



Friends of the Florissant Fossil Beds Newsletter

Volume 2010 Issue 1

July, 2010

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Ranger Jeff Wolin Puts FFBNM on the Map

The world premiere of the Junior Ranger song "Explore, Learn, and Protect" by ranger Jeff Wolin was a highlight of the National Mall's Junior Ranger Day celebration on Saturday.

Wolin, from Florissant Fossil Beds National Monument, was a big part of two National Park Week special events in Washington, D.C., entertaining hundreds of children with his original songs about national parks.

"Jeff's music makes learning fun," said Director Jarvis. "His lyrics are really catchy but also convey important messages about the parks."

On Earth Day, Wolin was the centerpiece of a rousing celebration on the National Mall that included 675 local students, a dancing bison, environmental games, live raptors, Secretary Salazar, Director Jarvis, and an unplanned flyover by President Obama in his helicopter.

Adults and children alike enthusiastically danced and acted out the lyrics to "Humps, Hooves, and Horns" (about bison) and

"Magnet Earth." Wolin interspersed his music with NPS trivia questions and a game of "Ranger Says," a NPS version of "Simon Says."

A couple of days later, Wolin performed two Junior Ranger Day concerts near the Lincoln Memorial. Backed up by National Mall Ranger Jason Barna



The festive event, cosponsored by the National Park Service and the National Park Trust, provided students with the chance to enjoy the outdoors and learn about the natural world. Volunteers from the Sierra Club, the National Wildlife Federation, the Alice Ferguson Foundation, the Raptor Conservancy, Living Classrooms, I Can Do Fitness, Train for Life, the YMCA, and REI staffed interactive stations where the children learned about watersheds, recycling, wildlife habitats, and other important environmental issues.

on drums, Wolin debuted "Explore, Learn, and Protect," the Junior Ranger song. He also had the crowd moving to "Four Prez Heads" (about Mount Rushmore), "Thaddeus Kosciuszko Polka," "La Gran Garza Azul," "Spelunca Funka," and "Down on the Mall."

Letter from the Superintendent

by **Keith Payne**, Superintendent

A lot has been going on at the Monument since the last newsletter. By far the most entertaining of those happenings was having Ranger Jeff Wolin sing some of his original compositions at the National Mall in Washington, DC, during the last week of April - Earth Week. On Thursday of that week he was at the Washington Monument and sang several songs with the able assistance of Secretary of the Interior Ken Salazar, NPS Director Jon Jarvis, and 650 Washington-area school children. On the following Saturday, which was National Junior Ranger Day, Jeff performed two programs for Junior Rangers, their families, and a large number of other visitors at the foot of the Lincoln Memorial. At that program, Jeff debuted the new national Junior Ranger Song, another of his personal compositions. It was a terrific event and the energy at that event was infectious. Personally, I had never attended a finer event and was honored to be there. When I recall all the incredible events that have taken place by the Reflecting Pool - Martin Luther King's famous "I have a dream..." speech came rushing to mind - and here was Jeff singing, and adults and children dancing the *Thaddeus Kosciuszko Polka* (again, Wolin's creation), and 50 kids taking the Junior Ranger Oath, and all of that happening in the shadow of the Lincoln Memorial...



Jeff Wolin is at the edge of the Reflecting Pool, just to the right of center in the photo. The photo was taken as he began to play and sing, and the crowd began to gather.

Of course, our normal reality soon resurfaced, and we were once again dealing with the often mind-numbing details for the design of the new Visitor Education and Museum/Research Facility. We have participated in an incredible number of long, face-to-face and telephone meetings, and argued and cajoled and discussed until we were exhausted. BUT, as of June 16, 2010, we have the 100% FINAL plans and specifications for the new visitor facility! We are still officially scheduled for construction in 2012, and we

are hopeful that schedule will hold. Still, we are very aware of the dark economic times we are in and the implications the economy holds for the NPS budget. We expect, like all federal agencies, to face some level of budget reduction over the near future, and that could impact the construction schedule.

