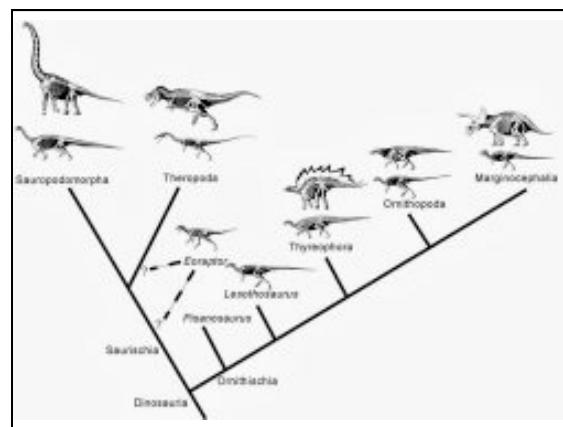
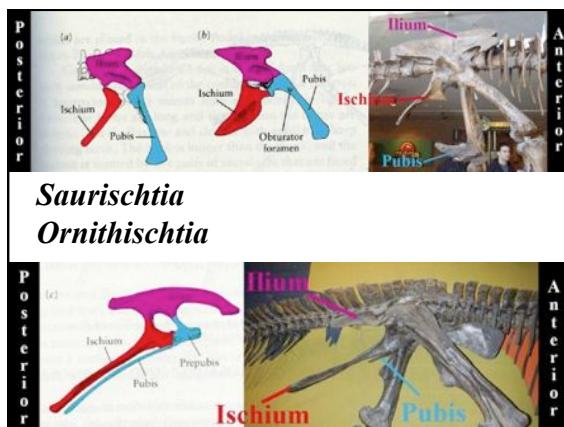
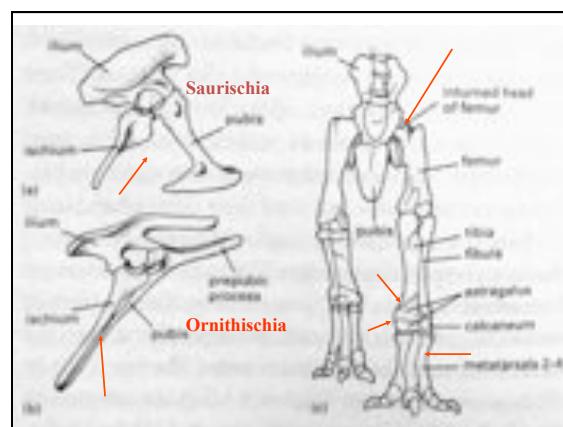
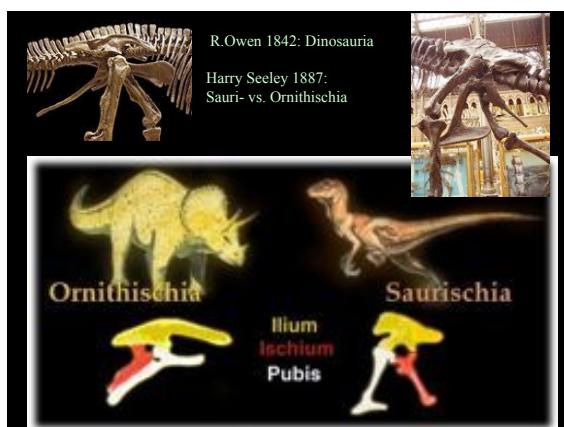
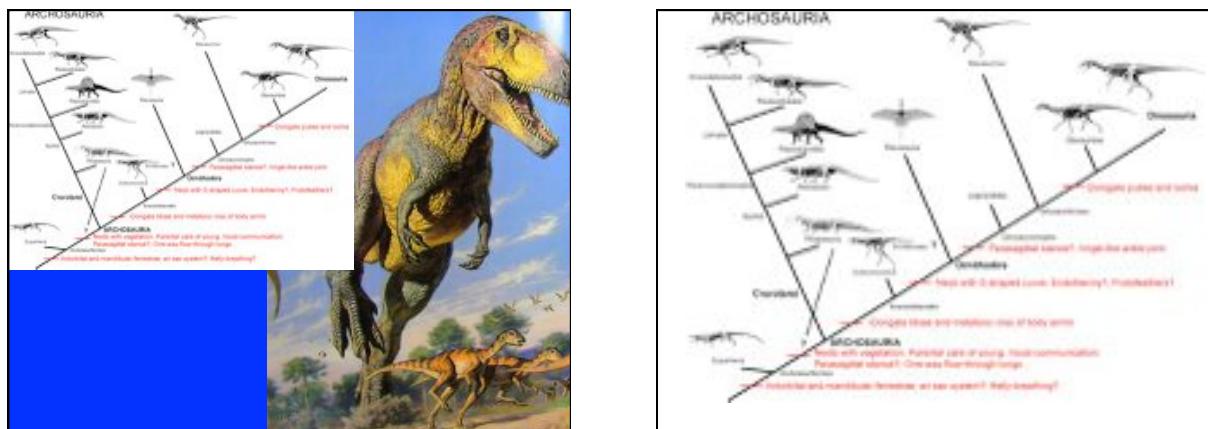
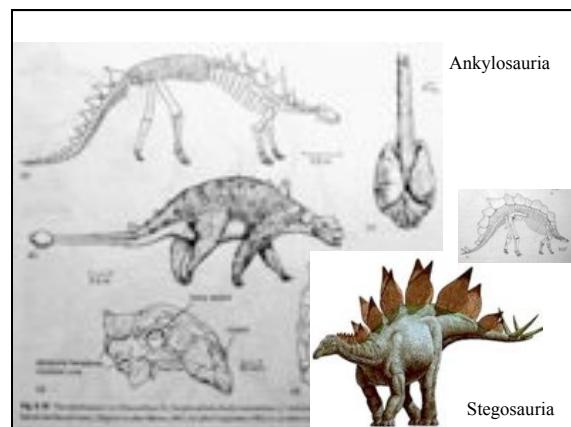
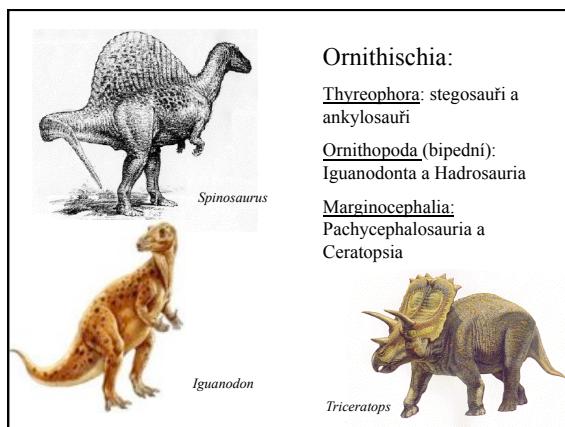
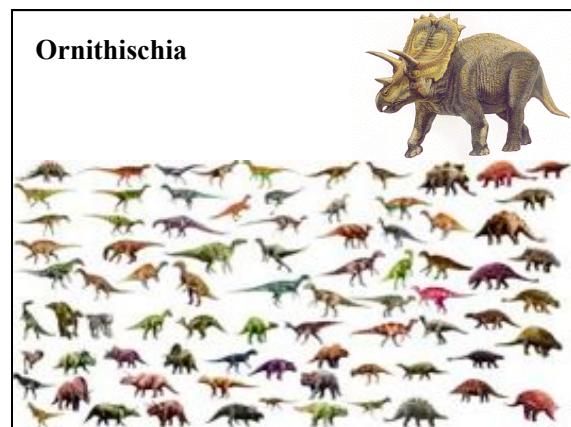
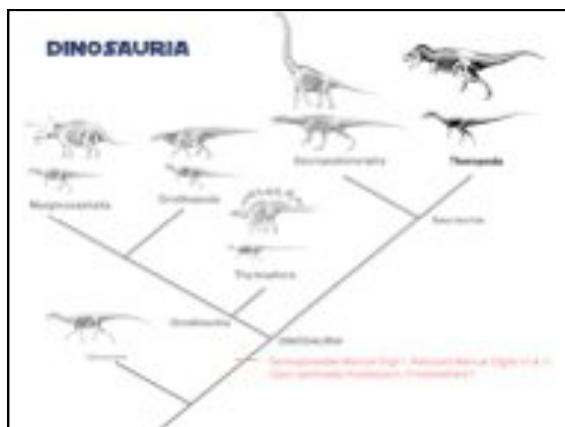
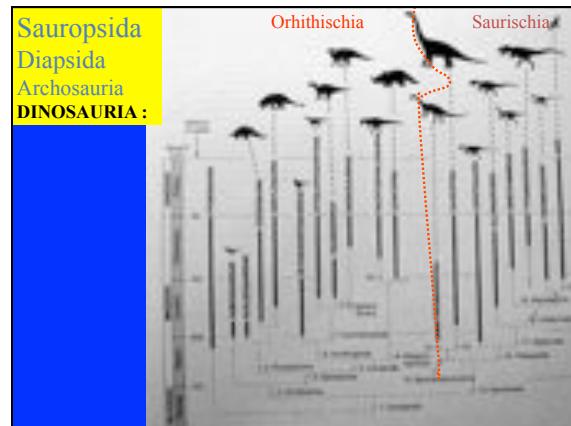
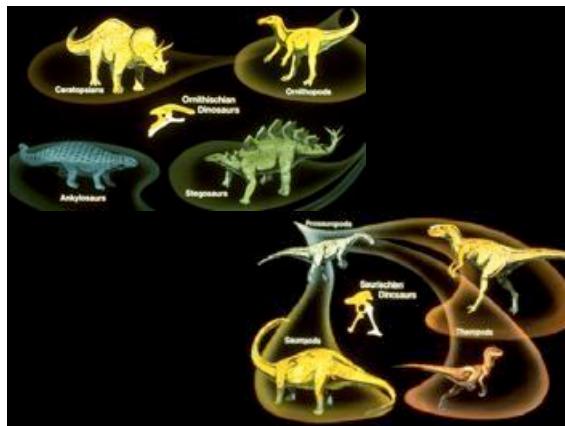
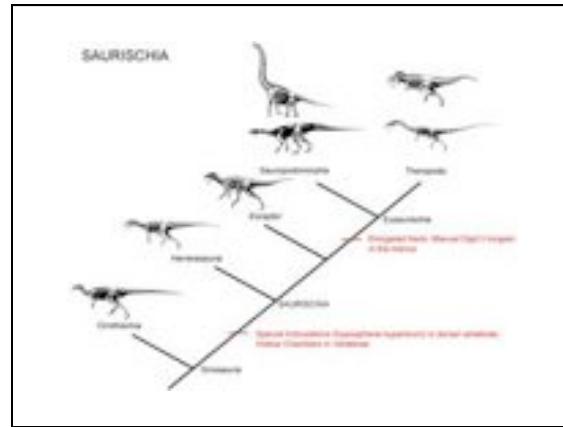
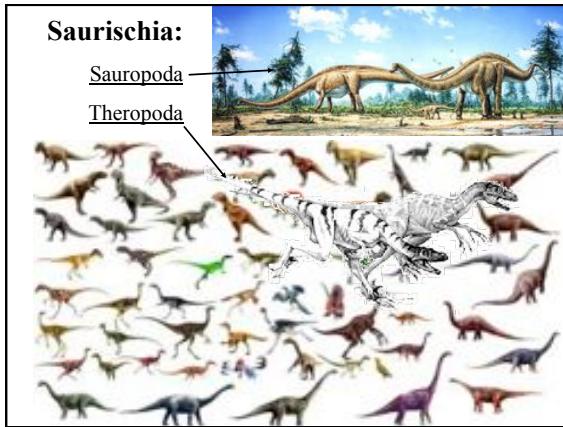
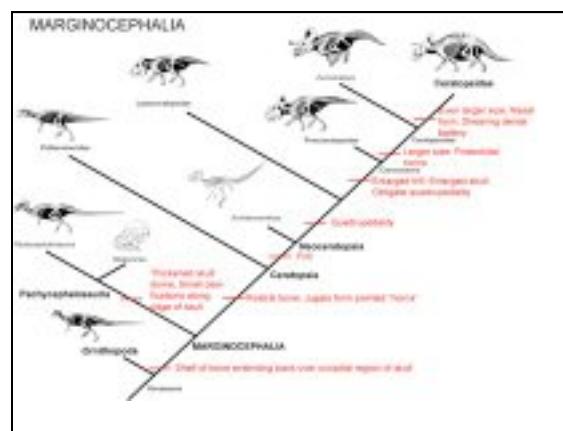
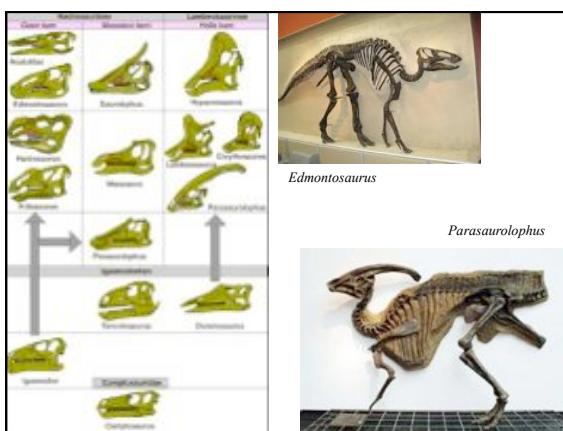
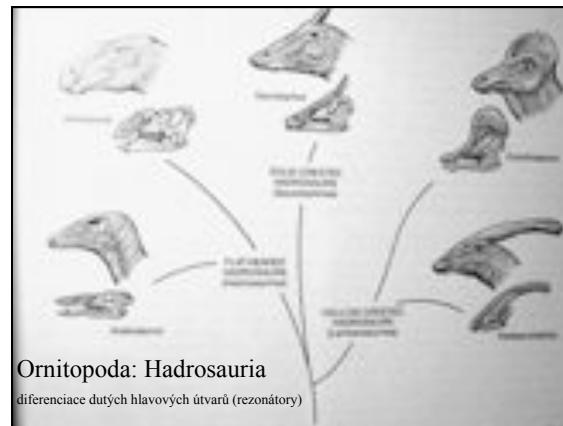
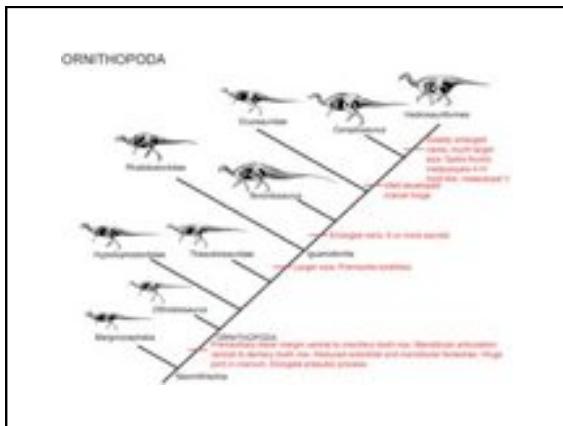


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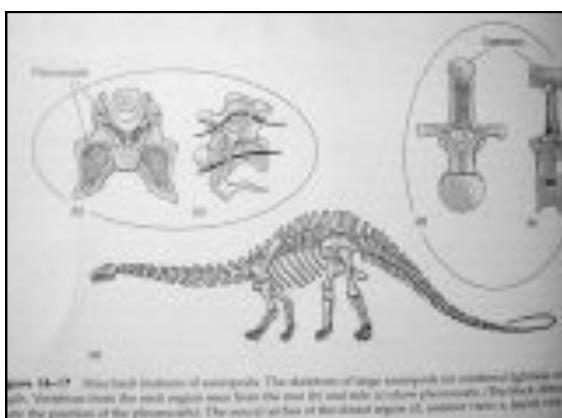
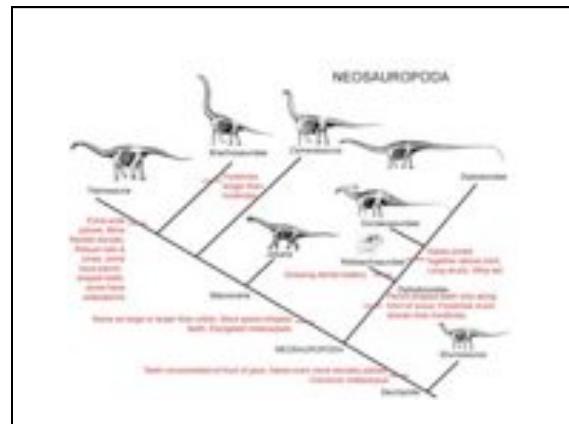
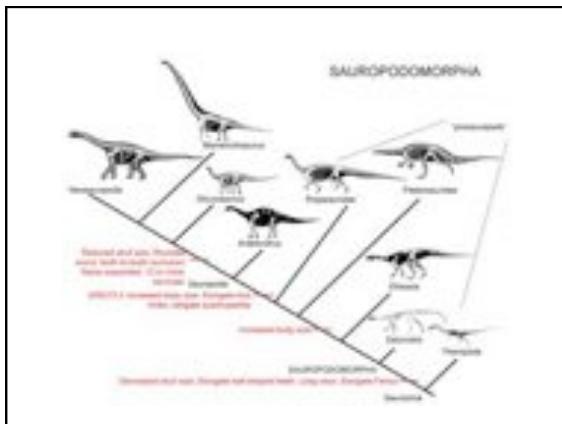


FIGURE 14-17. Skeletal location of sauropods. The skeletons of large sauropods for comparison (left) and (right). Vertebrae from the mid-neck were from the east (left) and side (middle) pleurocoels. The left diagram shows the position of the pleurocoels. The ventral surface of the distal region (left), posterior view; it shows ventral openings that accommodated a large fragment.

