

SIMONE FARINA (\*)

## CATALOGUE OF THE LATE PLEISTOCENE FOSSIL MAMMALIAN COLLECTION FROM «GROTTA CUCIGLIANA» (NATURAL HISTORY MUSEUM, UNIVERSITY OF PISA)

**Abstract** - *Catalogue of the Late Pleistocene fossil mammalian collection from «Grotta Cucigliana» (Natural History Museum, University of Pisa).* The upgraded catalogue of the paleontological collection of «Grotta Cucigliana» (Monte Pisano, Italy) is presented. The recovery of the material permitted to discover specimens that were previously considered dispersed. The catalogue includes all the determined species of the paleontological collection of Cucigliana (920 specimens). For each taxon, the collection number, the description of the specimen and the number of specimens (in parentheses) are reported.

**Key words** - Mammals, Late Pleistocene, Catalogue, Collections, Grotta Cucigliana.

**Riassunto** - *Catalogo della collezione a mammiferi fossili del Pleistocene Superiore della «Grotta Cucigliana» (Museo di Storia Naturale dell'Università di Pisa).* Viene presentato il catalogo aggiornato relativo alla collezione paleontologica della Grotta di Cucigliana (Monte Pisano, Italia). Il recupero del materiale, ha permesso di ritrovare alcuni esemplari che erano considerati dispersi oltre a riassociare dei cartellini isolati all'esemplare corrispondente. Il catalogo include tutte le specie determinate (920 esemplari). Per ogni taxon, viene riportato il numero di inventario, la descrizione dell'esemplare ed il numero di esemplari (tra parentesi).

**Parole chiave** - Mammiferi, Pleistocene Superiore, Catalogo, Collezioni, Grotta Cucigliana, M. Pisano.

### INTRODUCTION

The Natural History Museum of the University of Pisa houses over 200.000 fossils relating to plants, invertebrates, and vertebrates. An important part of the paleontological collection, concerns the Late Pleistocene continental mammals (Barbuti & Landini, 2009).

This report is the first of a set of catalogues dedicated to the collections of the Late Pleistocene mammals hosted at the Natural History Museum of the University of Pisa.

The preparation of catalogues of the fossil material is of primary importance to define the precise amount of the history collection heritage of the University of Pisa. Moreover, the systematic review of these collections provided updated information about their scientific value (Farina, 2011).

Grotta Cucigliana (North Latitude 43°41'13.5" - East Longitude 10°33'12") is located at 28 m a.s.l. in the

small centre of Cucigliana, near Vicopisano (Pisa), on the South-Western side of Monte Pisano. The fossil material was collected from 1879 to 1895 and was studied by several authors (Acconci, 1880; Del Campana, 1912; Del Campana, 1914; Mirri, 1999; Farina, 2011).

The paleontological collection of Cucigliana is now housed mainly at the Natural History Museum of the University of Pisa, with a small part stored at the Department of Archaeological Sciences of the University of Pisa. Part of the paleontological collection is also stored at the Museum of Geology and Paleontology of the University of Florence.

### MATERIAL AND FORMAT

The paleontological collection of the Natural History Museum (University of Pisa), consists of 1013 specimens, including also 18 fragments of coal and terracotta artefacts, 14 only anatomically determined specimens and 61 completely indeterminate specimens (Farina, 2011). During the initial phase of search and recovery of the material, it was possible to find specimens that were considered dispersed or destroyed by the bombing suffered during the Second World War from the Museum of Geology of the University of Pisa, where the palaeontological collections were originally stored.

Furthermore, many isolated tags belonging to a previous inventory (the Canavari inventory) were also found (Fig. 1), but unfortunately they were not longer associated to the relative specimens.

The comparison between the fossil material, the old catalogues and inventories and the isolated tags, has permitted to rebuild and upgrade the paleontological collection of Cucigliana re-associating, when possible, the tags to the corresponding specimens.

The catalogue includes all the determined species of the paleontological collection of Cucigliana (920 specimens). For each taxon, the collection number, the description of the specimen and the number of specimens (in parentheses) are reported.

(\*) Museo di Storia Naturale dell'Università di Pisa, via Roma 79, I-56011 Calci (Pisa) (Italy).  
E-mail: simone.farina@unipi.it

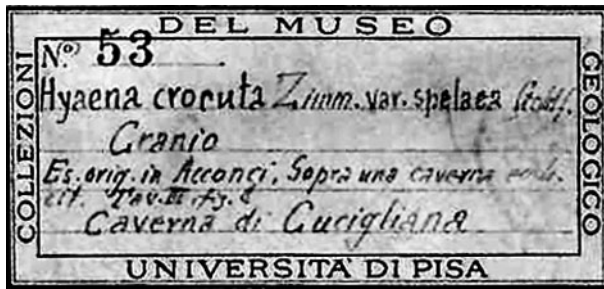


Fig. 1 - Isolated tag of the old Canavari inventory.

## CATALOGUE

### Order INSECTIVORA

#### Family ERINACEIDAE

##### *Erinaceus europaeus* Linnaeus

I14229 - complete right femur; I15601 - incomplete right tibia (the distal epiphysis and 1/2 of the diaphysis is preserved); I15602 - incomplete left tibia (1/2 of the diaphysis); I15603 - incomplete left tibia (1/2 of the diaphysis).

### Order RODENTIA

#### Family MURIDAE

##### *Arvicola amphibius* (L.)

I14337 - incomplete right mandible ( $M_1$  and  $M_2$  are preserved); I15604 - complete first phalanx; I15605 - complete right  $M_2$ ; I15606 - fragmental incisor tooth (5 specimens).

##### *Apodemus* gr. *sylvaticus* (L.) - *flavicollis* (Melchior, 1834)

I14338 - incomplete left mandible ( $M_1$  and  $M_2$  are preserved).

