

Flora of Yaylacık Research Forest in Karabük Yenice, Turkey

Yaylacık Araştırma Ormanının Florası (Karabük-Yenice)

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ABSTRACT

This study was conducted to reveal the floristic composition of Yaylacık Research Forest (YRF), which is a part of Karabük Yenice Forests. Exactly 526 taxa belonging to 73 families were identified between 2004 and 2007. The number of endemic taxa was 21, and the rate of endemism was 4%. The International Union for Conservation of Nature (IUCN) classified the threat categories of the endemic taxa as follows: 1 taxon in data deficient (DD) category, 2 taxa in Vulnerable (VU) category, 4 taxa in near threatened (NT) category, and 14 taxa in least concern (LC) category. In the YRF, 39.3% (207) of taxa were included in Euro-Siberian, 4.4% (23) in Mediterranean, and 1.5% (8) in Irano-Turanian phytogeographical regions. The number of pluriregional or unknown taxa was 288, which constitutes 54.8% of the total number of taxa. Asteraceae (69 taxa; 13.1%), Poaceae (44 taxa; 8.4%), Fabaceae (43 taxa; 8.2%), Lamiaceae, Rosaceae, and Apiaceae (28 taxa; 5.3%), Brassicaceae (20 taxa; 3.8%), Caryophyllaceae (19 taxa; 3.2%), Plantaginaceae (15 taxa; 2.9%), and Orchidaceae (14 taxa; 2.7%) were the families with the most taxa in the study area. Genera with the most taxa were *Hieracium* (11), *Trifolium* (10), *Veronica* (10), *Vicia* (8), *Galium* (7), *Campanula* (7), *Ranunculus* (6), and *Silene* (6). In addition, *Bromus*, *Carex*, *Epilobium*, *Euphorbia*, *Poa*, *Salvia*, and *Verbascum* are genera represented by 5 taxa in the study area. In YRF, hemicryptophytes were ranked first (with 305 taxa), followed by Therophytes (86), Phanerophytes (56), Cryptophytes (55), Chamaephytes (17), and parasitic plants (7).

Keywords: Flora, vascular plants, exsine, life form

ÖZ

Bu çalışma Karabük – Yenice ormanlarının bir parçası olan Yaylacık Araştırma Ormanı'nın vasküler bitki türlerini ortaya çıkarmak amacıyla yapılmıştır. 2004-2007 yılları arasında 73 familyaya ait 526 takson tespit edilmiştir. Endemik taksonların sayısı 21 olup endemizm oranı% 4'tür. Endemik taksonların IUCN tehdit kategorileri şu şekilde sınıflandırılmıştır; DD kategorisinde 1 takson, VU kategorisinde 2 takson, NT kategorisinde 4 takson ve LC kategorisinde 14 takson. Araştırma Ormanında taksonların %39,3'ü Avrupa-Sibirya (207), %4,4'ü Akdeniz (23), %1,5'i Irano-Turan (8) fitocoğrafik bölgelerinde yer almaktadır. Çok bölgeli veya bilinmeyen takson sayısı 288'dir. Çok bölgeli taksonlar, toplam takson sayısının %54,8'ini oluşturmaktadır. Çalışma alanında en fazla taksona sahip familyalar, Asteraceae (69 takson; %13,1), Poaceae (44 takson; %8,4), Fabaceae (43 takson; %8,2), Lamiaceae, Rosaceae ve Apiaceae (28'er takson; % 5.3), Brassicaceae (20 takson; %3.8), Caryophyllaceae (19 takson; %3,2), Plantaginaceae (15 takson; %2,9) ve Orchidaceae (14 takson; %2,7)'dir. En fazla taksona sahip cinsler sırasıyla *Hieracium* (11), *Trifolium* (10), *Veronica* (10), *Vicia* (8), *Galium* (7), *Campanula* (7), *Ranunculus* (6), *Silene* (6)'dir. Bunlara ilave olarak *Bromus*, *Carex*, *Epilobium*, *Euphorbia*, *Poa*, *Salvia* ve *Verbascum* 5'er taksonla temsil edilmektedir. Araştırma ormanında hemikriptofitler 305 takson ile ilk sırada yer alırlar. Bunu sırasıyla terofitler (86), fanerofitler (56), kriptomitler (55), kamafitler (17) ve parazit bitkiler (7) takip etmektedir.

Anahtar Kelimeler: Flora, iletim demetli bitkiler, öksin, hayat formu

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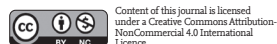
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INTRODUCTION

Floristic studies reveal the flora and species richness of a particular region, mountain, habitat, among other areas. These studies do not only reveal a list of species in a particular area, but reveal the desired habitat of plant species. In addition, these studies enable the identification and registration of the distribution areas of plant species. It also reveals changes in morphological characteristics that

can develop depending on the habitat conditions. As a matter of fact, herbarium samples created with floristic studies are important sources that can be used in taxonomic studies, since they reduce time and workload (Yaltırık and Efe, 1996).

As written by P.E. Boissier (1865-1888), "Flora orientalis" was the first literary work belonging to the Flora of Turkey (Güner et al., 2012). Later, as written by P.H. Davis (1965-1988) and other botanists, and edited by P.H. Davis, "Flora of Turkey and the East Eagean Islands" comprises 9 volumes and one additional volume. With the addition of new plant species and new records, a second additional volume was prepared by Turkish Botanists in 2000 (Güner et al., 2000). Therefore, the volume number of works belonging to the Flora of Turkey increased to 11. There have been changes in the classification of plants as a result of continued floristic studies and introduction of molecular biological studies. In this context, Turkey's Flora began to be rewritten. The first two volumes of the newly writing work were titled "Illustrated Flora of Turkey" (Güner and Ekim, 2014; Güner et al., 2018).

Turkey is a country characterized by different topography, bedrock, altitude, and climatic conditions. It also contains many different habitats which are characterized by the above mentioned variables (Avcı, 1996; Günal, 2013). Therefore, it comprises different habitats and plant species. In addition, it is located at the intersection of three different phytogeographic regions (Davis, 1965). Therefore, Turkey's vegetation and flora needs to be studied in detail.

According to a book titled "Turkey-Vascular Plants Plants List," the native plant number belonging to vascular plant are 11466 in Turkey, while the number of endemic taxa are 3649. With the exotic plants grown in agriculture, parks, and gardens, the number of taxa has reached 11707 (Güner et al., 2012). Moreover, this number is increasing every year with the addition of new taxa.

Flora studies have been conducted around YRF, where forest vegetation takes place: Gerede-Aktaş Forest (GAF) (Akman and Ketenođlu, 1979), Semen Mountain (Akman and Yurdakulol, 1981a), Bolu Mountain (BM) (Akman and Yurdakulol, 1981b), Yedigöller Natural Park (YNP) (Ekim and İlarıslan, 1982), Abant Natural Park (ANP) (Türker and Güner, 2003), Lake Gölçük (LG) (İkinci and Güner, 2007), Kale-Bolu Hazelnut Naturel Protection

Area (KBFNPA) (Arslan et al., 2013), Ovacık-Karabük (OKa) (Dikilitaş et al., 2016); Taşılyayla ve Kızık Surrounding (TKS) (Tunçkol and Akkemik, 2016), Çaltepe and Çeletepe (ÇÇ) (Çelik and Eker, 2020). The lichen flora of YRF was studied by Yurdakulol (2009).

The study area, YRF, has sylvatic communities of different tree species. It is a part of Yenice Forests known as the forest sea, which is one of Turkey's important plant areas. Yenice Forests is one of the best forest habitats in the Western Black Sea region (Özhatay et al., 2005). YRF are the areas allocated for scientific studies. To form a basis for scientific studies, it is important to reveal the basic information about the vegetation, flora, site characteristics, and other living creatures in these areas.

Forest vegetation, which constitutes the dominant vegetation of the study area, was studied by Arslan (2010). There were a total of 282 taxa in the forest vegetation of YRF. However, there was no information about the flora of different habitats such as forest clearance, stream, and roadside. Flora of the study area was studied by Kaptanođlu (1995) as a Master's dissertation and 315 taxa were determined (unpublished data). This work aimed to study the flora of YRF in a more comprehensive way; to identify the plant taxa harboured in the area as well as provide floristic information about the taxa.

MATERIALS AND METHODS

Study Area

The study area, YRF, which was excluded from the Sarıot Region in 1986, is the unit of Yenice Forest Management Directorate. It is located between Karabük Yenice District and Bolu-Mengen District. The total area is 5304 ha, with 58 ha determined as a glade (Anonymous, 2001). The altitude in YRF varies between 700-1654 meters. The study area is located between 32° 06'34"-41° 00'11" east longitudes and 41° 02'34"-40° 59'04" north latitudes (Figure 1). The research area is located in A4 square according to P.H. Davis's grid system (Davis, 1965).

The highest places in YRF are Keçikıran Hill (1654 m), Karaburun (1533 m), Çalgan Hill (1512 m), Dumanlı Hill (1501 m), Mağara Hill (1362 m) and Salavat Hill (1350 m). These spots are located in the southern part of the area. Karabalçık Hill (1481 m) is located at the eastern border. Eymeler Creek and the continuation of Kamışlıgöl Creek are located in the western part of the area. The eastern border is formed by Elmaören and Salavat streams. The most important areas with meadow vegetation are Keçikıran and Karabođa plateaus and Kezađılı.

The study area, YRF, is a part of Yenice Forests, which consists of pure and mixed forest communities with specific composition. The north-facing slopes of YRF host mesophile plant communities, while the south-facing slopes host subhumid plant communities of the Black Sea region. YRF accommodates different vegetation types characterized by changing topographic structure and 900 meter altitude difference in a short distance. In a previous study on the vegetation in YRF, four plant groups and two plant communities were defined in

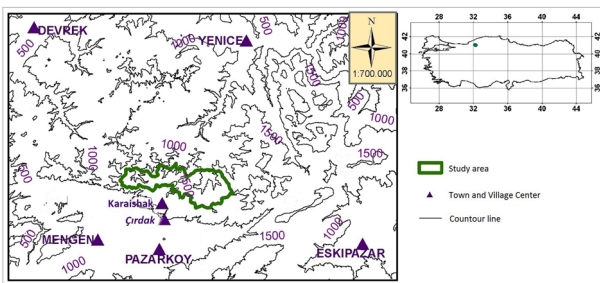


Figure 1. Map showing the topography of the study area (Arslan, 2010)

forest vegetation (Arslan, 2010). Firstly, *Cardamino impatiendis-Fagetum orientalis* association is seen mostly on granite bedrock, and sometimes on rhyolite and limestone bedrock. Secondly, *Ostrya carpinifolia-Carpinetum betuli* association is seen on the limestone bedrock. Thirdly, *Festuco heterophylae-Quercetum ibericae* spreads in granite and rhyolite bedrock in the southern slopes. Fourthly, *Pinetum nigro-sylvestris* association has a limited spread over breccia and limestone, with the exception of northern slopes. The *Fagus orientalis-Fraxinus excelsior* subsp. *excelsior* plant group, which is located in a northern and narrow area, develops on hard limestone bedrock. *Alnus glutinosa* subsp. *glutinosa*-*Petasites hybridus* plant group, consisting of hygrophite species, is located on alluvial soils, where the Salavat Creek bed expands.

According to data obtained from the meteorological station of Yenice District at an altitude of 150 m, annual rainfall is 658.2 mm and average annual temperature is 13.6°C. Bioclimate is the type of transition climate from the cool marine climate to the Mediterranean bioclimate with low rainfall during winter. The study area is located in the Yenice basin. The bioclimate type of the study area was determined as marinal, according to the interpolated climate data for 1000 m elevation of the meteorological station of Yenice District (Arslan, 2010).

Soil types in the study area are gray-brown and podzolized gray-brown forest soils, which are included in the category of brown soils that were previously included in the vegetation study conducted by Arslan (2010) in YRF. Since the YRF has a rainy climate, the soil exhibits an acidic reaction caused by washing.

Field and Laboratory Works

The flora of YRF was collected in 2004-2007 during a survey conducted between April and October. The flowering and fruiting plant samples suitable for herbarium techniques were collected from 38 different locations in different habitats and vegetation periods and were dried (Yaltrık and Efe, 1996). Data on the samples habitat and some environmental features were recorded. Plant specimens were identified using "Flora of Turkey and the East Aegean Islands" (Davis, 1965-1985; Davis et al. 1998; Güner et al., 2000) and "Flora Europaeae" (Heywood and Tutin, 1964-1981). "English-Turkish Botanical Guide" (Baytop, 1998) was used to identify/interpret the botanical terms. Current scientific

names of family, genus, species and infraspecific taxa were given according to "Turkey Plant List." The current information on the work on taxa published before 2013 in the vicinity of the study area after correction according to Turkey's Plants List, family, genus, and endemism comparisons were updated. IUCN Red List categories of endemic taxa were determined according to "Turkey Plant Red Data Book" (Ekim et al., 2000) and "International Union for Conservation of Nature" criteria (IUCN, 2016).

The systematic index of plant species were arranged according to the classification of Angiosperm Phylogeny Group IV (APGIV). In this systematic directory, division, class, order and family were hierarchically stated (Chase, 2016; Stevens, 2017). The systematic position of the Piperales order in APG IV phylogenetic classification has not yet been established. Therefore, taxa of the Aristolochiaceae family were added to Dicotyledoneae and included in the calculations.

In the systematic directory, information regarding the author(s) names, habitat, location, elevation, collection date, collector, collector number, life form, endemism, threat category, and phytogeographical region of each taxon were given. Euxine, Hyrcano-Euxine elements were evaluated in the Euro-Siberian floristic region. East Mediterranean (mt) were included in the Mediterranean floristic region. Abbreviations used in the Flora List were provided in Appendix 1 and Appendix 2.

Herbarium samples were kept in the Herbarium of the General Directorate of Forestry, Ankara Forestry Research Institute (ANKO) and the herbarium of the Forest Soil and Ecology Research Institute.

RESULTS AND DISCUSSION

The dominant vegetation types in the north and south location of YRF are *Fagus orientalis* (oriental beech) and *Quercus petraea* subsp. *Iberica*, respectively. *Abies nordmanniana* subsp. *equitrojana* was mixed with oriental beech, but after an elevation of 1500 meters, it becomes more dominant than the oriental beech. Additionally, in YRF, *Pinus sylvestris* and *Pinus nigra* subsp. *pallasiana* were mixed with oriental beech, although pure and mixed communities were seen. *Carpinus betulus-Ostrya carpinifolia* and *Alnus glutinosa* subsp. *glutinosa* were spread in limited areas in Güneyören and Salavat stream. The shrub layer of oriental beech forest was dominated by *Rhododendron ponticum*.

Exactly 526 taxa belonging to 73 families were identified in YRF. While 517 taxa were in the Spermatophyta division, the remaining 9 taxa belong to the Pteridophyta (1.7%) division (Figure 2, Appendix 3). There were 5 Gymnospermae taxa and 512 Angiospermae taxa in the Spermatophyta division. 81.0% (426 taxa) of Angiospermae taxa belong to the Dicotyledoneae, while 16.4% (86 taxa) belong to the Monocotyledoneae. The number of endemic taxa was 21, while the rate of endemic taxa was 4%. According to the IUCN, the number of endemic taxa was classified as follows: 1 taxon in DD, 2 taxa in VU, 4 taxa in NT and 14 taxa in LC (Appendix 3).

