

High Country Rural Living & Land Management

The ULTIMATE Land, Resource, and Good Neighbor Guide
3rd Edition, April 2022

Complete
Guide



Specifically Adapted for:
Middle Park, CO

Grand & Summit Counties

Read the electronic version of this book at: www.middleparkcd.com/ultimate-landowner-guide/



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WHO YOU GONNA CALL? *(probably not)*



Name	Phone
EMERGENCIES	
EMERGENCY ASSISTANCE	911
POISON CONTROL	800-222-1222
COLORADO CRISIS SERVICES (MENTAL HEALTH CRISIS)	844-493-8255, Text TALK to 38255
NATIONAL SUICIDE PREVENTION HOTLINE	988
FREE PRINTABLE EMERGENCY CONTACT PHONE LIST ⁷⁹	
GRAND COUNTY GOVERNMENT OFFICES	
MAIN NUMBER GRAND COUNTY GOV	970-725-3347
ANIMAL CONTROL	970-887-2988
ASSESSOR'S OFFICE	970-725-3060
BUILDING DEPARTMENT	970-725-3255
EMERGENCY MANAGEMENT	970-725-3803
HOUSING AUTHORITY	970-725-3070
HUMAN SERVICES	970-725-3331
NATURAL RESOURCES & NOXIOUS WEEDS	970-887-0745
PLANNING DEPARTMENT	970-725-3255
SHERIFF'S DISPATCH (NON-EMERGENT)	970-725-3311
WATER RESOURCE MANAGEMENT	970-725-3058
SUMMIT COUNTY GOVERNMENT OFFICES	
ANIMAL CONTROL	970-668-3230
ASSESSOR'S OFFICE	970-453-3480
BUILDING DEPARTMENT	970-668-3170
EMERGENCY MANAGEMENT	970-668-2999
ENVIRONMENTAL HEALTH	970-668-4070
HOUSING DEPARTMENT	970-668-4210
HUMAN SERVICES	970-668-9160
NOXIOUS WEED DEPARTMENT	970-668-4218
PLANNING DEPARTMENT	970-668-4200
SHERIFF'S DISPATCH (NON-EMERGENT)	970-668-8600
FEDERAL AGENCIES	
BUREAU OF LAND MANAGEMENT	970-724-3000
NATURAL RESOURCES CONSERVATION SERVICE (NRCS)	970-724-3456
ROCKY MOUNTAIN NATIONAL PARK	970-586-1206
US ARMY CORP OF ENGINEERS	970-243-1199
US FOREST SERVICE (SUMMIT-WHITE RIVER FOREST)	970-468-5400

Name	Phone
FEDERAL AGENCIES CONTINUED	
US FOREST SERVICE (GRAND-ARAPAHO FOREST)	970-887-4100
US FOREST SERVICE (GRAND-ROUTT FOREST)	970-638-4516
STATE AGENCIES	
COLORADO 811 (UTILITIES LOCATE)	811
COLORADO BRAND INSPECTIONS	303-869-9160
CDOT ROAD CONDITIONS (511)	511
COLORADO DIVISION OF WATER RESOURCES (DIVISION 5 OFFICE)	970-557-3038
COLORADO PARKS & WILDLIFE	970-725-6200
COLORADO STATE FOREST SERVICE (CSFS) GRAND COUNTY	970-887-3121
COLORADO STATE FOREST SERVICE (CSFS) SUMMIT COUNTY	719-466-9626
CSU EXTENSION GRAND COUNTY	970-724-3436
CSU EXTENSION SUMMIT COUNTY	970-668-4140
CSU SMALL ACREAGE MANAGEMENT TEAM	970-219-9903
GRAND COUNTY NATURAL RESOURCE ORGANIZATIONS	
COLORADO HEADWATERS LAND TRUST	970-887-1177
GRAND COUNTY WILDFIRE COUNCIL	970-627-7121
MIDDLE PARK CONSERVATION DISTRICT	970-724-3456
HEADWATERS RIVER JOURNEY	970-300-3337
SUMMIT COUNTY NATURAL RESOURCE ORGANIZATIONS	
COLORADO OPEN LANDS - LAND TRUST	303-988-2373
HIGH COUNTRY CONSERVATION CENTER (HC3)	970-668-5703
MIDDLE PARK CONSERVATION DISTRICT	970-724-3456
SUMMIT COUNTY WILDFIRE COUNCIL	970-668-4140
GRAND COUNTY FIRE DEPARTMENTS	
EAST GRAND FIRE (FRASER VALLEY)	970-726-5824
GRAND FIRE (GRANBY AREA)	970-887-3380
GRAND LAKE FIRE	970-627-8428
HOT SULPHUR/PARSHALL FIRE	970-725-3414
KREMMLING FIRE	970-724-3795
SUMMIT COUNTY FIRE DEPARTMENTS	
RED, WHITE, AND BLUE FIRE	970-453-2474
SUMMIT FIRE & EMS	970-262-5100

Contact info for other local Community Organizations can be found on page 10.

References: 73, 79

DISCLAIMERS

The content of this guide was initially compiled by the Middle Park Conservation District in February 2020 for Educational Purposes ONLY. The 2nd edition was published in December 2021, and this 3rd edition was updated again in April 2022. We have attempted to cite the best available information from various sources and professionals. **Because no two parcels of land are the same, it is always recommended that you seek independent advice before implementing new management practices.**

The laws and statutes discussed in this guide are not inclusive of all applicable statutes and case law. Our intent is to provide the basic provisions of the law, thereby helping you minimize conflict and deal with problems as they arise. Furthermore, as Colorado becomes increasingly urbanized, there is a chance that legislation and case law could change. **Be sure to check for updated case law and legislation before taking any drastic actions related to Colorado laws and statutes.**

Some photos in this guide were obtained from the Internet search engine **Duck, Duck, Go.** We have not cited specific websites for each photo but have noted the Duck, Duck, Go reference number by placing an encircled "1" on these photos. Photos taken from other sources are cited with their appropriate encircled reference numbers. *Photos without any noted reference number were taken by staff and executive members of the Middle Park Conservation District.* Bibliographical references are included at the back of this guide. Hyperlinks included within the text are not noted on the reference pages.



The Middle Park Conservation District (MPCD) does not discriminate based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by MPCD. MPCD is also an equal opportunity provider, lender, and employer.

PURPOSE & GOALS OF THE GUIDE

Living in rural mountain communities promises both challenges and rewards. We hope, by reading this guide, you will:

- a) **Better understand the limitations and opportunities of living in the mountains;**
- b) **Set achievable goals for your property and lifestyle;**
- c) **Grasp conservation-minded principles and acknowledge the importance of conserving our precious natural resources for future generations.**

PARTNER CONTRIBUTIONS

This guide was compiled by the Middle Park Conservation District (MPCD), but many organizations and individuals made contributions and reviewed the content prior to publishing. Though the complete list is too long to include here, MPCD wishes to thank everyone who helped with the creation of this guide. Some of Middle Park Conservation District's closest partners include the following agencies and organizations. Click the logos to be taken to their appropriate websites.



Colorado State
Conservation Board



Grand County
Colorado



INTRODUCTION & IMPORTANCE OF THIS GUIDE



Middle Park is one of the three high mountain basins in the Colorado Rockies. Located between North Park and South Park, the valleys of Middle Park include much of Grand County and the Lower Blue River basin of Summit County. Middle Park is at the headwaters of the Colorado River, one of our nation's most important rivers. Because the valleys of Middle Park are surrounded by mountains, it is often nicknamed "Island in the Rockies," as first described by Robert C Black in his book by the same title.

Both Grand and Summit Counties were settled by ranchers looking to put their hearts and souls into managing the land for production agriculture. In 1965, when the population of Middle Park numbered just 6,200, the total inventory of cattle in Grand and Summit Counties was nearly 30,000 head. Hay production in that same year totaled almost 61,000 tons on 39,000 acres. In 2017, with our combined population reaching 45,600, Grand and Summit ranchers had just over 18,000 head of cattle and produced about 47,000 tons of hay on 32,000 acres. **These statistics illustrate the ongoing trend in Middle Park of larger acreage ranches being subdivided and converted into smaller acreage single family homes and "ranchettes" owned by a mix of full-time residents and part-time second homeowners.**

Despite this transition from larger acreage properties to smaller ones, natural resources and conservation-related concerns on these lands remain; **thus, the need for continued education on proper land management and rural living concepts persists.**



Preservation, Conservation & Land Ethic

Preservation, as advocated by John Muir, cherishes nature solely for its beauty and intrinsic value. Under preservation ethic nature is to be protected from humans and maintained as a pristine state where man is but a visitor who does not interfere with natural processes and leaves no trace behind once gone (think National Parks). Conversely, **Conservation**, as promoted by Gifford Pinchot, acknowledges humans as a part of the landscape and promotes the use of Earth's resources for food, shelter, industry, recreation, and other purposes. Conservation balances the protection of natural resources with sustainable/wise use by humans (think National Forest/BLM). **To conserve is to protect against damage, loss, waste, neglect, and overexploitation.**

In speaking of the moral responsibility humans have to nature (known as the **Land Ethic**), Aldo Leopold said it best, "**The role of Homo sapiens should be changed from conqueror of the land-community to plain member and citizen of it.**" In other words, conservation should be a symbiotic relationship between humans and nature — **if we help the land, the land will help us.**

OTHER HANDY RESOURCES

CSU/NRCS Small Acreage Management (SAM)

We hope that the information detailed in this guide will meet most of your needs. However, we recognize that not all Natural Resource concepts can possibly be discussed in one guide. Thus, we hope you can also benefit from one of the next best resources... *Colorado State University Extension and NRCS's Small Acreage Management website*. This resource is a trusted source for information and educational materials on sustainable land management. Visit <https://sam.extension.colostate.edu/>



CSU Extension Publications

With a mission of "providing trusted, practical education to help you solve problems, develop skills and build a better future", Colorado State University Extension also has an extensive library of publications/factsheets on all kinds of topics. **THEY ARE DEFINITELY WORTH THE READ!** <https://extension.colostate.edu/publications-2/>

CSU Extension
Grand: 970-724-3436
Summit: 970-668-4140
<https://extension.colostate.edu/>

NRCS 'SWAPAE+H' Resource Concern Factsheets

NRCS has a list of the 47 resource concerns it utilizes during the conservation planning process. These resource concerns are divided into seven main categories: **SWAPAE + H** (Soil, Water, Air, Plants, Animals, Energy + Humans). We will cover some, but not all, of these resource concerns in this document. To read all of them, visit <https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=45213.wba>

The Grand & Summit NRCS Office is located in the same building as MPCD in Kremmling.
970-724-3456, ext 3

ABOUT MIDDLE PARK CONSERVATION DISTRICT (MPCD)

The Middle Park Conservation District (MPCD) is a political subdivision of the State of Colorado formed under the Colorado Soil Conservation Act. The District was formed after a group of ranchers from Grand and Summit Counties met at Jerry's Café back in 1956 and discussed the need for a local soil conservation district. On August 12, 1957, MPCD officially became one of the now 75 Conservation Districts in the State of Colorado. **MPCD's mission is to promote the conservation and wise use of land, soil, water, air, wildlife and related natural resources through education, program administration, and technical assistance for the benefit of all residents in Grand and Summit Counties.**

Services We Provide

- ◆ Technical Assistance on conservation projects
- ◆ Education on natural resources conservation
- ◆ Financial Assistance (as grant funding allows)

Products We Sell

- ◆ Grass and Wildflower Seed
- ◆ Tree Seedlings and Perennials
- ◆ Tire Tanks for stock water
- ◆ Polyacrylamide (PAM) for sealing irrigation ditches and ponds



Contact MPCD to inquire about products and services
www.middleparkcd.com | 970-724-3456, EXT 4
middleparkcd@gmail.com

INTERESTING COMPARISON: MIDDLE PARK VS. DELAWARE

Did you know?

- ◆ Grand County has roughly the same land area as that of the entire State of Delaware. Grand County has a land area of 1,846 square miles. Delaware is just a bit larger at 1,949 square miles in land area.
- ◆ Summit County is similar in size to Delaware's second largest county, Kent County. Summit County has a land area of 608 square miles. Kent County has a land area of 586 square miles.
- ◆ In 2020, the estimated population of Grand County was 15,717. Delaware's population in 2020 was 989,948.
- ◆ Summit County's population was estimated at 31,055 in 2020. Kent County's population was 181,851.
- ◆ The population density of Grand County is about 8 people per square mile. The State of Delaware has a density of 499 people per square mile.
- ◆ In Summit County, the population density is about 51 people per square mile. It is 310 people per square mile in Kent County, DE.
- ◆ Per the 2017 Ag Census, Grand County had 290 farm/ranch operations with a combined acreage of 241,000 acres. Delaware had 2,300 farm operations spread over 525,000 acres of farmland.
- ◆ Per the 2017 Ag Census, Summit County had 55 farm/ranch operations on 22,500 acres. Kent County had 822 farm operations managing a total of 182,000 acres.
- ◆ Livestock and pastureland is Grand and Summit County's primary agricultural commodities. Vegetative crops and poultry are Delaware's primary ag products.
- ◆ Cattle are our preferred livestock in Middle Park. Delaware has chickens. In fact, the State of Delaware has over 52 million broilers (meat chickens).



These statistics provide perspective on how lucky we are to live in the wide-open spaces of the Rocky Mountains. Call me crazy, but it's hard to imagine Middle Park with a million full-time residents and 52 million chickens running around.

Are you truly ready for rural living?

Depending on where you settle in Middle Park, the nearest Walmart or Target could be more than an hour's drive away. Same goes for the nearest movie theater, bowling alley, or Domino's Pizza. Forget a quick drive to the airport because Denver International Airport (DIA) is NOT just a short jaunt away. Having a car is highly suggested. While some areas of Middle Park have access to public transportation, other areas do not. Furthermore, there are far fewer Uber and Lyft drivers here than in the city, and some areas do not have Uber/Lyft at all. Don't expect to get the largest selection of groceries in some of the more rural towns of Middle Park, and **be prepared for areas of NO cell phone coverage or internet service.**

Have you visited in every season of the year?

Summer is beautiful, green, and has pleasant temperatures. Winter is also beautiful (in its own way), but snow blankets the hillsides and temperatures can drop to -30°F or colder. Spring and Fall bring their own pleasantries but are often referred to as "Mud Seasons" for a reason. Winter lasts much longer than you would think, and summer is much shorter. The different seasons also bring changes to the number of inhabitants in the valley. Summer and winter are very busy, whereas spring and fall are less busy. Likewise, the different seasons bring different challenges regarding road access and conditions. Winter brings snow, so getting in or out of your home on County Roads (and even in town) may take longer than you expect or desired. Our plow drivers work diligently, but there are so many roads to plow, it takes time to get them all clear. ***Slush is often worse than packed snow when trying to maintain control of your vehicle.*** Mud season can also result in dirt roads becoming slick and slimy. **Call "511" or visit www.cotrip.org for road conditions.**



Are you ready for the cost of small-town living?

Believe it or not, the cost of living in Middle Park is quite high. All commodities sold here come from afar, and the cost to transport them here gets added to the price you pay at the store. Sadly, many local businesses struggle to pay wages that match the cost of living. Additionally, the way our local economy waxes and wanes with the seasons means that some businesses only hire seasonally. Thus, finding a full-time, permanent job may be difficult for some newcomers. Finding a home to buy or rent is even harder.

Are you buying your new home because the dense forest around it provides lots of privacy?

Most people today are aware of the Mountain Pine Beetle epidemic that devastated our lodgepole pine forests at the turn of the century. Though the beetles have come and gone, wildfire mitigation is still a big deal in both counties. If your prospective homesite has a dense forest around it, please realize that most of those trees may need to be removed to prevent loss of life and structure in the event of a wildfire. **A properly mitigated home is NOT completely hidden behind a vale of thick trees.**

Are you most excited about being up close and personal with the wildlife that call Middle Park home?

Middle Park is blessed to have an abundance of wildlife inhabiting our mountains, valleys, waterbodies, and skies. People come from all over to see our wildlife in their natural habitats. That being said, wildlife inhabited Middle Park long before people settled here. While most wildlife stay out of town limits, it is not uncommon to see wildlife in town as well. Whether it be deer, foxes, raccoons, birds, or even mountain lions and bears, residents and visitors alike must not forget that they are WILD animals (not friendly domesticated ones). **Keep your distance from wildlife, bear-proof your dumpsters and trash cans, and remember that moose sometimes attack when humans get too close** (especially when people are on a stroll with their pets in moose country). *Feeding wildlife also contributes to habituation and the spread of diseases; thus, it is illegal.*

Are you moving here to avoid restrictions on what you can do with your land?

While it is true that there are far fewer HOAs in rural communities than in the city, it does not mean you are free to do whatever you want on your property. **Land in Middle Park is subject to zoning regulations that restrict certain activities.** If your land is zoned for agriculture and ranching is your "business", it does NOT entitle you to operate a non-ag business on your land as well. Be sure to check your zoning restrictions prior to buying land.

Other quirks about rural mountain living

- ◆ The nearest emergency services may be more than 15 miles away.
- ◆ Your route to work may be used for cattle drives during certain times of the year, meaning that you might need to share the road with more than just bicyclists.
- ◆ You will really get to know your neighbors in the small town living. While such opportunity allows you to share friendly waves as you pass each other on the road, it also means that everyone knows everyone else's business! While not so good for the unruly teenager, parents will be blessed with knowing what their children have done before they even step foot in the house. Not that I would know anything about that...lol 😊
- ◆ Being neighborly is a two-way street—the fence you mend today may be good payment for the snow that is plowed from your driveway next winter.

You've Decided to Settle. Now What?

Now that you've decided to settle, it is the time to **ask yourself some additional questions** that will enable you to develop a plan for your property. This guide will touch on each of these subjects and more. Refer to the *Table of Contents* for page numbers.

- ◆ *What do I want to do with my property? Will its size support my plans?*
- ◆ *What legal and/or deed restrictions apply to my property?*
- ◆ *What is the zoning classification of my property located? What are the permitted uses of this classification?*
- ◆ *Have I acquired the proper building permits and determined if there are any local regulations that affect my property?*
- ◆ *What easements are attached to my property (conservation, roads, trails, utility lines, irrigation ditches, other)?*
- ◆ *Who owns the access road to my property?*
- ◆ *Is the access road to my home wide and tall enough to handle large vehicles, such as fire engines and heavy construction equipment?*
- ◆ *Is my homesite so steep that access roads and driveways may be difficult to use when icy or muddy? Will my homesite be prone to drifting snow?*
- ◆ *Is the soil on my property stable enough for construction? Does it tend to shrink or swell? Is it corrosive to metal or concrete? Is my soil good for growing vegetation?*
- ◆ *How will sewage be disposed of from my home (septic or city water)?*
- ◆ *If I plan to build, have I considered using fire-resistant construction materials?*
- ◆ *If I plan to purchase my home, has it been properly maintained?*
- ◆ *Is radon present in my soil?*
- ◆ *How will my drinking water be supplied (well or city water)? Is it safe to drink?*
- ◆ *What does it mean to be a "Good Neighbor" in the mountains?*
- ◆ *Do I own any water or mineral rights on my land?*
- ◆ *Do I have noxious weeds on my land?*
- ◆ *How healthy is the rangeland and/or forest on my property? Should I seek advice on managing these resources?*
- ◆ *Do I live within the boundaries of a fire district? If not, are additional fire protection fees assessed in the event of a fire?*
- ◆ *How safe is my home from wildfire? Will I be able to acquire fire insurance coverage for my home?*
- ◆ *What do I need to know about drought?*
- ◆ *What species of wildlife use my property? Is there anything I should do to improve habitat quality?*
- ◆ *Can I grow a garden up here? If so, what will grow?*
- ◆ *Do I want livestock? Is that a good idea?*
- ◆ *What do healthy soils look like and why should I care?*
- ◆ **Other Important Questions to Ask Yourself:**
 - ◇ *[CSU Extension's "Purchasing Rural Property in CO" Questionnaire](https://extension.colostate.edu/docs/pubs/natres/xcm235.pdf) - extension.colostate.edu/docs/pubs/natres/xcm235.pdf*



Addressing

What is the name of the road you live on?



Find your official address! | [Grand County Parcel Viewer](#)
[Summit County Parcel Viewer](#)

If you live in town, your road may have a common name like Grand Avenue or 4th Street. If you live outside of town, then you may have a County Road (CR) number in addition to a common name. Grand County Road 5 is the proper name/number, but it often goes by its common name, the “4 Bar 4 Road.” Google and other search engines are hit or miss on street names and numbers, so it is recommended you verify and memorize your **proper street name and/or number**. If you ever have to call 9-1-1, you will want to know the proper name or county road number because there can be many roads throughout the county with the same common name (such as Elk Drive or Chipmunk Lane). **County Road numbers are unique and not duplicated within the county.**

Is your address sign visible?

You may think your address sign is clear and obvious, but try driving around at night in a neighborhood where you are not familiar. Now, imagine that you are a first responder called out at 3 a.m. to help someone having a heart attack. **Quite simply, most address signs are NOT adequately visible.** Your house could be far off the road; there might be black numbers on a dark brown background; or the numbers might be too small. **Moreover, cute and decorative numbers on old tree stumps do NOT cut it.** For this reason, some neighborhoods and individuals have taken it upon themselves to add uniform metal signs at the beginning of their driveways with **GREEN BACKGROUNDS AND WHITE REFLECTIVE NUMBERS.**

REMINDER: When you mount your address sign, make sure it is in a location that will **NOT** be obscured by snow or snowplowing operations during the winter.

Grand County Wildfire Council sells 9-1-1 reflective address signs to Grand County residents. Check out their website at www.bewildfireready.org.

Especially if you are a second-homeowner, consider getting a [Knox Rapid Access System/Padlock](#) for faster access to your driveway and home by first responders during emergencies and alarm calls.

Emergency Notification and Assistance

Grand and Summit Counties both use the **CodeRED Emergency Notification System** to keep citizens informed about emergency situations. If you receive a CodeRED call, follow the instructions given to you by the recorded message. **Examples of CodeRED messages include: evacuation notices and routes, shelter locations for humans and animals, bio-terrorism alerts, boil water notices, severe weather reports, missing children reports, and more.** **To register your cell phone for these important notifications, visit:**



Grand County: www.gcemergency.com
Summit County: summitcountyco.gov/1149/Summit-County-Alert

County Office of Emergency Management (OEM)

Both counties have an Office of Emergency Management that maintain websites and blogs for emergency reporting. **Stay up-to-date on emergency situations in your county.** Phone numbers for both offices can be found on page 3.

MAP - Grand County Evacuation Zones

Grand County Emergency: www.gcemergency.com/
Summit County Emergency: summitcountyco.gov/96/Emergency-Management

County Offices of Human Services, Housing & Public Health

Both Counties also have Human Services departments that “**work to enhance the capacity of families to care for themselves and to protect vulnerable populations**” while also “**helping the community remain healthy, safe, and self-sufficient.**” These offices can assist with Adult Protection; Child Care Assistance; Child Support Services; Child Welfare; Medical, Food, and Financial Assistance; Veteran Services; and more. Each county also has a Housing Department office for housing needs and a Public Health Office for immunizations; Women, Infants and Children (WIC); Senior Nutrition, and more. **Phone numbers for Human Services and Housing are on page 3. Public Health phone numbers are on page 10 under “Community Health Organizations.”**



NEED TO KNOW

Local Community Organizations

Local Family Resource Centers

Family Resource Centers (FRCs) are stand-alone organizations that provide safe, accessible places for families to receive support, referrals, and comprehensive, coordinated services that help them achieve their own goals for success. Grand and Summit both have a local FRC that can assist with hunger relief (food pantries), rent/mortgage/utility assistance, a thrift store, nutrition and wellness education, parenting info, children programs, and more.