### Order LAGOMORPHA

#### Family LEPORIDAE

##### *Lepus* sp.

I14323 - complete right third metatarsal (juvenile specimen); I14325 - incomplete right femur (the proximal epiphysis and 1/4 of the diaphysis is preserved); I14326 - incomplete left femur (2 specimens) (distal epiphysis and 1/2 of the diaphysis); I14327 - incomplete right mandible ( $P_3$ ,  $P_4$ ,  $M_1$ ,  $M_2$ ,  $M_3$ ); I14332 - incomplete left scapula; I15581 - incomplete left radius (proximal epiphysis and 1/2 of the diaphysis); I15582 - incomplete right radius (2 specimens) (proximal epiphysis and part of the diaphysis); I15583 - incomplete right radius (distal epiphysis and 1/2 of the diaphysis); I15584 - incomplete left radius (distal epiphysis and 1/2 of the diaphysis); I15585 - incomplete left pelvic bone; I15586 - complete left calcaneus; I15587 - incomplete right humerus (proximal epiphysis and 1/4 of the diaphysis); I15588 - complete first phalanx; I15589 - incomplete right tibia (distal epiphysis and 1/4 of the diaphysis); I15590 - incomplete left tibia

(distal epiphysis and 1/4 of the diaphysis); I15591 - incomplete metapodial (distal epiphysis and 1/4 of the diaphysis); I15592 - fragmental incisor tooth; I15593 - complete right II metatarsal; I15594 - incomplete left III metatarsal (2 specimens) (proximal epiphysis and 1/2 of the diaphysis); I15595 - complete left II metatarsal; I15596 - incomplete left II metatarsal (2 specimens) (proximal epiphysis and 1/2 of the diaphysis); I15597 - incomplete right humerus (3/4 diaphysis); I15598 - incomplete right humerus (2 specimens) (distal epiphysis and 1/4 of the diaphysis); I15599 - incomplete left humerus (distal epiphysis and 3/4 of the diaphysis); I15600 - fragmental left humerus (distal epiphysis).

### Order CARNIVORA

#### Family MUSTELIDAE

##### *Meles meles* (L.)

I14280 - incomplete cranium. The jaws retain the right  $M^1$  and the left  $P^4$  and  $M^1$  (Fig. 2); I14281 - incomplete left jaw ( $P^4$ ,  $M^1$ ); I14285 - incomplete right mandible ( $P_4$ ,  $M_1$ ); I14286 - incomplete right humerus (the distal epiphysis and 3/4 of the diaphysis is preserved); I14294 - fragmental axis; I14295 - incomplete right tibia (proximal epiphysis and 1/2 of the diaphysis).



Fig 2 - I14280 - *Meles meles* Linnaeus. Incomplete cranium. The jaws retain the right  $M^1$  and the left  $P^4$  and  $M^1$ ; ventral view. The scale is 10 cm.

*Mustela* sp.

I14362 - incomplete left tibia (the distal epiphysis and 1/2 of the diaphysis is preserved).

## Family CANIDAE

*Canis lupus* L.

I14250 - incomplete left jaw (P<sup>4</sup> incomplete); I14253 - complete right M<sub>1</sub>; I14255 - complete left I<sup>3</sup>; I14259 - complete left M<sup>2</sup>; I14262 - incomplete left mandible (P<sub>4</sub>, M<sub>1</sub>); I14267 - incomplete left jaw (P<sup>3</sup>, P<sup>4</sup>, M<sup>1</sup>, M<sup>2</sup>); I14269 - incomplete left jaw (dP<sup>3</sup>, dP<sup>4</sup>, P<sup>4</sup>); I14300 - incomplete left jaw (dP<sup>2</sup>, dP<sup>3</sup>, P<sup>4</sup>); I15516 - complete right M<sub>2</sub>; I15517 - complete left P<sub>4</sub>.

*Canis aureus* L.

I14265 - incomplete left jaw (P<sup>3</sup>, P<sup>4</sup>).

*Vulpes vulpes* L.

I14254 - incomplete left ulna (the proximal epiphysis and 1/2 of the diaphysis is preserved); I14256 - complete right calcaneus; I14257 - complete right V metatarsal; I14261 - complete left II metatarsal; I14263 - complete left V metacarpal; I14264 - complete left femur; I14266 - complete first phalanx (7 specimens); I14268 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>, incomplete P<sub>4</sub>, M<sub>1</sub>); I15518 - incomplete left III metatarsal (proximal epiphysis and 1/2 of the diaphysis); I15519 - complete left IV metacarpal.

## Family URSIDAE

*Ursus spelaeus* Rosenmuller & Heinroth, 1794

I14089 - fragmental left mandible (M<sub>3</sub>); I14272 - incomplete mandibular arch (the right M<sub>1</sub> and the left M<sub>2</sub> are preserved); I14273 - complete second phalanx (2 specimens); I14275 - incomplete right humerus (the distal epiphysis and 1/2 of the diaphysis is preserved); I14276 - incomplete left mandible (incomplete C, P<sub>4</sub>, M<sub>2</sub>, M<sub>3</sub>); I14277 - complete left II metacarpal; I14278 - incomplete rib; I14279 - complete right M<sub>3</sub> (2 specimens); I14282 - complete right M<sub>1</sub>; I14283 - fragmental right mandible; I14284 - incomplete right mandible (incomplete C, P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>); I14288 - incomplete left lower canine tooth; I14289 - complete right I metacarpal; I14291 - incomplete right humerus (proximal epiphysis and 1/2 diaphysis); I14292 - complete left M<sub>1</sub>; I14297 - complete first phalanx (3 specimens); I15478 - incomplete right II metacarpal; I15479 - complete right II metacarpal; I15480 - complete left IV metacarpal; I15481 - complete right M<sub>2</sub>; I15482 complete metapodial bone; I15483 - complete left IV metacarpal; I15484 - complete right IV metacarpal; I15485 - incomplete right femur (distal epiphysis and 1/2 diaphysis); I15486 - complete left M<sub>2</sub> (2 specimens); I15621 - complete left P<sub>4</sub>.

