

# Study of the Invertebrate diversity in Prometheus Show Cave (Georgia, Caucasus)

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## Abstract

Prometheus Cave is one of the largest caves in Georgia among the local six show caves. Before opening the cave as a tourist attraction, no research was conducted on the cave to study the invertebrate community living there, despite the cave's status as a natural monument. Before our study, only 22 species of invertebrates were known from Prometheus Cave, while none of the invertebrate species have been reported from adjacent non-touristic Datvi and Melouri caves.

Cave invertebrate fauna was monitored monthly from 2018 to 2021 in the Prometheus cave and adjacent non-touristic Datvi and Melouri caves. The sampling was conducted on at least ten sites per cave each month. The abundance and incidence of the invertebrates were recorded on each site during field surveys. We ordinated the invertebrate diversity of the studied caves using Principal Component Analysis (PCA). After intensive investigations for three years, the number of species in Prometheus Cave increased from 22 to 47. Besides, ten species in Datvi and 11 species in Melouri caves were found for the first time. Our results suggest the existence of a significant difference in the diversity of the cave invertebrate fauna between the touristic part of Prometheus show Cave and its non-touristic part - Alpinist's hall, Datvi, and Melouri caves. The primary factor differentiating Prometheus show Cave from the others is the lower abundance of the species. Hurlbert's PIE and rarefaction analysis of the diversity explains that the diversity is also most unevenly distributed in this cave.

## Keywords

Prometheus cave, show cave, invertebrate fauna, Georgia, Caucasus

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