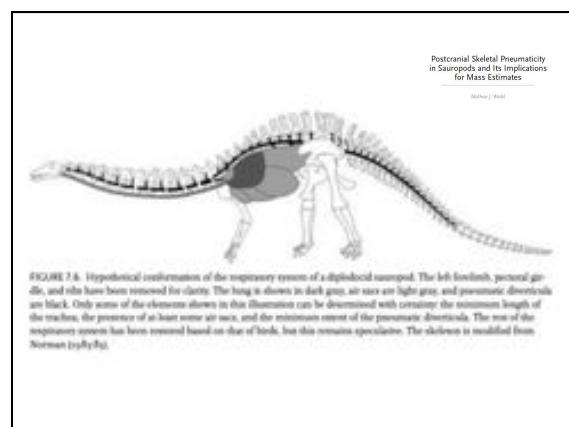
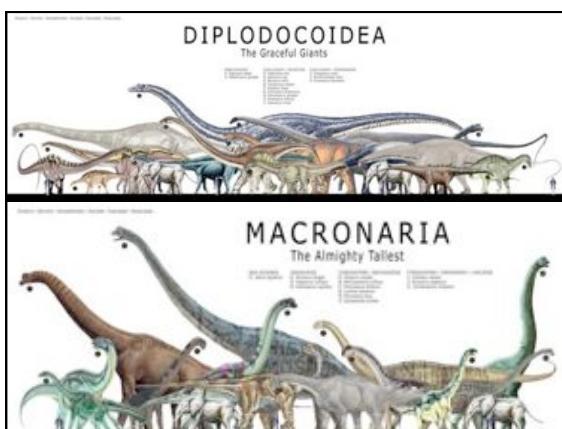
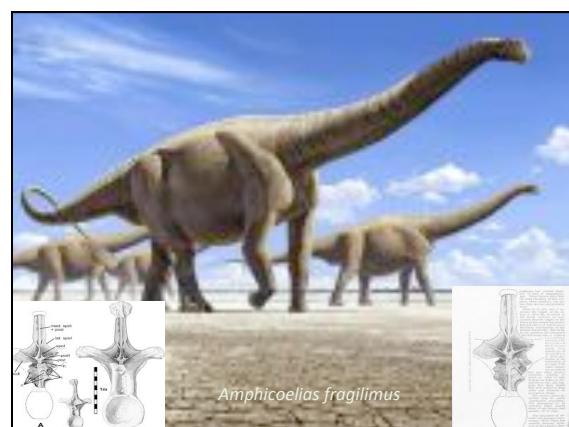
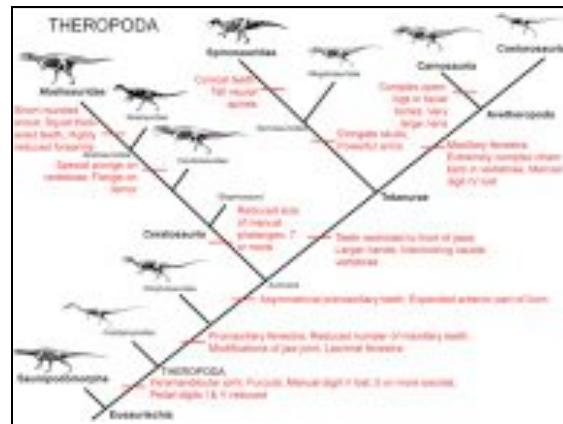
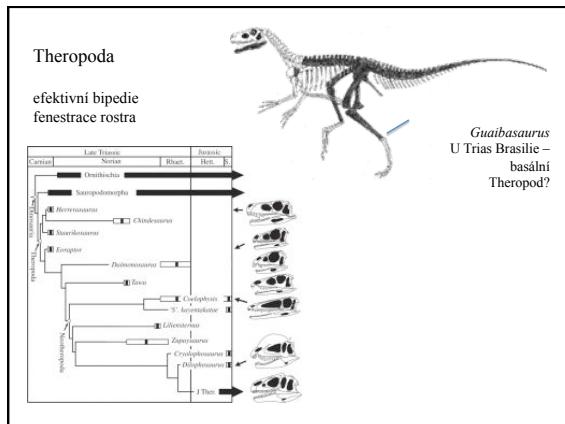
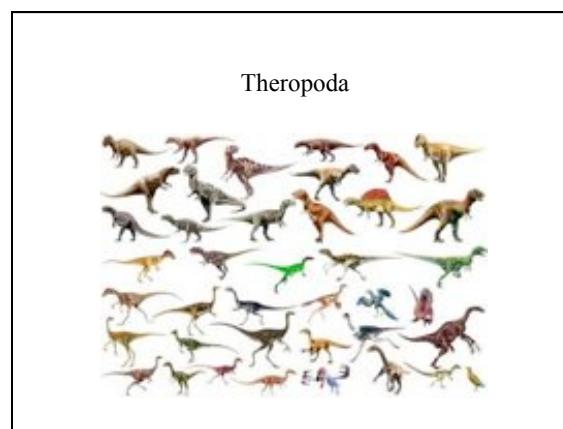
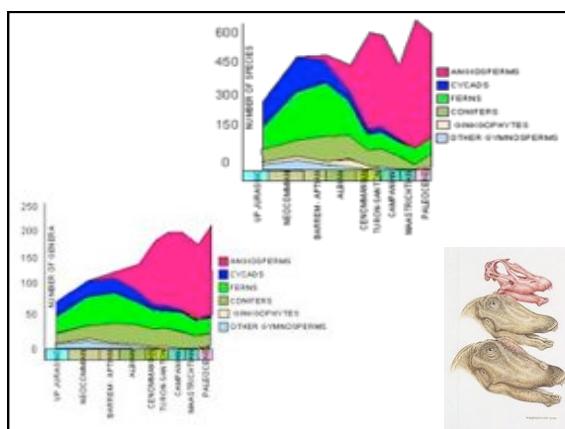
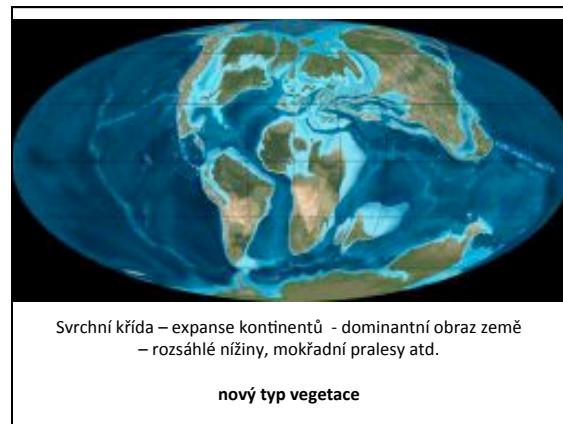
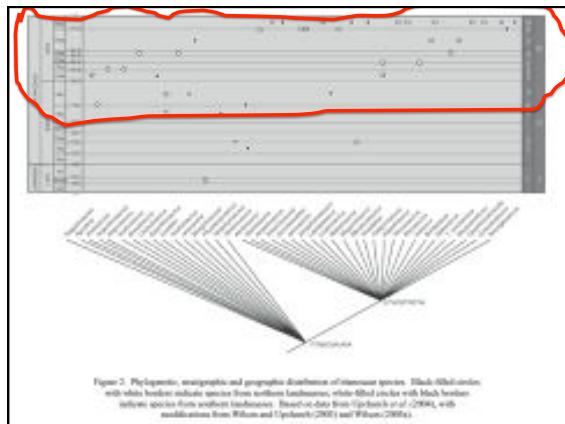
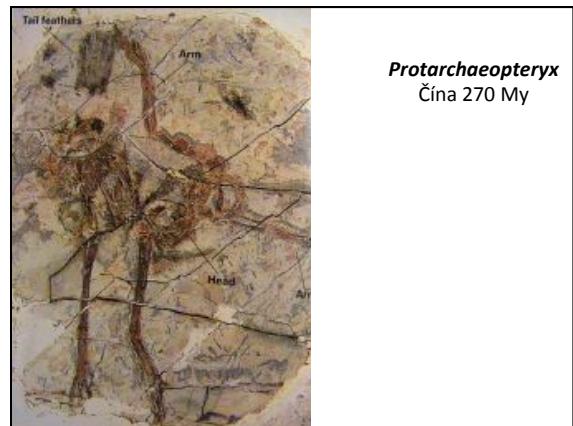
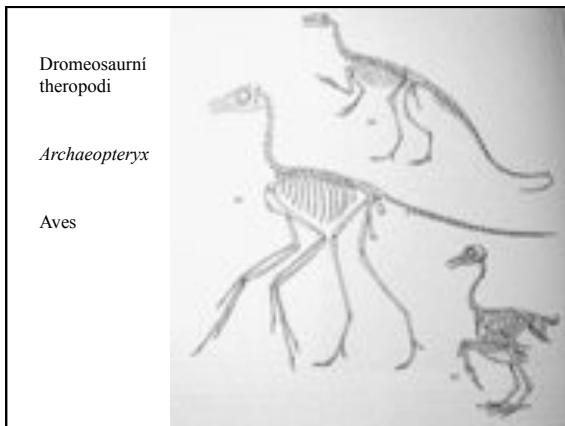
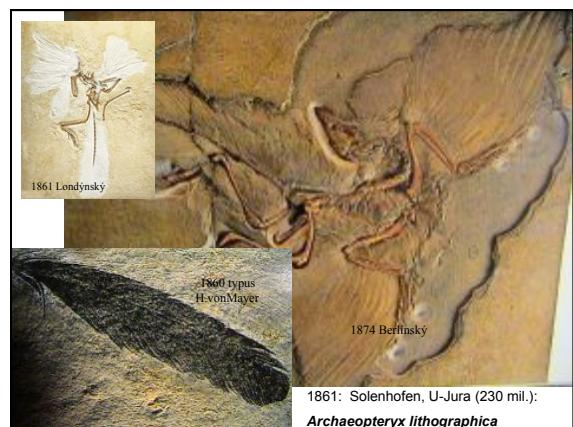
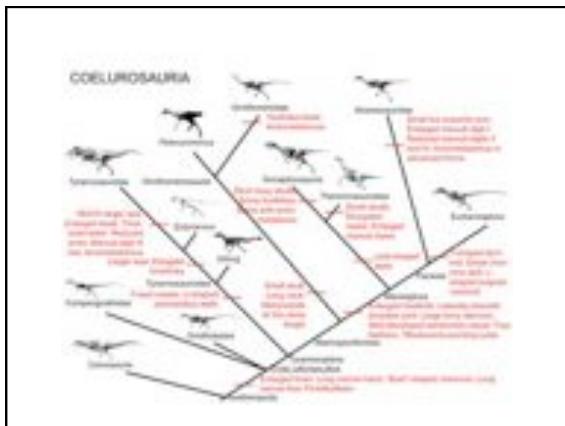
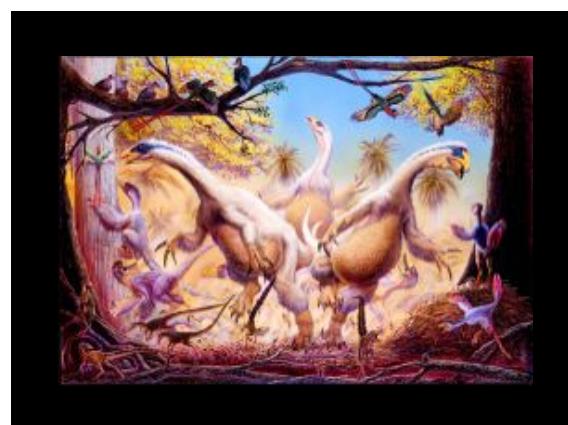
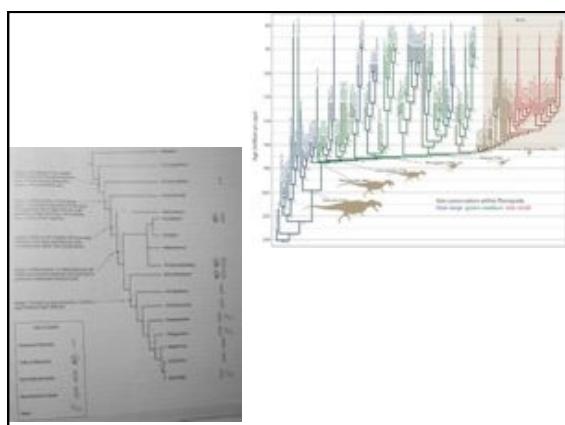
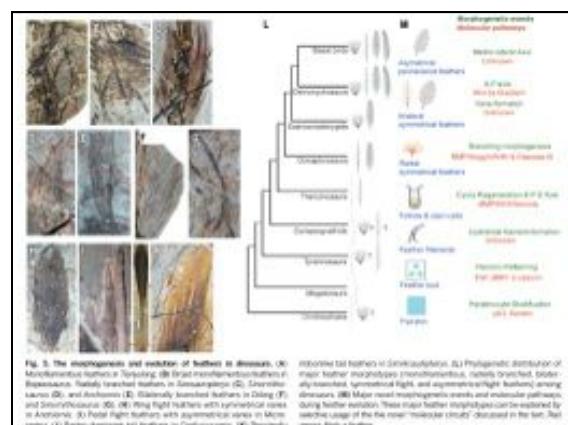
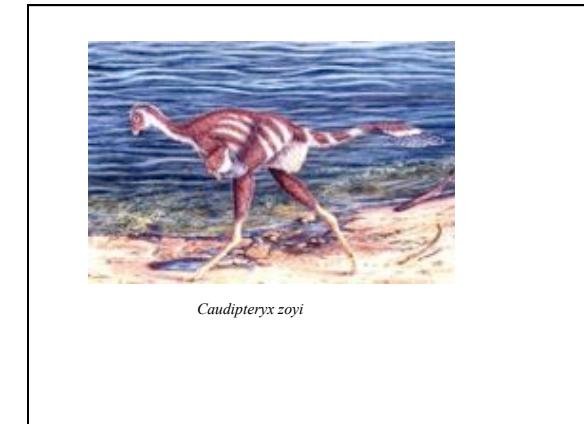
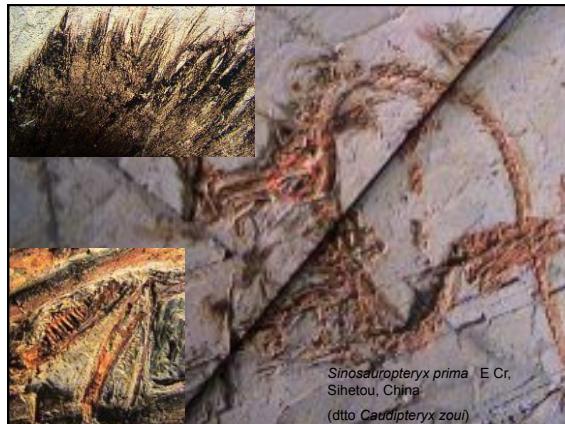
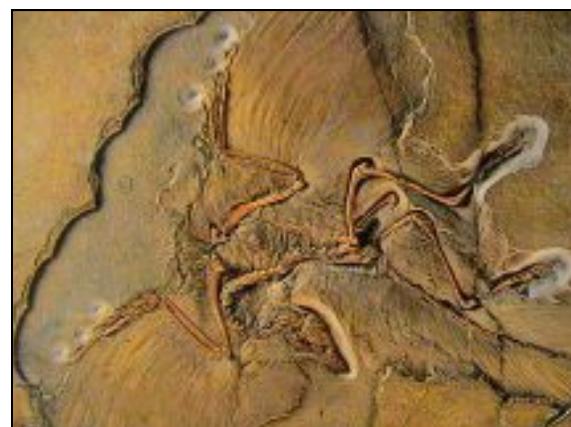
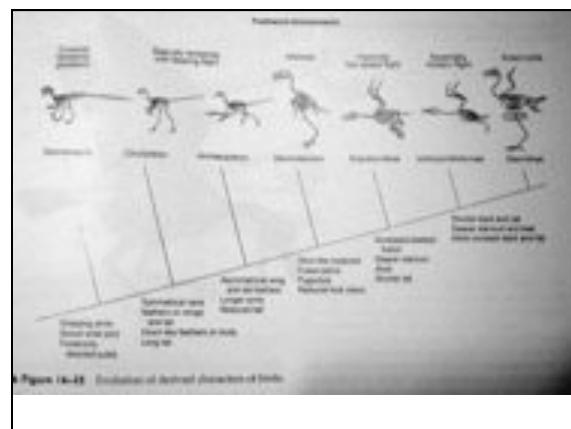
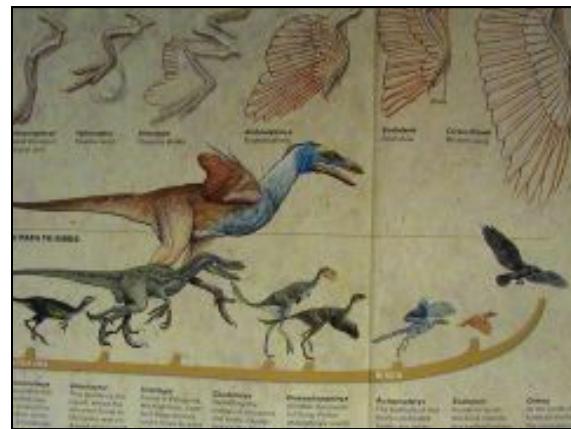
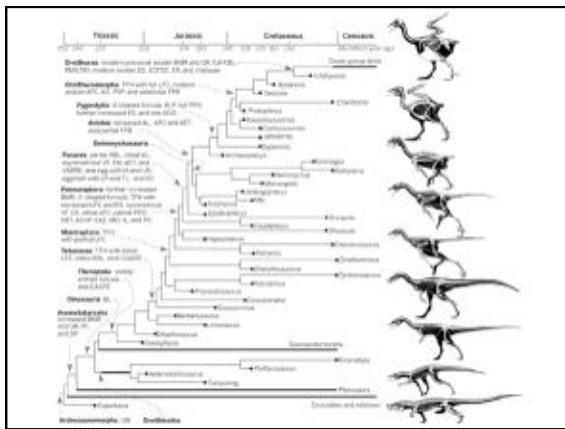


