

New plant records for Khorassan province, Iran, V, with complementary notes to its flora

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Abstract

In the fifth and last contribution to the flora of Khorassan 143 angiosperm plant taxa from 80 genera in 28 families are recorded for the first time. 21 of these taxa are endemic to Iran. The specimens cited in this paper are deposited in several herbaria, i.e. BASU, FAR, FUMH, IRAN, K, MO, SUTH, TARI, TUH, W. This contribution is a continuation of the recently published papers on this province (GHAHREMANINEJAD & al. 2005, JOHARCHI & al. 2007, GHAHREMANINEJAD & al. 2010, JOHARCHI & al. 2011). In the five papers (including the present) 586 species are reported for the first time from this province. Furthermore, as in the recently published part IV (JOHARCHI & al. 2011), specimens from Khorassan representing new taxa or new records for Iran published in other papers are listed here to give a complete overview. This series of five papers serves as supplement to Flora Iranica treatments (RECHINGER 1963–1999, 2001–2011) for the Khorassan province flora.

KeyWords: Flora, Iran, Khorassan province, new records.

Zusammenfassung

Im fünften und letzten Teil der Ergänzungen zur Flora der Provinz Khorassan, Iran werden 143 Bedecktsamen-Taxa aus 80 Gattungen in 28 Familien das erste Mal berichtet. Davon sind 21 endemisch im Iran. Die zitierten Belege sind in den Herbarien BASU, FAR, FUMH, IRAN, K, MO, SUTH, TARI, TUH, W deponiert. Dieser Beitrag ist eine Fortsetzung der früher publizierten Ergänzungen zur Flora der Provinz Khorassan (GHAHREMANINEJAD & al. 2005, JOHARCHI & al. 2007, GHAHREMANINEJAD & al. 2010, JOHARCHI & al. 2011). So wie im letzten Beitrag (JOHARCHI & al. 2011) werden als ergänzende Informationen Belege aus der Provinz Khorassan für kürzlich neu für den Iran gefundene und neu beschriebene Taxa aufgelistet. Die fünf Beiträge als Ganzes sind eine Ergänzung zur Flora Iranica (RECHINGER 1963–1999, 2001–2011) für die Provinz Khorassan.

Introduction

Khorassan province is located in NE Iran, covering an area of 313,335 sq. km. It extends from 30°21' to 38°17'N and from 55°28' to 61°20'E. Recently 459 plant taxa have been recorded for the first time for this province (GHAHREMANINEJAD & al. 2005, JOHARCHI & al. 2007, GHAHREMANINEJAD & al. 2010, JOHARCHI & al. 2011). In the present paper 143 further taxa are added to the flora of the province. They are based on recent field research

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and critical evaluation of existing specimens. Thus collectively in these five papers 602 species are recorded for the first time for this province.

Like the recently (the forth) published paper (JOHARCHI & al. 2011), the present paper includes some additional aspects too. In part one, as in the four previous papers, taxa new for the province are recorded for the first time. All these taxa have been recorded from other localities in Iran, but not from Khorassan province. In part two specimens of Khorassan are listed for taxa which have been found to be new for Iran recently and in part three for taxa recently described new to science. The complete information is critical for completing the inventory list of the flora of Khorassan province.

Localities within Khorassan are listed from NW to SE, according to figure 1. Specimens from the following herbaria are cited: BASU, FAR, FUMH, IRAN, K, MO, SUTH, TARI, TUH, W. The abbreviations for the herbaria follow Index herbariorum (<http://sciweb.nybg.org/science2/IndexHerbariorum.asp>).

New records for Khorassan province

The following 143 vascular plant taxa are not or incorrectly listed for Khorassan province in Flora Iranica (RECHINGER 1963–1999, 2001–2011). Of these 83 are recorded for the first time from the province, 61 taxa are mentioned in Flora of Iran (ASSADI & al. 1988–2011) with specimens from Khorassan already. For 38 of these 61 additional specimens from FUMH are given here. The 143 taxa are from 80 genera in 28 families. 114 dicotyledons (from 24 families and 59 genera) and 29 monocotyledons (from 4 families and 21 genera), 21 of them are endemic to Iran.

Monocotyledons

Amaryllidaceae – Ref.: WENDELBO 1971 (sub Alliaceae).

Allium lenkoranicum MISCZ., in GROSSH., Fl. Kawk. 1: 214 (1928).

Khorassan: NW: NW Bojnord, between Kuhghala and Kohne Jolge, 629 m, 24.6.2009, Joharchi & Zangoeei 43259 [FUMH]. – W Bojnord, Jowzak towards Chamn-Bid, km 3, 11.7.2011, Memariani & Arjmandi 44580 [FUMH].

Distribution in Iran: N, E. This species is recorded from Khorassan in Flora Iranica. The locality (E: Khorassan, Kotal-e Yek Chenar, Koeltz 16702) belongs to Golestan province, not to Khorassan. Now this species is confirmed with a correct locality.

Cyperaceae – Ref.: KUKKONEN 1998, AMINI RAD 2011.

Bolboschoenus glaucus (LAM.) S.G. SMITH. NOVON 5: 101 (1995).

Khorassan: NE: Mashhhad, Ferdowsi University Campus 1035 m, 3.7.2006, Akramian 38198 [FUMH].

Distribution in Iran: S, E.

Schoenoplectus bucharicus (ROSHEV.) GROSSH., Raspr. Kavk. Odnod. Prish.: 46 (1939).

Khorassan: SW: Boshruyeh, Fathabad dam, 1300 m, 7.7.1989, Faghinihnia & Zangoeei 17978 [FUMH].

Distribution in Iran: N, W, E.

Poaceae – Ref.: BOR 1970.

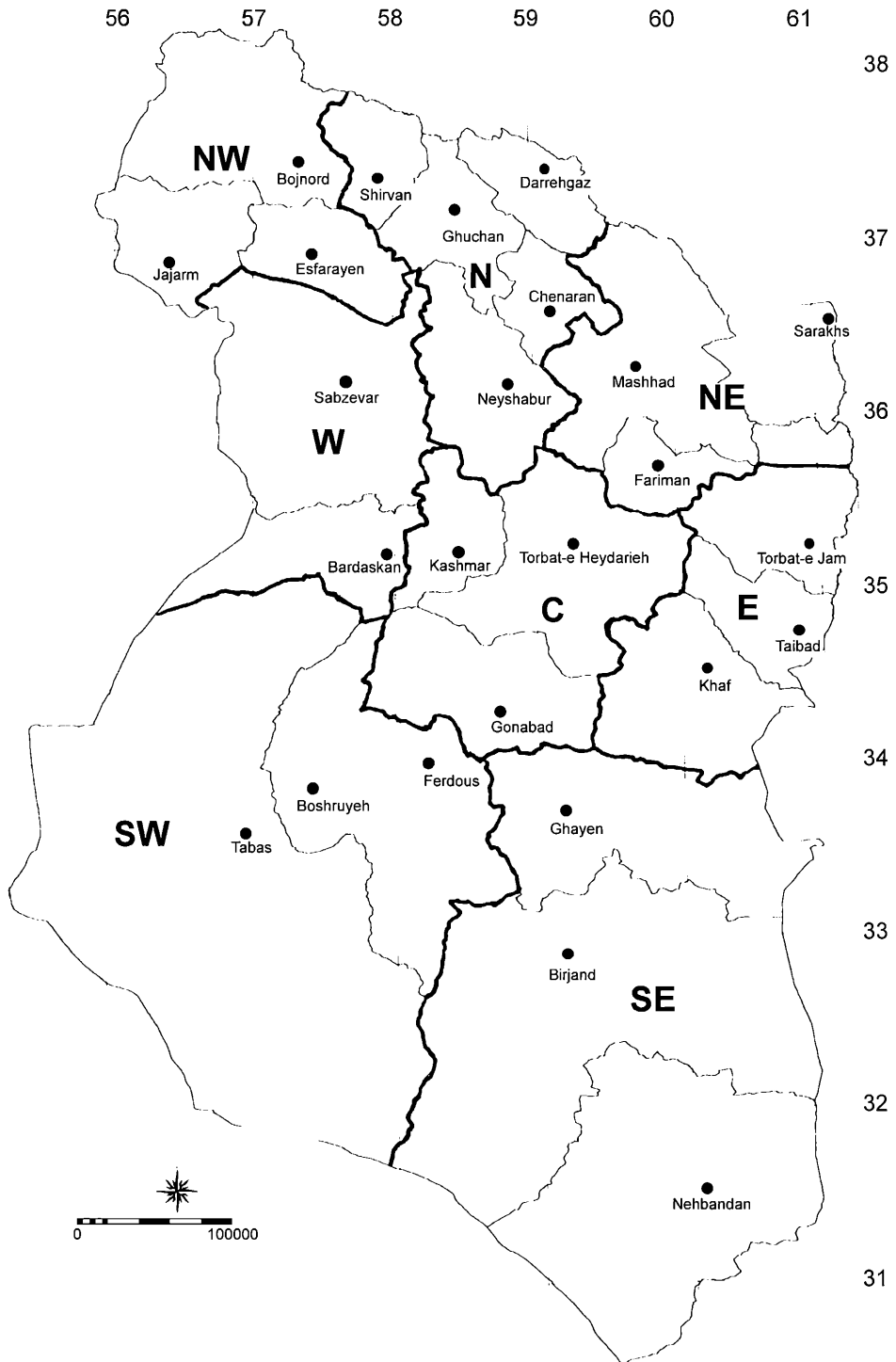


Fig. 1: Province of Khorassan. Localities are listed from NW to SE.

***Aegilops cylindrica* HOST, Gram. Austr. 2: 6 (1802).**

Khorassan: NW: NW Bojnord, Jargalan region, between Baghleh and Gounyik, 1430 m, 11.6.2008, Memariani & Zangooei 40754 [FUMH]; – E Bojnord, Sisab, 1355 m 15.6.2008, Joharchi & Zangooei 40817 [FUMH]; – NW Bojnord, Raz on the way to Pirboz, km 10, 1500 m, 21.5.2008, Memariani & Zangooei 40306 [FUMH]; – W Bojnord, Badranlu, 1633 m, 28.5.2008, Joharchi & Zangooei 40463 [FUMH]. – C: NE Torbat-e Heydarieh, S Sagh village, Tengal-e Bisheh, 1800 m, 9.6.1987, Joharchi & Zangooei 15367 [FUMH].

Distribution in Iran: W, E.

***Alopecurus mucronatus* HACK. ex PAULSEN, Vid. Meddel. Dansk Naturk. Foren. Kjobenhavn 162 (1903).**

Khorassan: N: NE Chenaran, Boghmech towards Hezar-Masjed summit, km 78, 2400 m, 30.4.2000, Hojjat & Zangooei 32730, 32745 [FUMH].

Distribution in Iran: S, E.

***Alopecurus pratensis* L., Sp. Pl. 1: 60 (1753).**

Khorassan: NW: S Bojnord, between Meydan and Takht-e Mirza, 2000 m, 2.7.1986, Joharchi & Zangooei 13727 [FUMH]. – C: NW Torbat-e Heydarieh, Dafi, 1750 m, 29.5.1984, Faghinihnia & Zangooei 17571 [FUMH]. – SE: Birjand, between Asghoul and Khorashad, Olang-e Rehizg, 1950 m, 13.6.1989, Joharchi & Zangooei 17723 [FUMH].

Distribution in Iran: W, E.

***Avena clauda* DURIEU, in DUCHARTRE, Rev. Bot. 1: 360 (1845).**

Khorassan: N: Chenaran, Radkan, Baro Mts., 1500 m, 12.5.1985, Ayatollahi & Zangooei 12751 [FUMH].

Distribution in Iran: N, W, S, E, C.

***Bromus benekenii* (LANGE) TRIMEN, Journ. Bot. 10: 333 (1872).**

Khorassan: NW: W Bojnord, Darkash, Ghartal, 1570 m, 20.7.2007, Joharchi & Aydani 35704 [FUMH, FAR].

Distribution in Iran: N, E.

***Bromus sterilis* L., Sp. Pl. 1: 77 (1753).**

Khorassan: NW: Bojnord, between Ghorry-Meydan and Dashtak, 650–700 m, 28.4.2001, Joharchi & Zangooei 33382 [FUMH]; – *ibid.* between Anabay and Gounyik, 1150 m, 29.4.2001, Joharchi & Zangooei 33462 [FUMH]; – W Bojnord, Dasht bifurcation, 980–1030 m, 30.4.2008, Memariani & Zangooei 39698 [FUMH]; – W Bojnord, Jowzak, Cheshmeh-Eshgh (= love spring), 1179 m, 7.5.2007, Memariani & Zangooei 38768 [FUMH]; – *ibid.* between Cheshmeh-Khan and Sharleh, 1100 m, 7.5.2007, Memariani & Zangooei 38792 [FUMH]; – *ibid.* Haver, 1200 m, 18.5.2006, Memariani & Zangooei 37532 [FUMH]; – SW Bojnord, Rein, Sarigiv valley, 1723–1892 m, 7.5.2006, Memariani & Arjmandi 37419 [FUMH]; – *ibid.* Rein valley toward Garmak, 1490–1640 m, 23.4.2006, Memariani & Arjmandi 37277 [FUMH]; – SE Bojnord, Esfidan, 1561 m, 17.6.2008, Joharchi & Zangooei 40907 [FUMH]; – SE Bojnord, Chenaran, 1384 m, 27.5.2008, Joharchi & Zangooei 40392 [FUMH]. – N: Chenaran: Akhlamad waterfall valley, 1550 m, 16.5.2001, Joharchi & Zangooei 33543 [FUMH]; – *ibid.* Freizi toward Delor, 1721 m, 1.5.2005, Memariani & Zangooei 36042 [FUMH]; – *ibid.* Darma valley, 1973 m, 18.6.2005, Memariani & Zangooei 36630, 36700 [FUMH]; – *ibid.* Freizi toward Mohelleh-Sorkheh, 1720–1810 m, 8.6.2005, Memariani & Zangooei 36559 [FUMH]; – *ibid.* 28.5.2005, Memariani & Zangooei 36427 [FUMH]; – *ibid.* Freizi, Kandalan, 1808 m, 15.5.2005, Memariani & Zangooei 36109 [FUMH]; – *ibid.* Freizi region, Dahan-e Jaji, 1765 m, 21.5.2005, Memariani & Zangooei 36315 [FUMH]; – Neyshabur, Darrud, 1800 m, 13.5.1983, RASHED & Rezaei 10215 [FUMH]; – *ibid.* Dizbad-e Olia, 1700–1800 m, 19.5.1996, Raafeei & Zangooei 26929 [FUMH]; – *ibid.* Bouzhan, 1500 m, 1.6.1991, Joharchi & Zangooei 20578 [FUMH]; – *ibid.* 16.7.1985, Rashed & Ayatollahi 13430 [FUMH]. – NE: Mashhad, between Zoshk and Abardeh, 1500 m, 2.6.1991, Joharchi & Zangooei 20579 [FUMH]; – Mashhad Ferdowsi University Campus, 1035 m, 12.4.2006, Memariani 37122 [FUMH]; – W Mashhad, Kang, 1500–1600 m, 1.6.2005, Joharchi & Zangooei 36523 [FUMH]; – *ibid.* Dehbar, 1500 m, 18.6.1990, Faghinihnia & Zangooei 18761 [FUMH]; – N Mashhad, Sandough-Shekan pass, 1450 m, 4.5.2007, Zangooei 38748 [FUMH]. – C: Gonabad, Senu, Nakho valley, 1600 m, 25.4.1991, Faghinihnia & Zangooei 19606 [FUMH].

Distribution in Iran: N, W, S, E, C.

***Eremopyrum triticeum* (GAERTN.) NEVSKI, Fl. URSS. 2: 662 (1934).**

Khorassan: NW: W Bojnord, W Dasht, 2 km after Ghez-Ghala dam, 1150–1178 m, 30.4.2008, Memariani & Zangooei 39709 [FUMH].

Distribution in Iran: W, E.

***Festuca drymeia* MERT. & KOCH, in ROEHLING, Deutschl. Fl. 1: 670 (1823).**

Khorassan: NW: SW Bojnord, Rein, Shahnesht Mt., eastern slopes, 1700 m, 20.5.2006, Memariani & Arjmani 37649 [FUMH].

Distribution in Iran: N, E.

***Lolium perenne* L., Sp. Pl. 1: 83 (1753).**

Khorassan: N: SW Shirvan, Zo-Eram, 1500 m, 7.6.1998, Faghinia & Zangooei 31300 [FUMH]. – NE: NW Mashhad, Abghad, 1250 m, 15.6.1993, Faghinia & Zangooei 23323 [FUMH]. – SW: Boshrouyeh toward Tabas, on road of Eshghabad, km 5, 1200 m, 4.5.1992, Faghinia & Zangooei 21599 [FUMH].

Distribution in Iran: N, W, S, E, C.

***Phalaris brachystachys* LINK, in SCHRAD., Neues Journ. Bot. 1 (3): 134 (1806).**

Khorassan: NE: Mashhad, Kuye Abobargh, 1050 m, 21.5.1986, Joharchi & Zangooei 14553 [FUMH].

Distribution in Iran: W, E.

***Phalaris minor* RETZ., Obs. Bot. 3: 8 (1783).**

Khorassan: NW: NW Bojnord, Eshghabad on the way to Khorramdeh, km 3, 575 m, 8.5.2007, Memariani & Zangooei 38803 [FUMH]; – *ibid.* Eshghabad toward Dashtak, km 2, 566 m, 15.4.2008, Memariani & Zangooei 39446 [FUMH]; – Esfarayen, Toy, 1200 m, 18.7.1984, Ayatollahi & Rezaei 11469 [FUMH]. – N: N Darreghaz, Safar-Ghala, 360 m, 1.5.1988, Joharchi & Zangooei 16423 [FUMH]; – SW Darreghaz, Chehelmir, 1000–1200 m, 4.6.1981, Ghorashialhosseini 630G [FUMH]; – *ibid.* 950–1000 m, 21.4.2004, Memariani & Zangooei 35286 [FUMH]. – NE: Mashhad, Ferdowsi University Campus, 1040 m, 5.5.2006, Akramian 37362 [FUMH]; – *ibid.* 4.6.2006, Akramian 37897 [FUMH]; – *ibid.* 11.6.2006, Akramian 38055 [FUMH]; – NE Mashhad, on road of Sanganeh, between Robat and Ziladeh, 670 m, 10.6.2009, Joharchi 42981 [FUMH]; – Mazdavad toward Sarakhs, km 14, 850 m, 21.5.1985, Ayatollahi & Joharchi 13209 [FUMH]; – SW Sarakha, between Salehabad bifurcation and Baghbaghu, 690–700 m, 2.6.2003, Joharchi & Zangooei 34571 [FUMH]; – W Sarakhs, Gonbadli, 550 m, 24.4.1975, Zargari s.n. [FUMH]; – Sarakhs, 350 m, 27.4.1994, Faghinia & Zangooei 23813 [FUMH]; – *ibid.* 300 m, 28.4.1986, Ayatollahi & Zangooei 13989 [FUMH]; – N Sarakhs, Yaztappe, 300 m, 27.4.1992, Faghinia & Zangooei 21539 [FUMH]; – SW Sarakhs, Chahak hills, 800 m, 21.5.1986, Joharchi & Zangooei 14480 [FUMH]; – Sarakhs on the way to Mashhad, km 9, 310 m, 28.4.1986, Ayatollahi & Zangooei 13977 [FUMH]. – W: Bardaskan, Borjak, 1200 m, 6.5.1990, Faghinia & Zangooei 18413 [FUMH]. – C: Bajestan toward Ghasemabad, km 16, 1300 m, 14.5.1997, Hojjat & Zangooei 28510 [FUMH]; – Gonabad, Shurab, Ghala-Dokhtar Mts., 1300 m, 27.4.1993, Faghinia & Zangooei 22950 [FUMH]. – E: Khaf, Mahabad, 1050 m, 5.5.1986, Ayatollahi & Zangooei 14155 [FUMH]; – *ibid.* Bande-Ozbak, 865 m, 5.5.1986, Ayatollahi & Zangooei 14095 [FUMH]. – SW: W Tabas, Jafarabad, 700 m, 13.3.1988, Zangooei 15912 [FUMH]; – N Tabas, Kalshaneh, 1000 m, 8.4.1985, Ayatollahi & Rezaei 11845 [FUMH]; – *ibid.* Ozbago, Alimorad mine, 1000 m, Ayatollahi & Zangooei 13880 [FUMH]; – Tabas on the way to Boshrouyeh, km 45, 850 m, 22.4.1986, Ayatollahi & Zangooei 13844 [FUMH]; – *ibid.* km 24, 700 m, 21.4.1986, Ayatollahi & Zangooei 13815 [FUMH]; – E Tabas, Chirook, 1400 m, 19.4.1987, Ayatollahi & Zangooei 15269 [FUMH]; – SE Tabas, between Parvadeh and Peykuh, 1000 m, 8.4.1997, Faghinia & Zangooei 28195 [FUMH]. – SE: Nehbandan, Taghestan, 1200 m, 13.4.1992, Faghinia & Zangooei 21439 [FUMH]; – Nehbandan toward Chah-Chocho, km 20, 1200 m, 10.4.1998, Hojjat & Zangooei 29947 [FUMH]; – SW Nehbandan, Bandan, 750 m, 10.4.1998, Hojjat & Zangooei 29965 [FUMH].

