

# Section 1. Biology

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## ECOLOGY AND FLORA OF KARADARYA VALLEY

**Abstract.** Information on the current ecological status of the Karadarya Valley, the largest river in the Andijan region, as well as natural plants and their importance is provided.

**Keywords:** Karadarya, ecology, plants, riparian forest (tugai), soil, species.

In comparison with other regions of our republic, Andijan region is the most rich of water resources. The rivers of the region take water particularly from rainfalls, snow and glacier of many years. The largest river of the region is Koradarya [1; 2].

As a result of taking the water of Koradarya for irrigation through canals, after passing Kuyganyor town, in the period when the plants are mostly irrigated, its water decreases. However, at the confluence with the Naryn River, a large amount of water flows, and this water consists of groundwater flowing into and out of the river [1].

The characteristics of the elements of the Karadarya River are not the same in all parts of it, the complexity of the relief, lithological structure and diversity of hydrological conditions, climate and vegetation have led to the formation of different soil types [2].

In the mountainous part of the Karadarya, the soil types formed three regions: the gray-soil hilly region, the brown mountain-forest region, and the

light-colored brown meadow high mountain region. In the foothills of the Karadarya, on the high slopes of the river, in the foothills of the low mountains, light gray soil is widespread. The soil-forming rocks in these areas are alluvial-proluvial deposits of loess soil and induction cones. Light gray soil is distinguished from clear gray soil by the fact that the top layer of grass is light gray, with a low amount of humus, close to the surface of the carbonate layer [2; 3].

In the foothills of the Karadarya there is a gray soil zone. As the amount of precipitation is also much higher here, the plant species multiply and grow thicker. These in turn affect the process of soil formation and, consequently, the amount of humus in the soil. Hydromorphic soil types such as meadow-gray, swamp-meadow, gray, swamp-gray are also found in the gray-soil hill region. Such gray soil types are located in the old upper reaches of the Karadarya, in the deltas, in the lower parts of the plains at the foot of the mountains. Meadow soils are also found in the lower

reaches of the Karadarya, with humus content up to 2%. Today, this type of soil has been converted into irrigated grassland in many places [2; 5].

The current state of the plants of the Karadarya Valley, the preservation of existing species, the identification of medicinal plants, the uniqueness of the Karadarya plants and various other important aspects are extremely interesting. Plants of the Karadarya Valley are disappearing due to the development of the area as cultural lands by the population. The conservation of existing species in this area is becoming a topical issue. Plants of the Karadarya Valley are disappearing due to the development of the area as cultural lands by the population. The conservation of existing species in this area is becoming a topical issue.

In the mountainous part of the Karadarya, the air temperature is much lower, on the contrary, the amount of precipitation increases, as a result of which specific plants, various shrubs and trees form forests [1; 2].

Karadarya is one of the largest rivers in the Fergana Valley, where the plants that grow there are adapted to grow in the sernam (mesophyte) region of the river basin [1; 2].

Many tugai forests have been formed in the river valley, of which very few remain today. However, the remaining plants in the area raise hopes that the tugai forests will be rehabilitated.

When we say tugai and tugai forest, the local people understand the places near the rivers and the plants that grow there [1, 162; 4, 54]. In many places, tugai forests consist of trees, shrubs, semi-shrubs, and grasses growing together. Occasionally there are liana plants. Tugai forests are found along the rivers of Central Asia, including the desert region of Uzbekistan. But its main area is associated with the middle and lower reaches of rivers. In the mountainous region, such areas form a thin riverbed. On the banks of rivers flowing through mountain ranges and streams, a variety of plants grow in abundance, including trees, bushes, and shrubs. Such as willow,

poplar, birch, spruce, hawthorn, spruce, and occasionally walnuts, apples, jiida grow there. In addition, shrubs such as dog-rose, barberry are also common. In these places, agrostis, rhizome, sagebrush, hemp, sedge, mint, etc., from annual and perennial plants, form grass on the banks of rivers. The tugai in the hilly region cover a much larger area. Because sometimes when water comes and rivers overflow, they expand and water comes out to the shores [1; 4].

Later, the waters recede, and the rivers flow in a narrow stream, forming tugai forests on its banks. In the tugai in this region, shrubs and shrubs (juniper, turangil, willow, chakanda, yulgun) grow more than perennials, such as jiida, white lily, covares. In addition, there are many plants from the family of alfalfa, licorice, various astragalus and wheat [1; 4].

Rocky areas are also found in the upper regions of the tugai, consisting of gray and brown soils. Fertile soils are used for agriculture, to some extent as pastures for livestock.

Due to the proximity of the tugai to the river banks, the vegetation growing there is very diverse.

The following tugai plants can be found on the banks of the Karadarya.

*Eliagnus Angistifoliya*, *Populus diversifoliya*, *Populus pruinosa*, *Salix songorica*, *Salix Wilhelm jana*, *Fracsinus turkistanica*, *Hippophae rhamnoides*, *Clematis orientalis*, *Holemodendron holidendron*, *Lycium L rufhenicum*, *Tamarix romosissima*, *Tamarix hispida*, *Tamarix Laxa*, *Clycyrihza glabra*, *Capparis spinoza*, *Alhagi sparsifolia*, *Alhagi Kirhizorm*, *Phragmites communis L. Trin*, *Tyrha Laxmanni*, *Imperata cylindrical*, *Trifolium Pratense*, *Equisetum orvense*, *Cennodom Daktelon*, *Mentha oriatica*, *Plantago major L*, *Plantago Lanciolota*, *Apocynum lancifolium Rus*, *Karelinia caspica*, *Aeliropus litoralis*, *Artemisia ferganensis*, *Cichorium intybus*, *Zygophyllum fabogo*, *Asparagus persicus*, *Lepidium latifolium*, *Dadortia orientalis L*, *Saccharum spontaneum*, *Urtica urens*, *Tifa minima*, *Potamogeton natens*, *Potamogeton hodosus poir ex Lam*, *Erianthus ravennae*, *Bithens triopatra*, *Hordeum bulbosum*, *Polygonum gidropiper*, *Oryzoides Avd Koss*, *Juncos gerar-*

*dii*, *Cyperus orizoides* and many other species are the main constituents of the river valley flora.

