

Colorado Wolf Restoration and Management Plan Stakeholder Advisory Group (SAG) to Colorado Parks and Wildlife (CPW)

Report on Livestock Compensation Recommendations February 2022

This report summarizes Wolf Restoration and Management Plan Stakeholder Advisory Group (SAG) feedback on livestock compensation elements and alternatives discussed and developed between October 2021 and January 2022. Discussions resulted in:

- General consensus on desired outcomes and principles for a livestock compensation plan.
- Development, discussion, and voting on eight compensation plan alternatives.

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Outcomes, Principles and Recommendations Across All Alternatives

Desired outcomes of a livestock compensation plan

- Livestock owners are fairly compensated for losses and are not financially harmed.
- Conflicts are minimized.
- Wolves are restored.
- Trust and support are built across communities.

Principles of a livestock compensation plan

- Build trust, transparency, relationships, and good will with agricultural communities.
- Be consistent, equitable, fair, and robust.
- Value both fair compensation and personal responsibility.
- Be simple and straightforward.
- Provide opportunity for choice and options.
- Recognize different kinds of grazing contexts.
- Promote conflict minimization.
- Support with sustainable funding and capacity.
- Use State-Federal partnerships and public-private partnerships where appropriate for implementation and funding.
- Emphasize education and outreach.
- Maintain fiscal responsibility.

Education and outreach

- Education and outreach are important components of the delivery and communication of a livestock compensation program.
- Incorporate education and outreach for producers to ensure awareness and understanding of the program and administrative processes.
- Incorporate education and information for the public.

Conflict minimization & risk reduction program elements

SAG members recommend that any compensation plan be implemented in conjunction with a robust conflict minimization program. Some compensation plan alternatives considered by the SAG directly incentivize producers' use of nonlethal conflict risk reduction techniques. The SAG recommends a conflict risk reduction program with the following elements:

- Provide financial, technical, and operational assistance to promote and implement conflict minimization and risk reduction practices.
- Apply and update, as relevant, regulations to support nonlethal conflict minimization practices.
- Support both preventative and post-depredation nonlethal practice implementation; emphasize and implement proactive actions where possible and reactive actions as needed.
- Emphasize context specificity.
- Recognize that not all efforts will prevent loss, while encouraging and supporting implementation and innovation.
- Emphasize producer education and outreach, leveraging experiences and lessons of other producers.
- Provide sufficient agency capacity and funding for implementation.
- As necessary based on resources, prioritize support for those that have experienced losses or are likely to in the near future.
- Use public-private partnerships to support CPW in funding, education, and implementation.

SAG Vote Results on Livestock Compensation Plan Alternatives

SAG members developed and discussed eight compensation plan alternatives. Descriptions of and SAG feedback for each alternative are provided in the subsequent sections of this report. SAG members voted at their January 2022 meeting to indicate their preferred alternative as well as their level of support or objection on a consensus scale defined in the SAG charter. The votes of individual members are included in the table on the next page.

In summary:

- **There was not consensus support for any one alternative** (i.e., all members in support of or without objection to an alternative).
- **SAG-developed alternatives for ex post (*after the fact*) compensation had the greatest number of voting SAG members supporting or not objecting:**
 - *Alternative 4: Itemization for compensation of production losses and missing livestock* (15/17 SAG members supporting/not objecting)
 - *Alternative 3: Simple compensation ratio for missing livestock* (14/17 SAG members supporting/not objecting)
 - *Alternative 5: Producer chooses between simple ratio (Alternative 3) or itemization (Alternative 4)* (13/17 members supporting/not objecting)
 - **Alternative 5 had the highest number of SAG members selecting it as their preferred alternative** (11/17 members preferred it over all other options; no other option was preferred by more than 2 SAG members).
- **SAG-developed alternatives for ex ante or outcome-based compensation had a majority of voting SAG members supporting or not objecting:**
 - *Alternative 6: Outcome-based compensation in addition to ex post Alternative 1* (11/17 SAG members supporting/not objecting)
 - *Alternative 7a: Outcome-based compensation parallel to ex post Alternatives 1 and 2* (9/17 SAG members supporting/not objecting)
 - *Alternative 7b: Outcome-based compensation parallel to ex post alternatives 3, 4, and 5* (9/17 SAG members supporting/not objecting)
- **Existing ex post compensation alternatives had the lowest number of voting SAG members supporting or not objecting:**
 - *Alternative 1: Current CPW game damage process* (8/17 SAG members supporting/not objecting)
 - *Alternative 2: 2004 Wolf Working Group recommendations* (7/17 SAG members supporting/not objecting)

Summary of SAG Discussion of Livestock Compensation Plan Alternatives

An overview of each alternative is provided below, followed by a summary of SAG feedback (rationale for support, opposition, and additional considerations).¹ Appendix A includes a more detailed description of each alternative, inclusive of a description of the method of confirmation of depredation events; compensation and eligibility for missing losses, indirect/production losses, ex ante compensation; and additional considerations.

Each alternative assumes the SAG-developed desired outcomes, principles, and conflict minimization and education elements described above. In addition, the alternatives assume the following regarding program administration and funding:

- The livestock compensation program is administered by CPW's game damage program.
- Funding is through appropriations as enumerated in 33-2-105.8 C.R.S.
- Colorado Department of Agriculture has exclusive jurisdiction over depredating animals per 35-40-101 C.R.S.
- Administration and funding for ex ante/outcome-based alternatives 6, 7a, and 7b are to be determined.
- The livestock compensation program should be periodically evaluated and updated if needed (specific recommendations for evaluation of certain alternatives are also offered in the detailed appendix).

