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College of Agriculture,  
Life Sciences and  
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## INTRODUCTION

The lesser prairie-chicken (LPC) is a species of grouse found in shortgrass and mixed-grass prairies of the central and southern Great Plains. In 2002, the LPC's northern distinct population segment was listed as a threatened species and the southern distinct population segment was listed as an endangered species under the Endangered Species Act. Threats to LPC habitat include energy development (oil, gas, and wind), conversion of grasslands to croplands, encroachment of woody vegetation like mesquite and red cedar, and overgrazing. Since 95 percent of the habitat for the species is private land, potential funding for conservation efforts to protect LPC habitat on these lands has focused on Natural Resources Conservation Service (NRCS) programs. One of the primary conservation practices for LPC is tree removal. As noted by Lautenbach et al. (2017), having more than one tree per hectare (2.471 acres) significantly reduces LPC use of an area.

While the primary purpose of conservation practices for LPC is habitat improvement, these practices also provide other benefits. For example, tree removal also improves grass production, benefiting cattle ranching. Previous research considered the

potential ranch-level economic impact of LPC conservation practices on cattle ranches in four Major Land Resource Areas<sup>1</sup> (MLRA) covering LPC habitat in Kansas, New Mexico, Oklahoma, and Texas (Tanaka et al., 2025). The study area included 1) the southern portion of MLRA 72 (Central High Tableland), 2) the southern portion of MLRA 73 (Rolling Plains and Breaks), 3) the northern portion of MLRA 77D (Southern High Plains, Southwestern Part), and 4) the eastern portions of MLRA 77E (Southern High Plains, Breaks). Table 1 lists the 24 counties and acreages included in these four MLRAs.

Another benefit of LPC conservation practices is the economic contributions of these practices to the area's economy. In this analysis, we have taken the results from the ranch-level economic analysis and used them to estimate the economic impacts of LPC conservation practice implementation on the regional economy where the four MLRAs are located. Regional impacts include changes in business activity, labor earnings, and employment resulting from implementation of the conservation practices. The analysis takes the dollar flow associated with an economic activity in a particular sector of the regional economy and estimates the direct and secondary business activity, labor earnings, and employment associated

Table 1. Counties and Acres in LPC Study Area

MLRA 72 - Central High Tableland					MLRA 73 - Rolling Plains and Breaks				
County	State	Total Acres	Private Acres	Private Percent	County	State	Total Acres	Private Acres	Private Percent
Wallace	KS	584,740	584,740	100.0%	Graham	KS	574,306	574,306	100.0%
Logan	KS	686,464	686,464	100.0%	Trego	KS	571,406	561,602	98.3%
Gove	KS	685,496	685,475	100.0%	Ellis	KS	574,954	574,544	99.9%
Lane	KS	458,888	458,523	99.9%	Ness	KS	687,046	686,814	100.0%
Hamilton	KS	638,049	637,547	99.9%	Rush	KS	458,446	458,446	100.0%
Kearny	KS	556,764	556,764	100.0%	Hodgeman	KS	549,632	549,397	100.0%
Morton	KS	466,858	359,201	76.9%	Ford	KS	702,144	701,568	99.9%
<b>Total</b>		<b>4,077,259</b>	<b>3,968,714</b>	<b>97.3%</b>	<b>Total</b>		<b>4,117,934</b>	<b>4,106,677</b>	<b>99.7%</b>
MLRA 77D - Southern High Plains - Southwestern Part									
County	State	Total Acres	Private Acres	Private Percent	MLRA 77E - Southern Great Plains - Breaks				
Lea	NM	2,810,316	1,450,178	51.6%	County	State	Total Acres	Private Acres	Private Percent
Roosevelt	NM	1,569,659	1,308,125	83.3%	Meade	KS	626,247	625,098	99.8%
Andrews	TX	959,876	959,774	100.0%	Beaver	OK	1,162,605	940,826	80.9%
<b>Total</b>		<b>5,339,851</b>	<b>3,718,077</b>	<b>69.6%</b>	Ellis	OK	787,335	363,443	46.2%
					Lipscomb	TX	596,491	595,613	99.9%
					Roberts	TX	590,642	590,642	100.0%
					Hemphill	TX	583,470	577,359	99.0%
					Gray	TX	592,575	590,903	99.7%
					<b>Total</b>		<b>4,939,365</b>	<b>4,283,884</b>	<b>86.7%</b>

