



CEHMM

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Candidate Conservation Agreement and Candidate Conservation Agreement with Assurances for the Lesser Prairie-Chicken and Dunes Sagebrush Lizard

Monthly Report
September 2019



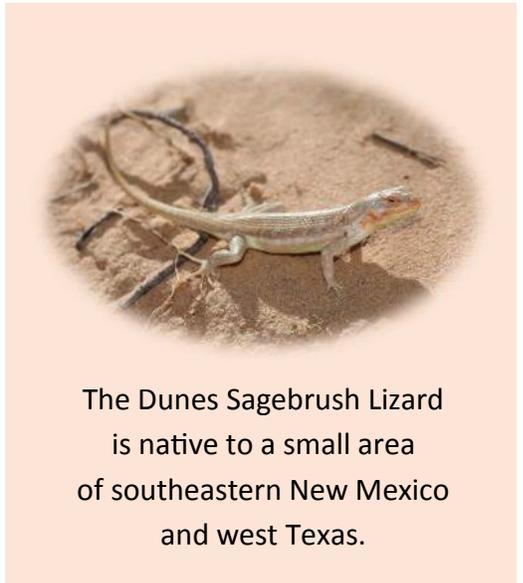
Before and After Photos of a Dead-Standing Mesquite (DSM) Removal Project
Once the mesquite is dead, the skeletal remains of the plant must be eradicated to fully benefit the Lesser Prairie-Chicken (LPC). Predators often perch in the mesquite.

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Candidate Conservation Agreements (CCAs) allow the U.S. Fish and Wildlife Service (FWS), the Bureau of Land Management (BLM), and the Center of Excellence (CEHMM) to work in cooperation and in consultation with private landowners and industry to support conservation measures for the Lesser Prairie-Chicken (LPC) (*Tympanuchus pallidicinctus*) and the Dunes Sagebrush Lizard (DSL) (*Sceloporus arenicolus*). Both species were warranted for listing under the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531, et seq.). CCAs:



The Dunes Sagebrush Lizard is native to a small area of southeastern New Mexico and west Texas.

- Develop, coordinate, and implement conservation actions to reduce and/or eliminate known threats to the LPC and the DSL in New Mexico on federal, state, and private surface and minerals;
- Support ongoing efforts to re-establish and to maintain viable populations of both species in currently occupied and suitable habitats;
- Encourage development and protection of suitable LPC and DSL habitats by giving incentives to Participating Cooperators to implement specific conservation measures.

Under the CCA, federal lessees, operators, or permittees, who join by voluntarily signing a Certificate of Participation (CP), receive a high degree of certainty that additional restrictions would not be placed on their otherwise legal activities if either species is listed. The companion



The Lesser Prairie-Chicken is native to parts of Colorado, Kansas, New Mexico, Oklahoma, and Texas.

Candidate Conservation Agreement with Assurances (CCAA) provides incentives for voluntary conservation of at-risk species on non-federal lands. By signing a Certificate of Inclusion (CI) under the CCAA, the lessee, owner, or permittee voluntarily commits to implement

specific conservation measures for the species on non-federal lands. Under the CCAA, if either species is listed, private landowners receive assurances that additional restrictions would not be placed on their otherwise legal activities. Without regulatory assurances, landowners may be unwilling to initiate conservation measures for these species. In both cases, signing the CCA or CCAA is voluntary.

CEHMM is the federal permit holder for these agreements and is responsible for implementing, monitoring, and reporting on projects completed with CCA/CCAA funds (Figure 1). CEHMM is a 501(c)(3) not-for-profit corporation based in Carlsbad, New Mexico. CEHMM's participation allows for a federally approved, independently audited financial management system to provide for fund management and administration.

The following monthly report details projects funded and completed with CCA/CCAA funds. The report also details the daily implementation of the agreements including activities such as moving wells out of DSL habitat. For more details on the CCA programs, visit our website at www.cehmm.org.