[Mountain Family Center \(MFC\)](#) in Grand County, 970-557-3186

[Family & Intercultural Resource Center \(FIRC\)](#) in Summit County, 980-262-3888

Community Health Organizations

Navigating healthcare in a new community can be challenging, especially in rural area like Grand or Summit County. However, no need to fear; there are organizations here to help.

[Grand County Public Health](#), 970-725-3288

[Grand County Rural Health Network](#), 970-725-3477

[Summit County Public Health](#), 970-668-9161

[Summit Community Care Clinic](#), 970-668-4040

[Colorado Crisis Services](#), 1-844-493-8255, Text "TALK" to 38255

[Mind Springs Granby](#), 970-887-2179

[Mind Springs Frisco](#), 970-668-3478

[Building Hope Summit County](#), 970-485-6271



Local Businesses & Non-Profit Organizations

Sometimes, when you move to a new community, you want to check out the local businesses and non-profits to familiarize yourself with the community and make new connections. You may even want to volunteer at one of the non-profits or get a job at one of the businesses.

Chamber of Commerce Offices

[Fraser/Winter Park Chamber](#), 970-726-4118

[Granby Chamber](#), 970-887-2311

[Grand Lake Chamber](#), 970-627-3402

[Hot Sulphur Springs Chamber](#), 970-531-7588

[Kremmling Chamber](#), 9870-724-3472

[Summit County Chamber](#), 970-668-2051

Non-Profits

[Grand Foundation](#), 970-887-3111

[Summit Foundation](#), 970-453-5970

[Colorado Gives](#)

Trash Disposal

In the State of Colorado, **burning of food wastes, plastic, coated or treated wood products, rubber, insulation, tires, car bodies, insulated wire, motor oil, aerosol cans, hazardous or toxic materials, or other materials that will produce substantial amounts of smoke and particulates IS PROHIBITED.**

Grand: co.grand.co.us/334/Trash-Recycling

- There are NO landfills in Grand County, but there are two transfer stations in/near Granby (The Trash Company and Ranch Creek Waste).
- There are also several trash pick-up companies and recycling locations.

Summit: summitcountyco.gov/103/Landfill-Recycling

- Summit does have a landfill, known as SCRAP, and has several county funded recycling drop off locations.
- There are also several trash pick-up/recycling companies.

Important Phone Numbers to Know

[FREE PRINTABLE EMERGENCY CONTACT PHONE LIST](#) ⁷⁹

511

ROAD CONDITIONS

811

UTILITY LOCATES
(anytime you plan to dig)

911

EMERGENCIES

988

SUICIDE HOTLINE

800-222-1222

POISON CONTROL

Planning, Zoning, Building, and Permitting



Grand and Summit County Community Development Departments regulate **physical, economic, and social development** in each county. Responsibilities include: maintaining and updating each county's Master Plan; administering each county's subdivision, land use, and development codes; and assessing and inspecting building, electrical, and mechanical permits required for new construction, remodels, and repair projects. **Contact information for both offices is on page 3.**

Lands in Middle Park are zoned for specific uses. This helps to preserve each county's natural and cultural assets by guiding their physical growth in a manner that promotes the public interest. Your property may be designated under one of the following zoning classifications: agriculture, rural community, rural residential, single-family residential, planned unit development, natural resources, mining, industrial, or commercial. **It is important for you to know your zoning classification so you understand what you are and are not permitted to do on your property.**

Building codes are meant to safeguard public health, safety, and welfare related to the occupancy and use of buildings and structures. These objectives are met by regulating and controlling the design, materials, construction, fire and safety, occupancy, and other construction criteria for all buildings. **Permits are required for all construction, installation, alteration, repair, and demolition of any building in Grand or Summit Counties.** Contact your county's Building Department for more information on required permits (contact info for the Building Departments is on page 3).

BEFORE DIGGING, don't forget to call "811" or visit <http://call811.com/map-page/colorado> to get a UTILITY LINE LOCATE!!!

You may also need to call a private utility locator if private utility lines exist on your property.



Did you know? If you plan to demolish a structure, you may be subject to State and Federal regulations regarding asbestos. An inspection and demo permit may be **REQUIRED**. Contact the Building Department for more info.

Road Access and Maintenance

In addition to state-maintained highways and city/county-maintained roads, there are also private roads that serve rural properties throughout Middle Park. These roads are maintained by private citizens and/or homeowner associations. When buying a property, **make sure you know which type of road you have: private or privately-maintained, city/county-maintained, or state highway.**



It is important for property owners to realize that the county does not assume responsibility for the construction or maintenance of private driveways. Additionally, work or improvements on a county road right-of-way may require a Right-of-Way Improvement Permit. The expense of construction, culverts, gravel, labor, and maintenance of said driveway is the COMPLETE responsibility of the property owner. Private driveways adjoining a county road may need to be approved by the County's Road and Bridge Department; thus, landowners should visit with department staff when considering driveway options.

Long, narrow, steep driveways pose issues for snowplowing and access for EMERGENCY VEHICLES. Ensure sufficient clearance on either side of the driveway for storage of snow and reduce risk of a flames closing access to the road during a wildfire. Especially if a second-homeowner, you should also consider getting a [Knox Rapid Access System/Padlock](#) for faster access to your driveway / home by first responders during emergencies and alarm calls.

During extreme weather, city, county, and state-maintained roads may become impassable. You may need a four-wheel drive vehicle (with chains) to travel during these times. If plowing your own private driveway, your snow must stay on your side of the road. **IT IS UNSAFE (AND POSSIBLY ILLEGAL) TO PLOW SNOW ACROSS THE ROAD.**

Unpaved roads are NOT always smooth and are often slippery when wet. You will experience increased vehicle maintenance costs when regularly traveling on rural county roads. Dust, washboarding, rough roads, and broken windshields are part of gravel road living.

School buses only travel roads that have been designated as School Bus Routes by the local school district. You may need to drive your children to the nearest designated school bus stop for them to get to school. *Check with your local school district for bus routes.*

HOMESITE PREPARATION

Soil Testing

When you think of soil, the first word that probably comes to mind is “dirt.” It is the stuff that gets on your clothes and shoes when you play outside and is also the medium in which plants grow. Nevertheless, soil is so much more than just dirt. Soil is composed of the mineral content (dirt), air, water, and organic matter. It is also home to plants, bacteria, fungi, nematodes, worms, and other animals. It can take more than a thousand years to form one inch of topsoil, and there are more than

70,000 types of soils in the US. **Because there are so many types of soils, it is essential to know which type you have on your land.** Each soil has a unique chemical and physical composition that impacts its ability to withstand the weight of your home and the ability to grow produce in your garden.

Soils Testing for Construction

If you have not built your home yet, you should hire a Soil Engineering Firm to perform a *Geotechnical Study* to determine your soil’s properties. Online platforms, like the Natural Resource Conservation Service’s Web Soil Survey, can provide general and preliminary soil information to anyone and everyone, **BUT site-specific data is crucial before building.** Site-specific data will inform you of your soil’s strength, density, compaction, shrink and swell tendencies, and corrosive properties.

Soils Testing for Vegetative Growth

Once your house is built, you may want to establish outdoor landscaping, gardens, pastures, and/or hay fields. As no soil is alike, the soil on your property may be more or less suitable for vegetative growth. As such, you should consider doing a different type of soil test to determine your soil’s nutrient composition. It could be stellar topsoil with lots of organic matter, or it could be nearly devoid of all essential nutrients needed to grow award-winning vegetables. **The results of a soil test can suggest soil amendments for proper nutrient management.** *Colorado State University’s “Soil, Water, and Plant Testing Lab” performs soil nutrient testing for reasonable prices. Check them out at aqsci.colostate.edu/soiltestinglab/ or call 970-491-5061. The NRCS office in Kremmling has a soil corer you may borrow for taking your soil samples (see page 3 for contact info).*

Don’t forget to check out the [“Mitigating For Wildfire”](#) section for important info on preparing your home and property for wildfire.



For instructions on how to collect soil samples or soil testing bags, contact

Grand County Extension | 970-724-3436

Water Disposal Systems

On-Site Sewage Disposal (Septic) Systems

Managing your septic system is a very important aspect of living “in the country.” A septic system is an individual wastewater treatment system that uses soil to treat small wastewater flows from a residence. A conventional septic system consists of a septic tank and a drain or “leach” field. This is a simple system, but it must be adequately maintained. **Neglecting a septic tank is the most common cause of damage to a leach field.** **Ensuring the system is cared for and properly maintained is YOUR RESPONSIBILITY.** The best way to prevent septic failure is to observe a routine pumping schedule. Contact your local septic tank cleaning company for more information on pumping recommendations.

Check out Summit County’s [“Healthy Homes”](#) page for a Do-It-Yourself Home Assessment App and checklists for home maintenance. Applicable to Grand County as well. summitcountyco.gov/1289/Healthy-Homes

Septic Dos:

- ◆ Keep a diagram showing the location of your system
- ◆ Inspect your system every year
- ◆ Pump your tank regularly
- ◆ Keep records of pumping, inspection, and maintenance
- ◆ Repair leaking faucets and toilets
- ◆ Install washing machine lint and effluent filters
- ◆ Conserve water to reduce wastewater
- ◆ Divert roof drains and surface water away from drain field
- ◆ Limit the use of drain solvents, household chemicals, strong disinfectants, and chlorine
- ◆ Call a professional when you have questions

Septic Don’ts:

- ◆ Park, drive vehicles over, or allow large animals on any part of your septic system
- ◆ Place sprinkler systems close to the leach field
- ◆ Dig or build on top of your septic system
- ◆ Plant deep-rooted plants over the drain field
- ◆ Dispose of sanitary napkins, diapers, cooking oil, solvents, paint, coffee grounds, fats, or meats into a septic system
- ◆ Breathe emitted tank gases – these are toxic
- ◆ Ignore odors, wet or sunken spots, or lush growth above the drain field



Radon is a colorless, odorless, radioactive gas that comes from the natural, radioactive breakdown of uranium in soil, rocks, and water. Surveys conducted by the *Colorado Department of Public Health and Environment* indicate that 4 out of 10 Colorado homes have a potential for radon concentrations in excess of the EPA recommended guideline of 4 pCi/L. It is possible for one home in a neighborhood to have low radon levels while the neighboring home has extremely high levels.

Accordingly, all homes in Colorado should be tested for radon.

The risk of radon in a home can be influenced by several factors: soil type, “tightness” of the home, air pressure, type of heating and ventilation systems, and the lifestyle of the occupant. Radon testing is the only way to know if you are at risk of radon gas exposure. **Radon is an invisible killer, and according to the Surgeon General, it is the**

second leading cause of lung cancer (following smoking).

The easiest way to test for radon is with an EPA-approved short-term test kit. This small detector can be placed in the lowest livable space in your home for two to seven days. Test kits include instructions and return postage for mailing the kit to the analysis lab.

There are a variety of methods to lower radon levels in your home, including venting crawlspaces, sealing cracks and openings in the foundation, and covering sump pump holes.

Radon-resistant construction techniques can also be effective in preventing radon entry. When installed properly, these simple and inexpensive techniques can help reduce indoor radon levels in homes. Installing them at the time of construction makes it easier and less expensive than doing it post-construction.

Contact the Grand County CSU Extension Office or Summit County Environmental Health Department to get a radon testing kit. Contact info for both offices is on page 3.

Drinking Water Quality

If your water comes from a well, it is important to get its quality checked. While the appearance, taste, or odor of water offers some clues about contamination, a more thorough analysis is needed to detect the less obvious water contaminants. Obvious contaminants include the water’s turbidity (murkiness) and the presence of hydrogen sulfide (a pungent smell). However, your senses will NOT detect impurities that cause hard water, corroded pipes, and stained sinks. There are two types of tests that assess water quality: bacteriological and chemical.



Bacteriological tests are used to determine if water is bacteriologically safe for human consumption. The tests are based on detection of a group of microorganisms (bacteria) that serve as indicators of pollution from human and animal wastes. **For bacteriological testing in Grand County, contact Three Lakes Water & Sanitation at 970-627-3544 or reception@threelakesws.com.**

Chemical tests are used to identify impurities and dissolved substances that affect water. Depending on the nature of the minerals, water begins

to decrease in palatability when the concentration of minerals (dissolved salts) exceeds 500-1000 parts per million (ppm). Chemical test results will likely show data for pH, Calcium and Magnesium (a measure of water hardness), Sodium, Potassium, Carbonates and Bicarbonates, Chloride, Sulfate, Nitrate, Fluoride, Iron, Manganese, Total Dissolved Solids, and other minor elements (like Lead, Arsenic, and Molybdenum).

Contact the Grand County CSU Extension Office or Summit County Environmental Health Department to get a water testing kit. Contact info for both offices is on page 3. The *Colorado Department of Public Health and the Environment* also offers several test packages for private wells that can be accessed through <https://www.colorado.gov/pacific/cdphe/homeowner-water-testing>. Recommended test packages include the “General Colorado Package” or the “Deluxe Package.”

MINIMIZING CONFLICT

Short-Term Rentals (STRs)



Some people like them, some people don't. However, the reality is that **short-term rentals are a growing industry in both Grand and Summit Counties, and they are probably not going away any time soon.**

A short-term rental (also known as a vacation rental) is the nightly or weekly rental of dwellings, dwelling units, mobile homes, rooms or accommodations, excluding hotel and motels, for less than 30 consecutive days, including but not limited to single family dwellings, duplexes, multi-family dwellings, townhomes, condominiums, time share or similar dwellings. Many hosting sites provide a service to clients listing their properties online for rent to wide audience groups online. Some examples include, but are not limited to: VRBO, Airbnb, HomeAway, Trip Advisor, and many other vacation rental hosting sites.

All property owners desiring to engage in the short-term rental of a residence in unincorporated Grand or Summit County must apply for a Short-Term Rental Permit with their respective county (see links below). These permits must be obtained and renewed on annual basis. Each town in Grand and Summit County has its own regulations regarding STRs; thus, individuals living in town should contact their town government office.

*Because the STR renters are new to the county and do not know the area like the locals, here are some **Suggested Resources for Guests** to provide them (and your fellow neighbors) with the safest and most pleasant stay possible.*

- ◆ Install a **9-1-1 Reflective Address sign** at the end of the driveway for clear identification of your property for guests and emergency responders. Remember, guests may not be arriving during daylight hours.
 - ◇ Clearly post the proper address (9-1-1 address) on the inside of the door in case of emergency. This should include the County Road number if you live on a county road.
- **Have a list of important numbers and websites easily available**
 - ◇ STR Owner and/or Responsible Party (24-hour contacts)
 - ◇ 9-1-1 for Emergencies (keep in mind that international guests may not be familiar with 9-1-1 as the emergency number)
 - ◇ Local hospitals, doctor's offices, clinics, and urgent cares
 - ◇ Police and sheriff department non-emergent numbers
 - ◇ Fire Protection Districts
 - ◇ Chamber of Commerce Offices
 - ◇ Popular local tourist locations (including US Forest Service Office, Bureau of Land Management, Rocky Mountain National Park)
 - ◇ If there is public transportation available, info on the Public Transit routes/schedules
 - ◇ 5-1-1 or cotrip.org for road conditions and closures
- ◆ **Post an emergency exit plan and highlight the location of fire extinguishers**
- ◆ Make sure all **smoke and carbon monoxide detectors are functioning** and the batteries are good.
 - ◇ Tell guests where extra batteries can be found... just in case the batteries die in the middle of the night and the alarm starts going off.
- ◆ Remind guests to **check Fire Restrictions** before lighting an outdoor fire (include the fire department's number or a link to the county's fire restrictions page)
- ◆ Post applicable **street parking rules** (especially pertaining to winter snowplowing operations)
- ◆ If trash service is provided onsite, **state when and where to put the trash out.** Ensure that outdoor garbage bins are 'bear-proof'
- ◆ Post the **maximum occupancy** of the short term rental
- ◆ Post **Noise and Disorderly Conduct expectations** — *No person shall make, cause or permit unreasonable noise to be emitted from the Short Term Rental that is audible upon private premises in excess of the limits set forth in Title 25, Article 12 of the Colorado Revised Statutes or constitutes disorderly conduct under C.R.S. § 18-9-106*
- ◆ In Summit County, **Good Neighbor Guidelines** are **REQUIRED** to be posted inside the rental unit. Even though they may not be required in other jurisdictions, these are good guidelines that all renters should abide by. For a complete list of guidelines, go to www.summitcountyco.gov/DocumentCenter/View/24591/Good-Neighbor-Guidelines?bidId=



Grand County STR Department: www.co.grand.co.us/943/Short-Term-Rentals

Summit County STR Department: www.summitcountyco.gov/1221/Short-Term-Rentals

The largest landowner in Middle Park is the Federal Government. In fact, over two-thirds of the land in Middle Park is owned by the National Park Service, the USDA Forest Service, or the Bureau of Land Management. The next largest group of landowners is “Agriculture and Forest Ag Owners.” **Accordingly, one or more of your neighbors is likely to be a rancher or Uncle Sam.**

Conflict between non-agrarian and agrarian landowners is nothing new, but its prominence is increasing due to the growing number of urban people moving to the high country and sharing the natural resources with the ranching community. Conflicts arise from real and perceived differences between groups. **A better understanding of the reasons behind these conflicts may aid new and old residents in becoming better neighbors.**



Free roaming pets are a threat to livestock and wildlife. When dogs chase livestock, they put undue stress on stock. This stress can result in decreased weight gain and physical injury. Because livestock chased by free roaming pets may become high-strung and difficult to control, it causes direct and negative impacts on ranch profitability. **Ranchers have the right to protect their livestock and can legally destroy animals threatening their stock. Colorado Revised Statutes 35-43-126 states “Any dog found running, worrying, or injuring sheep, cattle, or other livestock may be killed, and the owner or harbinger of such dog shall be liable for all damages done by it.”**

Cats are also a danger! You might think your sweet little puffball wouldn’t hurt a fly, but domestic cats can really take a toll on wild bird populations.

Free Roaming Pets

Colorado Fence Law

“Good fences make good neighbors.” In its early years of statehood, Colorado enacted the “CO Fence Law” or “Open Range Law,” which is still in effect today. The Colorado Fence Law addresses key items like: a) the definition of a lawful fence, b) who is responsible for construction and maintenance of lawful fence, and c) who can claim damages for trespass.

Agriculture producers needing to repair or replace fences damaged by wildlife may apply for fencing vouchers and funds through CPW’s Habitat Partnership Program (HPP).
Middle Park HPP (CPW) | 970-725-6200

Construction and Maintenance of “Lawful Fence”

Under Colorado law (CRS 35-46), when AGRICULTURE LANDOWNERS SHARE A PROPERTY LINE, it is the duty of each landowner to maintain half of the existing fence or share equally in the construction of a new fence that divides TWO AGRICULTURE PROPERTIES. Contacting adjacent landowners and working out

fence maintenance will aid both landowners in preventing unwanted livestock from wandering. ***NOTE: The statute only requires landowners to meet the standard definition of a lawful fence (see definition below). If one of the landowners wants to build the fence to a higher standard than a lawful fence, that landowner is responsible for the additional costs. It is good practice to have written documentation of all agreements before purchasing any fencing materials.***



A “lawful fence” is a well-constructed, three barbed wire fence with substantial posts set at a distance of approximately twenty feet apart, and sufficient to turn in ordinary horses and cattle, with all gates equally as good as the fence, or any other fence of like efficiency. In working toward a resolution in disputes of livestock grazing, the first determination is if a “Lawful Fence” was in place and properly maintained.

When constructing, repairing, or replacing a fence, PLEASE consider making it a wildlife friendly fence. Check out CPW’s [Fencing with Wildlife in Mind](#) brochure and read more about fencing in the **Wildlife** section of this guide.

Livestock Trespass

The Colorado Fence Law benefits livestock owners by putting the responsibility on NON-AG LANDOWNERS to **FENCE OUT** unwanted stock. A rancher cannot willfully place livestock on another person’s property where a lawful fence is maintained. However, Colorado is an “Open Range” or “Fence Out” state. **This means that domestic livestock may roam onto your property if you haven’t constructed a lawful fence.** Nothing will make you more upset than your neighbor’s cow eating your flowers! ***“Livestock”, as classified under the CO Fence Law, includes horses, cattle, mules, asses, goats, sheep, swine, bison/buffalo, and cattalo (cross between cattle and bison/buffalo).***

MINIMIZING CONFLICT

Right to Farm and Ranch

Ranching, farming, and all manners of agricultural activities within Grand and Summit Counties are integral elements of both county's history, economy, landscape, lifestyle, and culture. Given their importance, agriculture lands and operations are worthy of recognition and protection.

Colorado is a "Right-to-Farm" state. **Landowners, residents, and visitors must be prepared to accept the activities, sights, sounds, and smells of Grand and Summit County's agricultural operations as a normal and necessary aspect of living in an area with a strong rural character and a healthy ranching sector.**

Furthermore, *state law and county policies provide that ranching, farming, or other agricultural activities/operations shall not be considered nuisances so long as they are operated in conformance with the law and in a non-negligent manner.* **ALL landowners, whether ranch or residence, have certain obligations under state law and county ordinances to maintain fences and irrigation ditches, control noxious weeds, keep livestock and pets under control, use property in accordance with zoning, and more.**

Getting into Ag Production? Read the "Ag Production" section of this book or visit the links to the right.



Ag Production & Livestock Info
www.middleparkcd.com/hay-and-pasture/
www.middleparkcd.com/ultimate-landowner-guide/

Respect Private Property Rights and Privacy — **KNOW WHERE YOU ARE!**

Many people are unaware of private property boundaries when they first arrive to Middle Park. Unintended trespass often occurs because of preconceived notions about open ranges in the West and the large percentage of federally owned land in Grand and Summit Counties. **Nevertheless, it is YOUR RESPONSIBILITY to know whose land you are on, even if it is not fenced.** To remedy this situation, get to know your neighbors, obtain a county map that clearly shows public lands and roads, and "ASK FIRST" before entering private property. **TRESPASS IS A PROSECUTABLE OFFENSE** (see [Colorado Revised Statutes \(C.R.S\) 18-4-504\(1\) & 18-4-201\(3\).](#))



Some of the more common incidences of trespass occur when individuals are **hunting, fishing, and/or boating.** **Hunters** may accidentally cross a property line in search of deer or elk. They may shoot an animal on a property they have permission to be on but the animal crosses a property line before it dies. If wounded game goes onto private property, the person who wounded the game shall make a reasonable attempt to contact the landowner or person in charge of such land before pursuing the wounded game ([see C.R.S. 33-6-116 and 33-6-119\(1 b\).](#)) Most landowners are usually accommodating if they believe the animal was legally shot.

Fishermen can also mistakenly cross property lines when fishing on rivers. Rivers do not always have fences or lines across them noting property boundaries; thus, fishermen walking up or down a stream in search of a "honey hole" may unknowingly cross onto another's property ([see C.R.S. 33-6-116](#)).

Rafters, kayakers, and canoers risk trespassing if they stop and take a break on the bank. The water itself is a form of "no man's land," but the soil on the bottom of the river and the land at the river's edge is owned by someone. **It is very important to know where you are on the river and who owns the adjacent land. It could be public land (i.e. USFS or BLM), or it could be someone's private property.**

Property Easements

Easements are interests in real property, land, and real estate. Easement holders possess the right to access (or use) another's land. Once granted and recorded, easements typically (but not always) stay with the title holder's property and are passed to subsequent buyers or transferees.

