



CEHMM

Conservation and Environmental Services

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

Monthly Report
November 2017



Scaled Quail at the Wildlife Water behind the Milnesand Office

Table of Contents

<u>Conservation Activities and Monitoring</u>	4
<u>Completed Projects November 2017</u>	5
<u>Funded Projects Awaiting Completion</u>	5
<u>Research</u>	7
<u>Education</u>	10
<u>Operations Moved out of DSL Habitat</u>	10
<u>Reclamation/Restoration</u>	11
<u>Well/ROW Deductions</u>	11
<u>Enrollment Numbers</u>	14
<u>Signature</u>	17
<u>Appendices</u>	18

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

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

Under the CCA, federal lessees, operators, or permittees that 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 Candidate Conservation Agreement with Assurances (CCAA) provides incentives for voluntary conservation of species-at-risk on non-federal lands. Under the CCAA, the lessee, owner or permittee voluntarily commits to implement specific conservation measures on non-federal lands for the species by signing a Certificate of Inclusion (CI). Under the CCAA, if either species is listed, private landowners receive assurances



The Dunes Sagebrush Lizard is native to a small area of south-eastern New Mexico and West Texas.



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

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 up for 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/A 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/A funds as well as every day 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 land-owners and industry to continue work on the ground
- ⇒ Aims to prevent listing

