BOULDER COUNTY PARKS AND OPEN SPACE

Spring 2021



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 photo: Pella Crossing, POS Collection Caterpillar, Camille Thorson Biocube Photos, courtesy of Sherry A. Legrand Wetland Illustrations, Ann Cooper Meeker Sortyard, Wayne Harrington Moose, Rachel Gehr *Uncredited photos from POS Collection

NATURE DETECTIVES

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Volume 43, number 1

Bring Butterflies Your Way

by Emily Goodman

Imagine being in your backyard on a warm, sunny afternoon surrounded by colorful, fluttering butterflies and sweet-smelling flowers. Now imagine creating this ecosystem yourself!

If you haven't seen them yet, butterflies start to come out when temperatures rise above 60 degrees because they are cold-blooded. They are also diurnal, so they are active during the day. Butterflies come in beautiful variances of color and sometimes have neutral tones, too. Their scaly wings give butterflies their color. Their bright colors help them camouflage, identify mates, and show they are poisonous. Bright orange, yellow, or black colors on a butterfly might even mimic something that is poisonous to help keep them safe from predators. Aside from their magical beauty, butterflies propagate the food chain and are great pollinators.

If you want to create a butterfly habitat, there are a couple of things to keep in mind. It isn't difficult, but gardening to attract and keep butterflies, differs from regular gardening. Butterflies won't judge your garden on its style or color schemes, so you are free to do as you please.

Once you locate a sunny spot to start your garden, you'll want plants that last throughout summer. This will provide butterflies with a longlasting habitat. The ideal habitat will have suitable food for both the caterpillar and butterfly. By providing food for the life-cycle of a butterfly (nectar source, host plant, and shelter), you're creating a place for the adult butterflies to lay eggs and for caterpillars to grow.

The best thing to do is to plant native plants, free from insecticides. If you see butterflies drinking from or laying eggs on plants you have put out, that means the plant was previously missing from the ecosystem. This is a good thing. Your garden will help the butterfly population by providing tasty nectar and you'll be rewarded with lovely visuals and an aromatic atmosphere.

So, which flowers do butterflies like the most? Butterflies love nectar and there are certain flowers that have higher nectar content than others. Composite flowers are perfect for any butterfly garden. They are a larger flower made up of smaller florets (clusters) which provide the butterflies with more options. They like to focus on the same species of a flowering plant until they reach an empty flower. This saves them the energy of having to move from single flower to single flower. You can also plant the same species of flower in clumps to make it easier for butterflies to find food. Plants in the latana, pentas, dianthus, and phlox families are great composite flowers for a butterfly paradise.



The ideal habitat will have suitable food for both the caterpillar and butterfly.

PICKIER CATERPILLARS

Food for the caterpillar may be trickier because they are pickier than adult butterflies. Most species of caterpillars look for a specific host plant, a or plant they will choose to eat. Only a few species share the same host plant. If there is already a host plant in the wild near you, then you won't need to grow it yourself. Be sure to check out what's growing around you locally.

A good place to start is by planting milkweed and dill, or parsley. Milkweed and parsley are important caterpillar food sources. The milkweed will attract monarch butterflies and anything in the parsley family will attract black swallowtails. Cabbage and broccoli (mustard family) are host plants for the cabbage white butterfly, and willow will attract mourning cloaks. These are some of the most common butterflies you may have seen near you.

Butterfly gardens create a perfect environment for butterflies and a peaceful place for you to enjoy nature right in your backyard. It's a hobby that requires little effort to maintain (just some trimming and watering) and enriches an entire lifetime for a butterfly. Having a piece of nature that encourages butterflies will help you continue a cycle that gives back to the earth. While you enjoy the butterflies in your yard, you may also attract a host of other pollinators such as bumble bees and birds!

> Top: Monarch caterpillar on swamp milkweed Bottom: Swallowtail butterfly



WAYS TO ATTRACT BUTTERFLIES

- Choose plants and flowers
 that have a long blooming
 season
- Pick flowers with high nectar content
- Create a habitat for both the caterpillar and the butterfly
- Plant native plants



Lower maintenance plants and shrubs that bring butterflies and other pollinators to your yard:	
Plants	Notes
Milkweed (Asclepias syriaca)	Host for monarch caterpillar; perennial, spring to fall
Butterfly bush (<i>Buddleia davidii</i>)	Can withstand colder temperatures; perennial, remains evergreen in winter months
Asters (Aster spp.)	Drought tolerant; perennial, blooms at the end of summer into fall.
Bee balm (<i>Monarda fistulosa</i>)	Prefers moist soil; perennial, spring to fall
Cosmos (<i>Cosmos spp</i> .)	Colorful daisy-like flowers; annual, spring to fall
Zinnia (<i>Zinnia spp</i> .)	Annual; blooms in summer and fall
Marigold (Tagetes spp.)	Annual; spring to fall
Dotted blazing star (<i>Liatrtis puntata</i>)	Drought tolerant; perennial, summer to fall
Rabbitbrush (Chrysothamnus nauseosus)	Drought tolerant; perennial shrub that provides nectar for many butterfly species summer to fall

