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Interpreting an Unusual Arctic Bear within a Creation Model of Origins

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Introduction

On June 29, 2009, National Geographic aired a program called *Mystery Bear of the Arctic*. The show detailed a most bizarre and unusual find that has been traveling the international news circuit since 2006. It was April 16 of that year, on the south end of Banks Island, that a 65-year-old hunter shot and killed the first documented grizzly/polar hybrid (grolar bear) in the wild. DNA results confirmed that this creature was a product of a male grizzly (*Ursus arctos*) and a female polar bear (*Ursus maritimus*).[1] The anomalous animal was mostly white with brown splotches but had the grizzly traits of long claws, concave face, and humped back. What are the implications of such a creature within a creation model of ecology and baraminology?[2]

The Bears of the World

From ancient times bears have captivated the imagination. People have cherished their likeness as toys, political emblems, and symbols of strength and great courage. They have also been feared and misunderstood,

Table 1. Ursidae descriptions, ranges, chromosomes, and subspecies.

Descriptor	Physical Description	Range	Number of Subspecies	Chromosome Number
Sun ***Ursus malayanus***	**Smallest bear**, short, black fur, light colored crescent on chest, large paws, long claws	Eastern Himalayas, China, Malayan Peninsula	2	74
Sloth ***Ursus ursinus***	Very shaggy black coat with mixed gray/brown hair, light colored Y or U shape on chest, light colored muzzle, can close nostrils	Mostly India, Nepal, Sri Lanka, Bangladesh	2	74
Brown ***Ursus arctos***	Dark brown to cream to black, guard hairs can have white tips to give "grizzled" appearance, **shoulder hump, box-shaped nose, dish shaped profile, longer claws on front than back feet**	Widest distribution of all bears and includes Eurasia and western NA, 2nd largest home range	Variable 5–90	74
Polar ***Ursus maritimus***	**Largest bear**, long neck, white fur, triangular profile, no shoulder hump, black skin, very wide paws for paddling, considered a marine mammal	Circumpolar Arctic regions, multi-continental, largest home range	0	74
American Black ***Ursus americanus***	Medium size, found in many different color phases, including black, chocolate, cinnamon, pale blue, and white	USA, Canada, and Northern Mexico	16	74
Asiatic Black ***Ursus thibetanus***	Medium sized bear, mostly black but also has a brown phase, muzzles are light colored, all have a cream-colored V-shaped marking on chest	Southern & eastern Asia, including Pakistan, Korea, and Afghanistan	1	74
Andean (Spectacled) ***Tremarctos ornatus***	Small bear with cream colored facial markings around eyes that give it the name "spectacled" bear	Forested mountains of South America	0	52
Giant Panda ***Ailuropoda melanoleuca***	Small black and white bear, shortened muzzle, large black eye patches, most of torso and head are white, black "saddle" and fore- and hind limbs	Six small regions of southwest China, may have smallest home range	0	42

and this led to their widespread elimination.[3] Because of extensive killing and habitat destruction, the survival of many species is a conservation concern, which is why they are probably the most studied carnivore.[4] Compounding matters, advocates that support anthropogenic climate change feel that the extinction of polar bears is a real possibility if the Arctic ice melts into oblivion. These concerns have brought bears into the media spotlight, and it is important to get a perspective of this magnificent creature within a creation model of origins.

The word bear finds its etymological origins in the Indo-European root *bher*, which is also the basis for other words such as *burial*, *berserk*, and *bearing young*.[5] Table 1 summarizes the descriptions, range, chromosome numbers, and subspecies of the eight extant bear species.[6–8] Table 2 highlights various bear adaptations, behaviors, and conservation status. Worldwide, bears inhabit Eurasia, North America, and South America, and there is fossil evidence suggesting that extinct bears also roamed Africa. There is no evidence that bears ever occupied Australia.[9]

Family Ursidae is comprised of three subfamilies. Ailurinae contains the giant panda *(Ailuropoda melanoleuca)*, the famous "umbrella" species for conservation, with 42 chromosomes and distinctive white face and black eye patches. Tremarctinae consists of the only extant member of the short-faced bears, the tropical Andean or spectacled bear *(Tremarctos ornatus)* of South America with its distinctive cream-colored "spectacled" face and 52 chromosomes. Ursinae, whose members have 74 chromosomes, comprise the rest of the species and include the smallest sun bear *(Ursus malayanus)* with the distinctive light crescent on its chest;

Table 2. Ursidae comparative behaviors and conservation status.

