



THE DIRT | 2023

AN ANNUAL RESOURCE FOR OWNERS OF CONSERVED LANDS



MOOSE OF COLORADO AN INTRODUCED SPECIES THRIVING ON CONSERVED LAND

Depending upon your point of view, spotting a moose while hiking in Colorado's wilderness can be seen as lucky, or decidedly unlucky. Their sheer size and impressive antlers make them one of the most iconic beasts of the Colorado wilds. Colorado Open Lands is honored to hold easements on land that provides habitat for these impressive creatures. With the support of generous and responsible landowners, we can contribute to the moose thriving into the future.

THE MOOSE LIFE CYCLE

Moose are Colorado's largest big game animal, with adults weighing 800-1,200 pounds and standing 6' tall. The only animal in Colorado larger than a moose by weight is the American Bison. Moose can live up to 20 years in the wild, and may appear to be slow, lumbering animals. But don't be fooled - they can sprint up to 35mph and are swift swimmers. Their long legs help them cut paths through deep snow in winter and wade through marshy habitats in summer.

Moose can be found anywhere in the Rockies where woody plant matter is available. The word "moose" originated from the Algonquin term for "eater of twigs" or "bark stripper." Moose continue to live up to their namesake, browsing for willow twigs, bark, and other woody, fibrous, organic materi-

al to munch. Landscapes with high concentrations of shrubs and brush, such as high elevation wetlands or stream and river corridors, are a veritable buffet for this half-ton herbivore and are the most likely place for one to be spotted. When willows are in shorter supply during the winter, moose may graze on short grasses and other forbs beneath the snow.

When the aspen leaves start to change and the temperatures drop in the mountains, breeding season has begun. In August and September the moose will engage in a 'rut' similar to elk, though the moose rut is more conspicuous. Bull moose set up their territories and call out to attract cows. The calls are heard far and wide and pierce the deepest reaches of the willows. During the rut, both males and females can be extremely aggressive. Bull moose will fight head-to-head, clashing antlers to secure their territory.

Female moose, or cows, will spend over seven months of the winter foraging through the snowy landscape to provide enough sustenance for themselves and their calves. When spring temperatures thaw the snow, moose will migrate to their summer territory where females give birth. Moose typically have one calf, but with access to abundant resources, sometimes have twins. Conditions must be just right, offer-



ing plentiful nutritional needs during the gestation period. Eating enough twigs for three is no easy task, so it's not surprising that moose tend to be extremely territorial and won't hesitate to defend their offspring or food source aggressively.

CLOSE ENCOUNTERS

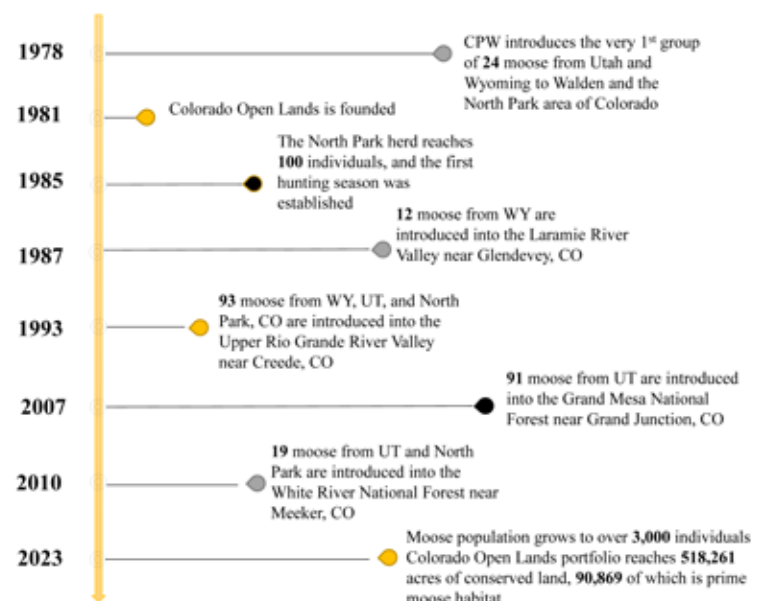
If you ever find yourself too close for comfort with one of these agile ungulates, keep your canine companion on its leash and maintain a safe distance, backing away slowly. If you get charged, take cover and try to find an object to take shelter behind or a tree to climb. If there is nothing to shield you, run away. Moose are known to chase people, and it's not advisable to try to stand your ground. Given a moose's unpredictable nature, always give the moose plenty of space and do not threaten them.

