

Anura



# Anura - Glossário

Paratóides

Pregas dorso-laterais

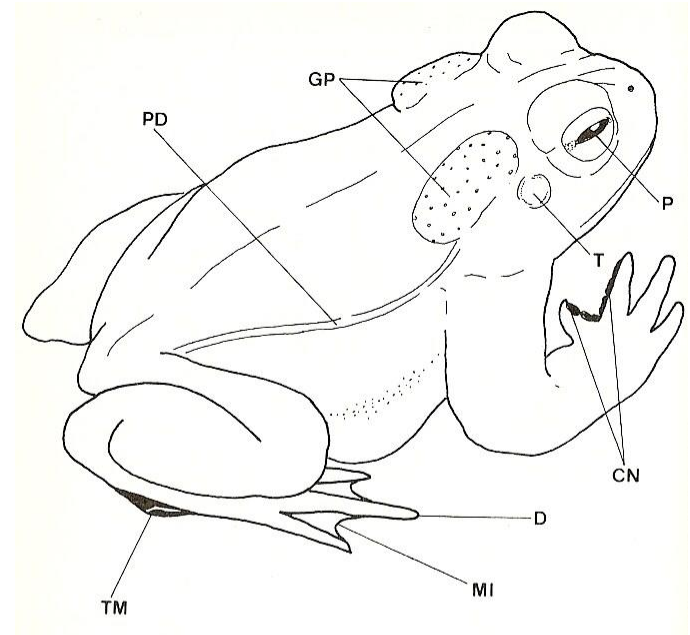
Tímpano

Tubérculos

Calosidades nupciais

Pupila

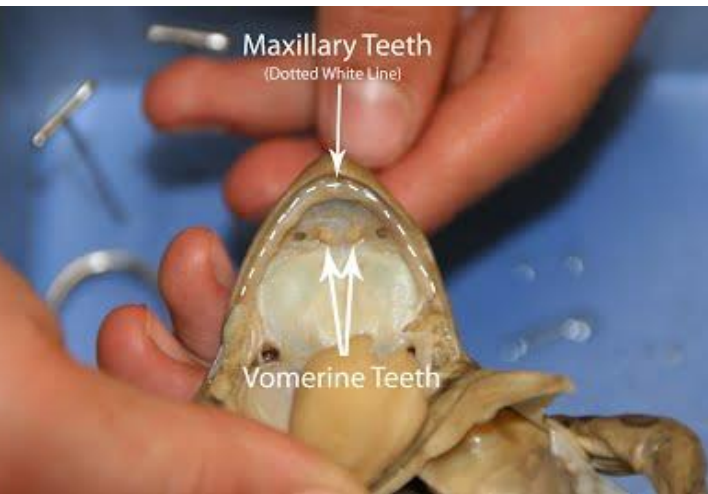
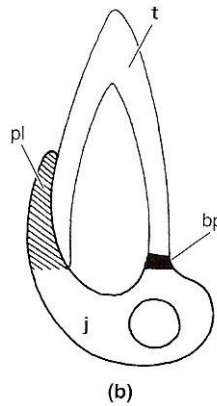
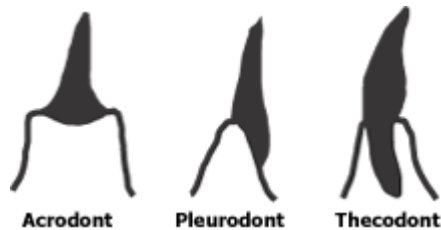
Cloaca





# Anura - Glossário

## Dentição



Pleurodonte ou ausente

Cintura escapular

arciferal ou firmisternal

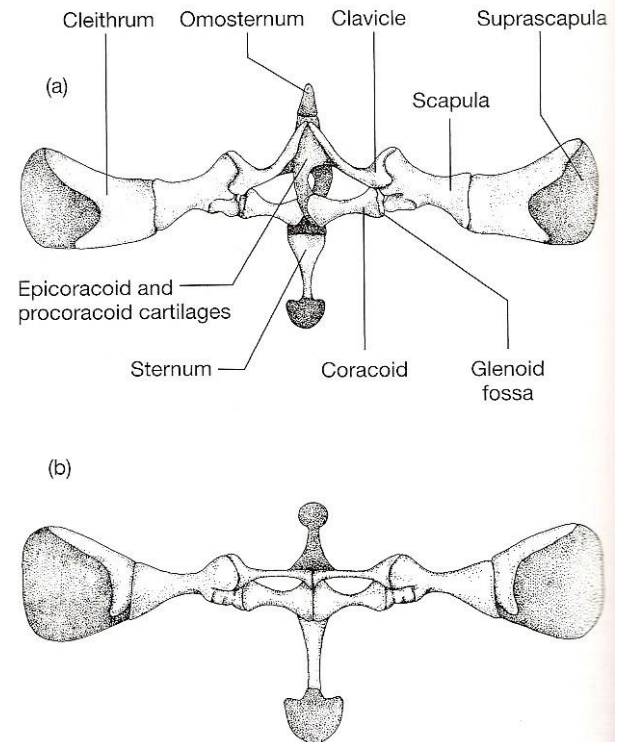
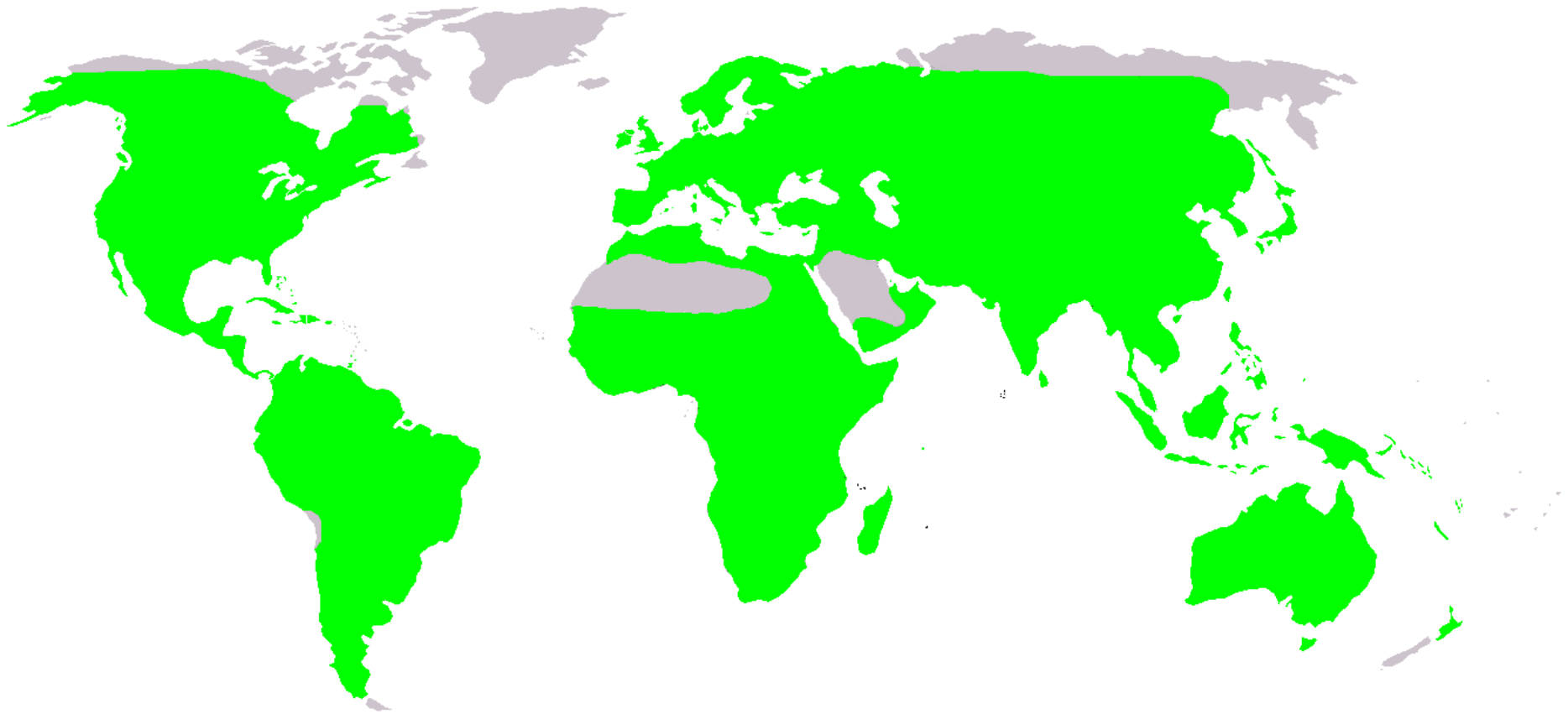
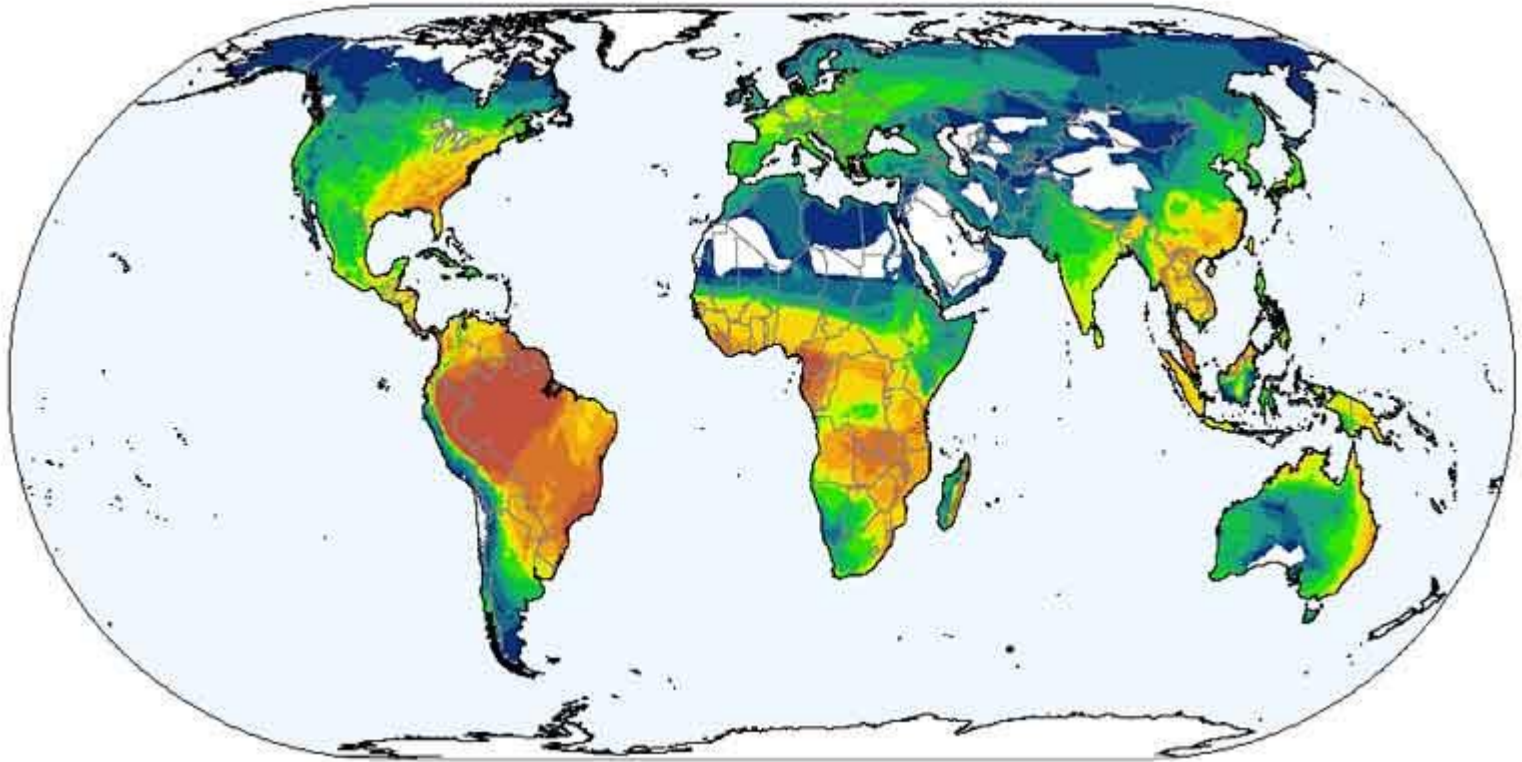


