



Friends of the Florissant Fossil Beds Newsletter

June, 2005

Reginald M. Tiller Named Superintendent of FFBNM

Reginald M. Tiller, a doctorate student at Regent University, Virginia Beach, Virginia, has been named Superintendent of Florissant Fossil Beds National Monument in Colorado. The announcement was made by Intermountain Regional Director Steve Martin. Tiller assumed his new responsibilities effective April 3, 2005.

"I am truly excited about being appointed superintendent of Florissant Fossil Beds National Monument, and the opportunity to work for the National Park Service," said Tiller. "I am especially looking forward to working with the park staff and the local community to enhance educational and interpretive opportunities to preserve and protect park resources for this unique site." Tiller recently served as

the executive director for the YMCA of Greater Charlotte in North Carolina. In 1987, he received his Bachelor of Science degree in athletic training from Trevecca Nazarene University - Nashville, Tennessee. He re-



ceived a Master of Arts degree in organizational management in 1998, also from Trevecca Nazarene University. Tiller is currently a student at Regent University's School of Leadership

distance program, and has completed two years towards his Ph.D. As the executive director for the YMCA, he was directly responsible for chartering a new, 43,000 square foot facility, developing and implementing

programs and services for the community, as well as recruiting and training new staff and volunteers. The highlight of his term as executive director was receiving a \$1 million donation from Charlotte Bobcats owner, Bob Johnson, to establish an endowment fund for the West Boulevard YMCA.

Tiller has worked for the Charlotte, West Boulevard YMCA since 2000. Previously, he worked for YMCAs in Nashville, Portland and Chattanooga. Other jobs

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Mudflows Flooded the Flowering Valley

By **Beth Simmons**
Metro State College, Department of Earth and Atmospheric Sciences

Thirty-five million years ago a huge volcano, perhaps the size of Mt. Rainer in Washington State, sat atop what is now the town of Guffey, southwest of Florissant. Similar to the volcanoes of the northwest, this vol-

cano periodically spewed ash and lava around and about. More commonly rivers of hot or cold mud skidded down valleys on all sides of the mountain. When Mt. St. Helens erupted in 1980, a hot mudflow or lahar flowed down the Toutle River into the Columbia. Thirty-five million years ago, a steaming hot mudflow flowed down the Four-Mile Creek valley of the Guffey



Teller County Road One cuts through this ancient lahar. The lahar is exposed on both sides of the road. Evergreen Station is seen further down the road on the right.
Photo by John Ghist.

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Butterflies of Florissant

By **Trevor Polley**

Trevor is a Friends Board Member. He is a Program Director and Naturalist at the Colorado Outdoor Education Center/Sanborn Camps which is a neighbor of the National Monument.

The fossil record in the Florissant shales has yielded 12 species of Eocene butterflies. The fine shales and unique deposition conditions have preserved these delicate creatures in rare but exquisite detail. These 12 species are in 11 different genera and from three different families. The system of taxonomy used to name living (and fossil!) things gives each species a two part name. There is a specific name, and a genus name that is given to similar species. Similar genera are grouped into families, families are grouped into orders, etc. So the fossil butterfly "Amerindian Lady" is really; Order: Lepidoptera. Family: Nymphalidae. Genus: *Vanessa*. Name: *amerindica*.

The three families represented in the Florissant fossil record are; the brush-footed butterflies or Nymphalidae (eight species), the whites or Pieridae (two species), and the snout butterflies or Libytheidae (two species). These families still exist today though only two of the fossil genera still exist and none of the actual species are around today. The two Pieridae species and seven of



Two-tailed Swallowtail
Submitted Photo

the Nymphalidae appear similar to modern neotropical species as found in southern US and Central America. The snout butterflies resemble species currently found in southeastern Asia.

About 100 living species of butterfly have been found in the Florissant area in recent years. It is supposed that at least a similar number would have been here 34 million years ago, we just have not found fossils of them yet. Of the living species 25% are non-residents or strays from elsewhere.

The remaining butterflies can be regarded as local residents.

At first glance the terrain around Florissant may appear fairly uniform and unremarkable, certainly not the place to look for a great variety of butterflies. However if you look more closely, maybe shrink and take a butterfly's eye view of things, you find many different habitats, each of which supports different butterfly species and the plants they feed on. These habitats can be wet meadows, dry meadows, pine forest, aspens, etc. Some species congregate on rocky ridge tops, a sort of dating hotspot, while others gather in canyon bottoms. The Two-Tailed Swallowtail (*Papilio multicaudatus*) shown in Picture 1 is the biggest

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Everything is as it should be. Or is it?

By **Harv Burman**, Ranger

Florissant Fossil Beds National Monument

There is a natural order to things. Trees grow from seeds. Flowers have colorful petals at the top and green leaves on the bottom. Male animals are larger, more colorful, and better looking than females. (Well, in the case of the human animal, I realize that there is room for discussion on some of those points!) Female birds hatch young, and males hunt for food. Humans, being highest on the scale of life because of their ability to use reason (well, sometimes at least), are essentially monogamous (faithful to a single mate); other animals, being lower on the scale of life, are opportunistic breeders that take any mate. And finally, National Park Rangers know pretty much everything about nature. These are facts and everything is in a natural order! Or is this really the case?

