



GRANDPA’S LESSONS FOR THE WILDERNESS

by Walt Borneman

More than forty years ago, Lyn Lampert and I coauthored *A Climbing Guide to Colorado’s Fourteeners*, the first major guide to the history and climbing routes of the state’s highest peaks. We were twenty-something at the time and not yet thinking of our own progeny, but we did care deeply, as we wrote, about “walking in harmony with the land.” Thinking of the next generation and beyond, we dedicated the book, “To tomorrow’s climbers, with the hope that our responses to the challenges of today will preserve for them a wilderness legacy.”

The guidebook remained in print for 25 years, and over that time I tried to do things that would make that dedication come true, including helping to organize

the Colorado Fourteeners Initiative to minimize impacts on the peaks. By then, thinking of the next generation had become more personal, as the guide’s third edition was dedicated to my son. It had also become even more important as Colorado’s population swelled and pressure on its wilderness spaces increased dramatically.

Now, it’s my grandchildren I think about. What do I tell them I have learned from interacting with the wilderness in the half century since I plunged into it as a teenager with Kmart boots and an army surplus pack? What should I encourage them to do to preserve a wilderness legacy for their own grandchildren?

I got to thinking about the answers to those questions recently while hunkered in a tent during a rainy spell — admittedly not in Rocky but another national park. Before the skies cleared, I had quite a list. I haven’t always done the right thing, but over the years some lessons from the

outdoors have served me well. As I impart them to my grandchildren, I find that most are about wilderness survival — their own as they venture out, and the survival of the wilderness itself — but all might be useful for everyday life. Maybe some day Aden or Rusty or Corina or Anna will say, “Do you remember when Pa-paw told us ...”

- **Don’t Panic** — We all feel those butterflies in the pit of our stomach that signal a rush of anxiety. It can happen anywhere, but in the wilderness panic can prompt precipitous actions or paralyzing inaction — a missed route, a raging creek crossing, an unexpected animal encounter. Fight the urge to panic. Tamping it down won’t necessarily be easy, but panicking definitely won’t do any good and will only make you forget the other lessons.
- **Use Your Common Sense** — When I was growing up, we kids heard adults say

(Lessons continued on page 12)

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Dear Friends,

As I write this letter, the latest big spring snowstorm is just wrapping up in the park — our own winter wonderland in April! Wintertime brings new opportunities to ski or sled at Hidden Valley, build a snowman, or enjoy a quiet moment alongside a lake in the park without another soul in sight. But summer is just around the corner, and I was lucky enough to be one of the first to preview Erik Stensland’s exceptional new hiking guides this spring, increasing my wanderlust to explore the places he has so beautifully photographed with his keen eye to document the path less traveled.

And, in anticipation of a busy summer season, we have dramatically increased our one-day volunteer events — we have so many ways for you to help the park! Be on the lookout for our schedule of volunteer projects in this issue. These volunteer days are a fun way to give back to a park that has given us all so much, as well as a chance to see friends and meet fellow park aficionados. These events also provide great opportunities to chat with Conservancy and National Park staff while you work, and to ask all those burning questions you have about the park (and no, we don’t know what happened to that herniating bighorn sheep that was pictured in the last *Quarterly*).

Some other work programs you may encounter are our Conservation Corps and High School Leadership Corps. Please say hello to these enthusiastic young people at work when you encounter them in the park or in a national forest. These young people want their contributions to society to be meaningful and durable, and your support helps them to succeed every season. When I go back to my hometown each winter to defrost and visit loved ones for the holidays, I often visit Saguaro National Park and see the ramadas there, filled with picnicking families, that my grandfather built in the 1930s during his time in the Civilian Conservation Corps. I am confident that many of the youth in our programs will be returning to Rocky Mountain National Park and the Arapaho and Roosevelt National Forests in future generations to show their own families the hard work they did in these public lands, and to tell them about the wonderful personal growth they experienced through trail work, historic preservation and ecological restoration.

For those of you who can’t join us at a service project this spring, I hope you know that we appreciate all the other ways that you steward the park with your support, as members and donors, and through the programs that benefit from your support every day.

Best,

Estee Rivera Murdock
Executive Director



Ice skating on Bear Lake

Photo: Todd Burke

Conservancy Nature Store New Product Highlights



Plush Animal Backpack

The front of this backpack contains four Velcro pouches with plush animals – a black bear, elk, moose and fox. Size: 11" H x 9-1/2" L x 4" D
\$25.95 Member price: \$22.06



Secrets Of Winter

A Shine-a-Light book exploring nature's wintertime secrets. Meet the animals and plants that live in and around a snow-covered forest, from the bears and foxes in their dens to the squirrels and birds in the treetops. \$12.95
Member price: \$11.01

Kids Wildflower Fox T-Shirt

This t-shirt features a design of a fox surrounded by wildflowers. Soft 100% Polyester microfibre. Sizes 2t - 4t, and youth S, M, L. \$14.95
Member price: \$12.71



Kids RMNP Happy Camper T-Shirt

This kids t-shirt features a campground with "Rocky Mountain National Park" text above a starry sky, and "Happy Camper" below. 100% cotton. Sizes S, M, L. \$10.95
Member price: \$9.31



Kids Fox Beanie

Keep your head warm with this fun fox beanie! 100% acrylic. One size fits all. \$13.95 Member price: \$11.86



Sleeping Fawn Hat

This adjustable kids hat is designed to look like a sleeping fawn, with a pink brim dotted with wildflowers. 100% cotton. \$13.95 Member price: \$11.86

Park Ranger Truck

In the vein of Matchbox cars, this nifty toy truck is designed to look like the real vehicles used by the National Park Service. Working driver and passenger doors with pull-back power. Size: 4-5/8" x 1-5/8" x 1-5/8" \$14.99
Member price: \$12.74



RMNP Ceramic Mug

These drip-embossed ceramic mugs are great for your hot drink of choice. Designs include either a bull elk or mountain scene in four colors: blue, red (pictured), and tan, green (on website). 16 oz., 5" x 3-1/2". Dishwasher safe. \$9.95 Member price: \$8.46



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.

Why are there no ponderosa pine on the west side of the park?

According to *Rocky Mountain National Park, A Visitor's Companion* by George Wuerthner, there are two main reasons — moisture and elevation. Ponderosa pines are best adapted to drier, sunny south-facing slopes at lower elevations. "The eastern region [of the park] receives less precipitation, with Estes Park recording about 13 inches of moisture a year (Tucson, AZ by comparison gets 12 inches). The low precipitation is exacerbated by the frequent, drying Chinook winds, which absorb moisture, drying out soils more rapidly than usual. Grand Lake, on the west slope, gets 19-20 inches or more of precipitation in a typical year. The larger amount of moisture on the west slope results in greater weathering of rock and deeper, moister soils. The abundance of moisture affects plant distribution and species composition. On the west slope, vegetation is more continuous and luxuriant. Sagebrush tends to dominate the drier, south-facing slopes, while moister sites are typically forests with lodgepole pine rather than the ponderosa pine so common on the east slope." Additionally, "Unlike ponderosa pines, lodgepole pines grow at higher elevations (in the montane ecosystem) where snow is deeper."
— *Colorado River District Interpreter Barbara Scott*

What lakes in the park are getting smaller as a result of natural succession and progressive vegetation growth? Shortest answer — All of them. Or ...

