OUFE: 19964.
E. glareosa Pall. ex M.Bieb. (Syn: *Euphorbia nicaeensis* subsp. *glareosa* (Pall. ex M.Bieb.) Radcl.-Sm.)
[54], 26.04.15, Avr.-Sib., OUFE: 19965.
E. helioscopia L.
[114], 03.05.15, OUFE: 19966.
E. herniariifolia Willd.
[54], 26.04.15, OUFE: 19967.
E. macroclada Boiss.
[87], 10.06.15, OUFE: 19968.
E. nicaeensis All.
[46], 25.06.15, OUFE: 19971.
Euphorbia peplus L.
[87], 10.06.15, OUFE: 19972.
E. seguieriana Neck.
[87], 10.06.15, OUFE: 19973. SALICACEAE
Populus alba L.
[16], 28.04.12, Avr.-Sib., OUFE: 19969.
P. nigra L.
[16], 28.04.12, OUFE: 19970.
Salix alba L.
[16], 28.04.12, Avr.-Sib., OUFE: 19971.
VIOLACEAE
Viola kitaibeliana Schult.
[7], 25.04.15, OUFE: 20378.
V. occulta Lehm.
[58], 03.05.15, OUFE: 20379.
LINACEAE
Linum bienne Mill.
[19], 28.04.13, Akd., OUFE: 20095.
L. carniense Boiss.
[23], 31.05.15, İr.-Tur., End., LC, OUFE: 20096.
L. hirsutum L.
[85], 25.06.15, İr.-Tur., End., LC, OUFE: 20097. HYPERICACEAE
Hypericum lydiu Boiss.
[71], 31.05.15, OUFE: 20055.
H. montbretii Spach
[3], 18.05.13, OUFE: 20056.
H. origanifolium var. *depilatum* (Freyn & Bornm.)
[12], 07.06.15, OUFE: 20057.
H. perforatum L.
[9], 26.06.15, OUFE: 20058.
H. scabrum L.
[11], 02.07.13, İr.-Tur., OUFE: 20059.
GERANIACEAE
Erodium absinthoides Willd.
[2], 18.05.13, OUFE: 19949.
Erodium ciconium (L.) L'Hér.
[2], 18.05.13, OUFE: 19950.
E. cicutarium (L.) L'Hér.
[20], 18.04.15, OUFE: 19951.
Geranium sylvaticum L.
[3], 18.05.13, OUFE: 20006.
G. tuberosum L.
[53], 23.04.12, OUFE: 20007.
LYTHRACEAE
Lythrum salicaria L.
[104], 31.05.13, Avr.-Sib., OUFE: 20104.
NITRARIACEAE
Peganum harmala L.
[80], 08.07.15, OUFE: 20104.
Anacardiaceae
Pistacia terebinthus L.
[61], 18.04.15, Akd., OUFE: 20201.
Rhus coriaria L.
[9], 23.06.15, OUFE: 20233.
SAPINDACEAE
Acer platanoides L.
[132], 08.07.15, OUFE: 20094.
RUTACEAE
Haplophyllum myrtifolium Boiss.
[102], 24.05.15, İr.-Tur., End., LC, OUFE: 20029.
Ruta thesioides Fisch. ex DC.
[143], 07.08.13, OUFE: 20243.
SIMAROUBACEAE
Ailanthus altissima (Mill.) Swingle
[23], 22.06.15, OUFE: 20380.
MALVACEAE
Alcea apterocarpa Boiss.
[158], 03.07.13, İr.-Tur., End., LC, OUFE: 19647.
Althaea officinalis L.
[81], 28.06.15, OUFE: 20397.
Malva neglecta Wallr.
[116], 26.06.13, OUFE: 20107.
THYMELAEACEAE
Thymelaea passerina (L.) Coss. & Germ.
[115], 11.06.13, OUFE: 20398.
CISTACEAE
Fumana aciphylla Boiss.
[21], 23.06.15, İr.-Tur., OUFE: 19983.
F. laevis (Cav.) Pau (Syn: *Fumana thymifolia* var. *viridis* (Ten.) Boiss.)
[21], 23.06.15, Akd., OUFE: 19985.
F. paphlagonica Bornm. & Janch.
[21], 23.06.15, İr.-Tur., End., LC, OUFE: 19986.
Helianthemum nummularium (Cav.) Losa & Rivas Goday
[54], 31.05.15, End., LC, OUFE: 20033.
H. oelandicum subsp. *incanum* (Willk.) G.López (Syn: *Helianthemum canum* (L.) Baumg.)
[54], 31.05.15, OUFE: 20034.
RESEDACEAE
Reseda inodora Rchb.
[93], 25.05.15, OUFE: 20228.
Reseda lutea L.
[14], 18.04.15, OUFE: 20228.
R. luteola L.
[14], 18.04.15, OUFE: 20228.
CAPPARACEAE
Capparis sicula Duhamel (Syn: *Capparis ovata* Desf. var. *canescens* (Coss.) Heywood)
[112], 10.06.15, OUFE: 19798.
BRASSICACEAE
Aethionema arabicum (L.) Andr. ex DC.
[1], 17.06.12, OUFE: 19636.
Ae. armenum Boiss.
[14], 03.06.15, İr.-Tur., OUFE: 19638.
Ae. cordatum (Desf.) Boiss.
[72], 25.06.15, OUFE: 19639.
Ae. dumanii M.Vural et N.Adıgüzel
[19], 28.06.15, İr.-Tur., End., VU, OUFE: 19640.
Ae. iberideum (Boiss.) Boiss.
[31], 09.07.15, OUFE: 19641.
Ae. subulatum (Boiss. & Heldr.) Boiss.
[79], 28.06.15, End., NT, OUFE: 19642.
Ae. turcica H.Duman & Aytaç
[80], 28.06.15, OUFE: 19643.
Alliaria petiolata (M.Bieb.) Cavara & Grande
[38], 25.04.15, OUFE: 19637.
Alyssum baumgartnerianum Bornm. ex Baumg.
[45], 25.06.15, OUFE: 19672.
A. corningii Dudley
[15], 03.06.15, OUFE: 19673.
A. desertorum Stapf
[14], 03.06.15, OUFE: 19674.
A. linifolium Stephan ex Willd.
[66], 31.05.15, OUFE: 19675.
A. minutum Schldtl. ex DC.
[162], 18.04.15, OUFE: 19676.
A. murale Waldst. & Kit.
[25], 26.06.15, OUFE: 19677.
A. niveum Dudley
[13], 23.06.15, İr.-Tur., End., EN, OUFE: 19678.
A. obtusifolium Steven ex DC. (Syn: *Alyssum borzaeanum* Nyár.)
[60], 02.05.15, OUFE: 19679.
A. pateri Nyar.
[15], 03.06.15, İr.-Tur., End., LC, OUFE: 19680.
A. sibiricum Willd.
[68], 03.05.14, OUFE: 19681.
A. simplex Rudolph (*Alyssum minus* (L.) Rothm. var. *micranthum* (Meyer) Dudley)
[73], 18.05.13, OUFE: 19682.
A. strigosum Schldtl. ex DC.
[147], 18.05.13, OUFE: 19683.
Arabis caucasica (Willd.) Briq. (Syn: *Arabis caucasica* subsp. *caucasica* Willd.)
[15], 03.06.15, OUFE: 19703.
A. nova Vill.
[38], 25.04.15, OUFE: 19704.
A. sagittata (Bertol.) DC.
[35], 18.04.15, OUFE: 19705.
Aubrieta deltoidea (L.) DC.
[15], 03.06.15, OUFE: 19756.
Boreava orientalis Jaub. & Spach
[15], 06.06.12, OUFE: 19767.
Brassica elongata Ehrh.
[70], 31.05.15, OUFE: 19770.
Calepina irregularis (Asso) Thell.
[103], 23.05.15, OUFE: 19789.
Camelina rumelica Velen.
[3], 26.06.15, OUFE: 19793.
Capsella bursa-pastoris (L.) Medik.
[13], 23.06.15, OUFE: 19800.
Chorispora purpurascens (Banks & Sol.) Eig (Syn: *Chorispora syriaca* Boiss.)
[13], 23.06.15, İr.-Tur., OUFE: 19841.
Clypeola jonthlasi L.
[23], 25.04.15, OUFE: 19853.
Conringia clavata Boiss. (Syn: *Conringia perfoliata* (C.A.Meyer) Busch)
[55], 18.05.13, OUFE: 19863.
C. orientalis (L.) Dumort.
[154], 21.04.14, İr.-Tur., OUFE: 19864.
Crambe orientalis L.

