



# Friends of the Florissant Fossil Beds eNewsletter

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Newsletter

Every Fossil Needs a Friend

#35—October 2017

## Friends of Florissant 2<sup>nd</sup> Annual Art Festival: an 8,400 Foot High Success

The Friends, as well as new and old friends, enjoyed the inspiring “invitation only” pre-sale event on August 11<sup>th</sup> with great food and the harp music of Danika Puhek. Oil, watercolor and pastel paintings from 28 local and nationally recognized wildlife and landscape artists were on display throughout the weekend. The celebration of the National Park Service 101<sup>st</sup> birthday brought beautiful weather in addition to lavish interpretations of the Fossil Beds and the greater Pikes Peak region.

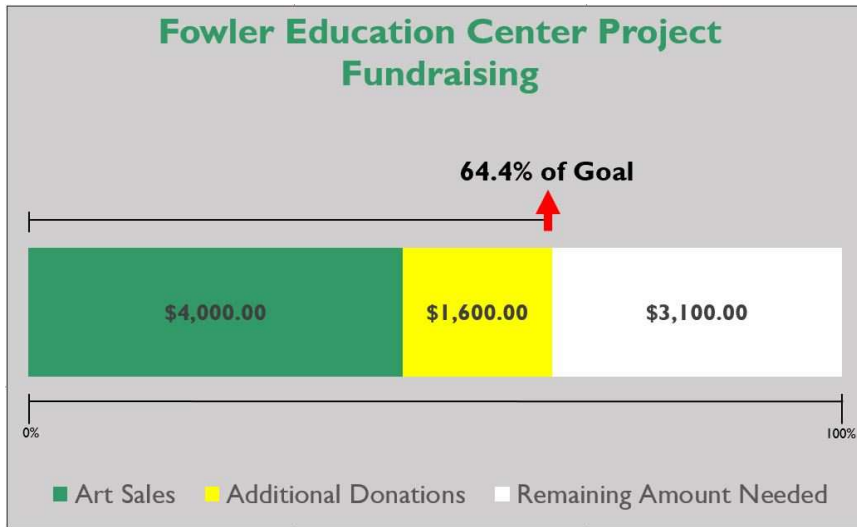
World acclaimed artist, Mort Solberg, provided art work specifically highlighting our 34 million year old fossil sequoia stumps. Emerging artists of the Pikes Peak region were included in the show. Artists generously donated 40% of the proceeds of their works to The Friends. These funds will go toward the refurbishing of the Fowler Education Center septic and water system. The building, which was part of the original Monument purchase, will be used for youth and adult education programs and as a home base for elk walks. It may potentially be needed as a staging area for fire crews.

Sales of art contributed \$4,000 to the Fowler project. Additional generous donors have contributed \$1,600 targeted towards the project. This brings us to within \$3,100 of our 2017 major project goal. **Additional contributions are needed to complete the project prior to the 2018 visitor season.** Hopefully some of our summer seminar series for teacher continuing education will take place in the center. Despite the fact that the building is not essential to the Monument’s primary mission, it could serve many individuals for the foreseeable future.

Funds raised by the Friends go to immediate educational and interpretive supplies for school children and park visitors. Some funds pay for enhanced visitor experiences such as the yoga hike instructor and equipment the NPS does not have funding for in its normal budget. Grants obtained, membership dues and additional fundraisers support the Monument’s paleo intern education.

The dedication of Friends through their volunteer efforts at fundraising events, board meetings and community outreach events continue to be a living, breathing component of the FFBNM effort to research, interpret and preserve this valuable gem of the paleo world.





Fowler Education Center



## Lowes Home Improvement and Fossil Craft Beer Choose to Support The Friends

Local businesses, from the small and family-owned to the big box stores, receive a never-ending stream of requests from the many Pikes Peak area non-profit organizations. As a result, they have to choose where to apply the limited funds they have available for donations. This year, the Friends were fortunate enough to be chosen as recipients of donations from both Lowe’s Home Improvement store in Fountain and Fossil Craft Beer Company in Colorado Springs.



