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# Duck-Billed Dinosaurs Emitted Low, Eerie Sounds

Jennifer Viegas, Discovery News



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**Oct. 16, 2008** -- [Duck-billed dinosaurs'](#) bony head crests, which ranged in appearance from long and pointy to huge, Elvis-style pompadour shapes, likely sounded as unusual as they looked, suggests new evidence.

The crests were used to produce low, bellowing calls, suggest the new findings which will be presented today at the annual meeting of the Society for Vertebrate Paleontology. The work presents

some of the strongest evidence to date that at least some dinosaurs communicated with sound.

But what could they have been communicating?

"It is possible they used their calls to attract mates, or to warn of predators," lead author David Evans told Discovery News.



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"The low frequencies of sound likely produced by the crest would have been well suited for traveling long distances and through densely packed forests," added Evans, a paleontologist at the Royal Ontario Museum and the University of Toronto.

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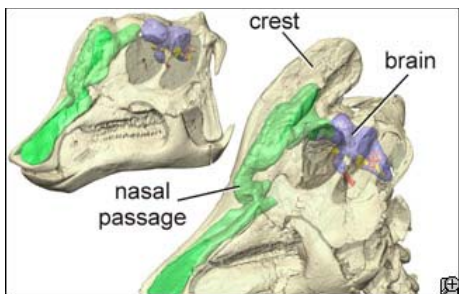
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Evans and his team analyzed both juvenile and adult lambeosaur dinosaur skulls from four duck-billed species: *Corythosaurus casuarius*, *Lambeosaurus sp.*, *Hypacrosaurus stebingeri* and *Hypacrosaurus altispinus*.

Although brain matter and other soft tissue eroded away long ago, the researchers were able to fill in the blanks by observing the structure and shape of [the dinosaur](#) bones, which they studied using CT scans.

"It's difficult to infer the function of structures in an extinct dinosaur when there is so little resemblance to any living animal," admitted co-author Jack Horner, a Montana State University paleontologist.

The scientists determined that the part of the brain responsible for sense and smell was relatively small and primitive in all of the specimens. Other paleontologists had theorized that the nasal passages within the bony crests provided [the dinosaurs](#) with increased olfactory surface area, allowing for a super keen sniffing ability, but the scans suggest otherwise.



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Instead, the scientists noticed that the dinosaur [nasal passages](#) appear to have evolved separately from the external crests, taking on shapes that were not just a by-product of the outward crests.

"This tells us that the nasal passages of the crests had an important function in addition to visual display," Evans explained.

The researchers also witnessed a scientific first -- the world's first look at the inner ear structure of a lambeosaur.

"It confirms that they could likely have heard the types of sounds that could have been made by the crests," says Evans, who believes the noises were deep, eerie and bellowing. Prior computer modeling supports that theory.

He and his team detected the crests, nasal passages and inner ears in both male and female crested duck-billed dinosaurs, suggesting that all of these animals may have accompanied their visual displays with noise.

Evans mentioned that [duck-billed dinosaurs](#) without complicated crests possessed similar inner ears, so they at least likely heard such sounds, and might have produced them too.

[Duck-billed dinosaurs](#) may even have a modern-day counterpart in sound production.

Earlier research suggests that cassowaries, extant flightless birds that can weigh up to 125 pounds, use their helmet-like bony casque to help produce low, "booming" calls.

"When close to the bird, these calls can be heard or felt as an unsettling sensation, similar to how observers describe elephant vocalizations," said Andrew Mack, who led the study for the Wildlife Conservation Society.

Mack said, "These investigations are exciting because many dinosaur fossils exhibit casques at least superficially similar to those of living cassowaries."

Evans added that [living crocodilians](#) also possess inner ears that are comparable to those of the duck-billed dinosaurs. Somewhat similar to cassowaries, crocodiles and alligators produce very low, rumbling calls, sounds that may have been common during the Dinosaur Age.

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