

## CERATOPHYLLUM SUBMERSUM AND ARGUSIA SIBIRICA, NEW RECORDS FROM PLATEAU USTYURT, UZBEKISTAN (KARAKALPAKSTAN)

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Among the plant materials collected from Ustyurt of the Karakalpakstan (Uzbekistan), two new records including *Ceratophyllum submersum* (*Ceratophyllaceae*) and *Argusia sibirica* (*Boraginaceae*), were recognized among the specimens. The new records and a photo of a herbarium specimen are presented in this paper.

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گزارش گونه‌های جدید *Argusia sibirica* و *Ceratophyllum submersum* از فلات اوستیورت، ازبکستان

دیلارون مناجات‌دینوا تاج‌دینوا، عضو هیئت علمی مؤسسه ذخیره ژنتیکی گیاهی و حیوانی، ازبکستان.

در بین نمونه‌های جمع‌آوری شده از فلات اوستیورت از کاراکالپاکستان (ازبکستان) گونه‌های *Ceratophyllum submersum* (*Ceratophyllaceae*) و *Argusia sibirica* (*Boraginaceae*) شناسایی گردیدند. این گونه‌ها به همراه یک تصویر نمونه هرباریومی در این مقاله گزارش می‌شوند.

### Introduction

The plateau of Ustyurt is in territories of Uzbekistan (Karakalpakstan), Kazakhstan and Turkmenistan. Ustyurt is located between Caspian and Aral Sea (in limits 45°50' and 41°2'; 58°25' and 56°00'). It represents a raised table plateau with absolute heights 160-300 m, bordered from different directions more and less distinct breakages, so-called "chinks", height 190-256 m.

The genus *Ceratophyllum* L. is mainly distributed in Irano-Turanian region. According to Kovalevskaja (1972) 4 species grow in Central Asia. Korotkova (1953) indicates 2 species for the flora of Uzbekistan. According to Korovina et al. (1982), *Ceratophyllum submersum* L. (Fig. 1) only occurs in delta of Amu-Darya. The list of Sarybaev (1994), which studied the flora of the plateau of Ustyurt does not include this species.

In time the German-Uzbek-Kazakh expedition the flora of the southern part Ustyurt was studied (2012) by route and semi-station methods, in the borders of Karakalpakstan. In these investigations more than 1000 herbarium specimens were collected and determined.

The specimens are preserved in Central Herbarium of Institute of the Gene Pool of Plants and Animals, Academy of Science of the Republic Uzbekistan and Karakalpak Research Institute for Natural Sciences, Academy of science of the Republic Uzbekistan.

During the field collecting and study of plant specimens in plateau of Ustyurt herbarium, two interesting new records were found which is reported here.

### Materials and Methods

All collected specimens are preserved in TASH. Nomenclature and identification of the specimens are based on keys and descriptions in Flora Uzbekistan (Korotkova 1953), Flora Central Kazakhstan (Pavlov 1938), Flora of Kazakhstan (Dobrochotova, 1961), Flora of the USSR (Kuzeneva 1937; Popov, 1953), Flora of Turkmen (Popov & Fedtschenko, 1954), Conspectus Florae Asia Mediae (Abdullaeva, 1972; Sarkisova, 1986) and Illustrated determinant of the plants of Karakalpak and Khorezm (Korovina et al. 1982, 1983).

During floristic study of the plateau Ustyurt we



Fig. 1. *Argusia sibirica*.

collected aquatic specimens which differed from all earlier known Karakalpakstan (Uzbekistan) plants. According to Saribaev (1994) specimens were identified as *Ceratophyllum submersum* L. Among the specimens preserved in TASH the specimens of *Argusia sibirica* L., were recognized by using *Conspectus Florae Asia Mediae* (Sarkisova 1986) as new record for the flora of Ustyurt (Karakalpakstan).

### Results and discussion

*Ceratophyllum submersum* L., Ap. Pl. ed. 2 (1763)1409.

Stalk thin, smooth. Leaves soft, bright green, 1.5-2 cm long, three to four times divided to 5-15 thread-like segments, with short teeth along the edges. Fruits 4-5 (6) mm long, with 1 apical, straight, very short prickle. In depth of water. VI-VII.

*Specimens seen.* Uzbekistan (Karakalpakstan): Plateau of Ustyurt, North-West of Barsakelmes (N 43°43.347, E 57°22.334), 15.05.2012, D. M. Tajetdinova 915 (TASH). (Map 1); Karakalpakstan, region Kegejli, in the vicinity of the lake of Beskuduk 27.07.1952 Taubaev; region Kungrad, 10-15 km, Mashan-kul, 08.12.1960, V. V. Sedov, M. Tadzhetdinov 231; Karakalpakstan, Kizil-kum,

Moynak, 03.06.1916, S. Filatova 7643; Semipalatinsk Lake Majgeku, in water. 07.09.1928, M. Ilin & A. O. Gejnrihson 149571; Auleatinskiy, in the vicinity of the village Burnali, in the river Ters. 07.02.1922, M. Popov 19572.

This species according to all existing literature data (Korotkov, 1953; Dobroch, 1961) of the Middle Asia has been recorded from the Aral deserts, valley of the river Amu-Darya (between Minarom and Termez), Karakum (basin the river Murghab), valley of the river Syr-Darya (the lake of Raimkul), Fergana valley (the lake of Krakul) and does not cover Ustyurt territory. New discovering significantly increases the distribution area of the species, being, obviously, the south border situated on the junction of the plateau Ustyurt.

