

# IMAGES

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# IMAGES

The mission of the Boulder County Parks & Open Space Department is to conserve natural, cultural, and agricultural resources and provide public uses that reflect sound resource management and community values.

## PHOTOGRAPHS & ILLUSTRATIONS

**Cover: Mud Lake Open Space**

**Limber Pine, Shane Milne**

**Columbine, Cathy Bryerly**

**Hummingbird Artwork; Mary Rolf**

**Heil Valley Ranch; Ellen Harris**

*\*Uncredited photos from POS Collection*

## NATURE DETECTIVES

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Volume 44, number 2



# From the Director's Desk

by Therese Glowacki

I'm Therese Glowacki, the recently appointed Director of Boulder County Parks & Open Space (BCPOS). I am thrilled to share what my job entails. Although this job is new to me, I have been with the department for 23 years as the Resource Management Division Manager. This experience gave me insight into many workings of our department. I just get to look at things from a different angle now.

BCPOS has a strategic plan that outlines key areas for us to work on, all of which are important to me personally. These four areas are: diversity and equity, climate adaptation, maintenance backlog, and safety. Every day, I tackle these issues and help the department address them. I'll give you some examples.



**"I love these multi-cultural experiences because we learn from each other. These experiences bring fun, richness, beauty, and humanity to our daily lives."**

**Therese Glowacki, Director of Parks & Open Space**

## DIVERSITY AND EQUITY

I believe that racial equity is necessary, fair, and just. I work daily to help BCPOS staff embrace our Cultural Responsiveness and Inclusion Strategic Plan (CRISP) and give them the tools and resources to implement its goals. As an organization, I want our department to look like our community, so I am committed to hiring more employees who are Spanish-speaking, Latinx, Black, indigenous, and people of color. We have recently added three Spanish-speaking rangers and our Natural History Program Coordinator, all who interact with the public daily.

This week I have been working to combine two former staff positions to create a partnership position that will help us reach the Latinx community. I joined Explorando Senderos, a Latinx weekly hiking group, at their first birthday party last fall and heard how their weekly hikes on open space are inspiring them to enjoy the outdoors, get fresh air and exercise, and learn about nature, all with their families. This is a small step in expanding our outreach so our visitors also reflect our community's diversity.

I love these multi-cultural experiences because we learn from each other. These experiences bring fun, richness, beauty, and humanity to our daily lives.

## CLIMATE ADAPTATION

Climate adaptation is another passion of mine. Today I met with the Director of the county's Office of Sustainability, Climate Action and Resilience. We talked about emerging carbon markets that could help our tenant farmers get funding to increase carbon farming on county open space. Managing our natural landscapes, like increasing wetlands and riparian areas, also helps fight climate change. Last Friday I joined a group evaluating the Cal-Wood Fire recovery on Heil Valley Ranch. Over the last 18 months, staff and volunteers planted trees, seeded grass, and put aerial mulch on the burned areas to help stabilize the soil, take carbon from the air, and reduce the potential for future flooding. We also enlarged culverts so they will be resilient in the storms we expect as the climate changes. I also talk with our Agricultural Division staff about ways to encourage more sustainable farming practices, like cover crops and compost addition. Putting more funding toward these goals will help reduce soil erosion, reduce dust pollution, and draw carbon out of the air.

## MAINTENANCE BACKLOG

Last week I went to the LOBO Trail in Gunbarrel and Twin Lakes with our trails staff to talk about maintenance backlog. This 20-year-old trail shows signs of use by thousands of bike riders and hikers. Although people continue to enjoy it today, an expert trail staff sees water pooling and potholes. Their summer project will be upgrading two of the worst miles of our 66 miles of gravel trails. I increased our seasonal budget to help get additional, enthusiastic staff out working on this backlog this summer and into the future.

## SAFETY

Safety is a less glamorous topic but is paramount in assuring visitors, staff, and volunteers safely enjoy our open space. In the past several weeks we had notification that a fire started on or near open space. I see those notifications and touch base immediately with our forestry and ranger staff to see if they need to respond to help put the fire out or evacuate neighbors. I also talk to our Fairgrounds Manager once an evacuation order is issued. For the Marshall Fire, they housed more than 840 animals for a few days. Providing this public service is complex and rewarding. We are also increasing safety training and daily safety checklists for staff.

## IN CLOSING

One final thing I do almost daily is talk about real estate. We are usually working on a purchase or two, including one found in the middle of Heil Valley Ranch. Inside our beloved park is State Land Board-owned land that we have been renting for more than 25 years. Our staff is now negotiating how to buy that land at fair market price so that BCPOS can manage it as we do the surrounding park. The State Land Board is obliged to make money on their land to help support education in Colorado, something we too support. Now comes the complexities of getting the land valued and drafting sales agreements and purchase contracts, the nitty gritty of what, when, where and how much \$\$\$!

These are a few of the fun and exciting topics I deal with every day. I try to be sure to get out to our properties weekly to connect with the birds, trails, trees, and staff to see the projects our department is working on that help you get out there and enjoy this treasure we call Boulder County Parks & Open Space.



Therese with Stefan Reinhold, who now holds Therese's previous position of Resource Management Division Manager.



Volunteers plant ponderosa pines as part of the recovery effort at Heil Valley Ranch Open Space following the 2020 Cal-Wood Fire.



# Five Years Later: Elk Management

by Jonathon DeCoste



Hunters participating in the elk management program at Ron Stewart Preserve at Rabbit Mountain.

