The 2017 Lesser Prairie-Chicken Range-wide Conservation Plan Annual Progress Report

Edited by:

Roger L. Wolfe
Western Association of Fish and Wildlife Agencies Lesser Prairie-Chicken Program Manager

Drafted by:

Sean C. Kyle, Lesser Prairie-Chicken Range-wide Plan Industry Service Director
Jim C. Pitman, Lesser Prairie-Chicken Range-wide Plan Conservation Delivery Director, Deb M. VonDeBur, Chief Financial Officer, Michael E. Houts, Lesser Prairie-Chicken Range-wide Plan Information System Director

March 2018

RECOMMENDED CITATION

Wolfe, R. L., S. C. Kyle, J. C. Pitman, D. M. VonDeBur, M. E. Houts, 2017. The 2017 Lesser Prairie-Chicken Range-wide Conservation Plan Annual Progress Report. Western Association of Fish and Wildlife Agencies. Boise, Idaho, pp.123.

ACKNOWLEDGMENTS

We would like to thank all past and present members of the Lesser Prairie-Chicken Initiative Council (LPCIC) for their active engagement in our program and continued advocacy for our new conservation model. We especially thank the six state wildlife agency representatives who currently serve on the LPCIC including J.D. Strong, Oklahoma; Keith Sexson, Kansas; Ross Melinchuk, Texas; Alexandra Sandoval, New Mexico; Bob Broscheid, Colorado; and Tim McCoy, Nebraska. We also thank all past and present state fish and wildlife agency employees who have contributed their time and effort to the development and continued implementation of the range-wide plan (RWP). Manuel DeLeon, Tim Griffiths and Christian Hagen provided input on the Lesser Prairie-Chicken Initiative and Natural Resources Conservation Service (NRCS) programs. David Hoge provided input on Farm Services Agency (FSA) programs. We also thank the many people in the USDA state offices and their field staff who continue to provide conservation planning support for the RWP. Gary Frazer, Amy Lueders, Noreen Walsh, Ted Koch, Matt Hogan, Kevin Burgess, Chris O'Meilia, Jenny Davis, Clay Nichols, Patricia Echo-Hawk and Leslie Ellwood of the U.S. Fish and Wildlife Service (USFWS) all provided input regarding RWP implementation. The Lesser Prairie-Chicken Advisory Committee (LPCAC), Lesser Prairie-Chicken Science Sub-committee, and Lesser Prairie-Chicken Fee Structure Sub-committee all play key roles in RWP implementation. A great deal of appreciation is also due to all the WAFWA staff including Regional Biologists, GIS staff and business office personnel who coordinate the daily activities associated with RWP implementation. This program would not be a success without their collective knowledge and dedication. Finally, we would also like to specifically thank Larry Kruckenberg and Bill Van Pelt for their leadership and commitment to the continued success of this comprehensive conservation effort.

Photo Credit: Grant Beauprez, New Mexico Department of Game & Fish

Table of Contents

EXECUTIVE SUMMARY

In 2014, the Lesser Prairie-Chicken (LPC) Range-wide Conservation Plan (Van Pelt et al. 2013; RWP) was implemented and since has been utilized as a locally controlled and innovative approach for maintaining state authority to conserve the LPC.

The purpose of the RWP is to establish a conservation strategy for the LPC that ensures the improvement and long-term persistence of the species into the foreseeable future (50 years) throughout its current or expanded range. More specifically, the RWP:

1. Identifies range-wide and ecoregion breeding population goals for LPC, the range-wide benchmark being a 10-year average of 67,000 birds.

2. Identifies desired habitat amounts and conditions as well as establishes restoration goals to achieve the population goals within the first 10-year timeframe.

3. Uses the Southern Great Plains Crucial Habitat Assessment Tool (CHAT) to delineate priority areas where LPC conservation actions will be emphasized and development will be minimized.

4. Enhances cooperative efforts to expand voluntary landowner conservation programs and encourage landowner participation.

5. Promotes agreements that incentivize industry avoidance and minimization and require mitigation when that is not possible.

6. Establishes a mitigation framework administered by WAFWA that includes contractual agreements with participating companies and private landowners. The framework requires unavoidable impacts to be offset with off-site conservation actions and utilizes a 2:1 mitigation ratio to ensure that a net conservation benefit occurs.

7. Identifies research needs and establishes monitoring requirements for the LPC population and enrolled properties.

8. Outlines an adaptive management framework that will maximize conservation benefits to LPC by incorporating monitoring data and emerging science.

9. Incorporates input received from agencies, organizations, landowners, industries, other stakeholders, and the public.

During the reporting period, January 1, 2017 - December 31, 2017, considerable progress was achieved across all nine elements identified in the RWP. More specifically:

1. The annual LPC aerial survey used to monitor progress toward the population goals was conducted between March and May 2017. In 2017, the estimated breeding population size was 33,269 (90% CI: 23,619-44,325). There was an estimated range-wide population increase of 34% from 2016 to 2017, based on the final aerial survey results, which was statistically significant at the 80% confidence level. Increases in abundance of LPC were estimated in 3 of 4 ecoregions including the Sand Sagebrush, Mixed Grass, and Shortgrass. The largest increase was a statistically significant 54% increase in the Shortgrass Ecoregion, ($P < 0.1$). The survey indicated slight increases in the population in both the Sand Sagebrush and Mixed Grass Ecoregions from 2016 but the changes were not statistically significant ($P > 0.1$). The population in the Shinnery Oak Ecoregion was estimated to have decreased by 18% from 2016. However, this estimated decline was not statistically significant ($P > 0.1$).

   There has been a statistically significant ($P = 0.06$) increasing trend in the range-wide lesser prairie-chicken breeding population since 2013 when drought subsided across much of their range. The average rate of annual increase since that time has been 2,931 birds.

2. During this reporting period, WAFWA secured permanent conservation in three ecoregions by finalizing agreements with five landowners. The first site consists of 968 acres of privately owned native rangeland in the Mixed Grass Ecoregion. WAFWA purchased a perpetual easement (held by Pheasants Forever) on the property that preserves the conservation values of the site. This property is adjacent to a property that WAFWA already has a conservation easement on, bringing the complex total to 2,726 acres.

   In September 2017, permanent conservation easements were finalized with three landowners to secure a complex of 3,682 acres in the Shortgrass Ecoregion in Northwest Kansas. This is a complex with three different landowners. The Nature Conservancy (TNC) is the holder of these easements. This complex is within a few miles of the 17,290-acre Smoky Valley Ranch which is owned and operated by TNC. This complex of 20,972 acres does not yet qualify as a stronghold because it does not meet the acreage criteria. Nearby properties will be targeted when funds become available to bring the acreage total within the stronghold criteria.

   WAFWA acquired the title to a 29,718-acre ranch in the Sand Sagebrush Ecoregion in 2016. In March 2017, a conservation easement (held by TNC) was placed on the ranch. This completed the necessary requirements to generate mitigation credits from the property. The property meets all the criteria to be considered a stronghold by itself. WAFWA will continue to manage the property as a working cattle ranch using livestock as the primary tool to create optimum LPC habitat. The grazing rights on the ranch are currently leased to a private producer.

3. In March 2017, a new 10-year term agreement was signed with a landowner in the Mixed Grass Ecoregion on 12,738 acres. An additional 10-year agreement was signed in the Mixed Grass Ecoregion containing 160 acres. This property is an in-holding of the new permanent conservation property and is grazed and managed as one unit. There was also a

partial termination of one existing contract in the Mixed Grass Ecoregion during 2017 that removed 1,262 acres from the program due to the landowner's inability to implement the grazing plan as prescribed on those acres.

4. During 2017, WAFWA developed one new non-offset agreement that provided $153,945 in funding to a private landowner in the Shinnery Oak Ecoregion for mechanical removal of invasive mesquite. The funding for that agreement was provided by a ConocoPhillips Spirit of Conservation Grant from the National Fish and Wildlife Foundation. The agreement prescribed 933 acres of brush management in CHAT 1 immediately adjacent to a property that is occupied by the species and permanently conserved. All the restoration work prescribed through this agreement was completed prior to the end of this reporting period and LPC are expected to quickly benefit from the new habitat.

5. At the end of 2017, WAFWA was managing 22 offset generating agreements encompassing 150,785 acres of which 37,616 acres are permanently protected by perpetual easements. WAFWA was also administering two active non-offset agreements containing an additional 9,845 acres.

6. A 2-year renewable agreement with Pheasants Forever (PF) was extended for the second year (November 2017-November 2018) of the agreement to partially fund five positions located throughout the LPC range. This is a cooperative effort between NRCS, PF and WAFWA. The supported positions will assist all the partnering entities with program promotion, monitoring activities, and conservation planning. Also, in conjunction with PF and NRCS, a video highlighting the RWP was produced. This video can be viewed at: https://www.youtube.com/watch?v=TI4M_uPgqlM

7. There were 111 active CCAA contracts (Certificates of Inclusion) by 105 companies that encompassed 6,889,478.3 acres as of December 31, 2017. There were 55 active WCA contracts (Certificates of Participation) by 55 companies encompassing 673,538.0 acres. The total enrollment in the two programs was down 1.8% at 7,563,016.3 acres.

8. In 2017, there were 169 industry projects processed and mitigated. These projects generated 1,148 annual impact units equating to $1,426,961.45 in mitigation fees. By ecoregion, the Shinnery Oak Ecoregion had the most projects (79 of 169 projects; 46.7%). The Mixed Grass Ecoregion had fewer projects mitigated (52) but produced the most impact units of all the ecoregions (897 of 1,148 impact units; 78.1%). There continues to be a surplus of credits available with a range-wide positive value of 157,788 units. The distribution of available credits at the end of this reporting period was as follows: Sand Sagebrush (47,369), Shinnery Oak (21,937), Mixed Grass (76,927), and Shortgrass (11,556).

9. There was continued effort to work with state wildlife agencies to identify and pursue research and management needs. Those activities included LPC translocation efforts that move birds from the Shortgrass to Sand Sagebrush Ecoregion. The partnership is also supporting research projects that are evaluating various land cover data, impacts of energy development on LPC space use, LPC movements, and climate-related effects to LPC populations.

10. WAFWA continued to monitor the need for adaptive management and two items were identified during 2017.

    Landowner Fee Increase for Certain Practices

    On August 9, 2017, WAFWA staff and the FSSC provided the LPCAC a proposal changing some base payment rates under the LPC conservation agreements. The enacted changes took effect for active and new contracts on January 1, 2018.

    Administrative Fee Increase

    A proposal to increase the current administrative fee percentage associated with new enrollments and mitigation impact fees was brought before the Fee Structure Sub-committee for consideration. This administrative fee rate is an identified adaptive management item with triggers set if the administrative endowment is not being met. An increase limit of four percent annually is set in the RWP. The Fee Structure Sub-committee unanimously recommended an increase of four percent and forwarded to the LPCAC for consideration. LPCAC also unanimously approved the recommendation and submitted to the LPCIC for consideration. The LPCIC unanimously approved the recommendation and the administrative fee percentage change took place on January 1, 2018.

11. Through the LPCAC, LPC Science Sub-Committee and LPC Finance Sub-Committee, representatives from industry, landowners, co-operatives, non-governmental agencies, as well as state and federal agencies addressed input and suggestions to make improvements and provide valuable feedback on the RWP.

The 2017 Lesser Prairie-Chicken Range-wide Conservation Plan Annual Progress Report

Edited by:

Roger L. Wolfe, Lesser Prairie-Chicken Program Manager
Western Association of Fish and Wildlife Agencies

INTRODUCTION

This report summarizes the 2017 activities associated with the lesser prairie-chicken (LPC, *Typmanuchus pallidicinctus*) Range-wide Conservation Plan (RWP) administered by the Western Association of Fish and Wildlife Agencies (WAFWA, Van Pelt et al. 2013). The goal of the RWP is to conserve the LPC for future generations while facilitating continued and uninterrupted economic activity throughout the entire five-state LPC range (Figure 1). The RWP identifies a two-pronged strategy for LPC conservation: (1) the coordinated implementation of incentive- based landowner programs and (2) the implementation of a mitigation framework, which reduces threats and provides resources for off-site conservation activities.

If conservation of the LPC is to show long-term success, a strong and mutually respective partnership will be necessary between state, federal, non-governmental agencies; private landowners; and industry. The foundation of that partnership is embedded in Section 6 of the Endangered Species Act (ESA). This section clearly directs the U.S. Fish and Wildlife Service (USFWS) to cooperate to the maximum extent practicable with state fish and wildlife agencies, and provides them with the authority to carry that partnership forward. That partnership guided the development of the RWP which now provides a clear road map for conserving the LPC.

BACKGROUND

The early history of the ESA listing status of LPC has been provided in previous annual reports. Please refer to those reports, or the RWP, for more detailed information about LPC listing history.

Recent listing related activities include:

On September 8, 2016, a petition was filed by WildEarth Guardians, Defenders of Wildlife and the Center for Biological Diversity asking the USFWS to re-list the LPC under the ESA. This petition also requested that sub-populations of LPC located in the Shinnery Oak and Sand Sagebrush Ecoregions be considered for emergency listing.

On November 30, 2016, the USFWS published a notice in the *Federal Register* in response to the September 8, 2016 listing petition. The USFWS found that the petition presented substantial positive information and therefore they would undergo the 12-month review process. During this 12-month review, a Species Status Assessment of the LPC was also be conducted. The SSA had not been released to the public, as of January 1, 2018.

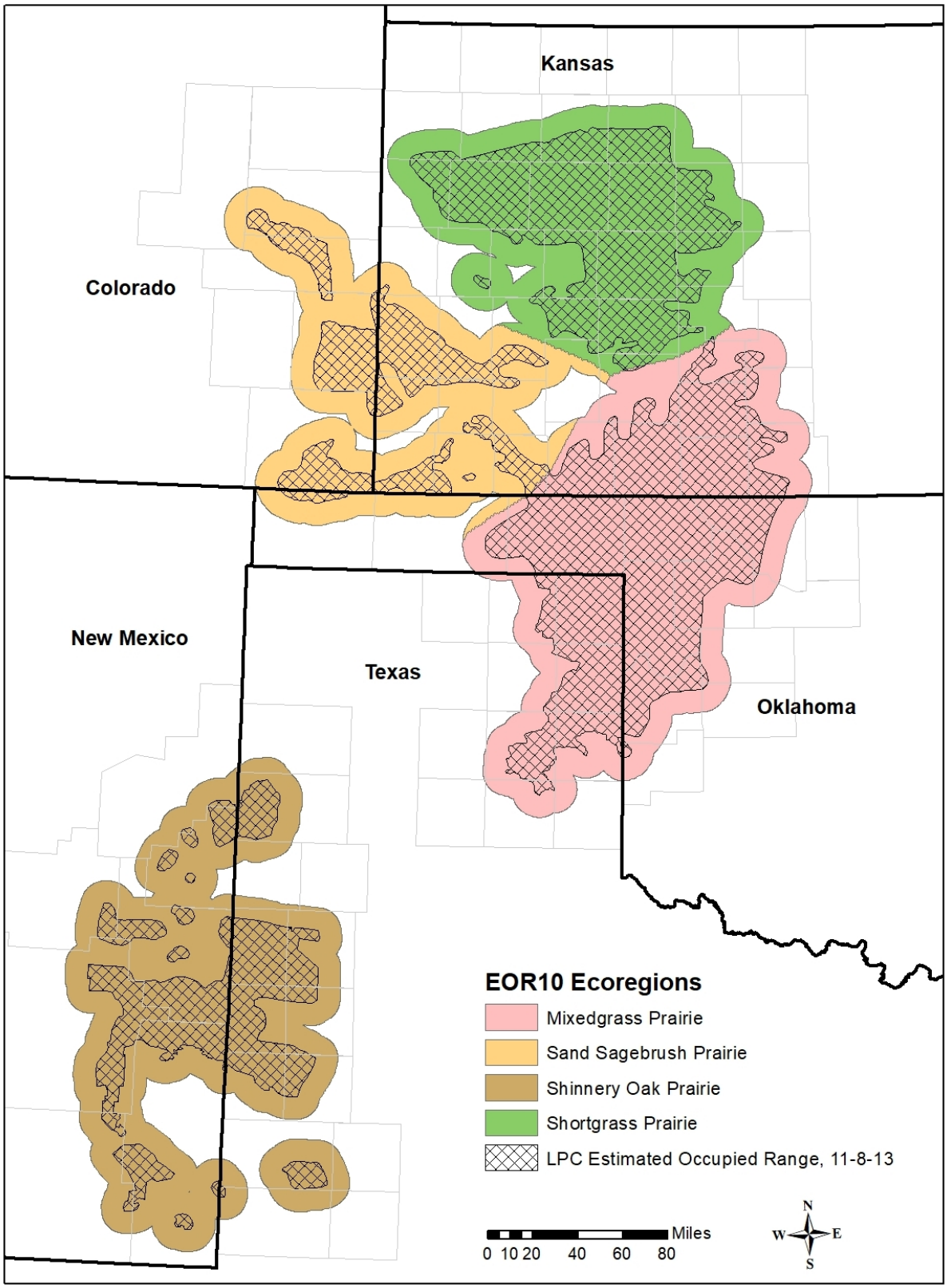

Figure 1. Current estimated occupied range plus 10 miles (EOR+10) of the lesser prairie-chicken and the four ecoregions delineated by the WAFWA.

CONSERVATION STRATEGY

The RWP describes a conservation strategy, which when implemented, will support sustainable populations of LPC. The strategy identifies 10-year habitat and population goals that are sufficient in size and juxtaposition to provide adequate population resiliency and redundancy. The RWP also improves coordination and conservation targeting across all the agencies and organizations who are delivering LPC conservation programs on private land. Additionally, the RWP promotes avoidance and minimization of impacts to LPC habitat and establishes a process for RWP industry participants to mitigate their actions, when necessary.

A key component of the RWP conservation strategy is applying the concept of focal areas and connectivity zones. This concept identifies the areas of greatest importance to the LPC, and focuses conservation efforts into those areas. The strategy emphasizes delivery of habitat improvement in focal areas and connectivity zones by maximizing incentives to encourage those landowners to engage in LPC habitat maintenance and improvement.

Another important component of the strategy is identification of tools that help industry with siting decisions and development of a compensatory mitigation program that RWP participants can utilize when they are unable to avoid impacts to LPC habitat.

WAFWA MITIGATION AND METRICS SYSTEM

The WAFWA Mitigation Framework incentivizes avoidance and minimization of impacts to LPC habitat from development. The metrics system within this framework provides a pathway to mitigate for impacts to habitat through a biologically-based system that incorporates space, time and habitat quality to define both habitat impact units and habitat offset units. A habitat impact is defined as: potential LPC habitat that has been rendered unusable by LPCs based on direct or indirect habitat loss related to development. A habitat offset is defined as: an area of potential LPC habitat that is conserved and managed or restored to compensate for impacted habitat. Impacts are considered permanent, unless remediation back to baseline occurs. The mitigation system also utilizes a 2:1 mitigation ratio to ensure that offsets are greater than impacts, resulting in a net conservation benefit for the LPC.

The WAFWA Mitigation Framework functions as a platform to balance impact and habitat offset units in that a portion of the offset units are allocated at the sign-up based on current acreage and habitat quality. Additional offset units are generated annually and the quantity is reflective of potentially usable acreage and habitat quality. The landowner is incentivized to manage for quality habitat because their annual payment is based on the acreage and Habitat Evaluation Guide (HEG) score of the enrolled property. If the participant does not follow the recommended management plan for the property, the offset units will be reduced, as will the annual payment to the participant.

This performance-based system ensures participants are not paid in advance for un-generated offset units.

Offset units will be generated by enrolling a property into an agreement with WAFWA or one of its technical service providers. Participants may enroll in short-term (5-10 year) agreements or in long-term agreements requiring an easement. The value of 25% of the habitat offset units will be targeted towards permanent conservation to support long-term conservation and population strongholds. The remaining 75% of the conservation efforts will be targeted towards short-term contracts (5-10 years), which represent permanent conservation that may shift around on the landscape within the targeting goals of the RWP and the SGP CHAT. Finally, the WAFWA mitigation system incentivizes the

remediation of impacts that are not permanent on the landscape by providing the opportunity to generate offset units that can count toward new developments elsewhere. The 25/75 ratio of long and short-term offset units will be evaluated through the adaptive management process and may need to be adjusted in the future.

ADAPTIVE MANAGEMENT

Adaptive management is defined as a formal, structured approach to dealing with uncertainty in natural resource management, using the experience of management and the results of research as an ongoing feedback loop for continuous improvement. Adaptive approaches to management recognize that the answers to all management questions are not known and that the information necessary to formulate answers is often unavailable. Adaptive management also includes, by definition, a commitment to change management practices when deemed appropriate within the guidelines of the RWP.

Adaptive management is a dynamic process that helps reduce uncertainty in natural resource management by incorporating into flexible conservation plans new information as it becomes available. Adaptive management strategies allow for mutually agreed-upon changes to the conservation measures to occur in response to changing conditions or new information, including those identified during monitoring. The primary reason for using adaptive management in the RWP is to allow for changes in the conservation measures that may be necessary to reach the stated long-term goals. Under adaptive management, the mitigation and conservation activities implemented under the RWP will be monitored to identify whether they are producing the required results. Additionally, adaptive management activities affecting the implementation of the RWP will be influenced by emerging science and RWP implementation that fills existing knowledge gaps. Those two types of information will be used to guide adjustments in implementation of the RWP. To date, the adaptive management process in the RWP can generally be broken into two categories. The first category is directed at ensuring the program maintains its progress toward LPC habitat and populations goals. The second is directed at enhancing participation by industry by avoidance and minimization of impacts on LPC populations and habitat by industry development, operations and maintenance

The RWP identifies a series of activities or situations that will trigger the adaptive management process or specific conservation actions for LPC, as well as the timelines that those activities or situations will be evaluated (see Table 10 on page 117-120 in the RWP). There are eight individual variables in that list which are to be evaluated on an annual scale:

1. Administrative fee—WAFWA reports on the sustainability of the administrative endowment in the annual reports (see the financial summary). In 2017, after review and recommendations from the LPCAC and LPC Fee Structure Sub-Committee (LPCFSC), an adjustment of the administrative fee from 12.5% to 16.5% was implemented starting January 1, 2018.

2. Individual technical service provider (TSP) compliance—Starting in May 2014, WAFWA has held five technical service provider training courses and has trained 267 individual TSPs on the use of spatial data available on the SGP CHAT website and the process for conducting field habitat evaluations. Certified TSPs submit habitat evaluations to the WAFWA GIS lab for review. These evaluations include photo points allowing for visual confirmation of collected data. No TSP compliance issues were identified in 2017.

3. Population size—WAFWA conducts annual population monitoring and a detailed description is included in this report. Populations are evaluated on a three-year moving average.
4. Conservation Practice Costs—Conservation practice costs were reviewed again in 2017. After review by the LPCFSC, a recommendation was made to the LPCAC to make adjustments in the payment rates to enrolled landowners. The LPCIC approved these recommendations and these changes went into effect January 1, 2018.

5. Emerging science—The LPC Science Sub-committee, (LPCSSC), reviews and informs the LPCAC on LPC science-related issues. New emerging science related to fence collision impacts to LPC was brought to the LPCSSC in 2017. Final action on this issue had not been taken as of December 31, 2017.

6. Tangible mitigation unit offset ratio. This report contains an annual analysis of the acres impacted by industry development, habitat quality of those impacted acres and compares that to the acres conserved and the habitat quality of those acres.

7. Quality of the offset acreage—The habitat metric system defined in the RWP evaluates habitat quality for offset acreage on an annual basis. A summary of habitat quality is included in this report.

8. Habitat restoration goals—The RWP uses a system of focal areas and connectivity zones with goals of 70% suitable habitat in the focal areas and 40% in the connectivity zones. To achieve those goals, LPC habitat must be restored and maintained. Many LPC conservation programs across the region now use the SGP CHAT to target conservation efforts. This report will include an annual evaluation of those goals considering the restoration efforts of all conservation programs that provide data for that analysis. The strength of this approach is that common targeting helps leverage conservation efforts and funding with efforts from partner organizations.

Rigorous evaluations of habitat quantity, sustainability of the conservation endowment, conservation practices, avoidance of high priority CHAT categories, and strongholds are scheduled for 2018. WAFWA also committed to expedited timelines for permanent conservation to be evaluated after the 2016 reporting period.

INDUSTRY PARTICIPATION

The RWP is designed to include conservation measures that eliminate and/or reduce threats by land uses including mineral, oil/gas, and, wind-energy developments, agricultural practices, and civil infrastructure (including transmission and distribution lines, radio/cell towers, water lines, and roads) on state and private property.

LEK SURVEYS FOR PROJECT CLEARANCE

Under the RWP, participant companies may conduct lek surveys to address restrictions under the conservation measures in the WCA and the WAFWA Oil and Gas Candidate Conservation Agreement with Assurances (CCAA). For areas within the EOR+10 that have not been surveyed for LPC (assume LPC presence) or are within 1.25 miles of a known lek, the conservation measures restrict activities during the breeding season where humans are present during the hours of 3 A.M. to 9 A.M., noise levels for facilities constructed and mitigated for under the WCA and CCAA, restrict off road travel in rangeland or planted grass and require the marking of fences. Participants have the option of considering an area occupied with active leks and following those restrictions or conducting lek surveys as defined in the lek survey protocol, which covers both aerial and ground-

based surveys (see Appendix H in the RWP and adaptive management section in the RWP).

To receive a project clearance determination from WAFWA, survey data must be submitted to WAFWA and the data is checked to confirm it meets the lek survey protocol requirements. Project clearance surveys will have the appropriate buffers added (1 mile for ground surveys and 200m for aerial surveys), which are included in the lek survey layer on the CHAT website and are made available for public use for project planning. WAFWA updates this layer annually, once all lek survey data is received and summarized in August. WAFWA uses this layer, and all lek survey information received, to assess survey coverage of proposed development projects. The survey coverage determines if breeding season restrictions apply. Surveys are considered valid for five breeding seasons.

In the spring of 2017, 582,190.9 acres were surveyed for project clearance, totaling 1.4% of the total area of the EOR+10 (Table 1). Survey coverage varied by region from a high of 243,883 acres were in the Mixed Grass Ecoregion to a low of 77,742 acres in the Shortgrass Ecoregion (Table 1). Currently 21,083,637 acres of the EOR+10 (52.2%) have surveys conducted within the previous five years and are considered currently surveyed (Figure 2, Table 2).

Table 1. Summary of acreage covered by lek surveys in 2017 by ecoregion and CHAT category. Surveys are conducted by industry contractors, state agencies, and federal agency personnel to detect LPC presence or identify an area as not having LPC.

Ecoregions	CHAT Score	Unit acres	Surveyed acres	% of unit
Mixed Grass Prairie	CHAT1	2576011.826	103003.6818	4.00%
	CHAT2	1116165.125	18479.26005	1.66%
	CHAT3	5185505.924	83122.96036	1.60%
	CHAT4	3768280.419	39277.79472	1.04%
	Ecoregion Total:	**12,645,963.29**	**243,883.70**	**1.93%**
Sand Sagebrush Prairie	CHAT1	1583367.268	157892.2137	9.97%
	CHAT2	245121.125	3957.982095	1.61%
	CHAT3	1883282.154	8912.041418	0.47%
	CHAT4	4322389.596	2601.182499	0.06%
	Ecoregion Total:	**8,034,160.14**	**173,363.42**	**2.16%**
Shinnery Oak Prairie	CHAT1	1046404.804	1278.230391	0.12%
	CHAT2	892804.0978	3169.309237	0.35%
	CHAT3	5917158.944	58827.87085	0.99%
	CHAT4	3177657.929	23925.43944	0.75%
	Ecoregion Total:	**11,034,025.77**	**87,200.85**	**0.79%**
Shortgrass Prairie	CHAT1	1872008.594	50829.19508	2.72%
	CHAT2	183680.8442	0	0.00%
	CHAT3	1769582.91	17334.6524	0.98%
	CHAT4	4820373.01	9579.054413	0.20%
	Ecoregion Total:	**8,645,645.36**	**77,742.90**	**0.90%**
EOR+10 Total:		**40,359,794.57**	**582,190.87**	**1.44%**

Table 2. Summary of acreage covered by lek surveys performed in 2013-2017 (current active survey area).

Ecoregions	CHAT Score	Unit acres	Surveyed acres	% of unit
Mixed Grass Prairie	CHAT1	2576011.826	2644729.916	102.67%
	CHAT2	1116165.125	1287127.411	115.32%
	CHAT3	5185505.924	5877423.507	113.34%
	CHAT4	3768280.419	1054795.161	27.99%
	Ecoregion Total:	**12,645,963.29**	**10,864,075.99**	**85.91%**
Sand Sagebrush Prairie	CHAT1	1583367.268	1414665.912	89.35%
	CHAT2	245121.125	140898.5458	57.48%
	CHAT3	1883282.154	731824.132	38.86%
	CHAT4	4322389.596	401196.2633	9.28%
	Ecoregion Total:	**8,034,160.14**	**2,688,584.85**	**33.46%**
Shinnery Oak Prairie	CHAT1	1046404.804	1073544.159	102.59%
	CHAT2	892804.0978	862334.5285	96.59%
	CHAT3	5917158.944	4060102.616	68.62%
	CHAT4	3177657.929	956129.1937	30.09%
	Ecoregion Total:	**11,034,025.77**	**6,952,110.50**	**63.01%**
Shortgrass Prairie	CHAT1	1872008.594	297286.5708	15.88%
	CHAT2	183680.8442	18097.90067	9.85%
	CHAT3	1769582.91	151754.168	8.58%
	CHAT4	4820373.01	111727.3628	2.32%
	Ecoregion Total:	**8,645,645.36**	**578,866.00**	**6.70%**
EOR+10 Total:		**40,359,794.57**	**21,083,637.35**	**52.24%**

All lek detections from project clearance surveys are included in the WAFWA lek database, along with lek locations from the range-wide population surveys and those reported from state agencies and other data sources. If a new detection is recorded in an area that was surveyed in a prior year without detections, that new lek location supersedes the previous data and breeding season restrictions apply within 1.25 miles of that location for a minimum of five breeding seasons from the last detection. This database currently includes 3,554 lek observations recorded between 2005 and 2017, with 1,293 being from 2013-2017 and are considered "current leks" using the 5-year definition within the RWP. This total represents raw lek observations, and may include the same lek observed across multiple years. There were 274 leks observed during the 2017 survey season based on the data submitted to WAFWA (Figure 3). Of those leks observed between 2005 and 2017 (3,554 total) 2,756 were in CHAT 1 (77.5%), 334 were in CHAT 2 (9.4%), 382 were in CHAT 3 (10.7%), and 63 in CHAT 4 (1.8%) and 19 were outside of the EOR+10 (0.6%). Leks outside the EOR+10 were in northwest Kansas (18), and one lek was just across the border in Colorado. Of those leks outside the EOR+10 in Kansas, four were identified by KDWPT through ground surveys and 14 were identified from aerial surveys. Since this area of NW KS also has greater prairie-chickens, the certainty that these are lesser prairie-chickens has been raised and future aerial sightings in this

region will be assessed with follow up ground observations.

Additional updates to leks and the surveyed areas may occur after August if new data is identified. Data users are encouraged to check the SGP Chat website and data portal to ensure they have the most current data available for their planning.

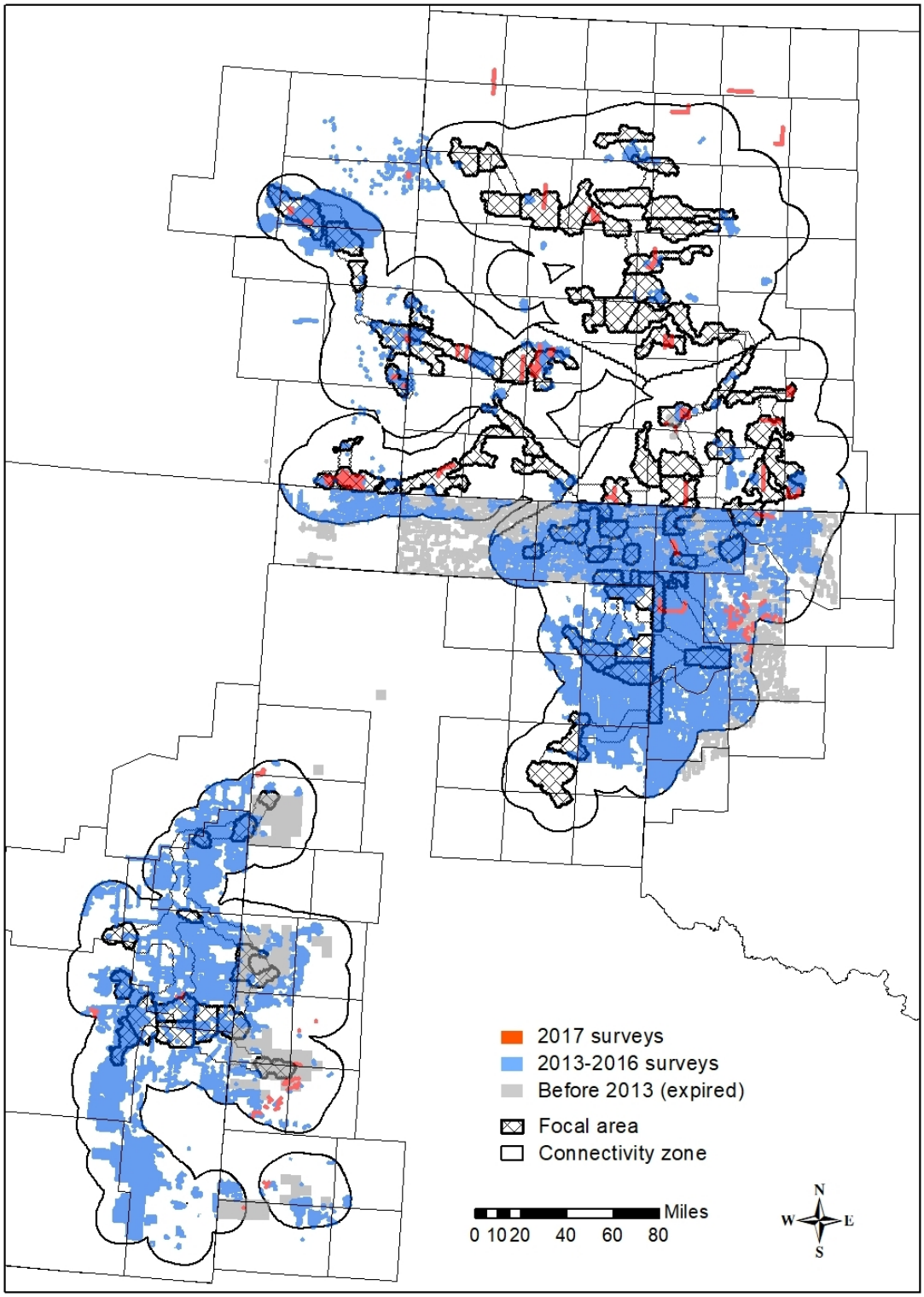

Figure 2. Lek surveys conducted in 2017 (new), 2013-2016 (active), and 2012 (just expired) across the estimated occupied range of the lesser prairie-chicken with a 10-mile buffer (EOR+10).

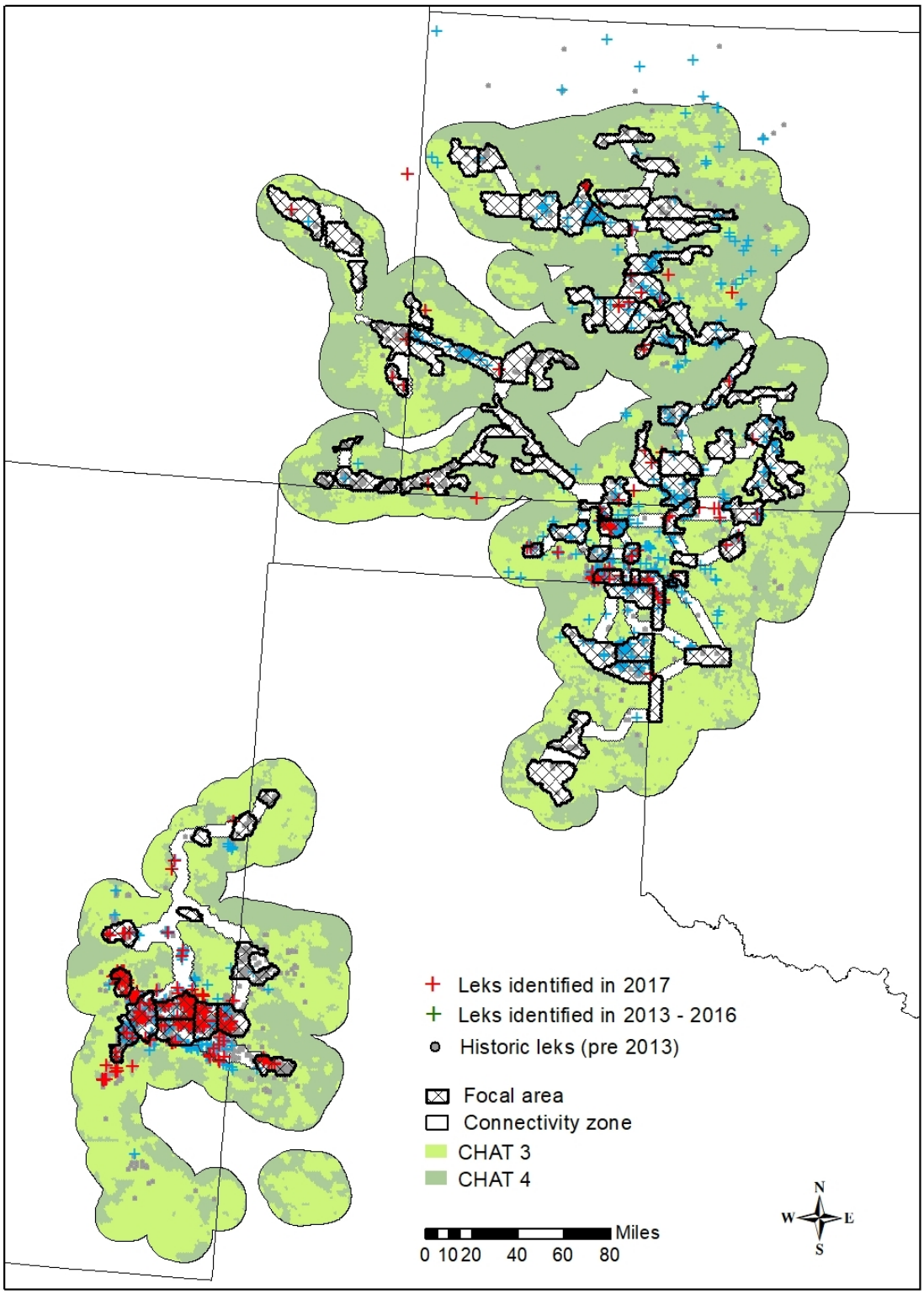

Figure 3. Leks identified in 2017 compared with those identified in 2013-2016 (still considered active) and leks last observed in 2012 or prior which are considered historic leks.

WAFWA CONSERVATION AGREEMENT PARTICIPATION BY INDUSTRY

The WAFWA conservation agreement (WCA) covers oil and gas, pipelines, wind energy, electric distribution and transmission, telecommunications, and other activities (See Sec. 10 of the WCA). As of December 31, 2017, there were 55 active WCA contracts by 55 companies (signed Certificates of Participation) (Table 3). As of the end of 2017, there were no contracts that were suspended for non-compliance. Since 2014, 14 WCA contracts have been terminated. Six were terminated voluntarily by participants in good standing, four were terminated by WAFWA for failure to pay enrollment fees, three were terminated due to the sale of assets where the buyer opted out of continued enrollment, and one was terminated due to the expiration of enrolled leases. Since 2014, there have been 30 voluntary transfers of WCA contracts. Twenty-eight were transferred from the WCA to the CCAA for the stronger legal assurances offered by the latter, and two were transferred between companies with the purchase of enrolled properties. One new company was added to the Lesser Prairie-Chicken WCA in 2017. All Certificates of Participation for this agreement have been scanned and made available to USFWS on a secure website.

Table 3. Companies enrolled in the WCA and their current contract status for the 2017 reporting year.

S.No	Company Name	Contract Status*
1	Access Midstream Partners, LP (Acquired by Williams)	Active
2	Alfalfa Electric Cooperative	Terminated by participant
3	American Electric Power Company, Inc	Active
4	Anadarko E&P Onshore, LLC	Terminated after sale to non RWP company
5	Anadarko Petroleum Corporation	Transferred to other agreement
6	Apache Corporation	Transferred to other agreement
7	Bailey County Electric Cooperative	Active
8	Bluestem Wind Energy, LLC	Active
9	BP America Production Company	Active
10	Broadview Energy	Terminated by participant
11	Central Valley Electric Cooperative	Active
12	Chaparral Energy, LLC	Active
13	Cimarex Energy Company	Active
14	Cimarron Electric Cooperative	Active
15	COG Operating, LLC	Transferred to other agreement
16	ConocoPhillips Company	Transferred to other agreement
17	Continental Resources, Inc	Transferred to other agreement
18	Coral Coast Petroleum, LC	Active
19	DCP Midstream, LLC	Active
20	Deaf Smith Electric Cooperative	Active
21	Devon Energy Corporation (Kansas)	Transferred to other agreement

22	Devon Energy Corporation (Oklahoma)	Transferred to other agreement
23	Devon Energy Corporation (Permian Basin)	Transferred to other agreement
24	Devon Energy Corporation (Rockies)	Transferred to other agreement
25	Devon Energy Corporation (Texas Panhandle)	Transferred to other agreement
26	Dolomite Resource Corporation	Terminated for non-payment
27	Eagle Exploration & Production Company	Terminated for non-payment
28	Eagle Oil and Gas	Terminated by participant
29	Eagle Rock Energy Services, LP	Transferred to other agreement
30	Eagle Rock Field Services, LP	Transferred to other agreement
31	Eagle Rock Operating Company, LLC	Transferred to another company in RWP
32	Edison Operating Company, LLC	Active
33	Enable Midstream Partners, LP	Active
34	Energy Transfer Partners, LP	Transferred to other agreement
35	EnerVest Operating, LLC	Transferred to other agreement
36	Enterprise Products Operating, LLC	Active
37	ER Operating Company	Active
38	Farmers Electric Cooperative	Active
39	Forestar Petroleum Corporation	Terminated for non-payment
40	Gore Oil Company	Active
41	Grand Mesa Pipeline	Active
42	Greenbelt Electric Cooperative	Active
43	Hess Oil Company	Active
44	Indian Exploration Company, LLC	Active
45	ITC Great Plains	Active
46	John O. Farmer, Inc	Active
47	Jones Energy, LLC	Active
48	Kaiser-Francis Oil Company	Active
49	Kinder Morgan, Inc	Transferred to other agreement
50	Kirkpatrick Oil Company, Inc	Active
51	Kiwash Electrical Cooperative	Terminated after sale to non RWP company
52	Landmark Resources, Inc	Transferred to other agreement
53	Linn Operating, Inc	Transferred to other agreement
54	Lyntegar Electric Cooperative	Active

55	Magellan Midstream Partners, LP	Transferred to other agreement
56	MarkWest Oklahoma Gas Company, LLC	Transferred to other agreement
57	McElvain Energy, Inc	Terminated for non-payment
58	Mewbourne Oil Company	Transferred to other agreement
59	Midcoast Operating, LP	Active
60	Nadel and Gussman, LLC	Terminated by participant
61	Ninnescah Rural Electric Cooperative	Inactive
62	North Plains Electric Cooperative	Active
63	Northfork Electrical Cooperative	Active
64	Northwestern Electric Cooperative	Active
65	OG&E Corporation	Active
66	ONEOK Partners, LP	Transferred to other agreement
67	Opal Resources Operating Company II, LLC	Terminated by participant
68	Oxy Oil and Gas	Transferred to other agreement
69	P.O. & G. Operating, LLC	Active
70	Peregrine Petroleum Partners, Ltd	Active
71	Pioneer Resources, Inc	Active
72	Plains All American Pipeline, LP	Active
73	Ramsey Property Management, LLC	Active
74	Raydon Exploration, Inc.	Active
75	Raymond Oil Company, Inc	Active
76	Red Oak Energy, Inc	Active
77	Regency Energy Partners, LP	Transferred to other agreement
78	Roosevelt County Electric Cooperative	Terminated by participant
79	Samson Lone Star, LLC - Samson Resources Company	Terminated after sale to non RWP company
80	Samuel Gary Jr. & Associates, Inc	Transferred to other agreement
81	SemGroup Corporation	Active
82	Slawson Exploration Company, Inc	Active
83	Southern Star Central Gas Pipeline, Inc	Active
84	StrataKan Exploration, LLC	Terminated due to Lease expiration
85	Sunflower Electric Power Corporation	Active
86	Superior Pipeline Company, LLC	Transferred to other agreement
87	Tapstone Energy, LLC	Transferred to other agreement

88	Texakoma Exploration Production, LLC	Active
89	ToTo Energy, LLC	Transferred to other agreement
90	Tower Assets Newco IX, LLC	Active
91	Tri-County Electric Cooperative	Active
92	Unit Petroleum Company	Active
93	VAL Energy, Inc	Active
94	Versado Gas Processors, LLC	Active
95	Western Farmers Electric Cooperative	Active
96	Western Gas Partners, LP	Transferred to another company in RWP
97	Xcel Energy, Inc	Active
98	Prairie Wind Transmission, LLC	Active
99	Lea County Electric Cooperative, Inc.	Active

**Contract status is as follows: active contracts have a current balance and no outstanding compliance notices, suspended or partially suspended contracts have a past-due enrollment fee balance, self-terminated contracts indicate a voluntary termination by the participant company, sold/transferred indicates that the enrollment was sold, transferred to another enrolled company and remains in the program, and transferred/inactive indicates that the company transferred the acreage to the CCAA program and retains the WCA contract without any enrolled acres.*

The current active enrollment area totals for the WCA is 673,538.0 acres (Table 4 & 5). WCA enrollments are up 1.5% from the 663,198.7 acres reported for 2016. None of these acres are currently suspended. During 2017, 25,152.1 new acres were enrolled in the WCA. This is significantly below the 375,000-acre target for the CCAA and WCA in the business plan of the RWP for new enrollment in the fourth year of implementation.

