



Univerzitet u Beogradu
Fakultet veterinarske medicine

Katedra za biologiju

Predmet:
ZOOLOGIJA
2024/2025

Chordata
Classis Aves

EVOLUCIJA PTICA

Koren evolucionog puta ptica tražen je najpre među **izumrlim krilatom gmizavcima reda Pterosauria**, koji su imali kožasta krila sa brojnim nedostacima (nisu omogućavala efikasno letenje, teško su se sklapala, lako se kidala i postajala neupotrebljiva).



Classis: **REPTILIA**

Subclassis: **Diapsida**

Ordo: **Pterosauria – izumrli
džinovski krilati gmizavci**

Subordo: **Pterodactyloidea**

EVOLUCIJA PTICA

Pteranodon ingens



Pterodactylus kochi

Classis: REPTILIA

Subclassis: Diapsida

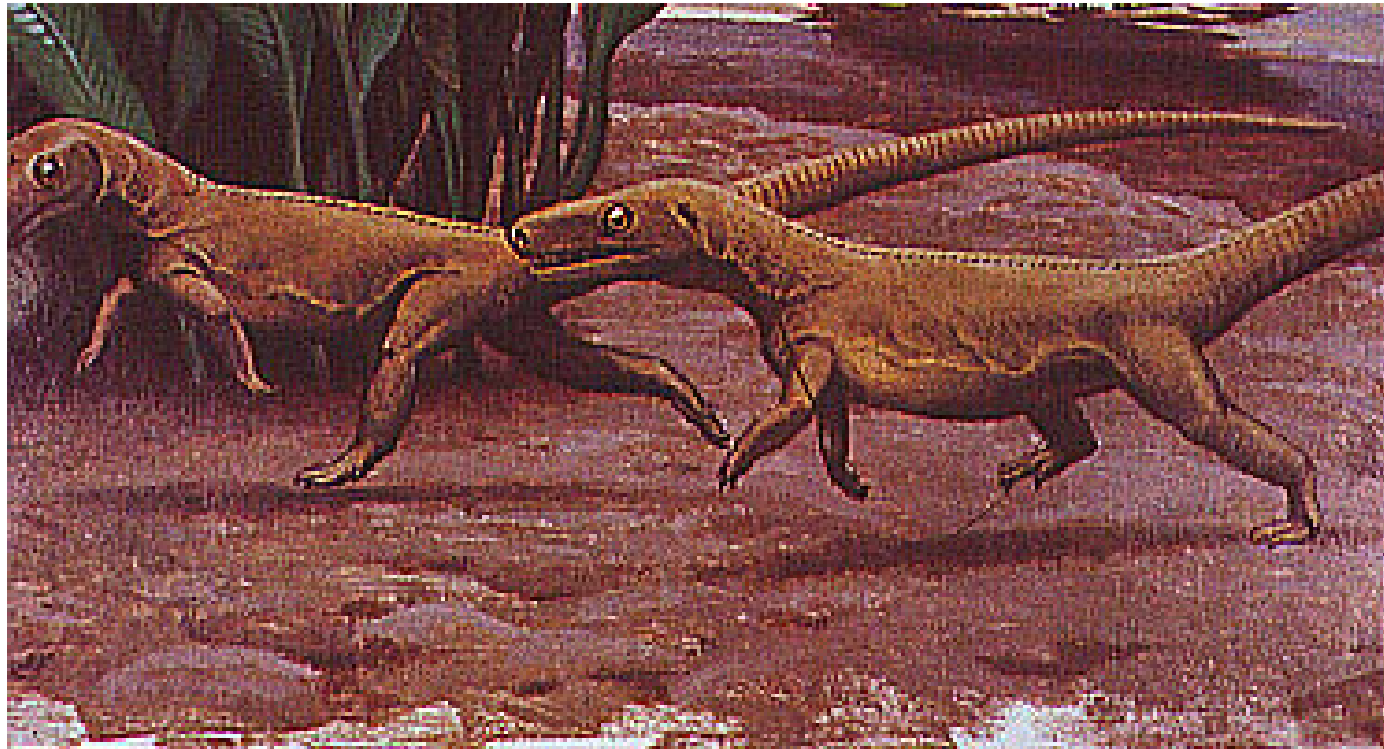
Ordo: Pterosauria – izumrli
džinovski krilati gmizavci

Subordo: Pterodactyloidea

Na osnovu anatomskih podataka, utvrđeno je da takva krila nisu homologa krilima ptica, tako da je odbačena pretpostavka da su Pterosauria preci ptica.

EVOLUCIJA PTICA

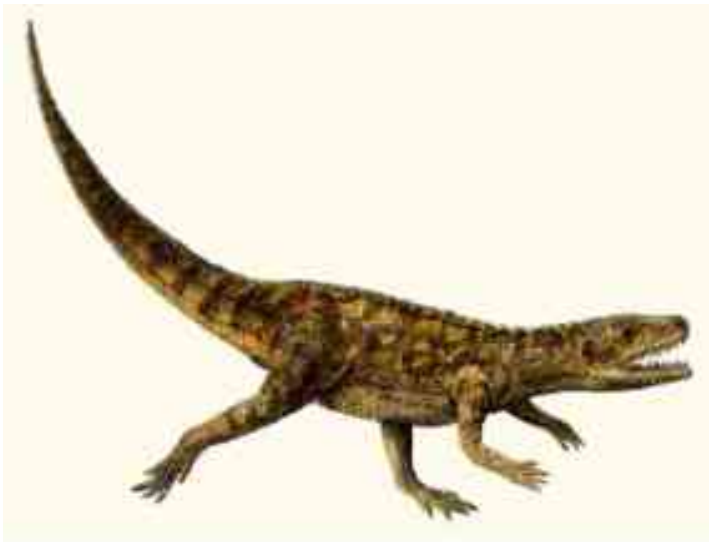
Sledeća pretpostavka bila je da pretke ptica treba tražiti među izumrlim gmizavcima reda **Thecodontia**, podreda **Pseudosuchia**, naročito roda *Euparkeria*.



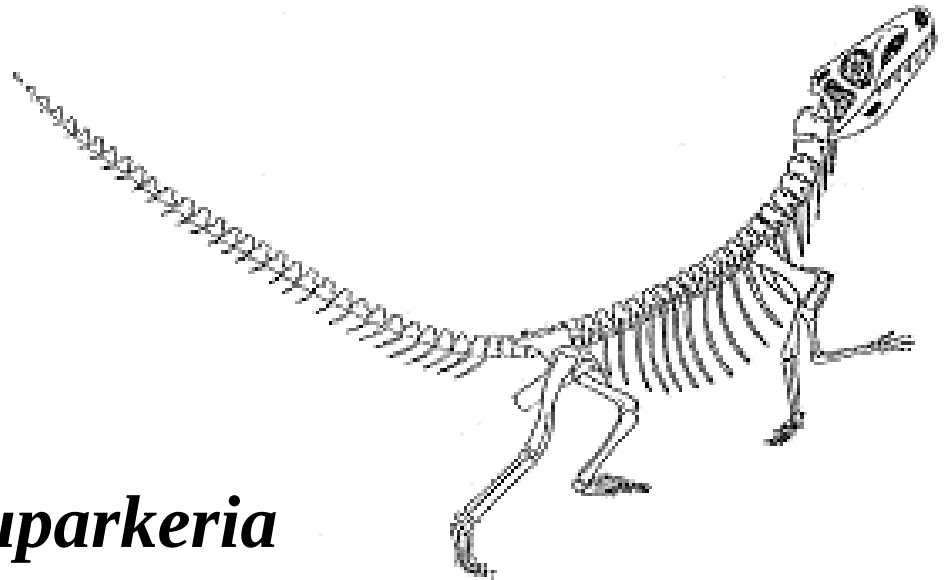
Euparkeria

Ti gmizavci iz roda *Euparkeria* imali su izvesne osobine slične jurskim prapticama (prisustvo klavikule i interklavikule, telo pokriveno duguljastim krljuštima slične građe kao pero, lokomocija samo zadnjim nogama).

Međutim, evolutivno mlađi gmizavci koji su od njih nastali, navedene osobine nisu imali, te je i ova hipoteza odbačena.



Euparkeria



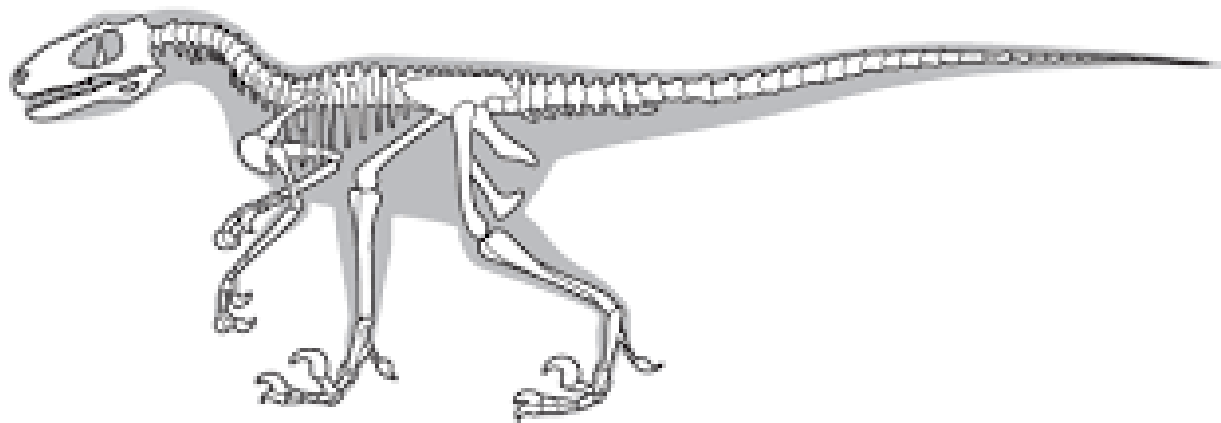
Konačno, zaključeno je da ptice potiču od malih teropodnih karnivorih dinosaurus (iz podreda **Theropoda**, red **Saurischia**), nakon što je otkriveno da skelet dinosaura roda *Deinonychus* umnogome nalikuje skeletu ptica (oblik lobanje, građa ekstremiteta, ramenog i karličnog pojasa, pneumatizovan skelet, dug vrat, redukcija zuba i klavikule srasle u jadac – *furcula*).



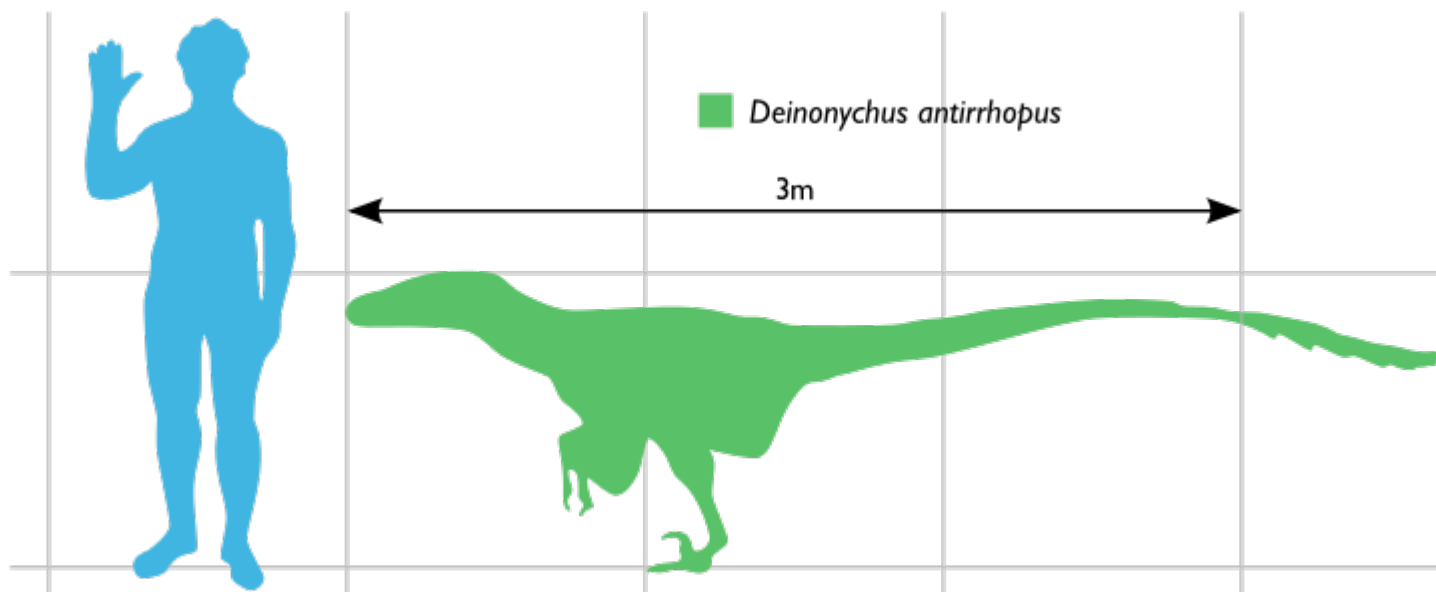
Deinonychus

Deinonychus

- skelet -



Odnos veličine čoveka i dinosaurusa *Deinonychus antirrhopus*



Jurske praptilice nisu direktni preci ptica, nego bočna grana u evoluciji.

