

Botanical Criterions of Quchan Baharkish pastureland in Khorasan Razavi Province, Iran

*¹SAEED, JAHEDI POUR ²ALIREZA, KOOCHEKI ³MEHDI, NASSIRI MAHALLATI ⁴PARVIZ REZVANI MOGHADDAM

¹Department of Agroecology and Plant Breeding, Ferdowsi University of Mashhad International Campus, Mashhad, I.R of Iran ²Department of Agronomy and Plant Breeding, Faculty of Agriculture, Ferdowsi University of Mashhad, Mashhad, I.R of Iran *Corresponding Author Email: saeed_jahedi2020@yahoo.com

ABSTRACT: Rangelands are natural ecosystems containing a range of resources of genetic reserves and numerous plant species and its evaluation has always been essential. However, biodiversity is one of the most important components of Habitat assessment and the identification and introduction of the flora of an area is one of the significant operations that can be used in order to optimize the utilization of the available natural resources. Baharkish rangeland is located at a distance of about 60 km south of the city of Quchan. The rangeland's average elevation is about 2069 m above sea level, with its lowest at 1740 m and highest at 2440m. Baharkish rangland in over a ten year period has had the average annual rainfall of 337 mm and 998.2 mm evaporation as well as average annual temperature of 9.4°C, respectively. The results of the research conducted in the spring of 2014, showed that the total study area includes 22 species from 78 families with Poaceae, Asteraceae, Lamiaceae, Apiaceae, Brassicaceae, Caryophyllaceae and Papilionaceae being the dominant families with respectively 19, 15, 12, 9, 8, 7, and 5 frequencies. Classification of biological Form according to Raunkiær method showed the dominance of the hemicryptophytes with the greatest frequency (42%), followed by Therophytes, Chamaephytes, Cryptophyte, and Phanerophytes with 30%, 15%, 8% and 5% of species are the dominant life forms of the area. In terms of geographical distribution, the Iran-Turanian plant species with the frequency of 63% obtained the maximum value. © JASEM

Keywords: Biological Form, Flora, Geographical distribution, plant vegetation, Raunkiaer.

Due to the importance of the subject in Iran, a lot of studies have been conducted on the flora and species composition in different regions of the country, all of centralized on the preparation and which measurement of the floristic list (number of species) and plant cover structure in terms of family and bioforms. Study on vegetation has been useful in the resolution of ecological problems such as biological conservation and natural resource management. Based on the results, future changes can be predicted. Moreover, the understanding of herbal elements contained in one area is considered as the underlying principle for other researches. Iran, due to its remarkable climatic variations, is confronted with different ecosystems each having specific characteristics and different inter-relations. Recognizing the immense resources understanding the relationships between plants and factors affecting them, are important in order to maintain the consistency and stability of this part of the national wealth. In the case of shrubs and their impact on the community, it suffices to note their role in the expansion of production in the community, providing the possibility to use rangelands multipurposely, and increasing ecological stability (Koocheki et al., 2008). (Mousavi, 2004) in a floristic study in Khanchay Tarom watershed in Zanjan came to the conclusion that 71 percent of plants belonged to the Iranian-Turanian region. Among the life forms Hemicryptophytes and Therophytes respectively had accounted for the highest percentages. (Ashrafi et al., 2004) by the assessment of the flora in Varamin region identified 202 plant species, in which Iran-Turanian plants showed the highest distribution. (Kashipazha et al., 2004) by studying the the flora of Bagheshad found that 85.29% of the species belonged to the Iran - Turanian region. In the assessment of life-forms, they concluded that Hemicryptophytes and Therophytes were the most frequent life forms of the region. A great deal of previous research could be found on vegetation studies in different climates and locations which testify to the significance of this research, among which the readers are kindly refered to (Atashgahi et al., 2004; Dolatkhahi et al., 2011; Tovichi, 2011; Dolatkhahi et al., 2011; Kazemian et al., 2004; Gholami et al., 2006; Ghollassi Mood et al., 2006; Memarian et al., 2009; Dinarvand et al., 2015).

On account of the importance of the botany in different sciences such as agriculture, biology and pharmacy, with careful and thorough identification of the flora, this study set out to evaluate vegetation characteristics in Baharkish rangeland which is important in terms of medicine plants and forage production for a large part of the livestock in Khorasan Razavi Province for the first time. These studies are important for accessing specific plant species in a certain time and location, determination of rangeland's potential vegetation growth, the possibility of increasing vegetation density, identification of resistant, threatened or endangered species, determining the country's vegetation, the possibility of achieving new plant species, and identification of destructive factors for vegetation cover of the given area. The aim of this study is to provide basic floristic information to identify plant species for preservation, restoration and development of Quchan Baharkish Pastureland in Khorasan Razavi Province, IRAN.

MATERIALS AND METHODS

Geographical location and climatic conditions of the region: Baharkish rangeland lies between 58 40 and 58 36 E and 39 44 and 36 42 N, 60 Km away from south Quchan and the central part of Doghaei rural district, with an area of 1035 ha (Figure 1). The average height of the area is about 2069 meters above sea level (with minimum of 1740 m maximum of 2440 m). To undertake this study, an area of approximately 200 ha was selected in Baharkish rangeland with average grazing intensity with cutting and weighting method was choiced (Mesdaghi, 2003), proper species richness and diversity.

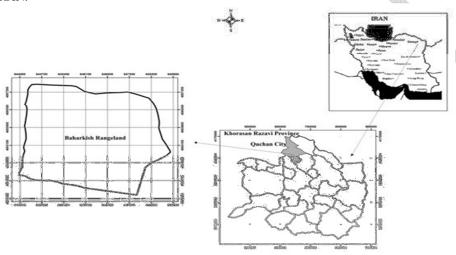


Fig. 1- Location of Baharkish rangeland in Quchan, Khorasan Razavi Province, IRAN

According to the long-term climate data from synoptic stations of Quchan city (data record from 25 years period in Evaporation measuring station of Aryeh and rain gauge station of Akhlamad), average annual precipitation and annual evaporation were estimated at 337 mm and 998.2 mm, respectively. Average annual temperature is 9.4°C with the lowest

and highest monthly values in January as well as July and August. Figure 2 shows the Ombrothermic diagram of Baharkish pasture. It can be seen that the dry period in Baharkish pasture is about 5 months, which starts from mid-May until late October (Annual report meteorological organization, 2013; Ministry of energy, 2013).

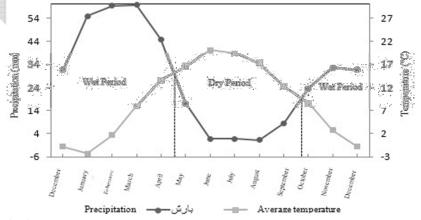


Fig. 2- Ambrotrmic curve of Baharkish rangeland based on long-term climatic data

Sampling Method: All maps (topographic map in the scale of 1:25000; geological map in the scale of 1:100000; Aerial photos in the scale of 1:20,000; and satellite images related to Baharkish rangeland in Quchan) were superimposed on four maps of slope gradient, aspect, hypsometry, and geological formations in the GIS software Arcmap 10.2 software environment, to produce working unit map, and 13 working units were determined. During the field surveys and vegetation sampling that tool place in spring 2014 a total of 10 plots were placed random systematicly in each unit. Plots with 2 square meters were used for vegetation sampling according to the Minimal area method (Aghaalikhani & Qushchi, 2005). The number of plots in each working unit. Parameters of cover, and number of plant species were determined for every plant species in each plot. Plot positions were also recorded using GPS in the U.T.M (Universal Transverse Mercator) Corrdination system.