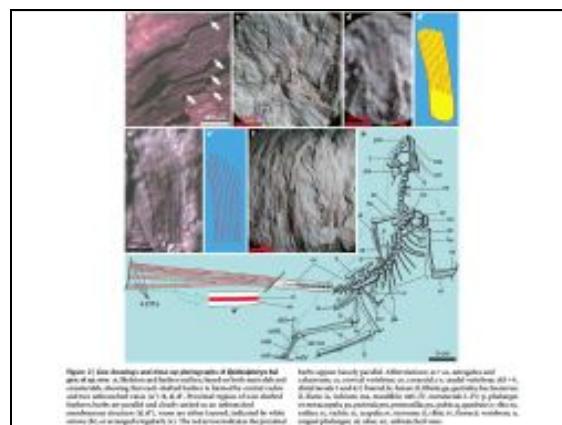
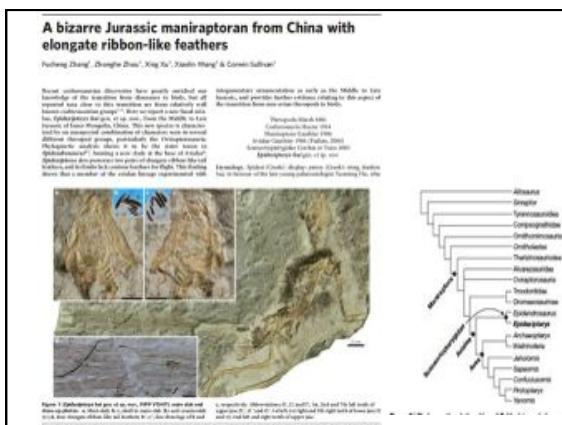
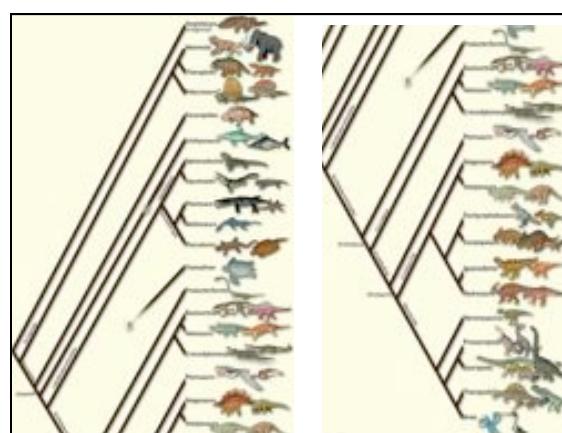
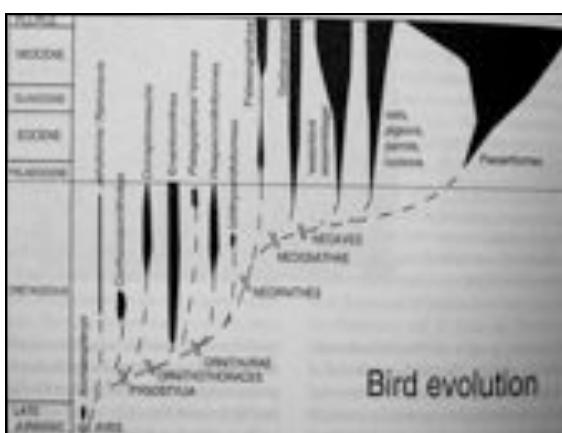
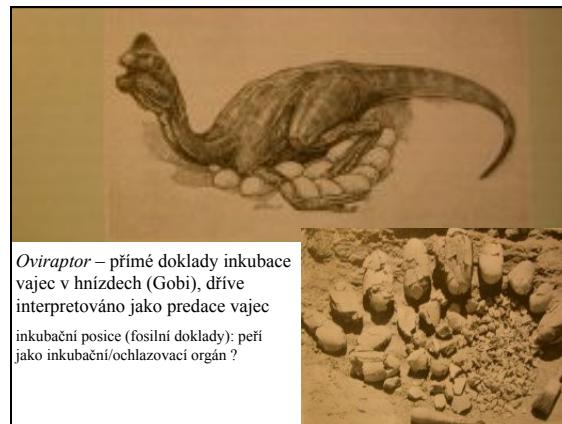
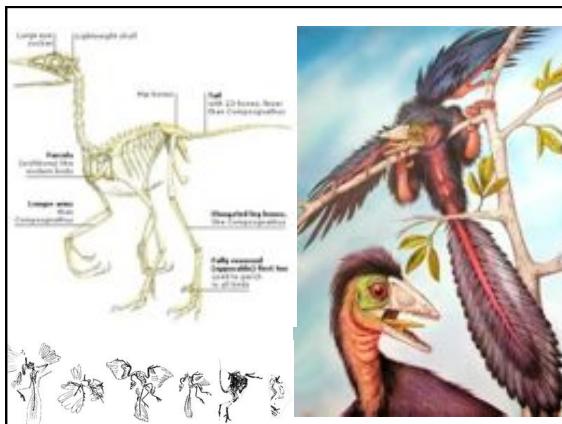
FIGURE 7-8. Hypothetical configuration of the respiratory system of a diplodocid sauropod. The left forelimb, pectoral girdle, and ribs have been removed for clarity. The lung is shown in dark gray, air sacs are light gray, and pneumatic diverticula are black. Only some of the elements shown in this illustration can be determined with certainty: the minimum length of the trachea, the presence of at least some air sacs, and the minimum extent of the pneumatic diverticula. The rest of the respiratory system has been restored based on that of *Brachiosaurus*, but this remains speculative. The skeleton is modified from Norman (1980b).

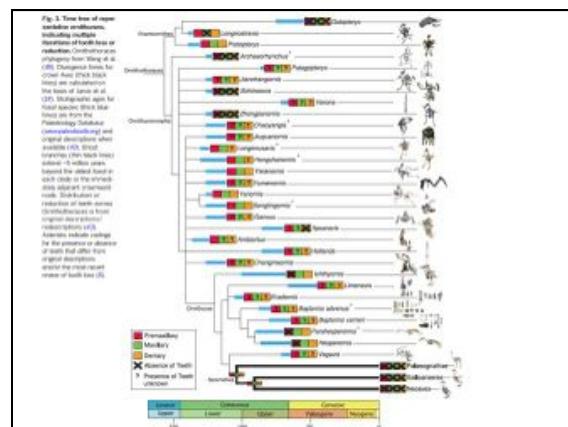
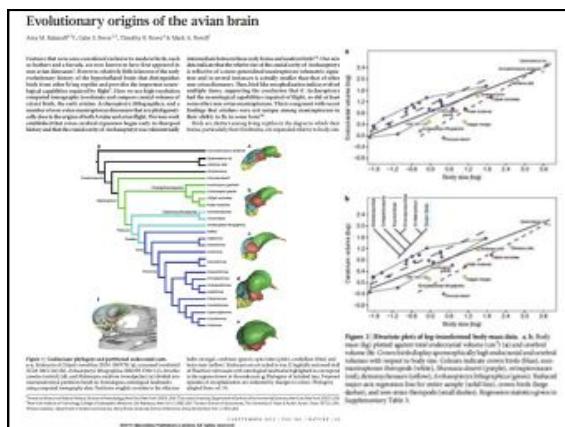
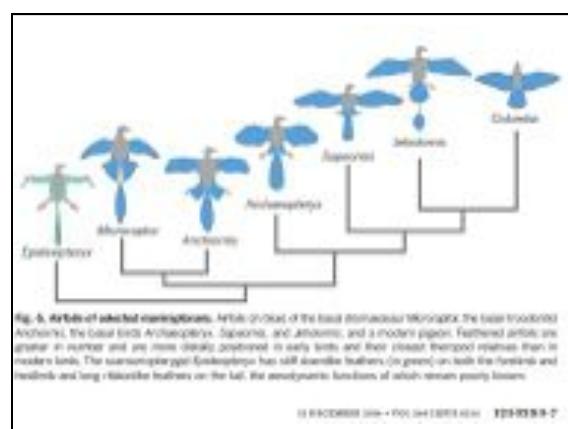
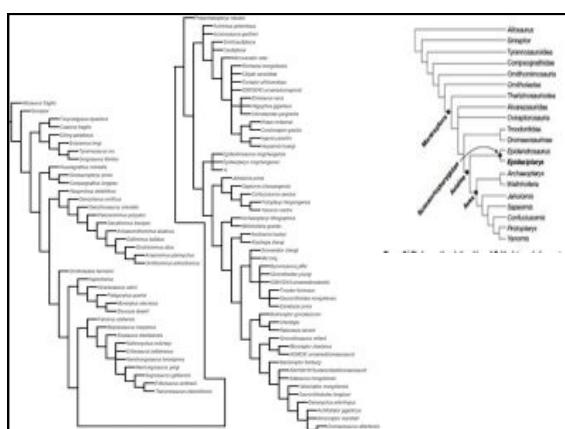
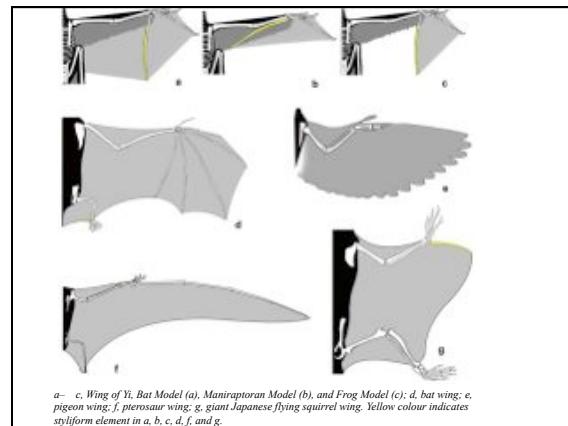
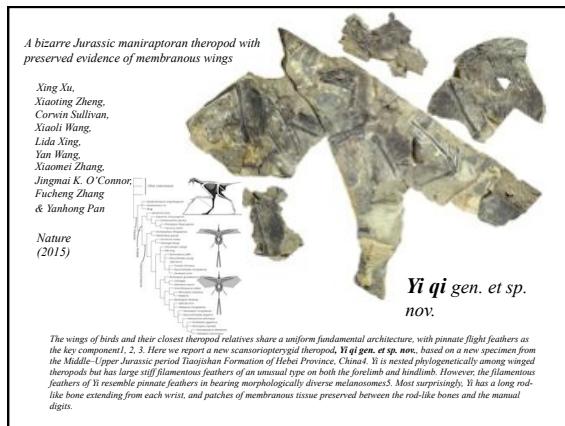


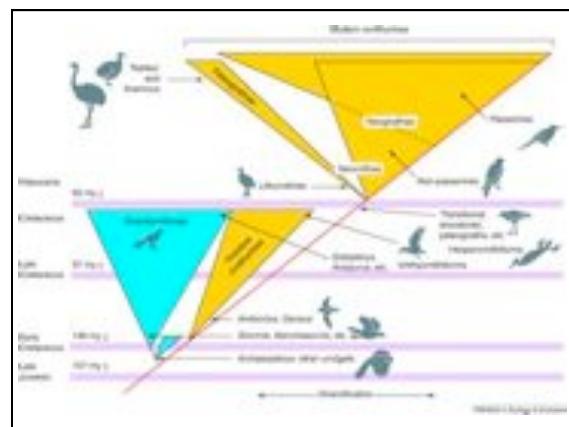
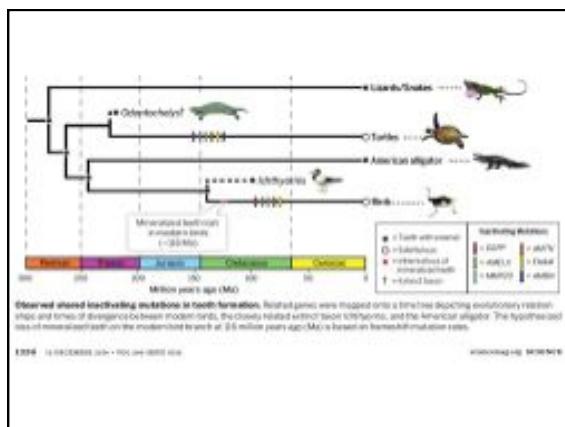










