American Journal of Biodiversity
https://biojournals.us/index.php/AJB
ISSN: 2997-3600

Flora, Biodiversity and Conservation Prospects of the Zarafshan Area

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Received: 2024 25, May
Accepted: 2024 21, Jun
Published: 2024 20, July

Annotation: This article catalogues the flora of the Zarafshan River, highlighting the surrounding biodiversity and the environmental threats it faces. It is specifically aimed at studying and analyzing the bioecology of the predominant plant webs. The article provides detailed information on the life forms of plants within these webs and their environmental adaptations. By examining the plants' roles and significance within the biosphere, the article aims to generate insights into creating conditions conducive to their survival.

Keywords: flora, biodiversity, conservation, plant world, weevil, tree weevil, grass weevil, bush weevil

INTRODUCTION

In recent years, the Central Asian region, including Uzbekistan, has experienced significant impacts on its biological resources due to changes in soil and climatic conditions, the rapid development of industry, the use of various chemicals in agriculture, and uneven human pressure on nature. These factors have led to instances of plant depletion and death, necessitating urgent environmental protection measures. The

Zarafshan Oasis in Uzbekistan is distinct from other natural geographical regions not only in its soil and climatic conditions but also in its diverse plant life. Therefore, the economical and rational use of the natural plant resources of the Zarafshan Oasis is crucial for meeting the population's demand for plant products and providing raw materials for industry.

While modern scientific literature offers information on the natural plant resources of the Zarafshan Oasis, details on the distribution, utilization, and protection of rare plants across different climatic conditions are scarce. Thus, the study of Uzbekistan's plant resources, including the Zarafshan Oasis, assessing their reserve status, and ensuring their conservation are among today's most pressing challenges.

A distinctive feature of purple plants is their development under specific hydrothermal conditions, such as high summer temperatures and moderate to rainy weather. Their existence and development often depend on their biological characteristics. Purple plants are adapted to a robust root system suitable for water and turbid lands, exhibiting a high tolerance to soil salinity and drying. These plants are resilient to desiccation until they reach maturity.

Phytocentric variability is characteristic of purple plants and is associated with the uneven soil layers. Forest composition in the region is categorized into the following formations: (a) woodlouse, (b) bush louse, and (c) grass louse. These formations are further divided into 46 associations based on their location characteristics: curled, above the curlew, and desolate.

Methods. Ecological-historical (ecological - historical method) method-in this method , an introduced (plant) object of natural flora is studied and evaluated according to historical analysis. Ecological genetic method - plants introduced by this method are studied according to the ecological system and the state of origin. The ecological method of introduction is a method in which the plant introduction condition is experimental in relation to environmental factors is studied and evaluated based on experience. The category of complex (generic complex method) method is a complex method plants within the genus species under conditions of introduction are investigated and evaluated on an experimental basis. 1. Introduction factors (natural and anthropogenic) – Introduction.

Woody Vegetation. The woody vegetation of the reserve includes five formations: with Taranga, Tol, *Elaeagnus* L., *Hippophage*, artificial-style, and 32 associations. These are distributed in thin ribbons along the banks of the Zarafshan River, where the groundwater is at a depth of 5 meters, with optimal seedling growth occurring in areas where groundwater is 1-2.5 meters deep. On well-drained lower plots of birch, artificial protection zones were established over an area of more than 100 hectares in the 1950s. Over time, efforts to densify plant growth in this area destroyed the entire crown plant, leading to the division into distinct formations. The woody species and herbaceous layers are further classified into 16 associations based on their characteristics.

Pict.1. Plants found in the Zarafshan area

Shrublands. Shrublands primarily consist of scallops and sedges, covering extensive areas of the reserve. Most are located in birch and marshy zones with dense soil. The reserve identifies four shrubland associations: change-woolly, erionites-lateral-woolly, and erionites-saline-woolly. These shrubs are capable of withstanding prolonged heat and turbidity, with specific requirements for soil mechanical composition and salinity.

Grasslands. The reserve's grasslands include seven formations: winkle, reed-tailed, licorice, Eridanus, fibrous, spike-tailed, and wormwood, encompassing ten associations. These herbaceous formations exhibit a multifaceted composition, with grasses that, despite their diversity, share common traits such as drought resistance, bushy and rooting nature, and hardiness.

