# 1 NCBI Test Document

## 1.1 Mammals

Mammals are a clade of endothermic amniotes. Among the features that distinguish them from the other amniotes, the reptiles and the birds, are hair, three middle ear bones, mammary glands in females, and a neocortex (a region of the brain). The mammalian brain regulates body temperature and the circulatory system, including the four-chambered heart. The mammals include the largest animals on the planet, the rorquals and some other whales, as well as some of the most intelligent, such as elephants, some primates and some cetaceans. The basic body type is a four-legged land-borne animal, but some mammals are adapted for life at sea, in the air, in the trees, or on two legs. The largest group of mammals, the placentals, have a placenta which feeds the offspring during pregnancy. Mammals range in size from the 30–40 mm (1.2–1.6 in) bumblebee bat to the 33-meter (108 ft) blue whale.

The word "mammal" is modern, from the scientific name Mammalia coined by Carl Linnaeus in 1758, derived from the Latin mamma ("teat, pap"). All female mammals nurse their young with milk, which is secreted from special glands, the mammary glands. According to Mammal Species of the World, 5,416 species were known in 2006. These were grouped in 1,229 genera, 153 families and 29 orders. In 2008 the IUCN completed a five-year, 1,700-scientist Global Mammal Assessment for its IUCN Red List, which counted 5,488 accepted species at the end of that period. In some classifications, the mammals are divided into two subclasses (not counting fossils): the Prototheria (order of Monotremata) and the Theria, the latter composed of the infraclasses Metatheria and Eutheria. The marsupials comprise the crown group of the Metatheria and therefore include all living metatherians as well as many extinct ones; the placentals likewise constitute the crown group of the Eutheria.

Except for the five species of monotremes (egg-laying mammals), all modern mammals give birth to live young. Most mammals, including the six most species-rich orders, belong to the placental group. The three largest orders, in descending order, are Rodentia (mice, rats, porcupines, beavers, capybaras, and other gnawing mammals), Chiroptera (bats), and Soricomorpha (shrews, moles and solenodons). The next three largest orders, depending on the classification scheme used, are the primates, to which the human species belongs, the Cetartiodactyla (including the even-toed hoofed mammals and the whales), and the Carnivora (cats, dogs, weasels, bears, seals, and their relatives). While the classification of mammals at the family level has been relatively stable, different treatments at higher levels—subclass, infraclass, and order—appear in contemporaneous literature, especially for the marsupials. Much recent change has reflected the results of cladistic

analysis and molecular genetics. Results from molecular genetics, for example, have led to the adoption of new groups such as the Afrotheria and the abandonment of traditional groups such as the Insectivora.

The early synapsid mammalian ancestors were sphenacodont pelycosaurs, a group that also included Dimetrodon. At the end of the Carboniferous period, this group diverged from the sauropsid line that led to today's reptiles and birds. Preceded by many diverse groups of non-mammalian synapsids (sometimes referred to as mammal-like reptiles), the first mammals appeared in the early Mesozoic era. The modern mammalian orders arose in the Paleogene and Neogene periods of the Cenozoic era.

## 1.2 Social Animals

Features of vertebrate (non-human) societies Female elephants live in stable groups, along with their offspring.

Social animals may exhibit one of more of these behaviors:

cooperative rearing of young by the group overlapping generations living in a permanent, as opposed to seasonal, group cooperative foraging or hunting cooperative defense from predators and competitors social learning (such as a young chimpanzee learning by observation to use a twig to fish for termites)

A chief debate among ethologists studying animal societies is whether non-human primates and other animals can be said to have culture. List of vertebrates showing social behavior

Bats (Chiroptera) Canidae (especially Wolves) Crows Hominidae, including: Bonobos & Chimpanzees (Pan) Gorillas (Gorilla gorilla) Humans (Homo sapiens) Dolphins (Delphinidae) Domestic Cats Elephants (Loxodonta africana) (Elephas maximus) (Loxodonta cyclotis) European Starling (Sturnus vulgaris) Horses (Equus ferus) Hyenas (Hyaenidae) Killer whale (Orcinus Orca) Lions (Panthera leo) Meerkats (Suricata suricatta) Orange-Fronted Conures (Aratinga canicularis) Cacatuidae Psittacidae Penguins (Spheniscidae) Zebra Finches (Taeniopygia guttata) Rats (Rattus) House mouse (Mus musculus) Domestic mouse Guinea pigs (Cavia porcellus) Leporidae Paracheirodon Tetras

Human social behavior frequently includes non-human animals (most notably cats, dogs and horses). Animals can provide humans with companionship as pets, or can be kept as livestock, service animals for disabled people, or working animals to perform labor. In many cultures, humans have used animals in religious sacrifice or in staged fights and shows for entertainment such as circuses.

Other animal species may interact cooperatively in symbiotic relationships.