



**Meeting Report
Wolf-Livestock Stakeholder Subgroup
November 12, 2013**

U.S.D.A. Forest Service – Anthony Peak Conference Room
825 N. Humboldt Ave.
Willows, CA 95988



California Department of Fish and Wildlife

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1.0 Introduction

On November 12, 2013 the Wolf-Livestock Interactions Subgroup (WLIS) of the California Wolf Stakeholder Working Group (SWG) convened in the U.S.D.A. Forest Service's Anthony Peak conference room in Willows. This was the second meeting of the WLIS which was established to help the California Department of Fish and Wildlife (CDFW, Department) develop a consensus-driven framework of management strategies for effectively dealing with potential wolf impacts on California's livestock populations.

2.0 Meeting Objectives and Mechanics

The purpose of the meeting was to continue building consensus through discussion of potential topics for inclusion in a Wolf-Livestock Interactions chapter in the California Wolf Plan.

Objectives of the meeting as initially planned were:

1. Introductions and Housekeeping
2. Review September meeting (What did we accomplish? Comments on meeting report?)
3. Review/discuss Draft State Comparison table
 - a. Identify any inaccurate or incomplete statements
 - b. Identify any other elements/categories which will be useful to developing a California strategy
4. Discussion of lessons learned document (continue discussion based on revised document)
5. Methods (a discussion of how we can reach an endpoint and accomplish objectives)
6. Planning (develop a workplan strategy, including products and timeframes)
7. Next steps (scheduling, commitments)

The meeting was attended in person by nine stakeholders and three CDFW staff, with two additional CDFW staff attending via conference line. Also in attendance was Ms. Ashley Adishian from State Senator Jim Nielsen's office. Appendix A provides a list of participants, their affiliations, and their contact information. The agenda for the meeting is captured in Appendix B.

The meeting began with introductions led by Mr. Mark Stopher, who serves as chair of the Wolf-Livestock Subgroup. Updates were then provided by Mr. Stopher, Ms. Karen Kovacs, CDFW Wildlife Program Manager and overall wolf planning lead, and Dr. Eric

Loft, CDFW Wildlife Branch Manager. Topics included the wolf OR7 which resided in California for about a year in 2012, and returned to Oregon in March, 2013; the wolf status review; the ungulate subgroup meeting which was held in October, 2013; and the status of efforts to develop a contract for facilitation of stakeholder meetings. The bulk of the meeting consisted of discussion of two documents presented by Mr. Stopher: the Wolf-Livestock Interactions: State-By-State Comparison of Management Strategies (Appendix C), and the Draft Overview of Lessons Learned from the Western United States Regarding Wolf-Livestock Interactions (Appendix D). These documents were developed by Mr. Stopher as a means of facilitating discussion among the subgroup members, to inform them of strategies used in other states, and to hopefully reach consensus on strategies the Department may adopt for managing wolf-livestock interactions in California. The meeting concluded with a brief discussion of what steps should be taken in the interim before the next meeting, and how long and where the next meeting should take place.

3.0 Meeting Outputs

Introductions and Housekeeping

After brief introductions in which each member stated their names and affiliations, Mr. Stopher, Ms. Kovacs, and Dr. Loft provided the group with some updates.

OR7

OR7's radio collar has been offline for the past 4 days. His last transmissions showed him travelling northward. He spent the summer east of Medford, Oregon and as of last Friday, November 8th he was in the vicinity of Crater Lake. His GPS collar is coming to the end of its life but the VHF capability will continue.

Wolf Status Review

The status review has been sent for external expert peer review. Dr. Loft asked the six reviewers to provide the Department with feedback by November 22. To date one review has come back. Once he has received all six review he will modify the draft document and develop a final draft to present to the CDFW Director's Office and the Fish and Game Commission (FGC). He anticipates it will be heard by FGC at their February meeting in Sacramento. Since the FGC is now meeting only six times per year, the public will likely be able to comment at the April meeting in Ventura.

Wolf-Ungulate Interactions Subgroup Meeting

We held a meeting of the ungulate subgroup in which we tried to duplicate the format of the wolf-livestock meetings. We presented an outline of what the Wolf-Ungulate Interactions chapter might contain, how wolves might interact with their primary prey. We also tasked specific parts of the chapter to different staff to begin drafting. Due to the holidays we may not get too far with it, but we are hoping to at least get started. The next meeting will probably be in January but we have not set a date yet.

Document Library

Ms. Kovacs asked the group if any of them were having problems accessing the library to which no-one responded. Ms. Converse stated that she has numerous additional articles to upload to the library but is behind in doing so.

Facilitation Contract

The Department had four responses to the Request for Proposals for a contract to facilitate the wolf stakeholder meetings. They were all good and we anticipate having the chosen facilitator in place in January, 2014.

Wolf-Livestock Interactions: State-by-State Comparison of Management Strategies

This document consists of a large table outlining different strategies used by the five western states currently managing wolves. These states, Montana, Idaho, Wyoming, Oregon, and Washington, differ in their legal and regulatory responsibilities for wolves, due primarily to differing wolf status under federal and state Endangered Species legislation. For example, in Washington, wolves are state endangered throughout the state, federally delisted in the eastern 1/3 of the state, and federally endangered in the western 2/3 of the state. However in neighboring Idaho, wolves are federally delisted, and were never state listed. Future federal and state listing scenarios for wolves in California are at this date uncertain. The U.S. Fish and Wildlife Service (USFWS) is currently proposing to delist gray wolves throughout their range, and the California FGC will be

hearing CDFW recommendations about state listing in early 2014. Consequently, Department staff wanted to present what various management options may be available under the various potential scenarios. The purpose of developing this table was, therefore, to help the stakeholders and Department staff to reach a common understanding of what practices are being used in the western United States, and ultimately to decide on the approaches for California. Mr. Stopher led the group in discussion of each element in the table, which is summarized below. Specific questions and comments by stakeholders are captured in Appendix E.

