



Photo | Shawn Whitney



QUARTERLY

Autumn | 2024

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West Side Story: Restoration and Renewal

The west side of Rocky Mountain National Park, including the Kawuneeche Valley, is progressing with projects to restore precious wetland habitat and to replace infrastructure lost in the devastating East Troublesome Wildfire of 2020.

The Kawuneeche Valley Restoration Collaborative (KVRC) began work at the Beaver Creek Pilot Site last year with efforts to remove invasive plant species such as the Canada thistle. In September, construction began on exclosure fencing that will protect approximately 31 acres from over browsing by elk and moose and enable the regrowth of willow populations. When complete, this exclosure will be the largest fenced management area within Rocky.

Another key strategy is to install instream structures in Beaver Creek to raise the streambed and water table, and to accumulate water and sediment—engineering work normally accomplished by a healthy beaver population. KVRC plans to install three Simulated Beaver Structures (SBS) and seven Beaver Dam Analogs (BDA).

The SBS work like fully formed beaver dams to slow down water flow, create pools behind them, and add complexity to the stream which helps boost biodiversity.

The BDA are more temporary and constructed with more natural material but are also designed to slow water flow and raise the groundwater table. Another low-tech and nature-based approach includes installing wooden posts in the creek to mimic the natural wood deposits that build up in a healthy stream.

According to ecologist Dr. Isabel de Silva Shewell, one of Rocky's leads for the KVRC project, time-series photographs documenting restoration efforts showed a dramatic and nearly instant effect on raising stream levels following the installation of an SBS.

Park staff monitor vegetation growth and water levels as part of restoration efforts.



Continued on page 15

*Fall colors on
the west end of
Horseshoe Park.*



A Message from our Executive Director



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Dear Friends,

What's not to love about Rocky Mountain National Park in the fall? The air is mountain crisp, the elk are bugling among gold aspen, and we already have our first dusting of snow on the continental divide. With 2024 inching toward its close, we're entering the season of thanksgiving and gratitude.

It's been four years since the East Troublesome Fire devastated the park and west side communities. East Troublesome, aptly named, became the largest recorded fire in the park's history—quickly overtaking the Cameron Peak Fire which, for a short time before, had held that unfortunate distinction. And the COVID pandemic around the same time brought unprecedented challenges, especially to nonprofits. Despite the uncertain times, the Conservancy stayed on course. We retained our staff and continued to support education and conservation in Rocky through those turbulent times.

And here we are, having come through these epic challenges. Rocky is rebuilding lost infrastructure and using other federal funds to renovate and improve park facilities (think Moraine Park Campground, water systems, and the Fall River Entrance). The Conservancy realized the dream of constructing safe and affordable workforce housing for park staff and researchers. We're "heads up" and looking forward.

Besides the change of seasons, October brings our fall board meeting where we take input from Rocky's leadership on park priorities and unmet needs, and commit philanthropic funding for the upcoming federal fiscal year. We look forward to sharing with you how your commitment to the Conservancy enables support to wildlife, environmental education, research, internships, search & rescue, trail work, and much more. Thank you for sharing our passion for Rocky.

Warmly,



Estee Rivera Murdock

Estee Rivera Murdock
EXECUTIVE DIRECTOR

Ask the Conservancy

Quarterly reporters unearth answers to any questions asked by Conservancy members and park visitors. If you are curious about something in or about the park, email Communications@RMConservancy.org or write: Ask the Conservancy, Rocky Mountain Conservancy, PO Box 3100, Estes Park, CO 80517.

Shop Conservancy Nature Stores

www.RMConservancy.org/shop



Rocky Mountain National Park reports a population of just 20-24 black bears within more than 400 square miles.

Why such a small population for a large wilderness area?

While it seems like 20-24 bears for the whole greater Rocky area (east and west sides) is a small number, when you consider that much of Rocky is above tree

line, and therefore, poor bear habitat, then the number starts to make sense. Rocky and neighboring communities are also a tough place for bears – we have a short growing season (less than 115 days a year), poor soils, and an arid climate. This means that there are fewer food sources for bears. Black bears in this area rely on mostly fruits and berries (soft mast) such as chokecherries, Oregon grape, kinnikinnick, as well as insects and small mammals to gain enough fat to make it through the winter. Unfortunately, there aren't a lot of nuts and seeds (hard mast) which provide bears with calorie-dense food in both the fall and spring. A study of the bear population by Baldwin and Bender in 2008 concluded that this population estimate has been relatively stable over the decades.



When do Rocky's black bears begin their hibernation and what terrain do they favor when selecting their dens?

In general, bears enter hibernation when the calories expended to find food exceeds the calories found. That is, if food is scarce and they have some fat reserves, then they slowly begin the process of clearing out their digestive system before

going into hibernation. In our region it can vary from October to early December. Older/fatter bears typically enter hibernation first. Just like pikas, bears want a protected location with lots of snow cover for their den sites. Around here, bears tend to choose rocky, steep, north-facing slopes that hold snowfall so that they can take advantage of the insulation of the snow. Since bears don't like temperature variations during hibernation, their most successful dens are at about 10,000 feet. Black bears are considered "super hibernators" since they do not eat, drink, pee, or poop throughout their hibernation period of 6-7 months. Pregnant females do give birth during hibernation and mothers nurse their cubs while hibernating themselves.

