

# ARCHAEOFAUNA

INTERNATIONAL JOURNAL OF ARCHAEOZOOLOGY



ATTI DEL  
10° CONVEGNO  
NAZIONALE DI  
ARCHEOZOOLOGIA  
**SIENA**  
3 - 6 Novembre 2021

The illustration shows a tall, brown tower with a crenellated top and a small bell-shaped structure on top. A pig, colored black and white, is walking towards the left in the foreground. A smaller, crenellated structure is visible behind the pig.

# ARCHAEOFAUNA

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**Revista incluida en las bases de datos ICYT (CINDOC), Catálogo Latindex, Zoological Record, The Arts & Humanities Citation Index y Current Contents / Arts & Humanities (JCR)**

ARCHAEOFAUNA

Laboratorio de Arqueozoología. Depto. Biología.  
Universidad Autónoma de Madrid  
Cantoblanco 28049. Madrid. España

Editor-Jefe / Editor-in-chef: Eufrasia Roselló Izquierdo

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The publication of these AIAZ Proceedings has been made possible with the support of the AIAZ

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Imprime:

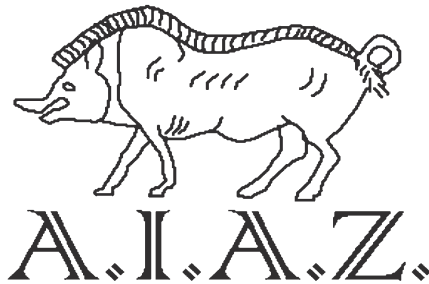
Impresores Digitales S.L.

FRONTISPIECE: Atti del 10° Convegno Nazionale di  
Archeozoologia. SIENA. 3 - 6 novembre 2021.

ISSN - 1132-6891  
ISBN AIAZ: 978-88-906832-4-4

# ARCHAEOFAUNA

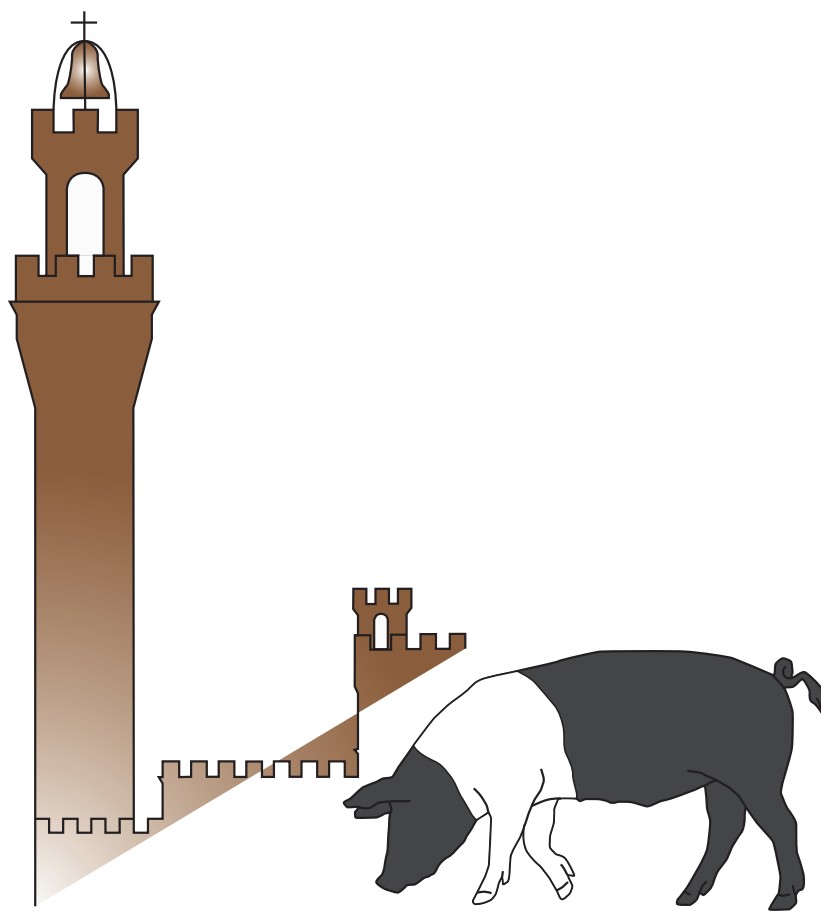
INTERNATIONAL JOURNAL OF ARCHAEOZOOLOGY



The publication of these AIAZ Proceedings has been made possible with the support of the AIAZ.

