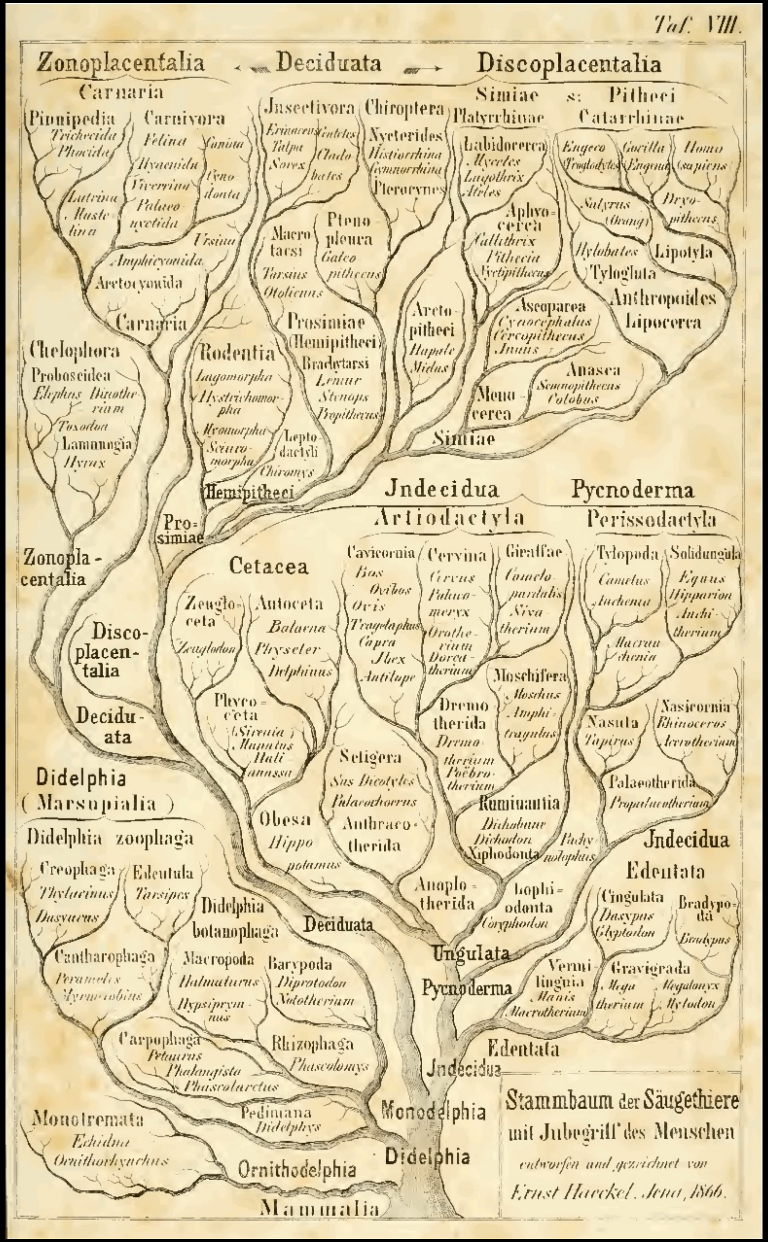


Biogeografia de Mamíferos da América do Sul

Biogeografia

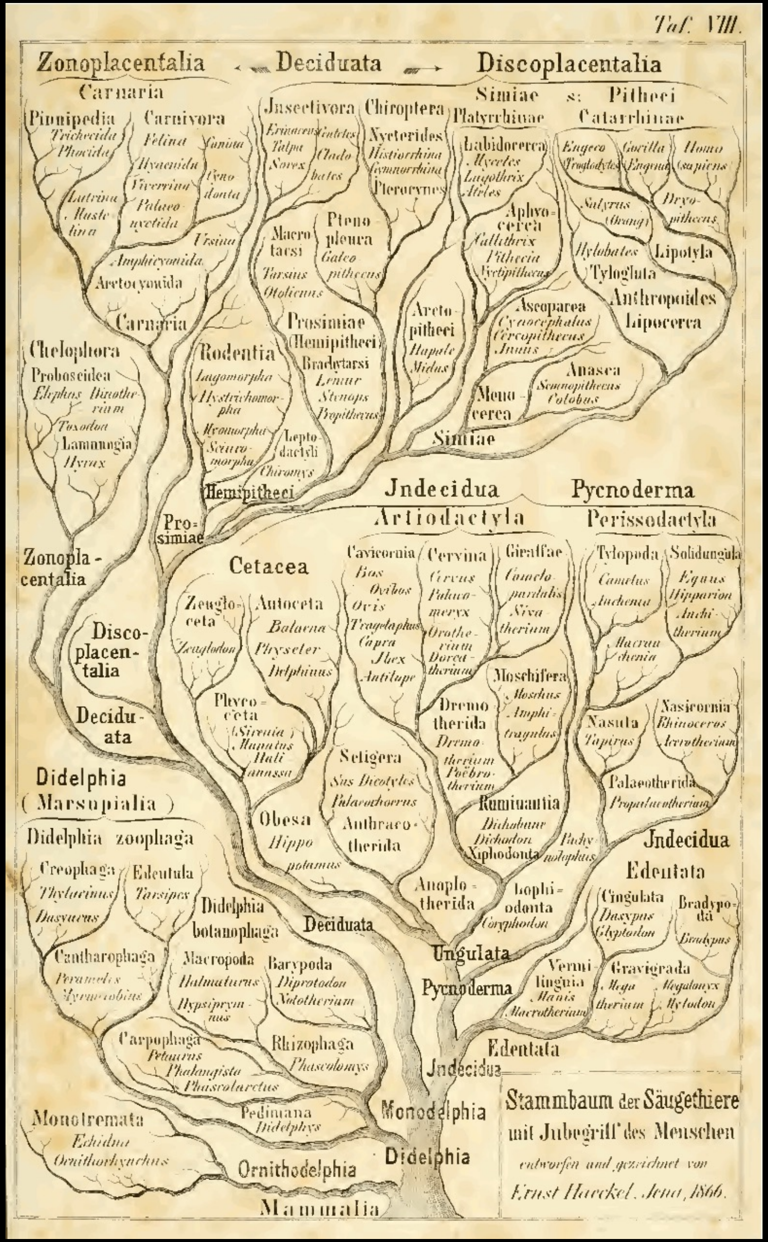
-Estudo da distribuição geográfica dos organismos (Myers & Giller)

-Estudo dos organismos no espaço e no tempo (Cox & Moore)

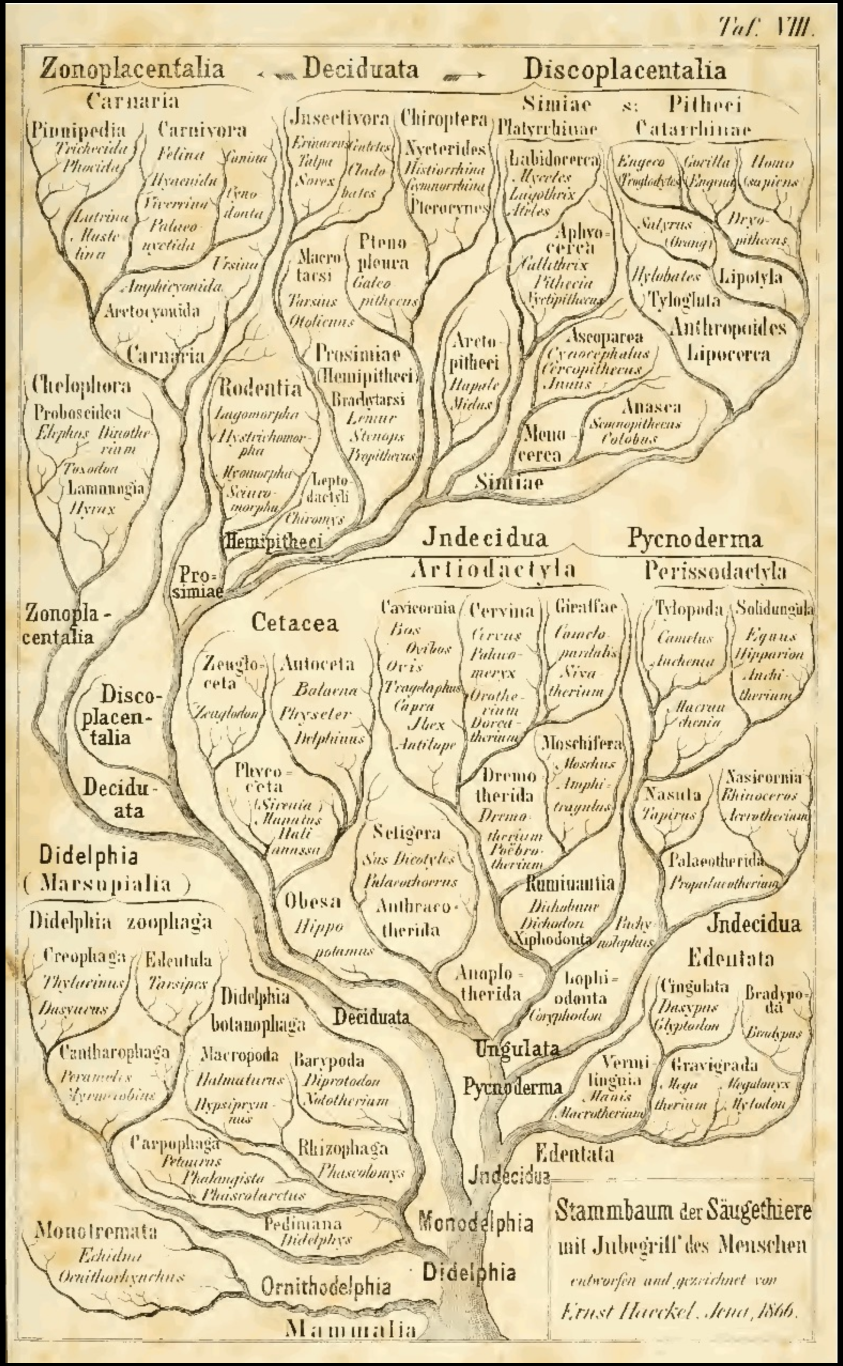
- documentar e entender padrões espaciais de diversidade biológica; o estudo da distribuição dos organismos no passado e no presente (Lomolino et al.)

Como a diversidade biológica varia ao longo da geografia?

Filogenia

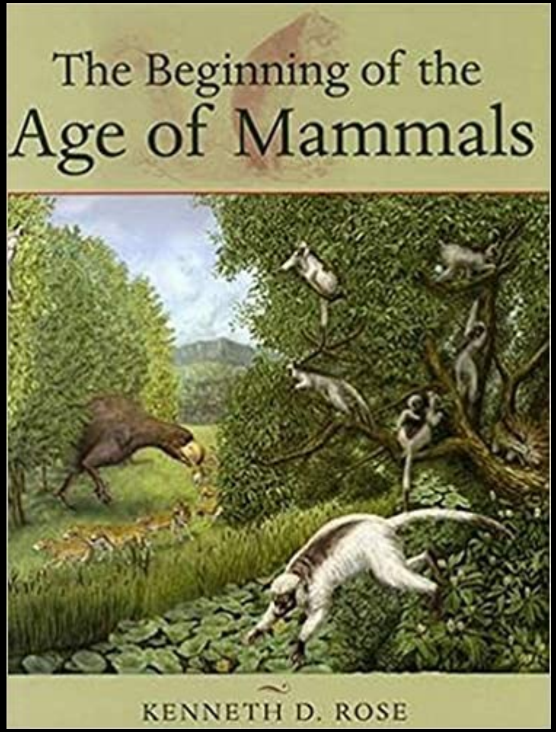

Taf. VIII.
Zonoplacentalia
Deciduata
Discoplacentalia
Carnaria
Simiae s: Pitheci
Jndecidua
Pycnoderma
Artiodactyla
Perissodactyla
Cetacea
Rodentia
Prosimiae
Zonoplacentalia
Discoplacentalia
Deciduata
Didelphia (Marsupialia)
Edentata
Ungulata
Monodelphia
Ornithodelphia
Monotremata
Mammalia
Stammbaum der Säugethiere mit Jnbegriff des Menschen
entworfen und gezeichnet von Ernst Haeckel. Jena, 1866.

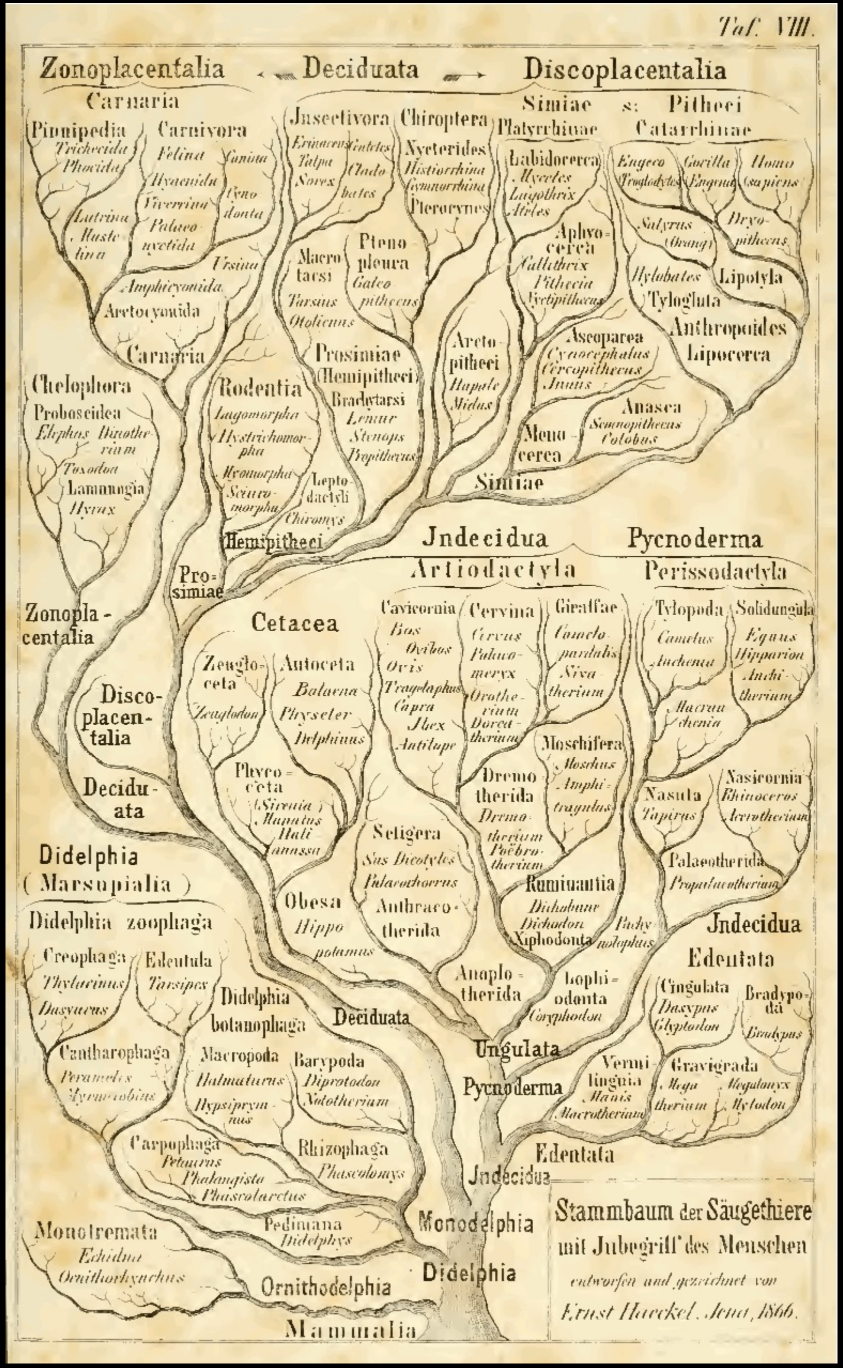

Caribbean Sea
NORTH ATLANTIC OCEAN
PACIFIC OCEAN
SOUTH ATLANTIC OCEAN



"There is only one true phylogeny of mammals, and deciphering it is the challenge of mammalian systematics"

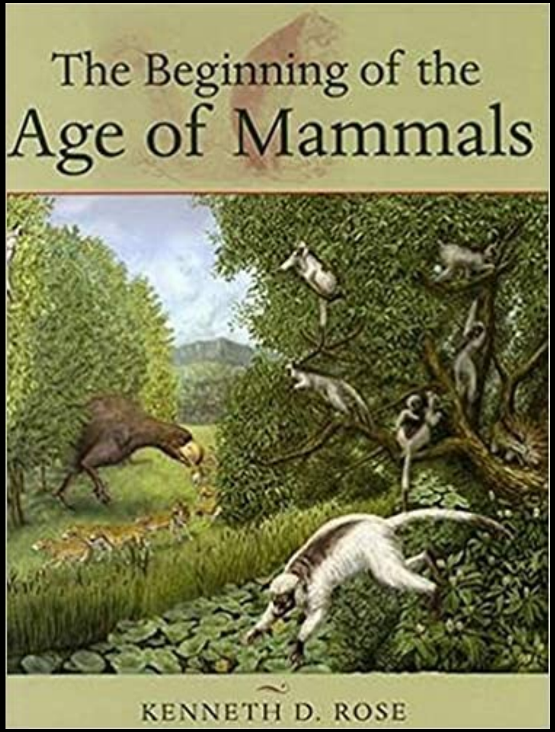
Rose, 2006: 5





“There is only one true phylogeny of mammals, and deciphering it is the challenge of mammalian systematics”

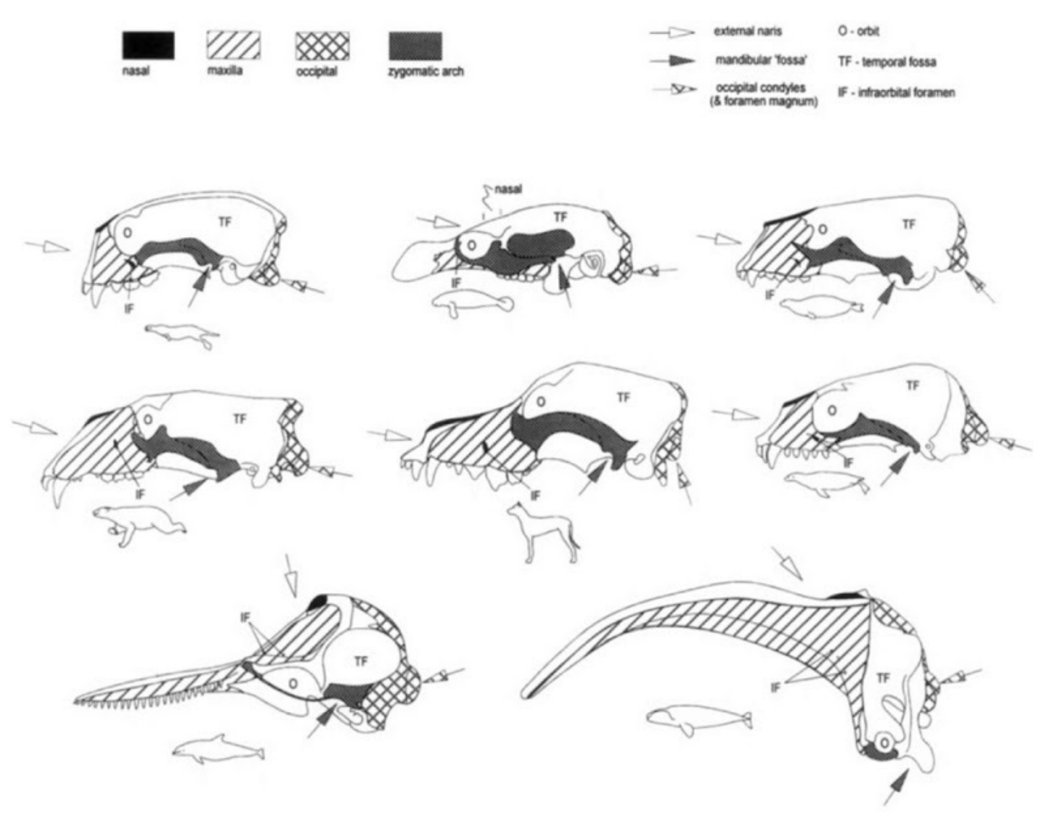
Rose, 2006: 5

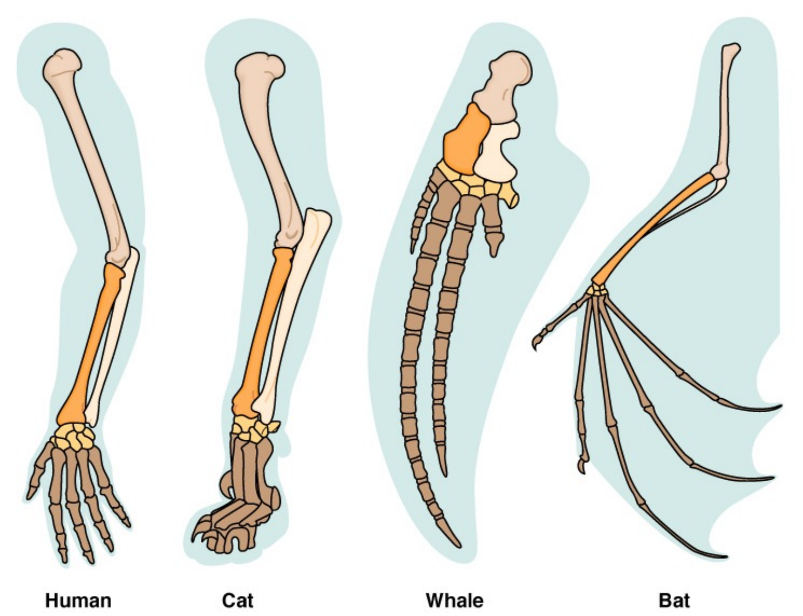


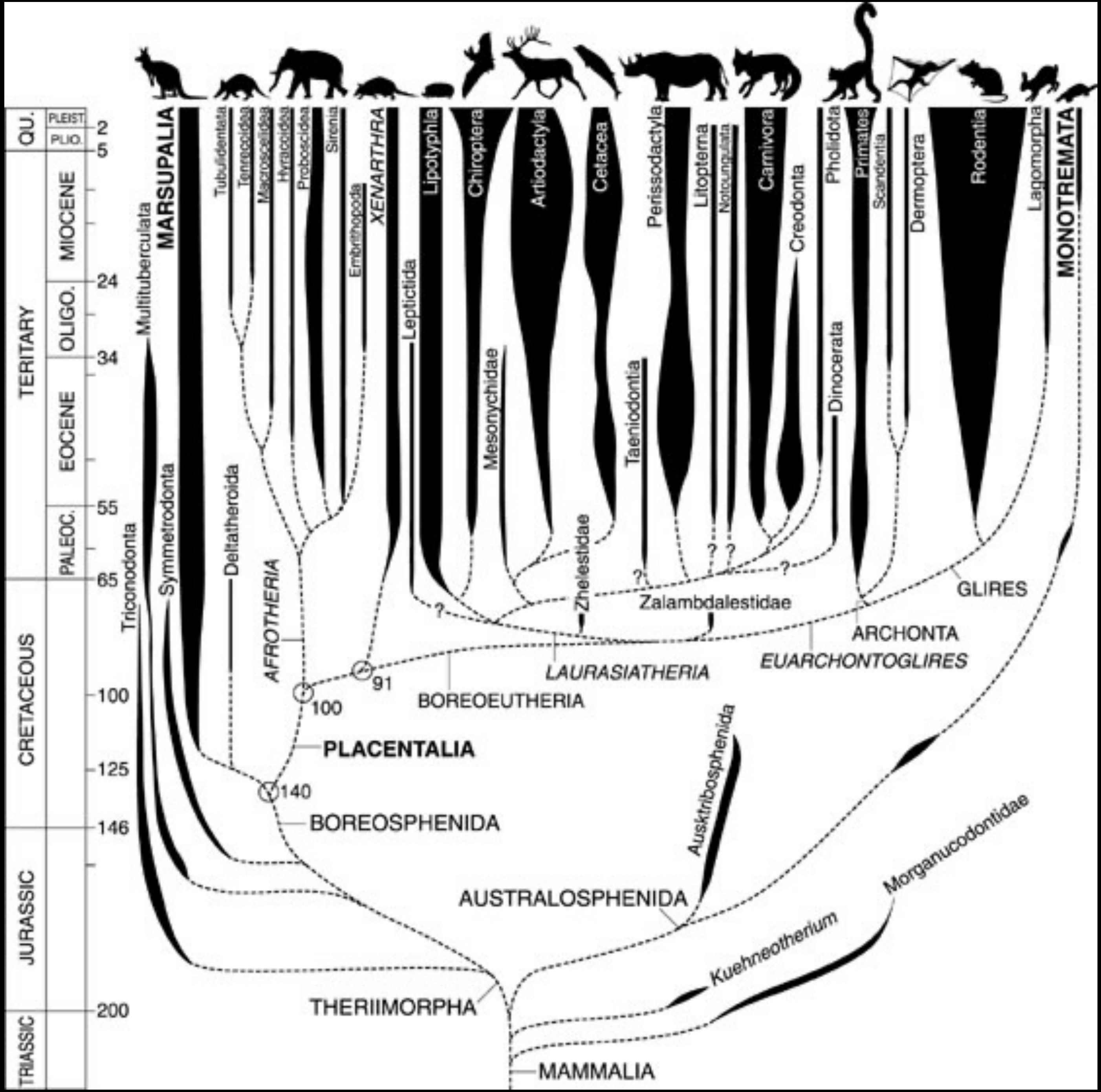
Qual é essa filogenia?

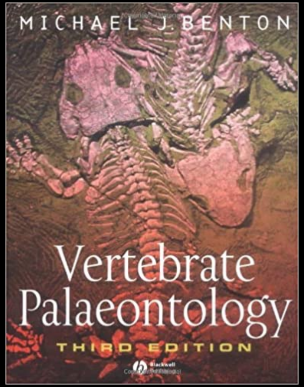
Seremos capazes de recupera-la?

		Extinct	Extant
Monotremata	Platypoda	3	1
Monotremata	Tachyglossa	0	2
Stem taxa to Theria	**Gondwanatheria**	75	0
Stem taxa to Theria	**Multituberculata**	3	0
Stem taxa to Theria	**Triconodonta**	17	0
Stem taxa to Theria	**Holotheria**	1	0
Stem taxa to Theria	**Kuhneotheria**	3	0
Stem taxa to Theria	**Symmetrodonta**	7	0
Stem taxa to Theria	**Amphidontoidea**	4	0
Stem taxa to Theria	**Spalacotherioidea**	11	0
Stem taxa to Theria	**Dryolestoidea**	25	0
Stem taxa to Theria	**Amphitheriidae**	1	0
Stem taxa to Theria	**Zatheria**	3	0
Stem taxa to Theria	**Peramura**	4	0
Stem taxa to Theria	**Tribosphenida**	2	0
Stem taxa to Theria	**Aegialodontia**	1	0
Stem taxa to Theria	**Theria,** order indet	21	0
Metatheria	Metatheria, order indet	7	0
Metatheria	Archimetatheria	8	0
Marsupialia	Microbiotheria	6	1
Marsupialia	Eometatheria	1	1
Marsupialia	Dasyuromorpha	8	14
Marsupialia	Peramelia	2	8
Marsupialia	Diprotodontia	77	34
Marsupialia	Ameridelphia	8	0
Marsupialia	Didelphimorphia	42	14
Marsupialia	**Paucituberculata**	40	3
Marsupialia	**Sparassodonta**	39	0
Eutheria	Eutheria, order indet	20	0
Placentalia	**Bibymalagasia**	1	0
Placentalia	Xenartha	208	12
Placentalia	Pholidota	17	4
Placentalia	**Leptictida**	29	0
Placentalia	**Anagalida**	24	0
Placentalia	Macroscelidea	8	4
Placentalia	**Mimotonida**	3	0
Placentalia	Lagomorpha	56	12
Placentalia	**Mixodontia**	12	0
Placentalia	Rodentia	743	430
Placentalia	Cimolesta	128	4
Placentalia	**Creodonta**	61	0
Placentalia	Carnivora	354	108
Placentalia	Lipotyphla	205	53
Placentalia	Chiroptera	41	178
Placentalia	Primates	218	54
Placentalia	Scandentia	2	5
Placentalia	**Ungulata,** order indet	1	0
Placentalia	Tubulidentata	4	1
Placentalia	**Procreodi**	29	0
Placentalia	**Condylarthra**	59	0
Placentalia	**Arctostylopida**	9	0
Placentalia	Cete	238	40
Placentalia	Artiodactyla	601	82
Placentalia	**Meridiungulata,** order indet	10	0
Placentalia	**Litopterna**	51	0
Placentalia	**Notoungulata**	167	0
Placentalia	**Astrapotheria**	16	0
Placentalia	**Xenungulata**	2	0
Placentalia	**Pyrotheria**	6	0
Placentalia	**Altungulata,** order indet	1	0
Placentalia	Perissodactyla	238	6
Placentalia	Hyracoidea	18	3
Placentalia	**Embrithopoda**	5	0
Placentalia	Sirenia	29	2
Placentalia	**Desmostylia**	6	0
Placentalia	Proboscidea	42	2


nasal
maxilla
occipital
zygomatic arch
external naris
mandibular 'fossa'
occipital condyles
(& foramen magnum)
O - orbit
TF - temporal fossa
IF - infraorbital foramen
nasal
O
TF
IF

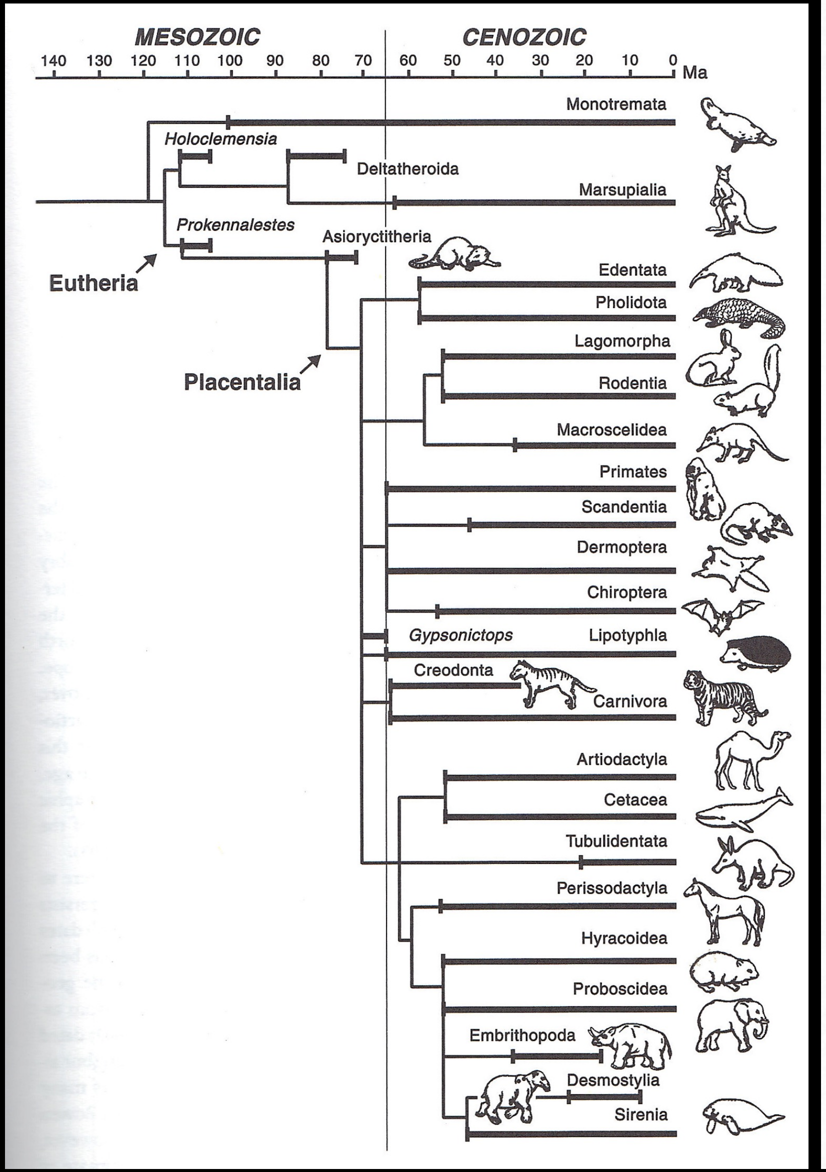

Human
Cat
Whale
Bat

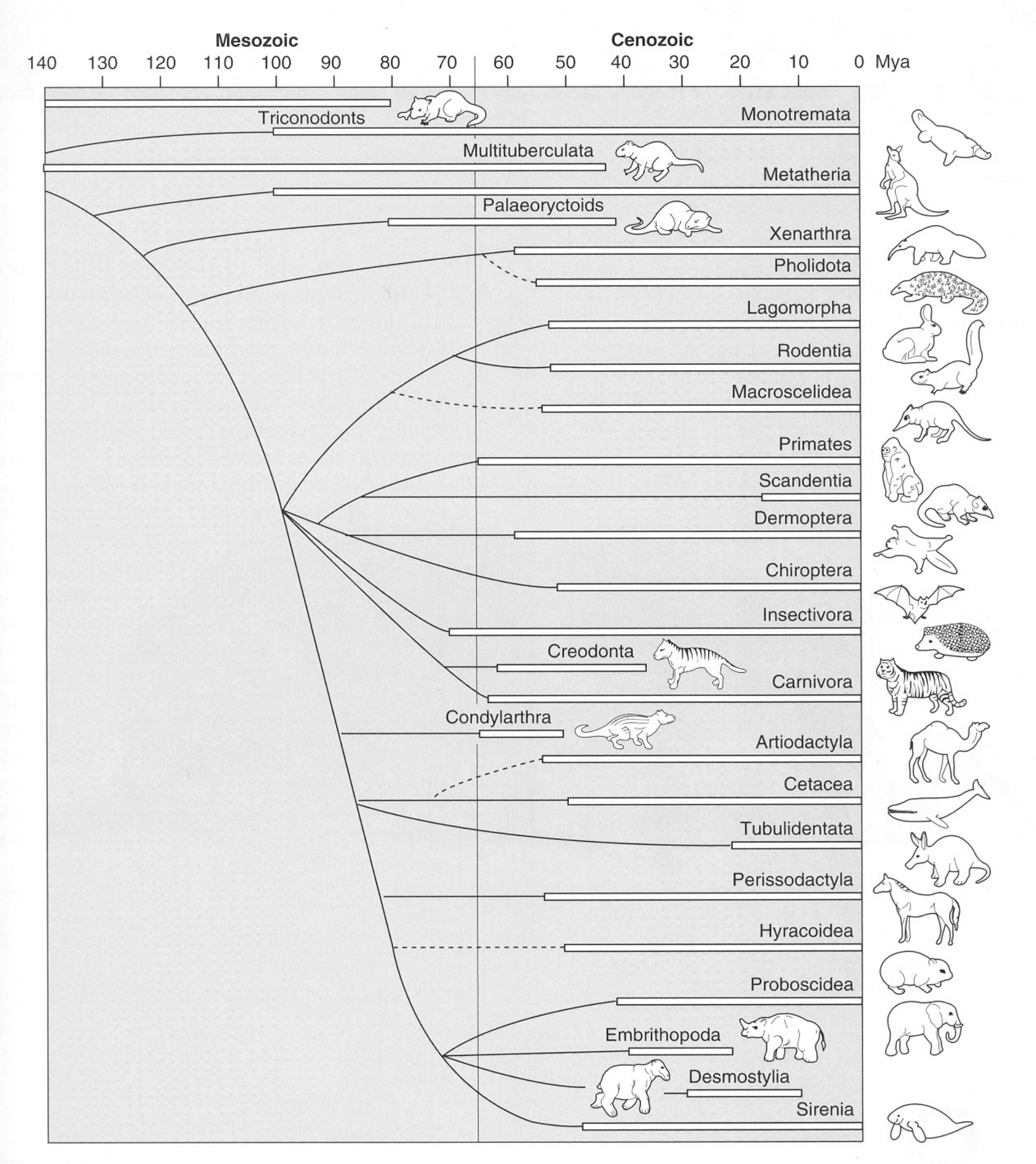

QU.
PLEIST.
PLIO.
TERITARY
MIOCENE
OLIGO.
EOCENE
PALEOC.
CRETACEOUS
JURASSIC
TRIASSIC
2
5
24
34
55
65
100
125
146
200
Multituberculata
MARSUPALIA
Tubulidentata
Tenrecoidea
Macroscelidea
Hyracoidea
Proboscidea
Sirenia
Embrithopoda
XENARTHRA
Leptictida
Lipotyphla
Chiroptera
Mesonychidae
Artiodactyla
Cetacea
Zhelestidae
Taeniodontia
Perissodactyla
Litopterna
Notoungulata
Carnivora
Creodonta
Dinocerata
Pholidota
Primates
Scandentia
Dermoptera
Rodentia
Lagomorpha
MONOTREMATA
Triconodonta
Symmetrodonta
Deltatheroida
AFROTHERIA
Zalambdalestidae
GLIRES
ARCHONTA
EUARCHONTOGLIRES
LAURASIATHERIA
BOREOEUTHERIA
91
100
PLACENTALIA
140
BOREOSPHENIDA
Ausktribosphenida
AUSTRALOSPHENIDA
Morganucodontidae
Kuehneotherium
THERIIMORPHA
MAMMALIA


