



Friends of the Florissant Fossil Beds eNewsletter

#24—October 2, 2014

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Dr. Herb Meyer, FLFO Paleontologist Awarded

The Regional Director's announcement states.

Congratulations on being awarded the 2014 Regional Director's Award for Professional Excellence in Natural Resource Stewardship

This award acknowledges your exemplary commitment to the protection of natural resources at Florissant Fossil Beds National Monument. Your dedication to science-informed management has resulted in the following key accomplishments:

- Playing a key role in overseeing and improving the Inventory and Monitoring (I&M) program at Florissant since the mid-1990s, including initiation of the first 3D documentation of Florissant's famous petrified stumps via photogrammetry in 2014;
- Overcoming exceptionally challenging logistics and technological limitations While developing an I&M protocol of the Eocene petrified forest in the Monument's sister park, El Bosque Petrificado Piedra Charmana, Peru;
- Publishing a substantial Volume of scientific publications, books, and monographs on Florissant's fossils; this includes your most recent acclaimed publication: *Saved in Time: The Establishment of Florissant Fossil Beds National Monument (2012)*;
- Spearheading an intensive redesign of proposed exhibit content for the Florissant's new Visitor Center and then presenting the results of this new design to the broader paleontological resource management community at the 10th Conference on Fossil Resources; and :
- Mentoring over 45 aspiring paleontology and museum professionals through Florissant's intern program.

In addition to these noteworthy accomplishments, you have a strong personal commitment to professional development, leadership, and excellence that embodies your worthiness of this award.

Your leadership inspires stewardship and collaboration in the spirit of protection, preservation, and improvement of the natural resources of Florissant Fossil Beds National Monument. The full nomination for this award is attached, describing the numerous achievements for which you are being recognized.

Thank you for your outstanding professional contributions to natural resources in the Intermountain Region. It is a great pleasure to present you with this award. Your Eagle

Sculpture Plaque recognizing your achievements at the regional level will be presented to you at a future venue. Additionally, your award nomination has been forwarded for consideration at the national level.

Sue E. Masica
Regional Director

Thank you Herb for all you do for the Park.

Intern Bridgett Borce Thanks the Friends

August 8, 2014

Dear Friends of the Florissant Fossil Beds,

My name is Bridget Borce and my internship this summer was supported by your group. I would like to express my sincere gratitude for the opportunity to work at Florissant Fossil Beds National Monument this summer. This experience has been enriching and I will leave with many cherished memories.

I am a native of San Diego, CA and I attend San Diego State University. This fall is my final year as an undergraduate student. I will graduate this coming spring with a degree in geological sciences. After graduation I plan on attending graduate school to further my studies of paleontology. In addition to my studies, I work in the fossil preparation lab at the San Diego Museum of Natural History and I am a tutor for the remedial math program on campus.

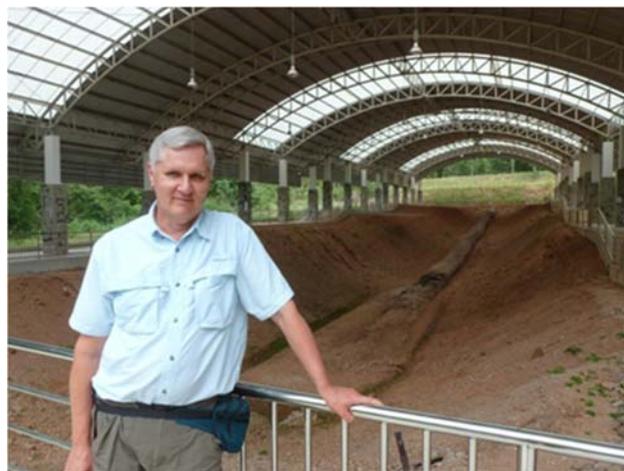
The experience I have gained by working at Florissant Fossil Beds National Monument is instrumental in my success in both the academic and professional worlds. My main project this summer was to create a geologic guide to the monument that will be available for purchase by guests. To accomplish this, I researched previously published maps and scientific literature about the geology of the monument. I had to reconcile the data presented in past scientific literature with today's standards for geologic maps. By virtue of my internship, I collaborated with some truly remarkable members of the geology community. Along with Dr. Herb Meyer from Florissant Fossil Beds National Monument, I worked with Tim Connors from the Geologic Resources Division of the National Park Service, Dr. Emmett Evanoff from the University of Northern Colorado, as well as my fellow interns. I plan to present this work at an international geology conference this fall.

