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FLORISTIC SURVEY OF MARSHENAN MOUNTAIN IN CENTRAL IRAN

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Abstract

Marshenan Mountain is located northeast of Isfahan Province, in central Iran. It lies within the Irano-Turanian floristic region and includes steppe and semi-steppe zones. The elevation ranges from 1950 to 3266 meters above sea level. A total of 331 species of vascular plants belonging to 212 genera and 54 families were identified. The most diverse families were Asteraceae (64 species), Fabaceae (36), Lamiaceae (25), Brassicaceae, and Poaceae (each with 22 species). Hemicryptophytes (42.6%) and therophytes (33.5%) were the dominant life forms, adapted to the region's cold winters and dry summers. Most species (52%) were linked to the Irano-Turanian phytogeographical region, while others belonged to the Mediterranean, Euro-Siberian, and Saharo-Sindian, or were multi-regional elements. In total, 61 endemic species (18.5% of the flora) were recorded, highlighting Marshenan's importance as a valuable site for plant diversity in central Iran and a priority for conservation efforts. Four major habitat types were identified along the altitudinal gradient: mountain steppe, tall-herb umbelliferous communities, thorn-cushion highlands, and rocky gorges with moisture-retaining microhabitats. Additionally, active quarrying was documented in the area, representing a major anthropogenic threat through habitat degradation and fragmentation.

Keywords: biodiversity; conservation; endemic species; flora of Iran; Isfahan

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بررسی فلوریستیک کوه مارشنان در مرکز ایران

آزاده اخوان روفیگر: استادیار پژوهش، بخش تحقیقات منابع طبیعی، مرکز تحقیقات و آموزش کشاورزی و منابع طبیعی استان اصفهان، سازمان تحقیقات، آموزش و ترویج کشاورزی، اصفهان، ایران

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چکیده: کوه مارشنان در شمال شرق استان اصفهان و در منطقه‌ی رویشی ایرانی–تورانی واقع شده است. این منطقه شامل نواحی استپی و نیمه استپی بوده و ارتفاع آن از ۱۹۵۰ تا ۳۲۶۶ متر از سطح دریا متغیر است. در مجموع، ۳۳۱ گونه از گیاهان آوندی در این ناحیه شناسایی شد که به ۲۱۲ جنس و ۵۴ تیره تعلق دارند. تیره‌های کاسنیان (۶۴ گونه)، باقلائیان (۳۶ گونه)، نعنائیان (۲۵ گونه)، شب‌بوئیان و گندمیان

(۲۲ گونه)، بیشترین تنوع گونه‌ای را در منطقه داشتند. همی‌کریپتوفیت‌ها با ۴۲٫۶٪ و تروفیت‌ها با ۳۳٫۵٪ از کل گونه‌ها، شکل‌های زیستی غالب منطقه بودند که با زمستان‌های سرد و تابستان‌های خشک منطقه سازگاری دارند. بیشتر گونه‌ها (۵۲٪) به منطقه‌ی ایران–تورانی تعلق داشتند، درحالی‌که سایر گونه‌ها به نواحی مدیترانه‌ای، صحرا–سندی، اروپا–سیبری، یا نواحی گسترده‌تر تعلق دارند. بیشتر گونه‌ها به منطقه‌ی ایرانی–تورانی تعلق داشتند و تعداد کمتری نیز از دیگر نواحی فلوریستیک بودند. گونه‌های اندمیک ۱۸٫۵ درصد از فلور منطقه را تشکیل می‌دهند که نشان‌دهنده‌ی اهمیت کوه مارشنان به‌عنوان یکی از زیستگاه‌های ارزشمند گونه‌های گیاهی در ایران مرکزی و نیازمند توجه حفاظتی است. چهار تیپ اصلی رویشگاهی در این ناحیه شناسایی شد که شامل دامنه‌های استپی، اجتماعات علفی بلند چتریان، ارتفاعات بالادست با گیاهان کوسنی خاردار، و دره‌ها و دامنه‌های صخره‌ای مرطوب می‌باشند. همچنین، وجود فعالیت‌های معدن‌کاوی به‌عنوان یکی از عوامل مهم تهدیدکننده زیستگاه‌های گیاهی و موجب تخریب و تکه‌تکه‌شدن چشم‌انداز طبیعی منطقه به شمار می‌آید.

INTRODUCTION

Iran is home to one of the largest extents of the Irano-Turanian phytogeographical region, which encompasses a significant portion of the country's central and mountainous regions. This region is distinguished by its remarkable floristic diversity, a characteristic shaped by the converging influences of complex topography, diverse climatic conditions, and substantial geological variation (Noroozi & al., 2019). Floristic investigations in these regions are of paramount importance, as they yield critical insights necessary for comprehending ecological processes, effectively managing plant resources, and preserving rare and endemic species (Eftekhari & al., 2017). The Isfahan Province, situated in the central part of Iran along the eastern border of the Zagros Mountains, is home to a multitude of habitats that exemplify this biodiversity. Over the past two decades, various floristic surveys have been conducted in different mountainous and semi-arid zones of the province. These include the Karkas protected area (Khajeddin & Yeganeh, 2008), Badrud (Abdi & Afsharzadeh, 2012), Yahya Abad rangelands in Natanz (Abbasi & al., 2012), Meymeh region (Kargar Chigani & al., 2017), Kouh-payeh (Abolhasani & al., 2021), Golestankooh (Akhavan Roofigar & Bagheri 2021), Fereydunshahr highlands (Yaselyani & al., 2024), Hashtad Mountain (Akhavan Roofigar & al., 2024), and Soffeh Mt. (Shahzeidi & al.,2024).

The extant research in this area has reported a predominance of Irano-Turanian elements within the region's flora, with hemicryptophytes and therophytes being the most prevalent life forms. These studies have underscored the pivotal role of elevation, slope, and climatic variation in shaping vegetation patterns. Nonetheless, there remains a paucity of research on the flora of mountainous regions within Isfahan Province. A notable example is Marshenan Mountain, situated in the northeastern region of the province, with elevations ranging from 1,950 to 3,300 meters. The topography of Marshenan Mountain encompasses both steppe and semi-steppe zones, offering a diverse array of ecological conditions. The area's unique combination of geological, climatic, and topographical features suggests a high potential for floristic richness. The objective of this study is to undertake the first comprehensive floristic survey of Marshenan Mountain, with the following specific aims: (1) to document the vascular plant species present in the area, (2) to analyze the life forms and chorological types of flora, (3) to compare the flora of Marshenan Mt. with those of previously studied areas in Isfahan Province, (4) to assess the conservation status of rare and endemic plant species and classify the main habitat types across the region, and (5) to categorize the elevational distribution of the recorded species. The findings of this study will contribute to future ecological research and highlight the conservation value of this high-altitude ecosystem.

MATERIALS AND METHODS

Study area

The study area is situated in Marshenan Mountain, a predominantly mountainous and semi-mountainous region with partly semi-desert characteristics, located in the northeastern part of Isfahan Province, central Iran. The region exhibits a significant altitudinal range, spanning from about 1950 to 3300 m a.s.l. Marshenan Mt. is situated between three administrative counties: Kuhpayeh, Nain, and Ardestan, and extends in a northwest to southeast direction (Fig. 1). The topography of this mountain is marked by a diversity of ecological niches and microhabitats, including slopes, ridges, valleys, and rocky outcrops. The region falls within the Irano-Turanian phytogeographical region, specifically within the steppe and semi-steppe zones. The region's prevailing climate is characterized by cold and dry conditions, typical of high mountainous areas.

Access to the mountain is possible from two directions, including northern routes near Zefreh village and southern paths through Fesharak village (Fig. 1). The summit area of Marshenan Mt. falls within a restricted military zone, where access is difficult and subject to limitations. Consequently, sampling efforts were mainly focused on accessible mid- and lower elevations. However, the upper parts, being largely ungrazed and minimally disturbed, may represent valuable reference zones for future ecological comparisons.

