COMMON SENSE INSTITUTE

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REWILDING AT A COST

HOW WOLF REINTRODUCTION IMPACTS COLORADO'S AGRICULTURE SECTOR AND LOCAL ECONOMIES

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ABOUT THE AUTHOR

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Dr. Caitlin McKennie is an experienced economist and demographer who came to the CSI with more than eight years of experience working as a public servant for the State of Colorado. She has served as an economist for multiple state agencies, including the State Demography Office at the Department of Local Affairs; the Colorado Workforce Development Council at the Department of Labor and Employment; the Colorado Department of Higher Education; the Office of State Planning and Budgeting (OSPB) at Governor Jared Polis's Office; and the Department of Natural Resources. McKennie is motivated by data analysis and empirical modeling as a tool for informed decision-making. She holds an M.A. in applied economics from the University of Colorado, Denver, an M.S. in mineral and energy economics from the Colorado School of Mines, and a Ph.D. in economics from the University of Stirling, Scotland.

ABOUT COMMON SENSE INSTITUTE

Common Sense Institute is a non-partisan research organization dedicated to the protection and promotion of our economy. As a leading voice for free enterprise, CSI's mission is to examine the fiscal impacts of policies and laws and educate voters on issues that impact their lives.

CSI's founders were a concerned group of business and community leaders who observed that divisive partisanship was overwhelming policy-making and believed that sound economic analysis could help people make fact-based and *common sense* decisions.

CSI employs rigorous research techniques and dynamic modeling to evaluate the potential impact of these measures on the Colorado economy and individual opportunity.

TEAMS & FELLOWS STATEMENT

CSI is committed to independent, in-depth research that examines the impacts of policies, initiatives, and proposed laws so that Coloradans are educated and informed on issues impacting their lives. CSI's commitment to institutional independence is rooted in the individual independence of our researchers, economists, and fellows. At the core of CSI's mission is a belief in the power of the free enterprise system. CSI's work explores ideas that protect and promote jobs and the economy, and the CSI team and fellows take part in this pursuit of academic freedom. The CSI team's work is informed by data-driven research and evidence.

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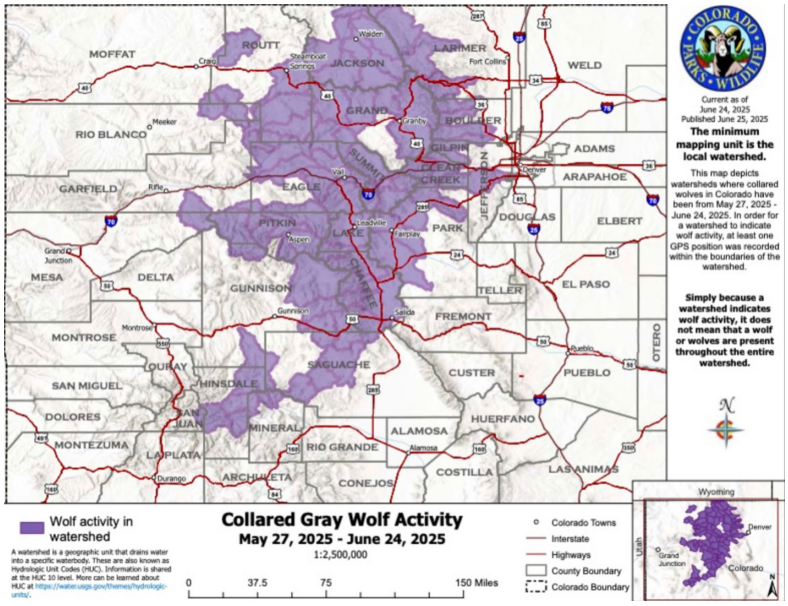
INTRODUCTION

The reintroduction of gray wolves in Colorado, initiated under ballot measure Proposition 114 and implemented beginning in 2021, has brought approximately 25 wolves into the state over the past two years, and calls for the introduction of an additional 10-15 wolves between late November 2025 and February 2026.[i] As Figure 1 shows, these wolves now roam across an estimated **29 counties,** representing both rural agricultural regions and more densely populated areas such as Boulder and Jefferson Counties. While the Colorado Parks and Wildlife (CPW) program was designed to restore ecological balance, the widespread range of the introduced wolf population has resulted in unintended consequences for livestock producers, particularly in areas where grazing lands intersect with known wolf activity zones.[ii]

As documented by CPW, between December 2021 and May 2025, Colorado ranchers and farmers have suffered financial losses from **49 confirmed cases of gray wolf depredation.** These cases — incidents in which wolves inflict physical trauma resulting in injury or death to livestock — happened in Pitkin, Gunnison, Eagle, Jackson, Routt, Grand, Rio Blanco, and Elbert counties. As of August 2025, at least **65 animals have died or been harmed.** Affected livestock include sheep, ewes, cattle, calves, yearling heifers, four herding dogs, and one llama.[iii] Cattlemen and producers are left to question why CPW chose to release wolves with known histories of depredation into areas proximate to active livestock operations, raising questions about the agency's risk assessment protocols and the prioritization of agricultural interests in the reintroduction strategy.[iv]