- [154], 21.04.14, OUFÉ: 19884.
Crambe tataria Sebeok
 [154], 21.04.14, OUFÉ: 19886.
Descurainia sophia (L.) Webb ex Prantl
 [124], 03.06.15, OUFÉ: 19918.
Diplotaxis tenuifolia (L.) DC.
 [103], 23.05.15, OUFÉ: 19927.
Draba bruniifolia subsp. *olympica* (DC.)
 Coode & Cullen
 [35], 18.04.15, OUFÉ: 19931.
Erophila verna (L.) DC.
 [13], 01.04.15, OUFÉ: 19952.
Eruca vesicaria (L.) Cav. (Syn: *Eruca sativa* Mill.)
 [39], 21.10.12, OUFÉ: 19953.
Erysimum crassipes Fisch. & C.A.Mey.
 [88], 10.06.15, OUFÉ: 19957.
E. repandum L.
 [88], 10.06.15, OUFÉ: 19958.
Fibigia clypeata (L.) Medik.
 [57], 02.07.13, OUFÉ: 19978.
Hesperis balansae E. Fourn.
 [73], 02.05.15 D. Akd., End., NT, OUFÉ: 20042.
H. kotschy Boiss.
 [22], 23.06.15, İr.-Tur., End., VU, OUFÉ: 20043.
Hirschfeldia incana (L.) Lagr.- Foss.
 [60], 20.04.14, OUFÉ: 20399.
Iberis carnosa Willd.
 [83], 26.06.15, OUFÉ: 20060.
Iberis simplex DC. (Syn: *Iberis taurica* DC.)
 [72], 31.05.15 D. Akd., OUFÉ: 20061.
Isatis floribunda Boiss. ex Bornm.
 [127], 17.06.12, İr.-Tur., End., LC, OUFÉ: 20068.
I. glauca Aucher
 [3], 18.05.13, End., LC, OUFÉ: 20069.
Lepidium cartilagineum (J.Mayer) Thell.
 [32], 03.05.15, OUFÉ: 20087.
L. draba L. (Syn: *Cardaria draba* subsp. *draba* (L.) Desv.)
 [32], 03.05.15, OUFÉ: 20088.
L. perfoliatum L.
 [23], 25.08.12, OUFÉ: 20089.
Malcolmia africana (L.) R.Br.
 [119], 07.08.13, OUFÉ: 20106.
Matthiola anchoniifolia Hub.-Mor.
 [24], 31.05.15, İr.-Tur., End., NT, OUFÉ: 20110.
M. longipetala subsp. *bicornis* (Sm.)
 P.W.Ball
 [92], 23.05.15, OUFÉ: 20111.
Neslia paniculata subsp. *thracica*
 (Velen.) Bornm. (Syn: *Neslia apiculata*
 Fisch., Mey. & Avé-Lall.)
 [60], 20.04.14, OUFÉ: 20139.
Raphanus raphanistrum L.
 [73], 02.05.15, OUFÉ: 20400.
Rapistrum rugosum (L.) All.
 [92], 23.05.15, OUFÉ: 20401.
Rorippa sylvestris (L.) Besser
 [73], 02.05.15, OUFÉ: 20402.
Sinapis arvensis L.
 [69], 31.05.15, OUFÉ: 20309.
Sisymbrium altissimum L.
 [99], 03.05.15, OUFÉ: 20310.
S. loeselii L.
 [99], 03.05.15, OUFÉ: 20311.
Smyrniium perfoliatum L.
 [25], 03.06.15, OUFÉ: 20312.
Sonchus asper subsp. *glaucescens* (Jord.)
 Ball ex Ball
 [22], 23.06.15, OUFÉ: 20313.
Sterigmotemum incanum M.Bieb
 [58], 03.05.15, İr.-Tur., OUFÉ: 20319.
Thlaspi arvense L.
 [24], 31.05.15, OUFÉ: 19816.
T. jaubertii Hedge
 [2], 26.04.15, End., NT, OUFÉ: 20337.
T. ochroleucum Boiss. & Heldr.
 [4], 26.04.15, OUFÉ: 20339.
Turritis glabra L.
 [9], 07.06.15, OUFÉ: 20360.
 SANTALACEAE
Comandra umbellata subsp. *elegans*
 (Rochel ex Rchb.) Piehl
 [128], 10.07.13, Avr.-Sib., OUFÉ: 19861.
Thesium billardierei Boiss.
 [91], 25.06.15, İr.-Tur., OUFÉ: 20334.
T. procumbens C.A.Mey.
 [7], 25.04.15, OUFÉ: 20335.
T. scabriflorum P.H.Davis
 [23], 18.04.15 D. Akd., End., VU, OUFÉ: 20336.
 FRANKENIACEAE
Frankenia hirsuta L.
 [144], 07.08.13, D.O. 682, OUFÉ: 19980.
F. pulverulenta L.
 [144], 07.08.13, OUFÉ: 19981.
 TAMARICAEAE
Reaumuria alternifolia (Labill.) Britten
 [104], 18.04.14, İr.-Tur., OUFÉ: 20227.
Tamarix smyrnensis Bunge
 [10], 07.06.15, OUFÉ: 20327.
 PLUMBAGINACEAE
Acantholimon acerosum (Willd.) Boiss.
 [109], 19.05.13, İr.-Tur., OUFÉ: 19615.
A. anatolicum Doğan & Akaydın
 [132], 08.07.15, End., LC, OUFÉ: 19616.
A. puberulum Boiss. & Balansa
 [90], 08.07.15, İr.-Tur., OUFÉ: 19617.
A. riyatguelii Yıldırım
 [90], 05.06.15, İr.-Tur., End., CR, OUFÉ: 20408.
A. ulicinum (Willd. ex Schult.) Boiss.
 [35], 09.07.15 D. Akd., OUFÉ: 19617.
Limonium gmelinii (Willd.) Kuntze
 [132], 08.07.15, Avr.-Sib., OUFÉ: 20336.
Plumbago europaea L.
 [142], 07.08.12, Avr.-Sib., OUFÉ: 20204.
 Polygonaceae
Polygonum bellardii All.
 [7], 18.05.13, OUFÉ: 20214.
P. cognatum Meisn.
 [7], 18.05.13, OUFÉ: 20215.
Rumex acetosella L.
 [51], 25.06.15, OUFÉ: 20241.
R. crispus L.
 [51], 25.06.15, OUFÉ: 20242.
 CARYOPHYLLACEAE
Arenaria serpyllifolia L.
 [126], 03.05.15, OUFÉ: 19706.
Bolanthus minuartioides (Jaub. & Spach)
 Hub.-Mor.
 [117], 23.05.15, End., LC, OUFÉ: 19765.
Cerastium banaticum (Rochel) Heuff.
 [70], 25.04.15, OUFÉ: 19829.
Cerastium perfoliatum L.
 [19], 25.08.12, OUFÉ: 19830.
Dianthus cibarius Clem.
 [62], 25.06.15, OUFÉ: 19830.
D. crinitus Sm.
 [62], 25.06.15, OUFÉ: 19920.
D. cruentus Griseb. (Syn: *Dianthus calocephalus* Boiss.)
 [70], 25.06.15, OUFÉ: 19922.
D. micranthus Boiss. & Heldr.
 [61], 26.06.15, OUFÉ: 19923.
D. zonatus Fenzl
 [15], 25.08.12, OUFÉ: 19924.
Gypsophila eriocalyx Boiss.
 [60], 28.06.15, İr.-Tur., End., LC, OUFÉ: 20020.
G. laricina Schreb. (Syn: *Gypsophila sphaerocephala* var. *cappadocica* (Boiss. & Balansa) Boiss.)
 [19], 25.08.12, İr.-Tur., End., LC, OUFÉ: 20021.
G. parva Barkoudah
 [54], 31.05.15, İr.-Tur., End., LC, OUFÉ: 20022.
G. perfoliata L.
 [107], 03.07.13, D.O. 616, OUFÉ: 20023.
G. pilosa Huds.
 [107], 03.07.13, İr.-Tur., OUFÉ: 20026.
G. viscosa Murray
 [52], 23.05.15, İr.-Tur., End., LC, OUFÉ: 20027.
Herniaria glabra L.
 [84], 18.06.12, OUFÉ: 20040.
H. incana Lam.
 [53], 31.05.15, OUFÉ: 20041.
Holosteum umbellatum L.
 [61], 30.04.13, OUFÉ: 20047.
Minuartia anatolica (Boiss.) Woronow
 [100], 25.06.15, İr.-Tur., End., LC, OUFÉ: 20122.
M. juniperina (L.) Maire & Petitm.
 [8], 23.06.15, OUFÉ: 20123.
Moenchia mantica (L.) Bartl.
 [17], 07.06.15, OUFÉ: 20124.
Paronychia carica Chaudhri
 [45], 25.06.15, End., LC, OUFÉ: 20187.
P. dudleyi Chaudhri
 [51], 02.06.13, İr.-Tur., End., NT, OUFÉ: 20188.
Saponaria kotschy Boiss.
 [70], 25.06.15, End., LC, OUFÉ: 20262.
S. viscosa C.A.Mey.
 [51], 25.06.15, İr.-Tur., OUFÉ: 20263.
Scleranthus annuus L.
 [73], 31.05.15, D.O. 1166, OUFÉ: 20274.
S. orientalis Rössler
 [73], 31.05.15, OUFÉ: 20275.
Silene cappadocica Boiss. & Heldr.
 [10], 07.06.15, İr.-Tur., OUFÉ: 20301.
S. conica L. (Syn: *Silene subconica* Friv.)
 [17], 07.06.15, OUFÉ: 20302.
S. dichotoma Ehrh.
 [19], 06.06.12, OUFÉ: 20303.
S. falcata Sm.
 [18], 02.07.13, OUFÉ: 20304.
S. italica (L.) Pers.
 [55], 31.05.15, OUFÉ: 20305.
S. latifolia Poir (Syn: *Silene alba* subsp. *divaricata* (Rchb.) Walters)
 [141], 07.08.12, OUFÉ: 20306.
S. pruinosa Boiss. (*Silene supina* subsp. *pruinosa* Chowdhuri)
 [92], 31.05.15, OUFÉ: 20307.
S. vulgaris (Moench) Garcke (*Silene vulgaris* var. *vulgaris* (Moench) Garcke)
 [92], 31.05.15, OUFÉ: 20308.
Spergularia media (L.) C.Presl
 [58], 10.07.13, OUFÉ: 20308.
Stellaria media (L.) Vill.
 [10], 07.06.15, OUFÉ: 20205.
Telephium imperati L. subsp. *orientale*
 (Boiss.) Nyman
 [10], 07.06.15, OUFÉ: 20024.
Vaccaria hispanica (Mill.) Rauschert.
 [16], 23.06.15, OUFÉ: 20197.
Velezia rigida L.
 [51], 25.06.15, OUFÉ: 20025.
 AMARANTHACEAE
Amaranthus albus L.

