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A 3D approach to understand the taphonomy of the early Hominins from the Plio-Pleistocene cave site of Malapa

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Appendix 1. Hominin specimens, with a description of their anatomy and provenance in the deposit.

Specimen	Element	Individual	Origin	*Ex situ*/*In situ*
UW88-31	Fragment of the right parietal	MH1	Decalcified sediment, Facies D	*In situ*
UW88-32	Fragment of the right temporal	MH1		
UW88-16	Right metatarsal	MH1?	Decalcified sediment, West of Facies D	*In situ*
UW88-22	Right metatarsal	MH1?		
UW88-29	Upper first right incisor	MH1	Decalcified sediment (sieving), Facies D	*In situ*
UW88-30	Upper right canine	MH1		
UW88-1	Right clavicle shaft	MH1	Clavicle block	*Ex situ*
UW88-2	Right mandible with canine	MH1		
UW88-3	Proximal right ulna	MH1		
UW88-6	Anterior fragment of the right ilium	MH1		
UW88-7	Posterior fragment of the right ilium	MH1		
UW88-8	Right hemi-mandible	MH1		
UW88-14	Left ischium	MH1		
UW88-9	Cervical vertebra	MH1		
UW88-11	Thoracic vertebra	MH1		
UW88-12	Distal epiphysis of the right radius	MH1		
UW88-13	Distal fragment of a right rib	MH1		
UW88-17	Rib fragment	MH1		
UW88-113	Fragmentary right acromion process	MH1		
UW88-4	Proximal right femur	MH1	miner's dump	*Ex situ*
UW88-5	Proximal right femur	MH1		
UW88-39	Proximal right femur	MH1		
UW88-89	Right femoral shaft	MH1		
UW88-42	Right humeral shaft	MH1	Skull block	*Ex situ*
UW88-35	Left humeral head	MH1		
UW88-50	Skull	MH1		
UW88-88	Distal right humerus	MH1	Ilium block	*Ex situ*
UW88-102	Left ilium	MH1		
no number	Left femur	MH1	UW88-B051	*Ex situ*
no number	Left clavicle	MH1		
no number	Fibula	MH1		
no number	Left hemi-mandible	MH1		
no number	Distal right ulna	MH1		

no number	Intermediate rib	MH1		
no number	Intermediate rib	MH1		
no number	Intermediate rib	MH1		
no number	Possible humeral shaft	MH1		
no number	Radius/Rib	MH1		
no number	Possible distal humerus	MH1		
no number	Tibia/distal femur	MH1		
no number	Hand/foot bone	MH1		
no number	Hand/foot bone	MH1		
no number	Hand/foot bone	MH1		
no number	Hand/foot bone	MH1		
no number	Hand/foot bone	MH1		
UW88-152	First lumbar vertebra	MH1	UW88-B245	*Ex situ*
UW88-155	Intermediate rib	MH1		
UW88-41	Intermediate right rib	MH1	miner's dump	*Ex situ*
UW88-86	Proximal right rib	MH1		
UW88-67	Ilium fragment	MH1	miner's dump	*Ex situ*
UW88-206	Ilium fragment	MH1	miner's dump	*Ex situ*
UW88-27	Pelvic fragment	MH1	miner's dump	*Ex situ*
UW88-35	Possible scapula fragment	MH1	miner's dump	*Ex situ*
UW88-68	Scapula fragment	MH1	miner's dump	*Ex situ*
UW88-197	Left scapula fragment	MH1	UW88-B057	*Ex situ*
UW88-112	Right metacarpal	MH1	miner's dump	*Ex situ*
UW88-34	Right humeral head	MH1	miner's dump	*Ex situ*
UW88-130	Distal left ulna	MH1	miner's dump	*Ex situ*
UW88-18	Radius fragment	MH1	miner's dump	*Ex situ*
UW88-75	Radius fragment	MH1	miner's dump	*Ex situ*
UW88-26	Long bone fragment	MH1	miner's dump	*Ex situ*
UW88-77	Long bone fragment	MH1	miner's dump	*Ex situ*
UW88-148	First right rib	MH1	miner's dump	*Ex situ*
UW88-74	Distal rib fragment	MH1	miner's dump	*Ex situ*
UW88-211	Intermediate rib fragment	MH1	miner's dump	*Ex situ*
UW88-141	Possible right rib fragment	MH1	miner's dump	*Ex situ*
UW88-76	Sternal end of a rib	MH1	miner's dump	*Ex situ*
UW88-71	Fragmentary cervical vertebra	MH1	miner's dump	*Ex situ*
UW88-92	Lumbar vertebra	MH1	miner's dump	*Ex situ*