Figures 4 and 5 depict the distribution of the current active WCA enrollments across the extent of the EOR+10. The majority of the WCA enrollments (55.8%) are in the Mixed Grass Ecoregion, followed by the Shinnery Oak Prairie Ecoregion (33.4%), the Sand Sagebrush Ecoregion (8.1%), the Shortgrass Prairie Ecoregion (2.7%) (Table 4). The enrollment in this agreement represents a small percentage of the range of the species (1.7%) (Table 4 and 5). However, that enrollment has substantial biological importance because it represents a large portion of the electric grid within the EOR+10 (Figure 4). By state, Oklahoma has the most WCA enrollment at 254,078.1 acres (37.7% of the total) followed by Texas at 203,817.6 acres (30.3%), New Mexico at 119,625.0 acres (17.8%), Kansas at 93,447.7 acres (13.9%), and Colorado at 2,569.5 acres (0.4%) (Table 5).

Table 4. Summary of active WCA acreage by ecoregion, CHAT category, and industry type and the percentage of total area of the ecoregion and CHAT category that those enrollments represent as of December 31, 2017.

Ecoregions	CHAT Score	Electrical	Oil and Gas	Pipeline	Wind	Total Active Acres	% of Eco / CHAT Area
Mixed Grass Prairie	CHAT1	27,456.2	21,800.5	6,065.2	0.0	55,321.9	2.1%
	CHAT2	21,122.9	32,096.6	4,091.3	8.8	57,319.5	5.1%
	CHAT3	93,203.7	57,789.5	24,329.8	359.6	175,682.6	3.4%
	CHAT4	60,655.2	15,338.7	10,663.7	866.2	87,523.8	2.3%
	Ecoregion Total:	**202,438.1**	**127,025.2**	**45,149.9**	**1,234.7**	**375,847.7**	**3.0%**
Sand Sagebrush Prairie	CHAT1	2,462.7	1,308.1	8,650.6	0.0	12,421.3	0.8%
	CHAT2	298.3	0.0	8.9	0.0	307.1	0.1%
	CHAT3	6,993.9	537.1	4,754.0	0.0	12,285.0	0.7%
	CHAT4	13,286.1	6,487.4	9,680.9	0.0	29,454.5	0.7%
	Ecoregion Total:	**23,040.9**	**8,332.6**	**23,094.3**	**0.0**	**54,467.9**	**0.7%**
Shinnery Oak Prairie	CHAT1	4,654.7	7,406.4	7,919.4	0.0	19,980.5	1.9%
	CHAT2	5,816.5	3,068.2	1,509.0	0.0	10,393.8	1.2%
	CHAT3	68,063.2	7,100.8	21,347.7	0.0	96,511.7	1.6%
	CHAT4	81,730.9	49.3	16,252.9	0.0	98,033.0	3.1%
	Ecoregion Total:	**160,265.3**	**17,624.7**	**47,029.0**	**0.0**	**224,919.0**	**2.0%**
Shortgrass Prairie	CHAT1	958.4	1,185.7	1,704.3	0.0	3,848.3	0.2%
	CHAT2	188.9	0.0	284.6	0.0	473.5	0.3%
	CHAT3	1,326.2	1,028.3	1,168.0	0.0	3,522.5	0.2%
	CHAT4	5,483.5	955.4	4,020.2	0.0	10,459.1	0.2%
	Ecoregion Total:	**7,956.9**	**3,169.3**	**7,177.1**	**0.0**	**18,303.4**	**0.2%**
EOR+10 Total:		**393,701.3**	**156,151.8**	**122,450.3**	**1,234.7**	**673,538.0**	**1.7%**

Table 5. Summary of active WCA acreage by state, ecoregion, CHAT category, and industry type that those enrollments represent as of December 31, 2017.

State	Ecoregions	CHAT Score	Electrical	Oil and Gas	Pipeline	Wind	Total Acres
Colorado	Mixed Grass Prairie	CHAT1	215.4	0.0	721.3	0.0	936.7
		CHAT2	0.0	0.0	126.7	0.0	126.7
		CHAT3	134.0	0.0	81.7	0.0	215.7
		CHAT4	448.0	0.0	185.9	0.0	633.8
		Ecoregion Total:	**797.4**	**0.0**	**1,115.6**	**0.0**	**1,912.9**
	Sand Sagebrush Prairie	CHAT1	88.0	0.0	0.0	0.0	88.0
		CHAT2	122.5	0.0	0.0	0.0	122.5
		CHAT3	107.9	0.0	0.0	0.0	107.9
		CHAT4	338.2	0.0	0.0	0.0	338.2
		Ecoregion Total:	**656.6**	**0.0**	**0.0**	**0.0**	**656.6**

	State Total:		**1,454.0**	**0.0**	**1,115.6**	**0.0**	**2,569.5**
Kansas	Mixed Grass Prairie	CHAT1	5,670.1	0.0	2,459.4	0.0	8,129.5
		CHAT2	4,877.9	251.2	1,545.9	8.8	6,683.8
		CHAT3	12,300.4	354.6	3,087.1	0.0	15,742.1
		CHAT4	8,748.0	684.2	2,224.4	574.6	12,231.2
		Ecoregion Total:	**31,596.5**	**1,289.9**	**9,316.8**	**583.4**	**42,786.6**
	Sand Sagebrush Prairie	CHAT1	2,363.7	1,308.1	8,650.5	0.0	12,322.3
		CHAT2	175.8	0.0	8.9	0.0	184.6
		CHAT3	1,360.3	537.0	3,997.3	0.0	5,894.6
		CHAT4	5,788.4	1,039.2	8,278.2	0.0	15,105.7
		Ecoregion Total:	**9,688.1**	**2,884.2**	**20,934.9**	**0.0**	**33,507.2**
	Shortgrass Prairie	CHAT1	944.8	1,185.7	1,627.6	0.0	3,758.1
		CHAT2	188.9	0.0	284.6	0.0	473.5
		CHAT3	1,210.9	1,028.3	1,163.0	0.0	3,402.1
		CHAT4	4,987.8	955.4	3,577.1	0.0	9,520.3
		Ecoregion Total:	**7,332.4**	**3,169.3**	**6,652.3**	**0.0**	**17,154.0**
	State Total:		**48,616.9**	**7,343.5**	**36,904.0**	**583.4**	**93,447.7**
New Mexico	Shinnery Oak Prairie	CHAT1	3,482.0	6.3	7,437.8	0.0	10,926.2
		CHAT2	4,833.8	0.0	1,303.3	0.0	6,137.1
		CHAT3	39,131.9	3.0	17,201.8	0.0	56,336.7
		CHAT4	34,910.9	0.0	11,314.1	0.0	46,225.0
		Ecoregion Total:	**82,358.6**	**9.3**	**37,257.1**	**0.0**	**119,625.0**
	State Total:		**82,358.6**	**9.3**	**37,257.1**	**0.0**	**119,625.0**
Oklahoma	Mixed Grass Prairie	CHAT1	11,872.6	18,407.6	2,089.7	0.0	32,370.0
		CHAT2	10,620.5	24,839.1	1,501.4	0.0	36,961.1
		CHAT3	59,162.7	46,862.9	17,476.1	359.6	123,861.3
		CHAT4	27,356.9	7,905.7	4,287.3	291.7	39,841.5
		Ecoregion Total:	**109,012.7**	**98,015.4**	**25,354.5**	**651.3**	**233,033.9**
	Sand Sagebrush Prairie	CHAT1	10.9	0.0	0.0	0.0	10.9
		CHAT3	5,525.8	0.1	756.7	0.0	6,282.6
		CHAT4	6,845.0	5,448.3	1,402.7	0.0	13,695.9
		Ecoregion Total:	**12,381.6**	**5,448.4**	**2,159.5**	**0.0**	**19,989.5**
	Shortgrass Prairie	CHAT1	13.6	0.0	76.6	0.0	90.2
		CHAT3	115.3	0.0	5.1	0.0	120.4
		CHAT4	401.0	0.0	443.1	0.0	844.1
		Ecoregion Total:	**529.9**	**0.0**	**524.8**	**0.0**	**1,054.7**

	State Total:		**121,924.3**	**103,463.7**	**28,038.8**	**651.3**	**254,078.1**
Texas	Mixed Grass Prairie	CHAT1	9,698.1	3,392.9	794.8	0.0	13,885.8
		CHAT2	5,624.5	7,006.2	917.2	0.0	13,547.9
		CHAT3	21,606.5	10,572.0	3,684.9	0.0	35,863.4
		CHAT4	24,102.4	6,748.8	3,966.1	0.0	34,817.2
		Ecoregion Total:	**61,031.5**	**27,719.9**	**9,363.0**	**0.0**	**98,114.3**
	Sand Sagebrush Prairie	CHAT4	314.6	0.0	0.0	0.0	314.6
		Ecoregion Total:	**314.6**	**0.0**	**0.0**	**0.0**	**314.6**
	Shinnery Oak Prairie	CHAT1	1,172.7	7,400.1	481.6	0.0	9,054.3
		CHAT2	982.8	3,068.2	205.7	0.0	4,256.7
		CHAT3	28,931.3	7,097.8	4,145.9	0.0	40,175.0
		CHAT4	46,820.0	49.3	4,938.8	0.0	51,808.0
		Ecoregion Total:	**77,906.7**	**17,615.4**	**9,771.9**	**0.0**	**105,294.0**
	Shortgrass Prairie	CHAT4	94.7	0.0	0.0	0.0	94.7
		Ecoregion Total:	**94.7**	**0.0**	**0.0**	**0.0**	**94.7**
	State Total:		**139,347.5**	**45,335.3**	**19,134.9**	**0.0**	**203,817.6**
Grand Total:			**393,701.3**	**156,151.8**	**122,450.3**	**1,234.7**	**673,538.0**

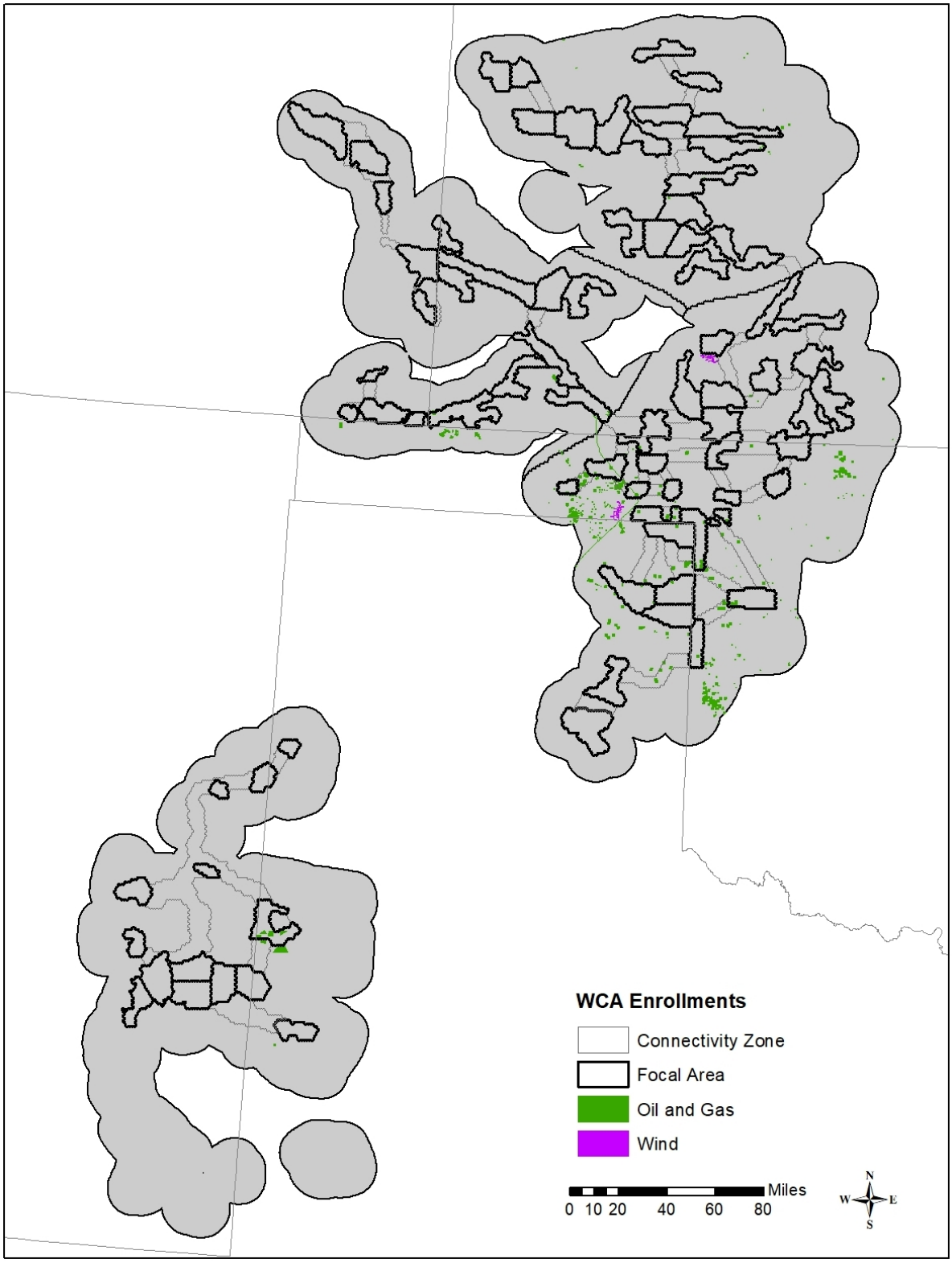

Figure 4. Enrollments in the WAFWA Conservation Agreement (WCA) as of December 31, 2017.

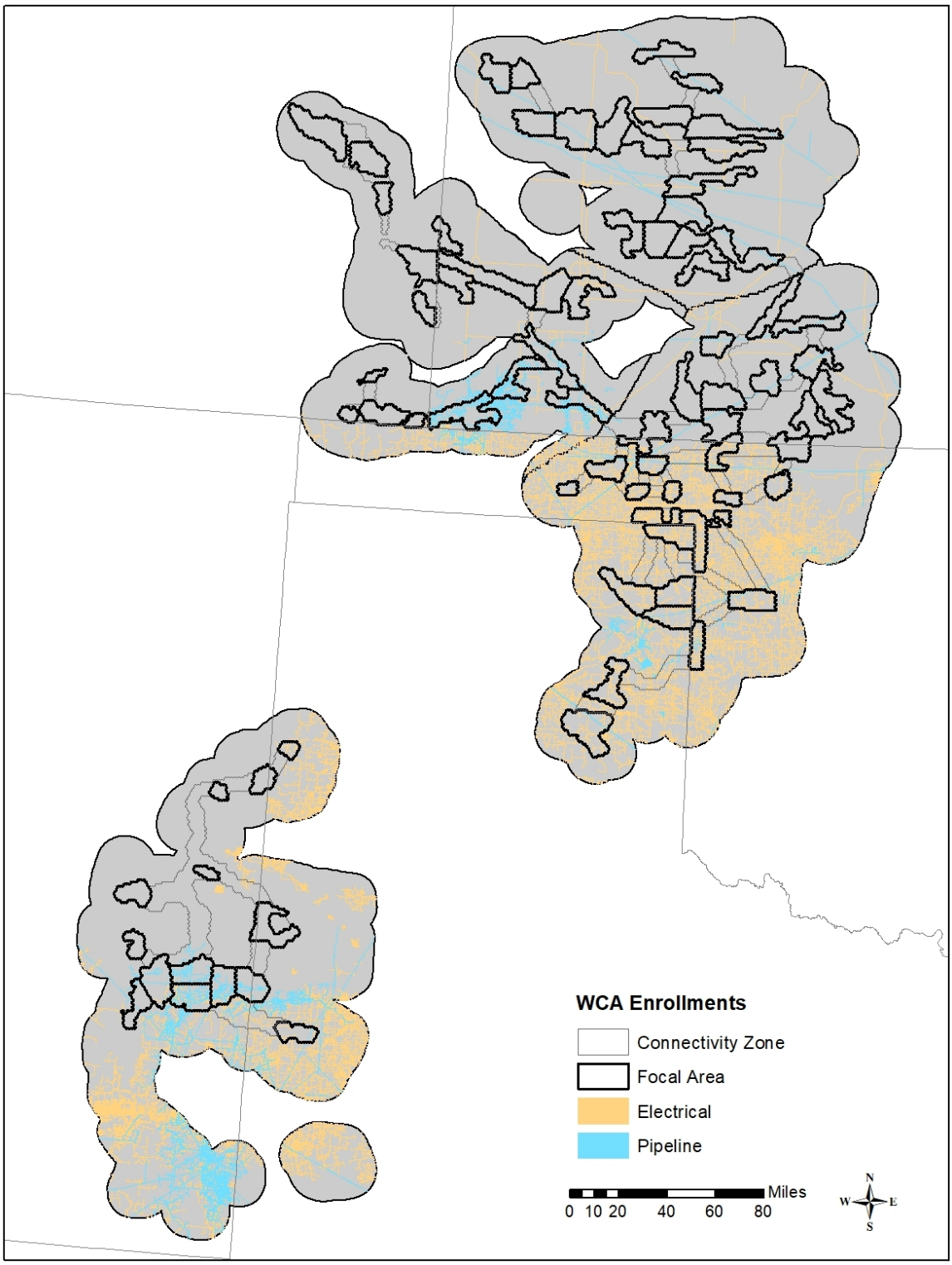

Figure 5. Electric and pipeline enrollments in the WAFWA Conservation Agreement (WCA) as of December 31, 2017.

WCA SUSPENSIONS FOR NON-PAYMENT OF ENROLLMENT FEES

The slowdown in the oil and gas industry that began in 2012 continues to impact that industry and other industries throughout the region. WAFWA recognizes the economic difficulty that many of

these companies are experiencing and WAFWA staff have worked extensively with those companies to provide options to maintain their participation in the WCA. If a company fails to pay their enrollment fees for the WCA and is ten days late on that payment, WAFWA issues a Notice of Non-payment letter that gives the company 30 days to pay the past due amount. If payment is not received prior to the end of that period, WAFWA issues a Compliance and Suspension Notice, upon which the company's enrollment in the program is suspended. USFWS staff are notified of that suspension. Suspended companies are not allowed to finalize mitigation for new development projects until their suspension is rescinded. If the past due balance is not resolved within twenty business days, WAFWA issues a Delinquency Notice, which provides a second twenty business day timeline to resolve that outstanding balance. If payment is not received during that period, WAFWA issues a Notice of Noncompliance, which informs the company of its options to seek redress through the Advisory Committee, establishes a final twenty business day period to resolve the past-due balance, and informs them that the Initiative Council may consider termination of all or part of their enrollment if the outstanding balance is not paid prior to the deadline. Companies with past-due accounts and current accounts have multiple options to resolve enrollment fee balances. They can pay their enrollment fees upon the predefined 3-year timeline, they can negotiate an extended payment plan that includes an interest sufficient to cover the expected rate of return in the WAFWA conservation endowment and additional work by WAFWA to invoice and track that payment plan, or they can work with WAFWA to negotiate a partial or full termination.

In 2016, there were 15 instances where companies were late on payment of WCA enrollment fees. Ten of those were resolved with the company remaining in good standing following resolution. The remaining five companies are currently suspended with a total outstanding balance of $14,513.03. All five companies received a Notice of Noncompliance in December 2016 or January 2017. WAFWA is currently evaluating additional options to try to get these five companies accounts current before considering termination.

WCA EMERGENCY AND NON-EMERGENCY OPERATIONS AND LPC MORTALITY REPORTING

The WCA requires the reporting of emergency and non-emergency operations as well as any incidents of LPC mortality. Emergency operations are those activities unexpectedly and urgently required to prevent or address immediate threats to human health, safety, or property; the environment; or national defense or security. The WCA requires the reporting of emergency operations that occur during the hours of 3am to 9am, between March 1 and July 15 that are within 1.25 miles of leks active within the previous 5 years or within 1.25 miles of un-surveyed areas of CHAT 1-3. Non-emergency activities occur on undisturbed areas in rangeland or planted grass cover (e.g., off of a well pad, road, or facility) between March 1 and July 15 that are within 1.25 miles of leks active within the previous 5 years or within 1.25 miles of un-surveyed areas of CHAT 1-3.

No emergency or non-emergency operation or instances of LPC mortality were reported on WCA enrolled properties by participant companies during the 2017 calendar year.

CCAA INDUSTRY PARTICIPATION

The CCAA covers oil and gas and related activities such as wells, roads, pipelines, storage tank facilities, compressor and pumping stations, and electric service for oil and gas facilities. As of December 31, 2017, there were 111 active CCAA contracts by 105 companies, one contract is currently pending as an unresolved transfer, and four contracts are suspected for non-payment of enrollment fees or unreported projects (Table 6). Since 2014, one contract was terminated by

bankruptcy, five companies voluntarily terminated their CCAA enrollment, and six companies were sold and their acreage was transferred to another enrolled company. Once new company was added to the Lesser Prairie-Chicken Range-wide Conservation Plan CCAA in 2017. Certificates of Inclusion for this agreement have been scanned and made available to USFWS on a secure website.

Table 6. Companies enrolled in the CCAA and their current contract status for the 2017 reporting year.

No.	Company Name	Contract Status*
1	Access Midstream Partners, LP (acquired by Williams)	Active
2	Anadarko Minerals, Inc	Active
3	Anadarko Petroleum Corporation	Transferred to another company in RWP
4	Apache Corporation	Active
5	Apache Corporation (Permian)	Active
6	Ares Energy, Ltd	Terminated for non-payment
7	Beren Corporation	Active
8	Berexco, LLC	Active
9	BP America Production Company	Active
10	Casillas Petroleum Corporation	Active
11	Castelli Exploration, Inc	Active
12	Central Operating, Inc	Active
13	Centurion Pipeline, LP	Active
14	Chisholm Partners II, LLC	Terminated for non-payment
15	Cholla Production, LLC	Terminated for non-payment
16	Cimarex Energy Company	Active
17	Cimarex Energy Company (West Texas)	Active
18	CMX, Inc	Active
19	Coats Energy, Inc	Active
20	COG Operating, LLC	Active
21	ConocoPhillips Company	Active
22	Continental Resources, Inc	Active
23	Corlena Oil Company	Active
24	Crawley Petroleum Corporation	Active
25	Culbreath Oil and Gas Company, Inc	Suspended
26	Cynosure Energy, LLC	Active
27	DaMar Resources, Inc	Active
28	Daystar Petroleum, Inc	Active

29	DCP Midstream, LLC	Active
30	Devon Energy Corporation (Kansas)	Active
31	Devon Energy Corporation (Oklahoma)	Active
32	Devon Energy Corporation (Permian Basin)	Active
33	Devon Energy Corporation (Rockies)	Active
34	Devon Energy Corporation (Texas Panhandle)	Active
35	Diehl Oil, Inc	Active
36	Dorchester Minerals Operating, LP (Kansas)	Transferred to another company in RWP
37	Dorchester Minerals Operating, LP (Oklahoma)	Active
38	Duncan Oil Properties, Inc	Active
39	Eagle Rock Energy Services, LP	Transferred to another company in RWP
40	Eagle Rock Field Services, LP	Transferred to another company in RWP
41	Eagle Rock Mid-Continent Operating Company, LLC	Transferred to another company in RWP
42	Edison Operating Company, LLC	Active
43	Edmiston Oil Company, Inc	Active
44	Elevation Resources, LLC	Active
45	Empire Energy E&P, LLC	Active
46	Enable Midstream Partners, LP	Active
47	Encino Operating, LLC	Suspended
48	Energex, LLC	Terminated for non-payment
49	Energy Alliance Company, Inc	Terminated after sale to non RWP company
50	Energy Transfer Partners, LP	Active
51	EnerVest Operating, LLC	Active
52	EOG Resources, Inc	Active
53	Eternity Exploration, LLC	Terminated for non-payment
54	Fasken Oil and Ranch, Ltd	Active
55	Forestar Petroleum Corporation	Terminated for non-payment
56	Griffin Management, LLC	Active
57	Highmount Operating, LLC	Transferred to another company in RWP
58	Imperial American Oil, Inc	Active
59	Jayhawk Pipeline, LLC	Active
60	JMA Energy Company, LLC	Active
61	Jolen Operating Company	Active

62	Jones Energy, LLC	Active
63	Joshi Technologies International, Inc	Terminated for non-payment
64	Kenneth W. Cory, Ltd	Active
65	Kinder Morgan, Inc	Active
66	Kirkpatrick Oil Company, Inc	Active
67	Laddex, Ltd	Active
68	Landmark Resources, Inc	Active
69	LB Exploration, Inc	Terminated for non-payment
70	Le Norman Operating, LLC	Suspended
71	Legacy Reserves Operating, LP	Active
72	Lighthouse Oil and Gas, LP	Terminated after sale to non RWP company
73	Linn Operating, Inc	Active
74	M&M Exploration, Inc	Active
75	Magellan Midstream Partners, LP	Active
76	Marathon Oil Company	Active
77	MarkWest Oklahoma Gas Company, LLC	Active
78	Maverick Brothers Resources, LLC	Active
79	McElvain Energy, Inc	Terminated for non-payment
80	McGinness Oil Company of Kansas, Inc	Active
81	Meridian Energy, Inc	Active
82	Merit Energy Company, LLC	Active
83	Mewbourne Oil Company	Active
84	MIDCO Exploration, Inc	Active
85	Midcoast Operating, LP	Active
86	Mid-Con Energy Operating, LLC	Active
87	Midnight Hour, LLC	Active
88	Mikol Oil, LLC	Terminated for non-payment
89	Monarch Oil Pipeline, LLC	Terminated for non-payment
90	Murfin Drilling Company, Inc	Active
91	Nadel and Gussman Permian, LLC	Terminated for non-payment
92	Nadel and Gussman, LLC	Terminated for non-payment
93	O`Benco IV, LP - O`Brien Resources, LLC	Active
94	Ol` Miss, LLC	Terminated for non-payment

95	ONE Gas, Inc	Active
96	ONEOK Partners, LP	Active
97	Oolite Energy Corporation	Active
98	Osage Investors, LLC	Active
99	Osage Oil, LLC	Active
100	Oxy Oil and Gas	Active
101	Paladin Energy Corporation	Terminated due to bankruptcy
102	Panhandle Topeka, LLC	Active
103	Pickerell Drilling Company, Inc	Active
104	Pintail Petroleum, Ltd	Active
105	Pioneer Natural Resources USA, Inc	Active
106	Pioneer Oil Company, Inc	Terminated for non-payment
107	Plains All American Pipeline, LP	Active
108	QEP Energy Company	Active
109	Questa Energy, Corporation	Active
110	Range Production Company, LLC	Active
111	Red Oak Energy, Inc	Active
112	Redland Resources, LLC	Suspended
113	Regency Energy Partners, LP	Transferred to another company in RWP
114	Rio Petroleum, Inc	Active
115	Samson Lone Star, LLC - Samson Resources Company	Terminated after sale to non RWP company
116	Samuel Gary Jr. & Associates, Inc	Suspended
117	SandRidge Exploration and Production, LLC	Active
118	SemGroup Corporation	Active
119	Shakespeare Oil Company, Inc	Active
120	Stanolind Operating, LLC	Terminated after sale to non RWP company
121	Strand Energy, LC	Terminated after sale to non RWP company
122	Strat Land Exploration Company	Active
123	Superior Pipeline Company, LLC	Active
124	Tabula Rasa Partners, LLC	Active
125	Tandem Energy Corporation	Active
126	Tapstone Energy, LLC	Active
127	Tengasco, Inc	Active

128	Texakoma Exploration Production, LLC	Active
129	Texland Petroleum, LP	Active
130	Thomason Petroleum, Inc	Active
131	Three Rivers Acquistion II, LLC	Transferred to another company in RWP
132	ToTo Energy, LLC	Active
133	Trey Resources, Inc	Terminated for non-payment
134	Triad Energy, Inc	Active
135	Unit Petroleum Company	Active
136	Versado Gas Processors, LLC	Active
137	Viking Resources, Inc	Active
138	Vincent Oil Corporation	Active
139	W.R. Williams, Inc	Active
140	Ward Petroleum Corporation	Active
141	Western Operating Company	Active
142	White Exploration, Inc	Active
143	Whiting Oil and Gas Corporation	Terminated after sale to non RWP company
144	Williford Energy Company	Terminated for non-payment
145	Younger Energy Company	Active
146	Zinszer Oil Company, Inc	Active
147	RG Exploration, LLC	Active

**Contract status is as follows: active contracts have a current balance and no outstanding compliance notices, suspended or partially suspended contracts have a past-due enrollment fee balance, self-terminated contracts indicate a voluntary termination by the participant company, sold/transferred indicates that the enrollment was sold, transferred to another enrolled company and remains in the program, and transferred/inactive indicates that the company transferred the acreage to the CCAA program and retains the WCA contract without any enrolled acres.*

As of December 31, 2017, the CCCA included an active total of 6,889,478.3 enrolled acres (Table 7 and 8), which is down from 7,041,548.9 acres in 2016 (2.2%). An additional 452,883.5 acres are enrolled in the agreement but are suspended for compliance violations including non-payment of enrollment fees or failure to report mitigation projects (Table 9). Since implementation in 2014, a total of 599,439.7 acres have been terminated from the CCAA. During 2017, 21,343.4 new acres were enrolled in the CCAA. This is significantly below the 375,000 acre target for the CCAA and WCA in the business plan of the RWP for new enrollment in the fourth year of implementation.

The majority of the CCAA enrollment (56.4%) is in the Mixed Grass Ecoregion, followed by the Sand Sagebrush Ecoregion (28.8%), the Shinnery Oak Prairie Ecoregion (10.1%), and the Shortgrass Prairie Ecoregion (4.8%) (Figure 6,7 and Table 7 and 8). By state, Kansas has the most enrollment at 2,471,448.7 acres or 35.8% of the total enrollment (Table 8), but the state also encompasses the largest share of the EOR+10. Of the remaining states, Texas has 2,164,789.1 acres (31.4%), Oklahoma has 2,103,329.6 acres or 30.5%, New Mexico has 101,002.3 acres or 1.5%, and Colorado has 48,908.6 acres or 0.7%.

Table 7. Summary of active CCAA enrollment acreage by ecoregion, CHAT category and industry and the percentage of ecoregion and CHAT categories that these enrollments represent as of December 31, 2017.

Ecoregions	CHAT Score	Oil and Gas	Pipeline	Total Acres	% Total Area
Mixed Grass Prairie	CHAT1	676,018.3	70,150.2	746,168.5	29.0%
	CHAT2	322,881.4	44,863.4	367,744.8	32.9%
	CHAT3	1,870,158.6	169,098.4	2,039,257.0	39.3%
	CHAT4	630,782.4	103,442.1	734,224.5	19.5%
	Ecoregion Total:	**3,499,840.7**	**387,554.2**	**3,887,394.8**	**30.7%**
Sand Sagebrush Prairie	CHAT1	522,090.9	24,642.3	546,733.1	34.5%
	CHAT2	14,495.2	1,086.4	15,581.6	6.4%
	CHAT3	293,945.2	18,102.7	312,047.9	16.6%
	CHAT4	1,052,628.3	55,359.7	1,107,988.0	25.6%
	Ecoregion Total:	**1,883,159.6**	**99,191.0**	**1,982,350.6**	**24.7%**
Shinnery Oak Prairie	CHAT1	1,900.8	5,015.9	6,916.7	0.7%
	CHAT2	2,735.1	1,560.8	4,295.8	0.5%
	CHAT3	261,331.0	73,945.9	335,276.9	5.7%
	CHAT4	298,441.6	47,479.8	345,921.4	10.9%
	Ecoregion Total:	**564,408.5**	**128,002.4**	**692,410.8**	**6.3%**
Shortgrass Prairie	CHAT1	58,875.4	4,193.6	63,069.0	3.4%
	CHAT2	17,423.6	1,053.4	18,476.9	10.1%
	CHAT3	45,124.6	5,459.2	50,583.8	2.9%
	CHAT4	175,897.7	19,294.6	195,192.3	4.0%
	Ecoregion Total:	**297,321.3**	**30,000.7**	**327,322.0**	**3.8%**
EOR+10 Total:		**6,244,730.0**	**644,748.2**	**6,889,478.3**	**17.1%**

Table 8. Summary of active CCAA enrollment acreage by state, ecoregion, CHAT category and industry that these enrollments represent as of December 31, 2017.

State	Ecoregions	CHAT Score	Oil and Gas	Pipeline	Total Acres
Colorado	Mixed Grass Prairie	CHAT1	0.0	2,211.2	2,211.2
		CHAT2	0.0	737.3	737.3
		CHAT3	0.0	870.4	870.4
		CHAT4	0.0	3,180.8	3,180.8
		Ecoregion Total:	**0.0**	**6,999.8**	**6,999.8**
	Sand Sagebrush Prairie	CHAT1	18,577.0	1,038.3	19,615.3
		CHAT2	5,092.4	598.8	5,691.2
		CHAT3	5,255.4	908.1	6,163.5
		CHAT4	7,855.1	2,583.8	10,438.9
		Ecoregion Total:	**36,779.9**	**5,128.9**	**41,908.8**
	State Total:		**36,779.9**	**12,128.6**	**48,908.6**
Kansas	Mixed Grass Prairie	CHAT1	121,289.5	18,607.9	139,897.4
		CHAT2	27,108.0	11,853.9	38,961.8

		CHAT3	77,061.5	28,098.8	105,160.3
		CHAT4	60,886.6	32,617.9	93,504.5
		Ecoregion Total:	**286,345.5**	**91,178.4**	**377,524.0**
	Sand Sagebrush Prairie	CHAT1	503,369.7	23,596.5	526,966.2
		CHAT2	9,402.8	487.6	9,890.4
		CHAT3	221,384.9	14,005.8	235,390.7
		CHAT4	950,649.6	47,872.5	998,522.1
		Ecoregion Total:	**1,684,807.0**	**85,962.4**	**1,770,769.4**
	Shortgrass Prairie	CHAT1	58,875.4	4,021.7	62,897.1
		CHAT2	17,423.6	1,053.4	18,476.9
		CHAT3	45,124.6	4,614.0	49,738.6
		CHAT4	175,897.7	16,145.0	192,042.7
		Ecoregion Total:	**297,321.3**	**25,834.1**	**323,155.4**
	State Total:		**2,268,473.8**	**202,974.9**	**2,471,448.7**
New Mexico	Shinnery Oak Prairie	CHAT1	0.0	4,416.5	4,416.5
		CHAT2	0.0	1,167.9	1,167.9
		CHAT3	5,443.3	61,909.2	67,352.5
		CHAT4	22.6	28,042.8	28,065.4
		Ecoregion Total:	**5,465.9**	**95,536.4**	**101,002.3**
	State Total:		**5,465.9**	**95,536.4**	**101,002.3**
Oklahoma	Mixed Grass Prairie	CHAT1	213,164.2	26,196.9	239,361.1
		CHAT2	151,126.9	16,772.0	167,898.9
		CHAT3	1,163,494.1	89,314.3	1,252,808.4
		CHAT4	240,546.3	28,885.4	269,431.7
		Ecoregion Total:	**1,768,331.5**	**161,168.7**	**1,929,500.2**
	Sand Sagebrush Prairie	CHAT1	144.1	7.5	151.7
		CHAT3	67,304.9	3,188.8	70,493.7
		CHAT4	94,123.6	4,893.8	99,017.4
		Ecoregion Total:	**161,572.7**	**8,090.1**	**169,662.8**
	Shortgrass Prairie	CHAT1	0.0	171.9	171.9
		CHAT3	0.0	845.2	845.2
		CHAT4	0.0	3,149.6	3,149.6
		Ecoregion Total:	**0.0**	**4,166.6**	**4,166.6**
	State Total:		**1,929,904.2**	**173,425.4**	**2,103,329.6**
Texas	Mixed Grass Prairie	CHAT1	341,564.6	23,134.2	364,698.8
		CHAT2	144,646.5	15,500.2	160,146.7
		CHAT3	629,603.0	50,814.9	680,417.9
		CHAT4	329,349.5	38,758.0	368,107.4

		Ecoregion Total:	**1,445,163.6**	**128,207.3**	**1,573,370.9**
	Sand Sagebrush Prairie	CHAT4	0.0	9.6	9.6
		Ecoregion Total:	**0.0**	**9.6**	**9.6**
	Shinnery Oak Prairie	CHAT1	1,900.8	599.4	2,500.2
		CHAT2	2,735.1	392.9	3,128.0
		CHAT3	255,887.7	12,036.7	267,924.4
		CHAT4	298,419.0	19,437.0	317,856.0
		Ecoregion Total:	**558,942.6**	**32,466.0**	**591,408.6**
	State Total:		**2,004,106.2**	**160,682.9**	**2,164,789.1**
Grand Total:			**6,244,730.0**	**644,748.2**	**6,889,478.25**

Table 9. Summary of the suspended CCAA acreage by ecoregion and CHAT category and industry type as of December 31, 2017.

CCAA	Suspended
Oil and Gas	**451,664.5**
Mixed Grass Prairie	299,561.2
1	57,717.9
2	24,818.9
3	139,518.7
4	77,505.7
Shortgrass Prairie	152,103.3
1	22,954.0
2	15,603.0
3	17,328.3
4	96,217.9
Pipeline	**1,218.9**
Mixed Grass Prairie	1,218.9
1	727.7
2	211.6
3	270.7
4	9.0
Total	**452,883.5**

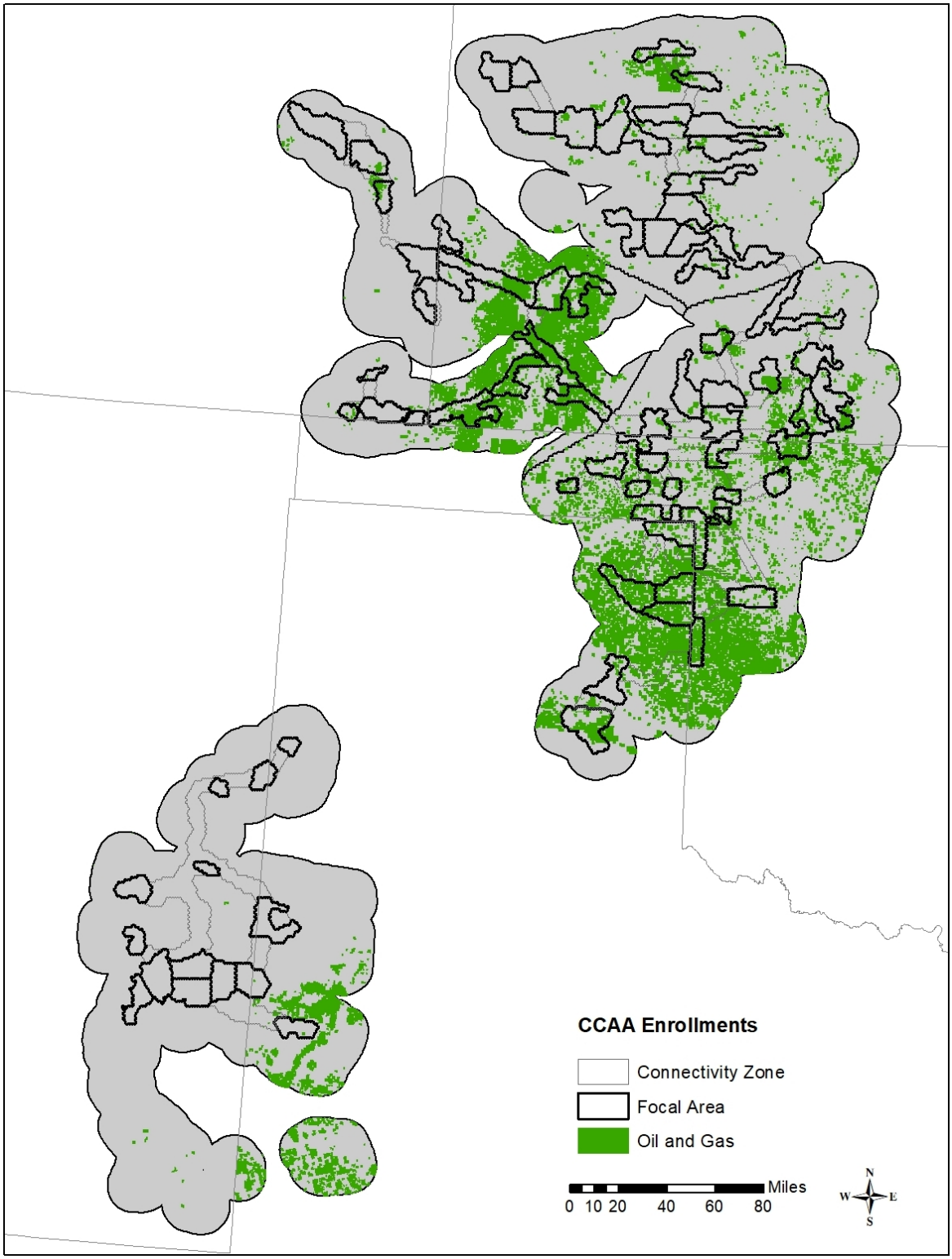

Figure 6. Oil and gas enrollments in the Range-wide Oil and Gas Candidate Conservation Agreement with Assurances (CCAA) as of December 31, 2017.

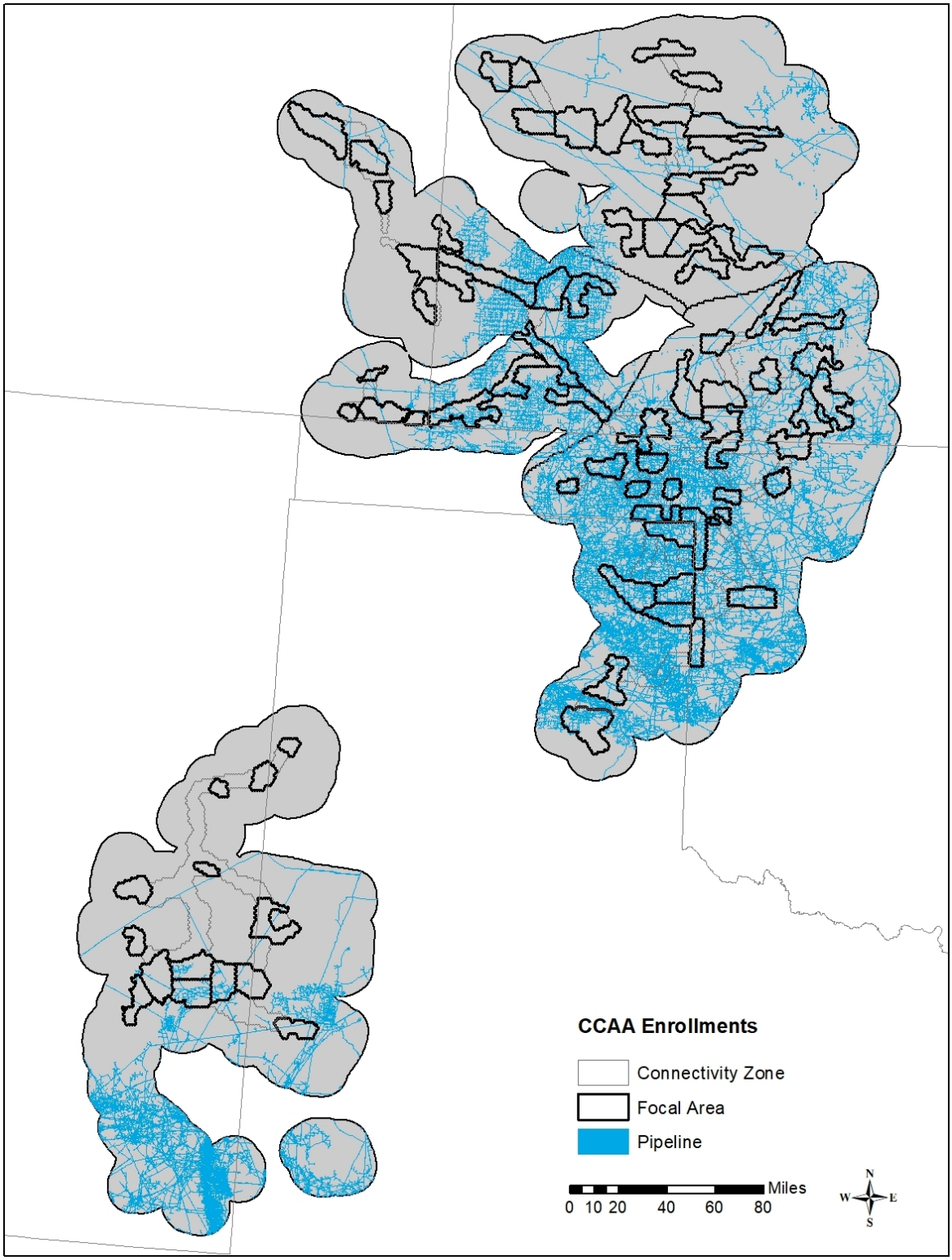

Figure 7. Map of pipeline enrollments in the Range-wide Oil and Gas Candidate Conservation Agreement with Assurances (CCAA) as of December 31, 2017.

