



May 2022

## Pale Wolfberry

*Lycium pallidum*

Pale wolfberry is a thorny shrub with gray branches. The roots are rhizomatous so that it looks like wolfberry patches across the landscape. It has light green, fleshy ovate leaves. There are large thorns throughout the stems of the plant. The bell-shaped flowers are greenish-white, turning to a paper-like texture as the fruits develop. The plants bloom from April through May. The fruits ripen to a bright red berry.



They are common throughout most of the state along washes and on dry slopes in the desert and semi-desert grasslands from 3,000 to 7,000 feet in elevation. It is the most widespread wolfberry species. With the exception of pale wolfberry, all of the remaining species of wolfberry in the state shed their leaves and become dormant during a drought.

The wolfberry genus is made up of shrubs that were important to Native Americans due to the production of abundant slightly bitter, juicy berries. Wildlife eat the berries.

## Selecting an Optimum Breeding Season Length

*Previously released Thursday, April 1, 2021 for the UNL BeefWatch Podcast*

Joslyn Beard, Livestock Specialist, University of Arizona  
Kacie McCarthy, UNL Cow-Calf Specialist  
Travis Mulliniks, UNL Beef Cattle Nutritionist, Range Production Systems



Decisions in livestock production are never simple, but rather complex. Each decision or change in management results in multiple changes or outcomes downstream of the resulting change. One example of this would be changing breeding season length. The duration of breeding season is often discussed with two production goals in mind, 1) creating a consistent calf crop and 2) increasing pounds of weaned calf. Both of which can be done by having a shorter breeding season and then shortened calving period, which is a positive and beneficial goal and change. However, does a shortened breeding season optimize the entire production system?

Maintaining a short breeding season (i.e., 45-day breeding season or less), thus producing a shortened calving season, provides a more concentrated monitoring period during calving, and ultimately produces more uniform and heavier calves. For instance, a cow calving within the first 21 days of a calving season results in heavier weighing calves at weaning and increases her chance to cycle back prior to the next breeding season. On the other hand, a shortened breeding season has its disadvantages related to reproductive performance and potentially selling more open cull cows. Following the traditional weaning time frame of being in the fall, market prices for cull cows are going to be lower when sold in the fall. Therefore, producers may want to take advantage of seasonal market trends and consider holding culls until market prices are higher, which is typically during the spring months. Another option within this model to increase value in cull cows would be rebreeding open cows for a fall calving season. A study done at UNL reported that rebreeding open cows and selling in April rather than open cull cows in November increased profitability of the system (2016 Nebraska Beef Cattle Report, pp 11-13). However, instead of retaining and feeding open cull cows months after preg checking to market later, there may be an additional management decision to consider for producers to make to increase profitability.

Shortened breeding and calving periods may be optimum for one side of the production system; however, it may lead to decreased revenue potential in other parts of the system. In contrast to a shorter breeding/calving period, a longer breeding season provides more opportunities for cows to become pregnant. For instance, previous research at UNL (Deutscher et al., 1991) reported pregnancy rates were 84, 89, and 94% for 30-, 45-, and 70-day breeding season lengths, respectively. This does lead to an increased calving period and increased distribution of calf weights at weaning the subsequent year. However, extending the breeding season creates an opportunity to sell cows that would have potentially been sold as open cull cows as pregnant, later calving cows. Selling late bred cows in the fall may be an option to increase revenue without increasing input expenses while maintaining a tighter calving period the subsequent year. Pregnancy detection can be done as early as 30 days post breeding, but for most herds pregnancy checking is done at weaning which is 3-5 months after the start of the breeding season. By extending the breeding season by another 30 days, cows are given one more estrus cycle to become bred and still be in the window of pregnancy detection at weaning. Additionally, extending the breeding season to rebreeding cull cows for fall markets can offer the additional value without the added feed cost associated with retaining opens for the spring market.

