

Cambridge University Press

0521021197 - Evolution of Herbivory in Terrestrial Vertebrates: Perspectives from the Fossil Record

Edited by Hans-Dieter Sues

Index

[More information](#)*Taxonomic index*

- Acanthurus* 49  
*Acelestorhinus* 36  
*Aetosauria* 124  
*Agriochoeridae* 212, 214–21  
*Ailuropoda melanoleuca* 3  
*Alamosaurus* 86  
*Allosauridae* 69  
*Amargasaurus* 84, 86, 104  
*Amblyrhynchus* 51  
*Ammosaurus* 44, 55  
*Amniota* 5, 13, 15, 36  
*Anchisaurus* 44, 55  
*Ankylosauria* 65, 69, 125, 126, 129  
*Anomodontia* 20–23, 36  
*Antarctosaurus* 99  
*Anthracotheriidae* 216–21  
*Antilocapridae* 230, 233  
*Apatosaurus* 82, 84, 86, 89, 106, 108–10  
*Araucoscelidia* 36  
*Archaeohippus* 231  
*Archaeohyracidae* 233, 238  
*Archaeopteryx* 69  
*Archosauria* 36  
*Archosauromorpha* 31, 33, 68  
*Arctocyonidae* 145, 149, 157, 173  
*Arctostylopoidea* 170, 207  
*Arctostylops* 172  
*Argentinosaurus* 113  
*Artiodactyla* 7, 108–22, 141, 163, 172, 175, 181,  
186, 187, 208–221, 225, 233  
*Astrohippus* 231  
  
*Barapasaurus* 81, 83, 86, 90, 112  
*Barasaurus* 31  
*Barosaurus* 84, 86, 89, 106, 109, 110  
*Barylambdidae* 182, 207  
*Basilicus* 51  
*Bauriidae* 28  
*Belebey* 25, 26  
  
*Biarmosuchia* 36  
*Bison* 240  
*Blikanasaurus* 55, 60  
*Bolosauridae* 25, 26  
*Bolosaurus* 25, 26  
*Bovidae* 178, 230, 233  
*Brachiosauridae* 81, 83, 85, 92, 98, 99, 117,  
128, 134  
*Brachiosaurus* 81, 83, 86, 87, 88, 98, 99, 110, 111,  
113, 114, 117  
*Brachylophus* 51  
*Brontotheriidae* 186, 189, 210–213, 215–18  
  
*Cactacaea* 227  
*Calippus* 231  
*Camarasauridae* 81, 83, 89, 92, 95–7, 110, 115,  
117, 128  
*Camarasauromorpha* 115  
*Camarasaurus* 81, 83, 86, 87–9, 92, 95–7, 99,  
110, 112, 114, 115  
*Camelidae* 186, 188, 213–22, 230, 233, 240  
*Captorhinidae* 26–8, 34, 36, 37  
*Captorhinus* 26–8  
*Caseasauria* 18, 19  
*Caseidae* 11, 18, 19, 36, 37  
*Castoridae* 230, 233  
*Caviioidea* 230, 233  
*Centrosaurus apertus* 128  
*Ceratomorpha* 181  
*Ceratopsia* 6, 69, 125, 127, 128  
*Ceratosauria* 69  
*Cetiosauridae* 81, 83, 94, 95, 96, 110, 113, 117  
*Cetiosaurus* 79, 83, 86, 95, 117  
*Chalicotheroidea* 189, 212, 213  
*Chimaerasuchus* 66, 67  
*Chinchilloidea* 233  
*Cistecephalus* 22  
*Clevosaurus* 53  
*Cnemidophorus* 12

- Coloradisaurus* 55, 56  
 Condylarthra 6, 155, 171–3, 178, 181, 187,  
     202–13, 214, 216  
*Conolophus* 51  
*Cormohipparion* 232  
*Coryphodon* 160–3, 182  
 Coryphodontidae 207–10  
*Cotylorhynchus* 17, 19  
 Cricetidae 230, 233  
 Crocodylomorpha 72  
*Ctenochaetus* 49  
*Ctenosaura* 48, 50–2, 57  
*Cyclura* 50, 51  
 Cynodontia 28–30, 34, 36  
 Cynognathidae 36  
*Cynognathus* 29  
  
*Datousaurus* 94  
*Dendrohyrax dorsalis* 176, 177  
*Deltatheridium* 149  
*Desmatodon* 14  
*Diadectes* 14, 15  
 Diadectidae 5, 13, 14–16, 36  
 Diadectomorpha 13, 14–16  
*Diademodon* 29  
 Diapsida 26, 31, 33  
 Dichobunidae 188, 189, 193, 208–21  
 Dicraosauridae 82, 84, 102, 103, 104, 105,  
     108, 111, 112, 113, 114, 115, 117  
*Dicraeosaurus* 82, 84, 86, 87, 89, 92, 104  
 Dicotylodontia 11, 20–3, 28, 34, 35, 37, 65,  
     124  
*Diictodon* 22  
 Dinocephalia 20, 36, 37  
 Dinocerata 182, 186, 189, 205–13  
*Dinohippus* 231  
 Dinosauria 28, 68, 70–2, 124  
 Diplodocidae 82, 84, 86, 89, 105–10, 111, 112,  
     113, 114, 117  
 Diplodocoidea 102–9, 114, 115, 116, 128  
*Diplodocus* 79, 82, 84, 86, 87, 89, 92, 105–10,  
     117, 129  
*Dipsosaurus* 49, 51  
 Dromaeosauridae 69  
  
*Echinodon* 64  
*Ectocion* 159  
*Ectoconus* 150  
 Edaphosauridae 5, 16, 17, 18, 36  
*Edaphosaurus* 5, 16, 17, 18  
 Edentata 233  
*Edmontosaurus regalis* 127  
 Elephantidae 191, 230, 233  
 Entelodontidae 216–21  
*Eoconodon* 149, 150, 157, 158, 161  
 ‘Eohippus’ 234  
  
 Eothyrididae 19, 36  
*Eothyris* 19  
 Equidae 208–19, 221, 230, 236, 240  
*Equus* 234, 240  
 Erethizontidae 230, 233  
 Eucynodontia 29, 36  
 Euhelopodidae 81, 83, 91–4, 113, 117  
*Euhelophus* 81, 83, 86, 87, 91–3, 94  
 Euornithopoda 64, 69, 137  
 Eusauropoda 113, 114  
*Euskelosaurus* 55, 60  
*Exaeretodon* 28  
  
 Geomyidae 230, 233  
*Glaucosaurus* 17, 18  
 Gomphodontia 28–30, 34, 36  
 Gomphotheridae 233  
 Gorgonopsia 36  
*Gyposaurus* 62  
  