We have spent the last week preparing for and completing an Environmental Management Audit which discovered, described, and made recommendations regarding virtually all of our operations, materials, buildings, and equipment here at the Monument. The audit focused on the level of our attention to environmental concerns and was pretty comprehensive in scope. I hope you will be as pleased as I am to know that the staff at the Fossil Beds was found to be doing a good job at protecting the environment at the Monument and that they not only talk about sustainable and "green" practices, but also implement those practices in their daily operations.

Perhaps the most noticeable event since the last newsletter was the arrival of this year's incredible crop of seasonal employees, interns, and Teacher-Ranger-Teachers. We muddled through the off-season with our usual 8-10 person staff, but as of a couple of weeks ago, the staff for the summer numbers 35 persons or more. Coupled with our volunteers, we are looking forward to a banner season. Some of these folks return to us each season, but many are brand new to Florissant. Their enthusiasm and humor have begun to show, and the positive results of their work here are already evidenced by the number of extremely positive and complimentary comments we have received from visitors. I urge all of you to come out and meet the new people and reacquaint yourself with those who have returned to us.

Finally, you may be aware that Florissant Fossil Beds is affiliated with the new South Park National Heritage Area, which is headquartered at Fairplay. As the nearest NPS entity, Florissant Fossil Beds provides them with technical assistance and support. This coming June 25th and 26th, South Park NHA will host its 6th Symposium, and over two days they will present nearly a dozen speakers who will describe aspects of the history and natural and cultural features of the Heritage Area. The complete Symposium will cost \$16 per person for the two days, and an agenda can be obtained from Linda Balough, South Park NHA Executive Director, at Lbalough@parkco.us. I encourage all who are interested to try to attend that Symposium. Most importantly, however, the Friends of the Fossil Beds will host a reception on Friday evening from 4:30 PM to 6:30 PM at the newly restored Fairplay Hotel. The hotel is a local landmark dating to the 1920s. The reception is a way to assist the Heritage Area with some public exposure while also showcasing the Heritage Area and the restored hotel. We hope many of you will be able to come and support the Heritage Area. It is expected that many local constituents, elected officials, and media representatives will also attend. I want to thank the Friends for planning and hosting this reception. It continues the community oriented sense of courtesy and support they are so well known for. Thank you. - Keith

Action Needed—Congressional Letter

Dear Friends of Florissant Fossil Beds National Monument,

We need your assistance in a letter writing campaign to the Colorado Congressional Delegation, urging them to consider the immediate funding of several critically needed and long-deferred projects at Florissant Fossil Beds National Monument. As you know, substantial energy has been expended in the four-decade-long effort to secure a new visitor facility. Up to this time, there has never been a Congressional “champion” pushing for these projects and, perhaps as a result, none of them has yet been realized. We are now at a crucial point where the projects listed in the attached letter are *critically and urgently* needed at the Monument.

We need your help! We have crafted a one page insert (Page 6) to this newsletter which contains three petitions - one addressed to each member of the Congressional Delegation from Colorado’s 5th District – for the members to send to each member of the delegation. The petitions reference a longer, more detailed letter sent to them by the Friends Board of Directors, and urge the Colorado Delegation to take positive and immediate action to achieve the critically needed projects described in that letter. We encourage you to use the petitions as is by cutting them apart, signing them, and sending them in an envelope to the delegation members listed below. Or you may wish to craft your own letter. Whichever method you choose, it is essential that we get all of our membership, and any others you may know personally, to contact the delegation and urge action on these projects immediately.

Contact information for 5th District members of the Colorado delegation appear below.

Senator Michael Bennet

Pikes Peak Office
409 North Tejon St., Suite 107
Colorado Springs, 80903

Phone: (719) 328-1100
Fax: (719) 328-1129

Senator Mark Udall

Pikes Peak Office
2880 International Circle, Suite 107
Colorado Springs, CO 80910

P: 719-471-3993

Congressman Doug Lamborn

1271 Kelly Johnson Blvd. Suite 110
Colorado Springs, CO 80920

Phone: (719) 520-0055
Fax: (719) 520-0840

Colorado United States Representatives (The Monument is located in the 5th District)

Diana DeGette - 1st District
Jared Polis - 2nd District
John Salazar - 3rd District
Betsy Markey - 4th District
Mike Coffman - 6th District
Ed Perlmutter - 7th District

The mailing address of US Representatives can be obtained through your local county Clerk and Recorder or by going to www.colorado.gov, click on “Government” and then click on “Elected Officials” and then click on “Colorado US Representatives.”