HISTORY OF MOOSE IN COLORADO

With how common moose are in Colorado, one might think they had always thrived here. Moose are native to the Northern Rockies, but were rarely observed in Colorado until the late 1970s. Historically, moose have called Wyoming and Utah home. Colorado Parks and Wildlife (CPW) had observed that although the moose in those bordering states frequently visited Colorado, they were never fully established.

In the 1950s, moose reintroduction was on the table for discussion as farmers, ranchers, hunters, and wildlife managers gathered to debate the potential side effects of introducing this species into Colorado's Rocky Mountains. Would deer, elk, and cattle be forced to compete for the same resources?

TIMELINE OF MOOSE INTRODUCTION IN COLORADO



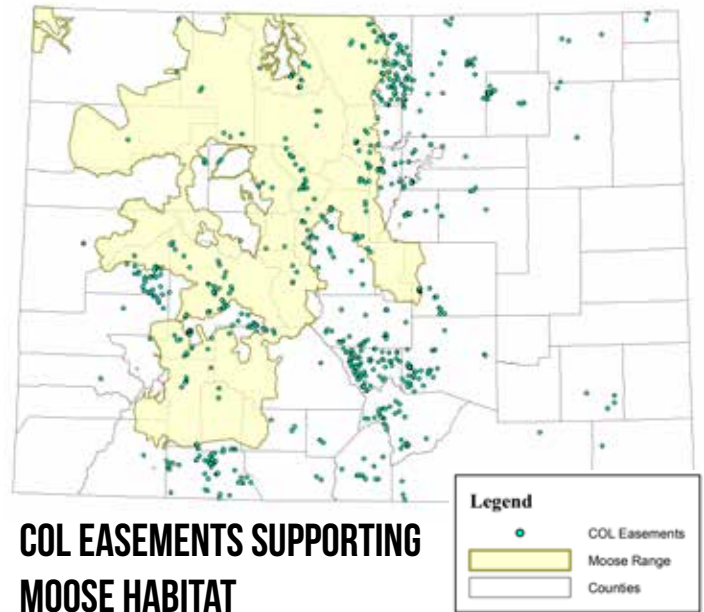
Could the moose's unpredictable and territorial behavior injure livestock? Would the balance of our ecosystems be negatively impacted? Stakeholders could not agree on the answers to these questions until the 1970s, when CPW determined that moose habitat was available and abundant, and could sustain a healthy population.

Biologists believe moose would have eventually expanded their range south from Wyoming, but in 1978 CPW decided to give the mammal a helping hand by transplanting a small population into the North Park area near Walden. The moose quickly took up residence, and through the 80s and 90s, CPW successfully relocated over 100 moose across Colorado.

As the population started to grow, farmers realized that moose browsing activity kept willow from encroaching on their irrigated fields, leading many land managers to encourage their presence on their properties. Ranchers may still be wary of livestock-moose interaction. While uncommon, bull moose have claimed prime cattle pastures as part of their territory and defended the area from humans and livestock. Fortunately, CPW has a program to reimburse landowners for damage to private property from the big game. If you find yourself unlucky enough to have a fence line destroyed by a rogue moose, contact CPW to file a claim to recover losses.

Populations may be declining nationwide, but due to CPW's reintroduction efforts, Colorado's moose numbers have consistently increased since their reintroduction. Their population growth enabled CPW to permit their hunting - one of the state wildlife managers' most effective population control tools. Recently, Colorado has overtaken Wyoming for the number of annual moose permits issued and is becoming a moose destination for both wildlife watchers and hunters alike. Biologists are still trying to understand why Colorado moose populations are so successful compared to other states' populations. With Colorado's access to natural resources and open spaces, connectivity of wilderness, and breathtaking vistas, perhaps we can assume that, just like humans, moose have also found this state to be a fine place to settle down.

Today, there are over 3,000 moose that reside in Colorado. Some have even tried to venture as far south as New Mexico. Colorado Open Lands has easements on 185 properties that provide habitat to these majestic creatures. Moose can be aggressive and unpredictable, but are also beautiful and fascinating, just like the Colorado landscape itself.