Distribution in Iran: N, W, S, E, C. This species is recorded from Khorassan in Flora Iranica (no: 70: 347). But the localities (Rechinger 3948, Sharif 8023-E) belong to Sistan and Baluchistan province, not to Khorassan. Now this species confirmed with a correct locality.

***Phalaris paradoxa* L., Sp. Pl., ed. 2: 1665 (1763).**

Khorassan: NW: W Bojnord, Qorkhod protected area, Badbor goard station, 1300 m, 24.5.2010, Memariani & Arjmandi 43762 [FUMH]; – NE Bojnord, on road of Gifan, km 14, 890 m, 29.5.2007, Memariani & Zangooei 38981 [FUMH].

Distribution in Iran: W, S, E.

Piptatherum holciforme (M.Bieb.) ROEMER & SCHULTES, Syst. Veg. 2: 328 (1817).

var. *holciforme*.

Khorassan: NW: SW Bojnord, Rein, Topal-Rayeh, 2015 m, 21.5.2006, Memariani & Arjmandi 37690 [FUMH].

Distribution in Iran: W, S, E, C.

Saccharum ravennae (L.) MURRAY, Syst. Veg. 88 (1774).

Khorassan: NW: N Bojnord, S Ghezelghan, 1010–1030 m, 3.10.2009, Memariani, Zangooei & Arjmandi 43336 [FUMH].

Distribution in Iran: N, W, S, E, C.

Secale montanum GUSS. Fl. Sic. Prodr. 1: 145 (1827).

Khorassan: NW: SW Bojnord, Rein, Shahnesht Mt., 1700 m, 20.5.2006, Memariani & Arjmandi 37639 [FUMH]; – *ibid.* Zo-e Rein toward Garmak, 1650–1700 m, 20.6.2006, Zangooei & Arjmandi 38117 [FUMH].

Distribution in Iran: W, E, C.

Setaria verticillata (L.) P.BEAU., Ess. Agrost. 51, 171, 178 (1812).

Khorassan: NW: SW Bojnord, Rein, 1640 m, 3.9.2006, Memariani & Zangooei 38458, 38461 [FUMH]; – W Bojnord, N Ashkhaneh, 745 m, 14.9.2008, Joharchi & Zangooei 41473 [FUMH]; – W Bojnord, Ghazi, 904 m, 21.7.2008, Joharchi & Zangooei 41182 [FUMH].

Distribution in Iran: N, W, S, E, C.

Sorghum halepense (L.) PERS., Syn. Pl. 1: 101 (1805).

Khorassan: NW: W Bojnord, Ashkhaneh on the way to Mehmanak, km 10, 900 m, 7.7.1997, Raafei & Zangooei 29462 [FUMH]; – *ibid.* Badranlo, 800 m, 22.6.1982, Ghorashalhoeeini 1818G [FUMH]; – NW Bojnord, Eshghabad toward Sheshkhan, km 1, 571 m, 15.9.2008, Joharchi & Zangooei 41493 [FUMH]; – NE Jajarm, Toy toward Sankhast, km 18, 960 m, 8.10.2008, Memariani & Zangooei 41621 [FUMH]; – NW Esfarayen, Sarmaran, Darreh Jowz, 1789 m, 9.5.2008, Joharchi & Zangooei 39773 [FUMH]. – NE: Mashhad, 1000 m, 5.6.1987, Rezaei 15923 [FUMH]. – W: SW Sabzevar, Sanjerd, 1600 m, 14.9.1985, Kafi 13611 [FUMH].

Distribution in Iran: N, W, S, E, C.

Stipa bromoides (L.) DOERFLER, Herb. Norm. 34: 129, no 3386 (1897).

Khorassan: NW: W Bojnord, Qorkhod protected area, 2200–2675 m, 18.6.2011, Memariani & Arjmandi 44451 [FUMH]; – *ibid.* between Darkash and Haver, 1350 m, 8.7.2001, Joharchi 33865 [FUMH]; – *ibid.* Darkash reserved area, 1500–1600 m, 29.7.2004, Aydani 35732 [FAR, FUMH].

Distribution in Iran: N, E.

Stipa holosericea TRIN. & RUPR., Sp. Gram. Stip. 71 (1842).

Khorassan: NW: NW Bojnord, Raz bifurcation toward Raz, km 23, 713 m, 14.5.2008, Memariani & Zangooei 39934 [FUMH]; – Northern slopes of Bouzdaghi Mts., Cheshmeh-Golabi valley, 1000–1070 m, 30.5.2007, Memariani & Zangooei 39077 [FUMH]; – W Bojnord, Jowzak toward Chamanbid, km 3, 1355 m, 23.5.2010, Memariani & Zangooei 43714 [FUMH]; – *ibid.* Qorkhod protected area, 1625 m, 8.6.2010, Memariani & Arjmandi 43867 [FUMH]; – S Bojnord, Beshghardash toward Assdli, km 14, 1737 m, 31.5.2008, Joharchi & Zangooei 40538 [FUMH]; – E Bojnord, Sisab Mts., 1362 m, 27.5.2008, Joharchi & Zangooei 40357 [FUMH]. – N: N Farouj, between Ghala-Safa and Oughaz-e Tazeh, 1950–2050 m, 16.6.2009, Memariani & Zangooei 43098 [FUMH].

Distribution in Iran: N, W, S, E, C.

Stipa lessingiana TRIN. & RUPR., Sp. Gram. Stip. 79 (1842).

Khorassan: NW: NW Bojnord, Raz bifurcation toward Raz, km 27, 690 m, 14.5.2008, Memariani & Zangooei 39993 [FUMH]; – W Bojnord, Qorkhod protected area, 1885 m, 24.6.2010, Memariani 44101 [FUMH]; – SW Bojnord, between Hessar and Shoghan, 2502 m, 1.6.2008, Joharchi & Zangooei 40611 [FUMH]; – *ibid.* 2579 m, 13.7.2008, Memariani & Zangooei 41016 [FUMH]; – SE Bojnord, between Pakotal and Assadli, Chichalli, 2049 m, 16.6.2008, Joharchi & Zangooei 40855 [FUMH].

Distribution in Iran: N, W, S, E, C.

***Tragus racemosus* (L.) ALL., Fl. Pedem. 2: 24 (1785).**

Khorassan: NW: E Jajarm, Jajarm on the way to Sankhast, km 14, 921 m, 26.8.2008, Joharchi & Zangooei 41356 [FUMH].

Distribution in Iran: N, S, E.

***Trisetaria loeflingiana* (L.) PAUNERO, Anales Jard. Bot. Madrid 9: 527 (1950).**

Khorassan: NE: Mashhad, Ferdowsi University Campus, 1041 m, 4.5.2009, Joharchi 43453 [FUMH]; – N Sarakhs, Yaztappa, 300 m, 22.4.1991, Faghinihnia & Zangooei 19440 [FUMH]; – S Sarakhs, between Dowlatabad and Nowroozabad, 300 m, 14.4.1988, Joharchi & Zangooei 16108 [FUMH]. – C: Torbat-e Heydarieh toward Gonabad, km 24, 1250 m, 20.4.1986, Ayatollahi & Zangooei 13683, 13707 [FUMH]; – S Torbat-e Heydarieh, Kheirabad, 900 m, 4.5.1991, Joharchi & Zangooei 19893 [FUMH]; – Gonabad, between Kakhk and Ostad, after Marghash bifurcation, 1500 m, 24.4.1991, Faghinihnia & Zangooei 19516 [FUMH]; – SW Gonabad, Senu, Houz-e Beigi, 1350 m, 26.4.1991, Faghinihnia & Zangooei 19631 [FUMH]. – SW: Boshruyeh, Fathabad dam, Arask, 1120 m, 18.4.1987, Ayatollahi & Zangooei 15229 [FUMH]; – Ferdous toward Boshruyeh, km 14, 1400 m, 16.4.1995, Raafeei & Zangooei 24826 [FUMH]; – N Tabas, Ozbagu, Alimorad mine, 1000 m, 22.4.1986, Ayatollahi & Zangooei 13883 [FUMH]; – Tabas toward Boshruyeh, km 51, 830 m, ZOKAEI 645 [FUMH]. – SE: Birjand, between Hojjatabad and Gazdez, 1700 m, 29.4.1998, Faghinihnia & Zangooei 30205 [FUMH]; – Birjand on the way to Ghayen, km 20, 1550 m, 18.5.1986, Ayatollahi & Zangooei 14305 [FUMH]; – N Nehbandan, Hosseinabad, Arviz hills, 1550 m, 11.4.1990, Faghinihnia & Zangooei 18090 [FUMH]; – NW Nehbandan, Chaharfarsang dam, 1450 m, 7.4.1998, Hojjat & Zangooei 29834 [FUMH].

Distribution in Iran: W, S, E, C.

***Triticum aestivum* L., emend. FIORI & PAOL., Fl. Anal. Ital. 1: 107 (1896).**

Khorassan: N: Chenaran, Ferizi, Darma, 1964 m, 28.6.2005, Memariani & Zangooei 36795 [FUMH].

Distribution in Iran: W, S, E, C.

Typfaceae – Ref.: RIEDL 1970; HAMDI & ASSADI 2003.***Typha angustifolia* L., Sp. Pl. 2: 971 (1753).**

Khorassan: NW: Bojnord on the way to Shirvan km 15, Baba-Aman, HAMDI 80888 [TARI]. – N: NW Neyshabur, Bar, Hamdi 80901 [TARI]; – E Neyshabur, Kharv-e Olia, 1500 m, Termeh & TEHRANI s.n. [IRAN]. – NE: Kalat-e Naderi toward Mashhad, km 25, ZARGANI s.n. [TARI]; – ibid. km 35, HAMDI 80892 [TARI]; – ibid. km 65, HAMDI 80891 [TARI]; – Between Mashhad and Sarakhs, Bazangan, Hamdi 80890 [TARI].

Distribution in Iran: N, W, S, E, C.

***Typha lugdunensis* CHAB., Bull. Soc. Hort. Rhone 1850: 49 (1850).**

Khorassan: NE: Kalat-e Naderi, Archangan, 950 m, HAMDI 80898 [TARI]; – Kalat-e Naderi toward Darrehgaz, near Soltanabad, Assadi & Maassoumi 55806 [TARI].

Distribution in Iran: W, E, C.

***Typha minima* FUNK, in HOPPE, Bot. Taschenb. 118, 181, 187 (1794).**

Khorassan: NE: Kalat-e Naderi, Archangan, 830 m, 23.4.1989, Joharchi & Zangooei 17092 [FUMH]; – ibid. 950 m, Hamdi 80894 [TARI].

Distribution in Iran: N, W, E, C.

Dicotyledons**Apiaceae – Ref.: ALAVA & al. 1987; MOZAFFARIAN 2007.*****Astrodaucus persicus* (BOISS.) DRUDE, in ENGLER & PRANTL, Natürl. Pflanzenfam. 111, 8: 157 (1898).**

Khorassan: NE: Mashhad, Dehbar, 1900–2000 m, Saghafi & Ramazani 22 [TARI].

Distribution in Iran: N, W, E, C.

***Eryngium noeanum* BOISS., Diagn. Pl. Or. Nov. Ser. 2, 2: 72 (1856).**

Khorassan: N: Neyshabur, Bujan, 1500–2700 m, Mozaffarian 48998 [TARI]. – C: N Torbat-e Heydarieh, km 30, 1900 m, Assadi & Maassoumi 21320 [TARI].

Distribution in Iran: N, W, E, C.

***Ferula gabrielii* RECH.f., Fl. Iranica. 162: 398 (1987).**

Khorassan: SW: SW Tabas, Mazino mine, 1200 m, 16.4.1996, Raafeei & Zangooei 26359 [FUMH]; – Tabas on the way to Yazd, km 95, near the Robat-e Kalmard, 1200 m, Mozaffarian 77277 [TARI].

Distribution in Iran: C, E. – Endemic to Iran.

***Zeravschania aucheri* (BOISS.) M. PIMEN., Fl. Iranica. 162: 459 (1987).**

Khorassan: NW: Esfarayan, Shah-Jahan Mt., 1700–2500 m, Mozaffarian 48513 [TARI]. – N: N Farouj, Kuran Kordieh, 1500–1530 m, 1.6.2009, Memariani & Zangooei 42820 [FUMH]; – *ibid.* 1550–1575 m, 7.6.2009, Memariani & Zangooei 42887 [FUMH]; – *ibid.* between Darband and Gharcha 1400 m, 6.6.1998, Faghihnia & Zangooei 31249 [FUMH]; – Darrehgaz, Allah-Akbar pass, Sout slops, 1550 m, 30.6.1987, Ayatollahi & Zangooei 15462 [FUMH]; – Tandoureh national park, 950 m, 16.7.2003, AJANI & Zangooei 34990 [FUMH]; – *ibid.* 2300 m, 6.7.2004, Memariani & Zangooei 35668 [FUMH]; – *ibid.* 1700–1900 m, 26.6.2004, Memariani & Zangooei 35636 [FUMH]; – *ibid.* 2430 m, 18.7.2004, Memariani & Zangooei 35681 [FUMH]; – Chenaran: Ferizi, Darma valley, 1973 m, 11.6.2005, Emadzadeh & Memariani 36646 [FUMH]; – NW Neyshabur, Abshar-e Bar, 1900–2000 m, 29.6.2003, Zangooei 39874 [FUMH]. – NE: S Mashhad, Moghan Mts., 2500 m, 3.6.2001, Joharchi 33676 [FUMH]; – S Kalate Naderi, Jarf, Sabz-e Meidan region, 1950–2100 m, Raafeei & Zangooei 27424 [FUMH]. – W: NW Sabzevar, between Sarough and Nazargah Mt., Rodkhan-e Sorkhi, 1933 m, 30.5.2009, Joharchi 42742 [FUMH]. – E: Torbat-e Jam, NE Revenj Mts., 1650 m, 2.6.2002, Joharchi 34163 [FUMH].

Distribution in Iran: N, W, S, E, C. – Endemic to Iran.

Asteraceae – Ref: RECHINGER 1972; RECHINGER & al. 1977; DITTRICH & al. 1979, 1980, 1989; GEORGIADOU & al. 1979; GRIERSON & RECHINGER 1982; PODLECH 1986; MOZAFFARIAN 2008.

***Carlina vulgaris* L., Sp. Pl. 2: 828 (1753).**

Khorassan: NW: SW Bojnord, Rein, Alkhas valley, 1900 m, 8.8.2007, Arjmandi & Zangooei 39205 [FUMH].

Distribution in Iran: N, W, E.

Centaurea kotschyi**var. *persica* (BOISS.) WAGENITZ, Bot. Jahrb. 82: 169 (1963).**

Khorassan: NW: W Bojnord, Qorkhud protected area, Kanisaran valley, 1830 m, 22.6.2010, Joharchi & Memariani 44059 [FUMH].

Distribution in Iran: N, W, E, C.

***Crepis micrantha* Czerep. Fl. URSS. 29: 684 (1964).**

Khorassan: N: Chenaran, Ferezi, Dahan-e Jaji, 1700 m, 12.4.1985, Ayatollahi & Joharchi 13546 [FUMH]; – *ibid.* Ferizi towards Mohalleh- Sorkheh, km 3, 1764 m, 28.6.2005, Memariani & Zangooei 36767 [FUMH].

Distribution in Iran: N, W, S, E, C.

***Dittrichia graveolens* (L.) GREUTER, Exs. Genev. 4: 71 (1973).**

Khorassan: NW: NW Bojnord, Shahrabad, 500 m, 8.10.1991, Faghihnia & Zangooei 21091 [FUMH].

Distribution in Iran: N, W, S, E.

***Echinops cephalotes* DC., Prodr. 6: 526 (1838).**

Khorassan: SW: N Nehbandan, 1200 m, 16.5.2006, Joharchi & NASSEH 37490 [FUMH].

Distribution in Iran: W, E, C. – Endemic to Iran.

***Echinops lalesarensis* BORN.M., Beih. Bot. Centralbl. 36, 2: 202 (1918).**

Khorassan: SE: Birjand, Robat-e Hassanabad, 2035 m, Aliabadi 22127 [TUH].

Distribution in Iran: SE, E, C. – Endemic to Iran.

***Koelpinia chrysoglochis* RECH.f., Fl. Iranica 122: 11 (1977).**

Khorassan: E: Between Torbat-e Jam and Salehabad, S Banitak, 1000 m, 30.4.2003, Zangooei 34431 [FUMH].

Distribution in Iran: W, E.

***Scorzonera luristanica* RECH.f., Anz. Math.-Naturwiss. Kl. Oesterr. Akad. Wiss. 88: 267 (1951).**

Khorassan: NW: SW Bojnord, Rein, Sarigiv valley, 1723–1822 m, 7.5.2006, Memariani & Arjmandi 37422 [FUMH].

Distribution in Iran: W, E. – Endemic for Iran & Iraq.

***Scorzonera mucida* RECH.f., AELL. & ESFAND., Oesterr. Bot. Zeitschr. 97: 264 (1950).**

Khorassan: NW: W Bojnord, Qorkhod protected area, between Zard and Kastan, 1530–1550 m, 29.4.2010, Memariani & Arjmandi 43583 [FUMH]; – *ibid.* Jowzak, Cheshmeh-Eshgh, 1179 m, 7.5.2007, Memariani & Zangooei 38773 [FUMH]; – SW Bojnord, Rein, Zo-e Rein toward Garmak, 1560–1644 m, 15.4.2006, Memariani & Zangooei 37173 [FUMH]; – NW Bojnord, between Anabay and Gouynik, 1150 m, 29.4.2001, Joharchi & Zangooei 33460 [FUMH]; – E Bojnord, Sisab, the eastern hills, 1020 m, 3.5.2009, Memariani & Zangooei 42116 [FUMH]; – N Bojnord, Petrosхими toward Gifan, km 19, 930–940 m, Memariani & Zangooei 42202 [FUMH]; – NE: Between Mashhad and Neyshabur, Pivajen, 1750 m, 29.4.1985, SAFAVI & Joharchi 12363 [FUMH]; – Sarakhs, between Shorlogh and Chehel Kaman dam, 900 m, 10.4.1999, Hojjat & Zangooei 31841 [FUMH]; – Sarakhs on the way to Mashhad, km 40, Dagh-e Bohlul road bifurcation, 300 m, 12.4.1999, 31902 [FUMH]; – C: N Kashmar, SW Rivash, Band-e Ghara, 1800 m, 8.5.1995, Faghinihnia & Zangooei 25358 [FUMH]; – S Gonabad, Kakhk, between Kalateh-No and Pagodar, 2000 m, 24.4.1990, Faghinihnia & Zangooei 18376 [FUMH]; – *ibid.* Kalat Mts., 1700 m, 15.4.1985, Joharchi & Zangooei 11949 [FUMH]; – SW: Ferdous, toward Gonabad, km 25, 1900 m, 5.5.1992, Faghinihnia & Zangooei 21631 [FUMH]; – SE: N Birjand, Birjand toward Ghayen, km 30, 1950 m, 23.4.1985, Ayatollahi & Zangooei 12196 [FUMH]; – E Birjand, between Furk and Assadabad, 1400 m, 19.4.1999, Faghinihnia & Zangooei 32051 [FUMH].

Distribution in Iran: W, S, E, C. – Endemic to Iran.

***Scorzonera papposa* DC., Prodr. 7: 119 (1838).**

Khorassan: NE: Sarakhs, Ghorghoreh bifurcation, 900 m, 30.5.1992, Joharchi & Zangooei 21917 [FUMH]; – Mazdavad toward Sarakhs, km 14, 900 m, 21.5.1986, Joharchi & Zangooei 14548 [FUMH]; – *ibid.* km 12, 900 m, 21.5.1985, Ayatollahi & Joharchi 13158 [FUMH]; – Between Mazdavad and Shorlogh, 770 m, 12.5.2004, Zangooei 35371 [FUMH].

Distribution in Iran: W, S, E.

***Scorzonera phaeopappa* (Boiss.) Boiss., Fl. Orient. 3: 764 (1875).**

Khorassan: NW: W Bojnord, Jowzak, Cheshmeh-Eshgh, 1179 m, 7.5.2007, Memariani & Zangooei 38774 [FUMH]. – NE: Between Salehanad and Pol-e Khatun, 500 m, 13.4.1993, Faghinihnia & Zangooei 22710 [FUMH]. – C: N Torbat-e Heydariyeh, Kameh Mts., Serisha, 1600 m, 5.5.1991, Joharchi & Zangooei 20012 [FUMH]; – SW Gonabad, Khakhk toward Ferdous, km 26, 1900 m, 21.5.1997, Raafeei & Zangooei 28660 [FUMH].

Distribution in Iran: W, S, E, C.