Grill master John Schwabe preps burgers for Rangers and Friends members on the new grill donated by Lowes Improvement store in Fountain Colorado.

Early this summer, Florissant Fossil Beds Monument Rangers recognized a looming disaster – the trusty barbeque grill they had relied upon had moved on and they were facing a summer without barbeque! An emergency call was put out to the Friends to help rectify the situation before prime grilling season. Friends members reached out to the Lowe’s Home Improvement store in Fountain, who very generously offered up a new high quality grill for Monument use. Thanks Lowe’s!! If you have the opportunity, please stop by and tell the store manager thanks for supporting the Friends.

This year marked the 30<sup>th</sup> anniversary of the Friends of the Friends of the Florissant Fossil Beds, Inc. Looking for the perfect venue to celebrate the occasion, Friends approached Josh and Megan Mater, co-owners of Fossil Craft Beer Company (just off Highway 24 at 31<sup>st</sup> St as you head out of Colorado Springs en route to the Monument) and asked if the Friends could hold the event there. After a two-pint planning session, it was decided to hold the event during one of their monthly Thursday night “Talk Nerdy” sessions, where the local scientific community is invited to give an informational presentation to patrons on a topic of interest. Josh “sweetened” the deal by offering to donate one dollar for every pint sold that evening. Alex Lowe, an intern from Branson University in Manitoba doing research at

the monument under the guidance of Monument Paleontologist Dr. Meyers, volunteered to step up to the podium and entertained the audience with a 30-million-year trip through the Fossil Bed’s leaf history. When all was done, Fossil Craft Beer Company presented a check for \$150 to the Friends. If you want a friendly environment to enjoy a darned good beer, stop by Fossil Craft Beer and support a local business that supports the Friends. Say hi to Josh and Megan and let them know that you are a “Friend”.



**THANK YOU LOWE’S  
&  
FOSSIL CRAFT BEER COMPANY!**



## Come One! Come All! The Annual General Membership Meeting Is Saturday, November 11th from 11:00 Am to 1:00 Pm.

Join your fellow Friends and bring a new friend to the Annual General Membership meeting in the media room at the Fossil Beds Visitors Center. We will get an update from Michelle Wheatley, Superintendent regarding the 2017 year and the vision for 2018. We'll be presenting a slate of officers for the 2018-2019 year, but **we will take nominations from the floor** for anyone interested in contributing their time and talents to the Board's efforts. No previous experience is necessary, but a heart for the Monument and the National Park System is a plus. A desire for helping guide the future of the Monument and its capacity to serve the public is the essential part of the job description. Ideally, we like to have a 12-member board so that "many hands make light work" for all our endeavors. There are currently two openings.

After an educational presentation regarding the Monument's scientific work in 2017 we will have a pot luck lunch in the yurt (or outdoors if we get lucky). For more information or questions regarding participation on the board please contact Patty Glatfelter, President at 719-689-3174 [jspg@live.com](mailto:jspg@live.com) or Sally McCracken-Maertens, Vice-President at 719-510-5518 [Sammckind@aol.com](mailto:Sammckind@aol.com).



## Summer Seminars – 2017

This summer the Friends of Florissant Fossil Beds, sponsored 5 full day seminars for the general public, NPS employees and interns and teachers who could receive either graduate credit from Adams State University or CE credit from Pikes Peak BOCES.

From Primitive Skills with Robin Blankenship to the Volcanoes of South Park with Dr. Emmett Evanoff and Dr. Herb Meyer, over 50 different participants joined us at the Monument for the different seminars. 6 teachers took anywhere from 1 -4 seminars for 0.5 graduate credit for Adams State University and 3 teachers took them for 0.5 BOCES CE credit. We gained 8 new members and 2 renewals. 16 people registered through Pay Pal and the rest either through mailing it in or phoning the registration in.

