



# Friends of the Florissant Fossil Beds Newsletter

Volume 2008 Issue 1

February, 2008

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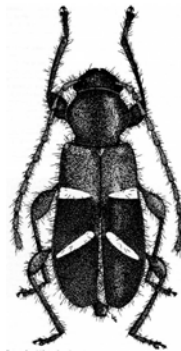
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## The Long Horned Beetle Trilogy of Florissant Fossil Beds National Monument

by William A. Dexter, PhD

One of the keys for interpreting prehistoric environments is to make comparisons to similar conditions today as references. This geological postulate is called the Doctrine of Uniformitarianism: "The present is the key to the past."

There is a tiny beetle, one centimeter in length, named *Phymatodes nitidus* (family Cerambycidae), found today among the giant coastal redwood trees (*Sequoia sempervirens*) of California. This beetle deposits its eggs on the scales of the pine cones, and its larvae chew into



*Phymatodes nitidus*

the interiors of these cones after hatching. The dry, lifeless husks of the cones turn brown and dry, releasing a flurry of seeds! The seeds from the tallest living trees are disseminated by these tiny beetles. These seeds are so small that a dozen would fit on the surface of a dime—a paradoxical success

story (small seeds, small beetles and large trees)!

Today, a similar beetle, *Phymatodus dimidiatus*, lives and thrives in the forests at the Florissant Fossil Beds National Monument. This identification was confirmed by the chief entomologist at Colorado State University.

One might guess that this beetle is performing the same duty of seed dispersal for the ponderosa pines as do their cousins in the California redwood forest.

After checking the list of fossil

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## Letter from the Superintendent

I've been here for a year now, and it seems like just a blur when I look back. We have gotten a number of things done in the last 12 months, but we still have a list of tasks to accomplish.

Let me start with the yurt. You may recall that we fixed it up with electricity and space heaters to enable its all season use as an education center and classroom. In late November we inaugurated it with a class of first-graders from the Renaissance Academy and they were very proud to be the first ones to use it. Even though it was chilly

inside, the teachers and parents shared the kids' enthusiasm for the yurt and were effusive in their praise for the experience and the program we provided for the kids. We think the photo on Page 7 is proof of our success. This multi-tasking little girl was totally engrossed in studying the fossil she holds in her left hand, but she never dropped even one of the paw full of animal crackers in her right hand!

We also found some problem areas to address at the yurt. The kids sat on the floor on carpet mats and the floor was kind of

cold, a little dusty, and not the best situation for working with shale or eating lunch. We are hoping to get some height-adjustable tables to resolve those problems and at the same time serve yurt visitors of all sizes. The yurt's "skin" is a single layer of canvas and doesn't hold heat very well. It would be a huge benefit to get an insulated yurt cover to replace the current one. But the major shortcoming was noted by a little girl who asked Ranger Sally if they got hot chocolate with their animal crackers. We didn't have any hot

(Continued on page 7)

## Richard Louv is Coming to Colorado Springs

by Sally McCracken Maertens

Hardly a day goes by that I don't pick up a magazine, a newspaper, a professional journal, or a newsletter and see a reference to getting our kids outside again. So many of the "older fossils" were raised outdoors. It is sad to hear kids say that they would rather be inside with video games and computers or see overweight children who don't get outside to exercise.

Richard Louv's book *The Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* has made us sit up and take notice. The National Park Service, the U.S. Forest Service, state parks, health organizations, environmental agencies, and educational institutions have all begun to work on initiatives to "leave no child inside."

The Friends of the Florissant Fossil Beds have finally been able

to confirm a speaking engagement date with Richard Louv. Mark Friday, October 3, 2008, on your calendars! A weekend of outdoor activities is being planned by a core group of stakeholders including Colorado College, Catamount Institute, Colorado Alliance for Environmental Education, the Sierra Club and the School in the Woods. We are all very excited. Credit will be available for teachers.

Once the basics are accomplished by the planning team, more information will be available to our members. We hope that the weekend of October 3-5 will be a great event for the people of El Paso and Teller Counties. We will be looking for volunteers to help with various aspects of the event. If you would like to help, please call Sally McCracken Maertens at 719-687-9204.

## With Deep Roots in Colorado: The Ponderosa Pine

by J.J. Huie

I like running in Colorado when the sound of my breathing is drowned out by a wind so violent it causes the arms of the ponderosa pines (*Pinus ponderosa*) to thrash about wildly. Hundreds of miles from the Pacific, in the foothills next to Rampart Range



near Colorado Springs, I feel like I'm sailing through an ocean storm. In crossing this ocean, however, there is no salty scent or giant, looming swells; instead, I have the waving motion of the ponderosas and the rich aroma they exude.

The first image that comes to mind when I hear "ponderosa" is a tree with long, graceful branches standing atop a ridge in Garden of the Gods Park in Colorado Springs against the backdrop of Pikes Peak, soaking up the brilliant sunshine at 6,000 feet. In Colorado, the ponderosa pine ecosystem can be found at an elevation range of 5,600 feet to 9,000 feet on both sides of the Continental Divide, with ponderosas dominating on sunny, south-facing slopes. Throughout much of the elevation range of the ponderosa, Douglas-firs predominate on the shadier, north-facing slopes. Direct solar radiation is critical to the ponderosa, which germinates best on soils with unobstructed sunlight. Standing close to a mature tree, I enjoy the scent of vanilla that the orange-brown bark gives off as it's warmed by the sun.

A distinctive feature of ponderosas is their long needles (up to 7 inches in length), which come in bundles of two or three needles. The needles of ponderosas are the longest among conifers in Colorado. Some ponderosas are among the largest trees in the Southern Rockies (the area from southern Wyoming through Colorado to northern New Mexico), growing up to 150 feet in height and more than 3 feet in diameter.