Since becoming a Park Ranger I have found that I have had to re-evaluate many "facts" of life. I have learned first of all, from the wide range of questions asked of me, that we Rangers **don't**

know everything. I have learned we **don't** know far more than we **do** know. I've learned that there is a wonderful, complex, fascinating world around us if we take a little time to stop and look and wonder and marvel. For instance, all trees don't necessarily grow from seeds. Here in the mountains, aspen trees grow in groves with many connected by common roots. Aspens clone new tree sprouts from existing roots, their most common method of reproduction. The Redwood or Sequoia tree, which

used to be common in Colorado but no longer lives here, had a similar characteristic. If you visit Florissant Fossil Beds National Monument you can see the cloning phenomenon in a 35 million year old fossil called the "Trio," a group of three fossilized redwood stumps that had shared a common root system. The Trio is the only multiple-tree fossil found on earth (so far).

Golden smoke, a common flower in this part of the Rockies, grows with its tiny yellow flowers near the ground and its foliage on top. Upside down! Indian paintbrush doesn't follow the

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This photograph of the Trio shows a small dog enjoying a break.
Photo from the Mike Ausec collection.

Where and How to Hike at Florissant Fossil Beds

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

Florissant Fossil Beds National Monument has 14 miles of trails to walk, hike, and enjoy. There are short loops, long loops, self-guided trails, and some paths where it's just you and nature. Maps with brief descriptions and mileages are available at the visitor center, but the cold, dry mileage numbers, lines on a map, and the brief descriptions don't really tell you what the experience of exploring the Monument is really about. Let me tell you what I feel and experience when I walk the trails. Maybe that will help you decide where and how far you want to explore here.

In my opinion, the minimum exploration, or the beginning of a longer exploration, is to take one of the self-guided loops that are intended to help you see and understand the fossil beds themselves. The 15-minute Walk Through Time trail is less than ½ mile, has relatively little up-and-down walking, has numbered posts (which correspond to numbered explanations in a guide-book) along the way, and generally stays in the woods. It's a fascinating exposure to the paleoenvironment (ancient environment) of fossilized redwood tree stumps mixed in with today's forest of ponderosa, aspen, fir, and spruce trees. At the end of the loop are two fascinating petrified redwood formations with large ponderosa trees growing right from the stumps. Both paleo- and modern forests together on the same spot!

The 40-minute Petrified Forest Loop, which is also self-guided, is just a bit longer than a mile (don't think miles – think just over 12 blocks!), with some gentle ups and downs through a mostly meadow environment. It's worth the time just to get out to see the "Big Stump," but there are more things to see, including several petrified redwoods, the 1877 Scudder fossil pit, and flower-filled meadows in season. It's a quiet, relaxing walk with benches along the way on which to sit and contemplate what you have seen and

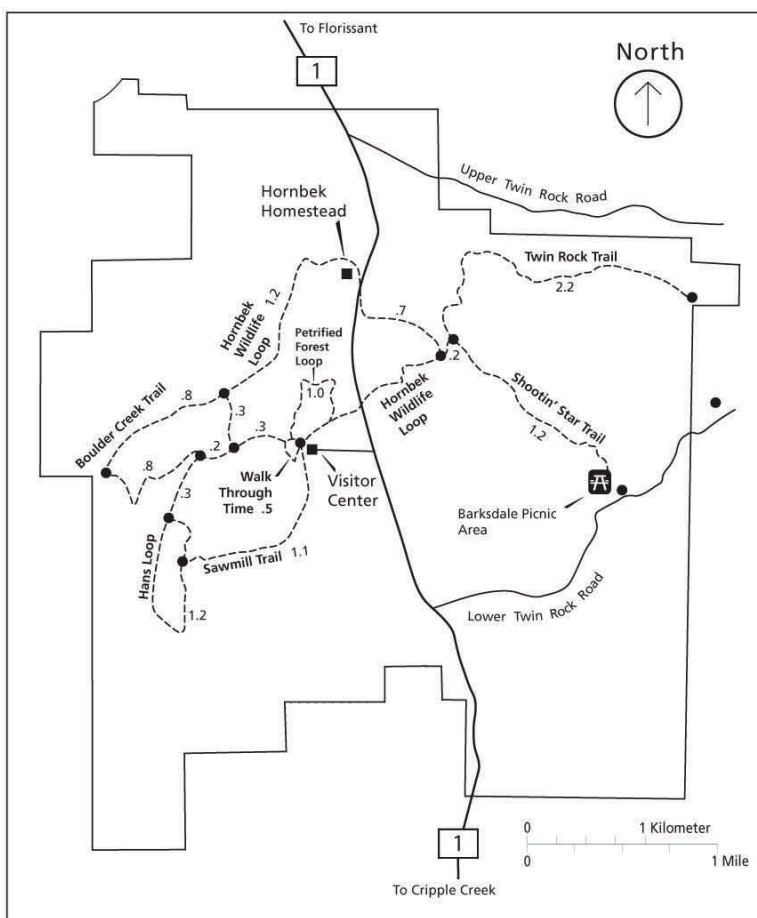
learned. I particularly enjoy the post card view of the Hornbek Homestead in the distance. In my mind I eliminate the highway, cars, and power lines and imagine myself back in the 1800's.