Figure 3-17 Morphology of frog pectoral girdles (a) Ventral view of the arciferal pectoral girdle of *Leptodactylus bolivianus* ("Leptodactylidae"). (b) Ventral view of the firmisternal pectoral girdle of *Rana pipiens* ("Ranidae"). Dark stippling is cartilage. (Source: Modified from Trueb 1973.)

# Anura – distribuição global



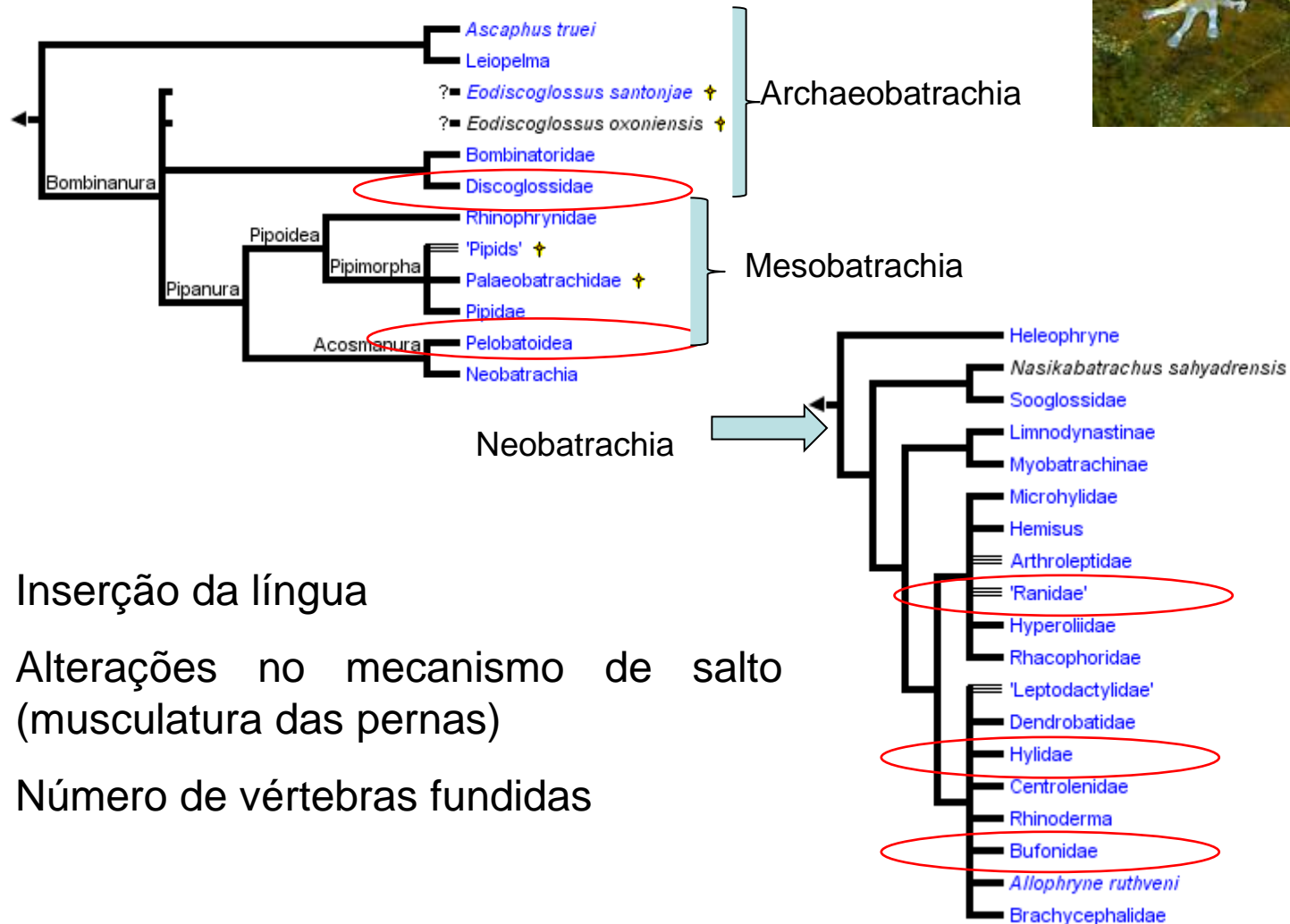
# Amphibia – diversidade global



2000

(IUCN)

# Anura ou Salientia



Inserção da língua

Alterações no mecanismo de salto  
(musculatura das pernas)

