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## Zsolt Mester and zooarchaeology in the French National Museum of Natural History

Marylène Patou-Mathis, Stéphane Péan, Antony Borel, Éva Daschek, Marie Seguedy

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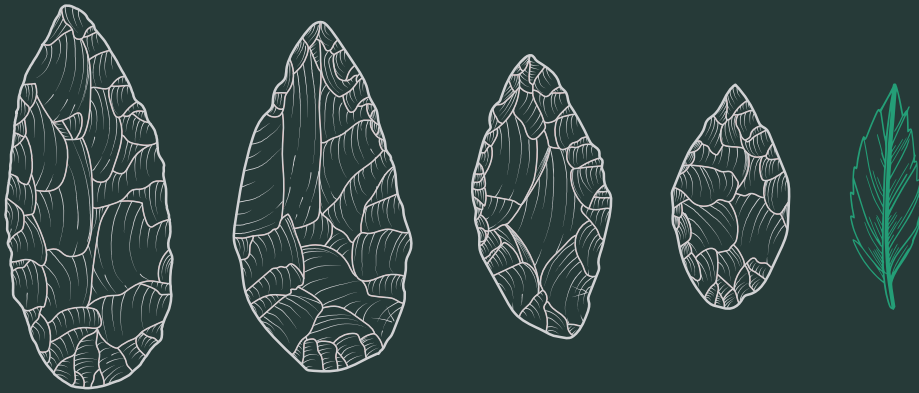


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# *From tea leaves to leaf-shaped tools*

STUDIES  
IN HONOUR OF ZSOLT MESTER  
ON HIS SIXTIETH BIRTHDAY



LITIKUM  
KÖNYVTÁR 2

EDITED BY  
ATTILA KIRÁLY



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Editor:  
Attila Király



ELTE  
EÖTVÖS LORÁND  
UNIVERSITY



LITHIC RESEARCH ROUNDTABLE  
INSTITUTE OF ARCHAEOLOGICAL SCIENCES,  
ELTE EÖTVÖS LORÁND UNIVERSITY,  
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## Zsolt Mester and zooarchaeology in the French National Museum of Natural History

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**Abstract.** This paper describes the history of the collaboration between Zsolt Mester and zooarchaeologists from the *Muséum National Histoire Naturelle* (MNHN, France), which has been lasting for almost 25 years! It has enabled the development of common research projects about Neanderthal and early *Homo sapiens* subsistence behaviours in Central and Eastern Europe. Through an interdisciplinary approach, our collaboration focuses on the valorisation of the Hungarian and French archaeological cultural heritage. The results of this collaborative research have been disseminated in conference papers and publications. Zsolt has also contributed significantly to animate and strengthen our network through common courses and workshops, the training and supervision of students and PhD candidates and, finally, by joining our MNHN research unit as an associate researcher.

**Keywords:** Zsolt Mester, France, MNHN, Zooarchaeology, Collaboration, Bilateral project, Hungary

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Until recently, the use of the French language was a widespread tradition among most Hungarian palaeontologists and prehistorians. This attests to the influence of French prehistoric research on Hungarian prehistoric research as early as the 19<sup>th</sup> century (Mester, 2007), but also to the dissemination of scientific results in French/ in France by perfectly bilingual researchers such as our colleague Zsolt Mester.

Zsolt is a francophone and francophile, and describes himself as a “*francomane*”. This attachment to French culture is expressed through his personal, professional and friendly relationships, past and present. His thorough knowledge of the French language has facilitated exchanges with the scientific community of different institutions and, in particular, with prehistorians and zooarchaeologists of the *Muséum national d’histoire naturelle* (MNHN). This collaboration has lasted for almost 25 years! Zsolt has (co-)led or participated in several interdisciplinary research projects, Franco-Hungarian, Hungarian and French, with several members of our research unit (*Histoire Naturelle de l’Homme Préhistorique*). His interest in zooarchaeology and his revisions of lithic material from early excavations in Hungary (Mester, 1994) allowed the elaboration of these joint research projects on the subsistence behaviours of Neanderthals and early *Homo sapiens* in Central and Eastern Europe. Thus, our collaboration gives pride of place to the valorisation and conservation of the Hungarian and French archaeological cultural heritage.