MICHAEL J. BENTON
Vertebrate Palaeontology
THIRD EDITION

Mammalian phylogeny: shaking the tree

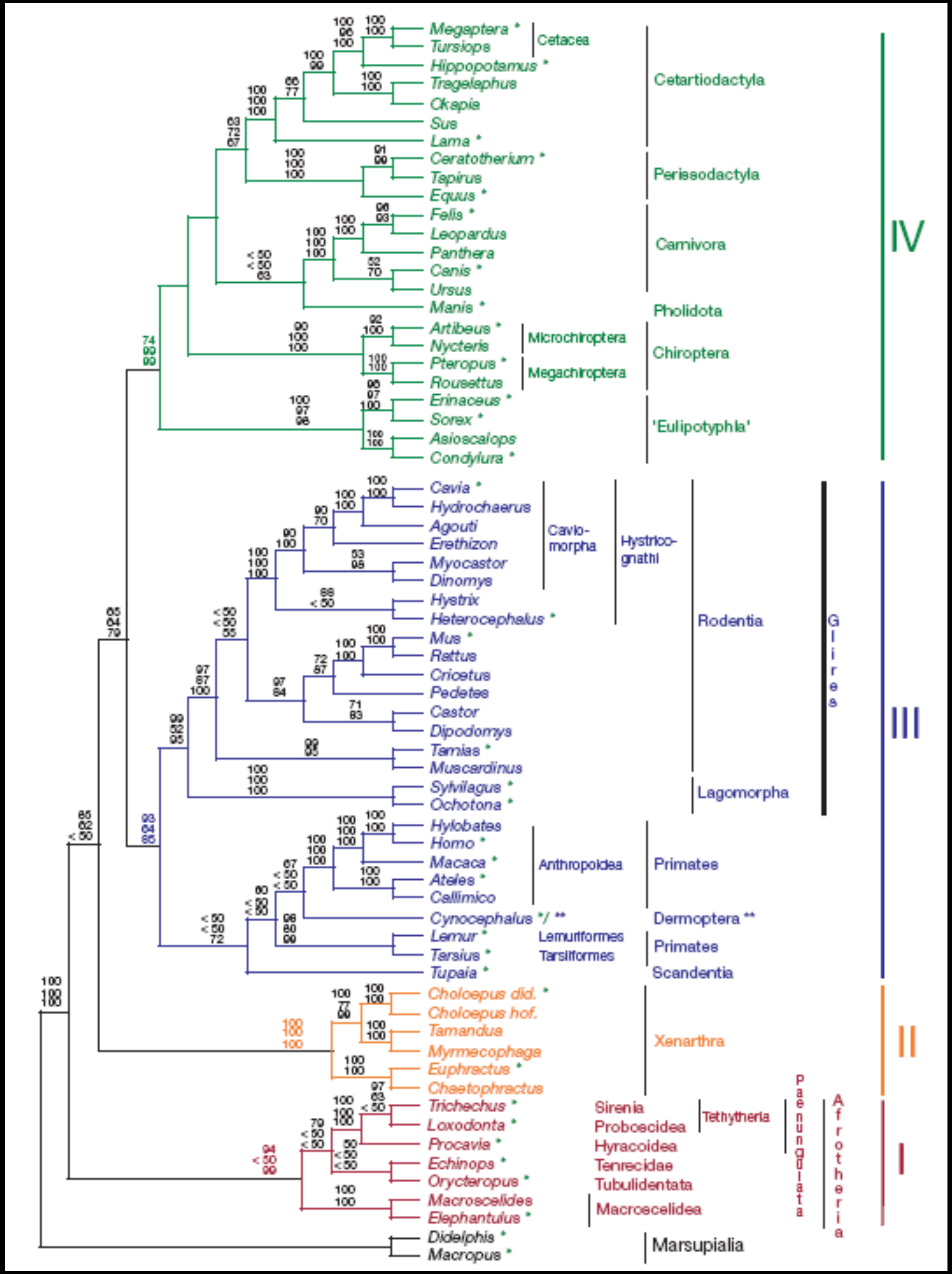
Michael J. Novacek





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*

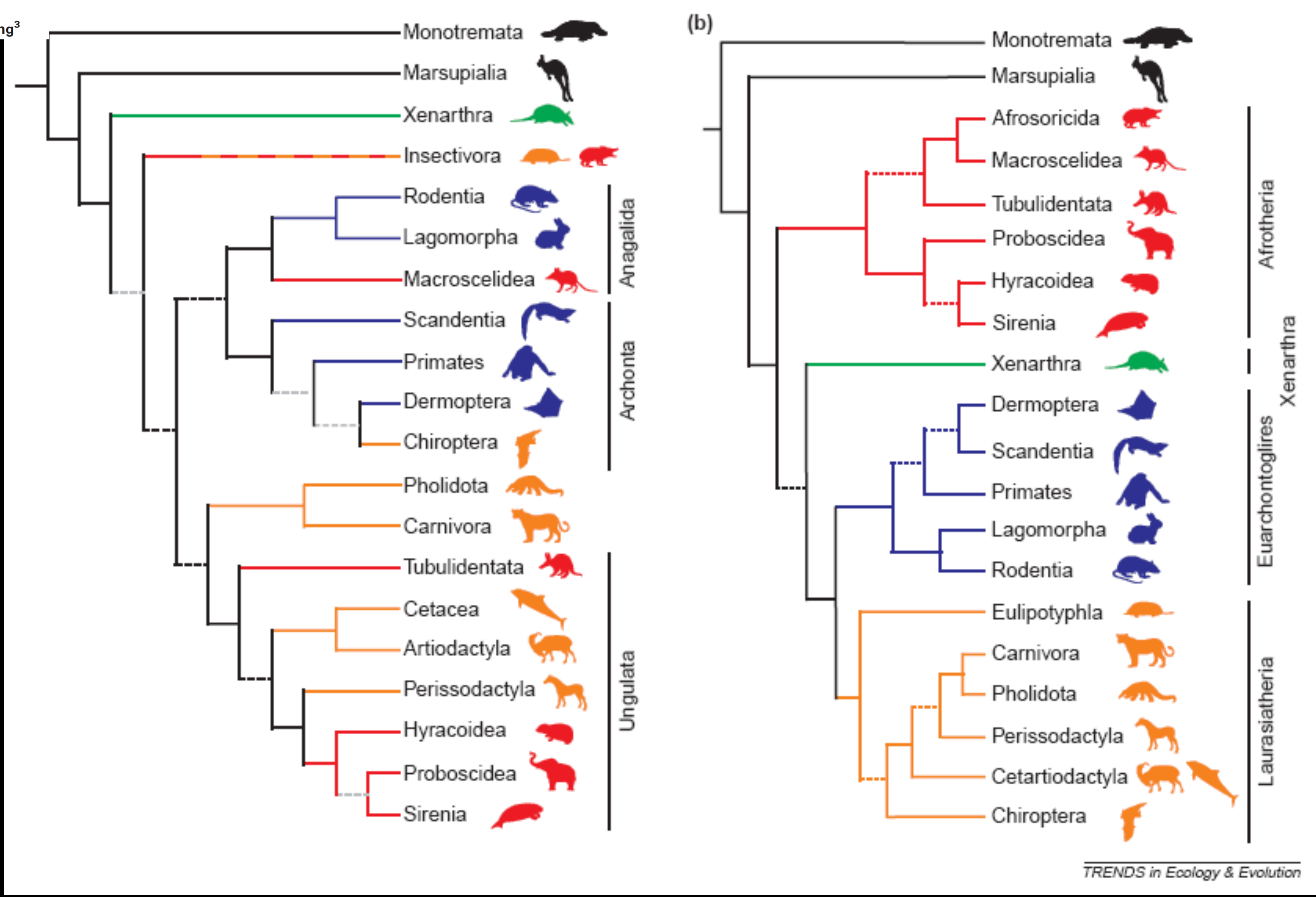


Review TRENDS in Ecology and Evolution Vol.19 No.8 August 2004
Full text provided by www.sciencedirect.com

Phylogenetics series

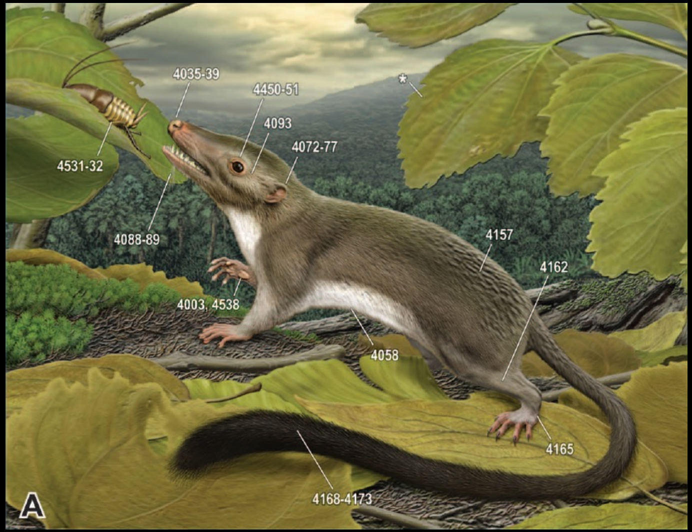
Molecules consolidate the placental mammal tree

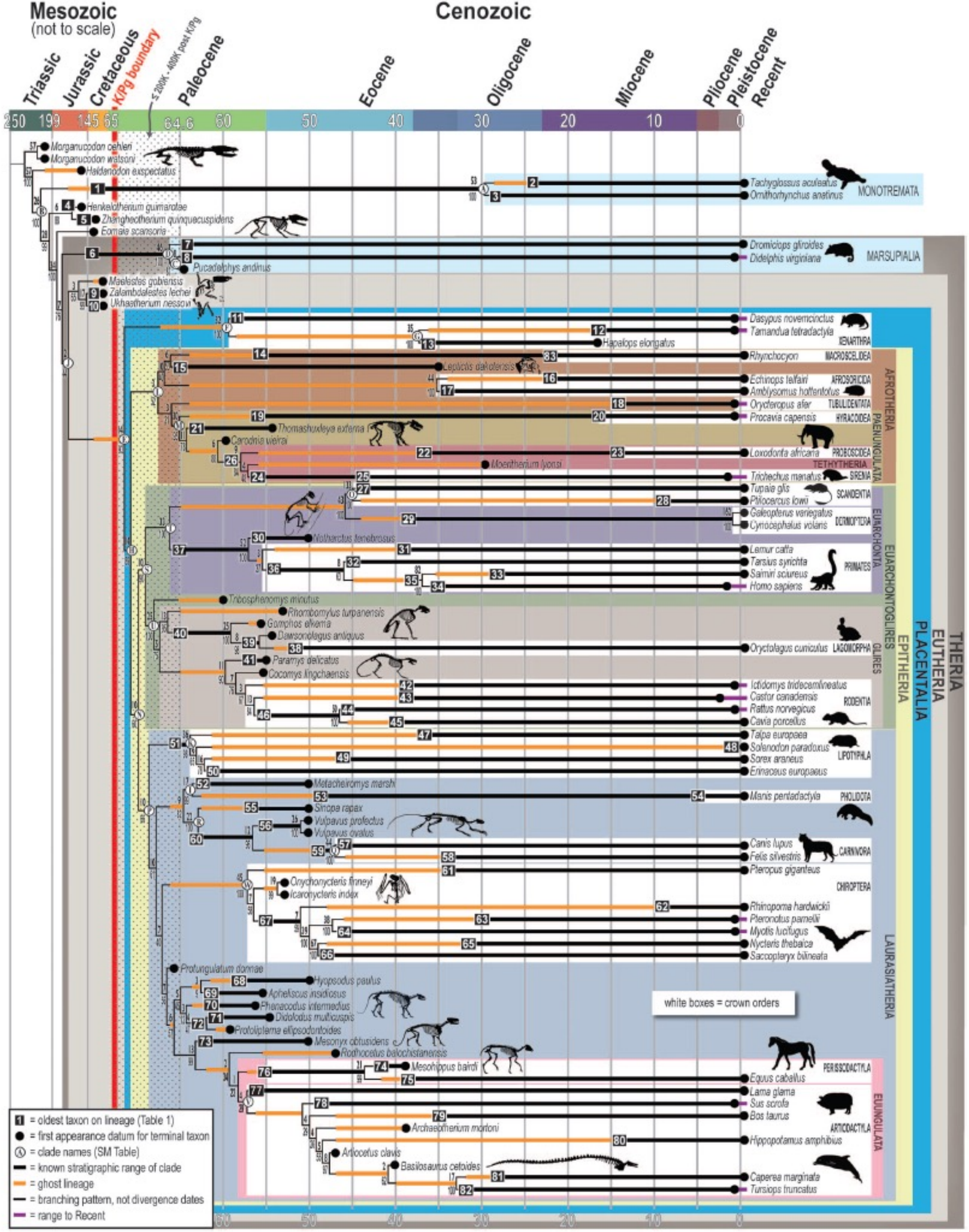
Mark S. Springer[1], Michael J. Stanhope[2], Ole Madsen[3] and Wilfried W. de Jong[3]



The Placental Mammal Ancestor and the Post–K-Pg Radiation of Placentals

Maureen A. O'Leary,[1,3]¶ Jonathan I. Bloch,[2] John J. Flynn,[3] Timothy J. Gaudin,[4] Andres Giallombardo,[3] Norberto P. Giannini,[5]* Suzann L. Goldberg,[3] Brian P. Kraatz,[3,6] Zhe-Xi Luo,[7]† Jin Meng,[3] Xijun Ni,[3]‡ Michael J. Novacek,[3] Fernando A. Perini,[3]|| Zachary S. Randall,[2] Guillermo W. Rougier,[8] Eric J. Sargis,[9] Mary T. Silcox,[10] Nancy B. Simmons,[5] Michelle Spaulding,[3,11] Paúl M. Velazco,[5] Marcelo Weksler,[3]§ John R. Wible,[11] Andrea L. Cirranello[1,3]



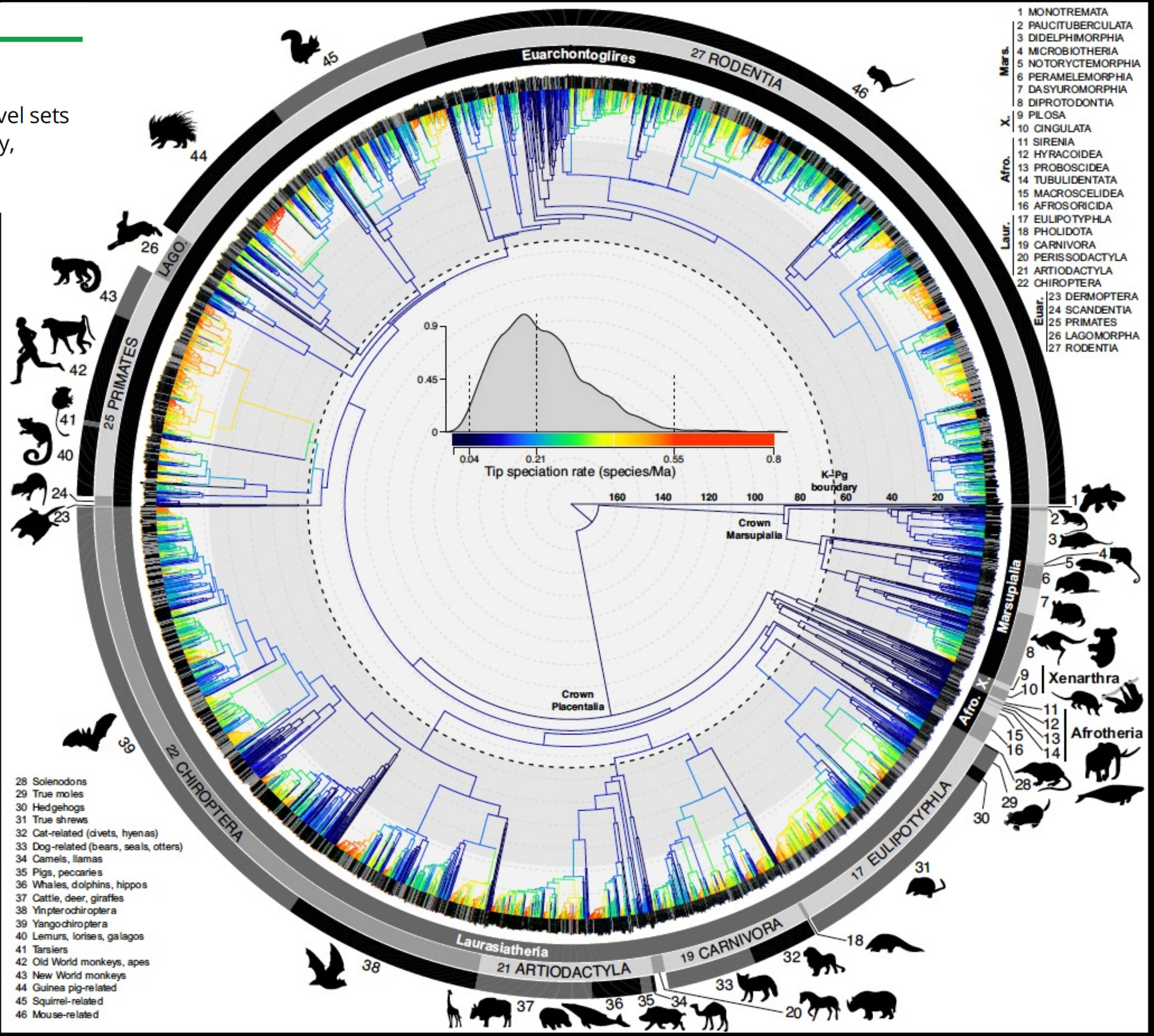


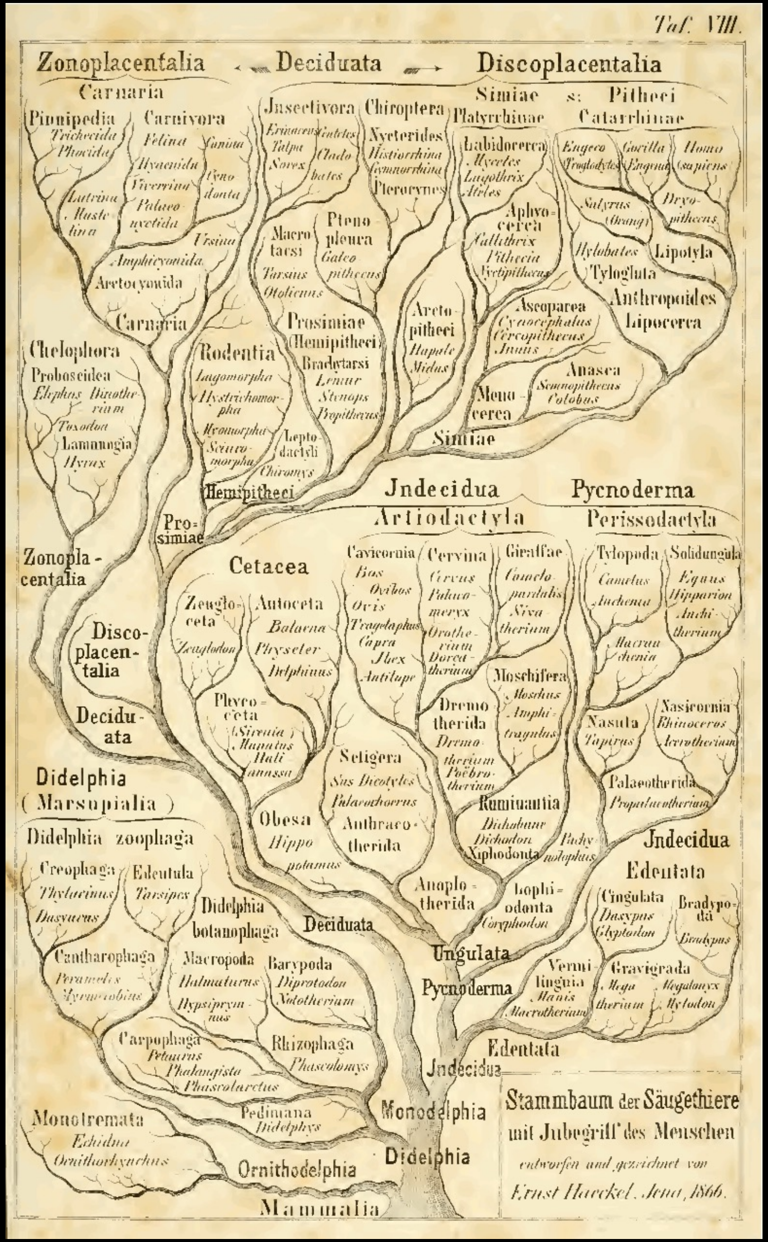
PLOS | BIOLOGY

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]*





Biogeografia

Na região Neotropical

1617 espécies (25%)

14 ordens

Na América do Sul

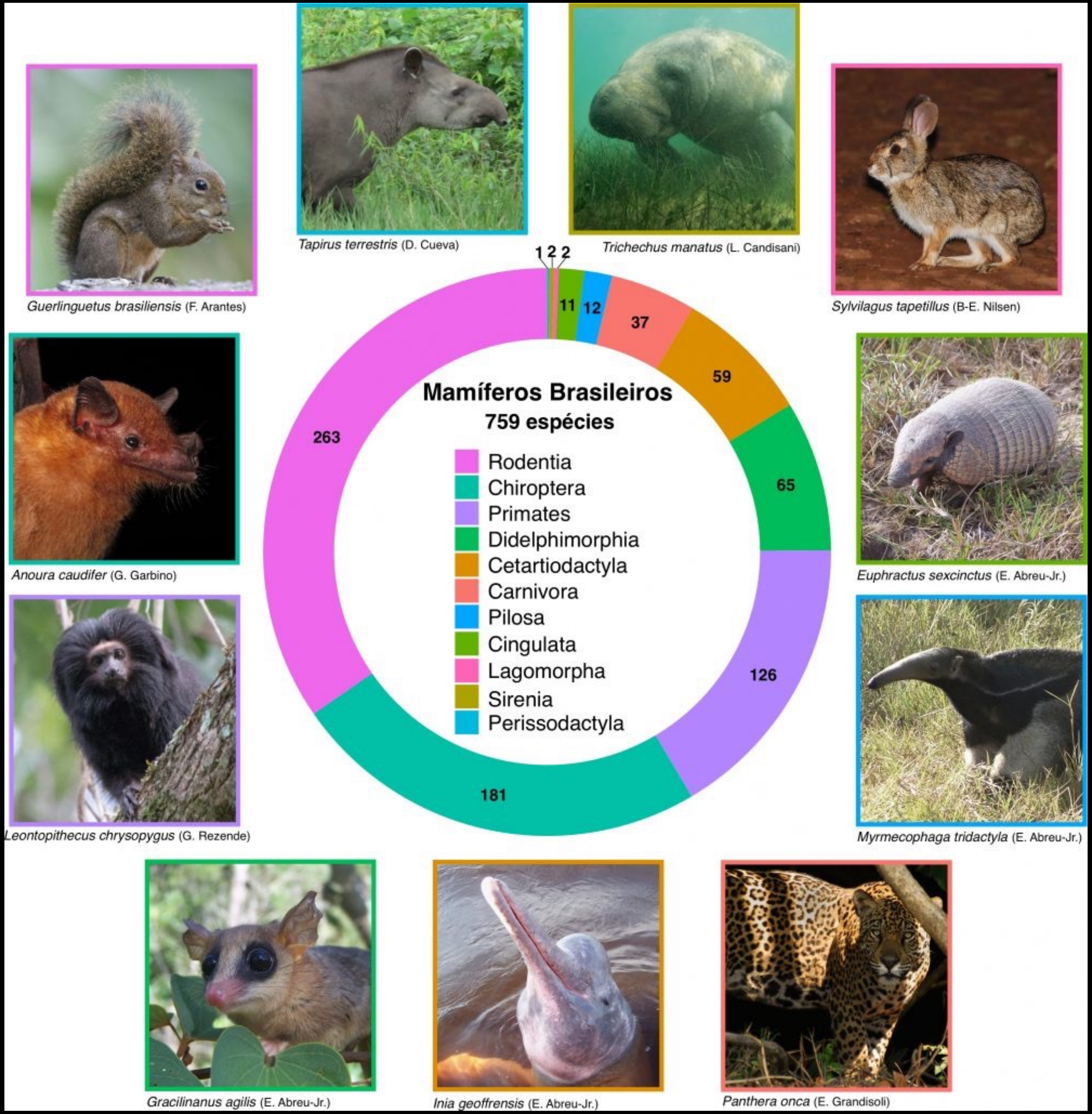
Números imprecisos, mas entre 1200 e 1400 (18 e 21%)

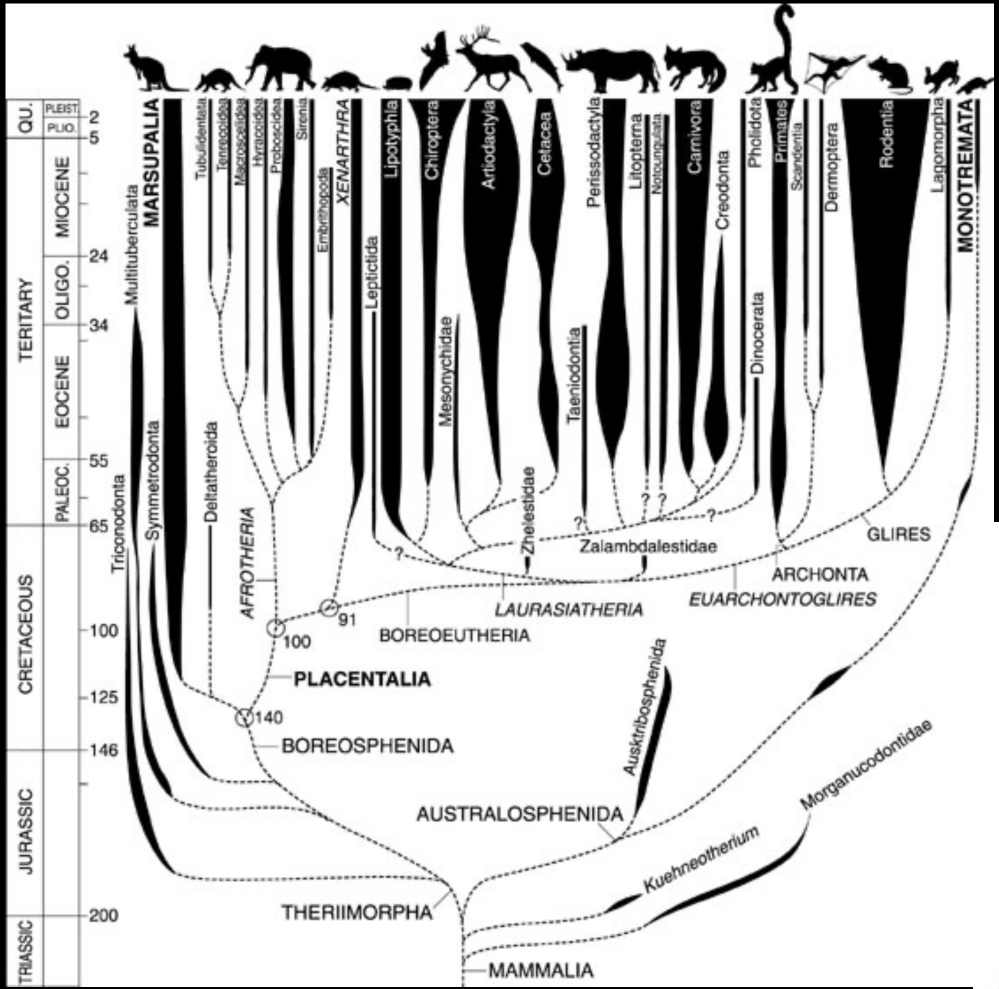
14 ordens

Brasil

759 espécies (12%)

