ЗНАЧЕНИЕ ПОБЕРЕЖЕЙ СОХ И ШОХИМАРДОН В РАСПРОСТРАНЕНИИ РЕДКИХ ВИДОВ

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THE IMPORTANCE OF SOH AND SHAHIMARDON RIVER BASINS IN THE DISTRIBUTION OF RARE PLANTS

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АННОТАЦИЯ

В Ферганской долине много редких видов растений. Большинство из них расположено на берегах рек Шохимардон и Сох. Бассейн Шохимардон: 12, Бассейн Соха: 4 - среда произрастания редких растений. Изучение географии, состава и состояния почвы, а также экологических условий этой области также важно для сохранения растений, произрастающих в этой среде. В статье также представлена информация о растениях, произрастающих в этих местах.

ABSTRACT

There are many rare plant species in the Fergana Valley. Most of them are located on the banks of the Shohimardon and Sokh rivers. Shohimardon basin: 12, Sokh basin: 4 - habitat for rare plants. Studying the geography, composition and condition of the soil, as well as the ecological conditions of this area is also important for the conservation of plants growing in this environment. The article also provides information about the plants growing in these places.

Ключевые слова: редкие виды, река, Ферганская долина, внешняя среда.

Keywords: rare species, river, Fergana Valley, external environment

Introduction.

Shohimardonsay (Archaboshi, Aksuv, Margilansay) is a river in the Fergana region. It is formed by the confluence of the Aksu and Koksuv rivers (near the village of Shohimardon), which begin in the northern part of the Olay and Turkestan ridges. From the village of Vodil to the city of Fergana Margilansay, below it Sh. known as 112 km. The area of the basin is 1300 km2. It partially flows through Kyrgyzstan. It is divided into several networks. 32 small ravines (total length 86 km) will be added to the city. It is fed by snow and rain water. The average long-term water flow is 10.1 m³ / s, 64 m³ / s during floods and 319 mln. m3. Average annual water consumption varies from 10.5 m³ / s (in high water years) to 7.86 m³ / s (low water years). Sh. The water is used to irrigate crops. There are Shohimardon, Aqqiya, Qumbulak, Langar and other villages in the river valley.

The Sokh region is divided into two parts by Kyrgyzstan:

The city of Chon-Kara, including North Sokh (or Lower Sokh).

Southern Sox (or Upper Sox), which is much wider than Northern Sox. The area covers nineteen locations with 65.9 per cent urban population and 34.1 per cent rural population. These are 99 percent Tajik, 0.7 percent Kyrgyz, and 0.3 percent Uzbek.

The exclave name is the Sokh River, 124 km long, which crosses this area and irrigates the fertile valley. The exclave is surrounded by the Batken region of Kyrgyzstan. The border with Sokh is 135 km, and nine

border posts are guarded by Kyrgyzstan. The left tributary of the **Sokh** is the Syrdarya. Currently, it is mainly used for irrigation. The length of the river is 124 kilometers (77 miles), the catchment area is 3,510 square kilometers (1,360 square miles), and the average water flow is 42.1 cubic meters per second (1,490 cubic feet / s).



Fig.1. The geographical location of the sox and Shahimardon

$\underline{40.6553}$ °N $\underline{70.7340}$ °E - which is the location of the Sokh River along the Sokh

Sokh is a wet river in the Fergana Valley. Pants of the Olay and Turkestan ridges. It starts from the glacier at the height of 5550 m from the slopes. Uz. 124 km, the area of the basin is 3510 km², the score of the water basin. 3480 m. The Dalbek, Shudmon, and Khojaochkan rivers join near the village of Zardoli to form the S. River. In the upper part, it flows through a very deep and narrow gorge (4–10 m wide). Upon reaching the hill zone, the river valley widens to 500 m. After that, the width of the river is 70 km. It is 50 km

long and forms a spreading cone of stone and gravel. In some parts of the river there are second and third terraces. When it flows into the Fergana Valley, it divides into branches. The river is saturated with ice and snow, as 71% of the annual rainfall in the basin is snow and 29% is rain. The basin has 364 glaciers with an area of 244 km2. The largest is Archaboshi (12 km²). The average flow modulus is 17.0 1 / sec, km². The turbidity of S. water is moderate (0.99 kg / m³). Between the hills, the Sarikurgan hydroelectric power station and the Okhchi hydroelectric power station were built on the river, and the Kokand hydroelectric power station was built at the foot of the river. It supplies water to Uzbekistan, Dangara, Uchkuprik and Baghdad districts of Fergana region. In the river valley, Kokand located. There are "Chongora" and other resorts.

