

CHAPTER

4

Classification of Mammals



Despite their remarkable success, mammals are much less diverse than are most invertebrate groups. This is probably attributable to their far greater individual size, to the high energy requirements of endothermy, and thus to the inability of mammals to exploit great numbers of restricted ecological niches. Wilson and Reeder (2005) recognized about 1,229 genera and 5,416 species of living mammals. Most species of extant mammals have already been described, but approximately 10 to 12 new species continue to be named each year. Many of these are cryptic species, distinct genetically but difficult or impossible to distinguish morphologically from already known species. When fossil mammals are considered, the numbers are more impressive. In the compendium of McKenna and Bell (1997), 5,162 genera of mammals in 425 families—of which 4,079 genera (79%) and 300 families (71%) are extinct—had been named, with additional new fossil taxa named each year. Still, the numbers of genera and species are insignificant in comparison with those for invertebrates. There are, for example, an estimated 950,000 named species of insects (perhaps 8 to 100 million undiscovered), 40,000 of protists (perhaps 100,000 to 200,000 undiscovered), and 70,000 of mollusks (perhaps 200,000 undiscovered).

We devote considerable attention to the orders and families of mammals not because we wish to put primary

stress on the taxonomic aspect of mammalogy, but rather as an attempt to provide students with sufficient information on the various kinds of mammals to make the subsequent discussions of mammalian biology meaningful. Students' interest is often dulled if they must deal with information about completely unfamiliar kinds of animals. It seems pointless to discuss water regulation in heteromyids, for example, if students have only a vague idea of what a heteromyid is.

Phylogenetic systematics is a major focus of much of the basic research conducted on mammals today. It is also an important feature of many other fields, from conservation biology to molecular genetics. Increasingly, authors attempt to construct or use classification schemes that reflect the presumed phylogeny of mammals and other organisms, as we have done in this book. Reconstructing a phylogeny and producing a classification for a group of organisms are very different goals, however, and the results are often controversial. The classification that follows (**Table 4-1**) is largely that of the various authors in Wilson and Reeder (2005). No classification system yet proposed has gained universal acceptance, but Wilson and Reeder's is a useful recent compendium. In keeping with the contemporary approach, categories other than Order and Family are not given for the higher taxa named.

TABLE 4-1 A Classification of Recent Mammals

Classification	Common Name(s)
Prototheria	
Order Monotremata (5 species)	
Family Tachyglossidae	Echidnas, spiny anteaters
Ornithorhynchidae	Duck-billed platypus
Theria	
Metatheria (Marsupialia)	
Order Didelphimorphia (89 species)	
Family Didelphidae	Opossums
Order Paucituberculata (6 species)	
Family Caenolestidae	Rat opossums
Order Microbiotheria (1 species)	
Family Microbiotheriidae	Monito del monte, llaca
Order Dasyuromorphia (71 species)	
Family Thylacinidae (extinct)	Thylacine
Myrmecobiidae	Numbat
Dasyuridae	Dasyures, quolls, antechinuses, dunnarts, Tasmanian devil
Order Peramelemorphia (22 species)	
Family Thylacomyidae	Bilbies
Peramelidae	Bandicoots, echymiperas
Chaeropodidae	Pig-footed bandicoot

(continues)

TABLE 4-1 A Classification of Recent Mammals (continued)

