

# Ancient dinosaur nursery oldest nesting site yet found

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This is a close-up of embryonic skeleton of *Massospondylus* from clutch of eggs at the nesting site. The head was pushed out of the egg after death, probably because of gases produced by decay. Credit: Photo by D. Scott

An excavation at a site in South Africa has unearthed the 190-million-year-old dinosaur nesting site of the prosauropod dinosaur *Massospondylus*—revealing significant clues about the evolution of complex reproductive behaviour in early dinosaurs. The newly unearthed dinosaur nesting ground predates previously known nesting sites by 100 million years, according to study authors.

A new study led by U of T Mississauga paleontologist Robert Reisz, with co-author David Evans of the Royal Ontario Museum and a group of international researchers, describes clutches of eggs, many with embryos, as well as tiny dinosaur footprints, providing the oldest known

evidence that the hatchlings remained at the nesting site long enough to at least double in size.



This is an artist's interpretation, showing 190 million year old nests, eggs, hatchlings and adults of the prosauropod dinosaur *Massospondylus* in Golden Gate Highlands National Park, South Africa. Credit: Artwork by Julius Csotonyi

At least ten [nests](#) have been discovered at several levels at this site, each with up to 34 round eggs in tightly clustered clutches. The distribution of the nests in the sediments indicate that these early [dinosaurs](#) returned repeatedly to this site, a behaviour known as "nesting fidelity", and likely assembled in groups to lay their eggs, ("colonial nesting"), the oldest known evidence of such behaviour in the fossil record. The large size of the mother, at six metres in length, the small size of the eggs, about six to seven centimetres in diameter, and the highly organized nature of the nest suggest that the mother may have arranged them carefully after she laid them.

"The eggs, embryos, and nests come from the rocks of a nearly vertical

road cut only 25 metres long," says Reisz, a professor of biology at U of T Mississauga. "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."



This is a handprint of the baby dinosaur *Massospondylus* from the nesting site in South Africa. This handprint shows that the hatchlings walked on all fours, whereas the adults are known to be bipedal. Credit: 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 belonging to *Massospondylus*, a relative of the giant, long-necked sauropods of the Jurassic and Cretaceous periods.

"Even though the fossil record of dinosaurs is extensive, we actually have very little fossil information about their reproductive biology, particularly for early dinosaurs," says David Evans, associate curator, Vertebrate Palaeontology at the Royal Ontario Museum. "This amazing

series of 190 million year old 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."

Provided by University of Toronto

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