

THE ROUNDUP

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION
LIVESTOCK, RANGE, AND NATURAL RESOURCES NEWSLETTER
KERN, TULARE, AND KINGS COUNTIES



Greetings!

I hope this newsletter finds everyone well. As I am writing this, it is the first day of Spring, and the weather is threatening to rain, but unfortunately, it is doubtful that it will follow through on that threat, at least, down here in Bakersfield. Hopefully the skies are darker elsewhere. Luckily we had some good rains earlier this month, and hopefully they were enough to pull everyone through until next year.

I am starting a new project this spring that addresses issues associated with drought. The project focuses on drought assessment in Kern County and will provide supplemental information to the Farm Services Agency as they make their decisions concerning percent forage loss and drought insurance payments. To do this, I will be setting up plots where I can clip the grass and forbs to figure out how many pounds per acre grew, and then I will compare this number to the average production for the area to determine percent loss in drought years. Also, as I collect this data year after year, I will be able to develop an average production for each site. In my project, I have split Kern County into six sections. I will have three sampling sites within each section to represent the production in each. Similar projects are already conducted in Tulare and Fresno/Kings, and I will participate in the sampling for those Counties each year. If anyone has any questions about this project or about the sampling done in other Counties, please feel free to contact me via phone or email.

In my last newsletter, I give a quick overview of some of the resources available on my webpage at, <http://cekern.ucdavis.edu/livestock>. Since then I have added another section to my webpage. The new section is called "Announcements" and can be found on my main webpage. In this section I post announcements about upcoming training opportunities, field days, workshops, and more! Anything I find that looks like it may be of interest to any of you, I post there. Check it out when you get a chance! Events will be taken down once they have taken place and new ones will be added.

Until next time...

Julie

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RESEARCH UPDATE

GRAZING, ANNUAL GRASSES, AND DESERT VERTEBRATES

This summary of recent research is based on the following scientifically reviewed journal article:
D. Germano, Rathburn G.B., and Saslaw L.R. 2011. Effects of Grazing and Invasive Grasses on Desert Vertebrates in California. *The Journal of Wildlife Management*. 76(4):670-682

As many of you are probably aware, grazing, by any domestic livestock animal, can be a controversial issue. The livestock industry has been put on the defensive again and again over the last few decades due to the actions and beliefs of some environmental activist groups. So, whenever sound scientific data becomes available that demonstrates the beneficial aspects of grazing, that data is of value to the livestock industry. In this case, a recent study published by a local biology professor at CSUB, demonstrates how livestock grazing can be beneficial to native, desert vertebrate species.

The study was conducted within the Lokern Natural Area of Kern County, west of Buttonwillow over the course of 10 years, from 1997 to 2006. This is a relatively long time-span for a study. The minimum amount of time considered to be sufficient to produce scientifically viable results for this type of study is two years. As a result most studies range in length from 2 – 5 years, and rarely longer. However, in reality, it takes at least five years and sampling through a host of weather conditions, from severe drought to a really high precipitation year, to gain a good understanding of the plant-animal dynamics in a community. The longer time frame of this study makes it unique and the data and corresponding analyses and conclusions highly valuable.



The goal of the study was to monitor the population of 8 separate species including 4 federally listed species, and the effect grazing vs. non-grazing had on their abundance. The species included: blunt-nosed leopard lizards, giant kangaroo rats, short-nosed kangaroo rats, San Joaquin antelope squirrels, western whiptail lizards, side-blotched lizards, San Joaquin pocket mice, and Heerman's kangaroo rats. The hypothesis was that grazing would benefit the native desert species by creating habitat conditions that more closely resembled their habitat before annual grasses were introduced and spread throughout California. Prior to invasion by annual, Mediterranean grasses, it is hypothesized that the desert areas of the landscape were dominated by salt-bush scrub, with wide, open interspaces between shrubs.

Cows were brought in annually, except for very low rainfall years, and grazed the study plots until 750 lbs/acre of residual dry matter (RDM) remained. The goal of the study was to reach the RDM goal and have cows removed by April 1 of each year. Population counts of each species were achieved through a combination of visual counts and trapping. What Germano et al, found was that grazing did not negatively affect the abundance of any spe-

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cies studied, in fact, little difference was found between grazed and ungrazed plots. In one case, the Heerman's kangaroo rat population was more abundant on ungrazed plots, however, this was attributed to the re-establishment of salt bush in the control plots, and not the lack of grazing.