After those trails you are ready to explore the other 12 miles of nature trails. Want to get away from people? The further you hike the fewer people you will encounter. Classifying the degree of difficulty of each trail is not easy because hikers vary considerably in their level of fitness, desire to walk distances, the altitude at which they live, and more. Generally, none of the trails here is difficult walking, and classification is more a function of distance. A short part of the Boulder Creek Trail is steep uphill walking. No, you won't need climbing ropes! A quarter mile section of the Hornbek Wildlife Loop is also a little steep with some rocks in the trail, but you won't need ropes and technical gear there either! Some folks consider a short section of the Sawmill Trail steep too, but those folks are almost always used to much lower elevations.

What trail do I recommend? You're asking the wrong person. I love them all! For a "destination" trail try the Boulder Creek Trail, which leads you to an area of giant boulders known as the "Caves." Kids love it. The greatest mix of meadows, forests, and flowers? Try the Hornbek Wildlife Loop, which also leads you through the Hornbek Homestead grounds. Great views of Pikes Peak? Definitely the Sawmill Trail plus Hans Loop. Prettiest? I like the Twin Rock Trail, which leads you next to a small stream and large rock formations.

The trails are all in good shape, easy to follow, and relaxing. They are all at about 8500 feet elevation (wear sunscreen and don't hurry in the thin air), where storms can move in rapidly, so it's important to carry appropriate clothing and head for shelter before lightning. To avoid fleas

and disease, a hiker should also not approach any wildlife encountered along the trails, which often wind through squirrel, rabbit, and chipmunk habitat.



Juan Baptista de Anza's Military Campaign

by **Andy Weinzapfel**

(Editor's Note: This article was run in the last issue and the ending was inadvertently cutoff so here it is in its entirety)

If there were a time machine that could transport you back anywhere in this region, when and where would you go? What poorly understood historical curiosity might you pursue?

One of my choices would be the Florissant area of late August 1779, an interesting time in Pikes Peak backcountry. The quiet domain of the Tabaguache Utes was not in a "business as usual" mode. Deer, prairie dogs, and buffalo would have been startled at the sight and sounds of a massive army passing through the area. This military campaign, with de Anza as its leader, consisted of about 600 soldiers and militia, 200 Ute Indians, and 2400 horses. Anza was on a search and destroy mission targeting Comanche chief Cuerno Verde (Green Horn) and his warriors. He was seeking the element of surprise by coming through

the "backdoor" of the mountains, rather than traveling north along the Front Range from Santa Fe. At the time, the Comanches were ravaging the Pueblos and Spanish settlers without effective opposition. Anza, already a seasoned military leader and founder of San Francisco, was appointed Governor of New Mexico in 1777. In his mindset, Cuerno Verde and his band of troublemakers had to be defeated. He aligned with the Utes to accomplish this objective. There was a mutual family legacy of pain between the two leaders. Anza's father had been killed by Apaches, and Cuerno Verde's father had died at the hands of Spaniards. Ultimately, Anza's army surprised Cuerno Verde on the plains, engaged in a running battle, and killed him and his warriors on 3 September, 1779.

What we know about this military campaign comes primarily from two diaries in Spanish, one preserved in Mexico City,

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The Golden Eagle

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

If you were asked to pick a symbol of the United States, what would you choose? Many years ago the Bald-Headed Eagle was chosen. In old English it was "balled" headed, meaning "white" headed, but the choice wasn't unanimous. Ben Franklin suggested that the Bald Eagle has a mean personality, stealing food from other birds, including other eagles and frequently eating carrion, or dead animals. A better symbol, he suggested, would be the Wild Turkey, which he said is an intelligent, gentle, beautiful bird. I agree with him, but I would have picked the Golden Eagle. I can't think of a more magnificent creature, with a wingspan of over seven feet, weighing up to 16 pounds (a flying bowling ball!), with a beautiful golden head, able to soar seemingly effortlessly for long periods of time and long distances. Golden Eagles mate for life and will defend to the death their territory, which can be as much as 50 square miles, from all other eagle competition. When nesting in the spring they will protect an area around the nest from all other raptors and predators.

Wild creatures are necessary to a balanced environment, and it is satisfying to the human spirit just because they exist, but sometimes, as in the case of the Golden Eagle, there are addi-



tional benefits to humans. The Golden Eagle helps control the population of rodents. A breeding pair can consume up to 700 pounds of food per year. That's a lot of mice and other rodents! They have to work at it though, as they are successful in only one out of five tries to capture food.

Golden Eagles are native to Colorado as well as to much of the Northern Hemisphere, but today they are usually only found in remote areas, especially in the mountains. We are fortunate in this area to have them as part of our environment, and they can often be seen soaring majestically in the skies above the Rockies. A great place to see them almost year-round is in Florissant Fossil Beds National Monument from the steps of the visitor center. Ask a Ranger where to look. What a thrill to see a Golden Eagle take off from a Ponderosa and soar to a thousand feet or more without ever flapping a wing, riding on elevators of air called thermals. I've seen them fly for hours for what seemed to be just the pure pleasure of flying. I'm envious!

