Meeting Report
Wolf Conservation Stakeholder Subgroup
July 21, 2014

Turtle Bay Exploration Park
Museum Conference Room
844 Sundial Bridge Dr.
Redding, CA 96003

Photo courtesy of Bruce Bohlander

California Department of Fish and Wildlife

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1.0 Introduction

On July 21, 2014 the Wolf Conservation Subgroup (WCS) of the California Wolf Stakeholder Working Group (SWG) convened in the Museum Conference Room at Turtle Bay Exploration Park in Redding. This was the seventh meeting of the WCS, which was established to help the California Department of Fish and Wildlife (CDFW, Department) develop a consensus-driven framework of strategies for wolf conservation and management in California.

2.0 Meeting Objectives and Mechanics

The purpose of the meeting was to continue discussion of potential topics for inclusion in a Wolf Conservation chapter in the California Wolf Plan.

Objectives of the meeting were:

- Continue development of Conservation chapter with focus on operating assumptions
- Continue discussion of phased approach to the conservation strategy
- Confirm scheduling needs for future Conservation Subgroup meetings

The meeting was attended in person by the meeting facilitator Sam Magill, eight stakeholders, and three CDFW staff, with two additional stakeholders attending via conference line. Appendix A provides a list of participants, their affiliations, and their contact information. In addition, two legislative representatives attended in person. Appendix B provides those individuals' names, affiliations and contact information. Appendix C contains the meeting agenda.

3.0 Meeting Outputs

Updates/Housekeeping

- Ms. Pamela Flick will present the Conservation Subgroup's update at the July 22 SWG meeting
- No edits were suggested for the June 17 Conservation Subgroup meeting report but members requested a four day extension to review and comment as needed.
- Some members requested clarification on the dates and sequence of upcoming actions by the Fish and Game Commission (FGC) with respect to finalizing wolf listing under CESA. Department staff will provide updates as soon as possible.

Review/Discuss Operating Assumptions (Environmental Caucus Suggested Edits)

Mr. Stopher began this discussion by explaining that the purpose of the Operating Assumptions document is to outline the key points for content in the Wolf Conservation chapter. The version of the document presented today (Appendix D) contained some minor edits to the previous version by the Department, as well as significant edits and comments as suggested by members of the Environmental Caucus. These edits and comments from the Environmental Caucus were provided to the Conservation Subgroup in the form they were received. Providing these to the group does not imply either agreement or disagreement by CDFW. The main points of discussion were as follows:

- #3 and #5, edits were intended to clarify that, should wolf management in Oregon change substantially as a result of state delisting, which could occur in the next couple of years, it could affect California's source population
- Some of the factors listed in # 9 are similar between California and Oregon, and some are different; a suggestion was made to separate these to more clearly reflect those similarities and differences and how they will likely affect the rate of recolonization of wolves in California
- It may be of value to generate some figures on human resident population and visitor use in northern California and discuss the different impacts from each group
- #18 should say Oregon and California instead of Oregon and Washington
- #19 and #20 were added to clarify that large, well-established populations differ from small, newly established populations in their capacity to sustain higher levels of annual mortality
    - one member stated that there is new data suggesting that the percentage of mortality generally accepted as representing a threshold for wolf populations should be lowered and she will share some literature with the group
    - another member suggested that a range of mortality percentages be used in #19 instead of the phrase "substantial annual mortality"
- Consider if information from Mexican wolves can be incorporated into the operating assumptions
- The points presented from the Wolf Population Dynamics chapter by Fuller et al. (2003) were intended to provide a synthesis of information, with an acknowledgement that additional studies have been done since the publication of the book (Wolves: Behavior, Ecology, and Conservation edited by D. Mech and L. Boitani)
    - Consider rewording #1 to reflect the temporal and spatial complexity of prey vulnerability
    - Consider more current information on wolf population dynamics than what is presented in the Fuller et al. (2003) chapter

Review/Discuss Phase 1 Alternative Strategies (Environmental Caucus Suggested Edits)

At the June meeting, members were provided with a copy of this document, and were asked to submit suggestions by July 11. As of today's meeting only the Environmental caucus had submitted suggestions, so the version presented today (Appendix E) consisted of the June, 2014 version, but with that group's suggested edits and comments in place. Members from other caucuses were requested to submit comments within two weeks of today's meeting. Mr. Stopher asked members of that group to walk through the document and explain their suggestions for changes. The main discussion points are listed below. Department responses are in italics.

