I suppose most people in the US, if asked to define *ruminate*, would say that it means “to think carefully and deeply about something”, or “to ponder at length”. These definitions are correct, but if you ask an old country boy, he will likely say something about “chewing a cud”. A cud? What in the world is a cud? Wikipedia states that: “Cud is a portion of food that returns from a ruminant's stomach to the mouth to be chewed for the second time. More accurately, it is a bolus of semi-degraded food regurgitated from the reticulo-rumen of a ruminant.” I will admit the word cud is not a pretty one and the thought of regurgitating and re-chewing food is probably not an appealing thought for most of us, but in this article I want to make a case for the importance of ruminants and so by extension, the process of rumination and the lowly cud. So what exactly is a ruminant? Let’s start with some science and terminology.

Table 1 illustrates the taxonomic classification of an example ruminant; i.e. cattle. Animalia is pretty easy to get. Bilateria, interestingly enough just means that these organisms have a front and back, right and left, top and bottom. Chordates, among other features, have a dorsal nerve chord and in addition, Vertebrates possess a backbone. Mammals are warm blooded, have hair and give milk. So far so good, sounds like a cow. The subclass Theria are mammals that give birth to live young without using a shelled egg, and the Artiodactyla are hoofed animals with an even number of toes. Deer, pigs, and hippos belong to this category. Bovidae includes domestic herbivores such as cattle,
Ruminants...continued

sheep, and goats as well as familiar wildlife species such as bison, water buffalo, and the antelopes. The
genus, Bos, refers to both wild and domestic cattle. Lesser known Asian examples include the yak (Bos
grunniens) and the largest of all bovines, the gaur (Bos gaurus).

Historians tell us that cattle, sheep and goats were first domesticated in the middle east around 10,000 years
ago. One paper (Bollongino et al. Mol. Biol. Evol. 2012) estimates that our European (Bos taurus) cattle
originated from less than 100 female aurochs (Bos primigenius; extinct wild cattle) in the region of the
middle Euphrates. From what I have read about aurochs it is no wonder that so few were originally captured
and survived to become domestic. They were a little “rank”, as the bull riders might say. What an
accomplishment to start from such a small number of individuals and progress to the diverse number of
breeds we have today. Other significant domestications of cattle may have occurred in Africa and Asia about
the same time or a little later.

Well about now you may be saying “yeah but all that professor stuff did not really tell us anything about
ruminants and what makes them special”. Fair enough, let’s talk about that. You may be surprised to know
that a cow (or deer or bison) is no more able to digest grass and other fibrous plant material than you and I.
So how do they survive on rangelands eating grass and forbs and shrubs then? They accomplish this by a
synergistic relationship with microbes in their digestive tract. The host animal provides a warm anaerobic
(without oxygen) environment and a steady supply of plant material. These microbes (largely bacteria with
some fungi and protozoa) have an enzyme called cellulase which allows them to break the beta hydrogen
bonds between glucose molecules in cellulose (plant fiber). Microbes digest the plant fiber and make
nutrients available to the ruminant. So when we go out to feed our livestock or manage foraging habitat for
wild herbivores, we are really feeding the microbes first. Hold that thought for future Rimrock articles. Now,
here’s a trivia question for you. True or false; cows have four stomachs. Everybody knows that is true, we
learned that in grade school (but did you know that when cow tipping... 20% is considered appropriate?). Ok
that was a trick question, the answer is false. Technically,
cows and other true ruminants have one four-chambered
stomach. The chambers or compartments are the rumen,
reticulum, omasum, and abomasum or “true
stomach” (Figure 1). For now let’s just focus on the
rumen. The rumen is the largest compartment and is
essentially a fermentation vat. It is here that the
previously mentioned microbes live and work. It is where
the term ruminate comes from. It is speculated that
rumination developed as a predator avoidance strategy. I
guess if you are good to eat you need to find any
advantage you can. So ruminants will consume a large
meal of plants with little chewing involved, just enough
to mix with saliva to facilitate swallowing and start some