Let's Go CAMPing!

by Carrie Cimo

COVID 19 has dominated the news for the past year, as have discussions on the environmental impacts of this global pandemic. If you search "environmental impacts of COVID 19," heaps of varying and conflicting reports return. But one thing experts agree on is that pandemic or not, the effects of global climate change are not yet alleviated.

Boulder County Parks & Open Space (BCPOS) pledged to be a leader in adapting to and mitigating climate change. As a result of this promise, an interdisciplinary team developed "The CAMP: The Climate Adaptation and Mitigation Policy." Formed in 2019, this team solicited input from all divisions within the department to develop a guiding document to inform stewardship practices on Boulder County public lands.

The CAMP arose out of the department's 2020 Strategic Vision planning process. This plan is specific to BCPOS while still aligning with several other county-wide efforts. The CAMP outlines eight goals and several objectives covering topics of soil health, water quality and efficiencies, agricultural viability, habitat integrity and connectivity, resilient infrastructure design, energy and water use reductions, and the county's zero-waste policy. Each goal was developed with three central tenets: carbon sequestration, adaptation & mitigation, and reduced greenhouse gases. These guiding principles are woven throughout the document and span all divisions throughout the parks department. The CAMP is intended to be an adaptable 'road map' and remain consistent with the latest data in climate change research.

CARBON SEQUESTRATION

Carbon sequestration is the act of removing carbon dioxide from the atmosphere. One way BCPOS plans to incorporate this concept is by improving soil health in agricultural operations and natural ecosystems guided by accredited scientific research. The healthier the soil, the more carbon can be sequestered from the atmosphere. Also, increasing amounts of data have shown that intact wetland, riparian, and grassland ecosystems can sequester significant amounts of carbon, so the department has doubled down on its commitment to protect and restore these habitats wherever possible. Healthy forest ecosystems are also crucial to removing carbon from the atmosphere-they are, after all, the lungs of the earth-so our

forestry operations will continue following science for best management practices to restore and maintain vigorous and resilient ecosystems. adaptable 'road map' and

remain consistent with the The department's agricultural latest data in climate operations hold a spotlight in the change research. carbon sequestration category as well. BCPOS plans to encourage and support climate-minded best management practices and water efficiencies in agricultural operations such as diversifying crop rotations and planting cover crops to help reduce soil erosion. Furthermore, BCPOS is participating in a collaborative pilot study with Colorado State University to evaluate potential carbon sequestration gains following compost additions on rangeland. Another step in this effort involves utilizing an online tool developed by the U.S. Department of Agriculture, called COMET-Farm, to quantify the potential carbon sequestration benefits of various land management actions on both agricultural land and in natural ecosystems. BCPOS also plans to expand educational efforts to farmers, stakeholders, and the public by providing up-to-date information in soil workshops, such as the locally administered Soil Revolution Conference, and climate change specific advanced trainings.

The CAMP is

intended to be an

ADAPTATION AND MITIGATION

Another guiding principle in the CAMP is adaptation and mitigation. Not surprisingly, working toward this goal involves protecting and restoring high value habitat across many ecosystem types. One strategy we are employing is completing a countywide, comprehensive wetland and riparian habitat inventory. We made significant gains on the inventory in 2020 and will be continuing efforts in 2021.

Another strategy is to anticipate species movement in elevation and latitude as a result of climate change. This approach means preserving and creating migration corridors, as well as promoting naturally occurring stands of lower-elevation woody and herbaceous plant species in the mid- and upper elevations of Boulder County. Adaptation and mitigation also apply to our agricultural and water operations through strengthening the local food web based on consumer demand, exploring drought-tolerant crops, and prioritizing the acquisition of water rights, among other strategies.

Paramount to the success of the BCPOS system is designing trailheads, restoration projects, and infrastructure to be resilient in a changing climate. For example, we will prioritize the use of native plant species, include drought-tolerant trees and shrubs that efficiently sequester carbon at our trailheads, and use materials generated locally or made from recycled materials. Lastly, waste diversion at trailheads will continue and expand throughout the BCPOS system.

GREENHOUSE GAS REDUCTION

BCPOS has pledged to reduce greenhouse gases. The pandemic provides a silver lining here, as reducing staff's reliance on single-occupancy vehicles is an objective under this tenet. Staff has adapted to working from home and, thus, significantly reduced our emissions from commuting. Carpooling practices will resume once public health officials determine it is safe to do so. We vow to reduce energy use throughout BCPOS buildings and, working with Building Services to shift to low-maintenance, low-water landscaping.