11 ordens





MARSUPALIA
Multituberculata
Symmetrodonta
Triconodonta
Deltatheroida
Tubulidentata
Tenrecoidea
Macroscelidea
Hyracoidea
Proboscidea
Sirenia
Embrithopoda
XENARTHRA
Leptictida
Lipotyphla
Chiroptera
Mesonychidae
Artiodactyla
Cetacea
Zhelestidae
Taeniodontia
Perissodactyla
Zalambdalestidae
Litopterna
Notoungulata
Carnivora
Creodonta
Pholidota
Dinocerata
Primates
Scandentia
Dermoptera
Rodentia
Lagomorpha
MONOTREMATA
GLIRES
ARCHONTA
EUARCHONTOGLIRES
LAURASIATHERIA
BOREOEUTHERIA
AFROTHERIA
PLACENTALIA
BOREOSPHENIDA
Ausktribosphenida
AUSTRALOSPHENIDA
Morganucodontidae
Kuehneotherium
THERIIMORPHA
MAMMALIA
QU.
PLEIST.
PLIO.
MIOCENE
OLIGO.
EOCENE
PALEOC.
TERITARY
CRETACEOUS
JURASSIC
TRIASSIC
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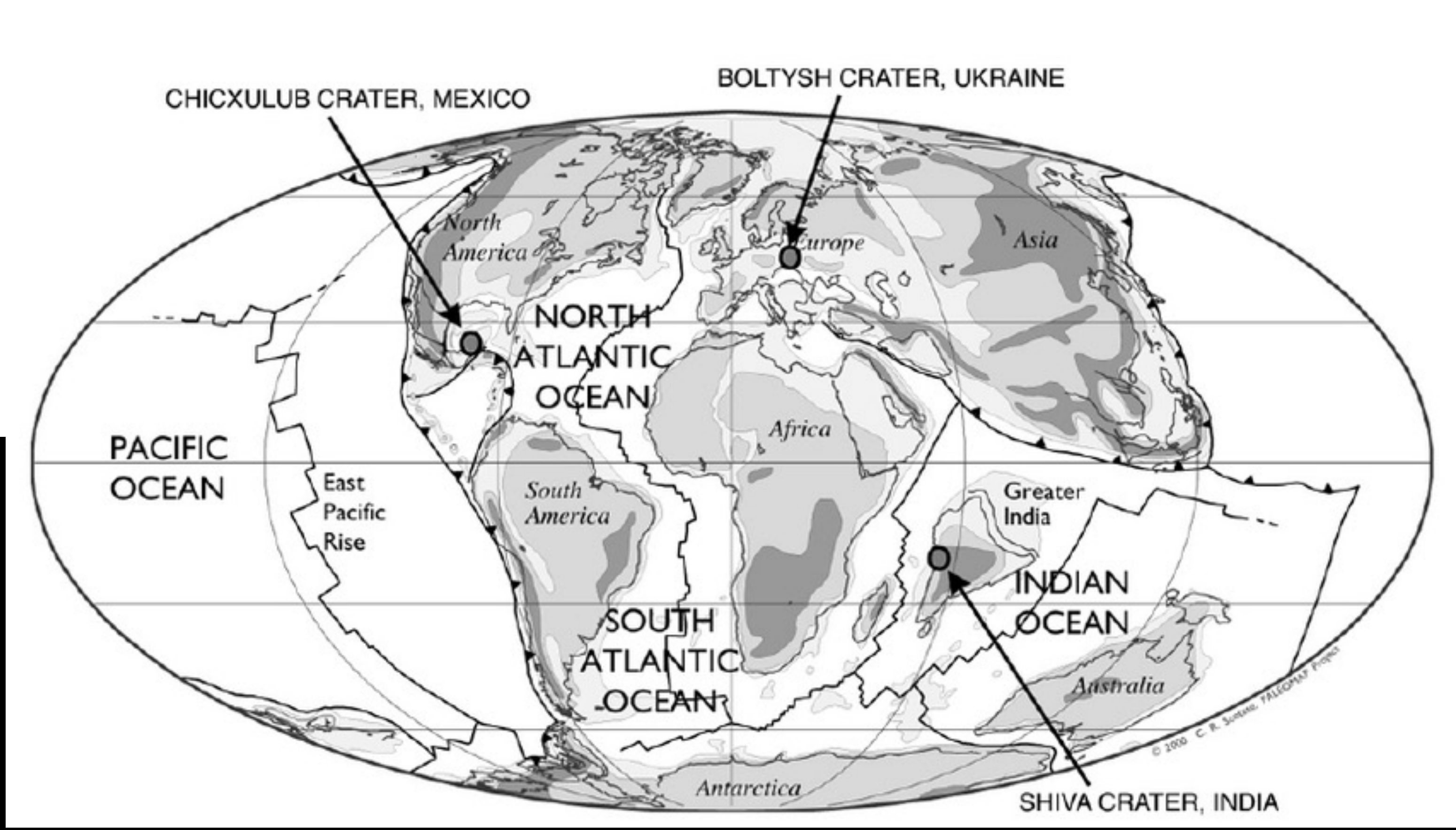
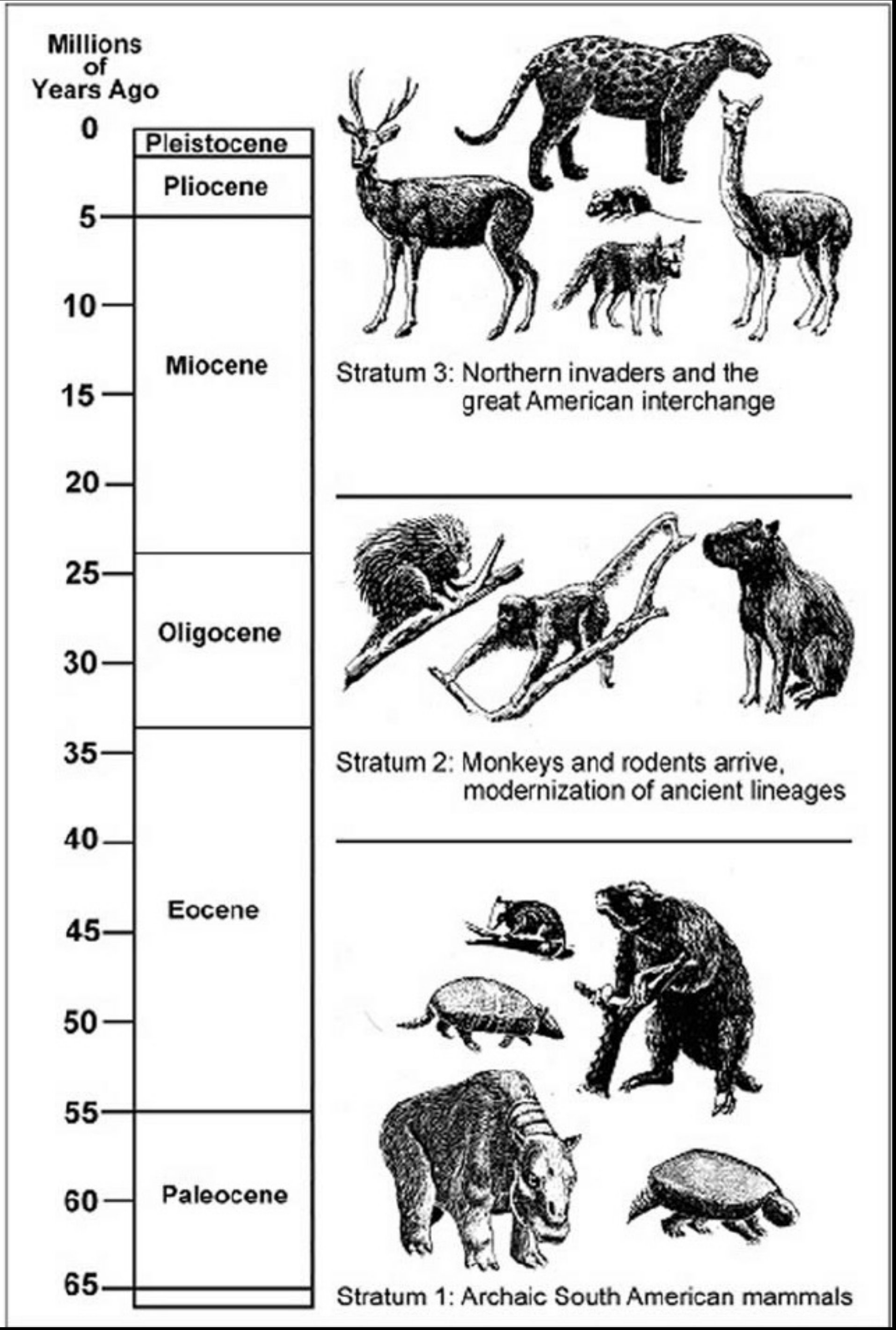
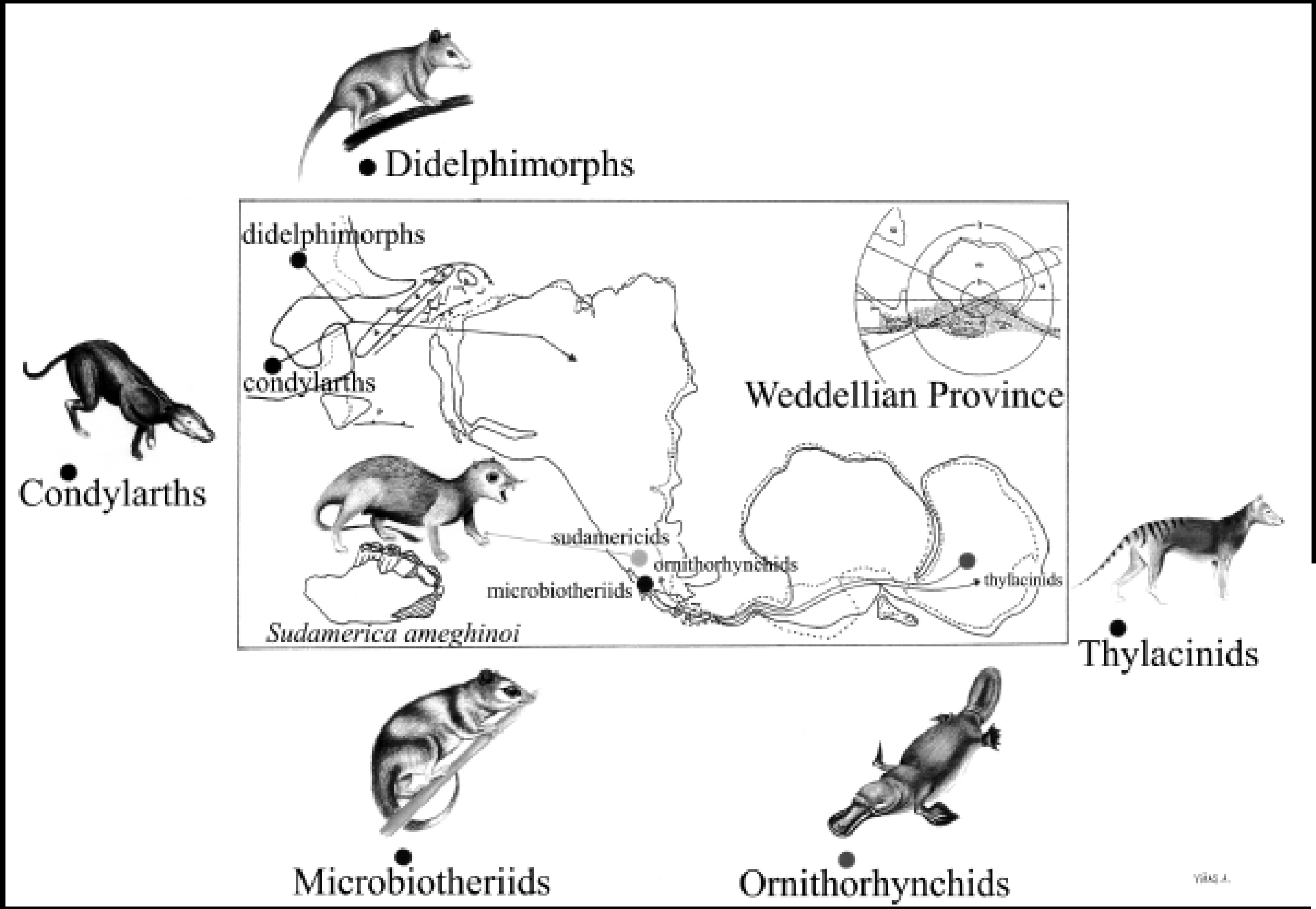
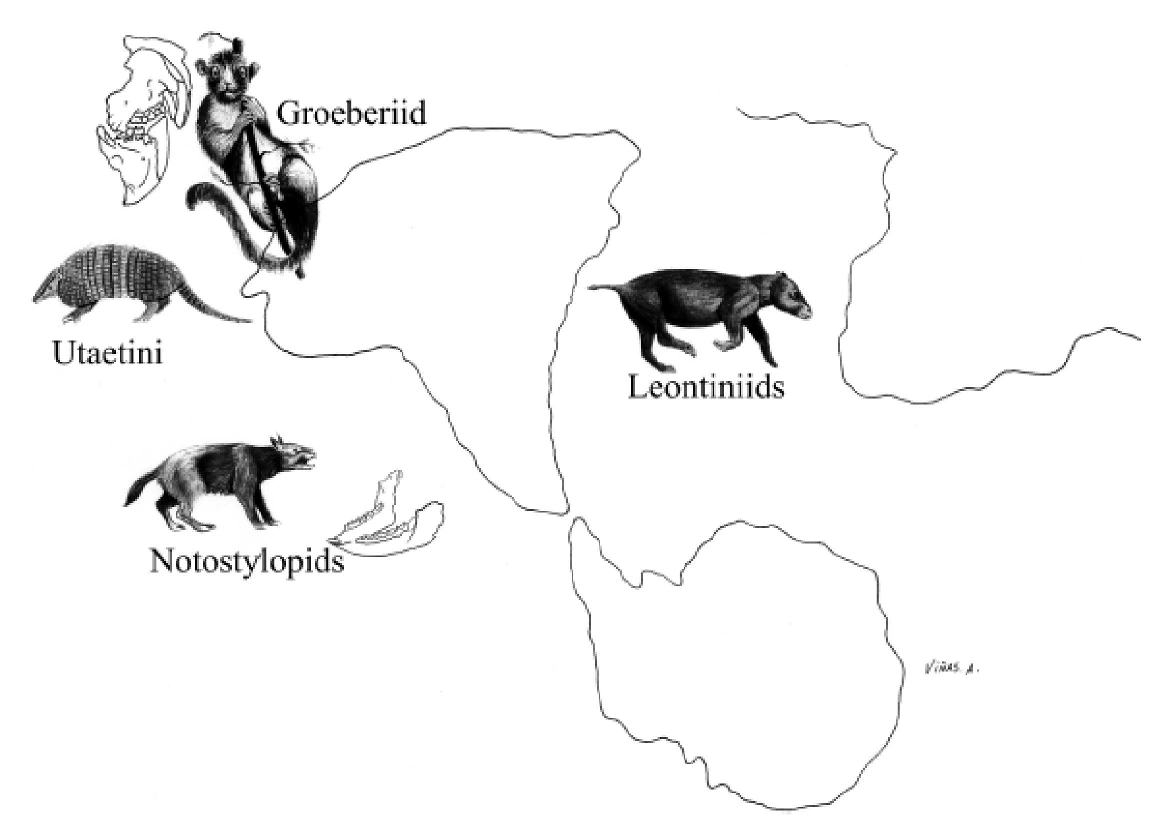


CHICXULUB CRATER, MEXICO
BOLTYSH CRATER, UKRAINE
SHIVA CRATER, INDIA
North America
Europe
Asia
NORTH ATLANTIC OCEAN
PACIFIC OCEAN
East Pacific Rise
Africa
South America
Greater India
INDIAN OCEAN
SOUTH ATLANTIC OCEAN
Australia
Antarctica
© 2000 C. R. Scotese, PALEOMAP Project


Millions of Years Ago
0
5
10
15
20
25
30
35
40
45
50
55
60
65
Pleistocene
Pliocene
Miocene
Oligocene
Eocene
Paleocene
Stratum 3: Northern invaders and the great American interchange
Stratum 2: Monkeys and rodents arrive, modernization of ancient lineages
Stratum 1: Archaic South American mammals

Estrato 1


Didelphimorphs
didelphimorphs
condylarths
Weddellian Province
Condylarths
sudamericids
ornithorhynchids
microbiotheriids
thylacinids
Sudamerica ameghinoi
Thylacinids
Microbiotheriids
Ornithorhynchids


Groeberiid
Utaetini
Leontiniids
Notostylopids

EVOLUTION OF MAMMALS ON SOUTHERN CONTINENTS

V. THE FOSSIL MAMMAL FAUNA OF SOUTH AMERICA

By Bryan Patterson and Rosendo Pascual

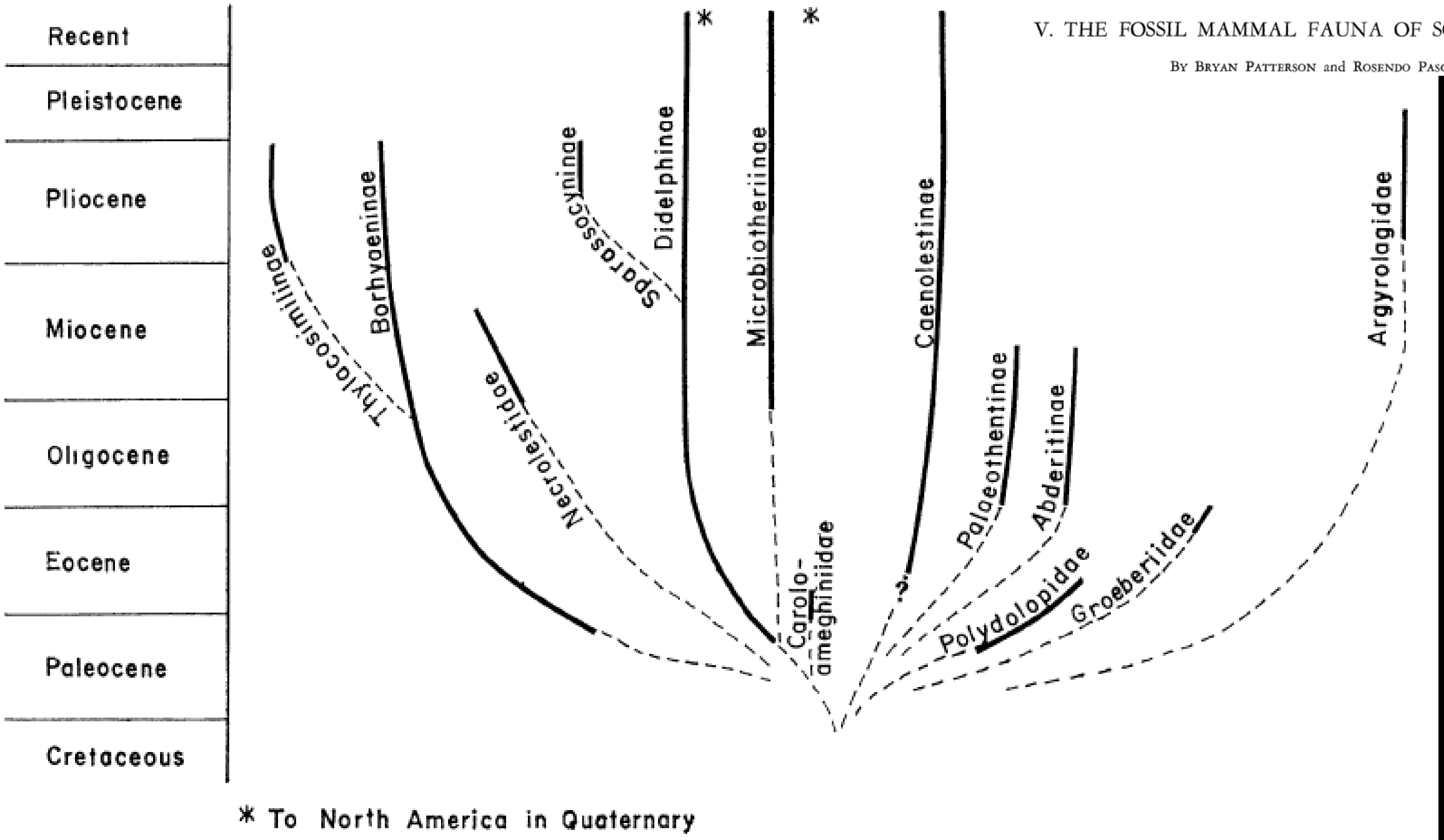
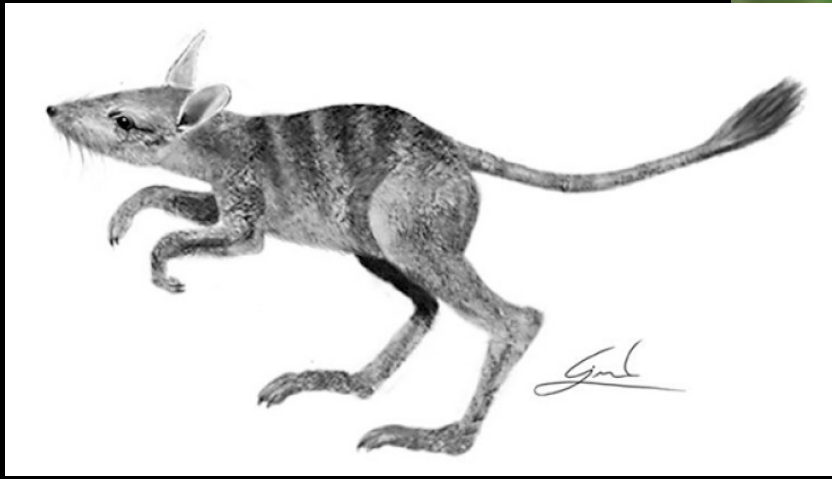


Fig. 4. South American Marsupials: Time Ranges and Phylogeny


Carnivores 69



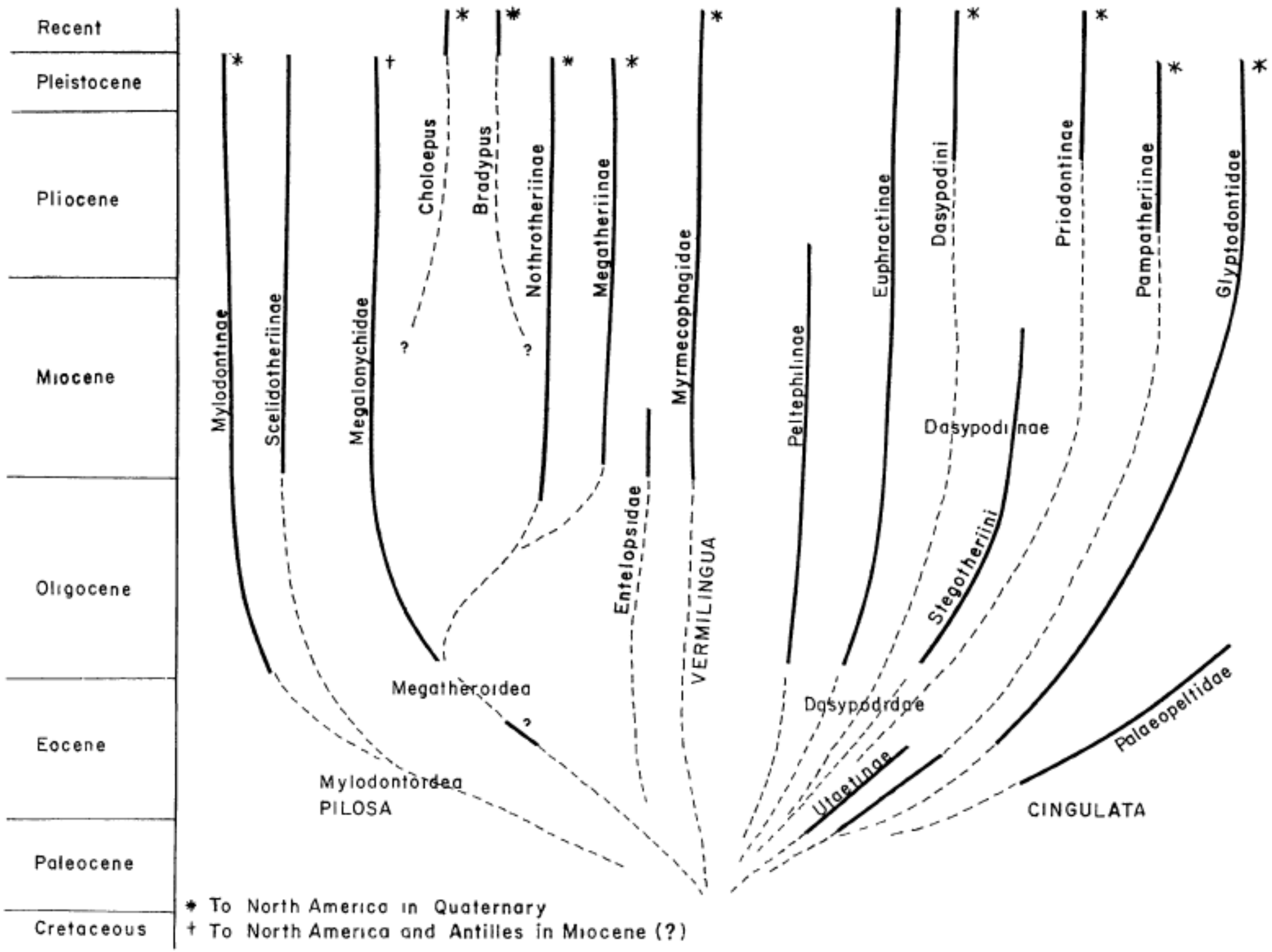


FIG. 6. XENARTHRANS: TIME RANGES AND PHYLOGENY

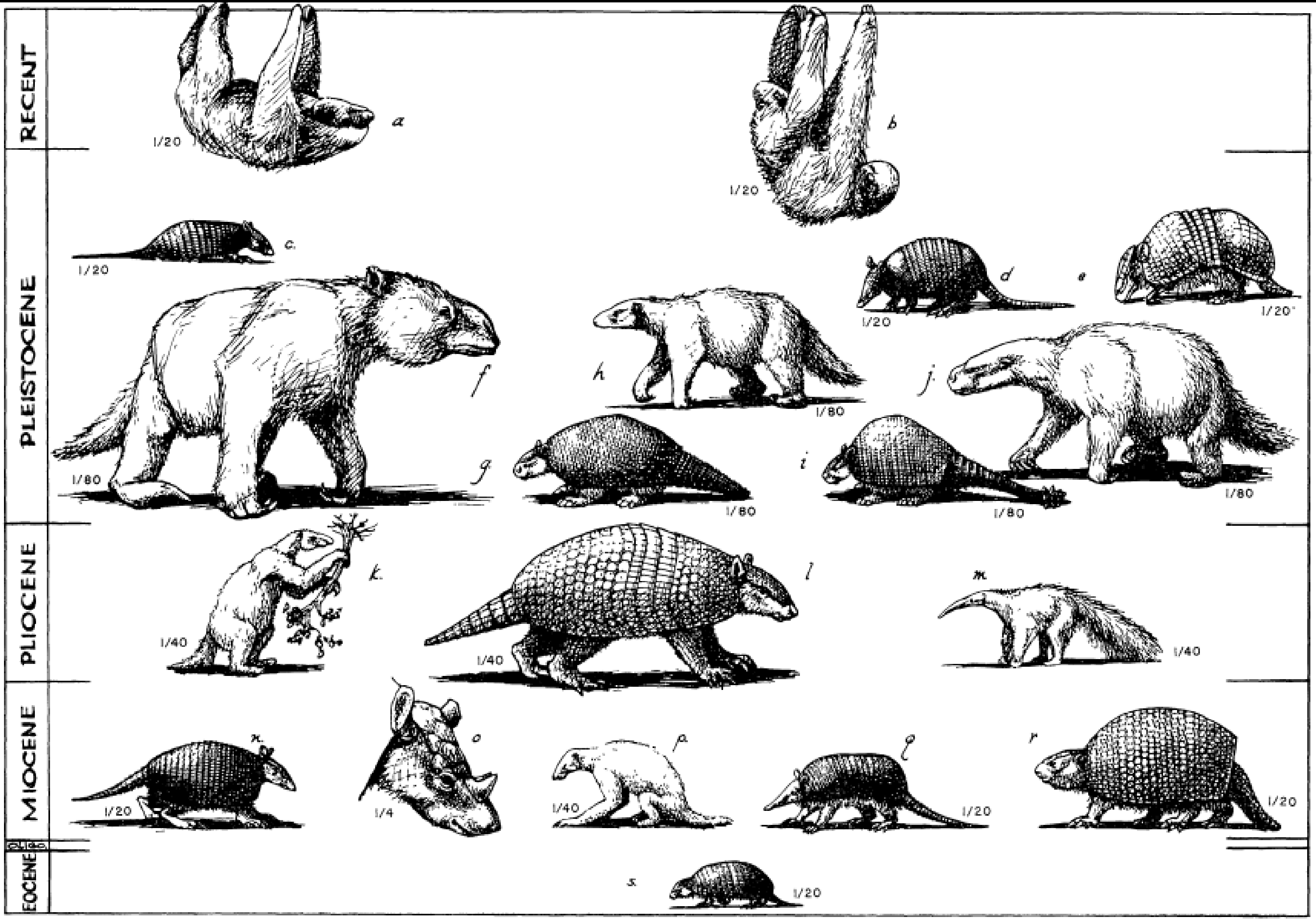
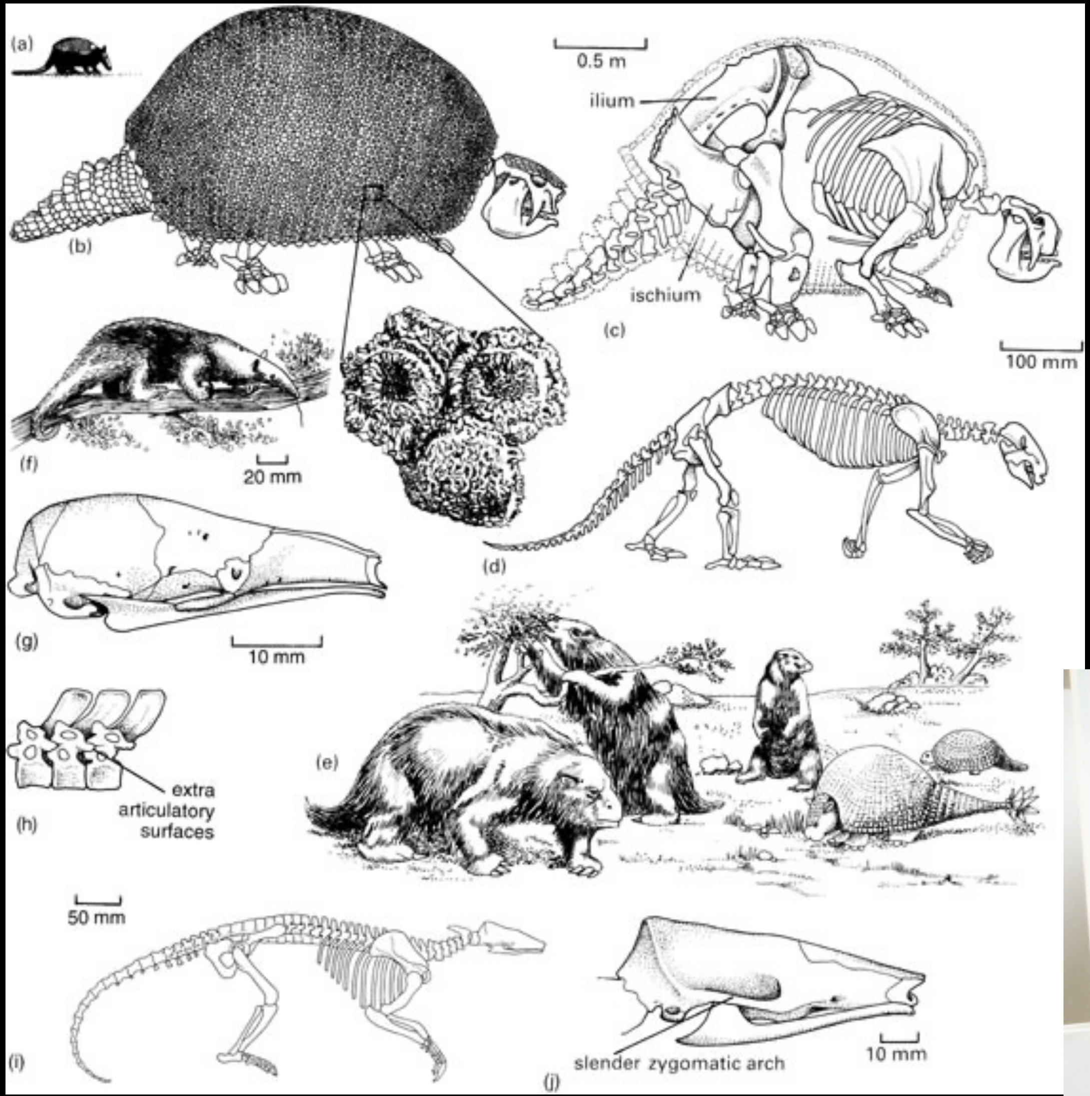


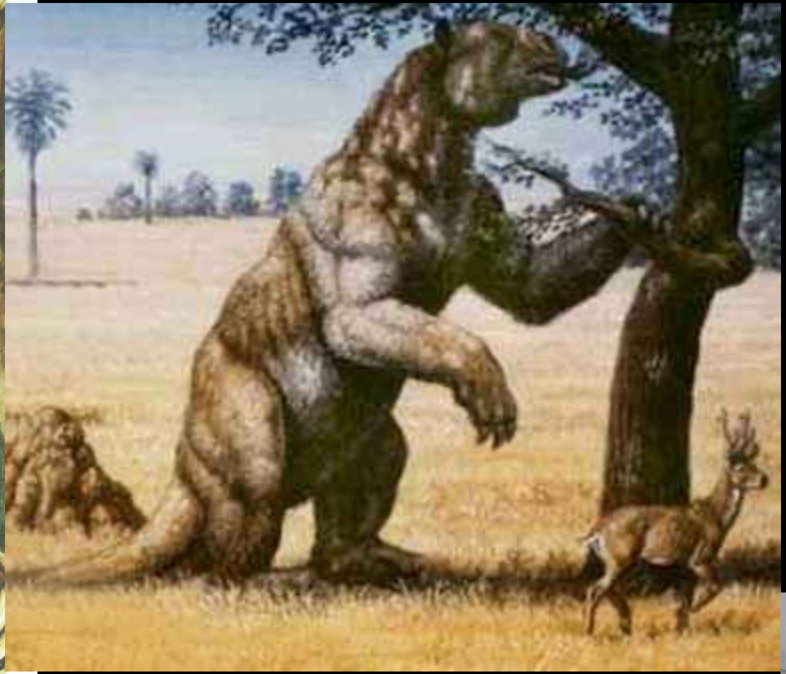
FIG. 7. RESTORATIONS OF XENARTHRANS

Recent: a, *Choelepus* (Bradypodidae); b, *Bradypus* (Bradypodidae). Pleistocene: c, *Euphractus* (Dasypodidae); d, *Dasypus* (Dasypodidae); e, *Tolypeutes* (Dasypodidae); f, *Megatherium* (Megatheriidae); g, *Glyptodon* (Glyptodontidae); h, *Scelidotherium* (Mylodontidae); i, *Doedicurus* (Glyptodontidae); j, *Mylodon* (Mylodontidae). Pliocene: k, *Pronothrotherium* (Megatheriidae); l, *Plaina* (Dasypodidae); m, *Myrmecophaga* (Myrmecophagidae). Miocene: n, *Proeutatus* (Dasypodidae); o, *Peltephilus* (Dasypodidae); p, *Hapalops* (Megatheriidae); q, *Stegotherium* (Dasypodidae); r, *Propalaeohoplophorus* (Glyptodontidae). Eocene: s, *Utaetus* (Dasypodidae).


(a)
(b)
0.5 m
ilium
ischium
(c)
100 mm
(f)
20 mm
(d)
(g)
10 mm
(e)
(h)
extra
articulatory
surfaces
50 mm
(i)
(j)
slender zygomatic arch
10 mm

HEINRICH HARDER.





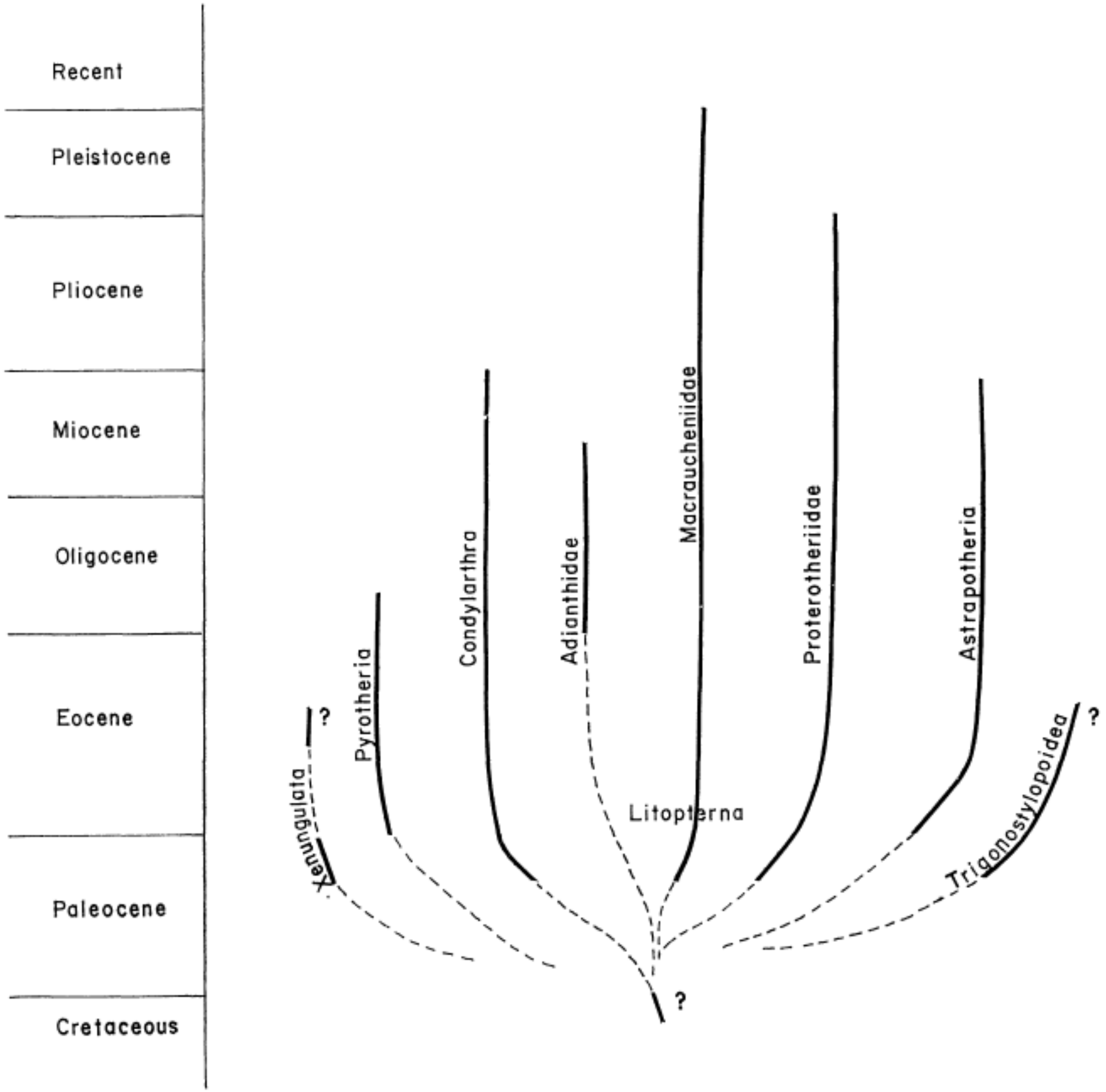



FIG. 8. SOUTH AMERICAN UNGULATES OTHER THAN NOTOUNGULATES: TIME RANGES AND PHYLOGENY

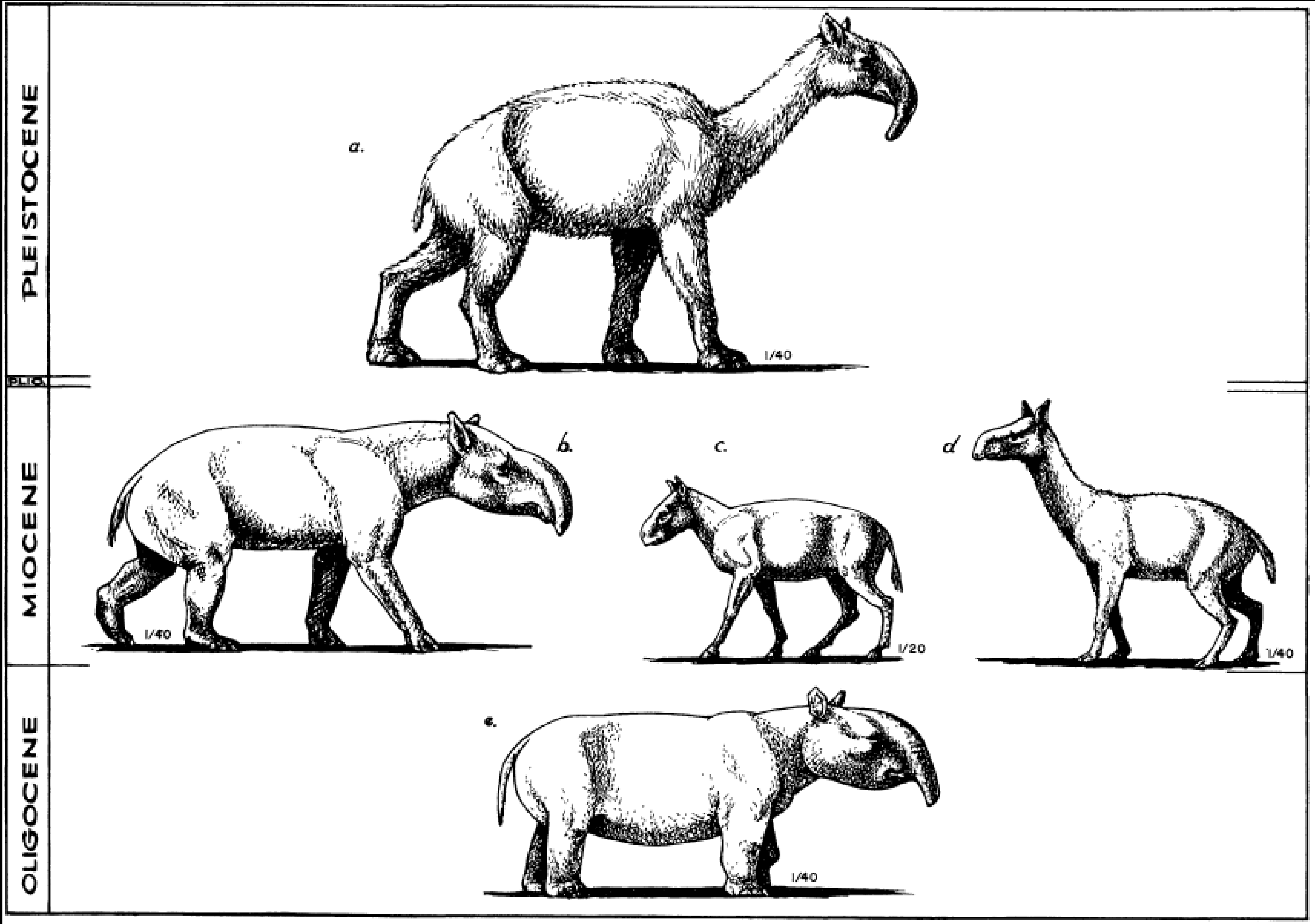
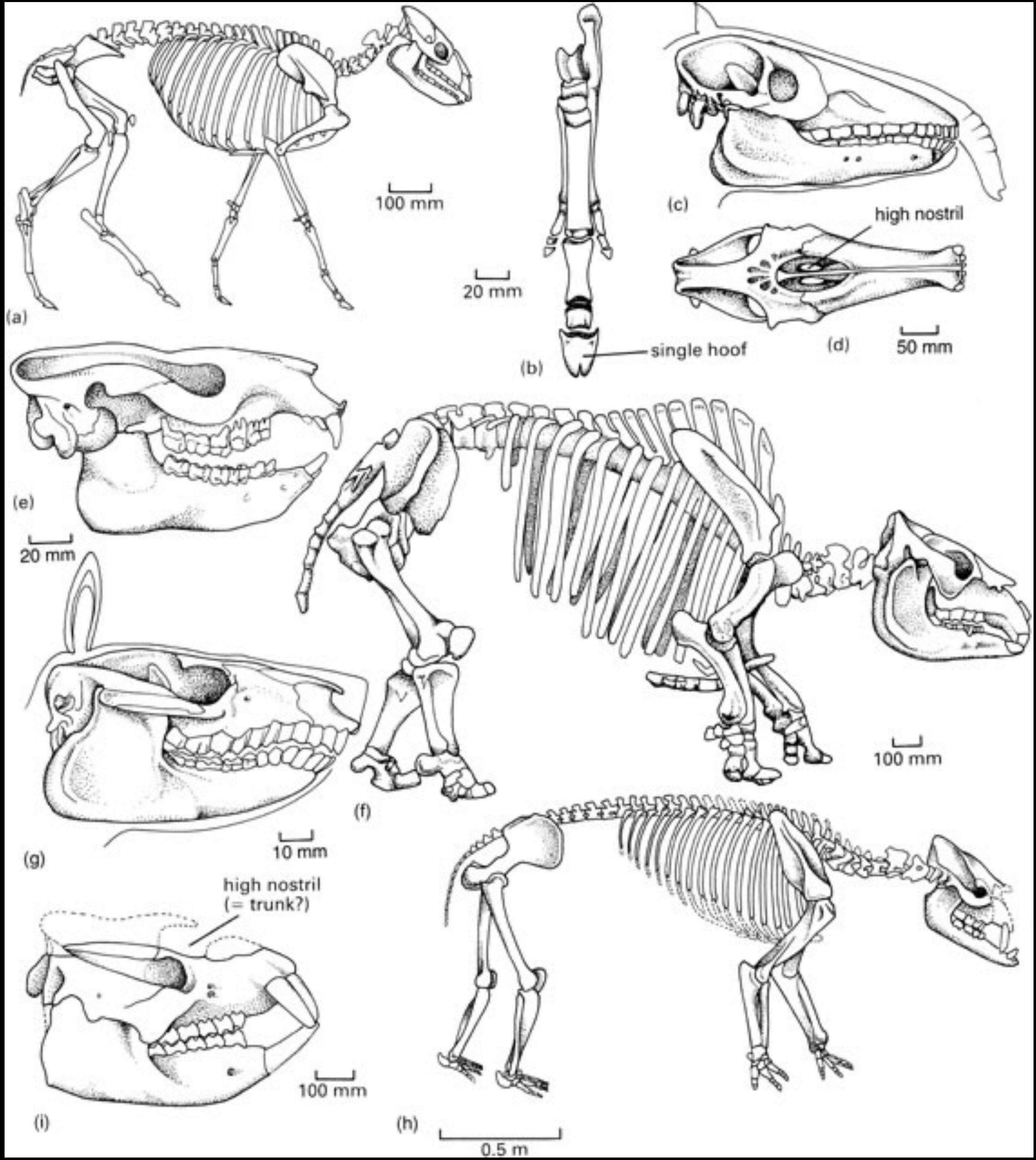
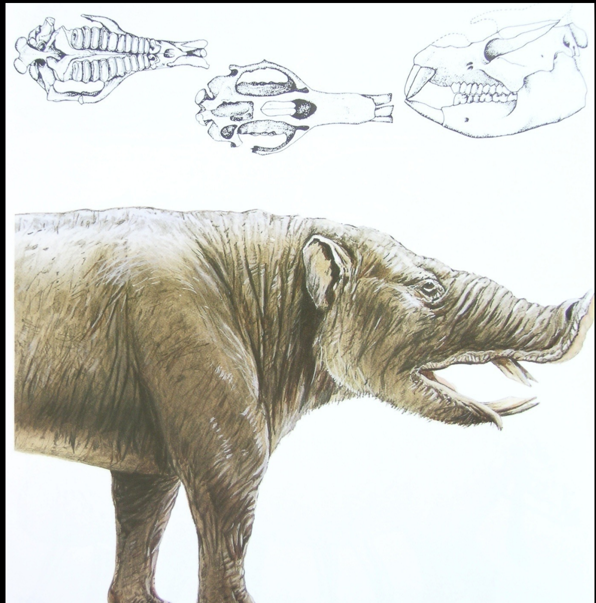


Fig. 9. Restorations of South American Ungulates other than Notoungulates

Pleistocene: a, *Macrauchenia* (Macraucheniidae). Miocene: b, *Astrapotherium* (Astrapotheriidae); c, *Thoatherium* (Prototheriidae); d, *Theosodon* (Macraucheniidae). Oligocene: e, *Pyrotherium* (Pyrotheriidae).