UW88-37	Thoracic vertebra	MH1	miner's dump	*Ex situ*
UW88-69	Thoracic vertebra	MH1	miner's dump	*Ex situ*
UW88-70	Thoracic vertebra	MH1	miner's dump	*Ex situ*
UW88-90	Thoracic vertebra	MH1	miner's dump	*Ex situ*
UW88-72	Cervical vertebra	MH1	miner's dump	*Ex situ*
UW88-93	Cervical vertebra	MH1	miner's dump	*Ex situ*
UW88-73	Vertebra	MH1	miner's dump	*Ex situ*
UW88-28	Scapula	MH2	Arm block (UW88-B043)	*In situ*
UW88-57	Right humerus	MH2	Facies D	
UW88-62	Right ulna	MH2		
UW88-85	Right radius	MH2		
UW88-172	Manubrium	MH2		
UW88-63	Distal right femur	MH2		
UW88-198	First right rib	MH2		
UW88-58	Second right rib	MH2		
UW88-61	Intermediate right rib	MH2		
UW88-154	Intermediate rib	MH2		
UW88-59	Rib fragment	MH2		
UW88-60	Rib fragment	MH2		
UW88-143	Right rib fragment	MH2		
UW88-144	Right rib fragment	MH2		
UW88-145	Right rib fragment	MH2		
UW88-165	Right rib fragment	MH2		
UW88-119	First right metacarpal	MH2		
UW88-115	Second right metacarpal	MH2		
UW88-116	Third right metacarpal	MH2		
UW88-117	Fourth right metacarpal	MH2		
UW88-118	Fifth right metacarpal	MH2		
UW88-95	Right hamate	MH2		
UW88-156	Right capitate	MH2		
UW88-158	Right scaphoid	MH2		
UW88-159	Right lunate	MH2		
UW88-163	Right triquetral	MH2		
UW88-160	First proximal right phalanx	MH2		
UW88-164	Second proximal right phalanx	MH2		
UW88-120	Third proximal right phalanx	MH2		

UW88-108	Fourth proximal right phalanx	MH2		
UW88-121	Fifth proximal right phalanx	MH2		
UW88-123	Second intermediate right phalanx	MH2		
UW88-161	Third intermediate right phalanx	MH2		
UW88-122	Fourth intermediate right phalanx	MH2		
UW88-162	Fifth intermediate right phalanx	MH2		
UW88-124	First distal right phalanx	MH2		
UW88-79	Right patella	MH2	Knee articulated, top of the arm block (UW88-B043) Facies D	*In situ*
UW88-100	Right patella	MH2		
UW88-64	Proximal right tibia	MH2		
UW88-78	Proximal right tibia	MH2		
UW88-56	Cranial fragment of the right scapula	MH2	Scapula fragment block	*Ex situ*
UW88-54	Right hemi-mandible (fragment)	MH2		
UW88-19	Second upper left molar	MH2		
UW88-20	Third upper left molar	MH2		
UW88-38	Right clavicle	MH2		
UW88-83	Cervical vertebra	MH2		
UW88-133	Right pelvis	MH2	Pelvis block (UW88-B079)	*Ex situ*
UW88-134	Left pelvis (fragment)	MH2		
UW88-135	Left pelvis (fragment)	MH2		
UW88-137	Sacrum	MH2		
UW88-138	Last lumbar (fragment)	MH2		
UW88-153	Last lumbar (fragment)	MH2		
UW88-97	Distal right tibia	MH2	Ankle	*Ex situ*
UW88-99	Right calcaneum	MH2		
UW88-98	Right talus	MH2		
UW88-43	Thoracic vertebra	MH2	Thoracic vertebrae block 1	*Ex situ*
UW88-44	Thoracic vertebra	MH2		
UW88-45	Rib	MH2		
UW88-46	Rib	MH2		
UW88-47	Rib	MH2		
UW88-48	Rib	MH2		
UW88-114	Fragmentary thoracic vertebra	MH2		
UW88-177	Possible metatarsal fragment	MH2?	Thoracic vertebrae block 2 (UW88-B742)	*Ex situ*
UW88-178	Second proximal left rib	MH2		
UW88-179	Pedal distal phalanx	MH2		