The zooarchaeological and taphonomic analyses provided new information on archaeological sites, which complemented the palaeontological work previously carried out by our Hungarian colleagues. Combined with the re-examination of lithic materials, these results allowed us a novel interpretation of the technical and subsistence behaviours in the territory of present-day Hungary during the Middle and Upper Palaeolithic. The

contribution of this Franco-Hungarian scientific cooperation and the results obtained were the subjects of a lecture presented by Zsolt in 2018 at the *Musée de l’Homme* in Paris.

In December 1997, having learned that osseous tools (i.e. made of hard animal material) attributed to the Middle Palaeolithic had been reported from the Lovas site (Transdanubia), we (Marylène Patou-Mathis – MPM) undertook to study them as well as the associated large mammal bones. In this context, a close and long collaboration with Zsolt began. He helped with the publication of the zooarchaeological results from this site (Patou-Mathis, 2002) and then, a year later, with the presentation of the Tata site (Transdanubia) material at the International Conference in Tata. The heterogeneity of faunal remains including bone tools from Lovas, which come from two different pits, probably is the result of a mixture of occupations, from the end of the Middle Palaeolithic (perhaps) to the Neolithic or even the Metal Ages (Patou-Mathis, 2002). The Tata site corresponds, in agreement with the observations concerning lithic material, to a temporary camp with recurrent occupations, perhaps seasonal (summer), where the main activities would have been the debitage of lithic raw material and the provisioning of meat and skin quarters, in preparation for the cold season (Patou-Mathis, 2004).

At the same time, we (MPM) proposed to Zsolt to co-supervise the PhD thesis of Éva J. Daschek (ÉJD) on the Érd site (Transdanubia), which he enthusiastically accepted. After completing her 5<sup>th</sup>-year university diploma (*Diplôme d’études approfondies*) in 2004, ÉJD successfully defended her PhD in 2008, with her dissertation on the zooarchaeological study of large herbivores from the upper levels of the same site, i.e., on all the faunal material then available (Daschek, 2014). Regular discussions and exchanges about this site have resulted in 12 presentations in French, English and Hungarian, and 4 other publications



**Figure 1.** Zsolt Mester and Marylène Patou-Mathis in the Bükk Mountains in 2002 (Photo: S. Péan).

(Daschek, 2011, 2021; Daschek & Mester, 2020). This research not only attests to the Neanderthal exploitation of cave bears but also to their importance surpassing that of ungulates. In addition to Neanderthal groups, who were using the site recurrently (seasonally), carnivores also participated in the accumulation and modification of the site assemblages at various times as evidenced by the numerous hyena marks and some coprolites. In addition, a new hypothesis on the formation of the site was proposed: a cavity comprising two sectors, which would have gradually collapsed until it became an open-air site on at least one part (Daschek & Mester, 2020). Several works are underway to understand the exact modalities of the Érd site formation. This major Middle Palaeolithic deposit in Hungary is the subject of displays in the permanent exhibitions of the Hungarian Geographical Museum, the Aquincum Museum, and the Budapest History Museum (presentation: Mester & Daschek, 2018, see the Appendix). A zooarchaeological analysis was conducted on another Middle Palaeolithic site, Kiskevély cave (Transdanubia), in 2009. The role of humans in the bone accumulation of the Mousterian levels is presumed anecdotal (2 presentations: Daschek 2010, 2014 in Appendix).

In parallel with this work on Middle Palaeolithic sites, Zsolt proposed the study of new faunal material from Gravettian and early Epigravettian deposits, from two open-air sites, Bodrogkeresztúr and Ságvár, and two caves, Jankovich and Peskő, analysed in 1999 as part of a thesis (Péan, 2001). Ságvár exhibits a specialization in reindeer hunting. In addition to a similar orientation to this cervid, the Jankovich and Peskő caves are characterised by the specialised acquisition of hares for meat and fur, and also the surprising collection of their scapulae. More unusually, Bodrogkeresztúr shows evidence of elk hunting and the processing of quarters from at least two mammoths (scavenged or hunted animals?) for meat consumption. The assemblages attest to the frequent acquisition of carnivore fur, especially common fox, and, in Jankovich and Peskő, cave bears presumably carrion. The open-air sites were used as long-term or recurrently occupied camps, while the caves served as transitory habitats (hunting stations). The seasonality of occupation in the autumn of the Carpathian Basin during the Gravettian and Early Epigravettian periods differs from that of other regions of Central Europe: summer in southern Poland and Moravia, and winter in north-eastern Austria.