As I crest the saddle between two hogback ridges, dozens of heads turn in my direction—elk! Freezing instantly, I make a quick note of their location and slowly inch back down the slope. After waiting several minutes for the elk to relax, I make my way along the ridgeline and cautiously peek over the top again—this time safely concealed behind some rocks. A few hundred yards ahead of me on the flank of Indian Mountain, a small herd of elk is spread out in an open meadow—some on their feet feeding while others are bedded and basking in the sun. These elk have likely spent the day up here in relative safety surrounded by mountain mahogany thickets and concealed from below by the unique hogback formations jutting from the mountainside. Using binoculars, I repeatedly count the herd making note of the number of cows, calves, yearling bulls (also called “spikes”), two-year old bulls (or “raghorns”), and mature bulls. After multiple counts, I classify 53 individuals in this group of mostly cows and calves along with a handful of yearling bulls. Mature bulls often separate from these cow/calf herds to form “bachelor” groups throughout the spring and summer months.

This elk herd is the result of five years of intensive elk management on the Ron Stewart Preserve at Rabbit Mountain Open Space that included such measures as non-lethal hazing, fencing off key natural resources, and the ultimate establishment of a targeted hunting program. At the time, this controversial decision was adopted as a last resort to address the growing elk herd that exploded from a few dozen individuals in the early 2000s, to more than 360 by 2016. The elk, which had been absent on the local landscape since at least the early 1900s, had discovered an ideal refuge at Ron Stewart Preserve, where they were safe from hunters and had easy access to irrigated crops surrounding the preserve.

## MIGRATION SLOWS

Historically, these elk would have spent their winter months down on the plains and scattered throughout the lower elevations of the foothills before migrating each spring to their calving grounds in the high-alpine meadows east of the Continental Divide. With access to such abundant resources, many of the elk that traditionally migrated each spring became year-round residents of Ron Stewart Preserve, choosing to calve and raise their young in the relative safety of the preserve.

Although this turn of events was very favorable for the elk, the local ecosystem, nearby crops, farm and ranching infrastructure, private property, and highway safety all suffered as a result of the ballooning population of the elk herd.

To address the damage the elk were causing throughout the area, Colorado Parks and Wildlife created an elk management subunit in 2014 that allowed a small number of hunters to harvest antlerless elk on private property surrounding Ron Stewart Preserve from mid-August through the end of January. Although this initial attempt to manage the growing herd resulted in 12 successful harvests of cow elk, it did little to address the elk using the open space as a refuge.

## CONSIDERING OPTIONS

After careful consideration and public input, it was decided that a trial hunting program at Ron Stewart Preserve at Rabbit Mountain would be piloted starting in 2017. At the time, it was determined that the ecosystem of the open space can support a resident, non-migratory, elk herd of 30 individuals year-round, and up to 70 individuals with the addition of migratory elk joining the resident herd each winter. The Elk Management Team, recently created to oversee this project, considered

hunting a key management tool; not only reducing the number of elk on the landscape through hunter harvests, but more importantly, influencing the behavior of the elk by encouraging the reestablishment of seasonal migration patterns.

Following the first year of hunting in 2017, where 27 elk were successfully harvested on Ron Stewart Preserve and an additional 28 animals were harvested on adjacent private land, the elk herd was estimated at 260 individuals—a reduction of roughly 100 animals from a high count of 360 the year before. Over the next four years, harvest numbers at the open space decreased from a high of 31 in 2018 to just 14 in 2021. During that time, we also saw private land harvests increase—an indication that the elk were spending less time at Ron Stewart Preserve.

## CURRENT COUNT SHOWS SUCCESS

Today, as I count these 53 elk lazily making their way across the slope, I can see the success of this program. Five years of management reduced the herd from 360 individuals down to around 70 today. Areas of high biological diversity previously damaged by the elk are showing clear signs of recovery, and overall damage claims to private property and infrastructure are down throughout the subunit. Taken together, we're starting to see elk numbers on the landscape that the local ecosystem can support; the challenge now is sustaining this success over time.

# RESEARCH ON OPEN SPACE

*The Boulder County Parks & Open Space Department offers grants for research on county open space lands each year. All proposals are reviewed by a team of resource specialists, and awarded research projects are monitored during their activities on open space. The following is a summary of a 2021 study conducted by Christina Alba and Michelle DePrenger-Levin at the Denver Botanic Gardens. The project focused on post-fire assessment and incorporation of indaziflam (Rejuvra®).*

**Abstract:** Land managers are increasingly tasked with understanding interacting global change phenomena. Biological invasions and altered fire regimes are two aspects of global change that together shape vegetation dynamics and ecological function in the western United States (Alba et al. 2014). Non-native winter annual grasses such as *Bromus tectorum* L. (cheatgrass), which respond well to fire and change fuel characteristics, can create a plant-fire cycle that leads to loss of native biodiversity and attendant ecosystem function (D'Antonio and Vitousek 1992; Germino et al. 2016). Recent advances with pre-emergent herbicides have provided managers with an additional tool for controlling non-native annuals and biennials (see US EPA Pesticide Product Label, Rejuvra Plus, 2020 for a list of target species), while potentially reducing unwanted impact on native perennials (Sebastian et al. 2017; Clark et al. 2019; Clark 2020).

Indaziflam (Rejuvra®) has recently been approved for use in natural areas, where its effect on propagule availability could mediate plant community response to pulsed disturbances such

as fire. For example, given the targeted effect of Rejuvra® on short-lived species, it is of interest to assess whether its use could thwart establishment by short-lived native species that recruit post-fire.

Here we assessed plant community composition in areas of Heil Valley Ranch and nearby locations in Boulder County, Colorado, that were treated pre-fire (or not) with spraying regimens that include Rejuvra®, and that were burned (or not) during the 2020 Cal-Wood Fire (setting up a naturally occurring factorial combination of treatments).

