

A Comparison of Some Aspects of Two Extinct Mammals, *Mammuthus* Brookes, 1828 (Proboscidea: Elephantidae) and *Mammot* Blumenbach, 1799 (Proboscidea: Mammutidae)

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Abstract

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The present study aims at extracting the fossil database www.paleodb.org to compare extinct megafauna genera, *Mammuthus* Brookes, 1828 and *Mammot* Blumenbach, 1799 along with its close relative, *Zygodolophon* (Vacek, 1877). Taxon count indicated 9 species for the former genus, and a dozen species for the latter two genera taken together. *Mammuthus* scored higher than *Mammot* and *Zygodolophon* in occurrences. They were found in North America, Europe, Asia and Africa but additionally, *Mammuthus* was found in South America as well. As two families diverged about 27 m years ago, these differences are important.

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Introduction

Mammuthus Brookes, 1828 and *Mammot* Blumenbach, 1799 have been two large extinct mammals on the earth in ancient times. The present study aims at bringing out some features in a comparative perspective about these two extinct taxa. Various researchers have earlier worked on these charismatic extinct megafauna (Shoshani & Tassy, 2005; Lister *et al.*, 2005; Veltre *et al.*, 2008; Haile *et al.*, 2009; Enk *et al.*, 2011).

was used; in this option a) items to count was chosen as occurrences, and b) fields to tabulate (rows) was selected as 'continent'. The second field (optional) for columns was left blank.

III) Thirdly, analysis of taxonomic ranges was used. Taxon name was given and then break taxa into species option was selected. It generated confidence interval taxon list. It was submitted to display confidence interval options, wherein options shown by default were used, as a result of which confidence interval output was obtained.

Methods

The paleo database from www.paleodb.org was used. First, in the analyze section

- I) Count taxa was used
- II) Thereafter, 'generate data summary tables'

Results

Taxon count is represented below for the two taxa (Table 1). Occurrence for both the taxa is

shown in Table 2 and Table 3. While confidence interval results for *Mammuthus* are shown in Table 4. Table 5 shows confidence interval for *Mammut*.

Discussion

Both *Mammuthus*, *Mammut* and its close relative, *Zygodolophodon* taken together show a

Table 1. Outcome of taxa count for *Mammuthus* Brookes, 1828, *Mammut* Blumenbach, 1799 and *Zygodolophodon* (Vacek, 1877).

<i>Mammuthus</i> Brookes, 1828 (9 species)	<i>Mammut</i> Blumenbach, 1799 (12 species)*
<i>Archidiskodon celebensis</i> , <i>Archidiskodon weifangensis</i> , <i>Mammuthus columbi</i> , <i>Mammuthus exilis</i> , <i>Mammuthus hayi</i> , <i>Mammuthus imperator</i> , <i>Mammuthus lamarmorae</i> , <i>Mammuthus meridionalis</i> , <i>Mammuthus primigenius</i> , <i>Mammuthus trogontherii</i>	<i>Mammut americanum</i> , <i>Mammut cosoensis</i> , <i>Mammut furlongi</i> , <i>Mammut matthewi</i> , <i>Mammut raki</i> , <i>Mastodon bumiajuensis</i> , <i>Mastodon spenceri</i> , <i>Zygodolophodon aegyptensis</i> , <i>Zygodolophodon morotoensis</i> , <i>Zygodolophodon proavus</i> , <i>Zygodolophodon tapiroides</i> , <i>Zygodolophodon turicensis</i>

*one genus does not include species with taxonomic classification data.

