



## SPRING PILGRIMAGE TO THUNDER LAKE

by Rebecca Detterline

Ahhhh, the annual snowy spring pilgrimage to Thunder Lake. For me, it marks the start of hiking season in my favorite place on Earth: Wild Basin. Unlike the Bear Lake corridor or the Longs Peak area, Wild Basin is virtually inaccessible to winter hiking to all but the hardest and most dedicated backcountry travelers. Between the road closure that adds an extra mile to each end of the hike and the unbroken trail conditions usually found beyond Ouzel Falls, a visit to Thunder Lake in winter is just not as plausible as a trek to Chasm Lake or Lake Haiyaha.

All winter long, visitors and locals flock to the Bear Lake Trailhead where many destinations are often accessible

with no more than a pair of boots and MICROspikes. With the exception of ice climbers bound for Hidden Falls, a handful of Nordic skiers and some beginner snowshoe groups, many of the trails in Wild Basin are shrouded the entire winter under an untouched blanket of snow.

I feel lucky to have enjoyed a number of Wild Basin winter adventures, most notably skiing off the summit of Mount Copeland in January, but access to this type of experience is not easily granted. It is advised that one should plan on a 4 a.m. wake-up call and expect a swift and icy descent after sunset if one hopes to summit any mountain in Wild Basin during the winter.

When spring finally arrives in this less visited corner of Rocky Mountain National Park, calypso orchids, glacier

lilies, globe flowers and marsh marigolds seem anxiously to push their way through the earth and snow, eager to bloom after a long dormant season. Hillsides and meadows are soon covered in every imaginable shade of paintbrush, while Ouzel Falls spills over cliffs and crashes into the rocks below, delighting hikers with its cool mist.

My annual spring hike to Thunder Lake takes place long before the snow melts, when winter winds have left a season's worth of downed trees across the trail, and no matter what, the last half mile always proves to be an adventure in route-finding through the snowy drainage that leads to the outlet of Thunder Lake.

Having arrived at my destination and taking in the views from the

(Pilgrimage continued on page 12)

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Dear Friends,

I hope this letter finds you and your loved ones healthy and well. As we live through this unprecedented (at least in the 89 years of this organization and certainly in my lifetime)

COVID-19 pandemic, I suspect that whatever I have to say here may already be obsolete by the time that my musings arrive in your mailboxes, but I'll give it my best.

This is the second "Dear Friends" letter that I've written to you while Rocky Mountain National Park's (RMNP) gates have been closed and its visitor centers shuttered, the first being last winter during the 35-day government shutdown. Unlike last time, this time around I applaud the park being closed, as this ensures the continued safety for the residents of the park's gateway communities. I am, of course, not an epidemiologist, and like most of us, can't predict what will happen next, but I appreciate the leadership of the Department of Interior listening to recommendations of those that include the local public health authorities and local governments tasked with keeping our communities safe, and making this difficult decision, valuing human lives over the significant economic impacts that will also be unprecedented.

We made the difficult decision to close our Nature Stores in the park visitor centers even before the park had closed to ensure our own staff's safety. A few weeks later, we made the even harder decision to suspend the Field Institute Program for the remainder of 2020, both for financial and public health reasons. Our challenges to stay the course of our mission here at the Conservancy are not unique to nonprofits nationwide, and I feel fortunate that we entered this time of crisis with a solid foundation and a strong base of supporters to help us to weather this storm so that we can, in-turn, continue to support the public lands we love throughout and beyond this crisis.

RMNP has been unable to collect entrance fees during this time and will need us more than ever once their doors reopen. We have re-affirmed our commitment to the park to support more than \$1 million in projects for critical trail work, historic preservation, educational programs, wildlife protection, and research in 2020. RMNP will be here in perpetuity, and the Conservancy intends to be right there by its side (of course, standing 6-feet away while washing our hands and wearing our face coverings for the time being) through whatever wild challenges the world presents us. I can't wait to see you all back at Rocky when the time is right.

Be well,

Estee Rivera Murdock

Executive Director



Photo: Ann Duncan



Order online — web orders being filled as we are able!

## Conservancy products connecting you to Rocky!



### Deneen RMNP Longs Peak Mug

This 12-oz capacity Deneen mug has a footed base with a gracefully blossomed lip. A classic scene of Longs Peak under a starry sky that will be a favorite keepsake of Rocky Mountain National Park. Safe for the dishwasher, oven, freezer and microwave. Price: \$19.95;  
Member Price: \$16.95

### RMNP Stainless Pop Art Mug

This playful stainless steel mug featuring colorful artwork of Rocky will brighten your day and serve you well. Handwashing recommended. Price: \$12.99; Member Price: \$11.04



### RMNP Lavender Quarter-zip Sweatshirt

This cozy purple RMNP sweatshirt features a graphic Rocky Mountain National Park scenic logo. 55% cotton, 45% polyester. Womens S-XXL. Price: \$34.95;  
Member Price: \$29.71

### RMNP Pop Art Socks

These RMNP knee socks feature colorful artwork of Rocky. Price: \$7.99; Member Price: \$6.79



### RMNP Elk Hooded Sweatshirt

Graphically bold, this Rocky Mountain National Park hoodie features a classic Rocky Mountain scene. 66% polyester, 34% cotton. Price: \$34.95;  
Member Price: \$29.71



### Rocky Mtn. Wildflowers Pocket Guide

by David Dahms

A handy and classic pocket-sized pictorial field guide to wildflowers of the Rocky Mountains covering 119 common species. Each page has a beautiful color photo and a concise description of each flower. Softcover, 120 pages. Price: \$6.95; Member Price: \$5.91



### RMNP Pop Art Magnet

Jazz up your fridge with this playful magnet bursting with a colorful design of Rocky images. 3" x 2 3/8" Price: \$4.99;  
Member Price: \$4.24



## RMConservancy.org

### Cover photo

Spring, Thunder Lake Cabin. Photo: Rebecca Detterline. Photos are always appreciated! Scenery, wildlife and wildflowers greatly enhance this publication, so get out there and take a hike!

