

Check-List of Additional Taxa to the Supplement Flora of Turkey III

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Abstract: This checklist contains a total of 295 taxa published as additions to the Flora of Turkey. It includes details of taxa neither recorded by P.H.Davis' "Flora of Turkey and the East Aegean Islands" or its supplements, nor in the 2 previously published checklists. The records in this list are based on data given in nearly 195 papers published up to the end of 2004.

Key Words: Turkish flora, new species, additional taxa

Türkiye Florasına İlave Edilen Türlerin Listesi III

Özet: Türkiye florasına ilave edilen 295 taksonun yer aldığı bir liste hazırlanmıştır. Liste 2004 yılı sonuna kadar yayımlanan yaklaşık 195 çalışma ile P.H.Davis'in Türkiye ve Doğu Ege Adaları Florası ile ek ciltlerine ve ayrıca aynı seri çalışmanın Check-List I ve II'de yer almayan taksonları içermektedir.

Anahtar Sözcükler: Türkiye florası, yeni türler, ilave taksonlar

Introduction

The *Flora of Turkey and the East Aegean Islands* was published by P.H.Davis in 9 volumes (Davis, 1965-1985). Then 2 supplements were published in 1988 (Davis, et al., 1988) and 2000 (Güner et al., 2000) detailing additions to the Turkish flora since the publication of the main work. The publication of the *Flora of Turkey and the East Aegean Islands* and its 2 supplements have received considerable attention from botanists, both in Turkey and abroad.

The first checklist of additional taxa to the Turkish flora was published at the end of 1994 (Özhatay et al., 1994) and included 178 taxa. The second checklist of additional taxa to the Turkish flora, was published at the beginning of the 1999 (Özhatay et al., 1999) and included 168 taxa. Based mainly on these 2 check-lists, the second supplement of *Flora of Turkey and the East Aegean Islands* was prepared and published (Güner et al., 2000). Since 2000 nearly 195 further papers regarding the flora of Turkey have been published and many additional taxa have been recorded, which were either new to science or new to the Turkish flora, and these

findings have been published in a range of journals. The original publications were subsequently drawn together by the current authors as a collection housed in the library of the Department of Pharmaceutical Botany, University of Istanbul.

This present survey aims to present all the published taxa added to the Turkish flora since the publication of the second supplement to Davis' work, which have been published before the end of 2004. The families and genera are presented in the systematic order, but species are given in alphabetical order and in an identical format as is given in the supplements (Davis, 1988; Güner et al., 2000). References to the original literature sources are given in angled parentheses at the end of the taxon names.

The list contains a total of 295 taxa added as new to the Turkish flora, comprising 154 species, 12 subspecies, 15 varieties, and 8 hybrids; in total, 189 of the taxa are new to science and another 106 taxa were previously unrecorded in Turkey. The final 28 taxa represent previously known taxa, including comb. nov., stat. nov., and nom. nov.

Taxa new to science		Taxa new to Turkey		Previously known taxa	
genus	3	genus	6	comb. nov.	11
species	154	species	75	stat. nov.	13
subspecies	12	subspecies	16	nom. nov.	4
variety	15	variety	13		
hybrid	8	hybrid	2		
Total	189	Total	106	Total	28

The list of additional taxa

e = endemic species

* = new record

** = new taxon for science

■ = new genus for Turkish flora

■ ■ = new genus for science

SPERMATOPHYTA

GYMNOSPERMAE

PINACEAE (1: 67)

1. ABIES Miller (1: 67)

A. cilicica (Ant. & Kotschy) Carr. in *Traité gén. Conif.*, 229 (1855).

subsp. *isaurica* Coode & Cullen in *Notes R.B.G. Edinb.*, 26: 167 (1965).

e **var. *pyramidalis* Boydak & Erdoğan in *İ.Ü. Orman Fakültesi Dergisi*, Seri A, 49(2): 17-26 (1999). [Boydak & Erdoğan, 1999]

Holotype: (Turkey) C4 Mersin: Gülnar, Söğüt Dağı, at Kurt Tepesi, southern slope, limestone rock, 1330 m, 27.ix.1999, M. Boydak & İ. Erdoğan ISTO 27642.

4. PINUS L. (1: 72)

P. nigra J.F. Arnold in *Reise nach Moriazell* 8 (1785).

subsp. *pallasiana* (Lamb.) Holmboe in *Berg. Mus. Skr.* 1(2): 29 (1914).

e **var. *columnaris-pendula* Boydak in *The Karaca Arboretum Magazine*, 6(1): 17-18 (2001). [Boydak, 2001]

Type: (Turkey) C5 Adana: Pos, Soğukoluk, eastern slope, 1350 m, 9.viii.1999, M. Boydak (ISTO 27637).

S. Anatolia. (Turkey) C4 Antalya: Alanya, Söğüt, Daloğlu Deresi, at Ballısu, southeastern slope, 1400 m, 6.viii.1999, M. Boydak (ISTO 27641). C5 Adana: Pos, Soğukoluk, western slope, 1580 m, 9.viii.1999, M. Boydak (ISTO 27638); same place, eastern slope, 1430 m, 9.viii.1999, M. Boydak (ISTO 27639). C6 Kahramanmaraş: Andırın, Kaleboynu, Kirksu Deresi, northern slope, 1450 m, 12.viii.1999, M. Boydak (ISTO 27640).

ANGIOSPERMAE

DICOTYLEDONES

1. RANUNCULACEAE (1: 95)

3. NIGELLA L. (1: 98)

e ***N. turcica* Dönmez & Mutlu in *Botanical Journal of the Linnean Society*, 146(2): 251 (2004). [Dönmez & Mutlu, 2004]

Type: (Turkey) Iğdır: Tuzluca, around Turabi village, steppe, 40°03'N, 043°44'E, 1010 m a.s.l., 31.v.2002, A.A.Dönmez-10833-B.Mutlu (AAD-DIA 3810-3811) (Holo. HUB; Iso. BM, E).

13. RANUNCULUS L. (1: 146)

**R. bulbiferus* Boiss. & Hoh. in *Boiss., Diagn. Ser.* 1(8): 3 (1849). [Behçet, 2001 b]

E. Anatolia. B9 Van: Erek mountain southeast at Coravanis village, around Çilehane region, 2000-2200 m, 15.v.2000, L. Behçet 6242; same place, 27.v.2000, L. Behçet 6254.

e ***R. kastamonuensis* Dönmez in *Nord. J. Bot.* 22(2): 219 (2002). [Dönmez, 2002 b]

Type: (Turkey) A4 Kastamonu: 18.5 km from Boyalı to Araç, Susuzayla pasture, lake, 41°06'445" N, 33°19'095" E, 1650 m, 5.vi.2001, AAD 9199 (Holo. HUB; Iso. E).

6. CRUCIFERAE (1: 248)

6. RAPHANUS L. (1: 269)

R. raphanistrum L. in Sp. Pl. 669 (1753).

subsp. *rostratus* (DC.) Thell.

*var. *rostratus* in Hegi, III. Fl. Mitteleur. 4, 1 (1918). [Mutlu, 2004 b]

Lectotype: Herb. De Candolle, leg. Fischer 1819, Aserbaidshania prope Lenkoran (Herb. G.; vgl. Szonova 1985).

S. Anatolia. C3 Antalya: Perge, Bozakman and Fitz 1970 (Herb. W 13880); Olimpos Seashore National Park, Dikece Cape, 0 m, seashore, 12.vi.2000, B.Mutlu 5983.

17. ISATIS L. (1: 287)

I. aleppica Scop., Del. Insubr. 2:31 (1786). [Yıldırımli, 1988 a, 1988 b]

DC. Reg. Veg. Syst. Nat., 2:573 (1821); Boiss., Fl. Or., 1:382 (1867); Dur. Et Sch., Fl. Afr., 1:145 (1898); Hayek, Prod. Fl. Pen. Balc., 30, 1:411 (1927); Busch, Fl. USSR, 8: 164 (1939); Şişkin, Fl. Turk., 3:198 (1948); Parsa, Fl. Iran, 1:863 (1951); Ouezel et Santa, Nouv. Fl. Alg., 1:397 (1962); Maire, Fl. Afr. Nord., 13:102 (1967); Mouterde, Nouv. Fl. Liban et Syrie, 2:108 (1970).

= *I. aleppica* Scop. var. *pamphylica* Boiss., Fl. Or., 1:383 (1867). Syntype: Turkey. C3 Antalya. Heldr. 1845

= *I. pyramidata* Stapf, Denk. Akad. Wiss. Wien. Math.-Nat. Kl., 51:19 (1886).

= *I. aleppica* Scop. var. *constricta* Coss., Illustr. Fl. Atlant., 1:86 (1888).

= *I. orientalis* Willd., Enum., 2:663 (1809).

I. lusitanica L., emend. Yıldırımli [Yıldırımli, 1988 a, 1988 b]

Ball., Fl. Eur., 1, 269 (1964); Davis, Fl. Turkey, 1, 303 (1965); Zohary, Fl. Palaest., 1, 260 (1966); Hedge, Fl. Iran., 57, 85 (1968); Hadac and Chrtek, Act. Univ. Carol. Biol., 4, 251 (1973); Tacholm, Fl. Egypt, 2, 177 (1974); Ali and Jafri, Fl. Libya, 23, 108 (1977); Migahid Fl. Saud.-Arab., 1,70 (1978); Moore, Fl. Eur. Checklist and Chromosome index, 56 (1982); Leonard, Centr. Etud. Fl. Veg. Desert. Iran, 3, 35-36 (1983).

= *I. lusitanica* L., Sp. Pl., 1:670 (1753).

= *I. platyloba* Steudel, Nomecl. Bot., 1:440 (1821)

36. EUCLIDIUM R.Br. (1: 349)

**E. tenuissimum* (Pall.) B.Fedtsch. in Bull. Herb. Boiss. 2, 4: 915 (1904). [Ünal & Behçet, 2003 a]

E. Anatolia. B9 Van: Gürpınar, south slopes of Başet Mountain and around Kaçgüden village, 2500-2800 m, 22.v.2001, 27.v.2001, M. Ünal (MÜ 4780, MÜ 4800).

47. BORNMUELLERA Hausskn. (1: 358)

e***B. kıyakii* Aytaç & Aksoy in Botanical Journal of the Linnean Society, 134(3): 487 (2000). [Aytaç & Aksoy, 2000]

Type: (Turkey) C4 Konya: Derebucak; Çamlık kasabası, Kızıldağ, 1400-1600 m., clearing *Pinus nigra* forest, 14. V. 1998, Aytaç 7812 & Duman (holo. GAZI; iso. ANK, E).

Paratype: (Turkey) C4 Konya: Derebucak; Çamlık kasabası, Kızıldağ, 1450-1700 m., clearing of *Pinus nigra* forest, 14. VII. 1997, Aytaç 7706, Aksoy & Kıyak (with fruit).

51. ALYSSUM L. (1: 362)

e***A. dudleyi* N.Adigüzel & R.D.Reeves, in Edinb. J. Bot. 59(2): 216 (2002). [Adigüzel & Reeves, 2002]

Type: (Turkey) B2 Kütahya: Tunçbilek, 1040 m, ultramafic overburden near NW edge of opencast coalmine, 29.vii.1998, R.D.Reeves, A.R.Kruckeberg & N.Adigüzel [Reeves 2045] (holo. GAZI; iso. ANK, E, MPN).

**A. heterotrichum* Boiss. in Diagn. Pl. Or. Nov. Soc. Ser. 1, 6: 15 (1845). [Ünal & Behçet, 2003 b]

E. Anatolia. B9 Van: Gürpınar, south slopes of Başet Mountain and around Kaçgüden village, 2300-2700 m, 27.v.2001, 07.vi.2001, M.Ünal (MÜ 4935, MÜ 6459).

**A. lenense* Adams in Mem. Soc. Naf. Masc. 5, 110 (1817) = *A. fischerianum* D.C. in Syrt. 311 (1821). [Orcan & Mısırdalı, 2000]

Type in Leningrad (L.E.), described from the Lena River

W. Anatolia. A3: Eskişehir: Sarıcakaya; Sarıcakaya-Beyyayla, 15km, stony places, altitude c. 100 m., 22.v.1990, AUFE 4970; 4973; B3 Eskişehir: Çifteler: Bozkurt, roadside along field, altitude c. 800 m, 2.v.1990, AUFE 555.

e***A. nezaketiae* Aytaç & H. Duman in Isr. J. Plant Sci., 48(4): 317 (2000). [Aytaç & Duman, 2000]

Type: (Turkey) A4 Çankırı: 3 km from Çankırı to Ilgaz, 650-700 m, gypsum steppe, 5.vii.1995, H. Duman (5804) & Z. Aytaç (holo. GAZI; iso. E, Hb. Yıldırımli).

*A. *penjwinensis* Dudley in Notes Roy. Bot. Gard. Edinb. 24: 162, pl. 7, f. 4, (1962). Northern Iraq; Fl. Iran. 57: 168 (1968). [Orcan, 2002]

W. Anatolia. A3 Eskişehir: Eskişehir-Seyitgazi, Söforler çeşmesi place, stony slopes, altitude c.200 m, 19.05.1991, AUFE 5974.

56. DRABA L. (1: 413)

e **D. *narmanensis* Yild. in Ot Sistematik Botanik Dergisi, 7(2): 5 (2000). [Yıldırımli, 2000 b]

Type: (Turkey) A8 Erzurum: Narman, around Güney, rocky slopes, chasmophyte, 1700-2200 m, 27.05.1984, Ş.Yıldırımli 6270 (Holo. Herbarium Yıldırımli; Iso. HUB).

e **D. *terekemensis* Yild. Ot Sistematik Botanik Dergisi, 7(2): 2-3 (2000). [Yıldırımli, 2000 b]

Type: (Turkey) A9 Ardahan: Çıldır, between Yıldırımtepe köyü and Şeytankalesi, rocky places and slopes, chasmophyte, 1850-1950 m, 07.06.1998, Ş.Yıldırımli 22142 (Flowering and fruiting material), (Holo. Herbarium Yıldırımli; Iso. GAZI, HUB, IC, UPA, Hb. Nydegger).

58. ARABIS L. (1: 422)

e **A. *alanyensis* H. Duman in Botanical Journal of the Linnean Society, 137(1): 87-88 (2001). [Duman, 2001 a]

Type: (Turkey) C4 Antalya: Alanya, Dim valley, 950-1100 m, on calcareous rocks, 27.vi.1993, H. Duman 4963 & F.A. Karavelioğulları (Holo. GAZI; Iso. E, ANK).

e **A. *davisii* H. Duman & A. Duran in Isr. J. Plant Sci., 49(3): 237 (2001). [Duman & Duran, 2001]

Type: (Turkey) C3 Antalya: 25 km from Akseki to Manavgat road, 560-600 m, 14.V.1998, limestone cliffs, H. Duman 6641 and Z. Aytaç (holo. GAZI; iso. E, ANK, HUB, ADO, Hb. Yıldırımli).

e **A. *erikii* Mutlu in Botanical Journal of the Linnean Society, 145(2): 251 (2004). [Mutlu, 2004 a]

Type: (Turkey) B6 Sivas: Kümbet Village, 4 km from Kümbet, 1650 m, 10.vi.1999, Mutlu 4900 (Holo. HUB; Iso. GAZI).

e **A. *lycia* Parolly & P.Hein in Willdenowia 30(2): 294 (2000). [Parolly & Hein, 2000]

Type: (Turkey). C3 Antalya: Beydağları, Ostflanke des Bakır Tepe [= Bakırlı Dağı] c. 1.5 km südlich Saklıkent, c. 36°45' N, 30°20' E, schattige, überhangende Felswand mit engen Spalten, Kalk, 90-110°, 2400 m, N-expaniert, 22.vi.2002, P.Hein A17-1 (holo.B; iso. E, G, ISTE, JE, herb. Hein, herb. Parolly).

*A. *mollis* Steven in Mem. Soc. Not. Moscow III (1812), 270 non (Scop.) A. Kerner. [Mutlu & Dönmez, 2003]

E. Anatolia. B9 Van: Başkale, Güzeldere Pass, rocky places near the stream, 38°09'144 N, 043°58'587 E, 30.v.2002, 2393 m, A.A. Dönmez 10800 - B. Mutlu (in flower), 30.vi.2002, A.A. Dönmez 11101 (in fruit).

84. CAMELINA Crantz (1: 490)

C. *hispida* Boiss. in Ann. Sci. Not. 17. 176 (1842).

var. *stiefelhagenii* (Bornm.) Yild. in Ot Sistematik Botanik Dergisi, 5(2): 2 (1998). [Yıldırımli, 1998]

Basionym: *Camelina stiefelhagenii* Bornm. In Feddes Rep. 50:129, t.339 (1941).

Type: (E. Germany; alien) bei Coswig b. Dresden, Stiefelhagen (B. Destroyed).

Neotype: (Turkey) B5 Kırşehir: Mucur, calcareous soil, chickpea field, 1100 m, 12 vi 1984, Ş. Yıldırımli 6448 (Herbarium Yıldırımli).

■ CLASTOPUS Bunge ex Boiss.

C. *vestitus* (Desv.) Boiss. in Fl. Or. 1: 261 (1867).

*var. *eriocarpus* Blakelock in Kew Bull. 10: 529 (1956). [Behçet & Ünal 2002]

E. Anatolia. B9 Van: Gürpınar district, south-east slopes of Başet Mountain above Koçgüden village, 2200-2500 m, L.Behçet & M.Ünal (B 6483).

■ ■ GOERKEMIA Yild.

e **G. *turcica* Yild. in Ot Sistematik Botanik Dergisi, 6(2): 2 (1999). [Yıldırımli, 1999b]

Type: (Turkey) B8 Erzurum: Fallow fields near the centrum terminal, 1850 m, 22.vii.1990, Ş. Yıldırımli 13758 (Holo. Herbarium Yıldırımli; Iso. HUB).

e SYRENOPSIS Jaub. & Spach

S. *stylosa* Jaub. & Spach in Illustr. Pl. Or., 1, 6:t. 3 (1842). [Yıldırımli, 2000 a]

Syn.: *Thlaspi jaubertii* Hedge in Notes RBG Edinb., 26: 184 (1965); Flora of Turkey and the East Aegean Islands, vol. 1:340, f.10(1965).

S. bornmuelleri Rech. in Ann. Nat. Hofm. Wien, 49: 264 (1939). Illustr. Pl. Or., 1, 6:t. 3 (1842). [Yıldırımli, 2000 a]

Syn.: *Thlaspi bornmuelleri* (Rech.) Hedge in Notes RBG Edinb., 26: 184 (1965); Flora of Turkey and the East Aegean Islands, vol. 1:340, f.10(1965).

10. VIOLACEAE (1: 524)

VIOLA L. (1: 524)

V. alba Besser in Primit. Fl. Galic. 1: 171 (1809).

*subsp. *alba* [Dinç et al., 2000]

N. Anatolia. A4 Çankırı: Çerkeş, Işık Dağı, nemli orman altı, 1500 m, 30.04.2000, Dinç 634 & Ş.Yıldırımli (Yıldırımli Herb.).

e ***V. dirimliensis* Blaxland in Botanical Journal of the Linnean Society, 145(4): 505 (2004). [Blaxland, 2004]

Type: (Turkey) C2, south-west Anatolia, West of Antalya, Muğla vilayet, east side of Dermil Pass (Dirimli Geçidi) on road 15-55, growing on a bare hillside of serpentinite rocks, N36°5.7.956' to N36°58.228', E029°34.942' to E029°35.192', south facing, also south-west and south-east, with *Muscari macrocarpum*, and a few scattered trees of *Pinus nigra* var. *caramanica*, altitude 1550-1690 m, 18.iv.2002, K.Blaxland (Holo. ANK; Iso. HUB, Z, NY).

e ***V. ermenekensis* Yild. & M. Dinç in Ot Sistematik Botanik Dergisi, 9(1): 2-4 (2002). [Yıldırımli & Dinç, 2002]

Type: (Turkey) C4 Karaman: Ermenek, Kazancı, around Burçakalanı, 1450 m, 15.iv.2000, M.Dinç 617, Ş.Yıldırımli & A.Ünal (holo. Herbarium Yıldırımli; iso. KNYA).

