



**Wolf-Livestock Conflict
Deterrence Proposed Rule
Small Business Economic Impact
Statement**

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LIST OF ACRONYMS AND ABBREVIATIONS

CPoW	Cattle Producers of Washington
WDFW	Washington State Department of Fish and Wildlife
DPCA_L	Damage Prevention Cooperative Agreement for Livestock
ESA	Endangered Species Act
ESD	Washington State Employment Security Department
LGD	Livestock Guardian Dog
NAICS	North American Industry Classification System
NASS	National Agriculture Statistics Service
NEWWCC	Northeast Washington Wolf Cattle Collaborative
ORIA	Office of Regulatory Innovation and Assistance
RAG	Radio Activated Guard
RCW	Revised Code of Washington
RFA	Regulatory Fairness Act
SBEIS	Small Business Economic Impact Statement
SEPA	State Environmental Policy Act
USDA	U.S. Department of Agriculture
WAC	Washington Administrative Code
WAG	Wolf Advisory Group

EXECUTIVE SUMMARY

The Washington State Department of Fish and Wildlife (WDFW) proposes to revise chapter 220-440 of the Washington Administrative Code (WAC) to codify a process for identifying and documenting the non-lethal deterrents that should be used to reduce the risk of wolf depredation in chronic wolf-livestock conflict areas through development of a Conflict Mitigation Plan for Chronic Conflict Areas¹. Although the Conflict Mitigation Plan would not require any given livestock producer to implement non-lethal deterrents, WDFW would evaluate the efforts of livestock producers to integrate the recommendations in the Conflict Mitigation Plan in making decisions regarding lethal removal of a wolf. Additionally, beyond the Chronic Conflict Areas subject to the Conflict Mitigation Plans, changes to WAC 220-440-080 clarify that, in making decisions regarding lethal removal of wolves across the State of Washington more broadly, WDFW will consider whether an affected livestock producer has proactively implemented appropriate non-lethal deterrents.

Since gray wolves began recolonizing certain areas of Washington in 2008 and depredation on livestock was first documented, affected livestock producers have incurred costs, including lost revenues resulting from livestock mortalities and injuries, reduced weight gain and pregnancy rates of the livestock due to stress created by wolf presence, and the costs of implementation of non-lethal deterrents intended to reduce wolf depredation on livestock. Although WDFW and other state and federal government agencies and non-governmental organizations work with the industry to compensate them for some of these costs, overall, wolf presence and depredation have adversely affected some livestock producers.

Use of non-lethal deterrents has been a primary tool encouraged by WDFW and implemented by the industry to reduce wolf-livestock conflicts. The industry's historical and ongoing use of non-lethal deterrents in the baseline (i.e., absent implementation of the proposed rule) is motivated primarily by livestock producers' desire to protect their livestock from depredation. Use of non-lethal deterrents is also encouraged by other guidelines including contracts with WDFW under its Damage Prevention Cooperative Agreement for Livestock (DPCA_L) program, to maintain eligibility to receive compensation for livestock losses, and to act in accordance with the guidance of the Wolf-Livestock Interaction Protocol (Protocol), which stipulates that livestock producers are expected to implement at least two non-lethal deterrence measures.

¹ Under the proposed rule, the WDFW Director or staff designee may designate a geographic area as a Chronic Conflict Area when wolf depredations of livestock have occurred, and lethal removal of wolves was authorized in two of the last three years.

Where livestock depredation repeatedly occurs, lethal removal of wolves may be needed to address the issue. Except in the event that a wolf is actively attacking livestock, only WDFW is authorized to kill a wolf as a preventative measure against livestock depredation. As a matter of current practice, for WDFW to consider lethal removal of wolves, affected livestock producers must demonstrate that they are taking earnest measures to deter wolves from their livestock. This would continue to be true under the proposed rule.

Given the extensive efforts to implement non-lethal deterrents by affected livestock producers and the need to demonstrate these actions for WDFW to consider lethal removal of wolves, it is likely that most businesses at relatively high risk of wolf-livestock conflicts would implement non-lethal deterrents absent the rule. Conversely, for businesses at relatively low risk of wolf-livestock conflicts, it is most likely they would not implement non-lethal deterrents regardless of this rulemaking. Therefore, for most businesses, this rule is unlikely to change decisions regarding implementation of non-lethal deterrents. Rather, it changes the process that prescribes their interactions with WDFW and WDFW's deliberation process.

This analysis does find, however, that in some cases the rule may provide actionable information to industry regarding WDFW's process that would trigger changes in behavior regarding use of non-lethal deterrents. Under these circumstances, the associated costs could be considered a result of the proposed rule. Specifically, WDFW's development of Conflict Mitigation Plans and the clarification of the process through which lethal removal of wolves will be considered may encourage some livestock producers to be more proactive in implementing non-lethal deterrents. For these businesses, earnest attempts to implement non-lethal deterrents are likely to cost on the order of thousands to tens of thousands of dollars per year per business. Furthermore, WDFW indicates that human presence (including range riding) will continue to be a key focus of wolf-livestock conflict mitigation under the rule and this measure is the most expensive, ranging up to \$55,000 per year. This constitutes a significant fraction of average industry revenues for businesses that may bear these costs and would be an untenable cost for the smallest businesses. Although public funds may be provided to offset some of the costs of range riding and implementation of other non-lethal deterrents, this assistance typically does not cover the full cost of these activities and is subject to availability.

Relative to the central questions of a Small Business Economic Impact Statement, this analysis finds the following:

Is the rule likely to impose more than minor costs on businesses in the industry?

Significant uncertainty exists regarding whether and to what extent the rulemaking will result in livestock producers implementing more or different non-lethal deterrents than they would absent the rule. That is, the rule is unlikely to result in costs for most businesses in the industry. However, the minor cost thresholds for the livestock producers that may incur costs due to the proposed rule (i.e., within counties currently experiencing depredation) range from \$190 to \$800. Given the costs of non-lethal deterrents, even a minimal increase in implementation of non-lethal deterrents for a given business would

exceed the minor cost threshold. To the extent that the rule motivates a business to engage in additional or expanded use of non-lethal deterrents that they otherwise would not have done, the costs are likely to be more than minor.

Does the proposed rule cause a disproportionate impact on small businesses?

Ninety-eight percent of the regulated businesses in this industry are small (fewer than 50 employees). As a result, the rule is found to disproportionately impact small businesses.

CHAPTER 1 | INTRODUCTION

Wolf depredation on livestock is an ongoing challenge for Washington State livestock producers and the Washington Department of Fish and Wildlife (WDFW).² Since gray wolves began recolonizing certain areas of the state in 2008 and depredation on livestock was first documented, affected livestock producers have incurred costs, including lost revenues resulting from cattle mortalities, veterinary bills to treat injured animals, and the additional time spent by ranchers on managing depredation.³ Wolf presence and depredation can also affect the weight gain and pregnancy rates of the livestock due to stress, which reduces the number of animals produced and the price at which the cattle can be sold.⁴ Affected producers have worked closely with WDFW to identify and implement non-lethal deterrents intended to reduce wolf depredation on livestock, which additionally increases the operational costs of these businesses. Although WDFW, other state and federal government agencies, and non-governmental organizations work with the industry to compensate them for some of these costs, overall, wolf presence and depredation have adversely affected some livestock producers.

Livestock producers are not permitted to kill wolves except if the wolf is in the physical act of attacking livestock, domestic animals, or a human.⁵ Instead, if a producer experiences livestock depredation, producers can report suspected wolf depredation of livestock to WDFW for investigation and confirmation. If WDFW has documented three depredation events within 30 days, or four events in 10 months, the agency may consider lethal removal.⁶ WDFW's decision regarding whether to undertake lethal removal of a wolf includes an assessment of the extent to which the producer made an earnest attempt to deter the wolf through use of "non-lethal" deterrents. WDFW's current decision-making process regarding lethal removals considers non-binding guidance in the 2011

² According to the WDFW Wolf-Livestock Interaction Protocol, a depredation is defined as any death or injury of livestock caused by a carnivore (WDFW. 2017. Wolf-livestock interaction protocol. Available at https://wdfw.wa.gov/sites/default/files/2020-09/20200915_wdfw_wolf_livestock_interaction_protocol.pdf).

³ Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022.

⁴ Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022, and outlined in detail by industry representatives in Haerberle, R. S. McLaughlin, and S. Nielsen. Undated. The Economic Effect of Wolf Predation on Ranching Families and Rural Communities. Provided via email by S. McLaughlin to IEc on December 14, 2021.

⁵ RCW 77.15.120 (criminal penalties for unlawful take of state endangered wildlife); WAC 220-610-010 (gray wolf state classified "endangered"); WAC 220-440-080; WAC 220-440-050; WAC 220-440-060.

⁶ WDFW. 2017. Wolf-livestock interaction protocol. Available at https://wdfw.wa.gov/sites/default/files/2020-09/20200915_wdfw_wolf_livestock_interaction_protocol.pdf.

Wolf Conservation and Management Plan and Wolf-livestock Interaction Protocol (Protocol).^{7,8} WDFW now proposes to codify a process for identifying and documenting the non-lethal deterrents that should be used in a Chronic Conflict Area to reduce the risk of wolf depredation through development of a Conflict Mitigation Plan. Under the proposed rule, a Chronic Conflict Area would be designated by the WDFW director or WDFW staff designee as a geographic area (e.g., all or a portion of a wolf pack territory) where wolf depredations of livestock have occurred and lethal removal of wolves was authorized in two of the last three years. Although the Conflict Mitigation Plan would not require any given livestock producer to implement non-lethal deterrents, WDFW will evaluate the efforts of the producer to integrate the recommendations in the Conflict Mitigation Plan in making decisions regarding lethal removal of a wolf. Additionally, beyond the Chronic Conflict Areas, changes to WAC 220-440-080 clarify that WDFW will consider whether an affected livestock producer has proactively implemented non-lethal deterrents in making decisions regarding lethal removal of wolves statewide.

This report evaluates the potential costs to businesses in the livestock industry resulting from WDFW's proposed rule. This Small Business Economic Impact Statement (SBEIS) was developed in accordance with the Regulatory Fairness Act (RFA), Revised Code of Washington (RCW) Section 19.85 to determine whether the proposed rule would have a disproportionate cost impact on small businesses. Specifically, this analysis evaluates the following:

- whether the proposed regulatory action may generate incremental costs (i.e., costs above and beyond those wolf management costs that would be incurred by the industry absent implementation of the rule);
- whether these costs would constitute a more than minor effect on businesses; and
- whether those costs may be disproportionately borne by small businesses.

The primary sources of information for this analysis include information gathered through outreach to businesses in the industry, association representatives, and other knowledgeable subject matter experts as well as data from the United States Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS), Dun and Bradstreet's Hoover's Business Information Database, WDFW, and the Washington State Employment Security Division (ESD).

