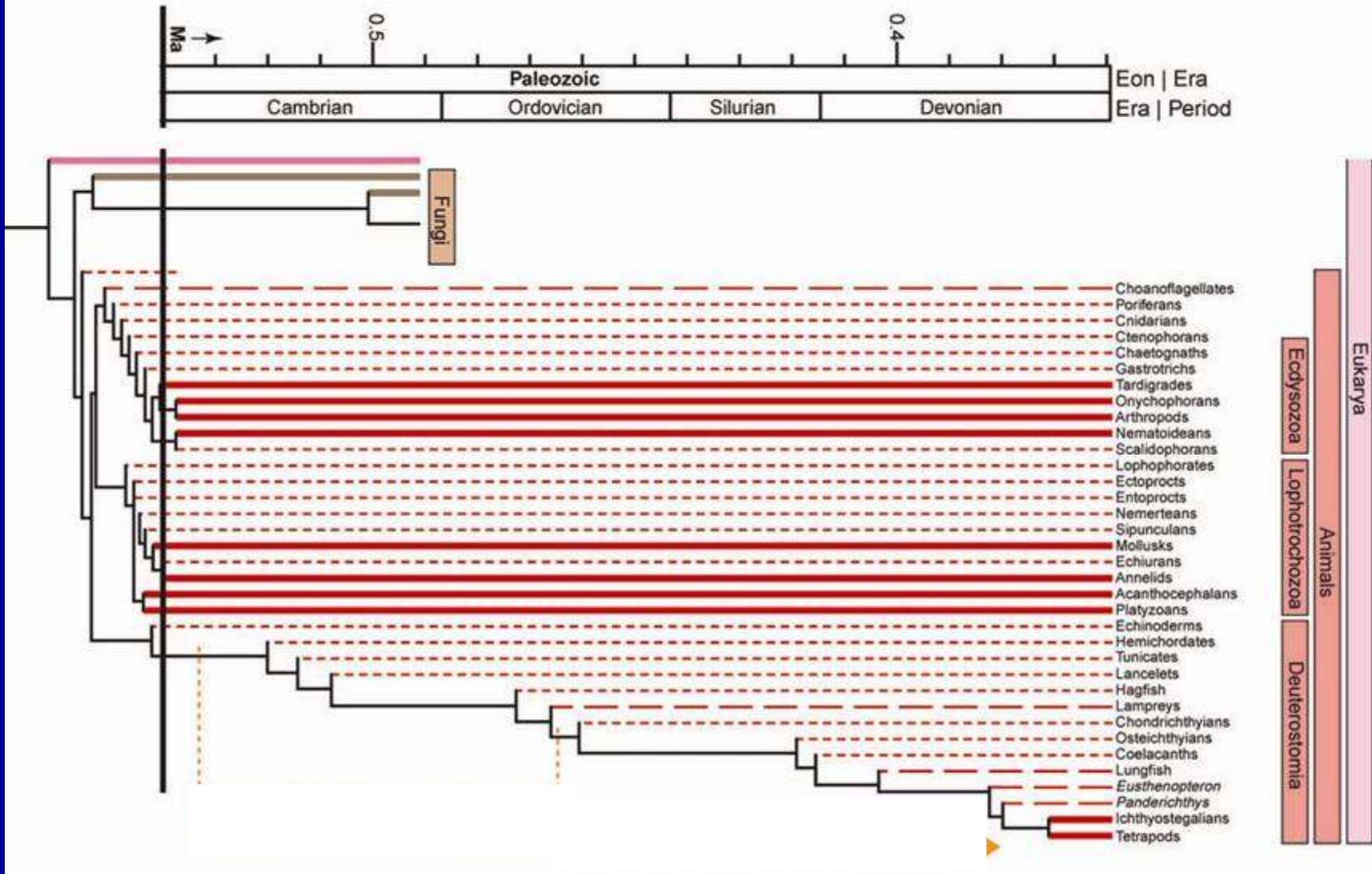


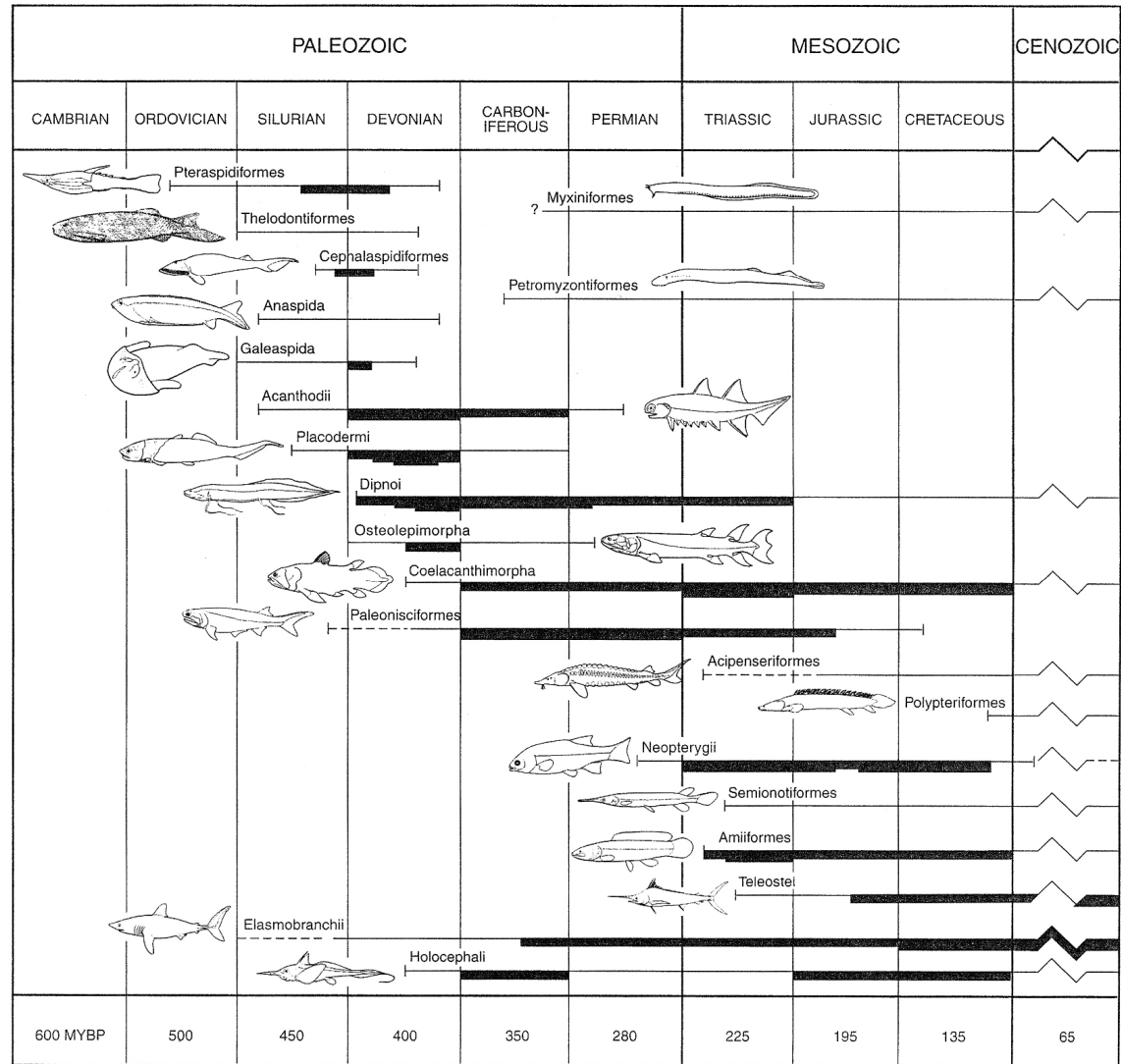
# Classificação sistemática dos cordados

Prof. Dr. Sergio Floeter

1. Registro Fóssil
2. Filogenia e Diversidade dos Vertebrados
3. Sistemática dos 'Peixes'







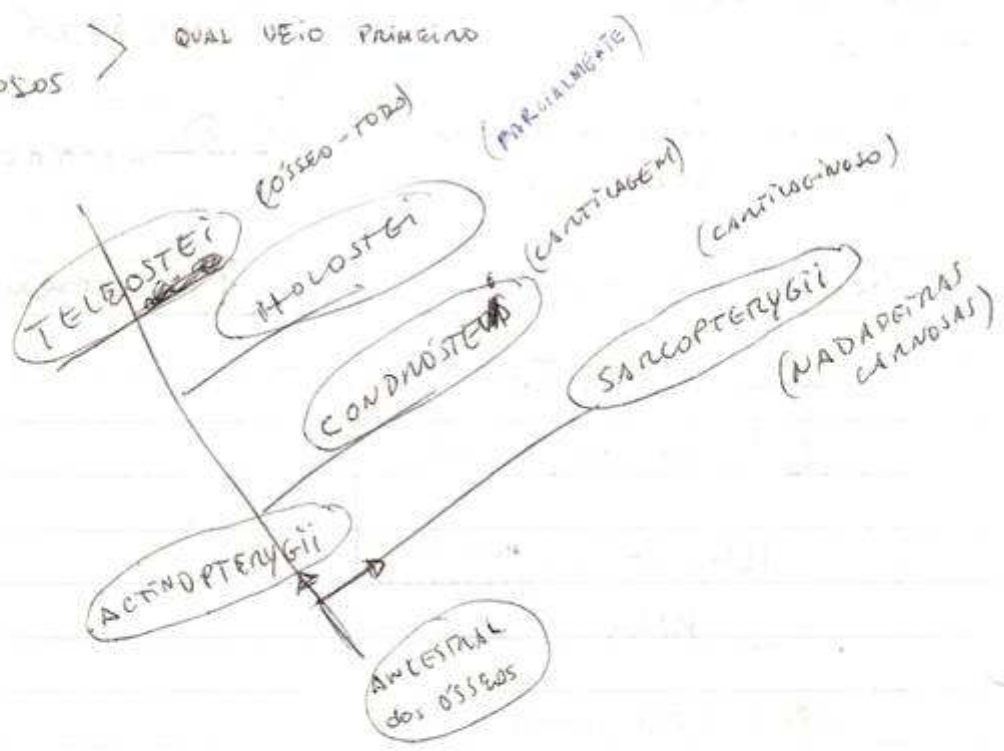
Periods of occurrence and relative diversity of major fish taxa based on the fossil record

# Filogenia dos peixes

1988

OSSEOS  
(?) cartilaginosos  
SEM REGISTRO

QUAL VEIO PRIMARIO



NOS TELEOSTEOS:

- \* NADADEIRA pélvica + perto do SNUS + ~~peitoral~~
- \* peitoral baixa → Primitivo
- \* EHOPOMONPITS → mesmas lguas

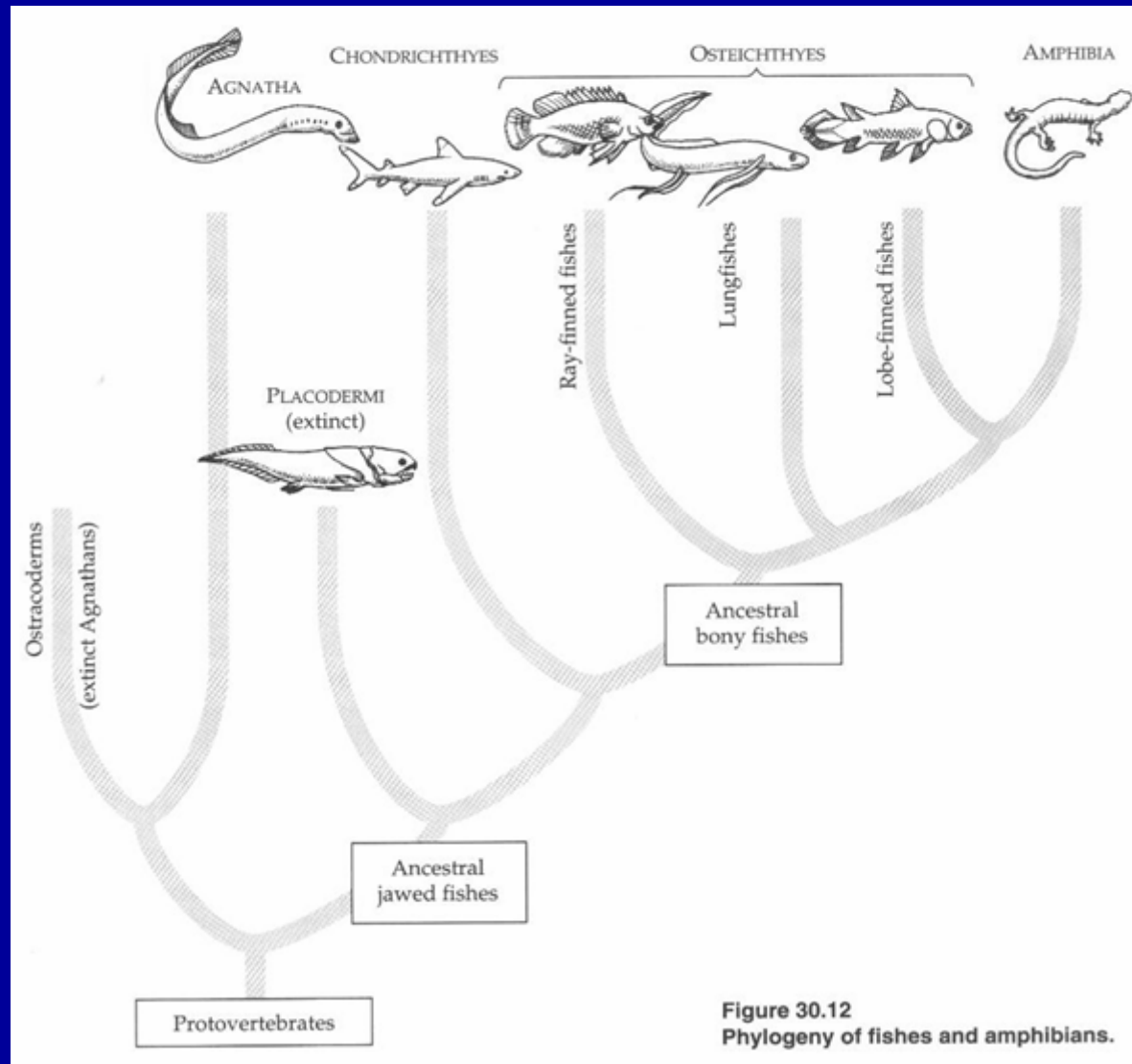


Figure 30.12  
Phylogeny of fishes and amphibians.