- [16], 06.06.12, OUFÉ: 19684.
A. blitoides S.Watson
[16], 06.06.12, OUFÉ: 19685.
A. retroflexus L.
[93], 25.06.15, OUFÉ: 19687.
Atriplex hortensis L.
[45], 19.05.13, OUFÉ: 19750.
A. lasiantha Boiss.
[109], 07.08.12, OUFÉ: 19751.
Atriplex patula L.
[42], 17.10.13, OUFÉ: 19752.
Camphorosma monspeliaca var. *lessignii* (Litv.) Aellen
[148], 25.08.12, OUFÉ: 19797.
Chenopodium album L.
[128], 10.07.13, OUFÉ: 19837.
C. foliosum Asch.
[128], 10.07.13, OUFÉ: 19838.
Dysphania botrys (L.) Mosyakin & Clemants (Syn: *Chenopodium botrys* L.)
[120], 26.04.15, OUFÉ: 19932.
Krascheninnikovia ceratoides (L.) Gueldenst.
[93], 25.06.15, OUFÉ: 20078.
Microcnemum coralloides (Loscos & J.Pardo) Font Quer
[16], 06.06.12, OUFÉ: 20121.
Noaea mucronata (Forssk.) Asch. & Schweinf.
[16], 06.06.12, OUFÉ: 19686.
Salicornia europaea L.
[143], 07.08.13, OUFÉ: 20244.
Salsola kali subsp. *ruthenica* (Iljin) Soó
[143], 07.08.13, OUFÉ: 20403.
Suaeda confusa Iljin
[143], 07.08.13, OUFÉ: 20325.
Portulacaceae
Portulaca oleracea L.
[5], 18.05.13, OUFÉ: 20404.
CORNACEAE
Cornus mas L.
[160], 15.04.12, Avrupa- Sibiry, OUFÉ: 20405. PRIMULACEAE
A. arvensis subsp. *foemina* (Mill.) Schinz & Thell. (Syn: *Anagallis foemina* Mill.)
[49], 09.07.15, Akd., OUFÉ: 19688.
Androsace maxima L.
[65], 18.03.15, OUFÉ: 19692.
A. villosa L.
[70], 22.05.15, Avr.-Sib., OUFÉ: 19693.
RUBIACEAE
Asperula arvensis L.
[113], 18.05.12, OUFÉ: 19718.
Asperula glomerata (Bieb.) Griseb.
[9], 18.04.15, OUFÉ: 19719.
A. lilaciflora Boiss.subsp. *phrygia* (Borrm.) Schönb.-Tem.
[1], 18.05.15, End., LC, OUFÉ: 19720.
Cruciata taurica (Pall. ex Willd.) Ehrend.
[125], 18.05.13, İr.-Tur., OUFÉ: 19720.
Galium incanum Sm. subsp. *elatius* (Boiss.) Ehrend.
[10], 26.06.15, OUFÉ: 20000.
G. rivale (Sibth. & Sm.) Griseb.
[15], 02.05.15, OUFÉ: 20001.
G. verum L.
[14], 03.07.13, Avr.-Sib., OUFÉ: 20002.
Rubia peregrina L.
[58], 26.06.15, Akd., OUFÉ: 20240.
R. tinctorum L.
[58], 26.06.15, İr.-Tur., OUFÉ: 20102.
GENTIANACEAE
Centaurium erythraea Rafn subsp. *turcicum* (Velen.) Melderis
[122], 10.07.13, OUFÉ: 19821.
Centaurium spicatum (L.) Fritsch
[163], 02.06.13, OUFÉ: 19822.
APOCYNACEAE
Cynanchum acutum L.
[143], 07.08.13, OUFÉ: 19910.
Periploca graeca L.
[143], 07.08.13 D. Akd., OUFÉ: 20407.
Vinca herbacea Waldst. & Kit.
[143], 07.08.13, OUFÉ: 20406.
V. major L.
[15], 20.04.14, Akd., OUFÉ: 20376.
Vincetoxicum fuscatum (Hornem.) Endl.
[1], 18.05.13, OUFÉ: 20377.
BORAGINACEAE
Alkanna orientalis (L.) Boiss.
[20], 03.07.13, İr.-Tur., OUFÉ: 19649.
A. orientalis var. *leucantha* (Borrm.) Hub.-Mor.
[82], 31.05.15, İr.-Tur., End., NT, OUFÉ: 19650.
A. tinctoria Tausch
[142], 03.05.15, Akd., OUFÉ: 19651.
Anchusa azurea Mill.
[21], 02.07.13, OUFÉ: 19689.
A. leptophylla subsp. *incana* (Ledeb.) D.F.Chamb.
[21], 02.07.13, End., LC, OUFÉ: 19690.
Arnebia densiflora (Nordm.) Ledeb.
[10], 20.04.14, İr.-Tur., OUFÉ: 19709.
Asperugo procumbens L.
[110], 03.05.15, Avr.-Sib., OUFÉ: 19717.
Brunnera orientalis (Schenk) I.M.Johnst.
[11], 25.06.15, OUFÉ: 19778.
Buglossoides arvensis (L.) I.M.Johnst.
[34], 03.05.15, OUFÉ: 19780.
Cerintho minor L.
[34], 03.05.15, OUFÉ: 19832.
Echium italicum L.
[2], 18.05.13, Akd., OUFÉ: 19944.
Heliotropium europaeum L.
[102], 25.04.15, Akd., OUFÉ: 20038.
Lappula barbata (M. Bieb.) Gürke
[3], 17.06.12, İr.-Tur., OUFÉ: 20081.
Moltkia aurea Boiss.
[2], 18.05.13, İr.-Tur., End., LC, OUFÉ: 20125.
M. caerulea Lehm.
[36], 03.05.15, İr.-Tur., OUFÉ: 20126.
Myosotis lithospermifolia (Willd.) Hornem.
[96], 26.06.15, OUFÉ: 20131.
M. ramosissima Roehel
[136], 25.04.15, OUFÉ: 20132.
Nonea macrosperma Boiss. & Heldr.
[36], 03.05.15, İr.-Tur., End., LC, OUFÉ: 20145.
Onosma armenum DC.
[44], 09.07.15, İr.-Tur., End., LC, OUFÉ: 20154.
O. isaurica Boiss. & Heldr.
[19], 31.05.15, İr.-Tur., End., LC, OUFÉ: 20155.
O. roussaei DC.
[19], 31.05.15, İr.-Tur., End., LC, OUFÉ: 20156.
O. taurica Pall. ex Willd. var. *brevifolium* DC.
[63], 10.06.15, End., LC, OUFÉ: 20157.
Paracaryum racemosum Britten
[4], 18.05.13, İr.-Tur., End., LC, OUFÉ: 20157.
Rochelia disperma (L.f.) K.Koch
[55], 23.05.13, OUFÉ: 20234.
CONVOLVULACEAE
Convolvulus arvensis L.
[160], 15.04.12, OUFÉ: 19871.
C. cantabricus L.
[44], 08.07.15, OUFÉ: 19872.
C. compactus Boiss.
[55], 08.07.15, OUFÉ: 19873.
C. galaticus Rost. ex Choisy
[78], 03.07.13, İr.-Tur., End., LC, OUFÉ: 19874.
C. holosericeus M. Bieb.
[58], 23.06.15, OUFÉ: 19875.
C. lineatus L.
[44], 08.07.15, OUFÉ: 19877.
C. phrygius Borrm.
[19], 23.06.15, İr.-Tur., End., LC, OUFÉ: 19878.
C. pulvinatus Sa'ad
[12], 03.06.15, OUFÉ: 19879.
Cuscuta approximata Bab.
[13], 23.05.15, OUFÉ: 19901.
C. europaea L.
[29], 18.06.12, OUFÉ: 19903.
C. palastina Boiss.
[26], 23.06.15, OUFÉ: 19904.
SOLANACEAE
Datura stramonium L.
[12], 07.06.15, OUFÉ: 20039.
Hyoscyamus niger L.
[18], 06.06.12, OUFÉ: 20051.
H. reticulatus L.
[18], 06.06.12, İr.-Tur., OUFÉ: 19904.
Solanum americanum Mill. (Syn: *Solanum nigrum* subsp. *nigrum* L.)
[65], 05.03.12, OUFÉ: 20134.
S. dulcamara L.
[2], 11.08.12, Avr.-Sib., OUFÉ: 20146.
OLEACEAE
Jasminum fruticans L.
[52], 23.05.15, Akd., OUFÉ: 20070.
PLANTAGINACEAE
Digitalis ferruginea L.
[161], 23.09.12, Avr.-Sib., OUFÉ: 19925.
Globularia orientalis L.
[129], 07.08.12, İr.-Tur., OUFÉ: 20014.
G. trichosantha Fisch. & C.A.Mey.
[19], 18.04.15, İr.-Tur., OUFÉ: 20017.
Linaria corifolia Desf.
[2], 18.05.13, Akd., End., LC, OUFÉ: 20090.
L. grandiflora Desf.
[26], 27.07.13, İr.-Tur., OUFÉ: 20091.
L. simplex (Link) DC.
[19], 18.04.15, Akd., OUFÉ: 20092.
L. vulgaris Mill.
[137], 28.08.12, OUFÉ: 20093.
Plantago crassifolia Forssk.
[28], 09.07.15, Akd., VU, OUFÉ: 20202.
P. lanceolata L.
[28], 09.07.15, OUFÉ: 20203.
Veronica grisebachii Walters
[92], 10.06.15 D. Akd., OUFÉ: 20369.
V. hederifolia L.
[58], 21.10.12, OUFÉ: 20370.
V. multifida L.
[4], 18.05.13, İr.-Tur., End., LC, OUFÉ: 20371.
V. pectinata L.
[117], 02.05.15, OUFÉ: 20372.
V. persica Poir.
[13], 18.04.15, OUFÉ: 20373.
V. samuelssonii Rech.f.
[19], 18.04.15, OUFÉ: 20374.
V. triphyllus L.
[19], 18.04.15, OUFÉ: 20375.
SCROPHULARIACEAE
Scrophularia scopoli Hoppe ex Pers.
[51], 23.05.15, OUFÉ: 20284.
S. xanthoglossa var. *decipiens* (Boiss. et Kotschy) Boiss.

