



TETON STEWARDS

WINTER
2023/2024

NEWSLETTER OF THE GRAND TETON NATIONAL PARK FOUNDATION



WILDLIFE RESEARCH ADVANCEMENTS IMPROVE CONSERVATION



Photo: Diana Stratton

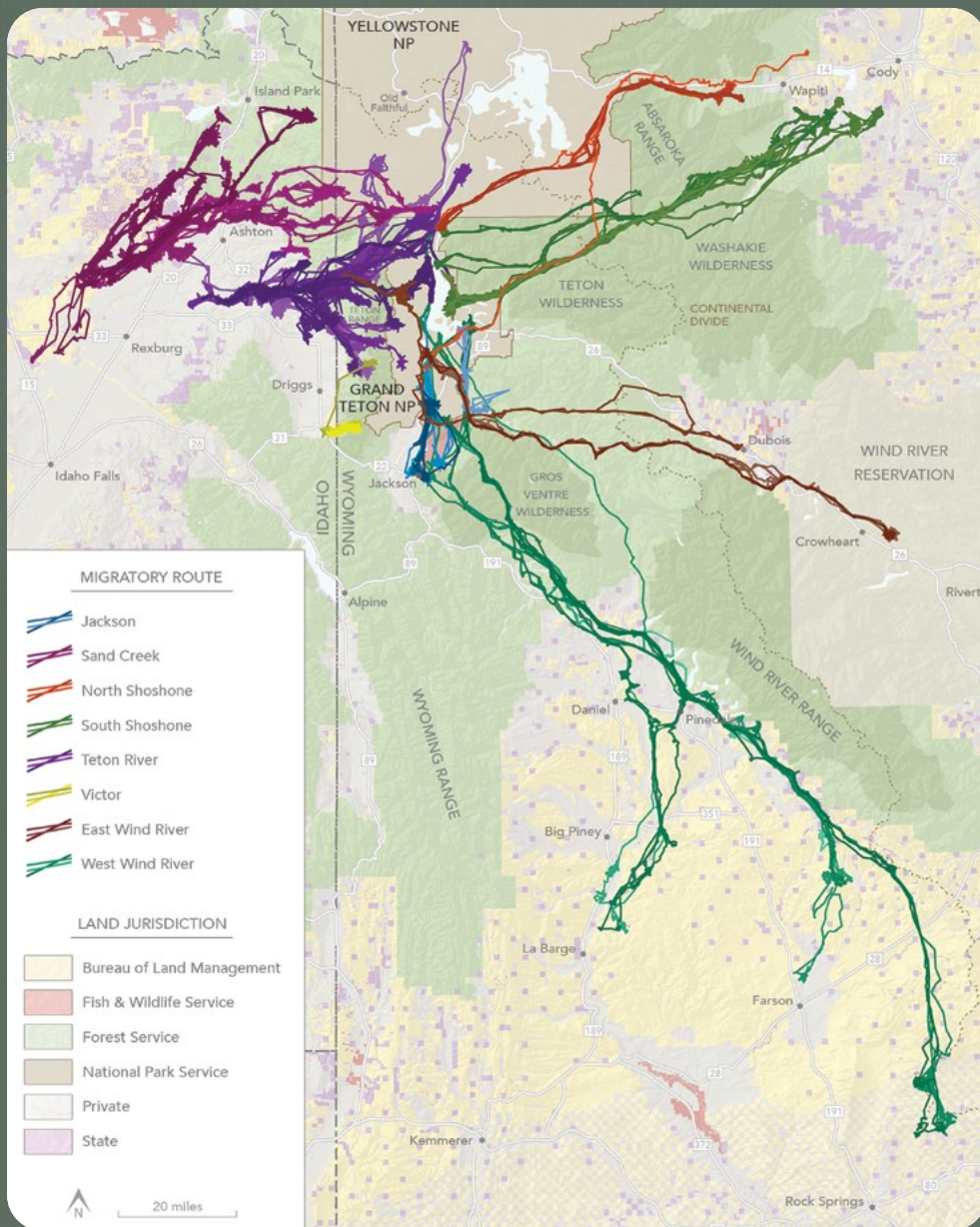
Scientific research is one of the core pillars that support Grand Teton National Park's wildlife and natural resources stewardship program. Combined with on-the-ground conservation, a robust education platform, and guided by National Park Service policy, the park strives to preserve the natural ecosystem processes that have persisted nearly unchanged for 10,000 years.

