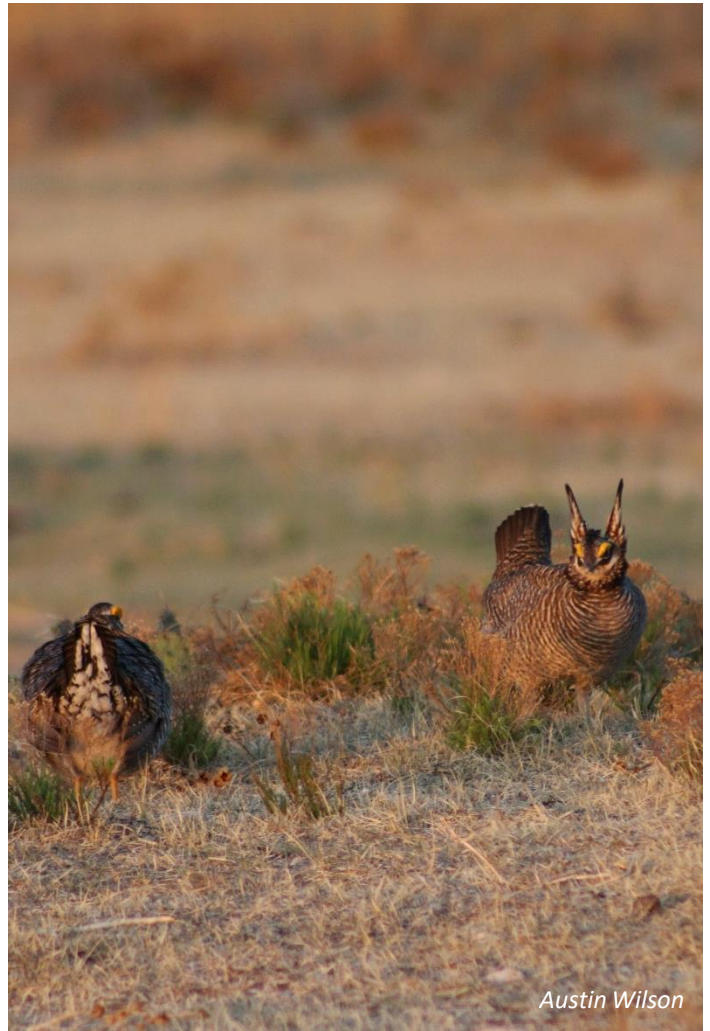


ANNUAL REPORT 2023



Erica Gutierrez



Austin Wilson

Candidate Conservation Agreements for the Lesser Prairie-Chicken and the Dunes Sagebrush Lizard in New Mexico

LETTER FROM THE EXECUTIVE DIRECTOR



Greetings all,

This year, the Lesser Prairie-Chicken (LPC) was listed by the US Fish and Wildlife Service (FWS) as threatened in the northern portion of its range and as endangered in the southern portion, which encompasses most of New Mexico. Due to this listing, which officially occurred in March 2023, and the approval of the All-Activities Amendment, we saw enrollment in the program increase significantly. This amendment allowed CEHMM to enroll linear development companies and cover actions throughout the entire range of the LPC.

2023 saw a lot of activity on the Dunes Sagebrush Lizard (DSL) front as well. The FWS concluded that the DSL is in danger of extinction throughout all of its range and proposed to list the species as endangered. The FWS's decision to finalize the listing of the DSL is expected no later than June 2024.

With the funding generated through industry enrollments, we continued to place a large emphasis on mesquite treatment and removal within LPC habitat, with the removal of approximately 3,600 acres of dead mesquite. Efforts in DSL habitat continue to focus on the avoidance of habitat.

We continue to work closely with enrollees, both ranching and industry alike, on development in these habitat areas and greatly appreciate our enrolled partners who work diligently with us to conserve habitat for the species. It is sometimes difficult to site infrastructure in these areas, and we thank you all for your patience as we work through these issues together. We'd also like to thank our partners at the Bureau of Land Management and the FWS for your guidance and support. It is truly the cooperative nature of these agreements that make them successful.

Emily K. Wirth

A handwritten signature in blue ink that reads "Emily K. Wirth".

Executive Director

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PROGRAM OVERVIEW

INTRODUCTION

CEHMM is a 501(c)(3) non-profit corporation involved in research and development in southeastern New Mexico. Through the use of funding from the Candidate Conservation Agreements (CCA) and Candidate Conservation Agreements with Assurances (CCAA), CEHMM provides conservation measures to maintain and improve habitat for two species of concern in New Mexico.

The LPC (*Tympanuchus pallidicinctus*) (Figure 1) is a prairie grouse species native to the southern Great Plains. Its historic and current home ranges include parts of New Mexico, Colorado, Kansas, Oklahoma, and Texas. Historically the LPC was found within Quay, Curry, De Baca, Roosevelt, Lea, Chaves, and Eddy counties in New Mexico. Currently, the LPC is found only within Curry, De Baca, Chaves, Roosevelt, and Lea counties. In New Mexico, the LPC relies on vegetation that consists of a mix of shinnery oak (*Quercus harvardii*) and mixed grasses.



Figure 1. Lesser prairie-chicken.

The dunes sagebrush lizard (DSL) (*Sceloporus arenicolus*) (Figure 2) is a species native to a small area of southeastern New Mexico and western Texas. The DSL is considered a habitat specialist, showing a high preference for large dunal blowouts surrounded by shinnery oak brush (Stebbins, 1985; Gorum, et al., 1995; Degenhardt et al., 1996; Smolensky and Fitzgerald, 2010, 2011; Walkup, D.K, et al., 2022). Currently the DSL is found only within the Mescalero Sands of New Mexico in Chaves, Roosevelt, Eddy, and Lea counties.



Figure 2. Dunes sagebrush lizard.

The Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531, et seq.), provides for the conservation of species that are endangered or threatened throughout all, or a significant portion, of their ranges. The ESA also provides for the conservation of the ecosystems that are important to a species. Section 9 of the ESA prohibits “take” (i.e., harass, harm, pursue, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of a listed species on public and private lands. In addition to the Section 9 prohibitions, Section 7 requires federal agencies to ensure their actions will not jeopardize the continued existence of the

listed species. In 1995, a petition was filed to list the LPC (Figure 3) as threatened under the ESA. Species status reviews conducted by the FWS in 1998 and 2011 determined a threatened status was warranted but precluded under the ESA. A 2012 status review of the LPC proposed a listing of threatened under the ESA. A final decision to list the LPC as threatened was made by the FWS in March 2014. It was removed from the list following a ruling by the U.S. District Court for the Western District of Texas Midland Division to vacate the ruling in September 2015. Nearly a year later, a petition to list the LPC as endangered was filed by the Center for Biological Diversity, Defenders of Wildlife, and WildEarth Guardians. On May 26, 2021, the FWS released a proposal to list the LPC under the ESA. The New Mexico population was included within the southern Distinct Population Segment (DPS), which was proposed for listing as endangered. The northern DPS, comparatively, was proposed for listing as threatened. On October 25, 2022, the Center for Biological Diversity filed suit against the FWS for delaying protection for the LPC. Less than one month later, on November 17, the FWS officially announced the listing ruling for the LPC. As of March 27, 2023, the northern DPS was listed as threatened and the southern DPS was listed as endangered.



Figure 3. Lesser prairie-chicken on a lek in southern Roosevelt County.

Three petitions have been filed with the FWS to list the DSL (Figure 4) as endangered. In 2002 and 2008, it was warranted, but precluded by other species. However, in 2012, the FWS withdrew the rule that proposed a listing of the DSL, citing conservation efforts along with current and future threats being less serious than previously found (Endangered and Threatened Wildlife and Plants; Withdrawal of the Proposed Rule to List Dunes Sagebrush Lizard, 2013). A petition to list the DSL as threatened or endangered, and to designate critical habitat, was filed by the Center for Biological Diversity and Defenders of Wildlife in June 2018. The Center for Biological Diversity filed suit against the FWS on May 19, 2022, for delaying protection for the DSL. Following the Species Status Assessment, the FWS concluded that the DSL is in danger of extinction throughout all of its range. This assessment led to a FWS proposing to list the DSL as endangered on July 3, 2023. The public comment period following the proposed endangered listing was extended from 60 to 90 days and concluded on October 2, 2023. The FWS's decision to finalize the listing of the DSL is expected mid-2024.



Figure 4. Dunes sagebrush lizard found during pitfall trap surveys.

The New Mexico LPC/DSL Working Group was formed in 2003 to address concerns and develop strategies for the future conservation of the LPC and DSL. Members of the group included representatives from the FWS, the Bureau of Land Management (BLM), CEHMM, oil and gas producers, and livestock operators. Their findings were published in a 2005 document titled, "Collaborative Conservation Strategies for the Lesser Prairie-Chicken and Sand Dune Lizard in New Mexico." The group's work provided a pathway that led to the signing of the CCA and CCAA on December 8, 2008. The CCA and CCAA, collectively referred to as the CCA/CCAA, provide a mechanism to conserve LPC and DSL habitats on federal and non-federal lands while allowing the

FWS, the BLM, and CEHMM to work in cooperation with private landowners and industry to support conservation while continuing to work on the land. Due to the March 2023 listing, enrollment into the CCA/CCAA was closed for the LPC, but enrollment remains open for the DSL until the listing ruling is finalized in mid-2024.

CANDIDATE CONSERVATION AGREEMENTS AND CANDIDATE CONSERVATION AGREEMENTS WITH ASSURANCES

By implementing the CCA/CCAA, the following will be accomplished (U.S. Fish and Wildlife Service, 2008):

- Develop, coordinate, and implement conservation actions which reduce and/or eliminate known threats to the LPC and the DSL in New Mexico on federal, state, and private surface, and mineral holdings and livestock operations (Figure 5);
- Support ongoing efforts to re-establish and maintain viable populations of both species in currently occupied and suitable habitats; and,
- Encourage preservation, restoration, and development of suitable LPC and DSL habitat by incentivizing Participating Cooperators to implement specific conservation measures.

Federal lessees, operators, and grazing permittees (collectively referred to as Participating Cooperators) can enter into the CCA by voluntarily signing a Certificate of Participation (CP) which outlines conservation commitments for both species. Legal descriptions and maps of the properties/leases where the Participating Cooperator desires to implement said conservation measures is also included in the CP. By entering into the CCA, Participating Cooperators receive a high degree of certainty that additional restrictions will not be placed on their otherwise legal activities in the event that either or both species were to be given threatened or endangered status.

By signing a Certificate of Inclusion (CI), Participating Cooperators can enter into the CCAA, which grants them the opportunity to receive incentives for implementing specific conservation measures for the LPC and DSL on their non-federal land interests. By taking part in the CCAA, Participating Cooperators are provided assurances that additional restrictions will not be placed on their otherwise legal activities if a decision to list either species was to occur. Regulatory assurances are a necessary component of the CCAA because without assurances, conservation measures may not be implemented by private landowners. Like the CCA, entrance into the CCAA is voluntary.

The voluntary nature of the agreements is important because it allows Participating Cooperators to relinquish their participation if they deem it necessary.

Upon the execution of a CP and/or CI, oil and gas operators agree to contribute funds that will be used for conservation projects, research, and activities to restore, protect, and create suitable habitat for the LPC and/or DSL. Proposals for these projects are submitted annually to CEHMM and the CCA/CCAA ranking team who rank them in order of conservation priority for either or both species. Dependent on the funding available to complete projects that year, the highest priority projects are approved and then completed. The ranking team includes wildlife biologists from the BLM, FWS, CEHMM, New Mexico State Land Office (NMSLO), and the New Mexico Department of Game and Fish (NMDGF). In addition to biologists, one Participating Cooperator from the oil and gas industry and one Participating Cooperator from the ranching community are included in the ranking process.

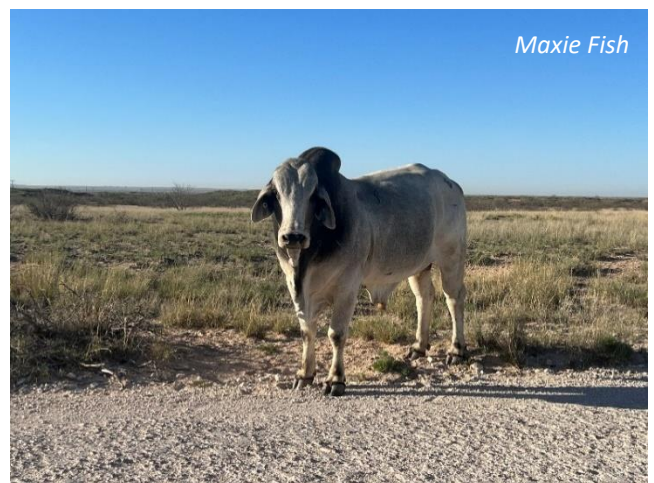


Figure 5. Cow from an enrolled property in Roosevelt County.

Based in Carlsbad, NM, CEHMM is the federal permit holder for the CCA/CCAA. CEHMM is obligated to administer, monitor, and report on projects completed with CCA/CCAA funds. CEHMM's participation allows for a federally approved, independently audited financial management system to provide for fund management and administration.

Input from the public was requested in the development of the CCA/CCAA through public forums. Forum locations were

strategically placed to accommodate the attendees who were directly affected by, or had a particular interest in, the species of concern. Through public input, government and private entities involved in the drafting of the CCA/CCAA were able to address the needs and concerns of those who would be affected by a decision to list either/or both species.

The enrollments covered under the CCA/CCAA for ranching (Table 1; Table 2; Figure 7) and industry (Table 1; Table 2; Figure 8) can be seen below. Land within this region can be divided into three general surface ownership categories: federal, state, or private. Specifically, the BLM has surface ownership of approximately three million acres (19 percent); the state of New Mexico has 2.8 million acres (19 percent); and private landowners have 9 million acres (59 percent). The BLM also has management responsibilities for an additional 10 million acres of mineral estate where the surface is either privately or state-owned. The U.S. Forest Service, National Park Service, and FWS combined have less than 3 percent of the lands within the covered area.

For industry operators (Figure 6), one of the CCA/CCAA enrollment processes (Parcel-by-parcel) includes identifying parcels to enroll, and it prohibits the addition of any parcels in a species' habitat following a threatened or endangered designation of that species. This may lead to operators not being able to enroll minerals or lands that are acquired following a decision to list a species. It is also difficult for utility companies that operate linear features to enroll because they do not have a lease defined by legal descriptions. At the request of multiple industry partners to resolve these setbacks, CEHMM and the CCA/CCAA stakeholders committee began working on a CCA/CCAA amendment in 2018. In September 2022, the amendment was signed into effect and is known as the All-Activities Amendment (U.S. Fish and Wildlife Service, 2022). This amendment allowed existing or new industry participating cooperators to enroll all of their operations within the historic range of the LPC without having to add new parcels that they may acquire or trade for in the future.



Figure 6. Oil and gas development in the Permian Basin.

Oil and gas development in the Permian Basin. This may lead to operators not being able to enroll minerals or lands that are acquired following a decision to list a species. It is also difficult for utility companies that operate linear features to enroll because they do not have a lease defined by legal descriptions. At the request of multiple industry partners to resolve these setbacks, CEHMM and the CCA/CCAA stakeholders committee began working on a CCA/CCAA amendment in 2018. In September 2022, the amendment was signed into effect and is known as the All-Activities Amendment (U.S. Fish and Wildlife Service, 2022). This amendment allowed existing or new industry participating cooperators to enroll all of their operations within the historic range of the LPC without having to add new parcels that they may acquire or trade for in the future.

There are several benefits to this option of enrollment. More conservation of habitat for both species will be achieved with this option because leases acquired, following any decision to classify either species as threatened or endangered, will be covered under the All-Activities enrollment. Conservation measures to benefit both species will continue to be implemented in the All-Activities program.

Habitat categories are also reclassified in the amendment. These categories reflect occupied habitat and Crucial Habitat Assessment Tool (CHAT) scores (Appendix B). A refined conservation fee structure was put in place in regard to the quality of habitat where activities are taking place. The conservation fee schedule will be adjusted annually to account for inflation or deflation. The final change to the CCA/CCAA through this amendment was to lower the initial enrollment fee for new participants with fewer than 20,000 acres who chose to exercise the traditional, parcel-by-parcel enrollment option. As a result of the LPC listing under the ESA in March of 2023, CCA/CCAA LPC enrollment was closed. Enrollments for the DSL program will remain open unless a decision is made to officially list the species under the ESA.

PARTICIPATING COOPERATORS' NEED FOR THE CCA/CCAA

Under the ESA, a listing of the LPC or the DSL authorizes the FWS to prohibit activities that may harm either species or their habitats. Throughout LPC and DSL habitat, two major uses of the landscape are ranching and oil and gas development. If ranching and industry entities are not enrolled in the CCA/CCAA, they may face restrictions on their operations. Ranching operations may be required to reduce stocking rates, implement different management strategies, or be subject to other regulatory measures. Regulatory mechanisms, including an increased period for permitting oil and gas infrastructure, may be implemented in the event of a listing. As stated previously, through participation in the CCA/CCAA, operators are provided a high degree of certainty (CCA) and assurances (CCAA) that their operations will not be subject to additional restrictions as long as conservation measures are achieved as outlined in each respective CP and CI agreement.

ENROLLMENT

In March of 2023, LPC CCA/CCAA program enrollment officially closed due to the listing of the lesser prairie-chicken as endangered under the ESA. Currently there are 2,339,619 acres enrolled by ranching participants (Figures 7, 8, & 10) and 3,181,277 acres enrolled by industry participants (Figures 7, 9, & 11) in the program. It is important to note that some of the enrolled acres are outside of the CHAT boundary. Therefore, not all the enrollment acres are included in the CHAT table below (Table 1). Additionally, the Habitat Condition areas that were established for the DSL by FWS overlap with the LPC CHAT area. Although the acres in the Habitat Condition table (Table 2) are accounted for in the CHAT table (Table 1), they only represent the DSL habitat condition categories.