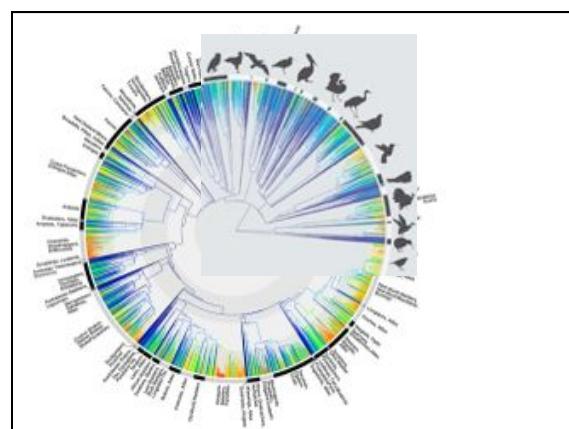


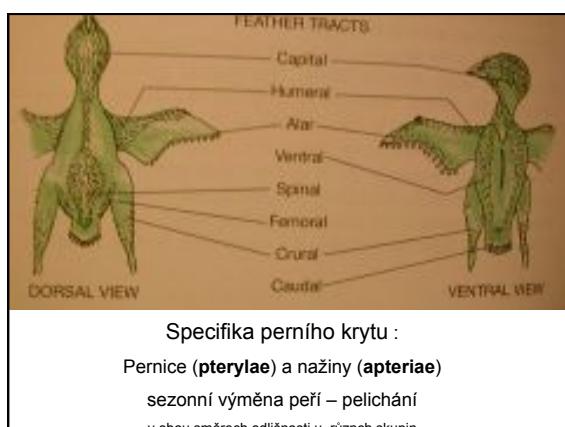
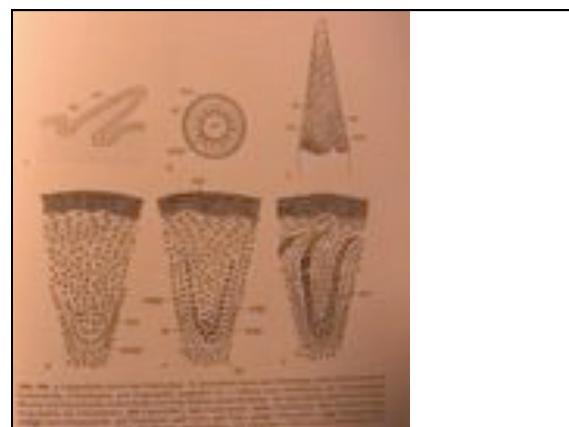
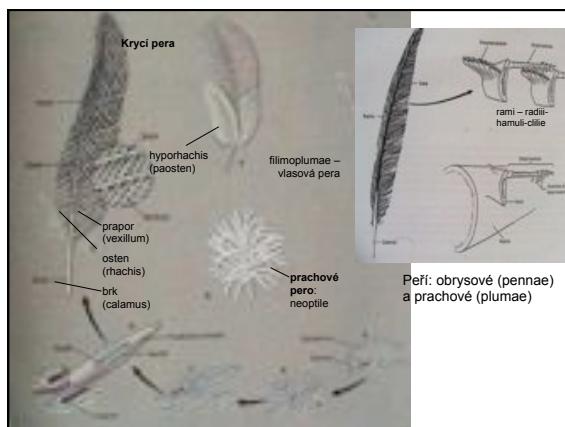
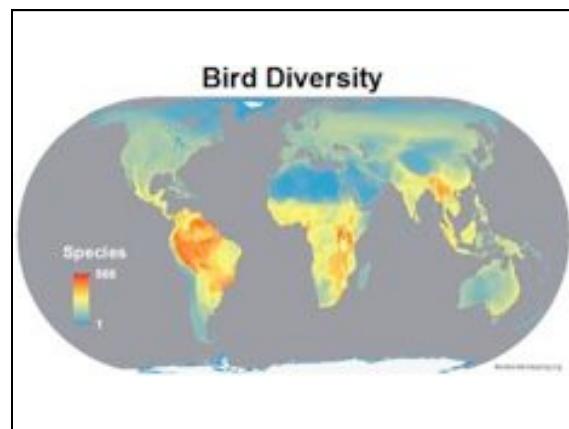
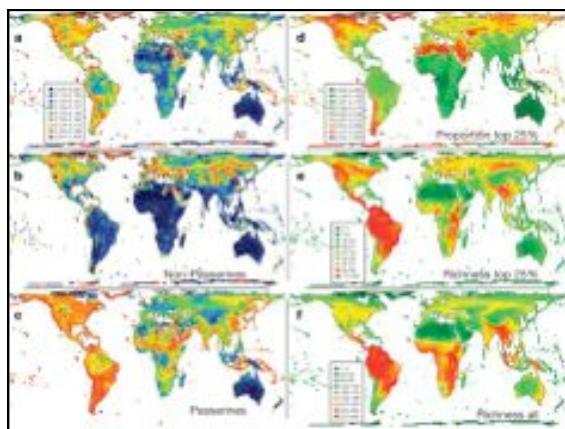
## AVES – Ptáci

- Homeotermní
- Archosauria, tělní pokryv
- peří, tělesná organizace – adaptace k letu



- 9000 spp., 120-175 čeledí
- Pěvci (Passeriformes) 5000 spp.
- Ostatní (ca 28 řádů) 4000 spp.
- U nás: 220 hnízdících spp. + 150 sezonně protahuje či zimuje
- Systematika komplikovaná – čeledi OK, struktura řádů ovšem mnohdy provisorní – některé řády spíše sběrné skupiny (krátkokřídlí, veslonozí, srostloprstí, dravci)





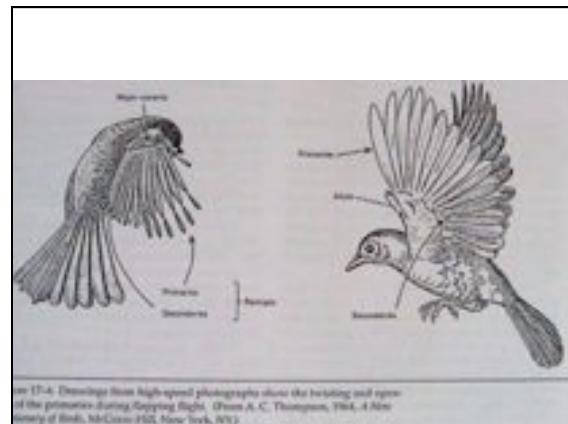
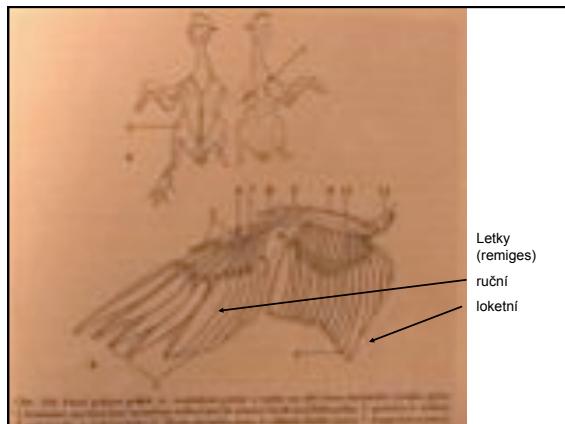
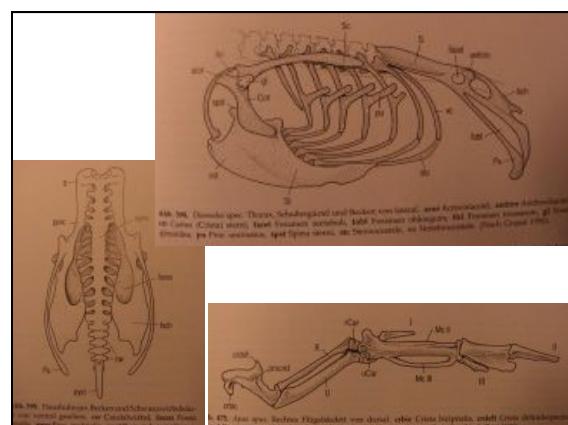
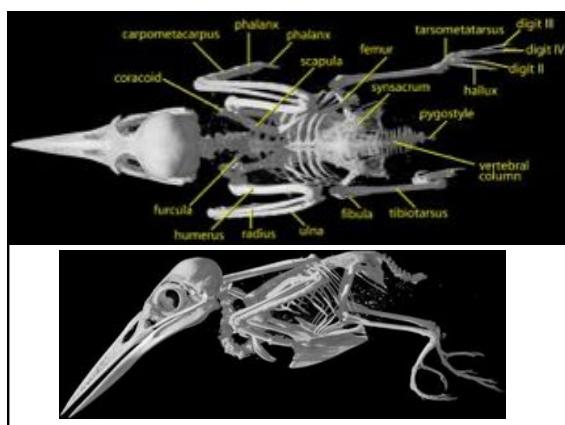
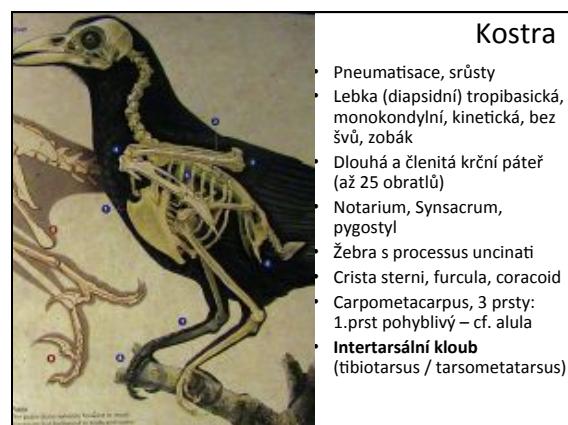
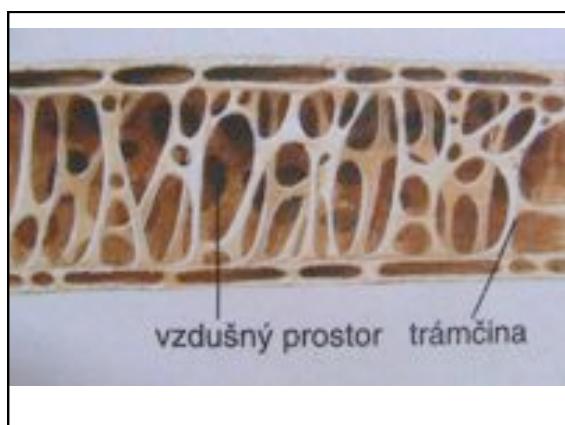
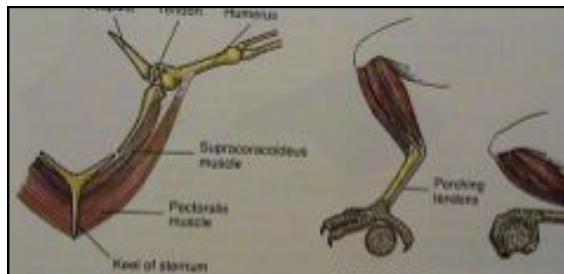


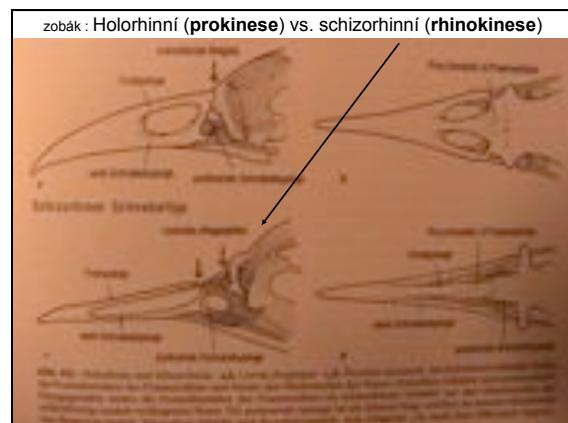
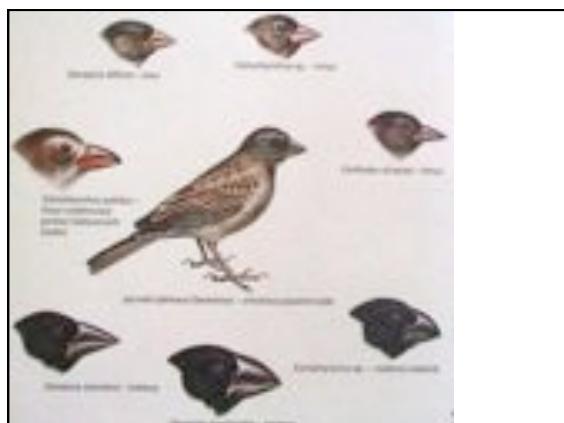
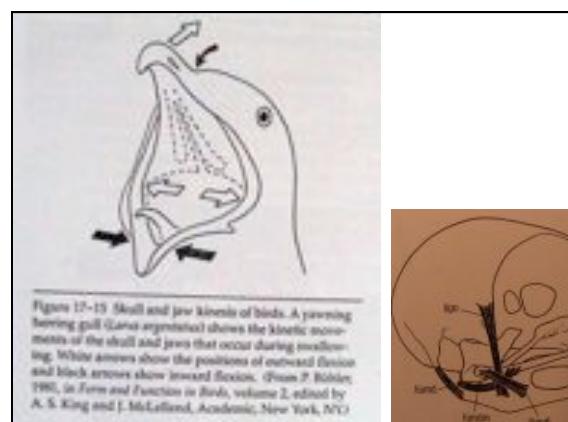
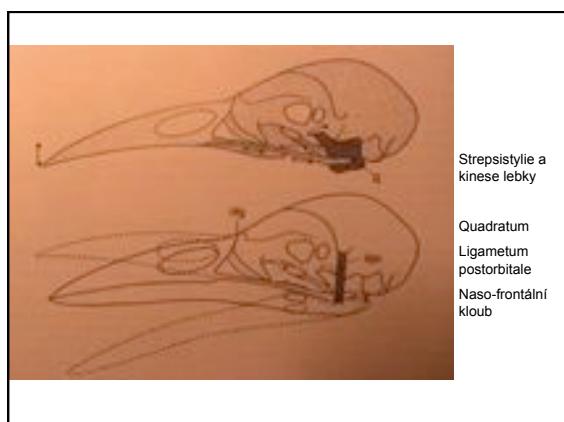
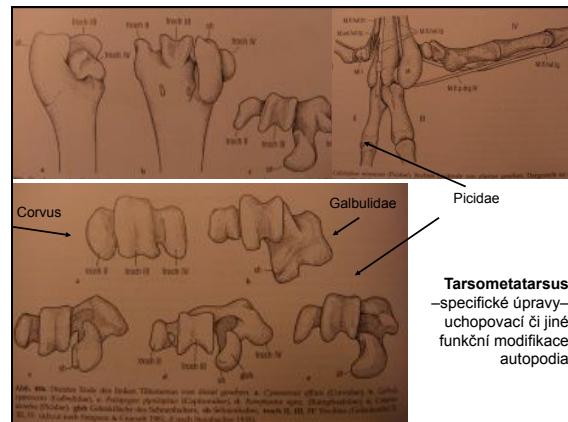
FIG. 17-4. Drawings from high-speed photography show the twisting and open- ing of the primaries during turning flight. (From A. C. Thompson, 1964, A New Anatomy of Birds, McGraw-Hill, New York, NY.)





Hrudní končetina: musculus pectoralis major (vztla vs. M.supracoracoideus (zdvih): oba odstupují ze sterna (tvoří 12-35% váhy těla)

Zvl. úprava nohy (fem-cr-tmt): stisk prstů bez náma



- Srdeční dílna (dokonale rozdělená komora), pravý oblouk aorty
  - Dýchání jinak než u plazů (větší nároky) i než u savců (cf. alveolární plíce savců): plicní vaky (5 páru)

## Parabronchiální plíce + vzdušné vaky

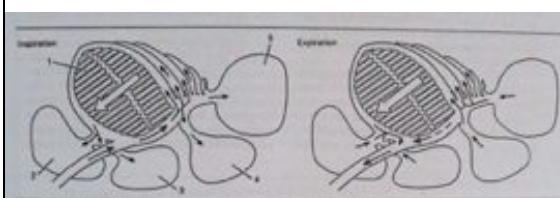
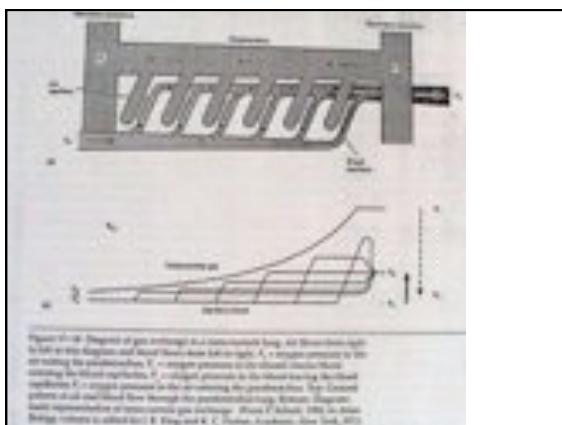
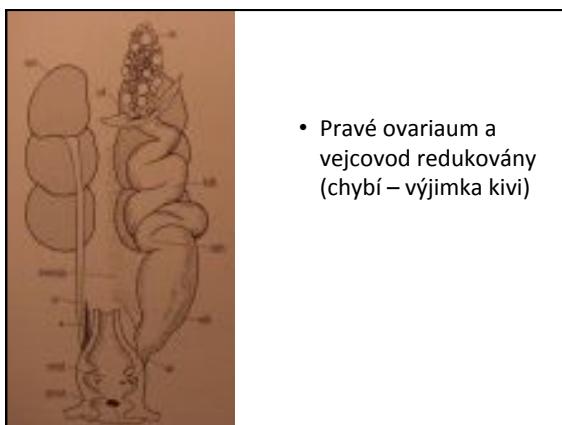
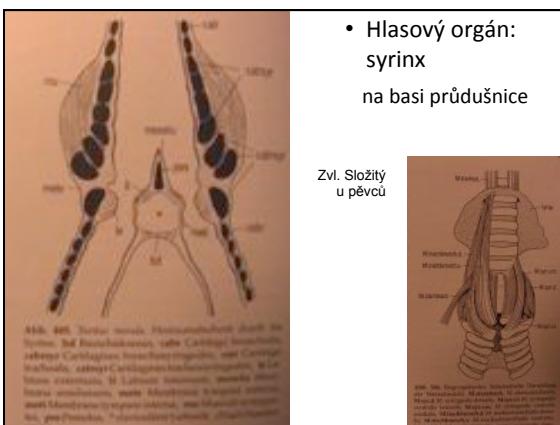


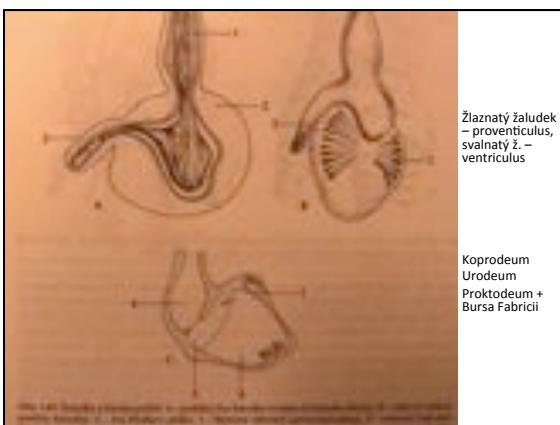
Figure 17-17. Pattern of airflow during inspiration and expiration. Note that air flows through the parabronchial lung during both phases of the respiratory cycle. 1, Parabronchial lung; 2, clavicular air sac; 3, cranial thoracic air sac; 4, caudal thoracic air sac; 5, abdominal air sacs. (From P. Schmid, 1982, in *Anatomical Record*, volume 6, edited by J. R. King and K. C. Parkes, Academic, New York, NY.)



