



Rocky Mountain Conservancy

QUARTERLY

Summer 2016

LETTING ROCKY SPEAK FOR ITSELF by Geoff Elliot

This past spring, I welcomed a group of ten middle schoolers from the Boys and Girls Clubs of Denver to Rocky Mountain National Park. They came to the park to explore different job opportunities with the National Park Service. Now this is not unusual. The Conservancy has brought other groups of young people up for similar programs with great success. Typically, groups spend the whole day outside, meeting different rangers as well as various Conservancy staff, followed by some kind of volunteer project. These group visits have all purposely been held in the summer and fall, minimizing any potential weather issues. This group, however, scheduled their trip in March.

As their scheduled day arrived, the local weather network was predicting several inches of snow in Estes Park and even more in Rocky, so the group decided to reschedule. The only date they still had available was a Sunday in April. In theory, this is no big deal, except that on this weekend day there were limited Conservancy staff resources and the National Park Service had no extra staff to help facilitate the program. This would require some significant adjustments to the usual program design.

When the day arrived, it came in a bluster, with high winds and blowing snow. It is safe to say that these city kids from Denver were not expecting this weather, nor were they prepared to be outside in it. I decided I'd begin the program indoors with hopes of the weather getting friendlier later in the day, so we started out with a brief video

about the park, played some exploratory classroom games about what it means to work for the National Park Service, as well as a round of RMNP trivia. While these delay tactics gave the group a rough understanding of the park and some of the work opportunities with the Park Service, it readily became apparent that it was a weekend day and these kids did *not* come to Rocky to sit in a classroom. So, at wit's end, weather or no weather, I decided to let Rocky speak for itself.

We left the Field Institute in the preheated bus and ventured into the park. Driving in, the students were overtly more enthralled with whatever radio station was playing quietly on the bus than the fact that we were headed for Rocky Mountain National Park. *<Sigh>* Then, miraculously, just as we passed the Fall River Entrance I heard someone from the back yell, "ANIMALS!" As I scanned the meadow to the left of the road, I noticed a handful of bull elk. We pulled over and got out to watch them for a bit. As the students left the bus, their smartphones and selfie sticks were the first things they pulled out to document the moment. After posting their first elk sighting on social media, the questions started popping up: "What are those?" "Why do they have fur on their horns?" "What is that fence over there for?" "Will these animals hurt us?" And on and on.

About fifteen minutes later, after discussing basic elk ecology, some of the elk management projects in Rocky, and how they could get involved, the group

(Letting Rocky Speak continued on page 2)



(Letting Rocky Speak continued)

was ready to move on to the next stop. We were headed to the Alluvial Fan. We got out in the West Alluvial Fan Parking Lot and started walking toward the falls. As we walked, the middle schoolers rattled off questions: “Who put these rocks here?” “Why is there so much sand?” “Where did all the trees go?”

Before getting the first view of the falls (knowing the distraction of the spectacle would just be too much to handle), we stopped and I explained the geological and erosional forces that shaped the area and how it had changed dramatically, during their lifetime, with the 2013 flood. At that point, one of the girls raised her hand, pointed behind me to the falls and asked, “Can we go up there now?” Happily, I gave them the thumbs up to climb around on the rocks and explore the area, but not before hearing the following exchange:

One of the boys in the group asked me, “Do we have to go up there?”

I responded, “No, if you don’t want to you can hang out here.”

He then yelled to the group, “Hey guys! We don’t have to go!”

One of the students shouted from one of the rocks above, “I don’t care, I want to! It’s awesome up here!”

The boy reluctantly sauntered up the hill until he spotted his friends gleefully jumping from rock to rock, climbing up to little overhangs, and crossing the stream on exposed stepping stones. In two seconds he was up there with them climbing, laughing and dipping his feet in the cold water.

What seemed like only a short time later, I looked at my watch and realized we had been at the Alluvial Fan for nearly forty-five minutes. I wanted to

bring them to Many Parks Curve before they had to leave to show them the view and a glimpse of the beauty of Trail Ridge Road, so we left and headed up the road. Already the crew was reminiscing about their experience at the Alluvial Fan.

When we arrived at Many Parks Curve, there was not a moment of hesitation — all the kids were scrambling to get out and explore; climbing rocks and posing for pictures along the boardwalk, they took no notice of the strong winds, freezing temperatures and intermittent blustering snow. These kids were in the moment and enjoying the park in their own ways.

All this brings to mind a few key elements worth noting. Having lived near Rocky and all its grandeur for some years, it’s easy to become immune to the nuances of nature when that connection feels so familiar. And, because of it, I tend to anticipate uncomfortable or

less desirable conditions and avoid being out in it when conditions are less than ideal. As a result, I miss potentially magical moments and experiences that might have been transformative. It equates to a lack of acceptance and appreciation of Rocky and *all* of its beauty. This group of largely unprepared youth, on the other hand, embraced the snow and wind with a smile and found joy in the park landscape regardless of the weather. I do not say this to condone hiking unprepared or adventuring out in dangerous conditions, but to remind myself that Rocky — Rocky in all its forms — offers enjoyment and fulfilling experiences in a wide range of conditions and in a variety of ways.

Secondly, I realized that I had established an expectation for the group before they even arrived based on the previous experiences I’ve had with similar groups. I was afraid to spoil their experience in the park with bad weather, so I decided to try to control the kids’ experience of the park and present Rocky from inside the Field Institute. Of course, they had no interest in listening to me. They needed to get outside and experience the area firsthand, to immerse themselves in it. They needed to discover their own questions based on what they explored on their own terms, not what I was telling them about and deemed important for them to know.

They were celebrating and taking ownership of the park in their own way.

[The kids] needed to discover their own questions based on what they explored on their own terms, not what I was telling them about and deemed important for them to know.

It’s a good reminder for ideal environmental education conditions. Our ongoing efforts to preserve these places require that we present these

public lands to future generations in a way that fosters respect for the history and intention behind protecting wild spaces. But always, the most important piece to this is inviting and encouraging young people to take ownership and embrace these important places in their own unique ways.

I’m grateful for this experience with these kids. This group of first-time visitors from middle schools throughout the Denver area reminded me how empowering and freeing the park can be, as long as I allow it.

Geoff Elliot is the Rocky Mountain Conservancy – Conservation Corps Manager.



Photo: Richard Youngblood

Announcing the Annual Rocky Mountain Conservancy *Picnic in the Park!*



When: August 6, 2016
Time: 11:00 a.m. to 2:00 p.m.

Where: Hidden Valley in RMNP!

Members \$15.00; Guests \$20.00
Kids 6 – 12 \$5; Kids 5 and under free!

11:00 – 12:15 Activities & mingling
12:15 – 1:00 BBQ picnic lunch
1:00 – 2:00 Program

Check out this year's lineup of food and frivolity!

- Special guests
- Live music with local folk artist Brad Fitch
- Tasty cold beer from New Belgium Brewery
- Decadent fudge courtesy of Gateway Stores
- BBQ from KT's Barbeque in Boulder
(with vegetarian options)
- A 20% discount at our on-site Nature Store

RSVP by July 22 if you plan to attend

(Please note: reservations will close if capacity is reached)

Make your reservation by calling 970-586-0108
or at RMConservancy.org

- Advance payment is required — thank you!
- If you need to cancel your reservation, let us know!
- **Parking at the Gateway Store at the Fall River Entrance with shuttle to the site** is STRONGLY encouraged — visit the website for details about parking and the shuttle service to Hidden Valley:

RMConservancy.org

Thanks to George Carle of the Gateway Store!

We hope to see you there!

Cover photo credits

(Upper): "Lily Lake Sunrise" by Jeremiah Ramirez, Estes Park, CO; (Lower): "Summer Blooms Extravaganza" by Conservancy Member Marlene Borneman, Estes Park, CO.

Please send high-resolution images to nancy.wilson@RMConservancy.org by September 1 for publication in the 2016 Autumn *Quarterly*.

Photos are always appreciated! Scenery, wildlife and wildflowers greatly enhance this publication, so get out there and take a hike! **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 or write: Nancy Wilson, Rocky Mountain Conservancy, PO Box 3100, Estes Park, CO 80517.