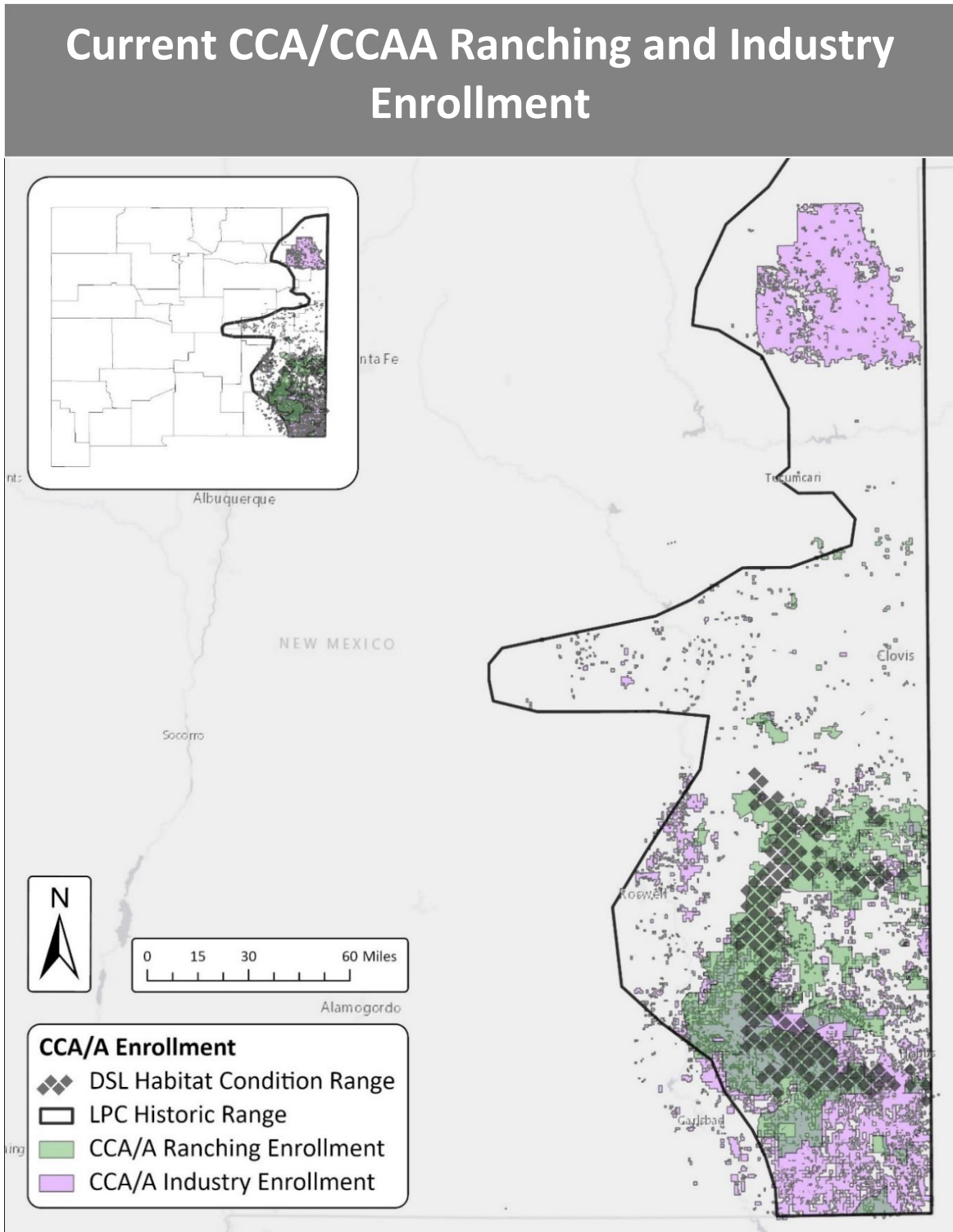


Figure 7. CCA/A Enrollment Map.

Current CCA/CCAA Ranching Enrollment Within the 2013 LPC CHAT

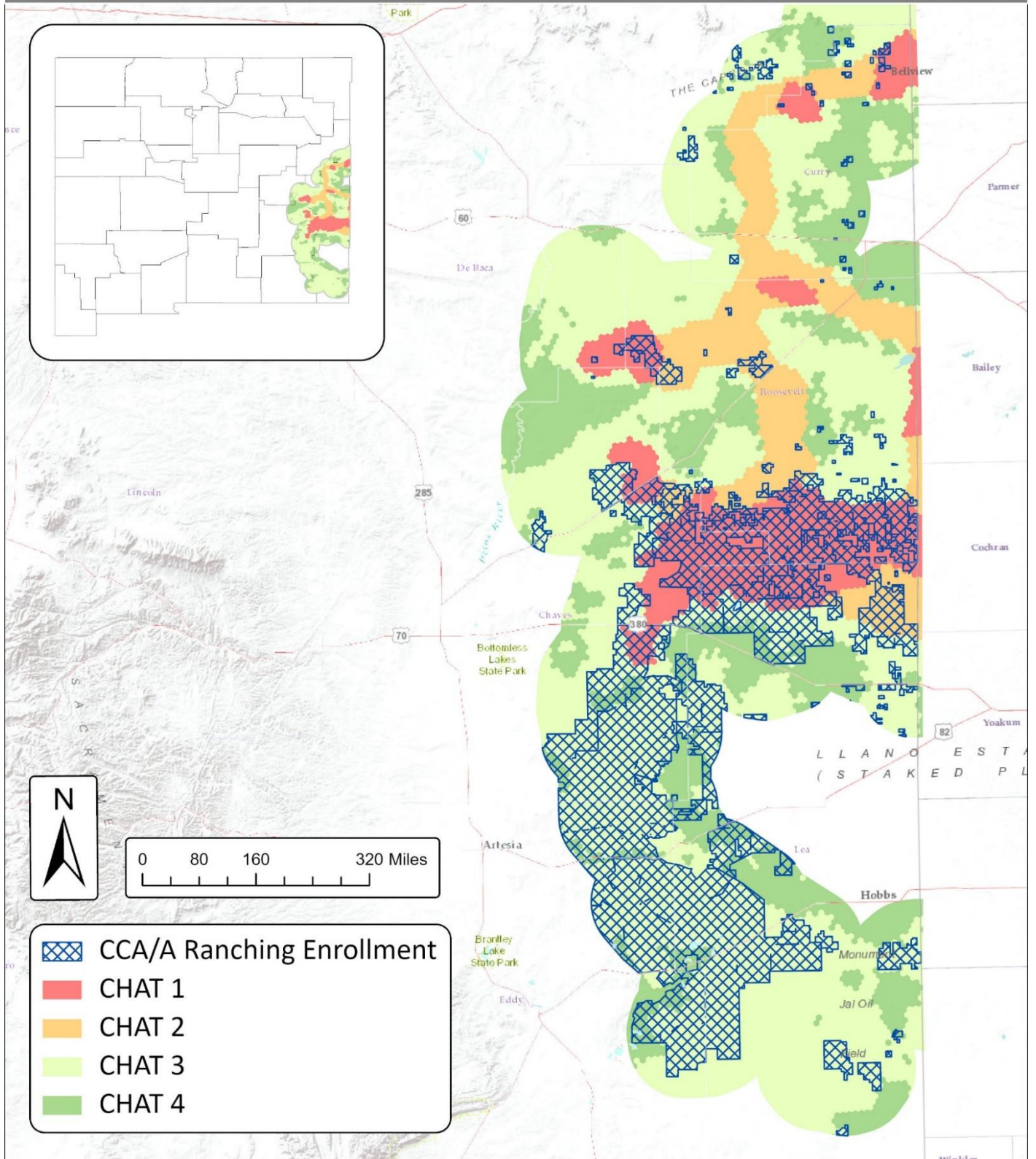


Figure 8. CCA/A ranching enrollment inside the 2013 CHAT Scores.

Current CCA/CCAA Industry Enrollment Within the 2013 LPC CHAT

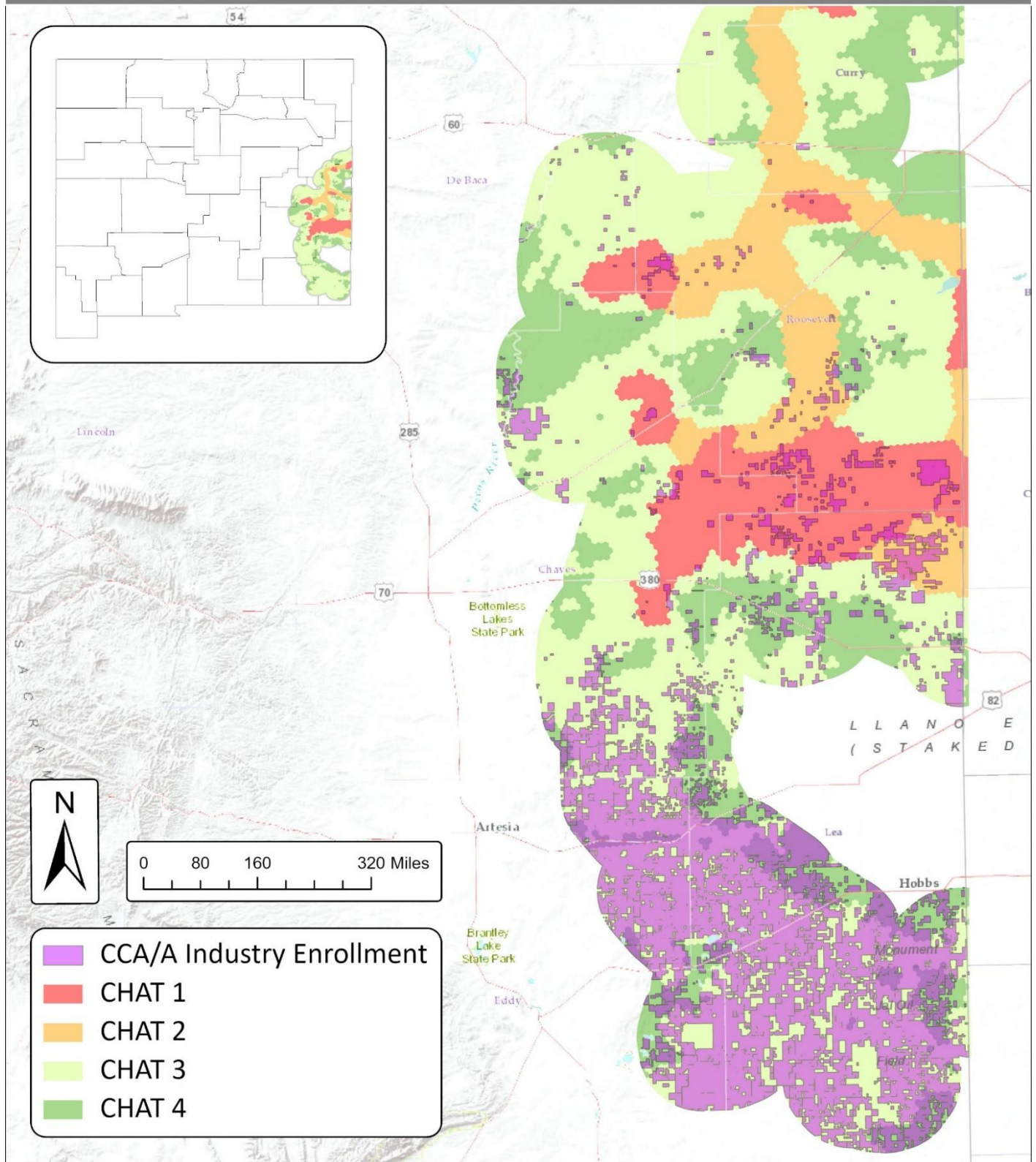


Figure 9. CCA/A industry enrollment inside the 2013 CHAT Scores.

Current CCA/CCAA Ranching Enrollment Within the DSL Habitat Conditions Established by the FWS Species Status Assessment

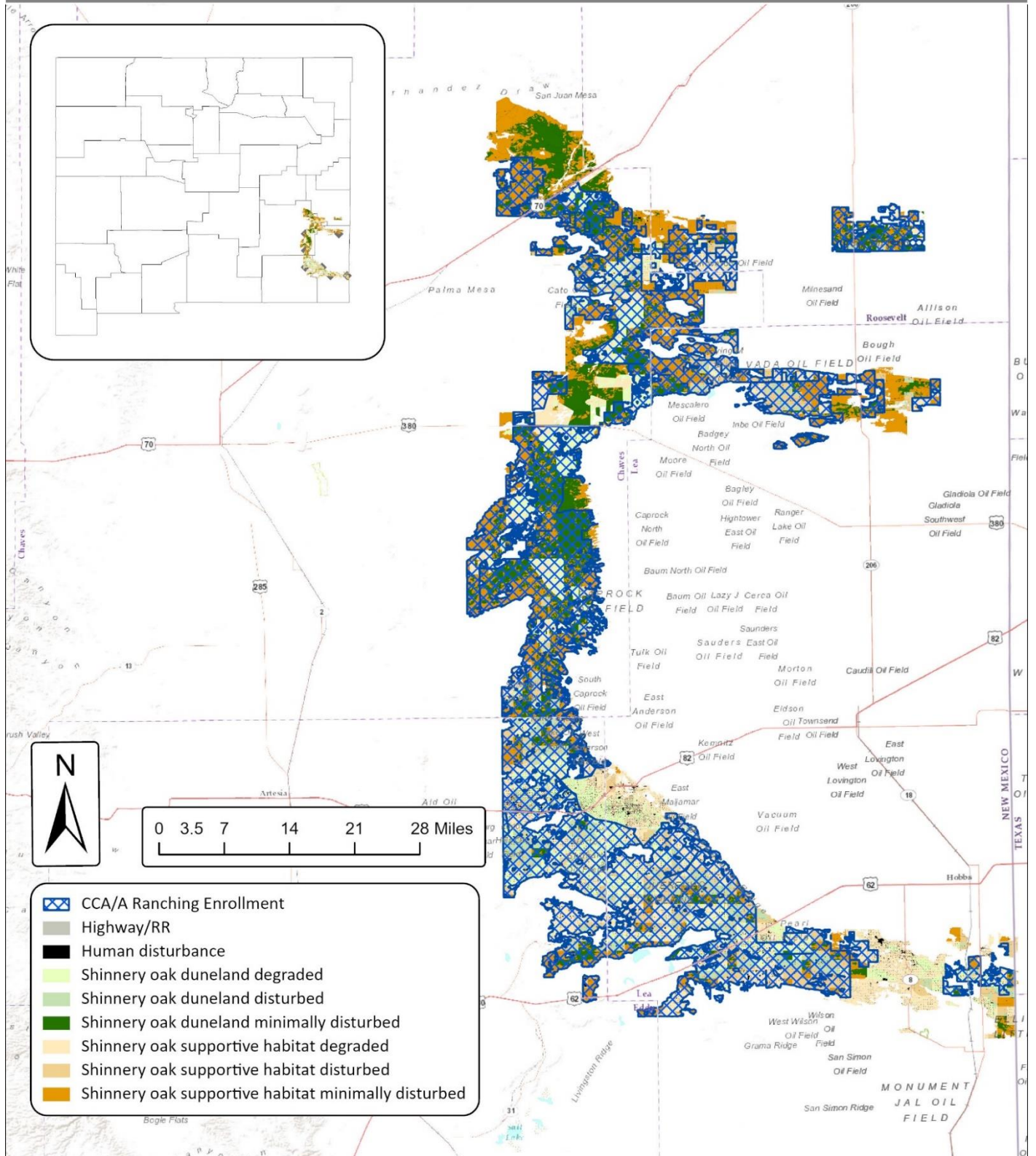


Figure 10. CCA/A ranching enrollment inside DSL habitat conditions.

Current CCA/CCAA Industry Enrollment Within the DSL Habitat Conditions Established by the FWS Species Status Assessment

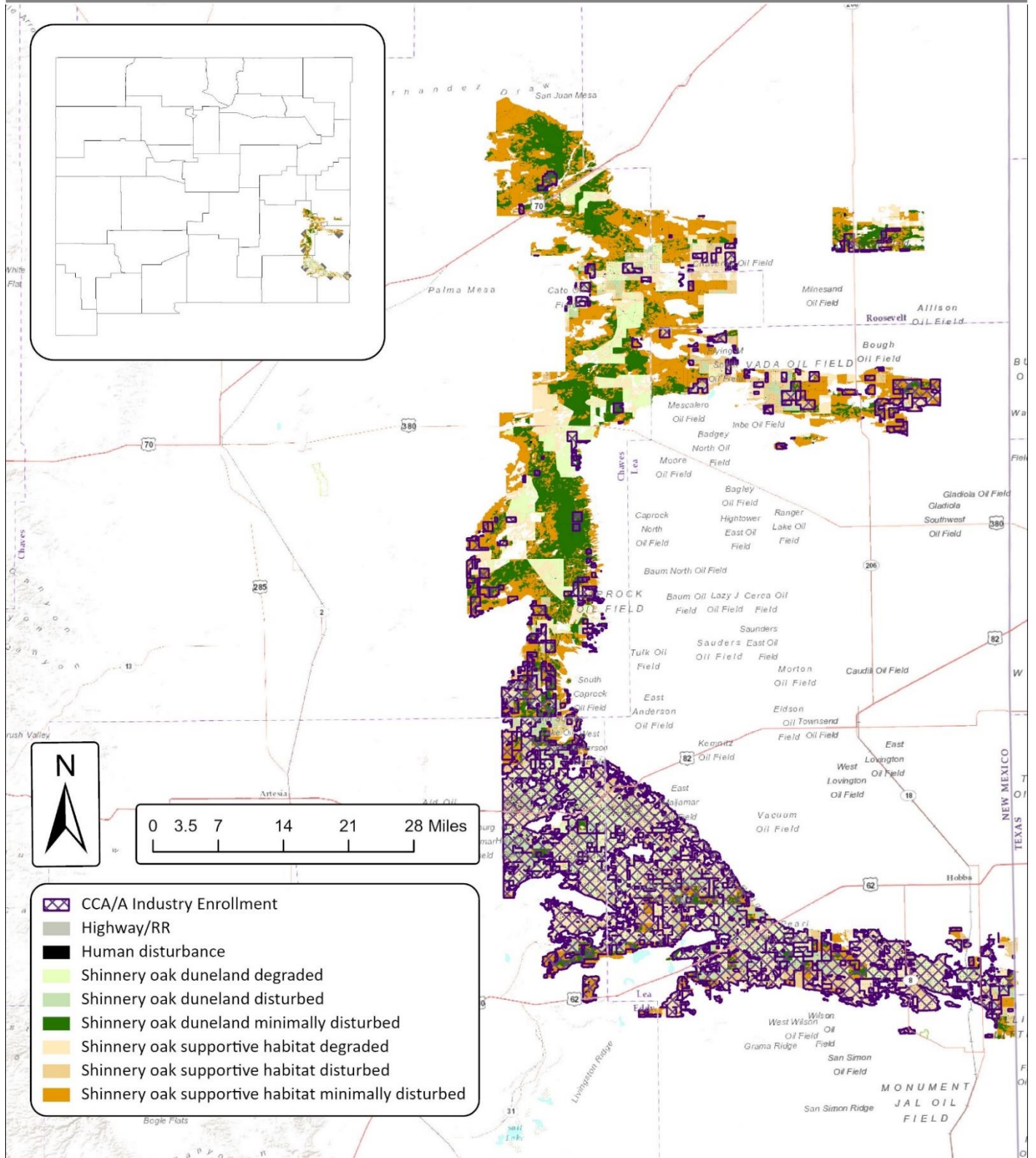


Figure 11. CCA/A industry enrollment inside DSL habitat conditions.