- [151], 07.08.13, İr.-Tur., OUFE: 20285.
Verbascum cheiranthifolium var. *cheiranthifolium* Boiss.
 [100], 08.07.15, OUFE: 20366.
V. flavidum (Boiss.) Freyn et Bornm.
 [88], 23.06.15, Avr.-Sib., OUFE: 20283.
V. gypsicola Vural & Aydogdu
 [92], 26.06.15, İr.-Tur., End., EN, OUFE: 20367.
V. lasianthum Boiss. ex Benth.
 [90], 26.06.15, OUFE: 20368
V. splendidum Boiss.
 [88], 23.06.15 D. Akd., OUFE: 20365.
 LAMIACEAE
Ajuga chamaepitys subsp. *chia* (Schreb.) Arcang.
 [2], 17.06.12, OUFE: 19645.
A. salicifolia (L.) Schreb.
 [161], 10.07.13, İr.-Tur., OUFE: 19646.
Ballota nigra L.
 [79], 03.07.13, İr.-Tur., End., LC, OUFE: 19758.
Clinopodium graveolens subsp. *rotundifolium* (Pers.) Govaerts (Syn: *Acinos rotundifolius* (Pers.))
 [93], 09.07.15, OUFE: 19852.
Eremostachys molucelloides Bunge
 [53], 09.07.15, OUFE: 19948.
Lamium amplexicaule L.
 [2], 18.04.15, Avr.-Sib., OUFE: 20079.
L. orientale (Fisch. & C.A.Mey.) E.H.L.Krause (Syn: *Wiedemannia orientalis* Fisch. & Mey.)
 [54], 26.04.15, İr.-Tur., End., LC, OUFE: 20079.
M. parviflorum subsp. *oligodon* (Boiss.) Seybold
 [120], 07.08.13, End., LC, OUFE: 20108.
M. peregrinum L.
 [34], 09.07.15, OUFE: 20109.
Nepeta italica L.
 [24], 25.04.15, OUFE: 20109.
N. nuda L.
 [3], 18.05.13, OUFE: 20136.
N. nuda subsp. *albiflora* (Boiss.) Gams
 [1], 18.05.13, OUFE: 20137.
Nepeta stricta (Banks & Sol.) Hedge & Lamond
 [15], 02.07.13, OUFE: 20138.
Origanum sipyleum L.
 [19], 03.07.13 D. Akd., End., LC, OUFE: 20160.
Phlomis armeniaca Willd.
 [19], 23.06.15, İr.-Tur., End., LC, OUFE: 20193.
P. herba-venti subsp. *pungens* (Willd.) Maire ex DeFilipps (Syn: *Phlomis pungens* var. *pungens* Willd.)
 [15], 02.07.13, OUFE: 20195.
Prunella orientalis Bornm.
 [15], 02.07.13, OUFE: 20194.
Salvia absconditiflora Greuter & Burdet (Syn: *Salvia cryptantha* Montbret et Aucher ex Benth.)
 [5], 18.05.13, İr.-Tur., End., LC, OUFE: 20246.
S. aethiopsis L.
 [51], 19.05.13, OUFE: 20247.
S. bracteata Banks & Sol.
 [19], 02.07.13, OUFE: 20247.
S. candidissima Vahl
 [22], 28.07.12, İr.-Tur., OUFE: 20248.
S. cyanescens Boiss. & Balansa
 [18], 23.06.15, OUFE: 20251.
S. dichroantha Stapf
 [69], 25.06.15, İr.-Tur., End., LC, OUFE: 20252.
Salvia multicaulis Vahl
 [44], 08.07.15, OUFE: 20253.
S. sclarea L.
 [72], 26.06.15, OUFE: 20254.
S. tchihatcheffii (Fisch. & C.A.Mey.) Boiss.
 [18], 23.06.15, İr.-Tur., End., NT, OUFE: 20256.
S. tomentosa Mill.
 [80], 31.05.15, Akd., OUFE: 20257.
S. virgata Jacq.
 [22], 02.07.13, İr.-Tur., OUFE: 20258.
S. viridis L.
 [20], 02.07.13, Akd., OUFE: 20259.
S. wiedemannii Boiss.
 [78], 31.05.15, İr.-Tur., End., LC, OUFE: 20260.
Scutellaria alba L. subsp. *velenovskyi* (Rech.f.) Greuter & Burdet (Syn: *Scutellaria velenovskyi* Rech. Fil.)
 [4], 18.05.13, OUFE: 20287.
S. orientalis subsp. *pectinata* (Montbret & Aucher ex Benth.) J.R.Edm.
 [123], 19.05.13, OUFE: 20286.
S. orientalis subsp. *santolinoides* (Hausskn. ex Bornm.) J.R.Edm.
 [15], 20.04.14, İr.-Tur., End., LC, OUFE: 20290.
S. salviifolia Benth.
 [123], 19.05.13, End., LC, OUFE: 20291.
Sideritis galatica Bornm.
 [79], 03.05.13, End., NT, OUFE: 20298.
S. gulendamii H.Duman & Karaveliogullari
 [272], 25.06.15, İr.-Tur., End., NT, OUFE: 20299.
S. montana L.
 [50], 10.07.13, Akd., OUFE: 20300.
Stachys annua (L.) L.
 [21], 02.07.13, OUFE: 20315.
S. byzantina K.Koch
 [20], 02.07.13, Avr.-Sib., OUFE: 20316.
S. iberica M.Bieb.
 [62], 02.07.13, OUFE: 20317.
Teucrium chamaedrys subsp. *chamaedrys* L.
 [16], 23.06.15, Avr.-Sib., OUFE: 20331.
T. orientale var. *orientale* L.
 [10], 02.07.13, İr.-Tur., OUFE: 20332.
T. polium L.
 [31], 07.08.12, OUFE: 20333.
Thymus leucostomus Hausskn. & Velen.
 [91], 23.06.15, İr.-Tur., End., NT, OUFE: 20341.
T. longicaulis C. Presl
 [9], 03.06.15, OUFE: 20342.
Thymus sipyleus Boiss.
 [57], 23.05.15, OUFE: 20343.
Ziziphora tenuior L.
 [55], 23.05.15, İr.-Tur., OUFE: 20385.
 OROBANCHACEAE
Bornmuellerantha aucheri (Boiss.) Rothm.
 [14], 23.06.15, İr.-Tur., OUFE: 19768.
Bungea trifida (Vahl) C.A.Mey.
 [15], 07.06.15, İr.-Tur., OUFE: 19781.
Cistanche salsa (C.A.Mey.) Beck
 [20], 23.06.15, İr.-Tur., OUFE: 19851.
Euphrasia pectinata Ten.
 [2], 17.06.12, Avr.-Sib., OUFE: 20318.
Orobanche alba Stephan ex Willd.
 [2], 17.06.12, OUFE: 20171.
O. anatolica Boiss. & Reut.
 [1], 17.06.12, OUFE: 20172.
O. caryophyllacea Sm.
 [20], 23.06.15, OUFE: 20173.
O. elatior Sutton
 [15], 07.06.15, OUFE: 20174.
O. minor Sm.
 [98], 07.08.15, OUFE: 20175.
O. ramosa L.
 [115], 11.06.13, OUFE: 20176.
Parentucellia latifolia Caruel
 [1], 17.06.12, Akd., OUFE: 20288.
Pedicularis comosa L. var. *sibthorpii* (Boiss.) Boiss.
 [1], 17.06.12, OUFE: 20264.
 ACANTHACEAE
Acanthus hirsutus Boiss.
 [17], 02.07.13, End., LC, OUFE: 19619.
 VERBENACEAE
Verbena officinalis L.
 [117], 02.05.15, OUFE: 20255.
 CAMPANULACEAE
Asyneuma limonifolium (L.) Janchen subsp. *pestalozzae* (Boiss.) Damboldt
 [14], 23.06.15, İr.-Tur., End., LC, OUFE: 19747.
A. linifolium (Boiss. & Heldr.) Bornm.
 [67], 28.06.12 D. Akd., End., LC, OUFE: 19748.
A. lobelioides (Willd.) Hand.-Mazz.
 [14], 23.06.15, OUFE: 19749.
Campanula argentea Lam.
 [78], 03.07.13, İr.-Tur., End., LC.
C. fastigiata Dufour ex Schult.
 [78], 03.07.13, OUFE: 19795.
C. lyrata Lam.
 [14], 23.06.15, End., LC, OUFE: 19796.
Legousia speculum veneris (L.) Durande ex Vill.
 [2], 18.05.13, Akd., OUFE: 20082.
 ASTERACEAE
Achillea arabica Kotschy
 [58], 31.05.15, İr.-Tur., OUFE: 19620.
Ac. biebersteinii Afan.
 [44], 25.06.15, OUFE: 19621.
Ac. gypsicola Hub.-Mor.
 [78], 10.06.15, İr.-Tur., End., VU, OUFE: 19622.
Ac. ketenoglui H.Duman
 [76], 10.06.15, İr.-Tur., End., EN, OUFE: 19623.
Ac. millefolium L.
 [23], 23.06.15, Avr.-Sib., OUFE: 19624.
Ac. phrygia Boiss. & Balansa
 [15], 06.06.12, İr.-Tur., End., LC, OUFE: 19627.
Ac. santolinoides subsp. *wilhelmsii* (K.Koch) Greuter [Syn: *Achillea wilhelmsii* K.Koch]
 [15], 06.06.12, İr.-Tur., OUFE: 19628.
Anthemis aciphylla Boiss.
 [69], 02.05.15, OUFE: 19695.
A. cretica subsp. *anatolica* (Boiss.) Grierson
 [69], 02.05.15, OUFE: 19696.
A. cretica subsp. *tenuiloba* (DC.) Grierson
 [93], 26.04.15, OUFE: 19698.
A. kotschyana Boiss. var. *gypsicola* H.Duman
 [76], 07.06.12, İr.-Tur., End., EN, OUFE: 19699.
A. pauciloba var. *microstephana* (Eig) Grierson
 [156], 26.06.15 D. Akd., End., LC, OUFE: 19701.
Artemisia absinthium L.
 [143], 25.08.12, OUFE: 19711.
Ar. campestris L.

