

SUPPLEMENTARY INFORMATION.

Table S1. KAM-4 NW lake equid intermediate phalanx (KAM16/272) and comparative data from <http://www.vera-eisenmann.com/> and Alberdi and Palombo (2013). Measurements taken following Alberdi and Palombo (2013).

	Greatest length	Smallest breadth	Prox. greatest breadth	Prox. greatest depth	Dist. breadth
KAM16/272	47.7	38.9	50.2	31.5	38.3
<i>E. burchelli</i> (n=46)	38.7–46.0	31.0–39.5	36.5–50.2	25.7–30.2	33.3–41.2
<i>E. f. ferus</i> (n=3)	43.0–50.5	40.5–42.7	50.0–53.0	30.5–32.0	44.5–47.5
<i>E. f. przewalskii</i> (n=7)	41.0–47.0	37.0–43.0	47.0–52.0	27.0–35.0	40.0–46.2
<i>E. africanus</i> (n=14)	32.0–42.5	30.0–35.0	33.0–42.5	22.0–27.5	29.0–36.0
<i>E. quagga</i> (n=7)	40.0–44.2	34.0–37.0	42.3–46.5	27.0–29.2	36.2–38.0
<i>E. hemionus</i> (n=52)	35.5–45.0	27.8–35.5	32.0–42.0	24.0–28.0	28.9–37.0
<i>E. grevyi</i> (n=28)	43.0–50.0	36.0–42.0	45.0–50.5	28.5–33.4	37.0–43.0
<i>E. zebra</i> (n=26)	40.0–47.0	34.0–40.0	40.7–47.7	27.0–31.0	35.0–39.5
<i>E. altidens</i> (n=15)	42.3–52.7	35.6–42.6	40.9–52.0	27.5–36.7	37.0–46.0
<i>E. sussenbornensis</i> (n=4)	46.6–50.5	41.8–45.7	49.2–53.4	31.5–36.0	44.4–47.0

Table S2. Measurements of the *Hip. amphibius* third metacarpal (KAM-1/F34) from KAM-1 and modern comparative data from Hooijer and Singer (1961), Houtekamer and Sondaar (1979), and Faure (1985).

	KAM-1/F34	<i>Hip. amphibius</i>
Length (mm)	129.5	122–155 (n=4)
Proximal diameter (mm)		
- Anteroposterior	46.1	40–51 (n=4)
- Mediolateral	56.3	43–57 (n=17)
Midshaft diameter (mm)		
- Anteroposterior	23.3	20–23 (n=4)
- Mediolateral	39.4	31–40 (n=4)

Table S3. Measurements of fossil *Hip. amphibius* astragali (16.3/51, 210, 437) from 16.3 and modern comparative data from Hooijer (1950), Faure (1985), and Weston (2003).

	16.3/51	16.3/437	16.3/210	<i>Hip. amphibius</i>	<i>Hex. liberiensis</i>
Max. length (mm)					
- Lateral	89.9	–	–	77–106 (n=28)	46–55 (n=15)
- Medial	77.8	–	–	–	–
- Median	82.3	–	–	–	–
Max. width (mm)					
- Distal	78.9	77.4	~92.5	59–98 (n=30)	30–40 (n=15)
- Proximal	74.4	–	–	–	–
Breadth/length index	87.8	–	–	76.5–92.3 (n=10)	70.0–73.9 (n=5)

Table S4. Measurements of fossil *Hip. amphibius* metapodials (16.3/33, 84, 111, 385) from 16.3 and modern comparative data from Hooijer (1950), Hooijer and Singer (1961), and Faure (1985). Comparative data has been pooled across the metapodials (i.e. 3rd and 4th metapodial data pooled and 2nd and 5th metapodial pooled).

Element	Measure	16.3/33	16.3/84	16.3/111	16.3/384	<i>Hip. amphibius</i>	<i>Hex. liberiensis</i>
Distal 3 rd /4 th metapodial	Distal width (mm)	–	42.0	46.0	46.0	34–48 (n=11)	–
Distal 2 nd /5 th metapodial	Distal width (mm)	33.0	–	–	–	28–46 (n=31)	18 (n=1)

Table S5. Measurements of fossil *Syncerus* sp. remains and recent and fossil comparative data from Gentry (1967), Peters (1986), and Peters et al. (1990).