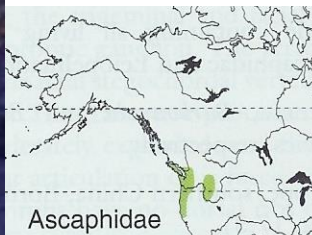
Número de vértebras fundidas



# Anura – Sub-Ordem Archaeobatrachia



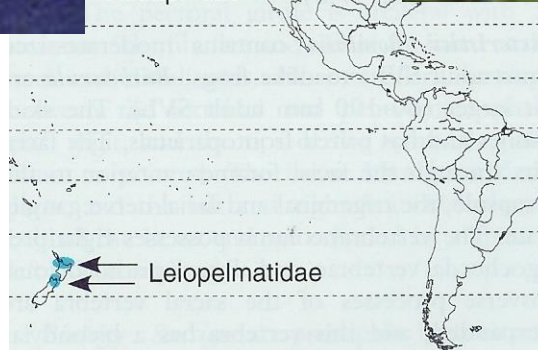
**Ascaphidae**



Ascaphidae

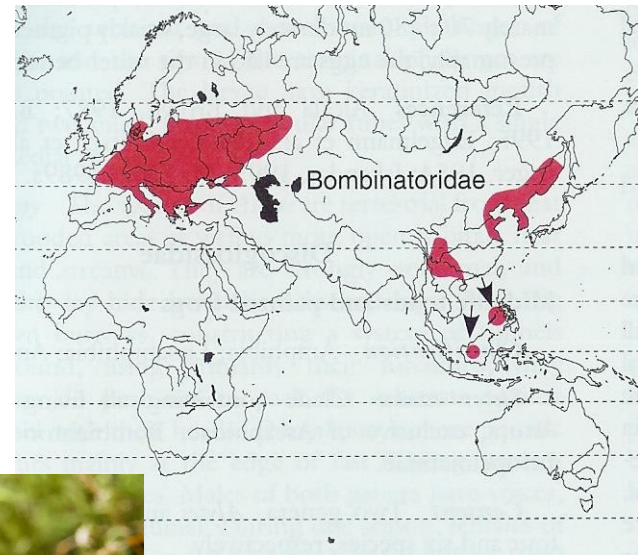


**Leiopelmatidae**



Leiopelmatidae

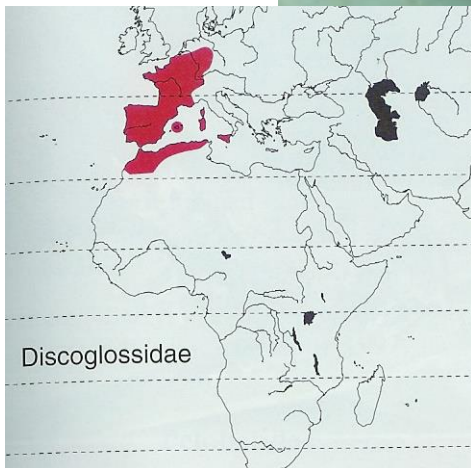
# Anura - Archaeobatrachia



**Bombinatoridae**

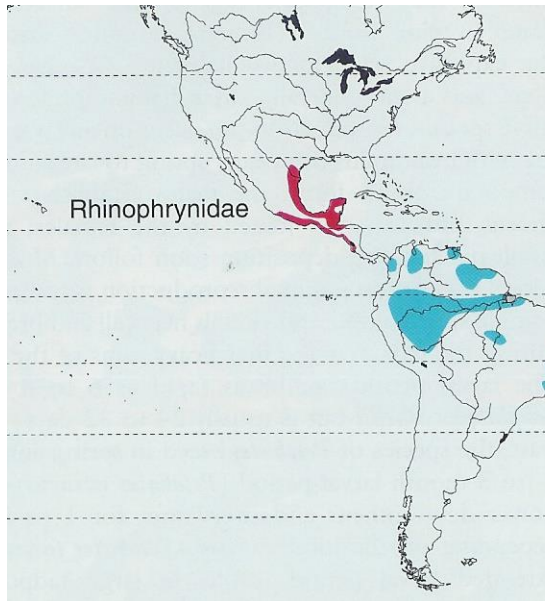


# Anura - Archaeobatrachia



**Discoglossidae  
/Alytidae**

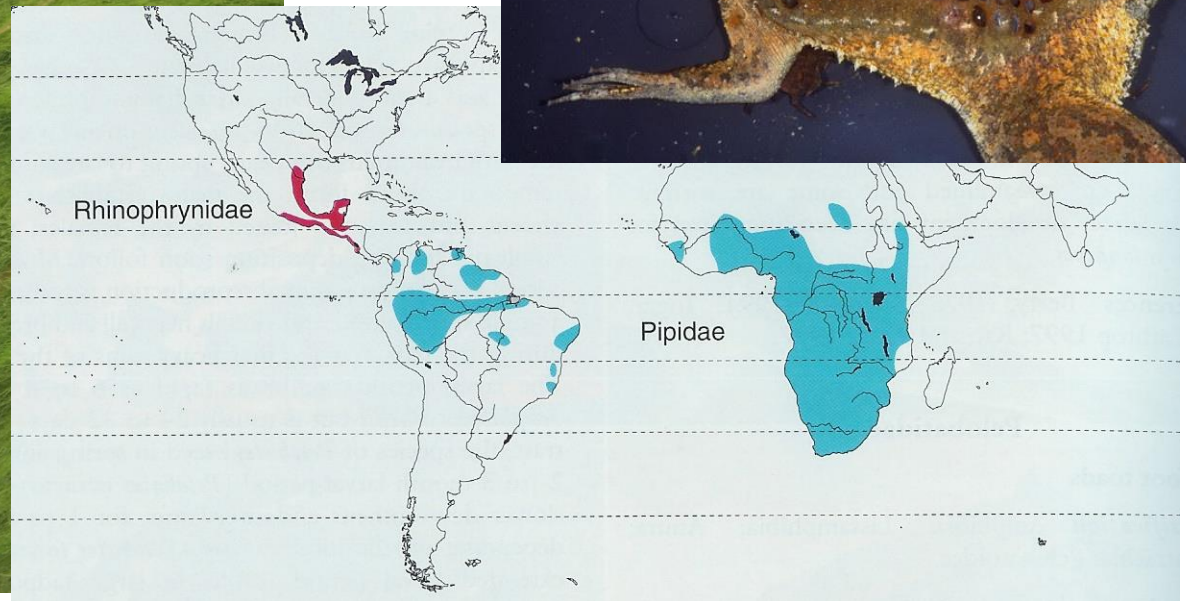
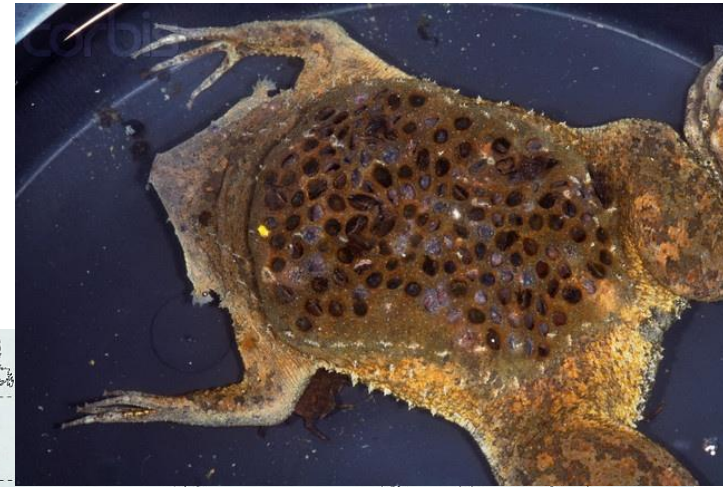
# Anura – Sub-Ordem Mesobatrachia



**Rhinophrynidae**



# Anura - Mesobatrachia



**Pipidae**

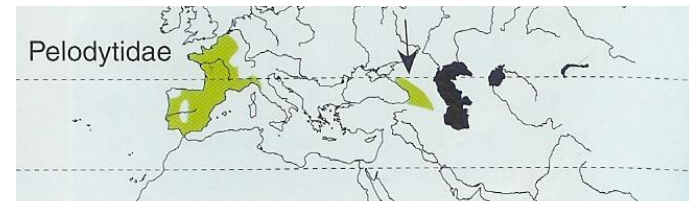


# Anura - Mesobatrachia



**Pelobatidae**

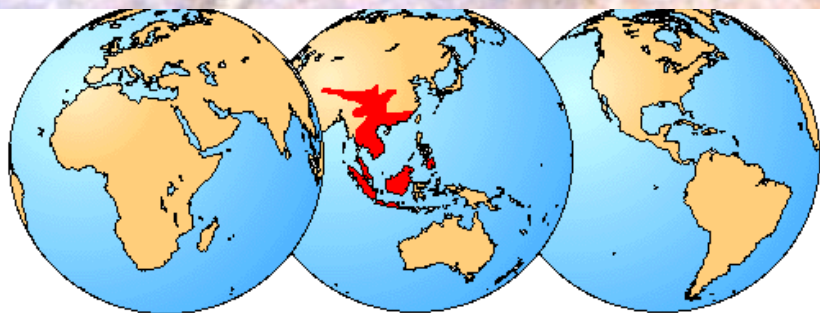
# Anura - Mesobatrachia



**Pelodytidae**



# Anura - Mesobatrachia



**Megophyridae**



# Anura ou Salientia

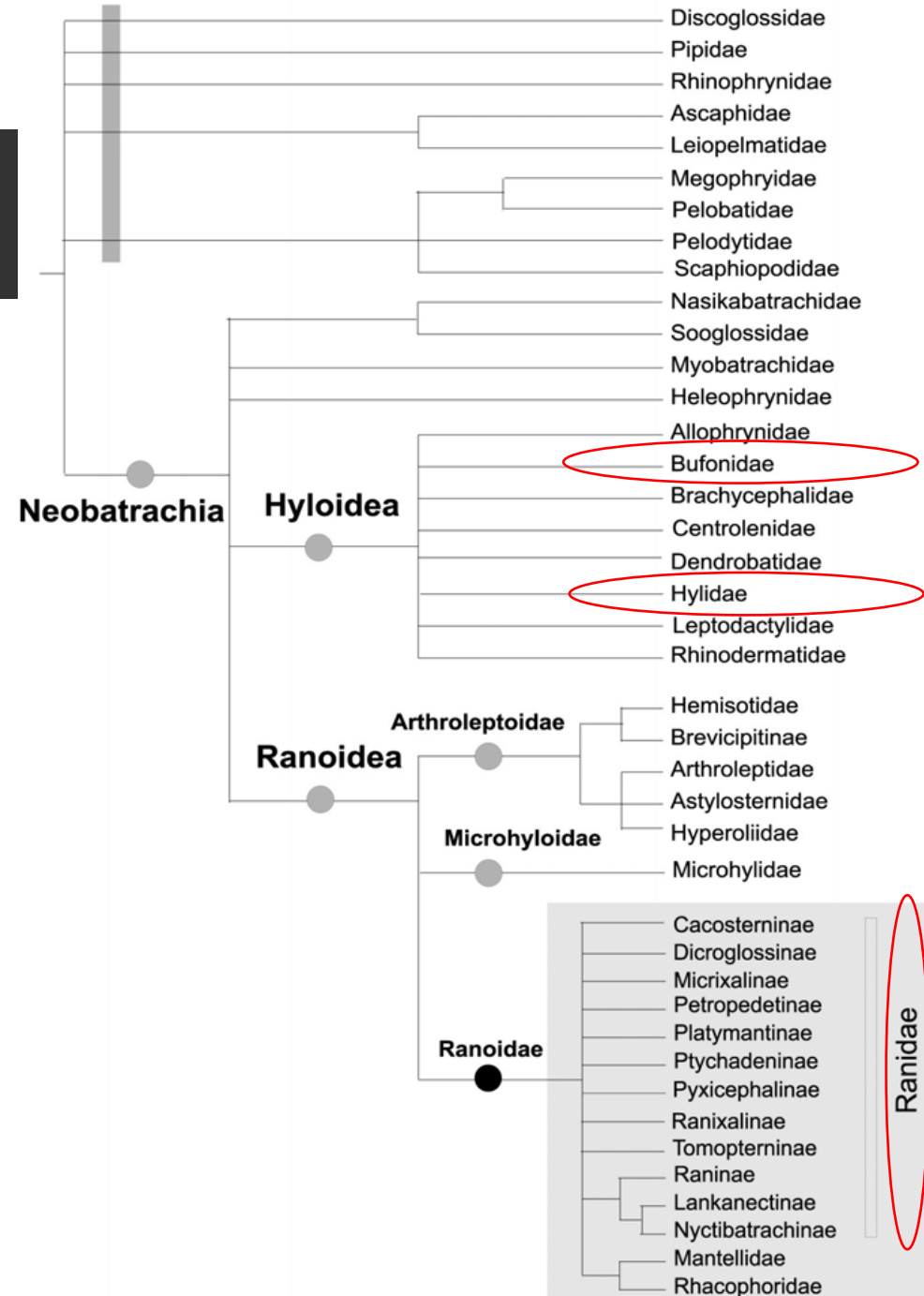


Inserção da língua - anterior

Alterações no mecanismo de salto (músculo sartorius)

