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Parks and Wildlife
Department of Natural Resources

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MEMORANDUM

Date: 16 February 2023

TO: Parks and Wildlife Commissioners

FROM: Reid DeWalt, Assistant Director, Aquatics, Terrestrial and Natural Resources and Eric Odell, Species Conservation Program Manager

Subject: Responses to Wolf Management Questions

This memo serves to provide a written response to questions that were raised and discussed at the Colorado Parks and Wildlife Commission meetings from December 2022 through February 7, 2023 addressing the Draft Wolf Restoration and Management Plan that pertain to plan structure, restoration logistics, recovery, and management. This memo was prepared for the mailing for the February 22, 2023 meeting – prior to the virtual public meeting on the evening of February 16, 2023. There may be additional questions that come up that need additional clarification in a future memo or Commission meeting.

A separate memo covering topics related to conflict minimization programs, and depredation compensation will also be delivered to the Commission for the February 22, 2023 meeting.

1. **Glossary**

A glossary is being drafted and will be incorporated in the Final Draft Plan.

Specific requests about definitions included the following (this is not comprehensive of what the Glossary will include):

Distinction between adaptive and impact-based management:

- Adaptive management – Adaptive management incorporates monitoring and evaluation components in an ongoing effort to accumulate knowledge and change management as appropriate regarding the system of concern (as defined in Walters 1986).

- Impact-based management – Impact-based management recognizes that there are both positive and negative impacts to having wolves on the landscape. If wolves are creating an impact (typically a negative impact), managers will work to resolve the problem using a variety of management tools.

Distinction between restoration and reintroduction:

- Restore/Restoration –As defined in CRS 33-2-105.8: any reintroduction as well as post-release management that fosters the species' capacity to sustain itself successfully.

- Reintroduce/Reintroduction – Act of releasing animals within native range.

2. Wolf taxonomy

Humans have created the system that we use to name different species. The classification system starts at the Kingdom level – this is where plant and animals are separated. It goes all the way down to Genus and then Species and subspecies. Coyotes and wolves are the same genus (*Canis*), but different species (*latrans* versus *lupus*).

Different species evolve because of a variety of factors – sometimes by separation of time and space, different ecological niche, etc. Wolves throughout the United States are all the same species (*C. lupus*), and what we are talking about now is subspecies, the level below species.

Subspecies distinction is very difficult, especially for wide ranging animals, such as wolves. A leading wolf biologist has said that the subspecies construct is not appropriate for wolves – they are so wide ranging that the necessary time and space separation may not be adequate for proper differentiation. Even so, the taxonomic distinction of wolf species has gone through many revisions through time, having as many as 24 different subspecies, to now recognizing 5 (maybe 4) subspecies. (Arctic, Northern Rockies, Great Plains, Mexican and Eastern (might be a different species)

The difference in body size from what was here historically (which is now no longer present) and what is being proposed as a source is within 6-8% larger, well within natural variation of wolves. The argument that we are using the wrong subspecies is not a strong argument.

The USFWS has 2 separate entities of wolves listed in the western US – the Mexican wolf (a unique subspecies, *C. l. baileyi*) and all other wolves.

Throughout all of the revisions of subspecies separation, Mexican wolves have always remained distinct – an indication about the importance of keeping these individuals isolated, at least until recovery goals are met. They are geographically isolated, and the historical range for this subspecies does not include Colorado. The USFWS has committed to the recovery of the unique genetics of the Mexican wolf subspecies.

There are many reasons to NOT consider Mexican wolves for reintroduction to Colorado.

- This is not historical range for the subspecies

- 10(j) is not allowed outside of historical range unless the historical range has been unsuitably and irreversibly altered or destroyed – this is not the case as there is high quality habitat in Arizona and New Mexico and also Mexico.

- Should habitat within the historical range of the subspecies be deemed to have been unsuitably and irreversibly destroyed (not a current consideration, see above bullet), the recovery plan and the associated 10(j) would have to be revised at huge time and financial expense. There is no way that the December 2023 deadline could be met if this were the case.

- Even if all of this happened, the interbreeding of wolves that migrate from the northern Rockies would dominate Mexican wolves (larger size, bigger packs) and the hybridization that would inevitably occur would compromise the unique genetics that the USFWS has committed to conserve.