Source: U.S. Geological Survey, Gap Analysis Program, 2022. Protected Areas Database of the U. S. (PADUS) version 3.0

<sup>1</sup> NRCS-designated geographic areas that are characterized by particular patterns of soils, climate, water resources, and land use.

with that dollar flow. It considers both direct impacts on the sectors directly impacted by implementing the practices and the secondary effects from business-to-business linkages between the directly impacted sectors and other support sectors in the regional economy. For example, secondary impacts for ranching would include expenditures with veterinarians, feed stores, and bulk fuel dealers. The analysis also considers the impacts of household-to-business linkages between the workers in the direct or support sectors with the other sectors of the regional economy in terms of household expenditures, including food, housing, and transportation.

## METHODOLOGY

The regional economic impacts of the LPC conservation practices were estimated using an IMPLAN<sup>2</sup> model of the 24 counties where the four MLRAs are located. Two economic sectors were assumed to be directly impacted by the implementation of the conservation practices: 1) sector 11 – beef cattle ranching and farming sector and 2) sector 19 – support activities for agriculture and forestry. The beef cattle ranching sector would be affected by increases in cattle production resulting from improved grass production due to the removal of trees through the LPC conservation practices. The agricultural support services sector would be affected by the regional expenditures associated with implementing the LPC conservation practices. The beef cattle ranching and farming sector's coefficients in IMPLAN were adjusted to better reflect regional conditions based on regional data for cattle production.

In the ranch-level analysis, two scenarios were considered: 1) each rancher treating all of their pastures over four years and 2) each rancher treating half of their pastures over four years. Within each of these scenarios, three alternatives were considered: 1) ranchers pay zero percent of the cost of the practices, 2) ranchers pay 25 percent of the cost of the practices, and 3) ranchers pay 100 percent of the cost of the practices. This resulted in six regional impact estimates for the four MLRA region.

## DIRECT IMPACTS – CATTLE PRODUCTION

Table 2 summarizes the direct economic impacts for cattle production with implementation of the conservation practices on 50 percent and 100 percent of pastures for the average participating ranch over a 20-year time period. Twenty years represents the estimated life of the practice. The direct economic impact from cattle production for each year was based on estimates of the regional average annual beef cowherd size per ranch from the ranch-level analysis multiplied by a gross revenue per cow of \$824.46 (USDA ERS – Commodity Costs and Returns: Prairie Gateway Region, 2023). Year 1 represents the baseline before implementation of the practices (132 head).

For the 50 percent pasture treatment scenario, years 2–5 are based on a decline in herd size of 12.5 percent because 12.5 percent of the pastures were treated annually precluding the grazing of those pastures in that year (Tanaka et al., 2025). After year 5, the herd size is projected to increase by 6.2 percent above the baseline to 140 head due to the increased grass production from the pastures following the treatment. This increase is estimated to continue for the remainder of the time period. The direct economic impact from cattle production is estimated to increase by \$46,345 (2.1 percent) above the baseline over the 20-year time period.

For the 100 percent pasture treatment scenario, years 2–5 are based on a decline in herd size of 25 percent as 25 percent of the pastures are treated annually precluding the grazing of those pastures in that year (Tanaka et al., 2025). After year 5, the herd size is projected to increase by 13.3 percent above the baseline to 150 head due to the increased grass production from the pastures following the treatment. This increase is estimated to continue for the remainder of the time period. The direct economic impact from cattle production is estimated to increase by \$107,739 (4.9 percent) above the baseline over the 20-year time period.

## DIRECT IMPACTS – CONSERVATION PRACTICES

Table 3 summarizes the direct economic impact from expenditures to implement the conservation practices on 50 and 100 percent of the pastures per ranch over a 20-year time period. These impacts are based on the regional average acres of pasture per ranch, and the regional average conservation practice costs per acre from the ranch-level analysis. Year 1 represents the baseline where there is no implementation of conservation practices. Years 2–5 represent the expenditure to treat a quarter of the treated acres per year. After year 5, the expenditure represents maintenance costs associated with continuing the practice through the remainder of the time period.

For the 50 percent pasture treatment scenario, the total cost per ranch to treat 1,352 acres is \$380,186 over the 20-year time periods. The total per-acre costs of the treatment would be \$281.13. Seventy-six percent of the cost (\$289,983) would occur in years 2–5 when the pastures are being treated, with only maintenance expenditures after year 5.