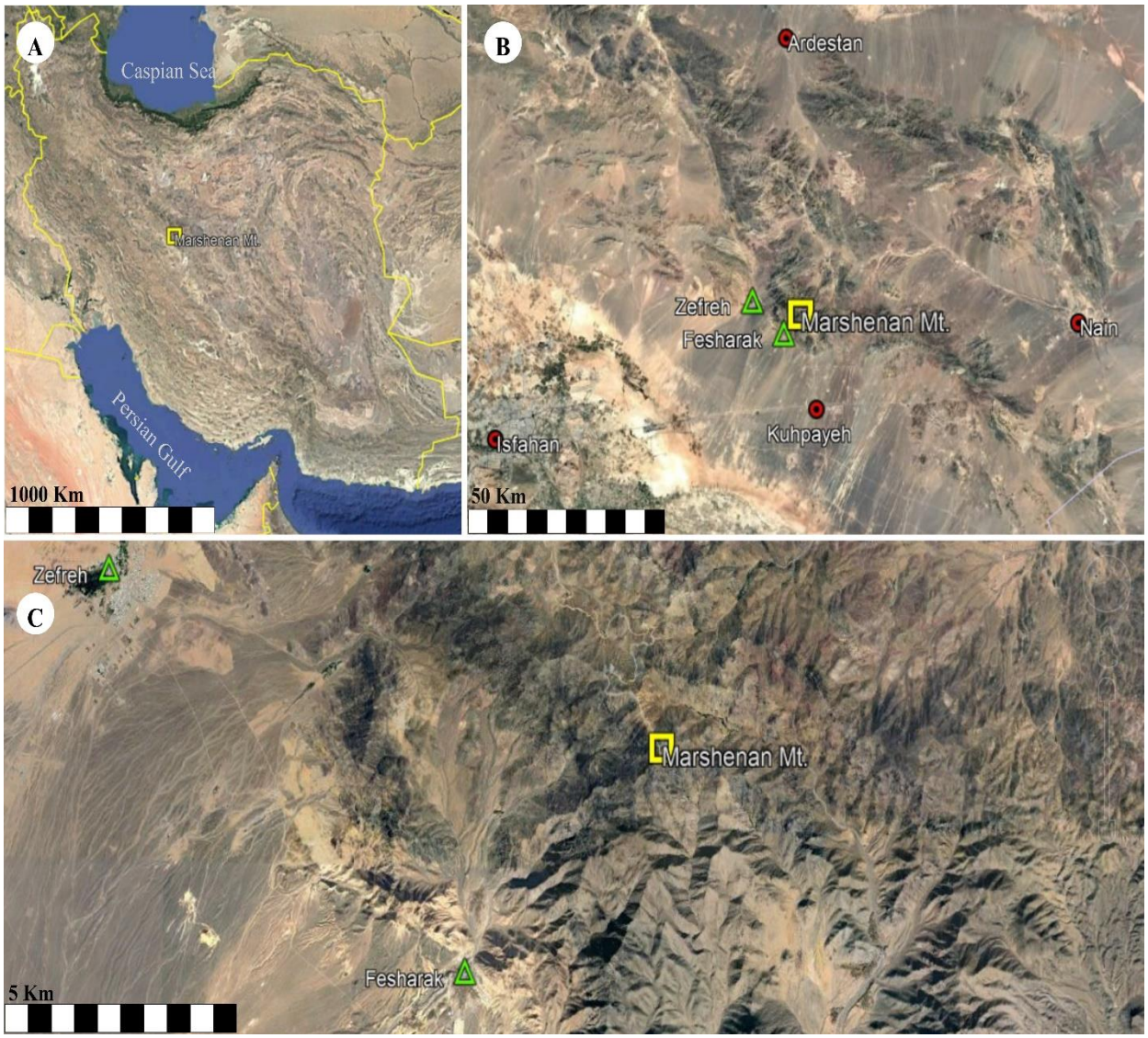

Fig. 1. Geographical location of the study area. A, location of Marshenan Mountain in central Iran; B, regional view showing surrounding cities and access points; C, local map showing proximity of Zefreh and Fesharak villages to Marshenan Mt. Each panel includes a corresponding scale bar. The map was generated using Google Earth Pro (accessed in April 2025).

Sampling and plant identification

Field investigations were conducted over three years during the growing seasons from 2021 to 2024, typically between early April and late September each year. Plant specimens were collected from various habitats, including rangelands, rocky slopes, open plains, and moist microhabitats near natural springs or ephemeral ponds, which occasionally form after seasonal precipitation. For each taxon, information such as habitat type, elevation, and GPS coordinates were recorded. The specimens were pressed and dried using standard herbarium techniques and deposited in

the Herbarium of the Agricultural and Natural Resources Research and Education Center of Isfahan Province (SFAHAN). In addition to newly collected material, around 30 archived specimens from Marshenan, collected in earlier years by researchers at SFAHAN, were examined and included in this study. No comprehensive floristic study has previously been conducted in the region. Taxonomic identification was based on standard botanical references, including Flora Iranica (Rechinger 1963-2015) and Flora of Iran (Assadi & al., 1989-2024). When necessary, species names were verified using the Plants of the World Online (POWO) database. Life forms were classified according to Raunkiaer's system (Raunkiaer, 1934), and chorological types were primarily determined based on Zohary (1973), with additional reference to White & Leonard (1991) where applicable.

RESULTS

A total of 331 vascular plant taxa belonging to 212 genera and 54 families were identified in Marshenan Mountain (Table 1). The Asteraceae family exhibited the highest species number, with 64 taxa, followed by the Fabaceae, Lamiaceae, Brassicaceae, and Poaceae families with 36, 25, and 22 taxa, respectively. (Fig. 2).

Of the 212 existing genera in the region, *Astragalus* (21 taxa), *Centaurea* (6 taxa), *Scorzonera* (5 taxa), *Acanthophyllum*, and *Silene* (4 taxa) were the most diverse (Fig. 3). The life-form spectrum was dominated by hemicryptophytes (42.6%) and therophytes (33.5%), followed by chamaephytes (13.6%), geophytes (7.2%), and phanerophytes (3.0%) (Fig. 4).

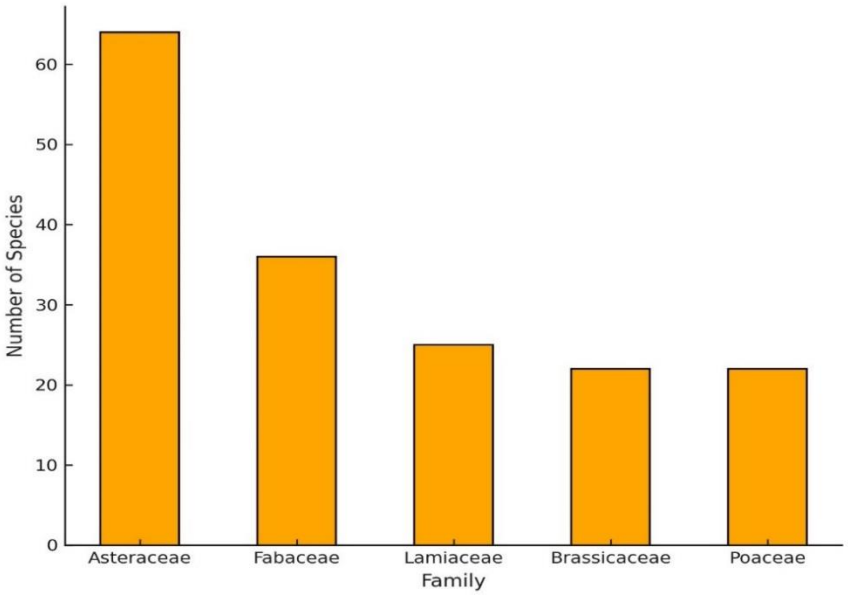

Fig. 2. Graph showing the distribution of plant species by family in Marshenan Mountain.

This distribution pattern is characteristic of montane steppe environments, where plant species must adapt to cold, arid conditions and significant seasonal variability. From a chorological perspective, the majority of taxa (52%) belong to the Irano-Turanian (IT) region, confirming the strong phytogeographical affiliation of the area. Other notable chorotypes include IT/ES (14.5%), IT/ES/M (12.4%), and Pluriregional types (8.8%). Additional combinations such as IT/M, IT/ES/SS, IT/SS, IT/M/SS, and cosmopolitan or Saharo-Sindian elements were recorded in much lower proportions (each under 5%), indicating a relatively limited biogeographical overlap (Fig. 5). This distribution pattern is revealing of the transitional nature of the region within the Irano-Turanian phytogeographical zone (Fig. 6). A total of 61 vascular plant taxa, representing approximately 18.5% of the recorded flora, were identified as endemic to Iran. None of these species are narrowly restricted to Isfahan Province or Marshenan Mountain, but all exhibit relatively limited national distributions, often confined to montane or rocky habitats at mid- to high elevations. These endemic taxa belong to 43 genera and 16 families. The most represented families are Fabaceae (16 species), Asteraceae (14 species), and Lamiaceae (6 species). The most diverse endemic genera include *Astragalus* (10 species). Due to their narrow ecological ranges and sensitivity to environmental changes, these taxa are considered of high conservation concern.