3. Restoration logistics

Substantial detail is provided in the Technical Working Group report on Restoration Logistics. This report is included in the appendix, and is referred to in the Plan. Peer reviewed literature is also referenced directly in the plan.

There are statutory requirements for what is included in the plan relative to restoration logistics. These include:

> (3)
> (a) The commission's plan must comply with section 33-2-105.7 (2), (3), and (4) and must include:
> (I) The selection of donor populations of gray wolves;
> (II) The places, manner, and scheduling of reintroductions of gray wolves by the division, with such reintroductions being restricted to designated lands;
> (III) Details for the restoration and management of gray wolves, including actions necessary or beneficial for establishing and maintaining a self-sustaining population, as authorized by section 33-2- 104. (C.R.S. 33-2-105.8 (3)(I-III))

These topics are addressed in the Plan as presented.

There have been requests to include the entirety of the detail of the Technical Working Group report into the Plan itself. If details on restoration logistics are formalized in the plan, and there becomes a need due to logistical constraints or opportunities to vary from those details, a revision to the plan would be necessitated. Colorado Parks and Wildlife has existing wolf capture and handling guidelines, the Technical Working Group report and other peer reviewed literature to justify and support a variety of techniques and tools to be used to successfully and safely restore wolf populations to Colorado.

Staff recommends against incorporating greater detail than is necessary, as it is extremely beneficial to have the flexibility to be adaptive in reintroduction logistic implementation without having to go through a formal plan revision.

4. Dependence on telemetry collars

Collars are one tool for monitoring, but we will rely on many different tools (cameras, howling surveys, track surveys, sighting reports, etc.) as needs demand. There are no other tools to use for telemetry for wolves. Ear tags get chewed off, and PIT tags do not emit radio signals that could be used for telemetry. We will continue to work with collar manufacturers to advance the reliability and consistency of collar technology and durability as we will rely on collaring efforts to allow biologists to monitor wolves to generate annual minimum counts required for delisting criteria as well as other monitoring purposes.

5. **Reintroduction on Private Lands**

Utilization of private lands for wolf restoration would only be conducted on voluntary private landowners who own property that makes sense in biological and social contexts. CPW has not identified private landowners that we will solicit permission from. If private landowners come to us, the proposal will be evaluated on the appropriateness and suitability for consideration of the use of their property for release areas.

6. **Climate change and wolves**

Climate change has increasingly been an important consideration in recovery planning. Wolves currently inhabit regions where temperature extremes range from −40 to +40 °C, and use habitats as varied from the Arabian Peninsula to the Arctic Circle. Wolves successfully occupy a variety of diverse ecosystems in North America and Eurasia and kill a wide variety of prey (e.g., from small mammals to all species of North American ungulates). While climate change is not likely to affect wolves themselves, it may affect prey resources, but these impacts are unclear. Research and monitoring may inform responses from a variety of wildlife species with changing climatic conditions

Staff recommends not pursuing modeling of impacts of climate change to wolves in the Restoration and Management Plan.

7. **Recovery Goals**

Statute requires us to meet state Endangered and Threatened thresholds.

> The plan must include… "Methodologies for determining when the gray wolf population is sustaining itself successfully and when to remove the gray wolf from the list of endangered or threatened species, as provided for in section 33-2-105 (2)." (C.R.S. 33-2-105.8 (3) (IV))

The development of thresholds for this plan used expert elicitation of the TWG, relying on their management experience of wolves. We also utilized past federal recovery planning efforts as a framework for the discussions. Note that this is ONLY for state delisting in Colorado. Wolves remain federally protected. This plan does not propose federal recovery goals. That is the responsibility of USFWS.

The recovery (downlisting and delisting) goals are neither population objectives nor a population maximum. These are simply the numbers where wolves no longer meet the definition of State Endangered or State Threatened. These numbers should be thought of as the minimum populations that would be required before relisting the species on the state Threatened and Endangered List.

- A **State Endangered** Species is defined as: any species or subspecies of native wildlife whose prospects for survival or recruitment within this state are in jeopardy as determined by the commission. CRS § 33-1-102 (12).

- A **State Threatened** Species is defined as any species or subspecies of wildlife which, as determined by the commission, is not in immediate jeopardy of extinction but is vulnerable because it exists in such small numbers or is so extremely restricted throughout all or a significant portion of its range that it may become endangered. CRS § 33-1-102 (44).