Table 2. Occurrence of *Mammuthus*

Continent	Occurrences	Percent
North America	305	56.6
Europe	169	31.4
Asia	41	7.6
Africa	24	4.5
TOTAL	539	

Table 3. Occurrence of *Mammut* and *Zygodolophodon*

Continent	Occurrences	Percent
North America	373	85.7
Europe	39	9
Asia	15	3.4
South America	5	1.1
Africa	3	0.7
TOTAL	435	

Table 4. Confidence interval for *Mammuthus*

Species	First occurrence (Ma)	Last occurrence (Ma)	Confidence interval (Ma)	Number of horizons	Transposition test
<i>Mammuthus armeniacus</i>	2.588	0.012	0	2	0
<i>Mammuthus broomi</i>	2.588	0.012	0	1	1
<i>Mammuthus celebensis</i>	3.6	0.012	1.586	11	0
<i>Mammuthus chosaricus</i>	2.588	0.012	0	1	1
<i>Mammuthus columbi</i>	2.588	0.012	0.118	84	0
<i>Mammuthus creticus</i>	2.588	0.012	0	1	1
<i>Mammuthus exilis</i>	2.588	0.012	0	1	1
<i>Mammuthus gromovi</i>	3.6	2.588	4.891	3	0
<i>Mammuthus hayi</i>	2.588	0.012	0.714	16	0
<i>Mammuthus imperator</i>	2.588	0.012	0.469	23	0
<i>Mammuthus lamarmorae</i>	11.608	2.588	0	2	0
<i>Mammuthus meridionalis</i>	3.6	0.012	0.165	83	0
<i>Mammuthus meridonalis</i>	2.588	0.012	0	1	1
<i>Mammuthus paramammonteus</i>	2.588	0.012	0	1	1
<i>Mammuthus planifrons</i>	2.588	0.012	0	1	1
<i>Mammuthus primigenius</i>	2.588	0	0.238	43	0
<i>Mammuthus protomammonteus</i>	2.588	0.012	0	1	1
<i>Mammuthus rumanus</i>	3.6	2.588	0	1	1

<i>Mammuthus sp.</i>	5.332	0.012	0.117	171	0
<i>Mammuthus subplanifrons</i>	11.608	2.588	5.214	9	0
<i>Mammuthus trogontherii</i>	2.588	0.012	0.304	34	0
<i>Mammuthus weifangensis</i>	2.588	0.012	0	1	1
<i>Mammuthus wuesti</i>	3.6	2.588	0	1	1

Table 5. Confidence interval for *Mammuthus* and *Zygodontia*

Species	First occurrence (Ma)	Last occurrence (Ma)	Confidence interval (Ma)	Number of horizons	Transposition test
<i>Mammuthus americanum</i>	2.588	0.012	0	1	1
<i>Mammuthus americanum</i>	2.588	0	0.031	322	0
<i>Mammuthus americanus</i>	2.588	0.012	0	1	1
<i>Mammuthus andinum</i>	2.588	0.012	0	1	1
<i>Mammuthus arvenensis</i>	3.6	2.588	0.691	8	0
<i>Mammuthus augustidens</i>	13.65	11.608	0	1	1
<i>Mammuthus borsoni</i>	5.332	2.588	2.286	7	0
<i>Mammuthus bumiajuensis</i>	2.588	0.012	0	2	0
<i>Mammuthus floridanum</i>	2.588	0.012	0	2	0
<i>Mammuthus matthewi</i>	13.65	11.608	0	2	0
<i>Mammuthus pentelici</i>	13.65	7.246	14.729	4	0
<i>Mammuthus pentilici</i>	11.608	7.246	0	1	1
<i>Mammuthus sp.</i>	20.43	0.012	3.104	27	0
<i>Mammuthus spenceri</i>	20.43	15.97	0	1	1

good number of species running into a double digit figure. The species of *Mammuthus* and *Zygodontia* occurred in North America, Eurasia, South America and Africa with an occurrence of 435, while *Mammuthus* occurred in all these geographic areas barring South America with a higher occurrence of 539. As *Mammuthus* and *Mammuthus* along with *Zygodontia* belong to different families (families Elephantidae and Mammuthidae, respectively of the order Proboscidea), and the two families got diverged around 27 million years ago (Shoshani *et al.*, 2006), these differences are important.

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