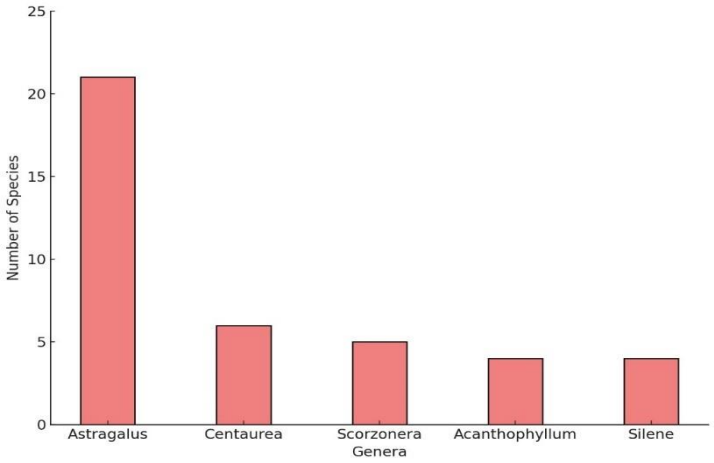

Fig. 3. Top five most species-rich genera in the flora of Marshenan Mountain.

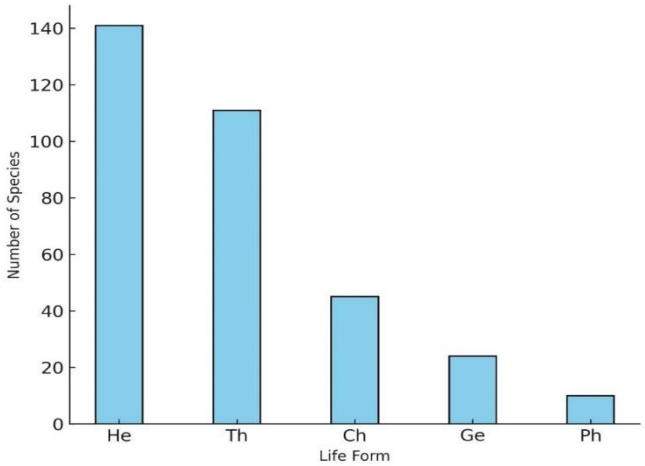

Fig. 4. Life form spectrum of vascular plants identified in Marshenan Mountain. Hemicryptophytes (He), therophytes (Th), chamaephytes (Ch), geophytes (Ge), and phanerophytes (Ph).

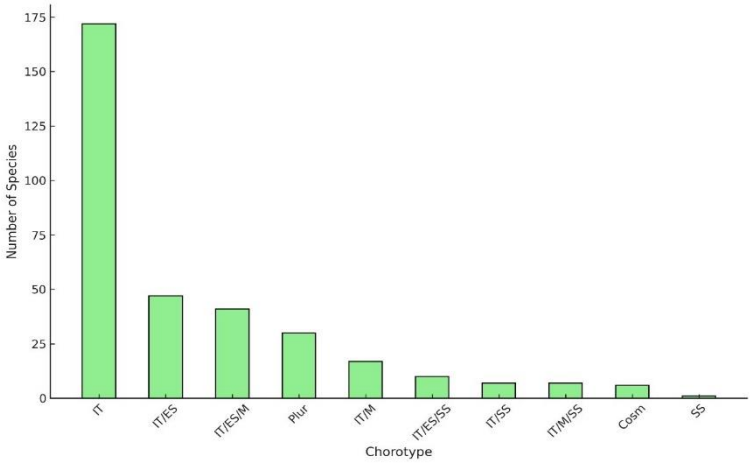

Fig. 5. Chorological distribution of plant taxa in Marshenan Mountain.

DISCUSSION

The floristic composition of Marshenan Mountain exposes a remarkable diversity, comprising 331 vascular plant taxa across 212 genera and 54 families. Among them, 61 species (19%) are endemic to Iran and are also distributed in the Marshenan region. This relatively high proportion highlights the conservation value of the site. The studied flora inhabits a wide range of habitats, distributed along a notable altitudinal gradient from approximately 2000 m to 3250 m a.s.l. Based on our field observations, the following main habitat types can be distinguished (Fig. 7A-D): **1) Mountain steppe (1900-2400 m):** This habitat is dominated by *Artemisia sieberi*, forming dense and continuous communities across gradually sloping hills (Fig. 7A). The vegetation mainly consists of hemicryptophytes and therophytes, well adapted to the arid, wind-exposed conditions of lower elevations. Trees and large shrubs are generally absent in this belt. **2) Tall Herbs and Umbelliferous (varied elevation)**: This habitat type, distinguished in Marshenan, includes mesic microhabitats dominated by tall perennial herbs and members of Apiaceae, such as *Prangos*, and *Ferula* (Fig. 7B). These communities typically occur along upper streambanks, moist slopes, or stabilized scree with moderate soil depth, and support relatively high species richness due to their favorable moisture conditions. **3) Thorn-Cushion (2800-3250 m)**: In the uppermost parts of the mountain, vegetation becomes patchier and dominated by spiny cushion plants like *Acantholimon* spp. and thorny *Astragalus* spp. (Fig. 7C). These plants are morphologically adapted to harsh alpine conditions, including drought, frost, and grazing. The occurrence of compact and low-profile growth forms reflects adaptation to strong winds and shallow soils. **4) Rocky slopes with semi-steppe shrubs (2300-2800 m)**: This habitat type (Fig. 7D) includes narrow rocky gorges, streambeds filled with boulders, and steep shaded slopes, mostly on the northern faces. These areas often retain more soil moisture and are less exposed to grazing. One of their main features is the presence of small populations of *Berberis integerrima*, which grow in sheltered spots near seasonal water flow. These thorny shrubs are often mixed with herbaceous plants and grasses, forming distinctive vegetation patches. Such sites likely act as microrefugia, supporting moisture-demanding or disturbance-sensitive species.

Fig. 6. Representative plant species of Marshenan Mountain flora. A, *Acanthophyllum spinosum*; B, *Aethionema spinosum*; C, *Artemisia desertii*; D, *Eremostachys macrophylla*; E, *Stachys inflata*; F, *Nepeta kotschyi*; G, *Teucrium polium*; H, *Stachys inflata*; I, *Eremurus luteus*; J, *Outreya carduiformis*; K, *Scorzonera paradoxa*; L, *Centaurea ispahanica*; M, *Prangos uloptera*; N, *Astragalus brachyodontus*; O-P, *Astragalus glaucacanthos*; Q, *Allium scabriscapum*.