After considering the data, Germano et al, decided to modify their statistical test slightly, to reduce the possibility of falsely concluding that there was no difference between grazed and ungrazed plots. When they did this, their results showed, quite dramatically in some instances, that the native desert species were more abundant in the grazed plots than the un-grazed plots. The findings of this study demonstrate just one example of how grazing can be a beneficial rangeland management practice, by reducing annual grass cover on rangelands. Separate research trials have also demonstrated that using grazing to reduce the cover of annual grasses on California rangelands can be beneficial to native species, some of which are listed at the state or federal level as threatened or endangered.



INTRODUCING THE CALIFORNIA RANCH STEWARDSHIP PROJECT

Researchers at UC Davis are initiating a new study and they want to talk to you! The California Ranch Stewardship Project seeks to gather input from ranchers across California on management strategies that work and those that don't. To do this, researchers will conduct in person interviews and, later, follow up with on the ground measurements designed to measure the outcomes of range management practices. Specifically the project seeks to:

- Improve the connections between research, policy, and how decisions get made on the ground
- Link decision making to agricultural and conservation-based outcomes
- Connect rancher knowledge and research to develop practical strategies to meet many goals
- Compile the knowledge and expertise of experienced ranchers and rangeland managers

As a part of her post-doctoral research, Dr. Leslie Roche is heading the project and will be conducting interviews beginning this spring and continuing into winter. She hopes to be in the Southern San Joaquin Valley sometime in the fall. Interviews are expected to take 2-4 hours and focus on questions regarding enterprise goals, management strategies, and general operation characteristics. Once the interviews are completed, follow-up field surveys will begin with interested participants in 2014.

If anyone is interested in participating or would just like more information the webpage for the study is: <http://rangelandwatersheds.ucdavis.edu/main/CRSP.html>. You can also call or email me. Phone: 661-868-6219 Email: jafinzel@ucanr.edu

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HAIRWHORLS PREDICT BREEDING SOUNDNESS AND TEMPERAMENT

courtesy of Ralph Phillips and Theresa Becchetti

How many people sit down and think about the placement and shape of hairwhorls on cattle? And how many people do you think would try to make a connection between the whorls and temperament? What about fertility? Well believe it or not, someone has thought about these things, and more than that – has actually found a relationship between them. Dr. Temple Grandin, Associate Professor at Colorado State University has spent her career investigating cattle behavior and low stress handling techniques. She is known worldwide for her work and has been featured on 20/20, 48 hours, and Larry King Live, as well as in People, Time, US News, World Report and Forbes. She has been a supporter of properly designing facilities to easily and safely move cattle, reducing injury to animals and handlers.

In the past few years she has expanded her research program to look for predictors of temperament. Starting with a simple score card, she rated how cattle stood in the squeeze shoot and found



that if animals were either very calm or very agitated, they tended to display the same temperament each time they were processed, allowing producers to identify flighty animals and cull them. Then she started to look at physical characteristics of cattle. Dr. Grandin found that bone density could be a predictor of how flighty an animal is. Cattle with slender foreleg bones tended to be more flighty and ran out of the squeeze chute faster than cattle with thicker foreleg bones. In fact, the foreleg bone was 9% wider in the calmer animals. It is important to note that no Brahman cattle were part of this study however.

Next came the whorl placement. 1500 feedlot cattle, English, European, and some Brahman crosses, were examined for how agitated they were in the squeeze chute and hairwhorl placement, or lack of, was noted. Dr. Grandin found that cattle with spiral hairwhorls located below their eyes tended to be calmer in the chute than cattle with whorls above their eyes, or even calmer than cattle without whorls. Dr. Grandin's group next moved this work into the auction ring. Again, cattle with hairwhorls above the eyes were flightier than cattle with hairwhorls below the eyes. There were no purebred Brahmans in either study, and keep in mind that purebred Brahmans are one breed that do not have hairwhorls.

It turns out that the placement is not the only interesting thing about hairwhorls. The shape of the whorl has been related to breeding soundness of bulls. Angus bulls were separated into two groups based on either a circular whorl, or a crooked line whorl (see diagrams). It turned out that the group of bulls with a circular pattern were more fertile than

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ASK THE ADVISOR

Is fence-line weaning really less stressful than traditional, total separation, weaning?