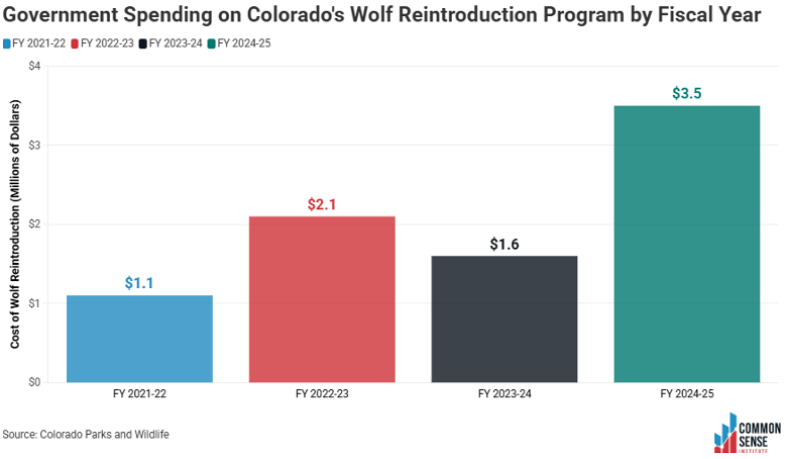
The reintroduction program was initially projected to cost about $800,000 per year. Instead, it has consumed roughly **$8 million in taxpayer funds** since operations began in 2021 – this includes **$3.5 million in 2024–25** – as expenses for "conflict management" and depredation reimbursements have surged. In 2024 alone, claims for wolf-related livestock losses exceeded **$600,000**, though the actual payouts were lower.[v] Figure 2 on the next page reports the cost level by fiscal year. The current budget for Fiscal Year (FY) 2025-26 is estimated at approximately $2 million.[vi] Relative to FY 2023-24, actual **costs have increased by nearly 119%.**

FIGURE 1.



Colorado's Wolf Depredation Compensation Fund, enacted through Senate Bill (SB) 23-255 signed in 2023, was designed to provide financial restitution to agricultural producers experiencing losses due to wolf-related livestock depredation.[vii] The fund's budget was set at $350,000, however compensation claims from Coloradan ranchers have far exceeded this amount, indicating the compensation framework has severely underestimated the actual economic damages. One example is compensation claims from ranching operations out of Grand County. In this county, approximately 1,800 head of cattle have been exposed to gray wolves since the wolf reintroduction and research indicates CPW assessments **undervalue the true economic losses by an average of 43.3%.** Many ranchers may accept compensation out of economic necessity rather than adequacy.

FIGURE 2.



Not only do payments fall short of covering the full market value of affected animals, they also systematically exclude indirect losses such as stress-induced weight reduction, decreased reproductive rates, and operational disruptions. Notably, since the program's inception in 2021, the average live weight of Colorado cattle has declined by at least **3-5%,** suggesting broader systemic effects of predator-induced stress on herd productivity.[viii] [ix]

Claims also require extensive documentation and reimbursement is subject to per-animal value caps, up to $15,000, regardless of actual market or reproductive value. Additionally, payments from claims have nearly broken the CWDCF's modest budget in 2025, with just two claims accounting for more than $340,000 in payouts, leaving minimal funds available for new cases. Ranchers also report difficulties navigating the reimbursement process, including long delays, paperwork burdens, and uncertainty regarding indirect loss coverage. These structural issues contribute to sustained financial hardship for livestock producers operating in wolf-active regions.[x]

There are now three new livestock depredation claims across three ranches in Grand County totaling approximately **$580,000.** Approval of these claims would exhaust the existing balance of the CWDCF and send it into a deficit, raising concerns about the long-term fiscal sustainability of the program and its broader implications for public resource allocation and a thriving agricultural sector.[xi] CPW has stated they plan to continue the program for at least the next five to six years.

This study evaluates the economic effects of the gray wolf reintroduction initiated in Colorado in December 2021. It evaluates the true economic impacts of the program and attempts to quantify costs to the agricultural sector while also assessing indirect economic effects on the entire state.

