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The pterosaur *Anhanguera santanae*, a relative of the dinosaurs, had a wingspan of almost 4 metres.

## PALAEOLOGY

# Brazil wins fight over fossil bounty

*French court orders return of 45 dinosaur and animal fossils to Brazil, and will soon rule on fate of pterosaur bones.*

BY RODRIGO DE OLIVEIRA ANDRADE

**F**orty-five fossils valued at a total of €600,000 (roughly 2.5 million Brazilian reais, or US\$680,000) will be repatriated after a high-court judge in Lyon, France, ruled on 13 May that the specimens had been removed illegally from Brazil. Later this month, the same court will decide the fate of a 46th fossil — the near-complete skeleton of a flying reptile called a pterosaur (*Anhanguera santanae*), which has a wingspan of almost 4 metres.

Palaeontologists in Brazil hailed the French court's ruling as the most significant win yet in their country's ongoing efforts to stamp out illegal fossil trading and reclaim cultural treasures. The decision "is a victory for Brazilian science", says Mírian Pacheco, a palaeobiologist at the Federal University of São Carlos. She says that studying the fossils should help researchers to better understand the biology of these ancient animals and their environment — including the factors that drove them to extinction.

The legal action is the culmination of an investigation that Brazilian and French authorities began five years ago, after the French firm Geofossiles listed the pterosaur for sale on the

auction site eBay — acting on behalf of the firm Eldonia, which owns all 46 fossils. "It is the first time that this amount of fossils will be repatriated to Brazil after the decision of a foreign court," says Rafael Rayol, the government prosecutor who led Brazil's investigation into the fossils.

Geofossiles is not a party to the legal proceedings. Lawyers for Eldonia, which is based in Gannat, France, told *Nature* that the company was not aware of the French court's ruling, and that "if such a decision was taken by the judge, we would fight against it and win". They denied that Eldonia had done anything illegal and said that selling the fossils is legal under European law.

The Araripe Basin in northeast Brazil, where the fossils originated, sits at the boundary of the states of Ceará, Piauí and Pernambuco. The region is famous among palaeontologists for its huge array of well-preserved prehistoric fossils. They include many from the Cretaceous period, 145 million to 66 million years ago, which ended with the

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disappearance of the dinosaurs.

Authorities in Brazil suspect that the fossils at the centre of the court case — all rare, well preserved and of high scientific value — were taken from the country in the 1980s and 1990s, but have not said who might have taken them. "We are talking about remains of sea turtles, fish, reptiles, arachnids, insects and plants that are millions of years old," says Taissa Rodrigues, the biologist at the Federal University of Espírito Santo in Vitória who tipped Brazilian authorities off about the fossils.

In 2014, a group of palaeontologists on Facebook warned Rodrigues, who studies pterosaurs, that one of the biggest *A. santanae* fossils ever found in Brazil was being auctioned online. Geofossiles, a shop in Charleville-Mézières, France, was asking almost 1 million reais for the pterosaur.

Rodrigues was struck by the fact that the pterosaur skeleton was nearly complete, with its head, neck and wings intact. "Usually we find only isolated bones," she says. But she was also surprised to see the specimen for sale, because all fossils in Brazil belong to the government, whether they are found on public or private land. "They are the state's property by law and may not be taken out of the country or sold, even by Brazilian citizens," Rodrigues says. The penalties for doing so without government permission include fines and imprisonment.

Rodrigues contacted the Brazilian Public Prosecutor's Office, which launched an investigation into the fossil auction and requested legal help from French authorities. They soon found the pterosaur's owner, Eldonia.

Rayol says that the 45 fossils affected by the French court ruling will be returned to Brazil this year. Brazilian authorities have already requested permission to inspect the fossils in France as they develop a plan for shipping them to a museum run by the Regional University of Cariri, in Ceará, Brazil, he says. Rayol expects the French court to order the return of the 46th fossil, the pterosaur, to Brazil at the conclusion of the forthcoming trial.

The outcome of the French fossil case will help Brazilian authorities to establish protocols for repatriating fossils in the future, says André Strauss, an archaeologist at the University of São Paulo's Museum of Archaeology and Ethnology. "It also has an institutional value," he says, making it "clear that [Brazil] will no longer tolerate this sort of colonialist practice" of exporting fossils without permission.

In the meantime, Pacheco is working to educate her fellow Brazilians about fossil trafficking. "In Angatuba, in São Paulo's countryside, where I have been working for quite some time, people used to sell fossils as souvenirs or keep them in their properties, without knowing this is a crime," she says. "Aiming to change such behaviour, I have been promoting heritage education activities among those living near palaeontological sites so they might monitor suspect activities." ■