Main part.

1. Rare plant species distributed in the Shohimardon basin area.

Delphinium knorringianum B.Fedtsch.

Published in: B. Fedtsch. In: Journ. Roy. Hort. Soc., 61: 196, 197. (1936).

source: Synonymic Checklists of the Vascular Plants of the World [4].

Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Ranunculales Family: Ranunculaceae Genus: Delphinium L.

Species: Delphinium knorringianum B.Fedtsch. Rareness rate. A rare, endemic plant found in a small area of the Alay ridge.

Brief description. Perennial herb with bullet roots reaching 35-45 cm in height. The leaves are mainly located at the bottom of the stem. The lower part of the leaf band slightly enlarged, leaves round kidneyshaped, 5 claw-shaped separated, the pieces inverted ovoid, they are also slightly trimmed in turn. Stems sparse, 57 flowers. The petals are light purple, broadly elliptical-ovate, the pixels slender, 2.5 cm in length, the tip is divided into two separated Blooms in June, July bears fruit in a month. Spread. Fargona Province: Shohimardon River in the basin, as well as in Kyrgyzstan occurs (Osh region). Last Kyrgyzstan, Turkestan ridge, village near Double Spring. 2005 July 14th Growth conditions. On the slopes of the lower and middle part of the mountains and grows on rocks. In nature, it grows alone or in groups. Total number not defined. Reproduction. Propagated by seeds. Number of plants and change of habitat reasons. Information no. Cultivation. No information. Protective measures. Special protection measures not developed.

Determining the total number of plants, their bioecological characteristics in nature and It is recommended to study in botanical gardens. [1,3].





Fig.1. Flower structure of *Delphinium knorringianum* (Opened)

PlantList-ID: <u>kew-2759952</u>
Tropicos ID: <u>27102444</u>
IPNI plant ID: <u>710717-1</u>
GBIF taxon ID: <u>3930642</u>

• Plants of the World online

• ID: <u>urn:lsid:ipni.org:names:710717-1</u>

Observation.org ID: <u>130395</u>eBiodiversity ID: <u>441981</u>

• World Flora Online ID: wfo-0000640263

Open Tree of Life ID: <u>6131687</u>
 NCBI taxonomy ID: <u>2829841</u>
 source: <u>wikidata: Q15372166</u> [4].

Astragalus borissianus Gontsch.

Published in: Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 10: 35. 1947

source: Synonymic Checklists of the Vascular Plants of the World

Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Fabales Family: Fabaceae Genus: Astragalus L.

Species: Astragalus borissianus Gontsch





Fig.2. Herbarium of Boris astragalus

Dataset

Creator: Picturae Record license:

http://creativeco.../licenses/by/4.0/

Identifier:

http://mediaphoto...82merR6I69DRCyn0L

Suggested attribution:

Astragalus borissianus Gontsch.

(licensed under

http://creativecommons.org/licenses/by/4.0/)

Herbarium specimens of Université de

Montpellier 2, Institut de Botanique (MPU))

Publisher

<u>Herbarium of Université de Montpellier 2, Institut</u> de Botanique

Issues: Ambiguous institution [5].

Status. A rare endemic species in the Alay ridge.

Brief description. An annual plant 30 cm tall, without stems or very short stems, surrounded by leaf litter. The leaves are 10-23 cm long, the leaves are elongated, elliptical or usually 10-10 pairs, linear, modern 7-15 mm, stiff, the petals are white on both sides. The petals are short, 6-8 flowers. Dukkak unbound, elongated ovoid, 14-15 mm long, hard, ruffled, working with white feathers, two-celled. It blooms in June and the fruits ripen in August.

Spread. Fergana region: Distributed in the basin of the Shohimardon river of Aloytism.

Growth conditions. Grows on pine and rocky slopes.

They met one by one. The total number is not clear.