KEY FINDINGS

- Over the last two years, approximately 25 wolves were introduced in Colorado. CPW plans to introduce an additional 15 wolves in 2026. These wolves roam across an estimated **29 counties,** including both rural agricultural regions and more densely populated areas like Boulder and Jefferson counties.
- Relative to FY 2023-24, **actual program costs for gray wolf introduction have increased by nearly 119%.**
- The State of Colorado has spent **$3.5 million** in the past year (between May 2024 and August 2025) on wolf reintroduction efforts – **more than triple the amount initially communicated to voters during the 2020 ballot measure campaign.** That spending included $1.6 million for staffing, $900,000 for operations, $410,000 for compensating ranchers whose livestock have been preyed upon by the wolves, and $85,000 for "conflict minimization."
- Each adult wolf is associated with roughly **2 confirmed depredation cases per year.**
- CSI estimates each case costs ranchers and farmers approximately **$32,000.**
- Between 2026 and 2030, the cumulative cost of livestock depredation compensation is projected to total approximately **$35.1 million.**
- By 2030, when the wolf population is expected to reach a self-sustaining level of 200 wolves, CSI estimates that annual costs will be **$12.5 million per year.**
- Modeling using REMI forecasts suggests that wolf reintroduction results in substantial economic disruption, including a projected loss of nearly **400 jobs** statewide and **170** in areas outside of Denver Metro and South Denver during 2030 alone.
- Between 2026 and 2040, **Colorado's reintroduction program is expected to cost the entire state:**
  - Over **$334 million** in GDP;
  - Over **$611 million** in lost output from businesses;
  - More than **$333 million** in forgone personal income; and
  - Roughly **$267 million** in forgone disposable personal income.

- **Cumulatively, by 2040, gray wolf reintroduction is estimated to cost rural Coloradans:**
  - Over **$200 million** in GDP;
  - Nearly **$400 million** in lost output from businesses;
  - Roughly **$140 million** in forgone personal income; and
  - Over **$120 million** in forgone disposable personal income.
- Compensation claims from ranchers out of Grand County – where approximately 1,800 head of cattle have been impacted since the wolf reintroduction – indicate that CPW assessments undervalue the true economic losses to ranchers by an average of **43.3%.**
- Since the program's inception in 2021, the average live weight of Colorado cattle has declined by at least **3%,** suggesting broader systemic effects of predator-induced stress on herd productivity.
- At least 65 animals have been harmed or killed as a result of the wolf reintroduction as of May 2025, resulting in an estimated direct cost of **$8.15 million.**
- While it's still too early to publish definitive data on deer and elk population declines in Colorado, historical patterns from other states show that wolf reintroduction typically results in a **50% reduction in big game populations such as deer and elk.** If similar trends hold, both ranchers and outfitters could face additional substantial long-term economic consequences.
- **To date, only the Yellowstone region and the Smoky Mountains have experienced notable economic benefits associated with wolf reintroduction programs.** From an economic perspective, this may be attributed to the relatively low population density in areas such as Eastern North Carolina and Yellowstone, which reduces the likelihood of conflict with agricultural and recreational land uses.

FROM EXTINCTION TO EXPANSION: THE STORY OF COLORADO'S WOLF PROGRAM

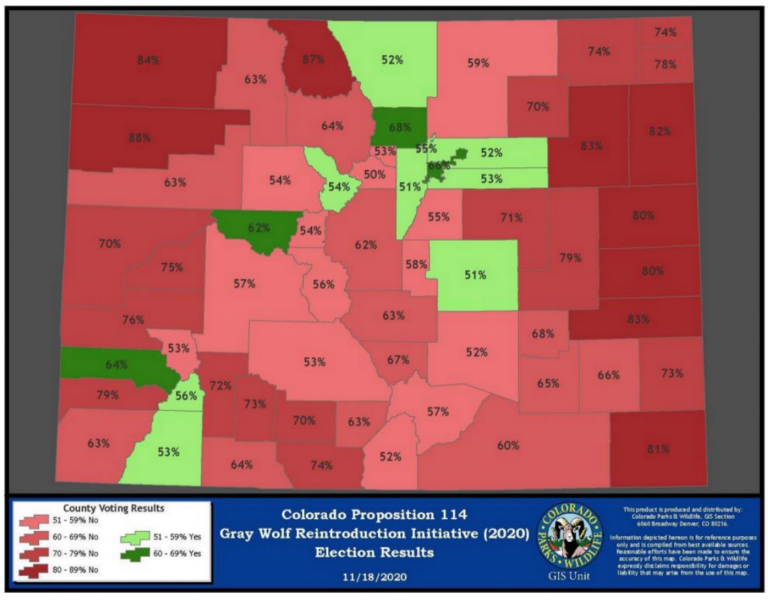
In November 2020, Colorado voters narrowly approved Proposition 114, mandating the reintroduction of gray wolves to the state's Western Slope by the end of 2023. This made Colorado the first U.S. state to mandate wolf reintroduction through a ballot initiative, rather than through federal or administrative action. The measure passed with 50.9% support, reflecting both public interest in wildlife restoration and the controversy surrounding wolf management.[xii]

Figure 3 presents the county-level results for Proposition 114, showing that only 13 of Colorado's 64 counties approved the gray wolf reintroduction measure. Support was concentrated in urban Front Range counties – such as Boulder (68%), Denver (66%), and Arapahoe (53%) – while most Western Slope and rural counties voted against the initiative.

