



The Current State and Conservation Issues of The Populations of Tulipa Scharipovii Tojibaev

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Abstract: The Fergana Valley is considered one of the biodiversity hotspots for monocotyledons, including the species of Tulipa L. The presence of 8 red-listed species in the Red Data Book of the Republic of Uzbekistan clearly testifies to this. This article provides data on the current state of populations, phytogeography, and the impact of anthropogenic factors on populations of Tulipa scharipovii Tojibaev that is included in the IUCN Red List of Threatened Species as Endangered (EN) and recognized as an endemic species of flora of Uzbekistan, as well as measures for its conservation.

Keywords: Phytogeography, ecology, phenology, threat, anthropogenic factors, endemic, rare species, Fergana Valley.

Introduction: Tulipa scharipovii Tojibaev is considered a rare (IUCN 2023) and endemic species of the Fergana Valley (Tojibaev et al., 2022; Khasanov, 2019), mainly occurs at the saline soils of the Chap foothills (Dekhkono, 2023). Administratively, the species occurs in Pop, Chust, Turakurgan, and Kosonsoy districts of Namangan region, and botany-geographically, in the Chorkesar botanical-geographical district of Uzbekistan (Asatulloev et al., 2023; Tojibaev et al., 2020). This species was described by academician K. Tojibaev in 2009 (Tojibaev, 2009). Although studies on the morphology (Dekhkono et al., 2022), taxonomy (Tojibaev et al., 2022), phytogeography (Asatulloev et al., 2023; Dekhkono, 2023), and conservation issues (Asatulloev et al., 2022; Dekhkono et al., 2023; 2022) of this species have been sufficiently conducted, the

current state of its populations has not been adequately investigated. Hence, this article provides data on the distribution area and the current state of populations of *T. scharipovii*, a rare and endemic species of the Fergana Valley.

RESULTS AND DISCUSSION

In this study, based on the geo-referenced data and the distance between locations, the occurrence of populations of were conditionally divided into 4 groups. The populations and their occurrence in the study area

are as follows:

1. Turakurgan district, Chap foothills of the Yortepa-Baymoq area;
2. Chust district, Chap foothills in the northeastern part of the Rezaksoy reservoir;
3. Chust district, Chap foothills of the Axcha-Olmos villages;
4. Pop district, Chap foothills of the Uygursoy village.

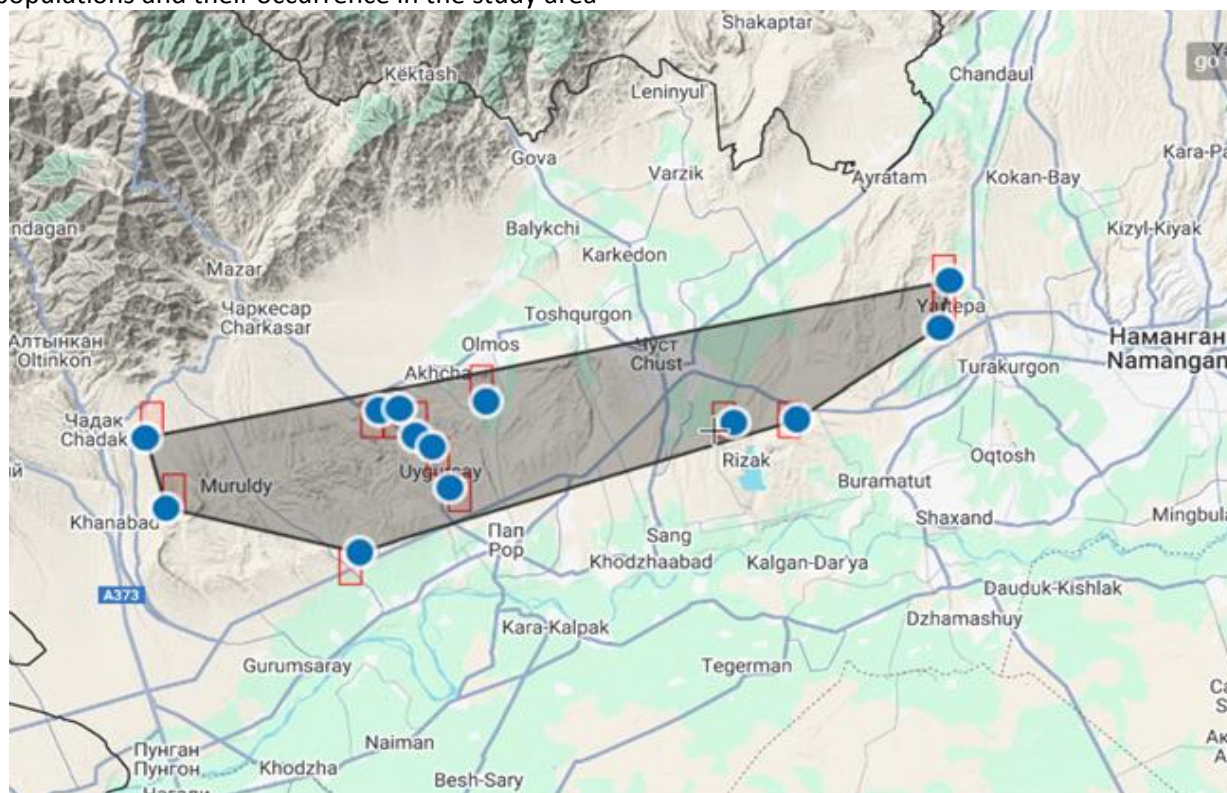


Figure 1. Spatial view of *T. scharipovii* in the study area

The data on the phytogeography, ecology, phenology, and threats of the populations distributed across 4 areas were presented below.