1.1 NEED FOR THE RULE

Following decades of extirpation, gray wolves began naturally recolonizing the State of Washington from populations in surrounding states and provinces, with the first pack

⁷ WDFW. 2011. Wolf Conservation and Management Plan. Available at <https://wdfw.wa.gov/sites/default/files/publications/00001/wdfw00001.pdf>

⁸ WDFW. 2017. Wolf-livestock interaction protocol. Available at https://wdfw.wa.gov/sites/default/files/2020-09/20200915_wdfw_wolf_livestock_interaction_protocol.pdf

with pups documented in July 2008.⁹ Gray wolves were federally listed under the Endangered Species Act (ESA) throughout their range beginning in 1978 but were delisted in the eastern third of Washington in 2011. In 2021, the U.S. Fish and Wildlife Service delisted gray wolves from federal protection across all of Washington. With the federal delisting, WDFW is solely responsible for the management and recovery of gray wolves throughout Washington State outside of tribal lands and National Parks.¹⁰ The gray wolf was listed as a state endangered species in 1980 and retains that status.¹¹

Conflict between wolves and livestock occurs everywhere the two coexist but generally is not frequent and is not uniform across the landscape. When conflict between wolves and livestock does occur and becomes chronic, it can result in significant costs. In executing its management responsibility for the gray wolf population, WDFW focuses on the proactive use of non-lethal deterrents to minimize wolf-livestock conflict. Starting in 2018, WDFW and the Wolf Advisory Group (WAG)—a citizen stakeholder group with participants ranging from livestock producers, wolf conservation groups, land managers, and hunting advocates among others—began discussing areas where conflict between wolves and livestock appeared to be focused and recurring annually. In 2020, following continued discussion between WDFW, the WAG, the Washington State Fish and Wildlife Commission, and petitions by environmental organizations, Governor Jay Inslee directed WDFW to develop regulations regarding wolf management with the goal of instituting practices that will avoid the repeated loss of wolves and livestock.¹²

The objectives of WDFW’s proposed rule are to:

1. Establish a procedure for identifying WDFW’s expectations for use of non-lethal tools to mitigate wolf-livestock conflict in areas of chronic conflict, while recognizing the use of non-lethal tools is encouraged statewide; and
2. Establish criteria for the use of WDFW’s lethal removal authority in areas of chronic wolf-livestock conflict.

1.2 SUMMARY OF THE PROPOSED RULE

WDFW is proposing changes to chapter 220-440 of the Washington Administrative Code (WAC) regarding wolf-livestock conflict deterrence in Chronic Conflict Areas. These changes include revisions to existing WAC 220-440-080 to require that the WDFW

⁹ WDFW. 2020. The Wolf’s Return to Washington. Available at https://wdfw.wa.gov/sites/default/files/2020-07/wolf_status_recovery_report_single-page.pdf.

¹⁰ WDFW. 2022. Gray wolf federal and state legal status. Viewed at <https://wdfw.wa.gov/species-habitats/at-risk/species-recoverygray-wolf/status#:~:text=On%20March%2015%2C%202019%2C%20the,of%20Endangered%20and%20Threatened%20Wildlife.&text=The%20final%20rule%20went%20into,Federal%20Endangered%20Species%20Act%20statewide.>, January 21, 2022.

¹¹ WAC Chapter 220-610-010.

¹² Inslee, Jay. Letter to Larry Carpenter, Chair, Washington Fish and Wildlife Commission. 04 September, 2020. Available at https://www.governor.wa.gov/sites/default/files/Letter%20to%20WDFW%20-%20Wolf%20Mgmt%20Appeal%20%28final-signed%29.pdf?utm_medium=email&utm_source=govdelivery.

director (or WDFW staff designee) determine an owner of domestic animals has proactively implemented appropriate non-lethal conflict deterrence measures to authorize lethal removal of wolves, and addition of a new section 220-440-260 to address wolf-livestock conflict deterrence in areas of chronic conflict. This section summarizes the relevant existing guidelines and practices for use of non-lethal deterrents and decisions about lethal removals, identifies how they would change under the proposed rule, and describes how the change may result in costs to affected businesses.

1.2.1 EXISTING PROTOCOL AND GUIDELINES

Under the umbrella of the Wolf Conservation and Management plan (wolf plan),¹³ the existing Wolf-Livestock Interaction Protocol prescribes a variety of non-binding livestock damage deterrence measures and the expectations for their use, as well as the criteria for implementation of lethal removal of wolves.¹⁴ Livestock producers are expected to proactively implement at least two non-lethal deterrence measures as agreed to with the local WDFW Wildlife Conflict Specialist. Following a confirmed or probable wolf depredation, the Wildlife Conflict Specialist will continue to work with the livestock producer to assess conditions and provide guidance and assistance in the implementation of additional deterrence measures. The most common deterrence measures used to reduce the potential for wolf depredations on livestock include the following:

- Range riding;¹⁵
- Human presence (on smaller pastures or calving/lambing areas);
- Monitoring livestock;¹⁶
- Protecting calving/lambing areas;
- Avoiding wolf den and rendezvous sites;
- Scare devices (e.g., light and noise devices including propane cannons, fox lights, and radio activated guard systems);
- Guardian and/or herding dogs;
- Strategic carcass sanitation (i.e., appropriate disposal methods to prevent wolf attraction);

¹³ The wolf plan was developed in 2011 in collaboration with a multi-stakeholder working group. The wolf plan's four goals are: 1) recovery of the species, 2) reducing wolf-livestock conflict, 3) addressing interactions between wolves and native ungulates, and 4) promoting coexistence of livestock and wolves and public understanding of wolf management.

¹⁴ WDFW. 2017. Wolf-livestock interaction protocol. Available at https://wdfw.wa.gov/sites/default/files/2020-09/20200915_wdfw_wolf_livestock_interaction_protocol.pdf

¹⁵ According to the terms of WDFW's Damage Prevention Cooperative Agreements for Wolf-Livestock, the duties of range riders include implementing many of the non-lethal deterrents identified individually therein including monitoring livestock, protecting calving/lambing areas, avoiding den and rendezvous sites, and using scare devices (WDFW undated).

¹⁶ Although monitoring livestock is identified individually as a non-lethal deterrent in the existing Protocol and within WDFW's DPCA_L agreements (WDFW undated), it is generally considered an activity conducted in the course of range riding and/or providing increased human presence on smaller pastures or in calving and lambing areas.

- Permanent or portable fencing (fladry, electrified turbo-fladry, calf panels); and
- Delayed calf turnout (i.e., delayed turnout until calves reach 200 lbs.).

The protocol also describes that WDFW may consider lethal removal of wolves to attempt to change pack behavior to reduce the potential for recurrent depredations when the following criteria are met:

- WDFW has documented at least three depredation events within a 30-day rolling window of time, or at least four depredation events within a 10-month rolling window;
- At least two proactive deterrence measures and responsive deterrence measures have been implemented and failed to meet the goal of changing pack behavior to reduce potential for recurrent depredations;
- WDFW expects depredations to continue; and
- WDFW's analysis finds lethal removal of wolves is not expected to harm the wolf population's ability to reach recovery objectives statewide or within individual wolf regions.

The protocol applies statewide wherever wolves and livestock are co-located. It does not provide specific guidance in situations where chronic depredations and lethal removals have occurred in the same territory for multiple years.

1.2.2 BASELINE USE OF NON-LETHAL DETERRENDS

The industry's historical and ongoing use of non-lethal deterrents in the baseline (i.e., absent implementation of the proposed rule) is motivated by several factors. First and foremost, producers employ non-lethal deterrents to protect their livestock from depredation. Certain actions identified by WDFW as non-lethal deterrents may also be considered good ranching practices that would be employed regardless of wolf presence in an area (e.g., removal and disposal of livestock carcasses).¹⁷ Use of non-lethal deterrents is also prompted by the following policies and guidance:

- Contracts with WDFW under its Damage Prevention Cooperative Agreement for Livestock (DPCA_L) program that require implementation of agreed upon measures as a condition of eligibility for cost sharing;¹⁸
- WAC 220-440-040, which allows for compensation of livestock losses resulting from a confirmed or probable wolf depredation event, generally provided that

¹⁷ Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022.

¹⁸ WDFW. 2022. Damage prevention cooperative agreements. Viewed at <https://wdfw.wa.gov/species-habitats/at-risk/species-recovery/gray-wolf/agreements#:~:text=The%20Washington%20Department%20of%20Fish,wildlife%20to%20crops%20or%20livestock>, January 11, 2022.

the producer has implemented and documented use of non-lethal deterrence techniques;¹⁹

- Guidelines specified in the Wolf-Livestock Interaction Protocol that livestock producers are expected to implement two non-lethal deterrence measures as agreed to with the local WDFW Wildlife Conflict Specialist.²⁰
- Experience with depredation events that have resulted in consultation with local Wildlife Conflict Specialists and identification of additional measures to be implemented to deter further depredation (as described in the Wolf-Livestock Interaction Protocol).

Non-lethal deterrent use varies widely across businesses and geographic locations. According to industry representatives, the types and extent of use is driven by conditions including the following:

- The producer's location relative to wolf pack territory and active wolf presence;
- Personal experience with depredation or depredation occurring in close proximity to the operation;
- The nature of operations that may result in livestock being more or less vulnerable to depredation. According to industry representatives interviewed during December 2021 and January 2022, depredation is more likely in, though not always confined to, situations in which livestock are on rangeland distant from ranch buildings and frequent human presence, in or near timberlands and other preferred wolf habitat; and
- The size/revenues of the operation and ability of the producer to absorb the costs of non-lethal deterrents. Industry representatives interviewed for this analysis noted that there are many very small operations with very low revenues that do not implement non-lethal deterrents because they are cost-prohibitive.

According to data provided by WDFW, between 2007 and 2020 there have been 191 confirmed and probable wolf depredations in Washington (Exhibit 1-1).²¹ The vast majority have occurred in Stevens and Ferry Counties (41% and 35%, respectively). Asotin, Columbia, and Okanogan counties account for 4% each of the remaining depredations, with the remaining events distributed across several other counties.²² Although depredation has always been concentrated in the northeastern part of the state, more recent data demonstrates that these events are increasingly occurring in other counties in central and southeastern Washington. Of the documented depredation events,

¹⁹ WDFW. 2022. Compensation rules for depredation incidents. Viewed at <https://wdfw.wa.gov/species-habitats/at-risk/species-recovery/gray-wolf/compensation>, January 11, 2022.

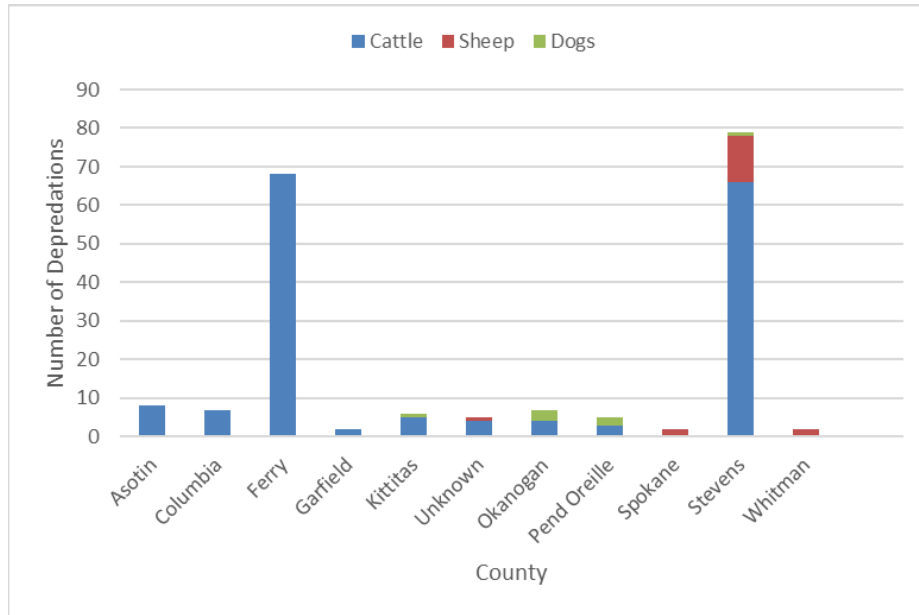
²⁰ WDFW. 2017. Wolf-livestock interaction protocol. Available at https://wdfw.wa.gov/sites/default/files/2020-09/20200915_wdfw_wolf_livestock_interaction_protocol.pdf.