Identification of Life form and chorology of plant species: During the field surveys in the spring of 2014, plants were collected, and dried using newspaper under pressure and then transferred to the Herbarium of the Ferdowsi University of Mashhad further identification. This stage for accomplished according to the available resources and conventional methods using identification keys. (Rechinger, 1967-1998: Townsend & Guest, 1966-1985 Cohary, 1966-1972 Davis, 1965-1988 Boissier, 1867-1888 Komarov, 1934-1954 'Assadi et al., 1988-2011 · Ghahreman, 1979-1992 · Maassoumi, 1986-2000 · Ghahreman, 1994 · Mobayen, 1975-1996 · Mozaffarian, 2003 & Mozaffarian, 2005). Classification of plant life forms was performed

based on the Raunkiaer (1934) system. In this system, plants are classified into five categories of phanerophytes Chamephytes, Hemicryptophytes, Geophytes and Therophytes. In addition, the geographical distribution of plants were obtained following (Léonard, 1988), (Zohary, 1963-1973), and (Takhtajan, 1986).

RESULTS AND DISCUSSION

The floristic study in baharkish rangelands resulted in the identification of 22 families and 78 species. These families include poaceae (19), Asteraceae (15), Laminaceae (12), Brassicaceae (9), Apiaceae (8), Papilionaceae (7), and Caryophyllaceae (5). Hemicryptophytes represent the most frequent life form in the area, with the Phanerophytes as the least frequent life form. Roughly 42% of the plant species are hemicryptophytes, 30% Therophytes, 15% Chamaephytes, and 8% Cryptophytes, and 5% Phanerophytes. In terms of geographical distribution, 63% of the plant species belong to the Iran-Turanian geographical growth form, while other species could be found in other vegetation growth areas throughout the country. Based on the findings of this study, 78 plant species have been identified which have formed different plant communities in respoense to their ecological requirements and applied managements over the years. Flora of a given area develops as the result of the interactions in the vegetation community and their reactions to the environmental parameters during eras. The study area here, given its vast expansion, ecosystem diversity and appropriate climatic condition, enjoys high floristic diversity which per se demands extensive and detailed studies to identify plant species (table 1).

Table 1- List of scientific names of species, life forms and geographical distribution of plants in Baharkish rangeland Ouchan

Scientific name	Taligerand Quenan			
	Plant family	Life	Chorology	
		forms		
Acantholimon khorassanicum	Caryophyllaceae	Ch	IT(End)	
Acanthophyllum bracteatum	Caryophyllaceae	Ch	IT	
Acroptilon repense	Asteraceae	He	IT	
Aeluropus littorallis	Poaceae	He	IT	
Agropyron trichophorum	Poaceae	He	IT	
Allium. xipnopetalium	Alliaceae	Cr	IT, ES, SS	
Alyssum linifolium	Brassicaceae	Th	IT, M	
Anchusa ovata	Boraginaceae	He	IT, ES	
Arrhenatherum kotschi	Poaceae	Ge	IT	
Artemisa. aucheri	Asteraceae	Ch	IT	
Artemisia khorassanica	Asteraceae	Ch	IT	
Asperula glomerata	Rubiaceae	Th	IT,M	
Astragalus podolobus	Papilionaceae	Ch	IT	
Astragalus heratensis	Papilionaceae	Ch	IT	
Atraphaxis. spinosa	Polygonaceae	Ph	IT	
Avena fatua	Poaceae	Th	IT,M	
Boissiera squarosa	Poaceae	Th	IT	
Brassica. napus	Brassicaceae	Th	IT,M	
Bromus tectorum L.	Poaceae	Th	Cosm	
Bupleorum exaltatum	Poaceae	Th	IT	
Carex stenophylla	Cyperaceae	He	Cosm	
Carthemus lanatus	Brassicaceae	Th	IT	
Ceratocarpus arenarius	Chenopodiaceae	Th	IT	

