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New and rare species for the floras of the Caspian region and Southwest Asia

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Summary. This article provides information about the discovery of new and rare plant species in the Caspian region and Southwest Asia. In total, the article presents new findings for 19 species of vascular plants from 5 countries, registered during field research, as well as during the revision of herbarium materials. For the first time, *Lycium ruthenicum* is reported for the flora of Armenia. A new record for the flora of Russia is *Valeriana plagiostephana* collected from the territory of Dagestan, and *Gelasia tuberosa* is for the first time reported for the flora of Turkmenistan. The remaining 16 findings, while not new to the countries, significantly expand the understanding of the distribution of these species. Thus, for the flora of Armenia, new locations of some rare and alien species are given that complement existing information (*Foeniculum vulgare*, *Tripidium ravennae*, *Eleusine indica*, *Bothriochloa bladhii*, *Cleistogenes serotina*, *Adiantum capillus-veneris*, *Dianthus transcaucasicus*). In Iran, three species (*Chaerophyllum aureum*, *Heliotropium circinatum*, and *Bryonia monoica*) are reported for the first time for Kurdistan (Western Iran) and one species (*Haplophyllum canaliculatum*) for Sistan and Baluchistan (Southeastern Iran). For the first time, *Crassula vaillantii* and *Marsilea strigosa* are indicated for the Atyrau Region of Kazakhstan. *Vupleurum tenuissimum* is given for the first time for the flora of Dagestan (Russian Federation). In Turkmenistan, a new location of the rare species *Jurinea transhyrcanica* was discovered for the first time in the western part of the Central Karakum, and a population of *Crataegus germanica*, which was considered extinct, was discovered in the South-Western Kopet Dag. For each species information on location, general distribution, occupied habitats and population status is provided.

Новые и редкие виды для флор Прикаспийского региона и Юго-Западной Азии

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Ключевые слова: Армения, Белуджистан, Дагестан, Индер, Иран, Казахстан, Каракумы, Копетдаг, Курдистан, редкие виды, Россия, Туркменистан, флора.

Аннотация. В данной статье приводятся сведения о нахождении новых и редких видов растений в Прикаспийском регионе и юго-западной Азии. Всего в статье представлены новые находки для 19 видов сосудистых растений из 5 стран, полученные в ходе полевых исследований, а также при ревизии гербарных материалов. Впервые для флоры Армении приводится *Lucium ruthenicum*. Для флоры России новой находкой оказалась *Valeriana plagiostephana*, собранная с территории Дагестана, а *Gelasia tuberosa* впервые указывается для флоры Туркмении. Остальные 16 находок, не являясь новыми для стран, существенно расширяют представление о распространении видов. Так, для флоры Армении приведены новые местонахождения некоторых редких и чужеродных видов, которые дополняют существующие сведения (*Foeniculum vulgare*, *Tripidium ravennae*, *Eleusine indica*, *Bothriochloa bladhii*, *Cleistogenes serotina*, *Adiantum capillus-veneris*, *Dianthus transcaucasicus*). В Иране, для провинции Курдистан (Западный Иран) впервые приводятся три вида: *Chaerophyllum aureum*, *Heliotropium circinatum* и *Bryonia monoica*, а для провинции Систан и Белуджистан (Восточный Иран) новинкой оказалась *Halophyllum canaliculatum*. Впервые для Атырауской области Казахстана указаны *Crassula vaillantii* и *Marsilea strigosa*. Для флоры Дагестана (Российская Федерация) впервые приведен *Vupleurum tenuissimum*. В Туркмении впервые в западной части Центральных Каракумов выявлено новое местонахождение редчайшего вида *Jurinea transhyrcanica*, а в Юго-Западном Копетдаге обнаружена популяция *Crataegus germanica*, считавшаяся исчезнувшей. Для каждого вида приведены сведения о местонахождении, об общем распространении, занимаемых местообитаниях и состоянии популяций.

Introduction

As a result of field expeditions carried out in the territory of Western Turkmenistan (southwestern Kopet Dag, lower Uzboy and the southwestern edge of the Central Karakum), the study of herbarium materials of the Komarov Botanical Institute of the Russian Academy of Sciences (LE, St. Petersburg), the Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan (TASH, Tashkent) and the National Herbarium Fund of Turkmenistan (ASH, Ashgabat) and an analysis of previously published works, distribution data of two rare taxa and one new plant species for the flora of Turkmenistan were obtained.

