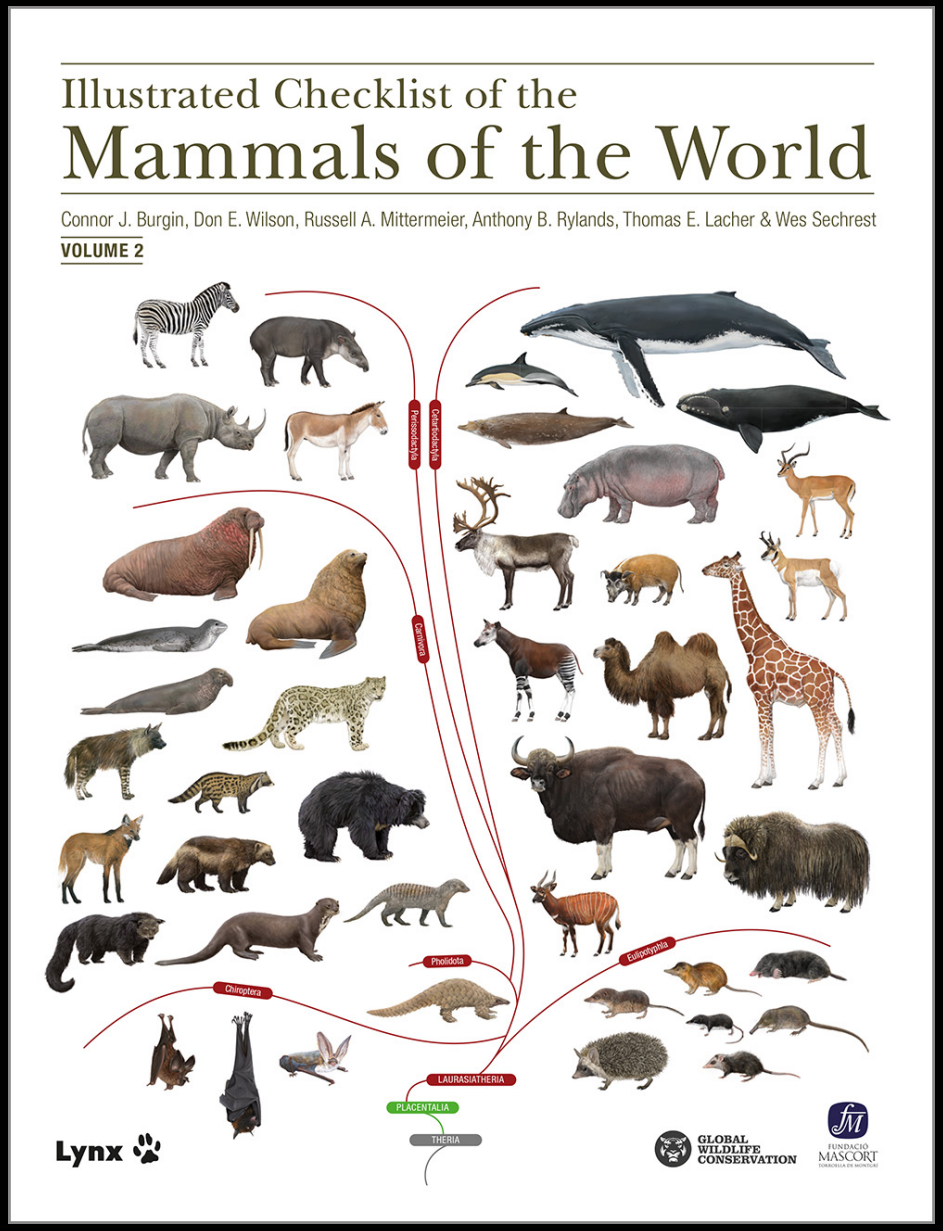
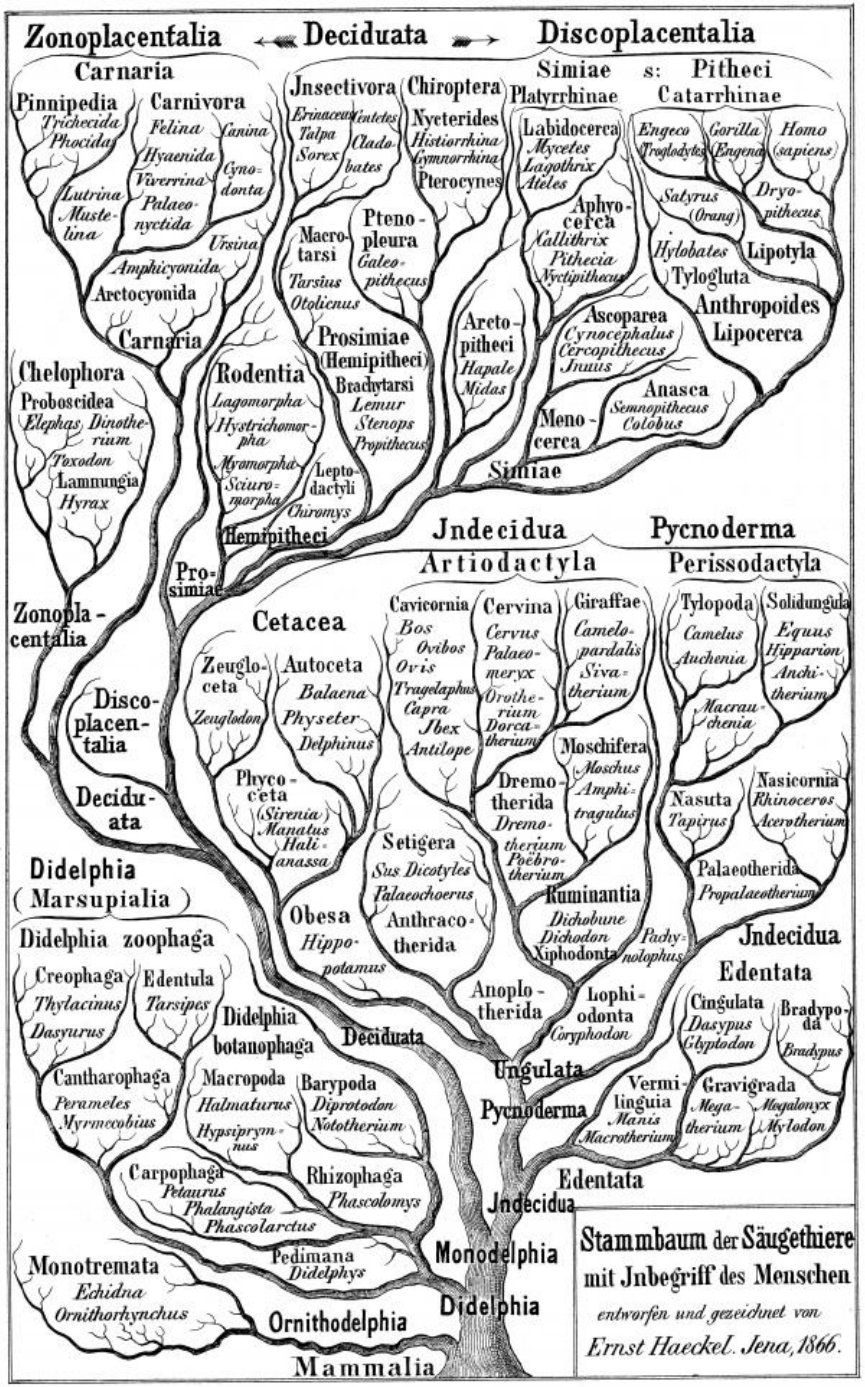
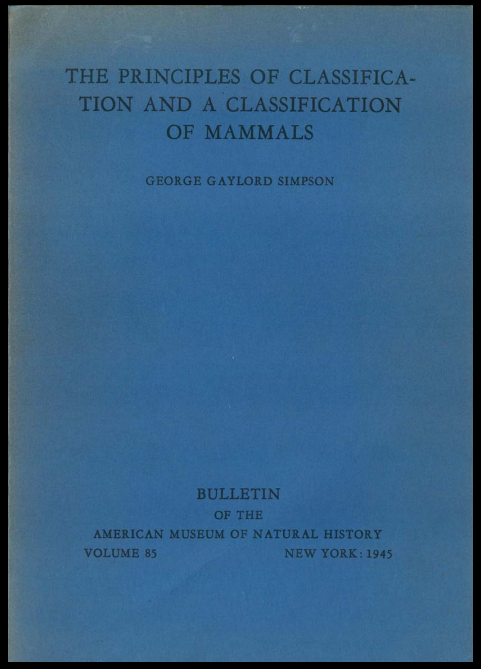


Diversidade e Classificação dos mamíferos recentes


Zonoplacentalia
Deciduata
Discoplacentalia
Carnaria
Pinnipedia
Trichecida
Phocida
Carnivora
Felina
Hyaenida
Viverrina
Palaeonyctida
Canina
Cynodonta
Lutrina
Mustelina
Ursina
Amphicyonida
Arctocyonida
Carnaria
Insectivora
Erinaceus
Talpa
Sorex
Centetes
Cladobates
Chiroptera
Nycteridae
Histiorrhina
Gymnorrhina
Pterocynes
Macrotarsi
Tarsius
Otolicnus
Pteno-pleura
Galeopithecus
Prosimiae (Hemipitheci)
Brachytarsi
Lemur
Stenops
Propithecus
Hemipitheci
Simiae s: Pitheci
Platyrrhinae
Catarrhinae
Labidocerca
Mycetes
Lagothrix
Ateles
Aphyocerca
Callithrix
Pithecia
Nyctipithecus
Areto-pitheci
Hapale
Midas
Ascoparea
Cynocephalus
Cercopithecus
Inuus
Meno-cerca
Semnopithecus
Colobus
Anasca
Simiae
Engeco
Troglodytes
Gorilla
Engeco
Homo
(sapiens)
Satyrus
(Orang)
Dryopithecus
Hylobates
Lipotyla
Tylogluta
Anthropoides
Lipocerca
Chelophora
Proboscidea
Elephas
Dinotherium
Toxodon
Lamnungia
Hyrax
Rodentia
Lagomorpha
Hystrichomorpha
Myomorpha
Sciuromorpha
Leptodactyli
Chiromys
Prosimiae
Zonoplacentalia
Jndecidua
Pycnoderma
Artiodactyla
Perissodactyla
Cetacea
Zeuglodon
Zeuglocet a
Autocet a
Balaena
Physeter
Delphinus
Phycocet a
(Sirenia)
Manatus
Halianassa
Discoplacentalia
Deciduata
Didelphia
(Marsupialia)
Cavicornia
Bos
Ovibos
Ovis
Tragelaphus
Capra
Ibex
Antilope
Cervina
Cervus
Palaeomeryx
Orotherium
Dorcatherium
Giraffae
Camelopardalis
Sivatherium
Moschifera
Moschus
Amphitragulus
Dremotherida
Dremotherium
Poebrotherium
Ruminantia
Dichobune
Dichodon
Xiphodonta
Pachynolophus
Setigera
Sus
Dicotyles
Palaeochoerus
Anthracotherida
Obesa
Hippopotamus
Tylopoda
Camelus
Auchenia
Macrauchenia
Solidungula
Equus
Hipparion
Anchitherium
Nasuta
Tapirus
Nasicornia
Rhinoceros
Acerotherium
Palaeotherida
Propalaeotherium
Jndecidua
Edentata
Didelphia zoophaga
Creophaga
Thylacinus
Dasyurus
Edentula
Tarsipes
Didelphia botanophaga
Cantharophaga
Perameles
Myrmecobius
Macropoda
Halmaturus
Hypsiprymnus
Barypoda
Diprotodon
Nototherium
Carpophaga
Petaurus
Phalangista
Phascolarctus
Rhizophaga
Phascolomys
Pedimana
Didelphys
Anoplotherida
Lophiodonta
Coryphodon
Ungulata
Pycnoderma
Cingulata
Dasypus
Glyptodon
Bradypoda
Bradypus
Vermilinguia
Manis
Macrotherium
Gravigrada
Megatherium
Megalonyx
Mylodon
Edentata
Jndecidua
Monodelphia
Didelphia
Monotremata
Echidna
Ornithorhynchus
Ornithodelphia
Mammalia
Stammbaum der Säugethiere
mit Jnbegriff des Menschen
entworfen und gezeichnet von
Ernst Haeckel. Jena, 1866.



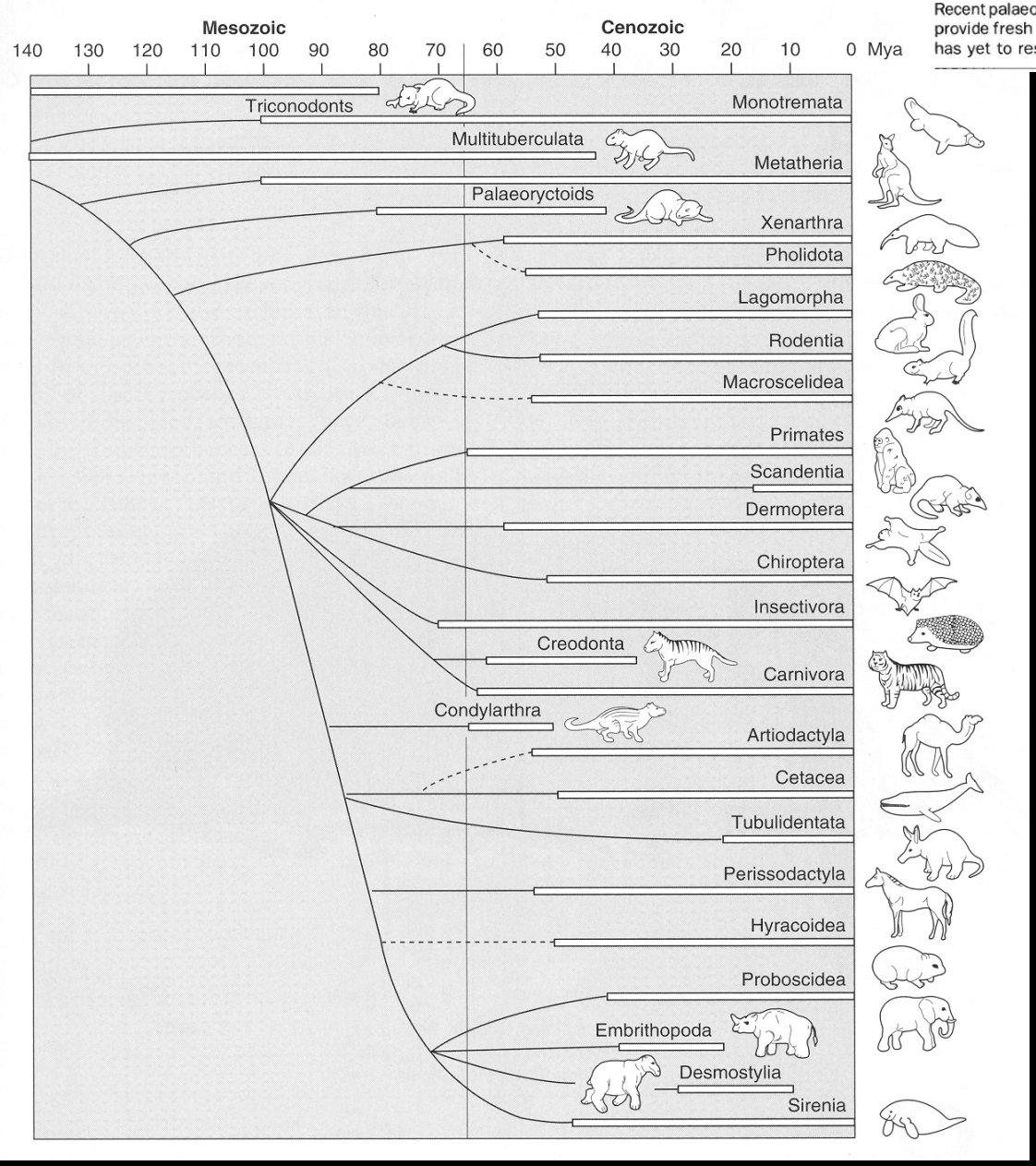
Class Mammalia . . . . . .
Subclass Prototheria . . . . . .
Order Monotremata . . . . . .
†Subclass Allotheria . . . . . .
†Order Multituberculata . . . . .
Mammalia of Uncertain Subclass . . . . . .
†Order Triconodonta . . . . . .
Subclass Theria . . . . . .
†Infraclass Pantotheria . . . . . .
†Order Pantotheria . . . . . .
†Order Symmetrodonta . . . . . .
Infraclass Metatheria . . . . . .
Order Marsupialia . . . . . .
Superfam. Didelphoidea . .
†Superfam. Borhyaenoidea .
Superfam. Dasyuroidea . . .
Superfam. Perameloidea . .
Superfam. Caenolestoidea . .
Superfam. Phalangeroidea . .
Infraclass Eutheria . . . . . .
Cohort Unguiculata . . . . . .
Order Insectivora . . . . . .
†Superfam. Deltatheridioidea
Superfam. Tenrecoidea . . .
Superfam. Chrysochloroidea .

Class MAMMALIA Linnaeus, 1758, p. 14.
Subclass PROTOTHERIA Gill, 1872, p. vi.
Order MONOTREMATA Bonaparte, 1838, p. 110 (=Ornithodelphia De Blainville, 1834, *fide* Palmer, 1904, p. 780). Monotremes.
Fam. Tachyglossidae Gill, 1872, p. 27 (=Echidnidae Burnett, 1830b, p. 365). Pleist.–R.; Aus. Spiny "anteaters," echidnas.
Tachyglossus Illiger, 1811 (=*Echidna* Cuvier, 1798, *nec* Forster, 1788). Pleist.–R.; Aus.
Zaglossus Gill, May 5, 1877 (=*Proechidna* Gervais, Nov. 30, 1877). R.; New Guinea.
Fam. Ornithorhynchidae Burnett, 1830b, p. 365 (=Ornithoryncina Gray, 1825, p. 343). Pleist.–R.; Aus. Duckbills, platypuses.
Ornithorhynchus Blumenbach, 1800 (=*Platypus* Shaw, 1799, *nec* Herbst, 1793). Pleist.–R.; Aus.
†Subclass ALLOTHERIA Marsh, 1880, p. 239.
†Order MULTITUBERCULATA Cope, 1884a, p. 687.
†Fam. Plagiaulacidae Gill, 1872, p. 27. [Including †Bolodontidae Osborn, 1887, p. 3.] U. Juras.; N.A. U. Juras.–L. Cretac.; Eu.
†*Plagiaulax* Falconer, 1857. U. Juras.; Eu.
†*Bolodon* Owen, 1871. U. Juras.; Eu.
†*Ctenacodon* Marsh, 1879. U. Juras.; Eu., N.A.
†*Psalodon* Simpson, 1926. U. Juras.; N.A.
†*Loxaulax* Simpson, 1928a. L. Cretac.; Eu.