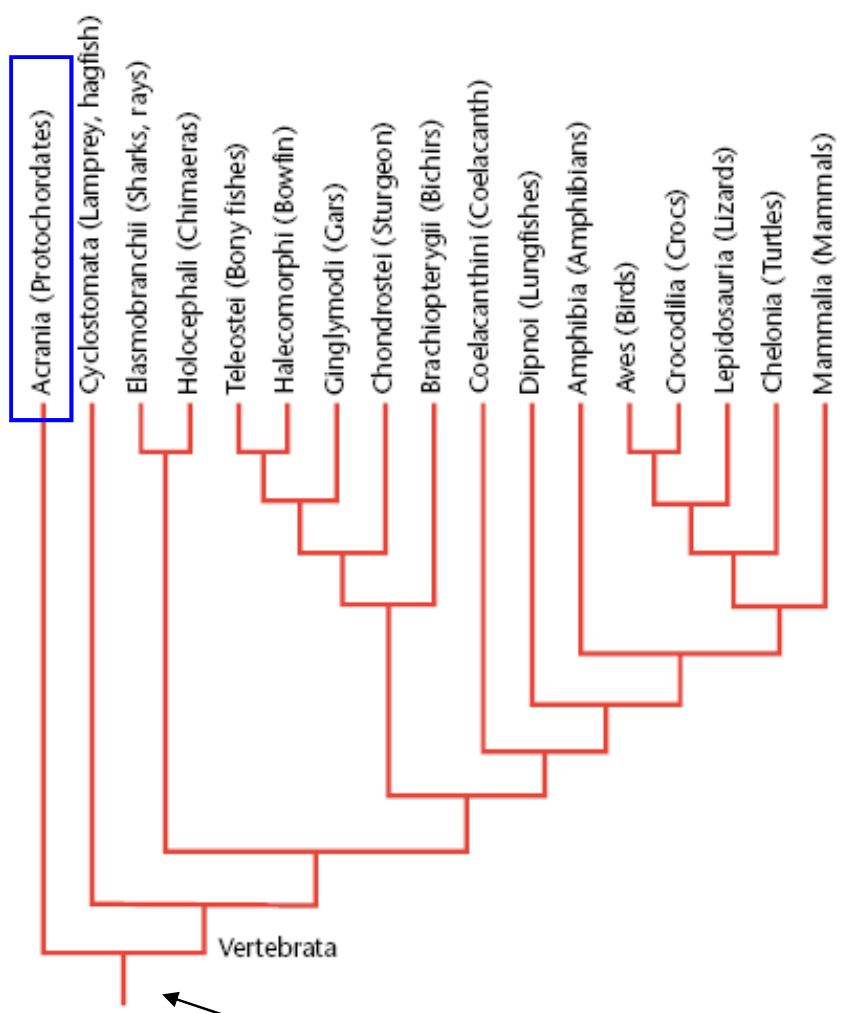


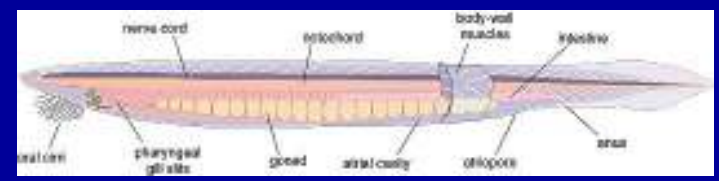
Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

# Protocordados

Anfioxo

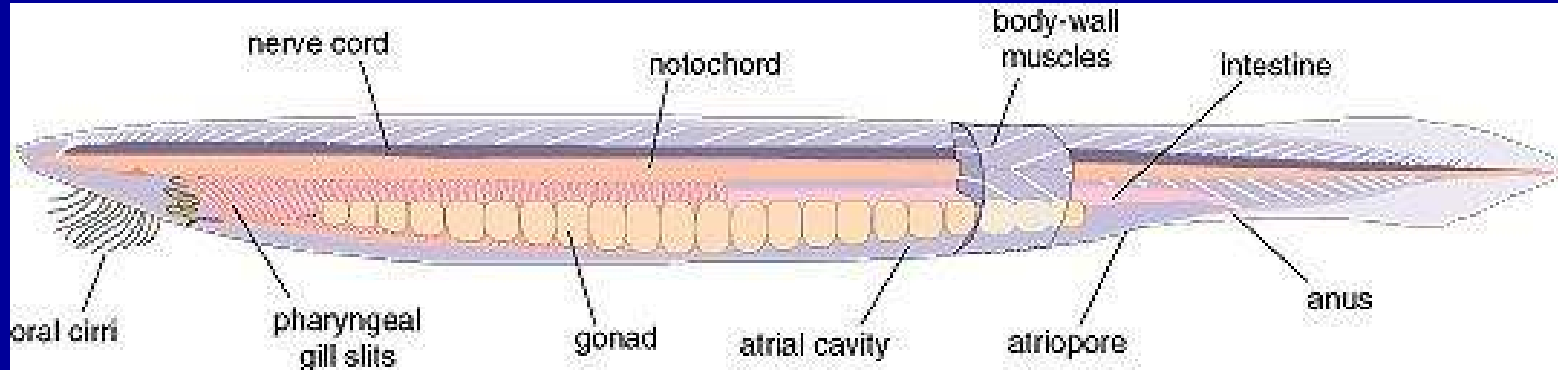
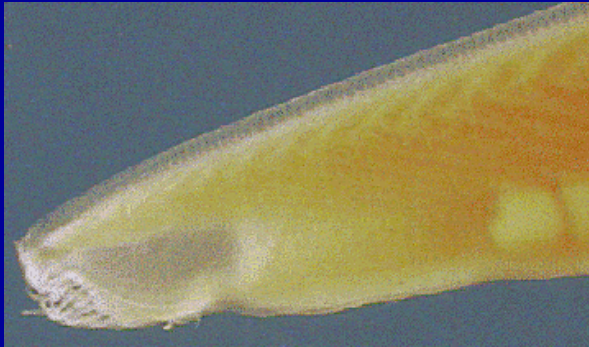
Idade: 600 M.a.?

Diversidade: 22 spp.



# Protocordados

Anfioxo



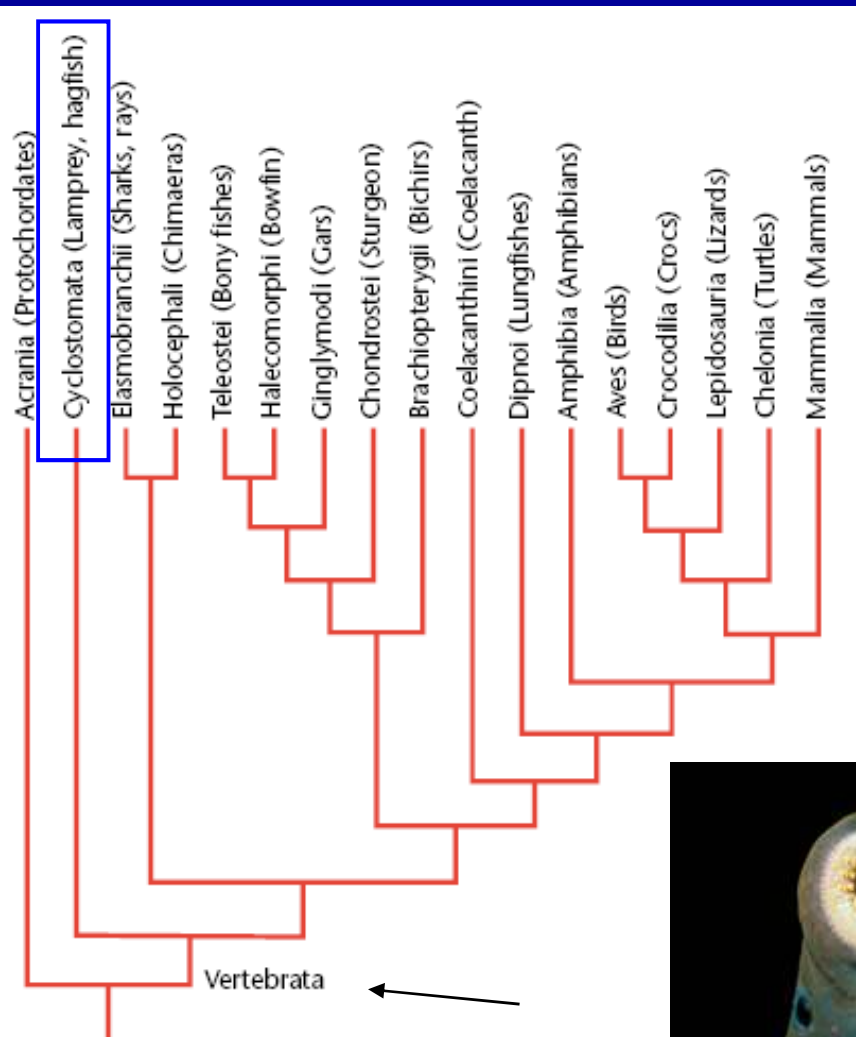


Figure 1 Phylogeny of the Vertebrata, showing evolution relationships of major vertebrate animal groups.



# Agnatha

## Lampréia

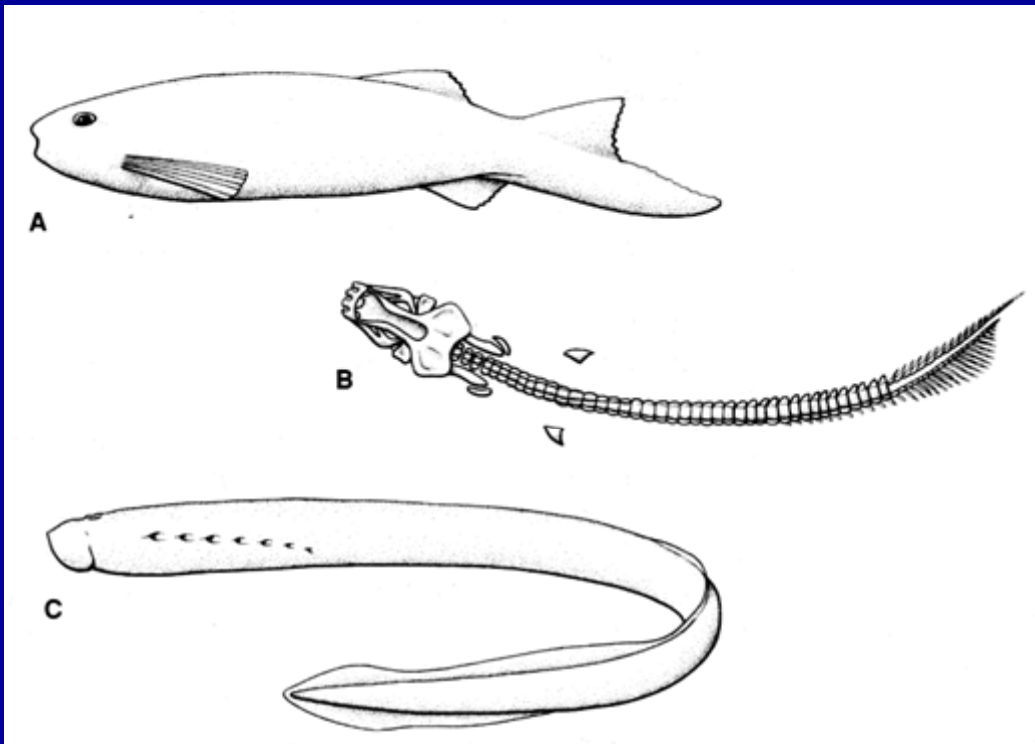
Idade: 550 M.a.