***Scorzonera stenocephala* Boiss., Diagn. Pl. Or. Nov. Ser. 1, 7: 6 (1846).**

Khorassan: NW: E Bojnord, Gharlegh, 1150 m, 12.5.1992, Faghinihnia & Zangooei 21740 [FUMH]. – N: N Shirvan, Golul-Sarani, 2000 m, 13.5.1988, Rashed 5 [FUMH]; – N Neyshabur, Abshar-e Bar, 1850–1900 m, 20.5.1996, Raafeei & Zangooei 27055 [FUMH]; – Chenaran, Ferizi, Mohalleh Sorkkeh, 2212 m, 30.4.2005, Emadzadeh & Memariani 35948 [FUMH]; – *ibid.* Ferizi on the way to Mohalleh Sorkkeh, km 3, 1929 m, 16.5.2005, Emadzadeh & Memariani 36181 [FUMH]; – *ibid.* Ferizi toward Kandalan, km 2, 2063 m, 15.5.2005, Emadzadeh & Memariani 36059 [FUMH]; – *ibid.* between Abghad and Ferizi, 1480–1500 m, 23.4.2005, Emadzadeh & Memariani 35895 [FUMH]; – *ibid.* between Abghad and Ferizi, Doabi, 1475 m, 1.5.2005, Emadzadeh & Memariani 35968 [FUMH]. – NE: N Mashhad, Talghur, 1500 m, 18.5.1985, Ayatollahi & Joharchi 13039 [FUMH]; – NE Mashhad, between Borzeshabad and Tabadkuh, 1300 m, 22.4.1995, Faghinihnia & Zangooei 24970 [FUMH]; – *ibid.* Northern slopes of Ajdarkuh, Joghri, 1300 m, 30.5.1993,

Joharchi & Zangoeei 23225 [FUMH]; – SW Kalat-e Naderi, Jarf Mts., 2100 m, 19.5.1994, Faghihnia & Zangoeei 23960 [FUMH]. – W: SE Sabzevar, Dahaneh-Hassanabad, 1500 m, 24.4.1988, Joharchi & Zangoeei 16226 [FUMH]. – C: SW Torbat-e Heydariyeh, Eskandarabad, 1050 m, 4.5.1991, Joharchi & Zangoeei 19933 [FUMH]; – SW Gonabad, Ruchi, 1530 m, 27.4.1982, Zokaei & Joharchi 1228 [FUMH]. – SE: NW Ghayen, Khezri, Kuh-e Badamuk, 1400–1500 m, 10.4.1984, Joharchi & Mahvan 10738 [FUMH]; – E Ghayen, between Dezg and Gumenj, 1731 m, 19.5.2005, Joharchi & Zangoeei 36282 [FUMH].

Distribution in Iran: N, W, S, E, C. – Endemie to Iran.

Scorzonera syriaca BOISS. & BLANCHE ex BOISS., *Diagn. Pl. Or. Nov. Ser. 2, 3: 93* (1856). Khorassan: SE: Nehbandan on the way to Birjand, km 100, 1600 m, 13.4.1992, Faghihnia & Zangoeei 21423 [FUMH].

Distribution in Iran: W, S, E.

Scorzonera szovitsii DC., *Prodr. 7: 117* (1838).

Khorassan: NW: N Jajarm, Moshama Village Mts., 1680 m, 13.5.2009, Memariani & Zangoeei 42393 [FUMH].

Distribution in Iran: W, S, E.

Tanacetum chiliophyllum (FISCH. & C.A.MEY.) SCH.BIP., *Tanacet. 47* (1844).

subsp. *chiliophyllum*.

Khorassan: W: NW Sabzevar, between Sarough and Nazar-Gah Summit, 2482 m, 30.5.2009, Joharchi 42728 [FUMH].

Distribution in Iran: W, E.

Tanacetum persicum (BOISS.) MOZAFFARIAN, *Iran. Journ. Bot. 11 (1): 126* (2005).

Khorassan: N: Chenaran, Radkan, Goroh, 2500–2700 m, Termeh & al. 36860 [IRAN].

Distribution in Iran: W, E, C.

Tanacetum tenuisectum (BOISS.) PODLECH, *Fl. Iranica, 158: 103* (1986).

Khorassan: NW: SW Bojnord, Salouk Summit, 2940–2950 m, 7.7.2010, Joharchi & Memariani 44132 [FUMH].

Distribution in Iran: N, E, C. – Endemic to Iran.

Tragopogon acanthocarpus BOISS., *Diagn. Pl. Or. Nov. Ser. 1, 11: 45* (1849).

Khorassan: NW: W Bojnord, Jowzak, Cheshmeh-Eshgh, 1179 m, 7.5.2007, Memariani & Zangoeei 38771 [FUMH]; – SW Bojnord, Rein, Sarigiv valley, 1723–1892 m, 7.5.2006, Memariani & Arjmandi 37423 [FUMH]; – NE Bojnord, between Gharlegh and Baba-Aman, around of the tunelle, 1013 m, 12.5.2009, Memariani & Zangoeei 42319 [FUMH]; – NE Jajarm, Shoghan bifurcation toward Shoghan, km 7, 1306 m, 20.5.2009, Memariani & Zangoeei 42615 [FUMH]. – NE: Mashhad, 950 m, 8.6.1974, Zargari 2518 [FUMH]. – C: Gonabad toward Ferdous, km 32, Kajabad village, 1800 m, 11.5.1998, Raafeei & Zangoeei 30584 [FUMH]. – SE: Birjand, between Esfezar and Mask, 2300 m, Faghihnia & Zangoeei 30310 [FUMH].

Distribution in Iran: N, E, C. – Endemic to Iran.

Tragopogon buphthalmoides (DC.) BOISS., *Fl. Orient. 3: 750* (1875).

var. *buphthalmoides*.

Khorassan: NW: W Bojnord, Qorkhod protectea area, W Bash-Kalateh, 1490 m, 16.4.2010, Memariani & Arjmandi 43549 [FUMH]; – ibid. near the Tarnoli valley bifurcation, 1515 m, 18.5.2010, Memariani & Arjmandi 43656 [FUMH]. – SE Bojnord, between Pakotal and Assadli, Chichalli, 2049 m, 16.6.2008, Joharchi & Zangoeei 40851 [FUMH]; – N Jajarm, Ghezel-Hessar-e Sofla, 1297 m, 13.5.2009, Memariani & Zangoeei 42353 [FUMH]. – NE: NW Mashhad, Hezar-Masjed protected area, between Cheshmeh-Mish and Alikal, 2700 m, 4.8.2010, Joharchi & BEHROOZIAN 44179 [FUMH]. – C: Between Gonabad and Ferdous, Tangal-e Mahvid, 1850 m, 11.5.1998, Raafeei & Zangoeei 30627 [FUMH]. – E: NE TORBAT-E Jam, Banitak, 1200 m, 23.4.1984, Ayatollahi & MAHVAN, 11188 [FUMH]. – SE: W Birjand, between Shahzileh and Tajk, 1700 m, 3.5.1998, Faghihnia & Zangoeei 30390 [FUMH]; – NE Birjand, between Noghand and Bidesk, 2100 m, Zangoeei 24226 [FUMH]; – Nehbandan toward Birjand, km 15, 1500 m, 28.4.1997, Raafeei & Zangoeei 28294 [FUMH].

Distribution in Iran: N, W, S, E, C.

Tragopogon bupthalmoides**var. *latifolius*** BOISS., Fl. Orient. 3: 751 (1875).

Khorassan: NW: E Bojnord, Sisab, arund of the research center, 1355 m, 15.6.2008, Joharchi & Zangoeei 40814 [FUMH].

Distribution in Iran: W, S, E, C.

Tragopogon collinus DC., Prodr. 7: 115 (1838).

Khorassan: NW: W Bojnord, Qorkhod protected area, Aghmazar pass, 2350–2470 m, 16.6.2010, Memariani & Arjmandi 44021 [FUMH]. – N: NE Chenaran, between Boghmech and Hezar-Masjed, 2700 m, 22.7.2003, Zangoeei 35034 [FUMH]. – NE: NW Mashhad, Hezar-Masjed protected area, between Cheshmeh-Mish and Alikal, 2700 m, 4.8.2010, Joharchi & Behroozian 44180 [FUMH]; – Kalat-e Naderi, Khesht Mts., 1500 m, 2.6.1997, Faghihnia & Zangoeei 29027 [FUMH]; – NW Torbat-e Heydarieh, between Kadkan and Dafi, 8.5.1985, Ayatollahi & Joharchi 12596 [FUMH]. – C: Kashmar toward Neyshabur, km 22, 9.5.1985, Ayatollahi & Joharchi 12657 [FUMH]; – S Gonabad, Binavaj, 1900 m, 3.5.1999, Hojjat & Zangoeei 32250 [FUMH]; – Kakhk toward Ferdous, km 26, 1900 m, 21.5.1997, Raafeei & Zangoeei 28659 [FUMH]. – SW: Ferdous toward Gonabad km 25, 1900 m, 5.5.1992, Faghihnia & Zangoeei 21651 [FUMH]. – SE: NE Birjand, between Marak and Sarchah bifurcation, 2100 m, 2.5.1995, Faghihnia & Zangoeei 25225 [FUMH]; – E Birjand, Beshgaz, 1900 m, 21.4.1985, Ayatollahi & Zangoeei 12078 [FUMH]; – ibid. between Furk and Assadabad, 1400 m, 19.4.1999, Faghihnia & Zangoeei 32053 [FUMH]; – SE Birjand, between Khorashad and Chenesht, 2400 m, 14.5.1984, Puyan 374 P [FUMH].

Distribution in Iran: N, W, S, E, C.

Tragopogon gongylorrhizus RECH.f., Fl. Iranica, 122: 98 (1977).

Khorassan: N: N Shirvan, Golul-Sarani protected area, 2100 m, 18.6.1995, Faghihnia & Zangoeei 25840 [FUMH].

Distribution in Iran: N, E. – Endemic to Iran.

Tragopogon marginatus BOISS. & BUHSE, Nouv. Mém. Soc. Nat. Mosc. 12: 136 (1860).

Khorassan: NW: N Jajarm, Margharz toward Robat-e Gharabil, km 22, 1500 m, 30.5.1984, Joharchi & Zangoeei 11398 & 11410 [FUMH]; – Esfarayen, Safiabad, Gharzi, 1250 m, 14.5.1991, Faghihnia & Zangoeei 20224 [FUMH]. – N: N Ghuchan, Emamgholi, 1500–1600 m, 17.6.1981, Ghorashialhosseini 871 G [FUMH]. – NE: Between Mashhad and Moghan, Sarborj toward Mashhad, km 8, 1000 m, 4.5.1982, Ghorashialhosseini 1530G [FUMH]; – NE Mashhad, between Borzeshabad and Tabadkuh, 1300 m, 22.4.1995, Faghihnia & Zangoeei 24966 [FUMH]. – C: NW Torbat-e Heydarieh, between Kadkan and Dafi, 8.5.1985, Ayatollahi & Joharchi 12595 [FUMH]; – NE Torbat-e Heydarieh, northern mountains of Jarf, 1950 m, 25.6.1993, Joharchi & Zangoeei 23501 [FUMH]; – Torbat-e Heydarieh toward Khaf, km 7, 1500 m, 9.5.1983, Rezaei & MAHVAN 10156 [FUMH]; – N Torbat-e Heydarieh, Esfayukh Mt., 1450–1500 m, 5.5.1991, Joharchi & Zangoeei 20000 [FUMH]; – NE Kashmar, Chenar-e Bala, 1200 m, 1.5.1981, ZOKAEI 826 [FUMH]; – Ferdous on the way to Gonabad, km 50, 2400 m, 1.5.1981, ZOKAEI 807 [FUMH]. – E: SW Torbat-e Jam, Bezd Mt., 1600 m, 9.5.1996, Faghihnia & Zangoeei 26751 [FUMH]. – SE: Birjand toward Ghayen, km 20, 18.5.1986, Ayatollahi & Zangoeei 14334 [FUMH]; – ibid. km 30, 1950 m, 23.4.1985, Ayatollahi & Zangoeei 12199 [FUMH]; – W Birjand, between Shahzileh and Tajk, 1700 m, 3.5.1998, Faghihnia & Zangoeei 30411 [FUMH]; – S Birjand, Band-e Darre, 2000 m, 1.5.1995, Faghihnia & Zangoeei 25158 [FUMH]; – SE Birjand, Borzaj, 2200 m, 30.4.1998, Faghihnia & Zangoeei 30250 [FUMH]; – Moud toward Sarbisheh, km 22, 1130 m, 29.4.1996, Raafeei & Zangoeei 26429 [FUMH]; – Birjand toward Nehbandan, km 35, 1800 m, 7.5.1991, Faghihnia & Zangoeei 19855a [FUMH]; – Moud, 1100 m, 27.4.1978, Zargari 2554, 2555 [FUMH]; – Khorashad, 1900 m, 22.4.1985, Ayatollahi & Zangoeei 12142 [FUMH]; – Shekaro Mt., 2000 m, 18.5.1986, Ayatollahi & Zangoeei 14270 [FUMH]; – Nehbandan on the way to Birjand, km 15, 1500 m, 28.4.1997, Raafeei & Zangoeei 28294 [FUMH]; – NW Nehbandan, Chahar-Farsakh dam, 1450 m, 7.4.1998, Hojjat & Zangoeei 29820 [FUMH].

Distribution in Iran: W, E, C.

Tragopogon rechingeri M.OWNBEY, Fl. Iranica, 122: 101 (1977).

Khorassan: C: N Torbat-e Heydarieh, Robat-Sang, Mazar-e Ghonchi, 1800 m, 22.8.1990, Faghihnia & Zangoeei 19078 [FUMH]; – ibid. NW Bakavol, 1800 m, 17.9.1984, Joharchi 11754 [FUMH]; – W Torbat-e Heydarieh, Bayg, 1530 m, 18.9.1984, Joharchi 11758 [FUMH].

Distribution in Iran: W, E. – Endemic for Iran & Iraq.

Tragopogon reticulatus BOISS. & HUET in BOISS., *Diagn. Pl. Or. Nov. Ser. 2, 3: 90* (1856). Khorassan: NW: W Bojnord, between Darkash and Haver, 1300 m, 30.4.2001, Joharchi & Zangooei 33512 [FUMH]. – N: NE Chenaran, between Boghmech and Hezar-Masjed, 2700 m, 22.7.2003, Zangooei 35034 [FUMH]. – SE: Birjand, between Gaz and Chenesht, Ostad, 1850 m, 19.5.1992, Faghinihnia & Zangooei 21826 [FUMH]; – E Birjand, Tangeh-Behdan, Deh-Khonik, 1650 m, 19.5.1984, PUYAN 397P [FUMH].
Distribution in Iran: N, W, E, C.

Tragopogon vaginatus M.OWNBEY & RECH.f., *Fl. Iranica*, 122: 89 (1977). Khorassan: NW: W Bojnord, Darkash, between Kanibid and Kanimokhtar, 1600–2000 m, 20.6.2004, Joharchi & Aydani 35579 [FUMH, FAR]; – NE Bojnord, Petroshimi toward Gifan, km 19, 930–940 m, 4.5.2009, Memariani & Zangooei 42206 [FUMH]; – *ibid.* S Ghezelghan, 1170–1190 m, 19.5.2009, Memariani & Zangooei 42575 [FUMH]. – NE: Fariman toward Shahan-Garmab, km 20, 1400 m, 25.4.1984, Joharchi & Zangooei 10834 [FUMH].
Distribution in Iran: W, E.

Boraginaceae – Ref.: RIEDL 1967; KHATAMSAZ 2002.

Cynoglossum creticum MILLER, *Gard. Dict. ed. 8, no. 3* (1768). Khorassan: NE: W Kalat-e Naderi, Layen-e No toward Khakestar, km 10, 1200 m, 10.6.1997, Raafeei & Zangooei 29171 [FUMH]; – S Mashhad, Mashhad on the way to Moghan, Sarborj bifurcation, 1150 m, 21.5.1991, Faghinihnia & Zangooei 20338 [FUMH].
Distribution in Iran: N, W, S, E.

Heliotropium arguzioides KAR. & KIR., *Bull. Soc. Nat. Mosc. 15: 406* (1842). Khorassan: NE: S Sarakhs, Dowlatabad, 300 m, 17.6.1990, JOHARCH 19196 [FUMH]; – *ibid.* Dowlatabad toward Nowruzabad, km 8, 340 m, 16.9.1994, AKHANI & Zangooei 24538 [FUMH]; – *ibid.* between Dowlatabad and Nowruzabad, 300 m, 31.5.1995, Raafeei & Zangooei 25682 [FUMH]; – *ibid.* 11.6.2009, Joharchi: 43016 [FUMH]. – W: S Sabzevar, Haresabad, 800 m, 1.6.1991, Joharchi & Zangooei 20559 [FUMH]. – C: N Gonabad, Omrani, 910 m, 21.5.1984, Joharchi & Zangooei 11136 [FUMH]; – NE Gonabad, Bimorgh toward Ahangaran, km 35, 900 m, 27.4.1993, Faghinihnia & Zangooei 23009 [FUMH]. – SW: Tabas toward Yazd, Kamar Mahdi region, 1050 m, 27.4.2004, Faghinihnia & Zangooei 35309 [FUMH]; – SW Tabas, Tabas toward Yazd, km 135, 1150 m, 7.4.1997, Faghinihnia & Zangooei 28166 [FUMH]. – SE: Ghayen, Zirkuh, between Ahangaran-e Bala and Paein, 1050 m, 7.6.1993, Joharchi & Zangooei 23280 [FUMH]; – SE Ghayen, Hemmatabad, 980 m, 23.5.1995, Raafeei & Zangooei 25649 [FUMH].
Distribution in Iran: C, E.

Heliotropium micranthum (PALL.) BUNGE, *Beitr. Kenntn. Fl. Russl: 233* (1852). Khorassan: W: S Sabzevar, Haresabad, 800 m, 1.6. 1991, Joharchi & Zangooei 20560 [FUMH]; – S Sabzevar, Parvand region, 800 m, 17.5.1999, Faghinihnia & Zangooei 32460 [FUMH].
Distribution in Iran: C, E.

Heliotropium remotiflorum RECH.f. & RIEDL, *Fl. Iranica*, 48: 35 (1967). Khorassan: SE: SW Nehbandan, Chahdashi toward Dehsalm, km 2, 1050 m, 30.9.1996, Raafeei & Zangooei 27912 [FUMH].
Distribution in Iran: S, E. – Endemic for Iran, Afghanistan & Pakistan.

Heterocaryum szovitsianum (FISCH. & C.A.MEY.) A.DC., *Prodr. 10: 145* (1846). Khorassan: N: SW Darrehgaz, Kapkan, 1550 m, 30.4.1988, Joharchi & Zangooei 16280 [FUMH]; – N Mashhad, N Toos, Zak, 800 m, 26.4.1982, Ghorashialhosseini 1504G [FUMH]; – S Mashhad, between Sharifabad and Emam Taghi, 29.4.1984, Rezaei & Zangooei 10901 [FUMH]; – S Kalat-e Naderi, Ortakand, Khane-Zo, 1550 m, 9.6.1994, Faghinihnia & Zangooei 24158 [FUMH]; – Kalat-e Naderi, Band-e Naderi, 950 m, 23.4.1989, Joharchi & Zangooei 17067 [FUMH]; – SW Sarakhs, Mazdavand toward Sarakhs, km 14, 850 m, 7.4.1987, Ayatollahi 15038 [FUMH]; – *ibid.* 27.4.1986, Ayatollahi & Zangooei 13895 [FUMH]; – Sarakhs toward Mashhad, km 15, 400 m, 23.4.1991, Faghinihnia & Zangooei 19466 [FUMH]; – SW Sarakhs, between Padli and Derazab, 600 m, 15.4.1988, Joharchi & Zangooei 16136 [FUMH]; – Sarakhs, 290 m, 16.4.1985, Ayatollahi & Rezaei 12001 [FUMH]; – S Sarakhs, Pol-e Khatun, 500 m, 26.4.1992, Faghinihnia & Zangooei 21523 [FUMH]; – SW Fariman, Rekhneye-Gorg, 1250 m, 8.5.1996, Faghinihnia & Zangooei 26742 [FUMH];

– Fariman, between Chenar and Soume, 1600 m, 22.5.1991, Faghihnia & Zangooei 20398 [FUMH]. – W: NE Bardaskan, Sir, 1500 m, 13.4.1995, Faghihnia & Zangooei 24757 [FUMH]. – C: SW Kashmar, Taghestan-e Nozar, 900 m, 22.4.1993, Faghihnia & Zangooei 22888 [FUMH]; – N Gonabad, Omrani, 900 m, 8.4.1987, RASHED & Zangooei 15091 [FUMH]; – E: Taibad on the way to Torbat-e Heydariéh, km 30, 900 m, 25.4.1975, Zargari 318 [FUMH]; – Taibad toward Torbat-e Jam, km 35, 1050 m, 18.4.1990, Faghihnia & Zangooei 18218 [FUMH]; – E Torbat-e Jam, Rahmatabad, 1000 m, 27.4.1991, Joharchi & Zangooei 19667 [FUMH]; – SE Torbat-e Jam, Ghala-Hammam, 800 m, 27.4.1991, Joharchi & Zangooei 19674 [FUMH]; – E Torbat-e Jam, Mallu hills, 950 m, 28.4.1991, Joharchi & Zangooei 19700 [FUMH]; – Khaf on the way to Taibad, km 10, 1200 m, 27.4.1975, Zargari 316 [FUMH]; – E Taibad, Dogharun, 650 m, 18.4.1990, Faghihnia & Zangooei 18238 [FUMH]. – SE: N Tabas, 1200 m, 4.5.1992, Faghihnia & Zangooei 21602 [FUMH]. – SW: E Ghayen, Mohammadabad, 1050 m, 15.5.1989, Joharchi & Zangooei 17381 [FUMH]; – N Birjand, Mazar-e Soghi, 2000 m, 3.5.1998, Faghihnia & Zangooei 30439 [FUMH].