Cirsum Intybus Asteraceae He ES, M Colvolea bubsei Papilionaceae Ph IT (End.) Convolvulus arvensis Convolvulaceae Th IT,M Cotoneaster Ovata Rosaceae Ph IT (End.) Cousnia eryngiodes Asteraceae Th IT(End.) Crambe kotschyana Brassicaceae He IT Dactylis glomerata Poaceae He IT Dorema amoniacum Apiaceae He IT Ephnobra aucheri Apiaceae He IT Ephnobra aucheri Apiaceae He IT Ephnobra aucheri Apiaceae Th IT,M Eremurus luteus Liliaceae Ge IT (End.) Eruca sativa Brassicaceae He IT Erysimum latifolium Brassicaceae He IT Erysimum latifolium Brassicaceae He IT Erysimum latifolium Brassicaceae He IT Festuca ovina Apiaceae He IT Festuca ovina Apiaceae He IT Festuca ovina Poaceae He IT,M Gundelia tournefortii Asteraceae He IT,M Holiotropium khorassanicum Boraginaceae Th IT, M Holiotropium khorassanicum Boraginaceae He IT Lagochilus cabulicus Lamiaceae He IT Lagochilus cabulicus Lamiaceae He IT Lagochilus cabulicus Lamiaceae He IT Melicapersica Kunth Poaceae He IT Nonnea caspica Brassicaceae Th IT,ES Nonnea mucronata Capparidaceae He IT Nonnea caspica Boraginaceae He IT Plantago major Plantaginaceae He IT Plantago major Plan				
Convolvulus arvensis Cotoneaster Ovata Rosaceae Ph IT (End) Cousinia eryngiodes Asteraceae Th IT(End) Crambe kotschyana Brassicaceae Dactylis glomerata Poaceat Dianthus orientalis Caryophyllaceae Ch IT Dorema amoniacum Apiaceae He IT Echinops ritrodes Echinops ritrodes Echinops ritrodes Echinops irtodes Echinop	Cirsum Intybus		He	ES , M
Cotomeaster Ovata Cousinia eryngiodes Crambe kotschyana Dactylis glomerata Dactylis glomerata Doctylis glomerata Docome amoniacum Echinops ritrodes Echinops ritrodes Ephorbia aucheri Ephorbia aucheri Eryngium caucasicum Erysimum latifolium Erysimum latifolium Erysimum latifolium Brassicaceae He Erreula ovina Festuca ovina Glycyrrhiza glabra Glundella tournefortii Heliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Liniaria lineolata Melica persica kunth Noea mucronata Nonnea caspica Nonnea caspica Nonnea caspica Nonnea caspica Phalaris minor Poaceae Phalari IT, M.ES IT (End)				
Cousinia eryngiodes Crambe kotschyana Brassicaceae Brassi				
Crambe kofschyana Dactylis glomerata Dianthus orientalis Caryophyllaceae Echinops ritrodes Echinops ritrodes Ephedra major Ephedra major Epheria aucheri Epheria aucheri Epheria aucheri Eremurus luteus Erinca sativa Eryngium caucasicum Apiaceae He IT Glycyrrhiza glabra Glycyrrhiza glabra Glycyrrhiza glabra Fabaceae He IT,M Glycyrrhiza glabra Glycyrrhiza glabra Fabaceae He IT,M ES Fringium caucasicum Hordeum bulbosum L Poaceae He IT,M ES Hordeum bulbosum L Poaceae Cr IT,M ES Medicago rigidula Papilionaceae Medicaporsica Kunth Poaceae He Nonnea caspica Melicaporisia Asteraceae He IT Nonnea caspica Donopordon leptolepis Asteraceae He IT Findium Plantago major Plantagium Plantago major Plantagium Plantagium Plantago major Plantagium Plantago major Plantagium Plantagium Apiaceae He IT Findius Concellata Lamiaceae He IT Findius Concellata Lamiace				' '
Dactylis glomerata Poaceae He IT, M, ES Dianthus orientalis Caryophyllaceae Ch IT Dorena amoniacum Apiaceae He IT Echinops ritrodes Asteraceae He IT Ephedra major Ephedraceae Ph IT Errace astiva Brassicaceae Ge IT (End) Erysigium caucasicum Brassicaceae He IT Ferula ovina Paceae Ch IT Ferstuca ovina Paceaea He IT,M Glycyrrhiza glabra Fabaceae He </th <th>, 9</th> <th></th> <th></th> <th>' '</th>	, 9			' '
Dianthus orientalis Dorema amoniacum Echinops ritrodes Asteraceae Echinops ritrodes Echinops ritrodes Ephedra major Ephedra major Ephorbia aucheri Ephedra major Ephorbia aucheri Eremurus luteus Eiliaceae Eryngium caucasicum Erysimum latifolium Erysimum latifolium Erstuca ovina Eurotia ceratoides Erucia ceratoides Erucia ceratoides Chenopodiaceae Ch Ferula ovina Apiaceae He IT Ferula ovina Apiaceae He IT,M Glycyrrhiza glabra Gundelia tournefortii Heliotrojium khorassanicum Heliotrojium khorassanicum Heliotrojium khorassanicum Malcolmia strigosa Medicago rigidula Melica persica Kunth Nonea mucronata Nonea mucronata Nonea mucronata Nonea mucronata Capparidaceae Perovskia abratanoides Perovskia abratanoides Perangos latiliba Apiaceae Prangos latiliba Apiaceae He IT Mess Poaceae He IT Mess Poaceae He IT IT,M,SS Medicago Tighdula Papilionaceae He IT Noea mucronata Nonea caspica Perovskia abratanoides Perovskia abratanoides Perovskia abratanoides Perosa utilia Reseda cace Perangos latiliba Apiaceae Prangos latiliba Apiaceae He IT Salvia limbata Lamiaceae He IT Serratula latifoli Lamiaceae He IT Serratula latifoli Silene chaetodonta Striposal Tigonella monantha Teucrium polium Lamiaceae He IT Heliotrojium polium Lamiaceae He IT Hymus transcaspicus He IT Hymus transcaspicus Lami				
Dorema amoniacum Echinops ritrodes Asteraceae He Echinops ritrodes Asteraceae He IT Echinops ritrodes Ephedracaeae Ephedracaea Epherbia aucheri Eremurus luteus Liliaceae Eruca sativa Erryngium caucasicum Erryngium caucasicum Eurotia ceratoides Chenopodiaceae He Erryndia ovina Ferula ovina Ferula ovina Ferula ovina Ferula ovina Ferula ovina Ferula ovina Foaceae He IT,M Gundelia tournefortii Heliotropium khorassanicum Hordeum bulbosum L Lagochilus cabulicus Linaria lineolata Malcolmia strigosa Medicago rigidula Melica persica Kunth Nopeta practeata Noea mucronata Nonnea caspica Boraginaceae He IT Nonnea Reseda aucheri Resedaceae He IT Resedaceae He IT SS Perovskia abratanoides Lamiaceae He IT Resedaceae He IT SS Perostaia limbata Lamiaceae He IT Salvia limbata Lamiaceae He IT Trigonella monantha Teucrium polium Lamiaceae He IT Trigonella monantha Teucrium polium Lamiaceae He IT Linitri Verbascum agrimonifolium Scrophulariaceae He IT IT Verbascum agrimonifolium Scrophulariaceae He IT IT Verbascum agrimonifolium Scrophulariaceae He IT				
Echinops ritrodes Ephedra major Ephedraceae Ph IT Ermus luteus Liliaceae Ge IT (End) Eruca sativa Brassicaceae Th IT, M, ES Eryngium caucasicum Apiaceae Eurotia ceratoides Chenopodiaceae Ch IT Ferula ovina Apiaceae He IT, M Glycyrrhiza glabra Glycyrrhiza glabra Glycyrrhiza glabra Glycyrrhiza glabra Fabaceae He Heliotropium khorassanicum Hordeum bulbosum L Lagochilus cabulicus Linaria lineolata Malcolmia strigosa Medicago rigidula Papilionaceae Melica persica Kunth Noea mucronata Nonnea caspica Nonnea caspica Onopordon leptolepis Prevoskia bartanoides Phalaris minor Poaceae Phalaris minor Poac				
Ephedra major Ephorbia aucheri Apiaceae Th IT, M Eremurus luteus Eruca sativa Erryngium caucasicum Apiaceae Eryngium caucasicum Apiaceae Eryngium caucasicum Apiaceae Eurotia ceratoides Chenopodiaceae Ch IT Ferula ovina Apiaceae He IT, M Glycyrhiza glabra Glycyrhiza glabra Gundelia tournefortii Heliotropium khorassanicum Hordeum bulbosum L Linaria lineolata Malcolmia strigosa Medicago rigidula Malcolmia strigosa Medica persica Kunth Noea mucronata Noea mucronata Noea mucronata Capparidaceae He IT Nonnea caspica Boraginaceae He IT Nonnea caspica Ch Asteraceae He IT Nonnea caspica Boraginaceae He IT Nonss Prangos latiliba Lamiaceae He IT Reseda aucheri Reseda aucheri Reseda caee He IT Salvia limbata Lamiaceae He IT Sanguisorba minor Rosaceae He IT Sanguisorba minor Rosaceae He IT Silene chaetodonta Caryophyllaceae He IT Silene chaetodonta Caryophyllaceae He IT Silene chaetodonta Caryophyllaceae He IT Trigonella monantha Teucrium polium Lamiaceae He IT HT Verbascum agrimonifolium Scrophulariaceae He IT IT KES Hait IT IT,M IT,M IT,M IT,M IT,M IT,M IT,M I				
Ephorbia aucheri Eremurus luteus Eliaceae Eruca sativa Brassicaceae Eryngium caucasicum Erysimum latifolium Brassicaceae Eryngium caucasicum Erysimum latifolium Brassicaceae Eryngium caucasicum Erysimum latifolium Brassicaceae Eryngium caucasicum Eurotia ceratoides Chenopodiaceae Ch Fretula ovina Apiaceae He IT Festuca ovina Apiaceae He IT,M Glycyrrhiza glabra Gundelia tournefortii Asteraceae He IT,M Heliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Lamiaceae He IT Malcolmia strigosa Medicago rigidula Melica persica Kunth Poaceae Noea mucronata Noea mucronata Noea mucronata Noen a caspica Onopordon leptolepis Perovskia abratanoides Peroskia abratanoides Prangos latiliba Apiaceae He IT Plantago major Plantaginaceae He IT Plantago major Plantaginaceae He IT Sanguisorba minor Rosaceae He IT Serratula latifoli Silene chaetodonia Caryophyllaceae He IT Scripolum repens Trigonella monantha Teucrium polium Lamiaceae He IT, ES Heriosky lavendulifolia Lamiaceae He IT Lamiaceae He IT Nonscaphyllaceae He IT Nonscaphyllaceae He IT Noneae Resedau caleri Resedaeae He IT Nones Scariola orientalis Asteraceae He IT Silene chaetodonia Caryophyllaceae He IT Silene chaetodonia Caryophyllaceae He IT TES, M TI,ES, M TI,ES				