Thank you for your continued support of the Florissant Fossil Beds National Monument and these urgently needed projects.

Sincerely,

Steve Veatch
President,
Friends of the Florissant Fossil Beds, Inc.

Letter Sent

July 15, 2010

Dear Senator Udall, Senator Bennet, Congressman Lamborn,

Florissant Fossil Beds National Monument, located on the western slope of Pikes Peak (“America’s Mountain”), needs your help. While it doesn’t have the name recognition of Yellowstone or Rocky Mountain National Parks, Florissant Fossil Beds National Monument is an internationally-renowned site containing one of the richest deposits of fossil specimens in the world. Fossils range in size from microscopic pollen and spores to giant redwood trees. The fossils found there are among the most intricately detailed specimens in the world, retaining minute details of even the smallest specimens. This detail adds immeasurably to the detailed information gathered from the ongoing research at the Monument related the impacts on climate and its effect on plant and animal species distribution in the world. That research has implications for all humankind as we continue the study of climate change and its impacts and use this information for public education.

In spite of the importance of the site to the public, the geologic record, and the on-going research into climate change, the Monument’s **four most critically needed projects**, which address visitor health and safety, fire suppression, resource protection and, most importantly, visitor education and personal services, have never been funded despite 40 years of effort. We need your help to achieve that. The projects are all mandated by the Monument’s approved management plans and all have been cleared for environmental compliance. The four projects include 1) a new Visitor Education and Museum/Research Facility, 2) a new septic system, 3) a new water system, and 4) a new parking lot.

1) Proposed New Visitor Education and Museum/Research Facility

The existing visitor center at Florissant Fossil Beds National Monument was built in 1924 as a curio shop for the Pike Petrified Forest, a commercial tourist attraction. When the Monument was established in 1969, the National Park Service (NPS) reused the building as a temporary visitor center until such time that a proper NPS visitor center could be built. After 86 years of use, the building is crumbling below the staff’s feet and repair costs far exceed the value of the structure. Energy use is also very high for this leaky old building and exhibit space in the current facility is inadequate in size and in environmental controls for the proper display of the delicate fossil specimens.

A new Visitor Education and Museum Facility is now completely designed and ready to be built. It is energy efficient, green, sustainable, super-insulated, and includes passive and active solar energy, including a 10KW photovoltaic array and solar hot water for both heating and domestic use. The 100% construction documents and all compliance are complete, and the project is shovel-ready, awaiting only the funding to proceed to construction.

The building is rated LEED “Gold” by the Green Building Council, and its energy saving features exceed the standards of the latest energy legislation *and* the standards established by the President, the Secretary of Interior, and the Director of the National Park Service. The building will also serve as an energy efficient, passive solar demonstration project for Colorado and the local area, and its energy features will be interpreted for the public. The new facility is projected to save 76% on energy, compared to a modern, conventionally built structure of the same size and features. The savings are even greater when compared to the existing 86-year-old structure.

The building will provide eight times more exhibit space (755 square feet compared to the current 96 square feet), and will seat 2 ½ times more people in its interpretive theater (30 vs. 13). It will also house the paleontological work space, office, and curatorial storage areas. By consolidating visitor facilities and paleontological functions into one structure, the Monument will be able to remove two “Operational-Obsolete” buildings (the visitor center and an A-Frame building used for curatorial storage and work space) in exchange for one new, energy efficient structure with no net gain in structures. This will allow the Monument to finally meet NPS standards for curatorial facilities, reduce crowding, and eliminate the risk form high concentrations of radon gas found at the A-Frame that requires an active ventilation system.