**3 - 6 Novembre 2021**  
**Atti del 10° Convegno Nazionale**  
**di Archaeozoologia**

**Proceedings of the 10<sup>th</sup> National**  
**Archaeozoological Conference**  
**3<sup>rd</sup>-6<sup>th</sup> November 2021**



**SIENA**

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# The faunal remains in the Amphitheatre of Aquileia

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(Received 12 May 2023; Revised 20 May 2023; Accepted 28 May 2023)

**ABSTRACT:** During the 2017 excavation season at the amphitheatre of Aquileia, carried out by the University of Verona, several faunal remains were recovered; these belonged, especially for US 147 and 153, to animals that were used in *venationes*, the hunting shows that took place in amphitheatres in Roman times. The faunal remains were characterised by a high degree of post-depositional fragmentation and, for this reason, in the Laboratory of Archaeozoology and Taphonomy of the University of Ferrara, they were patiently refitted. These remains were quantified, identified, measured and taphonomically analyzed. The process of identification of the faunal remains established the presence of domestic and wild fauna, such as bears, leopards and deer. These animals are commonly mentioned and depicted in literary and iconographic sources and have also been found in other amphitheatres where archaeozoological analyses were implemented. Animals from far away were used at Aquileia, with enormous expenses for capture, transport, and maintenance.

**KEYWORDS:** AMPHITHEATRE, AQUILEIA, *VENATIONES*, HUNTING SHOWS

**RIASSUNTO:** Durante le indagini di scavo del 2017 nell'anfiteatro di Aquileia, condotte dall'Università di Verona, sono stati rinvenuti dei resti faunistici che sembrano, soprattutto per quanto riguarda le UUSS 147 e 153, riconducibili agli animali che venivano impiegati nelle *venationes*, gli spettacoli di caccia che si svolgevano negli anfiteatri in epoca romana. I reperti erano caratterizzati da un'elevata frammentazione post-deposizionale, per questo, nel Laboratorio di Archeozoologia e Tafonomia dell'Università di Ferrara, sono stati sottoposti a un paziente lavoro di ricostruzione, che ha consentito la loro determinazione tassonomica, l'analisi osteometrica e tafonomica. La determinazione dei resti faunistici ha permesso di stabilire la presenza di faune domestiche e selvatiche, quali orso, leopardo e cervo. Animali che sono citati e raffigurati comunemente nelle fonti letterarie e iconografiche, e che sono stati trovati anche in altri anfiteatri oggetto di attente ricerche e analisi archeozoologiche. Evidentemente anche ad Aquileia arrivavano animali da lontano, con spese enormi per la cattura, il trasporto e il mantenimento.

**PAROLE CHIAVE:** ANFITEATRO, AQUILEIA, *VENATIONES*, SPETTACOLI DI CACCIA



## INTRODUCTION

Extensive research into literary sources<sup>1</sup>, as well as iconographic sources, provides a great deal of information on the type of animals used in the *venationes*<sup>2</sup> and the methods adopted by the Romans for their capture (SI Figures 1, 2), which took place using nets, cages with bait and pits, and their transport (SI Figures 3, 4), which was done by means of cattle- or mule-drawn carts and sailing or rowing boats. Tame animals travelled simply tied, while the dangerous ones were put in cages with iron bars.

The iconographic sources depict not only scenes of the capture and transport of animals, amply described in the famous mosaic of the Great Hunt in the Villa del Casale in Piazza Armerina (Sicily, Italy), but also scenes of *venatio* (SI Figures 5, 6). The literary sources also provided significant information on the housing and number of animals used.

From 2015 to 2017, the University of Verona conducted archaeological excavations in the area of the amphitheatre of Aquileia (north-east Italy), within the state-owned land located

at Palazzo Brunner (Basso, 2018). The overall dimensions and position of the public building within the urbanistic framework of Roman Aquileia were generally known, thanks to information from a series of excavations conducted in the eastern sector of the building from the 18<sup>th</sup> century until the 1940s. The excavations carried out by the University and the analyses conducted made it possible to reconstruct the general plan of the building and its history through time (Figure 1).

During the 2017 excavation season, several faunal remains were recovered. This paper presents the results of the archaeozoological and taphonomic analyses carried out on the faunal assemblage found at the amphitheatre of Aquileia.