Classification	Common Name(s)
Order Notoryctemorphia (2 species)	
Family Notoryctidae	Marsupial “moles,” itjaritjaris
Order Diprotodontia (144 species)	
Family Phascolarctidae	Koalas
Vombatidae	Wombats
Burramyidae	Pygmy possums
Phalangeridae	Cuscuses, phalangers
Pseudocheiridae	Ring-tailed possums
Petauridae	Gliders, striped possums
Tarsipedidae	Honey possum, noolbenger
Acrobatidae	Feathertail possum, feathertail glider
Hypsiprymnodontidae	Musky rat kangaroo
Potoroidae	Rat kangaroos, bettongs, potoroos
Macropodidae	Kangaroos, wallabies
Eutheria (Placentalia)	
Order Afrosoricida (51 species)	
Family Tenrecidae	Tenrecs
Chrysochloridae	Golden moles
Order Macroscelidea (15 species)	
Family Macroscelididae	Elephant-shrews
Order Tubulidentata (1 species)	
Family Orycteropodidae	Aardvark
Order Proboscidea (3 species)	
Family Elephantidae	Elephants
Order Sirenia (5 species)	
Family Dugongidae	Dugongs, sea cows
Trichechidae	Manatees
Order Hyracoidea (4 species)	
Family Procaviidae	Hyraxes
Order Cingulata (21 species)	
Family Dasypodidae	Armadillos
Order Pilosa (10 species)	
Family Bradypodidae	Three-toed tree sloths
Megalonychidae	Two-toed tree sloths
Cyclopedidae	Silky anteater
Myrmecophagidae	Tamanduas and giant anteater
Order Dermoptera (2 species)	
Family Cynocephalidae	Colugos
Order Scandentia (20 species)	
Family Tupaiidae	Tree shrews
Ptilocercidae	Pen-tailed treeshrew

Classification	Common Name(s)
Order Primates (376 species)	
Family Cheirogaleidae	Dwarf lemurs, mouse lemurs
Lemuridae	Lemurs
Lepilemuridae	Sportive lemurs
Indriidae	Wooly lemurs, sifakas
Daubentoniidae	Aye-aye
Lorisidae	Lorises
Galagidae	Bushbabies, galagos
Tarsiidae	Tarsiers
Cebidae	Marmosets, tamarins, capuchins, squirrel monkeys
Aotidae	Night monkeys
Pitheciidae	Titis, uacaris, sakis
Atelidae	Howlers, spider monkeys, wooly monkeys
Cercopithecidae	Old World monkeys
Hylobatidae	Gibbons
Hominidae	Apes, human
Order Rodentia (2,278 species)	
Family Aplodontiidae	Sewellel or mountain beaver
Sciuridae	Squirrels
Gliridae	Dormice
Castoridae	Beavers
Heteromyidae	Kangaroo rats, pocket mice
Geomyidae	Pocket gophers
Dipodidae	Jerboas, birch mice, jumping mice
Platacanthomyidae	Tree mice
Spalacidae	Zokors, bamboo rats, mole rats
Calomyscidae	Calomyscuses
Nesomyidae	Pouched rats and mice, climbing and fat mice, etc.
Cricetidae	Voles, hamsters, New World rats, and mice
Muridae	Rats, mice
Anomaluridae	Scaly-tailed flying squirrels
Pedetidae	Springhaas, springhares
Ctenodactylidae	Gundis
Diatomyidae	Kha-nyous or Laotian rock rat
Bathyergidae	Mole-rats
Hystriidae	African and Asian porcupines
Petromuridae	Dassie rat
Thryonomyidae	Cane rats
Erethizontidae	Bristle-spined rat and New World porcupines
Chinchillidae	Chinchillas, vizcachas
Dinomyidae	Pacarana
Caviidae	Cuis, guinea pigs, cavies, maras, capybaras

(continues)

TABLE 4-1 A Classification of Recent Mammals (continued)