Population 1. Yortepa-Baymoq foothills

This area represents the eastern-northern part of the Chap foothills located between Yortepa village of Turakurgan district and Baymoq village of Chust district.

The area covers a large territory stretching from the Yortepa hills of Turakurgan district to the Baymoq hills of Chust district with the similar habitat and flora. In the south, the area connected to the Rizaksoy reservoir and in the north, it extends as far as Aytaram village.



Figure 2. Map of the Yortepa-Baymoq foothills

The area mainly consists of white and saline clay hills. In particular, due to the presence of a water supply system, proximity to residential areas, opportunities for land use, and the free excavation of gravel resources, as well as its location near settlements where livestock farming is practiced, this territory is being developed very rapidly. The anthropogenic pressure on the species is extremely high. The individuals of the species

are very sparsely. During the study, young individuals of the species were not identified. The plant's flowering begins in the first half of March. In many cases, the species does not have time to complete its flowering. Intensive land development leads to the complete disappearance of the plant. In the studied area, species such as *T. intermedia* and *T. bifloriformis* were also identified. Below are examples of the anthropogenic pressure and the species in this area.



Figure 3. Area of distribution of the species in the Yortepa-Baymoq Hills and the impact of anthropogenic factors

Population 2. Hills in the northeastern part of the Rezaksoy reservoir, Chust district, Namangan region.

The Chap foothills of the Rezaksoy reservoir continues westward into the areas of Khonobod, Muruldi, and Uygursoy, while on the eastern side, they border the Buramatut village of Turakurgan district. To the north, they connect with the foothills located between Baymoq village of Chust district and Yortepa village of

Turakurgan district. The soil of the area is mainly saline, sometimes containing gravelly soils. The Rezaksoy area is surrounded by the villages of Sang, Kolgandaryo, Buramatut, and the city of Chust. The population of species in the area are under high anthropogenic impact as a result of intensive agricultural activity, land use and habitat loss. Additionally, livestock can also be included among the anthropogenic impacts.



Figure 4. Spatial map of the Rezaksoy foothills

The individuals of the species are mainly found singly and sometimes in pairs. During the study, no young individuals of the species were identified. The species blooms in the first half of March. Intensive agricultural activity and land use leads to the complete

disappearance of the plant. In the studied area, the species grows with *Artemisia* and *Gagea* species. The photos of the landscape, the growing species, and the anthropogenic impact presented below.



Figure 5. Area of distribution of the species in the foothills around Rezaksoy and the impact of anthropogenic factors

Population 3. Foothills of Axcha and Olmos villages, Chust district, Namangan region

This area is completely surrounded in an almond-shaped form by Axcha village on the eastern side and Olmos village of Chust district on the northern side.

Since this territory is clearly distinguished from other areas, the populations in these foothills were separated as a new site for research.



Figure 6. Map of the Axcha and Olmos foothills

The area mainly consists of saline and gravelly soil hills. The water supply for plants is at a critical level. In the early spring months, plants germinate due to rainfall and soil moisture and are adapted to fruit quickly. The main threat to the plants is large-scale livestock farming. Historically, this area was completely separated from the Muruldi part of the Chap foothills

due to agricultural land development and urbanization. High anthropogenic impact on the species is caused by livestock farming and land use for agricultural aims by the local population. The species blooms in the first half of March. Photos taken from this area are presented below.



Figure 7. Landscape of the area of distribution of the species in the hills around Axcha village

Population 4. Chap hills of Uyгурsoy-Muruldi villages, Pop district, Namangan region

This area is the locus classicus of the species — the site where the species was first described. The area is bordered in the north by the Chorkesar foothills, in the

west by Khonobod village, in the south by Pop city and Gurumsaroy village, and in the east by Axcha village and Chust city.



Figure 7. Spatial map of Uygursay-Muruldi foothills

The soils where the species occurs are mainly saline. Due to land use for agricultural aims, livestock, and urbanization, this area has been subjected to maximum anthropogenic impact on rare plants. The number of individuals of the species exceeds 5,000. They are found singly or in pairs. Alongside mature plants, young

seedlings are also encountered. The plants begin flowering in the second half of March. In the rocky soils of the studied area, *T. intermedia* is also found, while in fine gravelly soils, *T. bifloriformis* species are present.



Figure 5. Area of distribution of the species in the foothills around Uyg'ursoy-Muruldi villages and the impact of anthropogenic factors

CONCLUSION

As noted above, *Tulipa scharipovii* is under high anthropogenic impact in the study area. This demonstrates the urgency of developing new conservation measures for the species. For the effective protection of this species, it is necessary to assess the current state of populations based on phytogeographic studies, identify hotspot areas of its distribution, and strengthen practical measures through normative-legal documents on species conservation based on international experience.

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