## MATERIALS AND METHODS

The faunal remains under consideration, especially those from US (stratigraphic units) 147 and 153, belonged to animals that were used in *venationes*, the hunting shows that took place in amphitheatres in Roman times. US 147, which yielded the largest amount of remains compared to the other US (76, 148, 151, 152 e 153), coincides with a level of abandonment found above the floor (US 153) of one of the radial rooms of the inner ray system of the amphitheatre. This room, characterised by a sandy beaten floor, seems to have been used as a *carcer* due to its location in the structure, or as one of the small enclosed rooms of the amphitheatres where animals were kept before being released into the arena, as confirmed by the discovery of faunal remains (Basso, 2018).

The iconographic data, together with those obtained from the archaeozoological analyses of faunal remains found in the Colosseum, in the amphitheatre of Viruno (Austria), and in other similar contexts (i.e., amphitheatre of San Benedetto ai Marsi, Abruzzo, central Italy and in that one of Serdica, Bulgaria) were compared with the animals recovered at Aquileia, highlighting the similarities and specificities of this case study.

The faunal remains found at Aquileia were characterized by a high degree of post-depositional fragmentation and, for this reason, they were patiently refitted; a large part of the specimens could be reconstructed, considerably reducing their number to a total of 163 (Table 1).

<sup>1</sup> APUL. met. 4, 72; CALP. ecl. 7, 3; 23-84; CASS. DIO. 39, 38, 2; 43, 22-23, 1-3; 44, 26; 51, 22, 5; 53, 27; 54, 26, 1; 55, 10, 7-8; 56, 7; 60, 7; 62, 15, 5; 63, 9, 1; 66, 25, 4; 68, 15, 1; 72, 10, 3; 72, 18, 1; 72, 19, 1; 75, 16, 5; 77, 6, 2; 79, 9, 2; CAES. civ. 6, 28; CIC. fam. 7, 1, 3; 8, 8, 10; 8, 9, 3; CLAUD. carm. 3, 272-273; 305; 322; 325; 332; 339; 341; rapt. Pros. 3, 263-8; COD. Theod. 15, 11, 2; CHRYSOST. hom. 59; DIG. 31, 1, 40-42; DIOD. 1, 35, 5; 3, 36-37; 17, 90; ELIANO 13, 10; 14, 10; 17, 26; ERODIANO 1, 15, 2-6; EUTR. 7, 21, 4; GIOV., *Saturae*, 4, 99; 12, 100-107; HIS. AUG. Aur. 17; Aurelian. 33-34; Carac. 5, 5, 9; Comm. 8-9; 12-13; 15, 3; Gall. 3; Gord. 3; 33, 1-3; Hadr. 3, 7; Pius. 10, 9; Prob. 19, 2-7; Sept. Sev. 14; LIBAN. oratione ad Artemis 14; LUCAN. 10, 445-446; LIV. 39, 22, 2; 44, 18, 8; MART., 1, 6; 14-15; 22-23; 28; 48-49; 51; 60; 104; epigram. 4; 8-14; 17-19; 26; 31; 35; 100; NEMES. cyn. 55-56; 307; OPIANO cyn. 1, 70-71; 1, 304; 1, 307; 1, 414; 3, 184; 3, 263; 4, 21; 4, 77-111; 4, 115; 4, 124; 4, 171-229; 4, 354-424; 4, 448; 9, 11-19; OR. carm. 3, 5, 32; OV. met. 2, 187; 7, 701; PAUS. 10, 13, 2; PLAUT. Persa 199; PLIN. epist. 6, 34, 3; PLIN. nat. 8, 1-9; 8, 7, 20-22; 8, 17; 8, 20, 53; 8, 21; 8, 24, 64; 8, 25, 65; 8, 27, 69; 8, 28, 70; 8, 29, 71; 8, 30; 8, 34, 84; 8, 40, 96; 8, 44; 8, 50; 8, 52-53; 8, 70, 182; 8, 78-79; 8, 114; 19, 4; 36, 3, 45; 36, 40; PROCOP. 1, 22, 10; 23, 13-23; SENOFONTE cyn. 9, 11-19; SVET. Iul. 39, 4; Dom. 4, 1-2; Tit. 7, 3; SYMM. epist. 2, 76; 7, 122; 9, 117; TERT. mart. 5; VARRO. rust. 3, 13, 3; VELL. 2, 56.