This internship has been an enlightening experience that has cemented my choice to study paleontology further. Thank you again for this opportunity.

Respectfully,
Bridgett Borce

Reserve October 25th for the Friends Annual Meeting

The Friends of the Florissant Fossil Beds annual meeting is scheduled for October 25th at 10:a.m. in the Monument Visitor Center auditorium. The highlight of the meeting will be Dr. Herb Meyer, Monument Paleontologist, who will provide Friend's members an exclusive talk about his recent trip to Thailand where he participated in the "Seminar and Workshop on Petrified Wood Conservation of the Petrified Forest Park in Tak Province, Thailand." Invited and hosted by the Government of Tak Province, Bantak Petrified Forest Park, and Nakhon Ratchasima Rajabhat University, Dr. Meyer gave the keynote presentation entitled "Fossil Tree Conservation Project at the Florissant Fossil Beds National Monument, Colorado and at Sexi, Peru." Support for international airfare was provided by The Friends of The Florissant Fossil Beds. He also participated in an on-site conservation workshop at the Petrified Forest Park, which has the world's



longest petrified trunk at 69 meters (226 feet) in length. The trip provided a unique opportunity to meet not only with colleagues in Thailand, but also with the world's leading conservator on petrified wood and trees from Greece, who was the other invited participant. This interaction will be critical for developing a conservation and stabilization strategy for the large petrified stumps at Florissant, which is an approved project to be funded by the National Park Service beginning in 2019.

In addition to Dr. Meyer's presentation, Superintendent Michelle Wheatley and Board President Jeff Proper will present the Annual Service award to recognize Park Rangers and provide recaps of the year.

The meeting will conclude with election of new Board members – if you or someone you know are interested in serving on the Board of Directors, please contact Sally McCracken sammckind@aol.com. The board is also looking for members to serve on the Publicity and Fund Raising Committees for the upcoming year. Be a Friend of the Fossil Beds – Get Involved!!

The District of Sexi

History

The first inhabitants who settled in Sexi at the beginning of the 20th Century were herdsmen and farmers who came from the District of Llama. Others came from settlements now belonging mainly to the Districts of Sexi and Guagamullo. Sexi acquired the rank of district in 1942, within the Province of Santa Cruz. It is now one of 11 districts that make up the Province of Santa Cruz and has 515 inhabitants and an area of 193 km².

Economy

Agriculture: Economic activities in Sexi include cattle raising and dryland agriculture. Planting is done when it rains and takes place between the months of January-February (planting) and June-July-August (harvest). Cattle raising occurs within a *fundo* (large agricultural tract) of over 10,000 hectares of free range that is the property of almost all of the settlers in the district, organized in an association called the Ranchers' Association La Union-Sexi Corral Viejo. Another area of free range is Maran Pampa, with an area of ~5000 hectares, whose members are mainly inhabitants of the settlement of Cunyac. In these areas, Sexinos raise animals, mainly cows, sheep, and horses.



The town of Sexi is the main population center within its district.



Sexinos, or citizens of the District of Sexi, generally lead subsistence lifestyles. Collecting firewood is a routine task, and they often raise livestock and grow their own food. Photo (left) provided by Christina Whitmore.



Mining: There are also two mining projects, one for gold and silver developed by the company Minerva Troy at Los Pircos within the fundo of the Ranchers' Association La Union-Sexi Corral Viejo and another (Puzolana) developed by the Cement Company Pacasmayo for the fabrication of cement within the fundo of Maran Pampa. Mining activities occupy a considerable part of the non-farm related work of the population.

