

Spring 2013



Issue 17

[www.ext.colostate.edu/sam](http://www.ext.colostate.edu/sam)

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## First Steps to Identifying Grasses on Your Property

*Jeanne-Marie Bakehouse, small acreage owner living in Franktown, Colorado*

Bird watching teaches you that closely observing the details is crucial to correctly identifying species that may seem similar at first glance. When I first started bird watching here in Colorado, I noticed an orange and black bird that I immediately identified as a Baltimore oriole. It was only when I carefully observed small details about the bird's shape and behavior in addition to color that I realized I was wrong. The bird, which was vigorously scratching at the ground and creating a loud

ruckus, had red eyes. This was not an oriole, but a towhee.

The misidentification of the bird taught me the importance of noticing details and taking time to carefully examine small differences. This lesson is widely applicable, but it is absolutely essential in the task of identifying grasses.

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## Identifying Grass from page 1

There are thousands of identified species in the Grass family, so paying attention to small details is the first step in correctly and successfully identifying grasses present on your property.

It is possible to identify some grasses without an in depth understanding of plant morphology, but you must be committed to closely observing the grass and its specific attributes. Additionally, you must be willing to watch the grass over the season, noting its growing and seeding cycles.

Grasses fall into some distinct categories: warm or cool season, bunchgrass or sod forming, native or non-native. Warm season grasses grow primarily during the summer months, and cool season grasses grow best during the spring and fall when temperatures are cooler. Bunchgrass organizes into tight clumps, or bunches, that can be strikingly ornamental. Sod forming grasses have stems that grow horizontally, either above or below ground. Native grasses, defined as grasses that existed here before European settlement, are typically beneficial and desirable. Non-native grasses and plants are introduced, and although some are beneficial and harmless, others are aggressive and without natural enemies, likely to become invasive and competitive for the same resources the natives are using.

To begin your list of identified grasses, start when the grasses have produced their seed heads. Much like colors on the birds, the striking visual indicators of grass seed heads immediately help narrow the list of potential candidates. Keep in mind, though, just like the lesson learned in identifying birds, you need to take as many details of the grasses as possible into consideration along with the characteristics of the seed heads to correctly and confidently identify them.

Three readily recognizable grasses present in Colorado are Blue grama, Western wheatgrass and Orchardgrass. They are a good place to start.



Blue grama, Colorado's state grass, is easily identifiable by its curved seed heads, likened by some to resembling eyebrows. Because of this striking seed head, Blue grama may be one of the first grasses to easily make it on your list. It is a beautiful warm season

grass, catching the afternoon light and sifting it out again through its seeds in the late summer.

Long-lived, Blue grama is a native perennial that can be a nice alternative to a Kentucky bluegrass lawn. It is a shorter grass, reaching heights of 20 inches under good growing conditions, and once established it is fairly drought tolerant.

Western wheatgrass is another native grass prevalent in Colorado. It is a long-lived cool season grass with a bluish tinge in its leaves. Seen in the correct light, Western wheatgrass gives a hillslope or rangeland area a wonderful hue of alternative color.

Western wheatgrass is not only beautiful, but it also has strong sod-forming tendencies making it excel at erosion control. In addition to its long and narrow seed heads and bluish leaves, height can be another helpful identifying characteristic as

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## Identifying Grass from page 2

Western wheatgrass typically grows to between one and three feet tall.

Orchardgrass has distinctive clumped seeds atop stately stems that grow upwards of two to four feet tall, making it another readily identifiable grass and potential addition to your list.

This cool season bunchgrass is introduced, but it can be beneficial with its propensity to recover rapidly after grazing. Orchardgrass tends to form a dense network of roots and so provides a decent measure of erosion control.

Moving beyond using just visual clues and seed heads, grass identification takes on a new level of difficulty. You need to be prepared to learn about roots, stems and leaves, and you must be willing to learn a new vocabulary of terms, including inflorescence, spikelets, florets, ligules and auricles to name only a few. You'll need a magnifying lens,

an eye for detail and a lot of patience. Much like learning to identify birds, identifying grasses can be rewarding and exciting, and it will go a long ways to helping you understand what's growing on your property.