New floristic findings were recorded as a result of studies of flora and vegetation in the coastal lowland, as well as in the foothill and mid-mountain zones of Dagestan. In the lowlands, floristic studies were carried out on the territory of the coastal cluster “Samur Delta” of the Samur National Park. In the foothill zone of Dagestan work was carried out in Derbent, Tabasaran, Kaitag, Sergokala and other areas. In the mid-mountain zone, steppe communities were studied in the middle reaches of the Samur River within the Akhty and Rutul Districts.

During a field study in the Inder salt-dome region in estuary-like drainless depressions on the western shore of Lake Inder, two halophilic-meadow-steppe species new to the Atyrau Region of Kazakhstan were discovered.

All of the above areas are connected to the Caspian Sea basin. Thus, the southwestern Kopet Dag is the northwestern part of the Turkmen-Khorasan Mountain Range and is adjacent to the Caspian deserts. The river beds running through the territory of the southwestern Kopet Dag: Atrek with its tributaries Sumbar and Chendyr belong to the Caspian basin. The Lower Uzboy corridor is the valley of the ancient Uzboy, which once connected the Amu Darya with the Caspian Sea. The southern edge of the sands of the western part of the Karakum Desert is the formation of ancient rivers that flowed into the Caspian Sea. The Republic of Dagestan is located on the western shore, and the Atyrau Region of Kazakhstan occupies the entire northern coast of the Caspian Sea.

In addition to the Caspian territories, this work presents data on eight new species for the floras of five regions of the Republic of Armenia and four new locations of the provinces of Kurdistan, Sistan and Baluchestan of the Islamic Republic of Iran. In Armenia, new floristic data for the majority of

the species were obtained through the study of vegetation dominated by C4 plants in all regions of the country.

In Iran, field studies on the ethnobotany of Kurdish populated areas in northwest and southeast Iran have led to the discovery of four new floristic findings.

Materials and methods

To study the flora, a route method was used with a visual landscape assessment of plant communities. All locations were recorded with a GPS receiver, and landscapes and habitats were recorded with photocameras. Herbarium specimens of the most interesting species were collected.

In desert areas (Karakum and Pre-Ustyurt region), walking routes of 4–5 km were laid out daily; in Kopet Dag, a number of gorges with year-round water sources were examined. The length of the routes varied from 2 to 8 km depending on the complexity of the terrain.

In the Republic of Dagestan, geobotanical descriptions of steppe communities in the foothill and mid-mountain zones were carried out. Herbarium material was collected during the growing season of 2023.

In the Republic of Armenia, research was carried out in various habitats: gorges, along roads and in the vicinity of populated areas in all regions of the country in part within the framework of a study of the vegetation dominated by C4 plant species.

In Iran, fieldwork was carried out from March to August 2021 and from February to August 2022 in the provinces Kurdistan and Sistan and Baluchestan within the context of ethnobotanical surveys on the two provinces.

In the Atyrau Region of the Republic of Kazakhstan, botanical research was carried out in May 2023. One of the research objectives was to study the halophilic-meadow-steppe flora of drainless depressions and estuaries in the vicinity of Lake Inder.

To identify species, regional “Floras” and “Plant Identification Guides” were used (Pratov, 1976; Andersen, 1977; Avetisyan, Mekhakyanyan, 1987; Hedge, Lamond, 1987; Nikitin, Geldikhanov, 1988; Akhani, Förther, 1994; Khatamsaz, 2002; Mozaffarian, 2007; etc.).

Scientific names of plants are aligned with “International Plant Names Index” (IPNI. URL: <http://www.ipni.org>) and “Plants of the World Online” (POWO. URL: <https://powo.science.kew.org>) databases.

Collections from the studied areas were deposited at the Scientific Center of the Russian Academy of Sciences (DAG), the Central Siberian Botanical Garden of the Siberian Branch of Russian Academy of Sciences (NS), the Herbarium of Komarov Botanical Institute RAS (LE), the Herbarium of the Institute of Botany after A. L. Takhtajyan of the National Academy of Sciences of the Republic of Armenia (ERE), and the Herbarium of the Institute of Systematic and Evolutionary Botany of the University of Zurich (Z).