The new building itself is estimated to cost \$2.6 million, which is within available funding. However, the exhibits, furnishings, and equipment for the new building are estimated to cost an additional \$600,000 to \$700,000 making the total for the visitor facility, with contingencies, about \$3.5 to \$4 million. It is essential that the current \$3 million funding ceiling be raised or eliminated to permit the full completion of the structure, with necessary furnishings, equipment, and exhibits, under one cohesive project to maximize efficiency and construction cost savings.

2) Septic System

The existing septic system was built in the early 1980s. It is now 35 years old and far past its 20 year design life. It is located north of the parking lot in the visitor use area and has too little capacity to serve the visiting public at the Monument. Vault toilets have had to be installed to serve the demands of increasing visitation. A new, relocated, larger system is needed to assure public health and safety. Both the Public Health Officer and the NPS Zone Safety Officer have written letters strongly advising its immediate replacement. Replacement of the septic system is estimated to cost \$550,000.

Letter Sent (Continued)

(Continued from page 4)

3) Water System

The existing domestic water well provides between 4 and 5 gallons per minute which is inadequate to serve both domestic needs and provide flow for fire suppression. Although safe for public consumption, the water quality has been rated as “poor” and even after substantial treatment it still has a brownish hue. An existing, but untapped well that has a flow rate of 18 gpm and water quality rated as “good” is available for use, but requires new infrastructure. This undeveloped well is the specified point of extraction for a decreed 3 acre-foot water right. Because the well water right has been decreed (in the mid 1980s) but never put to beneficial use due to lack of the funding to develop it, it has been necessary to seek extensions of that decreed right or risk losing it forever. The extensions are increasingly difficult to justify, and the Monument is in Water Court at this moment trying to achieve the second such extension. Developing this new water system to provide a single, pure water source and storage tank, provide water for fire suppression, and supply water for all domestic visitor and staff use for the entire Monument, plus preserve a decreed 3 acre-foot water right (a critical Monument resource) is estimated to cost \$950,000.

4) Visitor Parking Lot

A new parking lot is needed to provide a more efficient configuration for traffic circulation, enhance vehicle and pedestrian safety, meet new ABAAS standards for accessibility, and provide adequate capacity to serve the Monument’s increasing visitation. The parking lot is estimated to cost \$630,000.

It is expected that the projects described above will provide direct economic benefits to the communities in Teller, El Paso, and Park counties through the need to procure services, labor, food, lodging, and materials necessary for construction. In addition, it is expected that the new visitor facility will generate continuing returns from expenditures related to increased visitation at the Monument as visitors require food, lodging, fuel, and other services.

We look forward to working with you in the fight to protect, preserve and properly showcase this world-renowned resource by bringing these long overdue projects to fruition for the benefit of the people of Colorado and the Nation. We strongly urge you to take immediate action to achieve these projects.

Respectfully,

Steve Veatch

President,

Friends of the Florissant Fossil Beds, Inc.

Cut Out and Send or Write Your Own

PETITION TO SENATOR MARK UDALL

As one of your constituents, I am writing to express my strong support for the position taken by the Friends of Florissant Fossil Beds in their letter to you dated July 14, 2010. In that letter they described four neglected but critically needed projects for Florissant Fossil Beds National Monument including a new Visitor Education and Museum/Research Facility, a new septic system, a new water system, and a new parking lot. All four are urgently needed to assure public safety, address critical resource preservation issues, secure an essential water right, correct public health and safety issues, provide fire protection, and assure a quality visitor education experience. The projects have been requested since the Monument was established 40 years ago and no funding action has been taken. I strongly urge you to do everything in your power to secure the necessary funding to complete all four of these critically needed projects as soon as possible.

PETITION TO SENATOR MICHAEL F. BENNET

As one of your constituents, I am writing to express my strong support for the position taken by the Friends of Florissant Fossil Beds in their letter to you dated July 14, 2010. In that letter they described four neglected but critically needed projects for Florissant Fossil Beds National Monument including a new Visitor Education and Museum/Research Facility, a new septic system, a new water system, and a new parking lot. All four are urgently needed to assure public safety, address critical resource preservation issues, secure an essential water right, correct public health and safety issues, provide fire protection, and assure a quality visitor education experience. The projects have been requested since the Monument was established 40 years ago and no funding action has been taken. I strongly urge you to do everything in your power to secure the necessary funding to complete all four of these critically needed projects as soon as possible.