Figure 1. Diagram of cattle digestive system. Courtesy of
University of Minnesota Cooperative Extension.
Ruminants...continued

eye digestion. The grazed bolus of food then enters the reticulo-rumen for holding. All of this may occur out in the open in a risky environment. The animal will then go lay down somewhere in a safer place to regurgitate and re-chew cuds. This second chewing serves to further physically break down the fiber and create more surface area for bacterial action once it is re-swallowed and returns to the rumen. The cud is just a way to package plant material for handling purposes (logistics, logistics, logistics...).

The ability to digest and use cellulose in a variety of forms is what makes ruminants special and has allowed them to adapt to almost every part of the world except Antarctica (Figure 2). Some of these adaptations include large jaws and muscles to chew and grind a diet of largely grass. Think about the head of a bison, and think about where they typically live (Figure 3).

Or the smaller thin muzzle and long tongue of a deer to select very specific high quality leaves from a shrub (Figure 3). In addition, some ruminants have large rumens in blocky bodies (i.e. cow, bison) to retain plant material longer and digest it more completely; they are built to graze horizontally and “mow” forage. Others have smaller tracts and slender bodies (i.e. deer, impala) with a higher intake and passage rate; these animals are able to browse vertically if need be. The list of adaptations goes on. If you are interested in more of this information, google “Hoffmann ruminant feeding types” and read some of the classic research about ruminants and their feeding adaptations. Dr. Schafer also has some related information about matching cows to their environment in his article. I think this is all very interesting but I suspect some of you may...
say “big deal, ruminants are just animals that eat plants and have little bugs in their stomach”. But what if they did not do this? We can obviously eat some plants but how would we benefit from all that energy in fibrous plants and obtain the protein and other products that herbivores, especially ruminants provide for us?

One complaint against cattle is that we feed grain to them that could be fed to humans. Like other socio-political statements this is true to an extent but can be misleading. Consider this excerpt from a 2013 Council for Agricultural Science and Technology issue paper on the subject (Animal Feed vs. Human Food: Challenges and Opportunities in Sustaining Animal Agriculture Toward 2050);

“The assumption that reducing ruminant production will increase the availability of cereals for human food, however, only holds true if the same cereal crops are interchangeable between animal feed and human food. On a regional basis, this may be true of certain livestock systems; nonetheless, when assessing the extent of global “feed vs. food” competition, one major factor must be accounted for—livestock diets include a considerable quantity of crops and by-products from human food, fiber, and fuel production that are not suitable as human food use because of safety, quality, cultural, or digestibility considerations.”

Let’s think about this issue from the perspective of that last statement. Have you considered the benefit that we derive from feeding materials other than grain or forage to these animals? By exploiting the synergistic relationship between ruminants and microbes we can use byproduct feeds like bakery waste (e.g. old bread or cookies); distillers grains from the production of ethanol; cottonseed, almond, peanut or rice hulls; beet pulp; or other vegetable residue (e.g. lettuce or tomatoes). A producer in Kentucky fed candy to cattle in a recent drought back east. Researchers have even tested newsprint and found that it could be used at around 10% of the diet for growing beef steers without ill effects on intake, gain or health (Dinius and Oltjen, J. Anml. Sci. 1971). Algae is another potential animal feed source that is being studied by a number of universities including the U of A. Some of that preliminary work was done at the V Bar V a couple summers ago.

As we run short of productive agricultural land in the future and have more people to feed, maybe it is time to re-visit or put more emphasis on the ability of ruminants to use fiber in a variety of forms. From these efforts we should be able to produce animal source protein, recycle waste, and produce energy in the form of heat and methane. Yes, methane. Which comes out of the front end of the ruminant, not the back end by the way. Widespread use of such feeds is currently constrained by availability, timing, potentially high levels of minerals such as phosphorus and by an overall lack of knowledge about their effects on animal health and performance. I think many of these concerns can be answered by research. All it takes is time and money, right? Perhaps in time the self-sustaining community of the future will employ algae colonies to feed ruminants that also consume waste and other by-products while providing food, fertilizer and energy?