*Ursus arctos* L.

I14208 - complete left upper canine tooth (2 specimens); I14293 - complete left calcaneus.

## Family FELIDAE

*Felis silvestris* Schreber, 1777

I14328 - incomplete left mandible (C, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); I14329 - incomplete right radius (the proximal epiphysis and 1/2 of the diaphysis is preserved); I14330 - incomplete sacrum.

*Lynx lynx* (L.)

I14322 - fragmental right humerus (the proximal epiphysis is preserved); I14342 - incomplete left mandible (P<sub>4</sub>, M<sub>1</sub>).

*Panthera pardus* (L.)

I14333 - incomplete right mandible (P<sub>4</sub>, M<sub>1</sub>); I14334 - incomplete left mandible (C, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); I14335 - complete first phalanx (2 specimens); I14340 - incomplete right mandible (P<sub>4</sub>, M<sub>1</sub>); I14341 - incomplete right mandible (C, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>) (Fig. 3); I15576 - fragmental right mandible (M<sub>3</sub>); I15577 incomplete canine tooth (3 specimens); I15579 - incomplete right canine tooth; I15580 complete left P<sub>4</sub>; I15607 - complete first phalanx (10 specimens); I15608 - complete second phalanx (9 specimens); I15609 - complete first and second phalanx; I15610 - complete right II metacarpal; I15611 - complete right III metacarpal (juvenile specimen); I15612 - incomplete right fibula (the distal epiphysis and 1/4 of the diaphysis is preserved); I15613 - incomplete left fibula (proximal epiphysis and 1/4 of the diaphysis); I15614 - incomplete right fibula (proximal epiphysis and 1/4 of the diaphysis).

## Family HYAENIDAE

*Crocuta crocuta spelaea* Goldfuss, 1823

I14091 - complete first phalanx (11 specimens); I14095 - incomplete right P<sub>2</sub>; I14177 - complete axis; I14178 - incomplete left humerus (the proximal epiphysis and 1/2 of the diaphysis is preserved); I14179 - incomplete cervical vertebra (2 specimens); I14180 - complete cervical vertebra (5 specimens); I14182 - incomplete thoracic vertebra (7 specimens); I14183 - incomplete cervical vertebra (5 specimens); I14184 - incomplete lumbar vertebra (2 specimens); I14185 - incomplete left scapula; I14186 - incomplete right humerus (distal



Fig 3- I14341 - *Panthera pardus* Linnaeus. Incomplete right mandible (C, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); lateral view. The scale is 5 cm.

epiphysis and 1/2 of the diaphysis); I14187 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>); I14188 - incomplete atlas (3 specimens); I14189 - incomplete left scapula (2 specimens); I14190 - incomplete right mandible (P<sub>2</sub>, P<sub>4</sub>, M<sub>1</sub>); I14191 - complete axis (2 specimens); I14192 - incomplete right scapula; I14193 - incomplete sacrum; I14194 - complete right calcaneus; I14196 - incomplete left mandible (C, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>); I14197 - fragmental right mandible (M<sub>1</sub>); I14198 - incomplete thoracic vertebra (5 specimens); I14199 - fragmental left mandible; I14200 - complete cervical vertebra; I14201 - fragmental right scapula; I14202 - complete left III metatarsal; I14203 - fragmental right jaw (incomplete P<sup>2</sup>, incomplete P<sup>3</sup>); I14204 - incomplete cervical vertebra; I14205 - incomplete rib (6 specimens); I14206 - complete left II metatarsal (2 specimens); I14207 - complete right tibia; I14209 - complete right radius; I14210 - incomplete left femur (distal epiphysis and 1/2 of the diaphysis); I14211 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>); I14212 - complete right canine tooth (2 specimens); I14213 - incomplete right ulna (proximal epiphysis and 3/4 of the diaphysis); I14214 - incomplete left mandible (P<sub>3</sub>); I14215 - incomplete left ulna (proximal epiphysis and 1/2 of the diaphysis); I14216 - incomplete right mandible (P<sub>2</sub>, P<sub>3</sub>); I14217 - complete right lower canine tooth (3 specimens); I14218 - complete right IV metacarpal (2 specimens); I14219 - complete right tibia; I14220 - incomplete right jaw (P<sup>1</sup>, P<sup>2</sup>, P<sup>3</sup>, P<sup>4</sup>); I14221 - complete left III metacarpal (2 specimens); I14222 - complete right tibia; I14223 - incomplete left radius (proximal epiphysis and 3/4 of the diaphysis); I14224 - complete right P<sub>4</sub>; I14225 - complete right M<sub>1</sub>; I14226 - incomplete right mandible (C, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); I14227 - incomplete right mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>); I14228 - incomplete right mandible (C, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); I14229 - complete right P<sup>3</sup> (3 specimens); I14230 - incomplete metapodial bone (2 specimens) (distal epiphysis and 1/2 of the diaphysis); I14231 - incomplete right mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>); I14232 - complete left II metacarpal; I14233 - fragmental left mandible; I14234 - complete left P<sup>4</sup>; I14235 - complete left M<sub>1</sub> (2 specimens); I14236 - incomplete left mandible (P<sub>3</sub>, P<sub>4</sub>); I14237 - complete right P<sub>3</sub>; I14239 - complete right M<sub>1</sub>; I14240 - incomplete right mandible (C, dP<sub>3</sub>, dP<sub>4</sub>, M<sub>1</sub>); I14241 - left I<sub>3</sub> (4 specimens, 2 complete); I14242 - incomplete right P<sub>3</sub> (2 specimens); I14243 - complete right P<sub>4</sub>; I14244 - complete right M<sub>1</sub>; I14245 - complete right P<sup>4</sup> (3 specimens); I14246 - incomplete left mandible (C, P<sub>2</sub>, P<sub>3</sub>); I14247 - incomplete skull (occipital bone); I14248 - incomplete canine tooth (6 specimens); I14249 - incomplete right mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); I14251 - incomplete left jaw (I<sup>1</sup>, I<sup>2</sup>, I<sup>3</sup>, C, P<sup>2</sup>, P<sup>3</sup>, P<sup>4</sup>); I14252 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); I14258 - incomplete right mandible (C, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>); I14260 - incomplete right mandible (I<sub>2</sub>, C, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>); I14270 - incomplete left mandible (C, P<sub>2</sub>, P<sub>3</sub>, M<sub>1</sub>);

