

# Display Modes of Personal Ornaments in the Upper Palaeolithic Sites of Istria, Croatia

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## ABSTRACT

*In the attempt to understand culture and social behavior of prehistoric populations, findings of personal ornaments are of particular interest. Personal ornaments in their formal expressions (marine shells and snails, river snails, animal teeth, modified animal bones etc.) not only point to an universal idea of decoration and aesthetic sensibility, but may also reveal contact zones and communication paths. Perforated animal teeth, mostly deer canines, reveal us not only symbolic, but also some important sociocultural aspects of behavior of prehistoric populations. In order to test whether there are universals in display modes and materials used in this region, we will use the finds of personal ornaments from the Upper Paleolithic strata from five Istrian sites: Ljubičeva cave, Pupičina cave, Romualdova cave, Šandalja II, and Vešanska cave.*

**Key words:** Pleistocene, symbolic behavior, communication, ornaments, Istria

## Introduction

Personal ornaments, as non-verbal means of social communication, are used in almost every contemporary human society. Available anthropological record demonstrates that many different meanings are embedded in their visual appearance, such as marital or social status, markers of age and gender, signs of power, wealth, personal or group identity, etc. In an attempt to understand culture and social behaviour of prehistoric populations, especially their communication patterns and paths, personal ornaments are of particular significance.

Four main types of prehistoric art can be recognized: rock art (cave painting and incised or basrelief carvings), small carved zoomorphic and anthropomorphic figurines, decorated tools, and ornaments<sup>1,2</sup>. Rock art is the non portable category, although portable paintings on hide or wood could also have existed<sup>3</sup>. All other types of prehistoric art are invariably portable, which can be easily connected with the hunter-gatherers way of life marked by high mobility. Small size and weight is the main characteristic of these three categories of portable prehistoric art, and far most abundant category of personal ornaments is the most widespread in time and space<sup>2</sup>. During the period of Upper Palaeolithic, personal ornaments appears in many various forms, such as marine shells and snails, river snails, perforated animal teeth and modified

animal bones. Although beaded compositions can carry a great deal more information than the small units of which they are made<sup>4</sup>, the Upper Palaeolithic bead compositions are rarely preserved. Well known exceptions are found in burial contexts such as from the Eastern Gravettian Palaeolithic culture of Sungir<sup>5</sup> or in the Grimaldi caves of north-western Italy<sup>6</sup>. At most Palaeolithic sites, however, personal ornaments are found scattered among other waste. The reason is probably their small size, as well as the fact that these artefacts cycled through people's hands on daily basis via manufacture and maintenance.

Changes in body adornment, or changes in the selection of materials for the production enable us to perceive certain changes in lifestyle, or "survival strategies, belief systems and cosmology, as well as the identification of ideas, styles and specific understanding of creation and expression of regional and local identity"<sup>7</sup>.

The end of the Middle Palaeolithic is the period of the first appearance of personal ornaments in the form of perforated animal teeth and different types of marine shells and snails. During the period of Upper Palaeolithic personal ornaments have become more frequent element of everyday use, and in the future period body decoration will become everyday requisite, as it is nowadays.

So far, the oldest finds of personal ornaments used by anatomically modern humans have been found in the Africa and Near East<sup>8</sup>. Perforated *Nassarius gibbosulus* shells have been found in 100 000 years old Mousterian layers of Es Skūhl cave in Israel<sup>8</sup>, and the same type of beads (N=13) with the traces of ochre has been found in the Middle Palaeolithic layers of Grotte des Pigeons site in Morocco older than 82 000 uncal bp<sup>9,10</sup>. In the middle stone age layers of Blombos cave, 300 km fare away from the Cape Town, on the Southern Cape coastline, 41 perforated *Nassarius kraussianus* shells have been discovered older than 75 600 uncal bp<sup>8</sup>.

In this preliminary communication, personal ornaments from the Upper Palaeolithic contexts from five archaeological sites in Istria (the largest peninsula in the Adriatic with the area of 3476 km<sup>2</sup>) are presented. The project funded by the Croatian Science Foundation entitled *Archaeological investigations into the Late Pleistocene and Early Holocene of the Lim Channel, Istria* aimed at research at four sites in progress, including the Romualdova cave where previous researchers have found personal ornaments. Therefore this brief communication is an attempt to present a limited case of display mode of personal adornment from this period in relation to broader temporal and spatial context of Istria peninsula, compared to sites on the eastern Adriatic coast.