Distribution in Iran: N, W, S, E, C.

***Nonea pulla* (L.) DC., Fl. Franc. ed. 3, 626 (1805).**

Khorassan: NW: Ashkhaneh toward Shahrabad, km 72, near the Garmab, 680 m, Assadi & Maassoumi 55615 [TARI]. – NE: W Kalat-e Naderi, near the Soltanabad, 880 m, Assadi & Maassoumi 55799 [TARI].

Distribution in Iran: N, W, C, E.

***Nonea suchtelenioides* RIEDL, in WENDELBO, Acta Univ. Bergensis Ser. Math. Nat. 1962, 1: 37 (1962).**

Khorassan: W: SE Sabzevar, Ghorgh-e Yahya-Abad, 1020 m, Amirabadi 1313 [TARI]. – C: N Torbat-e Heydariéh, Ghonchi, 1700–1800 m, Borhan 418 [TARI].

Distribution in Iran: W, E, C. – Endemic to Iran.

***Rochelia mirheydari* RIEDL & ESFAND., Pl. Pests Diseases Res. Inst. 8: 3 (1976).**

Khorassan: NW: W Bojnord, Almehr, 1200 m, Termeh 33019- E [Holotype IRAN]; – ibid. Almehr, 1650 m, 26.6.1989, Faghihnia & Zangooei 176861 [FUMH]; – Qorkhud protected area, 1515 m, 18.5.2010, Memariani & Arjmandi 43654 [FUMH]; – NW Bojnord, Emam-Darreh, 1000 m, 17.4.2001, Joharchi & Zangooei 33288 [FUMH]; – NE Jajarm, between Jajarm and Shoghan, 1306 m, 20.5.2009 m, Memariani & Zangooei 42596, 42623 [FUMH]; – SE Bojnord, Chenaran, Zo, 1363 m, 27.5.2008, Joharchi & Zangooei 40422 [FUMH]; – E Bojnord, Sisab, NE hills, 1020 m, 3.5.2009, Memariani & Zangooei 42109 [FUMH]. – N: NE Shirvan, Oghaz-e Kohneh, 1800 m, 24.6.1997, Faghihnia & Zangooei 29444 [FUMH]; – W Daerhghaz, Alibolagh station, 5.6.2003, AJANI & Zangooei 34699 [FUMH]; – N Ghuchan, Aselma, 2200 m, 15.6.2003, Joharchi 34729 [FUMH]; – ibid. 2000 m, 24.6.1993, Faghihnia & Zangooei 23477 [FUMH]; – ibid. Zinadanlo, 1000 m, 1.5.1988, Joharchi & Zangooei 16410 [FUMH]; – Chenaran, Dahaneh Akhlamad, 1500 m, 11.5.1985, Ayatollahi & Rezaei 12702 [FUMH]; – Chenaran, between Ab-Ghad and Ferizi, 1500 m, 23.4.2005, Memariani & Zangooei 35861 [FUMH]; – ibid. Ferizi toward Delor, 1721 m, 1.5.2005, Emadzadeh & Memariani 36031 [FUMH]; – N Neyshabur, Baghrud, 1500 m 12.5.1991, Joharchi & Zangooei 20098 [FUMH]; – E Neyshabur, on road of Dizbad-e Olia, 1700–1800 m, 19.5.1996 Raafeei & Zangooei 26963 [FUMH]. – NE: Mashhad, Ferdowsi University Campus, 1041 m, 4.5.2009, Joharchi 43449 [FUMH]; – Mashhad toward Kalat-e Naderi, N Gojgi, 1700, 19.6.1991, Faghihnia & Zangooei 20862 [FUMH]; – NE Mashhad, Ajdarkuh, 1150 m, 30.5.1993, Joharchi & Zangooei 23217 [FUMH]; – NW Kalat-e Naderi, Archangan, 830 m, 23.4.1989, Joharchi & Zangooei 17074b [FUMH]; – SW Sarakhs, Shorlogh, 600 m, 17.4.1985, Ayatollahi & Rezaei 12024 [FUMH]. – C: SE Gonabad, Abbas abad, 1600 m, 2.5.1999, Hojjat & Zangooei 32227 [FUMH].

Distribution in Iran: E. – Endemic to Iran.

***Trachelanthus cerinthoides* (BOISS.) KUNZE, Bot. Zeit. 8: 665 (1850).**

Khorassan: NW: NW Bojnord, Jowzak toward Chamanbid, km 3, 1230–1300 m, 9.5.2010, Memariani 43620 [FUMH].

Distribution in Iran: N, W, S, E, C. – Endemic to Iran.

Brassicaceae – Ref.: HEDGE & RECHINGER 1968.

***Erysimum nanum* BOISS. & HOHEN., in BOISS, Diagn. Pl. Or. Nov. Ser.1, 8: 23 (1849).**

Khorassan: N: NE Chenaran, Boghnech toward Hezar-Masjed, km 56, 2000 m, Hojjat & Zangooei 32735 [FUMH]. – NE: NW Mashhad, Hezar-Masjed summit, 3132 m, 4.8.2010, Joharchi 44189 [FUMH];

–Mashhad on the way to Hezar-Masjed summit, km 110, 2.8.1987, 2700 m, Joharchi & Zangoeei 15719 [FUMH].

Distribution in Iran: N, W, E, C. – Endemic to Iran.

Caryophyllaceae – Ref.: RECHINGER & al. 1988.

Acanthophyllum spinosum (DESF.) C.A.MEY., Verz. Pfl. Cauc. 210 (1831).

Khorassan: C: N Torbate Heydariéh, 1750 m, 15.7.2007, Joharchi & Zangoeei 39152 [FUMH].

Distribution in Iran: W, S, E, C.

Diaphanoptera stenocalycina RECH.f. & SCHIMAN-CZEIKA, Fl. Iranica, 163: 334–335 (1988).

Khorassan: NW: W Bojnord, Qorkhud protected area, 1515 m, 18.5.2010, Memariani & Arjmandi 43649 [FUMH]; – NE Jajarm, Shoghan bifurcation in Jajarm road toward Shoghan, 1330 m, 20.5.2009, Memariani & Zangoeei 42598 [FUMH]; – N Jajarm, Ghezel Hesar-e Sofla, 1297 m, 13.5.2009, Memariani & Zangoeei 42356 [FUMH]. NE Jajarm, Shoghan bifurcation, in Jajarm road toward Shoghan, km 7, 1306, 20.5.2009, Memariani & Zangoeei 42605 [FUMH].

Distribution in Iran: N, E. – Endemic to Iran.

Silene claviformis LITW., Trav. Mus. Bot. Acad. Sci. Imp. Petersburg. 3: 99 (1907).

Khorassan: N: Chenaran, between Ferizi and Mohalleh-Sorkh, 1720–1810 m, 8.6.2005, Emadzadeh & Memariani 36551 [FUMH].

Distribution in Iran: S, E.

Silene tenella C.A.MEY., Verz. Pfl. Cauc. 226 (1831).

Khorassan: NW: W Bojnord, Qorkhud protected area, 1355 m, 25.5.2010, Memariani & Arjmandi 43805 [FUMH].

Distribution in Iran: N, E, C.

Chenopodiaceae – Ref.: HEDGE & al. 1997; ASSADI 2001; AKHANI & al. 2007.

Halocharis violacea BUNGE, Mém. Acad. Imp. Sc. Petersburg Ser. 7, 4, 11: 63 (1862).

Khorassan: C: SE Roshthkar, Roohabad toward Kal-Shur, 1100 m, 9.10.1996, Faghiniá & Zangoeei 27983 [FUMH]. – SE: E Ghayen, Shahrakht toward Yazdan, km 39, 700 m, 24.5.1998, Raafeei 30996 [FUMH].

Distribution in Iran: S, E.

Petrosimonia brachiata (PALL.) BUNGE, Mém. Acad. Imp. Sc. Petersburg Ser. 7, 4, 11: 59 (1862).

Khorassan: NW: NW Bojnord, Ashkhaneh toward Shahrabad, Amend bifurcation, Obe-Mohammadjan, 413 m, 14.9.2008, Joharchi & Zangoeei 41490 [FUMH]. – C: N Kashmar, Chalpo, 1750 m, 16.10.1991, Faghiniá & Zangoeei 21177 [FUMH].

Distribution in Iran: N, W, E.

Pyankovia brachiata (PALL.) AKHANI & ROALSON, Int. J. Pl. Sci. 168 (6): 949 (2007).

Khorassan: NW: W Bojnord, Sharlegh, 900 m, 15.8.1989, Ayatollahi & Zangoeei 11594 [FUMH]; – ibid. Jajarm bifurcation toward Jajarm, Asgharabad, 1300 m, 20.9.2007, Memariani 39285 [FUMH]; – ibid. 1329 m, 26.8.2008, Joharchi & Zangoeei 41345 [FUMH]; – NE Jajarm, 19 km, WShoghan, 1256 m, 7.9.2008, Memariani & Zangoeei 41445 [FUMH].

Distribution in Iran: N, W, E, C. This species is recorded from Khorassan in Flora Iranica as *Salsola brachiata*. But the specimen (Rechinger 3762) belongs to Golestan (Gorgan) province, not to Khorassan. Now this species is confirmed with a correct locality.

Salsola arbusculiformis DROBOW, Trav. Mus. Bot. Acad. Petersburg 16: 142 (1916).

Khorassan: NW: NW Bojnord, Kal-Imani town toward Buzdaghí, km 5, 835–850 m, 30.5.2007, MEMARIANI & Zangoeei 39060 [FUMH]; – W Bojnord, between Robat-e Gharabil and Jajarm bifurcation, 1498 m, 20.9.2007, Memariani 39280 [FUMH]; – SW Bojnord, N Jajarm, Garmeh toward Marghzar, km 20, 1400 m, 30.5.1984 Joharchi & Zangoeei 11401 [FUMH]; – Bojnord on the way to Gifan, km 15, near the Surk

village, 1000 m, Assadi & Maassoumi 50116 [TARI]. – C: Nayshabur toward Kashmar, km 70, 1550–1950 m, Assadi & Mozaffarian 35459 [TARI].

Distribution in Iran: N, W, E, C.

Cistaceae – Ref.: RECHINGER 1967; GHOLAMIAN 2011.

Helianthemum nummularium (L.) MILLER, Gard. Dict. No.12 (1768).

Khorassan: NW: W Bojnord, Qorkhud protected area, Kanisaran valley, 1830 m, 22.6.2010, Joharchi & Memariani 44060 [FUMH]; –ibid. 1850–1920 m, 23.6.2010, Joharchi & Memariani 44088 [FUMH].

Distribution in Iran: N, W, E, C.

Convolvulaceae – Ref.: RECHINGER 1963; NOWROOZI 2002.

Convolvulus calvertii Boiss., Diagn. Pl. Or. Nov. Ser. 2 (3): 124 (1859).

Khorassan: NW: W Bojnord, Badranlu, Sharif 13118 [IRAN]; – Bojnord toward Gifan, 1000 m, Assadi & Maassoumi 50228 [TARI]; – Bojnord toward Esfarayen, km 14, 1050 m, Pabot 26631 [TARI]; – ibid. km 24, 1700 m, Termeh 13103 [IRAN]. – N: NW Shirvan, Sevaldi, 1600 m, Assadi & Maassoumi 50373 [TARI].

Crassulaceae – Ref.: JANSSON & RECHINGER 1970; AKHIANI 2000.

Rosularia elymaitica (BOISS. & HAUSSKN.) A.BERGER, in ENGLER & PRANTL, Natürl. Pflanzenfam. 18a: 465 (1930).

Khorassan: NW: W Bojnord, Chamanbid on the way to Bojnord, km 14, 1100 m, Wendelbo & Kobham 14361 [TARI]; – SW Bojnord, Rein, Alkhass valley, 1850–1920 m, 27.5.2006, Memariani & Zangooei 37750 [FUMH]. – N: NE Shirvan, Bardar toward Namanlu, km 20, 2040 m, 9.6.2008, Memariani & Zangooei 40704 [FUMH].

Distribution in Iran: W, S, E, C.

Rosularia modesta

var. *linearifolia* (JANSSON) EGGLI, Bradleya 6, Suppl.: 72 (1988).

Khorassan: SE: SE Birjand, Moud, Ghala Mts., 2000 m, 12.6.1989, Joharchi & Zangooei 17684 [FUMH]; – S Birjand, Band-e Darreh, 2000 m, 1.5.1995, Faghihnia & Zangooei 25174 [FUMH]; – ibid. Band-e Omarshah, 1650 m, 18.5.1986, Ayatollahi & Zangooei 14287 [FUMH]; – N Nehbandan, Assadabad Mts., 1800 m, 11.4.1998, Hojjat & Zangooei 30013 [FUMH].

Distribution in Iran: S, E, C.

Rosularia subspicata (FREYN & SINT.) BORISS., Fl. URSS. 9: 123 (1939).

Khorassan: NW: W Bojnord, between Haver and Barfandil, 1700–1900 m, 6.6.2004, Joharchi & Aydani 35478 [FUMH, FAR]; – ibid. Chamanbid toward Bojnord, km 14, 1100 m, Wendelbo & Kobham 14362 [TARI]; – NE Esfarayen, Noshirvan, Mozaffarian 48584 [TARI]. – NE: Mashhad toward Kalat-e Naderi, Sandooghshakan pass, 1550 m, 24.7.2007, Zangooei & SOOZANI 39172 [FUMH]; – ibid. km 45, 1800 m, Assadi & Maassoumi 21375 [TARI].

Distribution in Iran: E.

Sedum hispanicum L., Cent. Pl. 1: 12 (1755).

Khorassan: NW: SW Bojnord, between Rein and Arkan, Gharanghazo, 2050 m, 20.5.2006, Memariani, Arjmandi & Zangooei 37575, 37576 [FUMH]; – ibid. Rein, Alkhass valley, 1850–1920 m, 27.5.2006, Memariani & Zangooei 37744 [FUMH]; – ibid. Rein, Topalrayeh, 1950–2050 m, 7.6.2006, Memariani, Arjmandi & Zangooei 7930 [FUMH]; – ibid. Rein, Shahneshtin Mt., 1700 m, 20.5.2006, Memariani, Arjmandi & Zangooei 37632 [FUMH]. – W Bojnord, between Haver and Barfandil, 1700–1900 m, 6.6.2004, Joharchi & Aydani 35494 [FUMH, FAR]; – ibid. Darkash, Kanimokhtar valley, 2100 m, 20.6.2004, Joharchi & Aydani 35595 [FUMH, FAR]; – NW Bojnord, between Ghorry-Meidan and Dashtak, 650–700 m, 28.4.2001, Joharchi & Zangooei 33403 [FUMH]; – W Bojnord, Dasht bifurcation, 980–1030 m, 30.4.2008, Memariani & Zangooei 39684 [FUMH]. – N: W Darrehgaz, between Gadakanlu and Chowinli, 1200 m, 12.6.2002, Joharchi 34234 [FUMH]; – SW Darrehgaz, Tandoureh national park, between Shekarab and Chelmir, 1650 m, 8.6.1997, Raafei & Zangooei 29069 [FUMH].

Distribution in Iran: N, W, S, E, C.

Sedum pentapetalum BORISS., Fl. URSS. 9: 481 (1939).

Khorassan: NW: Bojnord, W Jowzak, 1320–1370 m, 23.5.2010, Memariani & Arjmandi 43693 [FUMH].
Distribution in Iran: N, E.

Sedum rubens L., Sp. Pl. 1: 432 (1753).

Khorassan: N: W Darrehgaz, Gadakanlu, 1200 m, 1.5.1988, Joharchi & Zangoeei 16379 [FUMH]; – S Darrehgaz, Gherkh-Ghez hills, 450 m, 2.5.1988, Joharchi & Zangoeei 16489 [FUMH]; – SE Darrehgaz, Hatam-Ghala, 300 m, 16.5.1993, Joharchi & Zangoeei 23140 [FUMH]; – NW Darrehgaz Chelmir, 980 m, 11.5.1999, Hojjat & Zangoeei 32403 [FUMH]; – Darrehgaz, Tandoureh national park, between Shekarab and Chelmir, 1600–1900 m, Assadi & Maassoumi 50739 [TARI]. – C: N Kashmar, Kashmar on the way to Neyshabur, km 15, 1300 m, 22.4.2002, Faghihnia & Zangoeei 34025 [FUMH].
Distribution in Iran: N, W, S, E, C.

Sempervivum iranicum BORNH. & GAUBA, Feddes Rept. 49: 257 (1940).

Khorassan: NW: W Bojnord, between Haver and Kalat-e Zaman-Soufi, 1400–1600 m, 24.8.2003, Joharchi 35169 [FUMH].
Distribution in Iran: N, E, C. – Endemic to Iran.

Fabaceae – Ref.: CHRTKOVÁ-ZERTOVÁ & al. 1979; ALI & al. 1984; PAKRAVAN & al. 2000; MAASSOUMI 2003.

Astragalus aegobromus BOISS. & HOHEN. in BOISS., Diagn. Pl. Or. Nov. Ser. 1, 9: 74 (1849).

Khorassan: W: S Sabzevar, 880 m, 18.4.1966, POBOT 7491 [TARI].
Distribution in Iran: N, W, E, C.

Astragalus cartilagineus GONTSCH., Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 9: 99 (1941). **subsp. *cartilagineus*.**

Khorassan: NW: NW Esfarayen, Saluk national park, Sarmaran 1789 m, 4.5.2008, Joharchi & Zangoeei 39795 [FUMH]; – E Esfarayen, Sarigol national park, Dahan-e Ojagh, Doabi, 1805 m, 6.5.2008, Joharchi & Zangoeei 39846 [FUMH]; – NE Bojnord, Gifan, Misino Mts., 1800–2000 m, 17.6.1991, Joharchi & Zangoeei 20837 [FUMH, TARI].
Distribution in Iran: N, E. – Endemic for Iran, Turkmenistan & Afghanistan.

Astragalus perdurans PODLECH, Mitt. Bot. Staatssamml. München 25: 385 (1988).

Khorassan: NE: Mashhad, Zoshk, Rudkhan-e Abdollah, 2100–3000 m, Mozaffarian 48890 [TARI].
Distribution in Iran: N, E, C. – Endemic to Iran.

Astragalus vicarius LIPSKY, Acta Horti Petrop. 18: 25 (1900).

Khorassan: NW: NE Bojnord, Gharalor, 1000 m, 24.5.1995, Raafeei & Faghihnia 25550 [FUMH]; – ibid. between Gharlegh and Baba-Aman, 1013 m, 20.5.2009, Memariani & Zangoeei 42629 [FUMH]. – N: Darrehgaz, Tandoureh national park, between Shekarab and Chelmir, 1000–2300 m, 27.5.1991, Joharchi & Zangoeei 20468 [FUMH]; – N Ghuchan, Zo-e Shamkhal, 1600 m, 23.6.1993, Faghihnia & Zangoeei 23451 [FUMH]; – NE Ghuchan, between Gukan and Kachalalanlu, Sembel-Tappa, 1550 m, 20.5.1986, Joharchi & Zangoeei 14392 [FUMH]; – Neyshabur, Sarvalayat, Chakaneh-Olia, Eastern Mts., 1750 m, 13.5.1990, Faghihnia & Joharchi 18519 [FUMH]; – Chenaran, Ferizi region, 1720 m, 16.5.2005, Emadzadeh & Memariani 36167 [FUMH]; – ibid. Ferizi, Hayat-e Shaaban, 1800 m, 15.6.1993, Faghihnia & Zangoeei 23356 [FUMH]; – Darma road, 1765 m 1.5.2005, Emadzadeh & Memariani 36001 [FUMH]; – Ferizi toward Ab-Ghad, km 2, 1600 m, 1.5.2005, Emadzadeh & Memariani 35993 [FUMH].
Distribution in Iran: N, E.

Lens cyanea (BOISS. & HOHEN.) ALEF., Bonplandia 9: 129 (1861)

Khorassan: NW: NW Bojnord, between Eshghabad and Kal-Imani, 950 m, 17.4.2001, Joharchi & Zangoeei 33227 [FUMH]; – E Bojnord, Sisab Mts., 1450 m, 16.5.1988, Joharchi & Zangoeei 16639 [FUMH]; – SE Esfarayen, NW Nasrabad, 1500 m, 16.6.2003, Joharchi 34755a [FUMH]. – N: N Farouj, N Kouran-Kordieh, 1500–1530 m, 1.6.2009, Memariani & Zangoeei 42790 [FUMH]; – NW Neyshabur, Sarvalayat, Chakan-e

Olia, the eastern mountains, 1750 m, 13.5.1990, Joharchi & Faghihnia 18538 [FUMH]. – NE: N Mashhad, between Kardeh and Aal, Sich, 1610 m, 9.5.2008, Zangooei 39884 [FUMH]; – Mashhad, Torghabeh, 1350 m, FOROUGH I 1350 [TARI].

