

# How we identified weird and wonderful 'Jurassic platypus' dinosaur

April 28 2015, by Martin Ezcurra

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Calm down, I'm a vegetarian. Credit: Gabriel Lio, Author provided

When the platypus was discovered in very late 18th century, its bizarre features that appeared to be a mash-up of other animals perplexed naturalists. Now a creature from the past that would have looked like strange mix of unrelated dinosaurs has been discovered. And our research suggests that it belonged to a hitherto unknown lineage of herbivores that lived around 145m years ago, in the Jurassic period.

I was part of the international team that [identified this strange creature](#) by analysing bones enclosed in ancient rocks. Our research, [published in the journal \*Nature\*](#), reveals that the Chilesaurus was relatively small – a fully grown adult would have measured about 3.2 metres. We discovered this by investigating four whole skeletons and several other bones – a task that was not particularly difficult as the bones were well preserved. In fact, only a few skull bones and the end of the tail remain undiscovered.

The creature had leaf-shaped teeth, which means it was most likely a plant eater. Other signs were the robust legs, which resemble those of other herbivorous dinosaur groups, and the morphology of the pelvis that allowed to increase the gut capacity for processing plant material. Chilesaurus was the most common species of the braided river system in which it lived alongside with primitive crocodiles and large long-necked dinosaurs.

## **A genealogical puzzle**

Identifying what the dinosaur looked like was not the most challenging of the research, but it was very difficult to figure out which dinosaur group it belonged to – an issue we spent many late nights discussing. We were completely astonished by the fact that each part of the skeleton that was cleaned out from the surrounding rock resembled a different group

of dinosaurs.

Its skull and neck look like those of primitive long-necked dinosaurs like [Plateosaurus](#); the vertebrae resemble those of primitive meat-eating theropods such as [Dilophosaurus](#); the pelvis is very similar to that of [ornithischian dinosaurs](#) such as [Iguanodon](#); and the hand has only two well-developed fingers as in [Tyranosaurus Rex](#), but with a longer arm.



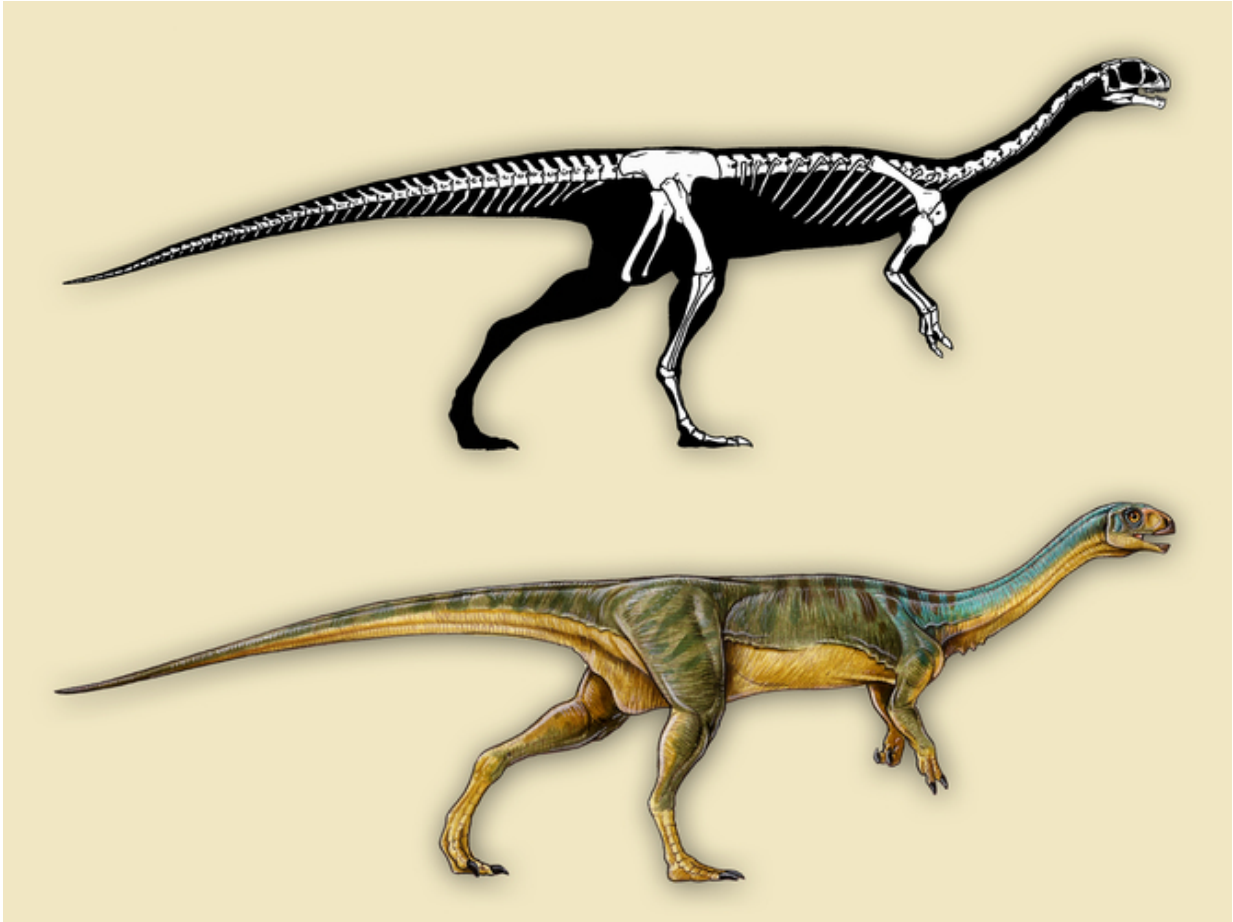
Chileosaurus' teeth suggest it was a vegetarian. Credit: Fernando Novas, Author provided

However, there is no possibility that Chilesaurus is simply made up of different [dinosaur bones](#), because we found four partial skeletons. Working partly in Buenos Aires, Argentina, and partly in Birmingham, our team compared the bones to those of other dinosaur groups. Eventually we decided through different analyses that Chilesaurus belongs to a completely unknown lineage of dinosaurs that acquired herbivore habits from carnivorous ancestors. Chilesaurus is the first herbivorous [theropod](#) (a lineage that includes mainly predatory dinosaurs) from the southern hemisphere.

We believe that the new dinosaur is a primitive [tetanuran](#) – a group of theropods that includes [Megalosaurus](#), [Allosaurus](#), Tyrannosaurus and birds – but not [Carnotaurus](#) and other early dinosaurs.

The first bones were found by geologist Manuel Suarez and his seven-year old son. The study took four years and the analyses were conducted during the second half of last year.





The well-preserved skeleton. Credit: Gabriel Lio, Author provided

### **A Chilesaurus of our times**

A bizarre combination of features like that seen in Chilesaurus can also be seen in living animal species, such as the [platypus](#), which is a mix of duck, beaver and otter. Some naturalists even considered it a hoax. But animals such as Chilesaurus and the platypus can be explained by an evolutionary process called convergence evolution, in which two unrelated species or groups acquire similar characteristics because of living in similar environments or having a similar behaviour.

Similarly, the bizarre anatomy of Chilesaurus will probably open a heated discussion about its relationships. Ultimately, the discovery reveals how much data is still completely unknown about dinosaurs and that there is still much waiting to be discovered in the rocks that tell the story of our planet in deep time.

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