- Row 1: If we could convene an independent science panel to assist us with determining a number of breeding pairs over some timeframe, we might feel better using that approach as an objective for ending Phase 1. Such a panel could also help establish recovery goals, which differs from establishing objectives for ending Phase 1. Absent that, we feel it should be based on a timeframe at the end of which we can reevaluate.
    - *The plan is not likely to include recovery objectives, partly because we don't know how we would be able to develop those in the given time we have to complete a draft plan. The proposed number of breeding pairs for ending Phase 1 was suggested based on Oregon's experience with natural wolf recolonization; other plans do include suggested thresholds for downlisting.*
- Row 4: Now that wolves are state listed we feel that there should not be management by lethal methods during Phase 1; we are under the impression that lethal take is off limits under CESA, so any discussion we would have about lethal take would be speculative and/or would require a change in statute.
    - *We would have to get approval from the governor's office to develop specific legislative proposals. However we may be able to include in the Plan a framework for conditions where lethal take is appropriate without proposing specific legislative language. Relevant similar examples currently exist in the Fish and Game Code where take prohibitions are generally established, with specified exceptions. Section 4800(b)(1), for example, prohibits the take of mountain lions except for public safety [section 4801] and in response to livestock or domestic animal depredation [section 4802]. Golden eagles are a fully protected species [section 3511], yet take may be authorized to recover other fully protected or listed species, and golden eagles may be captured and relocated for the protection of livestock.*
- It would be valuable to discuss changes in statute to allow for lethal take under some circumstances; also, the voluntary local program allows for creation of management practices to benefit wildlife, and in return allows some take of listed

species – section 2086 under CESA; full mitigation is not required under this program

- We would be derelict to go to 2030 without providing an option for lethal management of wolves since we have so many unknowns. We need some triggers that will allow for it if our elk herds go into decline. If wolves won't have a big impact on the herds then the option won't be used, so why not leave it on the table?
    - *The bulk of the literature says that we won't see significant declines in elk, but our herds consist of newly establishing small pockets with low numbers, so we acknowledge the possibility of some impacts from wolves. We want to give landowners the tools to minimize conflicts, and the literature also suggests that increased tolerance increases conservation. Given the conservation goals required under Fish and Game Code section 2061 for listed species, we can include sideboards that allow for lethal take only under specific circumstances that do not compromise the overall goal.*

Conservation Subgroup Scheduling/Conclusion

The meeting concluded with recognition of the need for a subsequent meeting to discuss comments from members who had not yet had a chance to comment on the Operating Assumptions and/or the Phase 1 Conservation Strategy. Mr. Magill will poll the group for possible dates as soon as possible.

Action Items:

- Ms. Flick will provide updates at the next SWG meeting
- Department staff will provide updates for upcoming FGC actions relative to wolf listing as soon as information is available
- Ms. Weiss will provide documents addressing new research on wolf population mortality thresholds, and wolf recovery that considers their ecological functionality by the close of business Friday, July 25.
- Department staff will make edits to the operating assumptions as discussed at today's meeting, including the seven items derived from Fuller et al. 2003, and how information from the Mexican gray wolf can be incorporated; will distribute by Friday, July 25.
- Members will forward any additional comments on the Alternative Conservation Approaches to the Department by Friday July 25.

APPENDIX A
WORKSHOP PARTICIPANTS

Name	Affiliation	Email
Stakeholders		
Noelle Cremers	California Farm Bureau	ncremers@cfbf.com
John McNerney	The Wildlife Society – Western Section	jmcnerney@cityofdavis.org
Jerry Springer	CA Deer Association	jerry@westernhunter.com
Lesa Eidman	CA Woolgrowers Assn	lesa@woolgrowers.org
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Damon Nagami	Natural Resources Defense Council	dnagami@nrdc.org
Mark Rockwell	Endangered Species Coalition	mrockwell@endangered.org
Pamela Flick	Defenders of Wildlife	pflick@defenders.org
Paul Kjos	California Agriculture Commission – Shasta County	pkjos@co.shasta.ca.us
California Department of Fish and Wildlife Staff		
Karen Converse	Environmental Scientist – Lands Program	karen.converse@wildlife.ca.gov
Mark Stopher	Senior Policy Advisor – CDFW	mark.stopher@wildlife.ca.gov
Karen Kovacs	Wildlife Program Manager – Region 1	karen.kovacs@wildlife.ca.gov

APPENDIX B
PUBLIC PARTICIPANTS AND COMMENTS

Legislative Representatives		
Name	**Affiliation**	**Email**
Bruce Ross	Assemblyman Brian Dahle's Office	bruce.ross@asm.ca.gov
Dave Meurer	Senator Ted Gaines's Office	dave.meurer@sen.ca.gov

- The north state sees nowhere near the number of visitors that Yellowstone and Yosemite National Parks do.