Increase. It is treated with seeds.

Reasons for changes in plant numbers and habitat. Not specified.

Cultivation. Controls have shown this.

Protective measures. No special measures have been developed.

IPNI plant ID: 476489-1
 PlantList-ID: ild-53797

Tropicos ID: 13039168GBIF taxon ID: 5346905

• Encyclopedia of Life ID: 669001

• Plants of the World online ID : urn:lsid:ipni.org:names:476489-1

IRMNG ID: 10176772
Observation.org ID: 115241
eBiodiversity ID: 523484

• World Flora Online ID: wfo-0000207662

• Open Tree of Life ID: 3923650

• Google Knowledge Graph ID: /g/12gh4l1kz

Astragalus rhacodes Bunge

Published in: Astrag. Fedsch. 308.

source: Synonymic Checklists of the Vascular

Plants of the World

Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Fabales Family: Fabaceae Genus: Astragalus L.

Species: Astragalus rhacodes Bunge = Astragalus jassiensis B.Fedtsch.[6].



Fig.3. Herbarium of Astragalus rhacodes

Astragalus rhacodes Bunge (Астрагал оборванный), Moscow University Herbarium Description

Scan of Astragalus rhacodes Bunge (Астрагал оборванный) from Kyrgyzstan deposited in the Moscow University Herbarium (MW0846909) Creator

ELAR corporation (Moscow, Russia)

Publisher

Moscow State University

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References

https://plant.dep...ic/item/MW0846909

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Identifier

https://plant.dep...mg/0.jpg?original

Suggested attribution

"Astragalus rhacodes Bunge (Астрагал

оборванный), Moscow University Herbarium" -

Astragalus rhacodes Bunge

collected in Kyrgyzstan

by Moscow State University (copyright is managed

by Dr. Alexey P. Seregin) (licensed

under http://creativecommons.org/licenses/by/4.0/)[

6].

Dorema microcarpum Korovin

Published in: Korovin. In: Not. Syst. Herb. Inst. Bot. & Zool. Acad. Sci. Uzbekistan. 8: 6. (1947).

source: Synonymic Checklists of the Vascular

Plants of the World

Synonym of Ferula microcarpum (Korovin)

Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Apiales Family: Apiaceae Genus: Ferula L.

Accepted name Species: Ferula microcarpum (Korovin)

Synonym = Dorema microcarpum Korovin

Status. A very rare endemic plant that grows in the Western Tien Shan and the Northern Pamirs.

Brief description. Perennial herb, up to 1-2 m tall. The leaves are gray and divided into small pieces, cut in half, with the edges as a whole. Both sides of the leaf are covered with hairs in the form of short pods, the umbels are arranged in a series of short branches, one or two. The flowers in the umbrella

are 10 in number. The fruits are small, 6-7 mm long. It blooms in May and bears fruit in June.

Spread. Namangan and Fergana regions: in the Western Tien Shanda-Chotkol ridge and between the villages of Tergachi); Distributed in the Alay ridge (Shohimardon). It is also found in Kyrgyzstan.

Growth conditions. Soz grows in the foothills on muddy and gravelly slopes.

Occurs singly in small areas. No exact number is known.

Increase. Propagated by seeds.

Reasons for changes in plant numbers and habitats. Land use for agricultural purposes and livestock grazing.

Cultivation. It has been successfully grown in the Botanical Garden of the Russian Federation since 1961.

Protective measures. No safeguards have been developed.



Fig.4. General view of *Dorema microcarpum*

Ferula korshinskyi Korovin

Published in: Korovin. In: Monogr. 68 (1947), Korovin in Kom., Fl. URSS, 17: 131. (1951). source: Synonymic Checklists of the Vascular

Plants of the World

Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Apiales Family: Apiaceae Genus: Ferula L.

Species: Ferula korshinskyi Korovin = Ferula korschinskii Korovin [8].

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Status. A rare endemic plant of the Northern Pamirs.