In the August 2025 special legislative session, the Colorado General Assembly passed SB 25-005, a bipartisan measure that prohibits the use of General Fund dollars for the acquisition of additional gray wolves. However, the bill maintains full funding for the state's non-lethal management support and livestock compensation programs. It also redirects previously allocated wolf acquisition funds to the Colorado Health Insurance Affordability Enterprise.[xiii]

The State of Colorado has spent **$3.5 million** in the past year (between May 2024 and August 2025) on wolf reintroduction efforts – **more than triple the amount initially communicated to voters during the 2020 ballot measure campaign.** That spending included $1.6 million for staffing, $900,000 for operations, $410,000 for compensating ranchers whose livestock have been preyed upon by the wolves, and $85,000 for "conflict minimization."

FIGURE 3.



Under the direction of CPW, the reintroduction plan aims to restore a self-sustaining wolf population in Colorado, where wolves were effectively eradicated by the mid-20th century due to predator control campaigns. The initial phase of the program began in December 2023, when CPW released 10 wolves captured from Oregon into remote areas of Grand and Summit Counties. Since then, the agency has introduced additional wolves. **It has plans to reintroduce another 30 to 50 wolves over the next several years (depending on survival rates, dispersal, and ecological condition), including 15 wolves over the coming months.** Additionally, CPW has confirmed the presence of a new litter of wolf pups during the spring; however, the agency has not yet released an official count or specific details regarding the number of pups observed.

While proponents of the program argue that wolves play a vital role in restoring ecological balance and biodiversity, the reintroduction has been met with strong opposition from many within the ranching and agricultural communities, particularly on Colorado's Western Slope. Concerns center on livestock depredation, economic losses, and the management challenges posed by a large predator species. These tensions have spurred ongoing debates about compensation for losses, wolf tracking and management, and potential impacts on rural economies.

CPW has committed to a non-lethal management approach where possible and has implemented a modest compensation program for verified livestock losses that is dwindling faster than expected. While these measures aim to mitigate conflicts between wolves and agricultural stakeholders, the broader ecological and economic consequences of wolf reintroduction remain areas of active study and debate.[xiv]

The following section outlines CSI's methodology for quantifying the economic impacts associated with wolf depredation in Colorado.

METHODOLOGY FOR TRACKING THE PACK

To assess the short- and long-term economic impacts of gray wolf reintroduction in Colorado, CSI employed Regional Economic Models, Inc. (REMI) modeling to estimate the direct and indirect costs associated with wolf depredation events. The REMI model incorporates regional industry linkages, demographic changes, price responses, and behavioral feedback effects, allowing for a comprehensive assessment of economic disruptions such as those stemming from livestock depredation.

Data Inputs and Assumptions

As of 2025, Colorado's gray wolf population is estimated at 25 adults, excluding pups, with 49 documented depredation cases since the start of the reintroduction program. This results in an average of **1.96 documented depredation cases per wolf per year.** In 2024, 19 confirmed cases led to more than $600,000 in compensation payouts to ranchers, equating to an average cost of $31,579 per incident. For modeling purposes, CSI rounds this number to an even **$32,000 per depredation case.**[xv] [xvi]

Between the end of November 2025 and February 2026, **15 additional wolves** are scheduled for release in Gunnison County, raising the adult population to approximately **40 wolves in early 2026.** Based on the current depredation rate, this would yield 78.4 depredation cases (40 × 1.96), incurring an estimated **$2.51 million in compensation costs (78.4 × $32,000) in 2026.**

The reintroduction initiative targets a self-sustaining wolf population of 200 by 2031. Given the population of 40 wolves, with four confirmed breeding pairs as of 2025, and assuming the typical 3–4 pups per female, the wolf population is expected to double by 2027, with approximately 80 wolves.[xvii] As Table 1 below shows, assuming linear growth, CSI estimates 40 additional wolves per year through 2030.

TABLE 1.

Year	Estimated Wolf Population	Projected Depredation Cases (1.96/wolf)	Estimated Compensation Costs (@ $32,000/case)
2026	40	78.4	$2.51 million
2027	80	156.8	$5.02 million
2028	120	235.2	$7.53 million
2029	160	313.6	$10.03 million
2030	200	392	$12.54 million

Between 2026 and 2030, the cumulative cost of livestock depredation compensation is projected to total approximately $35.1 million. By 2030, when the wolf population is expected to reach a self-sustaining level of 200 wolves, CSI estimates that annual costs will stabilize at around $12.5 million per year. These recurring losses are expected to continue through 2040 under current CSI projections, but if the population remains self-sustaining beyond 2040 — as CPW intends — these annual costs could persist indefinitely, extending the economic burden on Colorado's agricultural sector well into the future.

REMI Model Integration

These annual cost estimates were used as direct negative economic shocks to the regional agricultural sector within the REMI model. Specifically, the annualized livestock depredation compensation costs were treated as exogenous reductions in rancher income and agricultural sector output. The model then simulates the resulting multiplier effects on aspects such as employment, gross regional product (GRP), personal income, and tax revenue – capturing how the initial losses ripple through Colorado's economy.

