

Adoption In-Part of the United States Department of Agriculture's Colorado Predator Damage Management Environmental Assessment

And

Finding of No Significant Impact (FONSI)

Addressing Neonate Mule Deer Survival in the Piceance Basin Mule Deer Population Response to Cougar Population Manipulation in Southern Colorado

Introduction

The U.S. Fish and Wildlife Service (Service) has prepared this document in accordance with the procedures for compliance with the National Environmental Policy Act of 1969 (NEPA), as it applies to the Pittman-Robertson Wildlife Restoration Act (16 U.S.C. Sec. 669 et. Seq.). The Colorado Division of Parks and Wildlife (CPW) has requested approval from the Service's Wildlife and Sport Fish Restoration (WSFR) Program to fund two research projects evaluating mule deer response to predator reduction.

Purpose and Need

The CPW research projects are proposed for funding as Wildlife Research Grants, an eligible activity under the Pittman-Robertson Wildlife Restoration Act (PR). Through the WSFR Program, the Service works with states and other eligible entities to conserve, protect, and enhance fish, wildlife, their habitats, and the hunting, sport fishing and recreational boating opportunities they provide. Thus, the Service must determine whether to fund these grant proposals. Funding these projects constitutes a Federal action subject to the provisions of NEPA, and therefore requires the impacts be analyzed for the issuance of a Federal grant award. To fulfill this requirement, the Service is adopting in-part the United States Department of Agriculture's (USDA) Final Environmental Assessment (EA), which was prepared in compliance with NEPA. The USDA EA contained both CPW research projects, including extensive discussion and explanation in section 1.3.2.6d; and the research proposals are included in their entirety as Appendix A and Appendix B of the EA.

Public Involvement

On October 20, 2016, USDA Wildlife Services Colorado (USDA-WS) issued an invitation soliciting public comments on alternatives and issues to be addressed in the NEPA analysis. USDA-WS posted notices of the invitation for comment in the APHIS Stakeholder Registry, the USDA-WS NEPA web page, and the federal e-rulemaking portal (Regulations.gov). A Legal Notice was published in the *Denver Post* the week of October 24, 2016. The comment period closed on November 25, 2016. USDA-WS received 9 letters, consisting of a total of 55 distinct comments, in response to the request for public comments. It responded to those comments in Chapter 5 of the EA. Because the two proposed CPW research projects were both summarized

and discussed in the EA and provided in their entirety as appendices, the public comment allowed for review and comment on the proposals. Comments were received, and responded to in the EA, that related to the topics of the research proposals (For example, Comment 44: “Killing predators will not help ungulate herds because predation is not the cause of decline” and Comment 47: “Ungulates are limited by nutritional carrying capacity, not predation.”)

Proposed Action

Project 1 - The Piceance Basin in northwest Colorado (GMU 22) represents winter range supporting the largest migratory mule deer (*Odocoileus hemionus*) population in Colorado. This area has been the focus of research and monitoring efforts since the late 1940's and likely represents one of the best documented mule deer populations in North America. Research efforts conducted during the 1980s (Bartmann *et al.* 1992) documented a high density deer population (mean winter density = 63/km²) that appeared to be at or near carrying capacity. During the early 1990s, this population declined to about 1/3 of the previous winter range density (mean winter density = 23/km²; White and Bartmann 1998), likely due to exceeding the forage capacity on winter range.

While current research (Anderson 2015; CPW Project W-185-R) indicates habitat no longer appears to be the limiting factor as December fawn weights have increased and starvation is rare, annual winter fawn recruitment has declined from ~73 fawns/100 does to ~49 fawns/100 does; and average mule deer densities since 2008 are comparable to the relatively low levels observed during 1994 and 1995 (White and Bartmann 1998). Given the low annual winter fawn recruitment and high over-winter fawn survival (Dec-June) in recent years, there's need to discern why fewer fawns are arriving on winter range in the Piceance Basin given habitat is no longer a limiting factor.

To address the reason for declining winter fawn recruitment in the Piceance Basin and identify potential management options, CPW proposes to continue monitoring newborn fawn survival for another 3 years, while simultaneously implementing short-term and focused predator reduction in a treatment area and comparing fawn survival to an unmanipulated control area. Predator reduction will be conducted by USDA-WS using cage traps, culvert traps, foot snares, and trailing hounds for capture, and a firearm will be used for euthanasia.