Our overall objective was to determine whether sprayed areas are better primed for post-fire recruitment of desirable native species than untreated areas. Within the umbrella of this objective we:

- Assessed whether burning affected the efficacy of herbicide treatment in controlling the target non-native grasses *Bromus tectorum* and *Bromus japonicus*.
- Determined how the richness and relative abundances of native and introduced species responded to burning, spraying, and burning plus spraying; we include a focus on short-lived functional groups, given the targeted effect of Rejuvra® on short-lived species.
- Assessed whether burning or spraying affect the presence of species with different levels of tolerance to habitat degradation (using the Coefficient of Conservatism metric).

*If you want to read the full report, or other funded research, visit the department's website at [www.bouldercounty.org/open-space/education/research](http://www.bouldercounty.org/open-space/education/research)*

# Slow-growing and Frost-hardy Pine

by Shane Milne

Among the many things that draw people to Boulder County is its unique, natural setting. Our forests are a major component of that natural setting and provide several benefits. Of the several species that make up our local forests, the limber pine deserves more special attention than it gets.

Limber pine is a long-lived, five-needle white pine widely distributed in western North America. Unlike other conifers that are restricted to growing at certain elevations, limber pine can flourish in elevations from 5,200 feet at Pawnee Buttes (35 miles east of Fort Collins) to more than 11,000 feet near Rollins Pass.

In Boulder County, limber pine is a very minor forest component below 8,000 feet and is usually restricted to very dry and windy sites. Above 8,000 feet it is more common. Rarely forming pure stands, it is often interspersed with aspen, ponderosa pine, Douglas-fir, lodgepole pine, Engelmann spruce, subalpine fir, and/or Rocky Mountain bristlecone pine.

Compared to other conifers, limber pine is a small-to-medium-sized tree rarely exceeding 50 feet. Trunks vary from straight to contorted, single to multi-stemmed, but in general are short and thick with a twisted and gnarled appearance.

Limber pine is not considered a commercially valuable species but benefits the ecosystem in several ways, including soil stabilization, snow retention, colonization following fire, and food and habitat for wildlife. It also serves as a foundation species that provides suitable conditions for the establishment of other tree species.

## LONG LIVED

Its ability to survive in dry environments allows some limber pine trees to live beyond 1,000 years, which provides researchers

with centuries worth of climate and forest disturbance data.

Unfortunately, limber pine populations are now vulnerable and face multiple threats, including mountain pine beetle and dwarf mistletoe. Perhaps the most alarming threat is a non-native disease of white pines called white pine blister rust. These agents can cause widespread tree mortality and, when found in combination can be even more lethal, threatening the long-term sustainability of the species.

## SPECIAL ATTENTION

Despite widespread mortality at some local levels, limber pine still maintains its overall range; however it is listed as a species of special concern by Boulder County. Because of this status, limber pine was the subject of a comprehensive recovery plan that outlines the management efforts Parks & Open Space should take to ensure the persistence of this species.

Our department has already started monitoring for insect and disease issues, and we've added several new efforts focused on the conservation of the species. These efforts include long-term monitoring of plots to detect changes in our limber pine populations over time, seed collections for future planting efforts, determining if there are blister rust-resistant trees on our properties, pruning for heavy infestations of dwarf mistletoe and white pine blister rust, as well as preserving existing limber pine populations by selective thinning and prescribed fire treatments.

Through implementation of these strategies, Parks & Open Space hopes to play an active role in maintaining this unique and valuable species for future generations of park visitors.



Limber pine trees can live beyond 1,000 years, which provides researchers with centuries worth of climate and forest disturbance data.



# NATURE DETECTIVES

Summer2022



## Hummingbirds Are In a Hurry!

With wings softly whirring, the **broad-tailed hummingbird** hovered, dipping her narrow bill into the red base of a sugar water feeder. She licked the sweet liquid, flicking her tongue in and out 13 times in just a second! The shrill buzzing of an incoming male broad-tail cut her meal short. Quickly she flew sideways then up and away. She caught a glimpse of the male's rosy-red throat feathers glinting in the sunlight as he took her place at the feeder. Glad for her quick drink, she zoomed off to search for small insect and spider prey.

She snatched a tiny caterpillar and raced to her nest to feed her two nestlings. All day, she made frequent trips to nearby wildflower patches for sugary nectar. She nibbled tiny flies, aphids, and caterpillars off plants. She plucked gnats out of the air to nourish herself and her hungry, growing brood. At dusk she was back at the feeder to lap up sugar water for enough energy to last the night.

## Hummingbirds Zoom South As Summer Winds Down

The **rufous hummingbird** was in a hurry to get back to Mexico. In early spring he'd found a territory far north in Alaska that included a lush area of wildflowers. He chased off other rufous males and waited for rufous females to begin arriving from Mexico. After he mated with nearby females, his biological clock signaled time to head south.

Although his spring migration was northbound up the west coast, he flew south toward Mexico along the Rocky Mountains where summer wildflowers bloom.

He stopped frequently on his 2000 mile journey to refuel with just enough sweet nectar to stay agile for quick, acrobatic flight. When he located an abundance of flowers or sugar water feeders, he stayed for a few days.



In July he reached Colorado. From a lookout perch on a high branch, he fiercely guarded his refueling stop from other hummingbirds. In sunlight his throat feathers winked orange like embers glowing at the bottom of a campfire. The larger broad-tailed hummingbirds darted in for quick nectar sips before the rufous saw them. The broad-tails were preparing for their own migration south.

A constant fight for survival drives a rufous hummingbird's aggressive competition and a broad-tailed hummingbird's seemingly rude behavior.

