

# The Cretaceous World TCN: Digitizing Fossils to Reconstruct Evolving Ecosystems in the Western Interior Seaway



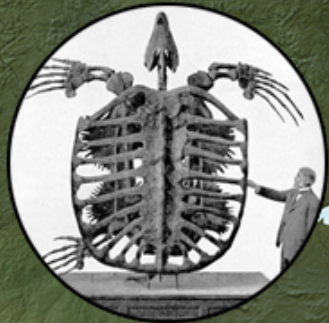
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# The Cretaceous World - TCN







# Western Interior Seaway

*Late Santonian (Desmoscaphites  
bassleri) -- 84.0 Ma*

© Colorado Plateau Geosystems



MOSASAUR



*Xiphactinus audax*  
Sternberg Museum of Natural History





An extinct flying reptile:  
**Pteranodon**



**Skull**  
Pteranodon skull, showing the large eye socket and the beak. The skull is made of bone and is covered in scales.

**Rostrum**

The rostrum is a pointed, bony structure that extends from the front of the skull. It is used for catching fish and other prey.



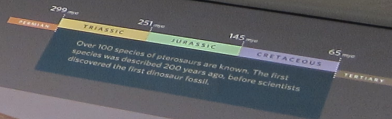
Pteranodon (uh-RAN-uh-don) belongs to an extinct group of reptiles called pterosaurs. They were the first vertebrates to evolve powered flight.



**Rostrum**  
Rostrum and its base, showing the attachment points for the wings. The rostrum is made of bone and is covered in scales.



**Skull and beak**  
Pteranodon skull and beak, showing the large eye socket and the pointed beak. The skull is made of bone and is covered in scales.



**COLLECTION HISTORY**  
Pteranodon was first discovered near Fort Wallace in Logan County, Kansas, by a local party organizing for Professor O.C. Marsh in 1870.











# Cretaceous World – TCN : Participants and Institutions

*University of Kansas* – Bruce S. Lieberman,  
Chris Beard & Jim Beach

*Paleontological Research Institution* – Jonathan  
Hendricks

*American Museum of Natural History* – Neil  
Landman & Ruth O’Leary

*University of Texas*– Ann Molineux, Rowan  
Martindale & Matt Brown



# Cretaceous World – TCN : Participants and Institutions, cont.

*Yale University Peabody Museum of Natural History* – Susan Butts & Chris Norris

*University of Colorado* – Talia Karim

*South Dakota School of Mines & Technology* –  
Laurie Anderson & Maribeth Price

*University of New Mexico* – Corinne Myers

*Sternberg Museum / Fort Hays State University* –  
Laura Wilson



# Cretaceous World – TCN: Outreach



[www.digitalatlasofancientlife.org](http://www.digitalatlasofancientlife.org)

 @PaleoDigAtlas

Digital Atlas App

Free for iPhone/iPad





# Cretaceous World – TCN : Data and Research Goals

- ~ 165,000 specimens databased
- ~ 7,000 fossil localities georeferenced
- ~ 1,600 fossil species imaged (> 3,200 images)