Pyrotherium, top: skull (length 85 cm) and, above: restoration of the head and fore quarter. From the volcanoclastic deposits of Patagonia this 35-million-year-old small elephant-sized mammal has hippo-like anterior dentition and *Barytherium*-like molars. (After Loomis).

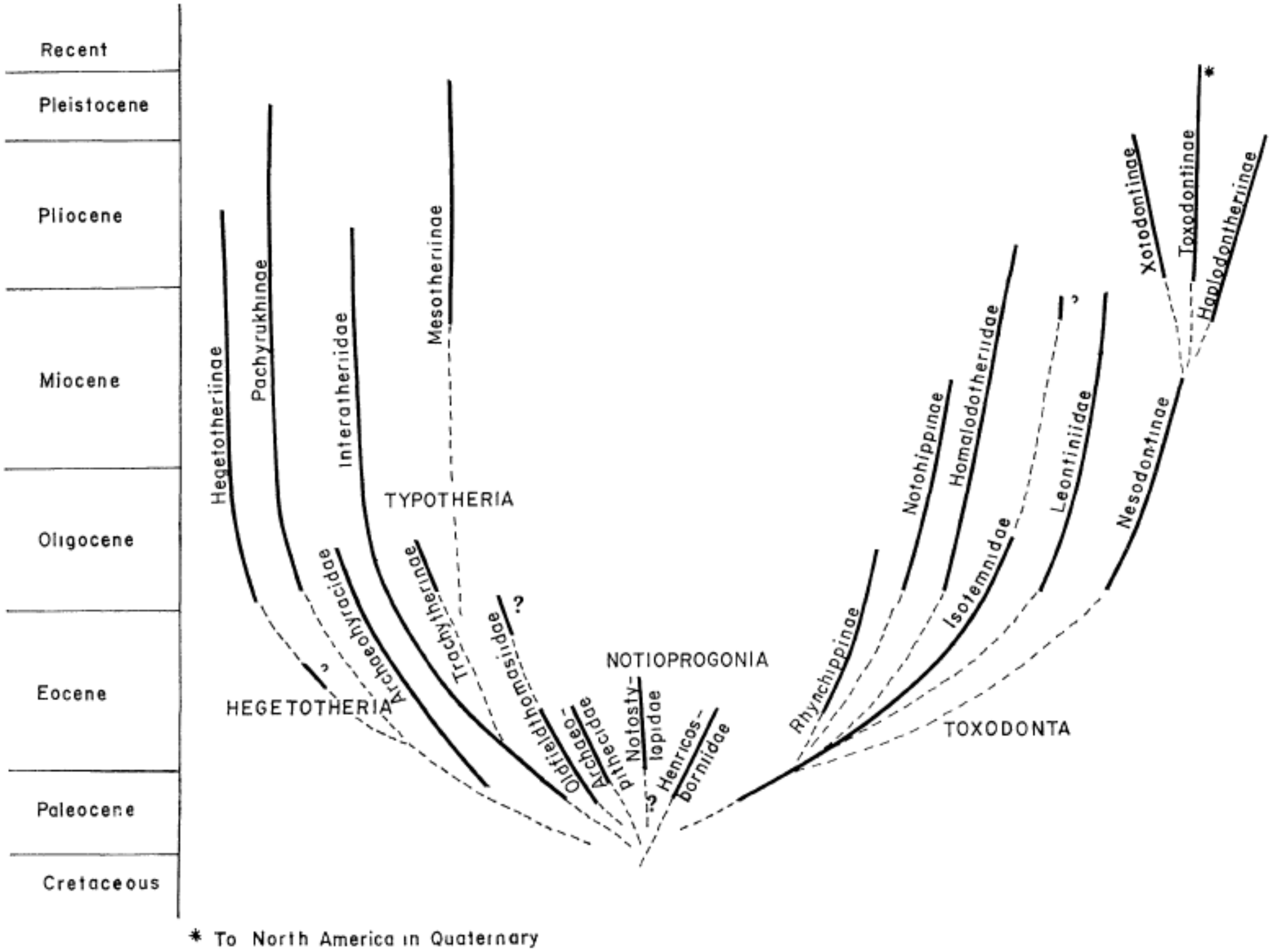


FIG. 10. NOTOUNGULATES: TIME RANGES AND PHYLOGENY

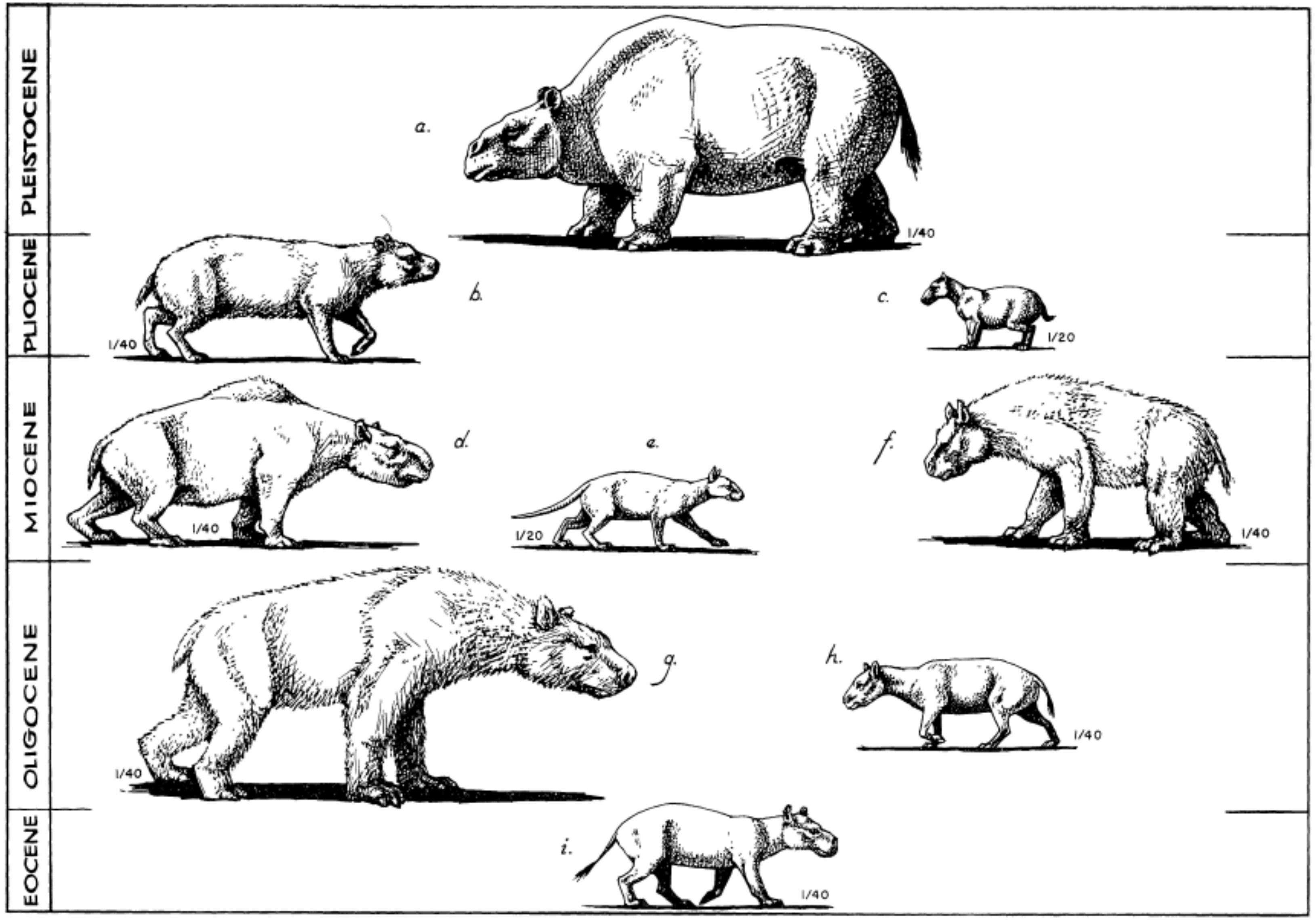
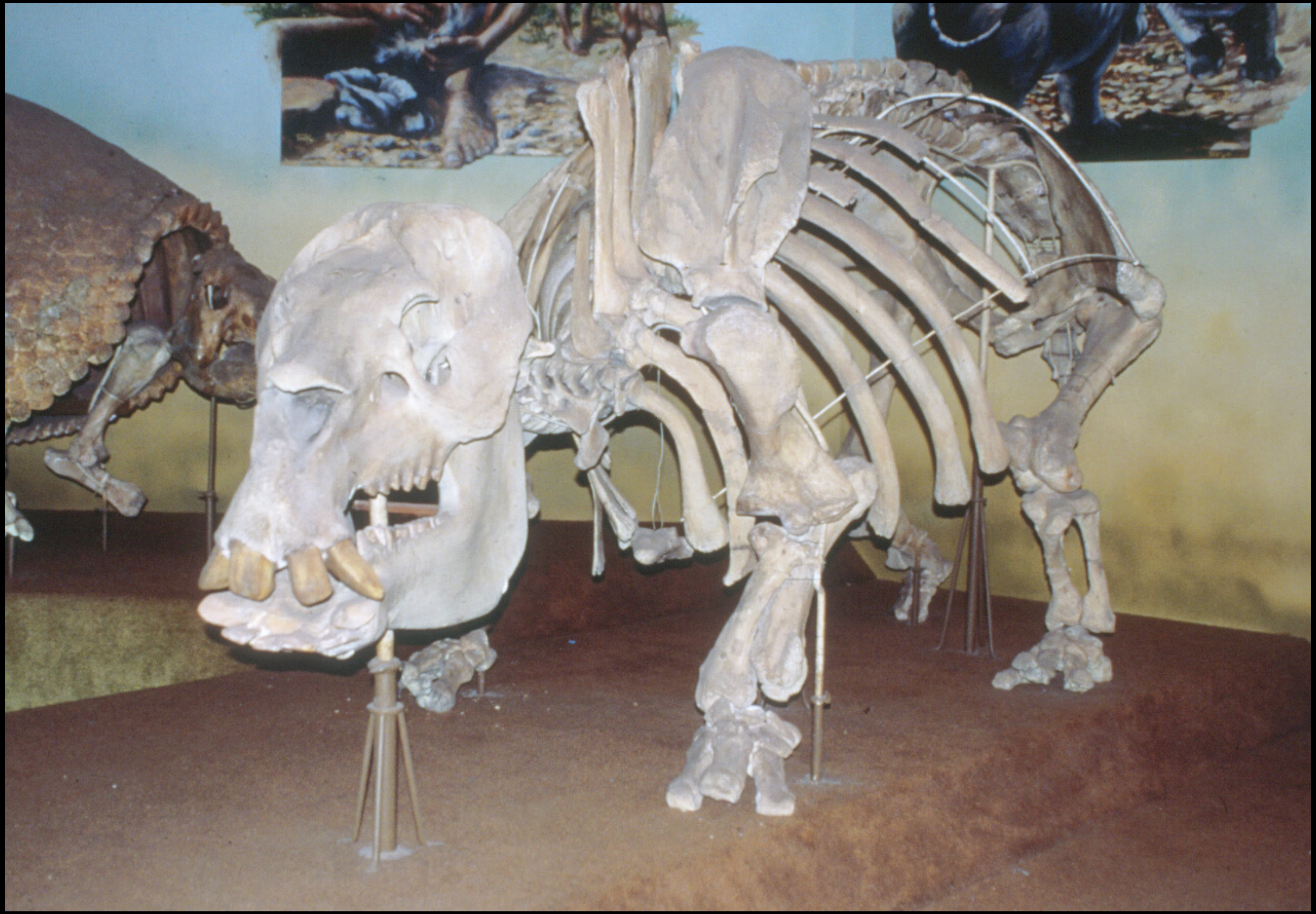
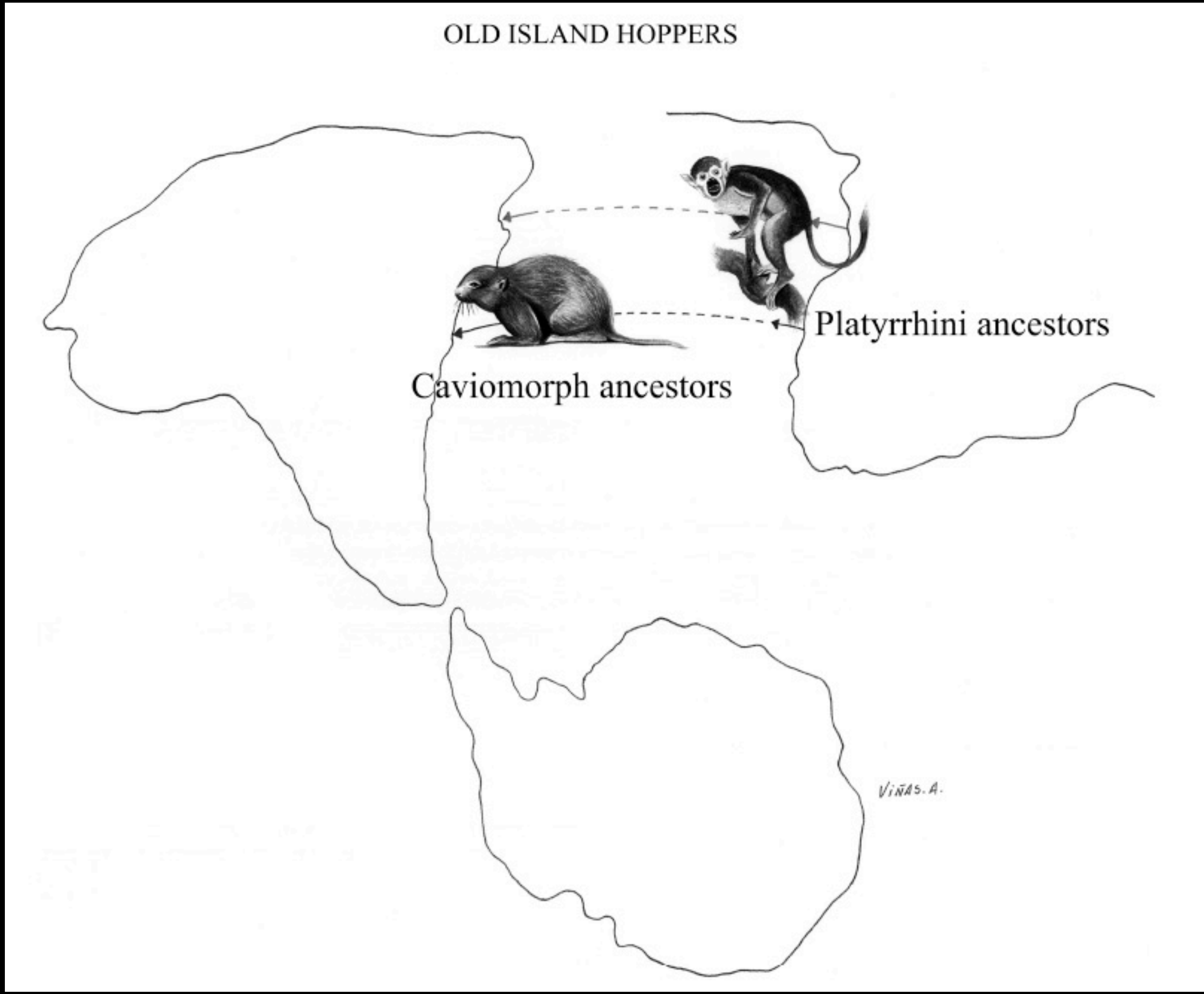


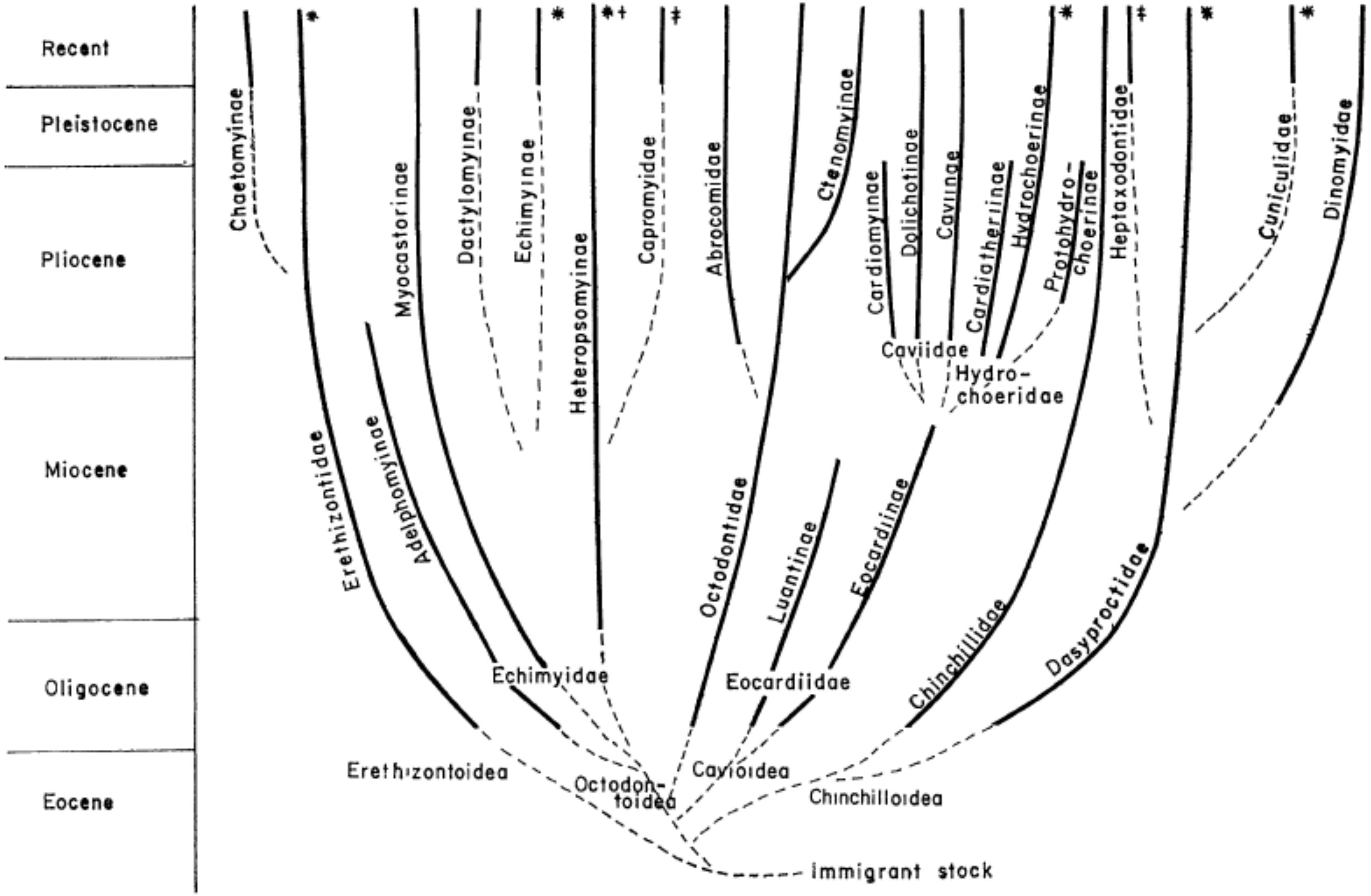
FIG. 11. RESTORATIONS OF NOTOUNGULATES

Pleistocene: a, *Toxodon* (Toxodontidae). Pliocene: b, *Typotheriopsis* (Mesotheriidae); c, *Paedotherium* (Hegetotheriidae). Miocene: d, *Nesodon* (Toxodontidae); e, *Protypotherium* (Interatheriidae); f, *Homalodotherium* (Homalodotheriidae). Oligocene: g, *Scarrittia* (Leontiniidae); h, Rhynchippus (Notohippidae). Eocene: *Thomashuxleya* (Isotemnidae).





OLD ISLAND HOPPERS
Platyrrhini ancestors
Caviomorph ancestors
VIÑAS. A.

Estrato 2

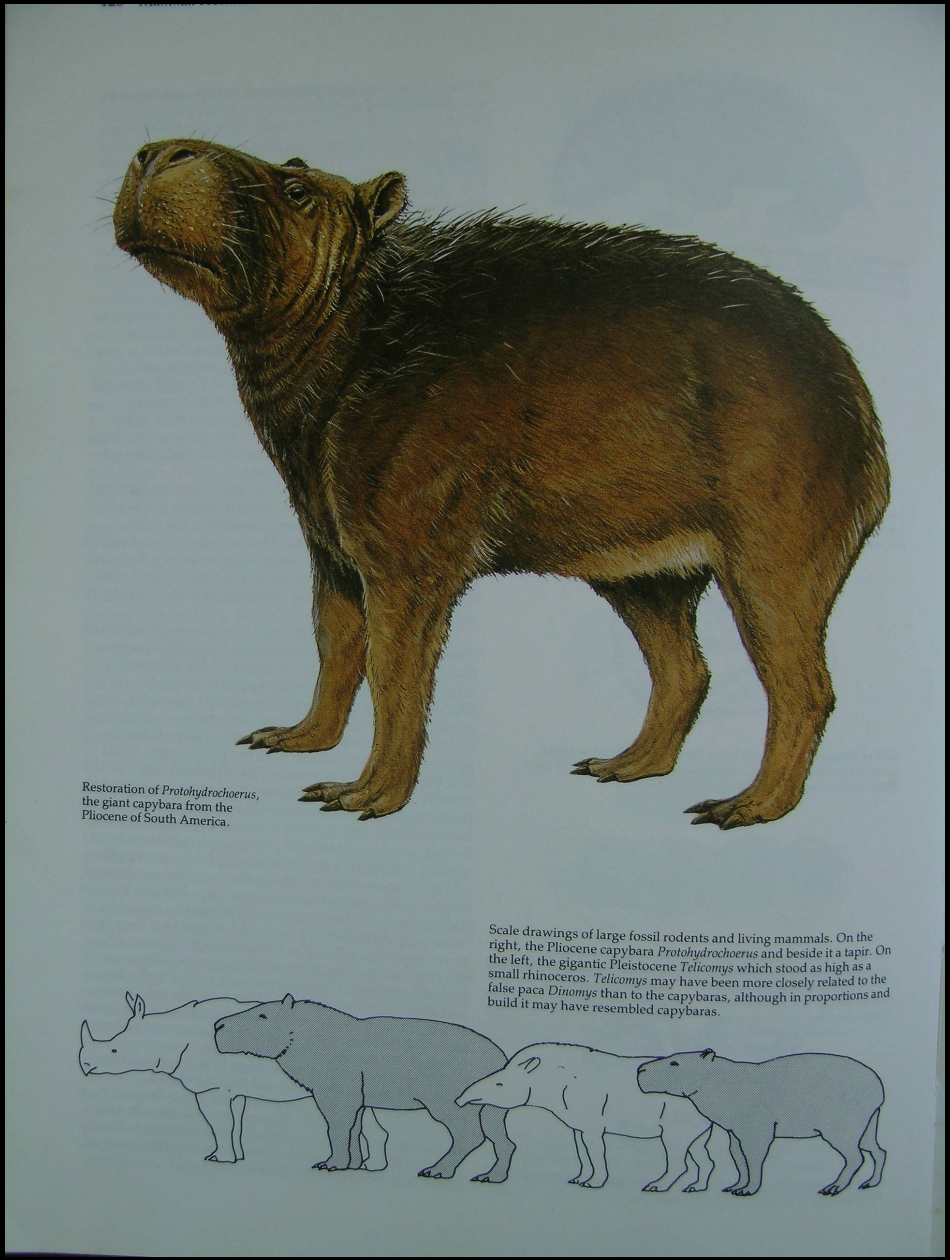


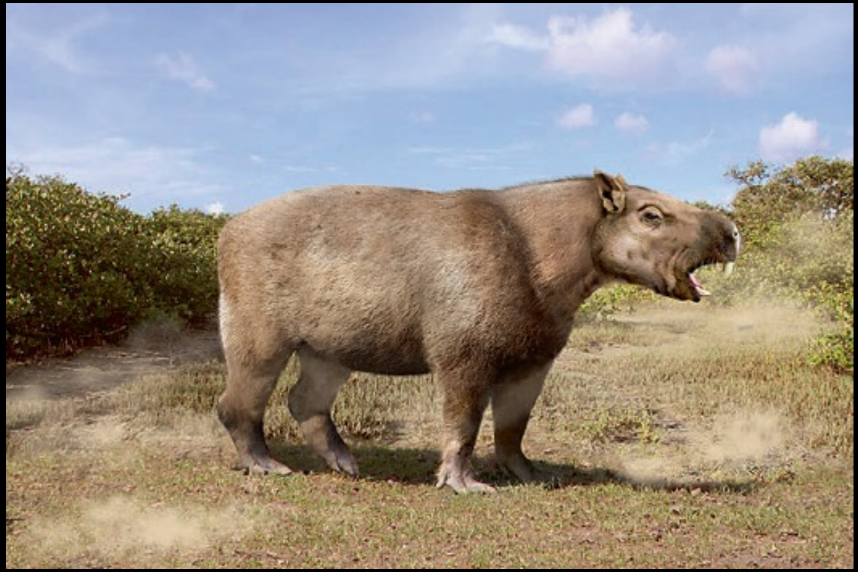
* To North America in Quaternary (only Erethizontinae and Hydrochoerinae north of Central America)

† To Antilles

‡ Antilles only

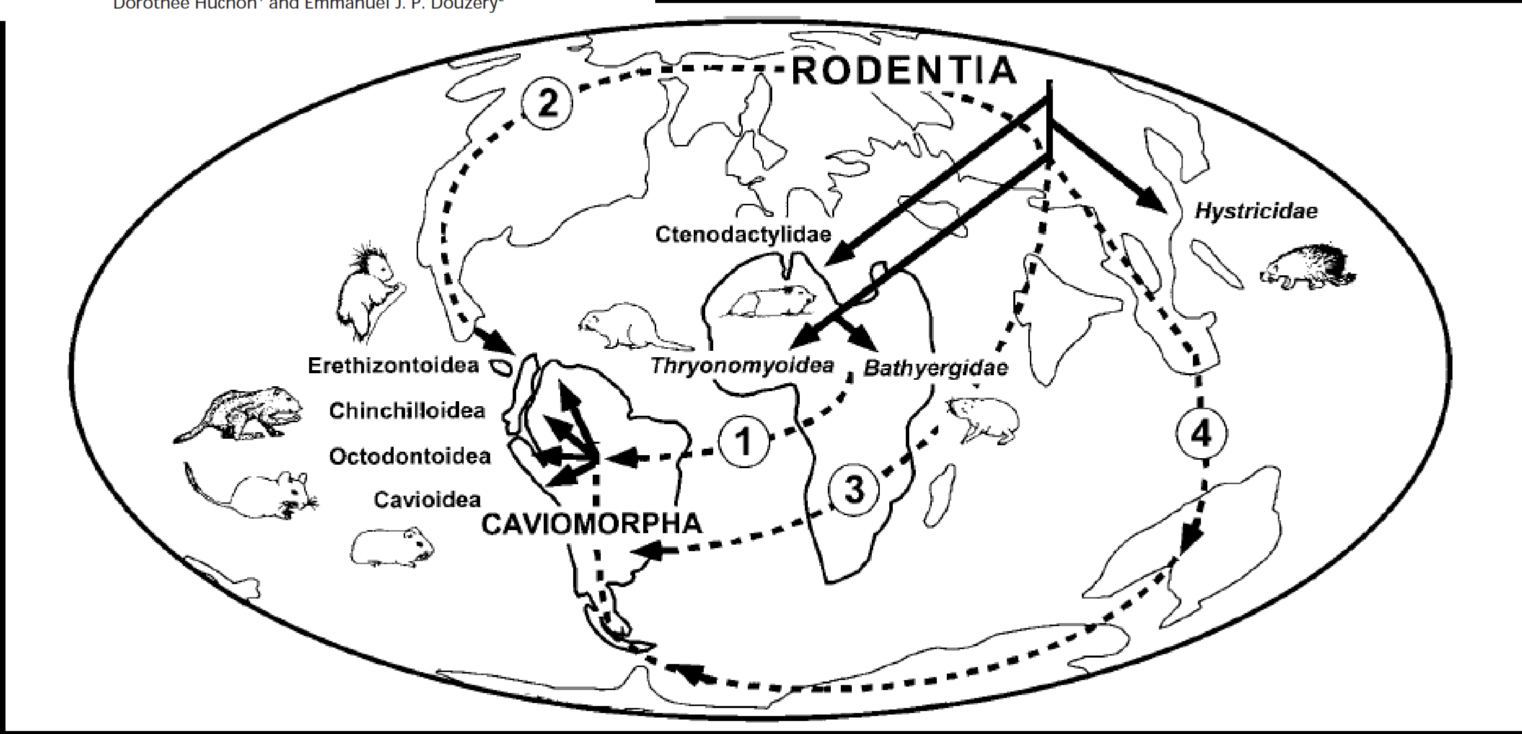
FIG. 12. CAVIOMORPH RODENTS: TIME RANGES AND PHYLOGENY

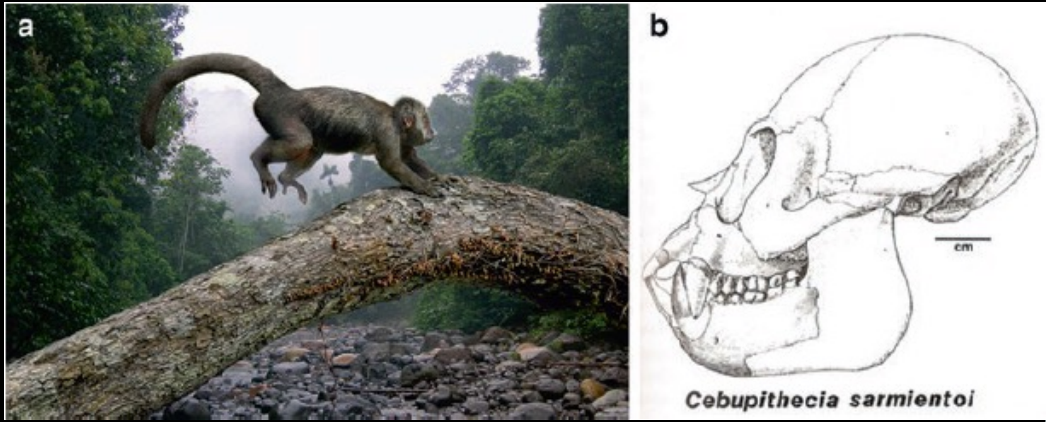


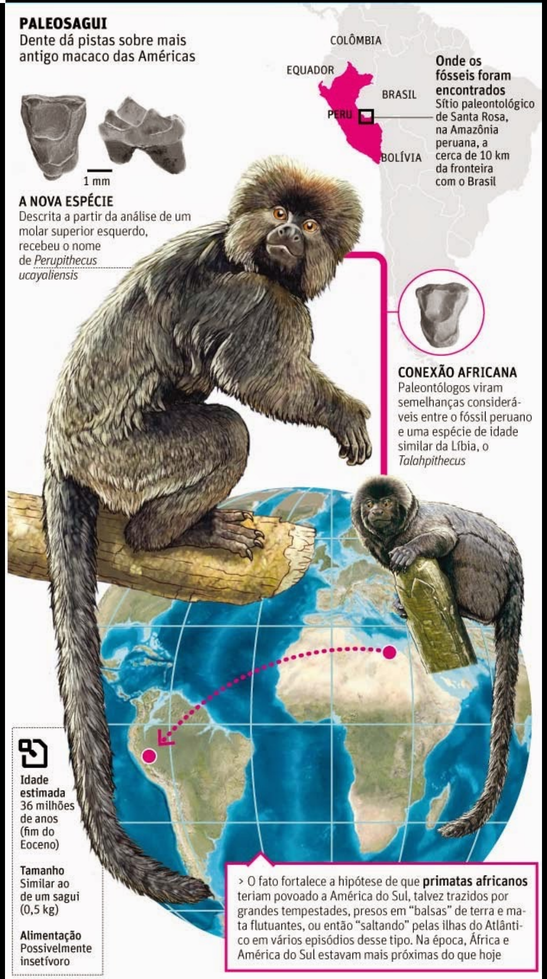


From the Old World to the New World: A Molecular Chronicle of the Phylogeny and Biogeography of Hystricognath Rodents

