













## Project Gallery

# Hučivá Cave: a Magdalenian hunting camp in the Tatra Mountains

Paweł Valde-Nowak<sup>1,\*</sup> , Mateusz Baca<sup>2</sup> , Magda Cieśla<sup>1</sup> ,  
Julia Kościuk-Załużka<sup>1</sup> , Anna Kraszewska<sup>1</sup> , Anna Lemanik<sup>3</sup> ,  
Adam Nadachowski<sup>3</sup> , Danijela Popović<sup>2</sup> , Jakub Skłucki<sup>1</sup>  & Marian Soják<sup>4</sup> 

<sup>1</sup> Institute of Archaeology, Jagiellonian University, Kraków, Poland

<sup>2</sup> Centre of New Technologies, University of Warsaw, Poland

<sup>3</sup> Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Warsaw, Poland

<sup>4</sup> Institute of Archaeology, Slovak Academy of Sciences, Bratislava, Slovakia

\* Author for correspondence ✉ [p.valde-nowak@uj.edu.pl](mailto:p.valde-nowak@uj.edu.pl)

This article discusses the objectives of the *Stone Age Man in Caves of the Tatra Mountains* project, which aims to explain the mysterious absence of evidence for the Palaeolithic in the Tatra Mountains of Eastern Europe. We present preliminary work from Hučivá Cave, which demonstrates clear traces of Magdalenian settlement within this region.

Keywords: Late Palaeolithic, Magdalenian, Bölling interstadial, mountain archaeology, lithics

## Introduction

Until now, evidence for prehistoric settlement in the alpine region of the Carpathians was almost non-existent. All attempts to identify traces of Palaeolithic settlement in the caves of the Tatra Mountains at the end of the nineteenth and the beginning of the twentieth century were unsuccessful (Jura 1955). This state of uncertainty ended with the discovery of unquestionable evidence for Magdalenian settlement, which was obtained recently from the first surveys of Hučivá Cave in the Belianske Tatras, Slovakia (49°13'14.8"N, 20°18'37.2"E) (Soják & Valde-Nowak 2021) (Figure 1). This especially inspiring discovery was preceded by tentative signs of Magdalenian settlement within the Tatra Mountains (Valde-Nowak *et al.* 2017).

## Methodological remarks and stratigraphy

Sediment within Hučivá Cave was excavated in arbitrary 50mm layers, maintaining a grid of 1m<sup>2</sup>, which formed the basic unit of excavation. The initial excavation consisted of cross-sectioning and expanding significantly an illegally excavated trench that had been previously dug in the chamber by speleologists. Our new trench discovered 1.4m of stratigraphy overlying the chamber floor. Six main layers of clay-rubble were observed within this stratigraphy;

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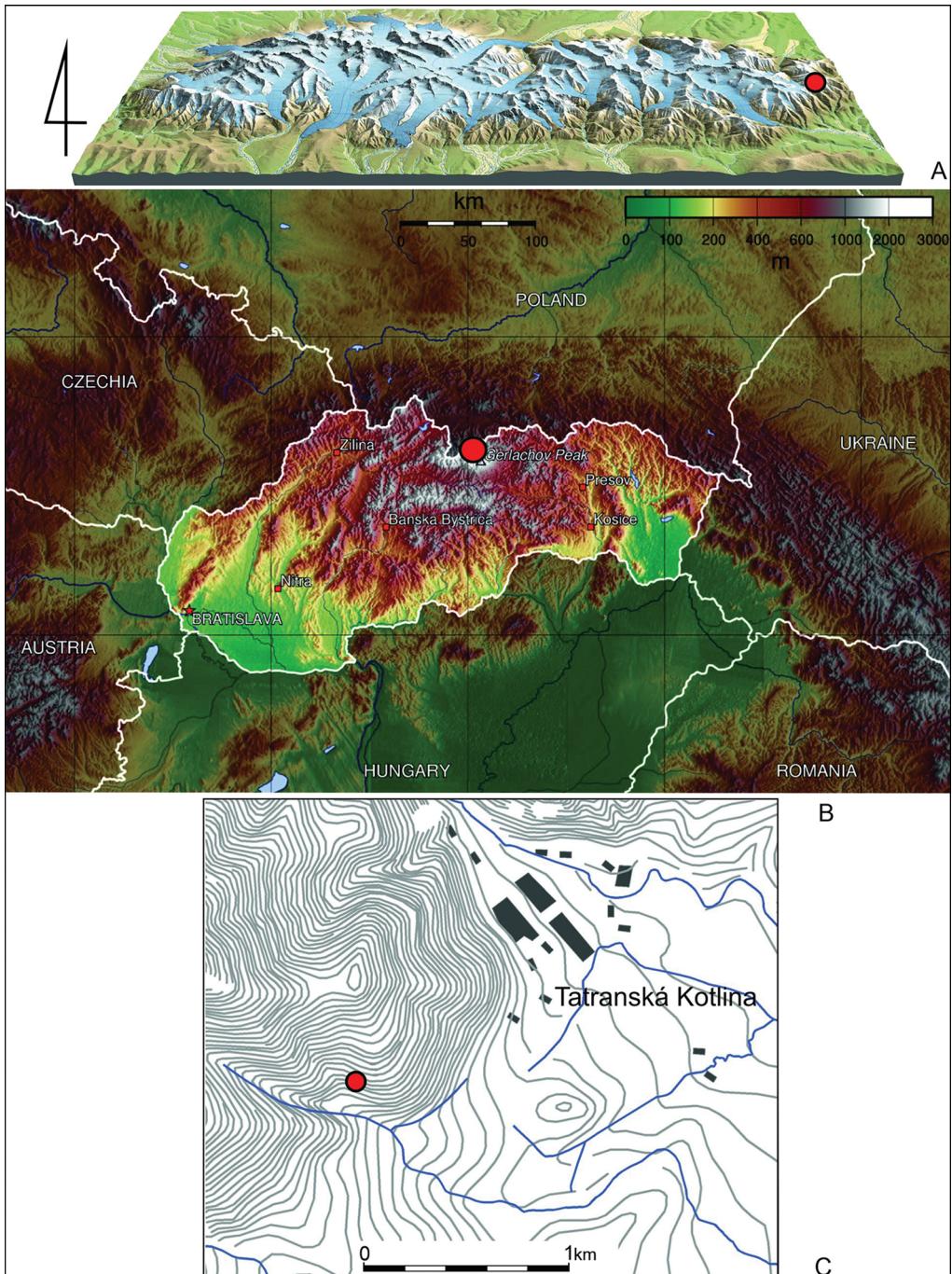


