



# Friends of the Florissant Fossil Beds Newsletter

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## Inside this issue:

- Carbonized 2
- Wood From the Oligocene
- Blue Flax: Think Summer! 2
- The Biodiversity Puzzle 3
- Kids and the Florissant Fossil Beds 4
- Beautiful Florissant—Early History 5
- The Ponderosa Pine 8
- A Mammoth Find in Florissant 9

## Mow Heads North to Alaska!

This will be the last opportunity for me to address the membership of the Friends through the Newsletter. I have accepted a new position as the Superintendent of Kenai Fjords National Park in Alaska, beginning in December. I have enjoyed being Superintendent at Florissant Fossil Beds NM for the past 19 months, especially working with all of you. It has certainly been a pleasure for me to work with such a motivated and generous Friends group. There are few positions in the National Park

Service that would tempt me away from Florissant, but becoming Superintendent at Kenai Fjords National Park is one of them.

Florissant Fossil Beds NM is blessed with having a Friends group that is very motivated and generous in their support of the Monument. This comes at a busy time for the Monument, with new facilities both in planning and completion stages, there tend to be a number of unanticipated expenses as well

changes to the park operations. It is both disruptive as well as an exciting time for all of us. The staff appreciates the financial and moral support that the Friends are able to offer.

I want to thank all of you for your generous support of the Monument over the years. You have been a great group to work with and I wish for all of you great success in the future.

Sincerely,

Jeff Mow, Superintendent

## 35<sup>th</sup> Anniversary Celebration –August 27-29, 2004



What a wonderful weekend! Starting with the Anniversary Dinner on Friday, August 27<sup>th</sup> - to the final presentation at the Lewis and Clark seminar on Sunday afternoon, the 35th Anniversary weekend was filled with memories, educational programs, walks with a ranger, videos of the 25<sup>th</sup> and the 30<sup>th</sup> Anniversaries and refreshments from local merchants.

The Board of the Friends of the

Florissant Fossil Beds wishes to thank the many people that made the weekend a success. Ann Zwinger was the main speaker at the dinner. She did an extraordinary job. A thank you to all who added wonderful memories about the Monument over the

years. David Atkins, Steven Veatch and Dr. Vince Matthews gave very informative presentations throughout the weekend. Jo Beckwith, RMNA employee at the Monument, arranged a book signing. Harv Burman did the hikes with a ranger.

Many Friends' members helped

*(Continued on page 4)*



*Amy and Jeff Mow and Ann Zwinger*

## Carbonized Wood From the Oligocene: Trapped in Cripple Creek's Volcanic Complex

By **Steven Wade Veatch**, Volunteer, Florissant Fossil Beds National Monument and **Timothy R. Brown**, Cripple Creek and Victor Gold Mining Company

Cripple Creek, located in the southern part of Teller County, Colorado is the premier gold mining district in the state. The gold camp has produced more than 21 million ounces of gold since 1891—almost half of Colorado's gold production of 44 million ounces (Davis and Streufert, 1990).

Gold in the district is found in veins and surrounding rocks associated with a small (6 mi<sup>2</sup>) 32- mil-



lion-year-old (Oligocene) volcanic complex (Kelley, 1996). The complex formed by explosive volcanism, development of a funnel-shaped breccia pipe or diatreme, episodic intrusion of alkaline igneous rocks (ranging in composition from phonolite to lamprophyre), and subsidence (Thompson et al., 1985; Thompson 1992, and Pontius, 1996). The volcanic complex has three principal vent areas containing breccias of different sizes and lithologies formed by volcanic and hydrothermal action. Local eruptive centers, small stocks, dikes, and

(Continued on page 6)

## Blue Flax: Think Summer!

By **Harv Burman**, Ranger, Florissant Fossil Beds National Monument

I'm old enough to remember the "Shmoos" of Al Capp's cartoon series called "Little Abner." The Shmoos were adorable, always smiling, pear-shaped creatures that were—in the beginning at least—the best thing that ever happened to mankind. They required absolutely no care or feeding and loved humans. Every part of the Shmoos was useful to people. The body was boneless and could be eaten in its entirety with no waste. Even the eyes made buttons and the whiskers could be used for sewing. None of the Shmoos went to waste! As the daily newspaper cartoon series went on problems developed—not with the Shmoos but with humans who, because they had Shmoos, became lazy, jealous of other people's Shmoos herds, and ... well,



*A blue flax blossom. Image courtesy of Cliff and Jean Dickey*

that's for another newsletter article. This article is about what I think of as the Shmoos of the wildflower world, the blue flax, wildflax, prairie flax, or *Linum lewisii* (after Merriweather Lewis of Lewis and Clark renown).