I am running out of room so I want to finish with a little different type of information about ruminants that you may not be aware of. In addition to protein from meat, milk and blood; grazing animals provide many other useful products. Products such as leather, pharmaceuticals, or work and they can be used for targeted grazing to reduce wildfire fuel or an invasive plant species. Here’s another tidbit for you: small ruminants may be the
only property owned by women in some 3rd world countries/societies, and thus their only source of income and self-reliance (Figure 4). Here are some excerpts from Oluwatayo and Oluwatayo (IMTFI Working Paper 2012):

“Rearing of small ruminants plays a very important role in the lives of households in developing countries. This is because small ruminants provide the easiest and most readily accessible source of credit available to meet immediate social and financial obligations. In southwest Nigeria for instance, rural women are involved in the raising or rearing of small ruminants – sheep and goats especially around homes by feeding them kitchen wastes or at most times leaving them to graze on surrounding herbs and shrubs.

Meanwhile, small ruminants (sheep and goats) form an important economic and ecological niche in agricultural systems of rural communities across developing countries. This is because small ruminants make a very valuable contribution to household income, especially to the poor in the rural areas.

These contributions range from precious animal proteins (meat and milk) to fibre and skins to draught power in the highlands as well as food security in some cases. Small ruminants and poultry are of economic importance to small-holder farmers and especially women. The total income share of small ruminants tends to be inversely related to size of land-holding, suggesting that small ruminants are of particular importance for landless people especially women. In some cultural settings, women are often not entitled to own land and since agriculture (crop production) provides only seasonal employment, rearing small ruminants would provide employment and income as a subsidiary occupation.

Very often, there are no banking facilities in rural areas and an easy way to store cash for future needs is through the purchase of sheep and goats. In fact, in some areas, small ruminants have been described as the ‘village bank’. From the foregoing, small ruminants play an important role in ensuring rural women’s financial security.”

So, why don’t we all go find us nice patch of grass, sit back and ruminate on that last section awhile?

Article by Doug Tolleson
Females are the foundation of a beef herd. As with any building project, you need a good foundation from which to build. While it may be true the sires you select will have a greater overall genetic impact on the herd, matching the females to your resources is key to long term sustainability and one of the best ways to achieve this is with a crossbred female.

**Basic Homework**

First, let us look at some basic homework that all producers should do when making selection decisions. Start by writing down some goals you would like to achieve with your cow herd. Think about specific production goals you have relative to weaning weight, cow pregnancy rates, or any other traits or practices that are important to you. Will you keep your own replacement heifers or do you plan on purchasing them? Once you have some goals written down, then you can begin to formulate a plan to achieve them. Also, keep in mind that your production goals need to align with your available resources.

Next, take time to evaluate the resources at your disposal. Consider feed availability, labor, facilities and marketing opportunities. Categorize the feed and labor into low, medium or high availability. Think about when you get most of your moisture and have the best growing conditions. Structure your calving season around that time to better meet the nutrient requirements of the herd and to minimize outside inputs.

Table 1 shows an example of how you can use these classifications to make selection decisions. Not all traits are represented but it gives you an idea of how to use this information and you can build your own table. Taking the time to write these things down will help you in selecting the genetics that best fit your environment and production goals.

<table>
<thead>
<tr>
<th>Production Environment</th>
<th>Traits</th>
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<tbody>
<tr>
<td>Feed Availability</td>
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<tr>
<td>Environmental Stress</td>
<td>Milk Production</td>
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<td>Low</td>
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<td>Medium</td>
<td>High</td>
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<td>Low</td>
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Breed role in terminal crossbreeding systems

| Maternal | L to M | H | L | M to H | M | H |
| Paternal | L to M | H | L | M to H | M | H |
Matching Cows to your Environment/Ranch...continued

Another step to consider before breed selection is the type of mating systems available to you. There are essentially three types of mating systems: 1) multi-purpose, 2) terminal and 3) a combination of multi-purpose and terminal. A multi-purpose mating system is designed to produce replacement & market animals and can be done in a straight breeding, rotational crossbreeding or composite crossbreeding system. It will involve selecting for fertility, growth, and carcass traits simultaneously.

