Ancient European bear had unusually large penis bone

September 26 2013, by Bob Yirka

Baculum in laterial view of: A Helarctos malayanus; B Ursus thibetanus; C Tremarctos ornatus; D Ursus americanus; E Melursus ursinus; F Ursus arctos; G Ursus maritimus; H Indarctos arctoides; I Ventral view of the Baculum of Ailuropoda melanoleuca; J Dorsal view of the baculum of Ailuropoda melanoleuca. Credit: doi:10.1371/journal.pone.0073711.g001

(Phys.org) —Researchers working at Spain's Batallones-3 dig site in the

area of Cerro de los Batallones have unearthed five baculum (*os penis*) that once belonged to five now extinct examples of a species of bear classified as *Indarctos arctoides*. In their paper published in the journal *PLUS ONE,* the team describe the baculum fossils in great detail and offer theories as to why the bear had such a large penis.

Many male mammals have a bacula, also known as a penis-bone, to assist in reproduction. The stiffness of the bone allows for easy insertion of the penis into the female's vagina (as contrasted with blood pressure to maintain an erection as occurs with humans.) All bears have a bacula, but what sets *I. arctoides* apart from modern species was its size. Scientists have found many fossil bones from the bears and thus have a clear idea of its overall size. The bear was on average about the size of modern European Brown bears (265.74 kg for males and 137.30 kg for females), yet its bacula was longer than the much larger Polar or Kodiak bears that exist today. Four of the five specimens found were from adult males—together their baculum averaged 225.26 mm in length.

Bacula finds are rare in archeological research, their thinness makes them prone to breaking, and quite often they are mistaken for rib bones. Thus finding 5 wholly intact specimens was a noteworthy find in and of itself—that they represent such a large penis bones relative to body size is perhaps even more remarkable.

The researchers can't say for sure why the ancient bears (they lived approximately 12 to 5 million years ago) had such large penises, but offer some theories. They suggest that a larger penis would allow for longer copulation, helping to ensure that the female became impregnated. A longer penis would also help to guide the sperm that was released more directly to its target, once again, offering higher reliability of impregnation. The researchers also suggest that such a long penis might even have allowed a male to remove plugs deposited by prior males, ensuring their DNA would win over. And finally, they propose

that females may have grown to prefer males with a larger penis for these very same reasons, thus ensuring that males with the largest penises would predominate, leading to longer and longer bacula for the species as a whole.

More information: Abella J, Valenciano A, Pérez-Ramos A, Montoya P, Morales J (2013) On the Socio-Sexual Behaviour of the Extinct Ursid Indarctos arctoides: An Approach Based on Its Baculum Size and Morphology. *PLoS ONE* 8(9): e73711. DOI: 10.1371/journal.pone.0073711

Abstract

The fossil bacula, or os penis, constitutes a rare subject of study due to its scarcity in the fossil record. In the present paper we describe five bacula attributed to the bear Indarctos arctoides Depéret, 1895 from the Batallones-3 site (Madrid Basin, Spain). Both the length and morphology of this fossil bacula enabled us to make interpretative approaches to a series of ecological and ethological characters of this bear. Thus, we suggest that I. arctoides could have had prolonged periods of intromission and/or maintenance of intromission during the post-ejaculatory intervals, a multi-male mating system and large home range sizes and/or lower population density. Its size might also have helped females to choose from among the available males.