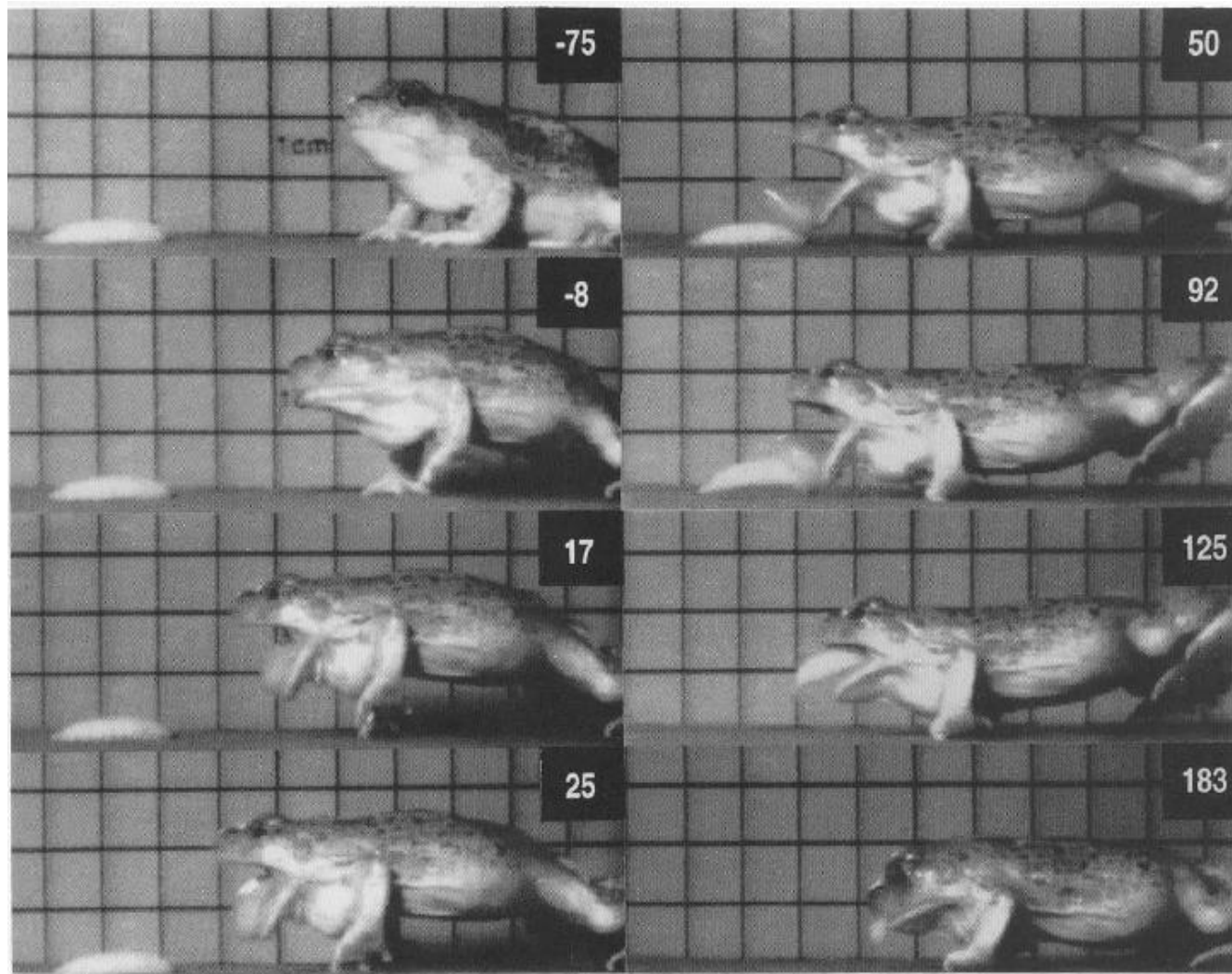
Só têm 8 vértebras móveis

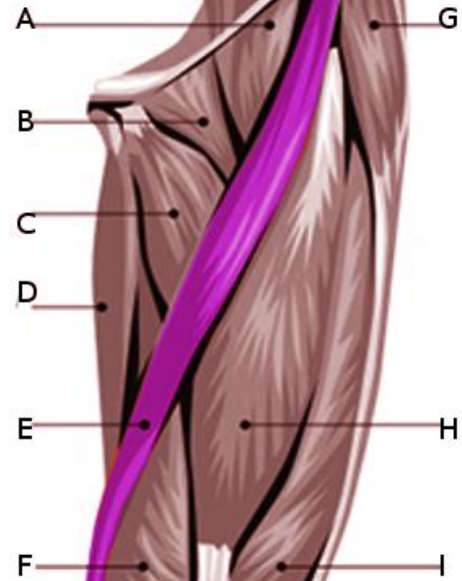
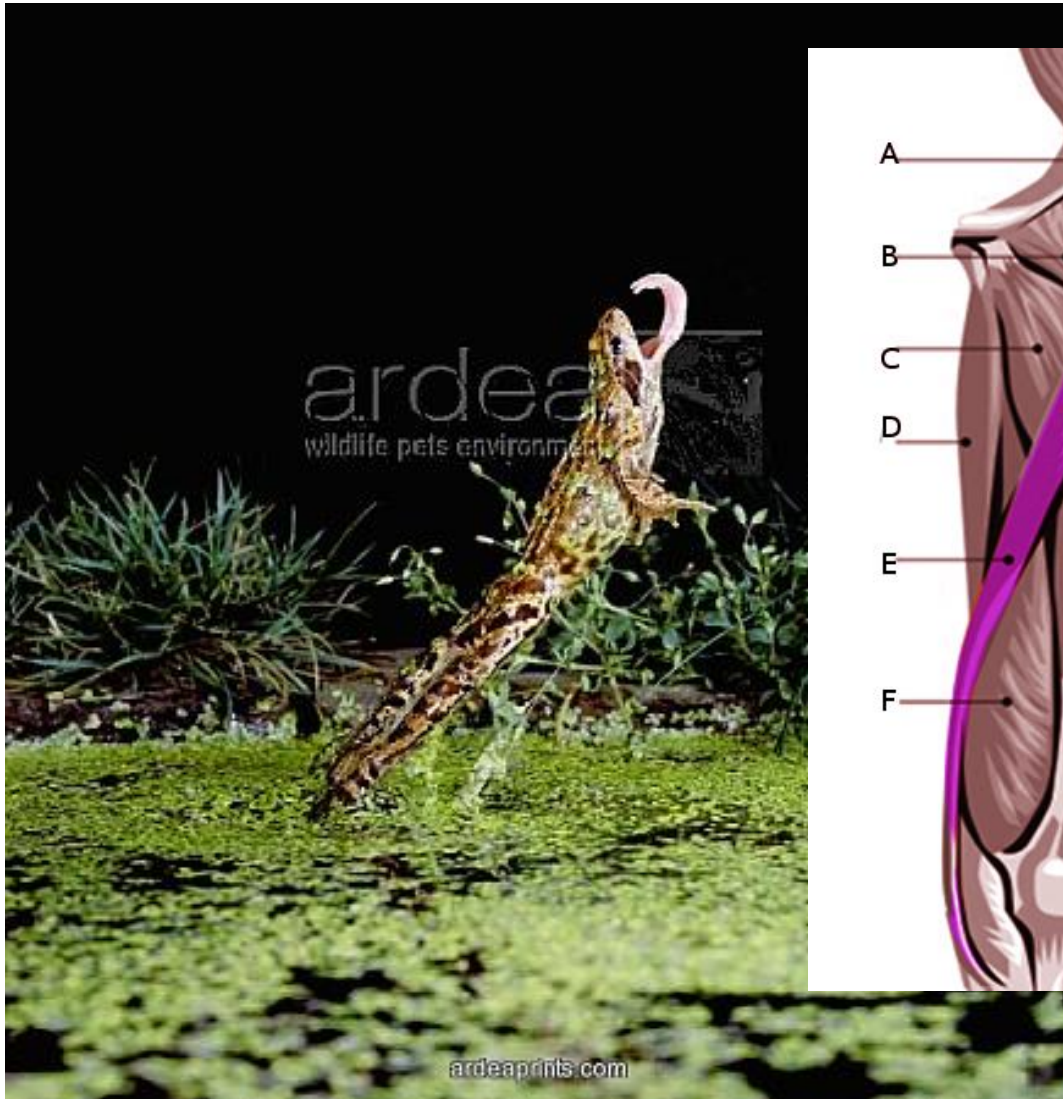
## Archaeobatrachia



Ranidae

# Anura - Neobatrachia





- A iliopsoas
- B Pectineus
- C Adductor longus
- D Gracilis
- E Sartorius
- F Vastus medialis
- G Tenor fascia lata
- H Rectus femoris
- I Vastus lateralis