## Monitoring Minute: Repeat Photography

### Monitoring Minute: Repeat Photography

Repeat photography can be useful to help monitor how rangeland vegetation may change across space and/or time. Comparing pictures of the same site taken over a period of years furnishes visual evidence of vegetation and soils changes. All photographs should be taken in color. Each time repeat photographs are taken, follow the same process and photo sequence that was used in taking the initial pictures. This routine will also make labeling the photographs easier once you are back in the office. Make sure your shots include the same area and landmarks/skyline in the repeat pictures that were included in the initial pictures.

An example protocol for repeat photography in southeastern Arizona includes:

1. Bring to the field the historical photographs or copies of them to help you find the site and line up your shots.
2. Remember to completely fill out the Photograph ID sheet. Use a large, black marker to fill out the sheet, writing as largely and legibly as possible.
3. In all, at least five different pictures should be taken. Pictures need to be taken in the direction the transect runs and in each of the four cardinal directions.
4. The use of a compass is a good way to ensure that you are taking the photographs in the correct direction. This helps in the future when others come out to read the transect and try to match up the photographs with their direction.
5. The transect direction photo should always show the transect marker (T post, angle iron, rock cairn, etc.) and the completed Photograph ID sheet. (Figures 1 and 2)
6. Stand on the transect starting point to take each of the photographs for the four cardinal directions. Use the historical photographs to align your photo to match as closely as possible. Try to get as much land view as possible but still get skyline in your photo frame for reference points. The importance of taking photographs in each of the cardinal directions is that it helps to record the condition of the entire site and not just one view. These additional photographs are very valuable to use in the future to help others see the “bigger picture” and to find the site by identifying landmarks.
7. Sometimes looking back at the historical photographs, the photo was taken in a different direction from which the transect was run. In cases such as these go ahead and take a photograph to match the historical photo (make sure you note the direction). Then take another photograph showing the view of the transect direction.



*Figure 2. T post marks transect location and direction of transect.*



*Figure 1. Rock cairn marks transect location and direction of transect.*

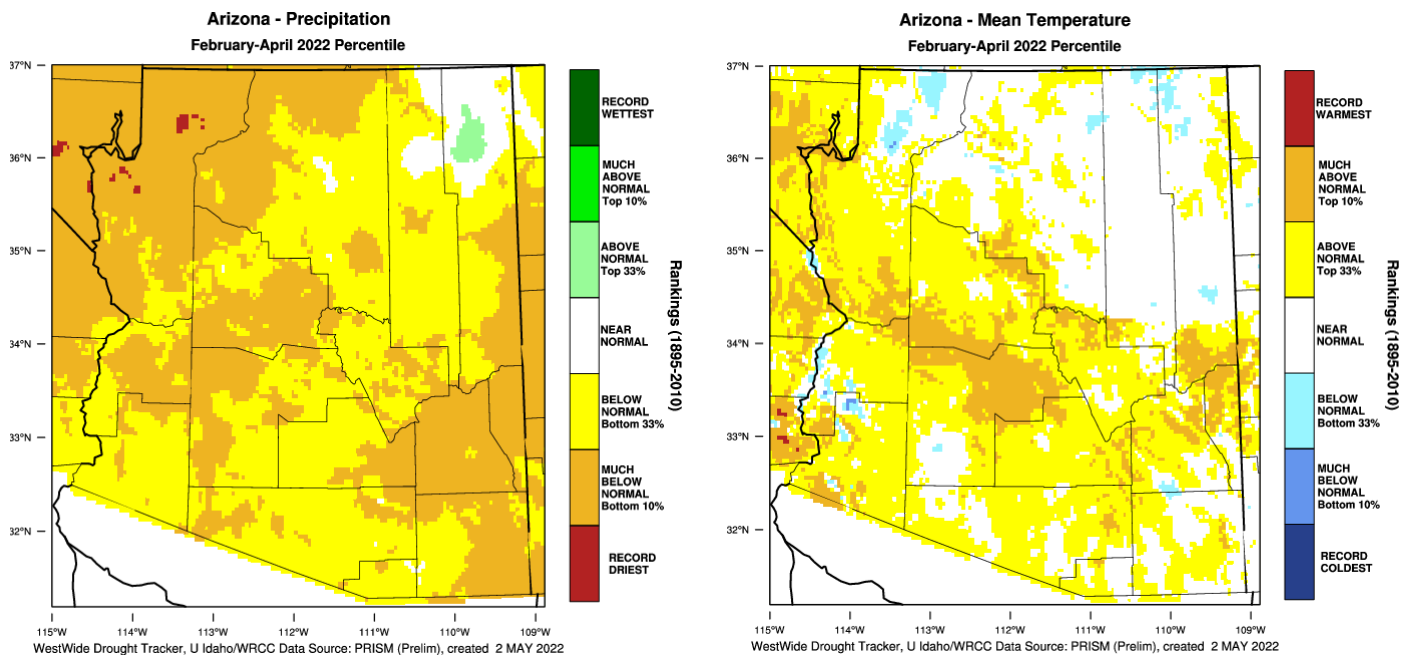
For a more in-depth publication, see Using Repeat Photography as a Tool to Monitor Rangelands by Ashley Hall and Larry Howery, Cooperative Extension publication az1946, <https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1946-2021.pdf>.