State Listing Status

There was some discussion about the current status of wolves in California under state law. In the table they are designated as nongame mammals, however some stakeholders suggested they should be designated as candidates for listing. Ms. Angela Donlan, CDFW Senior Staff Counsel explained that there is some backlog with respect to moving listing petitions and status reviews through the process due to the large volume of petitions served to the Department in the past year. She clarified that, after the California FGC has accepted a petition for listing a species, the decision must be published in the Notice Register to start the one year clock on the species' candidacy. She confirmed that wolf candidacy was published on November 2, 2012, so Mr. Stopher will amend the table to reflect that.

Approximate Wolf Population Size (Jan 1, 2013)

Mr. Stopher explained that different states use the same methods for estimating their wolf populations, but that the intensity varies depending on the budget and expertise of staff. Tracking wolves is time-intensive and involves capturing and collaring animals, use of airplanes for re-locating collared animals, installing and up keeping remote cameras, and other efforts. Mr. Stopher reminded the group though, that in spite of these challenges, Idaho, Montana, and Wyoming have an interest in documenting that they continue to meet or exceed the wolf population goals for federal delisting. He suggested that the precise numbers are less important than the trend from year to year, and that the actual numbers are most likely to be higher than what is reported due to uncertainty in methods for detecting animals. Ms. Kovacs suggested an additional row of data in the table to reflect what the states' goals are for wolf packs and populations.

Is There a State Managed Livestock Depredation Compensation Program?

With respect to how state wildlife agencies budgets break down, there are no details on how they fund the various tasks related to wolf management. Some states include funding for compensation for depredation, some money is budgeted through the state wildlife agency, and other states have other sources. It would be useful to generate more detail on that breakdown, and Mr. Stopher suggested that information could be contained in its own table. He also agreed that it would be useful to determine if and to what extent those states also compensate for depredation losses from other species such as grizzly, and will include that information in the table as well. However, as pointed out by Ms. Kovacs, California does not have an established program for compensating for depredations, so we may have to be creative if we hope to do so for wolves. It is unclear whether the federal compensation funding program for wolf-livestock depredations is stable or declining.

***Is Lethal Take of Wolves “in the act” of Depredating Livestock Allowed?
And
Are Wolf Lethal Take Permits Issued to Private Individuals?***

In Wyoming, Montana, and Idaho, wolves are delisted federally. Those states therefore have authority to follow their own management plans regarding lethal take of wolves. All three of those states allow such take “in the act” of depredating livestock, including by private individuals. In the portions of Oregon and Washington where wolves are federally delisted, lethal take of wolves “in the act” is also permitted, however not in the western portions of the states where they remain federally listed, and not to private individuals. Some clarification was provided for Oregon in that the state is still in Phase 1 of their state wolf plan so the issuance of a permit for lethal take is required, and permits are issued only after a confirmed depredation has occurred as a preventive measure against future depredations. The permits are specific to wolves caught in the act of biting or wounding a domestic animal, and are valid for 45 days after issuance. Oregon is not far from meeting their delisting goals, which will put them into a different management phase, and what they allow may change. In California, management authority will depend on the outcome of federal delisting plans. Any strategy developed by the Department will be overridden by USFWS authority as long as wolves remain listed federally. If the FGC decides in favor of state listing, take will also be prohibited except with a take permit, which is unlikely to be issued under the California Endangered Species Act.

If wolves become state listed in California, lethal take will not be allowed by individuals. However once the population reaches established conservation goals where listing as threatened or endangered is not warranted, they can be managed as a nongame

species, and some take may then be permitted. In Washington the wolf plan identified recovery regions, and considered translocation of animals from one recovery region to another as a tool for helping to achieve their population goals. The idea of translocation may be challenging for livestock producers to consider, but Mr. Stopher suggested that this may be one way to achieve recovery goals towards delisting in California so that we have more options for management. The first step toward establishing population goals for wolves in California is to determine the native prey base. The wolf-ungulate subgroup will be discussing the various methods used for determining the caloric requirements needed by wolves. This will allow the Department to determine what level of wolf population our native ungulates can support. It is important to remember that many factors affect this including terrain and weather.

Does the State Wildlife Agency Notify Landowners of Wolf Presence?

And

Are Non-lethal Control Measures Required Before the State Wildlife Agency Authorizes Lethal Take of Wolves?

Notifying landowners of wolf presence varies from state to state. Oregon and Washington both do such notifications. Oregon has defined Areas of Known Wolf Activity (AKWA) which they are required to map for landowner and public notification. Where a depredation occurs, an Area of Depredating Wolves (ADW) is designated, in which case the Oregon Dept. of Fish and Wildlife is required to work with landowners to develop a proactive, nonlethal program. Only if such a program is in place when a next depredation occurs will a landowner receive compensation. In Washington the process is less formalized, and consists of a checklist of different nonlethal actions that can or must be implemented. The Washington Dept. of Fish and Wildlife provides ranchers with locations of radio-collared wolves so their range riders know where to look for wolf activity. In the Rocky Mountain States notification is rare due to the political nature of the issue. So when they do it is usually related to known depredations. Because of Oregon's and Washington's relatively complex systems, the stakeholder subgroup debated on how best to elaborate in the table. One idea presented was to asterisk the box and provide details in a separate document. However it is done, it is important to summarize those states' procedures for the benefit of the stakeholder group.

Does the State Wildlife Agency Develop Livestock Conflict Deterrence Plans?

Oregon is the only state that develops such a plan. Washington enters into damage preventive cooperatives with landowners. Mr. Stopher suggested that the group obtain an example and discuss how such a program would be implemented in California and who would be responsible for implementation.

Is Non-injurious Harassment Allowed?

And

Is Non-lethal Injurious Harassment Allowed?