Easements are either "**affirmative**" or "**negative**." An "affirmative" easement grants the easement holder the right to do something, like accessing or crossing an adjoining property. A "negative" easement allows the easement holder to PROHIBIT another party from doing something, like blocking a view or developing a parcel of land.

Property Easements Classifications

Easements in Gross

An “Easement in Gross” does not relate to the land or real estate but rather to an individual or entity. Here, the easement **attaches to a specific person instead of to the property itself**. The easement falls away as soon as the easement owner dies or stops using the easement. He/she cannot pass it to buyers, tenants, or beneficiaries under his/her will. An example of an Easement in Gross could be the rights of a specific person for pasture, fishing, and hunting. Utility easements are also common examples of Easements in Gross. Utility easements are granted to municipal and utility agencies for access to their infrastructure on private property. These easements are granted for underground and overhead electric, phone, sewer, water, gas, and cable lines.



Appurtenant Easements

An “Appurtenant Easement” is an easement that runs with the land. When the servient owner sells his/her property, the new owner will be subject to the easement (and the owner after that and the one after that and so on). If the dominant owner sells that property, then the benefit of the easement will transfer along with it.

Simply put, an Appurtenant Easement **does not exist between two people but between two parcels of land in perpetuity**. The easement automatically transfers to the new owner as soon as the land is sold. *The law provides that if an easement does not state its specific type (gross or appurtenant), it is presumed to be appurtenant (tied to the land).*

Types of Easements

Express Easements

An “Express Easement” is granted in a **will or deed**. Express easements are the most common type of easements. To be legally binding and valid, an “Express” easement must be documented in writing. These easements usually name the grantor and grantee and include the property description. Express easements get recorded at the County Clerk/Recorder Office.

Implied Easements

An “Implied Easement” is an easement that is (or was) implied by prior use of the property. **It is not written down and is NOT located on the legal deed**. Implied easements usually arise when property owners subdivide a parcel of land into more than one parcel, selling a portion of the divided parcels yet maintaining ownership of at least part of original parcel. An example would be where the property owner had access to a driveway across adjoining parcels. It is now “implied” that the owner of the second parcel also gets to use that easement because it existed prior to the division and separation of the land. **Ditch easements are also implied easements (see the Water Rights section), and you will not find them on the legal deed. Irrigation ditch owners, whose ditches run through your property, have the implied right to access and maintain their ditches.**

Easement By Necessity

An “Easement by Necessity” is often granted by state or federal courts when a landowner provides ample evidence that his/her property is currently **landlocked and cannot otherwise be accessed without the easement**.

Easements by Prescription

“Easements by Prescription” are very similar to the laws of “adverse possession.” **An Easement by Prescription is given to a party or entity when they have used a property for a very long time and have effectively “adversely possessed” it. The time period is designated in state law and is currently set at 18 years (as of 2020).** Typically, Easements by Prescription arise when an individual or entity continually uses a portion of the adjoining property. **Easements by Prescription are why it is important to verify that boundary fence lines have been surveyed correctly.** If survey lines are off and the fence has been built in the wrong location, then you (or your adjoining neighbors) could claim adverse possession of the land you (or they) thought was yours (or theirs) as long as the statutory period has lapsed. [See Colorado Revised Statutes 38-41-101 and 38-41-108 for more details.](#)

MINIMIZING CONFLICT

Agriculture and Conservation Easements



A Conservation Easement is a recorded, legal document between a landowner and a qualified conservation organization, such as a Land Trust. The Conservation Easement identifies the important conservation values of a property and “purchases” the development rights to that property (or a portion of the property). Conservation Easements permanently protect conservation values by restricting development, subdivision, and other non-compatible uses of the property. The land remains in private ownership, but the easement perpetually restricts certain activities on the property. **The land can be sold or transferred, but it will always be subject to the terms of the Conservation Easement.**

An Agricultural Easement is a type of conservation easement that is written with agricultural use as its top priority. Such an easement keeps the land in private ownership and available for agricultural use by permanently altering the property deed to: a) prevent or minimize subdivision, and b) limit construction to that of agricultural buildings and residential dwellings that support farming and ranching operations.

There are two Land Trusts in Middle Park: 1) Colorado Headwaters Land Trust in Grand County and 2) Colorado Open Lands - Land Trust in Summit County. Contact info for both organizations is on page 3.

Recreational Etiquette and Safety

Grand and Summit Counties offer an array of opportunities for outdoor enthusiasts, including many rivers, streams, lakes, rugged terrain, mountain meadows and valley floors. The terrain is a part of the area’s history, culture, and industry. The three main industries in the area—ranching, mining, and recreation—all depend on Middle Park’s natural setting and geography. **While enjoying the outdoors, one must remain cognizant of the different industries in the area. These industries share the same resource but have different ways of doing business.** Thus, if you plan to recreate in the high country, you need to be aware of certain recreational rules and etiquette.

Determine Property Owner

You must **FIRST** determine if the property you want to access is **public or private**. **If it is public, find out which organization manages the property and if it is being leased or otherwise used.** Many high country public lands are under the direction of a federally-administered grazing permit system critical for maintaining many ranching operations. If the property is being leased for grazing, it is extremely important that you leave all gates how you found them (open or closed), give livestock the right of way, and keep pets leashed. You also need to make sure you are aware of the property’s boundaries. Fences do not always indicate property lines. **It is your responsibility to know whose property you are on at ALL times.** If you do NOT have permission to be there, you are trespassing. ***If you trespass, you may be subject to criminal penalties.***



Ask First to Go on Private Land

If you are interested in going on private land, you must **FIRST ASK THE LANDOWNER**. They may or may not grant you access. It is their right to select who gets to go on their property as well as rules to be followed while using their land. **Under no law or statute are private landowners obligated to allow you access on their land. They also have every right to ask you to leave.** It is in your best interest to create a good relationship with a landowner whose property you wish to access. They will be more inclined to allow you access if they know you on a first name basis. *After using a property, be sure to leave the area the way you found it.*

Follow State, Federal, and Local Laws

If you break the law on someone else’s property, do NOT expect to get away with it. The landowner has the right to prosecute.

MINIMIZING CONFLICT

Recreational Etiquette and Safety

Leave Gates as You Find Them

The success of a livestock operation depends on the satisfactory control of animals through use of fences and gates. Please leave gates the way you found them, open or closed. The landowner will greatly appreciate you passing through the area without causing problems for their livestock operation. All fences are property belonging to the rancher or landowner, and **IT IS AGAINST THE LAW TO CUT OR DISMANTLE ANY FENCE.** It is sometimes difficult to close a wire gate if you have never done it before, so...



Here are the steps to closing a wire gate:

1. Put the gatestick in the bottom loop
2. Move the bottom loop up as high as possible on the gatestick
3. Put your arm around the gatestick and grab the post with the same arm
4. Use your shoulder to push the gatestick toward the post
5. With the other arm, pull the top loop firmly down onto the gatestick

- ◆ If you can't get the gate closed, let the rancher or land manager know immediately. **Do NOT just leave the gate open if it was originally closed.**

Sharing the Road and Land with Livestock

You may encounter livestock on roads, trails, paths, and in open meadows. Please remember that Grand and Summit Counties are range country, and you may encounter stock on the road at any time. **It is likely legal for them to be there.** The lives of the animals and the safety of everyone involved depends on your careful maneuvering through and around livestock.

Tips for Approaching Livestock

- ◆ As you approach a horseback rider from behind, SLOW DOWN and speak loudly to make your presence known ("Mountain biker coming behind you!")
- ◆ If the horse is frightened, continue speaking. Ask the rider if you can help by leaving the trail.
- ◆ Don't cause an accident. Most riders just want a chance to leave the trail safely.
- ◆ Keep all dogs on leash (for your dog's safety and that of the livestock).
- ◆ If you encounter grazing animals, simply continue on your way.



REMEMBER, MOUNTAIN SAFETY CAN BE A MATTER OF LIFE OR DEATH.

ALWAYS BE PREPARED FOR CHANGING WEATHER CONDITIONS.

DON'T FORGET : 1) Determine who owns the property you want to access, 2) Ask first for permission to access the land, 3) Adhere to all directions and rules, 4) Leave gates as you found them, 5) Follow the law, 6) Share the road and land with livestock, 7) Keep an eye out for changing weather conditions, and 8) PREPARE FOR THE WORST.

PROPER LAND MANAGEMENT

Caring for Your Land

Ranchers have strong land stewardship ethics. Many newcomers to Grand and Summit Counties also have strong environmental ethics but are unfamiliar with local problems. The lack of proper land management and maintenance of healthy ecosystems can lead to the deterioration of natural landscapes.

Proper land management is a multi-faceted concept, similar to the spokes of a wheel. Imagine “proper land management” being the hub of wheel. The spokes include, but are not limited to, noxious weed management; healthy forest or rangeland management; proper grazing management; proper water management; knowing the local and state laws regarding fencing, water rights, implied easements, and “Right to Farm;” being a good neighbor; and continuing to maintain the health of your land over time. **Without the hub and spokes providing support for your wheel, it will not function properly and will eventually fail. The same thing could happen to your land if you do not take the proper precautions and actions to maintain its health and function.**



Owners who value the conservation of their land and natural resources will reap the rewards of their hard work and prosperity.

Properly managed lands:

- ◆ Save money because they are more productive over the long-term
- ◆ Ensure better water quality for you, your animals, and your neighbors
- ◆ Provide higher quality wildlife habitat
- ◆ Produce more grass for grazing
- ◆ Grow healthier livestock
- ◆ Improve property values and attractiveness
- ◆ Make your neighbors happier
- ◆ Satisfy your responsibility to care for the land

Common Myth: I don't own enough land to worry about proper land management.

People often assume that because they live on a small property or reside in town that natural resource management issues do not apply to them. The reality is that **small acreage owners face the same resource issues as large acreage owners; they are just on a smaller scale.** Whether you live on hundreds of acres or on the corner of two major city streets, you are still susceptible to:



- ◆ Noxious weeds infesting your field or flower bed
- ◆ Insects attacking your large forest or your single backyard tree
- ◆ Water erosion destroying your river bank or your gravel driveway
- ◆ Wildlife munching on your hay crop or your perfectly manicured lawn and garden

Yes, the size of problem may be reduced on smaller acreage properties; nevertheless, the problem still exists. **Furthermore, the effect of that problem on smaller properties and their market values may be more significant compared to that of larger acreage properties.**

The following pages are meant to guide you in mitigating natural resource concerns on your property.

Weed management projects on **AGRICULTURAL LANDS** have the potential to be funded through CPW's Habitat Partnership Program (HPP). **Contact [Middle Park HPP \(CPW\)](#) | 970-725-6200**

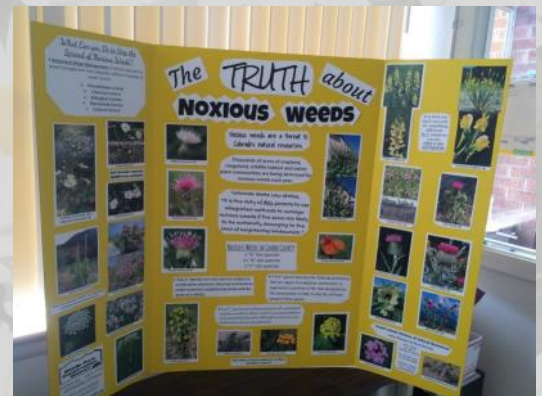
Noxious weeds, as defined in the Colorado Noxious Weed Act, are non-native "alien" plants that aggressively invade; are detrimental to economic crops or native plant communities; are carriers of detrimental insects, diseases, or parasites; or have direct or indirect effects that negatively impact the environmentally sound management of a natural or agricultural ecosystem. Noxious weeds come in all shapes, sizes, and colors. **There are over 30 species of state-classified noxious weeds in Middle Park. Some are cute, some are spiky, and many would be considered "beautiful" by anyone unfamiliar with their ugly and vicious side.**

Noxious weed seeds can spread by wind, water, birds, wildlife, and even on car tires and clothing. The Colorado Noxious Weed Act outlines duties and laws regarding noxious weeds in Colorado. **The act states, "It is the duty of ALL persons to use integrated methods to manage noxious weeds if the same are likely to be materially damaging to the land of neighboring landowners."** Be a responsible citizen by learning to identify and control noxious weeds before they spread and become your neighbor's problem too.

Noxious Weed Classifications

Noxious weeds in Colorado are categorized into one of three "lists" according to their statewide distribution and need for management.

- ◆ **List A** species are rare and are subject to eradication wherever detected statewide.
- ◆ **List B** species have discrete statewide distributions that are subject to eradication, containment, or suppression in portions of the state designated by the state ag commissioner.
- ◆ **List C** species are widespread and well-established noxious weeds for which control is recommended but not required by the state, although local governing bodies may require management.



A Few Notes About Noxious Weeds

- ◆ **An ounce of prevention is worth a pound of cure.** It is easier to prevent noxious weeds than to get rid of them. By establishing desired vegetation (grasses and flowers) early on, you reduce the risk of noxious weeds creating strongholds down the road. *See the 9 Keys to Successful Seeding for more information on planting desired species.*
- ◆ **Noxious weed management is an ONGOING PROCESS.** It is not something you do once and are done. You will need to continually monitor and mitigate for noxious weeds throughout your years of land ownership. This is especially important if you do any type of soil-disturbing work or if you bring new soil onto your property. Some noxious weed seeds can remain dormant in soil for many years before springing to life. Thus, you will need to remain vigilant for years to come.
- ◆ **Integrated Weed Management** is a holistic approach to weed management that integrates different methods of weed control. It incorporates Preventative measures with Chemical, Biological, Mechanical, and Cultural means of control. *See the Noxious Weed Guides described below for more details.*

Grand and Summit County Noxious Weed Guides

To help landowners learn about noxious weeds and what to do about them, the Middle Park Conservation District and our local Noxious Weed Departments created Noxious Weed Guides for both Grand and Summit Counties. These guides have photos and descriptions for each of the noxious weed species present in that county, suggestions for noxious weed control, and tips for the establishment of good vegetation. You can access both guides at the following link or by contacting your local Noxious Weed Department. <https://www.middleparkcd.com/weed-management/>

Each county's Weed Department also has its own herbicide giveaway program to help landowners in curbing noxious weed encroachment. See their contact info below.

Grand County: <https://co.grand.co.us/140/Noxious-Weeds>, 970-887-0745

Summit County: <http://www.co.summit.co.us/114/Weed-Control>, 970-668-4218

State Noxious Weed Website
<https://ag.colorado.gov/conservation/noxious-weeds/species-id>

NOXIOUS WEEDS



Orange Hawkweed (A)



Cypress Spurge (A)



Myrtle Spurge (A)



Black Henbane (B)



Bull Thistle (B)



Canada Thistle (B)



Common Tansy (B)



Chamomile Daisy (B)



Musk Thistle (B)



Diffuse Knapweed (B)



Dalmatian Toadflax (B)



Dame's Rocket (B)



Chinese Clematis (B)



Russian Olive (B)



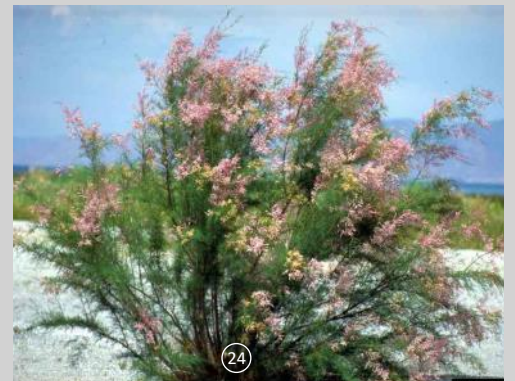
Absinth Wormwood (B)



Sulphur Cinquefoil (B)



Poison Hemlock (B)



**Tamarisk/
Salt Cedar (B)**



Yellow Toadflax (B)

NOXIOUS WEEDS



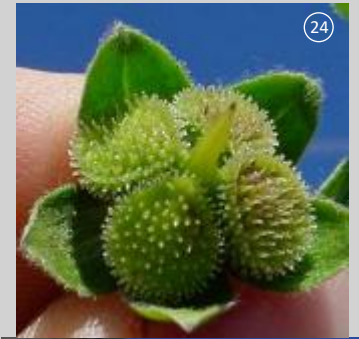
Oxeye Daisy (B)



Hoary Cress/
Whitetop (B)



Leafy Spurge (B)



Houndstongue (B)



Spotted Knapweed (B)



Perennial Pepperweed (B)



Scotch Thistle (B)



Common Mullein (C)



Plumeless Thistle (B)



Field
Bindweed
(C)



Wild Caraway (B)



Russian Knapweed (B)



Cheatgrass/Downy Brome (C)

MANAGING NOXIOUS WEEDS

9 Keys to Successful Seeding

It is important to establish competitive & desired vegetation BEFORE weeds establish!!! You can establish good vegetation by planting forbs or seeding with desired grass/wildflower seed mixes of good quality & purity.

Key #1 – Kill the Weeds First

Ideally, at time of seeding, there should be no actively growing weeds.

Key #2 – Use Adapted Species



Seeding the right species, in the right amount, at the right time is imperative to successful seeding. Selecting species that are adapted for your planting conditions will make all the difference. Soil, climate, elevation, and exposure all factor into species selection.

Key #3 – Prepare a Good Seedbed

A proper seedbed is firm and free of competing vegetation. *Correct firmness is when an adult footprint is only slightly visible on the prepared bed prior to the seeding operation.* Most species should be planted at a shallow depth of $\frac{1}{4}$ to $\frac{1}{2}$ inch. Larger seeds can be planted up to 1 inch deep. **Seed to soil contact is imperative. If the seedbed is very uneven, consider drainage concerns prior to planting.** Where will water pool? If needed, attempt to level out the seeding area by moving soil around or adding soil. Be cautious, though, to verify that any soil you add to the site is weed-free!

Key #4 – Seed at the Right Time

Seeds should be sown when the soil's moisture and temperature are optimal for seeding. The three main seeding windows in Middle Park are Spring, Late Summer, and Late Fall.

Spring (late April-May right after snow melts off)
Late Summer (mid July-early August during the summer monsoons)
Late Fall (mid to end of October until first perennial snow)

Key #5 – Seed at the Proper Rate

Typically, the seeding rate directly correlates to seed size (larger seed size equals higher seeding rate). However, Mark Volt, the Middle Park District Conservation Technician, says, **“On average, you should seed at a rate of 40 seeds per square foot.”** If you find it difficult to regulate your seeding rate with small seeds, *you can mix in a filler of sand, sawdust, or potting soil to get adequate seed distribution.* Keep in mind that drill and broadcast seeders can be calibrated to specific seeding rates, thus minimizing human errors.

Key #6 – Cover Your Seeds

Seeds are lost when wind and water wash them away or birds and small mammals eat them. To increase your seeding success rate, cover your seeds by raking or dragging soil over them. Mulch, in the form of sawdust, straw, or peat moss, also provides good cover. **When you look down at your mulched/seeded area, you should see about 50% mulch and 50% soil.**

Key #7 – Water, Water, Water

Seeds and seedlings NEED adequate moisture to germinate and grow. Even if you are buying a drought-tolerant seed mix, your little seeds need ample water. **Make sure to water lightly and frequently. If you drench them too much, you risk washing them away.**

Key #8 – To Fertilize or Not to Fertilize?

To fertilize or not to fertilize, that is the question. The answer is, **“IT DEPENDS.”** Fertilizer is non-specific, meaning that it will boost the growth of anything that it contacts (including weeds). Because weeds are genetically predisposed to rapid growth and establishment, fertilizer may give them an even bigger boost. **The safest option is to wait for ONE growing season to make sure your seeds can outcompete any weeds. Once seed is on the ground, hand pull weeds and avoid herbicide use in the first growing season.**

Key #9 – Wait to Graze

If you plan to graze the seeded area, it is best to **wait ONE or TWO growing seasons prior to grazing any animals on the site.** This will give the sprouts a full year to grow and establish. Otherwise, you may be seeding again before you know it.

MANAGING NOXIOUS WEEDS

Why Did My Grass Not Grow?

A common question we get in our office is Why did the seed I bought not come up?

Though it is easy to automatically assume that the seed must be bad or poor quality, the reality is that **so many factors play into the successful germination and survival of grass and wildflower seeds.**

Proper watering; sunlight; soil type, preparation, and compaction; planting depth; herbicide use; seed type and quality; and timing of planting can all play into successful seeding.

There are 4 main requirements for seeds to germinate. If any one of them is missing or compromised, germination may fail.

- 1) Seed-to-soil contact
- 2) The right amount of moisture
- 3) The right temperature
- 4) Sunlight

Additionally, if the seedbed is not prepared correctly, is too compact, too soft, or has an unfavorable pH or mineral content, it could also impact your seeding success.

Seeds that are not adapted to your environment (the proper elevation, moisture and exposure conditions); are planted too deep or too shallow; are subject to too much grazing pressure, foot traffic, erosion, or herbicide use; or are not planted at the proper seeding rate or time of year may also fall flat.



While seed quality and age can impact the success of a seeding, all seed purchased by MPCD is tested by the supplier prior to shipping to determine its germination rate. The mix's germination rate and packaging date are printed on the seed label. MPCD seeks seed suppliers that package good quality seed with large percentages of pure live seed.

Successful grass seeding is more an art than a chance encounter. While you may have success just tossing some seed on the ground, the likelihood of success is much improved with proper seedbed preparation, proper timing, and proper care. As such, read 9 Keys to Successful Seeding on the previous page.

perfectly viable, for years. Others have a naturally low germination rate. Give your seeds time after planting to see if they come up. If they don't sprout within a few months, try again during the next proper seeding window. Maybe the conditions weren't right on the first go but will be right on the second try.



Looking to for seeding recommendations or want to buy seed? Contact MPCD www.middleparkcd.com

Final Thought on Seeding

Seeding success often requires a healthy dose of persistence, patience, and perseverance. Some species have seeds that can remain dormant, yet



Instructions for herbicide sprayer calibration can be found at <https://www.middleparkcd.com/weed-management/>

Organic vs. Inorganic (Chemical) Herbicides

Many people are concerned about the impacts of inorganic (chemical) herbicides on the environment and the potential safety hazards of their applications. As a result, the Summit County Noxious Weed Department researched the topic and performed a field trial to determine the differences in effectiveness between organic and inorganic herbicides. The month-long field trial took place from June 26 to July 26, 2017, in Summit County, Colorado.

Photos of the both test plots prior to herbicide applications showed several live and flourishing noxious weeds (chamomile and thistles). Two days after the appropriate herbicide application, the plants in the **Organic Test Plot** appeared to be burned (brown and dead). The plants in the **Inorganic (Chemical) Test Plot** were nodding but were still green in color. One month after the herbicide treatment, the plants in Organic Test Plot had completely recovered and were even flowering. Noxious weeds in the Inorganic (Chemical) Test Plot were totally dead.