Table 1. Ranching and industry enrollment acreages across the 2013 CHAT Categories.

CHAT Scores	Ranching Enrollment	Industry Enrollment
CHAT 1 (Federal)	55,306.34 acres	3,831.17 acres
CHAT 1 (Non-Federal)	23,976.14 acres	75,451.30 acres
CHAT 2 (Federal)	5,612.85 acres	0 acres
CHAT 2 (Non-Federal)	40,574.13 acres	46,186.98 acres
CHAT 3 (Federal)	617,322.67 acres	496,139.21 acres
CHAT 3 (Non-Federal)	461,485.94 acres	582,669.40 acres
CHAT 4 (Federal)	66,447.64 acres	48,299.96 acres
CHAT 4 (Non-Federal)	239,830.77 acres	257,978.45 acres
Total CHAT (Federal)	744,689.51 acres	548,270.35 acres
Total CHAT (Non-Federal)	765,866.97 acres	962,286.13 acres

Table 2. Ranching and industry enrollment acreages across DSL Habitat conditions¹.

Habitat Class	Ranching Enrollment	Industry Enrollment
Highway/RR* (Federal)	879.54 acres	896.60 acres
Highway/RR (Non-Federal)	451.94 acres	586.72 acres
Human Disturbance (Federal)	13,514.38 acres	13,936.17 acres
Human Disturbance (Non-Federal)	9,315.95 acres	9,489.68 acres
SOD• Degraded (Federal)	70,024.2 acres	47,691.39 acres
SOD Degraded (Non-Federal)	25,779 acres	19,679.43 acres
SOD Disturbed (Federal)	32,305.1 acres	23,923.55 acres
SOD Disturbed (Non-Federal)	18,345.96 acres	9,891.17 acres
SODMD** (Federal)	63,950.9 acres	15,540.94 acres
SODMD (Non-Federal)	47,650.2 acres	9,826.34 acres
SOSH² Degraded (Federal)	87,950.1 acres	65,448.48 acres
SOSH Degraded (Non-Federal)	60,939.1 acres	55,384.30 acres
SOSH Disturbed (Federal)	35,683.7 acres	26,571.99 acres
SOSH Disturbed (Non-Federal)	35,690.8 acres	20,319.48 acres
SOSHMD*** (Federal)	66,858.3 acres	23,771.14 acres
SOSHMD*** (Non-Federal)	114,463.2 acres	23,959.19 acres
Total DSL Habitat Conditions (Federal)	371,173.32 acres	217,780.26 acres
Total DSL Habitat Conditions (Non-Federal)	312,629.05 acres	149,136.33 acres

*RR-Railroad; •SOD-Shinnery Oak Duneland; **SODMD-Shinnery Oak Minimally Disturbed; ²SOSH- Shinnery Oak Supportive Habitat; ***SOSHMD- Shinnery Oak Supportive Habitat Minimally Disturbed

¹U.S. Fish and Wildlife Service. 2023.

CONSERVATION MEASURES

Conservation measures are agreed upon actions by Participating Cooperators, the BLM, the FWS, and CEHMM. When these actions are implemented, they can help to reduce or eliminate threats to the LPC or DSL. Below are some examples of the conservation measures that industry and ranching enrollees agree upon when enrolled in the CCA/CCAA program.

Industry Conservation Measures Examples

- Allow no new surface occupancy within 30 meters of areas designated as occupied or suitable DSL dune complexes or within delineated shinnery oak corridors.
- Bury new powerlines that are within 2 miles of LPC lek sites and within 1 mile of historic LPC lek sites.
- Allow no 24- hour drilling operation between March 1 and June 15 within Timing Zone 1.
- Conduct trench monitoring for any trench left open longer than 8 hours.
- Limit seismic exploration to areas outside of occupied and suitable shinnery dune complexes.

Ranching Conservation Measures Examples

- Improve or maintain enrolled lands as suitable LPC and/or DSL habitat.
- Allow CEHMM and its partners to survey and monitor enrolled lands.
- Prohibit leasing of enrolled lands to wind power development.
- Prohibit leasing of enrolled lands to oil and gas, where the private land holder has discretion.
- Develop and implement a grazing monitoring plan.
- Provide escape ramps in all open water sources for LPC and/or DSL.

CONSERVATION MEASURE VIOLATIONS

As the administrator of the CCA/CCAA, it is CEHMM's responsibility to provide the Participating Cooperators with formal notifications if any of the conservation measures are not being implemented as listed in their CIs and CPs. A Conservation Measure Violation (CMV) formally notifies a Participating Cooperator of the failure to implement conservation measure(s). It is similar to the BLM's Incident of Non-Compliance (INC) issued to operators that do not meet the conditions of use on their respective operations. When a CMV is issued, CEHMM will work with the Participating Cooperator to plan corrective actions specific to the conservation measures in question. No fine or penalty is assessed with a CMV; however, if three CMVs are issued in a 12-month period, the Participating Cooperator will be at risk of termination of their CP or CI. They will also lose any benefits from the CCA/CCAA enrollment any time the LPC or DSL is listed under the ESA. Due to diligent planning, consultation with CEHMM, and an understanding of the purpose of the CCA/CCAA, only one CMV was issued in 2023.



COLLABORATIVE EFFORTS

RANKING TEAM

The ranking team prioritizes each proposal using a ranking system that was developed by CEHMM staff. The team includes managers from CEHMM and biologists from the FWS, the BLM, the NMSLO, and the NMDGF. The ranking team has historically met quarterly, via phone or in person. Votes on proposed projects are taken at least once annually. The annual meeting for ranking and voting occurs in person; however, the ranking team may also vote on projects via electronic transmission at any time. A vote was passed in fall 2022 to hold fewer meetings (two or more) each year. This new schedule was implemented in 2023.

In 2023, the ranking team approved a new funding schedule. Starting in 2024, funding for habitat restoration project will be on an annual rotation for projects north or south on NM Highway 380. For example, in 2024, the CCA/CCAA will only fund habitat restoration project south of NM Highway 380, and the following year will only fund habitat restoration project north of NM Highway 380.

STAKEHOLDER COMMITTEE

The role of the stakeholder committee is to voice the concerns and opinions of the CCA/CCAA program's stakeholders. Additionally, the committee was included in the development and planning of the annual stakeholder meeting which was held on November 14, 2023 in conjunction with CEHMM's Texas Hornshell Mussel Program. Representatives from the ranching community, industry, and agencies meet virtually or in person to learn about CEHMM's efforts throughout the year.

BRUSH PARTNERS

Each year, representatives from government agencies and non-governmental organizations (NGOs) across the region meet to discuss priorities, project locations, and technological innovations for honey mesquite eradication efforts. The meeting facilitates project planning and collaboration among partners, as well as open discussion of systematic hurdles and future outlooks. The Brush Partners met in May 2023.



HABITAT CONSERVATION FUND

CEHMM establishes a Habitat Conservation Fund (HCF) for each oil and gas operator that has an executed CI or CP agreement. The contribution amount is determined by the number of acres included in their CI or CP agreement. Once land-disturbing activities are identified and permitted in the operator's certificate, conservation fees are debited from their HCF. Activities that do not occur on enrolled acreage (i.e. in Parcel-by-Parcel enrollments) are also subject to a habitat conservation fee if disturbance caused from these activities is associated with an enrolled lease. The debited amount is determined by the habitat zone (as described in the Resource Management Plan Amendment (RMPA)) in which surface-disturbing activities occur. CEHMM manages each Participating Cooperator's HCF by tracking balances and debiting when appropriate.

Approximately 10 percent of the funds that are received through industry participation are allocated to overhead such as building rentals, utilities, and insurance. The remaining balance is used solely and exclusively in support of the CCA/ CCAA programs which include but are not limited to: planning and implementation, on-sites, grazing programs, projects authorized by the ranking team, research, enrollments and amendments, project monitoring, education and outreach, and support services (e.g. vehicles and equipment).

GRANTS

CEHMM has sought grant funding from federal and private sources. Grant funding can facilitate new partnerships with agencies and granting institutions, as well as diversify funding sources for the future. Currently CEHMM has two grants through the National Fish and Wildlife Foundation that were matched with CCA/A funds approved by the Ranking Team.

Southern Plains Grasslands 2022 (NFWF)

- Funded mesquite sprays on 3 ranches, totaling 7,000 acres.
- Funded 5 miles of fence removal, some of which was completed in 2023 and others are currently in progress for 2024.

Southern Plains Grasslands 2023 (NFWF)

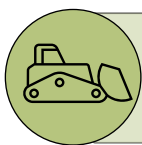
- Funded mesquite sprays on 3 ranches covering 5,150 acres.



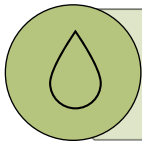
OVERVIEW

Enrollees, universities, government agencies, and others may submit project proposals to the ranking team for funding consideration. CEHMM personnel work closely with enrollees to develop project proposals. Projects are separated into two groups: 1) reclamation and restoration and 2) research and education. Reclamation and restoration projects improve habitats for the species, including but not limited to the following: mesquite treatment, improved infrastructure relating to improved grazing management, caliche removal, and reseeded. Research projects are projects that help to improve the knowledge of the species or their habitats, resulting in conservation of the species and their habitats. Education projects must promote the ecology of the southern shortgrass prairie and the flora and fauna of the associated ecosystem with an emphasis on the LPC and DSL. All of the proposal categories have unique ranking systems. After the proposals are evaluated and scored, the team convenes to assess the benefits of each proposal regarding the two species of concern and, by a majority vote (consensus), determines which projects should be funded. This methodology provides an objective, non-biased system of evaluation by biologists from the different agencies.

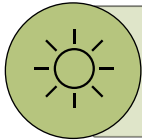
The upcoming sections describe the types of projects or activities funded by the CCA/CCAA Program. This section of the report will delineate 1) projects that have been funded and are awaiting completion and 2) projects that were completed in 2023. Additionally, Appendix A describes all projects completed through the CCA/CCAA Program.



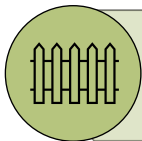
2023 Mesquite Treatment - Weaver Ranch (2,878.30 acres)
2023 DSM Removal - Completed on four ranches (3,615.14 acres)



2023 Waters - Installed 7 water troughs
2023 Pipelines - Installed pipelines (12.34 miles)



2023 Windmill Removals - Removal of 10 windmills
2023 Solar Conversions - Converted 5 of the 10 removed windmills



2023 Fence Removals - Removed dilapidated fencing (9.43 miles)
2023 Fence Replacements - Replaced fencing (14.03 miles)

MESQUITE TREATMENT

Mesquite, although a native species, is universally accepted as an invasive and highly competitive shrub. Mesquite can encroach onto landscapes that did not historically support the species and into areas that have experienced disturbance or changes in natural ecological processes over a significant period of time. Habitat fragmentation, due to mesquite encroachment, can cause a decline in forage availability and can increase the risk of predation in LPC populations (Lautenbach, et al. 2017). In addition to fragmenting habitats, high densities of mesquite can affect nesting site locations. In fact, research has shown that female LPCs tend to avoid areas with low to medium tree density (Lautenbach, et al. 2017). Lautenbach, et al. (2017) also explains that eradicating and removing mesquite opens up habitat for lekking, nesting, and brood-rearing. CCA/CCAA funded research determined that, where present, mesquite canopy in occupied LPC habitat does not exceed 15 percent (Boggie, et al. 2017). Through interspecific competition with beneficial grasses, forbs, and shrubs, mesquite has increased in frequency and caused these grassland landscapes to transition into shrub lands or shrub/grasslands which are less suitable for the LPC. Chemical treatment through hand and aerial applications is the primary method CEHMM has used to suppress mesquite in LPC habitat. By removing mesquite, native grasses have the opportunity to reestablish due to the increased water availability (Jones, 2008), which in turn provides suitable habitat for nesting, brooding, foraging, and cover for the LPC. During all life cycles, the LPCs rely on native grasses and forbs. By clearing mesquite, these grasses and forbs should become more productive, and habitat should convert from a shrub-dominated landscape back to a native prairie.

Benefits of hand applications (Figure 12) include:

- The hand application can be performed year-round. This allows land managers to respond to requests any time of year, and it is not constrained by seasonal leaf emergence as is the case with aerial applications.
- This application causes no negative impacts on non-target plants within a defined area and alleviates any inadvertent harmful effects on non-target species due to direct application or spray drift associated with aerial treatments. Figure 12 shows individual mesquite shrubs that were sprayed by hand. The blue coloring is a dye used to ensure that the chemical was applied properly and only to the desired plant.

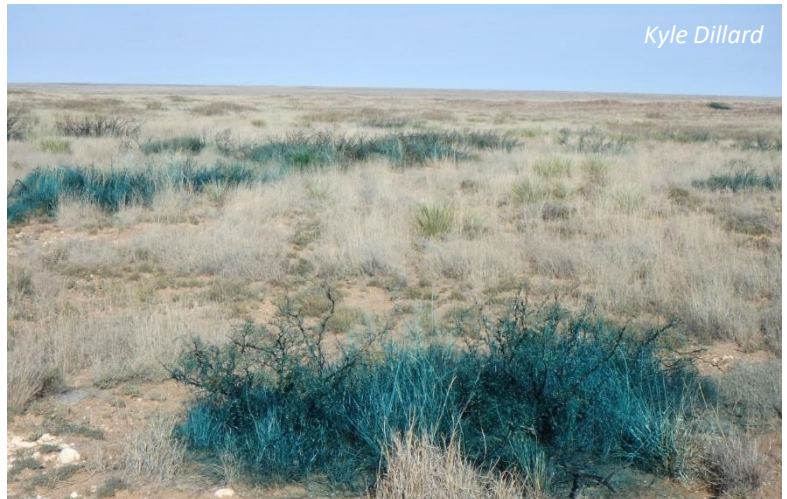


Figure 12. Hand treatment of mesquite.

- The application can be used effectively in close proximity to other sensitive areas such as agricultural crops or near resident livestock.
- This method allows the precision to avoid mesquite occupied by resident wildlife including occupied (protected) bird nests. This also applies to any sensitive insects, reptiles, mammals, or protected plants in the near proximity.
- Hand application is highly effective; in fact, initial observations indicate hand sprays are over 95 percent effective. This is evidenced by chlorosis (yellowing) in the leaves and other visible signs of stress within only days of prescribed treatments, and when applied during the winter, an even higher percentage of stressed and/or dying mesquite is observed.
- Chemicals and carriers are continually being improved; therefore, it is essential to work with the applicator and chemical companies to determine proper mix and timing.

Benefits of aerial applications (Figure 13) include:



Figure 13. Aerial treatment of mesquite.

- Aerial applications are less expensive than hand treatments. Costs typically range from \$20-\$50 per acre for electrostatic and conventional applications. The costs for requisite support personnel and administrative services in support of aerial application are not included in the per acre cost.
- Electrostatic technology charges the spray particles as they leave the spray boom on the airplane. This charge causes the spray particles to be attracted to the plants and allows for more of the chemical to contact the target species, which improves the effectiveness of the treatment.
- Chemicals and carriers are continually being upgraded; therefore, it is essential to work with the applicator and the chemical companies to determine proper mix and timing.

- Although constrained by seasonal status and overall plant condition (Figures 14 and 15), this method encompasses much larger expanses of landscape in less time, with highly effective results.



Figure 14. Fungal rust on mesquite leaves is indicative of a condition that is not ideal for treatment.



Figure 15. Damage from insects (i.e., *Mozena lunata*) cause the mesquite to be in poor condition for treatment.

In 2023, approximately 2,878 acres of mesquite were treated on one enrolled ranch (Figure 16). More information about this project can be found in Appendix A. When combined with treatments completed in the past, CEHMM has sprayed a total of 108,034 acres of mesquite (Appendix C). Mesquite control of this nature improves habitat for the LPC and mitigates mesquite encroachment into dune areas that are suitable for the DSL.

BRUSH CONTROL UPDATE | 2023

Mesquite Treatment Efforts

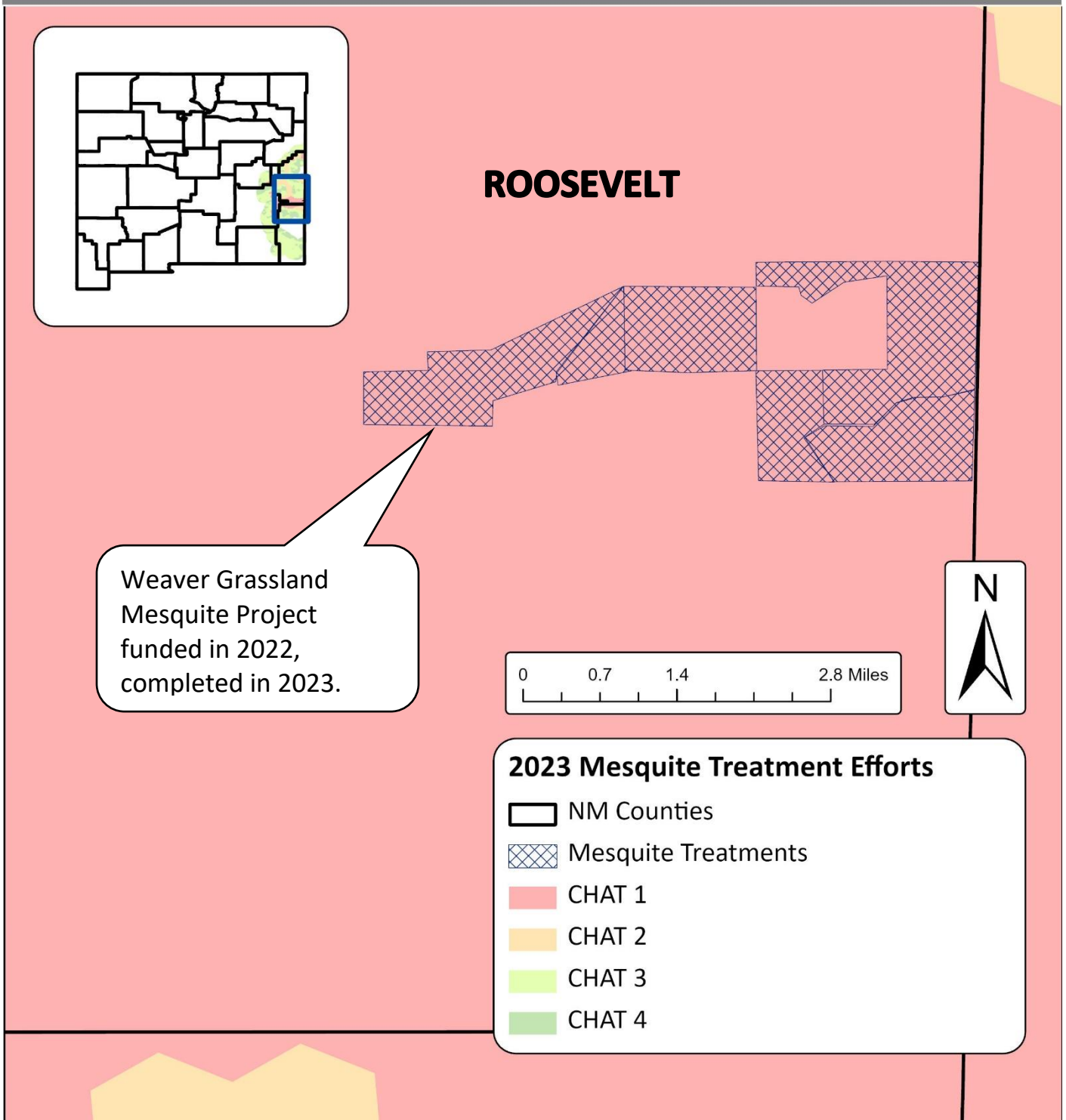


Figure 16. Aerial mesquite treatments completed in 2023.