This element is referring to whether landowners are allowed to harass wolves without injury to chase them off or deter them from depredating domestic animals. It was suggested that the wording of this element be changed to clarify its meaning, and if incorporated by California the language should be specific to avoid such harassment being considered "take." All five western states do allow non-injurious harassment, but Ms. Donlan clarified that in those portions of Oregon where wolves are still listed, there will be limits to what is allowed. Non-lethal injurious harassment is allowed without permit in Montana, Idaho, and Wyoming. In Oregon and Washington it is allowed with a permit. Such harassment involves deterrents such as rubber bullets which may injure but likely not kill a wolf.

Does the State Wildlife Agency Relocate Depredating Wolves?

In the early stages of wolf recovery the USFWS did relocate depredating wolves in Idaho, Wyoming and Montana. That practice was ended because of several issues that arose. In some cases they could not find adequate habitat in which wolves did not already occur. In other cases translocated wolves would return to their original location, or they would engage in depredation in the new location. The policy in Oregon is to not translocate wolves known to have depredated livestock, and in Washington translocation will be considered on a case-by-case basis. Wolf plans in both states require a public process before a decision is made.

Does the State Wildlife Agency Provide Technical Support for Non-lethal Control Methods?

All states do provide some level of support from answering phone inquiries to developing Damage Prevention Cooperatives. In Wyoming this support is provided through the Wyoming Animal Damage Board or a local Predator Management District. For California we should discuss if we want CDFW to provide that support and to what extent.

Does the State Wildlife Agency Budget for Wolf Management?

In Montana, Idaho, and Wyoming part of the wolf management budget is provided by the federal government, but that contribution is declining and will have run its course in two to three years. Last year in Montana a controversy erupted when the legislature did not want to fund wolf management. However they are required to provide population figures to maintain federal delisting, so they ultimately did pass a budget. They have six biologists funded for wolf management in the state. Montana sold approximately 20,000 wolf tags last year (note: actual numbers were 18,889 hunting licenses and 1,500 trapping licenses) which contributed about \$425,000. Part of Wyoming's \$650,000 budget is used for their compensation program (approximately \$200,000). Washington's approximately \$1.2 million budget is for two years, and \$660,000 will go to Washington State University for wolf-livestock conflict research. In addition to the \$1.2, a personalized license plate fee will generate \$10 for each newly purchased and renewed personalized plate. They expect this to generate approximately \$500,000 per year. It was generally agreed that it would be useful to have more details on how much of each state's budget supports various aspects of wolf management such as depredation compensation, monitoring, proactive measures, etc.

Draft Overview of Lessons Learned From the Western United States Regarding Wolf-Livestock Interactions

This document represents the next iteration of the "Lessons Learned" document that was originally presented for discussion at the previous Wolf-Livestock subgroup meeting (September 23, 2013). It contains substantial changes based on the group's comments at that meeting. Mr. Stopher incorporated information from state wolf plans, annual reports, and pertinent literature references to address those comments and amend the document. He explained that the literature on the topic of wolf-livestock interactions is extensive, and he shared that in doing this research he grew to realize that much of scientific literature seems to be predictive as opposed to explanatory. Further, some authors' interpretations of other research in support of these predictions seems only marginally supported, and this may represent the researchers' biases. The CDFW document library contains a range of materials, some of which are peer reviewed, others of which are reports that are not peer reviewed but that are in the public arena. The Department considers peer reviewed literature in professional journals as being the highest standard, but it is still important for stakeholders to question the assumptions of every paper they read.

The following is a summary of the discussion of the revised “Lessons Learned” document. Specific stakeholder comments and questions are contained in Appendix E. Mr. Stopher began by defining the term “sympatric” which is when the ranges of two species overlap one another. Thus, where wolves and livestock are sympatric means where they occur together on the landscape.

Lessons Learned Items #1 and #2

There was a brief discussion over the accuracy of statement #1, as one stakeholder understood that there were no known livestock depredations by OR7, while another stakeholder was unwilling to unequivocally state that OR7 did not take any livestock due to some potential evidence from Oregon. However Mr. Stopher explained that the statement is meant to be a generalization that, where wolves and livestock co-occur there will be some conflicts, and that Item #2 elaborates that some, but not all wolves and wolf packs attempt to kill livestock. This makes sense because livestock do not occur everywhere that wolves do, and not all wolves sympatric with livestock depredate. Mr. Stopher suggested that he could add additional examples to illustrate a greater range of the percentages of wolf packs depredating in different areas.

Lessons Learned Item #3

Mr. Stopher explained that, when his other work activities entailed California Environmental Quality Act (CEQA) compliance, he had to think about the significance of impacts in terms of context and intensity. This involved considering the geographic scale of the impacts as well as the absolute impacts. When considering the impacts of wolves on livestock it’s important to account for a range of factors including whether the herds are confined to pastures or free-ranging on forest lands; landscape conditions; forage quality; how the terrain affects livestock vulnerability; increased vigilance affecting livestock ability to forage. In item #3 Mr. Stopher tried to provide substatements to illustrate some examples of these potential impacts. So statewide, depredation by wolves is a very small fraction (less than 1%) of the overall livestock mortality, and depredation by wolves is less than 5% of the depredations by all wildlife. In Oregon, for example, coyotes, mountain lions, and bears all kill more livestock than wolves do. Item 3c is intended to show that depredation by wolves is not distributed evenly; it is concentrated where wolves and livestock intersect, so for individual livestock producers the impacts can be important.

