The Late Middle Pleistocene Mammalian Fauna Of Oumm Qatafa Cave, Judean Desert: Taxonomy, Taphonomy and Paleoenvironment

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Supplementary materials

1. SI1: Bone measurements in mm. Abbriviations follow von den Driesch (1976). Vera Eisenmann’s mesurements of equid bones are presented by element in separate tables.
2. SI2: R code and supplementary files for the morphometric analysis of OQ-75.
3. SI3: R code and supplementary files for the maxent distribution modelling of *O. rufescens*.
4. SI4: Comparison of diversity indices between Layers D and E.
5. SI5: Aharon Horowitz’s preliminary report on the pollen sampled in 1991 from Layer D2.
6. Supplementary figures:

Figure A: *E.* aff. *capensis*. OQ 122 (E2), left Tibia, A: anterior view, B: distal view; OQ 124 (E2), left Talus, C: posterior view, D: anterior view, E: distal view, F: medial view; G: OQ 123 (E2), left Calcaneum medial view. H: OQ 125 (?), first anterior Phalanx, profile. (Photographs by Roee Shafir and Vera Eisenmann).

Figure B: *E.* aff*. capensis* (A to I); *Equus hydruntinus* (J).

OQ 113 (E1) lower right dP4, A and B: occlusal view and scan; OQ 114 (E1) upper right dP4, C and D: occlusal view and scan; OQ 115 (E1) upper left dP4, E, F and G: occlusal view and scans; OQ 118 (F 32/23), H and I: section and vetibular view of a lower left molar germ. *Equus hydruntinus*, OQ 116 (E2/3), upper left dI3, J: occlusal view. (Photographs by Roee Shafir).

Figure C: Simpson's diagrams of E. (Asinus) aff. africanus from Aïn Metherchem, Tunisia and E. (Quagga) mauritanicus from Tighenif, Algeria MC. 1: Maximal length. 3: Breadth at the middle of the diaphysis. 4: Depth of the diaphysis at the same level. 5: Proximal breadth. 6: Proximal depth. 10: Distal supra-articular breadth. 11: Distal articular breadth. 12: Depth of the sagittal crest. 13: Least depth of the medial condyle. 14: Greatest depth of the medial condyle. n: number of specimens.

