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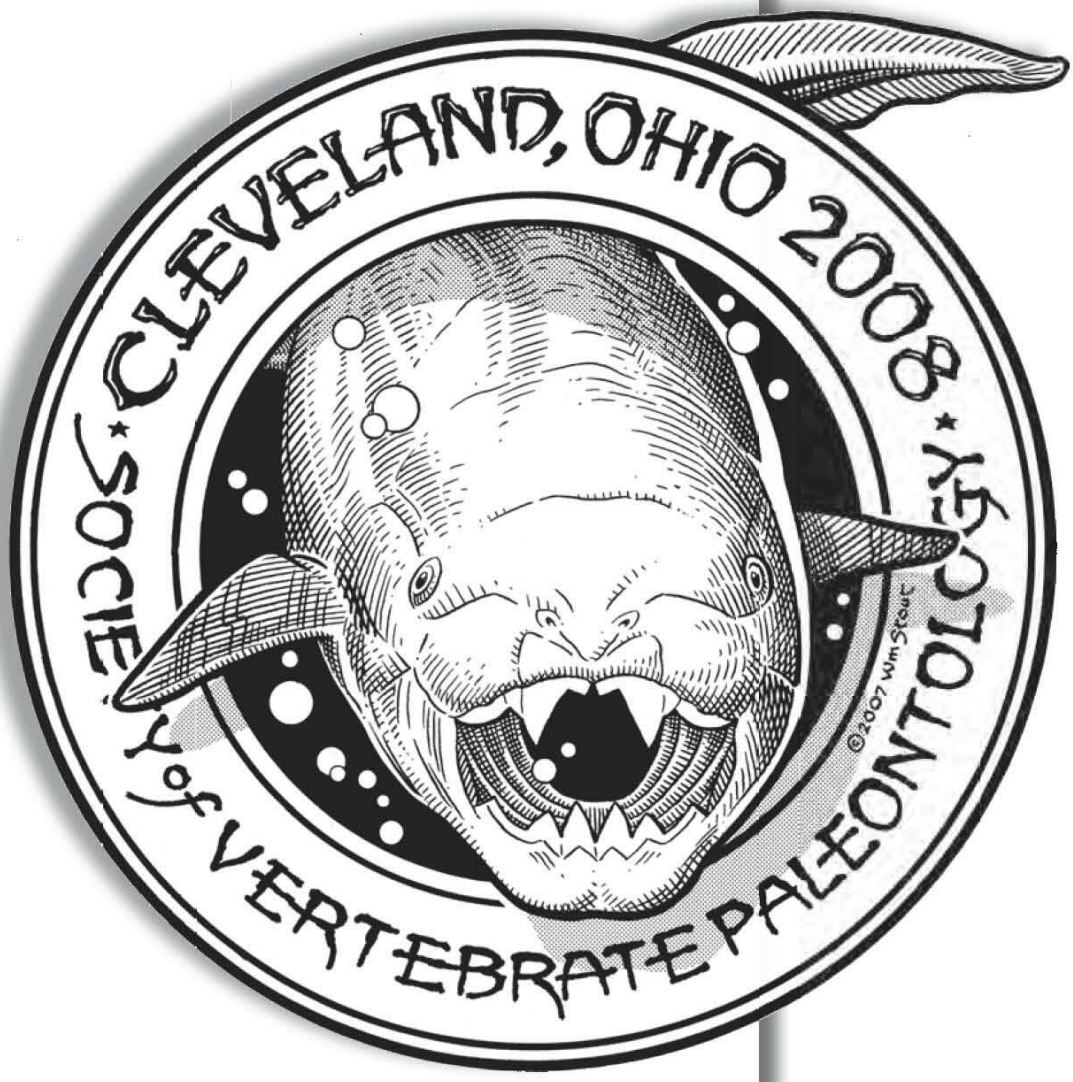
Program and Abstracts



68th Annual Meeting
Society of Vertebrate Paleontology

Cleveland Museum of Natural History
Case Western Reserve University
Renaissance Cleveland Hotel
Cleveland, Ohio USA
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Poster Session II (Thursday)

A COMPUTATIONAL BIOMECHANICAL APPROACH TO THE RECONSTRUCTION OF PREDATORY BEHAVIOR IN THE TERROR BIRD *ANDALGALORNIS STEULLETI*

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The predominantly South American phorusrhacid radiation comprised a range of small to gigantic terrestrial predators for which there are no close functional analogues, making reconstruction of their feeding behavior particularly problematic. Here we have applied a Finite Element approach to a 3-D model of the cranium of the medium-sized (~40 kg) patagornithine phorusrhacid *Andalgalornis steulleti* (Upper Miocene-Lower Pliocene, Andalgala Formation, Catamarca, Argentina), in order to assess its mechanical performance in a comparative context. We found that relative to a range of extant species, including one of its closest living relatives, the red-legged seriema, as well as eagles and vultures, the terror bird's cranium shows high stress under torsional and lateral loadings, but low stress where force is applied in dorso-ventral or in 'pullback' simulations. We conclude that if *A. steulleti* used its beak in the dispatch of relatively large prey, then it must have been applied with considerable precision.