REMOVAL OF DEAD, STANDING MESQUITE

Research indicates that the LPC tends to avoid vertical structures in their habitat, including mesquite (Boggie, et. al. 2017). It is recommended that all mesquite be removed within two kilometers from historic and active leks. CEHMM, the FWS, the BLM, and the NRCS, have voiced concerns about erect skeletons, as sprayed mesquite cannot be considered “removal of woody species or removal of vertical structures” until the skeleton is removed. Therefore, in 2015, with the approval of the ranking team, CEHMM purchased two track steers and rotary cutter attachments (Figure 17) to remove dead, standing mesquite (DSM) on landscapes that the ranking team deemed ready for removal (Figures 18 and 19). Since then, CEHMM has obtained two additional track steers and mastication implements. The decision to remove DSM is based on the project’s proximity to an active lek along with an average of 80 percent kill of the mesquite that had been chemically treated at least two full years prior to the mechanical removal. CEHMM staff have been trained to safely operate these machines, not only for their personal safety, but to ensure the soil is not disturbed through the actions of the machinery. Currently, CEHMM has four machines in operation and has successfully removed 22,396 acres of DSM (Appendix C). In 2023, approximately 3,616 acres of DSM were removed from four enrolled ranches (Figure 20); more information about these projects can be found in Appendix A.



Figure 17. Skid steer outfitted with rotary cutter attachment.



Figure 18. Pasture before DSM removal.



Figure 19. Pasture after DSM removal.

BRUSH CONTROL UPDATE | 2023

DSM Removal Efforts

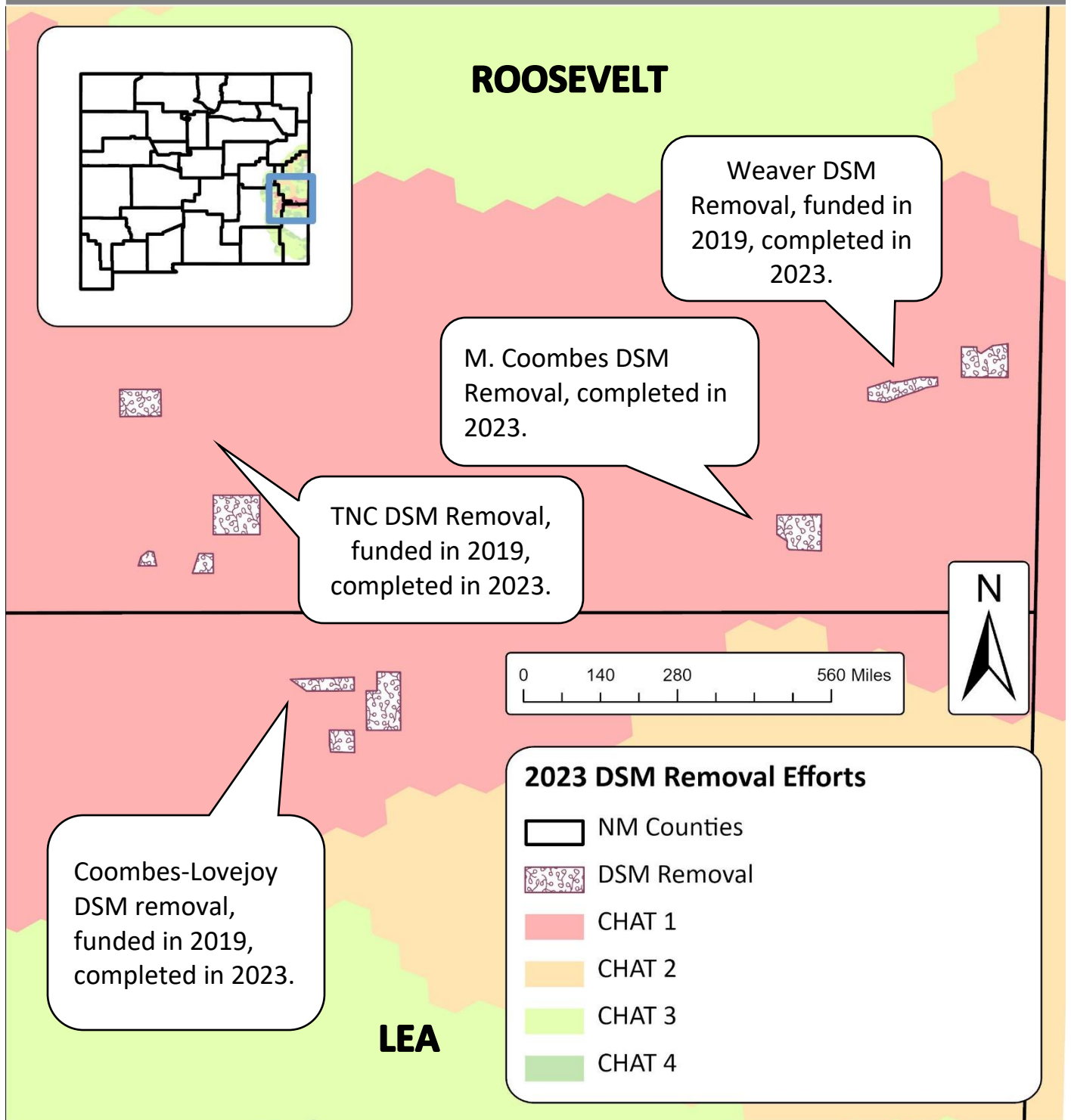


Figure 20. DSM removal efforts completed by CEHMM in 2023.

WATER IMPROVEMENTS

In 2007, the National Wildlife Federation published concerns regarding the serious threat of livestock watering tanks to indigenous wildlife throughout the arid southwest (Di Sylvestro, 2007). This threat is not exclusive to birds - it also includes insects and mammals, such as bats. When an animal falls into a livestock tank while attempting to access water, it inherently struggles to the sides of the tank in an attempt to escape. To avoid these situations, escape ramps are installed to provide a mechanism to facilitate the entrapped animal's escape (Figure 21). CEHMM escape ramps are modeled after proven BLM standard ramp designs. To increase traction for an entrapped animal and extend ramp longevity, the ramps are coated



Figure 21. Escape ramp installed in water tank.

prior to installation with a stable, non-toxic textured polymer material (similar to spray-on truck bed liners). In 2014, CEHMM changed the escape ramp design, adding a rubber hose around the perimeter of the ramp to prevent the metal from rubbing on the side and bottom of the tanks, which previously created holes in some water troughs. All previously installed ramps with the old design have been retrofitted or replaced to prevent the rubbing. To date, 718 escape ramps have been installed in water troughs on ranches with signed CIs (CCAA) and CPs (CCA). CEHMM will continue to install escape ramps on enrolled ranches within LPC and DSL habitats.

In 2013, CEHMM held a strategic meeting where researchers identified grazing management as the primary concern for the LPC. In order for producers to effectively graze, infrastructure (e.g., fences and waters) must be in place to ensure adequate rotation of cattle, promoting the health of the rangeland and improving LPC habitat. Because of these expert discussions and conclusions, the ranking team prioritized funding for water projects. In 2018, a similar meeting was held, and participants again determined grazing/rangeland health to be a primary concern.



Figure 22. Old windmill prior to solar conversion.

The availability of water is one of the key issues facing native grasslands in eastern New Mexico. Concerns pertaining to livestock grazing are discussed in the CCA/CCAA. Due to water sources being a limiting factor in livestock management, it is essential to provide producers with the ability to develop reliable and well-distributed watering points. This aids livestock management in a fashion that creates suitable LPC habitat. The installation of new stock tanks, wildlife waters, water pipelines, and water storage tanks on enrolled ranches provide critical water sources allowing ranch and livestock managers to utilize the landscape more efficiently. These water sources are not only critical to providing suitable habitat, but they may also serve the LPC in times when diet and surface water, dependent on precipitation, are not adequate for hydration. All troughs were outfitted with escape mechanisms, per CCA/CCAA requirements, to eliminate the risk of drowning when the LPC and other wildlife are utilizing these troughs (Figure 21).

Water wells outfitted with windmills (Figure 22) have been found to be undependable water sources due to windmill age and repair

expenses. Wind is not a constant force and usually subdues during the hottest time of the year, resulting in reduced water delivery into troughs.

While the initial investment in a solar pump is expensive, the maintenance, repair, and longevity of the product far outweigh the initial investment. Converting a water well from a windmill to a solar pump also includes removal of the tower and associated windmill, as they are no longer necessary and are identified as potential threats (vertical structures) to the LPC (U.S Fish and Wildlife Service, 2008). After the tower is removed, the solar panel and associated submersible pump are installed. The pumps are very efficient since they only require a small amount of direct sunlight to power them.

In a three-year study, Grisham, et al. (2014) documented 1,245 LPC visits at open water sources (Figure 23). This study illustrates the necessity to provide water sources for the LPC, especially in times of drought. Over time, water troughs become degraded and unable to hold water, thus eliminating a crucial water source needed by the LPC and other wildlife. Troughs of this nature are replaced with new, fiberglass troughs (Figure 24) outfitted with escape ramps.

With adequate and reliable watering facilities, Participating Cooperators are able to manage their grazing operations in a fashion that leaves residual grasses and cover for the LPC to use for nesting and brood-rearing. Installing adequate water sources allows ranchers to combine herds, which in turn gives ranchers the ability to rest pastures.



Matt Mathis

Figure 23. Lesser prairie-chicken at an open water source.



Austin Wilson

Figure 24. Fiberglass water trough with solar well.

In 2023, seven water troughs and 12.3 miles of water pipeline were installed on three ranches (Figure 25). CEHMM also funded ten windmill removals on two ranches in 2023. Out of the ten windmills that were removed, five were converted to solar pumps and the remaining were plumbed into existing water sources. More information about the water projects completed in 2023 can be found in Figure 25 and Appendix A. To date, CEHMM has removed 28 windmills and converted 23 of those windmills to solar pumps, replaced 59 water troughs, and installed 46.3 miles of water pipeline (Appendix A).

WATER UPDATE | 2023

Water Improvement Efforts

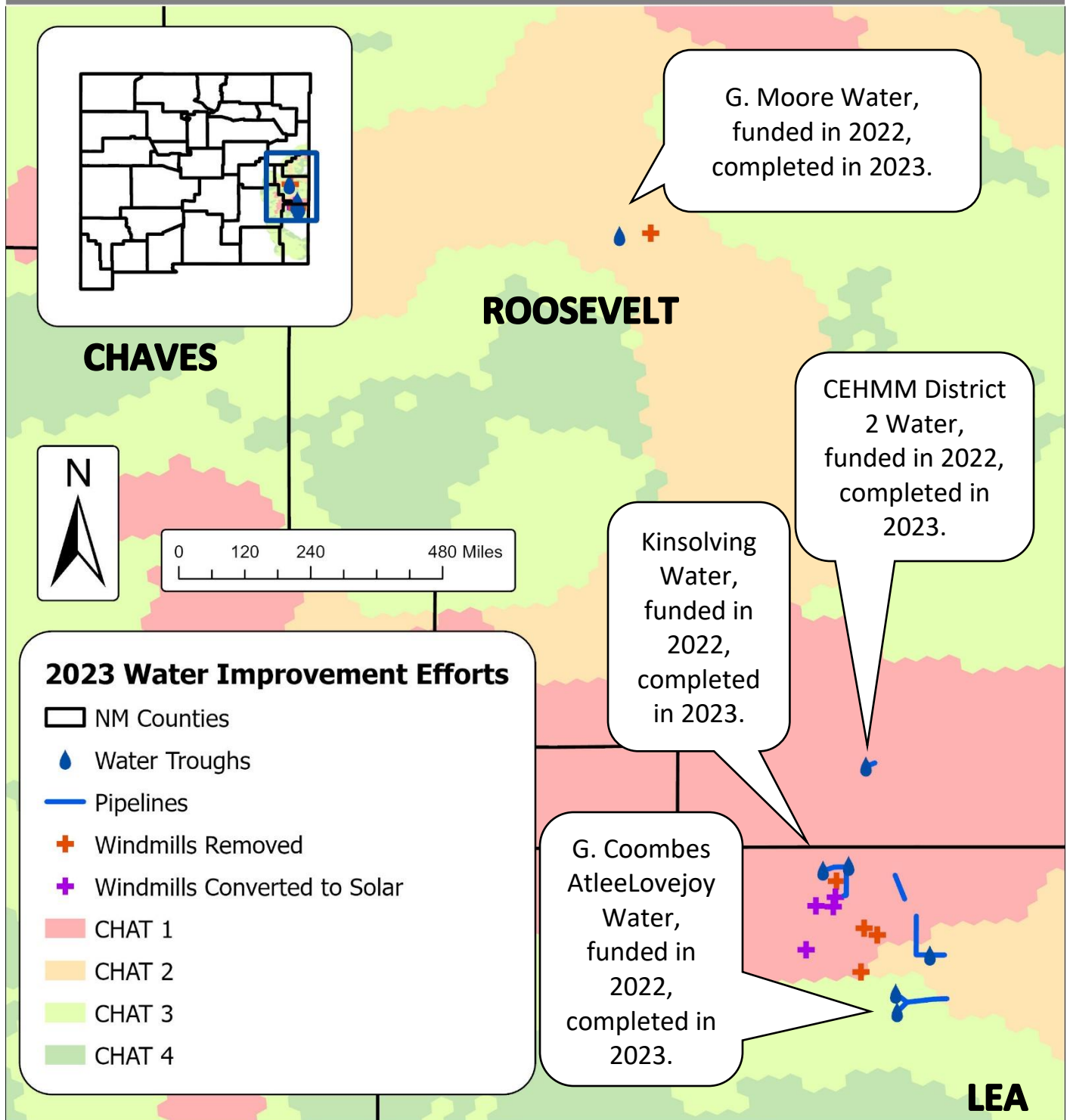


Figure 25. Water improvements completed in 2023.

FENCE REMOVAL AND REPLACEMENT

Fencing, paired with the implementation of a ranch-wide grazing management plan, benefits all grassland species, including the LPC. The installation of wildlife-friendly fences allows enrollees to graze cattle more efficiently, allowing other pastures to rest. Adequate rest provides recovery time for native grasses and forbs, while also providing suitable habitat for nesting, brood-rearing, foraging, and cover for the LPC. Removing old, dilapidated fencing (5-strand barbed, and sheep fence; Figure 26) and replacing with new wildlife-friendly fencing (Figure 27) also decreases the risk of trespass cattle on the enrolled property, giving enrollees better control of their management practices. In addition to the LPC benefits described above, wildlife-friendly fences allow for adequate clearance (18 inches) for pronghorn and other wildlife to cross underneath the smooth bottom wire, and for deer to cross the top wire without risk of entanglement of their legs. In 2023, 9 miles of boundary fence and 12.5 miles of interior fencing were replaced on three enrolled ranches. In 2023, 9.43 miles of old, dilapidated fencing were removed on two enrolled ranches to reduce the hazard for wildlife. More information about the fencing projects that were completed in 2023 can be found in Figure 29 and Appendix A.



Figure 26. Dilapidated boundary fencing in need of replacement.



Figure 27. Wildlife-friendly boundary fencing.

CALICHE REMOVAL AND RESEEDING

Caliche, a layer of calcium carbonate that has been precipitated below the soil surface, has been used to construct roads and well pads in areas where the soil is loose. 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 (Figure 28). By removing 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. To date, CEHMM has reclaimed 154 roads and pads and reclaimed and reseeded 159.2 acres through the CCA/CAA (Appendix C). No reclamations were completed or monitored in 2023.



Figure 28. CEHMM staff preparing an old pad for reseeding.