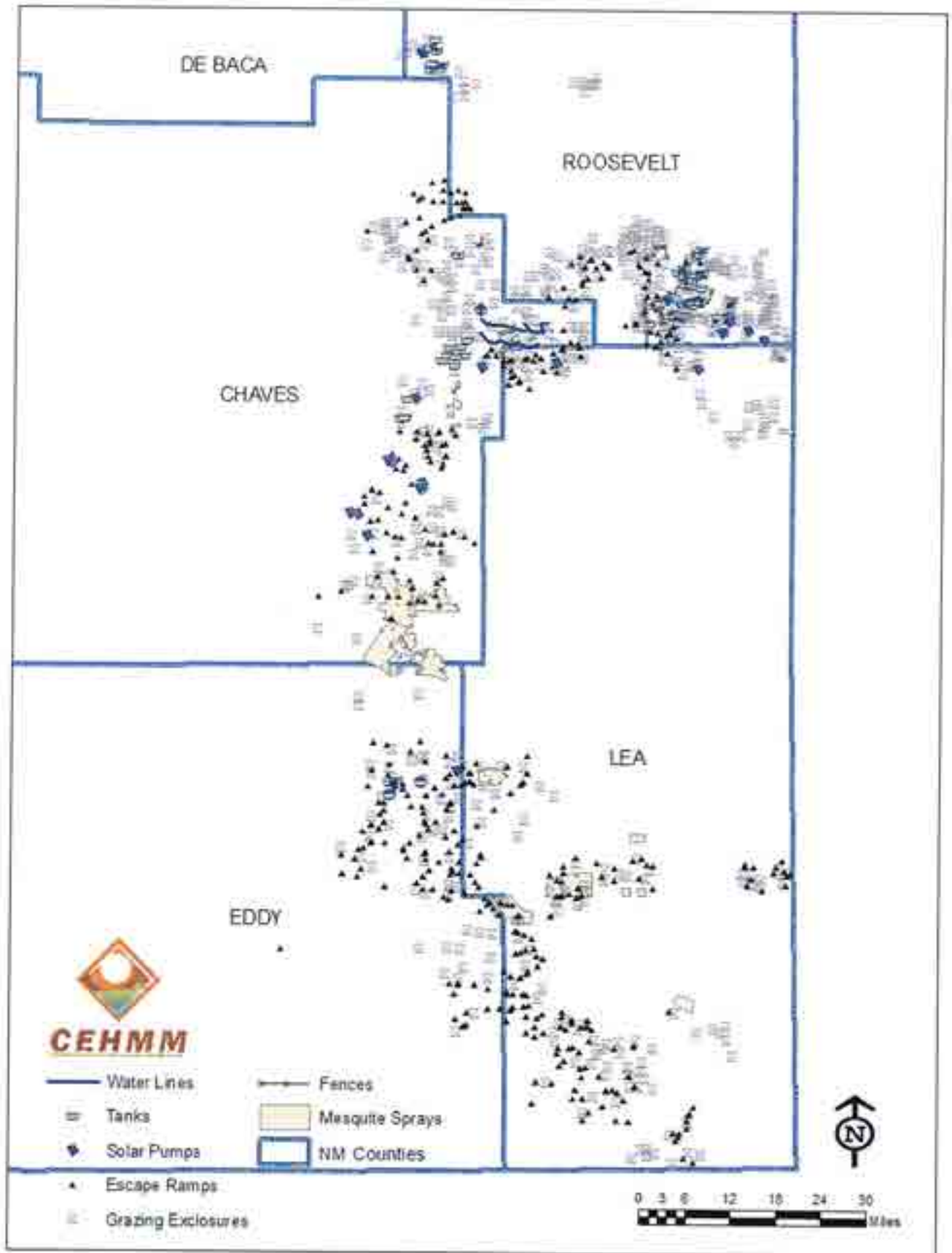


Figure 1: Map of all Completed Projects throughout Life of CCA/A Program

Conservation Activities and Monitoring

CCA/A – District 1 – South of Hwy 380

CEHMM is finishing monitoring for all reclamation and mesquite treatment projects. Data will be generated to determine the vegetative response of these projects in December.

CEHMM installed a new prototype drinker to allow for easier access to water for LPC. The prototype utilizes existing cattle troughs and siphons the water from the main tank to the smaller ground level tank via a buried water line.

CEHMM will begin monitoring for grazing utilization in December.

CCA/A – District 2 – North of Hwy 380

CEHMM is in the process of purchasing the Milnesand property, which includes CEHMM's District 2 office, the old Davis Mercantile which houses the Milnesand Post Office, and other outbuildings on 290 acres. CEHMM personnel began researching the history of the old Davis Mercantile (Figure 2) and the requirements necessary for listing this building with the New Mexico State Historical Society. The building was built in 1932 and has housed the local Post Office since 1942. CEHMM personnel will be talking to the local community who knew the owners and postmaster of well over 50 years of this building, among other research. Davis Mercantile was a place to pick up hunting permits for LPCs and other wildlife, and in more recent years has been a gathering place for the annual Prairie Chicken Festival.



**Figure 2: Davis Mercantile and Milnesand Post Office;
1990 photo of prairie chickens flying near the store.**

Milnesand is known as the Prairie Chicken Capital of New Mexico, and CEHMM intends for this building to serve as an eligible historic site, emphasizing the historic perspective regarding the legacy of the LPC.

CEHMM personnel have started clippings for grazing utilization monitoring. As of November 2017, 65 cages have been clipped on six ranches.

Conservation Activities and Monitoring

CCA/A – District 2 – North of Hwy 380