Benefits of Candidate Conservation Agreement Programs

⇒ Voluntary

⇒ Provides on-the-ground conservation

⇒ Landscape based approach



Photo courtesy Grant Beauprez

⇒ Allows landowners and industry to continue work on the ground

⇒ Aims to prevent listing

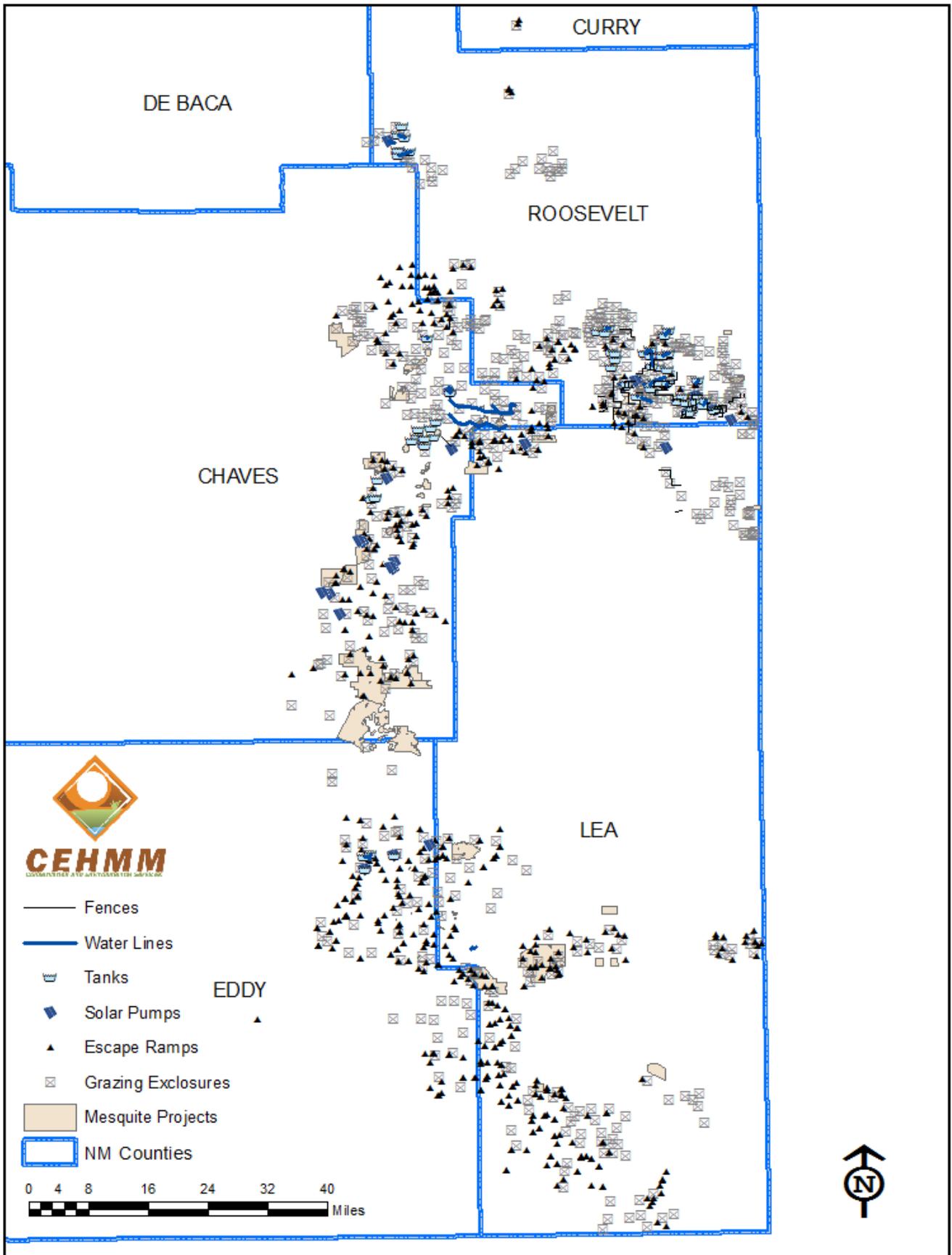


Figure 1. Map of all Completed Projects throughout Life of CCA/CCA Program.

Conservation Activities and Monitoring

CCA/CCAA – District 1 – South of Hwy 380

- **Project Monitoring**

Photos of previously completed reclamation projects were taken on five enrolled properties (Figure 2). Approximately 54 acres of LPC habitat were reclaimed as a result of these efforts. Caliche had been removed from sixteen well pads and seven roads, and the areas were seeded with native vegetation.



Figure 2. Example of Big Bluestem (*Andropogon gerardii*) Standing Three to Four Feet Tall on a Reclaimed Road.

CCA/CCAA – District 2 – North of Hwy 380

CEHMM personnel completed vegetation monitoring for 2019.

CEHMM personnel started the dead-standing mesquite (DSM) removal on the BLM Areas of Critical Environmental Concern (ACEC).

CEHMM personnel repaired a wildlife water on the John Mohon Ranch.

CEHMM personnel are working on mesquite monitoring for the Mesquite Hand Treatment of Active Leaks #1 project that was completed in December 2018.

Conservation Activities and Monitoring

CCA/CCAA – District 1 and District 2 – Combined Activities

The project proposal votes from the August 2019 Ranking Team meeting were tallied. The Ranking Team is now determining the order of priority for the approved projects. Work on these projects will commence, in priority order, over the next three years. Once the order is determined, acceptance and/or rejection letters will be mailed to those who submitted the proposals.

CEHMM personnel are preparing for the Stakeholder Meeting scheduled for October 17, 2019 at the Milnesand Community Center.

Funded Projects Awaiting Completion

CCA/CCAA – District 1 – South of Hwy 380

K. James Wildlife Water Amendment—This project was funded in June 2018 for \$39,451.89. CEHMM will contract the installation of approximately 1.25 miles of water line and install a solar-powered submersible pump, a solar-powered booster pump, and a 200-300 gallon tire trough with a satellite water location (Figure 4). The Participating Cooperator will provide in-kind services consisting of plumbing the trough, removing a windmill, and providing a storage tank. These efforts will provide water for the LPC in times of drought and will allow grazing in an area that is underutilized due to remoteness from existing livestock water sources. By allowing this area to be utilized, livestock use in other areas will decrease, leaving more residual vegetation for LPC nesting and brood-rearing (Appendix A). CEHMM received the signed project agreement from the Participating Cooperator. The BLM has been contacted to proceed with the National Environmental Policy Act (NEPA) process. An onsite with BLM wildlife staff, archaeologists, range staff, and CEHMM was completed in November 2018 to determine a suitable route and to stake the line for archaeological clearance. BLM range staff are preparing NEPA documents. An archaeological (ARCH) survey was completed, and information was submitted to the BLM in order to complete the NEPA process. To determine the best access point, an onsite was completed in August with the contractor who will install the water line.