The extremity of natural disasters across the globe, continual record-setting high temperatures, and increasing days of drought are signs that climate change is not only knocking on earth's door but has started getting comfortable in this beautiful place we call home. As stewards of Boulder County and contributors to global ecosystems, BCPOS is committed to being part of the solution.

Links to related documents on the Boulder County website:

Climate Adaption Mitigation Policy https://assets.bouldercounty.org/wp-content/ uploads/2020/09/climate-adaptation-mitigation-policy.pdf

Strategic Priorities

https://www.bouldercounty.org/departments/ commissioners/strategic-priorities/

Sustainability Plan

https://www.bouldercounty.org/environment/ sustainability/sustainability-plan/

Climate Change Preparedness Plan

https://assets.bouldercounty.org/wp-content/ uploads/2017/03/climate-change-preparedness-plan.pdf

Peaceful

There's a place called Rabbit Where a breeze caresses your cheek Prairie dogs discuss life And wild grasses dance. Elk call this place home As they roam between the ridge And the farmers fields of hay and corn

It's quiet here, save the sounds of nature. No television, computer, or refrigerator, Just a rock chair on a hill Beneath a patchy clouded sky. Chiseled works of art are created As they float by And somehow, peace arrives Upon the breeze.

The prairie grass dances with the wind, And solitude refreshes life Here, in this place called Rabbit.

- by Jason Remmerde, 2020 elk management program participant

Outdoor Learning Lab: The Biocube Project

by Sherry A. Legrand

Are you looking for a different kind of outdoor activity to do with your family during these socially distanced times? Here's a simple idea that family members of any age can do together.

I first heard of the Biocube Project when I visited the Smithsonian National Museum of Natural History a couple of years ago. As Hygiene Elementary's Science, Technology, Engineering, the Arts and Mathematics (STEAM) Coordinator, I thought it was a perfect way to engage our elementary students and families in being citizen scientists in our Boulder County open spaces.

The Biocube Project is a fun way to learn about the biodiversity in our world. Students are encouraged to build an open-sided cube, place it outside, and observe the cubic foot of space over time. They then share their observations and make connections to the larger ecosystem.

I collaborated with Jill Johnston, Hygiene Elementary's Library Media Tech, Dr. Mikki McComb-Kobza, Executive Director of the Ocean First





Top: Dr. Mikki McComb-Kobza, Deborah Price, and teacher Sherry Legrand meet with parents and students at Pella Crossing to set up their biocube project. Bottom: A student gets a close-up look at life inside a biocube.

on it from the insects? Why is there a hole in the ground today? What animal might live there now? What new fauna is growing? Ms. Johnston shared, "It helps to make the kids aware that the biocube space is connected to the local ecosystem and, therefore, Earth's ecosystem."

This project can easily be done by your family. My fourth-grade student, Sophia Bosica says, "This was the most fun that I have done and I have had a great few months doing this!" Choose an interesting location to observe in your community. You can also build your own biocube to place in your own yard, since no permission is required. For each observation, note the weather conditions, describe what you see or perhaps what is missing since the last viewing. Make an observation at least once a month. If you are able to find evidence of wildlife, upload your findings to inaturalist.org.

Dr. McComb-Kobza recently shared with me, "This project exposes young people to nature, to monitoring wildlife, collecting data, and understanding the importance of preservation. Having Mrs. Legrand champion the Biocube Project is inspiring the next generation of inquisitive, actionoriented conservationists."

Institute in Boulder and parent of a Hygiene Elementary student, and Deborah Price, with Boulder County Parks & Open Space, to bring this project to Hygiene Elementary students and families. We were granted permission in December 2019 to place two biocubes at Pella Crossing and, together, decided where to place them. We also built one biocube per grade level for students to monitor on our school grounds. Additionally, in the fall of 2020, I extended this project to my St. Vrain LaunchED Virtual Academy third- and fourth-grade students, who committed to online learning for the entire 2020-21 school year.

For the past 14 months, our elementary students have been documenting observations of their biocubes. They were encouraged to focus on everything they observe. How is that leaf important to our location on Earth? Did you notice the bite marks As an educator, I have thoroughly enjoyed giving hundreds of students encouragement to be citizen scientists and foster their curiosity for the world around them. I encourage you to enjoy with your families, the beautiful local parks and open spaces that we are so fortunate to have just outside our front doors.

Sherry Legrand invites educators who want to learn more about the biocube project to email her at legrand_sherry@svvsd.org.