UW88-180	Sesamoid	MH2		
UW88-181	Proximal part of the first metatarsal	MH2		
UW88-183	Unidentifiable bone fragment	MH2		
UW88-185	Unidentifiable bone fragment	MH2		
UW88-187	Proximal part of the first left rib	MH2		
UW88-188	Thoracic vertebra	MH2		
UW88-189	Thoracic vertebra	MH2		
UW88-190	Thoracic vertebra	MH2		
UW88-191	Thoracic vertebra	MH2		
UW88-125	Fragment of the sacrum	MH2	Lumbar vertebra block	*Ex situ*
UW88-126	Lumbar vertebra	MH2		
UW88-127	Lumbar vertebra	MH2		
UW88-55	Left mandible with third molar	MH2	miner's dump	*Ex situ*
UW88-55b	Fragment of the left mandible	MH2		
UW88-23	Proximal left fibula	MH2	miner's dump	*Ex situ*
UW88-84	Proximal left fibula	MH2		
UW88-146	Fragmentary right fibula shaft	MH2	miner's dump	*Ex situ*
UW88-202	Fragmentary right fibula shaft	MH2?	West of Facies D	*Ex situ*
UW88-103	Left acromion (scapula)	MH2	miner's dump	*Ex situ*
UW88-104	Left scapula fragment (glenoid)	MH2	miner's dump	*Ex situ*
UW88-101	Left humeral head	MH2	miner's dump	*Ex situ*
UW88-87	Distal left femur	MH2	miner's dump	*Ex situ*
UW88-94	Lateral end of the left clavicle	MH2	miner's dump	*Ex situ*
UW88-10	Left pubis (fragment)	MH2	miner's dump	*Ex situ*
UW88-136	Right pelvis (fragment)	MH2	miner's dump	*Ex situ*
UW88-65	Distal right fibula	MH2	miner's dump	*Ex situ*
UW88-24	Proximal left tibia	MH2	miner's dump	*Ex situ*
UW88-192	Rib fragment	MH2	UW88-B1003	*Ex situ*
UW88-193	Rib fragment	MH2		
UW88-209	Rib fragment	MH2	miner's dump	*Ex situ*
UW88-210	Rib fragment	MH2	miner's dump	*Ex situ*
UW88-96	Fragmentary cervical vertebra	MH2	miner's dump	*Ex situ*
UW88-182	Proximal left metacarpal	MH2	UW88-B894	*Ex situ*
UW88-157	Unidentifiable hand bone	MH2	miner's dump	*Ex situ*
UW88-91	Proximal part of the pedal left phalanx	MH2	miner's dump	*Ex situ*
UW88-150	Left capitate	MH2	miner's dump	*Ex situ*