What happens when a bird's nest is destroyed in the process of making it? If bird nests are damaged or lost, birds typically will rebuild, even when in late breeding season. Some birds actually have two nests in a normal year. On average for small songbirds, egg incubation usually takes up to two weeks with another two weeks to raise the young to fledging. Then another week or two of feeding the young once out of the nest. So, there's usually enough time to get it all done. Raptors are known to do what is called "double clutching" if they lose their first clutch of eggs, which means they will lay a second batch. Raptors can take three weeks up to a month to incubate, and larger birds, like eagles, even longer. Raptors average three weeks to a month to fledge and up to a month of being fed by the adults, so it's definitely harder for raptors to start over. — *Retired NPS Biologist Jeff Connor*

Are there any jumping mice in Rocky? *Zapus princeps*, the western jumping mouse is found in the park. And yes, they DO jump! Especially if you surprise them walking through the grassy mountain meadows of places such as Moraine Park and Horseshoe Park. The Preble's meadow jumping mouse, *Z. hudsonius prebeli*, is a threatened species (subspecies) and occurs in both Larimer and Boulder counties, but at much lower elevations — riparian areas to the base of the foothills. — *Retired RMNP Biologist Gary Miller*

Where does the money from Conservancy Nature Store sales go? We have a combined total of 30 Nature Stores in Rocky Mountain National Park, National Forests, National Monuments and State Parks throughout Colorado. Proceeds from the operation of each location are awarded back to these partner agencies in the form of direct aid which is earmarked for them to enhance the visitors' interpretive and educational experience at their specific site. Some of these public lands areas use aid for printed materials, museum exhibits, events for visitors and materials for childrens' programs. The Historic Trails Interpretive Center in Casper, Wyoming, recently used some of their aid money to host a chuckwagon cooking demonstration commemorating a 19th century wagon that was donated to the Interpretive Center. Rocky Mountain National Park store sales also help cover some of the Conservancy's overhead costs so that more of your donations can go directly to projects, such as our recent work acquiring Cascade Cottages for RMNP! — *RM Conservancy Director of Accounting Sarah Rhode*

I noticed many large piles of wood and brush along the beginning of the Deer Mountain Trail. I understand that these are burned, but how is the fire controlled? The park has worked for many years to reduce the wildfire hazard to park infrastructure and communities. Prior hazard fuels projects were instrumental in stopping the 2012 Fern Lake Fire from jumping Bear Lake Road, as firefighters were able to take advantage of previous prescribed fire and hazardous fuels treatment areas, and those provided a buffer between the fire and Estes Park. In many locations, fire managers thin dense stands of trees and brush, then carefully stack that material into piles like those near Deer Ridge Junction. Fire managers typically burn piles during the winter months when there is sufficient snow cover so that the fire will not spread. Park personnel monitor all pile-burning operations and they only occur when conditions allow. The park has successfully burned more than 20,000 piles during the past 15 years. — *RMNP Fire Management Officer Mike Lewelling*



Photo: Jim Ward

Climate Research Examines the Plight of Pika in Rocky

by Aidan Beers

In the American mind, the mountains are most emblematic of the wildness in our land and the refuge that has always held allure and challenge. Impassive, untamed and unquiet, they inspire awe, pride and apprehension. Perhaps no mountains are more iconic in that way than the Rockies of Colorado, epitomized in Rocky Mountain National Park and locked into the American ethos. We think of the Rockies as the core of our mountains and the realm of only the hardest alpine denizens. That sentiment is echoed in much of the scientific literature, and

the Rockies often have been cited as the core of cool refuge from a warmer and drier climate that has slowly been encroaching for more than ten thousand years.

However, as that encroachment quickens, the iconic peaks, alpine tundra and their residents may be more threatened than previously thought. When climate changes, species tend to shift their range over time to follow their preferred climate, whether that shift is in latitude or altitude. Yet a population pushed upward in elevation quickly becomes isolated

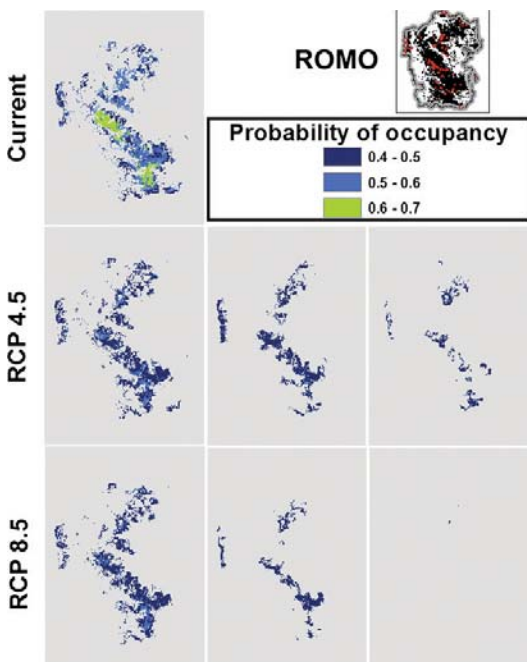
from other populations of its species on sky islands. When pushed into those isolated patches, the habitat of any one population extinguished by climate change is unlikely to be recolonized. Further, climate is changing faster in the alpine than in surrounding areas.

Among those species likely threatened by climate change is the American pika, a small, charismatic critter most closely related to rabbits (not rodents). Pikas are found almost exclusively in piles of broken talus, in rockslides and rock glaciers and occasionally in roadside riprap. In the Rockies, they most commonly persist above treeline, though in other parts of their range they do

live in cool climates below 1,000 feet of elevation. In order to survive the harsh Rocky Mountain winter, they do not hibernate, but instead collect vegetation from adjacent meadows into haypiles to sustain them and likely rely on a persistent snowpack as insulation from extreme cold. In the same way, they tend to stay at the surface of the rocks for only brief bouts of activity during summer heat, then shelter in the cool microclimate between rocks below the talus surface.

Because of this vulnerability, they have for decades been suggested as indicators of climate change impacts, a kind of “canary in the coal mine.” Recent studies have bolstered that idea by linking pika presence to subsurface water or permafrost, which can provide a significant portion of downstream water resources. The exact mechanism for this correlation is not yet fully explored (it may provide extra thermal buffering), but it does suggest that pika presence or absence may indicate something about the surrounding community. In other words, a change in pika distribution, borne out over several years and in many places, speaks to changes in the resources they rely on. With nearly all of the water for Front Range communities coming from snowpack, pikas may also portend changes to human systems.

Pikas have not always been constrained to the mountains and



Predicted pika occupancy in Rocky Mountain National Park (ROMO) under current conditions and at future time steps under conservative (RCP 4.5) and high (RCP 8.5) carbon emission scenarios. Figure: Schwalm et al. 2016.

other patches of cool habitat. At the end of the last glacial period, pikas thrived in rocky areas of what is now the Mojave Desert. Their habitat likely was far more broadly distributed than it is now and the populations more connected. Now, across much of their range, pikas are limited to refugia or microrefugia, small pockets of suitable habitat within a larger area of hospitable climate. Refugia can exist at several scales — from an entire mountain range to just a few large boulders — depending on the ecological process in question. A single pika's survival may be contingent on finding shelter from temperature extremes within an area of a few meters, while a population could only be sustained over many years in a cool talus patch several hundred meters across tucked beneath a peak. It is likely that pikas will become limited to increasingly patchy habitat and more in need of refugia within an increasingly hostile matrix.

We often have assumed that in the face of climate change, the Rockies of Colorado, the quintessential American mountains, will be that strongest refugium for alpine ecosystems and for pikas in particular. Yet recent studies suggest that under various climate change scenarios, pikas of Rocky Mountain National Park are at greater risk of extirpation than the populations of any of the seven other National Parks included in the analysis. Even Craters of the Moon National Monument, a relatively low-elevation site



Not true hibernators, pika will gather vegetation during the summer to last through the winter months.



Rocky talus slopes are prime pika habitat.

Photo: Madeline Wilson

defined by heat and sagebrush instead of peaks and snow and alpine tundra, was more consistently predicted to foster pikas in the next hundred years than Rocky Mountain National Park.

The possible reasons for this vulnerability are many, and, as researchers, we are continuing to evaluate the most significant drivers of ecosystem change. Exposure to cold and diminished connectivity are among the most likely in Rocky, but these may be linked to other factors related to ecosystem change. Among them: less precipitation as snow (and therefore less persistent snowpack and even more cold stress); depleted subsurface water and ice (and therefore lower talus thermal buffering capacity and less water available downstream); and longer periods of heat stress at high elevations. They all bode ill for Rocky Mountain pikas, and these potential changes in the next century all suggest that the Rockies as we know them are vulnerable.

Despite being vulnerable, the Rockies can continue to be emblematic of mountainous North America, though perhaps not in the way we're used to. The animal and plant residents will likely change, and with

them the resources the mountains provide. We now have a picture of pika occupancy in the park and projec-

Recent studies suggest that under various climate change scenarios, pikas of Rocky Mountain National Park are at greater risk of extinction than the populations of any of the seven other National Parks included in the analysis.

tions of how it might change under different climate change scenarios. In order to more fully understand how this indicator species and its iconic ecosystem are responding to change, we are developing a long-term monitoring protocol to track

pika occupancy and patch connectivity across the park. Over time, local and park-wide occupancy trajectories will elucidate the processes that foster suitable pika habitat and how Rocky Mountain National Park as a whole will continue to change. Ecosystems are, of course, constantly changing, but this one is particularly important to monitor and understand because of its impact on downstream resources and ecological phenomena and what it means for the American wild.

Aidan Beers holds a Masters degree in the Department of Ecology and Evolutionary Biology at the University of Colorado Boulder. He is working as a research associate with CU's Institute of Arctic and Alpine Research in collaboration with CU's Dr. Chris Ray and Rocky Mountain National Park's Paul McLaughlin to develop a long-term pika monitoring protocol.