PETITION TO CONGRESSMAN DOUG LAMBORN

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A Day of Fossil Discoveries at FFLO

by *Steven Wade Veatch*

A group of young members from the Colorado Springs Mineralogical Society, the Lake George Gem and Mineral Club, the Flat Irons Mineral Club, and the Western Interior Paleontological Society spent Saturday, June 19th exploring the Florissant Fossil Beds National Monument. More than 53 parents and young “paleontologists” arrived at the fossil beds filled with excitement about the day’s prospects. First, the group attended a presentation by a park ranger and then took an educational hike through the fossil beds where they learned about fossils, how they formed, and how scientists collect them. After lunch at the



picnic tables in the Ponderosa forest, the young paleontologists underwent training on how to identify different kinds of fossils.

Following their experience in the park, the group took off to the Florissant Fossil Quarry where they could experience fossil collecting and keep all of the fossils they discovered. Everyone found at least one fossil. This was a day to remember.

Note: The Colorado Springs Mineralogical Society and the Lake George Gem and Mineral Club provide monthly meetings on Earth science topics and conduct field trips in the summer for the youth of their organizations. Pebble Pups range in age from 8 to 11. Junior members are 12 to 17. Through the American Federation of Mineralogical Societies, there is an opportunity to earn merit badges on a variety of Earth science subjects. These two mineral organizations cooperate with the Western Interior Paleontological Society to include interested students from their membership in these joint field trips. For further information contact Steven Veatch at: steven.veatch@gmail.com

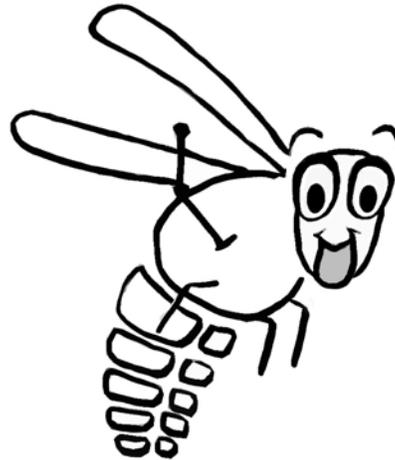
Wee Wasps

by **Heidi Bailey**

Do you know a pre-schooler? This summer the Friends of Florissant and the National Park Service will unveil a brand new Junior Ranger program for children ages 1-4. The new booklet will be available sometime in July and is being printed thanks to a generous donation by the F. Martin Brown Fund.

The new program features Wee Wasp, a cartoon version of the famous Florissant Fossil Beds wasp. The 16-page booklet contains eye-catching full color photos from the monument as well as pictures of children enjoying the outdoors. Each page contains a simple activity and encourages pre-schoolers to explore the monument with their senses.

As always, the Junior Ranger program is provided free-of-charge to kids and their families visiting Florissant Fossil Beds. Every child who participates will receive an exclusive Wee Wasp certificate and a Junior Ranger sticker.



How Old are the Florissant Fossil Beds

by **William A. Dexter, PhD.**

Thirty five million years of local History

“When the mountains are overthrown and the seas uplifted, the universe at Florissant flings itself against a gnat and preserves it”.
–Dr. Arthur C. Peale, Hayden Expedition Geologist, 1873.

A mountain valley just west of Pikes Peak holds layers of information about the earth’s prehistoric life. Almost 35 million years ago, enormous volcanic eruptions buried the then-lush valley and petrified the redwood trees that grew there. A lake formed in the valley and the fine-grained sediments at the bottom became the final resting-place for thousand of insects and plants. These sediments compacted into layers of shale and preserved the delicate details of these organisms as fossils. The Florissant Fossil Beds are world-renowned, and in 1969 were set aside as a part of our National Park System; Florissant Fossil Beds National Monument.

Nearly fifty years ago, a college professor exclaimed to his introduction geology class that the earth was 2 billion years old! Wow! Just think of that, he said, “two billion of anything is a big number. The average person doesn’t live 2 billion seconds in his whole lifetime!”