Mr. Stopher explained that by using the term important he was trying to convey the fact an individual producer may be spending a lot of time and money trying to prevent mortality to livestock. A number of stakeholders provided suggestions for replacing the term “important” in items 3c, 3d, and 3f, such as “significant”, “much higher”, and “especially important.” Some states have developed strategies for remedying these effects to the individual producers. As seen in the table discussed earlier, some states have compensation programs, some provide wolf location information, some subsidize or provide technical support for non-lethal methods. His goal was to see if the subgroup recognized these impacts as important for California to address in the wolf management plan, to which multiple stakeholders replied that yes, they do consider them important to capture. Many stakeholders also considered that the term “important” was used appropriately in the item 3 preface, but that “wolf depredation” should be changed to “wolf impacts” to better capture all of the potential impacts. Some also considered adding “decreased conception rates” or “decreased reproduction” as a sub-lethal effect in item 3e. Mr. Stopher agreed that it seemed logical to do that, but stressed the importance of providing documentation from the literature to support any such statements.

Another discussion that arose from Item 3 involved whether it would be important to capture differential effects on producers of differing production scale. Some stakeholders wondered if a small operator would be disproportionately impacted relative to a larger operator. Stakeholders from the agricultural caucus clarified that the size of an operation is not indicative of the impact that might be felt by any particular operator. In other words, a small operation may or may not be more financially solvent than a larger operation, and any strategies that are developed to help producers should not be based on production scale.

Lessons Learned Item #4, #5, #6, Table 1

The reports on depredation generated by the USFWS and the states provide the data for the statements in items 4, 5, and 6, that most wolf depredation is on cattle and sheep, that depredation incidents on cattle generally involve one or two animals per incident, and that depredation incidents on sheep often result in many more mortalities as compared to cattle. Table 1 provides four years’ worth of data comparing the numbers of sheep and cattle mortalities for the five western states with wolves. It also provides data on wolf population sizes, and wolf mortalities from various causes. Some stakeholders expressed interest in seeing these data for a longer time period; perhaps as far back as they go. In particular they are interested in seeing how these numbers may have changed from the early period of wolf reestablishment, and perhaps how long wolves were on the

landscape before livestock depredations began to be problematic. Adding additional previous years of data would also enable the group to see if there are noticeable impacts on wolves as a result of conflicts with livestock. Mr. Stopher suggested that going back even just a couple of years in Oregon and Washington may enable people to see these effects, and that he will work to expand the table.

The establishment of wolf hunting and trapping in the Northern Rocky Mountain region has had some effects on the number of wolves taken by lethal control. The number of wolves killed by agency control declined in 2011 and 2012 compared to previous years, and wolf mortality from hunting and trapping increased. Further, the impact to livestock of using lethal control on wolves is not a clear, linear path, and requires some explanation. Increased wolf mortality through control actions, hunting and trapping has not had, so far, an obvious impact on cattle or sheep depredation. Cattle depredations, according to Mr. Stopher, have been relatively stable, whereas sheep depredations have been variable over time, which to some extent is the result of some individual incidents involving particularly large numbers of sheep. The numbers presented in Table 1 are absolute numbers as opposed to percentages due to the previously discussed issue that some regions of each state do not have livestock, or only have dairy or feedlot cattle, and comparing wolf-caused mortalities with the total number of livestock statewide presents an inaccurate picture of local effects.

Lessons Learned Item #7, #8

The fact that other livestock species such as goats, horses, and llamas, as well as domestic animals such as dogs, are rarely killed by wolves does not preclude CDFW from addressing them in our livestock strategy, but we will be focused where the largest impacts are likely to be seen which is on sheep and cattle.

Summary and Wrap-up

Mr. Stopher called an end to the meeting due to time. He will make changes as discussed today on the “State-by-State Comparisons” document, and on Items 1 through 8 of the “Draft Overview of Lessons Learned” document. In agreement with several stakeholders he stressed the importance of taking time to work through these documents carefully.

Finally, the group discussed how long the next meeting should be. Since stakeholders convene from all over the state, many travelling several hours to attend, most agreed that we should extend the meeting by about two hours, but to include breaks. The next

meeting will therefore take place in Sacramento on January 7th, 2014, from 10am to 4pm. Mr. Stopher will send out a reminder.

Action Items

1. Invite U.S.D.A. Wildlife Services to address the Wolf-Livestock Subgroup
2. Change wolf state status in California to candidate
3. Determine if compensation is awarded due to depredation by other species
4. Get more information from Lisa Ellis on the status of the federal depredation compensation fund; is it stable, declining, still available?
5. Clarify the two boxes for Oregon regarding lethal take of wolves
6. In the box “are non-lethal control measures required before SWA authorizes lethal take of wolves?” change to “...before SWA issues lethal take permit...”
7. Ms. Weiss will send the article she referenced on eastern Washington’s success with range riders
8. Summarize the procedures in Oregon and Washington for using nonlethal control measures before SWA will authorize lethal take
9. Break down what wolf management funds provide for: how many biologists, depredation compensation, monitoring, proactive methods, etc.
10. In the preface to number 3 of the Lessons Learned document, change “severity of wolf depredation” to “severity of wolf impacts”
11. In numbers 3c and 3d, change the terms “important” to “significant”
12. Add “decreased conception rates” or “decreased reproduction” to 3e.
13. Add additional years of data from Oregon and Washington into Table 1 to include all years for which there is data available

APPENDIX A. WORKSHOP PARTICIPANTS

Name	Affiliation	Email
Stakeholders		
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APPENDIX B.

PROPOSED AGENDA

Wolf-Livestock Subgroup

1-4 PM November 12, 2013

“Anthony Peak” conference room, U.S. Forest Service

825 N. Humboldt Avenue, Willows, CA

888.379.9287 Participant Code 476990

Host Code 536467

1. Introductions and Housekeeping
2. Review September meeting (What did we accomplish? Comments on meeting report?)
3. Review/discuss Draft State Comparison table
 - Identify any inaccurate or incomplete statements
 - Identify any other elements/categories which will be useful to developing a California strategy
4. Discussion of lessons learned document (continue discussion based on revised document)
5. Methods (a discussion of how we can reach an endpoint and accomplish objectives)
6. Planning (develop a workplan strategy, including products and timeframes)
7. Next steps (scheduling, commitments)

**APPENDIX C.
WOLF-LIVESTOCK INTERACTIONS: STATE-BY-STATE COMPARISON OF
MANAGEMENT STRATEGIES**

November 8, 2013 draft for consideration by the California wolf-livestock interactions subgroup of the California Stakeholder Working Group

WOLF-LIVESTOCK INTERACTIONS, STATE-BY STATE COMPARISON OF MANAGEMENT STRATEGIES

Indicated management actions by the State Wildlife Agency (SWA) are for those lands where Federal Endangered Species Act listing does not preempt SWA authority.