UW88-106	Left hamate	MH2	miner's dump	*Ex situ*
UW88-107	Left triquetral	MH2	miner's dump	*Ex situ*
UW88-201	Molar crown fragment	MH2	miner's dump	*Ex situ*
UW88-175	Proximal right femur	MH3	miner's dump	*Ex situ*
UW88-176	Unidentified bone fragment	MH3		
UW88-21	Distal right tibia	MH4	miner's dump	*Ex situ*
UW88-40	Proximal right tibia	MH4		
UW88-81	Distal right humerus	MH5	Facies E	*In situ*
UW88-82	Proximal right ulna	MH5		
No number	Mandible with teeth	MH6	Facies F, Pit 2	*In situ*
UW88-33	Fifth proximal metatarsal	MH?	miner's dump	*Ex situ*
UW88-149	Distal radius	MH?	miner's dump	*Ex situ*
UW88-150	Distal fibula	MH?	miner's dump	*Ex situ*
UW88-151	Femoral head fragment	MH?	miner's dump	*Ex situ*
UW88-169	Fragmentary mandible	MH?	Facies F, Pit 2	*In situ*
UW88-208	Fragment ulna shaft	MH?	Facies D	*In situ*
UW88-219	Fragment ulna shaft	MH?		
UW88-186	Mandible fragment	MH?	miner's dump	*Ex situ*
UW88-213	Intermediate phalanx	MH?	miner's dump	*Ex situ*
UW88-218	Unfused epiphysis	MH?	miner's dump	*Ex situ*
UW88-194	Possible pelvic fragment	MH?	miner's dump	*Ex situ*
UW88-195	Possible pelvic fragment	MH?		
UW88-199	Rib fragment	MH?	miner's dump	*Ex situ*
UW88-205	Rib fragment	MH?	miner's dump	*Ex situ*
UW88-140	Ulna shaft fragment	MH?	miner's dump	*Ex situ*
UW88-204	Fibula shaft fragment	MH?	miner's dump	*Ex situ*
UW88-207	Fibula shaft fragment	MH?	miner's dump	*Ex situ*
UW88-217	Fibula shaft fragment	MH?	miner's dump	*Ex situ*
UW88-220	Fibula shaft fragment	MH?	miner's dump	*Ex situ*
UW88-212	Rib fragment	MH?	miner's dump	*Ex situ*
UW88-214	Rib fragment	MH?	miner's dump	*Ex situ*
UW88-215	Rib fragment	MH?	miner's dump	*Ex situ*
UW88-216	Right clavicle fragment	MH?	miner's dump	*Ex situ*
UW88-139	cuneiform	MH?	miner's dump	*Ex situ*

Appendix 2. Coordinates of the *in situ* hominin remains.

Specimen number	Element	Individual	Coordinates		
			E (x)	*N (y)*	*Depth (z)*
UW88-31	Vault fragment (right parietal)	MH1	-80313.00	2865448.24	1442.95
UW88-32	Vault fragment (right temporal)	MH1	-80313.00	2865448.24	1442.95
UW88-29	Upper right incisor	MH1	-80313.20	2865448.44	1443.00
UW88-30	Upper right canine	MH1	-80313.20	2865448.44	1443.00
UW88-16	Right metatarsal	MH1?	-80311.71	2865448.74	1441.69
UW88-22	Right metatarsal	MH1?	-80311.71	2865448.74	1441.69
UW88-B043	Arm block-north corner	MH2	-80312.90	2865448.69	1442.49
UW88-B043	Arm block-south corner	MH2	-80313.15	2865449.20	1442.19
UW88-B043	Arm block-west corner	MH2	-80312.84	2865449.01	1442.30
UW88-B043	Arm block-east corner	MH2	-80311.71	2865449.00	1442.51
UW88-B043	Arm block-centre	MH2	-80312.43	2865448.94	1442.35
UW88-202	Fibula shaft fragment	MH2?	-80316.51	2865448.50	1444.06
UW88-175	Proximal right femur	MH3	ND	ND	ND
UW88-176	Unidentified bone fragment	MH3	ND	ND	ND
UW88-81	Distal right humerus	MH3	ND	ND	ND
UW88-82	Proximal right ulna	MH3	ND	ND	ND
UW88-169	Mandible	MH5	-80310.79	2865441.95	1443.69
No number	Mandible with teeth	MH6	ND	ND	ND
UW88-208	Ulna shaft fragment	MH?	-80316.95	2865448.30	1444.02
UW88-219	Ulna shaft fragment	MH?	-80315.11	2865444.98	1443.81

ND: not documented

Appendix 3. Thesaurus for the faunal database.

