

# Features of Flora Ridge Malguzar

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**Abstract:** *The article is devoted to peculiarities of flora ridge Malguzar that are associated with the geographical location of the area. In Botanical-geographic range Malguzar refers to Kuhistan mountainous central Asian district of the province, except the Western part of the ridge, which is part of the Nurata district. As a result, the flora of Malguzar in its composition and structure is a transition between floors of the Turkestan and Nuratau ridge.*

**Keywords:** flora, Botanical and geographical zoning, endemic, systematic analysis, geographical analysis

## 1. Introduction

Ridge Malguzar is one of the most original and interesting in Botanical and geographical regions of Central Asia. It constitutes the North Western spur of the Turkestan range stretches about 80 km and a width of about 30 km, its maximum altitude is 2,620 m n.m. According to the current scheme of Botanical-geographic zoning of mountainous Central Asia [1, 2, 3, 4], Malguzar (except the Western tip) and the Northern slope of the Turkestan ridge are part Kuhistan mountainous central Asian province.

Within Uzbekistan, located Western part of the County with two Botanical-geographical areas – North Turkestan and Urgut. Strong segmentation and the complexity of the terrain, a large amplitude of heights, a wide range of soil and climatic conditions cause a great variety of flora and vegetation. Here are the semi-arid variant of all the foothill and mountain genera of landscapes in the Central Asia and most of the mountain florocoenotypes. Compared with Western Tien Shan, the boundaries of vegetation zones are slightly shifted upwards. Juniper forests of Kuhistan, particularly in the Turkestan ridge, at its poletnost and floral wealth have no analogues in Central Asia. According to R. V. Camelin [1, 2, 3], flora of the district includes Kuhistan 2080 species.

The Uzbek part of the Turkestan range and mountain Malguzar (except the Western tip) are to the North-Turkestan district Kuhistan district. District to date is poorly understood and a full synopsis of flora that is missing. The first floristic summary was a list of 368 species of vascular plants, published by M. G. Popov and N. In. Androsov [5]. In the monograph of E. M. Demarini [6] for the Western part of the Turkestan range specified 1139 species. In the Zaamin nature reserve that has an area of 26.8 thousand ha and covering only the upper two zones of vegetation, was 1192 species of plants belonging to 530 genera and 103 families [7]. This allows us to assess the flora of the North-Turkestan district not less than 1400-1500 species.

Western extremity of the ridge Malguzar refers to Nurata Nurata district of the County, which also includes the Nuratau mountains with adjacent ostanovili ranges. In relation to floristic district is well studied. A list compiled by V. R. Kamelin for Nurata mountains [1], 1172 includes 475 species from genera and 84 families of vascular plants. Species composition of the flora of the Nurata district has a

high degree of similarity with the flora of Kuhistan (more than 80% of the total species). At the same time, because of its specific geographical position, geological history and floragenesis is more originality, contrast and rather high rate of endemism (5.3 %).

In the herbarium of the funds TASH, with a large abundance of material from the Western part of the Turkestan range and the Nuratau mountains, samples from the ridge Malguzar represented. Until recently, Malguzar remained one of the floristically poorly studied areas of Uzbekistan.

The study of the flora ridge Malguzar is within the public application of the project "Botanical-geographical zoning and the creation of a single database on plant diversity of Uzbekistan" (A7-FA-ON-19606) and the innovation project "Cadastre of the genetic Fund of Uzbekistan. Part II. Jizzakh and Samarkand region. Vascular plants, vertebrate animals" (I5-FA-ON-17440).

As a result of our routing research 2011-2013, as well as learning materials TASH for ridge Malguzar currently well established in 1152 species of plants. We do not believe this final figure, however, the results obtained allow to characterize the main features of the studied flora.

Structure of the flora typical of mountainous Middle Asia. In particular, the leading role belongs to the Asteraceae (155 species), Fabaceae (132 species), Poaceae (123), Brassicaceae (62), Lamiaceae (60), Apiaceae (55), Caryophyllaceae (44), Boraginaceae (39), Scrophulariaceae and Ranunculaceae (37), Rosaceae (36), Liliaceae and Polygonaceae (25), Alliaceae (23), Rubiaceae (18), Chenopodiaceae (17 species). 10 leading families of the flora of Malguzar includes 744 species (64,3 % of the flora). The first three polymorphs of the families Asteraceae, Fabaceae and Poaceae combines 410 species (35.6% of the flora). The leading position of these three families is typical for almost all local floras of mountainous Central Asia. Spectrum of the leading families of the ridge Malguzar largely similar to the structure of Flora Zaamin nature reserve and the basin of the Zeravshan river, which also apply to Kuhistan and floors with neighboring Botanical and geographical regions of the Nurata mountains, Syr Darya Karatau, South-Western Tien-Shan [1, 7, 8, 9].

