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Mollusc Fauna of Kepir Glacial Lake (Munzur Glaciers, Türkiye) and Surrounding Streams

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ABSTRACT

This research was carried out between June 2017 and August 2023 in the Kepir plateau in the Munzur Glacier Mountains and the Mercan stream in its surroundings. A total of *Bithynia* sp. in Kepir Glacial Lake, 1 belonging to Prosobanchia (*Bithynia pseudemmerica*), 3 belonging to Pulmonata (*Physella acuta, Galba truncatula, Radix labiata*) and 1 belonging to Bivalvia (*Pisidium casertanum*) in Mercan Creek. 6 taxa were identified. In addition, water temperature (ºC), dissolved oxygen (mg/L), conductivity (µS/cm) and pH values of each station were measured. Species and parameters in the region have been recorded for the first time.

Keywords: Munzur, glaciers, Mercan, Bivalvia, Gastropod

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Kepir Yaylası (Munzur Buzulları, Türkiye) ve etrafındaki derelerin Mollusca Faunası

Öz: Bu araştırma Haziran 2017- Ağustos 2023 tarihleri arasında Munzur Buzul Dağlarında bulunan Kepir yaylası ve çevresinde bulunan Mercan deresinde gerçekleştirilmiştir. Kepir Buzul Gölü'nde *Bithynia* sp., Mercan Deresi'nde Prosobanchia'ya ait 1 (*Bithynia pseudemmerica*) Pulmonata'ya ait 3 (*Physella acuta, Galba truncatula, Radix labiata*) ve Bivalvia'ya ait 1 (*Pisidium casertanum*) olmak üzere toplam 6 takson tespit edilmiştir. Ayrıca her istasyonun su sıcaklığı (ºC), çözünmüş oksijen (mg/L), elektriksel iletkenliği (µS/cm) ve pH değerleri ölçülmüştür. Bölgedeki biyolojik ve ölçüm verileri ilk kez kaydedilmiştir.

Anahtar kelimeler: Munzur, buzul, Mercan, Bivalvia, Gastropod

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Introduction

The Munzur Mountains are located in Eastern Anatolia between Tunceli and Erzincan.

Province. The study area, which includes Kepir plateau (3710 m) and its immediate surroundings, is located in the central part of the Munzur Mountains (Şaroğlu ve Güner 1981). The Munzur Mountains have evidence of past and present glacial activity. The mountains were presumably subjected to repeated phases of glaciation during the cold periods in the Quaternary (Bilgin 1972). Seasonal and geomorphological factors are effective and important on the glacier formations in Munzur Mountains. Munzur Mountains, which extend 100 km in the east-west direction and have high peaks exceeding 3000 m, cause the formation and merging of high humidity air masses coming from the Black Sea and the Mediterranean. For this reason: Munzur Mountains receive more precipitation than the surrounding mountains. The precipitation type is mostly snow for 1 year, and due to the high altitude of the mountains, it has allowed the glaciers to grow (Çılgın 2013).

Gastropods and Bivalvia are a common macrozoobenthic group of freshwater ecosystems (rivers, lakes, streams, shallow water etc.). According to Vaughn (2018), they play important roles in ecosystem engineering such as nutrient cycling and storage. Bivalves, especially gastropods, attract our attention as clue organisms in

biological impression and threat assessment (Goldberg 1986).

Materials and Methods

The Mollusc sampling was done between June 2017 and August 2023 from a total of 4 stations, 3 stations from Mercan stream and 1 station from Kepir Glacier Lake (Figure 1). Surber net (475 µm was used in the sampling, 1 m^2 area was selected where the vegetation was intensive and the area was scanned in reverse direction of the bottom sediment flow. Scanned bottom sediment was transferred to plastic jars and fixed with 75% alcohol. Specimens extracted from this sediment were determined as family, genus and species. Gastropods and Bivalvia were identified at the species level by using the guidelines outlined by Schutt (1965), Macan (1969, 1977), Glöer (2002), Oscoz (2011). During the sampling, water samples (ºC), dissolved oxygen (mg/L), pH, flow rate (m/s), electrical conductivity (µS/cm) were measured by YSI- 556 model multiparameter.

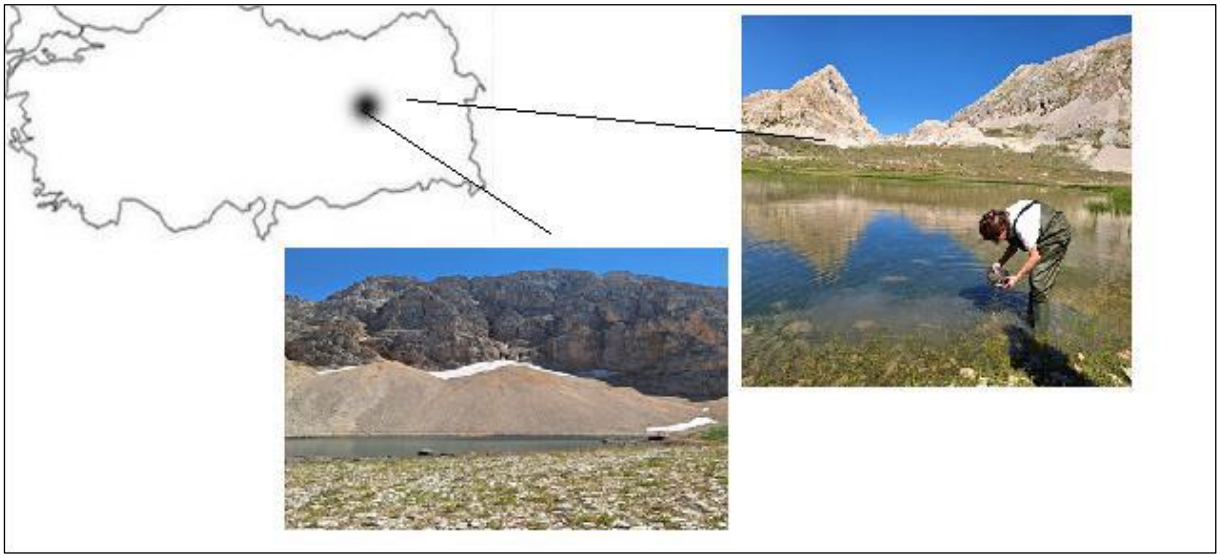


Figure 1. Map of the sampling station.

Results

A total of *Bithynia* sp. in Kepir Glacial Lake, 1 belonging to Prosobanchia (*Bithynia pseudemmerica*), 3 belonging to Pulmonata (*Physella acuta*, *Galba truncatula*, *Radix labiata*) and 1 belonging to Bivalvia (*Pisidium casertanum*) in Mercan Creek. 6 taxa were identified. In addition, water temperature, dissolved oxygen and pH values of each station were measured. Species and parameters in the region have been recorded for the first time.

Table 1. Some of environmental variables of Kepir Glacial Lake.

Parameters	1	2	3	4	5	Average
Water Temperature (ºC)	20.9	19.93	20.1	22.3	21.7	20.98
Dissolved Oxygen (mg/L)	7.56	16.26	13.7	13.7	12.9	12.82
Electirical conductivity (µS/cm)	7.37	12.93	17.96	19.5	17.8	15.11
pH	8.25	8.61	8.4	8.7	8.6	8.51

Discussion

Considering the Criteria of Regulation on the Management of Surface Water Quality (2021), all stations on the Management of Surface Water Quality (2021), were determined as Class I (Table 1). There is no previous biological study on the glacial lake in the Kepir plateau. Therefore, data comparison could not be made. All species are first registered for the field.

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