All our natural lakes are slo-o-o-owly becoming smaller as the lakes in the park undergo natural succession, as do all natural lakes over geologic time. The lakes in the park are largely of glacial origin, beginning as scoured basins, with clear waters, little organic material, low nutrient loads and the high oxygen content trout need. The limnological term for this life-cycle phase is *oligotrophic*. Think about the paternoster chain of lakes you see from the Forest Canyon Overlook as a good example. All other things, such as water inflows, being equal, a lake's volume decreases little by little as the basins fill with runoff sediments. Nutrient levels increase, thus supporting an increase of algae, zooplankton and submerged aquatic plants which die and decompose, further filling the basin with organic material and nutrients. The waters of these *mesotrophic lakes* (those with moderate nutrient and intermediate productivity levels) usually remain clear, but oxygen levels, especially in the lower strata, decrease. As the lakes become shallower, with more sunlight reaching the bottom, more aquatic plants populate the lake (think Nymph and Cub Lake waterlilies), emergent aquatic plants encroach on the margins, and the diversity of organisms, plant and animal, increases. This is the end-stage, the *eutrophic stage*, of the lake's life before it evolves to marshy wetland. Looking down into Horseshoe Park from Rainbow Curve, one can see the remnants of what once were oxbow lakes, formed by cutoffs of Fall River meanders, that have filled in over time. Again, these changes occur over geologic time — as does the formation of new lakes formed by scouring, damming from landslides, diversion of waters to new basins as old lakes fill in, or meandering river cutoffs. — *Retired RMNP Wildlife Biologist Gary Miller*

Cover photo

"Bighorn Sheep Ewe, Winter," Conservancy Member Putney Nature Images, Longmont, CO

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 by June 1 for publication in the 2019 Summer Quarterly.

Thank You!



Photo: Forrest Shafer

Planning for Wild Weather in Rocky Mountain National Park

by Shelley Hall

Early in the new year, many of us start thinking about making camping reservations in the park or looking into our available time off to explore our favorite trails or maybe try new ones in the park. The first thing that comes to my mind is being able to enjoy my time outdoors while minimizing any weather-related risks. I almost always choose a hike that involves the high alpine for some part of the hike, so weather and trail conditions are critical in my planning.

As the park gets busier and more people are on the trail year-round, I want to share my interest in weather and how to plan for fun park adventures while keeping weather safety in mind. I have hiked in Colorado since 1973, and many of those years were spent hiking in Rocky Mountain National Park. I started hiking before there was Internet and cell phones, so there were no websites or phone apps to check weather and roads like we do today. As a young girl, I learned about weather safety by getting out on the trail with family, with the Alpine Club in junior high school, and with experienced hikers, and college classes. Through a surveying class at Colorado School of Mines I

learned how to use a map and compass, and how to create topographic maps — this was most helpful! I later took climate courses at CU Boulder as part of my geography major, which is where I developed my keen interest in studying weather as part of my outdoor adventures.

At the outset, it's always good to have a couple of trail options in mind in case the weather becomes an issue and you need to change plans at the last minute. Being chased by a lightning storm down a trail like Longs Peak, Chasm Lake, Mount Ida, Flattop Mountain or Sky Pond is a recipe for disaster. And while these trails rank highly on my list of favorite hikes, I watch the weather VERY closely if I decide to do them.

People talk about avoiding storms, but as a hiker who favors spending hours roaming the tundra, I have learned to watch wind forecasts as much as storm forecasts. As most park visitors know, Rocky tends to be a windy place, and watching wind forecasts is very illuminating when it comes to seeing how fast and in what

direction weather patterns are moving.

Something I refer to as “wind fatigue” is another aspect that should be factored in as well. If you are hiking on an exposed trail above treeline, as on the upper reaches of the Flattop Mountain Trail, the effort of walking into the wind or fighting to stay upright takes a toll on energy, balance and

footing. It's a good idea to plan for an average of 30 mph winds as a good baseline if you plan to spend a sustained amount of time above treeline. Plus, I always carry extra layers of clothes to give me options for the windchill factor and varying warmth requirements, as I've found through experience how quickly one can get chilled even in the middle of summer.

Always remember that you will most likely not have reliable cell service anywhere in the park, so it's a good idea to become familiar with the forecast right before you go, and have an idea of what kind of weather you might encounter and the intensity of

People talk about avoiding storms, but as a hiker who favors spending hours roaming the tundra, I have learned to watch wind forecasts as much as storm forecasts.

any incoming storms. And, as always, start your hike early to avoid storms, returning to treeline by 11 a.m. ideally — or at least by noon — to eliminate most of the risk of being caught in a storm. Not to rule out the early or mid-morning storm, which happens on occasion, and which a quick check of the forecast before you leave home should identify. I check it every time.

Weather forecasting tips:

- Check and compare weather sites for forecasts as far out as possible; 10 days prior is useful.
 - Monitor weather sites daily.
 - Two days before a hike, start checking hourly forecasts. Make solid plans for your first choice but have an alternate trail in mind in case the weather is variable.
 - Check the forecast the night before, as well as the morning before you leave.
 - Check the *MyRadar* app on your phone while you still have cell service to see relevant storm activity size, intensity and direction.
 - I bring a portable phone charger for backup in case I need it for an emergency, but also to bolster the charge if I end up taking a lot of pictures.
 - Turn on any alerts just in case you pick up cell service in the small reception pockets that exist in the park.
- www.weather.com has a section in “Settings” called “My Alerts.” Use this for locations of lightning strikes and real-time snow/rain activity.
- If you have the opportunity, sign a trail register, no matter what the length of your hike.

I always make sure my Colorado Outdoor Recreation Search & Rescue (COSAR) card is current. No matter what level of adventure you decide to pursue, be prepared for the unexpected, and it’s a good idea to have this card in case you have to call a search-and-rescue team for you or a member of your group. Although I have never had to call for a rescue, I know that a simple misstep can lead to an injury serious enough to require getting help out. Supporting these volunteer groups is important because they are a valuable asset to outdoor recreation.

Watching weather patterns is a big part of the park experience, and when observed safely are quite dramatic, often breathtaking! So go ahead and make those hiking plans in the park, and explore to your heart’s content. Just be wise, and keep an eye on the weather.

