



"The mission of the CRLRC is to enhance the understanding of woody brush invasion, hydrology, livestock production, wildlife management and discover innovative solutions to improve economic development in rangeland bound communities."

CRLRC is a collaborative effort between animal, range and wildlife scientists, economists, land and wildlife agency personnel and ranchers.



Southwest Grazing Land Innovations

CORONA

Range and Livestock Research Center

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Ranch Update



Shad Cox, Ranch Manager

Another June has approached and has almost come to an end. I remember my parents talking about how time flies by so fast, but when I was younger Christmas and my birthday just took forever to come around. Now I understand what they meant and I think it must be getting faster each year because it seems like last year we started our Triennial Field day in 2005 and it is already time to host the 2008 event. From all the planning that is being done both here at the ranch and on campus it is turning into a grand event that will highlight lots of new research results available for you to pick and choose to hear more about. Please join us on July 18th for the Field Day, registration starts at 9:00 am, and as always there is no cost. Bring a neighbor along if you can.

The year started off on a positive note with the Legislature appropriating NMSU \$1,000,000 to fund the construction of the Southwest Center for Rangeland Sustainability. These monies, plus the \$525,000 in Capital outlay from last year's session will allow us to continue planning and break ground on a multi-phase project to improve accommodations here at the ranch that will house a modern and state-of-the-art classroom, laboratory and meeting facility that will give the ranch the ability to host first class Field Days, Half Day of College, short-courses and extension programs throughout the year, as well as, give us the capacity to increase our research programs and student educational opportunities.

This season began a two-year study measuring the effect of limited winter supplementation of cows and its effect on calf health and performance. This is a timely study considering the increased costs we all have incurred this year in supplement acquisition and delivery. We made it through our calving season and the calves looked pretty good at branding considering the limited, low quality forage that their dams have been grazing. We finally caught a lucky bit of spotty rain that helped us green up about the time we were syncing and AI'ing the cows and putting bulls out. It has burnt off pretty well by now and we have been eyeballing every cloud that floats by. This morning I heard that we will have a monsoonal flow that should start mid-July and into August. This is the one time of year that time stops moving so fast and creeps by a second at a time.

Our sheep research on the South African Meat Marino (SAMM) cross is in full swing and we are really looking forward to getting a weight on the cross lambs at the end of the month. The initial data from last year is limited, however shows promise that this cross can maintain our wool quality while increasing our lamb weights about 8% at marking and weaning.

We have had a lot of interest in our ongoing wildlife research, so I have made this issue of the newsletter a wildlife program highlight to help answer some of the questions that have been asked. There will be a number of posters presenting this information at the Field Day as well.

In closing, I hope to see you at the Field day on July 18th, but if you cannot make it, I will have all information available on our website by August, so please visit <http://corona.nmsu.edu> for that information, plus some new management information pages. As always, if your in the neighborhood and would like to stop by the ranch, we would love to show you around or discuss our research and management with you. I hope to see you in July and please feel free to contact me with any questions or comments you may have at (505)849-1015 or shadcox@nmsu.edu.

Shad

MULE DEER AND PRONGHORN ON CRLRC: WHAT AFFECTS HABITAT QUALITY AND POPULATION GROWTH?



Drs. Louis Bender and Jon Boren
Wildlife Biology/Mgt and Wildlife Extension

The mission of the CRLRC Big Game Program is to produce and maintain viable mule deer (*Odocoileus hemionus*) and pronghorn (*Antilocapra americana*) populations that economically contribute toward the support of the CRLRC and demonstrate viable management options for public and private land managers. One of the challenges facing CRLRC as well as much of New Mexico and the West is the decline in numbers of mule deer. Deer populations can be affected by forage quantity and quality, precipitation, population density, age structure, predation, and viability of individual cohorts. Most of these limitations are directly tied to habitat quality, especially food. For example, high density populations are less productive because they allow less nutrition per individual and thus lower individual condition and productivity while potentially increasing vulnerability to predation, disease, etc. Further, because deer and livestock are usually co-managed in the West, they affect the distribution and individual performance of each other, so understanding how livestock and deer use common ranges is necessary to develop informed habitat prescriptions for both. Identifying these habitat-condition-performance relationships is key to maximizing returns from populations using common rangelands.