# SI1: Bone measurements in mm.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Bos* | astragalus | GLl | Bd | Dl |  |  |  |  |
|  | 255 | 87.6 | 58.4 | 47 |  |  |  |  |
|  | scapula | Hmax | Hn | Glenoid H |  |  |  |  |
|  | 256 | 101.4 | 85.9 | 85.9 |  |  |  |  |
| *Canis* | radius | Bd |  |  |  |  |  |  |
|  | 103 | 19.9 |  |  |  |  |  |  |
|  | ulna | DPA | SDO | BPC |  |  |  |  |
|  | 104 | 18.8 | 16.2 | \*12 |  |  |  |  |
|  | mandible | dp4 L | dp4 B |  |  |  |  |  |
|  | 75 | 12.1 | 5.1 |  |  |  |  |  |
|  | maxilla | dP4 L | dP4 B |  |  |  |  |  |
|  | 278 | 7.2 | 6 |  |  |  |  |  |
|  | radius | Bp | Dp |  |  |  |  |  |
|  | 99 | 14.4 | 9.8 |  |  |  |  |  |
| *Capra* | horncore base | L | B |  |  |  |  |  |
|  | 230 | 45.6 | 31.4 |  |  |  |  |  |
|  | humerus | BT | HTC |  |  |  |  |  |
|  | 3 |  | 16.6 |  |  |  |  |  |
|  | 204 | 39.9 | 17.1 |  |  |  |  |  |
|  | 154 | 32.5 | 16.4 |  |  |  |  |  |
|  | mandible | m3 L | m3 B |  |  |  |  |  |
|  | 209 | 29.3 | 10.7 |  |  |  |  |  |
|  | 211 | 26.7 | 9.8 |  |  |  |  |  |
|  | 166 | 27.1 | 10.1 |  |  |  |  |  |
|  | 12 |  | 10 |  |  |  |  |  |
|  | mandible | p3 L | p3 B |  |  |  |  |  |
|  | 30 | 8.4 | 5.6 |  |  |  |  |  |
|  | maxilla | M3 L | M3 B |  |  |  |  |  |
|  | 36 | 19.8 | 12.6 |  |  |  |  |  |
|  | 35 | 17.6 | 13 |  |  |  |  |  |
|  | metacarpal | DEL | DVL | WCL | DEM | DVM | WCM | Bp |
|  | 53 | 13.3 | 20.5 | 17.9 |  |  |  |  |
|  | 57 |  |  |  |  |  |  | 27.2 |
|  | 201 |  |  |  | 11.4 | 18.7 |  | 31.7 |
|  | 202 unfused |  |  |  |  |  |  | 28 |
|  | ulna | BPC |  |  |  |  |  |  |
|  | 203 | 23.6 |  |  |  |  |  |  |
| *Cervidae cf. dama* | pha-1 | GLpe | Bp | Bd | SD |  |  |  |
|  | 55 | 38.1 | 12.5 | 11.7 | 10.3 |  |  |  |
| *Cervus* | mandible | tooth row (-P2) | P3 L | P3 B |  |  |  |  |
|  | 221 | 109.8 | 17 | 10 |  |  |  |  |
|  | metatarsus | Bp |  |  |  |  |  |  |
|  | 217 | 42.1 |  |  |  |  |  |  |
|  | 218 | 41 |  |  |  |  |  |  |
|  | 219 | 39.6 |  |  |  |  |  |  |
|  | pha-3 | DLS |  |  |  |  |  |  |
|  | 126 | 52.9 |  |  |  |  |  |  |
| *Dama* | mandible | dp4 B |  |  |  |  |  |  |
|  | 9 | 8.6 |  |  |  |  |  |  |
|  | metapodial | DEM | DVM | WCM |  |  |  |  |
|  | 162 | 14.7 | 2.9 | 18.4 |  |  |  |  |
|  | metatarsal | Bp | Bd | Dd | DEM | DVM |  |  |
|  | 56 |  | 40.3 | 29.4 |  |  |  |  |
|  | 41 |  | 30.9 |  | 15.1 | 21 |  |  |
|  | 42 |  | 31.9 |  | 14.9 | 19.9 |  |  |
|  | 43 |  | 31.2 |  | 15.5 | 20.9 |  |  |
|  | 44 (unfused) | 28.2 |  |  |  |  |  |  |