# Arizona Seasonal Climate Summary: Spring 2021-22

**May 4, 2022** - La Niña was an unwelcome visitor again this past winter and was the main cause of the drier than average conditions experienced across Arizona. There were only three substantial precipitation events in the February through April period which were in total not enough to meet average precipitation over this period. One of these events occurred the third week of February when a strong and cold low pressure system tracked quickly across the state bring substantial high elevation snowfall to the Mogollon Rim and decent rainfall amounts to lower elevation areas. This helped boost February totals, but most locations across the state were still below average for the month. Two separate storm events occurred in March, one the third week and one the last which again helped boost monthly total precipitation. Parts of Northeast Arizona especially benefitted from these events where March totals were near to slightly above-average. Unfortunately, the storm track lifted north in April and almost all of Arizona observed little to no precipitation during this month. of the month.

Overall, most of Arizona observed below to much below precipitation in the February through April period while temperatures ranged from near average across much of the northern half of the state and above to much above across the southern half. Short-term drought conditions reflected in the U.S. Drought Monitor improved substantially last fall after above-average monsoon precipitation, but have steadily worsened through the fall and winter with these drier-than-average conditions persisting. Presently, over 98% of Arizona is observing moderate conditions or worse and 62% at the severe level or worse (USDM <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?AZ>).



November-January precipitation and temperature rankings from the WestWide Drought Tracker

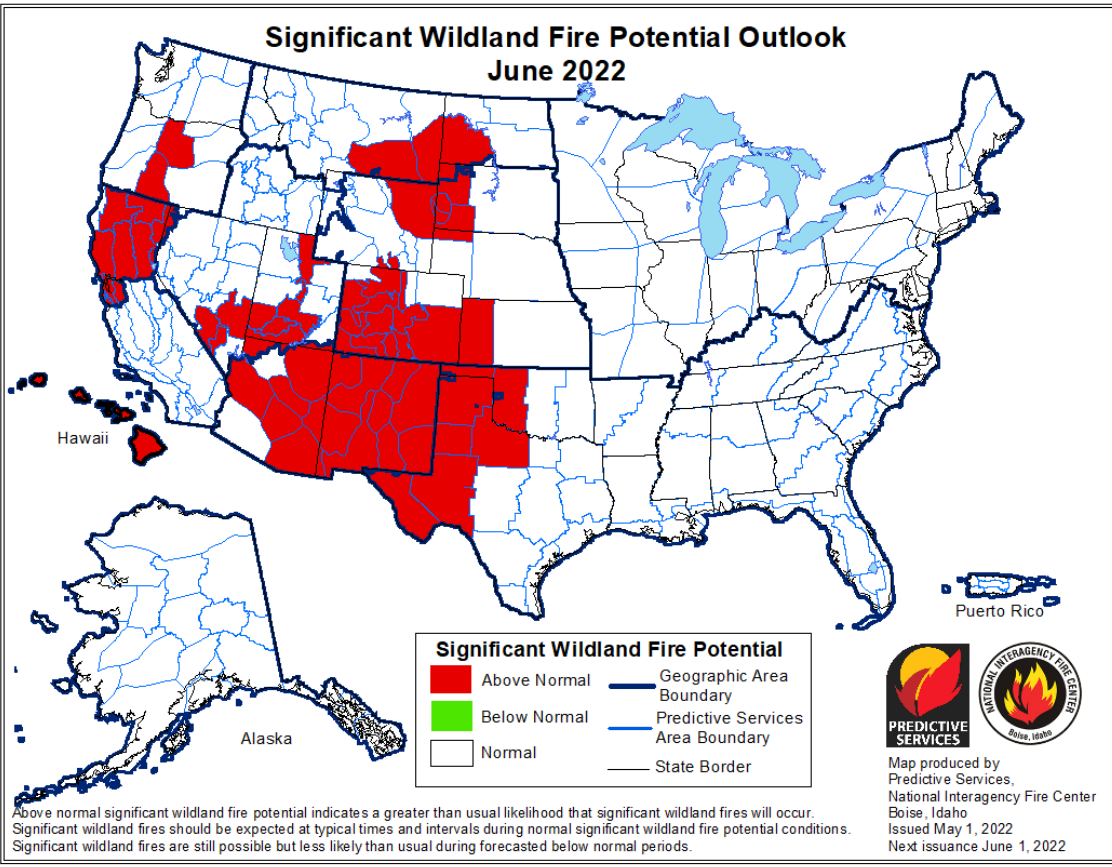
(<http://www.wrcc.dri.edu/wwdt/>)