Blue flax seeds can be eaten (after cooking as they contain cyanide) and can often be found in health food cereals or cooked with other foods. Seeds can also be squeezed to produce linseed oil which is used in paints, varnishes, linoleum, oil cloth, and printers ink. The tough stringy plants can be twisted together

and used as rope, which the native Americans and early settlers did. The fibers of the plant can be used in making linen thread and cloth. Both Indians and settlers used flax for burns, skin ulcers, and as a laxative. A poultice was made from powdered seed, corn meal, and water and applied to wounds and mumps.

Flax was used for colds, cough, lung congestion, and earaches.

Blue flax is common in the Guffey area and can be seen throughout the summer. The many blossomed plant is tall and stringy looking, with numerous tiny narrow leaves growing along the stem. The flowers are bright blue with five petals and a yellow center. The blossoms close up in bright sunshine and heat so viewing is best in the morning. After two or three days the petals drop off, but new blossoms occur daily so the plant is nearly always in bloom from June through August. If you don't have

them near you or aren't able to identify them come to Florissant Fossil Beds National Monument where they can be seen in profusion, especially in the fields surrounding the Hornbek Homestead (an 1878 restoration on the National Register of Historic Buildings), or see them while on one of the weekly Wildflower Walks given during the summer. Florissant, by the way, is French for blooming or flowering, a very appropriate name here in the Rockies in the summertime.

## The Biodiversity Puzzle: A Case Study Close to Home

By **Phil Waltz**, Nature Center & Outdoor Recreation Coordinator, South Suburban Parks and Recreation

You've read many articles in this newsletter about what happens when non-native species are introduced into an ecosystem and contribute to the decline of native species. But what happens when a key species of the biodiversity puzzle is removed from an ecosystem?

In the early 1900s, new Colorado settlers almost completely eliminated elk (*Cervus elaphus*) through market hunting. Reintroduction of elk from the Yellowstone area, in conjunction with government-sponsored decimation of wolves in the lower 48 states, led to a successful reestablishment of elk in Colorado and Rocky Mountain National Park (RMNP). By the mid-1950s, RMNP elk numbers stabilized at 500-800, a number limited via culling, controlled hunting, by National Park Service (NPS) staff. NPS policy changes in the 1970s removed active natural resource management options including this important culling operation. Without management, hunting, or predators, elk numbers in and around RMNP soared.

As early as the 1930s, resource experts in RMNP were commenting on negative vegetation impacts from the burgeoning elk populations: "Many of the park's top predators are now gone, which has led, in part, to unnaturally high elk populations and

overgrazing of the willow communities in the animals' primary winter range." The great expansion in elk numbers since the 1970s has exacerbated negative vegetation consequences and created impacts on other animal species. RMNP willow and aspen are especially over browsed leading to a tremendous decline in once abundant beaver that rely on these trees as an essential food source. A recent estimate put beaver numbers at less than 100 in the entire 266,000 acre RMNP. For a comparison, South Platte Park numbers are estimated at around 30 on just 700 acres. Elk impacts can also be seen in diminished small rodent populations because there's less grassland and shrub cover, and also much reduced vibrancy of wetland ecosystems created by beaver.

Most of these negative impacts can be traced to the wolf removal from Rocky Mountain ecosystem areas. Wolves would naturally affect these elk populations by culling numbers and keeping herds on the move. Yellowstone National Park was in similar condition

prior to 1995 when wolves were reintroduced to the area. This reintroduction has already been shown to have a positive effect bringing the system back into a healthy balance. Vegetation diversity has improved, small rodent and beaver populations are coming back to natural

*(Continued on page 8)*



*Elk herd in the Florissant Valley during the winter. One elk appears to be dancing. Photo by S. Veatch*

## Pikes Peak Historical Society

The Pikes Peak Historical Society is a non-profit 501 (c)(3) corporation of about 500 members, dedicated to preserving the history of Pikes Peak backcountry and educating the public about this heritage. Funded through memberships, grants, and donations, the PPHS helps bring members of the Ute Indian Nation back annually to their original homelands around Pikes Peak. The Tabeguache Utes were forcefully relocated to the Uintah-Ouray Reservation in Utah in 1880.