<sup>2</sup> The literary sources are discordant regarding the term *venatio*, which can indicate fighting between animals, hunting by carnivores or by humans, and in some cases even the simple parade or exhibition of animals.

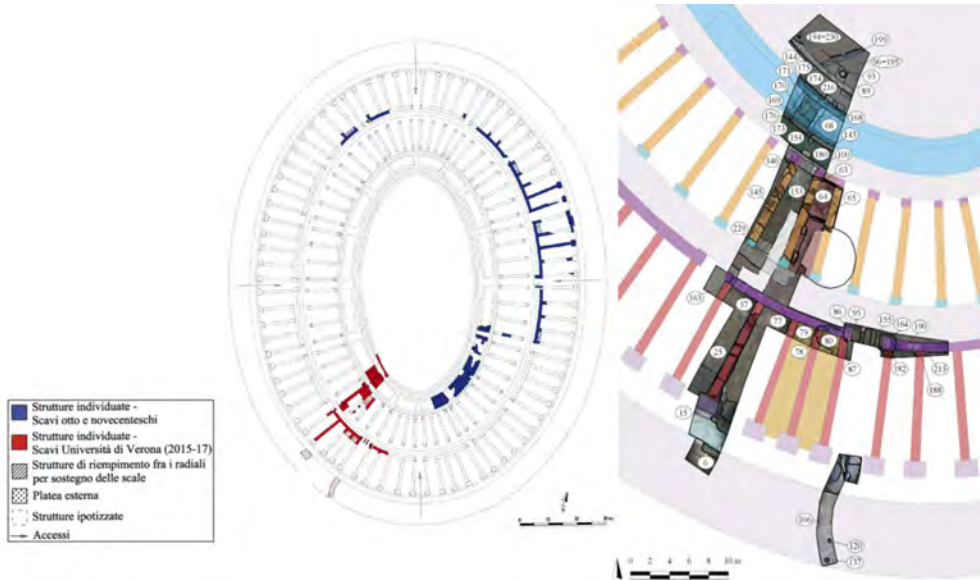


FIGURE 1

Plan of the amphitheatre and delimitation of the excavation area.

US	Taxa	NISP/NR	MNI
76	Cattle ( <i>Bos taurus</i> )	4	1
	Goat ( <i>Capra hircus</i> )	1	1
	Wild boar/pig ( <i>Sus</i> sp.)	1	1
	Chicken	1	1
	Unidentified	3	-
	<b>TOTAL</b>	<b>10</b>	<b>4</b>
147	Horse ( <i>Equus caballus</i> )	26	3
	Dog ( <i>Canis familiaris</i> )	10	1
	<b>Red deer (<i>Cervus elaphus</i>)</b>	<b>2</b>	<b>1</b>
	Cattle ( <i>Bos taurus</i> )	2	1
	<b>Bear (<i>Ursus arctos</i>)</b>	<b>2</b>	<b>1</b>
	Sheep/goat ( <i>Capra/Ovis</i> )	11	2
	Wild boar/pig ( <i>Sus</i> sp.)	2	1
	Unidentified	71	-
	<b>TOTAL</b>	<b>126</b>	<b>10</b>
148	Horse ( <i>Equus caballus</i> )	3	1
151	<b>Bear (<i>Ursus arctos</i>)</b>	<b>8</b>	<b>1</b>
	Horse ( <i>Equus caballus</i> )	2	1
	<b>Leopard (<i>Panthera pardus</i>)</b>	<b>1</b>	<b>1</b>
	Dog ( <i>Canis familiaris</i> )	2	1
	Unidentified	1	1
<b>TOTAL</b>	<b>17</b>	<b>6</b>	
152	Unidentified (TOTAL)	5	-
153	Cattle ( <i>Bos taurus</i> )	1	1
	Unidentified	1	-
	<b>TOTAL</b>	<b>2</b>	<b>1</b>

Table 1

Composition of the faunal assemblages by stratigraphic unit, Number of Identified Specimen (NISP), Number of Remains (NR), and Minimum Number of Individuals (MNI). Wild animals in bold.

Bone remains were washed, marked and identified using the comparative collection of the University of Ferrara’s Archaeozoology and Taphonomy Laboratory, as well as osteological atlases and reference literature (Pales & Lambert, 1971; Schmid, 1972; Barone, 1975; Hillson, 1996; Gentry *et al.*, 2004). The faunal remains were quantified, using NISP and MNI indexes, and measured following Driesch (1976) and Eisemann *et al.* (1988).