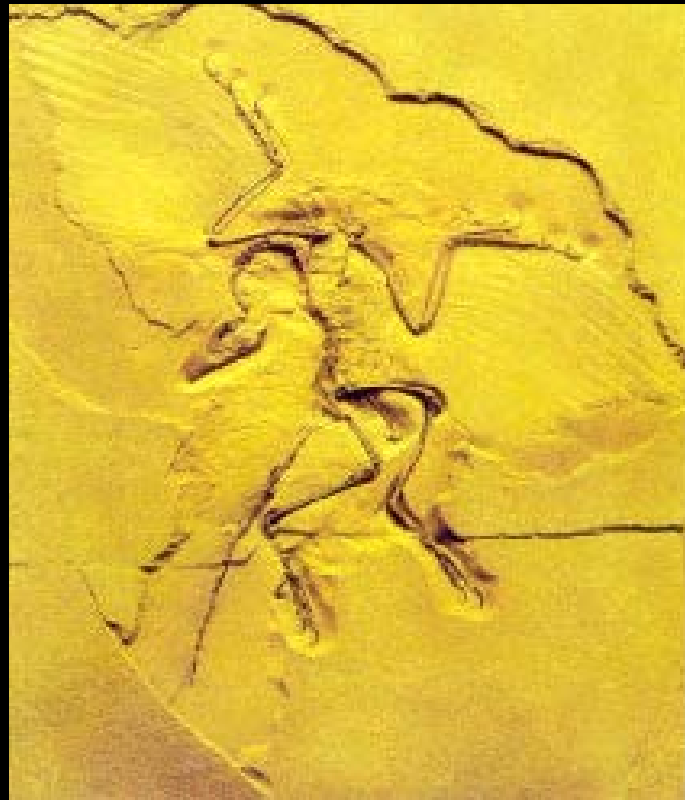
Na osnovu fosilnih ostataka uočava da su ptice roda ***Archaeopteryx*** imale sličnosti i sa pticama i sa gmizavcima:

karakteristike ptica:

- telo pokriveno gustim perjem,
- skelet (raspored kostiju) krila i nogu kao kod ostalih ptica (mada kosti nisu bile šuplje, pa su ove ptice bile teške i nisu mogle aktivno da lete)

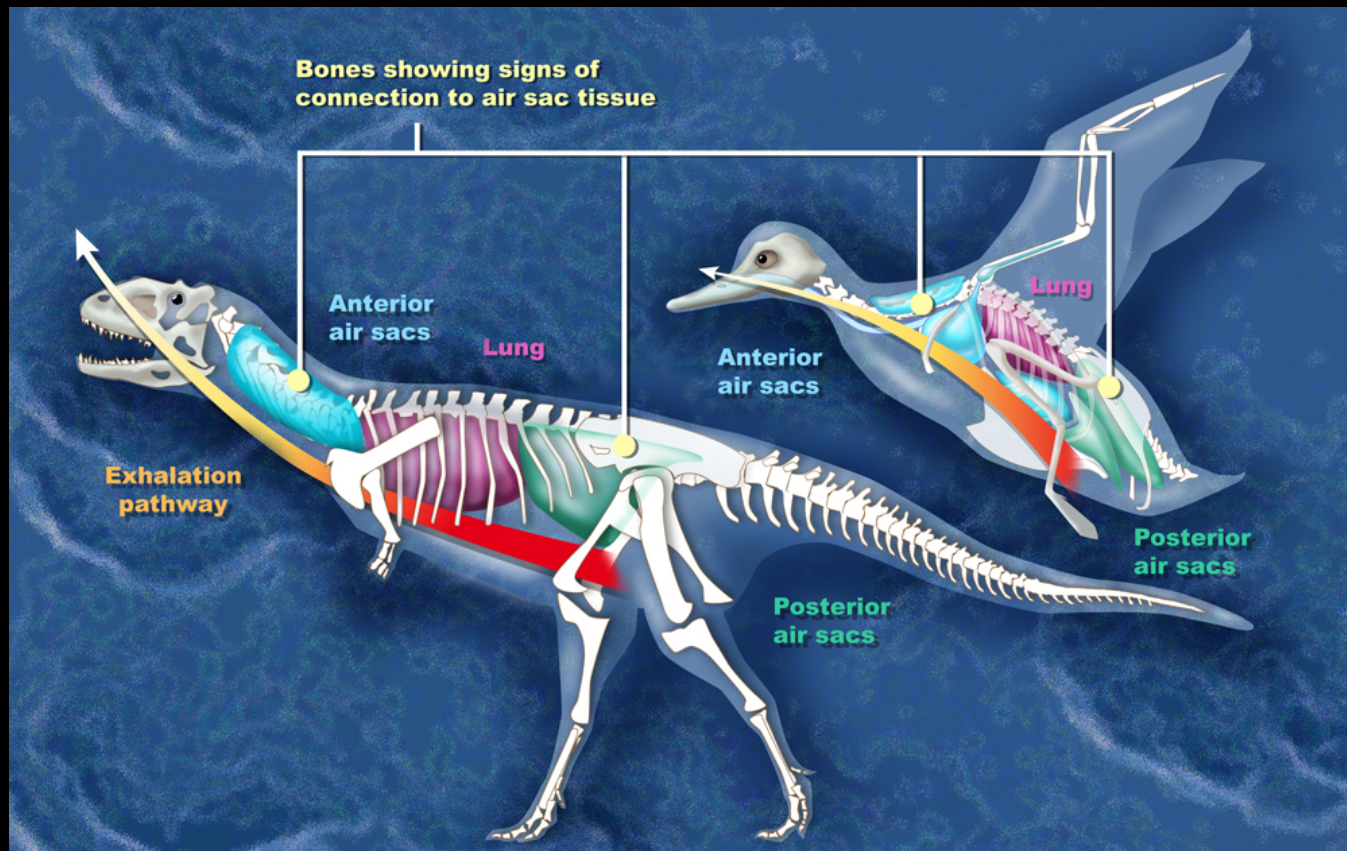
karakteristike gmizavaca

- prisustvo zuba,
- kandže na krilima i
- rep izgrađen od velikog broja pršljenova

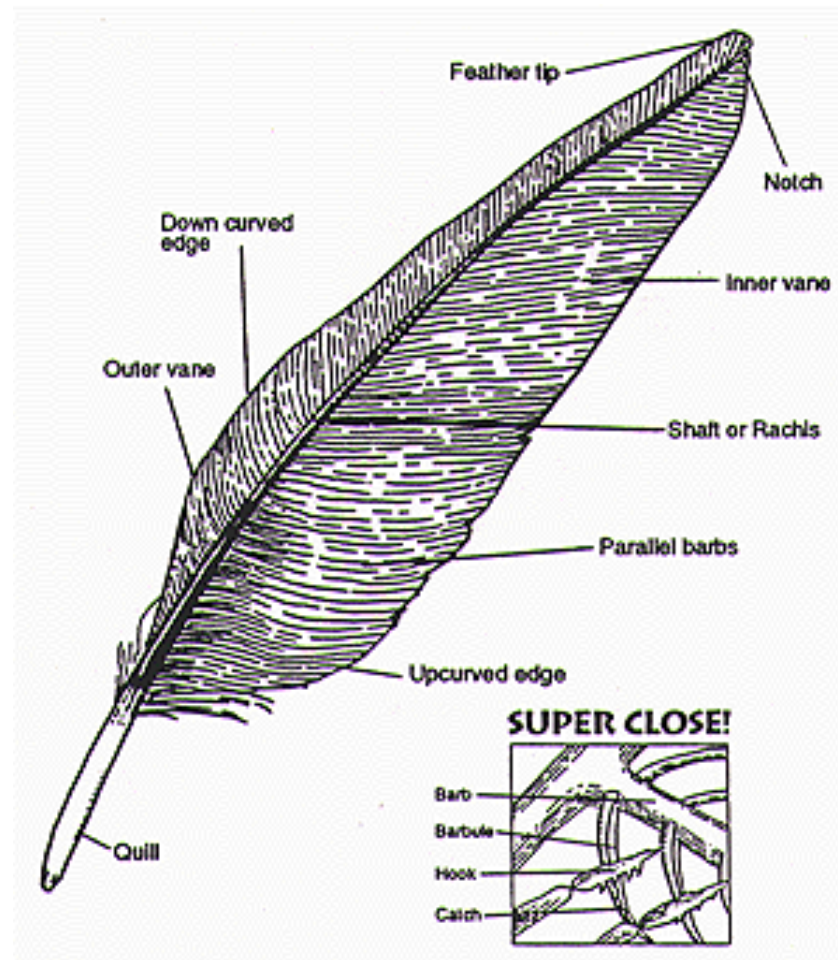


Prave ptice su se pojavile u Kredi i od današnjih se razlikuju samo po tome što su imale zube.

U adaptaciji na postojeće životne uslove, ptice su se pokazale kao najuspešniji životinjski organizmi koji su uspjeli da brzo potisnu leteće gmizavce.



U evolutivnom nadmetanju, veliku prednost pticama u odnosu na druge kičmenjake omogućila je pojava **perja**, koje obezbeđuje očuvanje toplote tela (homeotermiju) i veliku površinu krila neophodnu za letenje.



classis AVES

TIPOVI PERA



Repno i krilno
konturno pero



Pokrovno pero



Dlakasto pero
(stršljika)



