MISSION STATEMENT
The mission of the Friends of Dinosaur Ridge is to educate the public about, and ensure the preservation of, the natural and historic resources of Dinosaur Ridge, Triceratops Trail, and the surrounding areas.

FRIENDS OF DINOSAUR RIDGE BOARD OF DIRECTORS
Lou Taylor (Board Chair): Denver Museum of Nature and Science, Vertebrate Paleontologist and Research Associate
Marsha Barber (Board Vice-Chair; Education Committee Chair): Retired, Science Coordinator, Jefferson County Public Schools
Melissa Morris (Board Secretary; Outreach Committee Chair): Owner, Gz New York Pizza
Peter Martin (Board Treasurer; Finance Committee Chair): Retired, U.S. Bureau of Reclamation, Technical Writer/Editor
Sam Bartlett (Preservation Committee Chair): Retired, Geologist
Kermit Shields (Governance Committee Chair) Retired, Geologist, Exxon Mobil
Amy Boulas Executive Director, Cupid’s Charity
Nicole Peavey State of Colorado Department of Transportation, Program Manager of Paleontological Resources
Bob Raynolds Denver Museum of Nature and Science, Geologist/Research Associate
Stephanie Strachan Owner, Strachan Exploration
Paul Wilson BizOps Controller, CliftonLarsonAllen

STAFF
Executive Director ..............................................Jeff Lamontagne
Development Director .........................................Robin Morris
Gift Shop & Office Manager .................................Sue Kamberline
Education Programs Coordinator ..........................Erin LaCount
Volunteers & Tours Director .................................Barbara Farley
Membership & Events Coordinator .......................Blake Sullivan
Marketing Director ..............................................Sara Miller
Maintenance Lead ...............................................Dennis Tesar
Gift Shop Supervisor .........................................Bobbi Kilgore
Discovery Center Gift Shop Manager ....................Barb Davidson
Gift Shop Assistant Supervisor .........................Emily Palmer

Cover photo: Summer camp fun. Photo by Michaela Branch
I remember sitting down and writing my first article for the Ridge Report last year, and feeling overwhelmed with gratitude for the warm welcome I had received in my early months at FODR. I somehow expected to have a different emotion at this writing, but curiously I am only more grateful even than I was last year.

The endless and consistent effort of our volunteers; the generosity and commitment of our board; the enthusiasm and hard work of our staff—I reflect daily about how fortunate I am to be involved with this team. Together, I am proud of the following accomplishments this past year:

**Visitation**
- Passing 200,000 visitors for the first time in our history, with 215,000 visiting us in 2017, and 2018 already outpacing those numbers significantly
- A record 32,000+ visitors to Trek Through Time
- A new phenomenon: over 50% of our visitors from out-of-state
- The amazing success of the Morrison Dino Pass, with 862 joint passes sold in the first 6 months alone
- The raising of ticket prices, and expanding our revenue, with little effect on tour bus attendance

**Education Programs and Preservation**
- Growing our summer camp attendance by 50%, and revenue by more than 50%, while rethinking camps and introducing several new weekly themes
- Large number of volunteer trainees in recent months (50) for revamped tour guide/training program
- Back up to 80% of school tours led by trained volunteers
- The installation of a new dinosaur trackway in the Discovery Center
- Initial education program data evaluation gathering mechanisms put into place for school tours, summer camps, DDDs
- Four tour buses purchased
- Much-loved field fossil fish dig trips to Kemmerer, Wyoming

**Fundraising, Marketing, and Events**
- Largest SCFD award ever for organization (over $238,000—nearly a 30% increase over 2017)
- Total modern website redesign
- The introduction of several new special events, including the “Science Spelling Stomp,” “Sex, Science and Saurians” lecture
- Attendance growth for reinvigorated “Rock out for the Ridge” special event
- Largest Colorado Gives Day income since Discovery Center fundraising year
- Successful fundraising campaign for Crocodile Creek rock work, stairway, and viewing deck
- Two new technical systems: a new, updated, robust donor management system and new online volunteer management system
- Reinvigorated relationships with several past funders (RMAG and AAPG)
- Establishment of endowment

**Administrative and Planning**
- A community-based Strategic Planning process finalized with a 5-year strategic plan
- Our first-ever organizational financial audit
- Reinvigorated partnership with Jefferson County Open Space (JCOS), resulting in JCOS assistance on many fronts
- Unprecedented and thorough internal financial controls initiated
- Comprehensive third-party gift shop inventory count to re-establish inventory
- Annual maintenance calendar
- Staff-created Values Statement and Implementation Plan

In creating this list, I actually had to eliminate a number of significant news items!

These successes don’t just happen of course. We all stand on the shoulders of the dreams and hard work of FODR’s co-founders; the long-time effort and vision of Joe Tempel and his staff; and the legions of volunteers and donors who have given of themselves to our organization. Today’s staff features a mix of long-time employees with unmatched institutional knowledge and commitment, as well as new staff with fresh energy and ideas. The balanced meshing of old and new is key to our success.