Brief description. A perennial, hairless polycarp plant. The root has a spherical thickening. The stem usually consists of several slender twigs, the color of the twigs is blue, up to 2 m long, without leaves, divided into two or three branches upwards. The leaves are divided into three or four layers. The ends are elongated, 1.5-6 cm long, 6-15 mm wide, the edges are flat, bus-whole. The umbrellas at the ends are 5-11 beams and 6-8 cm in diameter. The calyx consists of short teeth. The leaves are small, elongated and yellow. The fruits are blue, the underside is small, elongated, 6-7 mm long. It blooms in July and bears fruit in August.

Spread. Fergana region: Aloy ridge (Shohimardon). Outside Uzbekistan: Kyrgyzstan.

Growth conditions. It grows on rocks, gypsum bedrock and other rocks in the foothills.

Increase. Propagated by seeds.

Reasons for changes in plant numbers and habitat. It is declining due to the continuous development of the foothills and the overgrazing of livestock.

Cultivation. No information.

Protective measures. It is not protected.



Fig.5. General view of the Ferula korshinskyi

PlantList-ID: kew-2808490
IPNI plant ID: 842337-1
NCBI taxonomy ID: 371354
Tropicos ID: 1700102
GBIF taxonKey: 3637928

• Encyclopedia of Life ID : 5045734

Plants of the World online ID: urn:lsid:ipni.org:names:842337-1
Observation.org ID: 130649

• eBiodiversity ID : 388450

• World Flora Online ID : wfo-0000686634 [8].

Fumariola turkestanica Korsh.

Published in: Korsh. In: Bull. Acad. Petersb. Ser.

V. 9: 404. (1898).

source: Synonymic Checklists of the Vascular

Plants of the World [9].

Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Ranunculales Family: Papaveraceae Genus: Fumariola Korsh.

Species: Fumariola turkestanica Korsh.

Status.2. A very rare endemic plant in the Alay ridge.

Brief description. Perennial, evergreen grass, 10-15 cm tall. Stems single, slender, branched at the base. The leaves are elongated, divided into two or three lobes, hairless. The leaves are 2-3-lobed. Inflorescence umbrella-like, sparsely flowering, shorter than single leaves. The flowers are small, inconspicuous, yellow. The fruit is a nut, 3 mm long, 1 mm wide, m, dark in color, rough. It flowers in May-June and ripens in July-August.

Spread. Fergana region: Distributed in the basins of the Shohimardon and Isfayram rivers. It is also found in Kyrgyzstan.

Growth conditions. Grows in cracks in limestone rocks.

There are 5 tufts on the rocks between the villages of Vadil, Shohimardon and Yerdon. The number is also very small due to the growth in the rocks.

Reasons for changes in plant numbers and habitat. Not specified.

Protective measures. It is necessary to clarify the area of the plant and study its biological properties.



Fig.6. General view of Fumariola turkestanica

PlantList-ID: kew-2815629
Tropicos ID: 24000467
IPNI plant ID: 673144-1

GBIF taxonKey: 3602966NCBI taxonomy ID: 1549786

• Encyclopedia of Life ID: 5476549

• Plants of the World online ID: urn:lsid:ipni.org:names:673144-1

Observation.org ID: 148795
eBiodiversity ID: 382578

• World Flora Online ID: wfo-0000693488 [9].

Salvia margaritae Botsch.

Published in: Botsch. In: Byull. Sredne-Aziatsk.

Gosud. Univ. 22: 324. (1937).

source: World Checklist of Selected Plant

Families

Kingdom; Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Lamiales Family: Lamiaceae Genus: Salvia L.

Species: Salvia margaritae Botsch.

Status. 2. A rare endemic plant in the Alay ridge. Brief description. A semi-shrub up to 50 cm tall. The stems are many, branched at the base. The leaves are small, linear, glabrous. The leaves of the calyx are 18 mm long, purple, glabrous. The petals are dark purple, glabrous, 30-40 mm long. It blooms in June and the fruits ripen in July. An ornamental and medicinal plant.

Spread. Fergana region: Distributed in the oasis of the Shohimardon River on the Alay ridge.

Growth conditions. In the middle of the mountains it grows on open slopes and rocks with rocks and small rocks.

It was found that there were 10-15 balls in the basin of the Shohimardon River. The number of balls is unknown

Increase. Propagated by seeds.

Reasons for changes in plant numbers and habitat. Poor germination, poor animal husbandry, and the construction of holiday homes have led to its decline.