## Broad-tailed Hummingbirds, the Flying Jewels of Spring

You might hear a male broad-tail near the end of April when he buzzes by the window where a feeder hung the previous summer. Males arrive first to claim a territory with a variety of plants for food and shelter. Broad-tails are our largest and most common hummingbird. They migrate up from Mexico where they are called *Zumbador Cola Ancha*. *Cola Ancha* translates to *wide tail* in English. Zumbador translates to *buzzer*, and these hummingbirds are known for the males' buzzing trill as they fly.



The shrill sound is attractive to female broad-tails, but it can be a territory challenge as well. Trilling is made by air moving over two long, narrow-tipped feathers on each wing. Feathers wear down with use so by the time winter comes, the males' trill is softer or silent. Once the birds molt, new wing feathers make the trilling sound as loudly as ever.

Male broad-tails also perform flying high dives to impress nearby females. Mating is the only time adult male and female hummingbirds are together.

A female will defend a territory from other female broad-tails. She looks for a protected place with shrubs, trees, and open meadow to build a nest. It takes about five days to construct the cozy cup-like nest. She starts it on a tree or shrub, often sheltered overhead by a drooping pine tree branch. She makes foray after foray to collect downy



fuzz from flowering aspen and willow catkins. Carefully she weaves the fluffy material together with spider web threads. As she gathers spider webbing, she may dine on insects caught in the web, or munch the web-spinning spider. The nest outside is decorated with pieces of moss, lichen, or bits of bark. Two pea-sized eggs are laid inside. Stretchy spider web allows the nest to expand to fit the nestlings' growing bodies. By the time the fledglings fly off, the nest cup may look more like a flat saucer.



## Stocky Rufous Are Tough Little Hummingbirds

Called *Zumbador Canelo* in Mexico, rufous have a reputation for their aggressive defense of feeders and flowers, despite having shorter, stockier bodies than broad-tails. *Canelo* translates to *cinnamon* in English, and rufous males are readily identified by that reddish-orange color and by their glittering copper-colored throat feathers. Females are mostly duller green, similar to female broad-tails.

Rufous nest farther north than any other hummingbird species. Luckily, they can survive frigid 0° temperatures! Rufous migrate up the Pacific Coast to nest in the Northwest U.S. or further into Canada. Some nest as far up as southern Alaska.



## Delicate Calliopes, the Smallest Nesting Birds in North America

**Calliope hummingbirds** may be smaller than other Colorado hummingbirds, but they are mighty. They are the smallest long-distance migrant in the world! They are uncommon in Boulder County, but these little hummingbirds are easy to identify, especially when next to bigger species. The males are particularly showy with ribbons of shimmering reddish-purple feathers streaming off their throats. Calliopes migrating through Colorado to Mexico come from as far away as Canada, and show up in the foothills and mountains here in July and August.



## Look for Black-chinned Hummingbirds in the Foothills

These rufous-sized migraters seldom stray from higher elevations, and are uncommon in our county. A streak of iridescent purple shimmers below the dark feathers on **black-chinned hummingbirds**. Besides the male's color, watch for tail pumping. For some reason, black-chinned hummingbirds pump their tail more than other hummingbirds.



## Hummingbird Adaptations for a Sweet Life

Hummingbirds are smart. They remember migration routes and where the best food sources are located year to year. More importantly, they are curious and willing to adapt to changing conditions. During migration in early spring, they often encounter cold and snow that could be deadly if they didn't have the ability to go into a sleeplike state called **torpor**.

During torpor a hummingbird's energy needs plummet. Their heartbeats slow from 1250 beats a minute when flying and 250 beats when resting to a mere 50 beats a minute. Breathing also slows and their body temperature drops as much as 50 degrees. With reduced energy needs, they can survive cold nights, stormy days, and even a lack of food for a short while.

Acrobatic flight gives hummingbirds an edge on anything trying to catch them. They can speedily zip sideways, up, down, frontwards, backwards, and upside down. Such flight is possible because of the way their shoulders allow their wings to move in a unique figure eight pattern. Their wings make a humming sound as they beat 50 times a second or more, so fast our eyes see the wings as a blur.

The feet and legs on hummingbirds are thin and delicate. They cannot walk or hop. Feet are handy for perching, gripping, scratching, and preening. (Preening is cleaning and straightening their feathers.) Beautiful iridescent feathers on these birds glimmer with bright color only in sunlight. The sparkling throat patch is called a **gorget**. (*Gorget* rhymes with *poor pet*.) Juveniles avoid being harassed by adult males because the youngsters look like females. The young males' fancy feathers develop their second year.



## Hummingbirds and Flowers Need Each Other

Hummingbirds have a long narrow bill and a tongue that can reach well beyond the tip of their bill. The hummingbird's flexible tongue acts like a pump to lap up nectar deep inside a flower. While the hummingbirds sip the nectar, pollen gets brushed onto the bird's feathers. The birds carry the pollen from flower to flower, and flowers need the pollen to make seeds.

Tubular flowers like salvia, penstemon, and columbine are hummingbird favorites. Look for some tube-shaped flowers on your next hike. Stay still and watch for hummingbirds hovering at the flowers. See if you can tell if they are males or females. For a bigger challenge, can you name the species? It might be fun to make a list of what you see.

## Healthy Habitats for Hummingbirds

Hummingbirds sip nectar from flowers of all different colors, but they see darker colors like red and ultraviolet colors really well. (Bees and wasps are more attracted to yellow and other light-colored flowers. Humans can't see ultraviolet.)

Keeping flowers free of pesticides is vital because hummingbirds need the tiny critters that thrive in a healthy ecosystem such as spiders, aphids, caterpillars, and their eggs.

Hummingbirds quench their thirst with nectar, but they play and bathe in fresh water. Dripping, bubbling, or misting water is particularly inviting to them. Trees and shrubs provide safe perches, look-outs, and shade.