HOW TO BUILD YOUR BIOCUBE

More information and directions for building a biocube can be found at: https://naturalhistory. si.edu/education/teaching-resources/life-science/ biocubes-exploring-biodiversity/biocube-home







Daddy Long-legs and the Playground Myth

Have you ever wondered about daddy long-legs? You might know they aren't spiders, even though they certainly resemble spiders with their eight flimsy legs. Maybe you spotted a daddy long-legs on the school playground? They are fairly common to find in shady places such as under a slide, beside the building, or on a wall.

Possibly you heard a kid say, "They are the most poisonous spider in the world!" Then a buddy countered, "Yah, but they have such a tiny mouth, they can't bite people." Perhaps your friend worried, "What if that one has a bigger mouth?!"

The Myth Heard Around the World

Incredibly, *that* myth about them being deadly has spread all over the world. (Well, not in Antarctica...no daddy long-legs there.) Truth is, daddy long-legs *cannot* inject deadly toxins because they have no glands for making venom nor any fangs for venom delivery. No venom, no fangs, no worries for humans.

Many people mix up the words *poisonous* and *venomous*. Poison is something unsafe to swallow such as a toxic plant. Venom is toxin that some snakes and other critters make in glands in their bodies to inject with their bite or sting.



Pull Out and Save

Spiders do have venom glands and fangs, usually teeny fangs and most do not have very toxic venom. Spiders have two very obvious main body parts divided by a narrow middle, and spiders have three or four pairs of eyes. (Remember daddy long-legs aren't spiders.)

Daddy long-legs have one pair of light-sensing eyes, placed on a miniature tower on the front of their body. The body of a daddy long-legs slightly resembles a round raisin held up on skinny legs. They don't have a narrow waist, and their two main body parts are hidden under their exoskeleton.





Without venom or fangs, daddy long-legs have survived just fine on earth for over 400 million years.

In fact, fossils of daddy long-legs that lived 100 million years *before* dinosaurs look pretty much like those in Boulder County today.



What Are Daddy Long-legs?

Like spiders, daddy long-legs are arachnids, and all arachnids have eight legs. There are many kinds of arachnids, including mites, ticks, and scorpions. Daddy long-legs are more closely related to scorpions than to spiders.

When temperatures warm in the spring, daddy long-legs hatch from eggs that an adult female inserted in damp soil the previous fall. The babies look like tiny adults. As their body grows, they must molt. They shed their old, outgrown exoskeleton, then the surface of their body dries to become a new, bigger exoskeleton. They molt six times over the summer to reach adult size in the fall.

Molting is hazardous work. It may take hours for the new exoskeleton to harden. Usually molting is done while hanging upside down. First they pull their body out of the old exoskeleton. Then they grab one leg at a time to pull each leg out. They have to be careful because the legs are wet and sticky coming out of the old exoskeleton. Legs that accidentally touch will glue together. Yikes!

Specialized Legs

The way daddy long-legs move and scurry over obstacles like rocks and leaves looks unearthly. They usually carry their bodies low to the surface, hanging below their super-long legs bent at an angle. It looks somewhat like their bodies float in the middle of four wobbly versions of the letter M. The shape has inspired some science fiction writers in their design of alien monsters.

Notice how your fingers can curl into a fist because of your joints. Daddy long-legs have many joints in their legs, and the joints become even more numerous near the tips. Each leg also ends in a miniature claw to give them clinging power. They climb like monkeys by wrapping their flexible legs over the top of twigs and branches.

They only walk on six of their eight legs, the front pair of legs and the back two pairs. With careful observation, you can see them using the second pair from the front as feelers, just as you might put out your arms to feel your way in the dark. Unlike your arms, that second pair of legs can also taste and smell what they are touching. They even breathe through their legs too.

Where Do They Hang Out

Daddy long-legs don't have silk glands so they can't make webs. Look for them in the shade under leaves or on shady walls near the ground. Because they dry out easily, they like hiding in damp places among plants and under wood.

They seek out small sources of water too. They drink by lowering their small mouth to the surface to sip a sip of water.

Sometimes they hang out in a group with their legs intertwined.

Predator, Scavenger, Forager

Variety is the key to a daddy long-legs' menu. They eat tiny bites of solid food.

They hunt soft-bodied insects such as mites, aphids, and little caterpillars.

They scavenge dead animals and decaying plants. They munch on mushrooms.

Tools for Eating and Grooming

Near their mouth are two grabbers that look like stubby legs with teeny claws. Daddy long-legs use them to grasp, hold, and tear off pieces of food.

Miniature jaws in front of the mouth act like pincers or teeny scissors to chop morsels of food into mouth-sized bites.

Don't worry! These tools and the claws on their legs are too small to break human skin.