Eremurus luteus Eruca sativa Brassicaceae Th IT, M, ES Eryngium caucasicum Apiaceae Erysimum latifolium Brassicaceae He Ers, M Eurotia ceratoides Chenopodiaceae Ch IT Ferula ovina Apiaceae He IT Festuca ovina Poaceae He IT,M Glycyrrhiza glabra Gundelia tournefortii Asteraceae He Hilotropium khorassanicum Boraginaceae He Hilotropium khorassanicum Boraginaceae He IT,M ES Hordeum bulbosum L Poaceae Cr IT,M Lagochilus cabulicus Lamiaceae He IT Malcolmia strigosa Medicago rigidula Papilionaceae Th Nonea caspica Onopordon leptolepis Perovskia abratanoides Perosia abratanoides Prangos latiliba Papanaginaceae He IT,SS Proaceae Phalaris minor Poaceae Prangos latiliba Apiaceae He IT Sanguisorba minor Rosaceae He IT Silene chaetodonta Stachys lavendulifolia Lamiaceae He IT Lamiaceae He IT Thymus transcaspicus Trifolium repens Trigonella monantha Teucrium polium Lamiaceae He IT HIED Verbascum agrimonifolium Scrophulariaceae He IT Verbascum agrimonifolium Veronica khorassanica Scrophulariaceae				
Eruca sativa Eryngium caucasicum Apiaceae Eryngium caucasicum Erysimum latifolium Brassicaceae Eurotia ceratoides Chenopodiaceae Ch Ferula ovina Apiaceae He IT Festuca ovina Apiaceae He IT Festuca ovina Apiaceae He IT,M Glycyrrhiza glabra Gundelia tournefortii Heliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Linaria lineolata Malcolmia strigosa Medicago rigidula Melica persica Kunth Nonea mucronata Nonnea caspica Nonnea caspica Boraginaceae He IT Noae mucronata Nonnea caspica Donopordon leptolepis Asteraceae He IT Onopordon leptolepis Perovskia abratamoides Lamiaceae He IT Plantago major Plantagiam Apiaceae He IT Plantago major Plantaginaceae He IT NES Prangos latiliba Apiaceae He IT Serratula latifoli Silene chaetodonta Stipa barbata Thymus transcaspicus Trigonella monantha Teucrium polium Lamiaceae He IT Nores Scarophulariaceae He IT Nores Scarophulariaceae He IT Nores Repalaceae He IT IT,M ES He IT,M ES IT,M ES IT,M IT,M ES IT,ES IT,E	£			,
Eryngium caucasicum Erysimum latifolium Brassicaceae Erysimum latifolium Brassicaceae Eurotia ceratoides Chenopodiaceae Ch Ferula ovina Apiaceae He IT Festuca ovina Poaceae He IT,M Glycyrrhiza glabra Gundelia tournefortii Asteraceae He IT,M Heliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Linaria lineolata Rutaceae He IT,M IT,M,ES Medicago rigidula Melica persica Kunth Noea mucronata Nonnea caspica Onopordon leptolepis Asteraceae He IT Nonnea caspica Donopordon leptolepis Asteraceae He IT Nonnea caspica Donopordon leptolepis Asteraceae Phalaris minor Phlomis concellata Lamiaceae Phalaris minor Phlomis concellata Lamiaceae Phanago major Plantago major Plantaginaceae He IT Supublaceae He IT Supublaceae He IT Frest Reseda cace In IT,ES Salvia limbata Lamiaceae He IT Sanguisorba minor Rosaceae He IT Supublaceae He IT				
Erysimum latifolium Eurotia ceratoides Chenopodiaceae Ch Ferula ovina Apiaceae He IT Festuca ovina Poaceae He IT,M Glycyrrhiza glabra Fabaceae He IT,M Gundelia tournefortii Asteraceae He IT,M Heliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Lamiaceae He IT,M Malcolmia strigosa Medicago rigidula Melica persica Kunth Noea mucronata Noea mucronata Nonnea caspica Dnopordon leptolepis Perovskia abratanoides Perovskia abratanoides Perouskia abratanoides Phalaris minor Phalaris minor Phantago major Plantagianeae Phantago major Plantagianeaee Prangos latiliba Reseda aucheri Sanguisorba minor Rosaceae Resedaceae Resedace				
Eurotia ceratoides Ferula ovina Apiaceae He IT Festuca ovina Poaceae He IT,M Glycyrrhiza glabra Fabaceae He IT,M Gundelia tournefortii Asteraceae He IT,M Heliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Lamiaceae Lamiaceae He IT,M Haliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Lamiaceae Cr IT,M Linaria lineolata Rutaceae He IT Malcolmia strigosa Brassicaceae Th IT,K,SS Medicago rigidula Papilionaceae Th IT,ES Melica persica Kunth Poaceae Cr IT,ES,M,SS Nepeta practeata Lamiaceae He IT Nonnae acaspica Boraginaceae He IT Onopordon leptolepis Asteraceae Perovskia abratanoides Perovskia abratanoides Lamiaceae He IT,ES Phalaris minor Poaceae Th IT,M Phlomis concellata Lamiaceae He IT Pimpinella tragium Apiaceae He IT Plantago major Plantaginaceae He IT Plantago major Plantaginaceae He IT Sarpas bulbosa Poaceae Frangos latiliba Apiaceae He IT Sanguisorba minor Rosaceae He IT Sanguisorba minor Rosaceae He IT Sanguisorba minor Rosaceae He IT Sarratula latifoli Lamiaceae He IT Stachys lavendulifolia Lamiaceae He IT Thymus transcaspicus Trifolium repens Papilionaceae He IT,ES Papilionaceae He IT TH				
Ferula ovina Poaceae He IT. M Festuca ovina Poaceae He IT.M Glycyrrhiza glabra Fabaceae He IT.M Gundelia tournefortii Asteraceae He IT.M Heliotropium khorassanicum Boraginaceae Th IT. M. ES Hordeum bulbosum L. Poaceae Cr IT.M Lagochilus cabulicus Lamiaceae He IT Malcolmia strigosa Brassicaceae Th IT.M.SS Medicago rigidula Papilionaceae Th IT.ES Melica persica Kunth Poaceae Cr IT.ES.M,SS Nepeta practeata Lamiaceae He IT Nona mucronata Capparidaceae He IT Nonnea caspica Boraginaceae He IT. Onopordon leptolepis Asteraceae He IT.ES Perovskia abratanoides Lamiaceae He IT. Pimpinella tragium Apiaceae He IT Pimpinella tragium Apiaceae He IT Plantago major Plantaginaceae He IT Plantago major Plantaginaceae He IT Poaceae Ge IT.M.ES.SS Prangos latiliba Apiaceae He IT Sanguisorba minor Rosaceae He IT Sanguisorba minor Rosaceae He IT Sanguisorba minor Rosaceae He IT Silpa barbata Lamiaceae He IT Silpa barbata Poaceae He IT Silpa barbata Poaceae He IT Trifolium repens Papilionaceae He IT Trifolium repens Papilionaceae He IT Trigonella monantha Caryophyllaceae He IT Trigonella monantha Papilionaceae He IT Trigonella monantha Papilionaceae He IT Trigonella monantha Caryophyllaceae He IT Trigonella monantha Caryophulariaceae He IT Trigonella Scrophulariaceae He IT Veronica khorassanica Scrophulariaceae He IT Veronica khorassanica				
Festuca ovina Glycyrrhiza glabra Gundelia tournefortii Heliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Linaria lineolata Malcolmia strigosa Medicago rigidula Nopeta practeata Nopeta practeata Nonnea caspica Boraginaceae He IT Nonpordon leptolepis Asteraceae He IT Phalaris minor Poaceae Phalaris minor Poaceae Phalaris minor Poaceae Plantago major Plantaginaceae He IT Pimpinella tragium Apiaceae He IT Reseda aucheri Reseda caucheri Resedaceae He IT Sanguisorba minor Rosaceae He IT Silene chaetodonta Caryophyllaceae He IT Trifolium repens Trigonella monantha Papilionaceae He IT Lamiaceae He IT Trifolium repens Trigonella monantha Papilionaceae He IT IT,AS III III III III III III III III III I				
Glycyrrhiza glabra Gundelia tournefortii Asteraceae He III, M Heliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Lamiaceae Cr III, M Linaria lineolata Rutaceae Me III, M, ES Malcolmia strigosa Melicag origidula Papilionaceae Me III, M, SS Melica persica Kunth Noea mucronata Nonnea caspica Nonpordon leptolepis Perovskia abratanoides Pimpinella tragium Plantago major Plantago major Plantago major Plantago major Prangos latiliba Reseda aucheri Reseda aucheri Sanguisorba minor Rosaceae Reseda care Resedo arientalis Scariola orientalis Scariola orientalis Stachys lavendulifolia Lamiaceae Th III, M I				