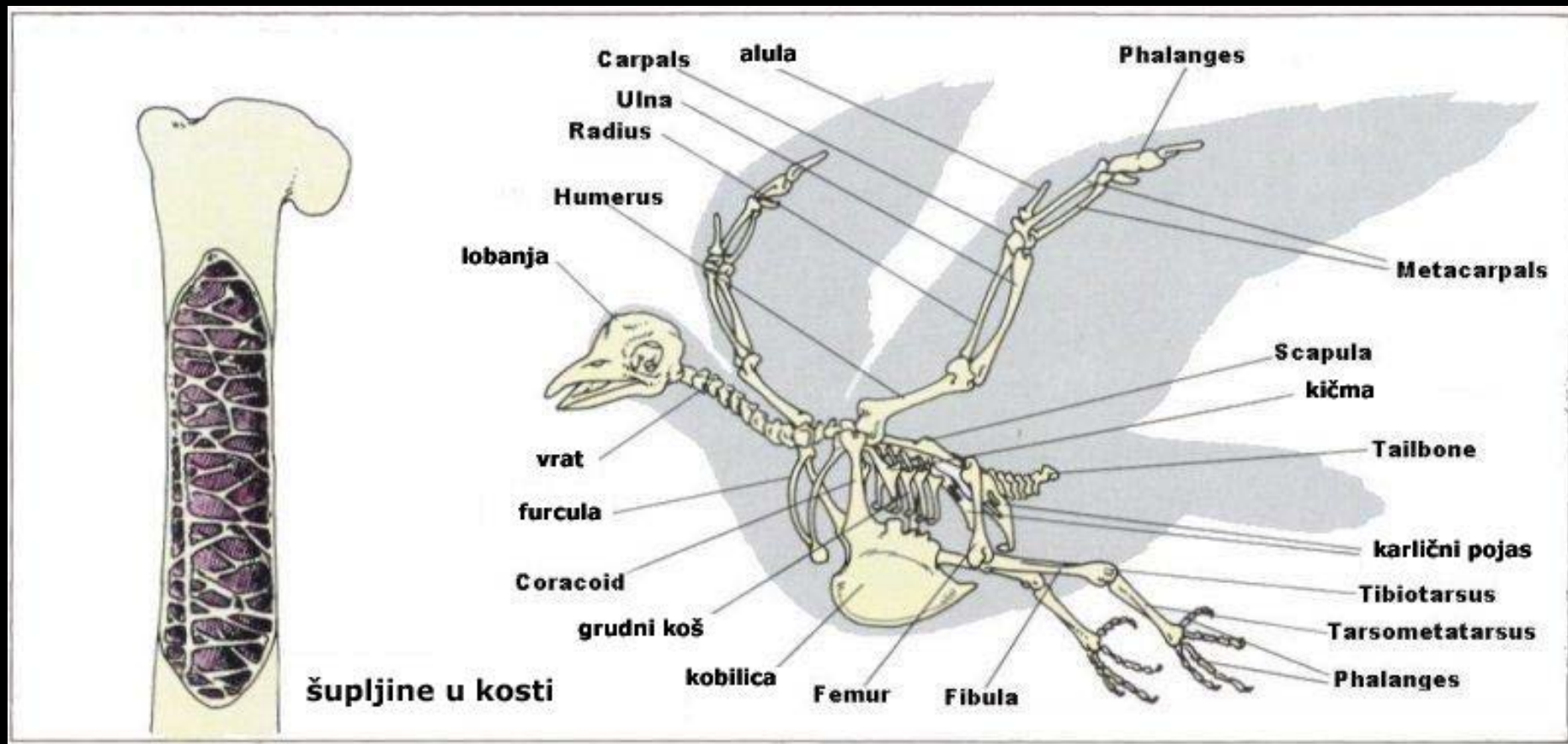
Čekinjasto pero

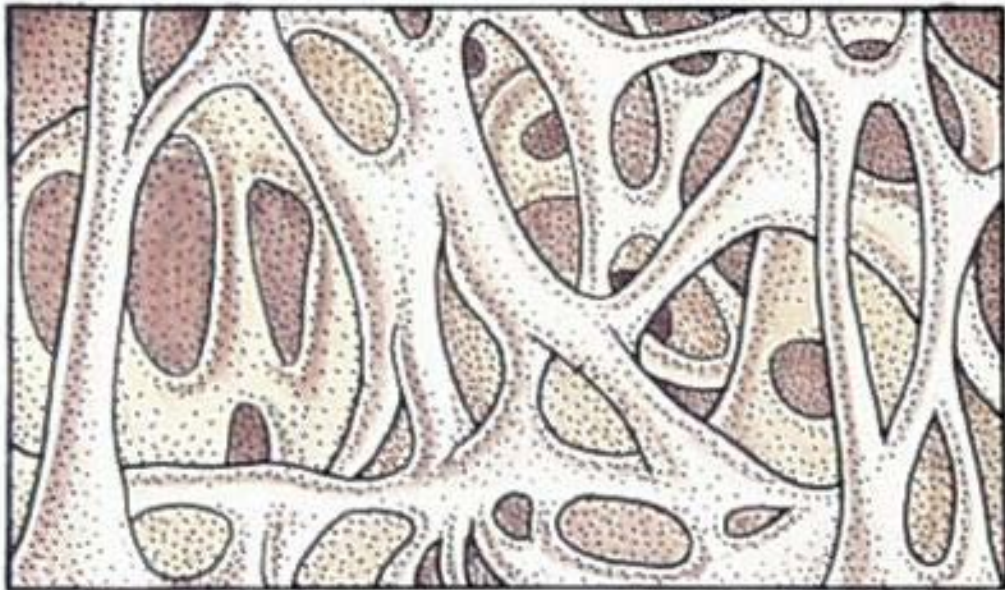


Paperje

classis AVES

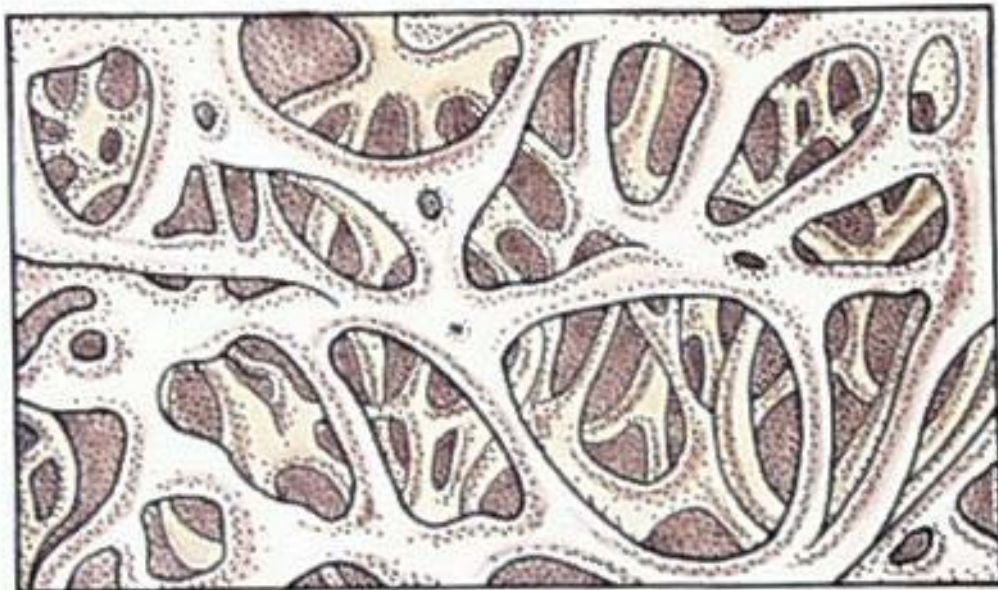
SKELET





PRESEK KOSTI KRILA

PRESEK KOSTI LOBANJE



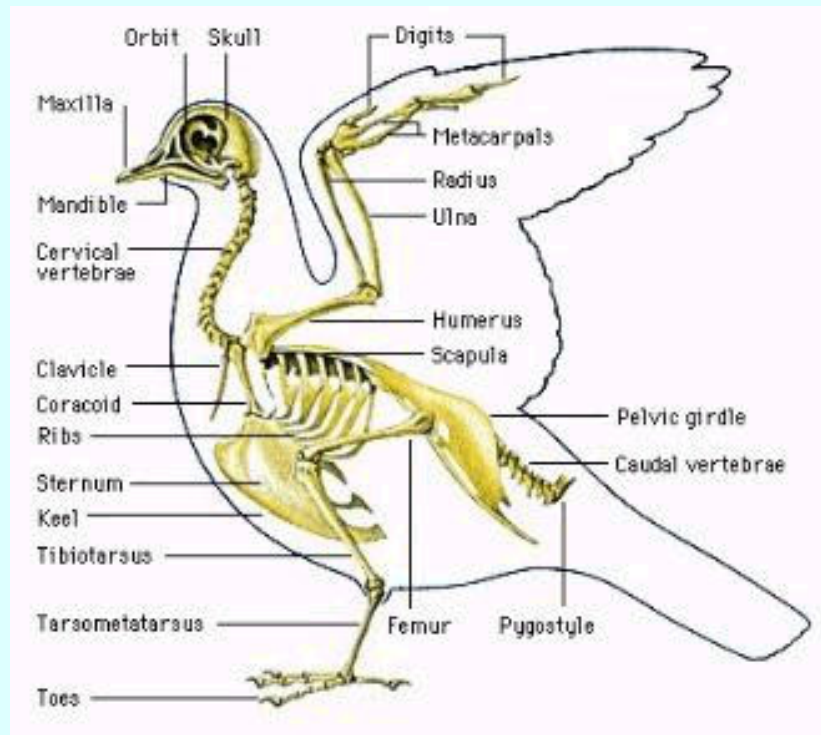
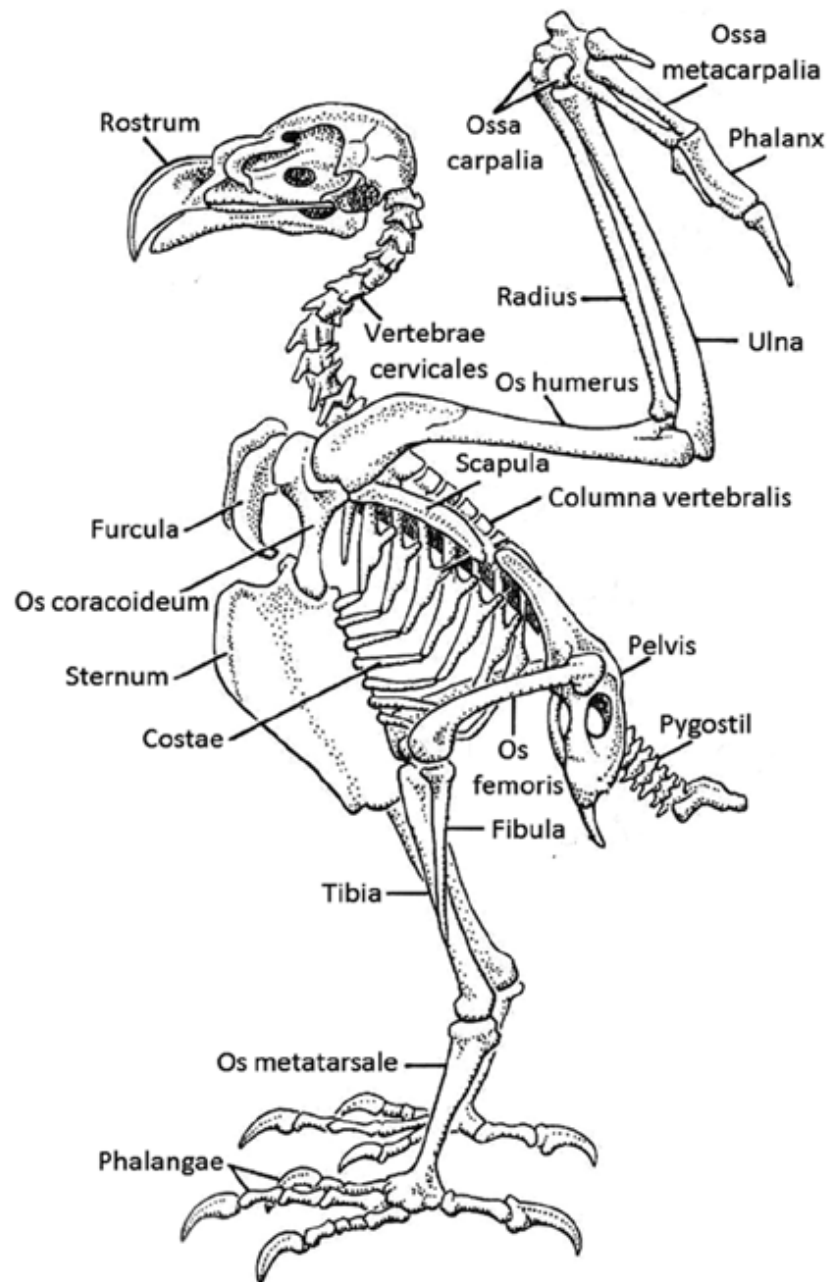
classis AVES

SKELET GLAVE



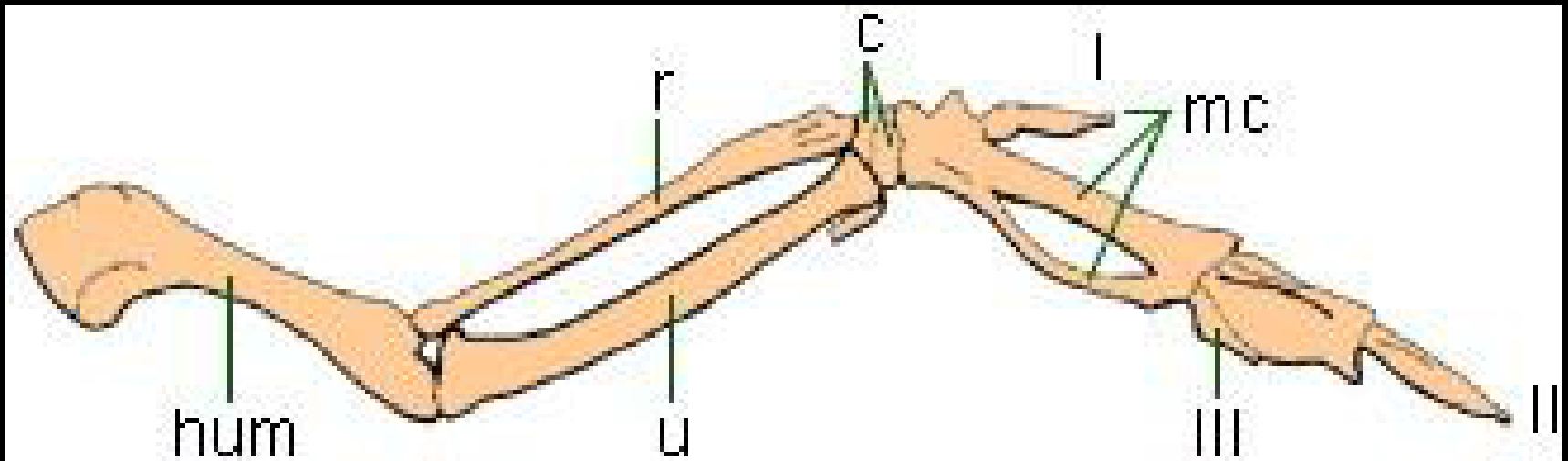
classis AVES

SKELET KRILA



classis **AVES**

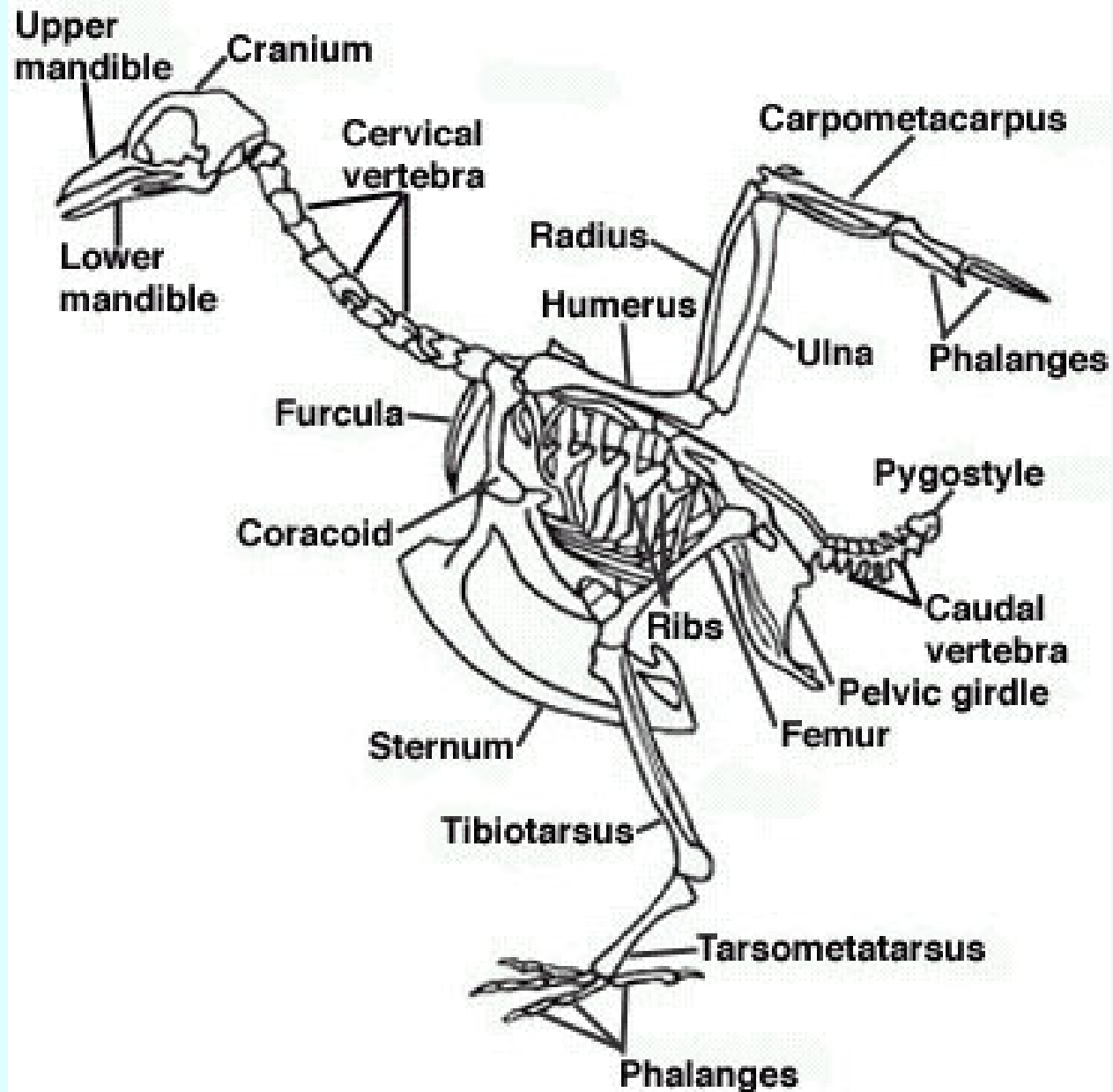
SKELET KRILA



Legenda:

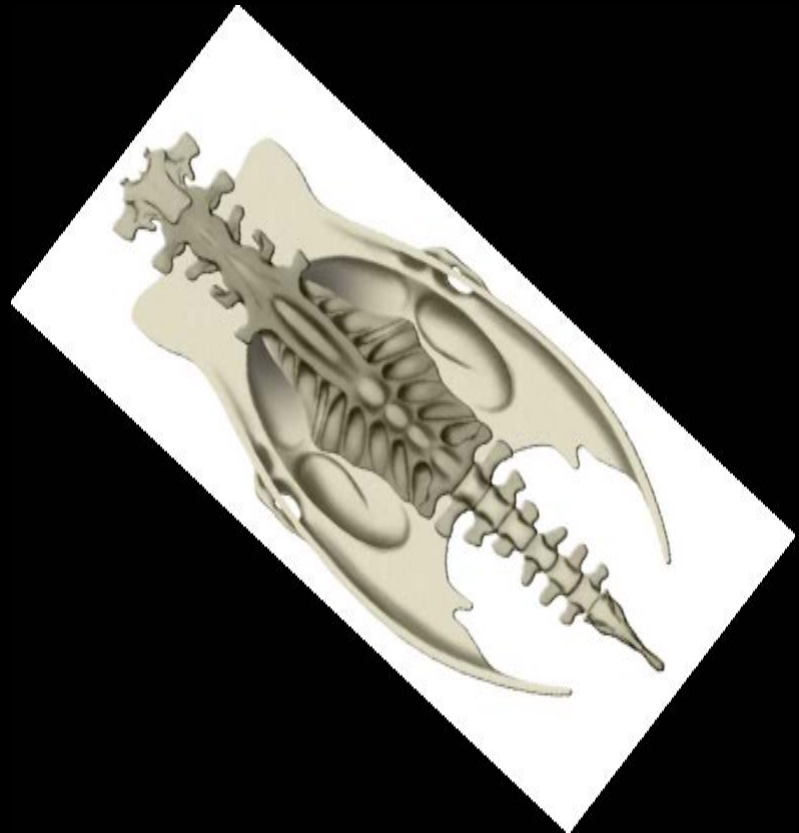
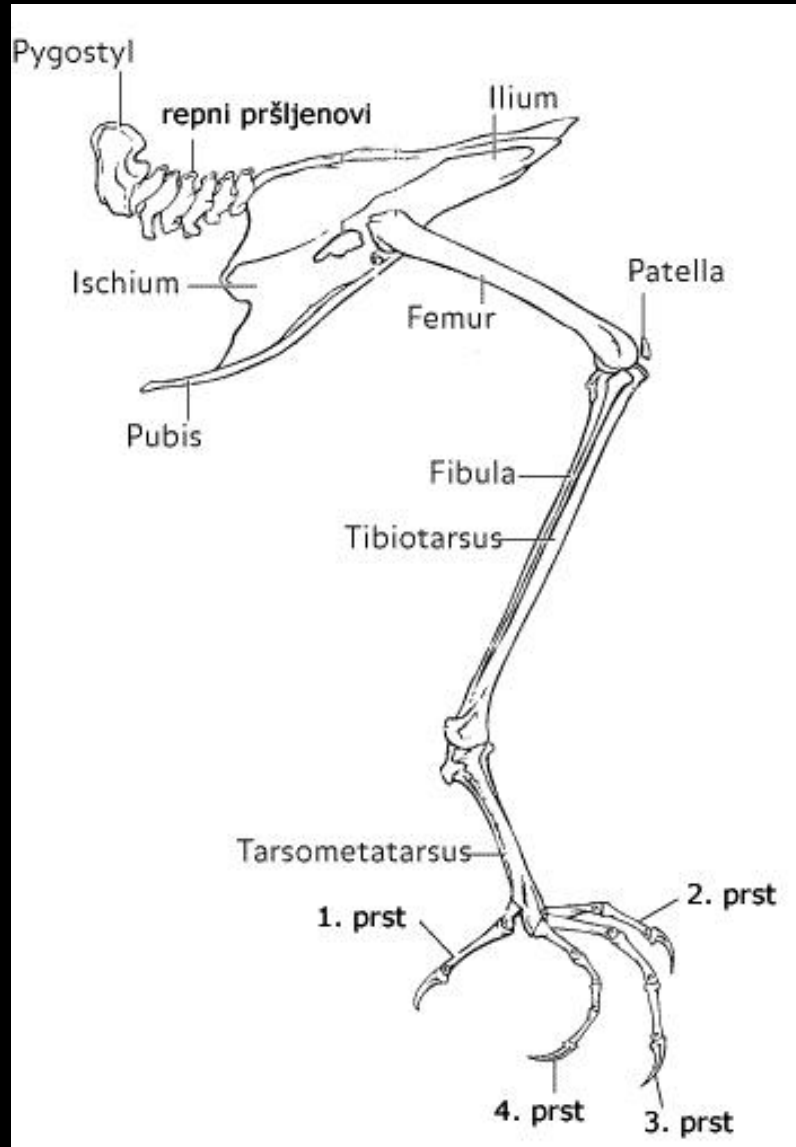
hum-humerus; r-radius; u-ulna; c-carpus;
mc-metacarpus; I, II, III - falanges

classis **AVES** - SKELET TRUPA I ZADNJIH EKSTREMITETA



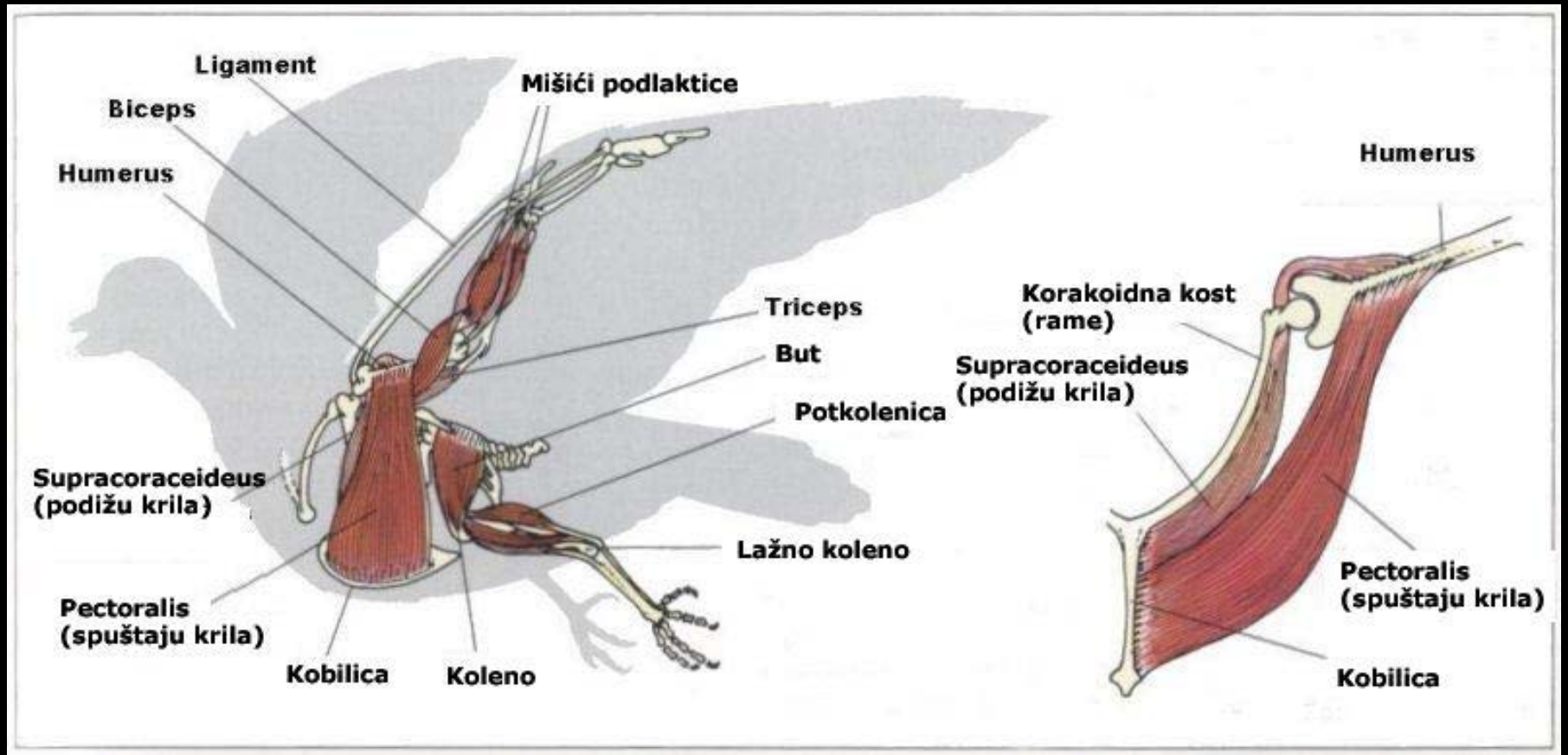
classis AVES

SKELET KARLIČNOG POJASA I ZADNJIH EKSTREMITETA



classis AVES

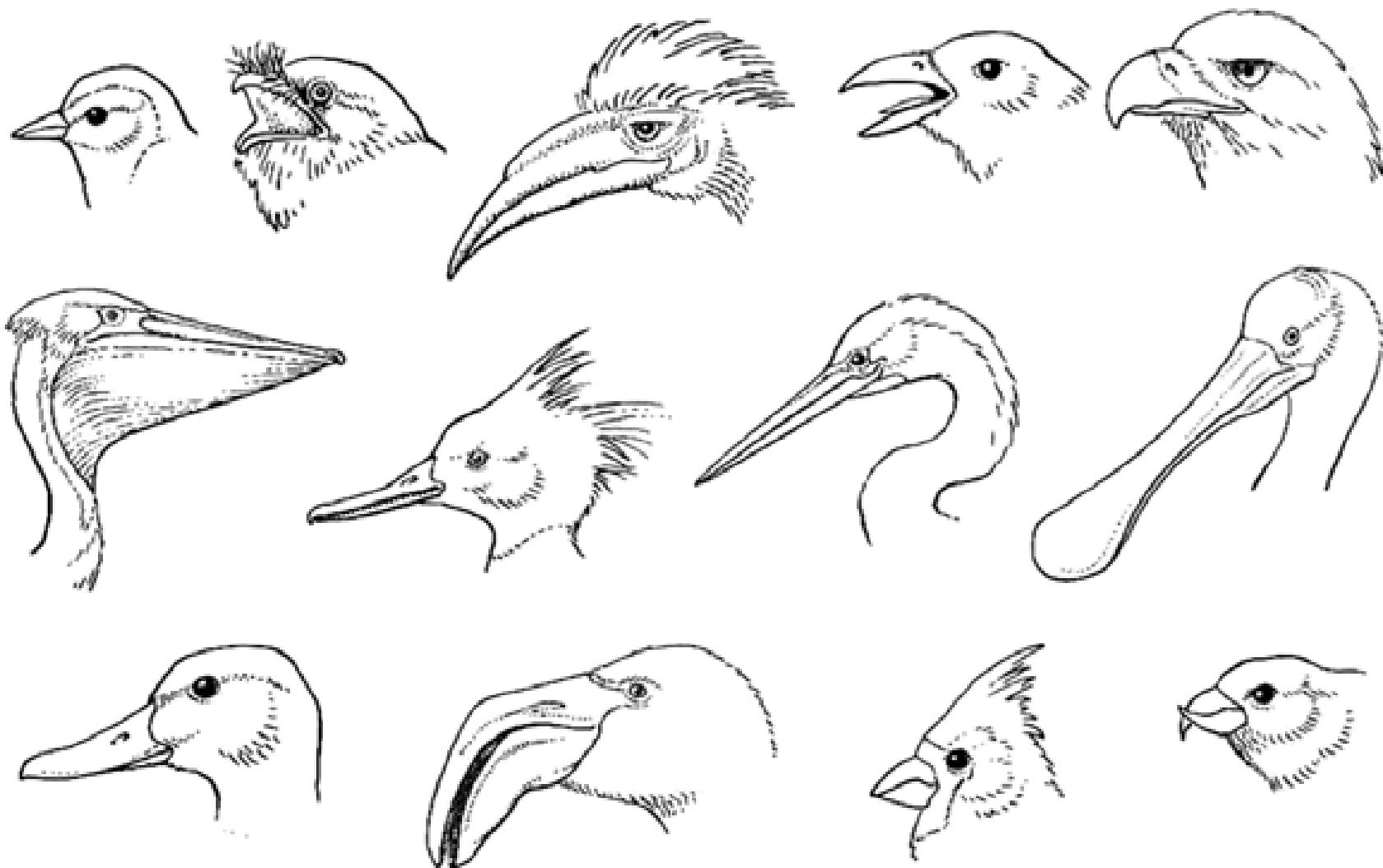
MIŠIĆNI SISTEM





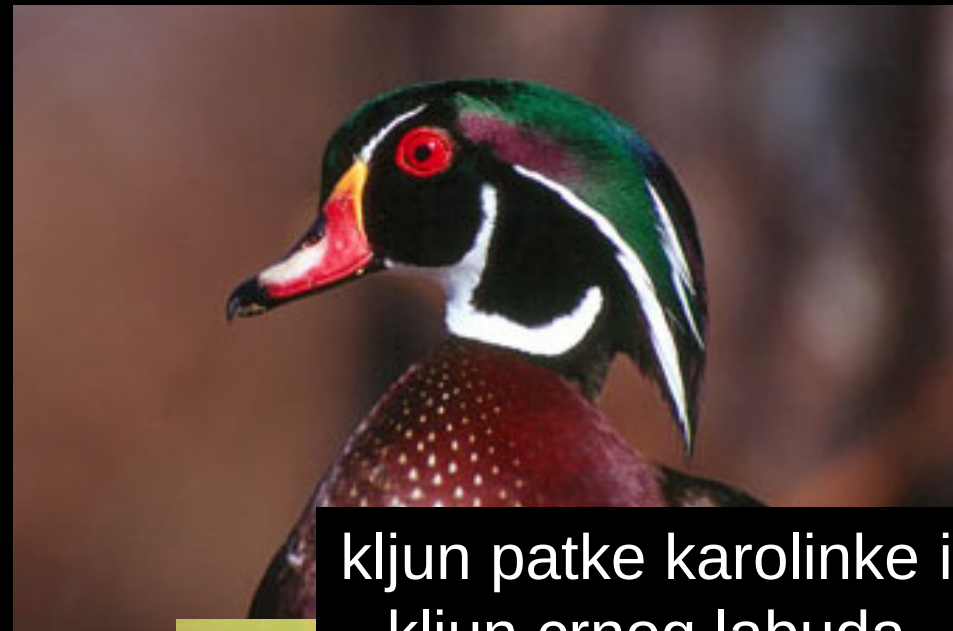
TIPOVI KLJUNA PTICA

TIPOVI KLJUNA PTICA





kljun kraljevskog lešinara i
crnkaste lunje
(Falconiformes)



kljun patke karolinke i
kljun crnog labuda
(Anseriformes)



kljun goluba (Columbiformes)