**V. jordanii* Henry in Prodr. Hist. Nat. Var.: 169 (1853). [Dinç et al., 2001]

S. Anatolia. C5 Adana: Karsanti, Şamadan district, Şamadan-Karapınar road, gabre, community of *P.nigra*, *Quercus* and *Carpinus*, 1500 m, 31.v.1973, E. Yurdakulol -11 (ANK).

e ***V. kızıldaghensis* M.Dinç & Yild. in Botanical Journal of the Linnean Society, 138(4): 483-484 (2002). (Subsect. *Viola* Ser. *Eflagellatae* Becker). [Dinç & Yıldırımli, 2002]

Type: (Turkey) B3 Isparta: Şarkiraraağaç, Kızıldağ National Park, Kızıldağ, stony slopes, 1350-1600 m, 4.iv.2001, Dinç 964 & Yıldırımli (Holo. Hb. Yıldırımli; Iso. KNYA, HUB). İbid., Dinç 592 (para. KNYA). İbid., Mutlu 1360 (HUB).

**V. velutina* Form. in Verh. Naturf. Vereins Brünn 30: 28 (1892). [Dinç et al., 2001]

C. Anatolia. C3 Konya: Beyşehir, Kurucuova, Suludere, *P.nigra-Cedrus libani* ormanı ve alpinik step, kalkerli kayalık, 1500-2000 m, 8.vi.1975, Peşmen & Güner 2207 (HUB).

e ***V. yıldırımlii* M.Dinç & Y.Bağcı in Botanical Journal of the Linnean Society, 141(4): 477-478 (2003). [Dinç et al., 2003]

Type: (Turkey) C5 Adana: Aladağ National Park, Aladağ, above Ulupınar village, rocky slopes, 1800 m, 22.iv.2002, Dinç 1162 & Bağcı (holo. KNYA); İbid., 30.iv.2001, Dinç 985 & Bağcı (para., KNYA; Hb. Yıldırımli).

13. CARYOPHYLLACEAE (2: 15)

1. ARENARIA L. (2: 17)

e ***A. mcneillii* Aytaç & H. Duman in Ann. Bot. Fennici 41(3): 214 (2004). [Aytaç & Duman, 2004]

Type: (Turkey) C4 Konya: Hadim-Alanya, Gevne Valley, 1400-1500 m, on humid rocks, 17.vii.1998, Güner 12633 et al. (holo. GAZI; iso. ANK, E).

e ***A. yunus-emrei* Aytaç & H. Duman in Ann. Bot. Fennici, 41(3): 213 (2004). [Aytaç & Duman, 2004]

Type: (Turkey) C4 Karaman: Ermenek-Hadim, Başyayla, 1500 m, on rocks, 30.vii.1998, Güner 12652 et al. (holo. GAZI; iso. ANK).

2. MINUARTIA L. (2: 38)

e ***M. x antalyensis* Parolly & Ö.Eren in Willdenowia 34: 477 [Eren et al., 2004]

Type: (Turkey) C3 Antalya: Beydağları, Bakırlı Dağı above Saklıkent, summit region, 36°49'60"N, 30°20'22"E, c. 2480 m, transition wind-swept cushion community / open thorn-cushion community, 10.vii.1999, Döring, Parolly 6507 & Tolimir (holo. B; iso. E, GAZI, herb. Kürschner, herb. Parolly).

M. dianthifolia (Boiss.) Hand.-Mazz. in Ann. Nat. Hofm. Wien 26: 147 (1912).

(Syn: *M. subsp. cataonica* McNeill, *M. subsp. kurdica* McNeill) [Eren et al., 2004]

M. dianthifolia (Boiss.) Hand.-Mazz. in Ann. Nat. Hofm. Wien 26: 147 (1912).

e **subsp. *elmalia* Aytaç in Ann. Bot. Fennici 41(3): 216 (2004). [Aytaç & Duman, 2004]

Type: (Turkey) C2 Antalya: Elmalı-Korkuteli, between Beğiş and Avdan villages, 2 km, 1500 m, near agricultural fields, 27.vii.1997, Aytaç 7777 (holo. GAZI; iso. ANK, E).

M. dianthifolia (Boiss.) Hand.-Mazz. in Ann. Nat. Hofm. Wien 26: 147 (1912).

subsp. *dianthifolia*

e **var. *longipetala* Parolly & Ö.Eren in Willdenowia 34: 477 [Eren et al., 2004]

Type: (Turkey) C3 Antalya: Beydağları, Bakırlı Dağı above Saklıkent, summit region, 36°49'60"N, 30°20'22"E, c. 2510 m, wind-swept cushion community on rocky flats and along ridges, open thorn-cushion communities, and scree-rich limestone swards, 10.vii.1999, Döring, Parolly & Tolimir (holo. B; iso. E, GAZI, herb. Parolly).

10. *BUFONIA* L. (2: 89)

B. anatolica Chrtek & Krisa in Acta Universitatis Carolinae Biologica 43: 95 (1999).

e **var. *anatolica* [Chrtek & Krisa, 1999]

Type: (Turkey) Muğla: Cal Dag (N of Fethie), S side 1800 m, rocky slope in opening of mixed coniferous forest (*Pinus nigra*, *Cedrus libani*), limestone, 9.vii.1984, leg. Hartwig, Seçmen et Strid, no. 23396. Holo. in herb. G; iso. in herb. B conservatur.

B. anatolica Chrtek & Krisa in Acta Universitatis Carolinae Biologica 43: 95 (1999).

e **var. *elatior* Chrtek & Krisa in Acta Universitatis Carolinae Biologica 43: 95 (1999). [Chrtek & Krisa, 1999]

Type: (Turkey) Hakkari: Cilo Dag, in Diz deresi, 5800 ft., rocky slope, 1954 (O. Polunin) Davis, no.23878, isotype no. 24003. Holo. et Iso. in herb. E conservatur.

B. paniculata F. Dubois in Delarbre Fl. Auvergne ed. 2: 300 (1800).

e **subsp. *orientalis* Chrtek & Krisa in Acta Universitatis Carolinae Biologica 43: 87 (1999). [Chrtek & Krisa, 1999]

Holotype: Paphlagonia, Ginurtschaidere (Wilayet Kastombuli, Tossia) in glareosis, 1892, Haussknecht in herb. PR conservatur.

18. *DIANTHUS* L. (2: 99)

e ***D. aydogdunii* Y. Menemen & E. Hamzaoglu in Ann. Bot. Fennici 37(4): 285 (2000). [Menemen & Hamzaoglu, 2000]

Type: (Turkey) B4 Aksaray: Tuz Gölü (Salt Lake), Ulukışla'dan Tuz Gölü'ne doğru kuzeye gidiş, 950 m, 24.vi.1999 E. Hamzaoglu & M. Aydogdu 2432 (holo. ADO; iso. HUB, GAZI, ANK and Hrb. Yıldırımli).

D. campestris M.B. in Fl. Taur.-Cauc. 1: 326 (1808).

*subsp. *pallidiflorus* (Ser.) Schmalh. (inc. *D. aridus* Janka) in Øl. 1: 447 (1895). [Greuter & Rous, 2002]

European Turkey. A1 (E) Kırklareli: In vinetis prope urbem Logengrad (Kırklareli), solo sabulosa, 4.viii.1899, Mateev (SO).

D. crinitus Sm. in Trans. Linn. Soc. Bot. 2: 300 (1794).

e **var. *argaeus* Aytaç & H. Duman in Ann. Bot. Fennici, 41(3): 217 (2004). [Aytaç & Duman, 2004]

Type: (Turkey) B5 Kayseri: Erciyes Dağı, 3000-3200 m, alpine steppe, 8.viii.1996, Duman 6317 & Aytaç (holo. GAZI; iso. ANK, E, HUB).

25. *BOLANTHUS* (Ser.) Reichb. (2: 171)

e ***B. mevlanaea* Aytaç in Ann. Bot. Fennici 41(3): 218 (2004). [Aytaç & Duman, 2004]

Type: (Turkey) C3 Antalya: Between Akseki and Bozkır, 45 km, Gölcük, 1780 m, steppe, 16.vii.1997, Aytaç 7733 (holo. GAZI; iso. ANK, E, HUB).

27. *ACANTHOPHYLLUM* C.A.Meyer (2: 175)

e ***A. oppositiflorum* Aytaç in Nord. J. Bot. 21(3): 263-265 (2001). [Aytaç, 2001]

Type: (Turkey) Sivas: Gürün-Darende, 10 km east of Gürün, 1350-1400 m, 20.vii.1996, on calcareous steppe, Aytaç, 7476, (holo. GAZI; iso. E, ANK, HUB, YILDIRIMLI).

29. *SILENE* L. (2: 179)

S. caramanica Boiss. & Heldr. in Boiss., Diagn. ser. 1(8): 90 (1849).

e **var. *ilarslanii* Aytaç & Dural in Ann. Bot. Fennici 41(3): 219 (2004). [Aytaç & Duman, 2004]

Type: (Turkey) C3 Antalya: Gündoğmuş, Geyik Dağı, steppe, 2300-2500 m, Ilarslan 3916 & Dural (holo. GAZI; iso. ANK, E, HUB).

S. cariensis Boiss. in Diagn. ser. 1(1): 40 (1843).

e**subsp. *muglae* Vural & Dönmez in Ann. Bot. Fennici 39(2): 157 (2002). [Vural & Dönmez, 2002]

Type: (Turkey) C2 Muğla: Köyceğiz, Sultaniye, Kersele stream, 15-30 m, in stream bed, metamorphic, 21.v.1991, A.Güner 9178, M.Vural & H.Şağban (holo. HUB; iso. GAZI!).

Paratype: (Turkey) C2 Muğla: Köyceğiz, between Hamitköy, Domuzdireği hill and Kersele bay, 80-130 m, macchia, serpentine, 18.v.1992, A.Güner 10553, M.Vural, H.Duman, N.Adıgüzel & H.Şağban (HUB).

e***S. doganii* A. Duran & Y. Menemen in Botanical Journal of the Linnean Society, 143(1): 109-110 (2003). [Duran & Menemen, 2003]

Type: (Turkey) C6 Osmaniye: Amanos Dağları, Zorkun Yaylası, Keldazı tepesi, 1750 m, 36°58.95' N, 36°24.22' E, 5.vii.2001, A.Duran 5759 & Y. Menemen (holo. ADO; iso. ANK, GAZI, HUB).

Paratype: (Turkey) C6 Osmaniye: Amanos Dağları, Zorkun Yaylası, Keldazı tepesi, 1750 m, 36°58.95' N, 36°24.22' E, 16.viii.2001, A.Duran 5846 & Y. Menemen (ADO).

e***S. ispirensis* A.P. Khokhrjakov in Ispyt. Prir., Biol., 102(4): 46 (1997). [Khokhrjakov, 1997]

Type: (Turkey) A8 Erzurum: İspir declivia sicca lapidosa in valle fluminis Çoruh Nehri, 11.vi.1995, A.P. Khokhrjakov, M.T. Mazurenko et H. Vreeman. holo. MW, isotypus

e***S. koycegizensis* Dönmez & Vural in Ann. Bot. Fennici 39(2): 153-158 (2002). [Vural & Dönmez, 2002]

Type: (Turkey) C2 Muğla: Köyceğiz, Çandır village, Horozlar district, 20 m, fallow field, 19.vi.1991, A.Güner 9535, M.Vural, H.Duman, A.A.Dönmez & H.Şağban (holo. HUB; iso. GAZI).

Paratypes: (Turkey) C2 Muğla: Köyceğiz, between Hamitköy and Kersele bay, 80-130 m, macchia, serpentine, 18.v.1992, A.Güner 10553, M.Vural, H.Duman, N.Adıgüzel & H.Şağban (HUB); C2 Muğla: Marmaris National Park, Nimara Island, macchia, 100 m, 11.v.1997, H.Şağban 1616 (HUB).

15. POLYGONACEAE (2: 265)

6. POLYGONUM L. (2: 269)

**P. nepalense* Meissner in Monogr. Gen. Polyg. Prod. 84 (1826). [Tan & Baytop, 1995]

E. Anatolia. B9 Van: Erek mountain southeast of Çoravanis village, around Çilekane region, 2000-2200 m, 15.v.2000, L. Behçet 6242; some place, 27.v.2000, L.Behçet 6254.

16. CHENOPODIACEAE (2:294)

22. SALSOLA L. (2: 328)

**S. brachiata* Pall. in Illustr. Pl.: 30 (1803). [Çolak & Sorger, 2004]

E. Anatolia. B10 Ağrı: Doğubeyazıt'ın 9 km doğusu, Ağrı Dağı'nın güneybatısındaki tuzcul step.

S. cyrenaica (Maire & Weiller) Brullo

e**subsp. *antalyensis* Freitag & H. Duman in Edinb. Jour. of Bot. 57(3): 339-340 (2000). [Freitag & Duman, 2000]

Type: (Turkey) Antalya: 18 km E Demre at road to Finike, on limestone cliff, 10 xii 1998, H. Duman 6866 (holo. KAS; iso. GAZI).

S. Anatolia. C3: Antalya: type locality, 8.viii.1998, Duman 6838 (GAZI, KAS); ibid., 10.xii.1998, Duman 6866 a (GAZI, KAS); ibid. 17.5 km from Demre, rocks and roadsides near sea, 2.vi.1994 Burton An. 1036 (Burton, private collection, KAS).

24. NOAEA Moq. (2: 335)

e***N. cadmea* Yild. in Ot Sistematiik Botanik Dergisi 9(2): 8 (2002). [Yıldırımli, 2002]

Type: (Turkey) C2 Denizli: Babadağ, between Gökbel and Karakurtlu yaylası, association of *Astragalus-Satureja-Salvia* in steppe, especially in thorny *Astragalus*, 1600-1750 m, 31.viii.2002, Ş.Yıldırımli 28113 (Holo. Herbarium YILDIRIMLI, iso. GAZI, HUB, K).

N. tournefortii (Jaub. & Spach) Moq. in DC., Prodr., 13, 2: 208 (1849). [Yıldırımli, 2002]

Basionym: *Anabasis tournefortii* Jaub. & Spach in H.F. Jaubert & E. Spach "Illustrationes Plantarum Orientalium" 2: 43 (1845).

Syn.: *N. mucronata* (Forssk.) Aschers. & Schweinf. subsp. *tournefortii* (Spach) Aellen in "Flora of Turkey and the East Aegean Islands" 2: 336 (1967); *N. leptoclada*

(Woron.) Iljin in "Flora URSS" 6: 269 (1936); *N. leptoclada* (Woron.) Iljin in "Flora of Iran" 38: 347 (2001). Basionym of *N. leptoclada* (Woron.) Iljin is *N. tournefortii* (Jaub. & Spach) Moq. var. *leptoclados* Woron. in sched. Bucsh, Marcowicz & Woron. Fl. Cauc. Exs. 11-14: 22 (1909).

17. AMARANTHACEAE (2: 340)

1. AMARANTHUS L. (2: 340)

**A. spinosus* L., in Sp. Pl. 991 (1753). [Gönen & Uygur, 2000]

S. Anatolia. C5 Adana: Yüreğir Kazıklıbucağı village, 25 m., in maize field, 9.x.1996, Oya Gönen 1063.

22. TAMARICACEAE (2: 348)

2. TAMARIX L. (2: 349)

e ***T. duezenlii* Çakan & Zielinski in Acta Societatis Botanicorum Poloniae 73(1): 54 (2004). [Çakan & Zielinski, 2004]

Type: (Turkey) C5 Adana: Çukurova Delta, Tuzla district, Tuzla lagoon near Seyhan river, edge of saline lagoon, near sea level, 23.viii.2000, H.Çakan 1167 (Herbarium of Çukurova University, Adana, ADA, Holo.); KOR (iso.).

30. LINACEAE (2: 425)

1. LINUM L. (2: 425)

L. pamphylicum (Boiss.) Podp.

e **subsp. *olympicum* G.Kaynak & Ö.Yılmaz in Ann. Bot. Fennici 40(2): 147-148 (2003). [Yılmaz et al., 2003]

Type: (Turkey) A2 Bursa: Uludağ, Soğukpınar, 900 m, 03.vi.2001, Ö.Yılmaz (holo. BULU 11994; iso. GAZI, MARA).

41. RHAMNACEAE (2: 523)

5. RHAMNUS L. (2: 526)

R. lycioides L. in Sp. Pl. ed. 2: 279 (1762).

*subsp. *oleoides* (L.) Jahandiez & Maire in Cat. Pl. Maroc. 2: 476 (1932). [Nydegger-Hügli, 1994]

E. Anatolia. B7 Erzincan: İliç- Kemaliye, Eichengebüsch neben Fluss 6 km westlich İliç, 980 m, 21.vi.1992, Nydegger 46351 (det. Zielinski).

45. LEGUMINOSAE (3: 1)

16. GENISTA L. (3: 24)

e ***G. vuralii* A.Duran & H.Dural in Ann. Bot. Fennici 40(2): 113-114 (2003). [Duran & Dural, 2003]

Type: (Turkey) A4 Çankırı: Atkaracalar, Dumanlı Dağı, Taşlık vicinity, 1350-1500 m, stony places, 12.vi.1997, A. Duran 4364 & H. Dural (Holo. ADO; Iso. KNYA, GAZI, ANK, HUB).

32. ASTRAGALUS L. (3: 49)

**A. aegobromus* Boiss. & Hohen. in Boiss., Diagn. Pl. Or. Nov. Ser. 1, 9: 74 (1849). [Podlech, 1999 a]

Syn.: *A. torrentum* Bunge, 1. c. 11 (16): 40 (1868) in clave et 1. c. 15(1): 55 (1869).

Anatolia.

e ***A. antalyensis* A.Duran & Podlech in Sendtnera 6: 143-144 (1999 b). (sect. Caprini) [Podlech, 1999 b]

Type: (Turkey) C3 Antalya: Akseki, Gukurköy yaylası, Yumrudikmeni mevki, 2200 m, 16.vii.1995, A. Duran 2792 (holo. GAZI; iso. MSB).

e ***A. arakliensis* Podlech in Sendtnera 6: 162-163 (1999 b). (sect. Onobrychoidei) [Podlech, 1999 b]

Holotype: (Turkey) A7 Trabzon: Araklı-Bayburt, 19 km S Daghbasi, 1900 m, 10.vi.1988, M. Nydegger 43282 (MSB).

e ***A. aytatchii* Akan & Civelek in Ann. Bot. Fennici 38(3): 169 (2001). [Akan & Civelek, 2001]

Holotype: (Turkey) B6 Sivas: Taşlıdere, Domuzluk district, Hocabey village, Al Hill, deep soil, gypsum fields and slopes, 39°37'N, 37°00' E, 1500-1600 m 14.vi.1998, Akan 1428 & Civelek (GAZI). Paratype: Same locality, 1550-1600 m, 18.vi.1985 Civelek 1753 (FUH).

e ***A. bakirdaghensis* Podlech in Sendtnera 6: 157-158 (1999 b). Sect. Malacothrix [Podlech, 1999 b]

Type: (Turkey) B5 Kayseri: 8 km E Bakırdaghi gegen Tufanbeyli, 1330 m, 12.vi.1987, M. Nydegger 42753 (holo. MSB; Iso. BASBG).

e ***A. bingoellensis* Podlech in Sendtnera, 7: 182 (2001 b). (Sect. Dissitiflori) [Podlech, 2001 b]

Type: (Turkey) B8 Muş: Buglan Geçidi (pass) E Solhan, between Bingöl and Muş, 1640 m, 17.vii.1983, M. Nydegger 18265 (holo. MSB; iso. BASBG).

A. bithynicus Podlech & Sytin in Sendtnera 8: 161 (2002). (Sect. *Onobrychoidei*). [Podlech & Sytin, 2002]

Based on *A. xylobasis* var. *angustissimus* Bornm., Repert. Spec. Nov. Regni Veg., Beih. 89: 185, 1940.

Type: (Turkey) Bithynia, ad Bilecik, in declivitatibus vallis fluvii Karasu, 300-400 m, 20.v.1929, J.F.N. Bornmüller 14107 (holo. B!; iso. BPI, BM, GI, W!).

e ****A. bozokmanii** Podlech in Sendtnera, 7: 176 (2001 b). (Sect. *Caprini*) [Podlech, 2001 b]

Holotype: (Turkey) Ankara: zwischen Kızılcahamam und Çeltikçi yolu, 6.vi.1970, I.Bozokman & K. Fitz 906 (W).

e ****A. brevidentatus** Podlech in Sendtnera 6: 151 (1999 b). (sect. *Incani*) [Podlech, 1999 b]

Type: (Turkey) B4 Ankara: Zwischen Ankara und Aksaray, 10 km N Şereflikoçhisar, 970 m, steiniger Abhang, 1.iv.1986, M. Nydegger 41023 (holo. MSB; iso. BASBG).

**A. bruguieri* Boiss. in Diagn. Pl. Or. Nov. Ser. 1, 9: 102 (1849). [Podlech, 2001 a]

Type: "Inter Bagdad et Kermanschah", J.G. Bruguere, holotype P.

Anatolia.

