



Reconstructing the life appearance of a Pleistocene giant: size, shape, sexual dimorphism and ontogeny of *Palaeoloxodon antiquus* (Proboscidea: Elephantidae) from Neumark-Nord 1 (Germany)

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SUPPLEMENTARY ONLINE MATERIAL 2

PELVIS VS FEMUR PROPORTIONS OF ELEPHANTIDAE (measurements in mm)

Specimen	Sex	Plevis breadth	Femur	Pelvis:femur ratio	References
<i>Palaeoloxodon antiquus</i>					
E9 (Neumark Nord)	M	1740	1320	1.32	This paper
E8 (Neumark Nord)	F	1400	1040	1.35	This paper
E34A (Neumark Nord)	F	1230	1070	1.15	This paper
Viterbo	M	1810	1440	1.26	Trevisan. 1948; Palombo & Villa, 2003
Viterbo II	M	1790	1355	1.32	Larramendi unpubl. data
<i>Elephas maximus</i>					
A 1225	M	1150	1000	1.15	Larramendi, 2016
No.85D.1937	M	1295	1143	1.13	Deraniyagala, 1955
No.85/32	M	1162	1054	1.10	Deraniyagala, 1955
No.85/26	M	1245	1143	1.09	Deraniyagala, 1955
<i>Loxodonta africana</i>					
Jumbo	M	1340	1258	1.07	Osborn, 1942
NMNS002990 – F002715	F	990	980	1.01	Larramendi unpubl. data
<i>Mammuthus primigenius</i>					
Taimyr	M	1250	1055	1.18	Averianov, 1996
Beresovka	M	1340	1030	1.30	Averianov, 1996
Kastykhtakh	F	1160	880	1.32	Kirillova et al., 2012
Lena	M	1370	1200	1.14	Larramendi, 2016
Condover	M	1430	1190	1.20	Lister, 2009
Siegsdorf	M	1600	1330	1.20	Ziegler, 1994
Oyosh	F	1170	945	1.24	Garutt & Bajgusheva, 1987
Aa	F	1340	1100	1.22	Pontier, 1913; Lister, 2010
<i>Mammuthus trogontherii</i>					
West Runton	M	1760	1425	1.24	Lister, 2010
Azov I	M	1830	1480	1.24	Bajgusheva et al., 2011; Larramendi, 2016
Azov II	F	1820	1400	1.30	Bajgusheva et al., 2011
Zhalainouer	M	1800	1415	1.27	Larramendi, 2015
Codreni	M	1660	1400	1.19	Apostol, 1971
Flaminia	M	1700	1430	1.19	Kotsakis et al., 1978
<i>Mammuthus meridionalis</i>					
Edersleben	F	1540	1277	1.21	Garutt & Bajgusheva, 1987; Lister, 1996
Georgievsk	M	1680	1435	1.17	Azzaroli, 1977; Maschenko et al., 2011
Nogaïsk	M	1670	1460	1.14	Azzaroli, 1977; Maschenko et al., 2011
Rodinovo	M	1620	1440	1.13	Maschenko et al., 2011
Scoppitto	M	1750	1455	1.20	Maccagno, 1962; Marano & Palombo unpubl. data
<i>Mammuthus columbi</i>					
DMNH 1359	M	1660	1370	1.21	Larramendi, 2016
AMNH 9950 (M. jeffersoni)	M	1450	1255	1.16	Osborn, 1942