Funded Projects Awaiting Completion

CCA/CCAA – District 1 – South of Hwy 380

Pearce Water – This project was funded in August 2014 for \$200,000 to allow the Participating Cooperator to improve their grazing management strategy (Figure 4). The current strategy includes short durations of grazing followed by long periods of rest (Appendix A). A different pasture is getting at least 12 consecutive months of rest each year, and all others are rested for extended periods during the growing season. By implementing this type of management strategy, the LPC nesting and brood-rearing substrates are less susceptible to drought and are more productive due to long periods of rest. In order to continue these practices, a more productive water system was necessary. The Pearce water well was drilled to a depth of 380 feet into a water-bearing zone in a sandstone formation. A pump test indicated the well maintains a flow rate of one gallon per minute. Drilling mud was cleaned out of the well with no increase in the flow rate. CEHMM will set the pump in the well to pump into a storage tank provided by the Participating Cooperator. One bid was received to install a solar-powered pump and panels at a location where a windmill was removed (Figure 3). The solar panels and pump were installed. A meeting will be scheduled to determine the next steps in completing this project.



Figure 3. Solar Pump Installed Next to an Existing Storage Tank.

Smith Ranch Water – This project was funded in July 2016 for \$19,657.63. By introducing a new water source in this pasture, other pastures with suitable, and potentially suitable, LPC habitat will be relieved from grazing pressure by moving cattle into the pasture with the new water source (Figure 4). This will increase the productivity of vegetation the LPC relies on for nesting and brood rearing (Appendix A). CEHMM will develop a bid proposal for contractors. The NEPA process was completed in August 2017. The project has been put on hold pending further discussions with the Participating Cooperator. Mr. Smith has been contacted and a meeting will be scheduled to discuss the project.

Funded Projects Awaiting Completion

CCA/CCAA – District 2 – North of Hwy 380

Running N Mesquite #2 — This aerial treatment of 4,402 acres was approved and funded in 2018 for \$173,089.20 (Figure 5). A proposal to remove the dead, standing mesquite (DSM) will be presented in the future. To avoid nesting birds, a migratory bird survey will be conducted prior to the treatment. The majority of this enrolled acreage is in CHAT 1. In 2018, two LPC leks were observed on this ranch, with multiple leks present on surrounding enrolled acreage; therefore, this project can help improve habitat connectivity for the LPC (Appendix B). LPC surveys were completed in 2019. Vegetation and forage utilization monitoring will be conducted in 2019. The southern portion of this enrolled acreage also falls within the DSL polygon. DSLs were detected on this enrolled acreage in 2011, and other DSLs were detected on neighboring properties to the south in 2011 and 2013. Conditions were not right for treatment in 2018 or 2019 and will be reevaluated in 2020.

Weinheimer Interior Fence — This project was approved and funded in 2018 for \$110,486.94 to install approximately 7.5 miles of new, wildlife-friendly fence and to remove approximately 1.25 miles of old, dilapidated fence (Figure 5). Work commenced on this project on July 17, 2018. Two miles of fence remain to be completed. The ARCH survey was completed in July 2019 and sent to the BLM for the archeologist's approval. CEHMM is waiting to hear from them before proceeding. The Weinheimer ranch met the vegetation and forage utilization goals of the CCA/CCAA, but it approached the utilization limit. This was largely due to inadequate infrastructure throughout the ranch along with heavy mesquite encroachment, leading to overutilization of much of the ranch. Implementing this project will help to improve grazing distribution across the property, providing much-needed rest in critical areas (Appendix A). Although no LPCs were detected during lekking season, this property borders other enrolled properties with documented leks. With the close proximity of detected leks on neighboring properties to the northeast, east, and southeast, a high probability exists that LPCs occupy this enrolled acreage throughout different times of the year; therefore, this project can help to improve habitat connectivity for the LPC. With proper management, the completion of this project will improve LPC habitat on the property. LPC surveys were conducted in 2019. About half of this enrolled acreage is in CHAT 1 and the other half is in CHAT 3, with the northeast corner providing connectivity. Part of this ranch also falls within the DSL polygon.

Funded Projects Awaiting Completion

CCA/CCAA - District 2 - North of Hwy 380

Weinheimer Fence & Water — This project was approved and funded in 2018 for \$89,395.41 to complete the following: install 3.25 miles of new, wildlife-friendly interior fence; install two 20' fiberglass stock tanks with wildlife-friendly escape ramps; remove an old, inadequate windmill and replace it with a solar pump; and install a storage tank (Figure 5). The fence was completed on September 11, 2018. The windmill was removed, and the pipeline was installed. The tanks are scheduled for delivery. The Weinheimer ranch has met the vegetation and forage utilization goals of the CCA/CCAA, but it was approaching the utilization limit. This was largely due to inadequate infrastructure throughout the ranch as well as heavy mesquite encroachment, leading to overutilization of much of the ranch. Implementing this project will help to improve grazing distribution across the property, providing much-needed rest in critical areas. Although no LPCs were detected during lekking season, this property borders other enrolled properties with documented leks. With the close proximity of detected leks on neighboring properties to the northeast, east, and southeast, a high probability exists that LPCs occupy this enrolled acreage throughout different times of the year; therefore, this project can help to improve habitat connectivity for the LPC. Given proper management, the completion of this project will also improve LPC habitat for lekking, nesting and brood rearing (Appendix A). LPC surveys were conducted in 2019. About half of this enrolled acreage is in CHAT 1 and the other half is in CHAT 3, with the northeast corner providing connectivity. Part of this ranch also falls within the DSL polygon.