So far, the oldest finds of personal ornaments, not only in the Istria, but in the whole region of the Eastern Adriatic, have been discovered in the Palaeolithic site of Šandalja II. Furthermore, five out of eight Upper Palaeolithic sites on the Eastern Adriatic coast (Croatia) where personal ornaments have been found, are located in Istria (Figure 1): Ljubičeva cave, Pupičina cave, Romualdova cave, Šandalja II and Vešanska cave.

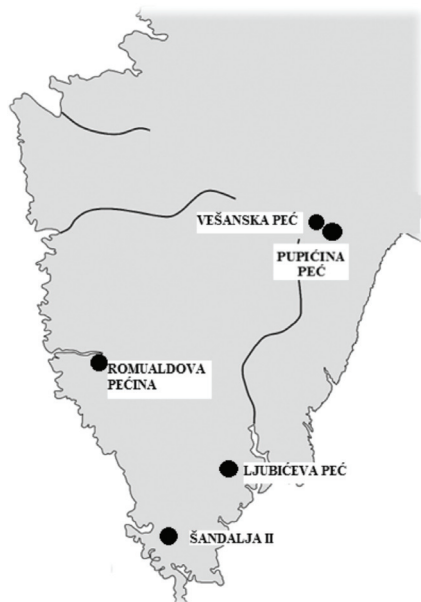


Fig. 1. Upper Palaeolithic sites with personal ornaments in Istria, Croatia.

## Personal Ornaments from the Upper Palaeolithic of Istria

### Ljubičeva cave

Ljubičeva cave is located between the villages of Marčana and Pinezići in the southern part of Istrian peninsula<sup>11,12</sup>. During 2008 and 2009 two systematic archaeological excavations were conducted and two main Upper Palaeolithic horizons were defined<sup>11,12</sup>. In a stratigraphical unit 103B, D horizon, a damaged marine snail shell *Cylope neritea* with traces of perforation has been discovered. Radiocarbon analysis for horizon D gave the result of 13,230±70 uncal bp (Beta-249371)<sup>11</sup>. Preliminary results of raw material analysis indicate great mobility among this group of hunter-gatherers during the period of late Epigravettian, similar as in the nearby sites from the same period, Šandalja II, Vešanska cave, Pupičina cave, and Nugljanska cave<sup>11</sup>.

### Pupičina cave

Pupičina cave is one of the most important prehistoric sites in Istria. It is located in the Vela draga canyon on the west slope of the Učka mountain, at the altitude of 220 meters<sup>13</sup>. It was excavated from 1995 to 2002 under the supervision of P. Miracle. Before that, Pupičina cave was investigated during 80s and 90s years of the 20 century under the supervision of R. Starac<sup>14,15</sup>. Almost 70 m<sup>2</sup> has been excavated, and more than 8 000 lithic artefacts has been collected<sup>15</sup>. Although artefacts from the Upper Palaeolithic and Mesolithic layers have not been analysed so far, brief information on the finds is reported in several publications<sup>7,14–17</sup>. Result of radiocarbon dating of layers that can be correlated with layers where personal ornaments are found is 11 150±80 uncal bp (level 373.1)<sup>18</sup>.

Preliminary results show that during the period of late Epigravettian most of the lithic artefacts are made of local flint collected in the valley of the river Reka in Slovenia<sup>19</sup>. Analysis of faunal remains indicates various survival strategies, including big game hunting, as well as gathering of land and marine snails and shells, and various plants. In the Upper Palaeolithic layers remains of red deer (*Cervus elaphus*) are far most abundant large game (23.9–51.7%), followed by stag (*Capreolus capreolus*) and wild boar (*Sus scrofa*)<sup>16</sup>. Marine shells are found in the late glacial and postglacial layers, and the most common species is mussel (*Mytilus galloprovincialis*)<sup>16</sup>.