Mammalian phylogeny: shaking the tree

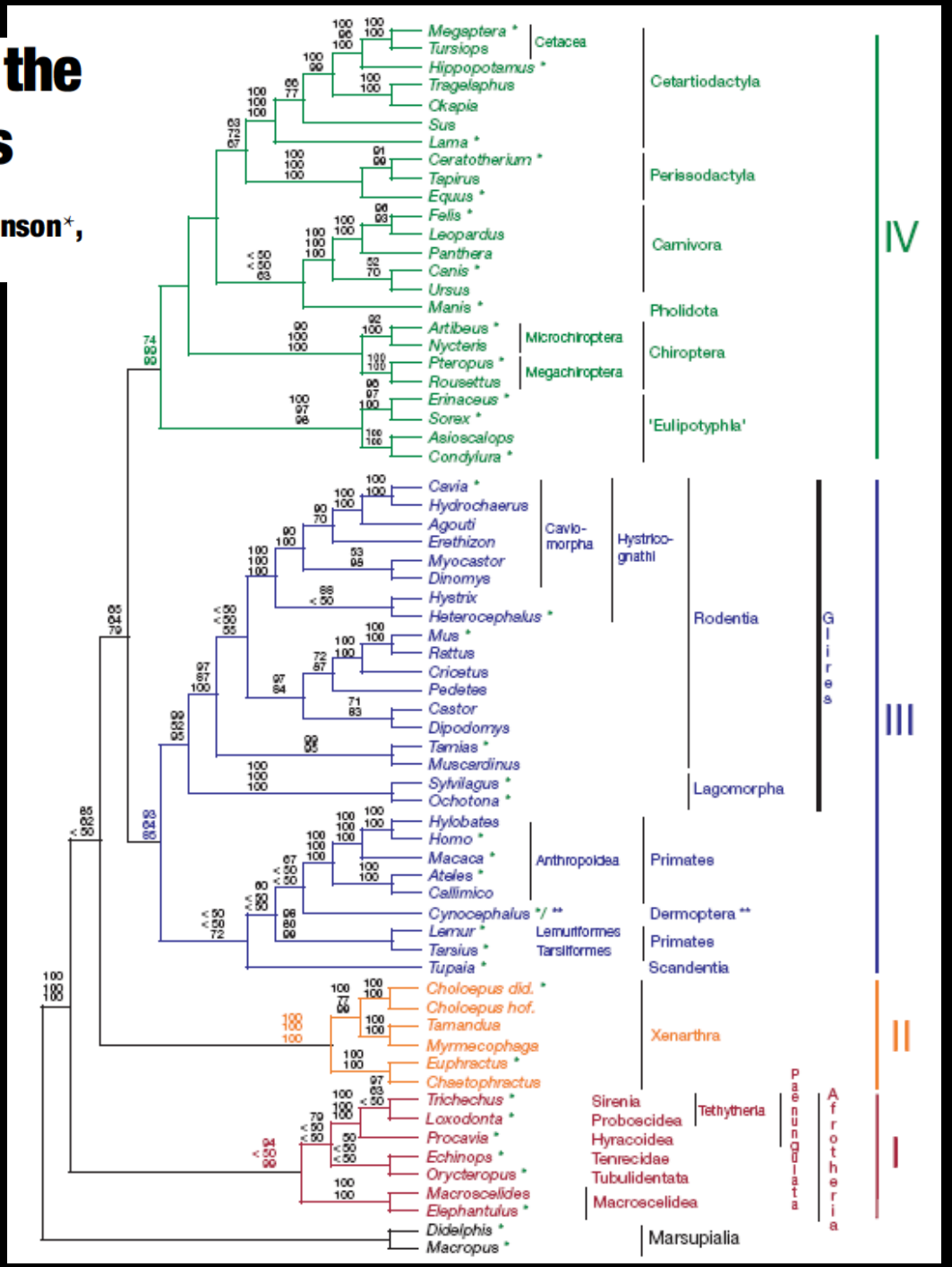
Michael J. Novacek

Recent palaeontological discoveries and the correspondence between molecular and morphological results provide fresh insight on the deep structure of mammalian phylogeny. This new wave of research, however, has yet to resolve some important issues.



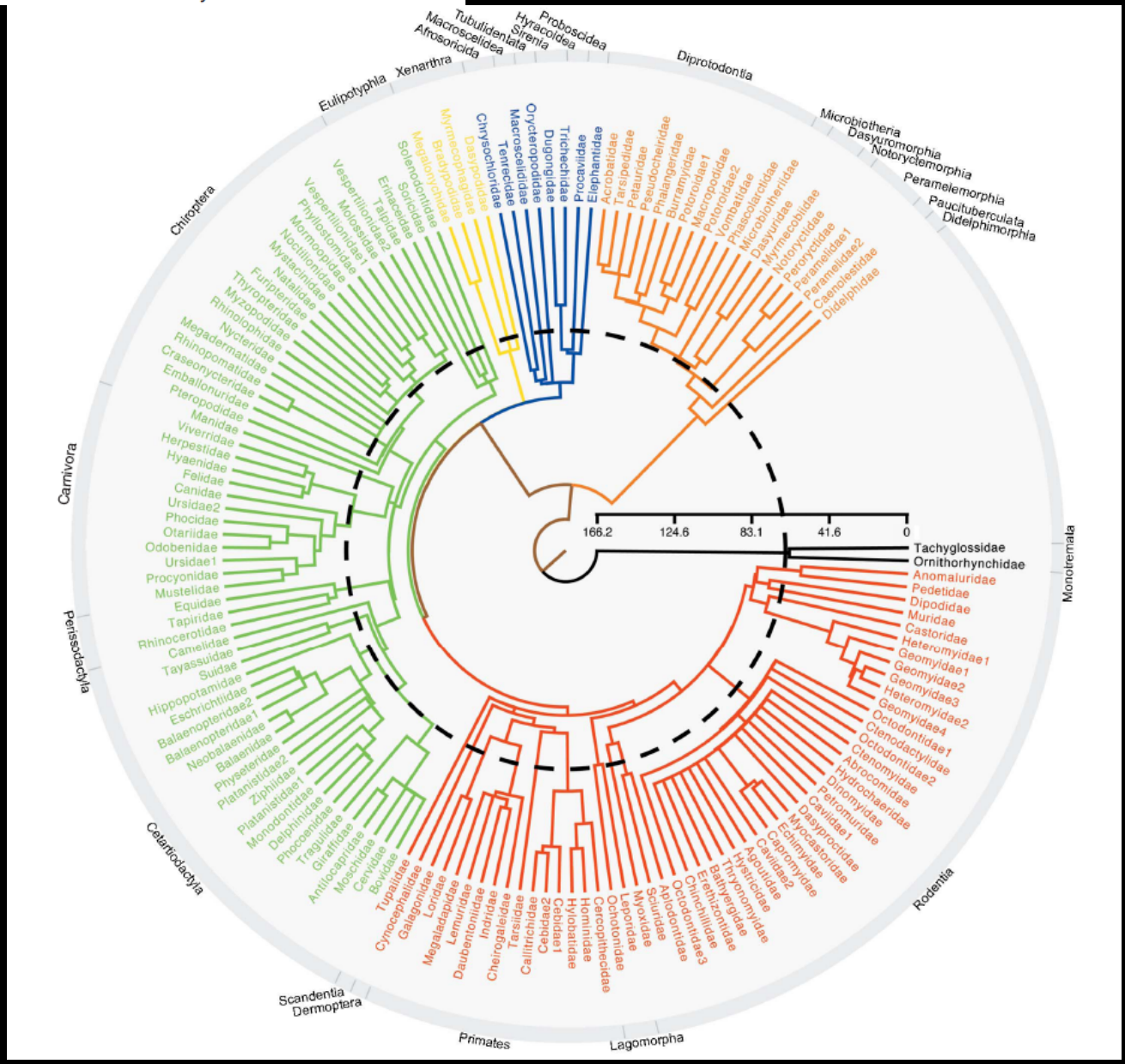
Molecular phylogenetics and the origins of placental mammals

William J. Murphy*†, Eduardo Eizirik*‡†, Warren E. Johnson*, Ya Ping Zhang§, Oliver A. Ryder‖ & Stephen J. O'Brien*



The delayed rise of present-day mammals

Olaf R. P. Bininda-Emonds[1]†, Marcel Cardillo[2]†, Kate E. Jones[4], Ross D. E. MacPhee[5], Robin M. D. Beck[6], Richard Grenyer[7], Samantha A. Price[8], Rutger A. Vos[9], John L. Gittleman[10] & Andy Purvis[2,3]

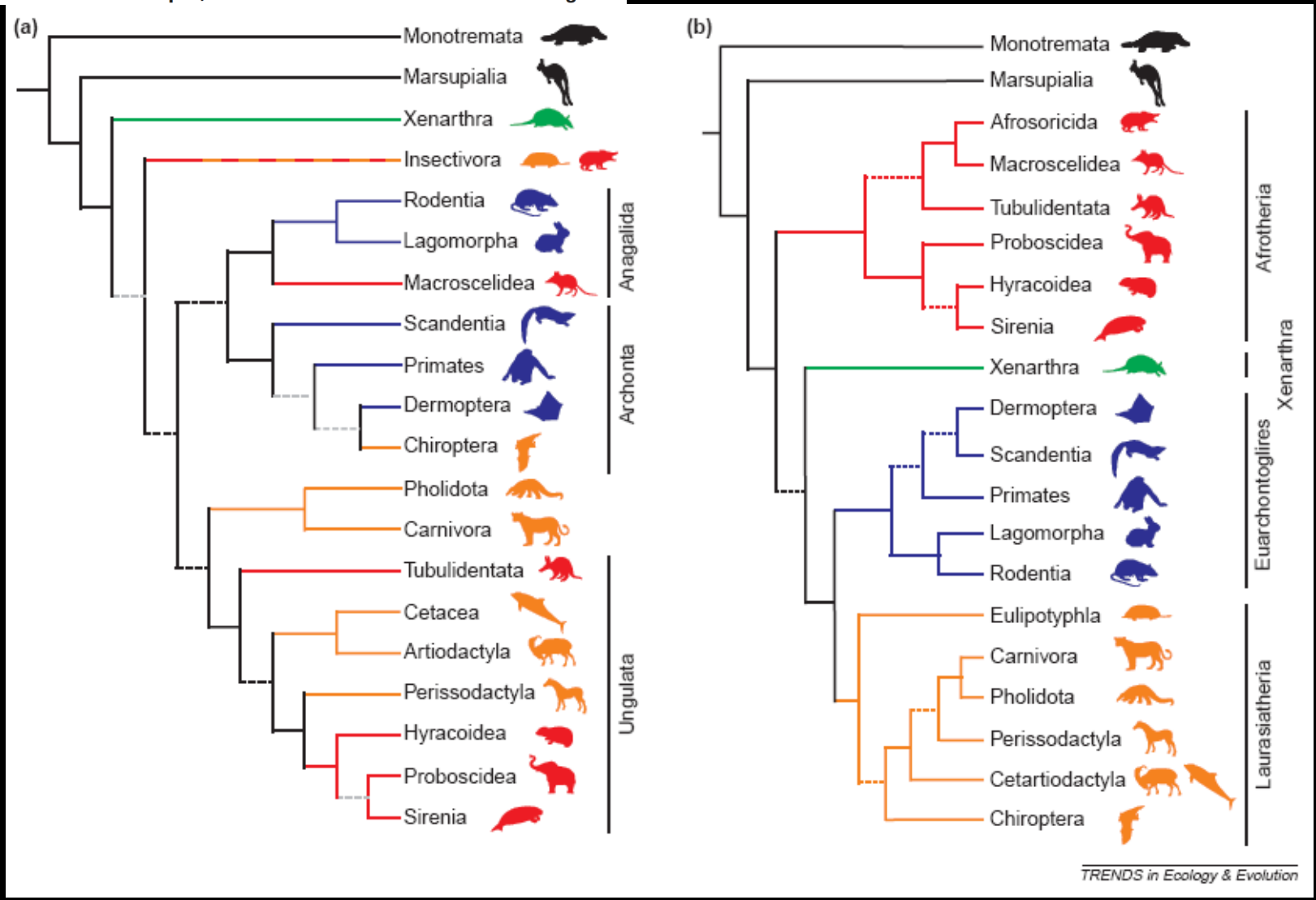


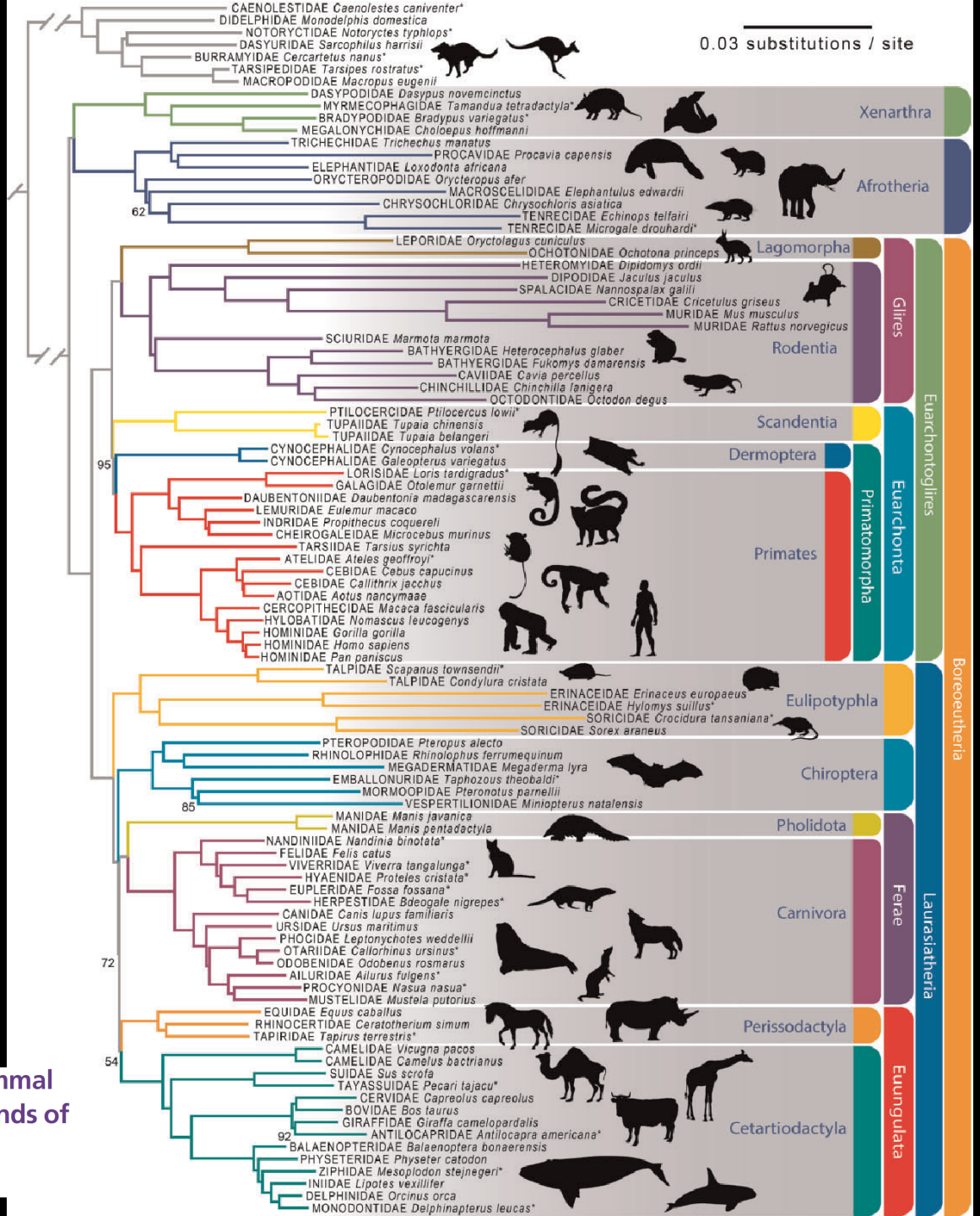
Review TRENDS in Ecology and Evolution Vol.19 No.8 August 2004

Phylogenetics series

Molecules consolidate the placental mammal tree

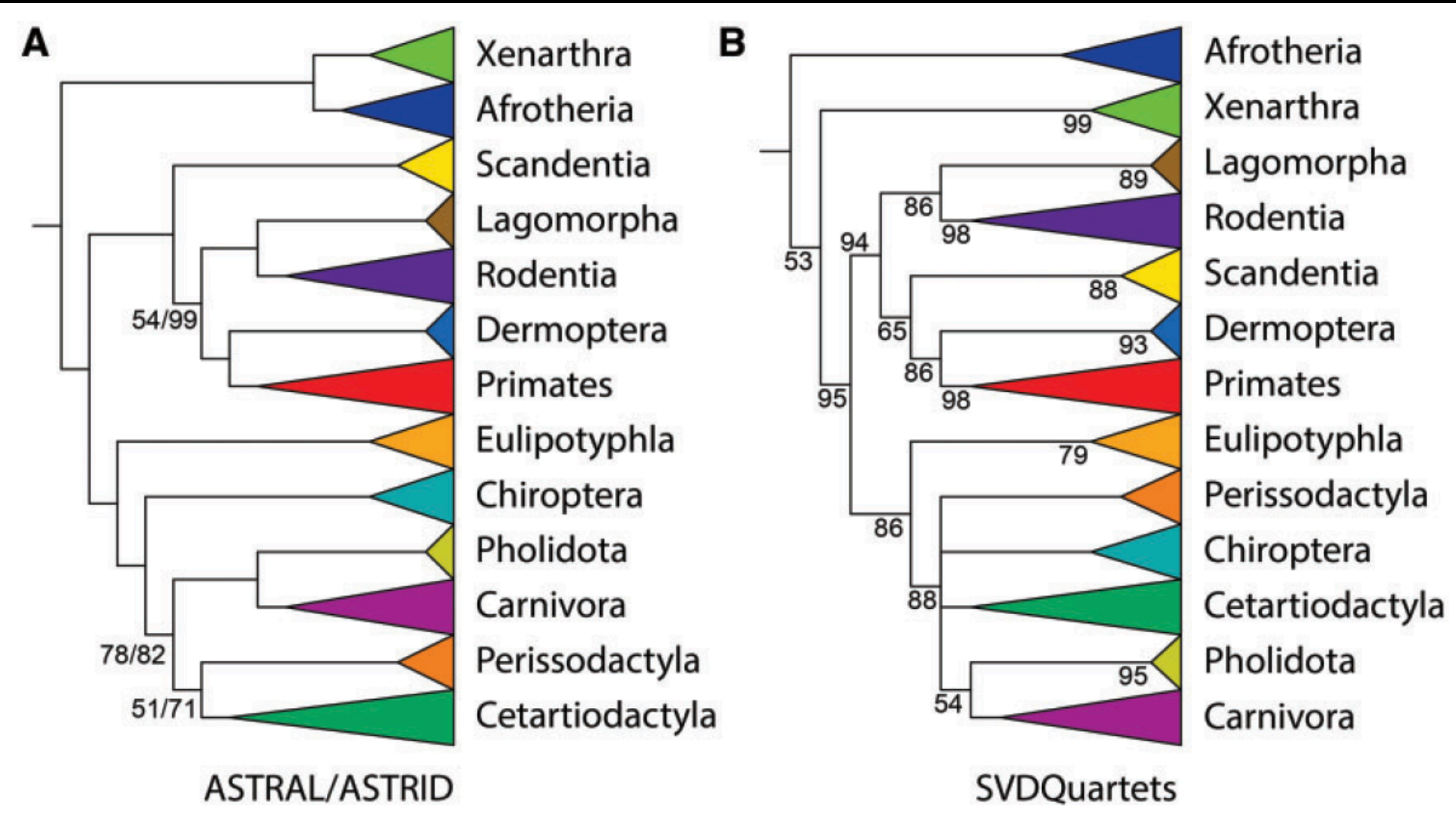
Mark S. Springer[1], Michael J. Stanhope[2], Ole Madsen[3] and Wilfried W. de Jong[3]