CCAA SUSPENSIONS AND TERMINATIONS FOR UNPAID FEES

Companies may be suspended for either non-payment of enrollment fees or for otherwise failing to

follow the terms of the agreement. Under the CCAA agreement, WAFWA is required to issue three notices for unresolved compliance issues: Compliance Notice, Delinquency Notice, and Notice of Noncompliance. Each notice establishes a twenty-business day period to resolve the issue. Companies have the option to seek review of compliance issues by the LPC Advisory Committee. The Initiative Council may consider termination of all or part of the enrollment if the compliance issue is not resolved prior to the established deadlines.

In 2017, there were 19 new compliance incidents initiated by WAFWA for participant companies (Table 10). All incidents involved unreported projects and unpaid mitigation fees from the project submission review (Table 10). The CCAA program does not allow for construction to begin without payment of enrollment fees, but this review identified projects on enrolled property that were not mitigated due to communication issues or other reason. During that review, we worked with several companies to refine the process. Those companies voluntarily resolved any unmitigated projects and did not receive a compliance notice. All remaining companies were sent a letter to request more information on unmitigated projects. If those companies responded and voluntarily resolved projects that required mitigation, they were sent a Compliance and Resolution Notice. Companies that did not respond to the letter were issued a Compliance Notice, and subsequent Deficiency and Noncompliance Notices if there was no response. Companies who did not respond to the initial letter and received a Compliance Notice also had their enrollments in the CCAA suspended on the date that the Compliance Notice was issued. Four of the 19 new compliance incidents involved both mitigation fees and unpaid enrollment fees. Fifteen of the 19 compliance incidents were resolved by the companies. The remaining four are still being either contested by the companies or resolutions are still in negotiation. In addition, in 2017, there were 11 companies that were terminated for unresolved compliance issues that were initiated prior to 2017 (Table 11). All 11 of those companies were terminated by WAFWA for failure to pay enrollment fees.

Table 10. Summary and status of new compliance incidents initiated in 2017. A compliance issue status of M denotes unpaid mitigation fees, and a status of E denotes unpaid enrollment fees. An X represents that the company received the notice described in that column. A resolution status of Resolved means that the company paid all required mitigation and enrollment fees. A status of unresolved means that the company is either contesting the compliance issue or that negotiation of a resolution is still in process.

Company Name	Compliance Issue	Compliance and Resolution	Compliance Notice	Deficiency Notice	Notice of Noncompliance	Resolution Status
Chapparral Energy, LLC	M	X				Resolved
Culbreath Oil & Gas Co, Inc.	EM		X	X		Resolved
Encino Operating, LLC	M		X	X		Unresolved
JMA Energy Company, LLC	M	X				Resolved
Le Norman Operating, LLC	EM		X			Unresolved
Lighthouse Oil and Gas, LP	M		X	X		Resolved
MidCon Energy Operating, LLC	M		X	X		Resolved
O'Benco IV, LP	M	X				Resolved
Opal Resources	M		X	X		Resolved
QEP Energy Company	M	X				Resolved
Raydon Exploration	EM	X				Resolved
Redland Resources, LLC	EM		X	X	X	Unresolved
Shakespeare Oil Company, Inc.	M	X				Resolved
Tabula Rasa Partners, LLC	M		X			Resolved
Texakoma Exploration & Production, LLC	M	X				Resolved
Texland Petroleum, LP	M		X			Unresolved
ToTo Energy, LLC	M		X			Resolved
Val Energy, Inc.	M	X				Resolved
Vincent Oil Company	M	X				Resolved

Table 11. List of companies who had their enrollment terminated by WAFWA in 2017 for unpaid enrollment fees from compliance issues initiated prior to 2017.

Company Name	Termination Date
Ares Energy	5/17/2017
Cholla	5/17/2017
Dolomite Resources	5/17/2017
Energex LLC	5/17/2017
Eternity Exploration	5/17/2017
Forestar Petroleum	5/17/2017
LB Exploration	5/17/2017
Monarch Oil	5/17/2017
Ol' Miss	5/17/2017
Pioneer Oil	5/17/2017
T H McElvain	5/17/2017

CCAA EMERGENCY AND NON-EMERGENCY OPERATIONS AND LPC MORTALITY REPORTING

The CCAA requires the reporting of emergency and non-emergency operations as well as any incidents of LPC mortality. Emergency operations are those activities unexpectedly and urgently required to prevent or address immediate threats to human health, safety, or property; the environment; or national defense or security. The CCAA requires the reporting of emergency operations that occur during the hours of 3 a.m. to 9 a.m., between March 1 and July 15 that are within 1.25 miles of leks active within the previous 5 years or within 1.25 miles of un-surveyed areas of CHAT 1-3. Non-emergency activities occur on undisturbed areas in rangeland or planted grass cover (e.g., off a well pad, road, or facility) between March 1 and July 15 that are within 1.25 miles of leks

active within the previous five years or within 1.25 miles of un-surveyed areas of CHAT 1-3.

The WCT web application has the functionality for RWP participants to plot the location of any emergency or non-emergency incidents and then record the details of the incident through a series of questions. During the 2017 calendar year, there were no companies who used that reporting tool. One company reported 16 locations with non-emergency operations by email. Of those, only seven were actually considered non-emergency operations because the remainder were in areas that were surveyed without detections, did not require surveys, or were outside of the EOR+10. Those events are summarized in Table 12. No instances of LPC mortality were reported. Ten other companies reported via email that they had no emergency or non-emergency operations. Companies are not required to report unless they have an actual event to report.

Table 12. Summary of 2017 emergency and non-emergency operations reported for the CCAA.

Location Number	Industry Type	Operation Type	Eco-region	CHAT	Surveyed for Leks	Known Lek Within 1.25 miles	Date	Start Time	End Time	Safety Issue Identified
1	Pipeline	Non-Emergency	Mixed Grass	2	Partial	N/A	5/16/2017	9:00 AM	5:00 PM	No
1	Pipeline	Non-Emergency	Mixed Grass	2	Partial	N/A	5/17/2017	9:00 AM	5:00 PM	No
1	Pipeline	Non-Emergency	Mixed Grass	2	Partial	N/A	5/18/2017	9:00 AM	5:00 PM	No
1	Pipeline	Non-Emergency	Mixed Grass	2	Partial	N/A	5/21/2017	9:00 AM	5:00 PM	No
1	Pipeline	Non-Emergency	Mixed Grass	2	Partial	N/A	5/22/2017	9:00 AM	5:00 PM	No
1	Pipeline	Non-Emergency	Mixed Grass	2	Partial	N/A	5/23/2017	9:00 AM	5:00 PM	No
1	Pipeline	Non-Emergency	Mixed Grass	2	Partial	N/A	5/24/2017	9:00 AM	5:00 PM	No
2	Pipeline	Non-Emergency	Mixed Grass	1	No	N/A	5/20/2017	9:00 AM	5:00 PM	Yes
2	Pipeline	Non-Emergency	Mixed Grass	1	No	N/A	5/21/2017	9:00 AM	5:00 PM	Yes
3	Pipeline	Non - emergency	Mixed Grass	3	No	N/A	5/25/17	9:00 AM	5:00 PM	Yes
3	Pipeline	Non-emergency	Mixed Grass	3	No	N/A	5/26/17	9:00 AM	6:00 PM	Yes
3	Pipeline	Non-emergency	Mixed Grass	3	No	N/A	5/29/17	9:00 AM	6:00 PM	Yes
3	Pipeline	Non-emergency	Mixed Grass	3	No	N/A	5/30/17	9:00 AM	6:00 PM	Yes
3	Pipeline	Non-emergency	Mixed Grass	3	No	N/A	5/31/17	9:00 AM	6:00 PM	Yes

3	Pipeline	Non-emergency	Mixed Grass	3	No	N/A	6/1/17	9:00 AM	6:00 PM	Yes
3	Pipeline	Non-emergency	Mixed Grass	3	No	N/A	6/2/17	9:00 AM	4:00 PM	Yes
3	Pipeline	Non-emergency	Mixed Grass	3	No	N/A	6/8/17	10:00 AM	12:00 PM	Yes
4	Pipeline	Non-emergency	Mixed Grass	3	No	N/A	5/31/17	10:00 AM	3:00 PM	Yes
5	Pipeline	Non-emergency	Mixed Grass	3	Partial	No	6/8/17	9:00 AM	3:00 PM	Yes
6	Pipeline	Non-emergency	Mixed Grass	1	No	N/A	6/9/17	9:00 AM	4:30 PM	Yes
7	Pipeline	Non-emergency	Mixed Grass	3	No	N/A	7/1/17	1:00 PM	3:00 PM	Yes
7	Pipeline	Non-emergency	Mixed Grass	3	No	N/A	7/3/17	9:00 AM	3:00 PM	Yes

RWP CONSERVATION PROGRAM

The RWP offers two basic enrollment options for landowners: non-offset and offset generating conservation agreements. There are also two types of conservation plans available to landowners regardless of which agreement type is being developed. The first is a rangeland conservation plan which utilizes livestock grazing as the primary management practice. The other option is a planted grass management plan which typically utilizes disturbance other than regular domestic livestock grazing to create and maintain suitable vegetative conditions for LPC (e.g. disking and prescribed fire).

The non-offset generating agreements are utilized to prescribe conservation practices on properties that are not generating mitigation offset units. Some of the prescribed practices in these agreements are funded using non-mitigation dollars (e.g. grant funds). The non-offset agreements also provided participants with exemptions from the take prohibitions of the ESA for the conservation practices that were being applied as prescribed when the LPC was federally protected. Those take exemptions were eliminated after the September 1, 2015 court decision overturned the USFWS ruling that listed the species as threatened under the ESA. WAFWA will advocate for these take exemptions to be reinstated by the USFWS if the LPC regains federal protection in the future. WAFWA accepts landowner requests for non-offset agreements continuously and processes them as quickly as possible. Any property that falls within a WAFWA ecoregion is eligible to enroll in a non-offset generating conservation agreement. WAFWA only monitors compliance of non-offset agreements that prescribe financially supported conservation practices. WAFWA does not monitor compliance of agreements or conservation practices for which no financial support is being provided.

The offset generating agreements offered by WAFWA provided the same take exemptions as the non-offset agreement when the LPC was federally protected under the ESA. However, these agreements all provide various types of payments to landowners for implementing conservation practices that are beneficial to LPC. Enrolled properties produce mitigation credits to offset industry impacts elsewhere in the same ecoregion. Basic eligibility requirements dictate that a property must fall within a WAFWA ecoregion and contain at least 160 acres in one contiguous

block. Landowners can offer eligible acreage for 5 or 10-year term agreements or ask that it be considered for a permanent conservation site. Sites that require restoration work such as range planting or brush management must be enrolled for at least a 10-year term. WAFWA continuously accepts landowner offers of eligible property for all the offset generating agreement options. However, enrollment is competitive and depends on availability of mitigation funds and other competing offers. Properties that do get enrolled in an offset generating agreement must be managed in compliance with a WAFWA-approved conservation plan. Rangeland conservation plans must include prescribed grazing. Planted grass management plans must include at least one disturbance practice during the term of the agreement. Both types of conservation plans must also include all the additional conservation practices necessary to address each of the identified threats to the LPC that exist on the property. WAFWA assesses compliance with conservation plans using landowner self-reporting forms for grazing activities, on-site verification of completed restoration practices, and annual vegetation sampling.

When WAFWA biologists make their initial visit to a property, a checklist is completed to identify which LPC threats currently exist on the site. The biologists evaluate such things as the presence of invasive vegetation, harmful infrastructure, grazing pressure, and presence of LPC non- habitat. The biologists must attempt to address each of the LPC threats identified on the checklist when they prepare a conservation plan for the property. WAFWA biologists can address those threats using 28 different conservation practices that must be prescribed to the standards described in the range-wide plan. The practices and their standards mimic those approved in the USFWS's biological opinion of the NRCS' Lesser Prairie-Chicken Initiative with three exceptions. The grazing applied through the RWP will be prescribed at 33% total utilization rather than 50%, all trees will be felled when brush management is prescribed, and there will be no chemical treatment of sand sagebrush.

WAFWA NON-OFFSET AGREEMENTS

During 2017, WAFWA developed one new non-offset agreement that provided $153,945 in funding to a private landowner in the Shinnery Oak Ecoregion for mechanical removal of invasive mesquite. The funding for that agreement was provided by a ConocoPhillips Spirit of Conservation Grant from the National Fish and Wildlife Foundation. The agreement prescribed 933 acres of brush management in CHAT 1 immediately adjacent to a property that is occupied by the species and permanently conserved. All the restoration work prescribed through this agreement was completed prior to the end of this reporting period and LPC are expected to quickly benefit from the new habitat.

WAFWA did not receive any landowner requests for unfunded non-offset agreements during this reporting period. WAFWA did execute one such non-offset agreement in 2014 which is still being implemented by the landowner. That agreement includes prescribed grazing and prescribed fire on 8,912 acres in the Mixed Grass Ecoregion.

WAFWA CONSERVATION FUNDING STRATEGY

Currently, a ratio of 75/25 is used to split the WAFWA offset generating agreements between term contracts and perpetually conserved sites. The term contracts can be for a 5 or 10-year duration. When these term contracts expire, WAFWA will replace them with another term contract with equal or greater value as determined by the CHAT priority area where the expiring site occurred. The perpetually conserved sites are high quality habitats or sites with potential to be restored to those conditions. The perpetually conserved sites adhere to the USFWS conservation banking policy (USFWS 2003). Funding for management activities will be available in perpetuity for both conservation options because only endowment interest is committed for that purpose.

The 75/25 split was chosen as the ratio for two primary reasons. First, WAFWA will be able to affect a far greater number of acres with the most funding being targeted toward term contracts. Applying beneficial conservation practices on the maximum possible acreage provides the best opportunity to stabilize or increase the LPC population. This approach has proven to be successful at recovering the LPC as demonstrated by the range expansion and population growth observed in Kansas shortly after the implementation of the Conservation Reserve Program (Rodgers and Hoffman 2005). Secondly, a dynamic approach provides WAFWA with some flexibility to adapt to changing environmental conditions that may influence the ability of a specific site to support LPCs. The 75/25 ratio will be evaluated periodically through the adaptive management process described in the LPC range-wide plan.

WAFWA TERM CONTRACTS

WAFWA maintains all term contract applications on file for future funding consideration unless the landowner asks to be removed. WAFWA biologists annual contact all applicants whom submitted an offer during a previous year to determine if they are still interested and eligible for our program. The WAFWA database is updated accordingly based on those contacts. A total of 22 applications have been removed from consideration since the initial application period, which started in the fall of 2013. None of those removals occurred during this reporting period.The 22 applications removed from consideration had offered 70,421 acres in the Mixed Grass Ecoregion, 11,031 in the Shinnery Oak Ecoregion, and 3,212 in the Shortgrass Ecoregion (84,664 total acres). Their applications were withdrawn for a variety of reasons but many of them were because the acreage had been enrolled in a federal conservation program making it no longer eligible for the WAFWA program. WAFWA did receive three new applications for term contracts during 2017 that encompassed 3,090 acres in the Mixed Grass Ecoregion and 630 acres in the Shinnery Oak Ecoregion (3,720 total acres, Table 13).

At the end of this reporting period, WAFWA had 32 active term applications on file that encompassed 200,148acres. WAFWA did not extensively advertise the program during this reporting period because there were more than enough suitable active applications already on file to meet industry demands. WAFWA will do targeted promotion of the program when industry demand dictates that it is necessary. When contracts are needed to offset industry impacts, all applications are ranked using an established set of criteria. Those ranking criteria were developed by the Lesser Prairie-Chicken Interstate Working Group (IWG) and can be viewed on the WAFWA website (http://www.wafwa.org/initiatives/grasslands/lesser_prairie_chicken/). Offers are made to landowners based on their ranking score and the availability of funds.

Table 13. Summary of term applications received for the WAFWA offset unit generation program. Data are summarized through the end of the current reporting period (December 31, 2017).

Ecoregion	New Applications[a]	New Application Acres	Open Applications on File[b]	Open Application Acres
Sand Sagebrush	0	0	7	29,883
Shortgrass	0	0	6	8,099
Mixed grass	2	3,090	14	151,945
Shinnery Oak	1	630	5	10,219
Range-Wide	**3**	**3,720**	**32**	**200,148**

[a] Applications that have been received from landowners during the reporting period.

[b] Open applications are those still being considered for funding and includes new applications received during the reporting period as well as those previously received.

In total, there were 2 new term contracts executed during this reporting period that encompassed 12,898 acres (Table 14). There was also a partial termination of one existing contract in the mixed grass during 2017 that removed 1,262 acres from the program due to the landowner's inability to implement the grazing plan as prescribed on those acres. There were no term contract offers declined by landowners during 2017 but there has been a total of 6 declined offers since the inception of the WAFWA program totaling 22,334 acres. The landowners who declined offers to enroll in the WAFWA program indicated several reasons for their decisions including: insufficient payment rates, more lucrative offers to enroll in other conservation programs, and conflicts of interest. At the end of this reporting period, WAFWA was administering 15 term contracts that are all 10 years in duration. Those contracts include 12 rangeland conservation plans and three planted grass conservation plans that encompass 113,169acres of which 93,606 are currently un-impacted by development (Table 14, Appendices A-B). There was a net gain of 11,636 acres in term contracts from the end of the last reporting period all of which were added in the Mixed Grass Ecoregion.

WAFWA PERMANENT CONSERVATION ACQUISITIONS

WAFWA has multiple options to provide permanent conservation for the LPC and each one results in a conservation property that complies with the USFWS conservation banking policy (USFWS 2003). The options available to WAFWA include purchasing mitigation credits directly from USFWS-approved conservation banks, fee-title acquisition of property from willing sellers, and purchase of privately-owned development rights through acquisition of perpetual conservation easements that are held by a 3rd party organization. WAFWA has pre-defined eligibility criteria based on a property's location, size, mineral ownership, and proximity to known LPC lek sites. Properties that meet the initial eligibility requirements are ranked using criteria that prioritize properties that will provide the greatest benefit to LPCs. The ranking criteria prioritize properties based on size, existing developments, LPC habitat potential, proximity to other permanent conserved sites, and proximity to known LPC lek sites. The permanent conservation eligibility and ranking criteria can be downloaded from the WAFWA lesser prairie-chicken website. A packet of information is prepared for each eligible property once the rankings have been completed and the information is presented to the LPCIC at either their summer or winter meeting. The LPCIC reviews all the available options collectively and chooses which ones to pursue based on mitigation needs, ranking scores, available funding, and cost. Properties do not start generating mitigation offset units until all the requirements of the USFWS conservation banking policy (2003) have been satisfied which includes a recorded perpetual easement and establishment of endowments to provide for future management and monitoring costs.

During this reporting period, WAFWA secured four new permanent conservation sites across two ecoregions. Those four tracts added 4,659 acres of permanent conservation, all of which is privately-owned rangeland located in CHAT 1 (Table 15, Appendix A). One of the sites is located in the Mixed Grass Ecoregion immediately adjacent to 1,758 acres that has already been permanently conserved by WAFWA. The newly conserved tract is located entirely in CHAT 1 and expands the area that is permanently conserved by 968 acres. WAFWA purchased a perpetual conservation easement on the property which is held by Pheasants Forever.

Table 14. Acreage summary of WAFWA term contracts declined, executed, and terminated during 2017. The total contracts and associated acres that were generating mitigation offset units on December 31, 2017 are also reported.

Ecoregion	Contracts	Raw Acres[a]	Un-impacted Acres[b]	CHAT 1 Raw Acres	CHAT 2 Raw Acres	CHAT 3 Raw Acres	CHAT 4 Raw Acres
Sand Sagebrush							
declined	0	0	0	0	0	0	0
executed	0	0	0	0	0	0	0
terminated	0	0	0	0	0	0	0
total contracted	1	12,683	8,954	12,683	0	0	0
Shortgrass							
declined	0	0	0	0	0	0	0
executed	0	0	0	0	0	0	0
terminated	0	0	0	0	0	0	0
total contracted	4	9,512	8,819	5,389	4,024	99	0
Mixed Grass							
declined	0	0	0	0	0	0	0
executed	2	12,911	12,148	12,911	0	0	0
terminated[c]	1	1,262	749	1,262	0	0	0
total contracted	7	74,916	63,066	55,759	538	905	17,713
Shinnery Oak							
declined	0	0	0	0	0	0	0
executed	0	0	0	0	0	0	0
terminated	0	0	0	0	0	0	0
total contracted	3	16,059	12,767	14,061	0	1,984	15
Range- Wide							
declined	0	0	0	0	0	0	0
executed	2	12,911	12,148	12,911	0	0	0
Terminated [c]	1	1,262	749	1,262	0	0	0
total contracted	**15**	**113,169**	**93,606**	**87,892**	**4,562**	**2,988**	**17,727**

[a] Includes acreage impacted by development

[b] Excludes acreage impacted by development utilizing the impact buffers established in the RWP

[c] One contract was partially terminated due to the producer's inability to implement the grazing plan as prescribed on those specific management units.

The other three new permanently conserved tracts are located in the Shortgrass Ecoregion

immediately adjacent to each other. They encompass a block of 3,691 acres of native rangeland within ~3.5 miles of Smoky Valley Ranch which is a property owned by The Nature Conservancy (TNC) and identified in the RWP as a potential stronghold (Table 15, Appendix A). WAFWA purchased perpetual conservation easements on each property and they are all held by TNC.

During this reporting period, WAFWA also began generating mitigation credits on 29,626 acres of the ranch acquired in 2016 in the Sand Sagebrush Ecoregion (Table 15, Appendix A). The entirety of the property consists of native sand sagebrush prairie and all but 124 acres occurs in CHAT 1. WAFWA donated a perpetual conservation easement on the property to TNC in March 2017 which was the final piece necessary for the site to comply with the USFWS Conservation Banking Policy (2003). WAFWA will continue to manage the property as a working cattle ranch and the grazing rights are currently leased to a private producer.

WAFWA has developed dynamic conservation plans that will be implemented in perpetuity on all permanent conservation properties. Those plans all specifically target the creation and maintenance of LPC habitat and get reviewed every five years and revised as necessary. Additionally, non-wasting endowments have been established to ensure adequate funding for future management actions. There is a funding plan and investment strategy developed for each endowment and they must be fully funded within 4 years of executing the agreements.

Table 15. Permanently conserved sites secured by WAFWA through the lesser prairie-chicken range-wide conservation plan, 2017.

Site ID	Ecoregion	CHAT category	Acquisition Type	Raw Acres [a]	Unimpacted Acres	Easement Holder	First Year of Offset Unit Generation
CZ026	Shinnery Oak	1	Fee Title	1,554	1,208	The Nature Conservancy	2015
CZ063	Mixed Grass	1	Easement	1,758	1,740	Pheasants Forever	2016
CZ024	Sand Sagebrush	1	Fee Title	29,626	28,831	The Nature Conservancy	2017
CZ065	Mixed Grass	1	Easement	968	968	Pheasants Forever	2017
CZ081	Shortgrass	1	Easement	276	251	The Nature Conservancy	2017
CZ082	Shortgrass	1	Easement	1,443	1,116	The Nature Conservancy	2017
CZ083	Shortgrass	1	Easement	1,991	1,537	The Nature Conservancy	2017
Total	**Range-Wide**	**NA**	**NA**	**37,616**	**35,650**	**NA**	**NA**

[a] Includes only acreages managed within a WAFWA conservation agreement which excludes livestock traps, farm yards, food plots, etc.
NA = not applicable

In total, WAFWA has now secured seven permanent conservation sites totaling 37,616 acres across the four ecoregions (Table 15). Prior to the end of this reporting period, all the necessary requirements were in place to comply with the USFWS Conservation Banking Policy (2003) on all seven sites. Thus, all those sites produced mitigation offset units during this reporting period.

WAFWA HABITAT RESTORATION EFFORTS

The WAFWA conservation agreements are not only maintaining existing LPC habitat but they are facilitating the restoration of areas that are not likely currently occupied by the species. WAFWA prescribes restoration practices when they are necessary to address an identified threat to the species on contracted acreage. WAFWA can prescribe three different levels of mechanical brush management which are all used to remove invasive woody vegetation (e.g. eastern red cedar and mesquite). Chemical brush management can also be prescribed but only for the reduction of dense stands of Shinnery Oak on tight soils. The objective of chemical treatments is to reduce the dominance of the Shinnery Oak to encourage an increase in native grass distribution and abundance. WAFWA also prescribes range planting which is used to convert non-native grasslands or cropland to native vegetation which provides more suitable LPC habitat. WAFWA also encourages prescribed burning on all contracted acreages to help maintain suitable vegetation and prevent future encroachment of woody plants. Participants are not required to implement a prescribed burn plan but it is encouraged and WAFWA biologists facilitate the development of professional burn plans for all willing landowners.

Since inception of the WAFWA program, restoration practices have been completed on 14,405 acres of which 2,065 acres were completed during the 2017 calendar year (Table 16). Most of the completed restoration to this point has been brush management in the Shinnery Oak and Mixed Grass Ecoregions. However, some range planting was also completed in the Shortgrass Ecoregion during the last reporting period. An additional 3,815 acres are prescribed for subsequent years through the existing conservation agreements. Over the next few years, the existing 22 agreements will have facilitated restoration on 12.1% of all the acreage contained within them (18,220 of 150,785acres).

Table 16. Acreage of restoration completed and prescribed under WAFWA conservation agreements through the end of the 2017 reporting period.

Ecoregion	Brush Management (Heavy)	Brush Management (Moderate)	Brush Management (Light)	Brush Management (Chemical)[a]	Range Planting	Total
Sand Sagebrush						
Completed During Reporting Period	0	0	0	0	0	0
Completed Since Inception of RWP	0	0	0	0	0	0
Total Prescribed	0	0	0	0	0	0
Shortgrass						
Completed During Reporting Period	0	0	0	0	360	360
Completed Since Inception of RWP	0	0	0	0	602	602
Total Prescribed	0	0	0	0	602	602
Mixed Grass						

Completed During Reporting Period	0	207	33	0	0	237
Completed Since Inception of RWP	1,011	778	410	0	0	2,199
Total Prescribed	1,011	778	1,818	0	0	3,607
Shinnery Oak						
Completed During Reporting Period	1,148	0	0	0	320	1,468
Completed Since Inception of RWP	1,148	1,687	1	8,128	640	11,604
Total Prescribed	1,148	4,094	1	8,128	640	14,011
Range-Wide						
Completed During Reporting Period	1,148	207	33	0	680	2,065
Completed Since Inception of RWP	2,159	2,465	411	8,128	1,242	14,405
Total Prescribed	2,159	4,872	1,819	8,128	1,242	18,220

[a] This practice is only applied for the specific purpose of suppressing dense stands of Shinnery Oak on tight soils.

QUALITY OF WAFWA CONTRACTED PROPERTIES

The properties that produced mitigation offset units during 2017 ranged in size from 276 acres to 29,626 acres (Tables 17). Three of those agreements totaling 1,246 acres include planted grass conservation plans which prescribe restoration of cropland to native grasses and maintenance of restored or existing planted grass stands through regular disturbance activities. Nineteen of the agreements include rangeland conservation plans that prescribe domestic livestock grazing as the core conservation practice. Most of the acreage (82.8%) being managed through the existing agreements occurs in the highest priority areas (CHAT 1). There have also been 53 LPC lek observations recorded on these properties or within three miles of their boundary during the last five years. This is quite high considering that only 34% of that area has been surveyed in the last five years. During this reporting period, WAFWA implemented a lek survey protocol for enrolled conservation properties to better monitor LPC presence on enrolled conservation sites. Permanent survey points were established on each enrolled property and 90 of the 279 points were visited during 2017. The remaining survey points will be surveyed over the next two springs to attain complete coverage of all enrolled conservation sites. In subsequent years, the points will be visited at least once every five years to maintain complete survey coverage of all conservation sites.

The habitat quality was also generally high across 22 sites that produced mitigation offset units in 2017 (Table 17). The average habitat quality score was 0.70 across all those sites in 2017. The site-specific values were derived by scoring the HEG criteria using on-site vegetation sampling data and spatial land cover information. The HEG includes four components consisting of foliar cover, plant species composition, presence of tall woody vegetation, and availability of potentially suitably habitat within 1-mile radius of the site (Van Pelt et al. 2013). Prescribed restoration efforts had not yet been fully completed on several of the properties prior to the 2017 vegetation sampling which is why a few sites scored low. The HEG scores associated with those properties should improve greatly in the coming years as more of the restoration work gets completed.

Table 17. Property-specific information for each of the 22 WAFWA-contracted sites that produced mitigation offset units during the 2017 reporting period.

WAFWA Site ID	Ecoregion	Conservation Plan Type	Expiration Year	Primary CHAT	Raw Acres	Active Lek Observations within 3 mi. (2013- 2017)[b]	2017 Habitat Evaluation Guide Score (0-1)[c]
CZ016	Sand Sagebrush	Rangeland	2024	1	12,683	1	0.77
CZ035	Shortgrass	Rangeland	2024	1	1,109	2	0.72
CZ033	Shortgrass	Rangeland	2024	2	4,024	0	0.44
CZ008	Mixed Grass	Rangeland	2024	1	636	0	0.41
CZ038	Mixed Grass	Rangeland	2024	1	21,257	0	0.73
CZ037	Mixed Grass	Rangeland	2024	4	11,258	0	0.71
CZ036	Mixed Grass	Rangeland	2024	1	27,631	0	0.78
CZ014	Shinnery Oak	Planted Grass	2024	1	310	1	1.00
CZ003	Shinnery Oak	Rangeland	2024	1	15,433	9	0.47
CZ013	Shinnery Oak	Planted Grass	2024	1	316	24	1.00
CZ061	Shortgrass	Rangeland	2025	1	3,760	3	0.53
CZ062[a]	Shortgrass	Planted Grass	2025	1	620	3	0.12
CZ040	Mixed Grass	Rangeland	2026	1	1,222	4	0.71
CZ066	Mixed Grass	Rangeland	2026	1	172	4	0.90
CZ067	Mixed Grass	Rangeland	2026	1	12,739	7	0.84
CZ063	Mixed Grass	Rangeland	Perpetual	1	1,758	4	0.80
CZ026	Shinnery Oak	Rangeland	Perpetual	1	1,554	4	0.81
CZ024	Sand Sagebrush	Rangeland	Perpetual	1	29,626	7	0.67
CZ065	Mixed Grass	Rangeland	Perpetual	1	968	4	0.90
CZ081	Shortgrass	Rangeland	Perpetual	1	276	1	0.85
CZ082	Shortgrass	Rangeland	Perpetual	1	1,443	1	0.76
CZ083	Shortgrass	Rangeland	Perpetual	1	1,991	2	0.79
Total	**Range- Wide**	**NA**	**NA**	**NA**	**150,785**	**53[d]**	0.70[e]

[a] Habitat quality was poor because the site was newly enrolled cropland and native grasses had not yet established.
[b] The WAFWA database indicates that only 34% of the affected area has been surveyed within the last 5 years.
[c] Values are averaged across the evaluation units and weighted by the unimpacted acreage within each one.
[d] The total is less than the sum of the column because some lek sites occur within 3 miles of multiple enrolled properties.
[e] The average is weighted by the unimpacted acreage occurring on each enrolled property.
NA = not applicable

The property-specific HEG scores have generally remained stable or slightly improved for contracted sites that have been enrolled in the program for multiple years (Figure 8.) This trend appears to hold in each of the four ecoregions. However, it is important to note that the uplift potential varies greatly across the contracted sites. Most sites provided opportunities for habitat improvements but others were already at their maximum expected habitat potential at the time of enrollment. Additionally, changes in environmental conditions can influence habitat quality greatly over the short-term even with consistent management (e.g. drought). Thus, the lack of a detectable trend for a specific site is not necessarily a good way to gauge the success of the prescribed management practices over such a

short time period. Despite these caveats, the average slope associated with the trend lines is +0.04 for those properties that have been enrolled in the program for ≥3 years. This indicates that the habitat quality is increasing at an average rate of 4% per year for contracted sites across the range.

Figure 8. Lesser prairie-chicken habitat quality on WAFWA contracted mitigation properties as valued by the Habitat Evaluation Guide (HEG) method, 2015-2017.

WAFWA CONSERVATION AGREEMENT SUMMARY

Through this reporting period, WAFWA has enrolled 160,630 acres across the LPC range under some type of conservation agreement (Table 16, Table 17). Most of that acreage is generating conservation offset units (150,785 acres) with the majority occurring in the highest priority areas (CHAT 1; Table 16). WAFWA has permanently conserved 23.4% of that acreage with perpetual conservation easements and non-wasting endowments to support all future management needs. Through WAFWA offset and non-offset agreements there has been 15,489 acres restored to more suitable LPC habitat with another 3,815 prescribed. The 22 term and permanent conservation sites are distributed across the four ecoregions proportional to the distribution of industry impacts. This is required because the conservation properties must mitigate industry impacts at that scale. Thus, the majority of the acreage contracted for mitigation purposes falls within the Mixed Grass Ecoregion where the majority of the RWP industry impacts have occurred (Table 17, Appendix A).

NON-WAFWA CONSERVATION PROGRAMS ADMINISTERED WITHIN LPC RANGE

A critical component of the RWP is coordination among the various agencies and organizations that are managing public land acreage or delivering private land conservation programs in LPC range. During development of the RWP, those entities were engaged by the Interstate Working Group

(IWG) through a series of targeted meetings and representatives from each agency or organization were included on several committees to help provide input about various plan components. The IWG also established state-specific implementation teams including representatives from those entities to coordinate local delivery of private land LPC assistance programs. At that time, the members of the implementation teams reviewed their current cross- agency coordination, identified opportunities for improvements, and discussed how landowners could be provided with "one stop shopping". Most of the agencies and organizations operating in LPC range are now using the WAFWA crucial habitat assessment tool to target their private land conservation programs due in part to those coordination efforts. Those WAFWA partners have also worked collectively to promote and explain the various conservation options and put more boots on the ground to assist landowners. Additionally, all the partnering conservation entities are collectively working toward the population and habitat goals established in the RWP. The current effort of our partners is summarized in this section along with a synopsis of our collective achievements.

NRCS PROGRAMS

In 2010, NRCS launched the Lesser Prairie-Chicken Conservation Initiative (LPCI) under their Working Lands for Wildlife Partnership. The LPCI provides technical and financial assistance to producers through the Environmental Quality Incentives Program (EQIP). The objective of the LPCI is "to increase the abundance and distribution of the LPC and its habitat while promoting the overall health of grazing lands and the long-term sustainability of ranching operations." The USFWS completed a biological opinion of the LPCI on August 13, 2014. The NRCS continues to apply conservation practices within the standards laid out in the biological opinion even though the LPC is not currently receiving federal protections under the ESA. The opinion provides a description of 28 conservation practices that could be implemented through the program that the USFWS deemed to be benign or beneficial to LPC.

Two of the 28 approved practices are considered core conservation practices. The primary core conservation practice is upland wildlife habitat management (645). Prescribed grazing (528) is considered a secondary core management practice when livestock are present. Implementation of core practices is required to develop a landowner's conservation plan that focuses on improving habitat and reducing threats to LPC. This is important because implementing LPCI under 645 ensures all other LPCI practices are implemented specifically to benefit LPC.

Three of the practices applied under 645 are applied broadly and provide substantial benefit to LPC. Those practices include the other core practice of prescribed grazing (528), brush management (314), and range planting (550). Those practices, when applied as designed, either create new habitat or ensure that existing habitat is providing usable cover for all the LPC life stages. There are many other practices being applied through LPCI that provide benefit to LPC. However, we only summarize the acreage for those 3 practices because they are among the most beneficial to the LPC and they provide a reflection of the unique enrolled acreage (528) and the new acres of restored habitat (314 and 550).

In 2017, a total of 134,027 acres of prescribed grazing (528) were applied through LPCI (Table 18, Appendices A-B). Additionally, a total of 2,471 acres were treated with brush management (314). There was no range planting (550) applied through LPCI during 2017.

Producers participating in other NRCS programs are also using conservation practices as described in the biological opinion if it is determined that their property has habitat or potential habitat for LPC.

Producers in this situation are not required to implement these practices under a management plan developed in accordance with the core practice of upland wildlife habitat management (645) but the practices they implement generally still provide benefit to LPC. General EQIP is the program in this category responsible for a large amount of LPC-beneficial restoration and enhancement practices. Through general EQIP, agricultural producers receive financial and technical assistance to implement structural and management conservation practices that optimize environmental benefits on working agricultural land. During 2017, producers enrolled in EQIP delivered approximately 190,000 acres of prescribed grazing (528), 17,000 acres of brush management (314), and 6,000 acres of range planting (550) within the LPC action area.

In total, there were 323,859 acres of prescribed grazing (528) implemented by producers in 2017 through LPCI and General EQIP in the LPC action area (Table 18, Appendices A-B). Of those acres, there were 189,131 (58.4%) implemented in CHAT 1 & CHAT 2 (Table 18, Appendices A-B). Through LPCI and General EQIP there were also 19,356 acres of brush management (314) and 5,772 acres of range planting (550) implemented in 2017 in the LPC action area. The bulk of those restoration efforts (>85%) occurred in CHAT 3 and CHAT 4 during this reporting period.

CONSERVATION RESERVE PROGRAM (CRP)

The CRP is a voluntary program for agricultural landowners administered by the Farm Service Agency (FSA) that incentivizes landowners to take cropland out of production and maintain it in permanent vegetation (e.g. native grasses and forbs). The conversion of these lands back to permanent vegetation promotes habitat connectivity, which helps address LPC threats like climate change and extreme weather events. The program also addresses the threat of excessive grazing utilization of grassland habitat by providing millions of acres of grass that isn't regularly grazed by domestic livestock. Participants in the program are required to maintain the prescribed vegetation conditions which include regular control of noxious weeds. They are also required to implement some type of periodic management to promote wildlife habitat. The various management practices that can be implemented include shallow disking, prescribed burning, herbicide usage, inter-seeding with legumes and forbs, and periodic managed grazing. The USFWS completed a biological opinion of the CRP on April 14, 2014 which states that effective implementation of the program is anticipated to result in a positive LPC population response by reducing or eliminating adverse effects. The FSA continues to apply conservation practices within the standards laid out in the biological opinion even though the LPC is not currently receiving federal protections under the ESA.

There is fluidity in CRP enrollment as individual contracts expire at the end of a 10 or 15-year term and new contracts get enrolled in other locations. These acres provide important habitat for LPC and support a large proportion of the range-wide population; especially in the Shortgrass Ecoregion (Fields 2004, Rodgers and Hoffman 2005, McDonald et al. 2014, Spencer et al. 2017). The most recent data available to WAFWA (February 2017) indicates that 3,145,629 acres are enrolled within the LPC action area (Table 18; Appendices A-B). Of those acres, there are 763,693 that lie within the boundaries of CHAT 1 and CHAT 2 which equates to 8.0% of that total area.
The total CRP enrollment in the LPC action area is currently 84,803 acres less than what was reported in the last WAFWA annual report which utilized data from August 2016. Lower enrollment in CHAT 1 and CHAT 2 accounted for 23,176 acres of that overall decline. Of note, a study conducted in 2012 found that the majority of expired CRP acreage remained in permanent cover even after several years outside the program (USDA 2012). So, the realized amount of LPC habitat loss is likely less than the reported annual decline in program acreage.

PARTNERS FOR FISH AND WILDLIFE PROGRAM

The USFWS Partners for Fish and Wildlife (PFW) Program restores, improves and protects fish and wildlife habitat on private lands through partnerships between the USFWS, landowners and others. The objectives of this national program are to: 1) Restore, enhance and manage private lands for fish and wildlife habitat, 2) Significantly improve fish and wildlife habitat while promoting compatibility between agricultural and other land uses, 3) Restore declining species and habitats; and 4) Promote a widespread and lasting land use ethic.

The PFW program applies habitat practices on private lands to address threats to the LPC. This program utilizes practices and targets limiting factors similar to NRCS programs. Projects are designed to benefit LPC and other wildlife while also supporting working lands including farming and ranching operations. Typical conservation practices directed to LPC habitat conservation include invasive species removal, fence marking or removal, native vegetation planting, prescribed fire, prescribed grazing, and brush control. Through the PFW, the USFWS provides technical assistance and financial incentives to landowners that improve habitat on their property for LPC and other species. Cooperating landowners agree to use funds for approved wildlife-related projects, and manage and maintain the project area for at least 10 years. The program provides technical and financial assistance through a 10-year cost-share agreement. Landowners agree to maintain the conservation practices for the duration of the agreement.

The USFWS provided data from their PFW program in all 5 states occupied by LPC. During this reporting period, the USFWS implemented restoration and improvement practices on 9,174 acres within the LPC action (Table 18). Those acres were distributed between the Mixed Grass (2,840 acres) and Shortgrass Ecoregions (6,334 acres; Table 18, Appendices A-B). Mechanical removal of invasive trees and range planting were the two primary practices that were implemented.

CANDIDATE CONSERVATION AGREEMENTS

Candidate Conservation Agreements (CCA) are formal, voluntary agreements between the USFWS and one or more parties to address the conservation needs of a candidate species or a species likely to become a candidate. Participants voluntarily commit to implement specific actions designed to remove or reduce threats to the covered species. They can be entered by industry or landowners and strong participation can be sufficient to preclude the need to list a species. There are no payments, specific permits, or assurances associated with a CCA and they are entered primarily by federal agencies or other entities operating on federally-owned lands. Candidate Conservation Agreements with Assurances (CCAA) are formal agreement between the USFWS and non-federal entities. A CCAA differs from a CCA in that it includes a permit that provides assurances that the holder will never be required to implement additional conservation measures beyond those in the agreement. These assurances apply even if the species is eventually listed under the Endangered Species Act.

Landowner CCAs and CCAAs require the development of site-specific management plans for addressing LPC threats in the following manner:

- Agricultural conversion: Landowner commits to refrain from plowing additional rangeland when they are in the program.
- Loss of CRP: Landowner commits to re-enrolling or maintaining expired CRP in grass when they are in the program.
- Woody invasive species: Landowner commits to addressing the spread of these species as funding sources become available.
- Shrub control: Agreements restrict sand shinnery control but allow for shinnery oak

suppression using reduced rate chemical application.

- Altered fire regimes: Agreements use prescribed fire as a potential option for management and provide cost share options for its application.
- Collision: Agreements require fence marking near known leks.
- Design grazing management plans for incompatible grazing regimes to meet habitat specific goals for individual ranches. This may include stocking rates, rotation patterns, grazing intensity and duration, and contingency plans for varying prolonged weather patterns including drought.
- Climate Change: Increased habitat quality, quantity, and connectivity through the above actions to improve the ability of the LPC to move and respond to climate change.
- Extreme weather events: Increased habitat quality, quantity, and connectivity improve the ability of the LPC to move and respond to weather events like droughts and storms.
- Predation: Increased habitat quantity and improved habitat quality decrease predation on nests, juveniles and adults.
- Disease: Increased habitat quality results in improved physical condition of individual LPC.

In New Mexico, there is a CCA and a CCAA available to industry and landowners operating on public land and private land, respectively. The New Mexico CCA and CCAA are administered by the Center of Excellence (CEHMM). CEHMM has enrolled 1,580,209 industry acres and 1,618,687 ranching acres through their CCA/CCAA program (Table 18, Appendices A-B). Of those acreages, there are over 137,000 industry acres and 345,000 ranching acres in CHAT 1. In 2017, CEHMM also removed over 1,000 acres of dead standing mesquite in CHAT 1, with over 800 additional acres removed in both CHAT 2 and CHAT 3 combined. The CEHMM programs do not have any acreage caps so they will be continuously accepting new enrollments as long as the LPC remains a state trust species.