Gundelia tournefortii Heliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Linaria lineolata Malcolmia strigosa Medicago rigidula Melicapersica Kunth Noea mucronata Nonnea caspica Dinopordon leptolepis Perovskia abratanoides Phalaris minor Phalaris minor Phalaris minor Phantago major Plantago major Prangos latiliba Reseda aucheri Sanguisorba minor Scariola orientalis Serratula latifoli Stipa barbata Tingonella monantha Teucrium polium Verbascum agrimonifolium Verbascum agrimonifolium Verbascum agrimonifolium Verbascum agrimonifolium Verbascum agrimonifolium Verbascum agrimonifolium Scrophulariaceae He IT, M. I				· ·
Heliotropium khorassanicum Hordeum bulbosum L. Lagochilus cabulicus Lamiaceae Linaria lineolata Malcolmia strigosa Medicago rigidula Melica persica Kunth Nopeta practeata Nonnea caspica Nonnea caspica Brassicaceae Nerina braspicae Nonnea caspica Nonnea caspica Brassicaeae Nerina braspicaeae Nonnea caspica Nonnea caspica Nonnea caspica Boraginaceae He IT Onopordon leptolepis Asteraceae Prangos latiliba Papilionaceae He IT Noea mucronata Nanaceae Nonnea caspica Boraginaceae He IT,ES Phalaris minor Poaceae Phalaris minor Poaceae Phalaris minor Poaceae Phantagium Apiaceae He IT Plantago major Plantaginaceae He IT Reseda aucheri Salvia limbata Lamiaceae Reseda aucheri Reseda cae Salvia limbata Lamiaceae He IT Sanguisorba minor Rosaceae He IT Sanguisorba minor Rosaceae He IT Silene chaetodonta Stachys lavendulifolia Lamiaceae Lamiaceae He IT Thymus transcaspicus Trigonella monantha Papilionaceae He IT,ES,M Lamiaceae He IT Thymus transcaspicus Trigonella monantha Papilionaceae He IT Lamiaceae He IT Lamiaceae He IT TES,M Verbascum agrimonifolium Scrophulariaceae He IT Lamiaceae He IT Thymus transcaspicus Lamiaceae He IT Thymus transcaspicus Trigonella monantha Papilionaceae He IT,M,ES				
Hordeum bulbosum L. Lagochilus cabulicus Lamiaceae Linaria lineolata Rutaceae He IT Malcolmia strigosa Brassicaceae Th IT,M,SS Medicago rigidula Papilionaceae Th IT,ES,M,SS Melica persica Kunth Poaceae Cr IT,ES,M,SS Nepeta practeata Lamiaceae He IT Nonea mucronata Capparidaceae He IT Nonnea caspica Boraginaceae He IT Nonnea caspica Boraginaceae He IT,SS Perovskia abratanoides Lamiaceae He IT,ES Phalaris minor Poaceae Th IT,M Phlomis concellata Lamiaceae He IT Pimpinella tragium Apiaceae He IT Plantago major Plantaginaceae He IT Plantago major Plantaginaceae He IT Reseda aucheri Reseda caceae Th IT,SS Salvia limbata Lamiaceae He IT Sanguisorba minor Rosaceae He IT Silene chaetodonta Silene chaetodonta Caryophyllaceae He IT Stipa barbata Papilionaceae He IT Thymus transcaspicus Trigonella monantha Teucrium polium Veronica khorassanica Scrophulariaceae He IT Scrophulariaceae He IT Veronica khorassanica	3			
Lagochilus cabulicusLamiaceaeChITLinaria lineolataRutaceaeHeITMalcolmia strigosaBrassicaceaeThIT,M,SSMedicago rigidulaPapilionaceaeThIT,ESMelica persica KunthPoaceaeCrIT,ES,M,SSNepeta practeataLamiaceaeHeITNonea mucronataCapparidaceaeHeITNonnea caspicaBoraginaceaeHeITOnopordon leptolepisAsteraceaeHeIT,SSPerovskia abratanoidesLamiaceaeHeIT,SSPhalaris minorPoaceaeThIT,MPhlomis concellataLamiaceaeHeITPimpinella tragiumApiaceaeHeITPlantago majorPlantaginaceaeHeITPoa bulbosaPoaceaeGeIT,M,ES,SSPrangos latilibaApiaceaeHeIT(End)Reseda aucheriResedaceaeHeITSalvia limbataLamiaceaeHeITSanguisorba minorRosaceaeHeITScariola orientaliisAsteraceaeHeITSilene chaetodontaCaryophyllaceaeHeITStipa barbataPoaceaeHeITThymus transcaspicusLamiaceaeCrITTrigonella monanthaPapilionaceaeHeITTeucrium poliumLamiaceaeHeIT,MVerbascum agrimonifoliumScrophulariaceaeHeIT	-	e e		
Linaria lineolata Malcolmia strigosa Medicago rigidula Melica persica Kunth Poaceae Melica persica Kunth Noea mucronata Nonnea caspica Monopordon leptolepis Pransion Phalaris minor Phalaris minor Phalaris minor Phantago major Plantago major Plantago major Prangos latiliba Reseda aucheri Sanguisorba minor Rosaceae Beriaula latifoli Caryophyllaceae He IT Melica persica Kunth Poaceae He IT Nonnea caspica Boraginaceae He IT Nonnea caspica Boraginaceae He IT IT,ES Perovskia abratanoides Lamiaceae He IT,ES Phalaris minor Plantaceae He IT Pimpinella tragium Apiaceae He IT Pimpinella tragium Apiaceae He IT Plantago major Plantaginaceae He IT Firend) Reseda aucheri Resedaceae He IT,ES Salvia limbata Lamiaceae He IT Sanguisorba minor Rosaceae He IT Sarratula latifoli Lamiaceae He IT Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae He IT Thymus transcaspicus Lamiaceae He IT Trifolium repens Papilionaceae He IT,ES,M Teucrium polium Lamiaceae He IT Scrophulariaceae He IT IT,ES Trigonella monantha Teucrium polium Scrophulariaceae He IT Scrophulariaceae He IT Veronica khorassanica				· ·
Malcolmia strigosaBrassicaceaeThIT,M,SSMedicago rigidulaPapilionaceaeThIT,ESMelica persica KunthPoaceaeCrIT,ES,M,SSNepeta practeataLamiaceaeHeITNona mucronataCapparidaceaeHeITNonnea caspicaBoraginaceaeHeITOnopordon leptolepisAsteraceaeHeIT,ESPerovskia abratanoidesLamiaceaeHeIT,ESPhalaris minorPoaceaeThII,MPhlomis concellataLamiaceaeHeITPimpinella tragiumApiaceaeHeITPlantago majorPlantaginaceaeHeITPoa bulbosaPoaceaeGeIT,M,ES,SSPrangos latilibaApiaceaeHeIT(End)Reseda aucheriResedaceaeThIT,SSSalvia limbataLamiaceaeHeITSanguisorba minorRosaceaeHeITScariola orientalisAsteraceaeHeITSerratula latifoliLamiaceaeCrITSilene chaetodontaCaryophyllaceaeHeITStachys lavendulifoliaLamiaceaeHeITThymus transcaspicusLamiaceaeHeITTrigonella monanthaPapilionaceaeHeIT,ESTrigonella monanthaPapilionaceaeThIT,ES,MTeucrium poliumLamiaceaeHeITVerbascum agrimonifoliumScrophulariaceaeHeIT </th <th>0</th> <th></th> <th></th> <th></th>	0			
Medicago rigidulaPapilionaceaeThIT,ESMelica persica KunthPoaceaeCrIT,ES,M,SSNepeta practeataLamiaceaeHeITNoea mucronataCapparidaceaeHeITNonnea caspicaBoraginaceaeHeITOnopordon leptolepisAsteraceaeHeIT,SSPerovskia abratanoidesLamiaceaeHeIT,ESPhalaris minorPoaceaeThIT,MPhlomis concellataLamiaceaeHeITPimpinella tragiumApiaceaeHeITPlantago majorPlantaginaceaeThM,ESPoa bulbosaPoaceaeGeIT,M,ES,SSPrangos latilibaApiaceaeHeIT (End)Reseda aucheriResedaceaeThIT,SSSalvia limbataLamiaceaeHeITSanguisorba minorRosaceaeHeITScariola orientalisAsteraceaeHeITSerratula latifoliLamiaceaeCrITSilene chaetodontaCaryophyllaceaeHeITStachys lavendulifoliaLamiaceaeHeITThymus transcaspicusLamiaceaeHeITTrigonella monanthaPapilionaceaeHeIT,ESTrigonella monanthaPapilionaceaeThIT,ES,MTeucrium poliumLamiaceaeHeITVerbascum agrimonifoliumScrophulariaceaeHeIT				
Melica persica Kunth Nepeta practeata Nepeta practeata Nona mucronata Capparidaceae He IT Nonnea caspica Boraginaceae He IT Onopordon leptolepis Asteraceae He IT,SS Perovskia abratanoides Lamiaceae He IT,ES Phalaris minor Poaceae Th II,M Phlomis concellata Lamiaceae He IT Pimpinella tragium Apiaceae He IT Plantago major Plantaginaceae He IT Poa bulbosa Poaceae Prangos latiliba Reseda aucheri Resedaceae He IT Sanguisorba minor Rosaceae He IT Sanguisorba minor Rosaceae He IT Serratula latifoli Lamiaceae He IT Stachys lavendulifolia Lamiaceae He IT Stipa barbata Papilionaceae He IT Thymus transcaspicus Trigonella monantha Teucrium polium Lamiaceae He IT Scrophulariaceae He IT NI,ES He IT IT,ES,M Verbascum agrimonifolium Scrophulariaceae He IT Scrophulariaceae He IT NI,ES,M Verbascum agrimonifolium Scrophulariaceae He IT Scrophulariaceae He IT Veronica khorassanica	· ·			
Nepeta practeata Noea mucronata Nonnea caspica Boraginaceae Boraginaceae Boraginaceae Berovskia abratanoides Lamiaceae Berovskia abratanoides Berovskia piratanoides				
Noea mucronata Nonnea caspica Boraginaceae B				455 6 1000
Nonnea caspica Boraginaceae He IT Onopordon leptolepis Asteraceae He IT,SS Perovskia abratanoides Lamiaceae He IT,ES Phalaris minor Poaceae Th IT,M Phlomis concellata Lamiaceae He IT Pimpinella tragium Apiaceae He IT Plantago major Plantaginaceae Th M,ES Poa bulbosa Poaceae Ge IT,M,ES,SS Prangos latiliba Apiaceae He IT Reseda aucheri Resedaceae He IT Sanguisorba minor Rosaceae He IT,M,ES Scariola orientalis Asteraceae He IT,M,ES Scariola orientalis Asteraceae He IT Silene chaetodonta Caryophyllaceae He IT Stachys lavendulifolia Lamiaceae He IT Thymus transcaspicus Lamiaceae He IT Trifolium repens Papilionaceae He IT, ES Trigonella monantha Papilionaceae He IT,M,ES Tevenica khorassanica Scrophulariaceae He IT,M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica				