Rocky Mountain Conservancy 2016 Summer Education Internships & Fellowships

The Olson Family Fellowship began partnering with Rocky Mountain National Park's environmental education department and the Conservancy's Field Institute programs in 2007. In 2013, the Justine and Leslie Fidel Bailey program extended their fellowship opportunity to include an Education Fellow in addition to the research fellowship originally sponsored under the program directive. With Next Generation Fund support, the success of park fellowships depends upon both the generosity of donors and the creativity of Fellows who address the evolving research and educational needs of Rocky Mountain National Park and the Field Institute programs.

Internship duties include: developing professional goals, teaching interactive nature activities and programs, assisting with program development, planning and implementation, completing basic advertising and marketing projects, presenting informational programs about educational activities at RMNP, drafting news releases and feature articles and engaging in community outreach.



Colleen Pennington
Olson Family Fellow
June 1 – October 29, 2016

Hometown: Arlington, VA
College: Eckerd College, The London School of Economics and Political Science
Career Goal: To be an expert environmental educator and interpreter
Internship Goals: To meet and work with a variety

of people from the Conservancy, Park Service, local community and visiting public; to learn from and share knowledge with those individuals and groups, and to learn from the natural environment around us.

Katie Oliver
Bailey Education Fellow
June 1 - October 29, 2016

Hometown: Portland, OR
College: Pacific University, Forest Grove, OR
Career Goal: To become an Interpretation Park Ranger
Internship Goals: To discover and learn about working in a national park, and learn about the duties of those who have made their career working at a national park.



RMNP – Bailey Research Fellow Isabella Oleksy to Study High Altitude Lakes in Rocky

The RMNP — Bailey Research Fellowship was established in 1995 through the gift of an endowment to the Rocky Mountain Conservancy. The intention was to encourage interest in public service as a possible career choice for young scientists by giving graduate students access and exposure to the National Parks while encouraging science

The daughter of two Polish immigrants, Isabella (Bella) Oleksy grew up outside of Boston, Massachusetts, and graduated in 2012 with a B.S. in Environmental Science from the University of New Hampshire. She spent a few years gaining experience with stream and lake ecology laboratories in upstate New York and Michigan before beginning a Ph.D. at Colorado State University in the fall of 2014. Outside of school, Bella is a competitive mountain biker and in her spare time she loves to hike and cook and bake delicious food.

This summer, through the RMNP – Bailey Research Fellowship, Bella will continue studying the effects of global change on high-altitude lakes. Her work is part of the Loch Vale Watershed Long-Term Ecological Research & Monitoring Program, which was established by her adviser, Dr. Jill Baron, in 1982. A few years ago, the Loch Vale research team noticed abundant algal growth along the shores and lake bottoms, dominated by a filamentous green alga known as Zygnema. Are the algae new? What environmental factors contribute to the growth of algae in such clean, clear waters? Are the algae responding to the deposition of atmospheric pollutants like nitrogen and phosphorus, a warming climate, both, or neither?

Bella's fieldwork involves boating around the lakes in the Loch Vale watershed on inflatable rafts to collect samples at predetermined stations every week. She and her crew use a combination of conventional techniques and some new tools that allow them to estimate algal biomass by quantifying chlorophyll-a fluorescence; this allows them to track changes through

the growing season and look for patterns in response to temperature, light and lake chemistry.

In addition to studying the primary producers like algae that make up the base of the food web, Bella also will be collecting aquatic insects in July and September. With this information, she can assess the number and distribution of species compared to historical data as well as study how increases in filamentous green algae affect the diets of aquatic insects, a key food source of fish. Laboratory experiments over the winter will allow her to test the combined effects of nutrients and temperature on algal growth.

Bella's research fits into the larger context of changes occurring to lakes all over the world. A recent report in the journal *Geophysical Research Letters* analyzed long-term lake datasets and found that lakes world-wide are warming in response to increased air temperature and decreased cloud cover. In the last three decades, mountainous areas in Colorado have experienced annual air temperature increases between 0.45 and 0.93°C per decade. In the Loch Vale Watershed, the most pronounced temperature increase takes place in July, a critical window of time for the short ice-free growing season in alpine lakes. Climate warming in alpine ecosystems is predicted to influence ecosystem function through changes in temperature, timing of snowmelt, and nutrient inputs from melting glaciers and rock glaciers. Anticipating how mountain lakes will respond to climate change requires a better understanding of the role of temperature in regulating nutrient cycling and primary productivity in lakes, which is where Bella's dissertation work fits into the picture.

Conservancy Members Take to the Trail on Annual National Trails Day

On June 4, the Conservancy hosted its 2nd Annual National Trails Day event. Conservancy members spent the day working alongside the Conservancy's Con-

servation Corps and National Park Service staff to help rebuild trails around Moraine Park Campground. Together, we installed 30 trail steps, resurfaced 300 feet of trail and restored 50 feet of social trails.

National Trails Day was started in 1993 by the American Hiking Society to increase awareness and appreciation of trail systems in the U.S. Organizations nationwide host events, including trail maintenance projects, that allow volunteers to give back to public lands.



Conservancy members that participated in the National Trails Day member event: Mary Ann Franke, Carl and Nancy Hane, Elizabeth Pippin, Cynthia Sisson, April and Tim Gruber, Ginny Passoth, Linda Hamilton, Paul and Joan Poston, and Walter and Marlene Borneman (missing from photo: Jeff Terrill)

To see more pictures taken during this event, check out our photo blog link at www.RMConservancy.org. For more information about upcoming member events, email ambers.walters@rmconservancy.org or call 970-586-0108 ext. 21.



Park Puzzler

by RM Conservancy Member Joel Kaplow

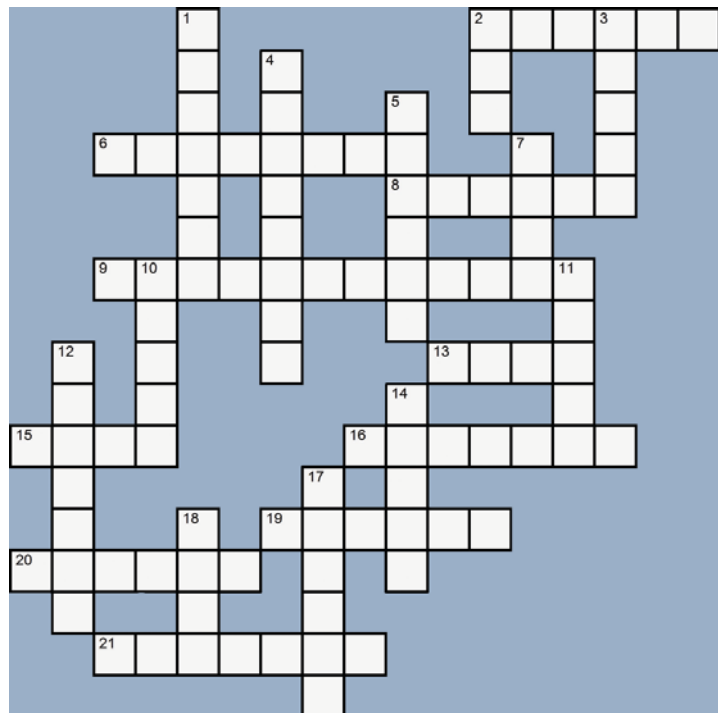
Across

2. After its birth in 1915, the largest annexation to RMNP happened in 1929, when a big chunk of the Never ___ Range on the west side was added.
6. "I have just dropped into the very place I have been seeking, but in everything it exceeds all my dreams" is an excerpt from *A Lady's Life in the Rocky Mountains* by ___ Bird, first published in 1879.
8. It's a very rare thing to see a black bear in Rocky. Unlike Yogi and Boo-Boo, they are skittish and will usually run away when they hear someone approaching. The average lifespan for a black bear is about ___ years.
9. A major difference between national parks and national monuments? National parks are created only by an act of Congress, while national monuments may be established by ___ proclamation. When Teddy Roosevelt learned of this, he went into overdrive!
13. Krumholtz growth is found in the ecotone (transition zone) between the subalpine and alpine life zones. In German, "krum" means *bent, twisted or crooked*, and "holtz" means ___.
15. If you've ever hiked on a maintained trail, you have no doubt stepped over many of these small trenches going diagonally across it to channel rainwater away, thus mitigating erosion. These are called water ___.
16. The first superintendent of Rocky, from 1915 to 1916, was ___ R. Trowbridge.
19. If you want a good place for "reflection," take a hike in the northern reaches of RMNP to ___ Lake.
20. The boundary at the sharp northeastern corner of the park lies on South ___ Mountain.
21. How old was Enos Mills when he built his cabin at the western base of Twin Sisters Mountain?