Cross-cutting discussion themes

The following cross-cutting themes emerged during SAG member discussions of the alternatives (these themes were recurrent, although not necessarily reflective of full consensus):

- Emphasis on desired outcomes and principles (e.g., fairness and no financial harm, nonlethal conflict minimization, wolf restoration, trust and relationships, simplicity, choice, personal responsibility, funding and fiscal responsibility, etc.; see page 2).
- Importance and interpretation of existing statute.
- Emphasis on basing compensation on best available science.
- Need for a robust conflict minimization program along with a compensation plan.
- Recognition of different values and perspectives regarding grazing, wildlife and public lands.
- Interest in compromise and collaboration across different perspectives.
- Concern regarding the impact of a compensation plan (whether perceived as too generous or too conservative) on producer tolerance and/or public trust.
- Recognition of the range of economic losses caused by wolves to producers.
- Recognition of the role of working lands in supporting habitat and biodiversity.
- Concern regarding unduly blaming wolves for livestock losses and/or creating perverse incentives; concern with lack of discussion of positive impacts of wolves.
- Recognition that details of specific alternatives will need to be further developed.
- Recommendation for periodic evaluation of any compensation plan.
- Interest in further consideration of outcome-based compensation options in the future.
- Interest in harmonization of compensation programs for different predators.
- Likely need to develop new intergovernmental agreements or memoranda of understanding with Tribes to address sovereignty and jurisdiction-related issues such as participation in the State's compensation program and Tribal leadership and/or partnership in investigations of losses on Tribal lands.

¹ SAG meeting summaries from October 2021 through January 2022 may also be referenced for additional discussion of livestock compensation plan elements and alternatives. SAG discussions were also informed by feedback of the Technical Working Group (TWG) to Colorado Parks and Wildlife regarding the technical merit of potential compensation plan elements; see separate TWG report.

Alternative 1: Current CPW game damage program

Overview

CPW's current game damage program used for big game, including carnivores such as black bear and mountain lion, provides 100% Fair Market Value (FMV) for confirmation under a preponderance of evidence standard.

SAG feedback (individual comments, not necessarily reflecting consensus):

Rationale for support for Alternative 1

- Consistency with the existing program is fair and easily administered.
- Support for a program that compensates for verified death and injury and not additional losses and/or unverified losses.
- Wolves should be treated similarly to bears and mountain lions regarding compensation programs. Compensation for unverified losses and/or other losses (above that provided in Alternative 1 or 2) may create conditions where wolves receive undue blame for losses.

Rationale for opposition to Alternative 1

- Alternatives 1 and 2 do not recognize the real economic challenges faced by the agricultural community and do not account for all losses that wolves have been documented to cause, such as missing livestock and production losses. Some suggest that the law requires that these other losses must be covered.
- This alternative does not support outcomes of building trust and keeping livestock producers from being financially harmed. Concern that a compensation plan that is too conservative will impact social tolerance of wolves by producers.

Additional considerations for Alternative 1

- CPW's existing game damage program could be a baseline for compensation, and the other alternatives could be additions to gain social support from the agricultural community.
- Consider the importance and interpretation of existing statute in selecting a compensation program for wolf depredation.
- Regardless of the original intent of the law or the existing program, recommendations developed through the wolf management and planning process may help establish new precedents for livestock compensation due to wolves.
- There is interest in receiving an official attorney general's office opinion about the interpretation of 33-2-105.8 with regards to the State needing to "pay fair compensation to owners of livestock for any losses of livestock caused by gray wolves."

Alternative 2: 2004 Wolf Working Group recommendations

Overview

The 2004 Colorado Wolf Management Working Group developed recommendations to compensate for confirmed losses due to wolves at 100% FMV and at 50% FMV for probable losses.

SAG Feedback (individual comments, not necessarily reflecting consensus):

Rationale for support for Alternative 2

- Support for the concept of compensating probable losses in addition to confirmed losses.
- Support for a program that compensates for verified death and injury and not additional losses and/or unverified losses, generally consistent with the compensation program for bear and mountain lions.

Compensation for unverified losses and/or other losses (above that provided in Alternative 1 or 2) may create conditions where wolves receive undue blame for losses.

Rationale for opposition to Alternative 2

- Alternative 2 cannot be harmonized with Colorado's existing game damage program because it proposes a different standard for verification.
- While compensating for probable losses due to wolves, this alternative does not fairly compensate producers for all losses, such as missing livestock and production losses, due to wolves.
- Concern that a compensation plan that is too conservative will impact social tolerance of wolves by producers.

Additional considerations for Alternative 2

- Alternative 2 requires definitions and standards for verification for 'confirmed' and 'probable' losses. There are questions as to whether probable losses are already effectively covered within the existing preponderance of evidence standard.

Proposed new confirmation standard for Alternatives 3, 4, and 5

Overview

Alternatives 3, 4 and 5 propose a new standard for the confirmation or verification of depredation events. Specifically, the proposal is for 100% FMV for a depredation event (death or injury) for livestock (including guard and herding animals) that the investigating officer reasonably determines is the result of a wolf depredation, resolving any unknowns in the producer's favor.

SAG feedback on the proposed alternative confirmation (individual comments, not necessarily reflecting consensus):

Rationale for support for new confirmation standard

- The new standard was proposed by some SAG members based on producers' input to them that proving loss and entitlement for compensation for disturbed carcasses and missing animals is impossible under a preponderance of evidence standard because disturbed, scavenged, or lost animals cannot fulfill the burden of proof required of producers.
- The alternative standard was suggested to mitigate the burden of proof, avoid penalizing producers, and resolve unknowns in their favor regarding disturbed/scavenged carcasses and missing animals.
- The new standard was also suggested to keep the process simple for CPW, to maintain positive relationships between CPW and producers, and to enhance social acceptance of predators on the landscape.
- The new standard would allow investigators flexibility to address varying scenarios of depredation investigation and confirmation, offering a more practical approach to allow investigative officers to make a reasonable determination based on their training and experience, including about disturbed carcasses or missing animals.

Rationale for opposition to a new confirmation standard

- Opposition to compensation of full market value (or greater, in the case of a compensation ratio) on less than a preponderance of evidence standard (which requires greater than 50% certainty).
- The new standard may create conditions where wolves receive undue blame for losses.
- The new standard would be inconsistent with the confirmation standard for bears and lions and may impact the ability for compensation programs for wolves and other depredators to be harmonized in the future.