I14271 - incomplete canine tooth (6 specimens); I14274 - fragmental skull (45 fragments); I14345 - incomplete right femur (distal epiphysis and 1/2 of the diaphysis); I14346 - incomplete right ulna (proximal epiphysis and 1/2 of the diaphysis); I14347 - incomplete left humerus (distal epiphysis and 1/2 of the diaphysis); I14348 - incomplete left humerus (distal epiphysis and 1/4 of the diaphysis); I14349 - complete right tibia; I14350 - incomplete right ulna (1/2 of the diaphysis); I14351 - incomplete left radius (3 specimens) (proximal epiphysis and 1/4 of the diaphysis); I14352 - complete right radius; I14353 - incomplete left radius (3 specimens) (distal epiphysis and 1/2 of the diaphysis); I14354 - incomplete left tibia (1/2 of the diaphysis); I14355 - incomplete right humerus (proximal epiphysis and 1/4 of the diaphysis); I14356 - incomplete right radius (4 specimens) (proximal epiphysis and 1/4 of the diaphysis); I14357 - incomplete right humerus (1/2 of the diaphysis); I14358 - complete left astragalus; I14359 - incomplete left femur (1/2 of the diaphysis); I14360 - fragmental left femur (distal epiphysis); I14361 - incomplete right femur (distal epiphysis and 1/4 of the diaphysis); I14363 - complete left III metacarpal; I14364 - incomplete right radius (2 specimens) (distal epiphysis and 1/4 of the diaphysis); I14365 - incomplete left femur (distal epiphysis and 1/2 of the diaphysis); I14366 - incomplete right ulna (proximal epiphysis and 1/2 of the diaphysis); I14367 - incomplete left ulna (4 specimens) (proximal epiphysis and 1/4 of the diaphysis); I14368 - incomplete left radius (distal epiphysis and 1/4 of the diaphysis); I14369 - fragmental left coxal bone; I14370 - incomplete canine tooth; I14371 - incomplete left femur (1/4 of the diaphysis); I14371 - incomplete right radius (1/4 of the diaphysis); I14373 fragmental metapodial bone (8 specimens); I14374 - incomplete right M<sub>1</sub> (2 specimens); I15520 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); I15521 - incomplete left mandible (C, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); I15522 - incomplete right mandible (C, P<sub>3</sub>); I15223 - complete left lower canine tooth; I15524 - incomplete canine tooth; I15525 - complete left III metacarpal; I15526 - complete right III metacarpal; I15527 - incomplete left mandible (I<sub>2</sub>, C, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); I15228 - complete left V metatarsal; I15229 - complete right IV metatarsal; I15530 - complete right II metacarpal; I15531 - incomplete V metapodial bone (distal epiphysis and 1/2 of the diaphysis); I15532 - incomplete left IV metatarsal (proximal epiphysis and 3/4 of the diaphysis); I15533 - complete right I<sub>3</sub> (2 specimens); I15534 - incomplete right P<sup>1</sup>; I15535 - incomplete incisor tooth; I15536 - incomplete right I<sub>2</sub>; I15537 - incomplete left I<sub>2</sub>; I15538 - complete right V metacarpal; I15539 - complete right II metatarsal; I15540 - complete right II metacarpal; I15541 - incomplete metapodial bone (2 specimens); I15542 - incomplete right upper canine tooth; I15543 - complete left lower canine tooth; I15544

- incomplete right scapula; I15545 - complete left II metatarsal; I15546 - complete right II metacarpal; I15547 - complete left V metacarpal; I15548 - complete right II metatarsal; I15549 - complete right P<sub>2</sub>; I15550 - complete right P<sub>3</sub>; I15551 - complete left P<sub>3</sub>; I15552 - complete left III metatarsal; I15553 - complete right IV metatarsal; I15554 - complete right II metacarpal; I15555 - complete left II metatarsal; I15556 - complete right II metatarsal; I15557 - complete right V metatarsal; I15558 - complete left V metatarsal; I15559 - complete right V metacarpal; I15560 - incomplete left radius (distal epiphysis and 1/4 of the diaphysis); I15561 - incomplete metapodial bone (proximal epiphysis and 1/2 of the diaphysis); I15562 - incomplete right IV metacarpal (proximal epiphysis and 1/4 of the diaphysis); I15563 - incomplete left metatarsal (proximal epiphysis and 1/2 of the diaphysis); I15564 - incomplete left II metatarsal (proximal epiphysis and 1/4 of the diaphysis); I15565 - incomplete right P<sub>3</sub>; I15566 - complete left P<sup>2</sup>; I15567 - fragmental left P<sup>4</sup> (2 specimens); I15568 - incomplete incisor tooth; I15569 - fragmental canine tooth (3 specimens); I15570 - complete left V metacarpal; I15571 - complete right II metacarpal; I15572 - complete right IV metacarpal; I15573 - complete right III metacarpal.