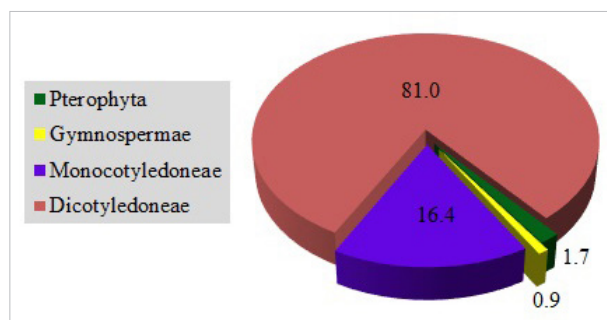


Figure 2. Rates of taxa in the upper taxonomic categories (%)

In YRF, 39.3% of the taxa were included in Euro-Siberian, 4.4% in Mediterranean, and 1.5% in Irano-Turanian phytogeographical regions. The remaining 288 taxa were included in the multi-region or unknown group (Figure 3, Appendix 3). 40 taxa of Euro-Siberian phytogeographical region were Euxine sub-region elements, while 9 taxa were Hyrcano-Euxine sub-region elements (Appendix 3).

The top 10 families of the most dominant taxa were Asteraceae (69), Poaceae (44), Fabaceae (43), Lamiaceae (28), Rosaceae (28), Apiaceae (28), Brassicaceae (20), Caryophyllaceae (19), Plantaginaceae (15) and Orchidaceae (14) (Figure 4). The other families account for 41.4% of the total number of taxa.

The distribution of the first genus with the most dominant taxa are shown in Figure 5. The first 8 general were: *Hieracium* (11), *Trifolium* (10), *Veronica* (10), *Vicia* (8), *Galium* (7), *Campanula* (7), *Ranunculus* (6) and *Silene* (6). The 9th and 10th row genera were also represented by 5 taxa (*Bromus*, *Carex*, *Epilobium*, *Euphorbia*, *Poa*, *Salvia*, and *Verbascum*).

In YRF, hemicryptophytes were represented by 305 taxa and their ratio among all taxa was 58%. This was followed by Therophytes (86 taxa), Phanerophytes (56 taxa), Cryptophytes (55 taxa), Chamaephytes (17 taxa) and parasitic plants (7 taxa) (Figure 6).

The total number of taxa in YRF was 526 and was ranked 4th in terms of species richness compared to other flora studies. The highest species richness was found in Çaltepe-Çeletepe (Bolu) (Çelik and Eker, 2020) with 767 taxa numbers (XIth); ANP (Türker and Güner, 2003) with 674 taxa (VIIth); and around Taşlyayla-Kızık (Tunçkol and Akkemik, 2016) with 575 taxa (Xth) (Table 1).

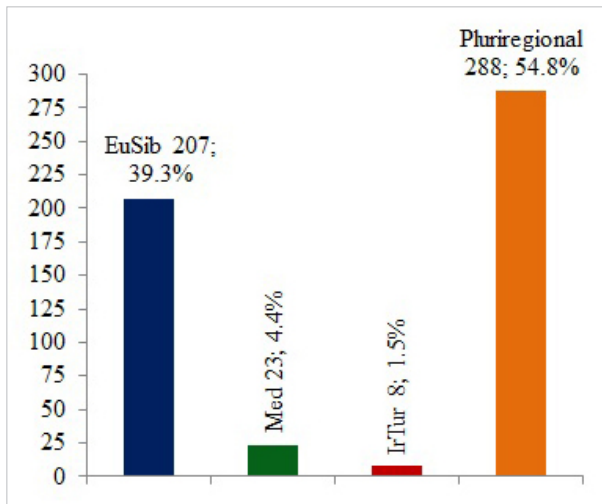


Figure 3. Distribution of taxa to phytogeographical regions

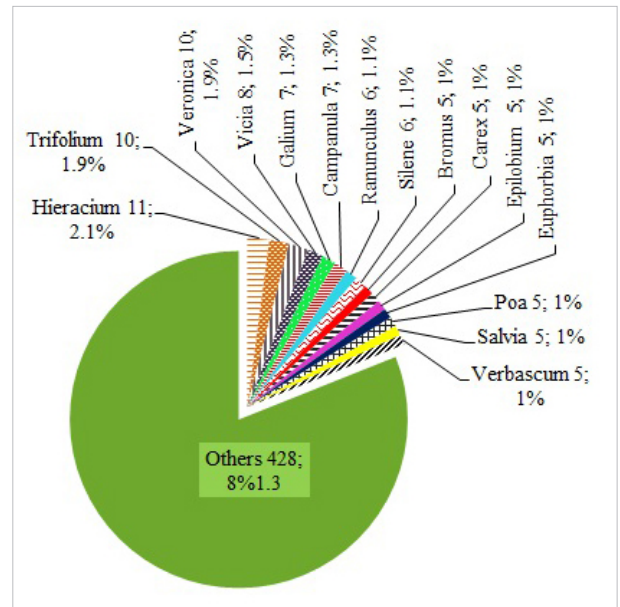


Figure 5. The first 10 genera with the most dominant taxa

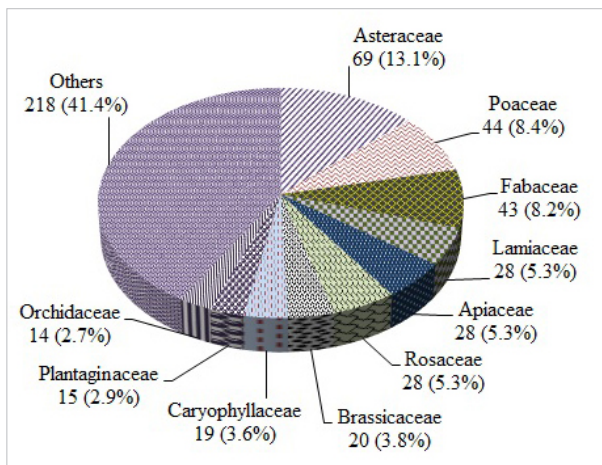


Figure 4. Top 10 families with the most dominant taxa

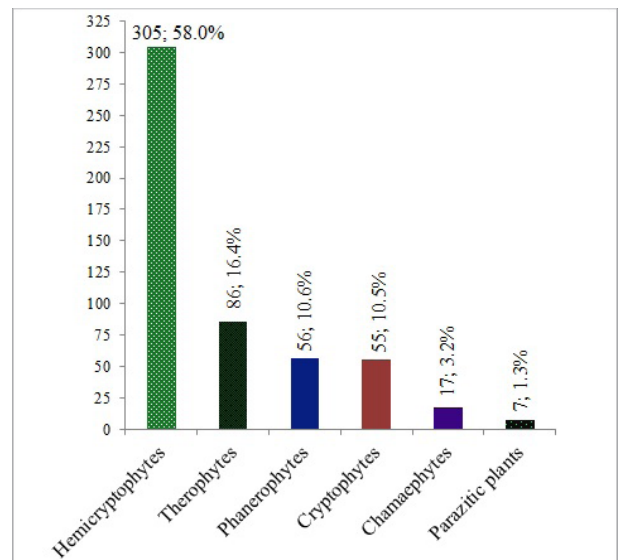


Figure 6. Life form spectrum of plant taxa

Table 1. Comparison of phytogeographical regions and endemism rates with other studies

Floristic Studies	Floristic Region (Taxon Number / %)					Endemic Taxon Number	Endemism Percentage (%)
	Euro-Siberian	Mediterranean	Irano-Turanian	Unknown	TOTAL		
I	207/39.3	23/4.4	8/1.5	288/54.8	526/100	21	4.0
II	92/38.3	12/5.0	6/2.5	130/54.2	240/100	14	5.8
III	68/21.6	19/6.0	35/11.1	193/61.3	315/100	28	8.9
IV	103/36.1	13/4.6	14/4.9	155/54.4	285/100	22	7.7
V	91/33.4	25/9.2	9/3.3	147/54.1	272/100	17	6.3
VI	80/34.2	11/4.7	3/1.3	140/59.8	234/100	13	5.6
VII	181/26.8	37/5.5	33/4.9	423/62.8	674/100	51	7.6
VIII	134/28.5	26/5.5	11/2.3	300/63.7	471/100	15	3.2
IX	43/18.2	29/12.2	24/10.1	141/59.5	237/100	15	6.3
X	129/22.5	52/9.1	57/9.9	337/58.5	575/100	66	11.5
XI	234/30.5	64/8.3	46/6.0	423/55.2	767/100	66	8.6

I: Arslan and Ketenoğlu, II: KBNPA (Arslan et al., 2013); III: GAF (Akman and Ketenoğlu, 1979); IV: BSM (Akman and Yurdakulol, 1981a); V: BM (Akman and Yurdakulol, 1981b); VI: YNP (Ekim and Ilarslan, 1982); VII: ANP (Türker and Güner, 2003); VIII: LG (İkinci and Güner, 2007); IX: Oka (Dikilitaş et al., 2016); X: TKS (Tunçkol and Akkemik, 2013; Tunçkol and Akkemik, 2016); XI: ÇÇ (Çelik and Eker, 2020).

The region with the most flora elements in YRF was the Euro-Siberian flora region (207 taxa), constituting 39.3% of the total number of taxa. In other studies, the proportion of Euro-Siberian flora elements was between 18.2% and 38.3% (Table 1).

When the study area and other studies previously conducted around the study area were examined, Mediterranean flora elements were ranked second, excluding studies on GA (IIIth) (Akman and Ketenoğlu, 1979), TKS (Xth) (Tunçkol and Akkemik, 2016) and BSM (IVth) (Akman and Yurdakulol, 1981a), while Irano-Turanian elements were ranked third. Gerede-Aktaş (III), Bolu-Semen (IV) and Taşlıyayla-Kızık (X) districts are located in the southern of the Black Sea Region. It is closer to the Iran-Turanian phytogeographical region than other studied regions. Therefore, the effect of the Irano-Turanian flora region is seen more in these districts.

The number of endemic taxa in Europe-Siberian phytogeographical region is very low when compared to other phytogeographical regions (Davis, 1975). There were 21 endemic taxa in YRF. Although it was ranked 6th in terms of the number of endemic taxa compared to other studies, it is ranked last in terms of endemism rate (4%). The reason for this may be that the widespread vegetation type of the study area is forest and that the most common forest community is oriental beech forests. Plant species richness and diversity in beech forests are less than those of other plant communities (Arslan et al., 2019). Among the floristic studies conducted in YRF and its surroundings, the highest endemism rate was determined in TKS (Xth) (Tunçkol and Akkemik, 2013), with 11.5%. The difference in the endemism rate can be explained by its proximity to the Irano-Turanian phytogeographical region. The endemism rate of vascular plant taxa distributed in Turkey was reported to be

31.82% (Güner et al., 2012). When compared with all of Turkey, endemism rates of previous floristic studies conducted in Bolu and Karabük provinces are less (6%).

The eastern of Euro-Siberian phytogeographical region in Turkey is similar to the Hyrcanian province located in the northern part of Iran. In addition, the west of Euro-Siberian phytogeographical region shows similarity with Balkans and Central Europe (Davis, 1971). Although the study area is located in the Western Black Sea region, it contains 9 Hyrcano-Euxine flora elements.

It was observed that Asteraceae, Poaceae, Fabaceae, Rosaceae, and Lamiaceae have the highest taxon number, except for Dikilitaş et al. (2016) (Table 2). However, Fabaceae, Asteraceae, Poaceae, Caryophyllaceae and Plantaginaceae in Gerede-Aktaş forests (IIIth) (Akman and Ketenoğlu, 1979), and Fabaceae, Asteraceae, Lamiaceae, Poaceae, and Brassicaceae in Taşlıyayla and Kızık (Xth) (Tunçkol and Akkemik, 2016) were included in the first 5 families. Both study areas were under the influence of the Euro-Siberian and Irano-Turanian phytogeographical regions. The families with the highest taxa in all the studied areas was Fabaceae (Akman and Ketenoğlu, 1979, Akman and Yurdakulol, 1981a, Akman and Yurdakulol, 1981b, Dikilitaş et al., 2016; Ekim and Ilarslan, 1982; İkinci and Güner, 2007; Tunçkol and Akkemik, 2016; Türker and Güner, 2003) and Asteraceae (Arslan and Ketenoğlu, Arslan et al., 2013; Çelik and Eker, 2020; Türker and Güner, 2003). These families were followed by Lamiaceae, Poaceae, Rosaceae, Caryophyllaceae, Brassicaceae, Apiaceae, Plantaginaceae, and Boraginaceae. When we compare the top 10 families identified in YRF with those of other studies, it is found that our study area is similar to other study areas with sylvatic communities. As a matter of fact, similar plant communities

Table 2. Comparison of surveys according to the largest 10 families (Taxa numbers-Percentages)

Family	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
Asteraceae	69-13.1	20-8.3	27-8.6	21-7.4	25-9.2	25-10.7	69-10.2	44-9.3	25-10.6	56-9.8	97-12.6
Poaceae	44-8.4	13-5.4	17-5.4	17-5.9	15-5.5	11-4.7	55-8.2	41-8.7	6-2.5	32-5.6	37-4.8
Fabaceae	43-8.2	16-6.7	35-11.1	27-9.5	28-10.3	26-11.1	48-7.1	45-9.6	28-11.8	61-10.6	62-8.1
Rosaceae	28-5.3	19-7.9	16-5.1	21-7.4	18-6.6	13-5.5	36-5.3	25-5.3	14-5.9	26-4.5	44-5.7
Lamiaceae	28-5.3	15-6.3	16-5.1	19-6.7	22-8.1	13-5.5	45-6.7	25-5.3	18-7.6	42-7.3	51-6.6
Apiaceae	28-5.3	8-3.3	10-3.2	-	8-2.9	11-4.7	20-3.0	18-3.8	5-2.1	-	28-3.7
Brassicaceae	20-3.8	9-3.8	15-4.7	17-5.9	-	6-2.6	30-4.4	19-4.0	14-5.9	31-5.4	35-4.6
Caryophyllaceae	19-3.6	10-4.2	17-5.4	14-4.9	8-2.9	10-4.3	26-3.9	18-3.8	6-2.5	26-4.5	32-4.2
Plantaginaceae	15-2.9	8-3.3	17-5.4	10-3.5	10-3.7	-	22-3.2	-	10-4.2	14-2.4	-
Boraginaceae	-	7-2.9	14-4.4	9-3.2	-	-	-	15-3.2	12-5.1	17-3.0	27-3.5
Orchidaceae	14-2.7	-	-	-	-	-	-	13-2.8	-	-	24-3.1
Ranunculaceae	-	-	-	11-3.9	-	-	20-3.0	-	-	19-3.3	-
Liliaceae	-	-	-	-	-	-	-	-	-	14-2.4	-
Rubiaceae	-	-	-	9-3.2	-	5-2.1	-	-	-	-	-
Campanulaceae	-	-	-	-	10-3.7	-	-	-	-	-	-
Ericaceae	-	-	-	-	10-3.7	5-2.1	-	-	-	-	-
Asparagaceae	-	-	-	-	-	-	-	-	5-2.1	-	-
Iridaceae	-	-	-	-	-	-	-	-	5-2.1	-	-
Others	-	-	-	-	-	-	-	-	5-2.1	-	-
Others	218-41.4	115-47.9	131-41.6	110-38.5	118-43.4	109-46.6	303-44.9	208-44.2	98-41.4	237-41.2	330-43.0

I: Arslan and Ketenoğlu, II: KBNPA (Arslan et al., 2013); III: GAF (Akman and Ketenoğlu, 1979); IV: BSM (Akman and Yurdakulol, 1981a); V: BM (Akman and Yurdakulol, 1981b); VI: YNP (Ekim and İlarlan, 1982); VII: ANP (Türker and Güner, 2003); VIII: LG (İkinci and Güner, 2007); IX: Oka (Dikilitaş et al., 2016); X: TKS (Tunçkol and Akkemik, 2016); XI: ÇÇ (Çelik and Eker, 2020). (III, IV, V, VI, VII, VIII, IX: Families in these studies have been updated)

were seen in study areas ranked IIth, VIIth, and XIth. In YRF, the number of taxa in the top 10 families account for 58.6% of the total plant composition. In other studies, this proportion varies between 52.1%–61.5% (Table 2).