The largest genera in the flora of Malguzar are *Astragalus* L. (62 species), *Allium* L. (23 species), *Gagea* Salisb. (20),

*Cousinia* Cass. (18), *Ranunculus* L. and *Veronica* L. (14), *Artemisia* Less. (13), *Ferula* L. and *Euphorbia* L. (12), *Poa* L. (11), *Scutellaria* L. and *Valerianella* Mill. (9), *Silene* L., *Oxytropis* DC., *Piptatherum* P. Beauv., *Vicia* L., *Polygonum* L., *Chenopodium* L. and *Carex* L. (8), *Eremurus* M. Bieb., *Rumex* L., *Potentilla* L. and *Rosa* L. (7). A generic spectrum of the flora also shows the affiliation of the flora of Malguzar to East ancient Mediterranean, in particular, mountainous central Asian flora.

A significant number of species of *Carex*, *Ranunculus*, *Poa*, *Veronica* shows the presence in the study area environmental conditions for the growth of mesophilic boreal elements.

A prominent role in the flora and vegetation of Malguzar played by the representatives of the genera *Chenopodium*, *Polygonum*, *Rumex* and other types with polyregional type of area (*Acroptilon repens* (L.) DC., *Anagallis arvensis* L., *Artemisia annua* L., *A. vulgaris* L., *Centaurea solstitialis* L., *Convolvulus arvensis* L., *Conyza canadensis* (L.) Cronq., *Descurainia sophia* (L.) Webb. ex Prantl., *Echium biebersteinii* Lacaite, *Erigeron acris* L., *Galium aparine* L., *Hypericum perforatum* L., *Medicago sativa* L., *Myosotis refracta* Boiss., *Onopordum acantum* L., *Reseda lutea* L., *Setaria viridis* (L.) P. Beauv., *Torilis arvensis* (Huds.) Link *Turgenia latifolia* (L.) Hoffm., *Verbena officinalis* L., *Xanthium spinosum* L., and etc.), which is an indicator of anthropogenic disturbance of ecosystems in the region.

Features of the flora of the study area is determined by its location at the junction of Kuhistan and Nuratau floristic district. As a result, the flora of Malguzar in its composition and structure is a transition between floors of the Turkestan and Nuratau ridge. In particular, this circumstance is associated low rate of endemism in the flora of Malguzar. The endemic element in the flora ridge Malguzar represented a very small number of species. Narrow endemics ridge Malguzar there are only 3 (*Allium levichevii* F. O. Khass., *Cousinia malguzarica* Juz., *Oxytropis kamelinii* Vass.). They are all young progressive types. 5 species of Malguzar are endemic to the North of the Turkestan district (*Astragalus belolipovii* Kamelin ex F. O. Khass. et N. Sulajm., *Russanovii* A. F. O. Khass. et Esankulov, *Cousinia horridula* Juz., *C. chlorantha* Kult., *Scutellaria schachristanica* Juz.). More numerous subendemic Kuhistan (*Allium alexejanum* Regel, *Jurinea helichrysofolia* Popov ex Iljin, *Oxytropis capusii* Franch., *O. sarawschanica* Gontsch. ex Vassilcz. et B. Fedtsch. etc.) and especially the Nuratau-Kuhistan species (*Cupuliferum* Regel *Allium*, *Astragalus knorringianus* Boriss., *Cousinia dshisakensis* Kult., *C. pseudodshisakensis* Tschern. et Vved., *C. dubia* M. Pop., *C. haesitabunda* Juz., The genus *Dracocephalum nuratavicum*, *Ferula dshizakensis* Korov., *Hedysarum nuratense* Popov, *Nanophyton saxatile* Botsch., *Oxytropis tachtensis* Franch., *Phlomis linearifolia* Zak., *Pseudoclasia olgae* (Regel et Schmalh.) Botsch., *Seseli korovinii* Schischk., *Silene paranadena* Bondar. et Vved., *Tulipa affinis* Z. Botsch. etc.). This fact emphasizes the transitional character of the studied flora.