Data shared/published via iDigBio and institutional websites

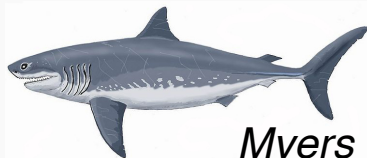
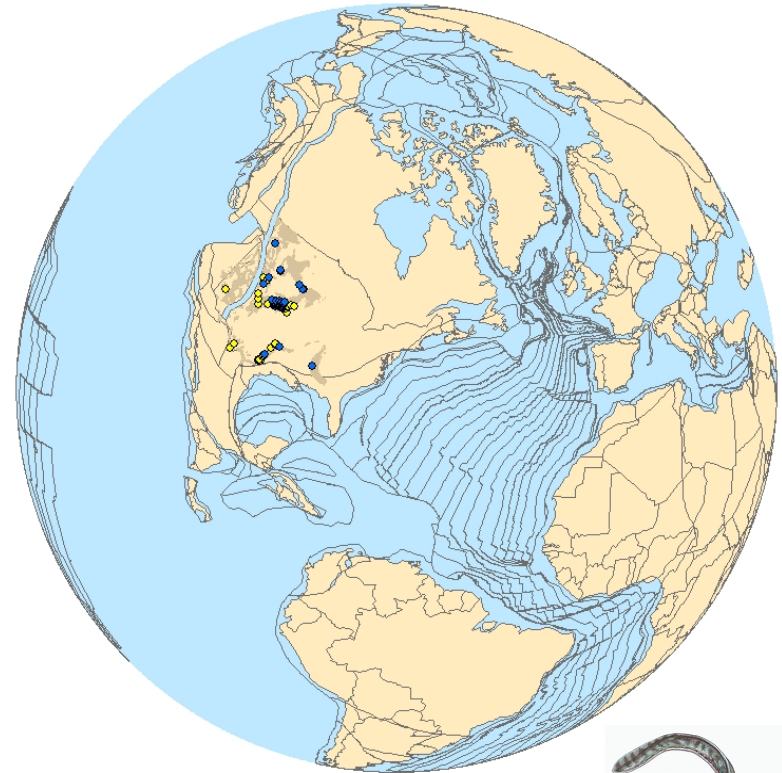
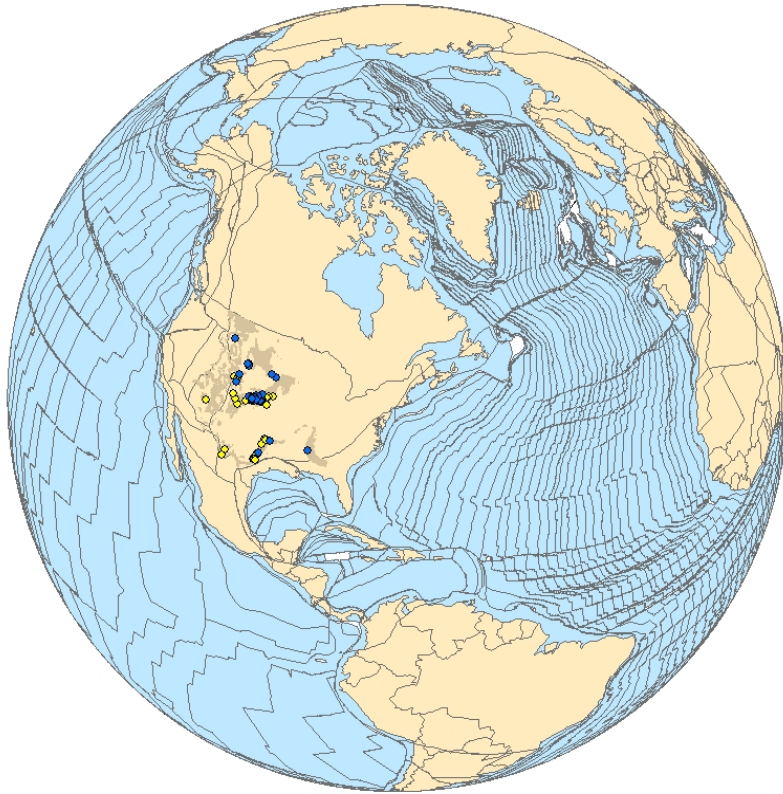


# Cretaceous World – TCN : Data and Research Goals, cont.

Focus on GIS and ecological niche modeling

Present Day

~87Ma



***Cretoxyrhina mantelli***



***Tylosaurus***



Myers & Lieberman. 2011. *Proceedings of the Royal Society*

# Lesson Learned

Recruit high quality collections staff and students





# Thanks to:

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NSF Advancing the Digitization of Biological Collections