I think that the two things that give me the most hope can be summed up as “the present” and “the future.” For the present, we have really come through the transition of the last years in great fashion. Our SCFD funding is way up, and our primary revenue streams are way up too, including from bus tours and the gift shop. We are truly on stable footing in almost every way. For the future, the Site Plan with Jefferson County will deliver a Dino Ridge that will make us all beam with pride, with the expertise of our staff, volunteers, board, and all the knowledge that Jefferson County brings to the table. I couldn’t be more excited, and grateful—again.

Jeff Lamontagne, Executive Director
Friends of Dinosaur Ridge 2017-2018

Friends of Dinosaur Ridge had a successful year under the board leadership of Charles Garth Meyers and the operational leadership of Executive Director Jeff Lamontagne. Jeff took the reins of the organization in January 2017. Under his leadership, FODR has employed additional staff, increased income, and provided for a significant increase in visitors.

Among other ventures during 2017, Jeff and the staff members prepared for what became a successful audit and conducted two successful fundraisers: the annual Rock Out for the Ridge and the first annual Scientific Spelling Bee.

Volunteers continued to be the backbone of FODR. They contribute to the success of the Trek Through Time exhibits, the many, many school tours, and Dinosaur Discovery Days. Volunteers also aided in the success of the gift shop by continuing to create fossil replicas. The volunteer casters also created hundreds of small fossil replicas for the sandbox exhibit associated with Trek Through Time.

On the scientific front, FODR has conducted the first two field trips to a fossil fish quarry near Kemmerer, Wyoming. Participants were treated to not only a collecting adventure, but were able to learn about the fossils of the area.

The Board of Directors, with the help of various interested stakeholders, began the creation of a five-year strategic plan in 2017. The plan was approved in early 2018. The Governance Committee will be responsible for maintaining the status and progress made during the next five years.

FODR maintained activities to fulfill its mission of preserving the paleontological and geological wonders of Dinosaur Ridge. A protective area now covers the recently discovered raptor tracks and the preservation committee prioritizes needed tasks to keep the Ridge safe for visitors.

The dinosaur reconstructions in front of the Visitor Center received a final coat of paint, courtesy of Judy Peterson. Thank you to Judy for spending many hours making the dinosaurs attractive to visitors.

FODR thanks board members who left the board during or after serving their 2017 term. Thank you to Judy Peterson, Eric Brown, Charles Meyers, Kathleen McCoy, and Norb Cygan for their unselfish service to help preserve Dinosaur Ridge and keep The Friends successful.

Dr. Louis Taylor
FODR Board Chair

Friends of Dinosaur Ridge Financial Summary
Fiscal and Calendar Year 2017
(Detailed financial statement available upon request. Call (303) 697-DINO, e-mail execdirector@dinoridge.org, or write to FODR at 16831 West Alameda Parkway, Morrison, CO 80465)

**FUND BALANCES AS OF 12/31/2017**

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**INCOME AND EXPENSES**

**INCOME**

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**STORE EXPENSES**

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Governance Committee

Volunteers Wanted – Great Rewards

Friends of Dinosaur Ridge (FODR) depends on many unpaid people. You can help support our mission in many ways, and you will find that you will receive many personal benefits in return. Please consider the opportunities that we have to offer and talk with any of our staff or board members to see where you can best fit in.

We are a member-run organization. That means that members can have a voice in the direction of the organization through attending board meetings, nominating and electing board members, and participating in focus groups or committee meetings. If you are not already a FODR member, please consider joining today.

We are a volunteer-supported organization. FODR depends on volunteers to lead school tours, staff the exhibit hall, help at special events, and much more. After leading school tours for over a decade I still find satisfaction when we see a student get really excited about geology and paleontology is worth a million. Please visit the FODR website to learn about volunteer opportunities at Dinosaur Ridge.

We are an organization that is led by a volunteer Board of Directors. This Board sets the direction and oversees the operation of FODR.

We are currently looking for some passionate and dedicated people to add to our board. If you think that you might be right for this position, or if you know someone else who might be a good fit, please get in touch with us and we’ll tell you more about how our board operates.

We are an organization with committees that always need additional support. The board has five official committees (Finance, Preservation, Education, Governance, and Outreach). There are sub-committees (e.g., Policies and Procedures) that need new members. There are ad hoc committees, like the ones that organize Rock Out For The Ridge or other special events. These committees are where the work gets done. Some committee members are on the FODR board, but that is not required. In fact, working on one of these committees may be a way to see if you want to get further involved as a board member.

We are an organization that needs you! Please consider getting more involved, and you will see that the satisfaction you receive and the difference you make will be well worth your time.

Kermit Shields
Board Member
Governance Committee Chair
Volunteer Tour Guide
During 2018, several of the education program offerings at Friends of Dinosaur Ridge were evaluated, expanded, and improved. Evaluations this year involved school tours and summer camps where a team led by Fran Taffer, Erin LaCount, and tour guides evaluated what’s going well and looked at ways to improve the quality of these programs. Barbara Farley worked to train new volunteers to lead school tours and to work as docents in Trek through Time.

The education staff, with approval from the Board, designed Education Impact Statements to articulate the outcomes FODR aims for our programs to produce. For each school tour program, we offer an Education Impact Checklist to use as a reminder to target certain important points (such as preservation) or use certain instructional strategies (like calling the students “scientists”) that relate to the Impact Statements.