Héron pourpré
(Ardea purpurea)

© Jocelyne Bentsaid
www.oiseaux.net

kljun čaplji (Ciconiformes)



kljun sove (Strigiformes)





**kljun prepelice
i velikog tetreba
(Galliformes)**





kljun pelikana
(Pelecaniformes)



kljunovi detlića i tukana (Piciformes)



Buceros bicornis

Tockus leucomelas



Bucorvus leadbeateri

kljunovi
kljunoroga
(Coraciiformes,
Bucerotidae)



***Buceros
rhinoceros***



Noge većine ptica
pokrivene su krljuštima
koje nalikuju krljuštima
guštera

classis AVES

IZGLED ZADNJIH EKSTREMITETA

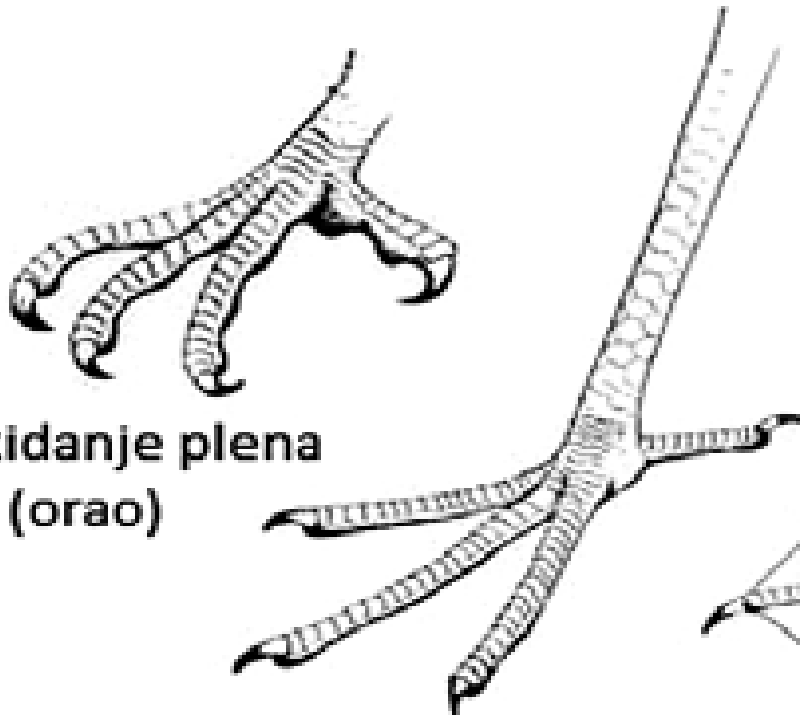


ADAPTACIJA NOGU PTICA

Tipovi adaptacije nogu ptica:



na hladne uslove
(pingvin)

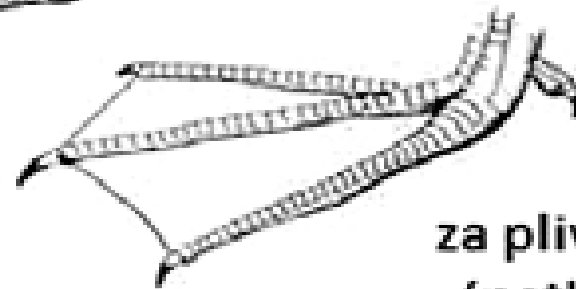


za kidanje plena
(orao)



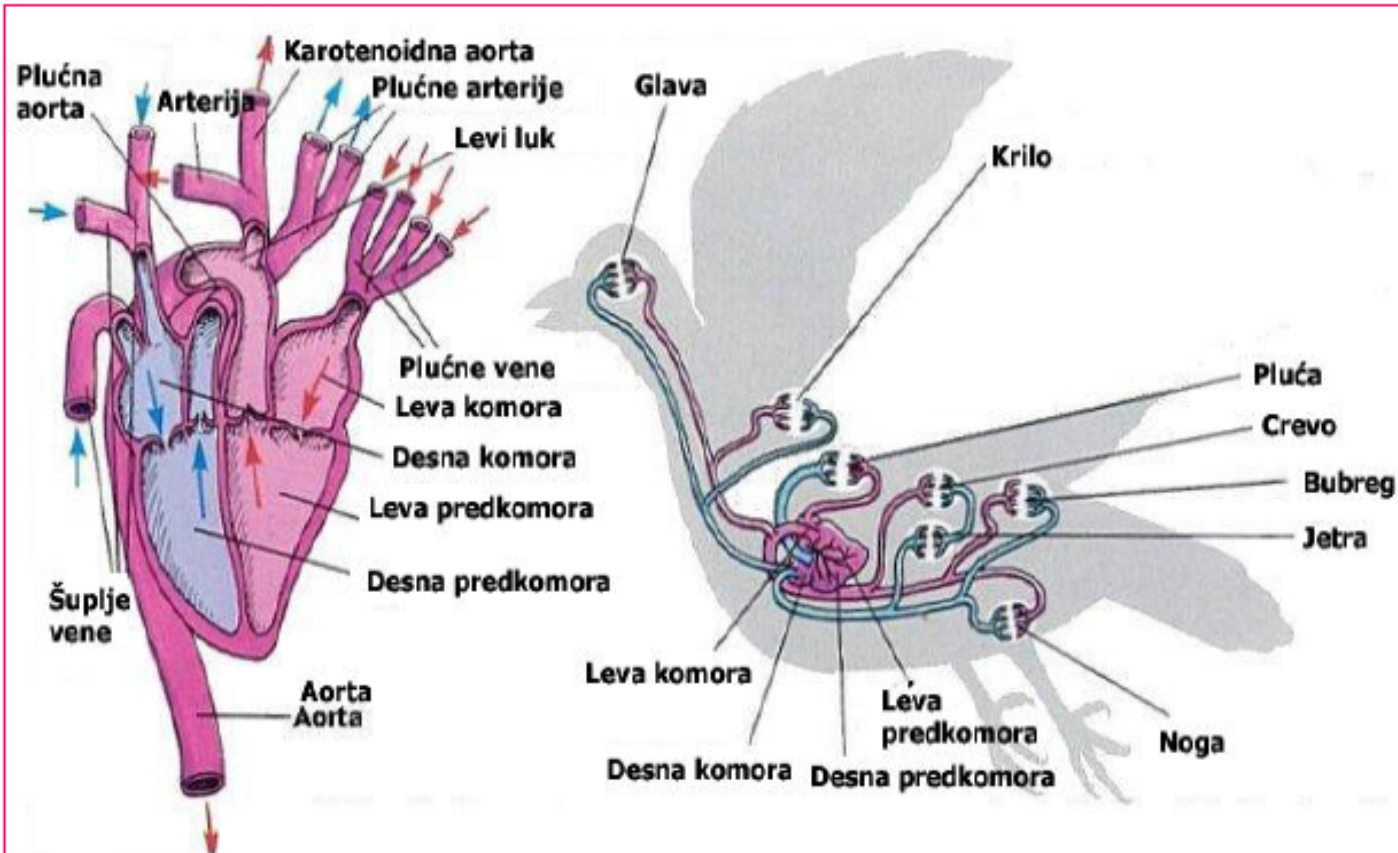
za penjanje
(detlic)

za hodanje po vodi
(čaplja)



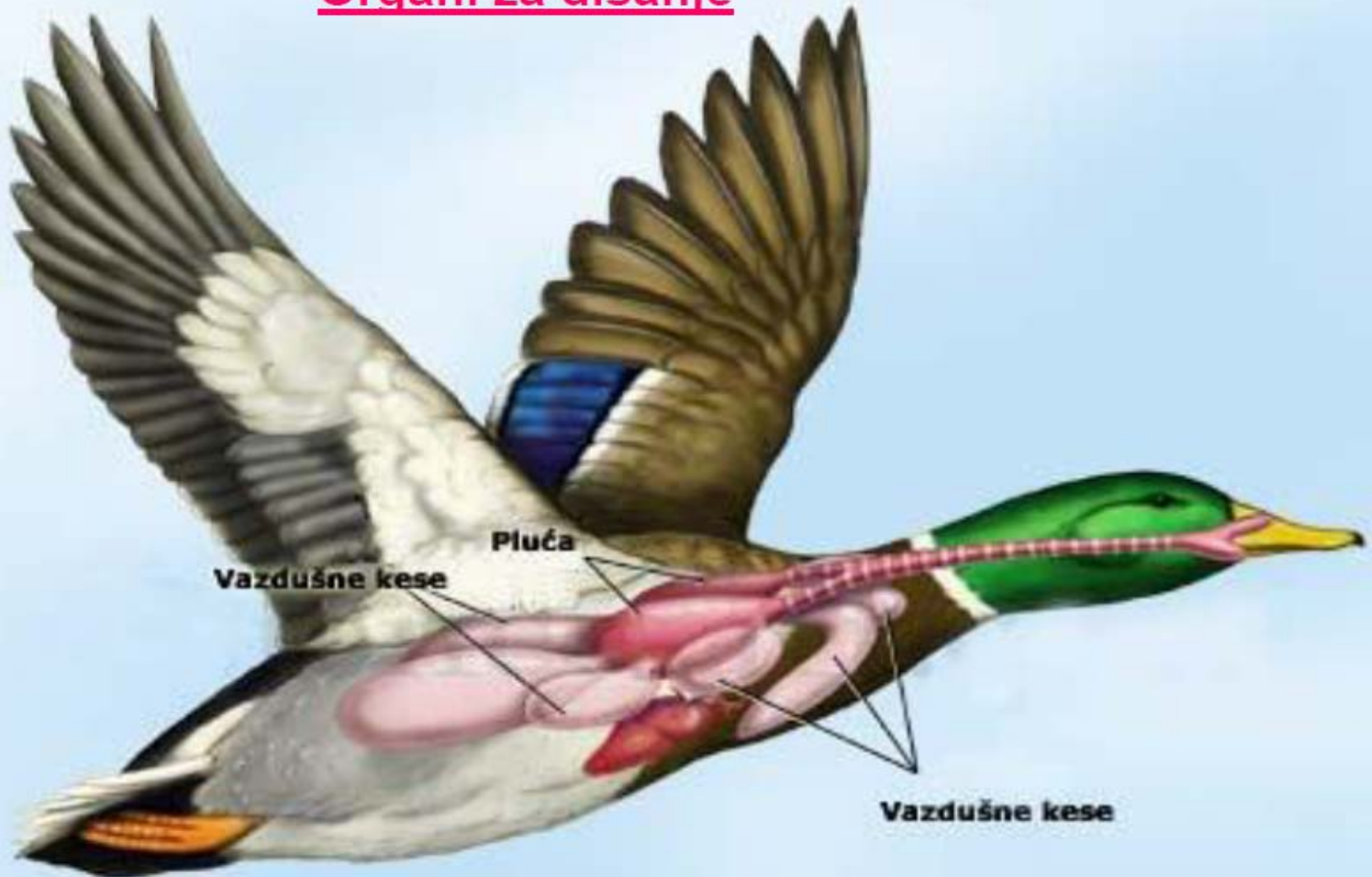
za plivanje
(patka)

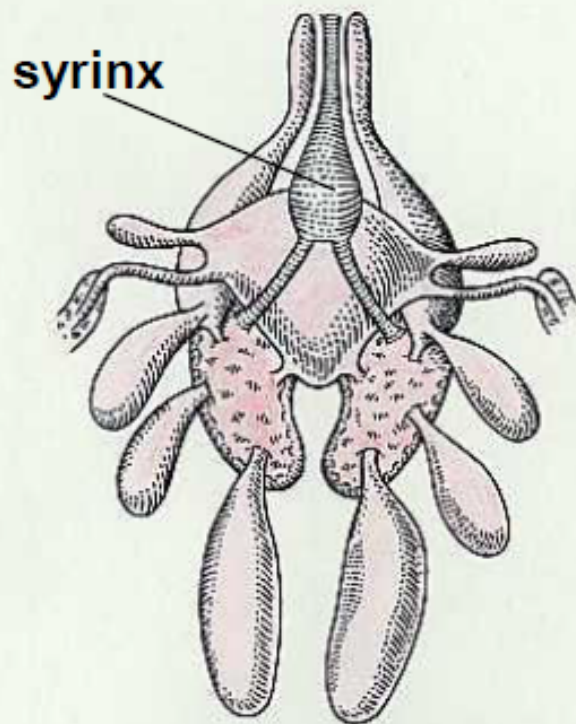
Krvni sistem - srce ptica je veoma uvećano i podeljeno na dve pretkomore i dve komore. Desna strana srca potpuno je odvojena od leve. U desnu stranu srca dotiče krv iz vena, koje ga vraćaju iz svih delova tela, i ona potiskuje ovu krv u pluća da se aeriše. Iz pluća se ova krv vraća u levu polovinu srca, pa zatim raznosi po celom telu arterijama. Srce udara nekoliko stotina puta u minutu u mirovanju, a hiljadu puta u kretanju.