FENCE UPDATE | 2023

Fence Improvement Efforts

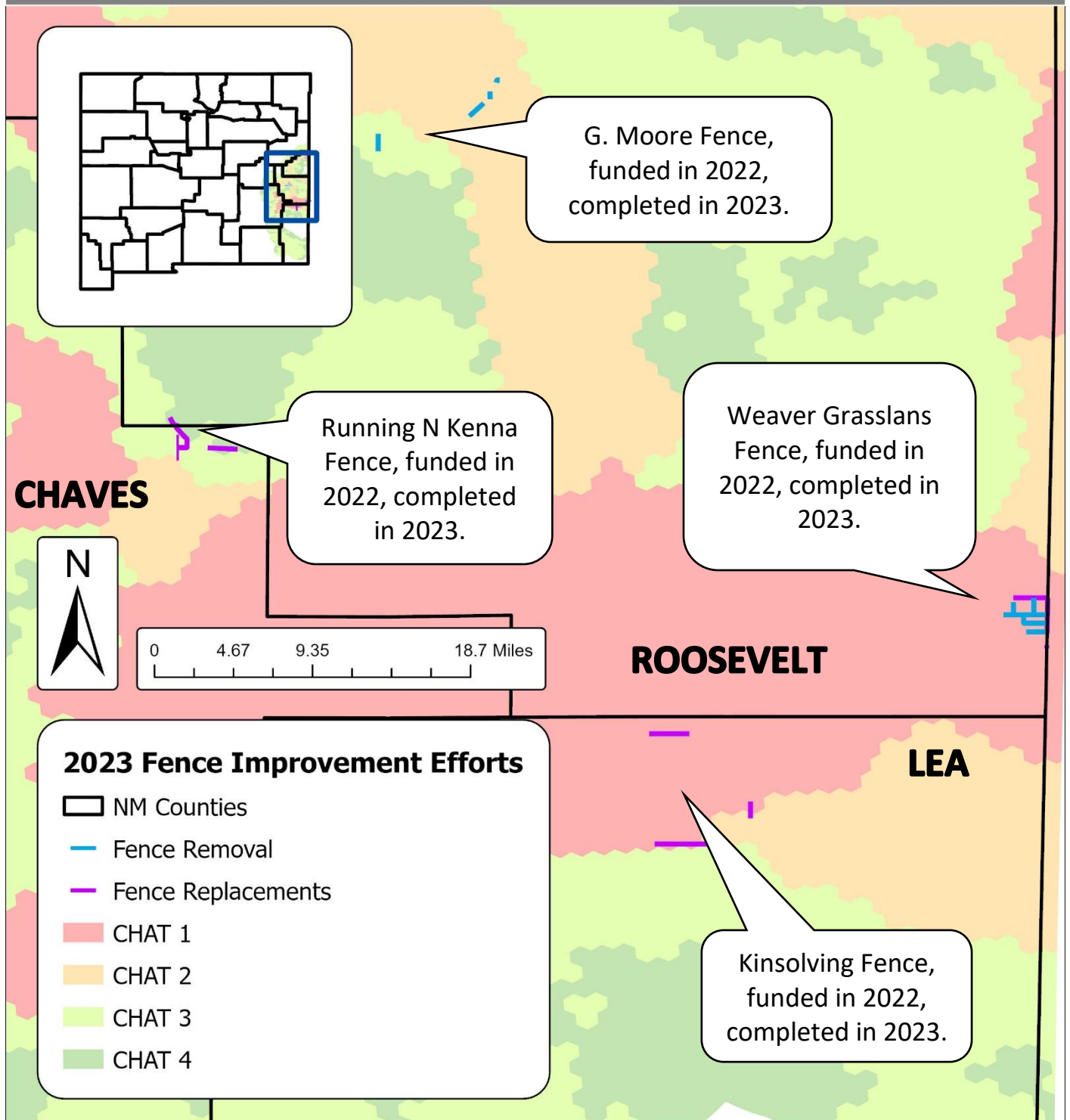


Figure 29. Fence removals and replacements that occurred in 2023.

RESEARCH

Evaluation of Prescribed Fire and Grazing on Lesser Prairie-Chicken Ecology in New Mexico - Texas Tech University –

This project aims to assess the impact of prescribed fire and grazing on LPC habitat in eastern New Mexico. Due to the species' need for a heterogenous habitat, the mosaic produced by pairing prescribed fire and grazing may likely be beneficial for the LPC. The study was funded in 2018 and the ranking team voted to extend funding for the effort through 2025. Thus far, this project has produced two peer- reviewed research articles (DOIs: 10.1002/jwmg.22146 and 10.3390/rs14153780) with a third publication submitted in 2023 and a fourth publication expected in 2024.

Dunes Sagebrush Lizard Population Monitoring Plan Development - USGS – This project will request data from partnering agencies to help create an activity budget for the DSL following standard methodologies. In addition to this, the monitoring plan will estimate two important aspects of the biology of DSL: occupancy and demography. These aspects account for the geographic spread (occupancy) and the population dynamics (demography) of populations throughout the range of the lizard. The contract for this study was extended in 2023, for data collection and analysis of the DSL range and population. Once the study is complete, reports are expected to be published on the findings.

Quantifying Benefits of Well Site Selection to Avoid Disturbance of Shinnery Oak Dunes and Limit Fragmentation Across Geographic Range of DSL - Texas A&M University

This project was contracted to study the effectiveness of the mitigation strategies implemented to prevent habitat fragmentation and maintain connectivity of DSL habitat. The goal of this project is to quantify the efficacy of these mitigation strategies across multiple scales from individual well sites to thousands of acres. The results of these analyses will help CEHMM, the FWS, the NMDGF, the oil and gas industry, landowners, and other stakeholders understand the extent to which selective well pad and road placement is conserving large contiguous areas of shinnery oak dunelands. This project was contracted in 2022 and is ongoing.

Natural Heritage LPC Data Management Amendment - This project was funded in 2014. Natural Heritage New Mexico consolidated all historic New Mexico LPC data, including raw data yet to be validated or published, into an easily accessible database. This project was re-funded in 2018 for two additional years (2019 and 2020) of data collection and maintenance of an LPC database. The contract for this project was extended in 2023 to last until 2025.

Short Duration/ High Intensity Grazing and Its Effect on Vegetation and Soil Health in Southeastern New Mexico - This project was funded by the NRCS under the New Mexico Conservation Innovation Grant Program. The objective is to determine if a grazing system utilizing high stock densities in small paddocks for a short duration can be economically and ecologically feasible in a low-rainfall area. This project is focused on a 320- acre parcel of land (Figures 30 and 31) that was previously used for crop production and has been allowed to naturally re-vegetate with native vegetation. This has led many desirable plant species to re-populate the area, along with some invasive species (e.g., Lehmann's lovegrass (*Eragrostis lehmanniana*)) and undesirable brush species (e.g., catclaw acacia (*Senegalia greggii*)). Additionally, the previous agricultural use of this land left soil health in poor condition in many areas with high bare ground measures throughout. The study found the high intensity/short duration grazing treatment resulted in greater soil health and a stable response to climatic variability (e.g., drought) when compared to the traditional grazing system employed within the control plot. However, this grazing system did not reduce the spread of invasive or undesirable species within the project area. This project received a funding extension until 2025.



Figure 30. Study site immediately after high-intensity, short-duration grazing commenced.



Figure 31. Study site one month after high-intensity, short-duration grazing commenced.

LIST OF CURRENT & FUTURE PROJECTS

There are multiple research projects that were funded by CEHMM and are ongoing; to read more about them, visit the Research section above.

New Habitat Restoration Projects Funded in 2023

Bogle Fence and Mesquite Proposal

Approved: August 2023

Fence Funded: August 2023; **Mesquite Funded:** Expected for 2024

Budget: \$1,056,723.28

Description: Remove and install 15 miles of fence, and aerielly treat approximately 9,896 acres of mesquite.

Benefit: Allow the rancher to implement effective rotational grazing techniques. Reduce vertical landscape structures from LPC habitat.

Location: CHAT 3. North of Loco Hills, NM.

Dillard-Howard Trust Water

Approved & Funded: August 2023

Budget: \$45,122.38

Description: Install a 20-foot fiberglass tank and a new solar pump.

Benefit: Allow the rancher to improve grazing management on the property.

Location: Entirely within CHAT 1.

Kerby Fence, Water, and Mesquite Proposal

Approved & Funded: August 2023

Budget: \$526,379.67

Description: Remove old fencing and install 12.5 miles of new wildlife-friendly fence, install three 20-foot fiberglass water tanks, install 5.5 miles of water pipelines, and aerielly treat approximately 2,262 acres of mesquite.

Benefit: Allow the rancher to improve his overall management of the property by allowing him to implement an effective rotational grazing program. Remove vertical landscape structures that the LPC tend to avoid.

Location: Both CHAT 3 and CHAT 4. North of Maljamar, NM.

Malcom Coombes 2023 Fence

Approved & Funded: August 2023

Budget: \$220,000.00

Description: Remove old fencing and install 7.8 miles of wildlife-friendly fence.

Benefit: Improve the overall management of the property by allowing the rancher to implement an effective rotational grazing program.

Location: Entirely within CHAT 1.

Mathis Fence

Approved & Funded: August 2023

Budget: \$293,181.02

Description: Remove old, dilapidated fencing and install approximately 9.6 miles of wildlife-friendly boundary fence.

Benefit: Improve the overall management of the property by allowing the rancher to implement an effective rotational grazing program.

Location: Entirely within CHAT 1.

McCloy Mesquite

Approved & Funded: August 2023

Budget: \$75,235.75

Description: An aerial mesquite treatment of approximately 871 acres.

Benefit: Remove vertical landscape structures that LPC tend to avoid. Reduce LPC habitat fragmentation.

Location: Entirely within CHAT 1.

Smith Fence Proposal

Approved & Funded: August 2023

Budget: \$257,145.05

Description: Remove approximately 7 miles of dilapidated boundary fence and 3.5 miles of dilapidated interior fence and replace with new wildlife-friendly fencing.

Benefit: This project will create a safer environment by removing old, dilapidated structures that are harmful to wildlife. In addition, new fencing allows the landowner to implement an efficient and effective grazing management program. As it currently stands, the rancher is not able to control the grazing pressure on his property because the fences do not restrict the neighboring cattle from entering. Once the new fences are installed, it will allow the rancher to control the stocking rates and help him prevent overgrazing on the property.

Location: Within CHAT 3 and CHAT 4.

Taylor Peak Mesquite Treatment

Approved & Funded: August 2023

Budget: \$38,139.01

Description: An aerial mesquite treatment of approximately 484 acres.

Benefit: Remove undesirable vertical structures from LPC habitat. Reduce LPC habitat fragmentation by removing invasive plant species. The removal of the mesquite will ensure that the LPC habitat remains intact and the species can utilize this area in the future.

Location: Entirely within CHAT 3.

Projects Funded and Awaiting Completion

K. James Wildlife Water Amendment

Status: Awaiting Completion

Funded: June 2016 (Amended 2018)

Budget: \$39,451.89

Units: Install 1.25 miles of water pipeline, 1 new water trough, 1 new solar-powered pump, and 1 new LPC water source; Remove old windmill.

Description: This water project will provide a safe water source for the LPC. It will also provide a water trough for cattle to utilize, which will assist the Participating Cooperator in grazing management. A windmill will also be removed and replaced by a solar-powered pump. Approximately 1.25 miles of buried pipeline will be installed to plumb the new water sources. Some initial planning costs have been recorded, although the project will not break ground until a later date due to the sale of the ranch.

Davis Mercantile Historical Plaque/Marker

Status: Awaiting Completion

Funded: August 2019

Budget: \$6,354.88

Units: Install 1 roadside marker and 1 historical plaque.

Description: CEHMM personnel worked with the New Mexico Historic Preservation Division to list the Davis Mercantile as a historical building. It was approved and listed in early 2019 as a Historical District with both the state and National Register of Historic Places. Staff will place a historical roadside marker and mount a historical plaque on the store.

2019 DSL Habitat Reclamation

Status: Awaiting Completion

Funded: August 2019

Budget: \$42,784.30

Units: Remove 3.3 miles of caliche; Remove 0.6 acres of caliche

Description: Approximately 3.3 miles of caliche will be removed from an oilfield road which is no longer in use. In addition to the road, caliche will be removed from one pad (0.6 acres) that is no longer in use. The DSL will benefit from the removal of these unnatural landscape alterations as habitat fragmentation is reduced and/or eliminated.

G. Coombes Atlee-Lovejoy Mesquite

Status: Awaiting Completion

Funded: March 2022

Budget: \$79,571.41

Units: 1,250 acres

Description: Adjacent to a previous mesquite spray (and now DSM project), this aerial mesquite project will reduce habitat fragmentation across this portion of the ranch. Combating mesquite encroachment here will provide connectivity (once the DSM has been removed) with neighboring mesquite eradication efforts, as well as encourage growth of native grasses and forbs.

Kinsolving Mesquite

Status: Awaiting Completion

Funded: March 2022

Budget: \$142,282.66

Units: 2,300 acres

Description: The aerial mesquite treatment (and its subsequent DSM removal) will improve connectivity of LPC habitat on the ranch. The encroachment of mesquite also results in reduced canopy coverage of native plants beneficial to the LPC throughout its life. Since this ranch is connected to multiple CCA/CCAA enrollees, this project is of great importance in working toward landscape level habitat efforts and will also benefit Kinsolving's neighbors.

M. Coombes 2022 Mesquite

Status: Awaiting Completion

Funded: March 2022

Budget: \$100,475.16

Units: 1,600 acres

Description: The target area for this aerial mesquite treatment is adjacent to an area that was recently treated by the NRCS. This extension of treated acreage will ideally increase habitat availability for the LPC for lekking, nesting, and brood-rearing once the DSM has been removed.

Pembers DSM

Status: Awaiting Completion

Funded: March 2022

Budget: \$45,784.55

Units: 1,600 acres

Description: This project was strategically laid out to address the mesquite encroachment across this entire property. Eradicating and removing the mesquite will open up habitat for lekking, nesting, and brood-rearing. Once the mesquite plant is dead, the skeleton of the plant remains as a vertical structure and requires removal to actually deliver a conservation benefit for the LPC.

Running N DSM

Status: Awaiting Completion

Funded: March 2022

Budget: \$148,777.39

Units: 5,800 acres

Description: Located just east of a BLM Area of Critical Environmental Concern (ACEC), eradicating and removing mesquite in this area will open up habitat for lekking, nesting, and brood rearing. Once the mesquite plant is dead, the skeleton of the plant remains as a vertical structure and requires removal to actually deliver a conservation benefit for the LPC.

Running N Kenna Mesquite

Status: Awaiting Completion

Funded: March 2022

Budget: \$280,784.94

Units: 4,619 acres

Description: Since mesquite is a problematic brush species for the LPC, a project of this magnitude will be crucial to restoring the native plant species the LPC requires for nesting, lekking, and brood-rearing. Paired with proper grazing management and subsequent removal of the skeletons, we expect to reduce vertical structures on the landscape and see an increase in native canopy coverage of necessary grasses and forbs. This project will greatly improve the landscape on a majority of the property.

Robert Jolley Fencing Improvement

Status: Awaiting Completion

Funded: October 2022

Budget: \$120,215.80

Units: 5.75 miles of fence

Description: The removal of dilapidated fencing and installation of new wildlife-friendly fencing will protect potential LPC and DSL habitat from being inadvertently overstocked and/or overgrazed by the neighboring ranch, and it will also remove a potential wildlife hazard from the area.



NET CONSERVATION GAIN

OVERVIEW

In conjunction with the FWS, CEHMM finished calculating Net Conservation Gain (NCG) achieved through the CCA/CCAAs. NCG compares the amount of LPC habitat reclaimed or restored to the amount of habitat lost due to development. NCG is used to calculate LPC habitat, but not DSL habitat. DSL habitat is not considered in NCG because the CCA/CCAA's state take is not allowed in DSL habitat. Operations not enrolled in the CCA/CCAA were not considered in this process. Practices that achieve a conservation gain include, but are not limited to, removal of windmills, reclamation of legacy pads and roads, treatment of mesquite, removal of DSM, and removal of power lines and poles. Although fence and water projects are not considered when calculating NCG, CEHMM believes that these improvements are important and are improvements to the land. In 2023, approximately 18,425.86 acres were improved through fence projects, and 14,729.66 acres were improved due to water projects. Habitat loss occurs during construction of new infrastructure on enrolled operations. Such infrastructure includes new oil wells, frac ponds, rights-of way (ROW) and central tank batteries (CTB). Infrastructure that was in place prior to the implementation of the CCA/CCAA that has not been reclaimed was considered in the NCG calculations. Accounting for these prior disturbances is important because new development may not have resulted in habitat loss because existing development had already caused loss of habitat. Additionally, a five-year strategic plan was drafted and will be combined with the NCG document. This compilation will outline CEHMM's planned conservation activities and will explain how the greatest conservation and habitat gain for both species can be achieved. The FWS reviewed the documents, and they have also recommended that CEHMM determine a conservation value for projects that have positively impacted LPC habitat through improved grazing management practices (i.e. rangeland improvement projects). Throughout the Core Management Area and the Primary Population Area in 2023, there has been a net gain of over 6,563 acres of LPC habitat through the conservation activities listed above (Table 3). This gain in habitat created more connectivity between occupied habitat patches. The five-year strategic plan identified mesquite eradication as the top priority for LPC habitat restoration. Implementation of mesquite eradication projects that are already planned will lead to a minimum of 6,000 more acres of LPC habitat being restored.

2023 Fence Projects

- 18,425.86 acres improved by installing 14.03 miles of fencing and removing 9.43 miles of old hazardous fencing.

2023 Water Projects

- 14,729.66 acres improved by installing 7 water troughs and 12.34 miles of water pipeline.

Table 3. 2023 Net Conservation Gains Across CHAT Scores.

CHAT Score	Habitat Gain	Habitat Loss	Net Conservation Gain
CHAT 1 (Federal)	0 acres	0 acres	0 acres
CHAT 1 (Non-Federal)	6,563.71 acres	0 acres	+ 6,563.17 acres
CHAT 2 (Federal)	0 acres	0 acres	0 acres
CHAT 2 (Non-Federal)	0 acres	0 acres	0 acres
CHAT 3 (Federal)	0 acres	10,950.59 acres	(-) 10,950.59 acres
CHAT 3 (Non-Federal)	0 acres	5,719.74 acres	(-) 5,719.74 acres
CHAT 4 (Federal)	0 acres	165.75 acres	(-) 165.75 acres
CHAT 4 (Non-Federal)	0 acres	545.31 acres	(-) 545.31 acres
Total (Federal)	0 acres	11,116.34 acres	(-) 11,116.34 acres
Total (Non-Federal)	6,563.71 acres	6,265.05 acres	(+) 298.12 acres

MONITORING

SPECIES MONITORING

In 2023 as part of a project funded in 2018, CEHMM staff assisted herpetologist Mike Hill (Figure 32) in surveying eight pitfall trap grids to determine occupancy of suitable habitat and demographics of the DSL on eight enrolled ranches. A pitfall trap is a five-gallon bucket that is placed in the ground with the top of the bucket even with the ground. Buckets are filled with approximately two inches of sand to allow trapped wildlife (Figure 33) and arthropods to seek cover. Each trap also has holes drilled in the bottom to allow water from precipitation events to percolate through and prevent drowning mortality of trapped wildlife. While traps are open, a cover rests on pegs approximately one-half inch above the top of the bucket which attracts lizards to seek cover, and they subsequently fall into the bucket. Each grid consisted of 36 buckets (six-by-six grid arrangement) with 15 meters between each bucket. Grids were strategically placed throughout the range of the DSL to capture genetic differences that were documented in a project funded by the CCA/CAA for Duke University in 2012. Each grid was opened for two, separate five-day periods, resulting in a total of 80 grid days, or 2,800 trap days.



Figure 32. Mike Hill processes a DSL for the ongoing dune dynamic monitoring efforts.

In 2023, aside from the surveys mentioned above, CEHMM did not conduct any individual surveys due to time constraints (Figure 37). In 2024, CEHMM staff plans to complete pitfall trap surveys on newly enrolled ranches that are within the DSL designated habitat polygon.