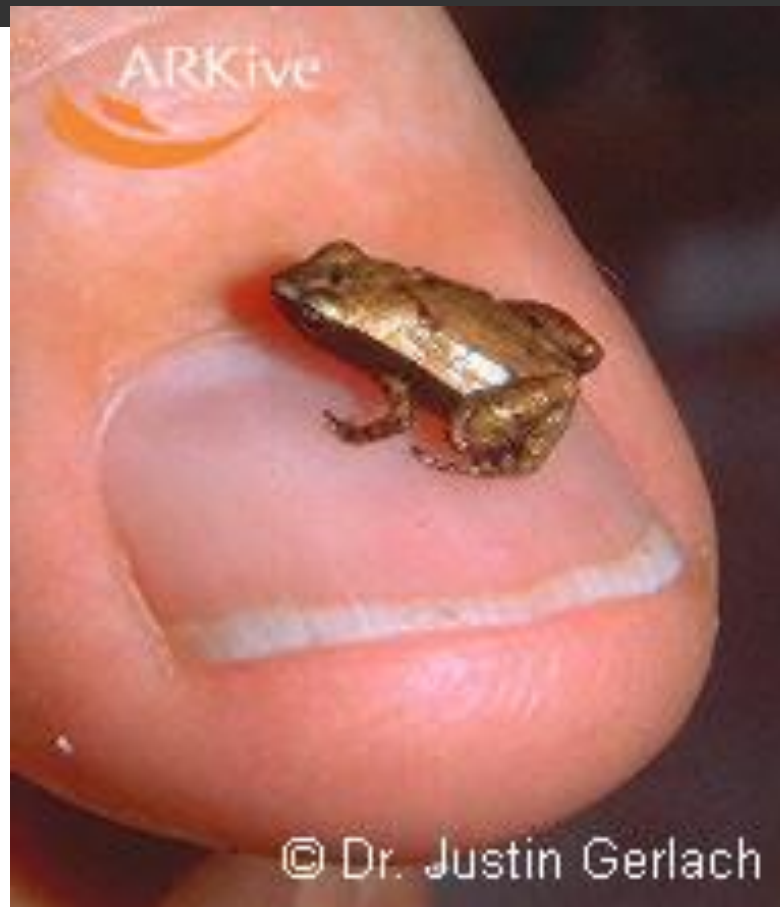
# Anura - Neobatrachia

Photo: Miguel Vences



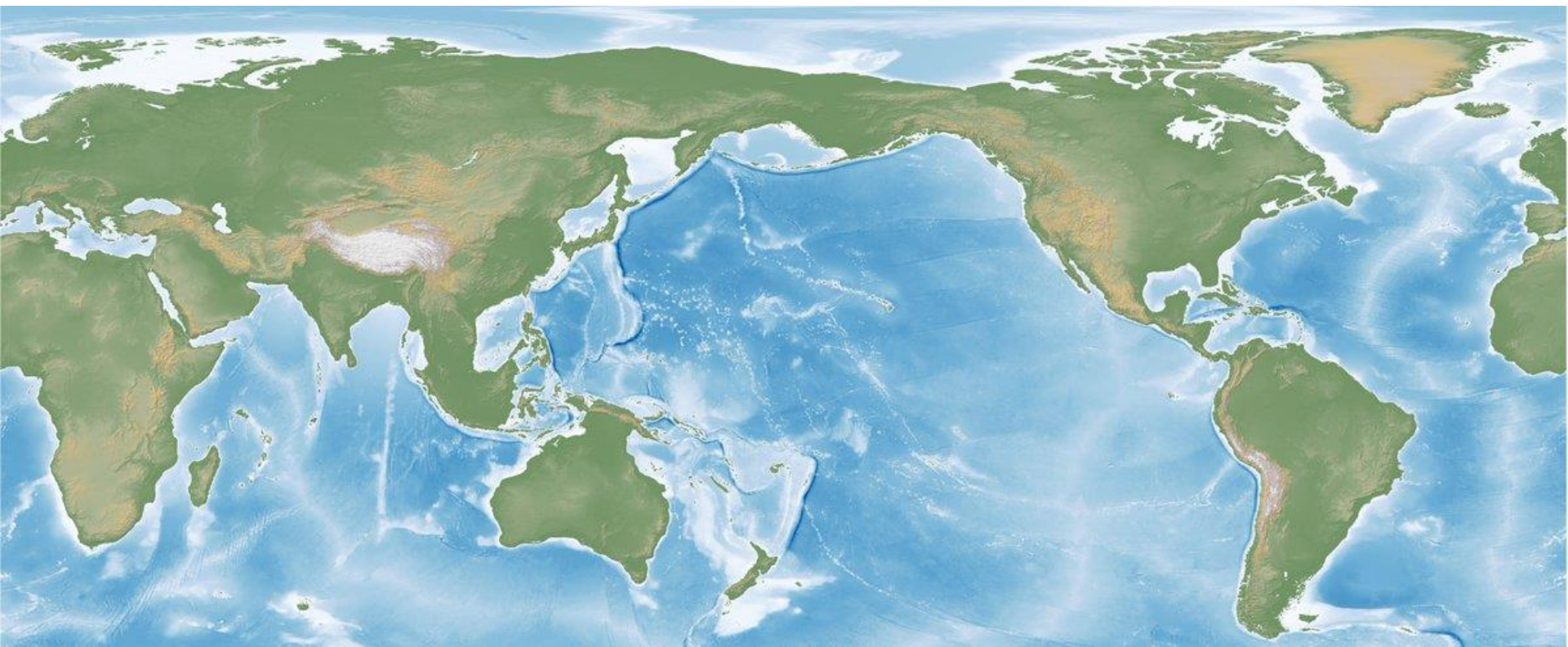
**Heleophrynidae**

# Anura - Neobatrachia



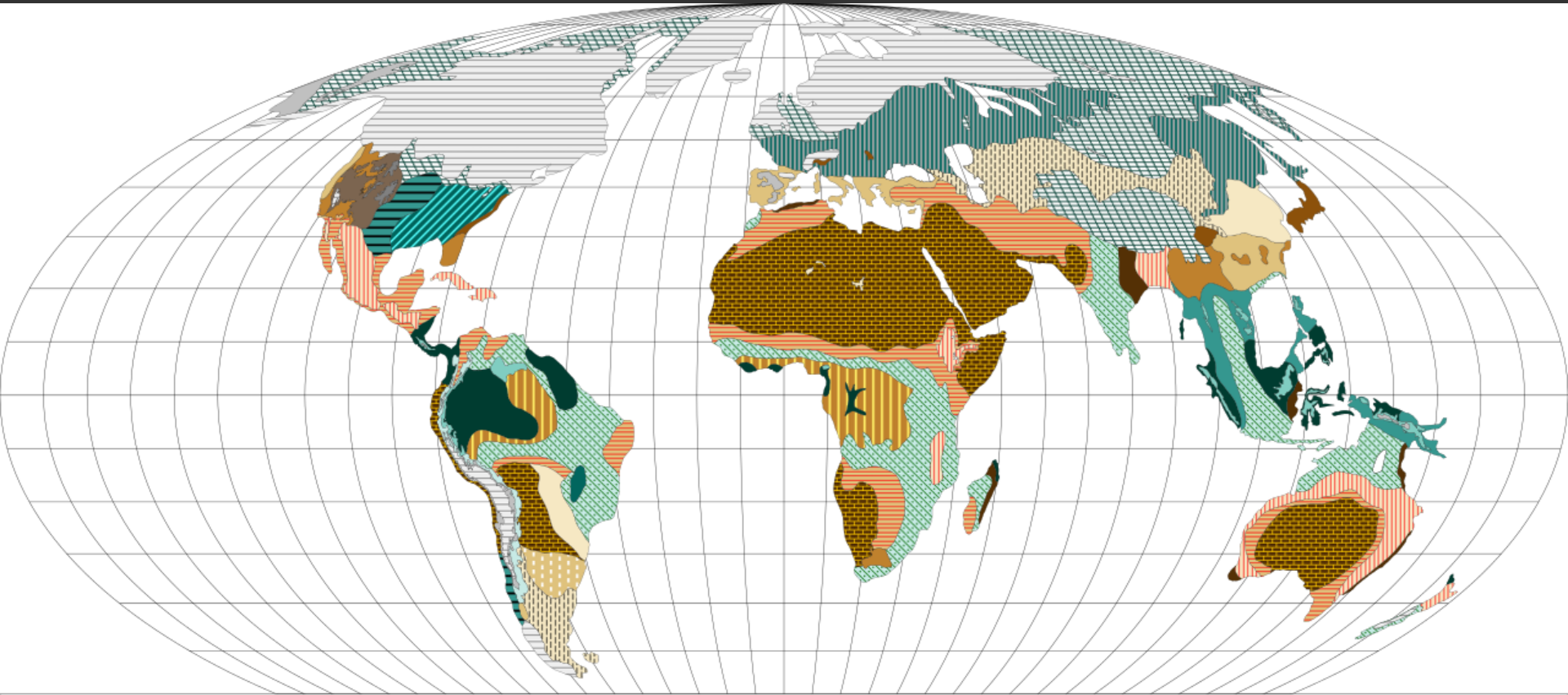
**Sooglossidae**

# Último período máximo glaciario



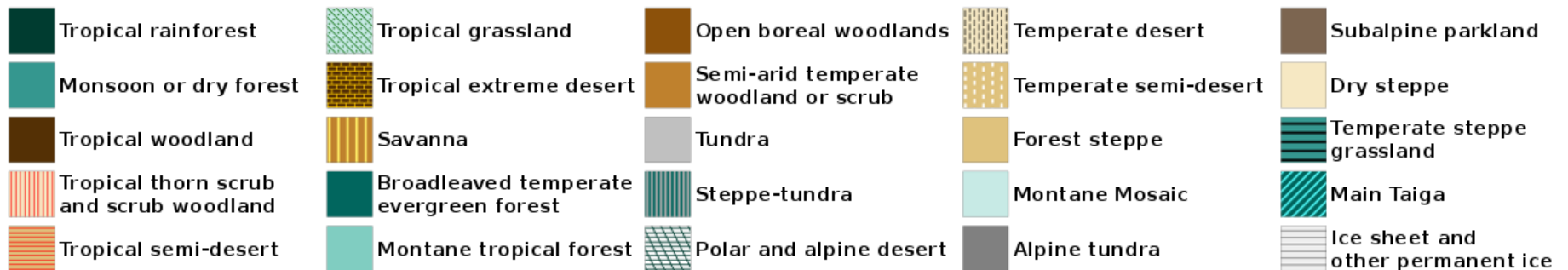


# Último período máximo glaciar



## Last Glacial Maximum Vegetation

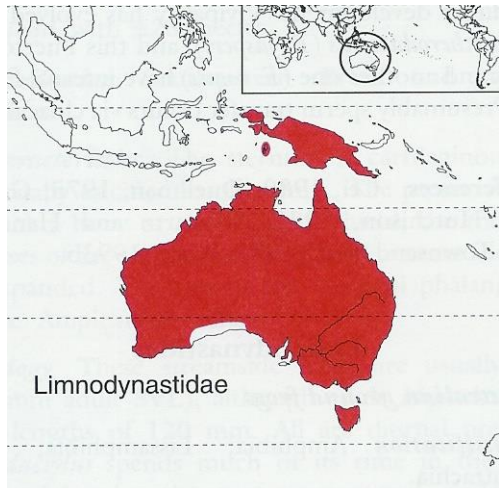
Mollweide projection map generated by @locoluis from shapefile published by Ray, N. and J. M. Adams. 2001  
 " A GIS-based Vegetation Map of the World at the Last Glacial Maximum (25,000-15,000 BP). Internet Archaeology 11. "