Figure 1. The location of Hučivá Cave (red dot) against the background of the Last Glacial Maximum glacier in the Tatra Mountains: A) a hypsometric map of Slovakia and neighbouring countries (B), and a detailed contour plan (C) (figure by the authors based on data from Zasadni & Klapyta 2014).

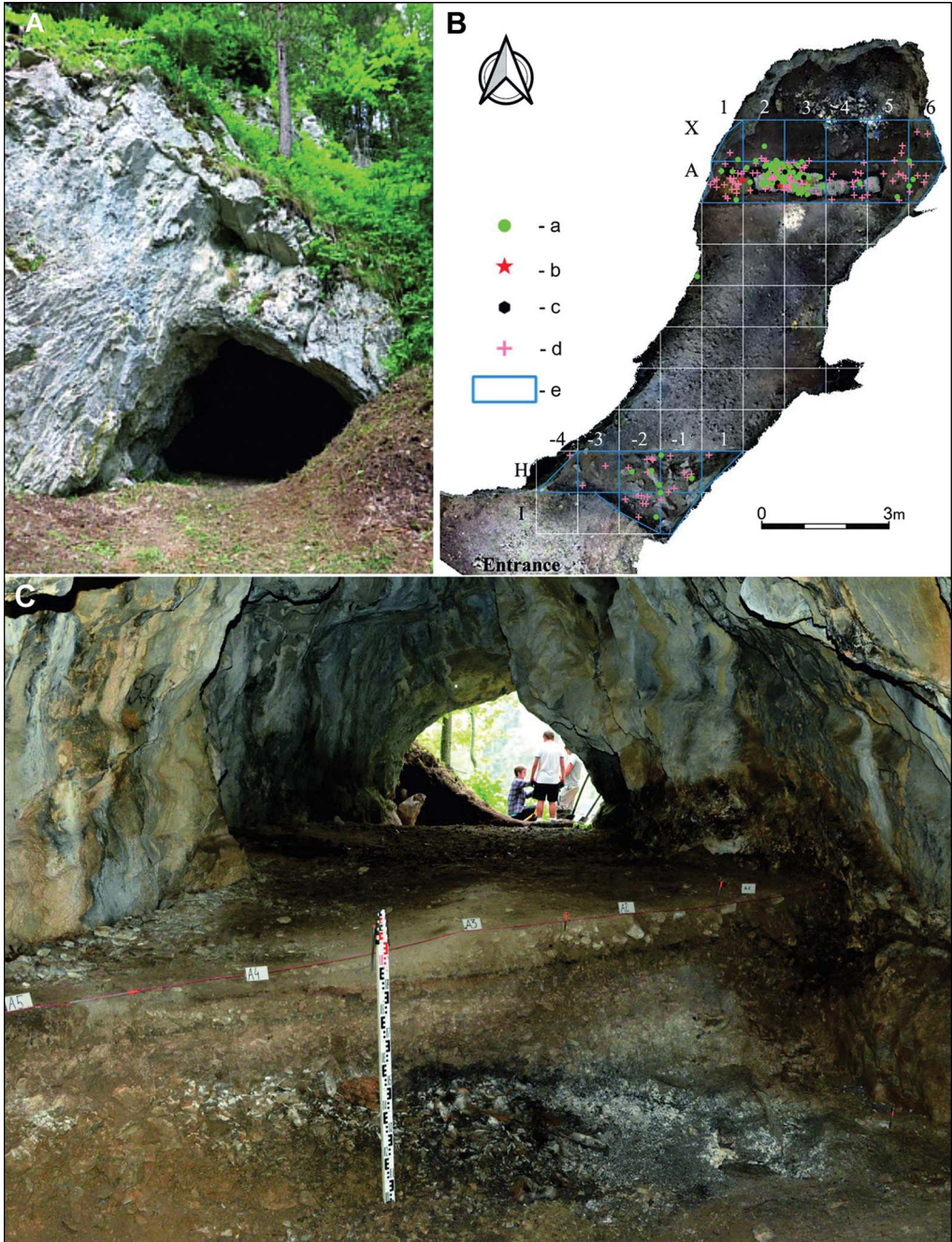


Figure 2. Entrance to Hučivá Cave (A) and planigraphy of Palaeolithic finds (B) on the metre grid of the area covered by the excavations (background is a 3D scan of the interior of the cave); (C) traces of a fire visible in the section (photographs by P. Valde-Nowak; scan by M. Cheben; graphic design by U. Bąk and the authors). Legend: a) stone artefacts; b) ochre lumps; c) coal; d) bones; e) excavated area.

the deepest layer (VI) was divided into sublayers, one of which (VIc) documents the remains of a fireplace (Figure 2). Complete and thorough wet sieving of cave sediments, using sieves with a clearance of <1mm, allowed faunal and archaeobotanical remains to be gathered from all strata.

## Archaeological artefacts

To date, 385 stone artefacts have been discovered, as well as a bone needle preserved in two fragments (Figure 3:12). Many artefacts were made of radiolarite, but there are other raw materials, such as various flints and limnosilicite. The most characteristic tools were shouldered points, as well as examples similar to the massive Creswell and Cheddar-like forms (Bohmers 1956; Stapert 1985; Maier 2015). There were also perforators, including a badly worn specimen with a twisted *Zinken*-type curved tip. A high degree of *en éperon* preparation was notable throughout the assemblage. Five lumps of what have initially been identified as ochre were also collected.