Additional considerations regarding an alternative standard

- A new standard for determining wolf depredation requires additional legal scrutiny and potential statutory change independent of a compensation plan.
- The new standard could be considered in the specific circumstance that CPW or APHIS-WS are not able to respond to a claim in a timely manner.

Alternative 3: Simple compensation ratio for missing livestock

Overview

SAG members developed an alternative to compensate for depredations (death and injury) at 100% FMV confirmed according to the proposed new standard above *and* to compensate for missing livestock (sheep, calves and yearlings) up to a capped compensation ratio. Under the alternative, there must be a depredation event due to gray wolves to claim missing livestock, and the number claimed cannot exceed actual documented livestock loss. A two-tiered approach would provide a higher ratio for producers that employ nonlethal conflict mitigation measures. Compensation for confirmed depredation of livestock (including guard and herding animals) is for any livestock; the compensation ratio for missing animals is only for sheep, calves, and yearlings.

SAG feedback (individual comments, not necessarily reflecting consensus):

Rationale for support for Alternative 3

- Support for compensating for losses that wolves have been documented to cause, including missing livestock.
- Support for a compensation ratio that could account for some additional production losses.
- Support for a simple option for compensation without being overly burdensome to agency capacity or producers.
- Support for two tiers of a compensation ratio to incentivize the use of nonlethal conflict minimization tools.
- Supports outcomes of building trust with the livestock community and keeping livestock producers from being financially harmed.
- Support that the approach compensates for actual losses to the producer because claims are limited to actual documented missing livestock.

Rationale for opposition to Alternative 3

- A ratio may be too generous; some losses are the cost of doing business.
- The alternative may result in compensation for losses that are not due to wolves and may cause wolves to receive undue blame for missing livestock.
- A compensation ratio will create perverse incentives such that sick or injured livestock may be allowed to be taken by large game predators in order to claim a missing livestock compensation ratio; this in turn may disincentivize nonlethal mitigation of conflict and does not achieve desired outcomes.
- Producers should be responsible for verifying the location of livestock to avoid and confirm all losses.
- Nonlethal conflict minimization and mitigation tools are not adequately valued in this alternative as they are not required to receive the lower ratio.
- Compensation for loss on public lands should consider that public lands grazing lease costs are low, with impacts to the environment.
- Does not adequately compensate for production losses.

Additional considerations for Alternative 3

- The rates originally proposed by SAG members were a ratio of 5 for sheep and calves (2.5 for yearlings), increased to a ratio of 7 for sheep and calves (3.5 for yearlings) if the producer employs nonlethal conflict mitigation measures. These rates were proposed based on a literature review specific to "missing" animals (resulting in an average of 5 and a maximum of 7 using six studies that referenced specific numerical values for missing animals or detection rates); review of other states' programs; and consideration for building relationships and tolerance for wolves.
- SAG discussion resulted in revising the proposal to include a two-tier ratio without specified rates, with the recommendation that compensation ratio rates should be determined by a team of experts based on the best available science.
- There is concern about the limited amount of literature on compensation ratios and disagreement among studies regarding appropriate compensation rates. There is concern about basing compensation ratios on other states' programs, such as Wyoming.
- A compensation ratio could also be used to account for some production losses. The ratio might under limited circumstances account for some production losses, such as in cases where some missing livestock may not be due to wolves and producers may still claim them according to eligibility and the proposed cap. However, the ratios discussed (7 and below) were based on studies that only consider missing livestock; one study suggests that compensation ratios would need to be 2 to 3 times larger than the 7:1 ratio used in Wyoming to offset indirect/production impacts.
- Consider an average statewide deduction to account for other losses not caused by wolves and potentially covered by the ratio.
- As an alternative to requiring that a depredation occur in order to claim missing livestock, consider using affidavits or contracts to verify presence of wolves in a herd.
- The use of the term "compensation ratio," rather than "multiplier," better conveys the limitations of compensation within a predetermined cap.
- There is concern that verification of nonlethal conflict mitigation practices to confirm eligibility for a higher ratio could result in a 'check the box' exercise; CPW officers could verify practices onsite when investigating depredations.

Alternative 4: Itemization for compensation of production loss and missing livestock

Overview

SAG members developed an alternative to compensate for depredations (death and injury) at 100% FMV confirmed according to the proposed new standard above *and* to compensate for itemized missing livestock and production losses. Missing livestock claimed (sheep, calves and yearlings only) cannot exceed actual documented livestock loss and would factor in a baseline (pre-wolf reintroduction) loss rate. General considerations are provided for how a producer might itemize production losses (losses unaccounted for by direct depredation, such as decreased weaning weights and decreased conception rates) with reference to baseline data. The alternative suggests that a depredation incident is required to itemize losses, however other eligibility criteria could be considered. Conflict minimization practice implementation is not a requirement but could be considered as an additional incentive for compensation.

SAG feedback (individual comments, not necessarily reflecting consensus):

Rationale for support for Alternative 4

- Support for compensating for losses that wolves have been documented to cause, including missing livestock and additional production losses. Fair compensation includes direct and indirect losses.
- Provides an opportunity for producers to prove and be compensated for actual impacts and losses due to wolves, including depredation, missing livestock (without a cap on the actual number of missing

livestock that can be claimed), and verified production losses such as decreased weaning and/or conception rates.

- The alternative best compensates the losses that occur once wolves are depredating livestock by paying the difference between the normal cost of doing business prior to wolf depredation and the additional losses that occur following wolf depredation.
- Supports outcomes of building trust with the livestock community and keeping livestock producers from being financially harmed.

Rationale for opposition for Alternative 4

- Lack of simplicity for producers and for agency staff.
- Potential fiscal impacts of a program that allows compensation for all missing livestock and production losses due to wolves.
- Compensation of production losses is too generous; some losses are the cost of doing business.
- Nonlethal conflict mitigation tools are not adequately valued in this alternative.
- The alternative may result in compensation for losses that are not due to wolves (including those due to other predators and to other conditions such as climate change); this may cause wolves to receive undue blame for livestock impacts.

