

"Long before it's in the papers"

[RETURN TO THE WORLD SCIENCE HOME PAGE](#)

“Oldest known” dinosaur nesting site found

Jan. 24, 2012
Courtesy of the University of Toronto
and World Science staff

Excavations in South Africa have unearthed a 190-million-year-old dinosaur nesting site that sheds light on the evolution of complex reproductive behavior in early dinosaurs, researchers say.

Made by dinosaurs of a species called *Massospondylus*, the nests predate previously known nesting sites by an estimated 100 million years.



This painting by artist Julius Csotonyi illustrates how the nests, eggs, hatchlings and adults of the prosauropod dinosaur *Massospondylus* might have looked.

A study led by paleontologist Robert Reisz of the University of Toronto Mississauga describes clutches of eggs—many with embryos—as well as tiny dinosaur footprints. These are said to provide the oldest known evidence that hatchlings stayed at the nesting site long enough to at least double in size.

At least ten nests turned up at several levels of rock, each with up to 34 round eggs in tightly clustered clutches, scientists said. The layout indicates these dinosaurs returned repeatedly to this site, a behavior known as “nesting fidelity,” and probably assembled in groups to lay their eggs, a habit called “colonial nesting,” the researchers added—the oldest known fossil evidence of such behaviors.



An embryonic skeleton of *Massospondylus* from clutch of eggs at the nesting site. (Photo by D. Scott)

The scientists contend that the mothers' large size, at six meters or yards in length; the small, tennis ball-like size of the eggs; and the nests' highly organized nature suggest mothers may have arranged the eggs carefully.

"The eggs, embryos, and nests come from the rocks of a nearly vertical road cut only 25 meters long," said Reisz. "Even so, we found ten nests, suggesting that there are a lot more in the cliff, still covered by tons of rock. We predict that many more nests will be eroded out in time as natural weathering processes continue."



A handprint of a baby *Massospondylus* from the nesting site in South Africa. The print shows the hatchlings walked on all fours, whereas adults walked on two legs. (Photo by D. Scott)

The fossils were found in sedimentary rocks from the Early Jurassic Period in the Golden Gate Highlands National Park in South Africa. This site has previously yielded the oldest known embryos of *Massospondylus*. The dinosaur is part of a lineage known as "prosauropods" because

of a kinship with giant, long-necked dinosaurs from the Jurassic and Cretaceous periods, known as sauropods.

“Even though the fossil record of dinosaurs is extensive, we actually have very little fossil information about their reproductive biology, particularly for early dinosaurs,” said David Evans, associate curator of Vertebrate Palaeontology at the Royal Ontario Museum, where some of the eggs and embryos will be on display through May. “This amazing series of... nests gives us the first detailed look at dinosaur reproduction early in their evolutionary history, and documents the antiquity of nesting strategies that are only known much later in the dinosaur record.”

The study is published in the journal *Proceedings of the National Academy of Sciences* .