Distribution in Iran: N, W, S, E, C.

Onobrychis gaubae BORNH., Feddes Repert. 39: 114 (1935).

Khorassan: NW: W Bojnord, Qorkhud protected area, 1590–1600 m, 18.5.2010, (in flower) Memariani & Arjmandi 43667 [FUMH]; – *ibid.* 7.6.2010 (in fruit), Memariani & Arjmandi 43827 [FUMH].

Distribution in Iran: W, E, C. – Endemie to Iran.

Vicia monantha RETZ., Obs. Bot. 3: 39 (1783).

Khorassan: N: Between Ghuchan and Darrehgaz, Kapkan, 1550 m, 30.4.1988, Joharchi & Zangooei 16291 [FUMH]. – NE: NE Mashhad, Sanganeh road, Ziladeh, 740 m, 20.5.1989, Joharchi & Zangooei 17420 [FUMH]; – *ibid.* Sanganeh toward Chahchaheh, km 2, 400 m, 20.5.1989, Joharchi & Zangooei 17430 [FUMH]; – *ibid.* between Chahchaheh and Neyshaburak, 450 m, 21.5.1989, Joharchi & Zangooei 17443 [FUMH]; – NE Mashhad, Tabad Kuh, 1200 m, 30.5.1993, Joharchi & Zangooei 23258 [FUMH]; – Sarakhs toward Mashhad, km 10, 300 m, 16.4.1985, Ayatollahi & Rezaei 11995 [FUMH]; – *ibid.* km 60, 600 m, 23.4.1991, Faghihnia & Zangooei 19498 [FUMH]; – *ibid.* km 40, 300 m, 12.4.1999, Hojjat & Zangooei 31898 [FUMH]; – Sarakhs, 300 m, 16.4.1985, Ayatollahi & Zangooei 12003 [FUMH]; – Sarakhs, 250 m, Mozaffarian 67627 [TARI]; – S Sarakhs, Shir-Tappa, 250 m, 15.4.1988, Joharchi & Zangooei 16128 [FUMH]; – *ibid.* Pol-e Khatun, 900 m, 11.4.1999, Hojjat & Zangooei 31860 [FUMH]; – SW Sarakhs, between Chakudar and Chale-Zard, 500 m, 27.4.1986, Ayatollahi & Zangooei 13920 [FUMH]; – Mazdavad toward Sarakhs, km 14, 900 m, 27.4.1986, Ayatollahi & Zangooei 13906 [FUMH]; – Between Mashhad and Sarakhs, Bazangan bifurcation, 650 m, 22.4.1991, Faghihnia & Zangooei 19417 [FUMH]; – *ibid.* between Shorlogh and Chakudar, Robat, 500 m, 14.4.1988, Joharchi & Zangooei, 950–1000 m, 25.4.1985, Joharchi & Safavi 12259 [FUMH]. – W: Bardaskan, Borjak, 1200 m, 6.5.1990, Faghihnia & Zangooei 18402 [FUMH]. – E: Taybad on the way to Torbat-e Jam, km 35, 1050 m, 18.4.1990, Faghihnia & Zangooei 18217 [FUMH]; – Khaf, Mahabad, 1050 m, 5.5.1986, Ayatollahi & Zangooei 14185 [FUMH].

Distribution in Iran: N, W, S, E, C.

Gentianaceae – Ref.: SCHIMAN-CZEIKA 1967; KHATAMSAZ 1995b.

Gentiana aquatica L., Sp. Pl. 1: 229 (1753).

Khorassan: C: NE Kashmar, km 50, Bezgh Mt., 2500 m, Assadi & Mozaffarian 35747 [TARI].

Distribution in Iran: S, E.

Gentianella ciliata

subsp. *blepharophora* (BORDZ.) PRITCHARD, Notes R.B.G.Edinb. 35: 310 (1977).

Khorassan: C: Neyshabur, Binaloud Mt., 1350–2100 m, Termeh & Tehrani s.n. [IRAN].

Distribution in Iran: N, W, E, C.

Lamiaceae – Ref.: HEGDE & al. 1982.

Calamintha officinalis MOENCH, Meth. 409 (1794).

Khorassan: NW: W Bojnord, Darkash, Kanderazu valley, 1180–1400 m, 18.7.2011, Joharchi & Memariani 44594 [FUMH].

Distribution in Iran: N, W, E.

Salvia pachystachys TRAUTV., Bull. Soc. Nat. Mosc. 41, 2: 462 (1868).

Khorassan: NW: W Bojnord, Qorkhud protected area, 1355 m, 25.5.2010, Memariani & Arjmandi 43809 [FUMH]; – *ibid.* Aghmazar pass, 2350–2470 m, 16.6.2010, Memariani & Arjmandi 44001 [FUMH].

Distribution in Iran: W, E.

Salvia sharifii RECH.f. & ESFAND., Oesterr. Bot. Zeitschr. 99: 55 (1952).

Khorassan: NW: SE Esfarayen, Safiabad, Gharzi, 1250 m, 14.5.1991, Faghihnia & Zangooei 20210 [FUMH]. – C: Bajestan, Nasr mine, 1450 m, 14.5.1997, Hojjat & Zangooei 28451 [FUMH]; – Gonabad, Shurab, Ghala-Dokhtar Mts., 1300 m, 27.4.1993, Faghihnia & Zangooei 22959 [FUMH]; – SW: Boshruyeh, Fathabad dam,

Arask, 1120 m, 18.4.1987, Ayatollahi & Zangooei 15221 [FUMH]; – N Tabas, Ozbago, Alimorad mine, 1000 m, 22.4.1986, Ayatollahi & Zangooei 13869 [FUMH]; – W Tabas, Darin, 1020 m, 14.4.1999, Faghihnia & Zangooei 32017 [FUMH]; – E Tabas, Chirook, 1400 m, 19.4.1987, Ayatollahi & Zangooei 15300 [FUMH]. – SE: W Birjand, between Shahzileh and Tajk, 1700 m, 3.5.1998, Faghihnia & Zangooei 30403 [FUMH]; – ibid. between Khowr and Mazar-e Balanjir, Kalateh Bagh, 1400 m, 20.4.1999, Faghihnia & Zangooei 32132 [FUMH]; – S Birjand, Bagheran Mts., Kalateh Gazuk, 1700 m, 20.4.1999, Faghihnia & Zangooei 32153 [FUMH]; – ibid. Band-e Dare, 2000 m, 1.5.1995, Faghihnia & Zangooei 25184 [FUMH].

Distribution in Iran: S, E. – Endemic to Iran.

Satureja laxiflora C.KOCH, *Linnaea* 21: 668 (1848).

Khorassan: N: S Chenaran, Dowlatabad, southern mountains of dam, 2181 m, 12.10.2010, Joharchi 44223 [FUMH].

Distribution in Iran: W, E.

Malvaceae – Ref.: RIEDL 1976; PAKRAVAN 2008.

Alcea persarum BORNHM., *Beih. Bot. Centralbl.* 28: 1 t. 161 (1911).

var. *persarum*

Khorassan: NE: Toward Mashhad, Rechinger 4858, 4861, 4862 [IRAN, W].

Distribution in Iran: E. – Endemic to Iran.

Malvalthaea transcaucasica (SOSN.) ILJIN, *Not. Syst. Herb. Hort. Bot. Petrop.* 5: 9 (1924).

Khorassan: NW: Ashkhaneh toward Shahrabad, km 72, near the Garmab, 680 m, Assadi & Maassoumi 55612a [TARI].

Distribution in Iran: N, W, E.

Onagraceae – Ref.: RAVEN 1964; AZIZIAN 2005.

Epilobium parviflorum SCHREB., *Spic. Fl. Lips.* 146 (1771).

Khorassan: NW: W Bojnord. Qorkhud protected area, 1325 m, 14.7.2008, MEMARANI & Zangooei 41098 [FUMH]; – ibid. Haver, Ghatlgah valley, 1520 m, 19.7.2004, Joharchi & Aydani 35685 [FUMH, FAR]; – SW Bojnord, Rein, Akhass Valley, 1900 m, 8.8.2007, Arjmandi & Zangooei 39201 [FUMH]. – N: SW Shirvan, Zo-Eram, 1320–1430 m, 13.7.2009, Memariani & Zangooei 43298 [FUMH]; – Chenaran, Akhlamad, Abshar (= water fall), 1700 m, 6.7.1982, Zokaei 1454 [FUMH]. – NE: W Mashhad, Dehbar, 1800 m, 26.6.1983, Rezaei & Mahvan 10509 [FUMH]; – ibid. Kalat-e Ahan, 1500 m, 26.8.1992, Faghihnia & Zangooei 22528 [FUMH]; – ibid. Mayan-e Sofla, 1400 m, 3.7.1989, Faghihnia & Zangooei 17907 [FUMH]; – S Mashhad, Moghan, 1750 m, 19.8.1986, Ayatollahi & Zangooei 14977 [FUMH].

Distribution in Iran: W, N, E, C.

Epilobium tetragonum L., *Sp. Pl.* 1: 348 (1753).

subsp. *tetragonum*.

Khorassan: N: Chenaran, Ferizi, Darma valley, 1973 m, 11.6.2005, Emadzadeh & Memariani 36628 [FMH]; – ibid. between Ab-Ghad and Ferizi, 1500 m, 7.8.1984, Ayatollahi & Zangooei 11558 [FUMH]; – ibid. Ferizi, 1800 m, 11.8.1992, Faghihnia & Zangooei 22429 [FUMH]; – between Golmakan and Cheshmeh-Sabz, 1850 m, 30.7.1991, Faghihnia & Zangooei 20986 [FUMH].

Distribution in Iran: W, N, E, C. This taxon is recorded from Khorassan in *Flora Iranica* but the specimen (Koelz 16740) belongs to Golestan province (Gorgan), not to Khorassan. Now this species is confirmed with a correct locality.

Orobanchaceae – Ref.: SCHIMAN-CZEIKA 1964; GILLI 1979; IRANSHAHR 2008; SAEIDI-MEHRVARZ & al. 2011.

Cistanche ridgewayana AITCH. & HEMSLEY, *Trans. Linn. Soc. Ser. 2, 3*: 93 (1888).

Khorassan: NW: SW Bojnord, N Garne, 1050 m, 15.5.1988, Joharchi & Zangooei 16593 [FUMH]. – SW: Naybandan, between Aliabad and Tangal-e shend, 1536 m, 13.4.2004, Faghihnia 35275 [FUMH]; – Taq Plain, 2.9.1940, Koelz 16804 [W, in *Fl. Iran* cited as *C. tubulosa*].

Distribution in Iran: W, S, E, C.

Cistanche salsa (C.A.MEY.) G.BECK in ENGLER & PRANTL, *Natürl. Pflanzenfam.* 4, 3b: 129 (1897).

Khorassan: NW: NW Bojnord, Shahrak-e Kalimani toward Buzdagh, km 4–5, 835–850 m, 3.5.2007, Memariani & Zangooei 39045 [FUMH]. – NE: Kalat-e Naderi, between Jalilabad and Ghaleh-No, 1200 m, 10.6.2009, Joharchi 42997 [FUMH].

Distribution in Iran: W, S, E, C.

Orobanche stocksii BOISS., *Fl. Orient.* 4: 505 (1879).

Khorassan: W: Sabzevar on the way to Neyshabur, km 20, 1300 m, Assadi & Mozaffarian 35405 [TARI]. – C: Torbat-e Heydarieh toward Mashhad, km 60, Robat-Sefid, 1750–1900 m, Assadi & Mozaffarian 35856 [TARI].

Distribution in Iran: W, E, C.

Orobanche schultzei MUTEL, *Fl. Franc.* 2: 352 (1835).

Khorassan: NE: Mashhad toward Kalat-e Naderi, 800 m, Iranshahr & Zargani 31747 [IRAN].

Distribution in Iran: N, W, S, E, C.

Plumbaginaceae – Ref.: RECHINGER & SCHIMAN-CZEIKA 1974; ASSADI 2005.

Acantholimon heratense BUNGE, *Mem. Acad. Sci. Petersburg, Ser. 7, 18, 2: 55* (1872).

Khorassan: N: Ghuchan, Nowruzi, 1500 m, 17.6.1981, Ghorashilhosseini 939G [FUMH]; – N Neyshabur, Someae, 1350 m, 19.5.1978, Zargari 5229, 5231 [FUMH]; – E: Torbat-e Jam toward Bakharz, km 10, (Chah-Shur), 850 m, 12.5.1994, Faghihnia & Zangooei 23889 [FUMH]; – Taibad, Kuhsefid, 1100 m, 26.5.1992, Faghihnia & Zangooei 21914 [FUMH]; – NW Khaf, Pir-Yahoo, 2000 m, 30.4.1985, Ayatollahi 12399 [FUMH]; – *ibid.* Khaf, Band-e Salami, 1250 m, 29.4.1989, Joharchi & Zangooei 17120 [FUMH]; – *ibid.* 1250 m, 29.4.1989, Joharchi & Zangooei 17120 [FUMH]; – SW Khaf, Sangan, 800 m, 1.5.1993, Faghihnia & Zangooei 23018 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Afghanistan.

Acantholimon heterophyllum RECH.f., *Oesterr. Bot. Z.* 14: 173 (1957).

Khorassan: SW: Tabas, Esfahak., 950 m, 30.4.1981, Zokaei 694 [FUMH].

Distribution in Iran: S, E.

Acantholimon heweri RECH.f. & SCHIMAN-CZEIKA, *Fl. Iranica*, 108, 152 (1974).

Khorassan: SE: NW Ghayen, Dehestan toward Karghand, km 6, 1700 m, 19.5.1998, Raafei 30768 [FUMH]. – E Birjand, between Sarbishe and Darmian, 2000 m, 21.4.1985, Ayatollahi & Zangooei 12097 [FUMH]; – *ibid.* NW Zeydan, 2000–2300 m, Runemark & Sardabi 23734 [TARI]; – SE Birjand, between Sefarsakh and Asghul, 2000 m, 22.4.1985, Ayatollahi & Zangooei 12163 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Afghanistan.

Polygonaceae – Ref.: RECHINGER & SCHIMAN-CZEIKA 1968.

Rumex obtusifolius

subsp. *subalpinus* (SCHUR) CELAK., *Prodr. Fl. Boehm.* 159 (1873).

Khorassan: NW: NW Bojnord, Qorkhud protected area, 2000–2500 m, 16.6.2010, Memariani & Arjmandi 43994, 44033 [FUMH].

Distribution in Iran: N, E, C.

Primulaceae – Ref.: WENDELBO 1965a.

Lysimachia dubia Soland. in Aiton, *Hort. Kew*, ed. 1: 199 (1789).

Khorassan: NW: W Bojnord, Darkash, Ghartal valley, 1570 m, 20.7.2004, Joharchi & Aydani 35707 [FUMH, FAR].

Distribution in Iran: N, W, E.

Rosaceae – Ref.: BROWICZ & al. 1969; KHATAMSAZ 1992.

Cotoneaster hissaricus POJARK., Not. Syst. Leningrad 16: 126 (1954).

Khorassan: NW: W Bojnord, Mirzabaylo toward Soulgerd, km 11, Qorkhud protected area, 1650–1700 m, 24.5.2010, Memariani & Arjmandi 43737 [FUMH].

Distribution in Iran: N, W, E.

Cotoneaster kotschyi KLOTZ, Wissenseh. Zeitschr. Martin-Luther-Univ., Halle, Math. Nat. 12: 763 (1963).

Khorassan: NW: NW Bojnord, Shirin-Darre dam toward Barbar-Ghale, km 8, after of Postindouz bifurcation, 880 m, 17.10.2009, Memariani & Zangoeei 43391 [FUMH]; – ibid. Raz bifurcation toward Raz, km 23, 713 m, 14.5.2008, Memariani & Zangoeei 39943 [FUMH]; – N Bojnord, S Ghezalghan, 1010–1030 m, 3.10.2009, Memariani & Arjmandi 43349 [FUMH]; – W Bojnord, Darkash toward Haver, km 5, 1425–1475 m, 9.8.2008, Memariani & Zangoeei 41332, 41269, 41340, 41266 [FUMH]; – ibid. between Darkash and Haver, 1400 m, 27.6.2000, Zangoeei 32981 [FUMH]; – ibid. 1600 m, 2.7.2000, Faghihniah & Zangoeei 33027 [FUMH]; – ibid. Badranlo pass, 1633 m, 28.5.2008, Joharchi & Zangoeei 40507 [FUMH]; – SW Bojnord, Rein, Delove Mt., 1700–1750 m, 17.9.2007, Arjmandi & Zangoeei 39252 [FUMH]; – ibid. SE Rein, 2010 m, 27.9.2007, Arjmandi & Zangoeei 39292 [FUMH]; – ibid. Rein, Takhteye Bouly, 1860 m, 18.9.2006, Memariani & Arjmandi 38529 [FUMH]; – ibid. Rein, Gharangha-Zo, 2055 m, 1.9.2009, Arjmandi & Zangoeei 43329 [FUMH]; – E Esfarayen, on Ordoghan road, between Shur and Sefid-Ghala, 3.8.2008, Joharchi & Zangoeei 41225 [FUMH]. – N: Between Farouj and Oughaz-e Kohne, Ghala-e Safa Mts., 1750 m, 23.6.1997, Faghihniah & Zangoeei 29335 [FUMH]; – NW Neyshabur, Marousk, Heydari Mts., 2000–2200 m, 8.7.2003, Joharchi 34933 [FUMH]; – N Chenaran, Ghorogh Mts., 1500 m, 12.6.1995, Raafei & Zangoeei 25788 [FUMH]; – ibid. Ghorogh, N Sarcheshmeh, 1530 m, 22.8.2010 m, Joharchi & Arjmandi 44213 [FUMH]; – ibid. Boghmech, 1800 m, 20.5.1982, Ghorashialhosseini 1689G [FUMH]; – S Chenaran, Ferizi, Dahan-e Jaji, 12.8.1985, Ayatollahi & Zangoeei 13565b [FUMH]. – NE: W Kalate Naderi, between Khakestar and Layen-e Kohneh, Char-rah Mts., 1450 m, 9.7.1986, Joharchi & Zangoeei 14818 [FUMH]. – C: N Torbat-e Heydarieh, Robat-Sefid, 1700–2000 m, Runemark & Sardabi 23553 [TARI]. – E: SW Torbat-e Jam, Bakharz, Dahan-e Hemmatabad, 2000 m, 15.5.1984, Ayatollahi & Mahvan 11062 [FUMH].

Distribution in Iran: N, S, E, C.

Cotoneaster nummularoides POJARK., Not. Syst. Leningrad 16: 128 (1954).

Khorassan: NW: NW Bojnord, between Ayerghayeh and Soukhli, 12.6.2001, Joharchi 33737 [FUMH]; – N Bojnord, S Ghezalghan, 1010–1030 m, 3.10.2009, Memariani & Arjmandi 43347, 43345, 43343, 43344 [FUMH]; – NE Bojnord, Izman-e Olia toward Ghaleh-Mohammadi, 1593 m, 3.10.2009, Memariani & Arjmandi 43354, 43361, 43356, 43352, 43357 [FUMH]; – W Bojnord, Darkash toward Haver, km 5, 1425–1475 m, 9.8.2008, Memariani & Zangoeei 41268 [FUMH]; – ibid. Darkash, between Kanibid & Kanimokhtar, 1600–2000 m, 20.6.2004, Joharchi & Aydani 35578 [FUMH, FAR]. SW Bojnord, Rein, Topal-Rayeh, 1850 m, 7.10.2008, Memariani & Zangoeei 41602, 41601 [FUMH]; – ibid. 2015 m, 21.5.2006, Memariani & Arjmandi 37650 [FUMH]; – ibid. Rein, Delove valley, 1650–1700 m, 3.7.2006, Memariani & Arjmandi 38248 [FUMH]; – ibid. Rein, Takht-e Bouly, 1860 m, 18.9.2006, Memariani & Arjmandi 38528 [FUMH]; – ibid. Rein, Alkhass valley, 1830–1900 m, 17.9.2006, Memariani & Arjmandi 38519 [FUMH]; – ibid. Rein, Gharangha-Zo, 2055 m, 1.9.2009, Arjmandi & Zangoeei 43330, 43324 [FUMH]; – Esfarayen on the road to Bojnord, km 30, Pelmis pass, 1860–1870 m, 29.9.2008, Memariani & Zangoeei 41518 [FUMH]. – N: N Shirvan, Cheirabad, Konjkor Mt., 1500 m, 21.8.1984, Ayatollahi & Zangoeei 11701 [FUMH]; – NW Neyshabur, Derakht-e Jowz valley, 1650 m, 8.10.2009, Arjmandi & Zangoeei 43380 [FUMH]; – S Chenaran, Ferizi valey, 2050 m, 19.9.2010, Arjmandi 44220 [FUMH]. – NE: SW Sarakhs, Bazangan, southern mountains, 1331 m, 25.8.2009, Joharchi & Arjmandi 43312 [FUMH]. – C: Kashmar on the way to Neyshabur, km 15, 1500 m, 24.5.1999, Hojjat & Zangoeei 32545 [FUMH]; – E: NW Torbat-e Jam, Bardu, S Kalateh-Agha Mohammad, 1625–1700 m, 24.10.2009, Memariani & Arjmandi 43419 [FUMH].