<u>Example Organic Herbicide Mixture</u>	<u>Example Inorganic (Chemical) Herbicide Mixture</u>
<ul style="list-style-type: none"> ◆ 4 cups household vinegar ◆ 1/4 cup table salt ◆ 2 teaspoons dish soap 	<ul style="list-style-type: none"> ◆ 2 teaspoons Milestone Herbicide ◆ 2 teaspoons Induce surfactant ◆ 3 gallons water

When researching it online, the Summit County Weed Department found that their results were NOT unique. Other studies also revealed that vinegar and salt (the most common **ORGANIC** mixture) only kills the top growth of the plant (the leaves), but it does nothing to the roots. It is also considered “non-selective,” meaning that it is likely to affect any plant it touches (even desired native species). Repeated applications of **ORGANIC HERBICIDE** could also change the pH of the soil, eventually making it uninhabitable for most species

(good or bad). Treatments must be delayed for one to two days after rain; plants that are waxy or hairy may not absorb the vinegar; and organic herbicides may not be effective after two weeks of germination. *Herbicideal Vinegar*, vinegar that has stronger concentrations of acetic acid (11% or greater), can cause skin burns, severe eye irritation, and other irreversible bodily harm. Some states even require you to register as a certified Pesticide Applicator prior to using the higher concentration herbicideal vinegar. Lastly, the Summit County Weed Department noted that organic herbicide tends to be corrosive on spraying equipment. Equipment had to be thoroughly cleaned after each use.

INORGANIC (CHEMICAL) HERBICIDES, on the other hand, will kill the whole plant, roots and all. Most, but not all, chemical herbicides are “selective,” meaning they will only kill certain types of plants (not everything). Weather also has minimal impact on chemical herbicides as they are absorbed and translocated rapidly. Once the chemical is absorbed, in most cases, it is also safe for pets, livestock, and wildlife to touch and even eat. Chemical herbicides are not as corrosive and may be left in the sprayer between sprayings. That being said, sprayers should be thoroughly cleaned before switching to a different herbicide and prior to being stored away for the season.

All in all, do your research and make sure you know the facts prior to choosing your herbicide preference. Also, be sure to read the label prior to using any herbicide. THE LABEL IS THE LAW. Contact Grand County Natural Resources or Summit County Weed Department with questions on herbicides and noxious weeds. Contact information is located on page 3.



MAINTAINING HEALTHY FORESTS

Healthy forests have higher productivity, are more resilient in the face of environmental stressors, and make better wildlife habitats.

Additionally, healthy forests are better at protecting watersheds by helping sustain water quantity and quality and improve soil stabilization. Studies also show that overcrowded forests face increased competition for resources that weakens trees. Weakened trees have reduced tree vigor, do not reach their fullest growth potential and are more susceptible to insects and diseases.

By creating a patchwork mosaic of disturbance through mechanical means, you more closely mimic the patchwork of disturbance that would naturally occur through historic fire regimes. This can help improve forest health now and into the future.

Other Forest Management Links & Info:
www.middleparkcd.com/forestry-resources/
csfs.colostate.edu/csfspublications/#wm

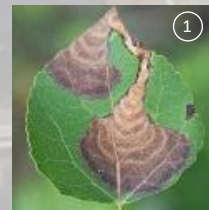
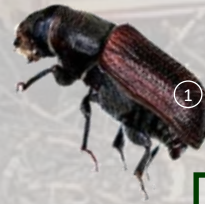
Steps to create and maintain healthy forests may include, but are not limited to:

- ◆ **Ensure a mix of old and young trees.** Insects and diseases often attack a specific age-class of trees. By having a mix of ages, you increase your forest's resistance to insects and diseases.
- ◆ **Help forests regenerate** after wildfire or other catastrophic events. You may consider planting tree seedlings to help stabilize soil, renew wildlife habitat, and add nutrients back into the soil.
- ◆ **Strive for diverse tree species** to provide more resilient forests in uncertain circumstances (applies to both wildland and urban settings).
- ◆ **Reduce tree densities by thinning** to increase tree health and vigor and reduce wildfire risk.
- ◆ **Remove heavy accumulations of downed timber** (often known as jackstraw timber) to reduce the risk of high intensity ground fires.
- ◆ **Prepare for longer fire seasons** and potentially more intense fire behavior when planning vegetation reduction and wildfire mitigation actions in or near communities.
- ◆ **Avoid season-long grazing** that can compact soils and cause tree damage from browsing and rubbing.
- ◆ **Control noxious weeds** to maintain a more native species assemblage.

Insects and Diseases

Some insects and diseases common to Middle Park include:

- ◆ Mountain Pine Beetle
- ◆ Spruce Beetle
- ◆ Douglas-Fir Beetle
- ◆ Western Spruce Budworm
- ◆ Western Balsam Bark Beetle
- ◆ Dwarf Mistletoe
- ◆ Pine Needle Scale
- ◆ Twig Beetle
- ◆ Aspen issues defoliators, leaf blights, cankers and fungus



Looking to replant your forest with seedlings? Contact MPCD
www.middleparkcd.com
middleparkcd@gmail.com

If you see any of the following or have questions on forest management, contact the Colorado State Forest Service (CSFS) Offices in Grand or Summit for consultation (see page 3).

- ◆ Yellowing crowns
- ◆ Candle wax-like sap
- ◆ Fading crowns
- ◆ Browning and reddening of needles
- ◆ Frass (insect debris/excrement that looks like sawdust)
- ◆ Pale green, dense deformed twigs and foliage forming a birds nest-like growths called "witches brooms"
- ◆ Small white flecks on the underside of needles



Fire Adapted Communities

The National Wildfire Coordinating Group defines a fire adapted community as **“A human community consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire.”** <https://fireadapted.org/> Fire adapted communities are knowledgeable, engaged communities where the actions of residents and agencies creates a fire culture that allows fire to play more of its natural role while protecting people and assets from the damage it can do.

We must create a fire culture that allows fire to play more of its natural role while protecting people and assets from the damage it can do.



Firefighters are available to come to your home or property and perform a FREE defensible space site assessment, make recommendations, and help you prioritize your list of fire mitigation measures.
Contact your local Fire Department (pg 3).

Benefits of being “Fire Adapted”

- Peace of mind knowing that your home is better prepared to survive a wildfire
- Defensible space reduces fire from advancing and endangering lives and homes
- Property values improve while reducing risk of loss
- Greater sense of human connection, community interaction and pride
- Better neighbor relations
- Possible insurance rate reduction or benefit

REDUCING YOUR HOME’S WILDFIRE RISK BEGINS WITH YOU!

Phrases to Know

HOME IGNITION ZONE (HIZ) is the home and the area around the home (or structure). The HIZ takes into account both the potential of the structure to ignite and the quality of defensible space surrounding it.

DEFENSIBLE SPACE is the area around a home (or structure) that has been modified to reduce fire hazard by creating space between potential fuel sources.

WILDLAND-URBAN INTERFACE (WUI) is a set of conditions under which a wildland fire reaches beyond trees, brush, and other natural fuels to ignite homes and their immediate surroundings. **Nearly all homes and properties in Middle Park are within the Wildland-Urban Interface (WUI).**

FIREWISE is a special distinction given to communities that are recognized under the **Firewise USA™ Program** as having followed a systematic approach to organizing and implementing a Firewise mitigation plan in their neighborhood. The Firewise Communities/USA® Recognition Program provides a series of steps to prepare homes and neighborhoods in advance of a wildfire. There are over 700 recognized communities in nearly all of the 50 states. Colorado is ranked #3 for the number of recognized Firewise USA® sites with more than 180 earning the designation.

While “Firewise communities” occur at the neighborhood level, a Firewise community alone does NOT make a “fire adapted community.” **Multiple Firewise communities working together with civic leaders, business owners and developers, first responders, land managers, and others contributes to a “fire adapted community.”**



MITIGATING FOR WILDFIRE

Information on [fire restrictions and bans](#) can change rapidly. Call your fire department or county's dispatch center to check on the current fire restrictions in effect. See white box below about [Red Flag Warnings](#).

Fire Restrictions

Fire restrictions can originate from many places. Federal agencies can impose restrictions on the public lands they manage; states can impose restrictions on state-managed land; and counties and cities may impose bans on the private lands within their borders.

Before starting a fire or lighting, smoking materials:

- ❑ **Check your area's current fire danger/restriction status to make sure conditions are safe and allow for an open flame. Also check for any "RED FLAG" warnings (see white box below).**
- ❑ Never burn in high winds or leave a fire unattended.
- ❑ Do not make excessively large fires because they can quickly get out of control
- ❑ Recreational fires/campfires should be no more than three feet in diameter and two feet in height.
- ❑ Campfires should be surrounded by a metal ring and be located ten feet away from any potential combustibles.
- ❑ Only burn firewood and nothing else.
- ❑ Keep a shovel, extinguisher, and water nearby to quickly subdue a fire should it get out of control.
- ❑ Completely extinguish your fire by sufficiently dousing and covering with dirt before leaving the campsite. It should be COLD!
- ❑ Always dispose of smoking materials where they cannot be a source of ignition.
- ❑ Never discard a cigarette or other smoking material on the ground or throw it out a car window.



Stages of Fire Restrictions

Stage 1

The first stage of restrictions occurs when there is an increasing fire danger and/or an increasing preparedness level, and the risks of keeping the forest open to all activities begins to be outweighed by the risks inherent in doing so. **Stage 1 imposes relatively minor restrictions aimed at preventing the start of wildfires based on human activities that are known to be high risk, specifically smoking and campfires.**

Stage 2

As the risks increase, officials may choose to move to Stage 2. **This stage intensifies the restrictions from Stage 1 by focusing on activities that, although normally managed under permit or contract, have a relatively high risk of causing a fire start.** Restrictions under Stage 2 will affect forest users and will have economic impacts to contractors, permittees, and others. Therefore, the decision to move to Stage 2 will involve a risk/benefit assessment, as well as consideration of economic and social impacts.

Stage 3

Stage 3 is a closure. This stage is selected when there are very high risks and the ability to manage those risks using Stage 1 or 2 restrictions is no longer viable. The social, economic, and political impacts of implementing a closure at this point are outweighed by the benefits associated with virtually eliminating the potential for human caused fire starts.

In addition to not burning during active Fire Restrictions, care should be taken on days with "**Red Flag Warnings**". **Red Flag Warnings** occur when weather and fuel conditions could result in extreme fire behavior. If possible, fires should be avoided on these days. Check for **Red Flag Warnings** here: <https://www.weather.gov/bou/> (updated daily by the National Weather Service)



East Troublesome Fire in Grand County
October 21, 2020
Photo by Philip Brinkmann

Grand County Fire Restrictions & Stage Infographics
bewildfireready.org/fire-restrictions/

Summit County Fire Restrictions
summitcountyco.gov/1220/Fire-Restrictions

Backyard Campfires in Summit County

Under a fire-code amendment adopted by the Summit County Commissioners and each of the town councils, a permit is **REQUIRED** for all recreational (a.k.a. "backyard") campfires in Summit County. This includes campfires on private lands.

- Residents of the Summit Fire & EMS response area (Copper, Dillon, Frisco, Keystone, Montezuma, Summit Cove, Silverthorne, Wilderndest/Mesa Cortina and the lower Blue Valley) may apply for a permit from [Summit Fire & EMS](#).
- Residents of the Red, White & Blue Fire Protection District, which includes all areas south of Farmer's Korner, including Breckenridge and Blue River may apply for a permit with [Red, White & Blue Fire](#).

Slash pile burning can be an effective way to remove woody debris and mitigate for future wildfires if done properly, performed during the correct time of year, and executed under the purview of an approved permit.



For health and safety reasons, slash pile burning is subject to open burning regulations and REQUIRES that a burn permit be obtained prior to burning activities.

In Grand County, Grand County Natural Resources (GCNR) regulates the burning of slash piles larger than campfire-size (3 feet in diameter by 2 feet high) on private lands. GCNR does not permit burning of any other materials besides slash piles. Individuals looking for Demolition permits should contact the Planning & Zoning Department. The burn season opens in Grand County when there is sufficient, season-long snow on the ground and generally runs until April 1, depending on snowpack. Burning is not guaranteed on any given day during the burn season. Burn permit holders **MUST** call GCNR on day of the proposed burn to see if weather and air quality conditions allow for burning. *Contact info is on page 3.* You can also see where burning is occurring on a daily basis by going to co.grand.co.us/142/open-burning and clicking on the **“Daily Burn List.”**

In Summit County, the two fire districts (Red, White and Blue / Summit Fire and EMS) regulate backyard slash pile and recreational campfire burning. Summit County Environmental Health Department (EHD) regulates burning of larger slash piles (greater than 8 feet in size). **Please contact the appropriate Fire District or Summit County EHD for more information (page 3).**

Exemptions to Obtaining Open Burning Permits

Per the Colorado Air Quality Control Commission Regulation 9, III(B), certain burning activities are exemption from requirements to obtain an open burning permit. Nothing in this regulation, however, it to be construed as relieving any person conducting open burning from meeting the requirements of any applicable federal, state or local requirements concerning disposal of waste materials. Furthermore, all necessary safeguards shall be utilized during such “exempt” open burning to minimize any public health or welfare impacts. The owner or operator shall also take steps to ensure that all neighboring residents and businesses are notified prior to beginning the open burn.

Agricultural Burning: Land zoned as “agriculture” does NOT automatically provide exemption from the open burn permitting process. **Agricultural burning is defined as “the burning of cover vegetation for the purpose of preparing the soil for crop production, weed control as part of a larger agricultural purpose, maintenance of water conveyance structures related to agricultural operations, and other agricultural cultivation purposes.”** *If a rancher or farmer wishes to burn something not specified for exemption in the “agricultural burning” definition, he/she must apply for an Open Burn Permit.* Courtesy calls to your local Fire District, County Dispatch Center, and neighboring landowners on the day of an agricultural burn are strongly recommended. **Even though agricultural burns may be “legal” on any given day, except when local Fire Restrictions are in effect, caution should be taken when conditions are dry. Seemingly small and controlled “ditch” burns may become uncontrollable wildfires in a short period of time.**

Outdoor Recreational Fires (if fire restrictions are not in effect):

Attended recreational fires are exempted if they are:

- ◆ Within liquid or gas fueled stoves
- ◆ Located in self-contained charcoal grills (off the ground)
- ◆ Outdoor fires, not in excess of 3 feet in diameter and 2 feet in height, contained in an outdoor fireplace, barbeque grill, barbeque pit, fire pit or grate located on private land or in developed picnic grounds/campgrounds with adequate fire suppression equipment present.

NOTE: Summit County has stricter policies than listed here for Outdoor Recreational Fires. See white box on previous page for more details.

Materials for which Burning is **NEVER** Allowed

- ◆ Burning of food waste, plastic, coated or treated wood products, rubber, insulation, tires, car bodies, insulated wire, motor oil, aerosol cans, hazardous or toxic materials, or other materials that will produce substantial amounts of smoke and particulates.
- ◆ Burning of wood residue, which includes bark, sawdust, slabs, chips, shavings, mill trim, and other wood products derived from wood processing.
- ◆ Burning of construction debris (includes both clean and treated wood).
- ◆ Burning of buildings or structures for demolition purposes.
- ◆ Burning of material for which a practical alternative method of disposal exists.
- ◆ **BURN BARRELS: It is against the law to use burn barrels because they are considered incinerators that require construction permits and are subject to federal and state testing and regulations.**

Alternatives to Open Burning

- ◆ Reduce, Reuse, and Recycle packaging and unwanted items
- ◆ Compost kitchen scraps and yard debris
- ◆ Dispose of items at a landfill (see page 10 for trash disposal)
- ◆ Chipping of trees / limbs

MITIGATING FOR WILDFIRE

Fire District Boundaries

Did you know that NOT all private lands in Grand and Summit Counties are included within the bounds of a fire district? Though the majority of privately-owned lands are included in a fire district, there are a few subdivisions and homes that are not.



In case of a fire emergency, these non-fire district homeowners will likely get a response from a neighboring fire district. **However, those homeowners may be charged a fee for that response.**

If your property is not located within a fire district, you still have a chance to be included in one. You may submit a “Petition for Inclusion” to a neighboring fire district and to ask if they will redraw their boundaries to include your property. Most fire districts will strongly consider these petitions because their ultimate mission is to protect life and property from fire. **Keep in mind, though, that you will start to get an annual tax bill from the fire district once the inclusion is official.** Contact info for all Grand and Summit Fire Districts is on page 3.

Contact your insurance agent today to see what steps you may take to reduce your risk, enhance your coverage, lower your premium, and prevent potential cancellation.

Wildfire and Insurance

Did you know? Homes in Middle Park sometimes face higher insurance premiums (and even cancellation).

It is critical to stress how important the issue of insurance and wildfire mitigation is for homeowners whose properties are affected by the WUI. **Local fire professionals seek homeowner cooperation and participation in the mitigation process, and insurance companies are demanding it.**

If you are trying to sell a property that has NOT been mitigated, insurance companies may refuse to insure the new buyer’s purchase. Being proactive and spending money up front for mitigation could save you thousands of dollars thereafter.



Defensible Space and the Home Ignition Zone

Each year, wildfires consume hundreds of homes in the Wildland-Urban Interface (WUI) despite firefighters’ best efforts. **Studies show that as many as 80 percent of homes lost to wildland fires could have been saved if their owners had followed simple fire-safe practices. In addition, wildfire-related deaths often occur because people wait too long to leave their homes.**

The Wildland-Urban Interface (WUI) is the area where human-made structures and developments meet and intermingle with undeveloped lands and vegetative fuels. The exact boundaries of the WUI depend on the topography, vegetative fuel types, local weather conditions, and prevailing winds. Nevertheless, if your home is within one mile of a natural area, it is likely within the **Ember Zone** (the zone where wind-driven embers, or firebrands, can threaten your home). You must prepare your home well before a wildland fire occurs. **Ember fires can destroy homes and neighborhoods far from the actual flame front. Firebrands can also cause ignitions well after the fire has passed through a community.**



It is not a question of if, but when, the next major wildland fire will occur. The tips on the following pages are designed to increase awareness and create a safer environment for you, your family, and the responding firefighters.

Zones of Defensible Space

JUNK THE JUNIPER BUSHES!

Grand and Summit County Wildfire Councils are here to help landowners mitigate for wildfire.

Grand County Wildfire Council

www.bewildfireready.org

Summit County Wildfire Council

www.co.summit.co.us/907/Wildfire-Council



Zone 1 – 1st Priority

0 to 5' out from the structure

GOAL: This zone is designed to prevent flames from coming in direct contact with the structure. Use nonflammable, hard surface materials in this zone, such as rock, gravel, sand, cement, bare earth or stone/concrete pavers.

- **Remove all flammable vegetation**, including shrubs, slash, mulch and other woody debris (including common juniper).
- **Do not store firewood or other combustible materials** inside this zone.
- **Prune tree branches** hanging over the roof and remove all fuels within ten feet of the chimney.
- **Regularly remove all pine needles and other debris** from the roof, deck and gutters.
- **Rake and dispose** of pine needles, dead leaves, mulch and other organic debris within five feet of all decks and structures. Farther than five feet from structures, raking material will not significantly reduce the likelihood of ignition and can negatively affect other trees.
- **Do not use space under decks** for storage.

Zone 2

5 to 30' out from the structure (or to property line)

GOAL: This zone is designed to give an approaching fire less fuel, which will help reduce its intensity as it gets nearer to your home or any structures.

- **Mow grasses** to four inches tall or less.
- **Avoid large accumulations of surface fuels** such as logs, branches, slash and mulch.
- **Remove enough trees** to create at least 10 feet* of space between crowns. Measure from the outermost branch of one tree to the nearest branch on the next tree.
- Small groups of two or three trees may be left in some areas of Zone 2. Spacing of 30 feet* should be maintained between remaining tree groups to ensure fire doesn't jump from one group to another.
- **Remove ladder fuels (lower limbs/tall grasses)** under remaining trees.
- **Prune tree branches** to a height of 6-10 feet from the ground or a third of the total height of the tree, whichever is less.
- **Remove stressed, diseased, dead or dying** trees and shrubs.
- **Get rid of common junipers** because they are highly flammable and tend to hold a layer of flammable material beneath them.
- You can keep isolated shrubs in Zone 2, as long as they are not growing under trees. Keep shrubs at least 10 feet* away from the edge of tree branches.
- **Periodically prune and maintain shrubs** to prevent excessive growth. Remove dead stems annually.
- Spacing between clumps of shrubs should be at least 2 1/2 times* their mature height. Each clump should have a diameter no more than twice the mature height of the vegetation. Example: For shrubs that grow 6 feet tall, space clumps 15 feet apart or more (measured from the edge of the crowns of vegetation clumps). Each clump of these shrubs should not exceed 12 feet in diameter.

* Horizontal spacing recommendations are minimums and can be increased to reduce potential fire behavior, particularly on slopes. Consult a forestry, fire or natural resource professional for guidance with spacing on slopes.

Zone 3

30-100' out from the structure (or to property line)

GOAL: This zone focuses on mitigation that keeps fire on the ground (which is easier to fight), but it's also a space to make choices that can improve forest health. Healthy forests include trees of multiple ages, sizes and species, where adequate growing room is maintained over time.

If the distance of 100 feet to the edge of Zone 3 stretches beyond your property lines, it's encouraged to work with adjoining property owners to complete an appropriate defensible space. If your house is on a steep slope or has certain topographic considerations, this zone may be larger.

- Mowing grasses is not necessary in Zone 3.
- **Watch for hazards associated with ladder fuels.** The chance of a surface fire climbing into the trees is reduced in a forest where surface fuels are widely separated and low tree branches are removed.
- **Tree crown spacing of 6-10 feet** is suggested. Consider creating openings or meadows between small clumps of trees so fire must transition to the ground to keep moving.
- Any approved method of **slash treatment** is acceptable in this zone, including removal, piling and burning, lop and scatter, or mulching. Lop-and-scatter or mulching treatments should be minimized in favor of treatments that reduce the amount of woody material in the zone. The farther this material is from the home, the better.

NEW—Home Ignition Zone & Defensible Space

SELF-ASSESSMENT: <https://forms.gle/1UhsvojEPiHTpRpl6>

Reference: 30, 57

Make Home Ignition Zone Maintenance a Priority

HOME IGNITION ZONE CHECKLIST PREPARE YOUR HOME FOR WILDFIRE WITH THESE STEPS

TOP PRIORITIES

- CLEAR** roof, deck and gutters of pine needles and other debris.*
- MOW** grass and weeds to a height of 4 inches or less.*
- RAKE AND REMOVE** all pine needles and other flammable debris from 5 feet around the foundation of your home and deck.*
- TREAT** or mow shrubs that re-sprout aggressively (such as Gambel oak) every 3-5 years or more depending on growth rates.
- REMOVE** branches that hang over the roof and chimney.
- DISPOSE** of slash from thinning trees and shrubs by chipping, hauling to a disposal site or piling in open areas for burning later. *Any accumulation of slash that's chipped or otherwise should be 30 feet or more from the home.**
- AVOID** creating continuous areas of wood chips on the ground when chipping logs and/or slash. Break up the layer of wood chips by adding nonflammable material, or allow for wide gaps of at least 3 feet between chip accumulations.

* Address as needed, more than once a year.

FIREWOOD

- Keep firewood stacked uphill from (or at the same elevation as) any structures, and keep the woodpile at least 30 feet away from the home.
- Do not stack firewood between remaining trees, underneath the deck or on the deck.
- Remove flammable vegetation within 10 feet of woodpiles.

PROPANE TANKS

- Keep aboveground tanks at least 30 feet from the home, preferably on the same elevation as the house.
- Remove flammable vegetation within 10 feet of all propane tanks and gas meters.

