

New Zooarchaeological Investigations at Petersfels (Brudertal, SW-Germany)

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Introduction

The Magdalenian site of Petersfels hosts an exceptional record of human occupation from 15,000 years ago. After over 100 years of excavation and research¹, unstudied faunal remains provide a new opportunity to assess the site using modern zooarchaeological techniques. Faunal analysis, with a focus on taphonomy, reveals information on human subsistence, the influence of carnivores, and the use of space by Magdalenian people.

Materials and Methods

Petersfels is a cave and open-air site located in the Hegau Jura of southwestern Germany. Multiple excavation campaigns have revealed abundant evidence of occupation, including lithics, fauna, osseous tools, figurines, engravings, and personal ornamentation. For this study, 2460 faunal remains from the forecourt (P6) were analyzed utilizing a variety of modern zooarchaeological methods²⁻⁸.

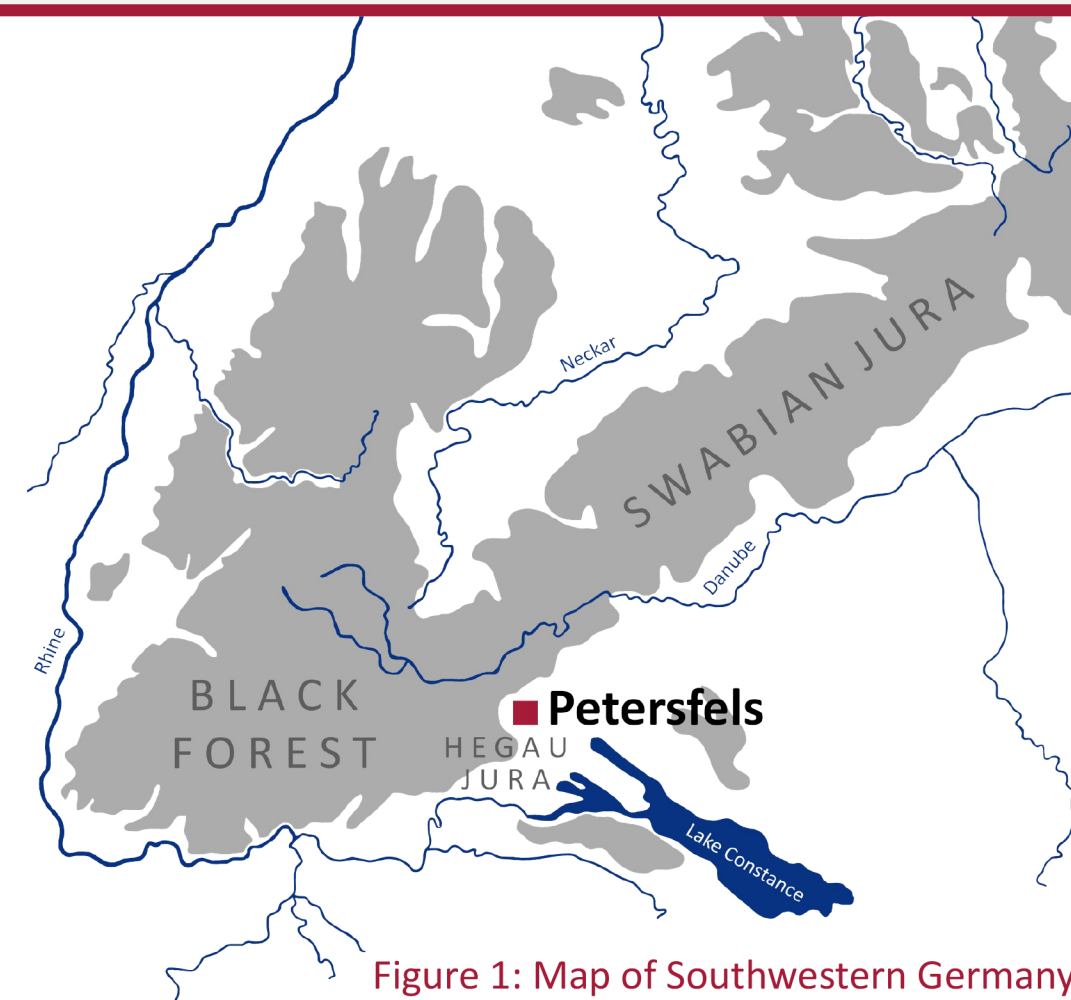


Figure 1: Map of Southwestern Germany

Results and Discussion

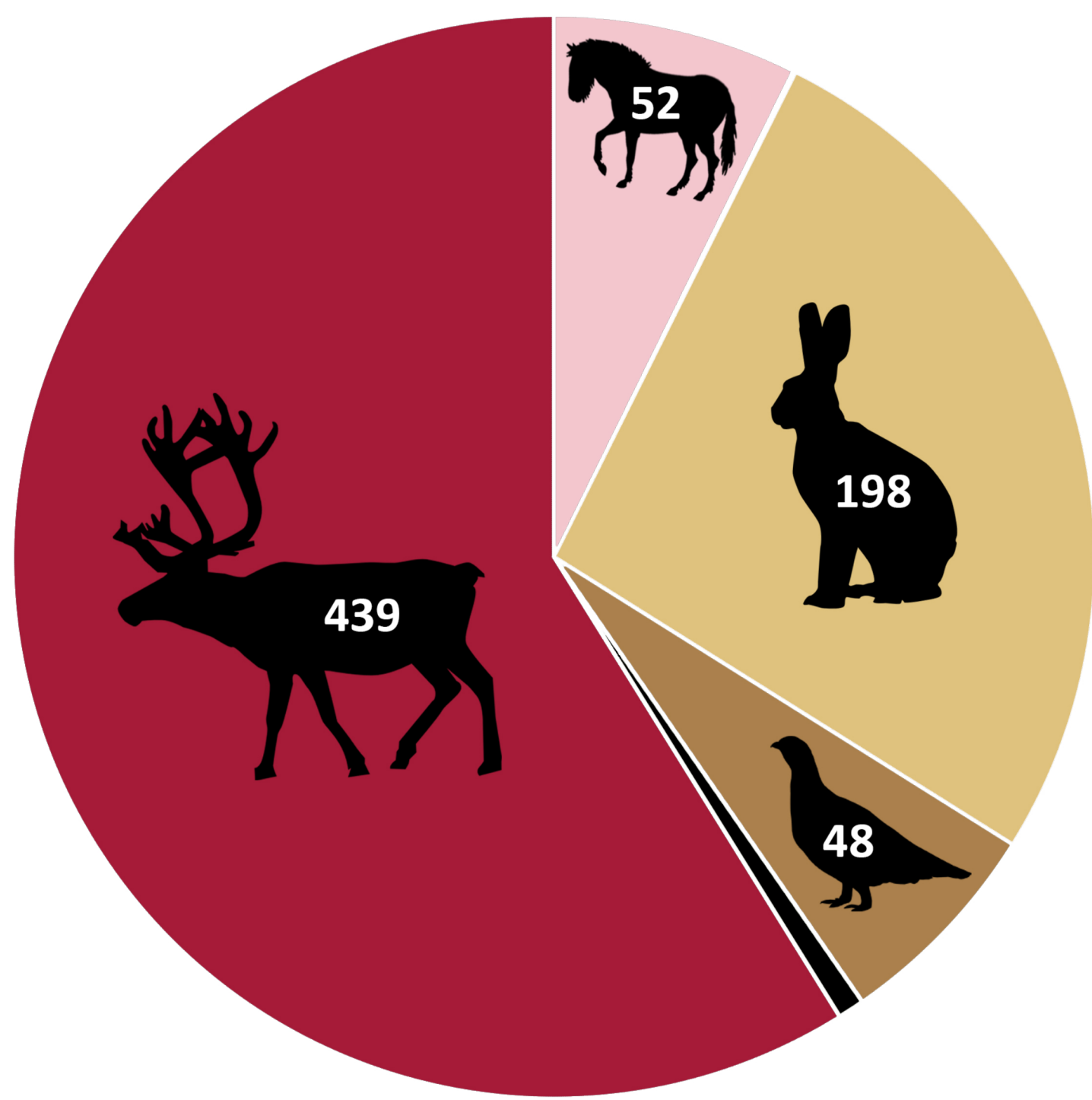


Figure 2: NISP of Identifiable Species. Black = fox (6), bovid (2) ibex (1), and corvid (1)

Reindeer

Initial butchery took place at the kill site, likely in the valley, where animals were skinned, defleshed, and dismembered into manageable units. Cutmarks along the anterior and posterior limbs also indicate the extraction of tendons. Body part profiles (Figure 3) suggest humans then transported head and limb elements to P6. Here, further processing took place including marrow extraction, as well as the production and use of osseous artifacts (e.g., needles, chisels, retouchers).