More information available at :  
<http://cals.arizona.edu/climate>  
<http://www.climas.arizona.edu>

Questions /comments? Contact Mike Crimmins, [crimmins@email.arizona.edu](mailto:crimmins@email.arizona.edu)

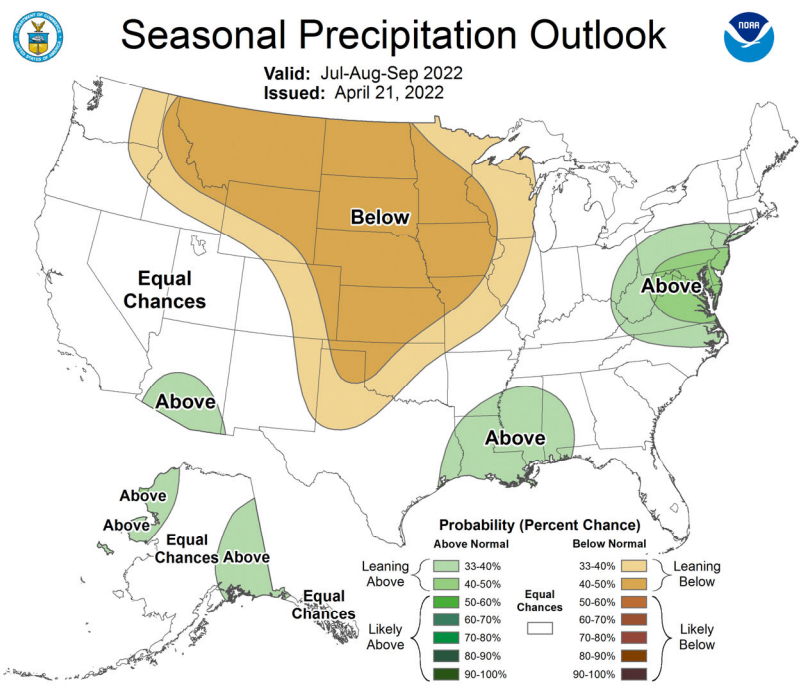




The Predictive Services group at the National Interagency Fire Center in Boise, Idaho issues a product called the “National Significant Wildland Fire Potential Outlook” with updates each month. This map simply communicates whether or not fire activity is expected to be above, below, or close to normal for the month issued. It is based on an expert analysis of past and forecasted weather and climate conditions for each Predictive Service Area (geographic areas outlined in blue). The current outlook for Ari-

zona in June indicates that most of the state may see above-normal wildfire activity. This is due to several factors including record to near record levels of fine fuels grown with the abundant monsoon rainfall last year, persisting short-term drought conditions drying these fuels out and typical spring wind events that can drive fire spread. The outlook also indicates that wildfire activity will wane quickly in July with the expectation of monsoon humidity and precipitation showing up on time. For more information and monthly updates see <https://www.nifc.gov/nicc/predictive/outlooks/outlooks.htm>.