Additional considerations for Alternative 4

- Examples provided within the alternative for how a producer might itemize losses are general considerations; details would need to be further refined. Some concerns were offered regarding how to construct baseline averages (including how many years are included; the role of drought years in the average; and the impact of operational size on interannual baselines).
- Consider inclusion of mature cattle, goats and other livestock in itemizing missing livestock.
- Some losses, such as loss of forage, were considered by some as outside the scope of a compensation program; others supported that they could be addressed through the stipulation for consideration of other losses on a case-by-case basis.

Alternative 5: Producer chooses between simple compensation ratio (Alternative 3)

OR itemization (Alternative 4)

Overview

SAG members developed an alternative to compensate for depredations (death and injury) at 100% FMV confirmed according to the proposed new standard above *and* to allow producers to choose between receiving a simple compensation ratio for missing livestock (Alternative 3) or itemizing to claim missing livestock and production losses (Alternative 4).

SAG feedback (individual comments, not necessarily reflecting consensus):

Rationale for support for Alternative 5

- Provides producers with choices to better meet different needs and capacity to itemize losses.
- See rationales for Alternatives 3 and 4 regarding support for compensating for missing livestock and production losses via compensation ratio or itemization.

Rationale for opposition to Alternative 5

- See rationales for Alternatives 3 and 4 regarding opposition to compensating for missing livestock and production losses via compensation ratio or itemization.

Additional considerations for Alternative 5

- A compensation ratio may not need to be as high nor as precise in reflecting missing livestock rates when combined with the opportunity to instead itemize losses.

Alternative 6: Outcome-based compensation in addition to ex post (pay for performance)

Overview

SAG members developed an alternative to compensate producers for depredations at 100% FMV for confirmation under a preponderance of evidence standard (current game damage program; Alternative 1) *and* to provide conservation performance payments for wolf survival, independent of direct or indirect impacts. Conservation performance payments would be allocated by algorithm, based on a points system considering wolf pack home ranges, overlap with ranches and livestock exposure/risk, wolf survival to end of year, and implementation of nonlethal preventative conflict minimization practices.

SAG feedback (individual comments, not necessarily reflecting consensus):

Rationale for support for Alternative 6

- This alternative creates a market-like program that incentivizes desired outcomes: wolf restoration and presence on the landscape, maintenance of working lands and wildlife habitat, livestock production, and implementation of nonlethal conflict minimization.
- Provides compensation both for confirmed depredations and additional economic support for the outcomes noted above. See rationale for support for Alternative 1 for ex post compensation.
- Incentivizes prevention of conflict without requiring any specific strategies or tools.
- Incentivizes finding carcasses in time to get them investigated and compensated for confirmed depredations.
- Economic approaches suggest that it is more effective to reward the outcomes that society values (both livestock and wolves staying alive) than to pay for undesired outcomes (i.e., depredation and loss).

Rationale for opposition to Alternative 6

- The outcome-based alternatives lack social and economic certainty to garner adequate buy-in at the outset of reintroduction.
- The lack of economic data needed to appropriately and meaningfully fund pay for presence limits the potential effectiveness of the strategy.
- Concern about fairness in distribution of pay for presence funds vs. the actual impacts; wolves could be present but not depredating in some operations while they are present and depredating in others.
- The alternative does not compensate for all losses that wolves have been documented to cause, such as missing livestock and production losses. Some suggest that the law requires that these other losses must be covered. See rationale for opposition to Alternative 1 for ex post compensation.
- Would require increased agency capacity and monitoring.

Additional considerations for Alternative 6

- Continue developing outcome-based alternatives for the future. Outcome-based compensation could be considered as future program alternatives when more Colorado-specific wolf-livestock compensation and socioeconomic costs and benefits are available.
- Like all alternatives, cost will increase with wolf population, however individual wolf value can decrease with population increase.

Alternatives 7a and 7b: Outcome-based compensation parallel to ex post alternative 1, 2, 3, 4, or 5 (pay for performance/practices)

Overview

SAG members proposed an alternative to compensate for nonlethal conflict mitigation practices under which producers could bid competitively to opt out of a parallel ex post program. The producer bid would include proactive practices as well as the amount the producer would accept to opt out of ex post; proposals would be reviewed by a board and ranked based on wolf presence, risk, practices, and bid. This alternative can be complementary to other financial and technical assistance programs for nonlethal conflict minimization. The approach was suggested by an economist and is based roughly on the competitive bidding process in the USDA Conservation Stewardship Program.

The distinction between Alternatives 7a and 7b is the parallel ex post program from which the producer bids to opt out. In 7a, the parallel ex post compensation program is either Alternative 1 or Alternative 2 (compensation for confirmed death or injury). In 7b, the parallel ex post compensation program is Alternative 3, 4, or 5 (inclusive of compensation for confirmed death or injury, missing livestock, and some production losses).

SAG feedback (individual comments, not necessarily reflecting consensus):

Rationale for support for Alternative 7a and/or 7b

Arguments supporting both options

- The alternative creates a market-like program that incentivizes desired outcomes: wolf restoration and presence on the landscape, maintenance of working lands and wildlife habitat, livestock production, and implementation of nonlethal conflict minimization.
- Economic approaches suggest that it is more effective to reward the outcomes that society values (both livestock and wolves staying alive) than to pay for undesired outcomes (i.e., depredation and loss).
- Incentivizes prevention of conflict, including creative and pooled practices, without requiring any specific strategies or tools.

Arguments supporting Alternative 7a only

- Providing Alternative 1 or 2 as the parallel ex post program keeps costs lower and provides a stronger incentive for a producer to bid to opt out in order to receive funding for preventative practices.
- See Alternatives 1 and 2 for rationale for support for these ex post compensation programs.

Arguments supporting Alternative 7b only

- Providing Alternative 3, 4, or 5 as the parallel ex post program gives the producer a choice to opt in or out of a program that compensates for missing livestock and production losses.
- See Alternatives 3, 4, and 5 for rationale for support for these ex post compensation programs.

