

## ORDER PROBOSCIDEA

**Family ELEPHANTIDAE**  
 (Elephants)

Proboscideans are the largest living terrestrial mammals. Only two species remain of this once widespread and relatively diverse order (five other extinct families are known). The most conspicuous recognition features of elephants are the long slender proboscis (trunk) with one or two prehensile projections at its tip, large fan-shaped ears (largest in *Loxodonta* and a useful radiator of body heat), and huge body size. Many characteristics of this group are adaptations that serve to support the great weight of the body, which approaches the upper size limit for a terrestrial mammal. Adaptations include columnar limbs—each of the limb bones is relatively large and set in a straight vertical line—and a thick elastic pad on the sole of each foot. The heavy body is supported further by orientation of the limb bones directly under the girdles—the glenoid fossa of the scapula and acetabulum of the pelvic girdle are oriented ventrally.

The curious dentition consists of a pair of upper incisors elongated into tusks (reaching over 3 m in male *Loxodonta*) and six cheekteeth which are replaced continuously from the rear throughout life. Only one (or one and part of another) cheektooth is functional at a time. Each tooth is shed as it becomes worn.

Conspicuous inhabitants of forests, scrublands, and savannahs near water, these mammals can cause massive changes in the vegetational composition of habitats during prolonged feeding activities (Laws, 1970). Grasses and branches from trees and shrubs form the bulk of their diet.

Herds of elephants infrequently consist of as many as several hundred animals. Permanent groups are much smaller and are composed of cows, calves, and young bulls. Each group is dominated by a single matriarch. Adult males generally occur in bull herds but periodically become aggressive (a condition referred to as “musth”) and invade cow herds. Temporary pair bonds are then formed with individual females. Males are considerably larger than females.

Female elephants reproduce several times during an average lifetime of perhaps 50 years. The gestation period is long (about two years) and a single calf (rarely twins) is produced.

Asiatic elephants have been employed as beasts of burden for centuries. Tusks of *Loxodonta* are prized for their ivory.

Two genera, 2 species; Africa, southeast Asia.

**Recognition Characters:**

- **long proboscis (trunk) present, with nostrils and finger-like projection at tip** (one projection in *Elephas*, two in *Loxodonta*).
- **pinna large, fan-like** (largest in *Loxodonta*).
- **limbs pillar-like.**
  1. **size enormous (up to 4 m in height); body thick-set.**
  2. tail relatively short.
  3. **sole of each foot with large elastic pads.**
  4. digits syndactylous.
  5. nails on four to five digits of forefoot, on three to four digits of hindfoot.
  6. no interparietal bone.

7. no postorbital process or bar (Fig. 123).
8. **nasal opening of skull located high on face** (Fig. 123).
9. jugal not forming part of mandibular fossa.
10. **upper incisor evergrowing, tusk-like (much larger in males)** (Fig. 123), **composed chiefly or entirely of dentine.**
11. **cheekteeth lophodont, with many transverse ridges, replaced consecutively from rear (only one functional tooth or parts of two at a time on each jaw), becoming progressively more complex posteriorly.**

Dental formula:  $\frac{1\ 0\ 3\ 3}{0\ 0\ 3\ 3} = 26$  (but tusk

usually absent in female *Elephas*)

Compare with: Hyracoidea.

#### Genera:

*Elephas* (1) - *E. maximus* is the Asiatic or Indian elephant.

*Loxodonta* (1) - *L. africana* is the African elephant.

**Remarks:** Carrington (1959) and Sikes (1971) provided general treatments of elephants. Evolution and paleontology were treated by Maglio (1973), Osborn (1936, 1942), and Watson (1946), and physiology was studied by Benedict (1936). Ecology and behavior were investigated by Eisenberg et al. (1971), Hendrichs and Hendrichs (1971), Kurt (1974), Laws (1974), Laws et al. (1975), McKay (1973), and Wing and Buss (1970). Spinage (1973) reviewed the history of ivory exploitation by man.

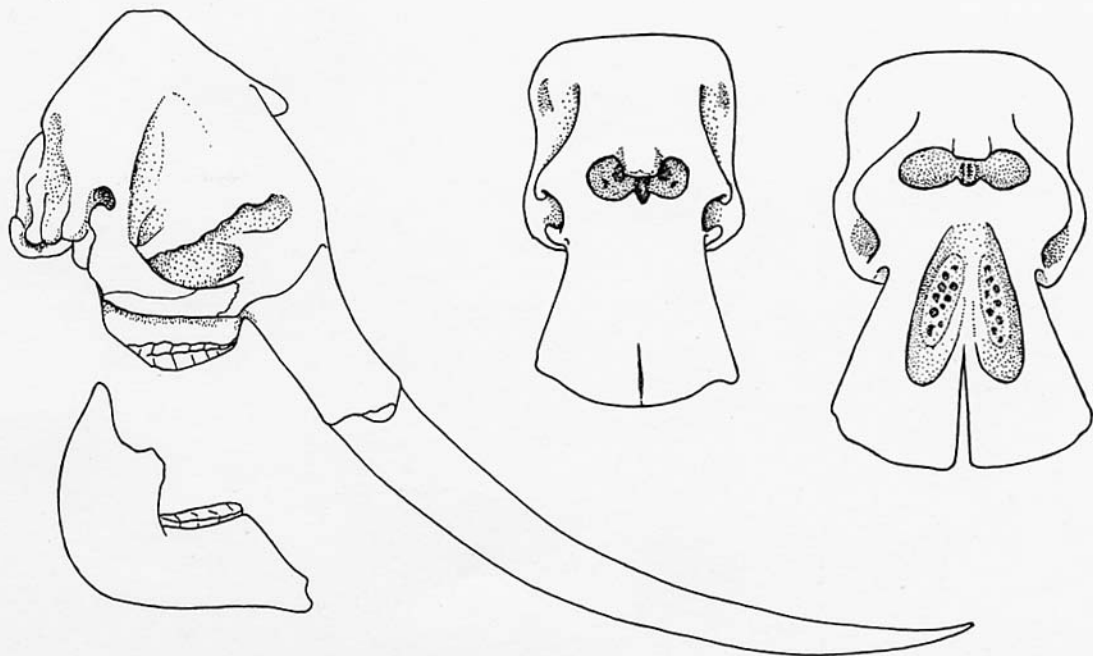


Figure 123. Skull of an elephantid (*Loxodonta*, x 1/24). Anterior views are shown of a female (center) and male (right). (After Sikes, 1973).