While *Hieracium* was not among the top 10 genera in the previously conducted floristic studies in Bolu and Karabük, the first genus with the most dominant taxa in YRF was *Hieracium*. Apart from *Hieracium*, other species with the most dominant taxa in YRF were similar to those of others studies conducted around YRF (Table 3). In the Xth study, which was under the influence of the Euro-Siberian and Irano-Turanian floristic regions, *Astragalus* took the first place (14 taxa). Unlike other studies, *Geranim* (XIth) (Çelik and Eker 2020), *Campanula* in BM (Vth) (Akman and Yurdakulol, 1981b) and *Vicia* in Gölçük Lake (VIIIth) (İkinci and Güner, 2007) were in the first place. In all studies, *Trifolium* had 5–12 taxa and was among the first 5 genera. *Veronica* was among the top 5 genera in others studies except those ranked Vth (Akman and Yurdakulol, 1981b), VIth (Ekim and İlarlan, 1982), and Xth (Tunçkol and Akkemik, 2016), and it had 6–15 taxa. In the studies conducted in YRF and its surrounding area, *Silene* (4–12), *Ranunculus* (6–11) and *Campanula* (4–10) were among the top 10 genera.

Hemichryptophytes, one of the life forms of YRF plant taxa, took the first rank with 305 taxa (58%). This was followed by Therophytes (86), Phanerophytes (56), Cryptophytes (55), Chamaephytes (17) and parasitic plants (7). In the study conducted in TKS (Xth) (Tunçkol and Akkemik, 2016), life forms of taxa were listed in the same way. According to the sylvatic vegetation in YRF, hemichryptophytes ranked first with 143 taxa, while cryptophytes (56) ranked second and phanerophytes (52) ranked third (Arslan, 2010). In the forest vegetation in YRF, Therophytes (13) ranked last; however, in our study, it ranked second when all vegetation types (grassland, ruderal, riparian) in YRF are considered. In a climax forest vegetation, the rate of Therophytes is low.

CONCLUSION

YRF has an area of 5304 ha and the number of endemic species in this area was 21. Endemism rate was 4%, which is quite low. However, it has a very important role in terms of species richness. YRF is a home of 526 taxa. YRF is a part of the Yenice Forests, which is one of the important plant areas. It has a special importance in terms of conservation of biological resources.

The data obtained in this study, in which the floristic features of the Research Forest are revealed, will provide a basis for the con-

Table 3. Comparison of taxa number and the percentage belonging to the largest 10 genera with other studies

Floristic studies	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
1	Hie 11-2.1%	Ver 6-2.5%	Ver 12-3.8%	Ver 7-2.5%	Cam 9-3.3%	Tri 9-3.9%	Ver 15-2.2%	Vic 12-2.5%	Ver 8-3.4%	Ast 14-2.4%	Ger 12-1.6%
2	Tri 10-1.9%	Tri 5-2.0%	Tri 9-2.9%	Ran 6-2.1%	Que 6-2.2%	Cam 4-1.7%	Crx 13-1.9%	Tri 11-2.3%	Tri 5-2.1%	Tri 12-2.1%	Sil 12-1.6%
3	Ver 10-1.9%	Sil 5-2.0%	Lat 7-2.2%	Poa 6-2.1%	Tri 6-2.2%	Lat 4-1.7%	Ran 11-1.6%	Vio 7-1.5%	Myo 4-1.7%	Ran 10-1.7%	Sal 11-1.4%
4	Vic 8-1.5%	Poa 4-1.7%	Ran 6-1.9%	Gal 5-1.8%	Ast 4-1.5%	Sil 4-1.7%	Tri 10-1.5%	Ver 6-1.3%	Pol 4-1.7%	Sil 9-1.6%	Tri 10-1.3%
5	Gal 7-1.3%	Ger 4-1.7%	Myo 6-1.9%	Tri 5-1.8%	Sal 4-1.5%	-	All 9-1.3%	Bro 6-1.3%	Vio 4-1.7%	All 9-1.6%	Ver 10-1.3%
6	Cam 7-1.3%	Cam 4-1.7%	Ast 6-1.9%	Cro 5-1.8%	Sil 4-1.5%	-	Gal 8-1.2%	Poa 6-1.3%	-	Cen 9-1.6%	Cam 10-1.3%
7	Ran 6-1.1%	Gal 4-1.7%	Cam 6-1.9%	Crx 5-1.8%	-	-	Sal 7-1.0%	Dia 6-1.3%	-	Hyp 8-1.4%	Ran 8-1.0%
8	Sil 6-1.1%	All 4-1.7%	Sil 5-1.6%	Car 5-1.8%	-	-	Poa 7-1.0%	Eup 6-1.3%	-	Ver 7-1.2%	Eup 8-1.0%
9	Bro 5-1.0%	Lam 4-1.7%	Gal 5-1.6%	Eup 5-1.8%	-	-	Ast 7-1.0%	-	-	Que 7-1.2%	Vic 8-1.0%
10	Crx 5-1.0%	-	Sed 5-1.6%	-	-	-	Rum 7-1.0%	-	-	Lat 7-1.2%	Poa 7-0.9%
11	Epi 5-1.0%	-	Hyp 5-1.6%	-	-	-	Hyp 7-1.0%	-	-	Eup 7-1.2%	-
12	Eup 5-1.0%	-	Epi 5-1.6%	-	-	-	-	-	-	Vio 7-1.2%	-
13	Poa 5-1.0%	-	-	-	-	-	-	-	-	-	-
14	Sal 5-1.0%	-	-	-	-	-	-	-	-	-	-
15	Vrb 5-1.0%	-	-	-	-	-	-	-	-	-	-
Others	428 81.3%	200 83.3%	238 75.5%	236 82.8%	239 87.8%	213 91.0%	573 85.0%	411 87.2%	212 89.5%	469 81.6%	671 87.5%
Total Numbers of Taxa	526	240	315	285	272	234	674	471	237	575	767

All: Allium; Ast: Astragalus; Bro: Bromus; Cam: Campanula; Car: Cardamine; Cro: Crocus; Crx: Carex; Dia: Dianthus; Epi: Epilobium; Eup: Euphorbia; Gal: Galium; Ger: Geranium; Hie: Hieracium; Hyp: Hypericum; Lam: Lamium; Lat: Lathyrus; Myo: Myosotis; Pol: Polygala; Ran: Ranunculus; Rum: Rumex; Que: Quercus; Sed: Sedum; Sal: Salvia; Sil: Silene; Tri: Trifolium; Vrb: Verbascum; Ver: Veronica; Vic: Vicia; Vio: Viola.

servation of target species as well as for monitoring the future changes. In addition, findings from this study can be employed in the research of plants that can be used as food, paint, medicine, perfumery, and ornaments.

As a future perspective, it is appropriate to re-evaluate the *Hieracium* species identified in the field and diagnosed as *Hieracium aff. mannagettae*, which was evaluated in the DD category, by re-gathering the samples from the study area.

Ethics Committee Approval: The subject of this study does not include humans or animals. Therefore, the ethics committee approval was not necessary for this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – M.A.; Design – M.A.; Supervision – O.K.; Resources – M.A.; Materials – M.A.; Data Collection and/or Processing – M.A.; Analysis and/or interpretation – M.A.; Literature Search – M.A.; Writing Manuscript – M.A.; Critical Review – M.A., O.K.

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Appendix 1. Locations belonging to collected specimens and other abbreviations.

Locality	Abbreviations	Locality	Abbreviations
Ađaçyurdu Crest	AyC	Yarbaşı Hill	YbH
Ađılbaşı Hill	AbH	Yaylacık Research Forest	YFR
Akçapınar Stream	AkS	Yaylacık Stream	YyS
Akçapınar Location	AkL	Yaylacık Location	YyL
Around Forest Research Center	AFRC	Yaylacık Hill	YyH
Bulanıksu Stream	BsS	Yumrutaş Location	YuL
Çaldıran Hill	ÇİH	Yumrutaş Hill	YuH
Çalğan Hill	ÇğH	Affinity	aff.
Dođan Hill	DoH	Chamaephytes	Chp
Dumanlı Hill	DuH	Chrytophytes	Crp
Elmaören Hill	EİH	Euro-Siberian element	EuSib
Elmaören Plateau	EİP	East	E
Elmaören Location	EİL	Endemic	End
Eymeler Stream	EyS	Euxine	Eux
Fındıcak Hill	FİH	Hemichrytophytes	Hcrp
Güneyören Location	GuL	Liana	L
Kamışlıgöl Location	KaL	Hyrcano-Euxine element	HyrEux
Kapisayvan Hill	KpH	Irano-Turanian element	İrTur
Karabođa Plateau	KbP	Mediterranean element	Med
Karakuz Location	KkuL	Mountain	mt
Karaođlan Crest	KoS	Parazitic Plant	PP
Keçikıran Hill	KkH	Phanerophytes	Php
Keçikıran Plateau	KkP	Synonymous	Syn.
Kertilađıl Location	KrL	subspecies	subsp.
Kezađılı Location	KzL	Therophyt	Thp
Kızman Hill	KızT	variety	var.
Kireçlik Crest	KİC	Least Concern	LC
Kurudoruk Hill	KuH	Near Threatened	NT
Salavat Hill	SaH	Vulnerable	VU
Salıtaşı Hill	StH	Data Deficient	DD
Yakacık Crest	YkS		

Appendix 2. Habitats with species and habitat numbers

Habitat	Habitat No	Habitat	Habitat No
Anatolian black pine forest	1	Mixed stands	16
Black pine – oak forest	2	Oak – beech stands	17
Black pine – scotch pine stands	3	Oak forest	18
Beech forest	4	Degraded oak forest	19
Beech-fir forest	5	Rock crevices	20
Beech – fir – scotch pine stands	6	Rocky places	21
Coniferous woodlands	7	Scotch pine forest	22
Deciduous forests	8	Shadow places	23
Degraded black pine forest	9	Sideslope	24
Forest roadside	10	Stand edges	25
Glade	11	Stony places	26
Grasslands	12	Streamsides	27
Hornbeam-hophornbeam	13	Shrublands	28
Humid places	14	Under forest	29
Meadows	15	Wetland	30

Appendix 3. Enumeration of taxa

PTEROPHYTA

EQUISETOPSIDA

EQUISETALES

Equisetaceae

1- *Equisetum hyemale* L., dere kenarı ve sulak alanlar, EIHT, 1200m, 09.09.2004, M.Arslan 205, Crp.

POLYPODIOPSIDA

POLYPODIALES

Aspleniaceae

2- *Asplenium adiantum-nigrum* L., 24, 23, 20, YFR, 780m, 04.08.2004, M.Arslan 211, Hcrp.

3- *Asplenium onopteris* L., 24, 14, YFR, 1000m, 06.07.2004, M.Arslan 210, Hcrp.

4- *Asplenium scolopendrium* L., 8 and 29, 21, 26, YFR, 1340, 14.09.2004, M.Arslan 214, Hcrp.

5- *Asplenium trichomanes* L., 14, 24, 20, GuL, YFR, 930-1650m, 06.07.2004, M.Arslan (212, 213), Hcrp.

Polypodiaceae

6- *Polypodium vulgare* L. var. *vulgare*, 20, KaL, 930m, 21.07.2005, M.Arslan 216, Hcrp.

PTERIOPSIDA

DENNSTAEDTIALES

Dennstaedtiaceae

7- *Pteridium aquilinum* (L.) Kuhn, 29, 10, 27, 750-1600m, Crp.

DRYOPTERIDALES

Dryopteridaceae

8- *Dryopteris filix-mas* (L.) Schott, 5, 29, AFRC; 1350m, 06.10.2004, M.Arslan 207, Hcrp.

9- *Polystichum aculeatum* (L.) Roth., 4, 5, YbH, 1100m, 04.08.2004, M.Arslan 209, Hcrp.

SPERMATOPHYTA

GYMNOSPERMAE

PINOPSIDA

CUPRESSALES

Taxaceae

10- *Taxus baccata* L. 8, 1160-1350m, Php, EuSib.

Cupressaceae

11- *Juniperus oxycedrus* L. subsp. *oxycedrus* var. *oxycedrus*, 18, 19, KzL ve GuL, 980-1550m, 17.05.2006, M.Arslan (217, 218), Php.

PINALES

Pinaceae

12- *Abies nordmanniana* (Steven) Spach subsp. *equi-trojani* (Asc. & Sint. ex Boiss.) Coode & Cullen, 4, 22, 1, 18, 970-1600m, Php, End, LC, Eux.

13- *Pinus nigra* J.F.Arnold subsp. *pallasiana* (Lamb.) Holmboe var. *pallasiana*, pure, 4, 18, 900-1600m, Php.

14- *P. sylvestris* L. var. *hamata* Steven, pure, 4, 1, 6, 1050-1600m, Php, EuSib.

ANGIOSPERMAE

MAGNOLIOPSIDA

PIPERALES

Aristolachiaceae

15- *Asarum europaeum* L., 4, 29, BsS, 13.04.2005, 761m, M.Arslan 647, Hcrp, EuSib.

16- *Aristolachia pontica* Lam., 4, 29, KpH, 26.05.2004, 1200m, M.Arslan 650, Hcrp, Eux.

MONOCOTS

ALISMATALES

Araceae

17- *Arum hygorophilum* Boiss. subsp. *euxinum* (R.R.Mill) Alpinar, 4, KkM, 09.08.2006, 1480m, M.Arslan 884, Crp, End, LC, Eux.

DIOSCOREALES

Dioscoreaceae

18- *Dioscorea communis* (L.) Caddick & Wilkin, 18, 14, 24, AKS, 06.07.2004, 1200m, M.Arslan 626, Crp-L.

LILIALES

Colchicaceae

19- *Colchicum* sp. 13, GuL, 09.07.2007, 1045m, M.Arslan 1211, Crp.

Liliaceae

20- *Fritillaria pontica* Wahlenb. 9, ÇgH, 16.05.2006, 1300m, M.Arslan 903, Crp, EuSib.

21- *Gagea bohémica* (Zauschn.) Schult. & Schult.f., 15, AFRC, 13.04.2005, 1050m, M.Arslan 901, Crp.

ASPARAGALES

Orchidaceae

22- *Cephalanthera damasonium* (Mill.) Druce, 5, EyS, 19.07.2005, 1283m, M.Arslan 735, 1, ÇgH, 08.06.2006, 1280m, M.Arslan 734, Crp, EuSib.

23- *Cephalanthera rubra* (L.) Rich., 18, GuL, 06.07.2004, 1100m, M.Arslan 728, 5, EyS, 19.07.2005, 1283m, M.Arslan 732, Crp.

24- *Dactylorhiza saccifera* (Brongn.) Soó subsp. *saccifera*, 5, SaH, 22.07.2005, 1239m, M.Arslan 754, Crp, E.Med.

25- *Epipactis helleborine* (L.) Crantz, 5, SaH, 22.07.2005, 1239m, M.Arslan 741, Crp.

26- *Epipactis persica* (Soó) Hausskn.ex Nannf., 4, 29, EyS, 13.07.2005, 1177m, M.Arslan 738, Crp.

27- *Epipactis pontica* Taubenheim, 4, 29, EIL, 09.09.2004, 1150m, M.Arslan 736, Crp, Eux.

28- *Epipogium aphyllum* Sw., 5, 29, ÇgH, 19.07.2005, 1283m, M.Arslan 756, Crp, EuSib.

29- *Limodorum abortivum* (L.) Sw. var. *abortivum*, 2, Yks, 13.07.2004, 1210m, M.Arslan 727, Crp.

30- *Neottia nidus-avis* (L.) Rich., 4, 29, KpH, 26.05.2004, 1190m, M.Arslan 742, Crp, EuSib.