Element	Measure (mm)	16.3	KAM-1	<i>S. antiquus</i>	<i>S. caffer</i>	<i>B. taurus</i>
Humerus	Dist. ep. breadth (BT)	–	103.5	–	68–89 (n=16)	61–95 (n=18)
Tibia	Prox. Breadth (Pb)	151.0	–	–	89–120 (n=17)	77–128 (n=17)
Calcaneum	Greatest length (GL)	153.3	–	119–195 (n=4)	118–155 (n=15)	109–173 (n=15)
Metapodial	Dist. breadth (Bd)	90.6	–	–	–	–
	Dist. depth (Dd)	47.6	–	–	–	–
Metacarpal	Distal breadth (Bd)	–	–	–	54–80 (n=25)	48–83 (n=38)
	Distal depth (Dd)	–	–	–	30.5–40.5 (n=25)	26.5–49 (n=38)
Metatarsal	Distal breadth (Bd)	–	–	76–101 (n=3) 44.5 (n=1)	49–72 (n=24)	43–76 (n=42)
	Distal depth (Dd)	–	–	–	31–41.5 (n=24)	24.5–45 (n=42)
Dist. phalanx	Length of sole (DLS)	94.6	–	83 (n=1)	59–81 (n=38)	–

Table S6. Measurements of fossil *Oryx* and modern and fossil comparative data (Ti's al Ghadah fossil data from Stimpson et al., 2016).

Measure	KAM-4 /014	Ti's al Ghadah	<i>O. leucoryx</i>	<i>O. gazella</i>	<i>O. beisa</i>	<i>O. dammah</i>
Transverse diameter (mm)	37.5	Mean = 41.15 (n=?)	31–30 (n=3)	40–55 (n=10)	39–44 (n=3)	30–40 (n=4)
Antero-posterior diameter (mm)	32.4	Mean = 43.0 (n=?)	23–30 (n=3)	41–16 (n=10)	36–43 (n=3)	30–39 (n=4)
Horn core divergence (°)	~40	~20–35 (n=?)	~20–40 (n=6)	~35–45 (n=3)	~30–40 (n=3)	~20–30 (n=3)

Table S7. Results of the taphonomic analysis (raw NRSP data).

		KAM-1	KAM-4 S lake	KAM-4 NW lake	KAM-4 NW lake excavated	KAM-4 NE lake	16.3	WNEF 16_1	WNEF 16_20	WNEF 16_22
Weathering										
0	<i>n</i>	0	5	15	10	0	28	3	0	0
1	<i>n</i>	3	8	19	2	0	48	11	0	0
2	<i>n</i>	2	27	50	1	4	76	64	1	0
3	<i>n</i>	12	10	103	2	6	97	82	2	1
4	<i>n</i>	9	0	19	2	2	22	12	0	1
5	<i>n</i>	0	0	0	0	0	0	1	0	0
Indeterminate	<i>n</i>	5	17	390	5	5	344	40	4	2
Tooth-marked	<i>n</i>	1	10	8	0	5	39	0	0	0
Circ. Comp.										
Type 1	<i>n</i>	4	4	56	0	4	17	85	-	-
Type 2	<i>n</i>	2	0	2	0	0	2	0	-	-
Type 3	<i>n</i>	12	1	14	11	3	7	0	-	-
Breakage										
Dry	<i>n</i>	14	6	36	3	2	16	12	-	-
Green	<i>n</i>	4	2	11	0	2	8	42	-	-
Both	<i>n</i>	1	0	3	0	0	2	11	-	-
Voorhies Group										
I	<i>n</i>	4	5	65	-	-	35	-	-	-
I & II	<i>n</i>	2	11	17	-	-	13	-	-	-
II	<i>n</i>	7	6	38	-	-	24	-	-	-
II & III	<i>n</i>	0	0	7	-	-	0	-	-	-
III	<i>n</i>	0	1	1	-	-	7	-	-	-

Table S8. Raw specimen length and width data.