Today, however, the earth is thought to be 4.57 billion years old. It doesn’t make much sense, does it – that the earth could have aged 2.57 billion years in just 50 years. Fifty years ago, the proc-

ess of absolute dating was just being discovered and prior to then, geologists relied on the postulates of relative dating, that is: which is older and which is younger. Under normal conditions, rock formations are laid down in such a sequence where the oldest is on the bottom. This process is called Superposition. However, too frequently it doesn’t work! Sometimes it is just the opposite! Other times the oldest is in the middle of the formation deposits and still at other times there are conditions when there are missing layers or unconformities in a sequence.

Fossils, especially index or indicator fossils (those with a known and limited geological range) have been invaluable in identifying the relative sequence of rocks. Other than superposition, and before radiometric dating, marine sediments were also used to date rocks using salinity comparisons. Leaching of dissolved salts through marine sediments consistently takes place and the older the rock is, the less is the salt content. This principle, like superposition, only helps the geologists ascertain relative sequence and a guess about the age of the rock.

Rock layers frequently have identifiable planes of bedding called varves. Some experts suspect that these layers, like tree growth rings represent annual deposits. It would seem feasible then to simply count these layers and obtain the age of the series. It is not that easy, as some varves are not annual deposits, but the sediment laid down represents a specific event deposit, such as that from a volcanic eruption! Deposits like these could be laid

(Continued on page 11)

Friends Offer Reward

Upon the release of the information about the theft of the historic wagon wheels at the Hornbek Homestead, the Friends of the Florissant Fossil Beds offered a reward of \$1000.00 for information leading to the return of the wheels and the arrest of those involved. Additional funds have been donated to the original \$1000.00. It is the intent of the Friends that if the wheels aren't found and no one is caught that the money will go to help with the purchase of matching antique wheels or help pay for new wheels done by a restoration specialist. If you wish to help with this by project by either donating time, information or money, please contact Chief Ranger Rick Wilson at 748-3253. Financial donations can be sent to:

Friends at PO Box, 851, Florissant, CO 80816.

Please note what the donation is for with the check. Thank you for your interest in helping with this matter.

Wagon Wheels Stolen from the Fossil Beds



United States Department
of the Interior

NATIONAL PARK SERVICE
FLORISSANT FOSSIL BEDS N.M.
P.O. BOX 185
FLORISSANT, CO 80816



June 16, 2010

Sometime during the night of June 10, 2010 six historic wagon wheels were stolen from two wagons on display at the Hornbek Homestead located on Teller 1. All four wheels were taken from one of the wagons, and two from the other.

Below are pictures of the two different wheels.

A \$1000 reward is being offered for information leading to the return of the wheels and the arrest of those involved.

Please contact Chief Ranger Rick Wilson at 748-3253, or the Teller County Sheriff's Office with any information about this incident.



Free Stuff

You spoke and we listened. Our members said they want more benefits, so here they are. This year, all new and renewing members will receive a unique Friends of Florissant member kit. The kit includes:

A beautiful Petrified Forest Walk trail guide printed on glossy paper

One of our exclusive, brand-new FLFO bumper stickers

A cream-colored note card imprinted with the Friends logo

A stunning, full-color photo of a delicate butterfly fossil

A membership card that gives you discounts on Friends gear and seminars

Invitation to our autumn member party (free food!) and annual meeting

Join or renew today to receive your great new membership benefits.

Upcoming Events

July 25/26 - Homestead Days - 10AM to 3 PM.

Hornbek Homestead/Heritage Days in Florissant

July 27- Seminar- How to Become a Self-Sufficient

Gardener from A to Z - 9-5

August 3- Community Potluck at the Monument

August 4- Seminar - Volcanoes - 9-5

August 7 - Seminar - What Was It Like in the

Florissant Valley - 9-5

August 7 - 7 PM - Fossil Beds Amphitheater

September 25 - No Child Left Inside Weekend - Jr.