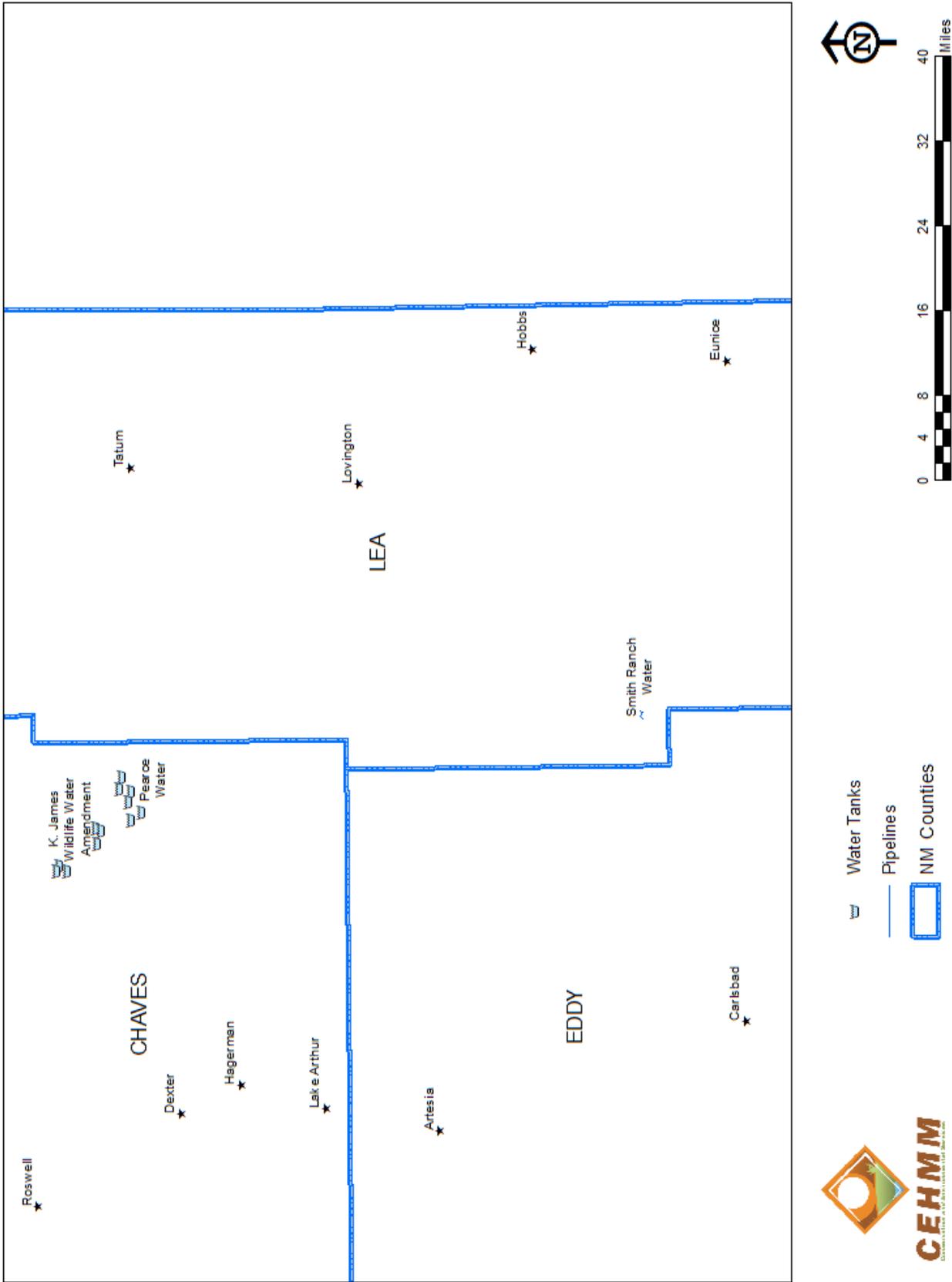


Figure 4. District 1 Funded Projects Awaiting Completion.