**Figure 2.** Zsolt Mester and Éva J. Daschek after she defended her PhD dissertation, in the library of the Institut de Paléontologie humaine, in 2008 (© Photo: Éva's family).

In 2005, to continue zooarchaeological studies at other sites, Zsolt and we (MPM) decided to set up, in co-direction, a bilateral exchange project, within the framework of the *Balaton Programme d'Actions Intégrées* (PAI) of the French Ministry of Europe and Foreign Affairs (MEAE), entitled “Comparison of technical and subsistence behaviours of Neanderthals and *Homo sapiens* in Hungary and in France” (2006–2008). The zooarchaeological study of the Subalyuk (as well as the taphonomic study of the human remains) and Istállóskő sites (as well as the osseous tools, in collaboration with Carole Vercoutère, assistant professor at the MNHN) began within this framework. They resulted in two publications. New studies of the bone and lithic materials from Subalyuk have allowed the interpretation of the history of occupations, both animal and human,

throughout the stratigraphic sequence (Mester & Patou-Mathis, 2016). Subalyuk cave was repeatedly occupied by Neanderthals. The inhabitants, bearing typical Mousterian tools, practised diversified but targeted hunting of small mixed ibex herds. These occupations probably attest to a seasonal camp. Bearers of the Quina-type Mousterian killed mainly ibex but also horses, so the cave would have served as a hunting station, mainly in the summer. According to the taphonomic study, the child's body was probably buried during the adult's decomposition on the surface (Mester & Patou-Mathis, 2016). In Istállóskő cave, the bone industry is linked essentially with hunting activities and confirms the cultural attribution of the lower layer to the Early Aurignacian (split-based points). Bone artefacts from the upper layer are too few to be diagnostic but two end-scrapers from the lithic assemblage suggest an Aurignacian attribution. This zooarchaeological study supports that the archaeological assemblages of Istállóskő cave were formed during successive hunting campaigns (Patou-Mathis *et al.*, 2016).

The research on the nature of human occupations in these two caves, located in the Bükk mountain, shows the archaeological potential of the country's northern regions to answer the problem of the ancient settlement of Hungary. Our scientific collaboration has therefore continued in the framework of a project of the MNHN Department *Homme et Environnement* entitled “Modalities of occupation of cave habitats by Neanderthals and *Homo sapiens* in northern Hungary”, obtained in 2018 (led by Stéphane Péan – SP), then a bilateral project PHC Balaton (*Programme Hubert Curien*) of the MEAE, entitled “Interdisciplinary study of subsistence behaviours during Middle and Upper Palaeolithic in the Carpathian Basin” (PALEO 2019–2021, co-direction Zsolt Mester & SP). This latter collaborative project aimed to characterize different occupation modalities in the Carpathian Basin, by combining

zooarchaeological, typo-technological, traceological and geochronological analyses (presentation: Péan & Mester, 2019, see the Appendix). Within the framework of these projects, zooarchaeological analyses of several Middle and Upper Palaeolithic sites have been undertaken by several of us (MPM, Marie Seguedy – MS, SP): Búdöspeszt (Middle Palaeolithic), Jankovich (Middle and Upper Palaeolithic), Remete Felső (Middle/Upper Palaeolithic), Szeleta (Middle and Upper Palaeolithic), Peskő (Upper Palaeolithic) caves and the Pilisszántó I rock-shelter (Upper Palaeolithic). The large mammals from the 1915's excavations at the latter site were studied as part of a Master 2 thesis at the MNHN (Seguedy, 2018). It was during an international course module in experimental archaeology, co-organized by Zsolt, David Pleurdeau (DP), and one of us (Antony Borel – AB) at Százhalombatta in 2017, that the topic of this thesis was complemented with a traceological approach. This study highlighted the exploitation of several taxa for food (reindeer, chamois, bison, horse) and symbolic purposes (arctic hare), and provided a better understanding of how this site was alternately occupied by carnivores and humans (3 presentations: Seguedy *et al.*, 2019; Seguedy, 2021; Seguedy *et al.*, 2021, see the Appendix). As an extension of our scientific collaborations, a PhD project in co-supervision (MNHN-ELTE) has been set up with Zsolt (MPM and SP). Led by MS, this dissertation aims to study the “Invariants and innovations in subsistence behaviours among Neanderthals and *Homo sapiens* in the Carpathian Basin: taphonomic analyses of faunal remains and bone/lithic interface” through the zooarchaeological and taphonomic study of the mammalian fauna of the Búdöspeszt and Szeleta caves and the Pilisszántó I rock-shelter. Another part of this dissertation focuses on the identification of the lithic raw materials used in the processing of animal carcasses through the microscopic observation of the cutting marks pro-