## Gardening for Hummingbirds



The loss of native plants due to climate change is challenging for hummingbirds since they need frequent food stops along their

migration path. People can help hummingbirds by growing a native wildflower garden with a variety of flowers, insects, and little spiders.

Water sources, flowers, and feeders don't hold hummingbirds back from migrating when their instincts tell them it's time hurry on their way. The flashy flyers are here and gone on their own schedule. Some of our hummingbirds nest in the mountains and foothills, staying long enough to fledge young. Others simply stop for a few days or minutes to recharge along their migration route. Some are early migraters and some are stragglers. Whether they arrive early or late, a safe refuge may entice them to return year after year. Hummingbirds can live more than eight years. A few have returned to the same garden for 12 years.



Text by Katherine Young and Deborah Price  
Illustrations by Carol Tuttle



# Snakes Alive—Are you Rattled?

by Ann Cooper

As the weather warms up, snakes, cold-blooded animals, come out of winter dormancy and prowl in search of edible, small critters. From about mid-April to October, depending on the year's weather, you may find them along local trails, especially in grasslands, agricultural areas, or grassy meadow and rocky outcrops in the foothills. Be aware!

Are you afraid of encountering snakes, especially large or noisy ones? Many people are. That fear is considered an innate and self-saving response rooted in our evolutionary past. Other people are thrilled to see these reptiles and delight in watching them—from a distance and with respect—marveling at their behavior, sinuous movements, and subtle colorings.

Rest assured, Boulder County is home to only one kind of venomous snake: the prairie rattlesnake. The other eleven species of resident snakes are harmless to humans. Most are relatively small and elusive, except the frequently seen bull snake. It may grow up to eight feet long—not a snake you'd easily overlook.

Unfortunately for us and these two snake species, prairie rattlesnakes and bull snakes superficially look alike and that can lead to them being indiscriminately feared, hated, or even killed. It pays to understand how to tell them apart, learn to step back carefully, and enjoy both species as vital members of the natural world doing their job of keeping rodent populations in check.



## PRAIRIE RATTLESNAKE: VENOMOUS

Prairie rattlesnakes (*Crotalus viridis*) are pit vipers. The name refers to heat-sensing pits, between the eye and nostril on each side of the wide triangular head, that sense warm-bodied prey. They eat lizards, rats, mice, voles, and young prairie dogs. Rattlers are patterned with gray or brown blotches on a dull greenish or grayish background, have rattles (a series of “buttons”), on the tail tip, small scales covering most of top of the head, and vertical pupils in the eyes. Young prairie rattlesnakes resemble adults, though they have fewer buttons. They are venomous from the start, but not more so than adults.

## BULL SNAKE—AKA GOPHER SNAKE: HARMLESS

Bull snakes (*Pituophis catenifer*) are constrictors. A bull snake will usually seize prey in its mouth and wrap coils of its body around larger prey to squeeze and subdue it. They eat a variety of rodents, lizards, birds' eggs, and nestlings. These hefty snakes have yellowish background color with brown or rusty brown to black splotches on the back, a neck the same width as the head, boldly patterned pointed tails, and round pupils in the eyes.

These snakes are not aggressive, they defend themselves with warnings. They hiss and/or noisily vibrate their tails in dry grasses, which can spook onlookers into mistaking them for rattlers. Bull snakes are versatile: they climb trees to raid nests for eggs or young birds.

## MORE TO LEARN: BULL SNAKES AND RATTLESNAKES

Rattlesnakes and bull snakes may bask on gravel roads and trails to warm up. Give them space to move away at their own speed—they might still be morning-chilly.

Both rattlesnakes and bull snakes go dormant in winter in underground burrows, clustering with others of their kind.

Rattler moms give birth to a litter of ten or so live young in late summer or early fall. Bull snake moms lay up to a score of eggs in sandy ground where the sun will incubate them until they hatch.

Snakes have forked tongues that flick in and out to sample the air for scents. The motion is hypnotic.

Snakes are good swimmers.

## DISCOVER BOULDER COUNTY

# Calendar of Events

### ASTRONOMY: SEASONS OF CHANGE

Friday, June 10, 8:15-10:30 p.m.

Near Lyons. Location provided when registered.

Changing seasons mean changing skies. Learn how our orbit around the sun changes the constellations we see in the southern sky followed by sky gazing with telescopes provided by the Longmont Astronomical Society. All ages. Register at [www.BoulderCountyOpenSpace.org/register](http://www.BoulderCountyOpenSpace.org/register).



### Special Event

#### BARNYARD CRITTER DAY

Sunday, June 12,

Drop in between 10 a.m.-3 p.m.

Agricultural Heritage Center

8348 Highway 66, Longmont

Learn about the roles of chickens, pigs, horses, and other animals on a farm. See demonstrations of various farm animals and participate in hands-on activities. Please leave pets at home so working animals will not be disturbed.

For more information, contact Jim Drew at 303-776-8688 or email [jdrew@bouldercounty.org](mailto:jdrew@bouldercounty.org).

### FOOTHILLS WILDFLOWER HIKE

Saturday, June 18, 1-3 p.m.

Near Boulder. Location provided when registered.

Join volunteer naturalists for a wildflower hike in the foothills west of Boulder! We will hike about 1.5-miles through forest and meadows in search of spring wildflowers while enjoying beautiful views of the snowy high country. Register at [www.bouldercountyopenspace.org/register](http://www.bouldercountyopenspace.org/register).



### CELEBRATE SUMMER HIKE

Tuesday, June 21, 10 a.m.-noon

Near Nederland. Location provided when registered.

Join volunteer naturalists to celebrate the coming of summer to the high country. On this easy 1.5 mile hike, we will explore the natural history of the area, including wildflowers, wildlife, and forest ecology. We will also talk about summer weather patterns and safety in the mountains. Register at [www.bouldercountyopenspace.org/register](http://www.bouldercountyopenspace.org/register).