Diversidade: 84 spp.

470 spp. fósseis

Maioria extinta há 360 M.a.





## Agnatha

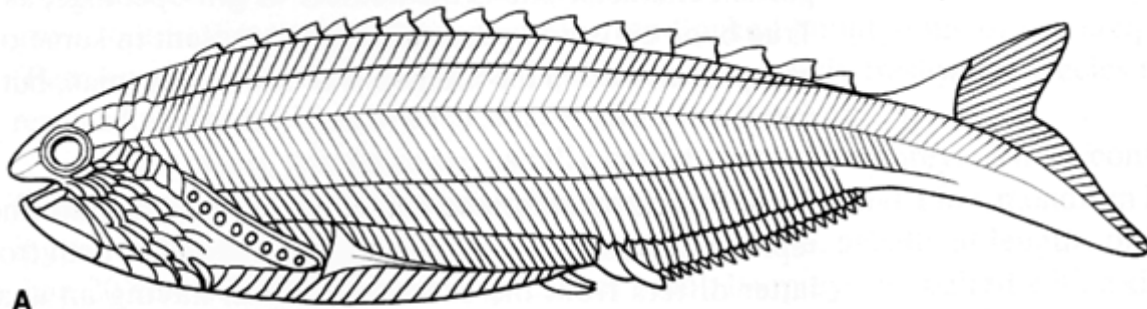
Lampréia

Idade: 550 M.a.

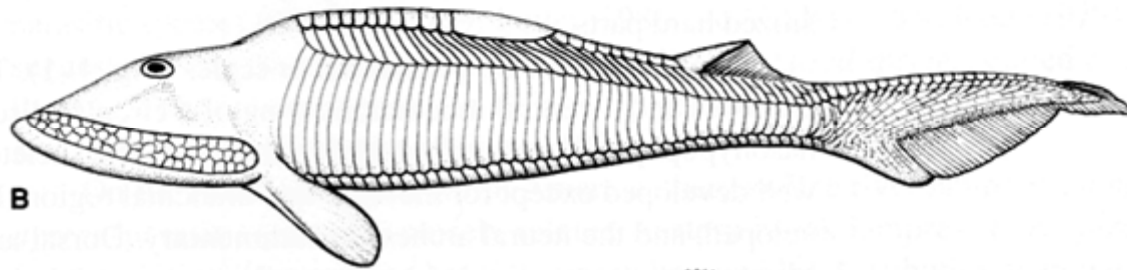
Diversidade: 84 spp.

470 spp. fósseis

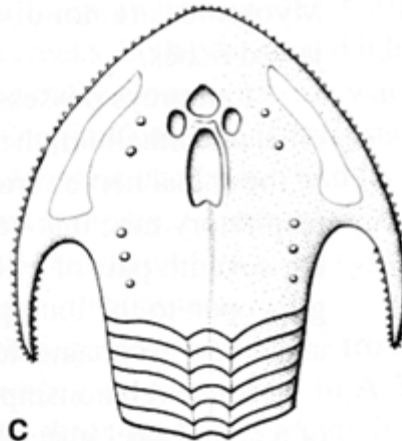
Maioria extinta há 360 M.a.



A

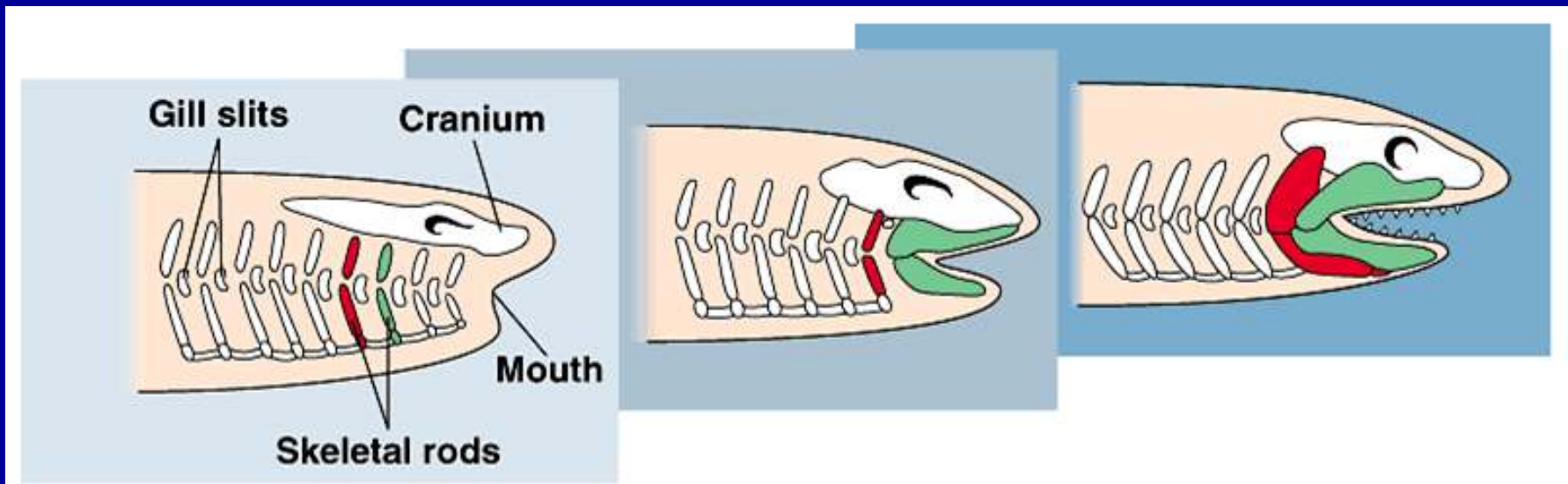


B



C

- A mandíbula dos Vertebrados evoluiu pela modificação de parte do esqueleto (arcos branquiais) que previamente segurava a parte anterior da faringe. As outras partes da estrutura das brânquias (guelras) permaneceu no local próprio para respiração.



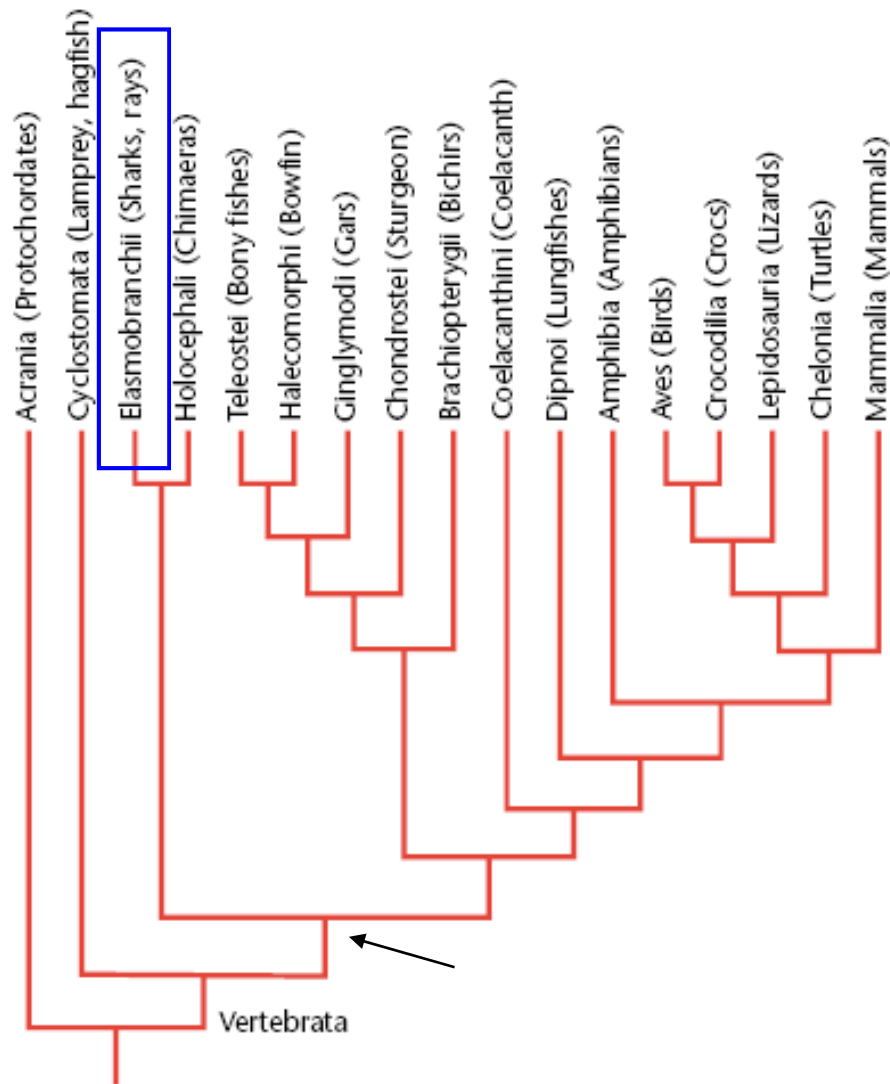


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Chondrichthyes Elasmobrânquios

Idade: 450 M.a.

Diversidade: 850 spp.



## Chondrichthyes

### Elasmobrânquios

Idade: 450 M.a.

Diversidade: 850 spp.





A side-by-side view of a contemporary white shark tooth (left) and a megalodon tooth. The megalodon was a prehistoric great white shark. (Photo by Jeffrey L. Rotman/Corbis. Reproduced by permission.)

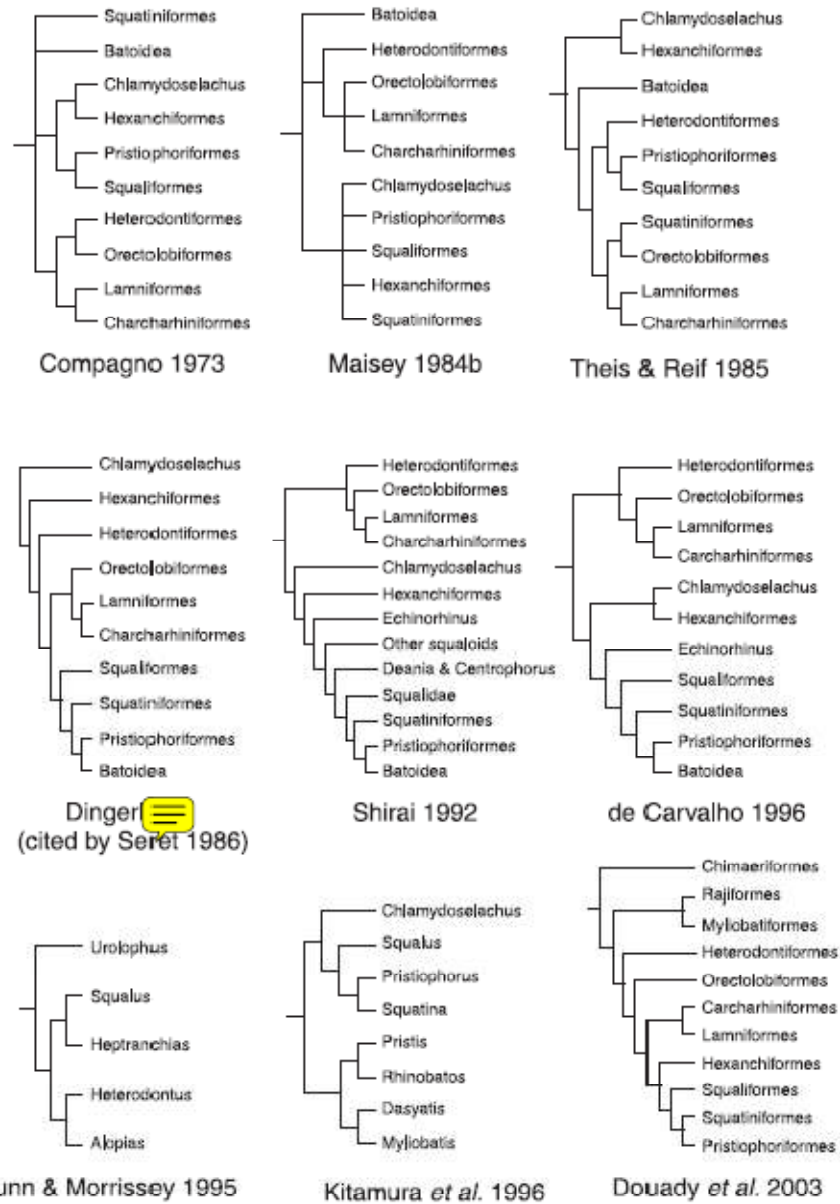
## Chondrichthyes

## Elasmobrânquios

Idade: 450 M.a.