During the last few decades, advancement in research techniques has profoundly enhanced our understanding of complex natural systems and how humans interact with them, facilitating similar improvements in information-based decision making by park managers. Innovations in radio telemetry, led by battery and electronic miniaturization technology, progress in DNA extraction and genotyping procedures, applications of environmental sound recordings, and the creation of novel, landscape-level human activity measures have transformed field-based wildlife studies.

A mainstay of wildlife studies for more than fifty years, radio telemetry allows the tracking of animals after they have been captured and fitted with a transmitter. In its infancy, the need to locate tagged animals in the field with handheld or plane-mounted antennas was labor intensive, sometimes dangerous, and often provided only approximate geographic positions. But in the early 2000s, telemetry studies were transformed when GPS transmitters became widely available. Although expensive, GPS allowed the automated collection of accurate locations taken at rates many orders of magnitude greater than

formerly possible. Battery requirements limited early models to large animals because of weight, and initially most models required retrieving the transmitters to obtain data stored onboard. The 2004 *Path of the Pronghorn* research deployed this new technology, resulting in a detailed account of the route and eventually the first federally protected migration corridor in U.S. history. The return of grizzly bears to historic habitats in Grand Teton was also documented in detail during this telemetry era.

As GPS quickly dominated the field, units that could relay data from the an-



Left: Migration paths of mule deer that summer in and around Grand Teton National obtained with GPS and satellite uplink technology. The paths reveal distant winter ranges and critical corridors in need of protection. *Top right:* Use of handheld telemetry antennas has been nearly eliminated because of GPS telemetry advancements. *Bottom right:* DNA from bighorn sheep scat collected at mineral licks has been used to estimate Teton Range population size.

imal-mounted transmitters to researchers in real time via satellites became available—enabling another huge step forward in the diversity of study designs. Park biologists and their collaborators began using this technology on nearly all their transmitters. GPS transmitters can now also relay data via cell phone towers where adequate service is present, conserving precious battery power and extending transmitter life. And, with improvements in battery and electronic miniaturization, nearly any size of animal can now be tracked with GPS technology. Today, units as light as one gram (half the weight of a dime) are available.

On some animals, particularly birds, tiny solar panels can keep these units functioning for many years.

Advancements in DNA extraction and genotyping, and resulting decreases in associated costs, have likewise become more mainstream in a variety of wildlife studies. In Grand Teton, using DNA extracted from bighorn sheep fecal samples and identifying individuals through genotyping has produced the first robust population estimates ever for the native, at-risk Teton Range herd. Knowing population size, how many sheep are breeding,

occurrence of past genetic bottlenecks, and other genetic parameters is critical for decisive and prudent conservation planning for small, genetically isolated populations. Similar efforts have been used to assess the genetic status of Jackson Hole's small sage grouse population, Yellowstone ecosystem grizzly bears, and northern Rocky Mountain wolves.

Newer applications can identify minute levels of DNA in water, soil, or scat samples to determine the presence or absence of a species. Biologists are now monitoring the distribution of rare harlequin ducks in the park simply by

Continued



Teton Raptor Center biologists have improved studies of nesting great grey owl population dynamics through new bioacoustics monitoring applications (*left*). DNA analyses have helped determine the conservation status of the park's small, isolated sage grouse population (*middle*). New indices of human activity on the landscape, which can have profound impacts on wildlife, are being used to better assess visitor impacts and how to mitigate associated effects on wildlife (*right*). Photos: Owl/Brad Schwarm, Grouse/Diana Stratton

sampling water in likely stream courses, rather than conducting the exhaustive physical surveys of the past (which also disturbed these reclusive birds). Using DNA metabarcoding, which can identify multiple species from single samples, researchers are determining diets of big-horn sheep as part of a nutritional carrying capacity study, as well as contrasting prey of wolves, coyotes, and red fox.

Non-invasive bioacoustics monitoring is also on the forefront of new research and conservation techniques. By deploying autonomous recording units (ARUs) in the field, biologists can record a wealth of ecological parameters—including species presence and identification of specific individuals within a species—without the need to directly observe or capture and mark animals. Annual survival, migration trends, effects of climate change, and more can now be gleaned from recorded data. The ARUs capture sounds that humans often miss, provide a permanent record, and nearly eliminate researcher disturbance of animals in the field. Key advances in automated processing of enormous recording data sets are making their use powerful and

are practical additions to wildlife science. In Grand Teton, biologists are investigating the presence and status of common loons, evaluating long-term changes in park natural soundscapes, and monitoring demographic trends in sensitive owl populations.