### WILDFLOWERS OF BOULDER COUNTY SLIDE PROGRAM

Thursday, June 23, 6:30-8 p.m.

Near Longmont. Location provided when registered.

Join volunteer naturalists for a slide program to kick off the wildflower season! You'll learn about the diversity of wildflowers in Boulder County from the plains to the alpine, where and when to look for them, and some interesting stories about some of our native plants. Register at [www.bouldercountyopenspace.org/register](http://www.bouldercountyopenspace.org/register).

### ASTRONOMY: OUR SOLAR SYSTEM NEIGHBORS

Friday, July 8, 8:15-10:30 p.m.

Near Lyons. Location provided when registered.

Our solar system includes tiny asteroids to large planets. Discover interesting facts, size comparisons, and more about our space neighborhood during a brief program, followed by sky gazing with telescopes provided by the Longmont Astronomical Society. All ages. Register at [www.BoulderCountyOpenSpace.org/register](http://www.BoulderCountyOpenSpace.org/register).



### NATURE DETECTIVES: GLITTERING HUMMINGBIRDS

Wednesday, July 13, 2:30-3:30 p.m.

Near Boulder. Location provided when registered.

Tiny hummingbirds are a summer delight. Discover more about these acrobatic flyers and explore their incredible adaptations for a sweet life through stories and activities. For ages 5-10 with an accompanying adult. Register at [www.BoulderCountyOpenSpace.org/register](http://www.BoulderCountyOpenSpace.org/register).



## Special Event

### SUMMER HERITAGE MORNING

Sunday, July 17, 10 a.m.-1 p.m.

Walker Ranch Homestead, 7001 Flagstaff Mountain Rd., approximately 7 miles west of Boulder

Talk with costumed volunteers as they demonstrate late-1800's ranch tasks. You will also be invited to do some ranch chores and play historical games. Free and fun for all ages. If you like, bring a picnic and blanket—there are no tables at the homestead. No reservations needed. For more information, contact Sheryl Kippen at 303-776-8848 or [skippen@bouldercounty.org](mailto:skippen@bouldercounty.org).



### STORY IN THE ROCKS SLIDE PROGRAM

Saturday, July 16, 2-3:30 p.m.

Near Louisville. Location provided when registered.

The geologic history of Boulder County's remarkable landscape goes back nearly two billion years! Rocks contain a record of earth's history that can be read like the pages in a book. Join volunteer naturalists for this slide program and learn how to read this fascinating story in the rocks. Register at [www.BoulderCountyOpenSpace.org/register](http://www.BoulderCountyOpenSpace.org/register).



## Catfish Nights

June 17 & July 15  
7:30 - 11 p.m.

Stearns Lake at Carolyn Holmberg Preserve (access trailhead from Dillon Rd. on South 104th Street) Broomfield area

Bring your family and friends and enjoy summer night fishing at the lake! Anglers must have a current Colorado fishing license. (Kids under 16 don't need a license.)

- Open to shore fishing only.
- Artificial and live bait permitted.
- Check-in required at trailhead on South 104th St.

For more information, please call 303-678-6204.

**Event will not be canceled because of weather.**

### INVASIVES! THE NOXIOUS WEEDS OF BOULDER COUNTY

Wednesday, July 27, 1-3 p.m.

Near Longmont. Location provided when registered.

Join volunteer naturalists on a short hike and explore the world of noxious weeds and learn which ones can be found across Boulder County on open space, roadways, and even in your backyard. Learn Identification tips and tricks, how different species are managed on a large and small scale, and what you can do to help. Register at [www.BoulderCountyOpenSpace.org/register](http://www.BoulderCountyOpenSpace.org/register).

### ALL ABOUT BEAVERS

Saturday, July 30, 6:30-8 p.m.

Near Nederland. Location provided when registered.

Beavers were once prevalent here—and in most of the rest of the country when the land was much wetter. Join us on an easy hike in beaver territory to read the land, learning to spot good beaver habitat, problem areas, and more. Register at [www.bouldercountyopenspace.org/register](http://www.bouldercountyopenspace.org/register).



### ASTRONOMY: SOLAR SYSTEM VISITORS—COMETS AND METEORS

Friday, Aug. 5, 8-10:30 p.m.

Near Lyons. Location provided when registered.

Discover fun facts about visitors to our solar system (comets and meteors) in preparation for the Perseid Meteor shower later this month. The brief program will be followed by sky gazing with telescopes provided by the Longmont Astronomical Society. All ages. Register at [www.BoulderCountyOpenSpace.org/register](http://www.BoulderCountyOpenSpace.org/register).

## Summer Night Hikes



Join volunteer naturalists to hike about one mile round-trip on an easy trail. By starlight, listen for night sounds and learn about nocturnal habits of the critters that live here. Bring water, closed-toe shoes, and a flashlight. Space is limited, registration required.

Register at [www.bouldercountyopenspace.org/register](http://www.bouldercountyopenspace.org/register).

### Sunset on the Foothills

Tuesday, July 19, 7:30-10 p.m.

Near Longmont. Location provided when registered.

Watch the sunset and learn about the animals that make their living at dusk.

### Going Batty!

Thursday, Aug. 25, 7:30-10 p.m.

Near Broomfield. Location provided when registered.

Come with us as we look for and learn about these leather-winged flyers that fill up the night sky.

## HOME SWEET WETLANDS

Wednesday, Aug. 10, 10 a.m.-noon

Near Boulder. Location provided when registered.