## Archaeozoological analysis

The Magdalenian layers produced sparse bones and teeth from approximately 20 small and large mammal species, as well as from a few species of birds. Among the large mammals that could be hunted, ungulates predominate. Alpine ibex (*Capra ibex*) was represented by fragments of two mandibles belonging to two different individuals. The species affiliation was confirmed by analysis of the mitochondrial DNA (mtDNA) obtained from the specimens. Currently, this species does not occur in the Tatra Mountains, and this is the first confirmation of its past occurrence in the western Carpathians. The presence of another mountain species of chamois (*Rupicapra rupicapra*), as well as deer (*Cervus elaphus*) and wild horse (*Equus ferus*), has also been confirmed. Among predators, most of the remains belonged to brown bear (*Ursus arctos*). More than a dozen bones belonging to different species have traces of cut marks, cracking for marrow extraction and smoothing with stone tools.

## Radiocarbon chronology

Two AMS dates were obtained from charcoal from the fireplace: 12 190±60 BP (Poz-114742: 12 316–11 896 cal BC, at 95.4% confidence) and 12 160±60 BP (Poz-114743: 12 260–11 868 cal BC, at 95.4% confidence); the dates were modelled in OxCal v4.2.3 (Bronk Ramsey *et al.* 2013) using the IntCal20 atmospheric curve (Reimer *et al.* 2020). Both results point to the Bölling interstadial (GI-1e).

## Main issues and outlook

The artefact assemblage obtained from Hučivá Cave, dating to the thirteenth millennium cal BC, is unique due to the lithic forms present—namely shouldered points, which are rarely found in the Magdalenian of Central Europe. They are more clearly present in the Swiss record, where they stand out in techno-assemblage E (Leesch *et al.* 2012; Nielsen 2016), and in Germany, for example at Petersfels and Etzdorf (Pasda 2018; Maier *et al.* 2020).