*Special thanks to Dr. Jon Kedrowski (www.onkedrowski.com/books), and to Chris Tomer, who is a Denver-based meteorologist who specializes in mountain meteorology. Their book *Sleeping on the Summits* is full of expert weather advice.*

Shelley Hall is a resident of Vail and a proud owner of three sets of Rocky Mountain National Park license plates. She is an enthusiastic supporter of the Conservancy, park employees and volunteers.

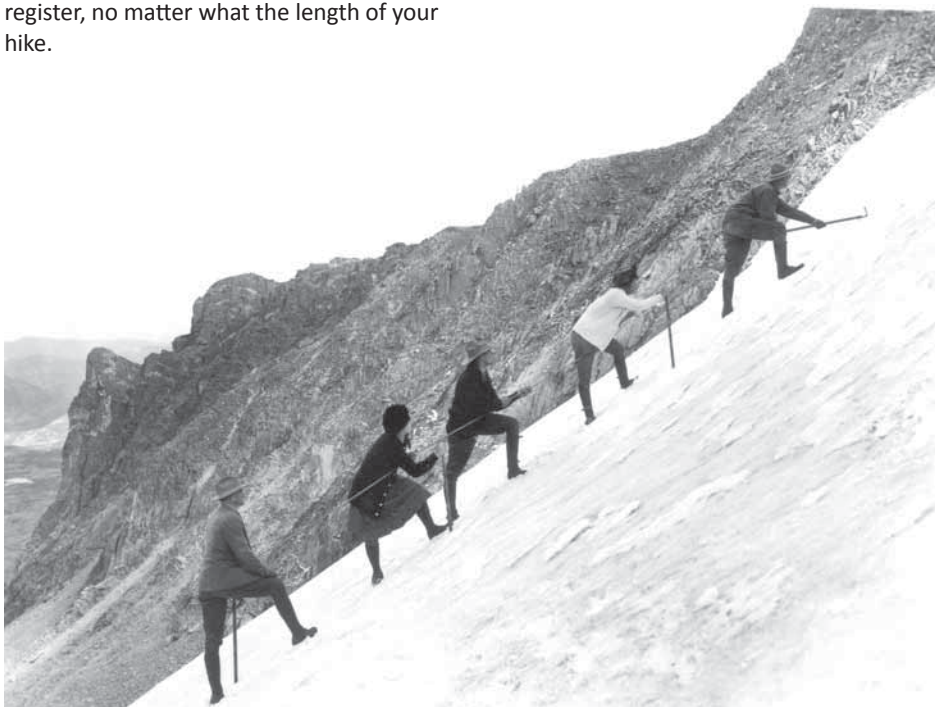


Photo: NPS

Web weather resources to assist you with your planning process:

- To plan what kinds of layers to pack and to estimate alpine windchill temperatures: www.wpc.ncep.noaa.gov/html/windchillbody_txt.html.
Tip: Frequent breaks behind large rocks, and turning your back to high winds are easy ways to save energy on a hike.
- For park area-specific weather information go to: www.weather.gov. In the search box, type in Rocky Mountain National Park, and you will see a topographic map on which you can pinpoint specific areas to get weather information and forecasts around the park.
- To get a current visual weather picture, the park also maintains five webcams in specific areas of the park at www.nps.gov/romo/learn/photos-multimedia/webcams.htm.
- Google Maps is a good site to get an aerial view of the trails before you go and to find out what terrain to expect. On this site, you can switch to a satellite or street view, both of which give useful perspectives. Once you pick your trail and obtain a map, you’ll have an idea of what the topo map looks like and what landmarks to look for. This is handy when you need to have a plan to wait out a storm.
- If you are hiking Longs Peak, check out www.14ers.com which has great information about trail and weather conditions.
- For winter hikes, use www.cotrip.org and check traffic cameras for road conditions.
- The phone app *MyRadar* is good for getting a sense of the size, intensity and direction of large storms that might be moving in your direction. Keep in mind that this app is not accurate for specifically pinpointing weather around the summits, but it can be helpful in choosing the best day and time to enjoy a trail.

Rocky Mountain Conservancy 2019 Summer Education 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.

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 communication to park visitors.



RMNP – Bailey Research Fellow Isabel Schroeter to Study Elements of Riparian Ecosystem Recovery in Rocky

Hometown: Agoura Hills, California
College: B.S. University of California, Berkeley
(In progress) Ph.D., University of Colorado Boulder

During her research fellowship in Rocky, Isabel will be researching the role of plant physiological thresholds and resource-use strategies in the context of riparian ecosystem recovery following elk and moose browsing and beaver decline in Rocky Mountain National Park. This research is focused on gaining a quantitative understanding of potential hydrologic constraints to the restoration of tall, dense, willow-dominated riparian ecosystems within RMNP. Additionally, Isabel will be collaborating with the NPS to resurvey riparian plant communities across the park. Ultimately, Isabel's research is aimed at utilizing information about riparian species traits and indicators of water limitation to better understand longer-term riparian plant community trends and to provide data to assess restoration progress.

Makenzie Ruppert Olson Family Fellow May – November, 2019

Hometown: Colton, CA
College: Colorado State University

Career Goal: My career goal is to help individuals become environmentally engaged for the betterment of both the environment and our communities.

Fellowship Goals: My summer goals are to gain experience developing and marketing outdoor education programs.



Andie Gibbons Olson Family Fellow January 2 – May 25, 2019

Hometown: Cary, IL
College: University of Illinois at Urbana-Champaign

Career Goal: With the skills, experiences, and network she will build throughout the Olson Fellowship, Andie hopes to obtain a position either with a nonprofit organization that promotes stewardship and protection of public lands or with the National Park Service. She wants to use the communication skills she developed during college, along with her passion for national parks and public lands, to educate and inspire others to care for the natural and cultural resources that give these spaces such a rich history and make them unique and worth protecting.

Fellowship Goals: Having just finished an internship with the National Park Service working as an Interpretive Park Ranger Intern, Andie is ready to learn as much as possible about the nonprofit side of conservation work. She plans to continue developing her skills as an interpreter through facilitating winter Field Institute programs, tours and after-school programs. Additionally, Andie is interested in learning more about the Conservancy's philanthropic work, building skills in marketing through social media and other publications, gaining experience with data entry and statistics, and learning more about the partnerships the Conservancy has with other organizations.



Tommy Eglund Bailey Education Intern May – October, 2019

Hometown: Carlton, OR
College: University of Montana/Colorado State University

Career Goal: Tommy hopes to one day work in a position that will allow him to effect change in the area of public land management and protection while still being able to teach and be taught.