*Haplocanthosaurus* 86, 110  
 Hegetotheriidae 233, 238  
*Hemithlaeus* 155, 156, 202  
*Herrerasaurus* 68, 70  
 Heteromyidae 230, 233  
 Heterodontosauridae 69  
*Heterodontosaurus* 64  
*Hipparion* 231, 232  
*Hippidion* 231, 240  
*Hippopotamus* 178, 226, 229  
*Homogalax* 159  
*Howesia* 33  
*Hyemoschus aquaticus* 176  
 Hyopsodontidae 202–15  
*Hyperodapedon* 32, 33  
 Hypertragulidae 214–22  
*Hypohippus* 231  
*Hypsognathus* 30, 31  
*Hyrachyus* 161, 163  
*Hyracodon* 161, 163  
*Hyracotherium* 159, 234  
  
*Ianthasaurus* 16, 17, 18  
*Iguana* 43, 46, 48–51  
 Iguaninae 43, 46–53, 57, 62–6, 71–2  
 Iguanidae 3, 5, 12, 34, 48, 51  
*Iguanodon* 43, 127  
 Iguanodontia 131, 132  
 Interatheriidae 233, 238  
  
*Jingshanosaurus* 53, 56, 62  
  
*Kalobatippus* 231  
*Kennalestes* 149  
*Kotasaurus* 81, 83, 90, 91  
*Kunmingosaurus* 60, 90

- Labidosaurikos* 26–8  
*Labidosaurus* 26, 27, 28  
*Lagerpeton* 68  
*Lama* 226, 240  
*Lambdaotherium* 161  
 Laminae 240  
 Lanthanosuchidae 36  
 Lepidosauria 72  
 Lepidosauromorpha 36  
 Leporidae 230, 233  
 Leptomerycidae 214, 215, 217–22  
*Leptopleuron* 31  
 Leptopleuroninae 31  
*Lesothosaurus* 62, 63, 69, 126, 135  
 Limnoscelidae 36  
*Limnoscelis* 14, 15, 18  
*Loxolophus* 149, 157, 159, 160  
*Lufengosaurus* 56, 62
- Macraucheniiidae 233, 238  
*Malawisaurus* 81, 82, 86, 99  
*Malawisuchus* 67, 68  
*Mamenchisaurus* 81, 83, 91–4  
*Marasuchus* 68  
 Marginocephalia 128  
*Massetognathus* 29  
*Massospondylus* 43–6, 53–5, 57, 58, 60, 61  
*Megahippus* 231  
*Melanorosaurus* 55, 60  
*Meniscotherium* 172  
*Merychippus* 231  
 Merycoidodontidae 215–21  
*Mesosuchus* 32, 33  
 Mesotheriidae 233, 238  
 Mioclaenidae 202–9  
 Moradisaurinae 26  
*Moradisaurus* 26, 28  
*Moschops* 20  
 Multituberculata 124, 144, 171, 187  
*Muntiacus* 64  
 Mylagaulidae 230, 233
- Nannipus* 231, 232  
 Nemegtosauridae 82, 102, 103, 112, 117  
*Nemegtosaurus* 82, 86, 87, 100–5, 114–15, 117  
 Neoceratopsia 135  
*Neohipparion* 231, 232  
 Neosauropoda 94, 113, 114, 115  
 Notohippidae 233, 237, 238  
 Notoungulata 225, 233, 236–8, 240, 241  
 Nycteroleteridae 36
- Octodontoidea 233  
*Oedaleops* 19  
*Omeisaurus* 81, 83, 86, 88, 91–4  
*Onohippidion* 231
- Onohippidium* 240  
 Ophiacodontidae 36  
*Opisthocoeleicaudia* 83, 100  
 Ornithischia 34, 62, 68, 70, 71, 85, 125, 130, 135, 137, 139  
 Ornithomimosauria 65, 66, 69  
 Ornithopoda 6, 64, 110, 127, 131, 134, 135, 137  
 Oromerycidae 213–18  
*Ouranosaurus nigeriensis* 132  
 Oviraptoridae 69  
 Oviraptorosauria 65  
*Owenetta* 24, 30, 31  
 Owenettidae 31, 36  
*Oxyclaenus* 149
- Pachycephalosauria 64, 65, 69, 125, 127–9, 135  
*Palaeolama* 240  
*Panoplosaurus mirus* 126  
 Pantodonta 182, 203–9, 210  
*Parahippus* 231  
 Parareptilia 23, 24, 30, 35  
 Pareiasauria 23, 24, 28, 34, 35, 36, 37  
*Patagosaurus* 81, 86, 92, 95  
*Patranomodon* 21, 22, 23  
*Pelecanimimus* 65–6  
 Periptychidae 149–51, 155, 202–7  
*Periptychus* 149–51, 155, 161  
 Perissodactyla 7, 172, 175, 188, 208–21, 233, 241  
 Phenacodontidae 203–11  
*Phenacodus* 161, 164  
*Plateosaurus* 43, 44, 46, 55–6, 60  
*Pliohippus* 231  
*Pristerodon* 22  
 Proboscidea 7, 225, 230, 233, 241  
*Procerberus* 149  
*Procolophon* 30, 31  
 Procolophonidae 30, 31, 36  
 Procolophonoidea 24, 30, 124  
 Procynosuchidae 36  
 Prosauropoda 5, 42–62, 69, 128  
 Protoceratidae 186, 213–22  
*Protosaurus* 68  
 Protorothyrididae 36  
*Protungulatum* 145–7, 149, 150  
*Pseudhipparion* 231  
*Pseudolagosuchus* 68  
*Psittacosaurus* 127, 129, 130, 135  
 Pterosauria 68  
*Pyrotherium* 161, 163
- Quaesitosaurus* 86, 103
- Rana hexadactyla* 12  
*Rebbachisaurus* 89  
 Reptilia 23, 25–6, 30–1, 33

Cambridge University Press

0521021197 - Evolution of Herbivory in Terrestrial Vertebrates: Perspectives from the Fossil Record

Edited by Hans-Dieter Sues

Index

[More information](#)