Mature trees usually have rounded crowns, while the oldest trees can have flat-topped crowns, unlike most other conifer species. Mature cones are globe shaped and can be up to 6 inches long; each of the cone's thick scales is tipped with a sharp bristle.

We normally don't see one of the most amazing features of the ponderosa: the tree's extensive root system, an adaptation to frequent drought. Ponderosa pine forests typically receive from about 16 inches of precipitation in New Mexico and south-central

(Continued on page 10)

## Filling a Niche: Linkhart Studies Elusive Owls

by **Melissa Barton**

*This article originally appeared on [www.fossilbeds.org](http://www.fossilbeds.org) July 2, 2007.*



*Linkhart reaches into a nest cavity to remove the owlets. All photos © 2007 Melissa Barton*

Friday night's flammulated owl ("flam") seminar, taught by Colorado College biology professor Brian D. Linkhart, was a success. Unlike last year, this year's weather was good for insects—the flams' food—and most of the flam nests at the Manitou Experimental Forest, where Linkhart has worked since 1981, are doing fine.

We began the evening by heading out to an easily accessible nest. Flams nest in abandoned flicker cavities, which can be as high as 70 feet off the ground, but this nest is only about eight feet off the ground and can be

accessed with a ladder. Reaching the higher nests requires climbing spikes. For those nests, Linkhart has to climb the tree and lower the owlets down to his students so they can weigh and measure the owlets.

Flams typically lay two or three eggs in a nesting season. This

nest has three owlets, all about 11 days old; each owlet weighs about 30-40 grams, approximately half of their adult weight. The flammulated owl (*Otus flammeolus*) is the second smallest North American owl. These owlets still have much of the white down they developed after hatching, as well as the beginnings of gray juvenile plumage. Since they're not yet old enough to band, Linkhart uses markers to color their head feathers to tell them apart. This does not harm the owlets.



*This nest has three owlets, a typical number. They are temporarily marked with pens until old enough to band so researchers can tell them apart.*

Blue is the runt of the nest, almost 10 grams lighter than its siblings. Flam nests always have a runt, which almost always survives to fledging and catches up in size to its nest mates. In fact, flam owlets have a very high survival rate until fledging—their main predator is the red squirrel. After fledging the owlets are much more vulnerable to a variety of predators, including moun-

*(Continued on page 11)*

## Teaching Outside the Box

**Conference—April 25-27, 2008**

This conference is sponsored by the Colorado Alliance for Environmental Education (CAEE) and will be held at the Snow Mountain Ranch near Granby, Colorado. This event brings more than 200 classroom teachers, environmental educators, policy makers, and natural resource professionals together to learn exciting ways of teaching environmental concepts. The conference provides more than 40 professional development sessions where experienced presenters share effective teaching techniques and opportunities to strengthen the network of environmental educators and classroom teachers. High quality teaching presents environmental education ideas for both inside and outside the classroom setting.

The Friends of the Florissant Fossil Beds are providing four \$100.00 scholarships for teachers to attend. Targeted school districts for this first year are Woodland Park, Manitou Springs, Cripple Creek and the Lake George charter school. We hope that this will be something that we can do every year.

We encourage everyone to consider attending this great confer-

ence. For more information, check out CAEE at [www.caee.org](http://www.caee.org).





## Henderson Petrified Forest Brochure

by **Jerry McLain**

In the years before becoming a National Monument the land containing the Florissant fossils was privately owned. Two competing commercial operations emerged to attract tourists to see and collect fossils and petrified wood.

In 1883 John Coplen opened the first commercial quarry and in 1927 the Singer family purchased the Coplen Petrified Forest and renamed it the Colorado Petrified Forest. It included the site of the Big Stump and the Scudder Pit. The Singers operated it until the property was acquired by the NPS in the 1970's.

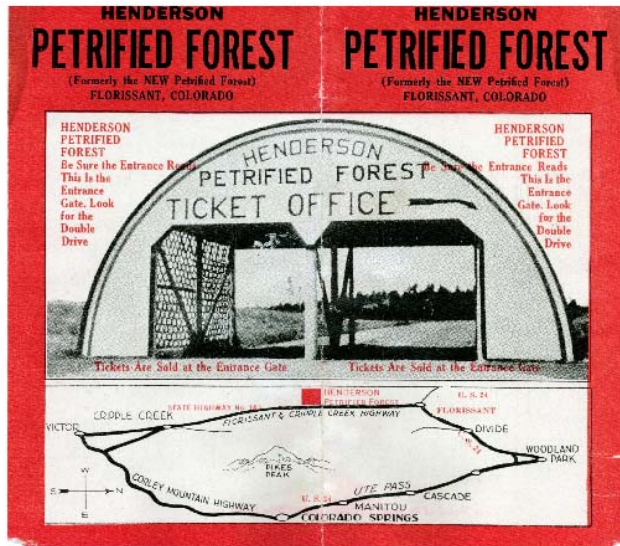
The Pike Petrified Forest, developed by David Henderson and his son Ira in 1922, included the

Redwood Trio and is now the headquarters of the National Monument.

Extreme competition between the two sites during the later years of operation included such tactics as employees hustling business out on the road, trick signs, and tacks on the road (resulting in a man being shot in the leg).

In 1956 Walt Disney visited the Pike Petrified Forest and purchased a petrified stump to be displayed at Frontierland in his new Disneyland Park in California.

This brochure dates from the 1930's before the name was changed to Pike Petrified Forest.



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## Rock Mountain Nature Association

by **Sally McCracken Maertens**

The Rocky Mountain Nature Association (RMNA) is the concessionaire for the bookstore at Florissant Fossil Beds National Monument. People step in the front door of the visitor center many times just to buy books. The books and many other items are chosen carefully by Jo Beckwith, the manager for RMNA.

Jo wishes you to know about several new titles that have arrived recently. In addition to these new titles, many more are being ordered for the summer of 2008 (the bookstore carries Richard Louv's *Last Child in the Woods* if you need a copy).