For the 100 percent pasture treatment scenario, the total cost per ranch to treat 2,705 acres is \$942,271 over the 20-year time period. The total per-acre costs of the treatment would be \$348.39. Seventy-five percent of the cost (\$702,736) would occur in years 2–5 when the pastures are being treated, with only maintenance expenditures after year 5.

<sup>2</sup> IMPLAN is a software system that generates economic models to estimate the economic impacts of changes in a region's economy. It can provide economic models down to the county and sub-county level.

Table 2. Average Herd Size and Direct Economic Impact from Cattle Production Per Ranch

Year	Baseline	50% of Pastures Treated	100% of Pastures Treated	Direct Economic Impact Baseline (1)	Direct Economic Impact 50% (1)	Direct Economic Impact 100% (1)	Percent Change 50%	Percent Change 100%
1	132	132	132	\$108,834	\$108,834	\$108,834	0.0%	0.0%
2	132	116	99	\$108,834	\$95,230	\$81,626	-12.5%	-25.0%
3	132	116	99	\$108,834	\$95,230	\$81,626	-12.5%	-25.0%
4	132	116	99	\$108,834	\$95,230	\$81,626	-12.5%	-25.0%
5	132	116	99	\$108,834	\$95,230	\$81,626	-12.5%	-25.0%
6	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
7	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
8	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
9	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
10	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
11	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
12	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
13	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
14	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
15	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
16	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
17	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
18	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
19	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
20	132	140	150	\$108,834	\$115,552	\$123,273	6.2%	13.3%
<b>Total</b>	<b>2,640</b>	<b>2,696</b>	<b>2,771</b>	<b>\$2,176,688</b>	<b>\$2,223,033</b>	<b>\$2,284,427</b>	<b>2.1%</b>	<b>4.9%</b>
Change		56	131		\$46,345	\$107,739		

(1) Based on gross revenue per cow of \$824.46 (USDA 2023)

Table 3. Average Direct Economic Impact from Conservation Practices Per Ranch

Year	Direct Economic Impact 50%	Direct Economic Impact 100%
1	\$0	\$0
2	\$107,021	\$214,474
3	\$60,988	\$162,754
4	\$60,988	\$162,754
5	\$60,988	\$162,754
6	\$6,013	\$15,969
7	\$6,013	\$15,969
8	\$6,013	\$15,969
9	\$6,013	\$15,969
10	\$6,013	\$15,969
11	\$6,013	\$15,969
12	\$6,013	\$15,969
13	\$6,013	\$15,969
14	\$6,013	\$15,969
15	\$6,013	\$15,969
16	\$6,013	\$15,969
17	\$6,013	\$15,969
18	\$6,013	\$15,969
19	\$6,013	\$15,969
20	\$6,013	\$15,969
<b>Total</b>	<b>\$380,186</b>	<b>\$942,271</b>
Acres Treated	1,352	2,705
Cost per Acre	\$281.13	\$348.39

## TOTAL ECONOMIC IMPACTS

Table 4 summarizes the economic impacts of LPC conservation practices for the four MLRA region over the 20-year period assuming that 100 ranches participate in the program. The top half of the table shows the impact when 50 percent of the pastures are treated and the lower half of the table shows the impact when 100 percent of the pastures are treated. Total economic impacts were estimated by entering the dollar amounts for increased cattle production and expenditures for implementing the conservation practices from Tables 2 and 3 into the MLRA IMPLAN model for the region to estimate the total (direct and secondary) business activity, labor earnings, and employment associated with those dollar amounts. The economic impact analysis considered the three alternatives from the ranch-level analysis in terms of how much of the conservation practice was paid for by the rancher: 1) rancher pays zero percent, 2) rancher pays 25 percent, and 3) rancher pays 100 percent. The total impact estimates decrease as the percent of the conservation practice paid by the rancher increases since

the conservation practice expenditure would require a decrease in some other expenditure by the rancher. To account for this, the analysis reduces household expenditures by the amount of the rancher's conservation practice expense and adjusts total impact accordingly. While the direct impact remains the same, the reduction results in a decrease in secondary impacts. This presumes that the rancher pays for the practices out of current operating revenue. If the rancher pays for the practice by borrowing or from savings, the total economic impact would not be reduced since this would represent additional money going into the regional economy.