WEEDING OUT INVASIVE SPECIES

PREVENTING & REMOVING NOXIOUS WEEDS ON YOUR LAND

As we head into spring, many of us look forward to seeing new wildflowers and fresh vegetation after months of snow-packed landscapes. However, not all plants that sprout this year are native, and some can threaten the local ecosystem. Colorado is home to 79 species of noxious weeds. These are plants designated by the Colorado Department of Agriculture as posing a significant threat to native habitats and agricultural production. While it feels inevitable that you may encounter noxious weeds on your property or while out enjoying some of the fresh air in other parts of the state, there are precautions that you can take to prevent their spread.

The best way to prevent the spread of noxious weeds is to clean your clothes and equipment before and after recreating or completing work outside. Remove any stuck dirt and mud and be vigilant for seeds that may tag along as you move locations. Also, look for seeds caught in pets' fur and feet and remove any debris that may have hitched a ride on Fido.

Plant competition can effectively prevent new noxious weeds from taking root or slow down current infestations from spreading within your property. To improve the resilience of your land, spread native grass and wildflower grass mixes. If you have livestock, try purchasing weed-free feed or planting

weed-free crops containing grasses and wildflowers. Spreading native seed is especially important in areas with bare mineral soil or in places that were recently disturbed, such as areas affected by wildfire or construction, as these are the locations where new weed populations are likely to occur.

If you are interested in managing weeds on your property and are looking for additional resources, please contact us at COL to see how we can help. The best time to treat the weed is when the population is small and easy to manage. Typically, you can use a combination of treatment methods that includes mechanical approaches, herbicides, and biological controls to remove the infestation. Your local county or Colorado State University Extension staff can help you develop a plan that works best for you and your land. COL is also an available resource to help you connect with these professionals.

Containment is the first step if you have a large, established population. Large populations can still be treated, but eliminating them may take significant time, effort, and resources. Contact us for additional information on preventing the spread of noxious weeds or treating current infestations. At COL, we will gladly provide resources to manage noxious weeds and help you achieve your goals.

IDENTIFY SOME COMMON INVASIVE PLANTS IN COLORADO





THE 2023 FARM BILL AND WHAT IT MEANS FOR COLORADO LANDOWNERS

The Farm Bill is a comprehensive piece of legislation that encompasses many facets of the food system – from protecting land for continued production, to providing farmers with crop insurance, to programs that provide low-income families access to farm-grown food. The original farm bills were enacted in three stages during the 1930s as a response to the Great Depression and the Dust Bowl. Every five years, the Farm Bill expires and a new bill is enacted with the goal of responding to current challenges and improving existing programs. The current Farm Bill, enacted in 2018 and expiring this year, has 12 chapters covering unique issues like commodities, credit, forestry, nutrition and research.

Conservation is in the second chapter of the Farm Bill and includes voluntary cost-share programs to support landowners to make needed improvements, such as irrigation infrastructure and fencing through the Environmental Quality Incentive Program (EQIP) or even to permanently conserve land and water rights through the Agricultural Conservation Easement Program (ACEP). ACEP is administered by the Natural Resources Conservation Service (NRCS) and is the primary program used by Colorado Open Lands to purchase conservation easements on working lands.

Some of you have conserved your land with federal funding from the Farm Bill and others have purchased

or inherited easements that were originally conserved using these funds. In 2018, Colorado State University published a study to examine the impact of ACEP funding in Colorado from 2008-2017. The study found that over the last two Farm Bills, the almost \$80 million in federal conservation easement payments to Colorado producers generated more than \$174 million in economic activity in the state (approximately 80% going to rural communities), was associated with the creation of 1,102 Colorado jobs and almost \$86 million in additional dollars spent in those communities. For every dollar of federal conservation easement investment in Colorado, \$2.19 of economic activity is generated due to direct, indirect, and induced spending in the state.

The 2018 Farm Bill included a significant change, allowing donated conservation easement value to be considered matching funds for federal dollars. This has allowed Colorado Open Lands to work with more landowners across the state, especially those in counties that don't have open space funds. This is the type of change that can have a significant impact on conservation options for landowners like you, and this is why we are engaging deeply in this year's Farm Bill process to try to make critical changes to the Agricultural Conservation Easement Program.