- [143], 25.08.12, OUFÉ: 19712.
Ar.santonicum L.
[59], 02.05.15, OUFÉ: 19713.
Ar. scoparia Waldst. & Kitam.
[3], 18.05.13, OUFÉ: 19714.
Bombycilaena erecta (L.) Smoljan.
[65], 05.03.13, OUFÉ: 19766.
Carduus nutans L.
[15], 06.06.12, OUFÉ: 19981.
Carlina oligocephala Boiss. & Kotschy
[61], 18.05.13, OUFÉ: 19700.
Carthamus lanatus L.
[61], 18.05.13, OUFÉ: 19804.
C. persicus Desf. ex Willd.
[25], 03.06.15, OUFÉ: 19807.
Centaurea benedicta (L.) L.
[25], 03.06.15, OUFÉ: 19697.
C.calcitrapa L.
[145], 07.08.13, OUFÉ: 19808.
C. carduiiformis DC.
[55], 23.05.15, OUFÉ: 19808.
C. depressa M.Bieb.
[30], 13.07.13, OUFÉ: 19809.
C. drabifolia subsp. *cappadocica* (DC.) Wagenitz
[44], 25.06.15, End., LC, OUFÉ: 19810.
C. drabifolia subsp. *floccosa* (Boiss.) Wagenitz & Greuter
[44], 25.06.15, End., LC, OUFÉ: 19811.
C. iberica Trax. ex
[20], 06.06.12, İr.-Tur., OUFÉ: 19812.
C. kotschy var. *pesica* (Boiss.) Greuter
[20], 06.06.12, İr.-Tur., OUFÉ: 19813.
C. nivea (Bornm.) Wagenitz
[18], 26.06.15, End., CR, OUFÉ: 19814.
C. patula DC.
[65], 05.03.13, OUFÉ: 19815.
Centaurea sericea Wagenitz
[145], 07.08.13, OUFÉ: 19817.
C. solstitialis L.
[27], 03.07.13, OUFÉ: 19818.
C. urvilei (Syn: *Centaurea urvilei* subsp. *stepposa*)
[58], 10.07.13, İr.-Tur., End., LC, OUFÉ: 19819.
C. virgata Lam.
[5], 17.06.12, İr.-Tur., OUFÉ: 19820.
Chardinia orientalis (L.) Kuntze
[65], 05.03.12, İr.-Tur., OUFÉ: 19835.
Chondrilla juncea L.
[63], 07.06.12, OUFÉ: 19840.
Cichorium intybus L.
[40], 09.07.15, OUFÉ: 19844.
Cirsium arvense (L.) Scop.
[61], 18.05.13, OUFÉ: 19846.
Cirsium sintenisii Freyn
[137], 23.09.12, OUFÉ: 19849.
Cirsium vulgare (Savi) Ten.
[145], 07.08.13, OUFÉ: 19850.
Cota tinctoria (L.) J.Gay
[46], 26.06.15, OUFÉ: 19881.
Cousinia iconica Hub.-Mor.
[34], 07.08.12, İr.-Tur., End., NT, OUFÉ: 19883.
Crepis foetida subsp. *rheoadifolia* (M.Bieb.) Čelak.
[18], 23.06.15, OUFÉ: 19889.
Crepis macropus Boiss. & Heldr.
[17], 25.08.12, OUFÉ: 19890.
Crupina crupinastrum (Moris) Vis.
[17], 07.06.15, OUFÉ: 19898.
Cyanus depressus (M.Bieb.) Soják
[24], 22.06.15, OUFÉ: 19905.
Cy. pichleri (Boiss.) Holub
[25], 03.06.15, OUFÉ: 19906.
Cy. thirkei (Sch.Bip.) Holub
[51], 23.05.15, OUFÉ: 19907.
Cy. triumfettii (All.) Dostál ex Á.Löve & D.Löve
[55], 18.05.15, OUFÉ: 19908.
Cymbolaena griffithii (A.Gray) Wagenitz
[24], 22.06.15, OUFÉ: 19908.
Echinops microcephalus Sm.
[145], 07.08.13, OUFÉ: 19941.
E. pungens Trautv.
[17], 25.08.12, İr.-Tur., OUFÉ: 19942.
E. ritro L.
[17], 25.08.12, OUFÉ: 19943.
Filago pyramidata L.
[86], 10.06.15, OUFÉ: 19979.
Gundelia tournefortii L.
[13], 23.05.15, İr.-Tur., OUFÉ: 20019.
Helichrysum arenarium (L.) Moench
[*Helichrysum arenarium* (L.) Moench. subsp. *aucheri* (Boiss.) Davis & Kupicha] [2], 19.05.13, İr.-Tur., End., LC, OUFÉ: 20035.
H. chionophyllum Boiss. & Balansa [152], 08.07.15, End., LC, OUFÉ: 20036.
H. graveolens (M.Bieb.) Sweet [152], 08.07.15, End., LC, OUFÉ: 20037.
Hieracium pannosum Boiss. [44], 09.07.15 D. Akd., OUFÉ: 20044.
Inula ensifolia L. [13], 02.07.13, Avr.-Sib., OUFÉ: 20062.
I. oculus-christi L. [13], 02.07.13, OUFÉ: 20063.
Jurinea consanguinea DC. [17], 25.06.15, OUFÉ: 20073.
J. pontica Hausskn. & Freyn ex Hausskn. [89], 07.06.15, İr.-Tur., End., LC, OUFÉ: 20075.
Klasea yunusemrei [23], 22.06.15, İr.-Tur., End., LC, OUFÉ: 20076.
Koelpinia linearis Pall. [52], 23.05.15, İr.-Tur., OUFÉ: 20077.
Lactuca serriola L. [28], 09.07.15, Avr.-Sib., OUFÉ: 20045.
Leontodon asperrimus (Willd.) J. Ball [87], 28.06.13, İr.-Tur., OUFÉ: 20083.
L. crispus Vill. [89], 07.06.15, OUFÉ: 20084.
Onopordum tauricum Willd. [17], 06.06.12, Avr.-Sib., OUFÉ: 20153.
Picnoman acarna (L.) Cass. [80], 08.07.15, Akd., OUFÉ: 20196.
Picris strigosa M.Bieb. [65], 05.03.13, İr.-Tur., OUFÉ: 20198.
Pilosella hoppeana (Schultes) C. H. ET F. W. Schultz [89], 07.06.15, OUFÉ: 20199.
Podospermum canum C.A.Mey. [28], 09.07.15, OUFÉ: 20210.
Ptilostemon afer (Jacq.) Greuter [138], 18.04.14, End., LC, OUFÉ: 20221.
Pulicaria dysenterica (L.) Gaertn. [156], 21.10.12, OUFÉ: 20222.
Rhaponticum repens (L.) Hidalgo (Syn: *Acroptilon repens* L.) [9], 23.06.15, İr.-Tur., OUFÉ: 20232.
Scolymus hispanicus L. [14], 02.07.13, Akd., OUFÉ: 20276.
S. eriophora DC. [53], 31.05.15, End., LC, OUFÉ: 20277.
S. laciniata L. [50], 31.05.15, OUFÉ: 20278.
Scorzonera pygmaea subsp. *nutans* (Czeczott) D.F.Chamb. [45], 18.04.15, End., NT, OUFÉ: 20279.
S. semicana DC. [10], 03.06.15, İr.-Tur., End., LC, OUFÉ: 20280.
S. suberosa K.Koch [76], 31.05.15, İr.-Tur., OUFÉ: 20281.
S.tomentosa L. [61], 25.06.15, İr.-Tur., End., LC, OUFÉ: 20282.
Senecio leucanthemifolius subsp. *vernalis* (Waldst. & Kit.) Greuter (Syn: *Senecio vernalis* Waldst. & Kit.) [11], 07.06.15, OUFÉ: 20295.
S. viscosus L. [10], 18.04.15, OUFÉ: 20297.
Sonchus asper (L.) Hill subsp. *glaucescens* (Jordan) Ball [10], 18.04.15, OUFÉ: 20296.
Stizolophus coronopifolius (Lam.) Cass. [100], 08.07.15, OUFÉ: 20324.
Taraxacum bessarabicum (Hornem.) Hand.-Mazz. [123], 23.05.15, OUFÉ: 20328.
T. farinosum Hausskn. & Bornm. ex Hand.-Mazz. [123], 23.05.15, İr.-Tur., End., LC, OUFÉ: 20045.
T. serotinum (Waldst. & Kit.) Poir. [100], 08.07.15, OUFÉ: 20330.
Tragopogon dubius Scop. [73], 31.05.15, OUFÉ: 20346.
T. latifolius Boiss. [79], 31.05.15, İr.-Tur., OUFÉ: 20347.
T. porrifolius subsp. *longirostris* (Sch.Bip.) Greuter [11], 07.06.15, OUFÉ: 20361.
Tussilago farfara L. [80], 14.04.12, Avr.-Sib., OUFÉ: 20361.
Xanthium spinosum L. [70], 25.06.15, D.O. 1577, OUFÉ: 20381.
X. strumarium L. [80], 31.05.15, OUFÉ: 20382.
Xeranthemum inapertum (L.) Mill. [41], 07.08.12, OUFÉ: 20384.
CAPRIFOLIACEAE
Cephalaria aristata K.Koch [138], 07.08.13, OUFÉ: 19825.
C. aytachii Göktürk & Sümbül [63], 07.06.12, İr.-Tur., End., CR, OUFÉ: 19826.
C. syriaca (L.) Schrad. ex Roem. & Schult. [12], 07.06.15, OUFÉ: 19827.
C. transylvanica (L.) Schrad. ex Roem. & Schult. [14], 02.07.13, OUFÉ: 19828.
Dipsacus laciniatus L. [144], 07.08.13, D.O. 679, OUFÉ: 19928.
Morina persica L. [17], 02.07.13, İr.-Tur., OUFÉ: 20127.
Scabiosa argentea L. [2], 18.05.13, OUFÉ: 20265.
S. calocephala Boiss. [17], 23.06.15, İr.-Tur., OUFÉ: 20266.
S. hololeuca Bornm. [45], 08.07.15, İr.-Tur., End., EN, OUFÉ: 20267.
S. pseudograminifolia Hub.-Mor. [55], 31.05.15, OUFÉ: 20268.
S. rotata M. Bieb. [12], 06.06.12, İr.-Tur., OUFÉ: 20269.
Valerianella coronata DC. [15], 18.04.15, OUFÉ: 20363.
V. vesicaria Moench [159], 03.05.15, OUFÉ: 20364.
APIACEAE
Anethum graveolens L. [78], 03.07.13, OUFÉ: 19694.

- Artemisia squamata* L.
[12], 23.06.15, OUFU: 19710.
- Astrodaucus orientalis* (L.) Drude
[133], 10.07.13, İr.-Tur., OUFU: 19745.
- Berula erecta* (Huds.) Coville
[87], 25.06.15, OUFU: 19761.
- Bifora radians* M.Bieb.
[72], 08.07.15, OUFU: 19762.
- Bupleurum croceum* Fenzl
[87], 25.06.15, İr.-Tur., OUFU: 19782.
- B. croceum* Fenzl
[87], 25.06.15, İr.-Tur., OUFU: 19782.
- B. euboicum* Beauverd & Topali
[72], 08.07.15, Akd., OUFU: 19783.
- B. gerardii* All.
[78], 03.07.13, OUFU: 19784.
- B. rotundifolium* L.
[84], 02.06.13, OUFU: 19785.
- B. sulphureum* Boiss. & Balansa
[84], 02.06.13, İr.-Tur., End., LC, OUFU: 19786.
- B. turcicum* Snogerup
[88], 02.07.13, İr.-Tur., End., NT, OUFU: 19787.
- Chaerophyllum byzantinum* Boiss.
[27], 09.07.15, OUFU: 19833.
- Conium maculatum* L.
[72], 08.07.15, OUFU: 19862.
- Daucus carota* L.
[7], 18.05.13, OUFU: 19915.
- Echinophora tenuifolia* subsp. *sibthorpiana* (Guss.) Tutin
[72], 08.07.15, İr.-Tur., OUFU: 19938.
- E. tournefortii* Jaub. & Spach
[157], 07.06.12, Akd., OUFU: 19939.
- Eryngium bithynicum* Boiss.
[107], 03.07.13, İr.-Tur., End., LC, OUFU: 19939.
- E. campestre* L. var. *virens* (Link) Weins
[94], 07.06.12, OUFU: 19956.
- Falcaria vulgaris* Bernh.
[9], 25.08.12, OUFU: 19974.
- Ferula szowitziana* DC.
[59], 25.06.15, End., LC, OUFU: 19975.
- Malabaila secacul* Banks & Sol.
[123], 07.08.13, OUFU: 20105.
- Prangos meliocarpoides* Boiss.
[45], 23.04.12, İr.-Tur., End., LC, OUFU: 19694.
- Scandix pecten-veneris* L.
[45], 23.04.12, OUFU: 20270.
- S. stellata* Banks & Sol.
[1], 18.05.13, OUFU: 20271.
- Seseli tortuosum*
[1], 18.05.13, OUFU: 20383.
- Torilis leptophylla* (L.) Rchb. f.
[7], 18.05.13, OUFU: 20197.
- Turgenia latifolia* (L.) Hoffm.
[1], 06.06.12, OUFU: 20359.

