



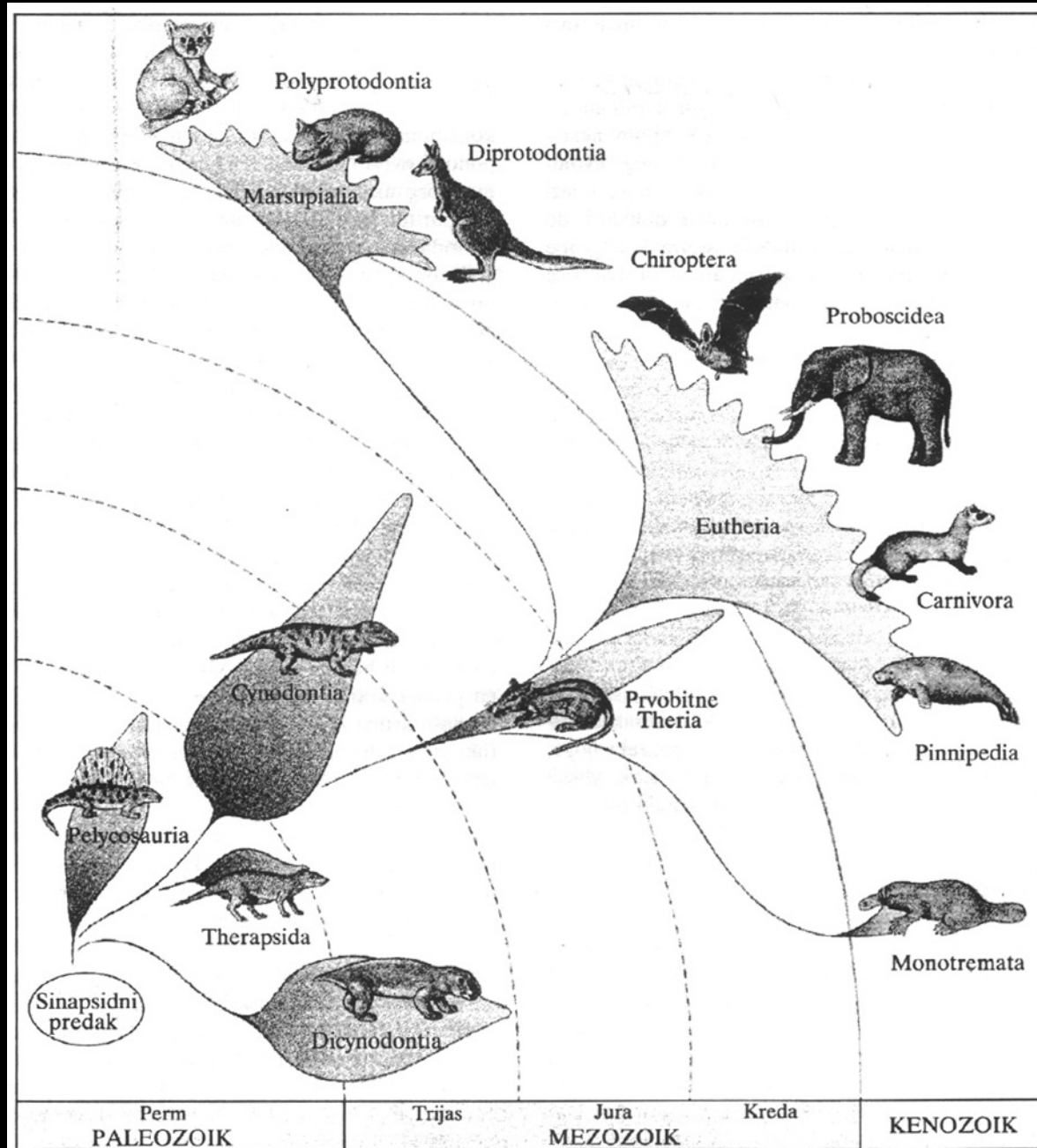
Univerzitet u Beogradu
Fakultet veterinarske medicine

Katedra za biologiju

Predmet:
ZOOLOGIJA
2024/2025

Chordata
Classis Mammalia

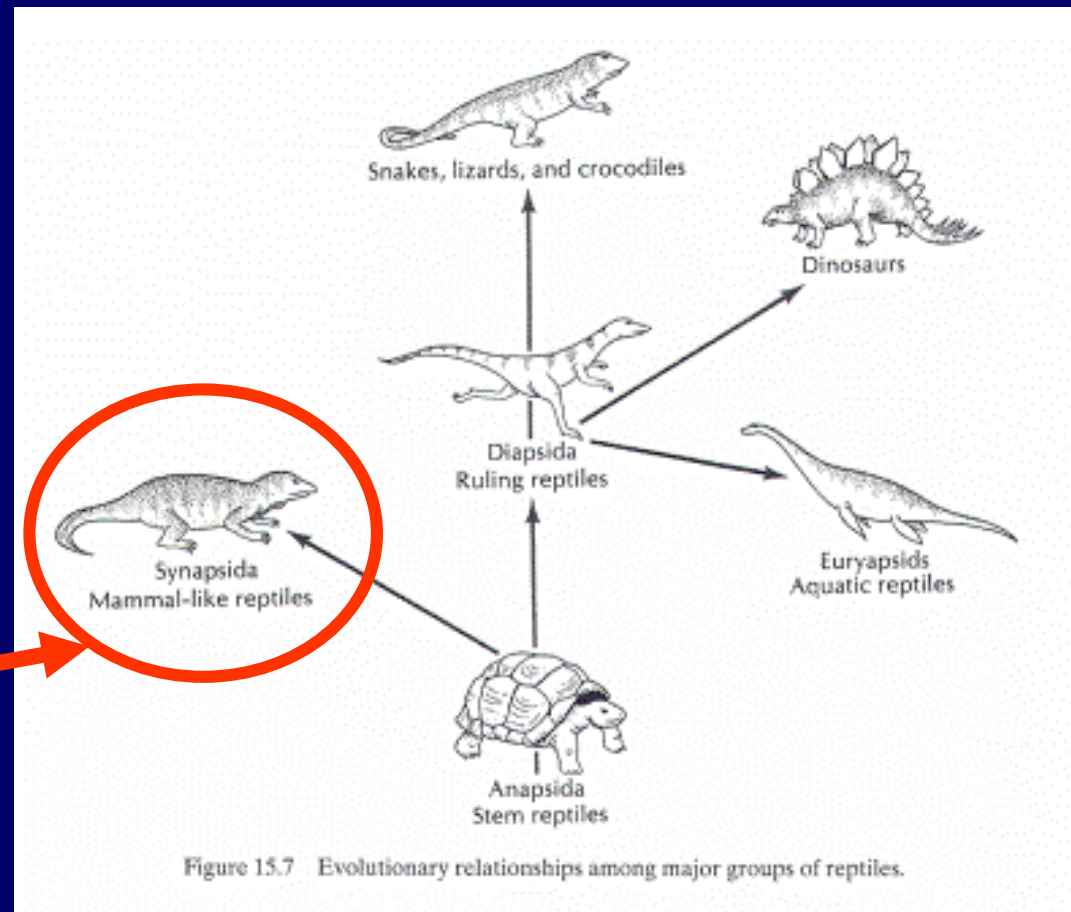
FILOGENIJA SISARA



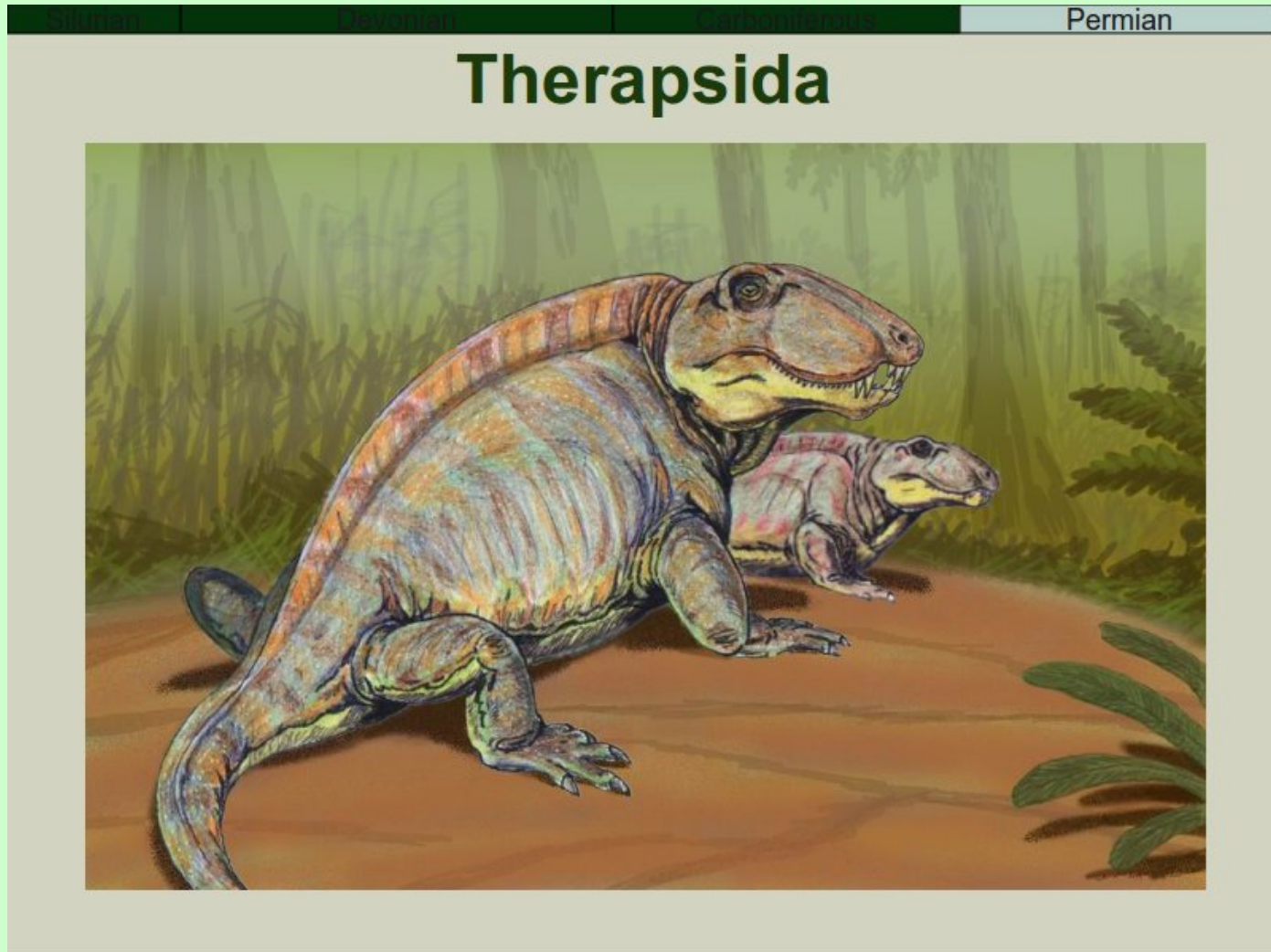
Klasa **Mammalia** obuhvata sisare, životinje koje su zahvaljujući svojim adaptacijama postigli veći evolutivni uspeh u odnosu na reptilske pretke.

Naime, prvi sisari su se pojavili još u Trijasu, odnosno znatno pre pojave prvih ptica.

Neposredni preci sisara su primitivni gmizavci iz klase **Synapsida**, reda **Therapsida**.



Prema načinu artikulacije donje vilice utvđeno je da su **Therapsida** pravi prelazni oblici između gmizavaca i sisara.



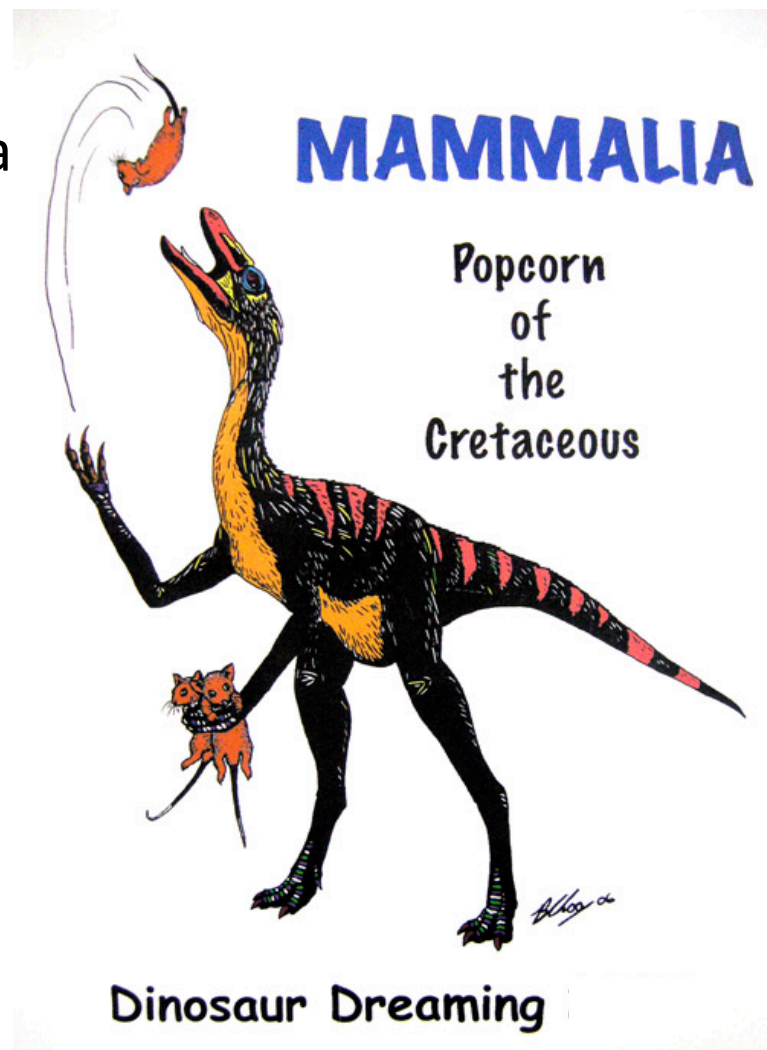
Fosilni ostaci **izumrlih Synapsida** (otkrivenih u južnoj Africi) pokazuju da su tokom kasnog Trijasa živeli gmizavci sa nizom sisarskih karakteristika i da su postojale sve gradacije artikulacije donje vilice, od tipično reptilske do sisarske.



Kod roda ***Diarthrognathus*** je čak utvrđeno da su imali funkcionalna **oba tipa artikulacije donje vilice** (kako reptilski, tako i sisarski), odnosno **dvojni vilični zglob** (grč. *di* = dva; *arthron* = zglob; *gnathos* = donja vilica) i **diferenciranost mastikatorne muskulatorne nalik sisarima**

Do ekspanzije sisara došlo je **nakon perioda Krede**, odnosno nakon izumiranja i nestanka mnogih dominantnih vrsta gmizavaca (uključujući i dinosauruse).

Evolutivni uspeh sisara omogućile su im **adaptacije vezane za ishranu i kretanje**, koje su bile **uslov da izbegnu direktnu kompeticiju sa gmizavcima** koji su tada dominirali našom planetom.