*Argusia sibirica* (L.) Dandy in Bot Jour. Linn. Soc. 65(1972) 256 = *Tournefortia sibirica* L. Sp.pl. (1753) 141.

Rootstock creeping. Stems upright, slightly twisting, well branched, 15-40 cm high. Leaves oblong or lanceolate, very slightly narrowed towards the both ends, 1-3 cm long. The fruits about 8 mm long, hardly breaks up to 2 halves, shortly downy, ovoid.

In solonchic places. V-VII.

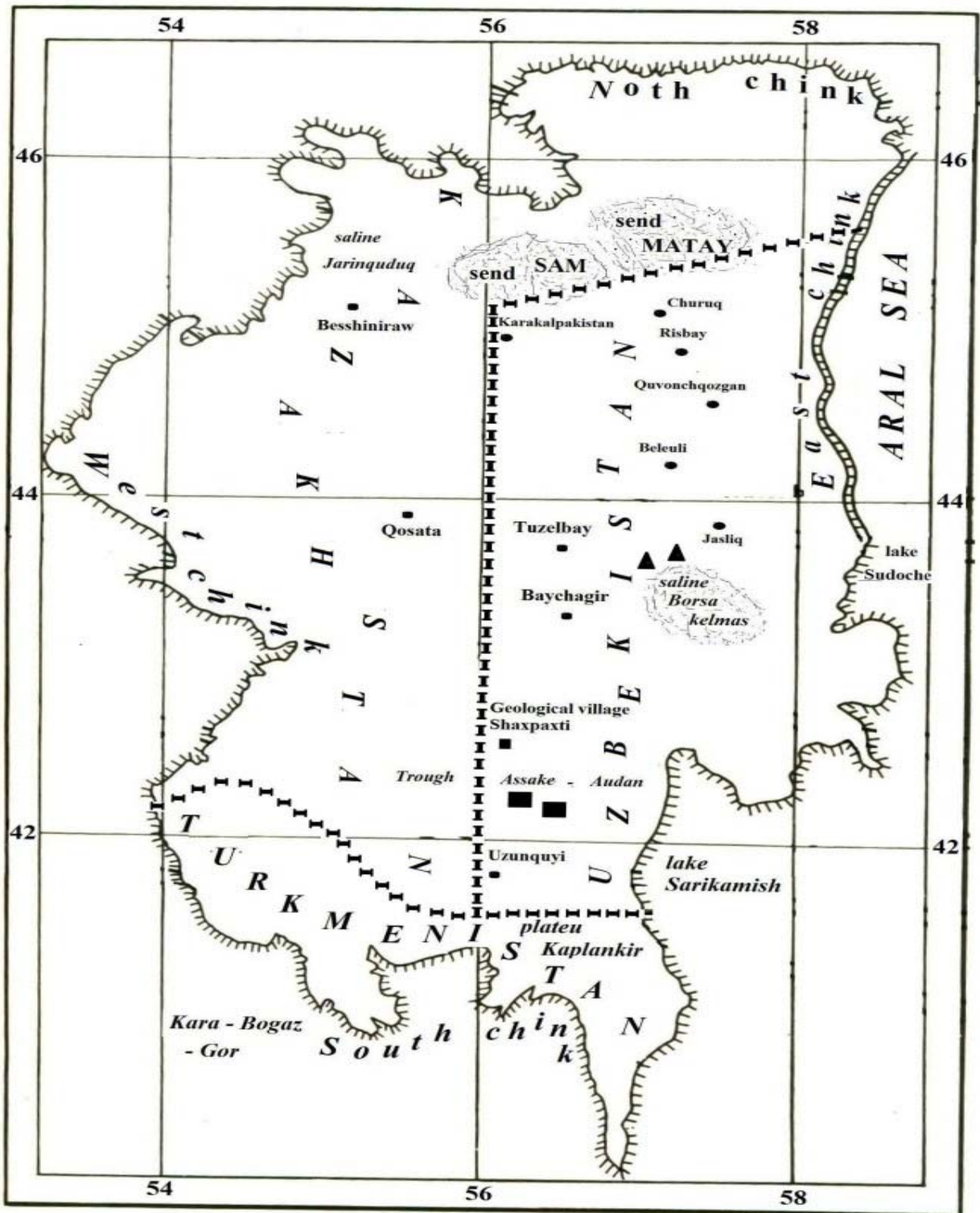
*Specimens seen.* Uzbekistan (Karakalpakstan): Plateau of Ustyurt, in the north Assekeaudan (N 42°35.480, E 056°16.425), 17.05.2012, D. M. Tajetdinova 827 (TASH) (Fig. 1, map 1); Region Syr-Dary, Perovsk, on the road Aktau from the lake of Kumkul, 24.06.1910, O. Knorring & Z. Minkwitz. 275; Sheyxab, 21.05.1916, Filatova 362; Aral sea, 26.06.1918, 16233; Vicinity of Shor-suw, north-west slope, 05.06.1961, Choxriakov & Vasov; Karakalpakstan, region Kungrad, 30.06.1952, Z. A. Maylun 281; Karakalpakstan, region Chimbay. 17.05.1928, A. Moskvina & O. Bondarenko.

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Map 1. Locality of the new records in plateau of Ustyurt, *Ceratophyllum submersum* ▲, *Argusia sibirica* ■.