The presence of this species in the layers of the late Upper Palaeolithic shows that the sea in the Gulf of Kvarner and Istria's eastern coast had a sufficient level of salinity for the development of these types of seashells, which was possible regarding the data that suggests sea levels rising in the Kvarner Bay in the period between 13 450 and 12 950 Cal BP<sup>16,20</sup>.

Only two pieces of personal ornaments were collected in the Epigravettian layers of Pupičina cave: a perforated moose incisor (*Alces alces*) from the layer 372 (Figure 2), and a perforated marine snail *Columbella rustica* from

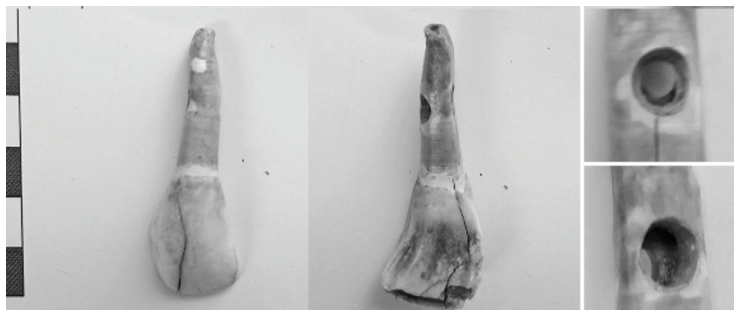


Fig. 2. Perforated moose incisor (*Alces alces*), layer 372, Pupičina cave.

the layer 373 (Figure 3). A damaged marine shell *Glycymeris* sp. was found in the layer 379, but it is not possible to determine if it was perforated.

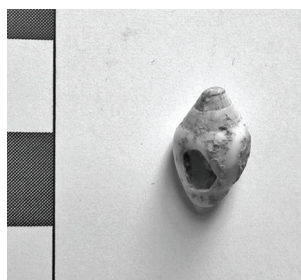


Fig. 3. Perforated marine snail *Columbella rustica*, layer 373, Pupičina cave.

### Romualdova cave

Romualdova cave is situated on the southern slopes of the eastern end part of the Lim channel in the area of the Istrian peninsula, at the altitude of 120 meters<sup>21</sup>. The entrance to the cave is round-domed, has the shape of an egg-shaped semi-cave and is oriented to the north<sup>7</sup>. The cave is known after the legend of St. Romuald who used to stay in it, after whom it was named<sup>7</sup>. Several researchers visited and conducted excavations in the cave since the end of the 19<sup>th</sup> century: Marchesetti, Gnirs and Malez<sup>7</sup>. During 1950s and 1960s M. Malez<sup>22</sup> found valuable artefacts in the Upper Palaeolithic layers, such as stone arte-

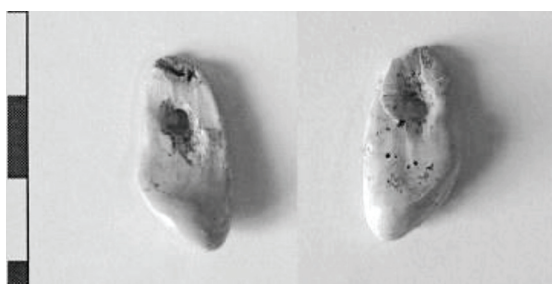


Fig. 4. Perforated red deer (*Cervus elaphus*) tooth, layer C, Romualdova cave.

facts, human teeth and perforated red deer (*Cervus elaphus*) tooth in the layer C (Figure 4)<sup>22</sup>. In 2007 new excavations have been conducted under the supervision of D. Komšo, and research in Romualdova cave are a part of the ongoing project *Archaeological investigations into the Late Pleistocene and Early Holocene of the Lim Channel, Istria* (Croatian Science Foundation) under the supervision of I. Janković.