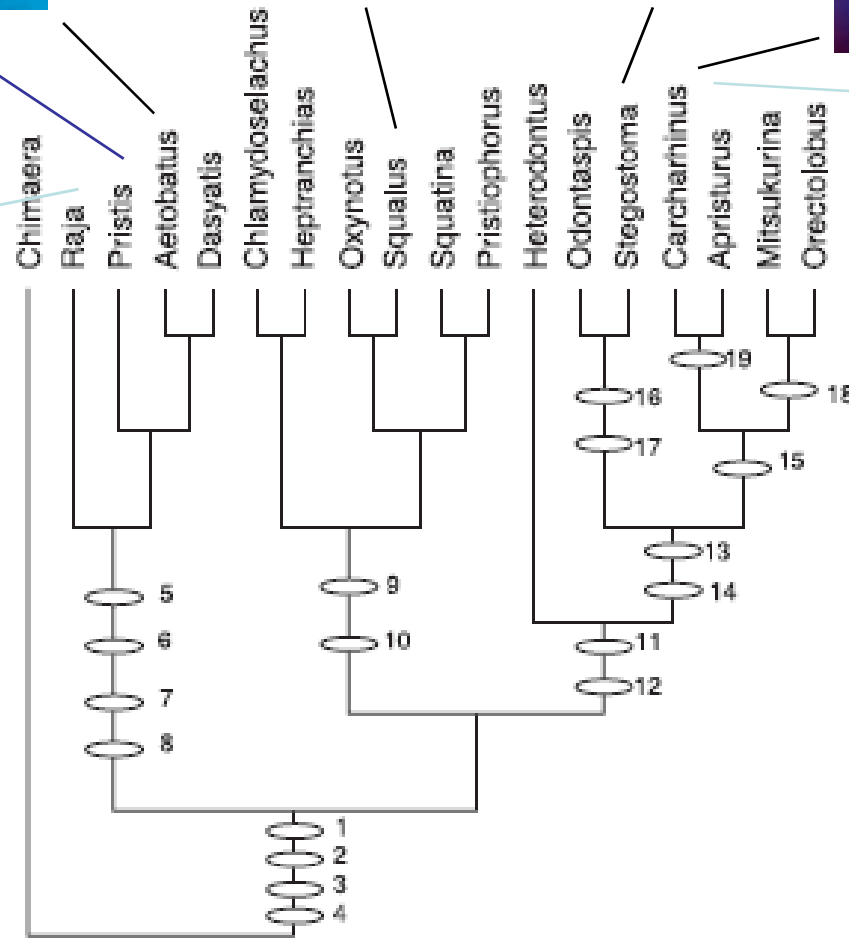
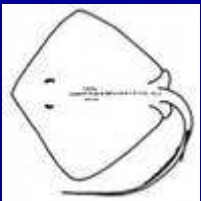
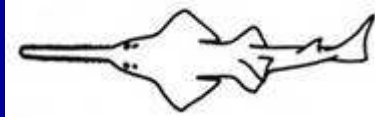
Diversidade: 850 spp.





**Fig. 1.1** Nine hypotheses of relationship among extant elasmobranchs forwarded by various authors. The last 3 are based on molecular sequence data





G. Naylor et al., in press

Ver Videos – figs Elasmos

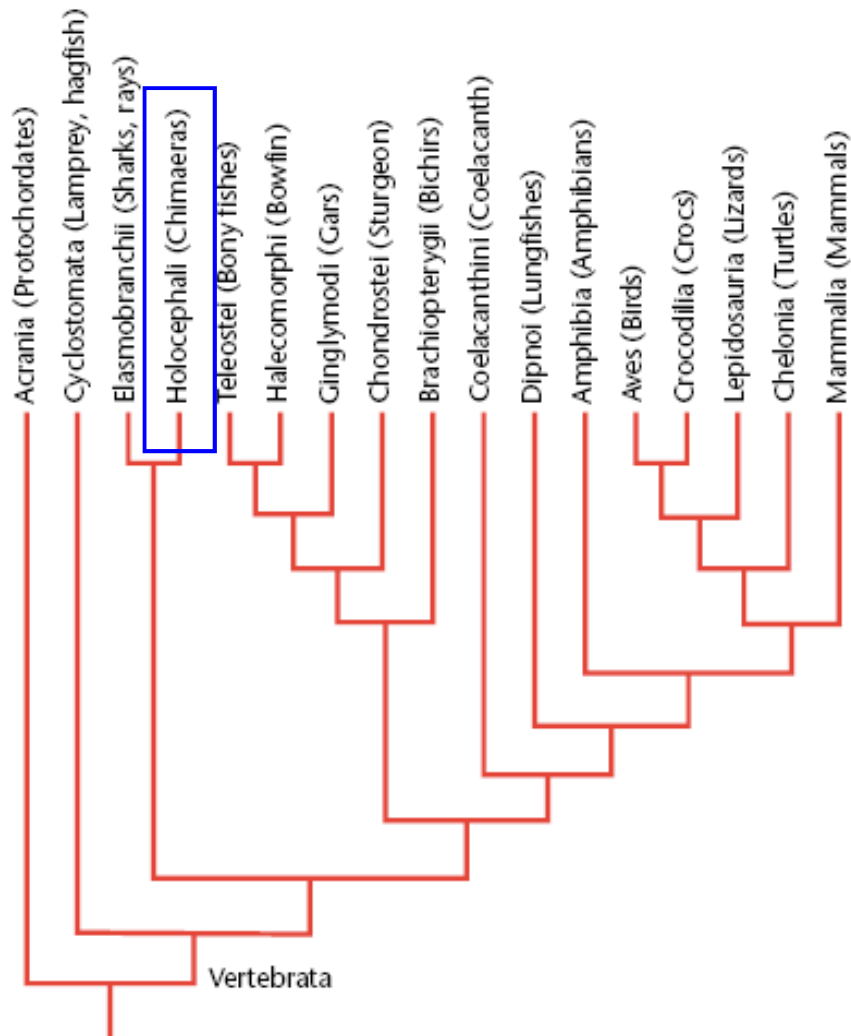


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

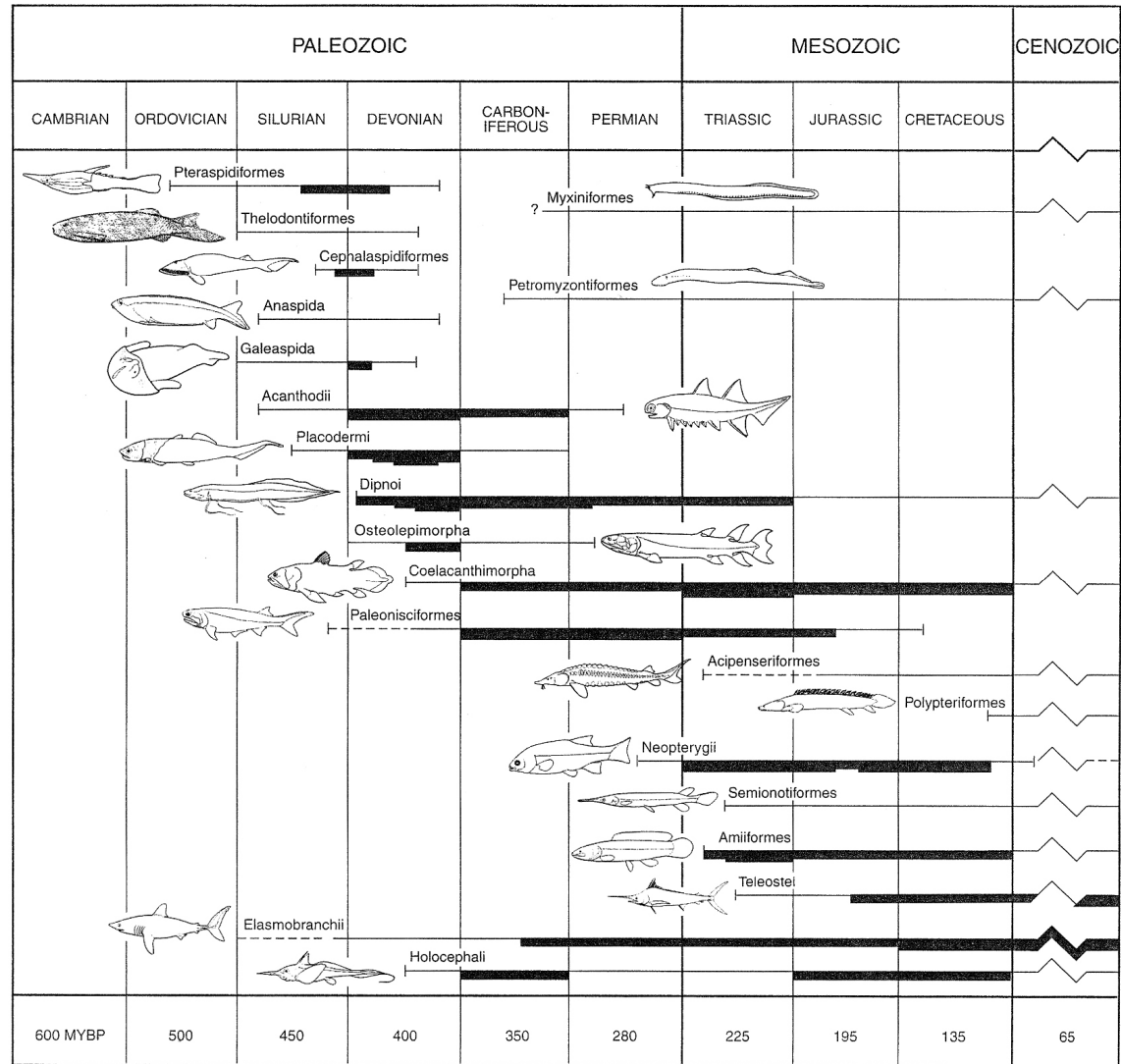
## Holocephali

### Quiméras

Idade: 400 M.a.

Diversidade: 34 spp.





Periods of occurrence and relative diversity of major fish taxa based on the fossil record

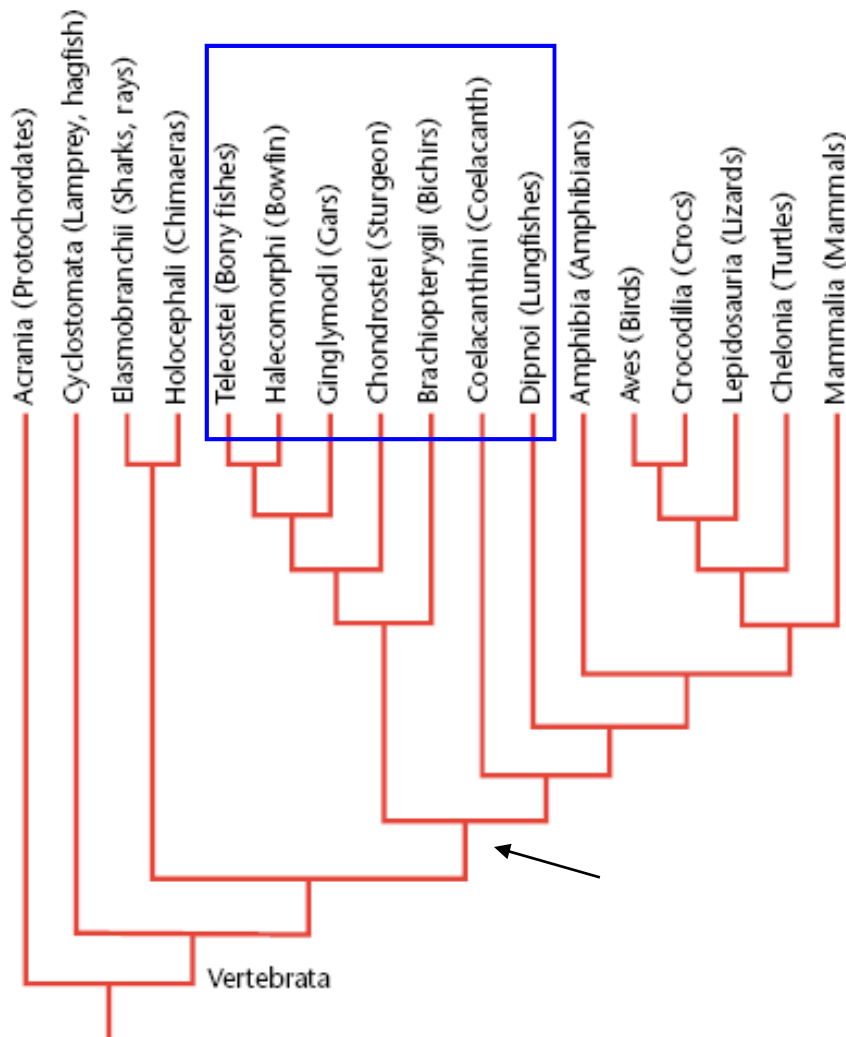
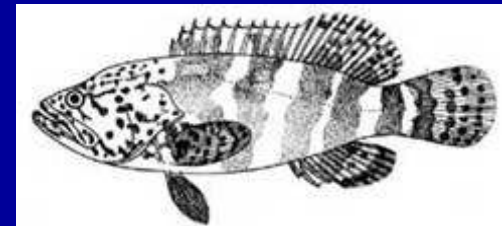


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Osteichthyes

Idade: 400 M.a.