31- *Orchis mascula* (L.) L. subsp. *pinetorum* (Boiss. & Kotschy) G.Camus, 11, KzL, 17.05.2006, 1550m, M.Arslan 746, 17, Yks, 30.06.2005, 1216m, M.Arslan 747, Crp, E.Med.

32- *Orchis pallens* L., 4, 11, DoH, 10.05.2005, 1500m, M.Arslan 750, Crp, EuSib?

- 33- *Orchis purpurea* Huds. subsp. *purpurea*, 4, 29, 25, GuL, 10.05.2005, 995m, M.Arslan 751, Crp, EuSib.
34- *Orchis simia* Lam., 9, gH, 08.06.2006, 1321m, M.Arslan 752, Crp, Med?
35- *Platanthera chlorantha* (Cruster) Rehb., 18,7, 2, 1, YyL, 30.06.2005, 1148m, M.Arslan 757, Crp.

Iridaceae

- 36- *Crocus speciosus* M.Bieb. subsp. *speciosus*, 15, KkP, 05.10.2004, 1600m, M.Arslan 885, Crp.
37- *Iris kerneriana* Asch. & Sint. ex Baker, 9, gH, 03.08.2005, 1250m, M.Arslan 886, Crp, End, LC, EuSib.
38- *Iris sintenisii* Janka subsp. *sintenisii*, 9, 24, YyL, 09.06.2006, 1193m, M.Arslan 888, Crp, EuSib.

Amaryllidaceae

- 39- *Allium jubatum* Macbride, 18, YFR, 11.07.2007, 997m, M.Arslan 1213, Crp, Eux.
40- *Allium rupestre* Steven, 26, AbH, 14.09.2005, 1064m, M.Arslan 907, Crp, Eux.
41- *Allium stamenium* Boiss., 19, YFR, 20.07.2006, 997m, M.Arslan 908, Crp, E.Med.
42- *Galanthus plicatus* M.Bieb. subsp. *byzantinus* (Baker) D.A.Webb, 11, 15, KkH, 13.04.2005, 1627m, M.Arslan 883, Crp, End, LC.

Asparagaceae

- 43- *Muscari neglectum* Guss., 18, 7, GuL, 10.05.2005, 785m, M.Arslan 899, Crp.
44- *Ornithogalum wiedemannii* var. *wiedemannii* Boiss., 15, KkP, 10.05.2005, 1620m, M.Arslan 896, Crp.
45- *Polygonatum orientale* Desf., 5, YuH, 08.09.2004, 1300m, M.Arslan 889, Crp, Eux.
46- *Ruscus hypoglossum* L., 4, ElH, 09.09.2004, 1200m, M.Arslan 893, Chp, EuSib.
47- *Scilla bifolia* L., 15, 28, KkH, 13.04.2005, 1607m, M.Arslan 902, Crp, Med.

POALES

Juncaceae

- 48- *Juncus articulatus* L. subsp. *articulatus*, 27, 30, KzL, 17.08.2006, 1430m, M.Arslan 1106, Hcrp, EuSib.
49- *Juncus bufonius* L., 30, gH, 19.07.2005, 1200m, M.Arslan 1112, Thp.
50- *Juncus effusus* L. subsp. *effusus*, 30, AFRC, 09.09.2004, 1050m, M.Arslan 1111, Hcrp.
51- *Juncus inflexus* L. subsp. *inflexus*, 30, KrL, 26.06.2006, 740m, M.Arslan 1115, Hcrp.
52- *Luzula forsteri* (Sm.) DC. subsp. *caspica*, 4, 29, 6, YyL, 01.07.2005, 1110m, M.Arslan 1117, Hcrp, EuSib.
53- *Luzula multiflora* (Ehrh.) Lej subsp. *multiflora*, 15, KkP, 14.07.2004, 1610m, M.Arslan 1118, Hcrp.

Cyperaceae

- 54- *Carex flacca* Schreb. subsp. *erythrostachys* (Hoppe) Holub, 18, GuL, 10.08.2006, 871m, M.Arslan 1103m, Hcrp, Med.
55- *Carex pendula* Hudson, 4, 30, 1075-1200m, Hcrp, EuSib.

- 56- *Carex remota* L., 5, YyL, 13.07.2004, 1210m, M.Arslan 1102, Hcrp, EuSib.
57- *Carex spicata* Huds., 15, KkP, 14.07.2004, 1610m, M.Arslan 1100, Hcrp, EuSib.
58- *Carex sylvatica* Huds. subsp. *sylvatica*, 4, YyL, 01.07.2005, 1100m, M.Arslan 1101, Hcrp, EuSib.

Poaceae

- 59- *Agrostis canina* L., 15, DuH, 21.08.2006, 1300m, M.Arslan 1123, Hcrp, EuSib.
60- *Agrostis stolonifera* L., 15, YyL, 09.09.2004, 1060m, M.Arslan 1124, Hcrp, EuSib.
61- *Anthoxanthum odoratum* L. subsp. *odoratum*, 15, AFRC, 04.07.2006, 1060m, M.Arslan 1180, Hcrp, EuSib.
62- *Briza media* L., 18, AkL, 06.07. 2004, 1210m, M.Arslan 1150, Hcrp.
63- *Brachypodium sylvaticum* (Huds.) P.Beauv., 12, FiH, 02.08.2005, 1157m, M.Arslan 1156, Hcrp, EuSib.
64- *Brachypodium pinnatum* (L.) P.Beauv., 6, 18, 3, YkS, 23.08.2005, 1384m, M.Arslan 1160, Hcrp, EuSib.
65- *Bromus arvensis* L., 15, YuL, 04.08.2004, 1250m, M.Arslan 1164, Thp.
66- *Bromus hordeaceus* L. subsp. *hordeaceus*, 15, EIP, 05.07.2004, 870m, M.Arslan 1166, Thp.
67- *Bromus japonicus* Thunb. subsp. *japonicus*, 10, 15, YuL, 13.09.2005, 950m, M.Arslan 1169, Thp.
68- *Bromus* aff. *ramosus* Huds., 12, YyL, 01.07.2005, 1000m, M.Arslan 1162, Hcrp.
69- *Bromus sterilis* L., 15, 11, KbPM, 23.08.2006, 1220m, M.Arslan 1171, Thp.
70- *Calamagrostis epigeios* (L.) Roth, 15, FiH, 08.08.2006, 1195m, M.Arslan 1179, Hcrp, EuSib.
71- *Cynosurus echinatus* L., 11, 15, KizH, 28.06.2006, 1200m, M.Arslan 1129, Thp, Med.
72- *Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman, 18, 7, 3, 2, StH, 05.07.2004, 1240m, M.Arslan 1142, Hcrp.
73- *Deschampsia flexuosa* (L.) Trin., 18, 2, StH, 05.06.2004, 1240m, M.Arslan 1152, Hcrp, EuSib.
74- *Echinochloa crus-galli* (L.) P.Beauv., 11, 15, KzL, 17.08.2006, 1430m, M.Arslan 1178, Thp.
75- *Elymus caninus* (L.) L., 11, 15, FiH, 02.08.2005, 1153m, M.Arslan 1181, Hcrp, EuSib.
76- *Elymus hispidus* (Opiz) Melderis subsp. *hispidus*, 18, GuL, 04.07.2004, 980m, M.Arslan 1183, Hcrp.
77- *Festuca drymeja* Mert. & W.D.J.Koch, 4, 29, YyL, 01.07.2005, 1100m, M.Arslan 1173, Hcrp, EuSib.
78- *Festuca gigantea* (L.) Vill., 25, EyS, 14.07.2004, 1100m, M.Arslan 1174, Hcrp, EuSib.
79- *Festuca heterophylla* Lam., 18, EyS, 13.07.2005, 1013m, M.Arslan 1177, Hcrp, EuSib.
80- *Glyceria notata* Chevall., 11, 15, KzL, 17.08.2006, 1430m, M.Arslan 1154, Hcrp.
81- *Hordeum bulbosum* L., 15, 12, AFRC, 07.07.2004, 1050m, M.Arslan 1139, Crp.
82- *Holcus lanatus* L., 11, 15, YuH, 13.09.2005, 950m, M.Arslan 1190, Hcrp, EuSib.
83- *Hordelymus europaeus* (L.) Jess. ex Harz., 5, YyL, 13.07.2004, 1210m, M.Arslan 1147, Hcrp, EuSib.

- 84- *Koeleria pyramidata* (Lam.) P.Beauv., 7, 18, YFR, 20.07.2006, 1020m, M.Arslan 1191, Hcrp, EuSib.
85- *Lolium perenne* L., 15, AFRC, 07.07.2004, 1055m, M.Arslan 1145, Hcrp, EuSib.
86- *Melica ciliata* L. subsp. *ciliata*, 15, 28, KkH, 14.07.2004, 1640m, M.Arslan 1130, Hcrp.
87- *Melica uniflora* Retz., 4, EyS, 13.07.2005, 1013m, M.Arslan 1132, Hcrp, EuSib.
88- *Milium effusum* L. 11, 12, KzL, 09.08.2006, 1490m, M.Arslan 1189, Hcrp, EuSib.
89- *Phleum alpinum* L., 15, KkP, 14.07.2004, 1610m, M.Arslan 1184, Hcrp, EuSib.
90- *Phleum montanum* K.Koch subsp. *montanum*, 7, 18, GuL, 04.07.2006, 950m, M.Arslan 1185, Hcrp.
91- *Phleum phleoides* (L.) H.Karst., 1, gH, 03.08.2005, 1230m, M.Arslan 1187, Hcrp, EuSib.
92- *Poa angustifolia* L. 12, KbPM, 16.08.2006, 1200m, M.Arslan 1208, Hcrp.
93- *Poa annua* L. 15, 10, KbPM, 06.10, 2004, 1120m, M.Arslan 1209, Thp.
94- *Poa nemoralis* L., 18, Krl, 27.06.2006, 980m, M.Arslan 1194, 4, KpH, 26.05.2004, 1210m, M.Arslan 1196, Hcrp.
95- *Poa pratensis* L., 11, 12, YyL, 05.07.2004, 1350m, M.Arslan 1199, Hcrp.
96- *Poa trivialis* L., 14, AFRC, 27.06.2006, 1050m, M.Arslan 1203, Hcrp.
97- *Polypogon viridis* (Gouan) Breistr., 14, 30, gH, 03.08.2005, 1200m, M.Arslan 1136, Hcrp, EuSib.
98- *Secale cereale* L. var. *cereale*, 15, KkP, 14.07.2004, 1610m, M.Arslan 1148, Hcrp.
99- *Sesleria alba* Sm. 1, 7, gH, 23.05.2005, 1339m, M.Arslan 1133, Hcrp.
100- *Stipa bromoides* (L.) Dörf., 11, 15, DuH, 21.08.2006, 1300m, M.Arslan 1188, Hcrp, Med.
101- *Triticum turgidum* L., 10, KpH, 20.07.2006, 1000m, M.Arslan 1192, Thp.
102- *Vulpia myuros* (L.) C.C.Gmel., 11, 15, KpH, 20.07.2006, 1000m, M.Arslan 1193, Thp.

EUDICOTS

RANUNCULALES

Papaveraceae

- 103- *Chelidonium majus* L., 30, BsS, 10.05.2005, 790m, M.Arslan 598, Hcrp, EuSib..
104- *Corydalis integra* Barbey & Fors.-Major, 15, 14, KkP, 13.04.2005, 1607m, M.Arslan 599, Crp.
105- *Papaver rhoeas* L., 24, AFRC, 07.07.2006, 1060m, M.Arslan 596, Thp.

Ranunculaceae

- 106- *Actea spicata* L., 4, 29, KpH, 26.05.2004, 1200m, M.Arslan 394, Crp.
107- *Anemon blanda* Schott & Kotschy, 14, 15, KkP, 13.04.2005, 1607m, M.Arslan 402, Crp.
108- *Clematis vitalba* L., 24, YFR, 04.08.2004, 700-1200m, M.Arslan 392, Php-L.
109- *Helleborus orientalis* Lam., 15, 14, EIL, 13.04.2005, 869-872m, M.Arslan 387, Hcrp, Eux.

- 110- *Ranunculus brutius* Ten, 15, 11, KzL, 10.05.2005, 1500m, M.Arslan 391, Hcrp, EuSib.
111- *Ranunculus constantinopolitanus* (DC.) d'Urv., 15, 28, EIL, 12.05.2005, 880m, M.Arslan 400, Hcrp.
112- *Ranunculus ficaria* L. subsp. *ficariformis* Rouy & Foucaud, 14, 15, KkP, 13.04.2005, 1605m, M.Arslan 396, Crp.
113- *Ranunculus gracilis* E.D.Clarke, 15, AFRC, 12.05.2005, 1055m, M.Arslan 401, Crp.
114- *Ranunculus neopolitanus* Ten, 15, KkP, 14.07.2004, 1610m, M.Arslan 389, Hcrp.
115- *Ranunculus repens* L. 14, 30, BsS, 25.05.2004, 760m, M.Arslan 388, Hcrp.

SAXIFRAGALES

Crassulaceae

- 116- *Phedimus stoloniferus* (S.G.Gmel.) 'tHart, 24, AFRC, 14.07.2004, 1100m, M.Arslan 384, Chp, HyrEux.
117- *Sedum album* L., 26, KkH, 14.07.2004, 1630m, M.Arslan 382, Hcrp.
118- *Sedum pallidum* Bieb., 26, 24, AFRC, 14.07.2004, 1050m, M.Arslan 381, Thp, Eux.

Saxifragaceae

- 119- *Saxifraga cymbalaria* L. (Syn.: *S. cymbalaria* L. var. *cymbalaria*), 27, 30, KbPM, 06.07.2004, 1140m, M.Arslan 628, Thp.
120- *Saxifraga rotundifolia* L. subsp. *rotundifolia*, 26, 24, YyL, 01.07.2005, 1000m, M.Arslan 630, Hcrp, EuSib.

CELASTRALES

Celastraceae

- 121- *Euonymus latifolius* Mill. subsp. *latifolius*, 25, YyL, 09.09.2004, 1100m, M.Arslan 639, Php, EuSib.

MALPIGHIALES

Hypericaceae

- 122- *Hypericum androsaemum* L., 23, 24, BsS, 04.08.2004, 780m, M.Arslan 679, Chp.
123- *Hypericum bithynicum* Boiss., 11, 18, 7, YyH, 05.07.2004, 1350m, M.Arslan 674, Hcrp, Eux.
124- *Hypericum montbretii* Spach., 18, 11, 7, GuL, 24.05.2004, 800m, M.Arslan 677, 17, 3, YkS, 30.06.2004, M.Arslan 678, Hcrp.
125- *Hypericum perforatum* L., 11, 10, DuH, 21.08.2006, 1300m, M.Arslan 682, Hcrp.

Violaceae

- 126- *Viola arvensis* Murray, 11, KkP, 14.07.2004, 1610m, M.Arslan 595, Thp.
127- *Viola odorata* L., 4, 1, DuH, 08.09.2004, 1250m, M.Arslan 586, Hcrp.
128- *Viola sieheana* W.Becker, 5, 7, DuH, 08.09.2004, 1300m, M.Arslan 592, Hcrp.

Salicaceae

- 129- *Populus tremula* L. subsp. *tremula*, 4, 3, 7, 18, 6, Php, EuSib.
130- *Salix alba* L., 27, 30, YFR, 28.06.2006, 1029m, M.Arslan 339, Php, EuSib.

- 131- *Salix caprea* L., 13, 25, GuL, 06.07.2004, 1000m, M.Arslan 334, Php, EuSib.
132- *Salix elaeagnos* Scop., 27, BsS, 15.08.2006, 795m, M.Arslan 341, Php, EuSib.