In a terminal mating system, all progeny are sent to market and no heifers are retained. These systems are usually designed to increase calf weight, growth rate & lean muscle. All replacement heifers are purchased in this system. A mating system with a combination of multi-purpose and terminal uses a portion of the cowherd to produce replacements and the rest of the herd is bred to terminal sires.

Your ability to break cattle into various breeding groups may influence the type mating system you choose. Rotational crossbreeding systems or the combination multi-purpose/terminal will require you to split the herd into breeding groups. If that is not an option, it can still be achieved to some degree through the use of artificial insemination (AI) or by changing the breed of bull you purchase every 2-3 years. For instance, if you wanted to have an Angus and Hereford rotational crossbreeding system, you might purchase Angus bulls to run on your cows for 2-3 years and then switch to Hereford bulls. There are many ways in which one might produce these mating systems. Think out of the box and examine all angles.

Now we come to breed selection. Taking into consideration, the resources at your disposal, your production goals and marketing opportunities select the breed or breeds you will use. During this selection process, take time to study the various breeds and get familiar with their strengths and weaknesses. Always remember, no one breed can do it all. Also, consider breed availability in your area if you are going to be purchasing females or bulls and remember that AI may be a viable alternative to introducing a breed or breeds.

Table 2 is a summary of germ plasm research gathered at the USDA-Meat Animal Research Center in Clay Center, Nebraska, relative to four characteristics of some common beef and dairy breeds. In the table, the breeds are ranked by a series of X’s to indicate the relative performance of the breed. More X’s indicates a higher value for the trait in question. For instance, the Jersey is generally considered to have a relatively low mature weight and is slower growing, a lower lean to fat ratio, a lower age at puberty and a high level of milk production. Conversely, a Chianina has a relatively high mature weight and is faster growing, has a higher lean to fat ratio, a higher age at puberty and a low level of milk production. The point of this table is to help you in characterizing the breeds. It is in no way all inclusive but illustrates how one might go about identifying the strengths and weaknesses of the various breeds. This can be a valuable tool in selecting not only your cows but also your bulls.
The Crossbred Cow

When presented with this topic of selecting the right cow for your ranch, I immediately thought the right cow is a crossbred cow. If you are a commercial breeder, then you should be running crossbred cows. The greatest benefit from crossbreeding is with crossbred cows because hybrid vigor produces amazing maternal advantages.
There are two advantages to crossbreeding: 1) hybrid vigor (heterosis) and 2) breed complementarity. Hybrid vigor is defined as the superiority of the crossbred compared to the average of the straightbred parents. Breed complementarity occurs when we combine the strengths and weaknesses of breeds to form a cross better suited to our environment and/or production goals.

Research has shown (Table 3) that a crossbred cow is eight percent more efficient than a purebred cow, lives 38 percent longer and has 25 percent more lifetime production (pounds of calf weaned). Much of this advantage in the crossbred animal comes from the fact that crossbreeding has the biggest impact on lowly heritable traits such as, fertility, age at puberty and longevity.

Another benefit of the crossbred cow is that she has a stronger immune system due to hybrid vigor, she develops better immunity when vaccinated, imparts better colostrum to her calf, which in turn keeps the calf healthier. Genetics is important in an animal's immunity and immune response. The crossbred animal is harder than a straightbred animal because genes control the process of recognizing disease agents and inbreeding doubles up more of the undesirable immune-response genes. Every pure breed is inbred to some degree. Crossbreeding ensures more genetic diversity and optimal immune response. Thus, a crossbred cow tends to have better immune system function than a straightbred cow, and not only stays healthier herself but may also produce more protective colostrum.

