

PLANTS OF ARASBARAN PROTECTED AREA, NW. IRAN (PART I)

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Arasbaran Protected Area has been studied floristically. A brief information on vegetation and plant geographical concepts of the area are presented. The plants of the area which is based on collecting ca. 2500 specimens are listed, but this part covers *Pteridophyta* and part of *Spermatophyta* including *Gymospermae* and the Dicotyledones to *Labiatae* in alphabetical order. Altogether 781 species are recognized from the area. 53 species are new records to Iran or recently have been recorded from Iran, based on this collection. For every species exact collecting places, altitudes, collectors and herbarium numbers are cited. Taxonomic discussions are added where necessary. *Nepeta strictifolia* is excluded from the synonym of *N. betonicifolia*, but designated as a synonym of *N. speciosa*. *Ranunculus sabalanicus* is treated as a synonym of *R. grandiflorus*.

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گیاهان منطقه حفاظت شده ارسباران ، شمال غربی ایران (قسمت اول)

از: مصطفی اسدی

منطقه حفاظت شده ارسباران مورد مطالعه فلورستیک قرار گرفته است . اطلاعاتی در خصوص پوشش گیاهی و مسایل جغرافیای گیاهی منطقه ارائه می‌گردد . لیست گونه‌های گیاهی منطقه بر اساس جمع‌آوری حدود ۲۵۰۰ نمونه تهیه شده ولی این قسمت شامل نهانزادان آوندی ، بازدانگان و گیاهان دو لپه تا خانواده *Labiatae* است که به ترتیب حروف الفبا نوشته شده‌اند . مجموعاً " تعداد ۷۸۱ گونه از منطقه شناخته می‌شود که از این تعداد ۵۳ گونه آن برای اولین بار از ایران گزارش داده می‌شود و یا بر اساس این جمع‌آوری اخیراً از ایران گزارش شده است . برای هرگونه محل‌های دقیق جمع‌آوری ، ارتفاع محل ، نام جمع‌آوری کنندگان و شماره هرباریوم نوشته می‌شود . مشکلات و مسایل رده‌بندی در موارد ضروری مورد بحث قرار گرفته است .

گونه *Nepeta strictifolia* که قبلاً سینونیم گونه *N. betonicifolia* قرار داده شده بود ، در این نوشته سینونیم گونه *N. speciosa* گذاشته می‌شود . گونه *Ranunculus sabalanicus* سینونیم گونه *R. grandiflorus* گذاشته می‌شود .

INTRODUCTION

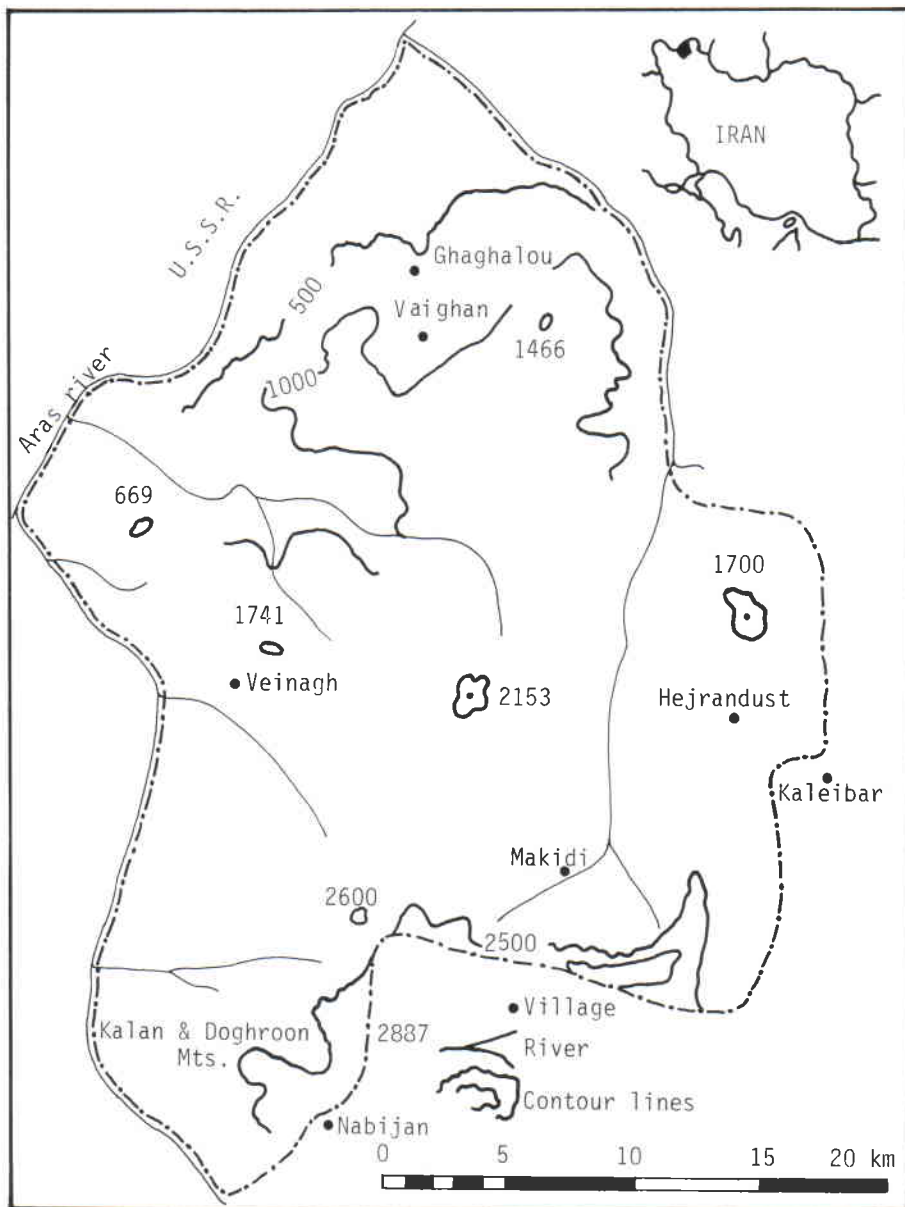
The Arasbaran Protected Area is situated far NW. Iran in neighbouring Caucasia close to the Russian frontier. The area covers an area of 72465 hectares with a circumference of 134 km (Map 1.). The altitude varies from 450 m in the northern part to 2841 m which is the highest elevation in southern part of the area, therefore it has generally a north-face slope. Climatologically the area is unknown, but the annual rainfall should be around 450–500 mm with winter snow which remains unmelted to May or June.

Due to the importance of the area in having a rich flora and fauna, especially presence of rare species, the Department of the Environment of Iran decided in 1971 to declare the area conserved. Later some parts designated as wildlife refuges, which means no human activities should be done.

The floristic knowledge in the area has so far been little and as these informations are the base for other investigations in a conserved area, this area was choosed to be studied floristically. In the list of species altogether 781 species have been recognized which is based on collecting 2500 herbarium specimens. This part covers dicotyledones

to *Labiatae* in alphabetical order. Following 53 species are reported for the first time from Iran or recently have been recorded by the author (Assadi 1983) or others based on this collection, few of which only known from Iran in geographical distribution of the species in Davis Flora of Turkey:

- Aconitum pubiceps*
- Agropyron caninum*
- Alchemilla sericata*
- Anemone albana*
- Anthoxanthum odoratum*
- Asperula molluginoides*
- Astragalus maximus*
- *rostratus*
- Bromus adjaricus*
- Campanula aucheri*
- Carex capillaris*
- *hirta*
- *hordeistichos*
- *leporina*
- *panicea*
- Centaurea macrocephala*
- Cerastium purpurascens*
- *szovitsii*
- Cotoneaster integerrimus*
- *melanocarpus*
- Echium russicum*
- Erysimum strictisiliquum*
- Euphorbia seguieriana* subsp. *seguieriana*
- Fragaria viridis*
- Galium atropatanum*



Map 1. Map of Arasbaran Protected Area.

– *tenuissimum* subsp. *tenuissimum*

Gaudinopsis macra

Geranium pratense? subsp. *finitinum*

Hablitzia tamnoides

Helictotrichon armeniacum

Hieracium pilosella

Lepidium campestre

Melica picta

Menyanthes trifoliata

Milium effusum

Nepeta zangezura

Papaver bipinnatum

– *curviscapum*

Poa compressa

Polygonum alpinum

Ranunculus oreophilus

Rosularia pilosa

Rubus saxatilis

Salvia fominii

Scabiosa sulphurea

Scorzonera cf. *lachnostegia*

Sedum subulatum

Silene multifida

– *vulgaris*

Spiraea hypericifolia

Stachys atherocalyx

Tulipa schrenkii

Verbascum pyramidatum

In listing taxa all collections for each species are recorded, W. & A. (Wendelbo & Assadi), A. & M. (Assadi & Maassoumi), R. & A. (Runemark & Assadi), A. & V. (Assadi & Vosoughi) and A. & S. (Assadi

& Sardabi) are contractions used in locality list.

Herbarium materials of all species mentioned in the text are preserved at TARI.

NOTES ON ANIMAL WILDLIFE

I am not going to explain animal wildlife in detail, but a brief informations on very important animals are given.

Caucasian Black Grouse (*Lyrurus mlokosiewiczi*) which is a rare bird in Iran occurs in the area. This species is living in grassland slopes above the forest in the summer and immigrate to the lower altitudes in the winter.

Some more important birds of the area are: Black Partridge (*Francolinus francolinus*), Common Partridge (*Peridix peridix*), Chukar Partridge (*Alestaris chukar*), Caspian Snowcock (*Tetraogallus caspius*), and Pheasant (*Phasianus colchicus*).

The most important mammals occurring in the area are: Persian Ibex (*Capra aegagrus*), Wild Boar (*Sus scrofa*), the Brown Bear (*Ursus arctos*), the Leopard (*Panthera pardus*) and the jungle Cat (*Felis chaus*).

NOTES ON THE VEGETATION

The vegetation of the area is diverse. In

higher altitudes at southern part of the area from ca. 2100–2800 m high-grown meadows are common physiognomic feature, some of the most important elements of this part are:

Poa supina, *Campanula stevenii*, *Erigeron caucasicus*, *Poa pratensis*, *Agropyron intermedium*, *Festuca sulcata*, *Alopecurus textilis*, *Sesleria phleoides*, *Myosotis lithospermifolia*, *Ranunculus caucasicus*, *R. oreophilus*, *Pedicularis sibthorpii*, *Androsace armeniaca*, *Scabiosa caucasica*, *S. sulphurea* and *Bromus adjaricus*.

Among outcrop rocks following species are more frequent:

Papaver orientale, *Androsace vulgaris*, *Minuartia recurva*, *Onobrychis cornuta*, *Cotoneaster integerrimus*.

In brooklet-sides *Anthriscus nemorosa*, *Carex panicea*, *Dactylis glomerata*, *Epilobium tetragonum*, *Doronicum macrophyllum*, *Geranium pratense*, *Aconitum pubiceps*, *Primula auriculata*, *Carex atrata*, *C. spicata*, *C. vulpina*, *Mentha longifolia*, *Catabrosa capusii* *Glyceria arundinaceae*, *Calamagrostis epigejos* and *Deschampsia caespitosa* are the important components.

At an altitude below 2000 m the area is usually covered by forests or shrublands. Between 1500–2000 m usually *Quercus macranthera* predominates,

some of the other components are: *Acer campestre*, *Acer hyrcanum*, *Pyrus syriaca*, *Prunus spinosa*, *Malus orientalis*, *Viburnum lantana*, *Bromus benekenii*, *Astragalus glycyphyllos*, *Sorbus boissieri*, *Ribes biebersteinii*, *R. orientalis*, *Dryopteris caucasica*, *Cerasus avium*, *Sorbus graeca* (in patches at some localities), *Fraxinus excelsior* subsp. *rotundifolia*, *Sanicula europaea*, *Carpinus betulus* (in some places predominates and making \pm pure stands) and *Quercus petraea* subsp. *iberica*.

Quercus petraea subsp. *iberica* in about 1600 m downwards gradually appears and at lower altitudes between 1000–1500 m is usually dominant component of the forests. Here *Quercus macranthera* gradually disappears. Moreover in altitudes below the 1200 m and as low as 500 m mixture of following species are components of shrublands which are usual feature of this part: *Cornus australis*, *Cotinus coggyria*, *Rhamnus pallasii*, *Vitis sylvestris* (in valley), *Spirea crenata*, *Amygdalus fenzliana*, *Lonicera iberica*, *Ficus carica*, *Jasminum fruticans*, *Colutea cilicica*, *Celtis caucasica*, *Dictamnus albus*, *Cousinia gigantholepis*, *Sideritis montana*, *Teucrium orientale*, *T. polium*, *Stipa arabica*, *Hirschfeldia incana* (very frequent in flat places), *Aegilops triun-*

cinalis, *Achillea biebersteinii* and *A. nobilis*.

However some also occur in high-grown meadows at an altitudes above 2100 m, very few in lowerpart of the area below 1200 m.

PHYTOGEOGRAPHICAL EVIDENCES

The vegetation of the area has been influenced by the elements of the three different phytogeographical regions, including Euro-Siberian, Irano-Turanian and Mediterranean, therefore as it is supposed rather high proportions of bi-, tri-or pluriregional elements occur in the area. In table 1 number and proportions of the different regional elements in the area are shown.

Euro-Siberian

Elements of the Euro-Siberian region usually occur in forests of the area between the altitudes 1200–2100 m.

Euro-Siberian elements are either widespread or confined to the infra-regional divisions including Euxinians and Hyrcano-Euxinians. They are widespread when they have a distribution from Europe through N. Turkey and (or) Caucasia to NW. & N. Iran. Euxinian elements are the easternmost representatives of this infraregional division, whereas Hyrcano-Euxinians are distributed to northern Iran as well. Very few true hyrcanians occur in the area, *Digitalis nervosa*, *Verbascum gossypinum*, *Pyrus hyrcana*, and *Hesperis hyrcana* are probable representatives.

