

Prehistoric Bedfe

The 2003 excavation of Elliot the sauropod, Australia's

*Looking west across the Elliot pit
as the 2003 excavation continues.*

*Photo: Chris Stacey,
The University of Queensland*



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After the successes of 2002, there were many expectations for the next phase of the excavation of Elliot the sauropod, Australia's largest dinosaur. Once again the blacksoil plains near Winton, central-western Queensland, continued to bear forth their 98-95 million-year-old fossilised treasures, but this time there was a surprise in store for us: Elliot was not alone.

How's
largest dinosaur

Setting the scene

The 2003 Elliot dig took place during the first two weeks of September. In addition to Dave and Judy Elliott and other members of their clan, 21 people participated. Dr Steve Salisbury (The University of Queensland), Dr Alex Cook (Queensland Museum) and Damien Munro (UQ/QM) were there for the full duration of the dig, as was Jewel Karpel, who once again flew in for the occasion all the way from New Mexico in the USA. Joanne Wilkinson

(QM) also put in a long stint, but had to leave half way through the second week to be with her family. Tim Holt (UQ), Kylie Piper (Sydney), Libby Manual (Sydney) and Joan Rasmussen (Brisbane) joined the team during the first half of the dig, and helped set up the site. During the second week of the dig, the latter three switched places with Scott Hocknull (QM), Kerry Geddes (UQ), Chris Glen (UQ), Stewart Macdonald (UQ) and Perth's ever-smiling Yolanda Pereira.



Land Rover Australia kindly provided the team with this Discovery Td5 and Defender Td5 Extreme to use during the dig.

Photo, Chris Stacey, The University of Queensland



The team works its way through soil at the western end of the pit under the ever-watchful eye of slave-driver Judy.

Photo, Chris Stacey, The University of Queensland

Also there during the second week were Gregor Stronach, on hand to catch all the off-road action for Overlander 4WD Magazine, and UQ photographer Chris Stacey.

Industry Partner for the Winton Dinosaur Project, Land Rover Australia, kindly provided the team with two vehicles: a 2002 Discovery Td5 and a Defender Td5 Extreme. The QM's workhorse, the trusty 'Dino Defender', was also there. Winton Shire Council provided tables and chairs and helped transport equipment to and from the site. Alan Smith and Trish Sloan from Outback Aussie Tours, Longreach, provided catering for the hungry dino-diggers, as well as whip-cracking demonstrations during smoko breaks. Alan's uncle, Ian Tidswell also helped with catering, and showed us the finer points of operating the K9 Dingo mini-digger, kindly lent to us by the Dingo team at Dalby.



Alan Smith (Outback Aussie Tours) and Ian Tidswell kept the team of hungry dino-diggers happy during the first week of the dig with hearty outback meals.

Photo, Steve Salisbury



Dave Elliott and Ian Tidswell carefully remove sediment from around what hopefully might be a bone, while in the background, Scott Hocknull (QM) puts the Dingo K9 mini-digger to work.

Photo, Chris Stacey, The University of Queensland



Looking west across the Elliot pit as property owner Dave Elliott digs ever deeper in an attempt to unearth more bones.

Photo, Chris Stacey, The University of Queensland

A skeleton in the closet

During the 2002 dig, we located the siltstone horizon in which the sauropod bones were preserved. The 2002 pit encompassed an entire quadrat (10m x 10m), and went down to a depth of around 1.2m. The bones occurred in an east-west band, about three or four metres across. The goal of the 2003 dig was to follow this fossil-bearing horizon to the east and west of the 2002 pit.

After Dave had removed all the overlying black soil with his loader, it didn't take long before bones began to emerge from the underlying yellow and orange siltstone. The pace of discovery continued for several days, with only a slight lull towards the end of the first week. Things got going again during the second week, and after 14 days digging we had amassed 27 jackets (protective plaster cocoons for the bones – made on site), containing at least the equivalent number of bones. Probably about half of these will prove to be identifiable once they have been prepared. Some of the better preserved bones include sauropod limb elements and vertebrae. On-site sieving of the sediment associated with the bones was done by Alex, Damien and Scott and also proved to be productive, with numerous teeth and many small fragments of bone being found.