## 248 Taxonomic index

- Rhinocerotidae 225, 230, 233  
 Rhinoceroidea 211–21, 225  
 Rhynchosauria 31–3, 36, 124  
 Rhynchosauridae 32, 34  
*Riojasaurus* 56  
 Rodentia 7, 189, 190, 195, 225  
 Ruminantia 215
- Saltasaurus* 100, 115  
 Saurischia 43, 68, 70  
*Sauromalus* 51  
 Sauropoda 5, 69, 79–117, 129  
 Sauropodomorpha 5, 44, 68, 70, 125, 128–31, 134, 135, 136, 139  
*Scelidosaurus* 69  
*Scleromochlus* 68  
*Scutosaurus* 24  
*Seismosaurus* 89, 113  
*Sellosaurus* 45  
*Shunosaurus* 81, 83, 85, 86, 91–4, 111, 113  
 Sphenacodontidae 36  
*Sphenodon* 67  
 Stagonolepididae 28, 124  
*Staurikosaurus* 68, 70  
*Stegoceras validum* 128  
 Stegosauria 65, 69, 91, 125–7, 129, 133  
*Suminia* 20, 21, 23  
 Suoidea 212, 214, 215, 216  
 Synapsida 5, 11, 16, 18, 20, 28, 34, 35, 66, 124
- Taeniodonta 175, 177, 182, 202–13, 233  
 Tapinocephalidae 20  
 Tapiridae 196, 220, 221  
 Tapiroidea 208–14, 216–19  
 Tayassuidae 219–21  
*Teleoceras* 235, 237  
*Telmatosaurus transylvanicus* 132  
*Tenontosaurus tilletti* 132  
*Teratosaurus* 44  
*Tetraceratops* 36  
*Thecodontosaurus* 45, 46, 55, 68
- Therapsida 20, 34, 37, 65  
 Therizinosauroida 66, 69  
 Therocephalia 36  
 Theropoda 44, 46, 47, 62–8, 70, 85  
*Thrinaxodon* 29  
 Thrinaxodontidae 36  
 Thyreophora 65, 125, 126, 135  
 Tillodonta 170, 176, 182, 206–11  
 Titanosauriformes 114–16  
 Titanosauroida 82, 83, 85, 99–102, 112–17, 128, 134  
*Titanosaurus* 100  
 Toxodontidae 233, 238, 240  
 Tragulidae 176, 177, 193  
 Trilophosauridae 33  
*Trilophosaurus* 33, 36  
*Trirachodon* 29  
 Tritylodontoidea 124  
*Troodon* 47, 66  
 Troodontidae 65, 66, 69  
*Tseajaia* 15  
 Tylopoda 193  
 Tyrannosauridae 69
- Uintatherium* 161, 163  
*Ulemosaurus* 20  
*Ullmannia* 68  
 Ungulata 176  
*Uromastix* 48, 49
- Veranopseidae 36  
*Vicugna* 240  
*Vulcanodon* 83, 90, 91  
 Vulcanodontidae 81, 83, 90, 91, 117
- '*Yaleosaurus*' 44  
 Youngiidae 36  
*Yunnanosaurus* 46, 55, 57–60, 62
- Zalambdalestes* 149  
 Zhelestidae 171  
*Zizhongosaurus* 60

Cambridge University Press

0521021197 - Evolution of Herbivory in Terrestrial Vertebrates: Perspectives from the Fossil Record

Edited by Hans-Dieter Sues

Index

[More information](#)*Subject index*

- adapiforms 187  
 Africa 60, 126, 176, 180, 182–4  
 African fauna 176, 178, 179, 183, 190  
 agouti 189  
 Aldabara 50  
 algae 49  
 algal eaters 49  
 algorithms 177  
 alluvial conditions 55  
 amniotes 1, 5, 9, 10, 12–13, 15, 36, 37  
 amniotic reproduction 13  
 amphibians 12  
 amynodonts 186  
 analogies 3, 11, 13, 24, 48, 234, 236  
 analogs 172, 236, 238  
 anatomical correlates 11, 44, 71, 169  
   differences 89, 91, 99, 124  
 anchisaurids 53  
 anchitherline 186  
 Andean highlands 237  
 angiosperms 6, 123–4, 130, 137, 139, 196  
 ankylosaurs 65, 91, 127, 129  
 ankylothecondont implants 32, 33  
 ‘antelope-sized’ 178, 182, 183  
 antelopes 175, 177, 178  
 anthoecia 235  
 anthracotheres 182  
 apomorphies 113, 115, 116  
 aquatic animals 79  
 arboreals 37, 178, 179, 189–93  
 archaic forms 172–3, 176, 181, 187, 188, 192  
 archosaurs 31, 35, 42, 44, 46  
 arctocyonids 145, 146, 149, 157  
 arctostylopids 170  
 Argentina 28, 56, 89, 238, 239  
 Arikareean Age 180, 183, 184, 220–2  
 Arizona 55  
 artiodactyls 6, 7, 163, 170, 172, 176, 178, 181–2,  
   186–9, 193, 225  
 Ashfall Fossil Beds 237  
 Asia 125, 177, 188  
 aspect ratios 149  
 Australia 125  
 autapomorphies 58  
  
 bamboo 224  
 barrel shapes 4–5, 11, 17, 22, 32, 35, 65  
 Barremian 79  
 Barstovian 231, 232  
 barylambdid pantodonts 182  
 basal amniotes 15  
 basal dinosaurs 66, 68, 70–1, 90–1, 114  
 basal placentals 145  
 bears 174, 175  
 Beaufort Group 9, 20, 22  
 benthic organisms 196  
 bilophodont 196  
 biological development 3, 18, 29, 34, 50, 71,  
   172, 178, 179, 188, 189, 192, 193, 196  
 biological modelling 3, 5, 42, 48, 49, 50, 71,  
   153, 153  
 biochemical modelling 42, 49  
 biomechanics 4, 6, 42, 152, 153, 154, 155, 169  
 biomes 235, 239  
 biotic interaction 123  
 birds 22, 42  
 Blancan 231, 232  
 body armour 65  
 body size 5, 17, 19, 23, 37, 42–4, 60, 65, 72, 79,  
   83, 84, 98–9, 112, 116, 124, 149, 152–3,  
   168–9, 171, 177–8, 182, 183, 184, 185, 190,  
   191  
 bolide impact 191  
 Bolivia 237, 238, 240  
 bolosaurids 25  
 brachydont 175, 176, 178, 179, 224, 229  
 braided streams 53, 61  
 Brazil 82, 100

Cambridge University Press

0521021197 - Evolution of Herbivory in Terrestrial Vertebrates: Perspectives from the Fossil Record

Edited by Hans-Dieter Sues

Index

[More information](#)