Nearly 15,000 K-12th grade students attended guided school tours during the 2017-2018 school year, keeping the school tour guides very busy! Through teacher surveys (60% response rate since March 2018), FODR learned that 92% of teachers report the school program was ‘nearly perfect’ or they were ‘quite satisfied,’ while 88% of teachers report that their students’ curiosity and wonder about paleontology and geology had a significant or moderate increase. Seventy percent of teachers said their Dinosaur Ridge tour guide was very successful in engaging their students in the scientific method.

Summer camps offered from June 4 through August 3 were completely full with 184 campers attending during the summer of 2018. Three new camps were offered in addition to the tried and true, Fossils and Fun camp. The three new camps engaged campers from ages 6 through 13: Rock Stars camp, which explored geology and paleontology in greater detail; Junior Scientists camp, which not only explored rocks and fossils but introduced campers to chemistry, physics, and astronomy; and Nature Trekkers camp, which introduced campers to map and compass reading, survival skills, and identification of plants and animals. In addition, campers could stay for an extended day after the regular camp ended to participate in games and crafts.

Evaluations of the summer camp program involved parent surveys, camper surveys, and discussion with two focus groups of parents. Campers and their families enjoyed the outdoor science activities as shown from 80-90% of campers saying that they learned new facts about geology/paleontology, and were engaged in making observations, collecting evidence, making predictions, and asking questions. And most campers were actively engaged with nature through the outdoor adventures of being a scientist, artist, naturalist, paleontologist, or geologist. Most parents (87%) reported their campers showed an increase in their curiosity and wonder for local geology/paleontology treasures. The summer camps were so successful this year that the staff are planning camps to offer this winter and spring during major school breaks. Check the website, www.dinoridge.org, for more details.

The Mikkelson Foundation Education Fund sponsored 29 teachers to attend a Colorado School of Mines (CSM) graduate-level course held at the Friends of Dinosaur Ridge Discovery Center during summer 2018. The 3rd through 7th grade teachers came from Denver area school districts with most of them coming from Jefferson County School District. The course activities included doing hands-on activities in the classroom and applying the newly learned concepts to the rocks and fossils on Dinosaur Ridge. The two courses were taught by Marsha Barber, Board Member. Another CSM course hosting 8 teachers was taught by Pete Modreski and Norb Cygan.

There are so many additional educational programs taking place at Friends of Dinosaur Ridge, including Dinosaur Discovery Days and birthday parties. But two educational standouts are the great presentations provided by the engaging bus drivers who interacted with approximately 30,000 shuttle bus visitors from all over the world in 2018, and the TriceraTOTS program which provided 216 toddlers fun dinosaur stories and crafts.

Stay tuned for additional updates as the staff and volunteers improve all of the education program offerings.

Marsha Barber
Education Committee Chair
Preservation Committee – 2017 Report

2017 was a momentous year for preservation on Dinosaur Ridge. With the guidance of Dan O’Brien, our architect, Friends of Dinosaur Ridge (FODR) was able to move the tracksite cover project through several Jefferson County acceptance processes. Following redesign of the tracksite cover roof to meet the mountain backdrop guidelines, the revised roof panel design was approved by Jefferson County Open Space (JCOS) on April 24th. A presentation of the redesigned cover was then given to the Jefferson County Board of Commissioners on August 29th. At this meeting, FODR was given permission to proceed with the permitting process by the Commissioners who also praised the work that T. Caneer did to move the tracksite cover process forward. During the following three months, we worked diligently with JCOS to complete the requirements for Jefferson County Planning Commission’s approval. The meeting with the Jefferson County Planning Commission was held on December 20th. At this meeting the project was put on the consent agenda and passed without comment. As the year drew to a close we were left with the impression that we were good to go for final design of the tracksite cover.

On Dinosaur Ridge, with the help of Mason Fine, Jack Evans, and Dennis Tesar, we finished Stage I of the raptor track preservation. The raptor track enclosure and ADA access ramp were completed. We still need signs and lighting for this site. Stage II will consist of researching methods for preserving the extremely fragile tracks. Design of the geotechnical mitigation features was completed for the stairway to the tracks at Crocodile Creek. Thanks to the FODR staff for raising the funds to meet the estimated costs for this structure. Two additional banding episodes at the tracksite were completed by volunteers and staff in an attempt to stave off further deterioration of the tracksite. One of these episodes occurred in December, in the same area where we lost two tracks in 2006. This event accelerated our long-term quest for the tracksite cover into hyper-drive. The area of the initial track loss was also the first area to be banded on the Ridge. However, the initial banding was not curved backwards at the base of the band and consequently allowed a small rock failure to occur at the very end of the originally installed retaining band. Fortunately no tracks were lost or endangered in this most recent episode, and additional installed banding should prevent further rock movement in this area. An additional rock support strut was installed at the bonesite by Mason Fine to prevent rock fall under a susceptible rock overhang.