Turkmenistan

Crataegus germanica (L.) Kuntze (= *Mespilus germanica* L.): “Turkmenistan, southwestern Kopet Dag, Syunt-Hasardag ridge, Pudneli gorge, shrub thickets, 38°16'15.343"N, 57°00'34.667"E. 22 VI 2023. A. V. Pavlenko” (ASH). – *Mespilus germanica* was for the first time discovered on the territory of Turkmenistan by L. A. Berezin, who collected a herbarium sample in 1926 in the Gyuen gorge, located on the left bank of the Chendyr River and extending upstream into the territory of Iran. The National Herbarium Fund of Turkmenistan (ASH) has one herbarium sample, but this specimen was identified much later, in 1983, by E. P. Gudkova. A year later, in 1927, the Gyuen gorge was visited by N. V. Androsov, whose collections are available in the ASH (six samples) and in the TASH herbariums (two samples). The labels of these samples are all identical: “Turkmenistan, Kopet Dag. Along the Gyuen gorge near the Chekan-kala border post. 3 VIII 1927”. There are seven specimens in the LE collection, all of which were collected in the gardens of Koinekesir village. The earliest of these gatherings was conducted by A. G. Borisova on July 30, 1934.

It should be noted that the Gyuen gorge was the only known habitat of wild medlar in Central Asia (Poyarkova, 1939; 1950; Pratov, 1976; Nikitin, Geldikhanov, 1988).

The last herbarium collections in the above-mentioned gorge were carried out by U. P. Pratov in 1956 (ASH (one herbarium sheet)). Subsequently, attempts were made to introduce this species in the Botanical Garden of the Academy of Sciences of the TSSR, which resulted in the fact that “the untimely transfer in culture of a very rare species in the TSSR – the German medlar (only 3 specimens were noted in the Gyuen Gorge) led to its complete disappearance” (Kerabayev, Ishchenko, 1985). This was also facilitated by natural fires, which, according to the chronicles of the Syunt-Khasardag Reserve, in the 1980s occurred repeatedly and significantly

affected the composition of the flora of the damaged areas. Cultivation of medlar also ceased more than half a century ago, according to unpublished archival data from the former Turkmen Experimental Station of the All-Soviet Research Institute of Plant Industry (now Turkmen Experimental Station of Plant Genetic Resources).

The opinion about the disappearance of the medlar was shared by R.V. Kamelin. Believing that the species is of serious scientific and practical interest. R. V. Kamelin insisted on the need to continue the search for new locations in the southwestern Kopet Dag (Kamelin et al., 1998).

In 2023, the search was successful. According to a resident of the Koinekesir village, a population of presumably medlars was discovered in one of the gorges. A visit to the tract confirmed his assumption: one population was noted, including 32 plants (12 in fruits), occupying an area of no more than 300 m². *Crataegus germanica* together with *Rosa × karakalensis* Kult. occupies the middle tier of the community and the upper tier is occupied by large specimens of *Fraxinus syriaca* Boiss., providing shade to the medlar habitat. The Pudneli gorge is located on the southern slope of the Syunt-Khasardag ridge and has a year-round water source that descends in the Sumbar valley. The medlar habitat is located at an altitude of about 1300 m above sea level. The new population is located 90 km to the east from the Gyuen gorge.

General distribution: Southern Europe, Asia Minor, Crimea, Caucasus, northern Iran.

Jurinea transhyrcanica Iljin.: “Turkmenistan, western part of the Central Karakum, Akpurk sands, unfixed top of the sand ridge, 39°21'39.337"N, 55°10'52.113"E. 16 V 2023. A. V. Pavlenko” (ASH) (Fig. 1). – *Jurinea transhyrcanica* is an extremely rare endemic of the Karakum desert, which until now was known from only three collections. The plant was first discovered in 1912 by D. P. Gedevanov and D. A. Dranitsyn at the Dazkui well in the Uzboy valley of the western part of the Central Karakum (locus classicus) (LE 01243542). In 1916, this species was collected by E. P. Korovin, who identified the plant as morphologically and ecologically close to *J. derderioides* C. Winkl. Subsequently, this sample was reidentified by O. Cherneva (LE 01243544). The discovered plant is easily distinguished from *J. derderioides* by completely glabrous, rather than finely felted involucre. This collection was carried out in the southern part of the Zaunguz Karakum, in the area of the Damla village, located at the edge of the Unguz depression. This habitat is located 350 km east of the locus classicus. The third finding of this species is the collection of I. G. Rustamov in 1951 in the area of Lake Karategelek along the Uzboy riverbed (LE 01243543). The collection point is located 15 km northeast of the *locus classicus*. No other collections of the species are known.



Fig. 1. Flowering specimen of *Jurinea transhyrcanica* Iljin. (фото А. В. Павленко).