From the outset, our team had always assumed they were digging for only one animal – Elliot. There were

no duplicate elements (only one right thighbone, for instance), and the specimens that had been unearthed in 2002 all seemed to belong to a single animal. But appearances can be deceiving, especially in the field. The hard ironstone crust in which the bones are encased obscures their true size and shape, and a single encrustation can often contain more than one bone.

As preparation of the bones in some of the jackets collected in 2002 continued, inconsistencies began to arise with regard to bone size. The most notable was an almost complete right



Property owner Judy Elliott piecing together a portion of one of Mary's lower arm bones.

Photo, Chris Stacey, The University of Queensland

tibia (one of the shinbones). Based on the size of his right thighbone, Elliot's tibia would have been around 90cm to 100cm long. This tibia was only around 60cm long – large compared with those from the majority of other dinosaurs around at the time, but far too small to belong to a gargantuan such as Elliot. The pattern continued, but it wasn't until after the confirming results of the 2003 dig that I felt confident enough to declare that we were dealing with the bones of at least two animals.

In December 2003, the discovery of a second sauropod at the Elliot site was announced at The University of Queensland by Minister for the Arts, Matt Foley, and Deputy Vice-Chancellor (Academic), Margaret Gardner. This sauropod was christened Mary in honour of Dr Mary Wade, former Curator of Palaeontology at the Queensland Museum, now living at Hughenden. In some way or another, Dr Wade has been involved in nearly every major dinosaur discovery that has taken place in western Queensland over the past 30 years. Many of the sauropod finds made in the Winton district, including Elliot, would never have come to light if it were not for her efforts. Along with Dr Tony Thulborn, Dr Wade also described the world's only known set of tracks representing a dinosaur stampede at Lark Quarry, 115km southwest of Winton in the late 1970s and early 80s. The trackways are exposed in a small quarry, and include more than 3000 footprints made by at least 150 individual dinosaurs 98-95 million years ago.

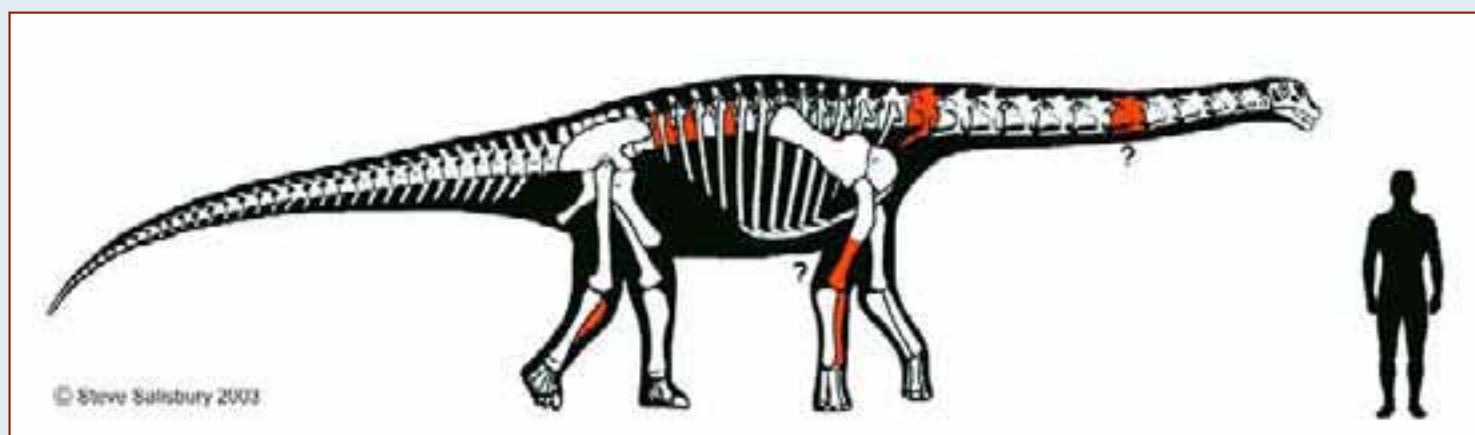


Joe Elliott and Gregor Stronach (Overlander 4WD magazine) with one of the larger bones unearthed during the 2003 dig.