Down

1. On the east side of the park, there are three free shuttle bus opportunities: the Hiker Shuttle Express, the Bear Lake and ___ Park routes.
2. Shielding the skin from UV rays, especially at high altitudes as in RMNP, is an important consideration. "SPF" stands for ___ Protection Factor.
3. Who has competently and confidently served as the RMC's executive director for the last four years? It's Charley ___, of course!
4. Adjustable ___ poles can be a big help for the not-so-young hiker. They help distribute some work to the arms to share the forward propulsion duties, relieving the leg muscles somewhat going uphill, and likewise help ease the wear and tear of downhill on the old knees.
5. If you're wondering why that crazy hummingbird keeps repeatedly dive-bombing straight down from dozens of feet in the air, it's most likely a male trying to impress a lady below with this spring ___ ritual.
7. Enos Mills married Esther Burnell in the doorway of his self-built cabin in 1918. In 1919, they named their baby daughter Edna after family friend and author Edna Ferber. But there was a typo on her birth certificate, and she went with that misnomer until her death in 2009. What name did she go by?
10. Lake Haiyaha's name has puzzled many a park visitor. One translation from Native American has it, appropriately, as Lake of Big ___.

11. The historic Grand Lake ___, just north of its namesake town, opened in 1920. A devastating fire struck in 1973, and a massive refurbishment followed until its reopening in 1981.
12. No matter how tempting that cool, clear, enticing stream water looks, don't drink it without either boiling, filtering or treating it chemically to neutralize any microorganisms that may be present. Just as cryptosporidia can cause cryptosporidiosis, ___ can bring on giardiasis, causing a get-up-and-go feeling for weeks!
14. Roger W. Toll, who spearheaded the 2-Across annexation, was the ___ superintendent of Rocky, serving from 1921 to 1929.
17. If you're bushwhacking through the park's forest, it's likely you'll come across a broad pile of pine cone bracts. These are the "leftovers" that accumulate when a red squirrel (chickaree) dines at its favorite spot for months, removing the seeds from the cones. This pile also keeps whole cones from drying out when buried in them, preserving their edibility for the winter. What is this pile called?
18. With the \$10 America the Beautiful Senior Pass, outdoorsy folks who are 62 and over can just breeze into any national park, monument, seashore, lakeshore, preserve, reserve, battlefield, recreation area — OK, just about any NPS place with "National" in the name — free of charge. And if there is a campground on the premises, it's ___ price. Go geezers!





Hiking along treeline on the south slope of Mount Meeker, late summer, 2015.

Hiking Rule No. 1: Expect the Unexpected

Story and photos by Madeline Wilson

At 13,911 feet and striving to be a fourteener, Mount Meeker is the second tallest mountain in Rocky Mountain National Park. On a cloudy day in early August, I accidentally climbed it and in doing so, I learned a valuable life lesson.

How does one accidentally climb Meeker? That's the question everyone who knew anything about the park asked me. I was headed for Keplinger Lake, which, according to the worn guidebook I religiously followed, was about a two-mile bushwhack from the nearest trail. *Twelve miles round trip?* I thought to myself. *If I start early, I can be back for lunch!*

And so, hours before dawn broke, I left the Sandbeach Lake Trailhead with my pack, a headlamp and half a dozen extra batteries. I'd never hiked alone in the dark before and I'll admit that my heart was beating hard in my chest. Every few hundred yards I'd stop and listen, and I made sure to make as much noise as possible as I hiked along, constantly scanning the dark woods around me. I don't think I've ever been as happy to see light as I was when the orange glow of the rising sun began gathering on the horizon that morning.

Just when it was light enough to turn off my headlamp, I arrived at the bridge where I was supposed to leave the trail. My trusty book said to follow a stream that would eventually lead to its source: Keplinger Lake. Unfortunately, this late in the season I had barely wandered far through thick bogs and swampy brush before the stream completely dried up. So. There I was, by myself, morning light still dim, wandering in a forest on the edge of an incline.

I pulled out my compass. I knew that the lake was northwest as the crow flies from where I'd left the trail, and the short bit I'd followed the stream should have taken me in the right direction. Instinctively, I tend to go up when I'm lost. Higher ground means more perspective. So, I kept moving northwest, gaining altitude as I went. Gradually, the forest turned into thick subalpine bushes that left my legs covered in tiny cuts, and then suddenly transitioning to bare tundra. I still didn't know exactly where I was or what the mountains were that loomed around me, but I kept going up.

At some point I came upon an entire bighorn sheep skull, sitting pristinely on the low alpine grasses. Its beauty and

the rarity of it took my breath away. I sat down and pulled out my map. And then it hit me: I had traveled much farther north than I had west. I was nearly 1,000 feet above my intended destination and would have to travel down and then, because of the topography, back up to reach it. "Well, I could climb this mountain," I said out loud to myself. Then I looked at the map: Mount Meeker.

"Change of plans," I said to my dad when I found some spotty cell reception. "I won't be home for lunch. Can you look up the route up Meeker's south ridge?" Luckily, I am pretty comfortable on my



What a find!

own in the mountains and I am blessed with parents who have faith in my mountaineering capabilities.

The hike up Meeker was nothing short of a slog. For hours, I hiked and scrambled over rocks of every size, from slippery gravel to huge boulders that required that I hoist myself up and over. Finally, after several false summits, I saw the peak — or so I thought. In case you're not familiar with Mount Meeker, let me explain. This mountain has two peaks, the lower eastern peak and the slightly higher western peak, with a Class 4 knife-edge ridge between them. As I stepped onto what I thought was the summit, I squinted across the narrow ridge. I thought that I had climbed to the higher summit — the true peak. But, didn't that other peak look noticeably higher? It couldn't be. If I had followed the south ridge as intended it should have led me right to the taller of the peaks. In dismay, I realized that in the course of my directionally challenged morning I had actually walked straight up, not the south ridge, but the southeastern ridge — Meeker Ridge — straight to the lower summit.

What to do? I've never been much of a peak bagger; I actually much prefer hiking to lakes, but I had just gotten within 20 feet of the summit of the second-tall-

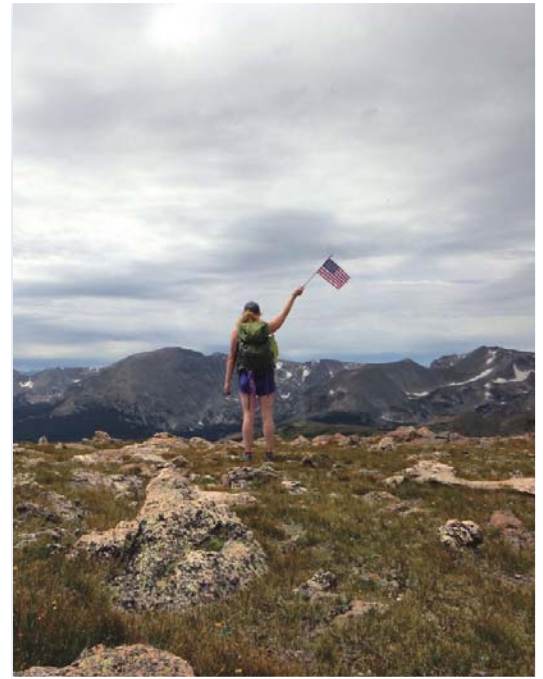
est peak in the park. I had no doubt that the ridge could be traversed safely with the right equipment, but I had neither ropes nor helmet packed with me; and, most importantly, I was completely alone. I saw a few people over on the true summit and could just make out a dozen tiny dots of people on Longs Peak, but no one seemed to notice me where I was standing.

I set my backpack down and took a few cautious steps out onto the ridge. And then I paused for what felt like an eternity as my desire to add

I had no doubt that the ridge could be traversed safely with the right equipment, but I had neither ropes nor helmet packed with me; and, most importantly, I was completely alone.

another name to my already ridiculously long list of summits and other park destinations battled furiously with the rational, trail-smart side of my mind.

Finally, I sighed and stepped back onto the eastern summit. I am brave and strong in the mountains, but I also am smart. And that day, on my own, I chose not to risk my life for another 50-some vertical feet. Sure, it was disappointing to turn around that day, but it was all worth it when I ran with tired feet up the steps of my front porch into the arms of my mom and dad, who were happy to see me



It seemed like a sign that I had made the right decision when I found a little American flag tucked among the rocks on my way down the mountain.

after a day tromping around on my own in the mountains.

Later that evening, I realized that in my strange route up Meeker I had gained and lost 5,700 vertical feet — just for the record, that's 850 more than climbing Longs Peak. And though I can't say I summited Mount Meeker, I learned a valuable lesson that day. I learned when to swallow my pride and back down. That moment on the ridge was intense and my warped logic debating the pros and cons of crossing the ridge seemed reasonable enough at the time — and the desire was so strong! But, that angst did pass, and I unequivocally survived to tell the tale. That's worth remembering.

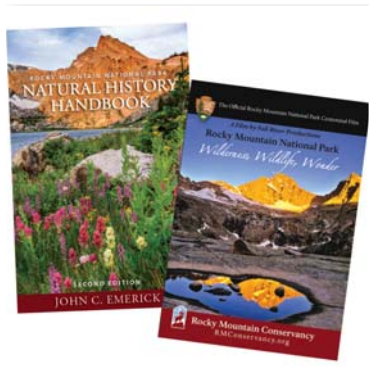
And I already have plans to summit Meeker this coming summer — but this time not from Wild Basin!