In September, the Preservation Committee chairman gave a presentation at the national meeting of the Association of Environmental and Engineering Geologists on the Engineering Geology Challenges for the Morrison-Golden Fossil Areas NNL.

continued on next page
On the weekend of October 7-8 a significant rock fall event occurred immediately adjacent to the raptor track enclosure. A lower thick bed of sandstone, overlying a thick, soft shale bed rotated and fell out of the slope. Neither the raptor track enclosure nor the raptor track was affected. However, numerous saturated, fossil, bark fragments were exposed on the top of the fallen sandstone bed. Although these bark fragments were not of scientific significance, they would have made a great educational stop on the Ridge. Unfortunately we did not have the time or expertise to save these saturated bark fragments. They dried out and consequently weathered away quickly. This incident led to meetings and interactions with NPS and CU curators to examine and explore ways of preserving these types of saturated fossils in the future.

With the completion of the 19th Street Bridge in Golden, Triceratops Trail is now back online for visitation. Kermit Shields and I attended the dedication ceremony for the bridge and park on October 1st and conducted a tour of Triceratops Trail for the dedication attendees. As part of the construction project, the bike path along 6th Avenue was realigned. A protected access ramp was constructed from the CSM parking lot to the bike path for easier access to Triceratops Trail. Our kiosk was also moved to a more prominent access point. Our maintenance crew of Jack Evans and Dennis Tesar also spiffed up Triceratops Trail for the occasion.

During the year, Jefferson County Transportation renewed their interest in roadway maintenance on the Ridge and replaced four damaged culverts. Further maintenance work occurred in 2018. Jefferson County Open Space also installed wooden barricades at the rock failure locations experienced on the eastside of the Ridge during the 75-year flood of 2015.

Sam Bartlett
FODR Preservation Chair
ARTICLES

Transforming the Future of the Ridge
A Comprehensive New Site Plan with Jefferson County

We've spent a lot of time this summer and fall both dreaming about our future, and thinking about hard issues. We're poised to hit nearly 250,000 visitors this year; how can we give them all a great experience, keep them safe, and preserve the artifacts that make Dino Ridge so special?

Friends of Dinosaur Ridge has worked closely with Jefferson County Open Space and other Jefferson County agencies, as well as History Colorado, National Natural Landmarks, and others, to rethink and reimagine nearly everything about the Ridge. Our board and staff have spent many hours thinking through the following challenging questions:

• Given our growing visitation, what should a new Visitors Center look like, how big should it be, and what features should it include?
• How can we better manage visitor flow and safety with increased numbers?
• What is the best way to address the many preservation priorities, as well as hazards, on the Ridge?
• What kind of brand do we want to convey to the general public?

These are not simple topics, of course, but taking a step back and a deep breath to think all of this through is hard, important work. What decisions can we make now to carry us deep into the future?

You may know that Jefferson County actually owns Dinosaur Ridge, as well as the Visitors Center and adjacent parking lot. As our landowner, they have grown ever more interested in partnering with us, realizing the global significance of our site and our increasing visitation, particularly from out-of-state. Our mutual goal is for Dino Ridge to be not just a well-respected destination in the paleontology and geology communities, but a place that operates efficiently and safely, has a gleaming appearance, and has facilities that are inspiring, educational, and well-suited for large numbers.

Jefferson County Open Space is taking the lead and committing a great deal of resources to this planning process: the stakeholders are offering expertise in visitor management, geotechnical and related studies, and planning and design. They are also listening closely to the experience of FODR staff, board, and volunteers.

In 2019, a draft Site Plan for Dinosaur Ridge will be prepared.

In the end, this Site Plan will guide our work in terms of infrastructure and preservation to a significant degree for the coming years. We think that even 10 years from now, you will be more proud of Dino Ridge than ever!
The Morrison Dino Pass: A “Joint Ticket” Uniting Museum and Dino Ridge

In February, Morrison Natural History Museum (MNHM) Executive Director Matt Mossbrucker met with FODR ED Jeff Lamontagne. Building on previous discussions between Mossbrucker and Interim ED Lou Taylor, Mossbrucker and Lamontagne had talked several times about a possible joint pass to their two institutions, but had a little hesitation. Would more than a few people actually be interested in buying a joint ticket to take tours of both sites? Would the effort of launching such a program be worth it? They committed to the idea, but skepticism remained. FODR assumed we’d sell a few a month.

The wonderful and surprising realization has been that there has been nothing short of an incredible hunger for the new “Morrison Dino Pass!”

The success of the idea has surpassed everyone’s wildest dreams. In the first nine months of the program alone, between March 1 and December 1, MNHM and FODR have combined to sell a stunning 1,100 of the combined tickets!

Who is buying these tickets?! Both local visitors and out-of-town visitors. Families as well as solo visitors. Even some larger institutional groups. Basically, everyone!

The success of this program begs the question what else can be done by the two organizations joining forces? We will continue to explore, while celebrating the success brought by the Morrison Dino Pass—in terms of income, marketing, and mostly happy and learning visitors!

Dinosaur Ridge Welcomes New Board Members

Dinosaur Ridge welcomed two new board members in 2018. Melissa Morris joined the Friends of Dinosaur Ridge Board of Directors in April, and Steve Strachan joined us in July. Please enjoy getting to know our two newest directors.