|  | 45 | 29.4 |  |  |  |  |  |  |
|  | 220 |  | 45.5 |  |  |  |  |  |
|  | pha-1 | GLpe | Bp | Bd | SD |  |  |  |
|  | 40 | 47.2 | 16.1 | 17.3 | 13 |  |  |  |
|  | pha-2 | Bd |  |  |  |  |  |  |
|  | 180 | 12.6 |  |  |  |  |  |  |
|  | radius | Bp |  |  |  |  |  |  |
|  | 52 | 61.5 |  |  |  |  |  |  |
|  | 244 | 45.4 |  |  |  |  |  |  |
|  | 223 | 44.5 |  |  |  |  |  |  |
|  | tibia | Bd | Dd |  |  |  |  |  |
|  | 1 | 35.8 | 29.2 |  |  |  |  |  |
|  | 6 | 34.9 | 28 |  |  |  |  |  |
|  | 127 | 35.5 | 27.2 |  |  |  |  |  |
| *Equus* | pha-1 | GL |  |  |  |  |  |  |
|  | 125 | 86.8 |  |  |  |  |  |  |
|  | astragalus | BB | GH | LmT | BFd |  |  |  |
|  | 124 | 63.1 | 63 | 63.2 | 52.4 |  |  |  |
|  | tibia | Bd | Dd |  |  |  |  |  |
|  | 122 | 72.9 | 51.9 |  |  |  |  |  |
|  | mandible | M3 L | M3 B |  |  |  |  |  |
|  | 113 | 38.4 | 13 |  |  |  |  |  |
|  | mandible | dp4 L | dp4 B |  |  |  |  |  |
|  | 118 | 30.1 | 11.1 |  |  |  |  |  |
|  | maxilla | dp4 L | dp4 B |  |  |  |  |  |
|  | 120 | 21.1 | 20.9 |  |  |  |  |  |
|  | maxilla | M1/2 L | M1/2 B |  |  |  |  |  |
|  | 119 | 26.5 | 22 |  |  |  |  |  |
| *Felis* | humerus | SD |  |  |  |  |  |  |
|  | 112 (unfused) | 5.9 |  |  |  |  |  |  |
|  | ulna | DPA | SDO | BPC |  |  |  |  |
|  | 111 | 13.7 | 12.1 | 9.6 |  |  |  |  |
| *Gazella* | humerus | BT | HTC |  |  |  |  |  |
|  | 252 | 24.7 | 13.9 |  |  |  |  |  |
|  | 253 |  | 13.3 |  |  |  |  |  |
|  | mandible | dp4 L | dp4 B |  |  |  |  |  |
|  | 183 | 14.8 |  |  |  |  |  |  |
|  | 187 | 16.1 | 5.5 |  |  |  |  |  |
|  | metacarpus | Bd | Dd |  |  |  |  |  |
|  | 249 | 19.6 | 15.5 |  |  |  |  |  |
|  | metatarsus | Bp | Dp | Bd | Dd |  |  |  |
|  | 3 | 20.2 | 23.3 |  |  |  |  |  |
|  | 245 |  |  | 21.6 | 15.8 |  |  |  |
|  | 247 | 21 | 23.5 |  |  |  |  |  |
|  | 248 | 21.6 |  |  |  |  |  |  |
|  | tibia | Bd | Dd |  |  |  |  |  |
|  | 250 | 22.9 | 19.1 |  |  |  |  |  |
|  | 251 | 25.9 | 19.8 |  |  |  |  |  |
| *Crocuta* | mandible | m1 L | m1 B |  |  |  |  |  |
|  | 88 | 30.06 | 14.2 |  |  |  |  |  |
|  | mandible | p2 L | p2 B |  |  |  |  |  |
|  | 68 | 15.9 | 11.4 |  |  |  |  |  |
|  | maxilla | P3 L | P3 B |  |  |  |  |  |
|  | 89 | 20.3 | 15.7 |  |  |  |  |  |
| *Procavia* | calcaneus | GL |  |  |  |  |  |  |
|  | 74a | 26.8 |  |  |  |  |  |  |
|  | femur | DC | SD |  |  |  |  |  |
|  | 261 | 9.6 |  |  |  |  |  |  |
|  | 262 (p unfused) |  | 7.8 |  |  |  |  |  |
|  | radius | GL | Bd | Bp | SD |  |  |  |
|  | 263 | 70.1 | 12.7 | 11.3 | 6.9 |  |  |  |