### Šandalja II

The site of Šandalja includes four caves located in a quarry on the eastern slope of the hill St. Daniel 4 km north-east of the Pula city, at an altitude of 72 meters<sup>23,24</sup>. Besides the Palaeolithic finds at the sites known under the names Šandalja I and Šandalja II, in the wider area archaeological materials from the Neolithic, Copper and Bronze Ages, as well as later periods, were gathered<sup>25</sup>. In the period from 1962 to 1989 the Upper Palaeolithic Šandalja II site had been excavated 22 times under the supervision of M. Malez<sup>20</sup>. The site of Šandalja II is filled with Upper Pleistocene sediments thicker than eight meters which are divided in eight horizons (A–H)<sup>24</sup>. Thicker horizons make complexes that are divided into layers, as is the case with the complex B and C. Complex B consists of layers B/g (top), B/s (middle) and B/d (bottom), and the same division is present in the complex C<sup>25</sup>.

Personal ornaments were found in Aurignacian and Epigravettian layers of Šandalja II. Results of the radiocarbon dating for Aurignacian layers E, F and G, where personal ornaments has been discovered, are from 28,000 to 23,000 years before present<sup>26</sup>. Personal ornaments have been discovered in all Aurignacian layers except the layer H. In the layer E two modified red deer teeth (*Cervus elaphus*) were found, in the layer F perforated tooth of the badger (*Meles meles*) (Figure 5) and, in the layer G perforated red deer tooth (*Cervus elaphus*) (Figure 6). In the layer G marine shell species *Cardium rusticum* has also been discovered, but without traces of modification. Although it cannot be categorized as personal ornament, it is important as the indicator of communication and contacts with the coast that was rather far at that time<sup>27,28</sup>.

Complexes B and C belong to the period of Epigravettian. Results of radiocarbon dating of charcoal samples (Z-193) from the lower part of this layer (C/D) give a date

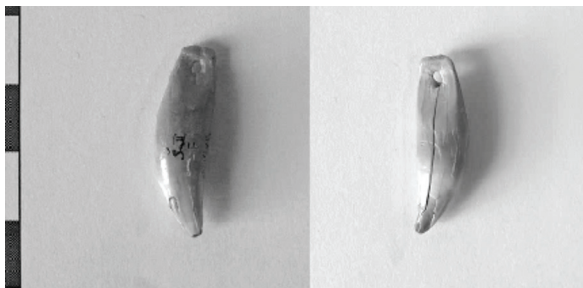


Fig. 5. Perforated badger (*Meles meles*) tooth, layer F, Šandalja II.

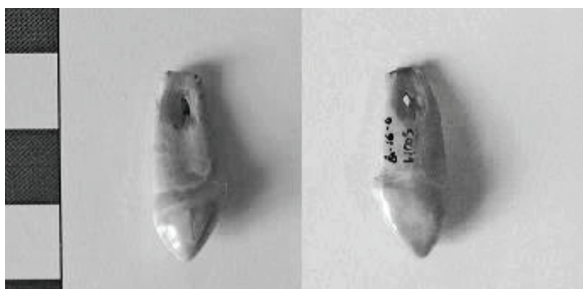


Fig. 6. Perforated red deer (*Cervus elaphus*) canine, layer G, Šandalja II.

of 20,750±400 years before present<sup>25,29</sup>, and it was, like all the older layers, formed before the last glacial maximum. Radiocarbon dating of the C/s layer (Z-2424) gave the result of 13,120±220 years before present<sup>25</sup>, placing them at the time of the Late Glacial.

Time difference of almost 7 000 radiocarbon years between the top and bottom layers of the complex C is inter-

preted as a stratigraphic gaps between those layers, although some other theories also exists<sup>25</sup>. Layers C/s, C/g and the changeover to complex B are 13,000 radiocarbon years old, while the whole B complex is most likely older than 10 000 years, so it can be concluded that all the layers between the layer C/s to B/g were formed during the late glacial period between 13,600 and 10,700 uncal bp<sup>25</sup>.

Ten items of personal ornaments have been discovered in Epigravettian horizons / layers C/d, C, B/C, B/s and B (Figures 7–12). In the complex B five items have been found: three perforated red deer teeth (*Cervus elaphus*) (Figure 7), perforated Bison or Bos tooth (Figure 8), and marine shell *Glycymeris* sp. (Figure 9). On the border of complex B and C bone pedant has been found (Figure 10), in a complex C tooth of the lynx (*Lynx lynx*) (Figure 11) and a perforated bone tile (Figure 12). In the layer C/d two perforated red deer teeth, and in the layer B/s marine shell *Cardium rusticum* without traces of modification.