Dorothée Huchon[1] and Emmanuel J. P. Douzery[2]

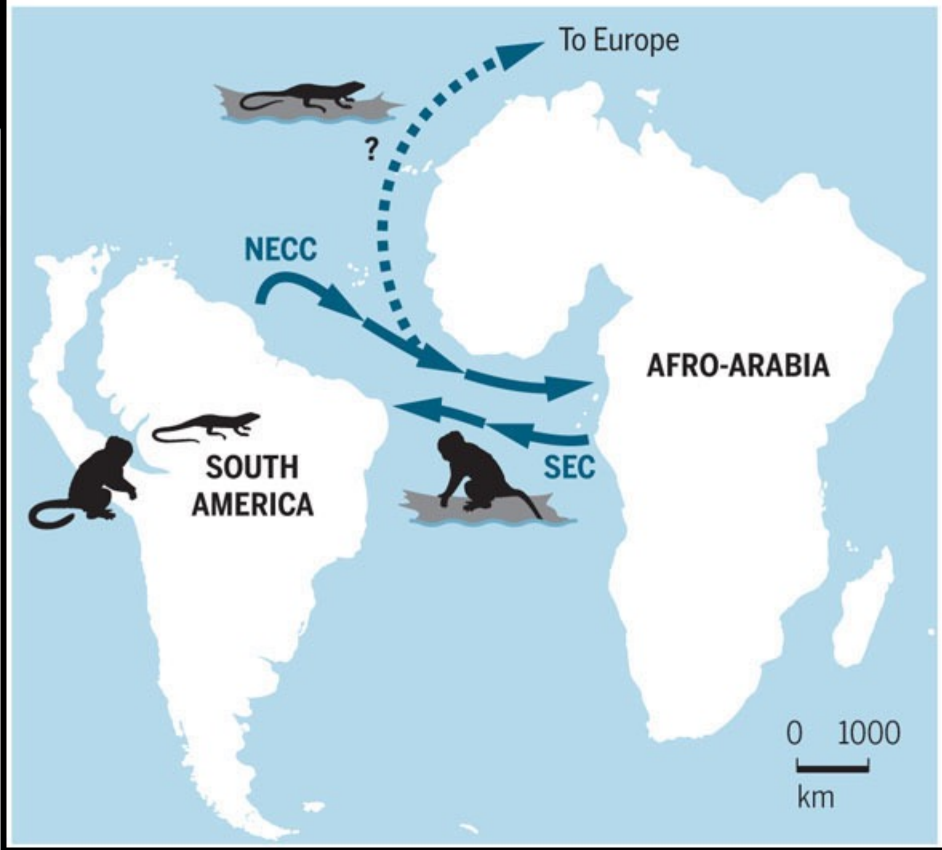




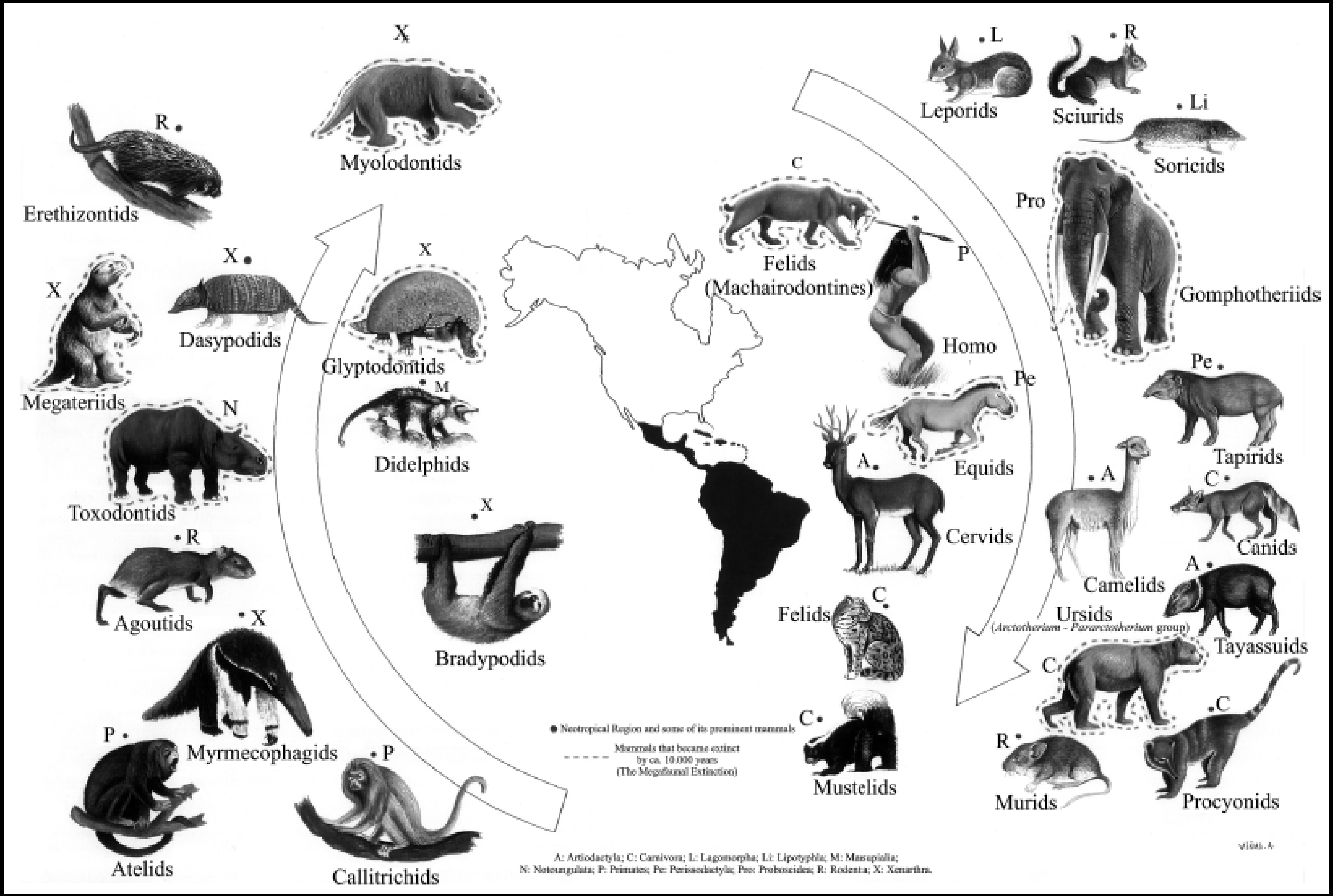


Rafting route

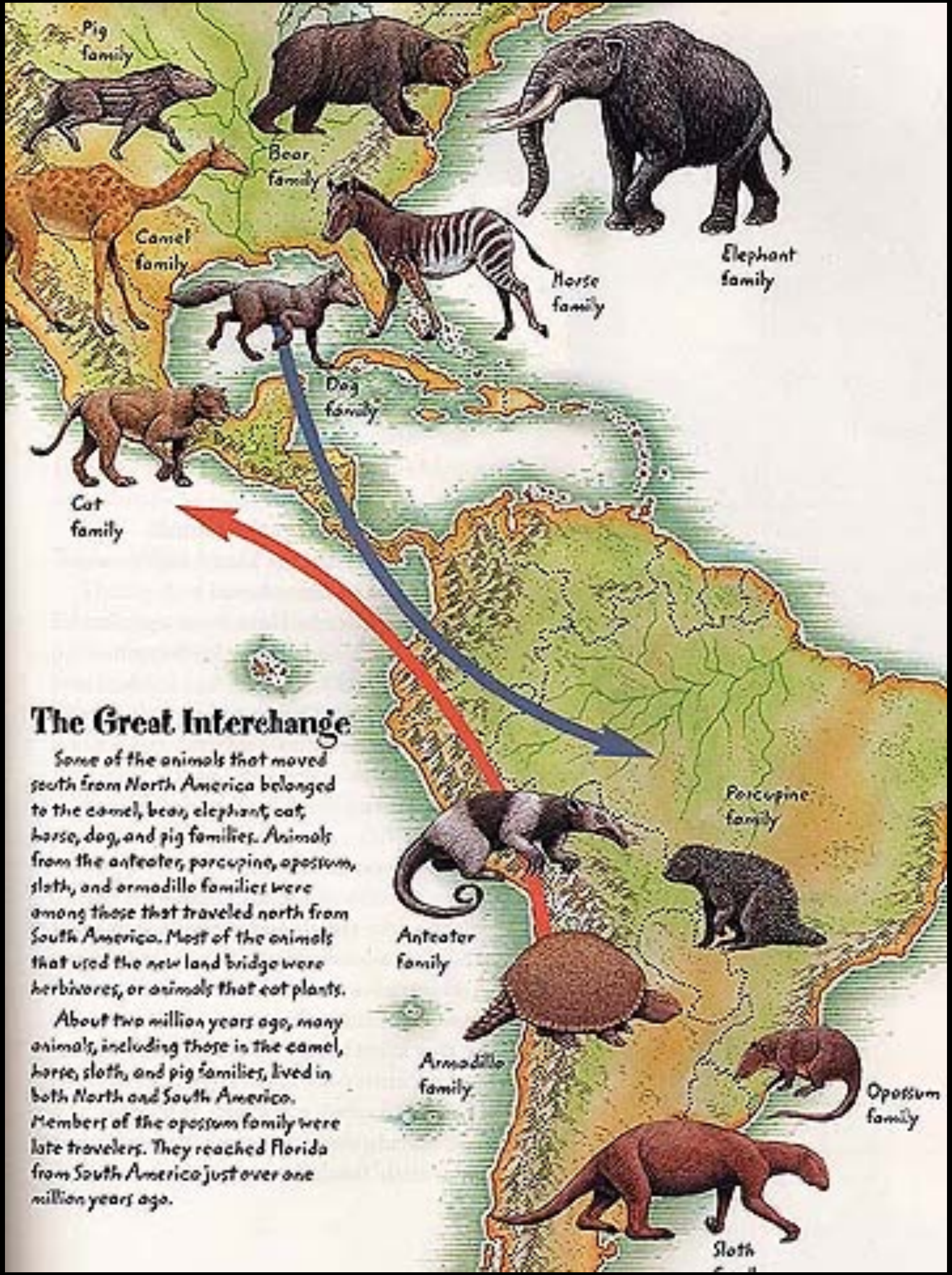
A *Ucayalipithecus* monkey or its ancestor sailed from West Africa to South America on the south equatorial paleocurrent (SEC). Recent data (*11*) suggest that teiid lizards crossed over from South America on the north equatorial countercurrent (NECC), eventually arriving in Eocene Europe. Continental positions are from the Oligocene.



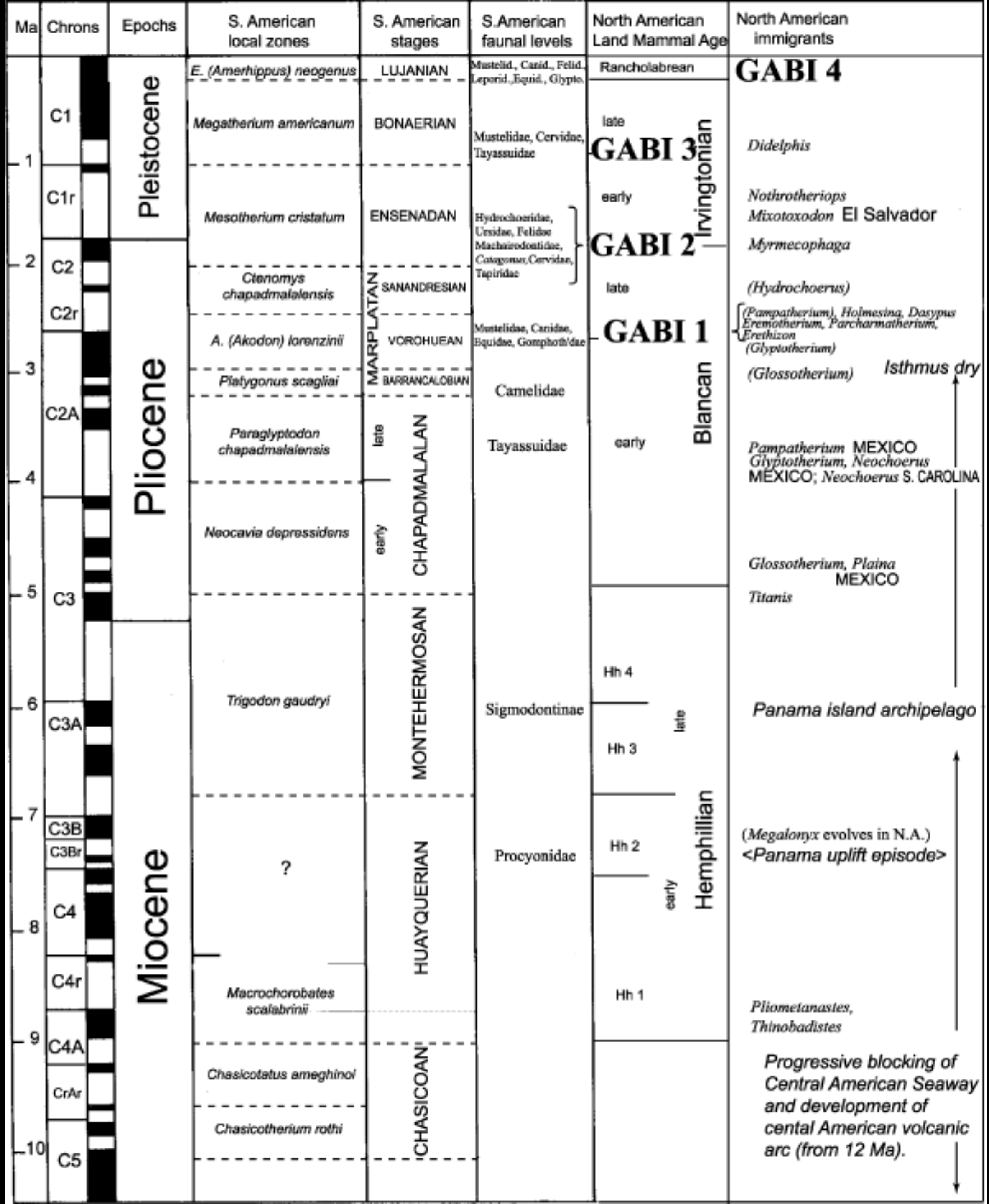
Estrato 3



Erethizontids
Myolodontids
Megateriids
Dasypodids
Glyptodontids
Didelphids
Toxodontids
Agoutids
Bradypodids
Myrmecophagids
Atelids
Callitrichids
Felids (Machairodontines)
Homo
Equids
Cervids
Felids
Mustelids
Leporids
Sciurids
Soricids
Gomphotheriids
Tapirids
Camelids
Canids
Ursids
(Arctotherium - Pararctotherium group)
Tayassuids
Murids
Procyonids
Neotropical Region and some of its prominent mammals
Mammals that became extinct by ca. 10.000 years (The Megafaunal Extinction)
A: Artiodactyla; C: Carnivora; L: Lagomorpha; Li: Lipotyphla; M: Marsupialia;
N: Notoungulata; P: Primates; Pe: Perissodactyla; Pro: Proboscidea; R: Rodentia; X: Xenarthra.



Family	Common name
Northern families	**To the South**
Soricidae	Shrews
Leporidae	Rabbits
Heteromyidae	Pocket mice
Geomyidae	Pocket gophers
Sciuridae	Squirrels
Muridae	Field mice
Felidae	Cats
Mustelidae	Otters
Mephistidae	Skunks
Canidae	Dogs
Procyonidae	Raccoons
Ursidae	Bears
Gomphotheriidae	Elephantoids
Tapiridae	Tapirs
Equidae	Horses
Agoutidae	Pacas
Dasyproctidae	Agoutis
Echimyidae	Spiny rats
Tayassuidae	Peccaries
Camelidae	Camels
Cervidae	Deer
Southern families	**To the North**
Dasypodidae	**Armadillos**
Pampatheriidae	Giant armadillos
Glyptodontidae	Glyptodonts
Megalonychidae	Two-toed sloth
Mylodontidae	Ground sloth
Megatheriidae	Ground sloth
Bradypodidae	**Three-toed sloth**
Myrmecophagidae	**Anteater**
Callitrichidae	**Tamarins, marmosets**
Cebidae	**Other primates**
Hydrochoeridae	Capybaras
Caviidae	Guinea pigs
Toxodontidae	Toxodonts
Didelphidae	**Opossums**

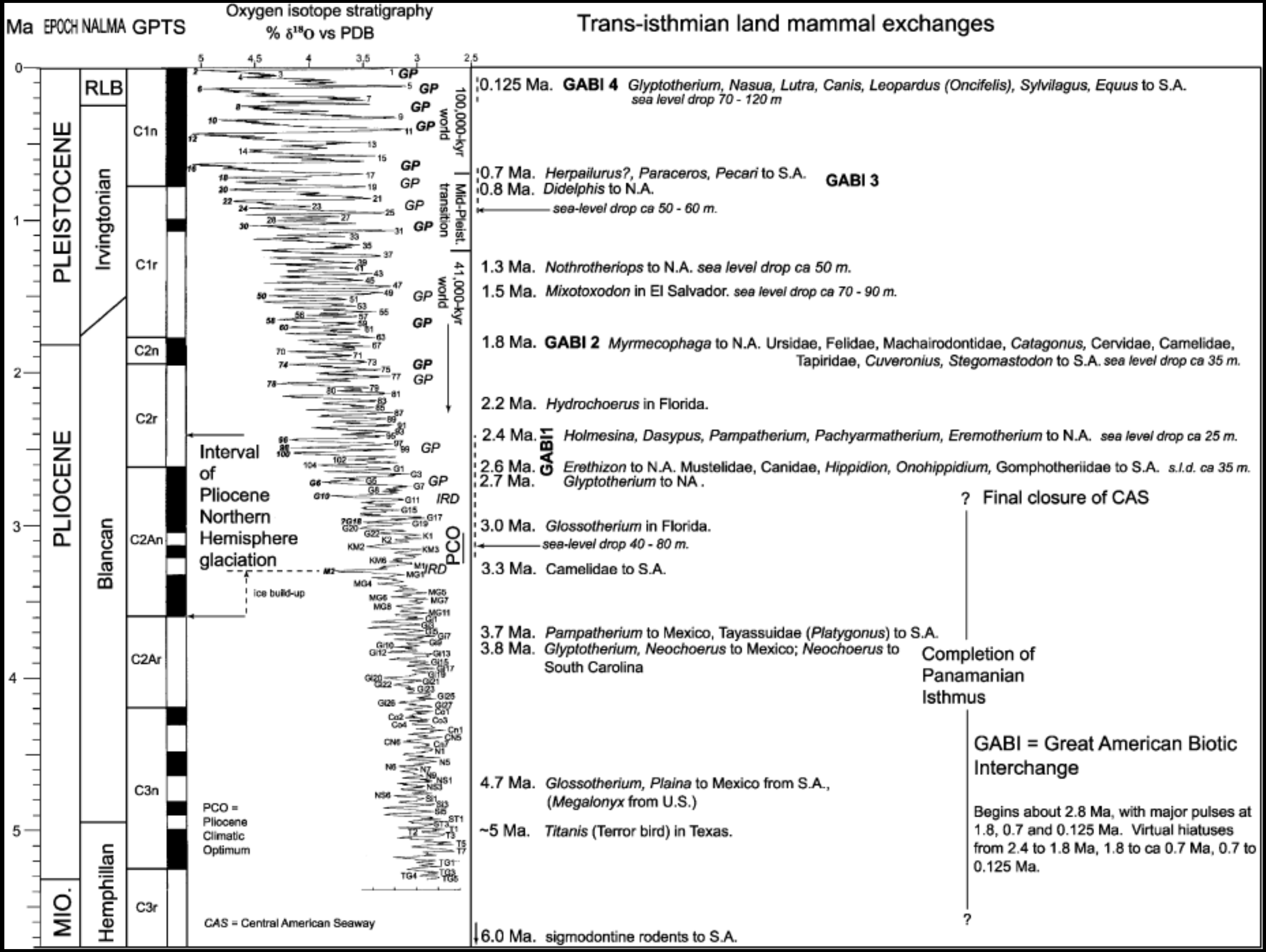


J Mammal Evol (2010) 17:245–264
DOI 10.1007/s10914-010-9144-8

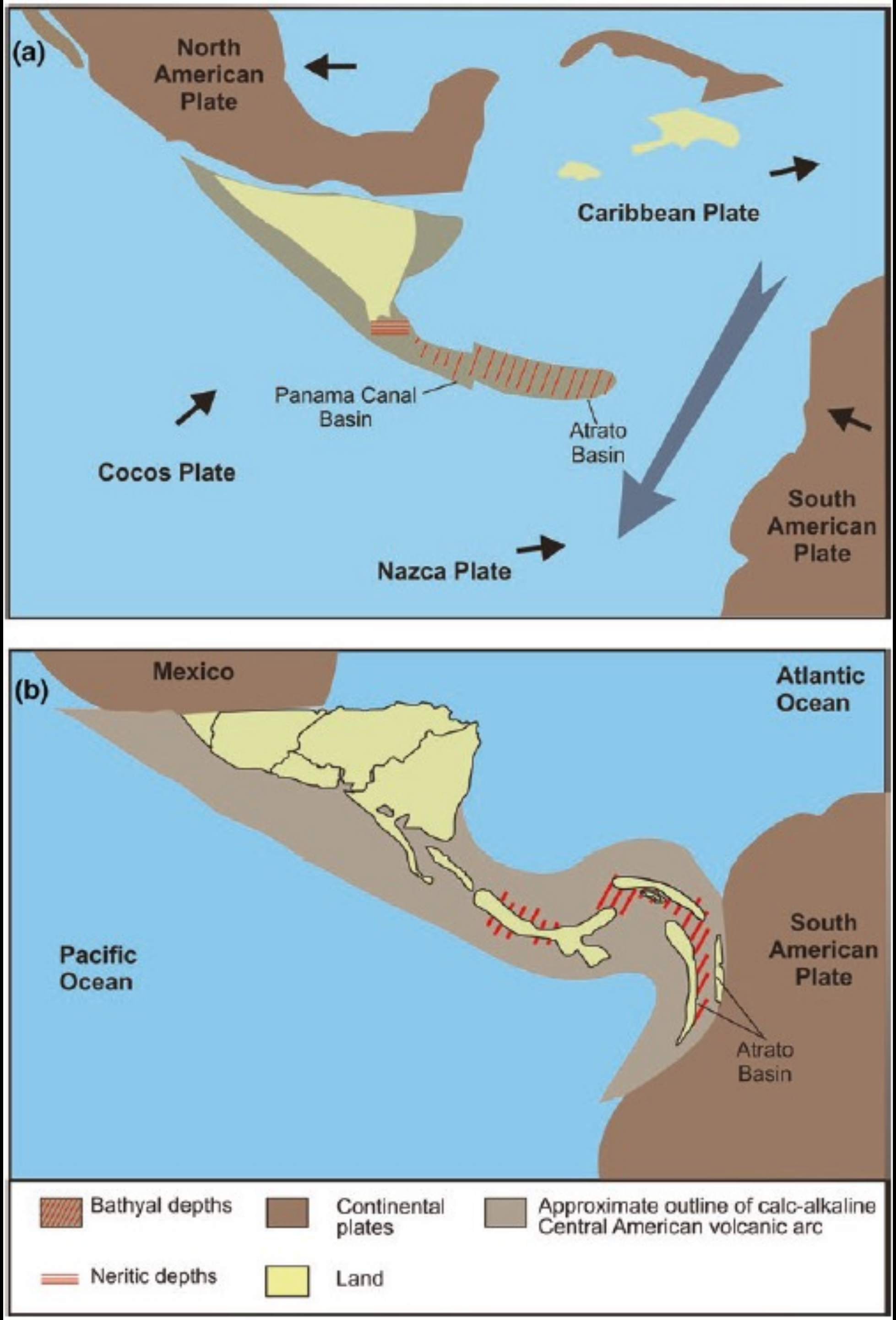
ORIGINAL ARTICLE

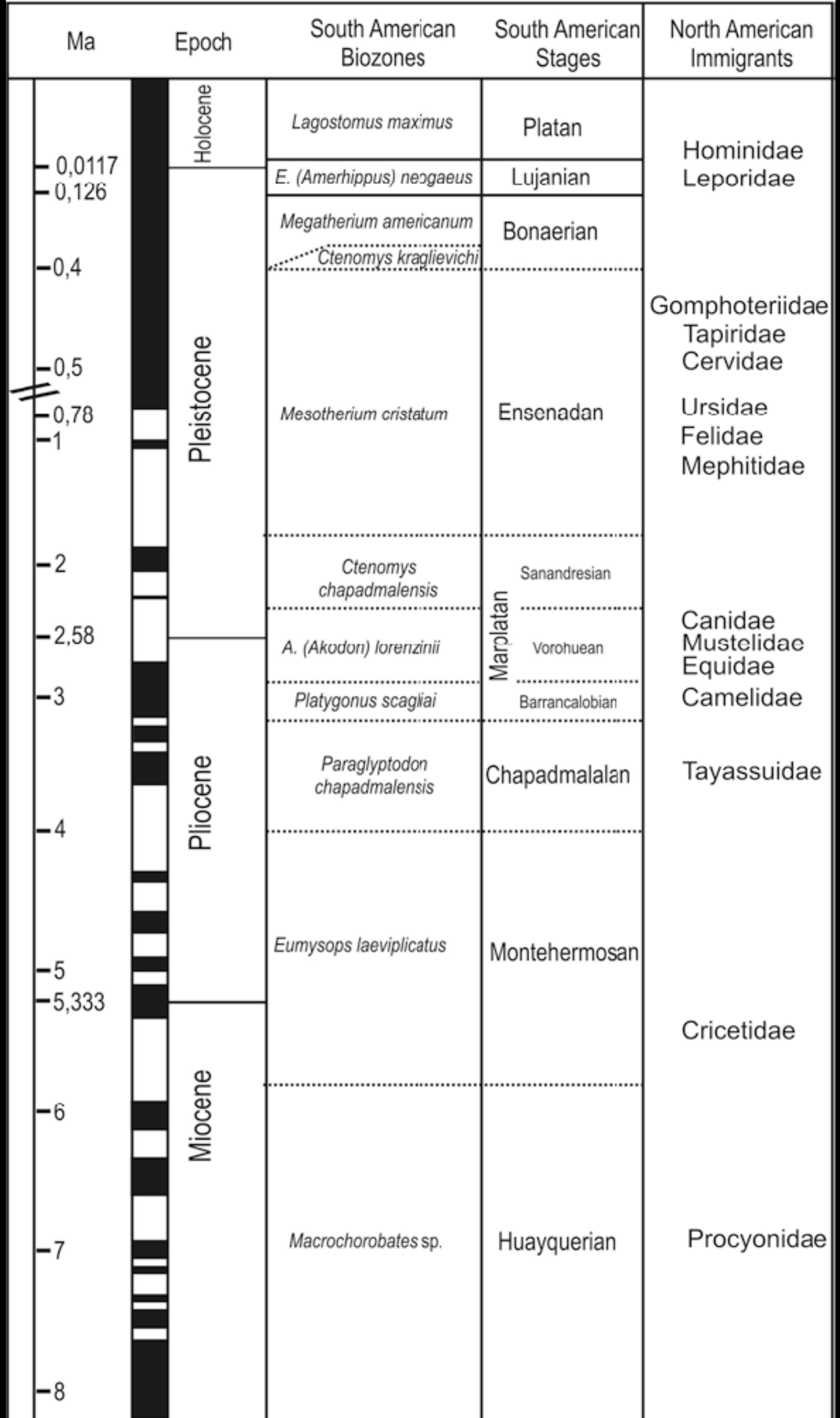
The Great American Biotic Interchange: Dispersals, Tectonics, Climate, Sea Level and Holding Pens

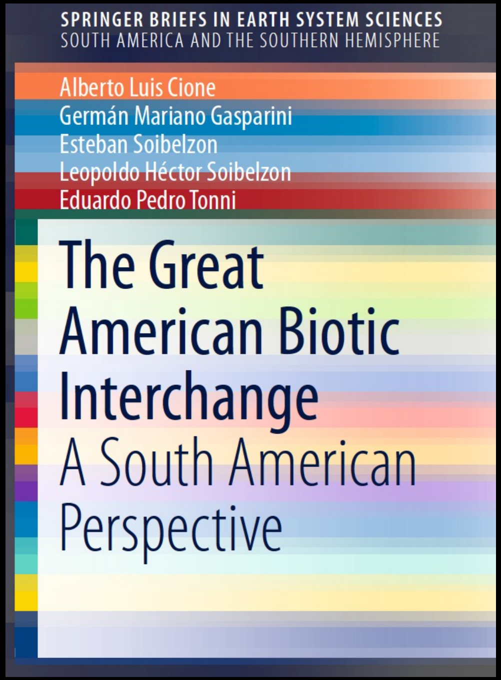
Michael O. Woodburne



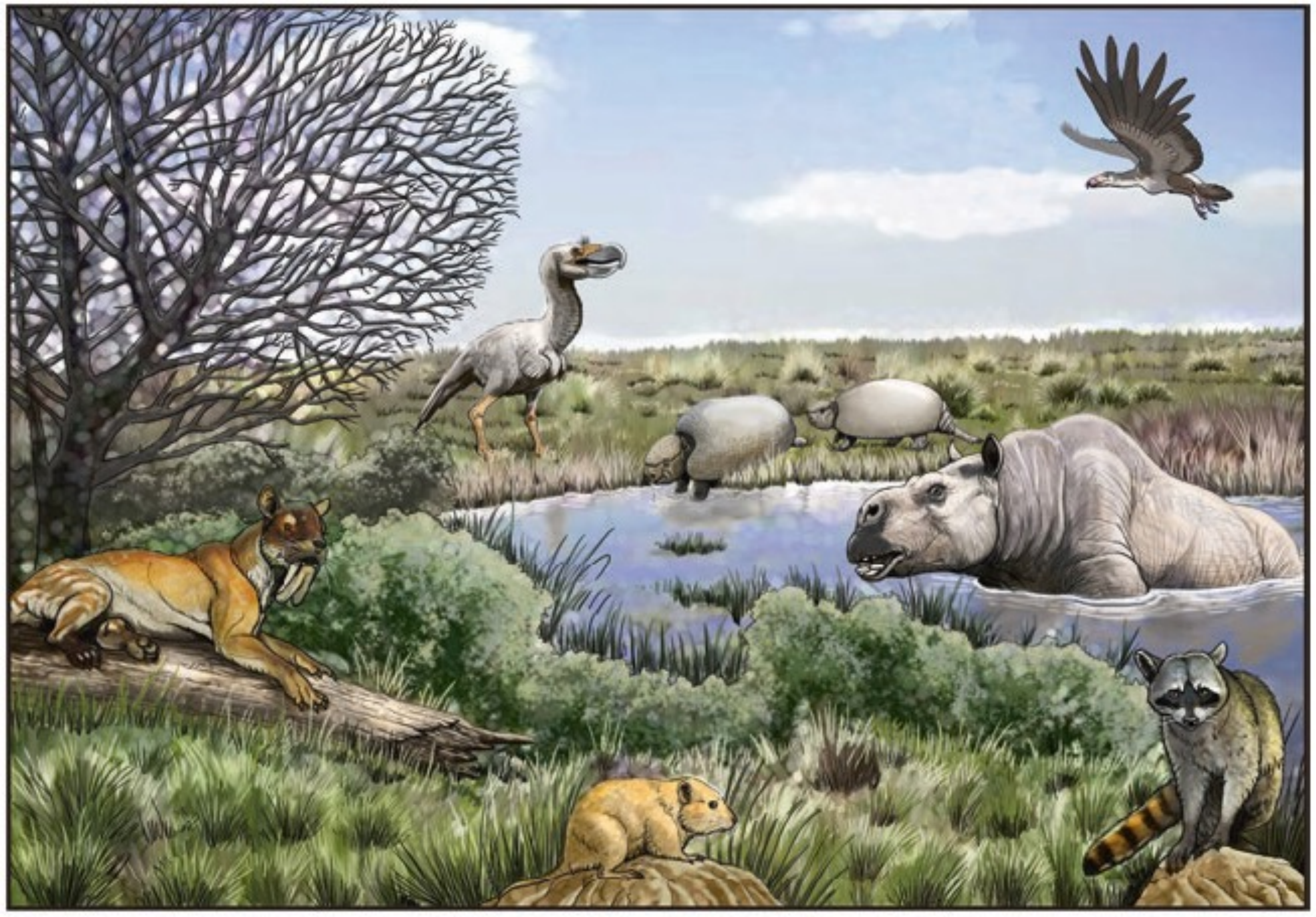
Ma
EPOCH
NALMA
GPTS
Oxygen isotope stratigraphy
% δ18O vs PDB
Trans-isthmian land mammal exchanges
PLEISTOCENE
PLIOCENE
MIO.
RLB
Irvingtonian
Blancan
Hemphillan
C1n
C1r
C2n
C2r
C2An
C2Ar
C3n
C3r
100,000-kyr world
Mid-Pleist. transition
41,000-kyr world
PCO
IRD
GP
Interval of Pliocene Northern Hemisphere glaciation
ice build-up
PCO = Pliocene Climatic Optimum
CAS = Central American Seaway
0.125 Ma. GABI 4 Glyptotherium, Nasua, Lutra, Canis, Leopardus (Oncifelis), Sylvilagus, Equus to S.A.
sea level drop 70 - 120 m
0.7 Ma. Herpailurus?, Paraceros, Pecari to S.A.
GABI 3
0.8 Ma. Didelphis to N.A.
sea-level drop ca 50 - 60 m.
1.3 Ma. Nothrotheriops to N.A. sea level drop ca 50 m.
1.5 Ma. Mixotoxodon in El Salvador. sea level drop ca 70 - 90 m.
1.8 Ma. GABI 2 Myrmecophaga to N.A. Ursidae, Felidae, Machairodontidae, Catagonus, Cervidae, Camelidae, Tapiridae, Cuveronius, Stegomastodon to S.A. sea level drop ca 35 m.
2.2 Ma. Hydrochoerus in Florida.
2.4 Ma. Holmesina, Dasypus, Pampatherium, Pachyarmatherium, Eremotherium to N.A. sea level drop ca 25 m.
GABI1
2.6 Ma. Erethizon to N.A. Mustelidae, Canidae, Hippidion, Onohippidium, Gomphotheriidae to S.A. s.l.d. ca 35 m.
2.7 Ma. Glyptotherium to NA .
? Final closure of CAS
3.0 Ma. Glossotherium in Florida.
sea-level drop 40 - 80 m.
3.3 Ma. Camelidae to S.A.
3.7 Ma. Pampatherium to Mexico, Tayassuidae (Platygonus) to S.A.
3.8 Ma. Glyptotherium, Neochoerus to Mexico; Neochoerus to South Carolina
Completion of Panamanian Isthmus
GABI = Great American Biotic Interchange
Begins about 2.8 Ma, with major pulses at 1.8, 0.7 and 0.125 Ma. Virtual hiatuses from 2.4 to 1.8 Ma, 1.8 to ca 0.7 Ma, 0.7 to 0.125 Ma.
4.7 Ma. Glossotherium, Plaina to Mexico from S.A., (Megalonyx from U.S.)
~5 Ma. Titanis (Terror bird) in Texas.
6.0 Ma. sigmodontine rodents to S.A.