In Oklahoma and Texas, there are ranching CCAAs available to private landowners. Those programs are administered by ODWC and TPWD, respectively. Currently, implementation is occurring on 368,102 acres in Oklahoma (145,943 in CHAT 1) and 596,775 acres in Texas (278,480 in CHAT 1) within the LPC action area (Table 18, Appendices A-B). The ODWC is not currently accepting new enrollments into their program because they have achieved their acreage cap of 400,000 for their eligibility area which applies to all the counties intersecting the LPC action area. The Texas program is short of its 1.2-million-acre cap so new enrollments are currently being accepted with approximately 543,000 acres still available to private landowners. The TPWD will continue to accept new enrollments as long as they have available acres and the LPC remains a state trust species.

NON-CCAA PRIVATE LAND CONSERVATION PROGRAMS DELIVERED BY STATE WILDLIFE AGENCIES

Most of the state wildlife agencies operating within the range of the LPC deliver non-CCAA private land conservation programs. Those programs are funded from a variety of sources including license fee funds from the wildlife agency constituents. The available conservation programs generally allow the agencies to cost-share with private landowners for conservation practices such as brush management, range planting, prescribed fire, fence marking and removal, prescribed grazing, livestock deferment, etc. WAFWA acquired data from all five state wildlife agencies operating within LPC range including the Texas Parks and Wildlife Department (TPWD), Oklahoma Department of Wildlife Conservation (ODWC), Kansas Department of Wildlife, Parks and Tourism (KDWPT), Colorado Parks and Wildlife (CPW), and New Mexico Department of Game and Fish

(NMDGF). The available data indicated that the five state wildlife agencies applied conservation practices through their non-CCAA programs to at least 9,156 acres within the LPC action area (Table 18, Appendices A-B).

NON-WAFWA PROPERTIES IDENTIFIED AS QUALIFYING STRONGHOLDS

There is a high degree of certainty that the properties falling in this category will continue to provide LPC habitat into the foreseeable future. However, the bar is slightly lower for these properties than for sites producing permanent mitigation credits (USFWS 2012). In the past, WAFWA staff have tried to utilize the criteria in the USFWS white paper to identify qualifying properties across LPC range. The criteria were found to be too vague to apply, which hindered our ability to identify qualifying stronghold properties. To alleviate that issue, the LPCIWG recommended some more specific criteria to the LPCIC based on their interpretation of the USFWS white paper (2012) and the previous RWP interpretations (Van Pelt et al. 2013; Figure 9). The LPCIC approved that recommendation on September 12, 2017 and WAFWA is currently coordinating with the LPCIWG and utilizing those criteria to identify qualifying properties across the range.

To date, there have been 113,202 Non-WAFWA acres identified across the range that could contribute towards a stronghold and 77,333 acres still under review (Table 18). The qualifying tracts will be considered along with the WAFWA permanent mitigation sites when assessing progress towards the stronghold goals of the RWP. All the stronghold criteria must be satisfied for a property or complex of properties to be considered a stronghold and not just long-term protection from development and management certainty. These other criteria include an acreage requirement, LPC occupancy, land cover composition, etc. (USFWS 2012, Van Pelt et al. 2013). WAFWA has a goal of securing at least one stronghold within each of the four ecoregions by the end of the 10th year of RWP implementation. This will be achieved through the collective efforts of all the entities providing qualifying acreage.

Requirements for a Property to Contribute toward a LPC Stronghold

- Long-term protection from development (must meet one)
  - Conservation easement with ≥15-year duration that protects LPC habitat by restricting all detrimental development activities as defined by the lesser prairie-chicken range-wide plan (RWP) administered by the Western Association of Fish & Wildlife Agencies (WAFWA)
  - Conservation easement and a surface use agreement with the mineral owner or lessee that in combination protect LPC habitat for ≥15-year by restricting all detrimental development as defined by the RWP
  - Conservation easement that protects LPC habitat for ≥15-years by restricting all detrimental non-mineral development as defined by the RWP and an assessment from a certified geologist indicating that the likelihood of future mineral development is low
  - Fee title ownership of surface and subsurface rights by Government or a non-profit conservation organization and a policy or formal commitment to protect LPC habitat for ≥15 years from all detrimental development activities as defined by the RWP
  - Fee title ownership of surface rights by Government or a non-profit conservation organization and a policy or formal commitment to protect LPC habitat coupled with a surface use agreement with the mineral owner or lessee that in combination protect LPC habitat for ≥15 years by restricting all detrimental development as defined by the RWP
  - Fee title ownership of surface rights by Government or a non-profit conservation organization and a policy or formal commitment to protect LPC habitat for ≥15-years from detrimental development as defined by the RWP coupled with an assessment from a certified geologist indicating that the likelihood of future mineral development is low
- Certainty of LPC habitat management (must meet both criteria)
  - Written conservation plan prepared or approved by a state wildlife agency, WAFWA, U.S. Fish &Wildlife Service, or the Natural Resources Conservation Service that specifically targets the creation, enhancement, or maintenance of LPC habitat
  - Commitment for the conservation plan to be implemented for ≥15 years through a policy, formal commitment, or contractual agreement

Figure 9. Criteria used to determine if a specific property can contribute towards a stronghold. All other stronghold criteria listed in the USFWS white paper (2012) and lesser prairie-chicken range-wide plan (2013) must also be satisfied for a property or complex of properties to be considered a stronghold (i.e. acreage, LPC occupancy, land cover composition, etc.).

OTHER NON-QUALIFYING STRONGHOLD ACRES

There are an additional 296,610 acres within the LPC action area that are managed or encumbered by entities that list conservation as one of their primary missions (Table 18, Appendices A-B). Some of this acreage is still being reviewed to determine if it can qualify toward a stronghold (77,333 acres). The remaining 218,877 acres has already been deemed to not qualify. However, these non-qualifying acres still provide some value to LPC because they either offer some protection from development or provide more consistently usable habitat due to more management certainty. They might also offer good future opportunities for acquiring additional qualifying stronghold acreages. The tracts in this category include state wildlife management areas, national wildlife refuges, the BLM area of critical concern for LPC, the LPC Zoological Area on Comanche National Grasslands, and private lands encumbered by conservation easements.

There are also 2,915,935 additional acres owned by Department of Defense; Non-Government

Organizations; State Land Boards; State Parks and Recreation Agencies; Bureau of Land Management; Forest Service; National Park Service; Agricultural Research Service; Bureau of Reclamation; and City or County Governments. These tracts are managed for a multitude of purposes and are less likely to provide benefits to LPC. However, there is potential to create or enhance LPC habitat on some of these properties through new or improved partnerships. WAFWA and its state wildlife agency members readily pursue those opportunities when they arise.

SUMMARY OF ALL CONSERVATION EFFORTS

It is evident that an enormous amount of effort continues to be placed on conserving the LPC across its range (Table 18, Appendices A-B). There are numerous voluntary conservation programs being delivered on private lands by multiple government agencies and non-government organizations. Those entities facilitated implementation of conservation practices on more than five million acres of private land within the LPC action area in 2017. It is also apparent the private land programs are being targeted towards the higher priority LPC areas as evidenced by a higher percentage of CHAT 1 and CHAT 2 acreages being enrolled in some type of voluntary conservation program (Table 18; Appendices A - B).

In total, conservation practices beneficial to LPC were implemented on more than 6.6 million acres of land across both private and publicly owned lands. This amount equates to 16.4% of the 40 million-acre LPC action area that is in CHAT 1 – CHAT 4. The minimum percentage of each CHAT area managed in a way that was beneficial to LPC during 2017 was as follows: CHAT 1 (25.9%), CHAT 2 (16.8%), CHAT 3 (20.7%), and CHAT 4 (8.3%).

Table 18. Total conservation acreage within each LPC ecoregion by CHAT category, 2017.

Ecoregion – Location	Total Area	WAFWA Term Contracts	WAFWA Non-Offset Agreements	Conservation Reserve Program	NRCS Programs[a]	USFWS Partners for Fish & Wildlife	State Wildlife Agency Private Land Programs	New Mexico Ranching CCA/CCAA[b]	Texas Ranching CCAA[c]	Oklahoma Ranching CCAA[d]	WAFWA Permanent Conservation Agreements	Other Qualifying Stronghold Acreage[e]	Non-Qualifying Conservation Acreage[f]	Total Conservation Acreage
Shinnery Oak														
CHAT 1	1,046,405	14,061	933	106,304	69,142	0	0	345,000	36,495	0	1,058	73,451	53,092	699,536
CHAT 2	892,804	0	0	115,095	6,786	0	0	69,778	17,433	0	391	1,427	1,620	212,530
CHAT 3	5,917,159	1,984	0	646,891	46,001	0	0	1,070,179	109,537	0	105	17,103	62,927	1,954,727
CHAT 4	3,177,658	15	0	201,168	8,459	0	0	133,370	20,579	0	0	0	10,996	374,947
Total	*11,034,026*	16,059	*0*	*1,069,458*	*130,388*	**0**	*0*	*1,618,327*	*184,044*	*0*	1,554	*91,981*	*128,635*	*3,241,740*
Mixed Grass														
CHAT 1	2,576,012	55,759	1,071	117,161	41,764	1,093	3,127	0	241,985	145,943	2,615	15,553	10,011	635,171
CHAT 2	1,116,165	538	0	65,310	13,733	0	1,035	0	33,055	40,616	0	0	2,964	157,250
CHAT 3	5,185,506	905	965	271,304	38,803	1,632	2,566	0	81,093	158,134	0	1,399	7,453	564,254
CHAT 4	3,768,280	17,713	6,875	117,101	11,077	115	161	0	56,598	23,409	110	71	7,599	240,829
Total	*12,645,963*	74,916	*8,912*	*570,876*	*105,376*	*2,840*	*6,889*	*0*	*412,731*	*368,102*	2,726	17,023	*28,026*	*1,597,504*
Sand Sagebrush														
CHAT 1	1,583,367	12,683	0	150,799	39,089	0	0	0	0	0	29,502	4,180	41,941	278,193
CHAT 2	245,121	0	0	20,396	4,376	0	0	0	0	0	0	0	38	24,811
CHAT 3	1,883,282	0	0	336,132	11,208	0	607	0	0	0	124	0	8,844	356,916
CHAT 4	4,322,390	0	0	424,719	9,600	0	184	0	0	0	0	0	51,169	485,672
Total	*8,034,160*	12,683	*0*	*932,047*	*64,273*	0	*791*	*0*	*0*	*0*	29,626	4,180	*101,992*	*1,145,591*
Shortgrass														
CHAT 1	1,872,009	5,389	0	176,798	13,140	0	404	0	0	0	3,710	18	23,897	223,327

CHAT 2	183,681	4,024	0	11,830	1,102	0	0	0	0	0	0	0	0	16,956
CHAT 3	1,769,583	99	0	158,317	5,995	6,130	80	0	0	0	0	0	8,928	179,550
CHAT 4	4,820,373	0	0	226,302	3,586	204	993	0	0	0	0	0	5,132	236,217
Total	*8,645,645*	9,512	*0*	*573,248*	*23,823*	6,334	*1,477*	*0*	*0*	*0*	3,710	18	*37,956*	*656,050*
Range- wide														
CHAT 1	7,077,793	87,892	2,004	551,062	163,135	1,093	3,531	345,000	278,480	145,943	36,885	93,201	128,940	1,836,227
CHAT 2	2,437,771	4,562	0	212,631	25,996	0	1,035	69,778	50,488	40,616	391	1,427	4,622	411,547
CHAT 3	14,755,530	2,988	966	1,412,645	102,007	7,762	3,253	1,070,179	190,630	158,134	229	18,502	88,152	3,055,446
CHAT 4	16,088,701	17,727	6,908	969,291	32,721	319	1,338	133,370	77,177	23,409	110	71	74,895	1,337,664
Grand Total	**40,359,795**	**113,169**	**9,845**	**3,145,629**	**323,859**	**9,174**	**9,156**	**1,618,327**	**596,775**	**368,102**	**37,616**	**113,202**	**296,610**	**6,640,885**

[a] These figures represent the acres of prescribed grazing (528) that were implemented in 2017 through the Lesser Prairie-Chicken Initiative and the Environmental Quality Incentives Program. Approximately 134,027 of these acres were applied through the Lesser Prairie-Chicken Initiative. Prescribed grazing is a core conservation practice that is supposed to occur on every contracted acre were livestock are present.

[b] The Center of Excellence (CEHMM) has also enrolled 1,580,209 industry acres in CCA/CCAAs.

[c] An additional 41,225 acres are enrolled outside the LPC action area within other portions of intersecting counties.

[d] Approximately 32,000 additional acres are enrolled outside the LPC action area within other portions of intersecting counties.

[e] Includes acreages meeting all the stronghold criteria as interpreted by WAFWA. These figures do not include the acres permanently conserved through the WAFWA program which also qualify.

[f] This category includes private land encumbered by a conservation easement and properties owned by a government or non-government entity that lists conservation as a primary mission. There are 77,733 of these acres still being evaluated to determine if they can qualify towards a stronghold (16,617 acres in Shinnery Oak, 14,021 acres in Mixed Grass, 9,138 in Sand Sagebrush, and 37,956 in Shortgrass). There are an additional 2,915,935 acres across the LPC action area that are owned by public entities but not managed with conservation as a primary focus.

Table 19. Annual cropland restoration and brush management acreages, 2017.

Ecoregion–Location	Reported Cropland Restoration Acreage[a]	Reported Brush Management Acreage	Total Reported Restoration Acreage
Shinnery Oak			
CHAT 1	150	4,072	4,222
CHAT 2	70	0	70
CHAT 3	10	9,498	9,508
CHAT 4	10	945	955
Total	*240*	*20,025*[b]	*20,265*[b]
Mixed Grass			
CHAT 1	384	3,097	3,481
CHAT 2	250	301	551
CHAT 3	10	6,325	6,335
CHAT 4	10	2,192	2,202
Total	*654*	*20,509*[b]	*21,163*[b]
Sand Sagebrush			
CHAT 1	180	0	180
CHAT 2	120	0	120
CHAT 3	10	101	111
CHAT 4	10	1,060	1,070
Total	*320*	*1,161*	*1,481*
Shortgrass			
CHAT 1	190	0	190
CHAT 2	60	0	60
CHAT 3	10	6,130	6,140
CHAT 4	10	204	214
Total	*270*	*6,334*	*6,604*
Range- wide			
CHAT 1	904	7,169	8,073
CHAT 2	500	301	801
CHAT 3	40	22,054	22,094
CHAT 4	40	4,401	4,441
Grand Total	**1,484**	**48,029**[b]	**49,513**[b]

[a] Data not reported for the Conservation Reserve Program which facilitates the overwhelming majority of cropland conversion to permanent grass cover.
[b] The total is greater than the sum of the sub-categories because some data were not reported at the finer scale.

Additionally, across all programs there was considerable habitat restoration activity completed during this period. There were at least 49,513 acres restored to functional grasslands through programs delivered by WAFWA and our partners (Table 19, Appendices A-B). Of that total, there were 1,484 acres of cropland restoration and 48,029 acres of brush management. However, WAFWA was not able to ascertain the acres of cropland converted to permanent grass cover through the CRP using the provided data. The CRP facilitates the overwhelming majority of cropland restoration to grass so the reported values for that practice are undoubtedly biased extremely low.

Finally, it cannot be forgotten that the enhancement and restoration acreages presented in this section do not include any of the good conservation being implemented by private landowners outside of voluntary conservation programs. Private landowners are managing thousands of additional acres across the LPC range in a way that is beneficial to the species without participating in any of the available programs. Their efforts should not be totally discounted just because they can't be easily quantified.

INDUSTRY COMPLIANCE AND PARTICIPATION MONITORING

CONSERVATION MEASURES COMPLIANCE

The CCAA and WCA contracts that industries sign to participate in WAFW's Range Wide Plan are voluntary to join. Those that participate agree to follow the conservation measures defined in the CCAA and WCA agreements that include potential timing and travel restrictions during the breeding season, noise restrictions, installing escape ramps in surface water, fence marking, and mitigation of new development projects. The conservation measures defined in these two agreements are identical. Staff biologists from WAFWA annually conduct random compliance checks on mitigated projects to ensure compliance with the conservation measures.

Mitigated projects are randomly selected to monitor compliance with the conservation measures outlined in Section XIII of the WCA and Section XII of the CCAA. That selection process draws a single sample of projects from both CCAA and WCA submissions. Due to staffing limitations, WAFWA limits that sample to a maximum of 200 projects per year (50 from each of the four ecoregions). To spread this compliance monitoring across a wide sample of companies, WAFWA selected those projects at random in 2017, but established a maximum of 10 projects per company in an effort to sample more companies. If a project is evaluated for compliance, it is removed from the pool for 3 years then becomes available again for random samples.

The sampling process selected a total of 121 projects to evaluate in 2017. Of that total, 24 projects were mitigated for under the WCA. Those 24 projects were submitted by 17 companies. The breakdown of projects by ecoregion was as follows: 11 in the Mixed Grass, 0 in the Sand Sagebrush, 5 in the Shinnery Oak, and 8 in the Shortgrass. The compliance monitoring process assesses mapping accuracy for the projects to confirm they were mitigated for correctly, presence of additional structures on site that were not mitigated, compliance with noise, off-road travel, and timing restrictions, the presence of escape ramps or rafts in man-made water sources, and herbicide use. Of

the 24 WCA projects that were monitored, three were not constructed, and 21 were constructed. No instances of noncompliance were detected on any of these projects.

Of the total 121 projects evaluated, 97 projects were mitigated under the CCAA. Those 97 projects were submitted by 24 companies. The breakout of projects by ecoregion is as follows: 38 in the Mixed Grass, 17 in the Sand Sagebrush, 18 in the Shinnery Oak, and 24 in the Shortgrass. Of the 97 CCAA projects that were monitored, 5 projects were sold and the company no longer had access to the site, 3 projects were unsuccessful oil and gas wells that were remediated, 18 projects were not constructed, 71 projects were constructed. 8 projects had instances of noncompliance (6.6%) and received Noncompliance Notices. Those projects included 3 instances of mapping errors, and 5 instances of failure to mark fences.

In the case of Compliance Notices for conservation measure violations, companies are given time to remedy the situation. The WAFWA mapping tolerance is within 50 meters of the GPS point of an impact as submitted to the WAFWA GIS section. If an impact location is found to be in excess of 50 meters from the impact point submitted, the WAFWA GIS staff work with the company to establish new evaluation units to recalculate the mitigation cost of the impact. All 3 mapping error cases were remedied within the allotted time and none of them required a deficiency notice. Failure to mark fences either in an area not surveyed or within .25 miles of an active lek is a conservation compliance issue. In the five instances identified during the 2017 inspections, the companies remedied the issue by marking the appropriate fences with 3-inch vinyl marker flags. All five instances of failure to mark fences were remedied within the allotted time and none required a deficiency notice.

ANALYSIS OF INDUSTRY PARTICIPATION RATES

WAFWA utilized publicly available data to estimate the proportion of oil/gas and wind energy development that was enrolled and mitigated in the CCAA and WCA. Well participation was assessed by examining drilling records between 05-12-14 (LPC listing date) through 12-31-16 within the EOR+10 and still listed as active at the end of this date range. Wind farms constructed in 2014-2017 were also assessed for participation rates. This participation assessment focused primarily on wells and wind farms because their construction data is publicly available for evaluation compared to other impact types (i.e. electric transmission and distribution lines)

Results from the IHS database search indicate that there were 2,936 wells drilled within the LPC EOR+10 in 2014-2016 with 1,485 (50.6%) of these wells drilled by companies that were not participating in the RWP agreements. These 1,485 wells were drilled by 289 companies that opted not to participate in LPC conservation efforts through the RWP. Most of the non-participating companies (235), were/are small operators that drilled five or fewer wells, while 40 companies drilled between 6-20 wells, and there were 14 companies that drilled between 21 and 75 wells in the EOR+10.

While 766 of the 1,485 (51.6%) wells from non-RWP participants are in CHAT 4, the remaining 719 (48.4%) were in CHAT 1-3. Some companies drilled just a few wells in CHAT 3-4, while other companies drilled many wells in CHAT 1-2. Appendix C provides a company specific list (anonymous ID's) of the number of wells drilled and not mitigated in each CHAT category. For the Range Wide Plan to be an effective tool for offsetting impacts and improving LPC habitat across the range, industry needs to increase participation. If non-participating companies joined the RWP and just enrolled and mitigated the wells in CHAT 1-3, that would add 719 wells to those that are offset,

increasing the overall participation rate substantially. The largest opportunity for increased participation comes from companies not currently participating in the RWP and the staff of WAFWA have made efforts to add some of these companies as participants. The companies not doing their part to avoid, minimize, and mitigate are negating the positive habitat gains made by those participating in the RWP.

The RWP also encourages wind energy companies to avoid, minimize, and mitigate for habitat impacts. Companies developing wind farms can enroll in the RWP to mitigate for habitat impacts to LPC. Those companies can also consult with WAFWA staff early in the planning process to develop strategies to avoid and minimized impacts and to minimize mitigation costs. According to the FAA vertical obstacle database, there were 25 wind farms constructed or expanded between 2014 and 2017 within the EOR+10. Of these, two (8%) were mitigated through the RWP (both in 2016). Due to the scale of wind facilities, avoiding CHAT 1-2 areas and/or minimizing habitat impacts is especially important. Because of the development thresholds for focal areas and connectivity zones defined in the RWP, a single wind project can have a large impact on these focal areas and can affect other development allowed within these reporting units under the RWP.

Within the subset of oil/gas companies participating in the RWP, there was a total of 1,523 wells drilled within the EOR+10 during the assessment period (51.9% of the total 2,936 wells drilled). However, of the 1,523 wells drilled by participants, only 957 (62.8 %) of them were mitigated for. This means that, overall, 32.6% (957/2,936) of the total number of all wells drilled in the LPC range were mitigated for through the RWP. The 957 mitigated wells do not account for the 308 wells that were later accounted for through the compliance audit. After the audit, 1,265 of the total wells drilled were accounted for through the RWP (43.1%).

Within the oil/gas industry, many companies have voluntarily chosen to participate in WAFWA's RWP by enrolling parcels of land where they agree to follow certain practices and mitigated for any new impacts. This section will analyze the participation rate for companies that have chosen to participate in the RWP by examining all the wells they drilled against the wells they submitted for mitigation. The data indicate that RWP participating companies mitigated for 957, or 62.8% of all the wells they drilled (Table 20). Under the RWP, not every well drilled by participating companies needs to be mitigated, just those on enrolled land. After the audit, the number or RWP accounted for wells increased to 1,265 (83.1% of all the wells drilled by participants) with another 192 still pending resolution.

Table 20. Proportion of all wells drilled within the LPC range that were drilled by companies participating in the RWP. The number of participant wells comes from the IHS database, the number mitigated comes from the RWP.

	# of wells drilled by RWP Participants	# of wells accounted for through the RWP	Participation rate
Initial analysis	1,523	957	62.8%
After audit	1,523	1,265	83.1%
Including still pending	1,523	1,457	95.7%

Participation and targeted enrollment is also a business strategy. Participant companies may target their participation in regions more likely to have LPC and opt not to enroll and mitigate for operations in areas of CHAT 4, where LPC are less likely to occur. An assessment of the wells drilled versus those mitigated for by CHAT category does indicate that there were 411 wells drilled by participants

on un-enrolled land and over half of these were in CHAT 4 (Table 21). While 411 wells is a sizeable number, it represents only 13.9% of all the wells drilled. These wells on unenrolled areas represent an opportunity for increased participation from companies already in the program.

Table 21. Location of participant wells not on enrollment, not mitigated by CHAT. This does not include wells drilled in New Mexico because of their separate mitigation agreement with CEHMM.

	CHAT 1	CHAT 2	CHAT 3	CHAT 4	Total
Grand Total	45	24	118	224	411

MITIGATION COMPLIANCE

Under the terms of the WCA and CCAA agreements, all new impacts on enrolled parcels must be mitigated. To evaluate compliance with this requirement, we examined 2014-2016 well permitting data from the IHS database and compared these wells against the wells mitigated by participating companies. Any wells drilled by the company on enrolled parcels and not mitigated for are considered a potential compliance violation. Companies were contacted to solicit information to confirm that 1) the well was drilled, 2) the company was responsible for drilling it, and 3) that the well name, location and dates in the IHS database and the enrollment dates for the parcel were correct. If needed, WAFWA staff confirmed some of these details with a site visit. This analysis was retroactive back to each company's enrollment date, but in subsequent reports, we will evaluate only the prior year's drilling data.

The initial assessment indicated there were 500 wells from 39 participant companies that were identified as potential compliance violations. Through consultation with industry and a thorough review of all the data available, each well was reviewed and classified. There were 316 wells that were found to be in violation because they were not mitigated per the agreement. We identified 61 wells that were mitigated but were incorrectly identified due to shifted locations or name changes in the drilling records. Additionally, 123 wells did not require mitigation because construction started prior to enrollment or they were located on federal land or minerals (Table 22).

Table 22. Summary of the wells drilled between a company's enrollment date and 12-31-16 that initially appeared as not mitigated and the resolution category that those wells were classified into.

Resolution category	**# wells**	**% of questionable wells**
Mitigation required	316	63.20%
Already mitigated	61	12.20%
Mitigation not required	123	24.60%

The 316 wells that were missing the necessary mitigation were drilled by 32 companies, with 24 of these companies having less than or equal to 5 wells that should have been mitigated and two companies having over 80 unmitigated wells each (Table 23). As these mitigation compliance issues were addressed, most companies were very cooperative with addressing the mistakes that often occurred from stalled processing, or new staff that were unaware of the requirements. Most companies immediately paid for these wells by debiting their existing account balances while a few paid in new fees to cover the mitigation costs.

Table 23. The number of companies per category indicating the numbers wells that were not mitigated for.

# wells lacking mitigation	0-5	6-10	11-20	21-30	80-90	100-110
# companies	24	2	2	2	1	1

By the end of the 2017 reporting period 123 of the 316 wells needing mitigation had been processed and mitigated, resolving potential non-compliance issues for 25 of the 32 companies. These newly mitigated wells had mitigation fees totaling $998,926.35 and had annual impacts of 1,168.28 habitat units. The impacts of all these wells have been assigned to conservation sites and their impacts offset retroactively from when they were initially drilled. The remaining 192 wells that have not been mitigated for have a calculated mitigation cost of $6,660,314.61 and have a total of 4,927.2 annual impact units. These non-compliant wells belong to 7 companies, with 181 of the wells belonging to 2 companies. All of these companies have had their participation either terminated or suspended and the USFWS notified of their non-compliance from failure to mitigate for impacts as required under their WCA or CCAA agreements. The staff of WAFWA are still attempting to work with these companies to collect on mitigation due and offset these impacts.

WAFWA MITIGATION TRACKING

The WAFWA mitigation framework incentivizes avoidance and minimization of impacts to LPC habitat. The metrics system within this framework also provides a pathway to mitigate for new impacts to habitat through a biologically-based system that incorporates project location, duration, affected acreage, and habitat quality (Van Pelt et al. 2013). The system utilizes a 2:1 mitigation ratio to ensure that mitigation offsets are greater than impacts which results in a net conservation benefit for the LPC. Offsetting mitigation units must be secured from the same ecoregion as a planned impact and assigned to the project before construction can start. In addition, the offsetting conservation must occur in a location that is of equal or higher priority for LPC conservation as defined by the CHAT.

Industry sites annually produce mitigation impact units in perpetuity based on a one-time assessment that is completed prior to construction. The annual impact units are entered into the mitigation ledger each year and must be continually balanced with conservation offset credits forever. WAFWA can provide perpetual conservation for each of the impact sites because the mitigation fees are assessed after an endowment multiplier has been applied to the impact units. That endowment multiplier is currently set at 25 and is based on a 4% expected rate of return on WAFWA investments. The mitigation fees are assessed on the endowment impact units after the multiplier has been applied. Thus, the assessed mitigation fees produce enough interest to provide for annual payments to landowners who are implementing offsetting conservation actions.

Conservation offset units are generated from WAFWA term and permanent conservation sites. One-half of the expected annual conservation offset units are immediately generated upon execution of a management agreement. The true number of annual units produced in year one of an agreement is calculated using vegetation data collected during the breeding season (March 15– July 15). The difference between the calculated year one total and the initial release is then generated and available to offset industry projects. In subsequent contract years, all the annually generated conservation offset units are available upon completion of the breeding season vegetation monitoring. The maximum rate that offset units may be generated is 1.25 units per acre per year where the habitat quality is perfect (HEG = 1.0) and the property falls within a focal area.

Remediation offset units are generated by the removal of an existing impact's infrastructure and completion of native grass seeding activities. If the remediated impact was previously mitigated through the plan, the resulting remediation offset units are calculated using the mitigation impact multipliers that are utilized for industry sites. As a result, the remediation offset units will equal the impact units that were originally calculated for the site if the habitat quality has not changed. If the remediated site was not previously mitigated through the plan, the remediation offset units are

calculated using the mitigation offset multipliers that are utilized for conservation sites. Using these offset multipliers results in half the remediation units that would be generated by using the impact multipliers (i.e. 2:1 mitigation ratio). The remediation of impacts on the landscape that were not mitigated for within the RWP is an option for entities that wish to receive conservation credits that can be used to offset future impacts instead of paying mitigation fees for new projects. Remediated areas area assessed by WAFWA staff to calculate their HEG score and the resulting number of annual habitat credits the site will generate. Remediated sites will generate annual mitigation units for the site each year, in perpetuity. Because these credits are generated at ½ the level of new impacts, many new impacts may not be able to be offset by a single reclamation site. To solve this issue and make the process of reclaiming old sites worthwhile to companies, reclaimed credits will be aggregated into ecoregion and CHAT specific "bins" that future new impacts can be associated with to offset new impacts (Figure 10). Using this method, annual credits from remediation sites are recorded and can be used to offset an impact debit from a matching ecoregion/CHAT as long as the annual impact units do not exceed the amount of annual credits being generated.

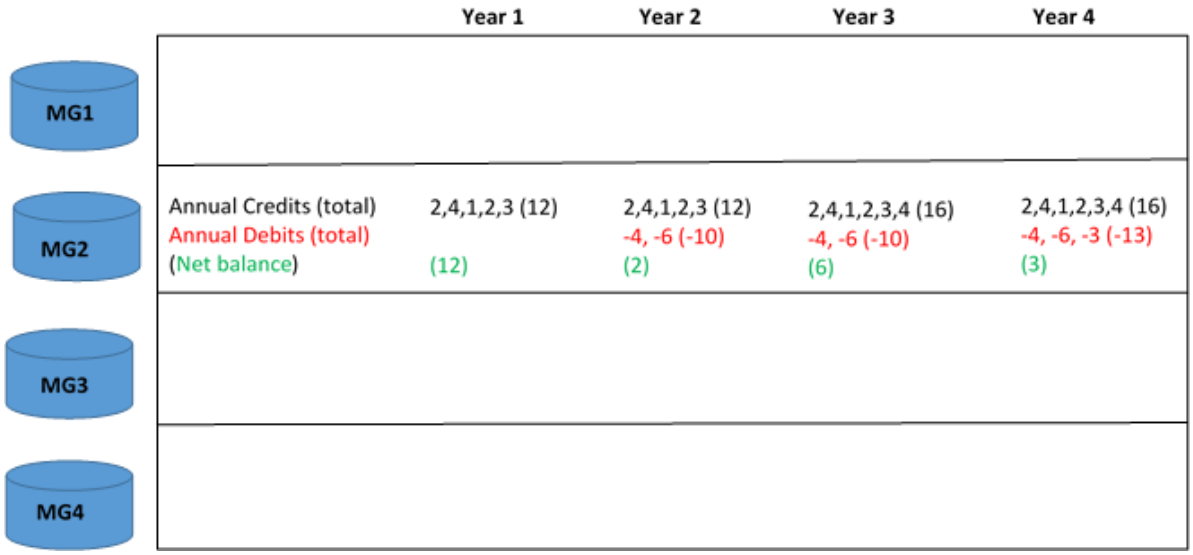

Figure 10. Annual credits are generated from the reclamation of a series of non-wafwa mitigated existing infrastructure (black) and the annual debits (red) are generated from new projects. The credits and impacts are associated with reclamation credit bins for offsetting impacts. The net balance of annual units (green) must remain positive or 0, annual debits cannot exceed the rate of annual credit input.

Participating companies can use conservation offset units, remediation offset units, or in some cases, a combination of the two to mitigate future impacts. The two types of offset units have the same mitigation value, but they do have different utility. Conservation offset units are purchased by industry participants on a first-come first-served basis. Construction of a project being mitigated with conservation offset units must begin within one year of the units being assigned. If construction has not started by that date, WAFWA can reallocate the conservation offset units to another project and credit the company's account with the original purchase amount. The company will then have to re-submit their project and get different offset units assigned to it before they can begin construction of their project. Remediation offset units are reserved for the company that completed the restoration work. The company that owns the resulting remediation offset units can use them toward a future mitigation need or continue purchasing conservation offset units. The RWP requires that remediation units be used to offset any new impacts that occur in reporting units that exceed the impact goals for

CHAT 1 (30%) and CHAT 2 (60%). Appendices C-D track progress to date. A participant company may choose to save their remediation offset units if they anticipate having future projects within an area that is approaching or currently exceeding the established impact goal. A company can also sell their remediation offset units directly to another WAFWA participant who has a need for that type of mitigation units.

INDUSTRY IMPACT UNIT GENERATION

In this portion of the report, impact generation at the scale of ecoregions, CHAT categories, and agreement types will be provided. Impact unit generation and mitigation fees are summarized at the reporting unit scale in Appendix D. For the 2017 reporting period, there were 169 projects that had 1,148 annual impact units and paid $1,426,961 in mitigation fees. By ecoregion, the Shinnery Oak Ecoregion had the most projects (79 or 46.7%), however, the Mixed Grass Ecoregion had the most impact units (897or 78.1%) (Table 24). This difference was due to most of the impacts in the Shinnery Oak region being infield drilling with little new impact, while impacts in the Mixed Grass were from wells that had more unique impact areas.

The total number of projects processed and mitigated for was up to 169 from 127 projects in 2016. This slight increase in mitigation projects can likely be attributed to the slight recovery in oil and gas markets. Overall since the RWP began in 2014, the CCAA has a much larger share of the total number of projects (83.9%), but it accounts for about an equal percentage of the annual impact units (52.1%) and the mitigation fees (49.8%). This is because the CCAA projects are primarily oil and gas wells which, while numerous, have smaller impact buffers than many of the WCA projects such as wind farms, and electric transmission lines. Table 25 provides a summary of all the mitigated projects since the plan began in 2014.

Table 24**.** Summary of projects mitigated for under the Lesser Prairie-Chicken Range-wide Conservation Plan during 2017 reporting period by ecoregion and agreement type with the potential (full impact buffer) and actual impact acres (new impact area), annual impact units and mitigation fees.

Ecoregions	Enrollment Program	Number of Projects	Potential Acres	Impact Acres	Annual Units	Cost
Mixed Grass Prairie	CCAA	48	1,501.13	816.14	762.38	$1,039,149.59
	WCA	4	3,909.31	739.53	134.81	$183,798.79
	Ecoregion Total:	**52**	**5,410.44**	**1,555.67**	**897.19**	**$1,222,948.38**
Sand Sagebrush Prairie	CCAA	34	1,055.07	551.86	21.34	$11,838.78
	WCA	3	622.07	126.23	43.52	$24,102.79
	Ecoregion Total:	**37**	**1,677.14**	**678.09**	**64.86**	**$35,941.57**
Shinnery Oak Prairie	CCAA	76	2,341.03	223.47	182.33	$164,712.75
	WCA	3	84.72	8.35	3.72	$3,358.75
	Ecoregion Total:	**79**	**2,425.75**	**231.82**	**186.05**	**$168,071.50**
Shortgrass Prairie	CCAA	1	31.03	24.55	0.00	$0.00
	Ecoregion Total:	**1**	**31.03**	**24.55**	**0.00**	**$0.00**
CCAA Total:		**159**	**4,928.26**	**1,616.02**	**966.05**	**$1,215,701.12**
WCA Total:		**10**	**4,616.10**	**874.11**	**182.05**	**$211,260.33**
Grand Total:		**169**	**9,544.36**	**2,490.13**	**1,148.10**	**$1,426,961.45**

Table 25. Summary of projects mitigated for under the Lesser Prairie-Chicken Range-wide Conservation Plan since inception (2014- 2017) by ecoregion and agreement type with the potential (full impact buffer) and actual impact acres (new impact area), annual impact units and mitigation fees.

Ecoregions	Enrollment Program	Years	Number of Projects	Potential Acres	Impact Acres	Annual Units	Cost
Mixed Grass Prairie	CCAA	2014	182	5,630.65	3,305.42	2,616.28	$3,440,241.52
		2015	293	9,185.87	5,552.64	4,628.55	$6,000,624.82
		2016	10	371.45	104.77	69.27	$92,955.24
		2017	48	1,501.13	816.14	762.38	$1,039,149.59
		Total:	**533**	**16,689.10**	**9,778.97**	**8,076.48**	**$10,572,971.17**
	WCA	2014	51	9,843.35	1,664.23	686.17	$921,087.85
		2015	99	22,358.05	5,523.71	4,985.72	$6,674,506.41
		2016	14	27,658.38	16,201.69	3,049.48	$4,066,770.16
		2017	4	3,909.31	739.53	134.81	$183,798.79
		Total:	**168**	**63,769.09**	**24,129.16**	**8,856.18**	**$11,846,163.21**
	Ecoregion Total:		**701**	**80,458.19**	**33,908.13**	**16,932.66**	**$22,419,134.38**
Sand Sagebrush Prairie	CCAA	2014	45	1,366.97	628.53	7.21	$4,440.73
		2015	73	2,266.62	1,375.80	574.54	$299,883.42
		2016	22	682.68	338.08	53.12	$28,993.47
		2017	34	1,055.07	551.86	21.34	$11,838.78
		Total:	**174**	**5,371.34**	**2,894.27**	**656.21**	**$345,156.40**
	WCA	2015	2	62.07	44.19	38.02	$18,247.48
		2017	3	622.07	126.23	43.52	$24,102.79
		Total:	**5**	**684.14**	**170.42**	**81.54**	**$42,350.27**
	Ecoregion Total:		**179**	**6,055.48**	**3,064.69**	**737.75**	**$387,506.67**
Shinnery Oak Prairie	CCAA	2014	44	1,359.63	116.53	132.70	$119,445.86
		2015	123	3,813.01	752.20	631.60	$549,689.08
		2016	71	2,203.15	222.01	112.08	$98,321.73
		2017	76	2,341.03	223.47	182.33	$164,712.75
		Total:	**314**	**9,716.82**	**1,314.21**	**1,058.71**	**$932,169.42**
	WCA	2014	6	186.18	0.00	0.00	$0.00
		2015	14	12,509.16	6,731.91	491.98	$444,809.63
		2016	5	48.03	37.14	33.84	$30,566.65
		2017	3	84.72	8.35	3.72	$3,358.75
		Total:	**28**	**12,828.09**	**6,777.40**	**529.54**	**$478,735.03**
	Ecoregion Total:		**342**	**22,544.91**	**8,091.61**	**1,588.25**	**$1,410,904.45**
Shortgrass Prairie	CCAA	2014	30	919.14	759.54	202.38	$161,096.41
		2015	70	2,011.55	1,338.51	342.89	$292,781.42
		2016	5	155.17	83.16	14.85	$12,344.02
		2017	1	31.03	24.55	0.00	$0.00
		Total:	**106**	**3,116.89**	**2,205.76**	**560.12**	**$466,221.85**
	WCA	2014	6	186.26	124.19	34.92	$28,249.39
		2015	10	284.78	144.76	16.05	$12,982.14
		Total:	**16**	**471.04**	**268.95**	**50.97**	**$41,231.53**
	Ecoregion Total:		**122**	**3,587.93**	**2,474.71**	**611.09**	**$507,453.38**
CCAA Total:			**1127**	**34,894.15**	**16,193.21**	**10,351.52**	**$12,316,518.84**
WCA Total:			**217**	**77,752.36**	**31,345.93**	**9,518.23**	**$12,408,480.04**
Grand Total:			**1,344**	**112,646.51**	**47,539.14**	**19,869.75**	**$24,724,998.88**

While oil and gas wells are the most common type of impact, the larger impact buffers of wind turbines, compressor stations, communications towers, and electric transmission lines that have WCA agreements usually generate more annual impact units and mitigation fees per project. The larger the impact buffer, the more important it is to site these projects to take advantage of pre-existing impact buffers and cropland to minimize impacts on LPC habitat and mitigation fees. Electric distribution lines are an example of a smaller scale project that produces few annual impact units or mitigation fees. These projects have smaller impact buffers and are often sited within pre-existing impact buffers along roads. Table 26 and 27 break impact unit generation and mitigation fees down further to demonstrate the proportion of impact types mitigated for in 2017 and since the plan began.

Table 26. Summary of 2017 projects by impact type.

Ecoregions	Impact Type	Count	Potential Acres	Impact Acres	Annual Units	Mitigation Cost
Mixed Grass Prairie	Compressor Station <= 5 acres	1	31.04	0.00	0.00	$0.00
	Electrical Dist. Line < 69 KV	1	1.36	0.50	0.03	$42.60
	Electrical Substation <= 5 acres	1	31.03	0.00	0.00	$0.00
	Electrical Trans. Line >= 69 KV	1	3,845.89	739.03	134.78	$183,756.19
	Tank Battery	1	42.61	22.48	24.28	$33,096.77
	Well	47	1,458.51	793.66	738.10	$1,006,052.82
	Ecoregion Total:	**52**	**5,410.44**	**1,555.67**	**897.19**	**$1,222,948.38**
Sand Sagebrush Prairie	Electrical Substation <= 5 acres	2	62.06	0.00	0.00	$0.00
	Electrical Trans. Line >= 69 KV	1	560.01	126.23	43.52	$24,102.79
	Well	34	1,055.07	551.86	21.34	$11,838.78
	Ecoregion Total:	**37**	**1,677.14**	**678.09**	**64.86**	**$35,941.57**
Shinnery Oak Prairie	Compressor Station <= 5 acres	1	13.73	0.00	0.00	$0.00
	Electrical Dist. Line < 69 KV	3	84.72	8.35	3.72	$3,358.75
	Well	75	2,327.30	223.47	182.33	$164,712.75
	Ecoregion Total:	**79**	**2,425.75**	**231.82**	**186.05**	**$168,071.50**
Shortgrass Prairie	Well	1	31.03	24.55	0.00	$0.00
	Ecoregion Total:	**1**	**31.03**	**24.55**	**0.00**	**$0.00**
Grand Total:		**169**	**9,544.36**	**2,490.13**	**1,148.10**	**$1,426,961.45**

Table 27. Summary of projects (2014-2017) by impact type.

Ecoregions	Impact Type	Count	Potential Acres	Impact Acres	Annual Units	Mitigation Cost
Mixed Grass Prairie	Compressor Station <= 5 acres	6	186.22	72.00	46.90	$62,505.63
	Compressor Station > 5 acres	1	92.18	0.00	0.00	$0.00
	Electrical Distribution Line < 69 KV	35	172.99	44.92	51.13	$61,450.84
	Electrical Substation <= 5 acres	1	31.03	0.00	0.00	$0.00
	Electrical Trans. Line >= 69 KV	8	37,764.73	6,189.83	4,728.46	$6,343,799.33
	Private Road	1	3.28	2.87	2.22	$2,639.00
	Raised Pipeline	1	30.60	26.62	24.89	$29,543.00
	Tank Battery	1	42.61	22.48	24.28	$33,096.77
	Well	644	20,372.79	11,548.06	9,248.24	$12,139,001.38
	Wind Turbine	3	21,761.76	16,001.35	2,806.54	$3,747,098.43
	Ecoregion Total:	**701**	**80,458.19**	**33,908.13**	**16,932.66**	**$22,419,134.38**
Sand Sagebrush Prairie	Electrical Substation <= 5 acres	2	62.06	0.00	0.00	$0.00
	Electrical Trans. Line >= 69 KV	1	560.01	126.23	43.52	$24,102.79
	Private Road	1	1.56	0.73	0.70	$865.00
	Well	175	5,431.85	2,937.73	693.53	$362,538.88
	Ecoregion Total:	**179**	**6,055.48**	**3,064.69**	**737.75**	**$387,506.67**
Shinnery Oak Prairie	Cell / Radio Tower	1	345.30	32.41	14.58	$19,471.67
	Compressor Station <= 5 acres	1	13.73	0.00	0.00	$0.00
	Compressor Station > 5 acres	2	541.50	463.69	250.19	$223,056.74
	Electrical Distribution Line < 69 KV	16	141.25	22.46	9.19	$7,944.48
	Electrical Trans. Line >= 69 KV	1	11,551.80	6,209.57	216.32	$192,861.26
	Well	321	9,951.33	1,363.48	1,097.97	$967,570.30
	Ecoregion Total:	**342**	**22,544.91**	**8,091.61**	**1,588.25**	**$1,410,904.45**
Shortgrass Prairie	Compressor Station <= 5 acres	2	62.07	24.22	1.25	$1,008.31
	Compressor Substation <= 5 acres	1	31.03	0.00	0.00	$0.00
	Electrical Substation <= 5 acres	1	31.04	0.00	0.00	$0.00
	Private Road	2	10.91	5.15	1.12	$470.36
	Tank Battery	12	125.00	26.84	1.73	$2,063.48
	Well	104	3,327.88	2,418.50	606.99	$503,911.23
	Ecoregion Total:	**122**	**3,587.93**	**2,474.71**	**611.09**	**$507,453.38**
Grand Total:		**1,344**	**112,646.51**	**47,539.14**	**19,869.75**	**$24,724,998.88**

When comparing, projects completed by CHAT category in 2017 (Table 28), it can be demonstrated how industry is avoiding higher quality habitat. The overall number of projects is much lower in CHAT's 1-2 (16) compared to the number of projects in CHAT's 3-4 (153) indicating companies may be choosing these areas over focal areas and connectivity zones. Similarly, the total acreage of new impacts is lower in the CHAT 1-2 than CHAT 3-4 (247.7 vs 2,242.4acres). In the 2017 reporting period, mitigation totaled $345,093.67 in CHAT 1-2 compared to $1,081,867.78 in CHAT 3-4. The impacts in CHAT 1-2 are described in more detail in Appendix D where they are summarized by reporting unit.