Osobine karakteristične samo za sisare (Mammalia)

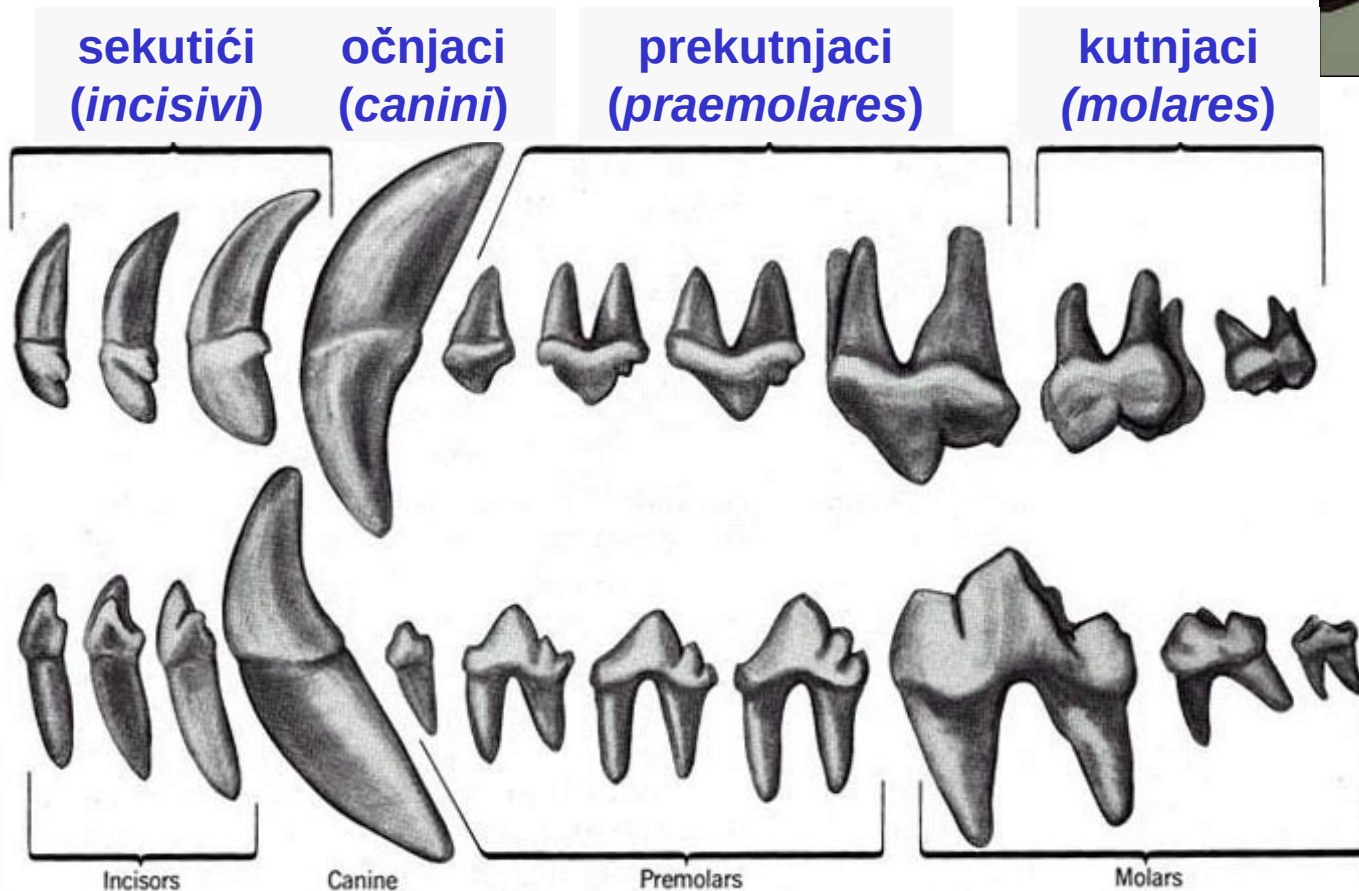
- **Mlečne žlezde** koje su dobro razvijene samo kod ženki i po kojima je čitava klasa Mammalia dobila naziv;



Osobine karakteristične samo za sisare (Mammalia)

- **Heterodontizam** – visoka morfološka i funkcionalna diferenciranost zuba. Zubi su podeljeni u sledeće grupe: sekutići (*incisivi*), očnjaci (*canini*), prekutnjaci (*praemolares*) i kutnjaci (*molars*). Ovakvo diferenciranje zubnog sistema omogućilo je korišćenje veoma različitih izvora hrane, kao i njeno efikasnije iskorišćavanje. **Heterodontizam** se u životinjskom svetu javlja samo kod sisara.

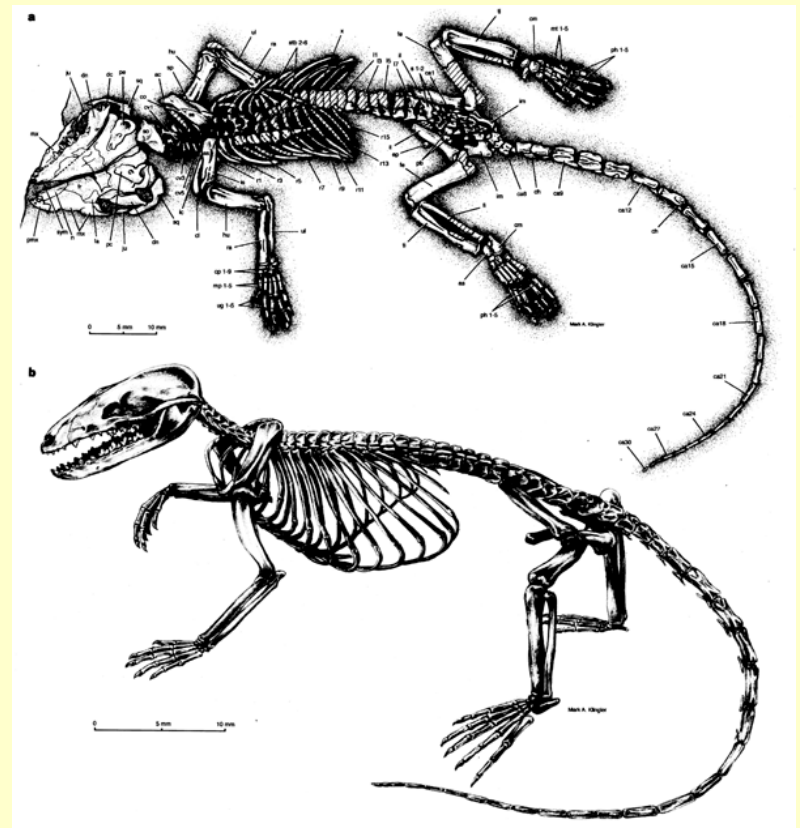
Heterodontizam je jedna od najznačajnijih adaptacija koja je sisarima dala prednost u odnosu na konkurentske organizme tokom Trijasa



HETERODONTIZAM

Osobine karakteristične samo za sisare (Mammalia)

- **Adaptacije skeleta na karnivori način ishrane**, odnosno usavršavanje tetrapodnog kretanja (sužavanje stopala, pomerenje ekstremiteta ispod tela, povećanje fleksibilnosti ramenog i karličnog pojasa), čime je omogućeno trčanje i skokovito kretanje, a samim tim i veći uspeh u lovu.



Osobine karakteristične samo za sisare (Mammalia)

• **Specifičnosti u građi kože i bubrega** značajne za očuvanje stalne telesne temperature (**homeotermiju**):

- **dlake ili vunska vlakna u koži**, koje stvaraju manje ili više izražen dlačni telesni pokrivač koji ima ulogu termičkog izolatora,
- **znojne i lojne žlezde u koži** (značajne za termoregulariju),
- **Henlejeva petlja** u bubrezima koja obezbeđuju sisarima konstantan sastav telesne tečnosti i visoku stopu metabolizma karakterističnu za homeotermne organizme.

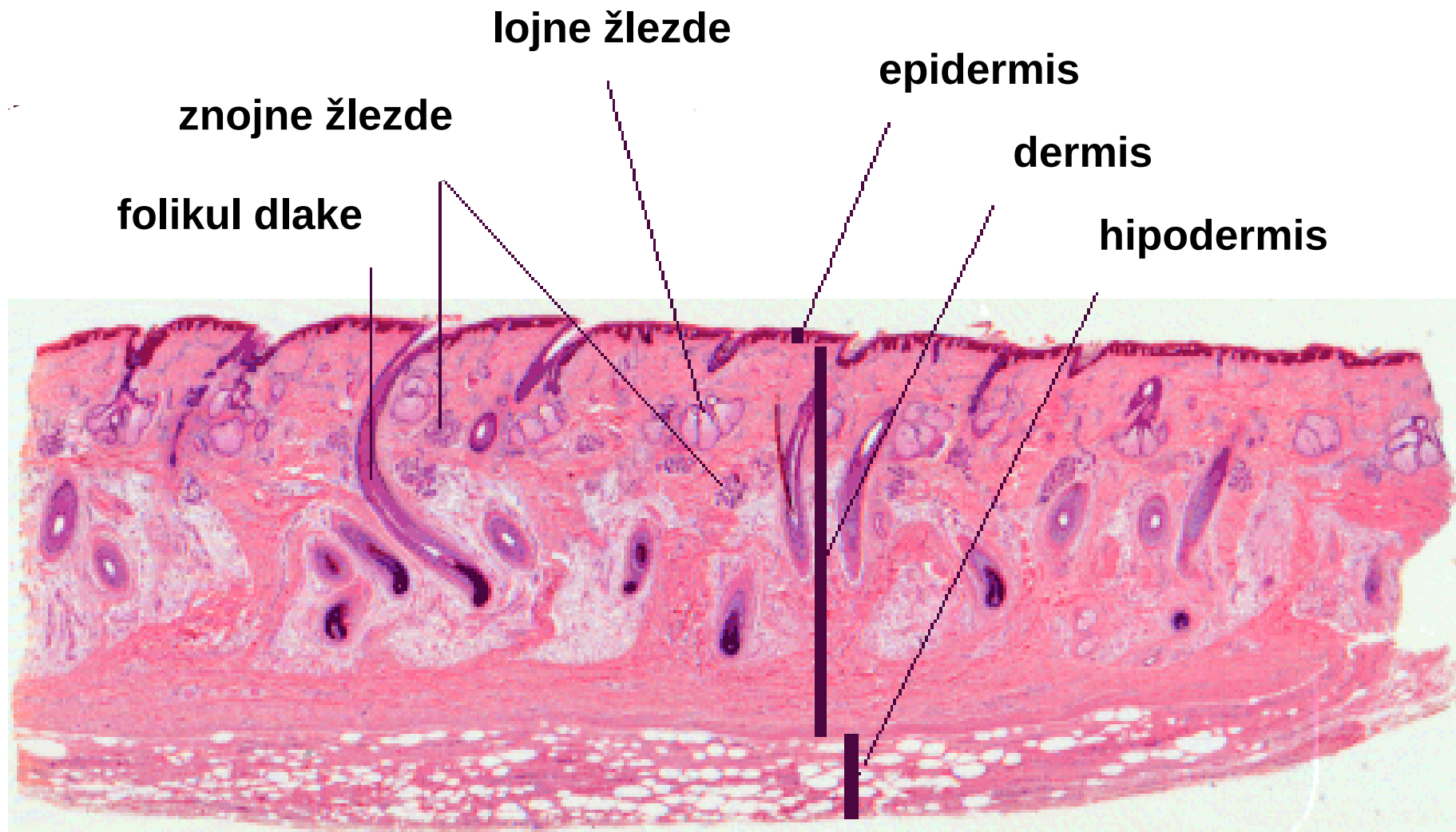
Homeotermija značajna fiziološka adaptaciju koja se javila prvi put kod sisara. **Homeotermija** je obezbedila veliku evolutivnu prednost sisarima jer im je omogućila aktivnost i lov tokom hladnih noći, čime su oni izbegli kompeticiju za hranu sa reptilima koji nisu aktivni noću.

Osobine karakteristične samo za sisare (Mammalia)

- **dijafragma** koja se nalazi između grudne i trbušne duplje;
- **levi aortin luk**;
- **eritrociti sisara nemaju jedro** – radi povećanja njihovog kapaciteta u prenošenju kiseonika i efikasnijeg metabolizma;
- Sisari imaju **sekundarni vilični zglob, kraniostilnu, akinetičku i izmenjenu sinapsidnu lobanju**;
- **tri slušne koščice**: čekić (*maleus*), nakovanj (*incus*) i uzengija (*stapes*) i spiralnu kohleu.
- **veoma razvijene hemisfere prednjeg mozga i kompleksno ponašanje**. Čula sisara su dobro razvijena. Od svih kičmenjaka, sisari imaju **najbolje razvijeno čulo ukusa**.