Investigating Difficult Nodes in the Placental Mammal Tree with Expanded Taxon Sampling and Thousands of Ultraconserved Elements

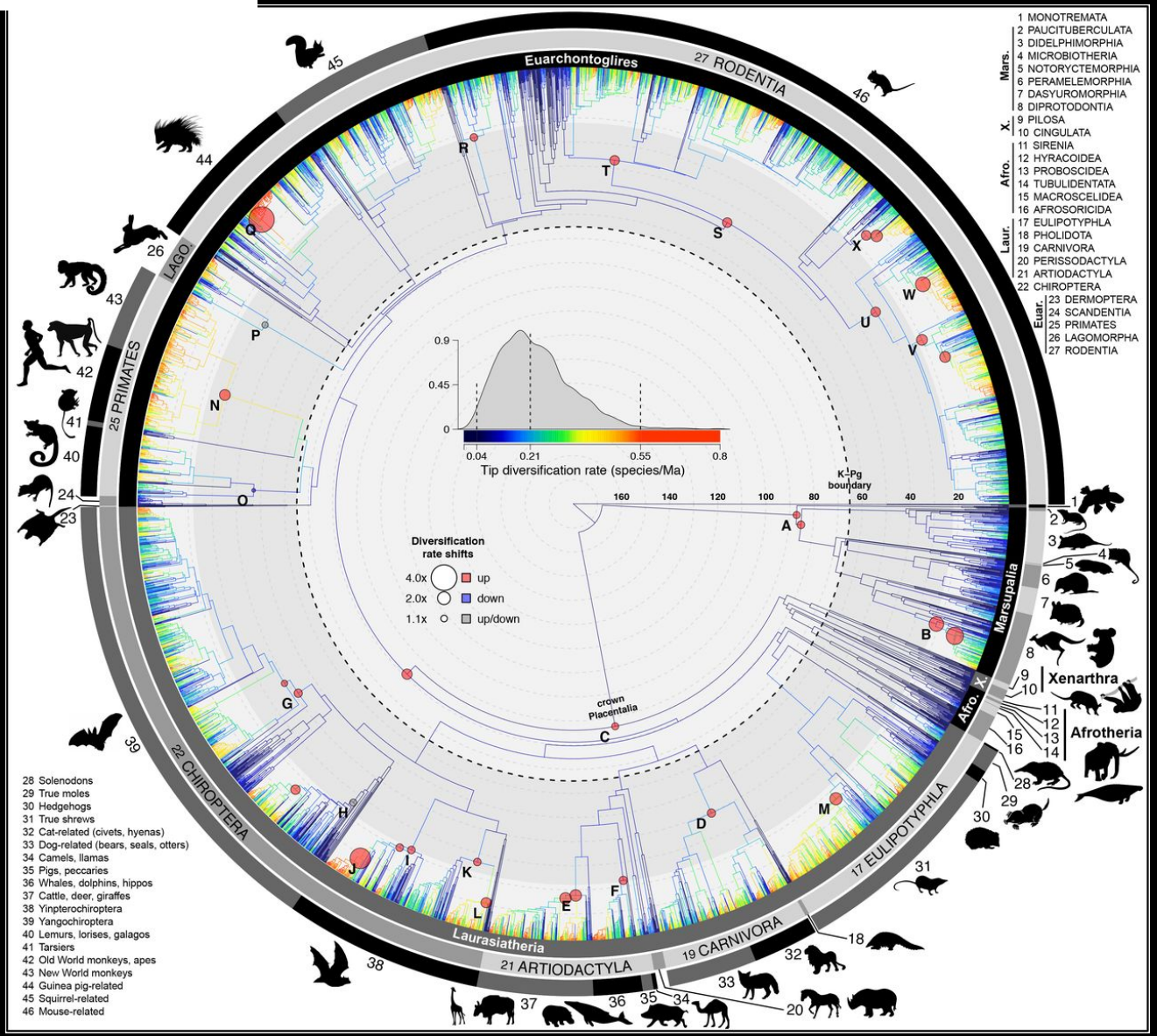
Jacob A. Esselstyn*,†, Carl H. Oliveros†, Mark T. Swanson, and Brant C. Faircloth

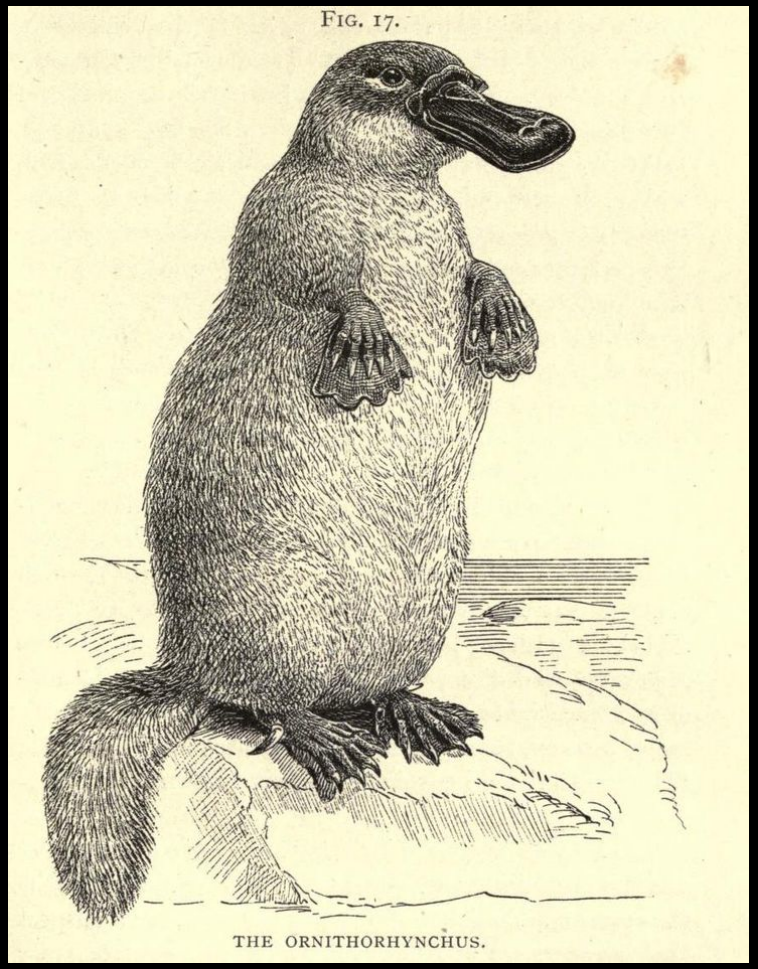

A
Xenarthra
Afrotheria
Scandentia
Lagomorpha
Rodentia
54/99
Dermoptera
Primates
Eulipotyphla
Chiroptera
Pholidota
Carnivora
78/82
Perissodactyla
51/71
Cetartiodactyla
ASTRAL/ASTRID
B
Afrotheria
Xenarthra
99
Lagomorpha
89
86
Rodentia
98
94
53
Scandentia
88
65
Dermoptera
93
86
Primates
95
98
Eulipotyphla
79
Perissodactyla
86
Chiroptera
88
Cetartiodactyla
Pholidota
95
54
Carnivora
SVDQuartets

METHODS AND RESOURCES

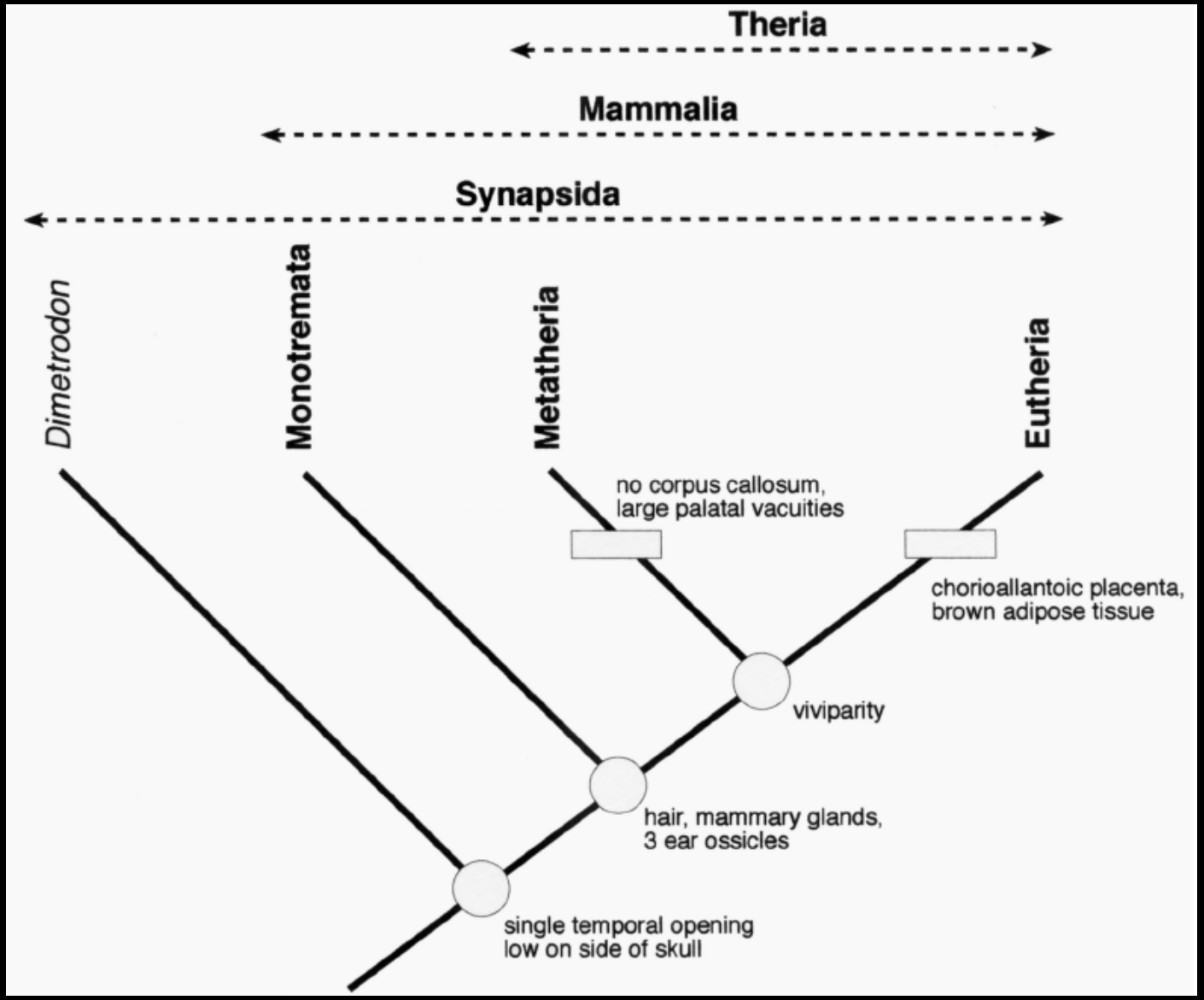
Inferring the mammal tree: Species-level sets of phylogenies for questions in ecology, evolution, and conservation

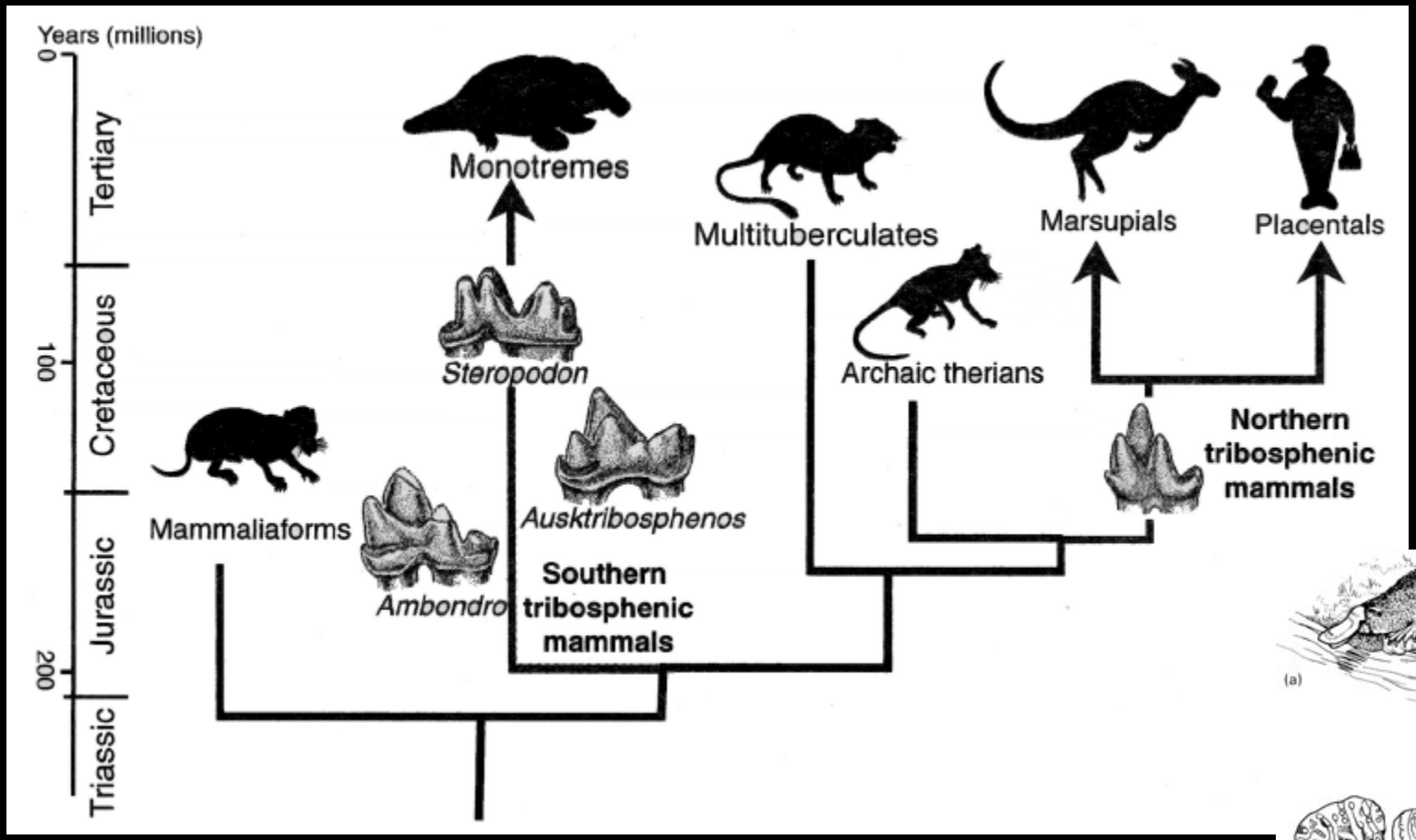
Nathan S. Upham[1,2]*, **Jacob A. Esselstyn**[3], **Walter Jetz**[1,2]*