**Figure 3.** Éva J. Daschek and Zsolt Mester at the lecture “Érd, 775th birthday” in Érd at the Hungarian Geographical Museum in 2018 (© Photo: Földrajzi Múzeum/ Hungarian Geographical Museum).

duced by lithic tools on bone. At the intersection of different fields such as zooarchaeology, traceology, and lithic typo-technology, this approach is made possible in particular by the large raw material reference collection that Zsolt and his collaborators have built up at the ELTE Institute of Archaeological Sciences (e.g., Mester, 2013) and by the recent creation of a reference collection for traceology at the MNHN and the ELTE by Zsolt and AB (who has been partially delegated at the ELTE since 2017). This new collection includes more than a hundred pieces so far, of eight different raw materials from the Carpathian Basin. These specimens are associated with several hundred surface measurements (by laser-scanning confocal microscopy), allowing the application of quantitative methods to characterize use traces (Borel *et al.*, 2021a, 2021b).

The dynamism of our research with Zsolt has resulted in the joint production of 14 conference presentations (see Appendix) and 9 publications (see References). Our colleague Zsolt contributes to animate our collaborations and to valorise the results of our work, not only in terms of re-

**Figure 4.** Zsolt Mester and Antony Borel in 2018 in Budapest during the pre-launch of the Franco-Hungarian mission of the French Ministère de l'Europe et des Affaires Étrangères to be led by Agnès Lamotte (University of Lille) and Zsolt (© Photo: Agnès Lamotte).



search but also of teaching, in particular within the framework of the MNHN Masters programme. He has been teaching in two educational units of the “Quaternary, Prehistory, Bioarchaeology” course, on experimental archaeology (QPB 7, coordinated by AB and DP; see Borel *et al.*, 2018, 2019, forthcoming) and on technical behaviour in the Middle and Upper Palaeolithic in Hungary (QPB 8, coordinated by SP and MPM). As illustrated above, he has been involved in the training of doctoral students and the supervision of post-doctoral students. During his stays in Paris, Zsolt gave several lectures at the *Musée de l'Homme* and the *Institut de Paléontologie humaine* (Paris research and education institutes of the MNHN in prehistory), on recent Hungarian research and questions currently debated in Palaeolithic archaeology about the validity of the Szeletian, Bábonyian and Jankovichian as techno-cultural complexes. He also took part in the scientific life of our research unit, in several of its meetings. This collaboration was administered by his invitation as a guest professor of the MNHN in 2019 and his attachment to the NOMADE team as an associate researcher in 2021.

Our longstanding scientific collaboration (crossing zooarchaeology, lithic and bone typotechnology and, more recently, traceology) has

allowed, through an interdisciplinary approach (lithic tool/animal bone interface in particular), a better understanding of the prehistoric settlement dynamics of present-day Hungary as well as Neanderthal and early *Homo sapiens* behaviour, in terms of natural resource exploitation strategies and resilience to climatic variation. The updated interpretation of activities and behaviours at these major archaeological sites, with the help of novel lithic and zooarchaeological studies, including taphonomy, and even geological analyses, contributes to our understanding of the Middle and Upper Palaeolithic in Central and Eastern Europe and affects scientific discourse beyond the borders of Hungary.

The dynamism of this research has been made possible by the personality of our colleague Zsolt Mester. We are grateful to him and look forward to continuing our scientific and friendly exchanges through new projects.

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- Seguedy, M. (2018). *Étude archéozoologique des restes de grands mammifères de Pilisszántó I (Hongrie), abri sous roche du Paléolithique supérieur. Mémoire de Master 2* [MA Thesis]. Muséum national d'Histoire naturelle.