²¹ Data on confirmed and probably wolf depredation on livestock by year provided by WDFW via email on January 13, 2022.

²² Other counties with documented wolf depredation on livestock include Garfield, Kittitas, Pend Oreille, Spokane, and Whitman. The location of five of the events is unknown.

167 (87%) have involved cattle, 17 (9%) have involved sheep, and seven (4%) have involved dogs.

EXHIBIT 1-1. CONFIRMED AND PROBABLE WOLF DEPREDACTIONS ON LIVESTOCK IN WASHINGTON (2007-2020)



Source: Data on confirmed and probable wolf depredation on livestock by year provided by WDFW via email on January 13, 2022.

Livestock producers that have personally experienced depredation and are under continued exposure to wolves are generally implementing the greatest variety and intensity of non-lethal deterrents. Most industry representatives interviewed for this analysis who have experienced depredation identified implementation of all relevant and potentially effective non-lethal deterrents including near daily range riding throughout the turnout season, monitoring livestock, radio activated guard (RAG) boxes, fox lights, fladry fencing (where applicable), hazing, strategic sanitation, relocating turnout sites away from den locations, and delayed turnout of calves. This interview finding is corroborated by the fact that the greatest number of producers with DCPA_L contracts (i.e., that are seeking financial support for non-lethal deterrents via cost-sharing with WDFW) are located in WDFW Region 1 (far eastern Washington), where most depredation events have occurred.²³

Individuals operating in areas where wolf depredation has occurred, but that have not necessarily experienced depredation personally, or have only experienced isolated events, also implement some non-lethal deterrents, though to a lesser extent. Interviewees who have not experienced depredation identified primarily use of human presence (which may include limited range riding conducted themselves), and prompt removal of sick, injured,

²³ Data identifying existing DCPA_L contracts provided via secure server to IEC by WDFW on January 5, 2022.

or dead livestock. Other deterrents used by individual producers included installing fencing around calving areas, the use of guard dogs, and use of hazing devices.

Livestock producers are unlikely to implement any extent of non-lethal deterrents (beyond those otherwise considered standard ranching practices) in areas that are not populated by wolves, or where wolf depredations have not occurred.²⁴

1.2.3 FINANCIAL SUPPORT FOR USE OF NON-LETHAL DETERRENTS

The costs of non-lethal deterrents to prevent wolf depredation can be substantial for businesses experiencing wolf depredation. Many of these costs are borne by the producers. However, several state-funded programs exist to help offset certain costs through cost sharing or provision of services and equipment:

- WDFW's DPCA_L program provides cost-sharing opportunities to affected producers for implementation of proactive depredation prevention measures. Through a contract with WDFW, a producer commits to implementation of specific non-lethal deterrence measures, as identified with WDFW, and is eligible to be reimbursed for 50 percent of the associated costs, up to \$10,000.^{25,26} The value of the contract is dependent upon the costs incurred by the business, as well as the availability of funds within that region.²⁷
- WDFW local Wildlife Conflict Specialists may provide or lend certain equipment (e.g., fladry, fox lights, RAG boxes) to producers experiencing depredation at no cost.²⁸
- Three separate state-funded programs contract with range riders that can be deployed to affected locations at producer's request at no cost to the producer:
 - WDFW-contracted range riders;
 - Cattle Producers of Washington (CPoW); and
 - Northeast Washington Wolf Cattle Collaborative (NEWWCC).²⁹

²⁴ Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022.

²⁵ WDFW. 2022. Damage prevention cooperative agreements. Viewed at <https://wdfw.wa.gov/species-habitats/at-risk/species-recovery/gray-wolf/agreements#:~:text=The%20Washington%20Department%20of%20Fish,wildlife%20to%20crops%20or%20livestock>, January 11, 2022.

²⁶ Although the intent of the program is to reimburse 50 percent of the producer's costs, one industry representative interviewed for this analysis noted that the \$10,000 cap represents closer to 30 percent of his overall costs.

²⁷ Personal communication between WDFW staff and IEC on January 11, 2022.

²⁸ Personal communication between WDFW staff and IEC on January 11, 2022.

²⁹ Although CPoW and NEWWCC receive funding from the State of Washington, including from the Washington Department of Agriculture, those funds are not administered or directed by WDFW.

At least one interviewee also cited past grant opportunities through the Washington State Department of Agriculture that provided funding to support implementation of non-lethal deterrents.³⁰

Resources are distributed according to need and demand and are generally more heavily directed toward regions experiencing significant depredation (i.e., northeast Washington).³¹

1.2.4 PROPOSED RULE PROVISIONS

The proposed rule does not directly require changes in the management of any given livestock operation. Rather, it codifies WDFW's decision-making criteria and process regarding lethal removal of wolves. Specifically, the rule prescribes the following:

- The proposed rule includes modifications to existing WAC 220-440-080, *Killing Wolves Attacking Domestic Animals*. These changes revise existing language to codify the current guideline that WDFW will only authorize lethal agency removal of wolves if WDFW determines the affected livestock owner has implemented appropriate non-lethal deterrence measures. This element of the proposed rule would apply statewide.
- The proposed rule also includes a new section of the WAC, 220-440-260, *Wolf-Livestock Conflict Deterrence in Chronic Conflict Areas*, focused exclusively on Chronic Conflict Areas. These proposed changes include the following provisions:
 1. **Designation of a Chronic Conflict Area:** The WDFW Director or staff designee may designate a geographic area as a Chronic Conflict Area when wolf depredations of livestock have occurred, and lethal removal of wolves was authorized in two of the last three years.
 2. **Conflict mitigation planning:** For each designated Chronic Conflict Area, WDFW staff will author a Conflict Mitigation Plan in consultation with affected livestock producers, as well as federal, state, and tribal agencies that manage lands and/or wildlife in the designated Chronic Conflict Area.
 3. **Codifies criteria for lethal removal in Chronic Conflict Areas:** The WDFW Director or staff designee may authorize lethal removal of wolves as a tool to address repeated depredations if depredations are likely to occur, intentional feeding/baiting of wolves is not a known factor, lethal removal is not expected to harm the wolf population's ability to reach recovery objectives, and either:

³⁰ Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022.

³¹ Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022.

- The conditions and expectations set forth in Conflict Mitigation Plans have been substantially complied with; or
- Wolves have attacked, injured, or killed livestock of more than one producer where one of the livestock producers with depredated livestock implemented non-lethal deterrence measures as deemed appropriate by WDFW staff, even if a neighboring livestock producer did not fully implement non-lethal deterrence measures set forth in an applicable Conflict Mitigation Plan.

Under the proposed rule, the area occupied by the Togo wolf pack (shown in Exhibit 1-2) would currently be identified as a Chronic Conflict Area, and WDFW would work with willing affected producers to develop a Conflict Mitigation Plan outlining the non-lethal deterrents they would need to implement for WDFW to consider a lethal removal. The Conflict Mitigation Plan would not apply to every individual producer within the Chronic Conflict Area, but instead, WDFW would use historical information to focus Conflict Mitigation Plans on those producers that have been affected by depredation and/or are likely to be affected by depredation in the future.³²

That the proposed rule does not generate any binding requirements for livestock businesses does not mean that it will not affect the behavior of certain businesses and generate costs. Section 2.2.2 of this SBEIS evaluates the likelihood that the proposed rule will generate costs to livestock operations.

1.3 REQUIREMENTS FOR DEVELOPING AN SBEIS

RCW 19.85 requires that the relevant agency prepare an SBEIS if the proposed rule “will impose more than minor costs on businesses in an industry.”³³ “Minor cost” is defined in RCW 19.85.020 as a cost per business that is less than 0.3 percent of annual revenue or income, or \$100, whichever is greater, or one percent of annual payroll.³⁴ Although this rule does not directly impose costs upon livestock producers, the rule may trigger changes in how certain businesses implement non-lethal deterrents. Any new costs incurred related to increased use of non-lethal deterrents could be considered costs of the rule.

The guidelines for preparing an SBEIS are included in RCW 19.85.040.³⁵ This analysis also utilizes the more specific guidance and resources provided by Washington State’s Office for Regulatory Innovation and Assistance (ORIA).³⁶ Per the SBEIS *Frequently Asked Questions* guidance, agencies are required to consider “costs imposed on

³² Personal communication between IEc and WDFW staff on January 19, 2022.

³³ RCW 19.85.030 Agency Rules - Small Business economic impact statement reduction of costs imposed by rule. Accessed September 20, 2021 at: <https://app.leg.wa.gov/RCW/default.aspx?cite=19.85.030>.

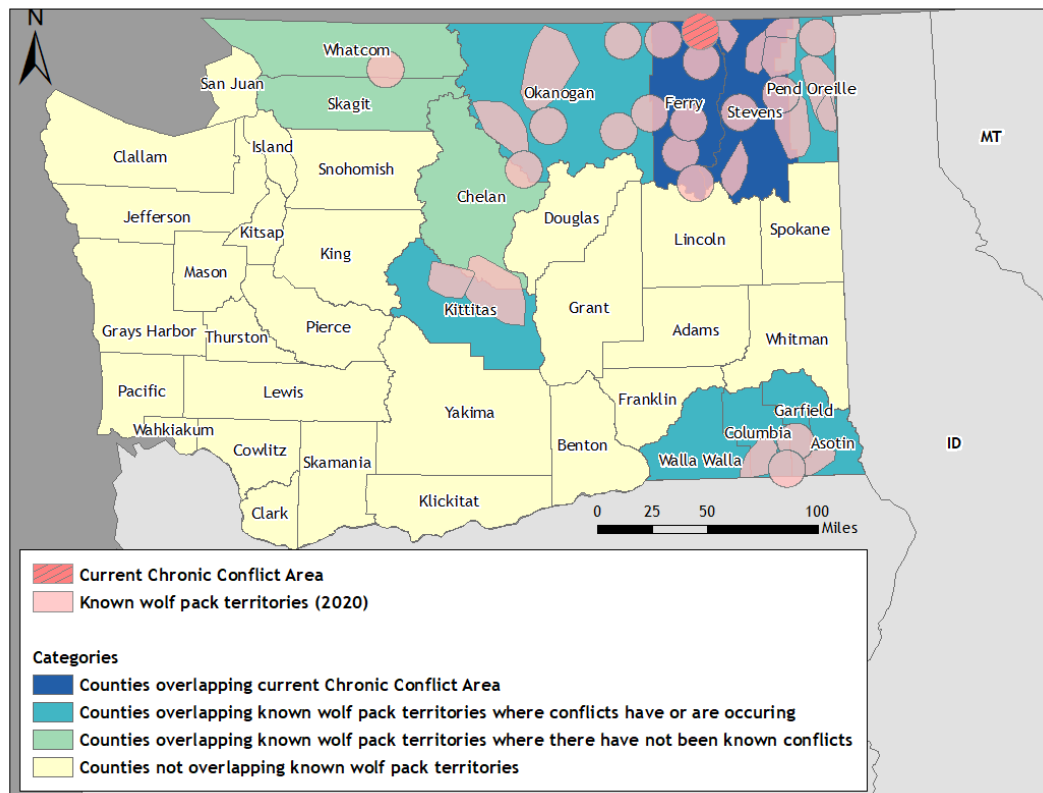
³⁴ RCW 19.85.020 Definitions. Accessed September 20, 2021 at: <https://app.leg.wa.gov/rcw/default.aspx?cite=19.85.020>.