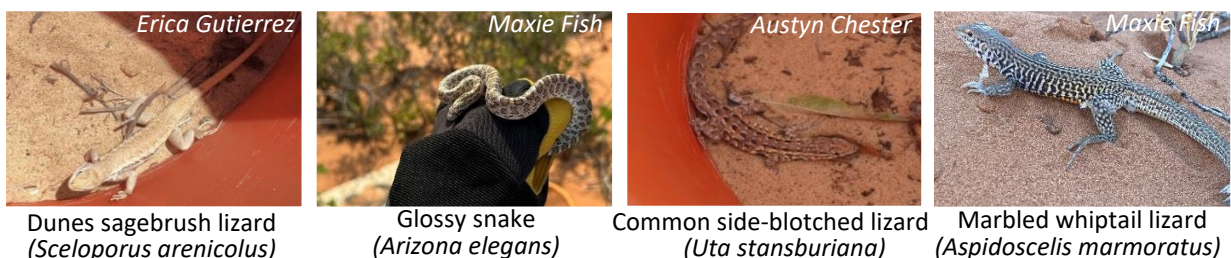


Figure 33. Reptile species that were captured during pitfall trap surveys.

CEHMM conducted LPC surveys on CCA/CCAA ranches in March, April, and May 2023. In 2023, CEHMM surveyed all enrolled ranches north of NM 380 (Figure 38). During the surveys, the surveyors shut off their vehicles and stood outside, listening for ten minutes at each stop. The surveyors collected the following data at each stop: survey area (ranch name), presence of LPCs, direction of LPC locations, time, temperature, wind speed (Figure 34), cloud cover, noise sources, noise levels, and other wildlife observed or heard. At the end of ten minutes, the surveyors returned to their vehicles and drove one mile down the road and repeated the above protocol. When LPCs are heard on a roadside survey, a bearing is taken in the direction of the LPC, then another bearing is taken at the next stop. This allows the approximate location of the LPC to be triangulated. On enrolled ranches, listening stops are conducted on a route through the ranch that allows for adequate survey coverage. When the LPC is heard, surveyors walk to the lek and flush the individuals (Figure 35). This allows a count to be taken and the lek to be GPS tagged. Surveys were initiated 30 minutes prior to sunrise and concluded at 9 a.m. If wind speeds exceeded 15 miles per hour, the survey was stopped and continued the following day. Winds at those speeds inhibit the surveyors from hearing the LPCs and thus may produce false negatives for the area. Staff observed 821 LPCs (Figure 36) across 98 leks on surveys conducted in 2023. In comparison to 2022, there was a 25 percent decrease in individual LPC observations.



Austin Wilson

Figure 34. CEHMM staff member checks wind speed during a listening stop for LPC surveys.



Sara Ricklefs

Figure 35. Six LPC in flight flushed from a manmade lek site in southern Roosevelt County.



Austin Wilson

Figure 36. An LPC individual displays on a lek with the esophageal air sac visible.

DSL SURVEYS

Historic Survey Sites

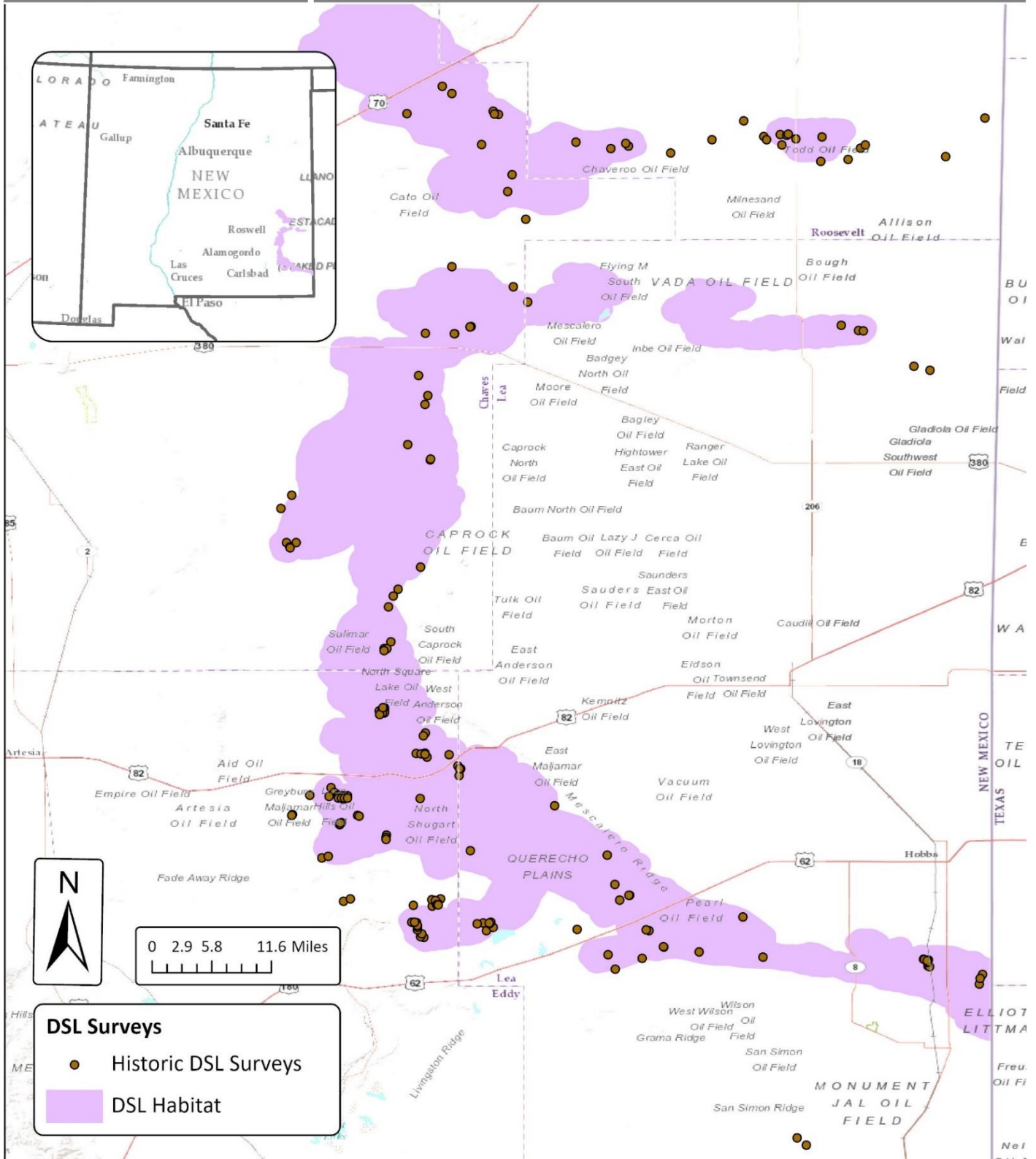


Figure 37. DSL surveys completed by CEHMM staff throughout the life of the CCA/A.

LPC SURVEYS

Current and Historic Survey Sites

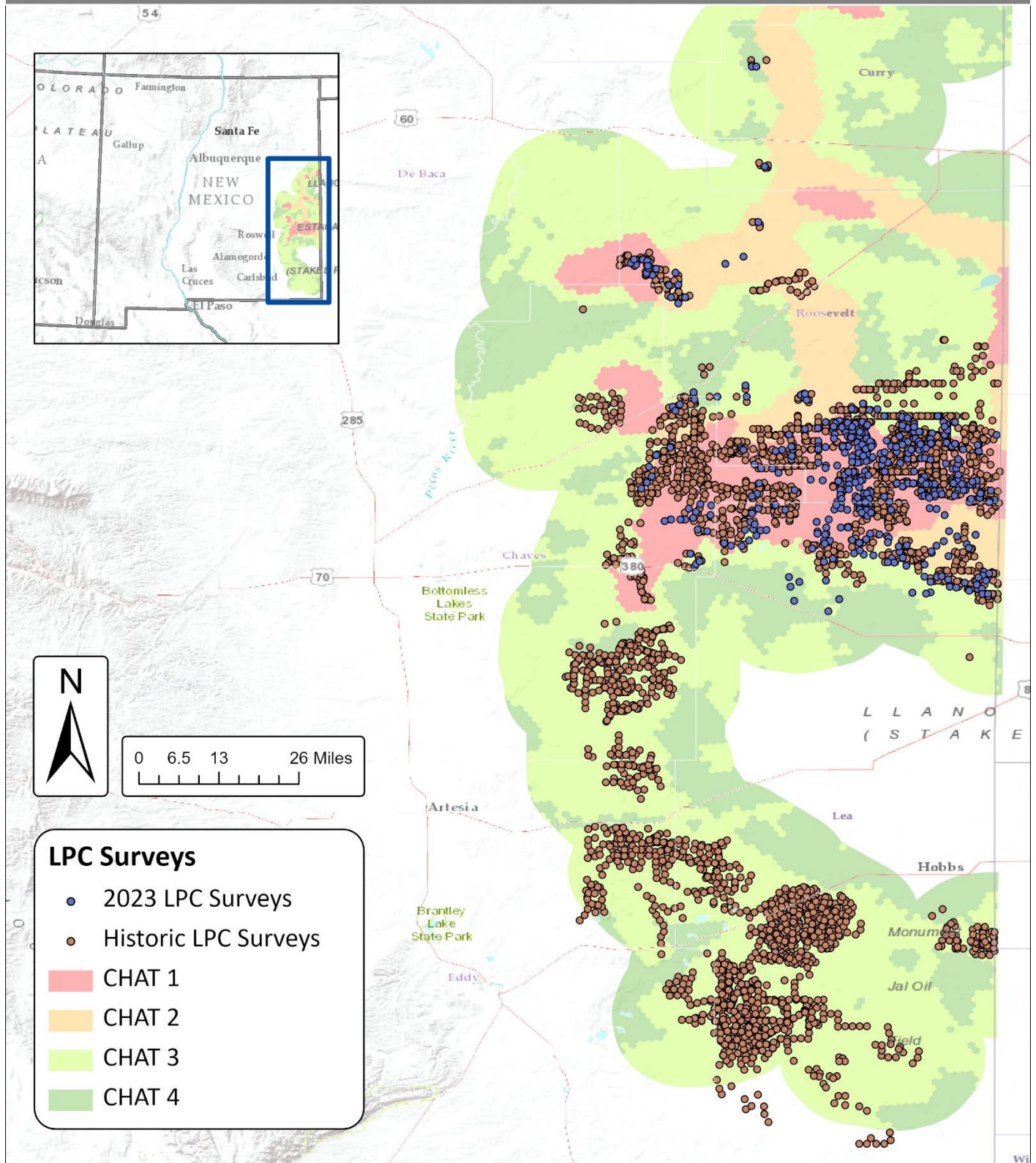


Figure 38. LPC surveys completed by CEHMM staff.

GRAZING AND HABITAT MONITORING

Baseline data for livestock grazing operations, with acreage identified in a CI or CP, were monitored for the vegetative habitat attributes described in “Collaborative Conservation Strategies for Lesser Prairie Chicken and Sand Dune Lizard in New Mexico” (New Mexico LPC and DSL Working Group, 2005) and the BLM RMPA (2008). A protocol to monitor habitat components for both species describes the methodology and data to be collected. The vegetative attributes collected directly apply to available nesting and brood-rearing habitat for the LPC. DSL habitat related to grazing and rangeland management is also considered by ensuring conservation measures are achieved in relation to treatment of shinnery oak in dune complexes and their corridors.



Figure 39. CEHMM staff clipping grass inside cage during Forage Utilization surveys.

In 2023, CEHMM staff re-evaluated the location of their grazing monitoring sites. Several of the previously established grazing cages were relocated or removed to better represent the different soil types on the ranches that were to be monitored. A total of 16 ranches were monitored for basal cover, canopy cover and visual obstruction values (i.e., Robel pole monitoring). CEHMM’s team researched vegetation monitoring protocols and selected the most effective and efficient methods to implement in the future (i.e., Robel pole monitoring and point-intercept surveys). The vegetation monitoring protocol was updated and used to monitor six ranches in 2023. The other ten ranches that were monitored in District 2 used the previous technique (i.e., Robel pole monitoring, point-intercept surveys, and Daubenmire cover surveys). Data was collected between August and October 2023 so habitats could be analyzed during late nesting and brood-rearing

seasons. Data was collected on acreage enrolled by 16 Participating Cooperators at 82 sites within the ranges of either or both the LPC and the DSL. The LPC requires a wide variety of vegetation for various needs throughout the year; however, for nesting and brood-rearing, they prefer little bluestem (*Schizachyrium scoparium*), side-oats grama (*Bouteloua curtipendula*), big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*), sand bluestem (*Andropogon hallii*) and switchgrass (*Panicum virgatum*). During grazing monitoring, CEHMM encountered these preferred grasses on 13 of the 16 ranches during point-intercept surveys. During point-intercept surveys, CEHMM staff also monitored basal cover to help determine the amount of bare ground on each ranch. During the 2023 surveys, an average of 13.8 percent bare ground was observed throughout all 16 monitored ranches, with a maximum of 35.54 percent and a minimum of 6.33 percent bare ground.

In addition to the data collection mentioned above, CEHMM also prepared grazing enclosure cages at the same 82 vegetation monitoring sites to measure forage utilization. CEHMM staff, between January and April 2023, prepared the cages by clipping all vegetation in the cage (similar to the height that cattle would consume). This preparation step allows field staff to ensure they are only monitoring the vegetation growth from 2023. In November and December, after receiving the first hard freeze, CEHMM staff returned to the same grazing enclosure cages to determine forage utilization of each pasture. To determine forage utilization, a hoop with an area of approximately 1452 square inches (sq. in.) is placed into the cage, and all grasses are clipped and weighed (Figure 39). Then the same process with the hoop occurs outside the cage in a representative area, a small distance from the cage. The two weights are compared and calculated to determine the percent utilization for each site as well as for the entire ranch. As a conservation measure, Participating Cooperators and landowners agree to a livestock forage utilization rate of 45 percent. CEHMM staff is still in the process of analyzing the grazing data collected in 2023.

INDUSTRY MEASURES

MITIGATION OF IMPACTS TO HABITAT

In 2023, 75 on-sites were conducted; of those 75 instances, 63 were on federal and 12 were on non-federal lands. A total of 19 pads were relocated to avoid suitable DSL habitat, all of which were on federal lands. One ROW that was on-sited was relocated to avoid suitable DSL habitat on state lands. Since the inception of the CCA/CCAA, and through the cooperation of the parties involved, 646 wells have been relocated to avoid LPC and/or DSL habitat.

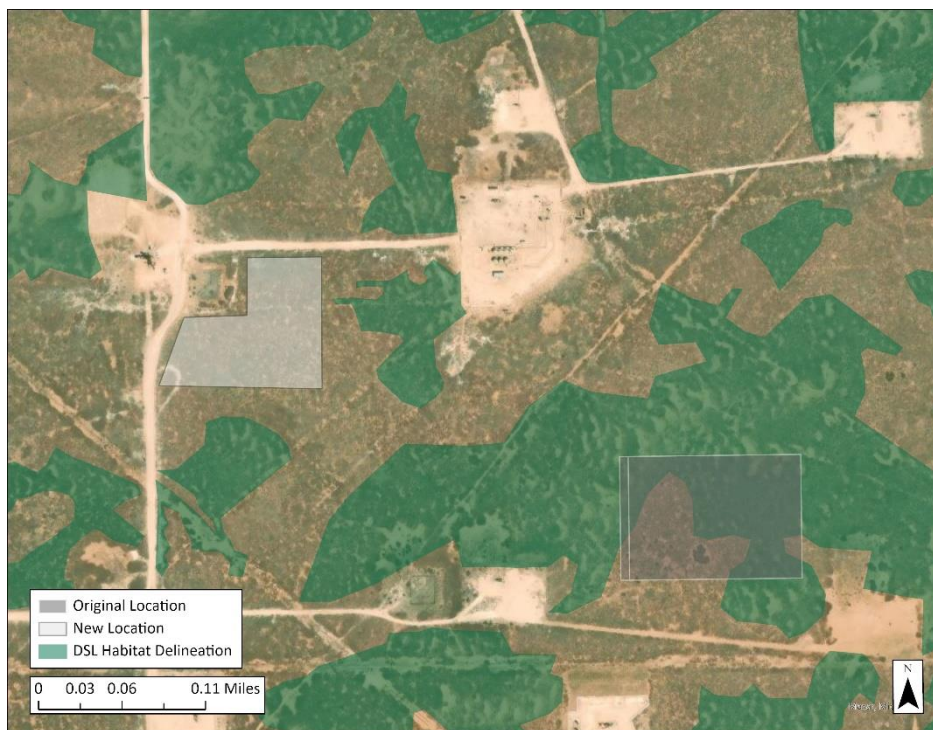
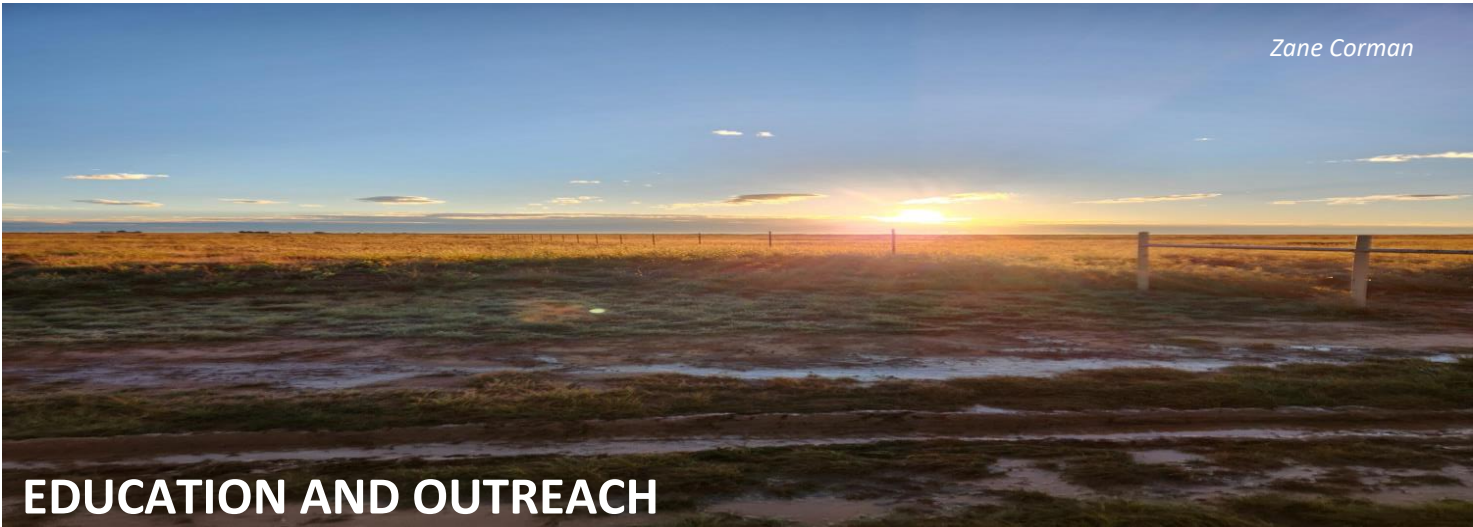


Figure 40. Map depicting original and new locations of a proposed well pad that has been moved out of DSL habitat through the CCA/CCAA.