Following species are some of the

Table 1. proportions of different phytochorian elements in Arasbaran area.

Phytochoria	no. species	percent
Euro-Siberian:		
widespread Eu.-Sib.	132	16.9
Hyrcano-Euxine	42	5.4
Euxine	34	4.3
Irano-Turanian	181	23.2
Mediterranean	36	4.6
bi - tri - or pluriregions	356	45.6

widespread Euro-Siberians occur in the area:

Acer campestre, *Echium russicum*, *Campanula glomerata*, *Viburnum lantana*, *Cerastium dahuricum*, *Evonymus latifolius*, *Eupatorium cannabinum*, *Hieracium pilosella*, *Senecio othonae*, *Corylus avellana*, *Carpinus betulus*, *Lepidium campestre*, *Gentiana cruciata*, *Stachys sylvatica*, *Astragalus glycyphyllos*, *Ligustrum vulgare*, *Cerasus avium*, *Prunus spinosa*, *Sorbus torminalis*, *Galium odoratum*, *Dictamnus albus*, *Ulmus glabra*, *Brachypodium sylvaticum* and *Bromus ramosus*.

Some of the Euxinian representatives are:

Symphyantra armena, *Centaurea macrocephala*, *Gentiana gelida*, *Gentianella caucasica*, *Betonica grandiflora* and *Crocus biflorus*.

Hyrcano-Euxinian representatives are:

Acer hyrcanum, *Lonicera caucasica*, *Lonicera iberica*, *Quercus macranthera*, *Q. petraea* subsp. *iberica*, *Ribes biebersteinii*, *Lathyrus roseus*, *Fraxinus excelsa* subsp. *coriariifolia* and *Valeriana leucophaea*.

Irano-Turanian

Elements belong to this region are found in higher altitudes above 2100 m and

lower altitudes below 1200 m. However they are not absent between 1200 m and 2100 m. The distribution of these elements in Iran extends along the Alborz mountain in N. Iran and Zagros mountain in W. Iran. Some of the Irano-Turanian representatives are:

Pistacia atlantica, *Scariola orientalis*, *Onobrychis bungei*, *O. cornuta*, *Papaver persicum*, *P. fugax*, *Acantholimon hohenackeri*, *Atraphaxis spinosa*, *Delphinium tuberosum*, *Rhamnus pallasii*, *Cerasus microcarpa*, *Hippomarathrum microcarpum* and *Stipa arabica*.

Mediterranean

Elements belong to this region are usually found in lower altitudes below 1000 m. They are usually E. Med. which are extended to N. Iran. Some of the representatives are:

Cheilanthes marantae, *Cotinus coggyria*, *Rhus coriaria*, *Fumana procumbens*, *F. arabica*, *Silybum marianum*, *Trigonella monspeliaca*, *Linum nodiflorum*, *Jasminum fruticans*, *Muscari comosum*, *Orchis mascula*, *O. simia* and *Juniperus foetidissima*.

Bi-tri- or pluri-regionals

Plants belong to this group are mostly bi-

or triregionals. Among them Mediterano-Irano-Turanian, Euro-Sib.-Irano-Turanian and Euro-Sib-Mediterrano-Irano-Turanian are rather frequent.

They usually have a distribution from C. and (or) S. Europe through Turkey and Caucasia to Iran. However some pluri-regionals including Boreals (subkingdom) do occur in the area.

LIST OF SPECIES

PTERIDOPHYTA

EQUISETALES

Equisetaceae

Equisetum arvense L.— Between Doghroon mountain and Makidi, 1800 m, R. & A. 22025; between Makidi and Kharil, 1700 m, A. & V. 25026; SE. of Makidi, 1500 m, R. & A. 22075; between Veinagh and Vaighan, 1000–1400 m, A. & V. 24748; between Kharil and Makidi, 1900 m, A. & V. 24958 and A. & V. 24895.

Along the streams or brooklets.

Equisetum palustre L.— W. of Makidi, 1600 m, A. & M. 20237.

In shallow water.

Equisetum ramosissimum Desf.— Doghroon mountain, 2200–2400 m, R. & A.

21952.

In a wet meadow.

FILICIALES

Asplenium adiantum-nigrum L.— Between Makidi and Veinagh, 1000–1700 m, W. & A. 17022.

Asplenium septentrionale (L.) Hoffm.— Between Doghroon mountain and Saigram-Dagh, 2500–2700 m, A. & S. 24209; between Kharil and Makidi, ca. 2000 m, A. & V. 24875.

In crevices of rocks.

Asplenium trichomanes L.— Saigram-Dagh mountain, 1300 m, A. & S. 24244; Vaighan to Kharil, 1500 m, A. & V. 24704.

On rocks.

Ceterach officinarum DC.—Tolua-Ali, 650 m, A. & V. 24950.

Crevice of rocks.

Cheilanthes marantae (L.) Domin—Tolua-Ali, 650 m, A. & V. 24941; between Makidi and Veinagh, 1000–1700, W. & A. 17018.

Cheilanthes persica (Bory) Kuhn—Between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20510.

Cystopteris fragilis (L.) Bernh.— Between Vaighan and Kharil, 1500 m, A. & V. 24824; Doghroon and Kalan mountains, 2300–2800 m, A. & S.

24148 and A. & S. 24065; between Hejrاندust and Makidi, 1400–1750 m, A. & M. 20189; between Makidi and Veinagh, 1000–1700 m, W. & A. 17081. *Dryopteris caucasica* (A. B.) Froser-Jenkins & Carley—W. of Makidi, 1500 m, A. & M. 20204; forest NW. of Doghroon mountain, 2100 m, R. & A. 21980; between Vaighan and Kharil, 1500 m, A. & V. 24773; Saigram-Dagh mountain, 2300 m, A. & S. 24288; Doghroon and Kalan mountains, 2300 m, A. & S. 24143; between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24355; between Makidi & Kaleibar, ca. 1700 m, A. & V. 25024; Savabi 233 and 234.

In *Quercus* forest.

Polypodium vulgare L.— Saigram-Dagh mountain, 1300 m, A. & S. 24236; between Makidi & Kaleibar, ca. 1700 m, A. & V. 25002; between Kharil and Makidi, 2100 m, A. & V. 24971; SE. of Makidi, 1600 m, R. & A. 22096; between Hejrاندust and Makidi, 1400–1750 m, A. & M. 20170.

In *Quercus* forest.

SPERMATOPHYTA

GYMNOSPERMAE

Cupressaceae

Juniperus communis L. subsp. *communis*-

Between Hejrاندust and Makidi, 1400–1750 m, A. & M. 20132; Between Doghroon and Saigram-Dagh mountains, 2500–2700 m, A. & S. 24211; between Makidi and Veinagh, 1000–1700 m, W. & A. 17073; between Tolua-Ali and Veingagh, ca. 1000 m, A. & V. 24602.

Frequent in open patches of forest and grassland slopes.

Juniperus excelsa M. B.— NW. of Veinagh, 1300–1400 m, in forest, A. & V. 24667.

Juniperus foetidissima Willd.— Between Makidi and Veinagh, 1000–1700 m, W. & A. 17035; between Vaighan and Veinagh, A. & M. 20431.

A shrub or tree scattered in medium altitudes.

Ephedraceae

Ephedra procera Fisch. & C. A. Mey.— Doghroon mountain, 2500–2800 m, grasslands in top area, A. & S. 23992.

Taxaceae

Taxus baccata L.

No herbarium specimen was collected by the author, but it occurs in the area.

SPERMATOPHYTA

ANGIOSPERMAE

DICOTYLEDONES

Aceraceae

Acer campestre L.— Between Kaleibar and Makidi, 1300–1700 m, W. & A. 16957, A. & M. 20151 and A. & M. 20156; forest NW. of Doghroon mountain, 2100 m, R. & A. 21966; NW. of Veinagh, 1300–1400 m, A. & V. 24675; between Vaighan and Kharil 1500 m, A. & V. 24829; between Tolua-Ali and Veinagh, 1000–1200 m, between Makidi and Kaleibar, ca. 1700 m, A. & V. 24988; between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24387.

A frequent component of the forests in the different parts of the area.

Acer hyrcanum Fisch. & C. A. Mey.— Forest NW. of Doghroon mountain, 2100 m, R. & A. 21968.

Rarely seen in the forests of high mountains.

Acer monspessulanum L. subsp. *ibericum* (M. B.) Yaltirik—Between Vaighan and Veinagh, ca. 1000 m, A. & M. 20446; between Kaleibar and Makidi, 1300–1700 m, W. & A. 16990.

Seen in the forests of lower altitudes.

Anacardiaceae

Continus coggyria Scop.— Between Makidi and Kaleibar, ca. 1700 m, A. & V. 25011; between Talua-Ali and Veinagh, 900 m, A. & V. 24578; below Veinagh, 500–900 m, W. & A. 17084; between Vaighan and Veinagh, ca. 1000 m, A. & M. 20430; 1000 m, Savabi & Raofi s. n.

A shrub or small tree which sometimes is seen in scrub forests of lower altitudes.

Pistacia atlantica Desf. subsp. *mutica* (Fisch. & C. A. Mey.) Rech. f.— Tolua-Ali, 650 m, A. & V. 24951.

Rarely seen in lower altitudes.

Rhus coriaria L.— Between Veinagh and Ghaghalou, 1000 m, A. & M. 20493.

Rarely seen in open places of lower altitudes.

Apocynaceae

Vinca herbacea Waldst & Kit. subsp. *herbaceae* —Between Kharil and Makidi, ca. 2400 m, on meadows, A. & V. 24873; W. of Makidi, 2400 m, A. & M. 20239.

Asclepiadaceae

Periploca graeca L.— Between Vaighan and Veinagh, ca. 1000 m, A. & M. 20422 and A. & V. 24698.

A climber ca. 3 m.

Vincetoxicum rehmanii Boiss.— Between Hejrandust and Makidi, 1400—1750 m, A. & M. 20149.

Previously only known from the Caucasus but later according to the above mentioned specimen recorded by Assadi (1983) from Iran.

Except the flower colour which is yellowish-green in this species nearly all other characters are similar to that of *V. scandens* Sommier & Levier with blackish-purple flowers.

Vincetoxicum scandens Sommier & Levier—Between Hejrandust and Makidi, 1400—1750 m, A. & M. 20144; Vaighan to Kharil, ca. 1500 m, A. & V. 24787; between Makidi and Veinagh, 1000—1700 m, W. & A. 17020; SE. of Makidi, R. & A. 22093; NW. of Veinagh, 1300—1400 m, A. & V. 24654.

Frequently seen in the forests.

Flower colour varies from blackish-purple to dark or light brown in the area. Considering variation colour from blackish-purple to the different shades of brown in this species and finally yellow in *V. rehmanii* and no other true differences between the two species, it seems reducing *V. scandens* to the varietal rank of the other species is more practical.

Berberidaceae

Berberis integerrima Bge.— East of Vaighan, 1200—1500 m, A. & M. 20306; SE. of Makidi, 1600 m, R. & A. 22077.

Berberis vulgaris L.— Between Kaleibar and Makidi, 1300—1750 m, A. & M. 20157, A. & M. 20080 and W. & A. 16958; between Vaighan and Kharil, 1500 m, A. & V. 24860; between Tolua-Ali and Veinagh, 1000—1200 m, A. & V. 24644.

Intermediates between this and the preceding species occur in the area (possibly hybrids between the two species).

Boraginaceae

Anchusa italica Retz —E. of Vaighan, 1200—1500 m, A. & M. 20322; between Doghroon mountain and Saigram-Dagh, 2500—2700 m, A. & S. 24196; between Vaighan and Kharil, ca. 1500 m, A. & V. 24808; Savabi s.n.

Cerithe minor L.— Between Tolua-Ali and Veinagh, 1000—1200 m, A. & V. 24631; between Kaleibar and Hejrandust, 1350—1700 m, A. & M. 20084.

Ocasionally seen in scrub forests. *Cynoglossum creticum* Miller—Mountains S. of Vaighan, 1200—1500 m, A. & M. 20390; NW. of Veinagh, 1300—1400 m, A. & V. 24676.

In scrub forests.

Echium italicum L.— E. of Vaighan, 1200–1500 m, A. & M. 20323.

Echium italicum L. var. *biebersteinii* Lac.— Makidi, 1400 m, R. & A. 22057.

Echium russicum J. F. Gmelin— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20049.

New to Iran and Flora Iranica area. The nearest locality to the Iranian gathering is in the Caucasia.

An Eur.-Sib. element distributes from C. Europe to Caucasia, Turkey and N. W. Iran.

Heliotropium ellipticum Ledeb.— Between Veinagh and Ghaghalou, 500–800 m, A. & M. 20543.

Lappula barbata (M. B.) Gurke—Tolua-Ali, 650 m, A. & V. 24943; mountains S. of Vaighan, 1200–1500 m, A. & M. 20342; Kalan and Doghroon mountains, 2400–2700 m, A. & S. 24314; between Veinagh and Vaighan, 1000–1400 m, A. & V. 24707.

Lithospermum purpureo-caeruleum L.— Mountains S. of Vaighan, 1200–1500 m, A. & M. 20389.

An Eur.-Sib. element confined to mixed *Quercus* forests in the area.

Lithospermum sibthorpiianum Griseb.— Between Veinagh and Ghaghalou, 1000 m, A. & M. 20518; between Kaleibar and Hejrandust, 1350–1700 m, A. & M.

20024.

On rocky slopes, sometimes has been mentioned as a synonym of *L. arvense* L.

Myosotis caespitosa C. F. Schultz— Makidi, in a wet place, 1400 m, R. & A. 22062.

Myosotis lithospermifolia (Willd.) Hornem.— Doghroon mountain, 2500 m, A. & S. 23890, 24063; between Kharil and Makidi, ca. 2000 m, A. & V. 24973; between Vaighan and Kharil, 1500 m, A. & V. 24769; Kaleibar to Hejrandust, 1350–1700 m, A. & M. 20066; W. of Makidi, A. & M. 20218.