Element/State	Montana	Idaho	Wyoming	Oregon	Washington	California
Federal Listing Status	Not listed	Not listed	Not listed	Endangered in western Oregon. Unlisted in eastern Oregon	Endangered in western 2/3 of state. Unlisted in eastern Washington	Endangered
State Listing Status	Designated as a "Species in need of Management)	Designated as a big game species	Trophy game animal in NW part of State. Predatory animal in balance of State (some seasonal overlap exists)	Endangered	Endangered	Nongame mammal
Approximate Wolf Population Size (Jan 1, 2013)	625 (minimum) with ≥ 147 packs	Estimated at 683 with ≥ 117 packs.	277 (minimum) with ≥ 43 packs	46 (minimum) in 6 known packs	51 (minimum) in 9 known packs. Estimated population is 101 wolves.	one
Is there a State managed livestock depredation compensation Program?	Yes. Through the Montana Livestock Loss Board.	Yes	Yes, in NW part of the State.	Yes. A Wolf Depredation Tax Credit also exists (requires ODFW confirmation).	Yes	To Be Determined
Is lethal take of wolves "in the act" of depredating on livestock allowed?	Yes (actual biting, wounding or grasping livestock or domestic dogs).	Yes. Molesting or attacking livestock or domestic animals.	Allowed statewide	Yes, if biting, wounding or killing.	Yes, by livestock owners on private land or public grazing allotments	TBD

November 8, 2013 draft for consideration by the California wolf-livestock interactions subgroup of the California Stakeholder Working Group

Element/State	Montana	Idaho	Wyoming	Oregon	Washington	California
Are wolf lethal take permits issued to private individuals?	Yes	Yes, where depredation is confirmed.	Yes	No (until "management phase" is reached, i.e. 5-7 breeding pairs in state)	No (until delisted under State law)	TBD
Does SWA notify landowners of wolf presence?	Rarely	Limited to active den or rendezvous sites.	No	Yes	Yes	TBD
Are non-lethal control measures required before SWA authorizes lethal take of wolves?	No	No	No	Yes	Yes	TBD
Which entity is responsible for investigating livestock depredation?	USDA Wildlife Services	USDA Wildlife Services	SWA in NW Wyoming. Animal Damage Board or Local Predator Management District in balance of state	SWA (east of Hwys 395-78-95). USFWS, USDA Wildlife Services or ODFW in western Oregon.	SWA with support from USDA Wildlife Services or USFWS	TBD
Does SWA develop wolf-livestock conflict deterrence plans?	No	No	No	Wolf-Livestock Conflict Deterrence Plans are prepared in a designated "Area of Depredating Wolves".	SWA enters into Damage Prevention Cooperative Agreements with landowners	TBD
Is non-injurious harassment allowed?	Allowed – no permit required	Allowed – no permit required	Allowed – no permit required	Allowed – no permit required	Allowed – no permit required	TBD

November 8, 2013 draft for consideration by the California wolf-livestock interactions subgroup of the California Stakeholder Working Group

Element/State	Montana	Idaho	Wyoming	Oregon	Washington	California
Is non-lethal injurious harassment allowed?	Allowed – no permit required	Allowed – no permit required	Allowed – no permit required	Allowed with a permit	Allowed with a permit	TBD
Does SWA relocate depredating wolves?	No	No	No	Not for wolves known to have depredated livestock or pets	On a case by case basis	TBD
Does SWA provide technical support for non-lethal control methods?	Yes	Yes	Provided through Wyoming Animal Damage Board or Local Predator Management District	Yes	Yes. SWA enters into Damage Prevention Cooperative Agreements with landowners	TBD
SWA budget for wolf management	State law mandates \$900K/year. Current year (approximate) \$425 from wolf tag sales, \$325 Federal, and \$120K PR funds.	FY 2014 \$1.2 M total. Federal contribution was \$380K this year	Approximately \$650 K. Federal contribution in 2012 of \$230 K.	2011-13 budget was \$608,269. (Unclear whether this is for one or two years).	Approximately \$1.4 million/year	Current - Zero

**APPENDIX D.
DRAFT OVERVIEW OF LESSONS LEARNED FROM THE WESTERN UNITED
STATES REGARDING WOLF-LIVESTOCK INTERACTIONS**

California Department of Fish and Wildlife

Draft overview of lessons learned from the western United States¹ regarding wolf-livestock interactions
November 7, 2013

