Proboscidea, Sirenea, Hyracoidea

Today: 2 genera, 2 species

Body mass ~ 7500+ kg

Fig. 14.1, Vaughn

Proboscidea

Millions of years ago

Eosimias

Pan

Homo

Gorilla

Eosimias

Hyracoidea

Lister

Proconsul

Gomphotherium

Mammuthus

Deinotherium

Stegodon

Primelaphus

Loxodonta africana

Elephas maximus

Mammuthus

Mammut americanum

Loxodonta africana

Elephas maximus

Ordinal characteristics (feet and trunk)

Development of foot --
Pad to distribute weight uniformly
Digitigrade

Trunk

Teeth

Proboscidea

Functional teeth -- consequences of long life --
Single tooth active (may be adjacent one too)

Tusks -- 2nd upper incisor

Deinotherium

40 million years ago

Mammut americanum

Mammuthus primigenius

Loxodonta africana

Elephas maximus

Mammut americanum

Mammuthus primigenius

Loxodonta africana

Elephas maximus
Proboscidea

Social behavior

Female groups -- matriarchal kinship
Adult females, mothers and offspring

Males
Bachelor herds or solitary
Musth reproductive period
2-3 months
High hormone levels
Aggressive behavior

Communication --
Low frequency sounds
Trumpeting

Proboscidea: Elephantidae

African elephant *Loxodonta africana*

Possibly 2 species?
Gestation 22 months
120 kg young
Nurse 3-4 years

Asiatic or Indian elephant *Elephas maximus*

Ears smaller
19 pairs of ribs (not 21)
Head dome, high point
Single “finger” on trunk

Sirenia

“Seacows” -- Dugongs, manatees

Tropical, marine
500 to > 5,000 kg
60,000 individuals
Fewest of any order

Nearly hairless (e.g., whales)
Valvular nostrils (e.g., beaver, otter)
Maintain feeding position:
Lung orientation
Dense bone -- ribs as ballast

Sirenea

Teeth vary in each genus
“Escalator” as in Elephants
but more teeth present

*Dugong*: Large, columnar,
no enamel, worn away
covered in cementum

*Trichechus*: indefinite number
Enamel covered, no cementum
5 to 8 functional at a time
Sireneia: Trichechidae
1 genus, 3 species
West Indian manatee: *Trichechus manatus*
West African manatee: *T. senegalensis*
Amazonian manatee: *T. inunguis*
Usually solitary to small group
Warm-water discharge areas
Protected in Florida since late 1800’s
(legal vs. practical)
Low reproductive potential --
13 month gestation

Sireneia: Dugongidae
Steller’s sea cow: *Hydrodamalis gigas*
Seasonal food availability -- thin in winter --
problem faced by northern Sirenian

Hyracoidea
1 family, 3 genera
6 species (or fewer)
Hyraxes, Dassies
Africa and Middle East -- rock badgers
First fossils 50 mya
Elephants/Sirenians or Perissodactyls?
Rabbit-sized--1 to 5 kg
10+ years in wild

Arboreal and terrestrial species
Terrestrial:
diurnal, gregarious: family groups
poor thermoregulators --
huddle together
Arboreal:
nomurnal, solitary,
territories maintained

Feet --
Suction cup-like arrangement
Short, hoof-like nails, 1 claw

Stomach morphology:
Large cecum at start of large intestine
Paired cecae at end of large intestine