Very frequent in alpine meadows. *Nonea pulla* (L.) DC.— W. of Makidi, ca. 2400 m, A. & M. 20222; Doghroon mountain, 2500 m, A. & S. 23896; between Kharil and Makidi, 1800 m, A. & V. 24985; Savabi & Raofi 122.

Nonea rosea (M.B.) Link—Below Veinagh, 500–900 m, W. & A. 17094.

It was described from Caucasia and distributes to N. Iran, N. Iraq and NE. Turkey.

Onosma microcarpum DC.— Hejrandust to Makidi, 1400–1750 m, A. & M. 20184; between Veinagh and Ghaghalou, 1000 m, A. & M. 20495; mountains E. of Vaighan, 1300–1600 m, A. & M. 20288; between Tolua-Ali and Veinagh, 1000–1200 m, A. & V. 24639; Doghroon

mountain, 2500–2800 m, R. & A. 21889; W. of Makidi, 1500 m, A. & M. 20208; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20087; between Vaighan and Kharil, 2000 m, A. & V. 24836; Doghroon mountain, 2400–2700 m, A. & S. 24301, A. & S. 24311, A. & S. 24934; between Doghroon mountain and Saigram-Dagh.

A frequent and variable species in the area. A continuous variation seen in the leaf size which varies from 2 up to 12 cm. *Paracaryum undulatum* Boiss.—Between Tolua-Ali and Veinagh, 900 m, A. & V. 24583; Tolua-Ali, 650 m, A. & V. 24911; between Vaighan and Veinagh, 1000 m, A. & M. 20461.

Symphytum asperum Lepech.—Doghroon mountain, 2500–2800 m, A. & S. 24036, R. & A. 21865, A. & S. 24128; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20118; between Vaighan and Kharil, 1500 m, A. & V. 24755.

It was described from Caucasia and distributes to N. Iran and NE. Anatolia.

Campanulaceae

Asyneuma rigidum (Willd.) Grossh. subsp. *rigidum*, syn. *A. lanceolatum* (Willd.) Hand.-Mzt.—Doghroon and Kalan

mountains, 2300–2500 m, A. & S. 24083; Doghroon mountain, 2300 m, R. & A. 20981.

Scattered on alpine meadows. There are few records of this species from NW. Iran and its distribution extends to Caucasia and Turkey.

Campanula aucheri DC.—Doghroon mountain, 2400–2700 m, A. & S. 24299, alpine meadows; Savabi 244.

It was described from Turkish Armenia and its geographical distribution extends to N. E. Turkey and Caucasia.

No specimen seen by the authors of Flora Iranica (cf. Rechinger & Schiman-Czeika 1965 p. 28) from Iran.

One of the above mentioned specimens compared with the type specimen in Geneva and they are well matched.

A related species, namely *C. ruprechtii* Boiss. was described from N. Iran. This species has been said to differ from *C. aucheri* by having glabrous corolla and with the leaves which are entire or 2–3 toothed at the apex. There are several new collections of this group from Iran in the herbarium of TARI which partly are: Mazandaran: S. of Ramsar, between Bagh-e Dasht and Lapasar, 2900 m, Runemark & Masoumi 21747; 6 km SW. of Javaherdeh (SW. of Ramsar), 2500–2750 m, Runemark & Masoumi 20906; S. of Ramsar, Siemam mt., 3500 m,

Runemark & Maasoumi 21817. These plants have glabrous corolla and their leaves are entire to crenate. Comparison of these specimens with the specimen, Wendelbo & Assadi 18494 which was named *C. ruprechtii* (cf. Assadi and Wendelbo 1978 p. 100) by having glabrous corolla and the specimens from Arasbaran area reveals that there seems to be no cut and correlated morphological characters between the two species, therefore it may be better to treat *C. ruprechtii* as a variety of *C. aucheri*.
Campanula glomerata L.— Doghroon mountain, 2200–2400 m, R. & A. 21918, A. & S. 24021 and A. & S. 23939; Savabi 138.

A common plant on meadows.

Campanula hohenackeri Fisch. & C. A. Mey.

Between Hejrandust and Makidi, 1400–1750 m, A. & M. 20133, A. & M. 20146; E. of Vaighan, 1200–1500 m, A. & M. 20329; between Veinagh and Vaighan 1000–1400 m, A. & V. 24720; Tolua-Ali, 650 m, A. & V. 24918; between Tolua-Ali and Veinagh, 1100 m, A. & V. 24597; below Veinagh, 500–900 m, W. & A. 17097; Savabi 32.

This plant was mentioned by Assadi & Wendelbo (1978 p. 98) as a new record to Iran and later reduced to a subspecies of *C. sibirica* by Damboldt (1976 p. 45).

Campanula latifolia L.— Doghroon and Kalan mountain, 2300–2500 m, on meadows, A. & S. 24068.

Campanula rapunculoides L.— Doghroon mountain, 2200 m, R. & A. 20939 and R. & A. 21998; between Vaighan and Veinagh, 1000 m, A. & M. 20417; E. of Vaighan, 1200–1500 m, A. & M. 20332; Saigram-Dagh mountain, 2300 m, A. & S. 24271; between Doghroon and Saigram-Dagh mountains, A. & S. 24167; between Saigram-Dagh mountain and Kaleibar, 2000 m, A. & S. 24365; between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20488.

Campanula rapunculus L. subsp. *lambertiana* (DC.) Boiss.— Between Veinagh and Ghaghalou, 1000 m, A. & M 20511.

Campanula stevenii M. B. subsp. *stevenii* —Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20112; mountains E. of Vaighan, 1700–2000 m, A. & M. 20279; Doghroon mountain, 2500 m, A. & S. 23937, A. & S. 23936 and A. & S. 23935; between Makidi and Kaleibar, ca. 1700 m, A. & V. 25007; between Kharil and Makidi, ca. 2000 m, A. & V. 24887.

Very frequent especially on alpine meadows. Flowers usually blue but white forms also seen in the area. In meadows small patches of white flowered plants occur within the blue-flowered

population.

Legousia falcata (Ten.) Fritsch—Between Vaighan and Veinagh, 1000 m, A. & M. 20456.

Symphyantra armena (Stev.) DC.—Between Doghroon and Saigram-Dagh mountains, 2500–2700 m, A. & S. 24197; Doghroon mountain, 2300 m, A. & S. 24153; R. & A. 21906; between Hejrandust and Makidi, 1400–1750 m, A. & M. 20173; Savabi & Raofi 179.

In crevices of rocks. The geographical distribution of this species confined to the Caucasia and adjacent areas including NE. Turkey and NW. Iran.

Capparidaceae

Cleome iberica DC.—Mountains S. of Vaighan, 1200–1500 m, A. & M. 20370.

Caprifoliaceae

Lonicera caucasica Pall.—Between Veinagh and Vaighan, 1000–1400 m, A. & V. 24755; Saigram-Dagh mountain, 2300 m, A. & S. 24287; Doghroon and Kalan mountains, 2300 m, A. & S. 24152 and R. & A. 21960; SE. of Makidi 1500 m and R. & A. 22109; between Hejrandust and Makidi 1400–1750 m, A. & M. 20162; between Makidi and Veinagh, 1000–1700 m, W. & A. 17066; moun-

tains E. of Vaighan 1300–1600 m, A. & M. 20298.

A component of mixed *Quercus* forest. *Lonicera iberica* M. B.—SE. of Makidi, 1500 m, R. & A. 22107; between Tolua-Ali and Veinagh, 800 m, A. & V. 24594; between Saigram-Dagh mountain and Kaleibar, 1500–2000 m, A. & S. 24353; between Hejrandust and Makidi, 1400–1750 m, A. & M. 20150; below Veinagh, 500–900 m, W. & A. 17093.

Sambucus ebulus L.—Between Makidi and Kaleibar, 1400 m, R. & A. 22114; Savabi 104.

A weed in open and overgrazed palces. *Sambucus nigra* L.—Between Vaighan and Kharil, 1500 m, in a valley in *Quercus* forest, A. & V. 24727.

There is, but only one earlier record for this species in Flora Iranica for Iran (cf. Wendelbo 1965 p. 2), which actually has not been seen by its author, therefore the new collection confirm definite occurrence of the species in Iran.

Viburnum lantana L.—Between Hejrandust and Makidi, 1400–1750 m, A. & M. 20155 and W. & A. 16992; forest NW. of Doghroon mountain, 2100 m, R. & A. 21959 and A. & S. 24155; between Tolua-Ali and Veinagh, 1100 m, A. & V. 24621; between Vaighan and Kharil, ca. 1500 m, A. & V. 24828.



Fig. 1. *Symphyandra armena* (x 0.68; flower x 1.3).

Caryophyllaceae

Agrostemma githago L.— Between Doghroon and Saigram-Dagh mountains, 2300–2500 m and A. & S. 24166; E. of Vaighan, 1200–1500 m, A. & M. 20325.

In field or field margins.

Arenaria dianthoides J. E. Smith var. *dianthoides*—Doghroon mountain, 2500 m, A. & S. 23881 and A. & S. 24050; mountains S. of Kharil, 2000–2500 m, A. & M. 20261; Savabi 180.

Seen sometimes on meadows.

Arenaria gypsophiloides L. var. *gypsophiloides*—Doghroon mountains, 2500–2800 m, A. & S. 24023, R. & A. 20938.

On meadows.

Arenaria serpyllifolia L.— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20090; between Vaighan and Kharil, 2000 m, A. & V. 24835.

Cerastium caespitosum Gilib.— Doghroon mountain, 2500–2800 m, on meadows, R. & A. 21896.

Cerastium dahuricum Fisch.— Between Vaighan and Kharil, 1500 m, A. & V. 24771; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20101; between Kharil and Makidi, 2000 m, A. & V. 24888; W. of Makidi, 1600–1800 m, R. & A. 22034.

Cerastium dichotomum L.— Doghroon



Fig. 2. *Arenaria dianthoides* (x 0.68; flower x1.7).

mountains, 2500 m, A. & S. 23914.

Cerastium glomeratum Thuill.— Below Veinagh, 500–900 m, W. & A. 17090.

Cerastium longifolium Willd.— Between Makidi and Veinagh, 1000–1700 m, W. & A. 17063 and W. & A. 17075; between Hejrandust and Makidi, 1400–1750, A. & M. 20124.

Previous record of this species has not been based on herbarium specimen (cf. Shishkin 1936 p. 449) and therefore this might be the first gathering from Iran.

It grows on rocky open slopes.

Cerastium purpurascens Adams—Doghroon mountain, 2500–2800 m, A. & S. 24008, A. & S. 23947 and A. & S. 24046; Savabi & Raofi 145; between Doghroon and Saigram-Dagh mountains, 2300–2500 m, A. & S. 24173; W. of Makidi, A. & M. 20212.

Cerastium szowitsii Boiss.— Between Makidi and Kaleibar, ca. 1700 m, A. & V. 25001; between Doghroon and Saigram-Dagh mountains, 2500–2700 m, A. & S. 24206; Savabi; & Raofi 204.

A perennial-caespitose plant covered by implexed-white-tomentose hairs, confined to grasslands. It has so far been known only from the Caucasia and NW. Iran.

Dianthus cretaceus Adams— Doghroon mountain, 2200–2500 m, high-grown grassland, A. & S. 23919, R. & A. 20962

and A. & S. 23944.

Dianthus crinitus Sm.— Between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20500 and Savabi & Raofi 53.

Dianthus orientalis Adams— Between Tolua-Ali and Veinagh, 800 m, A. & V. 24591; Doghroon mountain, on rocks, 2200–2400 m, R. & A. 21945; 17 km from Kaleibar to Khoda-Afarin, 2000–2100 m, Mozaffarian & Mohammadi 37689.

Dianthus tabrisianus Bienert ex Boiss.— Between Doghroon and Saigram-Dagh mountains, 2500–2700 m, A. & S. 24185; Doghroon mountains, 2400–2700 m, A. & S. 24304, R. & S. 21943 and R. & A. 20986.

Gypsophila elegans M. B.— Saigram-Dagh mountain, ca. 1300 m, A. & S. 24239; between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24374; between Makidi and Veinagh, 1000–1700 m, W. & A. 17055; below Veinagh, 500–900 m, W. & A. 17092; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20038.

Herniaria caucasica Rupr.— W. of Makidi, ca. 2400 m, A. & M. 20219.

Herniaria incana Lam.— Between Doghroon and Saigram-Dagh mountain, 2300–2500 m, A. & S. 24171; mountains E. of Vaighan, 1800 m, A. & M. 20275; between Kaleibar and Hejrandust,

1350–1700 m, A. & M. 20057.

Minuartia acuminata Turrill—Doghroon mountain, 2500–2800 m, A. & S. 23955, R. & S. 21888, A. & S. 24297; Savabi 198.

Previously only known from the type locality. Above mentioned specimens compared with a specimen from the locus classicus (Azarbayejan: 15 km S. of Marand, Mishu-Dagh mountain, 1800–2250 m, Assadi & Mozaffarian 29903) and they are well matched. *Minuartia lineata* Bornm.— Doghroon mountains, 2500–2800 m, A. & S. 23961; Savabi 117.

In grassland at the top region.

Minuartia meyeri (Boiss.) Bornm.— Mountains S. of Vaighan, 1200–1500 m, A. & M. 20357.

Minuartia montana L. subsp. *wiesneri* (Stapf) Mc Neill— Mountains S. of Vaighan, 1200–1500 m, A. & M. 20364; between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20496.

Minuartia recurva (All.) Schinz & Thell.—W. of Makidi, 1800 m, A. & M. 20209; Doghroon mountain, 2500–2800 m, R. & A. 21899 and A. & S. 23940; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20110; between Kharil and Makidi, ca. 2000 m, A. & V. 24987 and A. & S. 24298.

Noteworthy is that Mc Neill (1963 p.