|  | tibia | SD |  |  |  |  |  |  |
|  | 101(p d unfused) | 6.3 |  |  |  |  |  |  |
|  | ulna | GL | BPC | SD | Dd | Bd |  |  |
|  | 74 (p d unfused) | 51.5 | 7.2 | 3.8 |  |  |  |  |
|  | 264 |  |  |  | 8.7 | 8 |  |  |
| *Lepus* | calcaneus | GL |  |  |  |  |  |  |
|  | 106 (unfused) | 25.7 |  |  |  |  |  |  |
|  | humerus | Bd | HTC |  |  |  |  |  |
|  | 100 | 11 | 6.5 |  |  |  |  |  |
|  | calcaneus | GL |  |  |  |  |  |  |
|  | 107 | 27.3 |  |  |  |  |  |  |
| *Ochotona* | mandible | TRL | P3 alveolar L | P3 alveolar B |  |  |  |  |
|  | och\_1 | 11.05 | 2.33 | 2.38 |  |  |  |  |
|  | och\_4 | 11.1 | 2.01 | 2.35 |  |  |  |  |
| *Stephanorhinos* | radius | Bp | Dp | SD |  |  |  |  |
|  | 260 | 74.8 | 43.2 | 38.4 |  |  |  |  |
| *Vormela* | ulna | DPA | BPC |  |  |  |  |  |
|  | 78 | 5.9 | 5.3 |  |  |  |  |  |
| *Vulpes* | mandible | p3 L | p3 B | p4 L | p4 B |  |  |  |
|  | 85 | 8 | 2.6 | 8.5 | 4.1 |  |  |  |
|  | maxilla | M1 L | M1 B |  |  |  |  |  |
|  | 110 | 12.6 | 6.4 |  |  |  |  |  |
|  | radius | Bd |  |  |  |  |  |  |
|  | 86 | 12.9 |  |  |  |  |  |  |
|  | 98 | 13.5 |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Procavia tooth measurements | | | |  |  |  |
| Specimen ID | Tooth | Side | Wear | MD | BL | Hmax |
| OQ-293 | M3 | R | 0 | 9.1 | 8.1 | 6.9 |
| OQ-277 | m2 | L | 1 | 7.9 | 5.1 | 6.4 |
| OQ-282 | P4 | R | 0 | 7.8 | 6.5 | 5.7 |
| OQ-283 | P3 | L | 0 | 6.7 | 6 | 5 |
| OQ-285 | p4 | R | 0 | 6.2 | 3.4 | 3.8 |
| OQ-273 | dp2 | R | 0 | 5.3 | 2.9 | 3.3 |
| OQ-273 | dp3 | R | 0 | 6 | 3.4 | 3.6 |
| OQ-274 | P4 | L | 0 | 7.9 | 6.3 | 4.9 |
| OQ-275 | dP3 | L | 0 | 7.2 | 5.9 | 4.6 |
| OQ-276 | P2 | R | 0 | 6.1 | 5.3 | 4.3 |
| OQ-276 | P3 | R | 0 | 7 | 5.7 | 4.3 |
| OQ-289 | dP1 | L | 0 | 4.5 | 3.5 | 3.3 |
| OQ-292 | P2 | L | 0 | 6.6 | 5.5 | 4.3 |
| OQ-291 | dP3 | L | 0 | 6.9 | 5.9 | 4.6 |
| OQ-290 | dP3 | R | 0 | 6.7 | 5.4 | 4.8 |
| OQ-288 | dP1 | L | 0 | 4.7 | 3.7 | 3.5 |
| OQ-286 | I1 | R | 2 | 3.7 | 2.7 | 5.8 |
| OQ-280 | p4 | L | 2 | 7.3 | 3.5 | 4.3 |
| OQ-281 | p3 | R | 2 | 5.6 | 3.1 | 3.5 |
| OQ-294 | m2 | R | 4 | 8.3 | 5.3 | 4.2 |
| OQ-299 | P4 | L | 0 | 7.7 | 6.5 | 5.5 |
| OQ-295 | P3 | R | 0 | 7.4 | 6.3 | 4.8 |
| OQ-303 | P3 | L | 1 | 7 | 5.7 | 4.5 |
| OQ-304 | P3 | L | 0 | 7.1 | 5.8 | 4.6 |
| OQ-297 | P2 | R | 0 | 6.4 | 5.3 | 4.5 |
| OQ-300 | P4 | L | 0 | 7.3 | 6.5 | 5.3 |
| OQ-306 | p2 | R | 1 | 5.6 | 2.8 | 4 |
| OQ-302 | p3 | L | 2 | 6.8 | 3.3 | 3.9 |
| OQ-301 | dp4 | L | 1 | 6.2 | 3.4 | 4.5 |
| OQ-296 | dp4 | L | 1 | 6.1 | 3.4 | 4.2 |