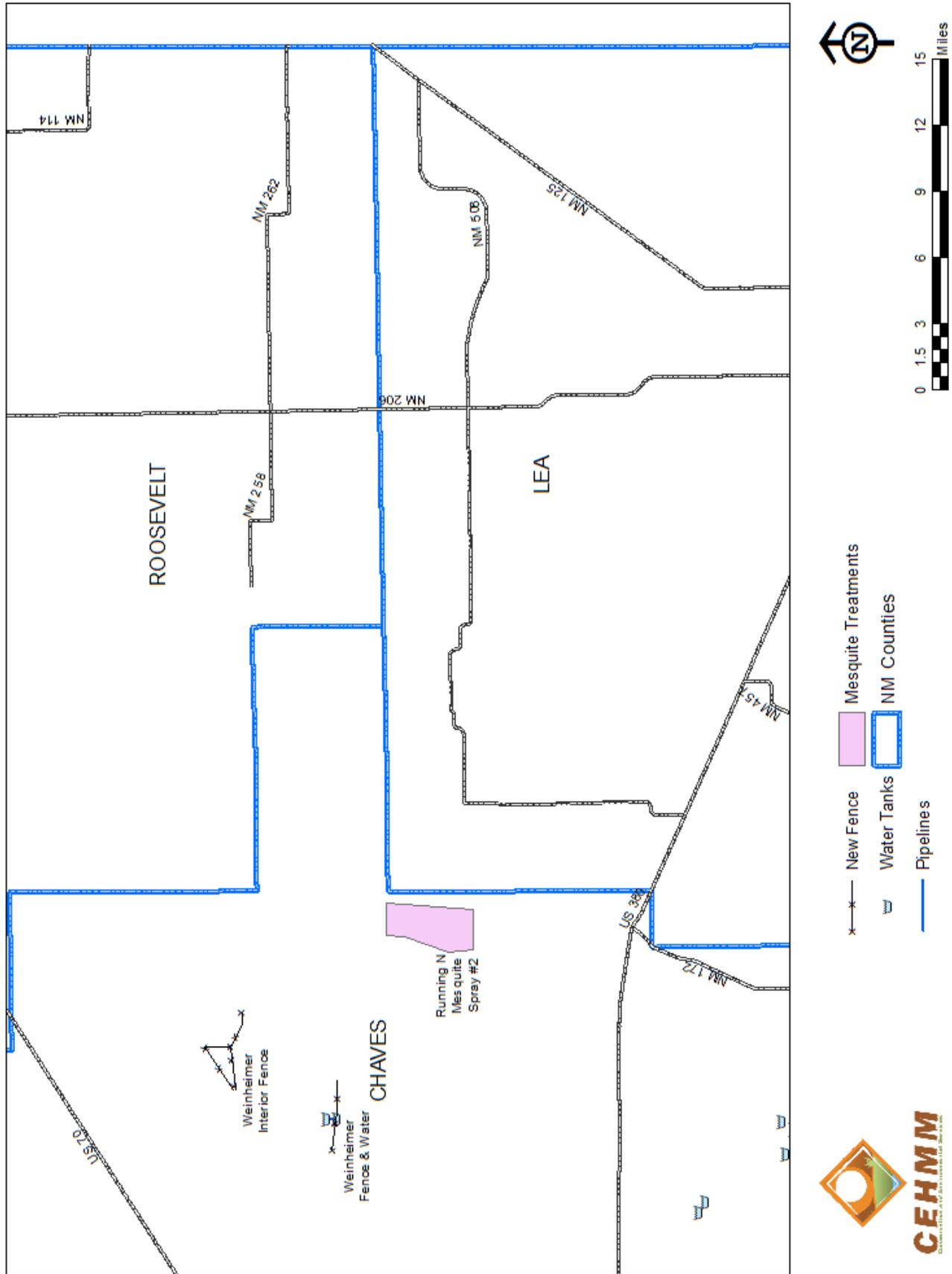


Figure 5. District 2 Funded Projects Awaiting Completion.

Education

The Audubon of New Mexico Education/Outreach Manager is initiating Audubon's plans for the CCA/CCAA funded project, “Engaging Community in Conservation Education.” They are developing a high school environmental education program to be delivered to local students within historic and current LPC and DSL habitats in New Mexico. This program will target the following New Mexico high schools: Dora, Floyd, Elida, Portales, and Carlsbad Early College High School. The intent is to engage at least one class in each school by the end of the contract period. Audubon has provided a project update including a draft curriculum, which was sent to the ranking team for review.

Operations Moved Out of DSL Habitat

Construction of well pads and roads for oil and gas development poses a serious threat to the DSL because of its dependence on a very specialized, dynamic habitat. Due to the severe loss of DSL habitat from development, enrollees have agreed to conservation measures including no surface occupancy within 30 meters of suitable or occupied DSL habitat. CEHMM attends onsite with enrolled companies to help properly site infrastructure in areas that are in near proximity to suitable or occupied habitat. During the onsite, CEHMM helps to determine habitat suitability and to ensure that the Participating Cooperators avoid the dunes by the required 30-meter buffer. If a disturbance is within the 30-meter buffer, then the Participating Cooperators must relocate the disturbance to occur outside of the buffer to comply with their agreements. The number of wells and rights of way (ROW) moved out of DSL habitat is illustrated in Table 1, and it shows the importance of everyday implementation of the CCA/CCAAs to the conservation of the species.

Table 1. Operations Moved Out of DSL Habitat.