The July-September seasonal precipitation outlook issued by the NOAA Climate Prediction Center in mid-April depicts an increased chance of above-average precipitation across southern Arizona for the upcoming summer monsoon season. This is a slight shift in the odds indicating a slightly greater chance of observing an above-average seasonal precipitation total relative to near-normal or below-average totals. The equal chances outlook for northern Arizona indicates no strong lean towards either below or above average precipitation totals. This outlook is based primarily on global climate models that have been indicating the possibility of wetter than average summer conditions for several months now. Waning La Niña conditions can also favor an early and strong start to the monsoon across the Southwest U.S. Regardless, uncertainty is still high on how the upcoming season may turn out. Stay tuned to updates here [https://www.cpc.ncep.noaa.gov/products/predictions/long\\_range/](https://www.cpc.ncep.noaa.gov/products/predictions/long_range/)





# RESEARCH CORNER

## **UA RESEARCH CONDUCTED ON THE 47 RANCH IN SOUTHEASTERN ARIZONA LOOKED AT THE GRAZING BEHAVIOR, DIET SELECTION, AND MEAT CHARACTERISTICS OF CRIOLLO CATTLE.**

By: Flavie Audoin

Supervisor: Dr. George Ruyle

The research was conducted at the 47 Ranch / Cross U Cattle Company, Cochise County, in Southeastern Arizona. The ranch is owned by Deb and Dennis Moroney who raise Criollo cattle and Navajo Churro sheep on rangelands for meat and wool production. They market their meat directly to the consumers as all-natural. Dennis wanted to have research conducted on his ranch to get a better understanding on how his Criollo cattle use the landscape, what they eat, and how it affects the meat quality. In this study, we looked at seasonal grazing behavior (cows, heifers, steers, and bulls), diet selection (cows, heifers, and steers), and meat characteristics (steers) of Criollo cattle.

### *What is Criollo (Cree-yo-yo) cattle?*

You might be more familiar with Texas Longhorn or Corriente but Criollo, probably not so much... They are all related! Criollo cattle are a heritage breed that was brought to the western hemisphere by early European explorers. For the past thirty years, drought has strongly affected parts of California, Arizona, New Mexico, and Texas in the Southwestern United States; and Sonora, and Chihuahua in Northern Mexico. Climate forecasts out to 2060 suggest that southwestern states will become hotter and drier. Reducing herd size and feeding harvested forage (usually not done in arid regions) are two common drought management techniques used by ranchers. However, these are short-term solutions. Therefore, it may be expedient for ranchers to choose cattle breeds which are better adapted to this dry and drying climate and rugged topography in order to utilize the rangeland forage resources without degrading them. Criollo cattle have been studied to see if they are well-adapted to these more arid conditions because of its smaller frame, grazing behavior, and diet selection. Preliminary research conducted in New Mexico has found that the advantageous fertility, longevity, and low-cost production of Criollo cattle meant that the net economic returns were equal to what could be made from British breeds in the area. They could be part of a long-term solution for persistent drought in the southwestern United States and Northern Mexico, for some ranchers.

### *Criollo cattle adapt their grazing behavior according to seasons and years*

Our study showed that Criollo cattle (cows, heifers, and steers) adapt their grazing behavior according to the seasons and years. With our results, we could stipulate that if the year was dry or with average rainfall, cattle had a tendency to spend more time near water during the drier periods than during the wetter periods. If the year was wetter than average, there was no noticeable difference in the time spent near water between dry, and wet periods. They were drinking, resting, ruminating and shading during the hotter hours; and grazing and traveling during the cooler hours. The cattle were not spending much time near water during the night and evening hours. They presented two peaks of grazing per day; one in the morning, and one in the afternoon. Our results suggest that the ability of the Criollo cows,

heifers and steers to graze widely across the landscape might help reduce land degradation associated with improper spatial distribution.