Please send high-resolution images to [nancy.wilson@RMConservancy.org](mailto:nancy.wilson@RMConservancy.org) by June 1 for publication in the 2020 Summer Quarterly.

Thank You!

## Ask Nancy

Quarterly Editor Nancy Wilson attempts to unearth answers to any questions asked by Conservancy members and park visitors. If you are curious about something in or about the park, email [nancy.wilson@rmconservancy.org](mailto:nancy.wilson@rmconservancy.org) or write: Nancy Wilson, Rocky Mountain Conservancy, PO Box 3100, Estes Park, CO 80517.

**Is there any evidence that there are fewer coyotes in RMNP?** Coyote population levels aren't monitored in any systematic, scientific method either on statewide or local level, but there is no reason to suspect Rocky's coyote population isn't healthy and viable. Science — life history research of coyotes — shows that normal, healthy coyote populations experience substantial variation among years, with documented swings of up to 80% in a five-year period. A number of studies have demonstrated that these fluctuations are often linked to prey and other food availability which, in turn, affects adults' reproductive success and therefore numbers within a local area. The ability of *Canis latrans* to tolerate, adapt and thrive across a wide variety of environmental conditions and challenges is well documented. Once primarily a species of the prairies and plains, they have expanded their range across the entire United States — including woodland, coastal and even suburban and urban areas. This plasticity may be reflected at a local level, where an apparent reduction of coyote numbers may in fact be simply an instance of these adaptable creatures discovering a better food source elsewhere and shifting their home ranges. Personally, I have not observed an appreciable change in the frequency of the coyotes seen, heard, or noted fewer tracks in the areas I frequent in the valley, and the ones I see are quite robust. Coyotes are a poster child for a eurytopic species. *Word of the day: Eurytopic* — tolerant of a wide variety of environmental factors; having a broad range of adaptability to changes in environmental conditions. — *Former RMNP Wildlife Biologist Gary Miller*

**Will the pine trees that were severely scorched by the burned slash piles along Bear Lake Road recover? Or will the burn piles add to the number of dead trees?** Some of the trees scorched during pile burning may recover; many will not. The flame contact and radiant heat of prescribed burning does increase the total number of dead trees, but this is by design. When forest specialists alter stand density, we seek to create variability of age and size classes, species composition, and density distribution for the benefit of vegetative communities, wildlife, and fire breaks in wildland-urban interface. Forests treated with prescribed fire (both broadcast and pile burning) are commonly treated mechanically first; sawyers cut and pile vegetation to reduce density, building burn-piles to dispose of material and slowly reintroduce fire. During this process, most, but not all, of the standing dead trees (e.g., beetle-killed) are removed as standing dead trees are beneficial for birds such as owls, predators, and cavity-nesting species. Trees scorched by fire are commonly referred to as "fire hardened"; these standing dead stems are resilient to wind and natural decay and will persist on the landscape for the benefit of wildlife diversity and improved fire regimes. — *RMNP Forest Ecologist Brian Verhulst*

**What does the park do to nurture relationships with Native American tribes that identify Rocky Mountain National Park as their ancestral home?** Since 2017, Rocky Mountain National Park's Interpretation and Education Division has partnered with the University of Colorado Boulder (Center of the American West and the Center for Native American and Indigenous Studies), the NPS Intermountain Region (Cultural Anthropology Program), and representatives from the Cheyenne and Arapaho Tribes in Oklahoma, the Northern Arapaho Tribe in Wyoming, the Northern Cheyenne Tribe in Montana, the Southern Ute Indian Tribe in Colorado, the Ute Indian Tribe of Uintah and Ouray in Utah, the Ute Mountain Ute Tribe in Colorado, and the Rocky Mountain Conservancy on a project aimed at promoting better representation of tribal nations at the national parks. Work is sometimes slow, but it is constantly moving forward and wonderful relationships are being built! Project goals include: 1. Encouraging visitors to Rocky Mountain National Park to see the park not only as a beautiful natural setting but also as a place where Native peoples hold strong historical and contemporary connections. This goal will be partially reached this summer as we sponsor a speakers' series of tribal representatives and the construction of some new exhibits; 2. Supporting tribal nations as they work to connect with the park and their ancestral lands; 3. Building relationships among tribal nations, Rocky Mountain National Park, and the University of Colorado. — *RMNP Interpretive Naturalist Kathy Brazelton*



*MSU Denver undergraduate students collecting alpine soil samples to analyze in the lab for nutrient content. Soil respiration, chemistry, and the plant communities the soil supports are compared against other soil plots as well as historical data, in order to investigate changes that could be attributed to climate change.*

## The Hidden World Beneath Our Feet: How Soil Influences Our Atmosphere

*by Sarah Schliemann, Metropolitan State University of Denver faculty and Kenneth Doyle, Metropolitan State University of Denver undergraduate student*

When you think of Rocky Mountain National Park, what is the first thing that comes to mind? A beautiful tundra meadow covered in wildflowers? Golden aspen in the fall? A massive herd of elk? All of these iconic images depend, in one way or another, on a feature of the park that is often overlooked: the soil beneath your feet. Most people have dug in the soil at some point; maybe to plant flowers, to build a structure, or (as a kid) just for fun. But, have you ever considered how soils are able to support plants and in turn, the ecosystems in which they exist?