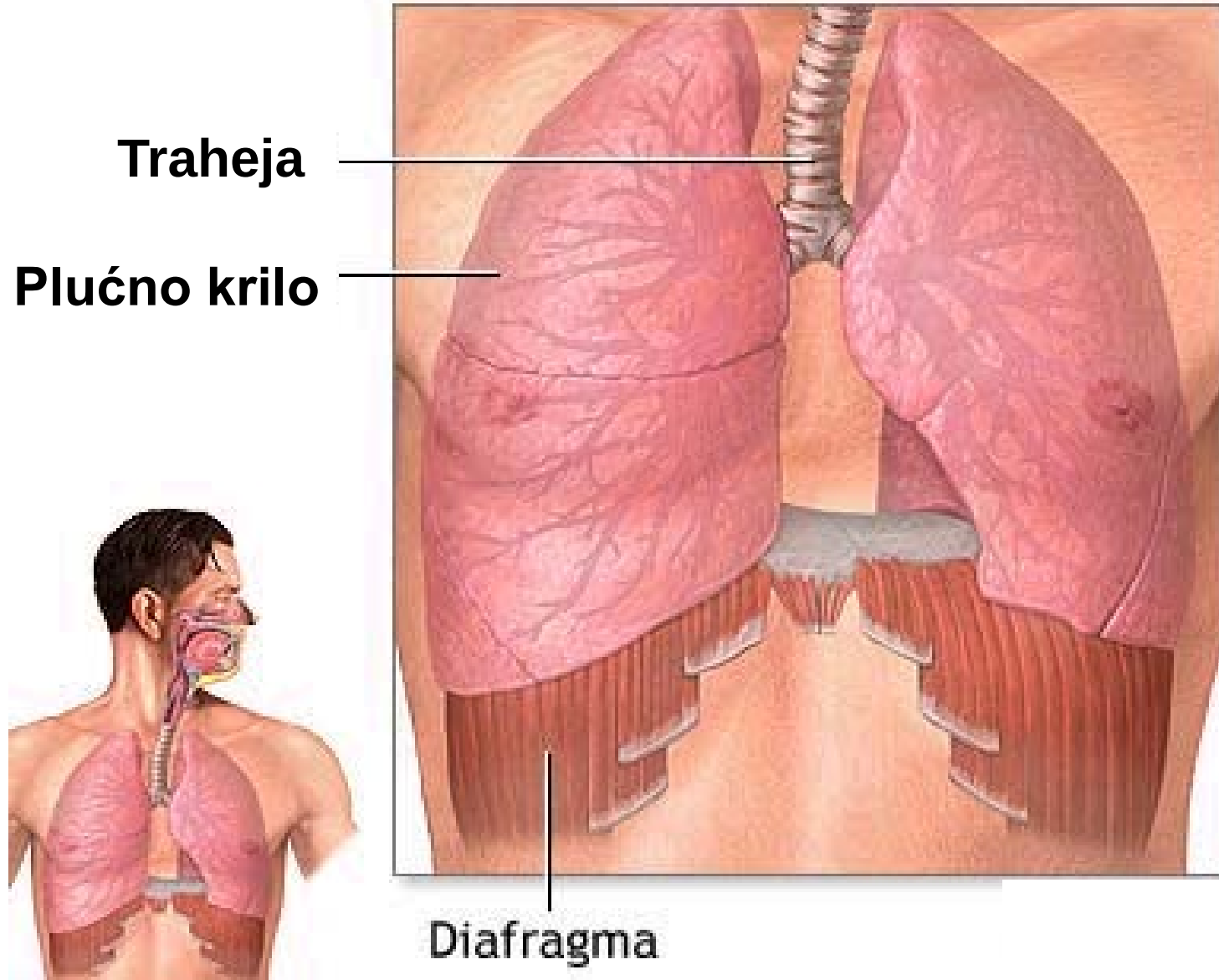
- classis **MAMMALIA**

Presek kroz kožu glave

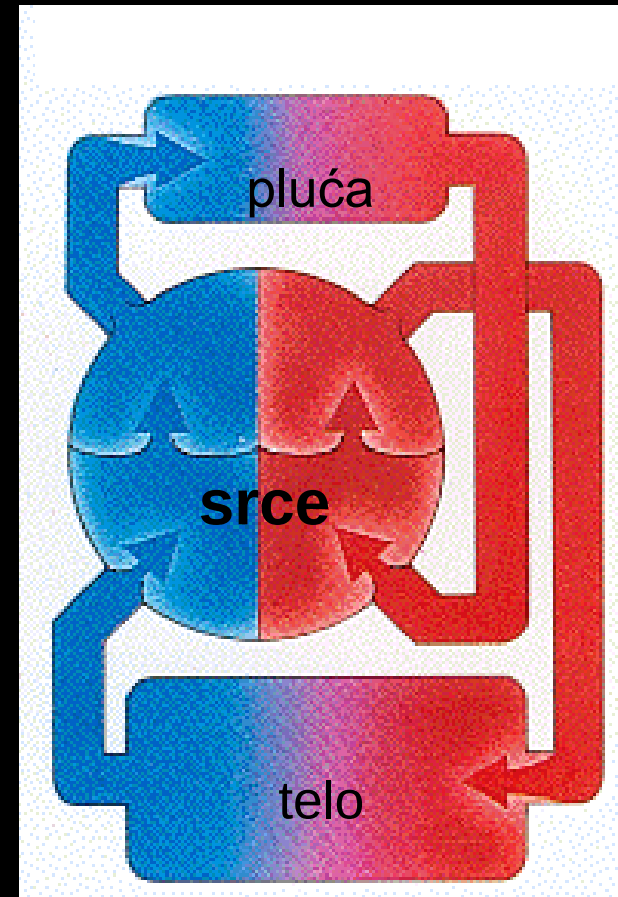
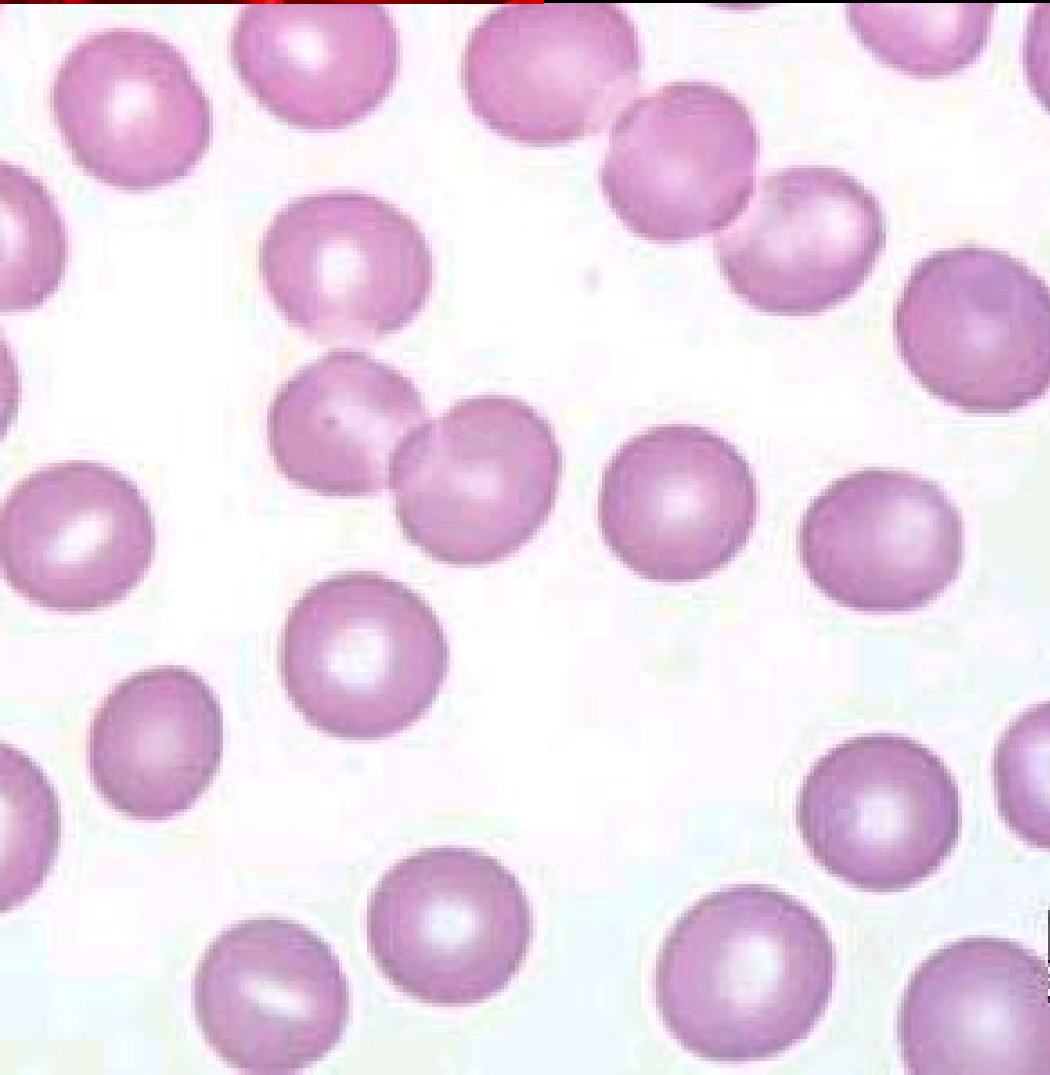