³⁵ RCW 19.85.040 Small business economic impact statement—Purpose—Contents. Accessed September 20, 2021 at: <https://app.leg.wa.gov/RCW/default.aspx?cite=19.85.040>.

³⁶ ORIA. 2021. Regulatory Fairness Act Support. Accessed September 20, 2021 at: https://www.oria.wa.gov/site/alias__oria/934/regulatory-fairness-act-support.aspx.

businesses and costs associated with compliance with the proposed rules”.³⁷ Agencies are not required under RCW 19.85 to consider indirect costs not associated with compliance with the rule.

EXHIBIT 1-2. COUNTIES CONTAINING KNOWN WOLF PACK TERRITORIES (2020) AND STATUS OF WOLF-LIVESTOCK CONFLICTS



Note: This map identifies the single Chronic Conflict Area that would be defined as such in 2022 based on the definition provided in the proposed rule (i.e., when wolf depredations of livestock have occurred, and lethal removal of wolves was authorized in two of the last three years). Identified Chronic Conflict Areas are likely to evolve over time based on the frequency and locations of wolf-livestock conflicts and lethal removal events.

³⁷ WA Attorney General Office. 2021. Small Business Economic Impact Statements - Frequently Asked Questions. Accessed September 20, 2021 at: https://www.oria.wa.gov/Portals/_oria/VersionedDocuments/RFA/Regulatory_Fairness_Act/DRAFT_SBEIS_FAQ.pdf.

CHAPTER 2 | SMALL BUSINESS IMPACTS

This chapter evaluates the potential economic impacts of the proposed rule on small businesses in Washington State. As outlined in the RFA and in accordance with other guidance and best practices, this SBEIS addresses the following questions.^{38,39,40}

- What are the industries and universe of businesses that may incur costs as a result of this rule?
- What are the likely costs of the rule to those businesses?
- Are the costs resulting from the rule anticipated to be more than minor?
- Will the rule disproportionately affect small businesses?
- What steps has the agency taken to reduce the costs of the rule on small businesses?
- How has the agency involved small businesses in the development of the rule?
- How many jobs may be created or lost as a result of compliance with the rule?

The sections that follow address each of these questions individually.

2.1 POTENTIALLY AFFECTED SMALL BUSINESSES

The rule has the potential to affect the behavior of businesses that have, or may in the future, experience wolf depredation. Thus, the businesses potentially affected by this rule are producers of livestock.⁴¹ There are currently 1,095 individual operations in the State of Washington within the following sectors: beef cattle ranching and farming, cattle feedlots, dairy cattle and milk production, sheep farming, and goat farming (Exhibit 2-

³⁸ RCW 19.85.040 Small business economic impact statement—Purpose—Contents. Accessed September 20, 2021 at: <https://app.leg.wa.gov/RCW/default.aspx?cite=19.85.040>.

³⁹ ORIA. 2021. Regulatory Fairness Act Support. Accessed September 20, 2021 at: https://www.oria.wa.gov/site/alias__oria/934/regulatory-fairness-act-support.aspx.

⁴⁰ WA Attorney General Office. 2021. Small Business Economic Impact Statements - Frequently Asked Questions. Accessed September 20, 2021 at: https://www.oria.wa.gov/Portals/_oria/VersionedDocuments/RFA/Regulatory_Fairness_Act/DRAFT_SBEIS_FAQ.pdf.

⁴¹ IEc considered several sources of information to identify the number of potentially affected businesses, employment by business, and annual revenue data to support this analysis, including the U.S. Department of Agriculture's (USDA) National Agriculture Statistics Service's (NASS) Census of Agriculture and Washington State's Employment Security Division. Given data availability, format, and limitations in what is reported in each dataset, D&B Hoover's searchable business database provided the most comprehensive and accurate estimates to describe the potentially affected industry.

1).⁴² Available data suggest that 98 percent of them employ fewer than 50 individuals and are thus considered small (Exhibit 2-1). This finding is corroborated by information provided by industry representatives interviewed for this analysis, as well as employment data for a subset of these businesses available from ESD.⁴³

“Minor cost” is defined in RCW 19.85.020 as, “a cost per business that is less than 0.3 percent of annual revenue or income or one hundred dollars, whichever is greater, or one percent of annual payroll.” As payroll data are not available, the analysis calculates minor cost thresholds based on revenues of business entities in the affected industries. At a statewide level, the minor cost thresholds for the potentially affected business types range from \$222 (goat farming) to \$1,356 (dairy farms) (in 2020 dollars). The complete list of minor cost thresholds for all relevant business types are identified in Exhibit 2-1. Exhibit 2-2 describes the businesses and minor cost thresholds at a finer resolution for the businesses more likely to be affected by the rule.

EXHIBIT 2-1. NUMBER OF BUSINESSES, AVERAGE ANNUAL REVENUES, AND MINOR COST THRESHOLD FOR RELEVANT INDUSTRIES - STATEWIDE

TYPE OF BUSINESS (NAICS CODE) ¹	# OF BUSINESSES IN WASHINGTON	PERCENTAGE OF BUSINESSES CONSIDERED SMALL ²	AVERAGE ANNUAL REVENUES (2020\$)	MINOR COST THRESHOLD = 0.3% AVERAGE ANNUAL REVENUES (2020\$)
Cattle ranching (112111)	276	99%	\$140,000	\$430
Cattle feedlots (112112)	111	98%	\$300,000	\$890
Dairy cattle and milk (112120)	509	97%	\$450,000	\$1,400
Sheep farming (112410)	31	100%	\$110,000	\$340
Goat farming (112420)	18	100%	\$74,000	\$220
Other/Multiple	150	99%	\$430,000	\$1,300
TOTAL³	1,095	98%	\$340,000	\$1,020
Notes: <ol style="list-style-type: none"> 1. Type of business as identified by primary North American Industry Classification System (NAICS) code. Businesses identified as “Other/Multiple” includes those for which the primary NAICS code was something other than a relevant livestock production code, but that identified a relevant NAICS code as a secondary business type. 2. Percent of businesses with <50 employees. 3. Totals may not sum due to rounding. <p>Source: D&B Hoovers (n.d.). List of livestock production businesses in Washington State. Retrieved January 13, 2022, from https://libguides.library.ohio.edu/business/databases/d-b-hoovers.</p>				

⁴² D&B Hoovers (n.d.). List of livestock production businesses in Washington State. Retrieved January 13, 2022, from <https://libguides.library.ohio.edu/business/databases/d-b-hoovers>.

⁴³ Total covered employment and number of establishments by NAICS code per each county in Washington downloaded from the Employment Security Division (ESD) on December 1, 2021.

The businesses most likely to be potentially affected by the rule are those that are in wolf pack territories, where depredation events have the greatest potential to occur.⁴⁴ Exhibit 1-2 identifies the counties that a) include the area that will initially be designated as a Chronic Conflict Area (dark blue), b) are outside of the Chronic Conflict Area but contain a known wolf pack territory and have experienced depredation events (teal), c) contain a known wolf pack territory and have not experienced depredation (green), and d) do not contain a known wolf pack territory (yellow). Of the businesses identified in Exhibit 2-1, many are unlikely to be affected by or incur costs triggered by the rule because there are no wolves present in their areas of operation.⁴⁵ To the extent that the territories of the wolf packs expand into these areas at some point in the future, they may also bear the types of costs described in this analysis. However, the likelihood and timing of such an event is uncertain.

This analysis focuses on the livestock producers in the counties overlapping the current known wolf pack territories in Washington State. This analysis finds that producers operating within known wolf pack territories are the most likely to incur costs as a result of the rule. Exhibit 2-2 characterizes these businesses based on their geographic locations in three categories:

- Within counties that overlap the current Chronic Conflict Area;
- Within a county that overlaps with a known wolf pack territory and has experienced depredation, but not in a Chronic Conflict Area; and
- Within a county that overlaps a known wolf pack territory but does not have documented wolf depredation.

As wolf presence and livestock depredation risk are not uniformly distributed across the landscape in the relevant counties, not all the producers identified in Exhibit 2-2 necessarily operate within a known wolf pack territory. The businesses not overlapping with a known wolf pack territory are less likely to experience costs as a result of the rule.

⁴⁴ As the wolf population continues to recover, there is the potential for wolves to spread to other parts of the state, and for additional businesses in those areas to experience depredation. However, it is not possible to predict the geography and timing of population growth. This analysis assumes only areas within known wolf pack territories are potentially affected by the rule.

⁴⁵ The following counties do not currently overlap with known wolf pack territories: Adams, Benton, Clallam, Clark, Cowlitz, Douglas, Franklin, Grant, Grays Harbor, Island, King, Kitsap, Klilkat, Lewis, Lincoln, Mason, Pacific, Pierce, San Juan, Skamania, Snohomish, Spokane, Thurston, Wahkiakum, Whitman, Yakima.

EXHIBIT 2-2. NUMBERS OF BUSINESSES, ANNUAL REVENUES, AND MINOR COST THRESHOLD FOR POTENTIALLY AFFECTED BUSINESSES

TYPE OF BUSINESS ¹	# OF BUSINESSES IN GROUP	PERCENTAGE OF BUSINESSES CONSIDERED SMALL ²	AVERAGE ANNUAL REVENUES (2020\$)	MINOR COST THRESHOLD = 0.3% AVERAGE ANNUAL REVENUES (2020\$)
Counties Containing Chronic Conflict Area (Stevens and Ferry Counties)³				
Cattle ranching	20	100%	\$91,000	\$270
Cattle feedlots	11	100%	\$103,000	\$310
Dairy cattle and milk	8	100%	\$180,000	\$530
Sheep farming	0	-	-	-
Goat farming	0	-	-	-
Other (multiple)	5	100%	\$130,000	\$380
Counties Containing Known Wolf Pack Territories, Depredation Occurring				
Cattle ranching	61	98%	\$140,000	\$410
Cattle feedlots	14	100%	\$270,000	\$800
Dairy cattle and milk	2	100%	\$130,000	\$390
Sheep farming	2	100%	\$95,000	\$280
Goat farming	1	100%	\$62,000	\$190
Other (multiple)	35	100%	\$230,000	\$700
Counties Containing Known Wolf Pack Territories, Depredation Not Yet Occurring				
Cattle ranching	27	100%	\$110,000	\$340
Cattle feedlots	8	100%	\$82,000	\$250
Dairy cattle and milk	202	98%	\$330,000	\$990
Sheep farming	3	100%	\$58,000	\$170
Goat farming	3	100%	\$69,000	\$210
Other (multiple)	2	100%	\$140,000	\$420
Notes: <ol style="list-style-type: none"> 1. Type of business as identified by primary North American Industry Classification System (NAICS) code. Businesses identified as "Other/Multiple" includes those for which the primary NAICS code was something other than a relevant livestock production code, but that identified a relevant NAICS code as a secondary business type. 2. Percent of businesses with <50 employees. 3. The number of businesses identified include all businesses within Stevens and Ferry Counties. Data are not available to isolate the specific businesses that are within the territory of the Togo wolf pack that would be designated as a Chronic Conflict Area under the proposed rule. 				
Source: D&B Hoovers (n.d.). List of livestock production businesses in Washington State. Retrieved January 13, 2022, from https://libguides.library.ohio.edu/business/databases/d-b-hoovers .				