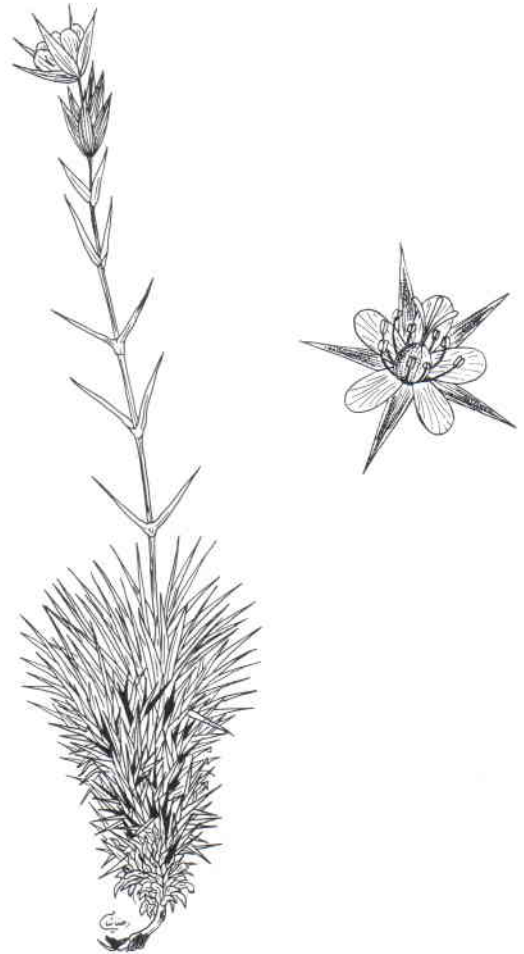


Fig. 3. *Minuartia acuminata* (x 0.74; flower x1.7).

338) recognized *M. recurva* subsp. *oreina* (Mattf.) Mc Neill as a distinct subspecies from subsp. *recurva*, mentioning that to distinguish two taxa, he had not been able to distinguish any character except the colour of anthers which is yellow in subsp. *recurva* and pink or blue in subsp. *oreina*. Plants with yellow and pink or blue anthers have been seen by the author in the area and the other parts of Iran growing side by side, possibly depends on fertility or age of the anthers.

Moelringia trinervia (L.) Clairv.— Between Kharil and Makidi, ca. 2000 m, A. & V. 24886.

Paronychia kurdica Boiss.— Between Tolua-Ali and Veinagh, 1000 m, A. & V. 24606; between Veinagh and Ghaghalu, 1000 m, A. & M. 20491; between Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20096; Savabi & Raofi 51.

Queria hispanica L.— between Hejrاندust and Makidi, 1400–1750 m, A. & M. 20139.

Scleranthus uncinatus Schur— Between Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20037.

Silene alba (Miller) Krause s. l.— Doghroon mountain, 2500–2800 m, A. & S. 24028, A. & S. 24022; Saigram-Dagh mountain, 2300 m, A. & S. 24279; between Makidi and Veinagh, 1000–

1700 m, W. & A. 17058; Savabi 33; between Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20021.

S. alba and its close allies or subspecific classifications have not yet been studied in Iran. Parsa (1951) records *Melandrium album* (Miller) Gorcke, *M. persicum* (Boiss. & Buhse) Bornm., *M. boissieri* Schischk. and *M. eriocalycinum* Boiss. from Iran, which some of them in modern literatures have been reduced to subspecies of the combination *Silene alba*. There seems neither all these taxa are taxonomically distinct nor all occur in Iran.

Silene bupleuroides L.— Doghroon mountain, 2300 m, meadows, R. & A. 21994.

Silene cephalantha Boiss.— Doghroon mountain, 2500 m, A. & S. 23903. It was recently reported from NW. Iran (Assadi & Wendelbo 1879 p. 107).

Previously only known from the Caucasia.

Silene chlorifolia Smith— Between Vaighan and Veinagh, 1000 m, A. & M. 20424; NW. of Veinagh, 1300–1400 m, A. & V. 24652.

Silene conoidea L.— Between Doghroon and Saigram-Dagh mountains, 2500–2700 m, A. & S. 24198; Doghroon mountain, 2500 m, A. & S. 23913; between Kharil and Makidi, 1800 m, A.

& V. 24981; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20062.

A frequent weed in road-sides, fields and field margins.

Silene dichotoma Ehrh.— Between Vaighan and Veinagh, 1000 m, A. & M. 20453.

Silene italica (L.) Pers.— Between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24378; mountains S. of Vaighan, 1200–1500 m, A. & M. 20352; NW. of Veinagh, 1300–1400 m, A. & V. 24674.

Silene montbretiana Boiss.— Doghroon mountain, 2500–2800 m, A. & S. 24042, A. & S. 23877; Savabi 125.

Silene multifida (Adams) Rohrb.— Doghroon mountain, 2100 m, R. & A. 21984 and A. & S. 24157; Saigram-Dagh mountain, 1300 m, A. & S. 24255.

It distributes from Caucasia through NW. Iran to NE. Turkey.

Silene noctiflora L.— Between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24369; Doghroon mountain, 2100 m, R. & A. 21991.

Silene saxatilis Sims.— Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24107, R. & A. 21904; Saigram-Dagh mountain, ca. 1300 m, A. & S. 24252.

On rock outcrops of alpine meadows.

Silene spergulifolia (Desf.) M. B.— Between Kaleibar and Hejrandust, 1350–

1700 m, A. & M. 20058; Doghroon mountain, 2500 m, A. & S. 23899; NW. of Veinagh, 1300–1400 m, A. & V. 24686; between Kharil and Makidi, 1800 m, A. & V. 24983; Savabi 126.

Silene vulgaris (Moench) Garcke— Between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24386; Savabi 238.

It was previously only mentioned in geographical distribution of the species from Iran by Shishkin (1936 p. 597).
Stellaria media (L.) Cyr.— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20025; W. of Makidi, 2400 m, A. & M. 20217.

A widespread weed.

Vaccaria pyramidata Medik.— Mountains S. of Vaighan, 1200–1500 m, in field, A. & M. 20368.

Velezia rigida L.— Between Vaighan and Ghaghalou, 1000 m, A. & M. 20514.

Celastraceae

Evonymus latifolius (L.) Mill.— Between Vaighan and Kharil, 1500 m, A. & V. 24824 a; SE. of Makidi, 1600 m, R. & A. 22110; between Hejrandust and Makidi, 1400–1750 m, A. & M. 20182.

In mixed *Quercus* forest.

Chenopodiaceae

Chenopodium foliosum (Moench)

Aschers.— Between Veinagh and Vaighan, 1000–1400 m, A. & V. 24744; Savabi & Raofi 87.

Hablitzia tamnoides M. B.— Between Vaighan and Veinagh, 1000 m, A. & M. 20458.

This monotypic genus recently was reported as a new for Iran (Assadi 1983 p. 4). It has so far been known only from Caucasia and NW. Iran.

Cistaceae

Fumana arabica (L.) Spach— Between Tolua-Ali and Veinagh, 1000 m, A. & V. 24610.

Usually a Mediterranean element but extends outside of the region too. *Fumana procumbens* (Dun.) Gren. & Godr.— Between Vaighan and Veinagh, ca. 1000 m, in scrub forest, A. & M. 20480.

Centered in Mediterranean, but extends outside of the region too. *Helianthemum ledifolium* (L.) Miller var. *lasiocarpum* (Willk.) Bornm.— Between Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20113; between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24396; below Veinagh, 500–900 m, W. & A. 17091a.

Helianthemum ledifolium (L.) Miller var. *ledifolium*— Below Veinagh, 500–900

m, W. & A. 17091b.

Helianthemum nummularium (L.) Miller— Between Veinagh and Vaighan, 1000–1400 m, A. & V. 24696; between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24376; Doghroon and Kalan mountain, 2300–2500 m, A. & S. 24125, R. & A. 22011, mountains E. of Vaighan, 1300–1600 m, A. & M. 20295.

Compositae

Achillea biebersteinii Afan.— Ghaghalu, 650 m, A. & V. 24538; between Veinagh and Vaighan, 1000–1400 m, A. & V. 24731; between Veinagh and Ghaghalu, 1000 m, A. & M. 20523; between Vaighan and Kharil, 1500 m, A. & V. 24833.

Achillea millefolium L.— Doghroon mountain, 2300 m, R. & A. 20980, A. & S. 24030; Saigram-Dagh mountain, ca. 1300 m, A. & S. 24243; mountains S. of Vaighan, 1200–1500 m, A. & M. 20382. *Achillea nobilis* L. subsp. *neilreichii* (Kerner) Formanek— Ghaghalu, 650 m, A. & V. 24539.

Anthemis candidissima Willd. ex Spreng— Between Tolua-Ali and Veinagh, 900 m, A. & V. 24613.

Anthemis tinctoria L.— Ghaghalu, 650 m, A. & V. 24546; E. of Vaighan, 1200–1500 m, A. & M. 20307; between

Veinagh and Ghaghalu, ca. 1000 m, A. & M. 20533.

Anthemis triumfettii (L.) All.— Saigram-Dagh mountain, 2300 m, A. & S. 24286; between Veinagh and Vaighan, 1000—1400 m, A. & V. 24735.

Anthemis sp.— Mountains S. of Kharil, 2000—2500 m, A. & M. 20277.

Arctium platylepis (Boiss. & Bal.) Sosn. ex Grossh.— Between Doghroon mountain and Makidi, 2000 m, R. & A. 22015.

Artemisia absinthium L.— Doghroon mountain, 2100 m, R. & A. 20937; Saigram-Dagh mountain, ca. 1300 m. A. & S. 24226.

Artemisia armeniaca Lam.— Doghroon mountain, 2500—2800 m, R. & A. 21913.

Eur.-Sib. element extends from C. Russia through Caucasia to N. and NW. Iran and NE. Turkey.

Artemisia chamaemellifolia Vill., syn.: *A. iberica* Boiss. & Buhse—Doghroon and Kalan mountains, 2300—2500 m, A. & S. 24089, R. & A. 20970; Savabi & Raofi s. n.

Artemisia splendens Willd.— Doghroon mountain, 2300 m, R. & A. 21862, A. S. 24078 and A. & S. 23874; W. of Makidi ca. 2400 m, A. & M. 20225; between Doghroon and Saigram-Dagh mountains, 2500—2700 m, A. & S.

24189; A. & S. 24325.

Calendula persicaria C. A. Mey.— Ghaghalu, 650 m, A. & V. 24551.

Carduus hamulosus Ehrh. subsp. *hystrix* (C. A. Mey.) Kazmi— Mountains S. of Vaighan, 1200—1500 m, A. & M. 20341; NW. of Veinagh, 1300—1400 m, A. & V. 24677; Savabi & Raofi 22.

Carduus onopordioides Fisch. ex M. B.— Mountains S. of Vaighan, 1200—1500 m, A. & M. 20338; between Veinagh and Vaighan, 1000—1400 m, A. & V. 24717.

Carduus pycnocephalus L.— Between Vaighan and Veinagh, 1000 m, A. & M. 20464 and A. & V. 24740; Ghaghalu, 650 m, A. & V. 24543; Tolua-Ali, 650 m, A. & V. 24932; between Veinagh and Ghaghalu, 500—800 m, A. & M. 20537.

Carduus seminudus M. B.— Below Veinagh, 500—900 m, W. & A. 17988.

Carduus thoermeri Weinm. subsp. *thoermeri*— Doghroon mountain, 2200—2400 m, R. & A. 21919; between Doghroon and Saigram-Dagh mountain, 2300—2500 m, A. & S. 24172; between Saigram-Dagh mountain and Kaleibar, 2000 m, A. & S. 24362.

This subspecies separated from the subsp. *armenus* (Boiss.) Kazmi by Kazmi (1964 p. 331), based on capitulum diameter and phyllaries broadness which are up to 4 cm and 5 mm in the subsp. *armenus* and 4—8 cm and 5—10 mm for

the subsp. *thoermeri*. In above mentioned specimens capitula is 5–6 cm diam. and phyllaries are up to 5 mm broad and therefore well agree with the subsp. *thoermeri* and not subsp. *armenus* as one of the specimens was cited by Rechinger (1979 p. 220).

Carlina vulgaris L.—Doghroon mountain, 2100 m, R. & A. 21961.

Carthamus lanatus L.—Between Veinagh and Ghaghalou, 1000 m, A. & M. 20538; between Doghroon and Makidi, 1600 m, R. & A. 22028.

Centaurea aucheri (DC.) Wagenitz subsp. *szowitsii* (Boiss.) Wagenitz— Doghroon mountain, 2300 m, R. & A. 20953.

Centaurea aziziana Rech. f.— Between Tolua-Ali and Veinagh, 900 m, A. & V. 24582a; between Saigram-Dagh mountain and Kaleibar, 1500–2000 m, A. & S. 24345.

The original description of this species was based on a specimen from N. Iran, but later the distribution of the species extended to NW. Iran (not Caucasia). Above mentioned specimens are from a place close to the Russian frontier, where some other close Caucasian relatives of the species come close to the Iranian forntier (not Iran). I have not seen any Caucasian relatives of the species but furthur investigations based on comparison of specimens of Iranian

C. aziziana and its Caucasian relative *C. transcaucasica*, may reveal that, they are conspecific.

Centaurea cheiranthifolia Willd. var. *cheiranthifolia*— Mountains S. of Kharil, 2000–2500 m, A. & M. 20258.

Centaurea macrocephalus Muss.-Puschk. ex Willd.— Saigram-Dagh mountain, ca. 2300 m, meadows above the forest, A. & S. 24216 and A. & S. 24272; Savabi & Raofi 237.

This species has so far only been known form Arasbaran area in Iran. The closest locality to the Iranian gathering is in Caucasia. The distribution of the species extends from Caucasia to NE. Turkey.

Centaurea rhizantha Fisch. & C. A. Mey.—Doghroon mountain, 2500–2800 m, A. & S. 23981 and A. & S. 23879; Savabi & Raofi 160.