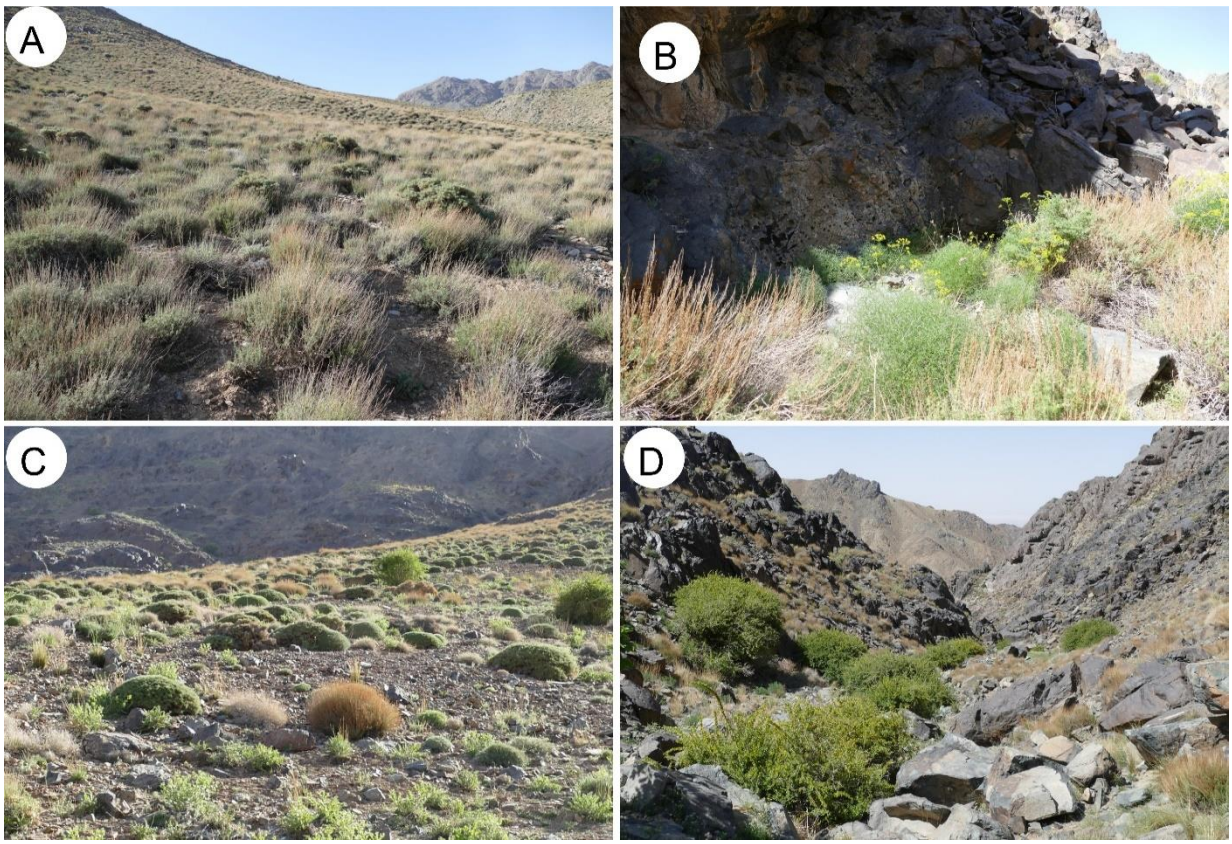

Fig. 7. Views of major habitat types across the altitudinal gradient in Marshenan Mountain: A, Mountain steppe (1900-2400 m); B, Tall Herbs and Umbelliferous (varied elevation); C, Thorn-Cushion (2800-3250 m), D, Rocky slopes with semi-steppe shrubs (2300-2800 m).

The diversity of habitat types across the elevation range, including mountain steppe, rocky slopes, cushion-dominated highlands, rocky gorges, and tall-herb umbelliferous patches, is closely correlated with species turnover, life-form composition, and floristic patterns. The lower zones are dominated by Irano-Turanian steppe elements and therophytes, while the upper slopes are shaped by hemicryptophytes and spiny chamaephytes. This elevational zonation and microhabitat heterogeneity contribute significantly to the region's species richness and endemic content.

In comparison with other parts of Isfahan Province, similar conservation concerns have been reported. Endemic plant taxa are increasingly threatened by habitat fragmentation and climate-related stressors, as seen in Derakhtak-Fereydan (Davazdahemami & al., 2020), and Badrud (Abdi & al., 2012). Across central Iran, anthropogenic pressures such as mining (Hashtad: Akhavan Roofigar & al., 2024), tourism (Soffeh: Shahzeidi & al., 2024), and overgrazing (Fereydunshahr: Yaselyani & al., 2024) have caused degradation of natural habitats. In Marshenan, recent field observations confirmed the presence of an active quarry near 2500 m a.s.l., where large-scale excavation and rock extraction have already altered substantial parts of the foothill ecosystem (Fig. 8A-C). This mining activity represents a growing threat to plant diversity in the area by contributing to habitat loss, landscape fragmentation, and the decline of rare or endemic species. In contrast, fenced military or telecommunication zones in some high-elevation sectors have inadvertently performed as ungrazed refuges, possibly helping preserve endemic species in localized microhabitats.

The dominant life forms in Marshenan are hemicryptophytes (42.6%) and therophytes (33.5%), both of which are well adapted to cold winters and dry summers typical of highland steppe ecosystems. This pattern is consistent with observations in other regions of Isfahan Province, such as Hashtad (59% hemicryptophytes; Akhavan Roofigar & al., 2024), and Soffeh (Shahzeidi & al., 2024), as well as in sites like Meymeh, Yahya Abad, and Fereydan. Preliminary data suggest that the relative abundance of therophytes tends

to decrease with increasing altitude, a trend also observed in other mountainous regions. Similar life-form distributions have been reported in arid provinces such as Kerman and Yazd, which share comparable steppe–montane climatic conditions. Additionally, the presence of distinct tall-herb patches (especially in shaded or rocky microhabitats) highlights the ecological contribution of umbelliferous and other mesic-adapted taxa in transitional mid-elevation zones. From a chorological perspective, Marshenan shows a strong dominance of Irano-Turanian elements, with approximately 70% of the recorded taxa belonging to this phytogeographical region. This pattern aligns with floristic compositions in Yahya Abad (71.1%), and Kouhpayeh (60%) and reflects broader trends observed across central Iran. In addition, several taxa with broader distributions, belonging to Mediterranean, Euro-Siberian, Saharo-Sindian, or Cosmopolitan chorotypes, are also present, highlighting the transitional nature of Marshenan within overlapping floristic zones. Unlike strictly alpine zones of the Central Zagros, Marshenan represents a montane steppe habitat that combines both alpine and semi-arid features, shaped by its transitional elevation range and heterogeneous edaphic conditions.

Fig. 8. Mining-related disturbance in Marshenan Mountain (2500 m a.s.l.). A, excavation machinery in operation. B, disrupted rock formation. C, extensive quarry scar on the lower slope.

The high representation of Asteraceae in Marshenan is consistent with patterns observed in many disturbed or heavily grazed habitats across Iran. However, its dominance is not solely attributable to grazing pressure. The ecological versatility and efficient dispersal mechanisms of this family likely contribute to its success in diverse environments. Similarly, the richness of *Astragalus*, Iran's largest genus (Maassoumi & al., 2022; Akhavan Roofigar & al., 2019), is unsurprising and reflects both taxonomic diversification and ecological adaptation to a wide range of soil and climatic conditions throughout the Iranian Plateau.

Although Marshenan's 18.5% endemic rate is lower than that of some high-endemism areas such as Hashtad (29.7%), it remains significant and is comparable to Meymeh (22.6%), Golestankooh (21%), and notably higher than Soffeh (17.1%) or Fereydan (15.8%). This variation likely results from differences in elevation, geological complexity, and microclimatic heterogeneity (Badgley & al., 2017). In addition to its endemic richness, Marshenan harbors several species of high conservation concern. Based on national and provincial assessments, a number of endemic or habitat-specific taxa in the area are categorized as threatened. For example, Critically Endangered (CR) species include *Astragalus glumaceus*, *Cicer spiroceras*, *Gypsophila acantholimoides*, *Nepeta prostrata*, *Onobrychis psoraleifolia*, *Prangos cheilanthifolia*, and *Scorzonera rupicola*. These taxa are highly localized, often confined to rocky cliffs or upper elevation slopes with narrow ecological tolerances. Among the Endangered (EN) species, several taxa such as *Ajuga chamaecistus*, *Allium bungei*, *Astragalus microphysa*, *Centaurea ispahanica*, *Phlomis aucheri*, and *Stachys acerosa* were recorded in the study area. These species typically occur in fragmented habitats or are restricted to semi-moist pockets, tall-herb glades, and shady valleys. Vulnerable (VU) taxa include *Anthemis gayana*, *Dianthus orientalis*, *Echinophora platyloba*, *Hertia angustifolia*, *Linum album*, and *Rosularia elymaitica*. While somewhat more widespread, these species remain susceptible to disturbance due to habitat encroachment, grazing pressure, or the loss of localized microhabitats. The co-occurrence of multiple CR and EN taxa within a relatively small mountain system highlights the ecological fragility and conservation significance of Marshenan. Protection of rocky slopes, high-elevation microhabitats, and grazing-free refuges should be considered key priorities for future conservation efforts in the region. Despite being located outside the Zagros range, Marshenan shows floristic affinities with montane regions like Golestankooh, especially in terms of habitat-limited endemics. Most endemic species in Marshenan are restricted to rocky slopes and high-elevation microhabitats, similar to patterns observed in Fereydunshahr and Hashtad (Yaselyani & al., 2024; Akhavan Roofigar & al., 2024). Notable examples include *Helichrysum artemisoides*, *Centaurea gaubae*, *Dianthus orientalis*, *Acantholimon curviflorum*, and *Rosularia elymaitica*, which are typically confined to rocky ridges, steep screes, or shallow soils at upper elevations. Their occurrence mirrors distributional patterns observed in similarly rugged montane habitats across Fereydunshahr and Hashtad. These observations highlight the ecological parallels between Marshenan and other floristically significant montane systems of central Iran. Overall, the results support recognizing Marshenan as a valuable mountainous area in central Iran that deserves consideration in regional conservation planning, particularly due to its notable floristic diversity and the presence of several rare and threatened plant species.