1. Where wolves and livestock are sympatric, depredation by wolves on livestock has been a consistent result.
2. Where wolves and livestock are sympatric, many but not all, wolves and wolf packs, attempt to kill, or kill livestock. For example, in 2010, Montana reported that an average of 35% of packs were confirmed to depredate livestock. In 2012, the Fish and Wildlife Service estimates that approximately 28% of known wolf packs (in the northern Rocky Mountains Distinct Population Segment) were involved in at least 1 confirmed livestock depredation.
3. When characterizing the severity of wolf depredation on livestock, geographic scale for the analysis, context (e.g. grazing practices and landscape conditions) and mechanism (i.e. lethal or non-lethal) of effect are important.
 - a. Depredation by wolves on livestock is a very small fraction (i.e. <1%) of livestock mortality from all causes when analyzed at a statewide scale.
 - b. Depredation by wolves on livestock is a very small fraction (i.e. <5%) of the overall depredation mortality by wildlife (e.g. coyotes, bears, lions) on livestock when analyzed at a statewide scale.
 - c. Depredation mortality by wolves on livestock can be important for individual livestock producers.
 - d. Sub-lethal effects of wolf presence, harassment and failed attempts to kill livestock can be important to individual livestock producers.
 - e. Sub-lethal effects can include reduced weights of livestock caused by increased vigilance, reduced foraging and increased physical activity; and non-lethal wounds.
 - f. Impacts to individual livestock producers through management efforts to avoid and minimize depredation by wolves can be important, in terms of time and financial costs.
4. Most livestock depredation by wolves is of cattle or sheep.
5. Depredation incidents on cattle generally take 1-2 animals/incident.
6. Depredation incidents by wolves on sheep often result in much larger numbers of dead animals (compared to cattle).

¹ For purposes of this information, the western United States includes Wyoming, Montana, Idaho, Oregon and Washington.

7. Other livestock species, including goats, horses and llamas are rarely killed by wolves (i.e. 3-20/year).
8. Confirmed wolf depredation on dogs has varied between 2 and 25 animals/year for the last ten years.
9. Statistics based on “confirmed” wolf mortalities, through forensic evaluations under-count actual mortality, because:
 - a. Not all dead livestock are found.
 - b. Some dead livestock, when found, are consumed by scavengers to an extent that a conclusive determination of the cause of death is not possible.
10. Statistics based on reports of wolf predation from livestock producers, including USDA NASS data, which are not confirmed with a forensic evaluation, likely overestimate actual mortality. For example, the following figure is presented in the 2010 Montana annual wolf report. The geographic context is not provided but the number of incidents suggests it is a multi-state compilation.

Figure 1. Number of complaints received by USDA Wildlife Services as suspected wolf damage and the percent of complaints verified as wolf damage, federal fiscal years 1997 – 2010. Federal fiscal years from October 1 to September 30.

Data in this table is consistent with an examination of depredation investigations conducted by Oregon Department of Fish and Wildlife, and available at http://www.dfw.state.or.us/Wolves/livestock_loss_investigations_2012.asp. These reports demonstrate that forensic investigations of suspected wolf depredation often determine some other cause of death, or are unable to confirm wolves as the cause of livestock mortality.

11. Documented wolf mortality in 2012 by hunting, trapping, lethal control and other causes, removed approximately 50% of the wolf population known to exist at the beginning of the year (Table 1).
12. By combining the 2012 year end minimum wolf population with known mortality the absolute minimum number of wolves existing at some point in 2012 can be estimated. That number is 2,584 wolves².
13. Documented wolf mortality in 2012 reduced the year-end wolf population by approximately 5% from December 31, 2011, compared to December 31, 2012.
14. Numbers of wolf packs have increased and average pack size has decreased since hunting and trapping have been implemented.
15. Wolves killed by hunting and trapping may not have been involved in livestock depredation.
16. Confirmed depredation by wolves on cattle has been stable but variable for sheep over the past four years (see Table 1).
17. Lethal control actions on wolves can be focused on individual animals or packs reliably determined to have engaged in livestock depredation.
18. Non-lethal deterrent methods have successfully reduced wolf depredation on livestock in many applications.
19. Non-lethal methods are not always successful in preventing wolf depredation of livestock.
20. In some cases, wolves become habituated to non-lethal deterrents and effectiveness may decline over time.

² The 2012 USFWS Annual Report estimates 2,569 but this does not take into account later population revisions.

Table 1. Detailed Data by State for Cattle and Sheep Depredation, Wolf Populations and Wolf Mortalityⁱ

		2009	2010	2011	2012
Cattle depredation	Oregon	1	8	13	4
	Washington	0	0	0	7
	Idaho	75	75	71	73
	Montana	97	87	74	67
	Wyoming	20	26	35	44
	Totals	193	196	193	195
Sheep depredation	Oregon	28	0	0	8
	Washington	0	0	0	1
	Idaho	324	148	121	312
	Montana	195	64	30	37
	Wyoming	195	33	30	112
	Totals	742	245	181	470
Wolves (min # at year end)	Oregon	14	21	29	53
	Washington	5	19	27	51
	Idaho	870	705	746	683
	Montana	524	566	653	625
	Wyoming	320	343	328	277
	Totals	1733	1654	1783	1689
Wolf Packs (min # at year end)	Oregon	2	2	5	7
	Washington	2	3	5	9
	Idaho	94	87	101	117
	Montana	101	108	130	147
	Wyoming	37	45	48	43
	Totals	236	245	289	323
Agency lethal control wolf mortality	Oregon	2	0	2	0
	Washington	0	0	0	7
	Idaho	93	80	63	73
	Montana	145	141	64	108
	Wyoming	32	40	37	43
	Totals	272	261	166	231
Hunting & trapping wolf mortality	Oregon	0	0	0	0
	Washington	0	0	0	0
	Idaho	134	46	200	329
	Montana	68	0	121	175
	Wyoming	0	0	0	66
	Totals	202	46	321	570
Other known wolf mortality	Oregon	0	1	0	1
	Washington	0	1	0	2
	Idaho	45	18	33	23
	Montana	42	38	31	41
	Wyoming	9	18	15	27
	Totals	96	76	79	94

ⁱ Data sources were USFWS annual interagency reports <http://www.fws.gov/mountain-prairie/species/mammals/wolf/>, annual reports for individual states and updated information available on individual state websites. Where data discrepancies between the USFWS and state reports existed, the most recent state data was used. Such discrepancies were minor. These data reflect confirmed cattle and sheep depredation. Wolf population and mortality data reflect the best efforts of state and federal agencies to document populations which are dynamic and are minimum counts of wolves and wolf packs. There is inherent uncertainty when designating wolves and wolf packs as resident in one state or another when home ranges are near a state line. Dispersing uncollared wolves are difficult to count and detection of all wolves or wolf mortality is impossible. Actual numbers of depredated cattle and sheep, wolf packs and wolves are all likely greater than presented. These data are most useful as indicating trends, rather than absolute numbers.