Recently, I received a call from a rancher who had observed that calves actually seemed more distressed with fence-line weaning than with traditional total separation. He explained that he had observed that all the calves might be calm and grazing or resting, and then one would start bawling for his momma. That one calf bawling would start all the calves bawling and calling for their moms. I think we all have seen something like this happen. It only takes one bad apple to ruin the whole bunch. As a result, the cows and calves would spend time pacing the fence trying to pair up again and this cycle repeated itself throughout the weaning process. When I heard this story, I agreed, that the repetitive repairing ritual sounded more stressful than the more traditional approach of total separation. So I contacted the experts, specifically, Dr. Ed Price, who actually conducted the research on fence line weaning. His results were reported in one of Ralph's newsletters back in 2002. I have included them below. One of the points that was stressed to me, was that the calves should be prevented from suckling through the fence.

- Calves totally separated from their dams showed a number of signs of distress for about 3 days post-weaning, whether on pasture or in dry lot. These signs included excessive vocalizations, pacing fence lines, and a reduction in time spent grazing and lying down
- Calves that had fence line contact showed relatively few behavioral signs of distress even in the first 48 hours following weaning. In the first 3 – 6 days following weaning, the cows and calves in the fence line weaned group would spend a significant amount of time along the fence line that separated them and then make occasional forays out into their respective adjacent pastures, usually as groups. By the end of the first week, the calves and cows in this treatment were largely living independently. Time spent grazing by the calves in the fence line weaned group was similar to that of the calves in the non-weaned control group from day one. This was reflected in the fact that weight gains of the fence line weaned calves did not take the dip that was seen in the three treatments where the cows and calves were totally separated. Eventually, the cumulative weight gains of the calves in the non-weaned control treatment exceeded that of the fence line calves. However, after 10 weeks the cumulative weight gains of the fence line calves were still greater than those of the three groups that were totally separated at weaning. At 10 weeks post-weaning, the weight gains of the fence line weaned calves were intermediate between the non-weaned control group and the three groups that had been totally separated at weaning.
- Dr. Price found that the fence line separating the calves and cows in this treatment did not need to be excessively fortified. In five days of post-weaning observation, they did not see any animal making a concerted effort to jump the fence or go through it. The fence they used was woven-wire fencing with mesh small enough to prevent the calves from getting their heads through the openings.

The reason fence line weaned calves performed better than those from groups who were weaned the traditional way, through total separation, is because fence line weaning reduced

ASK THE ADVISOR, CONT...

the stress of weaning. So much so, that the fence line weaned group was still outperforming the traditionally weaned group 10 weeks after weaning. Research has shown, and continues to show that stress reduces performance and subsequent weight gain in cattle, so anything you can do through your management strategies to reduce stress in your cattle will pay off at the sale yard. One suggestion I received was to feed hay close to the fence line, so that the cows and calves don't have to go as far to eat and don't lose track of each other so easily.

Another method reported to reduce stress during weaning, as seen in the Western Cowman (Sep. 2011), is using nose-flaps. The nose flap prevents the calf from nursing, but allows the calf to graze and drink normally, and the cow and calf are able to remain together. Weaning with nose flaps is a two-step method as it requires working the calves twice, once to put in the nose flaps, and then again to take them out. However, the results show that this method further reduces the stress of weaning. Once separated, the cows and calves show essentially no signs of distress, and head straight to the feed bunk or the nearest patch of grass. The first few days after the nose flaps are put in, the cows may bawl a little as their bags are tight, because the calf can't nurse. This method of weaning can be done in as little as 3 – 5 days. Differences in weight gain were not reported in this study, but with reduced stress during weaning, weight gains should improve also.

How is stocking rate calculated?

Calculating stocking rate is actually pretty simple, though tracking all the units associated with each number can make it look complicated. When calculating stocking rate, we assume each cow weighs 1,000 lbs and is either dry or has a calf under 6 months. The mature cows in today's cow herd actually tend to weigh closer to 1,200 lbs. I'll show you how to account for that increase in weight in the calculations. One AUM is considered to be enough feed for one cow (as defined above) for one month. A cow, on average eats 2% of her body weight per day. This fluctuates throughout the year based on energy requirements and forage quality, but when calculating stocking rate, we use the average. We now have enough information for our first calculations, how many pounds of forage (dry matter basis) equals one AUM?