Diversidade: 24.000 spp.



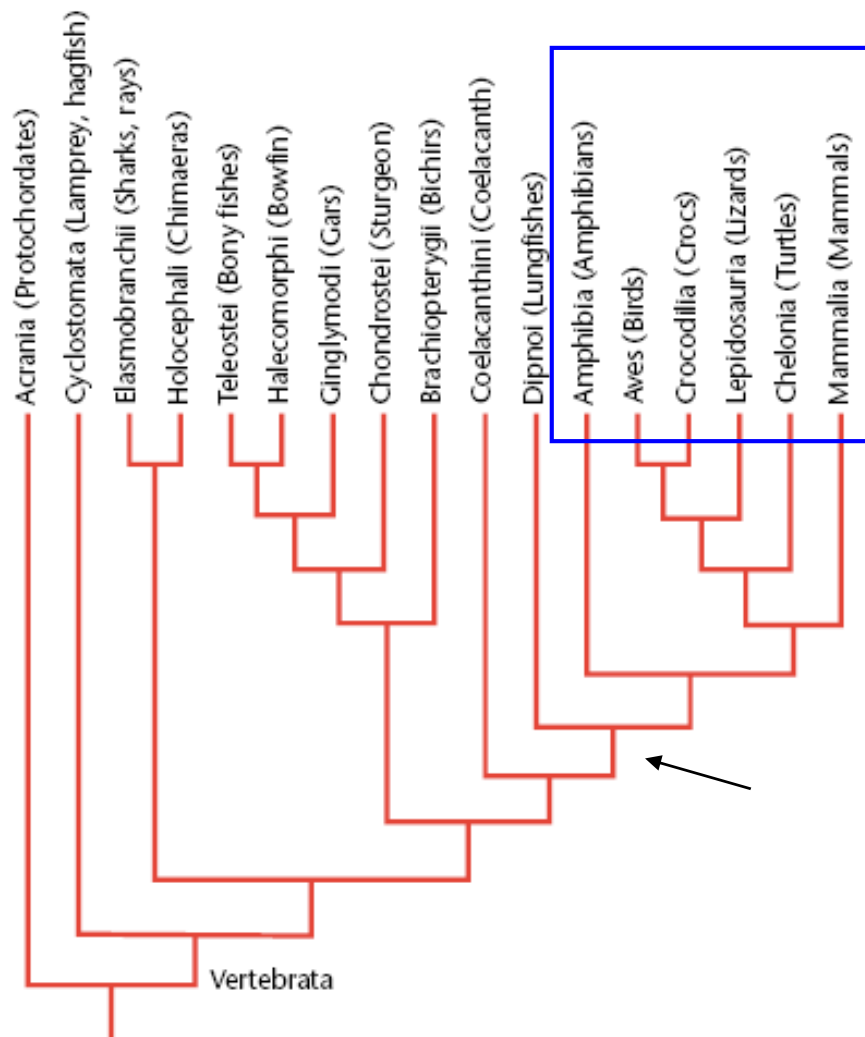


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Tetrapoda

Idade: 350? M.a.

Diversidade: >20.000 spp.



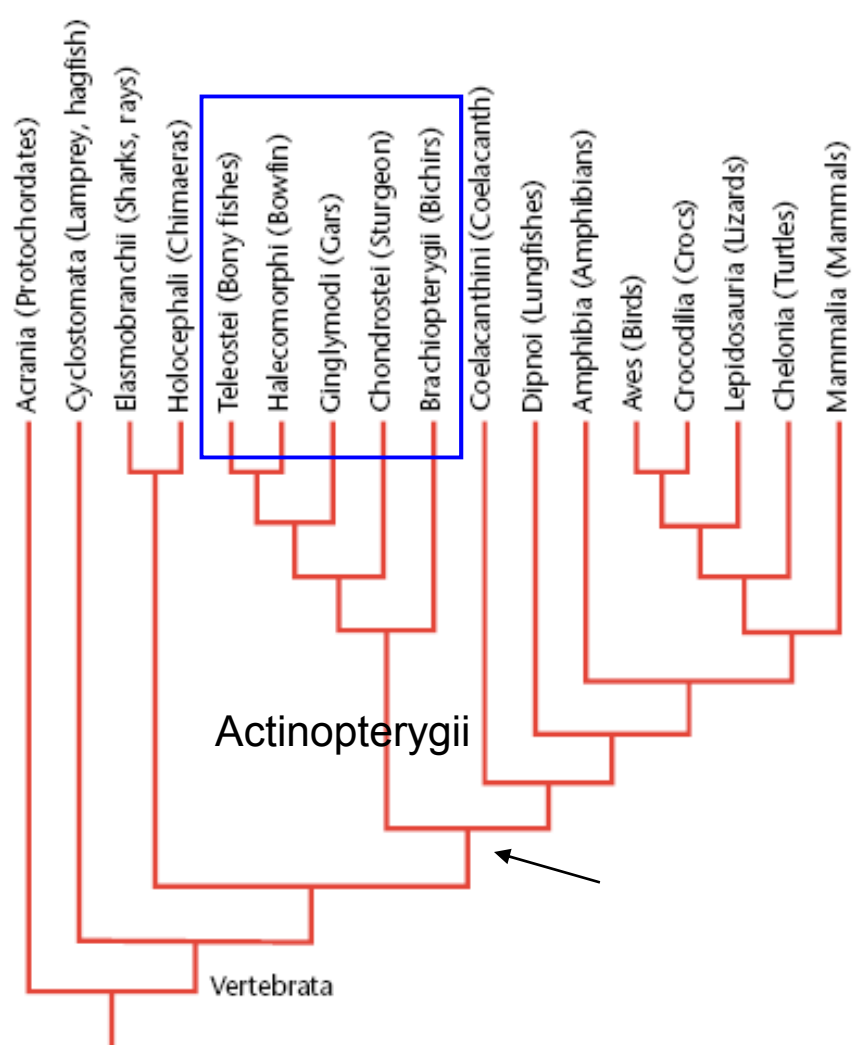


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Classe

### ACTINOPTERYGII

Peixes ósseos com mandíbulas e com nadadeiras sustentadas por filamentos rígidos

Idade: 350? M.a.

Diversidade: >20.000 spp.

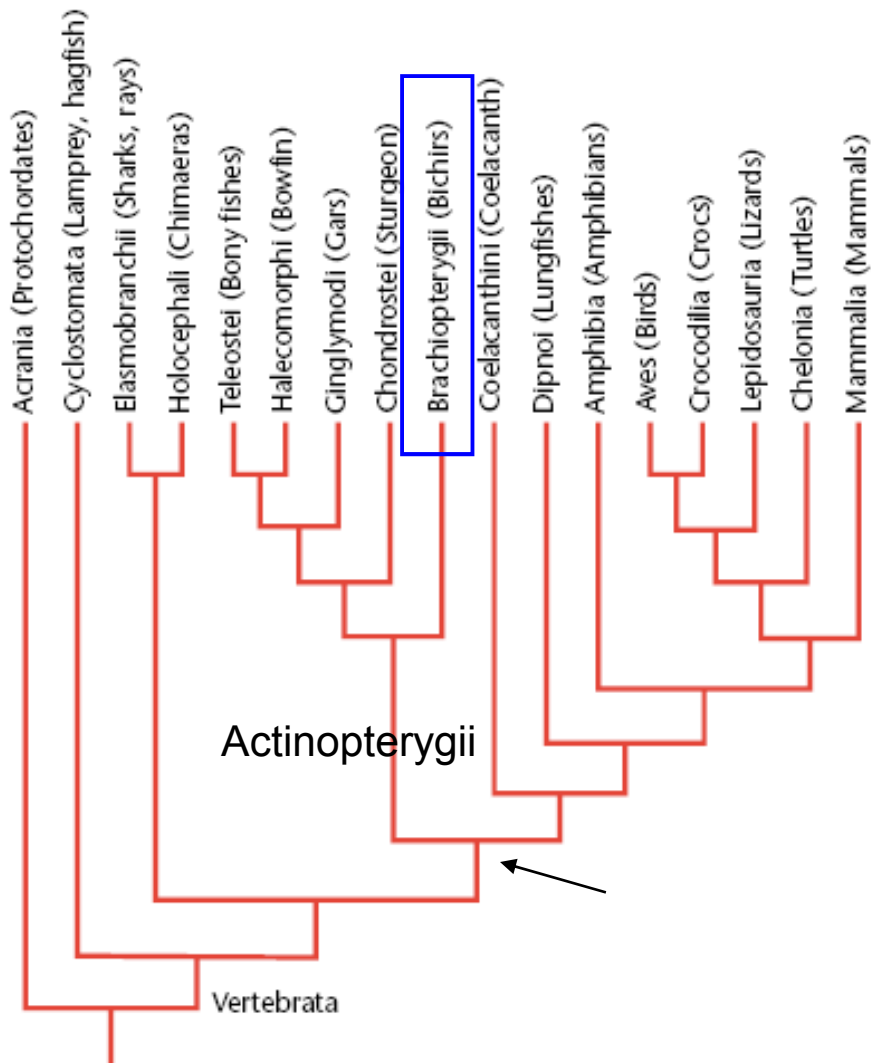


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Branchiopterygii

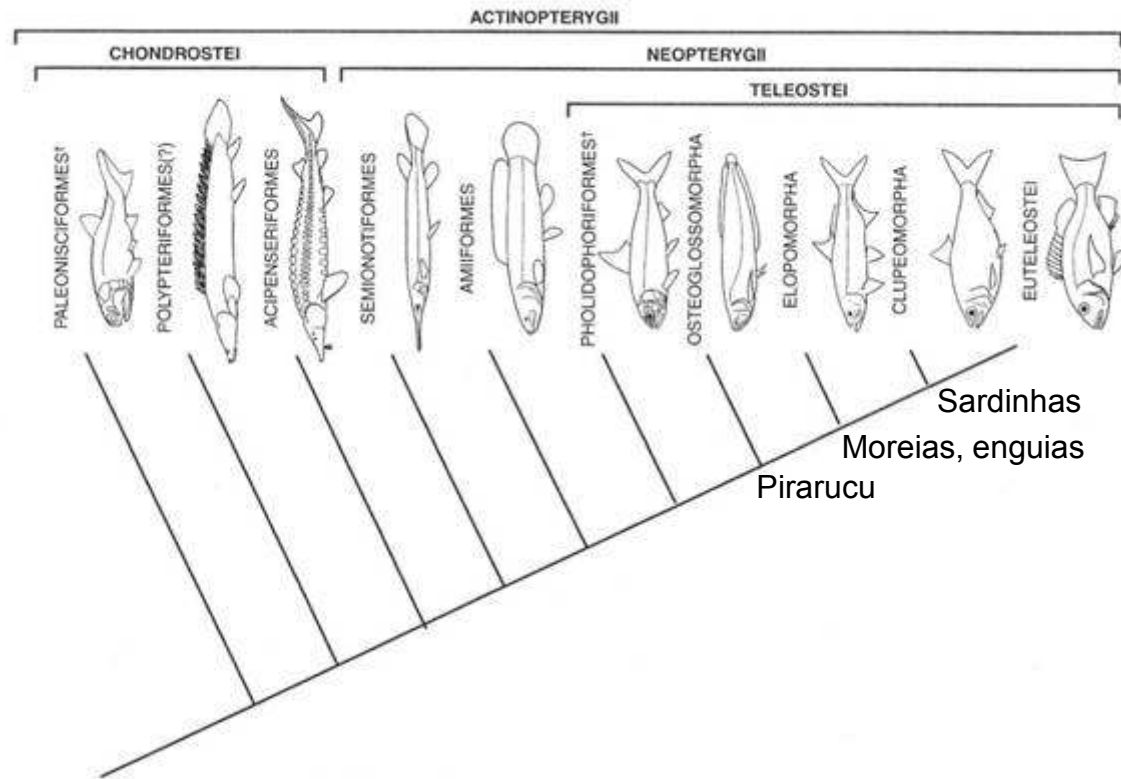
### Bichirs

Idade: 260 M.a.