CEHMM personnel have been following up with enrollees on their grazing plans. As of November 2017, 24 grazing plans are in place. CEHMM personnel will continue to follow up with those enrollees who have not yet completed their grazing plan.

CCA/A – District 1 & District 2 Combined Efforts

CEHMM personnel are currently working on completion of the Annual Report.

Completed Projects November 2017

CCA/A – District 1 – South of Hwy 380

No projects were completed this month.

CCA/A – District 2 – North of Hwy 380

No projects were completed this month.

Funded Projects Awaiting Completion

CCA/A – District 1 – South of Hwy 380

Pearce Water – This project was funded in August 2014 for \$200,000. The Pearce water well (Figure 4) was drilled to a depth of 380 feet into a water bearing zone in a sandstone formation. A pump test was conducted, and the well can maintain a flow rate of one gallon per minute. This flowrate is typical of a sandstone formation. Key's Drilling will conduct a process to clean the drilling mud out of the well in an attempt to increase the flow rate of the well. An additional pump test will be conducted after the cleanout has been completed.

Smith Water – This project was funded in July 2016 for \$19,657.63. CEHMM will develop a bid proposal for contractors. National Environmental Policy Act (NEPA) was completed in August 2017. Mr. Smith is completing the road bore. Once this is completed, the project will commence (Figure 4).

James Water – This project was funded in 2016 for \$20,641.34. CEHMM will develop a bid proposal for contractors. CEHMM has placed this project on hold temporarily, as the owner may be selling the ranch (Figure 4).

Funded Projects Awaiting Completion

CCA/A – District 2 – North of Hwy 380

Riley Mesquite – This project was funded in February 2014 for \$98,707. CEHMM personnel determined that the insect damage was too severe on the honey mesquite to adequately absorb the herbicide; therefore, the project has been postponed until 2018 (Figure 5).