Remember that it is illegal to hunt them or even to possess so much as a feather found on the ground. There are many other raptors in Colorado, but I feel the Golden Eagle is the most majestic and beautiful. Even though they aren't the official symbol of our country, they are to me the symbol of the mountains of Colorado.

Wildflowers Are To Be Admired and Left Alone

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

In the summer, many visitors notice that we have thousands of wildflowers and think that because we have so many – we are after all “Florissant” which is French for flowering – that it is O.K. to pick them. IT IS **NOT** O.K.!!! They often think that if they only pick one or a few that it won’t hurt anything. It **DOES** hurt. Here are just some of the problems caused by visitors picking wildflowers:

- ☼ Picking a beautiful wildflower means that no one who visits the park after you gets to enjoy that flower as you did.
- ☼ The function of a flower is to produce seeds for future flowers. Picking that flower not only removes it for this season but removes seeds for next year as well. Effects are cumulative year after year after year. In a few years we won’t be “Florissant” anymore.
- ☼ Florissant has 90,000 visitors each year. Just one flower per person wipes out those many thousands that you saw. The park staff can see the loss of flowers through the season while visitors do not because they come only for a short time.



- ☼ Most wildflowers are thrown away within five minutes and are found lying on the trails because, once picked, they wilt almost immediately. They are not like the flowers you buy at the flower shop.
- ☼ Picking flowers takes away a food source for a large variety of insects, birds, and animals. For instance, each hummingbird requires thousands of flowers to provide nourishment in the form of nectar.
- ☼ Wildflowers are prettiest in their natural setting. A beautiful flower growing in the meadow is nowhere near as beautiful when picked and certainly not at all beautiful when discarded on the ground or in the trashcan.

These are just some of the reasons. Do you need one more? It is illegal to pick plants in National Parks. You may receive an expensive citation!

Please help us maintain the naturalness and beauty of your National Parks. Enjoy the wildflowers at their best – in the fields and meadows along the trails.

Wapiti or Elk?

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

“Hippity, hoppity, whapity!” If you say that little phrase you will know how to pronounce the Shawnee name for the animal we call “elk.” The rest of the world refers to a moose as an elk, so using the name wapiti is more accurate. Wapiti means “white rump,” and moose means “he who eats bark.” The moose may be larger, the bear more powerful, the mountain lion more sleek and elegant, but the wapiti is the monarch of the forest. There is a Native American song about the wapiti that says, “Whoever considers themselves beautiful after seeing me has no heart.” This large member of the deer family is numerous here in Colorado, yet no matter how many times they are seen, they still bring a thrill. There are four different kinds of wapiti: Rocky Mountain, which are the



animals we have here, Tule living in California, Roosevelt found in Washington and Oregon, and Manitoban found in western Canada. When the first settlers came to North America, there were about 10 million wapiti living throughout the U.S. and Canada in a wide variety of habitats in all but the extreme northeast and southeast. By 1930 the population was reduced to about 90,000. That’s a reduction of about 99%! Now the population is estimated at about 700,000. Loss of habitat and killing for a variety of reasons nearly eliminated the entire population. Reintroduction and management of the herds have helped the wapiti make a comeback, but increasing loss of habitat again threatens their long-term viability. Did you know that

Colorado loses about 4 acres of wildland to development PER HOUR?

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Historic Geologists

By Beth Simmons

The stratigraphic column of the rocks present in the state of Colorado appeared in the "Geology" section of the International Correspondence School's (ICS) Volume 29, published in 1899, *Blowpiping, Mineralogy, Assaying, Geology, Chemistry*, Fig. 34, p. 45. The ICS was the first major "distance learning" program in the United States, proving that education could occur from a book a far ways from the instructor.

Interestingly, the notes for this sketch state, "From this it will be seen that the Devonian rocks are entirely wanting, and the series is not complete in several other respects." We know now that the