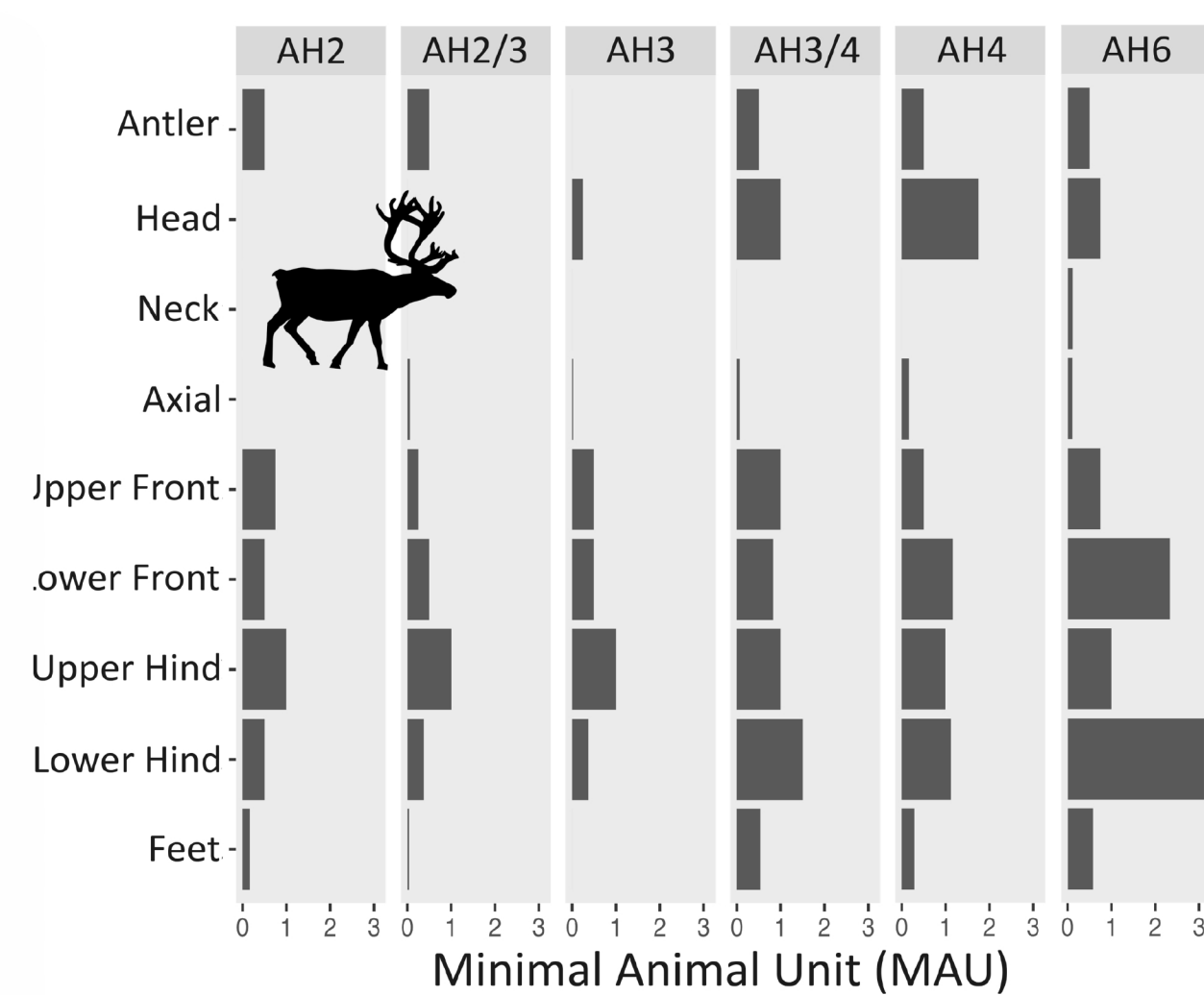


Figure 3: Body Part Profiles from Reindeer-Sized Specimens by Layer. NISPs: AH2=86, AH2/3=53, AH3=83, AH3/4=254, AH4=342, AH6=543

Horse

Horses present a similar profile to reindeer, where cutmarks and impacts indicate skinning, defleshing, and dismemberment (Figure 4). Heads and limbs were also transported to P6 for marrow processing.