DRIVEWAYS

- Maintain at least 10 feet between tree crowns, thinning them a minimum of 30 feet back from each side of the driveway from the house to the main access road.
- Remove ladder fuels beneath trees after thinning.
- Remove any shrubs that are within 10 feet of the outer edge of tree crowns.
- Space shrubs apart at least 2 ½ times their mature height, as measured from the edge of the shrubs.
- Post signs at the end of the driveway with your house number that are noncombustible, reflective and easily visible to emergency responders.
- Trim trees and shrubs overhanging the road to a minimum of 14 feet to allow emergency vehicles to pass.

SOLUTIONS FOR MANAGING SLASH

Both Grand and Summit Counties have free Chipping opportunities. Contact either county's Wildfire Council for more details (pg 3).

- 1** Spread slash and wood chips over a large area to avoid heavy accumulations and large piles. Being close to the ground will help speed decomposition.
- 2** Burn slash piles, but before doing so, always contact your county sheriff's office or local fire department for current information or possible restrictions.
- 3** Lop and scatter slash by cutting it into small pieces (less than 24 inches long) and spreading it over a wide area, to a depth not exceeding 18 inches. Don't scatter material over 4 inches in diameter. 57

WINDOWS

- Install metal screens
- Use multiple panes windows with one pane being tempered
- Limit the size and number of windows in your home that face large areas of vegetation

VENTS

- Metal mesh screens that are 1/8-inch or less is recommended to prevent ember entry and ignition from the inside out

EXTERIOR WALLS

- Fiber cement board, brick, stucco or other fire resistant materials are recommended

DECKS/FENCES

- Use noncombustible fencing and decking materials if possible
- Remove all combustible materials from underneath the deck

NEW—Home Ignition Zone & Defensible Space
SELF-ASSESSMENT: <https://forms.gle/1UhsvojEPjHTpRpL6>

Wildfire Home Assessment Checklist
bewildfiready.org/wp-content/uploads/2018/08/wildfire-checklist_IBHS.pdf

FEMA Fire Resistant Construction Materials
emilms.fema.gov/IS320/WM0103020text.htm

FEMA Home Builders Guide to Construction—Wildfires
https://www.fema.gov/sites/default/files/2020-08/fema_p_737_0.pdf

Hardening Your Home Checklists & Assessments
www.readyforwildfire.org/prepare-for-wildfire/get-ready/hardening-your-home/

ROOF & ROOF EXTENSION

- Avoid wood and shake-shingle roofs
- Use "Class A" roofing materials: metal sheets, concrete or shingles made from asphalt, tile, clay, stone or metal
- Keep the roof and gutters clear of flammable debris.
- Roof eaves are particularly prone to ignition, so [minimize overhang and build soffits with fire-resistant materials.](#)

GARAGE

- Install weather stripping around & under vehicle access doors
- If the garage is attached to the home, install a solid door with self-closing hinges between living areas and garage.
- Do not store combustibles or flammable liquids near combustion equipment (e.g. a hot water heater)

CHIMNEY

- Cover chimney and stovepipe outlets with a noncombustible screen of 1/4-inch wire mesh to reduce size/energy of embers leaving the chimney.

When a fire sparks, your adrenaline gets pumping, reasonable thought processes get frazzled, and everything gets a bit frantic. **In order to avoid some initial confusion spurred by the news of an approaching fire, you and the members of your household SHOULD be prepared well in advance.**

Use these checklists to help devise your own unique [Wildland Fire Action Plan](#). Each family's plan will be different. *Once your plan is complete, rehearse it regularly, and keep it in a safe and accessible place for quick implementation.*

Ready – Get Your Property & Family Ready

- Sign up for [CodeRED](#) to receive emergency alerts (*Need to Know* section).
- Install a [9-1-1 Reflective Address Sign](#) at the end of your driveway or on your house if your house is on the main thoroughfare (see page 9).
- Have tools, such as a shovel, rake, bucket, and hoe, available for fire emergencies.
- Install smoke alarms on each level of your home, inside and outside of all bedrooms. Test them monthly and change the batteries twice a year. Train your family how to use them.
- Ensure that your family knows where your gas, electric, and water main shut-off controls are and how to use them.
- Plan several different evacuation routes.
- Designate an emergency meeting location outside the fire hazard area.
- Assemble an emergency supply kit for you and your pets.
- Appoint an out-of-area friend/relative as a point of contact so you can communicate with family members who relocate.
- Maintain a list of emergency contact numbers posted near your door and in your emergency supply kit.
- Keep an extra emergency supply kit in your car in case you can't get to your home because of fire.
- Make sure you account for the evacuation of large animals, such as horses or cattle, in your Wildland Fire Action Plan.
- Especially if a second-homeowner, consider getting a [Knox Rapid Access System/Padlock](#) for faster access to your driveway / home by first responders.

My Personal Wildland Fire Action Plan 30

Write up your Wildland Fire Action Plan and post it in a location where every member of your household can see it. Rehearse it with your family.

During Extreme/High Fire Danger days in your area, monitor the local media for information and be ready to implement your plan. Hot, dry and windy conditions create the "perfect storm" for a wildland fire to occur. Please BE SAFE!

Important Phone Numbers:

Out-of-Area Contact: _____ Phone: _____

Work: _____

School: _____

Other: _____

Evacuation Routes: _____

Where to Go: _____

Location of Emergency Supply Kit: _____

Set – Situational Awareness When a Fire Starts

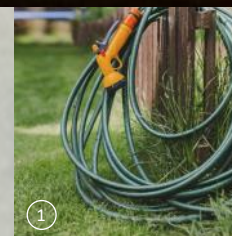
- Evacuate as soon as you are set! Don't wait!
- Alert family and neighbors so they know you have left your home. Leave a note on the door and, if you can, **place a bright white item visible in a window indicating you have evacuated.**
- Dress in appropriate clothing (i.e., clothing made from natural fibers, such as cotton, and work boots). Have goggles and a dry bandana or particle mask handy.
- Ensure that you have your emergency supply kit on hand. It should include all necessary items, a battery-powered radio, spare batteries, emergency contact numbers, and ample drinking water (**see Emergency Supply Kit on next page**).
- Stay tuned to your TV or local radio stations for updates.
- If you are not ready to leave, remain close to your house, drink plenty of water, and keep an eye on your family and pets.

INSIDE CHECKLIST

- Shut all windows and doors, but leave them UNLOCKED.
- Shut off gas at the meter. Turn off pilot lights.
- Leave interior lights on so firefighters can see your house under smoky conditions.

OUTSIDE CHECKLIST

- Gather up flammable items from the exterior and bring them inside or away from home.
- Turn off propane tanks.
- Do NOT leave sprinklers on or water running - it can waste critical water pressure.
- Leave exterior lights on.
- Back your car into the driveway, shut the doors, and roll up the windows.
- Have a ladder and garden hoses available for firefighters.
- Seal attic and ground vents with pre-cut plywood or commercial seals (*only if time permits*).
- Patrol your property and extinguish all small fires until you leave.



BEFORE & DURING THE FIRE (READY, SET, GO)

Creating a Wildland Fire Action Plan

Set Continued – Situational Awareness When a Fire Starts

IF YOU ARE TRAPPED: SURVIVAL TIPS

- Shelter away from outside walls.
- Bring garden hoses inside the house so embers don't destroy them.
- Patrol inside your home for spot fires and extinguish them.
- Wear long sleeves and long pants made of natural fibers, such as cotton.
- Stay hydrated.
- Ensure you can exit the home if it catches fire (REMEMBER... if it is hot inside your home, it is 4-5 times hotter outside).
- Fill sinks and tubs for an emergency water supply.
- Place wet towels under doors to keep smoke and embers out.
- After the fire has passed, check your roof and extinguish any fires, sparks, and embers.
- Check inside the attic for hidden embers.
- Patrol your property and extinguish small fires.
- If there are fires that you cannot extinguish with a small amount of water or in a short period of time, call 9-1-1.

THE SIX P'S

[Wildfire Action Plan - Ready for Wildfire](#)

REMEMBER THE SIX "P'S"

Keep These Six "P's" Ready In Case Immediate Evacuation Is Required:

- People and pets
- Papers, phone numbers, and important documents
- Prescriptions, vitamins, and eyeglasses
- Pictures and irreplaceable memorabilia
- Personal computer hard drive and disks
- "Plastic" (credit cards, ATM cards) and cash

Go! – Act Early

By leaving early, you give your family the best chance of surviving a wildfire. You also help firefighters by keeping roads clear of congestion, enabling them to move more freely and do their job in a safer environment.

When to Leave

Leave early enough to avoid being caught in fire, smoke, or road congestion. Do NOT wait to be told by authorities to leave. In an intense wildfire, authorities may not have time to knock on every door. If you are advised to leave, do NOT hesitate! If you receive an emergency notification call, LISTEN carefully to the message and follow the directions given.

Where to Go

Leave to a predetermined location (it should be a low-risk area, such as a well-prepared friend or relative's house, a Red Cross shelter or evacuation center, hotel, etc.). If an Evacuation Center has been stood up, go there to let them know you are safe.

How To Get There

Know **MULTIPLE** travel routes out of your community in case one route is blocked by wildfire or emergency vehicles. Choose the safest route away from the fire.

What to Take

Take your **EMERGENCY SUPPLY KIT** containing your family's and pet's necessary items. **The American Red Cross recommends every family have an Emergency Supply Kit assembled long before a wildland fire or other emergency occurs.** Use the list below to help assemble your kit. You can also check out www.redcross.org.

Emergency Supply Kit

- | | |
|---|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Three-day supply of water (one gallon per person per day) <input type="checkbox"/> Three-day supply of non-perishable food for all family members and pets <input type="checkbox"/> First aid kit and sanitation supplies <input type="checkbox"/> Flashlight, battery-powered radio, and extra batteries <input type="checkbox"/> An extra set of car keys, credit cards, and cash <input type="checkbox"/> Extra eyeglasses, contact lenses, prescriptions, and medications | <ul style="list-style-type: none"> <input type="checkbox"/> Map marked with evacuation routes <input type="checkbox"/> Important family documents and contact numbers <input type="checkbox"/> Easily carried valuables, family photos, heirlooms, and other irreplaceable items <input type="checkbox"/> Personal electronic devices <input type="checkbox"/> Chargers for electronic devices (cellphones, laptops, iPads, etc...) <input type="checkbox"/> A pair of old shoes and a flashlight in a handy spot in case of sudden evacuation at night |
|---|---|

BEFORE & DURING THE FIRE (READY, SET, GO) Ranchers & Livestock Owners

Livestock operations are at high risk from wildfires because of their more remote locations and the generally lighter fuels (vegetation) on grazing land that can carry an advancing wildfire very quickly. It is often impossible for many ranchers to evacuate their livestock due to the number of animals they have or their location on the property. Because of these things, **ranchers must work diligently to prepare their property and make evacuation and contingency plans for both people and livestock.**



In the case of livestock operations, it is often not feasible to evacuate large numbers of livestock. As a result, operators should consider establishing relatively safe havens for their animals. One way this can be accomplished is through rotational grazing. Intensive-managed grazing near ranch houses, barns or equipment areas can provide defensible space for those assets and create an area where livestock can be held away from the main body of the fire.

Remaining vegetation in well-grazed areas will not usually carry a fire and spot fires can be easily controlled. ***By using grazed pastures as defensible space during high fire season, livestock operators can then open gates should a fire occur to allow livestock to transition from pastures where they are feeding to the grazed area where they can be better protected.***

Prepare in Advance

- ❑ **Know the fire history and typical fire behavior for the area.** Concentrate preparations on areas of the ranch where a fire is most-likely to approach.
- ❑ **Establish and maintain firebreaks** around pastures.
- ❑ **Create defensible space** around all structures, including barns and hay sheds.
- ❑ **Reinforce fences** with metal posts, if necessary.
- ❑ Create a safe zone clear of all vegetation for ranch equipment.
- ❑ **Clear vegetation** around fuel tanks.
- ❑ **Create a Livestock Evacuation Plan**
- ❑ **Ensure proper branding** and registration of livestock.
- ❑ **Establish a contingency plan for feeding livestock** if grazing land is destroyed by fire.
- ❑ **Have spare gate keys, combinations and property maps** available for firefighters, or leave gates unlocked.
- ❑ **Clearly mark water tanks, ponds and other water supplies** available for fire department use.
- ❑ **Reinforce bridges** to make them capable of supporting the weight of a fire engine or bulldozer and clearly mark weight limits or unsafe bridges. Mark alternate paths around the bridges if they are incapable of supporting heavy equipment.



MOVING FROM AWARENESS TO ACTION
MESSAGING TO MITIGATION,
AND WORDS TO WORK

Photo quote by Pam Leschak, USFS Community
Mitigation Assistance Team (CMAT)

What to do when wildfire is approaching

- ❑ **Open and/or unlock gates so livestock can escape flames and firefighters have easier access.** If time allows, relocate livestock to ranch areas with lighter fuels or with well-maintained firebreaks or other defensive measures.
- ❑ **Hook up and load stock trailer** to evacuate particularly valuable animals (saddle horses, breeding stock, etc.) when necessary.
- ❑ **Move equipment** into a safe, non-vegetated area.
- ❑ **Close all doors and windows** and turn ON lights in barns and other structures.
- ❑ **Shut off propane tanks.**
- ❑ **Ensure all water source connections/locations** are identified and operational.
- ❑ **Evacuate family members, pets,** valuables and other personal possessions to a safe area as soon as possible.
- ❑ **Monitor property** for small fires started by embers.
- ❑ **Monitor manure piles and hay storage.**
- ❑ **Leave if the fire threatens your own life and safety.**



DURING & AFTER THE FIRE

Initial Actions

For map and info on current wildfires, visit inciweb.nwcg.gov/

For a map and info on smoke and air quality, visit fire.airnow.gov/

After the initial pre-evacuation or evacuation of your property, your endorphins will be running on high and you may be in some state of shock, panic, confusion, and distress. Consequently, you may not think of all the things you should do after the fire.

- Call, text, or use social media to let friends and family know you are okay.
- Check the jurisdiction's website and social media accounts to determine if they have set up an Evacuation Center or Disaster Assistance Center (DAC). If you were evacuated, it may be imperative that you check in with the Evac Center to let them know you have evacuated and how you can be reached. They may also have resources on shelters.

[MAP - Grand County Evacuation Zones](#)

Grand County Emergency: www.gcemergency.com/
Summit County Emergency: summitcountyco.gov/96/Emergency-Management

- Sign up for **CodeRED Notifications** if you have not already done so.

Grand County: www.gcemergency.com
Summit County: summitcountyco.gov/1149/Summit-County-Alert

- Limit wildfire smoke exposure and keep an eye out for air quality advisories.
- Pay attention to any community meetings that may be held.
- **DO NOT GO AROUND, MOVE, OR OTHERWISE BYPASS BARRICADES AND CLOSURES. They are there for your safety.**

Next Steps

- **Contact your insurance agent and mortgage company** to let them know what happened, where you are, and how you can be reached.
- **Keep ALL receipts.** Out-of-pocket expenses during a mandatory evacuation are reimbursable under most standard homeowner policies.
- **Prepare a detailed inventory** of everything in your house so that you can verify upon reentry whether it was damaged or not. Make two copies; one for yourself and one for the insurance adjuster. Your list should be as complete as possible, including a description of the items, dates of purchase or approximate age, cost at time of purchase and estimated replacement cost.
- **Determine what important documents were lost** and begin replacing them (passport, ID, credit cards, birth certificate, will and living will, the itinerary and plane tickets for your next vacation).

Insight from a Wildfire Survivor

Schelly Olson is a wildfire survivor and first responder whose home was lost in the East Troublesome Fire of 2020.

It is unbelievably devastating to find out that your home was damaged or destroyed by wildfire. You may have difficulty making decisions and feel as if your head is in a fog. You may experience post traumatic stress symptoms such as agitation, irritability, depression, anxiety, fear, hypervigilance, insomnia, nightmares, or flashbacks. If this happens to you, you are not alone. Please reach out and ask for help in facing and processing your trauma.

When your family, friends, community, and even strangers offer to help you—accept the help, however large or small. You may think you don't need it, but you do and you will. It helps you and it makes the giver feel useful in a seemingly hopeless situation. Accept graciously and pay it forward if you can.

"If you're going through hell, keep going."
— *Winston Churchill*

Returning Home

- **Do not return to your home until it is declared safe** by local authorities. Injury is very common after a disaster when returning home because of debris, sharp objects, and unstable structures. Protect yourself by wearing eye protection, a mask, sturdy boots, long sleeves, long pants and gloves when returning home and cleaning up.
- **Heed warnings from officials** about boil water orders, food safety, debris and hazardous material disposal, health concerns (mental health, tetanus shots, wound care, and respiratory issues.)
- **Inspect electrical, heating, septic, and water systems for damage BEFORE first use.**
- **Make whatever temporary repairs you can.** Cover broken windows, damaged roofs and walls to prevent further destruction. Save receipts for supplies and materials you purchase.
- **Take photos of all damaged areas and items.**

Post-Fire Recovery Resources

After the East Troublesome Fire devastated over 193,000 acres of land in Grand County in October 2020, the Middle Park Conservation District developed a webpage full of Post-Fire Recovery resources and websites. Check it out at: middleparkcd.com/east-troublesome-fire/

Post-Fire Threats: Flood & Mud



Debris flows (commonly called mud slides, mud flows or debris avalanches) are shallow landslides that travel rapidly downslope as muddy slurries after being saturated with water. The flowing mud carries rocks, trees, and other debris as it pours down the slopes.

Sudden debris flows gushing down rain-sodden slopes and gullies are widely recognized as a hazard to human life and property. Most debris flows are localized in small gullies, threatening only those buildings in their direct path. **Bare slopes left denuded by wildfires are especially susceptible to more catastrophic debris flows during and immediately after rainstorms.**

Mudslides and debris flows can also be exacerbated by the fact that high intensity fires burn with such heat that the organic matter in the soil sometimes melts and forms a waxy coating on the soil that prevents infiltration of rain water. This now “hydrophobic” soil has a reduced capacity to absorb and retain moisture. **Debris flows often occur**

WITHOUT WARNING in areas where they have never been seen before.

Anyone living downslope of a burned area should be aware of this potential hazard. Following a fire and for at least 5-10 years thereafter, burned areas are far more susceptible to debris flows.

Known to start on slopes as low as 15 degrees, more dangerous and faster moving debris flows are increasingly likely to develop the steeper the slopes. **About two-thirds of all debris flows start in hollows or troughs at the heads of small drainages.**

Commonly, a debris flow will coalesce on a hillside and flow quickly downslope, inundating everything in its path. Topography controls a debris flow path just like moving water, so **flows generally follow stream courses and spread out onto flatter depositional areas like alluvial fans where streams exit steep areas.**






If you live in a mudslide prone area, the two most important actions taken on rainy nights are:

- 1) Heed flood warnings.
- 2) Do NOT sleep in lower-floor bedrooms on the sides of houses that face steep slopes or drainages.

Other Important Actions

- Check out Grand County's [FLOOD READY](#) guide
- Check out Colorado's [Flood Threat Bulletin](#) (updated daily)
- Sign up for **CodeRED Emergency Alerts**
- Read the Red Cross Info on Preparing for Landslides: [redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/landslide.html](https://www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/landslide.html)
- Consider getting [Flood Insurance](#) if your house is in the flood zone or could be threatened by flood.

Tips and Clues That May Save Your Life

-  Before and during rains, watch for cracks in snow, ice, soil, or rock; bulges at the base of slopes; the appearance of holes or bare spots on hillsides; tilting trees; or the increased muddiness of streams. Any sudden increase in runoff or debris should be cause for concern.
-  Listen for unusual rumbling sounds or noises that may indicate shifting soil, rock or breaking vegetation or structures.
-  Remain informed as to local rainfall levels during intense rainstorms. Check frequently for early flood warnings.
-  Debris flows can be triggered when rainfall exceeds ½-inch per hour, especially when soil may be water-logged.
-  It takes time for bare slopes to recover from a wildfire. In the meantime, be prepared for rapid evacuation should it become necessary.

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Prepare Now: There are many ways to take action and prepare before a disaster occurs: creating a plan, putting together an emergency kit, and getting your home ready.

				
Know how you will be warned	Prepare an emergency kit	Make a plan, know evacuation routes	Leave before flooding starts	Protect your property

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Survive During: Take an active role in your safety by knowing key protective actions and what to avoid.

				
Disconnect electricity and gas	Don't walk or drive in flood water	Get to higher ground or the roof	Follow evacuation orders	Lead livestock to a safer location

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Water Rights

Unlike the Eastern U.S. where water has ample supply, water in the more arid West is a finite and limited resource. Because of this, the state of Colorado allocates water to different users, based on their ability to put the water to “beneficial use”, according to the **“Prior Appropriation Doctrine”, often known as “first-in-time, first-in-right.”** This doctrine implies that the first users to apply for water rights hold ‘Senior’ water rights over more ‘Junior’ water rights that were applied for at a later date. Because farmers and ranchers were some of the first settlers in Colorado, the majority of Senior water rights have been adjudicated to agricultural uses, with municipal, domestic, and industrial uses often acquiring more Junior water rights. More recently, the Colorado Water Conservation Board and other government entities have also been acquiring instream flow rights for environmental and recreational uses.

A water right decree establishes the location of diversion points; the source of the water (stream system); the amount of water that can be diverted or stored; the type and place of use; and the priority. “Priority” relates to a water right’s adjudication date and determines the priority of water diversion for Senior and Junior water right holders. Most waterways in Colorado are considered “over-appropriated”, meaning that during drier times of the year there may not be enough water running through them to satisfy all the water right claims on them. If stream flows drop to a level in which not all water rights can be satisfied, Junior water rights will be curtailed to satisfy more Senior water rights.

Like many other Western States, the general principle for water rights in Colorado is that they are **NOT** connected to land ownership and can be sold or mortgaged like other forms of property. These rights can also be lost over time if the water has not been beneficially used for a certain number of years, hence the common phrase **“Use It or Lose It.”** If water rights are still available or if current rights are to be bought and sold, they can only be secured through the Division Water Court.

Water Ditches and Easements

When purchasing land with existing ditches, **the owners of the water rights decreed to those ditches have the right and responsibility to use and maintain their ditches across your property.** This is an “Implied Easement” that is tied to the ditch and may not show up on the deed of the property (see the Property Easements section). Water right owners are required to keep their ditches in good repair and to prevent unnecessary flooding and water wastage. They also have a duty to divert only the amount of water needed for the decreed use(s). A property owner whose land has an irrigation ditch running through it is NOT allowed to prohibit ditch owners and managers from accessing their ditch. Ditch owners are not allowed to run rampant on your property, however; they are restricted to the use of a “reasonable” distance on either side of the ditch to maintain its integrity and usability. Ditch owners may also install pipes within the ditch as deemed necessary for its operation. **Landowners without rights to the ditch (but whose property the ditch flows through) do NOT have the authority to use, withdraw, impede, or alter the ditch in any way without the permission of all water right owners on that ditch.** *Last but not least, water right owners have a right to clean out and place spoilage on the sides of the ditch, and they are NOT required to remove that spoilage from within their ditch easement.*



Ponds/ Reservoirs

There are three basic classifications of ponds/reservoirs: **livestock tanks, non-jurisdictional water impoundments, and jurisdictional-sized dams.**

The [Colorado Division of Water Resources](http://water.state.co.us/Home/ContactInfo/Pages/DivisionContactReport.aspx?Div=5) is the department to contact with questions regarding water rights (see page 3 for their contact info). You can also check out <http://water.state.co.us/Home/ContactInfo/Pages/DivisionContactReport.aspx?Div=5> for specific Water Commissioner contact info.