Diversidade: 7 spp.







Phylogenetic relationships among actinopterygian fishes

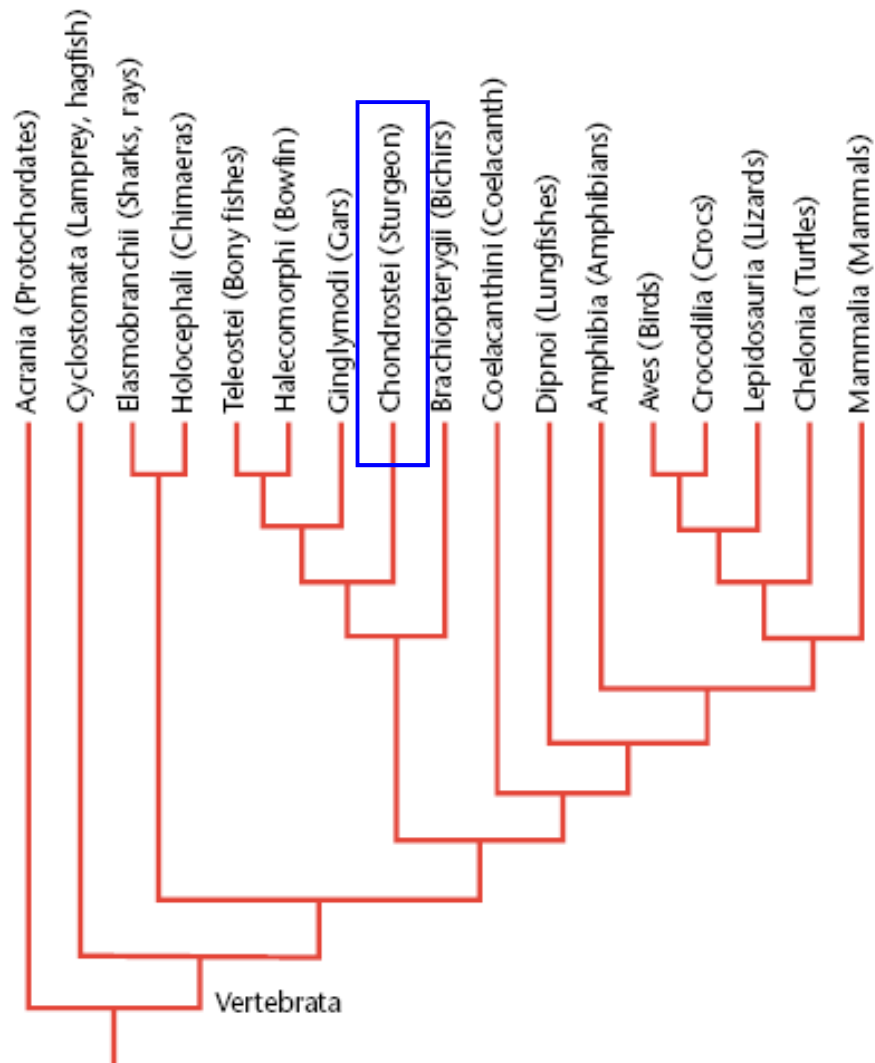


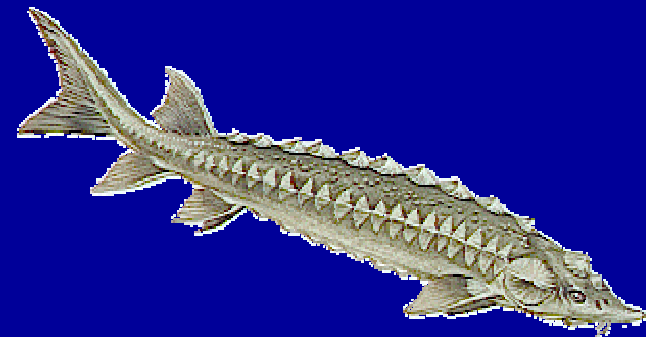
Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Chondrostei

### Esturjões

Idade: 150 M.a.

Diversidade: 25 spp.



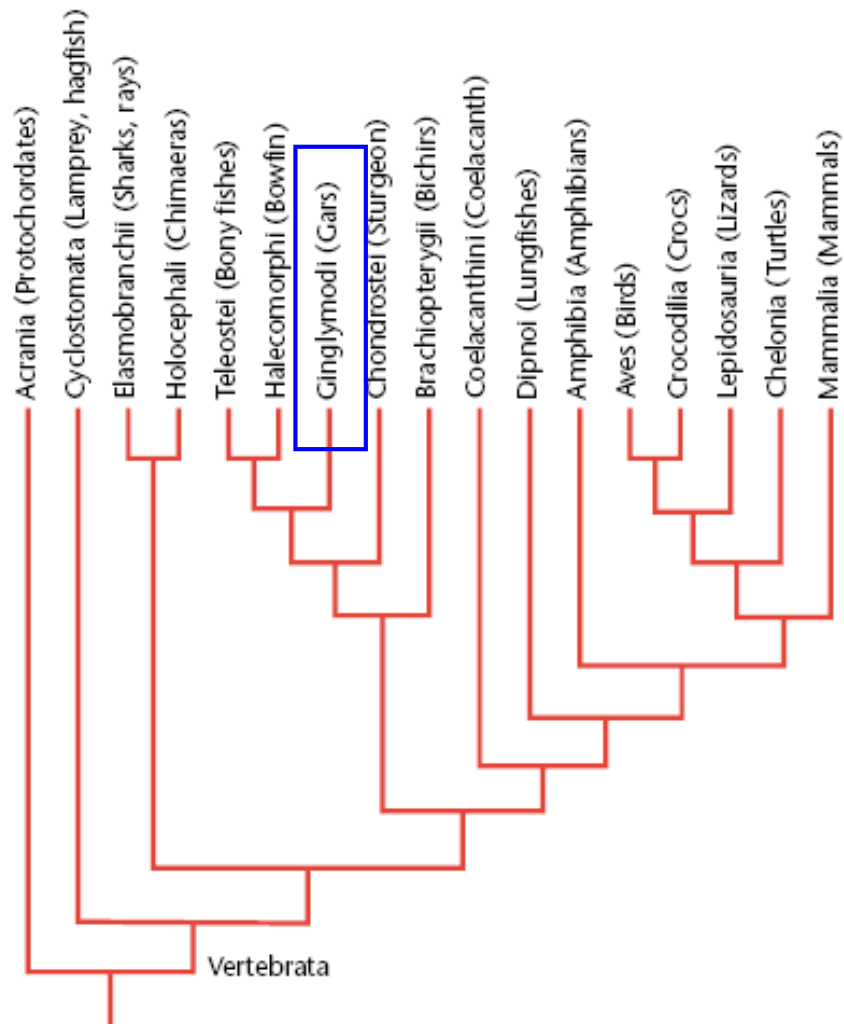


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Ginglymodi

Idade: 80? M.a.

Diversidade: 7 spp.



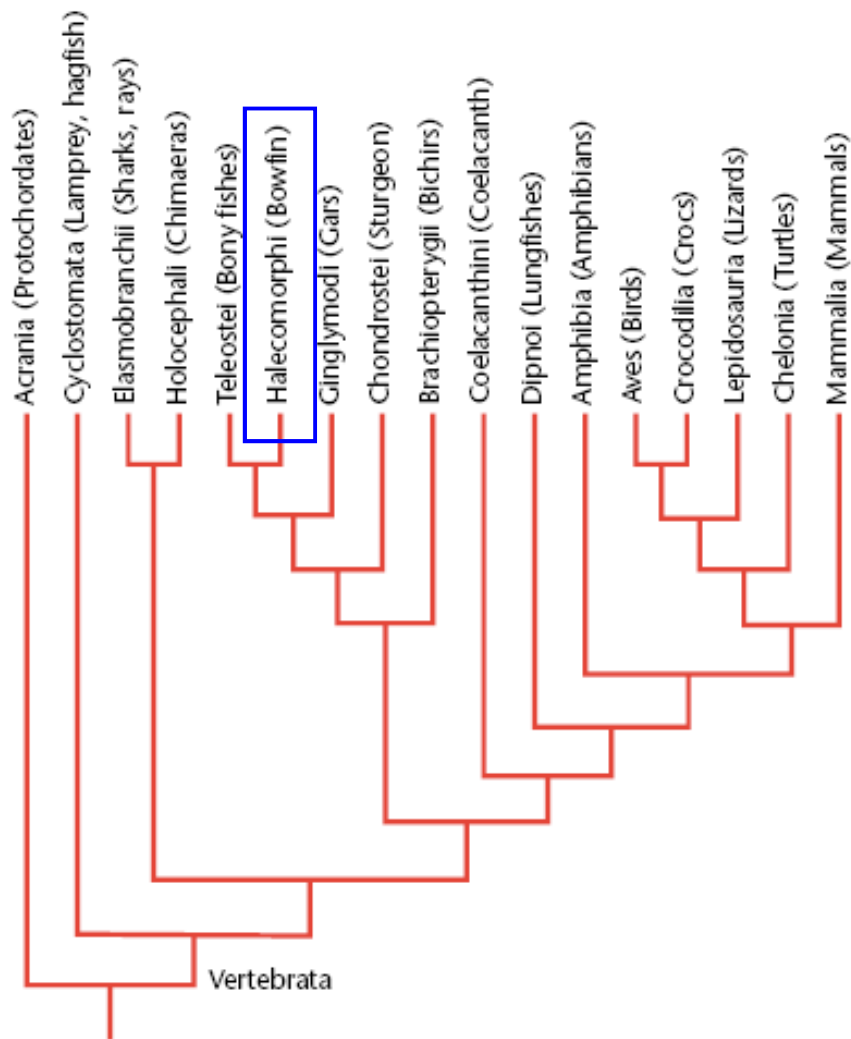


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Halecomorphi

Idade: 200 M.a.

Diversidade: 1 sp.