A. caprinus L. in Spec. Pl., ed. 2: 1071 (1763).

*subsp. *caprinus* [Podlech, 1999 a]

Type: Morison, Pl. Hist. Univ. 2: sect. 2, tab. 24 (1680), lectotypus (iconotypus).

Anatolia.

e ****A. cedreticola** A. Duran & Podlech in Sendtnera 6: 149-150 (1999 b). (sect. *Hypoglottidei*) [Podlech, 1999 b]

Type: (Turkey) C3 Antalya: Akseki, Pınarbaşı köyü, Çukurköy yaylası, Yumrudikmeni mevki, 2200 m, 4.vii.1996, A. Duran 4071 (holo. GAZI; iso. MSB).

S.W. Anatolia. C3 Antalya: Akseki, Pınarbaşı köyü, Softalar yaylası, 1800 m, *Cedrus libani* forest, 4.vi.1996, A. Duran 3900 (GAZI, MSB), Akseki, Pınarbaşı köyü, Çataloluk mevki, 1400 m, 11.vi.1995, A. Duran 2712 (GAZI, MSB).

**A. chrysostachys* Boiss. in Diagn. Pl. Or. Nov. Ser. 2, 2: 69 (1843). [Podlech, 2001 a]

Type: Persia. "Pr. Ispahan", P.M.R. Aucher-Eloy 4401, lectotypus G-Boiss; isotypi G, K, LE, MSB, P, W.

Anatolia.

**A. crenatus* Schultes in Obs. Bot.: 156 (1809). [Podlech, 1999 a]

Syn.: *A. carrugatus* Bertol., Ror. Ital. Pl. 3: 33 (1810).

Type: "Species anno 1805 miki (Bertoloni) in horto nato e seminibus Horti botanici Parisiensis sub. nom. *Astragali crenati* ex Rosetta [Aegyptus]", neotypus Bolo; microtiche!

Anatolia.

**A. cryptocarpus* DC. in Astragal.: 187 (1802). [Zarre & Podlech, 2001]

Astragalus rechingeri Sirj., Ann. Naturhist. Mus. Wien 49: 269 (1939).

Type: Kurdistan, Agherov Da (S der Ebene von Pesandast, 2900 m, 24.vi.1936, Frödin 77 (holo. UPS! photo K; iso. W! photo MSB!)).

E. Anatolia. Bitlis/Van: mt. 10 km SE Pelli, 2450 m, 8.vii.1954, Davis & Polunin D. 22582 (BM, E). – Van: distr. Satak, Kavuşşahap Dağ, 2750 m, 27.ii.1954, Davis & Polunin D. 23075 (BM, E) – Tatvan to Gevaş, Kuşgunkiran Geçidi, 2250 m, 11.viii.1987, Engel 110 (MSB).

e ****A. demirizii** R. Kramer & Podlech in Sendtnera 6: 163-164 (1999 b). (sect. *Onobrychoidei*) [Podlech, 1999 b]

Type: (Turkey) Ankara: Tuz Gölü, E Ufer, 14 km S Şereflikoçhisar, 899 m, Halophytenflur, 20.v.1986, U. Kramer 52 (holo. BSB-VO; iso. BSB-VO, MSB).

e ****A. diyarbakirensis** Podlech in Sendtnera 6: 138-139 (1999 b). (sect. *Astragalus*) [Podlech, 1999 b]

Holotype: (Turkey) Diyarbakır: 12 km W Diyarbakır on road to Siverek, ± 600 m, 11.v.1988, P.J. Cribb (K).

e ****A. dumanii** M.Ekici & Aytaç, in Ann. Bot. Fennici, 38(3): 171-172 (2001). [Ekici & Aytaç, 2001]

Type: (Turkey) B6 Maraş: Göksun, Berit Dağı, 2400 m, 8.x.1997, Ekici 2057 & Aytaç (holo. GAZI; iso. MSB, ANK, HUB, YILDIRIMLI).

Paratype: (Turkey) Kayseri: Binboğa Dağı, between Körkuyu-Sıçak pleasure, 2600 m, 21.v.1992, rocky place, Aytaç 5434 & H.Duman (GAZI).

e ****A. duranii** E.Hamzaoğlu & L.Kurt in Ann. Bot. Fennici 39(2): 89-90 (2002). [Hamzaoğlu & Kurt, 2002]

Type: (Turkey) A5 Yozgat: Aydıncık, Kazankaya - Alan koyu, 7. km, 1020 m, 10.vi.2001, E. Hamzaoğlu 2690 (holo. ADO; iso. GAZI, ANK, HUB & Hrb. Yıldırımli).

Paratype: (Turkey) A5 Yozgat: Kazankaya- Alan koyu, yol kenarları, 1000 m, 24.vi.2000, E.Hamzaoğlu 2521 (ADO).

e ****A. ekicii** H.Duman & H.Akan in Bot Jour Linn Soc 143(2): 201-202 (2003). [Duman & Akan, 2003]

Holotype: (Turkey) B6 Malatya/C6 Adıyaman: Sürgün-Gölbasi 5 km, 1400-1450 m, rocky slopes, 29.vi.2001, Akan 3656 (GAZI).

e ****A. eskishehircus** Podlech in Sendtnera 6: 164-165 (1999 b). (sect. Onobrychoidei) [Podlech, 1999 b]

Holotype: (Turkey) B3 Eskişehir: Çifteler-Eskişehir, 1 km S Hamidiye, 930 m, 15.vi.1993, M. Nydegger 47470 (MSB).

e ****A. fallacinus** Podlech in Sendtnera 6: 148-149 (1999 b). (sect. Dissitiflori) [Podlech, 1999 b]

Type: (Turkey) A4 Çankırı: Kalecik-Çankırı, E. Hisarcikkay, 850 m, Giphügel, 5.vi.1993, M. Nydegger 47400 (holo. MSB; iso. BASBG).

N. Anatolia. A5 Sinop: Boyabat-Kastamonu, 21 km W Boyabat, 280 m, Serpentin, 30.vi.1987, Nydegger 42984 (MSB).

e ****A. gigantostegius** Podlech in Sendtnera 6: 154-155 (1999 b). (sect. Laxiflori) [Podlech, 1999 b]

Type: (Turkey) C4 Konya: S - Seite Krater Gölü E Karapınar, 1050 m, 30.v.1993, M. Nydegger 47338 (holo. MSB; iso. BASBG).

***A. glycyphyloides** DC. in Prodr. 2: 292 (1825). [Podlech, 1999 a]

Type: Caucasus: In Iberia, C. Steven, holotype G-DC. Anatolia.

e ****A. hakkariensis** Podlech in Sendtnera 6: 168-169 (1999 b). (sect. Stereothrix) [Podlech, 1999 b]

Type: (Turkey) C10 Hakkari: 5 km W Esendere gegen Yüksekova, 1720 m, 24.vii.1983, M. Nydegger 18427 (holo. MSB; iso. BASBG).

S.E. Anatolia. Hakkari: 10 km from Bajirge to Yüksekova, 1900 m, 18.vi.1966, Davis 45208 (E) - 21

km from Bajirge to Yüksekova, 2230 m, 18.vi.1966, Davis 45234 (E) - Pass on Bajirge-Yüksekova road, 2500 m, 30.vi.1967, Watson & al. 2962 (E, K) - dto., 2200 m, 30.vi.1975, Rechinger 53839 (M, W).

e ****A. hamzae** E.Hamzaoğlu in Ann. Bot. Fennici 40(4): 291-292 (2003). [Hamzaoğlu, 2003]

Type: (Turkey) B4/5 Kırıkkale: Delice, Çerikli, Tatlıcak-Melemkar köyleri arası, 660 m, gypseous steppes, 28.iv.2002, E. Hamzaoğlu 2741 (Holo. ADO; Iso. GAZI, ANK).

e ****A. hamzaoglui** O.Ketenoglu & Y.Menemen, in Ann. Bot. Fennici, 40(1): 59 (2003). [Ketenoglu & Menemen, 2003]

Type: (Turkey) A7 Trabzon: Trabzon-Gümüşhane, 51 km, Zigana Dağı, kuzey yamaçları, 1500 m, 20.vi.2001, Y. Menemen & E.Hamzaoğlu, Y. Menemen 96 (Holo. ADO; Iso. ANK).

A. hololeucoides Podlech & Sytin in Sendtnera 8: 155 (2002). (Sect. Hololeuce). [Podlech & Sytin, 2002]

Based on *A. mesogitanus* f. *glabriflorus* Hub.-Mor., Repert. Spec. Nov. Regni Veg. 48: 282, 1940.

Syntypes: Vilayet Burdur, Dirmil-Tefenni, 1250 m, 9.vi.1938, H. Reese, J. Renz & A. Huber-Morath 5531; 3 km nach Dirmil, 1200 m, 9.vi.1938, A. Huber-Morath 5532 (G). Lectotype (Podlech 1998):. [Turkey] Vilajet Burdur: Dirmil Tefenni, 1250 m, 9.vi.1938, H. Reese, J. Renz & A. Huber-Morath 5531 (G!; iso. G!) *A. lycius* Boiss. f. *acutiflorus* Hub.-Mor., Repert. Spec. Nov. Regni Veg. 48: 284, 1940.

e ****A. inanae** R.S. Göktürk, O.D. Düşen & Sümbül in Isr. J. Plant Sci. 51(1): 67-68 (2003). [Sect. Caprini DC.] [Göktürk et al., 2003 a]

Type: (Turkey) C3 Antalya: Korkuteli, 8 km from Korkuteli to Fethiye, under and in clearings in *Pinus* forest, 1317 m, 37°02'N, 30°06'E, 8.v.2002, R.S.Göktürk 4556 - O.D. Düşen, S. Düşen (holo. AKDU; iso. HUB, GAZI, AIBU).

e ****A. karasarensis** Podlech in Sendtnera 6: 155-156 (1999 b). (sect. Laxiflori) [Podlech, 1999 b]

Type: (Turkey) B7 Sivas: 5 km E Karaşar Geçidi zwischen Kangal und Divriği, 1550 m, 15.vi.1992, M. Nydegger 46284 (holo. MSB; iso. BASBG).

e ****A. khokhrjakovii** Sytin & Podlech in Sendtnera 8: 156 (2002). (Sect. Hololeuce) [Podlech & Sytin, 2002]

Holotype: (Turkey) Artvin: valley of the river Çoruh Nehri, right bank against Artvin, 6.vii.1994, A.P. Khokhrjakov, M.G. Pimenov, E.V. Kljukov & M.T. Mazurenko (MW).

e **A. *kizilirmakii* Podlech & Sytin in Sendtnera 8: 157 (2002). (Sect. Hololeuce) [Podlech & Sytin, 2002]

Holotype: (Turkey) Nevşehir: in valle fluvii Kizil Irmak inter Gülshehir et Hacibektaş, 950 m, 3.vii.1975, K.H.Rechinger 53946 (M).

e **A. *konyaensis* Podlech in Sendtnera 6: 165 (1999 b). (sect. Onobrychoidei) [Podlech, 1999 b]

Type: (Turkey) C4 Konya: Kızılyaka-Hadim e Kaplandi, 1330 m, 22.vi.1990, M. Nydegger 45772 (holo. MSB; iso. BASBG).

C. Anatolia. C4 Konya: Belören-Hadim, 10 km N Hadim, 1370 m, 28.vii.1992, Nydegger 46879 (BASBG, MSB).

*A. *laguriformis* Freyn in Bull. Herb. Boissier 5: 602 (1897). [Podlech, 2001 a]

Type: Iraq: "Kurdistania, in montis Kuh-Sefin ad pag. Schoklova (ditionis Erbil), 1000 m, J.F.N. Bornmüller 1194, holo. BRNM!; iso. B, JE, W.

Anatolia.

*A. *leucomallophorus* Bornm. & Sirj. in Bauhinia 16: 40 (2002). [Nydegger-Hügli, 2002]

E. Anatolia. B7 Erzincan: Iliç-Kemaliye, steppes S Çimento Geçidi, 1480 m, 21.vi.1992, Ny. 46362 (det. Zarre).

e **A. *longisubulatus* Podlech in Sendtnera 6: 151-152 (1999 b). (sect. Incani) [Podlech, 1999 b]

Type: (Turkey) B7 Erzincan: 8 km S Kemaliye gegen Arabkir, bewaldetes Tal, 1040 m, 22.vi.1992, Nydegger 46374 (holo. MSB; iso. BASBG).

e **A. *longivexillatus* Podlech & Ekici in Sendtnera 6: 170-171 (1999 b). (sect. Trachycercis) [Podlech, 1999 b]

Type: (Turkey) B10 Ağrı: 5 km N Doghubayazit gegen Iğdır, 1570 m, Brachland, 18.v.1990, M. Nydegger 45450 (holo. MSB; iso. BASBG).

E. Anatolia. B9 Ağrı: Zwischen Ağrı und Doghubayazit, bei der Abzweigung nach Suluçam, 1780 m, Brachland, 17.v.1990, Nydegger 45434 (MSB).

e **A. *malatyaensis* Podlech in Sendtnera 6: 147 (1999 b). (sect. Caprini) [Podlech, 1999 b]

Type: (Turkey) Malatya: 8 km E Darende gegen Malatya, 1080 m, Gipsboden, 4.vi.1987, M. Nydegger 42617 (holo. MSB; iso. BASBG).

e **A. *maxtedii* Podlech & Sytin in Sendtnera 8: 162 (2002). (Sect. Onobrychoidei) [Podlech & Sytin, 2002]

Holotype: (Turkey) Ankara: SW of Kalecik, 1260 m, 40°04' N, 33°20' E, summer 1995, N. Maxted 16/156 (MSB).

e **A. *nevsehiricus* Podlech in Sendtnera 6: 153 (1999 b). (sect. Incani) [Podlech, 1999 b]

Type: (Turkey) B5 Nevşehir: 2 km E Nevşehir gegen Ürgüp, 1310 m, Hohlweg in einer Baumkultur, 7.vi.1992, M. Nydegger 46186 (holo. MSB; iso. BASBG).

e **A. *nigdeanus* Podlech & Ekici in Sendtnera 6: 167 (1999 b). (sect. Sisyrophorus) [Podlech, 1999 b]

Type: (Turkey) C4 Karaman: Koros' in üst kesimleri, 1750 m, 22.vi.1998, M. Ekici 2093 (holo. GAZI; iso. MSB).

C. Anatolia. C4 Karaman: Koros' in üst kesimleri, 1750 m, 22.vi.1998, Ekici 2098 (GAZI, MSB); C5 Niğde: Camardı, von Cukurbağ gegen Emli Boğazı, 1650 m, 15.vi.1987, Nydegger 42802 (BASBG, MSB).

e **A. *nigrocalycinus* Podlech in Sendtnera 6: 139-140 (1999 b). (sect. Astragalus) [Podlech, 1999 b]

Type: (Turkey) A9 Erzurum: Zwischen Oltu und Sihsor, 2 km nach der Abzweigung, 1450 m, 23.v.1990, M. Nydegger 45513 (holo. MSB; iso. BASBG).

e **A. *olurensis* Podlech in Sendtnera, 7: 192 (2001 b). [Podlech, 2001 b]

Type: (Turkey) Çoruh (Artvin): between Olur and Yusufeli, towards Ishan, 870 m, 25.v.1990, M. Nydegger 45536 (holo. MSB; iso. BASBG)

e **A. *ovabaghensis* Akan & Aytaç in Ann. Bot. Fennici, 41(3): 210 (2004). [Akan & Aytaç, 2004]

Type: (Turkey) C8 Diyarbakır: Diyarbakır-Ovabağ, 13 km, 800-1000 m, fields, 28.v.1999, Akan 1592 (Holo. GAZI; Iso. ANK).

*A. *pereshkhoranicus* Maasoumi & F.Ghahremoni in Iran, Journ. Bot. 8: 38 (1999). [Podlech, 2001 a]

Type: Persia. Azarbaijan province, Orumieh, Silvana, Movono, Kuhe Khizan (Bardarosh), 2600-3000 m, V. Mozoffarian 69902, holo. TARI; iso. MSB.

Anatolia.

***A. physocalyx** Fischer in Bauhinia 16: 40 (2002). [Nydegger-Hügli, 2002]

C. Anatolia. (Turkey) C4 Konya: Bozkır-Hadim, steppe in lockerem wald, 8 km,

S Hadım, 1820 m, 18.v.1993, Ny. 47217 (det. Podlech).

e ****A. pineticola** Podlech in Sendtnera 6: 166 (1999 b). (sect. Onobrychoidei) [Podlech, 1999 b]

Type: (Turkey) C5 İçel: Arslanköy-Çamlıyayla W Çamlıyayla, 700 m, Föhrenwald [Pinetum], 13.v.1987, M. Nydegger 42329 (holo. MSB; iso. BASBG).

e ****A. polhillii** Podlech in Sendtnera 6: 153-154 (1999 b). (sect. Incani) [Podlech, 1999 b]

Holotype: (Turkey) B9 Van: 18 km from Van to Erçek, 2000 m, 5.vi.1966, P. Davis 44366 (K).

e ****A. rasmontii** Podlech in Sendtnera, 7: 194 (2001 b). [Podlech, 2001 b]

Type: (Turkey) Sivas: Yazıurdu, 1760 m, 38°48'14"N, 36°56'07"E, 11.vii.1995, P.Rasmont PR 105 (holo. MSB!; iso. LG).

e ****A. rubicundus** Podlech & Sytin in Sendtnera 8: 165 (2002). (Sect. Synochreati) [Podlech & Sytin 2002]

Holotype: (Turkey) Kara-dahg inter Amasia et Samsun, 700-800 m, 3.vi.1890, Bornmüller 87 (B).

e ****A. spitzenbergeri** Podlech in Sendtnera, 7: 177 (2001 b). (Sect. Caprini) [Podlech, 2001 b]

Holotype: (Turkey) Antalya: Kuhu Dag S von Elmali, Gebiet von Çiğlikara, 16.vi.1969, K. Fitz & F. Spitzenberger 875 (W).

e ****A. subhanensis** F.Ghahremani & L.Behçet, in Ann. Bot. Fennici, 40(3): 209 (2003). [Ghahremani-Nejat & Behçet, 2003]

Type: (Turkey) Van: East Anatolia. B9 Bitlis: Adilcevaz, Subhan Dağı [Subhan Mt.], Sote Yaylası [highland], east of Çanakyayla village, steppe, 2300 m, 21.vi.1987, L.Behçet 41 (Holo. FAR; Iso. FAR, VANF).

e ****A. tuna-ekimii** N. Adıgüzel in Ann. Bot. Fennici 36(4): 231 (1999). [Adıgüzel, 1999]

Type: (Turkey) B9 Bitlis: Tatvan, Nemrut mountain, below Şahmıran village, 1900 m, volcanic area, 28.v.1972, H. Peşmen 2915 (Holo. GAZI).

S.E. Anatolia. B6 Kahramanmaraş: Göksun, Cennetderesi, mixed forest, 1800 m, 20.vi.1981, B. Yıldız 3010 (E). B7-8 Elazığ: around Guleman, Maden, 1400 m, 30.iv.1983, T. Ekim 7066 (GAZI). B9 Van: Tatvan-Van, after 5 km from Tatvan, 1800-1900 m, 24.vi.1983, T. Ekim 7616 (GAZI).

e ****A. xerophiloides** Podlech & Ekici in Sendtnera 8: 158 (2002). (Sect. Hololeuce) [Podlech, 2002]

Type: (Turkey) Erzurum: Palandöken Dağları Geçidi (pass), N Aziziye, 19.vii.1996, P. Rasmont 104 (holo. MSB; iso. LG).

e ****A. yılmazii** Aytaç & M. Ekici in Botanical Journal of the Linnean Society, 136(1): 131-133 (2001). (sect. Glycyphyllos Bunge) [Aytaç et al., 2001]

Holotype: (Turkey) C4 Konya: Seydişehir-Bozkır; Suğla Lake, around Kayacık köyü suğlası, 1150 m, N 37°16'55", E 32°03'28", chick-pea field, 30.vii.1989, Yılmaz (8989). (holo. GAZI).

Paratype: (Turkey) C4 Konya: Seydişehir-Bozkır; Suğla lake, around Kayacık köyü suğlası, 1150 m, 26.vi.1999, N 37°16'55", E 32°03'28", chick-pea field, Aytaç (7952) & Ekici, GAZI, ANK, HUB, Yıldırımli herb, E, K, EGE.

e ****A. yildirimlii** Aytaç & M.Ekici in Nord. J. Bot. 22(1): 59 (2002). [Aytaç & Ekici, 2002]

Type: (Turkey) A3 Ankara: Beypazarı, 2 km south of Gürlek village, 850-900 m, 26.v.2000, steppe, Aytaç 7997 & M.Ekici (holo. GAZI; iso. ANK, HUB, EGE, E, K, MSB, Yildirimli).