The REMI model's integrated structure allows it to capture indirect and induced impacts, including downstream effects on agricultural suppliers, rural community spending, and state/local fiscal health. Simulations were run through the year 2040, using the assumptions outlined above to estimate both the cumulative and annualized economic costs of wolf reintroduction under the current policy trajectory.

The REMI variable used in this analysis was **Detailed Farm Output,** first applied to areas outside of Denver Metro and South Denver and later expanded to assess statewide impacts. This variable captures changes in agricultural production and revenue, particularly within non-metropolitan areas. This variable reflects the economic impacts of disruptions such as predator-related livestock losses and broader shifts in rural farm activity for:

- Beef cattle ranching;
- Dairy cattle and milk production;
- Farming poultry and egg production; and
- Animal production except cattle and poultry.

ECONOMIC IMPACTS OF WOLF REINTRODUCTION IN COLORADO

Howling Losses: Colorado's Economic Burden of Gray Wolf Reintroduction Outside of Denver Metro & South Denver

CSI's projections for areas outside of Denver Metro and South Denver are reported in Table 2 and indicate that the wolf reintroduction program in ranching areas generates significant negative economic impacts that extend beyond direct livestock losses. These effects ripple through the broader state economy, contributing to hundreds of job losses annually, reductions in GDP, and overall declines in economic output. The majority of these estimated impacts intensify over time, becoming more pronounced as the program progresses toward its full intended implementation timeline.

The results presented in Table 2 were disaggregated to exclude the Denver Metro and South Denver regions, focusing instead on the remainder of Colorado. The estimates reveal a negative association between wolf reintroduction efforts and key economic indicators, indicating that the program is linked to detrimental effects on overall economic performance in these communities.

By 2040, the cumulative economic impact of gray wolf reintroduction in areas outside of Denver Metro & Denver South is expected to be:

- More than **$200 million** in GDP;
- Nearly **$400 million** in lost output from businesses;
- Roughly **$140 million** in forgone personal income; and
- More than **$120 million** in forgone disposable personal income.

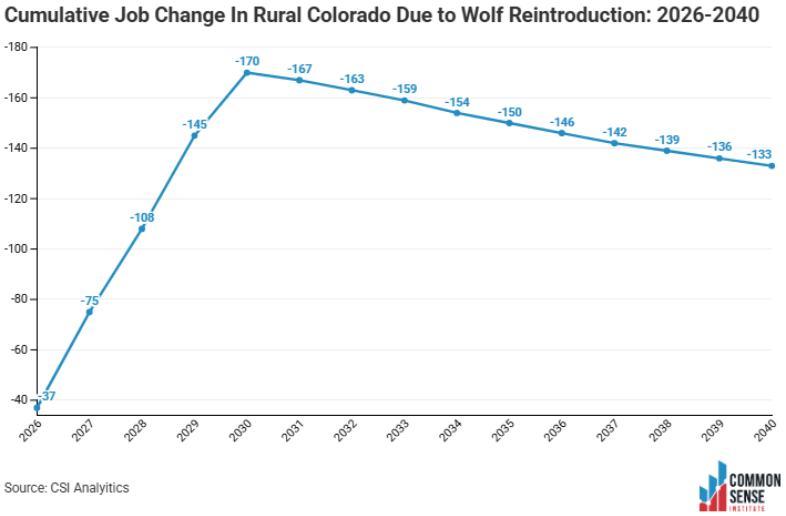
TABLE 2.

Category & Units	Total Employment (Jobs)	Private Non-Farm Employment (Jobs)	Population (Individuals)	Labor Force (Individuals)	Gross Domestic Product (Thousands of Dollars)	Output (Thousands of Dollars)	Value-Added	Personal Income (Thousands of Dollars)	Disposable Personal Income (Thousands of Dollars)
Units	Individuals (Jobs)	Individuals (Jobs)	Individuals	Individuals	Thousands of Current Dollars	Thousands of Current Dollars	Thousands of Current Dollars	Thousands of Current Dollars	Thousands of Current Dollars
2026	-37	-9	-11	-10	-$2,432	-$4,955	-$2,418	-$1,262	-$1,064
2027	-75	-18	-30	-27	-$5,513	-$11,034	-$5,492	-$2,898	-$2,442
2028	-108	-26	-54	-46	-$8,534	-$16,886	-$8,505	-$4,658	-$3,944
2029	-145	-35	-83	-68	-$11,973	-$23,551	-$11,932	-$6,755	-$5,733
2030	-170	-41	-113	-90	-$14,867	-$29,070	-$14,818	-$8,666	-$7,376
2031	-167	-40	-134	-102	-$15,573	-$30,197	-$15,523	-$9,535	-$8,151
2032	-163	-39	-149	-110	-$15,789	-$30,416	-$15,732	-$10,147	-$8,711
2033	-159	-38	-161	-114	-$15,845	-$30,585	-$15,780	-$10,653	-$9,174
2034	-154	-37	-169	-116	-$15,822	-$30,542	-$15,750	-$11,042	-$9,534
2035	-150	-35	-175	-116	-$15,771	-$30,460	-$15,693	-$11,378	-$9,853
2036	-146	-34	-180	-116	-$15,746	-$30,420	-$15,663	-$11,712	-$10,170
2037	-142	-34	-184	-115	-$15,771	-$30,465	-$15,683	-$12,065	-$10,501
2038	-139	-33	-186	-114	-$15,851	-$30,615	-$15,759	-$12,449	-$10,860
2039	-136	-33	-188	-112	-$15,989	-$30,869	-$15,894	-$12,870	-$11,249
2040	-133	-33	-189	-111	-$16,167	-$31,202	-$16,067	-$13,310	-$11,653

