Key to Common Mammal Skulls

1. Canines present .................................................................................................................. 2
1. Canines absent .................................................................................................................... Section A

2. Incisors 5/4 (Figure A)...........Opossum
2. Incisors not 5/4.............................. 3

3. Upper molar peg-like (Fig. B, left) ................................................................. 4
3. Upper molar(s) large and robust (Fig. B, right) ........................................................... 5

4. Premolars 3/2; greatest length of skull 77-101 mm............................... House cat
4. Premolars 2/2; greatest length of skull over 101 mm................................. Bobcat

5. Post-orbital process in front of skull midpoint; Molars 1/2 or 2/2............. 6
5. Post-orbital process at or near skull midpoint; Molars 2/3......................... Section B

6. 4-5 upper cheek teeth with less than 40 teeth total ............................... Section C
6. 6 or more upper cheek teeth with 40-42 teeth total ........................................ 7

7. Greatest length of skull less than 200 mm.................................................. Raccoon
7. Greatest length of skull more than 200 mm............................................. Black bear

Skull Key 1
Section A: Deer, Rabbits and Rodents

1. Upper incisors present .................................................. 2
   1. Upper incisors absent .............................................. White-tailed deer

2. Upper incisors 4 or 6; rostral fenestra present (Figures C & D) ...... Eastern cottontail
   2. Upper incisors less than 4; rostral fenestra absent .................. 3

3. Post-orbital process well developed .................................. 4
   3. Post-orbital process not well developed or absent .................. 6

4. Greatest length of skull greater than 76 mm .......................... Groundhog
   4. Greatest length of skull less than 76 mm ............................ 5

5. U-shaped temporal ridges form a small sagittal crest (Fig. E) ...... Eastern fox squirrel
   5. Temporal ridges not U-shaped; sagittal crest absent ............... Eastern gray squirrel

6. Large, round infraorbital canals ........................................ 7
   6. Infraorbital canals not large or round, often slit-like ............... 8

7. Paraoccipital process does not extend beyond auditory bullae ........ Porcupine
   7. Paraoccipital process extends beyond auditory bullae .............. Nutria

8. Ear canals long and pointed upward (Fig. F) ......................... Beaver
   8. Ear canals short and not pointed upward .......................... Muskrat
**Section B: Canids**

Canids are in the Order Carnivora. The Canidae family contains wolves, coyotes and foxes. Worldwide. There are about 34 species of Canids, 8 of which occur in North America.

1. Greatest length of skull greater than 170 mm……………………………………….2
2. Greatest length of skull less than 170 mm……………………………………………3

2. Canines do not extend to the line across the mandibular mental foramina (Fig. G, left).........Domestic dog

2. Canines at or below the line across the mandibular mental foramina (Fig. G, right).........Coyote

3. Temporal ridges on top of skull form a V-shape (Fig. H, left).........................Red fox
3. Temporal ridges on top of skull from a U-shape (Fig. H, right).........................Gray fox
Section C: Mustelids & Skunks

The Family Mustelidae contains weasels and allies. Mustelids have a special pair of teeth known as the carnassials. Carnassial teeth are a pair of bladelike teeth (last upper molar and first lower molar) that exhibit a shearing action. This set of teeth is found in most carnivores, but those on Mustelids are extremely well-developed. Skunks were once part of the mustelid family but are now in their own group.

1. Premolars 4/3; post-orbital process well developed; infraorbital foramen greater than 8mm in diameter (Fig. I) .............................................................. River otter
2. Premolars 2/3, 3/3 or 4/4; post-orbital process lacking to moderately developed; infraorbital foramen less than 8mm in diameter .................................................... 2

2. 5 upper cheek teeth per side; premolars 4/4 ....................................................... Fisher
3. 4 upper cheek teeth per side; premolars 2/3 or 3/3 ............................................. 3

3. Upper molar dumbbell-shaped (Fig. J, left); auditory bulla prominent, elongated .... 4
4. Upper molar rectangular-shaped (Fig. J, right); auditory bulla flat and not elongated ................................................................. Striped skunk

4. Skull over 58mm long .............................................................. Mink
5. Skull 40-58mm long ............................................................... Long-tailed weasel
Mammal Skull Index
Glossary of Terms

- **Anterior**- front of skull or lower jaw
- **Auditory bulla**- bony capsule enclosing middle ear
- **Canine**- elongate, unicuspid tooth
- **Carnassial teeth**- pair of bladelike teeth (last upper molar and first lower molar) that exhibit a shearing action
- **Cheek teeth**- combination of premolars and molars
- **Dental formula**- numerical representation of the number of each kind of tooth on one side of the upper and one side of the lower jaw
  - **Example**: The statement ‘incisors 5/4’ means that there are 5 incisors on top and 4 incisors on the bottom for each side of the jaw
- **Diastema**- a gap or space in the jaw between teeth; used most often to denote gap between incisors and cheek teeth in rodents
- **Foramen magnum**- large opening at the back of a skull which the spinal cord goes through
- **Greatest length of skull**- length from tip of rostrum to the posteriormost part of the skull
- **Incisors**- anterior-most teeth (front teeth) of mammals
- **Infraorbital foramen**- opening below orbit (eye socket)
- **Mandibular mental foramen**- foramina (openings) located on the anterior surface of the mandible
- **Molar**- teeth located after premolars
- **Orbit**- eye socket
- **Paraoccipital process**- a downward-projecting spur from the base of the skull which attaches the muscle used in opening the lower jaw
- **Posterior**- back of skull or lower jaw
- **Post-orbital process**- bony projection
- **Premolar**- teeth situated between canines and molars
- **Rostrum**- distance from end of nostrils to orbit
- **Temporal ridge**- any of four nearly parallel curved ridges or lines situated two on each side of the skull and chiefly on the parietal bone
- **Zygomatic arch**- arch of bone protecting the orbit (eye socket)