For those serious about grass identification, there are a number of resources out there to help you. Robert B. Shaw's *Grasses of Colorado* and H.D. Harrington's *How to Identify Grasses and Grasslike Plants* are a good start, and there are numerous guide books dedicated to Colorado's plants and wildflowers that include a section on grasses. The Natural Resources Conservation Service's Plant Database website provides in depth information on grasses and plants (<http://plants.usda.gov/>), and other places to find information are your local Natural Resources Conservation Service offices, county conservation districts and extension offices.



**Western Wheatgrass**



**Orchardgrass**



## How Well Do You Know Colorado's Water History?

*Karen Crumbaker, Larimer County Extension*

Hardly a day goes by without some mention of water. Too much? Not enough? Just right? As we are experiencing the second drought in a decade throughout much of Colorado, I thought it might be interesting to dive into Colorado's water history.

As early as 1852, settlers understood the importance of water to the semi-arid west. The first recognized water right and ditch was developed in the San Luis Valley. The San Luis People's Ditch is Colorado's oldest continuous use ditch. Because waterways were separated by vast amounts of dry land, miners were the first to suggest placing claims on water they were using to search for gold. Settlers followed the miners' claims on water, a method that became known as the doctrine of prior appropriation or the "first-in-time, first-in-right" doctrine. In 1876, when Colorado became the 38<sup>th</sup> state, the doctrine of prior appropriation was included in the State Constitution. Under the doctrine of prior appropriation, water rights are established when water is put to a beneficial use.

The person or organization beneficially using the water asks the water court to recognize the right by a decree. The judge records the location the water will be drawn from, the amount of withdrawal, and the beneficial use it will be used for. The judge also assigns a priority date. Claims staked earlier with the court are senior rights and all claims that follow are junior rights. Senior rights have first claim to the withdrawal of water. When we experience drought, those with junior rights must restrain their call on the use of water until senior rights are satisfied.

In 1881, the Colorado Office of the State Engineer was created, making Colorado the first state to have public officials administer private water use. It is the responsibility of this office to monitor the amounts of water taken from surface and under-

ground sources. When stream flow cannot support all the water right holders, senior water right owners can place a call on the stream. When this occurs, upstream junior water right holders must allow water to flow to the senior right holders downstream. State water officials administer calls so the senior water right owners get their water first.

In Colorado, water rights are private property rights. The owner can sell, lease or rent these rights. An owner can also ask the water court to change their rights, if the owner would like to withdraw water at a different location or put the water to a different use. The court may approve the change, as long as it does not harm the water rights of others.

Because most water comes from mountain snow melt and flows out of Colorado, interstate compacts were created to ensure water users in other states would be served. Nine compacts affecting Colorado's water have been negotiated with other states and ratified by the U.S. Congress. In 1907, the U.S. Supreme Court case *Kansas vs. Colorado* marked the beginning of ongoing litigation over water that crossed Colorado's borders.

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### Did you know? ...

- Colorado is known as the Headwater State because four of this country's major rivers begin in the Rocky Mountains -- the Colorado, Rio Grande, Arkansas, and Platte Rivers all flow out of Colorado.
- In 1903, the authorization of the Uncompahgre Project, stretching the Gunnison River of western Colorado, was the first Bureau of Reclamation project in Colorado.
- About 90% of Colorado's naturally occurring lakes are found above 9,000 feet.
- The Cache la Poudre River is termed by the National Park Service as "The River that Set Historic Water Law in the West".
- The Cache la Poudre River is the last free-flowing river in Colorado.

## Water History from page 4

Colorado's water law is continually evolving to address the water challenges of living in a semi-arid climate. A growing population and drought both severely impact the need for water.