Cultivation. No information. Protective measures. No special protection measures have been developed. This species needs to be cultivated.



2. It is a rare plant growing in the Sokh and Shohimardon basins

Incarvillea olgae Regel

Published in: Regel. In: Gartenfl. 3; Pl. Nov.

Fedsch. 62. (1880).

source: Synonymic Checklists of the Vascular

Plants of the World [10].

Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Lamiales Family: Bignoniaceae Genus: Incarvillea Juss.

Species: Incarvillea olgae Regel =Incarvillea koopmanni Hort.Germ. =Incarvillea koopmannii Lauche

=Tecoma olgae Voss

Its status is very rare in the Pamirs, an ancient species on the verge of extinction.

Brief description. Perennial herbaceous plant, up to 1.5 m tall. The stems are small and grow straight. The leaves are simple, 6-10 cm long, trimmed. The flowers are located on the rhizome-shaped inflorescences at the ends of the plant. The calyx is hairless, 3-4 cm long, with wide triangular teeth. Inflorescence funnel-shaped, large, five-lobed, pinkish-red, sometimes white, 4 cm long, hairless on the outside, sparsely hairy on the inside. The threads of the pollinators are hairless, the pollen is doublewinged, sparsely hairy. The seeds are long and hairless. Fruits are many-seeded, elongated, thickskinned, slightly curved, 5-10 cm long and 1 cm wide. Seeds up to 1 cm long, semicircular, whitewinged. It blooms in June-August and bears fruit in August-September.

Spread. Fergana region: Distributed in the basin of the Sokh and Shohimardon rivers of the Pamir-Alay (Alay ridge). In addition to Uzbekistan, it is widespread in Kyrgyzstan and Tajikistan. Last collected: Tajikistan, Badakhshan, Darvoz district, mountain slope. 14.07.2018. 38 ° 42 ′ 14.04 ″ N, 70 28 28 ″ 3.12

Growth conditions. In the hills and mountains it grows on small pebbles at an altitude of 1500-2500 m, on rocky slopes in gravel riverbeds.

They grow in small groups. The total number of populations has not been determined.

Increase. Propagated by seeds. Reasons for changes in plant numbers and habitat. Decreased due to anthropogenic factors and livestock grazing.

Cultivation. Botanical Garden of the Academy of Sciences of the Republic of Uzbekistan has been successfully cultivated since 1961.

Protective measures. It is not protected.





Fig.8. An overview of Incarvillea olgae

PlantList-ID: kew-317231
Tropicos ID: 3701505
IPNI plant ID: 109754-1
NCBI taxonomy ID: 291309
USDA PLANTS ID: INOL

GBIF taxon ID: 4091178ITIS TSN: 832805

• Plants of the World online ID : urn:lsid:ipni.org:names:109754-1

iNaturalist taxon ID: 486411
Observation.org ID: 136498
eBiodiversity ID: 465025

• World Flora Online ID: wfo-0000778676

• New Zealand Organisms Register ID : bc94313f-8c62-4579-8c10-e067bc6ae2eb

• Open Tree of Life ID: 18880

• WCSPF ID: 317231

• Google Knowledge Graph ID: /g/12qbhj1cz [10].

Astragalus auratus Gontsch.

Published in: Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 9: 102 (1941). source: Synonymic Checklists of the Vascular Plants of the World

Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Fabales

Family: Fabaceae
Genus: Astragalus L.

Species: Astragalus auratus Gontsch.



Fig.9. Herbarium of *Astragalus auratus* (general view).

Title: Astragalus auratus N.F.Gontscharow (Астрагал), Moscow University Herbarium Description

Scan of Astragalus auratus N.F.Gontscharow (Астрагал) from Kyrgyzstan deposited in the Moscow University Herbarium (MW0844865) Creator: ELAR corporation (Moscow, Russia)

Publisher: Moscow State University

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Identifier

https://plant.dep...mg/0.jpg?original

Suggested attribution

"Astragalus auratus N.F.Gontscharow (Астрагал), Moscow University Herbarium" - <u>Astragalus</u> auratus Gontsch.

collected in Kyrgyzstan

by Moscow State University (copyright is managed by Dr. Alexey P. Seregin) (licensed under http://creativecommons.org/licenses/by/4.0/)[1 2].