As far as taphonomic analyses are concerned, the identification of traces was conducted by observation under a reflected light optical stereomicroscope (Leica MZ6) with photographic documentation (Lyman, 1994). The identification of wear traces was carried out according to Bendrey (2007 a, b) and Bendrey *et al.* (2013).

## RESULTS

The identification of the faunal remains established the presence of wild taxa, such as bear, leopard and red deer, and domestic animals, such as dog, cattle, sheep/goat and horse. The most represented taxa are ungulates and carnivores (Table 1).

In US 76, traces of butchery were found on two remains of cattle and one horn core of goat in order to extract the horn (Figure 2).

In US 147, on the other hand, evident traces

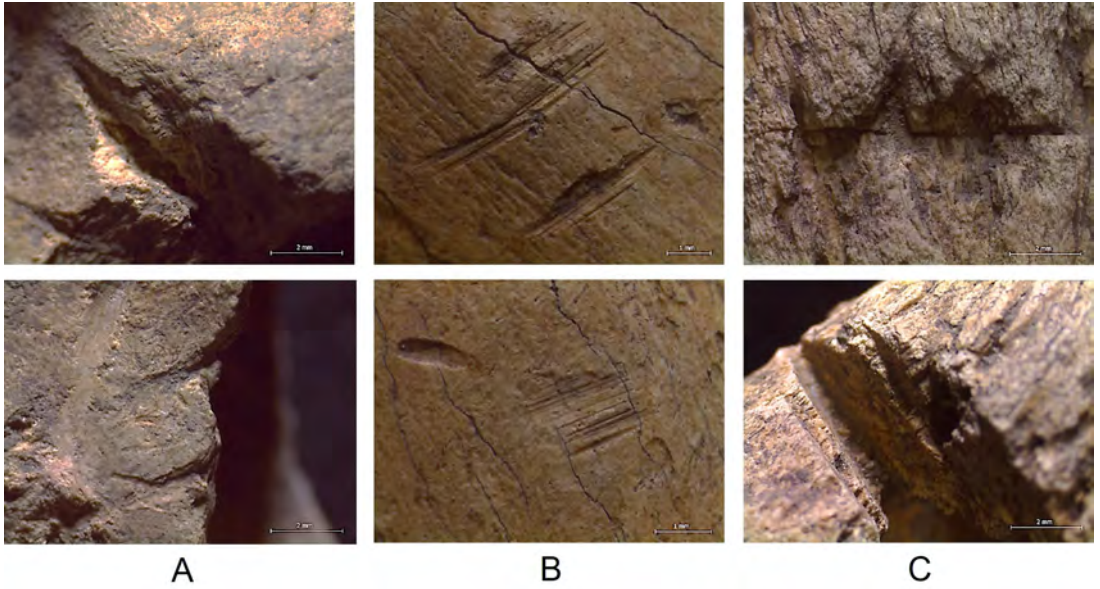


FIGURE 2

US 76. Butchery marks. A) Clean and fairly deep cuts on a first phalanx of cattle (*Bos taurus*); B) Series of short and deep striations on a cattle metacarpal; C) Chop-marks on a horn core of goat (*Capra hircus*).