Look for these new titles when you pay us a visit:

*Birding Colorado: Over 180 Premier Birding Sites at 93 Locations*, by Hugh Kingery, is a new field guide with descriptions of prime birding sites in Colorado. \$19.95.

*Colorado Journey Guide*, by Jon Kramer and Julie Martinez, is a driving and hiking guide to fossils, formations, ruins and rock art throughout the state. The guide features Florissant Fossil Beds National

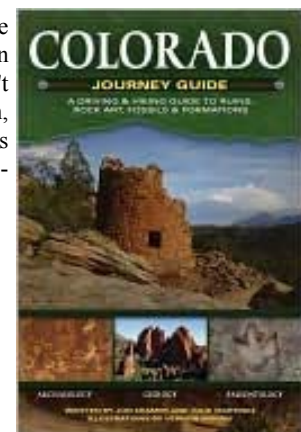
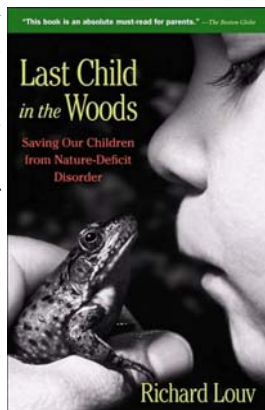


ROCKY MOUNTAIN  
NATURE ASSOCIATION

Monument as the best paleontological site in Colorado. \$16.95.

*Tourist Guide to Colorado in 1879*, by Frank Fossett, takes the reader on a historic trip through Colorado, including 1879 prices, travel, accommodations and other fun facts. \$8.95.

Come visit the Monument, see the new exhibits, and browse in the bookstore. If you can't make it to the park in person, you can order books and other items from RMNA at their website, [www.rmna.org](http://www.rmna.org).



## Park Launches Oral History Project

by **Jeff Wolin**, Lead Interpretive Ranger

The Friends of the Florissant Fossils Beds recently purchased nearly \$800.00 of professional audio recording equipment for the Monument. The Monument is beginning a long term oral history project.

The goal of this project is to record the stories related to the different aspects of the Monument's history, which may include Native American history, settlers and the Hornbek Homestead, the commercial fossil and tourist operations, farming and ranching, the founding of the Monument, and the first few decades of the Monument's history.

The new equipment allows the Monument to record conversations in person or over the phone so people who live far from the Monument may be interviewed. The stories will be recorded, transcribed, and stored. They will be available to researchers and portions of them may be used on the Monument's website or in exhibits. The Monument staff would like to thank the Friends for their support in helping us preserve the stories and history of this amazing national park area.

Jack Williams, the second superintendent of the Monument, will be the first person to be interviewed. The Monument is compiling a list of additional people involved in the park's history to interview. If you are one of these people or know someone who should be interviewed, please contact Jeff Wolin or Shawn Frizzell at the Monument at (719) 748-3253 or flfo\_information@nps.gov.



## In a Forest of Stone

### A WONDERFUL SHOW OF PETRIFIED WOOD IN A COLORADO VALLEY

Friends member **Beth Simmons** found this historic article about the Florissant fossil beds in *The Mineralogists' Monthly*, vol. 6, 1891 (p. 118-119). Florissant's fossil redwood stumps are as impressive to visitors today as they were in 1891, and the broken sawblades are still visible in the Big Stump

\*\*\*\*\*

The petrified forest of Florissant is located in a green valley a mile and a half from the station. The road to it leads south from the railroad, rising over the rolling hills in gentle slopes and disclosing new and beautiful views at every turn.

To the east and north rise the green slopes of the divide, culminating on the east in the snow-capped summit of Pike's Peak.

To the north, about five miles, Crystal Peak stands out, a sharp cone, from among a cluster of wooded hills, rising in round terraces to its base.

Far to the west, over the intervening mountains and parks, may be seen the snowy range, a perpetual wall of snowy white on the horizon, marking the backbone of the continent. Everywhere along the road may be found little chips of petrified wood, either dropped there by curiosity hunters or scattered from the remains of some stump in the vicinity.



7. FOSSIL STUMP NEAR FLORISSANT, COLORADO.  
Nearly 50 feet in circumference at ground; about 8 feet high.

After going up and down through several little valleys, the road descends a rather steep grade to the valley where the "forest" is located. The valley is broader here than elsewhere, and here and there, scattered over the bottom and on the lower slopes of the surrounding hills, are little mounds of white petrified chips, marking the spots where the tops of the stumps reach the surface.

Only one of the stumps has as yet been entirely uncovered, and to this most of the visitors go first. It is on the edge of a small grove of pine on the west side of the valley. Over it

is a rough scaffolding, from which are suspended several saws, still deeply imbedded in the stump.

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## A Page from History—Friends Newsletter, Oct/Nov 1996

### FOSSIL MAMMOTH BONE EXCAVATED

This summer, a portion of a fossil mammoth jaw was excavated at Florissant Fossil Beds National Monument. The site was located two years ago when bone fragments and part of a molar were found weathering out of a road cut.

The bone was dated using carbon-14, indicating an age older than 43,000 years. This significant discovery represents one of the high elevation occurrences for mammoths. Careful excavation of the site assured that the fossils were recovered in stratigraphic context.

Professionals and volunteers worked on the site over a three day period from August 6 to 8. The excavation was conducted by paleontologists Dr. Russ Graham of the Denver Museum of Natural History and Dr. Herb Meyer from the Florissant Fossil Beds National Monument. Assisting were volunteers from the Denver Museum of Natural History and Garden Park Paleontology Society, along with summer interns and park rangers. Members of the Beardsley family reunion served



*Mammoth tooth found at Florissant Fossil Beds National Monument. radiocarbon dated at 49,830±3290 years old.*

as a digging crew. They helped remove layers of soil. The site was first observed by a park volunteer and geology student, Peter Rinkleff, during the summer of 1994.