### Some Background on Soil

Soil is much more than simply the dirt that we walk on; it plays an integral role in all terrestrial life. Soils not only provide a medium for plants to take root, they also provide the water and nutrients to nourish their development through a

variety of complex interactions mediated by microorganisms.

Soil contains a diverse mixture of biotic and abiotic components that make up a subterranean environment called the pedosphere. The biotic parts of this system include all of the living organisms and their remains, such as plant roots, dead plants, plant root exudates, microorganisms, and soil worms and arthropods. The abiotic elements of the soil include mineral particles (sand, silt, clay), water, and air. The characteristics of a particular soil develop over thousands of years and are shaped by the underlying geology, the climate of an area, the local topography and relief, and the soil biota. Thus, each location on Earth has soil uniquely adapted and shaped by the environment in which it exists.

Soils support plants by storing water, supplying essential nutrients, and provide

the necessary structure for plant roots.

Soils with a mixture of the three mineral types — sand, silt and clay — are called loams. These soils are well structured to store adequate water and nutrients for plant growth. Soil organic matter also helps soils retain water and nutrients

and can provide necessary material for soil structure.

Soil organic matter is a broad term that includes all organic molecules in the soil. Organic molecules are produced by living organisms and contain carbon. In the soil, microbes and other organisms are hard at work breaking down organic matter. In the process,

they leave behind essential nutrients that plants rely on and release carbon into the atmosphere, resulting in a cyclical process that inevitably impacts the balance of elements underground and the composition of our atmosphere.

**Current climate models generally predict longer snow-free periods, although microsite variables such as slope and aspect may play a large role in snow accumulation and timing of melt.**



## Soil Science

In a typical soil, organic matter is found in a range of forms; some are easily decomposable, while others remain extremely stable.<sup>1</sup> In fact, certain compounds that contain exceptionally complex structures are very resistant to microbes and may remain in the soil for hundreds to thousands of years, given the right environmental conditions.<sup>2,3</sup>

In cold environments, microbial decomposition can also be limited by temperature. In these systems, soil organic matter in all forms may be stored for long periods of time within the soil.<sup>4</sup> This is the same reason food in your freezer at home doesn't go bad: you are slowing down microbial decomposition. These two factors (molecular stabilization and temperature stabilization) create conditions in which large amounts of carbon can be stored for an extended time. Indeed, soils represent the largest reservoir of active terrestrial carbon<sup>5</sup>. If climate becomes more favorable for microbial growth, soil organic matter is quickly broken down and carbon is lost to the atmosphere.<sup>4,6,7</sup>

When soils release carbon to the atmosphere, the process not only reduces the productivity of the soil, it also adds greenhouse gasses to the atmosphere, thus contributing to climate change.

The rate of microbial decomposition can be investigated by measuring the flux of carbon dioxide emitted from the soil. This process is termed soil respiration. Soil respiration (microbial decomposition) is controlled by a range of parameters, but soil moisture and soil temperature are often the most important; both generally displaying a positive relationship with CO<sub>2</sub> efflux, so when soil temperature and/or moisture are high, so is soil respiration.<sup>8</sup> In Rocky Mountain National Park, soil temperatures have already risen, and it is reasonable to conclude that they will continue to rise in the coming years.<sup>9</sup> Soil moisture, however is difficult to predict because

soil moisture is affected not only by the amount of precipitation, but the timing of precipitation events and the rate of snowmelt.<sup>10</sup> Current climate models generally predict longer snow-free periods, although microsite variables such as slope and aspect may play a large role in snow accumulation and timing of melt.<sup>9</sup> Peak soil moisture generally coincides with snowmelt and early snowmelt can result in late-season dry periods.<sup>11</sup>

### RMNP Soil Project

In this ongoing project, started in 2015, we are monitoring soil chemistry, soil moisture, soil temperature, and soil respiration at six locations within Rocky Mountain National Park. Our study sites have been established in high-elevation areas — above 10,000 feet — as we



*Sarah Schliemann and Kenneth Doyle measuring soil respiration on the tundra in Rocky.*

expect these regions to see the greatest impacts as a result of climate change.

Soil respiration is measured biweekly during the snow-free period, typically from June through September, using an

automated CO<sub>2</sub> flux system. To measure soil pH, soil carbon, and soil nutrients, we collect soil samples from each plot monthly using a 1-inch diameter soil corer and take them to the lab for further analysis.

From our preliminary data, it appears that microbes in the alpine tundra are decomposing "new" organic matter that is deposited every year by plant senescence, root death, and root exudates, and they are not utilizing carbon stored in the soil. Although temperatures are warming and becoming more favorable for microbial activity, decreased soil moisture seems to be limiting their growth. This finding suggests that in the alpine tundra, an increase in annual temperature may have minimal impact on the release of excess stored organic carbon, so long as average annual soil moisture content does not increase. These findings are consistent with work conducted at nearby Niwot Ridge.<sup>12,13</sup>

*(Soil continued on page 10)*



*MSU Denver undergraduate students Matthew Manwaring, Violet Eagle, and Kenneth Doyle collecting soil samples for laboratory analysis.*



## Madison Lawrence, Winter Olson Family Fellow

The Olson Family Fellowship began partnering with Rocky Mountain National Park's environmental education department and the Conservancy's Field Institute programs in 2007.