Paratype: (Turkey) A3 Ankara: Beypazarı, 2 km, south of Gürlek village, 850-900 m, 15.vi.1999, steppe, Aytaç 7980 & M.Ekici & F.A.Karavelioğulları.

e ****A. zaraensis** Podlech in Sendtnera, 7: 192 (2001 b). (Sect. Incani) [Podlech, 2001 b]

Type: (Turkey) B7 Sivas: N of Karabel, at road from Divriği to Zara, 1560 m, 18.vi.1992, M.Nydegger 46325 (holo. MSB; iso. BASBG).

***A. zohrabi** Bunge in Mem. Acad. Imp. Sc. Petersb. 11(16): 68 (1868) in clave et l.c. 15(1): 112 (1869). [Podlech, 2001 a]

Syn.: *A. lagopodioides* Vahl, Symb. Bot. 1: 64 (1790), illeg. (non *A. lagopoides* Lam.)

Syntypi: Armenia prope Baibut, Zohrab, K, dto., E. Bourgean 69, lectotypus p, isotypi G, K, MSB, W.

Anatolia.

34. GLYCYRRHIZA L. (3: 260)

G. flavescens Boiss. in Diagn. ser. 1(6): 33 (1846).

e **subsp. *antalyensis* Sümbül, Ö. Tufan, O.D. Düşen & R.S. Göktürk in Isr. J. Plant Sci. 51(1): 71-72 (2003). [Sümbül et al., 2003 b]

Type: (Turkey) C3 Antalya: Kemer, Tekirova, between Tekirova and Çıralı, stabilized road, 10-100 m, maquis and *Pinus brutia* woodland, 03.iii.2001, Ö. Tufan 1033 (holo. AKDU; iso. HUB, GAZI, AIBU).

46. TRIFOLIUM L. (3: 384)

T. alpestre L. in Sp. Pl. ed. 2: 1082 (1763).

*var. *lanigerum* Ser. in DC., Prodr. 2:194 (1825). [Keskin, 2001]

European Turkey. A1 (E) Kırklareli: Kofçaz road, 23 km from Kırklareli, among *Quercus*, 3.viii.1975, A. Baytop ISTE 32479.

T. echinatum Bieb. in Fl. Taur.-Cauc. 2: 216 (1808).

*var. *carmeli* (Boiss.) Gibelli & Belli in Mem. Accad. Sci. Torino Ser. 2. 39:377 (1889). [Keskin, 2001]

N.W. Anatolia. C6 Hatay: Yayladağ, Kışlak village, residence of old primary school garden, 24.V.1997, M. Keskin 1102 (ISTE), C8 Mardin: towards Mardin, 14 km S. of Çınar, Katznelson & Bailey CPI 46294.

T. hybridum L. in Sp. Pl. 766 (1753).

*var. *elegans* (Savi) Boiss. in Fl. Or. 2:146(1872). [Keskin, 2001]

N. W. Anatolia. A2(A) Istanbul: Alemdağ, 17.V.2000, M. Keskin 2404 (ISTE) A2 Bursa: Uludağ, Elma çukuru, 13.V.1944, M. Başarman 2823 (ISTF) A6 Samsun: Kavak, Azaklı village, 10.vi.2000, M. Keskin 2430 (ISTE) A9 Kars: Yalnızçam, 2160 m, 1964, Zohary & Plittmann 2488-7 (HUJ).

T. medium L. in Amoen. Acad. 4: 105 (1759).

*var. *banaticum* Heuff. in Enum. Pl. Banat., in Verh. Zool.-Bot. Ges. Wien 8: Abh. 89 (858). [Keskin, 2001]

N. Anatolia. A4 Kastamonu: Ilgaz Da., Beşdeğirmenler village, around Handüzü, Muhsar Kuşçu series, 2100 m, 20.II.1985, H.G. Gültekin, MARA 1287.

**T. michelianum* Savi in Fl. Pis. 2:159 (1798). [Keskin, 2001]

N. W. Anatolia. A2(A) Istanbul: Alemdağ, 17.V.2000, M. Keskin 2399 (ISTE) B1 Izmir: Izmir-Bergama road, 15 km west of Foça, Crawford, CPI 45858, B8 Muş: 15 km E. of Muş, Katznelson & Bailey, CPI 45856, HUJ.

T. nigrescens Viv. in Fl. Ital. Frag. 12 (1808).

subsp. *petrisavii* (Clem.) Holmboe in Veg. Cyprus 106 (1914).

e **var. *grandifolium* A.S. Ertekin & H. Akbayın in Israel Journal of Plant Sciences, 48(1): 71 (2000). [Ertekin & Akbayın, 2000]

Type: (Turkey) C2 Muğla: Around Köyceğiz village, 10 m, meadows, 10.vii.1984, A.S. Ertekin and H. Akbayın, DUF 8151. southwest Anatolia.

T. repens L. in Sp. Pl. 767 (1753).

*var. *biasoletii* (Steud. & Hochst.) Aschers & Graebn. in Mitterleur. Fl. 6, 2:500 (1908). [Keskin, 2001]

European Turkey. A1 (E) Kırklareli: 12 km E of Demirköy, 400 m, 1963, Orshan 55666 (HUJ), A2 (A) Istanbul: Maltepe, Başibüyük Mah., 1.vii.2000, M. Keskin 2442 (ISTE).

T. tomentosum L. in Sp. Pl. 771 (1753).

*var. *lanatum* Zohary in Zoh. & Heller, Israel Journal of Bot. 19: 328 (1970) et Fl. Pal. 2: 457 (1972). [Keskin, 2001]

N.W. Anatolia. A2(A) Istanbul: Maltepe, Başibüyük district, 13.V.2000, M. Keskin 2388 a (ISTE), C4 Antalya: Konyaaltı, on shore rock, 23.V.1950, M. Heilbronn & A. Attila, ISTE 9819, C5 Mersin: Anamur, Anamur-Gilindere, 1956, Davis & Polunin D. 26015 (HUJ), C5 İçel: Tarsus, Dağlarbaşı village, 26.iv.1953, O. Karahan, ISTF 12363.

50. MEDICAGO L. (3: 483)

M. polymorpha L. in Sp. Pl. 779 (1753).

*var. *apiculata* (Willd.) Rawi [Demir & Saya, 1991]

E. Turkey. B8 Diyarbakır: Lice, Fis ovası, 900 m, 8.vi.1985, Demir 91 (DUF 4722); B8 Diyarbakır: Bilge Kışlası yol ayrımından Bilge Kışlasına doğru 3 km, 740 m, 31.v.1984, Demir 12 (DUF 4119).

53. *LOTUS* L. (3: 518)
 **L. stepposus* Kramina in Byull. Mosk. Obshch. Ispyt. Prir., Biol. 105(1): 35 (2000).
 [Kramina, 2000]
 European Turkey: A2 (E): Tekirdağ: Sultankoy, shore of the sea of Marmara, R. Lampinen, no. 7321, 14.05.1990 (H).
64. *ONOBRYCHIS* Adanson (3: 560)
O. atropatana Boiss. in Fl. Or. 2: 541 (1872).
 e **var. *grandiflora* Aktoklu in Turk J. Bot. 25(5): 360 (2001). (Sect. *Heliobrychis* Bunge) [Aktoklu, 2001]
 Type: (Turkey) A9 Kars: Sarıkamış, Karakurt, Mantaş deresi mevkii, 1450 m, 17.vi.1980, O. Güneş - 1677 (holo. HUB).
O. fallax Freyn & Sint. in Öst. Bot. Zeitschr. 42: 81 (1892).
 e **var. *longifolia* Aktoklu in Turk J. Bot. 25(5): 359 (2001). (Sect. *Onobrychis*) [Aktoklu, 2001]
 Type: (Turkey) B7 Malatya: Arguvan, Çobandere köyü, Şatik çayı vadisi, Sağırtası mevkii, 1200 m, 12.vii.1992, B. Yıldız - 9684 b (holo. hb. Mustafa Kemal University).
 **O. shahpurensis* Rech. f. [Rechinger, 1984]
 E. Anatolia. Bitlis: In jugo Kuzgunkivan Geçidi inter Gewash et Reshadiye, 2200 m, 1.vii.1975, Rech. 53906.
46. *ROSACEAE* (4: 1)
 6. *CERASUS* Duhamel (4: 12)
C. brachypetala Boiss. in Diagn. Ser.1(6): 52 (1845).
 *var. *brachypetala* [Dönmez & Yıldırım, 1999]
 E. Anatolia. B9 Van: Gevaş, between Dokuzcu village and Ahtamar, 1750 m, 7.viii.1996, steppe in rock crevices, AAD 5615 and AAD 5624 (HUB, Yıldırım Herb.).
12. *POTENTILLA* L. (4: 41)
 e ***P. ulrichii* Parolly & Nordt in Willdenowia 32(1): 75 (2002). [Parolly & Nordt, 2002]
 Holotype: (Turkey) C3 Antalya: Abzweig der Strabe Manavgat-Akseki, nahe Ahmetler SW Muratçı, 500 m, überhängende, schattige Kalkwand, Exp. E. 15.x.2000, Ulrich 121 (B).
21. *ALCHEMILLA* L. (4: 80)
 e ***A. akdoganica* Kalheber in Sendtnera 8: 63 (2002). [Hayırlıoğlu & Kalheber, 2002]
 Holotype: (Turkey) A8 Trabzon: Akdogan village above Çaykara, 1700 m, leg. Sema Hayırlıoğlu, nr. 75, 28.vi.1994, Holo. Herbarium Karadeniz Technical University, Trabzon (KTUB).
 e ***A. ayazii* Kalheber in Sendtnera 8: 60 (2002). [Hayırlıoğlu & Kalheber, 2002]
 Type: (Turkey) A8 Trabzon: Arpalı above Sürmene, 2000 m, leg. Sema Hayırlıoğlu, Nr. 158, 05.08.1994, Holo. Herbarium Karadeniz Technical University, Trabzon (KTUB), iso. Herbarium Kalheber.
 e ***A. ayderensis* Kalheber in Sendtnera 8: 60-61 (2002). [Hayırlıoğlu & Kalheber, 2002]
 Type: (Turkey) A8 Rize: Çamlıhemşin, on the mount road of Ayder, 1450 m, leg. Sema Hayırlıoğlu, nr. 116, 21.vii.1994, Holo. Herbarium Karadeniz Technical University, Trabzon (KTUB); iso. Herbarium Kalheber.
 e ***A. basakii* Kalheber in Sendtnera 8: 61 (2002). [Hayırlıoğlu & Kalheber, 2002]
 Holotype: (Turkey) A8 Rize: Başköy above Cimil, 2300 m, leg. Sema Hayırlıoğlu, nr. 28 A, 14.vii.1993, Holo. Herbarium Karadeniz Technical University, Trabzon (KTUB).
 e ***A. beyazogllii* Kalheber in Sendtnera 8: 62 (2002). [Hayırlıoğlu & Kalheber, 2002]
 Type: (Turkey) A7 Trabzon: North slope of Zigana pass, 1700 m, leg. Sema Hayırlıoğlu, nr. 171, 20.viii.1994, Holo. Herbarium Karadeniz Technical University, Trabzon (KTUB); iso. Herbarium Kalheber.
 e ***A. boluensis* Y.Menemen & E.Hamzaoğlu in Nord. J. Bot. 22(3): 325 (2002). [Menemen & Hamzaoğlu, 2002 b]
 Type: (Turkey) A3 Bolu: Kartalkaya yol ayrımından Kartalkaya'ya doğru 24-25. km, 1750 m, 26.vii.2001, Y. Menemen & E. Hamzaoğlu, Y. Menemen 458 (Holo. ADO; Iso. GAZI, ANK).
 Paratype: (Turkey) A3 Bolu: Kartalkaya yol ayrımından Kartalkaya'ya doğru 26. km, 1850 m, 25.vii.2001, Y. Menemen & E. Hamzaoğlu, Y. Menemen 429 (ADO).

**A. chlorosericea* (Buser) Juz. apud Grossh. in Fl. Kavk. IV 322 (1934). [Hayırlıoğlu & Beyazoğlu, 2002]

Type: [Helsingfors]. Described from Diklo in Tushetiya (U.S.S.R.)

N.E. Anatolia. A8 Rize: Between İkizdere and İspir, north-eastern slopes of Ovit Dağı (together with *Carex* spp., *Primula elatior* subsp. *meyeri*), 3000 m, 14.07.1993, S. Hayırlıoğlu 21, KTUB.

**A. glabricaulis* Lindb. in Acta Soc. Sci. Fenn. 37(10): 3 (1909). [Hayırlıoğlu & Beyazoğlu, 2002]

Type: [Leningrad]. Described from the vicinity of Tambov (U.S.S.R.)

N.E. Anatolia. A8 Trabzon: Kemer above Çaykara (together with *Festuca* spp., *Bellis perennis*), 2600 m, 7.07.1993, S. Hayırlıoğlu 9, KTUB.

e ***A. hayirliogluorum* Kalheber in Sendtnera 8: 64 (2002). [Hayırlıoğlu & Kalheber, 2002]

Holotype: (Turkey) A7 Trabzon: on the side of Degirmendere, Zigana, 1750 m, leg. Sema Hayırlıoğlu, nr. 107, 15.vii.1994, Holo. Herbarium Karadeniz Technical University, Trabzon (KTUB).

e ***A. ovitensis* Y. Menemen & E. Hamzaoğlu in Ann. Bot. Fennici 39(3): 231-232 (2002). [Menemen & Hamzaoğlu, 2002 a]

Type: (Turkey) A8 Rize: İkizdere-İspir, Ovit Dağı, 2700-3300 m, 20.viii.2001, Y. Menemen & E. Hamzaoğlu, Y. Menemen 752 (Holo. ADO; Iso. GAZI & ANK).

23. ROSA L. (4: 106)

**R. puberulenta* Bieb. [Nydegger-Hügli, 2002]

E. Anatolia. B7 Erzincan: Çayırılı-Erzincan, Gıphügel Kavalık Geçidi, 2350 m, 15.vii.1988, Ny. 43770 (det. Zielinsky).

Note: *R. pulverulenta* Bieb. is recorded in the Flora of Turkey, but Nydegger specimens are identified by Zielinsky as *R. puberulenta* Rydb. This species is valid distributed in USA. This record needs confirmation.

58. CRASSULACEAE (4: 209)

4. SEDUM L. (4: 224)

e***S. ermenekensis* Ş.Yıldırım & M.Dinç in Ot Sistematiği Botanik Dergisi, 8(2): 2-3 (2001). [Yıldırım & Dinç, 2001]

Type: (Turkey) C4 Karaman: Göktepe, around Körişan, *Abies cilicica* subsp. *isaurica* forest, 1650 m, 30.v.2001, Ş.Yıldırım 26328 & M.Dinç (holo. Herbarium Yıldırım; iso. HUB).

61. GROSSULARIACEAE (4: 261)

1. RIBES L. (4: 261)

e ***R. anaticum* Behçet in Turk J. Bot. 25(2): 103-105 (2001). [Behçet, 2001 a]

Holotype: (Turkey) B9 Bitlis: Adilcevaz, Süphan Mountain north of Kışkılı village, 2500 m, volcanic stony places, 09.07.1987, Behçet 318 VANF.

63. UMBELLIFERAE (4: 265)

5. ERYNGIUM L. (4: 292)

e ***E. trisetum* A. Wörz & H.Duman in Willdenowia 34: 423 (2004). [Wörz & Duman, 2004]

Type: (Turkey) Mittl. Taurus. Konya: Kızıl Dağ zw. Beyşehir und Akseki, Zufahrt zu Gipfel, 37°21'17.5"N, 31°4'1.9"E, geröllreicher Abhang. Serpentin [=Turkey, Central Taurus, Konya: Kızıl Dağ between Beyşehir and Akseki, access road to the summit, stony slope, serpentine], 12.viii.2003, A.Wörz & H.Duman W 23.8.12.01 (holo. STU; iso. GAZI).

10. CHAEROPHYLLUM L. (4: 312)

**C. aromaticum* L., Sp. Pl. 259 (1753). [Yıldırım & Koca, 2003]

N.W. Anatolia. A3 Düzce: Akçakoca, Uğurlu köyü, around Şifalıs, banks of Uğurlu stream, under *Fagus orientalis* forest, 50-60 m, 22.07.2002, A. Koca 1760-B. Tarıkahya-Ş. Yıldırım (HUB); Akçakoca, towards to Küpler köyü, roadside, 260-300 m, 22.07.2002, A. Koca 1840-B. Tarıkahya-Ş. Yıldırım (Hb. YILDIRIMLI).

20. BUNIUM L. (4: 342)

B. elegans (Fenzl) Freyn in Österr. Bot. Zeitschr. 42 (1892).

e **var. *involutum* Saha in Doğa Tr. J. of Botany 16(3): 425 (1992). [Saha, 1992]

Type: (Turkey) B7 Erzincan: Eğin (Kemaliye), Yakardı Dağı, 1.vii.1890, Sintenis 2826 (Holo. W; Iso. WU).

B. elegans (Fenzl) Freyn in Österr. Bot. Zeitschr. 42 (1892).

e **var. *latilobum* Saya in Doğa Tr. J. of Botany 16(3): 426 (1992). [Saya, 1992]

Type: (Turkey) C5 Adana: Sis (Kozan), 4.1896, Siehe 129 p. pte (Holo. W.; Iso. WU).

B. elegans (Fenzl) Freyn in Österr. Bot. Zeitschr. 42 (1892).

e **var. *pachypus* Saya in Doğa Tr. J. of Botany 16(3):424 (1992). [Saya, 1992]

Type: (Turkey) B9 Bitlis: Bitlis Vadisi, Bitlis'in 6 km yukarısı, 1300 m, 9.vi.1939, Frödin 124 (Holo. W).

e ***B. pinnatifolium* Kljuykov in Bot. Xyph. 83, No. I: 139 (1998). [Pimenov et al., 1998]

Type: (Turkey) C1 İzmir: between Ephesus and Mariamane (the Virgin Mary's house); 37°55' N, 27°20' E; alt. 650 m, 27 v 1995, N T95-75, M. Pimenov, E. Kljuykov (holo. MW).

Paratype: (Turkey) Ibid., 15.viii.1996, M.Pimenov, E. Kljuykov, N 796-28 (LE), B1 İzmir: near Kemal Paşa, Nif Dağı, northern slope, in shrub, 38°25' N, 27°26' E, alt. 600 m, 28 v 1995, M.Pimenov, E. Kljuykov, N T95-87 (MW); İçel: Mersin, Yenibahçe-pash kale, 22.v.1972, T. Uslu, N 1561 (E).

**B. simplex* (K. Koch) Kljuykov [Nydegger-Hügli, 1999]

E. Anatolia. A9 Kars: Sarıkamış-Karakurt, Wiese neben Bach 10 km S Sarıkamış, 2050 m, 1.7.1988, Ny. 43551 (det. Lamond). B9 Ağrı: Ağrı-Tutak, Wiedeland 2 km SW Hamur, 1690 m, 9.7.1988, Ny. 43651 (det. Lamond).

31. SESELI L. (4: 367)

S. hartvigii Parolly & Nordt in Willdenowia 31: 87-88 (2001). [Parolly & Nordt, 2001]

Holotype: (Turkey) C3 Antalya: Çalbalı Dağı, W side, 2100-2300 m, rocky slopes, limestone, 36°48' N, 30°22' E, 19.vii.1984, Görk, Hartvig & Strid 23728 (C).

S. rubellum Post in Bull. Herb. Boiss. 3:157(1895). [Southam, 1999]

SW Anatolia. C2 Muğla: Fethiye-Koycegiz roadside. (Southam 181097a, AIBU).

69. FERULAGO W.Koch (4: 453)

e ***F. idaea* Özhatay & Akalın in Botanical Journal of Linnean Society, 133(4): 536 (2000). [Özhatay & Akalın, 2000]

Type: (Turkey) B1 Balıkesir: Zeytinli, KazDağı, Mehmetalan to Sarıkız, Sarıkız Peak, around türbe, micascist rocks, 16.vii. 1994, 1750 m, N. & E. Özhatay, A.J. Byfield, ISTE 70092! (holo. ISTE; iso. K)

W. Anatolia. B1 Balıkesir: Zeytinli; KazDağı, Sarıkız Peak, 24.ix.1995, 1760 m, N.&E. Özhatay, ISTE 71111! KazDağı, Sarıkız Peak, 7.viii. 1996, 1750 m, N.&E: Özhatay, S. Saçlı, E. Akalın, ISTE 72487 ! and RDG ! KazDağı, below sarıkız Peak, 23.viii.1997, 1750 m, N. Özhatay & E. Akalın, ISTE 74485!

e ***F. trojana* E.Akalın & Pimenov in Botanical Journal of the Linnean Society, 146: 501 (2004). [Akalın & Pimenov, 2004]

Holotype: (Turkey) Kaz Dağı, Kilise Alan Yaylası road, below of Bazlamaç, 290 m, 7.vi.1996, Ş.Kültür, S.Saçlı, E.Akalın, ISTE 71988! (ISTE).