Madeline Wilson is a graduate of St. Olaf College with a B.A. in nursing. She currently resides in Estes Park.



The view from the slightly lower eastern summit to the oh-so-close western, and <ahem> taller, summit of Mount Meeker. Note the narrow ridge between the two.

Rocky Mountain Conservancy Financial Health – 2015



Dear Friends,

In many ways, the year 2015 redefined the Rocky Mountain Conservancy. With the overwhelming support of our partners and donors, the Conservancy moved from a behind-the-scenes supporter of Rocky Mountain National Park to becoming an integral link between the park and its constituents. In addition to a record-breaking year in all of our program areas, visitor services, membership, education, park improvements and philanthropy, we introduced the organization to a broad spectrum of new friends through events, programs, media, and an ambitious and successful fundraising campaign. The following is an abbreviated list of those accomplishments:

- Completed and released the park centennial film “Wilderness, Wildlife and Wonder”;
- Launched the Centennial Campaign for Cascade Cottages, accepting more than 600 gifts with a final campaign total in 2015 of over \$1.6 million (The property was acquired in March of 2016.);
- Organized and presented a Rocky Mountain National Park Art Show and Sale to benefit the Cascade Cottages Campaign;
- Organized and hosted a centennial celebratory dinner for over 200 partners and supporters;
- Developed numerous and highly sought-after RMNP Centennial products;
- Increased the number of active members to an all-time high of 4,200;
- Served the highest number to date of Field Institute program participants;
- Produced new publications including Conservancy informational materials and a second edition of the *RMNP Natural History Handbook*;
- Transferred the five-acre Johnson Property to National Park Service;
- Transferred the nine-acre Kueker Property to U.S.D.A Forest Service;
- Successfully campaigned for the Rocky Mountain National Park License Plate, implemented January 1, 2016. (Revenue for RMNP support expected to reach \$100,000 in 2016);
- Achieved the highest results for Colorado Gives Day campaign of 172 gifts totaling \$21,000;
- Far exceeded the 2015 Annual Appeal goals;
- Instigated more than \$2 million in-kind support and direct funding expended for park-related projects and programs;
- Employed six Conservation Corps Crews in the Arapaho–Roosevelt National Forest and Rocky Mountain National Park.

None of this would have been possible without the tireless work of our board, staff and volunteers, and the very generous support of our friends and partners.

Executive Director

Rocky Mountain Conservancy and Rocky Mountain National Park Awarded REI Grant

The outdoor equipment retailer, REI, working with the National Park Foundation has awarded more than \$173,000 to the Conservancy as part of REI’s \$1 Million commitment to the 21st Century Conservation Service Corps (21CSC). The funds will be used to rehabilitate the badly eroded Bierstadt Lake Trail. Beginning later this summer and continuing through 2017, the Conservancy’s Conservation Corps, a member of the 21CSC, and other youth groups will play a major role in restoring the heavily used trail.

Inspired by the 21CSC’s goal to “preserve, protect and promote America’s greatest gifts,” the REI Foundation is funding projects in 19 national parks throughout the country contributing to a national effort spearheaded by the U.S. Department of the Interior to establish quality jobs, career pathways and service opportunities for youth and veterans in America’s public lands.



Photo: Madeline Wilson

Statement of Financial Position as of December 31, 2015

(With Summarized Financial Information as of December 31, 2014)

	2015	2014
Assets		
Cash and Equivalents	\$ 3,752,416	\$ 999,477
Investments	\$ 9,553,789	\$ 9,818,029
Accounts Receivable	\$ 5,347	\$ 4,426
Contributions Receivable	\$ 687,253	\$ 182,000
Prepaid Expenses	\$ 19,741	\$ 8,853
Inventory	\$ 436,890	\$ 590,623
Land Held for Sale	\$ 275,000	\$ 1,257,500
Property and Equipment	\$ 683,262	\$ 710,393
Total Assets	\$15,413,698	\$13,571,301
Liabilities		
Accounts Payable	\$ 72,677	\$ 44,392
Accrued Aid Payable	\$ 299,136	\$ 219,587
Accrued Expenses Payable	\$ 70,102	\$ 76,951
Deferred Revenue	\$ 4,435	\$ 5,561
Custodial Funds	\$ 69,199	\$ 127,626
Total Liabilities	\$ 515,549	\$ 474,117
Net Assets		
Unrestricted:		
Undesignated	\$ 1,138,190	\$ 1,505,023
Designated:		
Operating Reserves	\$ 1,200,000	\$ 518,648
Quasi Endowments	\$ 7,319,359	\$ 7,340,751
RMNP Funds	\$ 1,419,686	\$ 655,312
Temporarily Restricted	\$ 3,543,932	\$ 2,800,468
Permanently Restricted	\$ 276,982	\$ 276,982
Total Net Assets	\$ 14,898,149	\$ 13,097,184
Total Liabilities and Net Assets	\$ 15,413,698	\$ 13,571,301

2015 Support to Rocky Mountain National Park & Other Public Lands \$2,030,752

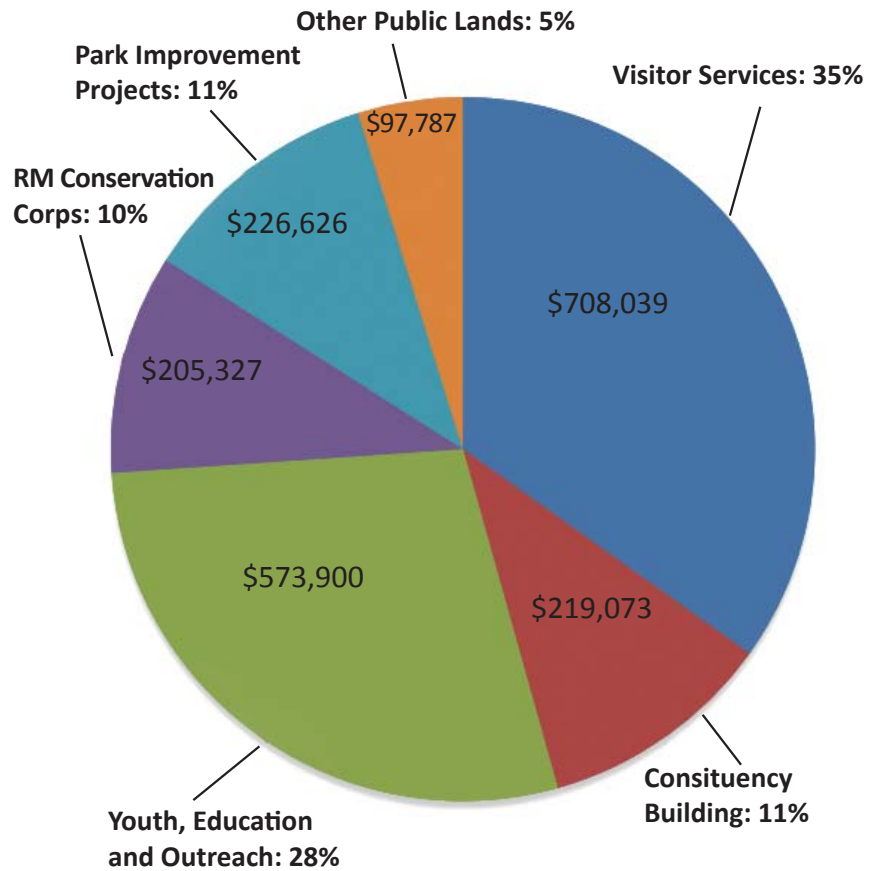


Photo: Julie Klett

Lily Lake Trail Improvements Underway This Summer

The trail around Lily Lake receives heavy use year-round and provides access to eight accessible picnic areas, and several overlook areas providing spectacular views of Longs Peak and the Continental Divide.

Currently, the south shore section of the trail is in extremely poor condition and quickly deteriorating due to shore erosion. These Conservancy-supported repairs will rehabilitate this section of trail to improve its accessibility and sustainability.

Approximately 500 linear feet of five-foot-wide elevated boardwalk will be constructed using Architectural Barriers Act standards to replace the existing

deteriorated trail. The boardwalk will start at the southwest multiuse bridge and continue northwest to the trail junction. The boardwalk will be supported by helical piers, framed with green certified pressure-treated pine, with decking consisting of sustainable, recycled materials. The outside edges of the boardwalk will be lined with kickrails with beveled edges. Design will include two overlooks. The Conservancy has contributed \$109,000 to this \$234,599 NPS Centennial Challenge project that will vastly improve the experience for all visitors. The project is expected to be completed this year. Thank you!



Lucky attendees were delighted to explore ancestral Puebloan ruins in Canyons of the Ancients National Monument and remote alpine lakes in Rocky Mountain National Park during an inspiring evening with nationally renowned photographer John Fielder on May 6 at the Boulder Theater.

In his presentation, "Celebrating 100 Years of Colorado's National Parks & Monuments: Rivers, Ruins & Mountains," Fielder showcased some of his stunning photographs of national park sites while

Celebrating 100 Years of Colorado National Parks and Monuments with Photographer John Fielder

sharing stories of his four decades spent in Colorado's wild areas. He also spoke about the challenges and techniques of wilderness photography. Included in the slideshow were his iconic duplication photos of W.H. Jackson's 19th-century Colorado images.