For the 50 percent scenario, if the rancher pays zero percent of the conservation practice costs, there would be \$42.6 million of direct economic impact, with \$38.0 million from conservation practice expenditures and \$4.6 million from increased cattle production (Table 4). The \$42.6 million in direct impacts would generate \$13.4 million of secondary economic impacts, resulting in a total economic impact of \$56.1 million. Of the \$56.1 million in total economic impact, \$39.9 million is labor income. The \$39.9 million of labor income is associated with 795 jobs. Average earnings per job for the increased employment would be \$50,247 per year.

For the 50 percent scenario, if the rancher pays 25 percent of the conservation practice costs, the \$42.6 million of direct economic impact from increased cattle production and conservation practice expenditures would generate \$8.8 million of secondary economic impacts, resulting in a total economic impact of \$51.5 million (Table 4). Of the \$51.5 million in total economic impact, \$38.8 million is labor income. The \$38.8 million of labor income is associated with 768 jobs. Average earnings per job for the increased employment would be \$50,497 per year.

For the 50 percent scenario, if the rancher pays 100 percent of the conservation practice costs, the \$42.6 million of direct economic impact from increased cattle production and conservation practice expenditures results in negative \$5.0 million of secondary economic impacts, generating a total economic impact of \$37.7 million (Table 4). The total impact is less than the direct impact because the secondary gain from the conservation practices is less than the secondary loss from reductions in other expenditures by the rancher. Of the \$37.7 million in total economic impact, \$25.8 million is labor income. The \$25.8 million of labor income is associated with 509 jobs. Average earnings per job for the increased employment would be \$50,621 per year.

For the 100 percent scenario, if the rancher pays zero percent of the conservation practice costs, there would be \$105.0 million of direct economic impact with \$94.2 million from conservation practice expenditures and \$10.7 million from increased cattle production (Table 4). The \$105.0 million of direct economic impact would generate \$32.7 million of secondary economic impacts, resulting in a total economic impact of \$137.8 million. Of the \$137.8 million in total economic impact, \$98.7 million is

Table 4. Economic Impact of LPC Conservation Practices Over 20 Years (100 Ranches)

Impact	50% Pasture Rancher = 0%	50% Pasture Rancher = 25%	50% Pasture Rancher = 100%
Conservation Practice	\$38,018,600	\$38,018,600	\$38,018,600
Increased Cattle Production	\$4,634,500	\$4,634,500	\$4,634,500
Total Direct Impact	\$42,653,100	\$42,653,100	\$42,653,100
Secondary Impact	\$13,454,476	\$8,853,350	-\$4,971,838
Total Impact	\$56,107,576	\$51,506,450	\$37,681,262
Total Labor Earnings	\$39,927,306	\$38,771,578	\$25,775,026
Total Employment (Jobs)	795	768	509
Average Earnings Per Job	\$50,247	\$50,497	\$50,621
Impact	100% Pasture Rancher = 0%	100% Pasture Rancher = 25%	100% Pasture Rancher = 100%
Conservation Practice	\$94,227,100	\$94,227,100	\$94,227,100
Increased Cattle Production	\$10,773,900	\$10,773,900	\$10,773,900
Total Direct Impact	\$105,001,000	\$105,001,000	\$105,001,000
Secondary Impact	\$32,754,206	\$21,458,148	-\$12,430,025
Total Impact	\$137,755,206.02	\$126,459,148	\$92,570,975
Total Labor Earnings	\$98,742,373	\$95,907,455	\$68,539,594
Total Employment (Jobs)	1,848	1,783	1,295
Average Earnings Per Job	\$53,434	\$53,805	\$52,921

labor income. The \$98.7 million of labor income is associated with 1,848 jobs. Average earnings per job for the increased employment would be \$53,434 per year.

For the 100 percent scenario, if the rancher pays 25 percent of the conservation practice costs, the \$105.0 million of direct economic impact from increased cattle production and conservation practice expenditures generates \$21.5 million of secondary economic impacts, resulting in a total economic impact of \$126.5 million (Table 4). Of the \$126.5 million in total economic impact, \$95.9 million is labor income. The \$95.9 million of labor income is associated with 1,783 jobs. Average earnings per job for the increased employment would be \$53,805 per year.

For the 100 percent scenario, if the rancher pays 100 percent of the conservation practice costs, the \$105.0 million of direct economic impact from increased cattle production and conservation practice expenditures results in negative \$12.4 million of secondary economic impacts, generating a total economic impact of \$92.6 million (Table 4). The total impact is less than the direct impact because the secondary gain from the conservation practices is less than the secondary loss from reductions in other expenditures by the rancher. Of the \$92.6 million in total economic impact, \$68.5 million is labor income. The \$68.5 million of labor income is associated with 1,295 jobs.