Andy & Rachel Ames, Estes Valley Watershed Coalition, black bear and wildlife advocates



BEAR LAKE IN FALL BLANKET

This super cozy fleece blanket shows off a beautiful fall scene at Bear Lake, with a view of Longs Peak in the background and orange and yellow aspens in the foreground. Measures 50" x 60." 100% polyester fleece. Machine washable. Item #013050 Price: \$34.99

Member Price: \$29.74



ROCKY MOUNTAIN NATIONAL PARK COASTERS

This unique set features four coasters, each highlighting a different image of Rocky

Mountain National Park. All coasters feature iconic park locations listed around the outside with images of a hiker, bighorn sheep, black bear, and elk in the center. Made in Estes Park. Item #013669 Price: \$39.95

Member Price: \$33.96



BEAR WITH CUBS ORNAMENT

This glass disc ornament highlights a mama black bear with her two cubs. Handmade in Ecuador with glass and tagua beads (vegetable ivory); roughly 2 3/4th diameter.

Item #8141 Price: \$12.99 **Member Price: \$11.04**



HE CAME & STAYED: PIETER HONDIUS, THE ESTES PARK YEARS

Authored by Dr. James H. Pickering.

This biography traces the life and accomplishments of one of Estes Park's most important, yet least

known, European pioneers. Hondius was one of the Estes Valley's most prosperous rancher-farmers, with significant land holdings in what would become Rocky Mountain National Park. Those who have established a relationship with Estes Park and Rocky Mountain National Park will enjoy the life story of the man who made much of it possible. Item #013561 Price: \$39.95

Member Price: \$33.96



ROCKY ELK PATCH BEANIE

This black beanie features a patch with a bugling elk and the words, "Rocky Mountain National Park." 100% acrylic, one size fits most. Item #011053 Price: \$16.95

Member Price: \$14.41

More memorabilia at
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970-586-0121

The East Troublesome fire of 2020 left acres of burnt lodgepole pine. Researchers set out measuring tape to delineate plots for plant survey.



Photo | Chris Maienza



Photo | Chris Maienza



By Valeria Hernandez,
Continental Divide
Research Learning Center

Post-fire Research in the Aftermath of Colorado's 2020 Wildfires

Heartleaf arnica (*Arnica cordifolia*) at a burn site in Rocky.



Photo | Chris Maienza

Scan this QR code for more information on wildfire and other research within Rocky at the Continental Divide Research Learning Center.



In what was a historic wildfire season, the East Troublesome and Cameron Peak Fires burned 30,000 acres or 9 percent of Rocky Mountain National Park and left extensive burn scars across the landscape that are still visible today. To better understand how changing fire regimes may impact plants and animals, Rocky's research partners are conducting studies across the park.

Thousands of charred trees can be seen as you approach Grand Lake on the west side of Rocky. In other areas like Fern Lake, a black scar of burned trees is surrounded by contrasting green forest. Besides damage to the landscape, these fires destroyed over 800 homes and other buildings in nearby communities and 26 structures in the park, including the historic Onahu Lodge and the Grand Lake Entrance Station. While fire can be devastating to park infrastructure and nearby communities, it remains a necessary ecosystem process that cycles nutrients, removes dead trees and vegetation, and creates opportunities for new growth.

Despite the importance of fire to healthy forests, the ecological impacts of the 2020 wildfires are not yet fully known or understood. The

size and severity of these fires follow a broader trend toward larger, more frequent, and more severe wildfires in Rocky Mountain forests and the western United States as documented in multiple studies. Increasing drought factors attributed to climate change are predicted to exacerbate these wildfire conditions and can lead to deviations from historic fire patterns, also known as fire regimes (Wasserman and Mueller, 2023). Plants and animals are adapted to the fire regimes in their ecosystems, so dramatic changes could impact species.

Researchers from Colorado State University and the U.S. Forest Service's Rocky Mountain Research Station are conducting extensive wildlife surveys to measure presence in burned versus unburned areas, and across burn severities both in Rocky and surrounding national forests. The research team is using camera traps and acoustic recorders to collect audio and visual data from bats, birds, and terrestrial mammals.

This data can provide information on species occupancy rates, biodiversity, and species richness. Significant differences in the number of animals recorded at burned vs unburned

sites could help researchers and park managers determine the influence of severe wildfires on wildlife. Furthermore, information from this study could inform wildlife management practices or restoration efforts in wildfire-impacted areas.

Another research project focuses on the impact of wildfires on plant communities. Researchers from Idaho State University are conducting a multi-part study that uses plant surveys to compare composition and diversity in burned vs unburned areas and across burn severities. [Learn more about ISU researcher Chris Maienza, Rocky's summer 2024 Scholar-in-Residence, on page 8.]