The fossil is not as old as the late Eocene fossils (34-35 million years ago) from the Florissant lake beds. The mammoth lived in the Florissant Valley during the Ice Age. During its life, the mammoth was about 10-12 feet high at the shoulders, about 20 feet in length and weighed 8-10 tons.

Future work will analyze the bone for tooth marks to see whether the bone might have been scavenged, and analyze the stable carbon chemistry of the bone to help determine the mammoth's diet. No additional bones besides the jaw were found during the excavation. There was not enough of the fossil to identify the species.

*Note: This article was written in 1996. Much has happened to those bones since then. "Milo the Mammoth" has since educated many about the last Ice Age, which ended around 10,000 years ago.*

## Save These Dates

### Open House at the Monument

**Date:** Saturday, March 15, 2008

**Time:** 10:00 a.m. to 3:00 p.m.

The Friends are hosting a hike at 10 a.m. Other special activities are being planned for the day. The gathering place will be in the yurt, where hot chocolate and snacks will be available throughout the day. Please join us for a fun-filled day.

### Richard Louv, author of *Last Child in the Woods*

**Dates:** Friday, October 3, 2008 - Sunday, October 5, 2008

Activities throughout the area all weekend that "leave no child inside."

### 40th Anniversary of Florissant Fossil Beds National Monument

**Dates:** August 22-23, 2009

The Planning Committee headed by retired Superintendent Jean Rodeck is already busy. If you would like to help with this very special upcoming event, please call the Monument at 719-748-3253.

### Community Seminars

**Date and Time:** TBA

At press time, the three community seminars that we hold at Colorado College have not been scheduled. Information will be posted on our website at [www.fossilbeds.org](http://www.fossilbeds.org) when it becomes available.



## Superintendent (Continued)

*(Continued from page 1)*

chocolate that day, but Sally made sure it's there today, and we won't make that mistake again.

As we reviewed and critiqued our first effort in the yurt more ideas for its use surfaced. Many of you may have seen the recent newspaper announcements about the "Huts, Hikes, and Hot Chocolate" program we have just begun to offer on alternate Sundays. The first such program was on January 20<sup>th</sup> and it was a great success with about 18 hikers on snowshoes traversing the Monument with Ranger Shawn and then returning to the yurt to warm up by the stove with – you guessed it – hot chocolate. It's a great feeling to see the yurt get so much use and be so enthusiastically received by visitors.

The Hornbek Homestead became a cause for concern this past year when it showed signs of settling and movement. Stabilization procedures were devised to correct that, and at this time they are about 90% complete. We expect to complete the work in the spring and, pending engineer and architect concurrence, reinstate limited use of the building this coming summer. My goal is to get the Homestead cabin ready and capable for use during Homestead Days and for the holiday program in December – and I believe we are on track to achieve that. However, based on our latest survey of the condition of the Hornbek outbuildings last November, the outbuildings need a lot of maintenance/repair and at least one will not be useable until repairs to it are completed. We are pursuing funds to make those repairs.

Finally, the President's Centennial Initiative Program bore some heavy fruit for Florissant Fossil Beds. This summer we will re-

ceive funding for an additional seven seasonal employees! The seven are in addition to those seasonal workers we normally hire during the summer. Assuming there are enough applicants, we expect to hire three seasonal maintenance workers, three interpretive guides/rangers, and one law enforcement ranger. Advertisements for those positions should be posted by the end of January or early February, so spread the word to anyone you think might be interested.

As ever, we welcome your comments and ideas and hope you will be able to come see us and participate in our program offerings.



## Letter to the Friends

September 15, 2007

Dear Friends of Florissant,

I wish to thank you for your generous funding of my internship this past summer. It was truly a great experience and I am truly grateful to have had this opportunity. With your support, along with that of the GeoCorps America program, I was able to enjoy a summer of learning at Florissant.

The project on which I spent most of my time over the summer was the monitoring of all paleontology sites throughout the park. Every year, certain sites are monitored based on their accessibility to the public, fragility and fossil content in order to note how they change over time. However, this year marked the 15<sup>th</sup> year of the monitoring program, so my fellow paleontology intern and I were given the task of completely re-establishing a set of baseline photographs for all sites. This was a very time-consuming and detail-intensive project.

I also helped write a standard operating procedure for future paleontology interns to follow. This was done in order to comply

with regional standards for monitoring. I also created a fossil bulletin detailing information about the different types of fossil organisms that have been discovered at Florissant. This bulletin will be available to park visitors upon request at the visitor center.

Perhaps the best part of my summer was making a number of great contacts in the field of paleontology. Dr. Herb Meyer is a well-known and respected paleontologist and I was quite fortunate to have worked under his supervision. I also had the opportunity to meet a number of paleontologists from the University of Colorado at Boulder and to learn about their research when they came to lecture at a seminar at Florissant. My experience at Florissant was truly one of learning, both about paleontology and about my own abilities. I am very fortunate to have worked with such enthusiastic and knowledgeable people.

Thank you again for making this internship possible.