Average earnings per job for the increased employment would be \$52,921 per year.

## DISTRIBUTION OF EMPLOYMENT

Economic impact analysis considers both the direct and secondary impacts of an economic activity. Tables 5 summarizes how the economic impacts of LPC conservation practices would be distributed throughout the regional economy in terms of the total employment generated by the conservation practices. The top half of Table 5 shows the distribution of employment for the 50 percent scenario and the bottom half of the Table 5 shows the distribution of employment for the 100 percent scenario. Since cattle production and the agricultural support services associated with implementing the conservation practices are both part of the agricultural sector, most of the employment associated with the practices are found in that sector in both scenarios. However, significant secondary employment is generated in other sectors of the regional economy from the implementation of the conservation practices.

For the 50 percent scenario, most of the employment from the conservation practices is in the agriculture-related sector (approximately 720 jobs) regardless of how much of the conservation costs the rancher pays. If the rancher pays zero percent of the conservation costs, there would be an additional 75

Table 5. Distribution of Employment for LPC Conservation Practices

Sector	50% Pasture Rancher = 0%	50% Pasture Rancher = 25%	50% Pasture Rancher = 100%
Agriculture, Forestry, Fishing and Hunting	720	719	718
Retail Trade	19	11	-60
Accommodation and Food Services	12	8	-37
Health Care and Social Assistance	12	8	-27
Finance and Insurance	8	5	-19
Other Services (except Public Administration)	6	4	-20
Transportation and Warehousing	3	2	-6
Professional, Scientific, and Technical Services	3	2	-6
Real Estate and Rental and Leasing	2	1	-7
Wholesale Trade	2	2	-3
Administrative/Support/Waste Mgmt/Remediation	2	1	-5
Arts, Entertainment, and Recreation	2	1	-4
Educational Services	1	1	-3
Information	1	1	-4
Construction	1	1	-3
Government Enterprises	1	0	-2
Utilities	0	0	-1
Mining, Quarrying, and Oil and Gas Extraction	0	0	-1
Management of Companies and Enterprises	0	0	-1
<b>Total</b>	<b>795</b>	<b>768</b>	<b>509</b>

Sector	100% Pasture Rancher = 0%	100% Pasture Rancher = 25%	100% Pasture Rancher = 100%
Agriculture, Forestry, Fishing and Hunting	1,664	1,665	1,663
Retail Trade	46	28	-107
Accommodation and Food Services	29	18	-65
Health Care and Social Assistance	27	19	-44
Finance and Insurance	20	13	-34
Other Services (except Public Administration)	15	9	-35
Transportation and Warehousing	7	5	-11
Professional, Scientific, and Technical Services	7	5	-12
Real Estate and Rental and Leasing	6	3	-13
Wholesale Trade	5	4	-5
Administrative/Support/Waste Mgmt/Remediation	5	3	-9
Arts, Entertainment, and Recreation	5	3	-7
Educational Services	3	2	-5
Information	3	2	-7
Construction	2	1	-5
Government Enterprises	2	1	-4
Utilities	1	1	-2
Mining, Quarrying, and Oil and Gas Extraction	1	1	-2
Management of Companies and Enterprises	1	0	-1
<b>Total</b>	<b>1,848</b>	<b>1,783</b>	<b>1,296</b>

secondary jobs, primarily in the Retail Trade, Accommodation and Food Services, Health Care and Social Assistance, Finance and Insurance, and Other Services sectors.

For the 50 percent scenario, if the rancher pays 25 percent of the conservation costs, there would be an additional 49 secondary jobs, primarily in the same sectors. In this scenario, secondary employment decreases because the secondary gain from the conservation practices would be partially offset by the secondary loss from reductions in other expenditures by the rancher. If the rancher pays 100 percent, there would be a loss of 209 secondary jobs. This loss occurs because the secondary gain from the conservation practices would be more than offset by the secondary loss from reductions in other expenditures by the rancher. Total employment is still positive (509 jobs) since the direct impact is greater than the secondary impact.