The PPHS maintains the Florissant museum, provides monthly free educational programs, stewards the Florissant cemetery, and does community outreach work such as an annual cleanup day. Some current projects include mapping of culturally scarred trees, and the search for specific campsites of the Juan Baptista de Anza military campaign of 1779.

For further information, contact Harold Kaelin at 719-748-3562.



*Mule deer can be found grazing on shrubs and grasses in the Florissant Fossil Beds National Monument. Although they have excellent eyesight, they rely primarily on sound to detect danger. They usually run uphill to evade predators. Mule deer spend the summers in high mountain meadows. During the winters, they migrate to favorite feeding grounds where south facing slopes offer more plentiful food. Photo by S. Veatch*



## 35th Anniversary (Continued)



in so many ways. A thank you to a very hard working committee. To Pat Brown, Laine Weber,

Harold Kaelin, David Atkins (he paid the bills), Susan and Andy Weinzapfel, Anita Flindt, and Yvonne and Bruce Mohr for all of their help. Also we wish to thank all of the Monument staff for all that they did over the weekend.

The final seminar of this summer was the 2 day seminar on

Lewis and Clark. The final activity for the seminar on Sunday was a Chautauqua with

Doug Mishler portraying William Clark. A great time was had by all.



## Kids and the Florissant Fossil Beds National Monument

By **Harv Burman**, Ranger, Florissant Fossil Beds National Monument

Some years ago Art Linkletter had a delightful program on the air called, "Kids Say the Darndest Things." Well, here at Florissant I find that to be true. In their "innocence," out of the mouths of babes come some of the greatest questions and comments. One of my granddaughters, five years old at the time, came to visit Ranger Grandpa here at the Monument several years ago. She was doing our "do it yourself" Junior Ranger Program. Her mother (my daughter), once a Ranger here at the Monument, asked her why one can't take fossils from the Monument? Her answer was immediate: "Because they belong to Grandpa!" In the sense that they belong to ALL of us she was absolutely right.



I was leading a third grade school group and, while standing near one of the stumps, I was trying to explain their 35 million-year-old age. I thought that I had done reasonably well, considering the age of the kids, when a cute bespectacled and freckled little girl (she looked as if

she was right out of a Norman Rockwell painting) asked, "Were you here when this tree died?" I knew then that I had failed to get the concept of geologic time across to the kids.

While walking the Petrified Forest Loop with a group of seventh graders, I was discussing the various kinds of fossils found in the world and I told them about fossil animal scat. Before I was able to give them the name, coprolite, one of the boys raised his hand and said that he knew what it is called. In my innocence I asked him to tell his fellow students. He said, "its called crapulite!" Somehow I think his name is better than the real one.

On the Walk Through Time trail (now known as the Ponderosa Loop) I overheard a couple of very young kids excitedly talking about trying to find dinosaur bones along the trail. A frazzled looking Dad was right behind the kids and I thought it my "interpretive duty" to correct this common misunderstanding of his kids. As some of you know, MANY people put an equal sign between the word "fossil" and "dinosaur" and sometimes expect our dinosaur bones to glow in the dark because they are "fluorescent." After I explained to Dad that there are no dinosaur bones in the Monument he replied, "I know that and you know that, but, LET THEM LOOK!" He was absolutely right to not squelch his kid's young enthusiasm.

"Why shouldn't people throw cigarette butts on the ground here in the Monument?" I asked a six year old recently. Her logical answer, "Because it is still hot and a bear might step on it and burn its foot." I hadn't thought of that one before.

I sometimes think that it is a real shame that we adults have lost our youthful innocence—life can be much more colorful for kids!

## Beautiful Florissant: Early History of the Growing Town

"The Location and Some Early History of the Growing Town",  
*Weekly Colorado Springs Gazette*, Saturday, April 18, 1894

Submitted by **Beth Simmons**

This article with glowing accolades about the "Flowering Valley" appeared in the 1894 Colorado Springs Weekly newspaper.