Sincerely, Eva Lyon  
GeoCorps America 2007

**PPHS SCHEDULE OF 2008 CHAUTAUQUAS**

|   |                     |                 |
|---|---------------------|-----------------|
| <b>Chautauqua/"Fossils! Florissant's Claim to World Fame"</b> | <b>Sun, Feb 17</b>  | <b>2:00 pm</b>  |
| <b>With Dr. Herb Meyer</b>                                    |                     |                 |
| <b>PPHS Annual Meeting</b>                                    | <b>Sat, Mar 8</b>   | <b>12:00 pm</b> |
| <b>Chautauqua/"Ludlow: History &amp; Poetry"</b>              | <b>Sun, Apr 20</b>  | <b>2:00 pm</b>  |
| <b>With David Mason</b>                                       |                     |                 |
| <b>Chautauqua/"The Notorious Sherman Bell"</b>                | <b>Sun, May 18</b>  | <b>2:00 pm</b>  |
| <b>With Ray White</b>   |                     |                 |
| <b>Chautauqua/"Teddy Roosevelt in the Flesh"</b>              | <b>Sun, June 22</b> | <b>2:00 pm</b>  |
| <b>With Steve Smith</b>                                       |                     |                 |

**HERITAGE DAY**

**FVFD Pancake Breakfast**                      **Sat, July 26**                      **7:00am**  
**Florissant Fire House**

**Hornbek Homestead Days**  
**Florissant Fossil Beds National Monument**

**Florissant Heritage Day**

**Historic Homestead Tour**

|  |                    |                |
|--|--------------------|----------------|
| <b>Tabeguache Utes Dance at FFBNM</b>                                  | <b>Sat, Aug 9</b>  | <b>7:00pm</b>  |
| <b>Florissant Fossil Beds National Monument - 748-3253 or 748-3562</b> |                    |                |
| <b>PPHS Annual Volunteer Brunch</b>                                    | <b>Sat, Sept 6</b> | <b>12:00pm</b> |
| <b>PPHS Annual Auction</b>   | <b>Sat, Oct 11</b> | <b>2:00 pm</b> |
| <b>Chautauqua "American Indians of the</b>                             | <b>Sun, Nov 16</b> | <b>2:00 pm</b> |
| <b>Pikes Peak Region "</b>   |                    |                |
| <b>With Celinda Reynolds Kaelin</b>                                    |                    |                |
| <b>PPHS Christmas Party</b>  | <b>Sat, Dec 6</b>  | <b>12:00pm</b> |
| <b>Twin Creek Ranch, Florissant</b>                                    |                    |                |

**PIKES PEAK HISTORICAL SOCIETY 2008 BOARD MEETINGS AT PIKES PEAK HISTORICAL SOCIETY MUSEUM**

|             |                 |                  |
|-------------|-----------------|------------------|
| <b>Wed</b>  | <b>13 Feb</b>   | <b>5:30 p.m.</b> |
| <b>Wed</b>  | <b>9 Apr</b>    | <b>5:30 p.m.</b> |
| <b>Wed</b>  | <b>14 May</b>   | <b>5:30 p.m.</b> |
| <b>Wed.</b> | <b>11 June</b>  | <b>5:30 p.m.</b> |
| <b>Wed.</b> | <b>9 July</b>   | <b>5:30 p.m.</b> |
| <b>Wed.</b> | <b>13 Aug</b>   | <b>5:30 p.m.</b> |
| <b>Wed.</b> | <b>10 Sept.</b> | <b>5:30 p.m.</b> |
| <b>Wed.</b> | <b>8 Oct.</b>   | <b>5:30 p.m.</b> |
| <b>Wed.</b> | <b>12 Nov.</b>  | <b>5:30 p.m.</b> |





## Notes:

| JANUARY |    |    |    |    |    |    |
|---------|----|----|----|----|----|----|
| M       | T  | W  | T  | F  | S  | S  |
|         | 1  | 2  | 3  | 4  | 5  | 6  |
| 7       | 8  | 9  | 10 | 11 | 12 | 13 |
| 14      | 15 | 16 | 17 | 18 | 19 | 20 |
| 21      | 22 | 23 | 24 | 25 | 26 | 27 |
| 28      | 29 | 30 | 31 |    |    |    |

| FEBRUARY |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|
| M        | T  | W  | T  | F  | S  | S  |
|          |    |    |    | 1  | 2  | 3  |
| 4        | 5  | 6  | 7  | 8  | 9  | 10 |
| 11       | 12 | 13 | 14 | 15 | 16 | 17 |
| 18       | 19 | 20 | 21 | 22 | 23 | 24 |
| 25       | 26 | 27 | 28 | 29 |    |    |

| MARCH |    |    |    |    |    |    |
|-------|----|----|----|----|----|----|
| M     | T  | W  | T  | F  | S  | S  |
|       |    |    |    |    | 1  | 2  |
| 3     | 4  | 5  | 6  | 7  | 8  | 9  |
| 10    | 11 | 12 | 13 | 14 | 15 | 16 |
| 17    | 18 | 19 | 20 | 21 | 22 | 23 |
| 24    | 25 | 26 | 27 | 28 | 29 | 30 |
|       |    |    |    |    |    | 31 |

| APRIL |    |    |    |    |    |    |
|-------|----|----|----|----|----|----|
| M     | T  | W  | T  | F  | S  | S  |
|       | 1  | 2  | 3  | 4  | 5  | 6  |
| 7     | 8  | 9  | 10 | 11 | 12 | 13 |
| 14    | 15 | 16 | 17 | 18 | 19 | 20 |
| 21    | 22 | 23 | 24 | 25 | 26 | 27 |
| 28    | 29 | 30 |    |    |    |    |

| MAY |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| M   | T  | W  | T  | F  | S  | S  |
|     |    |    | 1  | 2  | 3  | 4  |
| 5   | 6  | 7  | 8  | 9  | 10 | 11 |
| 12  | 13 | 14 | 15 | 16 | 17 | 18 |
| 19  | 20 | 21 | 22 | 23 | 24 | 25 |
| 26  | 27 | 28 | 29 | 30 | 31 |    |

| JUNE |    |    |    |    |    |    |
|------|----|----|----|----|----|----|
| M    | T  | W  | T  | F  | S  | S  |
|      |    |    |    |    |    | 1  |
| 2    | 3  | 4  | 5  | 6  | 7  | 8  |
| 9    | 10 | 11 | 12 | 13 | 14 | 15 |
| 16   | 17 | 18 | 19 | 20 | 21 | 22 |
| 23   | 24 | 25 | 26 | 27 | 28 | 29 |
|      |    |    |    |    |    | 30 |