Descriptor	Winter Dormancy Not Obligate	Feeding Behavior Number of Teeth	Delayed Implantation	Unique Behaviors and Daytime Activity	Conservation Status
Sun Bear	**Yes**	Omnivore; mostly frugivorous 42	**Yes**	Makes nests in trees and sleeps in them, much unknown; variable mostly diurnal and crepuscular	**Vulnerable** **Declining**
Sloth Bear	**No**	Omnivore; insect specialist 40	**Yes**	Slow walking, no upper incisors so they can make a tube out of mouth and "vacuum" insects; mostly nocturnal and crepuscular	**Vulnerable** CITES Appendix I
Brown Bear	**Yes**	Omnivore; mostly plants; variable 42	**Yes**	Observed far north riding ice flows, wild hybrids with polar bears, may be heavily carnivorous; variable, mostly crepuscular	**Threatened** CITES Appendix I
Polar Bear	**Yes** Pregnant Females	95% carnivore; fruits; kelp 42	**Yes**	Except for pregnant and nursing mothers, don't hibernate, fasts during summer months; mostly diurnal	U.N **Vulnerable** USA **Threatened** Russia/Canacla **Species of Concern**
American Black Bear	**Yes** body temps. may drop to 31–34° C	Omnivore; mostly plants; eats a variety of foods 49	**Yes**	Excellent tree climbers, "bear nests"; mostly diurnal but varies with season and life history	Estimated 450,000 in North America Game Species
Asiatic Black Bear	**Sometimes** body temps. may drop 3–7° C	Omnivore; mostly plants; bamboo 42	**Yes**	50% time may be spent in trees, may migrate rather than hibernate, "bear nests"; mostly nocturnal but varies by region	**Vulnerable** CITES Appendix I Sub-species is Critically Endangered
Andean Bear	**No**	Omnivore; mostly plants; Bromeliacea 42	**Yes**	Best tree climbers, will make feeding and sleeping platforms in trees; generally nocturnal and crepuscular	**Vulnerable** CITES Appendix I
Giant Panda	**No**	Omnivore; 99% bamboo; eats some meat 42	**Yes**	Not very active, sleep most of day, radial sesamoid for eating bamboo, smallest of cubs; generally crepuscular but varies	**Endangered** CITES **Appendix I** **Declining**

the shaggy sloth bear *(U. ursinus)*, characterized by its light colored U or Y chest pattern; the grizzled brown bear *(U. arctos)*, recognized by its shoulder hump and boxed nose; the carnivorous polar bear *(U. maritimus)* of the circumpolar regions; the variably colored American black bear *(U. americanus)*, the most numerous of bear species; and the Asiatic black bear *(U. thibetanus)*, delineated with a cream-colored V on its chest.

Have Other Bear Species Hybridized?

Both creationists and evolutionists agree that extant bears have diversified rapidly, but because of their differing presuppositions, the time frames for this rapid speciation are quite different. For the evolutionists, the rapid radiation has occurred since the Miocene-Pliocene boundary about 5 million years ago.[10] For the creationist this diversification has taken place even more rapidly, since the Flood, in 4,500 years or less.

Could the ability to hybridize be one factor in this rapid radiation? Historical records document that six of the eight species in *Ursus* readily hybridize with one another. Table 3 summarizes the most current documentation of ursid hybrid pairings: *Sun*×*Sloth*,[11, 12] *Sun*×*Asiatic Black*,[13] *Asiatic Black*×*Brown*,[14] *American Black*×*Brown*,[15] a possible *Asiatic Black*×*American Black*[16] and numerous instances of captive *Brown*×*Polar*.[17–20]

In the study of baraminology, a unique creationist biosystematic method for determining the created kinds (Hebrew *bara*=created, *min*=kind), hybridization ability demonstrates continuity (or significant holistic similarity) from the biochemical cellular levels to the developmental anatomic levels such that the members must be closely related and part of the same kind.[21] Therefore, hybridization ability makes them a monobaramin, defined as a group of organisms who share significant holistic similarity with one another, without considering discontinuity.[22, 23] Because hybridization is well documented with six of the eight Ursid species, and there are numerous common genetic and morphological traits between all eight ursids, the whole group has been classified as a monobaramin by other creationist authors.[24–27]

Table 3. Ursid hybrids.

Hybrid Pairing	Wild or Captive	Fertility	References
U. malayanus (♀) × *M. ursinus* (♂) Sun Bear × Sloth Bear	Captive	Unknown	Asakura[28] Scherren[29]
U. matayanus × *U. thibetanus* Sun Bear × Asiatic Black Bear	Wild	Probable	Galbreath et al.[30]
U. thibetanus (♀) × *U. arctos* (♂) Asiatic Black Bear × Brown Bear	Captive	Unknown	Gray[31]
U. americanus × *U. thibetanus* American Black Bear × Asiatic Black ?	Wild ?	Unknown	Hybrid Bears[32]
U. americanus (♀) × *U. arctos* (♂) American Black Bear × Brown Bear	Captive	Unknown 3 cubs	Gray[33]
U. arctos (♀) × *U. maritimus* (♂) Brown Bear × Polar Bear	Captive	Fertile	Kowalska[34–36] Martin[37]
U. maritimus (♀) × *U. arctos* (♂) Polar Bear × Brown Bear	Captive	Fertile	Gray[38]
Tremarctos ornatus × *U. thibetanus* (♂) Spectacled Bear × Asiatic Black	Captive	Fertile	McLellan and Reiner[39]
U. maritimus (♀) × *U. arctos* (♂) Polar Bear × Brown Bear	Wild	Fertile	Hybrid bears[40] Doupé et al.[41]