APPENDIX C – AGENDA

Conservation Objectives Subgroup
1pm-4pm July 21, 2014
Museum Conference Room, Turtle Bay Exploration Park
844 Sundial Bridge Dr., Redding, CA 96003[1]
PROPOSED AGENDA

Objectives:

- Continue development of Conservation chapter with focus on operating assumptions
- Continue discussion of phased approach to the conservation strategy
- Confirm scheduling needs for future Conservation Subgroup meetings

1. Introductions and Logistics (5 minutes)

2. Updates/Housekeeping (10 minutes)
    a. Identify Stakeholder member for update at next SWG meeting
    b. Review, discuss, and revise June 17 meeting report

3. Review and Discuss revised operating assumptions for CA wolf conservation planning (50 minutes)

4. BREAK (5 minutes)

5. General discussion and feedback on alternative strategies provided by CDFW (60 minutes)

6. Conservation Subgroup Scheduling Discussion (30 minutes)
    a. Discussion of future subgroup meeting needs and goals
    b. Discussion of overall Conservation Chapter schedule

7. Public questions (10 minutes)

8. Wrap up and action item review (10 minutes)

[1] **Upon entering the Turtle Bay grounds, please follow signs to museum parking. At the front desk of the museum, (past the coffee shop) the Guest Services attendants will direct you to the Museum conference room upstairs.**

APPENDIX D
OPERATING ASSUMPTIONS FOR CA WOLF CONSERVATION PLANNING (ENVIRONMENTAL CAUCUS SUGGESTED EDITS)

Operating Assumptions for CA Wolf Conservation Planning – near term (now through 2030)

1. As a wolf population becomes established in CA, we can expect a continued exchange of individual animals with the Oregon population
2. Net positive immigration from Oregon into California is likely over the near term.
3. Management practices in Oregon, with respect to wolves likely will change little during the next several years. ~~is period; h~~However, at the end of 2014, Oregon may reach its state-wolf-plan-specified population goal for numbers sufficient to begin the process of delisting statewide but managing wolves in the western half as if still state-endangered. If that occurs in 2015 or afterwards, management practices for wolves in the eastern half of Oregon may undergo some changes.
4. Oregon population data reflect recent annual wolf population growth in that state
    - 2010 50%
    - 2011 38%
    - 2012 58%
    - 2013 39%
5. Immigration from Idaho will be become an increasingly less important contributing mechanism for growth in Oregon's wolf population over time, compared to intrinsic growth based on reproduction in Oregon wolf packs. This will be the case unless, post-state-delisting, Oregon's east-side wolf population is managed substantially differently than it is now.
6. When wolf packs become established in CA their distribution will generally be based on these factors:
    - Positively correlated with:
        1. proximity to Oregon
        2. higher wild ungulate density (particularly with respect to elk)
        3. ~~with~~ higher forest cover
    - Negatively correlated with:
        1. higher human density
        2. higher domestic livestock density
        3. non-forested rangeland and intensively managed agricultural lands
        4. higher road density[1]
7. Existing information is not sufficient to confidently estimate the long-term carrying capacity for wolves in CA
8. Existing information is sufficient to predict those geographic areas most likely to provide suitable habitat for wolf packs in the near term
9. Due to the absence of large refugial areas, mix of public and private lands, relatively low elk populations, fragmented habitat, restricted sources for immigration, ~~and~~ reliance on natural

[1] The negative effects of roads are mainly due to human-caused mortality facilitated by improved access into habitat utilized by wolves. The extent to which roads are open to the public, remoteness of the road segment from cities and towns, condition of the road surface and wolf density on the landscape are some factors which influence magnitude of the potential effect.

dispersal for initial recruitment into CA~~,~~ and greater human population numbers, the wolf population in CA is likely to grow at a slower rate than observed to date in OR or WA.