### Vešanska cave

Vešanska cave is located at the bottom of the Učka mountain, at an altitude of 195 meters. Mirko Malez<sup>30</sup> mentions it as an important prehistoric site in the geographical area of Učka mountain, together with Pupičina and Klanjčeva cave. Small scale test excavations were conducted at the site in 1997 and 1999<sup>14,31–32</sup>. Results of radiometric dating by radiocarbon methods and typological analysis indicate use of this Vešanska cave in the Late Upper Palaeolithic and its reuse again in the Medieval times<sup>32,33</sup>.

During test pit excavation in 1999 in the horizon II, dated to the late Epigravettian, one fragmented bone tile with damage hole was discovered (Figure 13), that could be used as a personal ornament<sup>7,32</sup>.



Fig. 7. Perforated red deer (*Cervus elaphus*) canines from the Epigravettian layers C/d and B/s, Šandalja II.

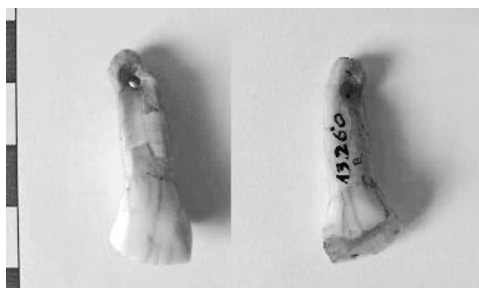


Fig. 8. Perforated Bos/Bison tooth, complex B, Šandalja II.



Fig. 11. Perforated lynx (*Lynx lynx*) tooth, complex C, Šandalja II.

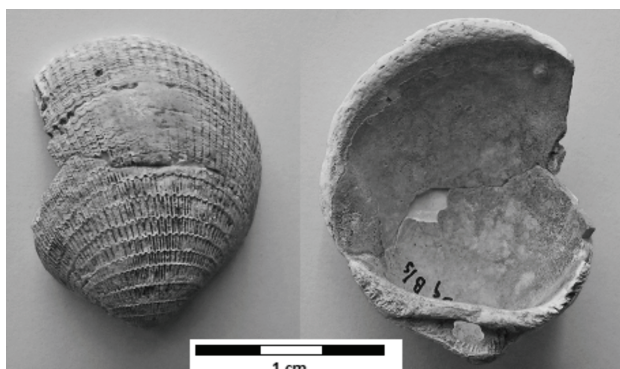


Fig. 9. Perforated marine shell *Glycymeris* sp., layer B/s, Šandalja II.

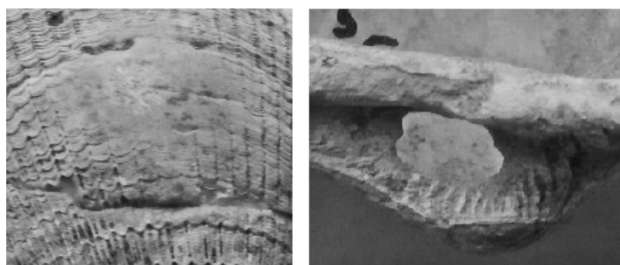


Fig. 12. Perforated bone tile, complex C, Šandalja II.



Fig. 13. Fragmented bone tile, horizon II, Vešanska cave.



Fig. 10. Bone pendant (27 x 11 mm), border of complex B and C, Šandalja II.

## Results and Discussion

The Upper Palaeolithic ornament assemblage from Istria is comprised of 13 perforated animal teeth, and various species of perforated marine gastropods including *Cyclope neritea* (N=1) and *Columbella rustica* (N=1), as

well as *Glycymeris* sp. bivalves (N=1). The most common type of animal teeth is *Cervus elaphus* canines (N=8). Personal ornaments made of animal teeth and bones have been discovered in Pupičićina cave, Romualdova cave, Šandalja II and Vešanska cave. Personal ornaments from Aurignacian levels of Šandalja II are the oldest such finds so far recovered on the Eastern Adriatic coast.