To summarize, when sitting down to make selection decisions, do your homework. Write down your goals, inventory your available resources, and learn the strengths and weaknesses of the cattle breeds at your disposal. If you are a commercial cattleman, then you need to run a crossbred female. Remember, no one breed can do it all so combining different breeds with different strengths and weaknesses lets one custom tailor an individual to their production environment. Matching the cow to your resources is a major factor in determining your long-term sustainability and also equals the right cow for your ranch.

<table>
<thead>
<tr>
<th>Table 3. Benefits of Hybrid Vigor in a Crossbred Animal</th>
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<tr>
<td>Trait</td>
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<td>Cow Efficiency</td>
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<td>Cow Longevity</td>
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<td>Cow Lifetime Productivity</td>
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<td>Calf Weaning Performance</td>
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<tr>
<td>Calf Yearling Performance</td>
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<tr>
<td>Total Avg. Annual Dollar Impact</td>
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Dr. Larry Cundiff, USDA-Meat Animal Research Center
The Rimrock Report

Plant of the “Week” by Guest Writer Nora Graf

On the Range, driven by the monsoons

The monsoon showed up this year. Drenching rains have created a flush of new plant growth. Suddenly the landscape changed from a dull parched looking yellow-brown to a vibrant green carpet partly thanks to a variety of annual grasses including the following four.

*Bouteloua barbata-*Six-weeks grama*-This is a short-lived annual bunchgrass growing from 3 inches to 15 inches tall. It has little forage value for wildlife or livestock because it is a very small plant and very short-lived. The root system is weak so livestock generally pulls the entire plant out the ground and animals don’t like to eat the soil that comes up with it. The plant lives only about 6 weeks. It is a light green in color and has few leaves. Flowering can begin around July and continue into October. The seeds are borne on comb-like spikes typical for grama grass and are wind dispersed. Seed germination is dependent on warm soil temperatures and heavy summer precipitation. One study showed that a single rainfall of .6 to 1 inch was needed for germination. Six weeks-grama is found through much of Arizona below 6000 feet and is found in the desert southwest and Mexico including the Colorado, Mojave and Chihuahuan deserts. It likes open, rocky and sandy slopes and washes preferring bare soils where vegetation is sparse sometimes invading in overgrazed areas. While it isn’t a great forage plant, small birds, mammals and ants eat the seeds. It is considered a common plant in the state but not a dominant species. Sometimes it is confused with Rothrock’s grama, a perennial grass.

*Fs.fed.us/database/feis/plants/graminoid/boubar/all.html* copyright 2004 James M. Andre

*Photo from Western New Mexico University, Dept. of Natural Resources.*

*Bouteloua aristidoides-*Needle grama*-this plant is similar to the six-weeks grama in many ways. It is a short-lived grass 2 to 15 inches tall and light green in color. It is found in Arizona in locations below 6000 feet on dry mesas and washes. Needle grama is considered poor forage for livestock. Weak root systems allow the plant to be ripped out of the ground roots and all. Cattle don’t like to eat the dirt. Seeds are formed in NON-comb-like spikes on the side of the stems. The spikes drop to the ground easily once they have dried. The plant only has grazing value during a short time of year, about two months, July and August. Because it is green in the summer it supplements other summer forage. It can be found in the spring but has little value then. Even unused by livestock the plant provides value to the range. The plant holds moisture in the soil and improves conditions for
perennial grasses.