(a)
North American Plate
Caribbean Plate
Panama Canal Basin
Atrato Basin
Cocos Plate
South American Plate
Nazca Plate
(b)
Mexico
Atlantic Ocean
Pacific Ocean
South American Plate
Atrato Basin
Bathyal depths
Continental plates
Approximate outline of calc-alkaline Central American volcanic arc
Neritic depths
Land

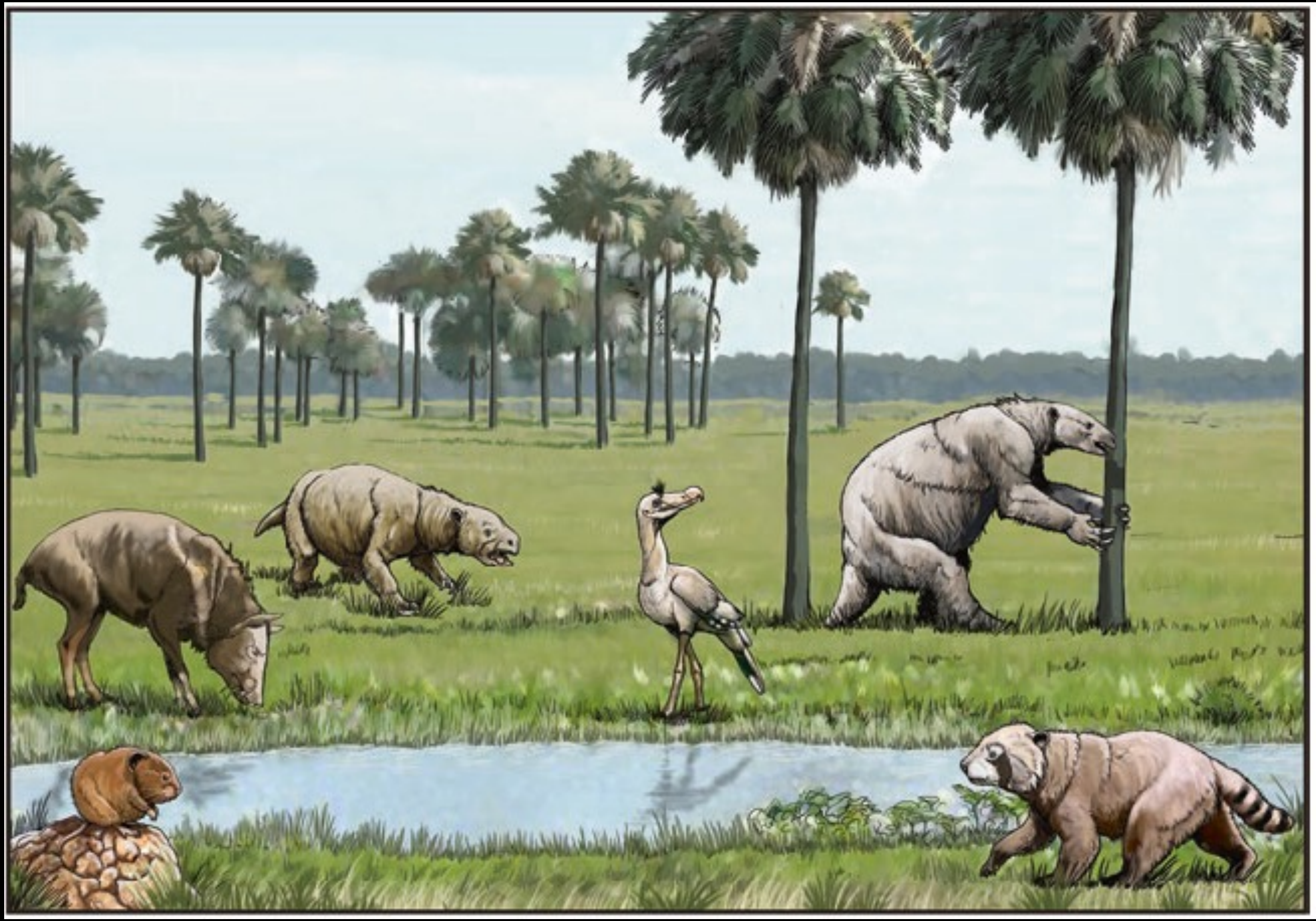

Ma
Epoch
South American Biozones
South American Stages
North American Immigrants
0,0117
0,126
0,4
0,5
0,78
1
2
2,58
3
4
5
5,333
6
7
8
Holocene
Pleistocene
Pliocene
Miocene
Lagostomus maximus
E. (Amerhippus) neogaeus
Megatherium americanum
Ctenomys kraglievichi
Mesotherium cristatum
Ctenomys chapadmalensis
A. (Akodon) lorenzinii
Platygonus scagliai
Paraglyptodon chapadmalensis
Eumysops laeviplicatus
Macrochorobates sp.
Platan
Lujanian
Bonaerian
Ensenadan
Marplatan
Sanandresian
Vorohuean
Barrancalobian
Chapadmalalan
Montehermosan
Huayquerian
Hominidae
Leporidae
Gomphoteriidae
Tapiridae
Cervidae
Ursidae
Felidae
Mephitidae
Canidae
Mustelidae
Equidae
Camelidae
Tayassuidae
Cricetidae
Procyonidae


SPRINGER BRIEFS IN EARTH SYSTEM SCIENCES
SOUTH AMERICA AND THE SOUTHERN HEMISPHERE
Alberto Luis Cione
Germán Mariano Gasparini
Esteban Soibelzon
Leopoldo Héctor Soibelzon
Eduardo Pedro Tonni
The Great American Biotic Interchange
A South American Perspective

Mioceno tardio



Plioceno tardio

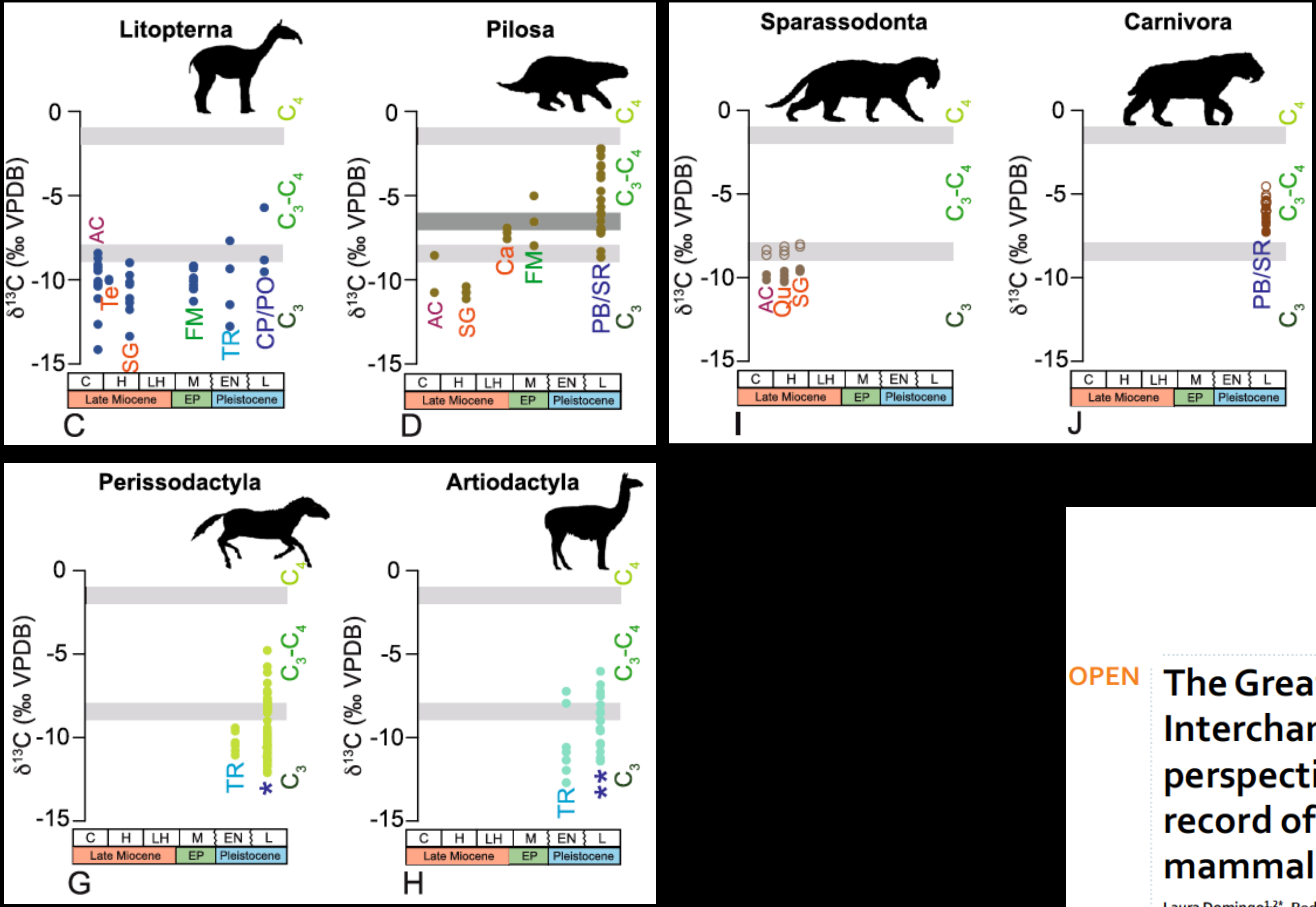


Plioceno tardio

Plioceno médio

Pleistoceno tardio – Holoceno inicial

Recente



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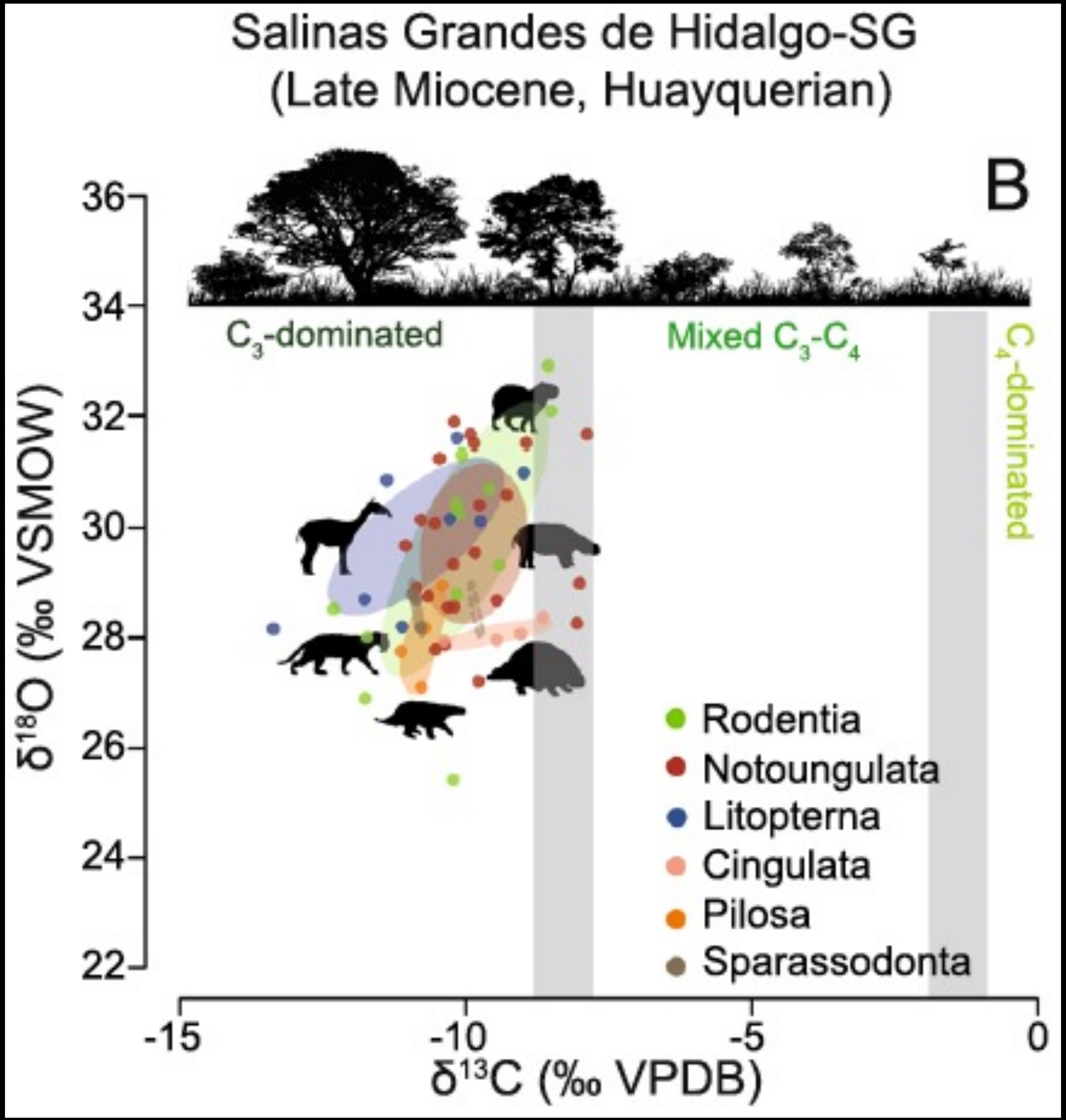
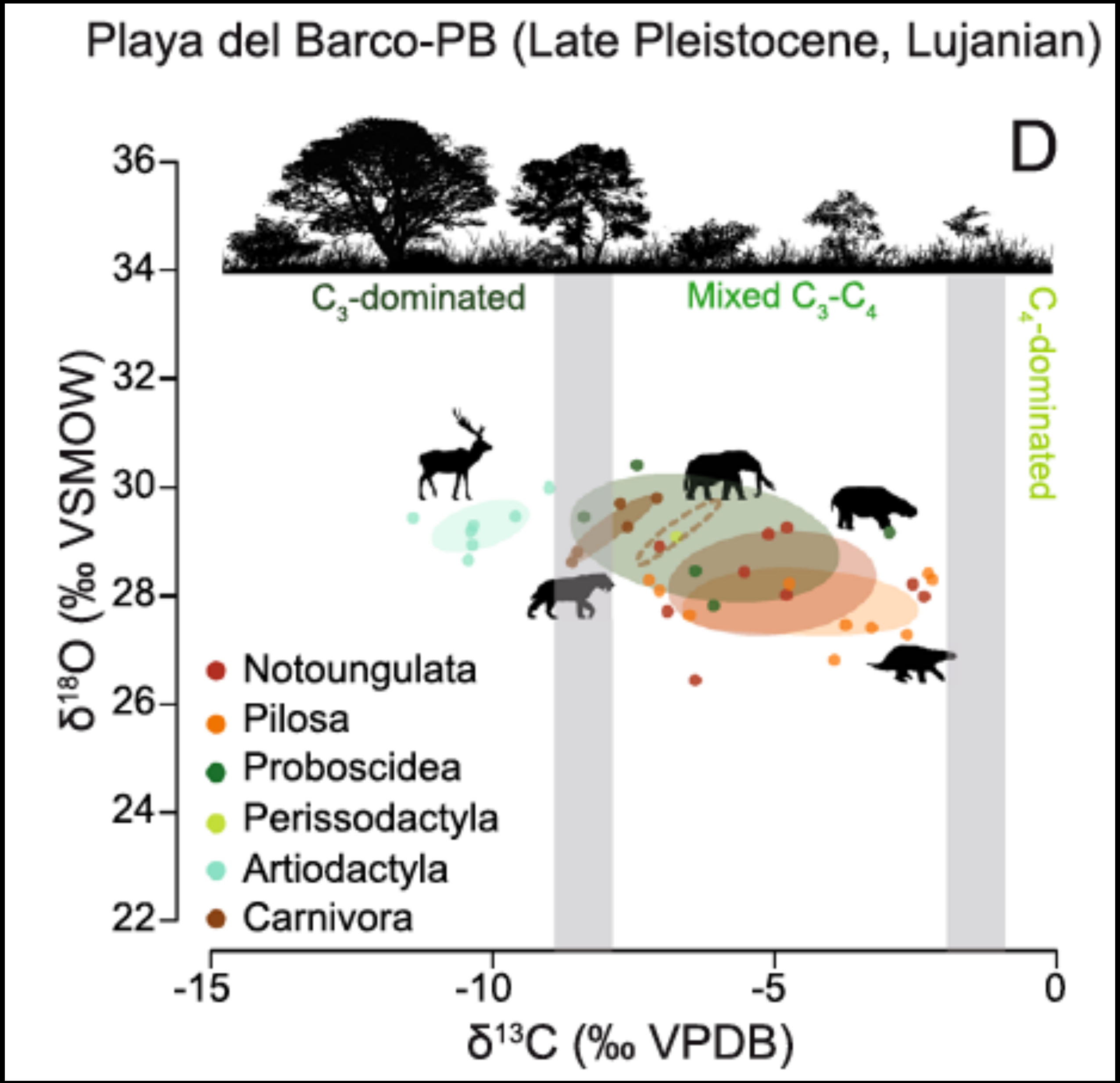
The Great American Biotic Interchange revisited: a new perspective from the stable isotope record of Argentine Pampas fossil mammals

Laura Domingo[1,2*], Rodrigo L. Tomassini[3], Claudia I. Montalvo[4], Dánae Sanz-Pérez[1] & María Teresa Alberdi[5]



Salinas Grandes de Hidalgo-SG
(Late Miocene, Huayquerian)
B
C3-dominated
Mixed C3-C4
C4-dominated
δ18O (‰ VSMOW)
δ13C (‰ VPDB)
Rodentia
Notoungulata
Litopterna
Cingulata
Pilosa
Sparassodonta



Playa del Barco-PB (Late Pleistocene, Lujanian)
D
C3-dominated
Mixed C3-C4
C4-dominated
δ18O (‰ VSMOW)
δ13C (‰ VPDB)
Notoungulata
Pilosa
Proboscidea
Perissodactyla
Artiodactyla
Carnivora

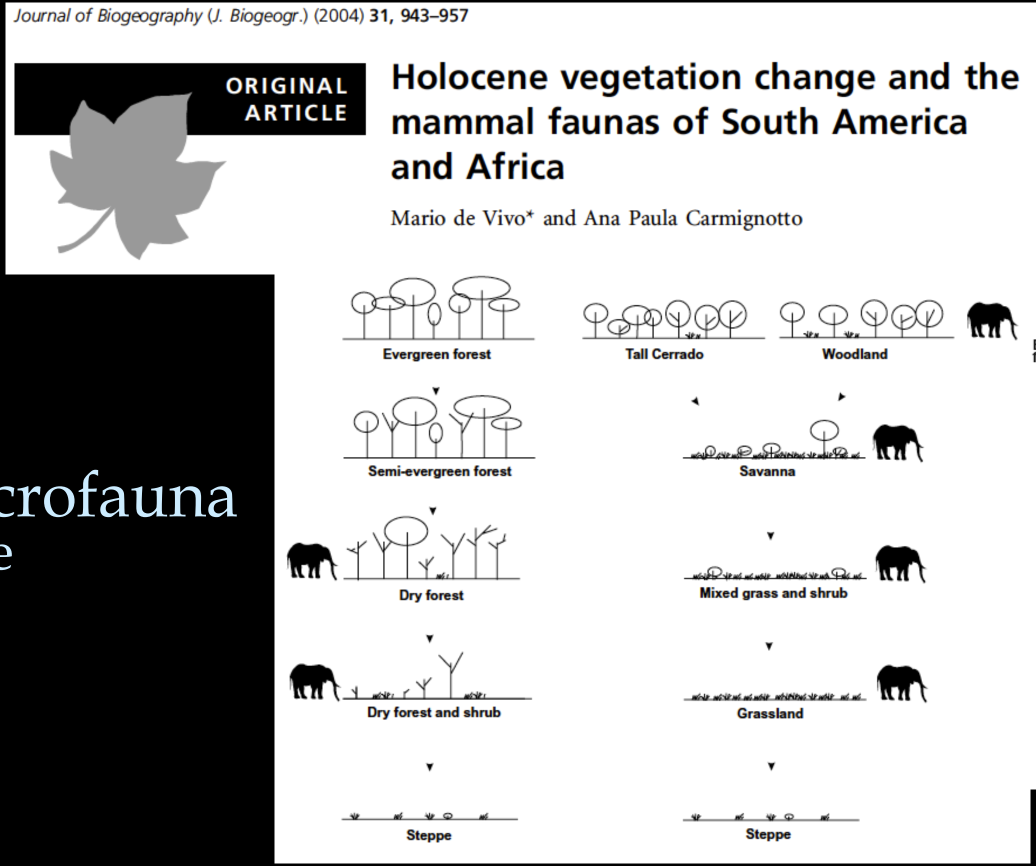
Fauna de Mamíferos AS

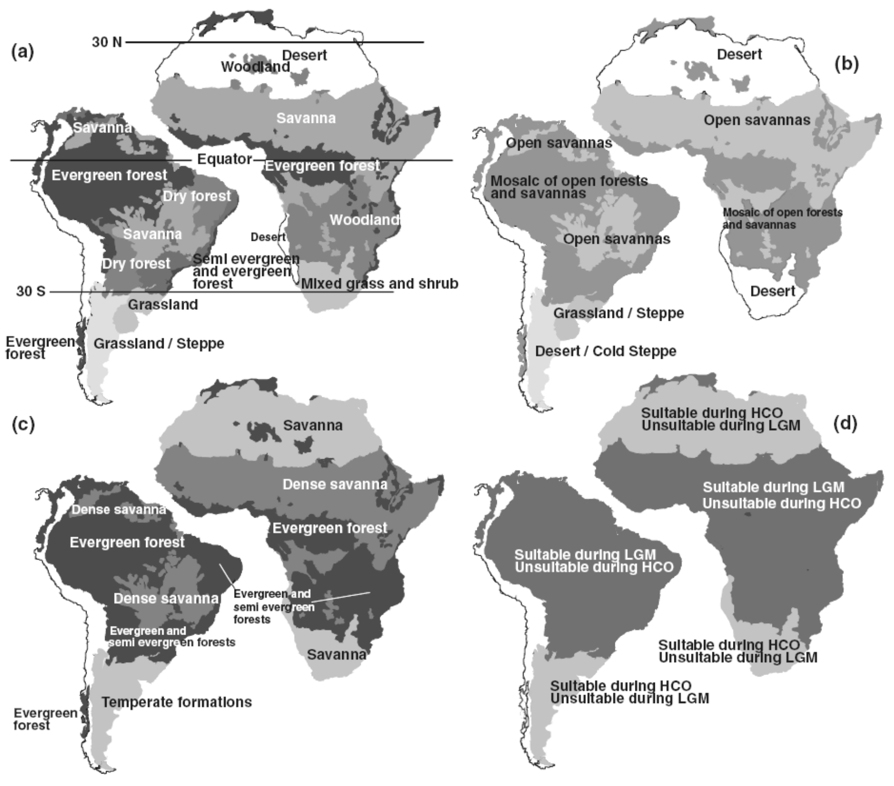
Passado

Megafauna

Até o Plio/Pleistoceno, diversas ordens associadas a áreas abertas

Após Plio/Pleistoceno, extinção

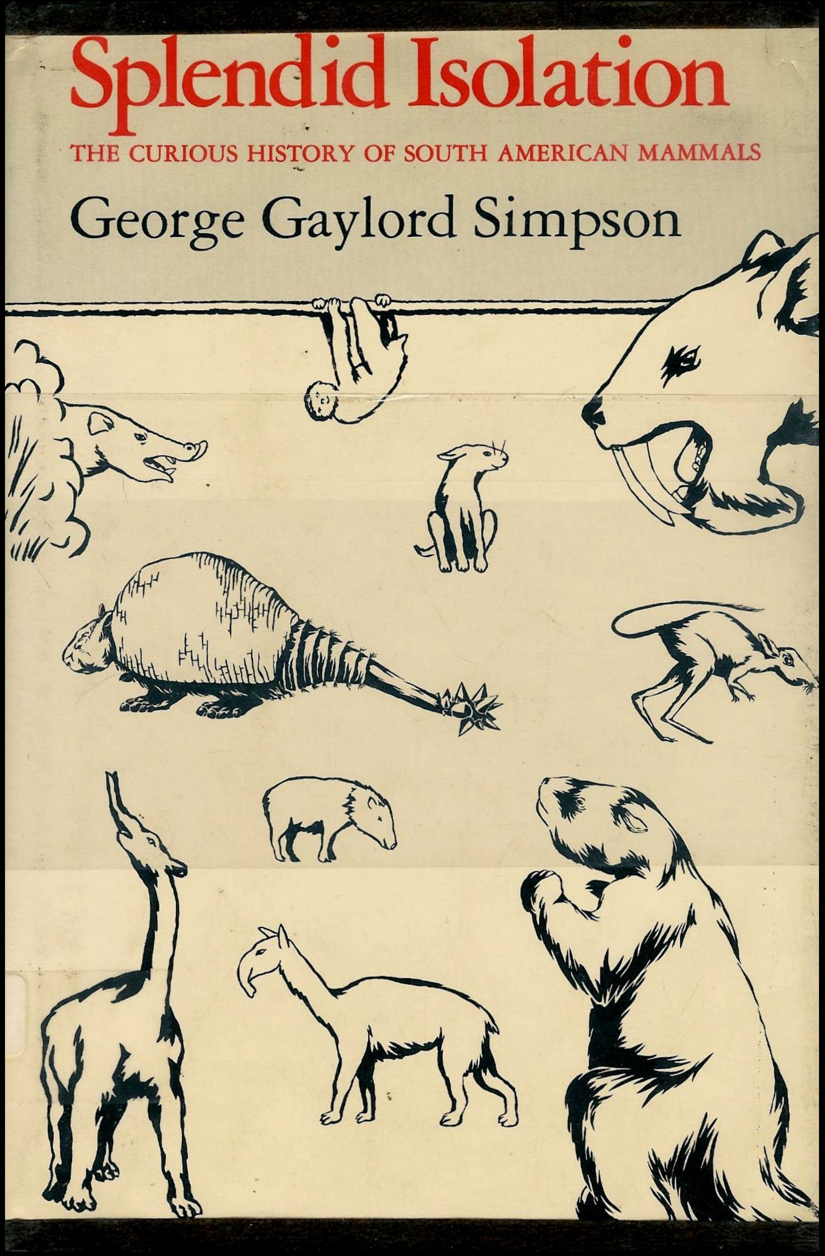


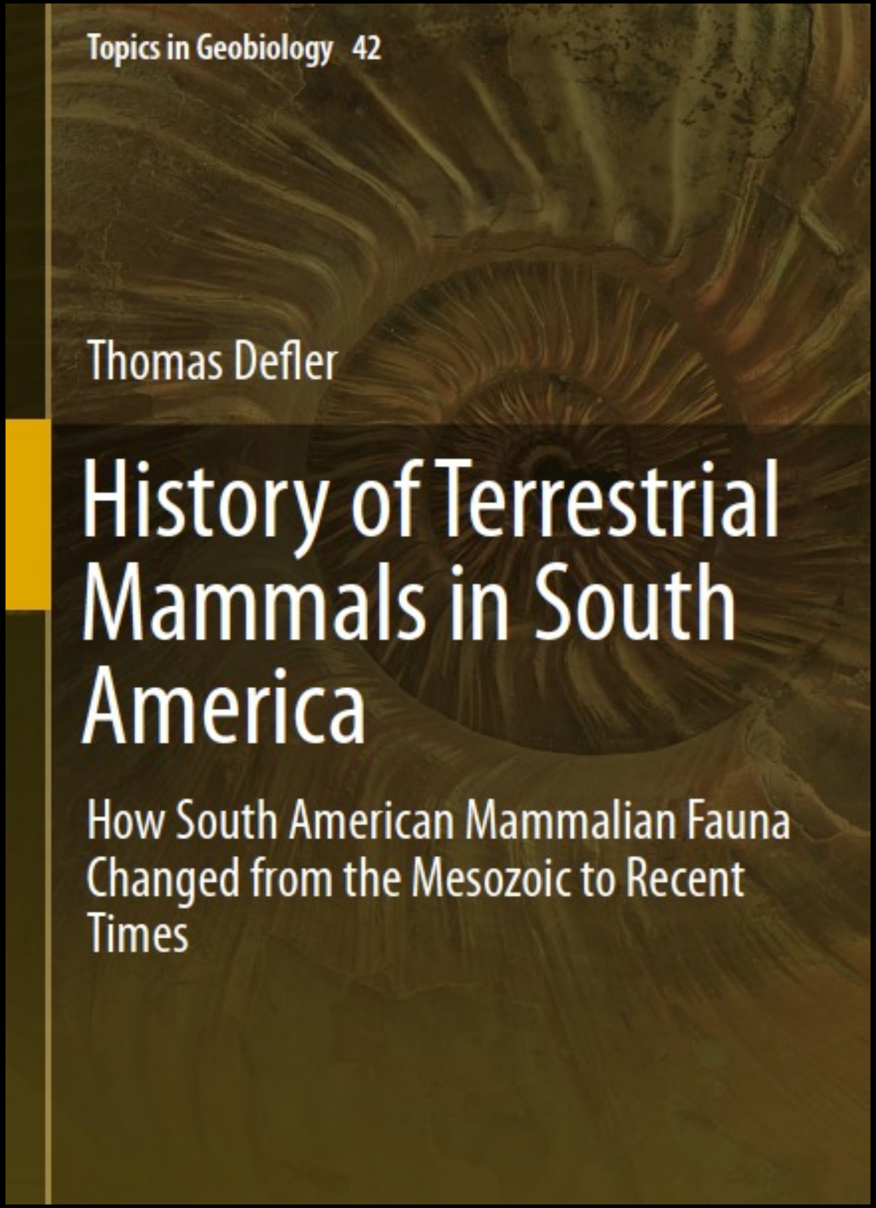


Presente

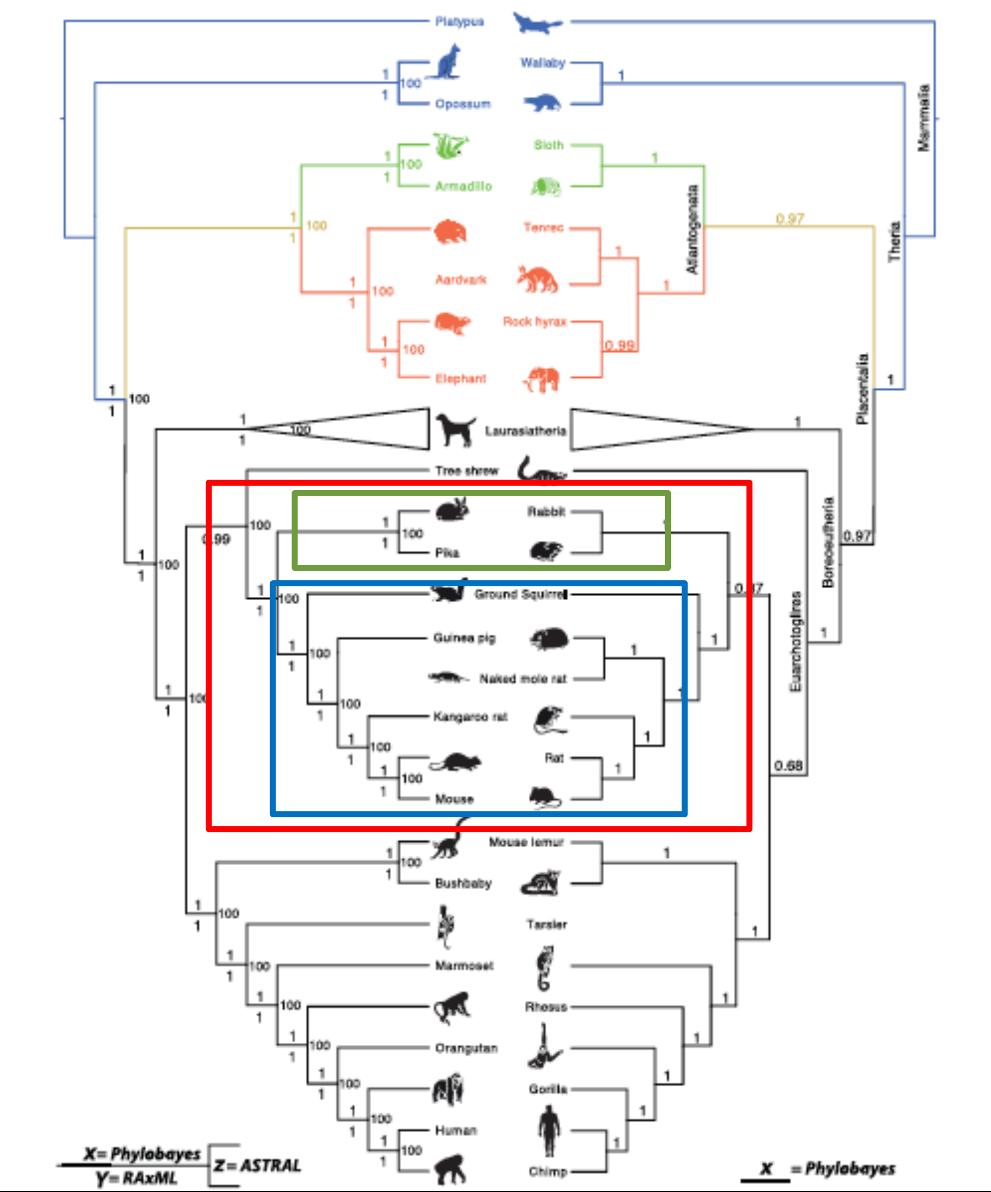
Fauna diversa, microfauna

Até o presente


Splendid Isolation
THE CURIOUS HISTORY OF SOUTH AMERICAN MAMMALS
George Gaylord Simpson


Topics in Geobiology 42
Thomas Defler
History of Terrestrial Mammals in South America
How South American Mammalian Fauna Changed from the Mesozoic to Recent Times

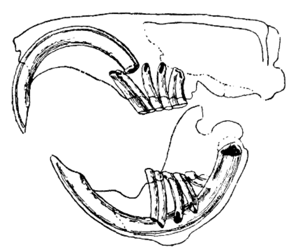
Ordem Rodentia

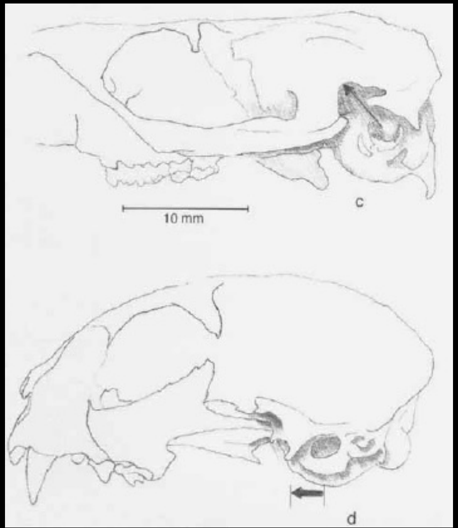


Mamíferos

1314 gêneros

6495 espécies





Coorte Glires

Rodentia + Lagomopha

Incisivos de crescimento contínuo

Fossa glenóide

Rodentia

Altamente diversificado:

Espécies

Ecologia

Evolução

Biogeografia

GLOBAL/REGIONAL

Na América do Sul:

Família Heteromyidae, ratos de espinho com bolsa

Família Sciuridae, esquilos

Família Cricetidae, ratos e camundongos

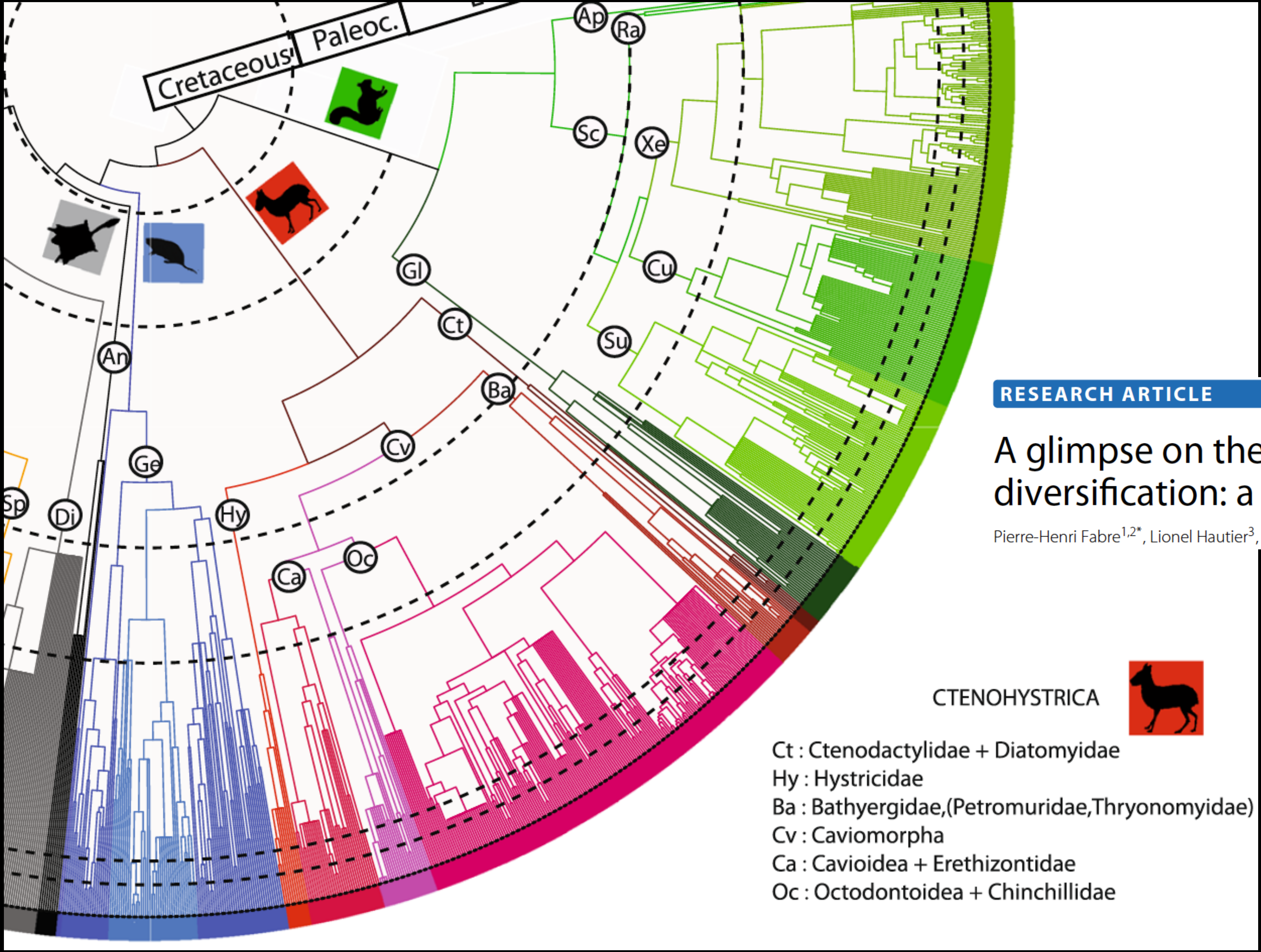
Várias famílias de Hystricognathi, ratos de espinho, pacas, ouriços, etc.

ca. 750 espécies (46% das sp. de mamiferos)

RESEARCH ARTICLE **Open Access**

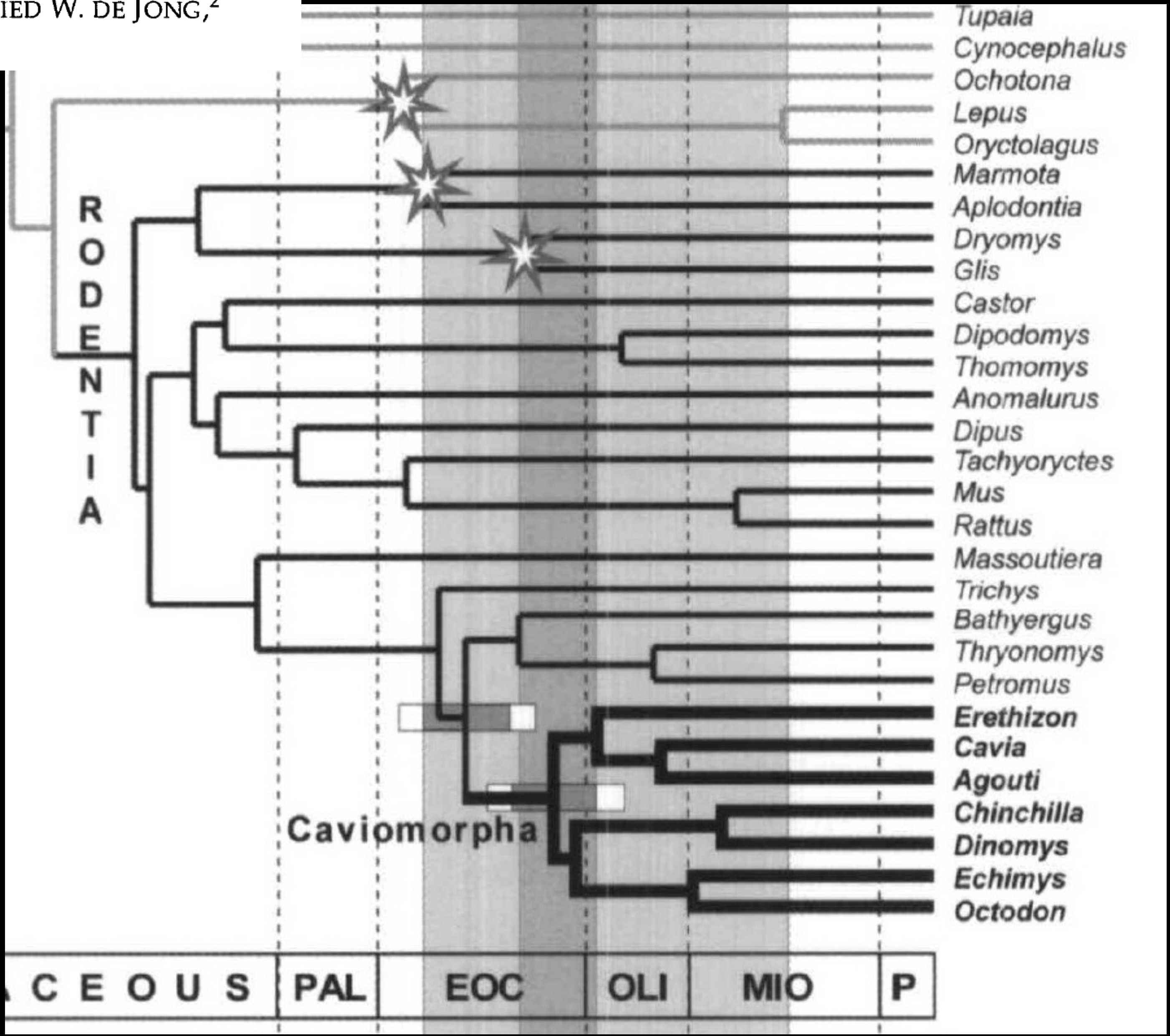
A glimpse on the pattern of rodent diversification: a phylogenetic approach

Pierre-Henri Fabre[1,2*], Lionel Hautier[3], Dimitar Dimitrov[1] and Emmanuel J P Douzery[2]



Arrival and Diversification of Caviomorph Rodents and Platyrrhine Primates in South America

Céline Poux,[1,2] Pascale Chevret,[1] Dorothée Huchon,[3] Wilfried W. de Jong,[2] and Emmanuel J. P. Douzery[1]



COMMENTS ON RECENT ADVANCES IN UNDERSTANDING SIGMODONTINE PHYLOGENY AND EVOLUTION

Guillermo D'Elía[1,2]

sigmodontine genera entered the continent). Three main alternative hypotheses have been advanced regarding these two issues. 1) A single undifferentiated sigmodontine stock entered South America after the Panamanian Land Bridge arose (Simpson, 1969). 2) Sigmodontine rodents differentiated at the generic level in Central and North America, and later entered South America after the Panamanian Land Bridge arose (Patterson and Pascual, 1972; Baskin 1978; Jacobs and Lindsay, 1984). 3) Sometime in the Miocene, well before the Panamanian Land Bridge arose, a single undifferentiated sigmodontine stock entered South America by overwater dispersal either from the Old World (Hershkovitz, 1972; 1993) or from North America (Marshall, 1979; Reig 1984; 1986).

DISTRIBUIÇÃO GEOGRÁFICA E HISTÓRIA EVOLUTIVA DOS ROEDORES MUROIDEOS SULAMERICANOS (CRICETIDAE: SIGMODONTINAE)

(Geographic Distribution and Evolutionary History of South American Muroids, Cricetidae: Sigmodontinae)

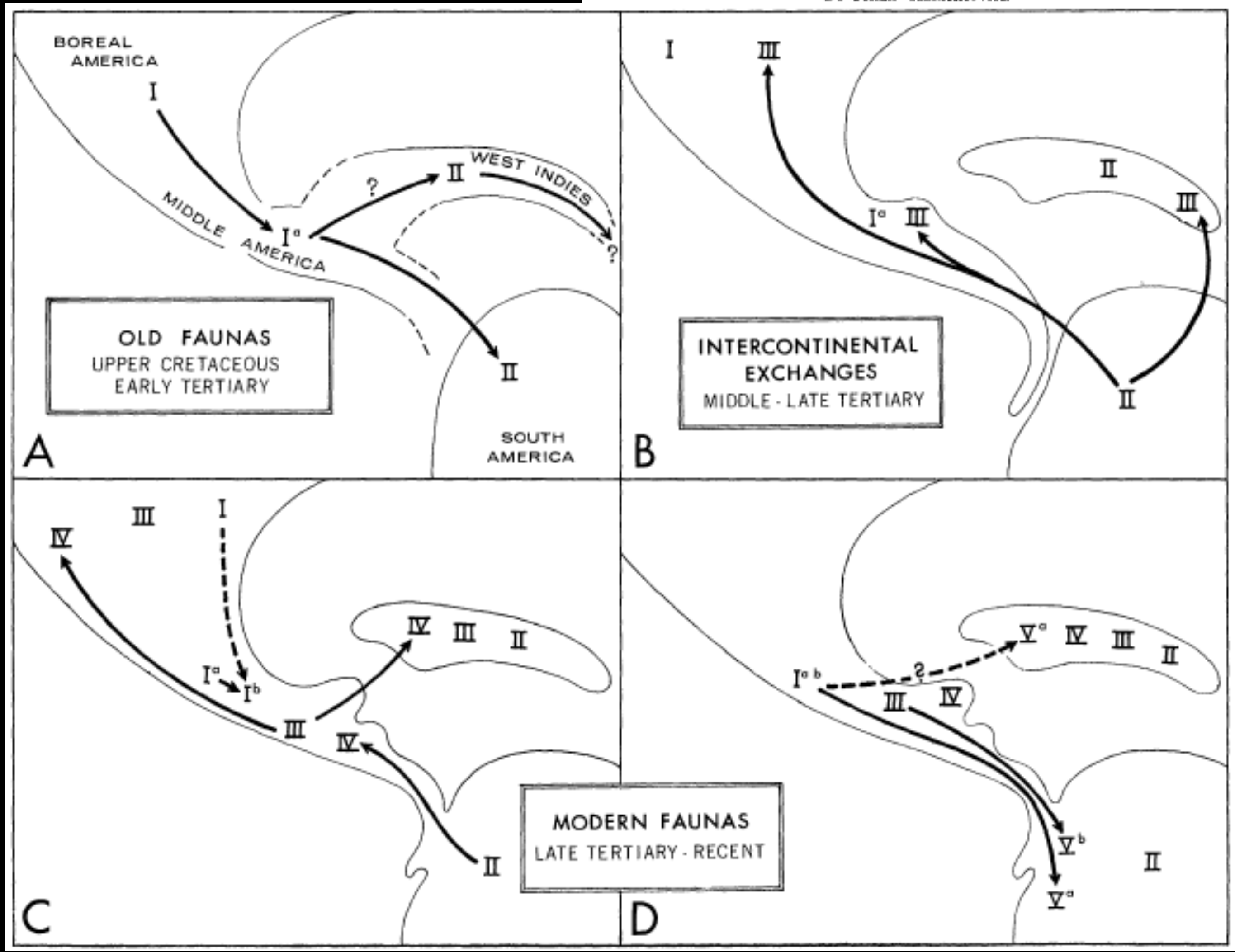
Osvaldo A. Reig

THE EVOLUTION OF MAMMALS ON SOUTHERN CONTINENTS

(The final paper in this series will appear in the June issue)

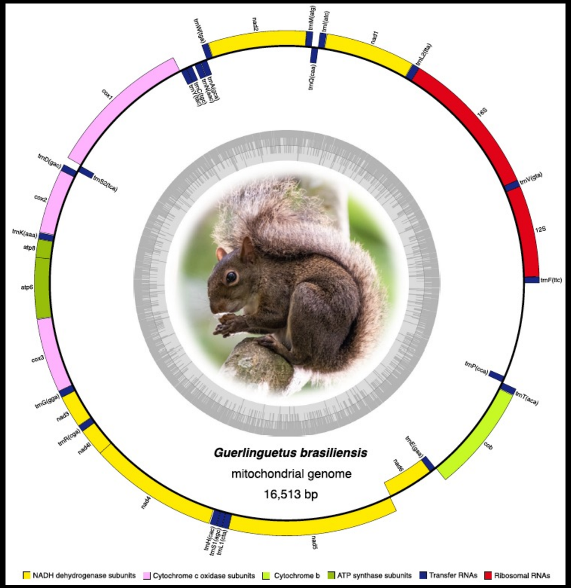
VI. THE RECENT MAMMALS OF THE NEOTROPICAL REGION: A ZOOGEOGRAPHIC AND ECOLOGICAL REVIEW

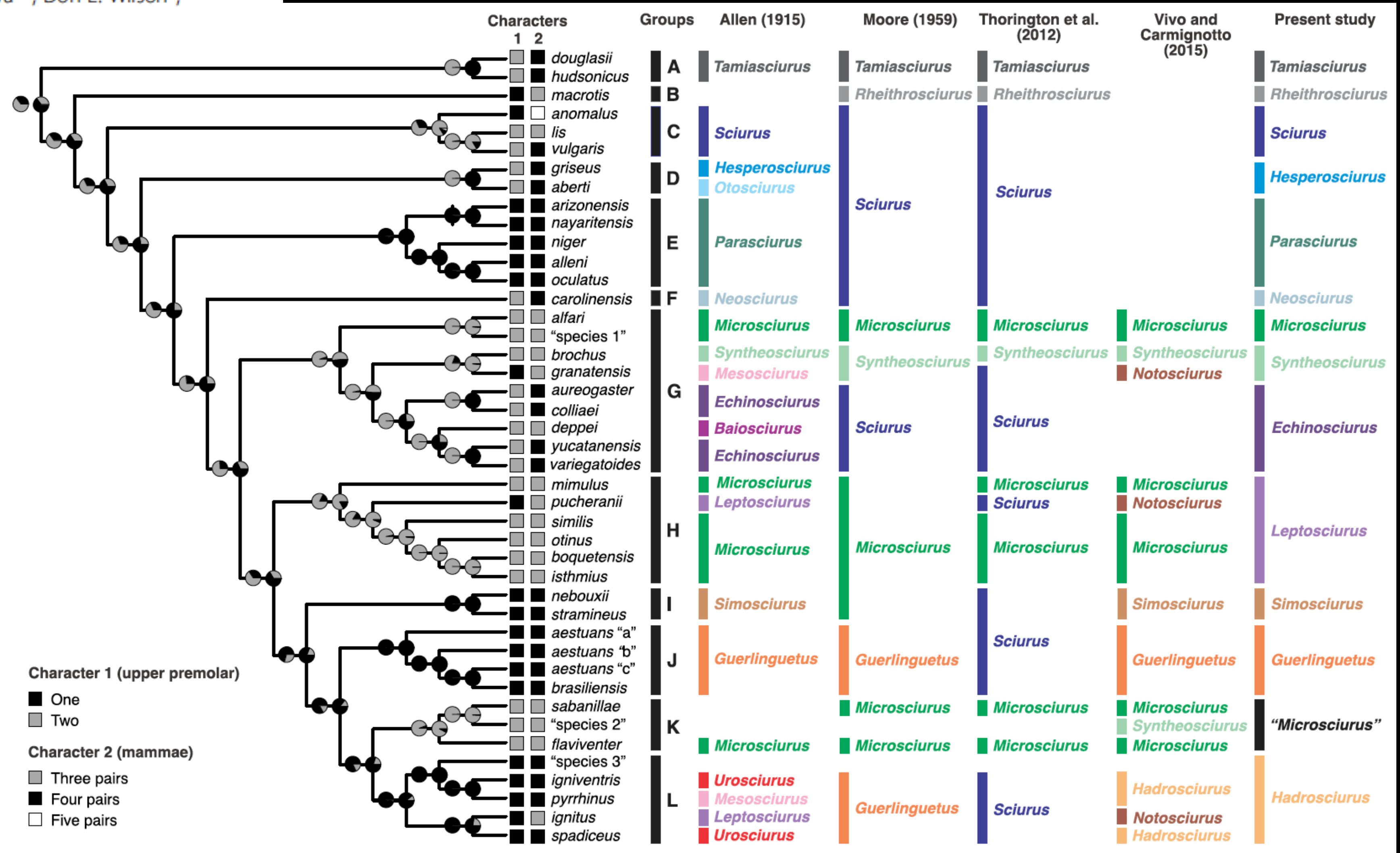
By Philip Hershkovitz



Museomics of tree squirrels: a dense taxon sampling of mitogenomes reveals hidden diversity, phenotypic convergence, and the need of a taxonomic overhaul

Edson Fiedler de Abreu-Jr[1,2*†], Silvia E. Pavan[2,3*†], Mirian T. N. Tsuchiya[2,4], Don E. Wilson[5], Alexandre R. Percequillo[1] and Jesús E. Maldonado[2,6]



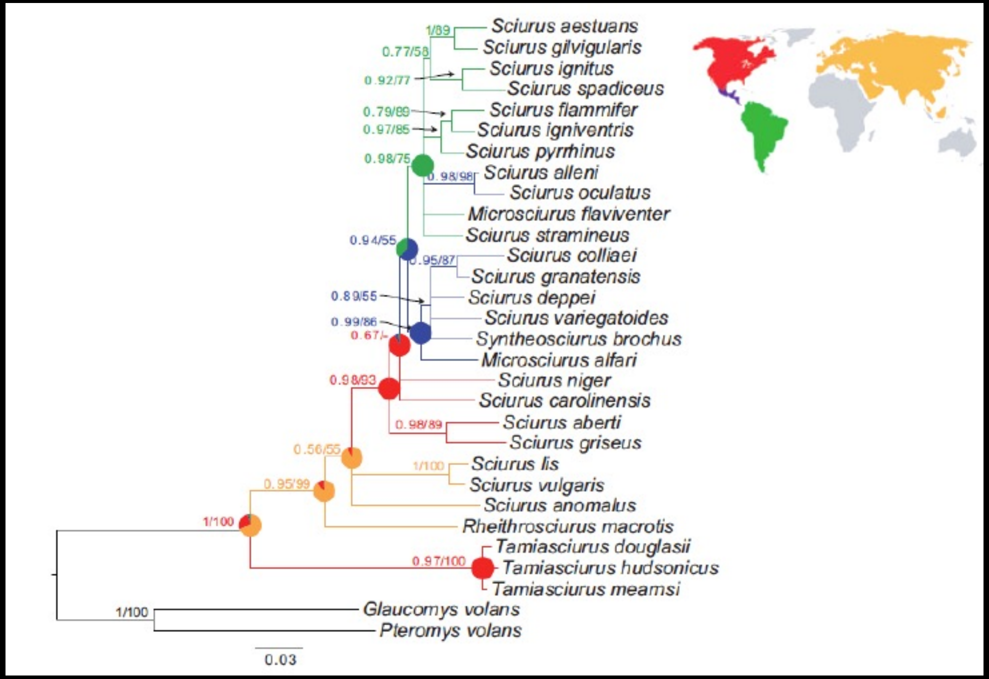


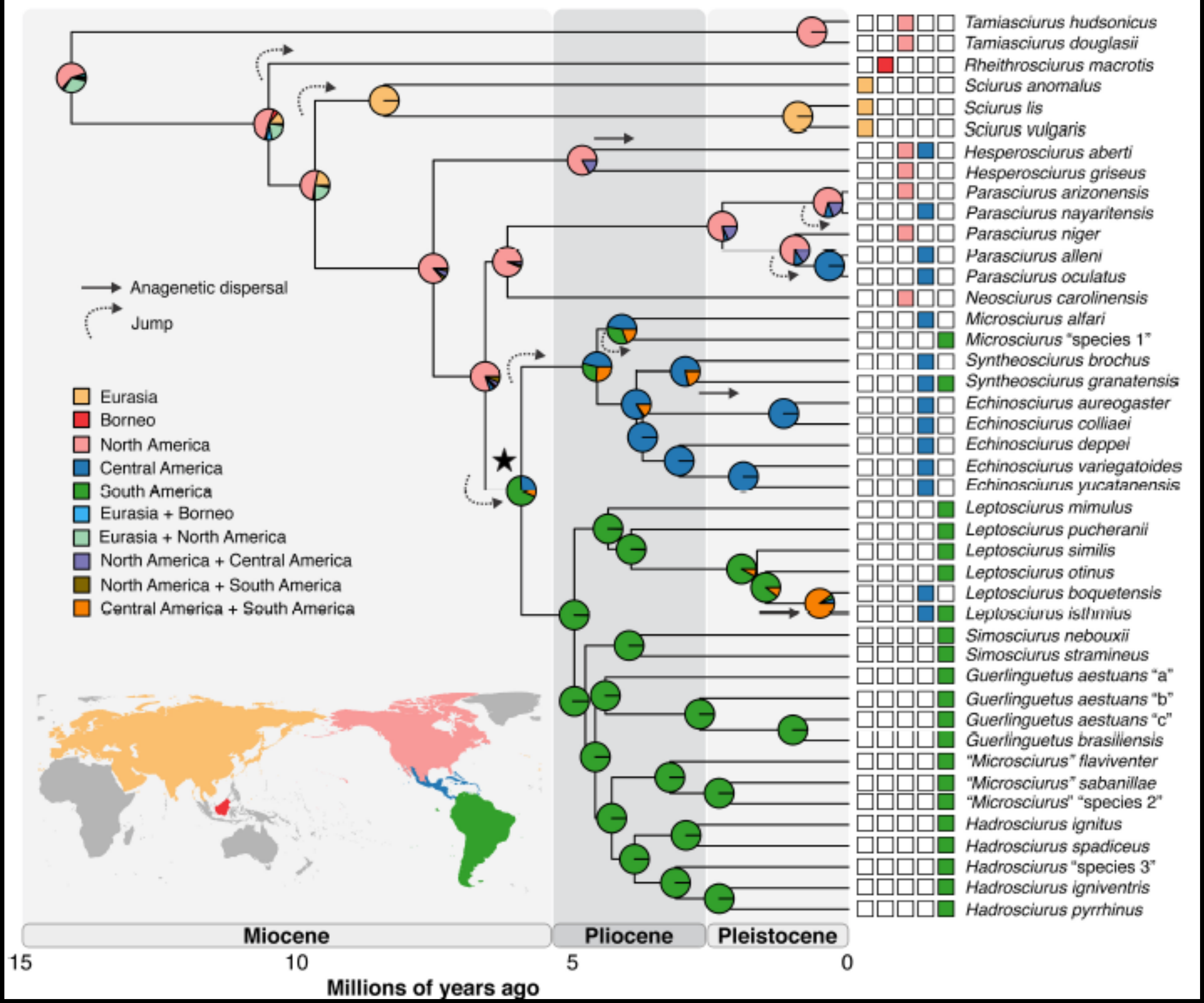
frontiers in Ecology and Evolution

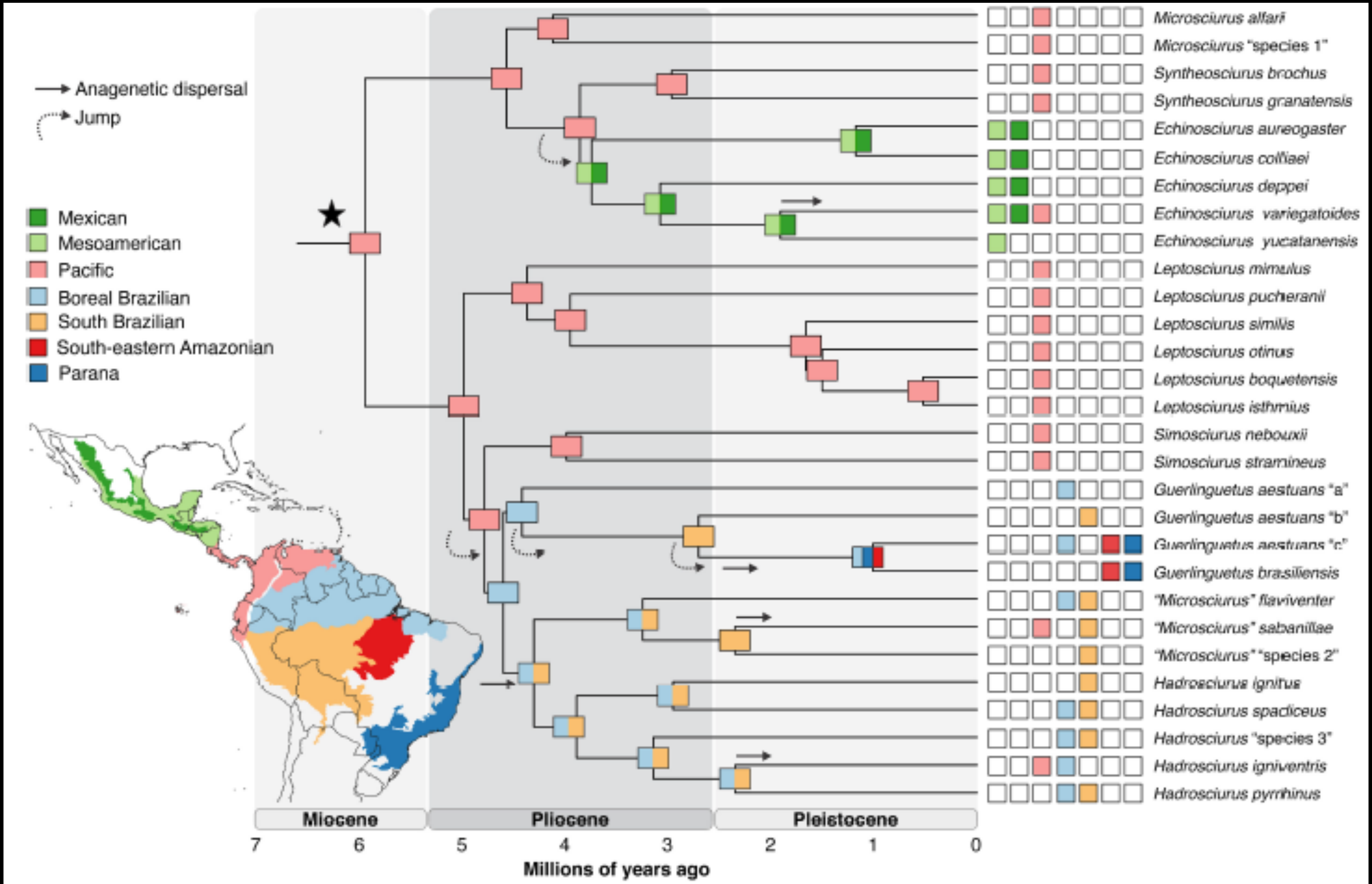
ORIGINAL RESEARCH
published: 23 July 2020
doi: 10.3389/fevo.2020.00230

Spatiotemporal Diversification of Tree Squirrels: Is the South American Invasion and Speciation Really That Recent and Fast?

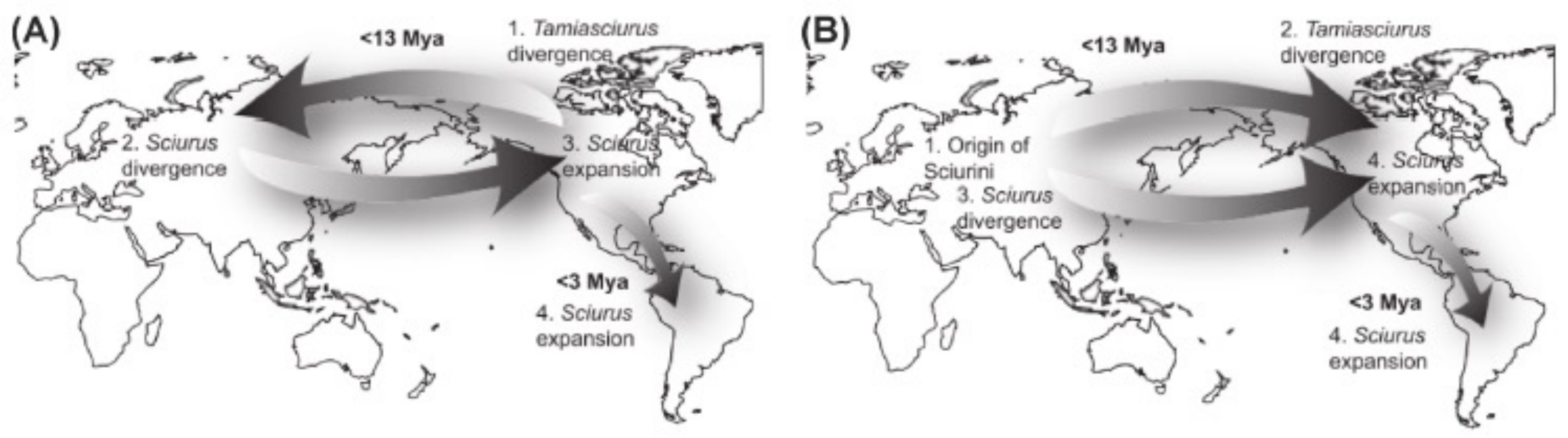
Edson Fiedler de Abreu-Jr[1,2]*, Silvia E. Pavan[2,3], Mirian T. N. Tsuchiya[2,4], Don E. Wilson[5], Alexandre R. Percequillo[1] and Jesús E. Maldonado[2,6]

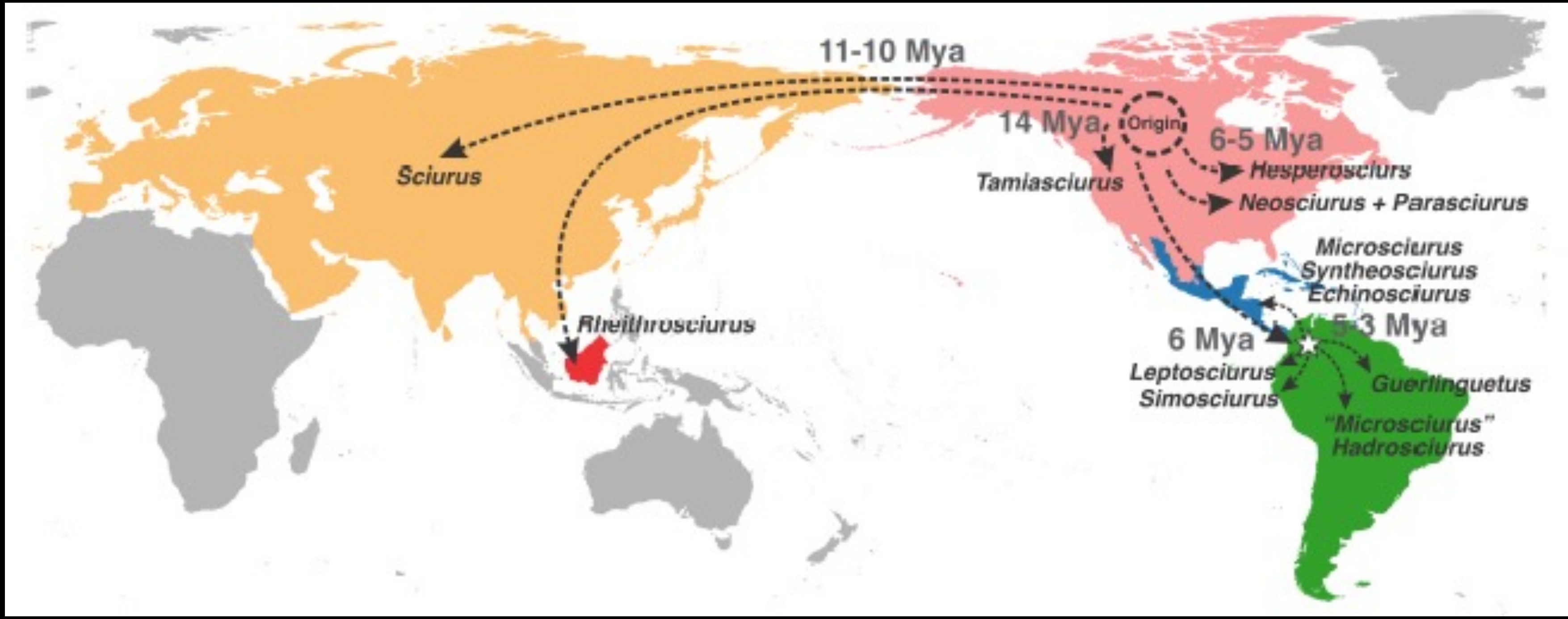






Anagenetic dispersal
Jump
Mexican
Mesoamerican
Pacific
Boreal Brazilian
South Brazilian
South-eastern Amazonian
Parana
Microsciurus alfari
Microsciurus "species 1"
Syntheosciurus brochus
Syntheosciurus granatensis
Echinosciurus aureogaster
Echinosciurus colliaei
Echinosciurus deppei
Echinosciurus variegatoides
Echinosciurus yucatanensis
Leptosciurus mimulus
Leptosciurus pucheranii
Leptosciurus similis
Leptosciurus otinus
Leptosciurus boquetensis
Leptosciurus isthmius
Simosciurus nebouxii
Simosciurus stramineus
Guerlinguetus aestuans "a"
Guerlinguetus aestuans "b"
Guerlinguetus aestuans "c"
Guerlinguetus brasiliensis
"Microsciurus" flaviventer
"Microsciurus" sabanillae
"Microsciurus" "species 2"
Hadrosciurus ignitus
Hadrosciurus spadiceus
Hadrosciurus "species 3"
Hadrosciurus igniventris
Hadrosciurus pyrrhinus
Miocene
Pliocene
Pleistocene
7
6
5
4
3
2
1
0
Millions of years ago


(A)
<13 Mya
1. Tamiasciurus
divergence
2. Sciurus
divergence
3. Sciurus
expansion
<3 Mya
4. Sciurus
expansion
(B)
<13 Mya
2. Tamiasciurus
divergence
1. Origin of
Sciurini
3. Sciurus
divergence
4. Sciurus
expansion
<3 Mya
4. Sciurus
expansion


11-10 Mya
Sciurus
Rheithrosciurus
14 Mya
Origin
Tamiasciurus
6-5 Mya
Hesperosciurus
Neosciurus + Parasciurus
Microsciurus
Syntheosciurus
Echinosciurus
5-3 Mya
6 Mya
Leptosciurus
Simosciurus
Guerlinguetus
"Microsciurus"
Hadrosciurus

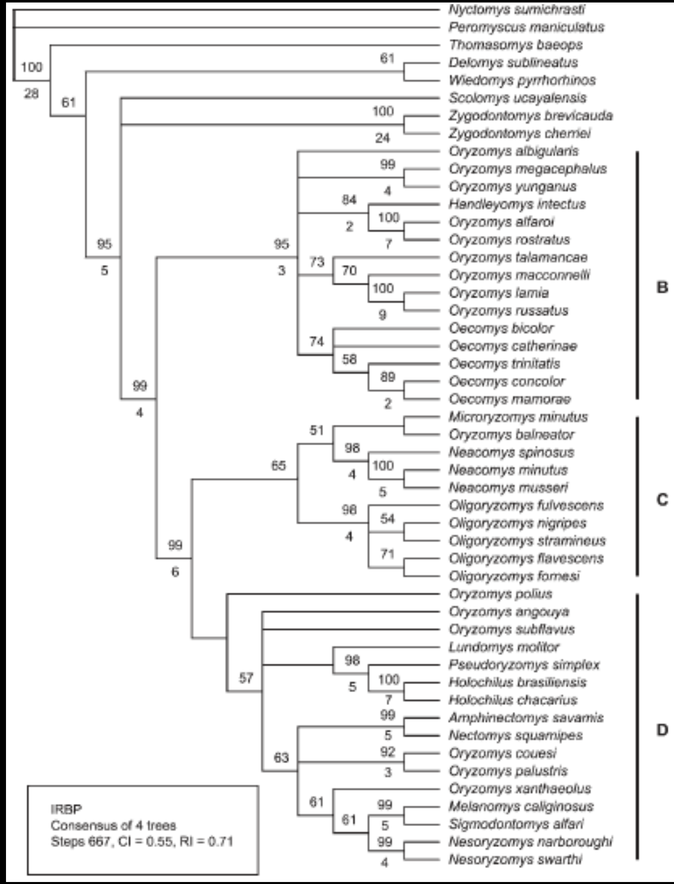
Contents lists available at ScienceDirect