Source: [http://intarch.ac.uk/journal/issue11/rayadams\\_toc.html](http://intarch.ac.uk/journal/issue11/rayadams_toc.html)

(CC BY 3.0)

# Anura - Neobatrachia

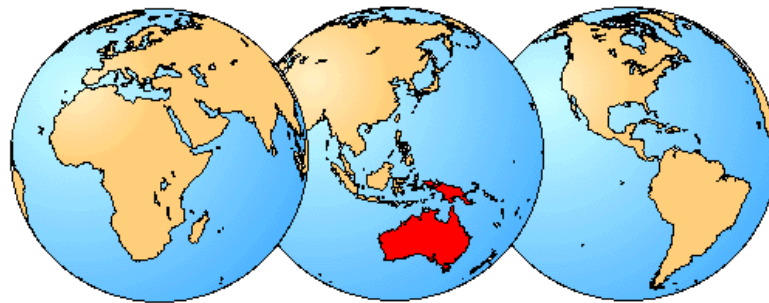


© David Cannatella



**Limnodynastidae**

# Anura - Neobatrachia

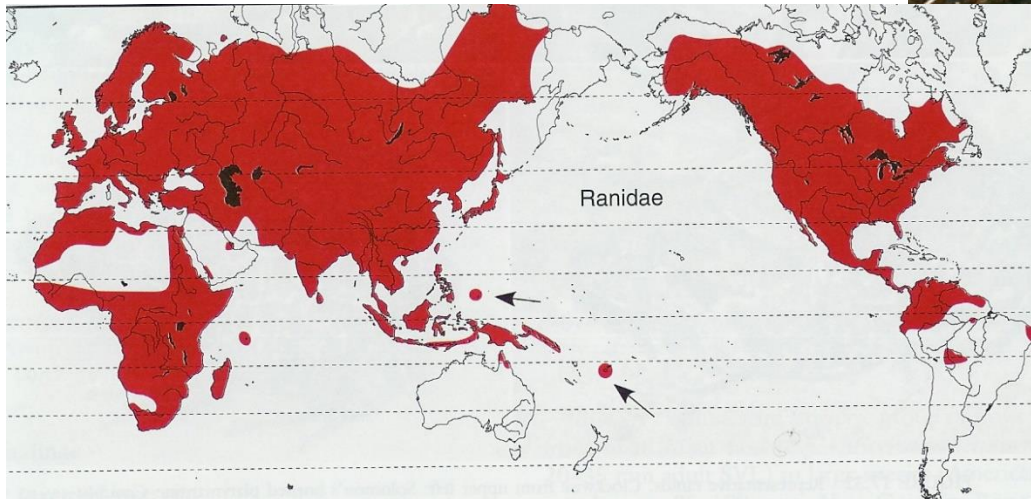


**Myobatrachidae**



# Anura – Neobatrachia - Ranoidea

**Cintura escapular firmisternal**



**Ranidae**

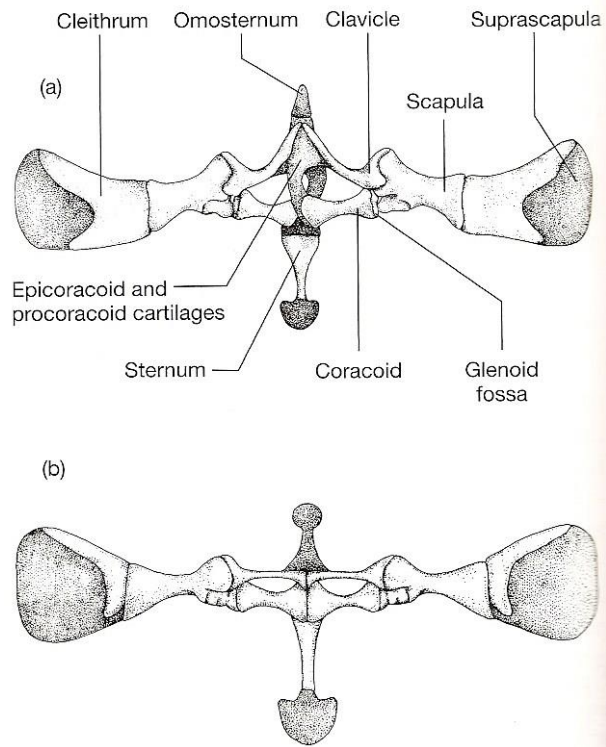


Figure 3-17 Morphology of frog pectoral girdles (a) Ventral view of the arciferal pectoral girdle of *Leptodactylus bolivianus* ("Leptodactylidae"). (b) Ventral view of the firmisternal pectoral girdle of *Rana pipiens* ("Ranidae"). Dark stippling is cartilage. (Source: Modified from Trueb 1973.)