The livestock production industry operating in the counties currently being affected by wolf depredation is dominated by cattle ranches and cattle feedlots. Although there are very few dairy operations in these counties, dairy is the most predominant business type in the other counties within known wolf pack territories (i.e., those not experiencing depredation). The average annual revenues across all relevant industries and counties presented in Exhibit 2-2 range from \$58,000 to \$330,000 per year. The highest average revenues are associated with dairy operations; sheep and goat farming are lower revenue businesses on average. Cattle ranching operations, which most frequently experience wolf depredation, have average annual revenues ranging from approximately \$91,000 to \$140,000. The annual revenues for individual cattle ranching operations ranges from \$30,000 to \$1.1 million.

2.2 COST OF COMPLIANCE

As described in Section 2.1, the proposed rule does not require that industry implement any specific behavior. Rather, it codifies a process in which WDFW will evaluate the non-lethal deterrents that should be used in a Chronic Conflict Area through documentation of a Conflict Mitigation Plan. Although the rule would not require any given business to implement the non-lethal deterrents for WDFW to consider lethal removal of wolves, the producers would need to demonstrate that they have undertaken appropriate measures.

Section 1.2.2 describes non-lethal deterrents that may be employed by businesses and may be recommended by WDFW. Some producers are already implementing non-lethal deterrents for the reasons described in Section 1.2.2 even absent implementation of the rule. In some cases, however, the rule may compel producers to undertake additional non-lethal deterrents (beyond those they are already using), or to expand their use of others. This section identifies the costs associated with the implementation of non-lethal deterrents and describes the characteristics of businesses that may be more or less likely to incur these types of costs as a result of the rule.

2.2.1 COSTS OF NON-LETHAL DETERRENTS

This section describes the costs of non-lethal deterrents to mitigate risks of wolf depredation of livestock. However, these are not necessarily costs of the proposed rule. The likelihood that small businesses experience these types of costs as a result of the proposed rule is discussed in Section 2.2.2.

Unit Costs Associated with Individual Non-Lethal Deterrents

Exhibit 2-3 presents the potential range of costs associated with implementation of the non-lethal deterrents described in the 2017 protocol and identified in interviews with industry representatives. The range of costs represents estimates from industry survey responses, industry representative interviewees, communications with WDFW, and a review of relevant literature. The presented ranges indicate how the costs of these measures typically vary based on the type and size of the business, and whether they are

one-time or recurring costs. The deterrents for which producers may incur the highest annual costs are intensive, daily or near daily range riding (up to \$55,000), labor associated with seasonal protection of calving/lambing areas (up to \$14,000), and installation of fencing to protect calving/lambing areas (one-time expense of up to \$15,000). The costs for range riding and monitoring livestock are highly dependent on the size of the operation as they require human patrolling, as well as the ruggedness and accessibility of the terrain.⁴⁶ These measures are also more expensive given that they may be recurring annual costs if risk of depredation is present. Guardian or herding dogs present high up-front costs, and costs for feeding and vet bills on a recurring basis. Other deterrents are more likely one-time investments, including scare devices, fencing, and fladry. The broad cost ranges for the suite of non-lethal deterrents reflects these variations in the application of specific types of deterrents.

⁴⁶ Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022.

EXHIBIT 2-3. NON-LETHAL DETERRENT COST ESTIMATES

DETERRENT	COST ESTIMATE/RANGE	UNIT	EXPENSE TYPE	DESCRIPTION	SOURCES
High intensity range riding, monitoring livestock behavior and providing human presence ^a	\$250 - \$300	Per day	Recurring	<p>These costs reflect operations implementing relatively high intensity range riding, livestock monitoring, and human presence efforts. This includes daily or near daily range riding covering several miles per day especially during the spring and summer months, and may include multiple range riders for a single operation. The daily cost estimates presented are not equivalent to the annual cost estimates (i.e., \$300 x 365 ≠ \$55,000). This is mainly due to the seasonal variation in necessary range riding. In seasons where livestock are not taken out to range, range riding is not conducted. This discrepancy is also due to the nature of survey responses. Most survey respondents provided either daily or annual cost estimates, rather than both.</p> <p>The costs of range riding include labor, fuel, and equipment (e.g., ATV, horse and trailer). Costs vary by the type of equipment used, time needed to access the location, difficulty of the terrain, amount of ground to be covered, and frequency with which it is conducted. Estimates include range riders that use horses or other vehicles.</p> <p>In addition, most respondents that implement range riding characterize the activity as providing human presence and including livestock monitoring. Other respondents did not identify range riding as a non-lethal deterrent they implement but defined their use of and costs of "human presence," which they defined similarly to range riding (e.g., "patrolling pasture on horseback").</p>	Estimates are based on WDFW-contracted range rider rates, industry interviews, and industry survey responses.
	\$15,000 - \$55,000	per year			
Low intensity range riding, monitoring livestock behavior and providing human presence ^a	\$60 - \$210	Per day	Recurring	<p>These costs reflect operations implementing relatively low intensity range riding, livestock monitoring, and/or human presence efforts. These costs reflect similar types of activities as those described for high intensity efforts but implemented either less frequently, over a smaller area, or excluding certain types of activities. For example, lower intensity efforts may involve providing human presence in smaller pastures or calving areas,</p>	Estimates are based on WDFW contracted range rider rates and industry survey responses.
	\$1,500 - \$10,000	Per year			

DETERRENT	COST ESTIMATE/RANGE	UNIT	EXPENSE TYPE	DESCRIPTION	SOURCES
				range riding less frequently or only in pastures where there has been wolf presence in the past. The daily cost estimates presented are not equivalent to the annual cost estimates (i.e., \$60 x 365 ≠ \$1,500). This is due to several factors including differences in the frequency with which these activities occur over a year, and the nature of survey responses which provided either daily or annual cost estimates, rather than both.	
Protecting calving/lambing areas (fencing)	\$10,000-\$15,000	Total cost	One time (potential seasonal maintenance)	This activity typically includes installation of fencing to protect areas where calving/lambing occur. Survey and interview respondents described these costs as one-time investments for physical protection of calving or lambing area.	Estimates based on industry survey responses and interviews with industry representatives.
Protecting calving/lambing areas (labor)	\$10,000 - \$14,000	Per season	Recurring	These costs reflect the labor required to provide constant monitoring of calving or lambing area during calving/lambing season. It is unclear whether these costs are specific to wolf deterrence measures, or inclusive of calving/lambing monitoring as a general animal husbandry practice that may serve as a deterrent but be implemented regardless of depredation concerns.	Estimates based on industry survey responses.
Propane cannons, fox lights, air horns and other light and noise scare devices	\$12 - \$390	Per device	One time	These deterrent measures include a variety of hazing techniques to scare wolves away from area. RAG systems require wolf collar frequencies, so the cost of this tool is expected to be incurred by WDFW, rather than individual livestock producers.	Estimates based on industry survey responses, literature review, and standard expenses from WDFW.
Radio activated guard (RAG) systems	\$2,500 - \$4,400	Per system	Provided by DFW (unlikely business would incur cost)		
Guardian and/or herding dogs	\$1,000 - \$10,000	Per year	Recurring	A new livestock guardian dog (LGD) can be \$1,000 or more for purchase and costs of training. In addition, the cost of LGDs can be higher for the first few years as they provide limited protection during training. The annual upkeep of one LGD is typically compensated if it saves the life of 1-2 calves or 5 lambs per year. The low-end cost represents annual costs including food and vet care. The high-end costs include purchase, training, and annual costs of food and vet care.	Estimates based on industry survey responses, literature review, and interviews.
Strategic carcass sanitation (i.e., appropriate disposal)	\$400	Per head	Recurring	Survey respondents described that these costs vary based on location and are typically higher if livestock is in remote areas and difficult to access.	Estimates based on industry survey responses and interviews.

DETERRENT	COST ESTIMATE/RANGE	UNIT	EXPENSE TYPE	DESCRIPTION	SOURCES
methods to prevent wolf attraction)	\$300	Per day		Discrepancy in per head, per day, and per year estimates is due to differences in how strategic carcass sanitation is performed, and the units in which survey respondents provided cost estimates.	
	\$1,000 - \$2,500	Per year			
Permanent or portable fencing and fladry	\$1,010 - \$2,700	Per kilometer	One time (potential seasonal maintenance or labor to install and remove)	Estimates include non-electrified and electrified fladry, and include installation, materials, and power sources (i.e., fence charger, solar panel, deep cycle battery) and charging and grounding supplies.	Estimates based on industry survey responses, literature review, and standard expenses from WDFW.
	\$1,000 - \$5,100	Per year			
Avoiding wolf den and rendezvous sites	Uncertain	-	Recurring	Involves strategic decisions about where to turn cattle out based on avoiding areas of wolf activity. Additional costs may be incurred if this requires placing cattle further from home, outfitting new range area in which to turn out cattle, or on range with lower quality forage. Survey respondents were not able to provide a specific cost estimate for this activity.	Based on industry interviews.
Delayed calf turnout (i.e., delaying turnout until calves reach 200 lbs.)	Uncertain	-	Recurring	Based on interviews and survey responses, delayed calf turnout typically results in supplemental feeding costs. The interviews and survey effort provided limited information on the expected costs of delaying calf turnout and costs would be depending on the size of the operation, length of delay, and alternative options. However, two respondents suggested that delayed calf turnout may cost \$8,000 annually, or \$100 per cow per month.	Based on industry survey responses and interviews.
<p>Note:</p> <p>a. IEc distinguishes between “high intensity” and “low intensity” range riding, livestock monitoring, and human presence in this table in order to provide insight, derived from the industry interviews and survey, regarding how different operations may implement these deterrent measures, and the influence of those differences on relative costs. These terms are not defined by the proposed rule, nor is this terminology that WDFW defined for the purposes of evaluating use of non-lethal deterrents in making decisions regarding lethal removals.</p> <p>Sources:</p> <p>Cost estimates were sourced from email communication between DFW and IEc on January 13, 2022, interviews with industry representatives, and industry survey responses, as well as the literature cited below.</p> <ol style="list-style-type: none"> 1. Urbigkit, C.D. 2019. Livestock guardian dogs and cattle protection: opportunities, challenges, and methods. Human-wildlife interactions 13:42-49. 2. Redden, R.R., Tomecek, J.M., Walker, J.W. 2015. Livestock Guardian Dogs. Texas A&M Agrilife Extension, the Texas A&M University System. 					

DETERRENT	COST ESTIMATE/RANGE	UNIT	EXPENSE TYPE	DESCRIPTION	SOURCES
3.				Brown, P.D. 2011. Wolves and Livestock: A review of tools to deter livestock predation and a case study of a proactive wolf conflict mitigation program developed in the Blackfoot Valley, Montana. University of Montana.	
4.				Western Wildlife Outreach. 2014. Wolf-Livestock Nonlethal Conflict Avoidance: A review of the literature with recommendations for application to livestock producers in Washington State. Washington Department of Fish and Wildlife.	
5.				Bangs, E., Jimenez, M., Niemeyer, C. 2006. Non-Lethal and Lethal Tools to Manage Wolf-Livestock Conflict in the Northwestern United States. UC Agriculture and Natural Resources, Proceedings of the Vertebrate Pest Conference.	

In addition to the costs of implementing the non-lethal deterrents, there are administrative costs associated with use of these deterrents. According to one interviewee, these costs include contacting and coordinating range riders on a daily basis, thoroughly documenting and logging range riding activities and use of other non-lethal deterrents, and time spent downloading and checking game cameras. For larger operations requiring concentrated and daily range riding, annual costs could exceed \$10,000 annually.⁴⁷

Industry representatives interviewed also noted the opportunity costs associated with having to direct resources (either their own time, or that of their employees) to activities associated with implementing non-lethal deterrents. Although this time would be spent on business related activities regardless of wolf depredation prevention needs, time spent on those activities detracts from the time available to engage in other necessary business activities.