3.1. The Localities List

3.1.1. The Localities where the plants were collected

The entire study area is located within the borders of Eskişehir province; and is in the A3 and B3 square according to the squaring system of Davis (Figure 1.)

- L1.** Eskişehir City Center; Musaözü Surroundings Opposite Riding Club, N 39°43'30.64"- E 030°20'38.33", 892 m.
- L2.** Eskişehir City Center; Between Musaözü-Takmak, N 39°41'59.93"- E 030°22'3.67", 895 m.
- L3.** Eskişehir City Center; Yenisofça Outlet, Inside The Forest, N 39°36'32.94"- E 030°22'0.11", 875 m.
- L4.** Eskişehir City Center; Yenisofça Water Tank, N 39°37'51.62"- E 030°21'54.70", 880 m.
- L5.** Eskişehir City Center; Yörük Akçayır Neighborhood Surroundings, N 39°43'37.08"- E 030°20'49.19", 882 m.
- L6.** Eskişehir City Center; Takmak Village Road Turning, White Soils, N 39°43'20.23"- E 030°20'39.71", 894 m.
- L7.** Eskişehir City Center; Gülpınar Surroundings, N 39°42'21.54"- E 030°35'27.82", 891 m.
- L8.** Alpu; Bozan Afforestation Field, N 39°47'54.6"- E 31°07'16.4"; 885 m.
- L9.** Alpu; Bozan Afforestation Field, Eastern Slope, N 39°47'41.7"- E 31°08'01.6"; 890 m.
- L10.** Alpu; Bozan Afforestation Field, Southern Slope, N 39°47'44.2"- E 31°06'18.1"; 903 m.
- L11.** Alpu; Bozan Afforestation Field, Southern-Eastern Slope, N 39°48'31.6"- E 31°07'06.5"; 925 m.
- L12.** Alpu; Bozan Afforestation Field, Northern Slope, N 39°48'14.6"- E 31°07'29.6"; 927 m.
- L13.** Alpu; Bozan Afforestation Field, Southern Western Slope, N 39°47'55.1"- E 31°07'23.4"; 845 m.
- L14.** Alpu; Bozan Afforestation Field, Western Slope, N 39°48'10.1"- E 31°06'37.7"; 924 m.
- L15.** Alpu; Bozan; N 39°48'34.07"- E 31°8'46.64", 788 m.
- L15.** Alpu; Alapınar Village Forest Area, N 40°00'52.42"- E 030°50'42.69", 1093 m.
- L16.** Alpu; Bozan Afforestation Field, N 39°47'40.99"- E 031°06'18.20", 891 m.
- L17.** Alpu; Bozan Afforestation Field, N 39°47'45.94"- E 031°06'41.12", 842 m.
- L18.** Alpu; Bozan Afforestation Field, N 39°48'9.78"- E 031°06'35.5", 916 m.
- L19.** Alpu; Bozan Road Left Hills, N 39°48'15.26"- E 031°04'37.30", 843 m.
- L20.** Alpu; Bozan Road Left Hills, N 39°48'9.111"- E 031°03'38.75", 829 m.
- L21.** Alpu; Bozan Road Left Hills, N 39°48'9.111"- E 031°03'38.75", 829 m.
- L22.** Alpu; Bozan Afforestation Field, N 39°47'58.06"- E 031°06'2.109", 897 m.
- L23.** Alpu; Bozan Afforestation Field, N 39°48'27.77"- E 031°06'39.75", 919 m.
- L24.** Alpu; Bozan Afforestation Field, N 39°48'19.58"- E 031°07'26.68", 926 m.
- L25.** Alpu; Mihalicık Road Bozan Road Junction, Bozan Opposite Slopes, N 39°49'2.440"- E 031°05'15.74", 858 m.
- L26.** Beylikova; Aşağıdoğanoğlu Road Junction, N 39°49'28.01"- E 031°10'20.89", 858 m.
- L27.** Beylikova; Aşağıdoğanoğlu Village Forest Area Road Surroundings, N 39°51'19.49"- E 031°11'43", 939 m.
- L28.** Beylikova; Between Aşağıdoğanoğlu-Yukarıdoğanoğlu, Forest Area Road, N 39°52'40.90"- E 031°12'57.13", 1026 m.
- L29.** Beylikova; Aşağı Dudaş Village Surroundings, N 39°50'22"- E 031°13'55.00", 926 m.
- L30.** Beylikova; Aşağı Doğanoğlu Village Surroundings, N 39°50'10.4"- E 31°12'57.7", 930 m.
- L31.** Beylikova; Aşağı Doğanoğlu Village, N 39°50'23.15"- E 31°11'15.01", 850 m.
- L32.** Beylikova; Aşağı Doğanoğlu Forest Afforestation Field, N 39°52'32.2"- E 31°12'20.8", 1350 m.
- L33.** Beylikova; Between Yukarı Doğanoğlu-Sultaniye Village, N 39°48'33.38"- E 031°12'35.88", 931 m.
- L34.** Beylikova; Aşağı Dudaş Village Surroundings, N 39°50'23.9"- E 31°34'03.3", 934 m.
- L35.** Beylikova; Yukarı Dudaş Village Parting Of The Ways, N 39°49'44.3"- E 31°17'15.8", 947 m.
- L36.** Beylikova; Between Beylikova-Alpu, N 39°48'20.4"- E 31°18'53.3", 918 m.
- L37.** Beylikova; Emircik Village, N 39°42'46.6"- E 31°16'36.9", 750 m.
- L38.** Beylikova; Yeniuyurt Village; N 39°42'24.10"- E 31°20'8.98", 752 m.
- L39.** Beylikova; Adahisar, Yahnı Village Outlet, N 39°41'52.69"- E 31°24'59.70", 705 m.
- L40.** Mihalgazi; Alpuğut, N 40°00'40.9"- E 30°30'33.3", 206 m.
- L41.** Mihalgazi; Çay Village Entrance, N 40°02'17.52"- E 30°29'4.73", 158 m.
- L42.** Mihalgazi; Sakarı Karacaören Village, N 40°0.1'16.7"- E 30°55'16.7", 470 m.
- L43.** Mihalicık; Between Biçer Village-Ahurözü Village, N 39°43'52.7"- E 31°42'31.5", 827 m.
- L44.** Mihalicık; Between Biçer Village-Üçbaşlı Village, N 39°44'16.7"- E 31°42'43.1", 862 m.
- L45.** Mihalicık; Between Ahrır Village-Ömerler Village, N 39°43'04.7"- E 31°46'20.1", 803 m.
- L46.** Mihalicık; Üçbaşlı Village Surroundings, N 39°45'16.8"- E 31°39'51.9", 909 m.
- L47.** Mihalicık; Karageyikli, N 39°50'49.04"- E 31°17'54.11", 983 m.
- L48.** Mihalicık; Between Biçer Village-Ahurözü Village, N 39°44'06.6"- E 31°42'24.9", 840 m.
- L49.** Sivrihisar; Demirciler Village Girişi, N 39°35'44.1"- E 31°47'12.5", 818 m.