Table 28. Summary of the project's mitigated for in 2017 by CHAT category, including the number of projects, potential acres impacted, the actual impact acres, annual units and mitigation.

CHAT	Impact Type	Count	Potential Acres	Impact Acres	Annual Units	Mitigation Cost
CHAT1	Electrical Dist. Line < 69 KV	1	1.36	0.50	0.03	$42.60
	Well	7	217.22	157.83	129.13	$170,369.66
	CHAT Total:	**8**	**218.58**	**158.33**	**129.16**	**$170,412.26**
CHAT2	Electrical Substation <= 5 acres	1	31.03	0.00	0.00	$0.00
	Well	7	217.21	89.38	128.13	$174,681.41
	CHAT Total:	**8**	**248.24**	**89.38**	**128.13**	**$174,681.41**
CHAT3	Compressor Station <= 5 acres	1	31.04	0.00	0.00	$0.00
	Electrical Dist. Line < 69 KV	3	84.72	8.35	3.72	$3,358.75
	Electrical Trans. Line >= 69 KV	1	3,845.89	739.03	134.78	$183,756.19
	Tank Battery	1	42.61	22.48	24.28	$33,096.77
	Well	31	961.99	523.21	506.59	$647,276.28
	CHAT Total:	**37**	**4,966.25**	**1,293.07**	**669.37**	**$867,487.99**
CHAT4	Compressor Station <= 5 acres	1	13.73	0.00	0.00	$0.00
	Electrical Substation <= 5 acres	2	62.06	0.00	0.00	$0.00
	Electrical Trans. Line >= 69 KV	1	560.01	126.23	43.52	$24,102.79
	Well	112	3,475.49	823.12	177.92	$190,277.00
	CHAT Total:	**116**	**4,111.29**	**949.35**	**221.44**	**$214,379.79**
Grand Total:		**169**	**9,544.36**	**2,490.13**	**1,148.10**	**$1,426,961.45**

When impacts are examined by CHAT category over the life of the RWP, the pattern of projects being concentrated in CHAT 3-4 is even more pronounced (Table 29). Since the plan began, 79.5% of the projects, and 84.2% of the actual new impact acres have been in CHAT categories 3-4. Additionally, 47.2% of projects and 48.5% of the new impact area has been in CHAT 4. Care should be taken however when interpreting these project location proportions because there is significantly more CHAT 3-4 area (36.6% and 39.9%) within the EOR+10 then CHAT 1-2 area (17.5% and 6.0%), so it is probable that more projects are in CHAT 3-4 simply because there is more of it.

Table 29. Summary of mitigated projects by CHAT category and feature type since the RWP began (2014-2017).

CHAT	Impact Type	Count	Potential Acres	Impact Acres	Annual Units	Mitigation Cost
CHAT1	Compressor Station <= 5 acres	3	93.13	31.84	9.27	$11,808.04
	Electrical Distribution Line < 69 KV	4	48.80	17.47	29.10	$34,549.60
	Electrical Transmission Line >= 69 KV	1	4,796.60	2,414.14	3,175.73	$4,239,897.18
	Private Road	1	1.56	0.73	0.70	$865.00
	Well	167	5,307.53	3,415.52	3,388.47	$3,973,292.11
	CHAT Total:	**176**	**10,247.62**	**5,879.70**	**6,603.27**	**$8,260,411.93**
CHAT2	Compressor Station > 5 acres	1	92.18	0.00	0.00	$0.00
	Electrical Distribution Line < 69 KV	4	30.87	13.29	7.22	$8,474.52
	Electrical Substation <= 5 acres	1	31.03	0.00	0.00	$0.00
	Tank Battery	1	13.72	5.45	0.00	$0.00
	Well	93	2,941.59	1,592.08	1,365.35	$1,793,391.25
	CHAT Total:	**100**	**3,109.39**	**1,610.82**	**1,372.57**	**$1,801,865.77**
CHAT3	Cell / Radio Tower	1	345.30	32.41	14.58	$19,471.67
	Compressor Station <= 5 acres	2	62.07	27.76	38.23	$51,034.65
	Compressor Station > 5 acres	2	541.50	463.69	250.19	$223,056.74
	Electrical Distribution Line < 69 KV	26	181.66	25.94	18.33	$20,801.46
	Electrical Substation <= 5 acres	1	31.04	0.00	0.00	$0.00
	Electrical Transmission Line >= 69 KV	4	16,224.10	3,681.91	1,473.38	$1,997,955.09
	Private Road	2	10.91	5.15	1.12	$470.36
	Raised Pipeline	1	30.60	26.62	24.89	$29,543.00
	Tank Battery	2	56.33	27.94	24.53	$33,427.69
	Well	392	12,450.07	7,618.77	5,607.41	$6,796,028.74
	Wind Turbine	1	6,239.80	5,060.48	2,371.00	$3,165,593.81
	CHAT Total:	**434**	**36,173.38**	**16,970.67**	**9,823.66**	**$12,337,383.21**
CHAT4	Compressor Station <= 5 acres	4	106.82	36.62	0.65	$671.25
	Compressor Substation <= 5 acres	1	31.03	0.00	0.00	$0.00
	Electrical Distribution Line < 69 KV	17	52.91	10.68	5.67	$5,569.74
	Electrical Substation <= 5 acres	2	62.06	0.00	0.00	$0.00
	Electrical Transmission Line >= 69 KV	5	28,855.84	6,429.58	339.19	$322,911.11
	Private Road	1	3.28	2.87	2.22	$2,639.00
	Tank Battery	10	97.56	15.93	1.48	$1,732.56
	Well	592	18,384.66	5,641.40	1,285.50	$1,410,309.69

	Wind Turbine	2	15,521.96	10,940.87	435.54	$581,504.62
	CHAT Total:	**634**	**63,116.12**	**23,077.95**	**2,070.25**	**$2,325,337.97**
Grand Total:		**1,344**	**112,646.51**	**47,539.14**	**19,869.75**	**$24,724,998.88**

Companies are adapting their development strategies to incorporate the RWP habitat metrics in an effort to reduce higher mitigation costs by co-locating new projects with pre-existing development. WAFWA quantifies co-location from the percent overlap between new impact acres and acres within impact buffers of existing infrastructure. Prior to the implementation of the RWP, the average project co-location was only 12% for all impact types and 42% for oil and gas developments (Van Pelt et al. 2013:136-137). For all projects mitigated for in 2017, the co-location was 73.9% across all project types, and it was 67.3% for wells specifically. This indicates that project impact overlap is up 62% since implementation for all impact types and up 25% for oil and gas wells (Table 30).

The degree of co-location in 2017 varied widely between ecoregions, but was most effective in the Shinnery Oak, where wells had a combined overlap of 90% with existing impacts. (Tables 31-33).

Table 30. Area of potential impact acres, the actual impact acres as a result of co-siting projects, and the proportion the impact area was reduced due to co-siting in 2017.

Impact Type	Count	Potential Acres	Actual New Acres	% overlap
Compressor Station <= 5 acres	2	44.77	0.00	100.00%
Electrical Distribution Line < 69 KV	4	86.08	8.85	89.72%
Electrical Substation <= 5 acres	3	93.09	0.00	100.00%
Electrical Transmission Line >= 69 KV	2	4,405.90	865.26	80.36%
Tank Battery	1	42.61	22.48	47.24%
Well	157	4,871.91	1,593.54	67.29%
Grand Total:	**169**	**9,544.36**	**2,490.13**	**73.91%**

Table 31. Overall percentage that new impact areas (all project types) in 2017 were reduced by co-locating the project so that it overlapped with existing impact areas.

Ecoregions	Count	Potential Acres	Actual New Acres	% overlap
Mixed Grass Prairie	52	5,410.44	1,555.67	71.25%
Sand Sagebrush Prairie	37	1,677.14	678.09	59.57%
Shinnery Oak Prairie	79	2,425.75	231.82	90.44%
Shortgrass Prairie	1	31.03	24.55	20.88%
Grand Total:	**169**	**9,544.36**	**2,490.13**	**73.91%**

Table 32. Overall percentage that new impact areas (all project types) in 2014-2017 were reduced by co-locating the project so that it overlapped with existing impact areas.

Ecoregions	Count	Potential Acres	Actual New Acres	% overlap
Mixed Grass Prairie	701	80,458.19	33,908.13	57.86%
Sand Sagebrush Prairie	179	6,055.48	3,064.69	49.39%
Shinnery Oak Prairie	342	22,544.91	8,091.61	64.11%
Shortgrass Prairie	122	3,587.93	2,474.71	31.03%
Grand Total:	**1,344**	**112,646.51**	**47,539.14**	**57.80%**

Table 33. Summary of the potential impact vs the new impact acres and their combined ability to co-locate (reduce impact area) for projects done in 2014-2017.

Impact Type	Count	Potential Impacts Acres	New Impact Acres	% Reduction
Cell / Radio Tower	1	345.30	32.41	90.61%
Compressor Station <= 5 acres	9	262.02	96.22	63.28%
Compressor Station > 5 acres	3	633.68	463.69	26.83%
Compressor Substation <= 5 acres	1	31.03	0.00	100.00%
Electrical Distribution Line < 69 KV	51	314.24	67.38	78.56%
Electrical Substation <= 5 acres	4	124.13	0.00	100.00%
Electrical Transmission Line >= 69 KV	10	49,876.54	12,525.63	74.89%
Private Road	4	15.75	8.75	44.44%
Raised Pipeline	1	30.60	26.62	13.01%
Tank Battery	13	167.61	49.32	70.57%
Well	1,244	39,083.85	18,267.77	53.26%
Wind Turbine	3	21,761.76	16,001.35	26.47%
Grand Total:	**1,344**	**112,646.51**	**47,539.14**	**57.80%**

Since 214, oil and gas wells have been the most frequent impacts mitigated for through the RWP (1,244) and they also had the largest potential impact area (39,083.8 acres) of projects submitted through the RWP. This makes wells a good indicator for how the RWP can influence projects siting behavior. When the rate of co-location of wells through time is examined, it provides clear evidence that the economic disincentives in the RWP are working as intended, as the percent overlap has increased from 50.9% in 2014 to 67.3% overlap in 2017 (Table 34). In the RWP, a new well initially has a 31-acre impact area (200-meter buffer), but it can be reduced by co-locating it so its impact area overlaps with areas already impacted. Figure 11 shows the trend to site new wells as both a percentage of overlap and as new acres impacted. As one might expect, when the area of new impact is a driving component of mitigation fees, companies are adjusting their well siting behaviors to both minimize impacts and save money. This level of avoidance by RWP participants occurring across millions of acres within the LPC range is a significant benefit to LPC which is often overlooked by those following the RWP mitigation component.

Table 34. Trend in co-locating wells with other existing infrastructure to minimize new impact area (and corresponding mitigation costs) is evident here as the rate of co-location has increased since the plan began.

YEARS	Counts	Potential Impact Acres	New Impact Acres	Average New Impact Acres	% Reduction
2014	350	11,035.42	5,419.05	15.48	-50.89%
2015	626	19,732.14	10,394.37	16.60	-47.32%
2016	111	3,444.38	860.81	7.76	-75.01%
2017	157	4,871.91	1,593.54	10.15	-67.29%
Total:	**1,244**	**39,083.85**	**18,267.77**	**14.68**	**-53.26%**

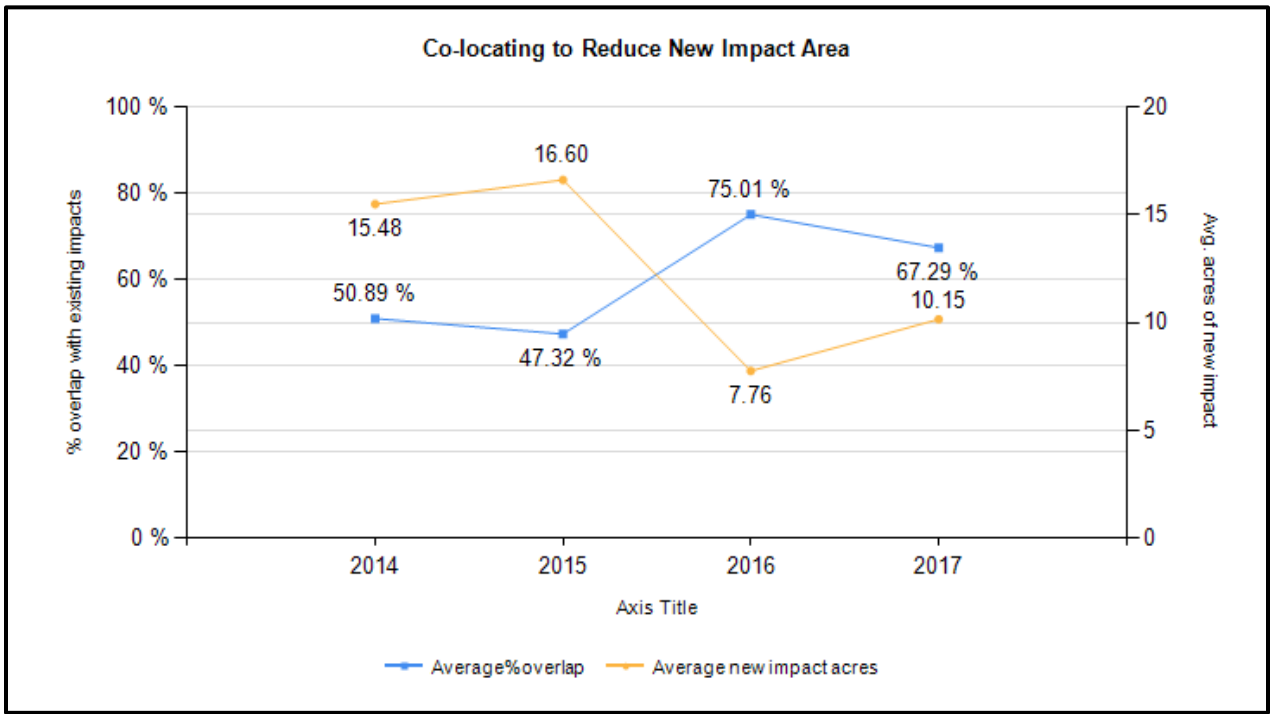

Figure 11. Plot showing the increasing trend by companies to co-locate wells to reduce new impact area on new well projects with existing infrastructure, thereby lowering the total impact area.

RECLAMATION OF IMPACTS TO GENERATE OFFSET UNITS

Offset units can also be generated by remediation of existing impacts as described in the RWP. Those remediation units are reserved for the company which generates them and can be banked for their use for future developments. In some instances, remediation offset units are required before development can occur. The RWP establishes impact thresholds of 30% for CHAT 1 reporting units and 60% for CHAT 2 reporting units. Eight focal areas and one connectivity zone already meet or exceed those goals, which means that remediation must occur to offset any new impacts by participants in these units (Appendix D & E, Van Pelt et.al 2013). Within the RWP there are two primary impact credit processes, one for projects initially mitigated through the RWP and a second process for the remediation of projects not mitigated through the RWP (existing infrastructure). For projects initiated within the RWP, it is required that mitigation and habitat offsets units be paid and allocated before construction begins. Companies often plan and pay mitigation months before a project starts. When this is done, WAFWA assesses the habitat impact and then calculates the habitat

units and the mitigation fee that will offset this development. The mitigation fee is deducted from the companies' mitigation account with WAFWA and the habitat units are deducted from an appropriate conservation offset site. Once the mitigation of new impacts is completed, one of the following things will occur:

1. The project gets cancelled after the mitigation was paid, but before any ground disturbances or infrastructure are installed.
    a. As development plans change, for whatever reason, projects may be cancelled before any habitat impacts occurred. In these instances, the company should notify WAFWA that the project was cancelled before any impacts occurred and WAFWA will credit the company back its full mitigation payment (minus the administrative fee) to its account and the habitat credits will be added back to the conservation offset site they were deducted from. The net result is no mitigation fees and no habitat units used.
2. The project is initiated, completed, and remains on the landscape (i.e. viable well). Each year on the anniversary of the project's completion, the annual impact units will be associated with a conservation offset site and units deducted from that site.
3. The project was started (ground disturbed or infrastructure installed) after mitigation payments were made, but the project was not completed and subsequently removed (i.e. dry well). These projects may be credited back in full (minus the administrative fee) after the site is verified to be reclaimed. To reclaim the site back to its original state and be credited as doing so, the company should follow the below process.
    a. The company should remove any/all infrastructure they installed, refill and level any pits, and grade the ground back to a slope and condition approximating the condition before impacts were made.
    b. The company should contact WAFWA regional biologists for a recommended native seed mixture for that site and apply the seed mix per recommendations. If restoring back to active cropland, no seeding mixture is required.
    c. Once the site is repaired and the seed is distributed, the company should notify WAFWA regional biologist to assess and verify the completed reclamation work.
    d. Once verified, the regional biologist will notify WAFWA GIS that the work was done and then WAFWA GIS will refund all the habitat credits to the offset property they were initially deducted from and notify accounting to credit the companies account back for the full impact mitigation (less the 12.5% administration fee) paid towards the project.
4. If the project is completed and mitigated within the RWP, then at some future date the project is to be reclaimed, a process similar to scenario 2 (project started but not completed) would be utilized. After the site has been confirmed reclaimed, the company receives credit back on mitigation dollars paid (less the administration fee), the impact no longer generates annual debits in the impact ledger, and the impact units are no longer deducted from its associated conservation site. Habitat units from the project and the conservation site are not credited, they just stop occurring annually as they were when the project was on the landscape.

For projects that were developed on the landscape without mitigation through the RWP, there exists the opportunity for companies to remove these existing infrastructure impacts and receive habitat

credits that can be applied to future projects. If a company removes the infrastructure and reseeds the area in native vegetation to reclaim the habitat, the company will receive a company specific allocation of half the habitat units identified as reclaimed by a HEG habitat evaluation of the surrounding area. So far in the RWP, there has been one transmission line project reclaimed and three wells submitted for reclamation credits. These projects are inventoried and associated with the appropriate company that will earn the credits, but the credit allocation has not been issued yet because WAFWA is working with the USFWS to resolve some details on how these will be tracked and credited.

Not all wells submitted into the RWP have been completed, and not all wells that were drilled were successful. During the 2017 reporting period, there were six previously mitigated projects refunded after the project failed to be completed (Table 35). Since the RWP began, there have been 24 unsuccessful and reclaimed projects (Table 36). These projects were reclaimed per the specifications, verified by WAFWA staff, and then the mitigation was credited back to the company and the impacts were credited back to the conservation offset property.

Table 35. Details on the well projects that were reclaimed in 2017 after the project failed to be successful.

Ecoregions	CHAT	Counts	Potential Acres	Impact Acres	Annual Units
Sand Sagebrush Prairie	CHAT1	2	62.06	21.08	1.84
	Ecoregion Total:	**2**	**62.06**	**21.08**	**1.84**
Shortgrass Prairie	CHAT3	4	124.77	120.95	111.20
	Ecoregion Total:	**4**	**124.77**	**120.95**	**111.20**
Grand Total:		**6**	**186.83**	**142.03**	**113.04**

Table 36. Projects that were reclaimed since the plan began (2014-2017) after the project failed to be completed.

Ecoregions	CHAT	Counts	Potential Acres	Impact Acres	Annual Units
Mixed Grass Prairie	CHAT1	2	62.06	55.10	93.67
	CHAT4	2	62.06	18.20	0.58
	Ecoregion Total:	**4**	**124.12**	**73.30**	**94.25**
Sand Sagebrush Prairie	CHAT1	3	93.09	43.88	5.03
	Ecoregion Total:	**3**	**93.09**	**43.88**	**5.03**
Shortgrass Prairie	CHAT1	7	220.73	188.15	158.27
	CHAT3	4	124.77	120.95	111.20
	CHAT4	6	168.89	100.28	21.38
	Ecoregion Total:	**17**	**514.39**	**409.38**	**290.85**
Grand Total:		**24**	**731.60**	**526.56**	**390.13**

Getting information on the restoration of habitat from the removal of the existing infrastructure has proven difficult and currently WAFWA has not currently accounted for any reclamation projects outside of the RWP. Oil and gas wells are routinely plugged and restored, but a way to verify site restoration has not been identified through our IHS well database subscription service. WAFWA is exploring other data options for accessing data that would show the wells plugged and restored to state environmental requirements. Based on the data available, it appears there have been a total of 6,185 wells plugged within the EOR+10 since 2014 (Table 37).

Table 37. The number of wells reported as plugged each year by the IHS database in the LPC EOR+10.

	2014	2015	2016	2017	Total
# plugged wells	1,747	1,590	1,642	1,206	6,185

OFFSET UNIT GENERATION

The 22 conservation sites currently enrolled in the RWP produced 105,940.9 conservation offset units during the 2017 reporting period from 149,742 total acres. This acreage includes five new contracts signed up in 2017 (four permanent easements in the Mixed Grass and Shortgrass, and one 10-year term contract in the Mixed Grass). Additionally, across all the conservation sites there are 129,256 unimpacted acres (that credits and payments are based on) and 82.5% of these are located in CHAT 1. The 105,940.9 credits generated in 2017 far exceed the number of impacts needed to offset participants' impacts. WAFWA maintains a surplus of offset units in each region by appropriating all available funds in the conservation endowment and targeting conservation agreements in proportion to the distribution of industry impacts. The individual industry impacts in 2017 had a total annual impact of -1,186.5 habitat units, and cumulatively since the plan began these projects have netted a total impact of -61,961.5 habitat units. When the -61,961.5 impacts are subtracted from the 105,940.9 credits generated in 2017, the result is a credit surplus of 43,979.4 habitat units across the range. This surplus varies by region, ranging from a low of 11,594 in the shortgrass to a high of 77,322 extra credits in the mixed grass. Maintaining a constant and adequate surplus minimizes the risk of any industry delays.

Habitat units to offset industry impacts are generated through land management contracts, conservation easements, and reclamation of previously impacted habitat. The RWP tracks credits generated on enrolled conservation parcels through annual field assessments. The annual credits generated are summarized by ecoregion and CHAT in Table 38, and listed individually by property in Table 39.

Table 38. Conservation offset units generated each reporting period and cumulatively since the inception of the RWP. Data are reported for the primary CHAT category within which the site occurs.

		Credits				
Ecoregions	**CHAT**	**2014**	**2015**	**2016**	**2017**	**2014-2017**
Mixed Grass Prairie	CHAT1	4,542	24,469	34,892	50,955	114,858
	CHAT4	0	4,351	5,149	5,454	14,954
	Ecoregion Total:	4,542	28,820	40,042	56,409	129,813
Sand Sagebrush Prairie	CHAT1	0	8,488	8,385	32,805	49,679
	Ecoregion Total:	0	8,488	8,385	32,805	49,679
Shinnery Oak Prairie	CHAT1	288	10,060	7,649	8,881	26,877
	Ecoregion Total:	288	10,060	7,649	8,881	26,877
Shortgrass Prairie	CHAT1	147	511	2,654	6,085	9,397
	CHAT2	0	1,483	1,274	1,762	4,518
	Ecoregion Total:	147	1,994	3,928	7,847	13,916
Grand Total:		4,976	49,362	60,005	105,941	220,284

Table 39. Habitat unit credits earned by each enrolled property by year and as a cumulative total since they were enrolled.

	Credits				
Conservation Site	**2014**	**2015**	**2016**	**2017**	**2014-2017**
CZ003	0.0	8,557.3	5,903.9	7,028.2	21,489.4
CZ008	520.9	158.3	744.0	309.2	1,732.4
CZ013	151.7	205.0	298.0	350.6	1,005.2
CZ014	136.3	124.2	229.0	336.8	826.2
CZ016	0.0	8,488.3	8,385.4	8,607.4	25,481.1
CZ024	0.0	0.0	0.0	24,197.5	24,197.5
CZ026	0.0	1,173.1	1,218.3	1,165.1	3,556.5
CZ033	0.0	1,482.9	1,273.9	1,761.5	4,518.4
CZ035	146.7	510.9	677.0	948.6	2,283.2
CZ036	0.0	15,933.3	20,580.1	20,229.2	56,742.5
CZ037	0.0	4,351.1	5,149.4	5,453.8	14,954.3
CZ038	4,021.0	8,377.7	12,353.3	15,010.7	39,762.6
CZ040	0.0	0.0	485.1	554.2	1,039.3
CZ061	0.0	0.0	1,964.3	2,204.7	4,169.0
CZ062	0.0	0.0	13.2	80.6	93.7

CZ063	0.0	0.0	730.0	974.8	1,704.7
CZ065	0.0	0.0	0.0	1,091.1	1,091.1
CZ066	0.0	0.0	0.0	193.8	193.8
CZ067	0.0	0.0	0.0	12,592.1	12,592.1
CZ081	0.0	0.0	0.0	267.2	267.2
CZ082	0.0	0.0	0.0	1,065.8	1,065.8
CZ083	0.0	0.0	0.0	1,518.3	1,518.3
Grand Total:	**4,976.5**	**49,362.1**	**60,004.7**	**105,940.9**	**220,284.2**

HABITAT QUALITY AT IMPACT SITES VERSUS CONSERVATION SITES

A principal concept behind the RWP is that the habitat metrics and mitigation incentivize industry to avoid important habitat areas and minimize impacts to LPC habitat. Those metrics consider both the acreage, impacted and conserved and the habitat quality of those acres. In this report, we describe how companies are minimizing acreage impacts of new development by co-locating projects with pre-existing infrastructure. What about the habitat that is still impacted? Has industry been avoiding good habitat areas and concentrating development in poorer habitat areas? To answer these questions, we compared the habitat quality of sites impacted by new development throughout the history of the RWP (2014-2017) with the habitat quality at sites that were conserved, and confirmed that impacts were happening in poorer quality habitat.

This habitat quality of site comparisons uses the Habitat Evaluation Guide (HEG) score described in Appendix I of the RWP (Van Pelt, et al. 2013). This robust scoring system ranks LPC habitat quality on a scale from 0 to 1, where 1 is the highest quality. This system uses a simple set of criteria to identify LPC habitat including the percent bare ground, percent cover of seven preferred species of grasses and shrubs, percent cover of trees greater than three feet tall, and the percent suitable habitat within a one-mile radius of the evaluation site.

Of the 4,996 habitat evaluations conducted at proposed industry impacts sites (stages 5,6,7) across the EOR+10 for wells, tank batteries, wind turbines, and electrical lines, the mean HEG habitat quality score (including zeros) was 0.27 with a median of .17 (Table 40, Figure 12). If the 1,160 units that had a HEG score of zero are excluded, the new range-wide mean and median scores become 0.34 and 0.25 respectively. These impacts to low quality habitat are mitigated for and generate funds used to secure and improve moderate to high quality habitat on targeted private conservation properties.

Table 40. Habitat Evaluation Guide (HEG) scores relating habitat quality across all evaluation units associated with industry impact areas.

Industry Impact	Mixed Grass Prairie	Sand Sagebrush Prairie	Shinnery Oak Prairie	Shortgrass Prairie	EOR+10
Mean	0.33	0.16	0.13	0.19	0.27
Median	0.25	0.05	0.00	0.10	0.17
Min - Max	0.00 - 1.00	0.00 - 1.00	0.00 - 1.00	0.00 - 1.00	0.00 - 1.00
Variance	0.10	0.06	0.07	0.05	0.10
Number of sites	3,154	709	801	332	4,996

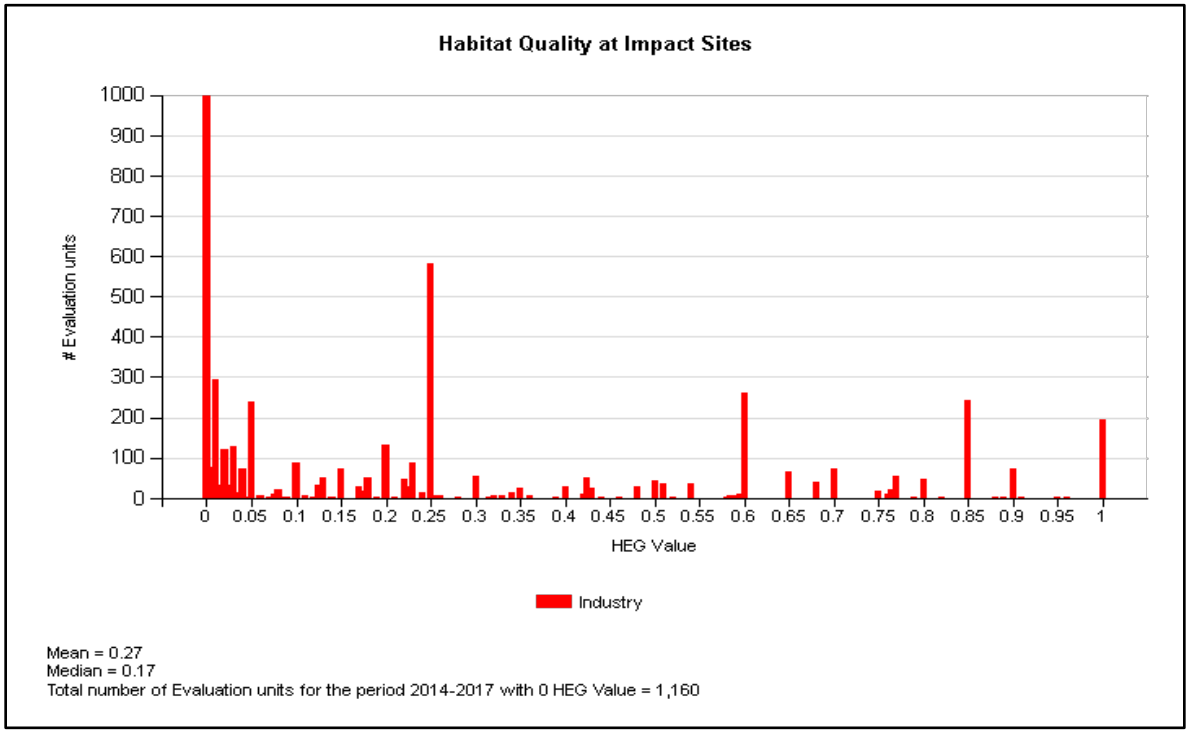

Figure 12. Habitat quality scores from evaluation units showing that most of the areas impacted were of lower quality habitat.

At the end of the 2017 reporting period, WAFAW had 22 conservation properties across the EOR+10 generating conservation offset credits. Vegetation transects done across the properties during the 2017 spring monitoring season showed these properties to have a mean habitat score of 0.66 and a median of 0.77 (Table 41, Figure 13). This difference between the quality of the habitat being impacted and the habitat being conserved is evidence industry is minimizing their impacts by selecting low quality sites to develop and the mitigation funds from those developments is being spent to maintain and improve high quality habitat.

Table 41. Habitat Evaluation Guide (HEG) scores from the 2016 monitoring season relating habitat quality across all evaluation units associated with conservation offset properties.

Conservation	Mixed Grass Prairie	Sand Sagebrush Prairie	Shinnery Oak Prairie	Shortgrass Prairie	EOR+10
Mean	0.73	0.66	0.57	0.54	0.66
Median	0.85	0.77	0.60	0.60	0.77
Min - Max	0.22 - 1.00	0.15 - 1.00	0.20 - 1.00	0.03 - 1.00	0.03 - 1.00
Variance	0.07	0.07	0.10	0.09	0.08
Count	89	98	22	43	252

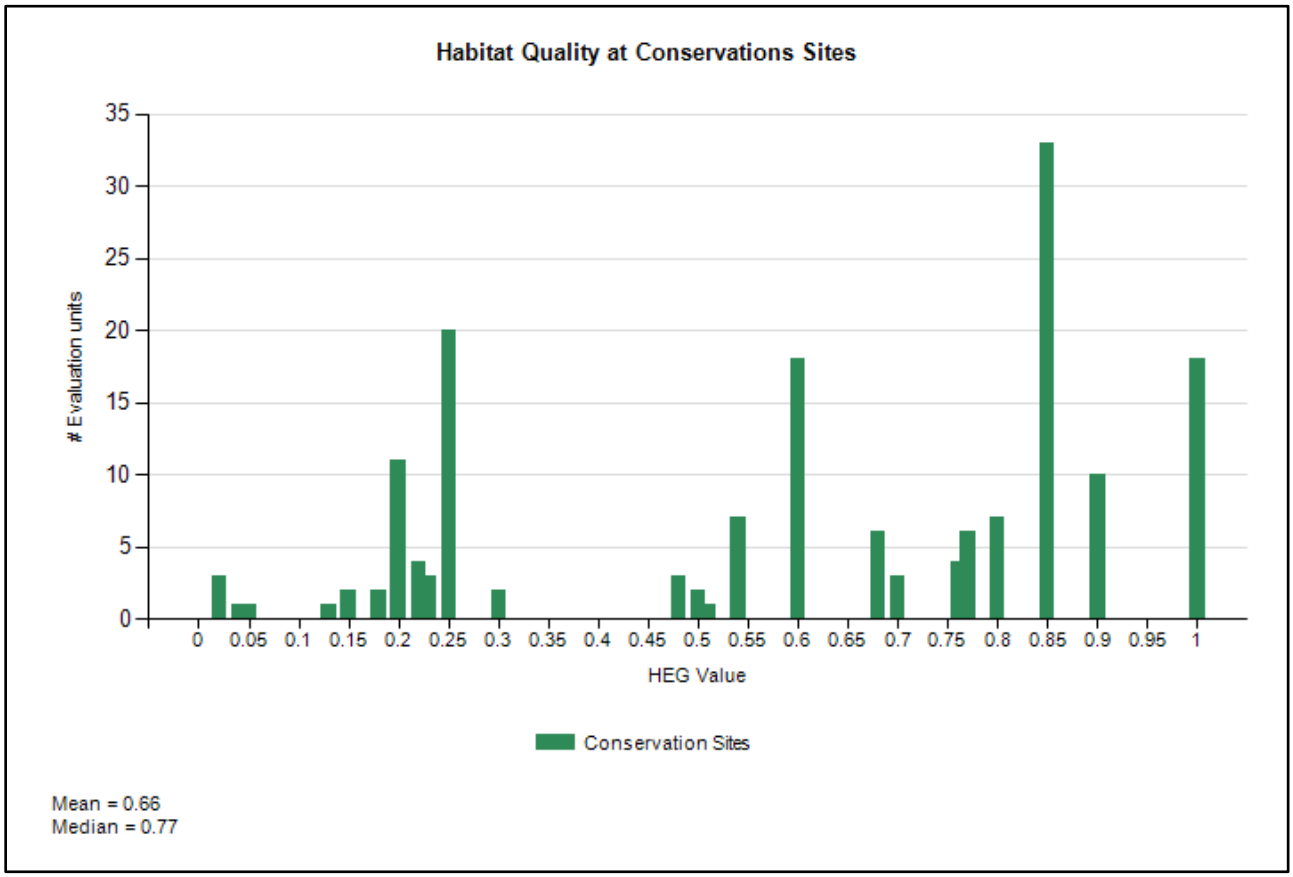

Figure 13. Habitat quality scores collected in 2016 from evaluation units in conservation properties showing that most of the areas conserved are of higher quality habitat.

Reducing a project's new impact footprint has a direct result on the mitigation fees associated with that project. The formula for calculating mitigation fees start with the habitat quality at the site multiplied by the new impact acreage, and then the CHAT category, 25-year term, and administration fees are factored in. Of these variables, the impact footprint is often the variable companies have the most control over.

After four years of implementation, a review of projects completed under the plan shows that the mean cost of all the projects (excluding wind farms and Transmission lines) varies by ecoregion from $2,277 in the Sand Sagebrush to $21,948 in the Mixed Grass for an EOR+10 mean of $13,836 (Table 42). A histogram plot of all the mitigation fees (except wind facilities and transmission lines) (Figure 14), indicates a distribution where most of the fees are relatively low, with 614 of the 1,352 projects (45%) of the projects less than $500. This trend of low mitigation fees is a reflection of companies avoiding good habitat and minimizing impact area.

Large projects such as transmission lines and wind farms have also been successfully mitigated in the RWP. Wind farms and transmission lines were excluded from the general project summary because they are of a frequency and scale that would distort the results. There has been a total of 10 transmission lines spanning 152 miles completed under the RWP. Once buffered, these lines ranged from 500 - 11,000 acres of potential impact that resulted in costs between $0 - $4.2 million (avg. = $656,000). The average fee of a transmission line (>69kV) was $43,092 per mile. The RWP has mitigated for wind farms in the past, but did not mitigate for any in 2017. Wind farms mitigated through the RWP have total project costs that averages out to $31,577 per turbine. Both facilities were

about 11,000 acres with around 60 turbines. The average fee for these wind facilities was about $1.2 million, yet individually the two facilities are quite different. One project had 2,426 habitat units of impact and cost over $3 million, and the other was sited largely in cropland with a total of only 380 habitat units impacted and had a final cost of less than $600,000. This difference in final impacts and mitigation costs for two windfarms of similar size in the same ecoregion show that project siting and configuration can have a huge impact.

Table 42. Summary statistics of the mitigation fees associated with all projects mitigated for within the Range Wide Plan since implementation (2014-2017). The Mean and Sum row exclude transmission and wind facilities, while the "All Sum" row includes all feature types.

	Mixed Grass Prairie	Sand Sagebrush Prairie	Shinnery Oak Prairie	Shortgrass Prairie	EOR+10
Mean	$21,948.00	$3,277.52	$3,988.59	$5,521.36	$13,836.75
Sum	$21,004,231.34	$688,279.18	$1,619,367.33	$1,026,972.81	$24,338,850.66
All Sum	$33,740,428.02	$3,681,894.20	$8,986,153.62	$1,043,798.35	$47,452,274.19

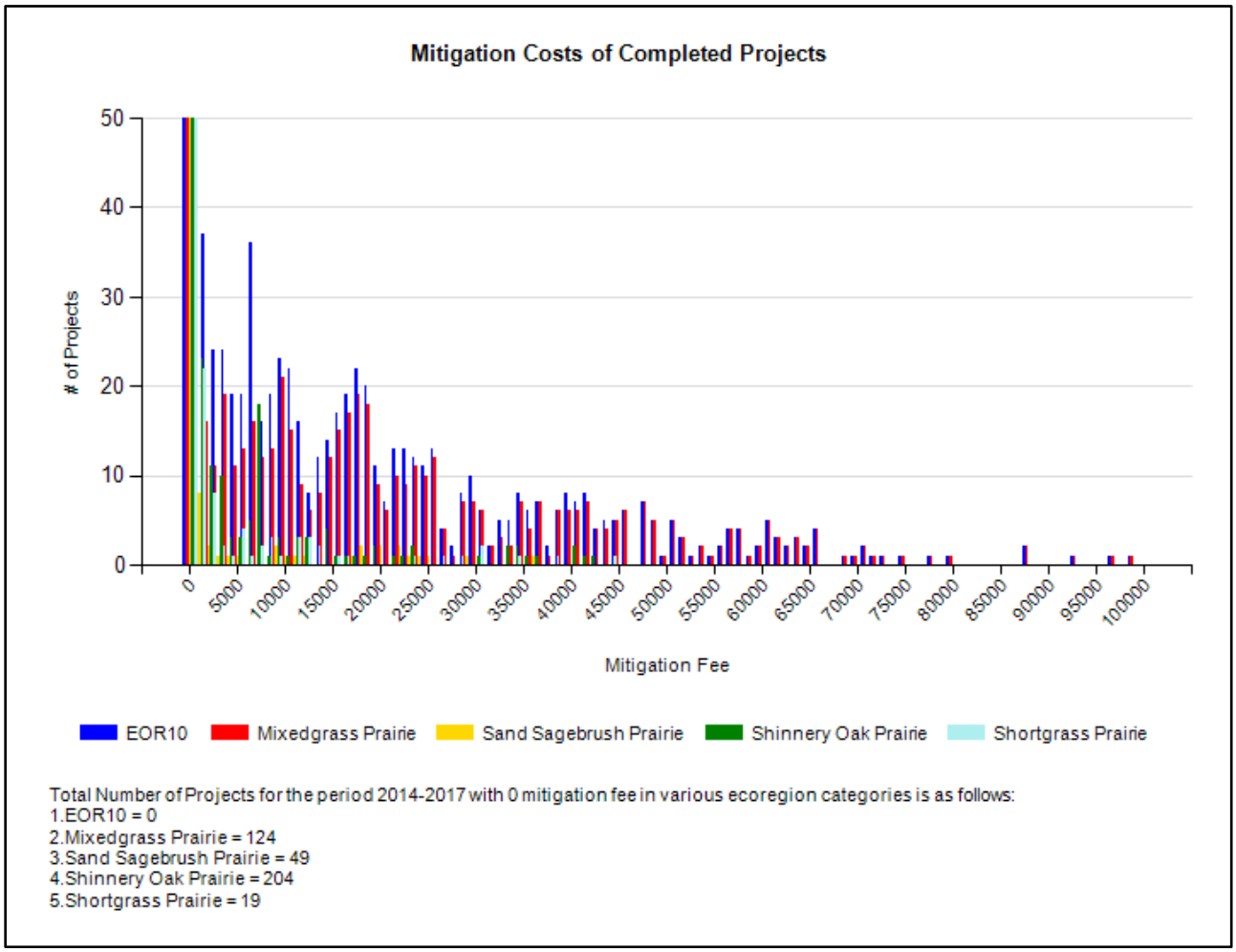

Figure 14. Distribution of mitigation fees for projects assessed within the Range-wide Plan (2014-2017), excluding wind power facilities and transmission lines.

Looking just at 2017 impact mitigation fees, a couple things can be seen. While there were fewer projects completed in 2017 compared to in 2014-2015 because of generally low oil prices, the development that did take place was done with minimal impact to LPC habitat. The mean mitigation cost across all ecoregions was $8,443 ranging from $0 - $183,000 (Table 43). The mean is skewed by of a couple large projects, so the median values may be more informative, and shows that two ecoregions had median impacts of $0.00 and the one other ecoregion and the entire EOR+10 had median mitigation costs of less than $1,000.00. Indicating that for the majority of projects done, there was very little new impact to LPC habitat.

Table 43. Summary of mitigation by ecoregion for 169 projects in 2017.

	Mixed Grass Prairie	Sand Sagebrush Prairie	Shinnery Oak Prairie	Shortgrass Prairie	EOR+10
Count	52	37	79	1	169
Mean	$23,518.24	$971.39	$2,127.49	$0.00	$8,443.56
Median	$10,781.97	$105.27	$0.00	$0.00	$105.27
Sum	$1,222,948.38	$35,941.57	$168,071.50	$0.00	$1,426,961.45

PROJECT LOGS AND LEDGERS

The tracking of information about a project, its status within the RWP workflow, and the balancing of impact/conservation habitat units is an important component of RWP reporting. In 2015, great effort was expended getting all the tracking information into a comprehensive relational SQL GIS geodatabase that had automatic daily updates of project information pulled from the GIS data. The new tracking log and ledgers are part of the geodatabase shared with the USFWS and key summaries are also available in the new web interface that RWP participants have access to. The web and mobile tablet interface tools (collectively referred to as the Western Conservation Toolkit - WCT) can be used to access project data and submit field data. The WCT was created to help provide several important improvements to implementing and accessing data in the Range Wide Plan (Figure 15).