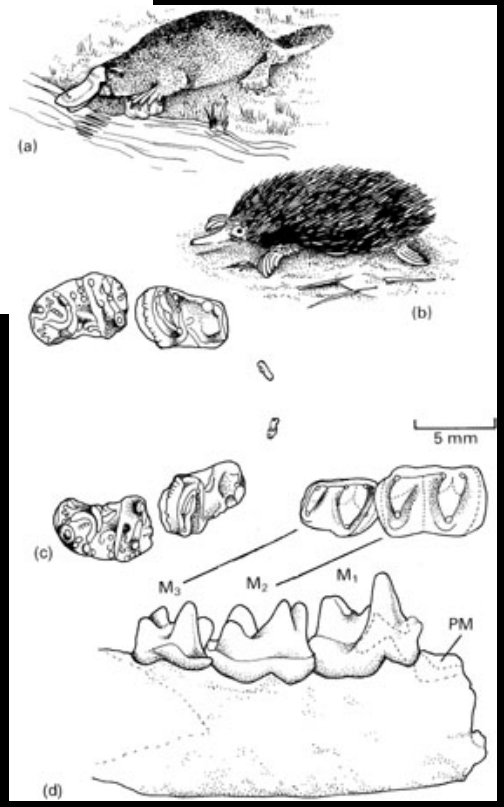




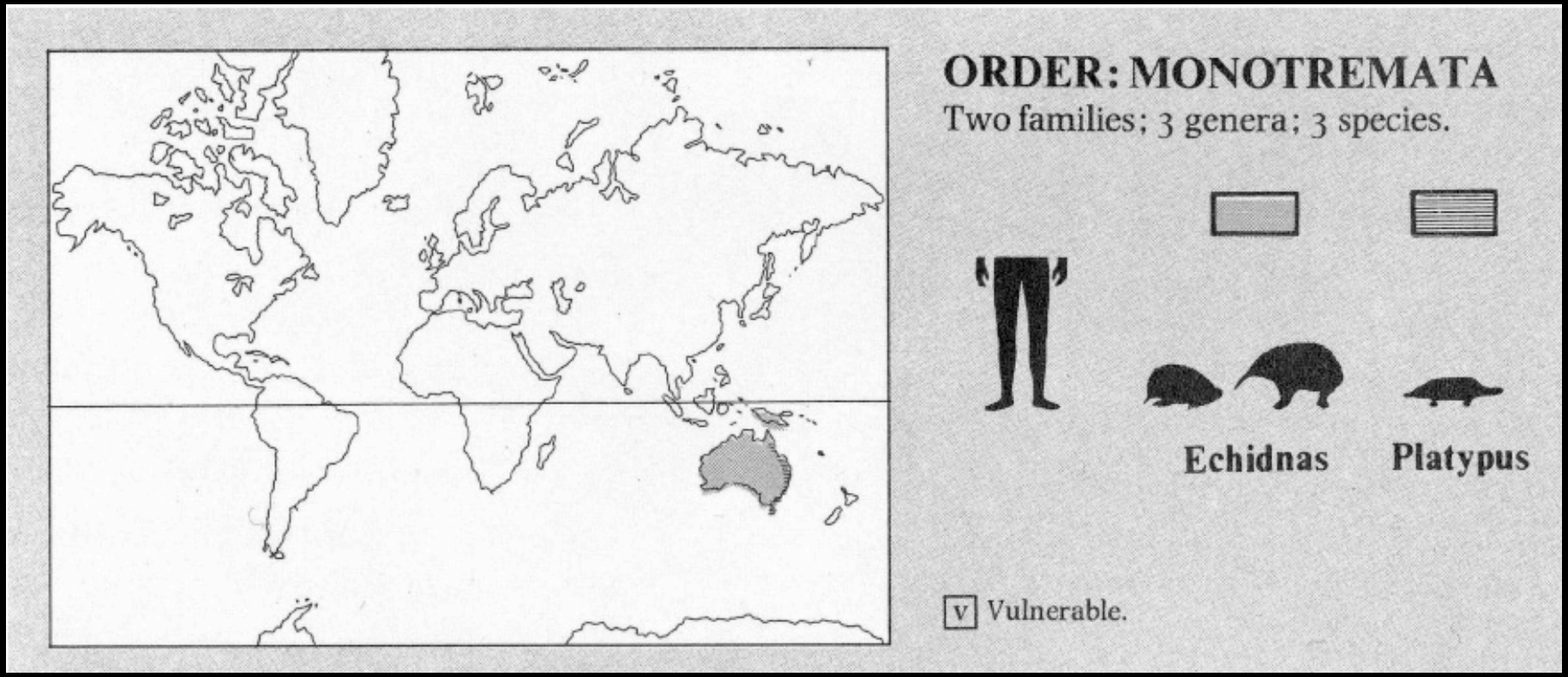
Origem, evolução e diversidade de Monotremata


Theria
Mammalia
Synapsida
Dimetrodon
Monotremata
Metatheria
Eutheria
no corpus callosum,
large palatal vacuities
chorioallantoic placenta,
brown adipose tissue
viviparity
hair, mammary glands,
3 ear ossicles
single temporal opening
low on side of skull


Years (millions)
0
100
200
Tertiary
Cretaceous
Jurassic
Triassic
Monotremes
Multituberculates
Marsupials
Placentals
Steropodon
Archaic therians
Northern tribosphenic mammals
Mammaliaforms
Ausktribosphenos
Ambondro
Southern tribosphenic mammals


(a)
(b)
5 mm
(c)
M3
M2
M1
PM
(d)

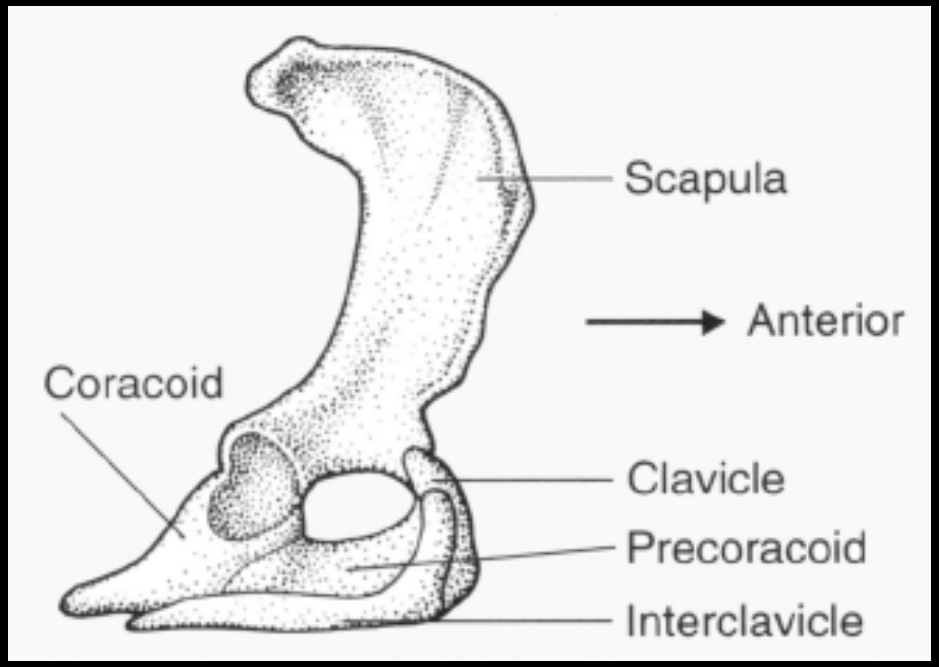
MONOTREMATA

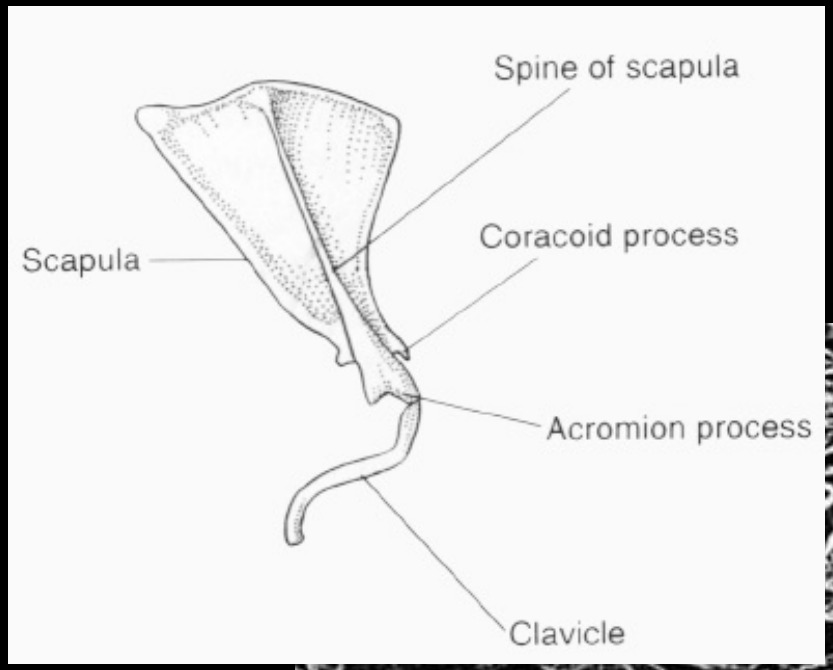


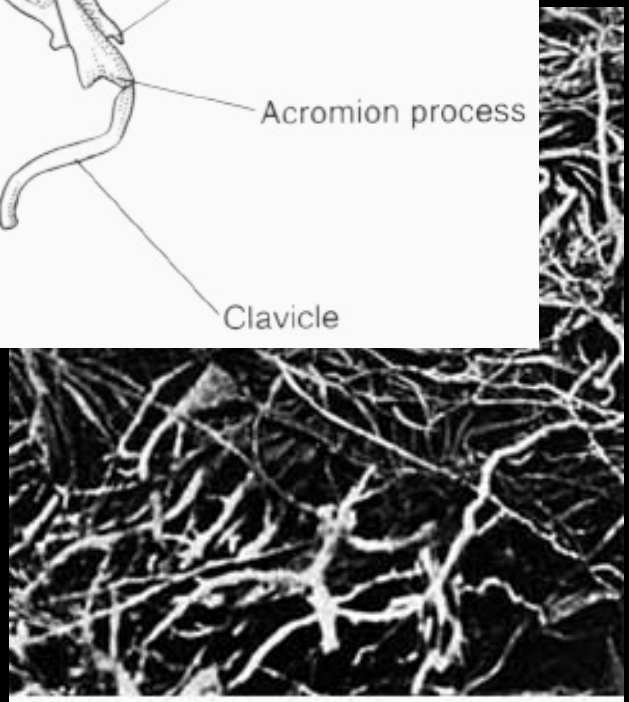
3 gêneros

5 espécies

MONOTREMATA:
Características Diagnósticas



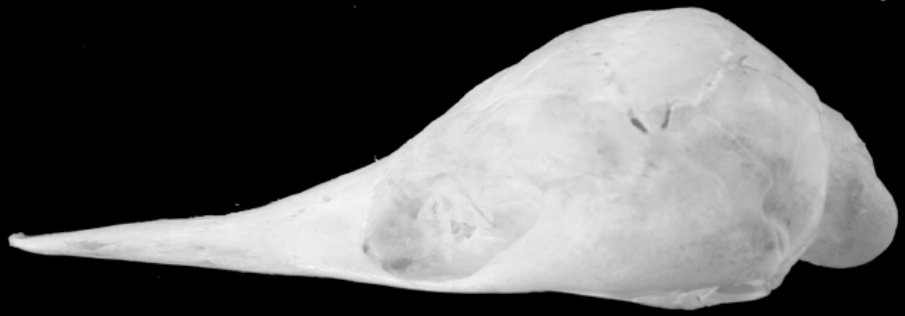




Platypus Eggs

MONOTREMATA:
Características Diagnósticas

1. limbs modified for digging or swimming
2. ankle in males with horny spur
3. no vibrissae
4. epipubic bones present
5. skull bird-like in shape, sutures usually obliterated by fusion of bones in adults
6. no auditory bulla
7. premaxillae separated for at least part of their length
8. jugal reduced or absent
9. no lacrimal
10. palate extending far posteriorly
11. no teeth in adults (adult platypus has horny pads only)
12. cloaca present (absent in other mammals, with few exceptions)
13. penis within cloaca, used only for passage of sperm
14. mammae without pendulous teats (nipples)