Onopordon leptolepis Perovskia abratanoides Phalaris minor Phomis concellata Pimpinella tragium Plantago major Plantaginaceae Prangos latiliba Reseda aucheri Salvia limbata Scariola orientalis Sceratula latifoli Stipa barbata Thymus transcaspicus Trigonella monantha Teucrium polium Verbosicum agrimonifolium Verbosicum in IT, SS Peroaceae Phe IT, SS Phantaginaceae Phe IT, M, ES Prangos latiliba Apiaceae Poaceae Poaceae He IT, M, ES Prangos latiliba Apiaceae He IT, SS Salvia limbata Lamiaceae He IT, M, ES Scariola orientalis Asteraceae He IT Stachys lavendulifolia Lamiaceae He IT Thymus transcaspicus Trigonella monantha Teucrium polium Verboscum agrimonifolium Scrophulariaceae He IT Scrophulariaceae He IT, M, Verbascum agrimonifolium Scrophulariaceae He IT Scrophulariaceae He IT, M				
Perovskia abratanoides Phalaris minor Poaceae Phalaris minor Phlomis concellata Pimpinella tragium Plantago major Plantaginaceae Prangos latiliba Reseda aucheri Salvia limbata Lamiaceae Perratula latifoli Serratula latifoli Silene chaetodonta Stachys lavendulifolia Stipa barbata Thymus transcaspicus Thymus transcaspicus Lamiaceae He IT Stachys lavendulifolia Lamiaceae Thymus transcaspicus Lamiaceae He IT Thymus transcaspicus Trigonella monantha Teucrium polium Verbascum agrimonifolium Scrophulariaceae Resedae Th IT,ES IT,ES IT, IT,ES IT,	-	e e		
Phalaris minorPoaceaeThIT,MPhlomis concellataLamiaceaeHeITPimpinella tragiumApiaceaeHeITPlantago majorPlantaginaceaeThM,ESPoa bulbosaPoaceaeGeIT,M,ES,SSPrangos latilibaApiaceaeHeIT(End)Reseda aucheriResedaceaeThIT,SSSalvia limbataLamiaceaeHeITSanguisorba minorRosaceaeHeIT,M,ESScariola orientalisAsteraceaeHeITSerratula latifoliLamiaceaeCrITSilene chaetodontaCaryophyllaceaeHeITStachys lavendulifoliaLamiaceaeHeITStipa barbataPoaceaeHeITThymus transcaspicusLamiaceaeCrITTrigonella monanthaPapilionaceaeHeIT, ESTrigonella monanthaPapilionaceaeThIT,ES,MTeucrium poliumLamiaceaeHeIT,MVerbascum agrimonifoliumScrophulariaceaeHeITVeronica khorassanicaScrophulariaceaeHeIT	1 1 1			
Phlomis concellata Pimpinella tragium Apiaceae He IT Plantago major Plantaginaceae Poaceae Poa bulbosa Poaceae Prangos latiliba Reseda aucheri Salvia limbata Lamiaceae Resedaceae Th IT,SS Salvia limbata Lamiaceae He IT Sanguisorba minor Rosaceae He IT,M,ES Scariola orientalis Asteraceae He IT Serratula latifoli Lamiaceae Cr IT Silene chaetodonta Caryophyllaceae He IT Stachys lavendulifolia Lamiaceae Th IT,SS Salvia III Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae Cr IT Trifolium repens Papilionaceae He IT, ES Trigonella monantha Scrophulariaceae He IT Veronica khorassanica				
Pimpinella tragium Plantago major Plantaginaceae Poa bulbosa Poaceae Prangos latiliba Reseda aucheri Salvia limbata Scariola orientalis Serratula latifoli Stiene chaetodonta Stipa barbata Thymus transcaspicus Trigonella monantha Teucrium polium Verbosicum garimonifolium Verbosicum agrimonifolium Verbosicum dalulosa Poaceae He IT M,ES He IT M,ES IT				1000
Plantago major Poa bulbosa Poa bulbosa Poaceae Prangos latiliba Reseda aucheri Resedaceae Resedacea				
Poa bulbosa Poaceae Ge IT,M,ES,SS Prangos latiliba Apiaceae He IT(End) Reseda aucheri Resedaceae Th IT,SS Salvia limbata Lamiaceae He IT Sanguisorba minor Rosaceae He IT,M,ES Scariola orientalis Asteraceae He IT Serratula latifoli Lamiaceae Cr IT Silene chaetodonta Caryophyllaceae He IT Stachys lavendulifolia Lamiaceae He IT Thymus transcaspicus Lamiaceae Cr IT Trigonella monantha Papilionaceae He IT, ES Trigonella monantha Papilionaceae He IT,M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica				
Prangos latiliba Apiaceae He IT(End) Reseda aucheri Resedaceae Th IT,SS Salvia limbata Lamiaceae He IT Sanguisorba minor Rosaceae He IT,M,ES Scariola orientalis Asteraceae He IT Serratula latifoli Lamiaceae Cr IT Silene chaetodonta Caryophyllaceae He IT Stachys lavendulifolia Lamiaceae He IT Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae Cr IT Trifolium repens Papilionaceae He IT, ES Trigonella monantha Papilionaceae Th IT,ES,M Teucrium polium Lamiaceae He IT,M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica Scrophulariaceae He IT	3 3	Andreas		VERSION, ARREST
Reseda aucheri Resedaceae Th IT,SS Salvia limbata Lamiaceae He IT Sanguisorba minor Rosaceae He IT,M,ES Scariola orientalis Asteraceae He IT Serratula latifoli Lamiaceae Cr IT Silene chaetodonta Caryophyllaceae He IT Stachys lavendulifolia Lamiaceae He IT Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae Cr IT Trifolium repens Papilionaceae He IT, ES Trigonella monantha Papilionaceae Th IT,ES,M Teucrium polium Lamiaceae He IT,M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica				V AMERICAN MARKETON
Salvia limbata Sanguisorba minor Rosaceae He IT,M,ES Scariola orientalis Asteraceae He IT Serratula latifoli Lamiaceae Cr IT Silene chaetodonta Caryophyllaceae He IT Stachys lavendulifolia Lamiaceae He IT Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae Cr IT Trifolium repens Papilionaceae He IT, ES Trigonella monantha Penicaee Th IT,ES,M Lamiaceae He IT,ES,M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica	g .	•		to the same of the
Sanguisorba minor Rosaceae He IT,M,ES Scariola orientalis Asteraceae He IT Serratula latifoli Lamiaceae Cr IT Silene chaetodonta Caryophyllaceae He IT Stachys lavendulifolia Lamiaceae He IT Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae Cr IT Trifolium repens Papilionaceae He IT, ES Trigonella monantha Papilionaceae Th IT,ES,M Teucrium polium Lamiaceae He IT,M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica Scrophulariaceae He IT				
Scariola orientalis Serratula latifoli Lamiaceae Cr IT Silene chaetodonta Caryophyllaceae He IT Stachys lavendulifolia Lamiaceae He IT Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae Cr IT Trifolium repens Papilionaceae He IT, ES Trigonella monantha Papilionaceae Th IT,ES,M Teucrium polium Lamiaceae He IT,M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica		. A. WIII		
Serratula latifoli Silene chaetodonta Caryophyllaceae He IT Stachys lavendulifolia Lamiaceae He IT Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae Trifolium repens Papilionaceae Trigonella monantha Papilionaceae Th IT, ES Teucrium polium Lamiaceae He IT, M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica				
Silene chaetodonta Stachys lavendulifolia Lamiaceae Lamiaceae Lamiaceae He IT Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae Cr IT Trifolium repens Papilionaceae He IT, ES Trigonella monantha Papilionaceae Th IT, ES, M Lamiaceae He IT, M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica		ASSET ASSET		
Stachys lavendulifolia Lamiaceae He IT Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae Cr IT Trifolium repens Papilionaceae He IT, ES Trigonella monantha Papilionaceae Th IT, ES, M Teucrium polium Lamiaceae He IT, M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica Scrophulariaceae He IT	3			
Stipa barbata Poaceae He IT Thymus transcaspicus Lamiaceae Cr IT Trifolium repens Papilionaceae He IT, ES Trigonella monantha Papilionaceae Th IT,ES,M Teucrium polium Lamiaceae He IT,M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica Scrophulariaceae He IT				
Thymus transcaspicus Trifolium repens Papilionaceae Papilionaceaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeae	3			
Trifolium repens Papilionaceae He IT, ES Trigonella monantha Papilionaceae Th IT,ES,M Teucrium polium Lamiaceae He IT,M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica Scrophulariaceae He IT		HOUSE, VIOLES, V.		
Trigonella monanthaPapilionaceaeThIT,ES,MTeucrium poliumLamiaceaeHeIT,MVerbascum agrimonifolium Veronica khorassanicaScrophulariaceaeHeIT	- 4			
Teucrium polium Lamiaceae He IT,M Verbascum agrimonifolium Scrophulariaceae He IT Veronica khorassanica Scrophulariaceae He IT				
Verbascum agrimonifoliumScrophulariaceaeHeITVeronica khorassanicaScrophulariaceaeHeIT	G ANNUALINA WAS	ADDRESS -		
Veronica khorassanica Scrophulariaceae He IT				
VIII AND				
	COLORIDA ENTON	**************************************		