In 2022, in the beginning of June we managed with the help of the landmarks in I. Rustamov's label to find three populations of *J. transhyrcanica*, which were in a flowering and fruiting state at the time of discovery. In the second half of May 2023, searches were carried out in sandy areas south of the *locus classicus*. One population of seven flowering specimens was found in the Akpurk sands. This point is a new habitat for this species and expands the range of *J. transhyrcanica* to the south by more than 50 km.

General distribution: Karakum. Endemic species.

Gelasia tuberosa (Pall.) Zaika, Sukhor. et N. Kilian (= *Scorzonera tuberosa* Pall.): "Turkmenistan, slightly closed. alluvial sands north of the Geokdere village, 40°22'46.557"N, 55°30'16.989"E. 15 IV 2023. A. V. Pavlenko" (ASH). – The species was discovered during a survey of sandy plateau-like areas of the southern pre-Ustyurt region. The morphologically close *Scorzonera sericeolanata* (Bunge) Krasch et Lipsch. has been reported for this area (Iljin, 1960). Unlike *S. sericeolanata*, the stems, leaves and involucre of *G. tuberosa* are covered with very short hairs rather than long, silky ones. The tufts of the achenes of *G. tuberosa* are often violet-colored at the apices, rather than completely white. This species was found in three points along the route Koimat – Geokdere (about 40 km in southwest direction). Populations included up to 10 plants per 200–300 m². The discovery of *G. tuberosa* in the southern pre-Ustyurt region expands the range of this species by 150–200 km to the south and is a novelty for the flora of Turkmenistan.

General distribution: southeast part of European Russia, south West Siberia, Aral-Caspian Region.

Russian Federation (Republic of Dagestan)

Valeriana plagiostephana (Fisch. et C. A. Mey.) Christenh. et Byng (= *Valerianella plagiostephana* Fisch. et C. A. Mey.): "Dagestan, Akhty district, environs of the village of Kurukal, left bank of the Akhtychay river, on gravelly screes, 1150 m, 41°25'35.2"N, 47° 40'33.9"E. 15 V 2023. R. Murtazaliev" (DAG); "Dagestan, Akhty district, surrounding the village of Midzhakh, on dry gravelly north-eastern slopes, 1250 m, 41°24'22.7 "N, 47°39'35.7"E. 15 V 2023. Yu. Korolyuk, E. Zibzeev, S. Senator, R. Murtazaliev" (LE01268157). – The species has been initially found during a spring expedition in Southern Dagestan in the valley of the Akhtychay River (a tributary of the Samur River) in two relatively close points (1–1.5 km) in the lower mountain belt in mountainous

xerophilic vegetation. Found in single specimens or in small groups, in some places it is noted quite often, acting as a subdominant as part of the synusia of ephemerals of mountain steppe communities. It is a new species for the flora of Dagestan and Russia. The closest location of the species is located on the slopes of the Murovdag Range in Eastern Transcaucasia (Mikheev, 1994). The identified locations are situated on the northwestern border of the species' range.

General distribution: South-West and Central Asia, Eastern and Southern Transcaucasia, Talysh.

Bupleurum tenuissimum L.: "Dagestan, Magaramkent district, surroundings of the Primorsky settlement, in wet meadows along the reservoir, 41°52'42.4"N, 48°32'39.0"E. 8 X 2023. R. Murtazaliev" (DAG, LE01268156). – A Mediterranean-European species, which was not previously reported for Dagestan (Murtazaliev, 2009). First collected during a floristic survey of the Samur National Park (cluster "Delta of the Samur"). It is found in single specimens scattered along roads and along the outskirts of the fish hatchery reservoir in gramineous communities on waterlogged soils. The dominants of these communities are *Phragmites australis* (Cav.) Trin. ex Steud., *Tripidium ravennae* (L.) H. Scholz, *Juncus acutus* subsp. *littoralis* (C. A. Mey.) Feinbrun (= *J. littoralis* C. A. Mey.), *Apocynum sarmatiense* (Woodson) Wissjul., and some other moisture-loving species. In Dagestan, the species is located at the eastern border of its range. In Russia, it is known from the Rostov Region and the North Caucasus (Krasnodar and Stavropol Regions) (Pimenov, Ostroumova, 2012). From the related *B. marschallianum* C. A. Mey., it can be distinguished by almost sessile lateral inflorescences and bracts longer than the fruits.