As columns 4 and 5 in Table 2 show, these estimates also indicate a potential net population decline, driven by increased out-migration trends, and a shrinking labor force. Taken together, these findings suggest the continuation of the wolf reintroduction program may contribute to making Colorado a less attractive place to live.

Figure 4 on this page and Figure 5 on a later page show cumulative job losses associated with the gray wolf reintroduction program. Figure 4 focuses on job losses in rural areas while Figure 5 captures the statewide impacts. Figure 4 shows rural area job losses peak in 2023 with an estimated **170 jobs lost that year.** Although the magnitude of losses declines slightly in each following year, the negative employment impacts persist through 2040.

FIGURE 4.



CSI's Outlook for Colorado's Statewide Impacts Due to Gray Wolf Reintroduction

Table 3 presents the projected statewide economic impacts of gray wolf reintroduction as modeled using the REMI platform. These estimates capture not only the direct effects on agriculture and elk outfitting industries, but also the indirect and induced impacts that ripple through Colorado's broader economy over time. REMI simulations incorporate changes surrounding inputs such as industry output, employment, and gross domestic product (GDP) resulting from key factors such as livestock predation losses, declines in hunting-related tourism, and increased wildlife management costs.

Unlike the previous model, this version analyzes the **statewide effects** of wolf reintroduction in Colorado, highlighting how the program influences a wide range of industries and regions.

According to the model, gray wolf reintroduction is associated with a net reduction in state GDP, job losses concentrated in rural and tourism-dependent counties, and a measurable contraction in agricultural value-added output.

Specifically, as Table 3 shows, between 2026 and 2040, the Colorado reintroduction program is expected to cost the state:

- More than **$334 million** in GDP;
- More than **$611 million** in lost output from businesses;
- More than **$333 million** in forgone personal income; and
- Roughly **$267 million** in forgone disposable personal income.

TABLE 3.

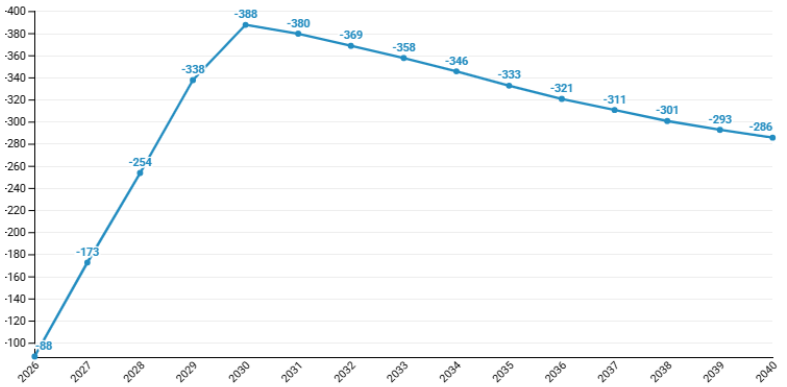
Category & Units	Total Employment (Jobs)	Private Non-Farm Employment (Jobs)	Population (Individuals)	Labor Force (Individuals)	Gross Domestic Product (Thousands of Dollars)	Output (Thousands of Dollars)	Personal Income (Thousands of Dollars)	Value-Added (Thousands of Dollars)	Disposable Personal Income (Thousands of Dollars)
Units	Individuals (Jobs)	Individuals (Jobs)	Individuals	Individuals	Thousands of Current Dollars	Thousands of Current Dollars	Thousands of Current Dollars	Thousands of Current Dollars	Thousands of Current Dollars
2026	-88	-16	-29	-21	-$3,847	-$7,419	-$3,858	-$2,818	-$2,416
2027	-173	-32	-78	-54	-$8,889	-$16,742	-$8,891	-$6,491	-$5,564
2028	-254	-47	-141	-96	-$14,426	-$26,855	-$14,420	-$10,872	-$9,355
2029	-338	-64	-214	-145	-$20,571	-$38,031	-$20,557	-$15,957	-$13,760
2030	-388	-73	-285	-190	-$25,408	-$46,637	-$25,379	-$20,315	-$17,566
2031	-380	-72	-335	-220	-$27,055	-$49,269	-$27,010	-$22,553	-$19,568
2032	-369	-69	-369	-240	-$27,527	-$49,913	-$27,476	-$23,979	-$20,876
2033	-358	-65	-391	-250	-$27,459	-$49,859	-$27,405	-$24,845	-$21,684
2034	-346	-61	-405	-256	-$27,008	-$49,096	-$26,946	-$25,240	-$22,074
2035	-333	-56	-412	-257	-$26,386	-$48,055	-$26,316	-$25,380	-$22,253
2036	-321	-52	-415	-255	-$25,760	-$46,997	-$25,682	-$25,421	-$22,341
2037	-311	-49	-414	-252	-$25,247	-$46,128	-$25,160	-$25,480	-$22,441
2038	-301	-47	-411	-247	-$24,906	-$45,570	-$24,812	-$25,638	-$22,621
2039	-293	-46	-407	-243	-$24,750	-$45,332	-$24,649	-$25,909	-$22,894
2040	-286	-45	-402	-238	-$24,764	-$45,404	-$24,657	-$26,293	-$23,262