- classis **MAMMALIA**

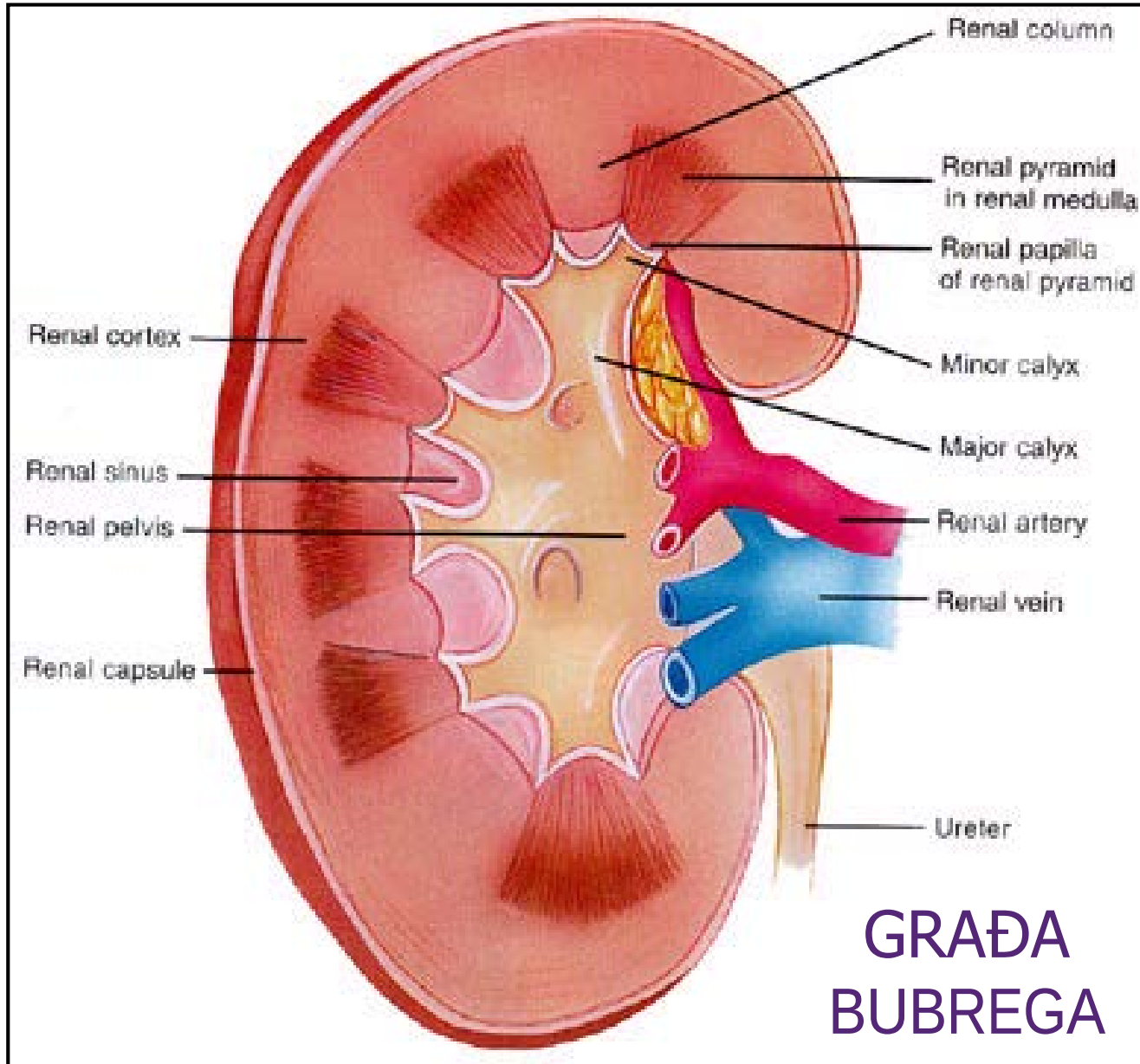
DIJAFRAGMA



KRVNI SISTEM SISARA

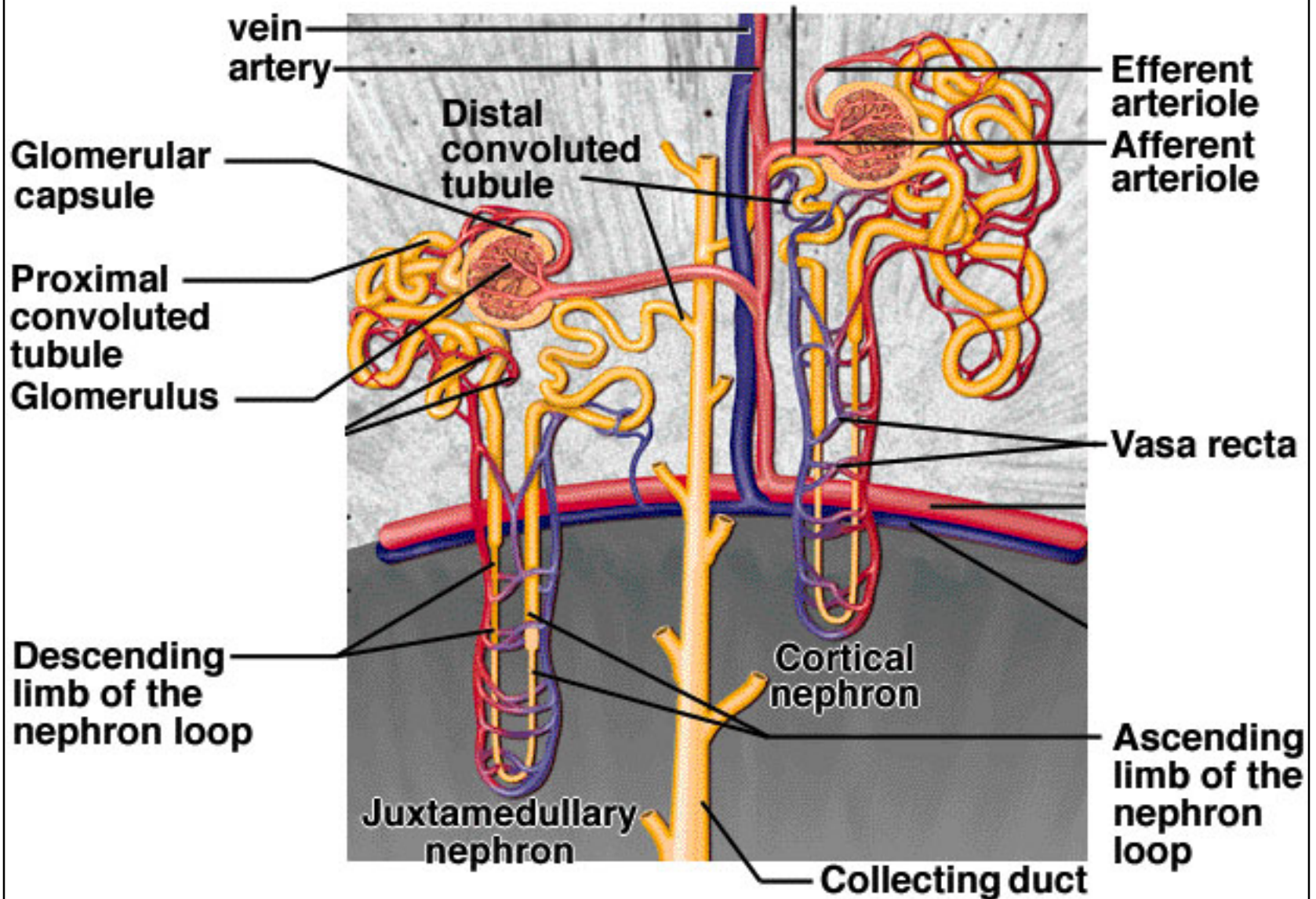


EKSKRETORNI SISTEM SISARA



EKSKRETORNI SISTEM SISARA

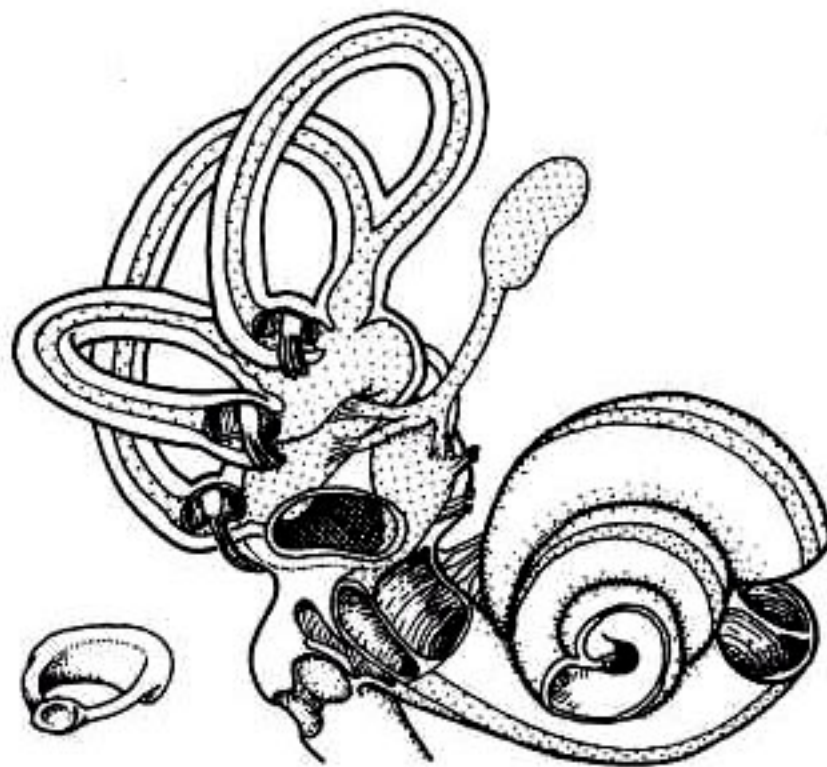
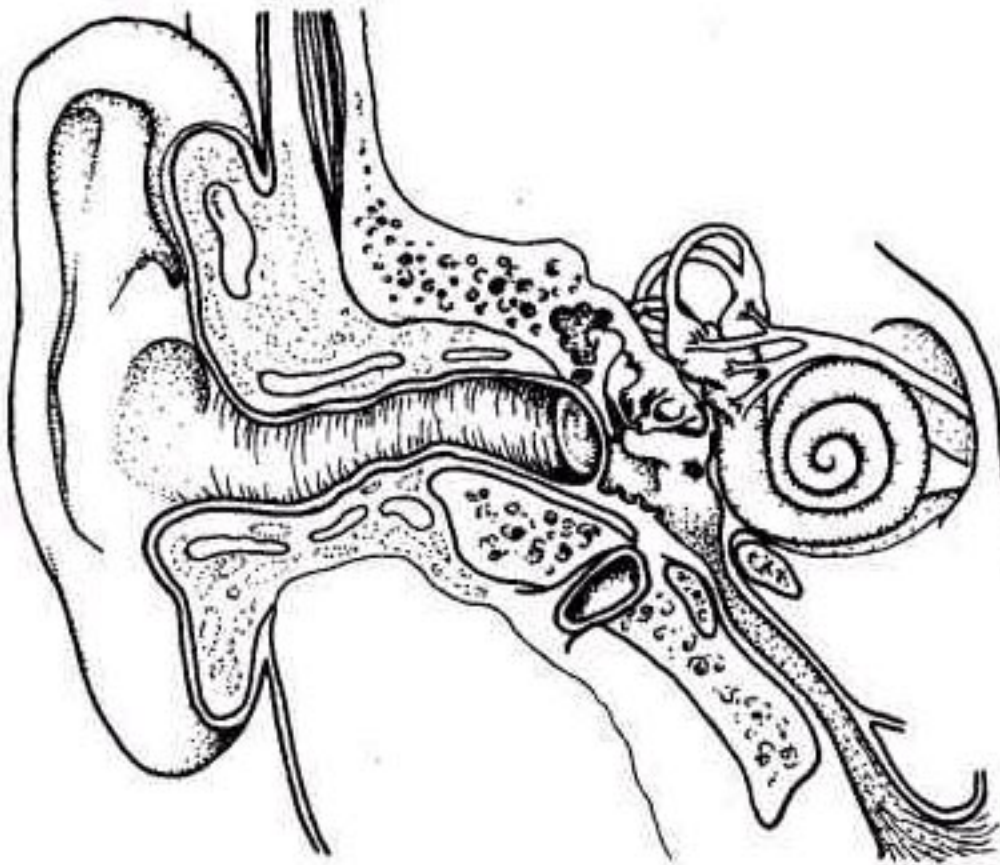
HENLEJEVA PETLJA



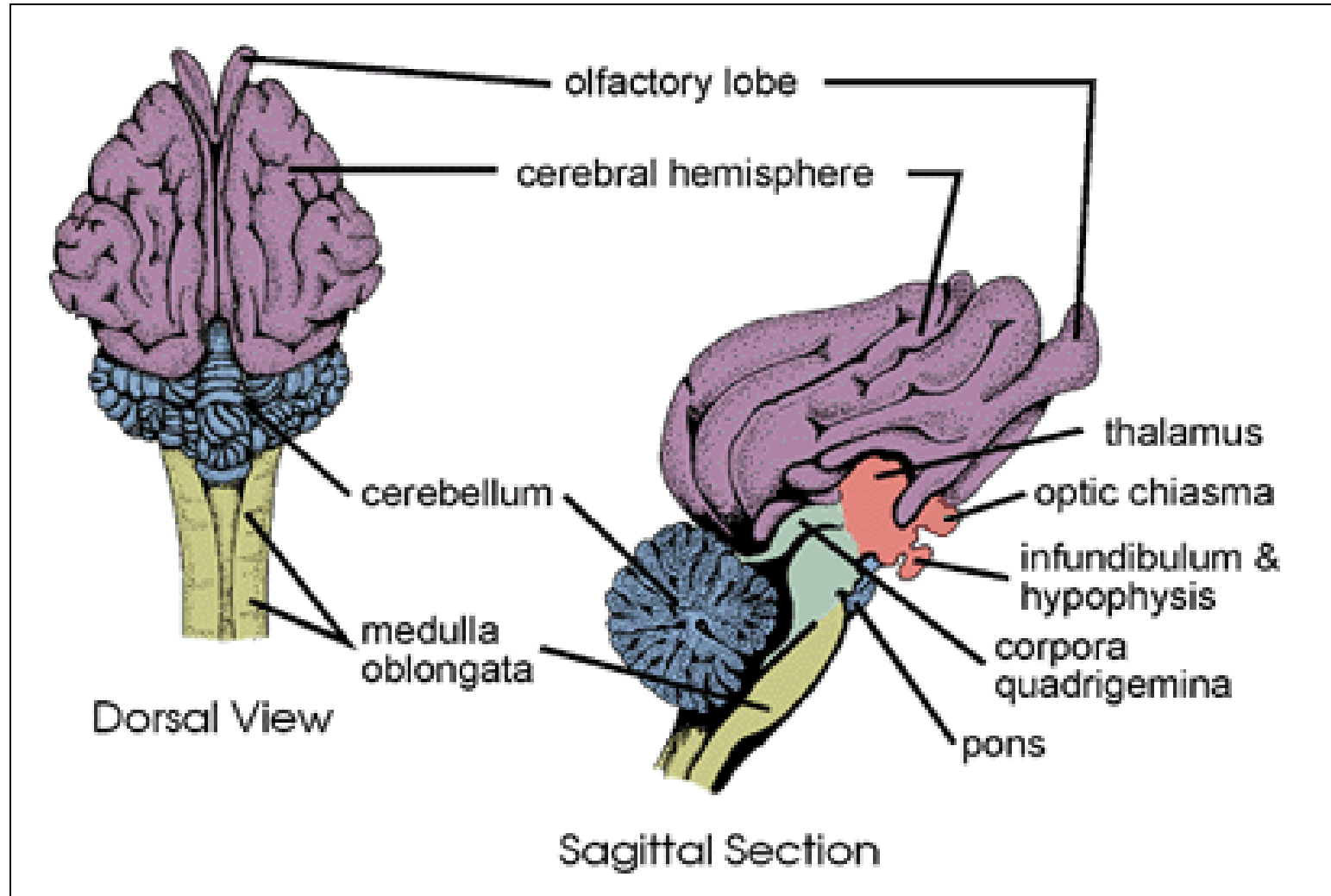
ČULA SISARA

UNUTRAŠNJE UHO
sa 3 slušne koščice:

čekić (*maleus*),
nakovanj (*incus*)
uzengija (*stapes*)

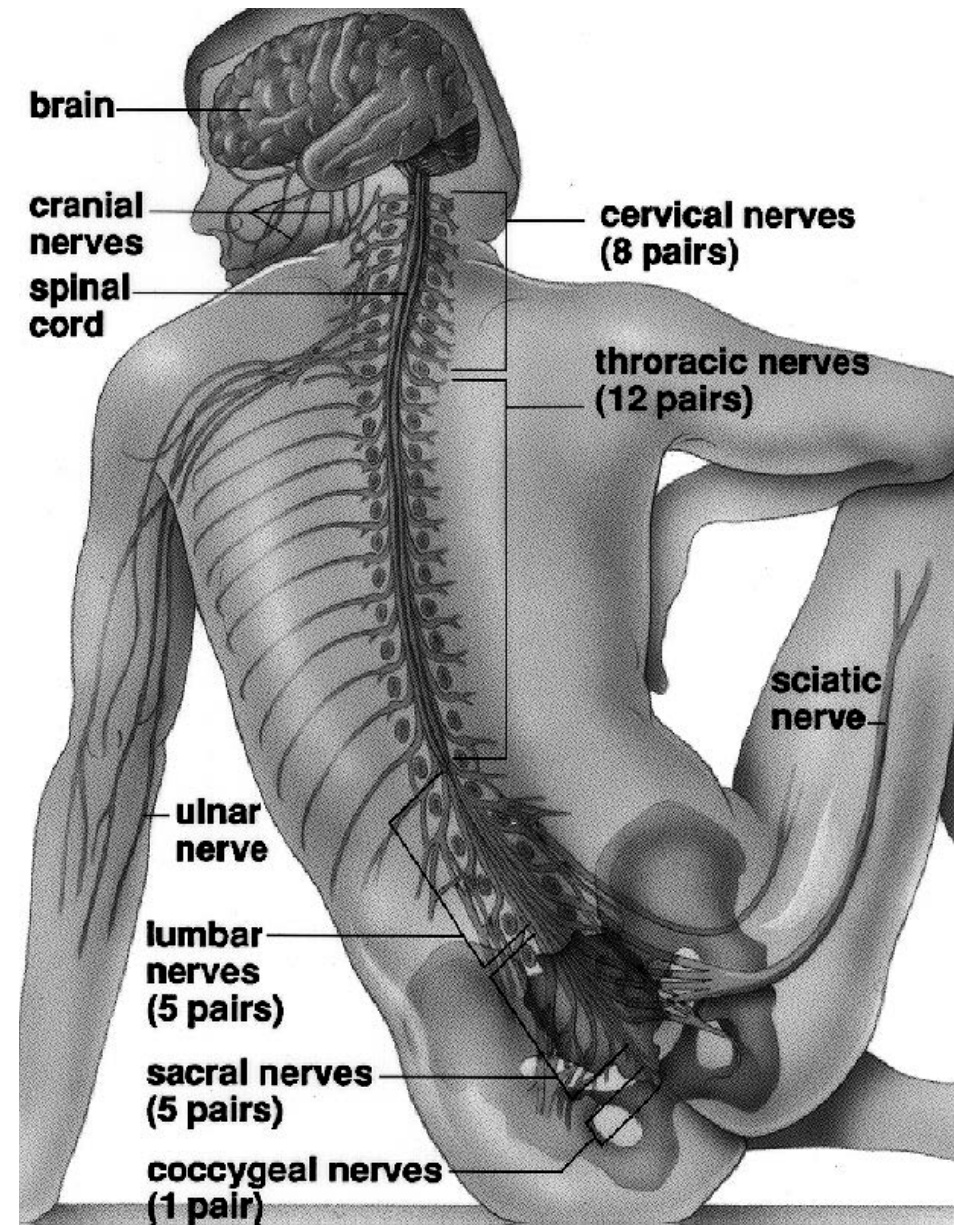
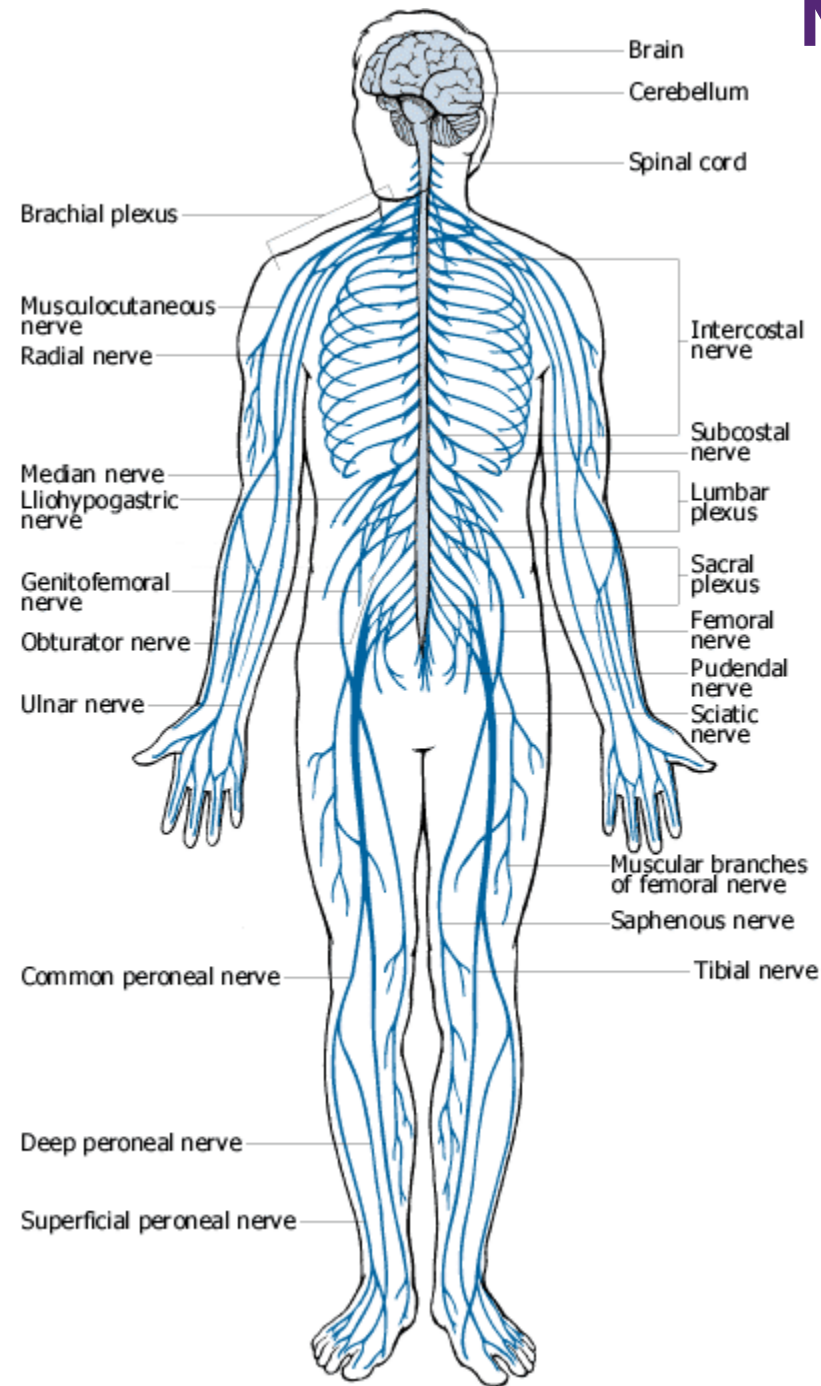


