

# BEARS

## MAGAZINE

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# Tracking the Great Bears

## BEAR MOTHERS

My class and I stood transfixed as a sow grizzly attacked and killed the elk calf. She drug it into the trees directly below us. Simultaneously, the cow elk charged the two bear cubs and ran them across the road we were on, hardly 200 yards away. The sow emerged from the trees, searching for her missing cubs, she panicked and charged.

She reached the road and turned toward us, blood dripping from her jowls. After a mean glare, she crossed the road and galloped out of sight to retrieve her cubs. We were stunned by the event and stood there reliving the amazing experience.

Suddenly, I heard, "thud..... thud.thud," directly behind me. I turned to find her standing ten yards from us, foaming at the mouth. She could have attacked anyone. In her eyes, there were people and cars between her and her elk carcass. The sow glared angrily and moved toward us. The crowd melted to the sides. She passed between us and the cars, charging down to her kill, with her cubs close behind her.

The students exclaimed, "Wow, wasn't that incredible?"

I said, "We're lucky, and we're out of here. Now."

Since the telling of the first stories, our fear and respect of mother bears has sparked us to give them an important role in our legends. Jim

Garry, famed mythologist, story teller, and author, describes how, when the planet was still very young, the Bear Mother taught humans to live in the north. She taught us the songs of the plants and the animals, but not the bear's great magic of sleeping all winter. It is a tale of intrigue, human virtues, the kindness of bears, betrayal, and it portrays why today we must be careful when bears are nearby.

The First Bear (*U. minimus*) was anatomically a full-fledged bear and precursor to the modern bears. First Bears were slender beasts of the temperate forests, much smaller than the modern black bears but they had crushing omnivorous molars. They appear in the fossil records of the Old and New Worlds about five to six million years ago, during the Pliocene Epoch. During this time, when many mammals species were increasing in diversity, First Bears spawned the modern or true bears found today, including sloth, sun, Asiatic or Tibetan black, North American black, grizzly/brown, polar bears, and even the extinct cave bear.

The fossil record, at this time, is murky, though we know all descendants of First Bear evolved in the Old World, we're unable to determine which of the True bears evolved first. We do know that the body size in First Bear fossils increases over time, possibly an adaptation to help maintain body temperature in an increasingly cooler and seasonal climate. Near the beginning of the Ice Ages, roughly two million years ago, *U. etruscus* branched off from the First Bear. The Etruscan bear increased in size over time, and by 1.7 million years before present, the Etruscan bears were as large as modern brown bears. The Etruscan bear

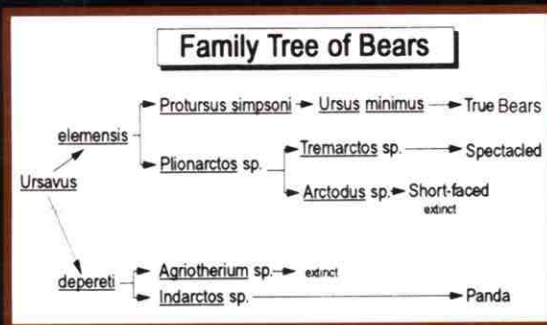


FIGURE 1

Where did the Bear Mother that taught the humans get her wisdom? There was another mother bear, the mother of modern bears — the First Bear (*Ursus minimus*). In the last issue (see Figure 1), I told you about the Dawn Bear (*Ursavus elemensis*), the first carnivore whose fossil remains showed bear-like characteristics, such as enlarged molars and a lack of shearing teeth. *Ursavus* was the early progenitor of the lineages of panda, spectacled and *Protursus simpsoni*, a bear close to the direct lineage of *Ursus minimus*.

showed a distinctly domed forehead, the hallmark of all their descendants: cave, brown, grizzly, and polar bears (seen better in younger polar bears).

During this explosion of bear diversity, evolution was also occurring in the two older lines of bears, spectacled and panda bears. We believe that another *Ursavus*, *U. depereti*, started the panda lineage about five to two million years ago. *U. depereti* gave rise to *Agriotherium*, an enormous predator, and *Indarctos*, a herbivore. Both of these variations fizzled into extinction, but not before *Indarctos* probably sired today's most herbivorous bear, the Giant Panda.

As for spectacled and short-faced bears, they evolved from the New World branch of *Ursavus* (see Figure 1). These bears were differentiated by two large muscle attachments in the bones of the lower jaw, the better to chew with. First came *Plionarctos*, about 3.5 million years ago, found in fossil remains from California and Texas. *Plionarctos* propagated the spectacled bears (*Tremarctos*), and short-faced bears (*Arctodus*).

About 600,000 years ago, the Florida spectacled or "cave" bear (*T. floridanus*) replaced *Plionarctos* in North America. The Florida bear disappeared after the black bear arrived over the Berigian land bridge from Siberia during Ice Age faunal inter-

zily bears at the end of the last ice age, 12,500 years ago, signaled the extinction of giant short-faced bears. Three species of short-faced bears roamed South America before their extinction.

If you like to watch bears, you're about a million years late for the ursophile's paradise—the Pleistocene of North America, when three varieties of spectacled, two forms of short-faced, the grizzly/brown, the black, and the polar bears all roamed the plains, tundra, ice packs and mountains.

Fossils fail to tell us their coat colors. Were they white, red, multicolored? Would we have known all those bears?

Three evolutionary lines of bears carry the wisdom of the Bear Mother and are important today because they define existing subfamilies: true (*Ursinae*), spectacled (*Tremarctinae*), and panda (*Ailuropodinae*) bears. Splits between "species" in the true bears are relatively recent and hybrids occur only among true bears. Join me next issue for some insights into hybrid bears and the possibility of living fossils in the bear world.



Jim Halfpenny, Ph.D. owns and operates a Naturalist's World in Gardiner, Montana.

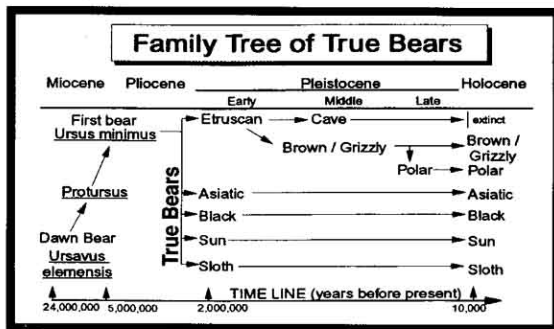


FIGURE 2

changes. During this time, *T. ornatus*, the living spectacled bear became established in South America.

Two short-faced bears roamed North America during the ice ages: the lesser short-faced (*A. pristinus*) and giant short-faced (*A. simus*) bears. From Alaska to Pennsylvania the long-legged giant short-faced bear may have been the most awesome predator to ever hunt in North America, but was probably a carnivorous omnivore deriving most of its diet from plants. The arrival of griz-