Total Costs

The total annual costs spent on implementation of non-lethal deterrents varies widely across businesses. Generally speaking, costs incurred by businesses that have experienced and are actively deterring repeated wolf depredation incur the greatest costs. Producers in this category cited annual out-of-pocket costs ranging from \$30,000 to over \$50,000 spent on implementing non-lethal deterrents. For businesses paying out-of-pocket for range riding, these costs are the greatest of the expenses incurred. Not included in these estimates is the financial support provided through WDFW's cost-sharing program (which ranges from \$2,500 to \$10,000 annually), costs of tools such as fox lights or fladry that are provided by WDFW, and costs associated with use of state-funded (i.e., contracted or provided by WDFW) range riders.

Interviewees who have experienced minimal and not ongoing depredation, or who have not yet experienced depredation but are in the vicinity of known wolf packs, indicated less implementation of non-lethal deterrents. Activities were generally limited to additional time spent checking on cattle during turnout beyond what they would typically do (which may be considered range riding, but is much more limited than what is conducted by producers experiencing ongoing wolf activity and depredation) and carcass removal. For individuals that were able to estimate the expense associated with this additional effort, estimates ranged from \$7,000 to \$10,000 annually.

As described above, these are costs being incurred by livestock producers in the baseline (i.e., not due to implementation of the proposed rule). The next section discusses the potential for the rule to trigger these types of costs for certain livestock producers that would not be implementing certain non-lethal deterrents but for the rule.

⁴⁷ Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022.

2.2.2 POTENTIAL FOR BUSINESSES TO INCUR COSTS AS A RESULT OF THE RULE

The likelihood that the rule would trigger livestock producers to implement non-lethal deterrents, above and beyond what they would implement under the baseline (i.e., status quo absent implementation of the rule), is uncertain for the reasons previously described:

- 1) The livestock producers have a vested interest in protecting their livestock from wolves absent any WDFW rule or regulation and may therefore implement these types of deterrents regardless of the rulemaking.
- 2) WDFW works with the industry to recommend, and offer cost-sharing support for, implementation of non-lethal deterrents even absent the rulemaking.
- 3) It is currently WDFW practice to evaluate whether a producer has already implemented at least two types of non-lethal deterrents before lethal removal will be considered.⁴⁸ Even absent the proposed rule, WDFW would continue to work with industry to ensure appropriate use of non-lethal deterrents before considering lethal removal of wolves.

Given this, it is likely that most businesses at relatively high risk of wolf-livestock conflicts would implement non-lethal deterrents absent the rule. For example, most industry representatives interviewed in areas where wolf depredation has occurred identified that they were already implementing some non-lethal deterrent measures, with those who have experienced depredation indicating implementation of all practical and applicable deterrents. For businesses at relatively low risk of wolf-livestock conflicts, it is most likely they would not implement non-lethal deterrents regardless of this rulemaking.

That the rule is unlikely to affect the behaviors of most businesses is not in conflict with the purpose of the rule. The objective of the proposed rule is not to direct industry to change the types of non-lethal deterrents that businesses implement and when, but rather to codify WDFW's practices and establish a process through which WDFW will provide area-specific advice to livestock producers at high risk of depredations in Chronic Conflict Areas and make decisions regarding lethal removal of wolves in these areas moving forward. The benefit of having a defined, standard decision-making process written into regulation is that it requires WDFW to be systematic in developing a roadmap for minimizing wolf-livestock conflicts in Chronic Conflict Areas and reduces any uncertainty for industry regarding WDFW's approach to lethal removal decisions.

This analysis does find, however, that in some cases, the rule may provide actionable information to industry regarding WDFW's process that would trigger changes in behavior regarding use of non-lethal deterrents. Under these circumstances, the associated costs could be considered a result of proposed rule. Specifically, WDFW's development of Conflict Mitigation Plans, and the clarification of the process through which lethal removal of wolves will be considered, may encourage some livestock producers to be more proactive in implementing non-lethal deterrents.

⁴⁸ WDFW. 2017. Wolf-livestock interaction protocol. Available at https://wdfw.wa.gov/sites/default/files/2020-09/20200915_wdfw_wolf_livestock_interaction_protocol.pdf.

For example, businesses may reference the Conflict Mitigation Plans that WDFW develops (regardless of whether they are in a Chronic Conflict Area) and implement any potentially relevant non-lethal deterrents in order to ensure the option of lethal removal of wolves in the event of future depredation. This scenario is most likely for businesses that anticipate they are at some risk of experiencing wolf-livestock conflicts. Accordingly, businesses closest to recent conflicts or within current known wolf pack territories, or businesses whose livestock management practices otherwise make them more vulnerable to conflicts, may be most likely to be more proactive in implementing non-lethal deterrents as a result of the rule.

2.2.3 POTENTIAL COSTS PER BUSINESS

As previously noted, most businesses are unlikely to experience additional costs as a result of the rule. In the case that the rule motivates an increase in the use of non-lethal deterrents, however, this section provides information on the potential range in the associated costs. As described in Exhibit 2-3, there is a wide range in the costs of individual non-lethal deterrents and the relevant non-lethal deterrents vary by business. Following are the key factors influencing the potential costs to livestock operations that elect to implement non-lethal deterrents due to the WDFW rule:

- **Specific non-lethal deterrents relevant to the livestock operation:** The types of non-lethal deterrents that are likely to be most effective vary geographically and by type of livestock operation. WDFW expects that the Conflict Mitigation Plans will reflect site-specific factors.
- **Size and nature of the livestock operation:** The costs of certain deterrents are a function of the size of the operation or the geographic extent of the rangeland area (e.g., range riding and fencing).
- **Extent of baseline use of non-lethal deterrents absent the rule:** As previously noted, it may be that the businesses are already implementing some types of deterrents regardless of the rule.
- **Fraction of total costs that would be borne by the business:** It is important to note that many of the businesses that are affected by wolf depredation, particularly those that are implementing extensive non-lethal deterrence techniques, rely to some extent on available financial support.⁴⁹ This support ranges from sharing of costs of deterrents with WDFW through the DPCA_L program and provision of tools such as fox lights and fladry by WDFW at no cost to producers, and the use of state-funded range riders through WDFW, CPoW, and NEWWCC. These resources are limited, subject to availability, and not guaranteed to be available in the long term. To the extent that financial support becomes more limited, a greater portion of current and future costs of non-lethal deterrents may be borne by the individual producers. Additionally,

⁴⁹ Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022.

implementation of non-lethal deterrents may increase as a result of the rule, or as a result of wolf populations expanding to new areas of the state. This may result in available resources being dispersed more widely across a greater number of producers, reducing the existing levels of support individual producers are currently receiving. Industry representatives identified that availability of state-funded range riders is already highly limited, as are state-provided tools such as fox lights and fladry (with most of these resources currently going to producers in the northeastern part of the state). Increased demand for these resources may also increase the proportion of deterrent costs that are paid out-of-pocket by producers.

Despite these uncertainties, based on the information provided in Exhibit 2-3, earnest attempts to implement non-lethal deterrents are likely to cost on the order of thousands to tens of thousands of dollars per year per business. Furthermore, WDFW indicates that human presence (including range riding) will continue to be a key focus of wolf-livestock conflict management under the rule and this measure is the most expensive, ranging from an estimated \$19,000 to \$55,000 per year. This constitutes a significant fraction of average industry revenues for businesses that bear these costs and is likely an untenable cost for the smallest businesses.

2.3 ASSESSMENT OF MINOR COST

The minor cost thresholds for the livestock producers most likely to incur costs due to the proposed rule (i.e., within counties currently experiencing depredation) range from \$187 to \$796 (Exhibit 2-2). As noted above, changes in use of non-lethal deterrents for an individual producer could range from no change at all to new implementation of the full suite of available non-lethal deterrents. Given the costs of non-lethal deterrents described in Exhibit 2-3, even a minimal increase in implementation of non-lethal deterrents for a given business (e.g., increasing monitoring of livestock behavior, or purchase of several fox lights) would exceed the minor cost thresholds for all business types and locations. To the extent that the rule compels businesses to engage in additional or expanded use of non-lethal deterrents, those costs are likely to be more than minor.

2.4 DISPROPORTIONATE ECONOMIC IMPACT ANALYSIS

When proposed rule changes cause more than minor costs to small businesses, the RFA (RCW 19.85.040) requires an analysis that compares the cost of compliance for small business with the cost of compliance for the ten percent of businesses that are the largest businesses required to comply with the proposed rules to determine whether the costs are considered disproportionate.⁵⁰ Ninety-eight percent of the regulated businesses in this industry are small. As a result, the rule is found to disproportionately impact small

⁵⁰ The RFA provides several options for comparing costs, including: (a) Cost per employee; (b) Cost per hour of labor; (c) Cost per one hundred dollars of sales (RCW 19.85.040(1)). In the absence of sufficient data to calculate disproportionate impacts, an agency whose rule imposes more than minor costs must mitigate the costs to small businesses, where legal and feasible, as defined in this chapter (RCW 19.85.030(4)).

businesses, and this SBEIS accordingly identifies and documents cost mitigation strategies.

2.5 COST MITIGATION STRATEGIES

RCW 19.85.030 requires that, when a rule is expected to disproportionately impact small businesses, the agency consider several methods for reducing the impact of the rule on small businesses. These methods may include decisions that were made in determining the provisions of the rule itself, or opportunities to reduce the costs of implementing the rule as written.

WDFW considered a number of regulatory options in developing the proposed rule, including an alternative that would include a prescriptive and exhaustive set of non-lethal deterrent use requirements that would be broadly required.⁵¹ In considering this alternative, WDFW determined that broad requirements for non-lethal deterrent techniques that may or may not be feasible or effective for an individual business or specific area would result in excessive costs to businesses.⁵² The proposed rule instead stipulates that identification of non-lethal deterrents within a Conflict Mitigation Plan will be established with consideration to the particular conditions on the ground, limiting rule costs to only those non-lethal deterrents that are appropriate for the specific situation and affected businesses.

WDFW also considered a rule provision that would identify that all livestock producers who experienced wolf-livestock conflict on public land would need to implement range riding for WDFW to consider lethal removal of a wolf. WDFW has not included this measure in the proposed rule, however, instead proposing to evaluate the expectation for range riding on a case-by-case basis in developing Conflict Mitigation Plans. This more tailored approach may reduce the cost for businesses resulting from rule implementation.

The primary pathway through which WDFW intends to mitigate for costs resulting from the proposed rule is through continuation of the programs in place to provide financial and other support to livestock producers experiencing depredation. These programs include:

- WDFW's Damage Prevention Cooperative Agreement for Livestock (DCPA_L) program, which provides cost-sharing opportunities to affected producers for implementation of proactive depredation mitigation measures.⁵³

⁵¹ This alternative was modeled after the Petition for Rulemaking filed by the Center for Biological Diversity, Cascadia Wildlands, Western Watersheds Project, and WildEarth Guardians on May 11, 2020. Petition viewed at https://wdfw.wa.gov/sites/default/files/2020-06/wolfrulemaking_petition_final_0.pdf, January 11, 2022.

⁵² Personal communication between WDFW staff and IEc, January 10, 2022.