A total of 5-15 cougars and 10-25 black bears will be removed annually to provide the desired predation rate reduction. The estimated numbers of cougars and black bears targeted for reduction increased slightly from the original estimates of 5-10 cougars and 10-20 black bears, but are still well below the sustainable harvest level for each species.

The information from this study will provide evidence to determine if predation is additive or compensatory to other types of mortality (e.g., disease, starvation). If neonate predation appears additive to other forms of mortality, focused predator reduction during mule deer parturition may be useful to enhance neonate survival and recruitment in mule deer populations experiencing decline, when not limited by environmental conditions. If, on the other hand, neonate predation appears compensatory, predator management should be disregarded as a management option to enhance neonate survival and recruitment.

Project 2 - Will occur in Data Analysis Units D-16 and D-34. D-16 is comprised of Game Management Units (GMUs) 49, 57, 58 and 581, which are located on the north side of the Arkansas River between the towns of Leadville and Canon City. D-34 consists of the Wet Mountains/Sangre De Cristo Range in GMUs 69, 691, 84, 86, and 861 on the south side of the Arkansas River.

Predation on mule deer is often identified as one of the potential reasons that populations are below long-term objectives (Colorado West Slope Mule Deer Strategy 2014 and Ballard *et al.* 2001). Currently, the mule deer population in D-16 (11,247) is below the long-term population objective of 16,000-20,000 deer (Colorado annual deer monitoring data). Beginning in 1999, D-16 was added as one of 5 intensive deer monitoring DAUs in the state. Under the intensive monitoring protocol, CPW typically monitored 80-90 adult does to determine annual survival rates and 60 fawns annually to determine over winter fawn survival rates. Since 1999, CPW has radio-collared 1,086 adult does and 898 fawns in D-16 to examine annual adult survival and winter fawn mortality (CPW annual deer monitoring data).

Based on survival data from 1999-2014, deer population growth in D-16 might partially be limited by cougar predation on fawns and adult does. From 1999-2014, averaging across all years, at least 6.4% of collared does and 7.5% of collared fawns died from cougar predation (CPW annual deer monitoring data). CPW also suspects that of the unknown collared deer mortalities, at least one-third were related to cougar predation.

By comparison, once fawns arrive on winter range, overwinter fawn survival is high. In recent years (since 2013), overwinter fawn survival has been near 80% (CPW annual deer monitoring data). However, because early winter fawn:doe ratios in D-16 have been relatively low (averaging 54.7 fawns per 100 does), it suggests fewer fawns are surviving to reach winter range (CPW annual deer monitoring data). With high overwinter fawn survival and assuming fetal rates (in utero) for adult (≥ 2 years old) mule deer of 1.8 (Bishop *et al.* 2008), CPW would expect to see more fawns per does arriving on winter range. Therefore, because overwinter fawn survival is high, and early winter fawn:doe ratios are relatively low, there's need to discern if cougar predation is the reason fewer fawns are arriving on winter range.

The success of a project to control predators to increase a population of mule deer is dependent upon the deer population in relation to the habitat carrying capacity (Ballard *et al.* 2001). If the population is at, or has surpassed the habitat carrying capacity, it is likely that increases in survival rates caused by predator control will be compensated by other factors of mortality, such as malnutrition (Bartman *et al.* 1992). Conversely, if the population is below the habitat carrying capacity, reduction in mortality caused by predation could provide an additive response to increase the survival rates of a mule deer population (Bleich and Taylor 1998; Hurley *et al.* 2004).

A research project is planned beginning in the winter of 2017 to examine the mule deer population response to cougar suppression. The study will be conducted in D-16 and the adjacent DAU, D-34. A crossover design will be used to examine the effects of cougar suppression in three stages. In stage one (years 1-3), cougar populations in D-16 will be suppressed (50% of population potential), while cougar populations in D-34 will be allowed to

increase towards habitat potential with light harvest (10% harvest). Stage 2 (years 4-6) represents a recovery stage where both populations will be allowed to increase towards habitat potential (10% harvest). The final stage (years 7-9) represents the crossover design where D-34 cougar populations will be suppressed (50% of population potential), while D-16 will continue to be allowed to increase towards habitat potential with light harvest (10% harvest).