72. PEUCEDANUM L. (4: 473)

e ***P. isauricum* Parolly & Nordt in Willdenowia 34(1): 136 (2004). [Parolly & Nordt, 2004]

Type: (Turkey) C4 Antalya: NE Demirtaş (Richtung Pass) [towards pass] 840 m, lichter Waldhang, Waldsaum [open forest slope, forest fringe], Exp. W, 7.ix.2001, R.Ulrich 1/12 (holo. STU; iso. B).

80. TORDYLIUM L. (4: 504)

T. trachycarpum (Boiss.) Al-Eisawi & Jury in Botanical Journal of the Linnean Society, 97: 395 (1988). [Al-Eisawi & Jury, 1988]

Synonyms: *Ainsworthia tracycarpa* Boiss., Diagn. Ser. 1 (10): 43 (1849).

T. cordatum subsp. *trachycarpum* (Boiss.) Holmboe, Stud. Veg. Cyprus: 141 (1914).

T. trachycarpum Holmboe ex Prain in Index Kewensis Suppl. 5:261 (1921)

T.byzantinum (Azn.) Hayek, Prodr. Fl. Penins. Balcan., 1:1045 (1927).

Ainsworthia byzantina Azn., Bull. Soc. Bot. Fr., 44:170 (1897).

Type: Palestine, In collibus Judeae prope Hierosolymam et St. Saba, IV-V 1846, Boissier s.n. (G).

Turkey: Constantinople, V 1873, De Fontenay s.n. (G); Istanbul, 12.vi.1896, Aznavour s.n. (E, W); Istanbul, 20.vi.1897, Nemetz s.n. (WU); Diyarbakır, Cinar, 8 km from Diyarbakır, 31.v.1957, Davis & Hedge D 28778 (E,

K); Plaine de Mersino (Cilicie), 1855, Balansa 570 (BM, E, K, W).

66. CAPRIFOLIACEAE (4: 541)

3. LONICERA L. (4: 544)

**L. morrowii* A. Gray x *tatarica* L. in *Bauhinia* 11/4: 222 (1996). [Nydegger-Hügli, 1996]

C. Anatolia. B6 Kayseri: Pınarbaşı-Kayseri, Strassenkies 14 km westlich Pınarbaşı, 1430 m, 9.vi.1987, Nydegger 42694 (det. Zielinski).

69. DIPSACEAE (4: 582)

2. CEPHALARIA Schrader ex Roemer & Schultes (4: 585)

e ***C. aytachii* R.S. Göktürk & Sümbül in *Ann. Bot. Fennici* 40(2): 123-124 (2003). [Göktürk & Sümbül, 2003]

Type: (Turkey) B3 Eskişehir: Sivrihisar, 8 km from Sivrihisar to Afyon, south of Aşağıtepen village, chalk hills, 900-950 m, 26.viii.2001, N 39°22'17", E 31°29'17", R.S. Göktürk 4724 & Z. Aytaç (Holo. AKDU; Iso. ANK, HUB, GAZI).

C. elazigensis R.S. Göktürk & Sümbül in *Isr. J. Plant Sci.*, 51(1): 62 (2003). [Göktürk et al., 2003 b]

e **var. *elazigensis*

Type: (Turkey) B7 Elazığ: Maden, 8 km from Maden to Ergani, dry slopes, 900 m, 30.vii.2001, R.S. Göktürk (4698) & M. Göktürk (holo. AKDU; iso. ANK, HUB & GAZI).

C. elazigensis R.S. Göktürk & Sümbül in *Isr. J. Plant Sci.*, 51(1): 62 (2003).

e **var. *purpurea* R.S. Göktürk & Sümbül in *Isr. J. Plant Sci.*, 51(1): 62 (2003). [Göktürk & Sümbül, 2003 b]

Type: (Turkey) B7 Elazığ: Maden, 8 km from Maden to Ergani, dry slopes, 900 m, 30.vii.2001, R.S. Göktürk (4697) & M. Göktürk (holo. AKDU; iso. ANK, HUB & GAZI).

70. COMPOSITAE (5: 1)

4a. GALINSOGA Ruiz & Pavón (10: 158)

**G. ciliata* (Rafin.) S.F. Blake in *Rhodora* 24: 35 (1922). [Kaya & Nemli, 2003]

W. Anatolia. B1 İzmir: Ödemiş, Bozdağ, 2159 m, Kaya (EGE, 37133, August, 2001).

5. AMBROSIA L. (5: 47)

**A. tenuifolia* Spreng. in *Syst. Veg.* 3: 851 (1826). [Behçet, 2004]

E. Anatolia. B7 Malatya: Yukarı Banazlı, in apricot (*Armeniaca vulgaris* Lam.) garden, wheat (*Triticum aestivum* L.) field where the effect of humidity is continuous, field, corn (*Zea mays* L.) field, and areas of cultivated vegetables [such as cucumber (*Cucumis sativus* L.), tomato (*Lycopersicon esculentum* Mill.)], pepper (*Capsicum annuum* L.), and uncultivated humid ruderal areas, 800 m, 10.viii.2000, L.Behçet (B 6390).

10. CHRYSOPHTHALMUM Schultz Bip. (5: 52)

e ***C. gueneri* Aytaç & Anderb. in *Botanical Journal of the Linnean Society*, 137(2): 212 (2001). [Aytaç & Anderberg, 2001]

Type: (Turkey) C4 Konya: Hadim-Alanya, Gevne valley, around Cirlasun bridge. In *Pinus nigra* forest clearing, 14 vii 1998, Aytaç, Duman and Güner (Duman 6258). Holo. GAZI; Iso. ANK, HUB, E, AIBU, ESSE, S.

11. INULA L. (5: 54)

**I. spiraeifolia* L. in *Ic: Hegi, III. Fl. Mittel-Eur.* 6(1): t. 262 f. 1 (1917). [Greuter & Rous, 2002]

European Turkey. A1(E) Kırklareli: In vineis ad urbem Lozengrad (Kırk-Kilise) (Kırklareli) arenoso, 14.vii.1899, Mateev (SO).

16. HELICHRYSUM Gaertner (5: 80)

e ***H. orbicularifolium* Sümbül, R.S.Göktürk & O.D.Düşen in *Bot Jour Linn Soc* 141(2): 251-253 (2003). [Sümbül et al., 2003 a]

Type: (Turkey) C3 Antalya: İbradi district, Ürünlü village, 400 m in humid calcareous rock crevices and limestone cliffs, 16.xi.2001, H. Sümbül 5755. Holo. AKDU; Iso. ANK, GAZI, HUB.

25. SOLIDAGO L. (5: 116)

**S. canadensis* L. in *Sp. Pl.* 878 (1753). [Terzioğlu et al., 2003]

N. Anatolia. A5 Kastamonu: Abana, along the Harmuson stream, 10-100 m, 15.ix.2000, KATO 13367, KTUB 315.

44. ANACYCLUS L. (10: 222)

e***A. anatolicus* L.Behçet & S.Almanar in *Ann. Bot. Fennici* 41: 299-303 (2004). [Behçet & Almanar, 2004]

Type: (Turkey) East Anatolia. B9 Muş: Malazgirt, E., slopes Aktuzla village, steppe, 1550 m, 12.vi.2001, L.Behçet & S. Almanar 1437 (holo. VANF; iso. VANF)

46. *ACHILLEA* L. (5: 224)

**A. cartilaginea* Ledeb. Ex. Reichenb. in Fl. Germ. Excurs. 849 (1832) (32). [Demirkuş & Kaya, 1999]

N. East Anatolia. A9 Ardahan: Göle, Karlıyazı village, Ahmet meadows, Kura river bank, 1850 m, 27.7.1997, N. Demirkuş 4551.

54. *TRIPLEUROSPERMUM* Schultz Bip. (5: 295)

**T. subnivale* Pobed. in Bot. Mat. Gerb. Bot. Inst. AN SSSR 20: 490 (1960). [Inceer & Beyazoğlu, 2004]

Type: Described from Azerbaijan (Mts. Shah-Dag).

N.E. Anatolia. A8 Rize: İkizdere, above Ayder, 1600 m, 26.vi.2001, Inceer 118, KTUB.

69. *JURINEA* Cass. (5: 439).

**J. stoechadifolia* (M.B.) DC. in Prod. 6: 675 (1838). [Duman & Aytaç, 1999]

Type: Described from Karasu-Bazar, Crimea (LE).

N. Anatolia. A4 Çankırı: 3 km from Çankırı to Ilgaz, 650-700 m, gypsum stopes, 5.vii.1995, H.Duman 5802 & Z.Aytaç; Zankırı: Karatekin köyü, Çakmaklı mevkii, 1050 m, clearings at *Pinus nigra*, 1.viii.1995, Aytaç & Adıgüzel 2441.

79. *CENTAUREA* L. (5: 465)

e***C. antalyensis* H.Duman & A.Duran in Ann. Bot. Fennici 39: 45 (2002). [Duran & Duman, 2002]

Holotype: (Turkey) A4 Çankırı: Akkaracalar, Dumanlı Dağ, Taşlık-Harmanyeri, 1500 m, steppe, 21.vii.1994, A. Duran 1974 (GAZİ; iso. ANK, ADO, HUB).

e***C. cankiriense* A.Duran & H.Duman in Ann. Bot. Fennici 39: 43 (2002). [Duran & Duman, 2002]

Holotype: (Turkey) A4 Çankırı: Akkaracalar, Dumanlı Dağ, Taşlık-Harmanyeri, 1500 m, steppe, 21.vii.1994, A. Duran 1974 (GAZİ; iso. ANK, ADO, HUB).

e***C. yıldızii* Ş.Civelek, İ.Türkoğlu, H.Akan in Bot Jour Linn Soc 143(2): 207-209 (2003). [Türkoğlu et al., 2003]

Holotype: (Turkey) B6 Sivas: Taşlıdere, Hocabay village, Domuzluk içi district, Al hill, gypsum slopes, 1370 m, 23.vi.2002, Civelek 6565 & Türkoğlu (GAZİ).

92. *ECHINOPS* L. (5: 609)

**E. bicolor* Nabelek in Publ. Fac. Sci. Univ. Masaryk Brno 52:28 (1925). [Düzenli & Çakan, 2001]

S. Anatolia. C5 Antakya: Mount Musa, around Sikkozluk, in macchie vegetation,

500 m, HÇ 350.

102. *SCORZONERA* L. (5: 632)

e***S. adilii* A.Duran in Pak. J. Bot. 34(3): 385-388 (2002). [Duran, 2002 a]

Type: (Turkey) C5 Konya: Ereğli, Aydos Dağı, Kayasaray village, Dügünlük Dere, 1770 m, crevices of marble rocks, 37°22.04 'N, 34°16.33 'E, 7.viii.2001, A.Duran 5798 & Sağıroğlu (holo. ADO; iso. GAZİ, ANK, HUB), ibid., 18.vii.2002, A.Duran 5960 (ADO).

e***S. aytatchii* A.Duran & Sağıroglu in Nord. J. Bot. 22(3): 333-335 (2002). [Duran & Sağıroğlu, 2002]

Type: (Turkey) C5 Konya: Ereğli, Aydos Dağı, Kayasaray village, Dügünlük Dere, 1750 m, 7.vii.2001, crevices of marble rocks, 37°22 'N, 34°16'E, A.Duran 5797 & Sağıroğlu (Holo. ADO; Iso. GAZİ, ANK, HUB); (Turkey) C5 Konya: Ereğli, Aydos Dağı, Kayasaray village, Sayıntaş mevkii, 2500 m, 15.vii.1977, S. Erik 2602 (HUB paratype).

e***S. ekimii* A.Duran in Isr. J. Plant Sci., 50(2): 155-156 (2002). [Duran, 2002 b]

Type: (Turkey) A5 Yozgat: Aydıncık, Kazankaya town, Kazankaya Canyon passes, 750 m, crevices of limestone rocks, 40° 12 'N, 35° 19 'E, 28.vi.2000, A.Duran 5409 (holo. ADO; iso. GAZİ, ANK, HUB).

e ***S. gokcheoglui* O.Ünal & R.S.Göktürk in Botanical Journal of the Linnean Society, 142(4): 465-466 (2003). [Ünal & Göktürk, 2003]

Type: (Turkey) C4 Antalya: Alanya district, between Çökele and Gökbel, on calcareous area and clearings in *Pinus nigra* forest, 1425 m, 36°34'47"N, 32°21' 80"N, O.Ünal 1453. Holo. ADKU; Iso. ANK, HUB and GAZİ.

e ***S. karabelensis* Parolly & Kilion in Willdenowia 33(2): 328 (2003). [Parolly & Kilian, 2003]

Type: (Turkey) C2 Muğla: Fethiye-Korkuteli road, below Karabel Geçidi NE Kemer, 1040 m, steep, gravelly, rocky slope, open *Pinus nigra* var. *caramanica* forest, N-exp., limestone, 20.v.2003, R.Ulrich 3/7 a (holo. B; iso. E, ISTE, herb. Parolly).

e **S. *ulrichii* Parolly & N. Kilian, in Willdenowia 32(2): 198 (2002). [Greuter & Rous, 2002]

Type. (Turkey) C4 Antalya: Alanya, Mahmutlar-Hadim road, c. 35 km NE Mahmutlar and 15 km S Çayarası, 1 km N Elmalisu, alt. 1250 m, gravelly, rocky slope with an open *Pinus nigra* var. *caramanica* forest, W-exposed, limestone, 11.vi.2002, Ulrich 2/12 (holo. B; iso.; E, ISTE, herb. Parolly).

e **S. *yildirimlii* A.Duran & Hamzaoğlu in Biologia, Bratislava 59(1): 48 (2004). [Duran & Hamzaoğlu, 2004]

Type. (Turkey) C6 Osmaniye: Amanos Dağı, Zorkun Yaylasından 5 km sonra, Keldazi tepesi, 1950 m a.s.l., 36°58.95'N, 36°24.22'E, 5.vii.2001, A.Duran 5765 & E.Hamzaoğlu (Holo. ADO; Iso. GAZI, ANK, HUB, YILDIRIMLI).

Paratype: (Turkey) C6 Osmaniye: Amanos Dağı, Zorkun Yaylasından 5 km sonra, Keldazi tepesi, 1900-2000 m a.s.l., 36°58.95'N, 36°24.22'E, 4.vii.2003, A.Duran 6284 & M.Sağıroğlu (ADO, GAZI).

115. *HIERACIUM* L. (5: 696)

H. alismatifolium (Pospichal) Coşkunçelebi in Ann. Bot. Fennici, 40(6): 452 (2003). [Coşkunçelebi, 2003]

Syn.: *Hieracium barbatum* Tausch. var. *alismatifolium* Pospichal, Fl. Oesterr. Küstenl. 2(2): 816 (1899).

Hieracium racemosum Waldst. & Kit ex Willd. subsp. *alismatifolium* (Posp.) Zahn in Engler, Pflanzenr. 79: 979 (1922).

W. Turkey. B1 Çanakkale: Kaz Dağı, Evciler, 600 m.

**H. biebersteinii* Litw. et Zahn [Coşkunçelebi & Beyazoğlu, 2003]

N. E. Anatolia. A8 Trabzon: Araklı, road between Dağbaşı and Bayburt, 1700 m, 13 vii 1999, Coşkunçelebi 183, KTUB.

**H. callichlorum* Litw. & Zahn [Coşkunçelebi & Beyazoğlu, 2003]

N. E. Anatolia. A8 Artvin: Borçka, Camili yolu, 1800 m, 6.viii.1999, Coşkunçelebi 287, KTUB.

**H. camkorijense* Zahn [Coşkunçelebi & Beyazoğlu, 2003]

N. E. Anatolia. A7 Trabzon: between Sumela and Camiboğazi, open pasture, 1800 m, 25.vii.1999, Coşkunçelebi 212, KTUB.

**H. cardiophyllum* Jard. ex Sudre in Hier. du centre France: 75, T, XXII, 1902. [Coşkunçelebi & Beyazoğlu, 2001]

Syn: *H. murorum* L. subsp. *cardiophyllum* (Jord. ex Sudre) Zahn. in Engler, Pflanzenreich, 280: 313 (1921); *H. cardiophyllum* var. *acutisquomum* Litm. ex Zahn in Schedae HFRF asc. 42: 18 (1910).

N.E. Anatolia. A8 Trabzon: On the roadside and banks of Çaykara to Ataköy, 700-1000 m, 11 vii 1998, K. Coşkunçelebi 013, KTUB.

**H. densiflorum* Tausch. in Flora (Regensb.) 11 (Ergänz. 1): 59 (1828). [Nydegger-Hügli, 1999]

N. Anatolia. A4 Kastamonu: Gavur Dağ, bewaldetes Gebirge NW Tosya, 1700 m, 7.vii.1984, Ny. 19091 (det. Gottschlich).

E. Anatolia. A8 Erzurum: unterhalb Orman Evi, Felsblöcke in Tölchen, Nordseite, 1740 m, 9.vii.1992 (det. Gottschlich). A8 Rize: oberhalb Cimil, Abhong mit Fels oberhalb İkizdere, 2100 m, 13.vii.1992, Ny. 46723 a (det. Gottschlich).

H. densiflorum Tausch in Flora (Regensb.) 11 (Ergänz. 1): 59 (1828).

*subsp. *neilreichii* N.P. [Nydegger-Hügli, 1999]

E. Anatolia. A8 Erzurum: Orman Evi, Halbtrockenrasen in Föhrenwald 20 km NW Oltu, 1860 m, 7.vii.1992, Ny. 46624 (det. Gottschlich).

**H. hypoglucum* (Junip ex Sennik) Litw. & Zahn in Feddes Repert. 4: 242 (1907). [Coşkunçelebi & Beyazoğlu, 2001]

N. E. Anatolia. A7 Giresun: Kümbet Yaylası, open pasture, and meadows, 1700 m, 02.viii.1998, K. Coşkunçelebi 097-098, KTUB. A8 Rize: İkizdere-Anzer Yaylası, pasture, 29 vii 1998, K. Coşkunçelebi 105, KTUB. A9 Artvin: Ardanuş-Soğuksu Yaylası Şenlik alanı, pasture and Picea forest, 1800 m, 27.vii.1998, K.Coşkunçelebi 078, KTUB.

H. incaniforme Litw. & Zahn

*subsp. *incaniforme* [Nydegger-Hügli, 1999]

E. Anatolia. A9 Kars: Kars-Ardahan, Strassenrand 6 km E Ardahan, 1700 m, 28.vii.1979, Ny. 14665 p.p. (det. Gottschlich)

**H. jurassicum* Griseb., Comm. Hierac. Eur.: 32 (1852) [Coşkunçelebi & Beyazoğlu, 2002]

Syn.: *Hieracium juranum* Fr. In Nova Acta Regiae Soc. Sci. Upsal. 14: 129 (1848) non Rapin (1842).

N. E. Anatolia. A7 Trabzon: Araklı, Dağbaşı to Pazarlık, 1600 m, 13.vii.1999, Coşkunçelebi 177; Trabzon: Maçka, Sümela to Camiboğazi, 1800 m, 25.vii.1999, Coşkunçelebi 208.

*H. *ladikense* (Bornm. & Zahn) Coşkunçelebi & Beyazoğlu

[Coşkunçelebi & Beyazoğlu, 2002]

Basionym: *Hieracium diaphanoides* Lindeb. subsp. *ladikense* Bornm. & Zahn in Engler, Pflanzenreich 79 (IV.280): 354 (1922).

N. E. Anatolia. A9 Artvin: Ardanuç, Çürüşpil Mezrası, 1800 m, 27.vii.1998, Coşkunçelebi 74, 75; A7 Trabzon: Araklı, Dağbaşı, Pazarlık to Bayburt, 1500 m, 1.viii.1999, Coşkunçelebi 238; A8 Trabzon: Çaykara, İpsil Yaylası, 1700 m, 12.vii.1999, Coşkunçelebi 052; A7 Gümüşhane: Tersundağı, 2000 m, 1.vii.1999, Coşkunçelebi 247.