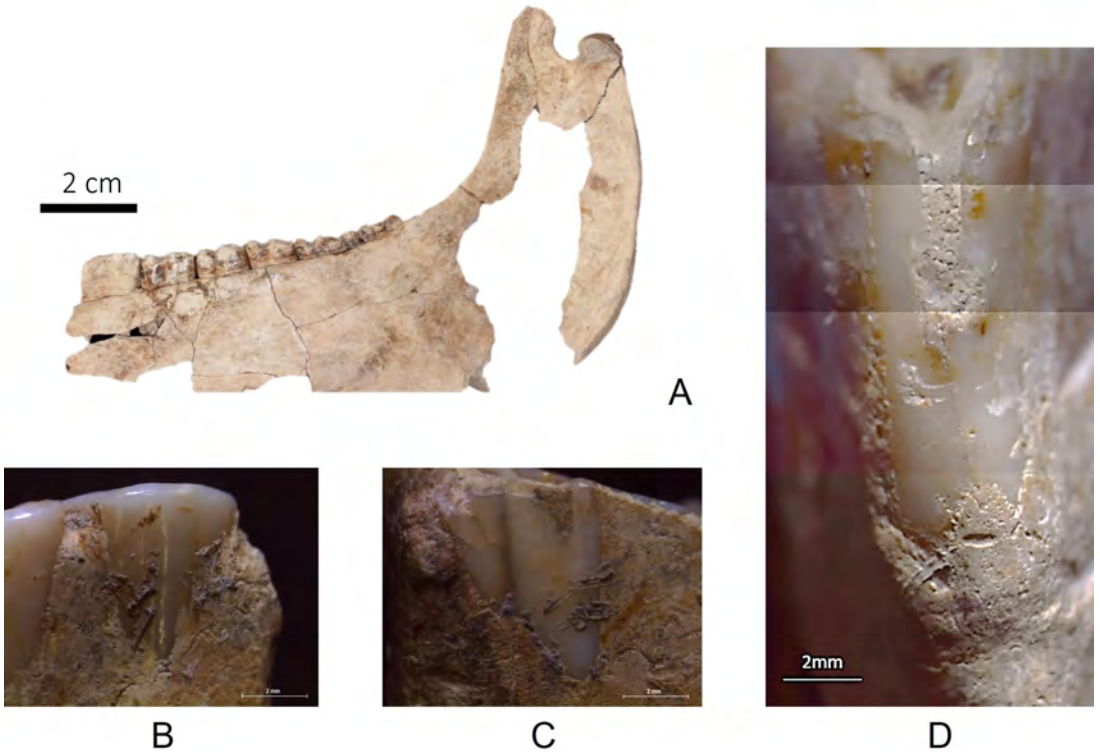


FIGURE 3

US 147. Traces of dental wear. Haemimandible of *Equus caballus* (A) with evident traces of use wear produced by the use of the bit in lingual view on the second lower premolar (B, C). In the front view, the exposure of the enamel resulting from the bit damage is evident.

of use-wear were found on a right haemimandibula of horse (Figure 3a) produced by the use of the bit. They are visible in lingual view on the second lower premolar (Figure 3b, c). In the anterior view, the exposure of the enamel resulting from the damage of the bit is evident (Figure 3d). It was also possible to establish that the horse was a male of 8-9 years of age. In the same US, some remains of a sub-adult dog were found, as can be seen from the unfused epiphyses, and two remains of a young individual of *Sus* sp. In US

153, a remain of a large individual of cattle was found.

Two fragments of distal epiphysis belonging to a bear left humerus were recovered from US 147 (Figure 4a), proving that the remains of the animals used in the *venationes* remained in circulation after the end of the shows (Table 2). The size of the bear remains found in US 147 suggests that it was a female individual (Figure 4b). In the same US a right calcaneus of leopard (*Panthera pardus*) was recovered (Figure 4c).



FIGURE 4

US 151. Left humerus (A) and haemimandible (B) of *Ursus arctos*. C) Right calcaneus of *Panthera pardus*.

US	Context	Faunal remains
76	Level with domestic waste, pertinent to the settlement phases of the area after the abandonment of the amphitheatre (mid-6 <sup>th</sup> – early 7 <sup>th</sup> century AD).	Meal remains or evidence of breeding activities.
148	Post-disuse filling of two water drainage channels (dating not determined).	Little material, mostly unidentified.
152		
153	Beaten floor (by the end of the 1 <sup>st</sup> century AD) of a room hypothesized to be a <i>carcer</i> (4 <sup>th</sup> century AD).	Animals used in venationes.
147	Level of abandonment of a room hypothesized to be a <i>carcer</i> (4 <sup>th</sup> century AD).	
151	Dumping of domestic waste during the Late Antique settlement phase of the area (dubious date, possibly second half of the 5 <sup>th</sup> century AD).	The presence of bear and leopard bones could attest to the fact that remains of animals used in the <i>venationes</i> were still circulating in the area, although the shows had long since ceased to be practiced.

TABLE 2

Description of the stratigraphic unit and interpretation of faunal remains.