Equid Measurements (V. Eisenmann)

|  |  |
| --- | --- |
| Layer | E2 |
| Talus | OK 3 |
| Greatest length | 66 |
| Medial length of trochlea | 63.5 |
| Maximal width | 63 |
| Trochlear width | 31 |
| Distal articular width | 53 |
| Distal articular depth | 37 |
| Medial depth | 54 |

|  |  |
| --- | --- |
| Layer | E2 |
| Calcaneum | OK 2 |
| Greatest length |  |
| Length of proximal part | 78 |
| Smallest breadth | 21.5 |
| Proximal breadth | 45 |
| Poximal depth | 37.5 |
| Distal depth | 55 |
| Distal breadth | 53 |
| Max. diam. sustentaculim tali | 37 |
| Articular diam. sustentaculum | |

|  |  |  |
| --- | --- | --- |
| MC or MT III |  |  |
| Layer |  | D1 |
| Measurements (mm) |  | Vaufrey |
| Greatest length | 1 |  |
| Mid-shaft width | 3 |  |
| Mid-shaft depth | 4 |  |
| Proximal width | 5 |  |
| Proximal depth | 6 |  |
| Articular facet for tarsale III | 7 |  |
| Maximal distal width | 10 |  |
| Distal articular width | 11 | 39 |
| Distal depth | 12 |  |
| Medial condyle minimal depth | 13 |  |
| Medial condyle maximal depth | 14 |  |
| Lateral condyle minimal depth | 13 bis |  |

|  |  |  |
| --- | --- | --- |
|  | Ant |  |
| Layer |  | D1 |
| First Phalanges | OK 4 | Vaufrey |
| Greatest length | 88 | 70 |
| Anterior length | 81 |  |
| Smallest breadth | [33] |  |
| Proximal breadth | [50] |  |
| Poximal depth | [35] |  |
| Distal supra-articular breadth | [40] |  |
| Greatest length of trigonum phalangis | [60] |  |
| Smallest length of trigonum phalangis | |  |
| Posterior length |  |  |
| Medial supratuberosital length | 67 |  |
| Laterial supratuberosital length |  |  |
| Medial infratuberosital length | 12 |  |
| Lateral infratuberosital length |  |  |
| Distal articular breadth | [38] |  |
| Distal articular depth |  |  |

|  |  |
| --- | --- |
| Layer | E2 |
| Tibia | OK 1 |
| Greatest length |  |
| Lateral length |  |
| Smallest breadth | 45 |
| Smallest depth |  |
| Proximal breadth |  |
| Proximal depth |  |
| Distal breadth | 72.5 |
| Distal depth | 51.5 |
| Length pf fossa digitalis |  |
| Breadth of fossa digitalis | |
| Medial length |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Length | Postflexid | Width | Height | Layer |
| dP4 | D | OK 8 | 33 | ~ unworn | 13.5 | 37 | E2 |
| M1 | G | OK 14, 45v | | 7.5 | 12 | ca 47 | D2 |
| M2 | G | OK 15, 46 | 29 | 8.1 | 11 | ca 39 | F32/23 |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| G=gauche=left | | |  |  |  |  |  |
| D=droite=right | | |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Pli cab. | Plis fosseette | Length | Width | Protocone | Height | Layer | Vaufrey |
| dP3-4 | D | OK 16 |  | unworn | 29 | 21.5 | 11 | 27 | E1 |  |
| dP4 | G | OK 7 |  | ~ unworn | 32 | 24 | 9 | 26 | E2 |  |
| P | D | OK 5 | + | 7 | 28 | 26.2 | 13.8 | 51 |  |  |
| M | G | OK 6 | 0 | 4\* | 26\* | 27\* | 11\* | 81 | D2 |  |
| fragt |  | OK 9 |  |  | 25\* | 27\* | 11\* | unworn |  |  |
| fragt | G | OK 11 |  | 4 | 20.5 |  |  | 47 | D2/50 |  |
|  | G | OK 12 |  |  | small |  |  | ~ unworn | D2/37 |  |
| M | D | OK 13, 47v | 0 | 2 | 18.7 | 20.1 | 7.2 | 33 | D2/20 |  |
| P | D |  | + | 7 | 27.5 | 24 | 10 |  | D1 | Fig. 33 left |
| M | G |  | 0 | 5 | 26 | 25 | 10 |  | D1 | Fig. 33 right |
|  |  |  |  |  |  |  |  |  |  |  |
| G=gauche=left | | |  |  |  |  |  |  |  |  |
| D=droite=right | |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| \*at mid-height or section | | |  |  |  |  |  |  |  |  |