Centaurea sosnovskyi Grossh.— Between Vaighan and Veinagh, ca. 1000 m, A. & M. 20401; between Doghroon mountain and Makidi, 1600 m, R. & A. 22033, between Saigram-Dagh and Kaleibar, 1500–2000 m, A. & S. 24339.

This species distributes from Caucasia through NW. Iran southwards to the prov. Lorestan.

Centaurea triumfettii All.— Doghroon and Kalan mountains, 2300 2500 m, A. & S. 24082, A. & S. 23909; Savabi 148.

Flower colour varies from violet to rose-violet and white.

Centaurea virgata Lam. subsp. *squarrosa* (Willd.) Gugler.— Doghroon mountain, 2300 m, R. & A. 20990.

Centaurea zuvadica (Sosn.) Sosn.— Between Makidi and Veinagh, 1000—1700 m, W. & A. 17037; between Makidi and Kaleibar, ca. 1700 m, A. & V. 25015; between Hejrandust and Makidi, 1400—1750 m, A. & M. 20167; Doghroon mountain, 2300 m, A. & S. 24087, R. & A. 22006; between Doghroon and Saigram-Dagh mountains, 2500—2700 m, A. & S. 24210; between Veinagh and Vaighan, 1000—1400 m, A. & V. 24692; Saigram-Dagh mountain, ca. 2300 m, A. & S. 24241; Savabi 181 A.

Chondrilla juncea L.— W. of Makidi, 1700 m, R. & A. 22048, Doghroon mountain, 2200—2400 m, R. & A. 21936.

Cichorium intybus L.— Between Veinagh and Ghaghalou, 1000 m, A. & M. 20524; Doghroon mountain, 2100 m, R. & A. 20948.

Cirsium arvense (L.) Scop.— Between Doghroon mountain and Makidi, 2000 m, R. & A. 22022; between Doghroon and Saigram-Dagh mountains. 2300—2500 m, A. & S. 24176; Savabi 216.

Cirsium bracteosum DC.— Doghroon mountain, 2100 m, R. & A. 20957;

between Doghroon mountain and Makidi 1600 m, R. & A. 22014.

Cirsium echinus (M. B.) Hand-Mzt.— Between Vaighan and Veinagh, ca. 1000 m, A. & M. 20406; between Saigram-dagh and Kaleibar, 2000 m, A. & S. 24364; Doghroon mountain, 2200—2400 m, R. & A. 21922.

Cirsium elodes M. B.— Makidi, 1400 m, R. & A. 22056; Doghroon mountain, 2100 m, R. & A. 20958.

Cirsium iraqense Petrak— Doghroon mountains, 2000 m, R. & A. 21958.

The distribution of this species is NW. Iran, NE. Iraq and NE. Turkey.

Cirsium osseticum (Adams) Petrak subsp. *tricholoma* (Fisch. & C. A. Mey.) Petrak— Doghroon mountain, 2000 m, at a brook, R. & A. 21985, R. & A. 21990.

Cnicus benedictus L.— Mountains E. of Vaighan, 1300—1600 m, A. & M. 20294.

Cousinia gigantolepis Rech. f.— Between Veinagh and Ghaghalu, 1000 m, A. & M. 20513; between Tolua-Ali and Veinagh, 900 m, A. & V. 24574; Ghaghalu, 650 m, A. & V. 24528.

A frequent species in the lower altitudes and close to the Russian frontier. It is supposed to be endemic to NW. Iran, but if it is not conspecific with a Caucasian species, it should occur in the other side of the boundary in Caucasia as

well.

Crepis alpina L.— Mountains S. of Vaighan, 1200–1500 m, A. & M. 20349; Tolua-Ali, 650 m, A. & V. 24930.

Crepis armena DC.— Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24048.

It is distributed from E. Turkey to NW. Iran.

Crepis foetida L.— Tolua-Ali, 650 m, A. & V. 24912; between Veinagh and Ghaghalu, 1000 m, A. & M. 20525, A. & M. 20515; Ghaghalou, 650 m, A. & V. 24537.

Crepis marschallii (C. A. Mey.) F. Schultz— Between Vaighan and Kharil, ca. 1500 m, A. & V. 24796; NW. of Veinagh, 1300–1400 m, A. & V. 24685; mountains S. of Vaighan, 1200–1500 m, A. & M. 20343.

Previous Iranian record of the species has been based on a specimen collected by Bunge from Shahrud which has not been seen by the author of Flora Iranica.

Its distribution is also in S. Russia including Caucasia.

Crepis pulchra L. subsp. *pulchra*— Between Veinagh and Vaighan, 1000–1400 m, A. & V. 24710.

Crepis sahendii Boiss. & Buhse— Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24127 and R. & A. 21880.

Crepis sancta (L.) Babcock— Doghroon

mountain, 2500–2800 m, A. & S. 23965; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20054; Ghaghalu, 650 m and A. & V. 24553. *Crepis* sp.— Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24118.

Crupina crupinastrum (Moris) Vis.— Between Hejrandust and Makidi, 1400–1750 m, A. & M. 20178; mountains S. of Vaighan, 1200–1500 m, A. & M. 20376; Ghaghalu, 650 m, A. & V. 24558; between Tolua-Ali and Veinagh, 900 m, A. & V. 24582.

Doronicum dolichotricum Cavill.— W. of Makidi, ca. 2000 m, beside brooklet, A. & M. 20234; Doghroon mountains, 2720 m, Termeh et al. 39183.

Edmondson (1978 p. 70) in his revision of the genus *Doronicum* L. in Iran reported this species for the first time from Iran, based on the specimen A. & M. 20234.

Euxine element distributed in Caucasia, NE. Turkey and NW. Iran. *Doronicum hyrcanum* Widder & Rech. f.— Saigram-Dagh mountain, 2300 m, A. & S. 24254 and A. & S. 24276a; Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24130 and A. & S. 23928.

This species was originally described from E. Azarbayejan, Iran, but later

reported by Edmondsom l. c. (p. 68) from SE. Turkey and Transcaucasia (Nakhichevan). It is apparently very close if not conspecific to the Caucasian *D. macrophyllum* Fisch. ex Hornem. *Echinops pungens* Trautv.— Doghroon mountain, 2300 m, R. & A. 20996. *Erigeron acer* L. s. l. — W. of Makidi, 1700 m, R. & A. 22052; between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24391; Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24105, R. & A. 20969; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20107; Saigram-Dagh mountain, 1300 m, A. & S. 24225; Savabi and Raofi 181.

Morphologically a very variable species.

Erigeron caucasicus Stev. subsp. *venustus* (Botsch.) Grierson— Doghroon mountain, 2500–2800 m, A. & S. 23959.

This subspecies has so far been reported from NE. and E. Turkey, N. and NW. Iran.

Eupatorium cannabinum L.— SE. of Makidi, 1600 m, R. & A. 22086.

Filago arvensis L.— Doghroon mountain, 2500–2800 m, A. & S. 24043; W. of Makidi, 1700 m, R. & A. 22036; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20120; between Saigram-Dagh and Kaleibar, 1500–2000 m, A. & S. 24343.

Filago pyramidata L.— Between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20157; Ghaghalou, 650 m, A. & V. 24563; between Veinagh and Ghaghalou, 1000 m, A. & M. 20526.

Garhadiolus angulosus Jaub. & Spach— Between Veinagh and Vaighan, 1000–1400 m, A. & V. 24718.

Helichrysum araxianum Takht. ex Krip.—Savabi & Raofi s.n.

Helichrysum armenium DC.— Savabi 12.

Helichrysum plicatum DC.— Doghroon mountain, 2300 m, R. & A. 20992.

Helichrysum rubicundum (C. Koch) Bornm.— Between Veinagh and Ghaghalou, 500–800 m, A. & M. 20556 and A. & M. 20557; Doghroon mountain, 2500–2800 m, A. & S. 23966.

Hieracium bauhini Besser— Between Makidi and Kaleibar, ca. 1700 m, A. & V. 25021; Saigram-Dagh mountain, ca. 1300 m, A. & S. 24251.

There is only one previous collection of this species from Iran (cf. Rechinger 1977 p. 173).

Hieracium pilosella L.— Doghroon mountain, 2400–2700 m, A. & S. 24335.

This name was not mentioned by Rechinger in *Flora Iranica* (1979), but apparently there are some older records from Iran.

This specimen has long slender stolones up to 15 cm which is distin-

guishable character to recognize this species from its relative *H. hoppeanum* Schultes with small robust stolones.

Phyllaris have stellate hairs mixed with long eglandular and sometimes glandular hairs. Leaves with stellate hairs only beneath. These characters make the specimen close to the subspecies *tricholepium* Naegeli & Peter.

Hieracium prenanthoides Vill.— W. of Makidi, 1700 m, in forest, R. & A. 22050.

Hieracium procerum Fries— Doghroon mountain, 2500–2800 m, A. & S. 24054, A. & S. 24117, A. & S. 23984, R. & A. 21866 and A. & S. 24041; Between Vaighan and Kharil, ca. 1500 m, A. & V. 24811; Savabi & Raofi s.n.

Inula helenium L.— SE. of Makidi, 1400–1800 m, R. & A. 22078 and R. & A. 22088 b.

Inula oculus-christi L.— Doghroon mountain, 2300 m, R. & A. 20987; Savabi & Raofi 62.

Inula vulgaris (Lam.) Trevisan— SE. of Makidi, 1700 m, R. & A. 22088.

Lactuca azerbaijanica Recl. f.— SE. of Makidi, 1700 m, R. & A. 22081.

Endemic to the NW. Iran.

Lactuca serriola L.— Saigram-Dagh mountain, 2300 m, A. & S. 24231; Doghroon mountain, 2200–2400 m, R. & A. 21917.

Lapsana intermedia M. B.— Between Doghroon and Saigram-Dagh mountains, 2500–2700 m, A. & S. 24195; Saigram-Dagh mountain, 2300 m, A. & S. 24276; Doghroon mountain, 2200–2400 m, R. & A. 21869.

Leontodon asperrimus (Willd.) Boiss. ex Bull.— Between Vaighan and Veinagh, 1000 m, A. & M. 20438; between Vaighan and Kharil, ca. 1500 m, A. & V. 24781; NW. of Veinagh, 1300–1400 m, A. & V. 24684; between Tolua-Ali and Veinagh, 900 m, A. & V. 24596; between Doghroon and Saigram-Dagh mountains, 2500–2700 m, A. & S. 24207; Doghroon mountain, 2500–2800 m, A. & S. 24017.

Leontodon hispidus L.— Saigram-Dagh mountain, ca. 2300 m, A. & S. 24235; Doghroon mountain, 2300 m, R. & A. 20979.

Matricaria chamomilla L.— Saigram-Dagh mountain, 2300 m, A. & S. 24268; Doghroon mountain, 2500–2800 m, A. & S. 23962; between Doghroon and Saigram-Dagh mountains, 2300–2500 m, A. & S. 24164; between Doghroon mountain and Makidi, 2000 m, R. & A. 22020.

Onopordon acanthium L.— Between Tolua-Ali and Veinagh, 900 m, A. & V. 24595; Doghroon mountain, 2100 m, R. & A. 20959.

Scariola orientalis (Boiss.) Sojak— Doghroon mountain, 2200 m, R. & A. 20950.
Scorzonera armeniaca (Boiss. & Huet) Boiss.— Between Vaighan and Kharil, ca. 1500 m, A. & V. 24783.

Confined to Caucasia, E. Turkey and NW. Iran.

Scorzonera cana (C. A.Mey.) Hoffm.— Between Kaleibar and Makidi, 1300—1700 m, W. & A. 17005; between Makidi and Kaleibar, ca. 1700 m, A. & V. 25004.
Scorzonera cf. lachnostegia (Woron.) Lipsch.— Mountains S. of Kharil, 2000—2500 m, A. & M. 20268.

Not previously recorded from Iran. The closest locality to the Iranian gathering is in Caucasia.

Scorzonera sp.— Between Kaleibar and Hejrandust, 1350—1700 m, A. & M. 20036.

Due to the lack of fruiting material, identification of this plant is difficult. It is somewhat similar to *S. armeniaca*, but leafsegements and terminal lobe vary from linear to lanceolate or ovate.
Senecio othonnae M.B.— Saigram-Dagh mountain, ca. 1300 m, A. & S. 24218; Doghroon mountain, 2000 m, R. & A. 21969.

Senecio pseudo-orientalis Schischkin, syn. *S. orientalis* Willd, Sp. Pl. 3: 2006 (1803) non Miller (1768)— Doghroon mountain, 2500—2800 m, A. & S. 23969;

Savabi 124.

Senecio vernalis Waldst. & Kit.— Between Veinagh and Vaighan, 1000—1400 m, A. & V. 24757; Doghroon mountain, 2200—2400 m, R. & A. 21915; Ghaghhalou, 650 m, A. & V. 24541; Doghroon mountain, 2500—2800 m, A. & S. 24066; Saigram-Dagh mountain, ca. 2300 m, A. & S. 24233; between Vaighan and Kharil, ca. 1500 m, A. & V. 24815.

Silybum marianum (L.) Gaertner— Ghagalou, 650 m, A. & V. 24545.
Solidago virgaurea L.— Saigram-Dagh mountain, ca. 2300 m, A. & S. 24217, A. & S. 24283; Doghroon mountain, 2300—2500 m, R. & A. 21996, A. & S. 24073.

Sonchus asper (L.) Hill subsp. *glaucescens* (Jordan) Ball— Between Veinagh and Vaighan, 1000—1400 m, A. & V. 24728.

Steptorrhaphus tuberosus (Jacq.) Grossh.— Between Vaighan and Veinagh, ca. 1000 m, A. & M. 20443; A. & V. 24724; Tolua-Ali, 650 m, A. & V. 24949.

Tanacetum chiliophyllum Fisch. & C. A. Mey.— Between Kharil and Makidi, ca. 2000 m, A. & V. 24907; Doghroon mountain, 2500 m, A. & S. 23923, A. & S. 24313; between Doghroon and Saigram-Dagh mountains, 2300—2500 m, A. & S. 24162; Savabi & Raofi 166.