Melissa Morris

Melissa Morris is a Freelance Marketing Consultant & Copywriter. As a little girl, Melissa loved the show *Who’s the Boss?* and decided then and there that she would be like the main character, Angela Bower, who was an advertising executive. After 20+ years, Melissa still loves what she does every day. But that’s not all she does. Melissa and her husband are also the proud owners of Gz New York Pizza (previously Guido’s Lakewood). After 17 years in business, Melissa considers it a huge accomplishment that she and her husband haven’t killed each other!

**What do you do in your spare time?**
When I actually have spare time, I love going camping and hiking with my husband.

**What inspires you?**
The simple things in life inspire me every day. They are moments when most people aren’t even paying attention.

**Why are you in non-profit work? What emotional reason?**
Throughout my career I have had the pleasure to work for both for-profit and non-profit businesses, and what I found is I love the philosophy of non-profits. As the credit union mantra says… people helping people. To me, that’s what non-profits are all about.

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Who is a hero of yours?
My mom is my hero. Not only was she a single mother but every day of my life she has shown me what strength and perseverance is. She taught me the principles of hard work and sometimes you have to fight for what you want or what is right. The past 3 years she has been battling cancer, and through it all, she has done it with amazing courage and usually with a smile.

What is your favorite dinosaur?
I think the stegosaurus is pretty cool!

What is your favorite thing about Dinosaur Ridge?
I love the history of it — especially the area that has the ripple marks. I think it is so cool to imagine what it once looked like and that once upon a time this area had water and that amazing wildlife roamed these lands — yes in my mind dinosaurs were wildlife! We have an amazing piece of history that covers millions of years in our back yard.

Stephen M. Strachan

Steve is an active petroleum geologist based in Englewood, Colorado, currently working the Las Animas Arch in SE Colorado and the Powder River Basin in Wyoming. Beginning his career as a roughneck in Lafayette with Goldrus Drilling Company, Steve has worked for Texaco, South Louisiana Production Company and Celeron Oil and Gas before starting Strachan Exploration, Inc. in 1984.

Active in the volunteer community, Steve currently serves as the Chair of the Director’s Council at Scripps Institution of Oceanography at UCSD, and as Chair of the Library Board of Governors at Northwestern University in Evanston, Illinois, as well as a member of the Steering Committee for Wings Over the Rockies Air and Space Museum Wingspan Campaign. He has also served as President of the Colorado Children’s Chorale, the Denver Earth Resources Library and Metro Caring, all based in Denver.

Steve’s involvement with Dinosaur Ridge goes back to 1995 through supporting projects as a member of the Rocky Mountain Association of Geologists Foundation. “Protecting and preserving this unique natural history site is so important for the education and understanding of science and earth history. Friends of Dinosaur Ridge has been a leader in the preservation and promotion of this site, and I am very pleased to be able to serve on the board.”

Steve and Linda live in Parker, Colorado, and their children, DeAunne and Kammer live in Mountain View, California and Dallas, Texas.
HONORS

IN MEMORY OF

T. CANEER

T. Caneer (1928-2018) was a steady presence at Dinosaur Ridge for more than three decades. T. served in the US Army and in the Air Force Reserves, and moved with his wife Carolynn to Golden in 1967. T.’s career as a geologist from Colorado School of Mines Research Institute bred in him a fascination with dinosaurs. “Other than his family, Dinosaur Ridge was the love of his life. He was always glowing when he talked about the Ridge, and Rock Out for the Ridge [FODR’s annual fundraising gala] was always the most important date on his calendar,” said T.’s daughter Kathy Smith. In 2001, T. was one of the primary influences who helped convince the City of Golden to build Fossil Trace Golf Course in a way that the footprints, traces, and impressions left by dinosaurs, birds, mammals, beetles, and plants of an ancient swampy habitat 68 million years ago could be preserved. Those who remember T. remember him as persistent, tireless, and a regular presence at Dinosaur Discovery Days and community meetings in support of Dinosaur Ridge. We are so grateful that T. Caneer could be an important contributor to Friends of Dinosaur for all those years. You will be missed, T.!
Make a Gift to the Friends of Dinosaur Ridge Endowment Fund

YOUR DONATION CAN BE INCREASED WITH MATCHING FUNDS AVAILABLE UNTIL 12/31/18

We are excited to announce the establishment of the Friends of Dinosaur Ridge Endowment Fund on July 1st, with the goal of ensuring the long-term financial viability of this organization. Endowed funds provide a steady revenue source to the organization, providing annual distributions of up to 4%. We join over 100 Colorado nonprofits who have entrusted Community First Foundation to manage their endowment funds.

As a new Nonprofit Endowment Partner of Community First Foundation, our initial $25,000 investment will receive an additional $5,000 contribution from their incentive grant program. Until December 31, 2018, every dollar you give to the Friends of Dinosaur Ridge Endowment Fund will be matched with an additional $0.25 from the Community First Foundation 2018 Incentive Grant Program up to $5,000 more.

At Dinosaur Ridge we are grateful for the multitude of ways you already support us. From gifts of the time your family spends here as members, to the talents you share with us as dedicated volunteers, to the meaningful financial contributions you’ve made to help to preserve the natural resources on the Ridge since 1989, we appreciate the impact you make on the 200,000+ people who visit Dinosaur Ridge each year. A gift to the endowment leaves a legacy of your connection here.