250

## Subject index

- Bridgerian 180, 181, 183–4, 187  
 brontheres 178, 186  
 browsers 168, 172, 175, 190–1, 224, 226,  
 228–31, 234–5, 240  
 buccal emargination 88  
 buccal views 146, 150–1, 157, 162  
 bunodont teeth 174, 175–6, 178–9, 181–2,  
 185, 186–7, 190, 194, 202  
 bunolophodonts 175, 176, 195  
 bunoselenodonts 175  
 burrows 22  
 bush pig 175, 186
- C3 plants 7, 227, 228, 229, 234, 235, 239, 240,  
 241  
 C4 plants 7, 227, 228, 229, 234, 235, 239, 240,  
 241  
 caenathid oviraptorosaurs 65  
 caloric energy 2  
 Calvin cycle 227  
 CAM 227, 229, 230  
 camels 178  
 Campanian-Maastrichtian 79, 134  
 Canada 13, 55  
 carbon shift 225, 226, 228, 229, 230, 234, 235,  
 236, 239–41  
 Carboniferous 5, 9, 12–14, 16, 36, 37, 223  
 carnassial teeth 67  
 Carnian Age 55, 60  
 carnivores 1, 9, 22, 43–4, 46, 49, 53, 65–8, 72,  
 145, 173, 187  
 carnivory 68, 70, 71, 72  
 caseid synapsids 11, 18–19, 23, 34, 37  
 caviomorph rodents 188, 189  
 cellulysis 2, 11, 12, 34, 37  
 Cenozoic 6, 145, 148, 150, 152, 155, 163–5, 171,  
 173, 191, 241  
 Central America 7, 188  
 ceratomorph perissodactyls 196  
 ceratopians 91  
 cervids 64  
 Chadronian 180, 183, 184, 187–8, 195  
 China 25, 56, 58–62, 66, 90  
 clades 5, 15, 18, 20, 23, 25, 27–8, 30, 33, 35,  
 68, 70–1, 99, 115, 125, 127–8, 131, 133, 134,  
 135, 137, 140, 173, 233  
 cladograms 21, 27, 30, 50, 68, 69, 70, 85, 111,  
 112, 116, 130, 131, 135  
 Clarendon 231, 232  
 Clarens Formation 55, 61  
 Clarkforkian 180, 183, 184, 207–8  
 climate 6, 53, 55–7, 61, 169, 170, 173, 178, 179,  
 190–4, 195–6, 228, 234–5  
 coeval strata 9  
 coevolution 123, 124, 130, 135, 139, 169, 191,  
 226, 230, 231, 232
- co-existing genera 232, 239–41  
 cog dentition 31, 33  
 colobines 175  
 comparative studies 12, 24, 42, 43, 49, 50, 52,  
 70–1, 168, 188–9, 238, 239, 241  
 ‘condylarths’ 6, 150, 155, 170, 171–3, 176, 178,  
 181–2, 187, 202–13, 214, 216  
 conifers 68  
 Connecticut 55  
 conspecifics 26  
 continental drift 236  
 continental ecosystems 1–2, 6–7, 9, 14–15,  
 18–20, 25–26, 31, 60, 187–9, 193–6, 230,  
 231–3, 234–6, 238–9, 241–2  
 convergence 111, 114, 115  
 coprolites 42  
 correlations 3, 50, 51, 71–2, 111, 148, 168, 169,  
 172, 175, 188–93, 227  
 cows 175, 178  
 cranial structures 14, 16, 18, 19, 21, 22–5,  
 26–9, 85, 87, 94, 95, 115, 193, 237  
 craniodental 26, 33, 34, 37, 61, 68, 71, 88, 96,  
 97–9, 106, 193, 236, 237  
 Crassulacean Acid Metabolism 227, 229,  
 230  
 creodonts 187  
 Cretaceous 61, 65, 66, 79, 99, 109, 116, 117,  
 123–5, 133, 137, 139, 140, 144, 145, 146,  
 149, 159, 161, 171, 227  
 crocodylians 42, 66  
 crocodiles 79  
 crocodyliforms 62, 66, 67  
 cuspidation 6, 18, 25, 31, 33–4, 48, 50, 51, 52,  
 57, 66–7, 145, 149, 150, 152, 153, 160, 161,  
 164–5, 174, 176
- Dark Red Beds 58, 59, 62  
 Da’zanzhai Formation 60  
 deer 175, 178  
 DELTRAN 135  
 dental correlations 71, 172–3, 175, 177, 189,  
 235–6  
 dental material 154–65, 225–7, 236, 240  
 dental microwear scans 80, 92, 93, 95–101,  
 103, 104, 106–8, 129, 130, 154–65, 172,  
 226, 228–36  
 dental structure 174–93, 196, 226–30,  
 234–6  
 dentition 5–7, 13, 14, 15–18, 19, 20, 21, 22, 25,  
 26–35, 45, 46, 47, 48, 50, 52, 54, 57–9,  
 60, 62–3, 64–8, 71–2, 79–81, 82, 88, 90,  
 92, 93–101, 102–7, 108, 110–12, 114–15,  
 126–30, 144–5, 148, 149, 150, 151,  
 152–163, 164, 171–7, 196, 228, 229, 230,  
 232–3, 238–41  
 dermal armour 35, 65, 125, 126

Cambridge University Press

0521021197 - Evolution of Herbivory in Terrestrial Vertebrates: Perspectives from the Fossil Record

Edited by Hans-Dieter Sues

Index

[More information](#)

Subject index

251

- detritivory 9, 11, 12  
 diagenesis 227  
 diagrams 36, 132  
 dichobunid artiodactyls 172  
 dicynodont therapsids 22  
 diets 26, 33, 42–4, 47, 48, 49, 50–1, 51, 52–3, 57–8, 60, 62, 65, 68, 69, 70, 72, 79, 110, 115, 153, 169, 171, 175, 176–7, 181, 190–93, 226, 234, 235  
 digestive aids 2, 3, 9, 10–12, 17, 34, 68, 89, 106, 127, 129, 130, 168  
 digestion 1–3, 10–12, 15, 18, 20, 23, 28, 32, 34, 35, 60, 89, 123  
 dik-dik 177  
 dinoceratans 176, 182  
 dinosauriform condition 68  
 dinosaurs 1, 5, 6, 28, 33, 37, 46, 52, 53, 57–8, 61, 62, 66, 79, 164  
 diplodocoids 85, 89, 99, 102–3, 115, 128, 134  
 distribution 23, 26, 30–1, 36, 43, 79, 123, 127, 169, 172–3, 181, 233  
 divergence 172, 173, 181, 190, 191, 192–3  
 diversity 1, 3, 5, 6, 9, 43, 61, 79, 124, 125, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 144, 157, 169, 172–9, 180, 181–96, 223, 230–1, 234–5, 241–2  
 ‘dog-sized’ 177, 182, 183  
 Duchesnean Land Mammal Age 174, 180, 181, 183, 184, 187, 188, 214–15  
 duikers 178  
 Dull Purplish Bed Formation 59, 62  
 dune systems 55, 61  
  