*H. *pavichii* Heuffel in Flora (Regensb.) 36: 618 (1853). [Nydegger-Hügli, 1999]

S. Anatolia. B6 Adana: Saimbeyli-Sarız, steiniger Abhang 2 km N. Saimbeyli, 1020 m, 2.vii.1989, Ny. 44324 (det. Gottschlich). C5 Adana: *Pinus*-Wald S Aladağ, 1300 m, 18.vii.1977, Ny. 12487 (det. Gottschlich).

H. *pilosella* L. in Spec. pl. (1753).

*subsp. *trichoscapum* N.P. in Sp. Pl. 800 (1753). [Nydegger-Hügli, 1999]

Syn.: *P. officinarum* C.H. & F.W.Schultz. (= *H. pilosella* L. subsp. *trichoscapum* Naegeli & Peter).

E. Anatolia. A9 Kars: Karakurt-Sarıkamış, Fluss in offenem Föhrenwald 10 km S Sarıkamış, 2000 m, 6.vii.1992, Ny. 46609 (det. Gottschlich).

e **H. *polygonifolium* Gottschl. & Coşkun in Willdenowia 30(2): 281-282 (2000). [Gottschlich et al., 2000]

Holotype: (Turkey) A7 Gümüşhane: Tersundağı Geçidi, alpine pasture, 2100 m, 1.viii.1999, Coşkunçelebi 221 (KTUB; isotypi: G, herb. Gottschlich No. 38873).

H. *preanthoides* Vill. in Prosp. Pl. Dauph. 35 (1779).

*subsp. *strictissimum* (Froel.) Zahn [Nydegger-Hügli, 1999]

Syn.: *H. preanthoides* Vill. (= *H. preanthoides* Vill. subsp. *strictissimum* [Froel.] Zahn).

N. Anatolia. A7 Giresun: Giresun-Suşehri, Hochstaudenflur in Tannenwald 40 km S Dereli, 1700 m, 2.viii.1977, Ny. 12955 (det. de Retz). A8 Trabzon: Of-Bayburt, Hochstaudenflur om Soğanlı Geçidi, N-Seite, 2100 m, 1.viii.1982, Ny. 17616 (det. de Retz).

*H. *pseudovaneticum* Peter [Coşkunçelebi & Beyazoğlu, 2003]

N. E. Anatolia. A7 Trabzon: Maçka, between Sümela and Camiboğazi, 1800-2100 m, 25.vii.1999, Coşkunçelebi 203, 209, KTUB.

*H. *ratluense* Zahn in Feddes Repert. 4:323 (1907). [Coşkunçelebi & Beyazoğlu, 2002]

N. E. Anatolia. A8 Rize: Ayder, Aşağı Kavron Yaylası, 2000 m, 3.viii.1998, Coşkunçelebi 264; A7 Trabzon: Maçka, Camiboğazi, 1800 m, 25.vii.1999, Coşkunçelebi 208a.

e **H. *rizense* Gottschl. & Coşkun. in Willdenowia 30(2): 279-280 (2000). [Gottschlich et al., 2000]

Holotype: (Turkey) A8 Rize: Ayder to Aşağı Kavron Mezrası, roadside, 1700-1800 m, 3.viii.1999, Coşkunçelebi 272 (KTUB; iso. herb. Gottschlich No. 38844).

e **H. *spodocephalum* Gottschl. & Coşkun. in Willdenowia 30(2): 281 (2000). [Gottschlich et al., 2000]

Holotype: (Turkey) A8 Artvin: Kafkasör, roadside, 1400 m, 6.viii.1999, Coşkunçelebi 284 (KTUB; isotypi: G, herb. Gottschlich No. 38832 + 33).

e **H. *tersundagense* Gottschl. & Coşkun. in Willdenowia 30(2): 280 (2000). [Gottschlich et al., 2000]

Holotype: (Turkey) A7 Gümüşhane: Tersundağı Geçidi, alpine pasture, 2000 m, 1.viii.1999, Coşkunçelebi 246 (KTUB; iso. herb. Gottschlich No. 38859).

Paratype: (Turkey) ibid., Tersundağı Geçidi, *Picea* forest and roadside, 1800 m, 1.viii.1999, Coşkunçelebi 236 (KTUB, herb. Gottschlich No. 38865).

116. PILOSELLA Hill (5: 747)

P. bauhini Schult.

subsp. *magyoricum* Nägeli & Peter

var. *laconicum* (Nägeli & Peter) Coşkunçelebi in Ann. Bot. Fennici, 40(6): 452 (2003). [Coşkunçelebi, 2003]

Syn.: *Hieracium magyoricum* Nägeli & Peter subsp. *magyoricum* var. *laconicum* Nägeli & Peter, Hierac. Mitt.-Eur. 1: 576 (1885). – *Hieracium bauhini* Schult. subsp. *magyoricum* (Nägeli & Peter) Zahn var. *laconicum* (Nägeli & Peter) Zahn in Engler, Pflanzenr. 85: 1421 (1923).

W. Turkey. B2 Kütahya: Kesik Söğüt, Murat Dağı.

**P. brachiata* (Bertol. ex DC.) F.W. Schultz & Sch. [Coşkunçelebi & Beyazoğlu, 2003]

N. E. Anatolia. A8 Rize: Ayder, Aşağı Kavrun, alpine pasture, 2000 m, 3.viii.1999, Coşkunçelebi 257, KTUB.

**P. caucasica* (Nägeli & Peter) Sennik in Bot. Zhurn. 83: 78 (1998). [Coşkunçelebi & Beyazoğlu, 2002]

Syn.: *Hieracium caasicum* Nageli & Peter in Hierac. Mitt.-Eur. 1:490 (1885).

N. E. Anatolia. A8 Artvin: Ispir to Erzurum, 1200 m, 22.vi.1998, Coşkunçelebi 138.

P. echioides (Lumn.) C.H. & F.W. Schultz in Flora 45: 431 (1862).

*subsp. *macrocyum* (N.P.) Zahn [Nydegger-Hügli, 1998]

C. Anatolia. B5 Nevşehir: Göreme-Avanos, Tuff in Tal südlich Zelve, 900 m., 23. 6. 1989, Nydegger 44233 (det. Gottschlich sub *H. echioides* Lumn. subsp. *macrocyum* N.P.)

**P. fennica* (Norrl.) Norrl. em. Sojak [Coşkunçelebi & Beyazoğlu, 2003]

N.E. Anatolia. A8 Trabzon: Çaykara, Soğanlı pass, meadows, 2100 m, 7.vi.1998, Coşkunçelebi 145, KTUB.

**P. grossheimii* (Zahn) Coşkunçelebi & Beyazoğlu [Coşkunçelebi & Beyazoğlu, 2002]

Basionym: *Hieracium grossheimii* Zahn in Monit. Jard. Bot. Tiflis, 1926-27, n.s., Part 3-4: 28(1927).

N. E. Anatolia. A8 Rize: Çamlıhemşin, Sıraköy, 1850 m, 5.vii.1998, Coşkunçelebi 151.

P. hoppeana (Schult.) C.H. & F.W. Schultz in Flora 45: 421 (1862).

*subsp. *cilicica* (N.P.) Sell & West (= *Hieracium hoppeanum* Schultes subsp. *cilicicum* N.P.). [Nydegger-Hügli, 1998]

C. Anatolia. B5 Kayseri: Erciyas Dağ, Vulkongestein auf der Nordseite, 1700 m., 24. 7. 1981, Nydegger 16.996 h p.p. (det. de Retz). C5 Niğde: gegen Narpiz Gorge, Steppe mit Grobblockschutt oberhalb Çukurbağ, 1730 m., 25. 7. 1992, Nydegger 46855 (det. Gottschlich).

P. hoppeana (Schult.) C.H. & F.W. Schultz subsp. *hoppeana* (= *H. hoppeanum* Schultes subsp. *hoppeanum*).

**P. hypeurygenes* (Zahn) Coşkunçelebi & Beyazoğlu [Coşkunçelebi & Beyazoğlu, 2002]

Basionym: *Hieracium hypeurygens* Zahn in Monit. Jard. Bot. Tiflis, 1926-27, n.s., Part 3-4: 30 (1927).

N. E. Anatolia. A8 Trabzon: Çaykara, Yaylaönü to Karastel Yaylası, 1800 m, 7.vii.1998, Coşkunçelebi 149a.

**P. hypeuryum* (Peter) Sojak in Folia Geobot. Phytotax. 6:217-219 (1971). [Coşkunçelebi & Beyazoğlu, 2002]

Syn.: *Hieracium hypeuryum* Peter in Bot. Jahrb. 5(3):255 (1884).

N. E. Anatolia. A8 Rize: İkizdere, 1000 m, 22.vi.1998, Coşkunçelebi 140; A7 Trabzon: Düzköy, Hıdırnebi Yaylası, 1400 m, 5.vii.1999, Coşkunçelebi 163; A7 Trabzon: Maçka, Sümela Manastırı to Camiboğazi, 2200 m, 25.vii.1999, Coşkunçelebi 218; Trabzon: Düzköy, Haçka Yaylası, 1650 m, 22.vii.1998, Coşkunçelebi 194; Trabzon: Çaykara, Yaylaönü to Karastel Yaylası, 1800 m, Coşkunçelebi 149; A8 Trabzon: Çaykara, Haldizen Yaylası, 2200 m, 7.vi.1998, Coşkunçelebi 147; A7 Giresun: Dereli, Kümbet Yaylası, 1900-2000 m, 22.vi.1998, Coşkunçelebi 141.

P. longiscapa (Boiss. & Kotschy ex Nägeli & Peter) Coşkunçelebi in Ann. Bot. Fennici, 40(6): 452 (2003). [Coşkunçelebi, 2003]

Syn.: *Hieracium longiscapum* Boiss. & Kotschy in Boiss., Fl. Orient. III: 864 (1875). – *Hieracium spathophyllum* Nägeli & Peter, Hierac. Mitt.-Eur. 1: 395 (1885).

N.E. Turkey. A8 Rize: Below Ortaköy, İkizdere, 1850 m. B6 Adana: Saimbeyli-Sakız, slopes of N. Saimbeyli. C5 Adana: S. Aladağ, 1300 m. A8 Trabzon: Çaykara, Kuti Yaylası, 2250 m. A7 Trabzon: Maçka, Sümela-Camiboğazi, 2100 m.

**P. mollicaulis* (Vuk.) Sojak in Preslia 43(2): 186 (1971) [Coşkunçelebi & Beyazoğlu, 2002]

Syn.: *Hieracium leptophyton* Nägeli & Peter in Hirac. Mitt.-Eur. 1: 642 (1885).

N. E. Anatolia. A7 Trabzon: Maçka to Zigana Pass, 1650 m, 4.vi.1998, Coşkunçelebi 142a.

P. nydeggerorum (Gottsch.) Coşkunçelebi in Ann. Bot. Fennici, 40(6): 452 (2003). [Coşkunçelebi, 2003]

Syn.: *Hieracium nydeggerorum* Gottsch., Bauhinia 11(4): 239 (1996).

E. Anatolia. A9 Erzurum: Olur to Karadağ, 1700 m.

P. officinarum Schultz-Bip. & F.W.Schultz in in Flora 45: 421 (1862).

subsp. *trichophora* (Nägeli & Peter) Coşkunçelebi, in Ann. Bot. Fennici, 40(6): 452 (2003). [Coşkunçelebi, 2003]

Syn.: *Hieracium pilosella* L. subsp. *trichophorum* Nägeli & Peter in Hierac. Mitt.-Eur. 1: 133 (1885).

N.E. Turkey. A9 Artvin: Ardahan-Şavşat, Yalnız Çam Geçidi, 2270 m.

P. officinarum C.H. & F.W. Schultz in Flora 45: 421 (1862).

*subsp. *trichophorum* Nägeli & Peter in Bauhinia 12(1/2): 95 (1998). [Nydegger-Hügli, 1998]

N.E. Anatolia. A9 Çoruh: Ardahan-Şavşat, steiniger Abhang 3 km. nördlich Çam Geçidi, 2270 m., 23. 7. 1984, Nydegger 19384 (det. de Retz sub *H. pilosella* L. subsp. *trichophorum* N.P.).

P. officinarum Schultz-Bip. & F.W.Schultz in in Flora 45: 421 (1862).

subsp. *trichoscapa* (Nägeli & Peter) Coşkunçelebi in Ann. Bot. Fennici 40(6): 452 (2003). [Coşkunçelebi, 2003]

Syn.: *Hieracium pilosella* L. subsp. *trichoscapum* Nägeli & Peter in Itier. Mitteleur. 1: 133 (1885).

N.E. Turkey. A9 Artvin: Ardahan-Şavşat, slopes 3 km North of Yalnız Çam Geçidi. A9 Kars: Karakurt to Sarıkamış, 10 km from Sarıkamış.

**P. pannoniciformis* (Litw. & Zahn) Sojak in Folia Geobot. Phytax. 6:217-219 (1971). [Coşkunçelebi & Beyazoğlu, 2002]

Syn.: *Hieracium procerigenum* Litw. & Zahn subsp. *pannoniciforme* Litw. & Zahn in Zahn Repert. Nov. Spec. 4: 191-192 (1907).

N. E. Anatolia. A7 Gümüşhane: Vavuk Dağı, Gümüşhane to Bayburt, 1800 m, 3.vi.1999, Coşkunçelebi 167.

**P. procera* (Fr.) F.W. Schultz & Sch. Bip. [Coşkunçelebi & Beyazoğlu, 2003]

N.E. Anatolia. A8 Artvin: between İspir and Erzurum, roadsides, and meadows, 1200

m, 22.vi.1998, Coşkunçelebi 138a, KTUB.

**P. tephrocephala* (Vuk.) Sojak in Folia Geobot. Phytotax. 6(2):218 (1971). [Coşkunçelebi & Beyazoğlu, 2002]

Syn.: *Hieracium tephrocephalum* Vuk. In Hieracia Croatica 8 (1858).

N. E. Anatolia. A8 Trabzon: Çaykara to Yaylaönü, 1950 m, 7.vi.1998, Coşkunçelebi 148; A7 Trabzon: Düzköy to Hıdırnebi Yaylası, 1400-1500 m, 1.vi.1999, Coşkunçelebi 164a, A7 Trabzon: Maçka to Zigana Pass, 1310 m, 7.vi.1998, Coşkunçelebi 150.

P. verruculata (Link) Sojak in Folia Geobot & Phytotax. 6: 218 (1971).

*subsp. *hamadanense* (Heimerl ex Stapf) Zahn [Nydegger-Hügli, 1998]

E. Anatolia. A8 Erzurum: Tortum Oltu, Weide mit Bachlein 2 km östlich Kireçi Geçidi, 2190 m, 15.vii.1989, Nydegger 44448 (det. Gottschlich sub. *H. verruculatum* Link subsp. *hamadanense* Heimerl ex Stapf [Zahn.]. subsp.)

■ **ADENOSTYLES** Cass in Diction. Sc. nat. I, 59 (1826).

A. alliariae (Gouan) A.Kerner in Österr. Bot. Zeitschr. 21: 12 (1871).

*subsp. *alliariae* [Akıncı & Özhatay, 2004]

N. W. Anatolia. A3 Kocaeli: South slopes of Keltepe, between Mühürlü Pınar and Karadere, wood margins, dampy slopes, 1150 m, 06.vii.1991, ŞA 1992, ibid., 22.vii.2000, ŞA 2183, MARA 2857.

72. CAMPANULACEAE (6:2)

1. CAMPANULA L. (6: 2)

**C. cervicaria* L. in Sp. Pl. 167 (1753). [Başak & Kiyıcı, 2004]

European Turkey. A1(E) Edirne: N of Edirne, Hanlıyenice-Hamzabeyli, 19.06.2002, S. Kıyıcı & N. Başak (EDTU 8407).

**C. hierosolymitana* Boiss. in Diagn. Pl. Orient. Ser. 1, 11: 62 (1849). [Mutlu, 2004 b]

Lectotype: (designated by Saez & Aldasoro, 2003, Bot. J. L. Soc., 141: 215-241) [Palestine], aux pieds des rochers a Jarusalem, Naplouse, iii-iv, 1846 Boissier s.n. (G).

S. Anatolia. C3 Antalya: İbradi, Altınbeşik Cave National Park, around İntepe, 750 m, 7.vi.2003, B.Mutlu 8317. C6 Hatay: Syria, Prope Alexandrette (İskenderun), 1834, Montbret 18 (W).

**C. patula* L. in Sp. Pl. 163 (1753). subsp. *patula* [Başak & Kıyıcı, 2004]

European Turkey. A1(E) Kırklareli: Mahya mountain, rocky road side, 840-900 m, 07.06.2003, S.Kıyıcı (EDTU 8405).

**C. radula* Fisch. in Tchihatch., Asie Mineure, III, 2 (1860). [Behçet & Karabacak, 2003]

E. Anatolia. B9 Van: Muradiye, Babacan village, Derviş yaylası, Hacı cave, crevices of rocks, 2400 m, 08.vii.2001, Lütfi Behçet (B 6539); Babacan village, Hüseyin Kom stream, shady and humid crevices of rocks, 2300 m, 27.vii.2001, Osman Karabacak (OK 2566); North of Görecek village, Şevkii, acid crevices of rocks, 2300 m, 15.07.2002, Lütfi Behçet (B 6695).

e ***C. tokurii* A.Ocak in Isr. J. Plant Sci. 51(4): 321 (2003). [Ocak, 2003]

Type: (Turkey) B3 Eskişehir: Türkmen Dağları, Sandıközü Köyü çevresi, 1450 m, rocky slopes, 18.vi.2001, Ocak 9051 (Holo. E; Iso. E, K and GAZI).

1a. TRACHELIUM L. (11: 175)

T. jacquinii (Sieber) Boiss. in Boiss. Fl. Or. 3: 961 (1875).

e **subsp. *dalgiciorum* N.Özhatay & Dane in Plants of the Balkan Peninsula: into the next Millenium. The Proceeding of the 2nd Balkan Botanical Congress (İstanbul, 14-18 May 2000) Vol.I: 157 (ed. Neriman Özhatay) (2001). [Dane & Özhatay, 2001]

Type: (Turkey) A1(E) Edirne: Keşan, Mecidiye, sea-shore, on rocks, G. and A. Dalgıç, 10.vii.1992, holo. İSTE 64716; iso. EDTU 5100; para. İSTE 69825, EDTU 5434.

3. ASYNEUMA Griseb. & Schenk (6: 65)

A. compactum (Boiss. & Heldr.) Damboldt in Boissiera 17: 58, f. 6 (1970).

e **var. *eriocarpum* Parolly in Willdenowia, 30(1): 72 (2000). [Parolly, 2000]

Type: (Turkey) C4 Antalya: Geyik Dağları, Büyük Geyik D., ridge N. of the main summit, 36° 54' 01" N, 32° 09' 95" E. c. 2610-2620 m, rocky slope, saddle position, wind-swept cushion community, limestone, 20.vii.1999, Döring, Parolly 6799 & Tolimir (holo. B; iso. İSTE, herb. Parolly).

S. Anatolia. C4 Antalya: Geyik Dağları, Akdağ, transitional ridge between the two northern cirques facing the plateau between Geyik D. and Akdağ, alt. 2450 m, wind-swept cushion community, limestone and dolomite, 19.vii.1999, Döring, Parolly 6762 a & Tolimir (herb. Parolly).

A. junceum Parolly in Willdenowia 30(1):71 (2000). *Campanula juncea* Wettst. in Denkschr. Koiserl. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 50(2):117. 1885, nom. İlleg.[non *Campanula juncea* Hill, Veg. Syst. 8: 14. 1765, nec *Campanula juncea* D. Dietr., Syn. Pl. 1: 756. 1839 (= *Light-footia juncea* Sond.)]-Holotype: Turkey, "Südllicher Gripfel des Akdagh", 17. 7. 1882, Luschan (WU!). [Parolly, 2000]

S.W. Anatolia. C2 Muğla: Lycian Akdağları above Gömbe. Akdağ, area between the Subaşı Yayla and Uyluk Tepe, summit plateau of an unnamed lateral summit N of the Uyluk Tepe, 36°33'42"N, 29°35'75"E. c. 2900 m, rocky slopes, wind-swept cushion community, limestone, and dolomite, 27.vi.1999, Döring, Parolly 6198 & Tolimir (B. İSTE, herb. Parolly); *ibid.*, flattened slopes of a lateral summit N. of the Uyluk Tepe, c. 2600 m, wind-swept cushion community, limestone, and dolomite, 27.vi.1999, Döring, Parolly 6198 a & Tolimir (İSTE).

80. ASCLEPIADACEAE (6: 163)

■ *ARAUJIA* Brot. in Trans. Linn. Soc. XII, 62 (1818).