We invite you to make a gift to the Friends of Dinosaur Ridge Endowment Fund before the end of 2018 to take advantage of the 25% incentive match before it expires. Your donation to the endowment will allow us to achieve our mission of educating the public about and preserving the natural and historic resources of this area for generations. Please contact Robin Morris, FODR’s Development Director, at robin@dinoridge.org if you have any questions or for more details.

Major Donors

Donations from foundations, corporations, members, and individuals play a large part in supporting the mission of Friends of Dinosaur Ridge. We are grateful for all of our donors in 2018, and especially want to recognize our major donors for this year.

Anonymous
1772 Foundation
American Association of Petroleum Geologists
Anadarko
Baker Family Foundation
Marsha Barber
Sam & Eileen Bartlett
Wayne Belcher
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Shields Family Fund
Sandra Smith
Steve & Linda Strachan
Lou & Mary Taylor
Joe & Holly Tempel
Xcel Energy Foundation
Leslie Ziegenbein
New Fossil Finds at Dinosaur Ridge

Martin Lockley¹, Norb Cygan², Neffra Matthews³

¹University of Colorado Denver,
²Dinosaur Ridge,
³National Operations Center USDOI-Bureau of Land Management, Denver

INTRODUCTION

Despite intensive paleontological and geological investigations at Dinosaur Ridge, over many years, various new discoveries continue to be made. For example the 5th edition of the Field Guide to Dinosaur Ridge reports raptor tracks and courtship display scrape marks that were unknown a few years ago. The new discoveries reported here include two dinosaur tracks discovered in the Jurassic Morrison Formation on the west side of Dinosaur Ridge, and a plant fossil found in the younger Cretaceous Dakota Sandstone, also on the west side of the ridge. These are described as follows:

DINOSAUR TRACKS I: A GIANT SAUROPOD TRACK

The first and largest of the newly found tracks is a large and very deep sauropod hind footprint cast, found by Martin Lockley, right at the main dinosaur bone site. The term cast indicates that it is the infilling of a footprint, in this case where sand filled a footprint in mud. The track is shown in side and top view in Figure 1 (A-C). It is about 25 inches (63 cm) long, about 18 inches (45 cm) wide and deep. The track is wider at the front with a slightly narrower heel. This volume of rock weighs an estimated 400 pounds (about 180 kilograms) and was quite difficult to move. One of our team (Neffra Matthews) made a 3-Dimensional image of the track cast which can be rotated on screen to look at the specimen from all angles. These close up views show how the foot slid forward downward and slightly sideways as it registered in the mud. The steps in forming the cast are shown in Figure 2.

DINOSAUR TRACKS II: SPOOR OF THE CARNIVORE

The second newly found track (Fig. 1D) was spotted by the second member of our team, Norb Cygan. It was also found as a cast on a loose block of sandstone, very near the main dinosaur bone site. It appears to be a recognizable track of a medium-sized theropod, about 9 ½ inches (24 cm) long, and about 8 ½ inches (22 cm) wide. It is quite similar to another track found nearby a few years ago (Fig. 1E).

There are more than 70 fossil footprint sites known from the Morrison Formation in Colorado, Utah and other western states. The two most common track types are the same types described here, those of giant sauropods or brontosaurs and those of various carnivorous theropods. All tracks from public land must be collected with a permit and put in an approved collection.

continued on next page

FIGURE 1. The trackers’ menagerie. A: natural cast of sauropod hind footprint, UCM 190.19, in up-side-down view. B: same track in side view showing depth. C: outline drawing of track showing length (l) and width (w). D: outline drawing and photograph of theropod track natural cast UCM 190.18. E: line drawing of previously discovered theropod track, UCM 190.14, on display at Dinosaur Ridge. UCM 190.14 found by Matt Mossbrucker (Morrison Natural History Museum), UCM 190.18, found by Norb Cygan, UCM 190.19 found by Martin Lockley. UCM = University of Colorado Museum of Natural History, where tracks and track replicas are held.
A BEAUTIFUL PLANT FOSSIL

No doubt there were just as many “floral” plant species as “faunal” animal species during the Mesozoic “age of dinosaurs.” Paleontologists who study plants, i.e., paleo-botanists, are quick to tell us that the Jurassic flora, of 150 million years ago, when the Morrison Formation was accumulating, was quite different from that of the middle Cretaceous about 100 million years ago, when the Dakota Sandstone was being laid down. The main difference was that so-called “flowering plants (Angiosperms) had come on the scene. This probably coincided with new evolutionary lines of pollinating insects.

Colorado is quite well-known for producing Cretaceous plant fossils, which have been studied for almost as long as the state’s famous dinosaurs: i.e., back to the 1870s and 1880s. It is not too difficult to find “bits” of plant fossil on Dinosaur Ridge, though again there is no collecting permitted without a permit. However, to find a whole leaf or branch, sprig or spray of leaves, or even flowers is rather more difficult. Flowers and leaves are soft and not as easily preserved as a tough branch of hard wood. However, they are quite common at some sites, like Fossil Trace, where large palm frond impressions are well known.