January – May 2020

Hometown: Lonaconing, MD

College: Frostburg State University

**Career Goal:** My dream is to own and operate a diversified farm that has a strong volunteer and educational outreach section. I want to provide quality food to my community while stewarding the earth through sustainable and minimal-impact farming techniques. I want to offer the opportunity to have a hand in this process, as well, through engaging with summer camps and classes.

**Fellowship Goal:** I have several goals for myself during this fellowship. I hope to gain confidence in leading and teaching others and develop classroom management skills. I would like to become more familiar with the Rocky Mountain landscape, through learning about the natural history of this region and the species that live within it. I am excited to connect with others through a shared passion and desire to learn about and protect these amazing lands.

Special thanks to Alan and Carol Ann Olson for their ongoing support of Conservancy education programs.



## RMNP Paving Scheduled for May – September 2020

Beginning this May through September, major road construction will occur on US 36 inside of Rocky Mountain National Park. The work will take place on a three-mile section of US 36, just west of Bear Lake Road junction to east of Deer Ridge Junction. Beginning in May, this section of road will be closed nightly from 7 pm to 7 am, Sunday nights through Friday mornings. There will be no nightly closures on Friday and Saturday nights.

When the road reopens each morning at 7 am to traffic, motorists should expect delays and a rough surface. Bicyclists and motorcyclists should avoid this section of road this summer and enter the park through the Fall River Entrance.

The entire depth of asphalt will be removed and a new surface will be installed. Many curves will be re-constructed to bring them into compliance with federal



highway standards. Visitor pull offs will be formalized and curbing will be added where necessary to protect vegetation.

Upper Beaver Meadows Road will also be inaccessible during nightly closures.

For further information on Rocky Mountain National Park, please visit [www.nps.gov/romo](http://www.nps.gov/romo) or call the park's Information Office at (970) 586-1206.



## Conservation Corps Projects Planned for 2020

by Rocky Mountain Conservancy  
Conservation Director Geoff Elliot

The 2020 summer season is fast approaching! This year we have an exciting suite of projects for both the Conservation Corps and the High School Leadership Corps. Up front, the Conservancy is excited to share that both corps programs will be expanding in 2020. With some additional support coming from a 21st Century Conservation Service Corps grant through the U.S. Forest Service, the Conservation Corps will grow from six crews comprised of 34 AmeriCorps members to eight crews with 44 AmeriCorps members spread throughout northern Colorado. Additionally, the High School Leadership Corps will grow to provide opportunities to ten additional local high school youth by adding a third crew!

The 2020 Conservation Corps program will continue to support project work in Rocky Mountain National Park and the surrounding Arapaho-Roosevelt National Forests. In 2020, Conservation



*High School Leadership Corps crew members celebrating their completed stock bridge.*

Corps members also will continue to be engaged with cyclic trail maintenance on trails throughout the east side of Rocky and surrounding wilderness areas, with the expectation that they will be maintaining more than 100 miles of trail. In addition to the trail maintenance, crews will:

- Help complete construction of the accessible trail at the Alluvial Fan
- Improve climber access trails in the Boulder Canyon
- Restore damaged wilderness trails in the Indian Peaks Wilderness (Isabelle Glacier, Mitchell/Blue Lake)
- Construct wilderness bridges and wetland crossings on U.S.F.S. trails in Grand County
- Support campground improvements in Rocky Mountain National Park.

All of this work is essential to ensuring that trails are safe and sustainable for recreational use. In addition to supporting recreational access, this

work helps to mitigate erosion, conserve wildlife habitat and native vegetation, and protect local watersheds from visitor impact.

Beyond the boundaries of the Conservancy's federal public land partners, the Corps programs are excited to support a local project in the Estes Park area. In partnership with the Town of Estes Park, Estes Valley Land Trust, and the Access Fund, the High School Leadership Corps and Conservation Corps will establish a trail at the Thumb Open Space on Prospect Mountain. The new trail will provide access to climbers, hikers, dog walkers, and more at a new open space in Estes Park.

"With more crews and an extended season in 2020, we are very excited to provide more opportunities for youth and young adults and increase our on-the-ground impact, said Geoff Elliot, director of conservation. "Thank you to the National Park Foundation, 21st Century Conservation Service Corps, The Corps Network, and all the donors that support the Conservancy's high-impact service programs."

Stay tuned, as some of these projects will include Volunteer Stewardship Events with the Conservancy. Learn more and find updates on these projects and volunteer opportunities at [RMConservancy.org](http://RMConservancy.org).



*Conservation Corps Boulder crew members repair a trail by creating a rock check step.*



Photo: NPS

## On Top of the World: Life as a Conservancy Alpine Visitor Center Clerk

by *Jeanne Zukowski*

In 1998, several years before my husband and I moved to Estes Park from the flatlands of Nebraska, I brought my mom out for a conference at the YMCA. We drove out early so we could first enjoy a day in Rocky Mountain National Park. I was familiar with the park and decided to drive up Old Fall River Road to the Alpine Visitor Center (AVC). Back then, AVC was not nearly so crowded and busy as it is today. We easily found a parking space and went inside to check out the displays and perhaps make a purchase in the bookstore.

Unfortunately, those plans were cut short as I suddenly started feeling not so well, sitting on a bench with a dizzy head and nauseated stomach. Altitude sickness. I hadn't given my body enough time to acclimate. We had come up too high too soon from the flatlands. The ranger suggested we go back down. We heeded her advice, but my mom, who had never before driven in the mountains, had to drive because I was too sick.

