

## Mammals II

### Order Insectivora

- insect-eating habits; also eat seeds, nuts, other plants; help keep down insect population
- high metabolism so must eat constantly; many live little more than 1 year; rapid heartbeat
- shrews: inhabit moist areas; mouselike with long, pointed noses; smallest mammal – pygmy shrew (1.5in long, weighs <penny); eat equivalent of body weight each day; poison in salivary glands; can drop dead if startled
- hedgehogs: covered in spines that are softer and shorter than porcupine; rolls into a ball when threatened; 10in long; longest living insectivores; hibernate Oct-Apr
- moles: live almost exclusively underground; in place of sight it uses keen senses of smell and hearing and can detect vibrations; excellent diggers; hair bends in any direction, allowing mole to move forward and backward with little resistance; stores up earthworms

### Order Chiroptera

- from [Gr.] “hand wing”
- bats: greatly elongated fingers; thin membrane of skin attached to fingers, body and tail; close to 900 species known; live in all parts except polar regions
- can see well; insectivorous bats catch flying insects by sound alone using sonar and large ears (echolocation)
- sounds are short pulsed blasts directed in broad beam; above human hearing; 30-200/sec
- can carry rabies
- all are nocturnal; can be found in coolness of caves, crevices, tree cavities and buildings
- stay in hibernating state for as long as 64 days
- vampire bat laps up blood from tooth-made incision

### Order Cetacea

- from [Gr.] ketos: “whale, sea monster”
- warm-blooded, breathe with lungs, bear live young and nurse calves with milk
- baleen whales: have two rows of comblike plates that hang from each side of upper jaw; used as gigantic strainer to filter food from water; females larger than males
- blue whale: world's largest mammal; 110ft/150 tons
- toothed whales: sperm whales – known to dive >2 miles beneath ocean's surface; spermaceti (in head) used for lamp oil, lubricant, cosmetics base; ambergris in intestines once used to make perfumes

- dolphins – among most intelligent mammals; bottle-nosed and common; use sophisticated sonar for detecting underwater objects; blowhole produces different sounds of air, sent out through melon (fatty organ at bulge of head)
- porpoise – does not have beaked snout and not as playful as dolphin
- killer whales (orcinus orca)

### Order Primata

- 166 species
- mostly arboreal and noted for intelligence; all have five fingers and toes; hands have opposable thumbs (and toes) for grasping; all have nails, forward-facing eyes; most live in tropical/subtropical climates
- apes: primates without tails; largest – mountain gorilla up to 5.5ft tall, 430lbs. smallest – gibbon  
orangutan – characterized by orange-brown hair and sad face; lives in swamp forests of Borneo and Sumatra
- chimpanzee – considered most intelligent of apes
- monkeys: primates with tails  
–New World – live in tropical forests of C/S America, Africa, Asia; prehensile tails for grasping objects; nostrils widely spaced; marmosets, capuchins, douroucoulis, howlers, spider monkeys, squirrel monkeys, woolly monkeys  
–Old World – live only in Africa, Asia; mandrill, baboon; diet of leaves
- lemurs: only live in Madagascar and nearby islands; mouse lemur fully mature in 8mos; long, bushy tails, arboreal

### Order Rodentia

- more rodents than all other animals combined; small, gnawing animals with two pairs of sharp incisor teeth which keep growing as long as animal lives
- porcupine, gerbil, hamster, squirrel, chipmunk, beaver, rat
- mice: smallest rodent; common house mouse found on every continent; >5 litters/year with 3-12 in each litter; can reproduce when only 35 days old
- rats: single pair can reproduce >100 young in one year; best methods of control are sanitation procedures; carry fatal diseases such as bubonic plague, food poisoning, typhus
- capybaras: largest rodent; grow up to 4ft long and weigh 100lbs.; live in S. America east of Andes
- squirrels: 200 species including chipmunk; tree squirrels blend in with trees; ground squirrels have shorter legs and less bushy tails dig burrows in earth
- flying squirrels have gliding flight
- wood chucks: also groundhogs; destructive to farmlands due to huge appetites and burrowing
- gophers: family of hundreds in tunnel community
- beavers: largest rodents in US; large dams support underwater homes; large broad tails help to swim and slapping water warns of danger

- porcupines: quills composed of keratin introduce bacteria into wound and barbs prevent removal

### Order Dermoptera

- dermoptera: “skin wing”
- flying lemurs - nocturnal, live in tropical jungles of Asia; longest gliding mammal
- not grouped with flying squirrels bc of teeth - flying lemur's teeth do not grow continually