Euphorbiaceae

- 133- *Euphorbia amygdaloides* L. subsp. *amygdaloides*, 5, YkS, 08.09.2004, 1290m, Chp, EuSib.
134- *Euphorbia macroclada* Boiss., 9, gH, 19.07.2005, 1250-1300m, M.Arslan 688, Hcrp, IrTur.
135- *Euphorbia plathyphyllos* L. subsp. *plathyphyllos*, 4, 27, BsS, 25.05.2004, 770m, M.Arslan 686, Thp.
136- *Euphorbia seguieriana* Neck subsp. *niciciana* (Borbàs ex Novák) Rech.f, 19, 2, YFR, 20.07.2006, 997-1017m, M.Arslan 694, Hcrp.
137- *Euphorbia stricta* L., 11, 15, EIP, 05.05.2004, 870m, M.Arslan 687, Thp, EuSib.

Linaceae

- 138- *Linum aroanium* Boiss. & Orph., 3, gH, 23.08.2005, 1339m, M.Arslan 695, Hcrp.
139- *Linum flavum* L. subsp. *flavum*, 9, YkS, 03.08.2005, 1250m, M.Arslan 696, Hcrp, EuSib.

FABALES

Fabaceae

- 140- *Anthyllis vulneraria* L. subsp. *boissieri* (Sagorski) Bornm., 1, gH, 09.08.2006, 1193m, M.Arslan 562, Hcrp.
141- *Argyrolobium biebersteinii* P.W.Ball, 24, 28, GuL, 06.07.2004, 1100m, M.Arslan 506, Chp, HyrEux.
142- *Astragalus depressus* L. var. *depressus*, 15, KkP, 17.05.2006, 1610-1620m, M.Arslan 539, Chp.
143- *Astragalus glycyphylloides* DC., 17, EyS, 14.07.2004, 1210m, M.Arslan 514, Hcrp, EuSib.
144- *Astragalus microcephalus* Willd. subsp. *microcephalus*, 21, GuL, 04.07.2006, 920-980m, M.Arslan 540, Chp, IrTur.
145- *Bituminaria bituminosa* (L.) C.H.Stirt., 1, YyL, 04.08.2004, 1282m, M.Arslan 500, Hcrp, Med.
146- *Colutea cilicica* Boiss. & Balansa, 10, YuL, 04.08.2004, 1250m, M.Arslan 503, 18, 06.07.2004, 850m, M.Arslan 504, Php.
147- *Coronilla coronata* L. 18, KrL, 27.06.2006, 1038m, M.Arslan 541, Hcrp, Med.
148- *Cytisus hirtisus* L., 18, GuL, 24.05.2004, 800m, M.Arslan 464, Chp.
149- *Cytisus pygmaeus* Willd., 1, 2, 3, KrL, 27.06.2006, 750-1050m, M.Arslan 543, Chp, EuSib.
150- *Dorycnium graecum* (L.) Ser., 18, KpH, 14.07.2004, 1210m, M.Arslan 467, Hcrp, Eux.
151- *Dorycnium pentaphyllum* Scop. subsp. *herbaceum* (Vill.) Rouy, 3, gH, 03.08.2005, 1283-1340m, M.Arslan 470, Hcrp.
152- *Galega officinalis* L., 28, KkH, 05.10.2004, 1635m, M.Arslan 520, Hcrp, EuSib.
153- *Genista jaunensis* Viv. subsp. *lydia* (Boiss.) Kit Tan & Ziel., 18, 1, GuL, 26.05.2004, 800m, M.Arslan 493, Chp, Med.
154- *Lathyrus aphaca* L. var. *biflorus* Post, 10, 12, KrL, 26.06.2006, 750m, M.Arslan 535, Thp, Med.

- 155- *Lathyrus aureus* (Stev.) D.Brandza, 2, BuD, 27.06.2006, 950m, M.Arslan 532, Hcrp, Eux.
156- *Lathyrus laxiflorus* (Desf.) O.Kuntze subsp. *laxiflorus*, 1, 4, 6, 7, 29, BuD, 06.07.2004, 1200m, M.Arslan 526, Hcrp.
157- *Lathyrus tukhtensis* Czecczott., 9, gH, 08.06.2006, 1150m, M.Arslan 533, Hcrp, End, LC, EuSib.
158- *Lotus corniculatus* L. var. *tenuifolius* L., 9, gH, 06.10.2004, 1250m, M.Arslan 521, Hcrp.
159- *Medicago falcata* L., 9, gH, 03.08.2005, 1250m, M.Arslan 561, Hcrp.
160- *Medicago lupulina* L., 15, EIP, 05.07.2004, 870m, M.Arslan 484, Hcrp.
161- *Melilotus albus* Desr., 16, AFRC, 09.09.2004, 1150m, M.Arslan 501, Thp.
162- *Melilotus officinalis* (L.) Desr., 18, 10, 06.07.2004, 1100m, M.Arslan 502, Thp.
163- *Pisum sativum* L. subsp. *elaitus* (Bieb.) Aschers. & Gruebner. var. *elaitus*, 10, GuL, 10.05.2005, 796m, M.Arslan 536, Thp, Med.
164- *Securigera varia* (L.) Lassen, 11, 15, EIP, 05.07.2004, 870m, M.Arslan 505, Hcrp, E.Med.
165- *Trifolium arvense* L. var. *arvense*, 11, 15, YyL, 09.09.2004, 1100m, M.Arslan 495, Thp.
166- *Trifolium badium* Schreb. subsp. *rytidosemium* (Boiss. & Hohen.) Hossain var. *rytidosemium*, 2, KrL, 27.06.2006, 1060m, M.Arslan 556, Hcrp, HyrEux.
167- *Trifolium campestre* Schreb. subsp. *campestre* var. *campestre*, 15, Kbp, 06.10.2004, 1160m, M.Arslan 494, Thp.
168- *Trifolium medium* L. var. *medium*, 18, AđS, 15.08.2006, 1239m, M.Arslan 552, meşe meşceresi, Hcrp.
169- *Trifolium nigrescens* Viv. subsp. *petrisavii* (Clementi) Holmboe, 18, EyS, 14.07.2004, 1210m, M.Arslan 498, Thp.
170- *Trifolium ochroleucum* Huds., 18, KrL, 27.06.2006, 851m, M.Arslan 549, Hcrp.
171- *Trifolium pratense* L. var. *pratense*, 4, 1, 7, 11, 10, 15, YFR, 08.09.2004, 1300m, M.Arslan 474, Hcrp.
172- *Trifolium repens* L. var. *repens*, 17, AFRC, 13.07.2004, 1140m, M.Arslan 497, 15, EIP, 05.07.2004, 870m, M.Arslan 496, Hcrp.
173- *Trifolium spadicum* L., 15, KkH, 14.07.2004, 1615m, M.Arslan 482, Thp, EuSib.
174- *Trifolium striatum* L., 15, Kbp, 06.07.2004, 1150-1190m, M.Arslan 481, Thp.
175- *Vicia cassubica* L., 10, 24, KpH, 14.07.2004, 1250m, M.Arslan 490, Hcrp, EuSib.
176- *Vicia cracca* L. subsp. *cracca*, 10, 24, KuH, 05.07.2006, 1200m, M.Arslan 554, Hcrp, EuSib.
177- *Vicia cracca* L. subsp. *stenophylla* Vel., 15, KzL, 17.05.2006, 1455m, M.Arslan 553, Hcrp.
178- *Vicia crocea* (Desf.) B.Fedtsch., 4, EyS, 14.07.2004, 1210m, M.Arslan 485, Hcrp, HyrEux.
179- *Vicia hirsuta* (L.) Gray, 15, AFRC, 29.06.2006, 1090m, M.Arslan 548, Thp.
180- *Vicia sativa* L. subsp. *nigra* (L.) Ehrh. var. *segetalis* (Thuill.) Ser. ex DC. 15, AFRC, 07.07.2004, 1050m, M.Arslan 486, Thp.
181- *Vicia sepium* L., 15, 10, EIP, 05.07.2004, 869m, M.Arslan 491, Hcrp, EuSib.
182- *Vicia tetrasperma* (L.) Schreb., 10, DuH, 19.07.2005, 1250-1270m, M.Arslan 555, Thp.

Polygalaceae

- 183- *Polygala anatolica* Boiss. & Heldr., 9, DuH, 23.08.2005, 1300m, M.Arslan 666, gH, 08.06.2006, 1250m, Chp.
184- *Polygala pruniosa* Boiss. subsp. *pruniosa*, 17, 6, 7, YFR, 13.07.2004, 1270m, M.Arslan 270, 18, BsS, 06.07.2004, 1200m, M.Arslan 272, Hcrp.

ROSALES

Rosaceae

- 185- *Agrimonia repens* L., 24, 14, EIP, 04.08.2004, 870m, M.Arslan 442, Hcrp.
186- *Alchemilla pseudocartalanica* Juz., 11, 14, KkH, 14.07.2007, 1615m, M.Arslan 408, Hcrp.
187- *Alchemilla surculosa* Fröhner, 15, KkP, 14.07.2004, 1610m, M.Arslan 444, Hcrp, HyrEux.
188- *Amelanchier ovalis* Medik. subsp. *ovalis*, 1, 3, 9, 03.08.2005, 1340m, M.Arslan 457, Php.
189- *Cerasus avium* (L.) Moench, 17, GuL, 13.04.2005, 950m, M.Arslan 448, Php.
190- *Crataegus monogyna* Jacq. subsp. *monogyna*, 16, 25, YyL, 09.09.2004, 1100m, M.Arslan 406, Php.
191- *Crataegus tanacetifolia* (Poir.) Pers., 11, mixed with *Corylus* and *Fraxinus*, KkH, 05.10.2004, 1630m, M.Arslan 410, Php, End, LC.
192- *Fragaria vesca* L. 11, 10, 1000-1400m, Hcrp, EuSib.
193- *Geum urbanum* L., 27, BsS, 25.05.2004, 750m, M.Arslan 425, Hcrp, EuSib.
194- *Laurocerasus officinalis* M.Roem., 5, 16, 25, 29, 24, KbPM, 13.04.2005, 1150m, M.Arslan 449, Php.
195- *Malus sylvestris* (L.) Mill. subsp. *orientalis* (Uglitzk.) Browicz var. *orientalis*, 11, 25, DuH, 23.03.2005, 1339m, M.Arslan 1224, Php.
196- *Rosa canina* L., 11, 25, KkH, 05.10.2004, 1610-1630m, M.Arslan 429, Php.
197- *Rubus canescens* DC. var. *glabratus* (Godr.) Davis & Meikle, 5, 7, 17, 18, 19, YyS, 30.06.2004, 1200m, M.Arslan 412, 9, gH, 04.08.2004, 1300m, M.Arslan 413, Php, EuSib.
198- *Rubus hirtus* Waldst. & Kit., 4, 10, BsS, 04.08.2004, 780m, M.Arslan 416, 11, YyH, 05.07.2004, 1350m, M.Arslan 417, Php, EuSib.
199- *Rubus ibericus* Juz., 15, 14, AFRC, 13.07.2004, 1140m, M.Arslan 411, Php.
200- *Rubus ideus* L., 10, YuL, 04.08.2004, 1250m, M.Arslan 419, 11, YyH, 05.07.2004, 1350m, M.Arslan 420, Hcrp, EuSib.
201- *Potentilla argentea* L., 11, 15, YyH, 05.07.2004, 1200m, M.Arslan 434, Hcrp.
202- *Potentilla micrantha* Ramond ex DC., 11, 15, BsS, 13.04.2005, 761m, M.Arslan 433, Hcrp.
203- *Potentilla recta* L., 15, 28, EIP, 05.07.2004, 870m, M.Arslan 437, Hcrp.
204- *Potentilla reptans* L., 30, 05.07.2004, 870m, M.Arslan 440, 27, AFRC, 07.07.2004, 1050m, M.Arslan 441, Hcrp.
205- *Prunus divaricata* Ledeb. subsp. *divaricata*, 19, 9, 3, AFRC, 09.09.2004, 1100m, M.Arslan 447, Php.
206- *Pyracantha coccinea* M.Roem., 18, YFR, 15.08.2006, 1239m, M.Arslan 453, Php, EuSib.
207- *Pyrus communis* L. subsp. *communis*, 11, gH, 19.07.2005, 1515, M.Arslan 458, KkH, 14.07.2004, 1615m, M.Arslan 445, Php.

- 208- *Pyrus elaeagnifolia* Pall. subsp. *elaeagnifolia*, 11, 28, YyL, 16,05,2006, 1050m, M.Arslan 459, Php.
209- *Sanguisorba minor* Scop. subsp. *balearica* (Bourg. ex Nyman) Muñoz Garm. & C.Navarro 15, KkP, 14.07.2004, 1610m, M.Arslan 426, Hcrp.
210- *Sorbus aucuparia* L., 18, KiC, 20.07.2005, 1121-1195m, M.Arslan 450, Php, EuSib.
211- *Sorbus torminalis* (L.) Crantz var. *torminalis*, 18, StH, 05.07.2004, 1200m, M.Arslan 405, Php.
212- *Sorbus umbellata* Fritsch (Syn.: *S. umbellata* (Desf.) Fritsch var. *cretica* (Lindl.) Schneider), 3, DuH, 08.09.2004, 1300m, M. Arslan 404, 9, gH, 08.06.2006, 1300m, M.Arslan 461, Php.

Ulmaceae

- 213- *Ulmus glabra* Huds., 5, YyL, 08.06.2006, 1200m, M.Arslan 909, Php, EuSib.

Urticaceae

- 214- *Urtica dioica* L. subsp. *dioica*, 8, 16, 11, 29, 1010-1600m, Hcrp, EuSib.

CUCURBITALES

Datisceae

- 215- *Datisca cannabina* L., 12, 24, YFR, 04.08.2004, 780m, M.Arslan 716, Hcrp.

FAGALES

Fagaceae

- 216- *Fagus orientalis* Lipsky. pure, 8, 16i YyL, 09.09.2004, 1080m, M.Arslan 353, Php, EuSib.
217- *Quercus petraea* (Matt.) Liebl. subsp. *iberica* (Steven ex M.Bieb.) Krassiln., pure, 2, 4, 16, GuL, 06.07.2004, 1100m, M.Arslan 354, Php.
218- *Quercus pubescens* Willd. subsp. *pubescens*, 1, gH, 08.09.2004, 1290 m, M.Arslan 352, Php.

Betulaceae

- 219- *Alnus glutinosa* (L.) Gaertn. subsp. *glutinosa*, 27, EIH, 09.09.2004, 1200m, M.Arslan 342, Php, EuSib.
220- *Carpinus betulus* L., 8, 13, AFRC, 09.09.2004, 1100m, M.Arslan 343, Php.
221- *Corylus avellana* L. var. *avellana*, 8, 28, KkH, 14.07.2004, 1615m, M.Arslan 348, Fhp, EuSib.
222- *Corylus colurna* L., 8, 28, KkH, 05.10.2004, 1605-1630m, M.Arslan 351, Fhp, EuSib.
223- *Ostrya carpinifolia* Scop., 8, 13, GuL, 22.08.2006, 1050m, M.Arslan 346, Php, Med.

GERANIALES

Geraniaceae

- 224- *Erodium cicutarium* (L.) L'Hér. subsp. *cutarium*, 10, EIP, 05.07.2004, 860m, M.Arslan 374, Thp.
225- *Geranium asphodeloides* Burm.f. subsp. *asphodeloides*, 15, KkP, 14.07.2004, 1620m, M.Arslan 363, Hcrp, EuSib.
226- *Geranium pyrenaicum* Burm.f., 5, 11, KkH, 05.10.2005, 1520m, M.Arslan 370, Hcrp.
227- *Geranium robertianum* L., 1, 6, 17, YyL, 05.07.2004, 1300m, M.Arslan 368, Thp.