Taking a conservative estimate of a pack size of 8 animals, a population of 200 wolves would have approximately 25 packs on the landscape. Assuming each pack has a conservative territory size of 180mi^2, there would be nearly 2.8 million acres of occupied wolf territory when the minimum population size is 200. CPW and the TWG feel confident in stating that the distribution of wolves throughout Colorado would represent a secure population and that the species should no longer be considered state threatened when that numerical threshold has been met.

One of the ways that recovery goals are tested is through a Population Viability Analysis or PVA.

Oregon has conducted PVA on wolves, and this was described at a previous Commission meeting. They conducted the PVA using peer-reviewed literature based parameters and compared them to measured parameters specific to Oregon. Literature-based parameters are generally lower (more conservative) than the parameters that Oregon measured. This can be explained because the literature is describing established populations, whereas Oregon is a recolonizing population (similar to how CO will be characterized)

Survival rates are generally higher in a recolonizing versus an established population. There are no demographic data specific to CO, so CPW conducting a PVA of our own would only replicate the effort that Oregon did. Oregon conducted the PVA at the time that they were considering delisting of wolves from their state ESA. They had 85 animals in the state at the time of their analysis.

They evaluated a conservation failure as being when there were fewer than 4 breeding pairs. They evaluated biological extinction when simulations resulted in fewer than 5 animals. Using the peer reviewed literature, their model demonstrated that there was a 5% chance (0.01-0.09) of wolves falling below the conservation failure threshold (when population started at 85 animals) over a 50 year timeframe. Their model (using published parameters)

demonstrated a 1% chance (0.00-0.03) of falling below the biological extinction threshold in the next 50 years.

When parameterized with Oregon-specific data, there were zero situations where the population fell below either the conservation failure or biological extinction thresholds. They concluded that model results (when starting with population of 85 animals) suggest it is extremely unlikely (≤ 0.01 probability) wolves in Oregon will be at risk of extinction over the next 50 years.

Staff recommends that a PVA not be conducted at this point in time. Staff believe that there is no added value in CPW undertaking a PVA analysis specific to CO at this point in time, as there are no Colorado-specific data to parameterize the model. We could not improve upon what Oregon has already done at this point in time.

Staff recommends inclusion of language to conduct a PVA (or similar population modeling effort) be conducted at the time that a future PWC considered the delisting of wolves to provide additional evidence that the risk of extinction is inherently low into the Plan. Language to this effect has been incorporated into the red-line version of Chapter 4 which is also shared with the Colorado Parks and Wildlife Commission in the mailing.

An inquiry was made regarding Mexican Wolf recovery goals. Required populations for downlisting from Federally Endangered to Federally Threatened for this unique subspecies is 320 wolves in US for 4 years or 2 populations of 150 in each of US and Mexico. The delisting (removal from the Federal Threatened and Endangered Species list) criteria are an 8-year average population in US at 320, and an 8-year average in Mexico is 200. There are additional components to growth rate and genetic diversity as well. Again, this is a genetically unique subspecies that faces genetic challenges that the Colorado population will not face.

A particular comment was made about using the term "successive" in place of "consecutive" for considering the relisting of wolves (Table 2). **Staff agree** that this change can be made.

A comment was made about incorporating a metric of ecologically effective population in downlisting/delisting goals. This is not required and it has never been incorporated into other state recovery plans. It is not clear what would be measured. **Staff recommends** not including a metric for ecological effectiveness, as there is no scientifically established or justified metric to be included.

8. Euthanasia

Staff recommends that it is important to have the capacity to euthanize to relieve animal suffering. It would be appropriate that the source jurisdiction making decisions regarding euthanasia for anything injured at the source if they are in agreement with having that responsibility. Euthanasia was included to cover any potential injury that would result in severe pain and suffering for an animal with poor prognosis for treatment or survival. This was also written to prevent CPW from releasing an animal with an injury or impairment that was

likely to result in their inability to survive and therefore result in pain, suffering, and eventual death. Finding a facility for an animal if it is thought that an injury can be effectively treated and there is someone who is willing to take the animal and pay for that care may be appropriate; CPW still needs to be able to euthanize an animal that is suffering and has a poor prognosis.