During the Upper Palaeolithic, a great variability can be recognized regarding the type of animal teeth used for the production of personal ornaments, especially in the Epigravettian. The most common type is red deer (*Cervus elaphus*), but the badger (*Meles meles*), moose (*Alces alces*), lynx (*Lynx lynx*) and bison (*Bison/Bos*) are also present.

Three red deer teeth (*Cervus elaphus*), two canines (layer G and E) and an incisor (layer E), are found in the Aurignacian levels of Šandalja II. A canine and an incisor from the layer E have damaged roots at the place of perforation, while the canine from the layer G has a small regular perforation. A perforated badger tooth (layer F) (*Meles meles*), is a unique example of this type of ornament not only in the Adriatic coast but further<sup>34</sup>.

Five red deer teeth have been discovered in the Epigravettian layers of Šandalja II, together with perforated tooth of *Lynx lynx* and *Bison/Bos*. Only one example, a red deer incisor, is not perforated, but has drilled canal under the crown where some kind of rope, could be tied (Figure 14). Moose incisor pendant from the Pupičina cave (layer 372) has been perforated with bifacial drilling technique, and traces of grooving and thinning of the surface are not visible. A red deer canine from the Romualdova cave (layer C) bears traces of grooving and thinning the surface of the root on one side, and on both sides of the tooth drilling techniques is visible.



Fig. 14. Modified red deer (*Cervus elaphus*) canine, layer C/d, Šandalja II.

Technological analysis of the mode of perforation on animal teeth uncovered some variability across the assemblage. Although characteristics of perforations reveal the same, bifacial drilling technique on most of the pendants – grooving and thinning through the root – those from the Aurignacian layers are smaller in size. Two pendants, lynx tooth from Šandalja II and moose incisor from Pupičina cave, do not have marks of thinning before drilling.

Modified animal bones have been discovered in Šandalja II and Vešanska cave. Regarding the damaged part of perforation it can be only presumed that the fragment from Vešanska cave was used like a personal ornament. A bead made of animal bone from Šandalja II (board of the complexes B/C) and the bone tile with small perforation (complex C) are the only two examples of this type of ornaments so far found in Istria.

Personal ornaments made of marine shells are found in the Epigravettian layers of Šandalja II and Pupičina cave. Two marine shells *Cardium rusticum* from the Aurignacian layer G and the Epigravettian layer B/s of Šandalja II have no modification but are important as a possible contact indicator with the coast. Perforated *Glycymeris* sp. from Epigravettian layer of Šandalja II (layer B/s) has visible use-wear traces on the outside of the shell (Figure 9).

Upper Palaeolithic sites with personal ornaments in Istria are dated to the period from 13,300 to 11,000 uncal bp, with the exception of Aurignacian levels of Šandalja II that are dated to the 20,750 uncal bp. Similar cultural and chronological features in the period of Epigravettian on

the Eastern Adriatic coast are found at the sites of Zala cave, Šandalja II, Kopačina cave, Pupičina cave, Vešanska cave, Nugljanska cave and Vela Spila<sup>14,32,35–39</sup>.

In the period between 13,800 and 13,000 uncal bp personal ornaments are discovered on the border of complex B/C of Šandalja II and in Ljubičeva cave. In the same period personal ornaments are present in Zala cave, in the form of perforated marine snail *Cyclope neritea*, same species were recovered in the Ljubičeva cave. At Šandalja II personal ornaments are made of animal, mostly red deer teeth. In the Zala cave most of the lithic raw material comes from the surrounding region<sup>40</sup>, and partially from Istria and northern Alps. At some point, the hunter-gatherers from Zala were in contact with populations from Istria, as suggested by the same types of ornaments that have been found in the Ljubičeva cave. At the site of Šandalja II both the lithic industry and the personal ornaments are made of local raw sources.