classis AVES - SISTEM ORGANA ZA DISANJE

Organi za disanje

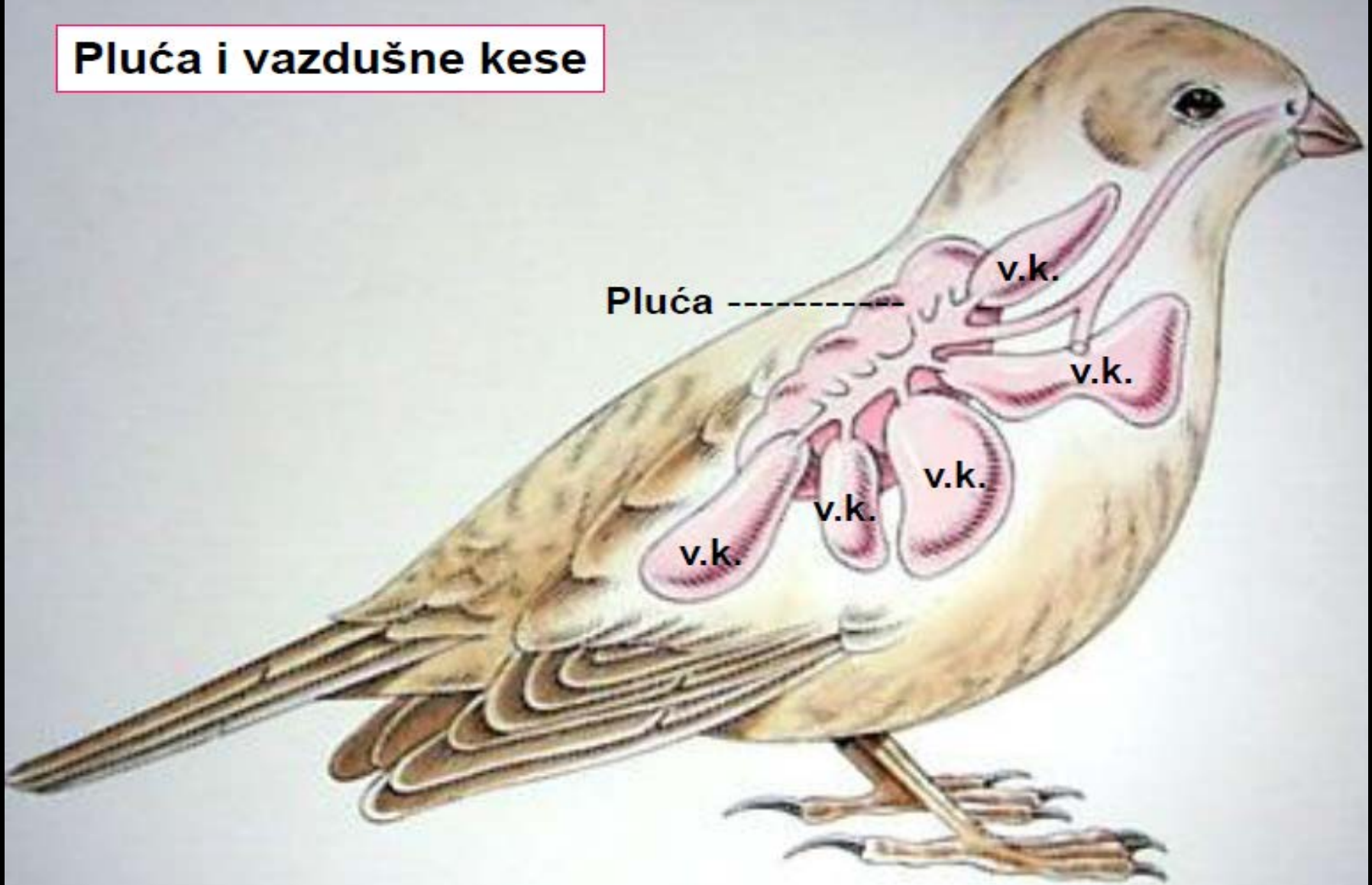




Poseban deo respiratornog sistema ptica predstavlja jedan organ sa sasvim drugačijom namenom. To je pevalo ili donji grkljan (syrinx), koji se nalazi na završetku dušnika i početku bronhija. Ovo je organ za produkciju zvuka - ptičijeg zova i pesme.

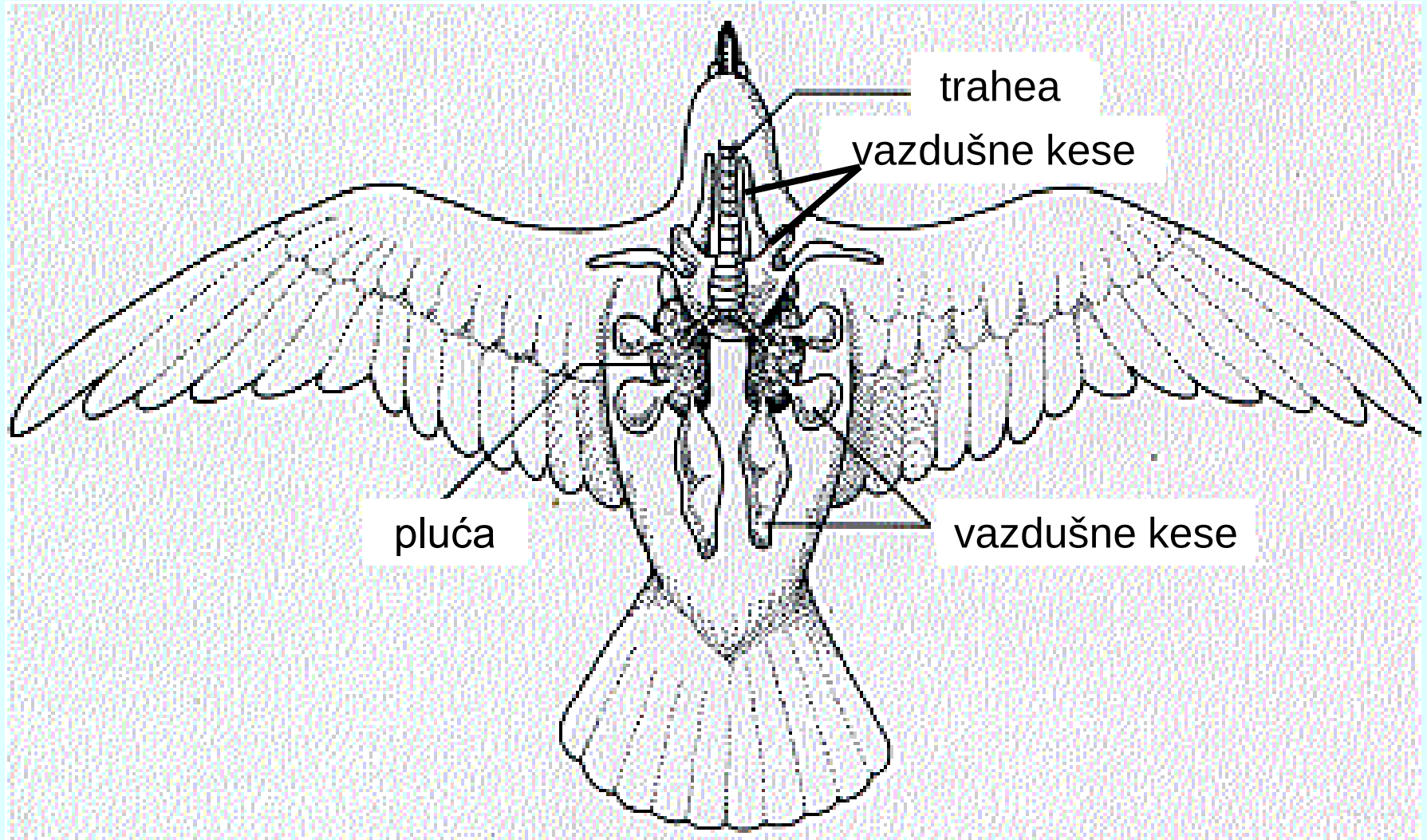
classis AVES - SISTEM ORGANA ZA DISANJE

Pluća i vazdušne kese



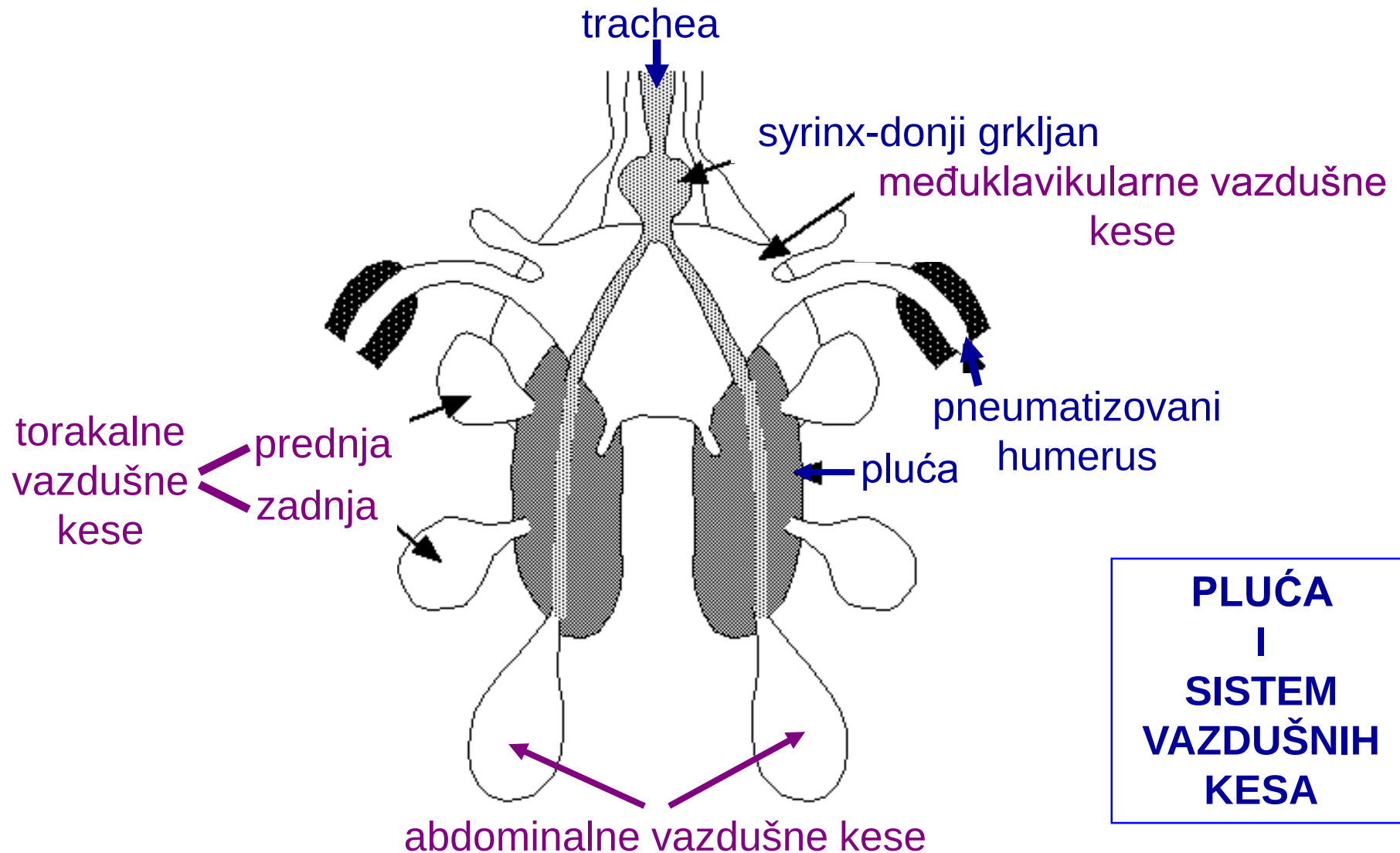
classis AVES

SISTEM ORGANA ZA DISANJE



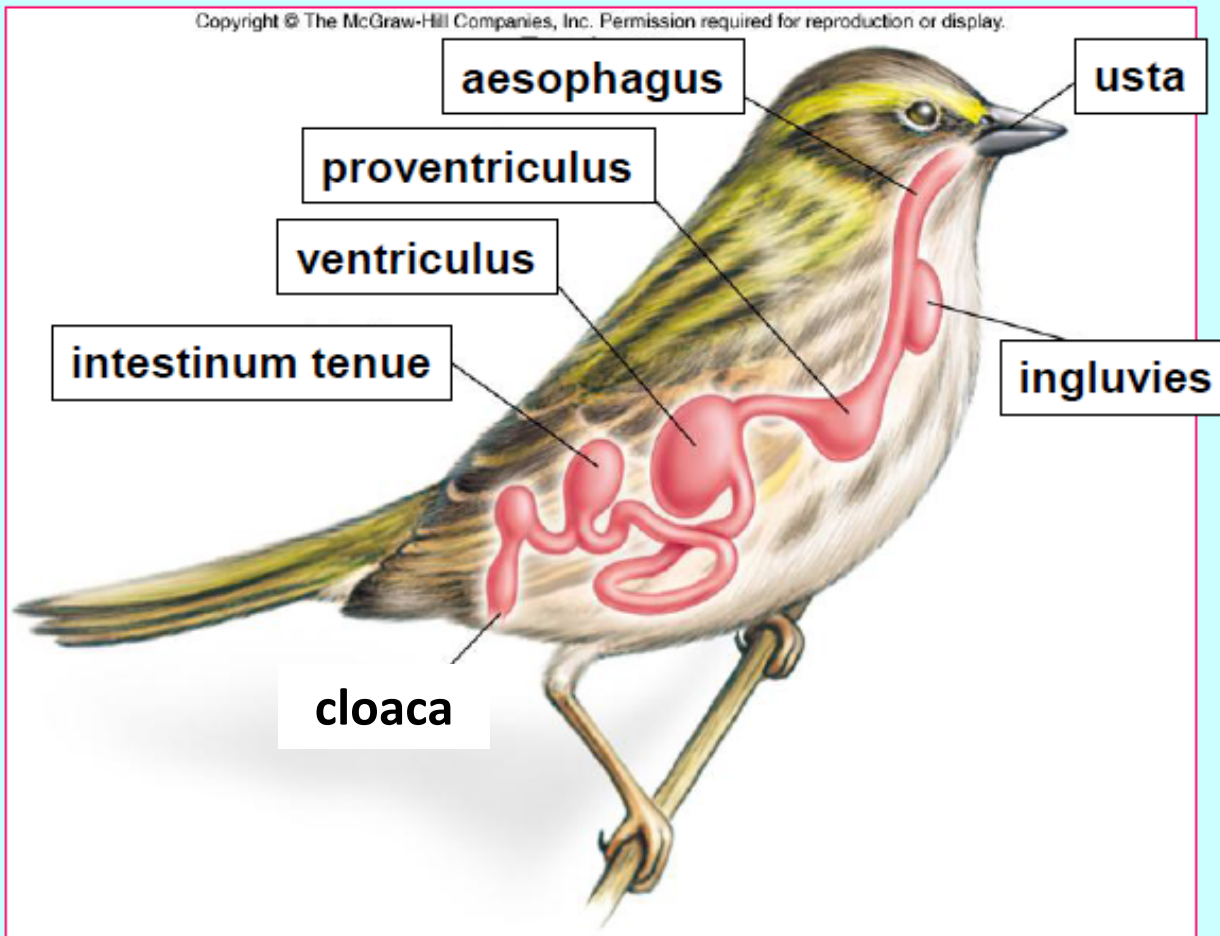
classis AVES

SISTEM ORGANA ZA DISANJE



Organi za varenje

Jednjak (aesophagus) se pruža od završetka usne duplje, kroz vrat i grudi do trbuha. U vratu je tankozidan, pa se zatim proširuje u veliku dvorežnjevitu kesu – voljku (ingluvies).