- L50.** Sivrihisar; Demirciler Village-Ortaklar Village Between, N 39°35'31.58"- E 031°46'24.72", 812 m.
- L51.** Sivrihisar; Demirciler Village Entrance , N 39°35'31.9"- E 31°47'08.1", 799 m.
- L52.** Sivrihisar; Between Demirci Village-Ankara Road, N 39°35'31.55"- E 031°47'38.89", 839 m.
- L53.** Sivrihisar; Demirciler Village, N 39°35'44.5"- E 31°47'16.1", 820 m.
- L54.** Sivrihisar; Demirciler Village Surroundings, N 39°35'51.4"- E 31°48'07.4", 829 m.
- L55.** Sivrihisar; Ankara-Eskişehir Road, Demirci Village, N 39°35'5.70"- E 031°46'3.21", 747 m.
- L56.** Sivrihisar; Ankara-Eskişehir Road, Demirci Village Surroundings, N 39°35'32.17"- E 031°47'37.18", 838 m.
- L57.** Sivrihisar; Aşağıkepen Village Surroundings, N 39°22'32.6"- E 31°30'03.7", 955 m.
- L58.** Sivrihisar; Aşağıkepen Village Slopes, N 39°22'26.9"- E 31°30'14.1", 954 m.
- L59.** Sivrihisar; Eskişehir-İzmir Road Slopes, N 39°21'53.9"- E 31°29'38.2", 925 m.
- L60.** Sivrihisar; Eskişehir-İzmir Road Slopes, A. Kepen Village Surroundings, N 39°22'04.2"- E 31°29'21.8", 958 m.
- L61.** Sivrihisar; Aşağıkepen Road Right Slopes, N 39°22'9.6"- E 31°28'58.1", 910 m.
- L62.** Sivrihisar; Aşağıkepen Village, N 39°22'58.60"- E 31°29'40.28", 916 m.
- L63.** Sivrihisar; Aşağıkepen Village, N 39°21'5.098"- E 031°31'15.67", 946 m.
- L64.** Sivrihisar; Between Aşağıkepen- Yeşilköy, N 39°18'31.07"- E 31°30'28.67", 862 m.
- L65.** Sivrihisar; Aşağıkepen Surroundings, N 39°22'34.75"- E 031°30'3.538", 942 m.
- L66.** Sivrihisar; Aşağıkepen Village N 39°21'9.6"- E 31°29'5.6", 910 m.
- L67.** Sivrihisar; Between Sivrihisar-Aşağıkepen, N 39°23'18.02"- E 031°30'18.66", 943 m.
- L68.** Sivrihisar; Ballıhisar Village Surroundings, N 39°20'19.1"- E 31°35'5.2", 980 m.
- L69.** Sivrihisar; Yeşilköy Surroundings, N 39°17'47.77"- E 31°28'33.04", 830 m.
- L70.** Sivrihisar; Between Yeşilköy-Ballıhisar Village, N 39°18'15.1"- E 31°30'39.6", 857 m.
- L71.** Sivrihisar; Yeşilköy Outlet, Airport Surroundings, N 39°17'44.2"- E 31°29'17.4", 846 m.
- L72.** Sivrihisar; Between Yeşilköy-Ballıhisar Village, Left Slopes, N 39°18'21.4"- E 31°31'01.2", 850 m.
- L73.** Sivrihisar; Between Yeşilköy-Ballıhisar Village, N 39°18'38.7"- E 31°32'16.2", 956 m.
- L74.** Sivrihisar; Between Ballıhisar Village-Yeşilköy, Slopes, N 39°19'15.6"- E 31°34'11.9", 928 m.
- L75.** Sivrihisar; Between Ballıhisar Village-Ertuğrul Village, Slopes, N 39°19'38.02"- E 031°35'7.490", 957 m.
- L76.** Sivrihisar; Between Çaykoz Surroundings -Ballıhisar Village, N 39°17'47.82"- E 031°36'31.04", 884 m.
- L77.** Sivrihisar; Ballıhisar Village Surroundings, N 39°20'24.6"- E 31°34'52.6", 970 m.
- L78.** Sivrihisar; Ertuğrul Village Surroundings, N 39°19'17.1"- E 31°34'08.4", 837 m.
- L79.** Sivrihisar; Ertuğrul Village Center, N 39°17'47.3"- E 31°36'03.6", 885 m.
- L80.** Sivrihisar; Between Ertuğrul Village-Çaykoz Village, N 39°17'55.4"- E 31°36'07.5", 930 m.
- L81.** Sivrihisar; Ballıhisar Village Surroundings, N 39°19'08.1"- E 31°34'49.5", 926 m.
- L82.** Sivrihisar; Between Ballıhisar Village-Ertuğrul Village , N 39°19'20.8"- E 31°34'50.1", 935 m.
- L83.** Sivrihisar; Ballıhisar Village Outlet, Slopes, N 39°19'35.1"- E 31°35'07.2", 955 m.
- L84.** Sivrihisar; Afyon Road Aşağıkepen Village, N 39°22'42.64"- E 31°29'54.20", 943 m.
- L85.** Sivrihisar; Ertuğrul Village, N 39°17'2.26"- E 31°34'44.73", 920 m.
- L86.** Sivrihisar; Ertuğrul Village, N 39°17'3.66"- E 31°34'52.64", 937 m.
- L87.** Sivrihisar; Between Ertuğrul Village-Ballıhisar, N 39°19'9.23"- E 31°34'48.06", 912 m.
- L88.** Sivrihisar; Between Dinek Village-Ertuğrul village, N 39°20'43.1"- E 31°39'1.3", 914 m.
- L89.** Sivrihisar; Between Ertuğrul Village- Arayit Mountain; 3.Km Left Slopes, N 39°17'08.7"- E 31°37'12.5", 905 m.
- L90.** Sivrihisar; Between Ahiler Village-Ertuğrul Village, Right Slopes, N 39°15'49.2"- E 31°37'05.5", 856 m.
- L91.** Sivrihisar; Between Yeşilköy-Kurtşeyh, Airport Surroundings; N 39°18'16.7"- E 31°30'28.8", 863 m.
- L92.** Sivrihisar; İlören Village-Ahurözü Village Road, N 39°43'45.7"- E 31°42'21.4", 819 m.
- L93.** Sivrihisar; İlören Village Environment, Train Road Surroundings, N 39°42'44.1"- E 31°46'25.9", 780 m.
- L94.** Sivrihisar; Between İlören Village-Ahrözü Village, N 39°43'44.7"- E 31°42'17.2", 787 m.
- L95.** Sivrihisar; Biçer Village Surroundings, N 39°43'47.8"- E 31°42'22.2", 850 m.
- L96.** Sivrihisar; Between İlören Village-Biçer Village, Slopes, N 39°41'20.4"- E 31°43'28.6", 730 m.
- L97.** Sivrihisar; Gölçayır Village Surroundings, N 39°15'14.7"- E 31°23'56.9", 839 m.
- L98.** Sivrihisar; Between Gölçayır Village-Buhara Village, N 39°13'13.4"- E 31°25'38.7", 825 m.
- L99.** Sivrihisar; Buhara Village Surroundings, N 39°11'13.5"- E 31°30'01.9", 841 m.
- L100.** Sivrihisar; Buzluca Village Surroundings , N 39°12'45.3"- E 31°27'28.7", 840 m.
- L101.** Sivrihisar; Between Kurtşeyh Village-Ahiler Village , N 39°11'35.2"- E 31°35'23.7", 823 m.
- L102.** Sivrihisar; Nasrettin Hoca Village, N 39°31'35.2"- E 31°39'58.5", 881 m.
- L103.** Sivrihisar; Between Nasrettin Hodja Village -Hamamhisar, N 39°29'53.3"- E 31°40'31.1", 948 m.
- L104.** Sivrihisar; Nasrettin Hodja Village, Subaşı, N 39°30'00.0"- E 31°40'16.2", 940 m.
- L105.** Sivrihisar; Oğlankçı Village, N 39°34'54.05"- E 31°33'3.27", 1125 m.
- L106.** Sivrihisar; Pessinus Surroundings, N 39°19'53.97"- E 31°35'0.80", 943 m.
- L107.** Sivrihisar; İlören, Çevre Road İlören, N 39°33'8.90"- E 31°45'11.96", 775 m.
- L108.** Sivrihisar; Elcik Road, N 39°34'49"- E 31°46'002", 775 m.
- L109.** Sivrihisar; İlören Village, N 39°42'43.19"- E 31°46'26.40", 772 m.
- L110.** Sivrihisar; Ahrözü Road, N 39°44'51.68"- E 031°43'28.34", 930 m.
- L111.** Sivrihisar; Ahrözü Village, Üçbaşı Village Road, N 39°47'37.77"- E 031°41'21.03", 940 m.
- L112.** Sivrihisar; Ahr Village, N 39°46'23.85"- E 031°33'22.98", 782 m.
- L113.** Sivrihisar; Ortaklar Village Surroundings, N 39°38'0.08"- E 031°46'12.77", 733 m.
- L114.** Sivrihisar; Between Gencali Village Way, Ahrözü, N 39°43'0.58"- E 031°46'0.33", 804 m.
- L115.** Sivrihisar; Kavuncu Village-Bedil Surroundings, N 039°24'51.21"- E 031°56'58.85", 708 m.
- L116.** Sivrihisar; Gümüşkonak, Kayakent Surroundings, N 39°19'4.138"- E 031°48'55.57", 983 m.
- L117.** Sivrihisar; Nasrettin Hodja Village Surroundings, N 39°29'54.85"- E 031°40'20.57", 944 m.
- L118.** Sivrihisar; Nasrettin Hodja Village, Slopes, N 39°29' 47.59"- E 031°40'41.42", 953 m.
- L119.** Sivrihisar; Between Hamamkarahisar-Çardaközü, Slopes, N 39°26'18.90"- E 031°45'19.31", 902 m.
- L120.** Sivrihisar; Çardaközü Village Hillsides, N 39°25'50.43"- E 031°46'19.00", 857 m.
- L121.** Sivrihisar; Yazır Village And Surroundings, The Hills, N 39°26'58.87"- E 031°48'44.94", 827 m.
- L122.** Sivrihisar; Mülk Village Surroundings, Slopes, N 39°35'31.39"- E 031°47'16.22", 810 m.
- L123.** Sivrihisar; Between Ortaklar Village Againsts, Demirci, N 39°36'5.742"- E 031°45'20.61", 829 m.
- L124.** Sivrihisar; Ortaklar Village Surroundings, N 39°38'2.875"- E 31°45'59.95", 740 m.
- L125.** Sivrihisar; Yazır Village Surroundings, N 39°26'15.9"- E 31°48'13.6", 840 m.

- L126.** Sivrihisar; Yazır Village-Çardak Özü Village Surroundings, N 39°25'36.3"- E 31°47'13.5", 833 m.
- L127.** Sivrihisar; Altaşı Özü Village, N 39°18'40"- E 31°32'24", 970 m.
- L128.** Sivrihisar; Between Karadat Village- Biçer Village, Slopes, N 39°39'16.0"- E 31°39'04.2", 840 m.
- L129.** Sivrihisar; Forest Road On Yarımcıca Road, N 39°54'34.48"- E 030°37'15.44", 1275 m.
- L130.** Sivrihisar; Between Ballıhisar-Çaykoz, N 39°18'9.260"- E 031°36'46.52", 895 m.
- L131.** Sivrihisar; Arayit Mountation Road Surroundings, N 39°18'2.408"- E 031°49'55.15", 789 m.
- L132.** Sivrihisar; Between Hüdavendiğar Village-Demirci Village, N 39°35'03.1"- E 31°38'21.3", 1010 m.
- L133.** Sivrihisar; Yeşilköy Village Surroundings, N 39°17'45.00"- E 031°28'23.50", 842 m.
- L134.** Sivrihisar; Afyon Ankara Road Yeşilköy Slopes, N 39°21'16"- E 31°26'26", 850 m.
- L135.** Sivrihisar; Karadat Village Surroundings, N 39°38'21.2"- E 31°38'55.9", 910 m.
- L136.** Seyitgazi; Seyitgazi Outlet Slopes, N 39°25'24.27"- E 30°39'3.85", 965 m.
- L137.** Günyüzü; Çeltik Road Junction, N 039°25'34.82"- E 031°49'33.68", 803 m.
- L138.** Günyüzü; Çardaközü Village Surroundings, N 39°25'49.18"- E 031°46'42.64", 847 m.
- L139.** Günyüzü; Altınini Area, N 39°25'34.82"- E 031°21.9'33.72", 804 m.
- L140.** Günyüzü; Üç Kuyular Area, N 39°28'56.74"- E 031°52'25.40", 828 m.
- L141.** Günyüzü; Yeşilyaka Village Surroundings, N 39°19'14.72"- E 031°56'27.36", 883 m.
- L142.** Günyüzü; Kavuncu Village-Salty Area, N 39°24'54.6"- E 31°56'56.7", 710 m.
- L143.** Günyüzü; Kavuncu Village Surroundings, N 39°24'57.32"- E 031°57'45.34", 658 m.
- L144.** Günyüzü; Kavuncu Village Road, N 39°25'34.98"- E 031°49'33.61", 790 m.
- L145.** Günyüzü; Between Yazır Village-Kavuncu Village, N 39°27'21.28"- E 031°51'50.80", 825 m.
- L146.** Günyüzü; Kavuncu Village Road, N 39°25'33.58"- E 031°99'39.73", 790 m.
- L147.** Günyüzü; Between Kavuncu Village Fatih Village, N 039°24'36.60"- E 031°56'39.40", 704 m.
- L148.** Günyüzü; Kavuncu Village Surroundings, N 39°24'57.58"- E 031°53'40.34", 751 m.
- L149.** Günyüzü; Çardaközü Village, N 39°25'53.72"- E 031°46'42.13", 842 m.
- L150.** Günyüzü; Between Çardaközü Village-Gecek, N 39°25'32.97"- E 031°46'19.80", 905 m.
- L151.** Günyüzü; Ellezin Kaya, N 39°25'42.79"- E 031°51'47.09", 775 m.
- L152.** Günyüzü; Between Sazak Ahırköy, N 39°47'26.00"- E 031°36'36.34", 859 m.
- L153.** Günyüzü; Yazır Way Out, Left Slopes, N 39°25'57.44"- E 031°51'6.348", 815 m.
- L154.** Günyüzü; Between Çaykoz Village-Arayit Mountain Road, N 39°19'47.48"- E 031°43'16.87", 896 m.
- L155.** Günyüzü; Between Kadıncık Village-Hamamkarahisar Village, N 39°25'24.5"- E 31°42'14.9", 980 m.
- L156.** Günyüzü; Between Hamamkarahisar Village-Dutlu Village, N 39°24'28.7"- E 31°43'45.9", 980 m.
- L157.** Günyüzü; Dutlu Village Surroundings, N 39°23'36.8"- E 31°42'42.9", 1150 m.
- L158.** Günyüzü; Between Dutlu Village-Çardaközü Village, N 39°24'32.8"- E 31°43'44.5", 980 m.
- L159.** Günyüzü; Between Yazır Village-Günyüzü Turning, N 39°25'40.3"- E 31°49'29.3", 810 m.
- L160.** Günyüzü; Between Gecek Village-Atlas Village, N 39°21'33.1"- E 31°43'50.2", 1230 m.
- L161.** Günyüzü; Ayrıvalı Village Surroundings, N 39°20'58.7"- E 31°51'2.3", 850 m.
- Günyüzü; Northern Kavuncu Village, N 39°26'15.9"- E 31°54'21.3", 816 m.