#### *Criollo cattle adapt their diet according to seasons and years*

Usually, cattle are considered grazers, while sheep are intermediate feeders and goats are concentrate selectors/browsers. Our study shows that the Criollo cattle might be more intermediate feeders because they consume grasses, shrubs, cacti, and legumes. For instance, they make really good use of Honey mesquite (*Prosopis glandulosa*) during several months. In July 2018, the diet of the finishing steers (steers for slaughter) was 99% of Honey mesquite. However, a lot of ranchers in southeastern Arizona are trying to eradicate Honey mesquite because of its invasive encroachment on the land. This means that if ranchers in the same area, are grubbing out Honey mesquite, they have to make sure that their cattle can find a plant that provides the same nutritional needs as Honey mesquite. Also, field observations showed that adapted Criollo cattle consume a fair amount of Prickly Pear pads (*Opuntia phaeacantha*) during winter. They also adapt their diet if the conditions are difficult and might try novel foods such as Border Pinyon (*Pinus discolor*), and Ocotillo flowers (*Fouquieria splendens*) to survive during a severe drought.

#### *Criollo cattle produce very tender, flavorful, and healthy meat.*

In our study, the average live weight of the finishing steers was 1,089 lbs with a dressing percentage of 54%. The average yield grade was 2, which meant that their meat had a high cutability. The average quality grade was Standard for the study but 16% were Prime, and 35% were Choice. The meat was graded very tender according to USDA standards. Our study also looked at the fatty acid profile of the meat. Western diets are deficient in omega 3 fatty acids and have excessive amounts of omega 6 fatty acids compared with the diet on which human beings evolved and their genetic patterns were established. Very high omega 6 to omega 3 ratios as found in Western diets promote the pathogenesis of many diseases such as cardiovascular disease, cancer, and inflammatory and autoimmune diseases whereas a low omega 6 to omega 3 ratio exerts suppressive effects. A healthy diet should consist of roughly one to four times more omega 6 than omega 3 fatty acids. On average, the omega 6 to omega 3 ratio for grass-fed cattle is 2:1, while the ratio for grain-fed cattle is 9:1 (Practical Farmers of Iowa, 2019; Simopoulos, 2002, 2010). In our study, the average ratio omega 6 to omega 3 was 2.4:1. In addition, because of a high percentage of oleic acid found in the meat, we could stipulate that consumer eating this Criollo range-fed meat should have an increased perception of juiciness, and experience satisfying flavors. Our results showed that the meat produced by the Criollo cattle was also healthy for human consumption.

These results on the grazing behavior, diet selection and meat characteristics of Criollo cattle highlight the potential for raising certain heritage livestock breeds on rangelands for conservation purposes.

## **EXAMINING FORAGE USE BY HORSES, CATTLE, AND ELK ON THE HEBER WILD HORSE TERRITORY**

By: Andrew Antaya

Supervisor: Dr. George Ruyle

The University of Arizona has been monitoring rangeland use by cattle, free-roaming horses, and elk on the Heber Wild Horse Territory since 2017. The combination of all three grazing

species presents unique management challenges for rangeland managers. Managing for acceptable levels of forage utilization can be difficult when horses and elk are present in addition to cattle, as the number of horses and elk are unpredictable, and their presence can vary across the season. This poses a challenge for rangeland managers when planning stocking rates. Free-roaming horses and elk can contribute to forage utilization, but their contribution maybe unknown or highly variable for a given area.

The University of Arizona has been studying how each species contributes to forage utilization, and how site use by each grazing species can vary across years. Results indicate that site use by each species is highly variable between sites, and between years. Where free-roaming horses are present in addition to cattle, they tend to have an additive effect on forage utilization. Elk tend to have a compensatory effect, and tend to use sites only when cattle are not present.

