

Life of the Cretaceous



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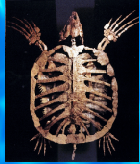
Cretaceous Marine Life



Large actinopterygians



Large chondrichthyans



Large chelonians

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Cretaceous Marine Life



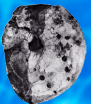
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Mosasaur

A branch of the lizards (Lepidosauria) that evolved to live in the open oceans.



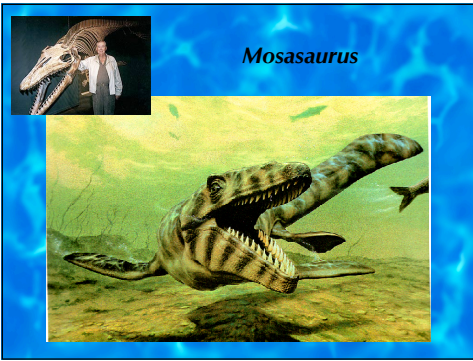
Some of these fast swimming predators were up to 35 feet long.



This ammonite was unlucky enough to be bitten by a mosasaur.

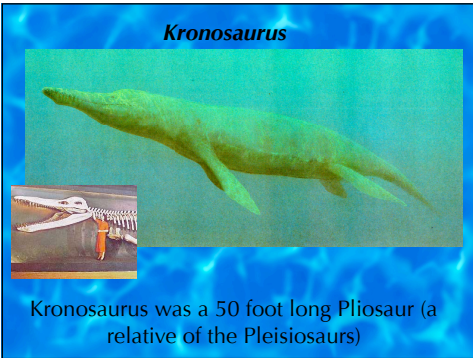


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Mosasaurus


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Kronosaurus

Kronosaurus was a 50 foot long Pliosaur (a relative of the Pleisiosaurs)

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**The Terrestrial Realm
Cretaceous Vegetation**

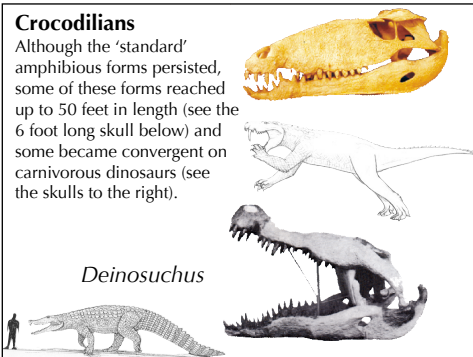
Angiosperms (flowering plants) appear at the end of the Jurassic and by the middle Cretaceous were widespread. Cretaceous dinosaurs walked around in forests of birch, maple, walnut, beech, sassafras, poplar and willow. They would have smelled magnolia flowers. At the same time there was an explosive co-evolution of many flying insects, such as bees, that helped to pollinate the flowering plants.

A late Cretaceous forest would look familiar (except for the absence of grasses).

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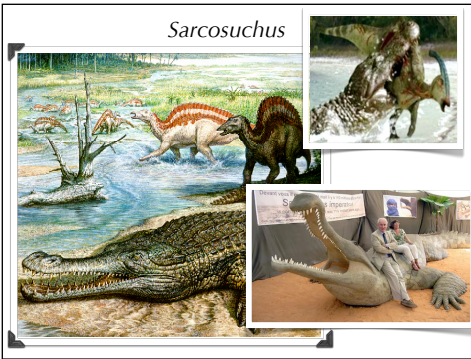
Crocodylians

Although the 'standard' amphibious forms persisted, some of these forms reached up to 50 feet in length (see the 6 foot long skull below) and some became convergent on carnivorous dinosaurs (see the skulls to the right).