"The areas burned in the 2020 Cameron Peak and East Troublesome Fires and future fires may not recover to the same type of forests we experienced before. The spatial scale of these effects will be immense, much of it inside wilderness areas"

— NPS.gov

This research could help identify plants that are positively and negatively impacted by changing fire regimes and help identify the

potential spread of non-native plant species in burned areas. Researchers expect to find plant diversity will decrease as burn severity increases. They also expect to find plants that are better adapted to frequent fires in burned areas.

Using survey data, researchers will also create a model that can predict wildfire burn severity based on landscape characteristics like plant composition and diversity, elevation, slope, and others. This type of model can be used by park managers to identify what areas of the park might experience high burn severity during future wildfire events. Park managers can also use this model to identify locations where predicted high burn severity and plant communities of management concern overlap.

Lastly, researchers will analyze how wildfires influence the genetic diversity of certain plant species. They will study the genetics of subalpine fir trees (*Abies lasiocarpa*) by collecting and analyzing foliage samples. Researchers expect to find a decrease in genetic diversity as fire frequency increases.

Wildfire is an important process that shapes ecosystems and landscapes, but changing fire regimes means the recovery of burned areas will most likely not occur the same way it did hundreds of years ago. Post-fire research in Rocky provides valuable information on how natural resources are recovering under changing wildfire and climate conditions and how to adaptively manage these resources long term.

Game cameras document the time and location of wildlife presence including this dining deer and a coyote on the move.



Photo | Leach McTigue



Photo | Leach McTigue



Photo | Chris Maienza

Aptly named fireweed (*Chamaenerion angustifolium*) flourishes in a burn scar.



Photo | Conservancy

Doctoral student, Chris Maienza, collects tree needle samples to better understand the impact of recent wildfires.

Bettie Willard's efforts resulted in the first signs and informational publications about the tundra in Rocky.



By Barb Boyer Buck

Bettie Willard: Rocky Mountain National Park and Tundra Pioneer

Park Ranger Bettie Willard at Crater Lake, 1953.



Beatrice "Bettie" Willard always dreamed of being a park ranger, especially after she attended the Yosemite Field School in 1948. For that entire summer, she lived in a tent and studied nature.

She had just graduated from Stanford with a biology degree and already had a lifetime of experience guiding through the wilds near Mammoth Lakes, California. Graduates from the field school—16 men and four women—were interviewed by the National Park Service, but Bettie's dream of being a ranger was dashed. "Don't you know? We don't hire women for those positions," she was told.

Despite confronting mid-century norms for women throughout her life, Willard was undaunted. She had made an influential friend: Dorr Yeager, Rocky's first naturalist and author of the "Bob Flame, RMNP Ranger" novels. He asked around and found four national parks willing to hire women; one of these, Lava Beds National Monument, finally hired Bettie as a ranger for the summer of 1952. The following summer, she was a ranger at Crater Lake.

When asked later in life how she got along as the only female ranger in those parks at that time, she said that she observed a great deal. Willard

filled neglected niches and prided herself on complementing, not competing with, other rangers.

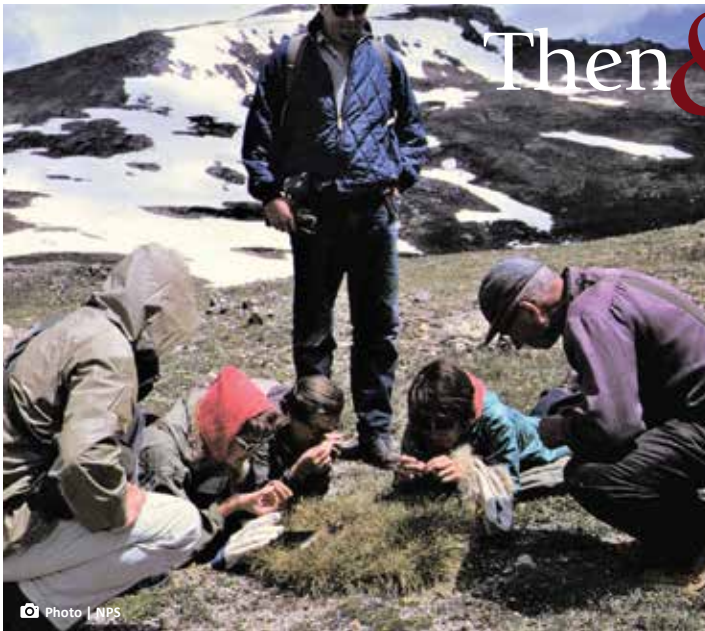
Having achieved this goal, Willard attended the University of California at Berkeley and became a high school teacher. In 1954, she was awarded a \$4,600 Ford Foundation scholarship which enabled her to travel to Europe for 14 months.

Exploring the Plant World

"She wanted to study the vegetation in the Alps, in Scandinavia and other places in Europe," explained Leanne Benton, who along with Cheri Yost, led the Rocky Mountain Conservancy's course, "Tundra Pioneer: the life and legacy of Bettie Willard." Benton served as a ranger at Rocky for many years (including supervising the Alpine Visitor Center for eleven years) and is a long-time Rocky Mountain Conservancy Field Institute instructor. Cheri Yost is a park planner at Rocky.

While in Europe, Willard attended an international botany conference in Paris and made valuable connections which led to field trips in Switzerland to study alpine plants.