**A. cericifera* Brot., in Trans. Linn. Soc. London 12: 69, t. 4-5 (1818). [Baytop, A., 1985; Yıldırım, 1999 a; Altınözlü & Dönmez, 2003]

N. Anatolia. A6 Ordu: Melet stream, Boyadı village, Kayadibi district, 120 m, 3.x.2001, H. Altınözlü 3715 (HUB).

87. BORAGINACEAE (6: 237)

3. HELIOTROPIUM L. (6: 248)

**H. ovalifolium* Forssk. in Fl. Aegypt.-Arab. 38 (1775). [Duman & Şağban, 2000]

Type: Yemen, Hadie [Al Hadiyah], 3. 1763, Forsskal 299 (holo. C-Forssk; iso. BM).

S. Anatolia. C5 Adana: Karataş, Yumurtalık Lagünü Tabiatı Koruma Alanı, Torluk, moist sandy place, nr s.l., 9.ix.1997, H. Şağban 1938 with H. Duman (GAZI, HUB).

29. NONEA Medicus (6: 404)

e *N. monticola* (Rech. fil.) Selvi & Bigazzi in Plant Syst. Evol. 227(12): 12 (2001). [Selvi & Bigazzi, 2001]

Syn.: *Nonea pulla* (L.) DC. subsp. *monticola* Rech. fil., Ann. Nat. Mus. Wien 55:15 (1947)

Type: (Turkey) A4 Çankırı/Kastamonu: "Paphlagonia austr., in regione alpina abietina montis İlkas-dagh supra Karakol, trajectus inter Çankırı et Tossia, 2000-2150 m, 20-23.vi.1929", J. et F. Bornmüller 14439; holo. G; iso. W !

e ***N. pisidica* Selvi & Bigazzi, in Plant Biosystems 138(2): 137 (2004). [Bigazzi et al., 2004]

Type: (Turkey) C3 Burdur: grassy slopes along road c.4 km Southeast of Burdur, chalky-clayey soil, c. 950 m, 6 June 2002, M. Bigazzi & F. Selvi no. 02.17 (holo. in FI; iso. in BSB, G, E, GAZI).

e ***N. polychroma* Selvi & Bigazzi, in Plant Syst. Evol. 227(12): 17 (2001). [Selvi & Bigazzi, 2001]

Type: (Turkey) A9 Kars: "Kars region, in the ruins of Ani at the Turkish-Armenian border, c. 1730 m. gravelly steppe on igneous soil, 18.vi.1998", Selvi & Bigazzi 98.017; holo. FI; iso. W, E.

88. SOLANACEAE (6: 437)

4. PHYSALIS L. (6: 444)

**P. angulata* L. in Sp. Pl. 183. (1753). [Gönen et al., 2000]

S. Anatolia. C5 Adana: Ceyhan, cotton fields, 30 m., 06. VIII. 1996, Oya Gönen 1064, Karataş, cotton fields, 20 m., 08. VIII. 1996, Oya Gönen, 1065; C6 Adana: Osmaniye, soybean fields, 40 m., 25. VIII. 1996, Oya Gönen, 1066; C5 İçel: Tarsus, cotton fields, 30 m., 27. VIII. 1996, Oya Gönen 1067.

P. philadelphica Lam. in Encyc. Meth. Bot. 2: 101 (1786).

*var. *immaculata* Waterf. in Rhodora 69: 215 (1967). [Bükün et al., 2002]

S.E. Anatolia. C7 Şanlıurfa: Harran, cotton fields, 400 m, 11.ix.2000, B. Bükün 6321; Akçakale, cotton fields, 400 m, 04.x.2000, B. Bükün 6322.

89. SCROPHULARIACEAE (6: 458)

1. VERBASCUM L. (6: 461)

e ***V. x edremiticum* K.Sutory in Bocconeia 13: 457 (2001). [Sutory, 2001]

Verbascum gnaphalodes Bieb., Fl. Taur. Cauc. 3: 152 (1819) x *V. parviflorum* Lam., Encycl. 4: 222 (1797).

Type: (Turkey) Balıkesir: Edremit, *Pinus* forest on hillslopes, north of the saddle on road to Kalkim, (39° 41' 18" N, 27° 09' 37" E), 15.vi.1997, leg. Karel Sutory (holo. BRNM).

e ***V. x kovadanum* Sutory in Turk J. Bot. 28(1-2): 261 (2004). (= *V. glomeratum* Boiss. x *V. nudatum* Murb.) [Sutory, 2004]

Type: (Turkey) C3 Isparta: To the south of Kovada Gölü, between the villages of Akbelenkli and Sığırılık, c. 1050 m a.s.l. (37°34'21"N, 30°52'11"E), 15.vi.1999, Karel Sutory (Holo. BRNM).

e ***V. x obtusifoliiforme* Sutory in Turk J. Bot. 28(1-2): 261 (2004). (= *V. obtusifolium* Hub.-Mor. x *V. sinuatum* L.) [Sutory, 2004]

Type: (Turkey) C4 İçel: Akçalı dağları, on a small calcareous ridge over the canyon of the Sipahili River, between the villages of Aydıncık and Bozağaç, c. 650 m a.s.l. (36° 16'34" N, 33°22'45"E), 24.vi.1999, Karel Sutory (Holo. BRNM; Iso. E).

**V. roripifolium* (Halácsy) I.K.Ferguson, loc. cit. (1971). [Dane & Yılmaz, 2003]

European Turkey. A1(E) Edirne: Merkez, F.Dane & G.Yılmaz, EDTU 8511.

e ***V. tuna-ekimii* Karavelioğulları A.Duran & Hamzaoğlu in Ann. Bot. Fennici 41(3): 229 (2004). [Karavelioğulları et al., 2004]

Type: (Turkey) B7 Erzincan: between Erzincan and Kemaliye, 39. km, 1150 m, calcareous stony slopes, 14.vi.2001, Karavelioğulları 3096, M.Ekici & H.Akan (Holo. GAZI; Iso. ADO, ANK, ISTE).

7. LINARIA Miller (6: 654)

e **L. *dumanii* A.Duran & Y.Menemen in Ann. Bot. Fennici 39(2): 85-86 (2002). [Duran & Menemen, 2002]

Type: (Turkey) C3 Antalya: Akseki, Murtiçi, Sariel Beleni civarı, 500-550 m, clearing in macchia, 4.v.1998, A.Duran 4259 (holo. ADO; iso. GAZI, HUB, ANK, Herb. Yıldırımli).

Paratype: (Turkey) C3 Antalya: Akseki, Murtiçi-Çukurköy arası, Olcağzı mevkii, 550-600 m, clearings in macchia, 25.v.1996, A.Duran 3674 (ADO).

12. LINDERNIA All. (6: 679)

*L. *dubia* (L.) Pennel in Acad. Nat. Sc. Philad. Monogr. I, Scroph. 141 (1935). [Yıldırım, 1998]

European Turkey. A1(E) Edirne: İpsala, Sarıcaali village, rice fields, 25.vii.1998, H.N. Mehmet s.n. (GAZI), Hb.

17. VERONICA L. (6: 689)

V. *beccabunga* L.

*subsp. *muscosa* (Korsh.) A. Jelen [Öztürk & Öztürk, 2000]

B9 Van: Erek Dağı kuzeyi, vadi içinde, kaynak suyu akarında, kumlu, çakıllı, durgun su kenarında, Değirmen köyü üstü, 1900 m, 9.9.1996, F. 1076; Edremit, Çevre yolundan güneye 1 km, Şamran kanalı altı, nemli, temiz sulu çayırlar, yol kenarı, 1700 m, 29.9.1996, F.1001; Edremit, Yüksek İhtisas Araştırma Hastanesi üstü nemli, sulu, kumlu su akarları, 1700 m, 23.11.1997, F.1077; Edremit, Şamran kanalı altında su akarları, 1700 m, 20.7.1997, F.320.

*V. *ferganica* M. Pop. [Çolak & Sorger, 2004]

B9 Van: Hoşap, Güzeldere Pass, 2700 m, steppe.

*V. *opaca* Fries in Nov. Fl. Suec. 2 (1828). [Fischler, 1994]

N.W. Anatolia. A3 Bolu: near Abant Gölü, between 1300 and 1650 m, 5.vi.1986, F.Speta.

e **V. *vanensis* A. Öztürk in Ot Sistematiik Botanik Dergisi, 8(1): 5-6 (2001). [Öztürk, 2001]

Type: (Turkey) B9 Van: Erek Dağı, northern side, steppe, 1800 m, 08.v.1994, A.Öztürk 862, Hb. No. 1371 (holo. VANF; iso. Yıldırımli Herbarium)

e **V. *yildirimlii* A. Öztürk Ot Sistematiik Botanik Dergisi, 8(1): 7 (2001). [Öztürk, 2001]

Type: (Turkey) C10 Hakkari: Şavata valley, banks of Zap river, sandy screes, 1900 m, 18.05.1993, A.Öztürk 863, Hb. No. 1372 (holo. VANF; iso. Yıldırımli Herbarium)

90. OROBANCHACEAE (7: 1)

4. OROBANCHE L. (7: 3)

O. *alba* Steph. ex Willd. in Sp. Pl. III: 350 (1800).

*subsp. *xanthostigma* Ratzel & Uhlich in Feddes Repert. 115(1-2): 198 (2004). [Ratzel & Uhlich, 2004]

Type: Rossia, in Caucaso boreo-occidentali (Adygaea), ad pagum Novoplochladnoje (= Sachrai), in calcibus declivibus austro-occidentalibus, ad delectum Sachrai, ca. 1,8 km austro-oriens pagum Novopolochladnoje, ca. 700 m s.m., in fruticetibus, ad radices Origani vulgaris, leg. Rätzel 30.vi.2002 n. 2329 (B; is. n. 2325, 2326, 2327 Herbar Rätzel).

N.E. Anatolia. Artvin: Akarsu (40°58'08" N / 41°33'58" E), photo. C.A.J. Kreutz 23.vi.1996; alle det. H. Uhlich iii.2003.

■■ PHELIPANCHE (Pomel) Sojak

e **P. *tzvelevii* Teryokh. in Novitates Systematicae Plantarum Vascularium, 33: 207 (2001). [Teryokhin, 2001]

Holotype: (Turkey) İçel: inter pagos Findikpinarikoy et Akarca, alt. ca. 600 m, 14.iv.1959, N 1157, E. Hennipman, P. Nijhoff, C. Swennen, A.S. Tulp, W. Vader et V. de Wilde (K).

92. GLOBULARIACEAE (7: 27)

1. GLOBULARIA L. (7: 27)

e **G. *hedgei* H. Duman in Botanical Journal of the Linnean Society, 137(4): 425-426 (2001). (subgen. *Globularia* sect. *Polycephalum* O. Schwarz). [Duman, 2001 b]

Type: (Turkey) C3 Isparta: Sütçüler, Çandır, Yazılı Kanyon, 320 m, on calcareous rocky cliffs, 29 viii 1993, H. Duman 5436 Z. Aytaç & A.A. Dönmez (Holo. GAZI, iso. E, AIBU).

94. LABIATAE (7: 36)

2. TEUCRIUM L. (7: 53)

*T. *krymense* Juz. [Ocakverdi, 1986]

E. Anatolia. A9 Kars: Karakale Köyü, Dolu Deresi ve Salahana mevkii, taşlık, 1800 m, step, H. Ocakverdi, 26.07.1984, 0.2020. det. T.Ekim.

9. PHLOMIS L. (7: 102)

e**P. x *ekimii* M.Y.Dadandı & H.Duman in Ann. Bot. Fennici 40(4): 287 (2003). (*Phlomis bruguieri* Desf. x *Phlomis capitata* Boiss.). [Dadandı & Duman, 2003]

Type: (Turkey) C6 Gaziantep: Sofu Dağı, 1400-1450 m, rocky slopes, steppe, 15.vi.2001, M.Y.Dadandı 1584 & E. Yüzbaşıoğlu (holo. Erciyes University Herbarium; iso. GAZI, E, ISTE).

Paratype: (Turkey) C6 Gaziantep: Sofu Dağı, 1400-1450 m, 15.vi.2001, rocky slopes, steppe, M.Y.Dadandı 1595 & E. Yüzbaşıoğlu (Erciyes University Herbarium).

e **P. x *vuralii* Dadandı in The Karaca Arboretum Magazine 7(2): 60 (2003). (*Phlomis bourgaei* Boiss. x *Phlomis chimerae* Boissieu). [Dadandı, 2003]

Type: (Turkey) C3 Antalya: Kemer, around Ağva stream, 60 m, 8.v.2001, clearing of *Pinus* sp. forest, M.Y.Dadandı 1523 (Holo. Erciyes University Herbarium; iso. GAZI, E, ISTE, ANK).

21. NEPETA L. (7: 264)

e **N. *dirmencii* Yıldırımli & M.Dinç, Ot Sistematiği Botanik Dergisi 10(1): 4 (2004). [Yıldırımli et al., 2004]

Type: (Turkey) B7 Tunceli: Ovacık, Munzur dağları, along Kirkmerdivenler (Aksu deresi), screes and rocky places, S of slopes, 1400-1700 m, 28.vii.1979, Ş.Yıldırımli 2267 (holo. Herbarium YILDIRIMLI; iso. EGE, GAZI, HUB).

30. SATUREJA L. (7: 314)

*S. *icarica* P.H. Davis in Notes R.B.G. Edinb. 38:51 (1980). [Tümen et al., 2000]

Type: (Greece) Ikaria, Mt. Atheras, 900-1040 m, hard schists, in open heaths 12.vii.1958, Runemark & Snogerup 12460 (holo. LD !).

European Turkey. A1(E) Çanakkale: Gökçeada, Ulukaya hill, in open areas, 550 m. 24.vii.1995, G.Tümen, F.Satıl, GT 1014, (ESSE 11958).

*S. *pilosa* Velen. in Sitzungsber. Königl. Böhm. Ges. Wiss. Prag, Math.-Naturwiss. cl. 1899(40):6(1899). [Tümen et al., 2000]

Type: Described from Bulgaria

W. Anatolia. B1 Balıkesir; Kazdağ, Eybek hill, open areas 1400 m, 8.vii.1993, G. Tümen, GT 1050, (ESSE 10986).

39. MENTHA L. (7: 384)

*M. x *villosa-nervata* Opiz in Nomencl. Bot. 60 (1831). (*M.longifolia* (L.) Hudson x *M.spicata* L.) [Tarımcılar & Kaynak, 1997]

N. Anatolia. Samsun: Kahyalı, E. of Köprübaşı, edge of fields, 24.viii.1993, G.Kaynak & G.Tarımcılar (BULU 7719A); Trabzon: between Trabzon and Bayburt, edge of fields, dry soil, 600 m, 26.viii.1993, G.Kaynak & G.Tarımcılar (BULU 7804); Kastamonu: between Daday and Azdavay, *Abies* forest, edge of fields, 1300 m, 22.viii.1994, G.Kaynak & G.Tarımcılar (BULU 8913); Kastamonu: between Daday and Azdavay, *Abies* forest, edge of fields, 1400 m, 22.viii.1994, G.Kaynak & G.Tarımcılar (BULU 8917); Kastamonu: between Daday and Azdavay, Sovucaova, 1370 m, 22.viii.1994, G.Kaynak & G.Tarımcılar (BULU 8926).

42. SALVIA L. (7: 400)

e **S. *hedgeana* Dönmez in Botanical Journal of the Linnean Society, 137(4): 413 (2001). [Dönmez, 2001]

Type: (Turkey) B7 Sivas: Divriği, Dumlucadağ, Karasar pass, above Kayaburun village, 1600 m, steppe, 15.vi.1995, AAD 4579, slide no: 1390, AD 1391 (holo. HUB; iso. E).

*S. *sylvestris* L., in Sp. Pl. 24 (1753). [Greuter & Rous, 2002]

European Turkey. A1(E) Kırklareli: In vinetis ad urbem Lozengrad (Kirk-Kilise) (Kırklareli), solo calcareo, 14.vii.1899, Mateev (SO, as *Salvia nemorosa* L.).

■ PERILLA L.

*P. *frutescens* (L.) Britton in Mem. Torrey Bot. Club 5: 277 (1894). [Dönmez, 2002 a]

N.E. Anatolia. A9 Artvin: Hopa, 1 km from Sugören village on Hopa road, roadside, c. 10 m, 29.ix.2000, A.A.Dönmez 8125, HUB.

95. PLUMBAGINACEAE (7: 463)

5. ACANTHOLIMON Boiss. (7: 478)

e **A. *anatolicum* Doğan & Akaydın in Botanical Journal of the Linnean Society, 140(4): 445 (2002). [Doğan & Akaydın, 2002 b]

Holotype: (Turkey) A3 Ankara: Kuş Cenneti between Çayırhan and Hallıhan, deep gypsum-rich soil on mountain slopes, 500 m, 19.viii.2000, Doğan 2007, 2008, 2009 & Akaydın (holo. ANK).

e **A. *artosense* Doğan & Akaydın in Botanical Journal of the Linnean Society, 144(4): 498 (2004). [Doğan & Akaydın, 2004]

Doğan, M., Akaydın G., Three new species with two flowered spikelets in *Acantholimon* (Plumbaginaceae) from East Anatolia, Turkey, Botanical Journal of the Linnean Society, 144(4): 497-505 (2004).

Holotype: (Turkey) B9 Van: Gevaş, Artos Dağı, 2500 m, 05.vii.2002, Doğan & Akaydın 7532 (holo. ANK).

e **A. *avanosicum* Doğan & Akaydın in Botanical Journal of the Linnean Society, 138(3): 365-367 (2002). [Doğan & Akaydın, 2002 a]

Holotype: (Turkey) B5 Nevşehir: Between Avanos-Hacıbektaş, 3 km from Avanos argillaceous slopes, 950 m, 20.viii.2000, Doğan 2052 & Akaydın (holo. ANK).

e **A. *bashkaleicum* Doğan & Akaydın in Botanical Journal of the Linnean Society, 144(4): 498 (2004). [Doğan & Akaydın, 2004]

Holotype: (Turkey) B10 Van: Van-Hakkari road, around Başkale, on mountain slopes, 2100 m, 06.vii.2002, Doğan & Akaydın 7544 (holo. ANK).

e **A. *birandii* Doğan & Akaydın in Nord. J. Bot. 21(5): 482-483 (2001). [Doğan & Akaydın, 2001]

Type: (Turkey) C4 Karaman: On the road to Bucakkışla, 23. km from Karaman, 1350 m, 23.viii.2000, Doğan 2081 & Akaydın (holo. ANK). Paratype: C4 Karaman: Gökçe çamlığı district, 1400 m, 24.viii.2000, Doğan 2099 & Akaydın.

e **A. *göksunicum* Doğan & Akaydın in Ann. Bot. Fennici 40(1): 57 (2003). (sect. *Staticopsis* subsect. *Androsacea*). [Doğan & Akaydın, 2003 a]

Type: (Turkey) B6 Kahramanmaraş: Göksun, between Kurucaova and Güneyoluk, calcareous slopes, 2100 m, 8.vii.2001, Doğan & Akaydın 6797 (holo. ANK).

e **A. *hoshapicum* Doğan & Akaydın in Botanical Journal of the Linnean Society, 144(4): 501 (2004). [Doğan & Akaydın, 2004]

Holotype: (Turkey) B9 Van: Gürpınar-Başkale road, around Hoşap (Güzelsu), 2050 m, 06.vii.2002, Doğan & Akaydın 7540 ANK.

e **A. *karamanicum* Akaydın & Doğan in Isr. J. Plant Sci., 50(1): 68-69 (2002). [Akaydın & Doğan, 2002]

Holotype: (Turkey) C4 Karaman: Between Başyayla and Taşkent, Turanşah Da., calcareous mountain slopes in open *Quercus cerris* scrub, 1600 m, 24.viii.2000, Akaydın 6518 & Doğan ANK.

e **A. *köycegizicum* Doğan & Akaydın in Ann. Bot. Fennici 40(1): 54-55 (2003). (sect. *Staticopsis* subsect. *Androsacea*). [Doğan & Akaydın, 2003 a]

Holotype: (Turkey) C2 Muğla: Köyceğiz around Sultaniye, serpentine slopes, 20 m, 23.viii.2001, Doğan & Akaydın 7237 ANK.

e **A. *turcicum* Doğan & Akaydın in Isr. J. Plant Sci. 51(3): 234 (2003). [Doğan & Akaydın, 2003 b]

Holotype: (Turkey) B7 Elazığ: above Sivrice, Hazar Mountains, calcareous mountain scree in *Astragalus* spp. steppe, 38°24'23" N, 39°19'24" E, 1660 m, 04.vii.2001, Akaydın 6757 & Doğan ANK.

e **A. *yildizelicum* Akaydın in Nord. J. Bot. 22(6): 680 (2004). [Akaydın, 2004]

Holotype: (Turkey) B6 Sivas: Yıldızeli, Çamlıbel Mountain, Çamlıbel pass, in open *Acantholimon*, *Astragalus* and *Festuca* steppe, 1700 m, 17.viii.2001, Akaydın 7100 ANK.