General distribution: Europe, North-West Africa, South-West Asia (Turkey, Israel) and the Caucasus (Azerbaijan).

Republic of Kazakhstan

Crassula vaillantii (Willd.) Roth: "Kazakhstan, Atyrau region, Inder district, western shore of Lake Inder, damp drainless depression, 48°24'51.4"N, 51°50'00.8"E. 04 V 2023, S. G. Akhmedenova, A. P. Laktionov, B. B. Sarsenova" (LE 01246680) (Fig. 2). – Reported for the first time for the Atyrau Region of Kazakhstan. The closest location is in the West Kazakhstan Region (Kazakhstan), on the eastern shore of Lake Botkul (Klinkova, 2012).



Fig. 2. *Crassula vaillantii* (Willd.) Roth (фото А. П. Лактионова).

General distribution: Mediterranean, North America, Europe, and Central Asia.

Marsilea strigosa Willd.: “Kazakhstan, Atyrau region, Inder district, western shore of Lake Inder, damp drainless depression, 48°24'51.4"N, 51°50'00.8"E, 04 V 2023, S. G. Akhmedenova, A. P. Laktionov, B. B. Sarsenova” (LE 01246681) (Fig. 3). – Reported for the first time for the Atyrau Region of Kazakhstan. The closest location is in the West Kazakhstan Region (Kazakhstan), along the banks of the Sunali estuary (Klinkova, 2012).

General distribution: southeastern Europe, the European part of Russia, the Caucasus and Central Asia (Caspian Ustyurt, Caspian-Dzhanybek region, Emba, Balkhash region, Syrdarya-Amu Darya region and the Kyzylkum).

Both species were discovered in a drainless depression, in which extrazonal ephemeral halophilic-meadow-steppe plant communities develop in years with heavy winter and spring rainfall. These communities are composed of species with a short growing season from March to May: *Limosella aquatica* L., *Spergula segetalis* (L.) Vill., *Lythrum hyssopifolia* L., *L. borysthenicum* (M. Bieb. ex Schrank) Litv., *Rorippa wolgensis* Fursajev ex Laktionov et Mavrodiev, *Ranunculus minimus* (L.) E. H. L. Krause, *Plantago tenuiflora* Waldst. et Kit.,

Olimarabidopsis pumila (Stephan ex Willd.) Al-Shehbaz, O’Kane et R. A. Price and others.

Republic of Armenia

Foeniculum vulgare Mill.: “Syunik region, along the Kapan-Kajaran highway, between Andokavan village and the city of Kapan, ruderal vegetation on slopes near the road, 39°13'07.471"N, 46°17'24.715"E. 14 VII 2023. A. Rudov, H. Kosyan” (ERE202210). – The species was discovered for the first time in southern Armenia (Zangezur floristic region) as individual specimens in ruderal roadside vegetation. For Armenia it is listed as an alien species, known from the Ijevan (northeast) and Yerevan (west) floristic regions (Gabrielyan, Zohary, 2004). This species is probably more widespread in Armenia than previously thought. For example, we discovered a fairly large population in an open woodland of *Paliurus spina-christi* Mill. in the north of Armenia (“Lori region, between the city of Alaverdi and Madan village, 41°07'16.7"N, 44°38'56.6"E. 11 VIII 2023. A. Rudov, A. Asatryan, M. Dehghani” [ERE202211]), where the species is distributed along with other alien and invasive species: *Ailanthus altissima* (Mill.) Swingle, *Robinia pseudoacacia* L., and *Nicandra physalodes* (L.) Gaertn.



Fig. 3. *Marsilea strigosa* Willd. (фото А. П. Лактионова).

General distribution: Mediterranean, North Africa and South-West Asia up to the Himalayas. Widely introduced in Europe, Africa, East Asia, South America, North America, and Australia.

Tripidium ravennae (L.) H. Scholz (= *Erianthus ravennae* (L.) P. Beauv): “Ararat region, valley of the Barakakhbyur stream, 39°56'35.9"N, 44°44'35.0"E. 13 X 2022. A. Rudov” (ERE202212). – Previously in Armenia it was known only from the Meghri floristic region in the extreme south of the country and is listed in the Red Data Book of Armenia as a “vulnerable species” (Fayvush, 2010). Meanwhile, the species is widespread along several kilometers from the lower to the middle Barakaghbyur River valley, in some places dominating the vegetation cover. For example, in the Barakakhbyur gorge and similar areas it is found in wet areas. Other thermophilic grasses are also typical for the gorges: *Eragrostis collina* Trin. and *Cenchrus orientalis* (Rich.) Morrone, as well as tugay shrubs and trees – *Tamarix kotschyi* Bunge, *T. ramosissima* Ledeb. and *Populus euphratica* Olivier, rare for Armenia (ERE202213).