- Hlasový orgán:  
syrinx  
na basi průdušnice

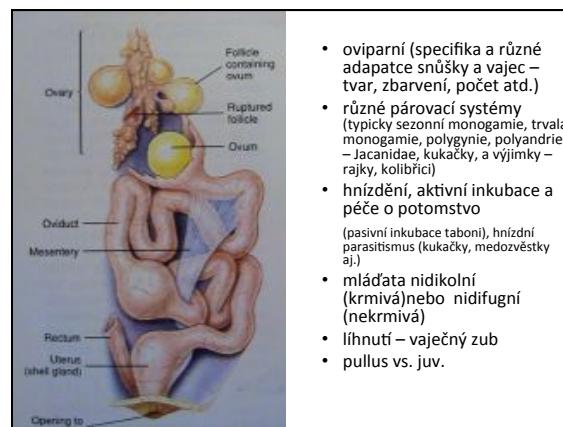
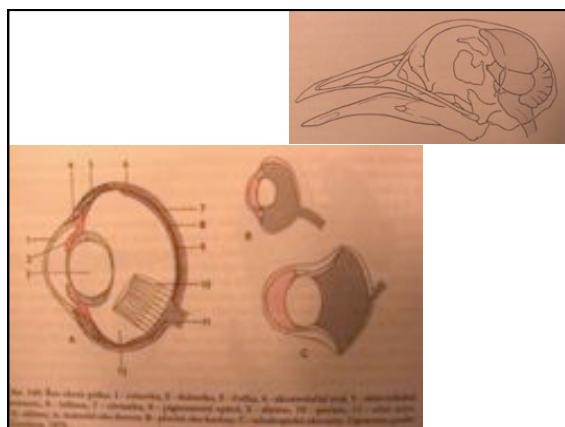
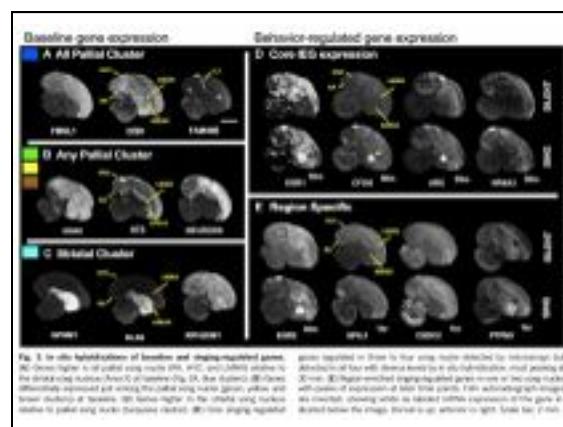
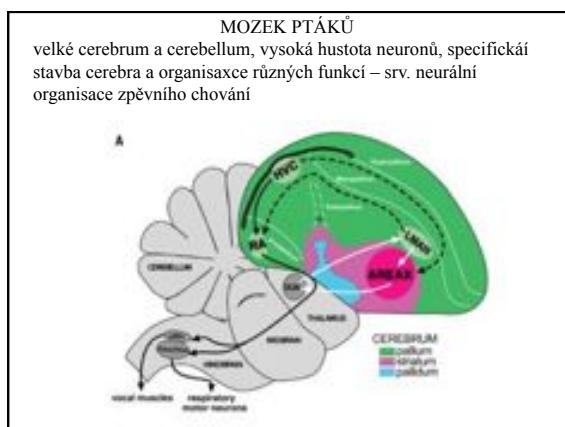
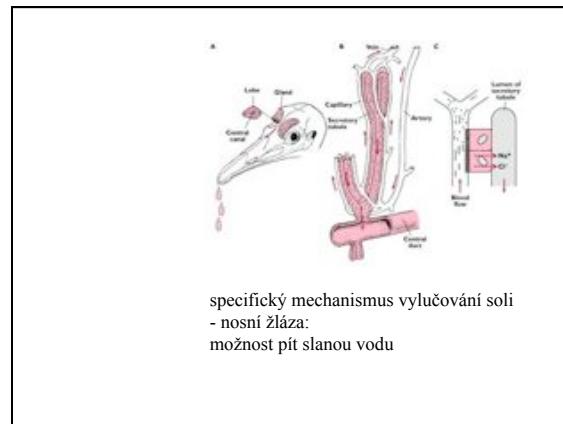
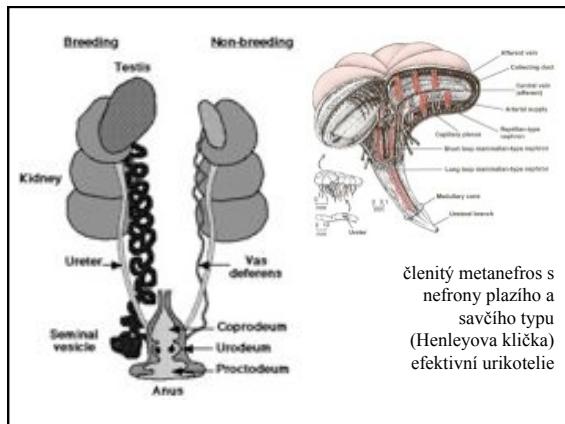


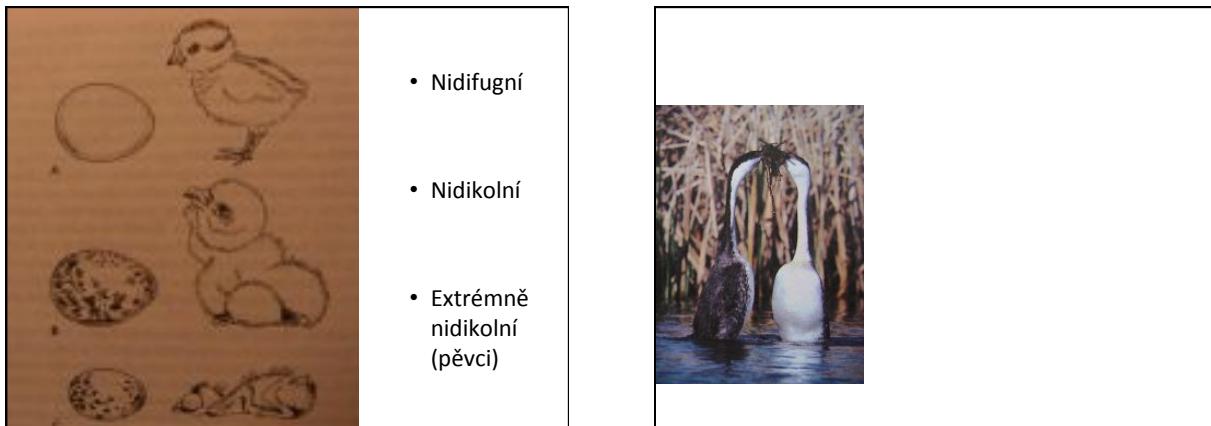
- Pravé ovariaum a vejcovod redukovány (chybí – výjimka kivi)



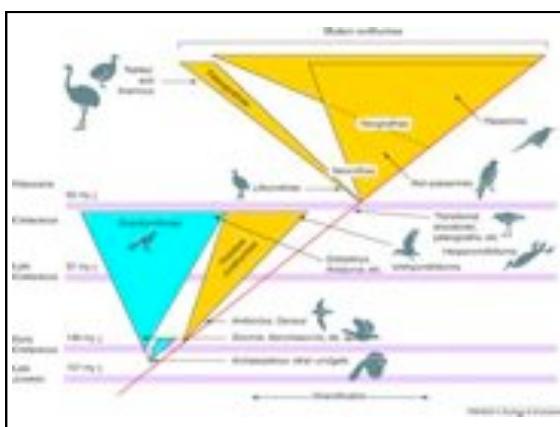
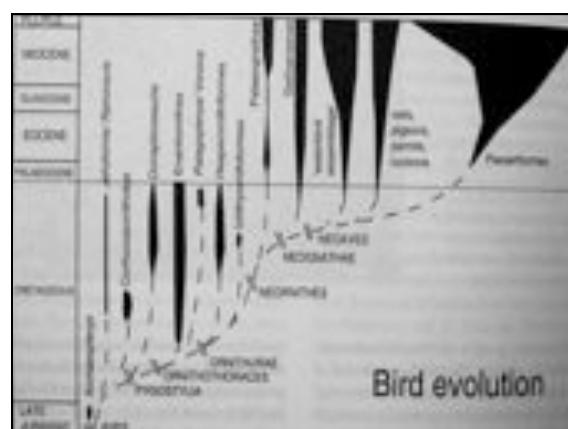
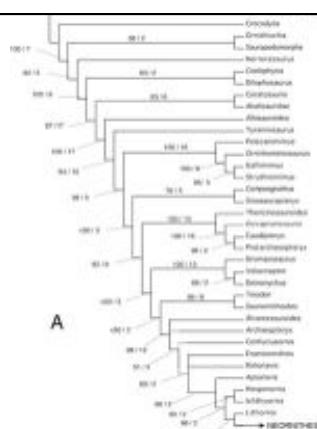
**Žlaznatý žaludek**  
– *proventiculus*,  
**svalnatý ž.** –  
*ventriculus*

Koprodeum  
Urodeum  
Proktodeum +



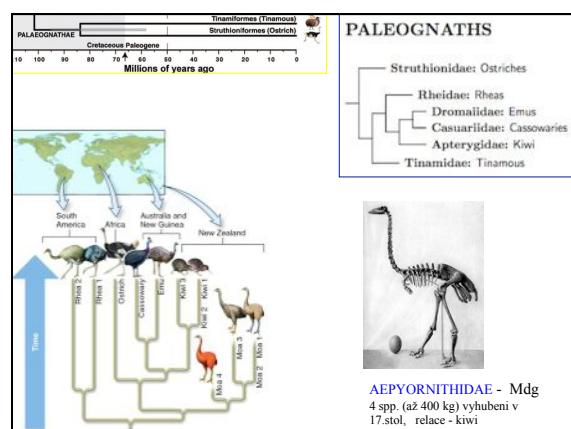
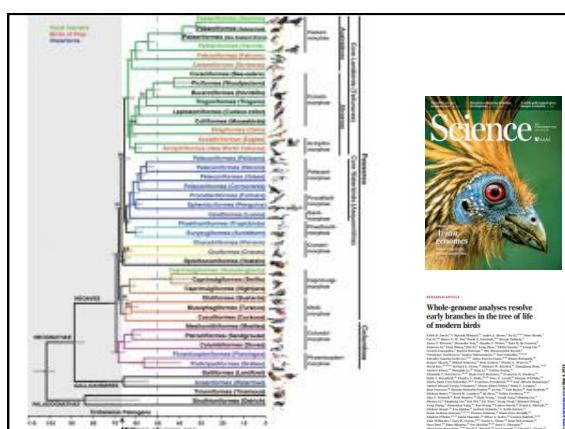
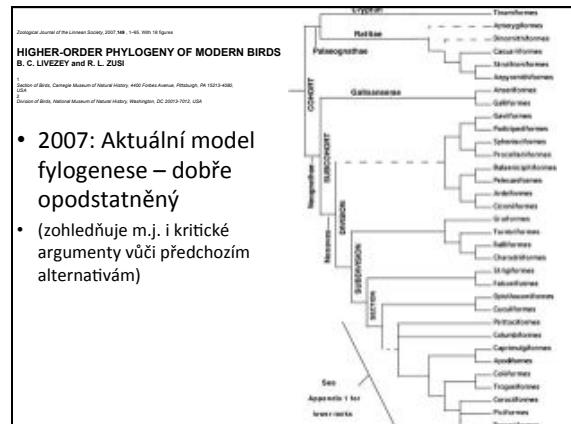
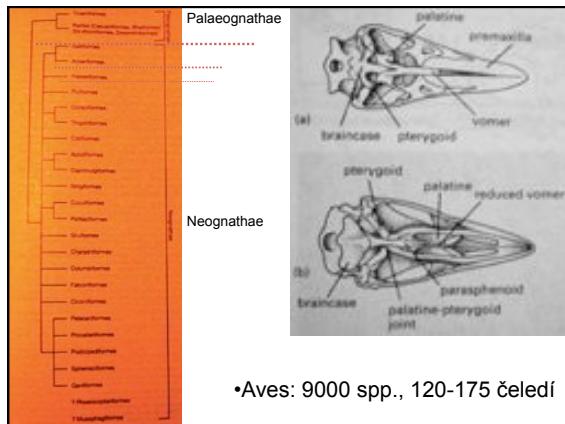


- Fosilní záznam
  - *Archeopteryx*, *Ichthyornis*, *Hesperornis* (Cr – zuby), výrazné rozdíly v posledních desetiletích: *Enantiornithidae*, *Confuciusornis* etc.
  - **FYLOGENESE**
  - Tradičně: nejasná, komplikovaná – převaha znaků adaptivního charakteru, četné paralelismy, slabý fylogenetický signál



Systém a Klasifikace

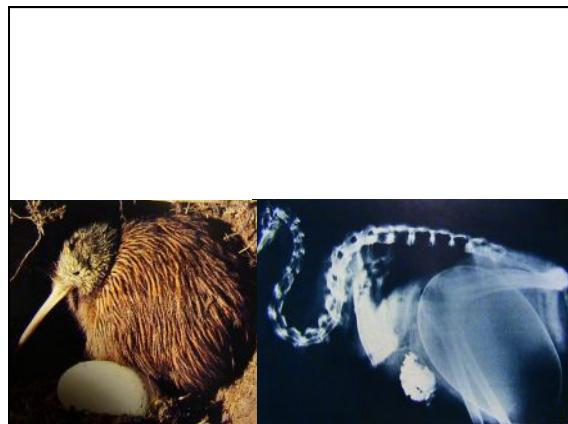
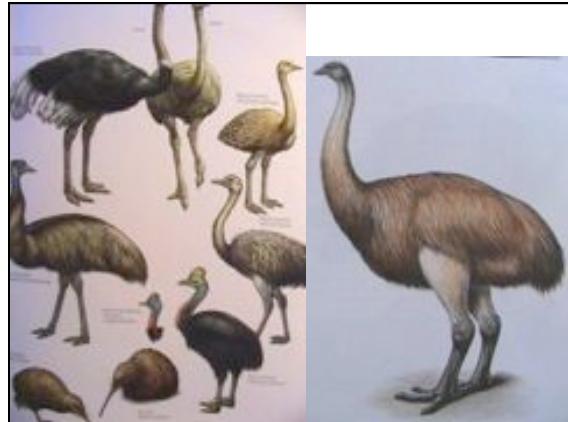
- Základní členění (Huxley 1867): Paleognathae vs. Neognathae (1868 – ptáci –Theropoda)
  - Tradiční klasifikace: Alexander Wetmor 1930 – kanonické uspořádání řádů (srov. pořadí v určovacích klíčích apod.): Sphenisciformes., Gaviiformes .... Passeriformes
  - 1950–1980 E.Mayr, J.Cracraft, S.Olson aj. – dálší revize
  - 1990 – 2000 alternativní koncepce (Sibley & Alquist, Feduccia...) – většinou neakceptovány



**Struthioniformes - běžci**

- **Struthionidae – pštrosovití 1 sp. – *Struthio camelus* Af**
- **+Aepyornithidae – epyornitidi Mdg. Mio-1650**
- **Rheidae – nanduové 2 spp. SAm *Rhea americana*, *Pterocnemia pennata***
- **Casuariidae – kasuáři 3 spp. NEAu-NG *Casuarius casuarius* – k.přilbový**
- **Dromaiidae – emuové 2 spp. Au *Dromiceius novaehollandiae* - emu**

- +Dinornithodae – moa** NZel 12 spp. (poslední ještě v 16 stol. – *Dinornis maximus* 2 m), 3+1 prst
- Apterygiidae – kiviové** NZel 3 spp. 1-4 kg pralesní, nelétaví, krátký krk, max red. Křídel (jen 1 prst), srůst coracoid –scapula), bez clavicul a crista sterni, 4 prsty, peší – chybějí paprsky (vzhled srsti), tenký zobák, nozdry na špičce, hmyzožraví, noční, max. vel. Vajec (až 25% váhy těla), 1-2 ve snůšce, inkubuje samec (78-82 dní!), juv. extrémně nidifugní