Year	Federal Wells	State Wells	ROWs	Seismic Data Acquisition (Acres)
2009	0	0	0	2,900
2010	79	0	0	1,454
2011	83	0	15	0
2012	65	22	1	0
2013	73	3	7	0
2014	77	6	1	0
2015	36	37	68	0
2016	80	15	0	0
2017	5	0	0	0
2018	2	0	0	0
2019	3	0	0	0
Total	504	83	92	4,354

Reclamation/Restoration

In areas of loose, sandy soil, oil and gas well pads and roads are constructed from caliche, which is a layer of calcium carbonate that is precipitated below the soil surface through evaporation in arid environments. Caliche makes an ideal substrate for roads; it becomes almost impenetrable when compacted with heavy equipment. When companies construct these roads and well pads in LPC and DSL habitats, this impenetrable layer fragments the habitats. Reclamation of these wells and pads removes the caliche from the surface using heavy equipment. By removing the caliche pads and roads, fragmentation in LPC and DSL habitats is reduced or eliminated. Once the caliche is removed, reseeding with native vegetation occurs and speeds the rehabilitation of the disturbed areas. The table below details the reclamation treated to date through the CCA/CCAA agreements. CEHMM is currently in the process of calculating net conservation gain, which will compare acres restored or reclaimed to acres lost due to development.

Table 2. Total Treatments for Life of the CCA/CCAA Program.

Total Treated for Entire Project	
Roads and Pads Caliche Removal and Reseeding (Acres)	159.20
Mesquite (Acres)	79,297.00
Dead Standing Mesquite Eradication (Acres)	5,454.70
Yucca (Acres)	120.00

Well/ROW/Frac Pond Deductions

Industry Participating Cooperators are assessed fees for surface-disturbing activities, which CEHMM assesses on a monthly basis. New surface disturbances include, but are not limited to, wells, ROW, and frac ponds. The fees assessed are then deducted from the Participating Cooperator's CCA/CCAA Habitat Conservation Fund at the end of each month. Copies of the deductions are sent to Participating Cooperators for verification. If a Participating Cooperator has a positive Habitat Conservation Fund balance, then the fees are deducted from that Participating Cooperator's Habitat Conservation Fund. If the company does not have a positive Habitat Conservation Fund balance, they are issued an invoice for the amount of the remaining balance. The following table shows fees assessed for surface-disturbing activities. In September 2019, 42 wells were permitted, resulting in \$176,000.00 in habitat conservation fees (Table 3).

Table 3. Habitat Conservation Fees.

Wells Permitted in September 2019
42
Total Deductions for September 2019
\$176,000.00
Total Deductions for 2019
\$2,314,375.00
Total Deductions for Entire Project
\$24,221,456.96

Enrollment Numbers

**NMDGF acres are included in the rancher numbers*

TOTAL HABITAT ENROLLMENT		ACRES
Total LPC/DSL habitat acres enrolled by Industry		1,922,887
Total LPC/DSL habitat acres enrolled by Ranchers		1,862,987
Total LPC/DSL CCA habitat acres enrolled by Industry and Ranchers		1,349,890
Total LPC/DSL CCAA habitat acres enrolled by Industry and Ranchers		1,636,705
Total LPC/DSL CCAA habitat acres enrolled by the NMSLO		406,672
Total LPC/DSL CCA/CCAA habitat acres enrolled by Industry, Ranchers (and NMDGF), and NMSLO		2,959,438

DSL	ACRES	% ACRES ENROLLED
Total DSL habitat acres in NM*	868,618	
DSL habitat acres enrolled by Ranchers CCA/CCAA	583,422	67.2%
DSL habitat acres enrolled by Ranchers in BLM RMPA	522,712	60.2%
DSL habitat acres enrolled by Industry CCA/CCAA	426,546	49.1%
DSL habitat acres enrolled by Industry in the BLM RMPA	379,974	43.7%
DSL habitat acres enrolled by NMSLO	179,232	20.6%
Total DSL CCA/CCAA habitat acres enrolled by Industry, Ranchers (and NMDGF), and NMSLO	732,180	84.2%

LPC	ACRES	% ACRES ENROLLED
Total LPC habitat acres in estimated occupied range (EOR)	2,069,934	
LPC habitat acres enrolled by Industry in EOR	508,737	24.6%
LPC habitat acres enrolled by Ranchers in EOR	876,154	42.3%
LPC habitat acres enrolled by NMSLO in EOR	348,551	16.8%
Total LPC CCA/CCAA habitat acres in EOR enrolled by Industry, Ranchers (and NMDGF), and NMSLO	1,152,030	55.7%

*This acreage is based on the Texas A&M DSL polygon utilized by the BLM, which includes a one-mile buffer around the polygon.

Enrollment Numbers

**NMDGF acres are included in the rancher numbers*

EOR + 10	ACRES	% ACRES ENROLLED
Total LPC habitat acres in estimated occupied range + 10 mile buffer (EOR10)	6,874,894	
LPC habitat acres enrolled by Industry in EOR10	1,626,894	23.7%
LPC habitat acres enrolled by Ranchers in EOR10	1,643,608	23.9%
LPC habitat acres enrolled by NMSLO in the EOR10	406,672	5.9%
Total LPC CCA/CCAA habitat acres in EOR10 enrolled by Industry, Ranchers (and NMDGF), and NMSLO	2,554,416	37.2%

HISTORICAL	ACRES	% ACRES ENROLLED
Total LPC habitat acres in historic range	13,650,507	
LPC habitat acres enrolled by Industry in historic range	1,922,887	14.1%
LPC habitat acres enrolled by Ranchers in historic range	1,862,987	13.6%
Total LPC habitat acres enrolled by Industry in BLM RMPA	951,548	7.0%
Total LPC habitat acres enrolled by Ranchers in BLM RMPA	1,158,738	8.5%