List of abbreviations used throughout the database

- CO: complete
- NA: not applicable
- ND: non documented
- fgmt: fragment

List of abbreviations used for the taxonomy

- ARTIO: artiodactyla
- AVES: bird
- BOV: bovid
- CARN: carnivore
- CHEL: chelonia
- LAGO: lagomorpha
- MAM: mammal
- MIF: microfauna
- PERISSO: perissodactyla
- ROD: rodent
- SMAM: small mammal
- UNG: ungulate

List of abbreviations used for the anatomy (body part, portion and segment)

- ACET: acetabulum
- ACRO: acromion
- ALV: alveolar surface
- ANT: anterior
- ART: articular
- ATL: atlas
- AX: axis
- C: canine
- CALC: calcaneum
- CALV: calvarium
- CARP: carpals
- CAPIT: capitate
- CAU: caudal vertebra
- CLAV: clavicle
- CORAC: coracoid
- CRA: cranium (skull+mandible)
- CER: cervical vertebra
- CO: complete
- COX: coxal bone
- CRA: cranium (skull)
- CUBO: cuboid

- CUBO-NAVI: cubo-navicular
- CUN: cuneiform
- D: distal
- DSH: distal part of the shaft
- EP: epiphysis
- FBN: flat bone
- FEM: femur
- FIB: fibula
- fgmt: fragment
- GLEN: glenoid cavity
- HAM: hamate
- HOR: horizontal branch (of the mandible)
- HUM: humerus
- I: incisor
- ILI: ilium
- ISCH: ischium
- LBN: long bones
- LAT: lateral
- LAT MAL: lateral malleolus
- LC: lower canine
- LD: lower deciduous tooth
- LI: lower incisor

- LM: lower molar
- LPM: lower premolar
- LUN: lunate
- LUM: lumbar
- M: molar
- MAG: magnum
- MAN: mandible
- MANT: mandible with teeth
- MANUB: manubrium
- MAX: maxillar
- MAXT: maxillar with teeth
- M: molar
- MDP: manual distal phalanx
- MMP: manual medial (intermediate) phalanx
- MPP: manual proximal phalanx
- META: metapodial
- MTC: metacarpal
- MTT: metatarsal
- OCC: occipital
- P: proximal part
- PAT: patella
- PDP: pedal distal phalanx

- PELV: pelvis
- PHA: phalanx
- PM: premolar
- PMP: pedial medial (intermediate) phalanx
- POST: posterior
- PPP: pedial proximal phalanx
- PROC.: process (for the vertebrae)
- PSH: proximal part of the shaft
- PUB: pubis (coxal bone)
- RAD: radius
- RADIO-ULN: radio-ulna
- RIB: rib
- SAC: sacrum
- SCAP: scapula
- SCAPH: scaphoid
- SES: sesamoid
- SH: shaft
- SHBN: short bone
- SP.PROC.: spinous process (for the vertebrae)
- STERN: sternum/sternal
- SURF: surface
- TAL: talus (astragalus)

- TARS: tarsal
- THO: thoracic vertebra
- TIB: tibia
- TRANS.PROC: transversal process (for the vertebrae)
- TRIQU: triquetral
- TTH: tooth
- UC: upper canine
- UD: upper deciduous tooth
- UI: upper incisor
- ULN: ulna
- UM: upper molar
- UNC: unciform
- UPM: upper premolar
- VER: vertebra
- ZYG: zygomatic

Fields of the database

NUMBERING AND PROVENANCE INFORMATION

- **SITE**: Malapa UW-88, consistent with the site number (see Zipfel and Berger, 2009)
- **Number of remains**: usually, each individual specimen is recorded under a separate number; however, in the case of specimens below 2 cm and not analysed for the taphonomy, several fragments are sometimes recorded under the same specimen number. In the case of

associated bone (s) and teeth (e.g maxillar or mandible bearing teeth), I have discounted separately the bones and the teeth, in order to take into account each of them as a separate specimen.

- **Suitcase/Box number**: for the hominin remains (each of the MH1 and MH2 remains are kept in different suitcases in the lab) and the non-hominin remains (organised in different boxes in the faunal lab, some of them with a number).
- **Facies**: stratigraphic unit of origin (e.g. Facies D, Facies E) of the *in situ* remains.
- ***Ex situ/In situ***: blocks in place in the place (*in situ*), usually they have been given coordinates (for the block) or blocks that have been removed by the miners (usually found in the road, along the hole).
- **Specimen number**: number given by the people that have identified the faunal remains or from the hominin catalogue (written on the bones themselves). I have created sub-numbers when several remains were recorded under the same number (for example specimen 1142 is composed of 5 bone fragments, which therefore become 1142a, 1142b and so on, always going from the longest fragment to the smallest; hence 1142a is the largest fragment and 1142 e is the smallest).
- **Individual**: name of the individual (only for the hominins: MH1 for the juvenile and MH2 for the adult)
- **Block number:** catalogue number of the block in which the specimen was recovered; it follows the same numbering system UW88-B...
- **Coordinates (east, north and height):** georeferenced coordinates recorded by the theolodite laser, given in metres.
- **Pt:** point recorded in the theodolithe laser, corresponding to the coordinates