*Amia calva*

50 gêneros extintos



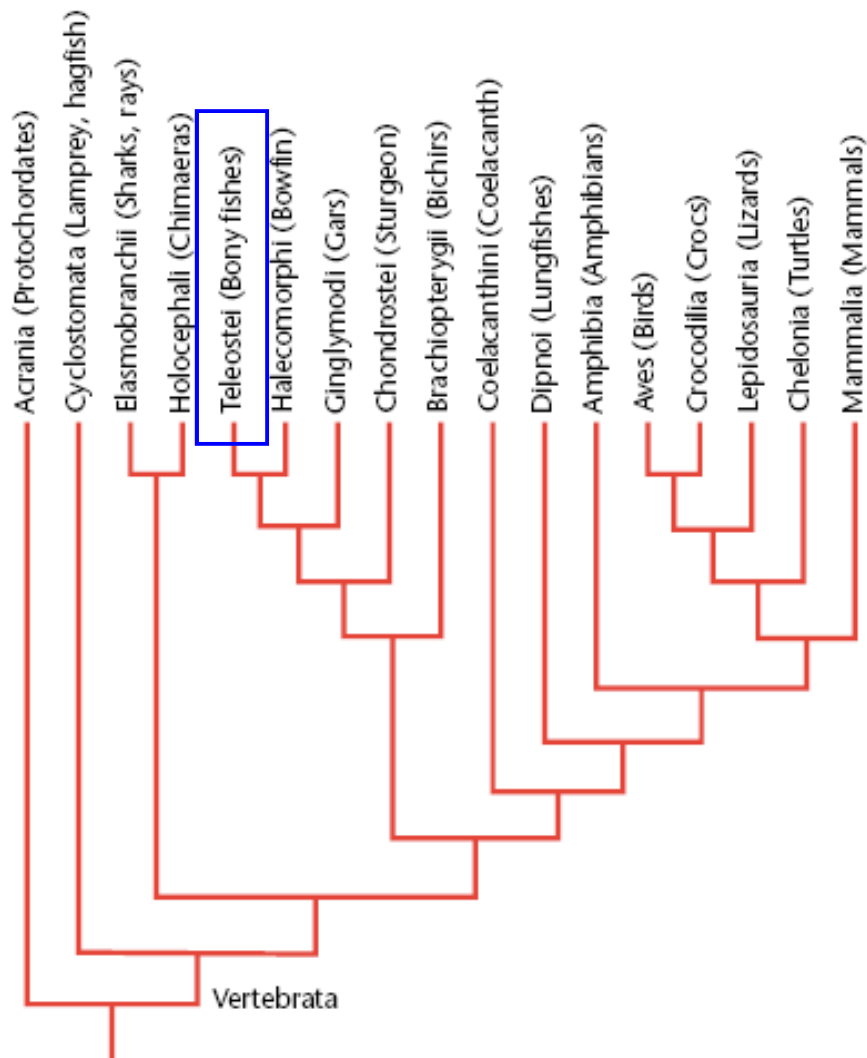


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Teleostei

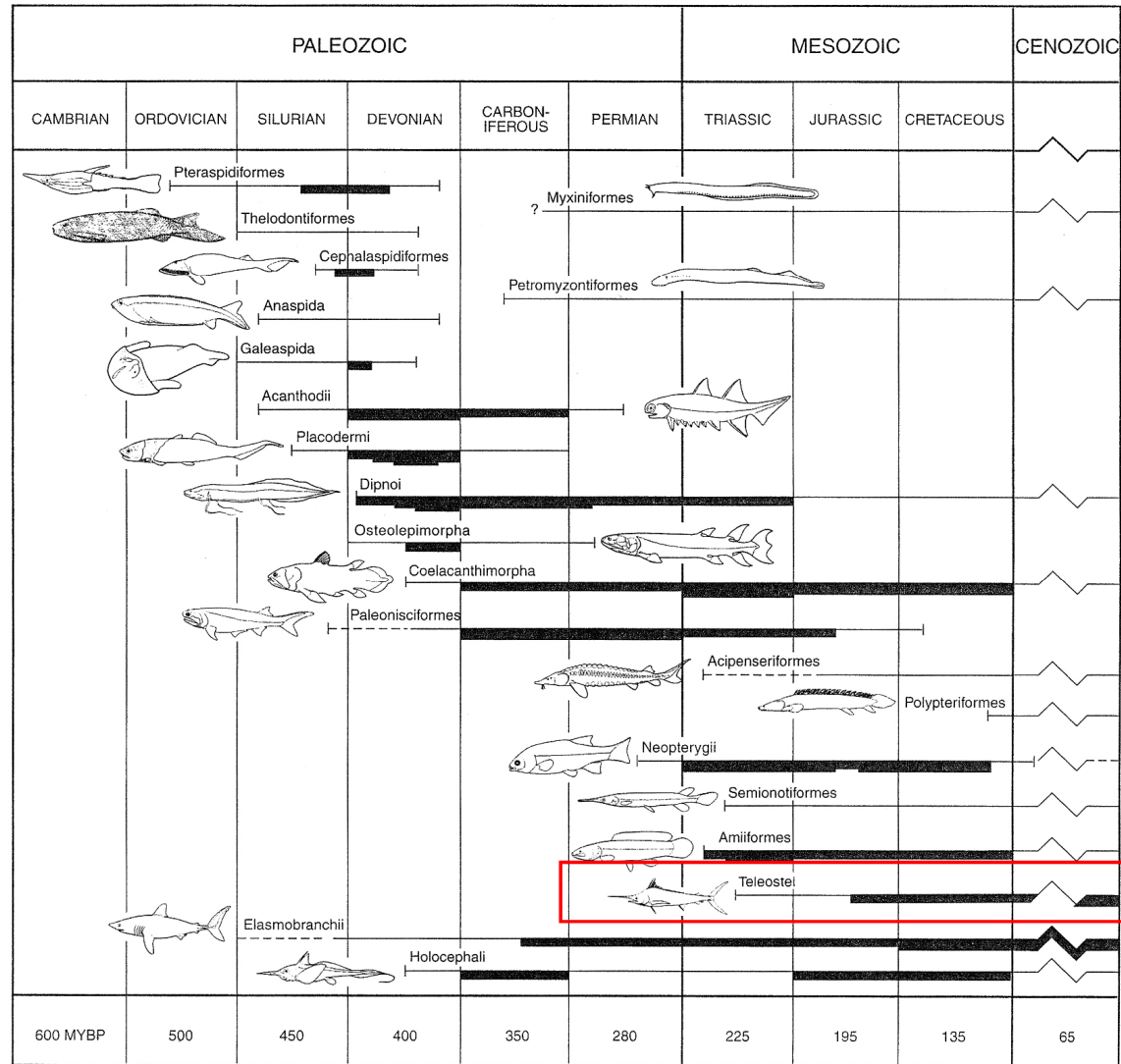
96% dos Osteichthyes

Idade: 200 M.a.

Diversidade: 23.000 spp.

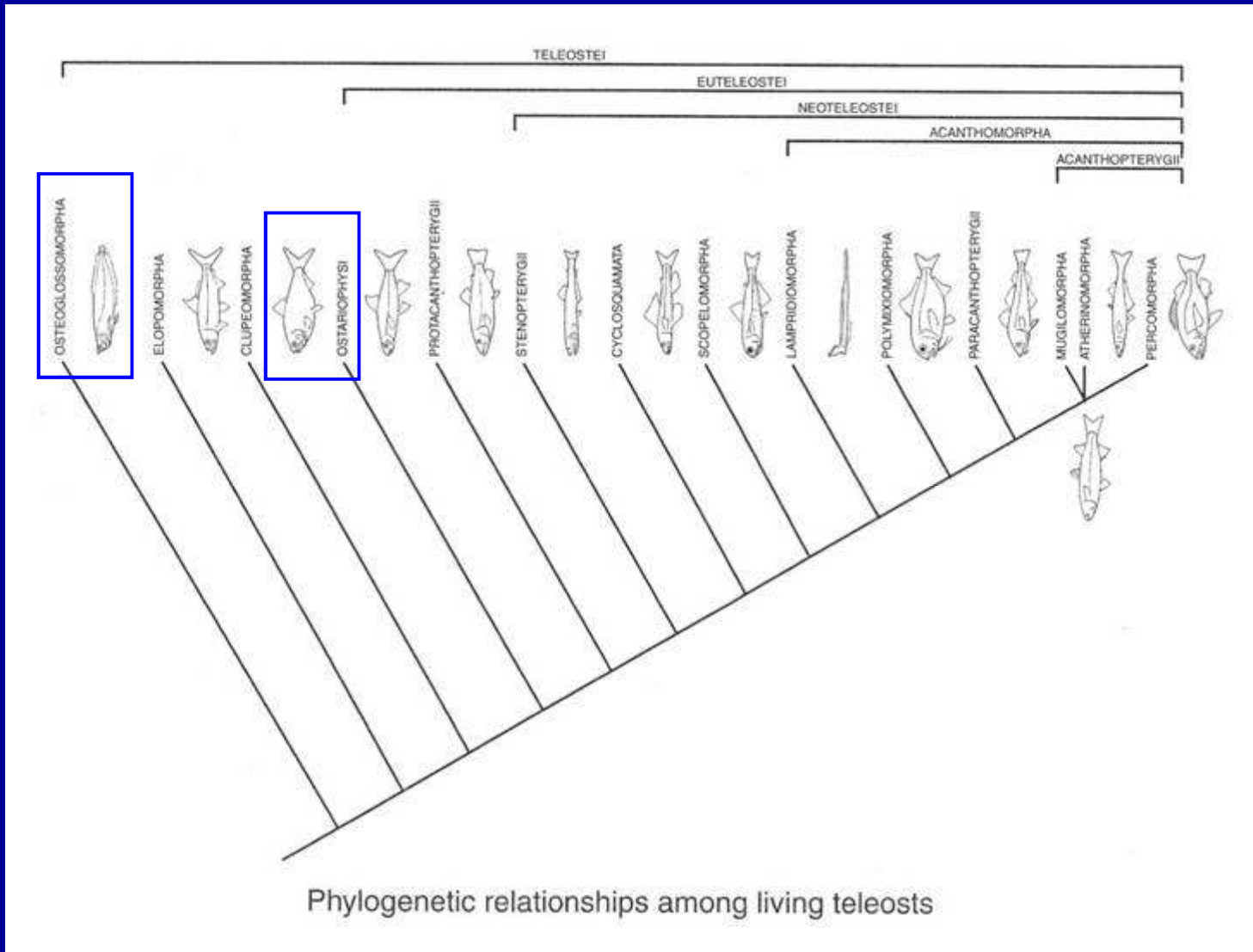
Grande diversificação no Cretáceo (140-65 M.a.)





Periods of occurrence and relative diversity of major fish taxa based on the fossil record







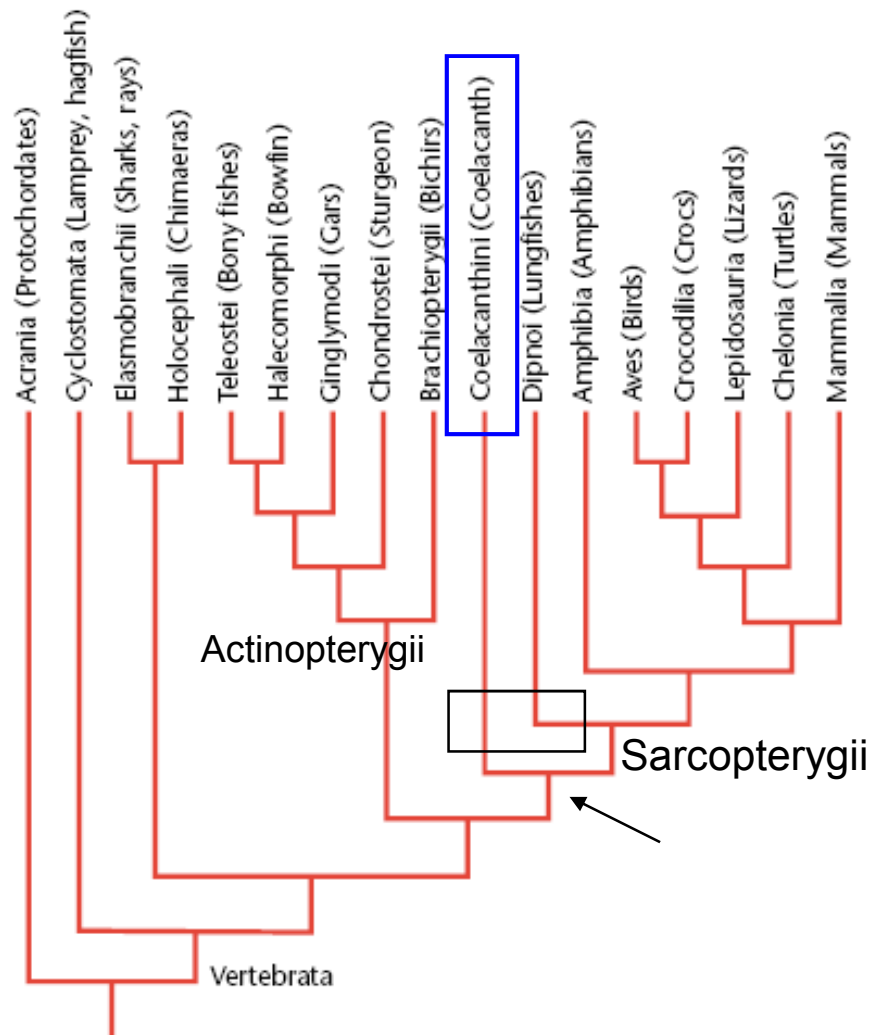


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Sarcopterygii

Nadadeiras lobadas  
carnosas

## Coelacanthini

## Celacanto

Idade: 400 M.a.

Pico 240 M.a.

Diversidade: 2 spp. ?