Because the statewide analysis covers a larger and more densely populated area, the economic impact is considerably more substantial.

Figure 5 illustrates the cumulative job losses across Colorado as a whole, including the Denver metropolitan area and the south Denver region. Job losses are substantial, peaking in 2030 with **388 jobs lost,** with projections indicating a continued upward trend through 2040.

FIGURE 5.

Cumulative Job Change In Colorado Due to Wolf Reintroduction: 2026-2040



Source: CSI Analytics

Results shown in Figure 3 suggest that the economic disruptions caused by the program extend beyond agriculture, impacting multiple sectors across the state economy.

WOLVES ARRIVE AND COLORADO'S GAME ECONOMY ALSO PAYS THE PRICE

The outfitting industry, which relies heavily on robust elk populations and out-of-state hunting licenses, has also paid a price for wolf reintroduction. Specifically, it has experienced a decline in both revenue and employment, leading to downstream effects in lodging, retail, and guiding services. These impacts also extend to Colorado's ranching economy since many professional hunting guides rely on partnerships with local ranchers to host tourists and conduct hunts on private land. Since reintroduction, several guiding companies have stopped operating in Colorado.

While it's still too early to publish definitive data on deer, elk, and moose population declines in Colorado, historical patterns from other states show that wolf reintroduction can spur a **50% reduction in big game populations.** If similar trends hold, both ranchers and outfitters could face additional substantial long-term economic consequences.[xviii, xix]

These results highlight that while ecological or symbolic benefits may exist, the economic burden is disproportionately borne by businesses and stakeholders. Importantly, the REMI model accounts for dynamic feedback effects, suggesting that even modest shocks to agriculture and tourism sectors can have long-term economic consequences at the state level.

WHEN WOLVES RETURN: HOW OTHER STATES HAVE FARED ECONOMICALLY AFTER WOLF REINTRODUCTION

Gray wolf reintroduction across U.S. states comes with significant economic consequences, particularly for rural communities reliant on livestock production. This section synthesizes data from several regions to analyze both the direct and indirect financial effects, as well as the offsetting economic benefits tied to ecotourism and ecosystem services.

Livestock Losses: Direct and Indirect Impacts

In states such as Montana, Arizona, California, and Oregon, livestock producers have reported significant increases in both direct depredation and associated indirect costs following wolf reintroduction.

MONTANA (PARK COUNTY & NORTHERN ROCKIES REGION)

Between 1995 and 2015, calf mortality attributed to predators in Park County rose sharply—from 3.5% to 11.1%. Over this period, the cumulative cost of livestock losses, including injuries, was estimated at approximately **$55 million.** Wolves were identified as a partial driver of these losses. Ranchers also faced a growing burden of indirect costs related to predator deterrence, animal health decline due to stress, and increased management complexity—all of which added to their financial strain.[xx, xxi]

SOUTHWESTERN U.S. (MEXICAN GRAY WOLF REGION)

A University of Arizona economic model examined impacts on a 367-head cattle ranch. It estimated that a **2% calf loss** equates to an annual income reduction of **$5,200,** while a **14%** loss could reduce net income by over **$42,000.** Beyond the immediate revenue losses, each cow killed represents an estimated **$2,673** in long-term losses, including the value of future calves and herd destabilization.[xxii]

CALIFORNIA

University of California, Davis analysis projected that each individual wolf could result in **$69,000 to $162,000** in combined direct (depredation) and indirect losses (such as reduced weight gain and pregnancy rates). Across three established wolf packs, c**umulative indirect losses ranged between $1.4 million and $3.4 million.** Physiological indicators, such as elevated cortisol levels in cattle, confirmed that stress due to wolf presence is a measurable economic factor.[xxiii, xxiv]

OREGON

While specific financial data are limited, Oregon ranchers have reported increasing costs tied to the wolf population. These include investments in additional labor, fencing, deterrents, and logistical adaptations, all of which reflect operational adjustments to mitigate depredation risk.