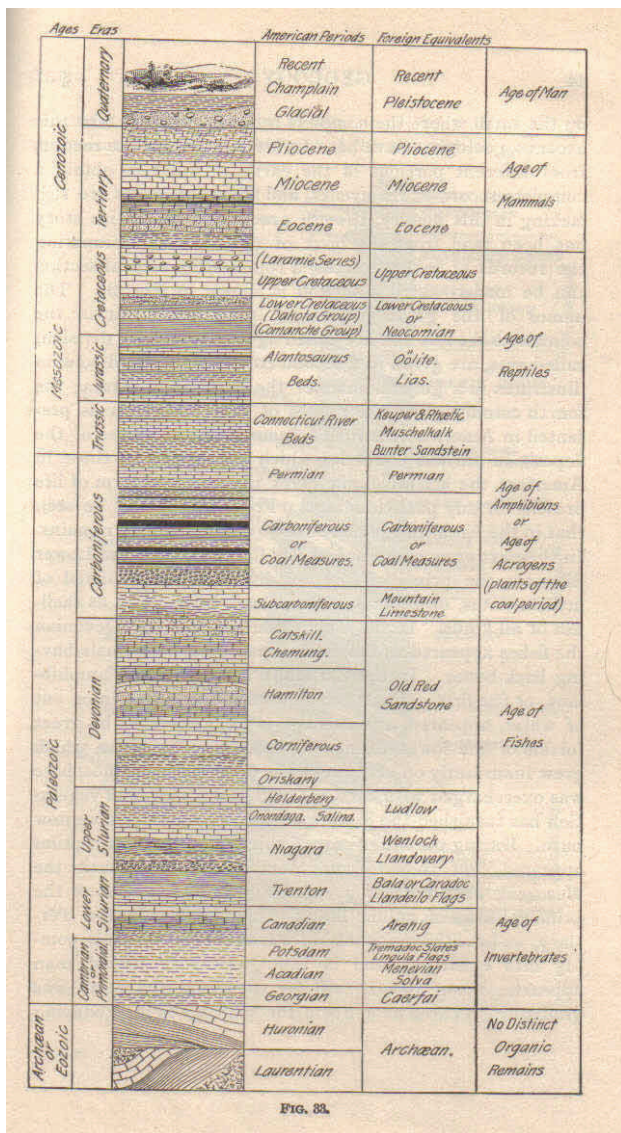
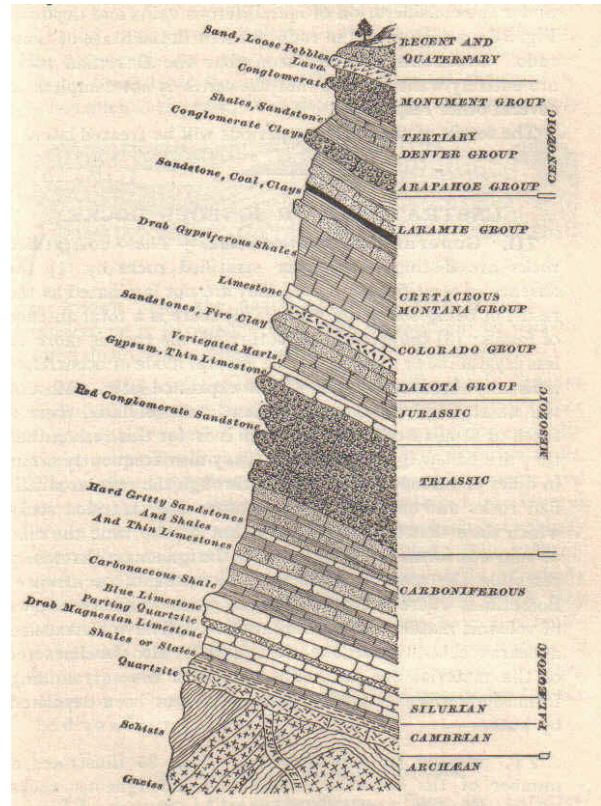


FIG. 33.

Taken from FODR Ridge Report,
Volume 17, #1, 2005. Back inside cover



Taken from FODR Ridge Report,
Volume 17, #1, 2005. Back inside cover

Devonian section is intact, but the Silurian that was missing until 1964 when Dr. Chronic and his students discovered the diamond pipes, was marked. Notice that the Dakota Group was prominent, overlain by the Colorado Group, and the Montana Group, then the Laramie, Arapahoe, Denver, and Monument Groups.

Also in the book, presented as Fig. 33, p. 43 was a geological time scale with major American Periods and Foreign Equivalents. Hopefully, this will help those who are doing historic research in the geologic literature.

Reginald M. Tiller (Continued)

included Human Resource Specialist for United Parcel Service, and State Park Manager and Assistant Director for Tennessee State Parks in Memphis and Nashville. He served in the Army National Guard in Tennessee and Oregon from 1987 – 1999, and supported Operation Desert Shield/Storm while assigned with the 7th Medical Command in Heidelberg, Germany. "Reggie brings to park management the experience necessary to foster effective community relations and develop long-term plans for cooperative management," said Martin. "He brings to

the job a strong understanding of leadership and partnership building." As Superintendent of Florissant Fossil Beds National Monument, Tiller will be responsible for the management of approximately 5,998 acres, a staff of 12, and an annual operating budget of more than \$632,000. A beautiful mountain valley just west of Pikes Peak, Florissant Fossil Beds National Monument holds spectacular remnants of the earth's prehistoric life. Huge petrified redwoods and incredibly detailed fossils of ancient insects and plants reveal a very different Colorado of long ago.

Mud Flows (Continued)

volcano. The lahar mixed older volcanic rocks with pieces torn off granite canyon walls into a boiling stew. When the flow hit the west-facing wall of the granite gorge of south-flowing Twin Creek, it piled up and the lower portion was trapped. Froth, foam, and the less viscous upper fluids flowed north, filling up the valley all the way past Florissant. It was that mudflow that killed the giant *Sequoia* trees for which the Florissant Fossil Beds are so well known.

