

By: ~~October/2007~~, Science Editor

What Makes Panda Special?

The odd bear

The rarity and the tame look of the giant panda, resembling a living teddy bear, transformed this animal into the symbol of the fight for the preservation of endangered species. But have you ever thought that what you see is a bear? An odd bear, but a real bear! The line that led to panda appeared about 12 million years ago, and the oldest known panda species, *Ailuropoda microta*, was half the size of the modern species, *Ailuropoda melanoleuca*, being contemporaneous for a while and lived 2-3 million years ago, but it showed the same appetite for bamboo. A more recent panda, living less than a million years ago, was bigger than the modern species. Many fossil remains of panda were associated with the fossil elephant genus *Stegodon*. Today 3,000 panda bears live in bamboo rich coniferous forests, over 23,000 square km, in 6 mountain massifs in southwestern China, in the [ADMARK]middle of the Yangtze basin, between 1,200-3,200 m (4,000-10,600 ft) altitude: Minshan, Qinling, Qionglai, Liangshan, Daxiangling and Xiaoxiangling (in the provinces of Sichuan, Shaanxi and Gansu. The climate in these mountains is characterized by snow 3-4 months annually (that's why panda has a 3-10 cm (1.2-4 in) long fur) and heavy rain summers, due to the monsoon. 99 % of the panda's diet is made of bamboo. An individual ingests 38 kg (90 pounds) of bamboo (shoots, stems, buds and leaves) daily (an activity that takes around 14 hours, but even up to 16 hours) (but the average amount ingested daily is 10-20 kg (22-44 pounds)) and eating bamboo required some adaptations. Even so, pandas are carnivores at the origin, and while herbivorous mammals can digest 80 % of what they eat, pandas do it for just 17 % (that's why they eat so much). Pandas have wide molars and premolars (grinder teeth) and highly developed zygomatic arches (bones where chewing muscles are inserted) correlated to highly developed chewing muscles, adaptations for grinding tough bamboo stuff. Pandas have a second "thumb", a bony projection of the fore paw which enables them to grip bamboo stems while eating. The esophagus is folded by a keratin layer so that it is not scratched by bamboo shafts. Being so dependent on bamboo, the years when invasions of the bamboo Chinese rat (*Rhizomys sinensis*), a large subterranean rodent (40 cm (1.3 ft) long and 1 kg (2.2 pounds) heavy) take place, represent a huge challenge for the panda. Panda will also consume meat when it has the chance, like rabbits, small rodents and fish, for completing the protein requirements, and other plants, besides bamboo. These animals usually eat during the night, and by day time, they rest in secluded places, amongst rocks or the roots of a tree. Despite the large size (the weight of the adult is 75-160 kg (165-330 pounds)), pandas climb easily in the trees, for foraging, taking refuge, resting or watching around. Like any bear, pandas can stay on the rear legs, but they get tired quickly. Pandas communicate through sounds and smell. They mark their territories with the smelly product of two anal glands, which is let on the trees. Territories can overlap, but as pandas are solitary, they usually avoid each other. Unlike other bears, which have round pupils, panda has vertical pupils like in cats. Mating takes place in March-May. A females can be courted by 4-5 males. Gestation lasts 3-5 months. The females gives birth in a secured and warm nest made in a den or a tree hollow. Even if panda females give birth up to 2-3 small (weighing just 150 g or 0.3 pounds) and weak (blind and nude) offspring, only one will survive, as the female will take care just of one, neglecting the others. They take care of the cub for about two years. On the first three weeks, the female cradles the offspring, helping it to eat milk. At one month old, the hair starts to grow, with the specific model of the pandas. At 5 months of an age, the young can start eating bamboo, and by the age of 6 months it is weaned. By the age of 1-1.5 years old, the young turns independent. The young is vulnerable to leopards and Asiatic wild dog (dhole). At 5-6 years old, pandas are sexually mature and live up to 20-30 years. The female gives birth once at 2-3 years. There is another panda species, the red or lesser panda, a raccoon-like animal, which also possesses a false thumb. But this species is not a bear but a group inside the carnivores, related to raccoons and weasels. Once lesser pandas were spread also in North America and Europe, while the panda bears have been strictly connected to China, moving their territory linked to Ice Ages climate changes in the past 3 million years, following the bamboo areal shifts. Genetic and molecular tests shattered any doubt that the giant panda is a bear. Its genitalia too are like those of a bear. This bear lost the curiosity and aggressiveness which are typical to bears, as its food is

found all the year round and the large size, between 75 and 160 kg (200-400 pounds), leads to the fact that the animal has no predators (except man).