In 2023, 1,659 wells enrolled in the CCA or CCAA were permitted and/or drilled for minerals, and 148 ROWs were permitted and/or constructed on acreage enrolled in the CCA/CCAA. No wells or ROWs were permitted or constructed within the Core Management Area or Primary Population Area. Reclamation efforts by enrolled operators totaled 25.59 acres within the All-Activities boundary.

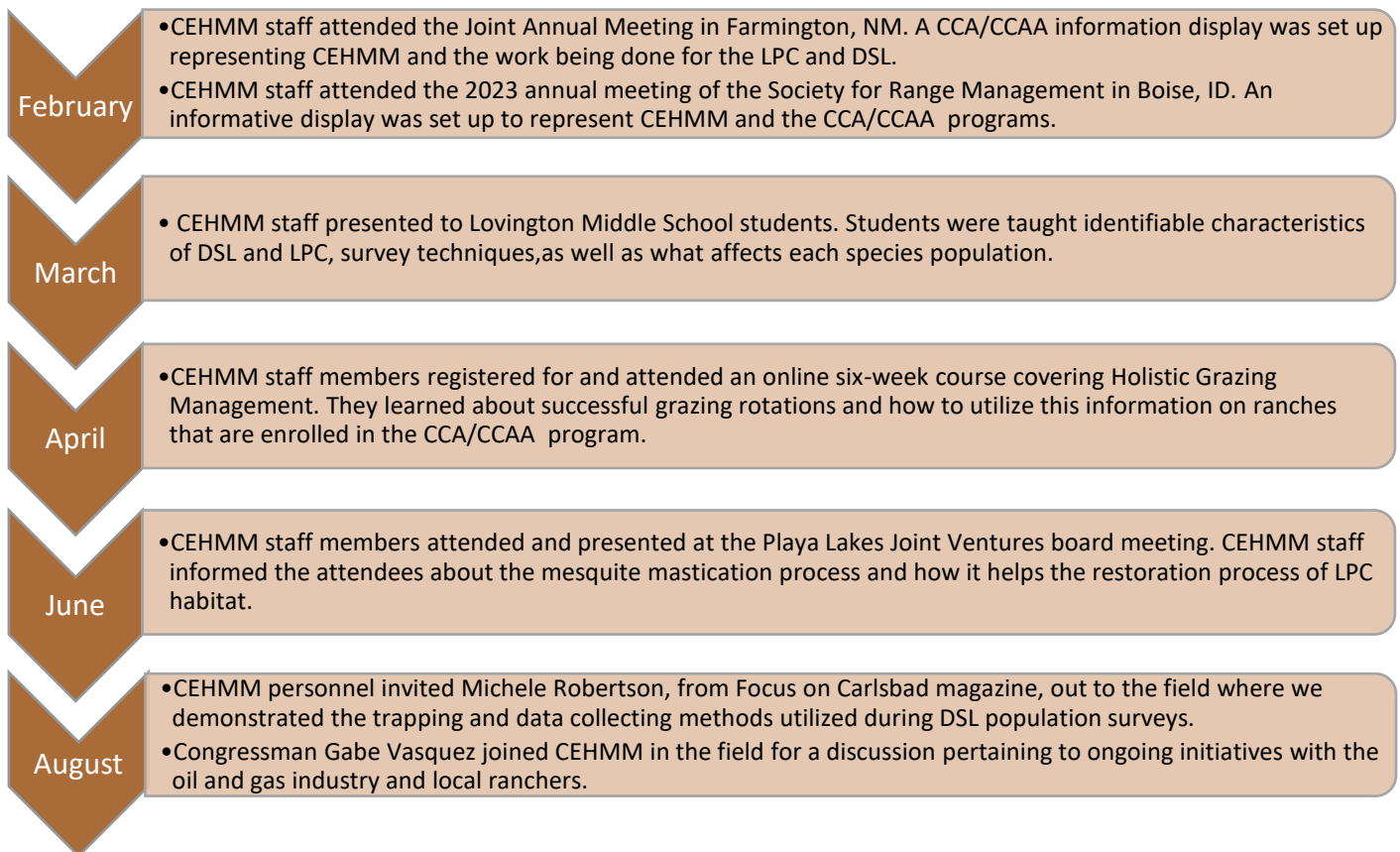


EDUCATION AND OUTREACH

OVERVIEW

CEHMM staff participated in education and outreach throughout the region in 2023. Not only did staff attend multiple workshops, symposia, and field days, they also presented to local students. Topics included the ESA, CCA/CCA program, covered species, native grasses, and regional threats to rangelands. CEHMM recognizes the unique role that education and outreach can have with the public’s perception toward natural resource management and to conservation as a whole. Since the inception of the program, CEHMM has provided and assisted with programs directed at all ages and backgrounds. CEHMM will continue to prioritize educational and outreach efforts for the foreseeable future.

TIMELINE OF OUTREACH



SUMMARY

YEAR IN REVIEW

We look back on 2023 and the efforts made toward monitoring and project implementation with great gratitude for our staff, stakeholders, and partners. Since the execution of the original agreements, CEHMM has focused on projects that benefit and serve the ecosystem, the community, the region, and the state through habitat improvements, research, and outreach. These goals and objectives continued to be beacons in the past year. Partnerships have been bolstered through cooperation with enrollees and stakeholders, ultimately leading to more success and innovation in on-the-ground efforts for both species. In the coming years, CEHMM plans to continue these efforts and partnerships for the preservation and protection of critical habitat for these two imperiled native species.



CEHMM staff **installed four** new grazing cages and **moved 16** in 2023.

In 2023, CEHMM staff conducted **grazing monitoring** on a total of **634,650.09 acres**.



In 2023, funding for **four water trough installations** and **one solar pump conversion** was approved.

CEHMM has funded **32 water projects** throughout the life of the CCA/CCAA.



A total of **100 LPC individuals** were found on **newly enrolled ranches** in 2023.

CEHMM staff has completed **5,684 LPC surveys** since the CCA/CCAA program began.



CEHMM received **one new parcel-by-parcel, 50 All-Activities,** and **31 linear development** enrollments in 2023.

In 2023, **33 new ranches** enrolled in the CCA/CCAA program bringing the total ranching enrollment to **2,339,619 acres**.

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APPENDIX A: Projects completed throughout the life of the program

Projects	Date Funded	Amount Funded	Final Cost	Units	Date Completed	Description
TNC MPP-S Hand Mesquite	May 2010	\$17,440.00	\$17,440.00	630 acres	June 2010	Mesquite hand treatment - 630 acres.
TTU Cox Shin-Oak	August 2010	\$4,537.00	\$7,024.71	N/A	February 2012	Research to determine the effect of caliche removal on shinnery oak communities.
Weaver Hand Mesquite	August 2010	\$25,000.00	\$50,734.01	320 acres	October 2010	Mesquite hand treatment - 320 acres.
Bresenham Hand Mesquite and Windmill Removal	August 2010	\$22,584.95	\$24,254.03	40 acres	October 2010	Mesquite hand treatment - 40 acres; one windmill removal.
TNC MPP-S Aerial Mesquite	August 2010	\$13,968.00	\$13,968.00	600 acres	June 2011	Aerial mesquite treatment - 600 acres.
APHIS Feral Hog Removal	January 2011	\$50,000.00	\$54,856.68	128,816 acres	May 2012	Removal of feral hogs within an 8-mile radius of active LPC leks - 3 years.
Berry Aerial Mesquite	January 2011	\$100,000.00	\$106,702.64	12,000 acres	June 2011	Aerial mesquite treatment - 12,000 acres.
Brininstool Lehmann's	January 2011	\$19,905.63	\$12,847.61	12 acres	May 2011	Research to compare methodologies for removing Lehmann lovegrass.
DSL and LPC Monitoring	January 2011	\$40,000.00	\$38,272.03	N/A	September 2014	Research to develop DSL survey protocols and projects that would benefit the LPC and DSL.
BLM Pipeline Mesquite (Bogle Mesquite)	January 2011	\$100,000.00	\$106,702.64	12,450 acres	June 2011	Aerial mesquite treatment - 12,450 acres.
Sims Aerial Mesquite	January 2011	\$35,000.00	\$20,800.46	2,560 acres	June 2011	Aerial mesquite treatment - 2,560 acres.
TNC MPP-S Aerial Yucca	January 2011	\$7,500.00	\$1,935.17	120 acres	October 2011	Research to determine the effectiveness of an aerial treatment on Plains Yucca - 120 acres.
BLM Caliche Removal (on the Turkey Track Allotment)	January 2011	\$60,000.00	\$68,675.72	20 acres	October 2011	Caliche removal - 20 acres.
Slash ML Caliche	January 2011	\$60,000.00	\$76,988.46	33 acres	October 2011	Caliche removal - 33 acres.
DSL Research Duke University (Chan DSL Research)	August 2011	\$157,627.00	\$350,225.07	N/A	March 2014	Research to delineate genetically and geographically isolated populations of DSL and to examine the effects of habitat fragmentation on DSL genetic diversity.
DSL Research Texas A&M University (Fitzgerald DSL Workshop)	August 2011	\$12,000.00	\$18,105.27	N/A	April 2012	Research to conduct a workshop that discussed research efforts and potential knowledge gaps at the time.
Pearce Hand Mesquite	August 2011	\$8,000.00	\$8,000.00	18,108 acres	August 2012	Mesquite hand treatment - 18,108 acres.
BLM ACEC Mesquite	August 2011	\$64,833.00	\$101,770.52	1,235 acres	June 2012	Mesquite hand treatment - 1,235 acres.
BLM Caliche Removal (on the Clayton Basin Allotment)	August 2011	\$60,000.00	\$67,119.23	20 acres	February 2012	Caliche removal - 20 acres.
Slash ML Caliche (Group B) #2	August 2011	\$49,000.00	\$56,985.36	14 acres	February 2012	Caliche removal - 14 acres.
Duke University DSL Research Addendum (Chan DSL Research Addendum)	April 2012	\$14,336.00	See: Chan Duke University Research (2011)	N/A	March 2014	Continuation of the genetic research being conducted by L. Chan.
TTU Cox Shin-Oak	April 2012	\$62,559.00	\$31,637.89 (Year Two Not Funded)	N/A	August 2013	Continuation of the original TTU Cox Shin-Oak project.
Hathcock/Hill Shrike Research	April 2012	\$36,283.83	\$46,128.33	N/A	November 2012	Research to study predation rates on DSL by loggerhead shrikes in fragmented and unfragmented habitat.
Natural Heritage DSL Research	April 2012	\$356,080.00	\$356,024.25	N/A	June 2016	Research to create a DSL habitat map using the highest resolution imagery available.
NMSU Carleton LPC Research	April 2012	\$247,260.00	\$246,921.09	N/A	December 2015	Research to determine if reproduction survival, habitat use, and landscape vegetation were linked to declines in lek attendance.
BLM Windmill Conversion	April 2012	\$25,600.00	\$12,841.20	N/A	November 2012	1 windmill removal and solar conversion.
BLM Caliche (Caviness and Smith Caliche)	April 2012	\$50,000.00	\$49,208.13	21.2 acres	November 2012	Caliche removal - 21.2 acres.
ABQ BioPark	April 2012	\$81,499.00	\$80,636.30	N/A	July 2013	Creation of DSL habitat exhibit in the Albuquerque BioPark.

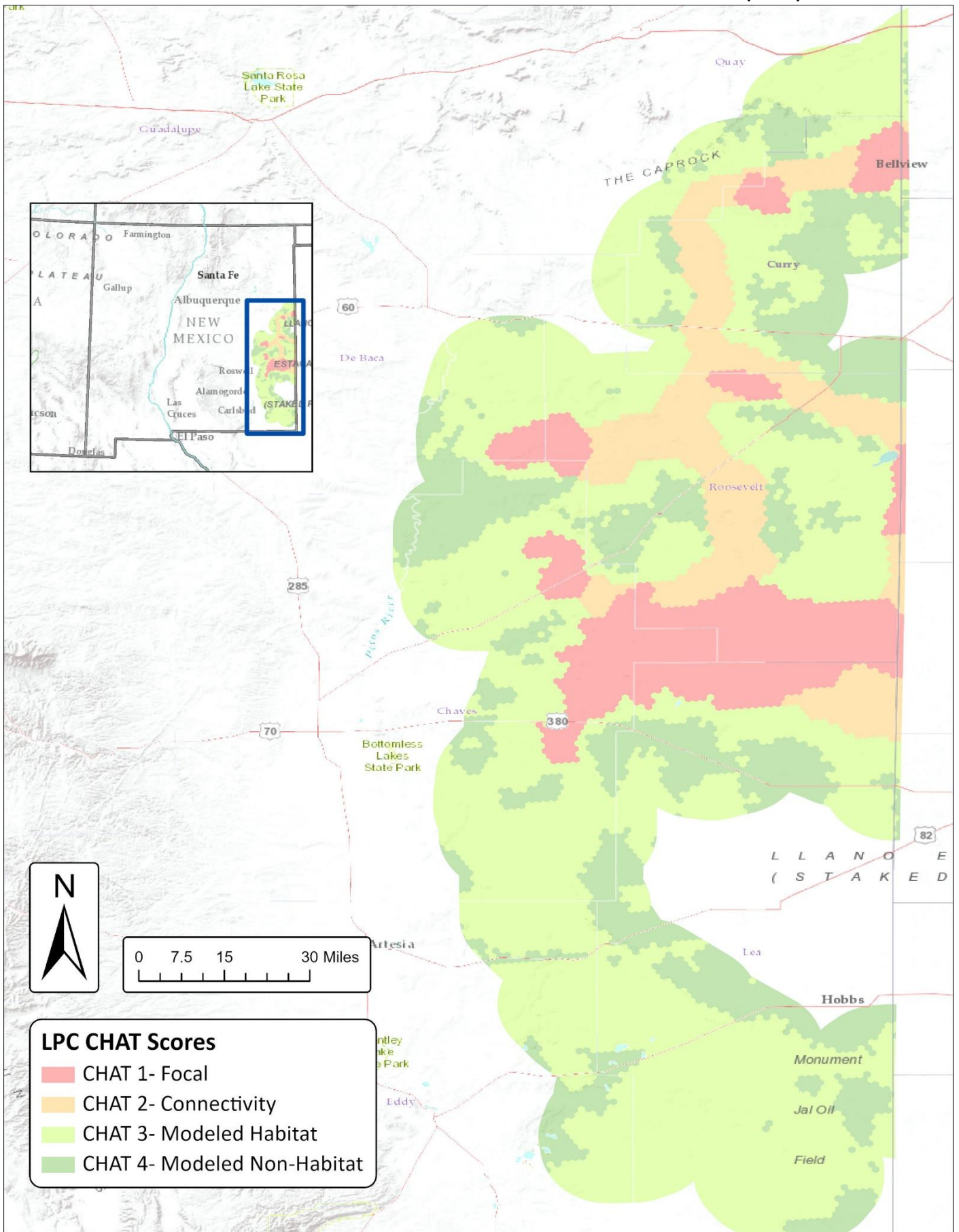
Weaver Mesquite/ Mechanical	April 2012	\$50,000.00	\$52,098.88	158 acres	January 2016	Dead, standing mesquite removal - 158 acres.
TNC Solar/Windmill Conversion	May 2012	\$17,528.00	\$17,281.87	N/A	September 2012	2 windmill removals; 2 solar pump conversions.
Natural Heritage LPC Data Management	January 2013	\$25,470.00	\$56,426.79	N/A	October 2013	Consolidation of all historic New Mexico LPC data into an easily accessible database.
Bresenham Caliche Removal	January 2013	\$100,000.00	\$182,525.58	30 acres	February 2014	Caliche removal - 30 acres.
BLM ACEC Replacement Well	January 2013	\$14,395.00	\$153,137.79	N/A	March 2014	1 water well drill; 1 solar pump installation; 2 windmill removals.
BLM ACEC Fence Removal	January 2013	\$29,800.00	\$24,428.25	12.5 miles	August 2013	Fence removal - 12.5 miles.
BLM ACEC Storage Tanks/Twin Windmills	January 2013	\$22,584.00	\$32,298.00	N/A	November 2014	1 water well drill; pipeline installation - 2.5 miles; 2 storage tank installations; 2 water trough installations.
Meyers Mesquite	April 2013	\$195,480.06	\$37,380.31	7,080 acres	June 2014	Aerial mesquite treatment - 7,080 acres.
NFWF Drinkers - Williamson/Mohon	April 2013	\$73,215.00	\$82,325.83	9 water troughs	June 2015	9 water trough installations.
Lauren Chan DSL Research Addendum Claremont McKenna/Pacific University	April 2013	\$185,050.00	See: Chan Duke University Research (2011)	N/A	December 2016	Continuation of the genetic research being conducted by L. Chan.
BLM Caviness Mesquite	April 2013	\$140,000.00	\$141,172.05	5,600 acres	June 2014	Aerial mesquite treatment - 5,600 acres.
BLM Caviness Reclamation	April 2013	\$63,000.00	\$51,698.68	18 acres	March 2014	Caliche removal - 18 acres.
McCloy/Jesko Fences/McCloy Fence	April 2013	\$72,000.00	\$67,112.52	Removed: 7.5 miles; Installed: 2.25 miles	September 2015	Fence removal - 7.5 miles; fence installation - 2.25 miles.
McCloy/Jesko Water	April 2013	\$57,000.00	\$109,289.55	21.19 miles	August 2015	Water pipeline installation - 21.19 miles.
McCloy/Jesko Mesquite	April 2013	\$153,000.00	\$50,743.04 (3,218 acres not treated)	1,782 acres	June 2014	Aerial mesquite treatment - 1,782 acres.
TNC Mesquite - Hand Treatment #2	April 2013	\$123,300.00	\$122,803.18	1,640 acres	December 2013	Mesquite hand treatment - 1,640 acres.
TNC Drought/ Grazing Workshop	April 2013	\$30,000.00	\$21,416.85	N/A	September 2013	4 drought and grazing workshops to help ranchers manage their properties during periods of drought.
TNC Tractor	April 2013	\$40,000.00	\$31,336.00	N/A	September 2013	Tractor purchase for LPC habitat conservation practices.
G&F Aerial Surveys	April 2013	\$38,340.00	\$38,340.00	N/A	May 2013	Aerial surveys to get a population estimate for LPC in NM.
G&F Power Line	April 2013	\$35,390.00	\$12,932.52	6.7 miles	December 2013	Powerline and power pole removal - 6.7 miles.
BLM North ACEC Well	April 2013	\$93,322.00	See: BLM ACEC Replacement Well	N/A	March 2014	Continuation of the BLM ACEC replacement well project.
CCA/CAA Documentary - FWS	February 2014	\$7,610.50	\$11,546.64	N/A	July 2016	Educational documentary to highlight the key habitats needed for LPC and DSL, restoration sites completed, and outlined benefits to both species.
TTU - Grisham LPC	February 2014	\$148,838.70	\$181,789.60	N/A	December 2017	Research to identify the conservation actions needed to preserve LPC populations.
Jolley Solar Pump	February 2014	\$30,255.00	\$42,465.03	N/A	April 2015	1 windmill removal; 1 water well drill; 1 solar pump installation.
Auburn - T Best	February 2014	\$49,707.00	\$49,707.00	N/A	June 2014	Research to determine the status and distribution of LPC populations in Chaves, Lea, and Roosevelt counties.
Bilberry Water	February 2014	\$10,807.00	\$10,892.41	0.2 miles	March 2017	Water pipeline installation - 0.2 miles; 1 water trough installation.
Field Hand Mesquite	February 2014	\$50,700.00	\$63,671.93	507 acres	January 2015	Mesquite hand treatment - 507 acres.
Riley Mesquite	February 2014	\$149,350.08	\$132,727.22 (235 acres not treated)	3,793 acres	July 2018	Aerial mesquite treatment - 3,793 acres.
Riley Tank and Booster	February 2014	\$17,921.00	\$5,625.00	N/A	November 2014	2 storage tank installations; 2 booster pump installations.
TNC Hand Mesquite #3	February 2014	\$56,000.00	\$68,580.66	560 acres	February 2015	Mesquite hand treatment - 560 acres.