- Secure online access to WAFWA, USFWS, and company participants to review their pending/completed projects and their enrollment area.
- Provide companies an interface to draft projects, review impact estimates and potential restrictions, submit proposals for field assessment, and approve final mitigation costs.
- Provide a mobile application for tablets (iOS and Android) to collect field data, transect coordinates and a photograph, then upload them all directly to the database.
- Provide an interface for companies to submit incident reports for emergency operations.
- Provide an online portal for access to the ArcSDE SQL geodatabase where authorized users can see projects logs, query for projects, and generate custom summary reports.

The web interface for the WCT provides secure, role based access to authorized data sets. Company representatives will only have access to information for the company they are connected to, while users from WAFWA and USFWS can access information for all companies, conservation enrollments, as well as access the summary logs, and the impact balance ledgers. Figure 16 shows an example of a page that lists and maps projects that are under review, but not yet finalized. The information displayed in the WCT web site is from a direct link to the relational ArcSDE SQL geodatabase, so it is always synchronized with displaying current data.

Projects are listed and mapped, with the list functioning as a link to specific project details. The RWP

requires WAFWA to always have enough conservation credits in a region to cover new impacts occurring in the region. To track the balance of conservation offset credits and impact debits, a series of ecoregion specific ledgers was created. Within each ecoregion ledger, conservation offsets from enrolled properties create a balance of available credits. As projects are mitigated for through WAFWA, the projects are associated with a specific conservation offset property and the impact units for that project are then deducted from that properties' available credits. If a mitigated project is cancelled or the well is a dry hole, then the company can receive financial credit for the site by repairing the impacts and the habitat units are credited back to the conservation site they were deducted from in the ledger. The ledgers, ledger summaries, and project log are created daily with a SQL script triggered to run at 5:00 am Central Time. By automating this process, we have removed the possibility of transcription errors and ensured each impact can be fully accounted moving forward.

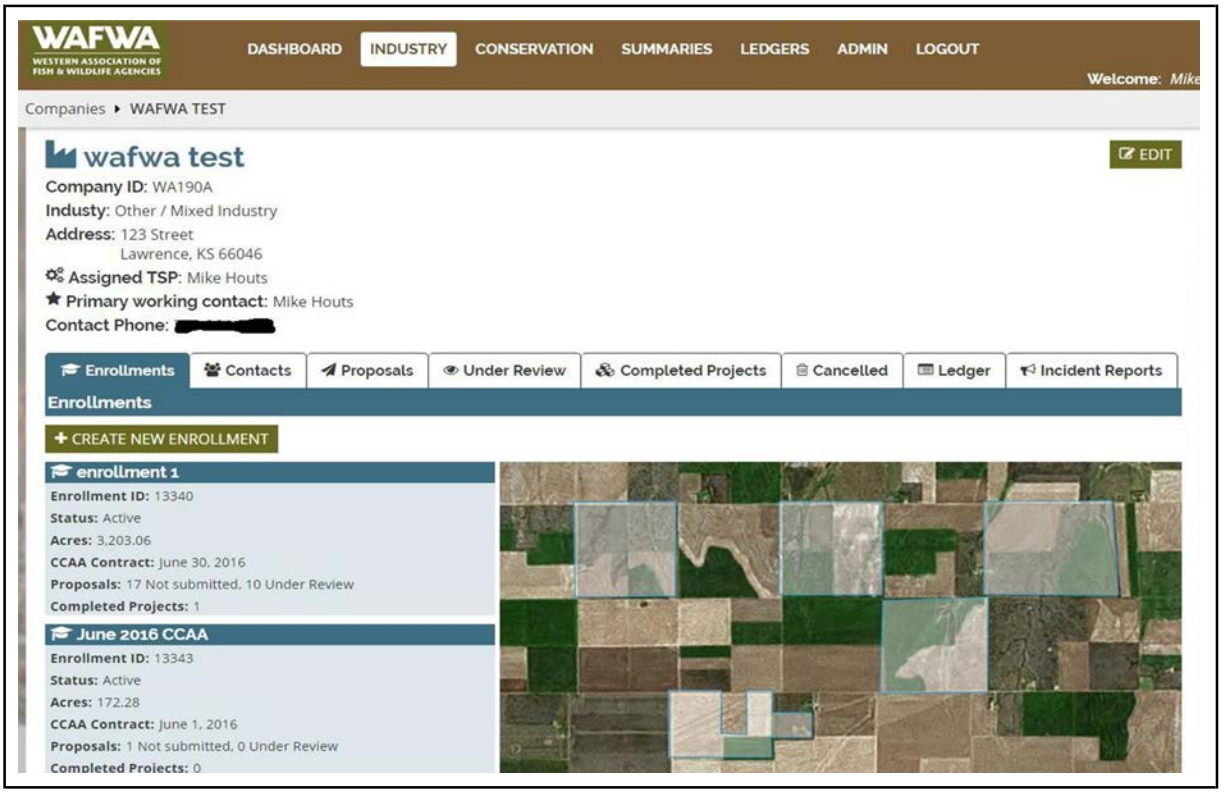

Figure 15. View of the WCT web interface showing enrollment parcels for a hypothetical "WAFWA Test" company. Tabs within the view provide access to unique sets of data and tools.

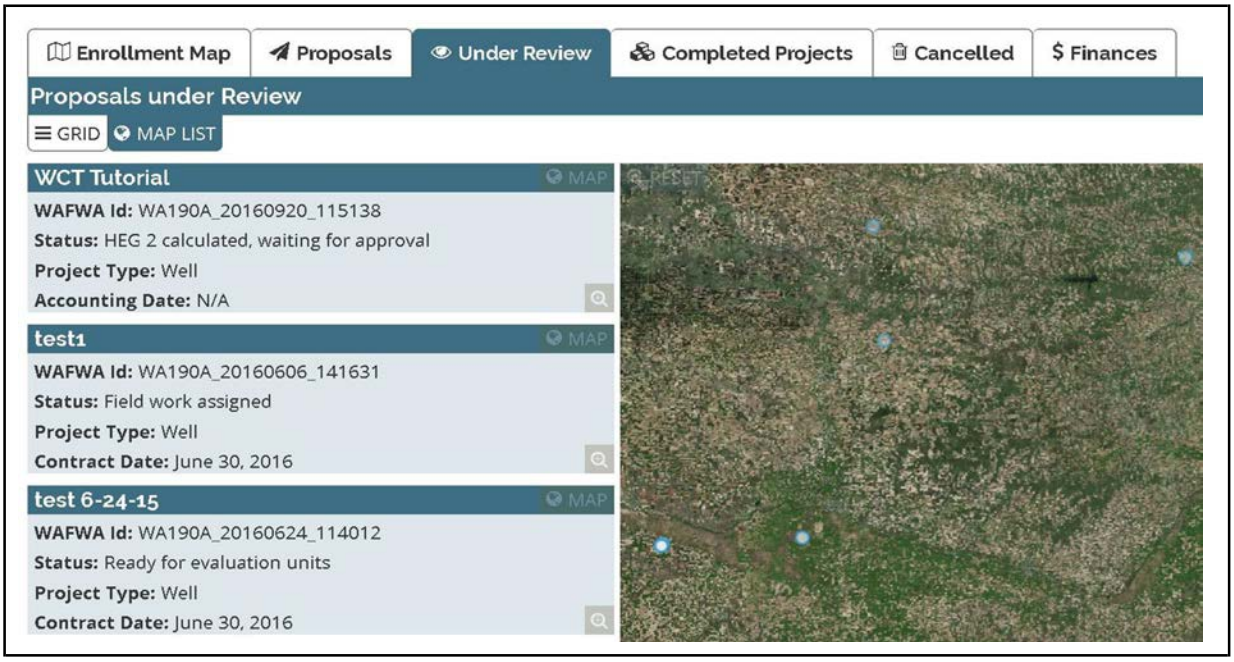

Figure 16. View of projects listed in "Under Review" tab for the hypothetical WAFWA Test company.

The line-by-line ecoregion ledgers that track every credit and debit, show which projects are associated with which conservation sites, and provide a running balance of that conservation sites available credit are available by ecoregion in the WCT app through the Ledger tab. A subset of this ledger is shown in Figure 17. Within the ledgers, the entry date references the date the action was taken, the WAFWA ID is the unique project identification code, project name is the name of the project and the ecoregion and CHAT columns identify where the project occurred. The Charge Type column identifies the type of action taken. Entries with a date range charge type (i.e. 2014- 2016) signify these impacts were made in 2014, and this is the latest annual re-application of that impact. A Final Impact entry indicates the debits of units for a new project. The other Charge Type visible in this subset is Conservation Credit, which indicates the addition of conservation credits added to a conservation offset property. The Conservation offset properties have WAFWA IDs that begin with CZ (for Conservation Zone) and then a unique number associated with each property. For each ledger transaction line, the debits or credits for that project are associated with a specific conservation property as indicated in the Offset Site column of the table. The last column in the table is the Site Balance, which is a running balance of that conservation site's available credits. The balances from these ledgers are also available as a summary report (Figure 18), or the credits, debits, and balances can be viewed per each individual conservation site (Figure 19).

Entry_Date	WAFWA_ID	ProjectName	Ecoregion	CHAT_Score	ChargeType	DebitUnits	CreditUnits	OffsetSite	SiteBalance
5/6/2017	SA157A_20150120_103054	Boyce 2816 4-20H	Mixedgrass Prairie	3	2015-2017 Impact	-32.59	0	CZ036	7195.21
5/7/2017	ME110A_20170619_104935	Auguston 3063H	Mixedgrass Prairie	4	2014-2017 Impact	-7.65	0	CZ037	12233.43
5/8/2017	CZ036	[redacted]	Mixedgrass Prairie	1	Conservation Credit	0	20229.18	CZ036	27424.39
5/8/2017	AP005A_20140505_000019	GOOD MILDRED 211 2H	Mixedgrass Prairie	3	2014-2017 Impact	0	0	CZ008	0.01
5/8/2017	AP005A_20140530_000116	Flying T-5 Ranch 210 1H	Mixedgrass Prairie	1	2014-2017 Impact	0	0	CZ008	0.01
5/9/2017	CH020A_20170906_132629	Morland 2716 4H-10	Mixedgrass Prairie	4	2015-2017 Impact	-0.48	0	CZ037	12232.95
5/9/2017	DU044A_20170420_090815	Roadrunner 3-34H	Mixedgrass Prairie	4	Final Impact	0	0	CZ037	12232.95
5/13/2017	ST166A_00001644_014020	Ries 3H-233	Mixedgrass Prairie	1	2014-2017 Impact	-41.6	0	CZ036	27382.79
5/14/2017	JO086A_20150415_142707	Bayless 25-3H	Mixedgrass Prairie	3	2015-2017 Impact	-8.11	0	CZ036	27374.68
5/14/2017	ME110A_20170619_110136	Isaacs 209 1HW	Mixedgrass Prairie	4	2014-2017 Impact	-11.16	0	CZ037	12221.79
5/14/2017	ME110A_20170623_074553	West Lake 18 19 KG #1HO	Mixedgrass Prairie	4	2014-2017 Impact	-9.05	0	CZ037	12212.74
5/15/2017	JO086A_20150327_154600	Davis Trust 28-4H	Mixedgrass Prairie	2	2015-2017 Impact	-16.29	0	CZ036	27358.39
5/15/2017	ME110A_20170623_093738	McLain 116 1HC	Mixedgrass Prairie	4	2014-2017 Impact	-2.76	0	CZ037	12209.98

Figure 17. Subset of the line-item ledger for the Mixed Grass Ecoregion where the habitat unit credits and

debits for each project and conservation site are tracked. For each impact, the region, CHAT category, impact units, and offset site associated with it are shown.

Region	Credits	Debits	Balance
Mixedgrass Prairie	129,812.69	-52,885.51	76,927.18
Sand Sagebrush Prairie	49,678.60	-2,310.02	47,368.58
Shinnery Oak Prairie	26,877.36	-4,940.77	21,936.59
Shortgrass Prairie	13,915.52	-2,359.60	11,555.92
Rangewide Summary	220,284.17	-62,495.90	157,788.27

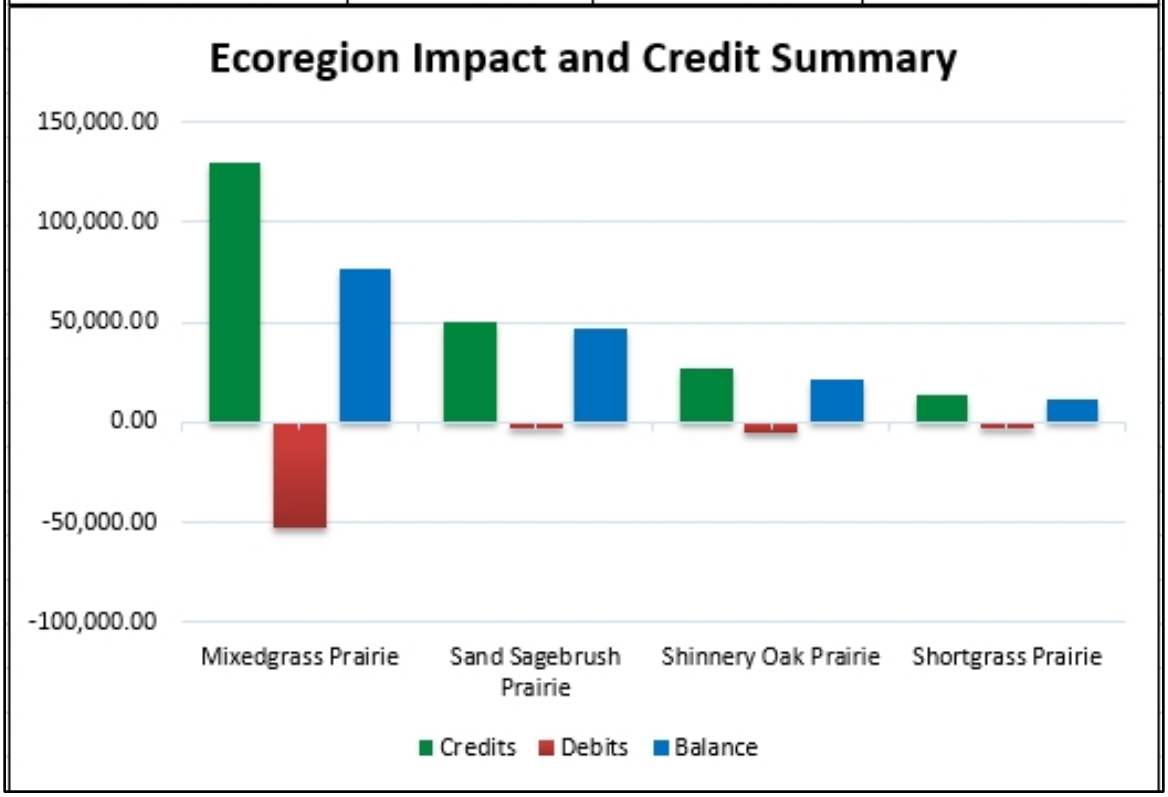

Figure 18. Summary of the total credits, debits, and balance of habitat units remaining in each ecoregion. The mixed grass region has had many more impact units debited, but all ecoregions maintain a positive balance of habitat units.

Ecoregion	Site ID	CHAT	2017 credits	Total Credits	Net Debits	Site Balance
Mixedgrass Prairie	CZ008	1	309.2	1,732.35	(1,423.14)	309.21
Mixedgrass Prairie	CZ036	1	20229.18	56,742.53	(40,157.07)	16,585.46
Mixedgrass Prairie	CZ037	4	5453.82	14,954.25	(3,898.51)	11,055.74
Mixedgrass Prairie	CZ038	1	15010.65	39,762.61	(7,021.06)	32,741.55
Mixedgrass Prairie	CZ040	1	554.15	1,039.25	(192.00)	847.25
Mixedgrass Prairie	CZ063	1	974.75	1,704.70	-	1,704.70
Mixedgrass Prairie	CZ065	1	1091.05	1,091.05	-	1,091.05
Mixedgrass Prairie	CZ066	1	193.84	193.84	(193.73)	0.11
Mixedgrass Prairie	CZ067	1	12592.11	12,592.11	-	12,592.11
Mixedgrass Prairie	Region Total	---	56408.75	129,812.69	(52,885.51)	76,927.18
Sand Sagebrush Prairie	CZ016	1	8607.44	25,481.12	(2,310.02)	23,171.10
Sand Sagebrush Prairie	CZ024	1	24197.48	24,197.48	-	24,197.48
Sand Sagebrush Prairie	Region Total	---	32804.92	49,678.60	(2,310.02)	47,368.58
Shinnery Oak Prairie	CZ003	1	7028.19	21,489.43	(3,109.37)	18,380.06
Shinnery Oak Prairie	CZ013	1	350.55	1,005.21	(1,005.19)	0.02
Shinnery Oak Prairie	CZ014	1	336.76	826.21	(826.21)	-
Shinnery Oak Prairie	CZ026	1	1165.07	3,556.51	-	3,556.51
Shinnery Oak Prairie	Region Total	---	8880.57	26,877.36	(4,940.77)	21,936.59
Shortgrass Prairie	CZ033	2	1761.54	4,518.39	(1,108.22)	3,410.17
Shortgrass Prairie	CZ035	1	948.62	2,283.16	(505.61)	1,777.55
Shortgrass Prairie	CZ061	1	2204.69	4,168.99	(658.13)	3,510.86
Shortgrass Prairie	CZ062	1	80.56	93.72	(87.64)	6.08
Shortgrass Prairie	CZ081	1	267.2	267.20	-	267.20
Shortgrass Prairie	CZ082	1	1065.81	1,065.81	-	1,065.81
Shortgrass Prairie	CZ083	1	1518.25	1,518.25	-	1,518.25
Shortgrass Prairie	Region Total	---	7846.67	13,915.52	(2,359.60)	11,555.92
Rangewide Summary	Region Total	---	105,940.91	220,284.17	(62,495.90)	157,788.27

Figure 19. Conservation properties in the RWP with details of the ecoregion and CHAT it is associated with, the credits generated in 2017, total credits it has generated, total impact debits being offset by the property and remaining credit balance of the property.

Within this summary table, the Conservation Site is the unique ID give to each property, the CHAT category represents the CHAT that the majority of the site is located in, Credits relates the total amount of offset units generated and available to be applied towards impacts, while Net Debits represent the total impact units debited against that site and the Balance column is the amount of remaining habitat credits for a given conservation site.

Another way to summarize the ledgers, are totaling the conservation credits and impact debits to the ecoregion and CHAT level, but not at the conservation property level. For this CHAT level summary, it should be remembered impacts from one CHAT level can be offset by credits in a higher-level CHAT, and create negatives in CHAT levels 2-4 that are accounted for by the surplus credit balance in CHAT 1. Figure 20 summarizes these credits and debits to the ecoregion level and shows that each ecoregion has a positive balance

Ecoregion	CHAT	Credits	Impact Debits	Current Balance
Range-wide Summary	CHAT 1	200,811.53	-21,640.25	179,171.28
	CHAT 2	4,518.39	-4,579.76	-61.37
	CHAT 3	0.00	-29,962.68	-29,962.68
	CHAT 4	14,954.25	-6,104.87	8,849.38
	Region Total	**220,284.17**	**-62,287.56**	**157,996.61**

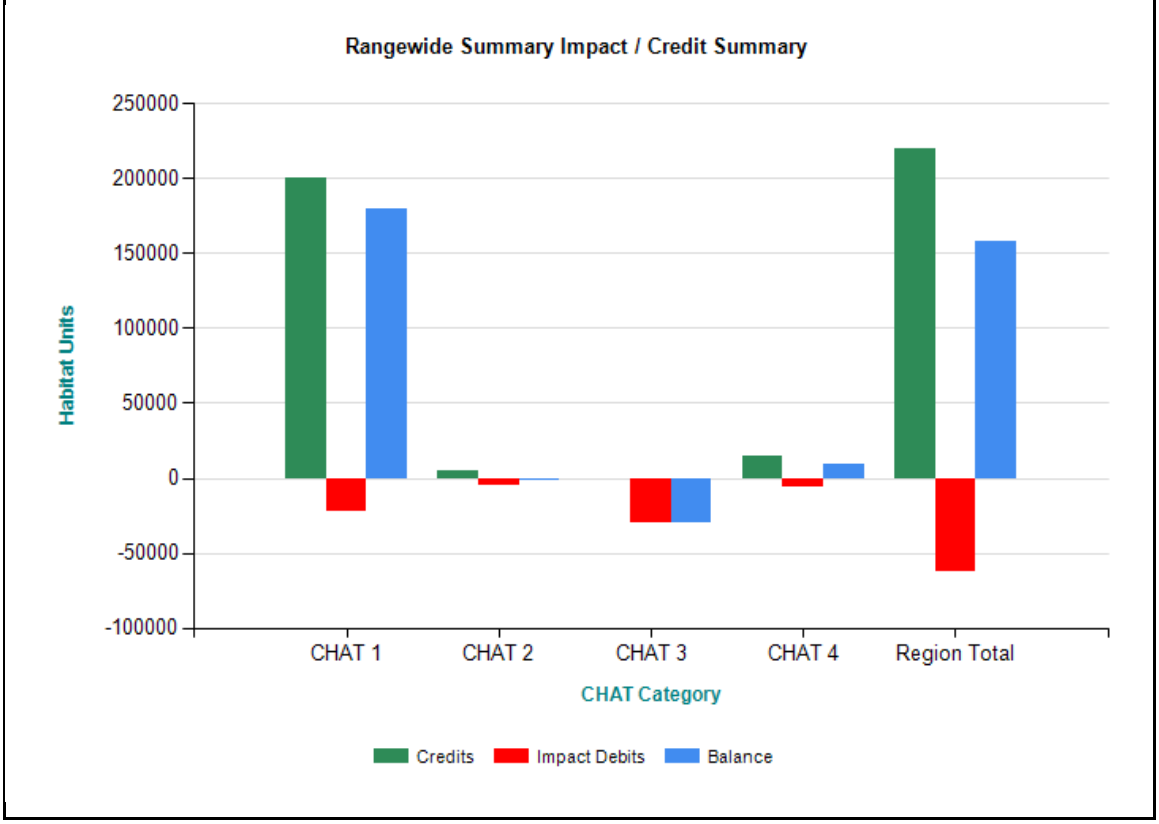

Figure 20. Ecoregion and CHAT level summary of credits and impact debits shows there is a large enough credit balance in CHAT1 to offset the negative balance in lower CHAT levels, resulting in positive ecoregion level balances throughout the range as of December 31, 2017.

REPORTING UNITS AND DEVELOPMENT LEVEL THRESHOLDS

Within the RWP, the maximum recommended development level within reporting units was established to define acceptable limits of development related impacts within focal area and connectivity zones. A development proportion threshold of 30% was established for focal areas, and a threshold of 60% was established for connectivity zones. These thresholds are defined as a percentage of the total reporting unit area that is covered by existing infrastructures impact buffers. This area of impact is calculated twice a year (July and January) and includes impact buffers around the latest download of vertical structure data, the latest IHS active well data, new RWP wells, tank batteries, and all known roads and electrical distribution/transmission lines as updated and represented within the SGP CHAT website. The totals of these impact buffers are then divided by the reporting unit area to identify the percentage of impact. For RWP participants, if a proposed project is within a reporting unit that is over the impact threshold, impact reclamations must be done to account for any new impacts of the proposed project (no net increase in impacted acres) before that project can be mitigated and constructed.

Each reporting unit has a unique ID number associated with it (Figures 21 and 22) so that they can be related back to tables conveying the percent of impact within each unit. Appendix F and G show the percentages of impact within each reporting unit in focal areas and the reporting units of connectivity zones respectively. The percentages of impact based on the January 2018 assessment are presented graphically in Figures 23 and 24 to help illustrate the areas that are either above, below, or approaching the threshold. There are currently eight focal areas reporting units over the 30% threshold, five in the sand sagebrush, two in the Mixed Grass, and one in the Shinnery Oak. The highest impacted focal area is calculated at 40.83% (unit 14 in the Mixed Grass) followed by one unit with 38.25% impact (unit 8 in the Shinnery Oak). Unit 14 is an anomaly in that it is only nine square miles after it was separated from its larger unit when the units were being delineated. Due to its small size, the primary road running through it and the existing wells, it has been over the 30% threshold since it was created. Focal Area unit 8 was 23% impacted last year, but a wind farm was constructed in and around that unit, increasing its impact proportion by 15%. There are six focal areas that are near the threshold, with between 25% and 30% impact where future development should be cautioned to avoid pushing these units over the threshold. There is one connectivity zone over the 60% threshold, with unit 106 in the Mixed Grass being 60.08% impacted. After this unit, the next highest impacted connectivity zone is 39.79% impacted.

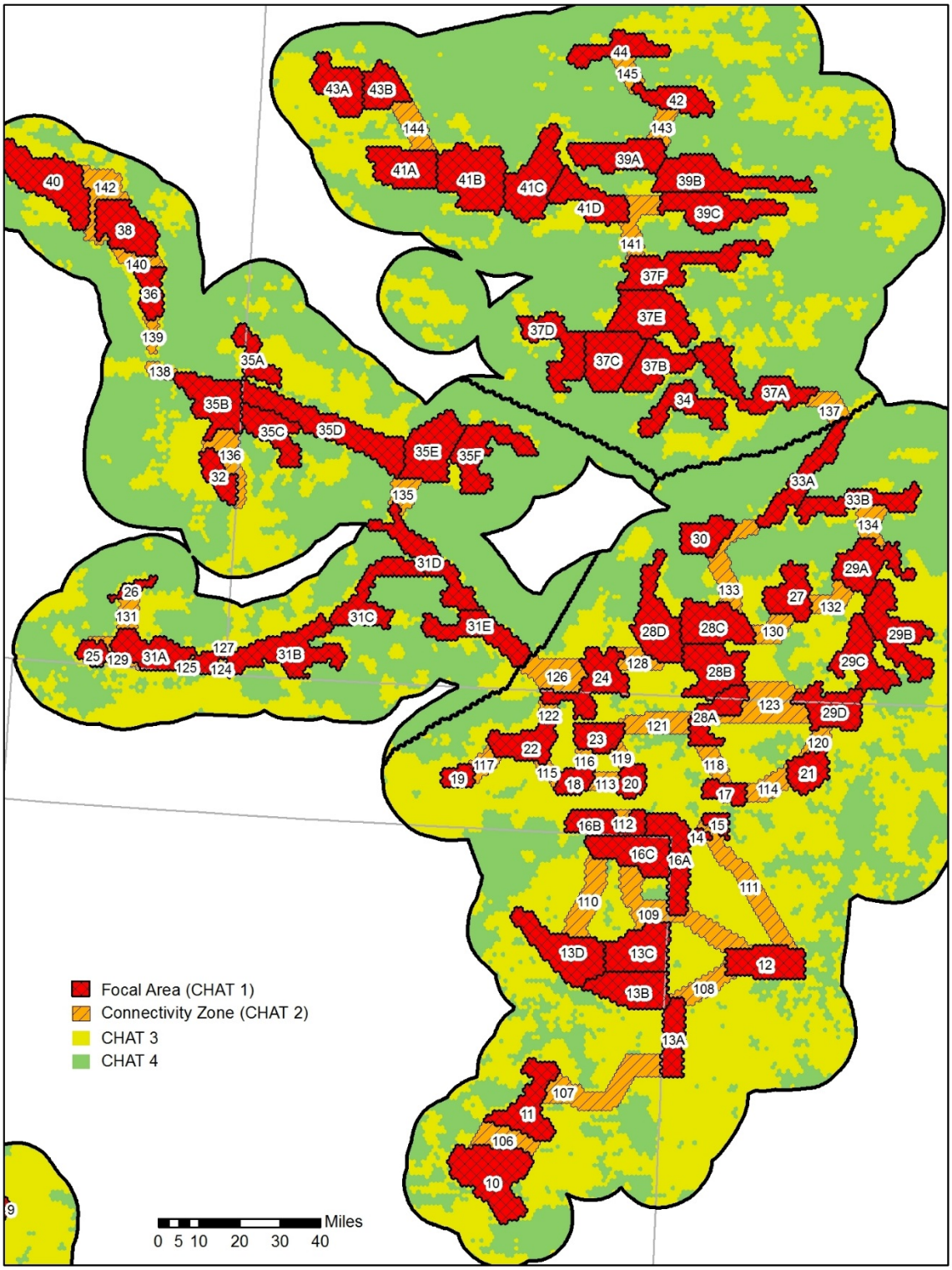

Figure 21. Reporting unit numbers for focal area and connectivity zones in the shortgrass, sand sagebrush, and mixed grass regions of the range.

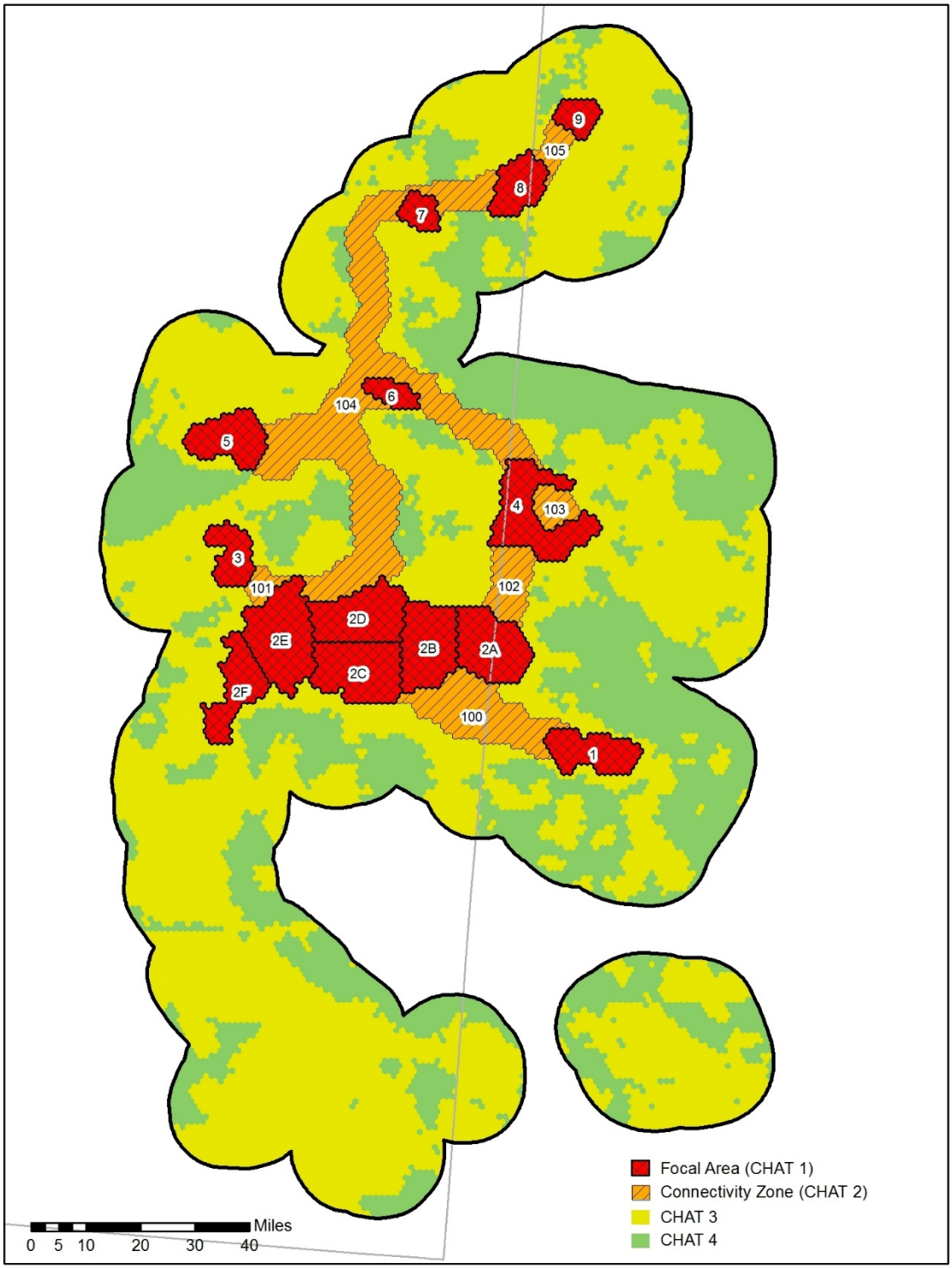

Figure 22. Reporting unit numbers for focal area and connectivity zones in the shinnery oak portion of the range.

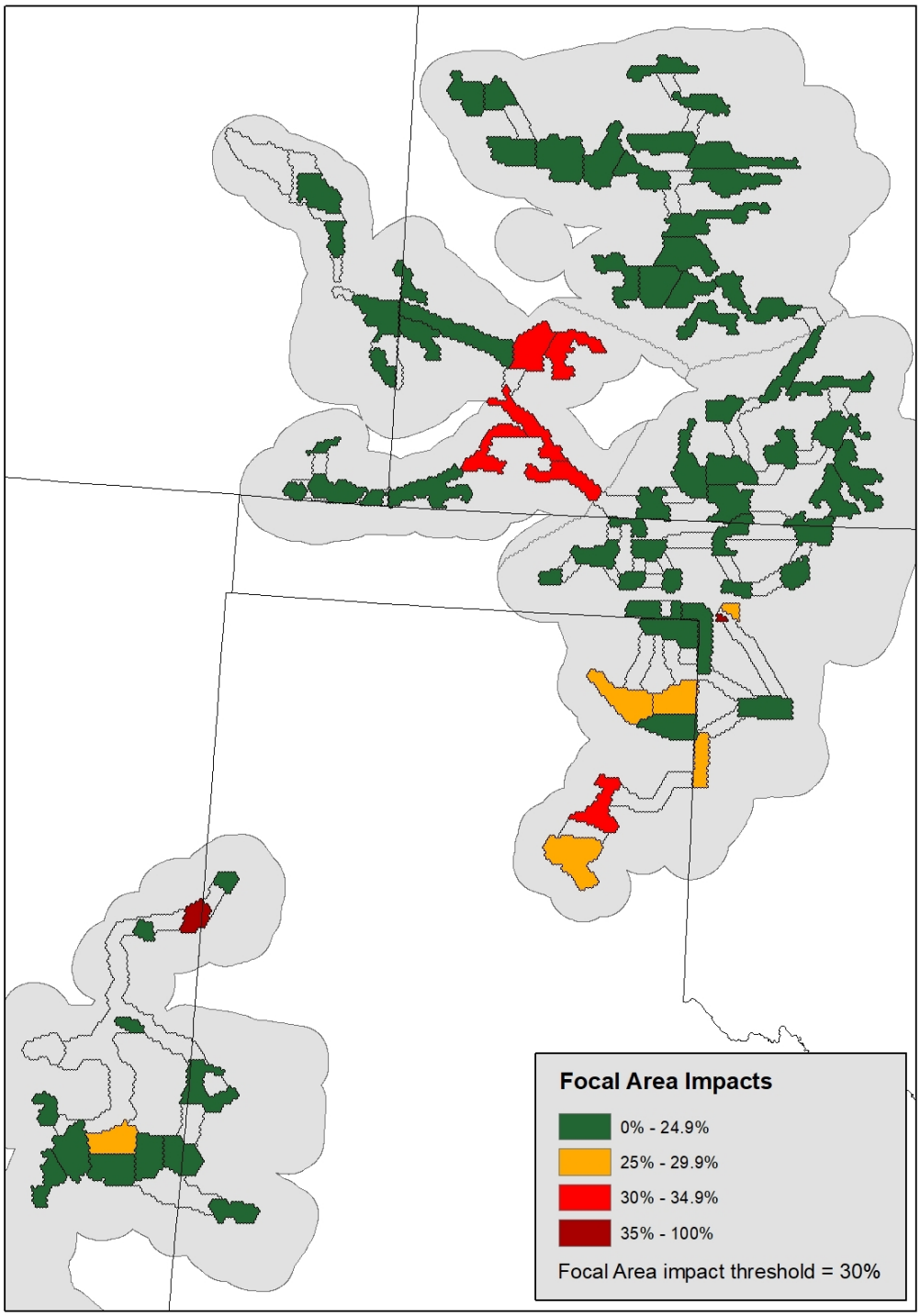

Figure 23. Focal area reporting units color coded to show the proportion of impact within each unit. Focal areas have a 30% threshold, after which remediation of existing impacts must occur before new impacts can be developed.

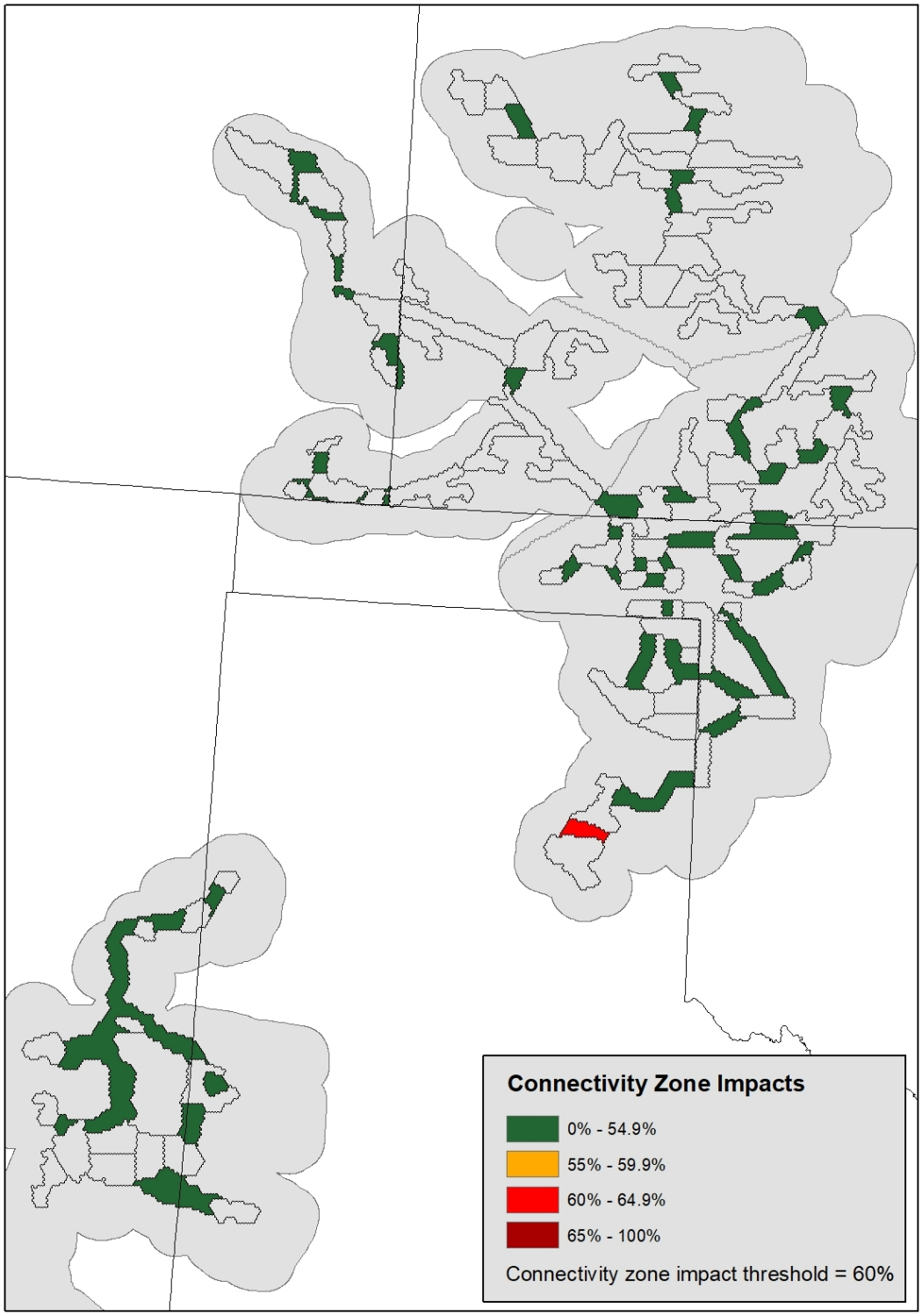

Figure 24. Connectivity zone reporting units color coded to show the proportion of impact within each unit. Connectivity zones have a 60% threshold, after which remediation of existing impacts.

TRACKING PROGRESS TOWARDS RWP CONSERVATION GOALS

The RWP establishes goals for four basic conservation components. They are:1) LPC breeding population size; 2) habitat restoration acreages; 3) habitat availability; and; 4) permanently conserved acreage. This section will outline the specific goals, the methodology that will be used to assess them,

and the frequency at which the goals will be evaluated by the various committees that administer the RWP.

POPULATION GOALS

A committee consisting of academics and the LPC interstate working group developed the RWP population goals for each ecoregion and range-wide (Figure 25). Those goals will be assessed in full after the 10th year of RWP implementation using the average estimated population size over the previous 10-year period. Moving averages better represent the number of birds that can be supported by existing habitat because they smooth variations that are associated solely with environmental conditions. If the 10-year population goals are not achieved the LPC Initiative Council could take corrective actions by making adaptive management changes. Action may include reallocation of conservation dollars, shifting of priority area locations, and adjustment of offset ratios.

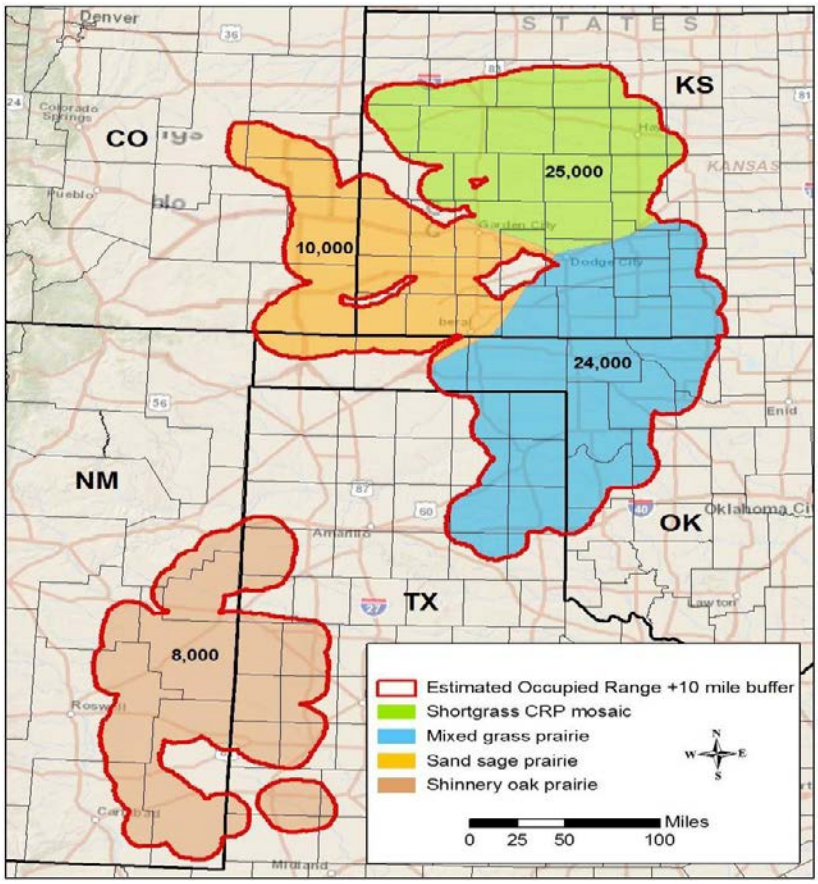

Figure 25. Lesser prairie-chicken population goals established by the WAFWA range-wide plan. The goals will be assessed using population estimates averaged over the previous 10-year period.

The adaptive management section of the RWP also calls for annual evaluations of population size starting after the 2016 breeding season survey. The annual evaluations will assess whether a 3- year moving average of the estimated population size is >50% of the goal at the ecoregion and range-wide scales. If the 3-year average population size falls below that level in any ecoregion, or range-wide, it will trigger a discussion with the WAFWA Science Sub-committee. The sub- committee will attempt to identify causes of the low population size and will have the opportunity to make recommendations for corrective actions that include such changes as reprioritization of conservation actions and adjustment of mitigation multipliers and ratios.

The LPC population estimates are derived from the annual range-wide aerial survey that was initiated by WAFWA in 2012 (McDonald et al. 2012). The survey utilizes helicopters flying two standard transects within 15 X 15 km grid cells distributed across the four WAFWA ecoregions. The same transects within 283 grid cells are now being surveyed annually during the LPC breeding season. The survey field methodology and analyses are described in detail in McDonald et al (2012, 2017). The data from the 2017 aerial survey produced an estimated range- wide population of 33,269 breeding birds which was up approximately 34% from the previous year (Table 44). This increase was statistically significant at the 80% confidence level.

Table 44. Lesser prairie-chicken breeding population estimates for 2017 and 3 and 10-year moving averages for each of WAFWA ecoregions and range-wide (McDonald et al. 2016).