Among the most interesting and far-reaching wildlife research innovations are new indices of human activity on the landscape. Humans can have profound impacts on animal activity, essentially competing with them for space. Since protected areas like Grand Teton do not have infinite capacities for absorbing visitation increases without resource impacts, understanding and mitigating them has become an essential attribute of ecosystem stewardship. Historically, human disturbance has been estimated by presence of developments—roads, trails, buildings—and data gleaned from trail counters or specific activity permits (backcountry travel, for example) that are only roughly geographically referenced. But the age of social media and widespread use of GPS devices, including cell phones, has changed all this, resulting in robust and

spatially specific data (Strava Heat Map, for example) that can now be used to evaluate effects of human disturbance on wildlife at higher levels of inference. The park and its collaborators are actively pursuing the use of these data in future studies.

These and many more advances in statistical analysis software, habitat modeling, and sophisticated study design have allowed quantum-level increases in understanding wildlife and contemporary influences that challenge their long-term conservation. At Grand Teton National Park, consistent Foundation funding has been key in leveraging support from a wide range of academic, government, and private partners that, together, bring their best game and newest technology to address the park's most pressing wildlife research and conservation needs.

This article was written by Steve Cain, former wildlife biologist at Grand Teton National Park, where he directed wildlife management, conservation, and research for more than twenty-five years.



Photos 2011—Left: Grizzly bear 399 and her cubs of the year in early summer. Right: Grizzly bear 610 with her two cubs and one cub adopted from 399's litter. Below: Twenty-four-year-old 399 with her rare four cub litter in 2020. Photos: Above-Diana Stratton, Below-Dinita Delimont

DNA TECHNOLOGY CONFIRMS RARE GRIZZLY CUB ADOPTION

In spring of 2011, grizzlies 399 and 610 emerged with cubs of the year in Grand Teton, 399 with three and 610 with two. Bear 610 is 399's daughter.

In late July, relatively close to one another, 610 was observed with three cubs and a few days later 399 with only two. The extra cub stayed with 610 all summer, fueling speculation that a rare cub swap had taken place.

Biologists used DNA samples from 610 and 399—obtained during previous research captures—and 610's three cubs—secured non-invasively in a hair snare—to verify this uncommon event. Photographs of 610 and the three cubs visiting the hair snare and subsequent analyses of hair

samples left by the cubs confirmed the identity of all four bears, including one of 399's cubs travelling with 610.

Genetic fitness reasoning predicts that bears would be more likely to adopt related young. But documenting adoptions is difficult, and discerning relationships among the players is usually not possible. In both this case and another in Yellowstone, DNA technology proved the adopting parent was the daughter of the adopted bear's mother and thus also the adopted bear's sister.



Message from President
LESLIE MATTSON



As the sun sets on 2023, I am proud of all that Grand Teton National Park Foundation has accomplished this year. Our board approved our new long-range plan, which will leverage our past achievements and guide our work in partnership with the park through 2029—Grand Teton’s centennial anniversary.

The completion of this strategic document marks more than one year of collaboration with the park’s leadership team, our staff, and board and resource council members. While our vision remains the same, this new plan allows us to remain strong and nimble to support our partner as new needs and challenges emerge.

A growing focus area for our work with Grand Teton is engaging regional indigenous communities. We began this effort in 2016 by supporting a Tribal Youth Corps program that brought Native youth to the park for month-long internships where they completed trail work and learned about careers while connecting with their ancestral lands. This program was severely impacted by the pandemic. Last winter, we were presented with the opportunity to work with Ancestral Lands Conservation Corps, an organization that facilitates on-the-job training for Native youth in the southwest, and invest in opening an office for programming in the Wind River community. The goal is to leverage our partnership with Grand Teton to provide career training opportunities that are translatable to jobs on the Wind River Indian Reservation. This will build on our current efforts that bring teens from Fort Hall to Grand Teton, and we look

forward to continue supporting indigenous youth with ancestral ties to this landscape.