<u>IDENTIFICATION (ANATOMY)</u>

- **Nature of the remains**: bone, tooth, horn corn, shell, snail, carapace, stone, coprolite
- **ORDER**: for the faunal remains
- **FAMILY**
- **TRIBE:** only used for the bovids
- **TAXON**: the exact species when identified or the class size, for the mammals, carnivores, bovids and ungulates (following the classification of Brain, 1973).

- **ANAT**: body region to which the bone belongs to (see above for all abbreviations used in that column)
- **BODY PART:** skeleton element (see above for all abbreviations used in that column)
- **PORTION:** portion of the bone that is preserved (e.g. proximal shaft, distal epiphysis, transversal process, etc) (see above for all abbreviations used in that column)
- **SEGMENT:** landmark observed on the fragment allowing the identification (e.g. articular surface, see above for all abbreviations used in that column)
- **AGE**: identified for the hominins and other faunal remains, when possible (e.g. in the case of long bones with epiphysis unfused or deciduous teeth); A: adult, O: old invididual; J: juvenile and I: infant.
- **SEX**: only identified for the hominins (M: male and F: female)
- **FR/CO**: fragmentary (*FR*) or complete (*CO*) (usually not mentioned in the fauna database)
- **SIDE**: right (R), left (*L*) or midline (/)
- **Conjoins with/Joins to**: *with* ... (number of a specimen) when the specimen refits to it or belongs to the same block/individual;*to*...(number of specimen(s)) when it joins two specimens.
- **COMMENTS**: any kind of general comment concerning a specificity of the specimen.

<u>BREAKAGE PATTERN</u>

- **SPONG/COMP**: proportion of spongy and compact bone for each specimen.

SPONG : exclusively spongy bone

COMP: exclusively compact bone

SPONG + *COMP*: spongy and compact bone, with a greater portion of spongy bone

COMP + *SPONG*: spongy and compact bone, with a greater portion of compact bone

- **BREAK 1 (PROX):** breakage pattern of the anatomical proximal part of the specimen when identifiable) or, if non identifiable, on one of the end of the longest axis (Figure 1)
- **BREAK 2 (DIST):** breakage pattern of the anatomical distal part of the specimen when identifiable) or, if non identifiable, on the other end of the longest axis (Figure 1)
- **BREAK 3 (LAT)**: breakage pattern of the anatomical lateral part of the specimen when identifiable) or, if non identifiable, on one of the lateral edges (Figure 1)
- **BREAK 4 (MED)**: breakage pattern of the anatomical medial part of the specimen when identifiable) or, if non identifiable, on the other lateral edge (Figure 1)

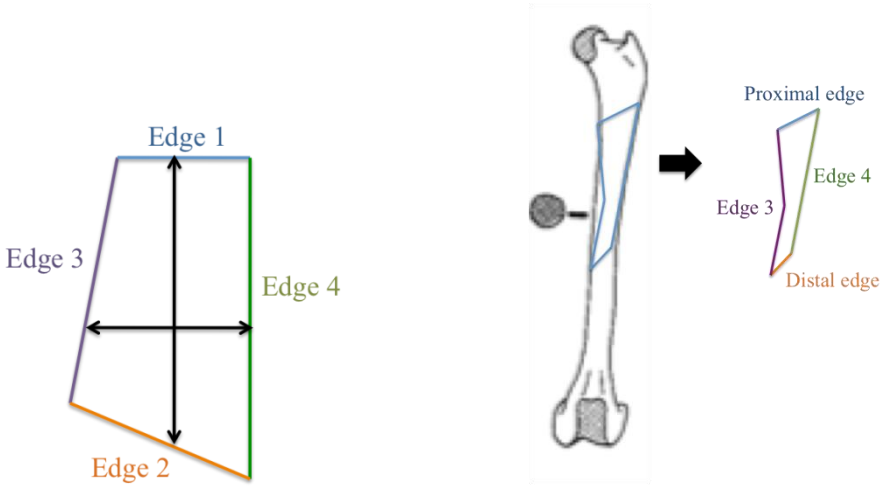


Figure 1. Description of the different edges.