Distribution in Iran: N, W, E, C.

Cotoneaster nummularius FISCH. & C.A.MEY., Ind. Sem. Horti Petrop. 2: 34 (1835).

Khorassan: NW: NW Bojnord, Between Ghorry-Meidan and Dashtak, 650–700 m, 28.4.2001, Joharchi & Zangoeei 33368 [FUMH]; – Between Raz and Gholaman, Guynik, 1213 m, 18.5.2008, Joharchi & Zangoeei 40172 [FUMH]; – Western hills of Shirin-Darre dam, 700–750 m, 26.4.2009, Memariani & Zangoeei 41931 [FUMH]; – Northern slopes of Bouzdaghi mountain, Cheshme, Golabi valley, 1000–1070 m, 3.5.2007,

Memariani & Zangoeei 39091 [FUMH]; – N Bojnord, S Ghezelghan, 1170–1190 m, 19.5.2009, Memariani & Zangoeei 42572 [FUMH]; – *ibid.* 1010–1030 m, 3.10.2009, Memariani & Arjmandi 43346 [FUMH]; – NE Bojnord, Izman toward Gifan, km 7, 1800 m, 23.7.1995, Raafei & Zangoeei 26098 [FUMH]; – Izman-e Olia toward Ghale, Mohammadi, km 3, 1593 m, 3.10.2009, Memariani & Arjmandi 43355, 43359 [FUMH]; – W Bojnord, Qorkhud protected area, Kasetan toward Chalbash, km 6, Souleh-Bakh valley, 1325 m, 14.7.2008, Memariani & Zangoeei 41083 [FUMH]; – Between Chamanbid and Jowzak, 1300 m, 15.5.1988, Joharchi & Zangoeei 16629 [FUMH]; – Dasht, 1000 m, 8.9.1987, Zangoeei 15860 [FUMH]; – Badranlu pass, Teimur-Tash, 1675 m, 15.7.2008, Memariani & Zangoeei 41121 [FUMH]; – Darkash toward Haver, km 5, 1425–1475 m, 9.8.2008, Memariani & Zangoeei 41333, 41334, 41335, 41337, 41338, 41339 [FUMH]; – Between Darkash and Haver, 1400 m, 27.6.2000, Zangoeei 32980, 32981 [FUMH]; – *ibid.* 1200 m, 1.8.2000, Joharchi & Hojjat 33144, 33164b [FUMH]; – *ibid.* 1500 m, 28.9.2009, Joharchi & Aydani 35739 [FUMH, FAR]; – SW Bojnord, Shoghan, 2000 m, 27.6.1995, Raafei & Zangoeei 26024 [FUMH]; – ZO-E Garivan, after Firoozeh, 1450 m, 1.6.1998, Hojjat & Zangoeei 31201 [FUMH]; – Rein, Alkhas valley, 1830–1900 m, 17.9.2006, Memariani & Arjmandi 38520 [FUMH]; – Rein, Gharangha-Zo, 2055 m, 1.9.2009, Arjmandi & Zangoeei 43322, 43325, 43327, 43328 [FUMH]; – W Esfarayen, Darre-Jowz, 1500 m, 17.6.1998, Raafei & Zangoeei 31706 [FUMH]. – N: Ghuchan toward Darrehgaz, km 72, 1720 m, 2.7.1996, Raafei & Zangoeei 27751 [FUMH]; – S Darrehgaz, Sanghez, Zo-e Kharab, 2400 m, 18.6.2000, Hojjat & Zangoeei 32944 [FUMH]; – Tandoureh national park, between Darungar goard Station and Ali-Bolagh, 1405 m, 14.7.2004, Zangoeei 35673 [FUMH]; – *ibid.* Ali-Bolagh, 1520 m, 22.6.1995, Raafei & Zangoeei 25983 – [FUMH]; – NE Chenaran, Ghorogh, N Sarcheshmeh, 1530 m, 22.8.2010, Joharchi & Arjmandi 44216 [FUMH]; – S Chenaran, Ferizi region, 1700–1750 m, 5.7.2005, Memariani & Zangoeei 36839 [FUMH]; – *ibid.* Dahane-Jaji, 1890–2060 m, 22.5.2005, Emadzadeh & Memariani 36364 [FUMH]; – *ibid.* Heyt-e Osta Ali, 1730 m, 12.6.2005, Emadzadeh & Memariani 36661 [FUMH]; – NW Neyshabur, Derakht-e Jowz valley, 1650–1900 m, 12.8.2003, Joharchi 35162 [FUMH]; – *ibid.* 8.10.2009, Arjmandi & Zangoeei 43381 [FUMH]. – NE: Mashhad toward Kalat-e Naderi, km 65, 1550 m, 19.6.1991, Faghihnia & Zangoeei 20892 [FUMH]; – W Mashhad, Kordineh, 1832 m, 7.6.2005, Joharchi & Zangoeei 36529 [FUMH]; – SW Sarakhs, Bazangan southern mountains, 1543 m, 25.8.2009, Joharchi & Arjmandi 43314, 43315 [FUMH]; – NW Torbat-e Jam, Bardu forest, 1500–1600 m, 24.6.2003, Joharchi 34831 [FUMH].

Distribution in Iran: N, W, S, E, C.

Cotoneaster suavis POJARK., Not. Syst. Leningrad 16: 124 (1954).

Khorassan: NW: NE Bojnord, Izman toward Gifan, km 7, 1800 m, 23.7.1995, Raafei & Zangoeei 26098 [FUMH]; – Between Ayub and Gifan, 11.9.2007, Zangoeei & ZAMANI 39238 [FUMH]; – W Bojnord, Darkash toward Haver, km 5, 1425–1475 m, 9.8.2008, Memariani & Zangoeei 41331 [FUMH]; – Between Darkash and Haver, 1200 m, 1.8.2000, Joharchi & Hojjat 33163, 33164a [FUMH]. – N: 45 km north of Shirvan, Aalam Mt., 2300 m, Edmondson 1213 [W]; – Shirvan, Golul protected area, Tigheh Barbar, 2496 m, 20.8.2008, Joharchi & Zangoeei 41320 [FUMH]; – W Darrehgaz, Ali Bolagh, 1520 m, 22.6.1995, Raafei & Zangoeei 25980 [FUMH]; – E Neyshabur, Garina, 1900 m, 3.7.1996, Faghihnia & Zangoeei 27753 [FUMH]; – S Chenaran, Ferizi region, 2050 m, 19.9.2010, Arjmandi 44219 [FUMH].

Distribution in Iran: E.

Cotoneaster turcomanicus POJARK., Not. Syst. Leningrad 21: 162 (1961).

Khorassan: NW: N Bojnord, S Ghezelghan, 1010–1030 m, 3.10.2009, Memariani & Arjmandi 43350 [FUMH]; – NE Bojnord, Izman-e Olia toward Ghale-Mohammad, km 3, 1593 m, 3.10.2009, Memariani & Arjmandi 43358 [FUMH]. – NE: Between Mashhad and Neyshabur, Dizbad-e Olia, 1700–2200 m, Mozafarian 45570 [TARI].

Distribution in Iran: N, E.

Cotoneaster tythocarpus POJARK., Not. Syst. Leningrad 21: 181 (1961).

Khorassan: NW: NW Bojnord, N Kheshtli, 12.6.2001, Joharchi 33749 [FUMH]; – Shirin-Darre dam toward Barbar-Ghale, km 8, after Postindoz bifurcation, 880 m, 17.10.2009, Memariani & Zangoeei 43400 [FUMH]; – W Bojnord, Qorkhud protected area, S Yakhtikalan pass, 1690 m, 19.10.2009, Memariani & Zangoeei 43407 [FUMH]; – *ibid.* N Yakhtikalan pass, 1420–1450 m, 19.10.2009, Memariani & Zangoeei 43410 [FUMH]; – Darkash toward Haver, km 8, 1400–1500 m, 4.10.2009, Memariani & Zangoeei 43374 [FUMH]. – N: Darrehgaz, Tandoureh national park, Chelmir, 1200 m, Assadi & Maassoumi 50812 [TARI].

Distribution in Iran: N, W, E.

***Geum kokanicum* REGEL & SCHMALH. ex REGEL, Descr. Pl. Nov. Fedtsch. 24 (1882).**

Khorassan: NW: W Bojnord, Between Haver and Barfandil, 1700–1900 m, 6.6.2004, Joharchi & Aydari 35491 [FUMH, FAR]; – Qorkhod protected area, Aghmazar pass, 2000–2300 m, 16.6.2010, Memariani & Arjmandi 44022 [FUMH]; – SW Bojnord, between Hessar and Shoghan, 2033 m, 1.6.2008, Joharchi & Zangooei 40573 [FUMH]; – Between Rein and Arkan, Gharnghazo, 2050 m, 20.5.2006, Memariani & Zangooei 37595 [FUMH]; – Rein, Shahneshin Mt., 1850–2010 m, 6.5.2006, Memariani & Arjmandi 37402 [FUMH]; – Esfarayen, Shahjahan Mt., N Slops, 1700–2500 m, Mozaffarian 48435 [TARI]; – N Esfarayen, Shiralibak Mts., Cheshmeh-e Haftrig, 2000 m, 20.10.1990, Rezaei NOEI 15361, 15362 [FUMH]. – N: SW Shirvan, Kalateh-Sohrab Mts., 2100 m, 15.6.1998, Raafei & Zangooei 31599 [FUMH]; – S Darrehgaz, Sanghez, Zo-e Kharab, 2450 m, 22.5.2000, Hojjat & Zangooei 32869 [FUMH]; – NW Neyshabur, Bar, Cheshmeh-e Bidgoud, 2250 m, 24.5.1992, Joharchi & Zangooei 21858 [FUMH]. – NE: NW Mashhad, Hezar-Masjed summit, 3000 m, 17.6.1997, Hojjat & Zangooei 29264 [FUMH]; – W Mashhad, Zoshk Mts., 2100–2500 m, 2.6.1991, Joharchi & Zangooei 20600 [FUMH].

Distribution in Iran: N, E, C.

Scrophulariaceae – Ref.: FISCHER & al. 1981; SAEIDI-MEHRVARZ & al. 2011.***Kickxia elatine*****subsp. *crinita* (MABILLE) GREUTER, in GREUTER & RECH.f., Boissiera 13: 108 (1967).**

Khorassan: NE: Mashhad, Dehbar, 2050 m, 11.7.1988, Saghafi & Ramazani s.n. [FUMH].

Distribution in Iran: N, W, S, E, C.

Linaria chalepensis* (L.) MILLER, Gard. Dict. ed. 8: no. 12 (1768).*subsp. *chalepensis*.**

Khorassan: NE: Mashhad, Shandiz, 1050 m, 27.5.1983, Rezaei 10324 [FUMH].

Distribution in Iran: N, W, S, E, C.

***Linaria shahroudensis* HAMDI & ASSADI, Bot. J. Linn. Soc. 158 (4): 737 (2008).**

Khorassan: NE: Mashhad, Pivajen, 1800 m, 8.6.1983, Rezaei & Zangooei 10408 [FUMH].

Distribution in Iran: E, C. – Endemie to Iran.

***Scrophularia pruinosa* BOISS., Diagn. Pl. Or. Nov. Ser. 1 (12): 38 (1853).**

Khorassan: N: Ghuchan on the way to Darrehgaz, km 40, 1730 m, 27.5.1972, Foroughi 8481 [TARI].

Distribution in Iran: N, W, E, C.

***Scrophularia syriaca* BENTH. in DC., Prodr. 10: 316 (1846).**

Khorassan: W: W Sabzevar, N Davarzan, above Abrud, 2200–2500 m, 25.7.2001, Assadi & Ranjbar 82203 [TARI]. – C: Torbat-e Heydarieh toward Mashhad, km 60, Robat-Sefid, 1750–1900 m, 15.6.1981, Assadi & Mozaffarian 35865 [TARI].

Distribution in Iran: W, S, E, C.

***Veronica arvensis* L., Sp. Pl. 1: 13 (1753).**

Khorassan: NW: N Bojnord, Amirabad, 1200 m, Saeidi 24036 [TARI].

Distribution in Iran: N, W, S, E.

***Veronica verna* L., Sp. Pl. 1: 14 (1753).**

Khorassan: NW: Bojnord toward Gifan, km 70, Amirabad, 1200 m, Saeidi 24197 [TARI]. – NE: W Mashhad, Kang Mts., 1500–1600 m, 1.6.2005, Joharchi & Zangooei 36508 [FUMH].

Distribution in Iran: N, E.

Solanaceae – Ref.: SCHÖNBECK-TEMESY 1972.***Physalis alkekengi* L., Sp. Pl. 1: 183 (1753).**

Khorassan: NW: W Bojnord, Darkash, Kanderazu, 1097 m, 25.7.2011, Joharchi & Memariani 44603 [FUMH].

Distribution in Iran: N, W, S, E, C.

Thymelaeaceae – Ref.: PETERSON 1972; AKHIANI 1995.

Stelleropsis iranica POBEDIMOVA, Not. Syst. Leningrad 12: 158 (1949).

subsp. *iranica*.

Khorassan: C: N Torbat-e Heydarieh, Assadabad pass, 1700 m, 23.6.1986, Ayatollahi & Zangooei 14647 [FUMH]; – Between Mashhad and Torbat-e Heydarieh, Robat-Sefid Mts., 2000 m, 9.6.1991, Joharchi & Zangooei 20659 [FUMH]; – *ibid.* 1700 m, 4.6.2003, AJANI & Zangooei 34655 [FUMH]; – *ibid.* 1700–2000 m, Runemark & Sardabi 23561 [TARI].

Distribution in Iran: E, C. – Endemic to Iran.

Valerianaceae – Ref.: RECHINGER 1969; MOUSSAVI-ALLASHLOU 2001.

Valerianella amblyotis FISCH. & C.A.MEY., in HOHEN., Bull. Soc. Nat. Mosc. 11: 263 (1838).

Khorassan: NW: W Bojnord, Jowzak toward Chamanbid, 1320–1370 m, 23.5.2010, Memariani & Arjmandi 43706 [FUMH]; – *ibid.* 1300 m, 15.5.1988, Joharchi & Zangooei 16632 [FUMH]; – *ibid.* S Badranlu, 1920 m, 12.6.1996, Raafeei & Zangooei 27276 [FUMH]; – NW Bojnord, S Tangeh-e Torkman, 1446 m, 17.5.2008, Joharchi & Zangooei 40095 [FUMH]. – N: Darrehgaz, 500 m, 16.5.1993, Joharchi & Zangooei 23145 [FUMH]; – SE Darrehgaz, Hatam-Ghala, 300 m, 16.5.1993, Joharchi & Zangooei 23129 [FUMH].

Distribution in Iran: W, E.

Valerianella coronata (L.) DC., Fl. Franc. 4: 241 (1805).

Khorassan: NW: W Bojnord, Dasht bifurcation, 980–1030 m, 3.4.2008, Memariani & Zangooei 39701 [FUMH]; – NW Bojnord, between Anabay and Goynik, 1150 m, 29.4.2001, Joharchi & Zangooei 33493 [FUMH]; – *ibid.* Emam-Darreh, 1000 m, 17.4.2001, Joharchi & Zangooei 33276 [FUMH]. – N: W Darrehgaz, Alibolagh bifurcation, 1150 m, 5.6.2003, AJANI & Zangooei 34712 [FUMH]; – S Darrehgaz, Gherkhezh hills, 450 m, 2.5.1988, Joharchi & Zangooei 16483 [FUMH]; – SE Darrehgaz, Hatam-Ghala, 300 m, 16.5.1993, Joharchi & Zangooei 23121 [FUMH]; – SW Darrehgaz, Tandoureh national park, Chehelmir, 1100 m, Moussavi & Paryab 5618 [TARI]. – NE: Between Mashhad and Moghan, Sarborj bifurcation, 1150 m, 21.5.1991, Faghihnia & Zangooei 20343 [FUMH]; – Kalat-e Naderi toward Archangan, km 10, 1100 m, 1.6.1997, Faghihnia & Zangooei 28969 [FUMH]; – *ibid.* Archangan, 830 m, 23.4.1989, Joharchi & Zangooei 17096 [FUMH].

Distribution in Iran: W, S, E, C.

Valerianella dentata (L.) POLL., Hist. Pl. Palat. 1: 30 (1776).

Khorassan: W: NE Bardaskan, Sir, 1500 m, 13.4.1995, Faghihnia & Zangooei 24748 [FUMH]. – SW: Ferdous on the way to Boshruyeh, km 14, Amirabad, 1400 m, 16.4.1995, Raafeei & Zangooei 24821 [FUMH].

Distribution in Iran: N, W, E.

Valerianella leiocarpa (C.KOCH) KUNTZE, Act. Hort. Petrop. 10: 195 (1887).

Khorassan: NW: Jajarm, Garmeh toward Sankhast, km 50, 1270 m, 23.4.2008, Joharchi & Zangooei 39547 [FUMH]. – N: S Neyshabur, Eshghabad, 1250 m, 11.5.1991, Joharchi & Zangooei 20035 [FUMH]. – NE: NE Kalat-e Naderi, 1000 m, 20.5.1985, Ayatollahi & Joharchi 13103 [FUMH]; – Between Mashhad and Sarakhs, Bazangan bifurcation, 650 m, 22.4.1991, Faghihnia & Zangooei 19426 [FUMH]; – Sarakhs toward Mashhad, km 15, 400 m, 23.4.1991, Faghihnia & Zangooei 19453 [FUMH]; – *ibid.* km 10, 300 m, 16.4.1985, Ayatollahi & Rezaei 11996 [FUMH]; – SW Sarakhs, between Shorlogh and Chakudar, Robat, 500 m, 14.4.1988, Joharchi & Zangooei 16085 [FUMH]; – NE Torbat-e Jam, between Salehabad and Pol-e Khatun, 500 m, 13.4.1993, Faghihnia & Zangooei 22703 [FUMH]; – W: NW Sabzevar, Joghatay, 1400 m, 29.5.1984, Joharchi & Zangooei 11344 [FUMH]; – S Sabzevar, Halakabad, 1300 m, 23.4.1988, Joharchi & Zangooei 16161 [FUMH]; – NE Bardaskan, Sir, 1500 m, 13.4.1995, Faghihnia & Zangooei 24763 [FUMH]. – C: S Torbat-e Heydarieh, Eskandarabad, 1050 m, 4.5.1991, Joharchi & Zangooei 19961 [FUMH]; – *ibid.* Dast-e Kheirabad, 900 m, 4.5.1991, Joharchi & Zangooei 19904 [FUMH]; – *ibid.* between Feyzabad and Hemmatabad, 900 m, 20.4.1993, Faghihnia & Zangooei 22767 [FUMH]; – *ibid.* Jangal toward Mohamadabad, km 14, 900 m, 4.5.1986, Ayatollahi & Zangooei 14021, 14060 [FUMH]; – N Gonabad, Omrani toward Band-e Ozbak, km 7, 1100 m, 26.4.1993, Faghihnia & Zangooei 22913 [FUMH]; – *ibid.* km 25, 900 m, 26.4.1993, Faghihnia & Zangooei 22933 [FUMH]; – Gonabad toward Torbat-e Heydarieh, km 80, 1100 m, 29.4.1991, Faghihnia & Zangooei 19850b [FUMH]; – *ibid.* km 60, 1050 m, 3.5.1992, Faghihnia