General distribution: Mediterranean to the Middle East, the Arabian Peninsula, and Central and South Asia; North America (adventive).

Eleusine indica (L.) Gaertn.: “Tavush region, surroundings of Bagratashen village, 41°15'00.3"N, 44°50'29.6"E. 11 VIII 2023. A. Rudov, A. Asatryan, M. Dehghani” (ERE202214) and “41°14'26.9"N, 44°49'26.5"E” (ERE202215). – Indicated for ruderal communities of the Yerevan floristic region (Yerevan and Armavir Regions) (Gabrielyan, 2009). According to our observations, the species is widespread in the ruderal vegetation in the vicinity of Bagratashen Village in a community with *Amaranthus retroflexus* L., *Cynodon dactylon* (L.) Pers., *Portulaca oleracea* L., *Setaria viridis* (L.) P. Beauv., *Sorghum halepense* (L.) Pers., and *Tribulus terrestris* L.

General distribution: Subtropical and tropical regions of Europe, Asia, and Africa.

Bothriochloa bladhii (Retz.) S. T. Blake (= *B. caucasica* (Trin.) C. E. Hubb.): “Lori region, between the city of Alaverdi and the village Madan, on elevated bed-shaped areas between steep coarse gravelly slopes in open forest *Paliurus spina-christi* Mill., 41°07'15.2"N, 44°39'24.2"E. 11 VIII 2023. A. Rudov, A. Asatryan, M. Dehghani” (ERE202216). Previously, it was reported in Armenia exclusively for the extreme south of the Syunik Region (Meghri floristic region) (Gabrielyan, 2009). We discovered it in the north of the country, in the Ijevan floristic

region, where it dominates in the lower tier of vegetation in open woodlands of *Paliurus spinachristi*.

General distribution: Subtropical and tropical regions of the Europe, Asia and Africa; America (adventive).

Cleistogenes serotina (L.) Keng: “Ararat region, inner pan of Mount Erakh, along a mineral spring, 39°57'40.7"N, 44°39'16.3"E. 24 X 2021, A. Rudov” (ERE202217) and “Vayots Dzor region, southern slope of the Arpa River gorge opposite to the Zaritap Bridge, gravelly slope, 39°40'58.5"N, 45°30'17.7"E. 12 X 2023. A. Rudov” (ERE202218). – Previously, the species was listed only for the Ijevan (northeast) and Zangezur (south) floristic regions (Gabrielyan, 2009). We found this species for the first time in the Ararat Region (Yerevan floristic region) and in the Vayots Dzor Region (Darelegis floristic region). Perhaps, it is much more widespread in Armenia than expected, but as a thermophilic grass, distributed mainly on inaccessible slopes, it may have remained unnoticed.

General distribution: Mediterranean, Eastern Europe, the Caucasus, and Central Asia.

Lycium ruthenicum Murray: “Syuniq region, between the towns of Meghri and Agarak, remains of a tugay along the highway, along the Iranian border, 38°52'25.4"N, 46°14'25.4"E. 14 VII 2023. A. Rudov, R. Kosyan” (ERE202219). – The presence of the species in the flora of Armenia was previously assumed (Avetisyan, Mekhakyants, 1987), but before our discovery there have been no herbarium collections. Found at the edges of tugay vegetation together with *Lycium depressum* Stocks.

General distribution: Western, Central, Southern and Eastern Asia.

Dianthus transcausicus Schischk.: “Shirak region, environs of the village of Bandivan, rocky slopes in meadows, 40°56'00.0"N, 43°48'00.0"E. 14 VIII 2020. A. Nersesyan, A. Papikyan, A. Danielyan, N. Melkonyan” (ERE 202279). – Last collection of the species in Armenia was registered in 1916 in surroundings of Yerevan. It was a syntype collected by Schischkin (“Transcaucasia, environs of Erivan, rocky slopes. Near Chelmakchi. 15 IV 1916. B. Shishkin” – LE!). The recollection of the species confirms the presence of the taxon in Armenia, and simultaneously it is a new record for the Upper Akhuryan floristic region. The species distinctly differs from the closely related *D. asperulus* Boiss. et

Huet and *D. masmenaeus* Boiss. by morphological features of flowers and inflorescence (Nersesyan, 2011). Natural habitats: rocky and loamy slopes, 1000–3000 m a. s. l.