228- *Geranium sintenisii* Freyn, 15, KkP, 14.07.2004, 1620m, M.Arslan 366, Hcrp, End, LC, Eux.

MYRTALES

Onograceae

229- *Circea lutetiana* L., 25, BsS, 04.08.2004, 770m, M.Arslan 703, Crp.

230- *Epilobium angustifolium* L., 10, 24, YuL, 04.08.2004, 1250m, M.Arslan 705, Hcrp.

231- *Epilobium hirsutum* L., 4, 27, BsS, 04.08.2004, 770m, M.Arslan 708, Crp.

232- *Epilobium lanceolatum* Sebast. & Mauri, 10, 25, YyL, 01.07.2005, 1000m, M.Arslan 710, Hcrp.

233- *Epilobium montanum* L., 3, 6, 8, YyL, 05.07.2004, 1350m, M.Arslan 712, Hcrp, EuSib.

234- *Epilobium tetragonum* L. subsp. *lamyi* (F.W.Scultz) Nyman, 12, AFRC, 07.07.2004, 1050m, M.Arslan 709, Hcrp, EuSib.

CROSSOSOMATALES

Staphylleaceae

235- *Staphyllea pinnata* L., 4, 25, GuL, 05.08.2004, 900m, M.Arslan 652, 27, BsS, 25.05.2004, 750m, M.Arslan 653, Php, Eux.

SAPINDALES

Anacardiaceae

236- *Rhus coriaria* L., 18, GuL, 02.08.2007, Php.

Sapindaceae

237- *Acer campestre* L. subsp. *campestre*, 25, 28, EIP, 05.07.2004, 870m, M.Arslan 672, Php, EuSib.

238- *Acer heldreichii* Orph. ex Boiss. subsp. *trautvetteri* (Medw.) A.E.Murray, 4, 6, YkS, 23.08.2005, 1384m, M.Arslan 671, Php, Eux.

239- *Acer platanoides* L., 1, 4, ÇgH, 23.08.2005, 1139m, M.Arslan 668, Php, EuSib.

MALVALES

Thymelaeaceae

240- *Daphne pontica* L. subsp. *pontica*, 4, KpH, 14.07.2004, 1210m, M.Arslan 632, Chp, Eux.

Cistaceae

241- *Cistus creticus* L., 21, 26, GuL, 04.07.2006, 930m, M.Arslan 663, Chp.

242- *Helianthemum nummularium* (L.) Mill. subsp. *nummularium*, 1, YyL, 16.05.2006, 1150-1200m, M.Arslan 662, Chp.

Malvaceae

243- *Alcea biennis* Winterl, 15, EIP, 04.08.2004, 880m, M.Arslan 265, Hcrp.

244- *Malva alcea* L., 15, Kbp, 06.07.2004, 1150m, M.Arslan 267, Hcrp.

245- *Malva neglecta* Wallr., 15, 28, KbPM, 06.10.2004, 1250m, M.Arslan 269, Thp.

246- *Tilia rubra* DC. subsp. *caucasica* (Rupr.) V.Engl., 4, YFR, 04.08.2004, 770-1600m, M.Arslan 362, Php, Eux.

BRASSICALES

Brassicaceae

247- *Alliaria petiolata* (M.Bieb.) Cavara & Grande, 17, EyS, 14.07.2004, 1210m, M.Arslan 259, 10, KkP, 10.05.2005, 1600m, M.Arslan 262, Hcrp.

248- *Alyssum trichostachyum* Rupr., 18, YFR, 24.05.2004, 800m, M.Arslan 236, Hcrp.

249- *Arabidopsis thaliana* (L.) Heynh., 15, 10.05.2005, 296m, GuL, M.Arslan 243, Thp.

250- *Arabis alpina* L. subsp. *alpina*, 10, 26, KkH, 10.05.2005, 1650m, M.Arslan 240, Hcrp.

251- *Arabis sagittata* (Bertol.) DC., 18, 3, YFR, 06.07.2004, 1100-1250m, M.Arslan 229, Hcrp.

252- *Barbarea plantaginea* DC., 15, AFRC, 29.06.2005, 1040m, M.Arslan 230, Hcrp.

253- *Capsella bursa-pastoris* (L.) Medik., 15, AFRC, 09.09.2004, 1050m, M.Arslan 257, Thp.

254- *Cardamine bulbifera* (L.) Crantz, 4, 14, BsS, 25.05.2004, 700m, M.Arslan 248, Crp, EuSib.

255- *Cardamine hirsuta* L., 4, 14, 15, YFR, 05.06.2004, 800m, M.Arslan 245, EIP, 13.04.2005, 870m, M.Arslan 246, Thp.

256- *Cardamine impatiens* L. subsp. *pectinata* (Pall. ex DC.) Stoj. & Stef., 4, 27, YyS, 06.10.2004, 1135m, M.Arslan (250), Thp, EuSib.

257- *Cardamine quinquefolia* (M.Bieb.) Schmalh., 14, 30, BsS, 10.05.2005, 761m, M.Arslan 238, Crp, EuSib.

258- *Draba muralis* L., 15, EIP, 10.05.2005, 870m, M.Arslan 242, Thp.

259- *Draba verna* L., 15, EIP, 13.04.2005, 869-872m, M.Arslan 244, Thp.

260- *Hesperis matronalis* L. subsp. *matronalis*, 10, 14, KkP, 14.07.2004, 1600m, M.Arslan 235, Hcrp.

261- *Lepidium campestre* (L.) Aiton, 10, 15, 19.07.2005, 1300m, DuH, M.Arslan 263, Thp.

262- *Microthlaspi perfoliatum* (L.) F.K.Mey, 15, AFRC, 16.05.2006, 1050m, M.Arslan 264, Thp.

263- *Sinapis arvensis* L., 10, YkS, 06.08.2004, 1250m, M.Arslan 234, Thp.

264- *Sysimbrium loeselii* L., 15, Kbp, 1150-1190m, M.Arslan 231, Thp/Hcrp.

265- *Sysimbrium officinale* (L.) Scop., 11, 15, KbPM, EIL, 06.10/04.08-2004, 1190, 1150m, M.Arslan (232, 233), Thp.

266- *Turritis glabra* L., 10, YyL, 1050m, 01.07.2005, M.Arslan 227, Thp.

SANTALALES

Santalaceae

267- *Thesium arvense* Horv., 6, 17, YFR, 13.07.2004, 1285m, M.Arslan 303, Hcrp, EuSib.

CARYOPHYLLALES

Polygonaceae

268- *Polygonum aviculare* L., 10, FiH, 08.08.2006, 1194m, M.Arslan 830, Thp.

269- *Polygonum convolvulus* L., 17, YFR, 14.07.2004, 1200m, M.Arslan 826, Crp.

270- *Polygonum persicaria* L., 14, 30, EIP, 23.08.2005, 870m, M.Arslan 833, Thp.

- 271- *Rumex acetosella* L., 15, EIL, 05.07.2004, 870m, M.Arslan 824, Hcrp.
272- *Rumex crispus* L., 8, 14, 15, YyH, 05.07.2004, 1350m, M.Arslan 823, Hcrp.
273- *Rumex obtusifolius* L. subsp. *subalpinus* (Schur) Ćelak., 15, KzL, 09.08.2006, 1490m, M.Arslan 820, Hcrp.
274- *Rumex tuberosus* L. subsp. *tuberosus*, 15, KkP, 09.08.2006, 1616m, M.Arslan 822, Hcrp.

Caryophyllaceae

- 275- *Arenaria serpyllifolia* L. subsp. *leptocladus* (Rchb.) Nyman, 10, BsS, 04.07.2006, 750m, M.Arslan 330, Thp.
276- *Cerastium pumilum* Curtis subsp. *pumilum*, 11, BsS, 06.10.2004, 710m, M.Arslan 305, Thp.
277- *Dianthus armeria* L. subsp. *armeria*, 10, KpH, 14.07.2004, 1210m, M.Arslan 321, Thp, EuSib.
278- *Dianthus giganteus* d'Urv., 18, YyL, 12.07.2005, 1100-1125m, M.Arslan 326, Hcrp, EuSib.
279- *Dianthus orientalis* Adams, 9, 24, GuL, 10.08.2006, 912m, Hcrp.
280- *Herniaria glabra* L., 10, AFRC, 08.08.2006, 1050m, M.Arslan 333, Thp.
281- *Moenchia mantica* (L.) Bartl., 24, AFRC, 07.067.2004, 1050m, M.Arslan 310, Thp.
282- *Petrorhagia prolifera* (L.) P.W.Ball & Heywood, 11, 15, AFRC, 06.10.2004, 1060m, M.Arslan 323, Thp.
283- *Sagina procumbens* L., 14, SaH, 05.07.2006, 1200m, M.Arslan 331, Thp.
284- *Saponaria glutinosa* M.Bieb., 15, 28, KkH, 14.07.2004, 1630m, M.Arslan 308, Hcrp.
285- *Scleranthus annuus* L. subsp. *annuus*, 10, KpH, 20.07.2006, 1100m, M.Arslan 332, Thp.
286- *Silene compacta* Fisch. ex Hornem, 10, 18, KpH, 20.07.2006, 1000-1100m, M.Arslan 319, Hcrp.
287- *Silene coronaria* Clairv. ex Rchb., 10, FiH, 14.07.2004, 1180m, M.Arslan 328, Hcrp, EuSib.
288- *Silene italica* (L.) subsp. *italica*, Pers., 1, 8, 16, 17, 18, 22, KkP, 14.07.2004, 1610m, M.Arslan 312, Hcrp.
289- *Silene latifolia* Poir. subsp. *eriocalycinae* (Boiss.) Greuter & Burdet, 12, 28, KbPM, 06.10.2004, 1250m, M.Arslan 318, Hcrp.
290- *Silene viridiflora* L. 18, YFR, 14.07.2004, 1125m, M.Arslan 317, Hcrp.
291- *Silene vulgaris* (Moench) Garcke var. *vulgaris*, 12, 15, KbPM, 06.10.2004, 1250m, M.Arslan 315, Hcrp.
292- *Spergularia rubra* (L.) J.Pres.& C.Presl, 10, KpH, 20.07.2006, 1100m, M.Arslan 329, Hcrp.
293- *Stellaria media* (L.) Vill., 10, 15, KoS, 05.08.2004, 1180m, M.Arslan 307, Thp.

Amaranthaceae

- 294- *Beta trigyna* Waldst. & Kit., 10, 11, AFRC, 25.08.2004, 1050m, M.Arslan 299, Hcrp.
295- *Chenopodium botrys* L., 10, EIH, 23.08.2005, 1210m, M.Arslan 302, Thp.
296- *Chenopodium murale* L., 10, 15, FiH, 08.08.2006, 1193-1225m, M.Arslan 300, Thp.

CORNALES

Cornaceae

- 297- *Cornus mas* L., 25, YyL, 09.09.2004, 1100m, M.Arslan 379, Php, EuSib.
298- *Cornus sanguinea* L. subsp. *australis* (C.A.Mey.) Jáv., 25, GuL, 13.07.2004, 1140m, M.Arslan 375, 28, SaH, 09.09.2004, 1200m, M.Arslan 378, Php, EuSib.

ERICALES

Balsaminaceae

- 299- *Impatiens noli-tangere* L., 30, KoS, 05.08.2004, 1180m, M.Arslan 623, Thp, EuSib.

Primulaceae

- 300- *Anagallis arvensis* L. var. *arvensis*, 10, AFRC, 09.09.2004, 1050m, M.Arslan 723, Thp.
301- *Anagallis arvensis* L. var. *caerulea* (L.) Gouan, 15, KkP, 14.07.2004, 1610m, M.Arslan 722, Thp.
302- *Cyclamen coum* Mill. subsp. *coum*, 4, 6, 8, 16, 18, YFR, 14.07.2004, 1200m, M.Arslan 720, Crp.
303- *Lysimachia verticillaris* Spreng., 27, 30, EIL, 05.07.2004, 870m, M.Arslan 718, Hcrp, HyrEux.
304- *Primula aculis* (L.) L. subsp. *aculis*, 6, 15, 28, KkH, 13.04.2005, 1600-1640m, O.Ketenođlu 724, Hcrp, EuSib.

Ericaceae

- 305- *Erica arborea* L., 11, 18, StH, 05.07.2004, 1240m, M.Arslan 646, Php.
306- *Monotropa hypopithys* L., 4, 29, BsS, 06.07.2004, 780m, M.Arslan 714, PP.
307- *Orthilia secunda* (L.) House, 6, 29, YyL, 13.07.2004, 1220m, M.Arslan 643, Hcrp.
308- *Pyrola chlorantha* Sw., 6, 29, YyL, 13.07.2004, 1220m, M.Arslan 642, Hcrp.
309- *Pyrola minor* L., 4, AKL, 22.08.2006, 1215m, M.Arslan 644, Hcrp, EuSib.
310- *Rhododendron ponticum* L., 4, 22, 29, 900-1300m, Php, Eux.
311- *Vaccinium arctostaphylos* L., 4, KpH, 26.05.2004, 1200m, M.Arslan 645, Php, Eux.

GENTIANALES

Rubiaceae

- 312- *Asperula involucreta* Wahlenb., 5, 17, YyH, 05.07.2004, 1250m, M.Arslan 570, Hcrp, Eux.
313- *Asperula taurina* L. subsp. *taurina*, 4, BuD, 25.05.2005, 750m, M.Arslan 566, Hcrp.
314- *Cruciata pedemontana* (Bellardi) Ehrend., 15, EIL, 10.05.2005, 870m, M.Arslan 564, Thp.
315- *Galium aparine* L., 10, 28, YyH, 05.07.2004, 1350m, M.Arslan 580, Thp-L.
316- *Galium fissurense* Ehrend. & Schönb.-Tem., 15, 28, KkH, 14.07.2004, 1635m, M.Arslan 573, Hcrp, End, LC, Eux.
317- *Galium lovcense* Urum., 18, 24, GuL, 06.07.2004, 1100m, M.Arslan 571, Hcrp.
318- *Galium odoratum* (L.) Scop., 4, 29, BsS, 25.05.2004, 750m, M.Arslan 583, Crp, EuSib.

- 319- *Galium paschale* Forssk., 1, 4, 18, 22, 29, YyL, 05.07.2004, 1250m, M.Arslan 581, Hcrp, E.Med(mt).
320- *Galium rotundifolium* L., 4, 6, 7, 8, 16, 29, YyL, 05.07.2004, 1200m, M.Arslan 574, Crp, EuSib.
321- *Galium verum* L. subsp. *verum*, 15, 26, KkP, 09.09.2006, 1612m, M.Arslan 577, Hcrp, EuSib.

Gentianaceae

- 322- *Blackstonia perfoliata* (L.) Huds. subsp. *perfoliata*, 11, YyL, 05.07.2006, 1090m, M.Arslan 660, Thp.
323- *Centaurium erythraea* Rafn. subsp. *erythraea*, 10, 11, YyL, 13.07.2004, 1110m, M.Arslan 658, Hcrp, EuSib.
324- *Gentiana asclepiadae* L., 6, YuL, 08.09.2004, 1300m, M.Arslan 657, Hcrp, EuSib.
325- *Gentiana cruciata* L., 11, 15, YyL, 05.08.2005, 1050m, M.Arslan 656, Hcrp, EuSib.

Apocynaceae

- 326- *Vincetoxicum fuscatum* Rchb.f. subsp. *fuscatum*, 9, 24, ÇgH, 08.06.2006, 1250m, M.Arslan 297, Hcrp.

SOLANALES

Convolvulaceae

- 327- *Calystagia sylvatica* (Kit.) Griseb., 24, YyL, 09.09.2004, 1080m, M.Arslan 613, Hcrp.
328- *Convolvulus arvensis* L., 10, 11, YyL, 07.07.2004, 1050m, M.Arslan 615, Crp-L.
329- *Convolvulus cantabrica* L., 18, GuL, 04.07.2006, 920m, M.Arslan 616, Hcrp, Med.
330- *Cuscuta europaea* L., 12, FiH, 02.08.2005, 1153m, M.Arslan 697, PP.