& Zangoeei 21565 [FUMH]; – *ibid.* km 50, 1050 m, 10.4.1990, Faghinihnia & Zangoeei 18045 [FUMH]; – *ibid.* km 25, 950 m, 23.4.1990, Faghinihnia & Zangoeei 18295 [FUMH]; – *ibid.* km 24, 950 m, 20.4.1986, Ayatollahi & Zangoeei 13704 [FUMH]; – N Gonabad, Lut-e Omrani, 900 m, 7.4.1985, Ayatollahi & Rezaei 11831 [FUMH]; – *ibid.* Omrani village, 900 m, 8.4.1987, RASHED & Zangoeei 15086 [FUMH]; – *ibid.* Pasgah-Omrani, 1050 m, 30.3.1988, RASHED & Rezaei 15927 [FUMH]; – *ibid.* Pasgah-e Omrani toward N Yunesi, km 8, 900 m, 9.5.1998, Raafeei & Zangoeei 30462 [FUMH]; – SW Gonabad, Senu, around of Houz-e Beigi, 1350 m, 26.4.1991, Faghinihnia & Zangoeei 19626 [FUMH]; – *ibid.* Senu 1400 m, 25.4.1990, Faghinihnia & Zangoeei 18395 [FUMH]; – S Gonabad, Kakhk toward Ostad, Marghash bifurcation, 1500 m, 24.4.1991, Faghinihnia & Zangoeei 19506 [FUMH]; – W Gonabad, Bajestan on the way to Gonabad, km 30, 1200 m, 14.5.1997, Hojjat & Zangoeei 28429 [FUMH]; – *ibid.* Bajestan toward Nough, km 20, 1550 m, 12.5.1998, Raafeei & Zangoeei 30729 [FUMH]. – E: E Torbat-e Jam, Mallu, 950 m, 28.4.1991, Joharchi & Zangoeei 19693 [FUMH]; – SE Torbat-e Jam, Ghaleh-Hammam, 800 m, 27.4.1991, Joharchi & Zangoeei 19688 [FUMH]; – Taybad toward Torbat-e Jam, km 5,750 m, 19.4.1990, Faghinihnia & Zangoeei 18279 [FUMH]; – Taybad toward Dogharoun, km 5, 700 m, 18.4.1990, Faghinihnia & Zangoeei 18259 [FUMH]; – Taybad toward Karat, km 15, 900 m, 1.5.1993, Faghinihnia & Zangoeei 23049 [FUMH]; – Khaf, between Alinaghi and Dochahi, 1050 m, 5.5.1986, Ayatollahi & Zangoeei 14123 [FUMH]; – Khaf, Band-e Salami, 1250 m, 29.4.1989, Joharchi & Zangoeei 17129 [FUMH]; – S Khaf, Dasht-e Zuzan, between Ebrahimi & Hassanabad, 730 m, 30.4.1989, Joharchi & Zangoeei 17211 [FUMH]; – Khaf, Mahabad, 1050 m, 5.5.1986 Ayatollahi & Zangoeei 14134 [FUMH]. – SW: Tabas on the way to Yazd, km 100, 1400 m, 7.4.1997, Faghinihnia & Zangoeei 28190 [FUMH]; – Ferdows toward Boshruyeh, km 30, 21.4.1986, Ayatollahi & Zangoeei 13741 [FUMH]; – *ibid.* km 14, 1400 m, 16.4.1995, Raafeei & Zangoeei 24822 [FUMH]; – N Tabas, between Gharacheh and Allahabad-e Rahmani, 1200 m, 18.4.1995, Raafeei & Zangoeei 24925 [FUMH]; – *ibid.* Amirabad toward Eshghabad, km 5, 1200 m, Faghinihnia & Zangoeei 21581 [FUMH]; – SE Tabas, 74 km before Neyestan, 900 m, 17.4.1995, Raafeei & Zangoeei 24866 [FUMH]. – SE: E Ghayen, N Hajjabad Dehno, 1050 m, 10.4.1988, Joharchi & Zangoeei 15964 [FUMH]; – *ibid.* between Mohammadabad and Ahangan, 1000 m, 5.5.2002, Joharchi 34115 [FUMH]; – *ibid.* Mohammadabad, 1050 m, 15.5.1989, Joharchi & Zangoeei 17379 [FUMH]; – Ghayen toward Birjand, km 7, 1500 m, 20.4.1985, Ayatollahi & Zangoeei 12066 [FUMH]; – W Birjand, between Shahzileh and Tajk, 1700 m, 3.5.1998, Faghinihnia & Zangoeei 30404 [FUMH]; – Birjand toward Khosf, km 10, 1300 m, 20.4.1999, Faghinihnia & Zangoeei 32085 [FUMH]; – SW Birjand, Hamond toward Ghaleh-Zari, km 8, 1300–1350 m, 9.4.1987, Rashed & Zangoeei 15114 [FUMH]; – E Birjand, Moud, 1750 m, 16.4.1981, Zokaei 564 [FUMH]; – Birjand toward Nehbandan, km 35, 1800 m, 1.5.1991, Faghinihnia & Zangoeei 19857a [FUMH]; – NE Birjand, Gezik Mts., 1400–1500 m, 14.5.1989, Joharchi & Zangoeei 17277 [FUMH].

Distribution in Iran: N, W, S, E, C.

Valerianella muricata (STEV.) BAXT., in *LOUDON, Hort. Brit. Suppl.* 3: 654 (1839).

Khorassan: NW: NW Bojnord, between Ghorry Meidan and Dashtak, 650–700 m, 28.4.2001, Joharchi & Zangoeei 33392 [FUMH]. – N: Darrehgaz, Tandoureh national park, Chehelmir, 1000 m, Moussavi & Paryab 5619 [TARI]; – S Darrehgaz, Gherkh-ghez hills, 450 m, 2.5.1988, Joharchi & Zangoeei 16484 [FUMH]. – NE: Kalat-e Naderi, Archangan, 830 m, 23.4.1989, Joharchi & Zangoeei 17094 [FUMH].

Distribution in Iran: N, W, S, E.

Valerianella plagiostephana FISCH. & C.A.MEY., *Ind. Sem. Horti Petrop.* 2: 52 (1835).

Khorassan: N: N Ghuchan, Bajgiran, 1450 m, 27.5.1982, ZOKAEI 1425 [FUMH]; – E Ghuchan, Emarat, 1700 m, 20.5.1986, Joharchi & Zangoeei 14457 [FUMH]; – Darrehgaz, Tandoureh national park, Babanestan, 1000 m, 10.5.1999, Hojjat & Zangoeei 32321 [FUMH]; – W Darrehgaz, Gadakanlu, 1200 m, 1.5.1988, Joharchi & Zangoeei 16330 [FUMH]; – N Neyshabur, Baghrud, 1500 m, 12.5.1991, Joharchi & Zangoeei 20095 [FUMH]; – NW Neyshabur, Sarvalayat, Chakaneh-Olia, eastern mountains, 1750 m, 13.5.1990, Joharchi & Faghinihnia 18517 [FUMH]; – Chenaran, Esjil, southern mountains, 1500 m, 4.5.1985, Joharchi 12542 [FUMH]. – NE: E Fariman, between Sefidsang and Razmgah, 1500 m, 25.4.1985, Joharchi & Safavi 12269–1 [FUMH]. – C: Kashmar, N Bahariyeh, 1350 m, Paryab & Hamdi 5021 [TARI]; – E: Khaf, Band-e Salami, 1250 m, 29.4.1989, Joharchi & Zangoeei 17137 [FUMH].

Distribution in Iran: N, W, E, C.

Valerianella platycarpa TRAUTV., *Acta Horti Petrop.* 9: 453 (1886).

Khorassan: NW: W Bojnord, between Chamanbid and Jowzak, 1300 m, 15.5.1988, Joharchi & Zangoeei 16634 [FUMH]; – N Bojnord, Naveh toward Ghatlish, km 2, 1195 m, 19.5.2009, Memariani & Zangoeei

42497 [FUMH]; – *ibid.* between Ghezelghan and Naveh, 946 m, 29.4.2008, Memariani & Zangoeei 39676 [FUMH]; – SW Bojnord, Rein, Shahneshin Mt., 1850–2010 m, 6.5.2006, Memariani & Arjmandi 37408 [FUMH]; – *ibid.* 1700 m, 20.5.2006, Memariani & Arjmandi 37606 [FUMH]; – SE Bojnord, Chenaran, Zo, 1363 m, 27.5.2008, Joharchi & Zangoeei 40399 [FUMH]. – N: SW Shirvan, Zo-Eram, 1500 m, 7.6.1998, Faghihnia & Zangoeei 31313 [FUMH]; – W Darrehgaz, Gadakanlu, 1200 m, 1.5.1988, Joharchi & Zangoeei 16380, 16381 [FUMH]; – S Darrehgaz, Gherkhghez hills, 450 m, 2.5.1988, Joharchi & Zangoeei 16482 [FUMH]; – Darrehgaz, Tandoureh national park, Babanestan, 1000 m, Hojjat & Zangoeei 32323 [FUMH].
Distribution in Iran: N, W, E, C.

Valerianella sclerocarpa FISCH. & C.A.MEY., *Ind. Sem. II Horti Petrop.* 53 (1835).

Khorassan: NW: NW Bojnord, between Kal-Imani and Tangeh-e Torkman, 900 m, 17.4.2001, Joharchi & Zangoeei 33263 [FUMH]; – *ibid.* between Eshghabad and Kal-Imani, 950 m, 17.4.2001, Joharchi & Zangoeei 33229 [FUMH]; – *ibid.* S Tangeh-e Torkman, 1100 m, 29.4.2001, Joharchi & Zangoeei 33438 [FUMH]; – *ibid.* Kalat-e Chenar toward Raz, km 14, 1446 m 17.5.2008, Joharchi & Zangoeei 40103 [FUMH]; – W Bojnord, between Darkash and Haver, 1000–1200 m, 10.5.2000, Joharchi & Zangoeei 32775 [FUMH]; – *ibid.* Badranlu pass, 1633 m, 28.5.2008, Joharchi & Zangoeei 40489 [FUMH]; – S Bojnord, Beshghardash, 1050 m 14.5.1988, Joharchi & Zangoeei 16531 [FUMH]; – SE Esfarayen, Safiabad, Ghanbarbaghi, 1700 m, 14.5.1991, Faghihnia & Zangoeei 20179 [FUMH].
Distribution in Iran: N, W, E, C.

Valerianella tuberculata BOISS., *Diagn. Pl. Or. Nov. Ser. 1, 3: 59* (1843).

Khorassan: NW: NE Bojnord, Gifan, Misino Mts., 1800–2000 m, 17.6.1991, Joharchi & Zangoeei 20808 [FUMH]. – N: Chenaran, between Ferizi and Darma, 1765 m, 1.5.2005, Emadzadeh & Memariani 36021 [FUMH]; – *ibid.* Ferizi toward Kandalan, km 3, 1832 m, 15.5.2005, Emadzadeh & Memariani 36092 [FUMH]; – E Neyshabur, Dizbad-e Olia road, 1700–1800 m, Raafeei & Zangoeei 26926 [FUMH]; – *ibid.* Kharv-e Olia, 1650 m, 19.5.1990, Joharchi & Zangoeei 18571 [FUMH]. – NE: W Mashhad, Binaloud Mts., Kordineh, 1832 m, 7.6.2005, Joharchi & Zangoeei 36535 [FUMH]; – SW Mashhad, Pivajen, Maadan, 2300 m, 15.6.2009, Joharchi & NASSEH 43063, [FUMH]; – *ibid.* 2000 m, 16.6.1993, Faghihnia & Zangoeei 23395 [FUMH]. – C: N Kashmar, between Tajrud and Kharv, 1900 m, 8.5.1995, Faghihnia & Zangoeei 25347 [FUMH]; – *ibid.* N Kashmar, 15 km toward Kashmar, 1500 m, 7.5.1990, Faghihnia & Zangoeei 18453 [FUMH]; – E Kashmar Ghala-Jough, 1300 m, 28.5.1997, Hojjat & Zangoeei 28876 [FUMH]; – NW Torbat-e Heydarieh, Kadkan Mts., 1850 m, 28.5.1989, Faghihnia & Zangoeei 17552 [FUMH]; – *ibid.* 1900 m, 12.6.1991, Faghihnia & Zangoeei 20732 [FUMH]; – Gonabad toward Ferdous, km 32, Kajabad, 1800 m, 11.5.1998, Raafeei & Zangoeei 30606 [FUMH]; – Kakhk toward Ferdous, km 26, 1900 m, 21.5.1997, Raafeei & Zangoeei 28629 [FUMH]. – E: SW Taybad, Kordian, 1500–1600 m, 1.5.1985, Ayatollahi 12501 [FUMH].

Distribution in Iran: W, S, E, C.

Valerianella uncinata (M.BIEB.) DUFR., *Hist. Valer.* 60 (1811).

Khorassan: NW: Bojnord toward Chamanbid, km 6, Heydarabad, 1200 m, 11.5.1992, Faghihnia & Zangoeei 21732 [FUMH]; – W Bojnord, Haver, 1000 m, 10.5.2000, Joharchi & Zangoeei 32788 [FUMH].
Distribution in Iran: N, E, C.

Zygophyllaceae – Ref.: EL HADIDI 1972; AKHIANI 1993.

Fagonia bruguieri DC., *Prodr.* 1: 704 (1824).

var. *bruguieri*.

Khorassan: SW: Boshruyeh, between Aliabad and Asfak, 900 m, 15.5.1975, Iranshahr s.n. [IRAN]; – NW Tabas: Tabas toward Halvan, km 60, 13.3.1988, Zangoeei 15903 [FUMH]; – N Tabas, Eshghabad toward Deh-Mohammad, km 10, 1050 m, 4.5.1992, Faghihnia & Zangoeei 21606 [FUMH]; – Tabas toward Boshruyeh, km 24, 21.4.1986, Ayatollahi & Zangoeei 13812 [FUMH]; – Boshruyeh toward Tabas, km 88, 21.4.1986, Ayatollahi & Zangoeei 13795 [FUMH]; – Tabas toward Boshruyeh, km 4, 600 m, 16.4.1981, Ghorashialhissemi 1414G [FUMH]; – SW Tabas, Mezino mine, 1100 m, 16.4.1996, Raafeei & Zangoeei 26355 [FUMH]; – *ibid.* Dasht-Gharan toward Mezino, km 32, 750 m, 16.4.1996, Raafeei & Zangoeei 26324 [FUMH]; – SE Tabas, between Parvadeh and Peykuh, 1000 m, 8.4.1997, Faghihnia & Zangoeei 28202 [FUMH]; – *ibid.* Parvadeh mine toward Tabas, km 27, 1500 m, 17.4.1995, Raafeei & Zangoeei 24880 [FUMH]; – *ibid.* Naibandan toward Tabas, Pavadeh mine bifurcation, 1200 m, 17.4.1995, Raafeei

& Zangooei 24844 [FUMH]; –ibid. Naiband toward Aliabad, km 10, 13.4.1999, Faghihnia & Zangooei 31981 [FUMH]; – ibid. km 20, 13.4.1999, Faghihnia & Zangooei 31973 [FUMH]; – Tabas toward Dayhuk, km 35, 900 m, 10.4.1984, Ayatollahi & Joharchi 10724 [FUMH]; – ibid. 950 m, 30.4.1981, ZOKAEI 702 [FUMH]; – Tabas toward Deyhuk, 15 km after Khosroabad, 650 m, 3.5.1976, Zargari 6693 [FUMH]; – ibid. Arababad toward Kharw, km 10, 1000 m, 8.4.1993, Faghihnia & Zangooei 22617 [FUMH]; – Tabas toward Kharw, km 7, 800 m, 15.4.1996, Raafeei & Zangooei 26263 [FUMH]; – S Dayhuk, Esfandiar Mts., 1500 m, 14.4.1985, Joharchi & Zangooei 11942 [FUMH]. – SE: N Nehbandan, Shousf, 1100 m, 30.4.1976, Zargari 6694 [FUMH]; – E Nehbandan, Asbest mine, 850 m, 13.4.1992, Faghihnia & Zangooei 21480 [FUMH]; – ibid. 900 m, 30.4.1991, Faghihnia & Zangooei 19823 [FUMH].

Distribution in Iran: W, S, E, C. This species is recoded from Khorassan in Flora Iranica. But the specimens (Grant 15341, Ayazi 5624–5625, Bobek 154) belong to Sistan & Baluchistan province, not to Khorassan. Now it the species is confirmed with a correct locality.

Fagonia bruguieri

var. *rechingeri* HADIDI, Candollea 27: 91 (1972).

Khorassan: SW: S Tabas, between Dig-e Rostam and Naiband, 800 m, 16.4.2002, Joharchi 34000 [FUMH].

Distribution in Iran: W, S, E, C.

Fagonia glutinosa DELILE, Fl. Egypt. Explic. Pl. 86 (1813).

Khorassan: SW: between Tabas and Naiband, 900 m, 17.4.1995, Raafeei & Zangooei 24868 [FUMH].

Distribution in Iran: W, E.

Nitraria schoberi L., Syst. Nat. ed. 10: 1004 (1759).

Khorassan: NW: W Esfarayen, between Toy and Jafarabad, 997 m, 8.10.2008, Memariani & Zangooei 41613 [FUMH]. – W: Sabzevar, Sang-Sefid, 1100 m, June 1995, Bakhshoudeh 31381 [FUMH]. – C: W Gonabad, Bajestan, Miandehi toward Marandiz, km 5, 800 m, 13.5.1997, Hojjat & Zangooei 28403 [FUMH]. – E: NE Torbat-Jam, Salehabad, N Saghar-Cheshmeh, 450 m, 15.7.2003, AJANI & Zangooei 34988 [FUMH].

Distribution in Iran: W, S, E, C.

New records for Iran with specimen/s in Khorassan

The following 22 taxa belonging to 7 families have been recorded for the flora of Iran with specimen/s from Khorassan province since the publication of Flora Iranica for the relevant family. They are noted here to give an overview of subsequent changes of knowledge of the flora of Khorassan province.

Monocotyledons

Amaryllidaceae

Allium turcomanicum REGEL, Trudy Imp. S. Peterburgsk. Bot. Sada 10: 305 (1887).

Ref.: FRITSCH & MAROOFI 2010.

Khorassan: NE: SW Sarakhs, Shorlugh, 800 m, 26.5.1977, Rechinger 55732 [W]; – Mashhad towards Salehabad, 15 km after Mashhad-Sarakhs bifurcation, 700–900 m, 26.5.1977, Rechinger 55765 [W]; – NE Mashhad, W Sanganeh, 670 m, 10.6.2009, Joharchi 42974 [FUMH].

Distribution in Iran: E.

Dicotyledons

Asteraceae

Cousinia albiflora (BORNM. & SINT.) BORNM., Beih. Bot. Centralbl. 34, 2: 285 (1916).

Ref.: MEMARIANI & JOHARCHI 2011.

Khorassan: NW: NW Bojnord, NW Gholaman, Sangsar Mt., near Turkmenistan border at opposite side of Kenekesir (Kohne-Kesir), 2.7.1985, Joharchi & Zangoeei 13288 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkmenistan & Iran.

Cousinia glochidiata KULT., Acta Univ. As.Med. Ser. 8b, Bot. 6: 3 (1929).

Ref.: MEMARIANI & JOHARCHI 2011.

Khorassan: N: N Shirvan, Sarani Mt., 2200 m, 2.7.2001, Joharchi 33836 [FUMH]; – W Darrehgaz, Alibolagh Mt., 1900 m, 26.6.2002, Joharchi & NASSEH 34305 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkmenistan.

Handelia trichophylla (SCHRENK) HEIMERL, Oesterr. Bot. Z. 71: 215 (1922).

Ref.: AMIRI & JOHARCHI 2010.

Khorassan: NE: Darrehgaz, S Zangelanlo, 879 m, 29.5.2009, Amiri 42175 [FUMH].

Distribution in Iran: E.

Brassicaceae

Alyssum anatolicum HAUSSKN. ex NYAR., Bul. Grad. & Muz. Bot. Univ. Cluj, 9: 40 (1929).

Ref.: KAVOUSI & al. 2010.

Khorassan: NW: W Bojnord, Badranlou pass, 1920 m, 12.6.1996, Raafeei & Zangoeei 27297 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkey.

Alyssum corningii Dudley, J. Arn. Arb. 45 (1): 72 (1964).

Ref.: KAVOUSI & al. 2011.

Khorassan: N: N Chenaran, Boghmech toward Hezar-Masjed summit, km 31, 2506 m, 8.5.2008, Nazari & Zangoeei 39871, 39872 [FUMH]. – NE: S Mashhad, between Moghan and Moghan cave, 2000 m, 25.5.2009, Joharchi & Zangoeei 42680, 42684 [FUMH]; – Between Mashhad and Neyshabur, Pivajen, 2100 m, 13.5.1983, Rashed & Rezaei 10244a [FUMH]; – N Mashhad, NW Mareshk, Hezar-Masjed protected area, 2500 m, 24.6.1996, Faghihnia & Zangoeei 27570 [FUMH]. – W: NW Sabzevar, between Sarough and Nazarghah Mt., 2482 m, 30.5.2009, Joharchi 42719 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkey.

Alyssum filiforme NYAR., Bul. Grad. & Muz. Bot. Univ. Cluj, 9: 35 (1929).

Ref.: KAVOUSI & al. 2010.

Khorassan: NW: SW Bojnord, Beshghardash towards Hesar-e Hosseini, km 13, 1758 m, 2.6.2008, Joharchi & Zangoeei 46675 [FUMH]; – W Bojnord, Badranlou pass, 1633 m, 28.5.2008, Joharchi & Zangoeei 40478 [FUMH]; – NE Bojnord, Gifan, Misino Mts., 1800–2000, 17.6.1991, Joharchi & Zangoeei 20825 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkey.

Alyssum lepidoto-stellatum (HAUSSKN. & BORNM.) DUDLEY, J. Arn. Arb. 45 (1): 70 (1964).

Ref.: KAVOUSI & al. 2011.

Khorassan: N: Darrehgaz, Tandoureh national park, Shekarab Mt., 2000 m, 4.6.2008, Nazari 39399 [FUMH]; – NE Chenaran, Hezar-Masjed Mt., 2000 m, 8.5.2008, Nazari 39388 [FUMH]. – NE: S Mashhad, Moghan toward Moghan cave, 2000 m, 25.5.2009, Joharchi & Zangoeei 42683 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkey.

Alyssum niveum Dudley, J. Arnold Arb. 45 (1): 78 (1964).

Ref.: KAVOUSI & al. 2011.

