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Who Controls Access to Research on Fossils?

By John Fleck

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Randall Irmis just wanted to see an old skull. The crocodilelike creature, called a phytosaur, lived more than 200 million years ago in what is now northern New Mexico. Its fossil skull, excavated from U.S. Forest Service land in 1989, sat in the collection of the New Mexico Museum of Natural History and Science.

Irmis, a Berkeley graduate student trying to understand the history of New Mexico's phytosaurs, wanted a look. The museum's staff would not let him.

Irmis was given access to a long list of other fossils in the museum's vast collection of New Mexico fossils. But the phytosaur skull "is being studied in house by us," museum collections manager Justin Spielmann told Irmis in a June 22, 2007, e-mail. Irmis would not be able to look at it.

Museum of Natural History scientists had already written about the fossil and published its picture four times. Irmis just wanted to see it for himself.

He made another plea.

"I simply would like to look at it and confirm its identification," Irmis wrote back. "I don't need to photograph it. I doubt this would interfere with any research."

The answer, Irmis recalled in a recent interview, was still "no."

The issue raises legal questions, because the fossil was found on federal land. It also illustrates issues at the heart of a raging debate in the scientific community about ethics at the museum.

The New Mexico Department of Cultural Affairs and the Society of Vertebrate Paleontology are investigating complaints against a group of museum scientists, led by the museum's acting director, paleontologist Spencer Lucas.

Critics accuse Lucas and his colleagues of stealing their ideas, publishing them, without credit, in publications he and his colleagues authored in the New Mexico museum's scientific bulletins.

Irmis' problem is separate from the ethics complaints, and he is not among the group of young scientists who have waged a public battle with against Lucas and his colleagues.

But his experience in trying to see the phytosaur skull goes to a central question in the ethics debate: To what extent do the museum's scientists have the right to control who gets to study and publish papers about the fossils in its collection?

Competitive climate

The Museum of Natural History's collection of more than 50,000 specimens is housed in a one-story structure across the street from the museum's main public exhibit halls.

Row after row of gray cases hold small fossils, while industrial shelves with larger fossils make the collections room look a little like a cross between a scientific bonanza and Costco.

Nearby, in the fossil prep lab, museum staff and volunteers labor over fossils, painstakingly removing the bones from the rock in which they are typically embedded.

The fear of being scooped runs deep among some paleontologists, the scientists who hunt and study the bones of these ancient creatures.

In general, researchers like Irmis can see any fossil they want in the museum's vast collection, according to Spencer Lucas, the museum's acting director and one of the people who told Irmis "no."

"We've always had an open collections policy," Lucas said in a recent interview. "We've pretty much let people look at anything they want to look at," he said.

But that policy is out the window when someone at the museum is studying the fossil, Lucas said.

When Irmis came to New Mexico last summer, Lucas and his colleagues were in the midst of studying the phytosaur skull, Lucas said.

"I think most paleontologists would say if you're studying it, you don't want someone to see it," he said in an interview.

That attitude has raised eyebrows among other researchers, who argue that free and open scientific discussion of the fossils is important— especially, as in Irmis' case, when Museum of Natural History scientists have repeatedly published papers about the fossil.

Scientific ethics requires that fossils be made available to other researchers, according to Kevin Padian, a paleontologist at the University of California, Berkeley. "That's how we test someone else's reported observations," Padian wrote in a letter to the Journal. "It's a necessary part of the self-correcting progress of science."

The legal issues of who "owns" fossils in the museum's collection are murky. In some cases, the museum owns fossils outright, according to its written collections policy.

More often, fossils collected on public land technically remain the property of the federal or state agency that owns the land.

In practice, the museum's curators treat the fossils they collect as their own.

"You have to remember, we're talking about fossils we collected in our collection," Lucas said in a recent interview about some of the fossils at the heart of the controversy. "All this stuff is our stuff."

That is the heart of the argument made by Pennsylvania paleontologist Robert Sullivan, who has emerged as Lucas' most vocal defender. Lucas is within his rights to control access and take the lead in publishing research about fossils in the museum's collection, according to Sullivan.

Difference of opinions

"The specimens involved are property of the NMMNH&S," Sullivan wrote in a letter to the Journal. "They are proprietary."

That is not the way the U.S. Forest Service views the issue. Fossils collected on Forest Service land remain federal property.

"Fossils collected from public Forest Service lands should be made available to the public, including qualified researchers," said Kathy DeLucas, spokeswoman for the Carson National Forest, where the phytosaur skull was found.

The argument goes beyond the question of who can look at fossils to the broader issue of who has the right to write the key scientific papers about them.

That is a central point in one of the ethics complaints. Bill Parker, a

graduate student at Northern Arizona University, concluded that museum scientists had misidentified another ancient crocodilelike creature in their collection.

In this case, Parker was allowed to look at the fossil. He concluded it was a new species, but Lucas and his colleagues scooped him by publishing a paper of their own naming it.

Parker claims Lucas and his colleagues stole his idea, which he was in the process of publishing himself. He noted evidence that Lucas and his colleagues had read several papers written by Parker pointing to the fact that the fossil was a new species.

Lucas denies the charge, saying he and his colleagues realized on their own that it was a new species.

In the Parker case, Lucas also offered a defense to his assertion about Irmis' phytosaur skull.

"We're talking about specimens we collected in our collection. All this stuff is our stuff, and we were studying it," he said in an interview.

Lucas' critics point to another case in which the tables were turned, and Lucas was the scientist visiting someone else's museum.

World of controversy

Last year, Lucas published a research paper describing fossils he had been allowed to study during a visit to the Institute of Paleobiology of the Polish Academy of Science.

The paper came as a surprise to Jerzy Dzik, a paleontologist at the institute overseeing the work of a group of young scientists who had been studying the fossils, from a site called Krasiejow in southern Poland. Lucas never asked permission to write about them, Dzik said in an e-mail complaining to Lucas.

"Your action was thus harmful to many young researchers who had invested a lot of time and energy to excavate at Krasiejow, prepare fossils, identify them taxonomically, and interpret their anatomy and evolution," Dzik wrote in his July 9, 2007, e-mail to Lucas.

Lucas, in an e-mailed response, called the affair a "misunderstanding," and blamed the Polish scientists for not telling him he could not publish papers about their fossils.

"Nobody at your Institute told me I could not publish on the specimens I studied," Lucas wrote.

Dzik wrote that the Polish Institute has had an open access policy toward its fossil collection for 50 years. "We have never had such an experience before," he wrote.

The Dzik case was first publicly reported last month in the British science magazine *Nature*. No formal complaint has been filed with the New Mexico Department of Cultural Affairs, so the case is not part of its ethics investigation, according to department spokesman Doug Svetnica.

Dzik provided the *Journal* with copies of his correspondence with Lucas, but declined further comment.

"After the article in *Nature* the case is closed," he wrote in an e-mail. "It is enough."

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