#### Tinamiformes – Tinamy 47

spp. SAm



- Podobní kurům, pozemní, špatně létají, 3 prsty, res.pygostyl, mají crista sterni, furcula, pneumatisovaná kostra, chybí proc. uncinati, polygynní, inkubuje samec
- Rostlinná potrava, pralesní – stepní,
- Fosilní Pa-Eo NAm, Eu (*Lithornis*)

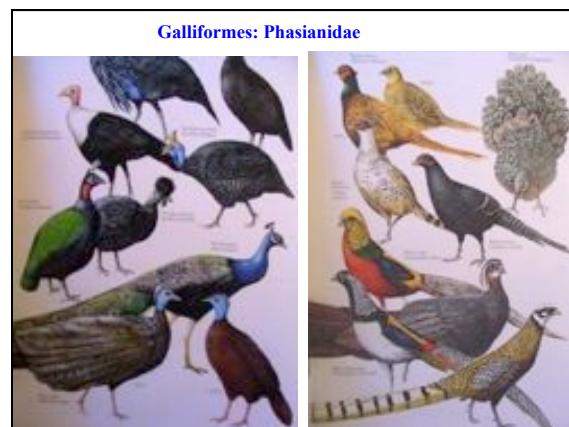
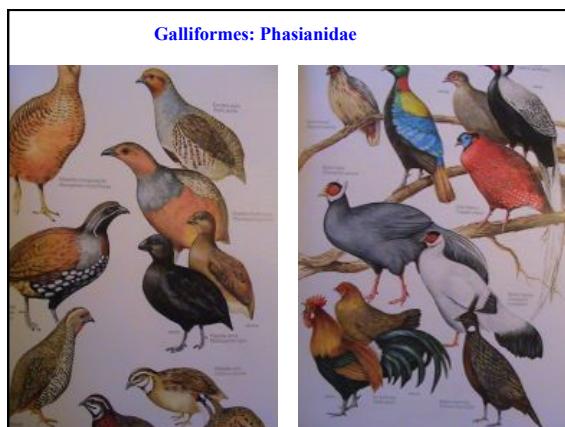
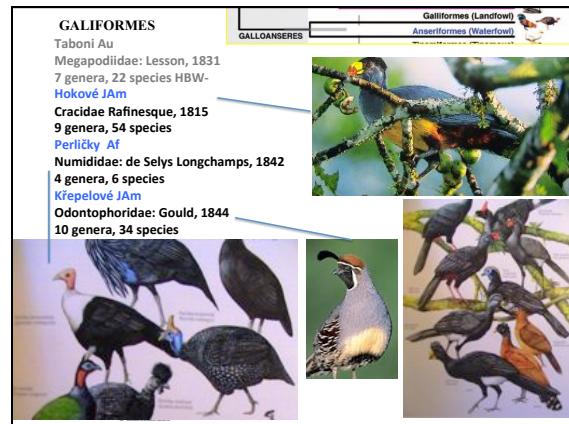
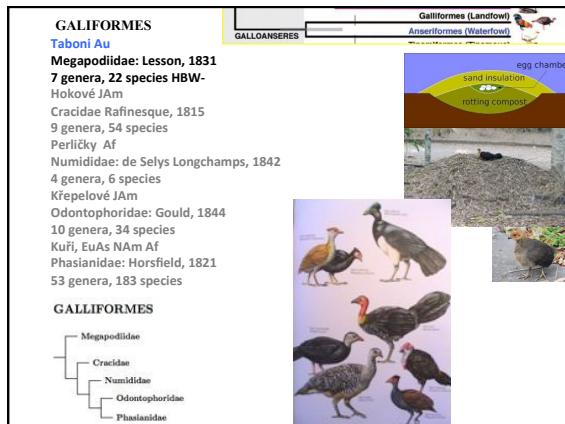
#### Galliformes - hrabaví 7f, 76 g, 292 spp kosmop.

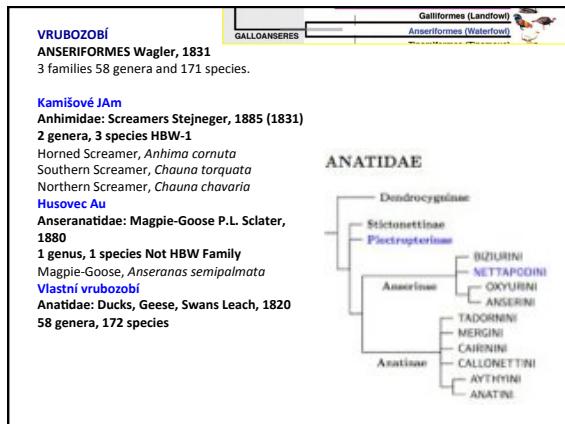
- Silné hrab nohy, krátký silný zobák, pozemní, omnivorní, velké vole, dlouhá caeca, sex.dimorf, polygyn., velké snůšky, nidifugní (Craci vs. Phasiani):
  - Megapodiidae taboni 19 sp. Au-Filip
  - Cracidae hokové 50 spp Sam
  - Meleagrididae krocání 2 spp. Nam
  - Tetraonidae tetřeví 17 spp. EuAs - Nam
  - Phasianidae - kuří 170 spp. Sas- Eu-Nau
  - Odontophoridae - křepelové 32 spp. Sam
  - Numididae - perličky 7 spp. Af

Galliformes (Landfowl)  
GALLOANSERES  
Anseriformes (Waterfowl)

#### Galloanseres drůběž



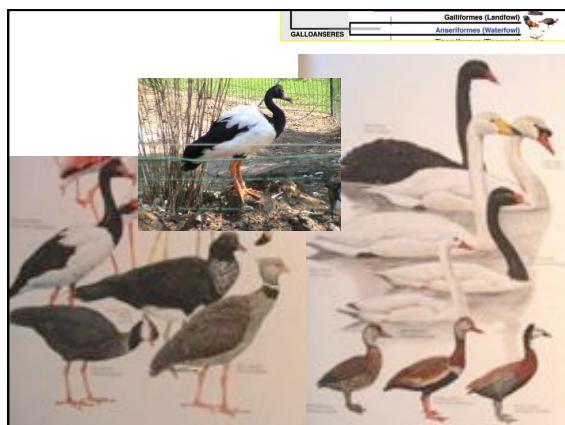




**Galliformes (Landfowl)**  
GALLOANSERES  
**Anseriformes (Waterfowl)**

**Anseriformes - vrubozobi**  
2f. 45g., 152 spp. (kosmop)

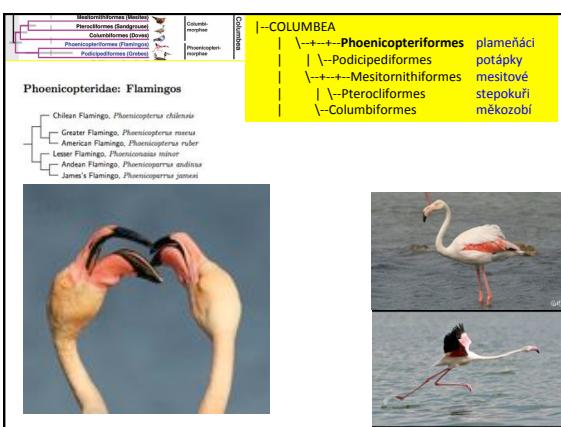
- Vodní, hladinoví filtrátoři (úprava zobáku "lamely, roh. nehet) + modifikace, hustý prach, velká kostrční žláza, krátké nohy, plov. blána, pelichání najednou, větší počet vajec, juv nídifugní, sex. Dimorfismus, chování
  - Anhimidae Kamišové 3sp. SAm., *Anhima cornuta*, *Chauna*
  - Anatidae Kachnovití (*Anseranas Au*, *Dendrocygna Af,As,SAm*, *Cygnus*, *Anser*, *Branta*, *Cereopsis*, *Tadorna*, *Cairina*, *Anas*, *Aythya*, *Netta*, *Somateria*, *Mergus*)





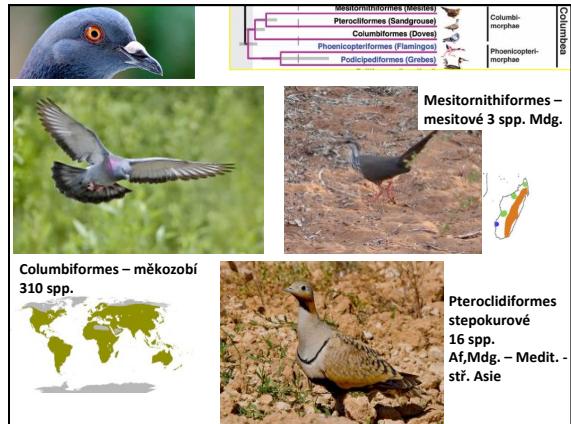
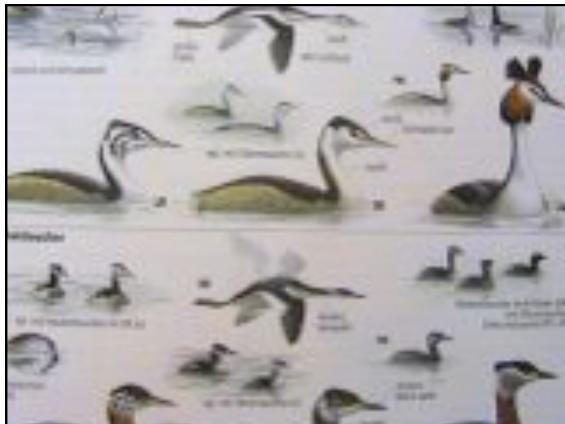
## Order Anseriformes

+Family [Dromornithidae](#)? : mihirungs  
+Family [Gastornithidae](#)? : "diatrymas"  
Anseres (true anseriformes)  
Family [Anhimidae](#): screamers  
Family [Anseranatidae](#): the magpie goose  
Superfamily Anatoldea  
Family [Anatidae](#)  
Subfamily [Dendrocygninae](#): whistling ducks (sometimes given full family status as the Dendrocygnidae).  
Subfamily [Thalassorninae](#): the white-backed duck.  
Subfamily [Anserinae](#): swans and geese.  
Subfamily [Stictonettinae](#): the freckled duck.  
Subfamily [Plectropterinae](#): the spur-winged goose.  
Subfamily [Tadorninae](#): shelducks and sheldgeese - probably [paraphyletic](#).  
Subfamily [Anatinae](#): dabbling ducks and moa-nalos  
Subfamily [Aythyninae](#): diving ducks (sometimes included in Anatinae)  
Subfamily [Merginae](#): eiders, scoters, mergansers and other sea-ducks.  
Subfamily [Oxyurinae](#): stiff-tailed ducks and allies.  
+Family [Presbyornithidae](#): several genera of wading-'geese'  
+[Vegavis](#)

**Phoenicopteriformes – plameňáci (1f, 3g. 5 spp.)**

- Voda, mělké laguny (pobř. Af, SAm.SW As), ext. dlouhé nohy, úprava zobáku – filtrace koryšů aj., růž. zbarvení, 3prsty malá plov. blána, kužel.hnízda, kolonie, 1 juv (krmení sekretem z volete), rel. vrubozobí, bahňáci
  - *Phoenicopterus* - incl. *P.p. Camarque*
  - *Phoenicoparrus* - Andy, slaná jez., rozsvíky





### Columbiformes Měkkozobí

2f,45g, 320spp

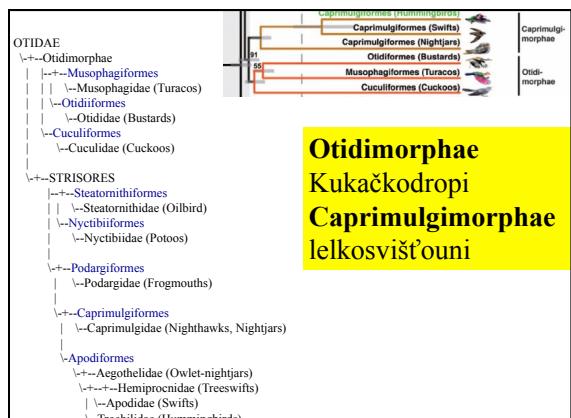
Pteroclidae - stepokurové 16 spp. 2 g As Af  
Columbidae - holubi 300 spp.



Korunáč vějířový  
(*Goura victoria*) NG



Dronte mauricijský *Raphus aculeatus* - Mauricius, + 17.stol., plodožravý (palmy)



**Otidimorphae**  
**Kukačkodropi**  
**Caprimulgimorphae**  
**lelkosvišťouni**

**Turakové**  
MUSOPHAGIFORMES Seeböhm, 1890  
Musophagidae: Turacos Lesson, 1828  
6 genera, 23 species

**Dropi**  
OTIDIIFORMES Wagler 1830  
Otidiidae: Bustards Rafinesque, 1815  
11 genera, 26 species

**Kukačky**  
CUCULIFORMES Wagler 1830  
Cuculidae: Cuckoos Leach, 1820  
32 genera, 147 species

Caprimulgiformes (Swifts)  
Caprimulgiformes (Nightjars)  
Otidiformes (Bustards)  
Musophagiformes (Turacos)  
Cuculiformes (Cuckoos)

Caprimulgiformes  
Otidiformes

**Cuculiformes Kukačky**  
2f, 40g, 150 spp

-Otidimorphae  
| -+- Musophagiformes  
| | | - Musophagidae (Turacos)  
| | | \-- Otidiformes  
| | | | - Otididae (Bustards)  
| | | \-- Cuculiformes  
| | | | - Cuculidae (Cuckoos)

Zygodactylí noha (2+3 dopředu), zobák bez ozobí, chybí vole, prach jen na apteríích, vesměs lesní

Turakovití (Musophagidae) Af 20 spp

Kukačky (Cuculidae) subkosm. 130 spp. 50 parazit.

*Cuculus canorus, Geococcyx*



**Caprimulgiformes - Lelkové**  
5f, 24g, 102 spp. subkosm

- Noční, létající hmyz-(pozemní kořist- plody), hluboko rozeklaný zobák, kryptické zbarvení
  - Steatornitidae - gvaračarové SAM 1 sp.
    - Steatornis caripensis* gvačaro jeskynní, echol. plodožravý (olej, palmy)
  - Nyctibiidae - potouové Sam 5 sp.
  - Podargidae - lelkouni SeAS. Au 13 sp(karniv.)
  - Caprimulgidae Af. EuAS aeroplankton
    - Caprimulgus europaeus* lelek lesní

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Caprimulgiformes (Swifts)  
Caprimulgiformes (Nightjars)  
Otidiformes (Bustards)  
Musophagiformes (Turacos)  
Cuculiformes (Cuckoos)

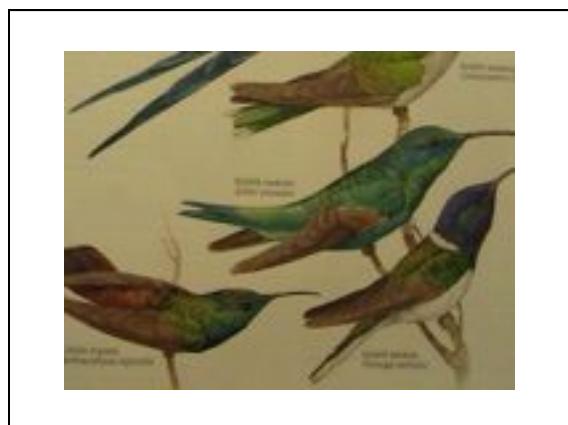
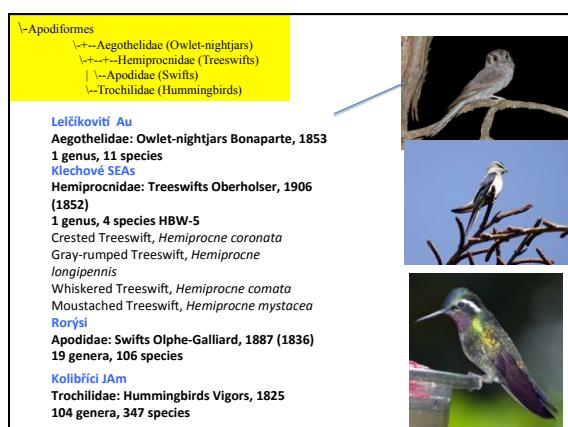
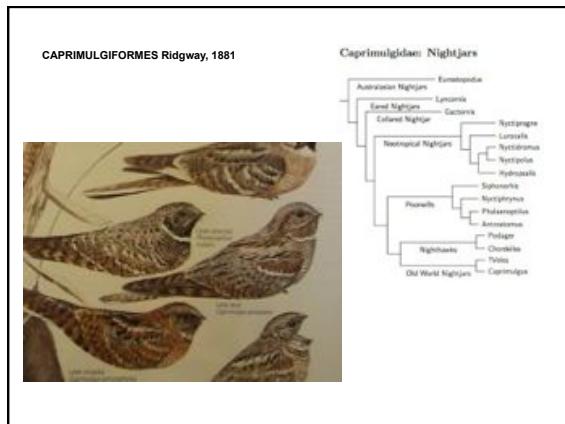
Caprimulgiformes  
Otidiformes