However, luck has given us a very nice spray of a plants from the Magnolia family named *Sapindopsis*, and found by our team (Martin Lockley) right on Dinosaur Ridge. As shown in the illustration it is a nice symmetrical branch with six leaves, three on each side of the main stem. The whole sprig is a little over 10 inches (26 cm) long with individual, spindle shaped leaves five inches long and more than an inch (3 cm) wide.

Perhaps we now have the scientific evidence to allow us to imagine Magnolia-like flowers blooming in the area that is now Dinosaur Ridge. Of course back then it was a vegetation-rich coast along the western shore of what is called the Cretaceous Western Interior Seaway. Where there were blooming flowers there would have been insects and of course various types of dinosaurs, both herbivores and carnivores. The herbivores may have been flower munchers and seed spreaders, but one group of small carnivorous dinosaur or theropod relatives were the birds. Perhaps it is not a stretch to imagine our beautiful plant fossil producing flowers inspected by insects which in turn would have caught the eye of birds and vegetarian dinosaurs. Such was the rich ecology of Cretaceous times around what is now Dinosaur Ridge.
In 1938, after a hasty trip to the Picketwire dinosaur tracksite, Ronald Thaxter Bird headed for the famous tracksite at Glenn Rose Texas, now Dinosaur Valley State Park. While there he examined the dinosaur trackways along the Paluxy River. In 1940, R.T. Bird returned to Glenn Rose with a WPA work crew to uncover several trackways. By the time he finished, R.T. Bird had collected at least two trackways. One trackway, including the overlapping Theropod and Sauropod tracks, was systematically removed for display at the American Museum of Natural History in New York. The second trackway was excavated for display at the University of Texas (UT), Austin. A reconstructed trackway is currently on display at the park Visitor Center. Whether this trackway is partially an original trackway or a complete reconstruction is not known. For a more complete discussion of the tracksite and preservation implications, see the FODR Ridge Report, Volume 22, Number 3, Winter, 2010.

Collecting, moving and reinstalling a complete trackway is fraught with problems and potential for damage to the trackway. To find an example, we need to look no further than the trackway on loan from the DMNS in our Discovery Center which was collected in the same timeframe as the Glenn Rose trackway. In our trackway, part of the trackway pieces fit together well, but the center portion has been extensively damaged with many missing pieces.

The trackway removed to the American Museum of Natural History has been on display for many years inside and under controlled environmental conditions. The trackway removed to the University of Texas, Austin (UT) has not fared so well. The intentions for preserving this trackway were good, however the preservation efforts were not handled as well as intended.

A parcel of ground was leveled on the grassy knoll adjacent to the University of Texas, Texas Memorial Museum. Upon completion of the groundwork, the trackway was set in a bed of sand and the spaces between the individual track blocks were sealed with a high gypsum content filler. A limestone masonry and glass mausoleum was then constructed to enclose the reassembled trackway. The
result was a good looking mausoleum allowing viewing from the outside, but restricting inside access to one small sealed door at one end. The only ventilation was through several small open slots in the masonry walls. As a result, the building was basically sealed without environmental controls.

Over the years, the building has shifted on its foundation, cracking the walls and glass. The sealant between the trackway sections has dissolved allowing damage to the reassembled trackway. As a consequence, the building has been boarded up and condemned. The trackway is in the process of being moved to a UT warehouse offsite and will probably not to be seen again for public viewing. A consultant was contracted to determine the cause of failure, but the final report has not been released. Consequently, the total cause of failure is not completely known, but the primary cause can be inferred.

Excessive water appears to be the root cause of failure, aggravated by a lack of internal drainage and environmental controls. At the top of the grassy knoll stands a mighty live oak tree of magnificent proportions implying an abundant source of near surface groundwater. In addition, the grounds around the mausoleum are meticulously manicured lawns which are watered sufficiently to keep the grounds wet in an already humid environment. As a result, the uncontrolled moisture and humidity within the building would have been enough to jack the foundation and walls. The upward movement of the abundant groundwater would easily have distorted the sand bedding and dissolved the trackway sealant allowing even more damage to the trackway.

The implications of this unfortunate incident are twofold for our beloved tracksite on Dinosaur Ridge. First, moving a trackway under any circumstances is fraught with danger, especially if the trackway is extremely fragile and deteriorating rapidly. Second, any structure built to protect a trackway must be designed to breathe and ensure adequate drainage and adequate environmental control, whether natural or induced.

Sam Bartlett
FODR Preservation Chair
Friends of Dinosaur Ridge Membership

You spoke, and we listened! Due to feedback from our current members and the FODR Board of Directors, we are consolidating and simplifying our membership levels in 2019. Starting January 1, we will be offering three regular membership levels. Many of the perks will remain the same, but we have combined several categories to further maximize your benefits. Don’t forget that all members receive amazing discounts on program, events, and gift shop purchases. Visit http://dinoridge.org/support-dino-ridge/membership/ for more information. New membership levels will be live on January 1!