The tourist who travels on the Colorado Midland westward from Colorado Springs and from Manitou to South Park will not lack for romantic and beautiful scenery and will not lose interest on account of diversity and variety. First he passes Cascade with its shady canon and magnificent hotel, after passed through several tunnels, cut through the solid granite or porphyry and also winding around many curves cut in the solid rock and at the same time ascending a grade that such as a few years ago was thought impossible to operate with a standard gauge road. Next passing Green Mountain Falls, the gem of the Ute Pass, with its beautiful glades and shady groves, winding and circling the train moves being drawn by a ponderous engine such as is known only in the mountainous regions and on mountain roads it winds its way past the shady groves of Woodland Park. Then passing onward through Summit Park, the divide between the Platte and the Arkansas is reached. Then to the west and northwest the snowy range is in plain view. From here the train plunges downward around numerous curves for three or four miles when Twin Creek canon is entered and for four or five miles meanders with the curve of the canon, the clear meandering stream of Twin Creek now on one side and now on the other, splashing over its rocky bed on its way to the Platte River with the sides of the canon on the south covered with spruce and aspen and on the north with pine trees of all sizes.

Suddenly the train emerges from the canon where a beautiful valley opens up to the vision of the tourist, the hills rising less abruptly on the hills on the north side than in the canon just passed and rising only with a gradual slope on the south side. The slopes from the valley being covered with evergreen groves that cannot be excelled in beauty. Here is situated the town of Florissant where converge three branches of Twin Creek as clear sparkling mountain streams; here also converge the Colorado Springs, Canon City, Leadville, and Buena Vista roads. Here also converge county roads from the north, northeast, and northwest.

Into these roads lead other roads from the region of the Tarry-All mountains, from the Platte River, from South Park, from Turkey Creek, from West Creek, from Little West Creek, from Front Creek, Four-Mile, West Four-Mile, Current and Fish

Creeks, and thus giving a good outlet and inlet to a territory equal to thirty square miles or more. All of the above streams are settled with old ranchmen, and all have more or less meadow lands.

But let us return to the valley in which the young town of Florissant is situated, a little town of about 200 habitants, that has silently has grown up in the last two and a half years, and in as many years without noise or boom, but simply by the force of its natural surroundings. The Colorado Midland Company, foreseeing the necessity put in at an early day a depot and freight house, 20 X 96 feet.



*An unusual feature is seen on Fortification Hill*

Until the year 1870, this valley where the town is situated was in the undisputed possession of the noble red man. The Utes held possession at an early day about eighty years ago the Cheyennes and Arapahoes undertook to drive them out and take possession. The Utes had fortified themselves on what is now called Fortified Hill within the limits of the original tract platted. Fortified Hill, however, is preserved and will not be placed on the market, as it is one of the curiosities. All over the hill are breast

works built of rock just as the Indians left them, except they are somewhat dilapidated by reason of time. On the side of the hill in a large solid rock is what has been named "The Mortise." This is a deep smooth basin cut into the rock. It is about eighteen inches in diameter and three feet deep, and is supposed to have been cut by the Indians to hold water during times when they were besieged by their enemies. The Cheyennes and Arapahoes finally succeeded in driving the Utes from this stronghold by coming in from the north on higher ground. The history of the white race begins in this valley in 1868 when the surveyor general of the territory and two other men were captured by the

Cheyennes and Arapahoes and stripped of all they had worth taking and then turned loose. Settlement was begun here in 1870 by James Castello who took up what is now the original town site and also that of South Florissant as a ranch and built his house at the foot of Fortified Hill where his widow still lives. After the year 1870 the cattle men began and still continue to settle along the stream mentioned where they have meadow lands and plenty of range for cattle. They have held exclusive possession ever since.

Can you find the spots where Stone took these old photos about the turn of the century? They are now online, from the



*This photograph of the top of the hill shows the bedding of the volcanic material of which the hill is formed. The white splotch was on the glass*

Colorado College Library.

*Photos taken by Stone, 1905, Colorado College online photograph collection*



## Carbonized Wood (Continued)

sills formed in other parts of the complex. Magmatic and diatremal activity may have persisted 3 to 4 million years (Kelley, 1996).

Magmatism, diatreme emplacement, and mineralization were associated with the Rio Grande Rift system that may have started the melting of the upper mantle and lower crust, producing alkali-basalt magmas (Cappa, 1998).