Topics for the seminars usually focus on Natural History, Geology, Paleontology, History of the Region, Flora and Fauna of the area and Art. We start planning in January and have the necessary info for registration ready by the end of April. We try to schedule the seminars from the middle of June through the beginning of August. We already have a list to look at for next year which includes Bats of Colorado and Spiders of Colorado. If any member would like to help put the seminars together for next year or make suggestions for next summer, please contact Sally McCracken at [sammckind@aol.com](mailto:sammckind@aol.com) or 719-687-9204.

## A President's Reflections in Her Final Quarter

Thanks go out to each and every person, business or organization who has contributed to the successes of the Friends during the past two years while I have had the privilege to serve as president. I will continue to serve on the board in many ways in 2018. My hope is to see others grab the opportunity to be in dedicated service to the Florissant Fossil Beds. Anyone who reads this and has the time or financial resources, great or small, to be of service, is invited to join me and my fellow board members. By doing so, you will help the curious child, the outdoorsy adult or the greater community understand our natural world just a little better. Some contributions require a few hours or just a day of your time. Some members supply financial resources or professional expertise that supports the Monument's mission. Service in the Friends is rarely heavily demanding and every person has some talent or resource that contributes support to the success of the Monument.

Your opinions matter regarding how the Friends can best support the Florissant Fossil Beds mission. Please think about what skill you can share or activity that you can participate in for 2018. Congratulations to all who helped us approach our goal of establishing the new septic and water system in the Fowler Education Center. We are almost there!

I look forward to meeting you at an event, in a board meeting or on the dusty trail. Let's adventure together for creating an even better National Monument.

Patty Glatfelter, President  
Friends of Florissant Fossil Beds, Inc.  
[jspg@live.com](mailto:jspg@live.com)

## Pikes Peak Historical Society Annual Auction

The Pikes Peak Historical Society Annual Auction will be held on Saturday, October 21, 2017 at 2:00 pm at the Lake George Charter School gym/auditorium in Lake George, Colorado.

This auction is a major fundraiser for the Pikes Peak Historical Society, a non-profit organization which maintains two free museums in Florissant. The PPHS also provides free educational programs throughout the year. This organization and their sponsored events are funded by membership dues and donations. The funds generated by the annual auction supplements these funds.

A variety of items will be offered for purchase at the upcoming auction gift certificates to local stores, food items, antiques and collectibles. Credit cards are accepted as well as cash or check donation. The Lake George Charter School is located just 4 minutes from Florissant, on the south side of Highway 24 just 2/10 mile west of the Ferrell Propane lot. The School has ample parking and seating. But come early! Viewing begins at noon and the Auction starts at 2:00 pm. Drinks and a snack lunch will be available for purchase, benefiting the school Student Council, during the pre-auction walk through.

For more information, contact Scott Adams at 719-748-9035 or John Rakowski at 719-748-3861.



## The Great Backyard Bird Count – 2018

The Friends of the Florissant Fossil Beds will be sponsoring our 6<sup>th</sup> Annual Great Backyard Bird Count on Saturday, February 17, 2018 starting at 9 AM. We are holding this event in conjunction with the 21<sup>st</sup> Annual International Great Backyard Bird Count which will be held for 4 days from Friday, February 16 – Monday, February 19, 2018.

This international event is a citizen science effort to capture a worldwide count of bird populations. It began in 1998 and is a joint partnership between the National Audubon Society and the Cornell Lab of Ornithology. This count helps us to learn more about how bird populations are doing around the world, how to protect them and to keep track of the endangered species. The statistics from the count help scientists all over the world implement conservation measures wherever necessary. In the count of 2017, there were 214, 018 participants all over the world. This was the largest number of people counting in the first 20 years. 5,940 species were counted and 173,826 checklists were submitted. For more statistics about last year and important information learned, go to [birdcount.org](http://birdcount.org).