Photo, Steve Salisbury

MARY

Classification	Sauropod dinosaur
Age	98-95 million years old
Parts of the skeleton collected so far	Right tibia (one of the shinbones), right radius (one of the lower arm bones), possibly part of the right humerus (the upper arm bone), trunk and possibly neck vertebrae, and numerous rib fragments
Estimated length	10-12 metres
Height at hip	2 metres
Discovery site	On a property near the outback town of Winton, central western Queensland, Australia
Notes	<p>Mary represents the second sauropod found at the Elliot site. Although some of her bones were discovered alongside those of Elliot in 1999 by Dave Elliott and during subsequent digs in 2002 and 2003, it was not until they were fully prepared that her presence was recognised. Based on the bones that have been recovered so far, she appears to have been 10m to 12m long – about half the size of Elliot. It's unclear if Mary was the same type of sauropod as Elliot, but at this stage it seems very likely.</p> <p>This is the first time that the bones from two sauropod skeletons have been found together at a fossil site in Australia.</p>



A skeletal reconstruction of Mary's namesake based on a generalised titanosauriform sauropod. Bones that have been collected so far are shown in red.

Illustration, Steve Salisbury



Dr Mary Wade at the 2003 Elliot dig.

Photo, Steve Salisbury



The author puts his foot where his mouth is. Photo, Chris Stacey, The University of Queensland



Dr Alex Cook (Queensland Museum) and Damien Munro (Queensland Museum/The University of Queensland) sieving for small fragments of bone during the 2003 dig. Photo, Steve Salisbury

The new cast

Bones that probably belong to Mary include a tibia (one of the shinbones), a radius (one of the lower arm bones) and several vertebrae. These elements indicate she was probably about 10m to 12m long and might have weighed about 10 to 14 tonnes.

Unfortunately for Elliot, it now looks like most of the identifiable bones that have been collected from the Elliot site actually belong to Mary. The same holds true for the majority of the specimens collected during 2003, although we can't really be sure until they've been fully prepared in the laboratory.

Based on the parts of their skeletons that have been found so far, it's very likely that both Elliot and Mary belong to *austrosaurus*, the genus to which most of the sauropod bones found in the Winton district over the years have been referred. The alternative is that they may belong to a new genus that was very similar to *austrosaurus*. At present, it is unclear whether they belong to the same species, but it seems likely. These questions can only be answered when the material that has been collected is fully prepared and studied.

It's still unclear what caused Elliot and Mary's deaths, but whatever happened, both their carcasses ended up on the banks of a billabong or on the bend of a meandering river somewhere in the middle of a vast, heavily forested coastal plain. Careful examination of the sediment in which their bones were found has also revealed the remains of several other animals, providing us with a more detailed snapshot of the world that these giant dinosaurs inhabited.

Among the smaller fossils associated with Elliot and Mary's bones are the teeth of medium-sized meat-eating dinosaurs called theropods. These particular theropods would have been slightly larger than the 'raptors' in the

Jurassic Park movies. There are also numerous teeth from dwarf crocodylians. Both the theropod and the crocodylian teeth are broken off at their bases, indicating that they may have been lost while these animals were scavenging on the sauropod carcasses. Among the other bones may also be the remains of some of the turtles that inhabited the waters in which the sauropods died.

The discovery of Mary adds a new twist to excavations at the Elliot site. Are Elliot and Mary the only sauropods whose remains are buried beneath the black soil at the Elliot site? Are their remains restricted to one area or spread out over the entire grid? Unfortunately, there's really only one way to answer these questions, and that is to keep digging!



A full moon rises over the pit as another day at the Elliot dig draws to a close. Photo, Chris Stacey, The University of Queensland

Acknowledgements

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