Ph: Phanerophyte, Cr: Cryptophyte, Ch: Chamaephyte, Th: Therophyte, He: Hemicryptophyte ES: Europe-Siberian, IT: Iran-Turan, M: Mediterranean, Cosm: Cosmopolite (cosmopolitan), SS: Sahara-Sandy

There have been identified 22 families and 78 plant species in the floristic list for the area. On account of geographical distribution (Figure 3), identified plants

could be categorized in Iran-Turanian with 63% (greatest proportion); Iran-Turan-Mediteranian with 8%; Iran-Turan-Mediterranian and Euro- Siberian with 8%; Iran-Turanian and Euro- Siberian with 6%; Mediterranian and Euro-Siberian with 5%; Iran-Turanian, Sahahr-Sendian and Iran-Turanian and Euro-Siberian with 3%; plants with global distribution with 3%; Iran-Turanian, Euro-Siberian and Sahara-Sendian with 2% of the total area.

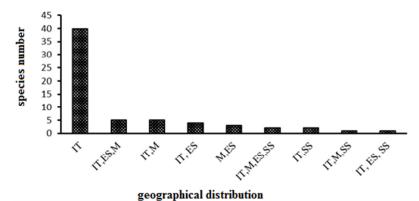


Fig. 3- Frequency of geographical distribution of plants in Baharkish rangeland ES: Europe-Siberian, IT: Iran-Turan, M: Mediterranean, Cosm: Cosmopolite (cosmopolitan), SS: Sahara-Sandy

Classification of vegetation types according to the (Raunkiaer, 1934) showed that Hemicryptophytes plants accounted for the largest share with 42%, followed by Therophytes 30%, Chamaephytes 15%, Cryptophytes 8% and phanerophytes 5% (Figure 4).

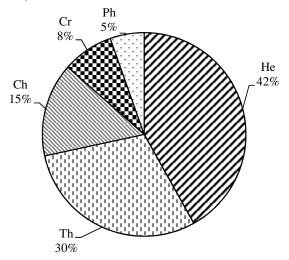


Fig. 4- The relative percentage of plant life forms in Baharkish rangeland

From the 78 species identified, 22 families were prevalent in the study area, including Poaceae with 19%, Asteraceae 12%, Lamiaceae 15%, Brassicaceae 9%, Apiaceae 8%, Papilionaceae 7% and Caryophyllacea 5%, (Figure 5).

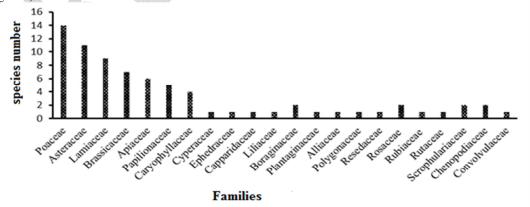


Fig. 5- Frequency distribution of plant species from different families in Baharkish rangeland

Actual floristic composition of a vegetation community forms in response to different environmental conditions and vegetation's reactions based on its ecological potential. The flora of Baharkish rangeland in Quchan has been firstly evaluated in this study and 78 species from 22 families have been identified.

Existence of 78 plant species reflects high species richness in the area. Here, there are remarkable differences in terms of precipitation, temperature, and other climatic parameters. This remarkable variation has resulted in current species richness, since climatic, edaphic, and topographic factors are the major influencers for vegetation cover in differeten natural domains (Moghadam, 2005; Baghestani Meibodi, 1997). The sutyd of vegetation and geographical distribution of different plant species could help identify the area's ecological potential from different aspects, and vet is an influential factor in the assessment of status quoe and future condition, and hence it could inform a better management. Baharkish rangeland is located in the southern boundaries of Quchan urban district, and in the central parts of the Doghaei rural distric. Given the 22 families identified, current study has showen that Poaceae with 19% and Asteraceae with 15% are the dominant plant families in the area. These families, at the same time, constitute a major share of plant communities in Iran. Studies conduceted by (Naghipour Bourj et al., 2011) on the floristic condition of desert rangeland in arid parts of Iran has showed the relative dominance of these two families. The presense of Asteracear could be regarded as an alarm, threatening the destruction of vegetation cover in the area. (Mehrnia et al., 2014) by applying the Raunkiaer life form assessment method showed the important share of the Hemicryptophytes. In this regard, (Archibold, 1995) relates the existence of Hemicryptophytes to the cold and mountaneous clmate the area which could partly explain the dominance of this life form in Baharkish rangeland. (Zarezade et al., 2007) also found that Hemicruptophytes shape a large part of life forms in Damgahan rangelands in Yaz Province. In terms of geographical distribution, Iran-Turanian region with 63% had the largest proportion. (Javanshir, 1980) belived that geographical distribution of a plant community reflects the influence of different vegetation growth areas. (Sabeti, 1993) argued that the prevalence of Iran-Turanian plant species provides the ground to conclude that the vegetation of interest belongs to the corresponding vegetation growth area. The low proportions of other plant species of other growth areas is due to the large distance between these areas and the fact that Iran-Turanina area originates from the central plateau of Iran. Given the choronological study, Iran-Turanian vegetation forms the largest proportion (Habibi et al., 2013) which is consistent with the findings of

(Vaseghi et al., 2008). In the latter study on the lifeforms and geographical distribution of plant species in the highlands of Kalat-Zirjan, Gonaban, it was shown the prevalence of Therophytes and Hemicryptophytes life forms and Iran-Turanian vegetation growth area.

