

RELEASED 10 June 2025 at 1am AEST



## Dinosaur's last meal revealed

Research reveals the world's first reported stomach contents of a sauropod dinosaur

- Scientists have discovered the first confirmed stomach contents of a sauropod dinosaur.
- The 95-million-year-old *Diamantinasaurus matildae* specimen, nicknamed Judy, was excavated and prepared in Winton, Queensland, by the Australian Age of Dinosaurs Museum of Natural History.
- Analysis of Judy's gut contents revealed a mix of conifer leaves, seed ferns and flowering plants, confirming that sauropods fed at various heights and were bulk feeders.
- Mineralised skin found with the specimen reveals polygonal (often hexagonal) scales
- The research, published in *Current Biology*, marks the first use of molecular techniques to identify plant remains in a sauropod's stomach.

A groundbreaking discovery has provided the first direct evidence of a sauropod's diet. Fossilised stomach contents from a 95-million-year-old *Diamantinasaurus matildae* specimen, nicknamed Judy, offer unprecedented insight into the feeding habits of these giant herbivores. Discovered in 2017 on a property near Winton by Bob Elliott and excavated by the Australian Age of Dinosaurs Museum (the Museum), analysis of the stomach contents has identified the specific plants Judy consumed, offering new understanding of the role that sauropods played in Cretaceous ecosystems. The specimen was named in honour of Museum co-founder Judy Elliott.

The research, led by Dr Stephen Poropat from Curtin University and published today in *Current Biology*, available at [https://www.cell.com/current-biology/fulltext/S0960-9822\(25\)00550-0](https://www.cell.com/current-biology/fulltext/S0960-9822(25)00550-0) DOI: 10.1016/j.cub.2025.04.053, confirms that Judy dined on a diverse range of plant matter, including pinnules and bracts from towering conifers, and leaves and fruiting bodies from seed ferns and early flowering plants.

In addition to the fossilised stomach contents, Dr Poropat and colleagues also examined mineralised skin found with the specimen. This revealed a pattern of polygonal (often hexagonal) non-overlapping scales, a characteristic commonly seen in other sauropods.

Dr Poropat explained that ever since the late 19th century palaeontologists have firmly regarded sauropods as herbivores.

"The specific plants that they ate, and the height above ground at which they fed, have remained unknown – until now," Dr Poropat said.

"The stomach contents we found belonged to a 12-metre-long, subadult sauropod that was still growing at the time of its death."

"Our findings show that at least some species of subadult sauropods were able to feed at a range of heights above ground level, and consequently were equipped to deal with environmental and vegetation changes throughout the Jurassic and Cretaceous periods."

The research also confirms that sauropods were bulk feeders, similar to modern herbivorous reptiles and birds. Rather than chewing their food, they would have swallowed it whole, allowing

their digestive system to break it down over time. A single meal would likely have stayed in their digestive tract for up to two weeks before being excreted.

John Curtin Distinguished Professor Kliti Grice, Founding Director of Curtin's WA Organic and Isotope Geochemistry Centre and ARC Laureate Fellow, emphasised the novel approach used to analyse the fossilised plant matter.

"By using advanced organic geochemical techniques, we were able to confirm the presence of both angiosperms and gymnosperms in the diet of this sauropod. This unique approach provided molecular evidence of the plants that sauropods consumed," Professor Grice said.

David Elliott OAM, co-founder and Executive Chairman of the Australian Age of Dinosaurs Museum, said, "Judy's stomach contents and mineralised skin offer a unique insight into life during the Cretaceous Period in Outback Queensland. This discovery strengthens Winton's reputation as one of the world's most diverse dinosaur deposits and reinforces the importance of continued fieldwork and research in this region."

According to Elliott, the fossils of Judy, along with other significant specimens, will help shape future research and exhibitions at the Museum. We are committed to preserving and showcasing these incredible discoveries, ensuring that Australia's rich natural history is shared with the world."

The stomach contents and mineralised skin were preserved alongside yet-to-be-published body fossils of the subadult *Diamantinasaurus*, which are housed at the Australian Age of Dinosaurs Museum. These fossils will form a key part of the *Australia Through Time* exhibition in the Museum's future multi-million-dollar facility.

The full research paper, titled *Fossilised gut contents elucidate the feeding habits of sauropod dinosaurs*, is available online. This research was funded through a 2021 ARC Laureate Fellowship awarded to Professor Grice (FL210100103: Interpreting the molecular record in extraordinarily preserved fossils).