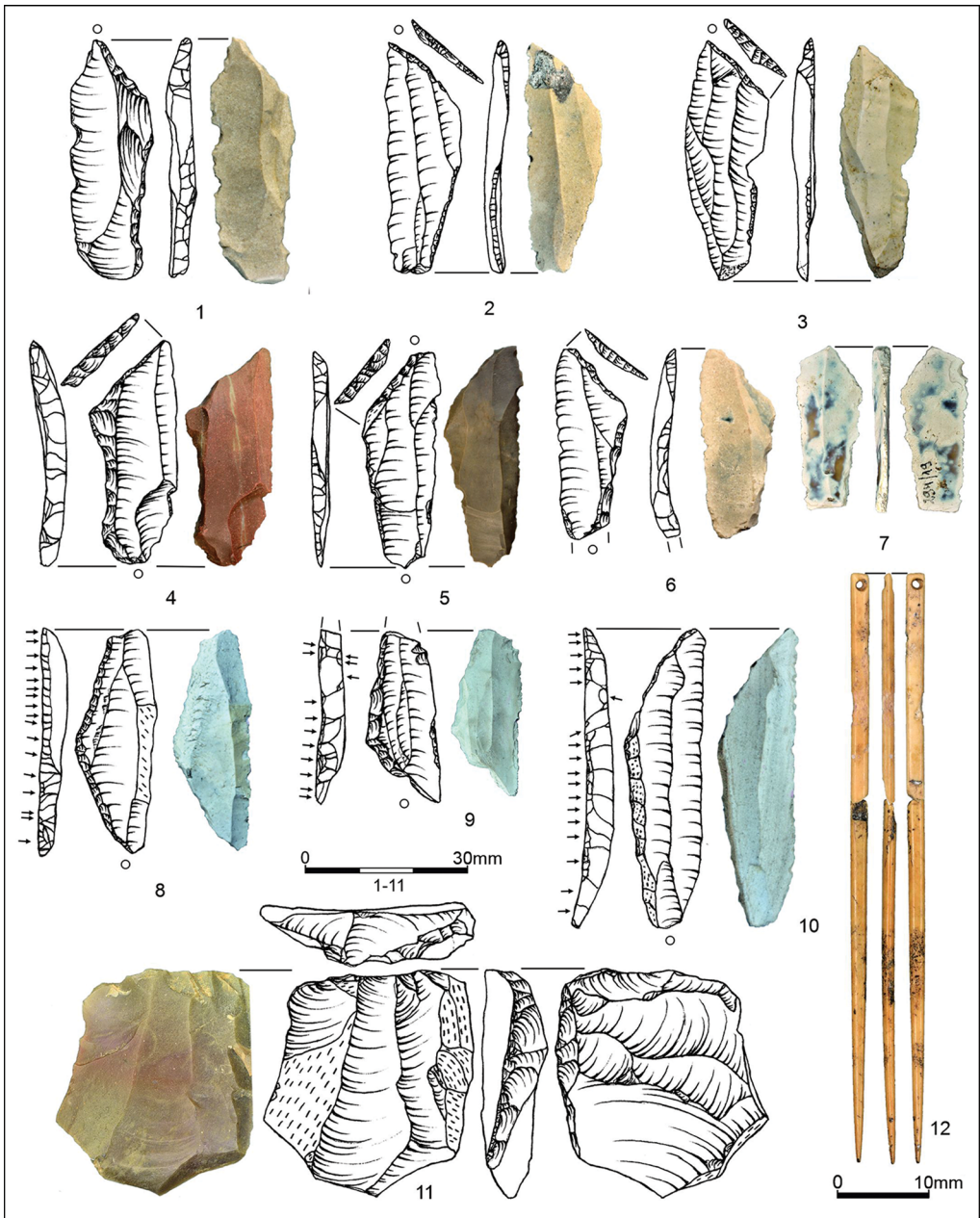


Figure 3. Selected stone and bone archaeological artefacts: 1–10) shouldered points and truncations; 11) core; 12) bone needle (illustrations by J. Chowaniak and U. Bąk; photographs by J. Skłucki).

These artefacts are also very rare in the Polish Magdalenian (Burdukiewicz *et al.* 2013; Cyrek *et al.* 2020). What draws our attention is the location of Hučivá Cave on the border of the European Magdalenian range (Maier 2015; Maier *et al.* 2020), near to the zone penetrated by the Epigravettian, which was, to some extent, contemporaneous with the Magdalenian. The

relationship between those two cultures is still unclear (Wiśniewski *et al.* 2017; Lengyel *et al.* 2021). The location of this Palaeolithic hunting camp, near the border of the Last Glacial Maximum glacier (Zasadni & Kłapyta 2014; Makos 2015), would almost certainly have affected the availability of game animals (Horáček *et al.* 2015). The results of the Hučivá Cave research project open a wider perspective for the discussion of these issues.

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