

Ungulates – hoofed animals



**Artiodactylids – even
number of toes**



**Perissodactylids – odd
number of toes**

Order Artiodactyla (even-toed ungulates)

Family Cervidae (deer)

Family Bovidae (hollow-horned ruminants)

Introduced: European Fallow Deer (*Dama dama*);
3 bovines - cattle, goats and sheep



Horns and antlers

- **True horns**

- In bovids (e.g., sheep, cattle, pronghorn)
- keratin sheath permanently surrounding a live bone core with nerve and blood supply
- Continuous with skull
- are not shed, usually not branched, and grow continuously
- in males and often also in females



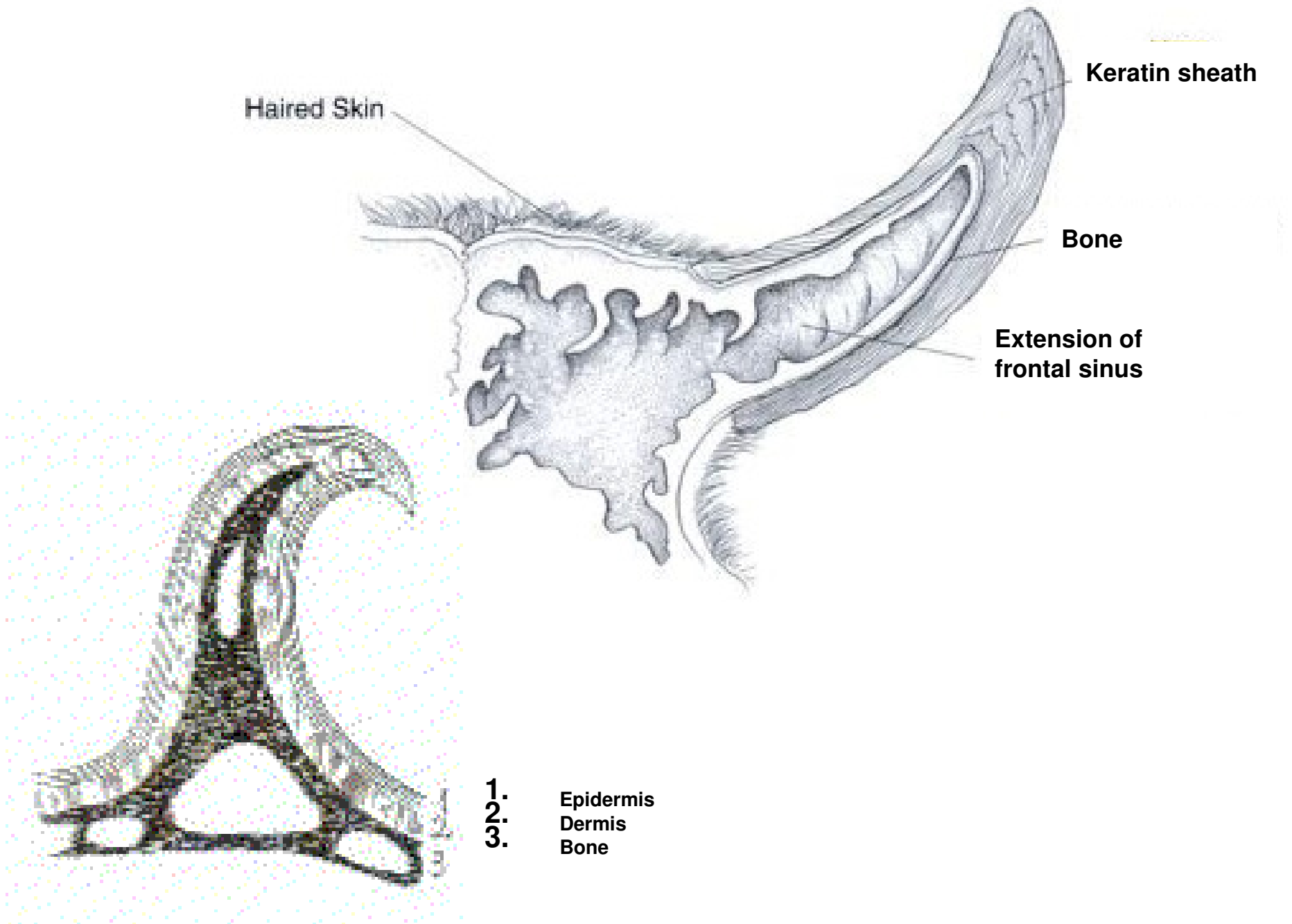
Haired Skin

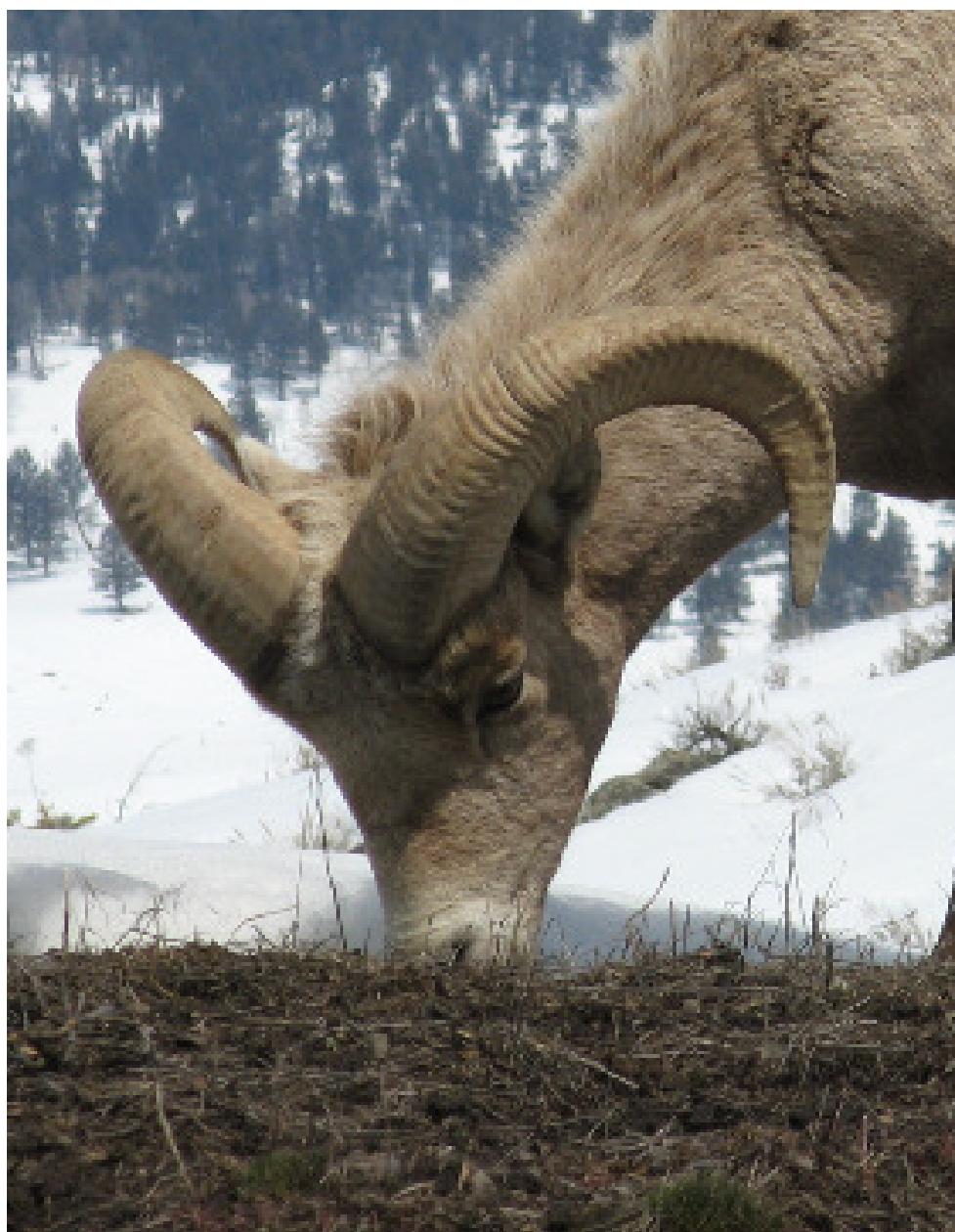
Keratin sheath

Bone

Extension of
frontal sinus

1. Epidermis
2. Dermis
3. Bone







pronghorn antelope
(*Antilocapra americana*)