Overall, in the flora ridge Malguzar is dominated by species belonging to the Pamir-Alai, mountainous Badakshan and

anciently Mediterranean lasses of habitats. In the vegetation of the highland and lowland zones, play a leading role zapadnotekhasckaya-Pamir-Alai species (*Ranunculus mindshelkensis* B. Fedtsch., *R. pinnatisectus* Popov, *Dianthus tetralepis* Nevski ex Schischk., *Megacarpaea orbiculata* B. Fedtsch., *Amygdalus bucharica* Korsh., *Astragalus bactrianus* Fisch., *A. sewerzowii* Bunge, *Ferula penninervis* Regel et Schmalh., *Artemisia sogdiana* Bunge, *Lepidolopha C. komarovii* Winkl., *Perovskia angustifolia* Kudr., *Eremurus sogdianus* (Regel) Franch. etc.), as well as Western Pamir Alai and Pamir-Alai species (*Astragalus Bunge nobilis* ex B. Fedtsch., *Ferula kokanica* Regel et Schmalh., *Jurinea maxima* C. Winkl., *J. trautvetteriana* Regel et Schmalh., *Mentha pamiroalaica* Boriss., *Thapsoides Bunge Phlomis*, *Phlomoidea kaufmanniana* (Regel) Adyl., R. Kam. et Machmedov, *Fritillaria olgae* Vved., *Gagea hissarica* Lipsky, *Eremurus kaufmanii* Regel, *Eremurus olgae* Regel, *Piptatherum pamiroalaicum* (Grig.) Roshev.). Widely represented mountainous Badakshan and Kopetdag- mountainous Badakshan species (*Anemone petiolulosa* Juz., *Delphinium batalinii* Huth., *Ranunculus sewerzowii* Regel, *Amygdalus spinosissima* Bunge, *Astragalus wrist* Bunge, *A. lasiosemius* Boiss., *Acer pubescens* Franch, *Bunium chaerophylloides* (Regel et Schmalh.) Drude., *Artemisia tenuisecta* Nevski, Regel *Eremurus regelii*, etc.).

Also a significant proportion of the Iranian-Central Asian, Iranian-Turanian and Iranian- in Himalayan elements (*Delphinium semibarbatum* Bien. ex Boiss., *Glaucium elegans* Fisch. et C. A. Mey., *Papaver pavoninum* Schrenk, *Roemeria refracta* (Stev.) DC., *Acanthophyllum pungens* (Bunge) Boiss., *Crambe kotschyana* Boiss., *Cotoneaster nummularis* Fisch. et C. A. Mey., *Crataegus pontica* C. Koch., *Astragalus campylotrichus* Bunge, *Onobrychis chorassanica* Bunge, *Vicia subvillosa* (Ledeb.) Boiss., *Pistacia vera* L.).

Very variously represented in the flora of Malguzar ancient Mediterranean species, including many of the dominant and subdominant vegetative cover (*Anisantha sterilis* (L.) Nevski, *Avena fatua* L., Boissiera by (Sol.) Nevski, *Bromus danthoniae* Trin. ex C. A. Mey., *Bromus scoparius* L., *Hordeum bulbosum* L., *H. leporinum* Link, *H. spontaneum* C. Koch, *Poa bulbosa* L., *Ceratocephala falcata* (L.) Reg., *Thalictrum isopyroides* C. A. Mey., *Arenaria leptoclados* (Reichenb.) Guss., *Holosteum umbellatum* L., *Pleconax conoidea* (L.) Šourková, *Rosa canina* L., *Glycyrrhiza glabra* L. *Medicago minima* (L.) Bartal. etc.). These types of leaders mainly in the foothill and low mountain zones.

In General, the flora ridge Malguzar has a greater resemblance to the flora of the Western part of the Turkestan range than the Nurata mountains. Differences in the species composition of the flora of Malguzar and the Western part of the Turkestan range, on the one hand, explains the relatively low height of Malguzar, which in its flora no high mountains and some mountain species (*Angelica brevicaulis* (Rupr.) B. Fedtsch., *Astragalus chionanthus* Popov, *Carex melanantha* C. A. Mey., *Rhodiola gelida* Schrenk, etc.). On the other hand, in the Western extremity of Malguzar come some endemic Nurata district, including Anura pallidivirens (Kult.) Tscherneva is the representative of the Nurata

mountains endemic monotypic genus. A number of species characteristic of the foothills plains, foothills and low mountains are common for Malguzar and Nuratau mountains, but none on the Turkestan ridge (*Astragalus striatellus* Pall., *Consolida leptocarpa* Nevski etc. Including some rare species listed in the Red Book of Uzbekistan (*Allium isakulii* R. M. Fritsch et F. O. Khass., *Astragalus kelleri* Popov, *Lagochilus inebrians* Bunge, etc.). In addition, Malguzar found interesting species with a disjunctive distribution area is missing as in the Nuratau mountains and the Turkestan ridge (*Euphorbia sororia* Schrenk, *Pyrus korshinskyi* Litv., *Sedum pentapetalum* Boriss.).

Therefore, flora ridge Malguzar is a typical moderately rich flora within mountainous central Asian province. Analysis of the species composition of the flora shows that in Botanical and geographical respect, Malguzar refers to the North-Turkestan district Kuhistan mountainous central Asian province.

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