NERVNI SISTEM SISARA



MOZAK SISARA

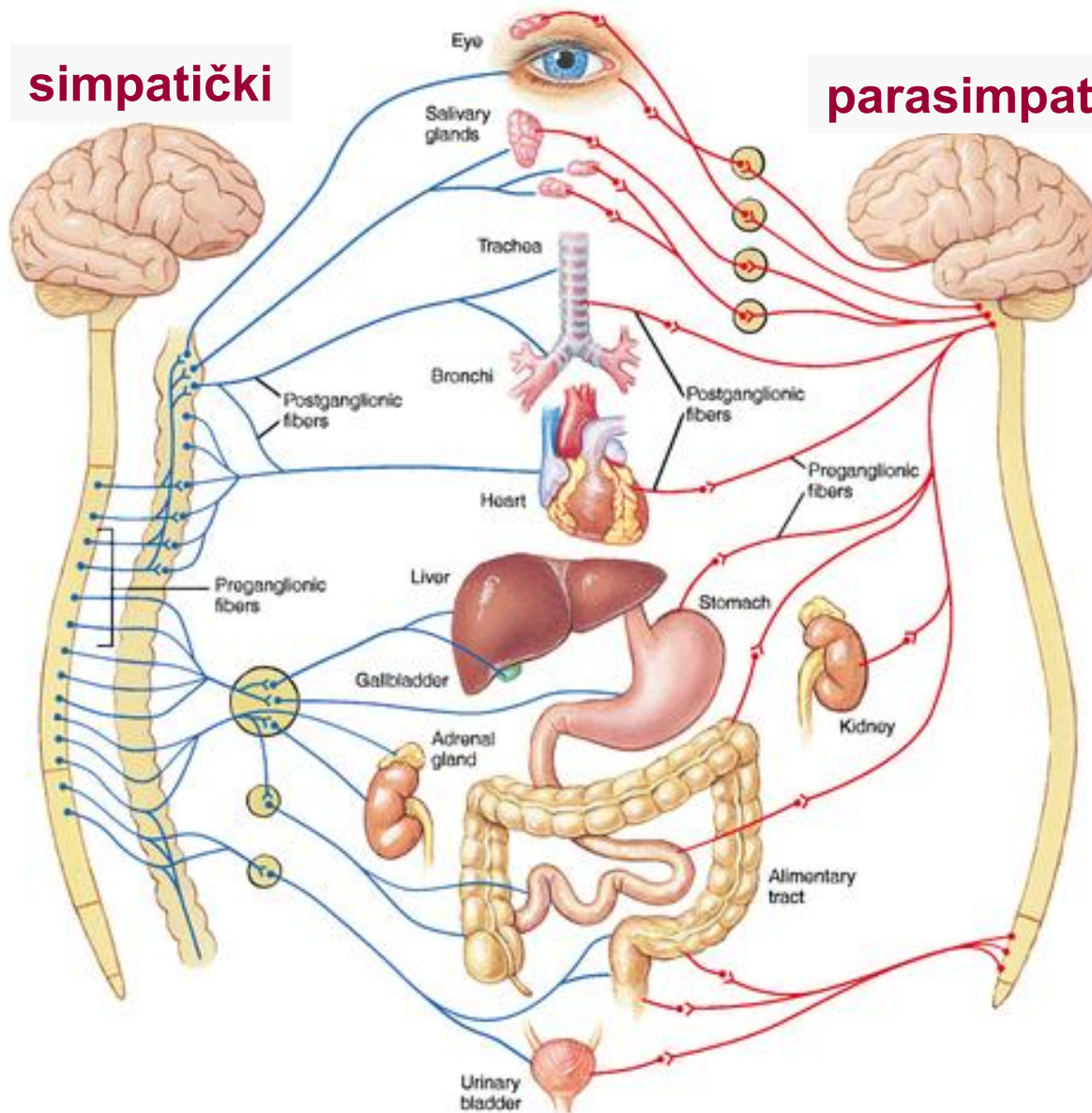
NERVNI SISTEM SISARA



NERVNI SISTEM SISARA

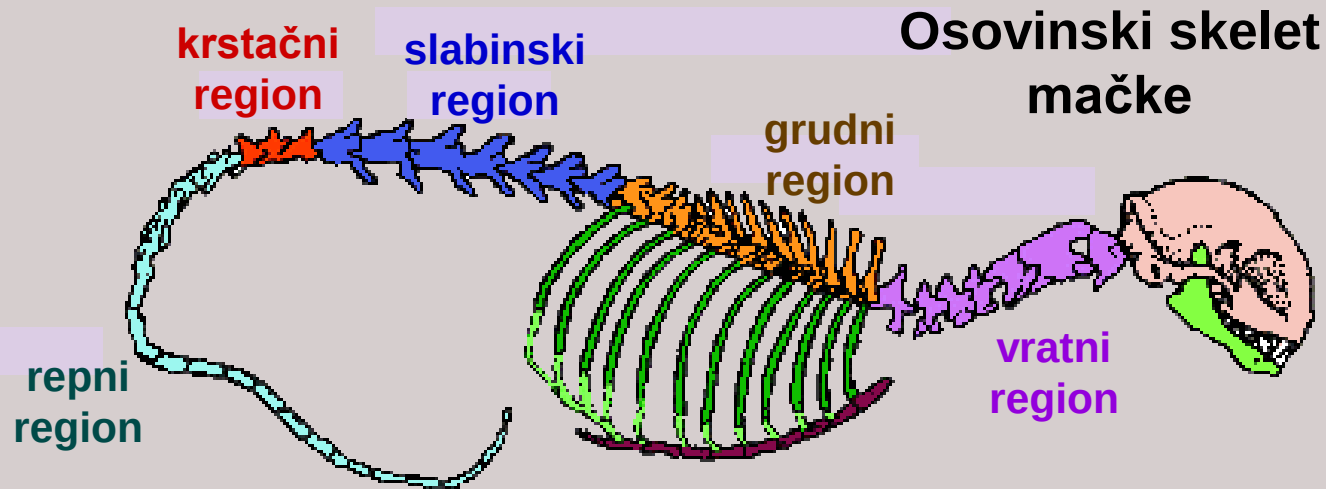
simpatički

parasimpatički

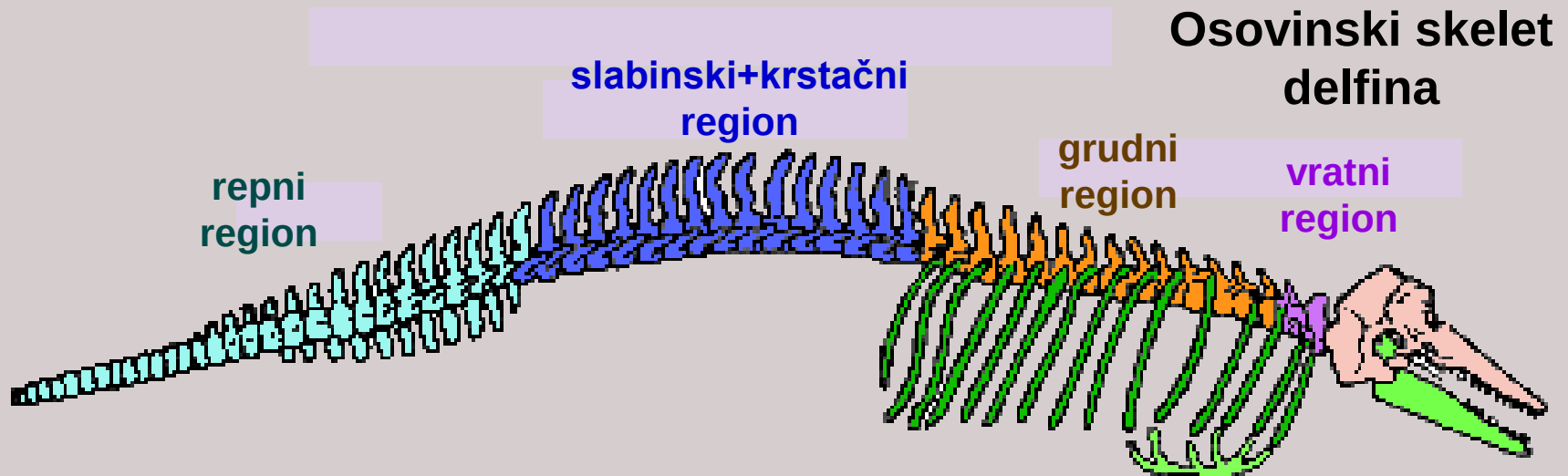


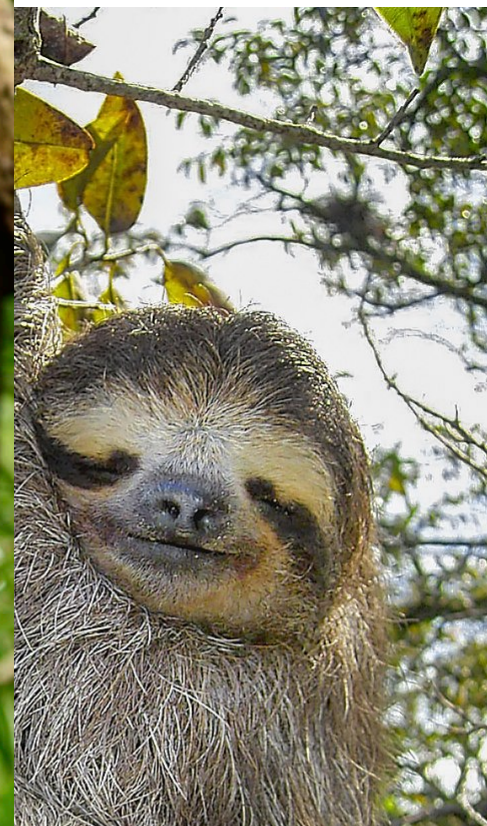
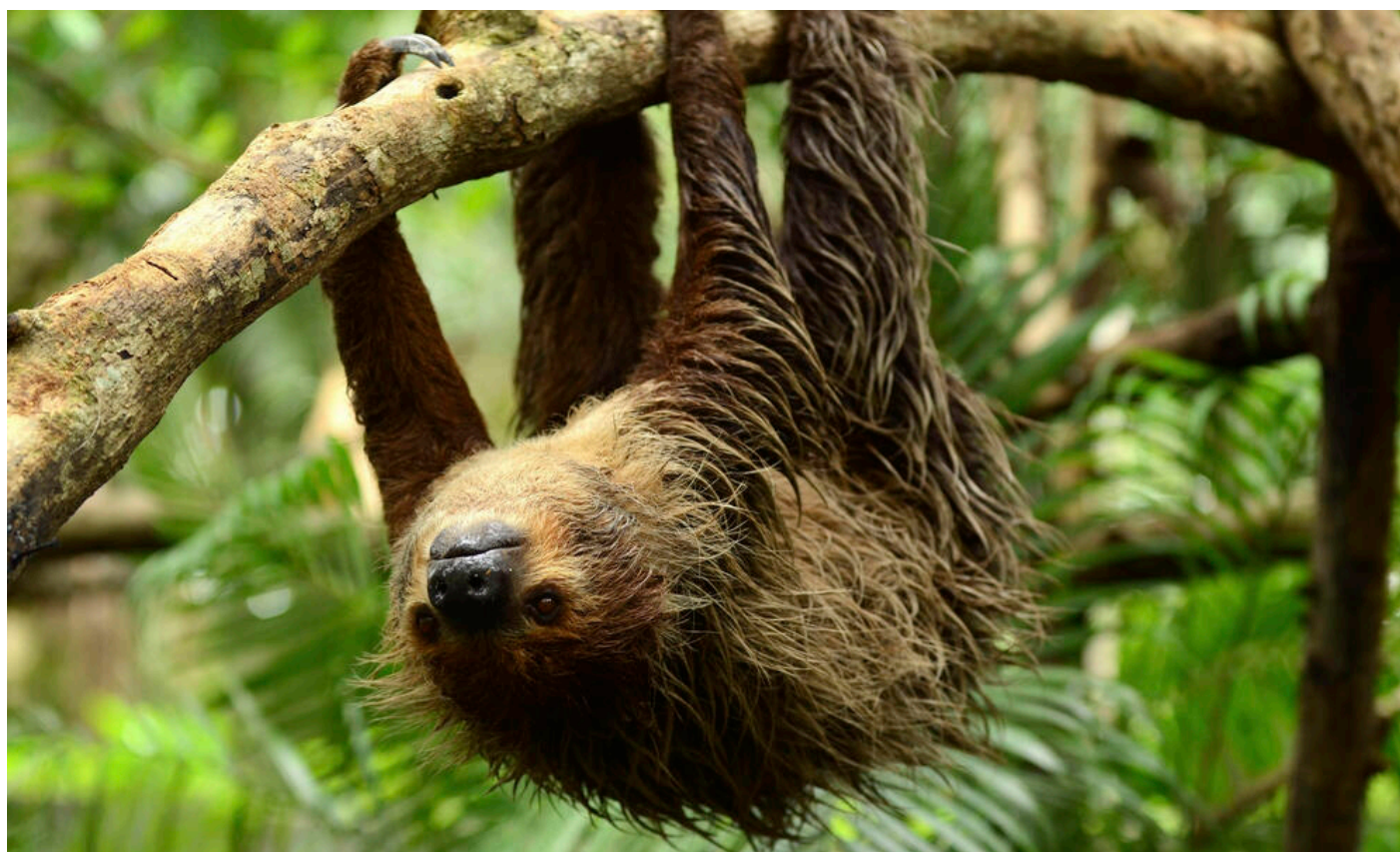
• classis **MAMMALIA**

promene u građi OSOVINSKOG SKELETA
u zavisnosti od uslova životne sredine



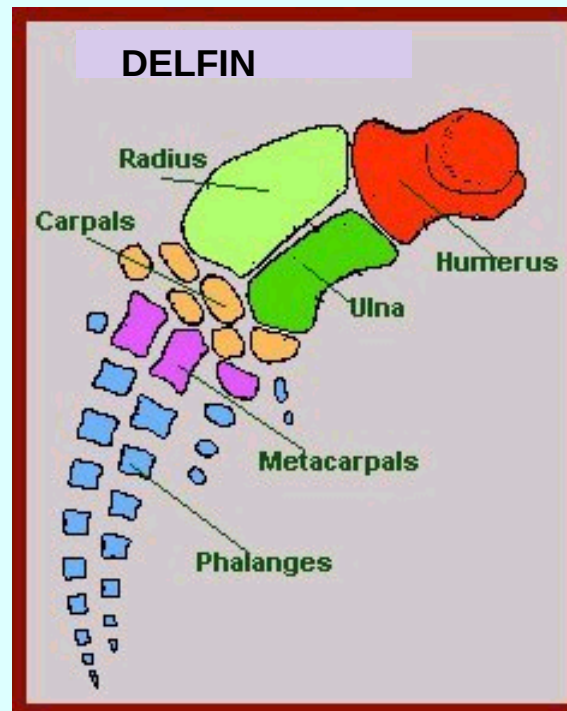
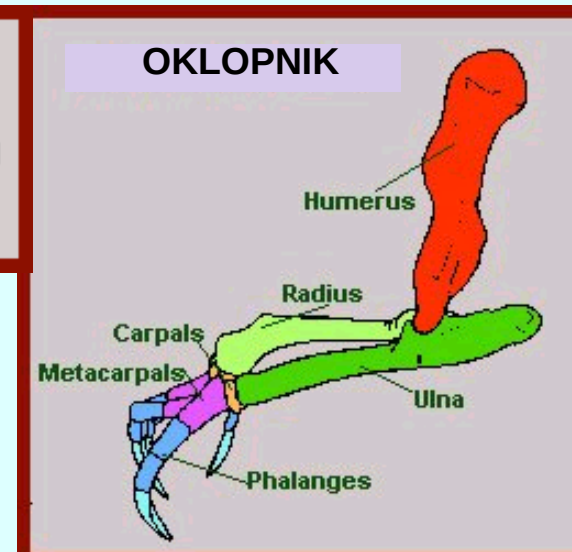
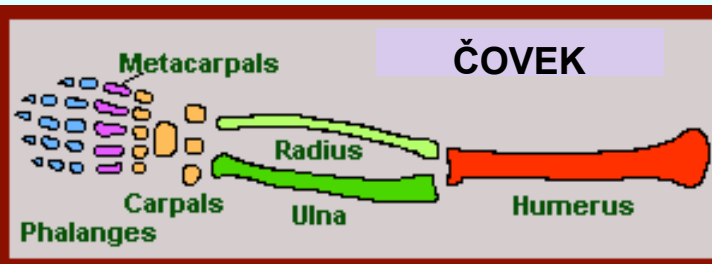
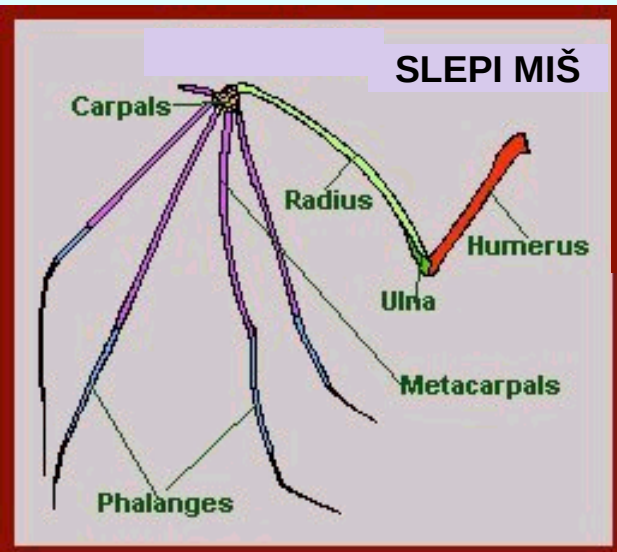
**ADAPTIVNA
RADIJACIJA**





