SCARCE POPULATION OF MALACOFAUNA FROM MIS8/L3, AT TITEL LOESS PLATEAU, SERBIA



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Figure 1. Position of Titel loess plateau and Mošorin loess including the pictures of the profile during the sampling.

Introduction

Examination of malacofauna can produce very detailed information about paleoenvironmental and paleoclimatological conditions during Quaternary, as it shows different types of biotones necessary for each spe

Serbia is known to have well-studied LPS. The study area of this paper belongs to the Mošorin village on the northern side of the Titel loess plateau (TLP). The section name is Veliki Surduk (Big Gully).

TLP is situated near the confluence of Tisa and Danube rivers, in the southern central part of the Voivodina province (Fig. 1), the region known for having the valuable continental climate record for the past million years

The Veliki Surduk LPS is 30 m high and covers the last three glacial periods The L3 in Serbia was dated to 269± 46 ka (Marković et al., 2015)

It is the first time we carried out a malacological analysis on the L3 segmen of the profile. Previous studies at this section did not include malacological interpretation (e.g. Perić et al., 2019; Constantin et al., 2019; Basarin et al,

This paper presents the preliminary interpretation of the malacological

Methods

Samples for the magnetic susceptibility (MS) variations have previously been collected over the whole investigated sections with step each 5 cm.

ments were obtained using a Bartington MS2 susceptibility meter in Laboratory

for paleoenvironmental reconstruction. Faculty of Sciences. Univer

For the purpose of malacological studies samples of approximately 10 kg were taken continuously at 20 cm intervals. A total of 26 samples were collected from 5.2 m long cleaned profile section (ending of S3 to the beginning of S2).

Individual fossils were extracted from loess sediments by washing samples through sieves (0.5-1 mm) in field conditions and then air-dried. Individual shells and shell fragments were further sorted and identified on a dissecting stereomicroscope

Identification was done using various malacological literature: Kerney et al. (1983), Pfleger (2000), Fehér et al. (2010), Welter-Schultes (2012) and Nekola et al. (2015). leasification of molluse taxa according to their ecological preferences (temperature, humidity and vegetation structure) was done by comparison with the interpretations of Ložek (1964), Sümegi and Krolopp (2002), Sysoev and Shileyko (2009) and Juřičková et al. (2014), as well as from already published malacological findings on the Serbian LPS.

Results and Discussion

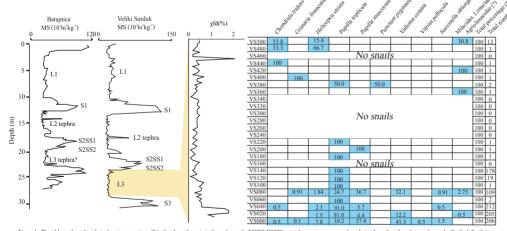


Figure 1. The table on the right side is showing percentage (%) of each small specie in the each sample (VS000-VS500), a total percentage per sample and a total number of snails in each sample. On the left side is a plot of a low-frequency and frequency dependent magnetic susceptibility for investigated Veliki Surduk LPS. The Batajnica data is taken from Marković et al., (2009).

Comparation with other Serbian LPSs

L3 is relatively thin loess horizon if compared to younger Serbian loesses. It was developed Ls is retailvey timi noises nortizon it compared to younger Serviain necesses. It was developed during the glacial cycle D, or MIS. 8. On the Batajinica LPS, which is situated 45 km southern of Veliki Surduk (Fig. 1), the L3 horizon probably has a tephra layer, on the beginning of MIS. 8. Such layer is visible in magnetic susceptibility curve. In records of TLP, such peak is missing. On the other side, L3 loess in Veliki Surduk is thicker than one in Batajinica is missing to the other control of the control of t some, or no shells at all, this change is worthy of mention. The average MS for L3 is 22.3 $10\,\mathrm{m}^3\mathrm{kg}^-$ and frequency-dependent is 1.8 %.

Malacological investigations in Vojvodina region have given results in Crvenka (Marković et al., 2018), Irig (Marković et al., 2007), Mišelak (Marković et al., 2008), Benjunico (Ospova et al., 2013), Ruma (Marković et al., 2006) and Zemun (Gavrilović et al., 2019) LPSs. All off the species in this study have also been living during the L2 and L1 in Vojvodina, except that Vitrina pellucida was not found in any other profile. The characteristic of malacofauna in Veliki Surduk is a large population close to paleosols, while at the middle of the L3, the shells were not found. On the contrary, other investigated profiles showed a different situation. Some LPSs like Irig and Ruma do not have snails in paleosol S1, or have very little, while in the middle of the loess layers they are

Conclusion

References

study aim is to gather palaeoenvironmental data and discern patterns of environmental changes during MIS8 in the loess domain. Previous studies were done at the loess sites in Batajnica, Zemun, Mos L3/MIS8 in the loess domain. Previous studies were d Crvenka, Petrovaradin, Ruma, and Irig. In Veliki Surduk.

A total of 26 samples were collected from 5.2 m long cleaned profile section (ending of \$3 to the beginning of \$2). Nine species of snails were present in this horizon, including Chondrula tridens, Granaria frumentum, Helicopissi straita, Pupilla muscourum, Pupilla trijicala, Punctum pypameum, Succinella oblonga, Vallonia costata, Vitrina pellucida, and certain as-yet-unidentified slug taxa (Limacidae, Agriolimacidae, Milacidae).

The dominance of temperate thermophilous and aridity-tolerant snails such as Chondrula tridens, Granari frumentum, Helicopsis striata, and Pupilla triplicata in loess L3 indicates open vegetation and a mostly drenvironment related to steppe-like grassland.

L3 horizon of the Veliki Surduk LPS has a nine species of snails and certain as-yet-unidentified slug taxa (Limacidae, Agriolimacidae, Milacidae).

The greatest diversity and abundance was found near the S3 paleosol. Samples with no snail shells are continuous, and they are situated in the middle and upper part of the studied profile section. The first three samples that are closest to S3 include 65% of all snails shells found in the profile. The number of snail taxa and their abundance gradually increases again toward the S2 paleosol.

Based on ecological preferences of discovered species (mostly thermophilous and xerophilous) we deduced that the environment during the L3 period was an opened grassland, while the climate was mild and

Short description and dimensions of species in L3 of Veliki Surduk

Thermophilous aridity tolerant, warm steppe

Thermonhilous ridity toleran warm steppe

Punctum pygmaeur (Draparnaud, 1801)

Subhygrophilous

Pupilla mu us. 1758)







Vitrina pellucida (Müller, 1774)

Helicopsis striata (Müller, 1774)

Thermophilous aridity tolerant,

warm steppe, xerophilous.

Pupilla triplicata (Studer, 1820)

Preferring mildness aridity tolerant,

warm steppe, xerophilous.

(Müller, 1774)

Highly tolerant, mesophilous, ubhygrophilous mild climate, open habitat.