Rationale for opposition to Alternative 7a and/or 7b

Arguments opposing both options

- The outcome-based alternatives lack social and economic certainty to garner adequate buy-in at the outset of reintroduction.
- The lack of economic data needed to appropriately and meaningfully fund this alternative limits the potential effectiveness of the strategy.
- Increased burden of agency staff in tracking wolf activity and reviewing bid proposals.

- Concern about fairness in distribution of pay for performance/practice funds vs. the actual impacts; wolves could be present but not depredating in some operations while they are present and depredating in others, including those that implement conflict minimization.

Arguments opposing 7a only

- See Alternatives 1 and 2 for rationale for opposition to these ex post compensation programs.

Arguments opposing 7b only

- See Alternatives 3, 4, and 5 for rationale for opposition to these ex post compensation programs.
- Providing Alternative 3, 4, or 5 for the ex post compensation program is more costly; the funding for the pay for performance program would need to be scaled to match the funding of the ex post program.
- By covering additional losses (missing livestock, production losses) in the ex post option, the alternative decreases the incentive for producers to opt out of ex post and to implement preventative practices.

Additional considerations for the Alternatives 7a and 7b

- Continue developing outcome-based alternatives for the future. Outcome-based compensation could be considered as future program alternatives when more Colorado-specific wolf-livestock compensation and socioeconomic costs and benefits are available.
- Available funding would need to be adequate to incentivize opting out of ex post.
- Like all alternatives, cost will increase with wolf population; ranking of bids should evolve as wolf population spreads.

Appendix A: Detailed Table of Livestock Compensation Plan Alternatives

Program Components	Alternative 1: Current Game Damage Process (i.e., preponderance of evidence standard):
Confirmation of depredation events	Depredations compensated at 100% FMV for confirmation under preponderance of evidence standard if no sales receipts/contracts. Livestock injured/killed by wolves will be compensated up to fair market value of animal or \$5k limit. CPW/WS-APHIS has investigative authority.
Compensation rate for missing livestock?	No compensation for missing livestock, closest is running age ewes (1.5 times lamb price).
Eligibility requirements for claiming/compensating missing livestock?	No compensation for missing livestock.
Compensation amount for other ('indirect') losses (i.e., pregnancy and weaning?)	N/A
Eligibility for 'indirect' loss compensation?	N/A
Ex ante program components?	N/A
Eligibility for ex ante?	N/A
Additional considerations? (phasing, program evaluation, etc.)	
Documented Peer Reviewed Case Studies	

Program Components	Alternative 2: 2004 Wolf Working Group's Recommendations (100% FMV for confirmed, 50% FMV for probable):
Confirmation of depredation events	<ul style="list-style-type: none"> * Confirmed kills paid at 100% FMV (up to 5k/head). * Probable kills paid at 50% of market value. * Livestock injured/killed by wolves will be compensated up to fair market value of animal or \$5k limit. *CPW/WS-APHIS has investigative authority.
Compensation rate for missing livestock?	No compensation for missing livestock, closest is running age ewes (1.5 times lamb price).
Eligibility requirements for claiming/compensating missing livestock?	No compensation for missing livestock.
Compensation amount for other ('indirect') losses (i.e., pregnancy and weaning?)	N/A
Eligibility for 'indirect' loss compensation?	N/A
Ex ante program components?	N/A
Eligibility for ex ante?	N/A
Additional considerations? (phasing, program evaluation, etc.)	Requires definitions for 'confirmed' and 'probable.'
Documented Peer Reviewed Case Studies	

Program Components	Alternative 3: Simple Compensation Ratio for Missing Livestock (Stand alone)
Confirmation of depredation events	<p>*100% FMV for depredation event (death or injury) that the investigating officer reasonably determines is the result of a wolf depredation resolving any unknowns in the producer’s favor.</p> <p>*Document level of confidence (based on criteria TBD, e.g., highly confident, confident, reasonably confident) it was clear evidence to help inform other management options.</p> <p>*Livestock (including guard and herding animals) injured/killed by wolves will be compensated up to fair market value of animal or \$5k limit (per statute 33.3 - 101a) - this limit needs to be updated if necessary.</p> <p>*CPW/WS-APHIS has investigative authority.</p>
Compensation rate for missing livestock?	<ul style="list-style-type: none"> • A or B Compensation ratio for missing sheep & calves. • (.5)A or (.5)B Compensation ratio for missing yearlings. • Proposed 2-tier compensation ratio: <ul style="list-style-type: none"> • Compensation ratio of A for missing sheep and calves ((.5)A for yearlings). • Increased to compensation ratio of B for missing sheep and calves ((.5)B for yearlings) if the producer employs conflict mitigation measures. • Rate A and B should be two different rates determined by best available science. • Initially proposed rate: A = 5 and rate B = 7: see references for rationale.
Eligibility requirements for claiming/compensating missing livestock?	<ol style="list-style-type: none"> 1. Must have a depredation event (death or injury) due to gray wolves. 2. Missing livestock claimed for compensation ratio must be sheep, calves, or yearlings. 3. Losses are reported by the producer; lead with trust and further investigate missing livestock claims as appropriate. 4. Missing livestock claimed cannot exceed actual documented livestock loss (following the procedure set forth in Wyoming's compensation ratio program). 5. Investigator may consider role of topography/vegetation. 6. Conflict minimization is not a requirement for damage compensation at a ratio of A. 7. Increase ratio to B if conflict minimization is employed. <ol style="list-style-type: none"> a. Consider verification of nonlethal techniques during initial depredation confirmation.