• classis MAMMALIA

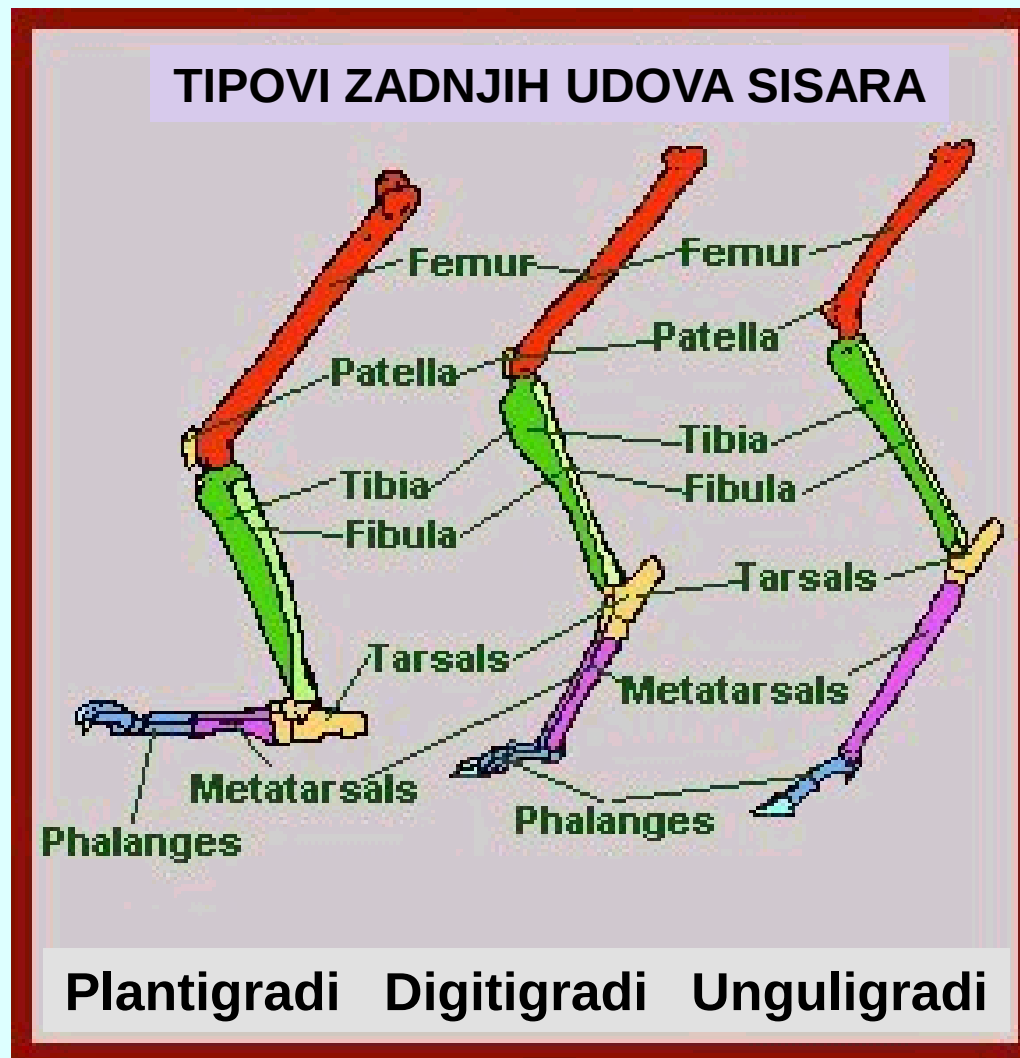
promene u građi SKELETA PREDNJIH UDOVA
u zavisnosti od uslova životne sredine



**ADAPTIVNA
RADIJACIJA**

• classis **MAMMALIA**

promene u građi **SKELETA ZADNJIH UDOVA** u
zavisnosti od uslova životne sredine



**ADAPTIVNA
RADIJACIJA**

Classis: MAMMALIA

Subclassis: Prototheria

Ordo: Monotremata

Subclassis: Metatheria=Marsupialia

Ordo: Dasyuromorphia

Didelphimorphia

Diprotodontia

Subclassis: Eutheria=Placentalia



Classis: **MAMMALIA**

Subclassis: **Eutheria**

=Placentalia

Ordo:

Insectivora

Primates (Subordo: **Prosimae; Anthropoidea**)

Rodentia

Lagomorpha

Carnivora (Familia: **Viveridae; Herpestidae; Hyaenidae; Felidae; Canidae; Ursidae; Procyonidae; Mustelidae**)

Pinnipedia

Proboscidea

Classis: **MAMMALIA**

Subclassis: **Eutheria**

=Placentalia

Ordo: **Perisodactyla (kopitari)**

Familia: **Tapiridae**
Rhinocerotidae
Equidae

Classis: **MAMMALIA**

Subclassis: **Eutheria**

=Placentalia

Ordo: **Artiodactyla (papkari)**

Subordo: **Suina (Nonruminantia)**

Familia: **Suidae; Tayassuidae**

Subordo: **Ruminantia**

Familia: Tragulidae; Cervidae; Giraffidae;
Antilocapridae;

Bovidae:

Subfamilia: Bovinae; Caprinae

Subordo: **Tylopoda**



U nastavku prezentacije su vrste sisara sa pripadajućum taksonomijom, koje MORATE naučiti!

Classis: **MAMMALIA**

Subclassis: **Prototheria**

Ordo: **Monotremata**



***Ornithorhynchus anatinus* - kljunar**

Classis: **MAMMALIA**

Subclassis: **Prototheria**

Ordo: **Monotremata**



***Echidna aculeata* (= *Tachyglossus aculeatus*)**
mravinji jež ili kratkonosa ehidna

Classis: **MAMMALIA**

Subclassis: **Prototheria**

Ordo: **Monotremata**

Proechidna (=Zaglossus) bruyni
dugonosa ehidna



Classis: **MAMMALIA**

Subclassis: **Metatheria=Marsupialia**

Ordo: **Dasyuromorphia**



Thylacinus cynocephalus
torbarski vuk



Classis: **MAMMALIA**

Subclassis: **Metatheria**=Marsupialia

Ordo: **Dasyuromorphia**



Sarcophilus satanicus
(=*Sarcophilus harrisii*)

torbarski đavo
“đavo iz Tasmanije”



Classis: **MAMMALIA**

Subclassis: **Metatheria=Marsupialia**

Ordo: **Dasyuromorphia**

***Dasyurus
viverrinus***

torbarska kuna



Classis: **MAMMALIA**

Subclassis: **Metatheria=Marsupialia**

Ordo: **Dasyuromorphia**



***Notoryctes
typhlops***
torbarska krtica

Classis: **MAMMALIA**

Subclassis: **Metatheria=Marsupialia**

Ordo: **Dasyuromorphia**

Myrmecobius fasciatus - torbarski mravojed



Classis: **MAMMALIA**

Subclassis:

Metatheria=Marsupialia

Ordo: **Didelphimorphia**



Didelphis virginiana
američki oposum



Classis: **MAMMALIA**
Subclassis: **Metatheria**
=Marsupialia
Ordo: **Diprotodontia**

Macropus rufus
veliki kengur



Classis: **MAMMALIA**

Subclassis: **Metatheria=Marsupialia**

Ordo: **Diprotodontia**

Macropus eugenii
kengur Wallaby



Classis: **MAMMALIA**

Subclassis:

Metatheria=Marsupialia

Ordo: **Diprotodontia**

Vombatus ursinus
vombat



Classis: **MAMMALIA**

Subclassis:

Metatheria=Marsupialia

Ordo: **Diprotodontia**



Phascolarctos cinereus
torbarski medved - KOALA



Classis: **MAMMALIA**

Subclassis: **Metatheria=Marsupialia**

Ordo: **Diprotodontia**



Petaurus breviceps
torbarska veverica

Classis: **MAMMALIA**

Subclassis: **Eutheria**

=Placentalia

Ordo: **Insectivora**



mladunče



Talpa europaea
evroazijska krtica

Classis: **MAMMALIA**

Subclassis: **Eutheria**

=Placentalia

Ordo: **Insectivora**



albino forma



Erinaceus europaeus
evroazijski jež

Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Insectivora**



Sorex araneus
šumska rovčica

Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Chiroptera**



Plecotus auritus
dugouhi Ijiljak

Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Chiroptera**

Vespertilio murinus
običan slepi miš



Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Chiroptera**

Desmodus rotundus
vampir



Classis: **MAMMALIA**

Subclassis: **Eutheria**

=Placentalia

Ordo: **Primates**

Subordo: **Prosimiae**

Lemur catta
prstenorepi lemur



Classis: **MAMMALIA**

Subclassis: **Eutheria**

=Placentalia

Ordo: **Primates**

Subordo: **Prosimiae**

Indri indri



Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Primates**

Subordo: **Prosimiae**

Daubentonia (=Chyromys)
madagascariensis

aj aj



Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Primates**

Subordo: **Prosimiae**

Loris
tardigradus
vitki lori



Classis: **MAMMALIA**

Subclassis: **Eutheria**

=**Placentalia**

Ordo: **Primates**

Subordo: **Prosimiae**

Nycticebus coucang
tromi lori



Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Primates**

Subordo: **Prosimiae**



Tarsius spectrum
avet

Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Platyrrhini (=Ceboidea) – širokonosi majmuni**



Cebus capucinus
belogrli kapucin

Classis: **MAMMALIA**

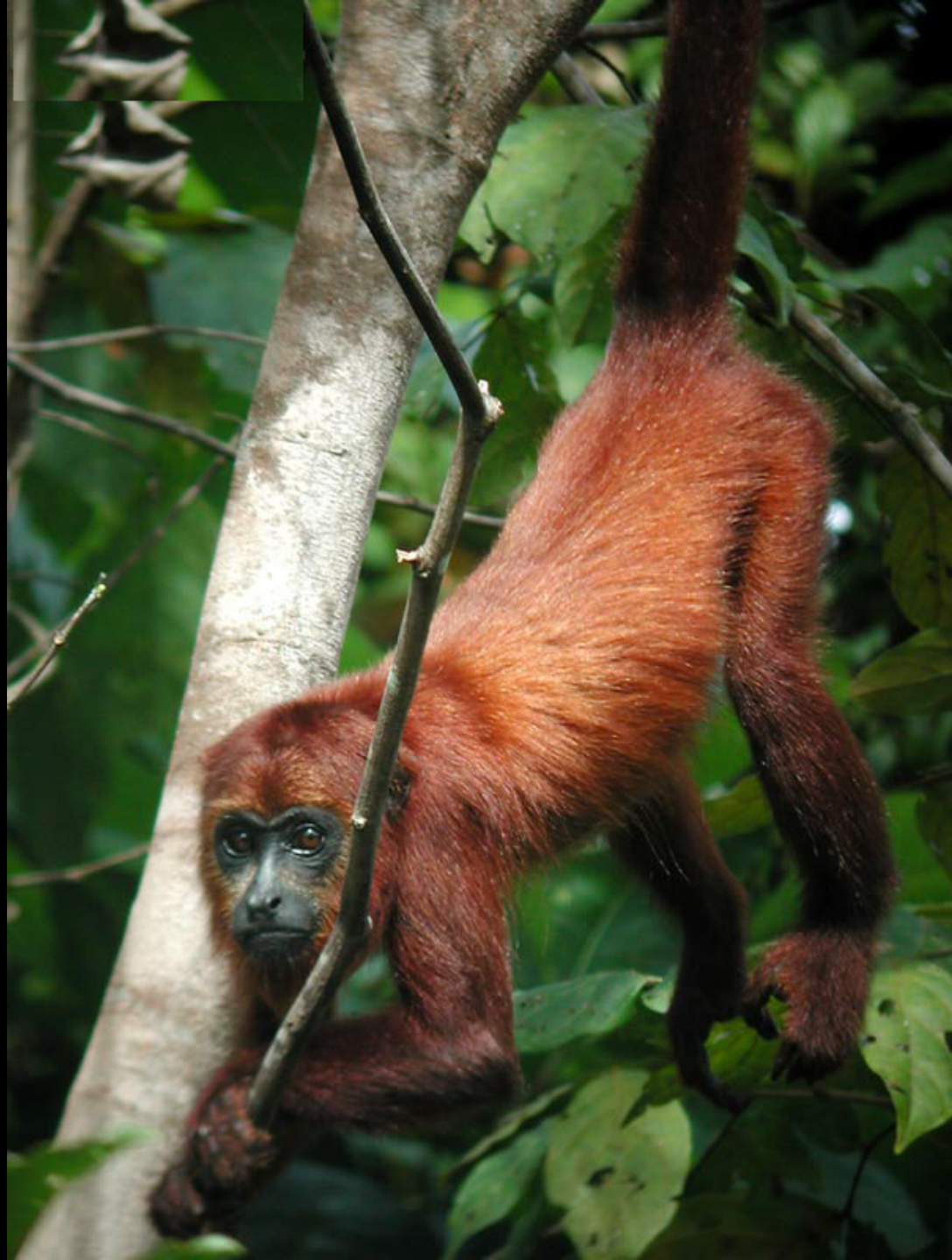
Subclassis: **Eutheria**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Platyrrhini**

Alouatta (=Mycetes)
seniculus
crveni drekavac



Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Platyrrhini (=Ceboidea)**

***Callithrix
jacchus***

marmozet



Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Platyrrhini (=Ceboidea)**

***Ateles*
*paniscus***

**crni pauk
majmun**



Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Catarrhini (=Cercopithecoidea) – uskonosi majmuni**



***Cercopithecus diana* - diana zamorac**



Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Catarrhini (=Cercopithecoidea) – uskonosi majmuni**

***Mandrillus
sphinks***

mandril



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Catarrhini**

Papio hamadryas
grivasti pavijan



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Catarrhini**

Macaca nigra

crni makaka majmun



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Catarrhini**

Macaca rhesus
rezus majmun



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Hominoidea – ljudoliki majmuni i ljudi**