Our new fiscal year began on October 1, and we welcomed a new board chair—Gregg Ward. Gregg served on our resource council starting in 2016 and has been on our board since 2018. He chaired our strategic planning committee and will be a tremendous asset to lead our organization during the next three years. We are also grateful for our past chair, Debbie Barker, and the incredible leadership she provided to our organization throughout the pandemic and strategic planning process. We are in a stronger position because of her guidance.

The Foundation would not have the impact that we do without our dedicated supporters. I hope you enjoy learning more about all that your generosity enabled in 2023 throughout the pages of this newsletter. Thank you for your passion and commitment!

Leslie Mattson

President

A longtime friend of Grand Teton National Park Foundation, John L. Nau, III, has made an extraordinary challenge grant toward RENEWING LIFE ON MORMON ROW—our multiyear project that is preserving the park’s most beloved historic district. All gifts to Grand Teton’s largest cultural resource project to date will be matched dollar-for-dollar up to \$300,000. Call 307-732-0629 or visit gtnpf.org/donate and list “Mormon Row” in the comments field to have your investment doubled today. THANK YOU!



2023 HIGHLIGHTS

Raised **\$10,308,345** in support of Grand Teton National Park, enabling more than 30 high-impact programs and projects. Our partnership highlights include:

Visited 6 of the 11 Teton glaciers 20 times to document annual changes in snow depth, ice mass, and more to better understand the impact of changing weather patterns and precipitation on this essential water resource



Deployed 9 radio collars, monitored 5 packs by air and ground, and collected thousands of GPS locations for area wolves to better understand population dynamics within Grand Teton and Jackson Hole



Began planning and design for a multiyear capital project that will renew visitor facilities and trails at the park's most popular year-round destination—Taggart Lake

Photos: Wolves-Danita Delimont, Others-Tyson Chavis, Ryan Kelly, Ryan Sheets, and NPS

Moved the Roy Chambers Homestead at Mormon Row off of its original foundation so a new one could be built and the structure can be adaptively reused for seasonal workforce housing—a critical need for Grand Teton



Seeded 80 acres, planted 900 container starts, collected hundreds of pounds of native seed, and grew 4,000 container plants as part of our multi-year project to restore sagebrush-grassland habitat for the benefit of wildlife

Completed pika surveys in 115 habitat patches over the course of 30 field days to better understand why this species thrives in Grand Teton and is struggling elsewhere throughout the west



Engaged 118 young people in Grand Teton through 5 unique programs that provide transformational outdoor, education, and employment opportunities and offer hands-on experiences as participants begin to make important career and lifestyle decisions



Educated countless park visitors about resource protection and safety through 4 programs—Wildlife Brigade, String Lakers, Nordic Ambassadors, and Snake River Ambassadors—whose volunteers contributed thousands of hours of their time

Provided funding for a park avalanche forecaster to collaborate with the Bridger-Teton Avalanche Center and contribute park-specific snowpack assessments and observations that were integrated into the daily forecast, ensuring backcountry skiers and riders had accurate data to make informed decisions



Began work on the third and final site—Moose Landing—to be improved by our multiyear Snake River Gateways project that is renewing access and protecting resources along the river in the park



1,772 DONORS
SUPPORTED OUR PARTNERSHIP WORK



NPS ACADEMY ALUM CAMERAN BAHNSEN RETURNS TO GRAND TETON

FOR NEW ROLE AS TRIBAL COMMUNITY ENGAGEMENT FELLOW

In 2019, Cameran Bahnsen was living in Los Angeles and leading field trips for Title I schools into the Santa Monica Mountains. She was inspired by the experience and decided to apply for the 2020 National Park Service Academy (NPSA)—a program that provides on-the-job training for college students that the Foundation has funded for more than a decade. Cameran was fortunate to be placed in an internship that year in Grand Teton National Park as an interpretive ranger, was then hired as the park's community engagement associate, and has just rejoined Grand Teton as the new tribal community engagement fellow. We spoke with Cameran about

her time in NPSA, how her passion and experience led her back to the Teton landscape, and what she is looking forward to in this new role.

Where are you from and what is your connection to national parks?

I grew up in Ventura County, California. I had been to national parks before NPSA, but I didn't visit a lot as a kid. I think I've always felt connected to the outdoors because of my cultural background. I am Assiniboine on my mom's side, and my family comes from the Fort Peck Reservation in Montana. As Native people, our culture and traditions are inextricably connected to the environment.

Even though I grew up off the reservation as an urban Native, my mom played a big role in keeping us as connected as possible to our culture. She has been an important role model in helping me connect to the outdoors in everyday ways.