Between 1900 and 2010, the population in Colorado grew from 500,000 to 5 million, with most of the population on the East Slope of Colorado. The average precipitation in Colorado ranges from 7 in. to 25 in., with Fort Collins receiving an average of 15 in. of precipitation per year. The largest percentage of water within the state, on the other hand, comes from mountain snow melt benefitting rivers on the West Slope. Over 2,000 dams and reservoirs have been built in the state to manage our inconsistent water supply.

The Colorado-Big Thompson diversion water project delivers up to 310,000 acre-feet of water annually from the Colorado River Basin on the West Slope to the urban populations on the East Slope. On December 21, 1937, President Roosevelt approved the findings of the feasibility study and work on C-BT began. Water flows by gravity west to east 3,800 feet beneath Rocky Mountain National Park through the 13.1-mile Alva B. Adams Tunnel. After flowing through a series of five power plants and reservoirs, water is stored in Horsetooth Reservoir, Boulder Reservoir and Carter Lake.

If this article wetted your appetite to learn more about this natural resource, visit the Colorado State University Water Resources Archive at the CSU Morgan Library at [www.lib.colostate.edu/archives/water](http://www.lib.colostate.edu/archives/water)

Colorado Division Of Water Resources,  
Water Rights History  
<http://water.state.co.us/SURFACEWATER/SWRIGHTS/Pages/WRHistory.aspx>



Source: NRCS

### RABIES ON THE RISE IN COLORADO: BE AWARE

1. Do not handle wildlife, especially skunks, raccoons, foxes and bats that are acting inappropriately or have died.
2. Vaccinate your pets and livestock.
3. Educate yourself. Save your life or the life of a loved one. For information go to the Colorado Dept of Health website: [www.colorado.gov/cs/Satellite/CDPHE-DCEED/CBON/1251607766329](http://www.colorado.gov/cs/Satellite/CDPHE-DCEED/CBON/1251607766329)

## Goats

*Megan Lowery, West Greeley Conservation District*

Goats are fun and inquisitive animals that are great for small acreages as they don't require as much space and forage as a horse or cow. Goats are very social animals that can easily be trained to follow with a lead or pail of grain. Goats move in family groups, following the older females. It is important to remain calm and quiet when handling animals as stressed animals may become aggressive. Some simple terminology: a billy is a male goat, a doe is a female goat, and a kid is a young goat. Similar to sheep and cows, goats are ruminants, meaning they are herbivores that have anaerobic bacteria in the rumen in order to break down cellulose for energy.

There are three basic types of goats: meat goats, dairy goats, and fiber goats. All goat breeds can be used as meat goats, but some breeds, such as the Boer breed, are more specialized for meat production. Breeds most commonly used for dairy production include Alpine, LaMancha, Nigerian Dwarf, Nubian, Oberhasli, Saanen, and Toggenburg. The Angora breed is probably the most well-known for fiber, producing the expensive cashmere wool. Goats are also being used more and more for weed control and companionship.

When beginning a goat operation, fencing is one of the most important considerations. Goats are natural climbers and very curious animals, and they are

bound to find a way out. A few effective fencing options include high-tensile electric fence, a combination of woven wire and electric fence, or welded wire panels. But whatever fencing method you choose, be prepared that goats will likely find a way out.

When it comes to housing, goats are quite adaptive and don't require an elaborate set up. Often a simple three-sided shed facing away from prevailing winter winds will provide adequate protection from the elements. Just be sure that the shed isn't drafty. If you will be kidding, then you will need an additional space that is protected from the elements.

Other things to consider before purchasing goats include predators, zoning regulations, space, and neighbors. Unlike horses, goats are considered livestock so you will need to check with your area's zoning regulations before investing time, energy, and money in a goat operation.

Predation is another concern. In Colorado we have coyotes, mountain lions, bears, and eagles to contend with in regards to predators. Again, fencing will help greatly with predators, but you may also want to consider a guardian animal. Guardians are territorial animals that will protect their herd and include llamas, alpacas, donkeys, and dogs. If you have an enclosed shelter, then you may want to bring all the animals in for the night for additional protection.