Hylobates lar
beloruki gibbon





Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Hominoidea**



***Hylobates (=Symphalangus)*
syndactylus
sijamang**



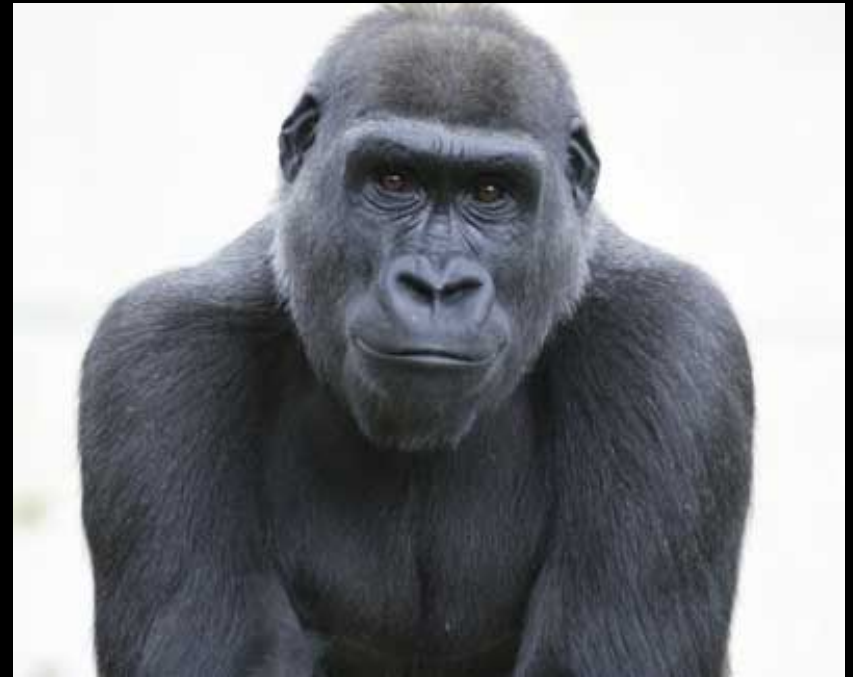
Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Hominoidea**



Gorilla gorilla
gorila

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Hominoidea**

Pan troglodytes

šimpanza



Pongo pygmaeus
orangutan

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Primates**

Subordo: **Anthropoidea**

Superfamilia: **Hominoidea**



Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Edentata**

Familia: **Bradypodidae**



***Bradypus tridactylus* - troprsti lenjivac**

Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Edentata**

Familia: **Myrmecophagidae**



Myrmecophaga tridactyla - najveći mravojed

Classis: **MAMMALIA**

Subclassis: **Eutheria=Placentalia**

Ordo: **Cingulata**

Familia: **Dasypodidae**



***Dasypus
novemcinctus***
oklopnik

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

Sciurus vulgaris
veverica



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

Citellus citellus
tekunica



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

Cricetus cricetus
hrčák





Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

Spalax leucodon
slepo kuče



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**



Glis glis
veliki puh

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

Mus musculus

kuční miš



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

*Apodemus
sylvaticus*

šumski miš



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

***Rattus
norvegicus***

sivi pacov



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

Rattus rattus

crni pacov



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**



Fiber zibethicus
=*Ondatra zibethicus*

bizamski pacov

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**



Castor fiber
dabar

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

Hystrix cristata
bodljikavo prase



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**



***Hydrochoerus capybara* – kapibara**

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**



***Dolichotis patagonum* – mara**

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

***Cavia
porcellus***

**divlje
zamorče
(morsko
prase)**



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**



Cavia cobaya – pitome forme zamorca

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**



Myocastor coipus - nutrija

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**



Chinchilla lanigera - dugorepa činčila

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**



***Lemmus lemmus* - leming**

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Rodentia**

Životinje sa uređenim socijalnim životom (složena podela rada). Njihove kolonije prave ogromne podzemne uređene gradove



***Cynomys
ludovicianus***
prerijsko kuče

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Lagomorpha**



Lepus
europaeus
poljski zec

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Lagomorpha**



***Oryctolagus cuniculus* - kunić**

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Lagomorpha**



Ochotona princeps

Ochotona rufescens



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Viveridae**



Cryptoprocta ferox
fosa

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Viveridae**



Viverra zibetha
cibetka

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Viveridae**



Genetta genetta - mediteranska cibetka

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Herpestidae**



Mungos mungo



Suricata suricatta



Herpestes ichneumon

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Hyaenidae**



***Hyaena striata* - prugasta hijena**

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Hyaenidae**



***Crocuta crocuta* - pegava hijena**

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Felidae**



Felis sylvestris catus

- domaća mačka

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Felidae**

Felis leo
(=*Panthera leo*)
lav



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Felidae**

Felis onca (= *Panthera onca*)
jaguar



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Felidae**



Felis concolor
puma,
kuguar

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Felidae**

Panthera tigris
tigar



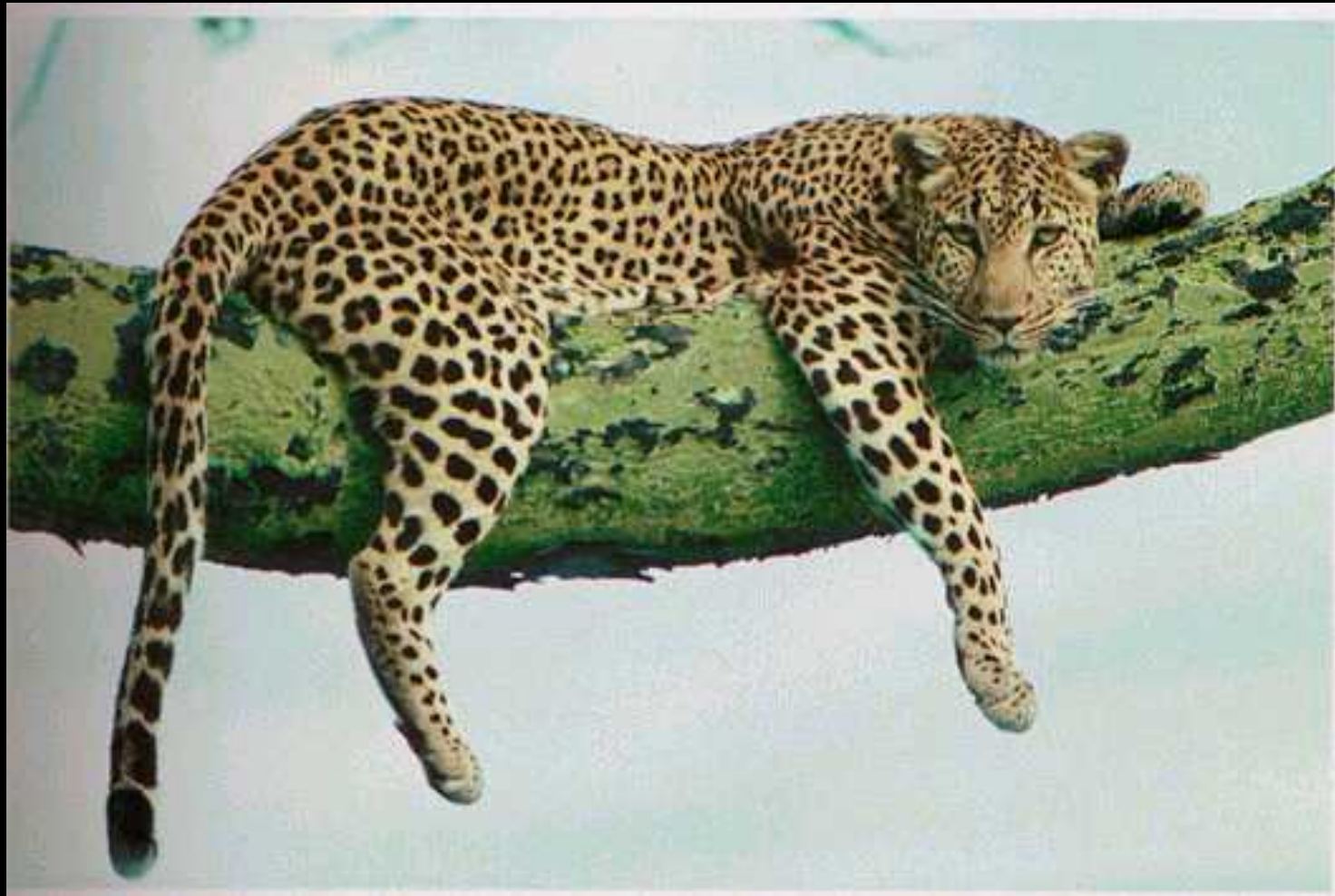
Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Felidae**

*Panthera
pardus*
leopard,
panther



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Felidae**

Lynx lynx
ris



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Felidae**

Acinonyx jubatus - gepard



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Canidae**



*Canis lupus
familiaris*
- domáci pas

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Canidae**



***Canis
lupus
vuk***

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Canidae**



Canis latrans
kojot,
prerijski vuk

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Canidae**

Canis aureus

šakal



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Canidae**

Canis lupus dingo
australijski divlji pas
DINGO



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Canidae**

Vulpes vulpes
obična,
crvena lisica



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Canidae**

Alopex
lagopus

polarna lisica



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Canidae**

***Vulpes
zerda***

**pustinjska
lisica**



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Ursidae**

Ursus arctos
mrki medved



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Ursidae**

Thalassarctos maritimus
beli medved



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Ursidae**

Ursus americanus
crni medved (baribal)



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Ursidae**

Ursus horribilis
sivi medved (grizli)



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Mustelidae**

Martes martes
kuna zlatica



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Mustelidae**

Mustela nivalis
lasica



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Mustelidae**

Mustela
putorius
tvor



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Mustelidae**

Mustela erminea
beli hermelin



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Mustelidae**

Lutra lutra - vidra



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Mustelidae**

Meles meles
jazavac



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Procyonidae**



Ailurus fulgens
mali panda



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Procyonidae**

Ailuropoda melanoleuca
veliki panda



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Procyonidae**

Procyon lotor
američki rakun



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Carnivora**

Fam: **Procyonidae**

Nasua narica
nosati rakun
KOATI



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Pinnipedia**

Phoca vitulina
tuljan
(morski pas)



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Pinnipedia**

Phoca caspica
kaspijska foka



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Pinnipedia**

Phoca sibirica
sibirska foka



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Pinnipedia**

***Odobenus rosmarus* - morž**



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Cetacea**

Delphinus delphis
delfin



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Cetacea**

Orcinus orca



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Cetacea**

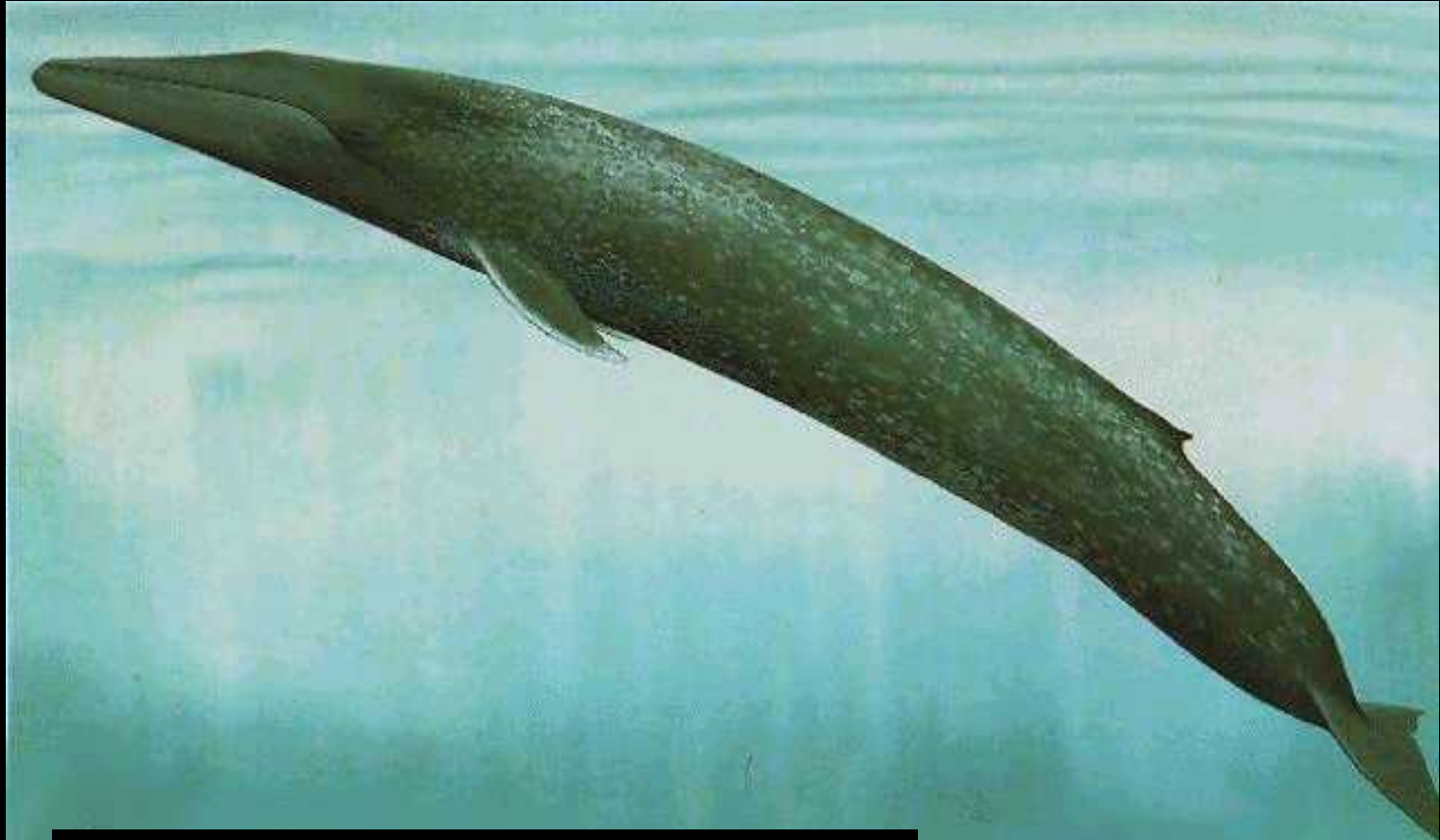


Physeter macrocephalus - pot, kašelot

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Cetacea**



Balaenoptera musculus
plavi kit

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Proboscidea**

Loxodonta africana
afrički slon



Elephas maximus
indijski slon



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Proboscidea** slonovi su životinje sa uređenim socijalnim životim



