

Distribution of High Water Plants of Lake Karakir in Bukhara Region in Ecological Groups

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Abstract

In this article, information about the geographical location of the Karakir Lake in Bukhara region, high water plants, systematics and their distribution is presented. As a result of the research, Lake Karakir has 34 species of high water plants belonging to 16 families. These plants were divided into ecological groups and analyzed.

Keywords

Ditch, Gidrobiont, High Water Plants, Eftrophication, Aquarium, Karakir, Filtration, Reed, Cattail, Pondweed

1. Introduction

Bukhara region is located in the south-west of Uzbekistan, the main water supply is the AMU-Bukhara channel. In the Bukhara region, collector waters are formed as a result of irrigation of lands and washing of brine and are collected in large lakes such as Seashore, Karakir, Tuzkon, Agit. The total water in the region is collected into 7 lakes. With the size of the area occupied by these lakes and the number of hydrobions, Lake Karakir occupies a special place. Lake Karakir (system of lakes-large karakir, small karakir, aquarium) is located in the north west of Bukhara region. Lake Karakir is formed on account of the accumulation of Northern collector waters. The northern collector is the main water source of Lake Karagir. Lake water is not used, the bulk of the water is reduced to the account of evaporation and filtration. Water enters the lake through the northern collector at 30 - 40 m³/sec. The area of the lake, as a result of the increase in collector water in winter and spring, is 26.5 - 27.2 thousand hectares on the account of the formation of tiny puddles. In the high-temperature days of summer, the amount of evaporation and filtration increases, the area of the lake is signifi-

cantly reduced to 5 - 10 thousand hectares, on account of the decrease in the water entering the lake to 12 m³/sec. The maximum depth of the lake (large spruce) is 7 - 8 meters, the average depth is 2.0 - 2.5 meters, the minimum is 0.7 - 1.8 meters. The maximum depth of the Spruce Lake is 5% - 10% of the total area, the average depth is 15% - 20%, the minimum depth is 70% - 80%. In summer and autumn, the shallow areas of the lake dry up and eutrophication is observed. As a result, the vegetation on the shore will dry up [1] [2].

2. Literature Review

High water plants, which are found in the water bodies of Bukhara region, are mainly herbaceous plants (Figure 1). High plants that grow in the water are important for animals that live in the water (fish, zooplankton, zoobentos) and serve to a different extent [3]. H the high vegetation of Bukhara region. The Q. It was noted by Esanov (2016) that the family consists of 62,294 species belonging to the category 476 [4]. Among these species there are also high water plants. Also among the high vegetation of Bukhara region, new species are introduced for this region, which has entered from abroad [5].

3. Research Methodology

The object of the research work is the high water plant of Lake Karakir in Bukhara region. Data from the “analysis of the flora of the Bukhara Oasis” [6] were used in the compilation of a list of high plants of Lake Karakir. In determining

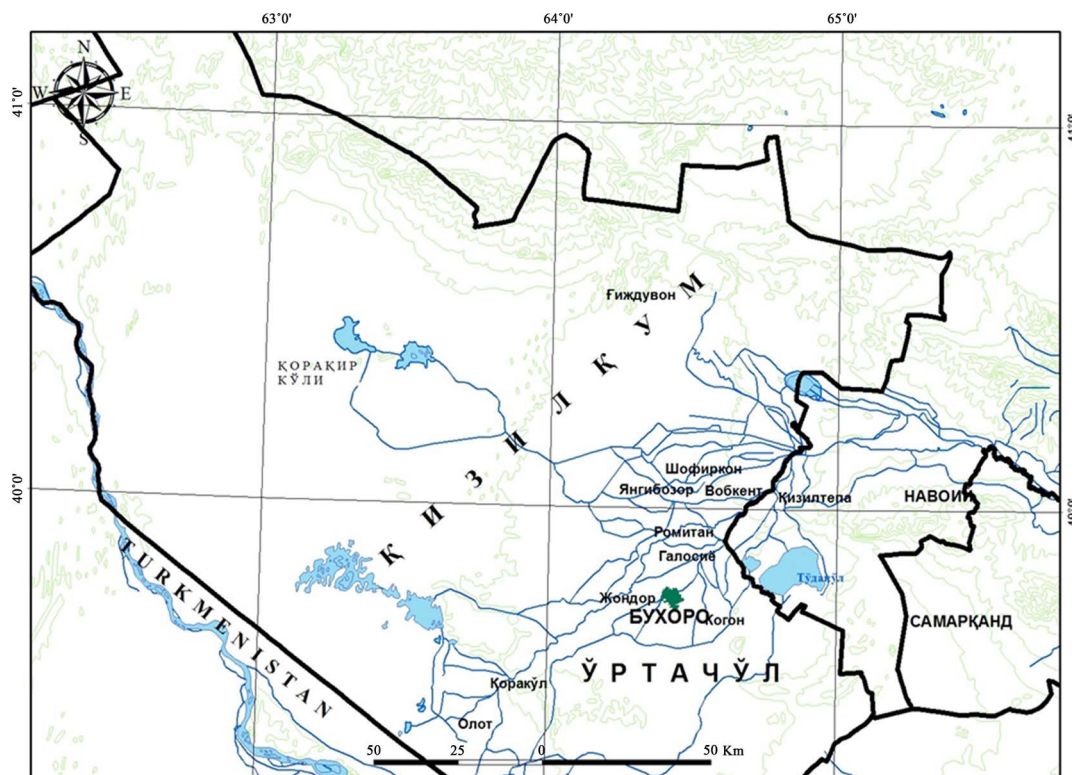


Figure 1. Location of lake Karakir.