Teeth:



# SI2: R code and supplementary files for the morphometric analysis of OQ-75.

R files and code are at <https://doi.org/10.5281/zenodo.5553154>

Specimen information

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| origin | catalogue | species | genus | Country | GL | Wi | Wii |
| OQ |  | OQ | OQ |  | 12.34 | 5.16 | 3.79 |
| SMNH | M-5236 | Ly\_pictus | Lycaon |  | 14.3 | 4.65 | 3.37 |
| SMNH | M-3997 | Ly\_pictus | Lycaon |  | 15.01 | 5.2 | 4 |
| SMNH | M-3996 | Ly\_pictus | Lycaon |  | 16.17 | 5.75 | 3.97 |
| MMBF | MMBF-9338 | Ly\_pictus | Lycaon |  | 14.34 | 4.86 | 3.65 |
| ZMB | ZMB-022397 | C\_lupus | Canis |  | 12.04 | 4.22 | 3.53 |
| ZMB | ZMB-16675 | C\_dingo | Canis | Australia | 12.45 | 5.19 | 4.03 |
| ZMB | ZMB-19912 | Lu\_adusta | Lupulella | Tanzania | 9.89 | 3.5 | 3.88 |
| ZMB | ZMB-23340 | V\_vulpes | Vulpes | Poland | 9.62 | 3.67 | 2.71 |
| ZMB | ZMB-2685 | C\_lupus | Canis | Germany | 14.98 | 5.5 | 5.26 |
| ZMB | ZMB-40439 | Lu\_adusta | Lupulella | Senegal | 11.21 | 4.29 | 2.67 |
| ZMB | ZMB-40440 | Lu\_adusta | Lupulella | Senegal | 11.96 | 4.4 | 2.73 |
| ZMB | ZMB-40466 | Lu\_adusta | Lupulella | Senegal | 9.51 | 3.71 | 2.24 |
| ZMB | ZMB-40467 | Lu\_adusta | Lupulella | Senegal | 10.61 | 3.96 | 2.53 |
| ZMB | ZMB-40468 | Lu\_adusta | Lupulella | Senegal | 9.57 | 3.41 | 2.25 |
| ZMB | ZMB-41025 | U\_cinereoargenteus | Urocyon | No locality | 8.71 | 3.27 | 2.55 |
| ZMB | ZMB-48509 | N\_procyonoides | Nyctereutes | No locality | 8.47 | 3.27 | 2.13 |
| ZMB | ZMB-4861 | N\_procyonoides | Nyctereutes | No locality | 8.42 | 3.18 | 2.14 |
| ZMB | ZMB-5057 | C\_lupus | Canis | Germany | 15.03 | 5.5 | 5.09 |
| ZMB | ZMB-52484 | C\_latrans | Canis | Mexico | 11.69 | 4.39 | 3 |
| ZMB | ZMB-5525 | U\_cinereoargenteus | Urocyon | United States | 8.14 | 2.98 | 2.24 |
| ZMB | ZMB-56633 | A\_lagopus | Alopex | Greenland | 8.76 | 2.94 | 2.34 |
| ZMB | ZMB-65218 | C\_latrans | Canis | Mexico | 11.49 | 4.02 | 2.7 |
| ZMB | ZMB-65663 | V\_vulpes | Vulpes | Palestine | 9.15 | 3.22 | 2.58 |
| ZMB | ZMB-65844 | Lu\_mesomelas | Lupulella | Namibia | 10 | 3.77 | 1.95 |
| ZMB | ZMB-7341 | V\_vulpes | Vulpes | Poland | 9.83 | 3.68 | 2.6 |
| ZMB | ZMB-7342 | V\_vulpes | Vulpes | Poland | 9.22 | 3.35 | 2.57 |
| ZMB | ZMB-754 | C\_lupus | Canis | No locality | 16.58 | 5.85 | 3.94 |
| ZMB | ZMB-85793 | C\_lupus | Canis | No locality | 15.4 | 5.11 | 3.88 |
| ZMB | ZMB-86261 | C\_lupus | Canis | Canada | 17.04 | 6.37 | 4.9 |
| ZMB | ZMB-86264 | C\_lupus | Canis | Palestine | 14.58 | 5.43 | 3.51 |
| ZMB | ZMB-871 | A\_lagopus | Alopex | No locality | 9.09 | 2.89 | 2.51 |