Cougar harvest efforts will be conducted primarily by hunters using hounds. In addition to normal hunting harvest, CPW will use contract hunters/houndsman, or USDA-WS to reach suppression quotas (target level of cougar removal). Consequently, up to an additional 25 cougars will be targeted for removal in D-16 using contract hunters or USDA-WS in year 1, which should approach desired suppression levels of 50% of the estimated population (population estimate 123 cougars). For the following 2 years, project goals will be to maintain the suppression level for approximately 60 cougars (50% of population), which will likely require the harvest with hunters or contract hunters of between approximately 10 to 20 cougars. After year 3, D-16 cougar levels will be allowed to recover to unsuppressed population levels.

In year 7, up to approximately 70 cougars will be removed from D-34 (population estimate 147 cougars) using hunters and contract hunters, and possibly using USDA-WS to reach the 50% suppression level. In years 8 and 9, cougar populations in D-34 will be maintained at suppressed levels (50%) using hunters and contract hunters, and USDA-WS if necessary, by removing approximately 15 to 30 cougars.

Alternatives Considered

The USDA-WS EA considered and analyzed four separate alternatives. Sixteen additional alternatives were considered, but not analyzed in detail in the EA. The four alternatives considered in detailed are summarized below.

Alternative 1. Continue the Current Federal Predator Damage Management Program (the “Preferred Alternative” and the “No Action Alternative”)

This alternative consists of the current USDA-WS program, described as an integrated Predator Damage Management program using the full range of legally available methods in accordance with applicable federal, state and local laws, including information and training on the use of nonlethal methods, assistance to resource owners and managers, and direct control assistance upon request. For purposes of USDA-WS’s consideration of its proposed action under its Purpose and Need, it is also the “No Action Alternative,” as defined by CEQ (WS 2005c). The “No Action” alternative is a procedural NEPA requirement (40 CFR 1502.14(d)), and is a viable and reasonable alternative that could be selected. It serves as a baseline for comparison with the other alternatives and, as a result, receives an in-depth analysis.

Predator Damage Management to protect wildlife species of management concern or threatened or endangered legal status involves several species of predators in Colorado, but especially

coyote, black bear and red fox. Predator damage management activities are for the protection of livestock and some wildlife (e.g., mule deer, Gunnison's sage-grouse, black-footed ferret, piping plover and least tern) in Colorado. Requests to protect wildlife species of management concern are less frequent and may not occur every year. USDA-WS also records incidents of predator damage to protect property, natural resources, and human health and safety.

USDA-WS supports research conducted by federal and state wildlife agencies and universities to identify solutions to wildlife damage to valued resources. Valued resources could be livestock, pets, people or wildlife species of management concern, such as threatened or endangered species. Sometimes species of management concern are species that are now common (e.g., mule deer, greater sage-grouse), but population trend data show declines that could be indicators of future concerns. Research under Alternative 1 may focus on causes of population decline and will attempt to determine if a species is declining due to predation, habitat, nutrition, weather, human disturbance, fire, or other effects. Research may be funded by USDA-WS, CPW, a university or other entity. For purposes of the Service's adoption in-part of the USDA-WS EA, the CPW research projects proposed for funding through the WSFR program are considered within Alternative 1.

Alternative 2. No Federal Predator Damage Management program

This alternative would terminate the federal USDA-WS PDM program. Information on future developments in nonlethal and lethal management techniques developed by WS's research branch would not be as readily available to producers or resource owners. PDM assistance, including use of most methods used by USDA-WS under Alternative 1 would unlikely be provided by the Colorado Department of Agriculture, CPW, or county agencies. These government agencies would likely provide technical assistance for most predation conflicts. For purposes of the Service's adoption in-part of the EA, the CPW research projects could not be conducted as proposed under Alternative 2, and therefore would not be funded.

Alternative 3. Technical assistance only

This alternative would allow USDA-WS to provide technical assistance with PDM techniques, such as guard dogs, frightening devices, harassment, fencing, exclusion, animal husbandry, modification of human behavior, habitat modification, cage traps, foot-hold traps, neck snares, and chemical methods available for the public. USDA-WS would also loan equipment used for nonlethal control. USDA-WS would only assist in lethal PDM activities in emergency situations when it was necessary for public safety. For purposes of the Service's adoption in-part of the EA, the CPW research projects could not be conducted as proposed under Alternative 3, and therefore would not be funded.

Alternative 4. Lethal Predator Damage Management for corrective control only

Lethal control by USDA-WS would be limited to an area near the loss to maintain the integrity of the corrective-only situation. The full variety of mechanical and chemical control methods described for Alternative 1 would be available once damage has been verified by USDA-WS. Producers, land managers, and other government agencies could still implement any nonlethal or lethal methods they determine to be practical and effective, for corrective or preventive control. For purposes of the Service's adoption in-part of the EA, the CPW research projects could not be conducted as proposed under Alternative 4, and therefore would not be funded.