If free-roaming horses are present at a site, we recommend for rangeland managers to anticipate the effect free-roaming horses may have on forage utilization and consider their effect on forage utilization when planning stocking rates for cattle. Conversely, elk seem to contribute little to forage utilization when cattle are present and are likely to only be a major contributor to forage utilization if cattle are not present during the grazing season.

## New Range and Livestock University of Arizona Cooperative Extension Publications

### *Ranch Scale Drought Monitoring Tools*

Summary: Drought can impact ranching operations in numerous ways from directly reducing seasonally available water and forage to increasing wildfire risk and causing long-term impacts to rangelands. Monitoring weather and climate across a ranch can be a useful management tool when coupled with a detailed drought mitigation plan to anticipate impacts and trigger adaptive management decisions such as changing your grazing rotation schedule or in extreme circumstances, culling decisions (Tolleson 2016). Assessing drought conditions in the southwest U.S. is challenging because there are few long-term climate monitoring stations, especially in rural and remote areas, and monsoon rains can be very localized.

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1995-2022.pdf>

### *Monitoring Drought in Arizona*

Summary: Drought is a normal part of climate variability. It is a slow-moving phenomenon moving across space and time which is often difficult to define or identify. The definition of drought is often related to how drought affects someone or something.

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1875-2021.pdf>

### *Rangeland Plant Life Forms*

Summary: Allen et al. (2011) defined rangelands as: Arid and semi-arid land on which the indigenous vegetation is predominantly grasses, grass-like plants, forbs, or shrubs that are grazed or have the potential to be grazed, and which is used as a natural ecosystem for the production of livestock and



wildlife. Rangelands may include natural grasslands, savannas, shrub lands, many deserts, steppes, tundras, alpine communities, and marshes.

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1958-2021.pdf>

#### *Using Repeat Photography as a Tool to Monitor Rangelands*

Summary: In many situations land managers have recollections or anecdotes about an area such as, “This pasture used to produce more grass” but do not have data to backup these statements. Repeat photography is a simple and relatively quick way to monitor rangelands.

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1946-2021.pdf>

#### *Novel Approaches to Ecological Restoration in Semi-arid and Arid Habitats*

Summary: As climate change, excessive land use and dominance by weedy species continue to degrade natural systems at an accelerating rate, management approaches, such as ecological restoration, become more critical for mitigating habitat destruction.

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1934-2021%20.pdf>

#### *Knowing What is Normal for Your Horse*

Summary: Early recognition of an illness or problem with your horse is easier to catch if you are familiar with what is normal for your horse. If your horse is usually a voracious eater and suddenly shows less interest in their feed, this can be a first sign that something isn't right. Many changes in health status can be identified simply by observing your horse in his or her environment. Vital signs can be evaluated to provide indications of the type of illness or health challenges your horse may be experiencing. This article presents methods to help you make observations of your horse's behavior and determine what is normal or abnormal and how to take and evaluate vital signs.

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/AZ1986-2022.pdf>

#### *Cow Body Condition Score to Manage Your Beef Herd*

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1959-2021.pdf>

#### *Injection Site Management Tips*

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1958-2021.pdf>

#### *The How and Why of Calf Castration*

Summary: An important management decision for ranchers to keep their cattle healthy and productive is castration. This video shows the how and why of calf castration, including equipment needed, anatomy of a testicle, and proper methods to decrease calf morbidity and mortality. **Note: Viewer Discretion is Advised.**

<https://youtu.be/ZCsuTQrxds>

#### *Backyard Chickens and Ectoparasites: Introduction and Management*

Summary: Keeping backyard chickens is an important socio-cultural activity for many households, especially in rural and fringe communities. There has been an increasing interest in this activity in urban areas in recent times (Fig. 1), resulting in a rise in sales of fertilized hatching eggs, young birds and

backyard coops from local and online sellers. While keeping chickens may sound easy, it has also led to a surge in reports of ectoparasite and other pest issues related to keeping chickens that novice backyard chicken keepers have not anticipated.