Classification	Common Name(s)
Dasyproctidae	Agoutis, acouchis
Cuniculidae	Pacas
Ctenomyidae	Tuco-tucos
Octodontidae	Degus, rock rats, vizcacha-rats
Abrocomidae	Chinchilla rats
Echimyidae	Spiny rats, tree rats, etc.
Myocastoridae	Coypu or nutria
Capromyidae	Hutias
Heptaxodontidae (extinct)	Giant hutias and key mice
Order Lagomorpha (92 species)	
Family Ochotonidae	Pikas
Prolagidae (extinct)	Sardinian pika
Leporidae	Rabbits
Order Erinaceomorpha (24 species)	
Family Erinaceidae	Hedgehogs, gymnures
Order Soricomorpha (428 species)	
Family Nesophontidae (extinct)	Nesophontes
Solenodontidae	Solenodons, alamiquis
Soricidae	Shrews
Talpidae	Moles, desmans
Order Chiroptera (1,116 species)	
Family Pteropodidae	Old World fruit bats, flying foxes
Rhinopomatidae	Mouse-tailed bats
Craseonycteridae	Hog-nosed or bumblebee bat
Megadermatidae	False vampire bats
Rhinolophidae	Horseshoe bats
Hipposideridae	Old World leaf-nosed bats
Emballonuridae	Sac-winged bats
Nycteridae	Slit-faced bats
Myzopodidae	Sucker-footed bats
Mystacinidae	New Zealand short-tailed bats
Thyropteridae	Disk-winged bats
Furipteridae	Smoky bat and thumbless bat
Noctilionidae	Bulldog bats
Mormoopidae	Mustached and ghost-faced bats
Phyllostomidae	New World leaf-nosed bats
Natalidae	Funnel-eared bats
Molossidae	Free-tailed bats
Vespertilionidae	Evening bats, common bats
Miniopteridae	Bent-winged or long-fingered bats
Order Pholidota (8 species)	
Family Manidae	Pangolins

Classification	Common Name(s)
Order Carnivora (286 species)	
Family Felidae	Cats
Viverridae	Civets, genets
Eupleridae	Falanouc, fossa, Madagascar mongooses
Nandiniidae	African palm civet
Herpestidae	Mongoose
Hyaenidae	Hyenas, aardwolf
Canidae	Wolves, foxes, jackals
Ursidae	Bears, giant panda
Odobenidae	Walrus
Otariidae	Eared seals, fur seals, sea lions
Phocidae	Earless seals
Mustelidae	Weasels, badgers, otters
Mephitidae	Skunks, stink badgers
Procyonidae	Raccoons, ringtails, coatis
Ailuridae	Red panda
Order Perissodactyla (17 species)	
Family Equidae	Horses, asses, zebras
Tapiridae	Tapirs
Rhinocerotidae	Rhinoceroses
Order Artiodactyla (240 species)	
Family Suidae	Hogs, pigs
Tayassuidae	Peccaries
Hippopotamidae	Hippopotamuses
Camelidae	Camels, vicuñas, guanacos, llamas
Tragulidae	Chevrotains and mouse deer
Moschidae	Musk deer
Cervidae	Deer
Antilocapridae	Pronghorn
Giraffidae	Giraffe and okapi
Bovidae	Antelope, bison, cattle, duikers, goats, sheep, etc.
Order Cetacea (84 species)	
Family Balaenidae	Right whales
Balaenopteridae	Rorquals
Eschrichtiidae	Gray whale
Cetotheriidae	Pygmy right whale
Delphinidae	Ocean dolphins
Monodontidae	Narwhal and beluga
Phocoenidae	Porpoises
Physeteridae	Sperm whales
Platanistidae	Ganges and Indus river dolphins
Iniidae	Bajji, franciscana, and Amazon river dolphins
Ziphiidae	Beaked whales

SUMMARY

There are approximately 1,229 genera and over 5,420 species of living mammals, with an additional 5 to 12 new species named each year. When fossil mammals are considered, the numbers total over 5,162 genera of mammals in 425 families—of which 79% of genera and 71% of families

are extinct. Still, the numbers of genera and species are insignificant in comparison with those for invertebrates. The mammalian classification presented here is largely that of the various authors in Wilson and Reeder (2005) and is based on phylogenetic relationships as currently understood.

RECOMMENDED READINGS

McKenna, MC & SK Bell. 1997. *Classification of Mammals Above the Species Level*. Columbia University Press, New York.

Murphy, MJ, et al. 2001. Molecular phylogenetics and the origins of placental mammals. *Nature*, 409:614–618.

Tree of Life Web Project. 1995–2005. www.tolweb.org/tree/phylogeny.html. Accessed February 14, 2013.

Wilson, DE & DM Reeder. 2005. *Mammal Species of the World, A Taxonomic and Geographic Reference*, 3rd ed., 2 vols. Johns Hopkins University Press, Baltimore, MD.