Fence Projects – CEHMM has a contract for work on removal, disposal and replacement of boundary fence and interior fence on the approved projects below. Fence projects promote sustainable grazing for the LPC (Appendix A).

- Garth Coombes Atlee Boundary Fence: As of November 2017, 1.5 miles of new wildlife friendly fence has been installed (Figures 3 and 5). This project was funded in July of 2016 for \$115,203. This six-mile project was started in November 2017 and the estimated completion date is January 2018.
- Running N Interior Fence: This project was funded in July 2016 for \$26,716. One and three-quarter miles of interior fence will be installed to separate one large pasture, improving grazing (Figure 5). The archaeological survey was completed in mid-January 2017 and resulted in no findings. It was reported to the BLM and New Mexico State Land Office (NMSLO) as this fence is on both federal and state trust lands. The project has been cleared by NMSLO. CEHMM is now awaiting clearance from BLM.



Figure 3: Garth Coombes Boundary Fence – Old Fence to be Removed

Funded Projects Awaiting Completion

Mesquite Hand Treatment of Active Leks #1 – An RFP and Spec Sheet have been submitted for this project. There will be seven 502-acre plots hand treated for Honey Mesquite to total 3,514 acres (Figure 5). This project was funded in March of 2017 for \$897,876.85.

Mesquite Hand Treatment of Active Leks #2 – The ranking team has approved additional leks to be hand treated. This project was funded in August 2017 for \$745,470. CEHMM and the ranking team are in the process of identifying leks to be treated.

Mesquite Eradication – In August 2017, the CCA Ranking Team approved proposals for removal of dead standing mesquite. The two remaining projects will be completed in 2018. All projects will be completed following two years post treatment. Eradication will be completed via skid steers for the purpose of removing vertical structure. Refer to attached "Conservation Benefit: Mesquite" (Appendix B). All eradication efforts will be conducted on deeded lands.

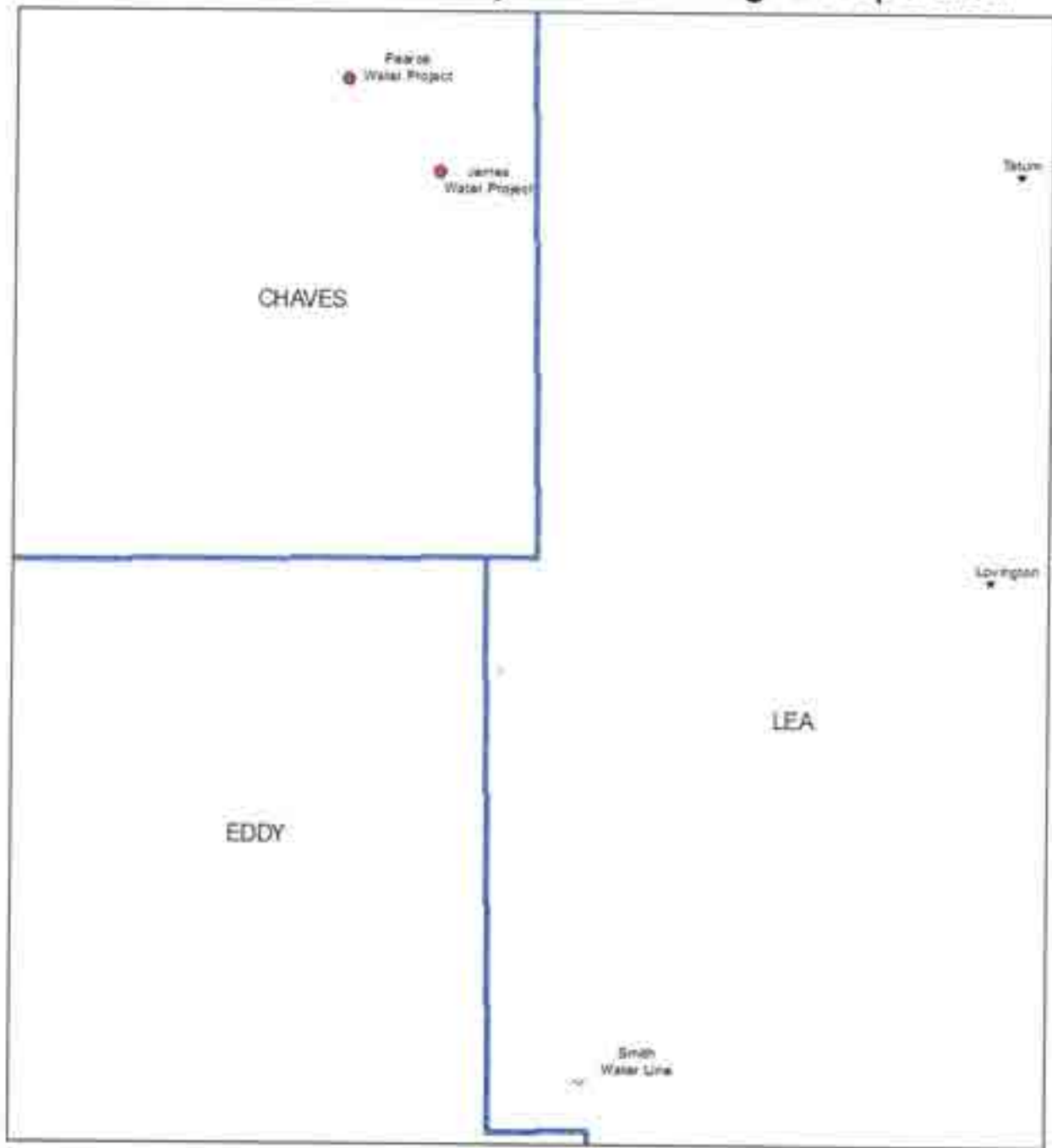
- Peterson/Luman DSM Removal: 250 acres of DSM will be removed (Figure 5). This project was funded in August 2017 for \$26,562. Work will commence in 2018.
- M. Williamson DSM Removal: 482 acres of DSM will be removed (Figure 5). This project was funded in August 2017 for \$48,671. Work will commence in 2018.