LIMB BONE PROPORTIONS OF ELEPHANTIDAE (measurements in mm) - articular lengths

* Ulna articular length inferred from radius length x 0.95														
Specimen	Sex	Scapula	Humerus	Ulna	Humerus + Ulna (Fore 1)	Scapula + Humerus (Fore 2)	Femur	Tibia	Femur+ Tibia (Hind)	Fore1: Hind ratio	Fore2: Hindratio	Estimated skeletal shoulder height	sSH: femurratio	References
<i>Palaeoloxodon antiquus</i>														
E9 (Neumark Nord)	M	1058	1180	830	2010	2238	1320	795	2115	0.95	1.06	3440	2.61	This paper
E8 (Neumark Nord)	F	750	836	630	1466	1586	1040	576	1616	0.91	0.98	2500	2.40	This paper
E43A (Neumark Nord)*	M	1102	1230	887	2117	2332	1398	842	2240	0.95	1.04	3700	2.65	This paper
Viterbo*	M	1040	1230	941	2171	2270	1440	880	2320	0.94	0.98	3600	2.50	Trevisan, 1948
Viterbo II	M	970	1205	865	2070	2175	1355	810	2165	0.96	1.00	3430	2.53	Larramendi unpubl. Data
Konnin	M	1100	1250	930	2180	2350	1429	880	2309	0.94	1.02	3710	2.60	Jakubowski, 1996
Gröben I	M	1075	1265	915	2180	2340	1402	915	2317	0.94	1.01	3650	2.60	Jakubowski, 1996
Gröben II	F	840	955	730	1685	1795	1130	660	1790	0.94	1.00	2840	2.51	Jakubowski, 1996
Crumstadt	F	790	880	620	1500	1670	1040	602	1642	0.91	1.02	2590	2.49	Kroll, 1991
Grabschütz	F	-	950	722	1672	950	1130	666	1796	0.93	-	2850	2.52	Jakubowski, 1996
<i>Loxodonta africana</i>														
Makolo 2	M	-	1110	810	1920	1110	1330	785	2115	0.91	-	3160	2.38	Haynes, 1991
Guvalala	M	-	1080	840	1920	1080	1330	780	2110	0.91	-	3160	2.38	Haynes, 1991
Jumbo*	M	900	1078	789	1867	1978	1258	788	2046	0.91	0.97	3070	2.44	Osborn, 1942
Shabi Shabi (b)	F	-	880	640	1520	880	1035	605	1640	0.93	-	2500	2.42	Haynes, 1991
NMNS002990 – F002715	F	690	800	660	1460	1490	980	585	1565	0.93	0.95	2400	2.45	This paper
<i>Elephas maximus</i>														
A 1225	M	690	810	650	1460	1500	1000	620	1620	0.90	0.93	2420	2.42	Larramendi unpubl. data
Osborn (1942)*	M	-	940	751	1691	940	1140	660	1800	0.94	-	2830	2.48	Osborn, 1942
Elephant 1	M	-	880	705	1585	880	1060	660	1720	0.92	-	2690	2.54	Hooijer, 1955
Elephant 2	F	-	750	590	1340	750	900	500	1400	0.96	-	2240	2.49	Hooijer, 1955
Elephant 3	F	-	730	550	1280	730	890	550	1440	0.89	-	2160	2.43	Hooijer, 1955
<i>Mammuthus primigenius</i>														
Taimyr (North Siberian morph)	M	750	838	655	1493	1588	1055	552	1607	0.93	0.99	2540	2.41	Averianov, 1996
Beresovka (North Siberian morph)	M	759	840	672	1512	1599	1030	626	1656	0.91	0.97	2570	2.50	Averianov, 1996
Kastykhtakh (North Siberian morph)	F	637	717	551	1268	1354	880	501	1381	0.92	0.98	2150	2.44	Kirillova et al., 2012
Lena	M	880	995	770	1765	1875	1200	675	1875	0.94	1.00	2980	2.48	Averianov, 1996
Condoover (European morph)	M	850	1000	720	1720	1850	1190	685	1875	0.92	0.99	2890	2.43	Lister, 2009; Larramendi, 2016
Siegsdorf (European morph)*	M	970	1100	884	1984	2070	1330	800	2130	0.93	0.97	3330	2.50	Ziegler, 1994

Specimen	Sex	Scapula	Humerus	Ulna	Humerus + Ulna (Fore 1)	Scapula + Humerus (Fore 2)	Femur	Tibia	Femur+ Tibia (Hind)	Fore1: Hind ratio	Fore2: Hind ratio	Estimated skeletal shoulder height	sSH: femurratio	References
<i>Mammuthus trogontherii</i>														
West Runton	M	1070	1230	920	2150	2300	1425	830	2255	0.95	1.02	3630	2.55	Lister, 2010
Azov I	M	1100	1290	950	2240	2390	1480	900	2380	0.94	1.00	3750	2.53	Bajgusheva et al., 2011
Azov II	F	1045	1160	880	2040	2205	1400	800	2200	0.93	1.00	3490	2.49	Bajgusheva et al., 2011
Zhalainouer	M	1075	1233	960	2193	2308	1415	865	2280	0.96	1.01	3690	2.61	Larramendi, 2015, 2016
Odessa	M	-	1230	980	2210	1230	1480	920	2400	0.92	-	3700	2.50	Shpansky et al., 2008
Codreni*	M	-	1200	950	2150	1200	1400	850	2250	0.96	-	3700	2.64	Apostol, 1971
<i>Mammuthus meridionalis</i>														
Edersleben	F	897	1066	802	1868	1963	1277	658	1935	0.97	1.01	3120	2.44	Garutt & Bajgusheva, 1987; Lister, 1996
Georgievsk	M	1040	1225	885	2110	2265	1435	820	2255	0.94	1.00	3550	2.47	Azzaroli, 1977; Maschenko et al., 2011
Nogaïsk	M	1155	1270	970	2240	2425	1460	980	2440	0.92	0.99	3850	2.64	Azzaroli, 1977; Maschenko et al., 2011
Farneta	M	-	1270	945	2215	1270	1460	815	2275	0.97	-	3750	2.57	Azzaroli, 1977; Lister, 2010
Rodionovo*	M	1103	1222	910	2132	2325	1440	850	2290	0.93	1.02	3640	2.53	Maschenko et al., 2011
Scoppito	M	1130	1250	960	2210	2380	1455	850	2305	0.96	1.03	3790	2.60	Maccagno, 1962; Marano & Palombo unpubl. data
<i>Mammuthus columbi</i>														
DMNH 1359	M	1020	1220	910	2130	2240	1370	840	2210	0.96	1.01	3520	2.57	Osborn, 1942

LIMB BONE PROPORTIONS OF ELEPHANTIDAE (measurements in mm) - articular lengths - *continuation*

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