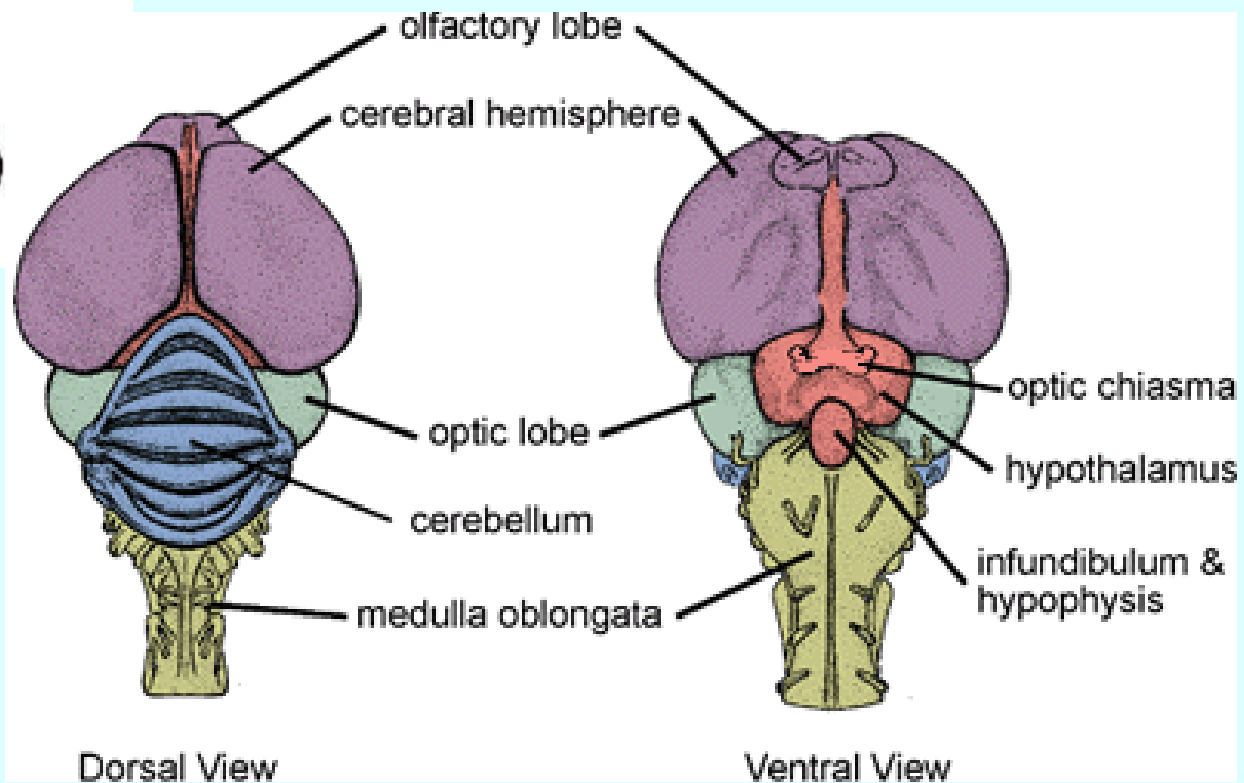
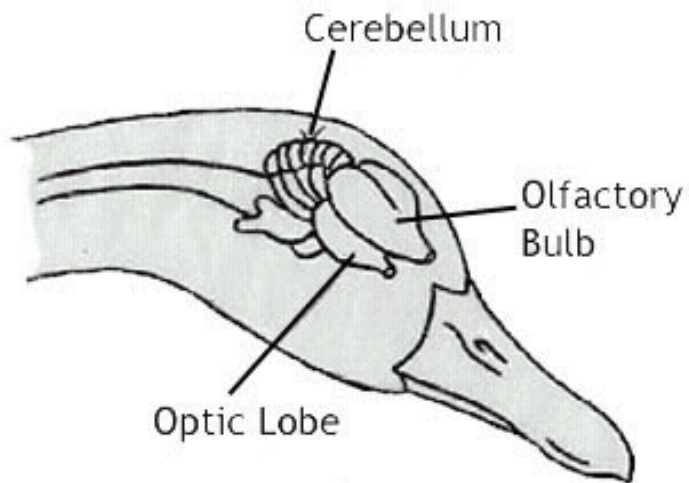


Voljka ženke luči beo sirast sekret kojima hrani mlade.

Naročito je dobro razvijena kod ptica poput goluba grivnjaša i divljih gusaka, koje se hrane zelenom biljnom hranom.

• classis **AVES**

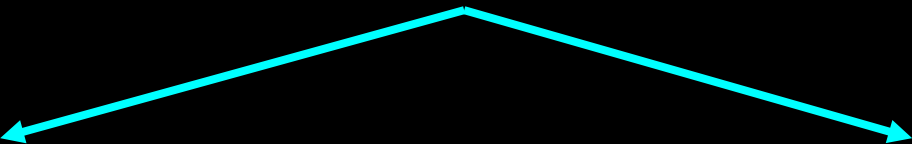
NERVNI SISTEM



Phylum **Chordata**

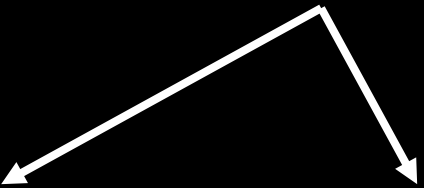
Subphylum **Vertebrata**

Classis: **AVES**



Subclassis: **Archaeornithes**
(izumrle vrste)

Subclassis: **Neornithes**



Superordo:
Palaeognathae
=Ratitae
(trkačice)

Superordo:
Neognathae
=Carinatae
(letačice)

Subclassis: **Neornithes**

Superordo:
Palaeognathae
=Ratitae
(trkačice)

↓
Ordo:

Apterygiformes

Struthioniformes

Casuariformes

Rheiformes

Superordo:
Neognathae
=Carinatae
(letačice)

↓
Ordo:

Ciconiformes

Phoenicopteriformes

Anseriformes

Falconiformes

Galiformes

Columbiformes

Charadriiformes

Psittaciformes

Strigiformes

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



Posetite:

http://biologija.vet.bg.ac.rs/Katedra/Zoologija/Classis_Aves_Skripta.pdf

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Palaeognathae**
= Ratitae

Ordo: **Apterygiformes**



*Apteryx
australis*
kivi

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Palaeognathae**
= Ratitae

Ordo: **Struthioniformes**

Struthio camelus
afrički noj

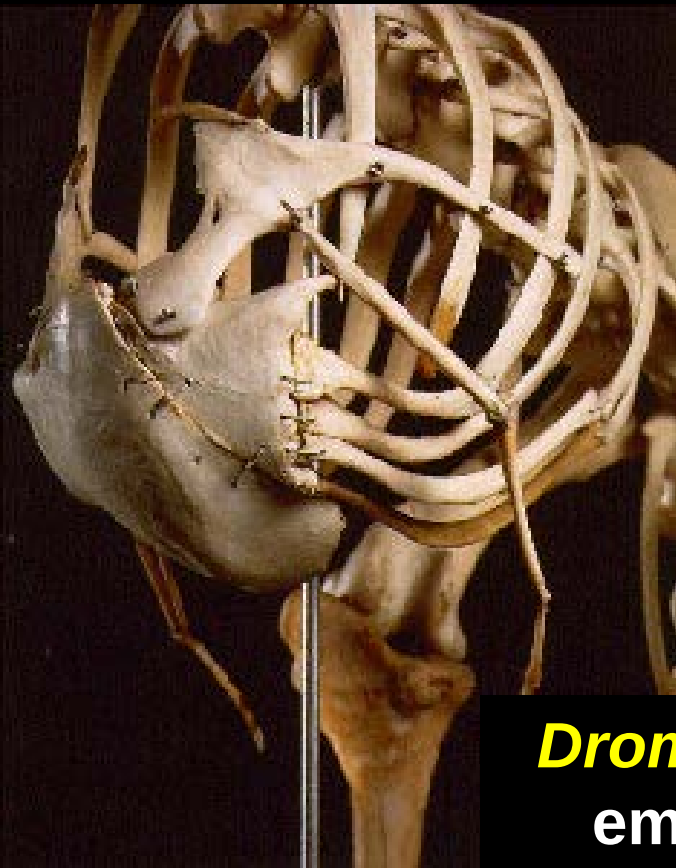


Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Palaeognathae**
= Ratitae

Ordo: **Casuariformes**



Dromaius novaehollandiae
emu ("australijski noj")

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Palaeognathae**
= Ratitae

Ordo: **Casuariformes**



pile kazuara



odrasli kazuar



Casuarius casuarius
kazuar

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Palaeognathae**
= Ratitae

Ordo: **Rheiformes**



Rhea pennata
mali ili Darwinov
nandu



Rhea americana
nandu
("američki noj")

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**



Ardea cinerea
siva čaplja

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**



Ardea purpurea
crvena čaplja



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**

Ardeola ralloides
žuta čaplja



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**

Egretta alba
velika bela čaplja





Egretta garzetta
mala bela čaplja

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**



Platalea leucorodia
kašikara

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**



Nycticorax
nycticorax
gak



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**

Plegadis falcinellus
ražanj



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**

Ciconia ciconia
bela roda





Ciconia nigra - crna roda

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**



Leptoptilos crumeniferus
MARABU

Ibis aethiopica
SVETI IBIS



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Ciconiformes**

Eudocimus albus
BELI IBIS





Eudocimus ruber
CRVENI IBIS

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Anseriformes**



Anas platyrhynchos
divlja patka

mužjak



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Anseriformes**

ženka i mužjak



Aix sponsa
patka karolinka

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Anseriformes**



Aix galericulata
patka mandarinka

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**

Ordo: **Anseriformes**

Mergus merganser
gnjurac

mužjak



Mergus merganser
gnjurac

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**

Ordo: **Anseriformes**

ženka sa mladima



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Anseriformes**



Anser anser
divlja guska



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Anseriformes**

Anser albifrons
beločela guska

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**

Ordo: **Anseriformes**

Branta ruficolis
crvenovrata guska



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**

Ordo: **Anseriformes**



Tadorna tadorna
šarena utva

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**

Ordo: **Anseriformes**



Tadorna ferruginea
utva zlatokrila

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**

Ordo: **Anseriformes**



Cygnus cygnus
žutokljuni labud



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**

Ordo: **Anseriformes**

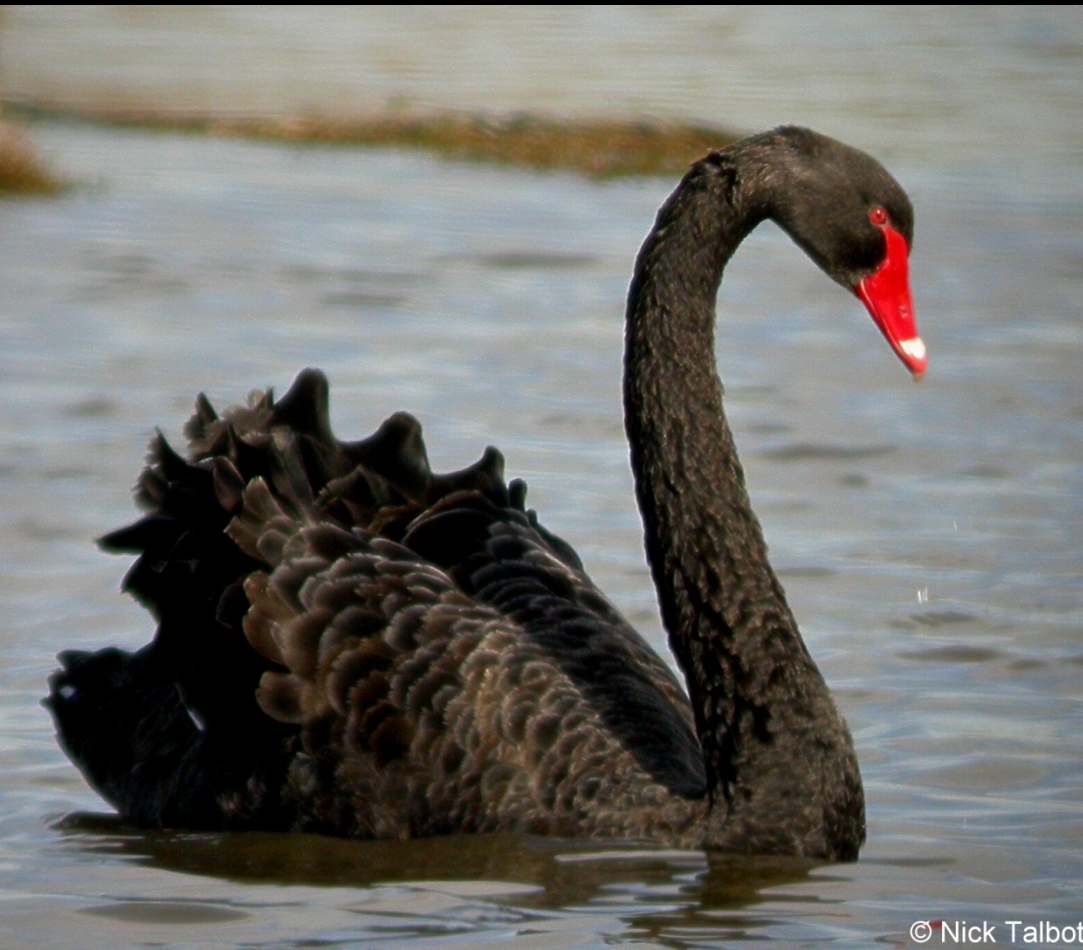
Cygnus olor
crvenokljuni labud

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**

Ordo: **Anseriformes**



Cygnus atratus
crni labud

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Falconiformes**

Fam: **Falconidae**

Falco peregrinus
sivi soko





Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Falconiformes**

Fam: **Falconidae**

Falco subbuteo
soko ptičar
(soko lastavičar)