**Vulpia octoflora-Six-weeks fescue**-
This is a wide ranging plant and can be found in a variety of habitats and climate regions. It is found in temperate, subtropical dry areas, pine-oak, hardwood, lowlands, boreal, coastal, montane forests, deserts, xeric scrub, shrublands and grassland ecoregions. It grows on rocky slopes, sand, gravel, abandoned fields and barren waste areas. The geographic distribution is wide from British Columbia to Quebec, south to Baja California Norte, Mexico, Texas, and Central Florida. In spite of its eclectic tastes in habitat it is still considered a minor grass. It seems best suited for low-nitrogen areas. Seeds are dispersed primarily by wind, secondarily by water and possibly by animals. The seeds need moisture for germination but once established it is very drought-tolerant, even becoming abundant in severe drought situations when perennial grasses were dying out. An Arizona study showed that it had the lowest relative water requirement of southern Arizona annuals. Forage value is low because of the sparse growth of the plant but does have some seasonal value when green. Wildlife does graze on it including pronghorns, deer, prairie dogs and jackrabbits but the large herbivores, deer, elk and pronghorns don’t find it very palatable. Like other annual grasses it has shallow roots and can be easily pulled for the soil and neither wildlife or livestock like to chew on the soil mixed with the roots. The seeds are eaten by a large number of birds and rodents.

**Leptochloa viscida-Sticky Sprangletop**-When a grass is considered insignificant it is amazing how little information there is about it. So it is with Sticky Sprangletop. Aside from a very technical botanical description, it has not been studied at all from what I can find. I did find that the range of the plant seems to be in the southwest, southern California through western Texas and into Northern Mexico. Generally in Arizona it is found under 5000 feet in heavy soiled bottomlands, drying swales, road sides, waste places and sometimes wetlands. The plant itself is erect, 2 to three feet tall. The flowers are found a single central stem that has multiple drooping slender branches. Other species of sprangletops are not very palatable for livestock so would expect that the sticky variety isn’t either.
Chris's Hot Topic of Range: Monitoring Season and Grassland Restoration

If you've been keeping up with our Facebook page, you may have noticed that every September and October there are several similarly themed posts. It is fall, a time when the summer monsoon is tapering off and the warm season plants are wrapping up their growth for the year. This is the time to get out into the field and monitor vegetation. So most Facebook posts are about measuring tapes lining transects and collaborative teams of federal, state, and private individuals all huddled over frames identifying plants (Fig 1).

We use several different methods for monitoring and they tell us many different things about the landscape such as percent ground cover and pounds of forage per acre. What exact method we use and why depends specifically on management goals. In general it is all about collecting science based data to inform management of landscape trends and to determine if management goals are being met or if changes in management are needed. To collect that science based data we stretch our measuring tape out and follow it wherever it may go. That sounds easy, but the transect has a habit of finding some rather interesting places to monitor (Fig 2).

The V Bar V has several monitoring sites based on the variety of vegetation types found on the ranch. Some of these monitoring sites were established back in the early 60's and are an invaluable source of information on the history of the ranch. The goal is to continue monitoring these sites every three to five years.

In addition to these established monitoring plots we've recently created several new monitoring sites in Cedar Flats, an area that was historically an open grassland but is now increasingly dominated by a pinyon-juniper woodland. These new monitoring sites are in anticipation of an upcoming grassland restoration project. We've strategically placed these plots in light, medium, and heavy juniper concentrated areas. The goal is to compare pre-treatment data with post treatment data to record the recovery speed of the landscape after the junipers are removed.
I've written about the problems associated with juniper encroachment in a previous Rimrock Report. The gist of it was that as juniper woodlands increase in density there is an associated decrease in understory vegetation. Figure 3 is a pretty solid illustration of this phenomenon. The junipers in Cedar Flats were historically treated in the 60's with the exception of a few patches. This created a very visual contrast between treated and untreated areas. The top picture in figure 3 is a Google Earth image of the area. The left side of the top photo was treated in the 60's while the right side was left alone. The bottom left photo is from the treated side while the bottom right photo is from the untreated side. As you can see, despite these two photo points being adjacent to each other, the vegetation is strikingly different. There's a difference in vegetation cover, erosion potential, forage availability for wildlife and livestock and if the landscape is left alone the bottom left photo will transition into the bottom right photo.