At present, most of the land in the valley is being developed and crops of high importance to the farm are being cultivated. Lands in the river basin are being developed even in the old riverbeds and various cultural crops are being planted. Nevertheless, in the Karadarya basin there are many wild species of plants that still grow naturally. If we study the importance of these wild species on the farm, some of them are at a higher level than the cultivated plants. Nevertheless, in the Karadarya basin there are many wild species of plants that still grow naturally. If we study the importance of these wild species on the farm, some of them are at a higher level than the cultivated plants. Unfortunately, the number of some medicinal plant species has greatly decreased. For example, plant species such as *Hippophae rhamnoides*, *Rosados*, *Glycyrrhiza glabra* are very rare now [3; 5].

The following is a discussion of the importance of some wild species in the Karadarya basin [1; 3].

*Elaeagnus Angustifolia* – The fruits are sweet, bitter and edible. As the body is thorny, it is dangerous as a fuel for the locals, it is used as a wall around the garden. It is a quality fuel in remote villages and neighborhoods.

*Populus diversifolia* – this wood is used as a building material.

*Salix songorica*, *Salix Wilhelm jana*. The locals transplant them by the roots and use them as living walls and baskets, nacelle, fences.

*Hippophae rhamnoides* – the fruit of the plant is a very valuable medicine. It is an effective remedy for various internal diseases, diseases of the esophagus, stomach and intestines. The leaves of the sea-buckthorn plant are used in the treatment of various skin diseases.

*Holmodendron-holidendron* – this thorny shrub grows in groups in the drier parts of the riverbed, on the gravelly hills. From them the locals make barns where cattle cannot pass. It is also used as a broom

to sweep the hay under the cattle and to clean the scattered grain from the straw fields.

*Tamarix romosissima* – this plant, since ancient times, has been made of whip stalks, sticks, because their stems are stiff. As firewood, fuel is prepared.

*Tamarix Laxa* – The plant can be propagated as an ornamental plant because of its beauty.

*Glycyrrhiza glabra* – scientists have shown that the sweetness in the root of this plant is several times sweeter than sugar. Sweetheart is a valuable medicinal, fodder plant.

*Capparis spinosa* – in some places covares is consumed as much as melons. Its buds and fruits and now sprouted twigs can be eaten with vinegar as a spice. Oil can be extracted from the seeds. Locals use covares fruit to treat various ailments, including gum and toothache.

*Alhagi sparsifolia* – this plant has medicinal properties in addition to being a fodder, wood fuel. Very rich in honey.

*Phragmites communis* L. Trin – The cane is a good food plant in the spring for cattle. During the summer, the animals eat only its leaves because the stem is woody. High quality silage can be obtained from these plants. The cane is dried and pressed to the roof.

*Turha Laxmanni* – This plant is used for fodder, mats, chestnuts, rough palaces.

*Cennodom Daktelon* – This plant is used as fodder for cattle and sheep. Grass is used as a natural rug for playgrounds.

*Mentha oriatica* L – is an essential oil plant that belongs to the group of meadow plants. This plant is made from young grasses and eaten. Tincture is an effective remedy for nervous disease.

*Plantago major* L – it is a valuable medicinal plant. In the treatment of liver disease in humans, the juice extracted from this plant “*Rliantaglutciline*” is sold in pharmacies.

*Cichorium intybus* – is a medicinal plant. The roots and stems are rich in alkali. It is therefore registered as a medicinal plant.

*Urtica urens* – this plant is rich in vitamin C.

*Tifa minima*– This plant is well eaten by cattle and sheep. A variety of baskets, buckets, boxes are made.

*Bithens triopatra* – this plant is a valuable medicinal plant. Children with high temperature, or covered with eruption are bathed in cold boiled water with bur-marigold [4; 6].

### **Conclusion**

The Karadarya River, which flows through the Andijan region of the Fergana Valley, has different geographical structures, different natural zones, different soils across zones.

The soil of the tugai consists of gray and brown soils. Rocky areas are also found in the upper regions.

Specific plant species are distributed in the Karadarya basin. In the upper part, tree shrubs are more common, while in the middle and lower parts, perennial grasses are more common.

The current ecological condition of the Karadarya basin is in poor condition. Existing natural tugai and lakes are being destroyed and turned into cultural crops. The result is the application of various chemical mineral fertilizers to the soil; the use of toxic chemicals against wild plants is disrupting the natural ecosystem of various industrial wastes.

It is necessary to emphasize the importance of Karadarya plants in the economy, the importance of rare medicinal plants such as sea-buckthorn, covares, buckhorn plantain, mint and other plants.

In the continuous study of the flora of the Karadarya basin, in solving problems of nature protection, it is necessary to follow the norms of using the natural plant resources.

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