Internship Goals: Over the course of the fellowship, Tommy hopes to gain an increased sense of value for the public lands that he has dedicated his life to being in. He also looks forward to the opportunity to refine his teaching skills, a skill he knows will be beneficial during his career.



Support Conservancy Education programs in the park by donating to the Next Generation Fund at RMConservancy.org, or call 970-586-0108



2019 Field Institute Program

Need a catalog? Send us an email at:
info@fieldinstitute.org,
 or call us at 970-586-3262



With summer just around the corner, the Rocky Mountain Conservancy-Field Institute is primed for another season of educational adventures in Rocky Mountain National Park!

Park Puzzler

by RM Conservancy Member Joel Kaplow

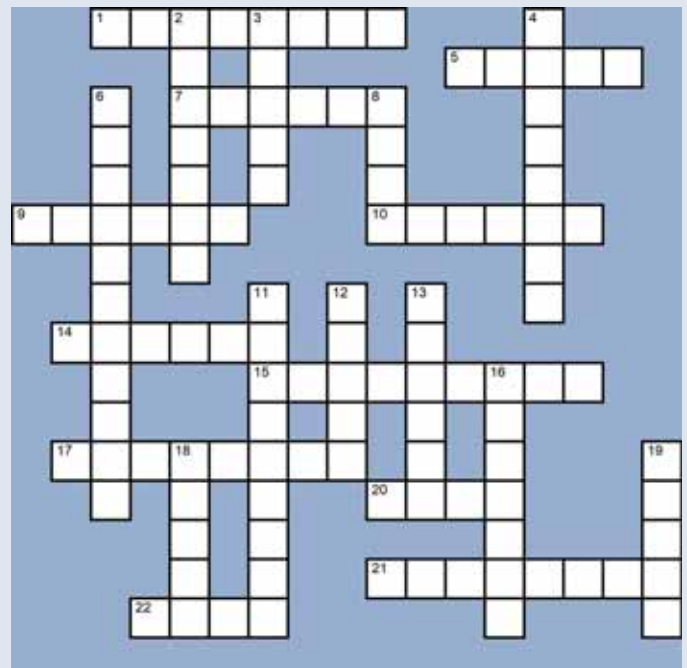
Across

- 1 In 2018, a record 4,590,492 ___ came to explore its wonders.
- 5 Between Hallett and Otis peaks is found ___ Canyon, named such because it is strewn with all sizes of topsy-turvy boulders left over from the last glaciation, making hiking through it unpleasant to the max.
- 7 There are landmarks aplenty throughout the U.S. called "Castle Rock," and RMNP has its own. It's located north of Gabletop Mountain, above ___ Canyon.
- 9 What is the Russian word meaning "land without trees," which was derived from a Lappish term?
- 10 Between Lake Granby and Grand Lake is a third large body of water just west of its namesake ___ Mountain in RMNP.
- 14 The Continental ___ snakes through the park for 42 miles. Who knew something imaginary could be so prominent?
- 15 Rocky's white-tailed ___, the smallest member of the grouse family, is the only bird that lives above treeline all year long.
- 17 Where wet meets dry, such as riverbanks and lakeshores, is the ___ transition zone, with its own varieties of flora and fauna.
- 20 Nowadays, the word "park" denotes a place for recreation (such as Rocky) or play. But what's with all the "parks" that are in or near Rocky, like Horseshoe, Hondius, Moraine, Tuxedo, Meeker and Estes? Allenspark? North Park, Middle Park, South Park? Back in the day, the word "park" defined a ___ area surrounded by hills or mountains. Aha!
- 21 The northernmost mountain in RMNP is ___ Peak, which borders on Roosevelt National Forest.
- 22 As of 2018, it's estimated that there are only 20 to 24 of these omnivorous critters living in Rocky. That's why it's rare to see a ___ there.

Down

- 2 A beautiful backdrop east of Enos Mills' cabin, Twin ___ Mountain is located in a discrete "island" of RMNP within Roosevelt National Forest.
- 3 Shelly Hall has a lot of good weather advice on pages 4 and 5. How many sets of Rocky Mountain National Park license plates can she boast about?
- 4 As its name implies, the park's white marsh ___, a member of the buttercup family, grows around wet, squishy areas.
- 6 This low-growing evergreen shrub found throughout the park at middle elevations has small, rounded, thick leaves, and produces pink flowers, then red berries in the fall. And yes, there are several different ways to spell it!
- 8 Bighorn sheep males (rams) have large horns that never stop growing, that, over time may spiral into complete circles. Female bighorn, called ___, have smaller, spike-like horns.

- 11 The day before John Wesley Powell's group made the first documented ascent of Longs Peak on August 23, 1868, one of his students scouted a route from Wild Basin up to The Notch. Lewis Walter ___ now has a lake named in his honor south of Pagoda Peak.
- 12 The southernmost peak in RMNP borders on the Indian Peaks Wilderness. Saint ___ Mountain was named for storekeeper brothers in the area.
- 13 The bighorn sheep is the symbol of Rocky Mountain National Park, and it's also Colorado's official ___.
- 16 If you encounter an arctic ___ while strolling above treeline in the park, it's probably August. This is the latest bloomer of the short growing season, and the swan song for high country flowers.
- 18 When two glaciers on either side of a ridge scrape away enough material over time, it can become very narrow and sharp. What is the geological term for the resulting knife-edge ridge?
- 19 The westernmost peak in RMNP is ___ Mountain, named for an 1870s Grand County sheriff. It borders on Routt National Forest.





American pika (*Ochotona princeps*)

Photo: Mike Molloy

by Ashley Whipple

You're hiking your favorite trail above treeline in Rocky Mountain National Park, admiring the sweeping views and jagged peaks around you. Suddenly, you hear, "Meep, meep!" Out of the corner of your eye you see a little gray flash dart through a pile of rocks. Is that a squeaky toy you hear? No, it's the American pika!

Hiking in the Colorado mountains, this characteristic pika squeak is a familiar sound. The squeak, for many, is part of the mountain soundscape they love, but there is a possibility that this welcome sound could go silent. Recent national park research has shown that under some climate change scenarios, pika could vanish from Rocky Mountain National Park (ROMO) by the end of the century. These predictions, along with evidence of range retraction in parts of the Great Basin and Sierra Nevada Mountain range, prompted a citizen science initiative called the Front Range Pika Project (FRPP). ROMO and the

FRPP have teamed up to monitor pika in the park, and they need your help! The FRPP is currently looking to expand their volunteer base for the ROMO project, with a new season beginning in August 2019.

What is a pika?

The American pika (*Ochotona princeps*), is a small herbivore that is closely related to rabbits and hares. Pika are about the size of a hamster, with round ears and no visible tail. In Colorado, they are found above 8,000 feet in rocky slopes called *talus*. The talus offers cool spaces that are used by the pika seeking refuge from warm temperatures during the summer. Cool refuge is important for pika because they have a thick coat for extreme winter temperatures, and a high metabolism that serves to keep them active year-round. These attributes can cause them to overheat if they are exposed to temperatures above 80°F for an extended time without access to talus. Unlike most other moun-

Help Keep the Meep!