Bresenham Mesquite: It has been determined that the proposed aerial application of Sendero to control mesquite on Bresenham is too close to their home and trees and will not be allowed per the protocol. CEHMM staff will revise the budget and request a hand application. This 450 acre project (Figure 5) was funded in August 2014 for \$11,750.

Research

Blake Grisham is assessing the impact of land management practices and environmental variability on vegetation communities in shinnery oak grassland communities regarding the LPC population. Dr. Grisham was granted a no-cost extension through December 2017, with the final report expected by January 31, 2018.

District 1 Funded Projects Awaiting Completion



 NM Counties



Figure 4: District 1 Funded Projects Awaiting Completion

District 2 Funded Projects Awaiting Completion

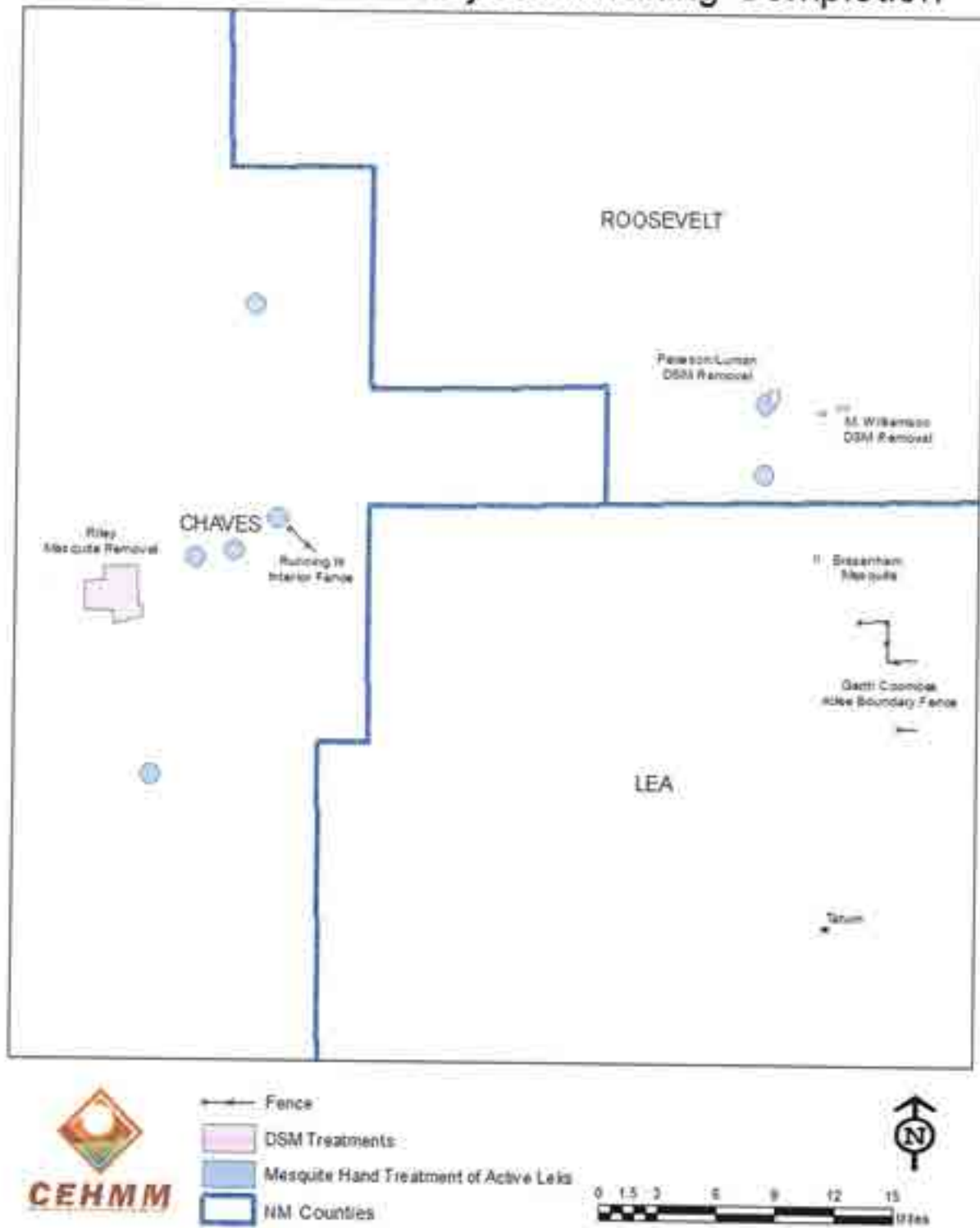


Figure 5: District 2 Funded Projects Awaiting Completion

Education

Audubon of New Mexico Education/Outreach Manager is initiating Audubon's plans for the CCA/A 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 Lesser Prairie-Chicken/Dunes Sagebrush Lizard habitat in New Mexico. This program will target the following New Mexico high schools: Dora, Floyd, Elida, Portales, and Carlsbad Early College High School with the intent to engage at least one class in each school by the end of the contract period. Audubon will provide a finished curriculum with lesson plans by January 2018.

Operations Moved out of DSL Habitat

Construction of well pads and roads for oil and gas development in DSL habitat poses a serious threat to a species which depends on a very specialized dynamic habitat. Due to the severity of the 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 site roads, pads, pipelines, and power lines in areas that are in near proximity to suitable and occupied habitat. During the onsite, CEHMM helps to determine suitability of the habitat and ensure that the companies avoid the dunes by the required 30-meter buffer. If the disturbance is within the 30-meter buffer, then the enrolled company, in order to comply with their agreements, must relocate the disturbance to occur outside of the 30-meter buffer. The number of wells and ROWs moved out of DSL habitat below shows the importance of every day implementation of the CCA/As to the conservation of the species.

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
Total	498	83	92	4,354

Reclamation/Restoration

In areas of loose and 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 habitat, this impenetrable layer fragments the habitat. 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 habitat is reduced or eliminated. Once the caliche is removed, reseeding with native vegetation occurs which speeds up the process of rehabilitating the disturbed areas. The table below details the reclamation treated to date through the CCA/A agreements.

Total Acres Treated for Entire Project	
Roads and Pads Caliche Removal and Reseeding (Number)	154
Mesquite (Acres)	79,363
Dead Standing Mesquite Eradication (Acres)	1,922.7
Yucca (Acres)	120

Well/ROW/Frac Pond Deductions

Total Deductions for November 2017	
Cimarex	\$3,000.00
COG	\$29,750.00
Devon	\$74,250.00
EOG	\$24,000.00
Marshall and Winston	\$3,000.00
Matador	\$23,000.00
OXY	\$127,500.00
XTO	\$3,000.00
Total	\$287,500.00