| JULY |    |    |    |    |    |    |
|------|----|----|----|----|----|----|
| M    | T  | W  | T  | F  | S  | S  |
|      | 1  | 2  | 3  | 4  | 5  | 6  |
| 7    | 8  | 9  | 10 | 11 | 12 | 13 |
| 14   | 15 | 16 | 17 | 18 | 19 | 20 |
| 21   | 22 | 23 | 24 | 25 | 26 | 27 |
| 28   | 29 | 30 | 31 |    |    |    |

| AUGUST |    |    |    |    |    |    |
|--------|----|----|----|----|----|----|
| M      | T  | W  | T  | F  | S  | S  |
|        |    |    |    | 1  | 2  | 3  |
| 4      | 5  | 6  | 7  | 8  | 9  | 10 |
| 11     | 12 | 13 | 14 | 15 | 16 | 17 |
| 18     | 19 | 20 | 21 | 22 | 23 | 24 |
| 25     | 26 | 27 | 28 | 29 | 30 | 31 |

| SEPTEMBER |    |    |    |    |    |    |
|-----------|----|----|----|----|----|----|
| M         | T  | W  | T  | F  | S  | S  |
| 1         | 2  | 3  | 4  | 5  | 6  | 7  |
| 8         | 9  | 10 | 11 | 12 | 13 | 14 |
| 15        | 16 | 17 | 18 | 19 | 20 | 21 |
| 22        | 23 | 24 | 25 | 26 | 27 | 28 |
| 29        | 30 |    |    |    |    |    |

| OCTOBER |    |    |    |    |    |    |
|---------|----|----|----|----|----|----|
| M       | T  | W  | T  | F  | S  | S  |
|         |    | 1  | 2  | 3  | 4  | 5  |
| 6       | 7  | 8  | 9  | 10 | 11 | 12 |
| 13      | 14 | 15 | 16 | 17 | 18 | 19 |
| 20      | 21 | 22 | 23 | 24 | 25 | 26 |
| 27      | 28 | 29 | 30 | 31 |    |    |

| NOVEMBER |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|
| M        | T  | W  | T  | F  | S  | S  |
|          |    |    |    |    | 1  | 2  |
| 3        | 4  | 5  | 6  | 7  | 8  | 9  |
| 10       | 11 | 12 | 13 | 14 | 15 | 16 |
| 17       | 18 | 19 | 20 | 21 | 22 | 23 |
| 24       | 25 | 26 | 27 | 28 | 29 | 30 |

| DECEMBER |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|
| M        | T  | W  | T  | F  | S  | S  |
| 1        | 2  | 3  | 4  | 5  | 6  | 7  |
| 8        | 9  | 10 | 11 | 12 | 13 | 14 |
| 15       | 16 | 17 | 18 | 19 | 20 | 21 |
| 22       | 23 | 24 | 25 | 26 | 27 | 28 |
| 29       | 30 | 31 |    |    |    |    |

- Jan 10 Board Meeting Woodland Lib
- Feb 12 Board Meeting Florissant Lib
- Mar 13 Board Meeting Woodland Lib
- Mar 15 Walk in the Park Morning Event
- Apr 10 Board Meeting Florissant Lib
- May 08 Board Meeting Sally's House
- Jun 12 Board Meeting Woodland Lib
- July No Board Meeting
- Aug 14 Board Meeting Steve's cabin
- Sep 20 Annual Meeting and Potluck
- Oct 03 Richard Louv Event CC
- Oct 09 Board Meeting
- Nov 13 Board Meeting
- Dec 06 Christmas Party Poor Richards

Committees:

- Community Seminars and Programs
- Database
- Fundraising
- Historian
- Membership Development
- Newsletter Editor, Jeff Brandt
- Sales



- Science Fair
- Summer Seminars
- Wall of Honor
- Webmaster
- 40th Anniversary

## Long Horned Beetle (Continued)

(Continued from page 1)

insects collected from the shale beds of the Florissant formation, we found a distant relative of the same beetle—same genus, different species (*Phymatodus volans*). This specimen, however, is 35 million years old! It was collected by S.A. Rohwer in 1907 (Cockerell locality number 14). This beetle fossil, UCM 4533, is now housed in the University of Colorado Museum. The citation for this specimen was published in the Bulletin of the American Museum of Natural History, 24:68 pl.v.f.4, 1908.

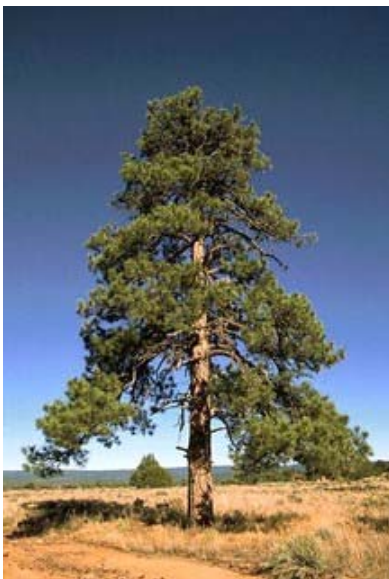
Considering the Uniformity postulate, it is speculated that our fossil beetle from the Florissant shales may have performed the same type of seed dispersal as do his modern relatives.

Think of it—35 million years ago, *Phymatodus volans* may have helped disperse seeds for the huge redwood trees (*Sequoia affinis*) which we find as fossil stumps in many places at Florissant Fossil Beds National Monument.

There are two beetles living today, and one from the Eocene epoch. This represents a remarkable trilogy.