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Falconiformes**

Fam: **Falconidae**

Falco tinnunculus
obična-crvena vetruška,
soko mišar, klikavac



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Falconiformes**

Fam: **Falconidae**

Falco vespertinus
plava vetruška

Ordo: **Falconiformes**

Fam: **Accipitridae**



Accipiter nisus
kobac

Ordo: **Falconiformes**

Fam: **Accipitridae**

Accipiter gentilis
jastreb kokošar



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Falconiformes**

Fam: **Accipitridae**



Pernis apivorus
jastreb osičar

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Falconiformes**

Fam: **Accipitridae**

Milvus migrans
crnkasta lunja



Ordo: **Falconiformes**

Fam: **Accipitridae**



Aquila heliaca
orao krstaš



Ordo: **Falconiformes**
Fam: **Accipitridae**

Gyps fulvus - beloglavi sup

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Falconiformes**

Fam: **Accipitridae**



*Neophron
percnopterus*
bela kanja

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Falconiformes**

Fam: **Accipitridae**



Necrosyrtes
monachus

Afrički crni lešinar



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Falconiformes**

Fam: **Accipitridae**

Sarcoramphus papa

kraljevski lešinar

Ordo: **Falconiformes**

Fam: **Accipitridae**



Vultur gryphus - andski kondor

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Galliformes**



*Gallus gallus
domesticus*
domaća kokoš

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Galliformes**

Meleagris gallopavo
ćurka



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Galliformes**

Pavo cristatus
paun



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Pavo cristatus 8029

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Galliformes**

Perdix perdix
jarebica



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Galliformes**



Coturnix coturnix
prepelica

Ordo: **Galliformes**



Tetrao urogallus
veliki tetreb

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Galliformes**

Lyrurus tetrix
mali tetreb



Ordo: Galliformes

mužjak



Phasianus colchicus – fazan

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Galliformes**

Chrysolophus pictus

– zlatni fazan

mužjak



Classis: **AVES**

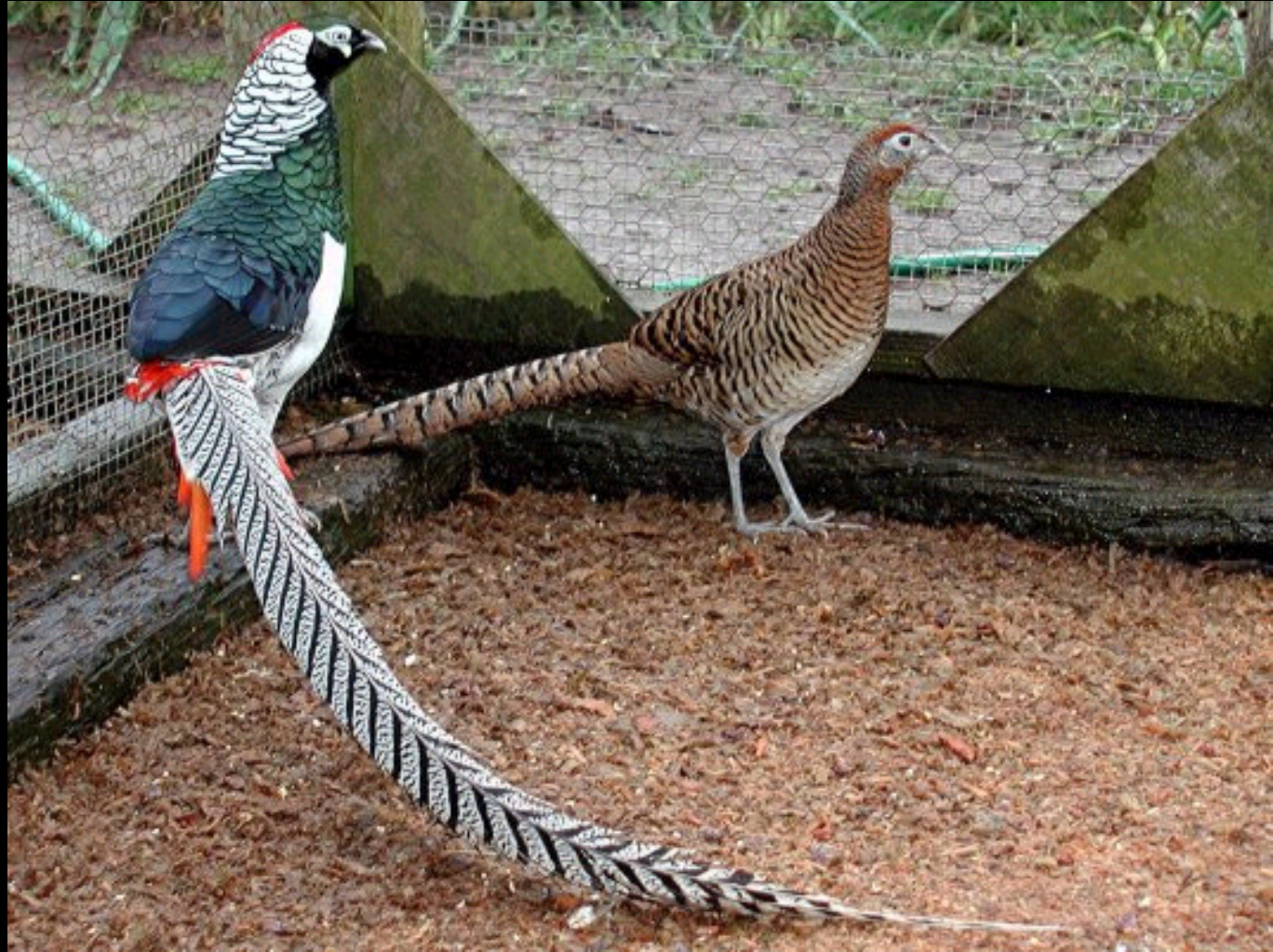
Subclassis: **Neornithes**

Superordo: **Neognathae**

Ordo: **Galliformes**

mužjak i ženka

*Chrysolophus
amherstiae* –
dijamantski
fazan



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Gruiformes**



Grus grus - ždral

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Gruiformes**



***Otis
tarda***

**droplja
velika**

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Gruiformes**



ženka

mužjak



Otis tetrax
droplja mala

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Gruiformes**



***Gallinula
chloropus***
barska kokica

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae=Carinatae**

Ordo: **Columbiformes**

Columba livia
golub



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae=Carinatae**

Ordo: **Columbiformes**



*Columba
palumbus*
golub grivnaš



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae=Carinatae**

Ordo: **Columbiformes**

Goura victoria
Viktorijin krunasti
golub



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae=Carinatae**

Ordo: **Columbiformes**



Streptopelia decaocto
gugutka



Streptopelia chinensis
pegava gugutka

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae=Carinatae**

Ordo: **Columbiformes**



Streptopelia turtur
grlica

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Charadriiformes**



Larus argentatus - galeb srebrnasti



Larus marinus - galeb morski

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Charadriiformes**

Vanellus vanellus
vivak



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Charadriiformes**



Scolopax rusticola
šumska šljuka



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Psittaciformes**

Ara ararauna
plavo-žuta ara



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Psittaciformes**



Melopsittacus undulatus
tigrica

Ara macao
crveni makao

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Psittaciformes**

Psittacus erithacus
žako



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Psittaciformes**

Cacatua leadbeateri
ružičasti kakadu



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Psittaciformes**



Nymphicus hollandicus
nimfa

Cacatua alba
beli ćubasti kakadu



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Psittaciformes**



Psittacula krameri
mali aleksandar

Agapornis sp.
“Ijubavne” ptice



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Psittaciformes**



Polytelis swainsonii
barband



Trichoglossus haematodus
dugina lorika

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Strigiformes**



Strix aluco
šumska sova

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Strigiformes**



Asio otus - mala ušara



Bubo bubo
velika ušara

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Strigiformes**

Otus scops
ušati ćuk,
ćuvekalo



Athene noctua
ćuk mali, kukumavka



Tyto alba
kukuvija

Surnia ulula
- sova jastrebičasta

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Strigiformes**



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Coraciiformes**

Fam: **Bucerotidae**



Bucorvus leadbeateri
kljunorog



Tockus erythrorhynchus

Classis: **AVES**

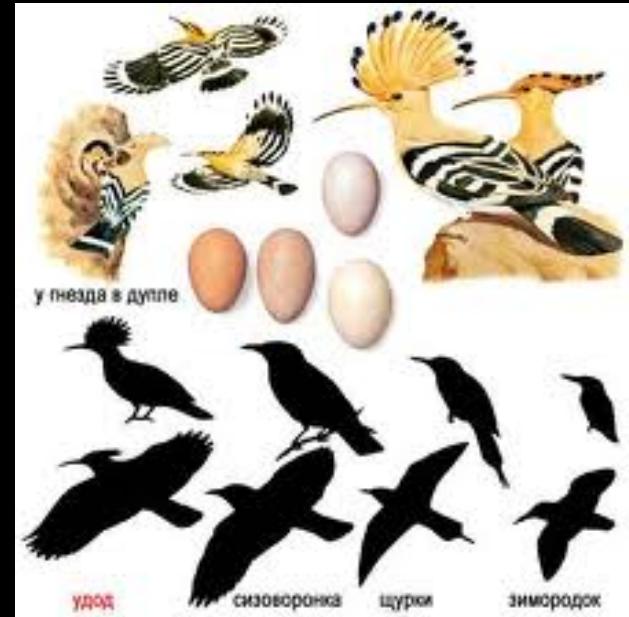
Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Coraciiformes**



Upupa epops - pupavac



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Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Coraciiformes**



Micropus apus - čiopa



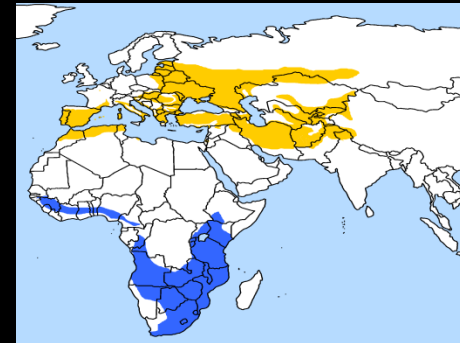
Merops apiaster
pčelarica

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Coraciiformes**



Coracias garrulus
smrdivrana

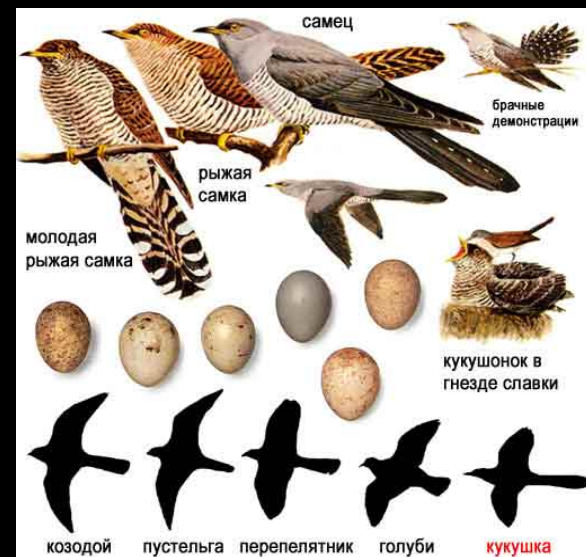
Alcedo atthis ispida - vodomar

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Cuculiformes**



Cuculus canorus
kukavica

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Passeriformes**



Passer montanus
poljski vrabac

Passer domesticus
domaći vrabac

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Passeriformes**



Hirundo rustica
seoska lasta

Delichon urbica
gradska lasta

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Passeriformes**

Turdus merula
kos



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Passeriformes**



Luscinia luscinia
veliki slavuj



Luscinia
megarhynchos
mali slavuj

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae=Carinatae**

Ordo: **Passeriformes**

Pica pica
svraka



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae=Carinatae**

Ordo: **Passeriformes**



Coloeus monedula
čavka



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae=Carinatae**

Ordo: **Passeriformes**

Corvus cornix
vrana



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Passeriformes**



Corvus frugilegus
gačac

Corvus corax
gavran

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Passeriformes**



Fringilla coelebs
zeba

Parus major
velika ili obična senica

Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Passeriformes**



Paradisea apoda
novaguineae
rajska ptica



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Phoenicopteriformes**

Phoenicopterus ruber
crveni flamingo



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Phoenicopteriformes**

Phoenicopterus
chilensis
Čileanski flamingo



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Sphenisciformes**

Spheniscus humboldti
Humboltov pingvin



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Sphenisciformes**

Aptenodytes forsteri
carski pingvin



Classis: **AVES**

Subclassis: **Neornithes**

Superordo: **Neognathae**
=Carinatae

Ordo: **Sphenisciformes**

Aptenodytes patagonicus
kraljevski pingvin