The presentation commemorated the 100th anniversary of the National Park Service this year. Fielder, an environmentalist and avid outdoorsman, feels strongly about protecting Colorado's national parks and sites. "The preservation of wild places is critical, not only to the human spirit, but to sustaining a strong economy over the long term," he said.

"It's a moral obligation to protect four billion years of evolution," Fielder said.

All event proceeds, approximately \$8,000, benefitted the Conservancy's

Next Generation Fund. The Next Generation Fund aims to provide a continuum of outdoor experiences for elementary-aged children through college-aged adults, particularly inner-city and urban children who have never experienced a national park. "The biggest threat to every national park is basically a populace that doesn't care what happens to it," said Charley Money, executive director of the Rocky Mountain Conservancy. "We have to create a generation of people who care about these places, whether it is environmental impacts or physical degradation."

This focus on the next generation of park visitors led event organizer Rob Wood, publisher and director of sales for National Park Trips Media, to choose the Conservancy as the event beneficiary.

New, Improved, Accessible Relief Maps for Park Visitor Centers Coming Soon

To some, it may have become apparent that the popular large relief maps in the park's visitor centers are starting to look a bit worn and dated.

The Rocky Mountain Conservancy is proud to partner with the Centennial Challenge Fund of the National Park Service, to each contribute \$30,000 to the \$60,000 project that will replace two park terrain model exhibits in visitor contact areas within the park.

Currently, the existing exhibits do not meet the "reach ranges" required under the Architectural Bar-

rier Act Accessibility Guidelines as the exhibits are inaccessible due to height and width and, additionally, some of them were not designed to be touched. The size of the models also precludes children from utilizing them.

This project will replace two exhibits in the park's most visited visitor centers: the Beaver Meadows Visitor Center and the Alpine Visitor Center. Replacement exhibits will meet all accessibility requirements and will be designed to be touched, which will allow visually impaired visitors to gain a greater understanding of the park's environment.

The first exhibit will be installed at the Beaver Meadows Visitor Center in early summer, the second exhibit will be installed at the Alpine Visitor Center by late summer of 2016.

Thank you for helping to make these informative exhibits available to everyone!



This relief map, located at the lower level of the Beaver Meadows Visitor Center, as well as another at the Alpine Visitor Center, will be replaced this summer.



A good portion of the RMNP Trail Crew took a moment to get folks working to clear the Alpine Visitor Center into the spirit of the NPS Centennial.

Photo: Craig Frohbieter

NPS Centennial Vision

In celebration of the 100th anniversary of the National Park Service in 2016, America invites the world to discover the meaning of national parks to their lives and inspires people to both experience and become devoted to these special places.

On August 25, 2006 – the 90th anniversary of the National Park Service – Secretary of the Interior Dirk Kempthorne launched the National Park Centennial Initiative to prepare national parks for another century of conservation, preservation and enjoyment. Since then, the National Park Service asked citizens, park partners, experts and other stakeholders, what they envisioned for a second century of national parks.

A nationwide series of more than 40 listening sessions produced more than 6,000 comments that helped to shape five centennial goals. The goals and vision were developed into a report called The Future of America's National Parks.

To keep up with the Centennial Initiative, visit the centennial website at www.nps.gov/2016.

Park Rangers Gather From Around the World



by Larry Frederick, retired NPS
Photos by Connie Rudd

The last week of May saw 312 rangers from 62 countries gathered at the YMCA of the Rockies for the 8th World Ranger Congress. Held every three or so years by the International Ranger Federation (IRF), this congress marked the 100th anniversary of the National Park Service and the first time the meeting was held in the United States.

The U.S. host organization was the Association of National Park Rangers that won the bid to organize the congress during the 7th World Ranger Congress held in Arusha, Tanzania, in 2012.

The IRF sponsors World Ranger Day

each July 31 while memorializing the accomplishments of rangers worldwide who have lost their lives or been injured in the line of duty. At the opening ceremony of the congress the names of 60 rangers were read who had lost their lives since the last meeting in 2012.

The IRF also sponsors a congress drawing rangers together who protect special places around the world. During a week of seminars, field trips, keynote addresses, fellowship, a taste of various countries' cultures, networking and fun, delegates immerse themselves in a supportive environment affirming their presence on the front line of protecting parks and wildlife around the world.

This year's congress featured 60 concurrent sessions and a number of keynote addresses, including talks from former Grand Lake Mayor Judy Burke, who is a member of the National Park Service Advisory Board; Jon Jarvis, the Director of the National Park Service; Harvey Locke, a Canadian Conservationist and leader in the Yellowstone to Yukon Conservation initiative; Sheldon Johnson, from Yosemite National Park who is known for his portrayal of a Buffalo Soldier on the Ken Burns National Parks film series; and author, naturalist and conservationist Terry Tempest Williams.

A great partnership with the Center for Protected Area Management (CPAM) within the Warner College of Natural Resources at Colorado State University

brought 62 of the delegates on pre- and post-congress field trips from 26 countries. One of the week-long field trips to Colorado and Utah parks was conducted in Spanish, while the second to Colorado and Wyoming parks was conducted in English.

The Rocky Mountain Conservancy set up a popular sales booth and along with NPS 100th anniversary products, sold items of local and regional interest. The Conservancy and Xanterra Parks and Resort Inc., the park's concessionaire at Trail Ridge Store, hosted breaks during the week.

Ranger Relief is part of every congress. More than 700 items, including new and used tents, sleeping bags, uniforms, GPS units, laptop computers and outdoor clothing and gear of all kinds, were donated by those who could so rangers from underdeveloped countries could take home essential gear to help their staff perform their duties. Approximately 250 items were donated for the silent raffle, which helped raise money for this and future congresses, including scholarships. About one-third of the delegates attended because of scholarships sponsored by an individual or organization.

Overall, the 8th WRC was a huge success with many compliments received by the host organization and the planning committee. Many of us are already looking forward to the next World Ranger Congress in 2019 – in Nepal. That will be another great adventure for rangers worldwide!



Miles Standish as Galen Clark, known as the first European American to discover the Mariposa Grove of Giant Sequoia trees. He is notable for his role in gaining legislation to protect it and the Yosemite area.



Rocky Mountain Conservancy

The Rocky Mountain Conservancy expresses special thanks to the following people for their donations toward projects in Rocky Mountain National Park:

March 16, 2016 – June 7, 2016

211 gifts ~ total donations \$265,737

CASCADE COTTAGES CAMPAIGN FUND

Boettcher Foundation, Denver, CO
 Lynda Price Bohager, Hanover, PA:
 In honor of ZQP,
 Forestry Operations Specialist
 John & Grace Cogan,
 Minneapolis, MN
 Peter DeBlois, Highlands Ranch, CO
 John and Dolores Dolan, Mahwah, NJ
 Barbara J. Dowd, Cedar Falls, IA
 Michael Ekegren, Boulder, CO
 Harvey Gardiner, Niwot, CO
 Gates Family Foundation, Denver, CO
 Gertrude Grant, Denver, CO
 Ann and Walter Hecox,
 Colorado Springs, CO
 Robert & Ellen Hostettler,
 Monument, CO
 Carolyn E. Kilgore, Estes Park, CO
 Tanya and Larry Hanson, Omaha, NE:
 In memory of
 Leonard & Ruth Williamson
 Mary Lamy, Hygiene, CO
 Walt and Darst McNairy, Sanibel, FL
 Colleen Miller, Livermore, CO
 Jean Rodeck, Woodland Park, CO
 Jeremiah Fund of the San Antonio
 Area Foundation, San Antonio, TX
 Jean Saul, Denver, CO
 Donna Scheeter, Monument, CO
 Carlen Schenk and Barry Brezan,
 New Berlin, WI
 David and Jenny Seely,
 Marine on Saint Croix, MN:
 In memory of Evelyn Wilson
 The Stanley Hotel and Staff
 Karen M. Waller, Saint Joseph, MO:
 In honor of
 Susan Records - Beating Cancer!