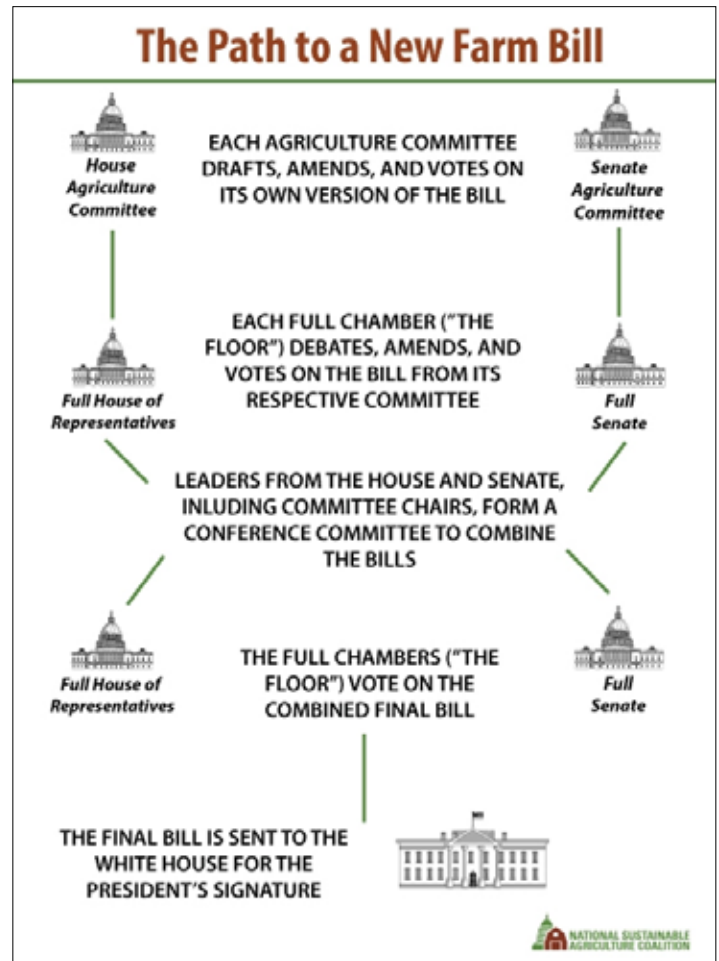
Here are the areas where we are advocating for change:

1. **Modification of existing easements:** NRCS should allow for modifications (amendments) to existing conservation easements, and approval should be at the state or regional level to allow for understanding of context and state law. As climate changes and agriculture adapts, especially to changing water availability through creative and collaborative water management, easement holders should be able to evaluate circumstances and allow for amendments that allow agriculture to remain viable.

2. **Increased incentives for new conservation:** As farm and ranch land values increase, development becomes a more attractive alternative to conservation. In order to attract the highest priority projects for conservation, NRCS should allow state offices to determine a level of funding above 50% (up to 80%) of conservation easement value for properties that reflect the state's priorities.

3. **Program efficiency:** The Farm Bill allows for easement holders like COL to become certified and participate in an expedited oversight process; however, this process has been unclear and included unrelated standards. We believe that certification should be automatic for land trusts that are accredited through the Land Trust Alliance and have completed at least five conservation easement projects with NRCS. This recognizes land trusts that follow the industry best practices and allows landowners to have a smoother, faster process to conserving their land.

4. **Collective Purchasing Power to Protect Water Rights:** The 2018 Farm Bill created a new type of easement transaction known as "Buy Protect Sell," where land trusts can purchase land that is on the market, protect it with an easement, and then sell it to an agricultural producer at agricultural value. Water rights have become so expensive in much of Colorado that often only government entities have access to the scale of capital relative to the need. By allowing governmental entities (whether local governments or water management entities, such as ditch companies or conservancy districts) to enter into agreements to buy land and water rights, conserve them with land trusts, and then resell them to farmers and ranchers at an affordable price, we can address the pace and scale of conversion of critical irrigation water.