 Early Early Arikareean 220–1  
 Early Bridgerian 210  
 Early Cenozoic 165, 173, 191  
 Early Chadronian 216–17  
 Early Cretaceous 61, 64, 65–6, 109, 123–6, 131, 135, 139  
 Early Eocene 162–4, 172–3, 179–81, 183–8, 191–2, 194–6  
 Early Jurassic 43, 58, 60, 79, 90, 116, 127, 131, 133  
 Early Mesozoic 35, 36  
 Early Miocene 230, 234–5, 237  
 Early Norian Age 55, 60  
 Early Oligocene 169, 180–5  
 Early Paleocene 149–51, 156–9, 160–1, 164, 178–80, 181–4  
 Early Paleogene 182, 183, 187  
 Early Permian 9, 14–15, 18–19, 26  
 Early Tertiary 6, 171  
 Early Triassic 29, 33  
 Early Unitan 212–13  
 Early Wasatchian 208  
  
 East Greenland 55  
 ecology 1, 4, 5, 12, 22, 37, 44, 50, 53, 57, 72, 109–11, 123, 190–6, 223, 226–30, 233–6, 240, 241–2  
 ecomorphological types 171, 177, 190, 191, 192, 193  
 ectocranial crests 29  
 edaphosaurid synapsids 37  
 edentates 233  
 EDJ 155, 157, 158, 159, 163  
 elephants 85, 178, 191  
 Elliot Formation 55, 60  
 endosymbiosis 2–4, 10–12, 34  
 England 95  
 enterolites 42, 49, 53, 68, 144  
 environment 53–7, 60–1, 123–4, 173, 188–96, 234–5  
 enzymes 2  
 Eocene 6, 159, 161–96, 230–4  
 eomyids 190  
 epochs 5, 6, 7, 9, 13, 169–96  
 equids 178, 186, 188, 234, 238  
 euhelopodids 90, 92, 94–6, 112–3, 117, 128  
 eupelycosaur 18  
 Europe 9, 15, 18, 125, 172, 188, 190, 196  
 evolutionary dynamics 124, 227  
 exclusive herbivores 43, 44, 46, 48, 61, 168  
 ‘Extant Phylogenetic Bracket’ 42, 70  
 extinct orders 175, 176, 189, 192, 227, 241–2  
  
 facial musculature 85, 88  
 facultative herbivores 67  
 facultative omnivores 50, 52, 61, 64, 65  
 faunal changes 172, 173, 190, 191, 196  
 faunivorous forms 4, 5, 10, 11–13, 16–18, 24, 26, 29, 33–5, 49, 68, 69  
 feeding habits 9, 10, 12, 14, 16, 20, 22–3, 26, 30, 32–7, 42–9, 53, 60, 68, 69–72, 79–81, 88, 102–3, 110, 114–17, 123–5, 135, 145, 146, 147, 164, 172, 228, 229, 230, 234, 235, 238–42  
 feeding mechanisms 34, 81, 85, 88–91, 94–5, 97, 99, 102–3, 105, 108–17, 124, 135, 145, 146, 147, 148, 150, 151, 162–5, 174–7, 181, 190, 191, 228, 229  
 feeding styles 34, 135, 136, 137, 138, 139, 148, 228, 229, 230, 239–41  
 fermentative symbiosis 12, 17, 34, 35, 60, 128, 130, 168  
 fish eaters 44  
 Fleming Fjord Formation 53, 55  
 flood plains 55, 56  
 floral dominance 139, 191  
 Florida 240  
 floristic diversity 191, 196  
 fluvial settings 53

Cambridge University Press

0521021197 - Evolution of Herbivory in Terrestrial Vertebrates: Perspectives from the Fossil Record

Edited by Hans-Dieter Sues

Index

[More information](#)

252

## Subject index

- folivores 6, 12, 49, 108–10, 113, 129, 168–9,  
 172, 175, 176, 181, 186, 188, 190–2, 194–5  
 folivory 6, 12, 88, 108–10, 114, 172, 186, 191  
 food processing 2, 4, 10, 11, 12, 34–5, 164  
 food values 2, 108  
 food webs 5, 37, 191–5, 230, 239  
 foraminifera 196  
 Forest Sandstone Formation 55, 61  
 forests 191–3, 195  
 fossil studies 3, 28, 174, 223, 226, 230, 231,  
 233, 234, 235, 236–239  
 fossil grasses 230, 235, 238–41  
 fossorial habits 22  
 frogs 12  
 frugivores 6, 148, 168, 174, 175–6, 192, 193,  
 194, 195  
 frugivory 172  
 fruit eaters 49, 158, 168  
 functional interpretation 1, 42, 124, 164, 165  
 functional morphology 1–10, 47, 48, 49,  
 64–6, 80, 85, 124–7, 151–7  
  
 gastric mills 10, 53, 68, 89, 127  
 gastroliths 89, 127, 129  
 generalist feeders 172  
 generic diversity 61, 169, 178, 179, 180, 181–5,  
 188–9, 230  
 genetic shifts 16, 30  
 geochemical modelling 61, 226  
 geological periods 2–13, 20, 22, 28, 36, 53, 58,  
 61, 105, 110, 111, 123–34, 135, 149–61,  
 162–8  
 geological strata 22, 53, 60–1, 131  
 Germany 56  
 ‘ghost lineages’ 6, 124, 130–40  
 gigantism 113, 128, 129  
 giraffe 175, 178  
 glenoid fossa 93, 103–6, 115  
 gliders 191  
 global climates 173, 190–1, 234–5  
 global environments 173, 190–1, 223, 234,  
 235, 239–42  
 gomphothere proboscideans 230  
 Gondwana 31  
 granivores 169, 194  
 grasses 225, 226, 230, 234, 235  
 grazers 168, 169, 175, 176, 192, 223, 224–36,  
 240  
 grasslands 7, 57, 169, 192, 223–42  
 grazing herbivores 6, 7, 168, 169, 192,  
 226–29, 234–42  
 Great American Interchange 240  
 Great Transformation 230, 234–40  
 Greenland 53  
 gut processors 135, 136, 137–8  
 gymnosperms 123  
  