Figure 4: Skinning Marks on a Horse Second Phalanx

Carnivores

Carnivore modifications are present on 30% of the assemblage. Tooth mark measurements indicate both large (e.g., wolf) and small (e.g., fox, marten, wildcat) taxa contributed to the destruction. Co-occurrence with butchery traces suggests carnivores fed from human waste, perhaps as commensal scavengers or via the deliberate feeding of domesticated wolves, as recorded at Gnirshöhle⁹.

Small Game

Both hare and ptarmigan/grouse exhibit traces of skinning, defleshing, and dismemberment. Although body part profiles indicate an abundance of limb elements, the effect of density mediated attrition could not be excluded; therefore, the agency behind this profile is unconfirmed. In addition to butchery, some elements were further modified into tools (e.g., needles) and other osseous artifacts (e.g., scraped and incised metatarsal shafts) (Figure 5).

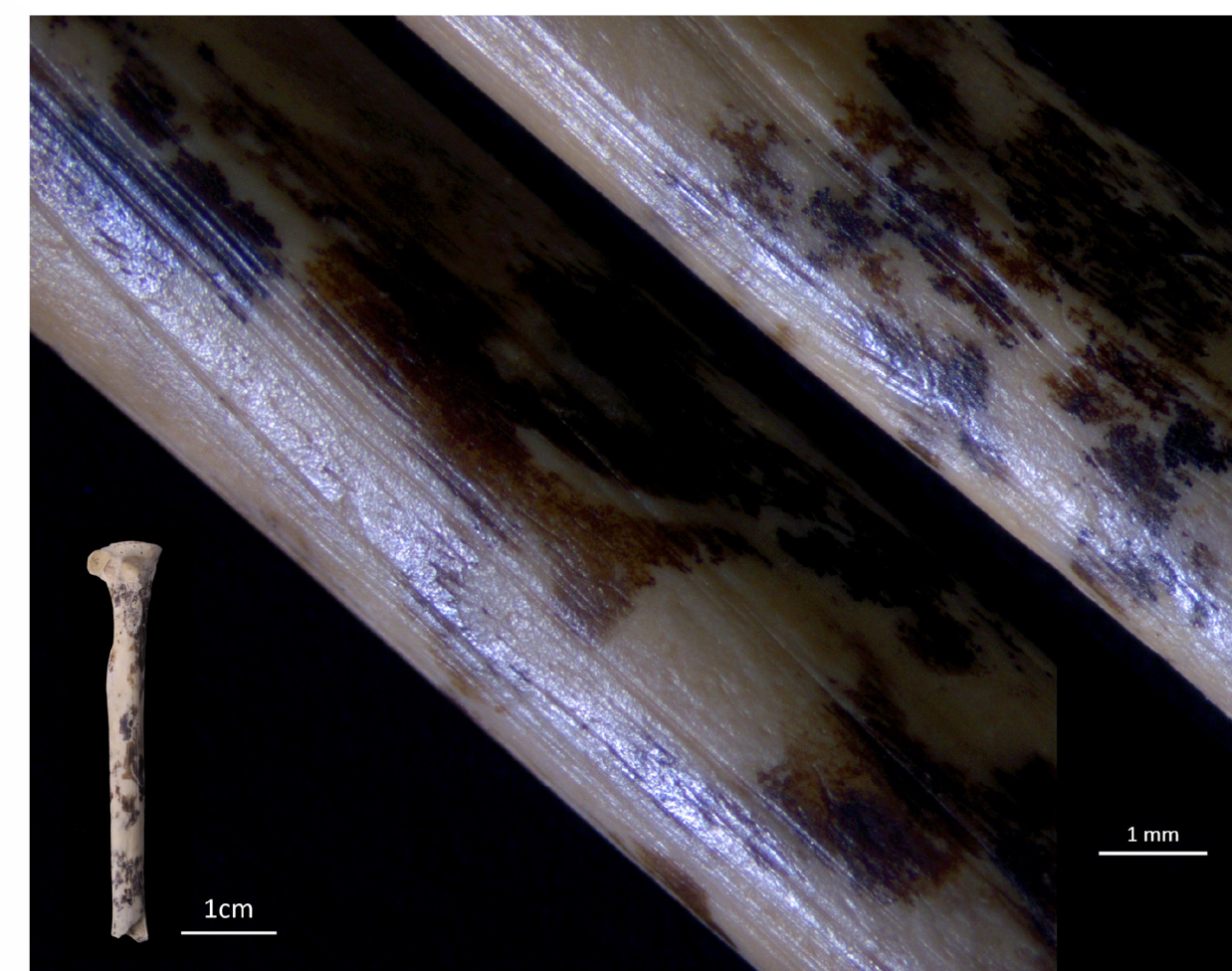


Figure 5: Scraping on a Hare Metapodial Shaft

Use of Space at P6

The forecourt was primarily used for the secondary processing of faunal remains for marrow and osseous tools. Evidence for hide processing and ornament production are also present¹⁰. This area likely served as the intermediary between the kill site in the valley and the more intensive habitation of the cave.

