

images

OF BOULDER COUNTY PARKS AND OPEN SPACE



winter 2010-11

Images

volume 32, number 4

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

COVER PHOTO: Indian Lookout Mountain at Hall Ranch in winter. Photo by Denny Morris

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DISCOVER BOULDER COUNTY

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Images is a quarterly publication. Subscriptions are free to Boulder County residents or \$4 annually. Contact us at 303-678-6222 or swilliams@bouldercounty.org or send your name and address to Boulder County Parks and Open Space, 5201 St. Vrain Road, Longmont, CO 80503.

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Forest Management Policy

by Chad Ricklefs and Chad Julian

In 2006 Boulder County Parks and Open Space (POS) adopted a new departmental planning approach, creating policies guiding the management of key resources to complement and streamline site-specific management plans. Forestry, fire, and resource planning staff led the development of the Parks and Open Space Forest Management Policy. An interdepartmental team worked together to create the vision, goals, objectives, and standards that make up the policy. Additionally, the entire forestry staff provided input throughout the development of this policy.

Public Outreach

The policy went through a public process in 2009/2010 for full approval by the Board of County Commissioners in May 2010. Prior to the distribution of the draft Forest Management Policy, staff made presentations to the Gold Hill, Lyons, and Nederland town boards, describing the purpose and need of the draft Forest Management Policy and inviting them to encourage residents in their community to take part in the public review and comment period following the release of the draft Forest Management Policy.

In April 2010, the draft Forest Management Policy was presented to the Parks and Open Space Advisory Committee for review and recommendation prior to approval by the Board of County Commissioners.

Comments from the public included use of forest products (biomass) for energy use; impacts to natural resources, watersheds, and recreational activities from forest treatments; rehabilitation after forest treatments; mountain pine beetle impacts on neighboring private properties; wildfire mitigation on private properties; collaborative efforts with surrounding federal and state agencies; and issuing public notices prior to forest treatments.

Forest Management Policy

The purpose of the Forest Management Policy is to articulate the management goals and objectives for open space forested properties. POS has the responsibility of managing forest ecosystems within open space properties. The development of a comprehensive policy provides for consistent long-term management given the complexity of forest ecosystems along the Front Range of the Colorado Rocky Mountains.



Volunteers gathered trees into slash piles at a forestry management project near Gold Hill.

Parks and Open Space manages a variety of forest types, including ponderosa pine, mixed conifer, and lodgepole pine forests, all of which have different ecosystem processes. In the Intermountain West, forests have been altered due to human settlement activities including suppression of natural fire; wildlife herbivory such as over grazing of aspen; and the introduction of cattle grazing, mining, and logging. The impacts of these activities include altered stand density, diversity, and structure. This has led to an overall increase in fire severity, and decrease in frequency of natural fire events. Additionally, insect outbreaks and disease are more severe in these forest types when they are stressed due to drought, and when stand densities are higher and more homogenous than under natural conditions.

A consistent policy for forest management is necessary in order to promote healthy forests. This includes management for insect and disease outbreaks, mitigation of catastrophic wildfire risk and its potential effects on human safety and property, and integrated restoration activities.

The Forest Management Policy provides guidance for all open space properties that contain forested lands and is a directive for management of properties owned in fee or in joint-ownership with other government entities. It does not pertain to private properties in the county at large, or private properties over which POS has a conservation easement. However, through collaborative efforts POS anticipates that this policy may assist private landowners in understanding and better managing their properties containing forested land.

Immediate Use of the Policy

The Forest Management Policy is only in its first year, but it has been used to guide our forestry and fire programs.

The Forest Management Policy provided guidance this past summer. Goal # 2 states that we assess and manage wildland fire impacts. The standard is for the department to create an interdisciplinary team to assess wildland fire effects and decide on mitigation efforts such as erosion and noxious weed control, temporary closures for public safety and recreational impacts on roads and trails.

Jay Stalnacker, of the Boulder County Fire Management Office, scheduled a meeting and used this standard as a guide to form a team. He brought in a U.S. Forest Service expert on Burned Area Emergency Response teams to talk to us about how to set a team up, and also teach us the actions that work best on burned lands. The meeting was held in July; the Four-mile Fire occurred in September. The meeting helped Boulder County Parks and Open Space form our team after the fire.

Another example is Goal #5. Other agencies and environmental groups are impressed that we made monitoring an important goal that guides our work plan. The Front Range Fuels Treatment Partnership Roundtable asked to use our monitoring model to help guide programs the USFS will set up for the Pike/San Isabel and Arapaho/Roosevelt National Forests with the Forest Restoration Act. That act will help fund work on 22,000 acres on the Front Range.

If you have any questions about Parks and Open Space's Forest Management Policy, contact Chad Julian at cjulian@bouldercounty.org or 303-678-6202.

Goals of the Forestry Management Policy:

Goal #1: Forestry - POS manages for healthy forest ecosystems specific to each life zone and transition zone (ecotone). Different open space forests may require different management actions, ranging from no action to implementing intensive management when conditions warrant, to meet prescribed objectives.

Goal #2: Fire - POS values fire as a natural process and management tool for ecosystem health. Fire is managed in a way that provides safety for the public, and protects and improves forest and community resources.

Goal #3: Insect and Disease - POS manages native insects and disease as natural components of the forest ecosystem within the historical range of variability. Individual open space forests may be managed differently due to the complexity of insects and disease and how they relate to each life zone.

Goal #4: Biomass Utilization - POS utilizes forest biomass to promote the sustainability of local forests, communities, economies, and energy use. POS values woody forest biomass and forest products as part of a comprehensive approach to forest management.

Goal # 5: Monitoring - POS collects and assesses data and other information on forested open space. These data allow Parks and Open Space to document current conditions and assess change over time due to natural processes or management activities.

Goal #6: Collaboration - POS works cooperatively with other agencies and private landowners in order to build collaborative relationships and better manage forested ecosystems. Forestry and fire staff works with other county departments and divisions within POS.

Goal #7: Public - POS values and provides opportunities for public involvement in forestry and fire planning. POS regularly communicates with the public about forest related activities. POS identifies community values and incorporates them into forestry management decisions.

Russian Olive Management

by Steve Sauer

The Russian olive is a perennial tree or shrub that is a native of Europe and Asia. This plant has olive shaped fruits, silver color at first then becoming yellowish red when mature. Russian olive can reproduce by seed or root suckers. Seeds can remain viable for up to three years and are capable of germinating in a broad range of soil types. Since Russian olive can thrive in a wide variety of soil and moisture conditions, it has been a popular choice for landscaping in the west.

From Helpful to Harmful

Following the Great Dust Bowl, Russian olives were promoted for windbreaks and soil conservation—very evident today where rows of these trees mark where once thriving homesteads use to be. Since the early 1950s it has been recommended for landscaping and wildlife habitat. The local Soil Conservation Service, or NRCS as it is now known, promoted and sold these trees for this purpose.

Unfortunately, due to its aggressive nature, it established not only as an intended planting but as an escaped nuisance. Escapees of this type usually are established with the help of birds. The hard coated seeds pass unharmed through the digestive tract of birds and may be carried a mile or more from the original tree. These seeds are often deposited along rivers, streams, irrigation ditches and wetlands, ultimately spoiling important habitat for many native species.

People often ask what is the best habitat for Russian olive to grow. It is often found in the same area the Plains cottonwood grows. In Colorado it is a common sight on both the eastern and western slopes at elevations less than 5,700 feet. Some of the more heavily infested areas of the state are the Four Corners region, the eastern plains and areas in the San Luis Valley. The Russian olive is a thorny, medium sized tree with silvery green leaves and small fruits or “olives.” This tree has invaded all 17 western states and its spread is continuing. It has been estimated that there is more than 10,000 acres of infested riparian area in Colorado. Many believe that if the Russian olive threat is

not addressed it could permanently alter important habitat and eventually displace the Plains cottonwood.

Negative Impacts

Russian olive impact many parts of our ecosystem. Wildlife biologists are beginning to understand that these trees are of little value to many wildlife species. Many see this as a surprising fact as they see common birds such as robins using the

trees. This type of bird is very adaptable and can find food and shelter in many types of trees. Unfortunately it has been reported that as many as one third of the bird species using stream-side areas do not use areas that are dominated by Russian olive. These birds prefer native trees such as cottonwoods and willows, which are better sources for food and nesting sites.