Recent research suggests that the ursids may be holobaraminic.[42, 43] This means that not only are they monobaraminic, but they are also apobaraminic, meaning that the group is bounded by significant holistic differences (discontinuity), when compared with other taxa, without regard to the similarities between ursids. These differences include less-developed carnassial teeth, general flexibility to switch food sources in a changing environment, unique bile salt metabolism (with the exception of the Giant Panda), unique hibernation metabolism compared to other animals that hibernate, plantigrade foot anatomy, big toe placement on the outside of foot,[44] gross morphology, and premature birth with the smallest young per size of the mother than any other placental mammal.[45]

Through successive approximation, if it can be demonstrated that bears are both monobaraminic and apobaraminic, they are classified as a holobaramin.[46] Previously, creationists, have discussed how natural selection, not to be confused with molecules-to-man evolution, may explain both the grolar bear and how bears

have diversified over time within a creation model of origins.[47, 48] However, calling upon natural selection as an explanation may not be the only factor. Fascinating ecological and genetic data continue to be discovered and provide promising and fruitful research foci for creationists. For those who desire to study God's creation from a biblical perspective, it is important to produce a more robust model of origins than a model that assumes random, non-intelligent processes.

For Future Research

It is believed in creation biology that Jesus created his creatures to persist.[49] After Noah released the animals, the world they reentered was not the same. It was a devastated world in the throes of a divine judgment, the magnitude of which had never been seen before nor has it been seen since. Ecosystems were different and in constant flux for long periods of time. It was a world where God's creatures had to be able to adapt to new and drastically changing conditions.[50, 51]

Therefore, it makes sense that these creatures were endowed by their Creator with the genetic mechanisms that would allow them to change with fluctuating environmental conditions. Exciting new research continues to suggest that genetic mutations affecting the survival of an organism may not be random, but directed, in the presence of certain environmental cues. This is a direct prediction of a biblical creation model. These seemingly directed changes, caused by environmental factors, can occur and have been documented in bacteria,[52, 53] insects,[54] and possibly cattle[55] to name just a few. Concerning karyotype rearrangement moving in a single direction and becoming fixed in the populations of pandas and spectacled bears, one set of evolutionary authors pondered the idea that the genome seems to "possess a built-in capacity to modify chromosome number, such that an increase is triggered by environments characterized by intense selection."[56]

Fruitful creation research should look for designed genetic mechanisms that are triggered by environmental cues. Furthermore, recent data suggest that many of the morphological differences, especially in the cranial and mandibular shapes of both extant bears and two extinct species, the short-faced bear *(Arctodus simus)* and the European cave bear *(Ursus spelaeus)*, are more indicative of diet and feeding behavior than classic evolutionary, common-descent, mechanisms.[57]

Bears are known for their adaptability to new environments and food sources. Recent observations made in 2003 and 2004 documented transient grizzlies regularly visiting the polar bear's traditional domain of the Canadian Arctic Archipelago and riding on sea ice.[59] Up until this time, no one knew that the grizzly, known for its mastery of the Arctic tundra, had ever traveled to the high arctic latitudes. Ability to hybridize, designed genetic mechanisms in order to meet survival requirements in changing ecosystems, and morphological differences caused by dietary flexibility are promising areas for creationist research. They also provide reasonable hypotheses for explaining how bears could experience rapid intrabaraminic diversification in just a few thousand years.

Conclusion

Worldview is critical to how we interpret the creation around us. Worldview affects our scientific interpretations, and these interpretations are at the heart of the creation/evolution issue. This issue is not about "science verses religion," but a struggle between a biblical worldview that posits that life is designed versus a humanistic worldview that posits that life is random. As Christians who enjoy science, we have the Word of the Creator, endorsed by the Lord Jesus Christ, as our foundation upon which we build our creation models. Scientific models come and go, but the Word of the Lord stands forever.[59]

Who would have thought that on that spring day in the high arctic, Jim Martell would shoot an anomalous ursid? Rather than being a mystery creature, this magnificent animal would be a testament to the power, judgment, and grace of the Creator of bears.

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