Ranger Day

September 26 - Friends Annual Meeting - Potluck - Noon

For information on all of the above, please call the

Monument at 748-3253

October 15-17 - Stalking Education in the Wild at COEC

Florissant,CO Call 748-3341 for info

(

Pikes Peak Doings—Stalking Education in the Wild

Colorado Outdoor Education Center and Sanborn Western Camps are happy to announce that “Stalking Education in the Wild” will again be offered on October 15-17, 2010.

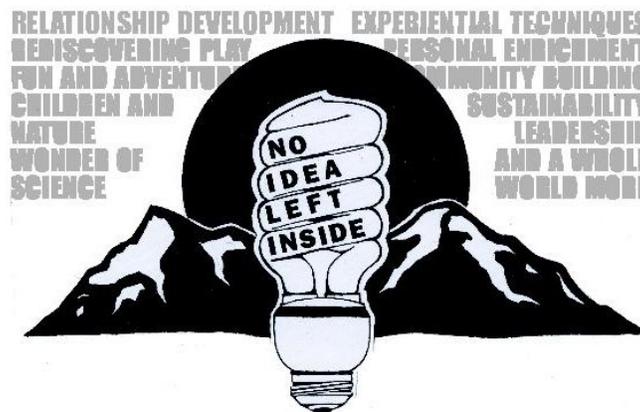
“Stalking Education in the Wild” is a dynamic, action-oriented weekend workshop for anyone interested in gaining the knowledge and skills to be more effective teachers and leaders in the out-of-doors. With more than 200 sessions led by experts in the field, the workshop has something of interest for everyone.

The workshop takes place at Colorado Outdoor Education Center and Sanborn Western

Camps near Florissant, CO. For over sixty years, Sanborn Camps and COEC have been offering residential outdoor education programs for children and adults. During the weekend, we will also have ample opportunity to appreciate the wonder and beauty of the natural world on COEC's 6000 acre campus.

For further information, please call 719-748-3341, or check our website:

www.Stalkingeducation.org



Age of the Fossil Beds (Continued)

(Continued from page 8)

down once in a century, or as often as several times per year! So, varves are not too reliable for dating purposes.

Perhaps, you've heard of carbon dating – although the concept is similar to what we have used here at Florissant, the carbon 14 principle is not feasible for dating rocks containing fossils that are over 50,000 years old! All rocks found at the Florissant Fossil Beds are much older than that!

The principle of radiometric dating involves the measurements of some unstable elements (isotopes) which, over a period of time give off mass and are then said to be radioactive and produce radioactive decay. Certain of the elements differ in the rate to which they do decay; the time it takes to decay is called their “half-life” period. Carbon 14, for example, decays halfway in 5730 years. Potassium 40 decays to Argon 40 in 1.3 billion years, Rubidium 87 decays to Strontium 87 takes 50 billion years and Uranium 238 to Lead 206 has a half life of 4.5 billion years.

At the Florissant Fossil Beds, the volcanic rocks have been dated using a Potassium-Argon and Argon-Argon radiometric method. For example, the Wall Mountain Tuff, the lowest volcanic deposit, above Pikes Peak Granite has been dated using a Potassium-Argon (K-A technique). It is assumed that this volcanic rock, an andesitic mudstone, had no Ar 40 (stable form of Argon) and that the “offspring” or daughter form of potassium in the mudstone was produced by the radioactive decay of K40. The fact that decay rates are constant over periods of time makes radiometric dating techniques very accurate.

The Wall Mountain Tuff was dated using the Potassium-Argon technique and confirmed the date of the formation at 36.6 million years old. Using an Argon-Argon method for another mudflow, the one that covered the redwood stumps, it has a confirmed date of 34.9 million years. Recently, the “caprock” above the paper thin lake shale layers that has produced thousands of fossils, has been dated at 34.2 million years. The time difference between the last mudflow and the caprock confirms a duration of 700,000 years for the lake shale deposition.