Russian olive has an effect on other plants that grow in the same areas such as cottonwoods and willow trees. When the Russian olive grows in the shade of these native trees they appear to be dwarfed. When the cottonwoods and willows die the Russian olives grow rapidly where the natives trees were. The result is a permanent conversion of native riparian areas to areas dominated by this invasive species.

Agriculture is also impacted by Russian olive. They invade pastures, block irrigation ditches and hinder daily operations. Removal can be costly and difficult, so prevention is strongly advised. Because of these impacts, Boulder County Parks and Open Space has taken

on the task of removing Russian olive from open space properties. Whether by Parks and Open Space personnel or hired contractors, there have been approximately 10,000 trees removed. Follow up visits are made to the properties after removal to insure that the trees do not re-sprout. If sprouts do occur they are taken care of to prevent any re-growth of the tree. As new infestations are identified this state-listed “B” noxious weed species will be aggressively controlled.



Russian olive trees typically grow along banks of streams and in wetlands crowding out native vegetation.

What You Can Do

There are some simple steps that everyone can take to help control of Russian olives. Educate your family, friends and people you work with to the importance of controlling this invasive species. When choosing landscape materials do it responsibly. Check with your local Native Plant Society or Colorado State Extension to get a list of desirable trees for your area. Remove existing Russian olive from your property. The options for removal include cut stump treatments and mechanical mowing.

Any of these treatments are dependent on size and location of the plant. These trees are listed as a List "B" noxious weed by the Colorado Noxious Weed Act. The intentional introduction, cultivation or sale of this noxious weed is illegal in Colorado and plant nurseries are prohibited from selling it.

For more information about Russian olive treatment and removal contact me at ssauer@bouldercounty.org or 303-678-6110.

Research on Boulder County's Open Space Lands

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 2009 study conducted by Dr. George Beck, Professor of Weed Science at Colorado State University and graduate students Nicholas Krick and Ryan Edwards. Their study focuses on managing downy brome seed production and litter to exhaust its soil seed reserve.

Abstract:

Downy brome (*Bromus tectorum* L.) is a noxious winter annual weed that has invaded over 100 million acres in the western U.S. It degrades rangeland and natural areas, decreases crop yields, and is a tremendous fire hazard. An experiment was initiated where management targeted seed production, which is a fundamental mechanism for its survival and persistence over time. The current year seed production and litter was removed as a first step to exhaust its soil seed reserve. The experiment is a 3 (mowing heights) by 2 (seed/litter treatments) by 2 (herbicide treatments) factorial arranged as a randomized complete block. Treatments to remove seed and litter were invoked when downy brome was at the end of its life cycle but before seed dispersal (June 22, 2009). Plateau was applied in July, 2009 before the late summer/fall generation of downy brome germinated. Removal of litter, regardless of mowing height, resulted in decreased downy brome cover in October compared to the non-treated control plot. Downy brome cover in non-treated control plots was almost 20-fold greater than where downy brome was mowed at 6 inches, litter removed, and sprayed with Plateau; mowed at 6 inches and litter removed; and mowed at 2 inches, litter removed, and sprayed with Plateau.

Conclusions:

This is an experiment in progress and final conclusions will be withheld until it is complete. At this time, however, it is apparent that one can decrease the population of the next generation of downy brome by mowing and collecting the litter just before downy brome sets seed. Such a labor inten-

sive approach would have to be restricted to high value areas to justify the expenditure. The other possible mechanism to exhaust downy brome seed in this experiment is the use of Plateau but we did not observe 100% control in plots where it was included in the treatments. However, seedlings that occurred in Plateau treated plots (and in other plots as well) will have to survive the winter and those results will not be known until next spring. It is foolhardy to anticipate eradication of a highly successful invasive weed such as downy brome by exerting a system of management for only one season. Re-applying treatments in 2010 likely will produce more differences among treatments in fall 2010 and spring 2011 and exhaustion of downy brome seed in some treatments may be closer to fruition than fall in 2009.

If you want to read the full report, or other funded research, visit the department's website at www.boulder-county.org/openspace/resources/res_funding/res_fund.htm.

Call for 2011 Studies

The department is currently accepting proposals for 2011 funding. Two categories will be awarded -- grants up to \$5,000 and grants up to \$10,000. The deadline for proposals is January 27, 2011. Department staff have identified priority needs for research including these five topics:

- Post-Fourmile Fire rehabilitation treatment effectiveness
- Mountain pine beetle infestation in treated and untreated ponderosa pine stands
- Characteristics and preferences of older adults for recreational amenities on open space lands
- Small mammal sampling pre and post riparian restoration
- Nesting success of burrowing owls in Boulder County versus other areas in Colorado

Other research proposals will be accepted. Visit the department's website at www.BoulderCountyOpenSpace.org for a full listing of research topics and proposal guidelines.

Stewardship Partners Pitch In

by Karen Imbierowicz

"Before computers, telephone lines and television connect us, we all share the same air, the same oceans, the same mountains and rivers. We are all equally responsible for protecting them." Julia Louis-Dreyfus

In this day, when we are all connected to one another through technological devices, it is refreshing to know that members of organizations throughout Boulder County care deeply about our beautiful parks and open space and are willing to put their time and energy into caring for our public land.

On a fall afternoon we celebrated the devotion of our 25 partner organizations at the Carolyn Holmberg Rock Creek Farm. Parks and Open Space Director, Ron Stewart, presented a framed photograph of snow-capped Longs Peak to partner members. Boulder County Commissioners Ben Pearlman and Cindy Domenico expressed their gratitude for the work our partner groups do in helping to care for our almost 100,000 acres of land and 100 miles of trails.

Also present at the event was the department's new Volunteer Work Projects Coordinator, Craig Sommers, who said, "Not only do I enjoy seeing people outside, contributing to a common goal, but I also enjoy the satisfaction of a job well done!"

Sommers considers the Partnership Initiative a major factor in utilizing volunteers to accomplish the needs of the department. He notes that the work of partner groups goes beyond the accomplishments of a specific work project by fostering a sense of community and empowering groups to give back to Boulder County.

Accomplishments

Since early spring, stewardship teams have been participating in trail construction and maintenance, seed collection, forest restoration and weed wrangling projects. We have not yet tallied the number of volunteer hours contributed or results achieved by partners for 2010. In 2009, organizations devoted 1,500 hours accomplishing the following:

- Improving over 6,000 feet of trail
- Closing and reseeding 4,600 feet of social trails
- Maintaining 1,900 feet of trail
- Planting over 160 trees and shrubs
- Removing 96 Russian olives
- Building 26 slash piles
- Restoring 60 slash pile burn areas
- Removing 22,000 feet of barbed wire fencing
- Installing 300 feet of prairie dog barrier.

New and Returning Partners

Alpine Partners commit to participating in two projects each year with 10 or more volunteers. This year we welcomed back: Amgen Corporation, Backpacker Magazine, Boulder Area Trails Coalition, Boulder County Horse Association, Boulder Mountainbike Alliance, Boulder Trail Runners, CU MBA Program, Redstone Cyclery, Roche Colorado Corporation, Smartwool, and Wildland Restoration Volunteers.

We also welcomed new Alpine Partners including Best Buy, Level 3, Naropa Institute ROOT environmental group, Singletrack Mountain Bike Adventures and Sounds True.

Foothill Partners commit to participating in one project each with 10 or more volunteers. Returning Foothill Partners were Boy Scouts of Boulder County, Global Leadership Academy, Heritage Middle School, New Vista High School, Platts-a Division of the McGraw-Hill Company, Niwot Community Association and Stratus Consulting.

New Foothill Partners welcomed this year included Colorado Geocachers and Intrado.

Getting Outside the Box

Many of our partner groups have jobs that require them to work mainly inside. Attorneys, executives, scientists, students of all ages, teachers and other volunteers have said it is a treat for them to spend a few hours, in a beautiful setting, building fences, thinning forests or collecting seeds while our skilled volunteer coordinators make the time spent fun and worthwhile. In some cases, co-workers who don't often see each other in the course of a week, end up working together to plant a tree or construct a trail section. One department manager said that having her employees participate in a volunteer project opened her eyes to employees who possess leadership skills she might never have noticed had her team stayed in the office.