Ornithorhynchus anatinus

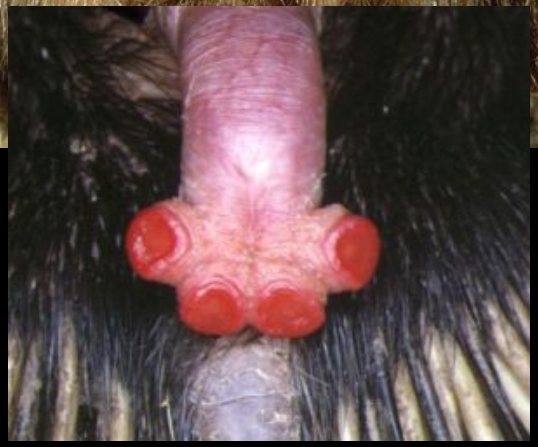

126973
♀

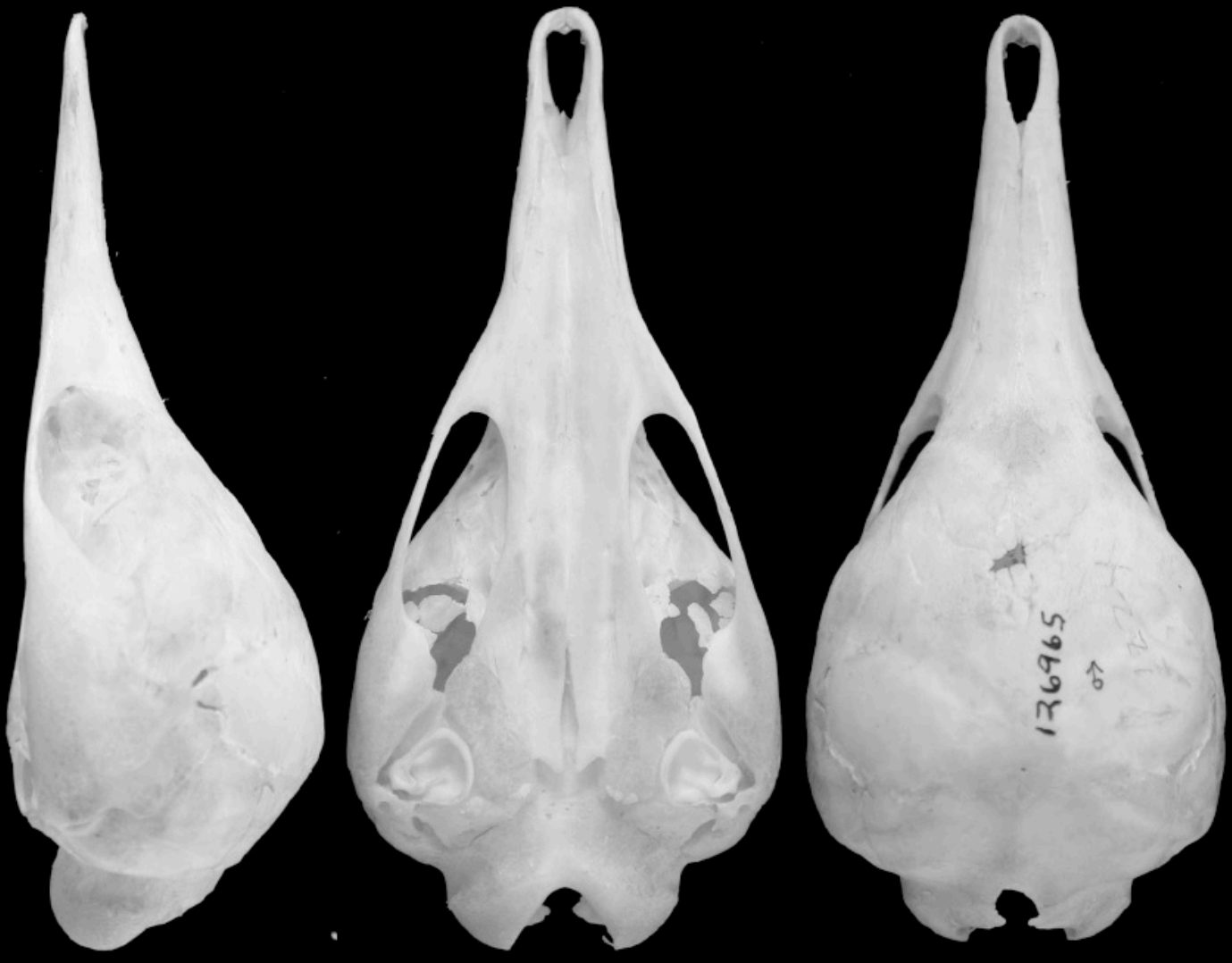
Tachyglossus aculetus

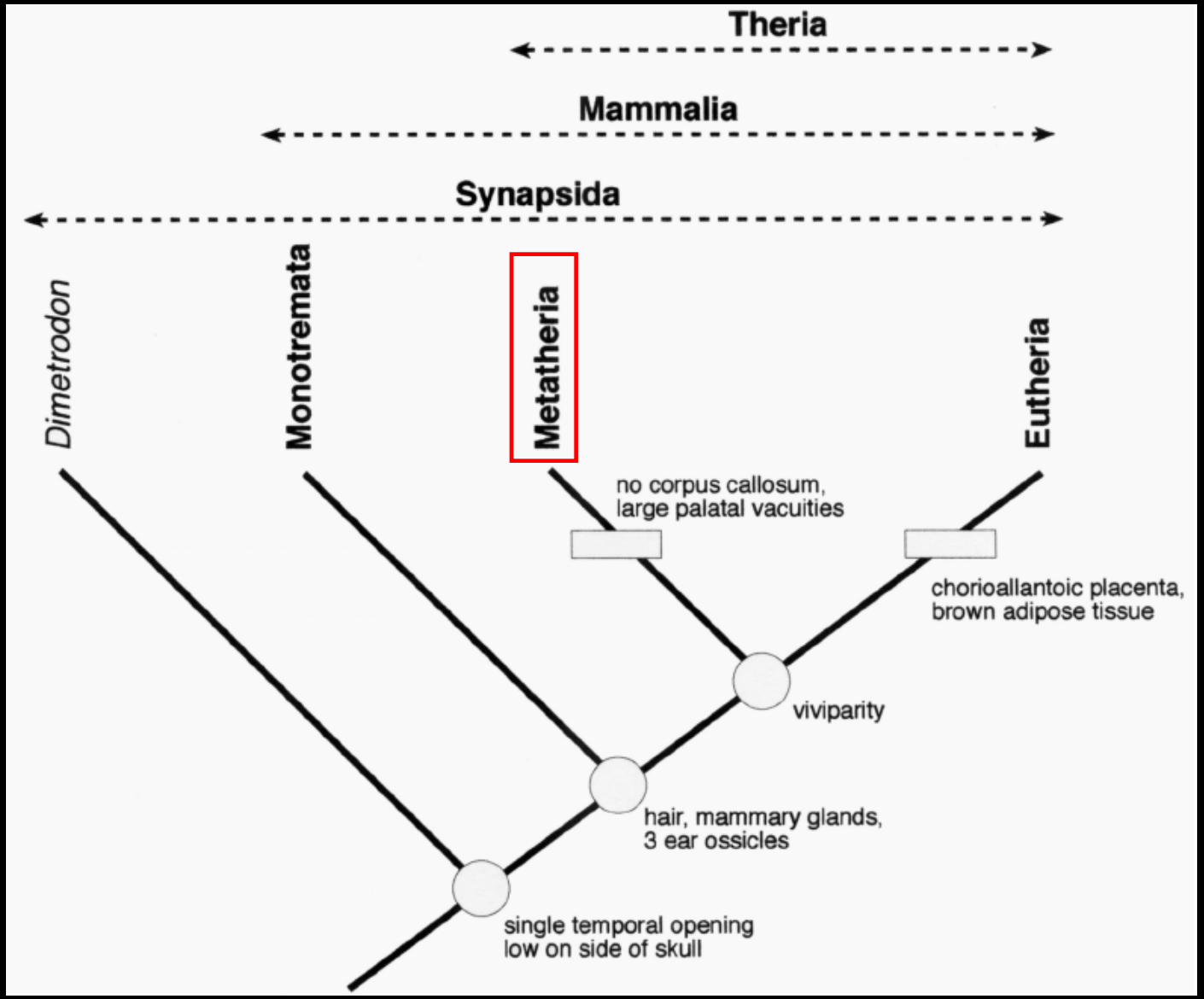
Zaglossus attenboroughi

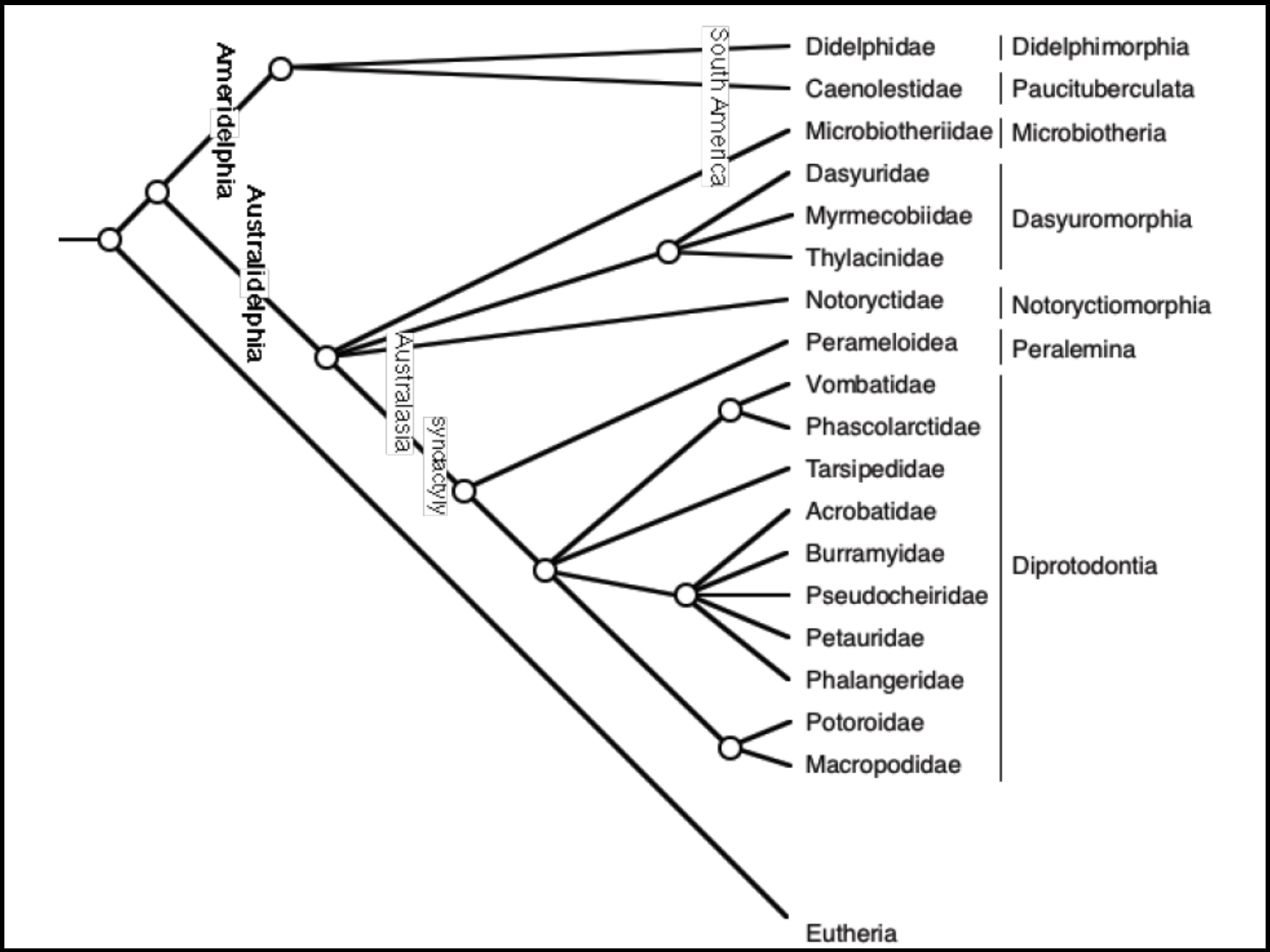
Zaglossus brujini

Zaglossus bartoni



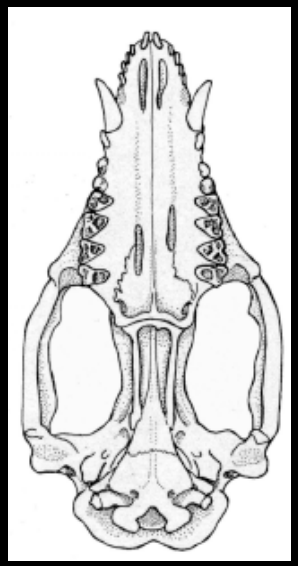

126965

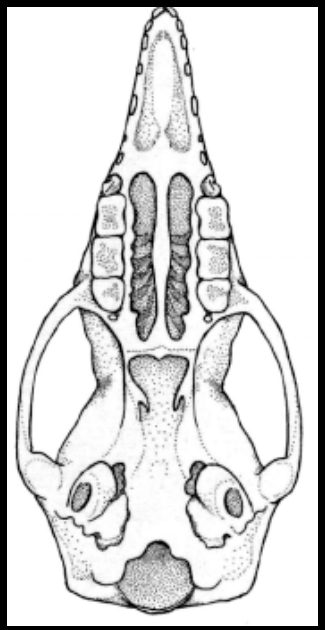

Theria
Mammalia
Synapsida
Dimetrodon
Monotremata
Metatheria
Eutheria
no corpus callosum,
large palatal vacuities
chorioallantoic placenta,
brown adipose tissue
viviparity
hair, mammary glands,
3 ear ossicles
single temporal opening
low on side of skull

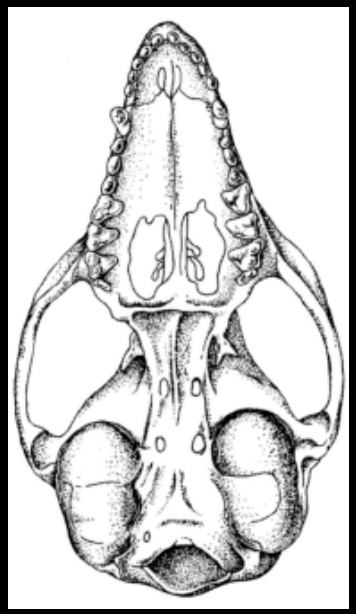

Didelphidae
Caenolestidae
Microbiotheriidae
Dasyuridae
Myrmecobiidae
Thylacinidae
Notoryctidae
Perameloidea
Vombatidae
Phascolarctidae
Tarsipedidae
Acrobatidae
Burramyidae
Pseudocheiridae
Petauridae
Phalangeridae
Potoroidae
Macropodidae
Eutheria
Didelphimorphia
Paucituberculata
Microbiotheria
Dasyuromorphia
Notoryctiomorphia
Peralemina
Diprotodontia
South America
Australasia
syndactyly
Ameridelphia
Australidelphia

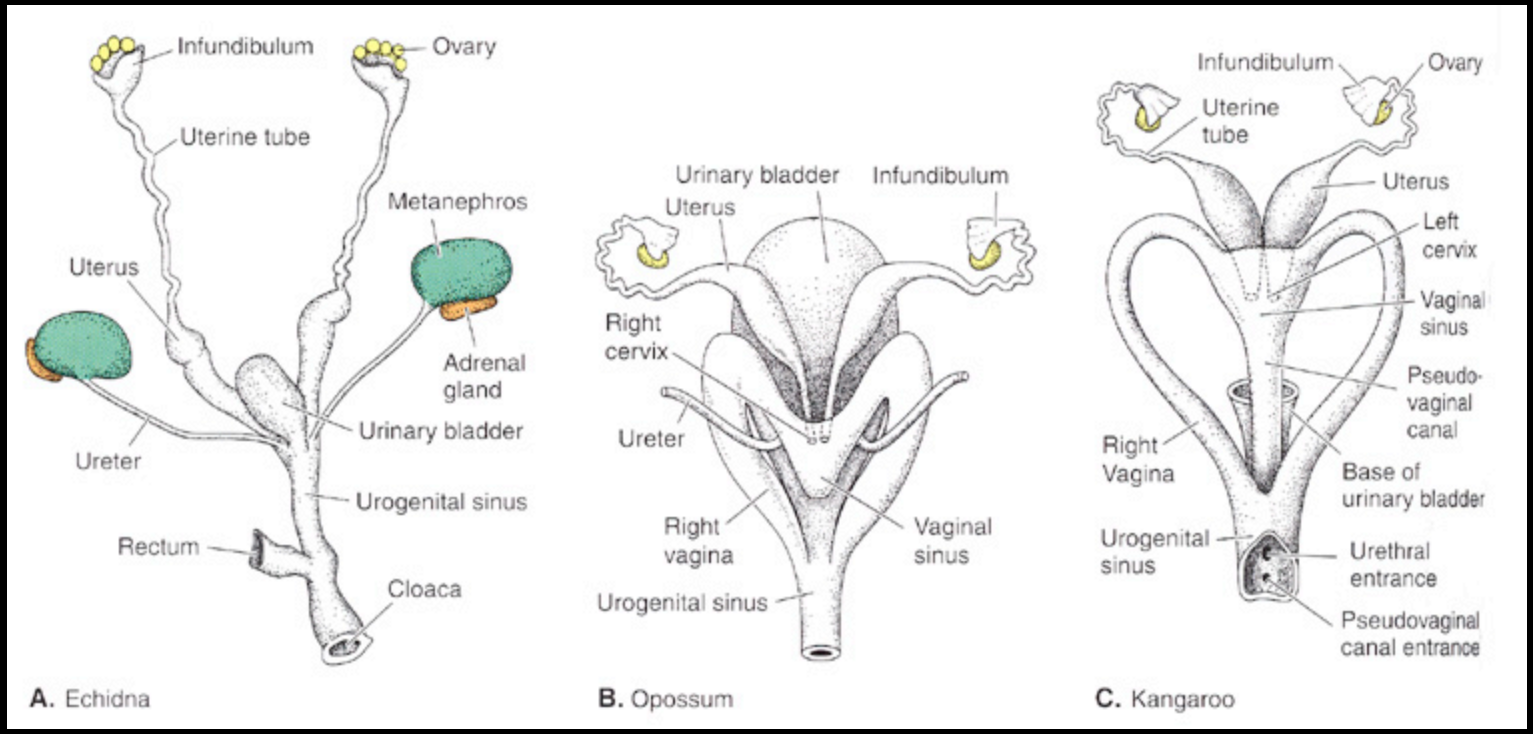
METATHERIA:
Características Diagnósticas

1. marsupial (pouch) usually present, but absent in some forms
2. epipubic bones present
3. braincase small
4. **jugal forming part of mandibular fossa**
5. **alisphenoid large, forming anterior part of the auditory bulla**
6. **angular process of lower jaw inflected**
7. **palatine bones with large vacuities (fenestrated)**
8. vaginae paired
9. cloaca absent, or short if present
10. penis external, forked, carrying both urine and sperm
11. cerebrum relatively small



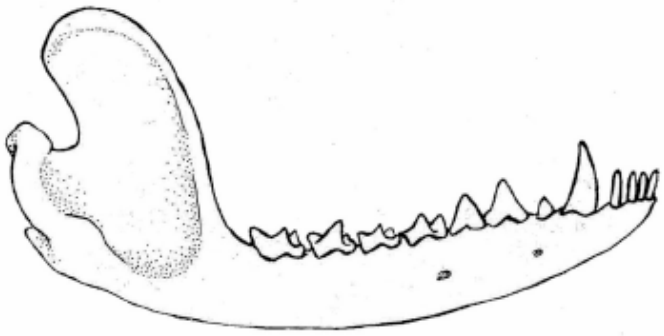




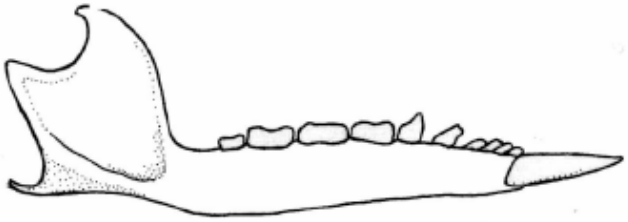

Infundibulum
Ovary
Uterine tube
Metanephros
Uterus
Adrenal gland
Urinary bladder
Ureter
Urogenital sinus
Rectum
Cloaca
A. Echidna
Urinary bladder
Infundibulum
Uterus
Right cervix
Ureter
Right vagina
Vaginal sinus
Urogenital sinus
B. Opossum
Infundibulum
Ovary
Uterine tube
Uterus
Left cervix
Vaginal sinus
Pseudo-vaginal canal
Right Vagina
Base of urinary bladder
Urogenital sinus
Urethral entrance
Pseudovaginal canal entrance
C. Kangaroo

METATHERIA:

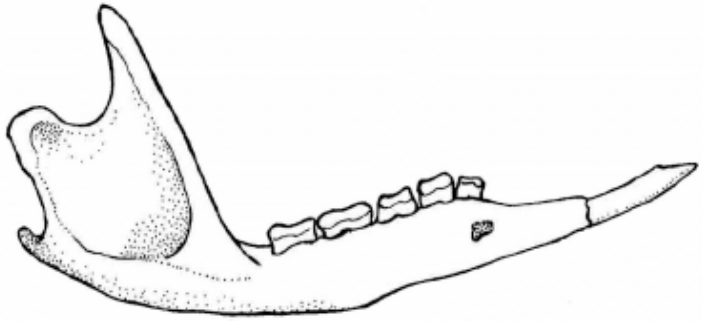
Poliprotodontia X Diprotodontia



Didelphis (Didelphidae) lower jaw – note multiple lower incisors, all of equal size



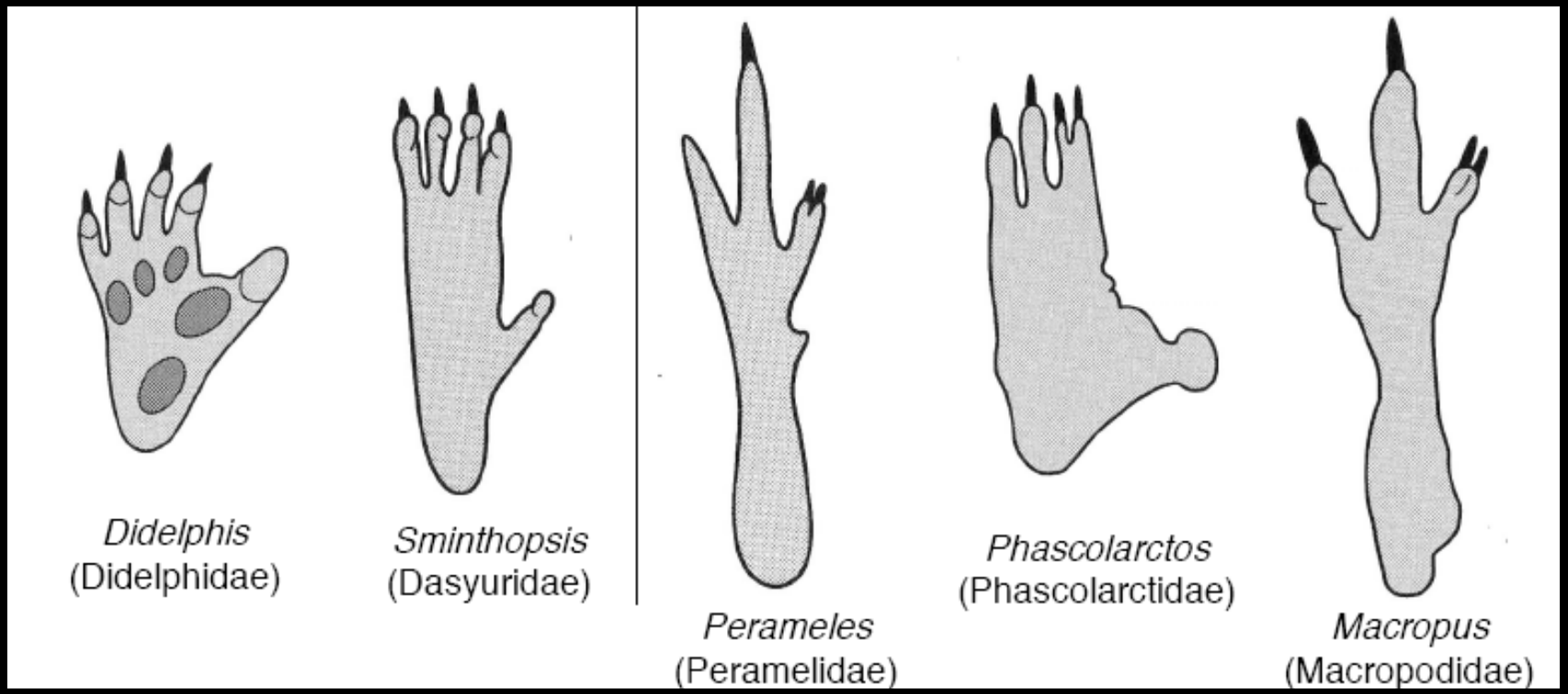
Caenolestes (Caenolestidae) lower jaw – note enlarged anterior incisor and multiple small posterior ones



Macropus (Macropodidae) lower jaw – note single, enlarged lower incisor

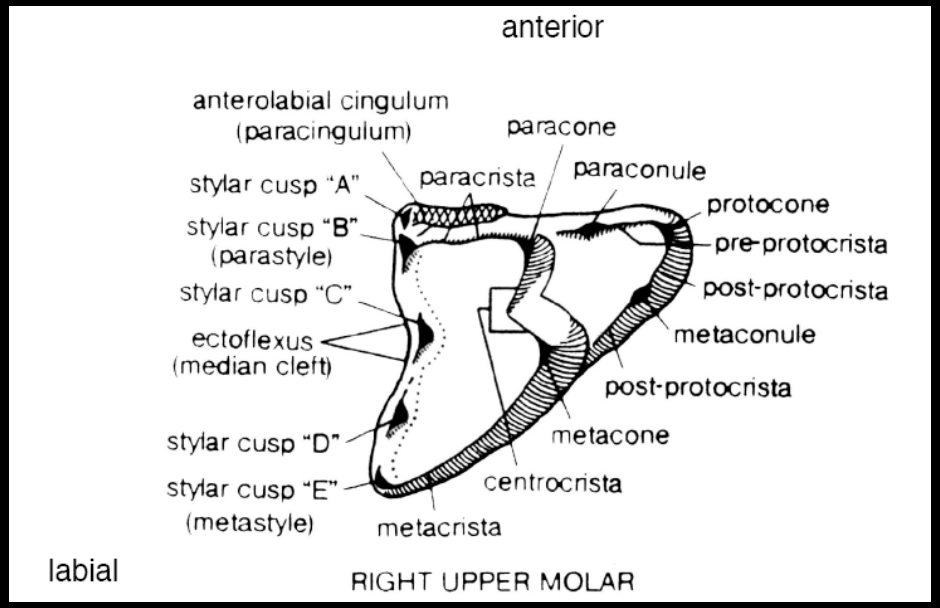
METATHERIA:

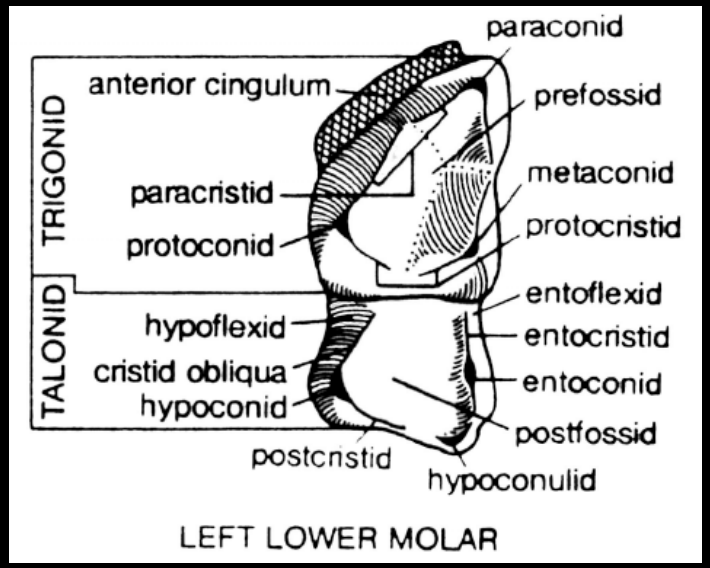
Polidactilia X Sindactilia

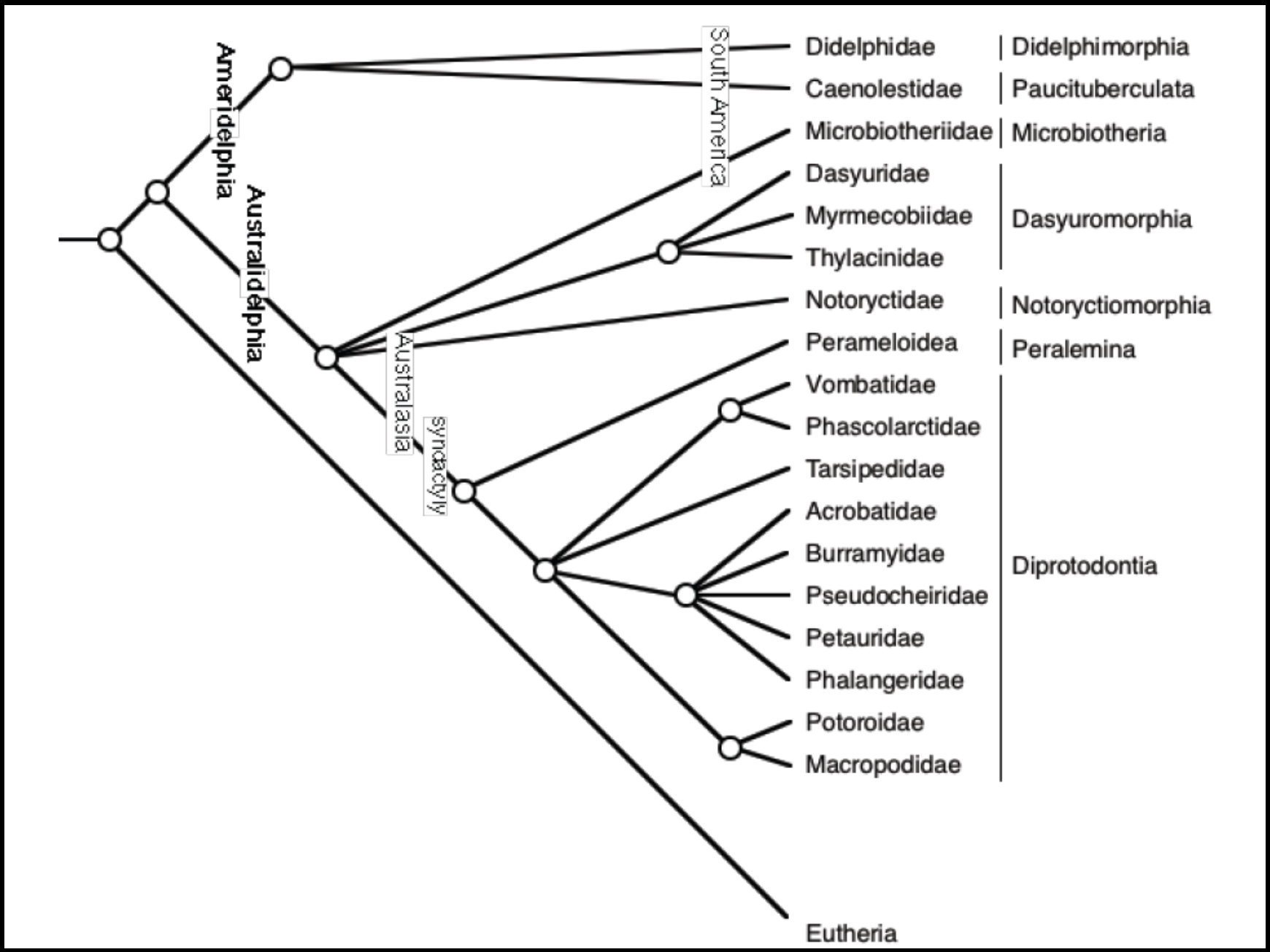


METATHERIA:

Molar tribosfênico






Didelphidae
Caenolestidae
Microbiotheriidae
Dasyuridae
Myrmecobiidae
Thylacinidae
Notoryctidae
Perameloidea
Vombatidae
Phascolarctidae
Tarsipedidae
Acrobatidae
Burramyidae
Pseudocheiridae
Petauridae
Phalangeridae
Potoroidae
Macropodidae
Eutheria
Didelphimorphia
Paucituberculata
Microbiotheria
Dasyuromorphia
Notoryctiomorphia
Peralemina
Diprotodontia
South America
Australasia
syndactyly
Ameridelphia
Australidelphia

Higher Classification and Geographic Distribution of Recent Marsupials[a]

	Genera	Species	Distribution[b]
DASYUROMORPHIA			
Dasyuridae	20	69	OW
Myrmecobiidae	1	1	OW
Thylacinidae	1	1	OW
DIDELPHIMORPHIA			
Didelphidae	18[c]	91[c]	NW
DIPROTODONTIA			
Acrobatidae	2	2	OW
Burramyidae	2	5	OW
Hypsiprymnodontidae	1	1	OW
Macropodidae	11	65	OW
Petauridea	3	11	OW
Phalangeridae	6	27	OW
Phascolarctidae	1	1	OW
Potoroidae	4	10	OW
Pseudocheiridae	6	17	OW
Tarsipedidae	1	1	OW
Vombatidae	2	3	OW
MICROBIOTHERIA			
Microbiotheriidae	1	1	NW
NOTORYCTEMORPHIA			
Notoryctidae	1	2	OW
PERAMELEMORPHIA			
Chaeropodidae	1	1	OW
Peramelidae	6	18	OW
Thylacomyidae	1	2	OW
PAUCITUBERCULATA			
Caenolestidae	3	6	NW

[a] Numbers of genera and species after Wilson and Reeder (2005) except as noted.
[b] NW = New World; OW = Old World (Sahul).
[c] After Gardner (2008).

Dasyuromorphia

22 gêneros 71 espécies

19 77

Diprotodontia

39 gêneros 143 espécies

40 151

Peramelemorpha

8 gêneros 21 espécies

8 22

ORDEM DIDELPHIMORPHIA

18 gêneros

126 espécies

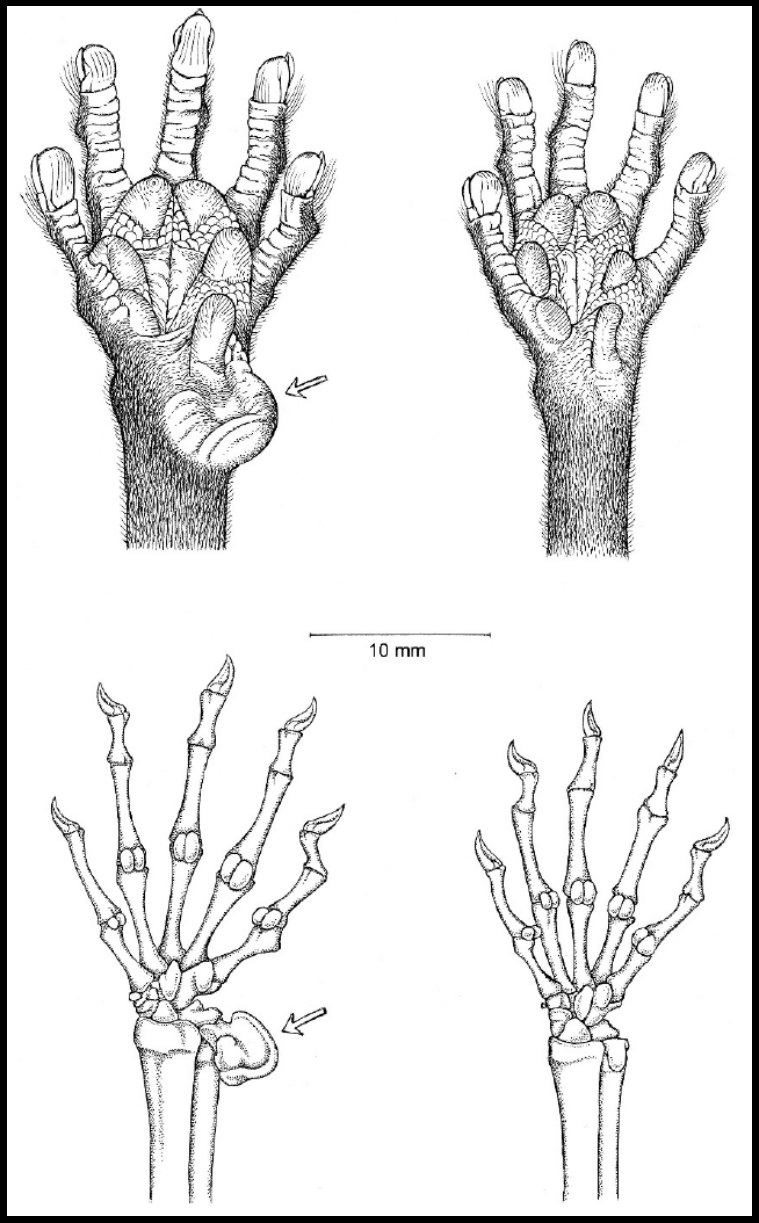
Caracteres diagnósticos

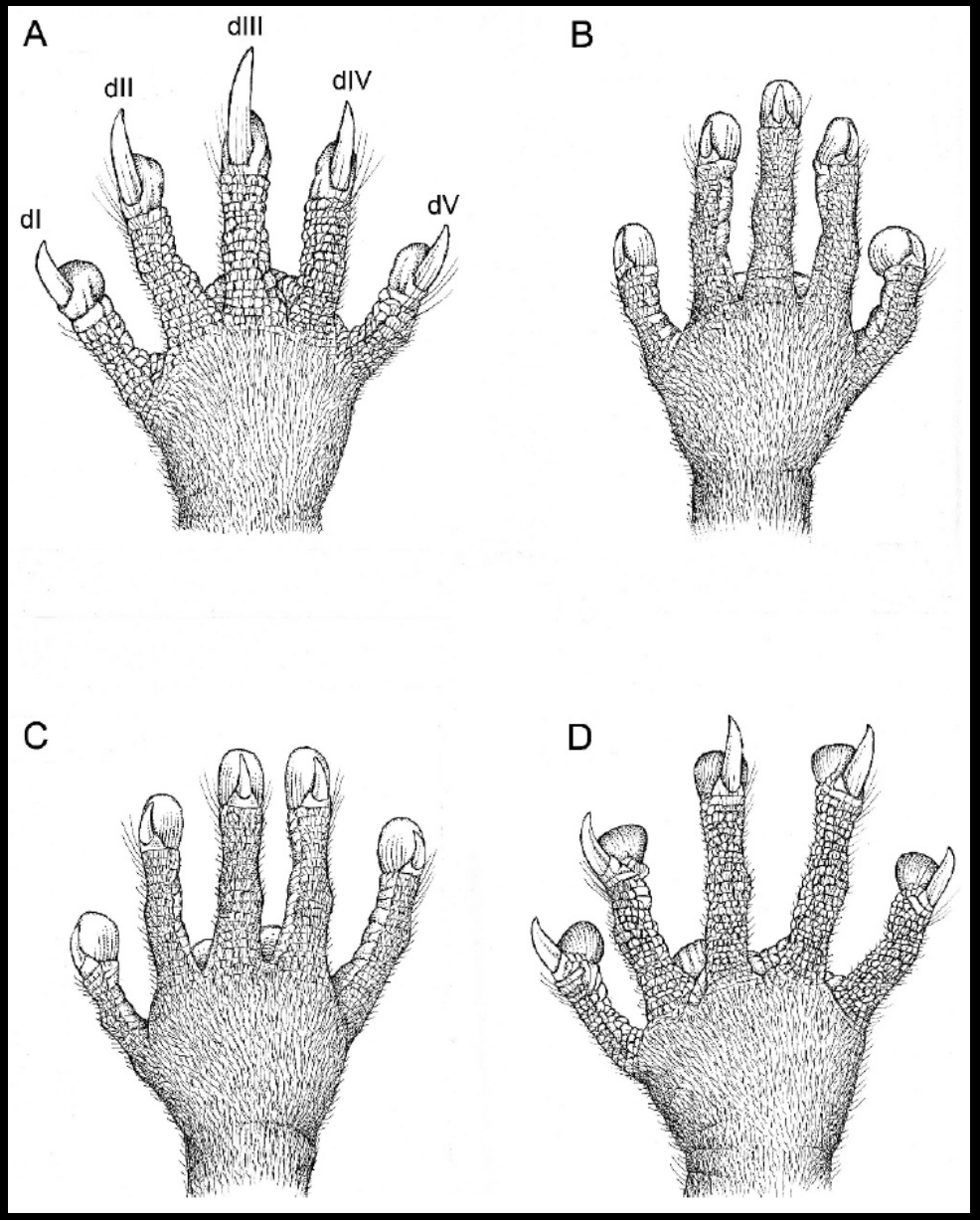
diagnostic characters: combination of polyprotodonty with 5/4 incisors, polydactyly, and small, uninflated bullae

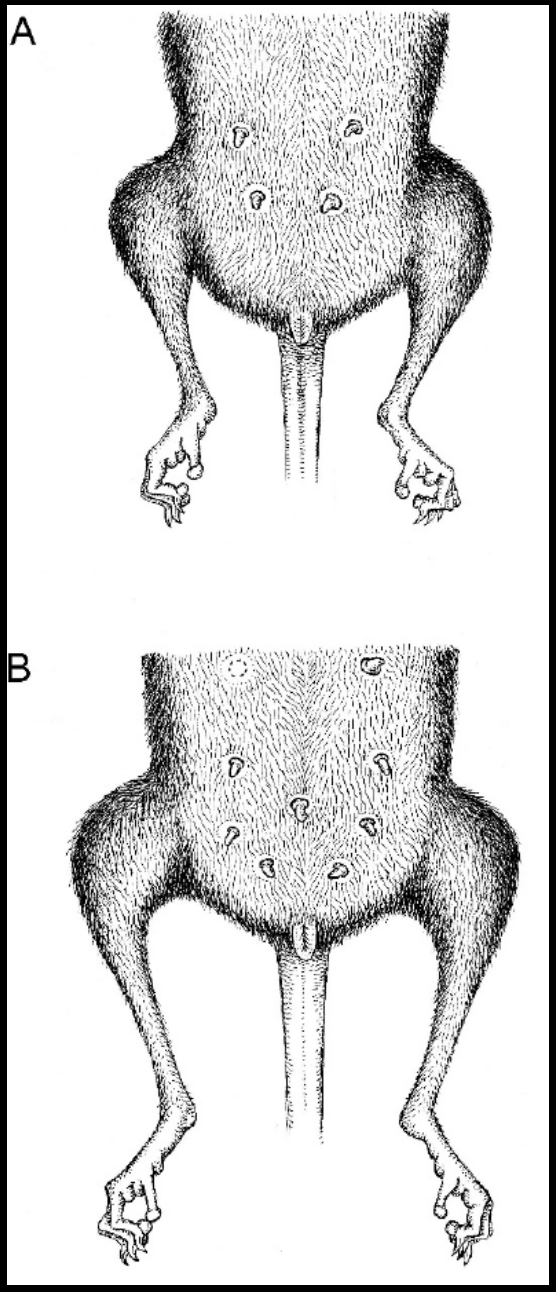
1. body small to medium
2. marsupium, if present, opening to anterior
3. tail long (shorter than head-body only in *Monodelphis*), usually naked, prehensile in some (e.g., *Caluromys*, *Micoureus*)
4. foot posture plantigrade
5. **polydactylous; digits 5-5, subequal in length**
6. hallux well developed, opposable, without claw
7. cranium relatively long and slender
8. **bullae relatively uninflated**
9. sagittal crest often well developed
10. zygomatic arch relatively slender
11. paroccipital process small
12. **polyprotodont; lower incisors subequal in size, not procumbent**
13. canines well developed
14. molars tritubercular (tribosphenic)

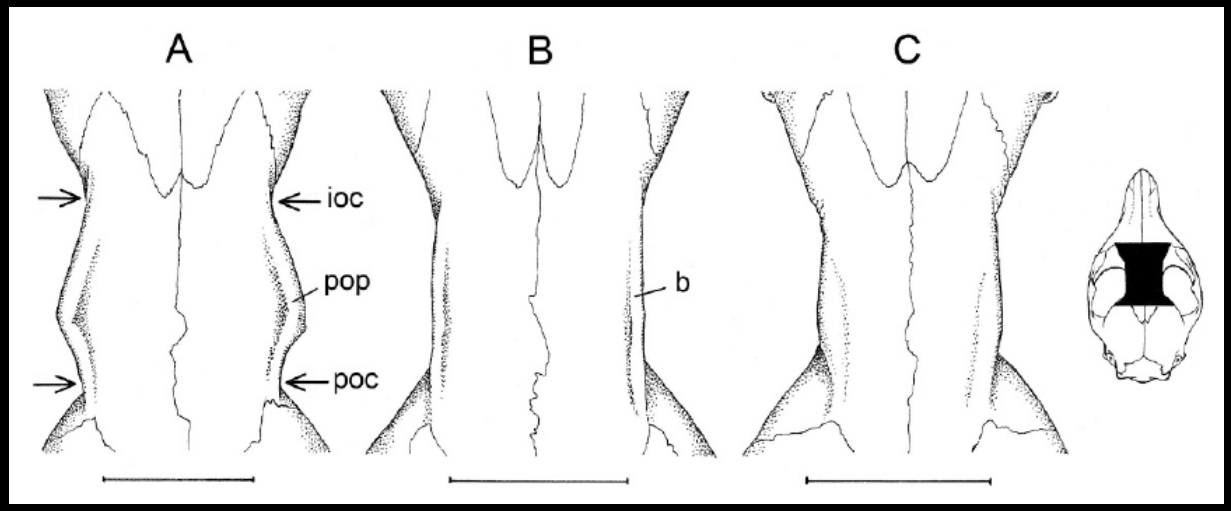
dental formula:

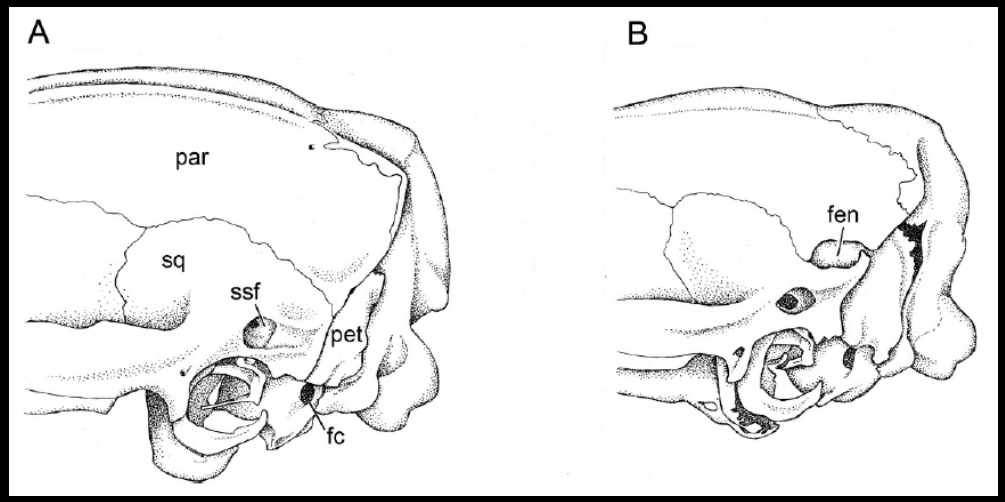
$$\frac{5\ \ 1\ \ 3\ \ 4}{4\ \ 1\ \ 3\ \ 4} = 50$$

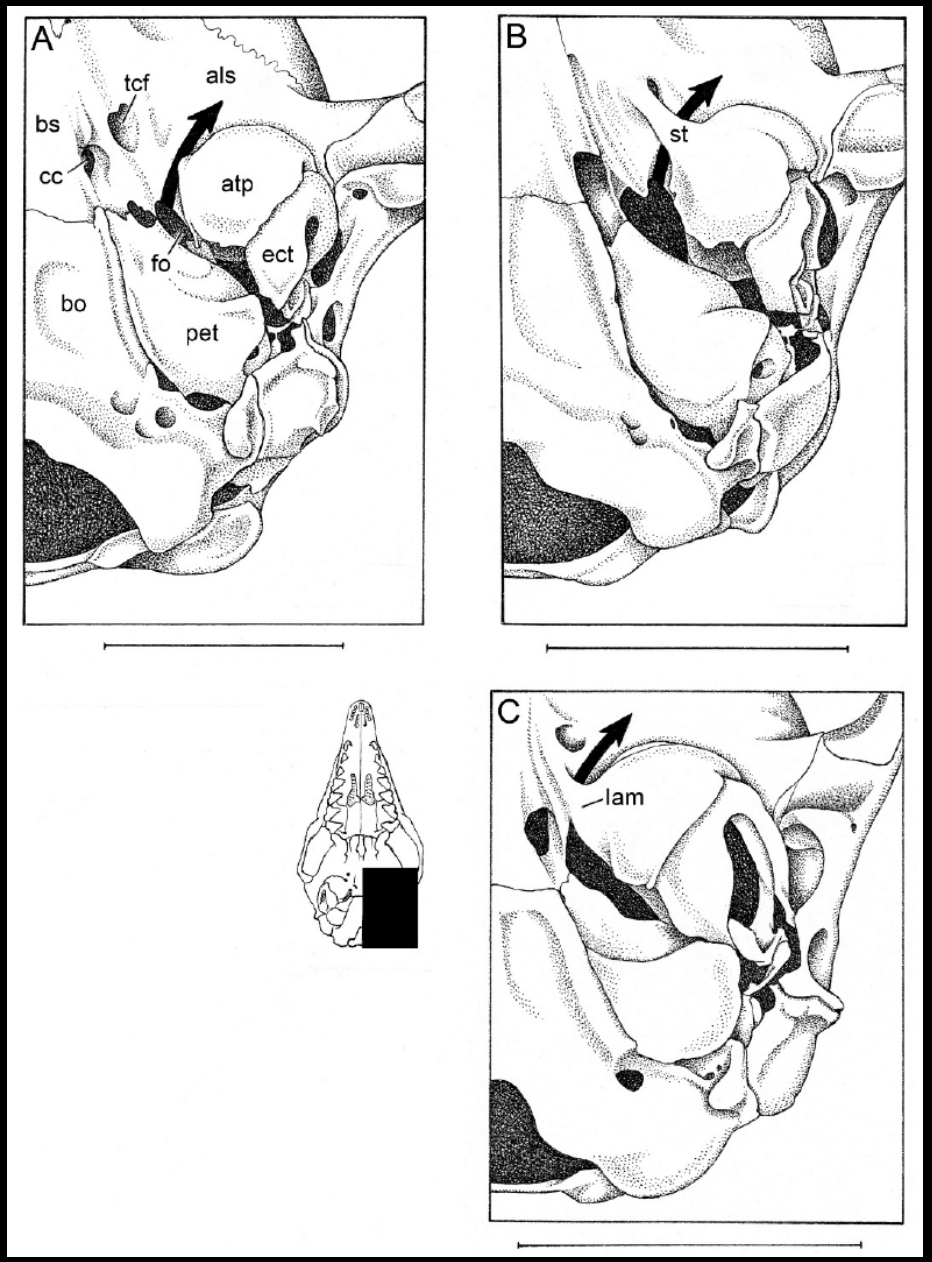

10 mm


A
dIII
dII
dIV
dI
dV
B
C
D


A
B


A
B
C
ioc
pop
poc
b


A
B
par
sq
ssf
pet
fc
fen


A
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als
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ect
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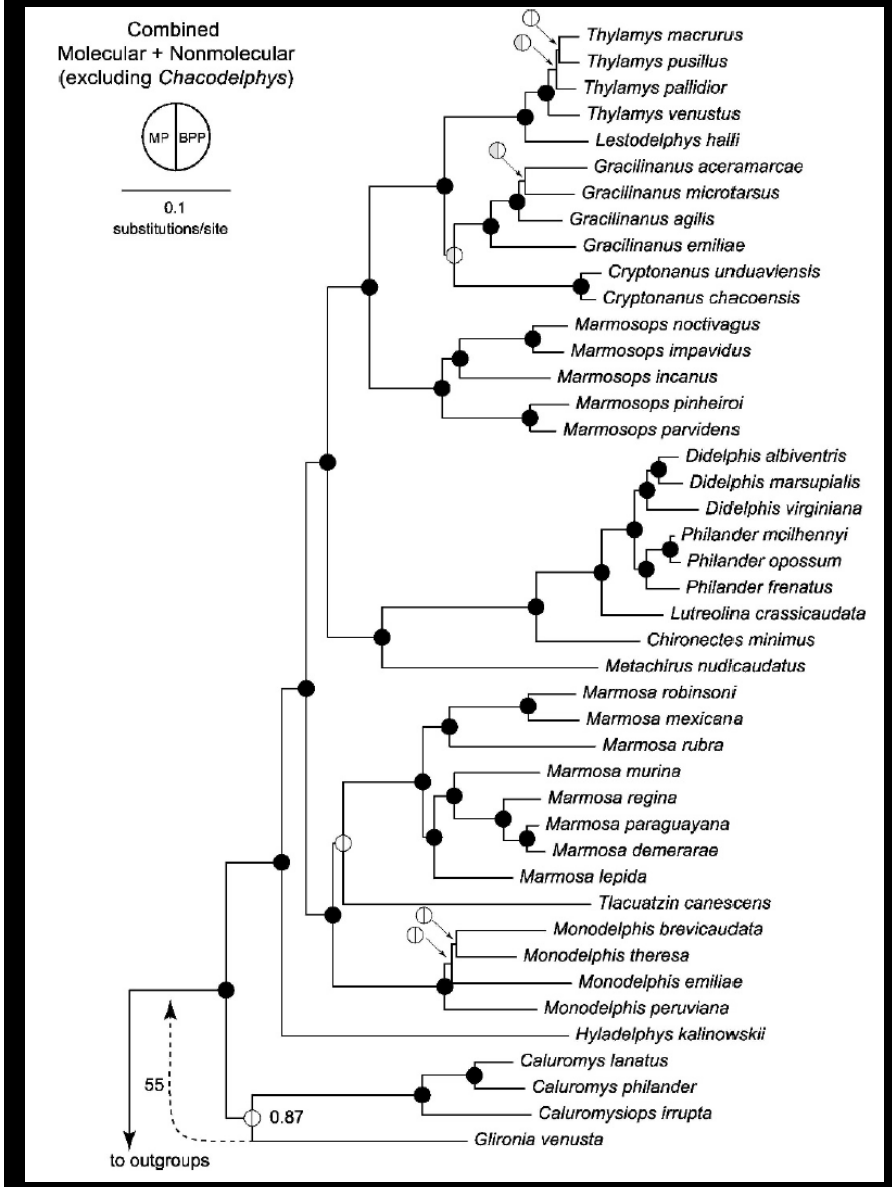
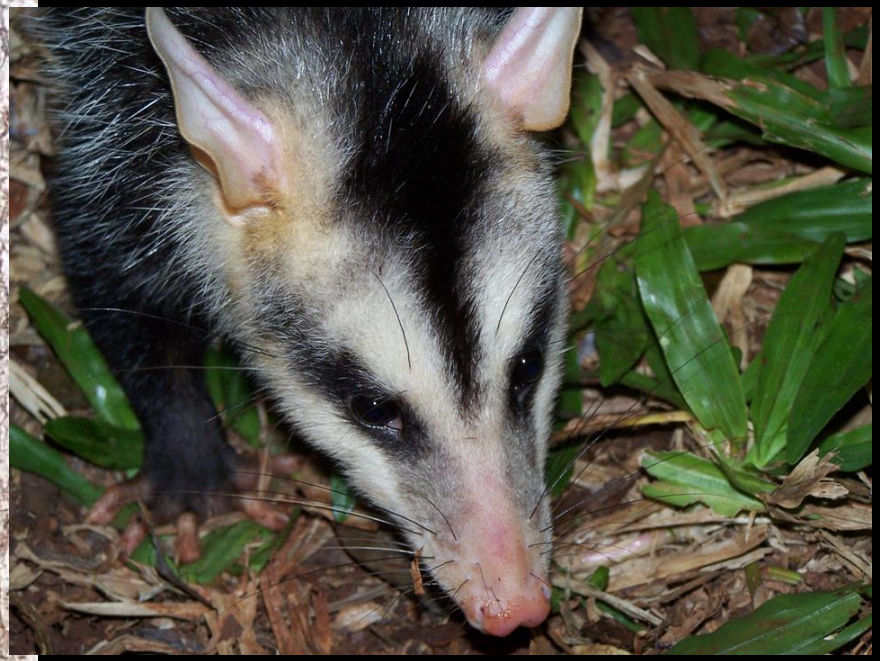

Combined
Molecular + Nonmolecular
(excluding Chacodelphys)
MP
BPP
0.1
substitutions/site
Thylamys macrurus
Thylamys pusillus
Thylamys pallidior
Thylamys venustus
Lestodelphys halli
Gracilinanus aceramarcae
Gracilinanus microtarsus
Gracilinanus agilis
Gracilinanus emiliae
Cryptonanus unduaviensis
Cryptonanus chacoensis
Marmosops noctivagus
Marmosops impavidus
Marmosops incanus
Marmosops pinheiroi
Marmosops parvidens
Didelphis albiventris
Didelphis marsupialis
Didelphis virginiana
Philander mcilhennyi
Philander opossum
Philander frenatus
Lutreolina crassicaudata
Chironectes minimus
Metachirus nudicaudatus
Marmosa robinsoni
Marmosa mexicana
Marmosa rubra
Marmosa murina
Marmosa regina
Marmosa paraguayana
Marmosa demerarae
Marmosa lepida
Tlacuatzin canescens
Monodelphis brevicaudata
Monodelphis theresa
Monodelphis emiliae
Monodelphis peruviana
Hyladelphys kalinowskii
Caluromys lanatus
Caluromys philander
Caluromysiops irrupta
Glironia venusta
55
0.87
to outgroups




Family Didelphidae
Chironectes minimus
P. Myers
ASM - MIL


Family Didelphidae
Lutreolina crassicaudata
P. Myers
ASM - MIL


Family Didelphidae
Philander opossum
C. H. Tyndale-Biscoe
ASM - MIL


Family Didelphidae
Marmosa robinsoni
J.F. Eisenberg
ASM-MIL


MOUSE OPOSSUM

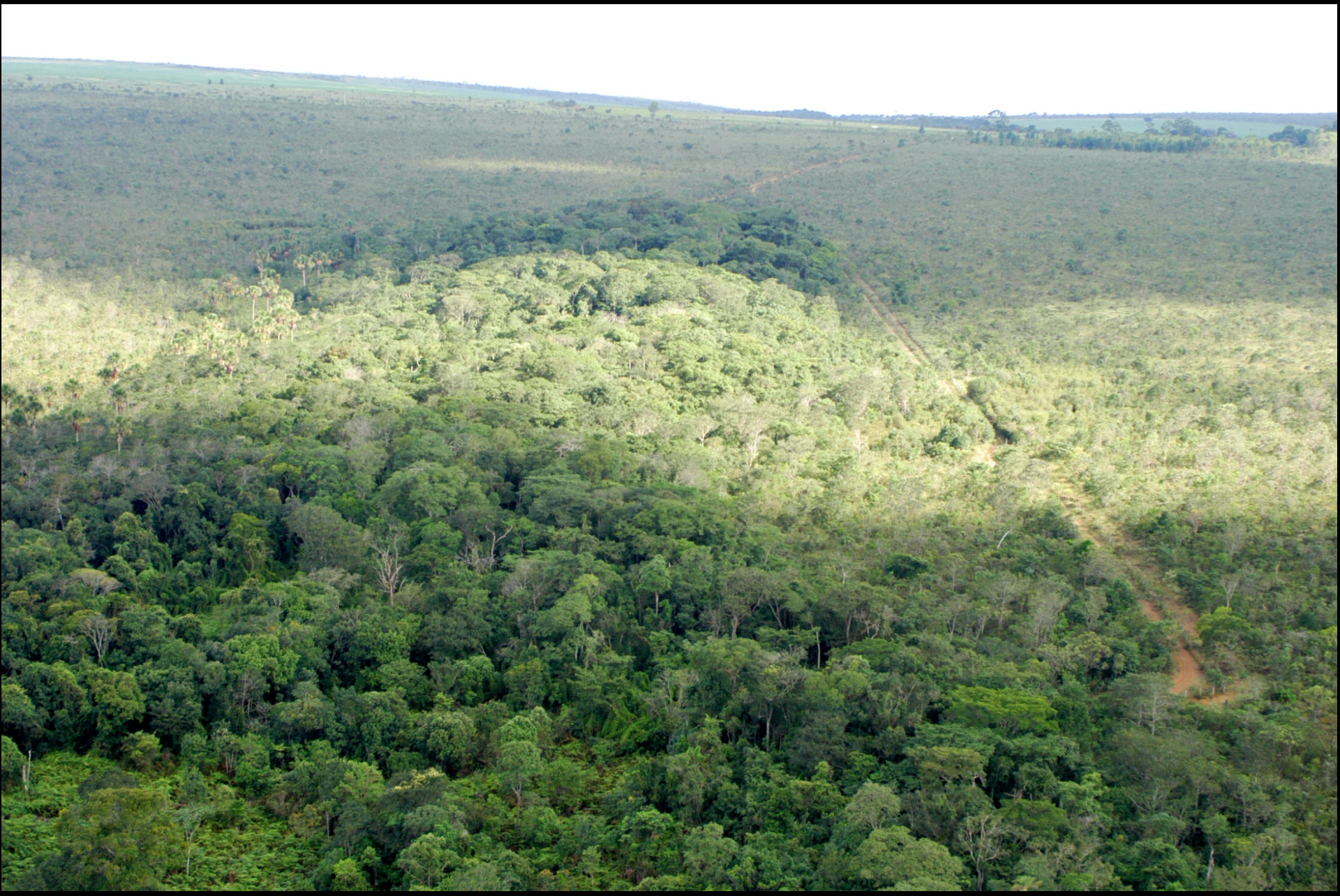

Family Didelphidae
Marmosops impavidus

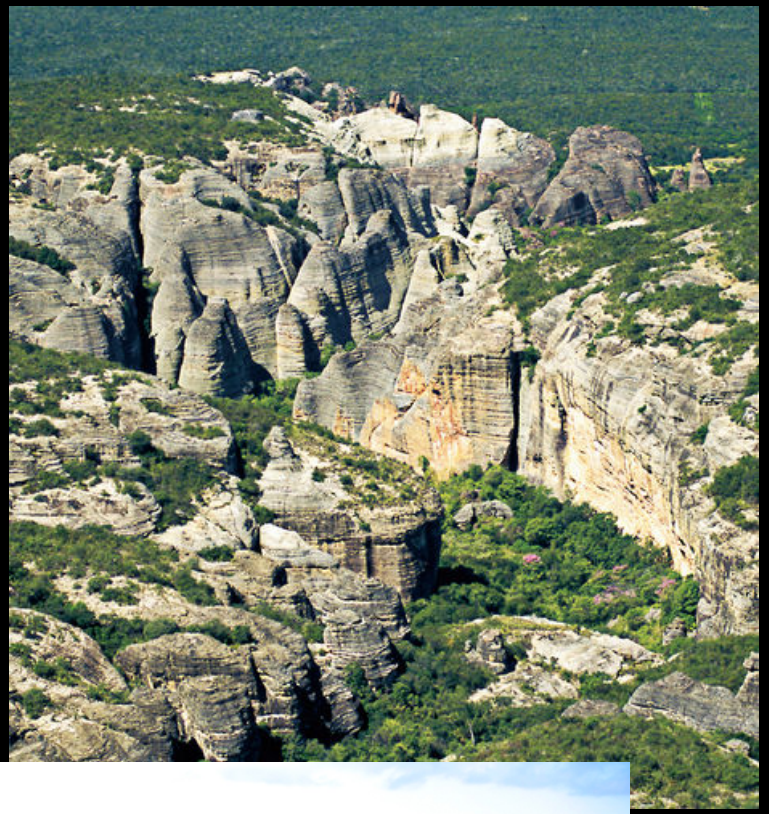

Family Didelphidae
Thylamys elegans
P. L. Meserve
ASM - MIL

Didelphis

Caluromys

Marmosa





ORDEM PAUCITUBERCULATA

3 gêneros

Caenolestes

Lestoros

Rhyncholestes

Distribuição Geográfica

-Áreas altas e úmidas e Florestas montadas (Cloud forests) dos Andes da Venezuela até Bolívia