For the 100 percent scenario, most of the employment from the conservation practices is again in the agriculture-related sector (approximately 1,664 jobs) regardless of how much of the conservation costs the rancher pays. If the rancher pays zero percent of conservation costs, there would be an additional 184 secondary jobs, primarily in the Retail Trade, Accommodation and Food Services, Health Care and Social Assistance, Finance and Insurance, and Other Services sectors.

For the 100 percent scenario, if the rancher pays 25 percent of conservation costs, there would be an additional 118 secondary jobs, primarily in the same sectors. In this scenario, secondary employment decreases because the secondary gain from the conservation practices would be partially offset by the secondary loss from reductions in other expenditures by the rancher. If the rancher pays 100 percent, there would be a loss of 367 secondary jobs. This loss occurs because the secondary gain from the conservation practices would be more than offset by the secondary loss from reductions in other expenditures by the rancher. Total employment is still positive (1,296 jobs) since the direct impact is greater than the secondary impact.

## SUMMARY AND CONCLUSIONS

In 2002, the lesser prairie-chicken's northern population was listed as a threatened species and the southern population was listed as an endangered species. Since 95 percent of the LPC habitat is private land, efforts to protect LPC habitat have focused on obtaining funding through Natural Resources Conservation Service programs. Since LPC have an aversion to trees, much of the potential conservation efforts would focus on tree removal.

While the primary purpose of LPC conservation practices is to improve bird habitat, these practices also provide other benefits. For example, tree removal also improves grass production, which benefits cattle ranching. Previous research (Tanaka et al., 2025) estimated the potential ranch-level economic benefits from LPC conservation practices on cattle ranches in four Major

Land Resource Areas (MLRA) in parts of Kansas, New Mexico, Oklahoma, and Texas.

Another benefit from LPC conservation practices is the economic contribution to the regional economies of the neighboring communities in terms of direct and secondary increases in business activity, labor earnings, and employment. These benefits would occur from increased cattle production resulting from the conservation practices and local expenditures associated with implementing the conservation practices. In this analysis, we have taken the results from the ranch-level analysis and estimated the economic contributions of implementing LPC conservation practices to the regional economy in the 24-county region within the four MLRAs using an IMPLAN model.

For the four MLRA region, cattle production impact was based on 100 ranchers participating in the program with an average herd size of 132 beef cows and an average gross revenue of \$824.46 per cow. The impact of conservation practices was based on the rancher treating either 50 percent of their pastures (1,352 acres of pasture per ranch) or 100 percent of their pastures (2,705 acres per ranch). Total cost for treatment if 50 percent of the pastures were treated was estimated to average \$281.13 per acre over the 20-year period, with a total cost of \$380,186 per ranch. Total cost for treatment if 100 percent of the pastures were treated was estimated to average \$348.39 per acre over the 20-year period, with a total cost of \$942.271 per ranch.

The economic impact analysis considered six different scenarios. One scenario was for 50 percent of the ranch's pastures being treated. A second scenario was for 100 percent of the ranch's pastures being treated. For each of these scenarios there were three alternatives: 1) the rancher pays zero percent of the treatment costs, 2) the rancher pays 25 percent of the treatment costs, and 3) the rancher pays 100 percent of the treatment costs.

Under the 50 percent scenario, the direct economic impact would be \$42.6 million, including \$38.0 million from implementation of the conservation practice and \$4.6 million from the increased cattle production. Secondary economic impacts ranged from -\$5.0 million to +\$13.4 million depending on the rancher's share of the conservation practice costs. The total economic impact (direct + secondary) ranged from \$37.7 million to \$56.1 million depending on the size of the secondary economic impacts. Total labor earnings ranged from \$25.8 million to \$40.0 million and the associated employment ranged from 509 to 795 jobs depending on the size of the secondary impacts. Average earnings per job were over \$50,000.

Under the 100 percent scenario, the direct economic impact would be \$105.0 million, including \$94.2 million from implementation of the conservation practice and \$10.8 million from the increased cattle production. Secondary economic impacts ranged from -\$12.4 million to +\$32.7 million depending on the rancher's share of the conservation practice costs. The total

economic impact (direct + secondary) ranged from \$92.6 million to \$137.7 million depending on the size of the secondary economic impacts. Total labor earnings ranged from \$68.5 million to \$98.7 million and the associated employment ranged from 1,295 to 1,848 jobs depending on the size of the secondary impacts. Average earnings per job were about \$53,000.