Euthanasia is not a path CPW wants to go down, but if there is an animal with a broken back or pelvis, massive head trauma, severe fractures etc., the most humane thing to do is to euthanize that animal. There have been some sad outcomes when people have tried to take wildlife into captivity and rehabilitate severe injuries (complicated fractures requiring surgery and fixators and repeated handling etc.) where an animal suffered extensively through extremely painful procedures and significant stress from being held in captivity and then ultimately had to be euthanized because the injury was not recoverable. In these situations, the choice to euthanize would be for the welfare of the animal and to relieve animal suffering. The decision would be under veterinary direction so a vet can assess the animal and assess the injury to determine likelihood of successful treatment/recovery. We suspect that it would be a rare event, but we do occasionally see severe injuries in capture situations - particularly spinal injuries - where it is important to be able to euthanize an animal.

In finding a facility to house injured animals, realistic discussions with any facility that might consider taking an injured animal on what they would be willing to take and the likelihood of a good quality of life in captivity would have to be had. Taking adult free-ranging wildlife and putting them into captivity is really challenging. These animals do not habituate easily and as you mentioned, the social aspect of wolves can be a challenge when trying to introduce a new animal into a captive population. It is possible that there would not be a facility licensed and willing/able to take an injured adult free-ranging wolf.

9. Relationship of animals migrating into the state and reintroduced animals

Both animals that naturally migrate into the state, as well as their progeny and wolves that are reintroduced into the state will all count towards minimum counts to meet delisting thresholds. There is no way to easily differentiate the origin of the animals when conducting aerial counts.

The federally led 10(j) process also considers presence of animals, as 10(j) is only pertinent for reintroduction into unoccupied historical range. In the case of wolves, the area is not considered occupied unless it meets the definition of a population. The USFWS definition of a population is 2 breeding pairs successfully producing at least 2 pups to the end of the calendar year for 2 consecutive years (commonly referred to as the 2/2/2 rule). While there was a litter produced by the North Park pack in 2021, there were no litters produced in Colorado in 2022. Therefore, there remains no wolf population in the state by the USFWS definition at this point in time.

10. Permit for lethal removal

A permit is required for lethal removal of a state listed species. This will be promulgated through regulations which will be presented in April 2023, as step 1. CPW staff are currently discussing the criteria and scenarios under which permits will be issued. This will address questions such as:

- Require depredation before permit issued?
- Require non-lethal management practices?
- Does it change through phases?
- What geography is eligible for permits?
- Public versus private land issues?

11. Agency wolf management

An editorial error was incorporated into the Draft Plan describing agency wolf management (p 46).

The original language: "Take (non-lethal and lethal) by state and federal agents is allowed for scientific purposes (incidental or accidental take); to avoid conflict with human activities; to relocate a wolf to enhance survival and recovery prospects; to aid or euthanize sick, injured wolves; to salvage dead specimens; to aid in law enforcement investigations involving wolves; and to manage wolves with abnormal physical or behavioral characteristics"

Will be replaced with:

Any employee or agent of the Service may take a wolf from the wild if such action is (1) for take related to the release, tracking, monitoring, recapture, and management for the experimental population; (2) to aid or euthanize sick, injured, or orphaned wolves; (3) to salvage a dead specimen that may be used for scientific study; (4) to aid in law enforcement investigations involving wolves; or (5) to remove wolves with abnormal physical or behavioral characteristics, as determined by the Service or designated agents, to prevent them from passing on or teaching those traits to other wolves.

12. Why we are not doing NEPA for releases on federal lands?

National Environmental Policy Act (NEPA) analysis is required anytime there is a federal action that may have environmental impacts. This is typically done through an Environmental Analysis (EA), or an Environmental Impact Statement (EIS). NEPA is being conducted on the USFWS 10(j) analysis, because it is a federal action to issue that rule.

If wolves were to be released on federal lands, NEPA would be required. This would come at substantial time and financial expense. It is not a requirement of the Colorado Wolf

Restoration and Management Plan for wolves to be released on federal lands. A release on state or private lands does not require NEPA.

It is fully expected that wolves will use, and perhaps rely on, federal lands. There are existing MOU's between CPW and federal land management entities (primarily BLM and USFS) that outline wildlife management on federal lands. This action does not require NEPA.

13. Compensation for outfitters

The statute (CRS 33-2-105.8) does not require, nor provide funding for the compensation of outfitters (or other entities) due to the presence or impacts of wolves. The SAG did discuss the concept of a compensation program for affected outfitter businesses and/or clients (SAG Report page 72). This concept was not carried into the plan as the implementation and authority is unclear and no financial resources have been identified to support such a program.