⁵³ WDFW. 2022. Damage prevention cooperative agreements. Viewed at <https://wdfw.wa.gov/species-habitats/at-risk/species-recovery/gray-wolf/agreements#:~:text=The%20Washington%20Department%20of%20Fish,wildlife%20to%20crops%20or%20livestock>, January 11, 2022.

- Provision of WDFW-contracted range riders to implement deterrence activities at no cost to livestock producers.

In considering potential methods for cost mitigation, the agency must evaluate opportunities to simplify, reduce, or eliminate recordkeeping and reporting requirements. The rule itself does not directly impose any reporting or recordkeeping requirements on the industry. However, producers that are subject to a Conflict Mitigation Plan will need to provide documentation of non-lethal deterrent use to demonstrate to WDFW they are implementing the terms of the plan for a lethal removal to be considered by WDFW. WDFW anticipates that the required documentation will be similar to that which is currently required under DPCA_L contracts or to submit for compensation of losses. In developing those requirements, WDFW considered the administrative burden placed on producers and the minimum amount and type of information that was necessary to adequately describe implementation of non-lethal deterrents.⁵⁴

The regulating agency must consider delaying compliance timetables as a potential cost mitigation option. The Wolf-Livestock Conflict Deterrence rule making proposal will be provided to the WDFW Commission for action on May 13, 2022. If adopted, the rule or rules are tentatively scheduled to be implemented in January 2023 to allow the industry sufficient time to plan for any new costs that may be incurred as a result of the rule.

In addition, WDFW considered a range of suggestions from industry representatives as to how the costs of the rule could be reduced, including the following:

1. Have 100 percent of the costs for non-lethal deterrents be paid for by WDFW.
2. Increase lethal removals or implement relocations of wolves to reduce the populations (reducing the need for non-lethal deterrents).

WDFW considered these and other cost reduction options presented by the industry. However, WDFW has not included these cost reduction measures within the rule for several reasons, including that they didn't meet the intended goals of the rule (e.g., increasing lethal removals), or were outside of the bounds of the rule.

Other types of cost mitigation strategies that must be considered are not relevant to this rulemaking:

- **Reducing the frequency of inspections:** WDFW does not carry out or have the authority to carry out inspections of livestock operations.
- **Reducing or modifying fine schedules for non-compliance:** This rule does not prescribe specific compliance requirements for industry; thus, there are not fines associated with non-compliance.

2.6 INVOLVEMENT OF SMALL BUSINESSES IN RULE-MAKING PROCESS

WDFW and the affected livestock industry have worked closely together to address the challenges of wolf-livestock conflict since wolves began populating the state. This

⁵⁴ Personal communication between WDFW staff and IEC, January 19, 2022.

section describes the historical stakeholder involvement in this process, their involvement specifically in this rulemaking process, and how small businesses were involved in the development of the SBEIS.

2.6.1 HISTORICAL SMALL BUSINESS INVOLVEMENT IN WOLF-LIVESTOCK CONFLICT MANAGEMENT

Conflict between wolves and livestock has been documented everywhere that the two co-exist, and as a result WDFW has collaborated with industry representatives and other stakeholders to develop guidelines and protocols. Since the first breeding pair of gray wolves in Washington was documented in 2008, WDFW has focused on promoting the proactive use of non-lethal deterrents to minimize wolf-livestock conflict. In response to increasing wolf dispersal and pack establishment in the state, WDFW held seven public scoping meetings around the state, appointed an advisory Wolf Working Group comprised of 17 citizens to provide recommendations on a Wolf Plan/EIS, and held 12 public meetings across the state to solicit comments on a draft EIS. The resulting 2011 Wolf Plan was developed to guide recovery and management of gray wolves as they reestablish a breeding population, and one of the goals of the Wolf Plan was to manage wolf-livestock conflicts in a way that both minimizes livestock losses and does not negatively impact the recovery of a sustainable wolf population. Balancing the aspects of this goal has involved years of collaboration between WDFW and stakeholders to develop guiding documents that both address livestock depredations and promote overall wolf recovery efforts.

In 2013, WDFW created the Wolf Advisory Group (WAG) to provide a broad range of perspectives and help inform the ongoing wolf-livestock conflict management effort. WAG is a multi-stakeholder group comprised of livestock producers, wolf conservation group representatives, land managers, and hunting advocates among others, and the group holds meetings open to the public. WAG expressed a strong value to reducing the likelihood of the loss of both wolves and livestock from adverse interactions. In response, WDFW and WAG developed the 2017 Protocol—a non-binding guidance to address the use of non-lethal conflict deterrents and lethal removals. Although the implementation of the Wolf Plan and Protocol have resulted in successful conflict mitigation, the Protocol does not provide guidance in a situation where chronic depredations and lethal removals have occurred in the same area for multiple years. In 2018, WAG created a new section of the Protocol specifically dedicated to areas of chronic conflict.

In 2020, following continued discussion between WDFW, WAG, the Washington State Fish and Wildlife Commission, and petitions by environmental organizations, Governor Jay Inslee directed WDFW to develop rule changes related to wolf management with the goal of instituting practices that will avoid the repeated loss of wolves and livestock.

2.6.2 INVOLVEMENT IN THE PRESENT RULEMAKING

From January through March 2021, WDFW conducted more than 30 intake calls with stakeholders and community members representing a diversity of positions and perspectives including livestock producers and representatives of the livestock industry. In the interviews, staff had in-depth discussions with each person or group about their expectations for the rule, their greatest concerns, and their process ideas.⁵⁵

During a presentation made at the WAG meeting on July 6, 2021, WDFW staff described the different steps and components of the rule making process as well as a timeline for milestones to the WAG and members of the public.⁵⁶ Staff also shared a Preliminary DRAFT Staff Report and State Environmental Policy Act (SEPA) Review Proposal for Wolf-Livestock Conflict Deterrence Rule Making to provide a foundation for discussion with interested stakeholders during the rule development process.⁵⁷ In addition to making the presentation and materials publicly available online, WDFW provided these materials to the Washington Cattlemen's Association, the Washington Farm Bureau, Stevens County Cattlemen, and CPoW via email to ensure they received them and had the opportunity to distribute them to their respective memberships.

WDFW reached out to the Washington Cattlemen's Association, the Washington Farm Bureau, Stevens County Cattlemen, and CPoW to offer meetings with WDFW staff early in the rule development process to discuss ideas and hear input from the membership of these groups. WDFW did not receive any feedback as a result of this invitation. WDFW staff will continue to encourage industry engagement in the rulemaking throughout the public engagement process.

2.6.3 INVOLVEMENT IN SBEIS DEVELOPMENT

To support development of this SBEIS, the analysis relies heavily on outreach and participation of livestock producers to provide data and information to evaluate the potential costs of the rule on small businesses. This process used two principal methods to involve small businesses – interviews with industry representatives and distribution of an online survey. As a complete inventory of business names and contact information for the relevant potentially affected businesses was not available, IEC relied upon several sources to identify and obtain contact information for potentially affected businesses. These sources included the Washington Farm Bureau, the Washington Cattlemen's Association, WDFW local Wildlife Conflict Specialists, and Conservation Northwest. The authors contacted a variety of stakeholders including livestock producers, as well as association representatives, representing a range of business types and geographic

⁵⁵ WDFW. 2021. 2021 Wolf Commission Rulemaking - Intakes Summary. Available at https://wdfw.wa.gov/sites/default/files/about/regulations/filings/2020/20210402_rulemaking_intakes_summary.pdf.

⁵⁶ WDFW. 2021. Wolf-livestock Conflict Deterrence Commission Rule making presentation. Available at https://wdfw.wa.gov/sites/default/files/2021-07/20210706_wolf_rule_making_presentation.pdf.

⁵⁷ WDFW. 2021. Preliminary Draft Staff Report and SEPA Review Proposal for Wolf-Livestock Conflict Deterrence Rule Making. Available at https://wdfw.wa.gov/sites/default/files/about/regulations/filings/2020/20210706_draft_staff_report_sepa_review_proposal.pdf.

regions, to participate in interviews. Association representatives and livestock producers that were interviewed were asked to provide contact information for additional industry representatives who may be willing to speak with IEc for this analysis. IEc reached out to all but one individual recommended for an interview if contact information was provided or found.⁵⁸

Between December 1, 2021 and January 13, 2022, IEc reached out by phone and/or email (depending on the contact information provided) to invite producers to participate in an interview. Potential interviewees who could not be reached by phone were left a voicemail providing contact information for the interviewer, and interviewers were generally available to receive calls back during Pacific Standard Time business hours. Given that potential contacts had generally not specifically agreed to be interviewed, IEc assumed that those who did not return a phone call or email had elected not to participate in the process, and no further effort was made to contact them. Altogether, IEc attempted to connect with 31 individuals. Of those, nine either declined to participate or did not respond to voicemails or emails. Ultimately, IEc conducted interviews with 16 livestock producers and 5 additional industry representatives, and corresponded by email with one additional industry representative (see Attachment A for a list of industry representatives interviewed). Interviews generally followed the list of questions presented in Attachment B, though interviewees were invited to provide additional thoughts as they deemed relevant.

To solicit information to support this SBEIS from as broad a sample of businesses as possible, IEc also designed an online survey targeted to collecting key data points and information regarding potential impacts of the proposed rule (Attachment C). As a list of businesses and addresses was not available, it was not possible to distribute hard copy surveys, and an online survey format was selected as the best available option. Without email addresses for all industry representatives, broad distribution by IEc was not possible. IEc thus relied upon industry associations and interviewees for distribution. Specifically, IEc sent the survey link to both the Washington Farm Bureau and the Washington Cattlemen's Association, who agreed to distribute to their leaders and members as deemed appropriate by the association representative. Additionally, IEc distributed the survey to all individuals who were interviewed for the analysis that were willing to share an email address, with a request to forward it to as many fellow livestock producers as possible. The survey was made available and first provided to the Washington Cattlemen's Association and Washington Farm Bureau on December 10 and December 13, 2021, respectively. Given the limited number of responses by the original close date of January 7, 2022, IEc worked with the Washington Cattlemen's Association to identify a broader list of recipients and re-opened the survey for an additional two weeks to allow for distribution to Washington Cattlemen's Association County Presidents and Committee Chairs (68 individuals). IEc confirmed that the Washington Farm Bureau was unable to distribute the survey as planned. It is unclear how many individuals

⁵⁸ One potential interviewee identified by WDFW Wildlife Conflict Specialists was not contacted because the region and type of business they represented was heavily represented in previous interviews, and remaining interview slots were reserved for less-covered regions and business types.

received the survey through this process. IEc and the previously identified contacts distributed the survey to at least 84 livestock producers. Overall, IEc received 21 responses by the January 21, 2022 deadline.

2.7 JOBS CREATED OR LOST

Through establishment of Chronic Conflict Areas and Conflict Mitigation Plans, the rule has the potential to increase the number of businesses that will utilize range riding as a non-lethal deterrent or increase the frequency of range riding. Industry representatives indicated that it is difficult to implement frequent or extensive range riding by business owners or existing employees because of the time taken away from other required activities. Interviewees further identified that the rule was likely to result in the need for additional range riders either paid for by the businesses themselves, or provided by CPoW, NEWWCC, or WDFW. As a result, the rule may increase the number of range riding jobs in the industry.

Conversely, for certain businesses, it is possible that the costs of non-lethal deterrents interpreted as required by the rule cannot be absorbed by current revenue streams. In some instances, this could result in business closures and job loss. However, whether this would occur, and the number of businesses or jobs affected, is uncertain.