 habitats 191–3, 234, 235  
 hadrosaurids 127, 134, 163  
 Hauterivian-Barremian 79  
 Hell Creek Formation 146  
 Hemingfordian 231  
 Hemphillian 231, 232  
 ‘heralds’ 172  
 herbivores 2–66, 70–2, 79–80, 117, 123–55,  
 164–95, 202–23, 226–34, 235–41  
 herbivory 1–24, 31–6, 42–58, 64–72, 123, 127,  
 130, 144, 148, 164–9, 173, 223, 224, 238,  
 240–42  
 heterodonts 29, 30, 64  
 Hettangian Age 55, 56, 90, 131  
 Hettangian–Pliensbachian 56, 60, 61, 90  
 high browsers 80, 88, 91, 95, 98–9, 109, 110,  
 113, 116, 128, 129  
 Holarctica 230  
 holotypes 62  
 homologues 13  
 homoplasy 115, 116  
 horned dinosaurs 127  
 ‘horse-sized’ 178, 183  
 horses 163–4, 172, 175, 224–30, 231–6  
 ‘Hot House’ types 173  
 humans 148, 174, 175, 224, 226  
 hyracotherine horses 172  
 hydrolysis 2  
 hypsodontids 170, 228, 229  
 hypotheses 6, 11, 24, 27, 30, 36, 44–53, 68, 71,  
 79, 124  
 hypselodont 225, 229, 236, 237, 238–41  
 hypsilophodontid ornithopods 64  
 hypsodont 175–9, 182, 188, 224–41  
 hyracodont 186  
  
 ‘Ice House’ 173, 188  
 iguanodontians 64, 127, 131, 132–3  
 India 28, 99  
 Indian green frog 12  
 insectivores 11, 17, 31, 48–9, 149, 164, 171, 187,  
 192  
 insectivory 12, 31, 48, 50, 149, 164, 178,  
 179  
 insects 223  
 interrelationships 50, 70  
 invertebrates 7, 53, 79, 80, 88, 223  
 isotopic analysis 1, 7, 223–41  
 isotopic shifts 234–5, 236–40  
  
 jaw features 10, 20–3, 31–4, 46, 53, 64, 67, 72,  
 80–98, 100–15, 128, 129, 145, 152, 160,  
 163  
 Jurassic 43, 53, 61, 79, 90, 94, 105, 109–17,  
 125–7, 131–9  
 juveniles 12, 16, 30, 31, 50, 57, 58, 110



- Karoo Basin 60  
 Kayenta Formation 55  
 Kenya 225  
 keratinous beaks 20–3, 33, 48, 65  
 Kimmeridgian 79  
 Knollenmergel 56
- labiolingual compression 46  
 lacustrine 53, 55, 56  
 lagomorphs 139, 190, 225  
 land bridges 7  
 Late Bridgerian 211–12  
 Late Carboniferous 5, 9, 14, 37  
 Late Carnian 55, 60  
 Late Cenozoic 163, 164, 173  
 Late Chadronian 218  
 Late Cretaceous 124, 131, 135, 137–40, 149, 171, 191  
 Late Early Arikareean 221–2  
 Late Eocene 172–4, 178, 180, 182, 183, 184, 185, 186–93, 194, 195  
 Late Jurassic 94, 109, 111, 116, 131, 133, 134, 135, 139  
 Late Mesozoic 191  
 Late Miocene 234, 235, 236, 239–41  
 Late Norian 56  
 Late Oligocene 180, 182, 183–5, 189, 237  
 Late Paleocene 172, 178, 179–85, 190–2  
 Late Paleogene 187, 189, 192  
 Late Paleozoic 28, 33, 35, 72  
 Late Pennsylvanian 9, 13, 14, 15, 17  
 Late Permian 5, 9, 20, 22–6, 28, 37, 68  
 Late Pleistocene 230, 234, 241  
 Late Tertiary 230, 240  
 Late Triassic 20, 22, 28, 31, 33, 43, 116, 128, 131, 135  
 Late Unitan 213, 214  
 Late Wasatchian 209–10  
 leptocherids 189  
 limb specialisation 19, 44, 53, 65, 91, 95, 100, 110–112, 113, 116  
 lineages 170, 171, 172, 177  
 Linnean Society 21  
 litopterns 233  
 lizards 3, 5, 10, 12, 18, 30, 34, 43, 46, 48, 49, 52, 62, 72  
 llamas 178, 226  
 localities 55–9, 60–2, 110, 111, 174  
 logarithmic scale 177  
 lophodont 172, 207–22  
 Los Colorados Formation 56  
 low browsers 94, 96, 105, 109–16, 125–8  
 Lower Elliot Formation 55, 60, 61  
 Lower Jurassic 53  
 Lower Lufeng Formation 56–62, 90  
 Lower Paleocene 150  
 Lower Shaximiao Formation 111
- Maastrichtian 79, 131  
 McCoy Brook Formation 55  
 Madagascar 82, 100, 101  
 Malawi 67  
 mammalian diet 67, 158, 164, 168–93  
 mammalian digestion 2–4, 10, 11, 42  
 mammals 2–7, 12, 13, 42, 50, 53, 57, 146, 148, 155, 157–79, 182–7, 190, 191–3, 202–22, 223–7, 230–9  
 marginal dentition 4, 33, 34, 46, 48  
 marine specimens 79  
 marsupial insectivores 145  
 Mediterranean-type climate 228  
 melanorosaurids 44, 60  
 mesic environments 61  
 Mesozoic 10, 13, 35, 36, 72, 123–5, 130, 133, 134, 135–9, 171, 173, 191  
 metabolic rates 34, 35, 89, 168  
 ‘miacoid’ carnivorans 187  
 micro-organisms 2, 4, 10–12, 34, 89, 168  
 mid-Carboniferous 12  
 mid-Cretaceous 131, 133, 137  
 mid-Eocene 171–3, 189–188, 190–6  
 mid-Jurassic 61, 79, 94, 111, 116, 125, 126, 134  
 mid-Paleocene 178, 179  
 mid-Pennsylvanian 13  
 mid-Triassic 20, 22, 31, 33  
 Middle Bridgerian 211  
 Middle Chadronian 217–18  
 Middle Miocene 230, 232, 233, 234  
 Middle Pleistocene 240  
 Middle Tertiary 223, 228, 230, 239, 242  
 Middle Wasatchian 208–9  
 migrant mammals 240  
 Miocene 6, 7, 189, 192, 224, 225, 226, 230, 231–7, 239–41  
 mioclanenids 170  
 modern mammals 174, 175, 181, 187, 188, 190, 191, 192, 193  
 modernity 9, 175  
 modifications 29, 64, 65, 71, 164, 165  
 molariform dentition 15, 28–9, 66–7, 72, 156–61, 175, 228, 229  
 molluscivores 32, 65, 108  
 Mongolia 103  
 monkeys 176  
 monophyletic clades 43, 68, 91, 124  
 Morocco 100  
 morphology 2–5, 33, 144, 169, 171, 174, 196, 223  
 Morrison Formation 110  
 mouse deer 175  
 musculature 4, 10, 20–6, 32–4, 65, 81, 82, 93–8, 100, 102, 103, 106–15