Handicrafts: The women of Sexi spin and dye their own wool and weave blankets, ponchos, and other items using a type of loom (*telar de cintura*) of prehispanic origin. They also make broad-brimmed sombreros typical of the area that are fabricated out of crocheted strand of wool.



National Fossil Day—October 11th

Celebrate National Fossil Day on Saturday, October 11th at Florissant Fossil Beds National Monument – one of the nation’s premiere fossil sites and Colorado Springs’ closest national park unit. National Fossil Day is a celebration organized by the National Park Service to promote public awareness and stewardship of fossils, as well as to foster a greater appreciation of their scientific and educational values. The day will feature the rare opportunity to see the paleontology center including the lab and collections area and meet the paleontology staff.



National Fossil Day will include the following programs:

9AM - 2PM—Tour the Paleontology Center: Take an exclusive behind the scenes tour of the paleontology center at Florissant Fossil Beds. Meet the paleontology staff, see the lab and collections area, and learn about ongoing projects. Tours will be ongoing from 9:00AM to 2:00PM and last approximately 30 minutes. Meet in the visitor center.

10AM - 4PM—Scavenger Hunt: Take part in a scavenger hunt near the visitor center. Earn a Junior Ranger Badge while you are at it. Pick up your scavenger hunt sheet in the

2:00 PM- Fossil Learning Lab: Join a Park Ranger in the Yurt (tent) in the picnic area of the

3:00PM Visitor center and see how fossils are discovered in the fragile lake shales of the Florissant valley and see other science demonstrations.

Entrance fees are \$3 per person (16 yrs or older), 15 and under free, interagency passes accepted.

For more information please call the Monument at [\(719\) 748-3253 ext 202](tel:7197483253) or email at flfo_information@nps.gov.



The Summer Seminars of 2014

Almost 100 Friends and visitors shared new experiences and learning at the Florissant Fossil Beds National Monument during the Friend's 2014 Summer Seminar season. Ten seminars, led by popular local instructors and professors from around the nation were conducted with record breaking attendance. Proving once again that "the early bird gets the worm," several of the seminars were sold out well in advance of the actual seminar date. Students hiked into an archeological dig site to gain first-hand knowledge of our Native American past in South Park, while others walked portions of the Hayman Burn Scar to learn about the tree and plant survival and rejuvenation after the burn. Making nature drawings and journaling were extremely popular, as was star and planet gazing. A "sold out" crowd enjoyed touring the Guffey volcanic caldron and studying our local land formations. Another "sold out" seminar gathered to learn about and visit flammulated owls in their natural habitat. Capping the seminar season, the School in the Woods hosted our seminar where participants learned the School's unique methods of incorporating science and nature into their daily activities.



The Friend's Board of Directors would like to thank the many individuals who made this Seminar Season so successful. From the Friend's Seminar Committee (led by Sally McCracken) to the many presenters and especially the media who helped publicize the events. Our 2015 Committee is already formed and planning an even more exciting slate for 2015. Watch our website (www.fossilbeds.org) for announcements as plans firm up. And remember to sign up early!!



Meet the Monument's Paleo Staff

This and the following articles were to appear this past summer. They show just a few of the activities for which Herb was given the Regional Director's Award. However, your editor was out of commission for several months so....



Herb Meyer

I'm Herb Meyer, the Paleontologist at Florissant, and I'd like to introduce you to this year's paleo staff and their projects. This year we have a staff of seven, including our museum technician, four GeoCorps America interns, and one archive staff member. The GeoCorps interns are part of a program offered by the Geological Society of America, and one of these positions is sponsored and funded by the Friends. The Friends' intern allows us to complete projects that otherwise would not be possible, and this year's Friends' intern, Bridget Borce, is working hard to complete the layout for a new geologic trails map that will be available for park visitors. Our other intern projects involve monitoring the fossil sites in the monument, preparing and stabilizing the delicate shale fossils, updating our collection records, and doing individual scientific research projects. Many of the Friend's members who attended our special open house of the Paleo Lab on June 7th met the paleo staff and saw some of the highlights of their projects. It was a pleasure for all of us to host the Friends during that event!