Because the lahars are hot, when they cool, the rock becomes very hard. More resistant to erosion than the volcanic deposits, the lahars that once filled the valleys eventually stand high above their surrounding topography. The lahars of the Guffey volcano, part of the Thirtynine Mile Volcanic Field, are probably not as famous as the trees they buried but are equally outstanding. Some, which stand a hundred feet above the eroded landscape of the ancient volcano, contain boulders as big as boxcars. They are perfect places to make a complete rock collection in one stop.



This lahar, near Evergreen Station, shows clasts of Cripple Creek Granite.

Photo by John Ghist.

One place to view and see an ancient lahar is on the ridge just south of Evergreen Junction along Teller County I (park at the



A close-up view of the lahar formed by volcanic activity from the Guffey volcano. This lahar reveals a remarkable mixture of lithologies.

Photo by John Ghist.

general store and walk south). Another spot is at the brink of the pass between Saddle Mountain and Thirtynine Mile Mountain along the USFS 59 (Ranger Station Road) that goes south from Elevenmile Canyon Reservoir toward Guffey. Still others are visible along the High Park Road on the south side of the volcano. The ancient lahars are all dark-colored rocks, very tough and hard. From a distance, they may look like lava flows, but a close examination will show that they are a cement of all different sorts of shapes, sizes, and types of rocks.

There were also cooler mudflows. When eruptions denuded the forest that covered the volcano, rain, or perhaps snowmelt, washed sediments down the sides and deposited them in lakes and on the flat plains around the volcano. One of these natural cements, called the caprock conglomerate unit, is visible within the monument and around the hillsides near Florissant. Its ash content makes this unit generally lighter colored than the volcanic lahars.

Explore the ancient volcano called Guffey, and imagine living in a flowering valley that was bustling with forest life—insects, flowers, and huge trees—and periodically exploding with volcanic activity. To learn more, attend Bud Wobus' seminar that the Friends of Florissant Fossil Beds is sponsoring on July 17th and/or Herb Meyer's seminar on July 23rd, 2005.

Butterflies (Continued)

butterfly in our area. The adult males have a high, soaring flight. It is found mostly in foothill canyons but is abundant here some years. A dense forest or other major habitat change can be a barrier to the movement of some species, whereas a long thin strip of suitable vegetation, such as a stream with aspens, can provide a corridor to new locations. For example, Picture 2 shows Weidemeyer's Admiral (*Limenitis weidemeyerii*) which is found around willow and aspen growing along watercourses. It rarely strays from such locations but will follow such a stream to new suitable places.



Weidemeyer's Admiral
Submitted Photo

million years ago. All we need is a lake and a volcano to preserve a few for the future!

References:

Emmel, Minno & Drummond (1992) *Florissant Butterflies*, Stanford UP California.

Meyer (2003) *The Fossils of Florissant*, Smithsonian Books Washington.

Opler & Wright (1999) *Western Butterflies*, Peterson Field Guides.

Butterflies can be very particular about the plants they like. The Atlantis Fritillary (*Speyeria atlantis*) seen in Picture 3 searches wet meadows looking for violets to lay their eggs on. The Anise Swallowtail (*Papilio zelicaon*) feeds mostly on fennel, dill and around here on mountain parsley. It is fairly uncommon in Florissant but Picture 4 shows the rare black (*nitra*) variation caught (and released) locally.



Atlantis Fritillary
Submitted Photo

This great diversity of local habitats allows Florissant now to be home to so many butterflies and insects in much the same way as it was 34



Anise Swallowtail Black
Submitted Photo

Everything is as it should be (Continued)

accepted natural order either because the bright red/orange or yellow parts are actually leaves, or bracts, with the small flower being an inconspicuous green. Most of us know of another "confused" flower, the Poinsettia. In the raptor world (that is, birds of prey), which includes eagles, falcons, hawks, and owls, the female is larger and more powerful than the male, a situation known as reverse size dimorphism. In many raptors the male shares at least a portion of the incubation of eggs and the feeding of the hatched young and even feeds the female while she is brooding. Most raptors mate for life, finding a new mate only in the event of death of the previous mate. It looks like they also believe in "'til death do us part."



Indian Paintbrush

Wapiti or Elk? (Continued)

There are so many fascinating things about wapiti that it's hard to keep this article to a size appropriate to this newsletter. How big are they? Bulls weigh up to 1000 pounds, cows about 600 pounds. What do they eat? Mostly grasses and forbs, but during the winter aspen shoots and bark are also part of their diet. What about their horns? Well, they don't have horns! The bulls have antlers much of the year. The essential difference between horns and antlers is that horns are single and permanent, and antlers are branched and fall off each year. New antlers are grown beginning soon after last year's antlers fall off in the winter. They can be up to 30 pounds per pair and each antler 4 feet long. Antlers are one of the fastest growing mammalian tissues at up to an inch per day. What's with all the "bugling" in the fall? Late August to November is the breeding season, referred to as the "rut." Each bull herds the cows into harems of between 5 to 15 and tries to keep other bulls from mating with "his" harem. They make a sound unlike any other to warn competing bulls to stay away. This sound is a cross