Daddy long-legs also use their grabbers to hold their legs for grooming. They draw the legs one at a time through their jaws, carefully nibbling off any filth.



Weird Defenses

Birds, ants, spiders, toads and other hungry creatures hunt daddy long-legs. If the predator seizes it by the leg, the daddy long-legs simply detaches its leg, and darts safely away.

The leg won't grow back, but the daddy long-legs is okay without it.

To make sure the lost leg holds a predator's attention, nerves in the detached leg keep it twitching for a while.

The brownish body colors of daddy long-legs are good camouflage in rotting leaves. Sometimes looking dead and hiding in plain sight is enough of a defense.

As another defense, they can release a yucky fluid at the sides of their body to repulse an attacker. The fluid smells and tastes awful. Who'd want to eat that?!

Sometimes a threatened daddy long-legs starts bouncing its body on its legs, sort of like it's dancing. Maybe this makes it harder for predators to see where to attack or maybe the dancer just looks so weird, the attacker loses its appetite.

Adult daddy long-legs have no defenses against cold air so when winter sets in their life-cycle comes to an end. Next spring a new generation will hatch, emerge from the ground, grow to adulthood, and sometimes dance.





Sherlock Fox says:

Daddy long-legs is the common name for this arachnid in the U.S. and Canada. Their common name is **harvestmen** in Mexico and some other places, maybe because so many are seen in the fall when most farm crops are gathered.

The name daddy long-legs usually refers to a type of flying insect in Mexico, which is called a crane fly in some parts of the U.S. (Even more confusing, the crane fly isn't a fly.) In other places, the name daddy long-legs is used for a web-dwelling cellar spider with longish legs. Names can be so confusing!

Sensations

Taste, smell, and touch are sensed by the longest pair of legs on a daddy long-legs. That long pair is located on their body behind the front pair of legs. The sensing legs aren't necessary for walking, and are often stretched out beyond the front legs relaying information on what lies ahead. Think about how taste, smell, and touch help YOU decide where to go or what to eat.

Their eyes play a role in sensing their surroundings too, even though their eyes are simple eyes that mostly tell light from dark. For instance, a sudden looming shadow might warn of a predator approaching. Can you think of other ways seeing bright light and dark shadows might help a daddy long-legs find shelter, food, and water?

Side-View Vision

When you are afraid of being caught by a predator, being able to see on both sides and towards your back is important! Daddy long-legs have eyes aimed to the side of their body for this very reason. To see what that's like, put your hands together and then open them slightly to fit over your nose and part of your eyes.

Try walking around the room using your new peripheral vision. Hopefully there are no predators right in front of you! Next time you're in a car, look at the side-view mirrors—they are doing a similar thing, allowing the driver to see to the side and behind.



Clingy Claws

Daddy long-legs have jointed legs and little claws on the end of their legs that helps them hold on and hang upside down. We don't have claws but we do have fingers that grasp, and jointed arms and legs.



Go outside to a jungle gym, swing set, or a sturdy tree branch and hang upside down with your arms and legs. Try moving along the bar or branch daddy long-legs style!

Text by Katherine Young and Deborah Price Illustrations by Carol Tuttle

Wetland VIPs—Very Important Plants

by Ann Cooper

Cattails. Rushes. Sedges. They're the big three of wetlands, flowering plants that dominate marshy areas. Yet to many of us, they are little-noticed green fringes along the margins of lakes and ponds.

These plants offer food, shelter, and homesites to mammals, birds, insects, and other creatures living in and around ponds, marshes, and rivers. They help keep ponds clean, filtering out silt and impurities flowing in from towns, farms, and gardens.

WHAT ARE THESE VIPS?

Cattails are tall, wet-loving green plants in the botanical family, *Typhaceae*. They grow and spread—from strong rhizomes partly floating or rooted in mud. Our local species are broad-leaved cattail (*Typha latifolia*) and narrow-leaved cattail (*Typha angustifolia*). Both have sturdy, flat-bladed leaves from three-to nine-feet tall. You might wonder how such leaves withstand high winds. The secret lies in strong, crisscrossed, internal supports comparable to aircraft wing-struts.

Look for furry brown, hotdog-shaped spikes (those are the female flowers that produce seeds) and above them straggly male flowers that produce loads of pollen. Broad-leaved cattails have female and male

flowers jammed close together on upright stems. Narrow-leaved cattails have an obvious gap between female and male flowers. When the seeds are ripe, a squeeze of the "hotdog" or a strong wind will release thousands of potential new plants. In the past, this fluff was used to stuff pillows, beds, and even life preservers.