In addition to the osteological material, the collection presents also two rests of coprolites (I14181).

#### Order PERISSODACTYLA

##### Family RHINOCERONTIDAE

*Stephanorhinus hemitoechus* (Falconer, 1868)

I14084 - incomplete left astragalus; I14085 - complete left astragalus; I14086 - incomplete right femur (the proximal epiphysis and 1/2 of the diaphysis is preserved); I14088 - incomplete left tibia (distal epiphysis and 3/4 of the diaphysis); I14099 - complete left M<sup>1</sup>; I14100 - incomplete right mandible (P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>); I14106 - complete left P<sup>4</sup>; I14111 - complete left P<sup>4</sup>; I14117 - complete right P<sup>4</sup>; I14118 - complete right P<sup>4</sup>; I14120 - incomplete left jaw (P<sup>3</sup>, P<sup>4</sup>).

##### Family EQUIDAE

*Equus ferus* Boddaert, 1785

I14011 - incomplete left coxal bone; I14097 - complete first phalanx; I14098 - complete right astragalus; I14101 - incomplete first phalanx (the proximal epiphysis and 3/4 of the diaphysis is preserved); I14102 - complete left third tarsal bone; I14103 - complete second phalanx; I14104 - complete first phalanx; I14105 - complete first phalanx (2 specimens); I14107 - complete left central tarsal bone (2 specimens); I14108 - incomplete metapodial bone (distal epiphysis and 3/4 of the diaphysis); I14109 - complete right fourth tarsal bone (2 specimens); I14110 - incomplete third phalanx (2 specimens); I14112 - incomplete right calcaneus (4 specimens); I14113 - complete right astragalus (2 specimens); I14114 - fragmental third phalanx; I14115 - in-

complete left tibia (2 specimens) (distal epiphysis and 1/2 of the diaphysis); I14116 - incomplete right third tarsal bone; I14119 - complete second phalanx (2 specimens); I14121 - incomplete lower incisor (4 specimens); I14122 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>); I14123 - complete right metacarpal; I14124 - complete left upper incisors (I<sup>1</sup>, I<sup>2</sup>, I<sup>3</sup>); I14125 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>); I14126 - complete right metacarpal (4 specimens); I14127 - complete right metatarsal; I14128 - complete left metacarpal; I14129 - complete left metatarsal; I14130 - complete left M<sub>3</sub>; I14131 - complete left metacarpal; I14132 - complete right metatarsal; I14133 - complete right metatarsal; I14134 - complete left metatarsal; I14135 - complete left metacarpal; I14136 - complete right metacarpal; I14137 - incomplete incisor (2 specimens); I14138 - complete left metatarsal; I14139 - incomplete lower I<sub>1</sub> (4 specimens); I14140 - incomplete left jaw (incomplete P<sup>2</sup>, P<sup>3</sup>, P<sup>4</sup>, M<sup>1</sup>); I14141 - complete right metatarsal; I15460 - incomplete left third tarsal bone; I15461 - complete right central tarsal bone; I15462 - complete left astragalus (2 specimens); I15463 - incomplete right tibia (distal epiphysis and 1/4 of the diaphysis); I15464 - fragmental left third tarsal bone; I15465 - complete left third tarsal bone; I15466 - complete left metacarpal (2 specimens); I15467 - incomplete metacarpal (distal epiphysis and 1/4 of the diaphysis); I15468 - incomplete metatarsal (distal epiphysis and 1/4 of the diaphysis); I15469 - incomplete right P<sub>2</sub>; I15470 - fragmental molar (2 specimens); I15471 - incomplete upper molar tooth; I15472 - complete I<sub>2</sub>; I15473 - incomplete I<sub>3</sub> (2 specimens); I15474 - complete left P<sup>2</sup>; I15475 - complete right P<sup>4</sup>; I15476 - complete left M<sup>1</sup> (2 specimens); I15477 - complete left upper molar tooth.

#### ORDER ARTIODACTYLA

##### Family SUIDAE

*Sus scrofa* L.

I14061 - fragmental left mandible (P<sub>2</sub>, P<sub>3</sub>); I14087 - complete left calcaneus; I14092 - complete right dP<sub>4</sub>; I14094 - complete left P<sub>4</sub>; I14146 - incomplete mandible (incisors and lower right canine tooth are preserved); I14148 - incomplete right jaw (P<sup>4</sup>, M<sup>1</sup>, M<sup>2</sup>, M<sup>3</sup>); I14150 - incomplete right lower canine tooth; I14154 - incomplete right lower canine tooth (3 specimens); I14156 - fragmental canine tooth; I14163 - complete right M<sub>3</sub>; I14164 - complete left I<sub>1</sub> (2 specimens); I14169 - incomplete left jaw (P<sup>4</sup>, M<sup>1</sup>); I14176 - incomplete right I<sub>2</sub> (2 specimens); I14195 - incomplete atlas; I15451 - complete left P<sub>2</sub>; I15487 - complete left P<sub>3</sub>; I15488 - incomplete left P<sub>2</sub>; I15489 - incomplete left lower canine tooth; I15490 - incomplete left lower canine tooth; I15491 - incomplete left lower canine tooth; I15492 - incomplete upper canine tooth (3 specimens); I15493 - incomplete right mandible (P<sub>2</sub>, P<sub>3</sub>); I15494 - incomplete right I<sub>2</sub>; I15495 - complete right I<sub>1</sub> (3 specimens);

I15496 - incomplete left I<sub>2</sub>; I15497 - fragmental right mandible (M<sub>2</sub>); I15498 - incomplete left I<sub>1</sub> and I<sub>2</sub>; I15499 - incomplete left I<sub>1</sub>; I15500 - incomplete skull.