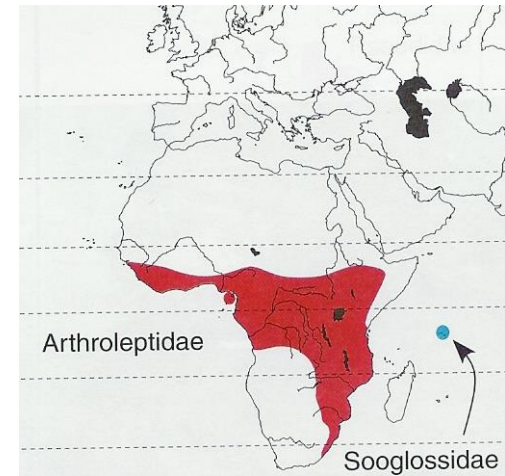
 nature in stock



# Anura – Neobatrachia - Ranoidea



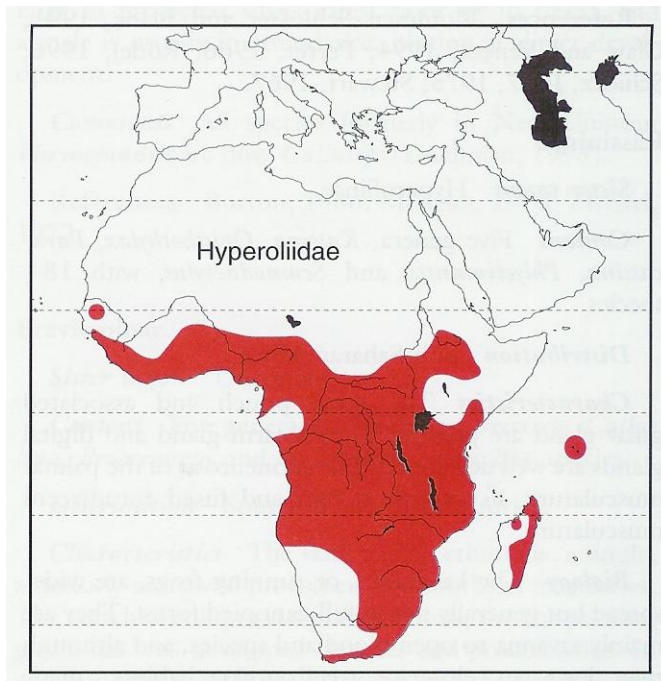
**firmisternal**



**Arthroleptidae**



# Anura – Neobatrachia - Ranoidea

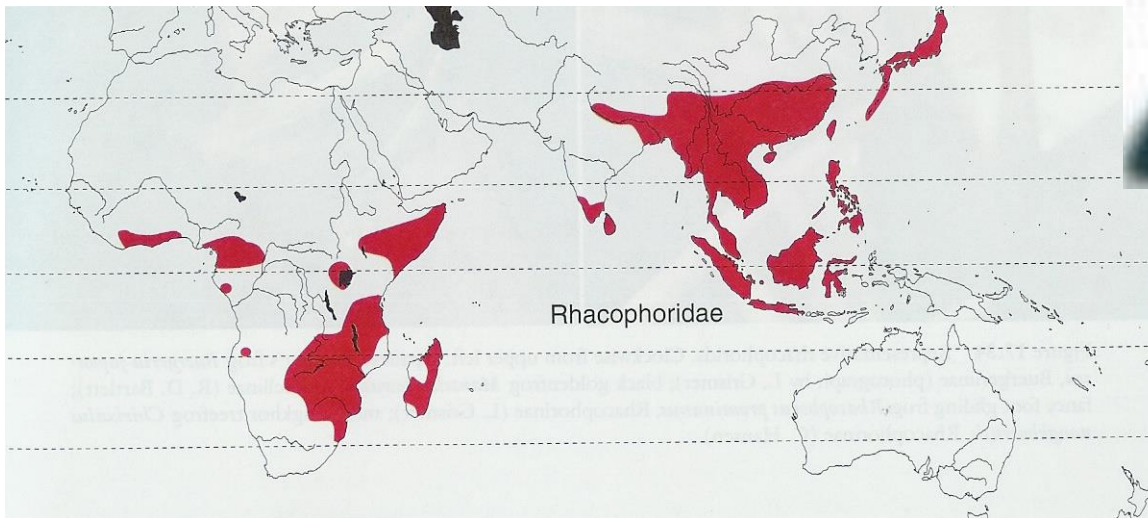


**firmisternal!**



**Hiperoliidae**

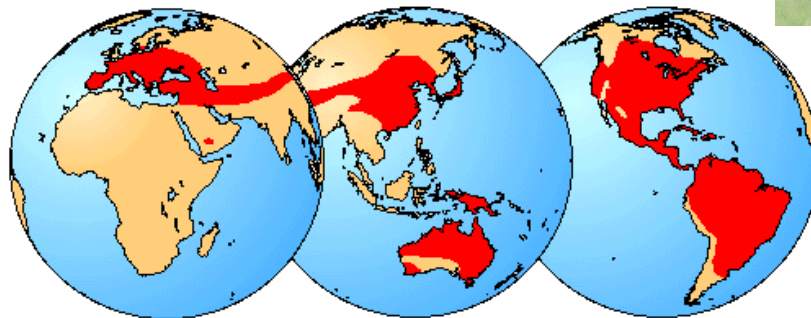
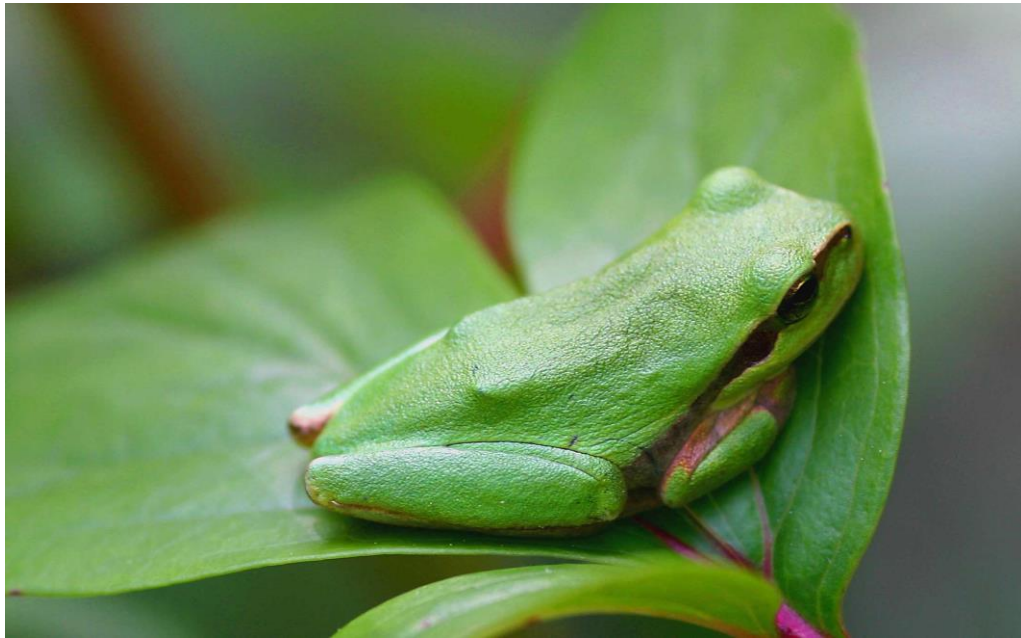
# Anura – Neobatrachia - Ranoidea



© David Cannatella

**Racophoridae**

# Anura – Neobatrachia - Hyloidea



**Hylidae**



# Anura – Neobatrachia - Hyloidea



**Leptodactylidae**

# Anura – Neobatrachia - Hyloidea



**Centrolenidae – glass frogs**

# Anura – Neobatrachia - Hyloidea

© 2009 Danté Fenolio



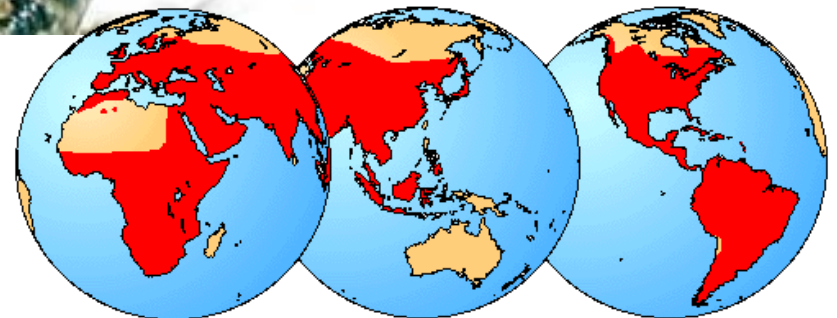
**Rhinoderma**



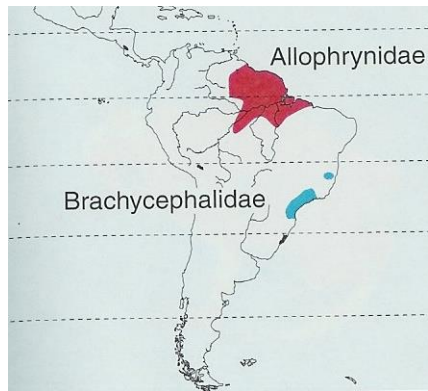
# Anura – Neobatrachia- Hyloidea



**Bufo**nidae



# Anura – Neobatrachia - Hyloidea



**Brachycephalidae**



# Anura – Neobatrachia - Hyloidea



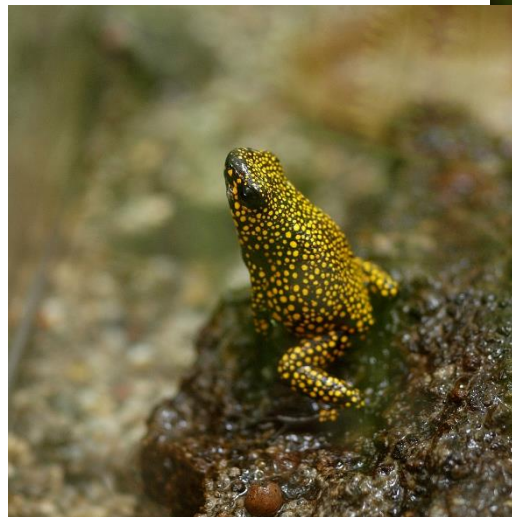
© David Cannatella



© David Cannatella



**Dendrobatidae**

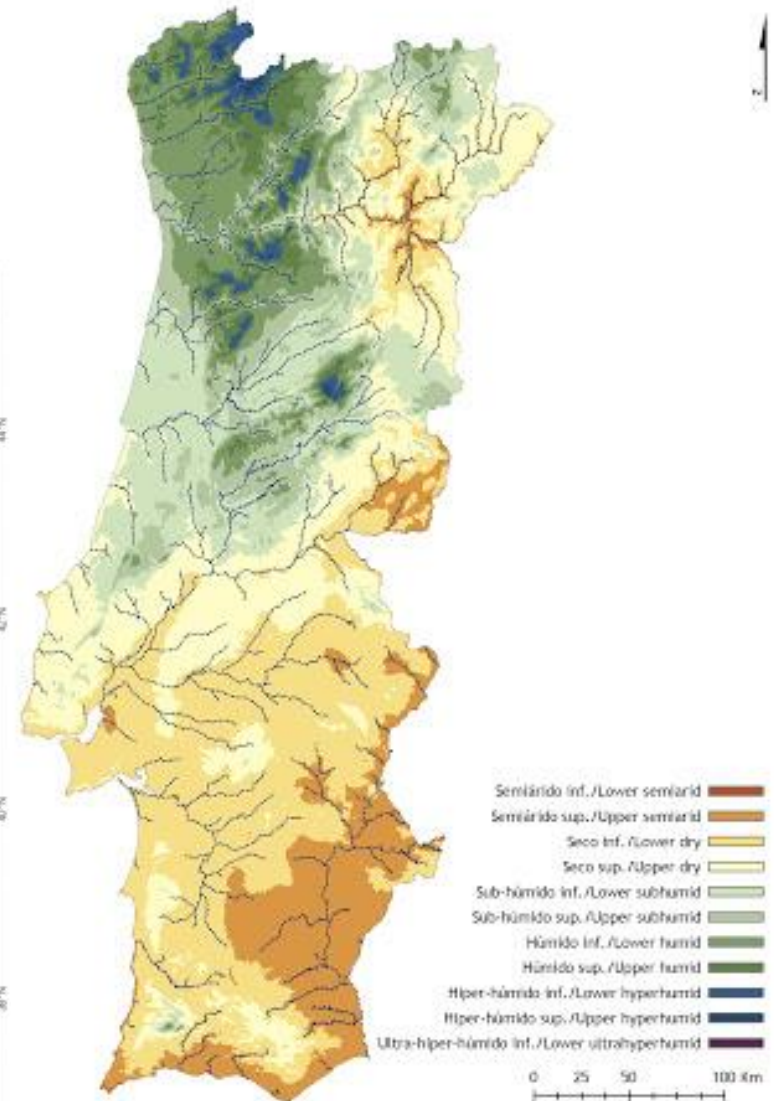
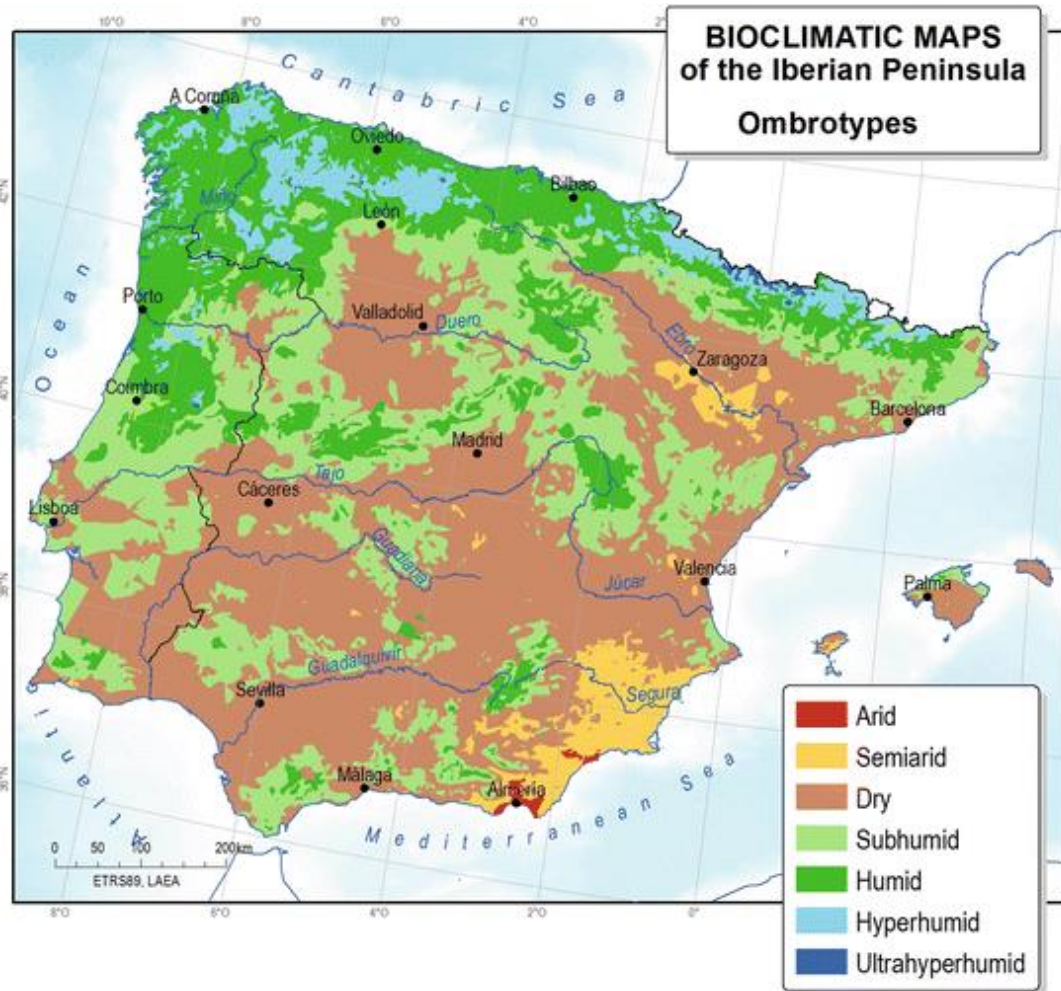