Program Components	Alternative 3 (continued): Simple Compensation Ratio for Missing Livestock (Stand alone)
Compensation amount for other ('indirect') losses (i.e., pregnancy and weaning?)	<p>Compensation ratio for missing livestock attempts to account for some production losses: some missing livestock may not be due to wolves and producers may claim according to eligibility and proposed cap.</p> <p>An alternative consideration is that a state average baseline for missing livestock loss rate (pre-wolf reintroduction) should be subtracted from actual missing number of livestock, to determine an adjusted number to be claimed. Under this mechanism, the ratio likely does not cover some additional production losses.</p>
Eligibility for 'indirect' loss compensation?	N/A
Ex ante program components?	See ex ante program components
Eligibility for ex ante?	Covered in ratio differences
Additional considerations? (phasing, program evaluation, etc.)	<p>Collect pre-implementation baseline data as well as data on losses, claims and payments for first 3-5 years of implementation; evaluate program after that timeframe and adjust missing livestock compensation rate and types of animals covered as appropriate. Implement in conjunction with robust conflict minimization programs which would be evaluated to determine techniques that have merit and whether the program is robust enough. Consider operation of a compensation program in partnership with CO Department of Ag and/or Wildlife Services to leverage existing relationships with producers.</p> <p>Once wolf status is changed to delisted, harmonize the program into an overall big game compensation program to avoid unintended consequences.</p>
Documented Peer Reviewed Case Studies	Literature on numerical ratios: Oakleaf, 2003; Bangs & Shivak, 2001; Somers, 2010, Switaski, 2002; Lehmkuhler, 2007; DSEIS, 2021 (USFWS)

Program Components	Alternative 4: Itemization for Compensation of Production Loss and Missing Livestock (stand alone)
Confirmation of depredation events	<p>*100% FMV for depredation event (death or injury) that the investigating officer reasonably determines is the result of a wolf depredation resolving any unknowns in the producer’s favor.</p> <p>*Document level of confidence (based on criteria TBD, e.g., highly confident, confident, reasonably confident) it was clear evidence to help inform other management options.</p> <p>*Livestock (including guard and herding animals) injured/killed by wolves will be compensated up to fair market value of animal or \$5k limit (per statute 33.3 - 101a) - this limit needs to be updated if necessary.</p> <p>*CPW/WS-APHIS has investigative authority.</p>
Compensation rate for missing livestock?	This alternative compensates for missing livestock via itemization.
Eligibility requirements for claiming/compensating missing livestock?	<ol style="list-style-type: none"> 1. Must have a depredation incident (death or injury) to itemize. <ol style="list-style-type: none"> a. Consider removal of this requirement or alternative eligibilities, such as documented depredation for other producers or presence of wolves. 2. Missing livestock claimed for compensation ratio must be sheep, calves, or yearlings. 3. Losses are reported by the producer; lead with trust and further investigate missing livestock claims as appropriate. 4. Missing livestock claimed cannot exceed actual documented livestock loss (following the procedure set forth in Wyoming's compensation ratio program). 5. No topography requirement for eligibility. 6. Practice implementation is not a requirement for itemized damage compensation. <ol style="list-style-type: none"> a. Consider developing a mechanism to incentivize the use of nonlethal conflict risk reduction techniques. For example, producers qualify for a type or percentage of losses with nonlethal tools, and all available production losses if nonlethal tools are used.

Program Components	Alternative 4 (continued): Itemization for Compensation of Production Loss and Missing Livestock (stand alone)
<p>Compensation amount for other ('indirect') losses (i.e., pregnancy and weaning?)</p>	<ul style="list-style-type: none"> • Losses are proven by application and documentation as follows (this can apply for one or more of the following options). <p>The following are general considerations, with details to be developed:</p> <ol style="list-style-type: none"> 1. Missing animals: Baseline death loss is submitted with percentages over a minimum of 3 years pre-wolf presence using production records. Additional losses beyond this baseline must be demonstrated to qualify for additional death loss. Consider calculating an average at a greater temporal scale that considers both production highs and lows, due to drought or other factors to eliminate variability. 2. Decreased weaning weights: Baseline weights over a minimum of 3 years must be submitted along with current year weights. Data can be submitted via weight tickets, production records, or sales records. 3. Decreased conception rates: Baseline conception rates over a minimum of 3 years must be submitted along with current year rates. Data can be submitted via production and/or vet records. <ul style="list-style-type: none"> • Additional losses can be considered on a case-by-case basis by the division. • Consider factoring size of operation and/or interannual changes in operation.
<p>Eligibility for 'indirect' loss compensation?</p>	<ol style="list-style-type: none"> 1. Depredation event (death or injury) automatically qualifies a producer to apply for production loss compensation. <ol style="list-style-type: none"> a. Consider removal of this requirement or alternative eligibilities, such as documented depredation for other producers or presence of wolves.
<p>Ex ante program components?</p>	<p>N/A</p>
<p>Eligibility for ex ante?</p>	<p>N/A</p>
<p>Additional considerations? (phasing, program evaluation, etc.)</p>	<p>Compile data from producers who file claims to report out the level of production losses experienced. Evaluate program after 3-5 years to identify whether there is a cleaner/easier way to cover the losses. Consider tweaking the process based on producer/CPW feedback on ease of application and administration and with considerations on the wolf population. OR consider going to a straight ratio that would be comparable to the actual losses that are demonstrated through this program (ease of use long-term).</p> <p>Once wolf status is changed to delisted, harmonize the program into an overall big game compensation program to avoid unintended consequences.</p>
<p>Documented Peer Reviewed Case Studies</p>	<p>Steele, 2013; Sommers, 2010; Lehmkuhler, 2007; DSEIS, 2021 (USFWS); Ramler, 2014; Widman, 2019; Cooke, 2013</p>