Rocky Pika Survey in Progress

tain mammals, pika do not hibernate or migrate, and they are constantly exposed to harsh mountain conditions. During the summer, pika are continually collecting "hay" (mostly grasses and flowering plants) that will feed them through the winter. Pika will occupy a territory about the size of a basketball court, and living together in rocky slopes, the squeaks often heard are vocalizations to communicate with each other.

Recent research has shown that the pika's unique adaptations to high-elevation habitats may make them sensitive to high and low temperatures. Hot summer temperatures can reduce their ability to forage, resulting in smaller haypiles. High temperatures could also inhibit juveniles from moving to a new territory, decreasing survival and genetic diversity. On the other end, snowpack acts as an insulating blanket for pika, keeping them warm during the winter. Very cold winter temperatures combined with low snowpack could actually freeze and kill pika. These patterns have been observed across the pika's range, strengthening the need for population monitoring.

What is the FRPP?

The Front Range Pika Project, or FRPP, is a collaboration between the Denver Zoo and Rocky Mountain Wild (a Denver nonprofit), with data management



Talus slopes above Sky Pond in Rocky Mountain National Park

Photo: Elliot Martin

support from CitSci.org, and research support from the University of Colorado Boulder. The FRPP started in 2010 when collaborators realized the potential for citizen scientists to collect important data needed to assess the status of pika in Colorado.

The data needed to answer questions like, *Are pika still occupying their full historic range throughout the state?*, and *Are pika in Colorado experiencing range retractions like the pika in the Great Basin?* These types of questions require a lot of data collected over long time scales, which would be impossible for researchers to collect alone.

Since 2010, the FRPP has trained more than 200 volunteers to survey for pika sign and habitat characteristics at specific locations. Along with collecting data needed to conserve and manage pika and alpine ecosystems, the FRPP strives to increase community engagement in climate change and wildlife issues, and to serve as a model for other citizen science programs. There are currently five active citizen science projects conducting similar pika research across the western US.

What have we learned from the FRPP?

We now have two years of survey data in ROMO. In 2018, 18 volunteers surveyed 23 plots for pika occurrence and habitat associations. At each plot (24m in diameter), volunteers surveyed for pika or fresh pika sign (pika poop or food caches). Pika or fresh sign were found in more than half of the 23 plots surveyed, and there also were indications of local gains and losses: some plots only contained old pika sign, but a couple of sites contained fresher sign in 2018 than in 2017. Continuation of yearly plot surveys will assist with further investigation into the trends of pika occupancy.

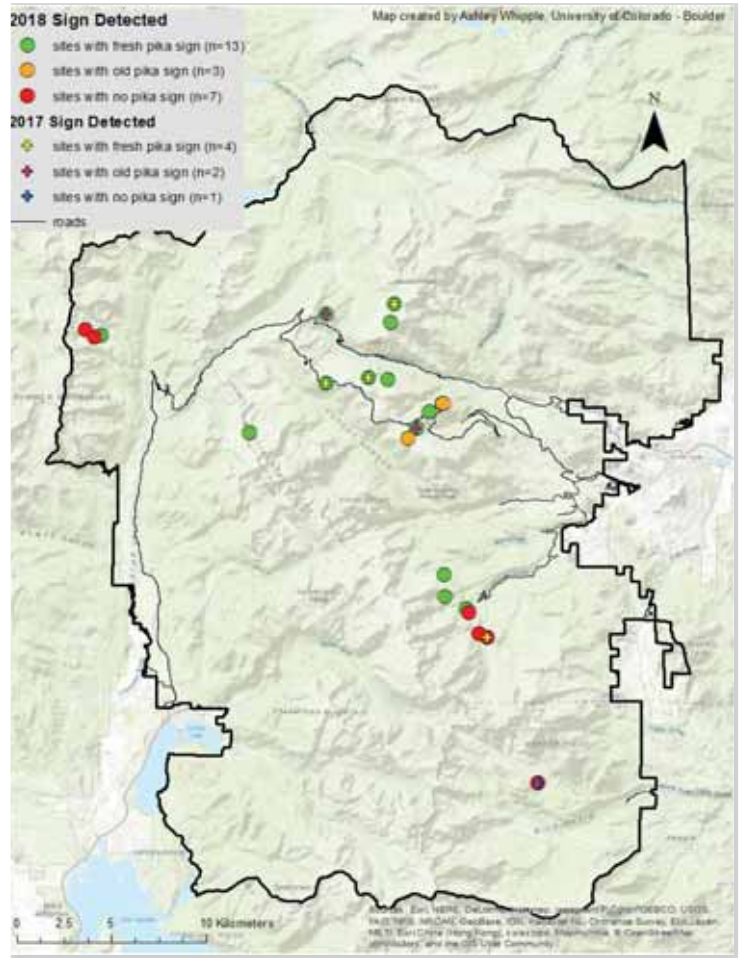
Data collected outside the park by the FRPP since 2010 shows us that pika occupy a variety of habitats in Colorado and may be more resilient than originally thought. Long-term monitoring of historically occupied sites shows that the majority continue to hold pika. Range retraction — as seen in other parts of the pika's range — has not been documented in Colorado. Researchers think that pika could still be doing quite well here because Colorado has a substantial

amount of continuous pika habitat at high elevations. Some hypothesize, though, that a threshold could be reached that would result in dramatic population declines, as predicted from climate change models. Recent research by Dr. Chris Ray at the University of Colorado Boulder has shown that juveniles may be harder hit by the impacts of climate change. Historic weather data collected from the Niwot Ridge Long-Term Ecological Research Station shows that Colorado has experienced a steady increase in extended summer, the snow-free period of the year. Ray's long-term popula-

tion studies have shown a correlation between extended summer and juvenile recruitment. As summers are more extended, litters are being born earlier and fewer juveniles are produced. Ray hypothesizes that juveniles are having a harder time dispersing during hotter summers. Moving between patchy talus habitats during hot summer days might cause young pika to overheat and die before they can establish a territory.

Since pika are so sensitive to the environment around them, they can serve as a useful indicator of ecosystem health. Understanding the impact of climate change on pika will not only help us better protect the species, it also will help us understand the potential ecological impact on the plants and wildlife found in alpine ecosystems and on our natural resources.

Ashley is a graduate student at the University of Colorado, Boulder, studying the American pika. Her research aims to infer how vulnerable pika are to climate change by looking at the spatial and temporal change in stress among pika populations in Colorado.