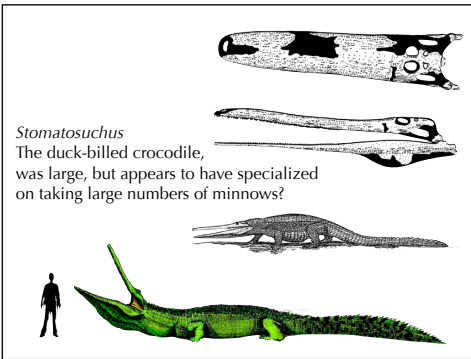


Deinosuchus

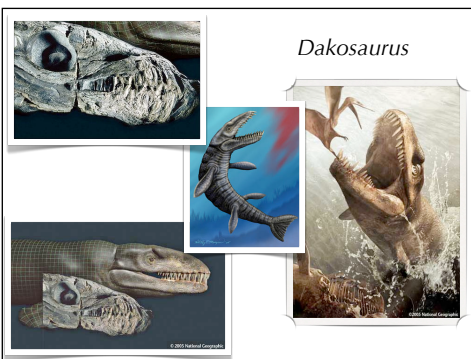
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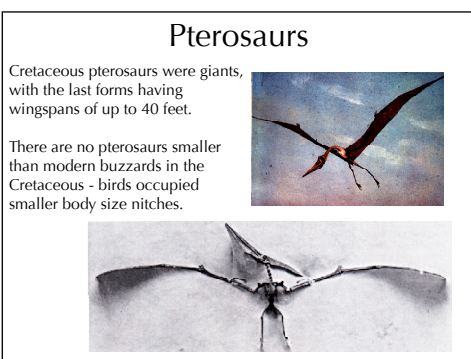
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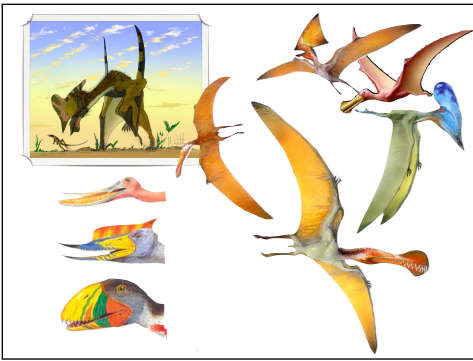
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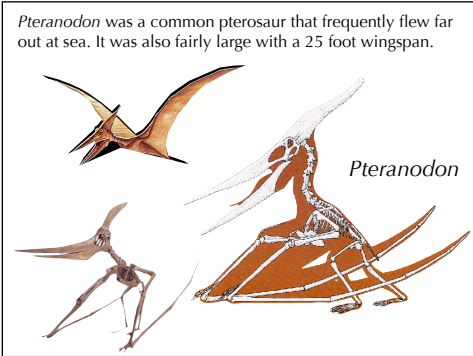
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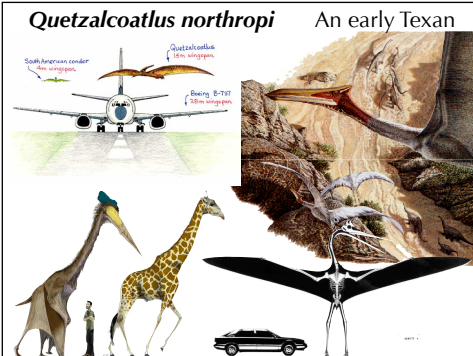
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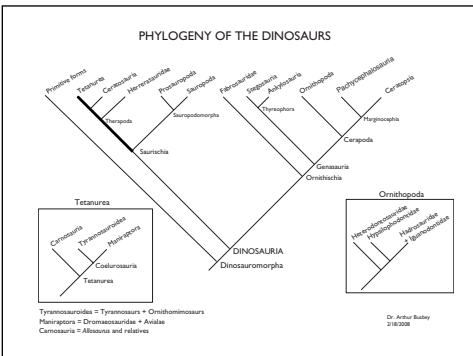
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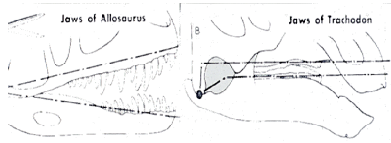


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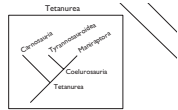
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Saurischian and Ornithischian Jaw Mechanics



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Cretaceous Maniraptorans



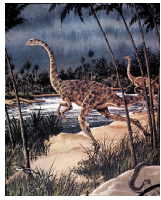
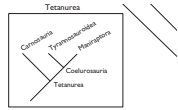
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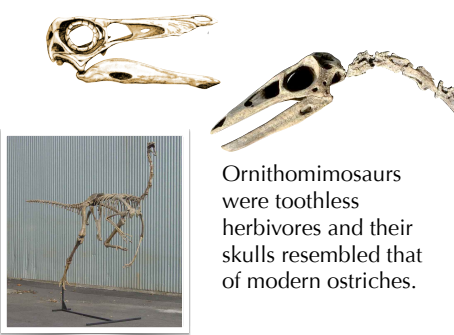
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Ornithomimosaur = 'Ostrich mimic dinosaurs'

Cretaceous Tyrannosauroidae



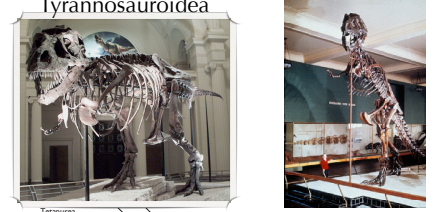

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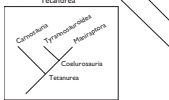
Ornithomimosaur
were toothless
herbivores and their
skulls resembled that
of modern ostriches.