Ecoregion	2017 Population Estimate (90% CIs)	Percent Annual Change	3-Yr Ave. Pop. Size (% of goal)	10-Yr Ave. Pop. Size (% of
Shinnery Oak	2,596 (1,430 – 6,112)	-18%	2,249 (28.1%)	3,335 (41.7%)
Sand Sagebrush	1,469 (692, 2,222)	+4%	1,282 (12.8%)	2,069 (20.7%)
Mixed Grass	7,778 (4,845 – 10,638)	+17%	8,232 (34.3%)	11,204 (46.7%)
Shortgrass	21,427 (12,633 – 30,804)	+55%[a]	17,872 (71.5%)	20,894 (83.6%)
Total	33,269 (23,619 – 44,325)	+34%[a]	29,635 (44.2%)	37,501 (56.0%)

[a] $P < 0.2$

At the ecoregion scale, the only statistically significant annual population change occurred in the Shortgrass Ecoregion where the population was estimated to have increased from 2016 (Table 44). Data from the 2017 aerial survey generally indicate that the population increased from the previous year but statistically significant changes were only observed for the Shortgrass Ecoregion and Range-wide. That increase was likely due to good production because of suitable habitat conditions during the previous summer.

Despite the general population increases, the 3-year and 10-year moving averages are still below the population goals in every ecoregion and range-wide (Figure 26, Table 45). The 3-year moving averages are <50% of the population goal for 3 of 4 ecoregions and range-wide. That fact will trigger a discussion with the Science Sub-committee at their next meeting. After that discussion, the sub-committee could make recommendations for corrective actions to the LPC Advisory Committee or they could choose to continue with status quo.

HABITAT RESTORATION GOALS

The RWP established long-term and annual reporting unit-specific acreage goals for cropland restoration and remediation of existing impacts [Van Pelt et al. 2013, (Appendices E-F)]. Those goals were intended to be assessed using the collective efforts of all the conservation agencies and organizations who are delivering those practices in LPC range. At the time the RWP was written, the long-term range-wide acreage goals for cropland restoration and remediation were 953,693 and 27,820, respectively. Those values represented the estimated minimum amount of restoration needed to achieve 70% and 40% suitable habitat in focal areas and connectivity zones, respectively.

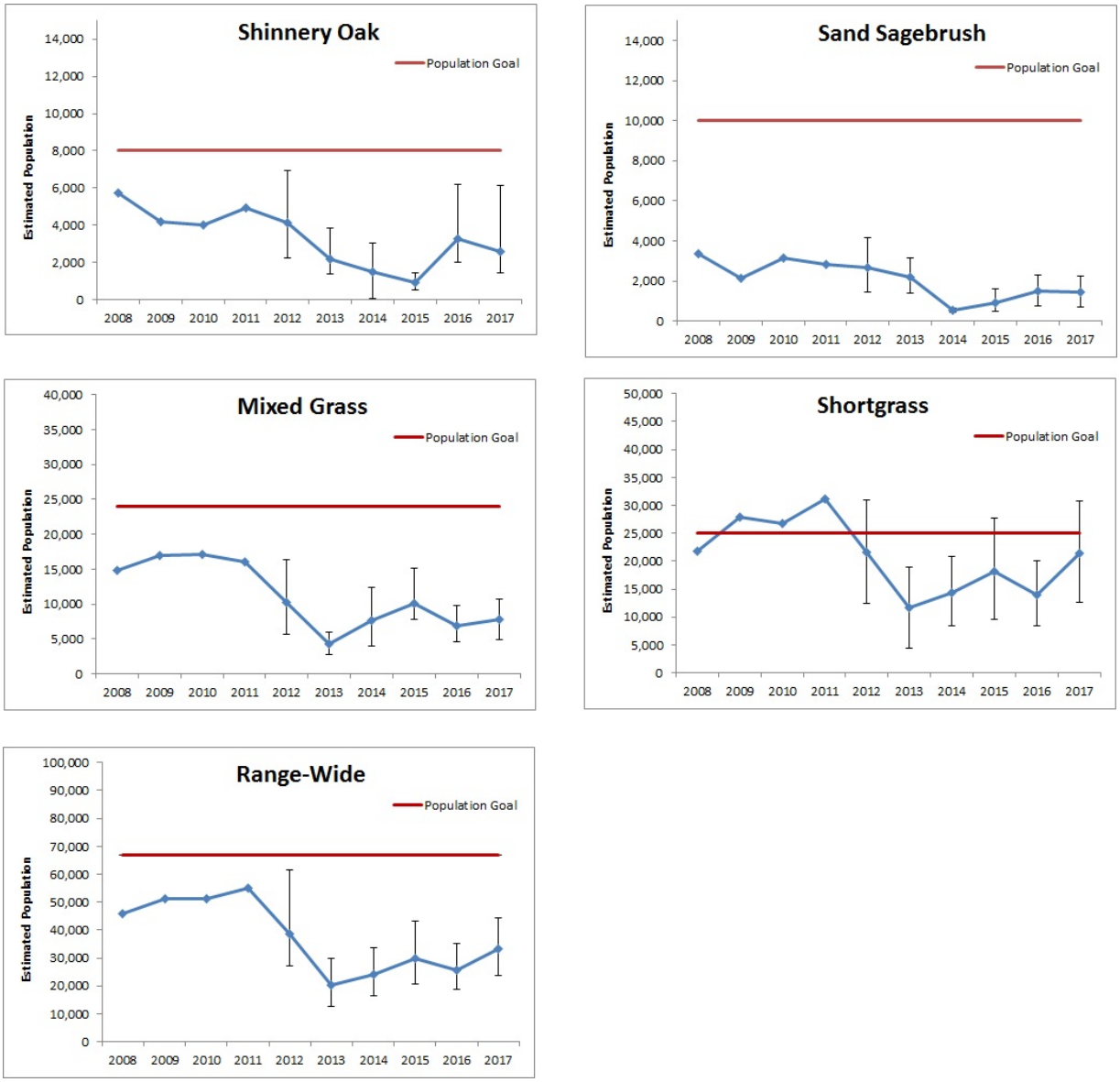

Figure 26. Lesser prairie-chicken population goals established in the RWP and 10-year trends for each ecoregion and range-wide (Garton 2012, McDonald et al. 2017). Confidence intervals (90%) are depicted around the population estimates that were derived from the aerial survey (2012-present).

Addressing tree encroachment into grasslands is also a major restoration need across a large portion of the LPC action area. However, the RWP did not specify acreage goals for brush management because there were no spatial data available at the time that could be used to accurately assess the extent of woody invasion. Data are now available to estimate the extent of the problem and target conservation efforts. Those products will be used to establish brush management goals during the 5-year review of the RWP.

WAFWA has facilitated the completion of 1,242 acres of range planting since inception of the RWP. Those data have not been available every year of RWP implementation from our partners so it is not possible to assess collective efforts over that entire time frame. Incomplete data continues to be a problem for this practice as WAFWA was not able to acquire range planting acreage from all of our conservation partners for this reporting period. The entities that did report acreage completed 1,484

acres of range planting in the LPC action area during 2017 (Table 45, Appendices E-F). However, this value does not include any range planting that occurred through the CRP which is the primary program facilitating the conversion of cropland to permanent grass cover.

WAFWA has also facilitated the completion of 15,338 acres of brush management since inception of the plan. Those data have not been available every year of RWP implementation from our partners so it is not possible to assess collective efforts over that entire time frame. However, during this reporting period, WAFWA and our partners collectively completed at least 48,029 acres of brush management in the LPC action area (Table 45, Appendices E-F).

Our WAFWA industry partners have also completed 2,008 acres of impact remediation since inception of the RWP. There were no remediation projects during 2017 by our RWP industry partners. However, the bulk of remediation activities occur outside the RWP and are difficult to quantify. In past annual reports, WAFWA has attempted to assess the amount of total remediation that occurred during the previous year using spatial data. It has been determined that there are too many inaccuracies associated with those data to reliably estimate annual remediation acreages. Thus, that was not attempted again this year. However, the current spatial data indicate that an estimated 18,120 impact acres will need to be removed for all the reporting units to fall below the impact threshold goals (Appendix G).

Assessing the annual and long-term habitat restoration goals in the RWP has proven to be difficult during the first few years of the program. This has been true because WAFWA has not been able acquire consistent annual data from all our conservation partners at the necessary scale. WAFWA is currently working closely with our conservation partners to develop a better reporting mechanism that makes it more convenient for them to annually submit data. It is hoped that the new reporting mechanism when fully implemented will make it easier for WAFWA to track collective progress towards the habitat restoration goals.

Habitat restoration goals provide meaningful targets for the conservation entities to pursue over 5-year intervals. However, it is important to remember that restoration work will never be complete as long as habitat degradation continues to occur. It will be important to re-establish habitat restoration goals at least every five years as long as that is the case. This will ensure that conservation dollars will continue to be targeted towards the highest priority current restoration needs. Achieving these habitat restoration goals would be a big step in the right direction but it cannot be forgotten that the net change in available LPC habitat is the real measure of progress.

HABITAT AVAILABILITY GOALS

The RWP established goals of 70% and 40% good to high quality LPC habitat for focal area and connectivity zone reporting units, respectively (Van Pelt et al. 2013). The adaptive management section of the RWP specifies that those goals will be assessed after the fifth year of implementation using results from an occupancy model. WAFWA has already helped to support development of an initial occupancy model in hopes of having the process more refined by the time of the 5-year assessment (McDonald et al. 2013). Shortly after the fifth year of implementation (2019), WAFWA will support the development of a new occupancy model with the most current spatial data. The result from that effort will be presented to the Science Sub-committee which will recommend new habitat restoration goals and any needed adaptive management changes to the WAFWA mitigation program. If the established occupancy goals have not been achieved or maintained, the LPCIC could adopt adaptive management changes such as shifting reporting unit boundaries, adjusting

mitigation multipliers, and reprioritizing WAFWA-delivery of conservation practices.

PROGRESS TOWARD PERMANENT CONSERVATION GOALS

The RWP establishes a goal of creating at least one stronghold within each WAFWA ecoregion by the end of the 10th year of RWP implementation (Van Pelt et al. 2013). The adaptive management section of the RWP dictates that progress towards the stronghold goals will be assessed after the 5th full year of implementation (2019). If the LPCIC deems that insufficient progress has been made at that point they can take corrective actions through the adaptive management process laid out in the RWP. Some of the changes that they might consider include an increase to the percentage of mitigation offset units going into permanent conservation and an increased mitigation offset ratio.

A landscape will only be considered as a stronghold if it meets all the criteria listed in the USFWS stronghold white paper (2012) as interpreted by WAFWA. A stronghold must be at least 25,000 acres in size but could be as much as 50,000 acres, if lower quality habitat is interspersed. A stronghold must also contain at least six LPC leks containing six males each, provide verifiable long-term development protection, provide for a full range of LPC habitat needs, and ensure long- term management certainty. The WAFWA permanent mitigation sites and all other qualifying acreages will be considered when assessing progress towards the stronghold goals listed in the RWP.

At the end of 2017, WAFWA had secured 37,616 qualifying acres across the LPC action area (Table 45). Those acres are distributed across the four ecoregions as follows: 1,554 in Shinnery Oak, 2,726 in Mixed Grass, 29,626 in Sand Sagebrush, and 3,710 in Shortgrass. There has also been 113,202 Non-WAFWA qualifying acres identified across the LPC action area. There are an additional 77,733 acres that are still being reviewed to determine if they satisfy the stronghold requirements development protection and management certainty. Those reviews will be completed during the next reporting period at which point WAFWA will coordinate with the LPCIWG to assess progress towards the stronghold goals. The results from that assessment will be conveyed in the next WAFWA annual report. The WAFWA ranch in the Sand Sagebrush should qualify as a LPC stronghold by itself because it appears to satisfy all the criteria. No other areas have been critically evaluated relative to the required criteria but it is likely that at least one additional stronghold already exists within the Shinnery Oak simply due to the large amount of qualifying acreage that has been identified within CHAT 1 (Table 45).

Table 45. Acreage summary of WAFWA permanent conservation agreements and other Non-WAFWA qualifying stronghold properties, 2017.

Ecoregion – Location	WAFWA Permanent Conservation Agreements	Non-WAFWA Qualifying Stronghold Acreage[a]	Total Qualifying Stronghold Acreage
Shinnery Oak			
CHAT 1	1,058	73,451	74,509
CHAT 2	391	1,427	1,818
CHAT 3	105	17,103	17,208
CHAT 4	0	0	0
Total	*1,554*	*91,981*	*93,535*
Mixed Grass			
CHAT 1	2,615	15,553	18,168

CHAT 2	0	0	0
CHAT 3	0	1,399	1,399
CHAT 4	110	71	181
Total	*2,726*	*17,023*	*19,748*
Sand Sagebrush			
CHAT 1	29,502	4,180	33,682
CHAT 2	0	0	0
CHAT 3	124	0	124
CHAT 4	0	0	0
Total	*29,626*	*4,180*	*33,806*
Shortgrass			
CHAT 1	3,710	18	3,710
CHAT 2	0	0	0
CHAT 3	0	0	0
CHAT 4	0	0	0
Total	*3,710*	*18*	*3,710*
Range-wide			
CHAT 1	36,885	93,201	130,068
CHAT 2	391	1,427	1,818
CHAT 3	229	18,502	18,731
CHAT 4	110	71	181
Grand Total	**37,616**	**113,202**	**150,799**

[a]These acreages are summed across sites that provide long-term protection from development and provide management certainty. The tracts meet the level of certainty required by the USFWS stronghold white paper (2012) as interpreted by WAFWA. There are 77,733 additional acres being evaluated so these values could still increase upon completion of that review.

In a letter to the USFWS Director dated March 31, 2015, WAFWA also expressed its intention to pursue two additional permanent conservation goals in addition to the 10-year stronghold goals. That letter committed WAFWA to offsetting 10% of the RWP industry impacts with permanent conservation within 90 days. The letter also stated WAFWA's intention to offset 25% of industry impacts in each ecoregion by the end of the 3rd full year of RWP implementation (March 31, 2017). WAFWA achieved the first goal satisfactorily on June 29, 2015 when it acquired 1,554 acres of permanent conservation in the Shinnery Oak Ecoregion in Texas. That property immediately generated 1,140 conservation offset units which was 10.2% of the 11,123 impact units that were in the mitigation ledger at that time. By the end of 2017, WAFWA had also achieved the majority of the 2nd goal established in the March 31, 2015 letter to the USFWS Director. At the range-wide scale, enough permanent conservation mitigation units were produced during 2017 to offset 159% of the annual impact units added to the ledger. Additionally, WAFWA produced enough permanent conservation mitigation units to offset >25% of the impacts in 3 of the 4 ecoregions including the Sand Sagebrush Ecoregion (3,570%), Shinnery Oak Ecoregion (73%), and Shortgrass Ecoregion (419%). The Mixed Grass Ecoregion is the only ecoregion from which there was not enough permanent conservation offset units generated during 2017 to mitigate >25% of the impacts in the mitigation ledger (13%). Acquiring additional permanent conservation in the Mixed Grass Ecoregion will be a high priority for WAFWA when our industry partners have additional need for mitigation offset units.

FINANCIAL SUMMARY

The Range Wide Business Plan utilizes a defined investment strategy that is expected to achieve or exceed the conservative investment earnings, projecting a 'real' rate of return over the long term of 4%. The investment asset allocation targets 50% Equities, 10% Alternatives/ Real Assets, and 40% Fixed Income. Two separate investment trusts are used to distribute enrollment and impact fees. When companies are invoiced, revenue is recognized by WAFWA. Upon receipt, fee revenues are split accordingly; 87.5% are allocated to a conservation trust for conservation offsets and 12.5% are deposited into an administration trust for operation related expenses, such as salaries, aerial surveys GIS support and other program needs. In addition to start-up costs associated with database development and field equipment, the downturn in the oil and gas industry resulted in annual fee revenues being far less than anticipated. Therefore, very little revenue has been available for ongoing administrative costs over the past couple of years. A proposal to adjust the administrative percentage was sent to and later approved by the fee structure sub-committee. The recommendation was then presented to the lesser prairie-chicken advisory committee who ultimately approved the recommendation and forwarded the proposal to the lesser prairie-chicken initiative council. These percentage allocations changed on January 1, 2018 to 83.5% for conservation and 16.5% going to administration. When permanent easements are purchased, individual endowments are established and individual investment strategies are defined and monitored to achieve conservation management perpetuity payments. WAFWA has an outside audit firm conduct a consolidated audit annually and posts three years of 990's on the WAFWA website.

The annual real rate of return is calculated by taking the rate of return and subtracting the inflation average rate. The rate represents the rate of return one would achieve if they were to sell the investments at this point in time. The conservation endowment average annual rate of return for the 12-month reporting period (January 1-December 31, 2017) was 12.84% and an average annual real rate of return of, 10.72%. The conservation endowment was implemented in February 2015 and since inception has yielded an average rate of return of 5.89%.

The TPWD Permanent Trust has a December 31, 2017 balance of $344,862 and current year return of 4.92% and a real rate of return of 2.8%. WAFWA Ranch's Trust was effective August 18, 2016. The partially funded account reflects a balance of $4,127,332; rate of return of 8.22% and a real rate of return of 6.10%. The expected 'real' rate of return over the long term is 4% and due to market conditions there will be years of upward and downward market trends. The investment assets are closely monitored and investment adjustment decisions are made to take advantage of up market years and limit negative impacts during down market years.

Since the inception of the RWP, WAFWA has invoiced $66.1 million in enrollment and impact fees and collected $64.3 million of which 87.5% or $56.2 million is restricted for conservation efforts. As of December 31, 2017, and not included in the $64.3 million, $589,369 are in account receivables and $1.2 million has been written off to bad debt.

During the current enrollment period, conservation income has resulted in $1.2 million of enrollment and impact fees. (Table 46) Landowner contracts, permanent easements, land purchase and associated costs, outstanding account receivables and investment gain/loss make up the conservation related expenses. These expenses total $7.3 million for the reporting period and $30.7 million since inception of the RWP. A net position of approximately $30.5 million is restricted for future conservation endeavors. During this reporting period, WAFWA added two new 10-year landowner contracts on 12,898 acres within the Mixed Grass Ecoregion. There was also a partial termination of one existing

contract in the Mixed Grass Ecoregion during 2017 that removed 1,262 acres from the program due to the landowner's inability to implement the grazing plan as prescribed on those acres. Also during this reporting period, WAFWA purchased one permanent easement in the Mixed Grass Ecoregion consisting of 968 acres and three permanent easements on 3,682 acres in the Shortgrass Ecoregion.

Table 46. Conservation Trust Account Activity

	Current Reporting Period	Since Inception	
	01/01/2017 - 12/31/2017	03/1/2014 - 12/31/2016	TOTAL
Enrollment Fees	$ 423,002	$ 42,296,340	$ 42,719,342
Impact Fees	$ 732,719	$ 14,347,635	$ 15,080,354
Investment Income / Loss	$ 1,272,853	$ 2,094,613	$ 3,367,466
Total Revenue	$ 2,428,575	$ 58,738,588	$ 61,167,163
Landowner Short-Term Contracts	$ 2,217,296	$ 3,673,634	$ 5,890,931
Permanent Easements	$ 501,383	$ 169,344	$ 670,726
Land purchase costs, Account Receivables and Investment Gain/Loss	$ 4,559,083	$ 19,539,109	$ 24,098,191
Total Deductions	$ 7,277,762	$ 3,382,086	$ 30,659,848
Net Position			$ 30,507,315

The purchase of the two additional landowner contracts brings the total number of term contracts to fifteen. These two new contracts are located within the Mixed Grass Ecoregion. In addition to the term contracts, each representing ten-year terms, WAFWA 's permanent conservation properties total seven, including an easement in Texas in the Shinnery Oak, easements in Kansas in the Mixed Grass and Shortgrass and WAFWA's Ranch in Kansas in the Sand Sagebrush Ecoregion. The landowner contracts and permanent easement reflect conservation efforts within the four designated LPC ecoregions. (Table 47) Average annual habitat replacement costs per acre are utilized in calculating the mitigation fees charged to industry and in the payments to secure offset habitats. The calculation is based on total expenditures to landowners in the current reporting period including the actual cost of acquiring permanent conservation and spread over twenty-five years, even though the actual payment to the landowner is made during year one. This is done to align with the way the industry fees are calculated and therefore a more stabilized value of what is paid to landowners for offsets in comparison to what is charged to industry for impacts. Even though some of the payments for offsets are higher than what is currently charged to industry, as WAFWA acquires more permanent conservation, you will see the future cost of the landowner offsets decrease.

Table 47. Mitigation per unit cost by ecoregion 1/1-12/31, 2017

	Industry Impacts	Landowner / Offsets
Mixed Grass	48.47	25.00
Shortgrass	29.56	12.95
Shinnery Oak	32.12	66.84
Sand Sagebrush	19.69	3.92

There are four distinctive ecoregions in the Lesser Prairie-Chicken range that include Mixed grass,

Shortgrass, Shinnery oak and Sand Sagebrush. The decision regarding ecoregion fund allocation is based upon current conservation habitats that are experiencing impacts. When contracts and permanent easements are acquired, payments are issued for a onetime incentive payment; an annual rangeland management payment each October; and if applicable, habitat restoration upon completion. The incentive and rangeland management payments within term contracts and permanent easements reflect $2.2 million in fee revenues (Table 48 and 49) that were used for conservation offsets during this reporting period and $6.6 million since the plan's inception (Table 50).

Table 48. Term Contract Payments by Ecoregion: 1/1/2017 - 12/31/2017

	Mixed Grass	Shortgrass	Shinnery Oak	Sand Sagebrush	TOTAL
Incentive Payments	$ 60,839	$ -	$ -	$ -	$ 60,839
Rangeland Management Plan	$ 1,309,999	$ 80,319	$ 91,429	$ 125,016	$1,606,763
Habitat Restoration Payments	$ 34,895	$ 12,746	$ 502,054	$ -	$ 549,695
TOTAL	$ 1,405,733	$ 93,064	$ 593,483	$ 125,016	$2,217,296

Table 49. Permanent Easement Payments by Ecoregion: 1/1/2017 - 12/31/2017

	Mixed Grass	Shortgrass	Shinnery Oak	Sand Sagebrush	TOTAL
Incentive Payments	$ 13,611	$ 14,518	$ -	$ -	$ 28,129
Rangeland Management Plan	$ 66,530	$ 44,603	$ 10,655	$ 351,466	$ 473,254
Habitat Restoration Payments	$ -	$ -	$ -	$ -	$ -
TOTAL	$ 80,141	$ 59,120	$ 10,655	$ 351,466	$ 501,383

Current ecoregion impacts (Table 48) reflect $6.6 million in fee revenues that were used for conservation offsets for both landowner contracts and permanent conservation since the inception of the RWP in 2014. Table 48 summarizes the percentage of dollars spent in each payment category, by ecoregion, to the total dollars within that payment category. For instance, of the $596,375 of landowner incentive payments issued, 47% of the funds were allocated to the Mixed Grass Ecoregion whereas 9% of the funds were allocated to the Shortgrass Ecoregion. Overall, 28% of the total $6.6 million in payments are going toward habitat restoration.

Table 50. Contract and Permanent Easement payments by Ecoregion and % to total since plan inception

	Mixed Grass	% to Total	**Shortgrass**	% to Total	**Shinnery Oak**	% to Total	**Sand Sagebrush**	% to Total	**TOTAL**
Landowner Incentive Payments **includes contract and permanent*	$ 279,393	47%	$51,620	9%	$66,640	11%	$198,723	33%	**$596,375**
Landowner Contract Restoration Payments	$ 408,204	23%	$12,746	1%	$1,374,490	77%	$ -	0%	**$1,795,439**
Landowner Management Plan/Maint Payments	$ 2,896,086	79%	$172,581	5%	$246,716	7%	$366,442	10%	**$3,681,824**
Landowner Permanent Maint Exp	$ 66,530	14%	$44,603	9%	$29,289	6%	$351,466	71%	**$491,888**
Landowner Long Term Restoration Exp	$ -	0%	$ -	0%	$15,646	0%	$ -	0%	**$15,646**
TOTAL CONSERVATION EXPENSES	**$ 3,650,213**		**$281,549**		**$1,732,781**		**$916,631**		**$6,581,173**

RESPONSIBLE PARTIES FOR RWP ADMINISTRATION

WAFWA was founded in 1922. It currently consists of 23-member states and provinces that have primary responsibility and authority for protecting and managing fish and wildlife in the western United States and Canada. The 19-member states encompass over 2.5 million square miles. The chief executive officer of each fish and wildlife agency is on the Board of Directors of three non- profit business entities, the Western Association of Fish and Wildlife Agencies, its fund-raising arm, the Foundation for Western Fish and Wildlife (FWFW) and the Species Restoration Foundation (SRF).

The WAFWA Board of Directors established the LPCIC in October 2013 when the RWP was endorsed by the USFWS. The directors of the state fish and wildlife agencies within the LPC range are members of WAFWA, FWFW, and SRF Boards of Directors and comprise the LPCIC, along with a member of the Executive Committee, appointed by the President, and representing an agency with extensive experience with ESA issues as it pertains to private lands. This relationship ensures decision-making roles regarding how and where funds are spent for the state agencies, as well as coordination with other WAFWA/SRF conservation efforts. The LPCIC annually reports RWP decisions.

The LPCIC established a Lesser Prairie-Chicken Advisory Committee (LPCAC) and associated working groups and maintained the Interstate Working Group (IWG). The LPCAC and IWG are strictly advisory in nature and provide recommendations to the LPCIC for final approval through the

adaptive management process. The intent of these groups is to support the RWP, promote effective communication between the parties, resolve disputes, revise cost structures, and make adaptive management recommendations. The LPCAC is supported by: (1) Fee Structure Sub-committee and (2) Science Sub-committee.

COMMITTEE COMPOSITION & RESPONSIBILITIES

Committee composition and responsibilities are included in previous annual reports. Please refer to those reports for further details on RWP related committees.

COMMITTEE MEETINGS

The reporting period for committee activities for this report is January 1, 2017 through December 31, 2017. Appendix H provides additional information about committee and sub-committee meetings.

During the reporting period, the LPC Program Manager, with assistance of WAFWA LPC program staff, coordinated conference calls and in-person meetings of the various committees and sub-committees described in the RWP.

Interstate Working Group

During the reporting period the interstate working group conducted two conference calls and had one in-person meeting in conjunction with the WAFWA Annual Meeting. The IWG provided input on the guidelines for stronghold development, discussed historical range issues, started work on the 5-year review and provided data relative to properties in their respective states that may be considered for stronghold inclusion. They also provided feedback on aerial survey protocol adjustment.

Advisory Committee

The Advisory Committee met three times during this reporting period via conference call. The LPCAC also held one face-to-face meeting in Edmond, Oklahoma. Appendix H is the report from the LPCAC for 2017.

Fee Structure Sub-Committee

During the reporting year Fee Structure Sub-Committee met three times via conference call. There was also a vote conducted by email relative to the administrative fee percentage change.

Science Sub-Committee

The Science Sub-Committee met two times via conference call.

STAFFING

There were no staffing changes during 2017. Staffing details are outlined in previous annual reports. Please refer to those reports for more detail on staffing related to the RWP.

RESEARCH PRIORITIES

The RWP identifies the LPC Sub-Committee as the entity to identify potential research needs and monitor for new and emerging science.

Current Research Projects:

Lesser Prairie-Chicken Initiative, Lesser Prairie-Chicken and Grassland Response to Intensive Wildfire in the Mixed-Grass Prairie

Assessment of Lesser Prairie-Chicken Response to Translocation.

Response of Lesser Prairie-Chickens to Patch Burn Grazing in the Red Hills, Kansas.

Use of Grazing Management and Prescribed Fire for Conservation of Lesser Prairie-Chickens

Population Biology and Landscape Ecology of the Lesser Prairie-Chicken

Recently Published Research:

Haukos, D.A., and C.W. Boal (editors). 2016. Ecology and Conservation of Lesser Prairie-Chickens. Studies in Avian Biology, No. 48, CRC Press, Boca Raton, FL. 371 pp.

Haukos, D.A., and J.C. Zavaleta. 2016. Habitat. Pages 99-132 in D.A. Haukos, and C.W. Boal (editors). Ecology and Conservation of Lesser Prairie-Chickens. Studies in Avian Biology (no. 48), CRC Press, Boca Raton, FL.

Haukos, D.A., J.C. Pitman, G.M. Beauprez, and D.D Schoeling. 2016. Harvest. Pages 133-158 in D.A. Haukos, and C.W. Boal (editors). Studies in Avian Biology (no. 48), CRC Press, Boca Raton, FL.

Haukos, D.A., A. Flanders, C.A. Hagen, and J.C. Pitman. 2016. Lesser Prairie-Chickens of the Sand Sagebrush Prairie. Pages 281-298 in D.A. Haukos, and C.W. Boal (editors). Ecology and Conservation of Lesser Prairie-Chickens. Studies in Avian Biology (no. 48), CRC Press, Boca Raton, FL.

Boal, C.W., and Haukos, D.A. 2016. The Lesser Prairie-Chicken: a brief introduction to the grouse of the Southern Great Plains. Pages 1-12 in D.A. Haukos, and C.W. Boal (editors). Ecology and Conservation of Lesser Prairie-Chickens. Studies in Avian Biology (no. 48), CRC Press, Boca Raton, FL.

Boggie, M.A., Strong, C.R., Lusk, D., Carleton, S.A., Gould, W.R., Howard, R.L., Nichols, C., Falkowski, M., Hagen, C.A., 2016. Impacts of Mesquite Distribution on Seasonal Space Use of Lesser Prairie-Chickens. Rangeland Ecology & Management 70(1).

Grisham, B.A., J.C. Zavaleta, A.C. Behney, P.K. Borsdorf, D.R. Lucia, C.W. Boal, and D.A. Haukos. 2016. Ecology and Conservation of Lesser Prairie-Chickens in Sand Shinnery Oak Prairies. Pages 315-344 in D.A. Haukos, and C.W. Boal (editors). Ecology and Conservation of Lesser Prairie-Chickens. Studies in Avian Biology (no. 48), CRC Press, Boca Raton, FL.

Earl, J.E., S.D. Fuhlendorf, D. Haukos, A.M. Tanner, D. Elmore, and S.A. Carleton. 2016. Characteristics of lesser prairie-chicken (Tympanuchus pallidicinctus) long-distance movements across their distribution. Ecosphere 7(8):e01441. 10.1002/ecs2.1441

Fritts, S.F., B.A. Grisham, D.A. Haukos, C.W. Boal, M.A. Patten, D.H. Wolfe, C.E. Dixon, R.D. Cox, and W.R. Heck. 2016. Long-term evaluation of lesser prairie-chicken nest ecology in response to grassland restoration at two spatial scales. Journal of Wildlife Management 80:527-539.

Garten, E.O., Hagen, C.A., Beauprez, G.M., Kyle, S.C., Pitman, J.C., Schoeling, D.D., Van Pelt, W.E., 2016. Population Dynamics of the Lesser Prairie-Chicken. Studies in Avian Biology No. 48.

Grisham, B.A., A.J. Godar, C.W. Boal, and D.A. Haukos. 2016. Interactive effects between nest microclimate and nest vegetation structure confirm microclimate thresholds for Lesser Prairie-Chicken nest survival. Condor 118:728-746.

Hagen, C.A., Garton, E.O., Beauprez, G., Cooper, B.S., Fricke, K.A., Simpson, B. 2017. Lesser Prairie-Chicken Population Forecasts and Extinction Risks: An Evaluation 5 Years Post-Catastrophic Drought. Wildlife Society Bulletin 41(4):624-638.

Hagen, C.A., Pavlacky, D.C. Jr., Adachi, K., Hornsby, F.E., Rintz, R.J., McDonald, L.L. 2016. Multiscale occupancy modeling provides insights into range-wide conservation needs of Lesser Prairie-Chicken (Tympanuchus pallidicinctus.). The Condor 118(3):597-912.

Lautenbach, J.M., R.T. Plumb, S.G. Robinson, D.A. Haukos, J.C. Pitman, and C.A. Hagen. 2017. Lesser prairie-chicken avoidance of trees in a grassland landscape. Rangeland Ecology and Management 70:78-86.

Melstrom, Richard T., 2017. "Where to drill? The petroleum industry's response to an endangered species listing," Energy Economics 66(C):320-327.

Oyler-McCance, S.J., DeYoung, R.W., Fike, J.A., Hagen, C.A., Johnson, J.A. Larsson, L.C., Patten, M.A., 2016. Rangewide genetic anyalysis of Lesser Prairie-Chicken reveals population structure, range expansion, and possible introgression. Conservation Genetics 17(3).

Robinson, S.G., D.A. Haukos, D.S. Sullins, and R.T. Plumb. 2016. Use of free water by nesting lesser prairie-chickens. Southwestern Naturalist 61:187-193.

Robinson, S.G., D.A. Haukos, R.T. Plumb, C.A. Hagen, J.C. Pitman, J.M. Lautenbach, D.S. Sullins, J.D. Kraft, and J.D. Lautenbach. 2016. Lack of lesser prairie-chicken mortality due to fence collisions in Kansas and Colorado. Journal of Wildlife Management 80:906-915.

Robinson, S.G., D.A. Haukos, R.T. Plumb, J.M. Lautenbach, D.S. Sullins, J.D. Kraft, J.D. Lautenbach. C.A. Hagen, and J.C. Pitman. 2018. Nonbreeding home range size and survival of lesser prairie-chickens. Journal of Wildlife Management 82:374–382.

Robinson, S.G., D.A. Haukos, R.T. Plumb, J.D. Kraft, D.S. Sullins, J.M. Lautenbach, J.D. Lautenbach, B.K. Sandercock, C.A. Hagen, A. Bartuszevige, and M. A. Rice. 2018. Effects of

landscape characteristics on annual survival of lesser prairie-chickens. American Midland Naturalist In Press

Ross, B. E., D. Haukos, C. Hagen, and J. Pitman. 2016. The relative contribution of climate to changes in lesser prairie-chicken abundance. Ecosphere 7(6):e01323. 10.1002/ecs2.1323

Ross, B.E., D.A. Haukos, C.A. Hagen, and J.C. Pitman. 2016. Landscape composition creates a threshold influencing lesser prairie-chicken population resilience to extreme drought. Global Ecology and Conservation 6:179-188.

Ross, B.E., D.A. Haukos, C. Hagen, and J. Pitman. 2018. Combining multiple sources of data to inform conservation of Lesser Prairie-Chicken populations. Auk In Press

Spencer, D., D. Haukos, C. Hagen, M. Daniels, and D. Goodin. 2017. Conservation Reserve Program mitigates grassland loss in the lesser prairie-chicken range of Kansas. Global Ecology and Conservation 9:21-38.

Sullins, D.S., J.D. Kraft, D.A. Haukos, S.G. Robinson, J. Reitz, R.T. Plumb, J.M. Lautenbach, J.D. Lautenbach, B.K. Sandercock, and C.A. Hagen. 2018. Selection and demographic consequences of Conservation Reserve Program grasslands for lesser prairie-chickens. Journal of Wildlife Management In Press

Sullins, D.S., D. A. Haukos, J. Craine, J. M. Lautenbach, S. G. Robinson, J. D. Lautenbach1, J. D. Kraft, R. T. Plumb, B. K. Sandercock, and N. Fierer. 2018. Identifying diet of a declining prairie grouse using DNA metabarcoding. Auk In Press

Zavaleta, J.C., D.A. Haukos, B. Grisham, C. Boal, and C. Dixon. 2016. Restoring sand shinnery oak prairies with herbicide and grazing in New Mexico. Southwestern Naturalist 61:225-232.

LITERATURE CITED

Fields, T.L. 2004. Breeding season habitat use of conservation reserve program (CRP) land by lesser prairie-chickens in west central Kansas. 70. 2004. Fort Collins, Colorado, USA, Colorado State University

Garton, E. O. 2012. An Assessment of Population Dynamics and Persistence of Lesser Prairie-Chickens. Unpublished manuscript. Western Association of Fish and Wildlife Agencies.

McDonald, L., J. Griswold, T. Rintz, and G. Gardner. 2012. Results of the 2012 range-wide survey of lesser Prairie-chickens (Tympanuchus pallidicinctus). Unpublished manuscript. Western Association of Fish and Wildlife Agencies

McDonald, L., K. Adachi, T. Rintz, G. Gardner, and F. Hornsby. 2014. Range-wide population size of the lesser prairie-chicken: 2012, 2013, and 2014. Technical report prepared for the Western Association of Fish & Wildlife Agencies. Laramie, Wyoming, USA.

McDonald, L., K. Nasman, T. Rintz, F. Hornsby, and G. Gardner. 2016. Range-wide population size of the lesser prairie-chicken: 2012, 2013, 2014, 2015 and 2016. Technical report prepared for the Western Association of Fish & Wildlife Agencies. Laramie, Wyoming, USA.

Rodgers, R.D. & R. W. Hoffman. 2005. Prairie grouse population responses to conservation reserve program grasslands: an overview. *The Conservation Reserve Program - Planning for the Future: Proceedings of a National Conference, Fort Collins, Colorado, June 6-9, 2004* (ed. by A.W. Allen and M. W. Vandever), pp. 120-128. U.S. Geological Survey, Biological Resources Division, Scientific Investigation Report 2005-5145, Fort Collins, Colorado, USA.

Spencer, D. G., D. Haukos, C. Hagen, M. Daniels, and D. Goodin. 2017. Conservation reserve program mitigates grassland loss in the lesser prairie-chicken range of Kansas. Global Ecology and Conservation 9:21-38.

USDA Natural Resources Conservation Service. 2012. USDA conservation program contributions to lesser prairie-chicken conservation in the context of projected climate change. Conservation effects assessment project.

U.S. Fish and Wildlife Service [USFWS]. 1997. Endangered and threatened wildlife and plants; 90-day finding for a petition to list the Lesser Prairie-Chicken as threatened. Federal Register 62:36482–36484.

U.S. Fish and Wildlife Service [USFWS]. 2003. Guidance for the establishment, use, and operation of conservation banks. Agency Memorandum.

U.S. Fish and Wildlife Service [USFWS]. 2012. Conservation needs of the lesser prairie-chicken. Technical white paper.

U.S. Fish and Wildlife Service [USFWS]. 2012. Endangered and threatened wildlife and plants; listing the Lesser Prairie-Chicken as a threatened species. Federal Register 77238:73827–73888.

U.S. Fish and Wildlife Service [USFWS]. 2014. Endangered and threatened wildlife and plants; special rule for the Lesser Prairie-Chicken. Federal Register 79:20074–20085.

U.S. Fish and Wildlife Service. 2014. Biological opinion for the implementation of the conservation reserve program (CRP) within the occupied range of the lesser prairie-chicken as described in Farm Service Agency's (FSA) Biological Assessment for the CRP.

Van Pelt, W. E., S. Kyle, J. Pitman, D. Klute, G. Beauprez, D. Schoeling, A. Janus, J. Haufler. 2013. The lesser prairie-chicken range-wide conservation plan. Western Association of Fish and Wildlife Agencies, Cheyenne, Wyoming.

APPENDIX A. CONSERVATION ACREAGE WITHIN EACH LPC CHAT 1 (FOCAL AREA) REPORTING UNIT, 2017.

Ecoregion – reporting unit	Total Area	WAFWA Term Contracts	WAFWA Non-Offset Agreements	Conservation Reserve Program	NRCS Programs[a]	USFWS Partners for Fish & Wildlife	State Wildlife Agency Private Land Programs[b]	New Mexico Ranching CCA/CCAA	Texas Ranching CCAA	Oklahoma Ranching CCAA	WAFWA Permanent Conservation Agreements	Other Qualifying Stronghold Acres[c]	Non-Qualifying Conservation Acreage[d]	Total Conservation Acreage
Shinnery Oak														
1	69,760	13,435	933	1,591	0	0	0	ND	ND	0	1,058	14,757	1,480	33,254
2A	96,000	0	0	18,352	1,434	0	0	ND	ND	0	0	8,907	2,575	31,268
2B	95,360	316	0	4,809	12,762	0	0	ND	ND	0	0	446	9,043	27,376
2C	106,880	0	0	0	5,706	0	0	ND	ND	0	0	0	9,130	14,836
2D	100,480	0	0	257	20,468	0	0	ND	ND	0	0	0	24,483	45,208
2E	123,521	0	0	0	7,309	0	0	ND	ND	0	0	4,208	898	12,415
2F	74,240	0	0	0	871	0	0	ND	ND	0	0	40,701	3,075	44,646
3	48,000	0	0	0	0	0	0	ND	ND	0	0	0	0	0
4	122,241	310	0	50,218	4,544	0	0	ND	ND	0	0	4,432	1	59,505
5	72,320	0	0	0	12,934	0	0	ND	ND	0	0	0	2,392	15,326
6	25,600	0	0	98	1,532	0	0	ND	ND	0	0	0	15	1,646
7	26,880	0	0	5,362	0	0	0	ND	ND	0	0	0	0	5,362
8	55,680	0	0	13,270	0	0	0	ND	ND	0	0	0	0	13,270
9	29,440	0	0	12,348	1,580	0	0	ND	ND	0	0	0	0	13,929
Total	1,046,405	*14,061*	*933*	*106,304*	*69,142*	*0*	*0*	*345,000*	*36,495*	*0*	*1,058*	*73,451*	*53,092*	*699,536*[e]
Mixed Grass														
10	160,001	26,264	0	451	0	0	0	0	ND	0	0	0	0	26,715
11	104,960	0	0	1,239	4,986	0	0	0	ND	0	0	0	0	6,225
12	93,440	0	0	964	512	0	3,008	0	ND	46,612	0	0	0	51,096
13A	64,000	0	0	1,446	0	0	0	0	ND	999	0	0	0	2,445
13B	100,480	0	0	328	0	0	0	0	ND	0	0	0	2,351	2,679
13C	102,400	0	0	1,201	1,842	0	0	0	ND	0	0	0	0	3,043
13D	129,921	0	0	5,406	1,535	0	0	0	ND	0	0	0	0	6,941
14	5,760	0	0	1,309	0	0	0	0	ND	0	0	0	0	1,309
15	17,920	0	0	1,818	0	0	0	0	ND	0	0	0	0	1,818
16A	96,000	0	0	8,157	0	0	54	0	ND	7,376	0	0	0	15,587
16B	64,640	0	0	6,784	0	0	0	0	ND	12,350	0	0	0	19,134
16C	100,480	0	0	7,731	247	0	0	0	ND	0	0	0	0	7,978
17	33,280	0	0	821	2,202	0	0	0	ND	240	0	0	0	3,263
18	34,560	0	0	2,125	0	0	0	0	ND	458	0	0	0	2,583
19	26,240	0	0	835	0	0	0	0	ND	12,279	0	0	0	13,114
20	32,640	0	0	543	153	0	0	0	ND	1,380	0	0	0	2,075
21	56,320	625	0	1,790	0	0	0	0	ND	11,309	0	0	0	13,724
22	73,600	0	0	6,836	913	0	0	0	ND	1,292	0	15,552	0	24,593
23	51,200	0	0	1,542	16,691	0	0	0	ND	23,499	0	0	0	41,732
24	104,960	1,217	0	4,822	0	0	0	0	ND	803	0	0	0	6,842
27	74,880	0	0	4,606	0	0	0	0	ND	0	0	0	0	4,606
28A	70,400	0	0	6,542	0	0	0	0	ND	3,009	0	0	0	9,551
28B	103,040	0	0	7,652	111	0	0	0	ND	136	0	0	0	7,898
28C	104,320	0	0	2,346	8,007	0	0	0	ND	0	0	0	1,740	12,093
28D	120,961	0	0	9,495	1,626	0	0	0	ND	0	0	0	453	11,574
29A	97,920	25	0	9,652	764	0	0	0	ND	0	0	0	0	10,441
29B	129,281	26,169	1,072	243	1,082	1,093	0	0	ND	0	0	0	0	29,659
29C	96,000	376	0	2,743	897	0	0	0	ND	0	0	0	0	4,016
29D	87,680	0	0	2,204	38	0	0	0	ND	24,201	0	0	0	26,444
30	60,800	0	0	6,267	158	0	65	0	ND	0	0	0	0	6,490
33A	92,800	172	0	2,999	0	0	0	0	ND	0	2,615	0	0	5,786
33B	85,120	0	0	6,266	0	0	0	0	ND	0	0	0	5,467	11,732
Total	2,576,012	*55,759*	*1,072*	*117,161*	*41,764*	1,093	3,127	*0*	*241,985*	145,943	*2,615*	***15,553***	*10,011*	*635,171*[e]
Sand Sagebrush														
25	25,600	0	0	430	0	0	0	0	0	0	0	0	0	430
26	20,480	0	0	2,353	0	0	0	0	0	0	0	0	0	2,353
31A	111,361	0	0	6,906	0	0	0	0	0	0	0	0	0	6,906
31B	141,441	0	0	14,353	0	0	0	0	0	0	0	0	0	14,353
31C	96,640	0	0	14,966	1,529	0	0	0	0	0	0	0	0	16,495
31D	110,721	0	0	14,198	0	0	0	0	0	0	0	0	0	14,198
31E	97,920	0	0	4,062	1,215	0	0	0	0	0	0	0	2,586	7,864
32	46,720	0	0	10,831	0	0	0	0	0	0	0	0	0	10,831
35A	51,200	0	0	16,894	0	0	0	0	0	0	0	0	0	16,894
35B	107,520	0	0	11,692	0	0	0	0	0	0	0	4,180	2,348	18,221
35C	78,080	0	0	25,202	0	0	0	0	0	0	1,612	0	0	26,814
35D	165,761	8,515	0	4,226	0	0	0	0	0	0	27,890	0	353	40,984
35E	115,841	4,167	0	9,400	0	0	0	0	0	0	0	0	0	13,567
35F	108,160	0	0	1,150	0	0	0	0	0	0	0	0	2,790	3,940
36	45,440	0	0	3,065	0	0	0	0	0	0	0	0	0	3,065
38	101,120	0	0	6,711	2,756	0	0	0	0	0	0	0	2,739	12,206
40	159,361	0	0	4,360	33,588	0	0	0	0	0	0	0	31,124	69,072
Total	1,583,367	12,683	0	*150,799*	*39,089*	*0*	*0*	*0*	*0*	*0*	29,502	*4,180*	*41,941*	*278,193*
Shortgrass														
34	86,400	0	0	8,784	72	0	404	0	0	0	0	0	112	9,372
37A	129,921	0	0	18,613	899	0	0	0	0	0	0	0	0	19,512
37B	82,560	0	0	10,803	494	0	0	0	0	0	0	0	0	11,297
37C	112,001	0	0	17,347	0	0	0	0	0	0	0	0	1,082	18,429
37D	100,480	0	0	11,205	0	0	0	0	0	0	0	0	550	11,754
37E	126,721	0	0	28,298	0	0	0	0	0	0	0	0	0	28,298
37F	129,281	0	0	12,354	0	0	0	0	0	0	0	0	0	12,354
39A	101,120	0	0	3,027	1,461	0	0	0	0	0	0	0	0	4,489
39B	139,521	0	0	9,079	88	0	0	0	0	0	0	0	997	10,164
39C	121,601	0	0	8,796	2,262	0	0	0	0	0	0	0	2,613	13,672
41A	96,640	0	0	5,904	1,451	0	0	0	0	0	0	0	0	7,355
41B	149,761	0	0	8,328	0	0	0	0	0	0	690	0	16,596	25,614
41C	127,361	4,270	0	9,194	0	0	0	0	0	0	3,002	18	0	16,484
41D	86,400	0	0	8,916	4,953	0	0	0	0	0	0	0	0	13,869
42	62,720	0	0	2,660	1,459	0	0	0	0	0	0	0	455	4,574
43A	84,480	1,109	0	9,146	0	0	0	0	0	0	0	0	1,492	11,746
43B	62,720	0	0	2,562	0	0	0	0	0	0	0	0	0	2,562
44	72,320	0	0	1,780	0	0	0	0	0	0	0	0	0	1,780
Total	1,872,009	5,389	0	*176,798*	*13,140*	*0*	404	*0*	*0*	*0*	3,710	*18*	*23,897*	*223,327*
Grand Total	**7,077,792**	**87,892**	**2,004**	**551,062**	**163,135**	**1,093**	**3,531**	**345,000**	**278,480**	**145,943**	**36,885**	**93,201**	**128,940**	**1,836,227**[e]

ND = no data provided

[a] These values represent the acres of prescribed grazing (528) that were implemented in 2017 through the Lesser Prairie-Chicken Initiative and the Environmental Quality Incentives Program. Prescribed grazing is a core conservation practice that is supposed to occur on every contracted acre were livestock are present.