#### **Appendix 1: Oral and poster presentations at scientific meetings or lectures, jointly or concerning the mentioned Hungarian sites (25)**

- Borel, A., Lengyel, Gy., Deltombe, R., Moreau, Ph., Marteau, J., Bigerelle, M., & Mester, Zs. (2019). Qualitative and quantitative analyses of surface alterations of stone tools: manufacture and use traces on stone raw materials from Hungary. *2<sup>nd</sup> Franco-Hungarian Forum for Scientific Research “Horizon Europe”* [poster]. September 27, 2019, Institut français de Budapest, Budapest
- Borel, A., Lengyel, Gy., & Mester, Zs. (2021). Stone tools surface analysis: method and application on experimental artifacts made of raw materials from the Carpathian basin. *Lithic Research Roundtable 11*. December 3, 2021, Institute of Archaeological Sciences, Eötvös Loránd University, Budapest
- Borel, A., Marteau, J., Deltombe, R., Moreau, Ph., Lengyel, Gy., & Mester, Zs. (2021). *WEAR 2.0* Hungary. Qualitative and quantitative analyses of surface alterations of stone tools: digital and physical reference collection for the characterization of manufacture, use and natural/accidental traces on stone raw materials from

- Hungary. 62<sup>nd</sup> Annual Meeting “Back to the Gravettian – Chronology and Regionalization”, Hugo Obermaier-Society [poster]. April 6–8, 2021, online
- Borel, A., Marteau, J., Deltombe, R., Moreau, P., Bigerelle, M., Lengyel, Gy., & Mester, Zs. (2022). Use-wear qualitative and quantitative variability on stone raw materials from the Carpathian Basin. 28<sup>th</sup> EAA Annual Meeting. August 31 – September 3, 2022, Institute of Archaeological Sciences, Eötvös Loránd University and Hungarian National Museum, Budapest
- Borel, A., Mester, Zs., & Lamotte, A. (2022). Wear analysis of the lithic material from Sajóháony-Méhész-tető, Hungary. 28<sup>th</sup> EAA Annual Meeting. August 31 – September 3, 2022, Institute of Archaeological Sciences, Eötvös Loránd University and Hungarian National Museum, Budapest
- Borel, A., Mester, Zs., Marteau, J., Deltombe, R., Moreau, Ph., Bigerelle, M., Ingicco, T., Sala, S., Calligaro, T., Lemasson, Q., Pacheco, C., Lengyel, Gy., Takáts, V., Fodor, T., Boglárka, D., & Zita, Sz. (2021). The application of metrological and elementary analyses of surfaces in the study of prehistoric stone tools. 3<sup>rd</sup> Franco-Hungarian Forum for Scientific Research “Horizon Europe”. October 7, 2021, Institut français de Budapest, Budapest
- Borel, A., Moncel, M.-H., & Mester, Zs. (2016). The use of radiolarite as microlithic tools: experimentation and case study with the site of Tata (Hungary). 58<sup>th</sup> Annual Meeting “Palaeolithic prehistory of Europe”, Hugo Obermaier-Society, March 29 – April 2, 2016, Institute of Archaeological Sciences, Eötvös Loránd University and Hungarian National Museum, Budapest
- Daschek, É. J. (2003). Des chasseurs à Érd (Hongrie)? Étude préliminaire de la couche supérieure du grand vallon d’après l’étude de quatre taxons herbivores : *Mammuthus primigenius*, *Coelodonta antiquitatis*, *Bison priscus* et *Equus sp.* 9<sup>th</sup> Congress of GTEM (MNHN). November 17, 2003, Paris
- Daschek, É. J. (2006). Étude archéozoologique des chevaux d’Érd, gisement du Paléolithique moyen (Hongrie). 15<sup>th</sup> UISPP, Session 03 Hunter-Gatherer Studies. September 3–10, 2006, Lisbon
- Daschek, É. J. (2010). The cave bear fauna of Érd site (Hungary). 16<sup>th</sup> International Cave Bear and Lion Symposium (ICBLS). September 22–26, 2010, Azé
- Daschek, É. J. (2010). The Kiskevély cave: new zooarchaeological analysis of a Mousterian site of Hungary. 11<sup>th</sup> International Council for Archaeozoology (ICAZ), Session 7-3 Archaeozoology in Central and Eastern Europe [poster]. August 23–28, 2010, Paris
- Daschek, É. J. (2010). New archaeozoological results from the Middle Palaeolithic site of Érd (Hungary). 11<sup>th</sup> ICAZ, Session 7-3 Archaeozoology in Central and Eastern Europe [poster]. August 23–28, 2010, Paris
- Daschek, É. J. (2010). Kis-kevélyi-barlang csontanyagának paleontológiai, tafonómiai és archeozoológiai vizsgálata: előzetes eredmények. 35<sup>th</sup> PaleoPódium. June 18, 2010, Hungarian Natural History Museum, Budapest
- Daschek, É. J. (2014). Anciennes et nouvelles recherches en Hongrie à travers les sites d’Érd et de Kis-Kevély. Conférence internationale à l’occasion du cinquantième anniversaire de l’ouverture du site de fouilles préhistoriques de la Caune de l’Arago. June 30 – July 4, 2014, Institut de Paléontologie Humaine-Fondation Albert Ier Prince de Monaco, Tautavel
- Daschek, É. J. (2019). Exploitation of bears and ungulates in the Middle Paleolithic: example of the Érd site in Hungary. Investigating bones: diet, health, environment in the Baltic region, 10<sup>th</sup> International Conference in honor of Jonas Puzinas. October 4–5, 2019, Vilnius