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Tyrannosauroidae





Tyrannosaurus =
'ruling dinosaurs'



Tyrannosauroidae = Tyrannosaurus + Ornithomimosaur
Majungosauroidae = Ornithomimosaur + Avialae
Carnosauria = Allosaurus and relatives

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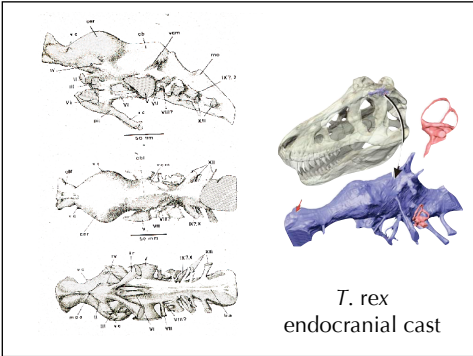
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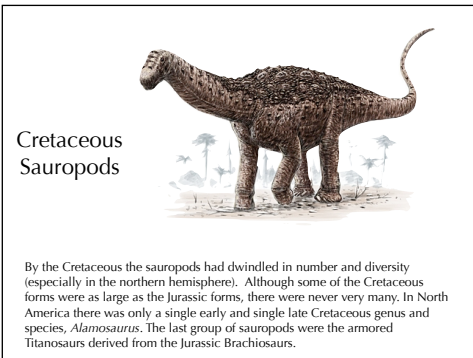
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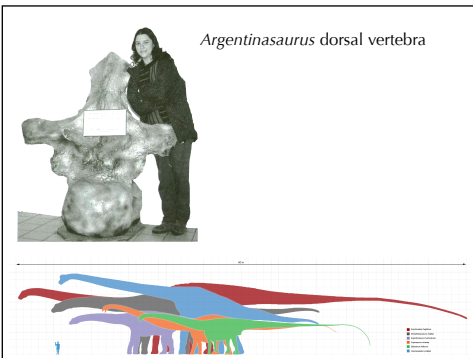
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Ornithischia

ankylosaurs

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Ornithischia

Hypsilophodontidae

Ornithopoda

Relatively common in North Texas!!

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Eotyrannosaurus attacks *Hypsilophodon*

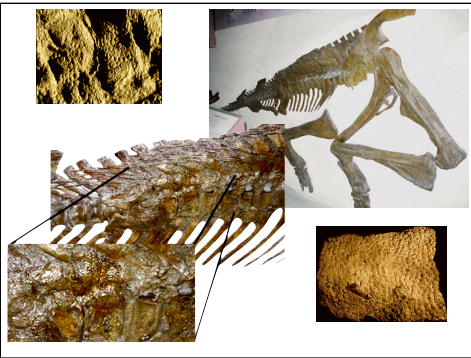
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Iguanodontids