Solanaceae

- 331- *Atropa bella-donna* L., 10, 25, YkS, 08.09.2004, 1300m, M.Arslan 617, Hcrp, EuSib..
332- *Hyoscyamus niger* L., 12, 15, AFRC, 28.06.2006, 1055m, M.Arslan 622, Thp.
333- *Physalis alkekengi* L., 12, 14, KbP, 06.07.2004, 1170m, M.Arslan 618, Hcrp.
334- *Solanum americanum* Mill. 11, 15, KbP, 06.07.2004, 1150m, M.Arslan 620, Thp.
335- *Solanum dulcamara* L. 28, YyL, 26.06.2006, 1050m, M.Arslan 621, Chp, EuSib.

BORAGINALES

Boraginaceae

- 336- *Aegonychon purpurocaeruleum* (L.) Holub, 3, ÇgH, 23.08.2005, 1339m, M.Arslan 293, 13, GuL, 22.08.2006, 1053m, M.Arslan 249, Crp, EuSib.
337- *Anchusa leptophylla* Roem. & Schult. subsp. *leptophylla*, 15, KkP, 09.08.2006, 1620, M.Arslan 288, Hcrp.
338- *Cerinte minor* L. subsp. *auriculata* (Ten.) Domac, 9, YkS, 04.08.2004, 1281, M.Arslan 286, Hcrp.
339- *Cynoglossum montanum* L., 11, KpH, 26.05.2004, 1200m, M.Arslan 290, 10, 24, BsS, 24.05.2004, 800m, M. Arslan 291, 18, YyH, 05.07.2004, 1350m, M.Arslan 292, Hcrp, EuSib.
340- *Echium vulgare* L. subsp. *vulgare*, 10, 05.06.2004, 810m, EöY, M.Arslan 287, Hcrp, EuSib.

- 341- *Lithospermum arvense* L., 14, 15, AFRC, 05.07.2004, 800-1060m, M.Arslan 285, Crp, EuSib.
342- *Myosotis alpestris* F. W. Schmidt subsp. *alpestris*, 24, GuL, 10.05.2005, 790m, M.Arslan 280, Hcrp.
343- *Myosotis sparsiflora* Pohl., 14, 15, EIP, 10.05.2005, 800m, M.Arslan 279, AFRC, 16.05.2006, 1050m, M.Arslan 282, Thp, EuSib.
344- *Myosotis sylvatica* Hoffm. subsp. *cyanea* (Hayek) Vestergr., 4, BsS, 25.05.2004, 700m, M.Arslan 273, Hcrp.
345- *Myosotis sylvatica* Hoffm. subsp. *rivularis* Vestergr., 8, 24, KbPM, 10.05.2005, 1210m, M.Arslan 281, Hcrp.
346- *Onosma heterophylla* Griseb., 9, ÇgH, 19.07.2005, 1250-1400m, M.Arslan 295, Hcrp, EuSib.
347- *Trachystemon orientalis* (L.) G.Don, 4, 8, 27, 29, BsS, 13.04.2005, 761m, M.Arslan 283, Crp, Eux.

LAMIALES

Oleaceae

- 348- *Fraxinus excelsior* L. subsp. *excelsior*, 5, DuH, 08.09.2004, 1290m, M.Arslan 358, 8, KkP, 05.10.2004, 1630m, M.Arslan 360, Php, EuSib.
349- *Ligustrum vulgare* L., 25, SaH, 28.06.2006, 1029m, M.Arslan 357, Php, EuSib.

Plantaginaceae

- 350- *Digitalis ferruginea* L. subsp. *ferruginea*, 9, 10, 24, YuH, 04.08.2004, 1250m, M.Arslan 798, Hcrp, EuSib.
351- *Digitalis lamarckii* Ivanina, 18, KrL, 27.06.2006, 9121m, M.Arslan 799, Hcrp, End, LC, IrTur.
352- *Linaria genistifolia* (L.) Mill. subsp. *genistifolia*, 9, 19, YFR, 20.07.2006, 997m, M.Arslan 803, Hcrp, EuSib.
353- *Plantago lanceolata* L., 15, YyL, 09.09.2004, 1055m, M.Arslan 684, Hcrp.
354- *Plantago major* L. subsp. *major*, 10, 15, YyL, 09.09.2004, 1050m, M.Arslan 685, Hcrp.
355- *Veronica anagallis-aquatica* L., 30, YyL, 30.06.2005, 1050m, M.Arslan 768, Hcrp.
356- *Veronica chamaedrys* L., 6, 17, YyL, 13.07.2004, 1230m, M.Arslan 774, Hcrp, EuSib.
357- *Veronica filiformis* Sm., 10, GuL, 10.05.2005, 790m, M. Arslan 769, M.Arslan 769, Hcrp, HyrEux.
358- *Veronica gentianoides* Vahl. *gentianoides* var. *alpina* A.Öztürk & M.A.Fisch., 15, KkP, 14.07.2004, 1610m, M.Arslan 786, Hcrp, End, LC.
359- *Veronica magna* M.A.Fisch., 4, BsS, 25.05.2004, 750m, M.Arslan 782, Hcrp, Eux.
360- *Veronica officinalis* L., 8, 11, 16, YyL, 13.07.2004, 1230m, M.Arslan 773, Hcrp, EuSib.
361- *Veronica pectinata* L. var. *pectinata*, 18, GuL, 10.05.2005, 780m, M.Arslan 770, Hcrp.
362- *Veronica persica* Poir., 15, KbPM, 06.07.2004, 1190m, M.Arslan 788, Thp.
363- *Veronica polita* Fr., 10, 11, AFRC, 13.04.2005, 1050m, M.Arslan 771, Thp.
364- *Veronica serpyllifolia* L., 4, 6, KpH, 26.05.2004, 1200m, M.Arslan 784, Hcrp.

Scrophulariaceae

- 365- *Scrophularia scopolii* Hoppe ex Pers. var. *scopolii*, 11, 25, BsS, 25.05.2004, 750m, M.Arslan 203, Hcrp.

- 366- *Verbascum abieticola* Bornm., 15, KkP, 09.08.2006, 1620m, M.Arslan 761, Hcrp, End, LC, Eux.
367- *Verbascum eriocarpum* (Frey & Sint.) Bornm., 18, KrL, 27.06.2006, 1038-1060m, M.Arslan 763, Hcrp, End, NT, Eux.
368- *Verbascum gnaphalodes* M.Bieb., 18, GuL, 10.05.2005, 796m, M.Arslan 762, Hcrp, Eux.
369- *Verbascum pyramidatum* M.Bieb., 12, 28, EIL, 05.07.2004, 870m, M.Arslan 766, Hcrp, HyrEux.
370- *Verbascum speciosum* Schrad., 11, 12, KkP, 06.07.2004, 1150m, M.Arslan 764, Hcrp.

Verbenaceae

- 371- *Verbena officinalis* L. var. *officinalis*, 18, EyS, 14.07.2004, 1120m, Hcrp.

Lamiaceae

- 372- *Ajuga orientalis* L., 11, 15, KzL, 10.05.2005, 1534m, M.Arslan 850, Hcrp.
373- *Ajuga reptans* L., with alder, 14, YyS, 28.06.2006, 1029m, M.Arslan 849, Hcrp, EuSib.
374- *Clinopodium grandiflorum*(L.) Kuntze, 17, YyH, 05.06.2004, 1250m, M.Arslan 868, Hcrp, EuSib.
375- *Clinopodium nepeta* (L.) Kuntze subsp. *glandulosum* (Req.) Govaerts, 11, 15, DuH, 21.08.2006, 1300m, M.Arslan 881, Hcrp, EuSib.
376- *Clinopodium vulgare* L. subsp. *vulgare*, 18, GuL, 06.07.2004, 1050m, M.Arslan 873, Hcrp.
377- *Galeopsis bifida* Boenn., 11, 15, EIP, 04.08.2004, 870m, M.Arslan 839, Thp, EuSib.
378- *Lamium maculatum* L., 15, EIP, 10.05.2005, 870m, M.Arslan 845, Hcrp, EuSib.
379- *Lamium purpureum* L. var. *purpureum*, 18, GuL, 24.05.2004, 800m, M.Arslan 848, Thp, EuSib.
380- *Leonurus quinquelobatus* Gilib., 27, EIP, 05.07.2004, 870m, M.Arslan 838, Hcrp, EuSib.
381- *Melissa officinalis* L. subsp. *officinalis*, 10, BsS, 04.08.2004, 770m, M.Arslan 862, Hcrp, Eux.
382- *Mentha longifolia* (L.) L. subsp. *longifolia*, 14, 30, EIL, 04.08.2004, 870m, M.Arslan 859, Hcrp.
383- *Mentha pulegium* L., 10, 14, KkuL, 15.09.2005, 1330m, M.Arslan 858, Hcrp.
384- *Nepeta cataria* L., 12, 15, KkPM, 15.08.2006, 1190m, M.Arslan 882, Hcrp, EuSib.
385- *Origanum vulgare* L. subsp. *viridulum* (Martrin-Donos) Nyman, 18, YkS, 30.06.2005, 1200m, M.Arslan 834, Hcrp.
386- *Phlomis russeliana* (Sims) Lag. ex Benth., 11, 15, KkP, 06.07.2004, 1150-1190m, M.Arslan, 870, Hcrp, End, LC, EuSib.
387- *Prunella laciniata* (L.) L., 15, 28, KkP, 06.07.2004, 1190m, M.Arslan 866, Hcrp, EuSib.
388- *Prunella vulgaris* L. 1, 3, 22, YuL, 08.09.2004, 1300m, M.Arslan 865, Hcrp, EuSib.
389- *Salvia forskahlei* L., 15, KkP, 14.07.2004, 1610m, M.Arslan 855, Hcrp, EuSib.
390- *Salvia glutinosa* L. 10, 27, BsS, 04.08.2004, 770m, M.Arslan 851, Hcrp, EuSib.
391- *Salvia tomentosa* Mill., 1, 18, ÇgH, 19.07.2005, 1200m, M.Arslan 857, Chp, Med.

- 392- *Salvia verticillata* L. subsp. *amasiaca* (Frey & Bornm.) Bornm., 15, KkP, 14.07.2004, 1610m, M.Arslan 852, Hcrp, IrTur.
393- *Salvia virgata* Jacq., 10, YyL, 09.09.2004, 1060m, M.Arslan 853, Hcrp, IrTur.
394- *Scutellaria albida* L. subsp. *velenoskyi* (Rech.f.) Greuter & Burdet, 5, SaH, 22.07.2005, 1239m, M.Arslan 843, Hcrp, E.Med.
395- *Stachys annua* (L.) L. subsp. *annua* var. *annua*, 18, KrL, 27.06.2006, 911m, M.Arslan 875, Hcrp.
396- *Stachys byzantina* K.Koch, 15, 28, KkP, 06.07.2004, 1150m, M.Arslan 877, Hcrp, EuSib.
397- *Stachys sylvatica* L., 15, EIL, 05.07.2004, 870m, M.Arslan 880, Hcrp, EuSib.
398- *Teucrium chamaedrys* L. subsp. *chamaedrys*, 1, 2, 3, 22, YuL, 04.08.2004, 1282m, M.Arslan 861, Hcrp/Chp.
399- *Thymus logicaulis* C.Presl subsp. *longicaulis*, 26, KkP, 14.07.2004, 1610m, M.Arslan 874, Chp, EuSib.

Orobanchaceae

- 400- *Euphrasia pectinata* Ten., 9, YuH, 04.08.2004, 1281m, M.Arslan 801, Thp, EuSib.
401- *Lathraea squamaria* L., with hornbeam and hazelnut, YyS, 13.04.2005, 1050m, M.Arslan 805, PP, EuSib.
402- *Melampyrum arvense* L. var. *arvense*, 18, GuL, 06.07.2004, 1100m, M.Arslan 791, Thp, EuSib.
403- *Odontites vulgaris* Moench, 15, BsS, 04.08.2004, 755m, M.Arslan 793, Thp, EuSib.
404- *Orobanche caryophyllaceae* Sm., 18, GuL, 09.06.2006, 900m, M.Arslan 700, PP.
405- *Orobanche elatior* Sutton, with *Cenaturea*, ÇgH, 05.07.2004, 1240m, M.Arslan 699, PP.
406- *Orobanche minor* Sm., with Fabaceae, EyS, 13.07.2005, 1135-1055m, M.Arslan 701, PP.
407- *Orobanche schultzei* Mutel, 12, AFRC, 07.07.2004, 1050m, M.Arslan 698, PP, Med.
408- *Pedicularis condensata* M.Bieb., 12, 26, KkH, 14.07.2004, 1626m, M.Arslan 789, Hcrp, EuSib.
409- *Rhinanthus angustifolius* C.C.Gmel. subsp. *grandiflorus* (Wallr.) D.A. Webb, 15, KkP, 14.07.2004, 1610m, M.Arslan 797, Thp.

AQUIFOLIALES

Aquifoliaceae

- 410- *Ilex colchica* Pojark., 4, ElH, 09.09.2004, 1140m, M.Arslan 638, Php, Eux.

ASTERALES

Campanulaceae

- 411- *Campanula glomerata* L. subsp. *hispida* (Witasek) Hayek, 15, YyL, 13.07.2004, 1060m, M.Arslan 818, Hcrp.
412- *Campanula grandis* Fisch. & C.A.Mey. subsp. *grandis*, 11, 15, KkH, 14.07.2004, 1638m, M.Arslan 808, Hcrp, End, LC.
413- *Campanula latifolia* L., 14, 30, EIP, 05.07.2004, 870m, M.Arslan 815, Hcrp.
414- *Campanula lyrata* Lam. subsp. *lyrata*, 1, 18, GuL, 24.05.2004, 800m, M.Arslan 811, Hcrp.
415- *Campanula persicifolia* L. subsp. *persicifolia*, 6, 17, StH, 05.07.2004, 1240m, M.Arslan 810, Hcrp.

- 416- *Campanula rapunculoides* L., 9, YuH, 04.08.2004, 1282m, M.Arslan 806, Hcrp.
417- *Campanula rapunculus* L. var. *rapunculus*, 2, 17, YkS, 13.07.2004, 1337m, M.Arslan 817, Hcrp.