Perhaps the most controversial question regarding the age of the Florissant Fossil Beds' formation is whether to recognize it as from either the Oligocene or the Eocene epochs of time. Recent research in Europe, specifically on marine index fossils, has enhanced the correlation difficulties with mammal fossils of terrestrial environments in North America. In the past few years, this numerical age boundary between the Eocene and Oligocene epochs were confirmed using mammal fossils of the Chadronian age, including the Brontotherium found at Florissant.

Using a radiometric dating process, there was a reestablishment of this boundary of time at 33.5 million years. The interface at the Oligocene boundary was hence pushed forward some 3.5 million years, placing the Florissant formation in the upper Eocene and not the Oligocene. Remember the date of the formation has not changed but the assigned age of the Florissant formation is now the Eocene.

Florissant Fossil Beds

National Park Service
U.S. Department of the Interior

Florissant Fossil Beds
National Monument



Summer Seminar Series and Fees

The Friends of Florissant Fossil Beds, Inc. offers one 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. 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 by June 1, 2010. This can be by phone or mail postmarked by June 1, 2010. This special rate is \$30.00. Registration information will be available on the Monument's website after May 1, 2010 at <http://www.nps.gov/flfo> and go to the link for Seminar Programs.

Teacher Friendly Graduate Credit

Teachers can earn graduate credit through the Division of Extended Studies of Adams State College. Adams State charges \$27.50 for a ½ graduate credit for a one - day seminar. BOCES recertification credit is available for \$5.00 for ½ 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.

Schedule	Date	Time	Topic	Instructor(s)
	Saturday, June 5, 2010	9 - 5 pm	Geology and Paleontology of the Florissant Valley	Herb Meyer
	June 14 - 19, 2010	9 - 5 pm	The Petrified Forest of Sexi, Peru (call for more information)	Herb Meyer D. Woodcock
	Friday, June 25, 2010	9 - 5 pm	GPS/ GIS Basics: Practical Applications	Nancy Shock Jeff Pinkard Dave Hammond
	Saturday, June 26, 2010	9 - 5 pm	Plant Geography of Florissant Fossil Beds	Steve Jennings
	Tuesday, June 29, 2010	9 - 5 pm	Archaeology Explorations in its history, theory, and practice	Michael Nowak
	Wednesday, June 30, 2010	9 - 5pm	Archaeology in South Park	Sue Bender
	Wednesday, July 7, 2010	9 - 5 pm	Colorado Midland: Up Ute Pass	Mel MacFarland
	Tuesday, July 13, 2010	9 - 5 pm	Making and Using Sketchbooks and Journals	Toni Ratzlaff
	Wednesday, July 14, 2010	9 - 5pm	Nature Connections in the Classroom	Terri Racette
	Sunday, July 17, 2010	9 - 5 pm	Introduction to the Geologic Wonders of an Intermountain Basin	Don McGookey
	Tuesday, July 27, 2010	9 - 5 pm	How to Become A Self Sufficient Gardner, A- Z	Larry Stebbins
	Wednesday, Aug. 4, 2010	9 - 5pm	Volcanoes: When, Why, Could It Happen Here	Libby Prueher
	Saturday, August 7, 2010	9 - 5pm	What was it like in Florissant in the late 1800's As told by Arthur Lakes	Beth Simmons

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. Should you need to register by phone please call the Monument at (719) 748 - 3253 and ask for extension 109 and leave a message or fax at (719) 748- 3164 or email flfo_information@nps.gov, or send a letter to PO Box 185, Florissant, CO 80816.

Space is limited this year on many of the field trips! Register early...

REGISTRATIONS WILL NOT BE TAKEN UNTIL ON OR AFTER MAY 1, 2010

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

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*Friends of the Florissant
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(Steve Veatch)

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sveatch@fossilbeds

We're on the Web!
See us at:
www.fossilbeds.org

Email Addresses Wanted

Please send feedback on the newsletter or any topic you are interested in to Steven Veatch. If you are interested in serving on various committees or the Board, please contact Steven Veatch at the address to the above or email (steven.veatch@gmail.com).

For questions, contact the Editor.

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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.

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), 35th (2004) and 40th Anniversary Celebration (2009)
- Funding for the Monument's newspapers each spring
- Funding and coordination of annual Summer Educational Seminars Program

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