Our regular membership levels in 2019 will be:

- **Individual Plus (member plus one)** ..................................................... $50
- **Family/Group (2 adults & up to 3 kids)** ............................................... $90
- **Friends & Family (up to 6 visitors)** ....................................................... $130

Do you want to deepen your connection and leave a lasting legacy at Dinosaur Ridge?

The FODR board has decided to bring back Life Memberships to Dinosaur Ridge with TWO fantastic levels! Each level has exciting new benefits and perks never before offered. Don’t be left behind. Lead the pack and be one of the first to experience all Dinosaur Ridge has to offer, while helping us grow our new endowment fund and ensure the future of Dinosaur Ridge.

**Heritage Lifetime Member** ................................................................. $1,500
- 2 tickets to ROFR for your first year of Lifetime Membership
- Permanent recognition at the Dinosaur Ridge Visitor Center
- All other standard benefits apply for 2 named persons (for LIFE!)
  - E-tracks monthly digital newsletter
  - 20% Gift Shop discount (excludes consignment)
  - Discounts on select programs
  - Guided shuttle tour and exhibit hall admission for 6 people each visit
  - Recognition in Annual Report
  - Recognition on FoDR’s website
  - Recognition on FoDR’s social media

**Legacy Lifetime Member** ................................................................. $10,000
- Guided tour through Morrison for up to 12 people (MNHM and DR)
- Lunch with our Executive Director and Board President for up to 12 people
- A full table of 8 at ROFR for your first year of Lifetime Membership
- A special thank you gift from FoDR
- Permanent recognition at the Dinosaur Ridge Visitor Center
- A chance to help us build our endowment with a tax-deductible contribution
- All other standard benefits apply for 2 named persons and up to 6 persons total per visit(for LIFE!)

Visit http://dinoridge.org/support-dino-ridge/membership/ for more information. Your opportunity to become a lifetime member will be live on January 1!
Friends of Dinosaur Ridge Events 2019
Please visit dinoridge.org/tours-programs/calendar-of-events/ for more information on all Dinosaur Ridge events. We are constantly adding more information.

CAMPS AT DINO RIDGE
- Winter Break Camps: January 2, 3 and 4 (9 am-3 pm)
- Spring Break Camps: March 26, 27, and 28 (9 am-3 pm)
- Summer Camps: June 3-August 9
  - 9 weeks of Day Camp
  - Ages 6-11. Topics and age groups vary by week.

WALK WITH A GEOLOGIST SERIES
- Join a professional geologist for a tour of Dinosaur Ridge for a 2½ hour walk and discussion of the geology and changes of the Denver area through time.
- Walks start at the Main Visitor Center. 9-11:30 am
- April 26; May 11; June 8; July 6; August 3; September 7; October 5

WILD WANDERERS TRAVEL & FIELD PROGRAMS
- Behind the Scenes at Rocky Mountain Dinosaur Resource Center: March 15
- K/PG Day Trip with Lou Taylor: May 14
- 3rd Annual Fish Dig Trip (Kemmerer, WY): May 24-26
- Florissant Fossil Beds Day Trip: June 14
- Dinosaur National Monument Dig Trip: August 23-25
- Behind the Scenes at Denver Museum of Nature & Science: October 18

EDUCATIONAL DINO TALK SERIES
- Free Everything Dinos 12-part series led by Erin LaCount.
- Morning Series begins January 10. Every Thursday morning at 10 am (1/10-3/28).
- Evening Series begins on January 30. Last Wednesday of the month at 6 pm (1/30-12/18).
- All talks take place at the Discovery Center.
- Morning series will repeat in the fall. (Dates TBD)

TRICERATOTS
- A story-time and craft program geared toward 2-5 year old kids.
- First (or second) Wednesday of the month at 10 am.
- January 9, February 6, March 6, April 3, May 1; June 5; July 3; August 7; September 4; October 2; November 6

SPECIAL EVENTS
- Dinosaur Ridge 30th Anniversary Weekend: April 25-28
  - Interactive movie screening, Walk With a Scientist series kickoff, technical talks, volunteer workshops, kids' carnival, 30th anniversary dinner and gala, Founders Brunch.
  - Colorado Gives Day: December 3

SCFD FREE & REDUCED DAYS
- Trek Through Time, the Dinosaur Ridge exhibit hall, is FREE on these days. Our 45-minute guided bus tours are discounted to $6 and $8.
  - March 16; May 18; August 17; November 16

DINOSAUR RIDGE CLOSURES
- New Year’s Day: January 1
- Thanksgiving Day: November 28
- Christmas Day: December 25

DINOSAUR DISCOVERY DAYS
- National Dinosaur Day: June 1
- Boy Scout Day at Dinosaur Ridge: September 21
- Girl Scout Day at Dinosaur Ridge: Saturday in October (Exact date TBD)
Mark your calendars!
30th Anniversary Celebration
April 25-28, 2019
JOIN US FOR A WEEKEND PACKED WITH EVENTS

Celebrating our past, building our future!

- Special “Walk with a Scientist” Tours
- Interactive Dino Movie Party
- Community Carnival
- Dinosaur Ridge Gala and Dinner
- Technical Paleo/Geo Speaker
- Volunteerism Then & Now
- Founders Brunch

…and much, much more!