Cattails are prolific and may eventually fill shallow open waters. Hungry muskrats and water birds may cull them, but nature is never static, and changing water levels and animal-use patterns may lead to ponds filling in—that's succession. Example? When the boardwalk at Walden Ponds Wildlife Preserve was built in 1991, it was at the water's edge, and people watched muskrats and northern water snakes as they swam beneath it. Now, the idea of



fishing from the walkway is absurd, even if it were allowed!

Green fringes continue to be great homesites. Female red-winged blackbirds construct their nests of stringy plant fibers—grass, cattails, and even tree bark—building the cup-shaped homes around several upright cattail stems not far above the water. Imagine a hanging basket woven tightly around ever-moving stems, created with beak and claws—it's an incredible feat.

Sedges have edges. Rushes are round. And grasses have knees (nodes) that bend to the ground.

This rhyme aims to identify the other two wetland VIPs, but do not take it too seriously. Sedges usually have stems with edges that are triangular in cross-section (try rolling the stem between your fingers) and have three-ranked leaves.

Many sedge species populate wetlands, but others thrive in dry landscapes. It is in high-country wetlands that sedges dominate. Within the sedge family, the genus *Carex* has more species in it than any other flowering plant genus in Colorado more than 100 kinds to identify. *Carex* flowers are tiny, not showy. Some are just small clusters of pinhead-sized granules.

Others are long and gracefully drooping. Some have female and male parts all-in-one (botanists call these perfect flowers). Others have separate male and female flowers. Either way, there are no showy petals, just papery sheaths around the working parts. Dense "edge-veg" consistently includes sedges.

Members of the rush family (*Juncaceae*) are frequently described as "grass-like," but their stems do not have nodes (knees). And to complicate things, their stems can be round—or flattened! Many have tufty clusters of tiny, undistinguished flowers issuing from the side of the stem. They seem to thrive in slightly deeper water than cattails where both occur, but this is observation is only an impression. At Mud Lake in summer, the wide swath of rushes is brilliantly alive with darting dragonflies.

RESEARCH ON OPEN SPACE

The Boulder County Parks and 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 2020 study conducted by Anyll Markevich, Stephen R. Jones and Christel Markevich. Their project focused on impacts of cheatgrass on mammal, bird, and butterfly populations in a Rocky Mountain foothills grassland.

Executive Summary:

Understanding the influence of cheatgrass on mammal, bird, and butterfly populations is vital for proper wildlife management, especially as cheatgrass continues to spread across the western United States. Few studies have investigated these relationships. This study aims to give a preliminary indication of the effects of cheatgrass on wildlife populations of wildlife populations within a Rocky Mountain foothills grassland. We located eight grassland plots, varying in cheatgrass cover, at the base of the Rocky Mountain Front Range south of Lyons, Colorado. Remote triggering cameras, point counts, and transect counts were used to quantify numbers of mammals, birds, and butterflies respectively. We used a combination of ANOVA analysis and Linear Correlation Analysis to analyze our data.

We found that mammals were less numerous in areas with high cheatgrass cover. We did not find a statistically significant relationship between birds and cheatgrass, through birds numbers tended to decrease with increased cheatgrass cover. Butterflies and butterfly species richness (total number of species) showed statistically significant negative correlation with cheatgrass. Our analysis suggested that mammals and birds are unaffected by cheatgrass up to a certain threshold of cheatgrass cover above which they are repelled. Conversely, butterflies were linearly correlated with cheatgrass cover. The ability of mammals and birds to move across relatively large distances may allow them to find enough food even in areas interspersed with a certain amount of cheatgrass. Meanwhile the small home ranges of butterflies and their extreme dependence on local nectar sources may cause butterfly numbers to be reduced in tandem with the reduced availability of nectar sources in places where cheatgrass outcompetes the local vegetation.

Although our study does not prove causal relationships, we believe that the differences in animal populations among plots were in fact driven by cheatgrass infestation. Our belief is supported by the generally weak relationships we observed between animal populations and plot characteristics other than cheatgrass cover. Future research should investigate the impact on wildlife of different treatment methods to control cheatgrass. We recommend that such research compare wildlife populations over appropriately long timescales on untreated plots relatively free of cheatgrass, on untreated plots infested by cheatgrass, and on previously infested treated plots. The standard for treatment success should include restoration to conditions similar to those found in untreated, relatively cheatgrass free areas, not just improvement over untreated cheatgrass infested areas. Additional possible management implications of this study include:

• Agencies funding research investigating which cheatgrass removal methods are most beneficial to wildlife (including alternative methods such as soil regeneration)

• Biologists accounting for cheatgrass infestation when evaluating the quality of wildlife habitats

• Agencies prioritizing native plant restoration in ecologically important areas, such as breeding grounds

If you want to read the full report or other funded research, visit the department's website at www.bouldercounty.org/openspace/education/research/

Community Forestry Sort Yards

Do you live in the foothills of Boulder County and hope to do more defensible space clearing on your property? As you begin that work, remember that you can drop off your logs, slash, and timber at a Community Forestry Sort Yard for free. There, all that biomass will be mulched and sent to several compost facilities. Logs will be ground and used for biomass fuel in one the two biomass facilities in the county.