"She also met Ruth Ashton Nelson, a Colorado botanist who had already published a book on the plants of Rocky Mountain National Park," Benton said. By this time, Willard



Then & Now



Bettie Willard teaches “Belly Science” during one of her field seminars in Rocky. Now Rangers and volunteers continue to conduct plant surveys at Willard’s original plots as part of the Alpine Community Science project. Ranger Jackson Maldonado (right photo center) explained that building data sets based on Willard’s work enables researchers to track the impacts of climate change.

knew she wanted to go to graduate school and study American alpine plants, specifically to compare with those she had studied in Europe. In 1957, she enrolled at the University of Colorado at Boulder to study ecology and went on to earn a master’s degree and her doctorate.

“Ecology really came into its own in the late 1890s and women were getting ecology degrees since the 1910s,” Yost explained. “But most women ecologists were either working with their more famous husbands, like Edith Clements, or they were teachers. They really weren’t doing their own independent research.”

But by the late 1950s Willard was doing just that, under the instruction of noted arctic and alpine ecologist John W. Marr. Willard wanted to study “plant sociology” like she did in Europe on Rocky’s alpine tundra.

Establishing Her Legacy at Rocky

In 1958, Willard established a 10-square-meter research plot at Rock Cut (present-day fencing at Rock Cut includes her original plot). The same social trail that was part of her research can still be seen, testifying to

the long recovery time for disturbed tundra. She soon established a second plot at the newly built Forest Canyon Overlook.

“What she was noticing was that visitor use was having a huge impact on the tundra,” Yost said. Willard needed to convince park managers that visitors were damaging this delicate area and that something had to be done. She thought the trails on the tundra should be paved and hardened. “If you pave a trail, people will stay on them,” she argued.

Next, she wanted park managers to “stop the craziness in the backcountry.” At the time, there were no rules about camping and conservation in Rocky’s backcountry. Finally, Willard wanted people to become stewards of the tundra through education and experience. She accomplished these goals using the skills, hard work, and diplomacy that she had always applied working in the heretofore “man’s world” of the national parks.

Willard and others collected vast data sets to document visitor impact, which led to paving some trails on the tundra as she recommended and the establishment of backcountry

camping permits in the early 1970s. Willard established the first field institute in the National Park Service at Rocky (which continues as today’s Rocky Mountain Conservancy Field Institute) and taught the first field seminar. “She taught the alpine field seminar for many, many years in the park,” said Yost.

Willard was also instrumental in increasing education about the tundra through ranger interactions, and through signage and educational displays in the Alpine Visitor Center and other places. For 40 years, Willard studied her alpine plots every summer in Rocky.

Continued on page 14

Editor’s Note: In honor of this remarkable scientist, educator, and conservation advocate, the Conservancy offers Field Institute “Bettie courses” designed to empower women in the outdoors.



Scholar-in-Residence Chris Maienza Studying Fire Ecology at Rocky



What can the needle of a subalpine fir tell a researcher?

Chris Maienza, a doctoral student from Idaho State University and one of the Conservancy's 2024 Scholars-in-Residence, conducted plant surveys and collected tree needle samples to better understand the impact of recent wildfires on montane and subalpine forests.

"I'm surveying areas over a wide elevation range in research plots just inside and outside of the burn areas of the 2020 East Troublesome and Cameron Peak fires to see what kinds of plants are doing well and which aren't," Maienza said. "As the name would imply, fireweed is one plant that is doing quite well."

Maienza is also building on earlier research conducted at Rocky, where core samples of sediment were taken at a total of six lakes on the east and west sides. Those core samples provide insights into historical fire events dating back about 6,000 years. Maienza collected samples from these same areas and is looking for associations with genetic diversity.

Maienza's path to studying fire ecology began in Massachusetts where he grew up and spent a lot of time outdoors with his family in the New England mountains. "Some of my earliest memories are being outside and above tree line," he said. "Through hiking all my life, I developed a passion for high elevation landscapes."

After graduating from the University of Massachusetts at Amherst with a degree in biology, Maienza moved west. He spent seven months working with the National Ecological Observatory Network (NEON) in Boulder, which collects long-term open-access ecological data to understand how U.S. ecosystems are changing. He moved to Idaho in 2022 where his introduction to fire ecology included studying the aftermath of wildfire in Utah's Uinta mountains, similar to the fires in and around Rocky.

To collect the plant samples—the needles from subalpine fir trees—Maienza would start his fieldwork as early as 4:30 am to ensure he had six hours of dry weather. After sterilizing his tools, he collected, weighed, and sealed up the needles from about 25 trees in each research area.

Other tree species such as Ponderosa have thicker bark and may survive a wildfire event, unlike the subalpine firs which have a thin bark infused with resin. Maienza is exploring the implications of wildfire events on the genetic diversity of the subalpine firs.

Back at Idaho State, Maienza will crush the plant material and extract DNA for analysis. His research has three main objectives: to characterize early post-fire plant

communities, to create predictive models for wildfire burn severity, and to evaluate subalpine fir diversity in the context of fire.

When he completes his PhD program, Maienza believes he'd like to use his experience and education working in a government research lab or science agency. For now, he's content spending months at a time doing fieldwork in the wilderness.

