

# Florissant Fossil Beds Paleontology Program

National Park Service  
U.S. Department of the Interior

Florissant Fossil Beds  
National Monument  
Colorado



The paleontology staff at Florissant Fossil Beds National Monument includes a paleontologist, a museum technician, and several interns. These specialists monitor fossil sites around the monument, curate fossils in the on-site museum, and work with scientists at other institutions to conduct research about Florissant.

## Is anyone still digging for fossils?

Researchers from various institutions have dug for fossils at Florissant. Currently, excavations are limited because there is not enough room in the monument museum for more fossils. The most recent large dig occurred over the summers of 2009 and 2010, as part of a master's thesis. Other research has led to small digs more recently. Any excavation on National Park Service land requires a permit.



A paleontology intern splits shale.

## Keeping an Eye on the Fossils

Paleontology staff have monitored the stumps and other geologic resources in the park every summer since 1992. They photograph each site from specific angles and compare photographs from different years to determine how the site has changed. An evaluation form for each site quantifies disturbances such as erosion, animal burrows, research excavations, and theft. In general, most sites change very little in a year and theft is rare, but it is important to continue monitoring the resources to ensure that adequate protection measures are in place to preserve the monument's resources.

## Where are all the excavated fossils?

The paleontology lab in the visitor center building includes a room for museum collections. More than ten thousand objects are cataloged in the museum, and most of these are plant or insect fossils. Other museums across the U.S. and U.K. hold tens of thousands more Florissant fossils, which were collected before the site was protected as a national monument.

## Conserving Fragile Fossils

Paleontology staff conduct ongoing and pioneering experiments to find better ways to care for Florissant fossils.

### Petrified Wood

Paleontology staff regularly monitor the stumps behind the visitor center. These fossils were shattered when they were historically excavated with dynamite. The monument has worked to stabilize the stumps with metal retaining bands and overhead shelters. New projects are ongoing with the University of Pennsylvania to test stone conservation techniques on the most fragile stumps.



Metal bands are installed around cracked stumps.

### Paper Shale

The shale containing Florissant fossils consists of paper-thin layers of ash, clay, and microorganisms called diatoms. The shale splits, flakes, and cracks with temperature and humidity



changes or contact with chemicals. Paleontology staff are studying ways to repair and prevent damage to the shale fossils in the monument collections. They also monitor the environmental conditions where fossils are stored.





1 Fossils are cushioned in a small box with foam.



2 Fossils are photographed to create digital database records.



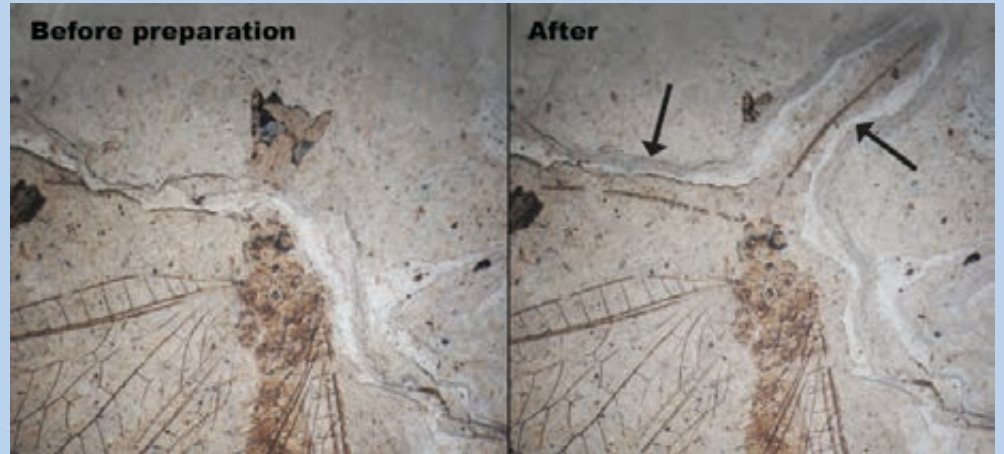
4 Fossils are placed in drawers organized by the place where they were collected. The museum will keep these specimens permanently, so that researchers can make new discoveries from Florissant fossils and check the quality of earlier scientific work on them.

## What happens to the fossils after excavation?

Fossil specimens easily break or become lost if they are not properly maintained. Museum staff at Florissant Fossil Beds National Monument record, photograph, and permanently store each fossil collected in the monument. Some fossils in the collections are prepared and studied for scientific research.

### 3 Preparation

When shale is split to reveal a fossil, often parts of the shale still cover the edges of the specimen. Paleontology preparators (people trained to care for fossils) use needle-like tools to pick the shale away, revealing the fossil underneath. The antennae (shown by arrows) of this fossil insect (FLFO-9817) were hidden before preparation (left) but visible afterwards (right).



## What kinds of research happen at Florissant?

Research generates scientifically credible information for public outreach and visitor understanding. Scientists have studied Florissant fossil beds for more than 140 years, and several students have written master's theses about the site. Paleontology staff collaborate with universities, museums, and other institutions to coordinate research activities like digging fossils, loaning specimens, or sharing database information.

## How does Florissant help other geologic sites?

Florissant Fossil Beds National Monument supports national and international efforts to conserve geologic heritage. The paleontology program and Friends group for the monument have partnered with El Bosque Petrificado Piedra Chamana (The Petrified Forest Piedra Chamana) in the Andes Mountains near Sexi, Peru, to help this "sister park" protect and educate about its fossils. Like Florissant, Sexi captures a snapshot of the Eocene, tens of millions of years ago, when the climate was more tropical than it is today. Florissant promotes sustainable geotourism at Sexi and in Colorado. The monument is the first stop on the Gold Belt Tour National Scenic Byway, a route through geologic sites with cultural and scenic value.



A petrified log near Sexi, Peru.

## What are the public benefits of a paleo program?

The paleontology program at Florissant Fossil Beds develops educational materials to increase visitor understanding through a variety of media. For example, the site bulletin you are reading is one of a series made by the paleontology staff with funding from visitor fees! Paleontology staff designed content for the indoor exhibits and created the guide and waysides for the Geologic Trail. The program also coordinated a public online database with images of the several thousand Florissant fossils that have been included in scientific publications. In addition, the monument's paleontologist has written several books, such as *The Fossils of Florissant*. These works help a general audience learn about the human and geologic history of the fossil beds.



Number 9 of the geologic bulletin series, 2017. Download at [www.nps.gov/flfo](http://www.nps.gov/flfo)

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