Conni O'Connor

Conni O'Connor is the Museum Technician. Her position is through the Pathways program which offers employment to students in the process of completing a degree. She works to keep the Paleontology Department running smoothly by assisting Dr. Meyer and curating the museum collections and archives to NPS standards.



Bridget Borce

My name is Bridget Borce. I am a San Diego native and I am entering my last year as an undergraduate student at San Diego State University. I study Geological Sciences with an emphasis in paleontology. After completing my undergraduate degree, I plan on attending graduate school for further studies into paleontology. This summer at Florissant Fossil Beds National Monument, I am creating a geologic trails map by synthesizing and reconciling previously published geologic data relating to the monument. The map will be published and be available for purchase. This map is intended to give a brief but thorough insight into the geologic history of the monument. It indicates points of interest on various on-site walking trails and describes the composition, deposition, and paleontology of the stratigraphic units seen at the monument. The map will allow visitors the opportunity to experience the fascinating geology of Florissant first hand with a self-guided tour.



Gabi Rossetto

Hola! My name is Gabi Rossetto of Los Angeles, CA and I am the GSA Mosaics intern this year at Florissant. My main project this summer is leading the Inventory and Monitoring (I & M) of the Monument's fossil sites. This summer I have been to 50 sites within the Monument performing site evaluations and taking specific photos at the sites that are all databased in order to monitor erosion, theft, and other changes to the sites. I have also gotten experience with collections and fossil prep. I am a rising senior undergraduate Geology major at Colorado College and this summer I am also working on the early stages of my thesis project with the guidance of Dr. Meyer. My project intends to look at samples of volcanic tuffs of late Eocene to early Oligocene



age from Wyoming, Colorado, New Mexico, and Texas using stable isotope paleoaltimetry on meteoric water (paleoprecipitation) trapped in volcanic glass. The goal is to see what gradient of paleoelevation exists and investigate Cenozoic uplift. This internship is giving me experience in paleontology and helping me determine my academic interests and potential areas of focus. After graduating from CC I plan to go on to graduate school.

Aly Baumgartner

Hey! My name is Aly Baumgartner. I'm originally from Michigan. I earned my Bachelor of Science degree in environmental science from the University of Michigan and I just earned my Master of Science degree in biology from East Tennessee State University. This summer I'm working on managing the fossil collections with Mariah Slovacek here at Florissant Fossil Beds, as well as working on a paleoclimate research project. I'm in the process of applying to Ph.D. programs to continue studying paleoclimate. This internship is allowing me to make connections in my field and to learn more about the exceptional fossils here.



It is a wonderful opportunity.



Mariah Slovacek

Hello, my name is Mariah Slovacek, I am originally from Fort Collins, Colorado. I am a second year paleontology graduate student at South Dakota School of Mines and Technology studying the micro enamel structure of plesiosaur and pliosaur tooth enamel. I am one of the current GSA GeoCorps interns at Florissant Fossil Beds and one of two interns primarily concerned with the collections projects. At current, myself and Aly have analyzed the stability of the Florissant collections and have begun the preparation of specimens for exhibit and study. I have also begun to digitize the photos of individual specimens and write the collections and preparation policy. I am very excited to be working with the staff at the monument. In the future I hope to graduate with my masters and go on to receive a Ph.D. in Paleontology.

Jennifer Newby

Greetings! My name is Jennifer Newby, and I am the archives intern for Florissant Fossil Beds National Monument. Currently, I am working on my thesis for my master's degree at Western Washington University in Archives and Records Management. History draws me to this profession. I love that, through my work, I'm challenged each working day to learn more about people, places, and events. I also have a passion for giving people access to information, and ensuring that this information will be available for many generations to come. While at FLFO, my project is to build a working archive that will not only be neatly separated into organized collections, but also will be accessible to its users. It is very exciting and fulfilling to process these collections and learn about FLFO's history through its tangible evidence. My hope is that future users, whether it's the park's staff, visiting researchers, or even visitors looking at an exhibit, will also feel this excitement and garner a sense of pride for our National Park.