**Gvačaro JAm**  
STEATORNITHIFORMES Sharpe 1891  
Steatornithidae: Oilbird Bonaparte, 1842  
1 genus, 1 species HBW-5  
Oilbird, *Steatornis caripensis*

**Potouové JAm**  
NYCTIBIIFORMES Informal  
Nyctibiidae: Potoos Chenu & des Murs, 1851  
1 genus, 7 species

**Lekouni SEAs, Au**  
PODARGIFORMES Sharpe 1891  
Podargidae: Frogmouths G.R. Gray, 1847  
3 genera, 16 species

Caprimulgiformes (Hemimacrodidae)  
Caprimulgiformes (Swifts)  
Caprimulgiformes (Nightjars)  
Otidiformes (Bustards)  
Musophagiformes (Turacos)





**Charadriiformes (Plovers)** | **Gruiformes (Cranes)** | **Cursorimorphae**

**Opisthocomiformes (Hoazin)**

**OPISTHOCOMIFORMES - hoazin**  
**GRUIFORMES - krátkokřídí**  
**trubač JAM**  
Psophidae: Mathews, 1913  
1 genus, 6 species  
**kurlan JAM**  
Aramidae: Bonaparte, 1842  
1 genus, 1 species  
**jeřábí AuAs, Nam, Af**  
Gruidae: Vigors, 1825  
2 genera, 15 species  
**chráštalovci Af**  
Heliornithidae: G.R. Gray, 1840  
3 genera, 3 species  
**chrástali K**  
Rallidae: Rafinesque, 1815  
43 genera, 150 species  
**CHARADRIIFORMES – dlouhořídí**  
20 families, 100 genera and over 380 species

**Grues**  
**Krátko-dlouhořídí**

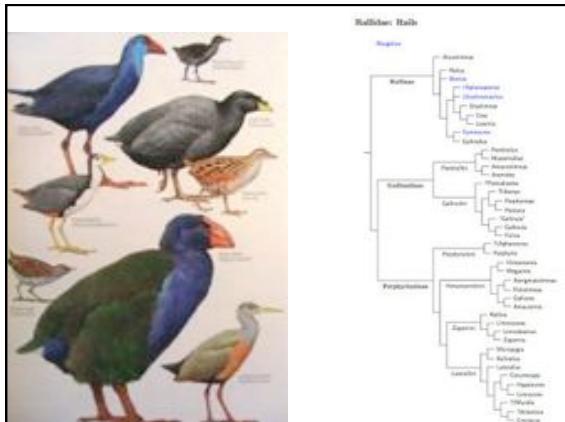
**Opistocomidae:** *Opistocomus hoacin* - Hoazin Sam, foliovorní, juv. prsty na kf.

**Gruiformes:** Sam: Aramidae (kurlani), Psophidae (trubači), slunatci



**Chráštalovci - Heliornithidae**

*Podica senegalensis*



### Gruiformes - Krátkokřídlí

17f. 61g, 230 spp kosmop.

- Sběrná skupina: střední velikost, pozemní s red.palcem vysoko nasazeným, pera s paostnem, široká křídla, dobře běhají, hnízda na zemi, větší počet vajec, nidifugní
  - Aramidae kurlani SAM , Psophidae trubači SAM
  - Slunatci
  - Gruidae
  - Rallidae
  - Otidae
  - Cariamidae (+Phorusracidae ),+ Diatryma
  - Turnicidae



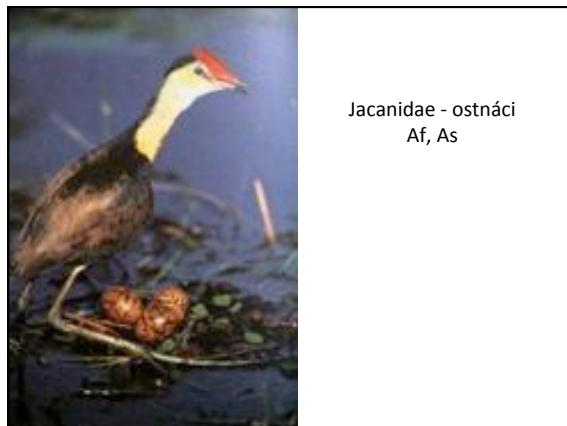
### Charadriiformes

Dlouhokřídlí  
14f.,82g,320 spp.

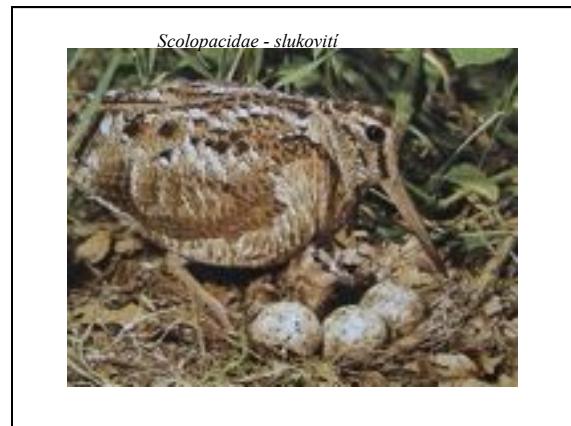
- \* Bahňáci- Charadrii (Limicolae)
- \* Racci - Lari
- \* Alky - Alcae



*Recurvirostridae - tenkozobcovití*



Jacanidae - ostrnáci  
Af, As



27.05.15

Glareolidae - Ouhorlikovití



Stercorariidae - Chaluchovití



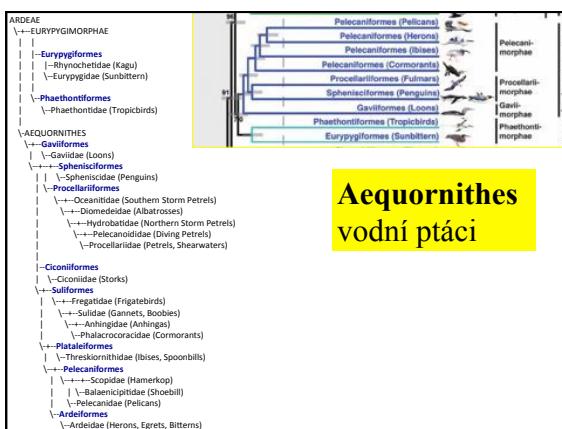
Lariidae - Rackovití

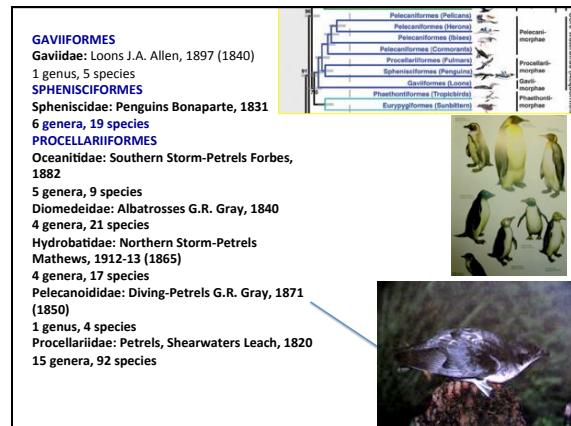




**charadriiformes — Shorebirds**  
20 families, 100 genera and over 380 species

- [Pluvianellidae: Magellanic Plover](#)
- [Chionidae: Sheathbills](#)
- [Burhinidae: Thick-knees](#)
- [Pluvianidae: Egyptian Plover](#)
- [Pluvialidae: Golden-Plovers](#)
- [Recurvirostridae: Stilts, Avocets](#)
- [Ibidorhynchidae: Ibisbill](#)
- [Haematopodidae: Oystercatchers](#)
- [Charadriidae: Plovers](#)
- [Pedionomidae: Plains-wanderer](#)
- [Thinocoridae: Seedsnips](#)
- [Rostratulidae: Painted-snipes](#)
- [Jacanidae: Jacanas](#)
- [Scolopacidae: Sandpipers](#)
- [Turnicidae: Buttonquail](#)
- [Dromaididae: Crab Plover](#)
- [Glaucidae: Courlers, Pratincoles](#)
- [Stercorariidae: Skuas, Jaegers](#)
- [Alcidae: Auks](#)
- [Laridae: Gulls, Terns](#)



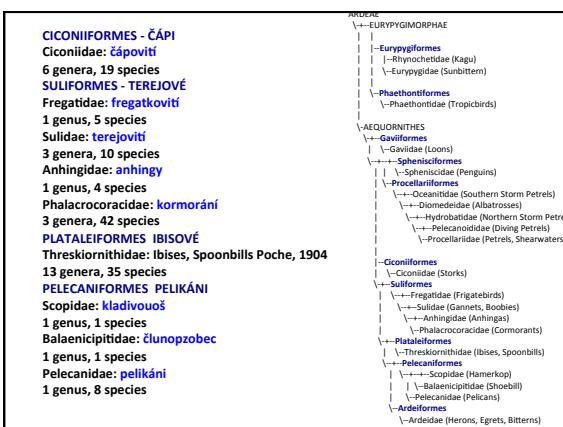
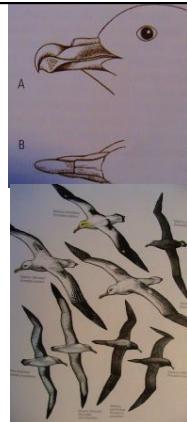




### Procellariiformes – Trubkonosí

4 f., 23 g., 92 spp.

- Extrémní adaptace pro plachtění, mořští (kosmopol. zejm. jih), ichtyofágni, 23 g -12 kg (rozp. 350 cm), rhamphoteka - několik destiček, trubicovité nozdry, supranas. žlázy, vel. čich laloky mozku, tvorba olej tekutiny v žaludku (obrana, krmení), K-strategové, 1-2 vejce, monogamní, dlouhé intervaly střídání
  - Diomedeidae - albatrosi 12 spp.
  - Procellariidae – buřáci – 50 spp.
  - Hydrobatidae – buřňáčkovití 13 spp. N
  - Oceanitidae – 7 spp. S
  - Pelecanoididae – buřníkovití



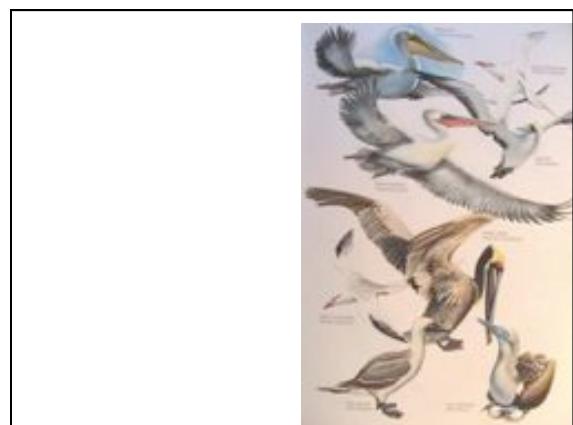
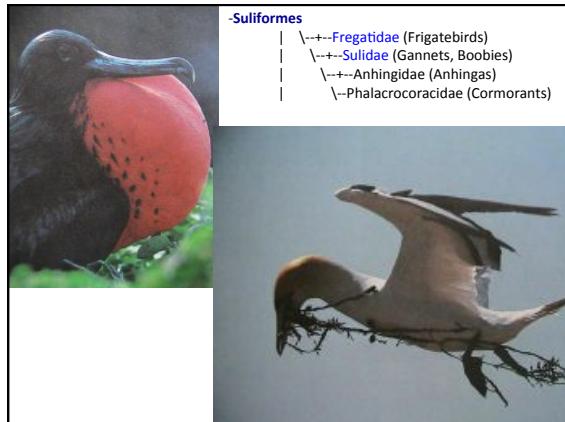
### Pelecaniformes – veslonozí

5f., 7g., 56 spp.

- Vodní, větší, ichtyofágni, veslovací noha (pl. blána mezi všemi 4 prsty), na zemi jen při hnízdění, hrdelní vak, mohutný zobák, hnízdí v koloniích, juv. nidikolní, inkubace i krmení oba rodiče (sběrná skupina)

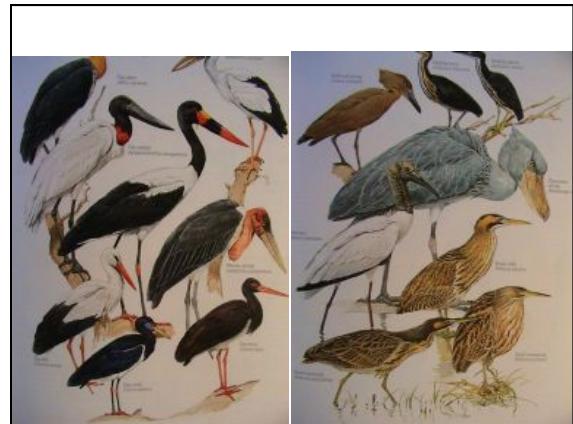
- Phaetonidae – faetoni 1g, 3sp
- Pelecanidae - pelikáni 7 sp
- Sulidae - terejové 9 sp
- Phalacrocoracidae – kormoráni + anhingy 28+4
- Frigatidae - frigatky 5 sp.

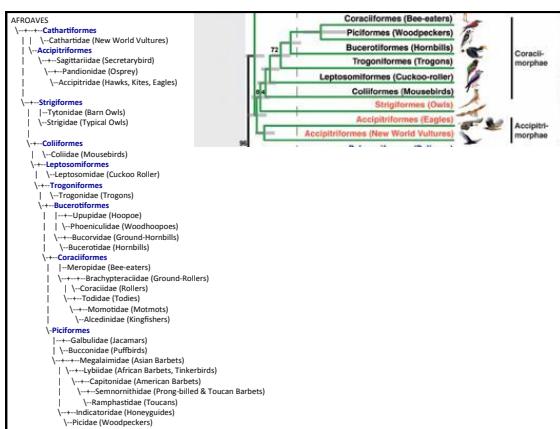
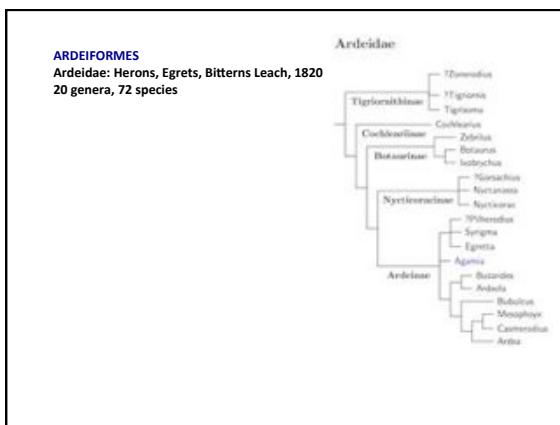


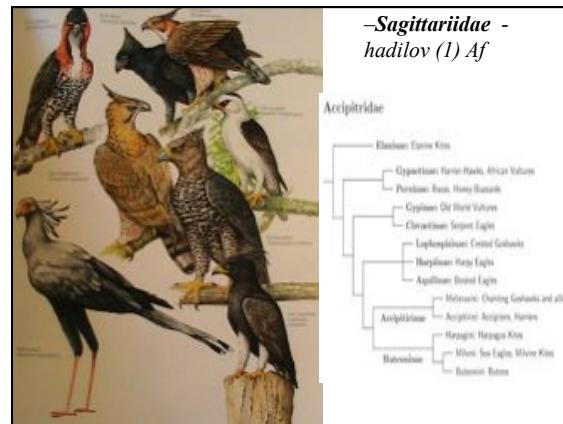
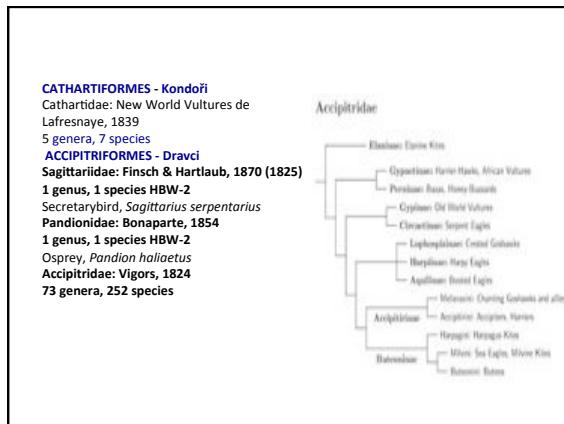