10. The extent to which wolf populations can or will establish in areas where mule deer are the primary wild ungulate prey, in CA, is unknown.
11. For the same reasons listed in #9, the wolf population is likely to be smaller, both in the near and long-term than in Oregon or Washington
12. Table 4, Chapter 3, in the WA Wolf Plan reflects a reasonable projection for planning purposes of the relationship between wolf numbers, packs and successful breeding pairs.
13. Based on the OR experience, and assumption that CA wolf population will grow relatively more slowly, the near term population of wolves in CA wolf will likely not exceed 6 successful breeding pairs.
14. In the near-term, the CA wolf population will become established by immigration and will then grow though both continued immigration and reproduction.
15. Based on OR and WA experience:
    - We should expect that successful breeding pairs will become established in southern OR before CA.
    - It's unlikely that we will see near-term immigration into CA from NV
16. The NRM wolf population was established by reintroduction~~translocation~~, which will not occur in CA. Therefore the rates of population growth in WY, MT and ID are not useful as examples we should expect to occur in CA.
17. The recent establishment of a breeding wolf pack in southern Oregon may accelerate recruitment of wolves into CA.
18. Wolf pack territories may become established where they include portions of both Oregon and Washington, necessitating coordinated management by wildlife agencies in both states.
19. Large, well established wolf populations, particularly when they exist within dispersal distance of other wolf populations are resilient and able to persist, even when subject to substantial annual mortality.
20. Wolf populations which are small, or isolated or newly established tend to be less resilient to substantial mortality.
21. ~~16.~~ Stochastic factors, including disease, severe weather and wildfire can have substantial localized effects on wildlife populations, including wolves.
22. ~~17.~~ Sport hunting and commercial trapping of wolves by private entities is ~~currently~~ not lawful in CA.

Points from "Wolf Population Dynamics" by Fuller, Mech and Cochrane, 2003.

1. Wolf density is mostly explained by the availability of prey. More specifically, by "vulnerable prey". In California the existing ungulate fauna is not equally vulnerable. For example, wolves rarely kill pronghorn antelope. Elk, where they exist are vulnerable to wolf predation, but elk numbers are (relatively) low in California and distributed unevenly. Mule deer are widely distributed. Wolves certainly kill and eat mule deer but wolves in other western states prefer elk and have generally not occupied habitat, or are present in low densities, where they rely

primarily on mule deer. Landscape conditions, including vegetation types, weather and physical condition of ungulates can also affect whether particular animals, populations or species are vulnerable to predation.

2. Wolf packs occupy territories which are defended against other wolves. Prey density and territory size are inversely correlated. That is, where prey density is low, territories are larger, and those territories are defended against other wolves.
3. Wolf pup survival is directly related to prey biomass.
4. Where wolves are persecuted by humans they do not survive where road densities exceed 1 km/sq. km.
5. Wolf populations have a very high intrinsic potential to increase and are resilient to high rates of mortality, including that caused by humans. Numerous studies document sustainable populations where mortality ranged between 20 and 50% annually. In one study from Quebec, annual human caused mortality of wolves was reported as 74%. The wolf population was stable and was probably augmented by immigration. The National Research Council concluded that wolf control is likely to be successful only if, "wolves are reduced to at least 55% of the pre-control numbers for at least 4 years". The two main sources of natural wolf mortality are starvation and wolves killing other wolves, both of which are density dependent. Human caused mortality can compensate for some natural mortality.
6. Mortality impacts on wolf population productivity will vary depending on which wolves die. Mortality of pups, juveniles, post-reproductive and dispersing animals will have less effect than the death of the alpha animals.
7. The authors of this paper conclude that PVA models for wolves have "proved unsatisfactory or misleading". Since estimates of MVP depend on PVA models, this suggests the science is not yet very useful for predicting a California MVP.

Comment [a1]: "vulnerable prey" does not simply mean which prey species are easier to catch. Vulnerability of prey also varies within any one species, depending on factors of age, injury, illness, condition, and even experience. It may also depend on weather (e.g., prey making its way through deep snow can be more vulnerable than prey attempting to escape across a light dusting of snow) or terrain (e.g., whether the landscape is flat and open with no place to hide, whether there is tree-fall that makes it hard to maneuver quickly, etc.)

Comment [a2]: This paper does not take into account research and observations that have been made in the more than one decade since this paper was published. For instance, these statements do not reflect the stochastic effects observed in Yellowstone wolves since 2004 in which the YNP wolf population plummeted due to stochastic effects (disease such as mange, distemper, parvo), as well-noted in the YNP wolf reports. Even prior to the institution of hunting just outside the Park boundaries post-federal delisting (which itself has resulted in a considerable level of mortality of Park wolves which were killed when they wandered outside of the safety of the Park) , the wolf population within YNP dropped due to disease by 50% over a 3 year period. Between these incidences of disease and the mortality of pack members outside the Park's boundaries, the YNP wolf population today is significantly lower than it was prior to the disease events and delisting effects. Because there has been a substantial body of published work on wolf populations and wolf population dynamics since 2003, we wonder why this paper has been selected as a key reference source to rely on?

Comment [a3]: There is a whole body of research that, in the decade after this paper was published, has looked beyond MVP's and PVA's to examine wolf recovery and conservation from a framework of ecological functionality. This involves thinking about wolf population goals in terms of what number of wolves need to exist in order for the species to fill its ecological niche and fulfill its ecological function. We suggest exploring some of this more current literature to flesh out our discussion and planning for wolf conservation in CA.