## Ponderosa Pine (Continued)

(Continued from page 2)



Colorado to more than 25 inches in areas of Wyoming. While above average moisture in spring and early summer allows for seedling establishment, seedlings quickly develop a long taproot which helps them survive drought that dries out the topsoil. Mature ponderosas have taproots that can reach depths of up to 40 feet and lateral roots that extend through surface soils as much as 100 feet from the tree. I've marveled at how ponderosas stand up against Colorado's sometimes vicious

winds, but with such a wide-spreading root system, it's difficult for a ponderosa to be shaken at its depths.

Low-intensity fires initiated by lightning during the summer were an important part of the ponderosa pine ecosystem before logging and wild-fire suppression. Wildfires kill smaller plants and thin out dense stands of seedlings, decreasing competition for moisture. In addition, fires release nutrients in the litter of needles and twigs on the ground, thereby increasing the fertility of the soil. The thick bark of mature ponderosas provides protection against fires; nonetheless, the reduction in fuel loads that occurs with low-intensity fires is necessary to



prevent catastrophic fires which could kill even mature trees. Since the beginning of the 1900s, fire suppression and logging have allowed other conifers to establish themselves in ponderosa forests or caused increased regeneration of ponderosas. The result has been overcrowded forests and smaller, less robust ponderosa pines.

I've often spotted ponderosas whose needles were browning, evidence in some cases of an infestation of mountain pine beetle (*Dendroctonus ponderosae*), which invades forests that have an abundance of weakened, unhealthy trees. Blobs of resin about an inch across on the trunk also indicate an infestation. This production of resin can push pine beetles out of the holes that they bore into trees. A fungus (some species of *Ceratocysis* and *Trichosporum*) introduced by the pine beetle halts fluid flow in the tree, providing the drier environment that the beetle larvae require to survive. With the arrival of spring, the larvae feed on the tree tissue. The excavations of the pine beetle and the physiological effects of the fungus can kill the tree in two growing seasons.

The ponderosa pine cannot be viewed separately from the sunshine and dry conditions that have defined so many of my outdoor experiences in Colorado. Its affinity for sunny, south-facing slopes, extensive root system, and adaptations to the lightning-induced fires that spread more quickly under dry,

windy conditions, reveal a high degree of adaptation. The species has even developed defenses against the pine beetle, including a higher concentration of limonene, a chemical toxic to the pine beetle, in ponderosas that survived infestations. Beyond its ability to withstand oftentimes harsh conditions, the ponderosa never ceases to bring pleasure to those who venture into the woods, whether we find a shady place under its sweeping branches, hear the music of its long needles fluttering

against a cool breeze, or simply stand close for the scent of vanilla.

## Flams (Continued)

(Continued from page 3)



*These owlets are old enough to spend 20 minutes out of the nest.*

tain lions, coyotes, great horned owls, and particularly sharp-shinned hawks.



*Linkhart weighs an owlet using a net bag attached to a spring scale.*

After hatching, the owlets are weighed every day. “You have to learn to be very mindful of your impact on the animals you’re studying,” Linkhart said. “In this case it means timing your work just right.” During the first week, when the owlets cannot regulate their own body temperature, the owlets can only be handled during the brief period at dusk when the female leaves the nest. By 11 days, these owlets can easily spend 20 minutes out of the nest, but Linkhart and his crew handle them during the evening, while the female is still inactive. Right now, these owlets are gaining about 4 grams a day from the diet of moths the male brings back to the nest.



*Linkhart and his students measure the growth of the owlets’ flight feathers every day.*

It’s also important to measure the growth of the flight feathers. Because of their nesting habits, baby flams don’t get to practice before fledging. Their first flight is normally straight down. They then climb back up the tree, flapping their wings for assistance, and repeat the process until they achieve flight. This is one of the times flams are most vulnerable to predators. The tiny adults can do little to defend their young, although they supervise the initial flights, each parent watching out for one or two fledglings.

After dark we headed out to a nest Linkhart and his student crew had discovered a few days before. This nest had not yet been monitored, and we took an infrared “cavity peeper” to look into it. Unfortunately, the nest had been attacked by squirrels, which eat flam eggs. We moved to a different nest and attempted to capture an adult. Unfortunately, although we saw the adults hunting and bringing moths to the nest, we were unable to capture one.

The adult flam stands only about six inches tall, with a 14-inch wingspan. Flams are easy to recognize, as they are the only North American owl that size with dark eyes. Flams nest almost exclusively in mature ponderosa pine forests. When Linkhart began studying flams in 1981, they were almost unknown. “I was working with accipiter hawks—forest hawks that are pretty sensitive.

(Continued on page 12)



## Flams (Continued)

(Continued from page 11)

Richard Reynolds alerted me to the fact that flams were poorly known,” said Linkhart. “So one night he suggested we go out and look for some—moonlighting, so to speak. We found some, and that was really exciting. This was a niche that hadn’t been filled.”

Over the past 26 years, Linkhart and his colleagues have dramatically expanded our knowledge of flams, but many questions remain. Some of the questions about population, reproduction, and demography can only be asked because Linkhart’s study has been so long-term, a rarity in the field of ecology. “It’s probably fair to say in any part of science that it’s difficult to carry out any study for more than five years. Funding is definitely a factor,” he said. “I’ve been fortunate to be carrying out this study for so long.”

Linkhart has several projects in progress regard-



Linkhart uses an infrared camera on an extendable pole to check nests.

ing the flams, in addition to the reproduction data he’s been collecting for years. He is currently seeking funding to analyze blood samples from chicks collected over the course of the study in order to assess sex ratios.

Enough questions about this elusive species remain for another 26 years of research. This seminar provided an unusual opportunity for the participants to see active and unusually in-depth scientific research, as well as the chance to see a shy and unusual species up close.

## A Forest in Stone (Continued)

(Continued from page 5)

Several years ago, when the Midland was first opened, someone conceived the idea of transplanting the stump to Manitou, but it was found that it could not pass through tunnels on the road. He then commenced to saw it into vertical slabs, which he thought could be put together afterward. The saws sunk easily in the top of the stump for about two feet, when they encountered hard silica, to which the outside air had not yet penetrated, and there they stuck.