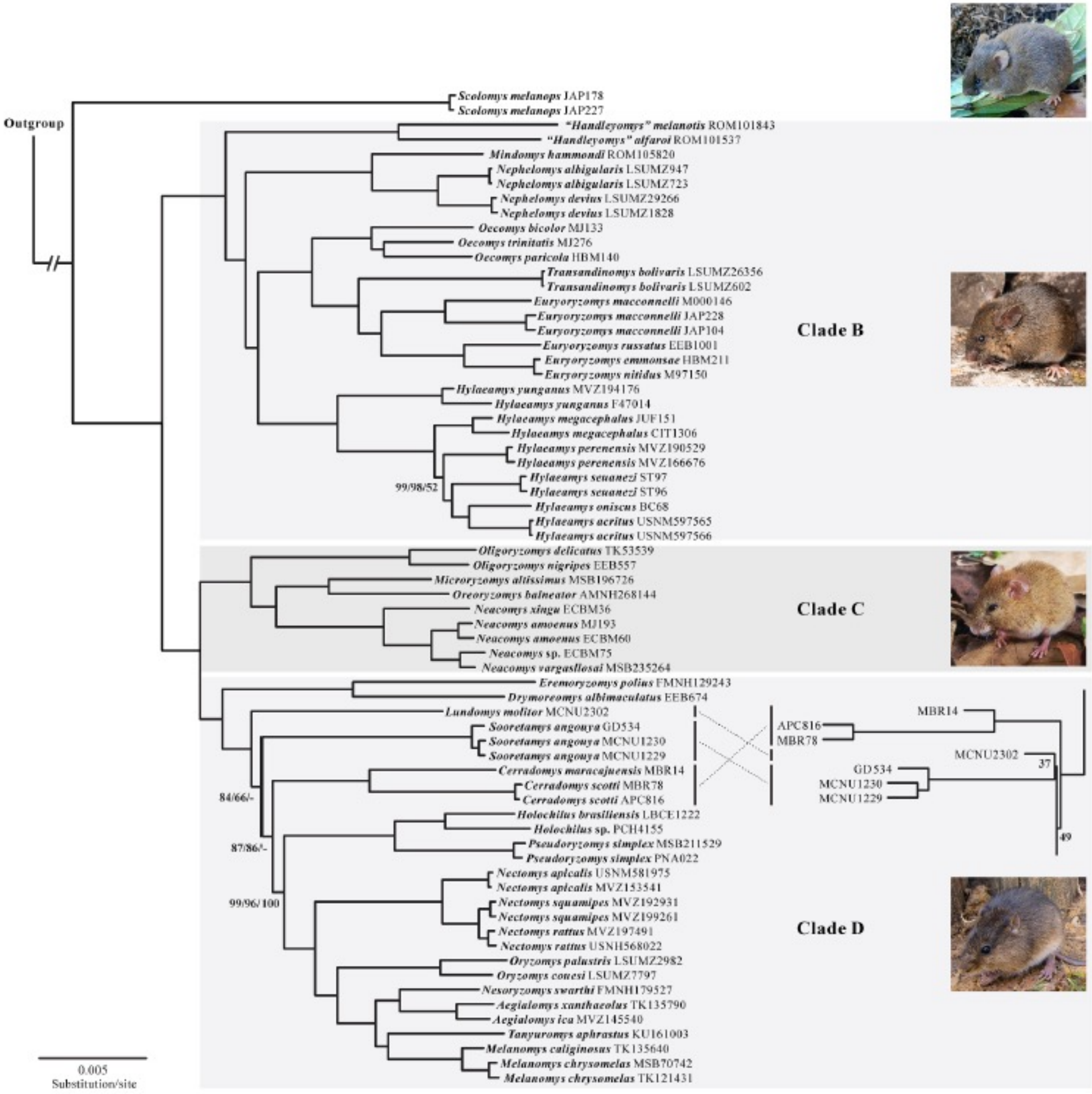
Molecular Phylogenetics and Evolution

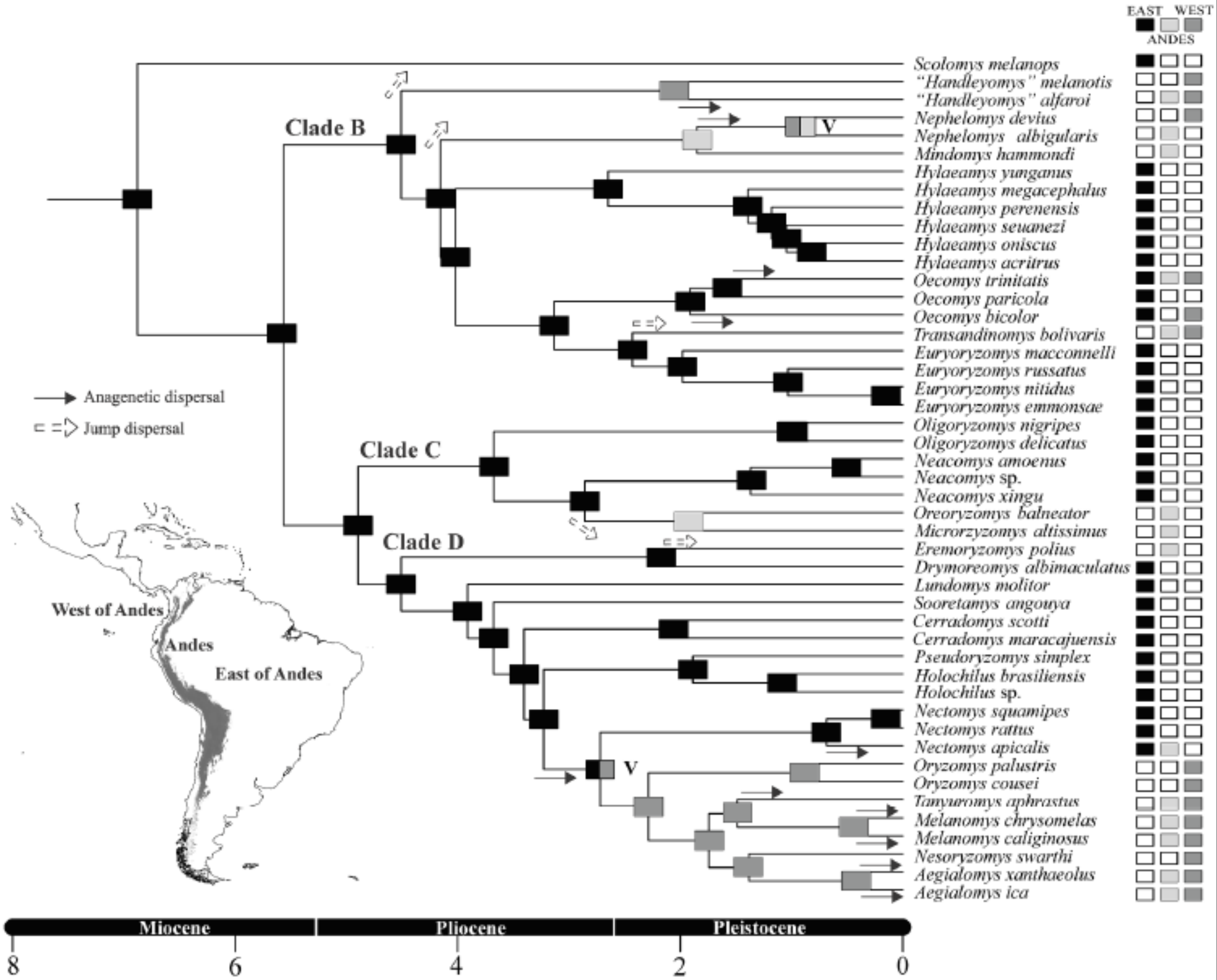
journal homepage: www.elsevier.com/locate/ympev

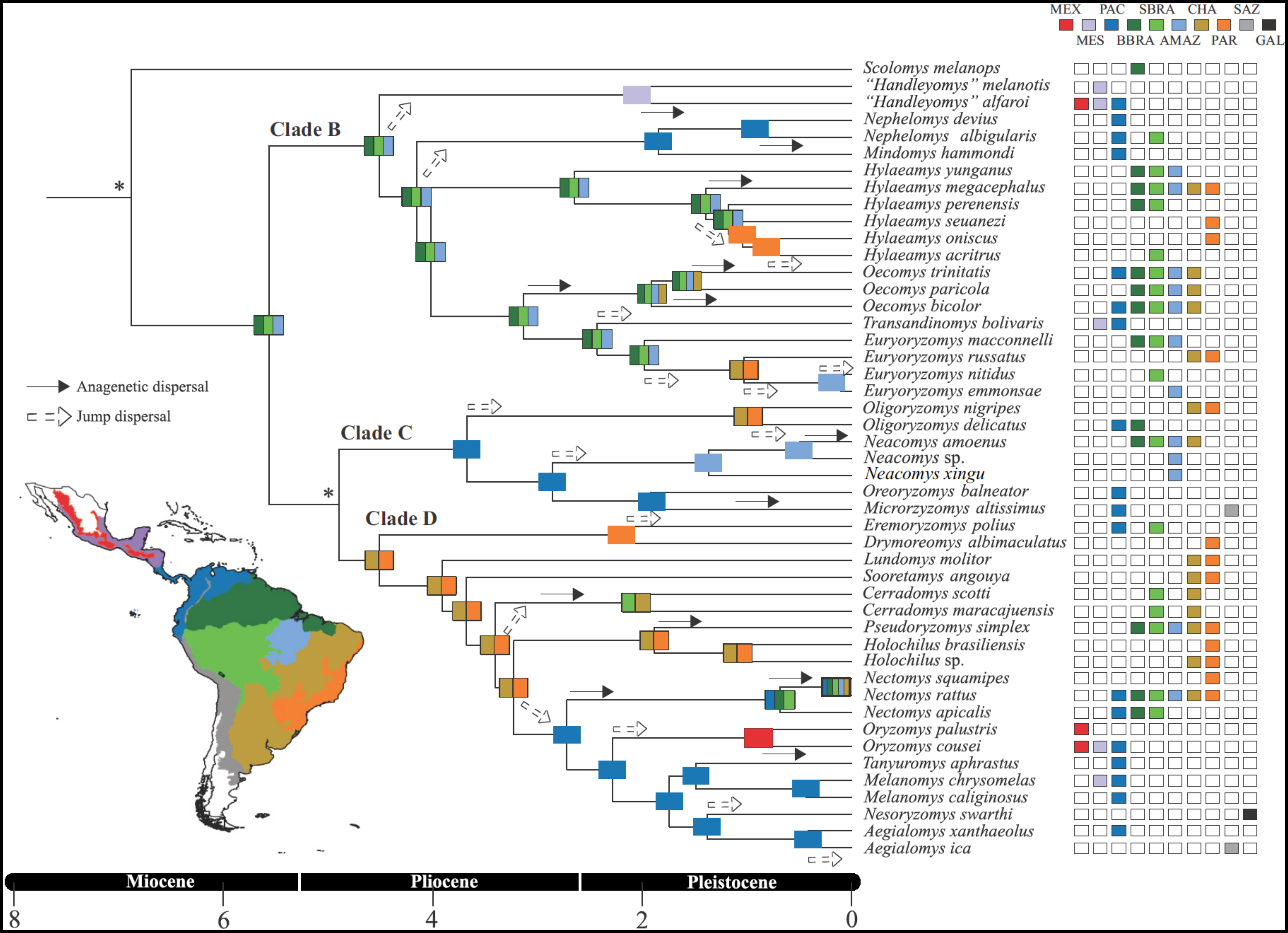
Tempo and mode of evolution of oryzomyine rodents (Rodentia, Cricetidae, Sigmodontinae): A phylogenomic approach☆

Alexandre Reis Percequillo [a,b,*], Joyce Rodrigues do Prado [a], Edson Fiedler Abreu [a], Jeronymo Dalapicolla [a,c], Ana Carolina Pavan [a], Elisandra de Almeida Chiquito [a,d], Pamella Brennand [a], Scott J. Steppan [e], Alan R. Lemmon [f], Emily Moriarty Lemmon [f], Mark Wilkinson [b]






EAST WEST
ANDES
Clade B
Clade C
Clade D
Anagenetic dispersal
Jump dispersal
West of Andes
Andes
East of Andes
V
V
Scolomys melanops
"Handleyomys" melanotis
"Handleyomys" alfaroi
Nephelomys devius
Nephelomys albigularis
Mindomys hammondi
Hylaeamys yunganus
Hylaeamys megacephalus
Hylaeamys perenensis
Hylaeamys seuanezi
Hylaeamys oniscus
Hylaeamys acritrus
Oecomys trinitatis
Oecomys paricola
Oecomys bicolor
Transandinomys bolivaris
Euryoryzomys macconnelli
Euryoryzomys russatus
Euryoryzomys nitidus
Euryoryzomys emmonsae
Oligoryzomys nigripes
Oligoryzomys delicatus
Neacomys amoenus
Neacomys sp.
Neacomys xingu
Oreoryzomys balneator
Microrzyzomys altissimus
Eremoryzomys polius
Drymoreomys albimaculatus
Lundomys molitor
Sooretamys angouya
Cerradomys scotti
Cerradomys maracajuensis
Pseudoryzomys simplex
Holochilus brasiliensis
Holochilus sp.
Nectomys squamipes
Nectomys rattus
Nectomys apicalis
Oryzomys palustris
Oryzomys cousei
Tanyuromys aphrastus
Melanomys chrysomelas
Melanomys caliginosus
Nesoryzomys swarthi
Aegialomys xanthaeolus
Aegialomys ica
Miocene
Pliocene
Pleistocene
8
6
4
2
0


MEX
PAC
SBRA
CHA
SAZ
MES
BBRA
AMAZ
PAR
GAL
Clade B
Clade C
Clade D
Anagenetic dispersal
Jump dispersal
Scolomys melanops
"Handleyomys" melanotis
"Handleyomys" alfaroi
Nephelomys devius
Nephelomys albigularis
Mindomys hammondi
Hylaeamys yunganus
Hylaeamys megacephalus
Hylaeamys perenensis
Hylaeamys seuanezi
Hylaeamys oniscus
Hylaeamys acritrus
Oecomys trinitatis
Oecomys paricola
Oecomys bicolor
Transandinomys bolivaris
Euryoryzomys macconnelli
Euryoryzomys russatus
Euryoryzomys nitidus
Euryoryzomys emmonsae
Oligoryzomys nigripes
Oligoryzomys delicatus
Neacomys amoenus
Neacomys sp.
Neacomys xingu
Oreoryzomys balneator
Microrzyzomys altissimus
Eremoryzomys polius
Drymoreomys albimaculatus
Lundomys molitor
Sooretamys angouya
Cerradomys scotti
Cerradomys maracajuensis
Pseudoryzomys simplex
Holochilus brasiliensis
Holochilus sp.
Nectomys squamipes
Nectomys rattus
Nectomys apicalis
Oryzomys palustris
Oryzomys cousei
Tanyuromys aphrastus
Melanomys chrysomelas
Melanomys caliginosus
Nesoryzomys swarthi
Aegialomys xanthaeolus
Aegialomys ica
Miocene
Pliocene
Pleistocene
8
6
4
2
0

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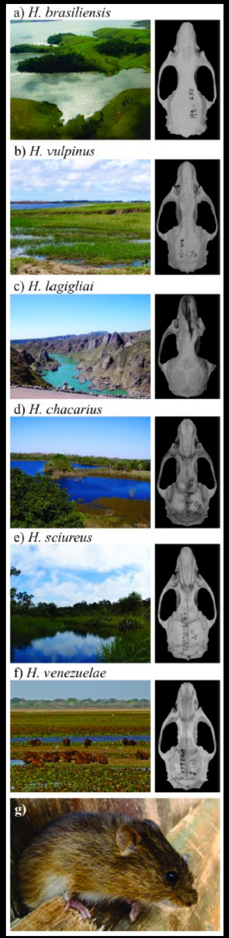
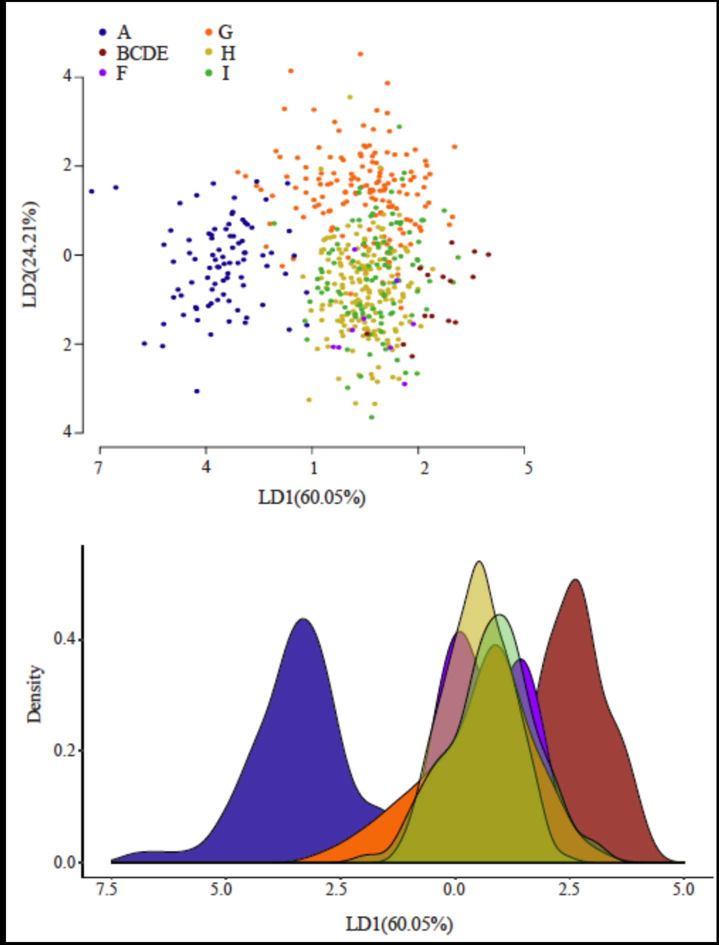
Molecular Phylogenetics and Evolution

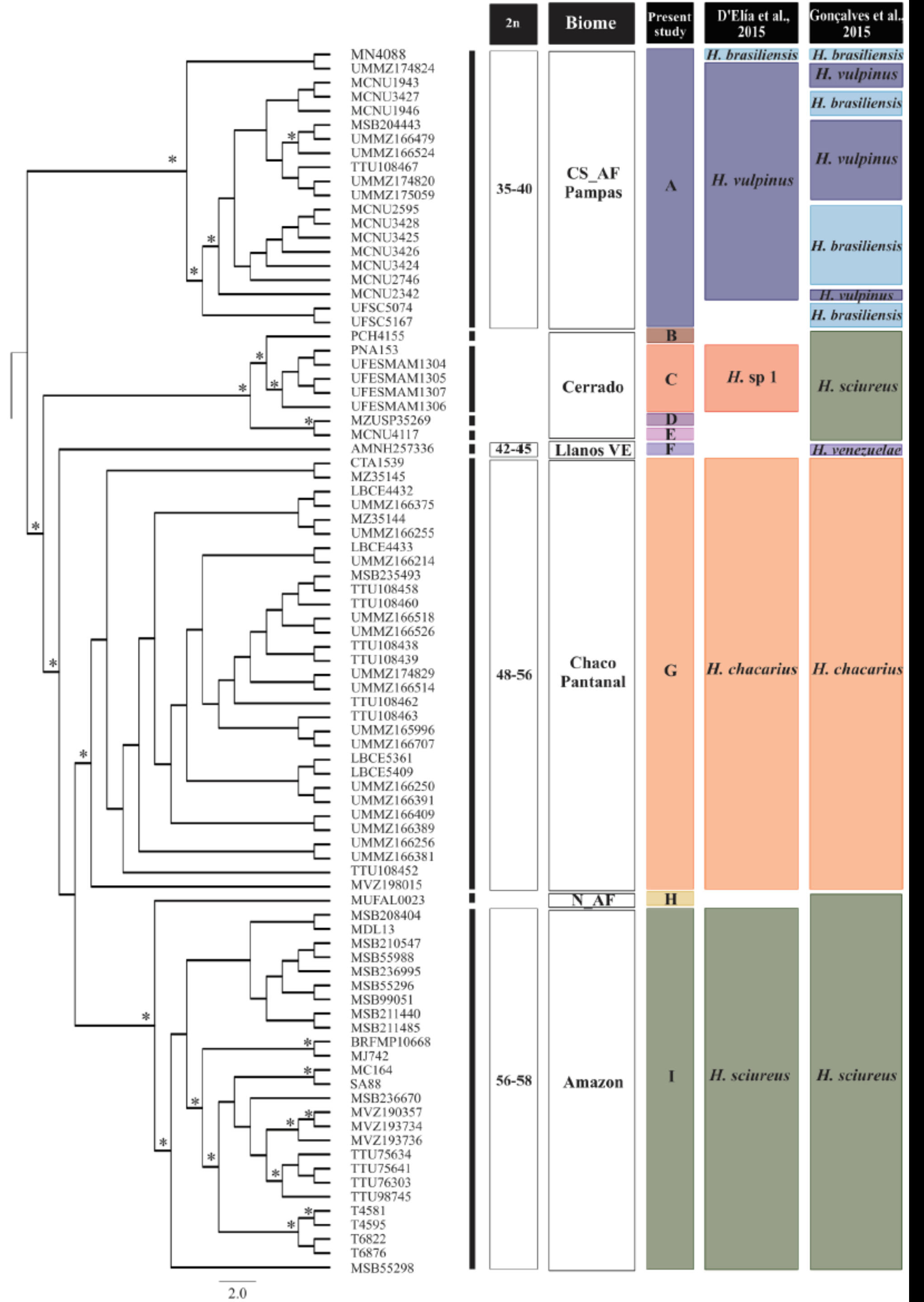
journal homepage: www.elsevier.com/locate/ympev

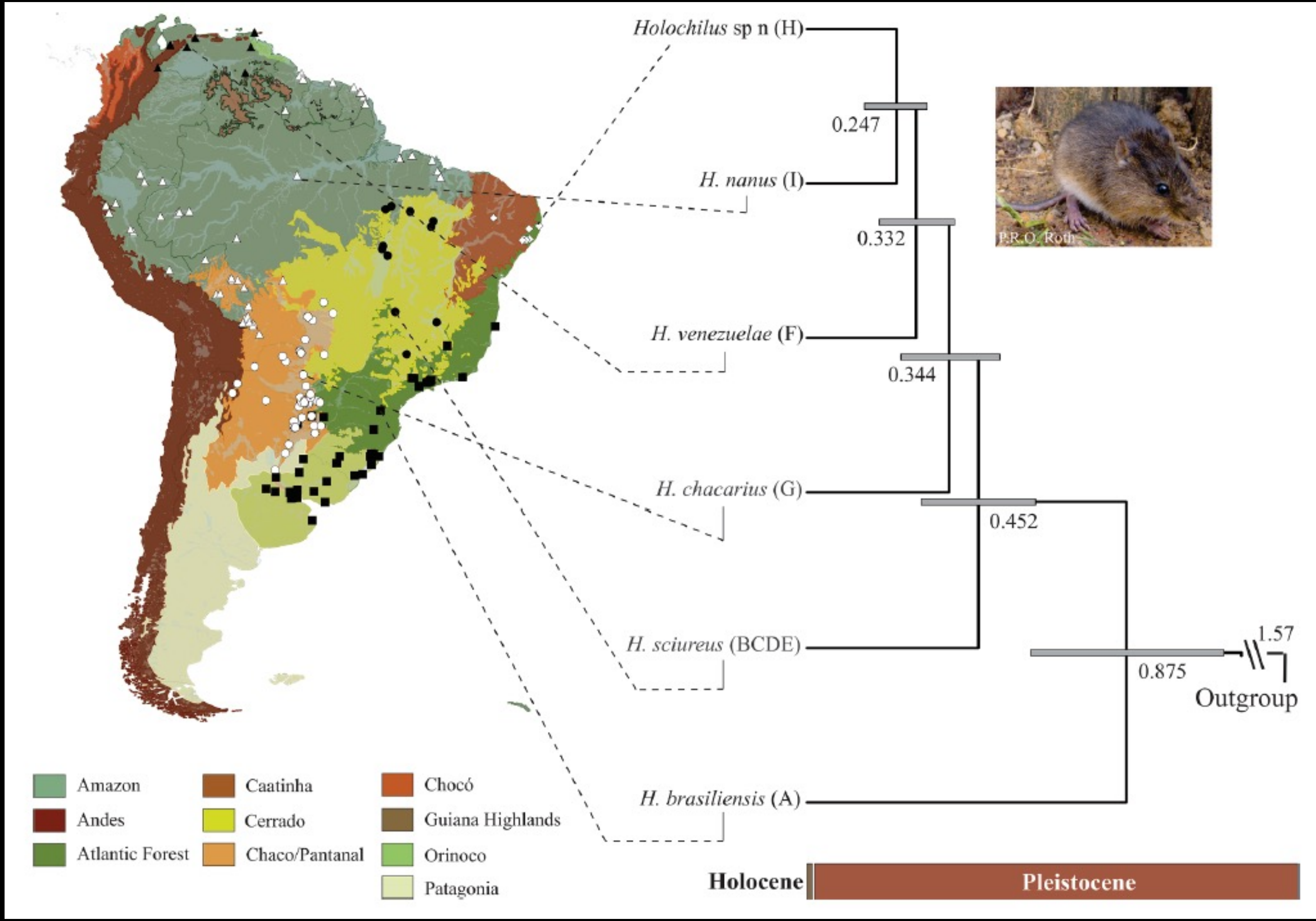
New species boundaries and the diversification history of marsh rat taxa clarify historical connections among ecologically and geographically distinct wetlands of South America

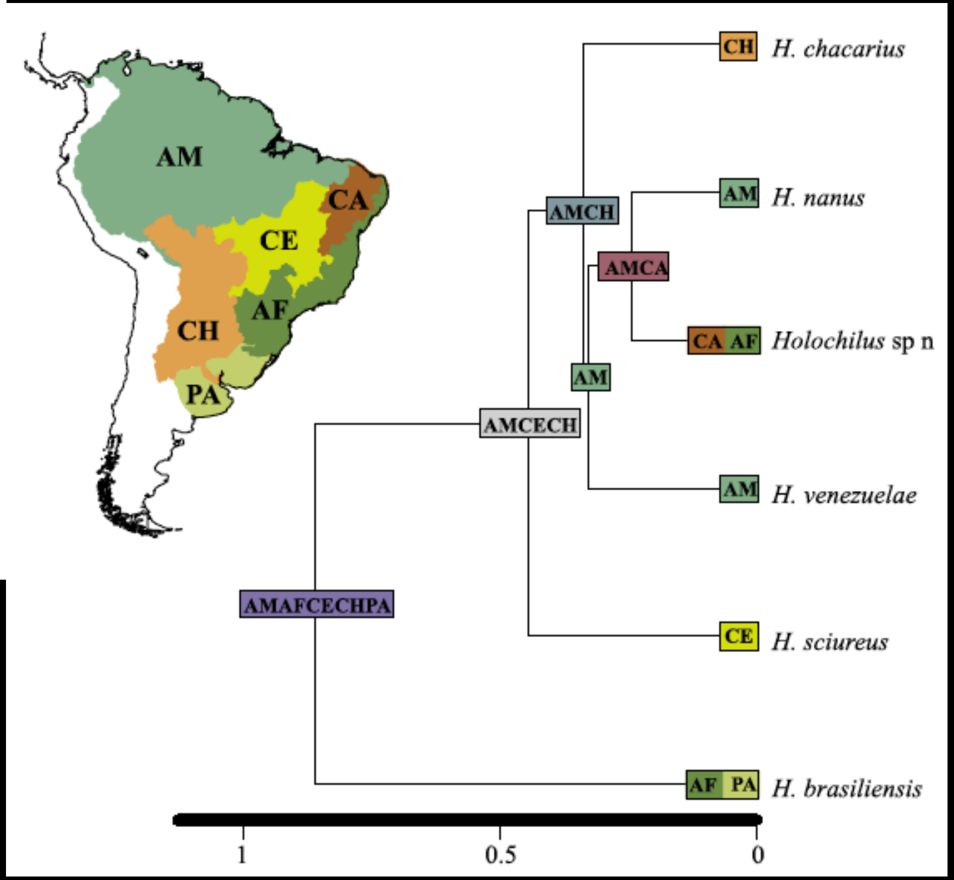
Joyce Rodrigues do Prado [a,*], L. Lacey Knowles [b], Alexandre Reis Percequillo [a]



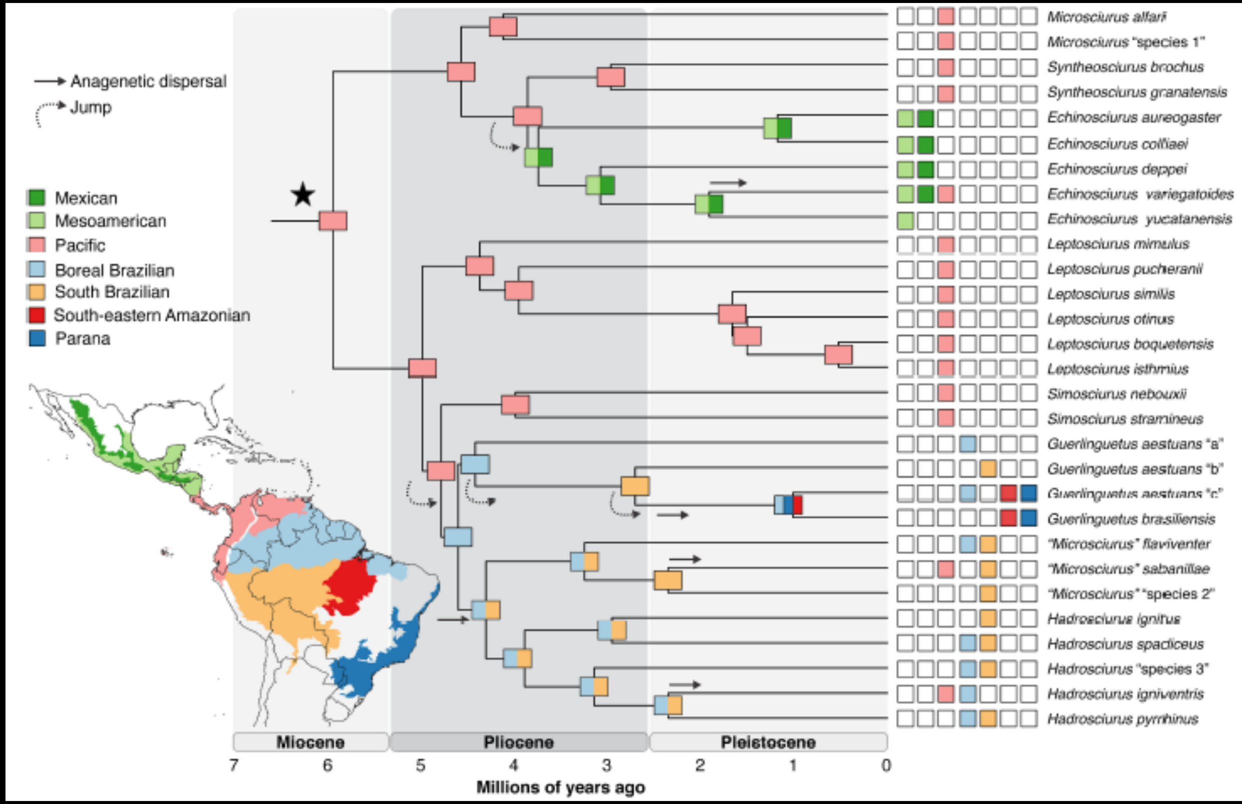


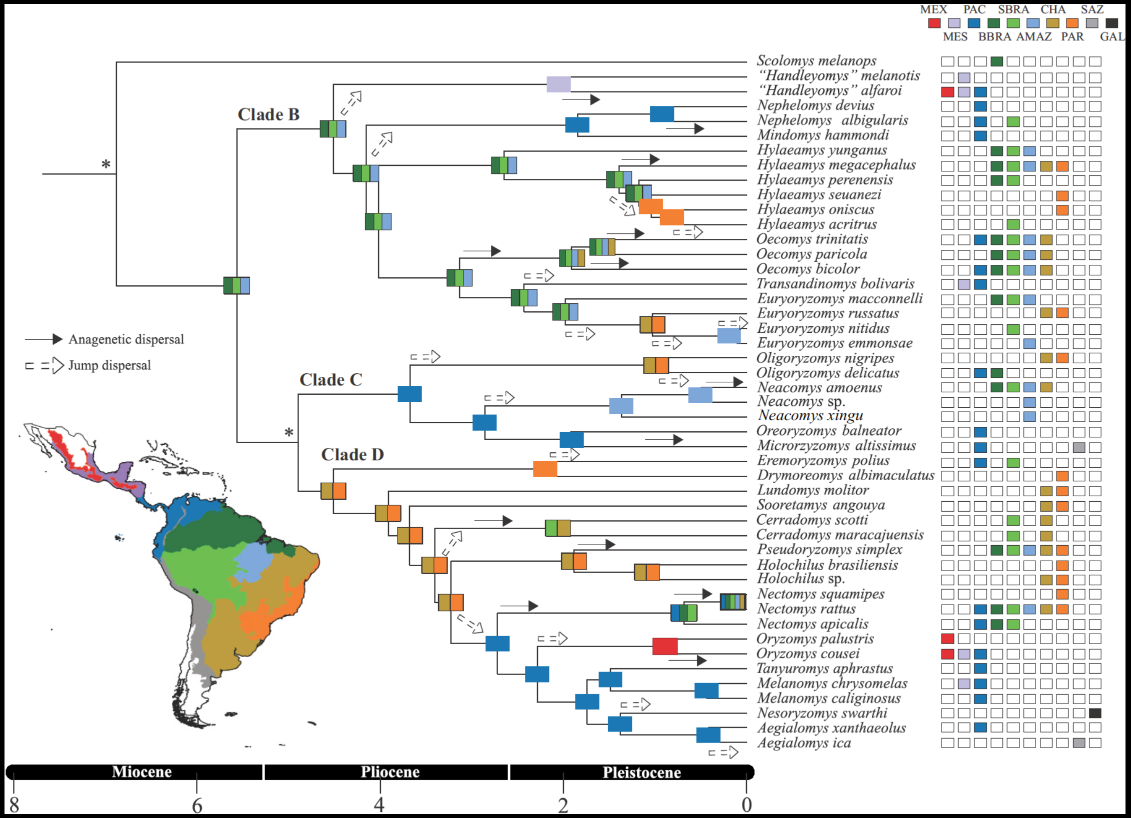



Holochilus sp n (H)
0.247
H. nanus (I)
0.332
H. venezuelae (F)
0.344
H. chacarius (G)
0.452
H. sciureus (BCDE)
1.57
0.875
Outgroup
H. brasiliensis (A)
P.R.O. Roth
Amazon
Andes
Atlantic Forest
Caatinha
Cerrado
Chaco/Pantanal
Chocó
Guiana Highlands
Orinoco
Patagonia
Holocene
Pleistocene


AM
CA
CE
AF
CH
PA
CH H. chacarius
AM H. nanus
CA AF Holochilus sp n
AM H. venezuelae
CE H. sciureus
AF PA H. brasiliensis
AMCH
AMCA
AM
AMCECH
AMAFCECHPA
1
0.5
0

Como a diversidade biológica varia ao longo da geografia?

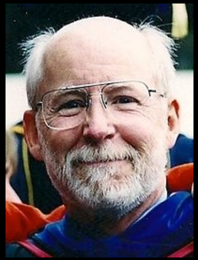




Agradecimentos











MZUSP

MUSEUM OF COMPARATIVE ZOOLOGY
HARVARD UNIVERSITY

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The Field Museum

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AMERICAN MUSEUM of NATURAL HISTORY

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