Economic impact analysis considers both the direct and secondary employment associated with an economic activity. Most of the employment associated with the conservation practices was in the agricultural sector. However, there was significant secondary employment in other sectors of the regional economy, primarily in the Retail Trade, Accommodation and Food Services, Health Care and Social Assistance, and Other Services sectors. Under the 50 percent scenario, total employment from the LPC conservation practices ranged from 509 to 795 jobs depending on the rancher's share of the conservation practice cost. Of this total employment, approximately 720 were in the agricultural sector with -209 to 75 jobs in secondary support sectors. If the rancher pays 100 percent of the conservation costs, secondary employment would be negative because the decrease in secondary employment from the reduction in other expenditures by the rancher would more than offset the gain from the increase in secondary employment from implementing the conservation practices.

Under the 100 percent scenario, total employment from the LPC conservation practices ranged from 1,295 to 1,848 jobs depending on the rancher's share of the conservation practice cost. Of this total employment, approximately 1,165 were in the agriculture sector, with -368 to 184 jobs in secondary support sectors. If the rancher pays 100 percent of the conservation costs, secondary employment would be negative because the decrease in secondary employment from the reduction in other expenditures by the rancher would more than offset the gain from the increase in secondary employment from implementing the conservation practices.

Table 6 summarizes the economic impact associated with LPC conservation practices per \$1,000,000 of expenditures. For both the 50 percent and 100 percent scenarios, \$1.0 million of spending on conservation practices itself generates between \$1.0 and \$1.5 million of total economic impact (including the increase in cattle production), between \$0.7 and \$1.0 million in total labor earnings, and between 13.7 and 20.9 total jobs.

There are other considerations associated with the economic impact of LPC conservation practices. The counties in the four MLRA region are rural counties where opportunities for new employment may be limited. Ten of the 24 counties in the region are classified as either "At Risk" or "Distressed" counties, indicating that they are economically challenged. This makes the generation of new employment particularly important in these counties. Not only do the LPC conservation practices provide new employment but also the jobs are relatively high paying, averaging over \$50,000 per job. These jobs would be not only in the agriculture sector but also in many other sectors of the region's economy.

By providing increased cattle production, the LPC conservation practices may also provide additional stability to existing cattle ranches in the region. This could help maintain the current cattle ranching industry in the area.

One limitation of the analysis is the assumption that 100 ranchers participate in the conservation program in year 1. Based on the ranch-level analysis, this would mean the treatment of between 135,163 and 270,574 acres at a cost of between \$29.0 and \$70.3 million during years 2–5. It is unclear if that amount of funding would be available from either public or private sources. If not, the total economic impact estimates might be the same but could be spread out over a longer time period than 20 years in order to have adequate funding.

Table 6. Economic Impact Per \$1,000,000 of LPC Conservation Expense

Impact	50% Pastures Rancher = 0%	50% Pastures Rancher = 25%	50% Pastures Rancher = 100%
Conservation Practices	\$1,000,000	\$1,000,000	\$1,000,000
Total Impact	\$1,476,190	\$1,355,135	\$991,394
Total Labor Earnings	\$1,050,488	\$1,020,080	\$678,141
Total Employment (Jobs)	20.9	20.2	13.4
Impact	100% Pastures Rancher = 0%	100% Pastures Rancher = 25%	100% Pastures Rancher = 100%
Conservation Practices	\$1,000,000	\$1,000,000	\$1,000,000
Total Impact	\$1,461,930	\$1,342,050	\$982,411
Total Labor Earnings	\$1,047,906	\$1,017,820	\$727,378
Total Employment (Jobs)	19.6	18.9	13.7

In conclusion, while the primary purpose of LPC conservation practices is to improve habitat for the LPC, these practices also provide other benefits. Since LPC conservation practices often involve tree removal, these practices can also improve range productivity, leading to increased cattle production. In addition, the expenditures on conservation practices and the increase in cattle production also contribute to local economies in the region in terms of business activity, labor earnings, and jobs. As a result, what is good for the bird is also good for the herd and, in addition, good for the overall economy of the region.

As a final note, on August 12, 2025, a Texas-based federal judge ended Endangered Species Act protection for the lesser prairie-chicken after the U.S. Fish and Wildlife Service said it had found a serious defect in the listing (E&E News, 2025). If this ruling stands, the potential for future conservation practices for LPC habitat could be very limited. The ruling is being appealed with the 5<sup>th</sup> U.S. Circuit Court of Appeals by the Center for Biological Diversity and Texas Campaign for the Environment.

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