

### VISION

*Combining knowledge gained from the past with tools of the future to improve ranch management, rangeland productivity, and ecosystem health.*

### MISSION

*The Chihuahuan Desert Rangeland Research Center (CDRRC) conducts innovative research in the management of livestock, wildlife and rangelands within arid landscapes that promotes sustainability and resiliency of ecosystem health for the benefit all New Mexicans.*

- CDRRC is home to many historic and long-term studies providing data on ecological health and livestock productivity.



- Location of a Long-Term Ecological Monitoring site since 1984, with study pastures featuring 27 years of continuous vegetation monitoring.



- 205 day adjusted weaning weight which is used in the Beef Improvement Federation guidelines was developed at the CDRRC.



The Chihuahuan Desert Rangeland Research Center (CDRRC) is a cardinal research station within the New Mexico Agriculture Experiment Station system. The CDRRC (or more colloquially the “College Ranch”) serves as a model of sustainable ranch and rangeland research, teaching, and extension, composed of a robust working group of scientific collaborators whose goals are to identify sustainable management protocols for managing New Mexico rangelands.

### ONGOING RESEARCH

Digital Ranching tools at the Chihuahuan Desert Rangeland Research Center are used to improve ranch operational efficiencies and rangeland resilience in the Southwest. Information from high throughput sensors, including multi-sensor platforms mounted on herds of Heritage Criollo, Angus, Brahman, and Brangus cattle, field rain gauges, cattle drinking troughs, and water storage tanks is being monitored over 300 sq. miles of desert rangelands using Long Range Wide Area Network communication technology.

### Value Added to New Mexico

- 110 documented archaeological sites located throughout the ranch
- Virtual fencing research site
- Rangeland environmental protection



*The College of Agricultural, Consumer, and Environmental Sciences is an engine for economic and community development in New Mexico, improving the lives of New Mexicans through academic, research and Extension programs.*

ACES Pillars for Economic and Community Development



## RECENT IMPACTS

- Monitoring critical resources for livestock production systems can place great time and economic constraints on producers who often need to drive many miles every day to check on water storage, drinkers, forage, and livestock. With the ever-increasing cost of monitoring extensive rangelands in the Southwest, the development and implementation of tools that allow remote surveillance of livestock and ranch resources are the primary focus of research being conducted at the Chihuahuan Desert Rangeland Research Center (CDRRC).
- The ability to fence livestock virtually is gaining interest with ranchers and land managers throughout the Southwest. In 2022, the black fire destroyed perimeter fencing in several grazing allotments of the Gila National Forest, making productive rangeland unusable for livestock. Virtual fence research at the CDRRC facilitated collaborations with NMSU, the USFS, and ranchers to implement virtual fencing over 40,000 acres of impacted rangeland. This study is enabling ranchers to graze more than 200 head of cattle, serving as an example for other producers in NM and the southwest with an interest in implementing emerging technologies to address natural disasters, climate change, and economic instability.

## COMMUNITY OUTREACH

The Center is focusing on providing connectivity to ranchers to more effectively implement sensor-driven monitoring tools and solutions. NM ranchers have the potential to make more efficient management decisions to sustain animal health and forage resources in extensive, increasingly arid rangelands. Real-time analysis of shifts in animal activity and grazing patterns associated with declining forages, faulty water supply, parturition, health, or predation can be used to deploy warning systems that would eventually allow ranchers to intervene on daily to weekly time scales.

### Chihuahuan Desert Rangeland Research Center

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