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Table 1. Vascular plant species recorded from Marshenan Mountain, showing their families, life forms, chorotypes, habitat types, and voucher specimens housed at the SFAHAN herbarium. Endemic taxa to Iran are marked with an asterisk (*). Abbreviations for life forms: Ch, chamaephytes; Ge, geophytes; He, hemicryptophytes; Ph, phanerophytes; Th, therophytes. Chorotype codes: IT, Irano-Turanian; ES, Euro-Siberian; M, Mediterranean; SS, Saharo-Sindian; Cosm, Cosmopolitan; Mult, Multiregional. Habitat type codes: MS, Mountain steppe (2000-2400 m); RS, Rocky slopes with semi-steppe shrubs (2300-2800 m); TH, Thorn-Cushion (2800-3250 m); TU, Tall Herbs and Umbelliferous (varied elevations).

NO.	Taxa	Life Form	Chorotype	Habitat types	Voucher specimens
	Alliaceae				
1	*Allium bungei* Boiss.*	Ge	IT	MS	18520
2	*Allium scabriscapum* Boiss.	Ge	IT	MS	18521
	Amaranthaceae				
3	*Amaranthus retroflexus* L.	Th	Mult	MS	18522
	Anacardiaceae				
4	*Pistacia khinjuk* Stocks	Ph	IT/ES/M	RS	18523
	Apiaceae				
5	*Astrodaucus orientalis* (L.) Drude	Th	IT	TU	18524
6	*Bunium cylindricum* (Boiss. & Hohen.) Drude	Ge	IT/ES	TU	18525
7	*Demavendia pastinacifolia* (Boiss. & Hausskn.) M. Pimen.*	He	IT	TU	18526
8	*Ducrosia anethifolia* (DC.) Boiss.*	He	IT	MS, TU	18527
9	*Echinophora platyloba* DC.*	He	IT	TU	18528
10	*Eryngium billardierei* F. Delaroche	He	IT/ES	TU	18529
11	*Eryngium bungei* Boiss.	He	IT	TU	18530
12	*Falcaria vulgaris* Bernh.	He	IT/ES/M	MS	18531
13	*Ferula ovina* (Boiss.) Boiss.	He	IT	TU	18532
14	*Pimpinella aurea* DC.	He	IT/ES	TU	18533
15	*Pimpinella dichtoma* (Boiss. et Hausskn.) Wolff*	He	IT	TU	18534
16	*Prangos acaulis* (DC.)Bornm.	He	IT	TU	18535
17	*Prangos cheilanthifolia* Boiss.*	He	IT	TU	18536
18	*Prangos uloptera* DC.	He	IT	TU	18537
19	*Scandix aucheri* Boiss.	Th	IT	TU	18538
20	*Scandix stellata* Bank & Soland.	Th	IT/ES/SS	MS	18539
21	*Turgenia latifolia* (L.) Hoffm.	Th	IT/M	MS	18540
	Asphodelaceae				
22	*Eremurus luteus* Baker	Ge	IT	TU	18541
23	*Eremurus persicus* (Jaub. & Spach) Boiss.	Ge	IT/SS	TU	18542
	Asteraceae				
24	*Achillea wilhelmsii* C. Koch	He	IT	TU	18543
25	*Aegopordon berardioides* Boiss.	He	IT	RS	18544
26	*Amberboa nana* (Boiss.) IIjin	Th	IT/ES	MS	18545
27	*Amberboa turanica* Iljin	Th	IT/ES	MS	18546
28	*Anthemis gayana* Boiss.*	Th	IT	MS, RS	18547
29	*Anthemis odontostephana* Boiss.	Th	IT	MS, RS	18548
30	*Artemisia aucheri* Boiss.	Ch	IT	MS	18549
31	*Artemisia desertii* Krasch	Ch	IT	MS	18550
32	*Artemisia sieberi* Besser	Ch	IT/M	MS	18551
33	*Atractylis cancellata* L.	He	IT/ES/M	MS	18552
34	*Carthamus oxyacantha* M.B.	Th	IT	MS, RS	18553
35	*Centaurea bruguieriana* (DC.) Hand.- Mzt.	Th	IT/ES	MS MS	18554
36	*Centaurea gaubae* (Bornm.) Wagenitz*	He	IT	MS	18555
37	*Centaurea iberica* Trev. Ex Spreng.	He	IT/ES	MS	18556
38	*Centaurea ispahanica* Boiss.*	He	IT	MS	18557
39	*Centaurea pulchella* Ledeb.	Th	IT/ES	MS	18558
40	*Centaurea virgata* Lam.	He	IT/ES/M	MS	18559

Table 1. Continued.

NO.	Taxa	Life Form	Chorotype	Habitat types	Voucher specimens
41	*Chardinia orienthalis* (L.) O.Kuntze	Th	IT	MS	18560
42	*Chondrilla juncea* L.	He	IT/ES/M	MS,RS	18561
43	*Cirsium arvense* (L.) scop.	Ge	IT/ES	TU	18562
44	*Cirsium congestum* Fisch & C.A.Mey. ex DC.	He	IT/ES	TU	18563
45	*Cnicus benedictus* L.	Th	IT/ES	MS	18564
46	*Cousinia eriobasis* Buge	He	IT	RS	18565
47	*Cousinia cylindracea* Boiss.*	He	IT	MS	18566
48	*Crepis kotschyana* (Boiss.) Boiss.	Th	IT	MS	18567
49	*Crepis sancta* (L.) Babcock	Th	IT/M/SS	MS	18568
50	*Echinops cephalotes* DC.*	He	IT	MS	18569
51	*Echinops robustus* Bunge*	He	IT	MS	18570
52	*Filago pyramidata* L.	Th	IT/ES/M	MS	18571
53	*Filago vulgaris* Lam.	Th	IT/ES/SS	MS	18572
54	*Francoeuria undulata* (L.) Lack	He	IT/SS	MS	18573
55	*Gundelia tournefortii* L.	He	IT/M	MS	18574
56	*Helichrysum artemisoides* Boiss. & Hausskn.*	He	IT	MS, RS	18575
57	*Hertia angustifolia* (DC.) O.Kuntze*	Ch	IT	MS, RS	18576
58	*Heteroderis pusilla* (Boiss.) Boiss.	Th	IT	MS	18577
59	*Jurinca bungei* Boiss.*	Ch	IT	RS	18578
60	*Koelpinia tenuissima* Pavl. & Lipsch.	Th	IT	MS	18579
61	*Lactuca glaucifolia* Boiss.	Th	IT/ES	MS	18580
62	*Lactuca undulata* Ledeb.	Th	IT/ES	MS	18581
63	*Launaea acanthodes* (Boiss.) O. Kuntze*	He	IT	MS	18582
64	*Onopordon heteracanthum* C. A. Mey.	He	IT	MS	18583
65	*Outreya carduiformis* Jaub. & Spach	He	IT	MS	18584
66	*Phagnalon nitidum* Fres.	He	IT	RS	18585
67	*Picris strigosa* M.B.	He	IT	MS	18586
68	*Pulicaria gnaphalodes* (Vent.) Boiss.	He	IT	MS	18587
69	*Scariola orientalis* (Boiss.) Sojak	He	IT/ES/M	MS	18588
70	*Scorzonera luristanica* Rech. f.*	He	IT	MS	18589
71	*Scorzonera mucida*Rech. f.*	He	IT	MS	18590
72	*Scorzonera paradoxa* Fish. & C. A. Mey.	He	IT	MS	18591
73	*Scorzonera rupicola* Hausskn.*	He	IT	MS	18592
74	*Scorzonera tortuosissima* Boiss.	He	IT	MS	18593
75	*Senecio glaucus* L.	Th	IT/M/SS	MS	18594
76	*Serratula cerinthifolia* (Sm.) Boiss.	He	IT/ES/M	MS	18595
77	*Siebera nana* (DC.) Bornm.	He	IT/ES/M	MS	18596
78	*Steptorrhamphus persicus* (Boiss.) O. & B. Fedtsch.	He	IT	MS	18597
79	*Tanacetum lingulatum* (Boiss.) Bornm.*	He	IT	MS,TU	18598
80	*Tanacetum pinnatum* Boiss.	He	IT/ES	MS	18599
81	*Tanacetum polycephalum* Sch. Uitz Bip.	He	IT	MS	18600
82	*Thevenotia persica* DC.	Th	IT	MS	18601
83	*Tragopogon collinus* DC.	He	IT	MS	18602
84	*Varthemia persica* DC.	He	IT	RS	18603
85	*Xanthium strumarium* L.	Th	IT/ES	MS	18604
86	*Xeranthemum longipapposum* Fisch. & C.A. Mey	Th	Mult	MS	18605
87	*Zoegea purpurea* Fressen.	Th	IT/SS	MS, RS	18606
	Berberidaceae				
88	*Berberis integerrima* Bunge	Ph	IT/ES	RS	18607
	Boraginaceae				
89	*Anchusa italica* Retz.	He	Mult	TU	18608
90	*Arnebia decumbens* (Vent.) Coss. & Kral	Th	IT/ES/SS	MS	18609
91	*Arnebia fimbriopetala* Stocks	Th	IT	MS	18610
92	*Heliotropium aucheri* DC.	He	IT	MS	18611
93	*Heterocaryum laevigatum* (Kar. & Kir) A.DC.	Th	IT	MS	18612