	KAM-1	KAM-4	KAM-4	KAM-4	KAM-4	16.3	WNEF	WNEF	WNEF
		S lake	NW lake	NW lake	NE lake		16_1	16_20	16_22
	Excavated								
Specimen length (mm)									
<20	0	8	15	5	0	4	7	0	0
20–29	1	31	138	6	2	52	23	3	0
30–39	6	11	151	0	2	107	70	0	0
40–49	9	8	107	1	2	121	49	0	0
50–59	10	4	62	0	4	71	27	0	0
60–69	6	1	23	0	2	48	21	1	1
70–79	11	0	19	0	1	39	8	0	1
80–89	8	0	9	0	1	22	2	0	0
90–99	5	0	1	0	0	21	1	0	0
>100	15	0	4	4	1	22	2	0	2
Specimen width (mm)									
<20	0	31	141	11	2	42	132	3	0
20–29	6	21	210	3	7	123	61	1	0
30–39	12	6	106	1	2	105	16	0	0
40–49	12	2	37	0	2	79	1	0	2
50–59	18	2	23	1	1	42	0	0	1
60–69	12	0	7	1	0	18	0	0	1
70–79	6	0	2	0	1	15	0	0	0
80–89	3	0	0	0	0	7	0	0	0
90–99	0	0	1	0	0	3	0	0	0
>100	1	0	1	0	0	0	0	0	0

Table S9. Complete skeletal inventory according to NISP.

	KAM-1	KAM-4 S lake	KAM-4 NW lake all	KAM-4 NW lake excavated	KAM-4 NE lake	16.3	WNEF 16_1	WNEF 16_20	WNEF 16_22
Horn core	–	3	1	–	–	4	–	1	–
Crania	–	1	3	1	–	3	–	–	–
Mandible	–	1	7	1	–	–	–	–	–
Isolated tooth	5	1	2	1	–	–	3	–	–
Atlas	–	–	–	–	–	–	–	–	–
Axis	–	–	1	–	–	–	–	–	–
Cerv. vert.	–	–	4	–	–	1	–	–	–
Thor. vert.	1	2	12	–	–	4	–	–	–
Lumb. vert.	–	–	–	–	–	–	–	–	–
Caud. vert.	–	–	–	–	–	–	–	–	–
Indet. vert.	1	2	40	1	–	16	–	–	1
Rib	–	1	8	–	–	17	6	2	1
Scapula	1	–	6	–	–	5	–	–	–
Pelvis	–	–	–	–	–	1	–	–	–
Humerus	2	–	9	1	1	10	–	–	–
Complete	–	–	–	–	–	–	–	–	–
Prox. ep.	–	–	–	–	–	4	–	–	–
Prox. ep. + shaft	1	–	–	–	–	–	–	–	–
MSHF	1	–	3	1	–	–	–	–	–
Dist. ep. + shaft	–	–	2	–	1	1	–	–	–
Dist. ep.	–	–	4	–	–	5	–	–	–

Table S9. Continued.

	KAM-1	KAM-4 S lake	KAM-4 NW lake all	KAM-4 NW lake excavated	KAM-4 NE lake	16.3	WNEF 16_1	WNEF 16_20	WNEF 16_22
Radius	1	2	5	1	–	2	–	–	–
Complete	–	–	–	–	–	–	–	–	–
Prox. ep.	–	1	–	–	–	1	–	–	–
Prox. ep. + shaft	1	–	1	–	–	–	–	–	–
MSHF	–	–	–	–	–	–	–	–	–
Dist. ep. + shaft	–	–	2	1	–	1	–	–	–
Dist. ep.	–	1	2	–	–	–	–	–	–
Ulna	–	–	2	–	–	1	–	–	–
Metacarpal	3	–	4	3	–	–	–	–	1
Complete	1	–	1	1	–	–	–	–	–
Prox. ep.	–	–	1	–	–	–	–	–	–
Prox. ep. + shaft	1	–	1	1	–	–	–	–	1
MSHF	–	–	–	–	–	–	–	–	–
Dist. ep. + shaft	1	–	1	1	–	–	–	–	–
Dist. ep.	–	–	–	–	–	–	–	–	–
Femur	2	–	8	1	1	7	–	–	–
Complete	–	–	–	–	–	–	–	–	–
Prox. ep.	–	–	–	–	1	2	–	–	–
Prox. ep. + shaft	2	–	4	1	–	1	–	–	–
MSHF	–	–	1	–	–	–	–	–	–
Dist. ep. + shaft	–	–	1	–	–	–	–	–	–
Dist. ep.	–	–	2	–	–	4	–	–	–

Table S9. Continued.