The Scholar-in-Residence program, co-sponsored by Rocky Mountain National Park's Continental Divide Research Learning Center and Rocky Mountain Conservancy, enables scholars to live in Estes Park and conduct research in Rocky. As part of the program, participating scholars and scientists are encouraged to share their research and expertise with the public in park and community educational programs. After Chris has had a chance to analyze his samples, he'll be back in Rocky in early 2025 to give a public talk on his fieldwork and his findings. Keep an eye on the Conservancy's website for more information.

Before collecting samples, Maienza dons gloves and sterilizes his tweezers and scale. He weighs the needles using this portable scale to ensure sample sizes are consistent and ready for later DNA testing.





Another Successful Season for Conservation Corps



The Boulder crew maintained more than 26 miles of trail including along the Lake Isabelle Trail in the Indian Peaks Wilderness, built or repaired 190 drainage structures, cleared 35 fallen or hazard trees, and removed trash and illegal campsites—all in beautiful mountain settings.

The Rocky Mountain Conservancy Conservation Corps wrapped up a successful 21st summer season by fielding crews across Rocky Mountain National Park and surrounding public lands, maintaining more than 260 miles of hiking trails, clearing 143 acres of invasive plant species, and helping to preserve 12 historic structures.

“Our Corps was a diverse group of 51 young people from 20 different states,” said Conservancy Executive Director Estee Rivera. “We offer the ultimate ‘work-study’ program where we measure success not just in trailwork and other projects completed but also in how much our crew members learn about themselves and our natural environment.”

Trail work includes clearing the tread, removing fallen or hazard trees, clearing and repairing drainage structures, rock construction, and building check steps. Crew

members along the Longs Peak Trail worked alongside park trail crews to continue installing pavers to harden the trail from erosion. Crews also cleared trash, removed illegal campsites, and built or maintained trail signage. Other crews were dedicated to vegetation management and historic preservation projects.

“We had another great group this year,” said Dani Woods, field manager. “Everyone was excited to be there and very flexible. We had 100 percent retention of our team members which is very unusual for a program that is so physically and emotionally demanding.”

“We thought we were building up the trails, but we were really building up each other,” said Thomas Narramore from New Jersey, whose crew worked on the Lake Isabelle Trail in the Indian Peaks Wilderness.

The Alexander Mountain and Stone Canyon wildfires were another unique aspect of the 2024 season, which required swiftly accounting for all crews and monitoring conditions such as evacuation orders and air quality.

Through the Conservation Corps, young adults from across the country (aged 18-30) participate in an 11-week program that provides professional development, networking opportunities, skills development, immersive outdoor experiences, and exposure to career opportunities in conservation. Participants receive full uniforms from hats to boots, stipends, and rustic housing ranging from tents to Forest Service cabins. As a program-

affiliated Americorps, crew members can earn education benefits that can be applied to tuition and other educational expenses in addition to their stipend.

“This summer allowed me to see incredible places, meet wonderful people, and do things I never would have expected for myself,” said Daniella Vogel, who returned to the University of Arizona to continue her studies in computer science. Selah Crites from Brecksville, Ohio, who is considering a career as a wildland firefighter, said, “I’ll remember how formative and fun this summer was for the rest of my life.”

From 2003’s inaugural 6-person Conservation Corps, to 2024’s 51-person team, about 600 young adults from across the United States have come through this program in the last 21 years.

The Moraine crew built or maintained 93 miles of trail including installing rock pavers on the Longs Peak Trail, and performing annual maintenance runs on popular trails including Deer Mountain and Flattop Mountain.



To support the Conservation Corps, scan this QR code:



In Case You Missed It



Conservancy Round-Up



Horse TJ (left) and Dennis are two of the newest members of Rocky's animal packing team.

Taking Stock

With the support of Conservancy donors, Rocky's Lead Animal Packer Delaney Garvin was able to purchase three new horses and a mule to support trails maintenance and backcountry operations. Garvin seeks stock animals with a steady temperament and solid training to work well on Rocky's trails, which often involve encountering hikers and visitors. This year's stock was handpicked from an outfitter in Montana and a ranch in Larkspur, CO. Welcome to Dennis, TJ, Tim Horton, and Maynard the mule!

The Show Must Go On

After several years of being out of use, the outdoor amphitheater at Timber Creek Campground has been beautifully renovated and is once again available for programs. Colorado River District (CRD) Facility Supervisor Keith Stevens highlighted the teamwork by maintenance crew members in the project, which involved cutting rocks to repair crumbling

walls, replacing log railings and seat benches, recaulking and repainting, and maintaining specialty light fixtures. Planning for the project included ordering logs in advance from a specialty supplier in Wyoming.

CRD Supervisory Ranger Kristi Neilson is excited for both visitors and summer seasonal interpretive staff. She says "campfire programs" are often a highlight of family visits to national parks. Rangers, too, love

the evening presentations because visitors are chilling and relaxed and they have more time to delve deeper into conservation topics.

The amphitheater includes stage lighting and audiovisual equipment with screen, projector, and sound system. A generous gift from the estate of Simcha Rudolph supported the renovation. Evening campfire programs at Timber Creek Campground will resume next summer for the first time since 2019.