EARTH Magazine Features Peru's Petrified Forest and the Friends

The July 2014 issue of *EARTH* Magazine features an article about the Monument's and Friends' work at our "sister site" in Sexi, Peru. *EARTH* is a nationally distributed "glossy cover" magazine published by the American Geosciences Institute. The eight page feature article is entitled "Peru's Petrified Forest: The Struggle to Study and Preserve One of the World's Most Remarkable Fossil Sites."

The monument's paleontologist, Herb Meyer, and his colleague Deborah Woodcock of Clark University, have been involved in research and conservation at the site since 2000. The Friends of the Florissant Fossil Beds maintains a unique international partnership with the nonprofit community group in Peru for the preservation of the fossils there. The Friends also helped sponsor two visitors from Peru to visit Florissant last summer, Santiago Asenjo Davila and Diana Pajuelo Aparicio. During that visit, Terri Cook, a writer for *EARTH*, attended our press conference. We are excited to see the result as a full feature article in *EARTH*!

The article covers the discovery of the site in the 1990s and Meyer and Woodcock's scientific research over the past decade. It is an Eocene petrified forest about five million years older than Florissant. Mangrove trees that once grew in a tropical forest along an ancient coastline were later uplifted with the Andes Mountains to their present high elevation.

The site is located near the poor Andean village of Sexi and along the rim of the canyon of the Rio Chancay, which is as deep as the Grand Canyon. In the article, Meyer describes the site as "one of the most scenic settings for a fossil site anywhere in the world." Asenjo Davila, a native of the village, "fondly remembers stretching out and napping on the [petrified] logs as a child." Today, the villagers are working to develop the site for tourism, building on what Meyer describes in the article as "sustainable geotourism with benefits to the economy of the village for many years to come, as long as they focus on conservation, education, and science as the real values." The article in *EARTH* should help provide a big boost for an area where very few foreign visitors have ever gone.

The article also gives national exposure to the Friends of the Florissant Fossil Beds by discussing their international partnership with Peru. In this regard, the Friends help support the National Park Service's mission to extend the benefits of conservation throughout the world. The article points out that "the Friends of the Florissant Fossil Beds group also collects donations specifically directed to help to protect and develop the Piedra Chamana site." It also mentions that the Friends host a website about the Peruvian site, developed by the monument's Paleontology GeoCorps intern Lindsay Walker in 2011, at peru.fossilbeds.org.



Photo from feature article in *EARTH* Magazine showing visitors from Peru meeting with Friend's member John Schwabe and FLFO staff at Florissant during July 2013.

New Project Creates 3D Images of the Stumps

The Monument's Paleontology Division is working with Bureau of Land Management staff from Lakewood, Colorado and Cheyenne, Wyoming to apply the techniques of photogrammetry to create new three dimensional images of the fossil stumps. By synthesizing about 500 photos taken around a single stump from multiple angles, the program creates 500,000,000 data points for each stump! The resulting high resolution image can be rotated on a computer monitor to see the stump from any perspective, and it will even be possible view the image stereoscopically. This will allow the monument to monitor the condition of the stumps in greater detail over time. It will also provide captivating new exhibit possibilities for visitors.



This three dimensional image of a stump was created using photogrammetry.

The Monument's paleo staff is working with BLM to create new images using photogrammetry



Project Underway to Stabilize Fragile Fossils

The monument's Paleontology staff and two consultants are continuing an ongoing project to find new methods to stabilize and prepare the fossils in the delicate shale. During two days in June, Mike Eklund of Natural History Studios, Inc. conducted a workshop at the monument to introduce the six members of the Paleo staff to microfossil techniques. This involved carefully removing matrix around the fossils, often grain by grain, and applying minute amounts of consolidant, often only a small fraction of a drop. In a related study for the same project, Sally Shelton, a leading fossil conservator from the South Dakota School of Mines and Technology, visited the monument later in June to assess the condition of the fossil collection and strategize for its proper conservation. Two of our paleo interns are currently working to apply some of these methods to specimens in our collection.



Mike Eklund and paleo intern Mariah Slovacek work on fossil preparation.