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Tapiridae**



Tapirus terrestris
brazilski tapir



Tapirus indicus
indijski tapir

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Rhinocerotidae**



***Diceros
bicornis***

**afrički
dvorogi
nosorog**

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Rhinocerotidae**



***Rhinoceros
unicornis***

**indijski
jednorogi
nosorog**

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Equidae**



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Equidae**

*Equus
przewalskii*

azijski divlji
konj



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Equidae**



Equus zebra
brdska zebra



Equus guagga

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Equidae**

Equus burchelli
divlja zebra



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Equidae**



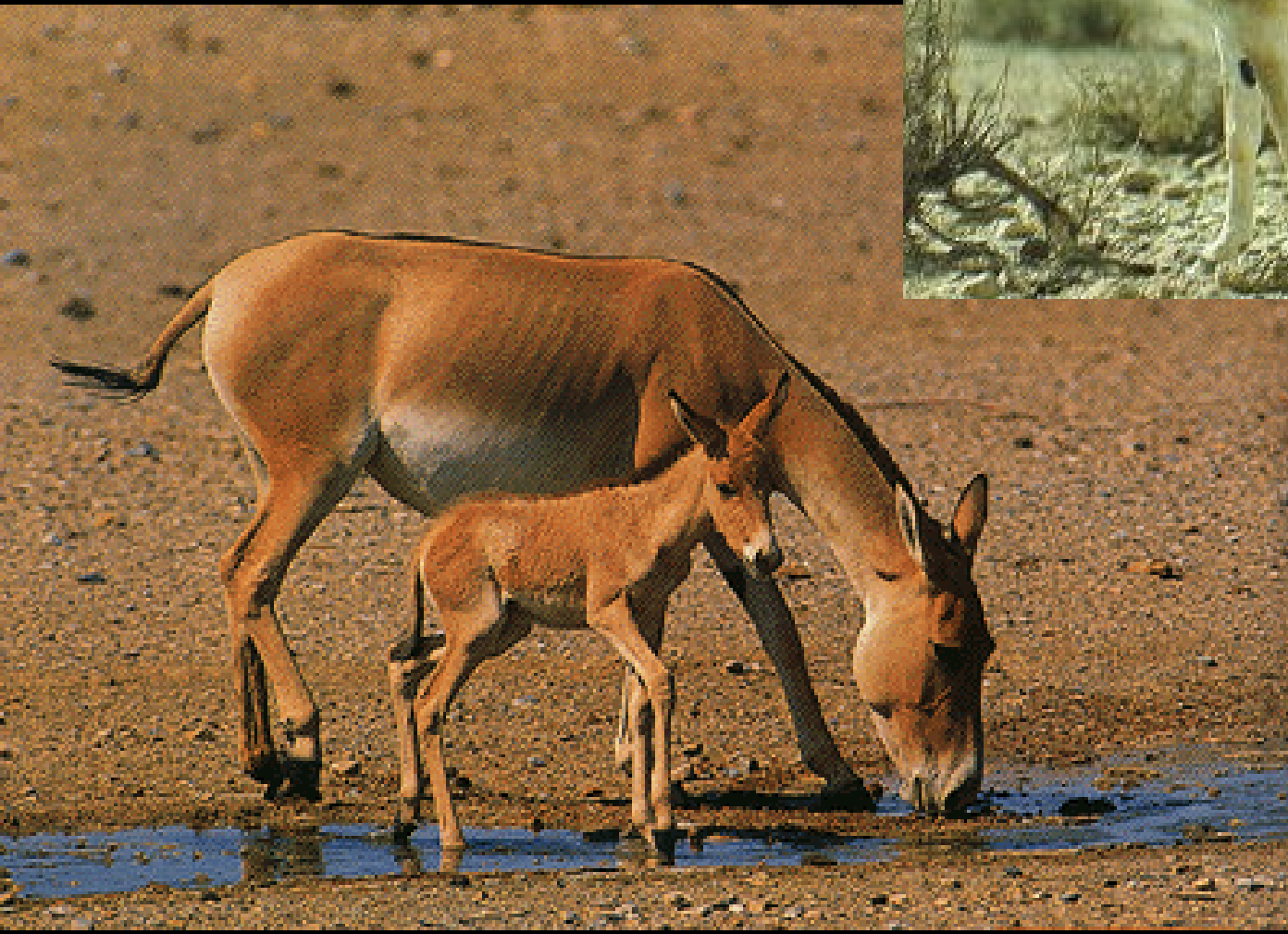
Equus africanus
afrički magarac

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Equidae**



*Equus
hemionus*
azijski
magarac

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Equidae**



Equus
caballus
konj

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Perissodactyla**

Fam: **Equidae**



Equus caballus - mustang

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Suina (=Nonruminantia)**

Fam: **Suidae**

Sus scrofa
divlja svinja



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Suina (=Nonruminantia)**

Fam: **Suidae**

Sus scrofa domestica
domaća svinja



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Suina (=Nonruminantia)**

Fam: **Tayassuidae**

Tayassu tajacu
ogrličasti pekar



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Suina (=Nonruminantia)**

Fam: **Hippopotamidae**

*Hippopotamus
amphibius*
nilski konj

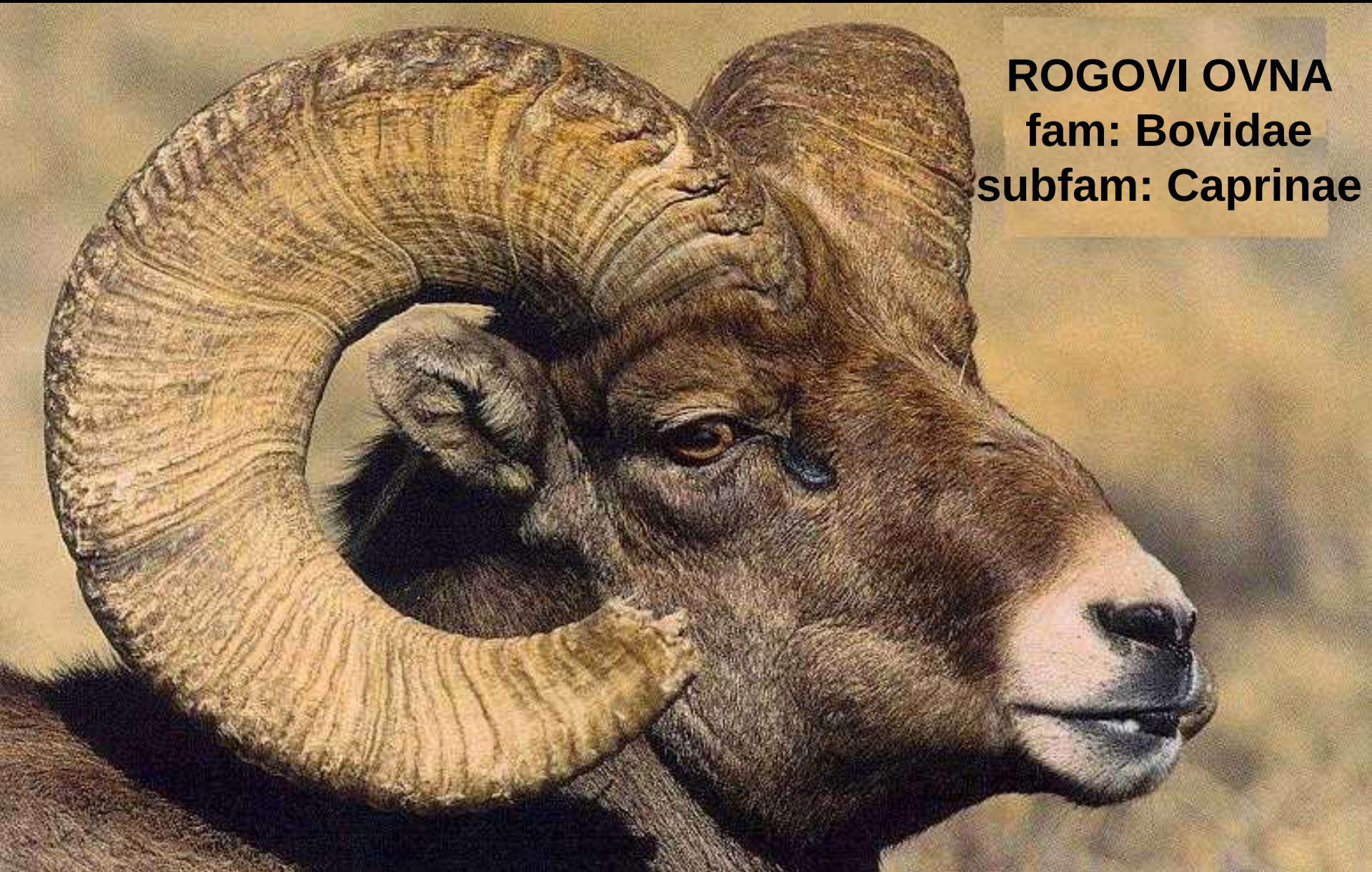


Classis: **MAMMALIA**

Ordo: Artiodactyla

Subclassis: **Eutheria**

Subordo: **Ruminantia**



ROGOVI OVNA

fam: Bovidae

subfam: Caprinae

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Tragulidae** - jelenčiči, ševroteni

Tragulus javanicus



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Tragulidae** - jelenčiči, ševroteni



*Hyemoschus
aquaticus*



Classis:

MAMMALIA

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Cervidae**



***Rangifer
tarandus
irvas***

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Cervidae**

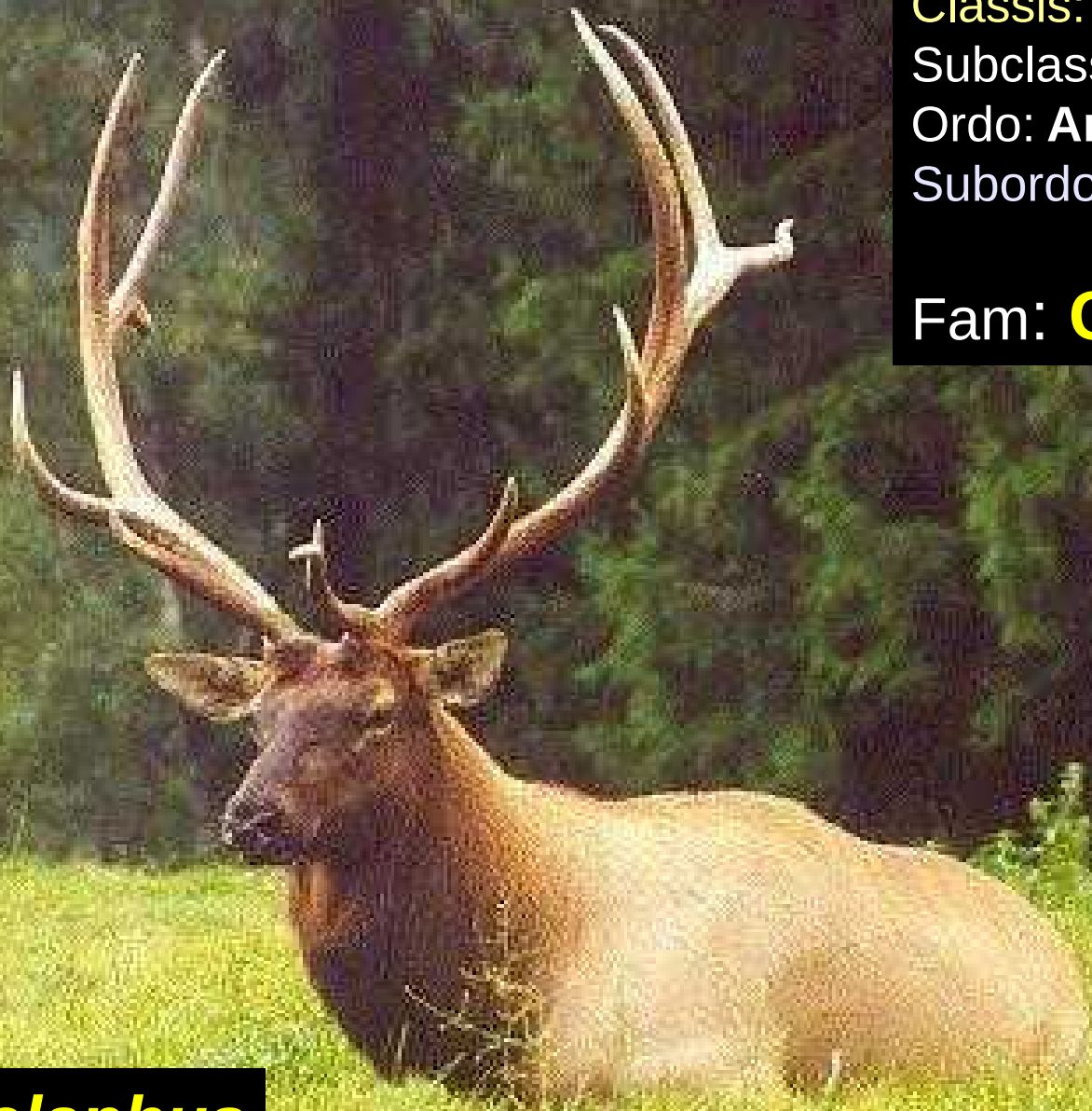
Capreolus capreolus
srndać



Classis: **MAMMALIA**
Subclassis: **Eutheria**
Ordo: **Artiodactyla**
Subordo: **Ruminantia**

Fam: **Cervidae**

Cervus elaphus
evropski jelen



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Cervidae**



Dama dama - jelen lopatar

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Cervidae**

Alces alces
los





Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Giraffidae**

Giraffa camelopardalis
žirafa

Okapia johnstoni – okapi

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Giraffidae**



Antilocapra americana
severnoamerička antilopa

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Antilocapridae**



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Bovinae – goveda**

Bos taurus
domaće goveče



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Bovinae – goveda**

Bubalus bubalus
pitomi (indijski) bivo



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Bovinae – goveda**

Bison bison
američki bizon



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Bovinae – goveda**



***Bison bonasus* - evropski bizon**

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Bovinae**
– **goveda**

Bos grunniens
jak



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Bovinae**
– goveda

Ovibos moschatus
mošusno goveče



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Bovinae – goveda**

Boselaphus tragocamelus
nilgaj antilopa



Arpit Deomurari © 2010

Classis: **MAMMALIA**
Subclassis: **Eutheria**
Ordo: **Artiodactyla**
Subordo: **Ruminantia**
Fam: **Bovidae**
Subfam: **Bovinae – goveda**

Taurotragus oryx
eland antilopa



Classis: **MAMMALIA**
Subclassis: **Eutheria**
Ordo: **Artiodactyla**
Subordo: **Ruminantia**
Fam: **Bovidae**
Subfam: **Bovinae – goveda**

Kobus lechwe
crvena lečva



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Caprinae**
- koze i ovce



Ovis aries
domaća ovca

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Caprinae –
koze i ovce**



Ovis canadensis
severnoamerička divlja ovca

Ovis aries musimon
muflon

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Caprinae –**
koze i ovce



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Caprinae** –
koze i ovce

Capra hircus
domaća koza



Classis: **MAMMALIA**
Subclassis: **Eutheria**
Ordo: **Artiodactyla**
Subordo: **Ruminantia**

Fam: **Bovidae**
Subfam: **Caprinae –**
koze i ovce

Capra falconeri



© Klaus Rudloff

Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Caprinae** –
koze i ovce

Capra caucasica



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Caprinae**
- koze i ovce

***Rupicapra rupicapra* - divokoza**



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Ruminantia**

Fam: **Bovidae**

Subfam: **Caprinae**
- koze i ovce

***Saiga tatarica* - sajga**



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Tylopoda**

Fam: **Camelidae**

Camelus dromedarius
jednogrba kamila



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Tylopoda**

Fam: **Camelidae**

Camelus bactrianus

dvogrba kamila



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Tylopoda**

Fam: **Camelidae**

Lama glama
domaća lama



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Artiodactyla**

Subordo: **Tylopoda**

Fam: **Camelidae**

Lama guanicoe
gvanako



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Pholidota**

Phataginus sp.



Classis: **MAMMALIA**
Subclassis: **Eutheria**
Ordo: **Pholidota**

***Manis
crassicaudata***



Classis: **MAMMALIA**

Subclassis: **Eutheria**

Ordo: **Pholidota**

Manis gigantea