General distribution: Caucasus (southwestern and southern parts of the South Caucasus), northeastern Anatolia.

Adiantum capillus-veneris L.: “Lori region, on wet stony vertical eroded slope on the roadside, by the road to village Haghpat, 41°00'00.0"N, 44°38'00.0"E. 14 VI 2018. A. Asatryan” (ERE0014015) and “Lori region, near the city of Tumanyan, near the Kobayr monastery, in a wet cave, 41°00'00.0"N, 44°38'00.0"E. 19 VII 2020. A. Nersesyan, A. Papikyan, S. Galstyan” (ERE199254, ERE199255). – These are two new localities for this species discovered in the Ijevan floristic region and a first finding from the Lori Region. The species has been for the first time noted and photographed in both localities in 2018 by A. Asatryan, but its collection in Kobayr was complicated due to relief and has been confirmed by an herbarium voucher just in 2020 by A. Nersesyan, A. Papikyan and S. Galstyan (Fig. 4). In Armenia, the species grows in fissures of wet rocks or in shady places, within the Ijevan, Aparan, Yerevan, Dareghegis, and Zangezur floristic regions at the altitude of 750–2100 m a. s. l. (Flora Armenii, 1954; Gabrielyan, Greuter, 1984; Oganezova, 2016). The species is considered rare for the Armenian flora. It is included in the first and second editions of the Red Data Book of Armenia. In the second edition of the Red Data Book of Armenia, it was assessed as a “vulnerable species” (Gabrielyan, 1989; Oganesyan, 2010).

General distribution: Caucasus (Greater Caucasus, Western, Central, Eastern, Southern Transcaucasia, Talysh), Europe, Mediterranean, Turkey, Iran, Central Asia, Central Africa, and North America.

Iran

Chaerophyllum aureum L.: “Kurdistan province, Marivan, Dari village, Bani Mo district, in an open woodland, 35°26'34.25"N, 46°21'54.93"E. 25 V 2022. T. Maleki” (Z-000272905). – Previously, the species was listed for the provinces of Golestan, Mazandaran, Gilan, East Azerbaijan, and Tehran (Hedge, Lamond, 1987; Mozaffarian, 2007). We discovered it for the first time in the province of Kurdistan (Western Iran) in an open woodland. Dominants in the community are *Smyrniium cordifolium* Boiss.,

Lamium amplexicaule L., and *Fumaria asepala* Boiss. *Tragopogon bornmuelleri* Ownbey et Rech. f., *Trifolium* spp., *Rubus sanctus* Schreb. and *Salvia bracteata* Banks et Sol. also occur in this habitat.

General distribution: Europe, Turkey, the Caucasus and Transcaucasia, and northwestern Iran.

Heliotropium circinatum Griseb.: “Kurdistan Province, Merivan, Chor village, ruderal community on rocky soil near the village, 35°24'40.53"N, 46°21'49.31"E. 31 V 2022. T. Maleki” (Z-000272904). – This species was previously reported in Iran for Zanjan province (Riedl, 1967; Khatamsaz, 2002). It was for the first time discovered in the province of Kurdistan, where it is found in ruderal communities in the vicinity of the Chor Village together with *Hyoscyamus niger* L. and *Salvia* spp.

General distribution: Iraq, Turkey (prov. Hakkari) and northwestern Iran (Akhani, Förther, 1994).

Bryonia monoica Aitch. et Hemsl.: “Kurdistan Province, Merivan, Chor village, Soret site, in valley vegetation, 35°24'40.53"N, 46°21'49.31"E. 31 V 2022. T. Maleki” (Z-000272903). – Previously, the species was listed only for the provinces of Razavi

Khorasan and Sistan and Baluchistan in Eastern Iran (Andersen, 1977; Safavi, 2011). For the first time this species was collected in Western Iran, where it was found in a valley dominated by *Papaver bracteatum* Lindl., *Mentha longifolia* (L.) L., *Prangos* spp., and *Eryngium* spp. Together with *Hypericum scabrum* L., *Rosa canina* L., and *Quercus infectoria* Oliv.

General distribution: Western India, Pakistan, Afghanistan, Central Asia, and Iran.