Little did I know then that twelve years later I would again find myself at the Alpine Visitor Center, not as a visitor, but as a clerk working for the Rocky Mountain Nature Association, now the Rocky Mountain Conservancy. I would be the one looking out for visitors, from newborn babies to the elderly, who might be experiencing a variety of high-altitude issues ranging from mild to serious — dehydration, nausea, fainting, panic attacks, breathing difficulty — and notifying rangers who could attend to them.

As Conservancy clerks, we do much more than ring up sales in the bookstore. We practice constant "situational awareness," and we are an extra pair of eyes and ears for the rangers who are constantly watching for visitors in distress. A requirement for all AVC clerks is regular CPR training and certification so we are able to

help in an emergency if needed.

One thing about this worksite: weather can be extreme. Above 11,000 feet there can be scorching sun, driving rain, pounding hail, graupel, snow, fierce winds, and rainbows all on the same day. On one such day, I could be found out on Trail Ridge Road directing all traffic into the parking lot until two snowplows arrived — one to lead westbound traffic to Grand Lake, and the other eastbound to Estes Park. AVC staff were the last to leave, and we made our way down in total white-out conditions.

Weather isn't the only added challenge for AVC retail clerks. In the event of a medical evacuation, by ambulance or helicopter, all clerks assist with crowd control and dispensing visitor information. In the event of a medical emergency, traffic at the top of Old Fall River Road is stopped, and staff will walk down the road to explain the "Why?" to visitors on their way up the winding road. If the emergency necessitates a visitor center

trail and weather conditions, and wildlife. With the familiarity of the high-elevation environment that we bring to the job, we delight to help all visitors understand what life is like above 11,000 feet, not only for people, but for the plants and animals that live up there. For example, how fragile the environment is, how stressed or endangered some animals are, and how each of us must do our part to respect and protect them by practicing proper tundra etiquette.

The Alpine Visitor Center is a very busy and special place. The workdays are long and intense, but they are never boring. There is teamwork between the Conservancy staff, volunteers, and NPS rangers — an essential element considering how far we are from extra help, if and when it is needed. Visitors frequently remark about the beautiful view "outside our office window," which has a sweeping view overlooking Fall River Cirque. We laugh when others ask, "Do you have to drive up here every day?!"

Our response? "No, we get to drive up here every day!"

We have the most beautiful commute surrounded by snow-capped peaks. As the snow recedes we often see elk migrating back up to the cooler, greening tundra. We frequently see bighorn sheep, and we observe alpine wildflowers as they emerge, marmots basking in the sun, and pikas scurrying from rock to rock. It is an amazing event to watch the tundra awakening from its long winter nap. So beautiful! Perhaps even more so because it is also short lived. A mere six weeks later autumn is again in the air as the tundra begins to turn orange and red, the elk descend down to the lower meadows for the fall rut, and the marmots and pikas begin preparations for another long winter.

My 10th season on top of the world is finished. I always miss being in that magnificent place but I but welcome a break from the long days, and look forward to relaxing with a few good books. Until next season.



*Mama marmot nursing four pups near the Alpine Visitor Center*

Photo: *Jeanne Zukowski*

closure, clerks lend a hand to explain the situation to visitors.

What I enjoy most as a Rocky Mountain Conservancy clerk is meeting visitors from all over the world. When the rangers are away from the desk on official business, we step in to provide information about trails,



# Rocky Mountain National Park Trail Crew Has Big Summer Plans

by Doug Parker,  
RMNP Trails Program Supervisor

The Rocky Mountain National Park (RMNP) Trails Program is a robust program that includes trail crews on both the east and west sides of the park, a sign shop and an animal packing operation. The Trails Program has a small winter staff that grows to impressive numbers in the summertime, comprised of NPS employees, Conservation Corps crews, and volunteers. These people are integral for the host of significant trail construction projects and maintenance needed in Rocky. It is not uncommon at some points in the summer for more than 50–60 individuals to be working on park trails in the park, performing trail improvements and repairs that ensure visitor access, resource protection and long-range care of these much-loved trails.

## Rocky's Eastside Trails

The park's trail program will have two crews working from **Granite Pass** to the **Longs Peak Boulderfield** this year. The crew is committed to improving the trail and resources around the trail by installing additional erosion control using rock "rip rap" paver tread surfaces. This type of trail material has proven to be a very effective resolution for poor trail conditions, as well as to create a clear demarcation to protect the fragile tundra.

Additionally, over the next several years, the crew has committed to continuing to improve the **Longs Peak Trail** conditions with projects starting at tree line and leading up to **Chasm Junction**.

Crews will also be out in full force on the **Alluvial Fan Trail** this year. A very large crew was hired to continue restoring the trail that was demolished in the 2013 flood. Part of the improvements include a new Outdoor Recreation Accessible Route (ORAR) on the west side of the trail. This is defined as: "A continuous, unobstructed path that is intended for pedestrian use and that connects accessible elements, spaces, and facilities within camping and picnic facilities and at viewing areas and trailheads. ORARs cannot be used at other



*New rock wall supporting the tundra and preventing erosion on the Longs Peak Trail*

types of facilities, such as educational campuses, office parks, or theme parks." The east side of the trail will also be built for accessible-use, with some exceptions resulting from challenging existing terrain features. Visitors should expect closures of this area throughout the summer and fall so crews can safely work with large machinery in the area.

Another eastside project includes additional improvements on the **Cub Lake Trail**. The very large step issue that was present about a one-half mile below the lake has been resolved, and the crew is now working on improving water drainage, mitigating trail widening, eliminating social trails, and improving trail tread retention.