50 gêneros extintos

Pensava-se extinto há 65  
M.a. (até 1938)



150 a 700m prof. - 1,8m comp femea - viviparo

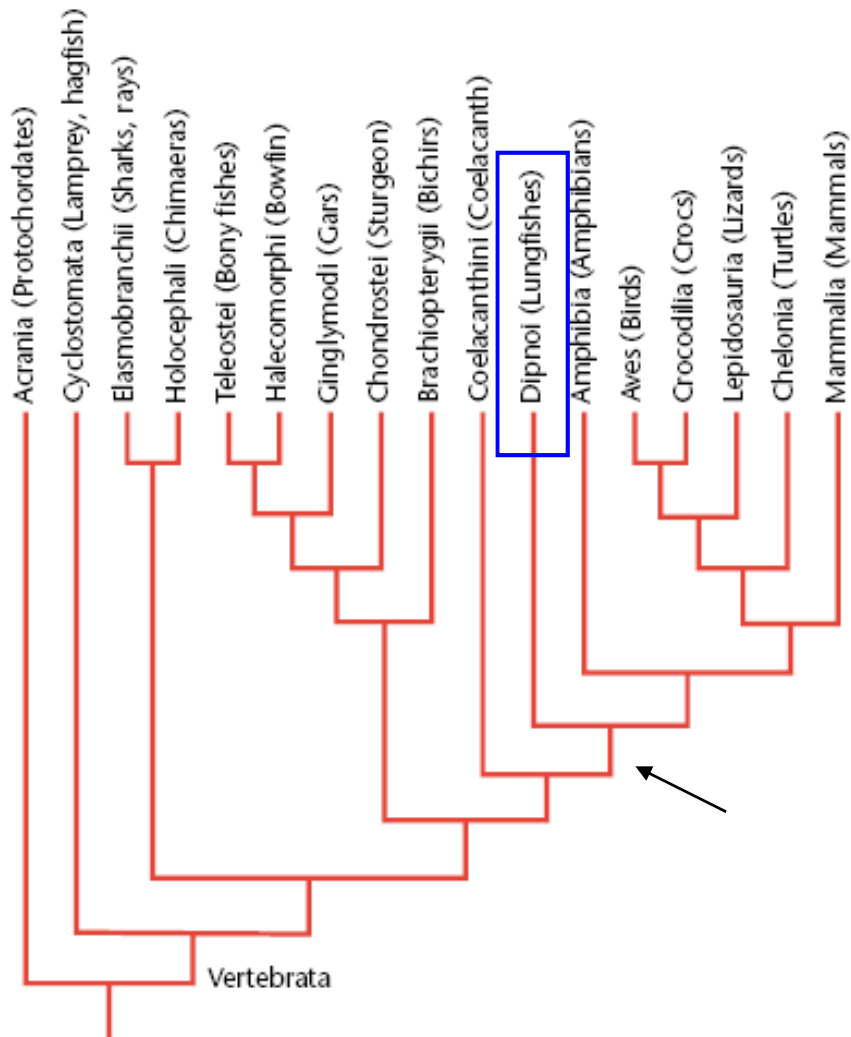


Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Dipnoi

### Peixes Pulmonados

Idade: 380 M.a.

Diversidade: 6 spp.



## Dipnoi

Peixes Pulmonados



**Ordem Ceratodontiformes**  
Peixe pulmonado australiano  
*Neoceratodus forsteri*

## Dipnoi

Peixes Pulmonados



Peixe pulmonado **Sul-Americano**  
(*Lepidosiren paradoxa*)

**pirambóia**

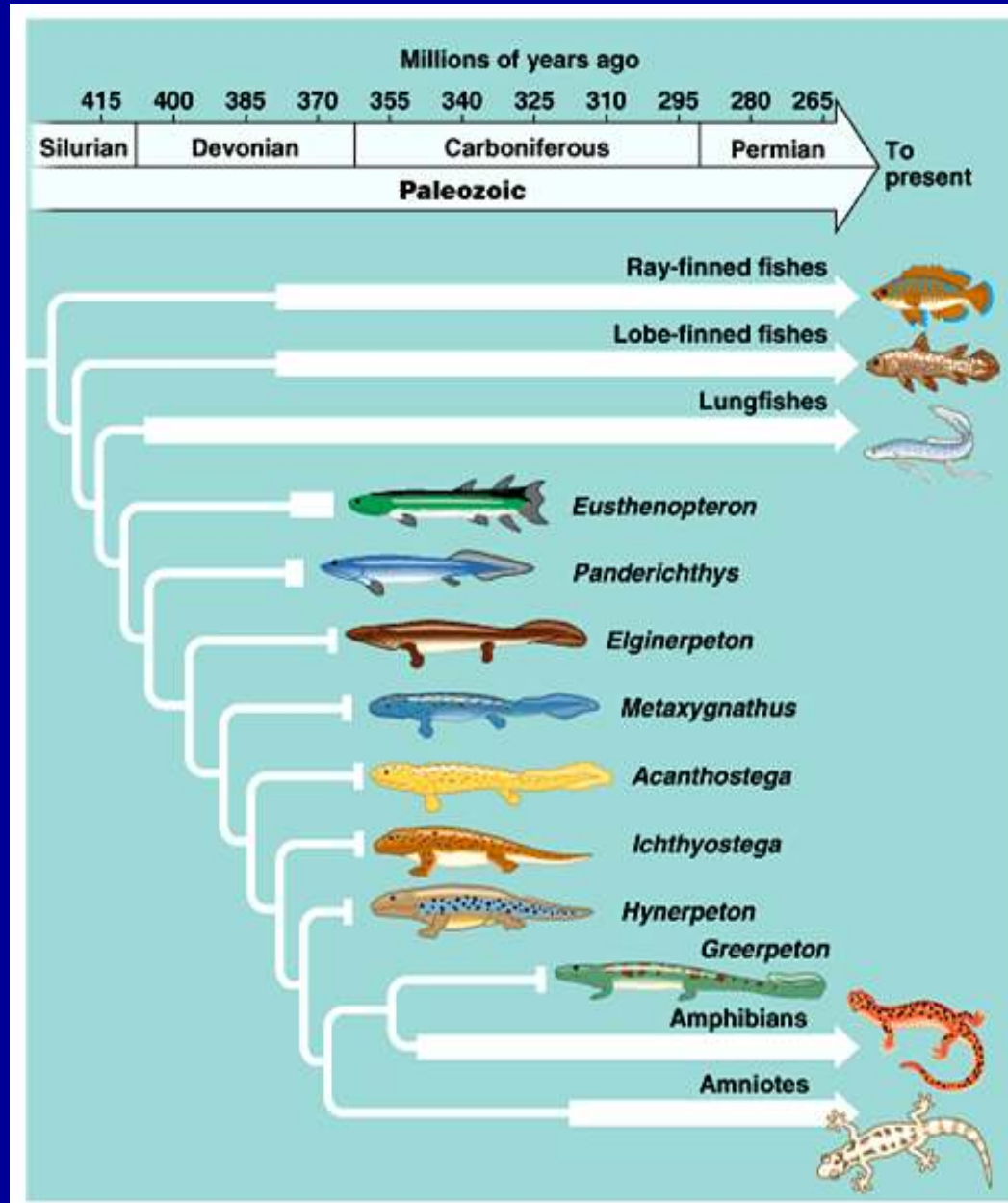


## Dipnoi

### Peixes Pulmonados



Peixe pulmonado **Africano** (gen. *Protopterus*)



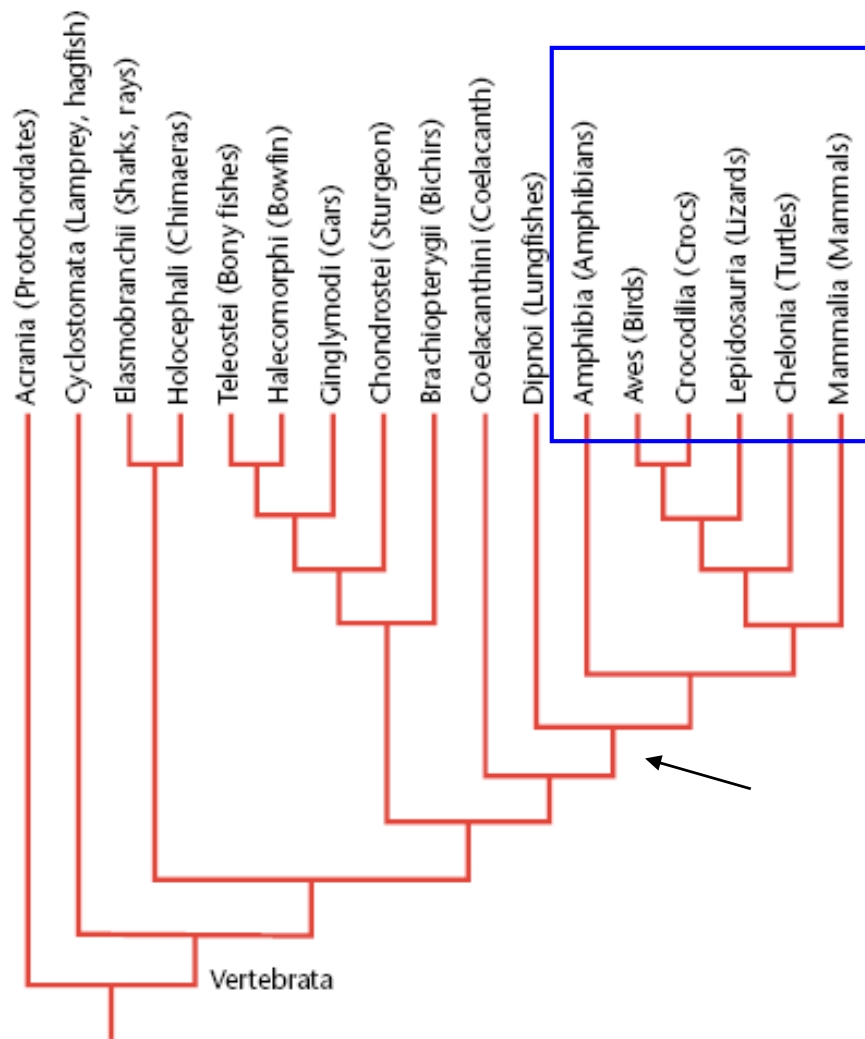


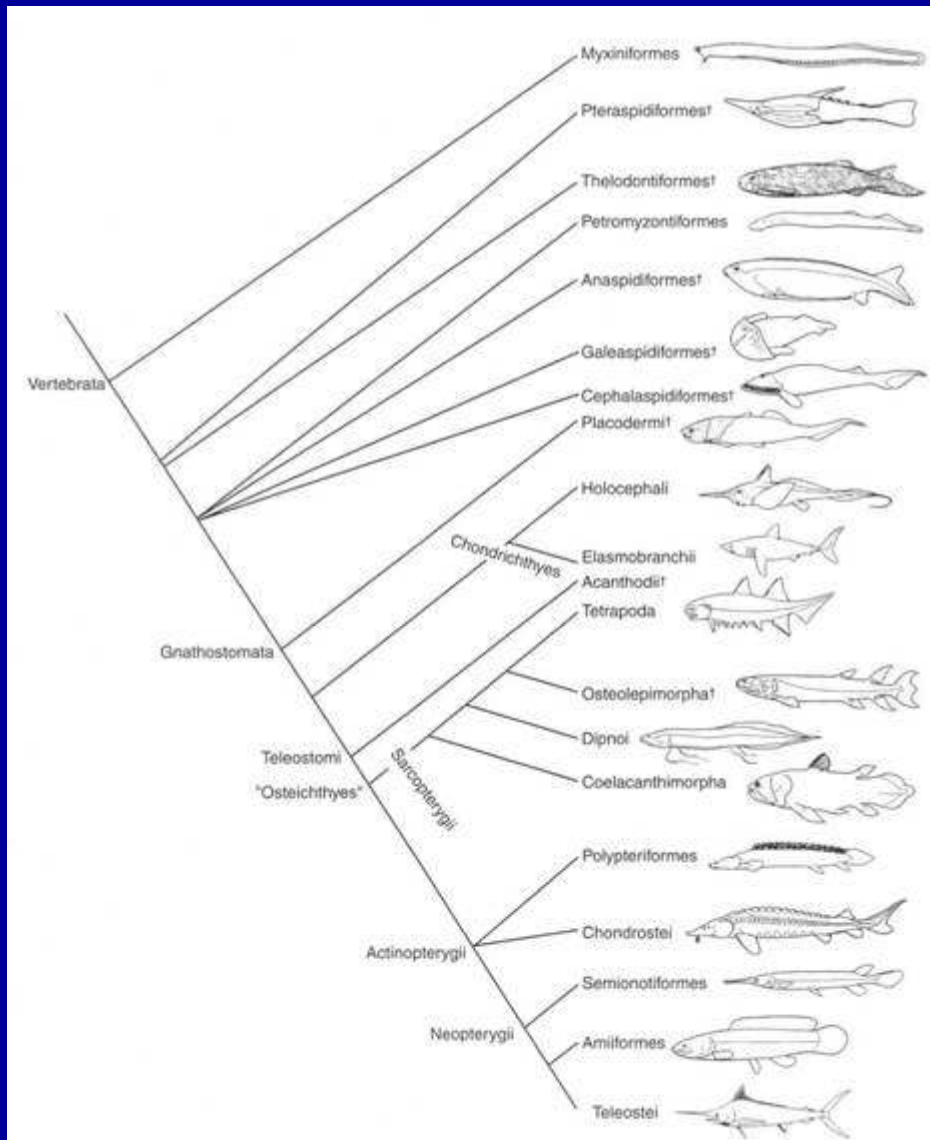
Figure 1 Phylogeny of the Vertebrata, showing evolutionary relationships of major vertebrate animal groups.

## Tetrapoda

Diversidade: 20.000 spp.







Hypothesized phylogenetic relationships among living and selected extinct (†) fish groups. Mostly after Nelson 1994 (see Chaps. 11, 13).

**Ver guia de ID do Daniel!!**