The sign-in site for our event on the 17<sup>th</sup> will be in the yurt starting at 9AM. We will have 2 separate times for counting. The first count will go from 9:15 – 10:30 and the second count will go from 10:45 to 12 noon. During the morning counts and from 1 PM to 3 PM, there will be other activities available for children and their families including a bird scavenger hunt and the making of bird feeders.

Bring your family and friends to have a great time. If you would be able to help with this event, please contact Sally McCracken at 719-687-9204 or e-mail her at [sammckind@aol.com](mailto:sammckind@aol.com). We are always looking for volunteers for our events.

The next GBBC is February 16-19, 2018

Bird watchers of all ages count birds to create a real-time snapshot of where birds are.



## Friends of Florissant Fossil Beds Membership News

The Friends of Florissant Fossil Beds, Inc. are members of Public Lands Alliance. As an **active** member of The Friends of Florissant Fossil Beds, you receive a discount on in-store purchases when shopping at other PLA participating organization stores. For more information on the Reciprocal Discount Program, log on to [PublicLandsAlliance.org](http://PublicLandsAlliance.org) to see the 400+ participating organizations or look for the Public Lands Alliance logo (pictured bottom right) at participating stores to know where discounts are available.

To get your discount at any of these locations, you will need to present your **active/current** Friends of Florissant Fossil Beds Membership Card. If you need a replacement or new membership card, please send your request with your name, email address and mailing address to: [membership@fossilbeds.org](mailto:membership@fossilbeds.org).

If you need to renew your membership, log on to [www.fossilbeds.org](http://www.fossilbeds.org) to download an application to mail in with a check or you can pay with PayPal. If you need an application emailed to you, email your request to: [membership@fossilbeds.org](mailto:membership@fossilbeds.org).

Share with our editor where you used your membership card to receive a discount!  
Thank you!



# Number 2 of the Geologic Bulletin Series, 2017 – Page 1

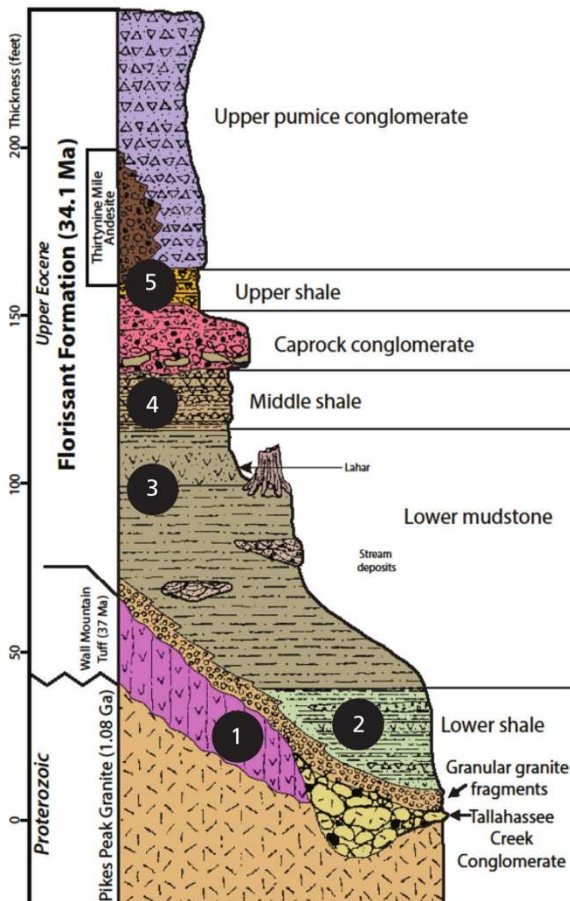
## Florissant Fossil Beds Geologic History of Lake Florissant

National Park Service  
U.S. Department of the Interior

Florissant Fossil Beds  
National Monument  
Colorado



The geologic history of the Florissant Formation includes volcanic eruptions, formations of a lake, and erosion. Geologists can interpret this history by studying the rocks that resulted from these events. A diagram called a stratigraphic column shows the thickness and type of each rock layer present today.