Keep your eyes peeled for improvements that are beginning at the **Gem Lake Trail** this year. Trail widening mitigation will be a priority where in some areas the trail is more than 30feet wide. Progressing upward toward Paul Bunyan's Boot, crews will be working to improve trail tread retention and stabilization. Additionally, during the next couple of years, visitors can expect to see some improvements on the famously large steps on the trail that lead to the lake.

## Rocky's Westside Trails

This will be a busy year for the trail crew on the west side of the park, and visitors can expect to see crews in some popular areas of the park.

In a project that started last year, crews will continue making improvements on the **Onahu Trail**. To date, crews have been focused on improving drainage in areas that are very wet which is causing trail widening and tread loss as a result.

On the trail around **Lake Irene**, work

will be done to mitigate areas of erosion and social trails. This includes extending an already existing log retainer wall to support the uphill side of the trail, and adding log retainer walls below a steep area to support the trail and deter new social trails.

A two-year project will begin this summer as crews begin transporting new bridge material via helicopter to the **North Inlet Falls Bridge**, located on the Nakoni/Nanita Trail. This is an old bridge that, while still safe for hikers, no longer safely supports stock use. Crews have been building components of the bridge in the eastside trail shop during the winter to facilitate a more efficient construction schedule in the summer of 2021 when the bridge will be constructed.

The trail program is also planning to repair the **Red Mountain Trail multi-use bridge**, located just a short distance from the Colorado River Trailhead. Trail crews will replace the rock gabions that support the bridge with new concrete footers to increase the lifespan of the bridge structure. This project will start in July and ramp up construction at the end of August and into September.

## Parkwide

Parkwide, the Rocky Mountain National Park Trail Crew is taking a new approach to trail maintenance to prevent deferred maintenance. This year, the program will have a crew located in the park's backcountry performing more in-depth trail maintenance in areas that have proven difficult for work crews to access due to the site's remoteness and high snowmelt. These more remote areas include areas far in on the **North Inlet Trail, the Mirror Lake area and Black Canyon**.



MSU Denver undergraduate students Kenneth Doyle and Francesca Fernandez analyzing soil samples in the lab.

(Soil continued from page 5)

Current climate models seem to predict two things that are relevant to soil moisture. First, the models predict that we will generally see a longer snow-free period in the alpine tundra as snowmelt arrives earlier in the spring and snow accumulates later in the fall.<sup>14</sup> Second, this longer snow-free period will generally lead to lower than normal soil moisture conditions in the late summer and early fall.<sup>11</sup> These changes in soil moisture may result in stable or even increased carbon-storage capacity in alpine tundra soils.

Soil organic matter increases a soil's water-holding capacity, so as conditions become drier, soils with high organic matter will be vital for plant survival. However, extreme drought in the late summer and early fall will likely affect plant growth, reproduction, and in some cases, survival. With changes in the vegetation

community, we may see larger changes in the tundra ecosystem since other organisms depend on the tundra floral community for food and shelter.<sup>12</sup>

Our findings have some long-term implications for the park. The alpine tundra currently seems to be storing carbon, which is encouraging. However, with reduced soil moisture over the growing season, we would predict that the alpine tundra floral community will change over time to contain more drought-tolerant species. This change will obviously affect other organisms in the park that depend on the current assemblage of species. From a management perspective, however, it is hard to make any recommendations other than continued monitoring to better understand the changing situation since the changes are likely to be widespread and long-term.

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Photo: NPS/Debbie Biddle



## Leaving A Planned Gift to Rocky: A gift that costs nothing now makes a big difference later

Some of us may never summit the highest peaks in Rocky or hike all 350 miles of trails in the park. But there are other ways to become part of the story of Rocky Mountain National Park. Planning a deferred gift commitment to the Rocky Mountain Conservancy is an easy way to make a gift that costs nothing now but makes a big difference later.

We invite you to contact us to learn about some of the ways you can leave assets, retirement income, or a portion of your estate to the Conservancy. We are ready to help you identify and craft a plan to ensure that your legacy gift is invested in the Conservancy's mission, according to your personal and philanthropic goals.

If you've already included the Conservancy in your estate plans, please let us know. We would love an opportunity to celebrate your commitment and simply say, "thank you." Making a planned gift to the Rocky Mountain Conservancy plants the

seeds for a strong future and helps to ensure that our beloved park remains protected and conserved for generations to come.

To learn more, please contact our Philanthropy Director, Michael Allen, at (720) 845-5690.



### Here are some common planned gift scenarios that support Rocky:

- Leave assets to the Conservancy in your will or estate plans. Our staff can provide you with simple language to amend your will.
- Name the Conservancy as a beneficiary of your life insurance, retirement plan or annuity.
- Establish a charitable trust to provide the Conservancy with income now, and later you can either return assets to your heirs or pass them along to the Conservancy to make a legacy gift.



## Conservancy Supports 2020 Rocky Community Volunteer Ambassador

With support from the Rocky Mountain Conservancy, Aubry Andreas joins Rocky Mountain National Park as this year's Community Volunteer Ambassador (CVA). The CVA internship program places young professionals at National Park Service sites across the country to assist with Volunteers-in-Park programs. Ambassadors work to expand service-learning opportunities, as well as coordinate volunteer recruitment efforts. The CVA program is facilitated through the Americorps Stewards Individual Placement Program.

A Colorado native, Aubry is excited to join Rocky Mountain National Park and assist with the volunteer program. Prior to becoming a CVA, she completed a media internship at Shenandoah National Park. There, she gained experience in print design, videography, photography, and science communication. Now, she will use those skills to create digital training resources for volunteers and supervisors while also assisting with volunteer events.