Program Components	Alternative 5: Producer chooses between simple compensation ratio (Alternative 3) OR itemization (Alternative 4)
Confirmation of depredation events	<p>*100% FMV for depredation event (death or injury) that the investigating officer reasonably determines is the result of a wolf depredation resolving any unknowns in the producer's favor.</p> <p>*Document level of confidence (based on criteria TBD, e.g., highly confident, confident, reasonably confident) it was clear evidence to help inform other management options.</p> <p>*Livestock (including guard and herding animals) injured/killed by wolves will be compensated up to fair market value of animal or \$5k limit (per statute 33.3 - 101a) - this limit needs to be updated if necessary.</p> <p>*CPW/WS-APHIS has investigative authority.</p>
Compensation rate for missing livestock?	Producer has option to choose between either simple compensation ratio (alternative 3) or itemization (alternative 4); producer may not do both.
Eligibility requirements for claiming/compensating missing livestock?	Eligibility requirements same as alternative 3 or 4, depending on which option the producer chooses.
Compensation amount for other ('indirect') losses (i.e., pregnancy and weaning?)	See alternative 3 or 4, depending which option the producer chooses.
Eligibility for 'indirect' loss compensation?	See alternative 3 or 4, depending which option the producer chooses.
Ex ante program components?	See alternative 3 or 4, depending which option the producer chooses.
Eligibility for ex ante?	See alternative 3 or 4, depending which option the producer chooses.
Additional considerations? (phasing, program evaluation, etc.)	Considerations in 3&4 should be evaluated along with also looking at which program is most widely used in an attempt to simplify the process after the evaluation time.
Documented Peer Reviewed Case Studies	See alternative 3 or 4

Program Components	Alternative 6: Outcome-based compensation in addition to ex post (pay for performance)
Confirmation of depredation events	See alternative 1 for ex post compensation.
Compensation rate for missing livestock?	N/A
Eligibility requirements for claiming/compensating missing livestock?	N/A
Compensation amount for other ('indirect') losses (i.e., pregnancy and weaning?)	N/A
Eligibility for 'indirect' loss compensation?	N/A
Ex ante program components?	<p>Payments based on wolf pack home ranges and overlap with ranches, and wolf survival to end of year.</p> <p>Payments based on an algorithm, similar to that used by the Mexican Wolf Livestock Council, where points are used to assign percentage of available funding.</p> <p>The following would be an example of that framework:</p> <ul style="list-style-type: none"> • Step 1: Core Area/2 points per core area + Territory/1 point per territory + Wolf Pups/1 point per pup = Subtotal A. • Step 2: Subtotal A is multiplied by 2 if applicant is implementing preventative practices = Subtotal B. • Step 3: The Number of Livestock (AU) (cow/calf is 1; yearling is 0.5) that are exposed to wolves is divided by 100 = Subtotal C. • Step 4: Subtotal B is multiplied by Subtotal C = Grand Total. <p>*Algorithm may be adjusted to reduce bias toward larger producers, e.g., by beginning with a minimum payment regardless of herd size.</p>
Eligibility for ex ante?	Livestock producer (in occupied wolf habitat). May need to enroll to determine ranch geography, number of livestock exposed, period of time, etc.

<p>Program Components</p>	<p>Alternative 6 (continued): Outcome-based compensation in addition to ex post (pay for performance)</p>
<p>Additional considerations? (phasing, program evaluation, etc.)</p>	<p>Conservation performance payments are for wolf survival, independent of depredations or missing livestock. Incentive is for producer to prevent livestock from being killed and to find any missing livestock.</p> <p>Conservation performance payments are for wolf survival, independent of direct or indirect effects. Incentive is for producer to prevent conflict.</p> <ul style="list-style-type: none"> * Like all alternatives, cost will increase with wolf population. * But individual wolf value can decrease with population increase. * Should include a sunset clause: expire, renew, or revise based on time (e.g., 5-10 yr) and/or wolf state endangered status change. *Would require increased agency capacity and monitoring. <p>Implement in conjunction with robust conflict minimization programs which would be evaluated to determine techniques that have merit and whether the program is robust enough.</p>
<p>Documented Peer Reviewed Case Studies</p>	<p>Conservation performance payments preferred by numerous authors and most economists (Nelson 2009; Breck et al. 2011; Dickman et al. 2011; Harris 2020; Macon 2020). Dickman et al (2011) recommended a combo with majority of funds to outcome-based and minority to ex post.</p> <p>Harris (2020) speculated that most benefits of performance-based could be captured by practice-based.</p> <p>Examples:</p> <ul style="list-style-type: none"> Mexican Wolf Livestock Coexistence Council (Strategic Plan 2014). Viviendo con los Gatos (rare cats in Sonora) (Nistler 2007). Sweden lynx & wolverine, with semi-domesticated reindeer (Persson et al. 2015).

Program Components	Alternative 7a: Outcome-based compensation parallel to ex post alternative 1 or 2 (pay for performance/practices)
Confirmation of depredation events	<ul style="list-style-type: none"> • <i>Depredations are investigated but have no bearing on compensation.</i> • Producers bid competitively to opt out of parallel ex-post program (Alternatives 1 or 2). <ul style="list-style-type: none"> o Bids include proactive practices as well as the amount the producer would accept to opt out of ex-post; reviewed by a board and ranked based on wolf presence, risk, practices, and bid. o Conceptually similar to USDA's Conservation Stewardship Program. o Allow pooled bids from multiple producers in a geographic area. o Can be complementary to other financial and technical assistance programs for conflict minimization
Compensation rate for missing livestock?	N/A
Eligibility requirements for claiming/compensating missing livestock?	N/A
Compensation amount for other ('indirect') losses (i.e., pregnancy and weaning)?	N/A
Eligibility for 'indirect' loss compensation?	N/A
Ex ante program components?	<p>Producer bids to opt out of all ex post compensation.</p> <ul style="list-style-type: none"> *May include proactive, preventative strategies (e.g., husbandry practices, guard animals, carcass removal) and/or tools (e.g., fences, light and noise devices). * Practices may be invented by livestock owners (rewards creativity). * Bids are reviewed by a board and ranked based on wolf presence, livestock risk, and bid amount.
Eligibility for ex ante?	Livestock producer (in occupied wolf habitat), by competitive bid.