Tanacetum parthenifolium (Willd.)

Schultz— Doghroon mountain, 2300 m, R. & A. 21954; below Veinagh, 500—900 m, W. & A. 17098; E. of Vaighan, 1200—1500 m, A. & M. 20320.

Tanacetum parthenium (L.) Schultz— Between Tolua-Ali and Veinagh, 1100 m, A. & V. 24605; Saigram-Dagh mountain, 2300 m, A. & S. 24278; Savabi & Raofi 42.

Tanacetum sp.— Between Doghroon and Saigram-Dagh mountains, 2500—2700 m, A. & S. 24180.

Taraxacum montanum (C. A. Mey.) DC.— Doghroon mountain, 2100 m, R. & A. 20951

Taraxacum spp.

Including 13 specimens comprising ca. 4 species which at present, it is not possible for me to give them any satisfactory specific name.

Tragopogon kemulariae Kuthath— NW. of Veinagh, 1300—1400 m, in forest, A. & V. 24651; between Vaighan and Kharil, ca. 1500 m, A. & V. 24805; between Veinagh and Vaighan, 1000—1400 m, A. & V. 24712.

Tragopogon reticulatus Boiss. & Huet— Doghroon and Kalan mountains, 2300—2500 m, A. & S. 24079, A. & S. 23929; mountains S. of Kharil, 2000—2500 m, A. & M. 20259; Savabi 194; between

Kharil and Makidi, ca. 2000 m, A. & V. 24902; between Vaighan and Veinagh, ca. 1000 m, A. & M. 20475.

Tragopogon sp.— Doghroon mountain, 2300 m, R. & A. 20954.

Tussilago farfara L.— Makidi, 1400 m, R. & A. 22070.

Xrospermum picroides (L.) Desf.— Between Vaighan and Veinagh, ca. 1000 m, A. & M. 20440.

Xeranthemum annuum L.— Between Saigram-Dagh mountain and Kaleibar, 1500—2000 m, A. & S. 24340; Savabi s.n. and Savabi 5.

Convolvulaceae

Calystegia sylvatica (Kit.) Griseb.— E. of Vaighan, 1200—1500 m, A. & M. 20304.

Convolvulus cantabrica L.— Between Vaighan and Veinagh, ca. 1000 m, A. & M. 20449; A. & V. 24690 and A. & V. 24737; mountains E. of Vaighan, 1200—1500 m, A. & M. 20336; Tolua-Ali, 650 m, A. & V. 24954; between Tolua-Ali and Veinagh, 1000—1200 m, A. & V. 24632.

Convolvulus lineatus L.— Between Kaleibar and Hejrandust, 1350—1700 m, A. & M. 20076; between Hejrandust and Makidi, 1400—1750 m, A. & M. 20125; Doghroon mountain, 2500—2800 m, A. & S. 24029.

Cornaceae

Cornus australis C. A. Mey.— Between Tolua-Ali and Veinagh, 1100 m, A. & V. 24576; E. of Vaighan 1200–1500 m, A. & M. 20301; between Makidi and Veinagh, 1000–1700 m, W. & A. 17047.

Cornus mas L.— Between Makidi and Kaleibar, 1400 m, R. & A. 22119; Makidi, 1400 m, R. & A. 22067; between Makidi and Veinagh, 1000–1700 m, W. & A. 17048; mountains S. of Vaighan, 1200–1500 m, A. & M. 20377; NW. of Veinagh, 1300–1400 m, A. & V. 24672.

This species has also been cultivated for its edible fruits.

Corylaceae

Carpinus betulus L.— Between Hejrاندust and Makidi, 1400–1750 m, A. & M. 20129; SE. of Makidi, 1600 m, R. & A. 22112.

Making \pm dense forests in medium altitudes of the area.

Corylus avellana L.— Between Vaighan and Kharil, ca. 1500 m, A. & V. 24847; between Hejrاندust and Makidi, 1400–1750 m, A. & M. 20128.

In small patches seen in the area, sometimes making pure stands.

Crassulaceae

Rosularia pilosa (M. B.) Borris— Saigram-Dagh mountain, ca. 1300 m, A. & S. 24224; Doghroon and Kalan mountain, 2300 m, A. & S. 24136, A. & S. 24302; Savabi 186.

This species was reported by Assadi (1983 p. 6) as a new record for Iran. *Rosularia sempervivoides* (Fisch.) Boriss.—Savabi s.n.

Distributed in Caucasia, Turkey and NW. Iran.

Rosularia sempervivum (M. B.) Berger— Tolua-Ali, 650 m, A. & V. 24921; between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20494; Savabi & Raofi 39.

Distributed in Caucasia, N. Iraq and Iran.

Sedum album L.— Between Veinagh and Ghaghalou, 500–800 m, A. & M. 20545.

Sedum annuum L.— Doghroon and Kalan mountains, 2300 m, A. & S. 24138; Doghroon mountain, 2500–2800 m, A. & S. 24012, A. & S. 24296; Savabi & Raofi, s.n.

Sedum caucasicum (Grossh.) A. Bor— Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24133; SE. of Makidi, 1700 m, R. & A. 22091.

This species was recently reported by Assadi & Wendelbo (1977 p. 107) as a

new to Iran. There are more collections of this species from NW. Iran in the herbarium of TARI.

Sedum hispanicum L.— Doghroon mountain, 2500–2800 m, A. & S. 24011, A. & S. 23953, A. & S. 24071 and A. & S. 24140; Saigram-Dagh mountain, ca. 1300 m, A. & S. 24264; mountains E. of Vaighan, 1300–1600 m, A. & M. 20289; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20082; Savabi & Raofi 27.

Sedum spurium M. B.— Doghroon mountain, 2300–2800 m, R. & A. 20947, A. & S. 24010; between Doghroon and Saigram-Dagh mountains, 2500–2700 m, A. & S. 24212; Savabi & Raofi 222.

Sedum subulatum (C. A. Mey.) Boiss.— Doghroon mountain, 2500–2800 m, A. & S. 23951, R. & A. 21905.

It was reported by Assadi (1983 p. 6) as a new to Iran.

Sempervivum globiferum L.— Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24132, A. & S. 23952, A. & S. 24154, A. & S. 24009 and R. & A. 20946; Savabi & Raofi 185.

Distributed in Caucasia and NW. Iran.

Cruciferae

Aethionema arabicum (L.) Andr. ex

DC.— Between Tolua-Ali and Veinagh, 900 m, A. & V. 24617; between Hejrandust and Makidi, 1400–1750 m, A. & M. 20181.

Alliaria petiolata (M. B.) Cavara & Grande—NW. of Veinagh, 1300–1400 m, A. & V. 24657; between Vaighan and Kharil, ca. 1500 m, A. & V. 24803; between Kaleibar and Makidi, 1400–1750 m, A. & M. 20134.

Alyssum alyssoides (L.) L.— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20016; Doghroon mountain, 2500–2800 m, A. & S. 24002; between Makidi and Veinagh, 1000–1700 m, W. & A. 17071.

Alyssum longistylum (Sommier & Levier) Grossh. & Schischk.— Doghroon mountain, A. & S. 24034; mountains S. of Vaighan 1200–1500 m, A. & M. 20354; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20098; Doghroon mountain, 2500 m, A. & S. 23895; between Vaighan and Kharil, 2000 m, A. & V. 24821; Savabi & Raofi 101.

Alyssum strigosum Banks & Soland.— Ghaghalou, 650 m, A. & V. 24559.

Arabis nova Vill.— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20083.

Arabis sagittata (Bertol) DC.— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20085; W. of Makidi, 1600 m,

A. & M. 20241; between Vaighan and Kharil, ca. 1500 m, A. & V. 24800; between Vaighan and Veinagh, ca. 1000 m, A. & M. 20408; Doghroon mountain, 2200 m, R. & A. 21957.

Barbarea plantaginea DC.— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20032.

Camelina rumelica Velen.— NW. of Vaighan, 1300–1400 m, A. & V. 24681; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20111; W. slope of Doghroon mountain, 2200 m, R. & A. 22012.

Capsella bursa-pastoris (L.) Medicus— Mountains S. of Kharil, 2000–2500 m, in meadows, A. & M. 20272; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20030.

Cardamine impatiens L. var. *impatiens*— Saigram-Dagh mountain, 2300 m, A. & S. 24285.

Seen in and above the forest.

Cardamine uliginosa M. B.— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20045.

In a wet place.

Cardaria draba (L.) Desv.— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20119; Savabi & Raofi 121.

A weed in ruderal areas.

Chorispora tenella (Pall.) DC.— Between Kharil and Makidi, ca. 2000 m, A. & V.

24904; Savabi & Raofi 195.

Clypeola jonthlaspi L.— Between Makidi and Kaleibar, ca. 1700 m, A. & V. 25003; Saigram-Dagh mountain, 1500–2000 m, A. & S. 24344.

Conringia orientalis (L.) Andrz.— Between Doghroon and Saigram-Dagh mountains, 2300–2500 m, A. & S. 24158; between Veinagh and Vaighan, 1000–1400 m, A. & V. 24714; between Vaighan and Kharil, ca. 1500 m, A. & V. 24792.

Conringia planisiliqua Fisch. & C. A. Mey.— Tolua-Ali, 650 m, A. & V. 24929.

Descurainia sophia (L.) Webb & Berth.— Doghroon mountain, 2500 m, A. & S. 23894, A. & S. 24031.

Draba nemorosa L.— Doghroon mountain, 2500 m, A. & S. 23889; between Kharil and Makidi, 2000 m, A. & V. 24977.

Erysimum alpestre Ky. & Boiss.— W. of Makidi, ca. 2000 m, A. & M. 20243; between Vaighan and Kharil, ca. 1500 m, A. & V. 24800a.

There is, but only one locality for this species in Rechinger (1968 p. 262) *Flora Iranica* which the specimen apparently has not been seen by its author.

Ir.- Tur. element, has so far only been known from C. & E. Turkey to NW. Iran.

Erysimum cuspidatum (M. B.) DC.— Between Kaleibar and Hejrandust,

1350–1700 m, A. & M. 20086, A. & M. 20031; SE. of Makidi, 1600 m, R. & A. 22100, between Makidi and Kaleibar, ca. 1700 m, A. & V. 25023.

Erysimum strictisiliquum N. Busch.— NW. of Veinagh, 1300–1400 m, A. & V. 24659; between Tolua-Ali and Veinagh, 900 m, A. & V. 24570; Savabi & Raofi 248; Doghroon mountain, 2400–2700 m, A. & S. 24336.

A new report for Iran and K. H. Rechinger Flor Iranica area. It was originally described from Caucasia in a locality rather close to above gatherings (cf. Grossheim 1950 p. 246 and kart 301).

Erysimum subulatum J. Gay— Between Veinagh and Ghaghalou, 500–800 m, A. & M. 20551.

Hesperis hircana Bornm. & Gauba— Between Tolua-Ali and Veinagh, 900 m, A. & V. 24569; Saigram-Dagh mountain, 2300 m, A. & S. 24270; W. of Makidi, 1700 m, R. & A. 22046; Savabi & Raofi 24; between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20521; E. of Vaighan, 1200–1500 m, A. & M. 20303.

Distributed in Caucasia and N. Iran. *Hirschfeldia incana* (L.) Lagreze-Fossat— Ghaghalou, 650 m, A. & V. 24531; mountains S. of Vaighan, 1200–1500 m, A. & M. 20384.

Isatis cappadocica Desv.— Between

Vaighan and Veinagh, ca. 1000 m, A. & M. 20467.

Lepidium campestre (L.) R. Br.— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20035.; between Makidi and Kaleibar, ca. 1700 m, A. & V. 25000.

This species was reported as a new to Iran by Assadi (1983 p. 6).

Lepidium rudérale L.— Mountains S. of Vaighan, 1200–1500 m, A. & M. 20379.

Nasturtium officinale R. Br.— Between Veinagh and Vaighan, 1000–1400 m, A. & V. 24761.

Neslia apiculata Fisch.— W. of Doghroon, 2200 m, R. & A. 22013; between Kaleibar and Hejrandust 1350–1700 m, A. & M. 20108.

Rapistrum rugosum (L.) All.— Between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20088; NW. of Veinagh, 1300–1400 m, A. & V. 24680; between Saigram-Dagh mountain and Kaleibar, 1500–2000 m, A. & S. 24349; between Tolua-Ali and Veinagh, 1000–1200 m, A. & V. 24628.

Sinapis arvensis L.— Doghroon mountain, 2500 m, in field, A. & S. 23884.

Sisymbrium loeselii L.— Between Tolua-Ali and Veinagh, 1000–1200 m, A. & V. 24626; Ghaghalou, 650 m, A. & V. 24554; Saigram-Dagh mountain, 2300 m, A. & S. 24275; between Doghroon and Saigram-Dagh mountains, 2500–

2700 m, A. & S. 24202; Doghroon mountain, A. & S. 24032, A. & S. 24322, R. & A. 21947; between Vaighan and Veinagh, ca. 1000 m, A. & M. 20457. *Thlaspi arvense* L.— Between Vaighan and Kharil, ca. 1500 m, A. & V. 24858; Doghroon mountain, 2500 m, A. & S. 23885; Savabi & Raofi 212; between Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20052.

Thlaspi perfoliatum L.— Between Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20116; Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24119.

Turritis glabra L.— Between Makidi and Veinagh, 1000–1700 m, W. & A. 17015.

Cucurbitaceae

Bryonia aspera Stev. ex Ledeb.— Between Kharil and Makidi, ca. 2000 m, A. & V. 24881; between Tolua-Ali and Veinagh, 1200 m, A. & V. 24623; SE. of Makidi, 1400–1800 m, R. & A. 22083.

Cuscutaceae

Cuscuta brevistyla A. C. H. Braun ex A. Rich.— Between Vaighan and Veinagh, ca. 1000 m, A. & M. 20481.

Cuscuta sp.— Between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20507.