- Nacimiento Formation 150, 151  
 narial retraction 85  
 Navajo Sandstone 55  
 Nebraska 235, 237  
 Neogene 6, 7, 178, 189, 194  
 nest builders 12  
 New World 189, 223, 225  
 Newark Supergroup 55  
 niche partitioning 61, 110, 111, 144  
 nodes 111–16  
 nodosaurid ankylosaur 126  
 non-amniotes 12  
 non-avian dinosaurs 42, 144  
 non-dinosaurs 28, 35, 62, 66  
 non-eutherian 187  
 non-mammals 4, 11, 28, 35  
 Norian Age 55, 56, 60, 131  
 North America 6–9, 15–19, 25, 105, 110,  
 125–6, 169, 172–6, 187–96, 230, 232–7,  
 238–41  
 Northern Hemisphere 127, 196, 236, 238  
 notoungulates 7, 225, 239  
 Nova Scotia 13, 53  
 nutrition 2, 3, 108, 110, 116, 144, 153, 158, 159,  
 168  
 obligate arboreal mammals 193  
 obligate herbivores 3, 10, 71, 193  
 occlusal dentition 3–4, 28–9, 147, 148, 150,  
 151–63, 225, 232  
 okapi 178  
 Oklahoma 19  
 Old World 223, 230, 240  
 Oligocene 6, 160, 168–70, 180–9, 193, 194,  
 195, 219–22, 233, 237  
 omnivores 5, 6, 12, 18, 22, 29, 30, 44–6, 49,  
 50, 66–72, 171–5, 190, 191  
 omnivory 12, 16, 64–8, 70–1, 172, 178  
 omomyids 187  
 ontogeny 50, 53, 57, 58, 60, 117  
 opportunistic herbivores 12, 67–8  
 opportunistic omnivores 50, 52, 68  
 optimization 135  
 oral features 3, 18, 23, 28–9, 34, 42, 43–8,  
 50–9, 60–8, 71–2, 79–82, 88, 90–9,  
 102–6, 114, 116, 125–9, 135, 145–65, 171–5,  
 189–93, 226  
 Orellan Age 180, 183, 184, 219  
 oredont 186  
 ornithischian dinosaurs 1, 34, 46, 62–8, 70,  
 110, 114, 124, 127, 129–39  
 ornithomimids 65  
 orthal jaw activity 29, 102, 112, 115, 126–9,  
 135, 148–51, 163  
 orthal pulpers 135, 136, 137, 138–9  
 orthal slicers 136, 137, 138, 139  
 osteological features 4, 6, 7, 10, 13, 14–24,  
 25–31, 32–4, 64, 65, 102–3, 129  
 outgroups 68, 71  
 oviraptorosaurs 65  
 Oxfordshire 79  
 paca 189  
 pachycephalosaurs 64–5, 127, 128, 129, 135  
 Pakistan 236  
 paleobiological interpretation 42, 72, 168,  
 169, 195, 196  
 paleobotanical data 195  
 Paleocene 6, 144, 149, 150, 151, 155, 156–79,  
 180–94, 202–8, 233  
 paleoecology 61, 80, 168–9, 173, 190–6, 234,  
 235, 239  
 paleoenvironments 55, 56, 57, 60, 61, 80,  
 168–9, 188–96, 202–22, 234, 235, 239  
 Paleogene 6, 168–70, 173, 176, 178–96,  
 202–22  
 paleogeographic configuration 196  
 paleotemperatures 170, 173, 178–9, 192–6,  
 235  
 paleontology 3, 4, 5, 168, 196, 226  
 paleosol 236, 239  
 Paleozoic 5, 9–11, 12–14, 23, 28, 33–5, 36, 72  
 palinal movement 34, 106, 109  
 pampas environments 57  
 Panamanian land bridge 7, 241  
 pandas 3  
 pantodonts 170, 172, 176, 182  
 paraphyletic 43, 86, 90, 94  
 PAUP 135  
 peaks 79, 131, 134, 136, 137  
 peccaries 178, 182  
 Pennsylvanian epoch 9, 13  
 periptychids 149, 150, 155, 157, 170  
 perissodactyls 6, 7, 172, 175, 181–2, 186, 188,  
 196  
 Permian 2, 5, 12, 14, 16, 18, 19, 20, 22–3, 25–6,  
 28, 36, 37, 68  
 phenacodontids 170  
 photosynthesis 227  
 phylogenetic analysis 1, 6, 11, 15, 18, 23, 26,  
 33, 36, 42, 44, 51, 68, 69, 99, 113, 124, 125,  
 130, 131, 137, 177, 196, 240–1  
 phylogeny 69, 70, 72, 113, 115, 124, 130, 131  
 physiology 2, 3, 5, 6, 11, 71, 88, 171  
 physiognomy 124, 139  
 phytoliths 106, 224, 225, 230  
 pigs 174, 178, 186, 187  
 piscivory 44  
 placental herbivores 155, 223–7  
 plant biomass 223, 227, 228, 229  
 plant evolution 124, 158, 159  
 plant physiology 2, 227