**Exception: pronghorn antelope's horns are branched,
and the keratin sheath is shed annually**

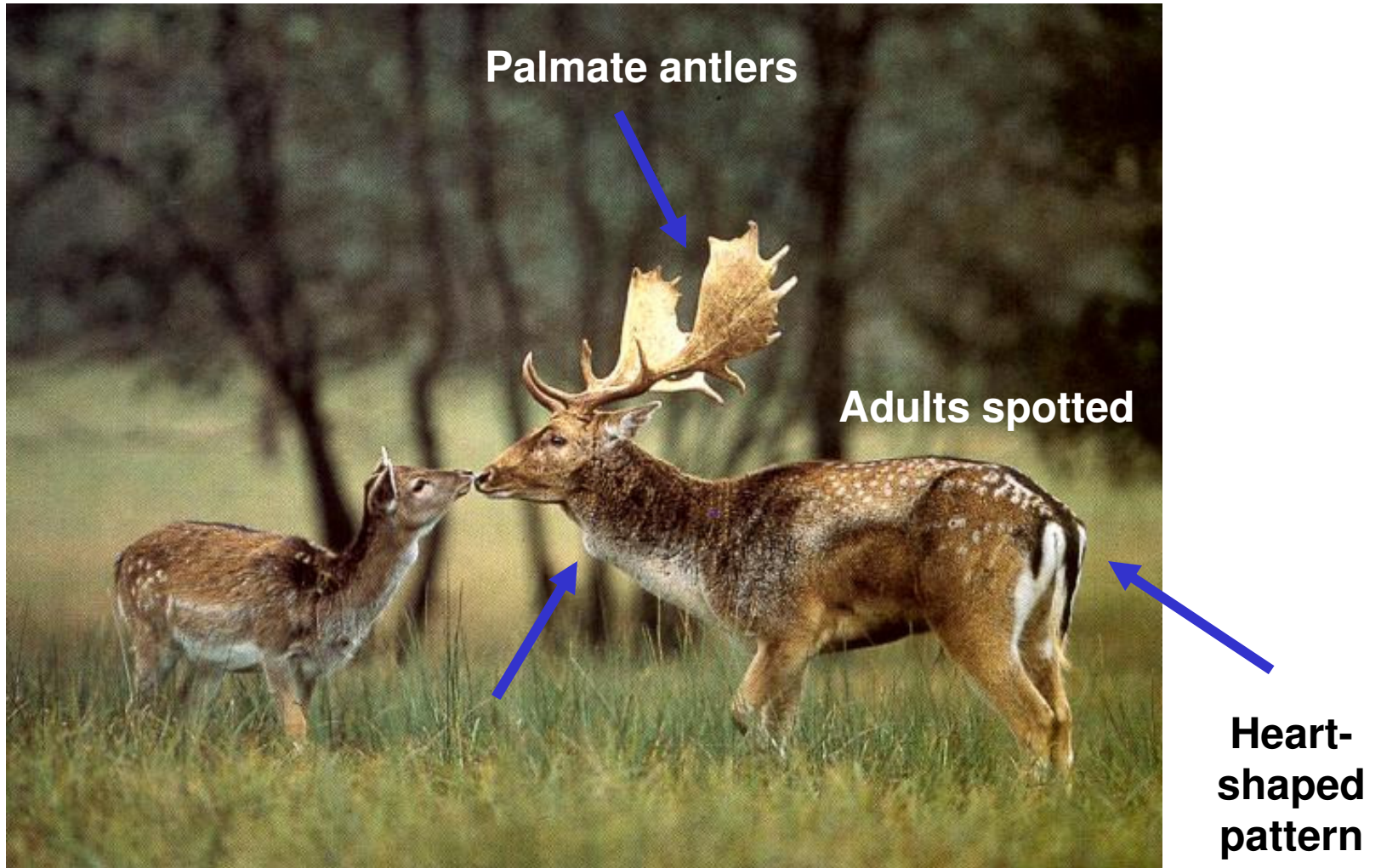
- **Antlers**



- In cervids (deer family)
- solid bone
 - mostly dead tissue when mature
 - during growth, covered in velvet (skin with nerve and blood supply)
- seasonally attached to bony base (=pedicel)
- branched, shed after the breeding season, growth resumes each year
- usually only in males (except caribou)

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Introduced: European Fallow Deer (*Dama dama*)



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**James Island (1908), Sidney Island (1950's),
D'Arcy Island, Mayne Island**

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Moose (*Alces alces*)

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Elk (*Cervus elaphus*)



Caribou (*Rangifer tarandus*)

Order Artiodactyla (even-toed ungulates)