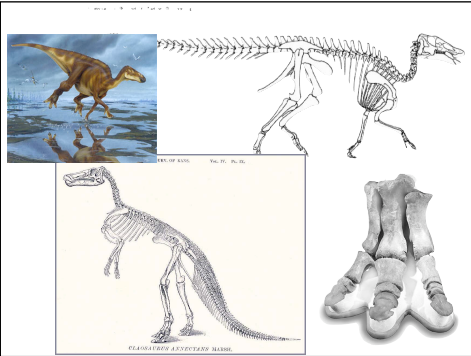
Ornithopoda

Iguanodon

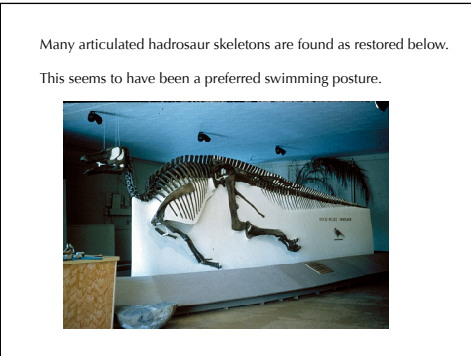
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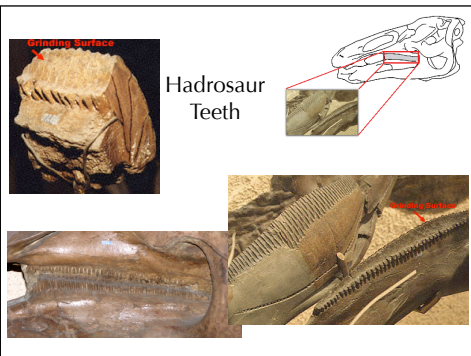
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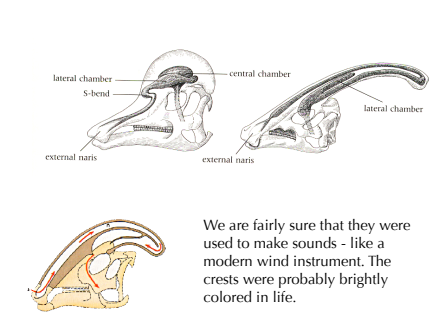
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Hadrosaur Crests

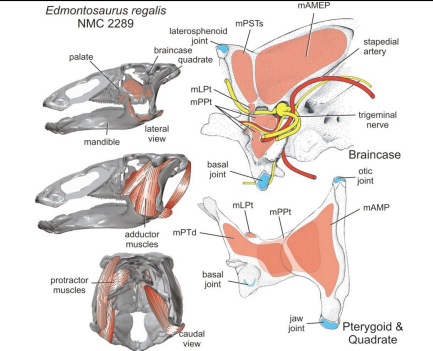
There were two types of crested hadrosaurs. Those with solid crests and those with hollow crests. In both cases there were many different shapes of crests. What were the hollow crests for??

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We are fairly sure that they were used to make sounds - like a modern wind instrument. The crests were probably brightly colored in life.

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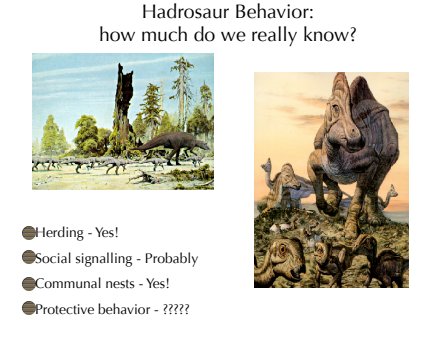


Edmontosaurus regalis
NMC 2289

palate, braincase, quadrate, laterosphenoid joint, mPSTs, mAMEP, stapedial artery, trigeminal nerve, Braincase, otic joint, mAMP, jaw joint, Pterygoid & Quadrate, basal joint, mLPt, mPPt, mPTd, adductor muscles, protactor muscles, caudal view, lateral view, mandible, mLPt, mPPt, basal joint, mAMP

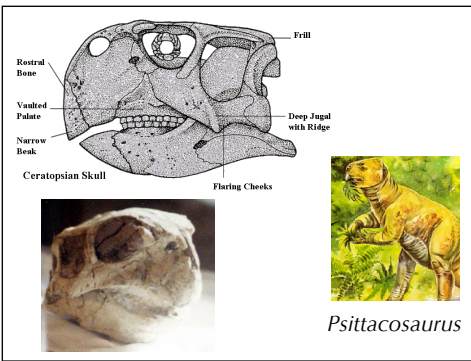
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Hadrosaur Behavior:
how much do we really know?

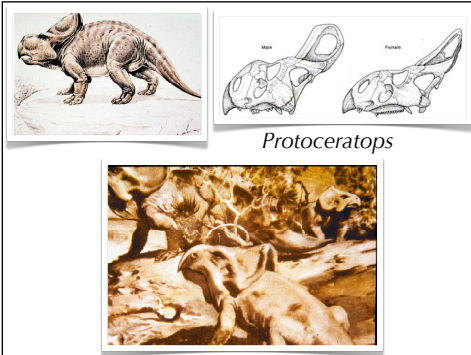


- Herding - Yes!
- Social signalling - Probably
- Communal nests - Yes!
- Protective behavior - ????