- Floresta Pluvial temperada do Chile

7 espécies

Caracteres diagnósticos

diagnostic characters: combination of polydactyly (digits 5-5, subequal in length) and diprotodonty (medial lower incisors greatly enlarged and strongly procumbent).

other characters:

1. body small (15-28 cm), shrew-like
2. no marsupium
3. tail long, sparsely haired
4. foot posture plantigrade
5. hallux present, weakly opposable, with claw
6. cranium elongate
7. no sagittal crest
8. zygomatic arch relatively slender
9. paroccipital process very small
10. canines may be well developed or reduced in size
11. upper molars quadrituberculate, with moderately developed hypocone

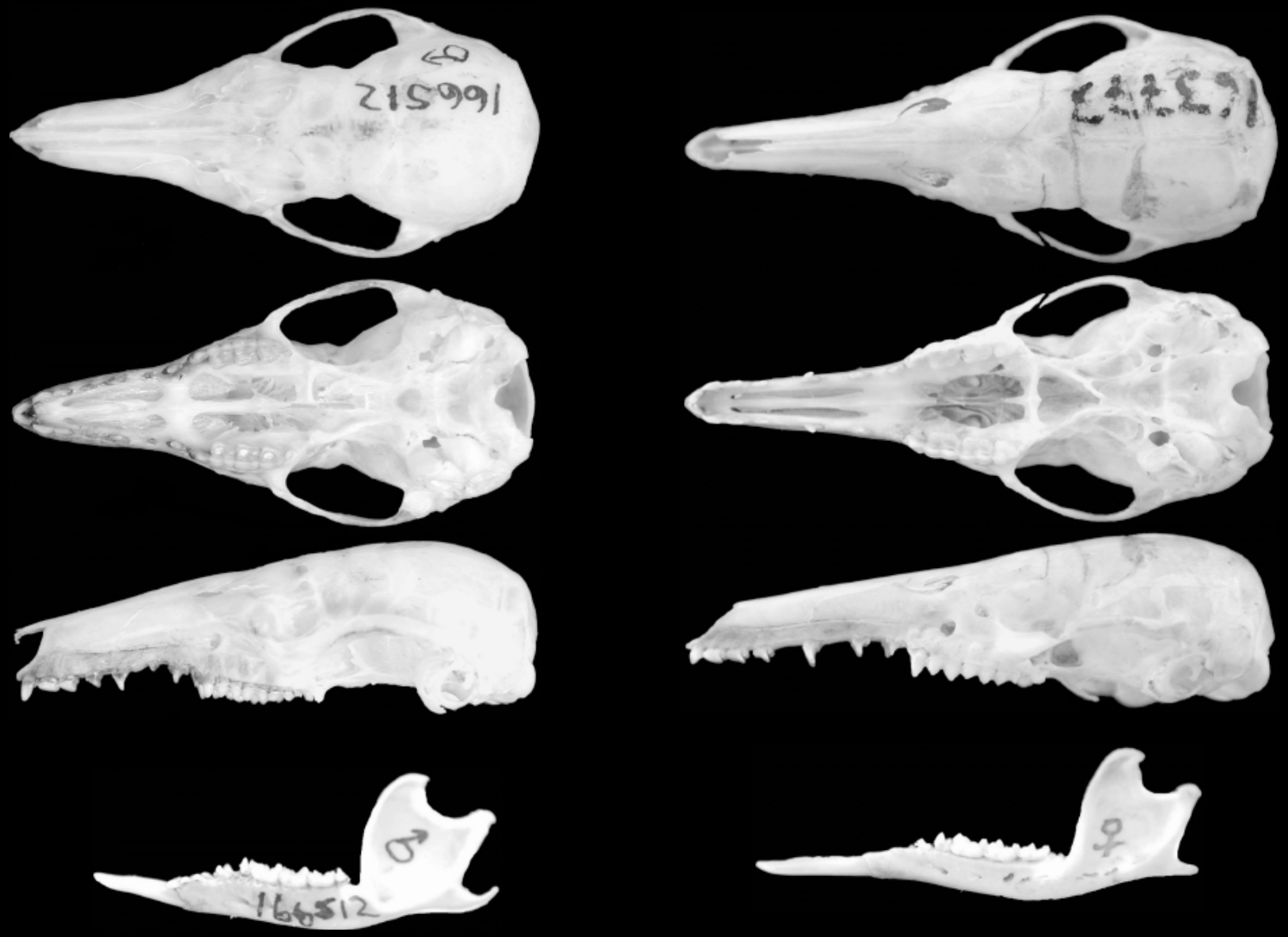
dental formula:

$$\frac{4\ \ 1\ \ 3\ \ 4}{3\text{-}4\ \ 1\ \ 3\ \ 4} = 46 - 48$$


Family Caenolestidae
Caenolestes fullginosus
C. B. Tyndale-Biscoe
ASM - MIL


Family Caenolestidae
Rhyncholestes raphanurus
P. L. Meserve
ASM - MIL


Family Caenolestidae
Rhyncholestes raphanurus
P. L. Meserve
ASM - MIL

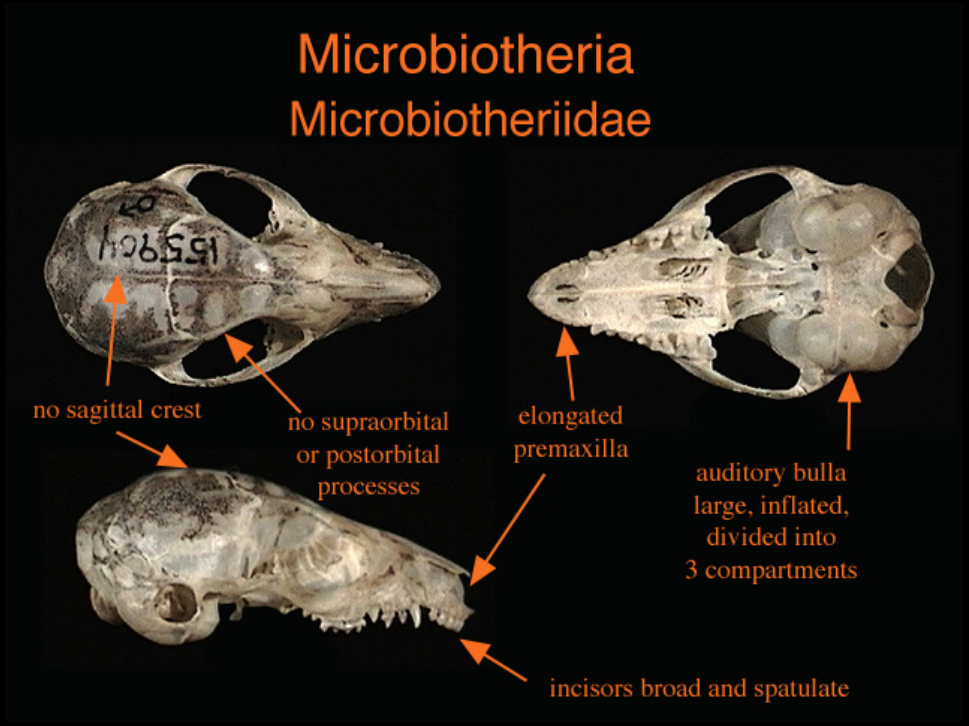


Lestoros *Rhyncholestes*

Ordem Microbiotheria

1 gênero

2 espécies



Caracteres diagnósticos

diagnostic characters: combination of polyprotodonty with 5/4 incisors, polydactyly, and greatly inflated bullae with the inclusion of the entotympanic bone

Distribuição Geográfica

- Florestas temperadas do Chile e Argentina

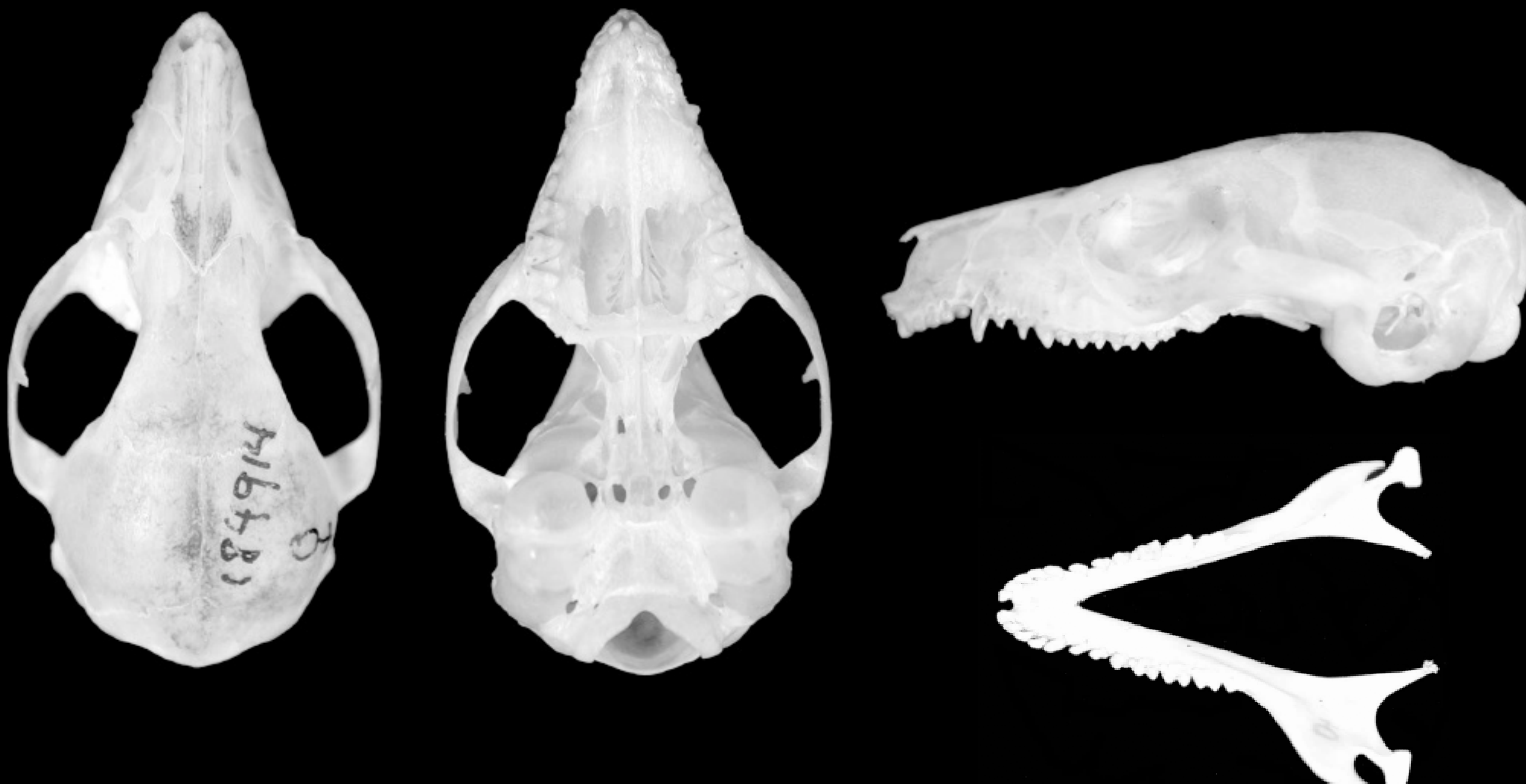
general characters:

1. size small, mouse-like
2. **tail furred to tip except for naked ventral strip near tip**
3. tail prehensile, about as long as head and body length
4. marsupium present
5. **toes polydactylous**
6. no sagittal crest
7. **bullae greatly inflated, together two-thirds as wide as braincase**
8. incisors 5/4, as in Didelphidae
9. polyprotodont; lower incisors subequal in size, medial pair not procumbent
10. canines relatively small
11. molars tritubercular (tribosphenic)

dental formula:

$$\frac{5\ 1\ 3\ 4}{4\ 1\ 3\ 4} = 50$$


MLM © 2003



Alpha taxonomy of *Dromiciops* (Microbiotheriidae) with the description of 2 new species of monito del monte

Guillermo D'Elía,* Natalí Hurtado, and Alejandro D'Anatro

ORIGINAL ARTICLE

Historical biogeography and post-glacial recolonization of South American temperate rain forest by the relictual marsupial *Dromiciops gliroides*

Christopher M. T. Himes[1]*, Milton H. Gallardo[2] and G. J. Kenagy[1]

Genomic diversity and demographic history of the *Dromiciops* genus (Marsupialia: Microbiotheriidae)

Julian F. Quintero-Galvis [a,b,f,*], Pablo Saenz-Agudelo [a], Guillermo C. Amico [c], Soledad Vazquez [c], Aaron B.A. Shafer [d], Roberto F. Nespolo [a,e,f,g,*]

METATHERIA X EUTHERIA

Sucesso Adaptativo

Radiação funcional

locomoção/dieta - diverso

Morfologia

conservada - variada

Tamanho corpóreo

pequeno - grande

Comportamento social

não social/social

Diversidade

pequena/elevada

METATHERIA X EUTHERIA

Eutheria superior a Metatheria?

Reprodução

Encéfalo

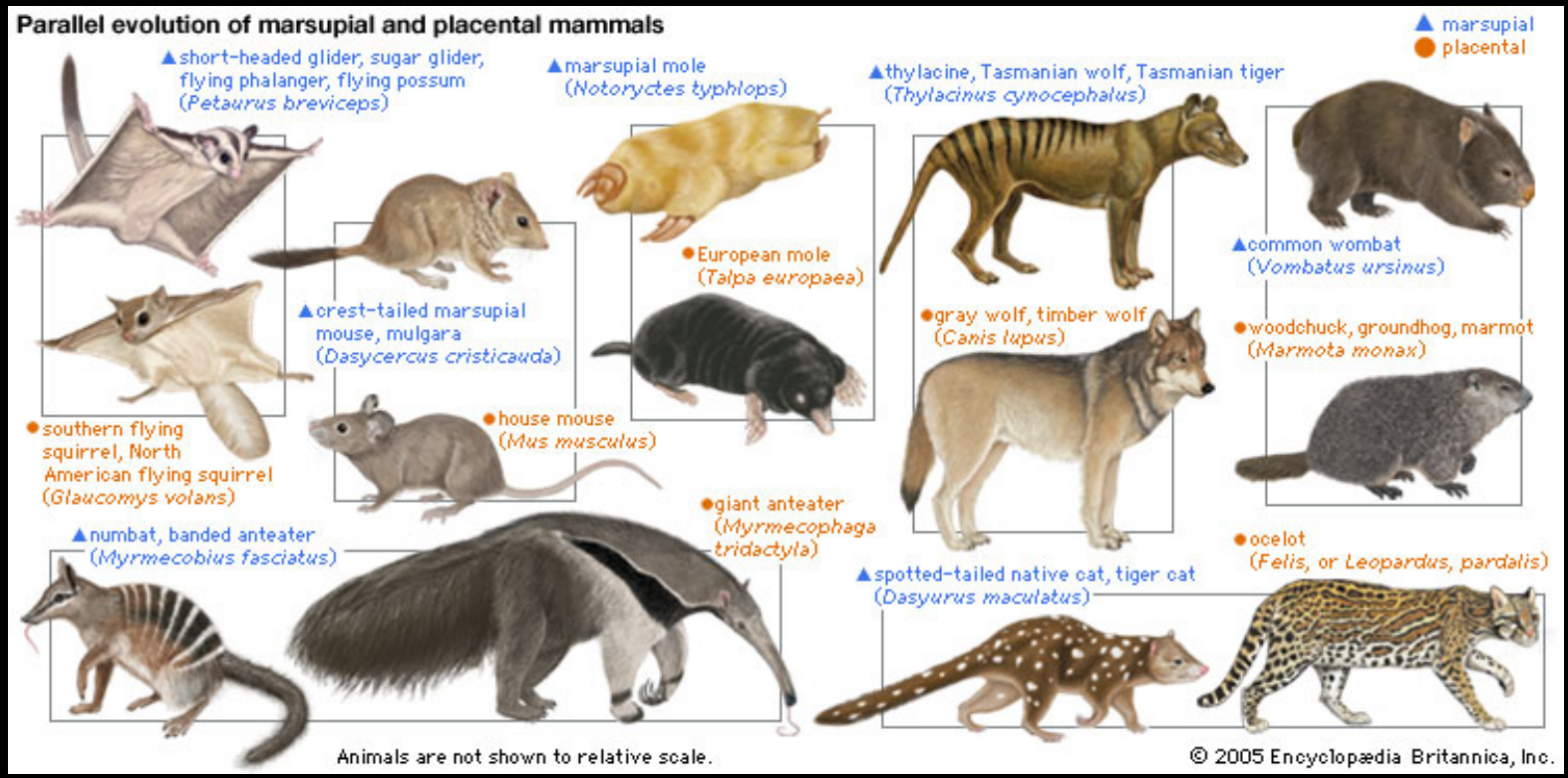
Comportamento

- Plasticidade: reprodução/territorialidade
- Defesa

Cariologia

Endotermia

Sucesso reprodutivo


Parallel evolution of marsupial and placental mammals
▲ marsupial
● placental
▲short-headed glider, sugar glider, flying phalanger, flying possum (Petaurus breviceps)
▲marsupial mole (Notoryctes typhlops)
▲thylacine, Tasmanian wolf, Tasmanian tiger (Thylacinus cynocephalus)
▲common wombat (Vombatus ursinus)
●European mole (Talpa europaea)
▲crest-tailed marsupial mouse, mulgara (Dasycercus cristicauda)
●gray wolf, timber wolf (Canis lupus)
●woodchuck, groundhog, marmot (Marmota monax)
●southern flying squirrel, North American flying squirrel (Glaucomys volans)
●house mouse (Mus musculus)
●giant anteater (Myrmecophaga tridactyla)
▲numbat, banded anteater (Myrmecobius fasciatus)
●ocelot (Felis, or Leopardus, pardalis)
▲spotted-tailed native cat, tiger cat (Dasyurus maculatus)
Animals are not shown to relative scale.
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