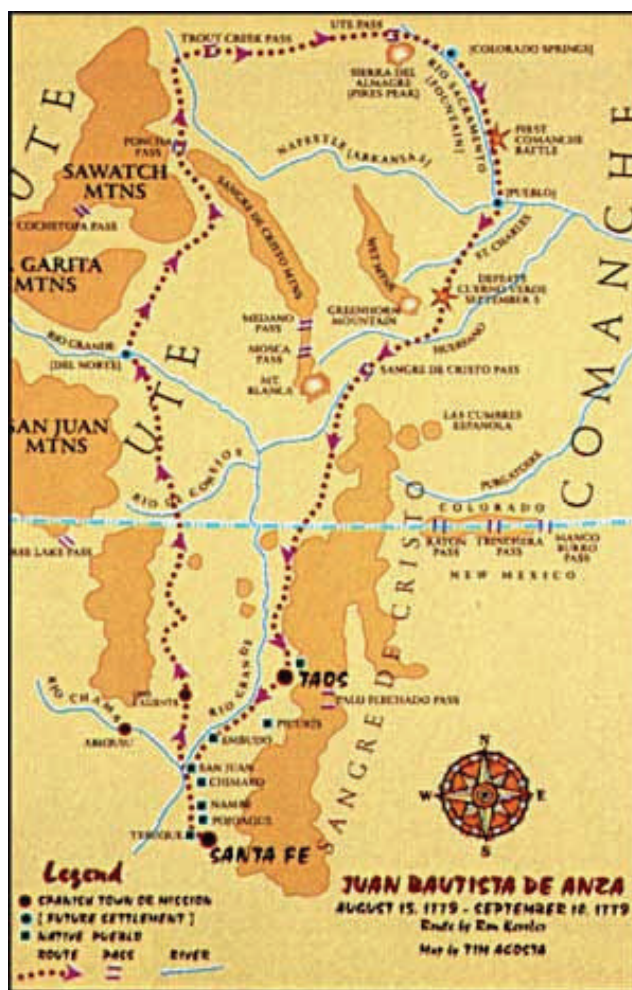
between a bugle, the "moo" of a cow, and the roar of a lion, all with a nasally twang. If that doesn't discourage competitors, they will show off their magnificent antlers; if that doesn't work, they fight. Usually the fighting is more like schoolyard shoving and pushing until one of the bulls backs off, but sometimes fighting can injure and even kill one or the other combatant. Where can I see them? A good place is Florissant Fossil Beds National Monument in the early morning or late evening. Middy they are usually hiding in the safe forest and ruminating, which is chewing food that they had eaten in the early morning and then regurgitated into their mouths. The park is winter home to about 300 wapiti.

Watch from a distance so as to not disturb them and remember that hunting is not legal anytime or anywhere in the Fossil Beds. Come with binoculars and cameras with telephoto lenses. Check with a Ranger for likely places to see them.

Juan Baptista de Anza (Continued)

Mexico, the other in Madrid, Spain. The best geographic anchor for this part of Colorado is their crossing of the Arkansas River (Rio Napestle) near Poncha Springs, the morning of 28 August, 1779. At this time, the army was headed to the northeast. The night of 29 August, they camped somewhere in the Florissant area at the foot of "los ojos ciegos" (the blind eyes). Celinda Reynolds Kaelin, in her book *Pikes Peak Backcountry*, proposes that this might be a reference to Twin Rocks, east of Florissant along the Ute Trail. Another possibility is that the blind eyes are twin exfoliation domes, rounded high weathering features in granite. Good candidates exist in the area. An interesting piece of trivia from Anza's diaries: the weather during that August was quite foggy, snowy, and cold. Campfires were not possible because of a concern that Comanche scouts might discover the army, and remove their element of surprise. The army probably suffered greatly because of this. Historians have recognized the Little Ice Age, about 1450-1850 A.D, a period of a much cooler climate. Apparently the clouds did not lift sufficiently to discern Pikes Peak, since there is no specific reference to this awesome topographic feature. The diaries do refer to their difficult travels over the "mountains of the red earth", however, on 30 August, 1779.

The Trails Committee of the Pikes Peak Historical Society is dedicated to research and investigation of the Anza campaign. Given the large size of his army, it is possible iron artifacts were lost or deliberately discarded at every campsite. At least one "dig" is scheduled for 2005.



Florissant Fossil Beds

National Park Service
U.S. Department of the Interior

Florissant Fossil Beds
National Monument



Summer Seminars Series and Fees

Florissant Fossil Beds National Monument offers one or two-day seminars in a variety of geology, biology, humanities, and paleontology courses. The regular fees for each seminar are \$50.00 per person for a one -day seminar and \$65.00 for a two -day seminar. Reduced rates are available for members of the Friends of the Florissant Fossil Beds, Inc (See section on Friends group below). A special rate is available for teachers who join the Friends of the Florissant Fossil Beds and sign up for seminars between May 1 – May 15, 2005. This can be by phone or mail postmarked by May 15th, 2005. This special rate is \$30.00 for a one day (1/2) and \$40.00 for a two day seminar.

Upon registration, participants will receive a seminar information packet. Registration information will be available on the Monument's website after April 15th, 2005 at <http://www.nps.gov/flfo> and go to the link for Education Programs.