The richest families in terms of number of species and underground taxa are given in Table 1. In terms of number of species and subspecies, 98 (% 13,29) species and subspecies taxa and Asteraceae family are the first order. Later on, Brassicaceae 70 (9.49%), Fabaceae 68 (9.22%), Lamiaceae 47 (6.73%), Poaceae 44 (5.97%), Caryophyllaceae 40 (3,66%), Boraginaceae 24 (3,25%), Ranunculaceae 19 (2,57%), Asparagaceae 19 (2,57%), Amaranthaceae 17 (2,30%), Papaveraceae 17), Plantaginaceae 16 (2,17%), Rosaceae 14 (1,89%), Euphorbiaceae 13 (1,76%) and others 283 (38,26%) were identified as taxa and species (Table 1.).

Table 1. The richest families in research

No	Family Name	Number of Species	Rate (%)
1	<i>Asteraceae</i>	98	13,29
2	<i>Brassicaceae</i>	70	9,49
3	<i>Fabaceae</i>	68	9,22
4	<i>Lamiaceae</i>	47	6,73
5	<i>Poaceae</i>	44	5,97
6	<i>Caryophyllaceae</i>	40	5,42
7	<i>Apiaceae</i>	27	3,66
8	<i>Boraginaceae</i>	24	3,25
9	<i>Ranunculaceae</i>	19	2,57
10	<i>Asparagaceae</i>	19	2,57
11	<i>Amaranthaceae</i>	17	2,30
12	<i>Papaveraceae</i>	17	2,30
13	<i>Plantaginaceae</i>	16	2,17
14	<i>Rosaceae</i>	14	1,89
15	<i>Euphorbiaceae</i>	13	1,76
16	Others	282	38,26
	Total	738	100

In terms of species and subspecies number of taxa, the first order is the order of 19 species and the subspecies taxa and Astragalus. *Allium* (14 spp.), *Salvia* and *Centaurea* (13 spp.), *Alyssum* and *Euphorbia* (12 spp.), *Ornithogalum* (9 spp.), *Convolvulus* and *Silene* (8 spp.), *Achillea*, *Aethionema*, *Medicago*, *Papaver*, *Veronica* (7 spp.), *Bupleurum*, *Crocus*, *Gagea*,

Gypsophila, *Orobanch*, *Scorzonera* (6 spp.), *Anthemis*, *Consolida*, *Dianthus*, *Hypericum*, *Scabiosa*, *Trifolium*, *Verbascum* (5 spp.), 484 species and subspecies were identified as taxa, while *Acantholimon*, *Bromus*, *Colchicum*, *Genista*, *Linaria*, *Nepeta*, *Onobrychis*, *Onosma*, *Poa*, *Ranunculus*, *Rosa*, *Scutellaria*, *Thlaspi*, *Tragopogon* (4 spp.) (Table 2).

Table 2. The richest species in the study area.

No	Genera	Number of Species	Rate (%)
1	<i>Astragalus</i>	19	2,57
2	<i>Allium</i>	14	1,89
3	<i>Centaurea</i> , <i>Salvia</i>	13	1,76
4	<i>Alyssum</i> , <i>Euphorbia</i>	12	1,62
5	<i>Ornithogalum</i>	9	1,22
6	<i>Convolvulus</i> , <i>Silene</i>	8	1,08
7	<i>Achillea</i> , <i>Aethionema</i> , <i>Medicago</i> , <i>Papaver</i> , <i>Veronica</i>	7	0,94
8	<i>Bupleurum</i> , <i>Crocus</i> , <i>Gagea</i> , <i>Gypsophila</i> , <i>Orobanch</i> , <i>Scorzonera</i>	6	0,81
9	<i>Anthemis</i> , <i>Trifolium</i> , <i>Consolida</i> , <i>Verbascum</i> , <i>Dianthus</i> , <i>Hypericum</i> , <i>Scabiosa</i>	5	0,67
10	<i>Acantholimon</i> , <i>Bromus</i> , <i>Colchicum</i> , <i>Genista</i> , <i>Linaria</i> , <i>Nepeta</i> , <i>Onobrychis</i> , <i>Onosma</i> , <i>Poa</i> , <i>Ranunculus</i> , <i>Rosa</i> , <i>Scutellaria</i> , <i>Thlaspi</i> , <i>Tragopogon</i>	4	0,54
	Others	475	64,45
	Total	738	100

Out of the 243 species and subspecies taxa whose phytographic regions are already known, 152 (20,6%) species and subspecies taxa were Iran-Turan phytogeographical area elements, 42 (5,6%) species and subspecies taxa were Mediterranean phytogeographical area elements, 38 (5,1%) species and subspecies taxa were from Europe-Siberia phytogeographical area element, and 478 (64,7%) species and subspecies taxa were unknown phytogeographical areas or were multiareal (Table 3).

Table 3. Distribution of Species and Subalpine Taxa in Research Area by Phytogeographic Region.

Phytogeographic Region	Number of Species	Rate (%)
Iran-Turan	152	20,6
Mediterranean	42	5,6
E. Mediterranean	27	3,6
Euro-Siberian	38	5,1
Multi-Region or Unknown	478	64,7
Total	738	100

Out of the 738 species and subspecies taxa that were detected in our study area, 130 were endemic and the rate of endemism of these species and subspecies taxa was determined as 17.61%.

The distribution of the endemic and non-endemic species according to the danger class specified by the IUCN was determined by using the "Plants of Turkey Red Book" (Ekim et al., 2000). Out of the 137 endemic taxa in the Study Area, 6 were EN, 9 were VU, 4 were CR, 22 were NT and 97 were in LC category.

4. Conclusions and discussion

According to the P. H. Davis's (1965) grid system, a large part of Eskişehir province is located in B3, a smaller part is located in south-east B4, and another smaller part is located in north part in A3 square. From March of 2012 to October of 2015, a total of 56 days' Field Study was conducted in the study area. As a result of the field studies, 1850 samples were collected and 354 genera of 72 families and 738 species and subspecies taxa of these species were identified in the diagnoses. Specified species were compared to those reported in similar studies conducted in the previous years near the study area.

The Asteraceae family ranked the first in terms of the number of taxa it possesses in the study area and in other studies conducted around the study area. Asteraceae family is the world's and Turkey's largest family, and the result is natural. The Brassicaceae, which ranks the second in terms of the taxa it has in the flora of Turkey (Yücel et al., 2010). When the ranks of the other families were examined, it was determined that they show approximately parallel family ranking in the flora of Turkey. The reason why Scrophulariaceae, which is important for the flora of Turkey, was not included in the list was due to the fact that the taxon list was prepared as based on the APG III system.

The taxonomic location of many genera, species and subspecies has changed in the APG III system. These results have caused that some families like Amaranthaceae that were normally not in the list among the first 10 were included in the list. All the previous studies compared in terms of location were in the same phytogeographical region with the study area. Parallel to this, in all studies, the richest phytogeographical region in terms of the number of the taxa is Iran-Turan elements. The Mediterranean Phytogeographical region ranks the second in terms of the number of the taxa; and the Euro-Siberian Phytogeographical region ranks the last in all previous studies.

When *Astragalus* is the first order, *Salvia*, *Silene*, *Centaurea*, *Allium* and *Alyssum* are followed by the most taxa-containing breeds found in the study. Turkey is *Astragalus* first place in the ranking of the Flora family that is in line with the results obtained from this study area. When investigated by other researches, *Salvia* took the first place and *Allium* was in the second place in the research field.

All of the 738 species and subspecies taxa determined in the study area were endemic and the endemism rate was 17.61%. This rate is lower than the 31.82% endemism rate in Turkey. The area that is the richest region in Turkey in terms of the phytogeographical region and the number of the endemic taxa is Iran and Turan phytogeographical area. The Mediterranean and Europe-Siberian phytogeographical area follow this area. In the light of the data received in the study area it is observed that this ranking, which depended on the endemism rate in Turkey, is similar to the findings.

Most of the step areas in the study area are used as agricultural areas especially if they are near the villages. Aside from these, the areas that are not suitable for agriculture and the surrounding areas are left open to grazing. In these unprotected areas, there is a defective vegetation. As a result of the cutting down of the trees (especially of the oaks) in order to burn at homes, forest formations were largely destroyed; and they are replaced by step formations where especially *Astragalus* dominated. There are no plant covers under the *Astragalus* groups, which reveals the extent of intense pressure and damage on the diversity of the species. Erdoğan (2011) and Türe (2002) conducted studies and made syntaxonomic and floristic analyses for the vegetation cover of Sivrihisar Mountains (Eskişehir); and mentioned about gypsicol step vegetation and flora in the area.

With the present study, the relationship between the gypsiferous and marn lands in Eskişehir and the vegetation cover has been determined; and the lack of data in the literature relevant to the vegetation cover and species diversity in this area has been resolved.

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