CHAT 1	ACRES	% ACRES ENROLLED
Total acres in CHAT 1	783,740	
LPC habitat acres enrolled by Industry in CHAT 1	138,464	17.7%
LPC habitat acres enrolled by Ranchers in CHAT 1	345,425	44.2%
LPC habitat acres enrolled by NMSLO in CHAT 1	153,725	19.5%
Total LPC CCA/CCAA habitat acres in CHAT 1 enrolled by Industry, Ranchers (and NMDGF), and NMSLO	455,676	58.0%
Total LPC CCA/CCAA habitat acres in CHAT 1 enrolled by Industry and Ranchers (and NMDGF)	482,575	61.2%

Enrollment Numbers

**NMDGF acres are included in the rancher numbers*

CHAT 2	ACRES	% ACRES ENROLLED
Total acres in CHAT 2	703,799	
LPC habitat acres enrolled by Industry in CHAT 2	43,625	6.2%
LPC habitat acres enrolled by Ranchers in CHAT 2	69,779	9.9%
LPC habitat acres enrolled by NMSLO in CHAT 2	54,450	7.7%
Total LPC CCA/CCAA habitat acres in CHAT 2 enrolled by Industry, Ranchers (and NMDGF), and NMSLO	125,280	17.8%
Total LPC CCA/CCAA habitat acres in CHAT 2 enrolled by Industry and Ranchers (and NMDGF)	108,150	15.4%

CHAT 3	ACRES	% ACRES ENROLLED
Total acres in CHAT 3	3,713,608	
LPC habitat acres enrolled by Industry in CHAT 3	1,147,732	30.9%
LPC habitat acres enrolled by Ranchers in CHAT 3	1,070,180	28.8%
LPC habitat acres enrolled by NMSLO in CHAT 3	175,238	0.47%
Total LPC CCA/CCAA habitat acres in CHAT 3 enrolled by Industry, Ranchers (and NMDGF), and NMSLO	1,549,476	41.7%
Total LPC CCA/CCAA habitat acres in CHAT 3 enrolled by Industry and Ranchers (and NMDGF)	1,498,081	40.3%

CHAT 4	ACRES	% ACRES ENROLLED
Total acres in CHAT 4	1,494,093	
LPC habitat acres enrolled by Industry in CHAT 4	275,382	18.4%
LPC habitat acres enrolled by Ranchers in CHAT 4	133,730	9.0%
LPC habitat acres enrolled by NMSLO in CHAT 4	23,260	1.6%
Total LPC CCA/CCAA habitat acres in CHAT 4 enrolled by Industry, Ranchers (and NMDGF), and NMSLO	375,708	25.1%
Total LPC CCA/CCAA habitat acres in CHAT 4 enrolled by Industry and Ranchers (and NMDGF)	360,850	24.2%

Signature

If you have any questions, please call Whit Storey at (575) 885-3700 or Kyle Dillard at (575) 675-2324.

Signed: _____
Emily Wirth, Executive Director

Date: _____

Appendix A

Conservation Benefits

Grazing Management



CEHMM recognizes the mutual benefit between sustainable grazing and lesser prairie-chickens. Collaboration between enrollees and the efforts of the CCAVA via technical and financial assistance leads to improved grassland health.

The lesser prairie-chicken (LPC) occupies four ecoregions in the Great Plains. In eastern New Mexico and west Texas, this region is known as "Sand Shinnery Oak Prairie" (SSOP) and is dominated by shinnery oak, sand/big-bluestem, little bluestem, sand drop seed and sand sagebrush. Ranching is the most common use of this large expanse of land. Grazing as a conservation tool for the LPC is an essential management component as this endemic species has evolved with large bovines for centuries. SSOP is the southernmost extension of the LPC range; the warmest and driest ecoregion of the four ecoregions. Sustainable grazing practices have been identified by Center of Excellence (CEHMM) and US Fish and Wildlife Service (FWS) as a top priority to insure adequate habitat for all life stages of the LPC.



CCA/A



Benefits of Sustainable Grazing

- Improved rangeland for wildlife and ranching operations.
- Improved quality and quantity of forage.
- Heterogenic landscapes for all grassland species.
- Drought resiliency.

Conservation Benefits: Grazing Management

Range Conservationist Spotlight:

CEHMM District 2
Josh Ricklefs

Sustainable Grazing and the Lesser Prairie Chicken

"Grazing practices utilizing a rest/rotation pattern, paired with stocking rates that the land is capable of supporting, promote habitat for the lesser prairie-chicken, while also allowing ranchers to sustain and improve rangeland health. Sustainable grazing practices leave residual vegetation of sufficient height and density that the lesser prairie-chicken can utilize for nesting, brood-rearing, and concealment from potential threats. This also helps the rancher by acting as a drought contingency plan, as the rangeland will be in better condition when a drought event occurs. The vegetation will also be more resilient and will be able to respond better once drought conditions end. Through vegetation monitoring, CEHMM can analyze trends along with current rainfall data to assist ranchers in planning for these events. Improved and new infrastructure via projects through CCA funding also allows the rancher to implement sustainable grazing practices to the benefit of both the rancher and the lesser prairie-chicken."



The dunes sagebrush lizard, a species of concern, is a secondary beneficiary of sustainable grazing. Attention to the treatment of their very specialized habitat and ability to survey on private lands has increased survey numbers and knowledge in this species.