APPENDIX E. PARTICIPANT COMMENTS AND QUESTIONS BY TOPIC

Wolf-Livestock Interactions: State-by-State Comparison of Management Strategies

do all states use same the methodology for estimating their wolf populations?
I always assumed a pack was a breeding pair
For federal listing status in Oregon the table says endangered in western Oregon and unlisted in eastern Oregon; it's the same as Washington in Oregon; it's endangered in western 2/3 of Oregon just like Washington. It's confusing because the state plan divides state in half and the feds divide it into thirds
I also had a suggestion for state listing in California, it's listed as a candidate
most of the public has been under the impression the wolf has been a candidate and fully protected until final determination made
can you include if they have regional (population) goals, like the western half needs this many etc?
probably be a complicated line but are those caps or minimums to delist? Varies from state to state
in OR it says yes there is a program and also a depredation tax credit but what isn't clear is it's not only a compensation program but a proactive program; the discussion was to provide funds for both compensation and helping with non-lethal means but program simply got called a compensation program; funded through the legislature for both compensation and proactive projects
In Washington the recent budget includes \$1.2 million; \$600k to research, rest to proactive plus compensation
suggest we have an additional line that says is there a state managed proactive payment assist program?
would be helpful to have info on the size of the fund but also how quickly it runs out; a way to document if adequate; believe in Idaho its open and it runs out in March
also what documentation is required for compensation; Oregon requires confirmation, would be helpful to know what is necessary in other states
multiplier figure on large open areas for losses vs smaller areas where they can see what the losses are; not one to one; depends on what type of land it's on
would be interesting to know if they have compensation for other species and what are those species and to what degree they are funded
in Oregon they didn't compensate for other wildlife but started for wolf; were doing proactive work with ranchers for fencing to keep elk out; if wolves are federally listed California may be able to get in on the federal compensation program
it would take legislation
my understanding in Oregon you have to have a permit to act even if going to lethally take an animal in the act of harming livestock
I think it's important to point out how rare a wolf is taken under a depredation permit

not familiar with Oregon and Washington ESAs; they do allow for take?
if it will enhance conservation of species, it is allowed
I know suits have been filed over wolf management; is this reflective of what's in the management plan or what is actually being allowed?
has CDFW thought about when and how to have that conversation; an important part of this; another subcommittee to have that discussion? discussion about what population is going to be deemed necessary for recovery?
be interesting to know what other states have had to modify in their goals based on experience; models evolving all the time
some of articles I sent from Midwest, went and looked at are wolf populations doing what you would predict based on models; 9 of 12 happening as predicted
additional info would be helpful; in Oregon you have on file as far as what your nonlethal methods are; some ranchers tried for compensation and couldn't because not listed
almost a separate box; this is about nonlethal control versus compensation; two separate issues
in Oregon in the east you can utilize the services of local sheriff for (verifying wolf depredation)
I think agency still has final say so
my Wildlife Services guys in Siskiyou see stuff every day; they have the skill sets; if overlook Wildlife Services and don't consider them we're making a big mistake
will see if I can get any more info on the breakdown of Washington state's budget for wolf management

Draft Overview of Lessons Learned From the Western United States Regarding Wolf-Livestock Interactions

can you speak, not necessarily right now – maybe to the full group - to sources of science and what's more robust; some guidance on when we should be taking things as more supported; a quick discussion about robustness
a lot of people who publish in wildlife don't have the field experience that old timers have; lots of wildlife biologists are writing that don't have the field experience that the previous generation had
there's a lot of opinion in the world of predation in biology as opposed to fact; even though there is extensive literature a lot does not answer some of the questions we're trying to ask
my mind goes to OR7; he's been in areas where there's livestock and not take
In Oregon the experience shows where cases of depredation were - when Wildlife Services came out and said yes this was a wolf and the rancher says "I should have called you last year because this is not the first time I saw this; I could see OR7 could have taken and consumed the whole animal or rancher didn't recognize it as a wolf; don't want to say OR7 didn't take livestock
suggest playing around with the word "many" in #2; might mean 50% or more; folks may

not agree with some; some might understate but maybe a word in between
“many but not all”; just strike that
could you say significant instead of important?
makes sense in 3f when talking about non-countable things or the burden; but on 3c about mortality the point is the less than 1% that belies that they are experiencing much higher impact; in 3c why doesn't say much higher rather than important
you're looking at the depredation mortality by wolves on livestock that it can be a significant impact for individual producers?
always the case when comparing the average to the person it's actually happening to; is there a way to explicate that better here; its' almost mathematically true
could you say depredation mortality by wolves on livestock can significantly affect some livestock producers more than others?
what I came up with is depredation mortality can have a significant impact on individual livestock producers
it's true but I thought just changing the word important to significant covers it
important feels more emotional; significant can bestow a certain amount of truth
(the significant effect of depredation on livestock to individual producers) helps us develop an idea of where resources should be applied
I think you might make the same change in 3d to replace important with significant because it kind of mirrors
in your preface for your number 3 instead of severity of wolf depredation, say severity of wolf impacts so includes lethal and non-lethal
do we want to keep important there?
multiple agreements that important is correct in the #3 preface
It's ok in that context; you're saying that analysis, context, and mechanism are all important factors right?
on 3e, important to add decreased conception rates
I put decreased reproduction
there are 2 or 3 articles I think and they disagree; it was livestock by Oakleaf
there was a study on elk reproduction
thinking about the conversation we had about 3c made sense that scale production is relevant; if in main part of 3 it's not just geographic scale but also production scale; the economic effects of smaller operators will be disproportionately impacted by the same percentage of take
concerned about that level of detail; you're looking at will you have a small herd but a job in town so this isn't you're economic sustenance; I'm not saying that's what you're arguing but if you go down that path, like you have a small herd but you have other economic opportunities or a big herd so we think you're more economically viable
the rationale for me is that 3c, I interpret 3c originally as much higher, more intense; the description you gave it made more sense not to say that but instead stay with significant because you refer to scale
just saying it'll be a variety of factors; if you have a larger group in a heavily wolf intensive area you can take a bigger loss because you have more animals exposed;