Haplophyllum canaliculatum Boiss.: “Sistan and Baluchistan Province, Mehrestan, Mount Birk, on rocky and stony slopes, 27°12'18.80"N, 61°38'27.46"E. 21 IV 2022. T. Maleki” (Z-000272902). – First discovered in the province of Sistan and Baluchistan, where it occurs on the rocky slopes of the Birk Mountain region in Central Baluchistan along with *Artemisia kermanensis* Podlech, *Zygophyllum atriplicoides* subsp. *eurypterum* (Boiss. et Buhse) Popov, *Anthemis rhodocentra* Iranshahr, and *Astragalus fasciculifolius* Boiss. Previously, it was recorded only for the Fars and Hormozgan provinces of Southern Iran (Townsend, 1966; Joharchi, 2008).

General distribution: Iran (endemic plant).

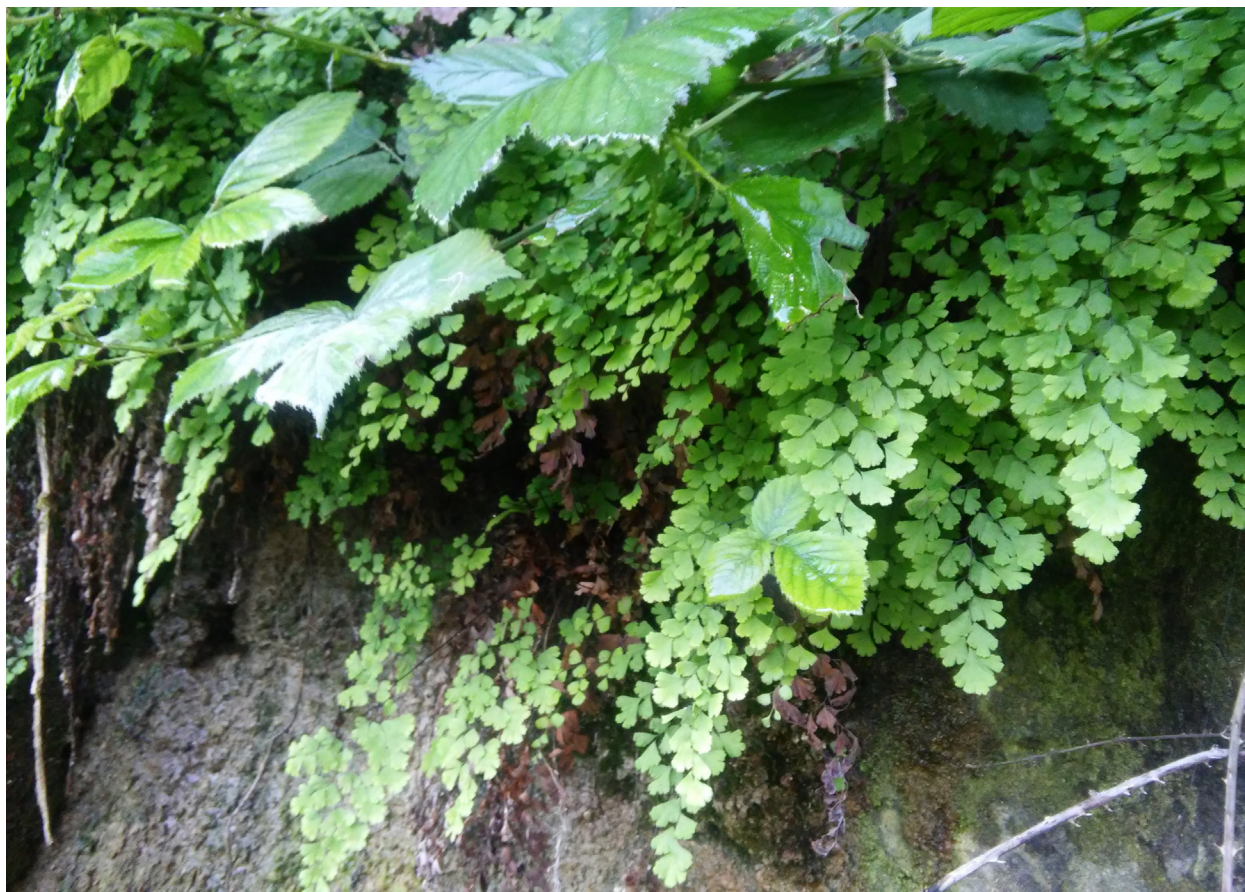


Fig. 4. *Adiantum capillus-veneris* L. (фото А. Т. Асатрян).

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