Become a survey volunteer

If you are interested in volunteering with the FRPP in 2019, email frpp@denverzoo.org or visit www.pikapartners.org for more information. There are two required trainings for new volunteers: one classroom session followed by a field training, usually offered in June or July before surveys begin in August. Training includes: safety procedures, backcountry navigation, leave-no-trace principles, GPS-use, an introduction to pika ecology (including potential impacts of climate change), in-depth training on implementation of the survey protocol, and data submission procedures. After training, volunteers can sign up for at least one visit to a pika habitat site between August and October. Plot access can range from a short jaunt to a long hike, sometimes requiring off-trail navigation. For safety, you can visit field sites with a friend (who doesn't need to be a trained volunteer), or we will pair you with another volunteer. Volunteers should be comfortable with backcountry hiking and navigation at high elevations.



New Product Highlight:

Hiking RMNP: The Essential Guide & The Pocket Guide

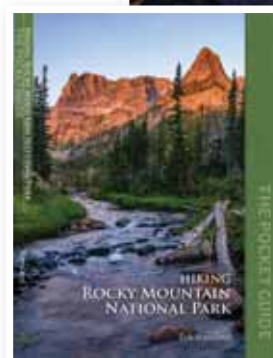
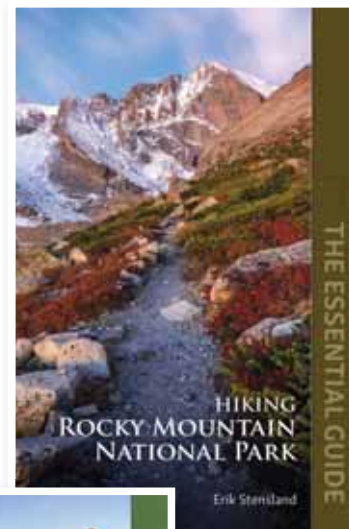
by Erik Stensland

Commissioned by the Rocky Mountain Conservancy, this comprehensive and stunning new pair of books by local photographer Erik Stensland is a hiker's gem. Erik has spent

the last 15 years exploring every corner of the park, and these books are proof of his dedication and adoration. Hikes are listed by level of difficulty and categorized by accessibility, with each section color-coded for easy reference. Helpful lists for choosing hikes based on wildflowers, summits and wildlife abound, as well as expert advice for what to pack and what to wear. Mileages, elevation profiles and clear directions to trailheads will make this a trusted hiking companion. *The Essential Guide* features more than 150 photos, 80 custom topo maps, and 75 primo hikes in Rocky. *The Pocket Guide* includes more than 60 photos and 22 custom topo maps covering 20 of the most popular hikes in Rocky. Take a hike in the park with your personal guide, Erik. You're in good hands. Softcover.

Hiking RMNP: The Essential Guide: \$29.95

Hiking RMNP: The Pocket Guide: \$14.95



Available at
RMConservancy.
org in mid-May.

Or call:
970-586-0120



Rocky Research Presentations This Summer

Please join us ...

Every two years, Rocky Mountain National Park, in partnership with the Rocky Mountain Conservancy, holds a conference to celebrate park science and research with our community. Park staff and research partners highlight their work and share their findings on a multitude of projects that help us better understand and manage the park and its amazing resources. This year's conference was postponed until 2020, but we still want to share the amazing work happening in the park with you! And so, we invite you to join us for research presentations throughout the summer.

In Estes Park, monthly Science Behind the Scenery presentations showcase park research at a couple of different venues in town:

May 22 Barrie Chileen — Post-Fire Vegetation Response over the past 2,500 Years at Chickaree Lake Beaver Meadows Visitor Center, 7:00 p.m.

June 26 Chris Ray — Trending Pikas? On the Potential Loss of an Alpine Icon Wilderness & Whisky event Elkins Distilling Co., 6:30 p.m.

July 17 Anna Schoettle — Acting Now: RMNP's Proactive Limber Pine Conservation Strategy Beaver Meadows Visitor Center, 7:30 p.m.

August 21 Jacob Job — Call of the Wild: Using Natural Sounds Recordings to Give Voice to Conservation Elkins Distilling Co., 6:30 p.m.

September 25 Edward Gage — Analysis of 10 years of Elk Vegetation Management Plan Monitoring Data Beaver Meadows Visitor Center, 7:00 p.m.

In Grand Lake, explore research in the park during these Saturday Night in the Park events at the Kawuneeche Visitor Center, 7:00 p.m.:

May 25 Doreen Sumerlin — A Glimpse into the Lives of our Local Osprey, during Nesting and Migration

June 22 Billy Schweiger — Beavers, Stoneflies, Willows and Moss Tell the Story of Rocky's Wet Places

July 20 Jacob Job — Call of the Wild: Using Natural Sounds Recordings to Give Voice to Conservation

July 27 James Roberts — Changing Lakes and Streams: Implications for Cutthroat Trout Conservation

August 17 Daniel McGrath — Glaciers and Seasonal Snow at RMNP and Beyond

We look forward to
celebrating park science
and research with you!





Conservation Corps crew member working on the trail at Pawnee Pass in the Indian Peaks Wilderness

Conservancy Receives National Forest Grant for 2019 Conservation Corps

The National Forest Foundation recently awarded a \$28,000 grant to the Rocky Mountain Conservancy to fund conservation work in the Arapaho-Roosevelt National Forests surrounding Rocky Mountain National Park.

These public lands are among the most highly visited forests in Colorado, and the National Forest system. The Conservancy's popular Conservation Corps program will be helping build and maintain trails, as well restore native habitat and improve wildlife corridors at these sites. In 2019, the Corps will finalize trail-restoration efforts following the 2013 Colorado floods, address the impact from high visitation on heavily trafficked trails, improve trail connectivity for multiuse visitors, and maintain existing trails to ensure safe and sustainable public access.

The Conservation Corps program is the Conservancy's flagship stewardship program, employing 34 young adults across six locations to work side-by-side with National Park Service and U.S. Forest Service professionals in Rocky Mountain National Park and the Arapaho-Roosevelt National Forests. Last year, the Conservation Corps maintained, restored, and constructed more than 135 miles of hiking trails throughout Rocky and the surrounding national forests.

Donor Profile:

Janet and David Robertson Pledge Generous Matching Gift for Annual Appeal

The conservancy would like to give a special thank-you to longtime supporters Jan and Dave Robertson of Boulder for pledging a matching gift for our recent year-end fundraising efforts. The Conservancy was able to leverage their challenge gift to raise even more donations to support Rocky. Jan and Dave are avid fans of the park and have been donors and members of the Conservancy for more than 25 years. If you are interested in being a matching donor for any of our upcoming campaigns, please contact michael.allen@RMConservancy.org.