what are the factors that are important; I feel like scale of the operation is a factor
Can't see the benefit of going there
I think it ultimately will matter; the desire to invest in all the ways to mitigate - all these things will relate to your scale, your investment; but I'm fine with leaving this out
if in context kind of include that concept; examples given after context are grazing practices and landscape conditions but it might also include the size of operation
for example you can have different expectations of how much non-lethal you... take the flip side of it, how much you expect to invest in trying to keep predation from happening; I'm just ... it can work both ways; if no one else agrees its relevant that's fine, I came to appreciate what you meant in 3c by introducing the concept of producer scale
I kind of see it that way too; we've cut back already, we're really a small operation compared to what we used to be and if any more losses due to wolves we're out; more significant to me than someone with a bigger operation; I'm now hearing now that should not matter
there are some large operators in Siskiyou and Modoc Counties
you might have a large operation but still be in the red; talking about the final dollar amount looks different than the conversation about whether or not its...
two different issues we're grappling with; may matter to one and not to another producer who may be exactly the same of totally different; I think what we're saying is regardless of your size it may impact you or it may have less impact and I think that's captured here
The question is not if they can be treated differently; we're laying out certain factors important to lay out when determining impacts of wolf depredation; the question is "is the size of the operation a factor that needs to be taken into account" in determining, or not even determining, whether or not there will be impacts and you're saying no because, well I'm trying to understand that
two diff things we're talking about – either statistically significant or not; or we're saying the way you make a living, this will impact you negatively and we can't say even if Joe has 100 head and Jim has 500 head that Jim won't feel that the same way Joe will; we can't make those comparisons because we don't know
I don't want to discount what you hear; in Marin when they got rid of their in Wildlife Services contract they lost sheep producers because of the increased impact on their sheep; absolutely it's an impact but don't think we should talk about size as being an impact; just recognize there can be a significant impact on individual producers gets to that point
think it should not be the role to differentiate between producers
I don't think there is a desire to differentiate between how much someone should do or not based on the size of the operation; the consideration is what will work here
it's just that we've heard it matters; if it doesn't matter enough then that's fine
you're pitting our members against each other
it would be in the same category to me as grazing practices and landscape conditions, it was more that these are factors that affect how much they are adversely impacted as to what effort could be expected; I wouldn't have even picked up on this if the way that I've

now come to appreciate the way the changes to 3c actually characterize the way it's related to size; that's what got me thinking; the goal wasn't to imagine a scene where people pit against one another
would mention there is the item of emotional stress
I would agree with that (including emotional stress as a significant impact in 3c)
is 3f getting to the non-lethal measures?
but I would like to see an acknowledgement that those efforts can be and are successful and worthwhile; we're talking about time-intensive but to balance the statement that there is time and financial cost to this but those can be successful and can make up for some of the financial cost in securing the livestock and avoiding loss for take of livestock
under 3 it would be worth adding another bullet to talk about the paper Bob shared; rates of depredation by comparative rates between predator species, that wolves are so much more expected to depredate
source of these data?
how far back in time do they go? Assume they are collected consistently from year to year
would be interesting to know what happened very early on when wolves first established; seen some from another source but didn't know if data was collected in the same way; some could be telling as far how long wolves were there before depredation began to be a problem
recommend going back as far as possible
if these are going to be opening paragraphs in the wolf plan I suggest some language about why more sheep are lost in a depredation event; people look at massive sheep losses and think wolves killed them all but they died as a result of suffocation; people don't know that that's even possible; for the general public it would be helpful
does the same data source for this also include the total number of cattle or sheep statewide so you could do the percentages?
it's also tricky in getting at which segment, like all cattle would include dairy cattle and feedlot which are at lower risk than range cattle
the 1 and 5 % which I would assume includes a big denominator
since this is a wolf livestock conflict subcommittee I'm assuming we'll be talking about not just the impacts to livestock but impacts on wolves from the actions that are then undertaken as result of conflicts; how many times have full packs of wolves been taken out; what did we see as a result of packs being broken up; kind of figuring out where resources are effectively applied; I don't think USFWS has ever done a tally of what percentage over the years wolf livestock conflicts have occurred on public lands vs private lands; my intent is that a large portion of conflict has occurred on public lands and if so that's where the money should be spent on preventing livestock conflict; having a picture over years tells us how wolf-livestock conflict plays out for wolves, not just for producers; how does it play out for people who want wolves, the emotional stress on people who like wolves seeing them killed is also part of this whole discussion; so going back in time to see how many wolves have been killed as a result

of conflict also is part of the equation
you might want to put in the "western US"
is it ever segmented out for dogs if livestock working dog vs a pet?
these quantities per year, is it obvious these are national, are they national?
Should we give you comments on the rest of the document in preparation for next document?
keep the original language because sometimes there were 3 or 4 diff suggestions and we stayed with the original language; also when you send back out send as a Word Document? So we can track changes and send back to you
we travelled a lot to get here so maybe an hour or two longer? Maximizing time
I would suggest two more hours
you do get fatigued
more like 9:30 to 3:30 with a break
9:30 is hard with a 3 hour drive
when you've gotten a dog to do what you want stop; we accomplish a lot in this amount of time; I tend to say stop
more midday; who travelled the farthest?
if I have to spend the night I would want to make the meeting longer