A two-phased mineralizing event closely followed emplacement of the volcanic complex, starting 30 million years ago and lasting about 2 million years. Mineralization was linked to two major thermal events: (1) a high temperature epithermal event causing alteration and increased permeability of the surrounding rocks with little gold being deposited; (2) a low temperature epithermal event depositing gold in steeply dipping veins and disseminating gold into surrounding porous wall rocks (Kelley et al., 1998). Historic underground mining sought gold-silver telluride veins. Modern surface mining seeks broad zones of disseminated microscopic native gold and pyrite.

Today the Cripple Creek and Victor Gold Mining Company (CC&V) operates the Cresson surface mine (figure 1), clearly the most valuable deposit in the district, having produced over 3 million ounces of gold. This operation is a joint venture between AngloGold (Colorado) Corporation and Golden Cycle Corporation.

Active exploration conducted by CC&V identifies where gold may be found in the district. Remote sensing techniques such as aerial photography and geophysical survey measurements of gravity and magnetic fields are used as exploration tools.



**Figure 1.** View of the Cresson surface mine, Cripple Creek, Colorado Photo date 9/03, © S. Veatch.

Drilling with an exploration drill rig is another tool used in the exploration process and provides a view of what is below the surface of the district. During a recent deep directional drill program beneath the main Cresson surface mine, a core sample of Cripple Creek Breccia was obtained 3,527 feet down the hole (3,079 feet beneath the surface) that hosted a fossil wood fragment (figure 2). The difference between the distance "down the hole" and "beneath the surface" is due to the fact that the drill hole was a

directional hole. CC&V started the hole vertically, then used a directional motor to point the hole at a specific bearing and plunge, and finally drilled the core through the target zone. This resulted in a deviation from vertical that caused

the differences in the distances. The Cripple Creek Breccia hosting the black carbonized wood is composed of tuff and angular to subangular fragments of rocks and is at least 3,300 feet thick (Thompson et al, 1985).

The carbonized wood fragment is solid and does not easily break apart. The rim around the wood appears to be an alteration halo of quartz and calcite, although identification is uncertain. The smaller black specs seen in the core sample are difficult to identify without the help of a thin section. However, most appear to be mafic minerals that are contained within other clasts and fragments of rocks incorporated into the breccia. Some of the small minerals also appear to be hosted within the matrix of the breccia.

Although the Cresson core sample is remarkable, fossil wood is not something new found in Cripple Creek mines. T. A. Rickard (1900) wrote that a number of tree parts, ranging from small pieces up to the size of a trunk, were found mixed in with the Cripple Creek Breccia. Rickard (1900, p. 384) reports: "In the Jack Pot mine, at 400 feet from the surface, in the Logan at 600 feet, and in the Doctor at 700 feet, there have been found fragments of coal, exhibiting traces of wood-structure. In the Independence, at 500 feet, a stump of a tree was discovered in the very midst of rich ore. In every case the enclosing rock was breccia. The specimen from the Independence is stone, the others are coal. In the former case, the tree-portion must have become buried under conditions free from access of air, and must have been subjected subsequently to the action of siliceous waters, which gradually replaced the fiber of the wood with a mineral precipitate. In the other cases, the tree must have become enclosed within the breccia and subjected to a slow oxidizing action which carbonized the wood, without permitting it to burn freely. Otherwise, it would have been destroyed, leaving only ashes.



**Figure 2.** A carbonized wood fragment, from the Cresson surface mine, is circled in this core sample. This impressive sample was sliced from a piece of NQ-sized drill core (just under 2 inches in diameter). Image courtesy of the Cripple Creek and Victor Gold Mining Company.

(Continued on next page)

## Carbonized Wood (Continued)

As it was, it became coal, carrying 60 per cent carbon, and having the other characteristics of a typical lignite.”

Lindgren and Ransome (1906, p. 31) mentioned carbonized tree trunks and coal layers and provide this interesting account about the Elkton mine: “In July, 1905, a carbonized tree trunk was found on the 800-foot level of the Elkton mine. A letter from Mr. E.M. De la Vergne, the manager of the mine, dated November 25, 1905, states that the log is 18 inches in diameter and was at that time exposed for a length of 5 feet. It lies in hard unfissured breccia, about 40 feet west of the Elkton basic dike, and the matrix shows the impressions of knots and bark. A specimen from this tree trunk kindly supplied by Mr. De la Vergne, retains the rings of growth and other general woody structures, although the material is now altered to coal like that found in the Doctor-Jackpot mine. According to Prof. F.H. Knowlton the tree was undoubtedly a conifer and probably belonged to a species of *Pinus*.” Frank Hall Knowlton was a well-known paleobotanist and had been a professor of botany at Columbian University (now George Washington University), Washington, D.C. (White, 1927).