Table 1. Types of high water plants in Lake Karakir of Bukhara region.

Family	Type	Ecological groups		
		Hygrophyte	Hydrophyte	Galetovic
Salviniaceae	<i>Salvinia natans</i> (L.) All.			+
Equisetaceae	<i>Equisetum ramosissimum</i> Desv	+		+
Polygonaceae	<i>Polygonum persicaria</i> L.			+
	<i>Polygonum aviculari</i> L.		+	
Ceratophyllaceae	<i>Ceratophyllum demersum</i> L.			+
Haloragaceae	<i>Myriophyllum verticillatum</i> L.			+
	<i>Myriophyllum spicatum</i> L.			+
Ranunculaceae	<i>Batrachium rionii</i> (Lagger) Nym			+
	<i>Batrachium divaricatum</i> (Schränk.) Wimm			+
Butomaceae	<i>Butomus umbellatus</i> L.		+	
Chenopodiaceae	<i>Atriplex tatarica</i> L.	+		
	<i>Chenopodium album</i> L.	+		
	<i>Aeluropus litoralis</i> (Gouan) Parl.	+		
Poaceae	<i>Calamagrostis dubia</i> Bunge.	+		
	<i>Phragmites australis</i> (Cav.) Trin. Ex Steud.		+	
Juncaceae	<i>Erianthus ravennae</i> (L.) P.Beauv.	+		
	<i>Juncus articulatus</i> L.		+	
	<i>Juncus gerardii</i> Loisel.		+	
Potamogetonaceae	<i>Potamogeton crispus</i> L.			+
	<i>Potamogeton perfoliatus</i> L.			+
	<i>Potamogeton heterophyllus</i> Schreb			+
	<i>Bolboschoenus popovii</i> T.V. Egorova			+
Cyperaceae	<i>Scirpus mucronatus</i> L.		+	
	<i>Scirpus triqueter</i> L.		+	
	<i>Cyperus rotundus</i> L.		+	
Tamaricaceae	<i>Tamarix ramosissima</i> Lab.	+		
	<i>Tamarix hispida</i> Willd	+		
Typhaceae	<i>Typha angustifolia</i> L.		+	
	<i>Typha laxmannii</i> Lepech.		+	
Fabaceae	<i>Typha minima</i> Funck		+	
	<i>Alhagipseudo alhagi</i> (M.B.) Desv.	+		
Asteraceae	<i>Lactuca tatarica</i> (L.) Cam.	+		
	<i>Karelinia caspia</i> (Pall.) Less	+		
	<i>Paramicrohynchus procumbens</i> (Roxb.) Kirp			

the composition of the species, the method “Flora Uzbekistan”, “Opredelitel’ rasteniy Sredney Azii” [7] and the method of collecting herbarium samples [8] were used. Scientific names of categories and species were used according to “Opredelitel’ rasteniy Sredney Azii” [7] and the fluorosis system of the Institute of Botany of the Academy of Sciences of Uzbekistan.

4. Analysis and Results

The study of the Hydrobiology of Lake Karakir was carried out in 2014-2019 years. The area of the lake is 70% - 90% covered with high water vegetation. Of the high water plants, such species as cane, Lamb are the most common. On the shores of the lake, reeds were formed. On the surface of 1 m², the STEM up to 150 - 200 soles of the cane. This plant is used mainly as a building material. In this lake, various species of high-water plants are distributed. These plants were studied in 3 ecological groups in wet areas (hygrophytes) on the coast, in groups of growing (hydrophytes) in which half of the water is immersed (hydrophytes), and in full or in large part immersed in water [9]. Near the shores of the lake, along with hygrophytes, Mesophytes and xerophytes are also encountered. The occurrence of plants that fall into these ecological groups is mainly due to changes in water levels during the growing season. 34 species belonging to 16 families were identified (Table 1) as a result of the study of high water plants of Lake Karakir.

5. Conclusions

These identified species serve as a scientific basis for studying the hydrobiology of the lake and other types of living organisms. There are several useful properties of aquatic plants. In particular, they specify the substrate, food of the lake for laying eggs on phytophilic fish in the lake. As a result of the study, during the vegetation period, high water plants produce very large biomass. Identified high water plants are considered to be the main food for white amur fish.

The main area of Lake Karakir is covered with high water vegetation, especially a large territory of Karakir is considered a convenient place for the development of fishing. In order to increase fish productivity on the account of high water plants, it is desirable to fish the lake with fish, which are fed with high water plants.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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