We, who value our beautiful parks and open space, feel very appreciative of the contribution made by our Boulder County Parks and Open Space Partners.

We have Trail and Property Stewardship Team spots available for 2011. If you would like to find out more about this program, contact me at kimbierowicz@bouldercounty.org or 303-678-6268 or go to www.BoulderCountyOpenSpace.org and search for "partnership."

If your organization would like to dip its toe into the Parks and Open Space volunteer waters, contact Craig Sommers at csommers@bouldercounty.org or 303-678-6216.



Volunteers from Level 3 removed fence at their project.

Development of Cropland Policy Is Underway



The mission of Boulder County Parks and Open Space Department is to conserve natural, cultural and agricultural resources and provide public uses that reflect sound resource management and community values. The department manages 26,000 acres of agricultural land, 18,000 of those acres are managed as cropland or irrigated pastureland.

The Cropland Policy is designed to address the gap between the department's daily management practices and the County Comprehensive Plan's directives regarding the management of open space and agricultural land. The policy will outline the guiding principles that our staff will use to make management decisions on open space properties managed as cropland. By defining these principles, we hope to streamline decision-making processes during planning and make it easier for our tenants and the residents of Boulder County to understand the goals of our cropland program.

Proposed Vision for Agriculture on Boulder County Open Space Land

Boulder County Parks and Open Space's vision is to be a national leader in sustainable agriculture. We manage open space agricultural lands to maintain a healthy agricultural economy in the county, while protecting environmental and community values.

There are many definitions of sustainable agriculture. The work of policy organizations such as the USDA National Institute for Food and Agriculture, the Leopold Center for Sustainable Agriculture, Sustainable Agriculture Research and Education, and literature like *Tomorrow's Table* have informed the department's definition.

Sustainable farming and ranching on county open space lands will promote environmental protection, economic profitability, and the health and well being of our community. Boulder County's policies and practices will:

- Enhance environmental quality and the natural resource base by improving soil quality, optimizing water use, promoting best management practices, reducing the dependence on non-renewable resources, and reducing the carbon footprint of managing the land.
- Promote long-term profitability of farming and ranching for our tenants by identifying, promoting and supporting markets and innovation in farming practices while working to protect more agricultural land.
- Foster a connected community amongst farmers and between

producers and consumers as well as between people and non-human ecosystems. Provide community needs for food and feed, preserve agricultural land, and enhance the quality of life of farmers, farm workers and society as a whole.

Public Involvement

Parks and Open Space kicked off the public outreach process in May 2010 with a Cropland Open House at the Boulder County Fairgrounds. The open house was followed with monthly tours starting in June and ending in September. In November, the department hosted the Sustainable Agriculture Forum. Pamela Ronald and Raoul Adamchak, the authors of *Tomorrow's Table: Organic Farming, Genetics, and the Future of Food* gave the keynote. A panel of regional experts also talked over some broad questions on sustainability.

Also available right now is a virtual tour of the harvest season on cropland in Boulder County. To see the tour go to www.BoulderCountyOpenSpace.org and search for "harvesttour."

Next Steps

Starting early in 2011, the Cropland Policy Planning Team will begin working with a group of residents convened as the Cropland Policy Advisory Group (CPAG). The group will meet at least once a month of the first Wednesday of the month to review the staff recommendations and develop a shared opinion of those proposals. Meetings of the CPAG will be open to the public.

On January 19, 2011, Boulder County Parks and Open Space will host the Farm and Ranch Forum. This public forum will give residents of the county a chance to hear what it's like to be a farmer and rancher on open space. We'll hear from those who utilize a variety of methods to make a sustainable living on publicly owned cropland. Stay tuned for more details as they become available.

For More Information

Please visit the department's Cropland Policy website at www.BoulderCountyOpenSpace.org and search for "cropland_policy" to stay informed about upcoming events. You can also email us at croplandpolicy@bouldercounty.org or contact the project planner, Jesse Rounds, at jrounds@bouldercounty.org or 303-678-6271.

The completion date (Board of County Commissioners adoption) for the Cropland Policy is anticipated to be in the fall of 2011.

What Lies Beneath

by Michelle Bowie

As winter arrives in the mountains, a blanket of snow covers the ground and a calming quiet fills the air. I bundle myself up with warm puffy clothing and venture out onto the trails. As I walk, I feel the crisp air on my face and listen to the crunch of snow beneath my feet. During this time, I feel completely alone. I think about how difficult it would be to survive in the wilderness during the winter with the harsh bitter cold and the absence of food. I am grateful for my warm cozy house and my heater. However, what I don't realize is that as I walk, I am standing on the roof of a house.

Vole vs. Mouse—Small Distinctions

This house belongs to the vole, commonly referred to as a field mouse, which is active year round. The common vole that you might run across in Boulder County is a small rodent, ranging from about four to eight inches long. It looks very similar to a mouse. However, there are many small distinctions between the two species; voles have a shorter tail, a stouter body, and smaller eyes. While many people do not give the vole a second thought, it has developed amazing adaptations in order to survive.

Voles breed year round—one vole can produce as many as 10 litters per year. Each litter averages five to 10 young, so just one vole can produce more than one hundred new voles in a year. Although this is undoubtedly amazing, many people are familiar with the fact that rodents reproduce very quickly. However, what most people don't know is that some species of vole are monogamous and will stay with a mate for life.

Since voles reproduce at such a high rate, to reduce competition, voles live in small communities called colonies. These colonies vary greatly in size and can include up to three hundred individuals. These colonies may sometimes be partitioned into home ranges to reduce competition between voles. Depending on the habitat available, these colonies can be close together and it is possible for there to be anywhere from 14 to 500 voles per single acre of land.

Now if there are this many voles in an area and they are active all year round, why don't we see them more often? Life as a vole is tough. The death rate of voles is very high, with the lifespan averaging only 20 weeks. In fact, few voles survive more than two years. They have numerous predators including, hawks, owls, weasels, foxes, cats, bobcats, coyotes, skunks, and snakes, among others.

Tunnel Vision

Therefore, in order to protect themselves from ample predators, voles have adapted to create runways on the surface of the ground. These runways are very small, about one and a half inches wide, and therefore very difficult to see. This is why, in my moment of solitude, as I walk across the snowy landscape, I am unaware of the presence of possibly hundreds of scurrying rodents beneath my feet. In the summer, these rodent highways are created in tall grasses and vegetation in addition to digging their burrows underneath the ground.

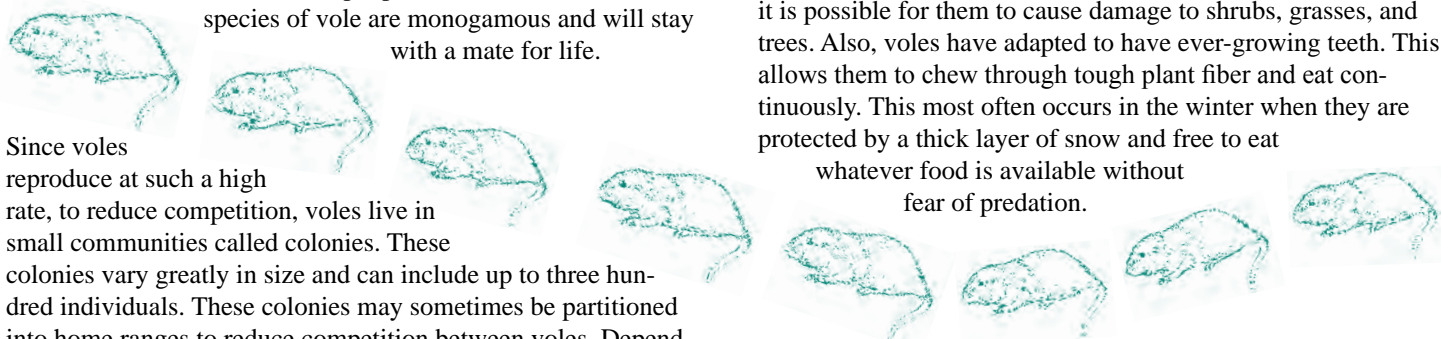
In the winter, they create tunnels in the subnivean space, found beneath the snow and above the soil. The snow serves as a warm airy blanket for the earth and calms even the most extreme winter conditions. So even if I am fighting to hike in a wind chill of up to -40 degrees Celsius, in these tunnels it will remain a cozy -4 degrees Celsius. Beneath my feet, the voles comfortably search for food to store and nibble on whatever plant life they can find. Additionally, voles are not above utilizing holes created by other small animals, such as prairie dogs, to help them survive. However, the predators that feed on voles have no problem digging into the snow to try to snatch up a quick lunch.