$1,000 \text{ lbs} \times 2\% \text{ (or } 0.02) = 20 \text{ lbs per day}$
month

$20 \text{ lbs/day} \times 30 \text{ days/month} = 600 \text{ lbs/}$

So, on average it takes 600 lbs of forage to feed a cow for one month, that is equal to one AUM. If you wanted to calculate an AUM and relate it to the increased average weight of 1,200 lb per cow, simply use 1,200 lbs in place of the 1,000 lbs in the first equation to determine forage intake needed on a daily basis.

Now that we know how much feed a cow needs, we need to know how much feed is available per acre to calculate stocking rate. The amount of vegetation production per acre varies widely based on soil type, slope aspect, precipitation, wind, temperature, and more.

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ASK THE ADVISOR, CONT...

For the purposes of this example, I will just pick a number...1,500 lbs per acre per growing season. There are two ways to figure out how much feed you have per acre, by clipping and weighing grass samples, or by looking up the NRCS soil survey vegetation production estimates. Clipping will be more precise, as it will reflect conditions on your ranch, versus average conditions overall for the soil type. To clip: pick at least five locations that represent low, medium and high production; clip a one foot square plot at each location; dry the grass; and weight it. Grass is usually weighed in grams. Next, multiply each weight by 100, and average them. That is the average pounds per acre of vegetation production for the area sampled. The method described above is specific for annual grasslands, alternative methods are needed to determine production in other vegetation types.

However, all of the forage produced is not available for the cows to consume. Some of the grass gets trampled while the rest is lost to other factors including foraging wildlife like ground squirrels, deer, wild pigs, or insects, to name a few. It is important to remember this when calculating stocking rate so that you don't come up short at the end of the year. A general rule of thumb is to take half and plan that half will be lost. From the remaining half that is available forage to the cattle, further reductions should be made to account for leaving behind an adequate of residual dry matter (RDM) to protect the soil. RDM is important because it protects the soil from the impacts of rain drops, which can hit the ground as fast as 20 mph, and creates a beneficial environment for seed germination. Basically, leaving some grass from this year, helps the grass grow next year. Consistently removing too much grass and leaving the soil exposed can reduce vegetation yields, meaning there's less feed available overall. UC scientists recommend leaving a minimum of 300 lbs/acre on dry (less than 15 inches of annual precipitation) rangelands. Actual recommendations vary considerably based on precipitation and canopy cover from trees. Now, we have enough information to finish our calculation of stocking rate.

$$1,500 \text{ lbs/acre} \div 2 = 750 \text{ lbs /acre}$$

$$750 \text{ lbs/acre} - 300 \text{ lbs acre RDM} = 450 \text{ lbs/acre}$$

$$450 \text{ lbs/acre} \times 100 \text{ acres} = 45,000 \text{ lbs available forage} \quad 45,000 \text{ lbs} \div 600 \text{ lbs} = 75 \text{ AUM}$$

So, on a 100 acre parcel that produces 1,500 lbs/acre on average, there is enough feed for 75 cows for one month. At this point, it is important to note that the calculations above present a simplified approach to calculating stocking rate. Actual calculations will vary from ranch to ranch based on management, current weather patterns, length of time in each pasture, and much more. To accommodate all of these variables, there are a number of ways to manipulate the numbers from this point and adjust stocking rate for six months vs. one, or adjust it for other livestock species, or to adjust it for higher utilization rates. The number of AUMs calculated above is defined by the inputs and will vary considerably based on the goals of each operation and the subsequent inputs into the equations.

WEED MANAGEMENT—FIDDLENECK

Description and Identification: Fiddleneck (*Amsinckia* sp.) is a species that is native to California and likes grassy, open spaces below 5,000 feet. It is somewhat common on rangelands and is characterized by its flowering head that resembles the neck of a fiddle. Young plants are rosettes until the flowering head develops and flowers are usually yellow or orange. The foliage and flowering head are covered with stiff bristly hairs that can be mildly painful to touch, especially when the plant has died and the vegetative material dries out. Plants reproduce only by seed, which usually germinates sometime in the fall through early spring. Seed is expected to remain in the soil for a few years.