DIMENSIONS (all the measurements are given in millimetres).

- **LENGTH**
- **WIDTH**
- **THICK:** thickness
- **CompBoneThick**: thickness of the compact bone
- **CONCH.SCAR:** conchoidal scar (*single*; *multiple isolated*; *multiple adjacent).*

TAPHONOMY

- **WEATHERING**: stages 1 to 5 (cf. Behrensmeyer, 1975)
- **CARN**: carnivore damage (only pits are observed)
- **RODENT**: rodent tooth damage (*large* or *small*)

INVERTEBRATE DAMAGE

- **YES/NO**: presence or absence of any kind of insect modification
- **Inters.Str.**: intersecting striations (YES/NO)
- **Inters.Str. in Pit**: pit with intersecting striations at the bottom (YES/NO)
- **Star-pit**: pit surrounded by parallel striations (YES/NO)
- **Boring** (YES/NO)
- **Paral Str.**: parallel striations (YES/NO)

ABIOTIC DAMAGE

- **ETCHING:** (YES/NO)

- **TRAMPLING:** (YES/NO)
- **ROOTS:** (YES/NO)
- **Calc Crystals:** crystals of calcite formed either on the surface of the bone or inside (in the medullar cavity or in the vessels).
- **Decalcification:** the bone presents a white surface, because the calcium contained in the bone has disappeared (YES/NO)
- **Concretion:** mineral concretion present on the surface of the bone (YES/NO)
- **Abrasion:** any kind of chemical abrasion (due to water for instance but not only).
- **Manganese**: NO (absent), slightly (only a few dots), slightly to moderate (abundant dots), moderate (half the surface of the specimen is covered), moderate to heavily (the majority of the surface is covered with some parts of the surface still visible), and heavily (the whole surface of the specimen is covered)
- **Red traces**: reddish (the colour varies from orangey to dark red) dots and patches observed on the surface of some specimens (YES/NO)

ANTHROPOGENIC MODIFICATIONS

- **BURNING**(natural or anthropogenic origin) Different colour stages (from slightly burned to heavily burned: *maroon, black, grey, white*
- **PREPARATION:** any mark produced by the air drillt used during manual preparation, usually associated with the removal of the specimen from the calcified sediment; it consists of pits and/or scratches
- **POLISH:** the bone or part of it is covered with polish that makes it difficult to see the bone surface
- **PLASTICINE:** presence of specific damage due to the use of plasticine (surface of the bone is dissolved; bits of plasticine are usually still present)
- **PICTURE**: documents whether or not a picture of the specimen exists (either in the Microsoft Access database or in a separate file, also available)
- **COMMENT:** any kind of comment concerning the taphonomy of the specimen

Appendix 4. List of antimeric sets of bones present in the Malapa non-hominin faunal assemblage.

Specimen number	TAXONOMY	BONE	PORTION	SIDE
UW88-802	Felid (cf.*Dinofelis*)	radius	distal	right
UW88-803	Felid (cf.*Dinofelis*)	radius	distal	left
UW88-643	Lagomorph (*Lepus capensis*)	femur	complete	right
no number	Lagomorph (*Lepus* sp.)	femur	near complete	left
UW88-673	Lagomorph (*Lepus* sp.)	ilium	complete	left
UW88-769	Lagomorph (*Lepus* sp.)	pelvis	complete	right
no number	Lagomorph (*Lepus* sp.)	mandible with teeth	near complete	right
no number	Lagomorph (*Lepus* sp.)	mandible with teeth	near complete	left
UW88-748	Bovid class II	femur	complete	right
UW88-1181	Bovid class II	femur	near complete	left
UW88-1184	Bovid class III	humerus	complete	right
UW88-1236	Bovid class III	humerus	proximal	left
UW88-507	Bovid class III	humerus	proximal	right
no number	Bovid class III	humerus	proximal	left
UW88-1213	Bovid class III	radius	proximal	right
UW88-714	Bovid class III	radius	proximal	left
UW88-1223	Bovid class II	tibia	complete	right
no number	Bovid class II	tibia	complete	left
UW88-1247	Bovid class III	metacarpal	complete	right
UW88-535	Bovid class III	metacarpal	complete	left
UW88-1266	Bovid class II	scapula blade	near complete	right
UW88-1234	Bovid class II	scapula blade	near complete	left
UW88-518 and 519	Bovid class III (*Tragelaphus* sp.)	mandible with teeth	near complete	right
UW88-929	Bovid class III (*Tragelaphus* sp.)	mandible with teeth	near complete	left