Photo: Madeline Wilson

**(Pilgrimage** *continued from page 1*)

Thunder Lake cabin, where snowdrifts can reach the rooftop well into June, memories of all the adventures I've had in this little corner of the earth flood my mind: lazy afternoons fly fishing in Ouzel Creek, frequent surprise appearances of bull moose on early morning trail runs, swimming in icy alpine lakes and eating handfuls of wild berries. Wild Basin certainly has delivered on experiences.

With snow lingering in the high country of Rocky Mountain National Park, I have to remind myself that spring generally is not the season for new hiking adventures in the alpine. Rather, it is a time to set more modest expectations, revisiting places seen countless times on the way to this summit or that lake. Returning year after year to a favorite boulder, or tree, or section of trail, reminds me that this magical place existed long before any of us, and that it will continue to delight visitors years after my name has been entered in the summit register on Pilot Mountain or Eagles Beak.

When the annual May storm leaves behind 3 feet of snow and ski season is all but over, I start to wonder if the trails will ever melt out enough

to get to Boulder-Grand Pass or Mahana Peak, or even just to Ouzel Lake. But before I know it, I'm scrambling up Eagles Beak for the third time in a single summer and the arctic gentians have begun to bloom.

As the trails begin to melt out and hikers eagerly await access to more remote places, I will continue to appreciate the unpredictability of spring in the Rocky Mountains and enjoy each destination that nature allows me to visit. Surely, I've seen Calypso Cascades at least a hundred times, but I think I appreciate it a little more each time. None of us know the last time we might get to see a place, so why

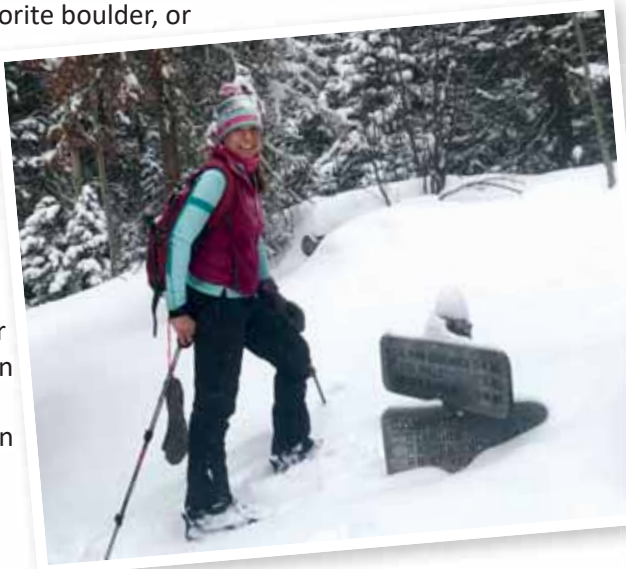
not soak up every moment?

The seasons of life pass by just as quickly as the seasons of the year, and I refuse to wish away a single moment of life on this precious planet.

I will savor every step of my annual pilgrimage to Thunder Lake, whether accidentally stepping into a muddy puddle early on in the hike or losing the trail and sinking into knee-deep snow.

Whether enjoying a moderate hike to Ouzel Falls or an all-day "Tour de Wild Basin" experience high above tree line, every trip into Wild Basin is a gift. Another summer will soon be upon us. May we enjoy the crunch of snow beneath our hiking boots while it lasts and remain grateful that we are lucky enough to appreciate and explore one of the best places on Earth.

None of us know the last time we might get to see a place, so why not soak up every moment?



*(Left) Rebecca and a winter hiking day in Wild Basin; (Right) Mount Meeker views*







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Photo: Marlene Borneman

## Quick-Fix Science

### A Vast Moving Caravan: Roads and Tourism in Rocky Mountain National Park

#### The Question: How have roads and road building shaped the history and landscape of the park?

When Congress created Rocky Mountain National Park in 1915, the nation was on the verge of transformation: the automobile captivated the American public. Leaders of the newly minted National Park Service correctly predicted that Americans love of national parks would be closely tied to Americans love of automobiles. Local businessmen, too, realized that having good roads would bring more tourists, generating more business for their communities. Even the Union Pacific Railroad realized that good roads meant increased revenue. Families could ride the rails to the region and then travel by road to the destinations promoted therein. This coalition of entities—the National Park Service, local businessmen, and the railroads—promoted the construction of good roads in the park. Was this a successful campaign?

#### The Project: Analyze the environmental history of road building in the park.

Jerritt Frank, in his doctoral dissertation for the University of Kansas, used the lens of environmental history (the interaction of humans and the environment over time) to examine how tourism was marketed in the establishment and development of the park. Dr. Frank reviewed the extensive literature pertaining to automobile tourism in the American West including many original documents such as guidebooks, brochures, advertisements, newspapers, and official reports. He traced the history of the park and its roads by evaluating how the lobby for better roads developed and the subsequent improvements that were made to connect tourists with nature.

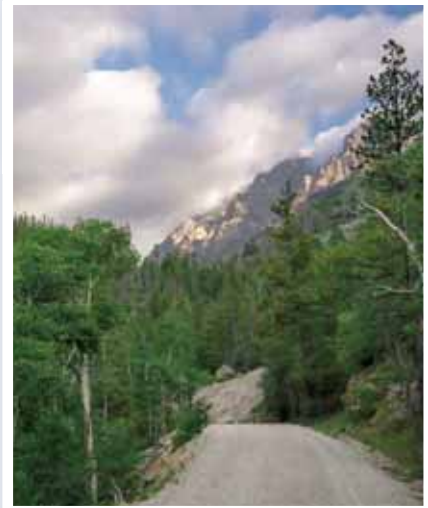


Photo: NPS/Ann Schonlau

#### The Results: Successful completion of a good road system essentially made nature accessible to millions, but it had unintended consequences.