### Ciconiformes (Ardeiformes) – brodiví (5 f., 113 spp.)

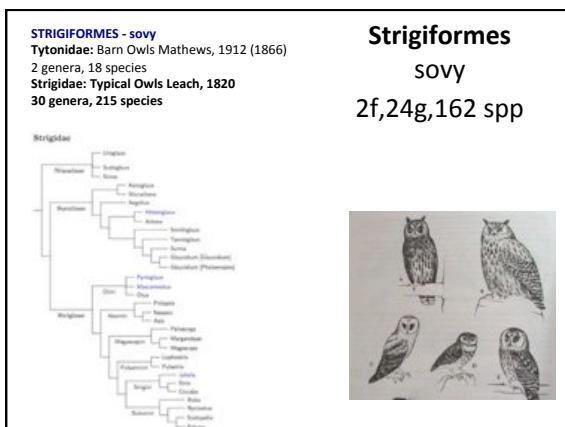
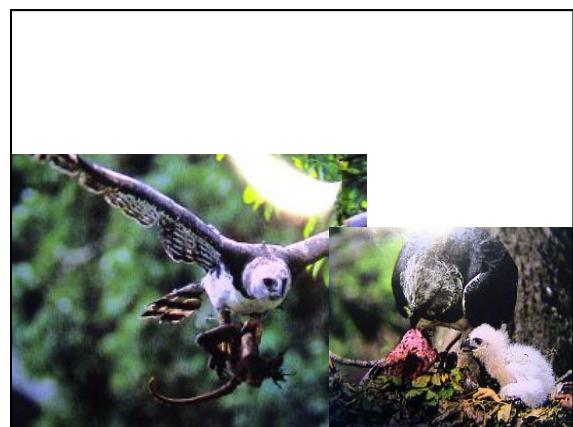
- Dlouhé nohy, dlouhý krk (harpunování), vodní (mokřady), prsty 3+1, palec nízko, 3-dílný žaludek, juv.nidikolní, sběrná skupina
  - Ardeidae – volavky 60 spp. 17 g. – volavky, kvakoši, bukači, volavčík
  - Scopidae – kladivouš (1 g Af)
  - Balaenicipitidae – člunozobec (1 sp. Af) /cf. pelikán
  - Ciconidae – čápi 19 sp. 5g. (čápi af-as, marabu, nesyti Am, zejzob as)
  - Threskiornithidae – ibisové 31 spp. 18g (ibis, kolpík)

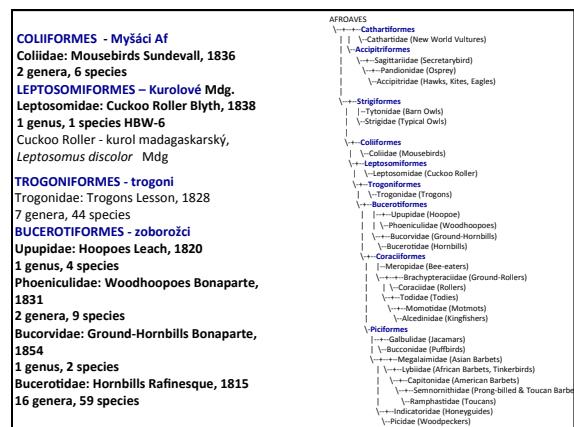
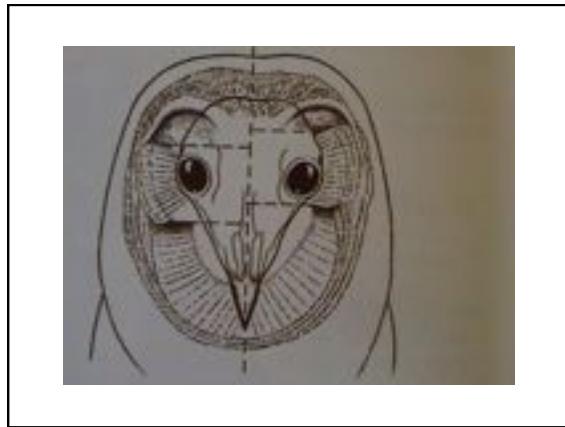






27.05.15





### Coliiformes - myšáci

6 spp. Af

- Peří s nedokonalými ostny (myšovitý vzhled) bez pteryli/apterií, dlouhý ocas, pohyblivé prsty (2+2 - 4+0), pohyblivá horní čelist, sociální, kontaktní (hrozny), květy, plody, hustá krví, nejmenší vejce, pull - líhnou se postupně zvl. Postavení (fossilní i EU)



**Trogoniformes - trogoni**  
**1f, 8g, 37 sp, tropy (ne AU)**

- Pestré zbarvení, silný krátký zobák, dlouhý stupň ocas, hmyzožr. perches, stromoví, heterodaktylní noha (3+4 dopředu), dutinoví, nidikolní, inkubace od 1. vejce (cf. Coliiformes)
  - Kvesal nádherný *Pharomarchus macinno* (posvátný pták mesoameričanů)

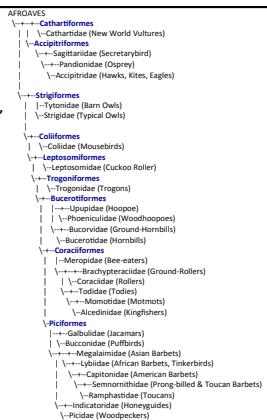


**BUCEROTIFORMES - zoborožci**  
**Upupidae: dudci Af-Eu**  
**1 genus, 4 species**  
**Phoeniculidae: zoborožec kaferský Af**  
**2 genera, 9 species**  
**Bucorvidae: zoborožec As Af**  
**16 genera, 59 species**





**CORACIIFORMES - srostloprstí**  
Meropidae: Bee-eaters Rafinesque, 1815  
3 genera, 27 species  
Brachypteraciidae: Ground-Rollers Bonaparte, 1854  
4 genera, 5 species  
Coraciidae: Rollers Rafinesque, 1815  
2 genera, 12 species  
Todidae: Todies Vigors, 1825  
1 genus, 5 species  
Todidae: Todies Vigors, 1825  
1 genus, 5 species  
Alcedinidae: Kingfishers Rafinesque, 1815  
19 genera, 107 species



### Coraciiformes - srostloprstí

10f, 200 spp. Kosm.

- Sběrná skupina, denní, stromoví, srůst prstý (syndactylie 2+3, nebo 3+4), monogamní, v dutinách, nidikolní, neopeřený běhák, chybí vole, bez prach. peří
  - Alcidae ledňáčkovití 92 spp. (old world)
  - Todidae (todové 5 sp. SAM), Momotidae (pilani SAM)
  - Meropidae - vlhy Af -EUAS-AU 23 spp
  - Coraciidae - mandelíci 12 spp. Af, SAS-NG
  - Upupidae - dudci Af -Eu 1 sp.
  - Bucerotidae - zobořiči 48 spp. Af, SAS-NG velcí plodožraví

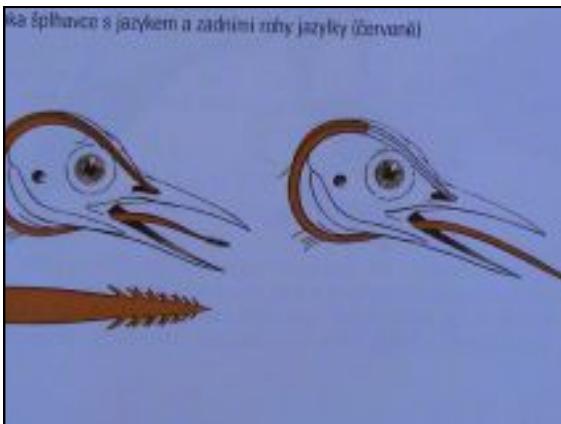
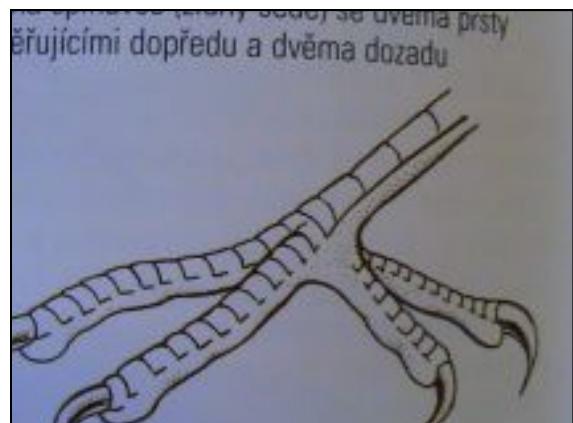
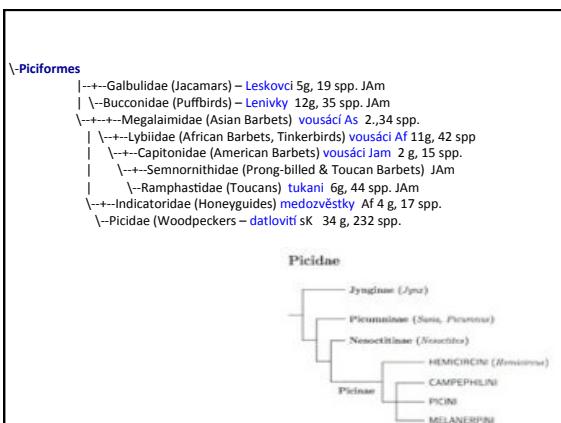


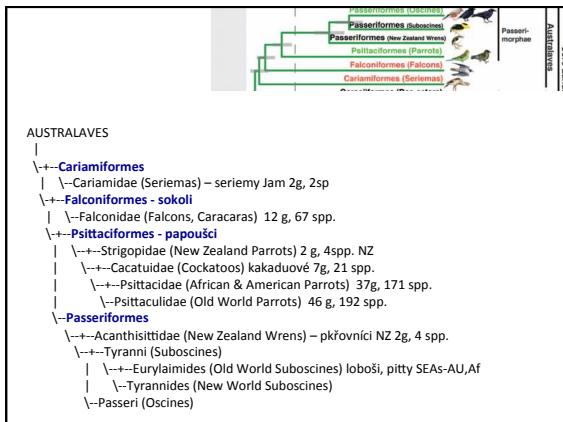


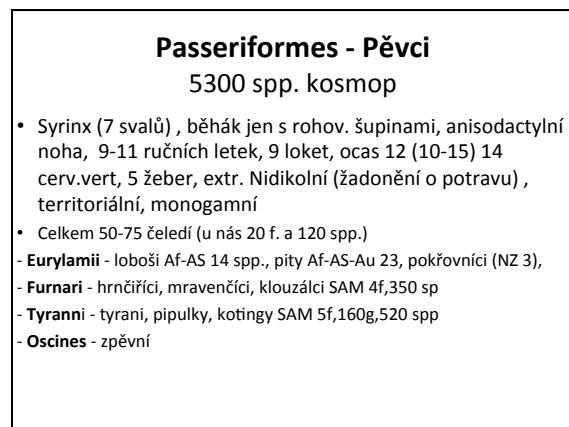
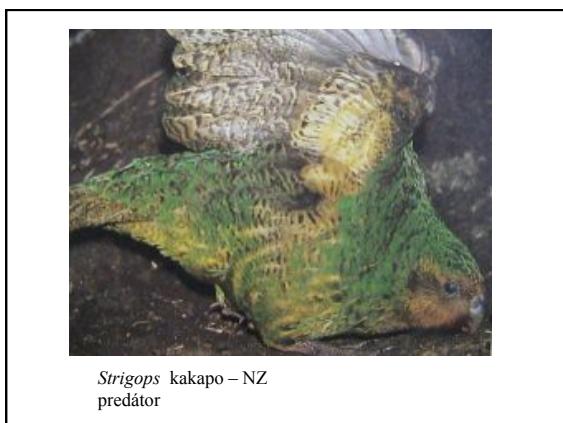
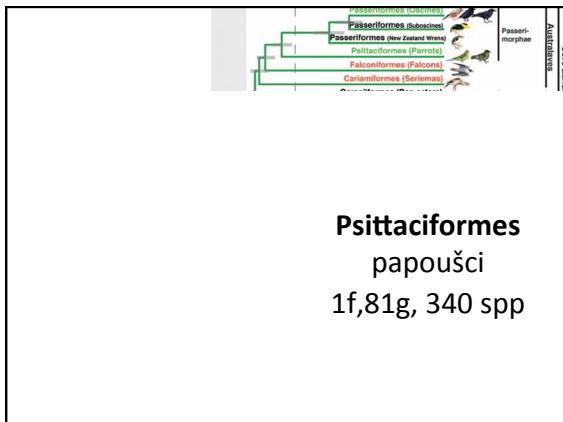
### Piciformes - šplhavci

6f. 65 g.400 spp. Subk (bez AU,Mdg.)

- Šplhavá noha (zygodactylní: 2+3 dopředu), sternum se dvěma výřezy, chybí prach a vole, dlouhá jazylka, dendrofilní, hmyzožraví, nidikolní
- Galbulii vs. Picii
  - Galbulidae - leskovci SAM
  - Bucconidae - lenivky SAM
  - Ramphastidae - tukani SAM 35 spp.
  - Capitonidae - vousáci Sas, Af, AM
  - Indicatoridae - medovzěstky Af, Sas, hnízd.parasit
  - Picidae - datlové 27g 200 spp. *Picus*, *Dryocopus*, *Picoidea*, *Jynx*









### Passeriformes - Oscines 1

- **Menuridae** - Lyrochvosti Au 2spp
- Atrichornitidae - krováčci Au 2spp
- Vs. Oscines s. str.:
- **Corvid assembly:** Corvidae, 20 g 130 spp., Lanidae, Bombycillidae, Sturnidae (Old w. 113 spp.), Oriolidae (Af-As-Eu. 25 spp.), Dicruridae (drongové As 20 spp), Ptilonorhynchidae (lemčíci NG Au 19 spp), Paradisaeidae (NG 42spp), Grallidae etc (Au)
- ostatní Oscines





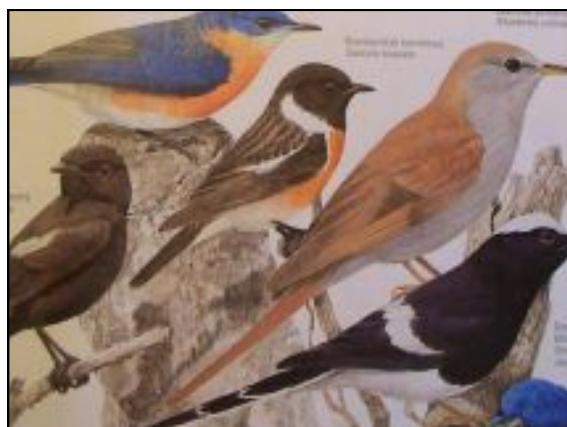
### Passeriformes - Oscines 2

Řada paralelismů - typické potr. mody (hmyz z půdy, z povrchů, z vegetace, v letu kolem vegetace (perch), létající, ve vodě, zrnožr.)

Specifické radiace v jednotl. oblastech -  
Am střízliči, strnadi, lesňáčci, vlhovci, zelenáčci  
Au rajky, lemcíci, popeláči, kosovci,  
NZ kystráčci, laločníci,  
As Lejsci, drongové, housenčíci, astrildové, špačci  
Af snovači, bulbulové, žluvy  
- sekundárně rozšíření areálu (velké čeledi - (sub) kosmopolitní)



- Skřivani (Alaudidae 79), konipasi (Motacillidae 60)
- Vlašťovky (Hirundinidae 82) kosm.
- Bulbulové (Pycnotidae) Af, AS 120, irenovití (Irenidae Sas 14)
- Drozdovité (Turdidae: 304), skorci (Cinclidae 5)
- Timalie (Timaliidae AS, AF, Au : 280), strízliví (Troglodytidae Am: 60 spp.)
- Pávíci (Rhipiduridae AS-AU-Af 40)
- Vlhovci (Icteridae Am 95), lesníáčci (Parulidae Am 115)
- Lejskoviti (Muscicapidae As, Af 180)
- Pěnice (Sylviidae kosm. 360)
- Šíkrovití (Paridae EuAs-Af-NAM 46), Aegithalidae (EuAS-Nam 5), Remizidae (10)
- Brhlíci (Sittidae 26)
- Strdimilové (Nectariniidae Sas-Au-Af 120)
- Kruhoočkovití Zosteropidae (As-Au-Af 90)





• Zrnožraví:

- Estrildidae 123 spp., Ploceidae 126, Passeridae 33 Af, SAS
- Emberizidae (9 letek) - Am-Nas, AAEu, 500 spp., Drepanididae - šatovníci (9 letek)- Havaj (29 spp.)
- Fringillidae (9 letek) EuAS-NAm 122 spp.