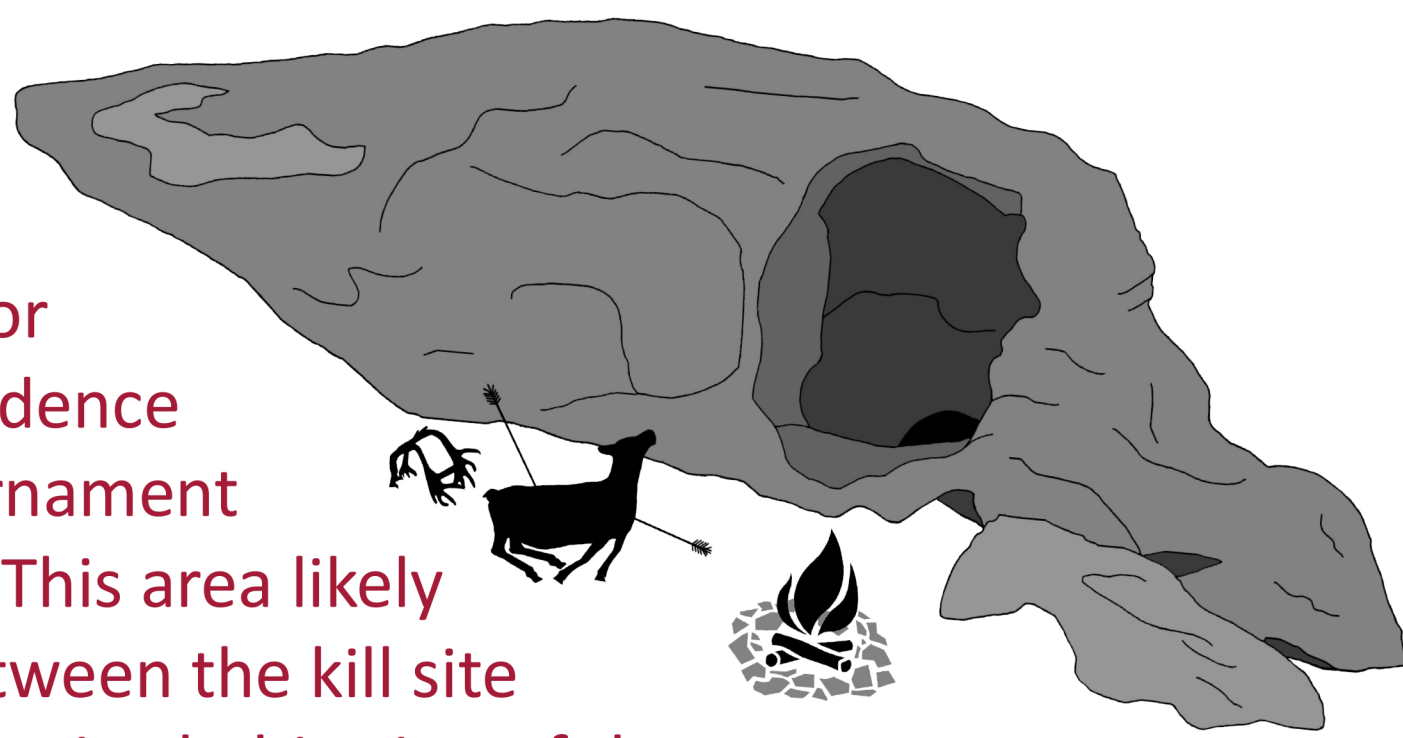


Figure 6: Depiction of the Cave and Forecourt

Conclusion

- hunted **typical Magdalenian prey**, full exploitation of animals
- transportation** of heads and limbs from the kill site to P6
- subsequent access by both **large and small carnivores**
- P6 was used as a **secondary processing area** for marrow extraction, tool production, and tasks related to sewing
- these results confirm prior interpretations¹¹ of Petersfels as a large-scale **aggregation site**