Rocky Mountain Conservancy Park Puzzler

Across

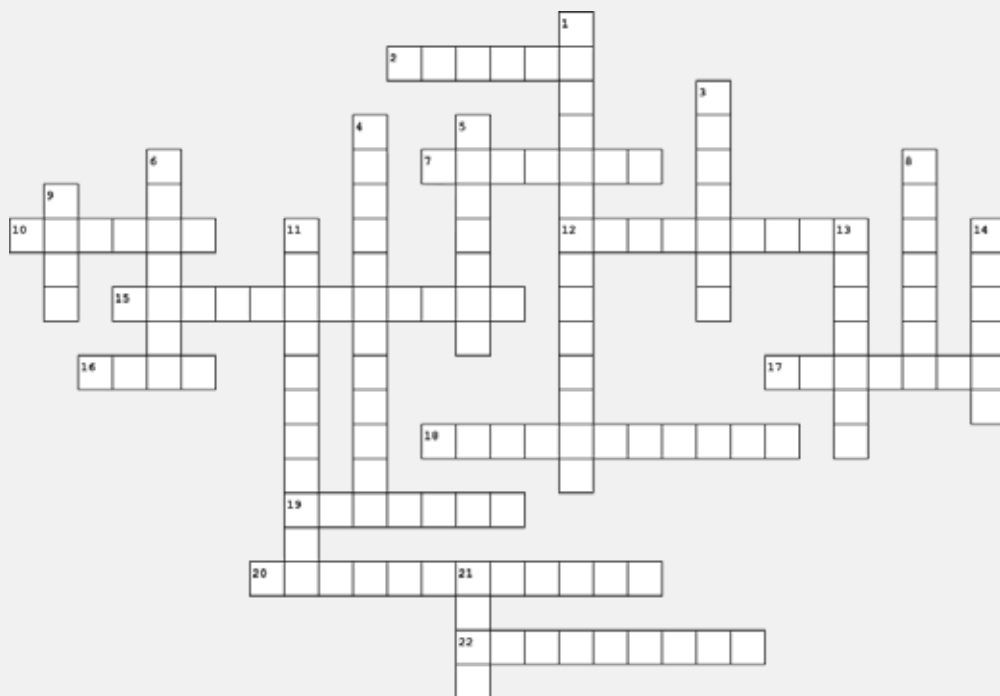
2. Surname of Rocky's current superintendent
7. Family that homesteaded and ranched in Horseshoe Park
10. The word in the NPS phonetic alphabet signifying the letter "J"
12. Subject of park programs offered after dark
15. The lodge owned and managed by Enos Mills
16. Offspring of an elk
17. Name of an early ranger at Rocky and for whom the interpretive staff building is named
18. Campground on the park's west side
19. Mammals the size of a large cat or small dog that are often seen along Old Fall River and Trail Ridge roads
20. The location on Trail Ridge Road where the subalpine ecosystem transitions to the alpine
22. Name of a backcountry campsite on the East Inlet Trail and popular body of water



Photo | Dick Orleans

Down

1. Chunky short-tailed bird whose habitat is around fast-flowing mountain streams
3. *Conium maculatum*, a poisonous plant found on trees
4. The sediment responsible for turning the appearance of Lake Haiyaha turquoise
5. Frequently used climbing knot that is easy to untie after being subjected to a load
6. A feature of the Big Thompson River along the Fern Lake Trail
8. A common malady of hikers with new boots
9. A single gravestone commemorates this family that homesteaded in the Beaver Meadows area
11. Winter hazard for hikers and skiers
13. Landmark peak in the Mummy Range
14. Spectacular bull elk memorialized with a plaque in Moraine Park
15. ____ Basin, the southeast area of Rocky that includes trails to Sandbeach and Thunder Lakes



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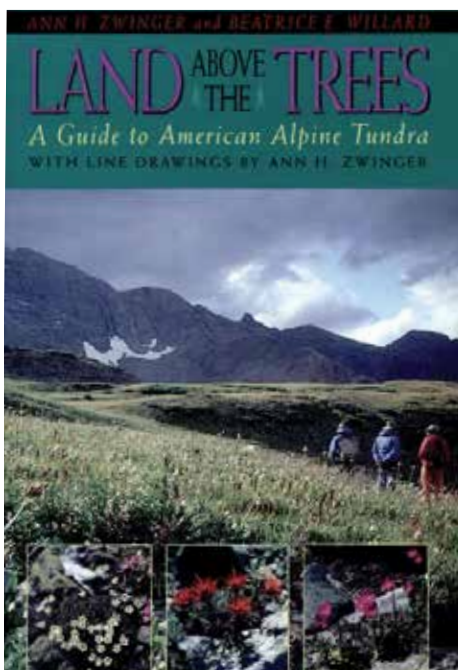
Bettie Willard

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"Land Above the Trees was THE BOOK that all park rangers read to learn about alpine ecology so we could effectively communicate with the public. This book continues to be relevant today."