CARING FOR YOUR WATER

Ponds & Reservoirs

Livestock Water Tanks

If you want to install a livestock water impoundment, it must be located on a drainage that is dry 80% of the year. These types of structures are governed by the Livestock Water Tank Act and are not decreed or approved by the Water Court. Rather, they are approved by the Division Engineer's Office.

Non-jurisdictional Water Impoundments

These impoundments include "any dam to be constructed to the height of ten feet or less measured vertically from the elevation of the

lowest point of the natural surface of the ground where that point occurs along the longitudinal centerline of the dam up to the crest of the emergency spillway; impounds less than 100 acre feet; and has a surface area at the high water line of less than 20 acres."

Prior to constructing a non-jurisdictional dam, a **Notice of Intent to Construct** must be approved by the Division Engineer.

Jurisdictional Dams

Jurisdictional dams are "any dams constructed or to be constructed which exceed any of the limits described above for non-jurisdictional impoundments." The construction of these dams requires plans and specifications prepared by an engineer and approved by the State Engineer.

The primary responsibility for maintaining a "safe dam" rests with the OWNER of the dam. State statute places liability for damages on the owner if the dam fails.

Water Wells

A permit is required for construction of a new well, replacement of an existing well, change or increase in the use of a well, or change in the source for the well (i.e. drilling deeper). Well permits are also required if groundwater is intercepted while constructing an off-channel pond. Application forms and assistance can be obtained from the Division Engineer's Office. **Well applications are approved for specific uses. Those uses may (or may not) include outside water use. If you are a new homeowner, be sure to check the approved uses of your well prior to installing outdoor water spigots, irrigation systems, or purchasing livestock. "Household ONLY Use" means you CANNOT do any form of outside watering without an approved augmentation plan!!! This includes washing your car in the driveway.**

Mineral Rights

Like water rights, mineral rights are NOT definitively tied to the land. Both mineral rights and water rights can be separated from the land on which they are located. Accordingly, when you purchase new land, be sure to research if you are also acquiring the mineral rights on that land. You may be acquiring 100%, 50%, or 0% of the mineral rights. It is worth looking into because you do not want to be surprised later on when a stranger walks up to your door wanting to claim his or her mineral rights. **Mineral rights refer to: a) sedentary minerals that do not move below the Earth's surface, and b) fluid minerals such as oil or natural gas.**



CARING FOR YOUR WATER

Wetlands

Wetlands are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Wetlands are the transitional areas between open water and dry land that are often found along bays, lakes, rivers and streams. Plants growing in wetlands are capable of living in saturated soil conditions for at least part of the growing season. **Swamps and marshes are obvious wetlands, but other wetlands are more difficult to recognize because they are dry during part of the year or they “just don’t look very wet.”**



Why are wetlands important?

Wetlands provide food and habitat for an abundance of life. Along with open water, they are breeding, spawning, feeding, cover, and nursery areas for fish. They are also important nesting, migrating, and wintering areas for waterfowl and other wildlife.

Wetlands serve as buffer areas to protect shorelines and streambanks from erosion and storm surges. They also act as natural water storage sites in groundwater recharge areas and times of flooding. Finally, wetlands perform critical water quality functions, such as assimilating, recycling, filtering, and removing pollutants from water.

Why do wetlands need to be identified?

The United States Army Corps of Engineers (USACE) is the only regulatory agency authorized to determine the presence or absence of jurisdictional waters of the US, including wetlands. Section 404 of the Clean Water Act also requires the USACE to authorize the discharging of dredged/fill material into waters and jurisdictional wetlands of the United States. **Activities in wetlands for which permits may be required include: placement of fill material, land clearing involving relocation of soil, road construction, shoreline erosion control, mining, and utility line or pipeline construction.** Please realize, this list is NOT meant to be exhaustive of all activities that may require a USACE permit.

What to Do

If you plan to perform work or deposit fill material in areas that have characteristic indicators of a wetland, you should FIRST seek assistance from the local Corps District Office. **The local Corps District Office must make the final determination of whether a wetland is present and if the planned activities require a permit. See page 3 for the USACE Office contact info.**

Some clues that you may have a wetland:

- ◆ Standing or flowing water.
- ◆ Waterlogged soil.
- ◆ Water marks on trees.
- ◆ Drift lines or piles of debris oriented in the direction of water movement.
- ◆ Debris lodged in trees.
- ◆ Thin layers of sediment deposited on leaves or other objects in the form of soil “crusts.”
- ◆ The area is flooded, occurs in a floodplain, or has low spots where water is present just below or above the soil surface for part of the growing season.
- ◆ The area has plant communities that occur in areas known for having standing water for at least part of the growing season.
- ◆ The area has peat, mucky soils, or is soft enough to compress under foot.





What is drought?

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. It is a normal, recurrent feature of climate that occurs in virtually all climate zones, from very wet to very dry. Drought is a temporary aberration from normal climatic conditions, thus it can vary significantly from one region to another. Drought is different than aridity, which is a permanent feature of climate in regions where low precipitation is the norm, as in a desert.

Why care about drought?

With climate unpredictability becoming the new norm, an increase in drought periods is predicted by climatologists to be more frequent. **If proper drought planning and mitigation are not implemented and exceptional drought occurs, adverse effects on public health and safety, economic activity, environmental resources, public services, and individual lifestyles are likely to occur.**

Drought Preparedness Planning

In April 2019, a team of Grand County professionals, local water districts, towns, county government, and other organizations met to discuss the beginnings of what would come to be the **Grand County Drought Management Plan**. Over the course of eight facilitated meetings, representatives from the towns and water districts, stockgrowers, county government, fire protection districts, recreation districts, Trout Unlimited, private commercial ranches, homeowners associations (HOAs), and Northwest Colorado Council of Governments met to hash out the elements of Grand County’s most comprehensive and collaborative drought program.

The purpose of this plan is to prepare the water users in Grand County for times of water shortages. This plan is to be used as a guideline for the entities that adopt it to help them deal with varying drought conditions and educational possibilities. It is meant to be used as an educational tool and not a regulatory document.

To learn more about the Grand County Drought Preparedness Plan and each “Stage of Drought”, visit www.co.grand.co.us/1341/Drought-Preparedness-Program

See the next page for additional water conservation tips.

Ranch Management in Drought — GREAT RESOURCE ON DROUGHT PLANNING FOR RANCHERS
<https://rangemanagement.extension.colostate.edu/drought-ranch-planning-colorado/>

HELP OUT DURING DROUGHT
 GRAND COUNTY STAGES OF DROUGHT

Drought Watch Residents are encouraged to continue to use water efficiently	Warn of and prepare for the possibility of watering restrictions
Stage 1: Drought Warning Outdoor watering no more than two days per week from 6pm to 10am	Sports fields/parks will be encouraged to reduce water usage by 10%
Stage 2: Severe Drought Outdoor watering no more than one day per week between 6pm and 10am Sports fields/parks are encouraged to reduce water usage by 20%	New landscape establishment discouraged June through August Municipal water providers may choose to use drought pricing
Stage 3: Exceptional Drought Indoor water rationing is recommended No outdoor watering Sports fields/parks will be encouraged to reduce water usage by 30%	Golf courses and agriculture will reduce water as much as possible while still maintaining the viability of their business

GRAND COUNTY DROUGHT PREPAREDNESS PROGRAM

DISCOVER MORE WAYS TO HELP
TINYURL.COM/GRANDCOUNTYDPP

CARING FOR YOUR WATER

Water Conservation

In residential areas, the greatest source of water consumption (after that of indoor water use) is your **LAWN**. Nearly 50% of the water consumed for residential use is applied outdoors. **Save water by:**

- ◆ Not using sprinklers when it is really windy.
- ◆ Not watering when a heavy rain is forecasted.
- ◆ Watering your lawn every **THIRD** day.
- ◆ Watering during the cool time of the day (6pm to 10am).
- ◆ Determining the proper irrigation amount and duration needed by your vegetation.
- ◆ Adjusting your automatic sprinkler settings to meet your lawn's needs.
- ◆ Installing drip or micro irrigation.
- ◆ Practicing Xeriscaping.

Xeriscaping

Xeriscaping (pronounced "Zeer-eh-scaping") is landscaping adapted to semi-arid and arid climates. Natural precipitation is limited in our area. Compared to the annual precipitation of 30" in New England and 70" in Mississippi, you can understand why in Colorado (with an average annual precipitation of 17") we can't grow the same Kentucky Bluegrass lawns seen in the East without excessive irrigation. **When installed correctly, xeriscaping can save up to 30% on a home's water bill.**

Xeriscaping incorporates these basic principles:

- ◆ Limit your turf area. Consider planting grasses known for their drought tolerance and ability to survive with minimal fertilizer. Avoid fine and tall fescue grasses.
- ◆ Maintain taller grasses, and leave the clippings on the lawn to recycle their nutrients.
- ◆ Choose native, drought-tolerant plant species. Ask your local nursery or Conservation District for suggestions (*see page 3 for the Conservation District phone number*).
- ◆ Choose an efficient irrigation system. Turf areas do best when watered with sprinklers, but drip irrigation is sufficient for shrubs. Conduct a water audit on your irrigation system.
- ◆ Use mulches liberally. Mulch helps maintain soil temperatures, retain water, and reduce weed growth.

Water Facts

- ◆ Approximately 400 billion gallons of water are used in the U.S. per day.
- ◆ The average U.S. residence uses over 100,000 gallons per year (inside and outside use).
- ◆ About 6,800 gallons of water are required to grow a day's worth of food for a family of four.
- ◆ 780 million people lack access to an improved water source.
- ◆ A water-efficient dishwasher uses as little as four gallons per cycle, but handwashing uses 20 gallons of water.
- ◆ If all of the world's water were to fit in a gallon-sized jug, the fresh water available for our use would equal only one tablespoon.
- ◆ In a 100-year period, a water molecule spends 98 years in the ocean, 20 months as ice, two weeks in lakes and rivers, and less than a week in the atmosphere.
- ◆ If all of the water vapor in the Earth's atmosphere fell at once and was evenly distributed, it would only cover the Earth with about an inch of water.
- ◆ 300 tons of water are required to manufacture one ton of steel.
- ◆ 1,799 gallons of water are required to produce one pound of beef.
- ◆ 1,008 gallons of water are required to produce one gallon of wine.
- ◆ 3,170 gallons of water are required to produce to one pound of chocolate.

Headwaters River Journey — A water and wildlife museum in Winter Park, CO

<https://headwatersriverjourney.com/>



Everyday Indoor & Outdoor Water Saving Tips:
[Routine Water Conservation Practices](#)



GARDENING IN THE HIGH COUNTRY

Gardening in the Colorado mountains presents a unique set of challenges. Temperature, intense sunlight, low humidity, short growing seasons, desiccating winds, extreme weather fluctuations, infertile soils, recurrent drought, and wildlife damage all present challenging conditions for growing plants in the high country.

Soil Properties

Common soil issues include: poor aeration, low organic matter and nutrients, and rocky soils. Some soils also have a high pH that can create nutrient deficiencies in plants. Colorado soils are often high in iron, but the yellowing symptom of iron deficiency occurs because high calcium concentrations in the soil “tie up” the iron and make it unavailable to growing plants.

With that being said, you can:

- ◆ Plant in raised beds or containers
- ◆ Choose varieties that will grow well with existing soil conditions
- ◆ Select species that will improve the soil qualities



Short Growing Seasons

Growing seasons tend to be shorter at higher elevations. Lower valley floors often have even shorter seasons due to cold air sink from surrounding mountains. The air drainage phenomenon can also make a difference when determining the location of your garden. Avoid placement of hedges, fences, and other landscape features that may obstruct airflow. Cool nighttime temperatures also delay the maturity of vegetables and flowers.

Extreme Weather Fluctuations

It is not uncommon for mountain communities to have an already short growing season interrupted by a “killing” frost. The real plant killers, however, are the infrequent (but rapid) changes in temperature.

Temperature swings can leave scars on trees and shrubs and serve to eliminate many plants with borderline hardiness. Heavy, wet snows can also occur in spring and fall. When this happens, trees, shrubs, and garden flowers may be caught in full leaf or peak bloom. These snows, known as “limb-breakers”, often cause physical damage that increases a plant’s susceptibility to insects and diseases.

On the Bright Side

The high intensity sunlight in the mountains produces stronger stems and brighter flowers. The short growing season and cooler temperatures also extend the growing season for “cool-season.” Additionally, thanks to Colorado’s semi-arid climate, there are fewer insect and disease problems. By carefully selecting suitable plant species and using microclimates to your advantage, you can grow a successful and colorful garden of flowers, vegetables, trees, and shrubs.

Community Gardens

Grand County

www.grandcommunitygardens.org/

There are four community gardens in Grand County.

- Granby, near Morales Park
- Hot Sulphur Springs
- Fraser, near the skating rink and ball fields
- Kremmling, adjacent to the Fairgrounds

For Granby, HSS, and Kremmling beds, call CSU Extension at 970-724-3436

For Fraser beds, contact Fraser Valley Rec at 970-726-8968

Summit County

- Frisco, Nancy’s Garden — www.highcountryconservation.org/community-gardens
- Dillon, Leslie’s Garden — www.townofdillon.com/visit/community-garden
- Silverthorne, Silvana’s Garden — www.facebook.com/silvanascommunitygardens/
- Breckenridge Community Garden — <https://highcountryconservation.org/community-gardens/>

GARDENING IN THE HIGH COUNTRY

What to Grow



Perhaps the most common question from new gardeners is “*What can I grow here?*” The answer is “cool season vegetables.” Most seed packets will make the distinction between warm season and cool season vegetables. A general rule of thumb is that warm season vegetables don’t like temperatures below 50°F (and most of our summer nights drop below 50°F). As such, warm season veggies are likely to only do well if they are in a greenhouse or inside your home on your windowsill. Examples of warm season vegetables include tomatoes, peppers, squash, and basil.



Cool season vegetables are easier to grow and more successful in Middle Park. **Green leafy vegetables, root vegetables, and some peas** are most notable for their viability in the high country. **Lettuce, spinach, kale, swiss chard, arugula, bok choy, radishes, carrots, beets, parsnips, turnips, onions, snow peas, and sugar snap peas** are some of the veggies that flourish in our climate.

When buying seeds, remember to make sure you are buying “cold season” varieties. You should also check the amount of time the vegetable needs to reach maturity. Why does this matter?

We have a very short growing season in Grand and Summit Counties, so you are wise to choose veggies that grow quickly. Some areas of Middle Park have fewer than 25 frost-free days every year. That is NOT much time for vegetables to be ready for harvest. Accordingly, steer away from anything that needs more than 60-70 days to mature. Fortunately, most of these cool season vegetables can withstand a frost, so you do NOT have to panic every time it gets cold outside.



Perennial vegetables (like **rhubarb, horseradish, chives, and asparagus**) will come back year after year without much effort from you. The roots will need a year or two to get established, but, once settled, they will delight you for years to come.



CSU Extension also has some great resources for lawn and gardening. You might consider checking out these websites:

Yard and Garden: <https://extension.colostate.edu/topic-areas/yard-garden/?target=publications>

Low-Water Native Plants for Colorado Mountains: <https://extension.colostate.edu/docs/pubs/native/MountainsSm.pdf>

Alternative Pesticide Management for Lawn and Garden: <https://extension.colostate.edu/docs/pubs/garden/xcm221.pdf>

Certified Colorado Gardner Program—Colorado Master Gardener
<https://cmg.extension.colostate.edu/certified-colorado-gardener/>

PlantTalk Colorado (info on many horticulture topics)
<https://planttalk.colostate.edu/>

Food Preservation

If you are interested in learning more about *Food Preservation at High Altitudes*, contact the Grand or Summit CSU Extension Offices. They can provide you resources or set you up with a Food Preserving Class. Contact info for both offices is on page 3.

You can also checkout the link below from CSU Extension for factsheets on *Food Preservation and Canning*: <https://extension.colostate.edu/topic-areas/nutrition-food-safety-health/>



More wildlife resources at
<http://www.middleparkcd.com/wildlife/>
 Hot Sulphur Springs CPW Office | 970-725-6200

The mountains of Colorado are known for their abundant and diverse wildlife. Wildlife traditionally lived in the rugged backcountry, but we are now seeing them venture into more populated areas as people encroach on their historic habitat. Because people continue to explore the wilds of Colorado, incidences of negative animal encounters and displaced wildlife continue to grow.

Observing wildlife is fascinating, but there are definite Do's and Don'ts when wildlife viewing to keep both people and wildlife safe. Contact Colorado Parks & Wildlife about wildlife-related questions.

DO'S Around Wildlife

- ◆ **Observe wildlife from a distance**
- ◆ **Take a photo and observe for only a short time period** before moving on
- ◆ **Clean up all trash and bring indoors or place in bear-safe trashcans and dumpsters** (away from your tent if camping)
- ◆ **Clean up grease from your barbeque grill** so as to NOT attract bears, foxes, and other wildlife to the party
- ◆ **Feed pets inside**
- ◆ **Create quality wildlife habitat on your land**
- ◆ **Check out this link for ways to [Minimize Impacts on Wintering Wildlife](#)**

DON'TS Around Wildlife

- ◆ **Do NOT harass, try to capture, or get too close to wildlife.** It can very distressing and harmful to the animals.
- ◆ **Do NOT observe wildlife for too long** (especially if you are close to them). Your extended presence could cause distress to the animal and disrupt its natural behavior. Each season presents a different kind of stress to wildlife. Fall is mating season; winter brings a lack of available food; and spring and summer are birthing seasons.
- ◆ **Do NOT feed or bait wildlife.** Feeding wildlife causes major problems and is often ILLEGAL. It can also be harmful to big game such as deer, elk, and bears. If wildlife become dependent on unnatural food sources found in landscaping, crops, or unnatural feeds, they can lose their ability to forage on their own. Feeding of wildlife can also cause animals to congregate, create traffic hazards, draw them away from their historic winter ranges, prevent migration, and transmit diseases. **Placing salt blocks around your property specifically for wildlife is considering feeding and baiting. Thus, it is ILLEGAL.** While it is not illegal to have bird feeders on your property, please realize that bird feeders can also attract other (not so cute and feathery) wildlife. It is best to hang feeders in areas that other wildlife CANNOT reach (on a wire between two trees or in an area where you can remove and bring the feeder in at night).
- ◆ **Do NOT let your dogs and cats chase (or get too close to) wildlife.** Dogs are a year-round threat to wildlife. Dogs, even the sweetest and most gentle, find it fun to chase wildlife. This causes unwarranted stress and can result in wildlife getting caught in fences, hit on the road, or expending critical energy reserves needed to survive. Additionally, evidence suggests that domestic cats kill millions of songbirds annually. There are laws protecting wildlife, so **keep your cats and dogs contained or leashed to prevent chasing of wildlife.**

Other Considerations

- ◆ **Do NOT fish when it is HOT outside.** We have cold water fisheries in Middle Park, meaning that our fish thrive best in cold waters (<65°F). When we have extended periods of hot weather in the summertime, temperatures in our streams and rivers can rise above the ideal temperature for our cold water trout. This causes immense stress and can be fatal. It is best for humans to put the fishing poles away during hot periods of the day.
- ◆ **Do NOT Shed Hunt during the winter.** Deer, elk, and moose all have antlers. Antlers, unlike horns, are 'shed' every year. Shed hunting is legal and does not cost a thing, **but it is PROHIBITED on public lands west of I-25 (including Grand and Summit Counties) from January 1st thru April 30th each year.** Though restrictions do not affect private lands, landowners should limit shed hunting when big game are present. ***For more info on shed hunting, visit: <https://cpw.state.co.us/antlershed>.***

What should you do if wildlife gets too close to you and you get scared?

Be SMART!

Colorado is home to many incredible wildlife species. As people and wildlife continue to share space, there is a chance that you, or a family member, will have a close encounter with one of Colorado's predators. Please take the time to speak with your children, and other loved ones, about being S.M.A.R.T.:

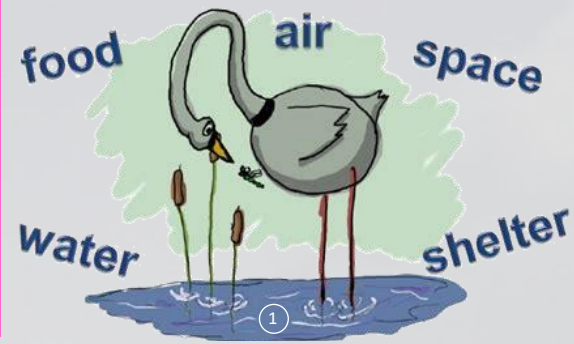
S	STOP! Do not run! If you run, the animal may chase.
M	MAKE yourself look big! Put your hands over your head or pull your jacket up over your head. Look as big as you can so the animal knows that you are too tough to mess with.
A	ANNOUNCE firmly "Leave me Alone!" This lets the animal know you are a person and it lets people around you know that you may be in trouble.
R	RETREAT by backing away slowly. Do not turn your back to the animal.
T	TELL an adult about your encounter.



If you are attacked- fight back! People have successfully fought off predators with rocks, sticks and even their bare hands. Kick, punch, poke, bite- do whatever it takes to win!

6060 Broadway * Denver, CO 80216 * (303) 291-7227
cpw.state.co.us

See [Colorado Revised Statutes Title 33, Article 6](#) for details on Law Enforcement and Penalties related to wildlife infractions.



Creating Wildlife Habitat

Despite all the “Don’ts” of wildlife viewing found on the previous page, there are still actions you can take to **improve the wildlife habitat value of your land**. By improving its habitat value, you may see increased incidence of wildlife on and around your property. Suitable wildlife habitat has three components:

Food, Water, and Shelter

Just like humans, wildlife need to eat, drink, and have access to shelter. By increasing the diversity and abundance of vegetation (for food and shelter) and expanding the availability of water on your property (if legal and feasible), you may see more wild critters running around.

The Natural Resources Conservation Service (NRCS) has a [Wildlife Habitat Backyard Conservation Tip Sheet](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/home/?cid=nrcs143_023553) with good information on creating wildlife habitat. Check it out at https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/home/?cid=nrcs143_023553

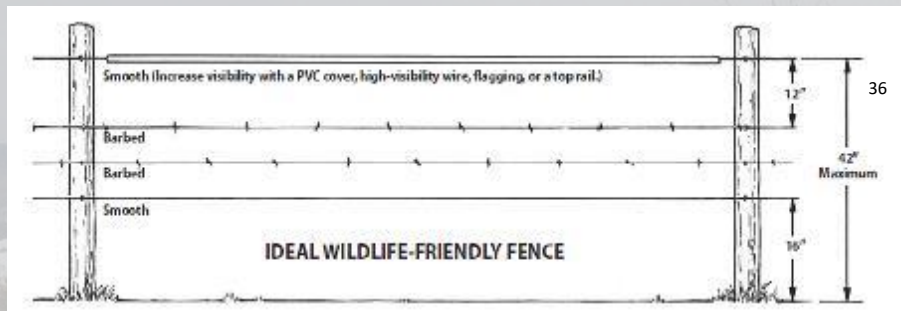


Fencing for Wildlife

We live most of our lives between post, rail, chain link, and wire. It’s difficult to imagine neighborhoods, farms, industry, and ranches without fences. They define property lines, confine pets and livestock, and protect the things most dear to our hearts. For humans, fences make “space” into “place.”

For wildlife, fences limit travel and access to critical habitat. Colorado Parks and Wildlife’s “Fencing with Wildlife in Mind” publication provides guidelines on constructing fences with wildlife in mind (link below).