Population Cycles

Populations of voles are highly cyclical and tend to peak every three to five years. If vole populations become too large it is possible for them to cause damage to shrubs, grasses, and trees. Also, voles have adapted to have ever-growing teeth. This allows them to chew through tough plant fiber and eat continuously. This most often occurs in the winter when they are protected by a thick layer of snow and free to eat whatever food is available without fear of predation.

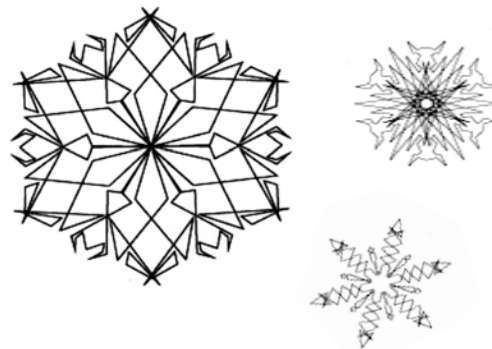
So it is undoubtedly possible for these small creatures to become a nuisance and management actions may need to be taken. However on parks and open space, where there are ample predators, this does not tend to happen as frequently as on agricultural or urban landscapes.

Now with my knowledge of the amazing adaptations voles possess, I continue to hike outside in the cold winter. I look forward to the melting of the snow and the bustling noises of animals moving through the forests to come. However, I no longer feel alone. This is because I know about the tough little voles that are fighting to survive year round just beneath my feet.



NATURE DETECTIVES

Winter 2010



Snow Dust

Think of words to describe snow... You might come up with words like *sparkly*, *white* or even *pure*. Would you be surprised to learn each *pure*, *sparkly white* snowflake actually begins with a particle of dust? Whether it is a speck of pollen, bacteria, salt, ash or dirt, the dust particle forms the core of each snow crystal.

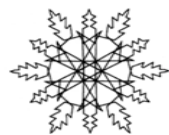
The speck of dust floats up into the air and gets very cold. When a little water vapor touches the cold dust, it freezes into a tiny ball. More water vapor sticks to the frozen ball and starts to form a six-sided ice crystal. Ice crystals are always six-sided. As more water vapor attaches to the crystal, it grows. The corners grow fastest, forming the beautiful, intricate shapes we admire on our sleeves and mittens on a snowy day.

Snowflakes are not frozen raindrops. Raindrops are liquid water. When raindrops freeze, they fall as sleet. Snow crystals start with water vapor, which is water in invisible gas form. When water vapor becomes snow crystals, light scattering off the ice edges makes them look white.

Growing Snowflakes

Snow crystals get blown around inside a cloud, colliding with more water vapor. Each new bit of water vapor makes the icy crystals bigger. Soon the snow crystals are too heavy to stay afloat and down, down they fall to earth. On the way down, they might stick to other snow crystals and make big snowflakes.

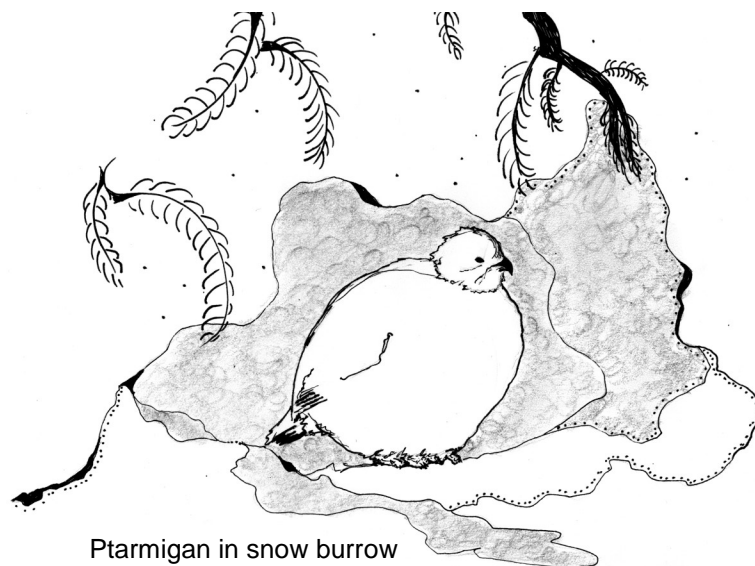
First Snow



Snow
makes
whiteness
where it falls.

The bushes look like popcorn balls.
And places where I always play,
Look like somewhere else today.

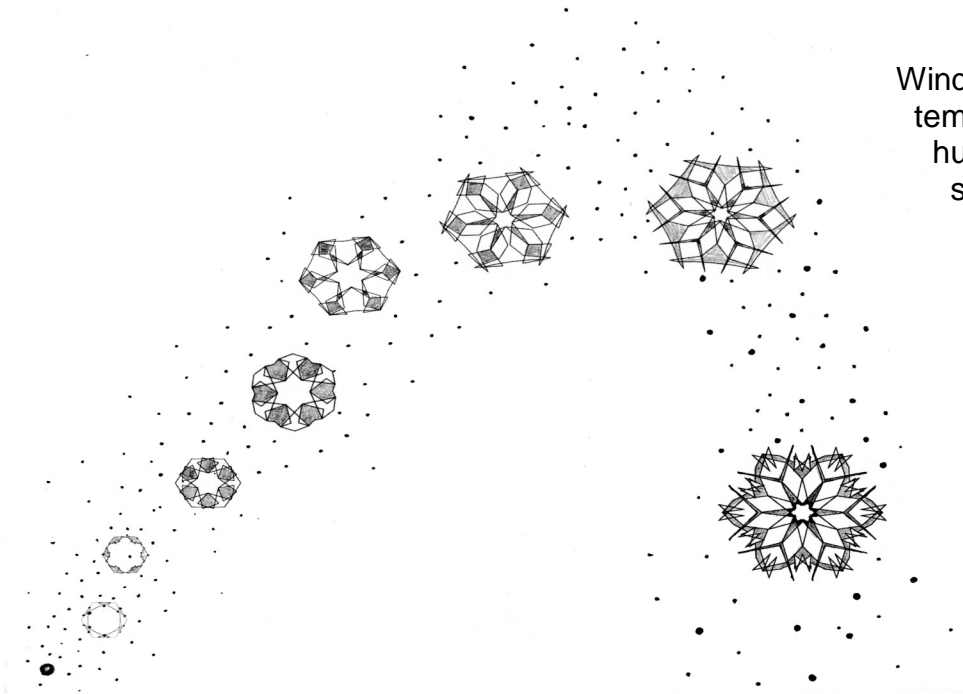
By Marie Louise Allen



Ptarmigan in snow burrow

Each Snow Crystal Is Unique

Two snow crystals are unlikely to follow exactly the same wind-driven path through a cloud as they are being formed. Each randomly enlarges by coming into contact with water vapor, and odds are you will never find two precisely alike. Snow crystals formed under the same conditions in a cloud may look similar, but their shapes will likely vary, even if just slightly.



Wind, air pressure, temperature and humidity affect the size and shape of snow crystals.

Two Crystals (or More) Make a Flake

Snow crystals stop growing once they fall out of their cloud because water vapor is no longer being added. As they fall to earth, they often collide with other crystals to form snowflakes. Single snowflakes are made when at least two snow crystals stick together on their way to the ground. Snowflakes can have hundreds or even thousands of tiny snow crystals stuck together into one snowflake. Most people call single snow crystals *flakes*, too, and that's okay.

Ice crystals are very fragile. Edges can break off as they are tossed by the wind or collide on their way to the ground. Edges can start melting in warm air, too. Watch a snowflake disappear in seconds on your mitten as you blow on it.