— Leanne Benton

Retired NPS Ranger & Conservancy
Field Institute Instructor



"She took photos of her plots, put toothpicks down to mark the individual plants, and tracked those plants for the entire time she worked in Rocky," Yost said. In addition to research, she wrote *Land Above the Trees: A Guide to American Alpine Tundra*, with Ann Zwinger in 1971.

"This book was instrumental while I was learning about the tundra as an Rocky ranger," said Benton.

Moss campion, a cushion plant, is one of the "champions" of the tundra,



Leanne Benton and Cheri Yost teaching a Conservancy field seminar on the life of Bettie Willard with the tundra as the classroom.

Benton said, growing only about ½ inch by the time it's five years old. "It doesn't really start to bloom unless it's about 10 years old and by the time it's 20-25 years old it's about 7 inches wide and blooming profusely.

"Think about what a grinding footstep can do to a plant like this," Benton said.

Other Enduring Accomplishments

Willard went on to help found and lead Boulder's Thorne Ecological Institute, serving as president in 1970. "Thorne's mission was to help people understand the relationships in the environment and develop a personal concern for the Earth," explained Yost. "While Willard was at Thorne, it put her at the forefront of many environmental partnerships."

"In 1966, she created what she called 'the experiment in ecology,'" Yost said. "She really believed that all of these conversations were a three-legged stool: engineering, economics, and the environment. If you could not get these three concerns to talk to each other, you are not going to be successful stewards of health and society."

Working with the mining industry along with environmentalists in Colorado, Willard created "a safe space to work out differences so meaningful and lasting agreements could be made," Yost explained.

"We fostered abundant measures of openness, objectivity, willingness to tell all, an ability to listen and believe but to question until Truth comes forward," Willard said of this time in her life.

In 1969, Congress passed the National Environmental Policy Act (NEPA), which codified Willard's "experiment in ecology," on a national level. Its mission was to bring every new environmental policy in front of everyone who would be affected by it.

This was also the year Willard and Estella Leopold, daughter of renowned environmentalist Aldo Leopold, were awarded the Colorado Wildlife Federation's "Conservationists of the Year" award. Over several years, the two women successfully lobbied for establishment of the Florissant Fossil Beds National Monument west of Colorado Springs to protect this unique geologic site from imminent development.

Richard Nixon selected Willard as the first woman to serve on the Council of Environmental Quality, and in that role she promoted the principles of NEPA across the nation. For example, Benton said Willard helped mitigate issues with the Alaskan Pipeline during its NEPA process. "She made about 15 trips up to Alaska and was instrumental in getting the pipeline

Continued on page 15

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raised above areas of permafrost—so it wouldn't melt—and raised high enough to not interfere with caribou migration."

Willard returned to Colorado and joined the Colorado School of Mines to set up a department of environmental sciences, looking at how to mitigate the effects of mining. She developed the new department and created 28 classes, many of which she taught herself. Not feeling fully welcome, however, Willard took an extended leave of absence, and in 1984, resigned. For the rest of her life until she was no longer able, Bettie Willard wrote books, served in organizations, and taught.

"She taught seminars here until 1996," said Benton. "I was able to take a course from her in 1995. She was a very gifted teacher." This experience cemented Benton's commitment to Rocky.

"In *Land Above the Trees*, Willard and Zwinger brought together most of what was known about alpine tundra in the U.S. and presented it in a book that was understandable for a wide audience," Benton said. "The book was a huge success. The book illuminated the fascinating adaptations of the plants and animals for survival in the alpine world. *Land Above the Trees* was THE BOOK that all park rangers read to learn about alpine ecology so we could effectively communicate with the public. This book continues to be relevant today."

Bettie Willard passed away in 2003. Her tundra research plots at Rock Cut and Forest Canyon are listed in the National Register of Historic Places, representing Dr. Willard's significance not just to the park but also to national environmental policy.

(Article reprinted with permission from Rocky Mountain Day Hikes.)

West Side Story

Continued from page 1

Besides being the most accessible location to begin restoration, the Beaver Creek site also contained the most relic beaver dams among proposed locations. It is located to the west of the Timber Lake Trailhead and Beaver Creek Picnic Area off Trail Ridge Road. Following restoration, Beaver Creek's habitat should support mammals such as the beaver and river otter, 30 different species of birds including migratory birds and waterfowl, and amphibians like the boreal toad and western chorus frog.

KVRC was established in 2020 with the goal to restore the Kawuneeche Valley to achieve the long-term benefits of a healthy wetland environment, including improved water quality, diverse wildlife habitat, and strengthened resilience to impacts of climate change. Members of the collaborative include Rocky Mountain National Park, the U.S. Forest Service, the communities of Grand Lake and Grand County, Northern Water District, and the Nature Conservancy. The Rocky Mountain Conservancy plays a lead role by providing philanthropic funding, securing grants, and contributing management and administrative project support.

A few miles south of the Beaver Creek project site, the park has begun constructing replacement housing for the Green Mountain-Onahu seasonal housing area lost in the East Troublesome fire. The one-for-one replacement housing—comprised of two dormitories and a residential support facility (kitchen, laundry, and shower facilities), ten residential units, and three recreational vehicle sites—is located west of the Kawuneeche Visitor Center and is planned to be ready for the summer 2025 season. In the interim, many seasonal staff members were required to commute to work from as far away as Winter Park.