Photo courtesy of Mike Hill

Sustainable grazing practices are addressed in the Candidate Conservation Agreements and Agreements with Assurances (CCA/CCAA). The voluntary Certificate of Participation (CP) and Certificate of Inclusion (CI), which applies to enrolled ranches on federal, state and/or deeded lands, partially includes:

- ✓ Improving or maintaining conservation lands.
- ✓ Designing grazing plans to meet habitat specific goals for individual ranches that may include stocking rates, rotation patterns, grazing intensity and duration, and contingency plans for varying prolonged weather patterns including drought.
- ✓ Utilizing no more than 45% of current year's forage growth.
- ✓ Consultation with CEHMM prior to using herbicide treatments on shinnery oak due to impacts upon LPC and the dunes sagebrush lizard (DSL). Post-treatment grazing management is essential for success. Grazing by any livestock will be deferred during the growing season for at least the two consecutive years following treatment.



CEHMM works with enrollees on grazing plans, improving infrastructure and monitoring vegetation. CEHMM, with approval from the Candidate Conservation Ranking Team, offers assistance on such practices as brush management, water development, prescribed fire, fencing, and defragmentation through road and well pad reclamation.

CEHMM monitors vegetative components of LPC habitat on the enrolled livestock operations to determine habitat improvement, static levels, or decline in habitat by using standard protocol methods:

- ✓ Forage utilization cages.
- ✓ Determination of composition and cover of forbs, grasses and woody plants through established grazing monitoring methods.
- ✓ Establishing photo points to view trends.

To learn more about CCA/A assistance, contact your local CEHMM office:

District 1 – 575-885-3700

District 2 – 575-675-2324

Visit us at www.cehmm.org

Appendix B

Conservation Benefits

Mesquite Removal



Fragmentation and loss of habitat for the lesser prairie-chicken is considered a major cause for the decline in population of this grassland bird across their range.

Honey Mesquite (*Prosopis* spp.) is universally accepted as an invasive and highly competitive shrub that may readily encroach onto landscapes that did not historically support the species. This landscape has experienced intense disturbance or changes in natural ecological processes over a significant period of time. Through interspecific competition with other beneficial plant species, mesquite has increased in frequency, and subsequently led to a transition from grassland landscapes into shrub/grasslands which is less desirable for grassland birds, specifically lesser prairie-chickens (LPC). Research shows that LPC avoid areas with more than 1% mesquite canopy cover due to changes in vertical obstruction and conversion to shrub-dominated landscapes, which greatly limits desirable habitat for this species.

Mesquite outcompetes desirable grasses and forbs, thus reducing quality and quantity of nesting habitat for LPC. Removal or reduction of mesquite in lesser prairie-chicken habitat, followed with proper grazing management, can increase production and composition which will benefit grassland species.



Mesquite skeleton following a successful herbicide treatment.

CCA/A

Conservation Benefits: Mesquite Removal

LPC Biologist Highlight:

Blake Grisham, PhD, Texas Tech University

"Mesquite removal is most beneficial for lesser prairie-chickens in areas within 1–2 miles of existing, active leks. Contemporary evidence suggests mesquite encroachment in areas surrounding leks causes lesser prairie-chickens to constrain their space use to areas without mesquite. Also, and more importantly, mesquite dominated landscapes (>25% mesquite cover at any scale) are structurally different than grasslands, and research shows that lesser prairie-chickens select shrubs and grasses 15-25 inches tall for nesting and brood rearing activities. The benefits of mesquite removal for lesser prairie-chickens are maximized when the skeleton of treated plants are completely removed. Post-treatment care via managed grazing and prescribed fire is highly recommended to give beneficial grasses and forbs the competitive advantage over mesquite in treated areas over time. Beyond 1–2 miles of existing, active leks, targeting areas between active leks in sandy soils that contain mesquite is an excellent strategy to promote connectivity between active lek clusters across the sand shinnery oak ecoregion in New Mexico and Texas."



Conservation Benefits:

- ✓ Improved grasslands habitat for lesser prairie-chickens.
- ✓ Increase grasslands resiliency for drought conditions.
- ✓ Removes vertical obstruction.

CCA/A



CEHMM's Approach to Mesquite Control

- Aerial herbicide
- Hand application of herbicide

Aerial application is the least expensive method to control mesquite because large areas with high densities can be treated. The ability to perform aerial applications is limited by plant health, precipitation, temperature and wind speed. Certain thresholds within these limitations must be met to ensure that the treatment will be successful.

Hand application may be performed at any time of the year. This method produces a higher percent kill of individual plants due to the ability of directly applying the chemical to each plant. Cost per acre is appreciably higher than aerial applications and smaller areas with lower densities must be targeted.

CEHMM's Approach to Removal of Dead Standing Mesquite

- Shredding-Mowing

Once the mesquite plant is dead, the skeleton of the plant is still a vertical obstruction and must be removed to actually deliver a conservation benefit for the LPC. CEHMM returns to past herbicide treatments and removes the dead standing mesquite.



To learn more about CCA/A assistance, contact your local CEHMM office:

District 1 – 575-885-3700

District 2 – 575-675-2324

Visit us at www.cehmm.org

Conservation Benefits: Mesquite Removal