The Senate Agriculture Committee is currently working on its version of the Farm Bill, and then the House Agriculture Committee will do the same. Colorado Senator Michael Bennet continues to serve on the Senate Agriculture Committee, has been appointed to Chair the Subcommittee on Conservation, Climate, Forestry and Natural Resources, and will be a critical voice in changes to the Agricultural Conservation Easement Program. Congresswoman Yadira Caraveo of District 8 is a member of the House Agriculture Committee, and as a newly elected representative, it will be important for her to understand proposed changes. COL will be working with Colorado's federal representatives to understand the positive impacts of Farm Bill conservation funding and how to make these programs even better.

Our input as a land trust matters, but your input as a landowner matters much more! If you are interested in learning more, or if you are willing to share your story or reach out to your elected representatives, please contact Sarah Parmar at sparmar@coloradoopenlands.org.



APPLYING MAPPING TECHNOLOGY TO CONSERVATION EASEMENT MONITORING

Monitoring Camp Rollandet in Denver County

This summer, you'll likely see some of the COL stewardship team on your property, equipped with their hiking boots and sunglasses, and with their monitoring tablets in hand. Great for taking pictures and making quick notes, these tablets also store maps essential for navigation and advanced programs for conservation easement monitoring and review. Every year, the stewardship staff travels across the state to monitor more than 700 conservation easements that cover an area more than twice the size of Rocky Mountain National Park. Mapping tools are pivotal in resourcefully monitoring these spaces and help our field team that visits some of the most remote locations in the state. Mapping applications allow monitors to gather and transmit information from a smartphone or tablet using its integrated GPS. The information is editable and accessible in real time, making our site visits more efficient.

For example, if we need to determine a wetland boundary to find a suitable site for future agricultural development, we must ensure that the project would not impact the protect-



The monitoring team on Camp Rollandet in Denver County

ed habitat. In the past, the monitor would have to transcribe their field notes onto a computer and would have numerous pictures to upload and label before they could begin to write the final report. Digitizing and manually transcribing this information was time-consuming, requiring significant effort from the stewardship team, ultimately extending the project timeline.

Using mapping tools such as a GIS mobile application simplifies this process. The monitor can easily enter data with a few clicks and has instant access to accurate geolocation data, like the presence of waterways and the exact lot boundaries. Gone are the tiresome days of working with paper and the delays it causes. These mapping tools allow for more flexibility and additional efficiency during our site visits, ensuring a faster project review for our landowners.

Maps are powerful tools that capture our understanding of the world. They can uncover connections between phenomena that might not otherwise be noticed and transform complex scientific data into simple, understandable records. Pairing mapping applications with field monitoring has allowed us to track Colorado's land, water, and habitat changes. Applying these tools allows our staff to see how pieces and parcels of conserved land work in tandem to benefit all of Colorado. As we look to the future, we can analyze the big game and bird migration corridors, identify lands important for threatened species like the sage-grouse, and report on the impacts of conservation and stewardship efforts. Your conserved land is one important piece of that puzzle, and we're excited to implement new and innovative technology into our field monitoring and project review process. Feel free to contact us to learn more about how we're applying this technology during our field monitoring this summer.

PARTNERING WITH UNIVERSITIES

TO ADVANCE OUR UNDERSTANDING OF THE NATURAL WORLD

Colorado Open Lands' conservation work is informed by many years of scientific knowledge. We have a long history of collaboration with universities to advance conservation efforts as well. By partnering with research institutions, COL can access the knowledge and expertise of researchers and students and apply their findings to conservation planning and land management.

Through partnerships with institutions like Colorado State University and the University of Denver, COL has supported research on topics including ecosystem conservation, rangeland management, and restoration practices. For example, COL's Riparian Reconnect partnership supports Ph.D. students in the CSU Warner College of Natural Resources to study the valuable ecosystem benefits of stream and wetland restoration, a priority for COL.



A restoration project on Salt Creek in Park County

Currently, COL is partnering with students at the University of Denver to use geographic information science (GIS) tools and techniques to measure the impact of private lands conservation on wildlife habitat, resilience, and overall species biodiversity. This type of research helps us understand how threatened species use private lands. For instance, we can evaluate the distribution of habitats across private lands compared to public and other state or locally protected lands. We can then ask questions such as, "How will elk habitat be impacted if these lands are developed rather than conserved?" and, "What are the benefits of maintaining connected keystone species' habitats?" These are important questions, the answers of which help steer future conservation efforts.