Appendix 5. Quantitative data about the available non-hominin faunal assemblage.

PERCENTAGE OF SURVIVAL FOR BOVID BONES AND TEETH

Anatomical element	N	NISP	MNE	% survival
Skulls	1	16	4	44.4
Hemi-mandibles	2	10	7	38.9
Teeth	32	64	41	14.2
Sternum	3	1	1	3.7
Ribs	26	34	20	8.6
Cervical vertebrae	7	8	8	12.7
Thoracic vertebrae	13	20	19	16.2
Lumbar vertebrae	6	10	7	13
Caudal vertebrae	19	5	5	2.9
Total vertebrae	45	32	28	11.1
Sacrum	1	2	2	22.2
Coxae	2	11	6	33.3
Scapulae	2	9	5	27.8
Humeri	2	8	6	38.9
Radii	2	10	6	33.3
Ulnae	2	5	5	27.8
Carpals	12	9	9	8.3
Femurs	2	16	9	50
Patellae	2	1	1	5.6
Tibiae	2	7	7	38.9
Lateral malleolus	2	1	1	5.6
Tarsals	10	24	24	26.7
Metapodials	4	25	11	30.6
Phalanges	24	42	33	15.3
TOTAL	**177**	**322**	**231**	**22.6**

PERCENTAGE OF SURVIVAL FOR CARNIVORE BONES

Anatomical element	N	NISP	MNE	% survival
Skulls	1	7	5	35.7
Hemi-mandibles	2	7	5	17.9
Ribs	26	11	11	3.0
Cervical vertebrae	7	2	2	2.0
Thoracic vertebrae	13	11	11	6.0
Lumbar vertebrae	7	7	7	8.3
Caudal vertebrae	21	2	2	3.2
Total vertebrae	48	21	21	4.2
Sacrum	1	2	2	14.3
Scapulae	2	1	1	3.6
Coxae	2	4	4	14.3
Humeri	2	2	2	7.1
Radii	2	5	5	17.8
Ulnae	2	2	2	7.1
Carpals	14	5	5	2.6
Femurs	2	6	5	17.8
Patellae	2	0	0	0
Tibiae	2	3	3	10.7
Fibulae	2	1	1	3.6
Tarsals	14	10	10	5.1
Metapodials	18	22	21	8.3
Phalanges	52	15	15	2.1
TOTAL	**194**	**123**	**118**	**8.9**

PERCENTAGE OF SURVIVAL FOR CARNIVORE TEETH

Unit	Felids	Hyaenids	Canids	Viverrids/Herpestids	TOTAL
Q	28	34	42	38	142
NISP	7	11	5	16	36
MNE	7	11	5	16	36
% survival	**5**	**10.8**	**6**	**10.5**	**8.2**

Appendix 6. Estimation of the Minimum Number of Individuals (MNI) represented by complete or near complete skeletons.

Species	**Individuals/Specimens**	**MNI**
Hominins	MH1	1
	MH2	1
Bovid class II	Various elements in articulation, partial skeleton, 3 antimeric sets of bones, one near complete foetus in articulation	2
Bovid class III (*Tragelaphus* sp.)	Various elements in articulation, partial skeleton, 5 antimeric sets of bones	1
Small carnivore (possible genet)	Complete upper body-part in articulation and near articulation	1
Lagomorph (*Lepus* sp.)	Articulated bones, 3 antimeric sets of bones	1
TOTAL	**-**	**7**