The coalition of the National Park Service, the railroads, and local businesses such as the Rocky Mountain Transportation Company made it not only possible to drive through the park, but also a desirable activity. The coalition saw great political and economic benefits in luring tourists to the park, creating a satisfying journey, and leaving families longing for another trip. A good road system allowed people close contact with the natural world. But constructing a good road was just the first step. The park also had to enhance the visual appeal of routes by covering old routes, thinning selected trees to enhance views, undertaking roadside cleanup, and removing structures. By erasing human disturbances in the viewshed beyond the road, visitors could experience a natural landscape. The coalition's advertising—often featuring photos of motoring tourists—established an expectation of what visitors would do during a park visit.

Their campaign was successful. After World War II, visits to the park spiked, and those visitors used the road system to connect with nature. But the promotion and building of roads encouraged visitor behaviors that would later threaten the pristine parkscape the coalition worked so hard to create.

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American three-toed woodpecker

Photo: Member Putney Nature Images



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## Nature Notes

Spring in the Rockies! What a glorious time of the year. In early March, reports of returning bluebirds are coming in, and as early as late February, woodtick sightings are picking up as the south-facing slopes get more sun and warmer temps 🐾 A rash of mountain lion sightings sure makes things exciting: Conservancy Director of Sales **Chris Wenzel** was lucky to encounter a mountain lion in early January as she drove home from Estes Park along highway 36 at dusk. From seemingly nowhere, a big, healthy mountain lion jumped in front of her car, and made three graceful leaps across the road into the ditch on the other side 🐾 Conservancy Development Assistant **Victoria Johnson** received some unnerving news that her babysitter had filmed a mountain lion strolling past the patio and play area in Estes Park that the kids normally use 🐾 **Victoria** also reported for her young toddler **Sage**, that he had heard two great-horned owls calling in early March, and they even found an owl pellet to dissect 🐾 RMNP Woodcrafter **Cory Johnson** also got a glimpse of a mountain lion in his truck headlights down the highway toward Pinewood Springs before it sauntered up the hill. That same night, Cory also saw a bobcat run across a road in Estes Park. And the night before all this, he spotted a great-horned owl sitting up in a tree <Whew!> 🐾 And, last but not least, one morning in mid-January, Cory was skiing up toward the top of Hidden Valley where he shared a snowdrift with a pure white ptarmigan to witness a blustery sunrise for a few minutes while he transitioned to downhill mode. The bird was curious about this strange creature and it studied him for a little bit before it ambled off 🐾 In early February, wildlife photographer **Gene Putney** spotted an Abert's squirrel in a tree near the Moraine Park campground. It was contentedly sitting on a low branch eating a pinecone, and, as is usual, dispersing a lot of pinecone debris around the tree's base. Gene was able to watch it for 15 seconds before it scampered up the tree 🐾 **Gene** also reported seeing about 40 bighorn sheep near Sheep Lakes where they crossed the road to get to the lakes. The sheep spent nearly two hours browsing at the lakes in the snowy landscape before returning across the road 🐾 Retired RMNP Wildlife Biologist **Gary Miller** and RMNP Interpretive Naturalist **Kathy Brazelton** observed least chipmunks emerging from winter torpor on February 20, several weeks earlier than seen in at least 15 years 🐾 **Gary** and

**Kathy** watched a robust coyote attempting to catch a vole that the coyote had excavated from its subnivean lair. After several minutes of "Now I gotcha" and "No, you don't," the vole finally made its successful escape, running between the coyote's legs and diving back beneath the snow 🐾 **Kathy** and **Gary** also visited Barr Lake State Park, just east of Brighton, Colorado, in early February during their Bald Eagle Festival. Nearly 50 bald eagles were concentrated at the park, as well as many waterfowl, and even a few overwintering white pelicans. An impressive state park, very much worth visiting 🐾 **A Nature Note from Marlene Borneman:** In

this time of uncertainty, I need something reliable and upbeat to look forward to, so, I decided to focus on getting out and searching for early budding native plants. Thoughts of blooming wildflowers bestow on my soul an absolute sense of peace and joy. Vivid memories of past wildflower seasons energize me while providing some normalcy to my "new" routine. I'm getting out my notes, jogging my memory about what will be blooming when and where in the coming weeks in and near RMNP. Our native wildflowers will come up no matter what and they will not disappoint. I remind myself that native plants are resourceful, resilient, hardy and persistent. Don't despair about the closure of Rocky Mountain National Park. There are plenty of spots to explore right outside the park, open spaces, bike/trail paths, our own yards and national forests that surround the Estes Valley. Take pleasure in Colorado's sunshine, experience the challenge of botanizing, all while exercising your mind and body. Here are a few common spring wildflowers to start looking for now through June: Western spring beauty (*Claytonia lanceolata*), pasque flowers (*Anemone patens*), Rocky Mountain iris (*Iris missouriensis*), Easter daisy (*Townsendia exscapa*) and (*Townsendia hookeri*). Wishing good health to all!



It's that time of year again, so on your next hike in the park or other Colorado public lands, keep an eye peeled for young wildlife and their protective parents! Photo: Member Dick Coe