During the period of interstadial Allerød there are two sites with personal ornaments: Pupičina and Vešanska cave. Remains of the personal ornaments from these two sites are scarce but various. Perforated moose incisor (*Alces alces*) and *Columbella rustica* marine snail from Pupičina cave, and a fragmented bone tile from the Vešanska peć are the only finds from this period. Results of the technological and typological analysis of the lithic industry of both sites show the same trends<sup>19</sup>. In late glacial fauna of Pupičina cave, remains of red deer are dominant, while the presence of the fragmented mussels (*Mytilus galloprovincialis*) indicates contacts with the coast<sup>16</sup>. During warmer periods, the sea level was higher, and after about 12,000 uncal bp the Adriatic sea was in the nowadays part of the Kvarner bay<sup>16</sup>. Small sample size of personal ornaments in Epigravettian layers of Pupičina cave can indicate its initial use as a place of temporary residence, while it has become place of permanent residence in the latter period of Mesolithic when the personal ornaments are abundant<sup>7,15</sup>.

Pendants made of red deer canine have been discovered in the C layer of Romualdova cave. Malez<sup>22</sup> attributed the finds to the period of early Epigravettian, although Karavanić et al.<sup>25</sup> indicates that the small sample size is not adequate for the cultural attribution. The Upper Palaeolithic layers of Romualdova cave have not been dated, so comparisons with other sites must be taken with caution. Faunal remains include lynx (*Lynx lynx*), badger (*Meles meles*) and moose (*Alces alces*)<sup>22</sup> – animals whose teeth have been used as a raw material for the personal ornaments at the Upper Palaeolithic sites in Istria: Šandalja II and Pupičina cave. Remains of badger and the moose can be found in the Epigravettian fauna of Šandalja II, but not in the Pupičina cave assemblage. The dominant hunting animal in Pupičina cave during late Upper Palaeolithic is red deer, although it is not used for the personal ornaments, as in the Romualdova cave and Šandalja II<sup>16</sup>. Red deer canines are used for the production of personal ornaments in Pupičina cave starting at the beginning of Holocene. Although we lack the dates for the layer C at Romualdova cave, we emphasise the importance of

this site for better understanding of the complex situation and in any attempt to reconstruct possible communication paths of the Upper Palaeolithic hunter-gatherers of the Istria.

## Conclusion

Early Upper Palaeolithic is a period of the first appearance of personal ornaments on the Eastern Adriatic. Personal ornaments from Aurignacian layers of Šandalja II (E, F and G) are, so far, the oldest personal ornaments discovered in Croatia.

Personal ornaments made of modified animal teeth and bones are dominant mode of body adornment during Upper Palaeolithic of Istria. Domination of the animal teeth and bones used for the production of personal ornaments, in relation to the marine resources, can be, from one point of view interpreted regarding the great distance from the coast<sup>16, 27</sup>, even there are many cases when the distance is not the reason for material choice<sup>34</sup>. Although a great variability can be recognized regarding the type of animal teeth used for the production of personal ornaments in Upper Palaeolithic period, the most common type are red deer (*Cervus elaphus*) canines. They are also a dominant choice of material for production of personal ornaments made of animal teeth until the end of Mesolithic

period<sup>42</sup>. The use of red deer teeth (*Cervus elaphus*) during the Upper Palaeolithic coincide with the nutritional habits of hunter-gatherers of the Istrian sites, but also with the climate of that period. Trend of using marine resources for the personal ornaments production in Istria during Upper Palaeolithic is present but not dominant as it is in Zala or Vlakno cave<sup>41–44</sup>. Change in the selection of material for the body adornment on the Istrian sites will start to emerge with the beginning of the Holocene<sup>41, 42</sup>.

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## **OSOBNI ORNAMENTI IZ RAZDOBLJA GORNJEG PALEOLITIKA NA PODRUČJU ISTRE, HRVATSKA**

### **SAŽETAK**

U pokušaju razumijevanja kulture te društvenog ponašanja gornjopaleolitičkih populacija od osobite su važnosti nalazi osobnih ornamenata. Osobni ornamenti u svojim pojavnim oblicima (morske školjke i pužići, riječni pužići, životinjski zubi, modificirane životinjske kosti) ukazuju, uz postojanje univerzalne ideje ukrašavanja i smisla za estetiku, i na međusobne kontakte te puteve komunikacije. U radu su prikazani rezultati analize nalaza osobnih ornamenata s pet arheoloških lokaliteta s područja današnje Istre: Lubićeve pećine, Pupićine peći, Romualdove pećine, Šandalje II i Vešanske peći.