#### Family CERVIDAE

##### *Capreolus capreolus* (L.)

I14025 - complete left astragalus; I14147 - incomplete right mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, incomplete M<sub>1</sub>); I14151 - incomplete right mandible (dP<sub>2</sub>, dP<sub>3</sub>, dP<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>); I14153 - incomplete left mandible (P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>) (Fig. 4); I14160 - fragmental skull; I14165 - incomplete right mandible (M<sub>1</sub>); I14166 - incomplete left scapula; I14171 - incomplete left mandible (incomplete M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>); I14172 - incomplete right mandible (dP<sub>2</sub>, dP<sub>3</sub>, P<sub>4</sub>); I14173 - complete right M<sub>3</sub>; I14174 - incomplete right jaw (dP<sup>2</sup>, dP<sup>3</sup>, dP<sup>4</sup>, M<sup>1</sup>); I15501 - incomplete right mandible (P<sub>4</sub>); I15502 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>, M<sub>1</sub>); I15503 - incomplete left mandible (dP<sub>2</sub>, dP<sub>3</sub>, dP<sub>4</sub>, M<sub>1</sub>); I15504 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>); I15505 - incomplete left mandible (P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>); I15506 - incomplete right molar tooth.

##### *Cervus elaphus* L.

I14000 - incomplete lumbar vertebra (2 specimens); I14001 - complete right astragalus (2 specimens); I14002 - incomplete thorax vertebra; I14003 incomplete left calcaneus; I14004 incomplete right metacarpal (the distal epiphysis and 1/2 of the diaphysis is preserved); I14005 - incomplete right humerus (distal epiphysis and 1/4 of the diaphysis); I14006 - incomplete right radius (proximal epiphysis and 1/2 of the diaphysis); I14007 - incomplete left radius (distal epiphysis and 1/2 of the diaphysis); I14008 - incomplete left tibia (distal epiphysis and 1/2 of the diaphysis); I14009 - incomplete left tibia (distal epiphysis and 1/4 of the diaphysis); I14010 - incomplete right scapula; I14012 - fragmental left calcaneus; I14013 - incomplete right humerus (distal epiphysis and 1/4 of the diaphysis); I14014 - incomplete right humerus (distal epiphysis and 1/2 of the diaphysis); I14015 - incomplete right metatarsal (proximal epiphysis and 3/4 of the diaphysis); I14016 - incomplete left metatarsal (proximal epiphysis and 3/4 of the diaphysis); I14017 - incomplete left tibia (distal epiphysis and 1/4 of the diaph-

ysis); I14018 - incomplete left metacarpal (proximal epiphysis and 1/2 of the diaphysis); I14019 - incomplete left metacarpal (distal epiphysis and 1/4 of the diaphysis); I14020 - complete right metatarsal; I14021 - incomplete right metatarsal (proximal epiphysis and 1/4 of the diaphysis); I14022 - incomplete right humerus (distal epiphysis and 1/4 of the diaphysis); I14023 - incomplete right radius (proximal epiphysis and 1/2 of the diaphysis); I14024 - incomplete left scapula; I14026 - incomplete right metacarpal (proximal epiphysis and 1/2 of the diaphysis); I14027 - incomplete left tibia (distal epiphysis and 1/2 of the diaphysis); I14028 - incomplete right mandible (P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>); I14029 - incomplete right mandible (M<sub>2</sub>, M<sub>3</sub>); I14030 - incomplete left mandible (dP<sub>3</sub>, dP<sub>4</sub>, M<sub>1</sub>); I14031 - incomplete right jaw (dP<sup>4</sup>, M<sup>1</sup>); I14032 - incomplete left jaw (P<sup>3</sup>, P<sup>4</sup>, M<sup>1</sup>, M<sup>2</sup>, M<sup>3</sup>); I14033 - complete left metacarpal; I14035 - complete right M<sup>2</sup>; I14036 - incomplete right mandible (dP<sub>3</sub>, dP<sub>4</sub>, M<sub>1</sub>); I14037 - complete right metacarpal; I14038 - incomplete right mandible (M<sub>2</sub>, M<sub>3</sub>); I14039 - incomplete left mandible (P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>); I14040 - fragmental right scapula; I14041 - incomplete antler; I14042 - fragmental right mandible (M<sub>1</sub>, M<sub>2</sub>); I14043 - incomplete left mandible (M<sub>2</sub>, M<sub>3</sub>); I14044 - fragmental antler; I14045 - incomplete left mandible (P<sub>4</sub>, M<sub>1</sub>); I14046 - incomplete right mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>); I14047 - fragmental right mandible (incomplete P<sub>2</sub>, P<sub>3</sub>); I14048 - complete right metacarpal; I14049 - incomplete right tibia (distal epiphysis and 1/2 of the diaphysis); I14050 - fragmental antler; I14051 - fragmental antler (2 fragments); I14052 - fragmental left mandible (M<sub>3</sub>); I14053 - fragmental right mandible (P<sub>4</sub>); I14054 - incomplete left M<sup>2</sup>; I14055 - fragmental left jaw (incomplete P<sup>4</sup>, M<sup>1</sup>); I14057 - fragmental right mandible; I14058 - fragmental left mandible M<sub>2</sub>; I14059 - complete right dP<sub>4</sub> (3 specimens); I14063 - fragmental antler; I14064 - fragmental antler; I14066 - fragmental antler; I14072 - fragmental antler; I14073 - fragmental antler; I14075 - fragmental antler; I14077 - fragmental antler; I14078 - fragmental antler; I14079 - fragmental antler; I14081 - fragmental antler; I14090 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>); I14093 - complete right dP<sub>3</sub> (2 specimens); I15363 - incomplete metapodial (distal epiphysis and 1/4 of the diaphysis); I15364 - incomplete right radius (proximal epiphysis and 1/2 of the diaphysis); I15365 - incomplete right tibia (distal epiphysis and 1/2 of the diaphysis); I15366 - incomplete right tibia (distal epiphysis and 1/4 of the diaphysis); I15367 - incomplete right tibia (distal epiphysis and 1/2 of the diaphysis); I15368 - incomplete left humerus (distal epiphysis and 1/2 of the diaphysis); I15369 - fragmental right humerus (distal epiphysis); I15370 - incomplete right humerus (distal epiphysis and 1/4 of the diaphysis); I15371 - incomplete right humerus (distal epiphysis and 1/2 of the diaphysis); I15372 - fragmental left humerus (distal epiphysis);