Well/ROW Deductions

Total Deductions for 2017	
Apache	\$185,000.00
BTA	\$10,000.00
BOPCO	\$15,000.00
Burnett	\$25,000.00
Cimarex	\$97,750.00
COG	\$449,000.00
Conoco	\$25,000.00
Devon	\$237,750.00
EOG	\$766,750.00
Kaiser-Francis	\$10,250.00
Legacy	\$30,000.00
Mack Energy	\$28,000.00
Marshall and Winston	\$3,000.00
Matador	\$55,250.00
McElvain	\$82,500.00
Mewbourne	\$29,000.00
OXY	\$435,500.00
Read and Stevens	\$107,500.00
SM Energy	\$5,000.00
Yates	\$52,500.00
XTO	\$12,000.00
Total	\$2,661,750.00

Total Deductions for Entire Project	
Apache	\$2,376,163.60
Armstrong	\$258,312.20
BC Operating	\$36,000.00
BOPCO	\$1,066,632.50
BTA	\$13,000.00
Burnett	\$1,132,500.00
Chevron	\$35,500.00
Cimarex	\$527,000.00
COG	\$4,145,800.00
Conoco	\$1,081,500.00
Devon	\$2,036,000.00
Endurance Resources	\$181,000.00
Energex	\$20,000.00
Enervest	\$20,000.00
EOG	\$1,299,000.00
Kaiser-Francis	\$24,750.00

Well/ROW Deductions

Fasken	\$185,000.00
HEYCO	\$75,000.00
Hudson	\$7,500.00
Legacy	\$220,500.00
Linn	\$45,000.00
Mack	\$663,000.00
Manzano	\$6,000.00
Marbob	\$12,500.00
Marshall & Winston	\$12,000.00
Matador	\$73,500.00
McElvain	\$60,000.00
Mewbourne	\$156,750.00
Nearburg	\$82,500.00
Nemo Fund	\$3,750.00
OGX Production	\$10,000.00
OXY	\$1,088,000.00
Read & Stevens	\$77,500.00
Regeneration	\$10,000.00
RKI	\$6,750.00
SandRidge	\$50,000.00
SDX	\$10,000.00
Shackelford Oil	\$2,500.00
SM Energy	\$10,000.00
Strata	\$17,500.00
Three Rivers	\$64,725.54
Tierra Oil	\$20,698.12
V-F Petroleum	\$6,000.00
XTO	\$84,500.00
Yates	\$837,250.00
Total	\$18,151,581.96

Enrollment Numbers

**NMDGF acres are included in the rancher numbers*

TOTAL HABITAT ENROLLMENT	ACRES
Total LPC/DSL habitat acres enrolled by Industry	1,913,481.45
Total LPC/DSL habitat acres enrolled by Ranchers	1,868,425.68
Total LPC/DSL CCA habitat acres enrolled by Industry and Ranchers	1,115,834.82
Total LPC/DSL CCAA habitat acres enrolled by Industry and Ranchers	1,734,593.40
Total LPC/DSL CCAA habitat acres enrolled by the NMSLO	402,087.66
Total LPC/DSL CCA/A habitat acres enrolled by Industry, Ranchers (and NMDGF), and NMSLO	2,987,599.86

DSL	ACRES	% ACRES ENROLLED
Total DSL habitat acres in NM	868,618	
DSL habitat acres enrolled by Ranchers CCA/A	583,422.11	67.17%
DSL habitat acres enrolled by Ranchers in BLM RMPA	522,712.05	60.18%
DSL habitat acres enrolled by Industry CCA/A	424,581.99	48.88%
DSL habitat acres enrolled by Industry in the BLM RMPA	379,040.07	43.64%
DSL habitat acres enrolled by NMSLO	159,066.37	18.31%
Total DSL CCA/A habitat acres enrolled by Industry, Ranchers (and NMDGF), and NMSLO	727,591.66	83.76%

LPC	ACRES	% ACRES ENROLLED
Total LPC habitat acres in estimated occupied range (EOR)	2,069,934	
LPC habitat acres enrolled by Industry in EOR	503,483.36	24.32%
LPC habitat acres enrolled by Ranchers in EOR	876,595.64	42.35%
LPC habitat acres enrolled by NMSLO in EOR	359,906.59	17.39%
Total LPC CCA/A habitat acres in EOR enrolled by Industry, Ranchers (and NMDGF), and NMSLO	1,178,219.10	56.92%

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	1,614,900.62	23.49%
LPC habitat acres enrolled by Ranchers in EOR10	1,643,608.45	23.91%
LPC habitat acres enrolled by NMSLO in the EOR10	1,458,408.57	21.21%
Total LPC CCA/A habitat acres in EOR10 enrolled by Industry, Ranchers (and NMDGF), and NMSLO	3,264,820.39	47.49%