- Daschek, É. J. (2023). A paleolit Érd-lelőhely archaeozoológiai kutatása. *Domus Café rendezvényesorozat*. September 28, 2023, Budapest
- Daschek, É. J., & Mester, Zs. (2018). Un site à occupation mixte: Néandertaliens et carnivores à Érd (Hongrie). *18th International Union of Prehistoric and Protohistoric Sciences (UISPP), Session VSI: Short-term human occupations and mobility patterns*, June 4–9, 2018, Paris
- Daschek, É. J., Mester, Zs., & Patou-Mathis, M. (2019). Collaboration franco-hongroise en archéologie paléolithique : Érd, un site important redécouvert. *2<sup>nd</sup> Franco-Hungarian Forum for Scientific Research “Horizon Europe”*. September 27, 2019, Institut français de Budapest, Budapest
- Mester, Zs., & Daschek, É. J. (2018). Kik jártak az érdi neandervölgyi lelőhelyen? Régészeti állattani és tafonómiai elemzések egy közép-paleolitikumi csontanyagban. *The days of Érd. Érd 775 - local history conference on the latest results of archaeological and archival research in Érd*. September 6, 2018, Érd
- Patou-Mathis, M. (2003). Nouvelle analyse de la faune de Tata (Hongrie). *Research of Middle Palaeolithic period in Central Europe*. October 20–23, 2003, Tata
- Péan, S., & Mester, Zs. (2019). Étude interdisciplinaire des comportements de subsistance au Paléolithique moyen et supérieur dans le Bassin des Carpates. *2<sup>nd</sup> Franco-Hungarian Forum for Scientific Research “Horizon Europe”*. September 27, 2019, Institut français de Budapest, Budapest
- Péan, S., Shydlovskyi, P., & Mester, Zs. (Eds.) (2022). Session 403 – Domestication of space: internal and external dwelling structures in Middle and Upper Palaeolithic sites. *28<sup>th</sup> EAA Annual Meeting*. August 31 – September 3, 2022, Institute of Archaeological Sciences, Eötvös Loránd University and Hungarian National Museum, Budapest
- Seguedy, M. (2021). Subsistence behaviours during the Gravettian in Hungary: the case of Pilisszántó I. *3<sup>rd</sup> Franco-Hungarian Forum for Scientific Research “Horizon Europe”*. October 7, 2021, Institut français de Budapest, Budapest.
- Seguedy, M., Péan, S., & Borel A. (2019). Zooarchaeological study of the bone assemblage from the Gravettian site of Pilisszántó I (Hungary). *3<sup>rd</sup> Conference World of Gravettian Hunters*. May 20–24, 2019, Krakow
- Seguedy, M., Péan, S., Patou-Mathis, M., & Mester, Zs. (2021). Les occupations humaines dans le bassin des Carpates au Paléolithique moyen et supérieur : reflet de dynamiques réelles de peuplement ? *29<sup>th</sup> Congrès préhistorique de France, Session 3 «Les espaces vides : preuves d’absences ou absences de preuves ?»*. Toulouse