Fig 4 - I14153 - *Capreolus capreolus* Linnaeus. Incomplete left mandible (P<sub>3</sub>, P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>); lateral view. The scale is 10 cm.

I15373 - incomplete left tibia (distal epiphysis and 1/4 of the diaphysis); I15374 - fragmental right metatarsal (1/4 of the diaphysis); I14375 - incomplete right humerus (distal epiphysis and 1/4 of the diaphysis); I15376 - incomplete right humerus (distal epiphysis and 1/4 of the diaphysis); I15377 - fragmental right humerus (distal epiphysis); I15378 - incomplete right humerus (distal epiphysis and 1/4 of the diaphysis); I15379 - fragmental left humerus (distal epiphysis); I15380 - incomplete left humerus (distal epiphysis and 1/4 of the diaphysis); I15381 - incomplete right metacarpal (proximal epiphysis and 1/4 of the diaphysis); I15382 - incomplete left metacarpal (proximal epiphysis and 1/2 of the diaphysis); I15383 - incomplete left metacarpal (proximal epiphysis and 1/2 of the diaphysis); I15384 - incomplete left mandible (P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>); I15385 - incomplete right mandible (P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>); I15386 - incomplete left mandible (dP<sub>4</sub>, M<sub>1</sub>); I15387 - incomplete right mandible (M<sub>2</sub>, M<sub>3</sub>); I15388 - incomplete left jaw (dP<sub>3</sub>, dP<sub>4</sub>, M<sup>1</sup>); I15389 - incomplete left jaw (dP<sub>4</sub>, M<sup>1</sup>); I15390 - fragmental upper molar; I15391 - incomplete left jaw (dP<sub>4</sub>, M<sup>1</sup>, M<sup>2</sup>); I15392 - incomplete left jaw (M<sup>1</sup>, M<sup>2</sup>); I15393 - fragmental upper molar tooth; I15394 - fragmental tooth; I15395 - complete left M<sup>1</sup>; I15396 - complete right M<sup>1</sup>; I15397 - complete right M<sub>1</sub> (5 specimens); I15398 - complete left M<sub>1</sub> (2 specimens); I15399 - complete left M<sub>1</sub> (2 specimens); I15400 - fragmental left M<sub>2</sub>; I15401 - incomplete right M<sub>2</sub>; I15402 - incomplete right mandible (M<sub>2</sub>, M<sub>3</sub>); I15403 - incomplete left mandible (P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>); I15404 - incomplete right mandible (M<sub>1</sub>, M<sub>2</sub>, incomplete M<sub>3</sub>); I15405 - incomplete left mandible (incomplete M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>); I15406 - incomplete left mandible (incomplete M<sub>1</sub>, M<sub>2</sub>); I15407 - incomplete right mandible (dP<sub>2</sub>, dP<sub>3</sub>, dP<sub>4</sub>, M<sub>1</sub>); I15408 - fragmental right mandible; I15409 - complete left M<sub>2</sub>; I15410 - incomplete left mandible (M<sub>2</sub>, M<sub>3</sub>); I15411 - complete left M<sup>2</sup>; I15412 - complete right M<sup>3</sup> (?); I15413 - incomplete right M<sup>3</sup> (?); I15414 - complete left P<sup>4</sup>; I15415 - complete right P<sub>4</sub>; I15416 - complete right P<sub>3</sub>; I15417 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>); I15418 - fragmental left mandible (incomplete P<sub>3</sub>); I15419 - fragmental left mandible (P<sub>4</sub>); I15420 - complete left (dP<sub>4</sub>); I15421 - complete right dP<sub>4</sub>; I15422 - fragmental left mandible (M<sub>3</sub>); I15423 - fragmental left mandible (M<sub>3</sub>); I15424 - complete right M<sub>3</sub>; I15425 - complete left M<sub>3</sub>; I15426 - complete left M<sub>3</sub>; I15427 - complete left M<sub>3</sub>; I15428 - complete left M<sub>3</sub>; I15429 - incomplete left M<sub>3</sub>; I15430 - complete right P<sub>4</sub>; I15431 - complete left M<sup>1</sup> (5 specimens); I15432 - complete right M<sup>1</sup> (5 specimens); I15433 - complete left M<sup>2</sup> (5 specimens); I15434 - complete right M<sup>2</sup> (2 specimens); I15435 - complete right M<sup>2</sup> (2 specimens); I15436 - fragmental right jaw; I15437 - complete right M<sup>1</sup>; I15438 - complete left M<sub>1</sub>; I15439 - complete left M<sub>2</sub>; I15440 - fragmental left mandible (fragmental M<sub>1</sub>);

I15441 - fragmental mandible; I15442 - complete right M<sub>2</sub> (2 specimens); I15443 - incomplete molar tooth; I15444 - incomplete left jaw (M<sup>1</sup>, M<sup>2</sup>); I15445 - incomplete right P<sup>3</sup>; I15446 - incomplete left P<sub>3</sub>; I15448 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>); I15449 - fragmental right mandible (P<sub>2</sub>, P<sub>3</sub>); I15550 - complete right P<sub>4</sub>; I15452 - incomplete left mandible (dP<sub>2</sub>, dP<sub>3</sub>, dP<sub>4</sub>); I15453 - incomplete left humerus (distal epiphysis and 1/2 of the diaphysis); I15456 - incomplete right mandible (P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>); I15513 - complete right P<sub>3</sub>; I15514 - complete right P<sub>4</sub>; I15515 - complete left dP<sub>3</sub>.