What was your experience like in NPSA?

I remember feeling so excited to be there. I loved the job. I loved the people that I worked with, and I loved the Tetons. It was one of the best summers of my life. The mountains are so special and it's really amazing to experience this place. Professionally, I deepened my understanding of the National Park Service



“What I’m really passionate about is finding ways for local tribes and indigenous peoples to connect to Grand Teton...They are the original stewards of this place, before the National Park Service was even an idea.”

and public lands, and gained amazing mentors and community connections. I was especially motivated by tribal-park relations and wanted to keep moving in that direction.

How did NPSA impact your education and career path?

I recently graduated from the University of California Santa Barbara (UCSB) with a degree in environmental studies and a minor in Native American studies. Being connected to and employed by Grand Teton at various times throughout my undergraduate career was awesome because I was able to draw on my professional experiences, which added so much value while taking college courses at UCSB. I took classes on public lands, conservation, and environmental education and got more involved in UCSB’s outdoor program.

What is your new position?

I just got hired as the tribal community

engagement fellow for Grand Teton. I will be working on building relationships with tribes from Fort Hall and Wind River—the two nearest reservations to the park—primarily through youth programs. Our main focus is to engage young people in Grand Teton, teach them leadership skills, and expose them to conservation careers. There’s also a big emphasis on cultural history, and we provide a space where participants can connect with their traditions, language, and ancestral lands here in the park. The other part of this job is to help front-line interpretive rangers incorporate indigenous history, culture, and stories into educational programming.

What are you most excited about with this role?

What I’m really passionate about is finding ways for local tribes and indigenous peoples to connect to Grand Teton, which is their traditional homelands. They are the original stewards of this

place, before the National Park Service was ever an idea, and their connections to Grand Teton are incredibly deep. I’m also passionate about telling the tribal story of the park because I think that it is really important for people to know as they’re traveling around these places. Tribes have been taking care of the land for thousands of years. That’s been my favorite part about this; bringing that perspective to light with the public in the best way that I can. I’m also excited to just be in Grand Teton, living in a beautiful place, with some of my dearest friends. I couldn’t ask for anything better.

We look forward to supporting Cameran in her role as the tribal community engagement fellow and watching her impact continue to unfold in Grand Teton. To learn more about youth programs supported by the Foundation, contact Maddy Johnson—maddy@gtnpf.org or 307-732-0629.



Photo: Beth and Mike King

ESTABLISHING THE KING ENDOWMENT:

GRAND TETON NATIONAL PARK FOUNDATION'S NEWEST NATURAL RESOURCES AND WILDLIFE ENDOWMENT FUND

Beth and Mike King are both self-proclaimed nature lovers. From North Carolina, they have been visiting Grand Teton National Park since 1984 and believe the Tetons are one of the most beautiful landscapes in the world.

The Kings are captivated by the gorgeous scenery and magnificent wildlife that call this place home. As avid photographers and wildlife watchers—it is a sort of paradise. But the park also represents something more: it is a place of rejuvenation. When they visit, Mike and Beth find a sense of tranquility and renewal of the spirit.

The Kings' passion for wildlife is evident in their volunteer work back home with sea turtle conservation, and here in the Tetons as they seek quiet places for wild encounters. Once, while hiking in Cascade Canyon years ago, they stopped for

lunch on a rocky outcrop above Cascade Creek. They were alone, and suddenly a big bull moose appeared from behind a patch of willows, browsing on vegetation. For thirty minutes, the Kings observed the bull as it munched its way downstream toward their lunch spot, and up-close they saw that he was in his velvet stage. Eventually, he ambled away, but that intimate and personal wildlife experience stuck with them.

Their love of wildlife and love for the park landscape is a legacy that will live on through their planned gift to the Foundation. In 2022, the Kings generously established a



new endowment fund that will support the conservation and management of wildlife and natural resources in Grand Teton in perpetuity, ensuring the continued ecological integrity of the park ecosystem and the wildlife that depend on this habitat for survival.