	KAM-1	KAM-4 S lake	KAM-4 NW lake	KAM-4 NW lake excavated	KAM-4 NE lake	16.3	WNEF 16_1	WNEF 16_20	WNEF 16_22
Tibia	1	1	8	1	–	6	–	–	–
Complete	–	–	–	–	–	–	–	–	–
Prox. ep.	–	–	–	–	–	2	–	–	–
Prox. ep. + shaft	–	1	2	1	–	1	–	–	–
MSHF	–	–	–	–	–	–	–	–	–
Dist. ep. + shaft	–	–	3	–	–	3	–	–	–
Dist. ep.	–	–	3	–	–	–	–	–	–
Fibula	–	–	–	–	2	–	–	–	–
Metatarsal	–	–	1	–	–	2	–	–	–
Complete	–	–	–	–	–	1	–	–	–
Prox. ep.	–	–	–	–	–	–	–	–	–
Prox. ep. + shaft	–	–	–	–	–	1	–	–	–
MSHF	–	–	–	–	–	–	–	–	–
Dist. ep. + shaft	–	–	–	–	–	–	–	–	–
Dist. ep.	–	–	–	–	–	–	–	–	–
Metapodial	1	3	7	1	–	11	1	–	–
Complete	–	–	–	–	–	–	–	–	–
Prox. ep.	–	–	–	–	–	–	–	–	–
Prox. ep. + shaft	–	1	–	–	–	–	–	–	–
MSHF	–	–	3	–	–	–	–	–	–
Dist. ep. + shaft	–	–	1	–	–	3	–	–	–
Dist. ep.	–	2	2	–	–	8	1	–	–

Table S9. *Continued.*

	KAM-1	KAM-4 S lake	KAM-4 NW lake	KAM-4 NW lake excavated	KAM-4 NE lake	16.3	WNEF 16_1	WNEF 16_20	WNEF 16_22
Carpal/Tarsal	–	6	21	1	–	21	–	–	–
Phalanges	1	11	13	2	–	14	1	–	–
Sacrum	–	–	2	–	–	–	–	–	–
Long bone shaft	15	3	61	2	5	25	91	–	–

Table S10. Complete list of carnivore tooth-marked specimens

Site	Taxon	Element	Tooth pit size (mm)
KAM-1	Medium-sized animal	Femur	
KAM-4 NW lake	Medium-sized bovid	Tibia Metapodial. Dist. phalanx (2)	
	Small-sized bovid	Dist. phalanx	
	Medium-sized animal	Humerus Indet. fragment	
KAM-4 NE lake	Small-sized animal cf. Hippopotamidae	Midshaft fragment Fibula	
	Medium-sized bovid	Humerus	
	Medium-sized animal	Midshaft fragment Indet. fragment (2)	2.8 x 2.2 / 4.6 x 3.6
KAM-4 S lake	Medium-sized bovid	Radius Astragalus Intermediate phalanx Distal phalanx (2)	5.0 x 4.4
	Small-sized bovid	Metapodial	
16.3	Medium-sized animal Large-sized bovid	Indet. fragment (4) Radius Femur Tibia Metapodial Metapodial Rib (3) Thoracic vertebra Vertebra Sesamoid	2.1 x 1.7 / 3.4 x 2.6 / 4.4 x 4.0 7.7 x 7.0 7.6 x 5.6 / 4.5 x 2.8 3.7 x 2.7 3.8 x 2.9 / 6.8 x 5.5 / 4.2 x 3.5 3.2 x 2.0 4.3 x 3.6 / 3.0 x 2.3 / 1.6 x 1.6 / 2.4 x 1.5 / 3.1 x 2.1
		Proximal phalanx Indet. fragment (10)	3.8 x 2.9 / 6.8 x 5.5 / 4.2 x 3.5 3.1 x 2.1 / 2.7 x 2.7 / 5.6 x 3.7 / 4.7 x 3.7 / 4.0 x 2.7
	Large-sized animal	Humerus Scapula Rib Carpal/tarsal (2) Indet. fragment (4)	5.5 x 4.5 / 4.0 x 3.3
	Hippopotamidae	Astragalus	6.2 / 5.4
	Medium-sized animal	Humerus Rib (2) Carpal/tarsal Astragalus Indet. fragment (2)	2.0 x 1.5 2.4 x 2.4 9.7 x 7.6

Table S11. KAM-4 NW lake medium-sized bovid minimum number of elements (MNE) for limb bones

Element	Humerus			Radius			Femur			Tibia			Metacarp.			Metatar.		
Portion	Prox.	Shaft	Dist.	Prox.	Shaft	Dist.	Prox.	Shaft	Dist.	Prox.	Shaft	Dist.	Prox.	Shaft	Dist.	Prox.	Shaft	Dist.
MNE	0	3	6	1	2	3	3	3	3	1	4	6	1	0	0	0	0	0

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