<https://cpw.state.co.us/Documents/LandWater/PrivateLandPrograms/FencingWithWildlifeInMind.pdf>



Problem Fences are:

- ◆ Too high to jump over or too low to crawl under
- ◆ Have loose wires
- ◆ Have wires spaced too closely together
- ◆ Lack visibility for fleeing animals
- ◆ Create a complete barrier

Friendly Fences are:

- ◆ **Highly visible and allow animals to easily jump over or go under**
- ◆ Fencing wire is placed on the side of the fence posts where the livestock is located
- ◆ Smooth wire is found on the top and on the bottom strands
- ◆ Top wire has a height of 42”
- ◆ There is at least 12” between the top two wires
- ◆ There is at least 16” between the ground and the bottom wire
- ◆ For sheep and goats, is it recommended that the top wire be lower with less distance between the top two wires, and the bottom wire be 10” off the ground.



While research on the use and viability of **Virtual Fencing (“Vencing”)** for livestock in the high country continues, this is a potential wildlife friendly fencing option to keep in mind for the future.

Colorado Parks and Wildlife’s **Habitat Partnership Program (HPP)**, funded by revenue from the sale of big game licenses, works through local committees to develop partnerships among landowners, land managers, sportspeople, the public and Colorado Parks and Wildlife (CPW) to reduce conflicts caused by deer, elk, pronghorn and moose to agriculture. Potential agricultural landowner projects include seeding, fencing, weed management, spring developments & more.

For more information, contact Middle Park HPP (CPW), 970-725-6200
<https://cpw.state.co.us/aboutus/Pages/HabitatPartnershipProgram.aspx>



GETTING INTO AGRICULTURE

Agricultural Production and Tax Classification

Lands used to grow crops or graze livestock (with the primary purpose of producing a profit) can be classified as “Agricultural Lands” in Grand and Summit Counties. To qualify for this classification, ***the property owner must be able to provide clear evidence of such use to the County Assessor.*** To establish or regain the agriculture classification, one must show proof of agricultural use for **THREE CONSECUTIVE YEARS**. In the third year, the property can be classified as “Agriculture.” If the land is not being used for agriculture, it is classified based on its primary use (vacant, residential, commercial, or industrial).



The “Agricultural” classification means the property’s value is based on its potential agricultural income value instead of its market value. In Grand and Summit Counties, there is a substantial difference between agricultural land value and market value; thus, agricultural lands have lower property taxes.

Agricultural tax classification is based on the USE of the land regardless of its zoning classification. A zoning class of ‘Ag or Forestry’ does NOT automatically ensure an agricultural TAX classification.

Criteria for Agricultural Classification

The land must primarily be used to obtain a MONETARY PROFIT from the land’s production of an agricultural product. Agricultural use, as defined by the State of Colorado, means using the land as a farm or ranch.

A “farm” is generally used for planting, harvesting, and selling a crop that

originates from the land’s soil (such as wheat, oats, and barley). A “ranch” is defined as a livestock grazing operation for human or animal consumption. Horse operations may **ONLY** be considered agricultural if the horses are used for food, breeding, draft, or another commercial use (such as guide and outfitting). ***Pleasure horses and 4-H projects are NOT considered agricultural operations. Animal production that is not sustainable by the land itself (such as pigs or chickens) is also NOT considered agriculture. The key concept is that the land is supporting the crops and/or livestock.***

Horticultural operations are considered agricultural if the produce is grown in the soil. **Forested parcels of 40 acres or more can be classified as “Forest Ag” if they are registered in the Forest Ag Program administered by the Colorado State Forest Service (see page 3 for contact info).**

To maintain the agriculture tax classification, proof of agricultural use is required by the Assessor. Documents that can be used as “proof” may include: certain forms from your federal tax return, copy of leases with proof of payment, bills of sale for products bought or sold, and brand inspection certificates. The Assessor will periodically view parcels of land for verification of agricultural activity. **Any questions regarding the current classification of your land or the possible agricultural uses of said land should be directed to the Assessor’s Office in your respective county (see page 3 for their contact info).**



The following pages cover a variety of natural resource topics related to agriculture; however, we cannot cover every concern you may see in the field. Check out NRCS **SWAPAE+H Factsheets** for more info on specific concerns.

<https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=45213.wba>

Livestock

One of the first things to consider when entertaining the idea of raising domestic livestock is whether the enterprise you are considering is compatible with the community you live in. Is your property zoned for large animal production? Does the town or HOA you live in allow livestock?

GETTING INTO AGRICULTURE

Livestock

Helpful 'Decision Tools' from CSU Extension on Ranch Management
<https://abm.extension.colostate.edu/decision-tools/>

Considerations for Livestock

◆ **Is your land productive enough to support the number (and types) of animals you want to raise?**

Overgrazing is a serious issue often seen on small acreages. Grasses do not grow as well at higher elevations as they do at lower elevations. Nevertheless, livestock still eat just as much (if not more). We often see people putting more animals on their land than the land can actually support. Overgrazing can lead to loss of soil moisture and stability that results in soil erosion and land degradation. Overgrazing can also lead to an increased noxious weeds due to lack of competition from native vegetation.

◆ **Do you have a source of water for your livestock?** Water is the ***most important*** nutrient when it comes to animal health and wellbeing!

◆ **Do you have the facilities to trap your animals (a corral)?** Animals will inevitably get hurt or need to be confined at some point.

◆ **Do you have shelter for your animals?** Animals, like humans, need shelter from the elements (especially the wind). Livestock do not need a fully insulated, state-of-the-art, heated barn. In many cases, a three-sided structure (preferably with a roof), a hill, some trees or willows, or a solid fence provides enough protection from cold winter winds. ***Reducing winter wind exposure is a definite MUST, so be sure to orient your barns and buildings based on your prevailing winds.***

◆ **Are you wanting to get an agricultural tax exemption by raising livestock?** Refer to the *Ag Classification and Taxation section* on the previous page for more information. Remember, pleasure horses do NOT count as livestock for ag classification.



◆ **Are you prepared for the cost of raising livestock?** Raising livestock costs a lot of money. Besides the initial cost of the animals, you have to buy feed, pay veterinary bills, and own or rent equipment to manage your stock, among other expenses.

◆ **Do you have the proper fencing for your designated species of stock?**

Coyotes, foxes, mountain lions, bears, and domestic dogs all prey on livestock in Middle Park. If raising cattle, your most vulnerable time of year will be during calving season. Goats, sheep, and poultry are more susceptible to predation year-round due to their size. Keeping your fences well-maintained, locking your smaller and more vulnerable stock up at night, and installing noise or light deterrents will decrease your chances of predation. Keep in mind that a bear's nose is 100 times more sensitive than ours, so they can smell food five miles away. Bears are very smart and have great memories; once they find food, they will likely come back for more. The same can be said for other predators as well. ***Refer to the Minimizing Conflicts section for more information on livestock owners' rights regarding domestic dogs harassing livestock.***

While research on the use and viability of **Virtual Fencing ("Vencing")** for livestock in the high country continues, this is a potential wildlife friendly fencing option to keep in mind for the future.

If you have children and you want to get them involved in 4-H (a youth organization where they can learn to raise and show livestock), contact the Grand or Summit County Extension Offices. Contact info can be found on page 3. ***NOTE: 4-H projects are not limited to livestock. There are many general and home economics projects available as well.***

For information on Backyard Chicken Coops, check out these resources:

[Keeping Layers for the Family Egg Supply](#)
[Home-Produced Chicken Eggs](#)

For questions on livestock brands, livestock inspections, or lost and stolen livestock, call the [Colorado Brand Inspection Division](#) (contact info is on page 3), or visit this link for a map of local Brand Inspectors. colorado.gov/pacific/agbrands/contact-us-41



Are you prepared for raising livestock in the winter? Wintertime presents unique challenges for all of us, including our animals. Energy demands are higher during winter due to the colder temperatures and snowfall. Livestock with more hair will stay warmer than those with minimal hair (i.e. beef versus dairy cattle). Consider breeds that originate from colder climates rather than tropical areas. Purchasing animals locally (or from similar locations) means they will already be adjusted to our climate and elevation. For poultry, choose breeds that have smaller combs and wattles to prevent freezing. Consider insulating the coop and keeping a light on for heat during subzero nights. Livestock are designed to be able to live outside and survive most weather conditions. **Most cold-tolerant livestock can survive temperatures as low as 20-32°F without needing increased energy intake, IF THEY ARE DRY. However, if they get wet, they may only be able to tolerate temperatures as low as 60°F without extra nutrition. If you add wind into the equation, it is even more critical. For every 2°F drop in wind chill temperature, livestock energy/feed requirements go up by 1%.**



- ◇ **Be sure to provide them plenty of quality forage to meet the added caloric requirement.** You should get your hay tested so you know its nutritional value. You may realize that you need to increase your feed's "nutrient density" by adding more nutritionally dense grains and pellets. See [Hay Testing](#) section for more information. **Don't forget to supply salt and mineral to your stock.** Insufficient supply of essential minerals could result in potentially fatal nutrient deficiencies.
- ◇ Water is critical to all living beings. Livestock daily water requirements range from 3 gal/day for sheep to 14+ gal/day for cattle. They cannot meet their requirements from forage or snow alone. Moreover, consuming snow and ice lowers their body temperatures, making them more vulnerable to problems. **They need fresh, unfrozen, slightly-warmed water (35-40°F).** Stock tend to drink less when the available water is cold, so dehydration then becomes a concern. You can use tank heaters to help keep stock tanks clear of ice and slightly warmed.
- ◇ **Young, geriatric, and small animals are especially vulnerable to the cold.** Providing them extra bedding and protection is important. If you are lambing or calving when it is cold outside, make sure the mothers have access to a well-protected area with plenty of bedding for warmth. Also, do your best to get newborns dried off as quickly as possible after birth.
- ◇ **If possible, build shelters and other buildings on south-facing slopes.** This is where temperatures tend to be higher and moisture content tends to be lower and snow melts off quicker. If your livestock are located a considerable distance from the house, have equipment ready to plow a path and provide livestock the ability to move around. When the snowpack gets deep, your fences may get buried, making it easier for livestock to walk out of their enclosure. **Keep your fences in good repair and check for areas that could allow animals to escape.**
- ◇ Consider building living snow fences and using trees for the benefit of livestock. csfs.colostate.edu/media/sites/22/2016/01/USDA_Working-Trees-for-Livestock.pdf
- ◇ Wildlife also face a lack of available forage in the wintertime; thus, they (specifically elk) often capitalize on any easy-to-get forage they can find. This will sometimes include foraging on haystacks and with livestock in their winter pastures. **Consider fencing in haystacks and feeding at a time of day that minimizes elk interaction.** It might be tempting to feed wildlife in the dead of winter, but you should leave that to the Colorado Parks and Wildlife professionals. Wildlife can also spread communicable diseases to livestock, and fighting over feed could result in injury (with the elk coming out on top).

For more Animal Nutrition resources, go to www.middleparkcd.com/hay-and-pasture/



GETTING INTO AGRICULTURE

Livestock Waste Management

Manure can be a valuable resource but can also be a source of water pollution, odor, flies, parasites, and other nuisances. If not properly managed, manure can contaminate drinking water; be harmful to wildlife; and reduce property values. Mud and manure can also cause abscesses, thrush, respiratory issues, and other diseases in livestock. Last but not least, lost nutrients (through erosion, water run-off, volatilization, and even leaching) can contribute to water pollution. **By adopting simple and low cost Best Management Practices (BMPs) for storing, handling, managing, and utilizing manure, the health of the ranch, its animals, and the environment will benefit.**



Best Management Practices (BMPs) for Manure Management

- ◆ **Divert clean water away from manure:**
 - ◇ Construct berms or terraces and use downspouts to divert clean water.
- ◆ **Ensure manure discharge will not enter a water body or leave the property:**
 - ◇ Collect manure frequently.
 - ◇ Limit animal access to ponds, streams, ditches, and wetlands.
 - ◇ Stockpile manure at least 100' outside a floodplain.
- ◆ **Protect ground water:**
 - ◇ Locate manure storage piles and livestock corrals at least 150 feet from wells.
 - ◇ Use a 150-foot buffer around wells when applying manure to land.
- ◆ **Reduce nuisances like flies and odor:**
 - ◇ Stockpile manure downwind from barns and 200 feet away from neighbors.
 - ◇ Remove manure from corrals and pens often to prevent flies, parasites, and worms.
 - ◇ Cover fresh manure in stockpiles with at least 5" of clean bedding, straw, or hay.

Other Handy Resources on Manure

Manure Management for Livestock 4-H Projects

https://cdn.sare.org/wp-content/uploads/20171204124715/469EW05-015_0004.pdf

Small Acreage Management

<https://sam.extension.colostate.edu/wp-content/uploads/sites/2/2018/07/manure-mgt.pdf>

Best Management Practices for Manure Utilization

<https://extension.colostate.edu/docs/pubs/crops/568A.pdf>

Disposal Options

- ◆ **Dispose off-site to a landfill** or hire someone to remove and dispose of manure.
- ◆ **Compost manure.** This requires the right ratio of carbon (bedding) and nitrogen (manure).
Try a 30:1 Carbon to Nitrogen ratio. Then, water the pile to keep it moist, and aerate the pile regularly.
- ◆ **Spread manure in spring or summer.** Test the manure and your soil for nutrient compositions. Then, spread manure according to the test recommendations. Try not to overfertilize. Unused nutrients can pollute water bodies and groundwater.



Poisonous Plants

If you are pasturing livestock, be aware that a number of plants are toxic to animals. Many of these are native plants and are not considered noxious weeds, but they may be undesirable in grazing situations and hay meadows. Other poisonous plants are listed as noxious weeds and should be managed for that reason. Some poisonous plants cause incurable symptoms and even death. If you are a livestock owner, you should inspect your pastures before turning animals out to graze; watch for unusual behavior; and consult a veterinarian as soon as you suspect poisoning. Be sure to collect samples of suspected poisonous plants for positive identification.

Many poisonous plants have an unpleasant taste that animals avoid, BUT, if all other forage is gone, they may eat the poisonous plants and even develop a taste for them. For this reason, you should use Proper Grazing Management to remove livestock before all other available forage is gone. You do NOT have to avoid a pasture that has poisonous plants in it IF you are careful and proactive about grazing management.

Also, not all species of poisonous plants are poisonous to all types of livestock.

Some known poisonous plants include:

- ◆ Senecio (*Senecio* spp.)
- ◆ Yellow star thistle (*Centaurea solstitialis*)
- ◆ Houndstongue (*Cynoglossum officinale*)
- ◆ Locoweed (*Oxytropis lambertii*, *sericea*, *Astragalus molissimus*)
- ◆ Virginia creeper (*Parthenocissus quinquefolia*)
- ◆ Some sages (*Artemisia frigida*, *A. ludoviciana*)
- ◆ Russian knapweed (*Acroptilon repens*)
- ◆ Chokecherry (*Prunus virginiana*)
- ◆ Larkspur (*Delphinium* spp.)
- ◆ Monkshood (*Aconitum* spp.)
- ◆ Lupines (*Lupinus* spp.)
- ◆ Hairy vetch (*Vicia villosa*)
- ◆ Nightshades (*Solanum* spp.)
- ◆ Death Camas (*Anticlea elegans*)
- ◆ Flixweed (*Descurainia Sophia*)
- ◆ Two-grooved milkvetch (*Astragalus bisulcatus*)
- ◆ Poison hemlock (*Conium maculatum*)
- ◆ Field bindweed (*Convolvulus arvensis*)
- ◆ Wild Mushrooms (many types; also poisonous to pets)



Locoweed



Wild Mushrooms



Field Bindweed

Check out
Colorado State University's Guide to Poisonous Plants Database
csuvth.colostate.edu/poisonous_plants
Colorado Mushrooms Website
www.coloradomushrooms.com
for more information!!!



Flixweed



Poison Hemlock



Houndstongue



Larkspur



Lupine



Hairy Vetch

GETTING INTO AGRICULTURE

Call MPCD to inquire about hay testing. 970-724-3456
For additional livestock nutrition resources, go to
www.middleparkcd.com/hay-and-pasture/

Hay Testing

All animals have basic nutritional requirements that vary based on their age, work demand, and physiological state (maintenance, growing, pregnant, lactating, or geriatric). By testing your hay, you will have the knowledge to actively manage your animals' nutritional needs like never before.

The most basic Forage Analysis will test for Moisture, Crude Protein (CP), Acid Detergent Fiber (ADF), and Neutral Detergent Fiber (NDF). Total Digestible Nutrients (TDN) and Net Energy (NE) are calculated values based on Protein and Fiber results.

ALWAYS LOOK AT THE DRY MATTER BASIS COLUMN!!! Crude Protein (CP) is a measure of the Nitrogen and is commonly used as a standard for gauging protein requirements for animals. **Higher Crude Protein values are better.** ADF is a measure of feed digestibility, while NDF is a measure of feed intake and satiation. **Lower values are better for both ADF & NDF!** The value for TDN is the sum of all the digestible nutrients in a feedstuff and is used as a common measurement for Energy. TDN is especially useful for roughage-based diets. Net Energy (NE) also estimates energy but is more applicable to concentrate-based diets (grains and pellets). Values for TDN and NE are calculated from ADF. **With either TDN or NE, higher values are better!**

In general, forages that contain less than 70% NDF and more than 8% crude protein (on a Dry Matter basis) will contain enough digestible protein and energy to maintain mature, 'maintenance' animals during the summer. GROWING, GESTATING, LACTATING, AND GERIATRIC (REALLY OLD) ANIMALS HAVE HIGHER NUTRIENT REQUIREMENTS. See the *Winter Feeding* section for more info on winter feed requirements.

Feed Supplements

When deciding whether or not to supplement your stock, the answer depends on the physiological state of your animals and the climate where you live. Growing, late gestation, lactating, and geriatric animals have higher nutritional needs than early gestation and maintenance animals. Furthermore, winter puts extra energy demands on livestock.

When feeding hay, the main nutrients you need to look at are **Crude Protein** and **Total Digestible Nutrients**. Crude Protein needs to be at 7% or higher to maintain rumen health. **If your hay is below that value, you NEED to supplement extra protein.** Total Digestion Nutrient requirements start at about 50% for mature, 'maintenance' animals. **However, as winter sets in and gestation progresses, both Crude Protein and Total Digestible Nutrient requirements will go up and could exceed 12% CP and 70% TDN.** It is hard to put a definitive value on either of these nutrients because there is no set standard for nutrient requirements relating to climatic factors. For example, there is nothing that says 0°F and wind chill of -10°F requires 11% crude protein and 65% total digestible nutrients.

The BEST way to see if your animals are meeting their nutritional requirements is to watch their body condition. If they start to lose body condition or weight, you likely need to supplement with protein or energy (or both). *Extra tip: If you are raising mother cows, it may be wise to save your higher quality hay for feeding later in the winter because that is when your cows' nutritional demands are the greatest (due to late gestation pregnancy).*

Table 1. Influence of Inadequate Dietary Nutrient Intake on Reproduction in Beef Cattle (Bearden And Fuquay, 1992)

Nutrient Consumption	Reproductive Consequence
Inadequate Energy Intake	Delayed puberty, suppressed estrus and ovulation, suppressed libido and spermatozoa production
Inadequate protein intake	Suppressed estrus, low conception, fetal resorption, premature parturition, weak offspring
Vitamin A deficiency	Impaired spermatogenesis, anestrous, low conception, abortion, weak offspring, retained placenta
Phosphorus deficiency	Anestrous, irregular estrus
Selenium deficiency	Retained placenta
Copper deficiency	Depressed reproduction, impaired immune system, impaired ovarian function
Zinc deficiency	Reduced spermatogenesis

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Colorado Custom Rates charged for various crop and livestock operations and lease arrangements.

<https://abm.extension.colostate.edu/custom-rates-survey/>



If you purchased land that includes a hay field, you may be interested in ways to improve your hay making process and minimize your losses.

Tips for Hay Making

- ◆ **Cut hay earlier in the season for better hay quality.** Hay QUALITY and QUANTITY are inversely proportionate. In other words, as hay quantity goes up, hay quality goes down. Immature plants have greater leaf to stem ratios. Because the leaf is the ‘meat’ of the plant, more leaf equals higher nutrition (higher crude protein and sugar content), higher palatability, and higher digestibility.

- ◆ **If putting up a mix of immature and mature hay, stack it in separate stacks according to high or low quality.** When the time comes to start feeding hay, feed the highly nutritious, immature hay to your young, old, and/or late gestation and lactating animals. These animals have higher nutritional needs and require better feed quality. Feed the less nutritious, mature hay to your early gestation and maintenance stock.

- ◆ **Only bale hay with a moisture content of less than 20% for small bales and less than 18% for large bales.** If baled at moisture content of 20% or more, hay may start to caramelize and mold. Heat will be produced and may cause spontaneous combustion to occur (and a fire to start). On the other hand, hay with less than 12% moisture is too dry and will likely shatter during tedding (spreading hay out to dry), raking (putting hay together into rows), or baling. In that case, you will just be baling stems. If you have not already invested in a good hay moisture tester, it is a MUST HAVE for all hay producers.



- ◆ **Cut hay later in the day to maximize sugar content.** Plants photosynthesize during the day to produce sugars and oxygen. At night, they respire and use some of those sugars produced during the day to grow and set seed. Thus, plants are at their lowest energy level early in the morning. The only catch to this tip is that hay cut later in the day will NOT have time to dry on the initial day of cutting. Be sure to check the weather forecast beforehand and verify no threat of rain showers overnight or in the near future.

- ◆ **Decrease your drying time by setting your mower width to the widest possible setting.** When mowed at the widest possible mower setting, grass will lay more evenly on the stubble and air will move more freely through and around the grass. *Mowers with conditioners will also improve your drying time because they crack the stems to release trapped moisture.*



- ◆ **Minimize dry matter and leaf loss by working your hay as little as possible.** Determining the right time to mow, ted, rake, and bale can be difficult. If you must ted your hay (spread it out to dry), do so the morning after mowing and once the dew is off but while the hay is still tough. Also, rake the hay (put it back together in rows) when it is slightly tough. This will minimize leaf loss from both tedding and raking. Even if your grass is tough when you put it in a row, remember to check the final moisture content before baling it to ensure it is below 18-20% moisture content (see third bullet on this page).

Ag producers looking to improve the quality of their haylands may consider taking advantage of the Middle Park Habitat Partnership Program (HPP) annual clover seed program facilitated by Middle Park Conservation District. Clover and alfalfa seed is offered on a limited basis in the spring while supplies last. **Contact MPCD | 970-724-3456, ext 4**

GETTING INTO AGRICULTURE

Fertilizing Mountain Hay Meadows

For more range, hay, and soil resources, go to www.middleparkcd.com/hay-and-pasture/

Whether it provides hay for the winter or forage in the fall, livestock in the high country rely on hay meadows for feed. Deciding whether to fertilize your mountain hay meadows comes down to a balancing act between the cost of input and the production potential. Virtually all meadows are nitrogen deficient and will respond to nitrogen fertilizer. **A safe estimate is that you will get approximately 20 pounds of increased forage for every pound of applied nitrogen.** Nitrogen uptake, however, may be limited by a phosphorus deficiency. Performing soil tests for Phosphorus, Potassium, and Sulfur may be beneficial in determining the proper fertilizer mix needed for your specific fields.