CENTENNIAL VISITOR CENTER FUND

Visitors to the Centennial Visitor Center in Medicine Bow-Routt National Forest, WY

RMNP SEARCH & RESCUE

A. Graig & Janet McHendrie,
 Palo Alto, CA

RM CONSERVANCY OPERATIONS FUND

The Losam Fund, Princeton, NJ

LAND PROTECTION FUND

James Brown, Evergreen, CO
 Employers Edge, Denver, CO
 John Schlotter, Colorado Springs, CO

NEXT GENERATION FUND

Anonymous
 Fidelity Charitable Gift Fund/Taru and
 William Hayes, Boston, MA
 John Fielder, Silverthorne, CO
 W. Jeffrey Terrill, Lakewood, CO:
 In honor of Pamela Ann Homer

CONSERVATION CORPS FUND

Marilyn Herrmann, Estes Park, CO
 Parks Project, Marina Del Rey, CA
 The Warming House, Estes Park, CO

TRAIL IMPROVEMENT FUND

Earl H. Clark, Estes Park, CO:
 In memory of Kent Keller
 Joe Daly, Omaha, NE:
 In honor of the Daly Family
 Larry & Linda Emsing, Estes Park, CO:
 In memory of Richard "Dick" Shinn
 Linda Goff, Estes Park, CO:
 In memory of Richard "Dick" Shinn
 Ruth Hess, Loveland, CO:
 In memory of Dorothy Dengler
 Gilbert and Mary Knapp, Spencer, NY
 Margaret Stockover and Family,
 Fort Collins, CO:
 In memory of Rob Stockover
 Marilyn J. and John Vergoth,
 Estes Park, CO:
 In memory of Richard "Dick" Shinn
 Nancy Voiles, Estes Park, CO:
 In honor of her hiking group
 Dean and Kathy Waits,
 Colorado Springs, CO

BEST USE

Richard Acheson, Windsor, CO
 Travis Aldrich, Aurora, CO
 James Alfred, La Grange Park, IL
 AmazonSmile Foundation,
 Seattle, WA
 Charles Angerman, Berthoud, CO
 Anonymous
 Tana Arther, Fort Collins, CO
 David Bartel, Longmont, CO
 Holly Bea-Weaver, Denver, CO
 Charles Beck, Colorado Springs, CO
 Deanna Boihem, Metairie, LA
 William Branham,
 Colorado Springs, CO
 Jason Breiding, Morrison, CO
 Bruce and Marlene Brown,
 Glen Haven, CO
 Sally Brown, Golden, CO
 Philip and Micheline Burger,
 Longmont, CO
 Robert Burkhardt, Estes Park, CO
 Flo Butler, Fort Collins, CO
 Peggy Carr, Denton, TX
 Abbey Charles and Christopher Lovell,
 Indian Hills, CO
 Victoria Chasen, Estes Park, CO
 Brian Cicero, Aurora, CO
 Erin & Stanley Clark, Normal, IL
 Pamela Claudio, Commerce City, CO
 Stephen Colby, Boulder, CO
 Leigh Conover, Conifer, CO
 Tracey Coppock, Black Forest, CO
 Mac & Barbara Corley, Charleston, IL
 Lance Crawford, Tampa, FL
 Joseph Crone, Boulder, CO
 James & Karen Daugherty,
 Estes Park, CO
 Mathew Davin, Littleton, CO
 Jackie & Karen Delafose,
 Evergreen, CO
 Susan Dowd, Broomfield, CO
 Frank Drummund, Estes Park, CO
 Charles Dugger, Greeley, CO
 Justin Edwards, Windsor, CO
 Janis L. Emanuel, Englewood, CO
 Employers Edge, Denver, CO
 Alex Ensby, Lafayette, CO
 Estes Valley Sunrise Rotary Club,
 Estes Park, CO
 ExxonMobil Foundation/
 Harold Cunningham, Princeton, NJ
 ExxonMobil Foundation/
 Roland Miller, Princeton, NJ
 Leslie and Lynn Fagerberg, Eaton, CO
 Fall River Productions, Inc.,
 Estes Park, CO

Margaret Fenn, Highlands Ranch, CO:
 In honor of Christine and Scott Swartz

Fidelity Charitable Gift Fund/
 Anonymous, Boston, MA
 Fidelity Charitable Gift Fund/
 Eric Corwin, Boston, MA
 Arthur and Denise Foley,
 Colorado Springs, CO
 Lisa Fulton, Estes Park, CO
 Kay Garrison, Gainesville, FL
 Daniel & Stephanie Gossett,
 Eaton, CO
 Dorothy Gregory, Denver, CO
 Sarah and Joseph Gutierrez,
 Thornton, CO
 Holly Haggerty, Littleton, CO
 Brianna Hall, Denver, CO
 David and Barbara Hartnett,
 Manhattan, KS
 Marcia Hayes and Elizabeth Marsh,
 Madison, WI
 Tim Henson & Nancy Dale,
 Longmont, CO
 Adella & Mark Hoffman,
 Estes Park, CO
 Jana and Dale Honermann,
 Highlands Ranch, CO
 Marla Howard and Howard Foster,
 Estes Park, CO
 Clara Lou Humphrey and
 Frank Williamson, Lakewood, CO
 IBM International Foundation/
 Marda Buchholz, Raleigh, NC
 IBM International Foundation/
 Brian Greene Raleigh, NC
 IBM International Foundation/
 Nancy Kappler-Foster and
 Kenneth Foster, Raleigh, NC
 IBM International Foundation/
 Barry Knapp, Raleigh, NC
 IBM International Foundation/
 Kathleen and Robert Megginson,
 Raleigh, NC
 Donald Irwin, Yucca Valley, CA:
 In honor of
 Madeline Wilson's graduation
 Donald Irwin, Yucca Valley, CA:
 In honor of
 Nicole Taylor and Ben Irwin
 Robert and Billie Ives, Jr., Houston, TX
 Richard K. Johnson, Kenosha, WI
 Richard Jost, Parker, CO
 Justin Kaufman, Centennial, CO
 Anthony Kelly, Longmont, CO
 Julie Kitano, Denver, CO
 Stephen Klett, Estes Park, CO
 Guy Knox, Boulder, CO
 Lawrence LaPointe, Loveland, CO

Thomas Leshinsky,
Greenwood Village, CO
Margaret Link, Centennial, CO
Helene and George Lundin,
Pine, CO
Catherine A. MacDonald,
Colorado Springs, CO
Gregory Malsam, Longmont, CO
Joel and Patricia Marx,
Colorado Springs, CO
James and Beth Mason,
Longmont, CO
Anna McLeland, Longmont, CO
Rhonda Mickelson, Estes Park, CO
Joseph Middleton, Superior, CO
Jill & Matthew Miles,
Loveland, CO
Sharon & John Mize,
San Antonio, TX
Morgan Stanley/Alan Folz,
Andover, MA
Patrick Morrissey, Elizabeth, CO
Karen Mullenax,
Colorado Springs, CO
Network For Good/Lendell
Cummins, Washington, DC
Network For Good/
Peter Alexander, Washington, DC
Brenton Newsom, Ft. Collins, CO
Deborah O'Connor, Lyons, CO
Patrick O'Reilly, Loveland, CO
Juan Palacios, Loveland, CO
Michael and Maureen Parks
(Parks Family Foundation),
Dallas, TX
Joshua Pavent, Broomfield, CO
Jovo Pawker, Hobart, IN
Kurt Peterson, Peyton, CO
David Pettebone, Loveland, CO
Michael Pharris, Longmont, CO
Pioneer Investments/
Donald B. Irwin, Boston, MA
Kevin Polluck, Berkeley, CA
Justin Richards, Aurora, CO
Bob & Sandy Righter, Denver, CO:
In memory of Ruth Shaner
Christina Ritchie, Aurora, CO
Mark Rowan, Denver, CO
Greeley Sachs, Longmont, CO
Suzanne Schmidt, Erie, CO

Bonnell & Ryan Seals,
Estes Park, CO
Noe Rodriguez Serna,
Leadville, CO
Jennifer Skillman, Calhan, CO
Bernd Sokolowski, Littleton, CO
Peter and Linda Sommer,
Fort Collins, CO
Mark and Gwen Sparr,
Boulder, CO
Stanley Black & Decker/Lynda
Bohager, New Britain, CT
Gerald and Elizabeth Stonecipher,
Fort Collins, CO
Deb Svoboda & Brian Robin-
hold, Boulder, CO
Brian Sweeney, Louisville, CO
The Boeing Company
Gift Match Program/
D. Albright, Princeton, NJ
The GE Foundation/
Bonnie Janzen, Fairfield, CT
The Benevity Community
Impact Fund/
Kari Klein Hudson, OH
The Benevity Community
Impact Fund/
Erin Storm, Hudson, OH
The Benevity Community
Impact Fund/Rhonda Gobble,
Hudson, OH
Andrew Theodos,
Saint Albans, WV
Ned Tisserat and Jan Leach,
Loveland, CO
Sherry Tooker & Linda Doherty,
Superior, CO
Debra Tyan, Centennial, CO
Robert and Lynn Waltman,
Greeley, CO
Richard & Ruthellyn Weather-
ford, Huntington Beach, CA
Sharon Welton, Springfield, MO
Corrie West, Colorado Springs, CO
Elizabeth Williams, Durango, CO
Robert Wood, Boulder, CO
YourCause/John Riola,
Carrollton, TX
YourCause/Jonathan Dunder,
Carrollton, TX
Linda Zinn, Denver, CO

Quick-Fix Science

Wind Research in Rocky

The Question: What are the wind patterns in Rocky Mountain National Park, and can the wind be used for electrical generation?

Wind is one of the most significant environmental factors influencing plants, animals, fire, and air quality. Strong and erratic winds, characteristic of alpine and subalpine ecosystems, also affect the comfort and safety of visitors. Understanding the characteristics of wind in the park may provide valuable information to visitors, or even enable the early morning prediction of severe afternoon storms. Additionally at the time this project was undertaken (1980), the park was interested in assessing the feasibility of using wind turbines to produce electricity at facilities such as the Alpine Visitor Center.