## DISCUSSION AND CONCLUSIONS

Bear, leopard, and red deer are animals commonly mentioned and depicted in literary<sup>3</sup> and iconographic<sup>4</sup> sources (Figure 5) and have also been found in other amphitheatres where archaeozoological analyses were implemented; indeed, all three animals are attested in the Colosseum, and bear and red deer were found in the amphitheatre of Viruno, Austria (Rea, 2001a, b; De Grossi Mazzorin *et al.*, 2003; Muñoz-Santos, 2016). Bear

remains have also been found in the amphitheatre of San Benedetto ai Marsi, Abruzzo, central Italy (Di Stefano *et al.*, 2008-2009) and in that one of Serdica, Bulgaria (Velichkov, 2009).

Wild animals such as the locally-sourced bear and deer were used at Aquileia, but also exotic ones, such as the leopard; this latter would have been brought from Africa or Asia, with considerable expenses for its capture, transport, and maintenance.

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- <sup>4</sup> **Bear:** mosaics of: “House of Bacchus” (Thysdrus); “Peacock House” (Carthage); Castelporziano; “Judgement of Paris” (Coo); “Great Hunt” of Villa del Casale (Piazza Armerina, Sicily); Khanguet-el-Hadjaj; Saint Bibiana (now at Centrale Montemartini, Rome); villa of Bad-Kreuznach; villa of Nennig; villa of Rades; villa of Vallon; reliefs from: Civic Museum of Rieti; National Archaeological Museum of Istanbul; National Archaeological Museum of Sofia; Torlonia (Savelli Collection, Rome). **Leopard:** mosaics of: Carthage-Dermech; “Great Hunt” of Villa del Casale; “House of Dionysus” (Pafos); “*domus* of Isguntus” of *Hippo Regius* (now at Museum of Annaba); Smirat (now at the SUSA Archaeological Museum); villa of Nennig; villa of Vermicino-Quarto della Giostra; and wall painting of the “Hunting Baths” (*Leptis Magna*). **Deer:** mosaics of: Castelporziano; “Judgement of Paris” (Coo); “Great Hunt” of Villa del Casale; *Maison de la Ferme Hadj Ferjani Kacem* (now at the El Jem Museum); Sicca Veneria (now at Bardo National Museum, Tunisia); villa of Bad-Kreuznach; villa of Dar Buc Ammera (Zliten); villa of Rades; villa of Vallon; villa of Vermicino-Quarto della Giostra.
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FIGURE 5

Scenes of *venationes*. A) *Venatores* against a deer and other animals, detail of the floor mosaic from the Roman villa of Vermicino-Quarto della Giostra, along the via Casilina, Italy - today at the Borghese Gallery in Rome. Dating: 3<sup>rd</sup>-4<sup>th</sup> century A.C.; B) *Venator* against a leopard, detail of the floor mosaic of the Roman villa in Bad-Kreuznach, Germany. Dating: 3rd century AD - C) *Venatores* against a bear, detail of the floor mosaic of the Roman villa in Nennig, Germany. Dating: 230-240 A.C.

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## SUPPLEMENTARY MATERIAL



SI FIGURE 1

Scene of capture of animals for *venationes*. Six hunters with dogs catching three bears, a wild boar and three deer with nets and a cage. Mosaic from the church of Santa Bibiana (Rome), now at the Centrale Montemartini in Rome, Italy. Dating: early 4th century AD.



SI FIGURE 2

Scene of capture of animals for *venationes*. Three hunters on horseback and one on foot catching a lion, a lioness, three leopards and other animals with nets and cages. Mosaic from the *domus* of Isguntus (*Hippo Regius*), now at the Museum of Annaba, Algeria. Dating: 310-330 AD.



SI FIGURE 3

Scene of transport of animals for *venationes*. An antelope, three ostriches and a boar transported on a rowing boat, detail of the Great Hunt mosaic of the Villa del Casale in Piazza Armerina, Italy. Dating: 315-330 AD.



SI FIGURE 4

Scene of transport of animals for *venationes*. An ox-drawn wagon for transportation of captured animals, detail of the Great Hunt mosaic of the Villa del Casale in Piazza Armerina, Italy. Dating: 315-330 AD.



SI FIGURE 5

Scene of *venatio*. *Venatores* against panthers, detail of the floor mosaic from the Roman villa of Vermicino-Quarto della Giostra, along the via Casilina, Italy – today at the Borghese Gallery in Rome, Italy. Dating: 3<sup>rd</sup>-4<sup>th</sup> century AD.



SI FIGURE 6

Scene of *venatio*. *Venatores* against leopards, floor mosaic from Smirat, now at the Sousse Archaeological Museum, Tunisia. Dating: 235-250 AD.