Table 1. continued.

NO.	Taxa	Life Form	Chorotype	Habitat types	Voucher specimens
94	*Lappula barbata* (MB.) Gurke	Th	IT/ES	MS, RS	18613
95	*Lappula microcarpa* (Ledeb.) Gurke	Th	IT/ES	MS, RS	18614
96	*Lappula spinocarpos* (Forssk.) Aseherson & O. Kuntze	Th	IT/ES/M	MS, RS	18615
97	*Nonnea caspica* (Willd.) G. Don	Th	IT	MS	18616
98	*Nonnea persica* Boiss.	Th	IT	MS	18617
99	*Onosma microcarpum* Steven ex DC.	He	IT	MS, RS	18618
100	*Paracaryum persicum* (Boiss.) Boiss.*	He	IT	MS	18619
101	*Paracaryum rugulosum* (DC.) Boiss.	He	IT/ES/SS	MS	18620
102	*Rochelia cardiosepala* Bunge	Th	IT	MS	18621
103	*Rochelia disperma* (L.f.) Koch.	Th	IT/ES/M	MS	18622
	Brassicaceae				
104	*Aethionema carneum* (Banks & Soland.) B. Fedtsch.	Th	IT/ES/M	MS	18623
105	*Aethionema stenopterum* Boiss.	He	IT/ES	MS	18624
106	*Aethionema spinosum* (Boiss.) Prantl.	Ch	IT	MS	18625
107	*Alyssum bracteatum* Boiss. & Buhse	He	IT	MS	18626
108	*Alyssum inflatum* Nyarady	He	IT	MS	18627
109	*Alyssum szowitsianum* Fisch & C.A. Mey	Th	IT/ES	MS	18628
110	*Barbarea plantaginea* DC.	He	IT/ES/M	MS	18629
111	*Camelina transcaspica* Fritsch	Th	IT/ES	MS	18630
112	*Chorispora tenella* (Pall.) DC.	Th	IT/ES	MS	18631
113	*Clypeola aspera* (Grauuer) Turill	Th	IT/ES/M	MS	18632
114	*Clypeola jonthlaspi* L.	Th	IT/ES/M	MS	18633
115	*Fibigia suffruticosa* (Vent.) Sweel	He	IT/ES	MS, RS	18634
116	*Fibigia umbellata* (Boiss.) Boiss.	He	IT	MS	18635
117	*Isatis stylophora* (Jaub. & Spach) Hadac & Chrtek.	Th	IT	MS	18636
118	*Lepidium draba* L.	He	IT/M	MS	18637
119	*Lepidium latifolium* L.	Th	IT/ES/SS	MS	18638
120	*Lepidium persicum* Boiss.	He	IT	MS	18639
121	*Matthiola alyssifolia* (DC.) Bornm.	He	IT	MS	18640
122	*Matthiola ovatifolia* (Boiss.) Boiss.*	He	IT	MS	18641
123	*Sisymbrium septulatum* DC.	Th	IT/ES	MS	18642
124	*Sterigmostemum longistylum* (Boiss.) O. Kuntze.*	Th	IT	MS,TU	18643
125	*Strigosella africana* (L.) Botsch.	Th	Mult	MS	18644
	Campanulaceae				
126	*Campanula incanescens* Boiss.	He	IT/ES	MS	18645
127	*Michauxia laevigata* Vent.	He	IT/ES	RS, TU	18646
	Capparaceae				
128	*Buhsea trinervia*(DC.) Stapf.	He	IT	MS, TU	18647
129	*Capparis spinosa* L.	He	Mult	MS	18648
	Caryophyllaceae				
130	*Acanthophyllum bracteatum* Boiss.*	Ch	IT	TH	18649
131	*Acanthophyllum mucronatum* C.A.Mey.	Ch	IT	TH	18650
132	*Acanthophyllum spinosum* (Desf.) C. A. Mey*	Ch	IT	TH	18651
133	*Acanthophyllum squarrosum* Boiss.	Ch	IT	TH	18652
134	*Buffonia macrocarpa* Ser.	He	IT	MS	18653
135	*Cerastium inflatum* Link ex Desf.	Th	IT/ES/M	MS	18654
136	*Dianthus crossopetalus* (Fenzl. ex Boiss.) Grossh.	He	IT/ES	TH	18655
137	*Dianthus orientalis* Adams*	He	IT	TH	18656
138	*Gypsophila acantholimoides* Bornm.*	Ch	IT	TH	18657
139	*Gypsophila pilosa* Huds.	Th	IT	MS	18658
140	*Gypsophila virgata* Boiss.*	Ch	IT	MS	18659
141	*Holosteum umbellatum* L.	Th	IT/M	MS	18660
142	*Mesostemma kotschyanum* (Fenzl in Boiss.) Vved.	He	IT	MS	18661
143	*Minuartia meyeri* (Boiss.) Bornm.	Th	IT	MS	18662
144	*Paronychia kurdica* Boiss.	He	IT/ES/M	MS	18663

Table 1. continued.