97. THYMELAEACEAE (7: 521)

1. DAPHNE L. (7: 521)

D. mucronata Royle III. Bot. Himal. Mount. 1:322, 2: t. 81 (1836).

**subsp. *turcica* Halda in Acta Mus. Richnov. Sect. Nat., 7(1): 8 (2000). [Halda, 2000]

Holotypus: Rix no. 261, leg. E.M.Rix June 1965 (K).

Patria et Distributio: Turcia orientalis: C10 Hakkari, Yüksekova; alt. 6000', gorge; small shrub up to 3'.

118. RUBIACEAE (7: 722)

WENDLANDIA Bartl.

**W. ligustroides* (Boiss. & Hohen.) Blakelock in Kew Bull. 3: 440 (1948); Rami in Dep. Agr. Iraq Tech. Bull. 14: 100 (1964). [Dönmez, 2002 c]

E. Anatolia. C9 Hakkari: between Çukurca and Hakkari, limestone crevices, 37°28,658' N, 43°33,33' E, 1080 m, 14.vii.2001, AAD 9749, (DIA; Ads 3298, 3299, 3300).

MONOCOTYLEDONES

135. LILIACEAE (8: 67)

11. ALLIUM L. (8: 98)

e **A. elmaliense İ.G.Deniz & Sümbül in Ann. Bot. Fennici 41(2): 147 (2004). [Deniz & Sümbül, 2004]

Type: (Turkey) C2/3 Antalya: Elmalı, entering road of *Cedrus* Research Forest, openings in *Juniperus excelsa* and *Quercus coccifera* forests, 1150 m, 30.iv.2001, İ.G.Deniz 1254 (Holo. AKDU; iso. HUB, GAZI, AIBU).

17. ORNITHOGALUM L. (8: 227)

e **O. anamurense Speta in Preslia, Praha, 72(24): 373 (2000). [Speta, 2000 a]

Type: (Turkey) İçel: İçel, km 76 n. Anamur, 1500 m, 4.1995, E. Markus, cult. LI: 20.v.1996, 15.iv.1997 (Holo.), 17.iv.1997, 16.v.1997 (alle Sp in LI).

e **O. isauricum O.D.Düşen & H.Sümbül in Isr. J. Plant Sci., 51(1): 75-77 (2003). [Düşen & Sümbül, 2003]

Type: (Turkey) C3 Antalya: Manavgat to Gündoğmuş, 23 km from Gündoğmuş, 600 – 700 m, 36°47' N, 31°49' E, on rocky and stony places, 11.iii.2002, O.D. Düşen (2479) & S. Düşen, A. Dinç (holo. AKDU; iso. HUB, GAZI, AIBU).

e **O. microcarpum Speta in Phytion, 40(1): 128 (2000). [Speta, 2000 b]

Type: (Turkey) Kastamonu: Ilgaz Dağları, Yaman Tepe-PaB, 1650 m, 9.vi.1986, F. Speta (Holo. Sp in LI), cult. Kulm: 23.v.1989, 7.vi.1989, 7.i.1990, 30.v.1990, 4.v.1992, 7.v.1997, 16.v.1997, 27.iii.1997, 22.v.1998, 1.iii.1999, 14.v.1999 in LI (Sp).

e **O. munzurenses Speta in Preslia, Praha 72(24): 392 (2000). [Speta, 2000 a]

Type: (Turkey) Tunceli: 19 km from Tunceli along Munzur-River towards Ovacık, steep scree-slopes and cliff-ledges, calcareous rock, 950 m, [11.iv.1990] E.Pasche KPPZ 90205, cult. LI: 21.v.1993, 18.v.1992 (Holo., Sp in LI).

e **O. pamphylicum O.D.Düşen & H.Sümbül in Isr. J. Plant Sci., 50(1): 73 (2002). [Düşen & Sümbül, 2002]

Type: (Turkey) C3 Antalya: above Fesleğen yaylası, Sakarpınar, 1850 – 1900 m, 36°50' N, 30°24' E, calcareous slopes, 04.iv.2001, O.D. Düşen (2235) & S. Düşen, K. Çetinkaya (holo. AKDU; iso. HUB, GAZI, AIBU).

*O. sphaerolobum Zahar. in Ann. Mus. Goulandris 3: 60 (1977). [Speta, 2000 a]

S. Anatolia. Antalya: Kalkan in Richtung Sidek, 600 m, 8.xi.1993, E.Pasche HKEP 9373, cult. LI: 14.iv.1997, 15.iv.1997, 13.v.1997, 7.v.1998, 20.v.1999 (Sp).

e **O. vasakii Speta in Linzer Biol. Beitr. 31(1): 438 (1999). [Speta, 1999]

Type: (Turkey) Adıyaman, in vicinitate pagi Gerger, 800 m. s.m, [8.vi.1992] v. VASAK VA 86 86, cult. LI: 15.v.1999 (Holotypus) 11.iv.1997 (folia), 5.v.1997 (isotypi).

18. MUSCARI Miller (8: 245)

e **M. sivrihisardaghlarensis Yıldırımli & B.Selvi in Ot Sistematiik Botanik Dergisi, 9(1): 9-10 (2002). [Yıldırımli & Selvi, 2002]

Type: (Turkey) B3 Eskişehir: Sivrihisar, from Günyüzü bridge and Bademli petrol office, Sivrihisar dağları, towards peak, slopes, hilly, screes, gypseus places, and steppe, 1000-1500 m (c. 1300 m), 17.iii.2001, Ş. Yıldırımli 25788 & B.Selvi (holo. Herbarium Yıldırımli; iso. GAZI, HUB, K, UPA, Hb. Nydegger)

21. HYACINTHELLA Schur (8: 274)

e **H. venusta K. Persson in The New Plantsman, 7(4): 204 (2000). (Hyacinthaceae) [Persson, 2000]

Holotype: (Turkey) Konya: Ermenek to Hadım, calcareous slopes with deep, gravelly red clay, 1750 m., 14. 04. 1999, K. & J. Persson 99-19 GB.

C. Anatolia. Konya: Ermenek to Taşkent, 1800 m. April 1990, I. & G. Jonasson (GB).

23. FRITILLARIA L. (8: 284)

e **F. frankorum R. Wallis & R.B.Wallis in The Plantsman 2(1): 15 (2003). [syn. *F. pinardii* sensu Mouterde in Nouvelle Flore du Liban et de la Syrie, 1: 234 (1966)]. [Wallis & Wallis, 2003]

Holotype: (Turkey) a cultivated specimen based on Wallis 93.16, from Turkey, Hatay, N of Yayladağı, weed of cultivated fields in seasonally moist or wet soils, 9.iv.1993 (WSY).

e **F. milasense M.Tekşen & Aytaç in Isr. J. Plant Sci. 52: 347 (2004). [Tekşen & Aytaç, 2004]

Type: (Turkey) C2 Muğla: Between Yatağan and Milas, Katrancı village, 22.iii.2001, 700 m, in the screen

of *Pinus pinea* L. forest, sandy soil, M.Tekşen 1999, E. Tekşen & Mehmet Soydemir (holo. GAZI; iso. ANK, ISTF, HUB).

Paratypes: (Turkey). C2 Muğla: Between Yatağan and BozDoğan, Çamlıyurt-Yeşilköy, 7 km, 730 m, in the screen of *Pinus pinea* forest, M.Tekşen 2002, E.Tekşen & Mehmet Soydemir; ibid., 1 km, 22.iii.2001, 750 m, in *Pinus pinea* L. forest, M.Tekşen 2003, E.Tekşen & Mehmet Soydemir; Çamlıyurt village, 22.iii.2001, 760 m, *Quercus* L. shrub, M.Tekşen 2004, E.Tekşen & Mehmet Soydemir; between Yatağan and Milas, Katrancı village, 14.vii.2001, 700 m, in the screen of *Pinus pinea* L. forest, sandy soil, M.Tekşen 2116, E. Tekşen & U.Soydemir (in fruit).

F. serpenticola (Rix) M.Tekşen & Aytaç in Isr. J. Plant Sci. 52: 351 (2004). (Syn.: *F. carica* Rix subsp. *serpenticola* Rix in Notes R.B.G. Edinb. 41: 52 (1983) [Tekşen & Aytaç, 2004]

24. TULIPA L. (8: 302)

e ****T. cinnabarina** K. Persson in The New Plantsman, 7(4): 200 (2000). [Persson, 2000]

Holotype: (Turkey) Konya: between Ermenek and Hadım, calcareous slopes, 1750-1800 m., 3. 04. 1990, Kammerlander, Pasche, Persson & Zetterlund 90-37 GB.

C. Anatolia. Konya: between Ermenek and Hadım, calcareous slope with red soil, with *Iris stenophyllo*, *Fritillaria pinardii*, 1800 m. (photograph 203) 14. 04. 1999, K.& J. Persson 99-17.

e ****T. gumusanica** Terzioğlu in Ann. Bot. Fennici 39(2): 150 (2002). [Terzioğlu & Coşkunçelebi, 2002]

Holotype: (Turkey) A7 Gümüşhane: Zigana Mountain, northern rocky slopes and screes, (together with the endemic *Iris histrioides*, *Campanula betulifolia*, *Digitalis lamarckii* and *Muscari aucheri* in *Pinus sylvestris-Quercus macranthera* subsp. *sypirensis* woodland), 1550 m, 11.vi.2000, Terzioğlu 13362 (KATO; iso. KTUB, Coşkunçelebi 296).

30. COLCHICUM L. (8: 329)

e ****C. leptanthum** K. Perss. in Botanical Journal of the Linnean Society, 135(1): 85 (2001). [Persson, 2001]

Type. (Turkey) Çoruh: c. 10 km SW of Yusufeli, open stony steppe, 660 m, 13.xi.1996 (cult. in Göteborg Botanical Garden 6.xii.1998) Kerndorff & Pasche 96-02 (holo. GB).

136. AMARYLLIDACEAE (8: 358)

5. GALANTHUS L. (8: 365)

e ****G. trojanus** A.P.Davis & N.Özhatay in Bot Jour Linn Soc137(4): 409-411 (2001). [Davis & Özhatay, 2001]

Type: (Turkey) A1(A) Çanakkale: near Çan, 350-400 m, 13.iii.2000 (fl.), N. & E. Özhatay ISTE 79123 (holo. ISTE; iso. K).

G. x valentinei (J. Allen) Beck in Wiener III. Gart.-Zeitung 19: 57 (1894).

e **nothosubsp. **subsplicatus** (N.Zeybek) A.P.Davis [*G. nivalis* L. x *G. plicatus* M.Bieb. subsp. *byzantinus* (Baker) D.A. Webb] in Kew Bulletin 56: 645 (2001). [Davis & et al., 2001]

Nothotype: A2 Istanbul: Bahçeköy, Kurt Kemerli, 31 March 1980, Zeybek IZEF 406 [IZEF 1833].

European Turkey. A2(E) Istanbul: near Constantinople, wild in large quantities, recd. March 1892 (fl.) Mountain s.n. (K); Subaşı, Pınarcı-Gümüşpınar, 2 Feb. 1994 (fl.), Byfield & Atay ISTE 66246 (ISTE); Ormanlı-Sarımeşe, 3 km S of Ormanlı, 29 Jan. 1994 (fl.), Byfield ISTE 66243 (ISTE).

137. IRIDACEAE (8: 381)

4. CROCUS L. (8: 413)

C. biflorus Miller in Gard. Dict. ed. 8, no.4 (1768).

e **subsp. **atrospermus** Kerndorff & Pasche in The Plantsman N.S. 8(2): 86 (2003). [Kerndorff & Pasche, 2003]

Holotype: (Turkey) Lycia. Muğla: Boncuk Dağları, 1580-1990 m, 10.iii.1997, HKEP 9377 (K).

C. biflorus Miller in Gard. Dict. ed. 8, no.4 (1768).

e **subsp. **leucostylosus** Kerndorff & Pasche, in The Plantsman N.S.8(2): 87 (2003). [Kerndorff & Pasche, 2003]

Holotype: (Turkey) Pisidia. Denizli: Gatma Dağı (Çatma Dağı), 1750-1930 m, 11.iii.2002, HKEP 0214 (K).

e ****C. nerimaniae** S.Yüzbaşıoğlu in The Plantsman N.S. 3(2): 104-106 (2004). [Yüzbaşıoğlu & Varol, 2004]

Holotype: (Turkey) C1 Aydın: Milas, 5 km from Labranda to Çine, 29 October 2000, N. ve E. Özhatay, ISTE 79808 (ISTE!).

e **C. x *paulineae* Pasche & Kerndorff in The New Plantsman, 6(1): 44 (1999). [Pasche & Kerndorff, 1999]

[= *C. abantensis* T. Baytop & B. Mathew in Kew Bull. 30: 243 (1975) x *C. ancycensis* (Herb.) Maw in Gard. Chronn. n.s. 16: 528 (1881)].

Holotype: (Turkey) Bolu: Abant Mts., 1400-1800 m, 21.03.1995 HKEP 9516, in locis saxosis vel gramineis crescens (K).

138. ORCHIDACEAE (8: 450)

4. EPIPACTIS Zinn (8: 462)

e **E. *densifolia* W. Hahn, J.Passin & R.Wegener in Ber. Arbeitskrs. Heim. Orchid. 20(1): 59 (2003). [Hahn et al., 2003]

Holotype: (Turkey). Konya: Friedhof 6.2 km östlich Sarioğlan, 1335 m NN, 20.vi.2002, leg. W.Hahn, J.Passin & R.Wegener, hinterlegt im Herbar der Abant İzzet Baysal Üniversitesi, Bolu, Türkei.

5. LIMODORUM Boehmer (8: 469)

e **L. *rubriflorum* Bartolo & Pulvirenti in Caesiana 12: 3 (1999). [Bartolo & Pulvirenti, 1999]

Type: (Turkey) Gediz, Murat Dag, 23.06.1998, Brulio & Pavone (CAT holo.; CAT, F/iso.).

12. OPHRYS L. (8: 476)

e **O. *aramaeorum* P. Delforge in Natural. belges (Orchid. 13) 81(3): 228 (2000). [Delforge, 2000]

Holotype: (Turkey) Diyarbakır: apud Kulp (UTM 37SFC6260), alt. s.m. 870 m, 27.v.1990. In herb. P. Delforge sub n° 9049.

O. *attaviria* D. & U.Rückbrodt & D. & S. Wenker

e **subsp. *cesmeensis* C.A.J. Kreutz in Die Orchideen der Türkei, 132-133, Landgraaf (1998). [Kreutz, 1998]

Holotype: (Turkey) İzmir: Karaburun, Halbinsel Çeşme, 20 km NNW Urla, UTM MC65.45, Phrygana, Wiesenflächen, alt. 10 m, 12.iv.1997, leg. C.A.J. Kreutz in herbario Leiden (L), NL.

e **O. *iceliensis* C.A.J. Kreutz in Jour. Eur. Orch. 32(3/4): 528 (2000). [Kreutz, 2000]

Holotype: (Turkey) İçel: Soğucak, 15 km N Mersin, UTM XF 38.89, Friedhof mit lockerem Kiefernwald, niederem Laubwald und grasigen Freiflächen, 850 m, 21.v.1997, leg. C.A.J. Kreutz, in Herbio Leiden, L. (NL).

e **O. *lyciensis* H.F.Paulus, E. Gügel, D. & U. Rückbrodt in Ber. Arbeitskrs. Heim. Orchid. 18(1): 23 (2001). [Paulus et al., 2001]

Holotype: (Turkey) Antalya: (Attaleia) ad vicum Çıralı, alt. 30 m., 07.04.1998, leg. H.F. & U. Paulus, D. & U. Rückbrodt, TR-07-248-01/98 (WU) Abb. 501).

23. DACTYLORHIZA Necker ex Nevski (8: 535)

e **D. *armeniaca* Hedrén in Plant Syst. Evol. 229(1-2): 42 (2001). [Hedrén, 2001]

Holotype: (Turkey) Ardahan: adm. region, ca. 5 km east Şavşat, Hedrén & Hansson s.n., 9 June 2000 (LD)

144. CYPERACEAE (9: 32)

16. BLYSMUS Panzer (9: 69)

B. *compressus* (L.) Panz. ex Link in Hort. Berol. I: 278 (1827).

e **subsp. *subulifolia* A.Khokhr. in Byull. Mosk. Obshch., Ispyt. Prir., Biol., 102(4): 46 (1997). [Khokhrjakov, 1997]

Type: (Turkey) A8/B8 Erzurum: Dumlu Dagi, Guselyayla, pratum alpinum humidis in valle rivuli 2500-2700 m.s.m., 8.vii.1994, A.P. Khokhrjakov, M.T. Mazurenko, M.G. Pimenov, E.W. Klujkow, MW, isotype MHA.

Paratype: (Turkey) A8 Rize: Karadeniz Dağları, Ovitdagı geçidi, 2640 m.s.m., pratum alpinum humidis, 18.viii.1994, A.P. Khokhrjakov et M.T. Mazurenko.

145. GRAMINEAE (9: 158)

16. SECALE L. (9: 255)

e **S. *leptorhachis* H.Scholz & Parolly in Willdenowia, 34(1): 149 (2004). [Parolly & Scholz, 2004]

Type: (Turkey) C3 Antalya: Bakırlı Dağı, Saklıkent, thorn-cushion community, 1820 m, 14.vii.1999, M.Döring, G.Parolly & D.Tolimir T 591 (holo. B; iso. herb. Parolly).

23. BROMUS L. (9: 272)

B. *tomentellus* Boiss. in Diagn. ser. 1(7): 126 (1846).

*subsp. *nivalis* Bornm., H.Scholz & Byfield in Turk Jour. Bot. Vol. 24(4): 263 (2000). (sect. Pnigma Dum.) [Scholz & Byfield, 2000]

Basionym: *B. tomentellus* Boiss. var. *nivalis* Bornm., Bull. Herb. Boiss. Ser. 2, 8:825. 1909 ('1908').

Holotype: Persia borealis: m. Elburs, in jugo Kendewan, 3000 m, 23.vi.1902, Bornmüller iter Persicum alterum, J. & A. Bornmüller 8390 (B).

N.E. Anatolia. A9 Çoruh: 23 km from Şavşat to Ardahan, before Çam pass, 2350 m, alpine pasture grassland on igneous rocks, abundant, 4.vii.1994, A.J. Byfield & D. Pearman B 1289 (ISTE 67154).

99. STIPA L. (9: 541)

e ***S. cacuminis* H.Scholz & Parolly in Willdenowia, 34(1): 151 (2004). [Parolly & Scholz, 2004]

Type: (Turkey) C2 Muğla: Sandras Dağı, Altınsivri, 2100 m, dwarf-shrub community, peridotite, 20.vi.1999, M.Döring, G.Parolly & D.Tolimir T 76a (Holo.B; iso. herb. Parolly).

104. PHRAGMITES L. (9: 562)

**P. frutescens* H. Scholz in Taxon 45(3): 522 (1996). [Mutlu, 2002, Yıldırım & Dinç, 2003]

S.W. Anatolia. C1 Muğla: Datça-Bozburun road, turn to Bozburun, road side, 10 m, 22.xi.2001, B. Mutlu 7868.

■ DIPLACHNE P. Beauv. in Agrost. 80, t.16, f.9 (1812).

**D. fusca* (L.) P.Beauv. in Ess. Agrost: 163 (1812). [Yıldırım & Vural, 2003]

European Turkey. A1(E) Edirne: Uzunköprü, Salarlı village, rice fields, 27.vii.2000, anon. sn (GAZİ Hb. PPCRI).

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■ ■ OREOPOA H.Scholz & Parolly

e ***O. anatolica* H.Scholz & Parolly in Willdenowia, 34(1): 146 (2004). [Parolly & Scholz, 2004]

Type: (Turkey) C2 Antalya: Beydağları, Kızlar sivrisi, glacially sculptured range between the main summit and the Aktepe, 36°35'76"N, 30°06'97"E, 2650-2700 m, limestone, wind-swept cushion community (*Drabo-Androsacetalia*), 3.vii.1999, M.Döring, G.Parolly & D.Tolimir P6358 (holo. B; iso. E, ISTE, herb. Parolly).

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