### Order Lagomorpha

- lagomorpha: “form of a hare”
- four incisors in upper jaw; short tails, longer hind legs; herbivores
- rabbit: only means of protection are keen senses and speed; can jump 16ft and run 35mph; give birth to naked young with closed eyes; burrow into the ground for homes
- hares: larger than rabbits and have longer ears which act as radiators to expel heat; give birth to full-coated young with eyes open; live in grassy hollows
- pikas: small 7in; short ears; live on mountainsides beyond tree line

### Order Hyracoidea

- hyrax (coney): lives in rocks; herbivorous; hoofs on toes and pads on soles of feet to cling to rock for protection
- “hyraxes are creatures of little power, yet they make their home in the crags” Prov. 30:26 (NIV)
- live in E. Africa - savanna to rainforest
- live in colonies of about 50 in natural crevices of rocks or boulders

### Order Perissodactyla

- perissodactyla means “odd toe”
- ungulates: hoofed animals; hoofs - enlarged and thickened toenails
- designed as swift runners to escape from predators
- most ungulates are primarily herbivorous
- rhinoceros: three functional toes; one or two horns used for defense; no sweat glands so cools off in mud; can out-accelerate a horse from the start and turn faster than a horse
- tapir: looks like a pig with an extra long snout; four toes on front feet and three on hind feet

### Family Equidae

- horse is single-toed; importance in economy, working, war; no horses in N./S. America until 1519 when Spanish brought them to Mexico
- zebra: look like striped horses but are not; resistant to many diseases that afflict horses; crosses between horses and zebras are infertile
- donkey: beasts of burden; crossed with horses = mules (infertile)

## Order Artiodactyla

- meaning “even toe”
- all herbivores
- many have antlers (solid bone structures shed annually) or horns (hollow structure surrounding bone that are usually permanent)
- long skulls provide large surface for nerve receptors used in sense of smell; eyes on side of head to maximize peripheral vision for predators; importance in producing meat and mild for humans
- ruminants - chew cud means habit of hastily chewing and swallowing food which is later regurgitated and chewed more thoroughly; stomach divided into four sections - rumen is first division of stomach which holds unchewed food until masticated thoroughly
- must eat large amounts of food to receive nourishment; most of carbs in grass is cellulose, broken down with aid of microorganisms by fermentation
- deer: distinguished from bovids by growth of antlers; common white-tailed deer model widely hunted animals in US
- camel: designed to withstand extremes of hot, dry lands; can survive -20°F to over 100°F; thick pads connect two toes and give support and insulation; three chambered stomach; stores fat in hump atop body which allows camel to shed heat more easily and go for long periods without food; also source of water when fat broken down

### Family Bovidae

- ruminants with unbranched hollow horns, well equipped for grazing; includes cattle, sheep, goats, antelope
- domestic breeds are all oxen (wild cattle)  
exotic varieties include buffalo, yak

## Order Carnivora

- meaning “to eat flesh”
- carnivores lead more active life than herbivores; flesh is high in protein and minerals and is easily digested; carnivores have shorter digestive tract; eat separate meals
- Family Ursidae
  - bears: least carnivorous of flesh eaters; omnivores bc live on plant and animal foods
  - Alaskan brown bear (Kodiak bear) largest land-dwelling carnivore; type of grizzly (1400lbs, 10ft tall)
  - polar bear only large land carnivore that does not instinctively fear man
- Family Canidae
  - include domestic dogs, wolves, coyotes, foxes, jackals
  - run in packs and work in cooperation to attack prey

- consume 1/5 body weight at every meal, then can go days or weeks without eating
- mate for life and keep close family
- Family Mustelidae
  - weasel: 8.5in long; stalks prey by scent, hunts at night, kills prey with a bite on the back of the head
  - largest weasel is the wolverine
- Family Felidae
  - largest is Siberian tiger (10ft. long, 650lbs)
  - most cats solitary but lions dwell in prides
  - largest cats in New World are cougar (mountain lion, puma) and jaguar
- Aquatic carnivores
  - seal: designed to dive in pursuit of fish, have flap valves that keep water out of ears and nostrils; blood carries 5x hemoglobin than humans; muscles contain large amounts of myoglobin (O<sub>2</sub> storage molecule) to allow for submersion for 15-20min; during a dive, seal's heart beats 15x/min to conserve O<sub>2</sub>; blubber and blood vessel constriction enable deep dives up to 1000ft below surface, withstanding pressure of 875psi
  - walrus: tusks are elongated upper incisor teeth; used as ice axes or weapons