Compensation Programs: Scope and Limitations

To offset livestock losses, several states have implemented compensation programs, though their effectiveness varies significantly.

WYOMING

In 2018, Wyoming disbursed approximately **$170,000** to ranchers for livestock confirmed to be killed or injured by wolves.

WASHINGTON & WYOMING COMPENSATION RATES

Washington often reimburses ranchers at a **2:1 ratio** for verified wolf depredation events. Wyoming offers up to **7:1 compensation,** depending on the circumstances and verification outcomes.

LIMITATIONS AND IMPLEMENTATION CHALLENGES

Despite the existence of these programs, underutilization is common. Many ranchers cite the **high burden of proof,** which often requires substantial time and effort to document an incident, as a deterrent. Delays in payment and narrow definitions of compensable losses—typically covering only confirmed direct depredation—mean that **indirect costs, stress-induced losses, and opportunity costs remain uncompensated,** leading to continued economic vulnerability.

Economic Benefits: Tourism and Ecosystem Services

Offsetting the costs, gray wolf and red wolf reintroductions have generated measurable economic benefits, particularly through wildlife tourism and ecosystem regulation.

RED WOLVES (EASTERN NORTH CAROLINA & GREAT SMOKY MOUNTAINS)

Tourism linked to red wolf recovery efforts contributes substantially to local economies. In 1997, red wolf–related economic impact was estimated at **$37.5 million in eastern North Carolina** and **$132.1 million in the Great Smoky Mountains National Park region,** totaling over **$170 million** annually.[xxv]

YELLOWSTONE REGION (GRAY WOLVES)

In the Northern Rockies, wolf tourism has proven economically significant. Visitors drawn to the opportunity to observe gray wolves contribute an estimated **$35 million** annually to gateway communities in Idaho, Montana, and Wyoming.[xxvi] When accounting for local spending multipliers, the total economic impact is likely twice that figure.

Table 4 below summarizes the economic impacts of wolf reintroduction efforts across various regions in the United States. To date, **only the Yellowstone region and the Smoky Mountains have experienced notable economic benefits associated with these programs.** From an economic perspective, this may be attributed to the relatively low population density in areas such as Eastern North Carolina and Yellowstone, which reduces the likelihood of conflict with agricultural and recreational land uses.

TABLE 4.

State / Region	Negative Impacts (Costs)	Positive Impacts (Benefits)
Montana (Northern Rockies)	Significant livestock losses (~$55M), rising calf depredation, indirect costs	N/A
Southwestern U.S. (Mexican wolf)	Net income drops 4–34% depending on calf loss rates; cow loss disrupts herd economics	N/A
California	Wolves cause $69K–$162K in losses per wolf; 1.4–3.4M indirect losses; elevated cattle stress	N/A
Oregon	High management costs for prevention (labor, materials); indirect effects on herd described	N/A
Wyoming, Washington	Monetary losses from livestock confirmed to be killed or injured by wolves; implementation and accessibility issues	N/A
Eastern NC & Smoky Mountains NP (Red wolf)	N/A	~$170 million economic impact (1997)
Yellowstone region	N/A	$35M annual wolf-related tourism revenue

As of 2025, while existing data and precedent studies support the potential for economic benefits – notably via tourism and ecosystem services such as existence value – the *actual* realization of these benefits in Colorado remains unproven. Current reporting focuses more on the program's costs, management challenges, and tensions with ranchers, rather than any realized economic windfalls.

THE BOTTOM LINE

The reintroduction of gray wolves in Colorado represents a landmark wildlife management initiative, driven by voter approval and ecological restoration goals, but the program also comes with significant and measurable economic consequences, particularly for the state's agricultural sector and rural communities.

Modeling using REMI forecasts suggests that wolf reintroduction results in substantial economic disruption, including a projected loss of nearly **400 jobs** statewide and **170** in areas outside of Denver Metro and South Denver. The state also contends with reductions in GDP and overall output, along with population decline tied to increased out-migration. These impacts extend beyond direct livestock losses, rippling through related industries and affecting broader segments of Colorado's economy.

While CPW has taken steps to mitigate losses to ranchers and farmers, current data indicate these measures may be insufficient to offset the broader economic burden. Furthermore, given wolf reproduction and continuing repopulation efforts, the long-term implications of the program are uncertain and warrant continued scrutiny. As the program advances, it will be critical for policymakers to:

- Weigh ecological benefits against economic costs;
- Ensure transparent reporting and compensation practices; and
- Consider adaptive management strategies that protect both Colorado's wildlife and its working landscapes.

Ongoing monitoring, data-driven evaluation, and stakeholder engagement also will be essential to balance conservation efforts with the economic well-being of rural communities.

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