Snowflake Bentley

How could you photograph something so fragile? Wilson Bentley is famous as the first person to successfully photograph snow crystals using a microscope. He was just a teenager when he built the special photo equipment, but he continued taking pictures of snowflakes for almost 50 years, starting in 1885. His 5000 pictures of snow crystals have inspired artists and scientists, and earned Wilson the nickname Snowflake Bentley.

Check out the award-winning book by Jacqueline Briggs Martin, titled Snowflake Bentley, from your library.

Fowl Weather Sledding

There is no doubt snow crystals are beautiful, but maybe the best thing about snow is that it can be fun, and humans are not the only animals that seem to enjoy playing in snow. River otters sometimes slide down snowy riverbanks into the water and do it over and over again. Ravens have also been seen playing in the snow, rolling and sliding. Ravens, owls, crows, finches, kinglets and ptarmigans also seem to like taking bird baths in the snow.



Snow Cozy

Snow can also be life saving for ptarmigans during freezing nights in the alpine tundra. The birds burrow into deep snow, which insulates them from the cold air. If the next day is extra cold or snowy, they will sometimes linger inside their self-made snow cave. Once they leave it, they won't return, but will make a new burrow next time they need extra protection from freezing temperatures.

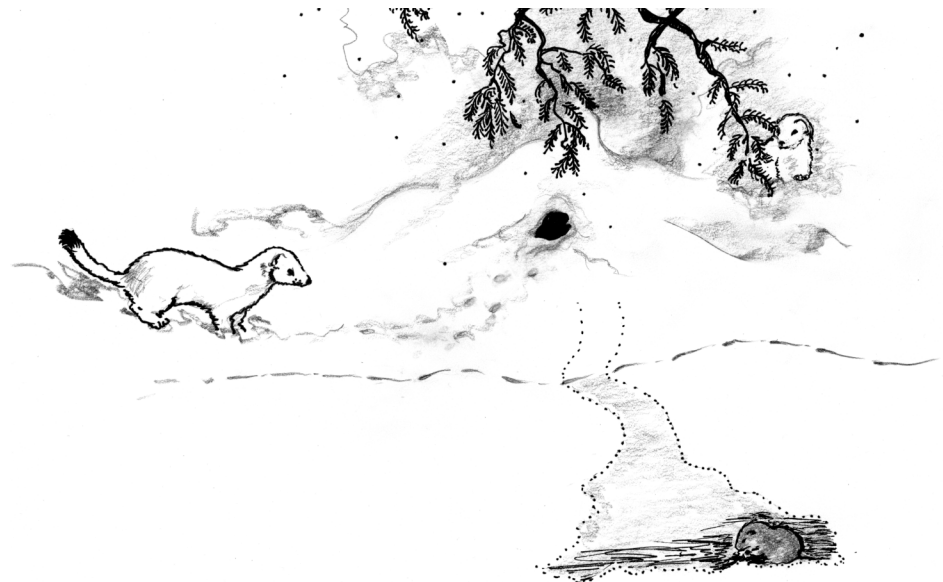


Mice, voles and pocket gophers take advantage of deep snow for an almost perfect winter hideout. They tunnel under the snow near the ground, staying sheltered from frigid weather and out of sight of predators. Hidden under the snow, they scurry around eating berries, twigs, young bark and some insects. They will sleep in their snow lairs and even build snug nests and raise babies.

Of course, they are not completely safe from predators like coyotes, foxes and owls. These keen-eared predators can detect the rodents below the snow and break through the crust to snatch a furry dinner. Weasels with their slender bodies can slink right behind rodents in the snow tunnels to catch them off guard.

Weasels are small predators that can become prey for bigger animals. The weasels' winter white fur is good camouflage for hunting and for hiding.

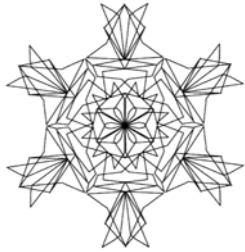
Ptarmigans also trade their summer browns for winter white for better hiding, as do snowshoe hares.



Icy Snow Crystals Up Close



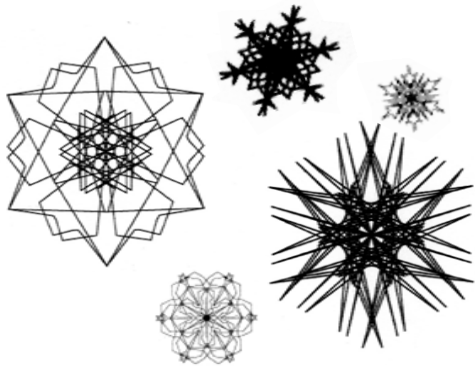
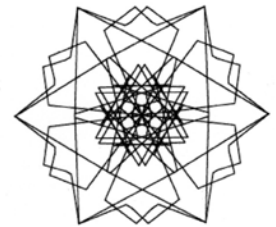
To see snow crystals in close-up detail, it helps to look at them through a magnifying lens. The best viewing is on the coldest days when you'll have more time before the crystals melt away.



The simplest method is to wear dark-colored mittens or gloves and look at snowflakes through a hand lens or magnifying glass as they land on your hands. Stand outside for a few minutes first to make sure your mittens are as cold as the air or your snowflakes will be gone as soon as they touch the fabric.

Make It An Experiment

A piece of black construction paper or black felt works well to catch snowflakes. Once you have a few snowflakes on your paper, try to shield it from more snow so you don't get too many crystals, which would make it hard to see the individual shapes. Use your magnifier to look at the crystals. You and a friend might enjoy this activity together.

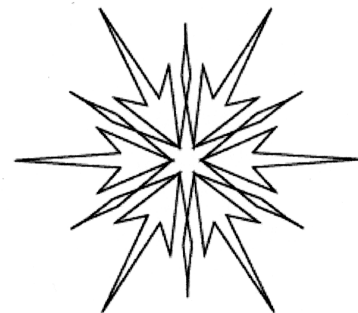
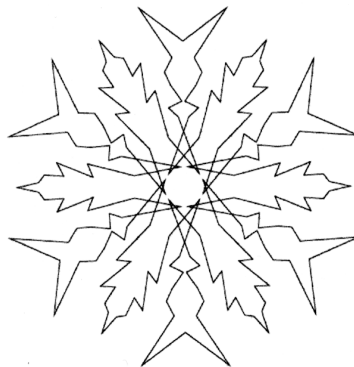
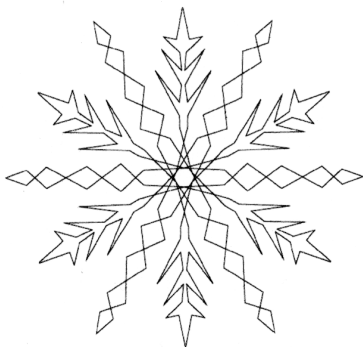


You could also draw the crystals you see.

Jot down the air temperature beside your drawing and add words to describe the wind and weather.

If you collect your snow crystal drawings from different days, you could see if the weather conditions affect the shape of the crystals you find.

Snow crystals can be stars, teeny pencil-shaped columns, stinging sharp needles and or plain-looking plates, but all are formed with six sides.



You can even try to find a rare twelve-sided snowflake that forms when two snow crystals stick together in just the right way.

Field Notes

A Day in the Life of a Conservation Easement Stewardship Specialist



Clockwise from top left:

- A conservation easement in Boulder County.
- Jen shows that treasures are sometimes found when the specialists inspect properties.
- Brad Milley, another CES Stewardship Specialist, uses a GPS unit while visiting a property.

Summer mornings typically begin with me scurrying around the office, collecting the things I'll need for a day in the field. Once I have gathered my camera, GPS, files, keys, water, and snacks I head out to do my monitoring.

Over the course of the summer I will visit 100-200 properties covered by conservation easements to look for violations. Violations can include things like unpermitted structures, recreational use of agricultural land, and unmanaged weeds. If the property I am visiting has a house nearby I will often knock on the door to explain who I am and why I am there. If there isn't anyone around I will usually just hop the fence and do my visit. Despite the fact that our conservation easements allow us to access these private properties, it took me some time to get over feeling like I was trespassing! Once I am on the property I walk around, take pictures, and look for any potential violations. Getting out in the field to monitor is a lot of fun but it can also be a little too exciting sometimes. I've gotten lost, been followed around by angry dogs, fallen into ditches, and (much

to my embarrassment!) gotten a vehicle stuck. Because I am usually out in the field by myself I have to be extra careful of my surroundings at all times!