- plant eaters 1–5, 12, 14, 18, 19, 26, 28, 33–7,  
43, 46, 50, 51, 56–8, 66–8, 71, 72, 79, 105,  
108, 110, 123–31, 137, 155, 159, 165–71,  
227–9, 238–41
- plant fossils 196
- playa lakes 53, 61
- pleisomorphs 15, 24, 33, 90, 94, 113
- Pleistocene 230, 240, 241
- plesiadapiforms 187
- pleurokinetic hinges 64
- Pliensbachian-Toarcian Age 55
- Pliocene 230, 231, 232, 239, 240
- pluvial periods 56, 57
- polymers 2
- poposaurid archosaur 44
- Portland Formation 55
- Portugal 89
- postcrania 18, 26, 27, 94–8, 100, 102, 103, 104,  
106, 115, 116
- ‘precocious hypsodonty’ 238
- predators 26, 45, 48, 65, 68
- primates 172–9, 187–9, 191–5
- prism decussation 154–7, 161–5
- propaliny 67, 68, 96, 97, 103–9
- prosauropods 5, 34, 43, 44, 45, 46, 47, 52–9,  
60–6, 70, 72, 85, 89, 91, 113, 114, 117, 128, 134
- ‘proteutherians’ 187
- protists 2
- protoconids 149
- protohippus 231
- pteridophytes 123
- pteridosperms 68
- Puercan 150–8, 160–1, 180–4, 202
- pygmy hippo 176, 178
- quadritubercular forms 174
- ‘rabbit-sized’ 177, 183
- rabbits 230
- rainfall patterns 192, 193
- reptiles 3, 5, 10, 12, 18, 23–7, 30, 32–7, 43, 48,  
53, 62, 68
- retroarticular processes 106
- ‘rhino-sized’ 178, 183
- rhinocerotoids 186–8, 196
- rhinos 175, 186, 225, 235, 237
- rhizomes 33
- rhynocosaurs 31, 32, 34
- rodents 7, 168, 188–90, 195, 225, 230, 233
- roe deer 178
- ruminant artiodactyls 175, 186, 188, 189, 193,  
225
- Russia 20, 23, 25
- Salla 237, 238
- sauropod crania 81, 116
- savanna grasslands 57, 192, 230
- scansorial habitats 37
- scavengers 45, 48
- sedimentary deposits 53, 55, 56, 60, 61
- selective browsers 172, 190, 193
- selenodont artiodactyls 163, 181, 188
- selenodonts 175
- semi-arid conditions 53
- semi-lophed 185, 188–9, 193–5, 203–22
- shearing mechanisms 29, 33, 34, 72, 145–8,  
151, 152, 153, 164, 172
- ‘shoe-horn’ 44
- Sichuan Province 60, 111
- Sinemurian Age 131
- Sinemurian-Pliensbachian Age 55
- size distribution 177, 178
- skeletal mobility 88, 94–5, 102–3, 115, 116,  
117, 127
- skeletal structures 4–6, 10, 15–20, 21, 22–4,  
34, 35, 42–8, 53, 58, 66–8, 71, 80, 83, 84,  
85, 87, 88–99, 102–6, 115, 126–7, 154–5,  
177, 237
- South Africa 9, 20, 21, 22, 33, 44, 60
- South America 7, 188, 225, 230, 233, 236, 237,  
238, 239, 240, 241
- Spain 65
- species extinction 196
- species origination 196
- sphenodontids 53
- star-burst cladograms 131
- statistics 136, 137, 137, 139, 159, 170, 177–80,  
183–94, 223–38
- Stephanian B. 13
- stratigraphic records 1, 130, 202–22
- stress 152, 153, 154, 155
- subterranean habits 22
- succulents 227
- suiform artiodactyls 172, 182, 188
- surgeonfish 49
- symbiotic support 2, 4, 10–12, 37, 169
- sympatric patterns 130
- synapomorphy 89, 114
- tables 49, 55, 69, 81, 82, 83, 86, 154, 202–22
- Tanzania 111
- taphonomic bias 124, 168
- tapinocephalid dinocephalians 20
- tapirid 188
- tapiroids 182, 196
- tapirs 85, 178
- taxa 3–22, 26–45, 55, 61–8, 70, 72, 102, 117,  
124–31, 149, 159, 161, 171, 172–8, 180–95,  
233, 236, 238
- taxon 1, 11, 23, 89
- taxonomic diversity 1, 3, 5, 15, 17, 28, 36, 43,  
61, 62, 81–84, 89, 124, 128, 135, 171–96, 233

Cambridge University Press

0521021197 - Evolution of Herbivory in Terrestrial Vertebrates: Perspectives from the Fossil Record

Edited by Hans-Dieter Sues

Index

[More information](#)

256

## Subject index

- temperate vegetation 192, 193, 227  
 temperature changes 170, 173, 178, 191–6  
 Tendaguru beds 111  
 Tennessee 230  
 terrestrial grazing guilds 223, 227, 235, 239, 241, 242  
 terrestrial mammals 176, 177, 190–3, 234, 235  
 terrestrials 15, 28, 35, 37, 72, 79, 80, 117, 171–8, 182, 186–92, 223, 236  
 territorial behavior 64  
 Tertiary 6, 145, 168–71, 191, 223–42  
 tetrapods 1–15, 20, 23, 28, 33–7, 124  
 Texas 19, 33  
 theridomyids 190  
 Tiffanian 180, 183, 184, 204–7  
 time charts 233  
 time intervals 174  
 titanosaurs 92, 102, 103, 113, 128  
 Toarcian Age 55  
 ‘tooth-comb’ 79, 102, 110, 114, 115  
 tooth types 178, 179  
 toothless groups 65, 66  
 Torrejonian 180, 183, 184, 203–4  
 tortoises 50  
 trackways 80  
 tragulids 176–7, 189, 193  
 traguloid 186, 188  
 Transformation 230  
 transition diets 44  
 transition dinosaurs 66  
 transverse grinders 135, 136, 137, 138, 139  
 traversodonts 28, 29  
 tree hyrax 175, 176, 177  
 Triassic 5, 10, 11, 20–44, 116, 128, 131, 134–5  
 tribosphenic dentition 145, 148, 152  
 tritylodontid synapsids 66  
 trophic dynamics 72, 124, 139, 172, 173, 193  
 trophic interaction 9, 37, 72  
 tropical environments 193, 227  
 tropical forests 188, 189, 191, 192  
 tubers 33  
 turtles 12, 22, 48, 66  
 tylopods 186, 188, 193  
 Uintan Land Mammal Age 180, 181, 183, 184, 187, 188  
 uintatheres 170, 172, 176, 178  
 ungual structures 33  
 ungulates 1, 3, 6, 7, 33, 145, 149, 150–69, 170–84, 186–96  
 United States 79, 171  
 Upper Cretaceous 99, 103  
 Upper Elliot Formation 55, 60, 61  
 Upper Jurassic 89, 105, 110  
 USA 55, 79  
 Uzbekistan 71  
 varanids 96  
 vegetation 56, 57–61, 239  
 vertebrates 2–5, 9, 10, 28, 35, 55, 223  
 voles 168  
 vulcanodontids 91, 94, 113, 114, 117  
 Wales 56  
 wapiti 178  
 Wasatchian Age 162, 164, 180, 181, 183, 184, 208–10  
 water chevrotain 176  
 Westphalian B. 13  
 Whitneyan Age 180, 183, 184, 219–20  
 woodlands 192, 193  
 Wuding Basin 60, 90  
 xerophytes 57, 60  
 Young’s Modulus test 153, 154  
 Yunnan 56, 58, 60, 90  
 zapodids 190  
 zhelestids 171  
 zig-zag dentition 33  
 Zimbabwe 55  
 zygapophyses 35, 88