Join a Conservancy-Sponsored Volunteer Event

2019 Volunteer Stewardship Calendar

*More dates and information to come in April.
Dates are tentative until full details are released.*

May 18, 2019 – Colorado Public Lands Day

Project: Litter Cleanup
Time: 10:00 a.m. - 12:00 p.m.

June 1, 2019 – National Trails Day

Project: Trails
Time: 9:00 a.m. - 2:00 p.m.

June 12, 2019 – Sprague Lake Restoration

Project: Resource Management
Time: 8:00 a.m. - 2:00 p.m.

July 10, 2019 – West Side Resources

Project: Invasive Species Management
Time: 9:00 a.m. - 1:00 p.m.

August 3, 2019 – Poudre Wilderness Volunteers Partnership Project

Project: Trail Building/Restoration
Time: TBD

August 24, 2019 – Rocky Mountain Rendezvous

(Climbing Area Stewardship Project in honor of Founder's Day – NPS Birthday)
Project: Trail Building/Restoration
Time: TBD

September 12, 2019 – In honor of National Day of Service and Remembrance (September 11)

Project: Fire Fuels Reduction
Time: TBD

September 28, 2019 – National Public Lands Day

Project: Litter Cleanup
Time: TBD

(**Lessons** continued from page 1)

some variation of, “Well, if everyone else jumped off the roof, would you?” No doubt some of us made a wisecrack, but there is not necessarily safety in numbers. In fact, groups sometimes lull you into a false sense of security. Keep your own counsel and rely on your own common sense, whether alone or in a group. If something doesn’t look or feel right, it probably isn’t. Trust your instincts.

• **Your Best Friends Are Experience and Endurance** — I am not as physically strong today as I was years ago, but I compensate by being more careful and using the experience I have gained over time. Experience comes only with time, but you can embrace endurance from the start. Too many folks cruise up the trail in overdrive in the morning only to moan and groan by late afternoon, especially if camp proves a few miles farther than thought. It doesn’t matter how fast you travel the early miles if you can’t make the last unexpected ones.

• **Have a Sense of Self** — Climb high, climb far, set your sights on a distant summit. That’s good advice in the wilderness or any endeavor, but keep a firm grip on reality and your experience level. Are you showing up in Estes Park from the flatlands and setting off by yourself to climb Longs Peak in the morning because it’s the biggest mountain around? (Or because grandpa did it?) Take another look. Don’t be afraid to challenge yourself, but know your limits. When things go bad, mountains and riv-

ers rarely give a second chance.

• **Carry a Sense of Place with You** — “There’s a river down there!” the lady in the seat behind me exclaimed as we flew over the Grand Canyon at 30,000 feet. I looked down and saw the Colorado River wrapping around Hansbrough Point. The thin white line was President Harding Rapid. You pull right hard or you end up in a big hole. Think about that example. The point is to know where you are; which way the rivers flow; how tall the mountains are; where the prevailing weather comes from — all without an electronic device.

• **Give Something Back to the Land** — In the end we are all stewards of the land, even if some don’t act like it. Each little thing we do, the smallest step, the bruised lichen, the crumpled leaves, adds up. We can’t eliminate our impact



Walt and his grandson pondering life on the trail.

totally, unless we avoid the wilderness — unthinkable — but we can build a trail, save a wetland, nurture a habitat, teach a stewardship class. You must walk in



Walt Borneman navigating a tricky bridge in the park with his young grandson.



Walt and his granddaughter in the park — the spark is alive in this one!

harmony with the land and protect it for your own grandchildren.

• **If Things Look Dark and Scary, Take Off Your Sunglasses** — That’s not as silly as it sounds. I’m serious. There will be times when you are searching for a campsite or looking expectantly toward a trailhead. Darkening shadows are closing in. Take off those sunglasses and suddenly you have an extra hour of daylight. It’s almost uncanny, but a little more light on the scene will do wonders for your self-confidence and keep those butterflies in check.

• **When the Going Gets Tough, Eat a Snickers** — It doesn’t have to be a Snickers bar, but they are my favorite. (Grandma said I should skip this one.) Whatever your favorite snack, a tried-and-true energy-booster will supercharge you around the lake, up that summit ridge, or over the next pass and be a great morale-booster, too. Think of that Snickers as good for two hours or four miles — whichever comes first.

• **Have Fun** — When you are plodding under a heavy pack or looking up at a steep trail, it’s quite okay to ask yourself, “Why, oh why, am I doing this?” But if at the end of the day you don’t say, “Wow, that was fun!” you’ve missed something. Yes, it’s that simple: Have fun!

Love always,
Pa-paw

Walter Borneman is the author of award-winning American history books and the coauthor of A Climbing Guide to Colorado’s Fourteeners and 100 Years Up High: Colorado Mountains and Mountaineers. He’s also a brand new Rocky Mountain Conservancy board member!



Rocky Mountain Conservancy

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

January 10, 2019 – March 29, 2019

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Special note from Ruth: "A great treasure

such as Rocky Mountain National Park

deserves to be well-cared for. I hope

that many others feel the same way and

contribute generously."

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Quick-Fix Science

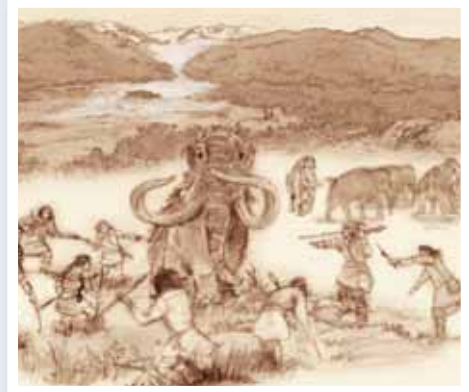
Prehistoric Human Migration in RMNP

The Question: What were prehistoric human migratory patterns within the park? Rocky Mountain National Park has been occupied by humans since about 11,000 years ago. Prior to recent archeological surveys, researchers knew little about early human migration patterns within the park. Knowledge about the seasonal use of the park can lead to a better understanding of how early humans adapted to life in the mountains.

The Project: Perform a comprehensive survey of prehistoric archeological sites. Through the National Park Service’s System-wide Archeological Inventory Program (SAIP), Robert Brunswig (University of Northern Colorado) in conjunction with the park’s archeologist William Butler, systematically surveyed Rocky Mountain National Park for archeological sites. The surveys started in areas with high visitor use where archeological sites are most likely to be destroyed, followed by areas along roads with moderate impact, and remote areas that were least likely to be damaged by visitors. Within these general areas, archeologists surveyed specific sections based on the likelihood of finding a site. Surveying focused on places where people were more likely to live and work, such as meadows, and avoided thick forests and steep slopes. Groups of surveyors walked in rows across the sites and surveyed, recorded, and photographed the evidence and remains that they found.

