Dinosaurs guided evolution of early mammals

In the days of the Jurassic, dinosaurs ruled the Earth, while early mammals cowered in their shadows. That used to be the idea. Two remarkably preserved fossils from China now reveal that there was a surprising diversity among early mammals.

The two specimens lived 165 to 160 million years ago and were part of a group that died out before the dinosaurs, leaving no living descendants. But the lifestyles they were adapted for shows that they evolved similarly to modern mammals, and were not severely constrained by the presence of the dinosaurs, says Zhe-Xi Luo of the University of Chicago.

This finding puts the final nail in the coffin of the long-standing view that early mammals were primitive, shrew-like insectivores, overshadowed by the dinosaurs. This idea was based on many specimens of tiny teeth and a few jaw fragments.

Now Luo and his colleagues have found two small but highly specialised relatives of *Castorocauda*. One is the earliest digging mammal ever to have been discovered; the other is both the earliest herbivorous mammal and the earliest tree-dwelling mammal

Together, they show how mammals might have evolved in a world they shared with dinosaurs. Luo thinks that dinosaurs only had a strong influence on limiting mammal diversity at larger sizes. Mammals did not evolve to be large or fast-running herbivores like elephants or deer until the dinosaurs were gone, he says.

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