Astragalus dianthoides Boriss.

Published in: Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 10: 56. 1947

source: Synonymic Checklists of the Vascular

Plants of the World

Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida

Order: Fabales Family: Fabaceae Genus: Astragalus L.

Species: Astragalus dianthoides Boriss.

Status. A rare endemic species distributed in the Alay ridge.

Brief description. Perennial herb, 3-4 cm tall, covered with thick feathers, almost without stems. The leaves are 1-2 cm long, the leaf sheaths are slender, 2-5 mm long, the leaves are 4-5 pairs, linear, 2-7 mm long, 1 mm wide, with thick hairs on both sides. Gulpopugi 2-3 flowers. Cup-shaped, 12-16 mm long. The crown is sometimes reddish in color. Dukkagi 20-25 mm long, 3 mm wide, tapered at the tip and bottom, beak short, transversely veined, finely flattened, pinched on both sides. It blooms in April and bears seeds in April-May.

Spread. Fergana Province: Distributed around the villages of Chimgan, Shohimardon, Sadkok, Vodil, Okbilol, Kadamjay and Sukh of the Alay Range. It is also found in Kyrgyzstan. Growth conditions. Grows in foothills, gravelly gray soils and conglomerate rocks.

Occurs singly. The total number is unknown

Increase. Propagated by seeds.

Reasons for changes in plant numbers and habitat. Not specified.

Cultivation. No information about this. Protective measures. It is not protected.



Fig.10. A comparative view of the Astragalus dianthoides.

IPNI plant ID: 477128-1
PlantList-ID: ild-53876
Tropicos ID: 13039203
GBIF taxon ID: 5345778

Encyclopedia of Life ID: 674888
Plants of the World online ID: urn:lsid:ipni.org:names:477128-1

IRMNG ID: 10177030Observation.org ID: 115377eBiodiversity ID: 523002

• World Flora Online ID: wfo-0000207749

• Open Tree of Life ID: 3924338

• Google Knowledge Graph ID: /g/12gh4b116

Physochlaina alaica Korotkova

Published in: Korotkova. In: Fl. Uzbekist. 5: 438,

638. (1961).

source: Synonymic Checklists of the Vascular

Plants of the World

Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Solanales Family: Solanaceae

Genus: Physochlaina G.Don

Species: Physochlaina alaica Korotkova

Status. A very rare endemic plant of the Alay and Turkestan mountains.

Brief description. Perennial herb, up to 50 cm tall. The stems are many, erect, sparsely spread, covered with simple and glabrous hairs. The leaves are elongated, broadly ovate, the leaves are 5-10 cm long and 4-8 cm wide, the upper part is almost hairless, the lower part is covered with sparse hairs along the veins. The flowers are short (0.5 cm), elongated as the fruit ripens, and are located in glandular hairs. The tops are spread out and the top is scaly. The calyx is glabrous, 0.5 cm long. Inflorescence bell-shaped, 10-15 mm long, pale pink. The fruit is a corolla, 10-12 mm long. It blooms in May and the fruits ripen in June.

Spread. Fergana region: Occurs in the Alay ridge, in the basins of the Shohimardon and Sokh rivers. It is also widespread in Kyrgyzstan and Tajikistan (Turkestan ridge: around the villages of Vorukh and Khujabakirgan).

Growth conditions. It grows at an altitude of 1800-2000 m above sea level in the shade of rocks, under bushes, pine forests and in the open.

Very rare. The total number of plants of different ages does not exceed 8,000.



Increase. Propagated by seeds.

Reasons for changes in plant numbers and habitat. It has become extinct due to its widespread use as a medicinal plant by the local population.

Cultivation. When grown under natural conditions, it does not produce good results. It has been grown in the Botanical Garden of the Russian Academy of Sciences since 1973.

Protective measures. No special protection measures have been developed.

- GBIF taxon ID: 3799874
- Plants of the World online ID

: urn:lsid:ipni.org:names:817631-1

- IPNI plant ID: 817631-1
- Tropicos ID: 29604630
- Observation.org ID: 120609
- eBiodiversity ID: 416547
- World Flora Online ID: wfo-0001025067
- Open Tree of Life ID: 6091886

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