Conclusion: Iran with a wide diversity of topography, geology and climate conditions is considered as one of the most important areas in terms of plant diversity and speciation. In general, the study results showed that Baharkish region has a rich flora of pasture, medicinal and industrial plants. Most of these plants are very important in terms of health benefits. The domestication of these plants can not only eliminate the pharmaceutical industry's need for natural active ingredients, but can also reduce the risk of extinction by decreasing the utilization pressure.

REFERENCES

- Aghaalikhani, M; Qushchi, F (2005). Translation: Applied Plant Ecology. Islamic Azad University of Varamin Pishva. First Edition.
- Annual report meteorological organization (taken from the Meteorological Office of Khorasan Razavi), manuals statistics from 2001 to 2013, first edition, 16 volumes.
- Archibold, OW (1995). Ecology of world vegetation. Champman and Hall Inc. London, 509 p.
- Ashrafi, K; Asadi, M; Najari, R (2004). Introduction to the flora, life form and plant geographical distribution of Varamin region. Pajouhesh & Sazandegi No:62 pp: 51-63.
- Assadi, M. Ed.1988-2011. Flora of Iran. Research Institute of Forests and Rangelands, Tehran (In Persian).
- Atashgahi, Z; Ejtehadi, H; Zare, H (2009). Study of floristics, life form and chorology of plants in the east of Dodangeh forests, Mazandaran province, Iran. Iranian Journal of Biology. 22(2): 193-203.
- Baghestani-Meibodi, N (1996). Vegetation-Soil relationships: on arid and Semiaird rangelands.research institute of Forests and Rangeland. P.46.
- Boissier, PE (1867-1888). Flora Orientalis. vols. 1-5. Genevae et Basileae. H. Georg, Geneva.
- Davis, PH (1965-1988). Flora of Turkey and the East Aegean. vols. 6 and 8. Edinburgh University Press, Scotland.
- Dinarvand, M; Ejtehadi, H; Jankju, M; Andarzian, M (2015). Iranian Journal of Plant Biology, p.14.
- Dolatkhahi, M; Asri, Y; Dolatkhahi, A (2011). Floristic study of Arjan-Parishan protected area

- in Fars province . Taxonomy and Biosystematics, 1[3]: 31-46.
- Dolatkhahi, M; Asri, Y; Dolatkhahi, A (2011). Floristic Survey Arjan Parishan Protected Area in Fars. Journal taxonomy and biosystematics, 2(9):31-46. (In Persian)
- Ghahreman, A (1979-1992). Colorful flora of Iran. Research Institute of Forests and Rangelands, Tehran (In Persian).
- Ghahreman, A (1994). Plant systematics: cormophytes of Iran. Center for Academic Publication, Tehran (In Persian).
- Gholami, A; Ejtehadi, H; Ghassemzadeh, F; Ghorashi-al-Hosseini, J (2006). Study of plant biodiversity around protected area of the Bazangan Lake. Iranian Journal of Biology 19: 398-407 (In Persian).
- Ghollassi Mood, Sh; Jalili, B; Bakhshi Khaniki, GR (20060. Introduction to flora and life forms of plants in west of Birjand. Pajouhesh and Sazandegi 73: 65-73 (In Persian).
- Habibi, M; Sattarian, A; Ghorbani Nohooji, M; Gholam Alipour Alamdari, E (2013). Introduction of floristic, life form and chorology of plants in the ecosystems of Paband national park, Mazandaran province. Journal of plant ecosystem conservation. 1[3]: 47-72.
- IPNI (2012). The International Plant Names Index. Retrieved from http://www.ipni.org. On: 10 July 2012
- Javanshir, K (1978). Atlas of woody plants of Iran. Department of Environment Press.
- Kashipazha, A.M., Asri, Y., Moradi, H.M. 2004. Introduction to the flora, lifeformes and Chorology of Bagheshad Region, Iran. Pajouhesh & Sazandegi No 63 pp:95-103.
- Kazemian, A; Saghafi, F; Assadi, M (2004). Floristic study of Bande-Golestan and identification biological forms and chorotypes of plants. Pajouhesh and Sazandegi 64: 48-62 (In Persian).
- Komarov, VL. Ed (1934-1954). Flora of USSR. vols. 1-30. Izdatel'stvo Akademi Nauk SSSR Leningrad (English translation from Russian, Jerusalem, 1968-1977.
- Koocheki, A; Aghaalikhani, M; Nassiri, M; Khiabani, H (2008). Translation: Biology and Utilization of Shrublands. Cyrus M. Mckell.Ferdowsi University of Mashhad. 833 p.

- Léonard, J (1988). Contribution a l'étude de la flore et de la végétation des desert d'Iran, Fascicule 8: Étude des aries de distribution, Les phytochories, Les chorotypes. Bulletin of the Jardin Botanique National de Belgique, Meise.
- Maassoumi, AA (1986-2000). The genus *Astragalus* in Iran. vols. 1-4. Research Institute of Forests and Rangelands, Tehran (In Persian).
- Mehrnia, M; Ramak, P (2014). Floristic investigation of Noujian Watershed (Lorestan province). Iranian Journal of Plant Biology 6(20): 113-136 (In Persian).
- Memariani, F; Joharchi, MR; Ejtehadi, H; Emadzade, KH (2009). Contributions to the flora and vegetation of Binalood mountain range, NE Iran: Floristic and chorological studies in Fereizi region. Ferdowsi University International Journal of Biological Sciences 1(1): 1-17 (In Persian).
- Mesdaghi, M (2003). Management of Iran's rangelands. Imam Reza International University Press, Mashhad. Sixth edition. 333 p. (In Persian).
- Ministry of energy statistics meteorological stations and evapo. (Taken from the Meteorological Office of Khorasan Razavi). Statistical manual of 2013, first edition, 624 p.
- Mobayen, S (1975-1996). Flora of Iran: vascular plants. vols. 1-4. Tehran University Press, Tehran (In Persian).
- Moghadam, MR (2005). Pasture and rangeland. The second edition, Tehran University Press. 470 pages.
- Mousavi, A (2004). An Introduction of Flora and Phytogeographical Elements of Khanchay Watershed in Tarome-olya of Zandjan. Iranian J. Natural Res. 57[3]: 551-563.
- Mozaffarian, V (2003). A dictionary of Iranian plant names. Farhang Moaser Publication, Tehran (In Persian).
- Mozaffarian, V (2005). Plant classification. vols 1-2. Amirkabir, Tehran (In Persian).
- Naghipour Borj, AA; Haidarian Aghakhani, M; Tavakoli, H (2011). Investigation of flora, life forms and chorotypes of plants in the Sisab protected area, North Khorasan province (Iran). Sciences and Techniques in Natural Resources 5(4): 113-123 (In Persian).
- province)., Pajouhesh & Sazandegi. 74: 129-137.
- Raunkiaer, C (1934). Life forms of plants. Academic Press, Oxford.