The survey is still out for determining the best application timing. Some producers say fall fertilization will produce consistently higher yields than spring fertilization, and fall is better than spring if you are adding phosphorus to the mix. Phosphorus tends to give legumes (clovers and alfalfa) an extra boost, but it takes longer to absorb into the soil. Nevertheless, **fertilizer prices and availability, field condition, and your workload must also be considered when deciding the right time to fertilize.**

When hay prices are low or favorable moisture conditions are questionable, cost effectiveness should also be considered. Fertilizer can be expensive, and plants still need adequate water to grow (regardless of their nitrogen availability), so **ASK YOURSELF IF FERTILIZING WILL REALLY PAY OFF IN THE END.** The chart below may help you in determining the cost effectiveness of fertilizing mountain hay meadows.

Quantity vs Quality

Hay producers must consider the tradeoff between quantity and quality of the harvested forage. **Do you need to produce a certain amount of hay to have enough feed for the winter, or do you need to sell a specific number of bales to make a profit?** These questions pertain to the quantity of hay, but quality of hay is also important when contemplating your animals' and customers' needs. **There is an inverse relationship between quantity and quality. As the forage yield (quantity) increases, the quality of that forage decreases (protein content and digestibility).** **Your goal should be to produce the most amount of hay per acre possible that will still meet the quality/nutritional objectives of the animals being fed. In other words, BOTH QUANTITY AND QUALITY should be considered when setting production goals.**

Economic impacts of applying nitrogen to grass hay.				
Assumptions:				
Nitrogen Use Efficiency (lbs forage/lb N)				20
Nitrogen Application Rate (lbs N/acre)				80
Harvest Costs (\$/ton)				\$45.00
Fertilizer Application Cost (\$/acre)				\$7.25
Increased yield ton/ac				0.80
Additional income (or lost) per acre with varying hay values and costs of nitrogen.				
N Cost (\$/lb)	Hay Value (\$/ton)			
	\$100	\$150	\$200	\$250
\$0.65	-\$15.25	\$24.75	\$64.75	\$104.75
\$0.75	-\$23.25	\$16.75	\$56.75	\$96.75
\$0.85	-\$31.25	\$8.75	\$48.75	\$88.75
\$0.95	-\$39.25	\$0.75	\$40.75	\$80.75

Interactive Cost-Benefit Calculator for Fertilizer Application (Microsoft Excel download)
<http://www.middleparkcd.com/wp-content/uploads/2021/11/Grass-Hay-Calc-K.xls>



Irrigation Water Management (IWM)



The primary form of irrigation in Middle Park is 'Wild Flood Irrigation.' High efficiency irrigation solutions (like sprinkler systems) are not always feasible in the mountains. **Furthermore, despite being considered 'inefficient and wasteful', wild flood irrigation has value.** During the peak runoff in the spring and early summer, agricultural withdrawals reduce the risk of flooding. Then, in the fall when natural stream flows are low, agricultural returns provide a boost of water that helps maintain fisheries and water quality.

These benefits are a result of increased groundwater storage and lower consumptive use of flood irrigation compared to sprinkler irrigation. Additionally, wild flood irrigation systems produce temporary marshes utilized by wetland birds in the summer and during migrations. Finally, wild flood irrigation has lower energy costs compared to higher efficiency irrigation systems. **Despite these positive qualities, wild flood irrigation should be properly managed.**

Why Practice Proper IWM

With proper irrigation management, you will likely see the benefits of...

- ◆ Increased forage production
- ◆ Better hay quality
- ◆ Improved soil health
- ◆ Preferred species assemblages throughout your field

How to Practice Proper IWM

Install check and turnouts throughout your field.

- ◆ Check and turnout structures in a ditch act as temporary dams to force water out of the ditch and into a given area of the field. They also force water down specific ditches as determined by the irrigator. In the old days, ranchers used large clumps of grass and mud as the dams. These were very inefficient because so much water seeped through and around the clods. As technology improved, orange dam material was (and is still) used. Dam material is better at reducing leakage but still requires a lot of labor. **The newest and most efficient option is to install culvert pipes with gates.** Though there is a significant upfront cost to installing pipes, the payoff is drastic. There will be practically no leakage and almost no labor at all.

Practice intermittent irrigation

- ◆ The 'ideal soil' is comprised of 50% mineral content, 25% air, and 25% water. The air and water benefit the growth of vegetative roots. Different vegetative species have different tolerances for the amount of water they can withstand. Some species get choked out quickly when flooded by water. Thus, they need periods without irrigation to dry out a bit and breathe once again. Other species can tolerate being supersaturated with water for much longer. **The species that need breaks from water to breathe are the ones you want in your meadow, like timothy, meadow brome, and clover. They are nutritiously dense and more palatable to livestock.** The less desirable species tend to be the water-tolerant, less nutritious and less digestible rushes, sedges, meadow foxtail, and slough grass. **This is why it is critical to move your water around and use check and turnout structures to manage your water at any given time.** **Proper irrigation management does NOT include turning your water on at the beginning of summer and not touching it again until the day you turn it off to hay.**
- ◆ If it is super rainy, turn your irrigation water down or off. There is no need to overwater your fields by adding water on top of water (see bullet point above).
- ◆ To know if your soil has the proper amount of moisture, check it by taking a sample from approximately 6" in depth (the height of your shovel spade). Squeeze a handful of soil. **If it forms a slightly crumbly, slightly moist ball that does not leave a stain or water on your hand, it is time to irrigate.** If it is drenching wet, do NOT irrigate. On the other hand, DON'T wait until it is powdery fine to irrigate either because it will take much longer to fill the water table again. See the photo above for a visual representation of 'proper moisture content.'

Ag Burning: If you intend to burn your ditches in preparation for haying season, **please read the Ag Burning section on page 31.**

Looking to seal leaky ditches?
Contact MPCD to learn about
polyacrylamide (PAM) and SoilFloc®
www.middleparkcd.com
middleparkcd@gmail.com



If there is staining on your fingers from squeezing the soil, wait a couple days and test the soil again. If the soil feels only slightly moist, forms a slightly crumbly ball when squeezed in your hand, and there is no staining, then it is time to irrigate (see picture).

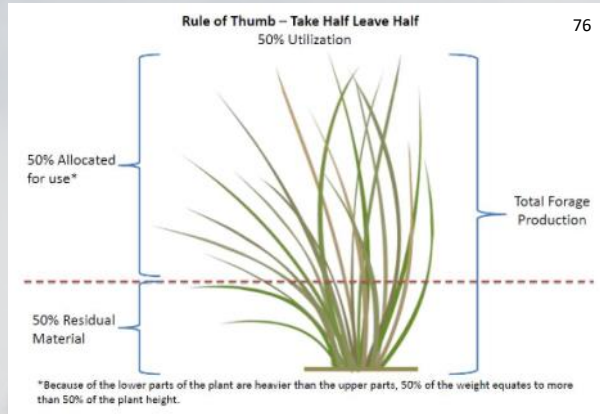
Range & Pasture Management

If you want to graze livestock on your land, it is important to implement sustainable Grazing Management practices that will boost your pasture's productivity rather than deplete it. **Indications that your pasture health may be declining include: an abundance of weeds, an increased prevalence of bare ground, and stock consuming excess dirt while grazing. Livestock may also experience weight loss; poor coat condition; heightened incidence of colic and respiratory issues; or they may start eating trees, shrubs, fences, and barns due to the lack of forage on the ground.** The Natural Resource Conservation Service (NRCS) and the Middle Park Conservation District (MPCD) can help you formulate a Grazing Management Plan specific to your property. See their contact info on page 3.

Proper Grazing Management

Take Half, Leave Half

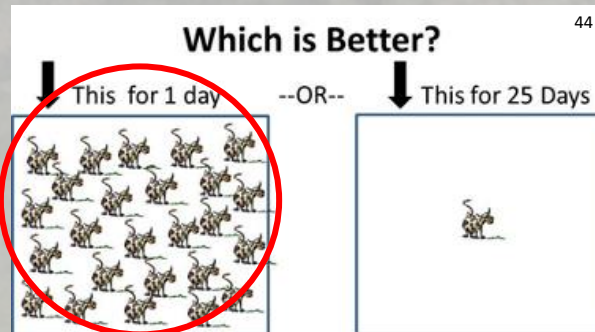
The chart on the right depicts the age-old saying, "**Take Half, Leave Half.**" By removing only half the amount of leaf volume, you maximize your grazing effort and minimize your root loss at the same time. In the springtime, wait to graze your pastures until your grasses are 6-8" tall. Take stock off when grasses are grazed down to 3-4" tall, and do not graze again until your forage has regrown to 6-8" tall.



Percent leaf volume removed	Percent root growth stoppage
10%	0%
20%	0%
30%	0%
40%	0%
50%	2-4%
60%	50%
70%	78%
80%	100%
90%	100%

Practice High Intensity Grazing for SHORT DURATIONS

Practice high intensity grazing for short durations rather than low intensity grazing for long durations. Studies show that operations managed on an adaptive, high-intensity grazing system have better soil aggregation, texture, and appearance; more stable pH levels; more earthworms; taller grasses; less bare ground; and better fungi-to-bacteria ratios. If managed properly, as stock density increases, grazing distribution improves, selectivity decreases, and the proportion of utilized forage that is actually ingested (grazing efficiency) increases.



To better understand the difference between high intensity and low intensity grazing, consider the following question. **Is it better to graze 25 animals on one acre for one day or 1 animal on one acre for 25 days? The correct answer is 25 animals on one acre for one day.** The reason for this is that you will have better forage utilization and your stock will be forced to eat all plants (not just the favorable ones).

Furthermore, they will not have the chance to come back and graze tasty plants over and over again. Think about it like a dinner plate. Your livestock (no matter the species) will eat all their dessert first and will only eat the rest of dinner if they are absolutely starving. On the other hand, if there are a lot of animals in a small area for a short period of time, they are forced to eat their meat and vegetables too and don't have time to lick their ice cream bowls before they are kicked out.

Be Smart about Salt and Water Placement

For larger pastures and on open range, **use water and salt/mineral to distribute stock throughout the pasture.** Livestock need to consume water and minerals on a daily basis. By moving your sources of water and mineral around the pasture, you will encourage better forage utilization. After all, your livestock will go to where the water and salt is.

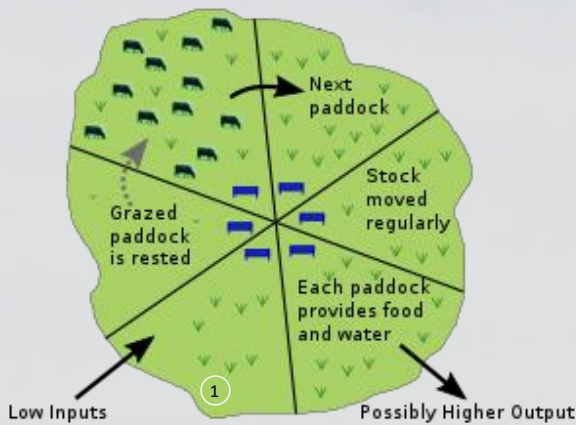
Looking to protect a natural spring by moving livestock away from it? Contact MPCD to learn about tire stock tanks. www.middleparkcd.com

Tire tanks have the potential to be funded through CPW's Habitat Partnership Program (HPP). For more information, contact [Middle Park HPP \(CPW\)](http://MiddleParkHPP(CPW)) | 970-725-6200

For more range, hay, and soil resources, go to www.middleparkcd.com/hay-and-pasture/

GETTING INTO AGRICULTURE

Range & Pasture Management



- ◆ Ideally, a rotational grazing system has 5-8 separate paddocks that can be used on rotation throughout the season. This gives adequate time for recovery in each paddock before it is regrazed.
- ◆ If you lack permanent fences to create subdivided pastures, consider investing in *Electric Fencing* that can be moved wherever and whenever.
- ◆ If you are limited by your pasture size and productivity, supplement your stock with hay by drylotting them most of the day and allowing them to graze on fresh forage for a shortened period each day.

- ◆ If you know you have low productivity on your pastures and you do NOT have the ability to supplement with hay, consider reducing the number of animals you have or changing the type of livestock to a smaller, less consumptive species (like goats and sheep).
- ◆ If you have irrigation water rights, irrigate your pasturelands using proper irrigation management techniques to accurately hydrate the grasses in your pastureland. See proper *Irrigation Water Management* section for more info.

Estimating the Carrying Capacity of Your Pasture

There is no standard reference for the quantity of available forage on pastures in the Intermountain West. Irrigated pastures range from 2,000-6,000 pounds per acre. Dryland (non-irrigated) pastures range from 300-2,000 pounds per acre in total dry matter. A production level of 1,000 pounds per dryland acre is fairly typical. **Thus, an average dryland pasture has around 500 pounds of USABLE forage per acre** (see the "Take Half, Leave Half" principle on previous page).

To put a value on YOUR pasture's production, clip a small area (10'x10') of forage that is representative of the pasture. Allow it to air dry for three or four days and then weigh it in pounds. For example, if you clip 100 square feet (10'x10' square), multiply the air-dried weight (in pounds) by 435.6 to get pounds per acre.

Grazing animals need 2-3% of their body weight of AIR-DRIED forage daily. Thus, a 1,000 pound cow needs approximately 25 pounds of AIR-DRIED forage per day (750 pounds of dry forage per month). Therefore, a 1,000 pound cow needs 1.5-2 acres per month. **Keep in mind that most beef cattle weigh more than 1,000 pounds!**

Horses tend to waste more forage, so they typically need to be fed 3-4% of their body weight. Sheep and goats need 2-3% of their body weight; however, they utilize a higher percentage of brush and forbs species than cattle or horses. Llamas tend to have slightly more efficient digestive systems and require only 1.8-2% of their body weight of air-dried forage daily. The next page includes a "Calculations Worksheet" for estimating the carrying capacity of your pastures.

REMINDER

"Air-dried forage" is not the same as "Standing-live or As-fed" forage.

See red box above for calculating "Air-dried" weight.

Area (Figure 3)	Good Forage Condition AUM/AC*	Average Forage Condition AUM/AC*	Poor Forage Condition AUM/AC*
1	0.34	0.23	0.12
2	0.3	0.22	0.13
3	0.36	0.25	0.14
4	0.5	0.34	0.18
5	0.3	0.2	0.1
6	0.33	0.25	0.16
7	0.5	0.38	0.25
8	0.4	0.29	0.17
9	0.37	0.27	0.16
10	0.43	0.33	0.22
11	0.55	0.4	0.25
12	0.29	0.21	0.12
13	0.6	0.45	0.3

***Good Forage Condition:**
67-100% of the vegetation is a mixture of desirable plants (grasses, legumes, forbs, and shrubs).

***Average Forage Condition:**
34-66% desirable plants.

***Poor Forage Condition:**
0-33% desirable plants, with mostly undesirable weeds, forbs and shrubs present.

***AUM/AC:**
Animal Unit Months per acre, a measure of forage production.

Use this table for the calculations on the next page.

Grand and Summit Counties are in "Areas" 4 & 5 (column 1)

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Carrying Capacity Worksheet

Calculate Carrying Capacity*

Animal Unit Equivalents (AUEs)*

Cow or Cow/Calf Pair (Assuming a 1000# cow) = 1.0	Ewe = 0.15
Bull (1800#) = 1.8	Lamb (12 Months) = 0.1
Weaned Calf (500#) = 0.5	Ram = 0.2
Heifer/Steer (13-18 Months or 700-900#) = 0.7 - 0.9	Goat = 0.15
Heifer/Steer (19-24 Months or 900-1100#) = 0.9 - 1.1	Bison = 1.0
Other Animals = 0.1 AU for Each 100# of Body Weight	Horse (Average 1250#) = 1.25

Carrying Capacity Calculations*

AUMs/AC (from Table 2) = (see table on the previous page..."Areas" 4-5)

Acres Grazed =

AUMs/AC X Acres Grazed = Total AUMs (Available or Useable Forage)

AUEs (see list above) X Number of Animals = Total AUs

Total AUMs of Forage / Total AUs = Months of Grazing Available/Year

Months of Grazing Available/Year X 30.4 Days/Month = Days of Grazing Available/Year

Days of Grazing Available/Year X 24 Hours/Day = Hours of Grazing Available/Year

Hand write your answers in the blue boxes...it is NOT interactive.

***Carrying capacity** is the number of animals that a parcel of land can support without overgrazing. It is a function of: number and type of livestock, pasture condition and production, and number of acres being grazed.

AU—Animal Unit is equivalent to one 1000-pound cow. An average quarter-horse is 1.25 AU's and a 1400-pound cow is 1.4 AU's.

AUM—Animal Unit Month is the amount of forage necessary to carry one Animal Unit (AU) for one month.

AUMs/AC— Animal Unit Months per acre

Overgrazed



Not Overgrazed



Ranch Management in Drought: GREAT RESOURCE ON DROUGHT PLANNING FOR RANCHERS

<https://rangemanagement.extension.colostate.edu/drought-ranch-planning-colorado/>



While some people call it “dirt”, soil is much more than just the brown mineral matter that we often think of. There is a whole ecosystem beneath our feet, complete with a soil food web. Soil is so important that life would not exist without it. Soil provides the medium that grows the food we eat, the clothes we wear, the trees and bricks used to build our homes, and many of the medicines used to treat our illnesses. It is for this reason that soil health and soil conservation is so important. According to Jay Fuhrer of the NRCS, the foundation of Soil Health consists of five principles: soil armor, minimizing soil disturbance, plant diversity, continual live plant/root, and livestock integration.

Increase Soil Armor (Soil Cover) to help control wind and water erosion, reduce evaporative losses, maintain moderate soil temperatures, reduce soil compaction, suppress noxious weed growth, and provide habitat for the soil food web.

Minimize Soil Disturbance by reducing overgrazing (which limits the plants ability to harvest CO2 and sunlight), avoiding over application of nutrient and pesticide (which can disrupt the soil food web functions), and minimizing tillage (which increases wind and water erosion, crusting, and soil organic matter depletion).

Increase Plant Diversity to benefit the soil food web, improve rainfall infiltration and nutrient cycling, and reduce disease and pests. Diverse crop rotations mimic our original plant diversity landscapes that occurred prior to human encroachment on natural landscapes. They are important to the long-term sustainability of our soil resource and food security.

Maintain continual live plants and roots to provide the carbon life line for the soil food web; improve soil infiltration; reduce erosion, compaction, and maintain cooler soil temperatures; improve water quality; suppress weeds; and provide wildlife/pollinator food, habitat, and space. *Legume species are especially helpful at boosting soil health and plant growth due to the nitrogen-fixing symbiotic relationship with bacteria in their roots.*

Integrate livestock using proper grazing management to increase soil stability and structure, enhance soil organic matter and nutrient cycling, improve water infiltration and retention, aid in plant species and microbial species diversity, increase plant biomass production, and improve ecosystem resilience.

For more info on local weather/snow, go to <http://www.middleparkcd.com/weather-info/>

Weather is the “short-term” atmospheric conditions that we experience at any given time on any given day or season (hot, cold, rainy, snowy, windy). Climate refers to the average weather patterns in a specific area over a longer period of time (years and decades). Using a thirty-year average is common when looking at climatic changes. **Thus, CLIMATE CHANGE is how the characteristics of the weather we experience in a certain place change over time.** Those changes could result in warming or cooling, drought or increased precipitation.

Climate change is nothing new; we have seen periods of climate change occur since the age of the dinosaurs—think “ice ages.” **The fact that climate change is happening is not a shocker; it is the RATE at which the climate is changing (compared to previous climatic changes) that is concerning.** A study by Marcott et. al conclude that *current global temperatures of the past decade are warmer than during ~75% of the temperatures in the last 11,300 years. The recent increase in global average temperature is so abrupt compared to the rest of the time period that when the scientists make a graph of the data, the end of the line is nearly vertical.*

Climate change can be caused by both natural and anthropogenic (human-caused) forces. Natural causes may include shifts in the Earth’s orbit, natural changes in atmospheric and oceanic carbon dioxide levels, volcanic eruptions, and variations in the solar activity. Anthropogenic causes likely include industrialization, globalization, and reliance on fossil fuels. The everyday conveniences we have come to rely on (like cars, planes, and trains for transportation; technology to keep us connected, productive, and stressed [wink, wink 😊]); as well as all the processed and packaged stuff we buy daily) all contribute to the release of greenhouse gases and carbon into the atmosphere. Deforestation and conversion of native grasslands into cities and developed areas have also decreased Mother Nature’s ability to naturally capture carbon through her ‘greenbelts.’

Climate vs. Weather



Climate Change and Land Management

Contact MPCD/NRCS for additional assistance on rangeland restoration. www.middleparkcd.com | 970-724-3456

Carbon sequestration, or carbon capture, has been proposed as one measure for mitigating climate change due to greenhouse gases. As alluded to on the previous page, Mother Nature has historically helped with carbon capture through natural carbon sinks, such as the ocean, soil, forests, and perennial grasslands.

So...what does that mean for land management in Middle Park? It means that some of the best things you can do for your land are to **manage for healthy forests, lush grasslands, and wet wetlands**. If you are concerned about climate change and want to do your part to reduce it, **THE WORST THING YOU COULD DO IS TURN A NATURAL LANDSCAPE INTO A PARKING LOT, HIGH RISE, OR SHOPPING CENTER.**

While farming and ranching sometimes get a bad rap for their “contribution to global climate change,” properly managed agricultural lands can actually do the opposite...**they can mitigate climate change by capturing carbon**. Traditional farming practices that require annual tillage and conversion of croplands definitely have their faults; however, we do not have traditional farms in Grand or Summit Counties. We have ranches that subsist on perennial rangelands and hayfields that support their livestock herds. Most of these operations do not till, or rarely till, their land. Though it is true that improperly managed grazing lands do not capture as much carbon as properly managed lands, we hope the information provided on the previous pages will help reduce overgrazing, noxious weed encroachment, and soil degradation.

Additional tips for restoring degraded grazing lands include:

- Limit soil disturbance and tillage
 - Implement proper grazing management practices
 - Use water tanks, spring developments, and salt/mineral supplements to help with grazing management and livestock distribution
 - Inter-seed areas of low production and plant native species with deep roots
 - Plant nitrogen-fixing legumes (like clover and alfalfa) to improve soil health and productivity
 - Fertilize to increase production
 - Initiate proper irrigation management strategies to improve production
 - Install sediment control structures where soils are highly erosive
 - Install living snow fences (trees and shrubs) where wind relief is needed
- www.middleparkcd.com/forestry-resources/

Check out NRCS' Climate-Smart Mitigation Activities: nrcs.usda.gov/conservation-basics/natural-resource-concerns/climate/climate-smart-mitigation-activities

“Good farmers, who take seriously their duties as stewards of Creation and of their land’s inheritors, contribute to the welfare of society in more ways than society usually acknowledges, or even knows. These farmers produce valuable goods, of course; but they also conserve soil, they conserve water, they conserve wildlife, they conserve open space, they conserve scenery.”

~Wendell Berry, American poet, novelist, environmentalist, and farmer

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“I should understand the land, not as a commodity, an inert fact to be taken for granted, but as an ultimate value, enduring and alive, useful and beautiful and mysterious and formidable and comforting, beneficent and terribly demanding, worthy of the best of man's attention and care.”

Wendell Berry

“Without natural resources, life itself is impossible. From birth to death, natural resources, transformed for human use, feed, clothe, shelter, and transport us. Upon them we depend for every material necessity, comfort, convenience, and protection in our lives. Without abundant resources prosperity is out of reach.”

GIFFORD PINCHOT

“Conservation is a state of harmony between men and land.”

Aldo Leopold

This booklet was produced by

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Motivating landowners to Pursue, Commit, and Deliver on-the-ground Conservation Practices

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