Although Colorado is a Right to Farm state, your neighbors may not appreciate the smell and noise associated with a livestock operation. In order to maintain a friendly status with your neighbors, you may want to make them aware of your intentions to obtain goats. You also want to consider the space you have available to properly pasture and maintain your animals.

As with all animals, your goats will need plenty of fresh, clean water. A typical goat will consume between 0.5 - 4 gallons of water a day. During the

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## Goats from page 6

winter months, you will need to prevent the water from freezing; a simple tank heater should do the job. We've all heard that goats will eat anything, and this is true to a degree. Goats are naturally inquisitive and will investigate items that resemble food, but won't eat non-food products. Goats are great for weed control as they often prefer forbs, shrubs, and weeds to grasses when at pasture.

Reproduction is another important aspect of your goat herd management. If you have milk goats, then the does will not produce milk unless they have been bred. If you have meat goats, then you will not have goats to sell or replenish your herd unless you breed the does. If you just have goats for fiber, weed control, or pleasure, then breeding may not be a concern. Does can kid as yearlings and produce a kid each year thereafter. Goats breed seasonally from October to December, with kids being born approximately 150 days after breeding. Goats generally have twins with singles and triplets common as well. Goats will often breed for 10-12 years.

Both males and females of most goat breeds grow horns but some have been bred to not have horns. Goats with horns use them for defense and aggression and may be unsafe to handle. If you are going to dehorn your animals, then dehorning should be done within five days of birth. When han-

dling goats, one should not pat or scratch the top of the head as this may instigate aggressive behavior (i.e. head butting). In addition to dehorning, hoof maintenance is very important for goat care. Hooves may require two or more trimmings per year. It is important that hooves are trimmed properly as it can be very painful for the animal and may cause lameness when done incorrectly.

Goats are ideal for many small acreage scenarios. They can help with weed control and provide companionship and entertainment. If you are looking to add animals to your small acreage, goats may just be the answer.

Goat Resources:

CSU Veterinary Extension Sheep and Goat Resources  
<http://veterinaryextension.colostate.edu/menu2/smruminants.shtml>

Video: Raising Sheep & Goats for Profit  
[www.youtube.com/watch?v=d3pceW6Ru3E](http://www.youtube.com/watch?v=d3pceW6Ru3E)

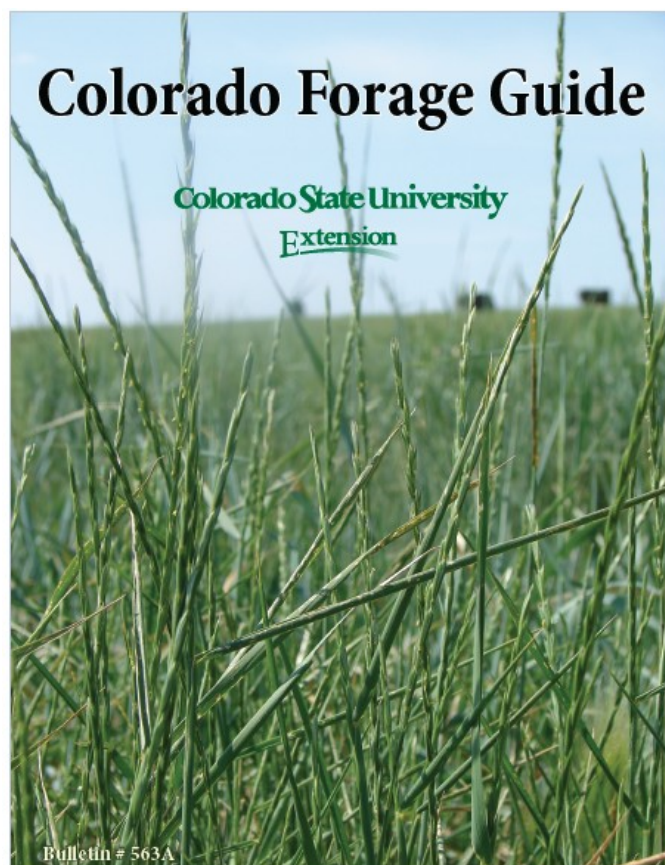
Recorded Webinar: 2011 Raising Sheep and Goats  
[www.ext.colostate.edu/sam/webinar.html](http://www.ext.colostate.edu/sam/webinar.html)