Besides woody materials, we accept pine needles and noxious weeds. Removing pine needles and cones from around your home is an important part of maintaining defensible space. And, removing some of your noxious weeds every season helps keep weeds in check on your land. "We have been coming to the sort yard regularly for the past 5 years. Without this facility, we would have never been able to make this kind of progress clearing our property and mitigating against fire." -Mark & Yvonne

All new Sort Yard users will need

to complete a short registration form before unloading, and contractors must provide client's name and physical address where biomass came from.

This is the 14th season that the Sort Yards have accepted Boulder County woody biomass. Last year, you and your neighbors dropped off approximately 1,612 tons. That's a lot of biomass!

SORT YARDS ARE EDUCATION HUBS

Besides a place for foothills residents to bring their woody biomass, this county program provides information about forest health, defensible space, and other forestry management practices in an online monthly newsletter. Some say that's the best service of the Community Forest Sort Yards.



The operator of the Meeker Park Sort Yard greets a customer during the 2018 season.

SORT YARD HOURS OF OPERATION AND LOCATIONS

Nederland Sort Yard - 291 Ridge Road, Nederland 80466

- Open early May
- Wednesday through Saturday from 9 a.m. to 5 p.m.
- Meeker Park Sort Yard 8200 Hwy 7, Allenspark 80510
- Open mid-May
- Wednesday through Saturday from 9 a.m. to 5 p.m.

Website: www.bouldercounty.org/property-and-land/ forest-health/community-forestry-sort-yards/

WHAT YOU CAN DROP OFF:

Logs

- · All species are accepted
- Trim the branches, flush to the trunk
- · Ends of logs must be cut square
- Burned logs are accepted

Slash & Branches

- Separate conifers and broad leaf trees (aspen trees go in the broad leaf pile)
- Chunk and decayed wood
- · All wood must be free of nails, wire, and metal
- Remove root ball

Noxious Weeds

 Must be in a paper yard bag (rolled shut; please don't use tape or staples)

Pinecones, needles & leaves

- Consider storing pinecones and needles in a reusable container since you can take it back to collect more at your property
- If grass is mixed with your pinecones and needles, everything must be stored in a brown paper bag because of concerns about cheatgrass
- All grasses must be stored in a paper bag

A FEW TIPS

Keep in mind, this facility is a "sort" yard, and you will need to unload your biomass into the correct areas. Before you begin loading materials into your vehicle, clean out the pick-up bed or trailer so trash and debris don't mix with biomass you'll be dropping off.

Also, it's best to keep different types of materials separate from each other since there are different locations within the Sort Yard to unload different materials. You'll get in and out faster if you do!

Moose: Not-So-Close Encounters

by Rachel Gehr

As my husband and I ambled along a hiking trail last summer, two people heading the opposite direction excitedly alerted us that there was a moose a half-mile up. To some, this sighting would be exciting news—a cause to quicken the pace and reach for the camera. I, too, wanted to quicken my pace, but in the opposite direction. Given my fear of, and respect for, moose, I have never desired to see one up close.

But given the report that this moose was quite a ways off the trail, I followed my husband's lead and ventured forth.

Moose were introduced into Colorado in the 1970s. Just 12 moose were initially released in 1978, and the population has flourished since then, both by the introduction of more moose, as well as by the animals naturally establishing and expanding their habitat.

According to Colorado Parks and Wildlife (CPW), Colorado is now home to nearly 3,000 moose, and the moose population is thriving in Boulder County.

Dave Hoerath, a wildlife biologist with Boulder County Parks & Open Space (BCPOS) said, "I think moose took off in the county once they got here because we have some very good habitat in the high country: willows and bottoms in the City of Boulder Watershed lands, as well as some of the alpine meadows in the Indian Peaks Wilderness."

Given our desirable habitat for moose, at which properties might you see them in Boulder County's open spaces? While moose can be spotted at almost any location in Boulder County, most sightings are at Mud Lake and Caribou Ranch Open Space near Nederland, and they are also regularly reported at the Forestry Sort Yards and Reynolds Ranch.

SAFETY AROUND MOOSE

With so many moose in the state, you may see one during your outdoor adventures. If you do encounter a moose, keep these tips from Colorado Parks and Wildlife in mind:

- Moose are aggressive in spring when they are protecting their young and in fall during mating season.
- · Maintain a safe distance.
- · Do not approach or try to take a "selfie."
- Moose will charge or stand their ground when they feel threatened. If a moose acts aggressively back away and take cover.
- Moose that lick their lips, pin their ears back, or raise the hackles are showing signs of aggression and will charge.
- Keep dogs away from moose.