After returning from the field I go through my pictures and write reports on what I saw. If there are any concerns about the property I will discuss them with my supervisor and we will decide on a course of action. Typically we deal with violations by sending the landowner a letter about the violation and asking them to correct the situation. One of the great challenges of our work is to maintain good relationships with our landowners while being sure that the terms of the easement are being met!

During the cooler months I switch gears and spend most of my time dealing with the previous year's violations, reviewing Land Use applications, and working on new deals. While this time of year isn't nearly as much fun as the summer, I really enjoy the fact that the work I do varies so much depending on the season ... and I know summer monitoring season is just a few short months away!

Jen Dziuvenis is one of Real Estate staff.

Successful Nesting Season for Raptors in Boulder County

by Kevin Grady

Boulder County encompasses an area of land that spans from the Great Plains to the Continental Divide. Within this area many diverse ecosystems exist—grassy meadows, shrublands, cliffs, canyons, forests, lakes, streams, and rivers. These many habitats attract a host of different raptor species.

2010 was a very successful nesting season for raptors on Boulder County Open Space lands. With the help of 15 volunteers and a few staff, the department confirmed and observed over 20 active raptor nest sites.

Two highlights of the season include: 1) The Meadow Park golden eagles raised one eaglet for the first time since 2003, and 2) Northern harriers nested (but failed) at Lagerman Reservoir, one of only two documented nests in the county.

Why Do We Collect This Information?

Raptors are an important part of the food web. Being a predator, they help to keep rabbit, prairie dog, and other rodent populations in check. Also, most of these species are rare, so it is imperative that we document the birds' nesting success. Raptor monitors collect useful information that we integrate into management plans such as arrival dates by adults on their breeding grounds and dates when the nestlings fledge. Such information is integral in managing for the protection of these species. Finally, volunteer monitors help staff by spending extended amounts of time observing these nests. This is particularly helpful with nesting areas which receive considerable human visitation, such as the Meadow Park site. All of this information we gather also helps guide management direction on our open spaces.

Protecting Raptors

All nesting raptors are protected under the Migratory Bird Treaty Act. Bald and golden eagles are also protected under the Bald and Golden Eagle Protection Act. Both acts are federal protections administered through the U.S. Fish and Wildlife Service. These acts protect raptor species from being pursued, shot at, poisoned, injured, captured, trapped, collected, molested or disturbed, unless a proper permit is granted. Boulder County is obligated to follow these federal protections. Therefore, monitoring these species is vitally important. The Colorado Division of Wildlife (DOW) sets up guidelines, based on federal law, for agencies to follow within the State of Colorado. For example, golden eagles, which are cliff nesting raptors, DOW recommends a ½ mile closure around the nest site where no human disturbance should occur. This closure starts on December 15 and lasts until July 15 each year. Seasonal golden eagle closures have been established at both Rabbit Mountain and the northern portion of Heil Valley Ranch. Other established seasonal closures exist for osprey at Lagerman Reservoir and Cattail Pond at the Boulder County Fairgrounds. Those closure dates begin April 1 and last until August 31 each year.

Our open space raptors have definitely had a successful nesting season. Much of the success is owed to our dedicated volunteer raptor monitors. We recruit volunteers who have a knowledge and/or interest about raptors. We then give them an opportunity to adopt a nest to observe and document behaviors. For example, we had six volunteers monitoring the Meadow Park golden eagle nest this year, and having extra eyes out at that very popular recreation site helped to ensure the success of a fledged eaglet for the first time since 2003!

For more information about our volunteer raptor monitoring program, please contact Will Keeley, Wildlife Specialist at wkeeley@bouldercounty.org or 303-678-6203.

So, next time you go out for a hike, take your binoculars and scan the skies. You may just get lucky enough to see one of Boulder County's resident raptors.

Nest Site	Species	# of fledged young
Rabbit Mountain	Golden eagle	1
Wyn/Forsberg	Golden eagle	1
Hall Ranch	Golden eagle	1
Heil Valley Ranch	Golden eagle	2
Heil Valley Ranch	Golden eagle	1
Keyes North Wambsganss	Bald eagle	2
Conservation Easement	Bald eagle	2
Braly Open Space	Bald eagle	failed
Western Mobile	Bald eagle	new pair observed
Cattail Pond at Fairgrounds	Osprey	2
Lagerman Reservoir	Osprey	failed
Conservation Easement	Osprey	3
Lagerman Reservoir	Northern harrier	failed
Hall Ranch	Prairie falcon	3-4
Twin Lakes	Great horned owl	2
Gage Open Space	Great horned owl	2
Heil Valley Ranch	Cooper's hawk	3
Hall Ranch	Cooper's hawk	2
Heil Valley Ranch	Sharp-shinned hawk	3-4
Carolyn Holmberg Preserve	Burrowing owl	6
Rock Creek Grasslands	Burrowing owl	5
Two Creeks	Burrowing owl	failed
Telleen	Burrowing owl	1

Discover Boulder County

A CALENDAR OF NATURAL AND CULTURAL HISTORY EVENTS

Winter Birds of Prey Programs

Birds of Prey Slide Shows

Wednesday, December 15; 7:00pm to 8:30pm
Longmont Public Library, 4th Avenue and Emery Street,
Longmont, Meeting Room A & B

--and--

Thursday, January 6; 7:00pm to 8:30pm
Louisville Public Library, 951 Spruce Street, Louisville

--and--

Wednesday, February 2; 7:00pm to 8:30pm
George Reynolds Branch, Boulder Public Library, 3595
Table Mesa Drive, Boulder (overflow parking available in
King Soopers parking lot across the street)

Learn how to recognize birds of prey, or raptors—hawks, eagles, falcons, and owls—in the winter skies above Boulder County. During this slide presentation, you'll observe and learn how to distinguish between different raptors by identifying common field marks. You will also learn about the habitat requirements, behavior, and ecology of these magnificent birds. All ages are welcome.



Birds of Prey Driving Tours

Saturday, December 18; 10:00am to 1:00pm
Saturday, January 8; 10:00am to 1:00pm
Saturday, January 22; 9:30am to 2:30pm (extended tour)
Saturday, February 5; 10:00am to 1:00pm
Saturday, February 19; 9:30am to 2:30pm (extended tour)
Meeting location will be provided to registered participants.

Join Boulder County volunteer naturalists for a driving tour of some of Boulder County's best areas to view birds of prey, or raptors. We will carpool from our meeting place, searching for raptors, learning about habitat and behavior, and working on our observation and identification skills. Bring water, lunch or a snack, binoculars, spotting scopes, and a bird field guide if you have them. Older children are welcome. Register by calling 303- 678-6214, no later than the Thursday before each scheduled Saturday tour.

All Programs

All ages are welcome unless otherwise noted. NO PETS PLEASE! Be prepared for winter temperatures. Bring drinking water and dress in layers. See the back cover for park locations. For information about these programs, or to arrange a volunteer-led program for your group, please call 303-678-6214.

Discover Boulder County

A CALENDAR OF NATURAL AND CULTURAL HISTORY EVENTS

A Birds-Eye View of Rocky Mountain Weather

Tuesday, December 7; 7:00pm to 8:30pm

George Reynolds Branch, Boulder Public Library, 3595 Table Mesa Drive, Boulder

Join volunteer naturalist Phil Ecklund for a look at Boulder County's unique weather from the perspective of a glider pilot. From soaring thunderheads to "flying saucer" clouds and powerful winds off the Continental Divide, the weather is anything but predictable along the Front. Phil will share his experience observing and flying through our changeable weather with in-flight and time-lapse images.

I Spy Where Wild Animals Live!