The reserve hosts over 300 plant species from six families, including 48 species of virgins, 40 species of composites, 23 species of legumes, 20 species of inducers, 16 species of rhinos, and 12 species of cows. Additionally, the reserve is home to 59 species of medicinal plants such as field forage, curly shovel, barberry, bittersweet pepper, aviary, licorice, field tea, Rosa, *hippophage*, and others. Furthermore, 20 species of ornamental plants, including Kesselring savrinjoni, Korolkov saffron, meadow deer, and Tatar ixiolirin, and 23 species of technical plants such as, red erionites, reed, willow, and poplar are found in the reserve. Fruit plants within the reserve are vital nutrient sources for numerous animal species inhabiting the area.

Conservation of Plant Resources in the Reserve the Reserve safeguards plant species typical of a true weevil, many of which hold potential uses for humanity. However, the reserve of nature's gifts is finite, necessitating their wise utilization. Plants are natural resources that can deplete and regenerate; however, recent human activities have increasingly hindered their recovery. Unplanned and excessive pruning of Willow and Poplar, conversion of land to cattle pasture, natural disasters, and fires have severely impacted young bushes.

The extensive appropriation of growth areas, changes in river water regimes,

climate change, and recent fires have significantly reduced tree populations. Medicinal shrubs such as *Hippophage*, *Elaeagnus* L., Zirk, and Rosa have also sharply declined. Besides their medicinal properties, these shrubs produce fruits that serve as food for wild animals and birds. To restore the reserve's plant populations, replanting in open areas is essential, as these plants grow rapidly and help reestablish the natural environment. This approach is considered the most effective method for regenerating the purple ecosystem and increasing the number of medicinal plants for further development.

Weevil habitats, like other natural resources, are invaluable. Maintaining their natural state supports the creation of an ecosystem vital for preserving both animal and plant life.

Hippophage. Hippophage is a deciduous shrub or small tree growing to a height of 4-6 meters, belonging to the Elegancies family. The stem is serrated and covered with brown-green bark. Leaves are linear-oblong, gray-dark green on the upper side, and slightly yellowish brown-gray or white on the lower side arranged alternately along the stem and branches with short bands. The flowers are monoecious, small, and inconspicuous, with male flowers borne on short spikes and female flowers on the axils of 2-5 branchlets. The fruit is round or oblong, orange or reddish, succulent, and granular. *Hippophage* blooms in April-May, with fruit ripening in August-October.

Hippophage is a widely used plant, with over 250 different nutritional, medicinal, and cosmetic products derived from it. It is a light-loving, frost-resistant plant propagated from seeds, stems, and root cuttings, typically planted in autumn or early spring. In its first year, it grows slowly, reaching a height of 15-30 cm, requiring regular watering, cultivation, and thinning. Vegetative propagation primarily uses green cuttings, planted in a mixture of sand, manure, and peat.

Barberry. Barberry is a genus of shrubs within the Berberi decease family. Its leaves are thick, arranged alternately, with short petioles. The flowers are yellow, in double inflorescences, forming berries. Barberry is distributed across the northern hemisphere, with 194 species, of which 45 are acclimatized. In Uzbekistan, black and red barberry are found on mountain slopes. The leaves contain berberine, oxyacanthine, berberine, and other alkaloids. Due to their sour taste, barberry fruits are used in various dishes, including pilaf. Medically, barberry is used to treat liver diseases, reduce fever, stop diarrhea, and strengthen the heart.

Elaeagnus L. The prevalence of *Elaeagnus* L in the Tukai region is attributed to several factors: the suitability of the soil structure, particularly sandy alluvial soil; optimal light and heat conditions; and frequent spring and autumn floods. *Elaeagnus* L. thrives in these regions due to their biological nature. Scientific studies indicate that different *Elaeagnus* L species are adapted to specific regions, such as E. spinosa and E. song Arica in deserts, and E. angustifolia, E. exocarp, and *Elaeagnus* L. in Adir regions, showing varied distribution based on regional characteristics.

Conclusion. When comparing species in scientific papers on the regions of E.

Spinoza and E., a greater number of song Arika species are found in the desert, E. angustifolia, E. exocarp, and E. It turned out that alienisms is widespread on Laming Island. Thus, within the genus, the species is not adapted to a specific region, that is, the species have a different distribution depending on the vertical regions.

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