The moose we nearly missed seeing, photographed using a zoom lens.

"I don't think we have had anyone stomped or chased at Caribou, but the danger is real, especially with moose cows with calves," said Hoerath. "Luckily Caribou does not permit dogs or bikes—and the vast majority of our hikers stay on-trail."

Additionally, Hoerath said, "Caribou is closed every year in spring (April thru June) to allow for overwintering elk and moose, and early songbird migration and nesting—a nice quiet period."

MAJESTIC MOOSE

If you are lucky enough to observe a moose from a respectful and safe distance, you'll first notice their large size. As the largest member of the deer family and the largest wild mammal in Colorado, they range from 800 to 1,000 pounds. A bull (male) moose can grow as large as six-feet tall at the shoulder. Their antlers, as large as five-feet across, are called, "palmate," meaning shaped like the palm of a hand with fingers stretching out.

The large size of a moose might lead one to believe they would be slow, but they can run up to 35 miles per hour.

And what became of our moose sighting? As we hiked on, we came upon a group of people quietly standing and looking through binoculars. The moose was probably 50 yards away, eating grass in a green and misty meadow. I was very glad I hadn't turned around and missed seeing this beautiful animal going about her day.

Caribou Ranch Annual Closure April - June

This annual spring closure from April 1 through June 30 protects spring migratory birds, overwinter elk survival, and elk calving and rearing activities. Please respect wildlife needs for solitude.

Migrating from lower elevations, the local elk herd arrives every spring. Females calve on the property and remain until June or July, when they move to higher elevations.

Parks & Open Space strives to find a balance between providing recreational activities and protecting wildlife habitats and natural resources.

Violators of the closure can be fined up to \$300 by the resident ranger and county sheriff deputies who patrol the open space property.



Where Is the Calendar?

Because of the COVID-19 situation, we decided to not include a calendar of events, museum hours, or volunteer opportunities in this issue. In doing so, we will avoid publishing information that would be incorrect as things change in the following months. We want to adjust programs to remain in step with health and safety guidelines.

Where to find up-to-date information:

- Outdoor and indoor programs and special events: www.BoulderCountyOpenSpace.org/events
- Museums: www.BoulderCountyOpenSpace.org/museums
- Volunteer Opportunities: www.BoulderCountyOpenSpace.org/volunteer
- Boulder County's response to COVID-19: www.BoulderCounty.org

We are continually monitoring the COVID-19 guidelines and will begin adding activities as we can. We look forward to again offering a wide range of opportunities. We've missed you!

Walker Ranch Loop New Parking Lot Camera

Many of you know that spring is a really busy time at local open space properties. Seems as if everyone is setting aside their skis and snowshoes for hiking boots, mountain bikes and fishing gear.

One of the most popular open space properties last spring was Walker Ranch Open Space, just west of Boulder. More than 31,700 people hiked, biked, fished, and picnicked there during March, April, and May.

One tip to keep in mind is that Saturdays are consistently the busiest day of the week at Walker Ranch, when 25 percent of all visitors go there. Sundays aren't much better, with 24 percent of visitors—so that means nearly 50 percent of all visitors are there during the weekends.

If you want to avoid crowds, Thursday, with only nine percent of weekly visitation, is the best for you!

Another tip is to check out the parking situation at the Walker Ranch Loop trailhead before you leave home. You can see live images of the parking lot that are updated every five minutes between 5 a.m. and 10 p.m. Visit boco.org/walker

Work Outdoors & Get Paid All Ages – All Interests Join Us!

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www.BoulderCounty.org/jobs



Parks & Open Space 5201 St. Vrain Road, Longmont, CO 80503 www.BoulderCountyOpenSpace.org



- A Hall Ranch
- В Ron Stewart Preserve at Rabbit Mountain
- C Heil Valley Ranch (Closed due to fire)
- D **Coalton Trailhead**
- E Pella Crossing

- F **Boulder County Fairgrounds**
- G Lagerman Reservoir
- H Twin Lakes
- Ι Bald Mountain Scenic Area
- Walden Ponds Wildlife Habitat J
- K Betasso Preserve
- L Legion Park
- M Caribou Ranch
 - N Mud Lake
 - 0 Walker Ranch
 - P Flagg Park
 - **Q** Carolyn Holmberg Preserve at Rock Creek Farm
- R Anne U. White
- S Dodd Lake
- Т Harney Lastoka
- 1 Agricultural Heritage Center
- 2 James F. Bailey Assay Office Museum
- 3 Nederland Mining Museum