The Project: Measure wind characteristics along Trail Ridge and atop Longs Peak during the winter and summer of 1980.

A team led by D.E. Glidden and sponsored by the Rocky Mountain Conservancy established a series of wind-monitoring sites in alpine and subalpine areas. In winter they serviced these sites with some difficulty due to the danger of attempting to stand in powerful and turbulent winds. Sustained subzero temperatures and ice created an extra challenge for instrument operation. The scientists analyzed the data and compared them with similar data from locations around Colorado and the world.

The Results: The winds in Rocky Mountain National Park are exceptionally turbulent and among the world's most severe. Wind turbines would be impractical.

With gusts reaching 201 mph on Longs Peak and 155 mph on Trail Ridge, the park hosts some of the strongest winds in the world. (For comparison, the highest surface gust ever recorded was 231 mph on Mount Washington, New Hampshire, also the site of the highest annual average wind speed in



Some sites were dangerous to service due to severe wind. This wind gage was located at the site of the "old stone cabin" near the upper switchbacks of Fall River Road. Neither the wind guage nor the cabin remain.

the U.S.) Wind patterns are influenced not just by elevation but also by steep slopes and narrow valleys. The park's complex landforms result in particularly gusty winds. To quantify this type of turbulence, researchers divided the maximum hourly wind speed by the average hourly wind speed. For example, a maximum wind speed of 60 mph divided by an average hourly wind speed of 14 mph yields a gust factor of 4.28. In winter, maximum turbulence occurred near sunrise and minimum turbulence after sunset. During summer, winds are generally most turbulent at midday and least turbulent at sunrise. Scientists frequently recorded gusts of 74 mph or higher, a hurricane force wind, at the Alpine Visitor Center both winter and summer. Average summer gust factors at the visitor center exceeded those calculated in a separate study for Mount Washington. Since wind turbines are typically shut down when wind speeds exceed 40 mph, conditions are actually too windy above treeline to rely on wind turbines for power generation. Further studies are needed to reveal the relationship of severe windstorms to topographical and climatological patterns. In the meantime, alpine visitors have a unique opportunity to be standing in a breeze one moment and a hurricane-force wind the next.

For more information on the park's research program, visit www.nps.gov/romo. Written by Judy Visty, November, 2004. Updated January, 2008.

PARK PUZZLER SOLUTION





Rocky Mountain Conservancy

Charles Money, executive director
Nancy Wilson, *Quarterly* editor
PO Box 3100
Estes Park, CO 80517
(970) 586-0108

Nonprofit
Organization
US Postage
PAID
Permit #184
Estes Park, CO

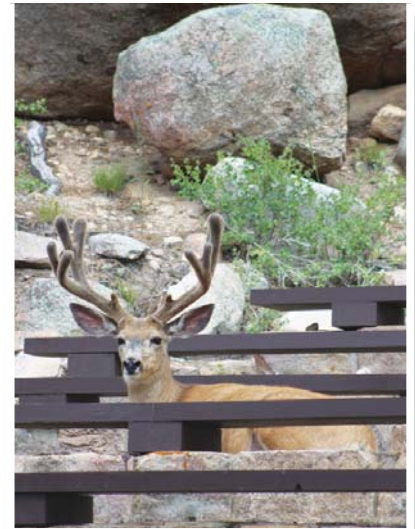


Mountain bluebirds fluff up to withstand the vagaries of mountain weather.
Photo: Conservancy member Putney Nature Images

Nature Notes

The sounds of high-running water, melodious birdsong and the breezy clatter of new aspen leaves are welcome signs of early summer in the high country.....Conservancy Member **Marlene Borneman** reported pasque flowers blooming longer and more abundantly than usual along the Lumpy Ridge Trail; a bull moose sprouting velvety nubs on his head munching its way through Cub Lake; white sand lilies spreading across the southern slopes of Prospect Mountain; and, oh yes, a determined tick giving its all in its attempts to burrow into her side.....Conservancy and park volunteer **Cheryl Wagner** was alarmed to hear hummingbirds outside during late spring snows in April. She looked around and could not see a blooming plant in sight and worried about how they would survive the night — but somehow, they always do.....RM Conservancy Publications Director **Nancy Wilson** was thrilled by a close encounter with a bobcat at her home in Estes Park. She first noticed it sitting on her 4-foot-high deck railing, surveying a small herd of summer-sleek elk (and dreaming big dreams, no doubt) that was placidly munching the lush growth of green grass in her yard. It was startled off the railing when one of the elk got curious and started to approach it. The cat quickly retreated to a lower deck, then jumped to the top of a 6-foot garden fence and then onto the roof of a nearby outbuilding before dropping back onto the top of the high fence railing to peruse its options. Horrible pictures were snapped before it then effortlessly slipped off the fence onto the ground, disappearing from view. The elk, however, was still interested; it kept peering around the outbuilding trying to see where this curious creature might have gone.....Park VIP **Carol Hillerson** reported spotting 22 different wildflowers on a walk along Lumpy Ridge in mid-June. A couple of the more obscure blooms included the many-flowered puccoons and the Star Solomon's seal. On another day in Upper Beaver Meadows, Carol found Western blue virginsbower and blue-eyed grass. What a great time of year to hunt for lots of different types of flowers!.....Early one morning in late May, Estes Park resident **Dean Martinson** observed a feisty coyote as it was stalking small mammals in a meadow. Whenever it appeared to have found signs of life, its tail would start a furious wagging, much like a dog's, in anticipation of a tasty meal.....RM Conservancy Director of Donor Relations **Julie Klett** was delighted to witness a flock of more than 100 western bluebirds flushing upward in a meadow in Meeker Park in early April.....She also observed a red-tailed hawk chasing a bald eagle in the air.....RM Conservancy Development Assistant **Victoria Johnson** was hiking on the Deer Mountain Trail and spotted an elk carcass cursorily covered by pine needles and dirt under a tree — a likely mountain lion kill food stash. Her senses went on high alert because the carcass was fresh enough that the guts of the elk were still present.....Estes Park resident **Thad Eggen** found the intact remains of a bobcat in a ditch near his home. After talking with **Scott Rashid**, director of the Colorado Avian Research and Rehabilitation Institute in Estes Park, they came to the conclusion that the juvenile bobcat was most likely killed by another bobcat. Some clues that led them to this conclusion were 1) it was buried — only cats such as mountain lions and bobcats bury their kills; 2) male bobcats will kill younger bobcats to induce the females into estrus again; 3) the spinal column was neatly severed from the cranium — if coyotes had killed it, it would have been

torn limb from limb.....Colorado River District Interpreter **Maci MacPherson** reported that in late May, the park's west side hosted Jeromy Huntington from Colorado Parks and Wildlife to speak about bear research and being bear-aware during the Saturday Night in the Park event. It was a great turnout, with 82 visitors attending the program, leaving the Kawuneeche Visitor Center auditorium at standing-room-only capacity. At about 8:00 p.m., a staff member noticed something moving behind a big spruce tree, about 20 feet from the window of the visitor center. When the bear emerged, they were so excited because Jeromy had just mentioned how rare it was to see black bears in Rocky, especially on the west side. Maci quickly ran into the auditorium and interrupted the program and all of the visitors were able to see the black bear from a safe distance before it noticed that it had become a spectacle and scurried into the woods.....Grand Lake resident **Debbie Mason** spotted a few osprey along the Highway 34 corridor where there are nesting platforms along with some natural nest sites. In early May, she saw an osprey that looked like it was hunting over the frozen lake, but perhaps it was near enough to the edge of open water.....Rocky reports that the Grand Ditch breach restoration began in early June and will continue through September. The work will include stabilization of the Grand Ditch road and the slope immediately below the road near Windy Point. Heavy equipment will be used between the construction site and staging area near the park's boundary at La Poudre Pass. For safety near the work zone, visitors and other users may experience minor delays (less than 30 minutes) near the project site between Windy Point and La Poudre Pass. Additionally, construction operations may be visible and audible from locations within the Upper Kawuneeche Valley.....RMNP Conservation Biologist **Mary Kay Watry** noted that one golden eagle chick has been confirmed in the park as part of the park's raptor monitoring program..... Park Volunteer **Craig Seaver** and fellow VIP **John Koss**, along with U.S.F.S. contractor **Christine Holtz**, were out on Steep Mountain for a limber pine hike in mid-May. On the open south slope of the mountain they were intercepted by a male dusky grouse. They assumed that he was distracting them from a nearby nest. The surprising part is that the bird accompanied them for about a quarter of a mile as they visited their trees, and even stuck around when they sat down for a break. He pecked at them a few times, and was pretty mellow, but he seemed ready for a full-fledged fight if they cared to oblige, which they did not. Everyone is gearing up for a busy season in the park — come often but come early!



Waiting for the ranger "show" to start!
Photo: Conservancy Member Jenny Zittergruen