Teacher Friendly Graduate Credit

Teachers can earn graduate credits through the Division of Extended Studies of Adams State College. Adams State charges \$22.50 for a ½ graduate credit (one -day seminar), and \$45.00 for 1 graduate credit (two -day seminar). BOCES recertification credit is available for \$5.00 for ½ credit, and \$10.00 for 1 credit. (No discounts are available for tuition).

Friends of the Florissant Fossil Beds N.M.

If you join the Friends of the Florissant Fossil Beds, Inc. either as an individual or family, you will receive a \$10.00 discount on the seminar fee. A one -year, individual membership to the Friends is \$15.00 and a one-year, family membership is \$27.00. Seminar discounts are only available to current members or those who join with their seminar registration. If you are no longer a member, you may wish to renew. Remember, if you are a teacher AND a Friend member AND you register early (See first section) you get a special rate of \$30.00 for a one day seminar and \$40.00 for a two day seminar.

Schedule

June 18, 2005	8:30 – 5:00	Natural History of the Florissant Valley	Richard and Linda Beidleman
June 25, 2005	9 - 5	Messages in Stone	Vince Mathews
July 2, 2005	9-5	Tools and Tips for Observing and Investigating Montane Mammals	Pat Grove Scott Davis
July 9, 2005	9 - 5	Short Supply and Tall Demands: Colorado's Homesteading Boom, Its Impact on Women and Their Impact on It, circa 1870-1900	Kathy Sturdevant Julie Eddy-Jones Walt Stark and Park Staff
July 17, 2005	9 - 5	From Florissant to Guffey: Styles of Volcanism and the Shape of the Land	Bud Wobus
July 23, 2005	9 - 5	Ancient Life and Landscapes of Florissant	Herb Meyer
July 30 - 31, 2005	8 – 5:30	Geologic History of the Goldbelt Byway	Herb Meyer Woody Henry
August 6, 2005	9 - 5	Teacher Workshop: Using Florissant Fossil Beds National Monument to Teach Paleontology and Geology	Jeff Wolin
August 20, 2005	9 - 5	Geology and History of the Cripple Creek Mining District	Steve Veatch

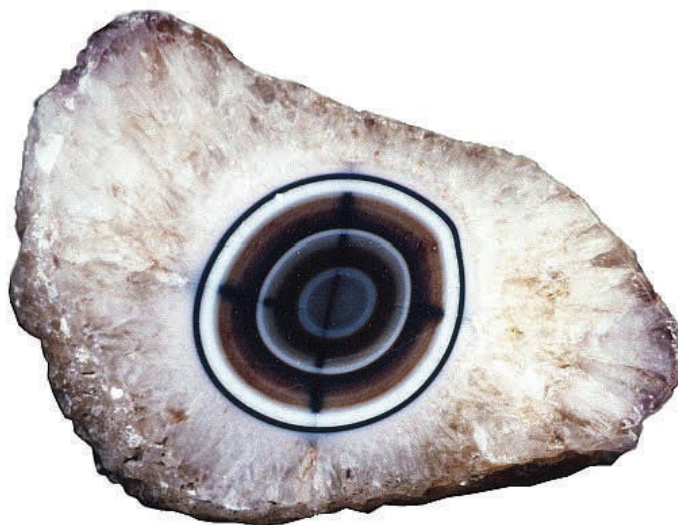
Contact Information

For more information about prices, logistics, registration, or any other questions, please look at our website: <http://www.nps.gov/flfo> and go to the link for Education Programs. You may also contact Jeff Wolin at (719) 748 – 3253 or fax at (719) 748-3164 or email at jeff_wolin@nps.gov or send a letter to PO Box 185, Florissant, CO 80816.

REGISTRATIONS WILL NOT BE TAKEN UNTIL AFTER MAY 1st, 2005

The seminar series is sponsored by the Friends of Florissant Fossil Beds, Inc.





**Friends of Mineralogy, Colorado Chapter;
Colorado School of Mines Geology Museum; and USGS
will cosponsor a mineralogical symposium on**

Agate and Cryptocrystalline Quartz

Sat.-Sun., Sep. 10-11, 2005
(the weekend before the Denver Gem & Mineral Show)
Green Center, Colorado School of Mines, Golden CO
2 days of lecture presentations
Saturday evening banquet
reception and tours of CSM Geology Museum
field trips to Colorado mineral localities, Mon.&Tues., Sep. 12-13
registration fee \$40; banquet \$25

If interested in attending and receiving further information about the symposium, please send your name, address, and phone number and/or email address to: pmodreski@usgs.gov, or to Friends of Mineralogy, P.O. Box 5276, Golden CO 80401-5276
If you would like to offer to present a paper on some aspect of cryptocrystalline quartz and related topics (agate, chalcedony, jasper, chert, opal, geodes, thunder eggs, etc.), please contact: Pete Modreski, USGS, Denver CO, pmodreski@usgs.gov, 303-202-4766

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Friends of Mineralogy-Colorado Chapter
P.O. Box 5276
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Advertising Rates

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

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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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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 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

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