Khorassan: N: S Darrehgaz, Gorni toward Rishkhar, km 9, Aleza region, 2050 m, 9.6.1997, Raafeei & Zangoeei 24475 [FUMH]; – Between Ghuchan and Darrehgaz, Tivan, 2100 m, 5.6.2001, Ajani & Zangoeei 32433 [FUMH]; – N Chenaran, 5 km before Boghmech, 2008 m, 8.5.2008, Nazari & Zangoeei 39876 [FUMH]; – ibid. Boghmech toward Hezar-Masjed Mt., 10.5.2008, Nazari 39394 [FUMH]; – NE Chenaran, Boghmech toward Hezar-Masjed summit, km 31, 2506 m, 8.5.2008, NAZARI & Zangoeei 39876, 39879 [FUMH]. – NE: NW Mashhad, Hezar-Masjed summit, 3100 m, 17.6.1997, Hojjat & Zangoeei 29255 [FUMH]; – Between Mashhad and Neyshabur, Pivajen, 2100 m, 13.5.1983, Rashed & Rezaei 10244b [FUMH]; – S Mashhad, between Moghan and Moghan cave, 2000 m, 25.5.2009, Joharchi & Zangoeei 42679 [FUMH]. – C: NW Kashmar, Kalat-e Teymur Mts., 1800 m, 12.4.1995, Faghihnia & Zangoeei 24743 [FUMH]. – SW: Ferdous on the way to Gonabad, km 25, 1900 m, Faghihnia & Zangoeei 21639 [FUMH]. – SE: NE Birjand, between Marak and Sarchah bifurcation, 2100 m, 2.5.1995, Faghihnia & Zangoeei 25219 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkey.

Alyssum paphlagonicum (HAUSSKN.) DUDLEY, J. Arnold Arb. 45 (1): 71 (1964).

Ref.: KAVOUSI & al. 2011.

Khorassan: N: S Mashhad, Maj Mts., 2300 m, 16.5.2001, Joharchi 33581b [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkey.

Alyssum sulphureum DUDLEY & HUB.-MOR., J. Arnold Arb. 45 (1): 74 (1964).

Ref.: KAVOUSI & al. 2011.

Khorassan: N: N Chenaran, Boghmech toward Hezar-Masjed summit, km 31, 2506 m, 8.5.2008, NAZARI & Zangoeei 39875, 39393 [FUMH]; – ibid. after Shohaday-e Ashayer bifurcation dam, 2500 m, 8.5.2008, Nazari 39392 [FUMH]. – NE: S Mashhad, Moghan toward Moghan cave, 2000 m, 25.5.2009, Joharchi & Zangoeei 42681 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkey.

Alyssum tetrastemon BOISS., Ann. Sci. Nat. 17: 153 (1842).

Ref.: KAVOUSI & al. 2011.

Khorassan: N: Darrehgaz, Tandoureh national park, Shekarab Mt., 2000 m, 4.6.2008, Nazari 39397 [FUMH]. – NE: Kalat-e Naderi, Ortakand, Abshar-e Zu, 2000 m, 4.5.2008, Nazari 39387 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkey.

Alyssum thympos (HUB.-MOR. & REESE) DUDLEY, J. Arnold Arb. 45 (1): 71 (1964).

Ref.: KAVOUSI & al. 2011.

Khorassan: N: Chenaran, Boghmech toward Hezar-Masjed, after Shohaday-e Ashayer dam, 2200 m, 19.6.2008, Nazari 39402 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkey.

Goldbachia pendula BOTSCH., Bot. Mater. Gerb. Bot. Inst. Komarova, Akad. Nauk SSSR 22: 140 (1963).

Ref.: GHahremaninejad & JOharchi 2011.

Khorassan: C: N Kashmar, Kuhsorkh, between Tajrud and Kharw, 1900 m, 8.5.1995, Faghihnia & Zangoeei 25327c [FUMH]. – SE: NE Birjand, between Marak and bifurcation of Sarchah, 2100 m, 2.5.1995, Faghihnia & Zangoeei 25217 [FUMH].

Distribution in Iran: E.

Goldbachia verrucosa KOMAROV, Trav. Soc. Nat. Petersb. Bot. 26: 98 (1896).

Ref.: GHahremaninejad & JOharchi 2011.

Khorassan: N: S Darrehgaz, between Rishkhar and Darbandi, Kalateh-Gorni, 1800 m, 28.5.1990, Joharchi & Zangoeei 18670 [FUMH]; – NW Chenaran, Radkan, southern mountains of Merichgan, 1400 m, 12.5.1985, Ayatollahi & Zangoeei 12793 [FUMH]; – ibid. Baro Mts., 1500 m, 12.5.1985, Ayatollahi & Zangoeei 12737 [FUMH]. – NE: NW Mashhad, Talghur, 1550 m, 18.5.1985, Ayatollahi & Joharchi 13010 [FUMH]. – C: SE Torbat-e Heydariyeh, between Roshkhar and Khaf, Pir-e Yahoo, 2000 m, 30.4.1985, Ayatollahi & Zangoeei 12406 [FUMH]; – N Kashmar, Kuhsorkh, between Tajrud and Kharw, 1900 m, 8.5.1995, Faghihnia & Zangoeei 25327 b, 25338 [FUMH].

Distribution in Iran: E.

Caprifoliaceae – Ref.: WENDELBO 1965b; KHATAMSAZ 1995a.

Lonicera korolkovii STAPP, GARD. & FOR. 7: 34 (1894).

Ref.: KHATAMSAZ 1995a.

Khorassan: NW: W Bojnord, Haver, 1500 m, Borhan & Ramazani 100 [TARI]; – ibid. Zo, 1600 m, 27.6.2000 Zangoeei 32991 [FUMH]; – ibid. between Darkash and Haver, 1600 m, 2.7.2000, Faghiehnia & Zangoeei 33030 [FUMH]; – ibid. 1200 m, 1.4.2000, Joharchi & Hojjat 33161 [FUMH]; – Ashkhaneh, toward Chakhmaghlu, 1600 m, 28.6.2000, Zangoeei 33014 [FUMH].

Distribution in Iran: E, C.

Caryophyllaceae

Silene parjumanensis PODL., Mitt. Bot. Staatssamml. München 16: 533 (1980).

Ref.: EDALATIYAN & al. 2010.

Khorassan: SE: W Ghayen, Tajan, 2000 m, 21.6.2009, Joharchi & Zangoeei 43214 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Afghanistan.

Fabaceae

Astragalus auganus BUNGE, Mem. Acad. Imp. Sc. Petersb. 11 (16): 36 (1868) in clave, et l.c. 15 (1): 45 (1869).

Ref.: MAASSOUMI 2003.

Khorassan: C: NW Neyshabur, Dahan-e Heydari, 1580 m, Shad & al. 1516 [TARI].

Distribution in Iran: E. – Endemic for Iran, Afghanistan & Pakistan.

Astragalus kjurendaghi V.V.NIKITIN, Izv. Akad. Nauk Turkmensk. SSR, otd. Biol. Nauk 1: 20 (1975).

Ref.: MAASSOUMI 2003.

Khorassan: C: NW Neyshabur, Dahan-e Heydari, 1700 m, Shad & al. 1514 [TARI].

Distribution in Iran: E. – Endemic for Iran & Turkmenistan.

Astragalus kushkensis BORISS., Fl. USSR.12: 219 (1946).

Ref.: NASSEH & JOHARCHI 2009.

Khorassan: NE: N Salehabad, Zalu Mt., 1250–1300 m, Joharchi & Zangoeei 34598 [FUMH].

Distribution in Iran: E. – Endemic for Iran, Afghanistan & Turkmenistan.

Hedysarum monophyllum BORISS., Not. Syst. Leningrad 10: 81 (1947).

Ref.: AMIRABADIZADEH 2011.

Khorassan: N: Ghuchan to Darrehgaz, near Alibolagh road, 1500 m, Amirabadizadeh & Paryab 5943 [TARI]. – Chenaran, Boghmech towards Hezar Masjed Mt., before the Watershed boundary, 2840 m, Mozaffarian & al. 11833 [TARI]. – NE: 97 km NW Mashhad, between Karimabad and Hezar-Masjed, 2450 m, Joharchi & Zangoeei 15700 [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkmenistan.

Zygophyllaceae

Zygophyllum miniatum

var. *englerianum* M.POP., Bjull. Sredne Aziatsk. Gousd. Univ. 11: 121 (1925).

Ref.: AKHIANI 1993.

Khorassan: C: Torbat-e Heydarieh on the way to Mashhad, km 60, 1750–1900 m, Assadi & Mozaffarian 35830 [TARI].

Distribution in Iran: E.

Taxa new to science

The following 20 taxa from 11 genera and 5 families have been described as new since publication of the relevant Flora Iranica treatments. They are listed here to give a completed overview of subsequent changes to the flora of Khorassan. The type localities of 18 of them are located in the province, and up to now these taxa are endemic in the province.

Monocotyledons

Liliaceae

Gagea robusta ZARREI & WILKIN, Kew Bull. 65: 327–328 (2010).

Ref.: ZARREI & al. 2010.

Khorassan: NW: W Bojnord, Qorkhod protected area, 1550 m, 29.4.2010, Memariani & Arjmandi 43579 [FUMH]; – SW Bojnord, Rein, 2015 m, 21.5.2006, Memariani & Zangooei 37666 [FUMH]; – Chamanbid toward Bojnord, km 15, 1300 m, 10.4.2007, Zarrei 1172 [K, SUTH]. – N: NW Shirvan, Lojali toward Kouseh, 4 km before Kouseh, 1725 m, 10.4.2007, ZARREI 1179 [K, SUTH]; – ibid. 5 km after Lojali toward Kouseh, 1720 m, 10.4.2007, Zarrei 1180 [K, SUTH]; – N Ghuchan, 10 km after Alamli pass, 1590 m, 11.4.2007, Zarrei 1159 [K, SUTH]; – ibid. Bajgiran bifurcation, 1640 m, 11.4.2007, Zarrei 1157 [K, SUTH]; – Ghuchan toward Darrehgaz, Tivan pass, 2000–2160 m, 11.4.2007, Zarrei 1155 [K, SUTH].

Distribution in Iran: N, E. – Endemic for Iran & Afghanistan.

Dicotyledons

Asteraceae

Chondrilla juncea

var. longifolia NASSEH, Iran. Journ. Bot. 16: 92 (2010).

Ref.: NASSEH et al. 2010.

Khorassan: N: S Chenaran, between Ab-ghad and Fereizi, 1500 m, 12.8.1985, Ayatollahi & Joharchi 13532 [holotype FUMH].

Distribution in Iran: E. – Endemic to Iran.

Cousinia attariae ASSADI & JOHARCHI, Iran. Journ. Bot. 16 (2): 192–195 (2010).

Ref.: ASSADI 2010.

Khorassan: NW: Esfarayen, Shahjahan Mt. area, Sarcheshmeh village, 1700 m, Mozaffarian 48040 [holotype TARI]. – N: SW Ghuchan, Khosraviyeh (Kharveh), 1500 m, 29.8.1985, Joharchi & Zangooei 13608 [FUMH]; – ibid. between Bash-Mahalleh and Agh-Cheshmeh, 1950 m, 28.8.1985, Ayatollahi & Joharchi 13583 [FUMH].

Distribution in Iran: E. – Endemic to Iran.

Cousinia deserti

var. longispinosa DJAVADI & ATTAR, Feddes Repert. 120 (1–2): 33 (2009).

Ref.: DJAVADI & al. 2009.

Khorassan: NE: Mashhad, Robat Sefid, 1750 m, 4.6.2006, Djavadi, Eskandari & Torabi 43535 [holotype IRAN].

Distribution in Iran: E. – Endemic to Iran.

Cousinia farimanensis ASSADI, Iran. J. Bot. 17 (1): 6–8 (2011).

Ref.: ASSADI 2011.

Khorassan: C: 30 km N of Torbat-e Heydarieh, 1900 m, 15.7.1976, Assadi & Maassoumi 21318 [holotype TARI].

Distribution in Iran: E. – Endemic to Iran.

Cousinia khorasanica DJAVADI & ATTAR, Rostaniha 7 (suppl. 2): 170–173 (2006).

Ref.: DJAVADI & al. 2006.

Khorassan: N: Darrehgaz towards Emamgholi, Rahman-Gholibaig, 1050 m, 8.6.2006, Djavadi, Eskandari & Torabi 43544 [holotype IRAN].

Distribution in Iran: E. – Endemic to Iran.

Cousinia mehreganii ASSADI, Iran. J. Bot. 17 (1): 8–9 (2011).

Ref.: ASSADI 2011.

Iran: Khorassan: NW: Esfarayen, Shahjahan mountain region, east of Danj village, 1400–1800 m, 28.6.1984, Mozaffarian 48663 [TARI]. – N: Shirvan to Bulghan and Kuh-e Shahjahan, 1550–2200 m, 12.8.2004, Mozaffarian 87077 [holotype TARI].

Distribution in Iran: E. – Endemic to Iran.

Cousinia mozdouranensis DJAVADI & ATTAR, Feddes Repert. 116 (5–6): 287 (2005).

Ref.: DJAVADI & ATTAR 2005.

Khorassan: NE: Mashhad towards Sarakhs, Mozdouran pass, 900–1000 m, 1.6.2001, Djavadi 31208 [holotype IRAN].

Distribution in Iran: E. – Endemic to Iran.

Cousinia taybadensis DJAVADI & ATTAR, Rostaniha 7 (suppl. 2): 168–170 (2006).

Ref.: DJAVADI & al. 2006.

Khorassan: E: Khaf towards Taybad, 45 km to Taybad, 1400 m, 3.6.2006, Djavadi, Eskandari & Torabi 43543 [holotype IRAN].

Distribution in Iran: E. – Endemic to Iran.

Echinops procerus MOZAFFARIAN, Bot. Journ. Linn. Soc. 140: 183 (2002).

Ref.: MOZAFFARIAN 2002.

Khorassan: N: Shirvan on the way to Namanlu, Palkanlu, 1620 m, Mozaffarian 79762 [Holotype TARI]; – ibid. Palkanlu-e Sofla, 1550 m, Mozaffarian & Maassoumi 79127 [TARI]; – N Neyshabur, km 20 Mirabad, 1800–2000 m, Assadi & Maassoumi 21246 [TARI].

Distribution in Iran: E. – Endemic to Iran.

Heteroderis pusilla

var. *khorasanica* NASSEH, Iran. J. Bot. 16 (1): 25 (2010).

Ref.: NASSEH et al. 2010.

Khorassan: W: N Sabzevar, 3 km on the way to Esfarayen, 1000 m, 29.5.1984, Joharchi & Zangoeei 11323 [holotype FUMH, isotype TARI]; – E Sabzevar, 1400–1450 m, 27.5.1984, Joharchi & Zangoeei 11210 [FUMH]. – C: SW Torbat-e Heydarieh, Eskandarabad, 1050 m, 4.5.1991, Joharchi & Zangoeei 19957 [FUMH]. – SE: Birjand on the way to Khosf, km 10, 1300 m, 20.4.1999, Faghihnia & Zangoeei 32079 [FUMH]; – N Nehbandan, 5 km of S Khansharaf, 1250 m, 25.4.1984, Joharchi & Zangoeei 10843 [FUMH].

Distribution in Iran: E. – Endemic to Iran.

Brassicaceae

Aethionema sabzevaricum KHOSRAVI & JOHARCHI, Iran. J. Bot. 17 (1): 119–124 (2011).

Ref.: KHOSRAVI & JOHARCHI 2011.

Khorassan: W: NW Sabzevar, Joqatai Mts., Kotal Khakestari, 1784 m, 29.5.2009, Joharchi 43831 [Holotype FUMH].

Distribution in Iran: E. – Endemic to Iran.

Neotorularia dentata

var. *grandiflora* KHODASHENAS & JOHARCHI, Iran. Journ., Bot. 16 (2): 226 (2010).

Ref.: KHODASHENAS & al. 2010.

Khorassan: NE: NE Torbat-e Jam, East of Salehabad, between Salehabad and Garmab-e Olia, 540 m, 29.4.2009, Joharchi & Memariani 42008 [Holotype, FUMH, Isotype TARI]; – Sarakhs, after Mazdavad

(Mozdouran) pistachio forest, 28.4.1986, Ayatollahi & Zangooei 14004 [FUMH]; – NE Mashhad, between Chahchahe and Kuh-e Khoaje, 604 m, 28.4.2010, Joharchi 43474 [FUMH]. – E: Torbat-e Jam toward Taybad, km 35, 1050 m, 18.4.1990, Faghihnia & Zangooei 18219 [FUMH].

Distribution in Iran: E. – Endemic to Iran.

Caryophyllaceae

Silene ferdowsii JOHARCHI, NEJATI & F. GHAHREM., *Ann. Bot. Fennici* 48: 155–158 (2011).
Ref.: EDALATIYAN & al. 2011.

Khorassan: N: SW Darrehgaz, w Kapkan, 1550 m, 30.4.1988, Joharchi & Zangooei 16294 [FUMH, FAR]; – W Darrehgaz, Zinadanlo, 1000 m, 1.5.1988, Joharchi & Zangooei 16413 [FUMH, FAR]; – NE: Sarakhs, Shoorlogh, 700 m, 27.4.1992, Faghihnia & Zangooei 21552 [FUMH, FAR]; – Sarakhs-Mashhad road, 20 km, SW of Shoorlogh village, 28.4.1994, Faghihnia & Zangooei 23846 [holotype FUMH, isotypes FUMH, FAR].

Distribution in Iran: E. – Endemic to Iran.

Silene renzii

var. khorassanica NEJATI, JOHARCHI & F. GHAHREM., *Rostaniha* 11 (2): 147–148 (2010).
Ref.: EDALATIYAN & al. 2010.

Khorassan: SE: W Ghayen, Tajan, 2000 m, 21.6.2009, Joharchi & Zangooei 43215 [Holotype FUMH, Isotype FAR]; – *ibid.* 4.5.2010, Joharchi & Edalatiyan 43472 [FUMH, FAR].

Distribution in Iran: E. – Endemic to Iran.

Fabaceae

Astragalus khonikensis NASSEH & JOHARCHI, *Iran. J. Bot.* 16 (2): 223–224 (2010).

Ref.: NASSEH & al. 2010.

Khorassan: SE: Nehbandan, 1 km of Khonik-e Paen toward Sefidabeh, 1350 m, 24.4.1984, Joharchi & Zangooei 10914 [holotype FUMH, isotype TARI].

Distribution in Iran: E. – Endemic to Iran.

Astragalus salehabadensis RANJBAR & ZARIN, *Ann. Bot. Fennici* 48:65–66 (2011).

Ref.: RANJBAR & al. 2011

Khorassan: NE: N Torbat-e Jam, Salehabad, beginning road of Mosaabad, 23.5.1984, Ayatollahi & Mahvan 11189 [holotype FUMH].

Distribution in Iran: E. – Endemic to Iran.

Astragalus qohestanicus NASSEH & MAASSOUMI, *Iran. J. Bot.* 16 (2): 221–223 (2010).

Ref.: NASSEH & al. 2010.

Khorassan: SE: Qayen, Zirkouh, between Ahangaran-e bala & Ahangaran-e Paen, 1050 m, 7.6.1993, Joharchi & Zangooei 23289 [holotype FUMH].

Distribution in Iran: E. – Endemic to Iran.

Hedysarum neyshaboricum RANJBAR, *Novon*, 20 (3): 331–333 (2010).

Ref.: RANJBAR 2010.

Khorassan: N: NW Neyshabur, around Abshar, Bar village, 1850–1900 m, 20.5.1996, Raafeei & Zangooei 27013 [holotype FUMH, Isotype BASU].

Distribution in Iran: E. – Endemic to Iran.

Onobrychis kuchanensis RANJBAR, HAJMORADI & KARAMIAN, *Novon*, 19 (2): 215–217 (2009).

Ref.: RANJBAR & al. 2009.

Khorassan: N: Sabzevar toward Ghuchan, 97 km after Sabzevar, 1492 m, 5.6.2007, RANJBAR & HAJMORADI 12899 [holotype BASU, isotypes MO, TARI].

Distribution in Iran: E. – Endemic to Iran.

Additional note

The following taxon has got a new status.

Fabaceae

Onobrychis meshhedensis (SIRJ. & RECH.f.) RANJBAR, NOVON, 19 (2): 217–218 (2009)

≡ *Onobrychis amoena* M.POP. & VVED subsp. *meshhedensis* SIRJ. & RECH.f.

Ref.: RANJBAR & al. 2009.

Khorassan: N: Sabzevar on the way to Ghuchan, 97 km before Sabzevar, Ranjbar & Hajmoradi [13642]. – NE: Between Fariman and Torbat-e Jam. Bardu forest, Koelz 16760 [W]. – W: N Sabzevar, 20 km, Joghatay Mts., Rechinger 53672 [W]; –ibid. Afchang, Ranjbar & Hajmoradi 13632 [BASU]; –Between Sabzevar and Esfarayen, Ranjbar & Hajmoradi 13641 [BASU]. – C: Torbat-e Heydarieh, Rudmajan, Ayatollahi & Zangooei 14594 [FUMH]; –ibid. Faghiniha & Zangooei 19059 [FUMH]; – NW Torbat-e Heydarieh, Yarfazli, Faghiniha & Zangooei 22286 [FUMH]; – Between Mashhad and Torbat-e Heydarieh, Robat-Sefid, 10.7.1937, Rechinger 1575 [Holotype, W], Renz & Runemark 55964 [W], Rechinger 1536, 4409, 55873 [W].

Distribution in Iran: E, C. – Endemic to Iran.

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