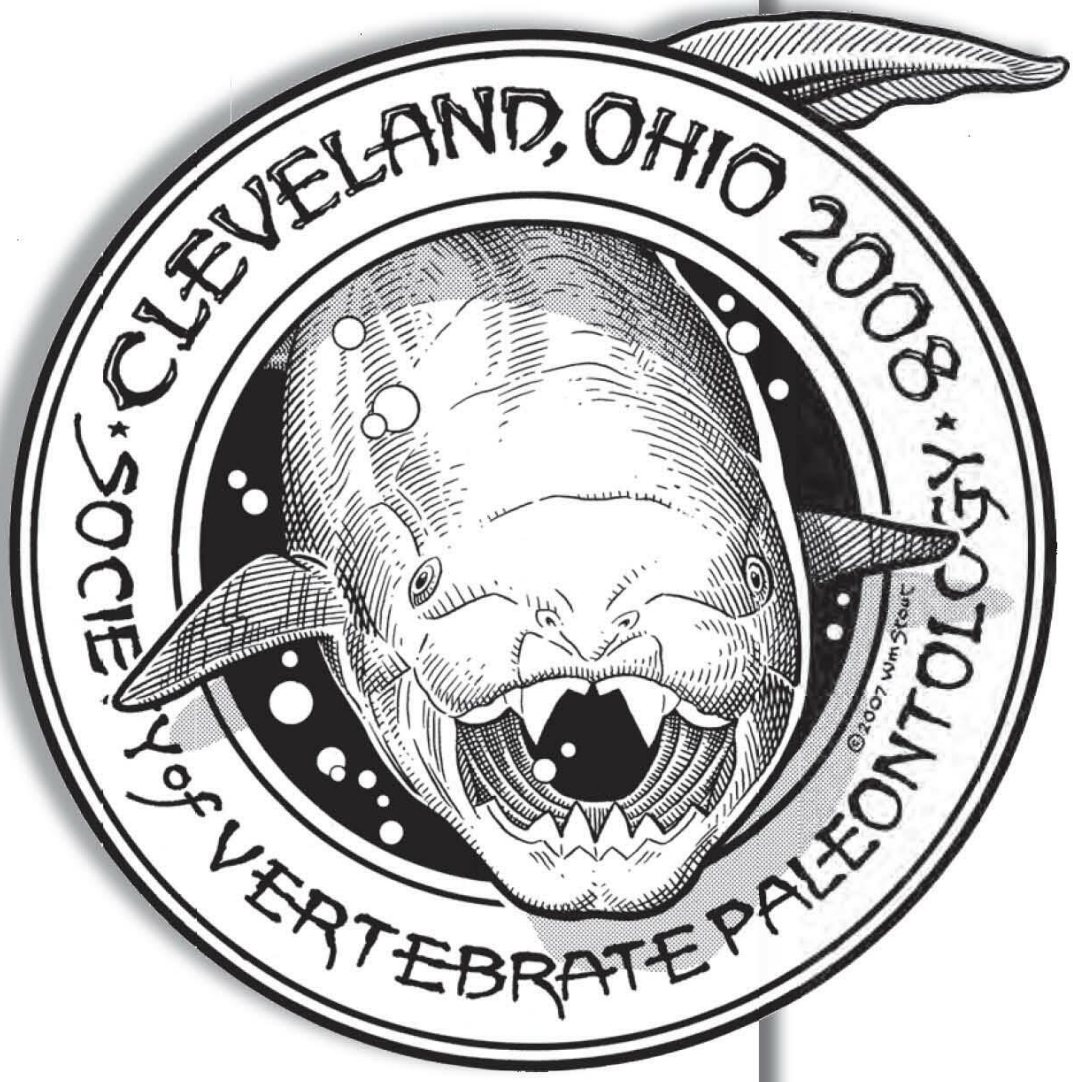
Volume 28, Supplement to Number 3
September 2008

# JVP

Journal of Vertebrate Paleontology
**Program and Abstracts**




# 68th Annual Meeting
## Society of Vertebrate Paleontology

Cleveland Museum of Natural History
Case Western Reserve University
*Renaissance Cleveland Hotel*
Cleveland, Ohio USA
**October 15-18, 2008**

Poster Session II (Thursday)

**THE CRANIAL ENDOCAST OF *EUTRETAURANOSUCHUS DELFSI* (CROCODYLIFORMES, GONIOPHOLIDIDAE) AND ITS RELATIONSHIP TO OTHER CEPHALIC SPACES**

SMITH, David, Northland Pioneer College, Show Low, AZ, USA; DUFEAU, David, Ohio University, Athens, OH, USA; SANDERS, R., University of Utah, Salt Lake City, UT, USA; RIDGELY, Ryan, Ohio University, Athens, OH, USA; WITMER, Lawrence, Ohio University, Athens, OH, USA

Two subadult skulls of the crocodyliform *Eutretauranosuchus delfsi* from the Upper Jurassic Morrison Formation of Colorado were CT scanned. Better results were obtained for the Canyon City *Eutretauranosuchus* (CMNH 8028, holotype) than the Dry Mesa specimen (BYU 17628), but good separation was obtained for both, permitting digital extraction of the cranial endocast and other structures. The endocast, cranial nerves, and endocranial vasculature of *Eutretauranosuchus* are very similar to those of extant crocodylians, as well as those of the Cretaceous taxa *Pholidosaurus* and *Goniopholis*. As in extant crocodylians, the rostral portion of the endocast is a more faithful representation of the underlying brain structure, and indications of more caudal neural structures such as the optic lobes are subtle at best. The endosseous labyrinth of the inner ear strongly resembles that of extant crocodylians. *Eutretauranosuchus* also shares with extant crocodylians a highly expanded paratympanic sinus system characterized by two separate but confluent pneumatic invasions of the braincase: inflation of the medial pharyngeal recess and several secondary recesses (e.g., the intertympanic recess). The degree of pneumatization corresponds most closely with that seen in juvenile extant crocodylians rather than the relatively reduced pneumaticity seen in adults. The organization of the nasal cavity and paranasal air sinuses is also remarkably modern, resembling, in particular, many *Crocodylus* species in having cecal pneumatic recesses. *Eutretauranosuchus* has been noteworthy because it has an extra palatal aperture rostral to the choanae. Both specimens show this trait. However, CT show that the airway itself is unremarkable and essentially modern, and thus the extra bony aperture represents little more than a fontanelle and was presumably bridged by soft tissues. These findings indicate that the fundamental neural and sensory organization observed in modern crocodylians evolved minimally in Neosuchia and was in place by the Late Jurassic, as were most elements of both cephalic pneumatic systems.