### 1 Tuff — Volcanic Events

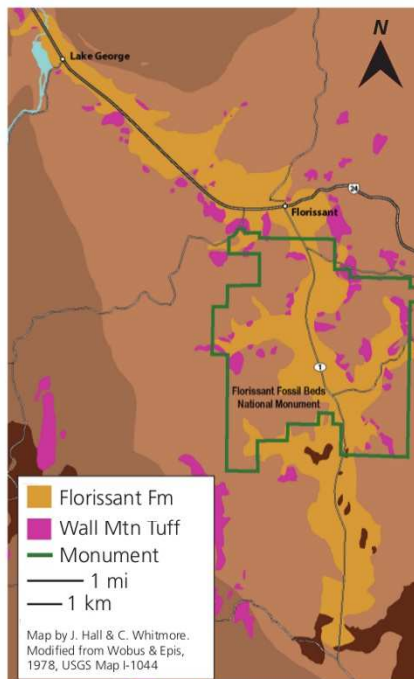
The Florissant area was lifted up when the Rocky Mountains formed, and then it eroded away to a rolling landscape. Streams cut valleys into the surface. By the late Eocene, volcanoes were a dominant force in Colorado. A caldera far to the west of Florissant erupted 36.7 million years ago, at the beginning of the volcanic flare-up of the central Colorado volcanic field. An extremely hot and fast flow of ash and debris blanketed the surrounding area for tens of miles. This flow filled valleys and compacted to form a rock called the Wall Mountain Tuff. In the Florissant region, this welded tuff was then eroded by the stream that flowed through the valley.

### 2 Lower Shale — The First Lake Florissant

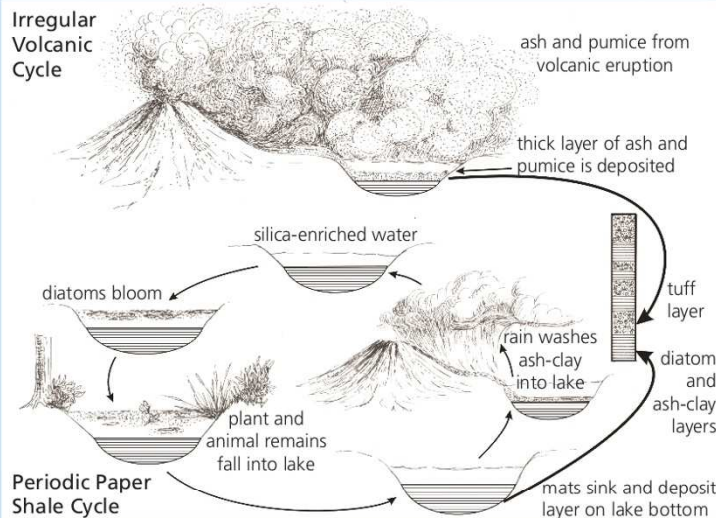
About 18 miles (30 km) southwest of Florissant are the remains of the Guffey volcanic center. This stratovolcano belonged to the Thirtynine Mile volcanic area and was similar in structure to modern Cascade Range mountains like Mt. St. Helen's and Mt. Rainier. Eruptions sent flows of lava and debris down towards the ancient Florissant valley. One volcanic debris flow, also known as a lahar, intersected the stream of the ancient Florissant valley. The stream backed up behind a dam of volcanic rock and debris, forming Lake Florissant. Paper-thin layers of ash, clay, and algae built up on the bottom and eventually compacted into shale rich in fossils.