Wetlands and freshwater marshes are home to a diverse range of wildlife. From the small and impressive flyers known as dragonflies and damselflies to the large, shrub-eating mammals such as moose. Explore a local wetland and learn about this unique ecosystem and how it hosts so many different types of life. Register at [www.bouldercountyopenspace.org/register](http://www.bouldercountyopenspace.org/register).



## BEAUTIFUL BOULDER COUNTY BUTTERFLIES!

Tuesday, Aug. 16, 5:30-7 p.m.

Near Lafayette. Location provided when registered.

Are you curious about butterflies? Join volunteer naturalists for a beginner's guide to our colorful local butterflies. This slide program will review the amazing life cycle of butterflies, and cover basic information on behavior, host plants, identification tips, and more. Register at [www.BoulderCountyOpenSpace.org/register](http://www.BoulderCountyOpenSpace.org/register).

## HIKES FOR SENIORS

Join park naturalists for a moderate hike to learn about the unique geology, history, plants, and wildlife of these beautiful properties.

Registration required at [www.bouldercountyopenspace.org/register](http://www.bouldercountyopenspace.org/register).

### SUMMERTIME BIRDS WALK

Wednesday, June 29, 9-11 a.m.

Near Longmont. Location provided when registered.

Explore bird behavior, wetlands, and a variety of wildlife.

### SUMMER IN THE HIGH COUNTRY

Thursday, July 21, 9-11 a.m.

Near Nederland. Location provided when registered.

Enjoy this easy hike to learn about the wildflowers, history, and wildlife of the area.

### THE CROSSROADS OF NATURE AND PEOPLE

Friday, Aug. 19, 9-11 a.m.

Near Nederland. Location provided when registered.

Learn about the effects of elevation on ecosystems while exploring this property's history and nature on an easy hike.

## MINING PROGRAMS

### GOLD PANNING

Saturday, July 9, noon-2 p.m.

Sunday, Aug. 14, noon-2 p.m.

Nederland Mining Museum, 200 N. Bridge St., Nederland

Try your hand at gold panning! This activity led to the settlement of Boulder County as people sought their fortunes. Do you have what it takes to travel back in time and search for gold? Programs are open to kids ages 5 and older. Registration required. Register at [www.BoulderCountyOpenSpace.org/register](http://www.BoulderCountyOpenSpace.org/register).

### HARD ROCK MINING VAN TOURS

Thursday, July 21, 9:30 a.m.-12:30 p.m. and 4-7 p.m.

Sunday, Aug. 25, 9:30 a.m.-12:30 p.m. and 4-7 p.m.

Nederland Mining Museum, 200 N. Bridge St., Nederland

Tap into the towns, tools, and characters of our hard rock mining heritage by visiting mining sites of years gone by. Tours are open to ages 10 and older with accompanying adult. Some walking required. Register at [www.BoulderCountyOpenSpace.org/register](http://www.BoulderCountyOpenSpace.org/register).



## ALTONA SCHOOL OPEN HOUSES

Sunday, July 3, 11 a.m.-2 p.m.

Sunday, Aug. 7, 11 a.m.-2 p.m.

Altona Schoolhouse at Heil Valley Ranch Open Space (Park at the Corral Trailhead at Heil Valley Ranch and walk approximately 10 minutes on Schoolhouse Loop to the Altona School.)

Drop by anytime between 11 a.m. and 2 p.m. to go inside the historic schoolhouse, where students studied and played from 1880 to the World War II era. Volunteers will be on hand to share the school's history with visitors. If time allows, you can take part in a game or spelling bee.

### ALL PROGRAMS:

All ages welcome unless otherwise noted. NO PETS, PLEASE! Be prepared for cool to high temperatures and afternoon thunderstorms. Bring water and dress in layers. For information about these programs or to arrange a private program, please call 303-678-6214.



## Visit Our Museums!



### NEDERLAND MINING MUSEUM

Get a glimpse into the world of hard rock mining days in Boulder County during the late 19th and early 20th centuries. Learn about the lives of the miners of yesteryear.

**Hours:** June 3 through Oct. 30

Friday, Saturday and Sunday, 11 a.m.–5 p.m.

**Admission:** Free

**Location:** 200 N. Bridge St., Nederland

**For additional information:** Call 303-443-0865 or visit [www.boco.org/nmm](http://www.boco.org/nmm)



### AGRICULTURAL HERITAGE CENTER

The farm includes two barns with interactive exhibits, a milk house, blacksmith shop, and a furnished 1909 farmhouse. During the busy season there are also animals on site, including chickens, pigs, sheep, and other critters.

**Hours:** April through October

Friday, Saturday, and Sunday, 10 a.m.–5 p.m.

(Tours are offered on open days at 11 a.m.)

**Admission:** Free

**Location:** 8348 Ute Highway 66, west of Longmont

**For additional information:** Call 303-776-8688 or visit [www.BoulderCountyOpenSpace.org/ahc](http://www.BoulderCountyOpenSpace.org/ahc)

## HEIL VALLEY RANCH OPENS JUNE 16

Heil Valley Ranch will be opening, after being closed for recovery efforts from the 2020 Cal-Wood Fire.

Because of the risk of flash flood following the fire, the main trailhead parking lot will close at noon every day. Plan your hike accordingly so you can leave by the time the lot closes. Parking is available from dawn to dusk at the other open space parking lots.

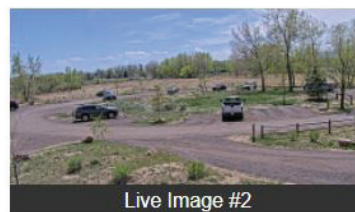


## CHECK PARKING BEFORE YOU GO

View live images of parking lots at Carolyn Holmberg Preserve at Rock Creek Farm, Coalton Trailhead, Pella Crossing, Ron Stewart Preserve at Rabbit Mountain, and Walker Ranch Loop trailhead to see current parking situations before you leave home. Images update every 10 minutes between 5 a.m. and 10 p.m. Live cameras can be viewed at [www.bouldercounty.org/open-space/parks-and-trails/live-trailhead-cameras](http://www.bouldercounty.org/open-space/parks-and-trails/live-trailhead-cameras).