William Francis Hillebrand performed a chemical examination of the carbonaceous material that retained its original woody structure from the Doctor-Jackpot mine and determined it was bituminous coal (Lindgren and Ransome, 1906). Hillebrand published extensively on the composition of rocks and minerals and was the first chemist to be hired by the U.S. Geological Survey (Allen, 1932).

Loughlin and Koschmann (1935) note carbonized wood was found in several locations in the volcanic complex, including these mines: Cameron, Morning Glory, Doctor Jackpot, Logan, and Elkton. They also document a log found in the Cresson mine. The deepest wood was found at the 800 level of the Elkton mine; although Loughlin and Koschmann state the sample from the Cresson mine was from an “equal or greater depth.” The core sample recently obtained with the ancient wood fragment is significant as it was found at a depth lower than the deepest workings in the Cresson underground mine.

The mechanism that brings these surface materials to great depths within the volcanic complex is the subsidence that follows violent volcanic explosions. Lindgren and Ransome (1906), in their early investigation of the district, describe the Cripple Creek volcanic complex as explosive. During Oligocene time, when local intrusions encountered water, phreatic explosions resulted, shaking the landscape. These explosions resulted from the contact between magma and groundwater. Violent explosions, jets of volcanic ash, and billowing clouds of steam (driven by the expansion of super-heated water after contact with magma) brecciated the rocks and thoroughly mixed the shattered material. Magma rapidly ascended along zones of weakness while small eruptive centers or diatremes were enlarged.

Subsidence faulting, along steeply dipping faults, followed these violent explosions. Surface materials, through this active process of subsidence, were brought deep within the volcanic complex

and mixed with shattered rocks of all sizes. Loughlin and Koschmann (1935) recognized the role of subsidence in the volcanic complex when sedimentary rocks were found in the deepest mine workings—3,200 feet below the surface. Miners created quite a stir in the gold camp when they discovered bird tracks in sedimentary rocks in one of the mines (Ed Hunter, personal communication, 2003).

The recently drilled core sample (figure 2) that contains a carbonized wood fragment came from a depth greater than 3,000 feet below the surface. The rock unit that this core was drilled from reveals the shattering of rocks and subsidence resulting from the volcanic eruptions and phreatic explosions that occurred here 32 million years ago. From Cripple Creek’s early days on into modern times, the district continues to yield earth’s fantastic treasures—from precious gold to incredible Oligocene fossil wood—helping the district maintain its title as the “World’s Greatest Gold Camp”.

### Acknowledgments

We appreciate the help of Ed Hunter who greatly improved this article. Carol Edwards (U.S.G.S. Field Records Library) provided valuable assistance.

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## WIPS

The Western Interior Paleontological Society (WIPS) will host its Founders Symposium in 2005. The symposium is an every other year event.

For 2005:

Topic: Extinctions: Punctuations in Time

Date: March 12&13, 2005

Place: Green Center, Colorado School of Mines, Golden, Colorado

Website: Will be updated in the coming months at [www.wipsppc.com](http://www.wipsppc.com)

## The Ponderosa Pine



Ryan Reynolds, a member of the Friends of Florissant Fossil Beds National Monument stands in front of one of the largest ponderosa pine trees on the monument. Photo by S. Veatch

The ponderosa pine (*Pinus ponderosa*) is the most widely distributed species of its genus in North America and is generally found in an area deficient in summer rainfall. The tree reproduces through seeds produced in cones, which require 2 years to mature. The Florissant Fossil Beds National Monument is dominated by the ponderosa pine tree. The ponderosa is an extravagant user of moisture. It sends down a fast growing taproot which enables it to obtain moisture from many levels. As a seedling it also possesses the ability to withstand prolonged drought.