COL's collaborations with universities and other partners have been essential to its success in conserving Colorado's natural resources. Collaborating with universities benefits not only COL's conservation work, but also provides valuable opportunities for applied student-faculty research. These collaborations provide students with hands-on experience in conservation and natural resource management while contributing to real-world conservation efforts. By leveraging the expertise of a diverse stakeholder group that includes university researchers, COL can apply the best available science to conservation planning and management.



Leading an informational session at Dakota Ridge in Larimer County



Sampling soil carbon in South Park



WILDFLOWERS IN BLOOM ON COLORADO'S CONSERVED LANDSCAPES

Colorado's landscape is renowned for its majestic mountains and sweeping vistas. But, if we look closer, there's also plenty of subtle beauty to appreciate. It's easy to overlook a wildflower's fierce and gentle beauty in the vastness of the landscapes where they grow. Every summer, the mountainsides come alive with a kaleidoscope of color as wildflowers burst into bloom. Not only are they lovely to look at, but Colorado's wildflowers also play a vital role in the state's ecosystem.

The state's diverse geography and varying elevations create the perfect conditions for a wide variety of wildflowers to thrive. From the iconic Rocky Mountain Columbine to the vibrant Indian Paintbrush and the versatile prairie rabbitbrush, Colorado's wildflowers are a sight to behold. They provide essential habitat wildlife species, including insects, birds, and small mammals. Wildflowers are an important food source for pollinators like bees and butterflies, which in turn are critical to the health and sustainability of ecosystems. Wildflowers' roots help stabilize soil, preventing erosion and protecting against landslides. They also absorb excess water, reducing the risk of flooding and filtering pollutants before they enter waterways.

See the back page of this publication for the stewardship team's favorite native Colorado blooms!

Your conservation easement is an important step in ensuring the long-term health of the ecosystems that support wildflowers and other wildlife. There are many organizations and agencies working to protect and restore wildflower habitats, such as the Colorado Native Plant Society, Colorado State University Extension, and the Colorado Natural Heritage Foundation. Colorado Open Lands is always here to help connect you to resources as well! Your commitment to conservation can help ensure that your land remains a haven for wildflowers and other wildlife for generations to come. Please send us photographs you take of the wildflowers growing on your land! We always like to grow support for conservation by showing off the beauty of your lands.

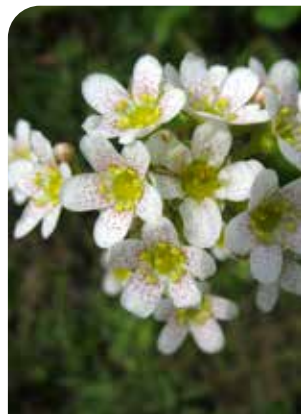
LEARN ABOUT THE STEWARDSHIP TEAM'S FAVORITE NATIVE WILDFLOWERS

DIRK

DOTTED SAXIFRAGE

Saxifraga austromontana

Found throughout Colorado, they favor alpine and tundra environments. The genus *Saxifraga* literally means “rock-breaker.” Resilient and unassuming in nature, this is one of the first plants to emerge from the melting snowpack.



CHERYL

INDIAN PAINTBRUSH

Castilleja coccinea

The sweet nectar and vibrant, scarlet blooms attract hummingbirds, butterflies, bees, kids and adults alike. Resembling paintbrushes dipped in paint, look for this common wildflower on your next hike.

JENN

FAIRY PRIMROSE

Primula angustifolia

The Alpine Primrose, also known as the Fairy Primrose, can be found June through August in subalpine and alpine environments, such as along the Summit Lake Trail near Mount Evans.



CHELSEA

SEGO (MARIPOSA) LILY

Calochortus gunnisoni

You may stumble across Sego Lilies in Colorado's high desert country. Particularly wet winters (like this one) will give way to exceptional blooms, so keep an eye out between May and July!

GRISELDA

RABBITBRUSH

Ericameria nauseosa

With its deep roots that help stabilize soils and its vibrant golden flowers that continue giving the vast arid landscapes a splash of color into late autumn, the Rabbitbrush is a stunning wildflower with many ecological and cultural uses.



KAREN

COLORADO COLUMBINE

Aquilegia coerulea

The Colorado Columbine decorates the mountains throughout the summer. The genus name comes from the Latin “aquila,” meaning “eagle,” due to the spurs on their petals that resemble eagle talons.

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