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**ATTACHMENT A: LIST OF INDUSTRY REPRESENTATIVES
INTERVIEWED IN DECEMBER 2021 AND JANUARY 2022**

DESCRIPTION OF INDUSTRY REPRESENTATIVE ¹
Kittitas County- Sheep producer
Okanogan County Cattle Producer
Director of Government Relations, Washington Farm Bureau
District 1 representative, Washington Cattlemen's Association
Special Deputy, Stevens and Ferry County Sheriff's Departments
Asotin County- Cattle Producer
President, Asotin County Cattlemen's Association
Garfield and Asotin County- Cattle producer
Washington State Dairy Federation ²
Columbia County- Cattle Producer
Columbia County Commissioner
Yakima County- Cattle producer
Ferry Conservation District Manager
Executive Vice President, Washington Cattlemen's Association
Yakima, Kittitas, and Chelan Counties- sheep producer
Columbia County- Cattle producer
Kittitas County- Cattle producer
Ferry County- Cattle producer
Wolf program lead, Conservation Northwest
Kittitas County- Cattle producer
Central Region representative, Washington Cattlemen's association
Okanogan County- Cattle producer
Okanogan County- Cattle producer
Stevens County-Cattle producer
Walla Walla County- Cattle producer
Notes:
1. Individuals are not identified by name to protect the privacy of interview participants.
2. Information collected through email communication only.

ATTACHMENT B: INTERVIEW GUIDE

INTERVIEW QUESTIONS

INTRODUCTION

- Introduction of IEc and interviewer.
- We have been hired by WDFW to develop a Small Business Economic Impact Statement for the forthcoming proposed rule.
- We are developing a small business economic impact statement to understand costs of rule to small businesses and whether they are disproportionately affected.
- Conducting research to understand the affected businesses, and how the rule might result in new or different costs for them, and whether those costs are “more than minor” (i.e., more than 0.3 percent of annual revenues).
- Information in the report obtained through interview will not be cited directly to individuals. Please confirm you are comfortable being listed by name as someone we spoke with for this analysis.

QUESTIONS FOR INTERVIEWEE

- Please describe your business/operations.
- What is your experience with wolf depredation?
- What do you know about the draft proposed rule? Have you seen and reviewed the text?
- Please describe your current use of non-lethal deterrents.
- How do you currently determine what types of non-lethal actions to take? What is driver of those decisions?
 - Insurance requirements?
 - What needs to be done before WDFW will consider lethal removal?
- What is your threshold for implementing those non-lethal deterrents? Do you do them all consistently and proactively? Are you only doing them after you have experienced depredation?
- When will WDFW consider lethal removal? What do you understand the requirements to be in terms of use of deterrents before WDFW will consider lethal removal?

- What are the costs associated with non-lethal deterrents (by unit such as per hour? And then how is that scaled – what is the total cost based on? Head of animals? Size of range? Something else?)
- What do you see as the potential costs of the draft proposed rule?
- Draft rule language states that in high conflict areas, WDFW will develop a Conflict Mitigation Plan that outlines non-lethal deterrence measures that will need to be implemented before WDFW will consider lethal removal. How does this approach differ from current practice?
- If your business is outside of the initial Chronic Conflict Area (i.e., outside of the Togo wolf pack range), would you expect to do anything differently following the rule?
- Do you have other colleagues, neighbors, or friends that might be willing to participate in an interview?
- Would you be willing to fill out and/or distribute an online survey?

ATTACHMENT C: INDUSTRY SURVEY QUESTIONS

The Washington Department of Fish and Wildlife (WDFW) has initiated a rulemaking to amend the Washington Administrative Code to address wolf-livestock conflict deterrence in chronic conflict areas (defined as areas where depredations of livestock have occurred and lethal removal of wolves was authorized in two of the last three years). Industrial Economics, Inc. (IEc) is working under contract with WDFW to develop a Small Business Economic Impact Statement (SBEIS) for the draft proposed rule. The goals of an SBEIS are as follows:

- Determine whether the rule will disproportionately affect small businesses (i.e., those employing fewer than 50 people),
- Determine whether the rule will result in more than minor costs to those businesses, and
- Identify potential mitigation for those costs.

IEc is seeking information directly from the affected industry regarding the potential costs of this rule and opportunities for cost mitigation. This survey will help WDFW to better understand costs that are currently being incurred to implement non-lethal deterrence measures, and how the rule may result in changes to existing practices and associated costs. The draft proposed rule is available for review at: <https://wdfw.wa.gov/sites/default/files/2021-11/122021wolfmaterails.pdf>.

Instructions for survey participation:

We expect this survey will take approximately 15 to 20 minutes to complete. Please complete it in one sitting as progress won't be saved. Please submit only one survey per business. All survey responses are anonymous and IEc will not have any information about which individuals or businesses have provided responses. Survey responses may be used to inform the analysis, with attributions made generally to "Responses to industry survey implemented in December 2021".

In order to move through the survey, there are certain questions that require a response. These are marked with an asterisk. Very few questions are required but please respond to as many questions as you are able to. After you respond to a question you can scroll down to the next question on the page, or click "Ok" to move automatically to the next question. At the end of each page of the survey, you can press the "Next" button to proceed to the following set of questions or "Prev" to return to the previous page and edit responses. Do not use your browser forward or back buttons to navigate between survey pages. On the last page of the survey, please press "Done" to submit your responses.

Thank you for participating, we appreciate your input.

SURVEY QUESTIONS

DEMOGRAPHIC/BUSINESS INFORMATION

- Please select the following category(ies) that best describes your operation
 - Beef cattle ranching and farming
 - Cattle feedlots
 - Dairy cattle and milk production
 - Dual-purpose cattle ranching and farming
 - Sheep farming
 - Goat farming
 - Other (please describe)
- Please select the counties in which you operate
 - [All counties in Washington are available as answer choices]

QUESTIONS FOR ALL RESPONDENTS

- Have you ever experienced any probable or confirmed wolf depredations within the past five years? If yes, please identify the number of probable or confirmed depredations over the last five years.
 - None
 - 1
 - 2-5
 - 6-10
 - 11-15
 - 16-20
 - More than 20. Please provide an estimate.
- The draft rule is focused on “Chronic Conflict Areas”, which are areas where lethal removal of wolves has been authorized in two of the last three years. The only currently identified Chronic Conflict Area encompasses the Togo wolf pack’s range in northeastern Washington. Do you operate within this Chronic Conflict Area?
 - Yes
 - No
 - Not sure/prefer not to answer

- Do you implement non-lethal wolf deterrence measures at your operation? Please select all non-lethal deterrence measures you have implemented at your operation.
 - None
 - Range Riding/Wolf Conflict Monitoring Activities
 - Human presence (on smaller pastures or calving/lambing areas)
 - Monitoring livestock behavior (e.g., removing sick or injured livestock from pastures)
 - Protecting calving/lambing areas
 - Avoiding wolf den and rendezvous sites
 - Using scare devices (e.g., light and noise devices including propane cannons, fox lights, and radio activated guard systems)
 - Guardian and/or herding dogs
 - Strategic carcass sanitation (i.e., appropriate disposal methods to prevent wolf attraction)
 - Permanent or portable fencing
 - Delayed calf turnout (i.e., delaying turnout until calves reach 200 lbs.)
 - Other [respondents to provide a short open-ended answer if they select this option]

QUESTIONS ONLY FOR PRODUCERS IMPLEMENTING DETERRENTS

[for each measure selected in the question above, the respondent is led to three additional questions below]

- Please provide a description of how you implement [deterrence measure] as a non-lethal deterrence measure, what is required of your operation to implement this measure, and the associated costs incurred by your business (i.e., not including any outside support you may receive).
- If possible, please provide an estimate of the annual costs (in dollars) of [deterrence measure] as a non-lethal deterrence measure to your business for the activities you described above. Please provide a short description of these costs (e.g., cost of 62 days of range riding by 2 people).
- Do you receive any outside support for the implementation of [deterrence measure], or are is [deterrence measure] provided by/paid for by your business?
 - I receive some degree of outside support.
 - All [deterrence measure] is provided by and/or paid for by my business.

QUESTIONS FOR ALL RESPONDENTS

- Under the draft proposed rule, WDFW may designate a geographic area as a “Chronic Conflict Area” when wolf depredations of livestock have occurred, and lethal removal of wolves was authorized in two of the last three years. WDFW would develop a Conflict Mitigation Plan for that area specifying appropriate non-lethal deterrence measures and may authorize lethal removal. Decisions regarding lethal removal of wolves would consider multiple factors, including the extent to which livestock managers comply with the conditions and expectations described in the Conflict Mitigation Plan.

Do you anticipate that you would implement non-lethal deterrence measures differently than you do currently if the draft proposed rule were implemented as current drafted?

- Yes- I anticipate implementing additional deterrence measures (i.e., additional types, or greater frequency of current types)
- Yes- I anticipate implementing fewer deterrence measures
- No- I anticipate implementing the same deterrence measures with the same frequency
- No- I do not currently implement any non-lethal deterrence measures and I do not anticipate I will start

- Would implementation of the draft proposed rule result in changes to your operations?

- Yes
- No

If yes, please describe.

- If you anticipate that the rule will result in additional accosts to your business, would you like to offer suggestions for how those costs might be reduced or delayed?
- Do you have any other thoughts or comments regarding the potential costs of the draft proposed rule?

ATTACHMENT D: DATA DICTIONARY

DATA ITEM	SOURCE
Number of Businesses in Industry	D&B Hoovers (n.d.). List of livestock production businesses in Washington State. Retrieved January 13, 2022, from https://libguides.library.ohio.edu/business/databases/d-b-hoovers .
Number of Small Businesses in Industry	D&B Hoovers (n.d.). List of livestock production businesses in Washington State. Retrieved January 13, 2022, from https://libguides.library.ohio.edu/business/databases/d-b-hoovers . Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022.
Average Annual Revenues for Businesses in Industry	D&B Hoovers (n.d.). List of livestock production businesses in Washington State. Retrieved January 13, 2022, from https://libguides.library.ohio.edu/business/databases/d-b-hoovers .
Costs of Non-Lethal Deterrents	Bangs, E., Jimenez, M., Niemeyer, C. 2006. Non-Lethal and Lethal Tools to Manage Wolf-Livestock Conflict in the Northwestern United States. UC Agriculture and Natural Resources, Proceedings of the Vertebrate Pest Conference. Brown, P.D. 2011. Wolves and Livestock: A review of tools to deter livestock predation and a case study of a proactive wolf conflict mitigation program developed in the Blackfoot Valley, Montana. University of Montana. Email communication between WDFW and IEc on January 13, 2022. Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022. Redden, R.R., Tomecek, J.M., Walker, J.W. 2015. Livestock Guardian Dogs. Texas A&M Agrilife Extension, the Texas A&M University System. Survey responses from industry representatives received in December 2021 and January 2022. Urbigit, C.D. 2019. Livestock guardian dogs and cattle protection: opportunities, challenges, and methods. Human-wildlife interactions 13:42-49. Western Wildlife Outreach. 2014. Wolf-Livestock Nonlethal Conflict Avoidance: A review of the literature with

DATA ITEM	SOURCE
	recommendations for application to livestock producers in Washington State. Washington Department of Fish and Wildlife.
Amount of Cost Share Reimbursements made to DPCA_L Contract Holders	Data identifying existing DCPA contracts provided via secure server to IEc by WDFW on January 5, 2022.
Employment Impacts	Personal and email communication with representatives of the livestock producing industry conducted in December 2021 and January 2022.