HISTORICAL	ACRES	% ACRES ENROLLED
Total LPC habitat acres in historic range	13,650,507	
LPC habitat acres enrolled by Industry in historic range	1,870,218.17	13.70%
LPC habitat acres enrolled by Ranchers in historic range	1,862,986.82	13.65%
Total LPC habitat acres enrolled by Industry in BLM RMPA	414,368.53	3.04%
Total LPC habitat acres enrolled by Ranchers in BLM RMPA	724,328.45	5.31%

CHAT 1	ACRES	% ACRES ENROLLED
Total acres in CHAT 1	782,129	
LPC habitat acres enrolled by Industry in CHAT 1	136,715.22	17.48%
LPC habitat acres enrolled by Ranchers in CHAT 1	345,845.82	44.22%
LPC habitat acres enrolled by NMSLO in CHAT 1	156,826.81	20.05%
Total LPC CCA/A habitat acres in CHAT 1 enrolled by Industry, Ranchers (and NMDGF), and NMSLO	462,032.36	59.07%
Total LPC CCA/A habitat acres in CHAT 1 enrolled by Industry and Ranchers (and NMDGF)	419,806.41	53.67%

Enrollment Numbers

**NMDGF acres are included in the rancher numbers*

CHAT 2	ACRES	% ACRES ENROLLED
Total acres in CHAT 2	704,494	
LPC habitat acres enrolled by Industry in CHAT 2	43,075.96	6.11%
LPC habitat acres enrolled by Ranchers in CHAT 2	70,163.58	9.96%
LPC habitat acres enrolled by NMSLO in CHAT 2	81,169.95	11.52%
Total LPC CCA/A habitat acres in CHAT 2 enrolled by Industry, Ranchers (and NMDGF), and NMSLO	164,196.67	23.31%
Total LPC CCA/A habitat acres in CHAT 2 enrolled by Industry and Ranchers (and NMDGF)	106,878.27	15.17%

CHAT 3	ACRES	% ACRES ENROLLED
Total acres in CHAT 3	3,712,299	
LPC habitat acres enrolled by Industry in CHAT 3	1,112,793.45	29.98%
LPC habitat acres enrolled by Ranchers in CHAT 3	1,073,265.66	28.91%
LPC habitat acres enrolled by NMSLO in CHAT 3	745,907.18	20.09%
Total LPC CCA/A habitat acres in CHAT 3 enrolled by Industry, Ranchers (and NMDGF), and NMSLO	1,899,995.40	51.18%
Total LPC CCA/A habitat acres in CHAT 3 enrolled by Industry and Ranchers (and NMDGF)	1,492,594.48	40.21%

CHAT 4	ACRES	% ACRES ENROLLED
Total acres in CHAT 4	1,494,397	
LPC habitat acres enrolled by Industry in CHAT 4	268,767.60	17.99%
LPC habitat acres enrolled by Ranchers in CHAT 4	133,730.25	8.95%
LPC habitat acres enrolled by NMSLO in CHAT 4	417,925.06	27.97%
Total LPC CCA/A habitat acres in CHAT 4 enrolled by Industry, Ranchers (and NMDGF), and NMSLO	662,843.43	44.36%
Total LPC CCA/A habitat acres in CHAT 4 enrolled by Industry and Ranchers (and NMDGF)	355,079.15	23.76%

Signature

If you have any questions, please call Matt Mathis or Emily Wirth at (575) 885-3700.

Signed: 
Douglas C. Lynn, Executive Director

Date: 12/08/17

Appendix A

Conservation Benefits

Grazing Management



CEHMM recognizes the mutual benefit between sustainable grazing and lesser prairie-chickens. Collaboration between employees 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, sandbig-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.



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.



CCAFA

Conservation Benefits: Grazing Management

Range Conservationist Spotlight:

CEHMM District 2
Josh Ricklefs

Sustainable Grazing and the Lesser Prairie Chicken

"Grazing practices utilizing a restoration 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

CCAA

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 CCAA assistance, contact your local CEHMM office:

District 1 – 575-885-5700

District 2 – 575-875-2324

Visit us at www.cehmm.org

Conservation Benefits: Grazing Management

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.

CCAM

Conservation Benefits, Mesquite Removal

LPC Biologist Highlight

Blake Graham, 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 - 575-875-2324

Visit us at www.cehmm.org

Conservation Benefits, Mesquite Removal