In addition to their endowment, the Kings are planned giving donors and continue to support other key park initiatives. They recognize the strength of partnership between the Foundation and Grand Teton, and the resources the organization is able to bring to address critical park needs. Mike and Beth were supporters of Jenny Lake—the Foundation’s park service centennial effort to renew front and backcountry trails at this popular area in the park. It was their participation in this project that ultimately affirmed their interest in establishing an endowment. “When the project was completed and we saw all the work that was done with trail repair, parking, and access improvements, we were so impressed. You know the feeling you get when you give someone a present they really like and how good it makes you feel? That was the feeling we had knowing we were a part of something that would enhance the Teton experience for generations to come. Seeing firsthand how our support is improving the park experience is appealing, and it is because of this that we decided to create an endowment fund for our favorite area of park stewardship—wildlife.”

We are grateful to the Kings for their longtime generosity and foresight, which will benefit wildlife and wild habitat today and for generations to come.

GIFTS ANYONE CAN MAKE

Creating a meaningful legacy through a planned gift will support our partnership for many years to come, leaving a lasting mark that will enable Grand Teton National Park Foundation to sustain its mission for generations.

Depending on your charitable estate goals, circumstances, and the giving vehicle(s) that are right for you, you could increase your income, decrease your estate taxes, or receive a tax deduction by making a planned gift:

- Make a gift that costs you nothing during your lifetime by leaving a bequest to Grand Teton National Park Foundation in your will or trust.
- Turn surplus life insurance coverage into a charitable gift and take a tax deduction now.
- Preserve your estate for your children and, at the same time, deliver ongoing support to the Foundation by establishing a Charitable Lead Trust using appreciated assets.
- Name the Foundation as the beneficiary of your retirement plan while leaving more of your estate to your heirs through qualified income tax avoidance.
- Use appreciated securities like stocks, bonds, or mutual funds and realize larger tax savings and avoid capital gains liability.
- Create an endowment to ensure your favorite areas of park stewardship are sustained in perpetuity.
- Establish a Donor Advised Fund, receive an immediate tax benefit, and increase your philanthropy at the same time.

If you’ve already made the Foundation part of your estate plan, please let us know so that we can thank you and recognize your inspiring commitment through inclusion in our Horace Albright Society for legacy gift donors.

Thank you for your consideration!
To learn more, contact Wayne Turner at wayne@gtnpf.org or call (307) 732-0629.



RENEWAL OF TETON CREST TRAIL

ABOVE LAKE SOLITUDE IMPROVES CONDITIONS FOR HIKERS

The view of Mount Owen, Grand Teton, and Middle Teton from Paintbrush Divide looking into Cascade Canyon is unforgettable. It requires a minimum of seventeen miles (round trip) and nearly 4,000 feet of elevation gain to get there—making this point along the iconic Teton Crest Trail one that is on many hikers’ “must see” list when visiting Grand Teton National Park. Completed by the Civilian Conservation Corps in 1938, this portion of the Crest Trail has been etched in the memories of everyone who has been fortunate enough to experience it.

2023 marks the fourth year that the Foundation has funded work along the nearly 100-year-old, high alpine route in Grand Teton, which has not seen regular

or significant maintenance prior to now due to the time, skill, and financial commitment required. Park crews focused their efforts on the trail leading from Lake Solitude to Paintbrush Divide this season. Their goals were to make safer and easier travel by: repairing historic stone walls, removing large boulders that were obstructing the trail, improving drainage structures to reduce erosion and resource damage, and regrading portions of the path.

Completing these complex objectives at high elevation during the wettest summer in twenty-five years was a significant challenge. In addition, the group found themselves working in unstable boulder fields that were much more dynamic than anticipated.

The demanding conditions did not prevent the trail crew from making significant accomplishments during their four, eight-day backcountry hitches spent at Lake Solitude this season. “It was extremely rewarding to see the result of the improved accessibility through difficult terrain,” Grand Teton Trail Crew Leader Corey Kruse said. “The group had many visitors share their thanks and appreciation to see us working in the high alpine backcountry.”

Teton Crest Trail renewal efforts will continue next summer in the southern portion of the park in Death Canyon near Static Peak and Buck Mountain Pass. To learn more about the Foundation’s support of trail improvements in Grand Teton, contact Molly Ruffle at 307-732-0629 or molly@gtnpf.org.

–2023 TETON CREST TRAIL ACCOMPLISHMENTS–



410 square feet of RETAINING WALL constructed



16 LARGE BOULDERS removed

24 new STEPS and 6 WATER BARS built



4,890 feet of TREAD REGRADED

4 CREW MEMBERS and 1 SUPERVISOR spent 1,460 HOURS supporting the project