Elk (*Cervus elaphus*)

- 2nd largest cervid in BC
- 2 subspecies:
 - C. e. nelsoni* – Rocky Mtns.
 - C. e. roosevelti* – Vancouver Isl.



females

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Mule deer
(*Odocoileus hemionus*)
Incl. black-tailed deer
and Sitka deer



D. Gordon E. Robertson

White-tailed deer
(*Odocoileus virginianus*)

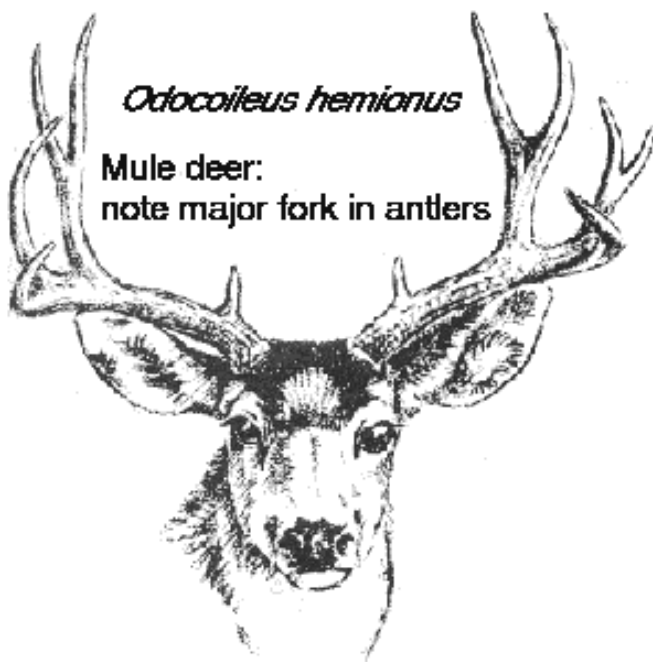


Note broad,
white-fringed tail



Odocoileus virginianus

White-tailed deer:
note unbranched
main beam in antlers



Odocoileus hemionus

Mule deer:
note major fork in antlers



Note narrow,
black-tipped tail

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Bison (*Bison bison*)



**Mountain goat
(*Oreamnos americanus*)**



Bison in YNP

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**Thinhorn sheep (*Ovis dalli*)
incl. Stone's sheep and Dall's shep**



**Bighorn Sheep
(*Ovis canadensis*)**