APPENDIX E
PHASE 1 ALTERNATIVE CONSERVATION APPROACHES, OBJECTIVES AND MANAGEMENT CONCEPTS (ENVIRONMENTAL CAUCUS SUGGESTED EDITS)

Phase 1 Alternative Conservation Approaches, Objectives and Management Concepts

	Zone Adaptive Management Approach	Statewide Adaptive Management Approach
Parameters for Concluding[1] Phase 1	• ~~Through~~ Through December 31, 2030~~, or~~ • ~~Three successful breeding pairs~~ in Zone 1 ~~for two successive years,~~ and • ~~Three successful breeding pairs in~~ Zone 2 ~~for two successive years~~	• ~~Through~~ Through December 31, 2030~~, or~~ • ~~Six successful breeding pairs~~ anywhere in CA, ~~for two successive years~~
Landscape Distinctions	Zone 1 – (aka Northwest)– bounded by I-5 on the east and I-80 on the south Zone 2 – (aka Northeast) bounded by I-5 on the west and I-80 on the south Zone 3 - Balance of state	Entire state
Lethal control for human safety	Allowed when authorized by state law (F&GC Section 1001 /CDFW and carried out by CDFW or its agent. No limit on how many wolves can be removed for public safety[2].	Same
Use of lethal control for management ~~(if authorized by statute). Primarily for chronic livestock depredation when non-lethal methods have been implemented and are not effective. Allowed when authorized by CDFW and carried out by CDFW or its agent. Any human caused mortality[3] counts against any established limit.~~	Managed by individual zone – None. Management shall be by nonlethal methods only. ~~1. For Zone 1 or 2, allowed when the zone population increased by at least 5% and included three successful breeding pairs in the preceding year~~ ~~2. Capped at 10% of the minimum number of wolves documented in specific zone, the previous year, but not to exceed two animals total in any year/zone~~ ~~3. Restricted to animals in packs confirmed by CDFW to have depredated livestock~~ ~~4. For control of livestock depredation, no~~	Managed over the entire state – None. Management shall be by nonlethal methods only. ~~1. Allowed when the zone population increased by at least 5% and included five successful breeding pairs in the preceding year~~ ~~2. Capped at 10% of the minimum number of wolves documented in previous year~~ ~~3.~~1. ~~Restricted to animals in packs confirmed to have depredated livestock or animals determined by CDFW to present a human safety risk~~

[1] Commence development of Phase 2 ~~when either: 1. California has five~~three successful breeding pairs, ~~or 2.~~ January 1, 2027~~; whichever occurs first~~

[2] Anticipated to be an extremely rare occurrence

[3] ~~Human caused mortality includes public safety take, poaching, vehicle accidents, accidental death from trapping or hunting~~

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Comment [A1]: And [PF1] DN 1]
In looking at a span of 16 years – now to Dec 31, 2030, it's useful to consider the following:

In OR, it took from 1999-2013 (14 yrs) to go from one wolf dispersed into the state from ID to 8 packs w/ 4 successful b.p.'s for two yrs in a row; and from 2009-2013 (5 yrs) to go from the first confirmed pack/b.p. to 8 packs w/4 successful b.p. for two yrs in a row. [The prior yr, there were 6 b.p., so this number dropped by 33% in one yrs time). In WA, it took from 2002-2013 (11 yrs) to go from one wolf dispersed into the state from ID, to 10 confirmed packs w/5 successful b.p.; and from 2008-2013 (6 yrs) to go from the first confirmed pack /b.p. to 13 confirmed packs w/5 successful b.p.'s (2009-2013). WA has had 5 successful b.p. for 2 yrs in a row. [In 2011 there were only 3 b.p. and in 2010 only 1 b.p.]

Things likely will not proceed as quickly in CA as they have in WA, since WA has two source populations (ID and British Columbia). OR has had chiefly one source population – ID – but it's possible eastern WA could become a source population for OR has well. CA's trajectory is more likely to be similar to OR's than to WA's, but possibly slower than OR's. This likely depends on the pace with which OR's wolf population builds in the Cascade range in the western half of OR.

For a Phase I conservation/management approach, it makes sense to simply set a date/year at which point the wolf plan conservation/management strategies would be revisited. No biological parameters should be set because during that phase the agency will be able to observe and gather data to help inform considerations of how wolf conservation and management may need to be changed moving forward.

The wolf plan should in addition set wolf recovery goals, determined by a panel of scientists assembled by CDFW who have specific expertise ...

	~~killing of alpha male or female~~ ~~5.~~1.~~ Not allowed in Zone 3~~	