Asteraceae

- 418- *Achillea grandiflora* Friv, 15, KkP, 14.07.2004, 1610m, M.Arslan 1067, Hcrp.
419- *Achillea millefolium* L. subsp. *millefolium* var. *millefolium*, 15, KbPM, 06.07.2004, 1200m, M.Arslan 1068, Hcrp, EuSib.
420- *Anthemis cretica* L. subsp. *pontica* (Willd.) Grierson, 18, AbH, 14.09.2006, 1185m, M.Arslan 978, Hcrp.
421- *Anthemis cotula* L., 15, EIP, 05.07.2004, 870m, M.Arslan 982, Thp.
422- *Arctium minus* (Hill.) Bernh., 10, EIP, 04.08.2004, 870m, M.Arslan 1047, Hcrp, EuSib.
423- *Artemisia vulgaris* L., 10, FiH, 08.08.2005, 1193m, M.Arslan 1005, Hcrp.
424- *Aster amellus* L. subsp. *ibericus* (Stev.) V.E.Avet., 9, ÇgH, 08.09.2004, 1300m, M.Arslan 1044, Hcrp, Eux.
425- *Bellis perennis* L., 15, AFRC, 13.04.2005, 1050m, M.Arslan 1029, Hcrp, EuSib.
426- *Carduus acanthoides* L. subsp. *acanthoides*, 12, 15, AFRC, 07.07.2004, 1050m, M.Arslan 1087, Hcrp, EuSib.
427- *Carlina vulgaris* L., 1, ÇgH, 06.10.2004, 1270m, M.Arslan 1084, Hcrp.
428- *Centaurea iberica* Trev. ex Sprengel, 11, 15, ÇgH, 21.08.2006, 1230m, M.Arslan 984, Thp.
429- *Centaurea phrygia* L. subsp. *stenolepis* (Kerner) Gugler, 1, YuH, 04.08.2004, 1250m, M.Arslan 985, Hcrp, EuSib.
430- *Chondrilla juncea* L., 10, 12, YuL, 23.08.2005, 1000m, M.Arslan 1059, Hcrp.
431- *Cichorium inthybus* L., 11, AFRC, 05.08.2004, 110m, M.Arslan 1069, Hcrp.
432- *Cirsium arvense* (L.) Scop., 10, YuL, 04.08.2004, 1250m, M.Arslan 1088, Hcrp.
433- *Cirsium hypoleucum* DC., 4, 29, AyC, 06.07.2004, 1200m, M.Arslan 1093, Hcrp, EuSib.
434- *Cirsium ligulare* Boiss., 11, YyL, 09.09.2004, 1100m, M.Arslan 1097, Hcrp.
435- *Cirsium vulgare* (Savi) Ten., 10, BsS, 04.08.2004, 770m, M.Arslan 1091, Hcrp.
436- *Conyza canadensis* (L.) Cronquist, 10, 24, BsS, 04.08.2004, 755m, M.Arslan 1070, Thp.
437- *Cota altissima* (L.) J.Gay, 15, KkP, 06.07.2004, 1150m, Thp.
438- *Cota tinctoria* (L.) J.Gay ex Guss. var. *discoidea* (All.) Özbek & Vural, 1, 3, 11, 18, YyH, 05.07.2004, 1350m, M.Arslan 1039, Hcrp.
439- *Crepis foetida* L. subsp. *rhoeadifolia* (M.Bieb.) Čelak., 1, ÇgH, 08.09.2004, 1300m, M.Arslan 1037, Thp.
440- *Doronicum orientale* Hoffm., 22, 28, AFRC, 12.05.2005, 1050m, M.Arslan 1075, Crp.
441- *Echinops sphaerocephalus* L. subsp. *sphaerocephalus*, 18, GuL, 22.08.2006, 960m, M.Arslan 976, Hcrp, EuSib.
442- *Erigeron acris* L. subsp. *acris*, 15, KkuL, 15.09.2005, 1150m, M.Arslan 987, Hcrp, EuSib.
443- *Eupatorium cannabinum* L., 10, 24, BsS, 04.08.2004, 770m, M.Arslan 1073, Hcrp, EuSib.
444- *Gnaphalium sylvaticum* L., 11, ÇIH, 21.08.2006, 1250m, M.Arslan 1066, Hcrp.
445- *Helychrysum graveolens* (M.Bieb.) Sweet, 15, KkP, 14.07.2004, 1612m, M.Arslan 1082, Hcrp.
446- *Helichrysum luteoalbum* (L.) Rchb., 24, BsS, 04.08.2004, 755m, M.Arslan 1065, Thp.
447- *Hieracium astrodermum* (Woronow & Zahn) Üksip, 3, ÇgH, 03.08.2006, 1321m, M.Arslan 966a, 15.08.2006, 1300m, M.Arslan 969, Hcrp.
448- *Hieracium* aff. *exotericum* Boreau, 1, ÇgH, 08.06.2006, 1240m, M.Arslan 960, Hcrp.
449- *Hieracium macrogonum* (Zahn) P.D.Sell & C.West, 17, DuH, 23.08.2005, 1380m, M.Arslan 1001, Hcrp, End, VU, Eux.
450- *Hieracium* aff. *mannagettae* Freyn, 17, EyS, 13.07.2005, 1200m, M.Arslan 964, Hcrp, End, DD, Eux.
451- *Hieracium medianiforme* (Litw. & Zahn) Üksip, 4, 16, 17, YyL, 13.07.2004, 1263m, M.Arslan 991, Hcrp, Eux.
452- *Hieracium oblongum* Jord., 8, 17, StH, 25.05.2005, 1240m, M.Arslan 994, Hcrp.
453- *Hieracium olympicum* Boiss., 9, 22, ÇgH, 03.08.2005, 1321m, M.Arslan 966, Hcrp, EuSib.
454- *Hieracium pannosum* Boiss., 9, ÇgH, 03.08.2005, 1250m, M.Arslan 996, Hcrp, E.Med.
455- *Hieracium sabaudum* L. 2, YbH, 24.08.2005, 1250m, M.Arslan 967, Hcrp, EuSib.
456- *Hieracium tuberculatum* Freyn & Sint., 18, GuL, 10.08.2006, 871m, M.Arslan 961, Hcrp, End, VU, Eux.
457- *Hieracium vagum* Jord., 18, AyC, 15.08.2006, 1239m, M.Arslan 970, Hcrp, EuSib.
458- *Hypochoeris radicata* L. 15, KbPM, 06.10.2004, 1190m, M.Arslan 1036, Hcrp, EuSib.
459- *Inula conyzae* (Griess.) Meikle, 10, 11, YyL, 09.09.2004, 1050m, M.Arslan 1062, Hcrp, EuSib.
460- *Inula ensifolia* L., 9, ÇgH, 04.08.2004, 1283m, M.Arslan 1064, Hcrp, EuSib.
461- *Inula salicina* L., 9, YuL, 04.08.2004, 1250m, M.Arslan 1063, Hcrp, EuSib.
462- *Jurinea pontica* Hausskn. & Freyn ex Hausskn., 9, ÇgH, 04.08.2004, 1282m, M.Arslan 1017, Hcrp, End, LC, IrTur.
463- *Lactuca muralis* (L.) Gaertn., 4, 29, BsS, 04.08.2004, 770m, M.Arslan 1032, Hcrp, EuSib.
464- *Lactuca serriola* L., 10, BsS, 10.08.2006, 750m, M.Arslan 975, Hcrp.
465- *Lapsana communis* L. subsp. *intermedia* (M.Bieb.) Hayek var. *intermedia*, 6, 16, 17, YyL, 13.07.2004, 1230m, M.Arslan 1013, Hcrp.
466- *Leontodon crispus* Vill. subsp. *asper* (Waldst. & Kit.) Röhl. var. *asper*, 11, 24 AFRC, 09.09.2004, 1060m, M.Arslan 1018, Hcrp.
467- *Leontodon hispidus* L. subsp. *hispidus*, 3, YuH, 08.09.2004, 1300m, M.Arslan 1020, Hcrp, EuSib.
468- *Onopordum tauricum* Willd., 15, 28, KbPM, 06.10.2004, 1190m, M.Arslan 1086, Hcrp, EuSib.
469- *Petasites hybridus* (L.) P.Gaertn., 14, 24, 27, YyL, 13.04.2005, 750-1300m, M.Arslan 1078, Crp, EuSib.
470- *Pilosella hoppeana* (Schult.) F.W.Schultz & Sch.Bip. subsp. *troica* (Zahn) P.D. Sell & C.West, 1, ÇgH, 04.08.2004, 1283m, M.Arslan 1052, Hcrp.

- 471- *Pilosella piloselloides* (Vill.) Soják subsp. *piloselloides*, meşe, 4, YyL, 13.07.2004, 1120m, M.Arslan 1054, Hcrp.
472- *Pulicaria dysenterica* (L.) Bernh. subsp. *dysenterica*, 12, YuL, 23.08.2005, 1000m, M.Arslan 1058, Hcrp.
473- *Reichardia dichotoma* (Vahl) Freyn, 10, YuL, 04.08.2004, 1250m, M.Arslan 1016, Hcrp, IrTur.
474- *Senecio othonnae* M.Bieb., 11, 12, KzL, 09.08.1490m, M.Arslan 1027, Hcrp, EuSib.
475- *Senecio vulgaris* L., 11, AFRC, 13.04.2005, 1050m, M.Arslan 1028, Thp.
476- *Solidago virgaurea* L. subsp. *virgaurea*, 11, 15, YuH, 08.09.2004, 1300m, M.Arslan 1041, Hcrp, EuSib.
477- *Sonchus asper* (L.) Hill subsp. *glaucescens* (Jord.) Ball, 9, ÇgH, 04.08.2004, 1282m, M.Arslan 1050, Hcrp.
478- *Tanacetum parthenium* (L.) Sch.Bip., 12, 28, ÇgH, 08.09.2004, 1300m, M.Arslan 1007, Hcrp.
479- *Tanacetum poteriifolium* (Ledeb.) Grierson, 18, StH, 05.07.2004, 1240m, M.Arslan 1006, Hcrp, Eux.
480- *Taraxacum* aff. *gracilens* Dahlst., 15, KzL, 10.05.2005, 1490m, M.Arslan 1025, Hcrp, Med.
481- *Taraxacum macrolepium* Schischk., 15, AFRC, 09.09.2004, 1050m, M.Arslan 1026, Hcrp.
482- *Telekia speciosa* (Schreb.) Baumg., 14, 24, 27, EIP, 05.07.2004, 870m, M.Arslan 1024, Hcrp, EuSib.
483- *Tragopogon coloratus* C.A.Mey., 24, GuL, 10.05.2005, 880m, M.Arslan 1056, Hcrp, IrTur.
484- *Tragopogon dubius* Scop., 15, 28, Kbp, 06.07.2004, 1150m, M.Arslan 1055, Hcrp.
485- *Tripleurospermum tenuifolium* (Kit.) Freyn, 9, ÇgH, 06.10.2004, 1250m, M.Arslan 1030, Hcrp, EuSib.
486- *Tussilago farfara* L. 14, 24, Crp.

APIALES

Araliaceae

- 487- *Hedera colchica* (K.Koch) K.Koch, 8, 16, KkuL, 15.09.2005, 1335m, M.Arslan 655, Php-L, Eux.
488- *Hedera helix* L., 4, 8, EIL, 09.09.2004, 1140-1200m, M.Arslan 654, Php-L.

Apiaceae

- 489- *Aethusa cynapium* L., 15, AkL, 06.10.2004, 1290m, M.Arslan 944, Thp, EuSib.
490- *Angelica sylvestris* L. var. *sylvestris*, 27, EIL, 04.08.2004, 770m, M.Arslan 934, Hcrp, EuSib.
491- *Anthriscus nemorosa* (M.Bieb.) Spreng., 15, 26, Kkp, 14.07.2004, 1612m, M.Arslan 913, Hcrp.
492- *Astrantia maxima* Pall. subsp. *haradjianii* (Grintz.) Rech., 15, FiH, 02.08.2005, 1158m, M.Arslan 493, Hcrp, End, NT.
493- *Bupleurum falcatum* L. subsp. *polyphyllum* (Ledeb.) H.Wolff., 15, KzL, 09.08.2006, 1469m, Hcrp, Eux.
494- *Caucalis platycarpus* L., 15, KzL, 09.08.2006, 1481m, M.Arslan 957, Thp.
495- *Chaerophyllum angelicifolium* M.Bieb., 4, EyS, 13.07.2005, 1013m, M.Arslan 954, Hcrp, Eux.
496- *Chaerophyllum aureum* L., 15, Kkp, 14.07.2004, 1613m, M.Arslan 942, Hcrp.
497- *Chaerophyllum byzantinum* Boiss., 10, 27, EIP, 05.07.2004, 870m, M.Arslan 939, Hcrp, Eux.
498- *Cnidium silaifolium* (Jacq.) Simonk. subsp. *orientale* (Boiss.) Tutin, 15, 09.08.2006, 1500m, M.Arslan 958, Hcrp.

- 499- *Conium maculatum* L., 12, FiH, 02.08.2005, 1153m, M.Arslan 948, Thp.
500- *Daucus carota* L., 25, BsS, 967.10.2004, 750m, M.Arslan 911, Hcrp.
501- *Eryngium giganteum* M.Bieb., 1, 22, ÇgH, 03.08.2005, 1300m, M.Arslan 953, Hcrp, Eux.
502- *Ferulago thirkeana* (Boiss.) Boiss., 9, YKS, 03.08.2005, 1250m, M.Arslan 955, Hcrp, End, NT.
503- *Heracleum sphondylium* L. subsp. *montanum* (Schleich.ex Gaudin) Briq., 5, YyL, 04.08.2004, 1050m, M.Arslan 931, Hcrp, EuSib.
504- *Laser trilobum* (L.) Borkh., 1, ÇgH, 04.08.2004, 1283m, M.Arslan 919, Hcrp.
505- *Laserpitium hispidum* M.Bieb., 10, ÇgH, 08.09.2004, 1300m, M.Arslan 920, Hcrp, EuSib.
506- *Oenanthe pimpinelloides* L., 15, EIP, 05.07.2004, 870m, M.Arslan 912, Hcrp.
507- *Orlaya daucoides* (L.) Greuter, 18, GuL, 25.05.2004, 800m, M.Arslan 933, Thp, Med?
508- *Pastinaca sativa* L. subsp. *urens* (Req. ex Gren. & Godr.) Čelak., 10, ÇgH, 08.09.2004, 1300m, M.Arslan 936, Hcrp.
509- *Peucedanum aegopodioides* (Boiss.) Vandas, 1, ÇgH, 08.09.2004, 1300m, M.Arslan 928, Hcrp, EuSib.
510- *Peucedanum caucasicum* (M.Bieb.) K.Koch, 12, FiH, 02.08.2005, 1157m, M.Arslan 924, 13, GuL, 02.08.2007, 1025m, H. Duman 1216, Hcrp, HyrEux.
511- *Peucedanum longifolium* Waldst. & Kit. 1, ÇgH, 04.08.2004, 1282m, M.Arslan 926, Hcrp, EuSib.
512- *Physospermum cornubiense* (L.) DC., 18, EyS, 14.07.2004, 1125m, M.Arslan 923, Hcrp.
513- *Sanicula europaea* L., 4, YFR, Hcrp.
514- *Smyrnium perfoliatum* L., 12, FiH, 02.08.2005, 1157m, M.Arslan 956, Hcrp.
515- *Tordylium maximum* L., 10, BsS, 04.08.2004, 755m, M.Arslan 914, Thp.
516- *Torilis japonica* (Houtt.) DC., 17, EyS, 14.07.2004, 1210m, M.Arslan 917, Thp.
517- *Torilis ucranica* Spreng., 18, YFR, 20.07.2006, 997m, M.Arslan 922, Thp.

DIPSACALES

Viburnaceae

- 518- *Sambucus ebulus* L., 10, YyL, 09.09.2004, 1080m, M.Arslan 604, Crp.
519- *Sambucus nigra* L., 4, 25, YyL, 09.09.2004, 1080m, M.Arslan 605, Php.
520- *Viburnum lantana* L., 28, KkH, 14.07.2004, 1640m, M.Arslan 609, Php.
521- *Viburnum opulus* L., 5, SaH, 06.10.2004, 1135m, M.Arslan 612, Php.

Caprifoliaceae

- 522- *Dipsacus fullonum* L., 12, AFRC, 09.09.2004, 1050m, M.Arslan 602, Hcrp.
523- *Lonicera orientalis* Lam., 1, 3, YKS, 08.06.2006, 1250m, M.Arslan 608, Php, End, LC.
524- *Scabiosa atropurpurea* L., 10, EIP, 23.08.2005, 860m, M.Arslan 603, Hcrp.
525- *Scabiosa columbaria* L. subsp. *ochroleuca* (L.) Čelak var. *ochroleuca*, 3, DuH, 08.09.2004, 1300m, M.Arslan 600, Hcrp.
526- *Valeriana alliariifolia* Adams, 9, ÇgH, 19.07.2005, 1250-1400m, M.Arslan 636, Hcrp.