The Results: Early hunter-gatherer bands moved between camps at varying elevations based on seasons and availability of game and wild plant species. During the five years of surveys, researchers documented over 1,000 sites or isolated finds. Of these, over a third of these resources were from prehistoric and early historic periods. Researchers accurately dated 106 prehistoric or early historic resources using modern methods. Researchers analyzed these artifacts and used them to reconstruct early human migration.

Prehistoric humans developed a subsistence pattern based on elevation and seasons. Annual rounds likely involved three stages: (1) late spring to mid summer; (2) mid summer to late summer/mid fall; and (3) late fall to early spring. During stage one, people occupied low elevation mountain base camps while higher elevations were still largely under snow cover. Bands usually moved base camps during



stage two to high-elevation hunting territories utilizing well-established trail systems. Bands followed seasonal migration of elk and bighorn sheep as well as bison and deer. Hunters returned to the same hunting territories each year, and evidence shows that some areas were in periodic use for several millennia. Some of these areas include Mount Ida Ridge, Flattop Mountain, and Bighorn Flats. These areas, often containing game drives, were well suited for hunting, and contained confining terrain such as narrow areas on steep slopes. People enhanced game drives by constructing ambush blinds and rock wall-lined drive corridors. Stage three, the wintering stage, was usually spent outside of the park in low mountain valleys. Despite intensive surveys of the park, archeologists did not find any evidence of early people wintering in the park. Evidence shows that hunter-gatherer bands usually moved to Middle Park and North Park directly west and northwest of the park. Over-wintering game herds of bison, elk, deer, and pronghorn as well as plenty of fuel and shelter made these areas ideal places for early humans to spend the winter. It is possible that some bands also spent the winter in Estes Valley. Overall, early humans followed the game, allowing them to subsist in the harsh mountain climate of the park.



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PARK PUZZLER SOLUTION





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Shelf fungus, also called bracket fungus, basidiomycete that forms shelf-like sporophores (spore-producing organs). Shelf fungi are commonly found growing on trees or fallen logs in damp woodlands.

Photo: Kent & Carolyn Carlson

Nature Notes

While spring in the high country can be elusive and a downright tease, birds have returned to the mountains, and their calls and their chattering are a sure sign of spring. Mountain bluebirds are busy scouting for nesting sites, their brilliant blue a welcome splash of color as early as February. The sound of great-horned owls hooting at dawn and dusk indicate that their mating season is upon them. Mule deer are everywhere, browsing the tender tips of trees and the dry grasses of winter 🐾 RMNP Woodcrafter **Cory Johnson** was skiing at Hidden Valley in early March in the late afternoon. As he was skinning up the upper slopes, he heard some hoots and whoops from what he thought were four or five other skiers having fun in the new snow. After a minute, he realized that the raucous sound was actually coyotes howling and yipping up at the top of Tombstone Ridge, which runs along the top edge of Hidden Valley. He never caught a glimpse of the revelers, but he enjoyed their contributions to his skiing experience for quite a while. In mid-April, **Cory** also reported coming across a fresh elk carcass as he was cutting through the grass on his walk to work near the Beaver Meadow's Visitor Center. It appeared to have been killed by a mountain lion in the early morning hours (the elk was still a little bit warm on a frosty morning). Additionally, the animal had tried to cover its kill with duff and grass, which is consistent with mountain lions. Some of the hair had been plucked off the elk's shoulder as though the lion had only just begun to feed. Cory hustled off in case the mountain lion was hanging around nearby and he notified the Ranger and Resources divisions for them to deal with it from there 🐾 East District Naturalist **Kathy Brazelton** notes that the red-tailed hawks (*Buteo jamaicensis*) near park headquarters are HAPPY that the Wyoming ground squirrels (*Spermophilus elegans*) have come out of hibernation. She watched two hawks score their dinner and fly away, not without some ensuing struggle from their victims 🐾 Conservancy Development Associate **Sue Pinkham** was walking in her yard near the Beaver Meadows Entrance when she spotted a red-tailed hawk feeding on what appeared to be a rabbit on the ground before it flew to a tree to wait her out 🐾 The Merriam's wild turkeys (*Meleagris gallopavo*) have been hanging around all winter where people feed them in Estes Park, but during their mating season, mid-March through early May, the males have frequently been observed with their tail feathers fully unfurled. Generally, these turkeys breed in mid-March and April 🐾 Conservancy Publications Director **Nancy Wilson** was in her car waiting for 12 elk that were waffling about crossing the road. Some started to cross, and others balked, but eventually, after frustration on both sides reached a peak, she found herself driving behind them as they were herded down the road like they were being driven. **Nancy** also enjoyed watching how 50 mph wind gusts one day made a delightful playground for local crows as they pitched and rolled in the eddies 🐾 Estes Park resident **Dean Martinson** observed a great blue heron flying across a meadow behind his home 🐾 Conservancy Donor

Services Manager **Emily Luth** spotted a coyote in the park housing area that stopped to observe her as she walked along 🐾 RMNP Landscape Ecologist **Hanem Abouelezz** and her team have been scouting for moose on the east side of the park to GPS-collar them for inclusion in their multi-year study of moose movements, habitat use and population size in the park. In early April, they spent several hours following moose sign in the Hidden Valley area. It was a classic spring evening in the high country, with sun shining one minute and snow swirling the next. The tracks led them up forested slopes in hip-deep snow and through thick willow carr. They discovered several bedding areas, tucked in the trees, dark and deep. Imagine the quiet, the flakes falling, pine needles on top of compacted snow. Despite never catching up to their moose, they felt lucky enough to follow the story it left them: a hoofprint melted into the snow, a fresh scat pile, a nibbled willow, a tree it had used many times as a scratching post. Sometimes not finding a moose is almost as good as finding one 🐾 Although it is spring in many areas along the Front Range, winter is prevailing at Bear Lake. The RMNP Education Team has been using this to their advantage in the last weeks of their winter program season. In their Snow Science program, high school students from Greeley, Fort Collins and Denver act as snow scientists and dig snow pits. They measure the pit's depth and analyze each snow layer's weight and thickness to determine the snow-water equivalent, or how much water is in the snow. The goal of this program is for students to understand the importance of winter precipitation for animals and humans, and to understand how the amount of snow Rocky Mountain National Park receives each year affects communities along the Front Range 🐾 On multiple occasions, Conservancy Development Assistant **Victoria Johnson** has watched an osprey dive into Lake Estes and fly away with a fish. Osprey frequently are seen nesting around Lake Estes, and near Grand Lake on the west side of the Divide 🐾 Is your backpack ready? Snacks packed? *Hiking RMNP: The Essential Guide* in hand? It's time to lace those shoes and get on the trails in Rocky Mountain National Park!



The bluebirds have returned, and they have opinions! Photo: Kent & Carolyn Carlson