## Elk Biodiversity (Continued)

and healthy levels, and aspen and willow stands are returning to Yellowstone. Perhaps the balance can also be restored at RMNP, either with wolves or another form of active elk management. But with a Yellowstone wolf recently found near I-70 in Colorado, the biodiversity puzzle pieces may already be fitting themselves into place.



Elk eat primarily aspen leaves, shoots, and bark, but also grasses and sedges. Antlers are found on males, and occasionally on females. They are shed annually, any time between November and March. Once they are shed they are usually eaten by rodents because they are a rich source of calcium. Look for Elk on the Hans and Sawmill Trails at dusk and dawn at the Florissant Fossil Beds National Monument.

Photo by S. Veatch



Ryan, a student at UCSS, checks one of the ponderosa trees to see if it smells like butterscotch or vanilla. This debate has raged for years in the Florissant Valley. Photo by S. Veatch

The trees are capable of growing exceptionally fast if conditions are good for them. Because of the taproot, the trees can generally withstand high winds. When "wind throw" does occur it is often because the tree has root rot or the root systems are shallow because of the rock on which the tree is growing.

Ponderosa pines are considered fire resistant, damaged only when the fire "crowns" and sixty percent or more of the tree is destroyed. Some observers feel that a natural thinning process has largely disappeared because of organized fire protection. As a result even-aged, stagnating stands of the species have developed.

Ponderosa pines are prolific and pine seedlings grow in the

(Continued on next page)



## Ponderosa Pine (Continued)

shade of mature trees. If not kept in check, young trees will form exceptionally thick stands. Because of the intense competition for nutrients, moisture and sunlight, very few trees develop fully. This creates a

stagnate situation for all the trees and even the grasses and forbs in the area.

Fires kept the forest in check and opened the land to grasses and other vegetation. Fires burned young seedlings so that only a few healthy ones survived to replace large trees that were dying. In this way the trees of the forest were in different stages of development and the forest was healthier.

In a healthy forest, insects, such as the mountain pine beetle, have less a chance to destroy trees. The pine beetle attacks trees that are about 9 inches in diameter and are close together. In a

mature, fire controlled forest, this situation rarely developed.

*Editors note: article on ponderosa pine courtesy of the National Park Service.*



Ryan and his wife, Amber, are seen enjoying a ponderosa pine tree along the trail. Photo by S. Veatch.

## A Mammoth Find in Florissant

### January 23, 2005

During the last Ice Age the mighty mammoth roamed the hills and valleys of Florissant, Colorado. Eleven thousand years ago they vanished from the face of the earth. Join a park ranger and Steven Veatch, a local geologist as they reveal the exciting discovery of a mammoth that has been buried in the ground near the Florissant Fossil Beds National Monument Visitor Center for at least 49,000 years. This discovery represents a relatively high elevation for mammoths and is the first documented mammoth in Teller County.

Come and learn about this exciting find, and after the slide presentation, celebrate the discovery with freshly baked "mammoth" cupcakes. An optional walk in the monument follows where we will explore Florissant's winter. Dress for winter conditions. The program and hike will end by 3 p.m. Regular park admission applies (\$3.00 per adult, anyone 16 or under is free).

**Time:** 12 noon.

**Place:** Florissant Fossil Beds National Monument Visitor Center

*Call the Visitor Center at (719)-748-3253  
for reservations*



## Advertising Rates

|                     |         |
|---------------------|---------|
| Business Card Size: | \$6.00  |
| ¼ Page              | \$12.00 |
| ½ Page              | \$24.00 |
| Full Page           | \$48.00 |

You may submit advertisements to: Steven Veatch, P.O. Box 5938, Woodland Park, CO 80866 or via email: [sgeoveatch@att.net](mailto:sgeoveatch@att.net)

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*Friends of the Florissant Fossil  
Beds*

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We're on the Web!  
See us at:  
[www.fossilbeds.org](http://www.fossilbeds.org)

## Email Addresses Wanted

Please send your current email address to fossilbeds@yahoo.com. This will allow us to send you reminders or events and important news items as they occur.

Please provide us with feedback on the newsletter or any topic you are interested in. We would also like to know who is interested in serving on various committees or on the Board. You can reach us at the address to the left or by email at fossilbeds@yahoo.com.

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## 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 activities that enhance the Monument's educational, 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

**FRIENDS OF THE FLORISSANT  
FOSSIL BEDS**  
P.O. Box 851  
Florissant, CO 80816

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