#### *Cervus vel Dama*

I14056 - complete left dP<sup>4</sup>; I14060 - complete right P<sup>4</sup>; I15447 - complete right M<sup>1</sup>.

#### *Dama dama* (L.)

I14034 - incomplete right mandible (dP<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>); I14096 - fragmental left mandible; I14142 - complete right metacarpal; I14143 - complete right metacarpal; I14144 - incomplete right mandible (P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>); I14145 - complete left metacarpal; I14149 - incomplete right mandible (M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>); I14152 - complete right P<sub>2</sub> (2 specimens); I14155 - incomplete right mandible (dP<sub>3</sub>, dP<sub>4</sub>) (3 specimens); I14157 - complete right first phalanx; I14158 - complete right M<sub>1</sub>; I14159 - incomplete left mandible (dP<sub>2</sub>, dP<sub>3</sub>, dP<sub>4</sub>, M<sub>1</sub>); I14161 - incomplete left mandible (P<sub>2</sub>, P<sub>3</sub>) (2 specimens); I14162 - complete left upper molar tooth; I14167 - incomplete right mandible (P<sub>3</sub>, P<sub>4</sub>); I14168 - incomplete right mandible (M<sub>1</sub>, M<sub>2</sub>); I14175 - incomplete right mandible (P<sub>2</sub>, P<sub>3</sub>); I15457 - incomplete right mandible (P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>); I15507 - incomplete left mandible (P<sub>4</sub>, M<sub>1</sub>); I15508 - incomplete left metacarpal (the proximal epiphysis and 3/4 of the diaphysis is preserved); I15509 - incomplete left mandible (dP<sub>3</sub>, dP<sub>4</sub>, M<sub>1</sub>); I15510 - incomplete left mandible (dP<sub>4</sub>, M<sub>1</sub>); I15511 - incomplete left mandible (P<sub>3</sub>, P<sub>4</sub>); I15512 - complete right dP<sub>4</sub> (2 specimens).

#### Family BOVIDAE

##### *Rupicapra rupicapra* (L.)

I14065 - incomplete metacarpal (distal epiphysis and 1/2 of the diaphysis); I14074 - complete right metacarpal; I14080 - complete right astragalus; I14083 - complete first phalanx (3 specimens).

##### *Bos primigenius* Bojanus, 1827

I14062 - incomplete right femur (1/2 of the diaphysis is preserved); I14067 - incomplete left femur (1/2 of the diaphysis); I14068 - incomplete left tibia (distal epiphysis and 1/4 of the diaphysis); I14069 - incomplete right scapula; I14070 - incomplete right tibia (3/4 of the diaphysis); I14071 - fragmental right coxal bone; I14076 - incomplete left tibia (distal epiphysis and 1/4 of the diaphysis); I14082 - incomplete right tibia (distal epiphysis and 1/4 of the diaphysis); I14301 - incomplete thoracic vertebra; I14302 - incomplete thoracic vertebra; I14303 - complete right malleolus

bone; I14304 - incomplete right humerus (distal epiphysis and 1/4 of the diaphysis); I14305 - incomplete left calcaneus; I14306 - incomplete right tibia (distal epiphysis and 1/4 of the diaphysis); I14307 - incomplete left tibia (distal epiphysis and 1/4 of the diaphysis); I14308 - incomplete left tibia (distal epiphysis and 1/2 of the diaphysis); I14309 - incomplete right radius (proximal epiphysis and 1/4 of the diaphysis); I14310 - incomplete left radius (proximal epiphysis and 1/4 of the diaphysis); I14311 - complete left radius (Fig. 5); I14312 - incomplete right calcaneus; I14313 - incomplete right calcaneus; I14314 - incomplete left calcaneus; I14315 - incomplete left tibia (3/4 of the diaphysis); I14316 - incomplete right tibia (3/4 of the diaphysis); I14317 - complete left IV carpal bone; I14318 - complete left central + IV tarsal bone; I14319 - incomplete



Fig. 5 - I14311 - *Bos primigenius* Bojanus. Complete left radius; anterior view. The scale is 10 cm.

thoracic vertebra; I14320 - complete left calcaneus; I14321 - complete right radius and ulna; I14324 - incomplete left scapula; I14336 - incomplete left mandible (dP<sub>2</sub>, dP<sub>3</sub>, dP<sub>4</sub>, M<sub>1</sub>); I14343 - complete right M<sub>1</sub>; I14344 - complete right M<sub>1</sub>; I15454 - complete right M<sub>1</sub>; I15454 - complete left M<sub>1</sub>.

#### ORDER PROBOSCIDEA

##### Family ELEPHANTIDAE

*Elephas antiquus* Falconer & Cautley, 1847

I15574 - complete right dP<sup>4</sup>; I15575 - complete right dP<sup>4</sup>. These two specimens, reported and figured by Acconci (1880) as *Elephas antiquus* var. *nana*, were considered dispersed and have been recovered during the phase of search and recovery of the material.

#### ORDER PRIMATES

##### Family HOMINIDAE

*Homo sapiens sapiens* L.

I14299 - incomplete left jaw (C, P<sup>3</sup>, P<sup>4</sup>, M<sup>1</sup> are preserved).

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