Friday December 10; 9:30am to 10:15am

Longmont Public Library, 4th Avenue and Emery Street, Longmont, Meeting Rooms A & B

Where do animals live? Everywhere! Imagine exploring Boulder County looking for signs of wildlife. Join volunteer naturalists Diane Faigen and Kathy Larson and hike across a HUGE map of Boulder County, from the grassy plains to the highest peaks. Everyone can be a nature detective and help discover where different animals find the food, water, shelter, and space they need to survive. This program is geared for preschoolers accompanied by an adult.



Getting Ready for Winter at Heil Valley Ranch

Saturday, December 11; 1:00pm to 3:00pm

Heil Valley Ranch; North of Boulder off Lefthand Canyon Drive; meet at group picnic shelter

Join volunteer naturalists for a late fall hike to observe seasonal changes and to discover how the wildlife of Heil Valley Ranch prepares for winter. You'll learn about behavioral and physiological adaptations to the shortening days and cooling temperatures, and also look for signs of wildlife that are active year-round. Participants should be prepared for a slow-paced hike of just over a mile.

All Programs

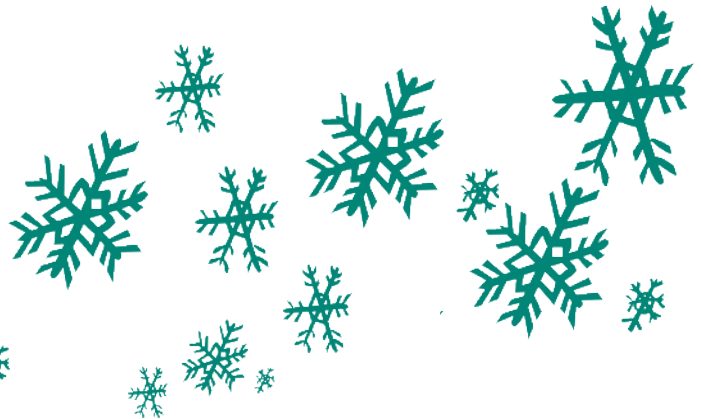
All ages are welcome unless otherwise noted. NO PETS PLEASE! Be prepared for winter temperatures. Bring drinking water and dress in layers. See the back cover for park locations. For information about these programs, or to arrange a volunteer-led program for your group, please call 303-678-6214.

The Nature of Snow

Sunday, January 9; 10:00am to Noon

Mud Lake Open Space; 2 miles north of Nederland on County Road 126; meet at parking lot kiosk

Snow is amazing – it changes form, insulates, fractures into deadly avalanches, and also makes winter survival possible for many plants and animals. Join naturalist Larry Colbenson on a hike to explore snow and learn how some plants and animals have adapted to life in the cold. Ski or hiking poles are recommended due to icy trail conditions. Everybody should be prepared to hike about two miles in snow, above 8,000 feet in elevation.



A Kid's View of Raptors

Wednesday, January 12; 4:30pm to 6:00pm

Lafayette Public Library, 775 west Baseline Road, Lafayette

Learn how to recognize birds of prey, or raptors—hawks, eagles, falcons, and owls—in the winter skies. During the slide presentation you'll see some of these awesome birds up close and learn about where they live and what they eat. You will also get to see how your "wingspan" measures up against a hawk or eagle. This program is for families with elementary-age children.

Prairie Winter Hike

Sunday, February 6; 1:00pm to 3:00pm

Carolyn Holmberg Preserve at Rock Creek Farm; Stearns Lake Trailhead; Located north of Broomfield at the junction of S 104th St and Dillon Road.

Learn how grassland and wetland wildlife respond and adapt to winter on the prairie along the Colorado Front Range. Volunteer naturalists will lead this easy walk to explore and learn about the different winter strategies employed by wildlife that migrate through or are resident to the prairie ecosystems of Boulder County.

Discover Boulder County

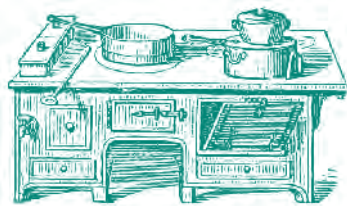
A CALENDAR OF NATURAL AND CULTURAL HISTORY EVENTS

Winter at the Walker Ranch Homestead
Sunday, January 30; 1:00pm to 3:00pm (Homestead tour begins at 1:30pm)

Walker Ranch Homestead; 7701 Flagstaff Mountain Road, approximately 7 miles west of Boulder on Flagstaff Road, on the left just past Pika Road; meet at parking area above homestead

How did early settlers prepare for and survive the harsh winters of Colorado? What did they do when they were snowed in for weeks at a time? What were their evenings like without radio or television? These questions and more will be answered as we explore the Walker Ranch homestead in winter. In addition to a tour of the ranch, there will also be a working demonstration in the blacksmith shop and the log house will be filled with wonderful smells of food being prepared on the woodstove.

Be prepared for cold, windy weather, and to walk in snow. For more information, call 303-776-8688.



Signs of Life – Wildlife in Winter Hike

Saturday, February 12; 10:00am to 1:00pm

Caribou Ranch Open Space; 2 miles north of Nederland on County Road 126; meet at parking lot kiosk

Join volunteer naturalists for a hike in the high country to learn about the many ways that wildlife survives winter in the Rocky Mountains. We'll talk about hibernation, dormancy, migration, and various strategies for animals that are active all winter long. We will also look for signs of wildlife activity, including tracks, scat, and browse marks on trees. Bring drinking water, and clothing and boots suitable for a moderate 2-mile hike in snowy, cold and windy weather. Ski or hiking poles are also recommended due to icy trail conditions. All ages are welcome.

The Geologic History of Boulder County

Tuesday, February 15; 7:00pm to 8:30pm

Boulder Public Library, Main Branch; 11th Street and Arapahoe Avenue, Boulder; Boulder Creek Meeting Room

The geologic history of Boulder County goes back over 1.7 billion years. Ever wonder where the rocks came from, or why the ancestral and present-day Rockies formed? Join geologist Sue Hirschfeld for this PowerPoint program and learn how to read the story in the rocks and interpret the landscape that has developed in Boulder County over the last two billion years.



Trickster Tales

Saturday, February 26; 1:00pm to 3:00pm

Rabbit Mountain Open Space; NE of Lyons on north 55th St. (turn north on 53rd St. off Highway 66)

Coyotes live throughout most of North America and coyote tales are found in many native cultures. Sometimes coyote has the power of creation, other times he battles supernatural enemies, and sometimes he's a trickster. Join volunteer naturalists for a moderate 2-mile hike at to learn more about this clever, adaptable character.

Nature Hikes for Seniors

Boulder County Parks and Open Space hosts a nature hike for seniors every month. Programs include information about an area's history, wildlife and current resource management projects. For more information, call 303-678-6214. Please call in advance if you plan to bring a large group, so we have enough naturalists at the program.

Programs begin at 10:00am and end at noon.

December 30	Walden Ponds Wildlife Habitat Area
January 27	Pella Crossing Open Space
February 24	Carolyn Holmberg Preserve at Rock Creek Farm (Meet at Stearns Lake parking lot on South 104th St)

2011

Nature Hikes for Seniors

The last Thursday of every month (except where noted by an asterisk) the Boulder County Parks and Open Space Department hosts a nature hike for seniors at a county park.

Join us for an enjoyable, informal, and slow-paced hike through your open space!

- Programs begin at 10:00am and end by noon.
- Hikes include information about an area's history, wildlife and resource management projects.
- Meet at the park entrance kiosk, unless another location is indicated below.
- For more information and directions, call 303-678-6214. Please call in advance if you plan to bring a large group, so we can provide enough staffing.

January 27	Pella Crossing Open Space
February 24	Carolyn Holmberg Preserve at Rock Creek Farm (meet at Stearns Lake parking lot on South 104th St)
March 31	Agricultural Heritage Center at Lohr/McIntosh Farm
April 28	Heil Valley Ranch Open Space (meet at group picnic shelter at southern trailhead)
May 26	Betasso Preserve
June 30	Mud Lake Open Space
July 28	Bald Mountain Scenic Area
August 25	Caribou Ranch Open Space
September 29	Walker Ranch Open Space (meet at Meyers Homestead Trailhead)
October 27	Heil Valley Ranch Open Space (meet at group picnic shelter at southern trailhead)
November 17*	Rabbit Mountain Open Space
December 29	Walden Ponds Wildlife Habitat Area

Clip and Save

Habitat Closures at Rabbit Mountain and Heil Valley Ranch

The Boulder County Parks and Open Space Department announces two wildlife habitat closures.