This stratigraphic column shows the thickness of each rock layer in the Florissant Formation. Geologists interpret the diagram from bottom to top, because younger rock layers form on top of older ones. Shales were deposited when Florissant had a lake. Petrified stumps were preserved in a lahar flow. The mix of rocks in the caprock conglomerate formed after a large lahar entered the lake and mixed with sediment. The top rock unit contains pumice, which is evidence of a volcanic eruption that filled the lake with ash.

## Number 2 of the Geologic Bulletin Series, 2017 – Page 2



A geologic map of the Florissant Formation shows the approximate outline of ancient Lake Florissant. About one third of the formation lies within the boundaries of Florissant Fossil Beds National Monument.



The ancient Guffey volcanic center near Florissant erupted sporadically 34–36 million years ago. Large eruptions covered the Florissant valley with ash and pumice, which cooled to form layers of volcanic rock called tuff.

Ash settled on Lake Florissant and enriched the water with silica. The silica influx led to blooms of single-celled algae called diatoms, which use silica to grow glassy “shells” (frustules). The diatoms produced slimy mats, which coated plants and insects as they settled to the lake bottom. Ash on hillsides weathered into clays that washed into the lake on top of the diatom layers. The alternate layers of siliceous clay and diatom mats turned into paper-thin layers of shale, and trapped organic remains turned into fossils.

### 3 Mudstone — The Interruption Between Lakes

The lake began to fill with volcanic sediment washed down from the surrounding slopes. At the same time, the stream was breaching the dam. The area once again became a stream valley, rich in plant and animal life. The stream deposits of this time contain fossils of mammals such as brontotheres (an animal that looked like a rhinoceros) and *Mesohippus* (a small horse). The lower mudstone unit contains the stream deposits and fossils from this time.

Another large eruption from the Guffey volcanic center triggered more lahars, one of which dammed the stream once again. A later lahar flowed into the valley and buried the stumps of the trees that grew there, forming a rock layer above the stream deposits.

### 4 Middle Shale — The Second Lake Florissant

Lake Florissant formed again after the stream valley flooded behind another volcanic debris flow. Once more, layers of ash, clay, and diatom mats accumulated as ash from new eruptions of the Guffey volcanic center entered the lake. The layers contain many fossil leaves and insects and make up the rock unit called the middle shale.

### 5 Conglomerates — The End of Lake Florissant

The second period of paper shale deposition was interrupted when a large lahar flowed into Lake Florissant, stirring up the sediment. The event is preserved as the caprock conglomerate. The lahar did not fill the lake, however, and periodic volcanic eruptions led to new layers of shale (the upper shale unit).

The rock record indicates that Lake Florissant disappeared after a huge eruption that covered the landscape with pumice. A cloud of erupted material fell into the lake and is preserved as the pumice conglomerate, the youngest and uppermost rock unit in the Florissant Formation. Any evidence of further eruptions has been erased by erosion.

#### What remains today?

The Guffey volcanic center has eroded over the last 34 million years, and the Florissant valley has partially filled with sediments from Pikes Peak Granite and Florissant Formation rocks. Only remnants of the volcanic center remain. Outcrops of Wall Mountain Tuff occur throughout the monument (see map above); the Geologic Trail passes one exposed section. The map of the Florissant Formation also shows approximately where the edges of Lake Florissant were in the late Eocene.





## Many Thanks to the Contributing Artists of the 2nd Annual Art Festival!

Matt Atkinson

Jared Brady

Don Clark

Bill Curtis

Heiner Hertling

Christopher Hureau

Wayne Johnston

Madigan Kleppe

Marlene Kort

Carol Krick

Janeice Linden

Linda Larson

Ed McKay

John McGraw

Wanda Mumm

Susan Noyd

Carmen Ramirez

Vanessa Rose

Terri Sanchez

Meara Sauer

John Schwabe

Peggi Severini

Ken Shanika

Umeno Smith

Morten Solberg

Connie Spurgeon

Rose Starling

Susan Thiele

**A special thanks to Ken Shanika who was instrumental in developing and providing technical assistance in the creation of this fundraiser.**