The replacement fee building at the Grand Lake Entrance station is also scheduled for completion in the coming months.

For more information about the Kawuneeche Valley Restoration, scan this QR code:



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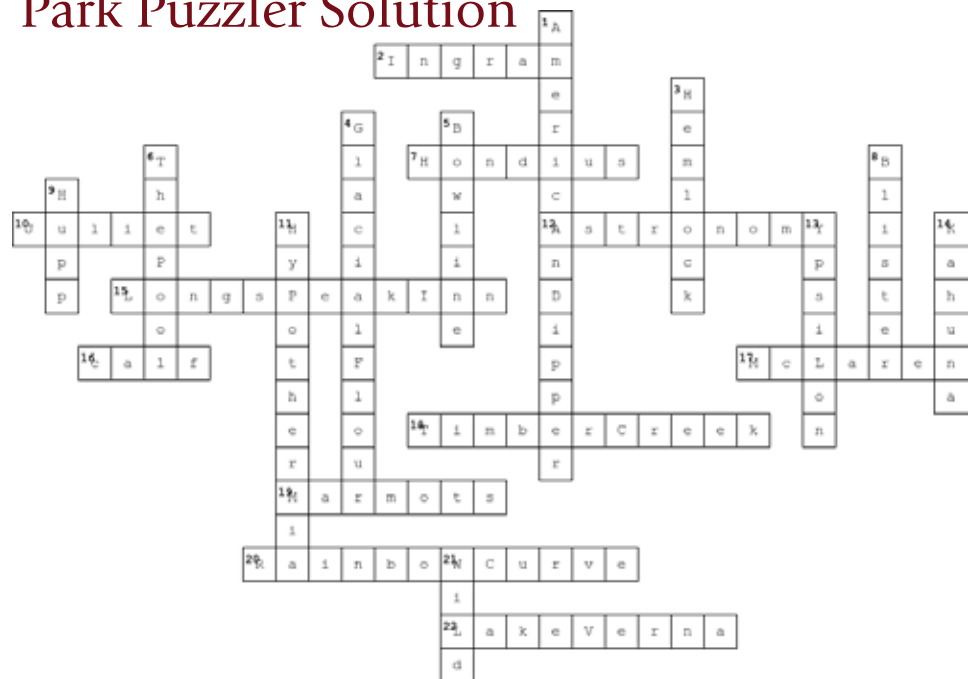




Photo | Mark Whitney



Rocky Mountain Conservancy

Estee Rivera Murdock, executive director
Anne Morris, *Quarterly* editor
PO Box 3100
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Like the rest of us, this bull seems to be looking back and asking himself where the summer has gone.

Visit RMConservancy.org
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Nature Notes

• Rocky reported a very successful raptor nesting season with staff and volunteers observing the fledging of four peregrine falcons and one golden eagle. As the park says, "Keep your eyes on the skies to witness these incredible birds taking flight in their mountain home." • In another park update, Public Information Officer **Kyle Patterson** noted that a gray wolf visited the park in August. "We were eager to learn that a wolf spent some time within the boundaries of Rocky Mountain National Park! Wolves are a native species that have not roamed the area where Rocky Mountain National Park now exists in over one hundred years." The collared, reintroduced wolves are tracked by Colorado Parks and Wildlife. • On an afternoon hike to Bierstadt Lake, **Rich & Mary Guenzal** photographed a waterspout forming over the lake. "The waterspout was not so scary that we feared any harm. It was coming towards us but dissipated as it reached shore and headed into the forest. I was expecting to get wet or at least misted, but it 'missed' us." The retired wildlife biologist for Wyoming Game and Fish had experienced plenty of dust devils but never a waterspout

on an alpine lake before. • Artist-in-Residence **Claudia Borfigal** met **Debbie Bangs**, one of the Conservancy's Field Institute birding instructors, while both were hiking in Hollowell Park. After chatting a bit, Claudia asked, "Who is in the meadow around us?" After taking a moment to listen, Debbie "then proceeded to 'see with her ears' all the different birds in the vicinity, tuning into them one-by-one. I was in awe."

• Estes Park local **Iolanthe Culjak** was fishing in the Big Thompson watershed and caught sight of something even better than trout: her first boreal toad. • **Walt Borneman** descended McHenry's Peak and paused at Stone Man Pass to watch a long-tailed weasel darting among the rocks hunting a pika who was quick to scurry into its den. The weasel repeatedly stood upright on its hind legs to get a better view of its prey. • **Marlene Borneman** noted sure signs of autumn on the Tonahutu Trail including fireweed (*Chamerion angustifolium*) living up to its name amongst the 2020 East Troublesome fire burn scars. Fireweed blooms from bottom to top, so when the very top fully blooms, summer is over! Red Elderberry (*Sambucus racemosa*) & Red Raspberries (*Rubus idaeus*) are also flourishing in the burn scars on the Tonahutu.



Waterspout | Mary Guenzal



Boreal Toad | Iolanthe Culjak



Red Elderberry | Marlene Borneman