On CRLRC, our research involves assessing the effects of habitat on condi-

tion, distribution, and performance of deer and pronghorn. We use measures of individual condition (total body fat, muscle reserves) and population performance (fawn/doe ratios, rates of population change) to determine positive and negative effects of habitat and other environmental influences such as precipitation and livestock distribution on individuals, and determine how individual condition translates into population performance. Preliminary data show significant declines in deer numbers on CRLRC over the past 4 years, driven by poor body condition of individuals which



causes very low fawn recruitment and low adult survival. Why are we seeing these patterns on CRLRC? To date, 2 key elements stand out. First, CRLRC is dominated by perennial grasslands and pinyon-juniper, with little deciduous shrub components. Because of this, deer are almost completely dependent on annual and perennial forbs, which in turn depend on abundant and properly timed precipitation for germination and

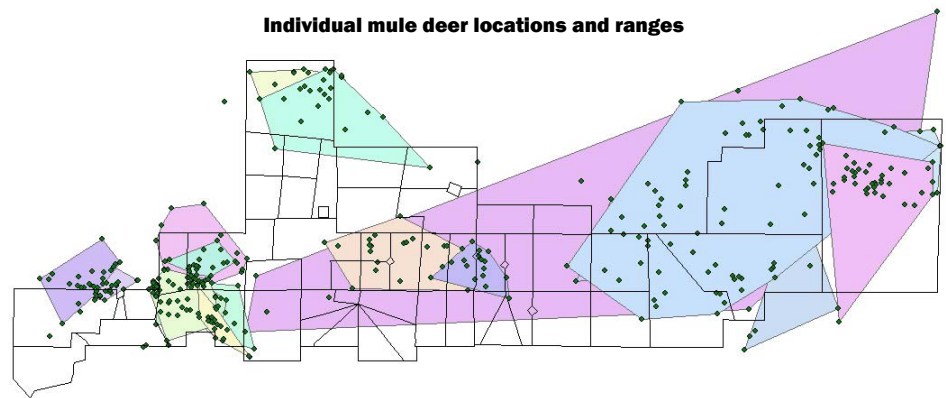
growth. During 2 of the 4 years of our work, CRLRC received essentially no precipitation from early winter through May or into June. Because deer depend on green feed in spring to meet the increased nutritional demands of late gestation as well as to recover body reserves lost over winter, lack of precipitation causes extreme nutritional stress. This stress is compounded by deer being in poor condition entering winter, and thus having few reserves at the beginning of spring. With little forb growth and few deciduous shrubs present, there is little nutrition available during the dry years for deer to invest in fetal growth or recover reserves lost overwinter. Because of this, few viable fawns are born, and if dry conditions carry on into June, deer eventually exhaust their remaining reserves and even adults die. Such a year occurred in winter and spring 2006, when adult survival dropped below 50%. Although similar challenges face pronghorn, they usually suffer less from early dry conditions because they do not require as high a diet quality as deer.

(Continued on back...)



MULE DEER AND PRONGHORN ON CRLRC (continued)

Are these issues unique to CRLRC? No. Research in northcentral New Mexico and in the San Andres Mountains (SAM) shows similar patterns. The difference appears to be the deciduous shrub component. In the SAM, does use mountain mahogany-oak shrublands extensively, and while extremely dry conditions lowers fawn recruitment, adult survival is not affected to the degree seen in CRLRC or in northcentral New Mexico. Why? The latter 2 areas mostly lack deciduous shrublands. Although not as nutritious as forbs, woody browse provides enough energy and other nutrients to allow adults to survive the hard times, and can add enough nutrition to allow better production of fawns during the good times. The critical component for production and survival of fawns in all areas is condition of their mother. While maternal



condition is strongly influenced by precipitation, preliminary data suggests that the vegetation composition of her home range has a greater impact. Thus, while normal or better precipitation is important, it is not the end all for deer management. In New Mexico, managers know

they can count on drought more often than not. Betting solely on grasses and forbs to support your deer is a losing bet in the face of periodic drought.

For more information contact your county extension office or Louis Bender directly at (505)646-1544 or email: lbender@nmsu.edu.



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Directions to CRLRC Headquarters: Turn east off of Hwy 54 (north edge of town) at the Field Day sign. Follow county road (thru underpass) for 8 miles. Road ends at gate.

Join us for: 2008 Triennial Field Day

Friday, July 18, 2008
CRLRC Headquarters

Complete presentations of last 3 years of research!

Researchers will share with you important results of completed studies. Topics include brush control, economics, grazing distribution, heifer development, reproduction, bull selection, deer population dynamics, livestock supplementation strategies, and more.

- 9:00 am — Free Registration
- 9:30 am — Welcome and Orientation
- 10:00 am — Small Group/Poster Discussions
- 12:00 pm — Serve Lunch
- 1:15 pm — Begin Tours

Pick and choose the research information you want to discuss and hear more about!

COME AND GO AS YOU PLEASE!

Over 200 people made the 2005 Triennial Field Day a great success with their attendance



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