<p>Program Components</p>	<p>Alternative 7a (continued): Outcome-based compensation parallel to ex post alternative 1 or 2 (pay for performance/practices)</p>
<p>Additional considerations? (phasing, program evaluation, etc.)</p>	<p>Conservation performance payments are for wolf survival, independent of depredations or missing livestock. Incentive is for producer to prevent livestock from being killed and to find any missing livestock.</p> <p>Conservation performance payments are for proactive practices and wolf survival, independent of direct or indirect effects. Incentive is for producer to prevent conflict.</p> <ul style="list-style-type: none"> * Like all alternatives, cost will increase with wolf population. * Ranking should evolve as wolf population spreads and needs change. * Should include a sunset clause: expire, renew, or revise based on time (e.g., 5-10 yr) and/or wolf state endangered status change. * Available funding would need to be adequate enough to incentivize opting out of ex post. Implement in conjunction with robust conflict minimization programs which would be evaluated to determine techniques that have merit and whether the program is robust enough.
<p>Documented Peer Reviewed Case Studies</p>	<p>Harris/MFWP (2020): Payment for practices may be simpler than payment for conservation performance per se. For bid process, none; but recommended by economist (Dana Hoag presentation) Conceptually similar to CSP.</p>

Program Components	Alternative 7b: Outcome-based compensation parallel to ex post alternative 3, 4, or 5 (pay for performance/practices)
Confirmation of depredation events	<p><i>Depredations investigated but have no bearing on compensation.</i></p> <p>Producers bid competitively to opt out of parallel ex-post program (Alts. 3, 4, 5).</p> <ul style="list-style-type: none"> * Bids include proactive practices as well as the amount the producer would accept to opt out of ex-post; reviewed by a board and ranked based on wolf presence, risk, practices, and bid. * Conceptually similar to USDA's Conservation Stewardship Program. * Allow pooled bids from multiple producers in a geographic area. * Can be complementary to other financial and technical assistance programs for conflict minimization.
Compensation rate for missing livestock?	N/A
Eligibility requirements for claiming/compensating missing livestock?	N/A
Compensation amount for other ('indirect') losses (i.e., pregnancy and weaning)?	N/A
Eligibility for 'indirect' loss compensation?	N/A
Ex ante program components?	<p>Producer bids to opt out of all ex post compensation.</p> <ul style="list-style-type: none"> * May include proactive, preventative strategies (e.g., husbandry practices, guard animals, carcass removal) and/or tools (e.g., fences, light and noise devices). * Practices may be invented by livestock owners (rewards creativity). * Bids are reviewed by a board and ranked based on wolf presence, livestock risk, and bid amount.
Eligibility for ex ante?	Livestock producer (in occupied wolf habitat), by competitive bid

<p>Program Components</p>	<p>Alternative 7b (continued): Outcome-based compensation parallel to ex post alternative 3, 4, or 5 (pay for performance/practices)</p>
<p>Additional considerations? (phasing, program evaluation, etc.)</p>	<p>Conservation performance payments are for wolf survival, independent of depredations or missing livestock. Incentive is for producer to prevent livestock from being killed and to find any missing livestock.</p> <p>Conservation performance payments are for proactive practices and wolf survival, independent of direct or indirect effects. Incentive is for producer to prevent conflict.</p> <ul style="list-style-type: none"> * Like all alternatives, cost will increase with wolf population. * Ranking should evolve as wolf population spreads and needs change. * Should include a sunset clause: expire, renew, or revise based on time (e.g., 5-10 yr) and/or wolf state endangered status change. * Available funding would need to be adequate enough to incentivize opting out of ex post. <p>Implement in conjunction with robust conflict minimization programs which would be evaluated to determine techniques that have merit and whether the program is robust enough.</p>
<p>Documented Peer Reviewed Case Studies</p>	<p>Harris/MFWP (2020): Payment for practices may be simpler than payment for conservation performance per se. For bid process, none; but recommended by economist (Dana Hoag presentation) Conceptually similar to CSP.</p>

Appendix B: About the Stakeholder Advisory Group

The Colorado Wolf Restoration and Management Plan Stakeholder Advisory Group (SAG) offers a broad range of perspectives and experience to inform the social implications of wolf restoration and management strategies for the Colorado Wolf Restoration and Management Plan. SAG members were selected by Colorado Parks and Wildlife (CPW) for diversity in demographics, backgrounds, geographic regions, perspectives, and knowledge in order to constitute a vibrant, diverse and inclusive stakeholder voice in the planning process. The SAG is comprised of 17 voting members and 3 non-voting members. CPW is responsible for writing the Wolf Restoration and Management Plan. The Parks and Wildlife Commission (PWC) serves as the decision-making body responsible for approving the Wolf Restoration and Management Plan. The SAG serves in an advisory capacity to Colorado Parks and Wildlife, offering non-binding input into the development of plan content. The SAG is not a decision-making body and has no authority on wolf management policy, research or operations.

The SAG strives to make decisions based on the consensus of all voting members, where possible. Where the SAG is able to achieve consensus, its input will receive priority consideration by CPW. Per the SAG charter, consensus is defined as general agreement that is shared by all the people in a group; it reflects a recommendation, option or idea that all participants can support or abide by, or, at a minimum, to which they do not object. In other words, consensus is a recommendation, option or idea that all can live with. Where consensus does not exist, a vote will be taken and the votes of individual members will be recorded along with a summary of the rationale for supportive and dissenting views.

Stakeholder Advisory Group Members:

Voting Members:

- Matt Barnes
- Donald Broom
- Jenny Burbey
- Bob Chastain
- Renee Deal
- Adam Gall
- Dan Gates
- John Howard
- Francie Jacober
- Lenny Klinglesmith
- Darlene Kobobel
- Tom Kourlis
- Brian Kurzel
- Hallie Mahowald
- Jonathan Proctor
- Gary Skiba
- Steve Whiteman

Ex Officio Members:

- Dan Gibbs, Executive Director, Colorado Department of Natural Resources
- Les Owen, Division Director, Colorado Department of Agriculture (*designee of Kate Greenberg, Commissioner, Colorado Department of Agriculture*)
- Dan Prenzl, Director, Colorado Parks and Wildlife

Stakeholder Advisory Group report developed with third party facilitation from Keystone Policy Center.