Live Image #1



Live Image #2

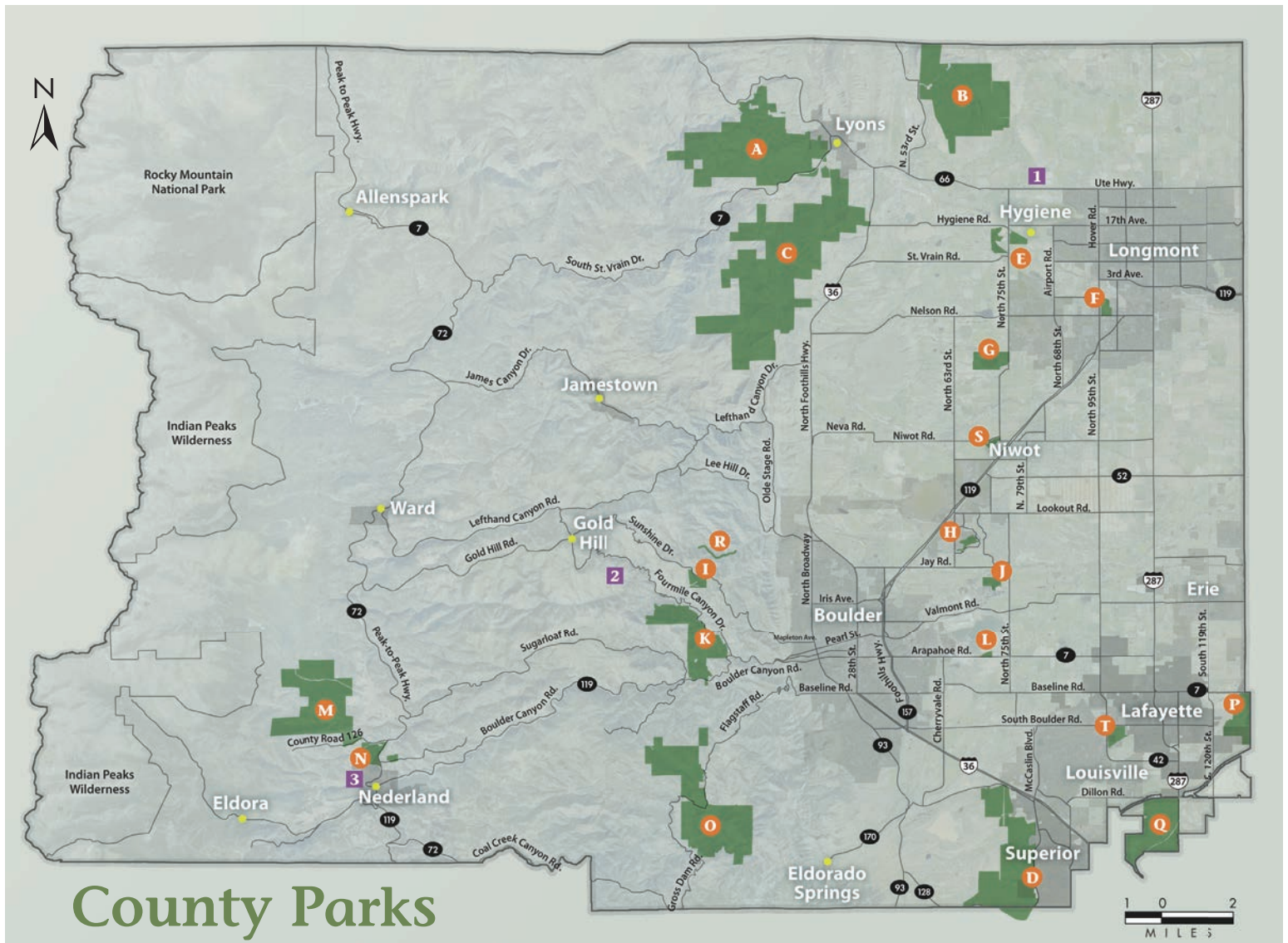




## Parks & Open Space

5201 St. Vrain Road, Longmont, CO 80503

[www.BoulderCountyOpenSpace.org](http://www.BoulderCountyOpenSpace.org)



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|--|--|---|--|
| <b>A</b> Hall Ranch                              | <b>F</b> Boulder County Fairgrounds    | <b>L</b> Legion Park                                  | <b>R</b> Anne U. White                       |
| <b>B</b> Ron Stewart Preserve at Rabbit Mountain | <b>G</b> Lagerman Reservoir            | <b>M</b> Caribou Ranch                                | <b>S</b> Dodd Lake                           |
| <b>C</b> Heil Valley Ranch                       | <b>H</b> Twin Lakes                    | <b>N</b> Mud Lake                                     | <b>T</b> Harney Lastoka                      |
| <b>D</b> Coalton Trailhead                       | <b>I</b> Bald Mountain Scenic Area     | <b>O</b> Walker Ranch                                 | <b>1</b> Agricultural Heritage Center        |
| <b>E</b> Pella Crossing                          | <b>J</b> Walden Ponds Wildlife Habitat | <b>P</b> Flagg Park                                   | <b>2</b> James F. Bailey Assay Office Museum |
|  | <b>K</b> Betasso Preserve              | <b>Q</b> Carolyn Holmberg Preserve at Rock Creek Farm | <b>3</b> Nederland Mining Museum             |