[b] The Center of Excellence (CEHMM) has also enrolled 137,000 industry acres in CCA/CCAAs in CHAT 1.

[c] Includes acreages meeting all the stronghold criteria as interpreted by WAFWA. These values do not include the acres permanently conserved by WAFWA which also qualify.

[d] This category includes private land encumbered by a conservation easement and properties owned by a government or non-government entity that lists conservation as a primary mission. There are 1,479 of these acres still being evaluated to determine if they can qualify towards a stronghold (171 in Shinnery Oak, 1,270 in Mixed Grass, 38 in Sand Sagebrush, and 0 in Shortgrass). Additionally, there are 423,242 acres in CHAT 1 that are owned by public entities but not managed with conservation as a primary focus.

[e] The total is greater than the sum of the sub-categories because some data were not reported at the finer scale.

APPENDIX B. CONSERVATION ACREAGE WITHIN EACH LPC CHAT 2 (CONNECTIVITY ZONE) REPORTING UNIT, 2017.

Ecoregion – reporting unit	Total Area	WAFWA Term Contracts	WAFWA Non-Offset Agreements	Conservation Reserve Program	NRCS Programs[a]	USFWS Partners for Fish & Wildlife	State Wildlife Agency Private Land Programs	New Mexico Ranching CCA/CCAA[b]	Texas Ranching CCAA	Oklahoma Ranching CCAA	WAFWA Permanent Conservation Agreements	Other Qualifying Stronghold Acres[c]	Non-Qualifying Conservation Acreage[d]	Total Conservation Acreage[e]
Shinnery Oak														
100	148,481	0	0	15,196	236	0	0	ND	ND	NA	391	0	424	16,248
101	20,480	0	0	0	0	0	0	ND	ND	NA	0	0	0	0
102	64,000	0	0	18,477	0	0	0	ND	ND	NA	0	1,106	9	19,592
103	33,280	0	0	9,859	0	0	0	ND	ND	NA	0	0	1,025	10,884
104	599,043	0	0	58,457	6,550	0	0	ND	ND	NA	0	321	163	65,490
105	27,520	0	0	13,105	0	0	0	ND	ND	NA	0	0	0	13,105
Total	892,804	*0*	*0*	*115,095*	*6,786*	*0*	*0*	69,778	*17,433*	*NA*	*391*	*1,427*	*1,620*	212,530[e]
Mixed Grass														
106	49,920	538	0	0	0	0	0	0	ND	0	0	0	0	538
107	112,641	0	0	2,661	0	0	0	0	ND	0	0	0	1,694	4,355
108	42,240	0	0	1,363	0	0	0	0	ND	3,571	0	0	0	4,934
109	119,681	0	0	6,839	3,890	0	0	0	ND	4,984	0	0	0	15,713
110	72,320	0	0	3,528	2,267	0	0	0	ND	0	0	0	0	5,795
111	99,840	0	0	8,007	247	0	1,035	0	ND	17,734	0	0	0	27,023
112	13,440	0	0	1,003	0	0	0	0	ND	477	0	0	0	1,480
113	19,840	0	0	1,028	0	0	0	0	ND	0	0	0	0	1,028
114	37,760	0	0	715	1,008	0	0	0	ND	0	0	0	0	1,723
115	12,160	0	0	805	0	0	0	0	ND	544	0	0	0	1,349
116	12,800	0	0	666	0	0	0	0	ND	0	0	0	0	666
117	22,400	0	0	2,185	3,373	0	0	0	ND	242	0	0	0	5,800
118	29,440	0	0	2,551	43	0	0	0	ND	0	0	0	0	2,594
119	12,800	0	0	0	0	0	0	0	ND	8,017	0	0	0	8,017
120	18,560	0	0	485	0	0	0	0	ND	2,280	0	0	0	2,765
121	55,680	0	0	4,396	2,227	0	0	0	ND	2,171	0	0	0	8,794
122	14,720	0	0	2,854	0	0	0	0	ND	0	0	0	0	2,854
123	99,200	0	0	7,699	0	0	0	0	ND	596	0	0	0	8,295
126	69,120	0	0	1,615	317	0	0	0	ND	0	0	0	0	1,933
128	30,080	0	0	3,194	0	0	0	0	ND	0	0	0	0	3,194
130	34,560	0	0	2,687	0	0	0	0	ND	0	0	0	0	2,687
132	35,200	0	0	4,977	63	0	0	0	ND	0	0	0	0	5,040
133	64,640	0	0	1,206	0	0	0	0	ND	0	0	0	1,270	2,475
134	37,120	0	0	4,849	298	0	0	0	ND	0	0	0	0	5,147
Total	1,116,165	*538*	*0*	*65,310*	*13,733*	*0*	*1,035*	*0*	*33,055*	40,616	*0*	*0*	*2,964*	157,250[e]
Sand Sagebrush														
124	5,120	0	0	0	0	0	0	0	0	NA	0	0	0	0
125	3,200	0	0	0	0	0	0	0	0	NA	0	0	0	0
127	1,920	0	0	0	0	0	0	0	0	NA	0	0	0	0
129	14,720	0	0	1,901	0	0	0	0	0	NA	0	0	38	1,939
131	23,680	0	0	4,813	195	0	0	0	0	NA	0	0	0	5,007
135	29,440	0	0	3,528	0	0	0	0	0	NA	0	0	0	3,528
136	53,120	0	0	6,096	0	0	0	0	0	NA	0	0	0	6,096
138	14,080	0	0	98	0	0	0	0	0	NA	0	0	0	98
139	15,360	0	0	276	0	0	0	0	0	NA	0	0	0	276
140	23,040	0	0	606	0	0	0	0	0	NA	0	0	0	606
142	61,440	0	0	3,079	4,182	0	0	0	0	NA	0	0	0	7,261
Total	245,121	*0*	*0*	*20,396*	*4,376*	*0*	*0*	*0*	*0*	*NA*	*0*	*0*	*38*	*24,811*
Shortgrass														
137	32,640	0	0	2,784	0	0	0	0	0	NA	0	0	0	2,784
141	52,480	0	0	6,152	1,016	0	0	0	0	NA	0	0	0	7,167
143	26,240	0	0	264	86	0	0	0	0	NA	0	0	0	350
144	46,720	4,024	0	1,849	0	0	0	0	0	NA	0	0	0	5,873
145	25,600	0	0	782	0	0	0	0	0	NA	0	0	0	782
Total	183,681	*4,024*	*0*	*11,830*	*1,102*	*0*	*0*	*0*	*0*	*NA*	*0*	*0*	*0*	*16,956*
Grand Total	**2,437,771**	**4,562**	**0**	**212,631**	**25,996**	**0**	**1,035**	**69,778**	**50,488**	**40,616**	**391**	**1,427**	**4,622**	**411,547[e]**

ND = no data provided

[a] These values represent the acres of prescribed grazing (528) that were implemented in 2017 through the Lesser Prairie-Chicken Initiative and the Environmental Quality Incentives Program. Prescribed grazing is a core conservation practice that is supposed to occur on every contracted acre were livestock are present.

[b] The Center of Excellence (CEHMM) has also enrolled 46,096 industry acres in CCA/CCAAs in CHAT 2.

[c] Includes acreages meeting all the stronghold criteria as interpreted by WAFWA. These values do not include the acres permanently conserved by WAFWA which also qualify.

[d] This category includes private land encumbered by a conservation easement and properties owned by a government or non-government entity that lists conservation as a primary mission. There are 1,479 of these acres still being evaluated to determine if they can qualify towards a stronghold (171 in Shinnery Oak, 1,270 in Mixed Grass, 38 in Sand Sagebrush, and 0 in Shortgrass). Additionally, there are 91,184 acres in CHAT 2 that are owned by public entities but not managed with conservation as a primary focus.

[e] The total is greater than the sum of the sub-categories because some data were not reported at the finer scale.

APPENDIX C. THE NUMBER OF WELLS DRILLED WITHIN THE EOR+10 BY COMPANIES NOT PARTICIPATING IN THE RWP. COMPANIES ARE LISTED ANONYMOUSLY BY A CO. ID, WITH THE NUMBER OF WELLS DRILLED PER CHAT CATEGORY AND IN TOTAL WITHIN THE EOR+10. THE TABLE IS SORTED BY TOTAL WELLS DRILLED.

non-RWP Co. ID	CHAT 1	CHAT 2	CHAT 3	CHAT 4	Total #
1	0	0	43	32	75
2	0	0	35	39	74
3	0	4	4	65	73
4	12	0	8	51	71
5	0	0	18	39	57
6	49	0	0	1	50
7	27	3	6	12	48
8	5	5	31	4	45
9	0	0	7	38	45
10	2	0	7	23	32
11	4	0	8	18	30
12	0	0	13	12	25
13	8	0	4	12	24
14	0	0	16	6	22
15	1	0	4	15	20
16	0	0	19	0	19
17	11	0	4	2	17
18	0	0	1	16	17
19	0	0	15	0	15
20	4	0	4	6	14
21	1	8	4	1	14
22	4	2	3	3	12
23	0	0	11	1	12
24	0	2	2	7	11
25	0	0	10	1	11
26	0	0	9	2	11
27	0	0	3	8	11
28	0	0	1	10	11
29	1	0	6	3	10
30	0	3	6	1	10
31	3	0	4	2	9
32	0	0	9	0	9
33	0	0	3	6	9
34	0	0	2	7	9
35	0	0	1	8	9
36	0	0	0	9	9
37	0	0	0	9	9
38	0	0	0	9	9
39	2	1	2	3	8
40	0	0	5	3	8
41	0	0	4	4	8
42	0	0	7	0	7
43	4	0	0	2	6
44	1	0	2	3	6
45	1	0	0	5	6
46	0	0	6	0	6
47	0	0	6	0	6

48	0	0	4	2	6
49	0	0	3	3	6
50	0	0	2	4	6
51	0	0	2	4	6
52	0	0	1	5	6
53	0	0	1	5	6
54	0	0	0	6	6
55	2	0	1	2	5
56	1	0	0	4	5
57	0	1	1	3	5
58	0	1	1	3	5
59	0	0	4	1	5
60	0	0	3	2	5
61	0	0	1	4	5
62	0	0	1	4	5
63	0	0	1	4	5
64	0	0	0	5	5
65	0	0	0	5	5
66	0	0	0	5	5
67	0	0	0	5	5
68	2	0	0	2	4
69	1	0	3	0	4
70	0	3	1	0	4
71	0	0	4	0	4
72	0	0	4	0	4
73	0	0	3	1	4
74	0	0	2	2	4
75	0	0	2	2	4
76	0	0	2	2	4
77	0	0	1	3	4
78	0	0	1	3	4
79	0	0	0	4	4
80	0	0	0	4	4
81	0	0	0	4	4
82	3	0	0	0	3
83	2	0	1	0	3
84	2	0	0	1	3
85	1	0	1	1	3
86	1	0	1	1	3
87	0	3	0	0	3
88	0	2	1	0	3
89	0	0	3	0	3
90	0	0	3	0	3
91	0	0	2	1	3
92	0	0	2	1	3
93	0	0	2	1	3
94	0	0	1	2	3
95	0	0	1	2	3
96	0	0	1	2	3
97	0	0	1	2	3
98	0	0	1	2	3

99	0	0	1	2	3
100	0	0	1	2	3
101	0	0	0	3	3
102	0	0	0	3	3
103	0	0	0	3	3
104	0	0	0	3	3
105	0	0	0	3	3
106	0	0	0	3	3
107	0	0	0	3	3
108	0	0	0	3	3
109	0	0	0	3	3
110	0	0	0	3	3
111	2	0	0	0	2
112	2	0	0	0	2
113	2	0	0	0	2
114	2	0	0	0	2
115	1	0	1	0	2
116	1	0	1	0	2
117	1	0	1	0	2
118	1	0	0	1	2
119	1	0	0	1	2
120	1	0	0	1	2
121	1	0	0	1	2
122	0	1	1	0	2
123	0	0	2	0	2
124	0	0	2	0	2
125	0	0	2	0	2
126	0	0	2	0	2
127	0	0	2	0	2
128	0	0	2	0	2
129	0	0	2	0	2
130	0	0	1	1	2
131	0	0	1	1	2
132	0	0	1	1	2
133	0	0	0	2	2
134	0	0	0	2	2
135	0	0	0	2	2
136	0	0	0	2	2
137	0	0	0	2	2
138	0	0	0	2	2
139	0	0	0	2	2
140	0	0	0	2	2
141	0	0	0	2	2
142	0	0	0	2	2
143	0	0	0	2	2
144	0	0	0	2	2
145	0	0	0	2	2
146	0	0	0	2	2
147	0	0	0	2	2
148-289*	10	4	50	78	142
Total of all non-participant wells	**180**	**43**	**496**	**766**	**1485**

*There were 142 non-participant companies that drilled one well each, and their results are summarized here as one record.

APPENDIX D. FOCAL AREA REPORTING UNITS AND THE PERCENT IMPACT AS OF JANUARY 1, 2018. THE PERCENT IMPACT AT THE BEGINNING OF THE RWP INCLUDED FOR CHANGE DETECTION REFERENCE. CELLS HIGHLIGHTED ARE OVER THE 60% IMPACTED THRESHOLD.

FACZ ID	FACZ Class	Ecoregions	Unit Acres	2015 % impacted	2016 % impacted	2017 % impacted	2018 % impacted	Difference since 2015
1	Focal Area	Shinnery Oak Prairie	69760.32	16.8%	16.7%	16.0%	15.90%	-0.9%
3	Focal Area	Shinnery Oak Prairie	48000.22	8.1%	8.1%	8.0%	6.70%	-1.4%
4	Focal Area	Shinnery Oak Prairie	122240.56	24.8%	24.8%	25.0%	24.80%	0.0%
5	Focal Area	Shinnery Oak Prairie	72320.33	3.6%	3.6%	4.0%	1.20%	-2.4%
6	Focal Area	Shinnery Oak Prairie	25600.12	14.2%	14.2%	13.0%	9.49%	-4.7%
7	Focal Area	Shinnery Oak Prairie	26880.12	20.5%	20.3%	20.0%	17.34%	-3.2%
8	Focal Area	Shinnery Oak Prairie	55680.26	23.0%	23.0%	23.0%	38.25%	15.3%
9	Focal Area	Shinnery Oak Prairie	29440.14	5.3%	5.2%	6.0%	4.27%	-1.0%
10	Focal Area	Mixed Grass Prairie	160000.73	29.2%	29.0%	29.0%	29.95%	0.7%
11	Focal Area	Mixed Grass Prairie	104960.48	30.7%	33.4%	32.0%	31.25%	0.5%
12	Focal Area	Mixed Grass Prairie	93440.43	12.4%	12.4%	12.0%	10.68%	-1.7%
14	Focal Area	Mixed Grass Prairie	5760.03	39.5%	39.1%	39.0%	40.83%	1.4%
15	Focal Area	Mixed Grass Prairie	17920.08	28.8%	28.0%	28.0%	28.85%	0.0%
17	Focal Area	Mixed Grass Prairie	33280.15	23.5%	23.6%	18.0%	17.66%	-5.8%
18	Focal Area	Mixed Grass Prairie	34560.16	25.5%	25.0%	25.0%	24.58%	-0.9%
19	Focal Area	Mixed Grass Prairie	26240.12	8.1%	8.1%	8.0%	5.75%	-2.4%
20	Focal Area	Mixed Grass Prairie	32640.15	19.1%	19.0%	18.0%	17.57%	-1.6%
21	Focal Area	Mixed Grass Prairie	56320.26	15.5%	15.5%	14.0%	14.21%	-1.3%
22	Focal Area	Mixed Grass Prairie	73600.34	16.4%	16.6%	17.0%	16.91%	0.5%
23	Focal Area	Mixed Grass Prairie	51200.24	20.0%	17.8%	17.0%	19.24%	-0.7%
24	Focal Area	Mixed Grass Prairie	104960.48	10.2%	10.1%	10.0%	11.39%	1.2%
25	Focal Area	Sand Sagebrush Prairie	25600.12	9.9%	9.9%	10.0%	3.86%	-6.0%
26	Focal Area	Sand Sagebrush Prairie	20480.09	12.7%	12.7%	13.0%	6.08%	-6.6%
27	Focal Area	Mixed Grass Prairie	74880.34	7.8%	7.6%	7.0%	6.85%	-0.9%
30	Focal Area	Mixed Grass Prairie	60800.28	23.2%	23.2%	24.0%	22.44%	-0.8%
32	Focal Area	Sand Sagebrush Prairie	46720.21	18.6%	18.6%	19.0%	13.63%	-5.0%
34	Focal Area	Shortgrass Prairie	86400.4	15.5%	17.0%	16.0%	15.24%	-0.2%
36	Focal Area	Sand Sagebrush Prairie	45440.21	8.6%	8.6%	9.0%	4.87%	-3.7%
38	Focal Area	Sand Sagebrush Prairie	101120.46	7.4%	7.4%	8.0%	4.48%	-2.9%
40	Focal Area	Sand Sagebrush Prairie	159360.73	9.3%	9.3%	9.0%	2.10%	-7.2%
42	Focal Area	Shortgrass Prairie	62720.29	15.7%	15.7%	16.0%	15.96%	0.3%
44	Focal Area	Shortgrass Prairie	72320.33	13.3%	13.3%	13.0%	12.85%	-0.4%
13A	Focal Area	Mixed Grass Prairie	64000.29	27.7%	28.3%	28.0%	28.28%	0.6%

13B	Focal Area	Mixed Grass Prairie	100480.46	18.5%	18.8%	19.0%	19.45%	1.0%
13C	Focal Area	Mixed Grass Prairie	102400.47	23.3%	23.8%	24.0%	25.08%	1.8%
13D	Focal Area	Mixed Grass Prairie	129920.6	24.1%	25.2%	25.0%	26.28%	2.2%
16A	Focal Area	Mixed Grass Prairie	96000.44	21.5%	21.3%	21.0%	22.58%	1.1%
16B	Focal Area	Mixed Grass Prairie	64640.3	20.9%	20.8%	20.0%	22.50%	1.7%
16C	Focal Area	Mixed Grass Prairie	100480.46	22.4%	22.3%	22.0%	24.12%	1.7%
28A	Focal Area	Mixed Grass Prairie	70400.32	16.2%	16.4%	16.0%	17.08%	0.9%
28B	Focal Area	Mixed Grass Prairie	103040.47	10.2%	10.0%	10.0%	10.13%	-0.1%
28C	Focal Area	Mixed Grass Prairie	104320.48	9.1%	8.9%	11.0%	11.52%	2.5%
28D	Focal Area	Mixed Grass Prairie	120960.55	12.7%	13.2%	13.0%	12.78%	0.1%
29A	Focal Area	Mixed Grass Prairie	97920.45	13.2%	13.1%	12.0%	13.18%	0.0%
29B	Focal Area	Mixed Grass Prairie	129280.59	11.2%	11.7%	11.0%	11.34%	0.2%
29C	Focal Area	Mixed Grass Prairie	96000.44	9.5%	9.7%	9.0%	9.91%	0.4%
29D	Focal Area	Mixed Grass Prairie	87680.4	10.0%	10.1%	10.0%	10.56%	0.6%
2A	Focal Area	Shinnery Oak Prairie	96000.44	15.9%	15.9%	16.0%	16.68%	0.8%
2B	Focal Area	Shinnery Oak Prairie	95360.44	15.7%	15.7%	16.0%	16.95%	1.2%
2C	Focal Area	Shinnery Oak Prairie	106880.49	12.4%	12.2%	12.0%	13.79%	1.4%
2D	Focal Area	Shinnery Oak Prairie	100480.46	19.8%	21.4%	20.0%	27.30%	7.6%
2E	Focal Area	Shinnery Oak Prairie	123520.57	11.3%	13.5%	8.0%	10.61%	-0.7%
2F	Focal Area	Shinnery Oak Prairie	74240.34	5.4%	5.3%	5.0%	6.38%	1.0%
31A	Focal Area	Sand Sagebrush Prairie	111360.51	14.1%	14.1%	14.0%	13.66%	-0.4%
31B	Focal Area	Sand Sagebrush Prairie	141440.65	22.8%	22.7%	22.0%	22.19%	-0.6%
31C	Focal Area	Sand Sagebrush Prairie	96640.44	34.7%	34.2%	33.0%	32.48%	-2.2%
31D	Focal Area	Sand Sagebrush Prairie	110720.51	33.5%	33.2%	31.0%	32.00%	-1.5%
31E	Focal Area	Sand Sagebrush Prairie	97920.45	30.7%	30.7%	29.0%	31.34%	0.6%
33A	Focal Area	Mixed Grass Prairie	92800.43	12.8%	12.8%	12.0%	12.67%	-0.1%
33B	Focal Area	Mixed Grass Prairie	85120.39	12.3%	12.9%	12.0%	12.88%	0.6%
35A	Focal Area	Sand Sagebrush Prairie	51200.24	13.6%	13.5%	10.0%	8.36%	-5.3%
35B	Focal Area	Sand Sagebrush Prairie	107520.49	23.4%	23.4%	20.0%	19.49%	-3.9%
35C	Focal Area	Sand Sagebrush Prairie	78080.36	11.3%	11.3%	11.0%	11.39%	0.1%
35D	Focal Area	Sand Sagebrush Prairie	165760.76	13.6%	13.9%	13.0%	13.84%	0.3%
35E	Focal Area	Sand Sagebrush Prairie	115840.53	31.8%	32.0%	30.0%	30.53%	-1.3%
35F	Focal Area	Sand Sagebrush Prairie	108160.5	32.0%	34.4%	32.0%	34.63%	2.6%
37A	Focal Area	Shortgrass Prairie	129920.6	19.4%	20.4%	20.0%	20.62%	1.2%
37B	Focal Area	Shortgrass Prairie	82560.38	7.3%	7.3%	7.0%	7.69%	0.4%
37C	Focal Area	Shortgrass Prairie	112000.51	10.4%	10.4%	10.0%	10.23%	-0.2%
37D	Focal Area	Shortgrass Prairie	100480.46	7.0%	6.8%	7.0%	6.63%	-0.4%
37E	Focal Area	Shortgrass Prairie	126720.58	8.7%	8.7%	9.0%	9.55%	0.9%
37F	Focal Area	Shortgrass Prairie	129280.59	18.3%	18.7%	18.0%	20.49%	2.2%
39A	Focal Area	Shortgrass Prairie	101120.46	13.3%	13.3%	13.0%	13.19%	-0.1%
39B	Focal Area	Shortgrass Prairie	139520.64	13.4%	13.3%	14.0%	14.75%	1.4%
39C	Focal Area	Shortgrass Prairie	121600.56	20.5%	20.4%	20.0%	21.28%	0.8%
41A	Focal Area	Shortgrass Prairie	96640.44	7.6%	7.6%	8.0%	7.66%	0.1%

41B	Focal Area	Shortgrass Prairie	150400.69	9.8%	9.8%	10.0%	10.85%	1.0%
41C	Focal Area	Shortgrass Prairie	127360.58	10.5%	10.5%	11.0%	12.33%	1.9%
41D	Focal Area	Shortgrass Prairie	86400.4	11.2%	11.2%	11.0%	12.02%	0.9%
43A	Focal Area	Shortgrass Prairie	84480.39	10.1%	9.9%	10.0%	8.38%	-1.7%
43B	Focal Area	Shortgrass Prairie	62720.29	4.4%	4.4%	4.0%	3.22%	-1.2%

APPENDIX E. ANNUAL CROPLAND RESTORATION AND BRUSH MANAGEMENT ACREAGES REPORTED FOR EACH LPC CHAT 1 (FOCAL AREA) REPORTING UNIT, 2017.

Ecoregion– reporting unit	Reported Cropland Restoration Acreage[a]	Reported Brush Management Acreage	Total Reported Restoration Acreage
Shinnery Oak			
1	0	1,494	
2A	18	166	
2B	105	818	
2C	0	0	
2D	0	0	
2E	0	146	
2F	0	0	
3	0	0	
4	0	447	
5	0	0	
6	0	0	
7	0	0	
8	0	0	
9	0	0	
Total	*124*	*4,072*[b]	
Mixed Grass			
10	0	212	
11	0	0	
12	0	1,060	
13A	0	0	
13B	37	437	
13C	4	0	
13D	58	0	
14	0	0	
15	0	0	
16A	54	0	
16B	0	0	
16C	30	0	
17	0	0	
18	0	0	
19	0	0	
20	0	0	
21	0	0	
22	0	0	
23	0	277	
24	0	0	
27	0	0	
28A	0	0	
28B	0	0	
28C	0	0	
28D	0	5	
29A	0	0	
29B	0	*1,107*	
29C	0	0	
29D	0	0	
30	0	0	
33A	0	0	
33B	0	0	
Total	*184*	*3,097*	
Sand Sagebrush			
25	0	0	
26	0	0	
31A	0	0	
31B	0	0	

Ecoregion– reporting unit	Reported Cropland Restoration Acreage[a]	Reported Brush Management Acreage	Total Reported Restoration Acreage
31C	0	0	
31D	0	0	
31E	0	0	
32	0	0	
35A	0	0	
35B	0	0	
35C	0	0	
35D	0	0	
35E	0	0	
35F	0	0	
36	0	0	
38	0	0	
40	0	0	
Total	*0*	*0*	
Shortgrass			
34	0	0	
37A	0	0	
37B	0	0	
37C	0	0	
37D	0	0	
37E	0	0	
37F	0	0	
39A	0	0	
39B	0	0	
39C	22	0	
41A	0	0	
41B	0	0	
41C	378	0	
41D	0	0	
42	0	0	
43A	0	0	
43B	0	0	
44	0	0	
Total	*400*	*0*	
Grand Total	**708**	**7,169**[b]	

[a] Data not reported for the Conservation Reserve Program which facilitates the overwhelming majority of cropland restoration.
[b] The total is greater than the sum of the sub-categories because some data were not reported at the finer scale.

APPENDIX F. ANNUAL CROPLAND RESTORATION AND BRUSH MANAGEMENT ACREAGES WITHIN EACH LPC CHAT 2 (CONNECTIVITY ZONE) REPORTING UNIT, 2017.

Ecoregion–reporting unit	Reported Cropland Restoration Acreage[a]	Reported Brush Management Acreage	Total Reported Restoration Acreage
Shinnery Oak			
100	0	0	0
101	0	0	0
102	0	0	0
103	0	0	0
104	67	0	67
105	0	0	0
Total	*67*	0	*67*
Mixed Grass			
106	0	0	0
107	0	0	0
108	0	54	54
109	0	0	0
110	0	0	0
111	16	0	16
112	0	0	0
113	0	0	0
114	0	183	183
115	0	0	0
116	0	0	0
117	0	0	0
118	170	0	170
119	0	0	0
120	0	0	0
121	0	0	0
122	0	0	0
123	0	59	59
126	0	0	0
128	0	0	0
130	0	0	0
132	0	5	5
133	0	0	0
134	0	0	0
Total	*186*	*301*	*487*
Sand Sagebrush			
124	0	0	0
125	0	0	0
127	0	0	0
129	0	0	0
131	0	0	0
135	0	0	0
136	0	0	0
138	0	0	0
139	0	0	0
140	0	0	0
142	0	0	0
Total	*0*	*0*	*0*
Shortgrass			
137	0	0	0
141	0	0	0
143	0	0	0
144	0	0	0
145	0	0	0
Total	*0*	*0*	*0*
Grand Total	**253**	**301**	**554**

[a] Data not reported for the Conservation Reserve Program which facilitates the overwhelming majority of cropland restoration.

APPENDIX G. CONNECTIVITY ZONE REPORTING UNITS AND THE PERCENT IMPACT AS OF JANUARY 1, 2018. THE PERCENT IMPACT AT THE BEGINNING OF THE RWP INCLUDED FOR CHANGE DETECTION REFERENCE. CELLS HIGHLIGHTED ARE OVER THE IMPACT THRESHOLD.

FACZ ID	FACZ Class	Ecoregions	Unit Acres	2015 % impacted	2016 % impacted	2017 % impacted	2018 % impacted	Difference since 2015
100	Connectivity Zone	Shinnery Oak Prairie	148480.7	15.1%	15.2%	15.0%	16.83%	1.7%
101	Connectivity Zone	Shinnery Oak Prairie	20480.1	3.7%	4.5%	4.0%	3.52%	-0.2%
102	Connectivity Zone	Shinnery Oak Prairie	64000.3	20.3%	20.2%	20.0%	20.27%	0.0%
103	Connectivity Zone	Shinnery Oak Prairie	33280.2	34.8%	34.8%	35.0%	34.84%	0.0%
104	Connectivity Zone	Shinnery Oak Prairie	599042.8	21.2%	22.0%	22.0%	22.17%	1.0%
105	Connectivity Zone	Shinnery Oak Prairie	27520.1	5.9%	5.9%	6.0%	5.30%	-0.6%
106	Connectivity Zone	Mixed Grass Prairie	49920.2	52.4%	53.2%	53.0%	60.08%	7.7%
107	Connectivity Zone	Mixed Grass Prairie	112640.5	31.3%	31.0%	31.0%	31.56%	0.3%
108	Connectivity Zone	Mixed Grass Prairie	42240.2	18.7%	18.7%	18.0%	19.16%	0.4%
109	Connectivity Zone	Mixed Grass Prairie	119680.6	31.2%	31.8%	33.0%	34.66%	3.5%
110	Connectivity Zone	Mixed Grass Prairie	72320.3	24.3%	24.6%	24.0%	27.43%	3.2%
111	Connectivity Zone	Mixed Grass Prairie	99840.5	30.9%	31.2%	34.0%	35.57%	4.7%
112	Connectivity Zone	Mixed Grass Prairie	13440.1	22.3%	22.1%	21.0%	22.80%	0.5%
113	Connectivity Zone	Mixed Grass Prairie	19840.1	22.5%	22.4%	22.0%	24.40%	2.0%
114	Connectivity Zone	Mixed Grass Prairie	37760.2	24.7%	24.9%	24.0%	24.96%	0.3%
115	Connectivity Zone	Mixed Grass Prairie	12160.1	35.0%	37.2%	26.0%	28.20%	-6.8%
116	Connectivity Zone	Mixed Grass Prairie	12800.1	28.1%	27.8%	27.0%	27.60%	-0.5%
117	Connectivity Zone	Mixed Grass Prairie	22400.1	27.5%	28.2%	27.0%	27.78%	0.3%
118	Connectivity Zone	Mixed Grass Prairie	29440.1	37.1%	37.0%	36.0%	39.78%	2.7%
119	Connectivity Zone	Mixed Grass Prairie	12800.1	15.3%	15.1%	15.0%	17.45%	2.2%
120	Connectivity Zone	Mixed Grass Prairie	18560.1	34.4%	35.3%	34.0%	39.19%	4.8%
121	Connectivity Zone	Mixed Grass Prairie	55680.3	24.9%	24.9%	24.0%	25.76%	0.8%
122	Connectivity Zone	Mixed Grass Prairie	14720.1	32.4%	32.4%	32.0%	32.91%	0.5%
123	Connectivity Zone	Mixed Grass Prairie	99200.5	14.4%	14.3%	14.0%	15.19%	0.8%
124	Connectivity Zone	Sand Sagebrush Prairie	5120.0	14.5%	14.5%	15.0%	8.78%	-5.8%
125	Connectivity Zone	Sand Sagebrush Prairie	3200.0	7.1%	7.1%	7.0%	7.14%	0.0%
126	Connectivity Zone	Mixed Grass Prairie	69120.3	14.5%	14.4%	14.0%	17.04%	2.5%
127	Connectivity Zone	Sand Sagebrush Prairie	1920.0	1.6%	1.6%	3.0%	2.30%	0.7%
128	Connectivity Zone	Mixed Grass Prairie	30080.1	8.9%	8.9%	9.0%	9.15%	0.2%
129	Connectivity Zone	Sand Sagebrush Prairie	14720.1	31.4%	30.9%	32.0%	26.42%	-5.0%
130	Connectivity Zone	Mixed Grass Prairie	34560.2	19.7%	19.6%	19.0%	19.94%	0.2%
131	Connectivity Zone	Sand Sagebrush Prairie	23680.1	14.9%	14.9%	15.0%	12.31%	-2.6%
132	Connectivity Zone	Mixed Grass Prairie	35200.2	21.5%	21.7%	21.0%	23.98%	2.5%
133	Connectivity Zone	Mixed Grass Prairie	64640.3	18.7%	18.8%	20.0%	21.05%	2.3%
134	Connectivity Zone	Mixed Grass Prairie	37120.2	20.2%	20.2%	20.0%	20.40%	0.2%
135	Connectivity Zone	Sand Sagebrush Prairie	29440.1	43.2%	43.0%	38.0%	37.55%	-5.7%
136	Connectivity Zone	Sand Sagebrush Prairie	53120.2	15.8%	15.7%	16.0%	13.67%	-2.1%
137	Connectivity Zone	Shortgrass Prairie	32640.2	36.1%	35.9%	36.0%	36.75%	0.7%
138	Connectivity Zone	Sand Sagebrush Prairie	14080.1	32.8%	31.8%	24.0%	25.10%	-7.7%
139	Connectivity Zone	Sand Sagebrush Prairie	15360.1	18.7%	18.7%	18.0%	14.88%	-3.8%
140	Connectivity Zone	Sand Sagebrush Prairie	23040.1	34.0%	34.0%	34.0%	32.06%	-2.0%
141	Connectivity Zone	Shortgrass Prairie	52480.2	18.2%	18.1%	18.0%	20.51%	2.3%
142	Connectivity Zone	Sand Sagebrush Prairie	61440.3	21.4%	21.3%	21.0%	19.70%	-1.7%
143	Connectivity Zone	Shortgrass Prairie	26240.1	20.9%	20.9%	21.0%	20.49%	-0.5%
144	Connectivity Zone	Shortgrass Prairie	46720.2	16.1%	16.0%	16.0%	16.19%	0.1%
145	Connectivity Zone	Shortgrass Prairie	25600.1	15.0%	15.4%	15.0%	15.38%	0.4%

APPENDIX H. LESSER PRAIRIE-CHICKEN ADVISORY COMMITTEE ANNUAL REPORT AND RWP COMMITTEE INFORMATION

Date: March 31, 2018
To: Western Association of Fish and Wildlife Agencies – Lesser Prairie-Chicken Initiative Council
From: The Lesser Prairie-Chicken Advisory Committee
Subject: 2017 LPCAC Annual Report

Summary

The Lesser Prairie-Chicken Range-wide Conservation Plan ("RWP") is the culmination of an unprecedented collaboration between the United States Fish and Wildlife Service ("USFWS"), the Western Association of Fish and Wildlife Agencies ("WAFWA"), wildlife agencies in each of the five states in the range of the lesser prairie-chicken, conservation groups, property owners and industry members.

WAFWA is responsible for the administration of the RWP. The WAFWA Board of Directors established the lesser prairie-chicken initiative council ("LPCIC"). Directors of the state wildlife agencies within the LPC range comprise the LPCIC along with members of the Executive Committee.

In accordance with the RWP, the LPCIC established an Advisory Committee ("LPCAC"), Fee Structure Subcommittee ("FSSC"), Science Subcommittee ("SSC") and Interstate Working Group ("IWG"). The LPCAC and IWG are advisory in nature and provide recommendations to the LPCIC for final approval. The LPCAC serves to inform and support the RWP, to promote effective communication between the parties, resolve disputes, revise cost structures and make adaptive management recommendations for consideration and/or approval by the LPCIC. The LPCAC is supported by the FSSC and SSC.

During the period January 2017 through December 2017, the LPCAC convened four times, three times by conference call and once in person.

Lesser Prairie-Chicken Advisory Council Composition

The LPCAC is composed of up to 17 representatives, including:

- One representative from three of the five state wildlife agencies, serving on a rotating schedule;
- One representative from each of the two primary federal agencies closely involved with LPC conservation (USFWS and the Natural Resources Conservation Service, "NRCS");
- Three representatives from industry organizations (e.g., oil and gas, wind, transmission, etc.);
- Three representatives from agricultural and landowner organizations (e.g., Cattleman's Association, Corn Growers Farm Bureau, etc.);
- Three representatives from conservation organizations (e.g., the Nature Conservancy, North American Grouse Partnership, National Audubon Society, etc.); and,
- Three representatives from local government or municipalities.

During the period March 2017 through December 2017, the membership of the LPCAC comprised the following individuals:

State Fish & Wildlife Agencies

Mr. Clayton Wolf, Wildlife Division Director, Texas Parks and Wildlife Department

Mr. Jake George, Wildlife Section Chief, KS Dept. of Wildlife, Parks & Tourism

Mr. Stewart Liley, Chief, Wildlife Management Division, New Mexico Dept. of Game and Fish

Federal Agencies

Mr. Tim Griffiths, Acting LPC Initiative Coordinator, Natural Resources Conservation Service

Ms. Debra Bills, US Fish and Wildlife Service, Field Supervisor

Industry Organizations

Mr. Myles Culhane (Chairman), Managing Counsel, Occidental Oil & Gas Corp

Ms. Alyssa Edwards, Associate Director, Environmental Permitting, EDF Renewable Energy

Mr. Erv Warren, Manager of Wildlife, OGE Energy Corp

Agricultural and Landowner Association

Mr. Bill Barby, B bar B Ranch

Mr. Jay Evans, Ranch Manager and President

Mr. Dan O'Hair, Owner/Operator, Jett Ranch, LLC

Conservation Organizations

Mr. Chris McLeland, Director-South Region Pheasants Forever

Mr. Rob Manes, Director, The Nature Conservancy, KS

Local Government, Municipalities, Co-ops

Mr. John McCreight, Environmental Coordinator, Western Farmers Electric Co-op

Ms. Ruth Calderon, Environmental and Regulatory Policy Manager, Golden Spread Electric Co-op

Mr. Bill Carson, Manager of Member Services, North Plains Electric Co-op

LPCAC Meetings

LPCAC convened via conference calls on May 10, 2017, August 9, 2017, November 8, 2017. The LPCAC also met in Edmond, OK on February 16, 2017. At each meeting the LPCAC reviewed reports from the LPCIC, progress toward meeting conservation goals through the mitigation framework, made recommendations regarding the qualifications and use of technical service providers, reviewed research needs, and made recommendations to the FSSC, SSC and LPCIC as needed. The meetings generated the following recommendations that were communicated to the LPCIC for further consideration and action.

1. Landowner Fee Increase for Certain Practices

On August 9, 2017, WAFWA staff and the FSSC provided the LPCAC a proposal changing some base payment rates under the LPC conservation agreements. The proposed changes would take effect for active and new contracts on January 1, 2018. The LPCAC voted unanimously to advance the recommendation, as written, to the LPCIC for action at their upcoming meeting.

2. Administrative Fee Increase

During the November 8, 2017 conference call, a proposal to increase the current administrative fee associated with new enrollments and mitigation impact fees was brought before the committee for consideration. This administrative fee rate is an identified adaptive management item with triggers set if the administrative endowment is not being met. A limit of four percent increase is set in the RWP. The LPCAC unanimously approved a recommendation of increasing the administrative fee by four percent to be submitted to the LPCIC for consideration. The LPCAC also requested that the administrative fee rate be an agenda item each year for review to determine if it needs to be adjusted up or down in the future.

Fee Structure Subcommittee

The Lesser Prairie-Chicken FSSC serves to inform and support the RWP, promote effective communication, resolve disputes, revise cost structures and make adaptive management and policy recommendations for the consideration and/or approval by the LPCIC through the LPCAC.

The FSSC meets, at a minimum, annually and each member is serves a two-year term. The role of the FSSC is as follows:

- Annually review and update mitigation costs and landowner enrollments in specific practices.
- Annually review adaptive management triggers and evaluated actions related to the fee structure for the mitigation framework.
- Annually provide a report to the LPC Advisory Committee

The Lesser Prairie-Chicken FSSC convened on conference calls on June 29 and again on October 5th. During the June 29th call, WAFWA staff provided the committee an overview of the proposed landowner fee increases. The FSSC voted unanimously to send the proposed increases to the LPCAC for consideration. On October 5th, the FSSC was presented the proposal to increase the administrative fee percentage. There was not a quorum on the call so an email vote was requested from the sub-committee and a unanimous vote was obtained to move this recommendation on to the LPCAC.

Science Sub-committee

Science Sub-committee charges:

1. Review annual reports related to population estimates and trends, including aerial and ground-based surveys
2. Evaluate emerging science related to LPC, including habitat selection, responses to conservation practices, responses to impacts, etc.
3. Annually review adaptive management triggers and evaluated actions related to LPC population trends and emerging science
4. Review and update research needs for LPC
5. Annually provide a report to the Advisory Committee

The Science Sub-Committee (SSC) met twice in 2017 via conference calls. The SSC reviewed and provided feedback to researchers developing a population reconstruction and population viability analysis of lesser prairie-chickens that incorporated LPC RWP aerial survey data, discussed a proposal to remove fence-marking requirements from the RWP, and discussed a WAFWA staff proposal to modify grazing plan development. No formal actions were taken on these matters. Subcommittee chair and vice-chair were re-elected for second terms in 2018. The SSC will meet again in January 2018.

Questions regarding this report should be forwarded to the WAFWA LPC Program Manager.

Respectfully submitted on behalf of the LPCAC,

Myles Culhane
Chair, Lesser Prairie-Chicken Advisory Committee