This stump is about forty-five feet in circumference and twelve feet high. Its shape is perfect; the buttressed roots, the knots and the irregularities of the bark are all there, as distinct as those on any of the pine trees close at hand.

The wood varies greatly. While all of it shows distinctly the grain and peculiarities of pine wood, there are some pieces which are hard as flint and white as marble, while others are soft and almost like natural wood.

By pulling off pieces of the petrified wood here and there are found little



fibers which the silica did not for some reason reach, but these crumble to dust when touched. The tree has been identified as belonging to the same family as the giant trees of California.

Across the valley from the large stump is another one almost as peculiar. It is a large bluish-black stone, which is made of thousands of pieces of petrified charcoal, conglomerated in a solid mass. None of the pieces are over an inch in length, and how they became thus knit together is likely to remain a mystery.

The place, in its present condition, will fully repay a visitor, but the expenditure of a few thousand dollars by the town of Florissant in securing title to the land, digging out the stumps and grading the ground, would make it a great point of attraction for curiosity and pleasure seekers. The forest is reached by a ride of thirty-six miles on the Colorado Midland over the divide.

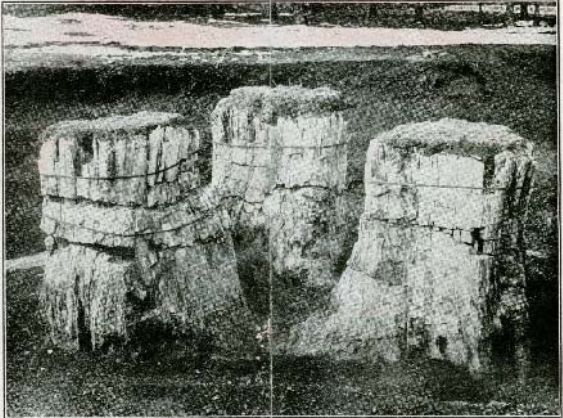
# Petrified Forest (Continued)

(Continued from page 4)

Sources:

- The Fossils of Florissant* by Herb Meyer 2003
- "A Window on the Oligocene", *The New Yorker*, November 13, 1971
- Florissant Fossil Beds Brochure, National Park Service, 2006


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SEVENTY-FIVE miles west of Colorado Springs, after a ride of scenic grandeur over U. S. 24 through Poudre (the Pass to Fly) start, then follow Highway 142 just beyond the Colorado Petrified Forest, one-fourth mile, one reaches the Henderson Petrified Forest (formerly the NEW Petrified Forest) - outstanding, moving attractions for uniqueness, fascination, and awe-inspiring educational interest.

Thousands of years ago, where now these huge petrified stumps are seen, were mammoth living, growing trees, and by scientific to have been of the Eocene or Sengene species. The great forest grew under tropical or semi-tropical conditions.

One tree, with three six-foot sprouts (shown at left), has a single root system 27 feet in diameter—the only one of its kind in the world.

Stumps are protected, set in 4 persons visiting the E. 224 Park Station, or west of the station, would see the HENDERSON PETRIFIED FOREST FIRST, and obtain the explanation which all visitors get here, but they avoid seeing all their trees here, and observe more in fact would understand the mountains and the formation of a fairer forest, but could not reach here from Colorado Springs and 1914.

The above specified stumps in the world are 2½ miles south of Fort Collins in the HENDERSON PETRIFIED FOREST, and are reached through the Pass, or over the Great Camp road, or on the Union City Road.

From one shown around the stumps in the illustrations, please take a pencil and show these mammoth stumps as they were found. State to the Elder Elder's showing some of the many specimens in the area.

Computer GUIDES will be furnished FREE, to explain the various formations of the forest, the fossil beds, etc.

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|-------------------|--------|
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| Total - 60c       |        |

Admit One



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Please provide us with feedback on the newsletter or any topic you are interested in to Melissa Barton ([webmaster@fossilbeds.org](mailto:webmaster@fossilbeds.org)). We would also like to know who is interested in serving on various committees or on the Board contact Sally Maertens at the address to the left or my email to [sammckind@aol.com](mailto:sammckind@aol.com).

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The Friends of the Florissant Fossil Beds newsletter is published quarterly by the Friends of the Florissant Fossil Beds and is governed by the by-laws of the Friends. Articles appearing in the newsletter do not necessarily reflect the views of the National Monument, officers, members, or sponsors of the Friends.

## About Our Organization....

In 1987, the Friends of the Florissant Fossil Beds, Inc. was organized by a group of dedicated individuals interested in assisting the National Park Service in its mission to preserve and protect our national treasures. As a non-profit organization, the Friend's mission is to secure resources to help preserve the fossils and promote programs and activities that enhance the Monument's education, research, and scientific objectives.

Friends' groups help many of the National Park service areas in a variety of ways. Membership fees and donations to the Friends of Florissant Fossil Beds are used for:

- Environmental education programs
- Field seminars
- Year-round interpretive programs
- Jr. Ranger programs
- Paleontological and geological resources
- Natural history resources
- Publications

Past accomplishments and ongoing support by the Friends of Florissant Fossil Beds includes:

- Major funding of the yurt shelters
- Travel and research funding for the Monument's paleontologist
- Assistance in the purchase of an all-terrain wheelchair for handicapped visitors
- Financial support for the University of Denver's (fossil data) Digitization Project
- Purchase of furniture for the seasonal rangers and intern housing
- Funding for other special Monument related celebrations and special events (such as the dedication of the new stump exhibit area May 11, 2002)
- Planning, funding, and coordinating the Monument's 30th Anniversary Celebration (1999) and 35th Anniversary Celebration (2004)
- Funding for the Monument's newspapers each spring
- Funding and coordination of annual Summer Educational Seminars Program





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