Dioscoreaceae

Tamus communis L.— Mountains E. of Vaighan, 1300–1600 m, A. & M. 20287.

Dipsacaceae

Cephalaria hirsuta Stapf— Doghroon mountain, 2200–2800 m, R. & A. 20944, A. & S. 23968; Savabi 202.

Described from W. Iran and distributed to NW. Iran and E. Turkey.

Dipsacus laciniatus L.— Between Doghroon mountain and Makidi, 1600 m, R. & A. 22032.

Dipsacus strigosus Willd.— Saigram-Dagh. ca. 1300 m, A. & S. 24258.

Described from N. Iran and distributed to E. Turkey and S. Russia.

Pterocephalus plumosus (L.) Coulter— Between Tolua-Ali and Veinagh, 1000 m, A. & V. 24607.

Flower colour of the only specimen from the area is yellowish-brown, therefore the variation in the flower colour has to be more extended. The flower colour which has previously been mentioned in literature for this species is different shades of the colour mauve. *Scabiosa argenta* L.— Savabi & Raofi s.n. *Scabiosa caucasica* M. B.— Doghroon mountain, 2300–2500 m, R. & A. 22008a; A. & S. 24084; Savabi 206.

Confined to grasslands near the top of the mountains. Distributed to Caucasia and E. Turkey.

Scabiosa hyrcanica Stev.— Between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24379, A. & S. 24377; W. of Makidi, R. & A. 22045; between Doghroon and Makidi, 1800 m, R. & A. 22029; Savabi & Raofi 65.

Confined to in and above the *Quercus* forests.

Scabiosa persica Boiss.— Mountains E. of Vaighan, 1300–1600 m, A. & M. 20292; Ghaghalou, 650 m, A. & V. 24565; Tolua-Ali, 650 m, A. & V. 24923; Ghaghalou, 650 m, A. & V. 24530, A. & V. 24953; between Tolua-Ali and Veinagh, 1000–1200 m, A. & V. 24640; between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20532; below Veinagh, 500–900 m, W. & A. 17106.

Scabiosa sulphurea Boiss. & Huet— Doghroon mountain, 2300 m, R. & A. 22008b.

Growing on meadows together with *S. caucasica* and is distinguished from it in having yellow flowers (not blue) and smaller floral parts.

This species is reporting for the first time from Iran. Previously supposed to be endemic to E. Turkey.

Euphorbiaceae

Andrachne telephioides L.— Between Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20092.

Euphorbia azerbaijdzhanica Bordz.— Between Tolua-Ali and Veinagh, 800 m, A. & V. 24618; between Makidi and Kaleibar, ca. 1700 m, A. & V. 25017 and A. & M. 20069; between Saigram-Dagh mountain and Kaleibar, 2000 m, A. & S. 24388.

Euphorbia condylocarpa M. B.— Between Doghroon and Saigram-Dagh mountains, 2300–2500 m, A. & S. 24170; W. of Makidi, ca. 2500 m, A. & M. 20255; between Makidi and Veinagh, 1000–1700 m, W. & A. 17062.

Distributed in Caucasia and N. Iran. *Euphorbia falcata* L.— Between Hejrاندust and Makidi, 1400–1750 m, A. & M. 20136; mountains S. of Vaighan, 1200–1500 m, A. & M. 20358.

Euphorbia helioscopia L.— Between Vaighan and Kharil, ca. 1500 m, A. & V. 24812; between Veinagh and Vaighan, 1000–1400 m, A. & V. 24695.

Euphorbia iberica Boiss.— Between Hejrاندust and Makidi, 1400–1750 m, A. & M. 20143; between Doghroon and Saigram-Dagh mountains, 2300–2500 m, A. & S. 24175; between Doghroon mountain and Makidi, 2100 m, R. & A. 22017.

Growing in open places at margin of forests and fields.

There are, but few localities in Flora Iranica (cf. Rechinger & Schiman-Czeika 1964 p. 41) which apparently the specimens have not been seen by the authors.

Distributed in Caucasia, NE. & E. Turkey and N. Iran.

Euphorbia orientalis L.— Between Tolua-Ali and Veinagh, 1000–1200 m, A. & V. 24648; between Veinagh and Vaighan, 1000–1400 m, A. & V. 24745; A. & M. 20474.

Growing in forests.

Euphorbia seguieriana Neck.— Between Doghroon and Saigram-Dagh mountains, 2300–2500 m, A. & S. 24169; Doghroon mountain, 2100 m, R. & A. 20952, A. & S. 24024; between Makidi and Kaleibar, ca. 1700 m, A. & V. 25027.

Leaves in the specimens are either erect or spreading, number of rays varies from 7 to 15 and raylet leaves are ovate-deltoid, therefore considering key characters mentioned by Radcliff-Smith (1982 p. 620) all specimens fall in the subsp. *seguieriana* which has not been included by Rechinger & Schiman-Czeika (1964) in Flora Iranica.

Euphorbia squamosa Willd.— Doghroon mountain, 2100 m, R. & A. 21975, A. & S. 24098 and A. & S. 24139; between Vaighan and Kharil, ca. 1500 m, A. & V.

24861.

A Hyrcano-Euxine element distributed in Caucasia, N. Turkey and N. Iran. *Euphorbia stricta* L.— Savabi & Raofi s.n.

Fagaceae

Quercus macranthera Fisch. & C. A. Mey.— Between Kharil and Makidi, ca. 2000 m, A. & V. 24897; between Vaighan and Kharil, ca. 1500 m, A. & V. 24776; between Hejrandust and Makidi, 1400–1750 m and A. & M. 20141.

Dominant tree of the forests in the altitudes between 1500 to 2300 m. *Quercus petraea* L. subsp. *iberica* (Stev.) Krassiln—Mountains S. of Vaighan, 1200–1500 m, A. & M. 20365; SE. of Makidi, 1500 m, R. & A. 22113; between Tolua-Ali and Veinagh, 1000–1200 m, A. & V. 24633; between Kaleibar and Makidi, 1300–1700 m, W. & A. 16979.

Easily distinguished from the preceding species by having glabrous young branches. It comprises forests from the altitude 1000 m to 1500 m.

Fumariaceae

Fumaria asepala Boiss.— Savabi & Raofi s.n.

Fumaria vaillantii Loisl.— Between

Hejrاندust and Makidi, 1400–1750 m, A. & M. 20163; between Vaighan and Kharil, ca. 1500 m, A. & V. 24850.

Gentianaceae

Centaurium minus Moench— Makidi, 1400 m, R. & A. 22053.

Centaurium pulchellum (Swartz) Druce Savabi & Raofi 300.

Gentiana cruciata L.— Doghroon mountain, 2100 m, R. & A. 21981; Savabi 232.

Euro-Sib. element distributed from C. & S. Europe to N. Iran.

Gentiana gelida M. B.— Doghroon mountain, 2300 m, on meadows, R. & A. 20936.

Euxine element distributed in Caucasia, N. & E. Turkey and NW. Iran.

Gentianella caucasea (Loddiges ex Sims) Holub— Doghroon and Kalan mountains, 2300–2500 m, grasslands at top region, A. & S. 24123.

Euxine element distributed in N. Turkey, Caucasia and NW. Iran.

Gentianella ciliata (L.) Borkh subsp. *blepharophora* (E. Bordz.) Pritchard, syn.: *Gentiana ciliata* auct. Fl. Iranica.— Doghroon mountain, 2200–2400 m, R. & A. 21949.

It differs from the typical species by having shorter corolla than 35 mm. In my specimen 28 mm.

Menyanthes trifoliata L.— Makidi, 1400 m, R. & A. 22071.

Recently reported from Iran (cf. Assadi 1983 p. 6)

Geraniaceae

Erodium cicutarium (L.) L'Her. ex Aiton— Between Tolua-Ali and Veinagh, 900 m, A. & V. 24615; Saigram-Dagh mountain, ca. 1300 m, A. & S. 24238; Tolua-Ali, 650 m, A. & V. 24913; between Saigram-Dagh mountain and Kaleibar, 2000 m, A. & S. 24398; between Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20033.

Geranium lucidum L.— Near Veinagh, ca. 1500 m, A. & V. 25040.

Geranium platypetalum Fisch. & C. A. Mey.— Saigram-Dagh mountain, ca. 1300 m, A. & S. 24222; between Veinagh and Vaighan, 1000–1400 m, A. & V. 24759; Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24113 and A. & S. 24145.

In an above the forest on meadows.

Hyrcano-Euxine element distributed in Caucasia, NE. Turkey and N. & NW. Iran.

Geranium pratense L. subsp. *finitimum* (Woronow) Kunth.— Doghroon mountain, 2300–2800 m, on meadows, R. & A. 21893, A. & S. 24144 and A. & S.

23963; between Vaighan and Kharil, ca. 1500 m, A. & V. 24764.

Recently reported by Assadi (1983 p. 4) under *G. pratense* as a new to Iran.

In and above the forest on high-land meadows.

Euxine element distributed in NE. Turkey, Caucasia and NW. Iran.

Geranium pusillum L.— Saigram-Dagh mountains, ca. 1300 m, A. & S. 24237; between Vaighan and Kharil, ca. 1500 m, A. & V. 24793.

Geranium pyrenaicum Burn. f.— Between Doghroon and Saigram-Dagh mountains, 2500–2700 m, A. & S. 24183; Saigram-Dagh mountain, ca. 2300 m, A. & S. 24262; between Vaighan and Kharil, ca. 1500 m, A. & V. 24817; between Hejrandust and Makidi, 1400–1750 m, A. & M. 20175.

Growing in and above the forests on grassland slopes.

Geranium robertianum L.— W. of Makidi, ca. 1500 m, A. & M. 20205; Doghroon mountain, 2100 m, R. & A. 21976; Savabi & Raofi s.n., A. & S. 24373; Tolua-Ali, 650 m, A. & V. 24938; between Vaighan and Kharil, ca. 1500 m, A. & V. 24820; between Kaleibar and Makidi, 1300–1700 m, W. & A. 16968 and A. & M. 20046; Tolua-Ali, 650 m, A. & V. 24922a.

Geranium rotundifolium L.— Tolua-Ali,

650 m, 24922; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20077; between Tolua-Ali and Veinagh, 900 m, A. & V. 24616.

Geranium sylvaticum L.— Between Vaighan and Kharil, ca. 1500 m, A. & V. 24765; Doghroon and Kalan mountains, 2300–2500 m, A. & S. 42114; between Kaleibar and Makidi, 1300–1700 m, W. & A. 16988.

Euro-Sib. element growing in and above the forest of *Quercus* spp.

Geranium tuberosum L.— Between Kharil and Makidi, 2300 m, A. & V. 24876; between Kaleibar and Hejrandust, 1350–1700 m.

Grossulariaceae

Ribes biebersteinii Berl. ex DC.— Saigram-Dagh mountain, 2300 m, A. & S. 24266; Doghroon mountain, 2100 m, R. & A. 21979; between Vaighan and Kharil, ca. 1500 m, A. & V. 24825.

Scattered shrubs in and at the margin of *Quercus macranthera* and *Q. petraea* forests.

Euxino-Hyrcanian element distributed in Caucasia, NE. Turkey and N. W. & N. Iran. In N. Iran it has rarely been found (cf. Assadi & Wendelbo 1977 p. 106).

Ribes orientale Desf.— Between Kharil and Makidi, ca. 2000 m, in forest, A. &

V. 24893.

Guttiferae

Hypericum hirsutum L.— Doghroon mountain, 2100 m, R. & A. 21972; Savabi & Raofi s.n.; Saigram-Dagh mountain, 2500 m, A. & S. 24289.

In and above the forest.

Hypericum hyssopifolium Chain subsp. *elongatum* (Ledeb.) Woron. var. *elongatum* — Doghroon mountain, 2500—2800 m, A. & S. 24006, A. & S. 24081; between Vaighan and Kharil, ca. 1500 m, A. & V. 24839.

Hypericum hyssopifolium Chain subsp. *elongatum* (Ledeb.) Woron. var. *microcalycinum* (Boiss. & Heldr.) Boiss.—Mountains S. of Vaighan, 1200—1500 m, A. & M. 20385; between Vaighan and Veinagh, ca. 1000 m, A. & M. 20435, A. & V. 24705.

This variety which has not previously been reported from Iran differs from the preceding variety in having sepals with regular marginal glands.

Hypericum linarioides Boiss.— Doghroon mountain, 2500—2800 m, A. & S. 23979 and A. & S. 23888.

Euro-Siberian element extends from E. Europe to N. Iran.

Hypericum perforatum L.— Between Vaighan and Veinagh, ca. 1000 m, A. &

M. 20482; Savabi & Raofi s.n.; Doghroon mountain, R. & A. 21856; between Doghroon and Saigram-Dagh mountains. 2500—2700 m, A. & S. 24191.

Hypericum scabrum L.— Doghroon mountain, A. & S. 23972; Savabi 128.

Labiatae

Acinos graveolens (M. B.) Link— Between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20542.

Ajuga comata Stapf, syn. *A. pseudochia* Schost.; *A. chia* Benth. p. p.— Between Veinagh and Vaighan, 1000—1400 m, A. & V. 24704; Between Kharil and Makidi, 1700 m, A. & V. 24960; between Hejrandust and Makidi, 1400—1750 m, A. & M. 20190.

Ajuga orientalis L.— Between Vaighan and Kharil, Ca. 1500 m, A. & V. 24763.

Ballota nigra L.— SE. of Makidi, 1600 m, R. & A. 22103.

Betonica grandiflora Willd.— Doghroon and Kalan mountains, 2300—3500 m, on meadows, A. & S. 24111; A. & S. 23990, R. & A. 21983, A. & S. 24100; Saigram-Dagh mountain, ca. 2300 m, A. & S. 24261, A. & S. 24332.

Euxinian element distributed in Caucasia, N. Turkey and NW. Iran.

Calamintha sylvatica Bromf. subsp.

sylvatica—Savabi and Raofi s.n.

Euro-Siberian element distributed from Europe to N. Iran (cf. Davis and Leblebici 1982. p. 327).