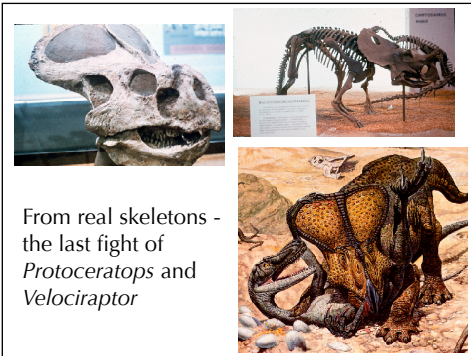
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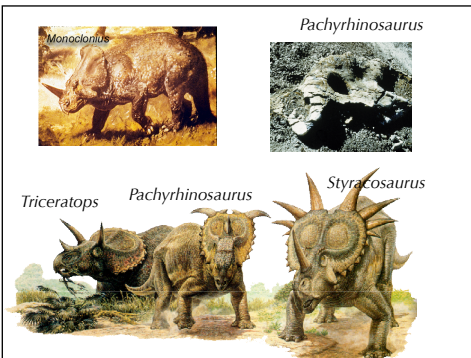
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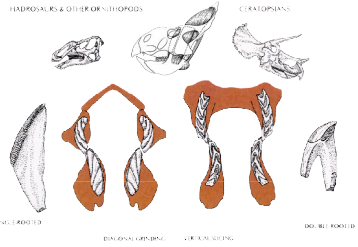


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Monoclonius



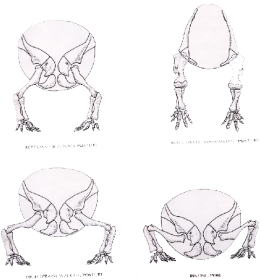
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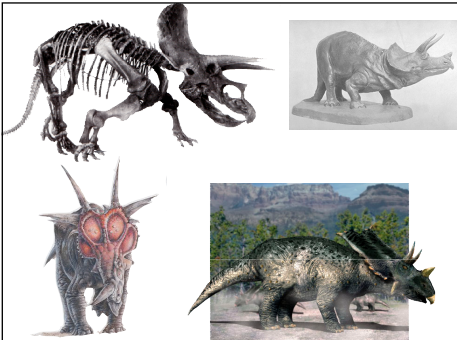
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Ceratopsian Posture

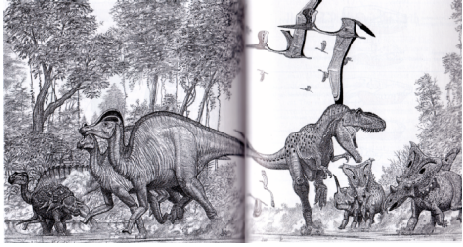


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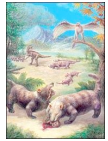


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Late Cretaceous Fauna



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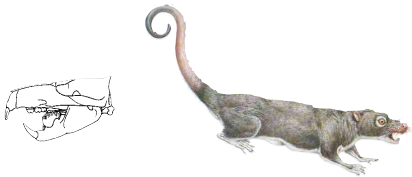
True mammals appeared in the early Jurassic Period. Until the end of the Cretaceous, none was bigger than a housecat, and most were much smaller. . .



Large Triconodont



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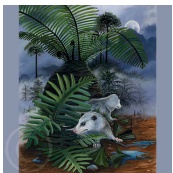
Multituberculate Allotheres abundant



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Marsupials and Placentals



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Metatheria (marsupials and their extinct relatives):

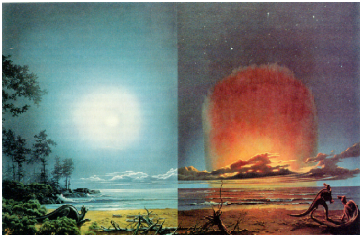
- Oldest fossils Early Cretaceous
- Survive today in opossums of the Americas and great diversity in Australasia (and in the Cenozoic were even more diverse in South America)
- During Mesozoic, metatheres were very common mammals in both Gondwana and Laurasia
- Some very small but some were among the largest mammals of the Mesozoic (badger-sized)
- Recent phylogenetic analyses show that there are no definite members of Marsupalia during the Mesozoic, although they are present so early in the Cenozoic that they probably had evolved before the end of the Cretaceous

Eutheria (placentals and our extinct relatives):

- Oldest fossils Early Cretaceous; survive today as most diverse group of mammals (including us!)
- Placental mammals reproduce by keeping young in womb until birth, fed by placenta: not certain how non-placental eutheres reproduced
- Mesozoic eutheres were small; many were herbivorous, omnivorous and insectivorous
- True placentals are not yet known older than the end of the Cretaceous, but it is quite possible that the major divergences had already happened before the end of the Cretaceous

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Science Fact... or Science Fiction??



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