NO.	Taxa	Life Form	Chorotype	Habitat types	Voucher specimens
145	*Scleranthus orientalis* Rossler	He	IT/ES	MS	18664
146	*Silene arabica* Boiss.	Th	IT/ES	MS	18665
147	*Silene coniflora* Nees ex Otth.	Th	IT/ES/M	MS	18666
148	*Silene spergulifolia* (Willd) M. B.	He	IT/M	MS	18667
149	*Silene swertiifolia* Boiss.	He	IT/M	MS	18668
150	*Vaccaria grandiflora* (Fisch. ex DC.) Jaub. & Spach	Th	Mult	MS	18669
	Chenopodiaceae				
151	*Atriplex griffithii* Moq.	He	IT	TU	18670
152	*Atriplex leucoclada* Boiss.	He	IT/M/SS	MS	18671
153	*Chenopodium botrys* L.	Th	IT/ES/SS	MS	18672
154	*Girgensohnia oppositiflora* (Pall.) Fenzl	Th	IT	MS	18673
155	*Halothamnus auriculus* (Moq.) Botsch	He	IT	MS	18674
156	*Kraschenninnikovia ceratoides* (L.) Gueldenst.	Ch	Mult	TU	18675
157	*Noaea mucronata* (Forssk.) Asch. & Schweinf.	Ch	IT/M/SS	RS	18676
	Convolvulaceae				
158	*Convolvulus fruticosus* Pallas	Ch	IT	RS	18677
	Crassulaceae				
159	*Rosularia elymaitica* (Boiss. & Haussk.) Berger*	He	IT	RS	18678
	Cyperaceae				
160	*Carex stenophylla* Wahlenb.	Ge	IT/ES/M	MS	18679
161	*Scirpoides holoschoenus* (L.) Sojak	He	Mult	MS	18680
	Dipsacaceae				
162	*Pterocephalus canus* Coult. ex DC.	He	IT	MS	18681
163	*Scabiosa olivieri* Coult	Th	IT	MS	18682
	Ephedraceae				
164	*Ephedra intermedia* Schrank et. C.A.Mey.	Ph	IT	MS, RS	18683
	Euphorbiaceae				
165	*Andrachne fruticulosa* Boiss.*	He	IT	MS	18684
166	*Andrachne telephioides* L.	He	Mult	MS	18685
167	*Chrozophora obliqua* (Vahl.) Juss. ex Spreng.	Th	IT/ES/SS	MS	18686
168	*Euphorbia helioscopia* L.	Th	Mult	MS	18687
169	*Euphorbia heteradena* Jaub. & Spach	Th	IT	MS	18688
170	*Euphorbia microsciadia* Boiss.*	Ch	IT	MS	18689
171	*Euphorbia stocksiana* Boiss.	He	IT	MS	18690
	Fabaceae				
172	*Alhagi maurorum* Medik.	Ch	Mult	MS, RS	18691
173	*Argyrolobium trigonelloides*Jaub. & Spach.*	He	IT	MS	18692
174	*Astragalus anserinifolius* Boiss.	He	IT	MS	18693
175	*Astragalus arpilobus* Kar. et Kir.	He	IT	MS	18694
176	*Astragalus bakaliensis* Bunge	He	IT	MS	18695
177	*Astragalus brachyodontus* Boiss.	He	IT	MS, RS	18696
178	*Astragalus callistachys* Buhse subsp. *callistachys**	Ch	IT	TH	18697
179	*Astragalus cephalanthus* DC.*	Ch	IT	TH	18698
180	*Astragalus commixtus* Bunge	Th	IT	MS	18699
181	*Astragalus effusus* Bunge	He	IT	MS	18700
182	*Astragalus fischeri* Buhse*	Ch	IT	TH	18701
183	*Astragalus glaucacanthos* Fisch.*	Ch	IT	TH	18702
184	*Astragalus glumaceus* Boiss.*	Ch	IT	TH	18703
185	*Astragalus gossypinus* Fisch.	Ch	IT	TH	18704
186	*Astragalus macropelmatus* Bunge	He	IT	MS	18705
187	*Astragalus microphysa* Boiss.*	Ch	IT	TH	18706
188	*Astragalus oxyglottis* M.Bieb.	Ch	IT	MS	18707
189	*Astragalus podolobus* Boiss. & Hohen	Th	IT	MS	18708
190	*Astragalus remotiflorus* Boiss.*	Ch	IT	TH	18709
191	*Astragalus rhodosemius* Boiss. & Hausskn.*	Ch	IT	TH	18710

Table 1. continued.

NO.	Taxa	Life Form	Chorotype	Habitat types	Voucher specimens
192	*Astragalus supervisus* (Kuntze) E.Sheld.	He	IT	MS	18711
193	*Astragalus vanillae* Boiss.*	He	IT	TH	18712
194	*Astragalus verus* Olivier	Ch	IT	TH	18713
195	*Chesneya astragalina* Jaub. & Spach*	He	IT	MS	18714
196	*Cicer spiroceras* Jaub. & Spach*	Ch	IT	MS, RS	18715
197	*Ebenus stellata* Boiss.	Ch	IT/SS	MS, RS	18716
198	*Hymenocarpus circinntus* (L.) Savi	Th	Mult	MS	18717
199	*Medicago monantha* (C. A. Mey.) Trautv.	Th	IT/ES	MS	18718
200	*Melilotus indicus* (L.) All.	Th	Mult	MS	18719
201	*Melilotus officinalis* (L.) Pall.	He	IT/ES/M	MS	18720
202	*Onobrychis aucheri* Boiss.*	Th	IT	MS	18721
203	*Onobrychis melanotricha* Boiss.*	He	IT	MS	18722
204	*Onobrychis psoraleifolia* Boiss.*	He	IT	MS	18723
205	*Sophora alopecuroides* L.	He	IT	MS	18724
206	*Trifolium repens* L.	He	IT/ES/M	MS	18725
207	*Trigonella aphanoneura* Rech.f .*	He	IT	MS	18726
	Fumariaceae				
208	*Fumaria vaillantii* Lois.	Th	IT/ES/M	MS	18727
	Geraniaceae				
209	*Biebersteinia multifida* DC.	Ge	IT	MS	18728
210	*Erodium oxyrrhynchum* M. B.	Th	Mult	MS	18729
211	*Geranium rotundifolium* L.	Th	IT/ES/M	MS, RS	18730
212	*Geranium tuberosum* L.	Ge	IT/ES/M	MS	18731
	Guttiferae				
213	*Hypericum helianthemoides* (Spach) Boiss.	He	Cosm	MS	18732
	Hyacinthaceae				
214	*Bellevalia glauca* (Lindl.) Kunth.	Ge	IT	MS	18733
215	*Muscai neglectum* Guss.	Ge	IT/ES/M	MS	18734
216	*Ornithogalum orthophyllum* Ten.	Ge	IT/ES/M	MS	18735
	Iridaceae				
217	*Iris songarica* Schrenk.	Ge	IT	MS	18736
	Ixioliriaceae				
218	*Ixiolirion tataricum* (Pall.) Herb	Ge	IT/ES/M	MS	18737
	Juncaceae				
219	*Juncus inflexus* L.	Ge	Cosm	MS	18738
	Lamiaceae				
220	*Acinos graveolens* (M.B.) Link	Th	IT/ES	MS	18739
221	*Ajuga chamaecistus* Ging. ex Benth*	Ch	IT	MS, RS	18740
222	*Eremostachys macrophylla* Montbr. & Auch.	Ge	IT/ES	TU	18741
223	*Eremostachys pulvinaris* Jaub. & Spach*	He	IT	TU	18742
224	*Hymenocrater bituminosus* Fisch. & C. A. Mey.	Ch	IT/ES	MS, RS	18743
225	*Lagochilus lasiocalyx* (Stapf) Jamzad*	He	IT	MS	18744
226	*Lallementhia royleana* (Benth.) Benth.	Th	IT/ES	MS	18745
227	*Lamium amplexicaule* L.	Th	Mult	MS	18746
228	*Marrubium vulgare* L.	He	IT/ES	MS	18747
229	*Mentha longifolia* (L.) Hadson	Ge	IT/ES	TU	18748
230	*Nepeta bracteata* Benth.	Th	IT	RS	18749
231	*Nepeta ispahanica* Boiss.	Th	IT	RS	18750
232	*Nepeta kotschyi* var. *persica* (Boiss.) Jamzad	He	IT	RS	18751
233	*Nepeta prostrata* Benth.*	He	IT	RS	18752
234	*Phlomis aucheri* Boiss.*	He	IT	MS	18753
235	*Phlomis olivieri* Benth.	He	IT	MS	18754
236	*Salvia macrosiphon* Boiss.	He	IT	MS	18755
237	*Salvia reuterana* Boiss.	He	IT	MS	18756
238	*Scutellaria tomentosa* Bertol.	He	IT/ES	MS	18757

Table 1. continued.