Woody Water	February 2014	\$77,852.00	\$90,721.68	N/A	August 2016	1 solar pump installation; 3 water trough installations; water pipeline installation - 2 miles; 1 storage tank installation; 1 lid for existing storage tank.
Woody Fence	February 2014	\$7,725.00	\$12,422.12	1 mile	September 2015	Fence installation - 1 mile.
Landless Property	February 2014	\$220,000.00	\$221,888.60	960 acres	April 2015	LPC habitat purchase - 960 acres.
BLM Robel Monitoring	August 2014	\$15,000.00	\$27,796.25	65 sites	March 2015	Project to assist Roswell BLM field office with Robel data collection- 65 sites.
Richardson Water	August 2014	\$56,000.00	\$40,277.76	N/A	August 2016	1 water well drill.
Meyers Reclamation	August 2014	\$14,500.00	\$14,855.43	3 acres	December 2014	Pad and road reclamation - 3 acres.
Jolley Fence Removal/Installation	August 2014	\$17,556.00	\$48,725.05	1.75 miles	November 2015	Fence installation - 1.75 miles; Fence removal - 8.83 miles.
Bilbrey Solar	August 2014	\$31,000.00	\$20,002.42	N/A	July 2015	1 windmill removal; 1 solar pump conversion; 1 water trough installation.
Running N Solar (Clemmons)	August 2014	\$83,500.00	\$49,439.56	N/A	September 2015	3 windmill removals; 3 solar pump conversions; 1 storage tank installation.
Luman Drinker Repair	August 2014	\$13,500.00	\$24,559.88	N/A	May 2015	2 water trough installations.
Mathis Water	August 2014	\$5,200.00	\$17,029.55	N/A	January 2016	Water pipeline installation - 1.1 miles; 1 water trough installation.
M Williamson Water	August 2014	\$100,000.00	\$90,464.92	N/A	February 2016	2 windmill removals; multiple steel water trough and storage tank removals; 1 pit house installation; water pipeline installation - 2.2 miles; 2 water trough installations; 1 pond installation.
Clark Fence	August 2014	\$19,100.00	\$30,289.77	2 miles	December 2015	Boundary fence installation - 2 miles.
Medlin Mesquite	August 2014	\$50,500.00	\$58,223.04	2,000 acres	August 2015	Aerial mesquite treatment - 2000 acres.
TNC Fence	August 2014	\$341,077.62	\$352,194.15	23.5 miles	March 2017	Fence installation - 23.5 miles.
M Williamson Fence	August 2014	\$242,740.71	\$237,942.71	16 miles	January 2017	Fence installation - 16 miles.
Running N Fence (Clemmons)	August 2014	\$49,500.00	\$48,624.97	3.4 miles	September 2015	Fence installation - 3.4 miles.
TNC DSM Removal	August 2014	\$258,000.00	\$11,222.55	1,059 acres	July 2017	Dead, standing mesquite removal - 1,059 acres.
Weaver Burn Plan	August 2015	\$3,500.00	\$4,273.06	25,000 acres	June 2017	Prescribed burn plan for entire Weaver Ranch.
Mesquite Eradication	August 2015	Not Specified	\$151,377.66	N/A	July 2017	2 compact loaders, 2 30' gooseneck trailers, 2 brush cutters, and 1 root grapple were purchased for mesquite eradication.
Audubon NM - Engaging Community in Conservation	June 2016	\$440,000.00	\$298,318.55	N/A	February 2021	Project to educate the community on the LPC, the DSL, and the shortgrass prairie of eastern NM.
Bilberry Boundary Fence	July 2016	\$32,438.00	\$25,073.82	1.5 miles	March 2017	Boundary fence installation - 1.5 miles.
Coombes Boundary Fence 2 Atlee	July 2016	\$115,203.00	\$98,231.35	6 miles	December 2017	Boundary fence installation - 6.5 miles.
Luman Boundary Fence	July 2016	\$131,381.00	\$106,306.98	6.5 miles	October 2017	Boundary fence installation - 6.5 miles.
Thomas Water 3	July 2016	\$27,659.00	\$21,285.37	1.75 miles	June 2017	1 pit house installation; 1 submersible pump installation; 1 pressure tank installation; 75' electric line installation; water pipeline installation - 1.75 miles.
Williamson Mohon Wildlife Water Repair	October 2016	\$32,220.00	\$63,791.95	N/A	February 2017	Project to repair several wildlife waters (i.e., plumbing, foundations, etc.).
Mesquite Hand Treatment Active Leks #1	March 2017	\$897,876.85	\$882,330.29	3,514 acres	December 2018	Mesquite hand treatment - 3,514 acres.
Running N Interior Fence	July 2017	\$26,716.00	\$25,808.64	1.72 miles	January 2018	Interior fence installation - 1.72 miles.
Thomas Boundary Fence	July 2017	\$126,947.00	\$104,291.68	6.5 miles	September 2017	Boundary fence installation - 6.5 miles.
Milnesand Office	July 2017	\$319,075.00	\$320,033.84	290 acres	May 2018	LPC habitat purchase - 290 acres; District 2 office building purchase.

George Hay DSM Removal	August 2017	\$30,342.00	\$2,108.57	268.20 acres	October 2017	Dead, standing mesquite removal - 268.20 acres.
Dan Fields DSM Removal	August 2017	\$90,540.00	\$2,322.17	595.50 acres	October 2017	Dead, standing mesquite removal - 595.50 acres.
Peterson-Luman DSM Removal	August 2017	\$26,562.00	\$1,206.22	250 acres	October 2018	Dead, standing mesquite removal - 250 acres.
M Williamson DSM Removal	August 2017	\$41,996.13	\$7,154.61	482 acres	August 2018	Dead, standing mesquite removal - 482 acres.
Medlin DSM Removal	May 2018	\$90,276.34	\$13,693.77	2,000 acres	September 2018	Dead, standing mesquite removal – 2,000 acres.
Running N State – BLM Mesquite #2	June 2018	\$173,089.20	\$142,510.58 (600 acres not treated)	3,802 acres	June 2020	Aerial mesquite treatment – 3,802 acres.
Medlin Mesquite	June 2018	\$46,235.46	\$38,303.25 (115 acres not treated)	993 acres	July 2018	Aerial mesquite treatment – 993 acres.
Weinheimer Mesquite	June 2018	\$153,792.89	\$142,657.57 (173 acres not treated)	3,727 acres	July 2018	Aerial mesquite treatment – 3,727 acres.
TNC Water	June 2018	\$52,830.44	\$45,880.15	N/A	April 2019	Water improvement project.
Mohon Water Tanks	June 2018	\$19,369.24	\$12,345.37	N/A	April 2019	Water improvement project.
M Coombes Water#1 North	June 2018	\$141,205.21	\$96,776.37	3,900 feet	July 2019	Water pipeline installation – 3,900 feet.
Grazing Workshops	June 2018	\$12,712.81	\$11,346.74	N/A	October 2018	2 grazing workshops to promote adaptive grazing management strategies.
M Coombes Water#2 North	June 2018	\$59,911.47	\$40,886.02	1 tank	July 2019	1 water tank installation.
Weinheimer Fence and Water	June 2018	\$89,395.41	\$45,589.42	3.25 miles fence	September 2018	Fence installation – 3.25 miles.
Weinheimer Interior Fence	June 2018	\$110,486.94	\$100,769.32	Removed: 1.25 miles; Installed: 7.5 miles	November 2020	Fence removal – 1.25 miles; Fence installation – 7.5 miles.
Peterson-Buffington Fence Repair	June 2018	\$26,945.01	\$25,460.73	Removed: 1.25 miles; Installed: 3 miles	December 2018	Fence removal – 1.25 miles; Fence installation – 3 miles.
M Coombes Boundary Fence – Removal North	June 2018	\$281,631.81	\$232,058.47	Removed: 14 miles; Installed: 6.5 miles	January 2019	Fence removal – 14 miles; Fence installation – 6.5 miles.
Bresenham DSM Removal	February 2019	\$3,331.15	\$1,464.49	350 acres	February 2019	Dead, standing mesquite removal - 350 acres.
Technical Working Group Meeting	April 2019	\$15,400.00	\$3,830.17	N/A	May 2019	Project to allow DSL and LPC experts to gather and discuss new and innovative ideas.
Bilbrey Water	August 2019	\$61,458.39	\$41,970.07	N/A	March 2021	Water improvement project.
Bud Bilberry Mesquite	August 2019	\$68,128.22	\$59,276.32 (188 acres not treated)	1,412 acres	August 2021	Aerial mesquite treatment - 1,412 acres.
Running N Water	August 2019	\$65,540.96	\$42,886.98	N/A	March 2021	Water improvement project.
Running N Mesquite	August 2019	\$237,172.04	\$380,099.85 (84 acres not treated)	5,716 acres	August 2021	Aerial mesquite treatment - 5,716 acres.
Mohon Interior Fence	August 2019	\$43,959.87	\$35,337.74	2.25 miles	September 2020	Interior fence removal and replacement - 2.25 miles.
Running N Boundary Fence	August 2019	\$86,158.77	\$67,897.59	4.25 miles	January 2022	Boundary fence removal and replacement - 4.25 miles.
Mohon Water	August 2019	\$35,887.25	\$25,406.70	200 feet	July 2020	Water pipeline installation - 200 feet.
Mohon Boundary Fence	August 2019	\$78,313.76	\$74,256.38	4.25 miles	March 2020	Boundary fence removal and replacement - 4.25 miles.
TNC Mesquite	August 2019	\$58,329.10	\$50,818.11	1,214 acres	August 2021	Aerial mesquite treatment - 1,214 acres.
Weaver/Grasslans Water	August 2019	\$79,856.06	\$51,161.47	N/A	January 2022	3 windmill removals; 1 solar pump conversion; 3 water trough installations; water pipeline installation - 15,840 feet.
Weaver/Grasslans Boundary Fence	August 2019	\$90,890.13	\$64,512.67	Removed/replaced: 1.41 miles; Repaired: 10.09 miles	January 2020	Fence removal and replacement - 1.41 miles; Fence repair - 10.09 miles.
Weaver Mesquite	August 2019	\$36,432.55	\$32,148.50	837 acres	June 2020	Aerial mesquite treatment - 837 acres.
DSL Population Viability Analysis Development	August 2019	\$29,250.00	\$25,025.00	N/A	July 2021	Project to create a predictive model of longevity for the DSL.
Luman Tank	August 2019	\$10,300.43	\$6,225.47	N/A	July 2020	Water improvement project.
Pembers Mesquite	August 2019	\$67,172.14	\$66,176.12	1,580 acres	August 2021	Aerial mesquite treatment - 1,580 acres.
G. Coombes Atlee- Lovejoy Boundary Fence	August 2019	\$67,002.37	\$66,405.63	Removed/ replaced: 4 miles	May 2020	Fence removal and replacement - 4 miles.
G. Coombes Lovejoy Mesquite	August 2019	\$82,591.08	\$84,825.48	2,024 acres	August 2021	Aerial mesquite treatment - 2,024 acres.
BLM Running N DSM Removal	September 2019	\$26,337.96	\$13,119.93	1,160 acres	March 2020	Dead, standing mesquite removal - 1,160 acres.
BLM ACEC DSM Removal	September 2019	\$21,741.51	\$12,008.81	950 acres	October 2019	Dead, standing mesquite removal - 950 acres.

Pearce Mesquite	June 2020	\$141,892.00	\$159,487.16	3,782 acres	August 2021	Aerial mesquite treatment - 3,782 acres.
Medlin DSM Removal	June 2020	\$17,514.96	\$20,761.12 + pending	993 acres	September 2022	Dead, standing mesquite removal - 993 acres.
ACEC DSM Leks #1	June 2020	\$31,092.08	\$49,510.84 + pending	6,000 acres	November 2022	Dead, standing mesquite removal - 6,000 acres.
TNC Active Leks #1 DSM Removal	June 2020	\$16,703.77	\$5,371.41	1,004 acres	August 2020	Dead, standing mesquite removal - 1,004 acres.
Weinheimer DSM Removal	June 2020	\$67,791.95	\$66,375.90	3,727 acres	August 2021	Dead, standing mesquite removal - 3,727 acres.
G. Coombes Atlee - Lovejoy Boundary Fence	March 2022	\$66,701.06	Pending	2.5 miles	December 2022	Boundary fence installation - 2.5 miles.
Kinsolving Fence	March 2022	\$153,359.01	\$153,359.01	5 miles	February 2023	Boundary fence installation - 5 miles.
G. Moore Water	March 2022	\$43,784.20	Pending	N/A	February 2023	2 windmill removals; 1 solar pump installation; 1 water trough installation.
Running N Kenna Fence	March 2022	\$106,833.64	Pending	4.5 miles	March 2023	Interior fence installation - 4.5 miles.
G. Moore Fence Removal	March 2022	\$15,000.00	Pending	4 miles	April 2023	Interior fence removal - 4 miles.
G. Coombes Atlee - Lovejoy Water	March 2022	\$139,754.55	Pending	8.8 miles; 3 troughs	May 2023	Water pipeline installation - 8.8 miles; 3 water trough installations.
Weaver/Grasslans Fencing	March 2022	\$138,204.08	Pending	4 miles	June 2023	Boundary fence installation - 4 miles.
Weaver/Grasslans Mesquite	March 2022	\$145,704.48	Pending	2,370 acres	August 2023	Aerial mesquite treatment - 2,370 acres.
Kinsolving Water	March 2022	\$152,889.63	Pending	N/A	September 2023	Water pipeline installation - 3 miles; 2 water trough installations; 8 windmill removals; 4 solar pump conversions.
CEHMM District 2 Water	March 2022	\$20,281.67	Pending	N/A	August 2023	1 water trough installation; water pipeline installation - 0.5 miles.
Weaver DSM Removal	March 2022	\$145,704.48	Pending	2,370 acres	February 2023	Dead, standing mesquite removal - 2,370 acres.
TNC DSM Removal	August 2019	\$58,329.10	Pending	27,880 acres	July 2023	Dead, standing mesquite removal - 27,880 acres.

APPENDIX B: Southern Great Plains LPC Crucial Habitat Assessment Tool (CHAT)



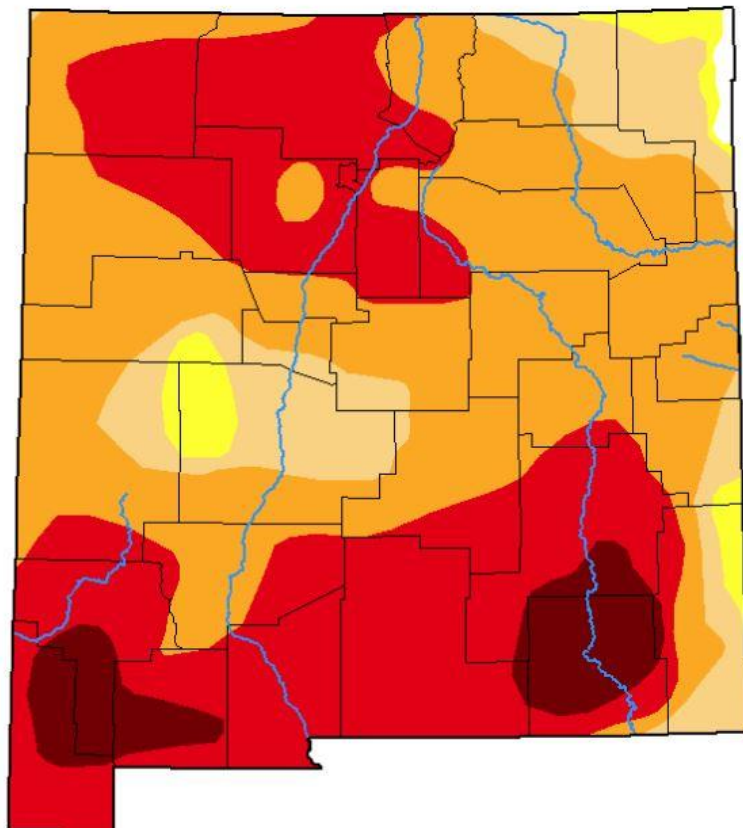
APPENDIX C: Total Treatments for Life of the CCA/CAA Program

Project Type	Acres Treated
Roads and Pads, Caliche Removal, and Reseeding	159.20
Mesquite Treatment	108,034.00
Dead, Standing Mesquite Removal	22,396.00
Yucca Treatment	120.00

Current Drought Status in New Mexico

U.S. Drought Monitor New Mexico

December 12, 2023
(Released Thursday, Dec. 14, 2023)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.39	99.61	96.83	85.41	43.00	6.48
Last Week 12-05-2023	0.39	99.61	96.83	87.73	43.00	6.48
3 Months Ago 09-12-2023	0.00	100.00	95.45	68.72	19.99	0.00
Start of Calendar Year 01-03-2023	7.03	92.97	41.30	18.55	3.74	0.19
Start of Water Year 09-26-2023	0.00	100.00	96.87	67.52	32.31	6.85
One Year Ago 12-13-2022	7.02	92.98	41.73	18.55	3.74	0.19

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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National Drought Mitigation Center



droughtmonitor.unl.edu