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1878-2021.pdf>

### **Recent Extension BOLO's**

*Poultry Disease: Avian Influenza*

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1989-2022.pdf>

*Horse Disease: Strangles*

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1988-2022.pdf>

*Horse Disease: West Nile Virus*

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1985-2022.pdf>

*Horse Disease: Equine Infectious Anemia*

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1987-2022.pdf>

# UPCOMING EVENTS

## Rangeland Monitoring 101 Workshop



THE UNIVERSITY OF ARIZONA  
Cooperative Extension

**Save the Date!**

**Thursday, May 26, 2022**

Deep Well Ranch, near Prescott, AZ



**Public Land Management Agency Professionals and Ranchers are highly encouraged to attend this workshop.**

Watch your e-mail for more details and a complete agenda, coming soon!

**Topics to be covered:**

- Goals of Monitoring/Key Area Concept
- Ecological Site Descriptions (ESDs)
- Terrestrial Ecological Unit Inventory (TEUI)
- Production/Utilization
- Trend Monitoring
- Drought Planning

The University of Arizona is an equal opportunity provider. Learn more at [extension.arizona.edu/legal/declines](http://extension.arizona.edu/legal/declines)

# UPCOMING EVENTS

**SAVE THE DATE!**

**August 3-5 2022**

**AZ SRM 2022 summer meeting at V Bar V Ranch (Mahan Park)**

Join us for: camping, tours and presentations, panel discussions, membership meeting, auction, NRCWAY BBQ and more!

July 19, 20, and 21  
2022

**28th Annual  
Southwestern  
Noxious, Invasive  
Plant Short  
Course**

**San Juan College  
Farmington, NM**

More details will be coming soon. You can contact Dr. Larry Howery for more information. [lhowery@ag.arizona.edu](mailto:lhowery@ag.arizona.edu)



Cooperative Extension  
The University of Arizona  
450 S. Haskell Avenue, Ste A  
Willcox, AZ 85643-2790

OR CURRENT RESIDENT

## University of Arizona - Range and Livestock Contacts:

### Campus Based:

**Mike Crimmins** – Associate Specialist & Associate Professor, Climate Science: [crimmins@email.arizona.edu](mailto:crimmins@email.arizona.edu)

**Elise Gornish** – Assistant Specialist, Restoration Ecology: [egornish@email.arizona.edu](mailto:egornish@email.arizona.edu)

**Larry Howery** – Noxious Weeds/Range Management Specialist & Professor: [lhowery@cals.arizona.edu](mailto:lhowery@cals.arizona.edu)

**George Ruyle** – Range Management Specialist & Professor: [gruyle@cals.arizona.edu](mailto:gruyle@cals.arizona.edu)

**Russ Tronstad** – Agriculture-Resource Economics Specialist [tronstad@cals.arizona.edu](mailto:tronstad@cals.arizona.edu)

### County Based:

**Andrew Brischke** – Area Assistant Agent, Agriculture & Natural Resources Mohave & Coconino Counties: [brischke@cals.arizona.edu](mailto:brischke@cals.arizona.edu)

**Nate Brawley** – Assistant in Extension-Animal Production Systems Graham & Greenlee Counties: [nqbrawley@email.arizona.edu](mailto:nqbrawley@email.arizona.edu)

**Ashley Hall** – Area Assistant Agent, Agriculture & Natural Resources – Gila & Pinal Counties: [AshleyS3@email.arizona.edu](mailto:AshleyS3@email.arizona.edu)

**Kim McReynolds** – Greenlee County Extension Director & Area Agent, Natural Resources

Cochise, Graham & Greenlee & Counties: [kimm@cals.arizona.edu](mailto:kimm@cals.arizona.edu)

**Anita Thompson** – Area Assistant Agent, Livestock & Range – Apache, Navajo, & Northern Greenlee Counties:

[anitathompson@arizona.edu](mailto:anitathompson@arizona.edu)

**Ashley Wright** – Area Assistant Agent, Livestock Cochise, Pima & Santa Cruz Counties: [awright134@email.arizona.edu](mailto:awright134@email.arizona.edu)