Fiddleneck can be toxic to grazing animals, especially horses and cows. It is not considered highly palatable however, and poisonings usually occur as a result of feeding contaminated hay. Fiddleneck can be toxic in two ways. First the nutlet seeds contain an alkaloid that causes liver damage if consumed in significant quantities over a period of days to months. Second, the foliage of fiddleneck sometimes accumulates toxic levels of nitrates, especially during cold, cloudy weather or if the plant is drought-stressed.

Management: If treating a small enough area, fiddleneck can be mowed. The best timing for mowing is when the plant is flowering, but has not yet gone to seed. Mowing at this time can kill the plant, and also prevents it from reproducing. Grazing is not recommended as a control option. While fiddleneck can be highly competitive in agricultural fields, it does not compete as well in thick grass swards.

Chemical control of fiddleneck is accomplished through a variety of herbicides, which can be broad-leaf specific or not selective at all. Chemical management options are reviewed in the table below.

Name	License	Function	Rate of Application	Timing	Remarks
Aminopyralid <i>Milestone</i>	Yes	Growth regulator	3 - 5 oz product/acre	Postemergent, rosette stage	Broadleaf herbicide, safe on grasses; residual soil activity kills emerging seedlings; use caution near trees - see label
Glyphosate <i>Roundup</i>	No	Amino acid inhibitor	1 pt to 22 oz product/acre	Postemergent, rosette stage	Not selective, will kill or injure all plants it is applied to
Chlorsulfuron <i>Telar</i>	Yes	Amino acid inhibitor	0.25 to 0.5 oz product/acre	Preemergent/postemergent, rosette stage	Most effective on fiddleneck as preemergent; fairly long residual soil activity
Imazapyr <i>Habitat</i>	No	Amino acid inhibitor	3 - 4 pt product/acre	Postemergent	Non-selective herbicide; extended residual soil activity
Sulfosulfuron <i>Outrider</i>	Yes	Amino acid inhibitor	0.75 - 2 oz product/acre	Early postemergent	Mixed selectivity, fairly long residual soil activity
Hexazinone <i>Velpar</i>	Yes	Photosynthetic inhibitor	0.75 to 1 lb product/acre	Preemergent/early postemergent	Spot treatment only at higher application rates; extended residual soil activity; use caution near trees - see label

HAIRWHORLS, CONT...

the group with a crooked line. 83% of the circular whorl group passed the breeding soundness exam, while only 50% passed from the other group. This could add one more criteria in selecting replacement bulls.

If the article above sounds a little familiar, it should. Ralph printed this in 2003, and borrowed it from a fellow advisor serving San Joaquin and Stanislaus Counties, Theresa Becchetti. Since this study, further research has been done, as reviewed in the Western Cowman (Sep. 2011), into behavior and how docile cattle can pay off in the long run. Specifically, temperament can affect carcass quality, calf feedlot performance, pregnancy rates, disease resistance, potential injury to those handling the cattle, and owner frustration levels. To get right to the point, docile cattle perform favorably in all of the areas listed above and still do a good job of protecting their calves from predators.

If you are interested in rating the excitability or relative docility of your cattle, it's a pretty easy process. First, you'll want to establish a rating process, for example, on a scale of 1 to 3, rate the degree to which a cow fights when she's in the chute. Then, also rate her speed as she exits the chute, again a scale of 1 to 3 could be used. The number 1 would represent a calm, docile cow that calmly walks away from the chute. The number 3 would represent a highly anxious cow who fights the chute, reacts each time she is touched (for injection, worming, ear tagging, mouthing, etc.) and exits the chute with an equestrian style jump and then dashes away. A number 2 cow would fall somewhere between a 1 and 3 rating. Depending on the record-keeping methods each ranch uses while working cattle, adding this to the process may be as simple as adding a column or two to a spreadsheet or it could be more complex. As you consider how a rating system like this might work for your ranch, remember docile cattle can improve your bottom line, and spending just a few hours to implement a rating system could provide the extra advantage you need to make your operation even more successful and profitable.



The price of stamps keeps going up and budgets seem to keep shrinking. If anyone reading this newsletter received a print version, has an email address and would like to receive the newsletter electronically, please email Julie at jafinzel@ucanr.edu. Thanks for your help!



Fiddleneck



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