Clinopodium vulgare L. subsp. *orientale* Bothner—Between Vaighan and Veinagh, ca. 1000 m, A. & M. 20416; between Vaighan and Kharil, ca. 1500 m, A. & V. 24801; between Tolua-Ali and Veinagh, 1000–1200 m, A. & V. 24645; Makidi, 1790 m, R. & A. 22043; SE. of Makidi, 1700 m, R. & A. 22090; Doghroon mountain, 2300 m, A. & S. 24149. *Eremostachys laciniata* (L.) Bge.—Tolua-Ali, 650 m, A. & V. 24944; between Kharil and Makidi, ca. 2000 m, A. & V. 24885.

Lallemantia iberica (Stev.) Fisch. & C. A. Mey.—Between Veinagh and Vaighan, 1000–1400 m, A. & V. 24721; A. & M. 20476.

Lallemantia peltata (L.) Fisch. & C. A. Mey.—Doghroon mountain, 2500 m, A. & S. 23948; E. of Vaighan, 1200–1500 m, A. & M. 20331.

Lamium album L.—W. of Makidi, 1500 m, A. & M. 20207, A. & M. 20227; between Vaighan and Kharil, ca. 1500 m, A. & V. 24859; between Vaighan and Kharil, ca. 1500 m, A. & V. 24807, Doghroon mountain, 2500 m, A. & S. 23933.

Lamium amplexicaule L.—Between

Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20028.

Leonurus cardiaca L. subsp. *cardiaca*—Between Tolua-Ali and Veinagh, 900 m, A. & V. 24573; between Doghroon mountain and Makidi, 1800 m, R. & A. 22021; East of Vaighan, 1200–1500 m, A. & M. 20321.

Marrubium anisodon C. Koch—Between Tolua-Ali and Veinagh, 900 m, A. & V. 24572; between Veinagh and Vaighan, ca. 1000 m, scrub forest. A. & M. 20452.

Marrubium astracanicum Jacq.—Doghroon mountain, grassland, 2500 m, A. & S. 23901; between Tolua-Ali and Veinagh, 1100 m, A. & V. 24608, between Makidi and Kaleibar, ca. 1700 m, A. & V. 25009.

Marrubium parviflorum Fisch. & C. A. Mey.—Between Saigram-Dagh mountain and Kaleibar, 1500–2000 m, A. & S. 24347; Doghroon mountain, 2100 m, R. & A. 20955.

Mentha longifolia (L.) Hudson—Doghroon mountain, 2300–2800 m, R. & A. 21891; R. & A. 21855; Savabi & Raofi s.n.

Flower colour in specimen R. & A. 21855 diverges from rose-purple to whitish.

Nepeta betonicifolia C. A. Mey., syn.: *N. grossheimii* Pojark.—Doghroon mountain, 2500 m, on meadows, A. & S.

23938.

Distributed in E. Turkey, Caucasia and NW. Iran.

Nepeta nuda L. subsp. *nuda*— Saigram-Dagh mountain, ca. 2300 m, on meadow, A. & S. 24215.

Nepeta racemosa Lam., syn.: *N. mussinii* Spreng.— Between Vaighan and Kharil, ca. 1500 m, A. & V. 24841; A. & V. 24806, A. & V. 24768; between Kharil and Makidi, ca. 2000 m, A. & V. 24956; between Kaleibar and Hejrandust 1330–1700 m, A. & M. 20040.

Nepeta speciosa Boiss. & Nöe, syn.: *N. strictifolia* Pojark.— Between Vaighan and Kharil, ca. 1500 m, A. & V. 24823; Saigram-Dagh mountain, 2300 m, on meadows, A. & S. 24232.

N. strictifolia was mentioned by Rechinger (1982 p. 177) and Hedge & Lamond (1982 p. 278) in synonymy list of *N. betonicifolia*. By comparison above mentioned specimens with the description and illustration of *N. strictifolia* (cf. Pojarkova 1954 p. 365 and plate 22, 2), authentically named material of *N. betonicifolia* and the type of *N. speciosa*, I came to the conclusion that *N. strictifolia* is synonym of *N. speciosa*.

Nepeta zangezura Grossh. — W. slope of Doghroon mountain, wet place at a brook, 2200 m, R. & A. 21999.

This species is a new to Iran. It differs

from the preceding species in having more branched stems and inflorescences and different calyx teeth (shorter and broader, i.e. broadly triangular).

Origanum vulgare L. subsp. *vulgare* — Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24075; R. & A. 22004; Savabi & Raofi 225.

Growing on meadows above the forests.

Phlomis caucasica Rech. f.— Doghroon mountain, 2000 m, R. & A. 20943.

Distributed in NW. & W. Iran and Caucasia.

Phlomis herba-venti L. subsp. *lenkoranica* (Knorring) Rech. f.— Between Veinagh and Ghaghalou, ca. 1000 m, A. & M. 20534; between Saigram-Dagh and Kaleibar, 2000 m, A. & S. 24294; Savabi & Raofi s.n.

Phlomis tuberosa L.— Doghroon mountain, 2300–2800 m, high-grown meadow, R. & A. 21871, A. & S. 24121.

Prunella vulgaris L.— Saigram-Dagh mountain, 2300 m, Grassland, A. & S. 24230; Doghroon mountain, 2500–2800 m, wet meadow, R. & A. 21894.

Salvia aethiopsis L.— Between Vaighan and Kharil, ca. 1500 m, A. & V. 24810; Saigram-Dagh mountain, 2300 m, A. & S. 24281.

Salvia fominii Grossh.— Between Makidi and Kaleibar, ca. 1700 m, A. & V.

25020; Doghroon mountain, 2500 m, A. & S. 23918; between Hejrandust and Makidi, 1400–1750 m, A. & M. 20130; between Tolua-Ali and Veinagh, 1200 m, A. & V. 24624.

This species is a new to Iran. It was originally described from Caucasia in a place close to my gathering and said to differ from its close relative, *S. limbata* C. A. Mey. by totally leafy stem, shorter corolla and etc.

I have not seen the type of *S. fominii*, but stem-leaves character of the description agree with my plants, however there seems to be a variation in corolla size and no clear cut difference could be found on that point. More differences could be found in leaf texture and calyx indumentum of the two species. Leaf texture of *S. limbata* is rough and somewhat coriaceous and on the calyx many yellow glands are visible, whereas leaves of *S. fominii* are foliaceous and yellow glands on the calyx \pm disappear.

S. fominii is found in the area in scrub forests and on meadows.

Salvia limbata C. A. Mey.— Between Veinagh and Vaighan, 1000–1400 m, A. & V. 24747, A. & M. 20421.

Distributed in Caucasia, Turkey and Iran.

Salvia nemorosa L.— NW. of Veinagh, 1300–1400 m, A. & V. 24679.

Salvia sclarea L.— Between Saighram-Dagh mountain and Kaleibar, 1500–2000 m, A. & S. 24354; between Veinagh and Vaighan, ca. 1000 m, A. & M. 20409.

Salvia verbascifolia M. B.— Between Doghroon and Saigram-Dagh mountains, 2300–2500 m, A. & S. 24165; Doghroon mountain, 2500–2800 m, grassland at top region, A. & S. 23976.

This species was recorded by Boissier (1879 p. 619) from NW. Iran, but apparently not included by Hedge (1982) in Rechinger Flora Iranica. However above mentioned specimens well agree with the description of the species and have been collected from near the Caucasian records of the species. I doubt if *S. atropatana* Bge. which has been mentioned from E. turkey and Iran (NW. N., W. & E.), but not Caucasia is specifically distinct from this species.

Salvia verticillata L.— Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24102, R. & A. 21935; between Doghroon and Saigram-Dagh mountains, 2300–3500 m, A. & S. 24159; mountains S. of Vaighan, 1700–2000 m, A. & M. 20280; between Hejrandust and Makidi, 1400–1750 m, A. & M. 20142.

Salvia viridis L.— Ghaghalou, 650 m, A. & V. 24561; Tolua-Ali, 650 m, A. & V. 24940.

A Mediterranean element distributed from Mediterranean area to Iran.

Satureja laxiflora C. Koch— Between Saigram-Dagh mountain and Kaleibar, 1500–2000 m, Rocky slope, A. & S. 24346.

Distributed in Caucasia, Turkey and NW. Iran.

Satureja macrantha C. A. Mey.— Between Saigram-Dagh mountain and Kaleibar, 1500–2000 m, A. & S. 24341.

Distributed in Caucasia, E. Turkey, N. Iraq and NW. Iran.

Scutellaria pinnatifida A. Hamilt— Tolua-Ali, 650 m, A. & V. 24915; between Vaighan and Kharil, ca. 1500 m, A. & V. 24842; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20044; Doghroon mountain, 2500 m, A. & S. 23906, A. & S. 24004; Saigram-Dagh mountain, 2400–2700 m, A. & S. 24328.

Sideritis montana L., syn. *S. comosa* (Rochel) Stank.— Ghaghalou, 650 m, A. & V. 24542; between Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20079b; between Kharil and Makidi, ca. 2000 m, A. & V. 24879; Savabi 249. *Stachys annua* L., syn.: *S. pubescens* Ten.— Between Veinagh and Vaighan, 1000–1400 m, in *Quercus* forest, A. & V. 24697; SE. of Makidi, 1500 m, dry meadow, R. & A. 22101; between

Kaleibar and Hejrandust, 1350–1700 m, A. & M. 20079; below Veinagh, 500–900 m, W. & A. 17110; between Makidi and Kaleibar, ca. 1700 m, A. & V. 25014; between Kharil and Makidi, 2400–2700 m, A. & V. 24878.

Annual or perennial plants, growing in and above the forest on high-grown grasslands. Rechinger (1982 p. 377) is keeping *S. pubescens* (perennial), as a distinct species from *S. annua* (annual), based on the living duration of them, but this seems to be unpractical as annual, biennial and perennial plants grow in one area.

Stachys atherocalyx C. Koch — Between Vaighan and Kharil, ca. 1500 m, A. & V. 24807a; W. Slope of Doghroon mountain, 2200 m, R. & A. 21992.

This species has not been included in Flora Iranica (cf. Rechinger l. c.), but Bhattacharjee (1982 p. 242) mentions N. & NW. Iran in the distribution of the species. It is an Euxinian (?) element distributed in Caucasia, NE. Turkey and NW. Iran.

Leaves in above mentioned specimens are broader than the usual, reaching up to 24 mm.

Stachys balansae Boiss. & Kotschy ex Boiss.— Doghroon and Kalan mountains, 2300–2500 m, high-grown grasslands, A. & S. 24106; Doghroon mountain, 2500–

2800 m, meadow, R. & A. 21887. *Stachys byzantina* C. Koch— Savabi & Raofi 236.

Euxino-Hyrcanian element distributed in N. Turkey, Caucasia and N. & NW. Iran.

Stachys inflata L.— Between Makidi and Veinagh, 1000–1700 m, W. & A. 17069; between Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20100; Doghroon mountain, 2300 m, R. & A. 20991, A. & S. 24025; Tolua-Ali, 650 m, A. & V. 24914.

Stachys lavandulifolia Vahl— Between Kaleibar and Hejrاندust, 1350–1700 m, A. & M. 20078; between Vaighan and Kharil, ca. 1500 m, A. & V. 24802; Doghroon and Kalan mountains, 2300–2500 m, A. & S. 24147, A. & S. 23917; between Kharil and Makidi, ca. 2000 m, A. & V. 24892.

Stachys macrophylla Albov., syn.: *St. persica* Rech. f. in Flora Iranica no. 150; 360 (1982) p. p., non Gmel. Jun ex C. A. Mey.— Doghroon mountain, 2200–2500 m, wet high-grown meadow, R. & A. 22003, A. & S. 24086; Saigram-Dagh mountains, ca. 1300 m, A. & S. 24263.

The distribution of the species is in Caucasia, N. Turkey, and N. & NW. Iran. Euxino-Hyrcanian element.

Stachys sylvatica L.— SE. of Makidi, 1600 m, wet forest margin, R. & A.

22097; mountains S. of Vaighan, 1200–1500 m, brooklet-side, A. & M. 20375.

Euro-Siberian element.

Teucrium chamaedrys L.— Doghroon mountain, 2200–2400 m, dry meadow, R. & A. 21929; between Vaighan and Veinagh, ca. 1000 m, A. & M. 20469; between Tolua-Ali and Veinagh, 900 m, A. & V. 24614; Savabi & Raofi 3; between Saigram-Dagh mountain and Kaleibar, 1500–2000 m, A. & S. 24348.

Teucrium orientale L. subsp. *orientale*— Between Vaighan and Veinagh, ca. 1000 m, A. & M. 20471; between Tolua-Ali and Veinagh, 1000 m, A. & V. 24577; mountains S. of Vaighan, 1200–1500 m, A. & M. 20367.

Teucrium polium L.— Between Tolua-Ali and Veinagh, 900 m, A. & V. 24593; between Vaighan and Veinagh, ca. 1000 m, A. & M. 20479; Doghroon mountain, 2300 m, R. & A. 20989; 1800 m, Savabi & Raofi 224.

Thymus spp.— Some species collected in the area, but they have not yet been named.

Ziziphora capitata L. subsp. *capitata* Ghaghalou, 650 m, A. & V. 24533; between Vaighan and Veinagh, ca. 1000 m, A. & M. 20405.

Ziziphora clinopodioides Lam. subsp. *rigida* (Boiss.) Rech. f.— 800 m, Savabi & Raofi 55.

Ziziphora clinopodioides Lam. subsp. *szowitsii* (Rech. f.) Rech. f.— Doghroon mountain, 2300 m, R. & A. 20985; 2700 m, Savabi & Raofi 220; Doghroon mountain, 2500—2800 m, grasslands at top region, A. & S. 24003; Saigram-Dagh mountains, 1500—2000 m, A. & S. 24342.

This subspecies is distributed to Talish and NW. Iran. It is growing in the area on high-grown meadows.