NO.	Taxa	Life Form	Chorotype	Habitat types	Voucher specimens
239	*Stachys acerosa* Boiss.*	He	IT	TH	18758
240	*Stachys inflata* Benth.	He	IT/ES/SS	MS	18759
241	*Teucrium orientale* L.	Ch	IT/ES	MS	18760
242	*Teucrium polium* L.	Ch	Mult	MS	18761
243	*Ziziphora clinopodioides* Lam.	Ch	IT/ES	MS	18762
244	*Ziziphora tenuior* L.	Th	IT/ES/M	MS	18763
	Liliaceae				
245	*Gagea reticulata* (Pall.) Schultes & Schultes fil.	Ge	Mult	MS	18764
	Linaceae				
246	*Linum album* Ky. ex Boiss.*	He	IT	MS	18765
	Malvaceae				
247	*Malva neglecta* Wallr.	He	Mult	MS	18766
248	*Malva sylvestris* L.	He	IT/ES/M	MS	18767
	Moraceae				
249	*Ficus carica* L.	Ph	IT/ES/M	RS	18768
	Onagraceae				
250	*Epilobium hirsutum* L.	He	Mult	MS	18769
	Orobachaceae				
251	*Orobanche camptolepis* Boiss. & Reut. ex Boiss.	Th	IT/ES/M	MS	18770
	Papaveraceae				
252	*Glaucium elegans* Fisch. & C. A. May.	Th	IT	MS	18771
253	*Glaucium flavum* Crantz	He	IT/ES/M	MS	18772
254	*Glaucium grandiflorum* Boiss. & Huet	Th	IT	MS	18773
255	*Hypecoum pendulum* L.	Th	IT/ES	MS	18774
256	*Papaver decaisnei* Hachst. & Steud. ex Boiss.	Th	IT/M/SS	MS	18775
257	*Papaver tenuifolium* Boiss. & Hohen. ex Boiss.*	Th	IT	MS	18776
258	*Roemeria hybrida* (L.) DC.	Th	IT/SS	MS	18777
259	*Roemeria refracta* DC.	Th	IT/ES	MS	18778
	Plantaginaceae				
260	*Plantago lanceolata* L.	He	Mult	MS	18779
	Plumbaginaceae				
261	*Acantholimon aspadanum* Bunge*	Ch	IT	TH	18780
262	*Acantholimon curviflorum* Bunge*	Ch	IT	TH	18781
263	*Acantholimon scorpius* (Jaub. & Spach) Boiss.*	Ch	IT	TH	18782
	Poaceae				
264	*Arrhenatherum kotschyi* Boiss.	Ge	IT	MS	18783
265	*Avena fatua* L.	Th	IT/ES	MS	18784
266	*Bromus pumilio* (Trin.) P.M.Sm.	Th	IT/ES/M	MS	18785
267	*Bromus tectorum* L.	Th	Cosm	MS	18786
268	*Bromus tomentollus* Boiss.	He	IT	MS	18787
269	*Eremopoa persica* (Trin.) Roshev	Th	IT/M	MS	18788
270	*Eremopyrum bonaepartis* (Spreng.) Nevski	Th	Mult	MS	18789
271	*Eremopyrum orientale* (L.) Jaub. & Spach	Th	IT/M	MS	18790
272	*Heteranthelium piliferum* (Banks & Soland. ex Russel) Hochst.	Th	IT/ES/M	MS	18791
273	*Hordeum bulbosum* subsp. *glaucum* (Steud.) Tzvelev.	Ge	IT/M	MS	18792
274	*Melica persica* Kunth.	Ge	IT	MS	18793
275	*Pennisetum orientale* Rich.	He	Mult	MS	18974
276	*Piptatherum holciforme* (M. B.) Roem. & Schult.	He	IT/M	MS	18795
277	*Piptatherum sphacelatum* (Boiss. & Buhse) Boiss.*	He	IT	MS	18796
278	*Poa bulbosa* L.	Ge	IT/ES/M	MS	18797
279	*Poa sinaica* Steud.	He	IT/ES/M	MS	18798
280	*Psathyrostachys fragilis* (Boiss.) Nevski	Ge	IT	MS	18799
281	*Rostraria cristata* (L.) Tzvelev.	Th	IT/ES/M	MS	18800
282	*Schismus arabicus* Nees	Th	Mult	MS	18801

Table 1. continued.

NO.	Taxa	Life Form	Chorotype	Habitat types	Voucher specimens
283	*Stipa arabica* Trin. & Rupr.	He	IT	MS	18802
284	*Stipa hohenackeriana* Trin. & Rupr.	He	IT/ES/M	MS, RS	18803
285	*Stipa parviflora* Desf.	He	Mult	MS	18804
	Polygonaceae				
286	*Atraphaxis spinosa* L.	Ch	Mult	RS	18805
287	*Polygonum aviculare* L.	Th	IT/M	RS	18806
288	*Polygonum paronychioides* C.A. Mey. ex Hohen.	He	IT/ES	RS	18807
289	*Polygonum patulum* M.B.	Th	Mult	MS	18808
290	*Pteropyrum aucheri* Jaub.& Spach	Ch	IT	RS	18809
291	*Pteropyrum olivieri* Jaub.& Spach	Ch	IT	RS	18810
292	*Rheum ribes* L.	Ge	IT	MS, RS	18811
	Primulaceae				
293	*Androsace maxima* L.	Th	Mult	MS	18812
294	*Glaux maritima* L.	He	IT/ES	MS	18813
	Ranunculaceae				
295	*Anemone biflora* DC.	Th	IT	MS	18814
296	*Consolida orientalis* (Gay) Schrod.	Th	IT/ES/M	MS	18815
297	*Consolida persica* (Boiss.) Schrod.	Th	IT/ES	MS	18816
298	*Consolida rugulosa* (Boiss.) Schrod.	Th	IT	MS	18817
299	*Ranunculus arvensis* L.	Th	IT/M	MS	18818
300	*Ranunculus aucheri* Boiss.	Th	IT/M	MS	18819
301	*Thalictrum isopyroides* C. A. May.	Ch	IT	MS/RS	18820
	Resedaceae				
302	*Reseda buhseana* Mull.*	He	IT	MS	18821
	Rhamnaceae				
303	*Rhamnus persica* Boiss.	Ph	IT	RS	18822
	Rosaceae				
304	*Amygdalus lycioides* Spach	Ph	IT/ES	RS	18823
305	*Amygdalus scoparia* Spach	Ph	IT	RS	18824
306	*Rosa beggeriana* Schrenk	Ph	IT	RS	18825
307	*Rosa persica* Michx. ex Juss.	Ph	IT	MS	18826
	Rubiaceae				
308	*Asperula glomerata* (M. B.) Griseb.	Ch	IT	MS	18827
309	*Callipeltis cucullaria* (L.) D.C.	Th	IT	MS	18828
310	*Gaillonia bruguieri* A. Rich. ex DC.	He	IT	MS	18829
311	*Galium setacum* Lam.	Th	IT	MS	18830
312	*Rubia albicaulis* Boiss.*	Ch	SS	MS	18831
	Rutaceae				
313	*Haplophyllum acutifolium* (DC.) G. Don	He	IT	TU	18832
	Santalaceae				
314	*Thesium kotschyanum* Boiss.	Th	IT/SS	MS	18833
	Scrophulariaceae				
315	*Linaria michauxii* Chav.*	He	IT	MS	18834
316	*Scrophularia leucoclada* Bunge	He	IT	MS	18835
317	*Scrophularia striata* Boiss.	He	IT	MS	18836
318	*Scrophularia syriaca* Benth.	He	IT/M/SS	MS	18837
319	*Verbascum songaricum* Schrenk ex Fisch & C. A. Mey.	He	IT/ES	TU	18838
320	*Verbascum speciosum* Schrad.	He	IT/ES	TU	18839
321	*Veronica anagallis-aquatica* L.	He	Cosm	MS	18840
322	*Veronica persica* Poir	Th	IT	MS	18841
	Solanaceae				
323	*Hyoscyamus niger* L.	He	Mult	MS	18842
324	*Hyoscyamus pusillus* L.	Th	IT/ES/SS	MS	18843
	Tamaricaceae				

Table 1. continued.

NO.	Taxa	Life Form	Chorotype	Habitat types	Voucher specimens
325	*Tamarix ramosissima* Ledeb.	Ph	IT	MS, RS	18844
		Thymelaeaceae			
326	*Dendrostellera lessertii* (wikstr.) Van Tiegh.	He	IT	RS	18845
		Urticaceae			
327	*Parietaria judaica* L.	Ch	Mult	RS	18846
		Valerianaceae			
328	*Valerianella oxyrrhyncha* Fisch & C.A.Mey.	Th	IT/ES/M	RS	18847
329	*Valerianella szowitsiona* Fisch & C.A.Mey	Th	IT/M	RS	18848
330	*Valerianella triplaris* Boiss. & Buhse	Th	IT	RS	18849
		Zygophyllaceae			
331	*Tribulus terrestris* L.	Th	IT/ES/M	MS	18850