# Biogeografia de Portugal



# Anfíbios de Portugal - Anura



13 espécies em Portugal

+ 1 espécie introduzida



## Anfíbios de Portugal - Anura



- posturas X

Outono, Inverno  
e Primavera

Noroeste



*Alytes obstetricans*,

Sapo-parteiro-comum

# Anfíbios de Portugal - Anura



- posturas X
- Outono e Inverno

Sudeste



*Alytes cisternasii*,  
Sapo-parteiro-ibérico

## Anfíbios de Portugal - Anura

Outono, Inverno  
e Primavera



*Discoglossus galganoi*,  
Rã-de-focinho-ponteagudo





## Anfíbios de Portugal - Anura

- posturas



*Discoglossus galganoi*,  
Rã-de-focinho-ponteagudo

# Anfíbios de Portugal - Anura



- adultos

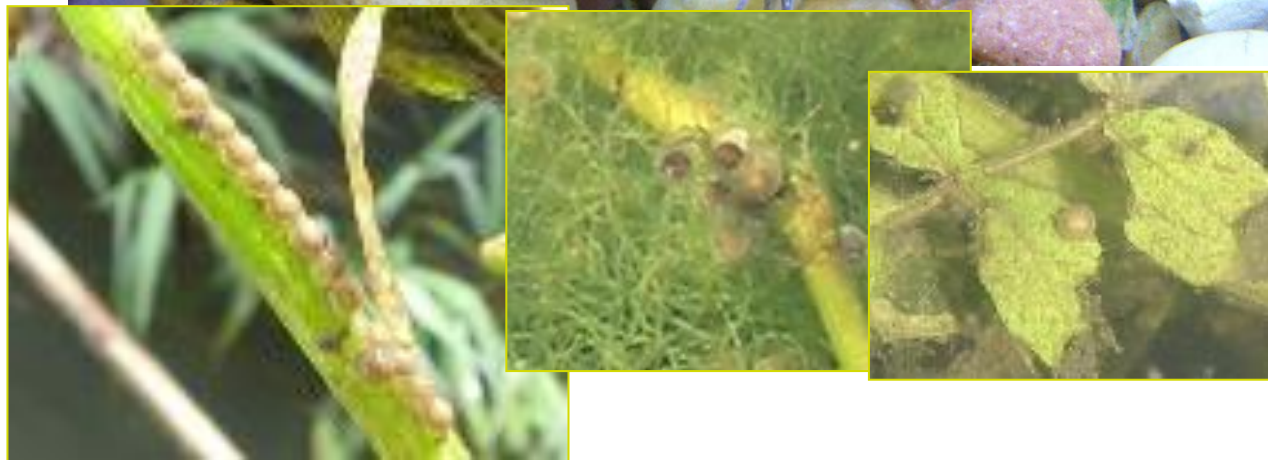
- posturas

Primavera e Verão



*Xenopus laevis*,

Rã-de-unhas



# Anfíbios de Portugal - Anura



- posturas
- Outono e Inverno  
(pupila vertical)  
Sudeste



*Pelobates cultripes*,  
Sapo-de-unha-negra






# Anfíbios de Portugal - Anura



- posturas
- Outono e Inverno



 *Pelodytes punctatus*,  
Sapinho-de-verrugas-verdes

# Anfíbios de Portugal - Anura

- adultos

- posturas

Outono e Inverno

Sudeste

 *Pelodytes ibericus*,

Sapinho-de-verrugas-verdes-ibérico



# Anfíbios de Portugal - Anura

Molecular Phylogenetics and Evolution 83 (2015) 224–241



ELSEVIER

Contents lists available at [ScienceDirect](#)

## Molecular Phylogenetics and Evolution

journal homepage: [www.elsevier.com/locate/ympev](http://www.elsevier.com/locate/ympev)



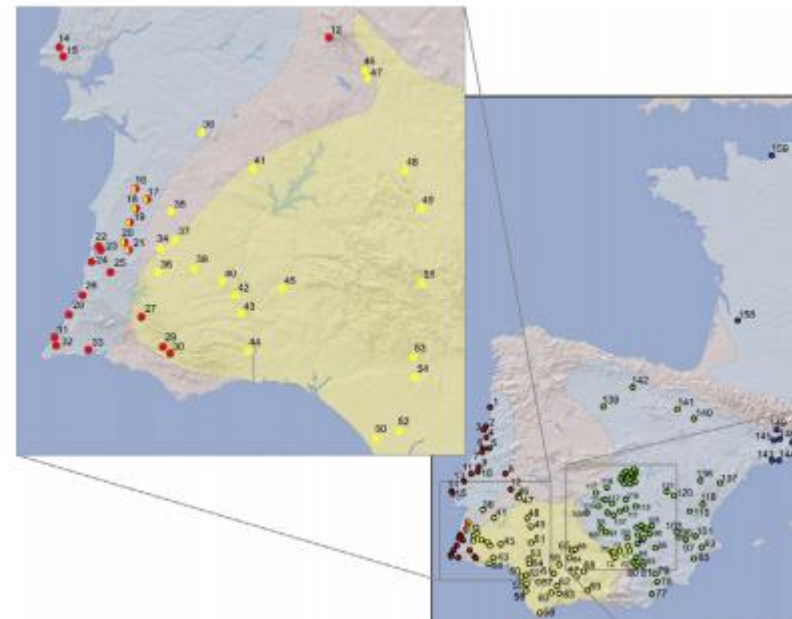
### Molecular evidence for cryptic candidate species in Iberian *Pelodytes* (Anura, Pelodytidae)



Jesús Díaz-Rodríguez <sup>a,b</sup>, Helena Gonçalves <sup>a</sup>, Fernando Sequeira <sup>a</sup>, T Nuno Ferrand <sup>a,c,d</sup>, Iñigo Martínez-Solano <sup>a,e,f,\*</sup>

*Pelodytes atlanticus*

Sapinho-de-verrugas-verdes-lusitânico





# Anfíbios de Portugal - Anura



- adultos

- posturas

Inverno



*Bufo spinosus*,

Sapo-comum



# Anfíbios de Portugal - Anura



- adultos

- posturas

Inverno e  
Primavera



*Epidalea calamita*,

Sapo-corredor





## Anfíbios de Portugal - Anura

- adultos

- posturas

Primavera

Noroeste



*Hyla (arborea) molleri*,  
Rela-comum (ou já ibérica)





## Anfíbios de Portugal - Anura



- adultos

- posturas

Primavera

Sudeste



*Hyla meridionalis*,

Rela-meridional

# Anfíbios de Portugal - Anura



- posturas  
Primavera e  
Verão!



*Pelophylax  
perezi,*  
Rã-verde



## Anfíbios de Portugal - Anura

- adultos

- posturas

Primavera e  
Verão!

Noroeste



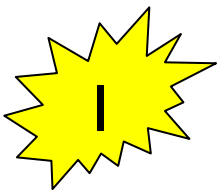
*Rana iberica*,

Rã-ibérica



# Anfíbios de Portugal

Arquipélagos da  
Madeira e dos  
Açores



*Pelophylax perezi*, Rã-verde



# Guia sonoro de rãs e sapos de Espanha e Portugal

Rafael Márquez & Eloísa Matheu, eds

Alosa, sons de la natura