- One closure at Rabbit Mountain Open Space is located to the south and east of the Eagle Wind Trail.
- The second closure, at Heil Valley Ranch, is west of the Picture Rock Trail.

These closures take place from December 15 through July 15. Park visitors can find maps highlighting the closed areas on kiosks at park entrances.

Critical Habitat

These areas are critical wildlife habitat. It is very important that park visitors respect the closure. Wildlife take refuge in the closed area; it is an area where they forage, roost and nest.

Birds are especially sensitive to disturbance during courtship and nesting which occurs from winter through midsummer. Please respect wildlife needs for solitude.

Park visitors found in the critical wildlife area can be fined up to \$300 by park rangers and county sheriff deputies who patrol the open space.

For additional information, please contact the Boulder County Parks and Open Space Department at 303-678-6200 or www.BoulderCountyOpenSpace.org.

2010 Land Conservation Awards



Boulder County Parks and Open Space Department is now accepting nominations for the county's annual Land Conservation Awards. Nominations will be accepted until January 31, 2011. Anyone may nominate individuals, families or organizations that have made outstanding contributions in Boulder County in one of these categories: Land Conservation, Environmental Stewardship, Historic Preservation, Volunteer for Boulder County Open Space, Extension Services and Partnership Initiative Program Partner. Nominating oneself or an organization of which one is an officer or director is not permitted. Federal, state, county, special district and municipal government agencies are also not eligible.

Special consideration will be given to land conservation or historic preservation activities that particularly affect unincorporated Boulder County and for activities that demonstrate ongoing effort. One-time efforts resulting in lasting benefit to the county's environmental landscape will also be favored for selection. Other award selection criteria include conservation activities that are a model for others or that increase public awareness of land conservation. The Boulder County Commissioners will present the awards at a ceremony to be held in Longmont during volunteer week in April 2011.

For more information and nomination forms, call 303- 678-6277 or visit www.BoulderCountyOpenSpace.org.

Volunteer Opportunity - Natural Resource Monitor

Boulder County Parks and Open Space is now accepting applications for the 2011 Volunteer Natural Resource Monitor program.

Have you ever seen a raptor soaring in the sky and wondered where that raptor nests? Have you considered how mountain pine beetle is changing our natural landscape? Are you interested in restoring native plant communities?

If you enjoy investigating the natural world, then you should become a volunteer natural resource monitor.

What Natural Resource Monitors Do

Volunteers collect important, ongoing scientific data about wildlife, forestry, plant ecology, and noxious weeds.

Ideal Candidates

We are recruiting people who have a background in natural resources, experience collecting field data, and familiarity with the scientific method. Knowledge of local flora and fauna is preferred.

All volunteers will participate in an orientation followed by training for specific disciplines during the spring months.

Participants must be at least 18 years old and commit to at least one year of monitoring. Volunteers must have their own transportation. Many study areas are in rugged terrain, so

applicants must be able to work outdoors over unstable ground in varying weather.

Application Information:

Application deadline is February 15, 2011. Since there is limited space in this program, all applications will be screened before interviews are arranged. For additional information please visit www.bouldercountyopenspace.org/volunteering or contact Michelle Bowie at 303-678-6219 or mbowie@bouldercounty.org.



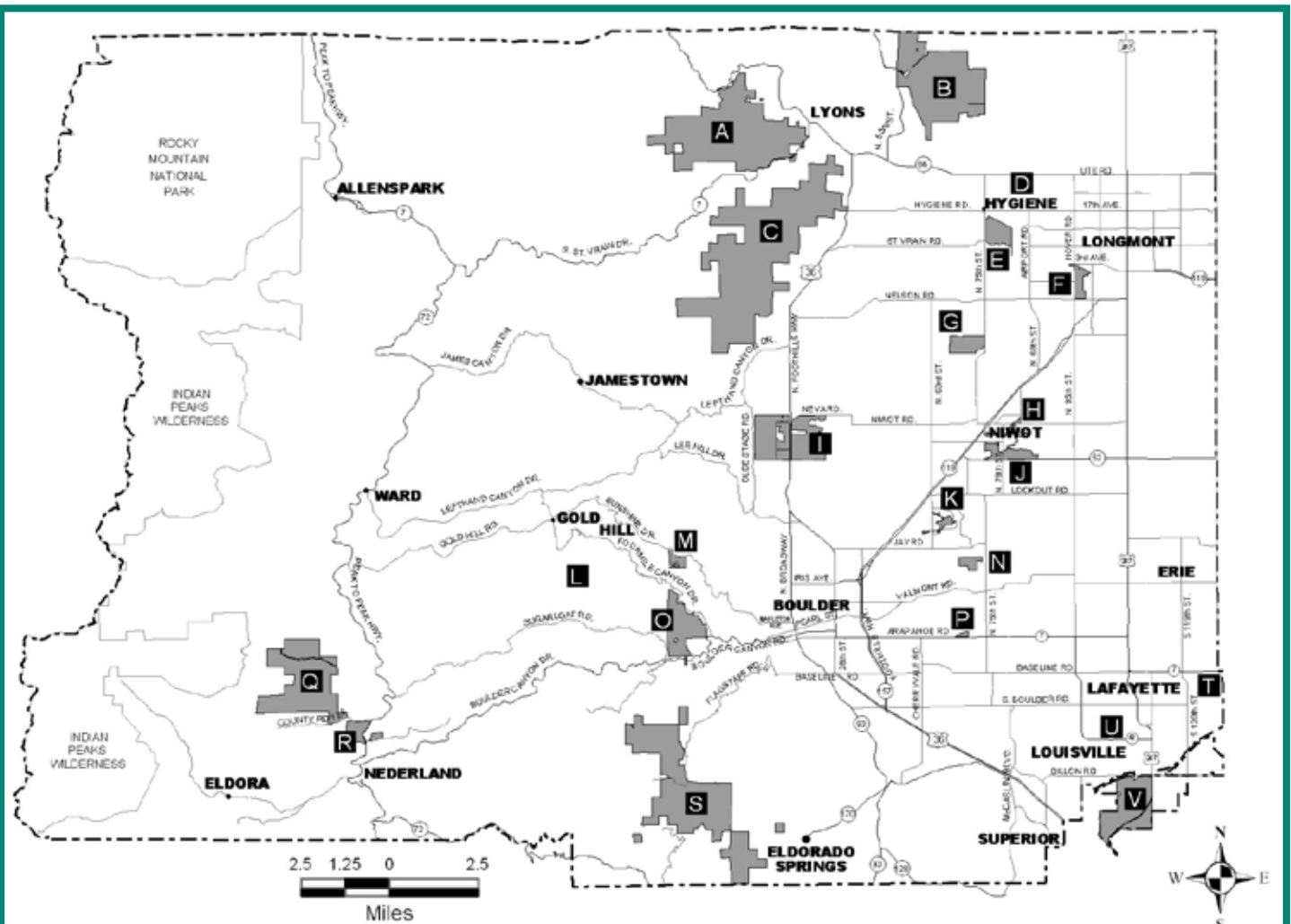
Monitoring stream flows



PARKS & OPEN SPACE DEPARTMENT
5201 St. Vrain Road
Longmont, CO 80503
303-678-6200

www.BoulderCountyOpenSpace.org

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| A. Hall Ranch | H. Lefthand Valley Grange | P. Legion Park |
| B. Rabbit Mountain | I. Beech Open Space | Q. Caribou Ranch |
| C. Heil Valley Ranch | J. Niwot Loop Trail | R. Mud Lake |
| D. Agricultural Heritage Center
at Lohr/Mcintosh Farm | K. Twin Lakes | S. Walker Ranch |
| E. Pella Crossing | L. James F. Bailey Assay Museum | T. Flagg Park |
| F. Boulder County Fairgrounds | M. Bald Mountain Scenic Area | U. Coal Creek Trail |
| G. Lagerman Reservoir | N. Walden Ponds Wildlife Habitat | V. Carolyn Holmberg Preserve
at Rock Creek Farm |
| | O. Betasso Preserve | |