## Colorado Forage Guide

The recently published Colorado Forage Guide will help small acreage landowners become familiar with livestock forage and grazing management. Information is provided on how grasses differ, what legumes are and how they can fit into pastures, and what to consider if you need to revegetate your pasture, including how to design your own seed mix. The section on grazing management will help you know what to look for and expect before, during, and after your pastures are grazed. Because grazing is an ongoing learning process, this information will complement your own experiences and the advice of others, such as Colorado State University Extension (CSU Extension), the Natural Resources Conservation Service (NRCS), and neighbors.

Download the Colorado Forage Guide at [www.ext.colostate.edu/sam/pasture.html](http://www.ext.colostate.edu/sam/pasture.html)



## Facts About Dalmatian Toadflax

*Tina Booton, Weld County Weed District*

Dalmatian toadflax was introduced as an ornamental in the late 1800's. By the 1920s it had escaped and became a weed. Economic data specific to Dalmatian toadflax are scarce, but direct management costs averaged \$40 per acre in 1992 on a Montana ranch of which 30% of the 1,064 acres was severely infested with Dalmatian toadflax. Reduction in cattle carrying capacity and reduction in the appraised value of infested ranch land increases the economic impact.

Loss of forage can impact big game species, especially on winter ranges. Although deer have been observed to browse Dalmatian toadflax and seed is used by some species of birds and rodents, it is not known to be heavily used by any native species. Where sod-forming or bunch grass communities are replaced by toadflax, soil erosion and surface runoff will be increased.

Dalmatian toadflax (*Linaria genistifolia* ssp. *dalmatica*) is a non-native deep-rooted perennial that spreads by seeds and aggressive, creeping, horizontal roots (rhizomes). Dalmatian toadflax can grow 3 to 4 feet in height. The leaves are heart shaped to lanceolate with the base clasping around the stem. Both leaves and stems are waxy with a whitish or bluish cast. Flowers grow at the bases of the upper leaves. The flowers are snapdragon-like in appearance. They are yellow, with an orange throat and a straight to slightly curved spur.

Dalmatian toadflax emerges as early as mid-March and typically begins flowering in late May. A mature Dalmatian toadflax plant may produce up to 500,000 seeds per year. These seeds may lay dormant in the soil for up to 10 years. Nine weeks after emergence Dalmatian toadflax roots may grow 20 inches deep or more and have vegetative buds that produce new shoots. The roots of Dalmatian toadflax can go 4 to 10 feet into the soil column with lateral roots extending up to 10 feet from the parent

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## Dalmatian toadflax from page 8

plant. The key to controlling Dalmatian toadflax is to eliminate seed production and also to reduce the plant's nutrient reserves in its root system through persistent, long-term management.

Dalmatian toadflax thrives in drier climates and is a strong competitor in coarse soils, disturbed soils and sparsely vegetated sites. Once established, even sites in excellent condition will do little to stop its spread.

Combining control methods for Dalmatian toadflax is imperative. The weed needs to be continually stressed, forcing it to exhaust root nutrient stores and eventually die. Of all control methods, prevention is most important. Maintain healthy pastures and rangeland and continually monitor your property for new infestations.