The loss of the grassland is not very desirable to us, thus the need for a restoration project. That's the thing with landscape management, it does sometimes require direct manipulation to achieve management goals. Earlier Dr. Dave Schafer talked about the right cows for your landscape, which is critical to success. There is also a little bit of making the landscape right for your cows (and wildlife). That is, sometimes adaptation to a landscape isn't enough, sometimes that landscape needs a little tweaking to prevent an ecosystem transition that may be incompatible to your goals. That tweaking could involve adjusting the grazing strategy to favor a
specific plant composition, targeted grazing, chemical application, or mechanical treatments. In our case we hope to use mechanical treatments to restore and maintain a grassland ecosystem.

Wildlife will benefit greatly from the grassland restoration. In short, there is simply more biodiversity and available forage in a grassland than in a dense juniper woodland. There is also a difference in horizontal visibility between grasslands and woodlands, which is critical if you are a species that relies on early predator detection and speed. I'm thinking of the pronghorn, which is often considered a grassland obligate. Juniper treatments, if the junipers are laid low and limbs dispersed as we intend to do, create instant pronghorn habitat. Something we desire since we do want to see an increase in pronghorn numbers.

Which brings us back to monitoring. All the benefits I described is what is "expected" from a grassland restoration project. The literature suggests that herbaceous biomass and biodiversity should increase rapidly as the empty niches are filled. However, each landscape is unique and without monitoring we won't know how fast, or even if, the landscape is recovering and if any additional treatments are required. And so this monitoring season you can often find us on Cedar Flats, collecting pre-treatment data in anticipation of grassland restoration. Here’s hoping things go as expected.
The View from the Rim

From the “I’ll bet you did not know that” department:

* The Navajo Churro is the oldest breed of sheep in the U.S.
* Pronghorn are the only members of the family Antilocapridae.
* President Woodrow Wilson grazed sheep on the White House lawn.
* Reindeer (aka Caribou) do not fly but they are the only species in which both sexes have antlers.
* The word "moose" is derived from the native North American Algonquian Indian word meaning "twig eater".

Just me talking...

Wow, what a monsoon! Chris and I worked on a project this summer with extension climatologist Mike Crimmins to track the progress of monsoon precipitation compared to “normal” on the Orme, W-Dart and V Bar V ranches. It started off slow but ended with a bang. On the V Bar V in particular we are above the “very wet” category and have been above average since mid-August. We have been out monitoring range conditions across northern Arizona for the last few weeks and in most places you can see the effects of this rain in tall grass, plants we don’t usually see, and full dirt tanks. So we are enjoying it. We have started a grassland restoration project up in the Cedar Flat area of the V Bar V (P-J ~5000ft) and are in the middle of collecting pre-treatment data. Thanks to the AZ Game and Fish - Habitat Conservation Partnership and NRCS - Conservation Effectiveness Assessment Program for funding this juniper treatment/research, and to collaboration consisting of USFS, AZ G&F, NRCS and U of A for all your respective efforts. I am looking forward to the day we can all sit on the tailgate at the cattle guard and look all the way across Cedar Flat at one big savanna. I am also looking forward to hiring our new extension program coordinator to work with Range Rocks! and other projects. Hopefully we will introduce them in the next issue of the Rimrock Report. One of their first jobs will be to help with another round of drought scenario workshops this winter and spring, more details on that as they become available. I am working with a group putting on a K-12 range education workshop at the February 2015 SRM meeting in Sacramento. It is never too early to teach people about the importance of rangelands. I have a deer tag this fall but have not had many opportunities to go scout. When I have been out I am seeing lots of tracks and pellets but not many deer. There is so much feed and water they don’t have to move much and a lot of cover when they do. I am hoping for some cold weather by the end of the month, maybe that will help. Oh well, as long as I get to prowl around creation a few days carrying my grandfathers 30-06, it will be time well spent.

Till next time,

Doug