OQ = Oumm Qatafa; SMNH = Steinhardt Museum of Natural History; ZMB =Zoological Museum Berlin

# SI3: R code and supplementary files for the maxent distribution modelling of *O. rufescens*.

R files and code can be found at <https://doi.org/10.5281/zenodo.5842183>

# SI4: Comparison of diversity indices between Layers D and E.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | Layer | Layer\_E | Layer\_D |  | | Stephanorhinus | 0 | 1 |  | | E\_ferus\* | 3 | 2 |  | | E\_hydruntinus | 0 | 2 |  | | Cervus | 1 | 2 |  | | Dama | 5 | 5 |  | | Capra | 7 | 22 |  | | Gazella | 2 | 7 |  | | Bos | 1 | 2 |  | | Antelopini | 0 | 1 |  | | Procavia | 29 | 10 |  | | Lepus | 0 | 2 |  | | Ochotona | 6 | 2 |  | | Crocutta | 1 | 1 |  | | Canis | 4 | 1 |  | | Vulpes | 2 | 1 |  | | Felis | 1 | 0 |  | |  |  |  |  | |  |  |  |  | | \*The equid taxa were collapsed to assinine and caballine groups. | | | | |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
| |  |  |  |  | | --- | --- | --- | --- | |  | Layer\_E | Layer\_D | Perm p(eq) | | Taxa S | 12 | 14 | 0.497 | | Individuals | 62 | 60 | 0 | | Dominance | 0.257 | 0.1911 | 0.1382 | | Shannon H | 1.842 | 2.069 | 0.2833 | | Evenness e^H/S | 0.5257 | 0.5653 | 0.6286 | | Simpson indx | 0.743 | 0.8089 | 0.1382 | | Menhinick | 1.524 | 1.807 | 0.358 | | Margalef | 2.665 | 3.175 | 0.358 | | Equitability J | 0.7412 | 0.7839 | 0.4433 | | Fisher alpha | 4.433 | 5.743 | 0.358 | | Berger-Parker | 0.4677 | 0.3667 | 0.1967 | |  |  |

# SI5: Preliminary report on the pollen sampled in 1991 from Layer D2. Courtesy of A. Horowitz.

|  |  |
| --- | --- |
| **Arboreal pollen** | **%** |
| Quercetalia | 10 |
| Conifers | 90 |
| **Regional pollen** | **%** |
| Arboreal pollen | 30.3 |
| Steppe pollen | 27.3 |
| Desert pollen | 42.4 |
| **Local pollen** | **%** |
| Hydrophilic | 3.3 |
| Graminacea & Cyperaceae | 80 |
| Chenopodaceae | 16.7 |
| **Total pollen** | **%** |
| Local | 47.6 |
| Arborel | 15.9 |

# Supplementary Figure A

A picture containing text

Description automatically generated

# Diagram Description automatically generated with low confidenceSupplementary Figure B

# Supplementary Figure C

Chart, line chart

Description automatically generated