For control recommendations, read *Biology and Management of Toadflaxes*, CSU Fact Sheet No. 3.114 at

[www.ext.colostate.edu/pubs/natres/03114.html](http://www.ext.colostate.edu/pubs/natres/03114.html)



**Dalmatian Toadflax**

## Pasture Management During and After Drought

Although many parts of Colorado have gotten some spring moisture, we are still in a drought. Pasture grasses are stressed out from last year's drought and will not be very productive this growing season. It is best for the health of your pasture grasses if you restrict grazing to none or very little this growing season. For more tips, watch these small acreage webinars:

**Pasture Management During and After Drought—** This hour long webinar will offer useful techniques to help grow a drought resistant pasture.

**Pasture Management on Small Acreages—** This hour long webinar will provide viewers with a basic understanding of pasture management.

The link takes you to the list of archived webinars. Scroll down and click on the webinar you want to watch: [www.ext.colostate.edu/sam/webinar.html](http://www.ext.colostate.edu/sam/webinar.html)



**Does your pasture look like this? Overgrazed and overused pastures can be saved with smart long-term management. Watch the small acreage pasture webinars to learn how.**

## Hydroponic Fodder Production: Save Some Dough With a Little H2O

Haley Steinke

Over the past few years it has been very dry here in Franktown, Colorado. This contributed to hay and corn prices rising, which makes it hard for ranchers and farmers alike to feed their animals and crops. This is what happened to my family. We started out with a good sized herd of cattle. As everything grew drier, hay and corn prices rose tremendously. We started out by selling half our herd, but it hurt. So we went online and found this alternate food source for our livestock. We created our very own home-made hydroponic fodder system!

The word hydroponic comes from the word hydro. Hydro means water so; hydroponics is the process of growing plants in sand, gravel, or liquid but without soil. Fodder means coarse

food (especially for cattle and horses) composed of entire plants or the leaves and stalks of a cereal crop. To sum every root up, a Hydroponic Fodder system means plants growing without soil in water.

I am in sixth grade and every sixth grade student has to do an empowerment project at my school. I chose to better understand droughts and animal feed in a drought scenario, and have made a hydroponic fodder system. This system is for farmers and ranchers to grow food for their livestock and poultry in just 7 days! That's just fast! This also conserves water and doesn't use soil.

This is how I made my homemade fodder system. All you do is take a large plastic storage lid like Sterilite and drill holes in it about two inches apart. Buy some barley seeds, (make sure that you can grow the seeds) and soak some of them in water for about 1 day. Next, spread the soaked barley seeds

on the plastic lid. Put a tray beneath the system and water it 2-3 times a day. Set-up a few grow lights above the trays. Do not over water it and don't let the fodder grow longer than 6 days or it will start to stink. After 6 days, it is ready to feed to your livestock or poultry.

If you want a pre-made system, one option I found is Farmtek. Some of these systems are automatic so you don't have to spend your time watering and rotating your trays. They do it for you. Here are some pictures from my homemade fodder system. It's easy!

I produce 87.5 lbs per week with 7 trays, and each tray is started with 3 lbs. of barley seed/tray. In six days, each tray produces 12.5 lbs.

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**Barley soaking**



**Plastic lid with holes in it**



**Dump out the seed onto the lid and spread them out with something flat.**



## Hydroponic fodder from page 10

of barley fodder. It is cost effective because one-50 lbs. bag of barley seed costs \$14 from a feed store. I need 9.6 bags of barley seed (\$134.40) to produce one ton of fodder. (If you bought the seed at whole-sale this would be cheaper than the prices I have listed.)

More Information:

*Feed Composition for Cattle and Sheep*, CSU Fact sheet no.1.615 [www.ext.colostate.edu/pubs/livestk/01615.html](http://www.ext.colostate.edu/pubs/livestk/01615.html)



Now it's nice and evenly spread.



Put the new seed on the rack and water the top one. The rest will get watered through the holes.



For a list of upcoming events in your area  
visit CSU Extension Small Acreage  
Management website  
[www.ext.colostate.edu/sam/](http://www.ext.colostate.edu/sam/)



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