Environmental Impacts Analysis

The EA indicates that under all alternatives, but most specifically under Alternative 1 which would include the proposed CPW research projects under consideration by the WSFR program for funding, lethal take (intentional and unintentional) by USDA-WS would not be of sufficient magnitude, duration or scope to trigger substantial adverse impacts on trophic cascades, biodiversity or ecosystem stability. USDA-WS does not strive to eliminate or remove predators from any area on a long-term basis, no predators or prey would be extirpated, and none would be introduced into an ecosystem. As discussed in detail in Section 4.1.1 of the EA, impacts are generally temporary and in relatively small or isolated geographic areas compared to overall population distributions. USDA-WS actions are not of sufficient magnitude or scope to result in ecosystem-level shifts in trophic cascades.

Because the Service is only adopting a portion of the USDA EA pertaining to the CPW research projects, considerably less impact is expected compared to the much broader statewide Predator Damage Management activities which resulted in a FONSI on January 17, 2017. Furthermore, the CPW research projects are not statewide; rather they are localized studies which will only result in the temporary removal of small numbers of predators from the study sites.

For Project 1, the increased take of 25 black bears annually will only result in an estimated cumulative take of 6.3%, which is well below the Long-Term Sustainable Harvest Rate of 20% listed in the EA. The slight increase in the number of cougars taken is also well below the Long-Term Sustainable Harvest Rate of 11% identified in the EA. Even if 15 cougars per year are removed during the Piceance Basin study, which is highly unlikely, the estimated harvest rate will only increase to 9.2%.

For Project 2, cougar suppression over a 9 year period will be well below the 11% Long-Term Sustainable Harvest listed in the EA. Although suppression levels within each DAU will fluctuate annually to achieve study objectives, peak harvest is not expected to exceed 9.4% cumulatively, and most years will be below the current cumulative average of 8.6%. Although the study includes one 3-year period of 50% cougar suppression in each of the 2 DAUs, Project Leaders estimate fewer cougars will be removed during the entire 9-year course of these studies than would have occurred under normal hunter harvest because the studies are spread out over several years, and on average remove less cougars overall compared to harvest quotas for the same time period (2017-2026).

USDA-WS Conclusion

After reviewing the EA and carefully evaluating all alternatives, USDA-WS determined that Alternative 1 offers the greatest chance at maximizing effectiveness and benefits to affected resource owners and managers within current program funding constraints. Under Alternative 1, access to the full range of legally available PDM methods, in combination with use of the USDA-WS Decision Model, enables development of effective site-specific PDM strategies that accommodate resource owner/manager objectives and minimize the risk of adverse impacts on the human environment. Increasing capacity to participate in PDM for the protection of natural resources under Alternative 1 best enables USDA-WS to effectively respond to the full range of needs for action in the State. Coordination with the USDA-WS National Wildlife Research Center and CPW Research Section under Alternative 1 can improve understanding of the efficacy and issues associated with PDM projects for the protection of natural resources. Finally, USDA-WS concluded that Alternative 1 does not constitute a major federal action significantly affecting, individually or cumulatively, the quality of the human environment, and consequently, determined that an Environmental Impact Statement will not be prepared.

U.S. Fish and Wildlife Service Conclusion

The Service has concluded that a reasonable range of alternatives were considered, adequate public review was accomplished, and that the proposed projects were sufficiently analyzed in the USDA WS Predator Damage Management EA to comply with NEPA requirements for the two proposed WSFR funded research projects. The Service also concurs that the proposed projects will have no impact on floodplains or wetlands and will not affect historical and cultural resources. To eliminate duplication of procedures as supported by the Council on Environmental Quality's regulations for implementing NEPA (43 CFR 55992, Section 1501.2), the Service will adopt in-part the USDA-WS Final EA, as it relates to the potential environmental impacts of the proposed Service action of funding the two CPW research projects.

Through the intra-agency consultation process, the Service has also reviewed the USDA Biological Assessment, dated July 29, 2016, submitted to the Service's Grand Junction field office, and the Service determined the 2010 Biological Opinion and finding is still valid. By letter dated November 18, 2016, the Service found that effects are consistent with the BA and analysis; therefore no additional consultation is necessary. Additionally the Service fulfilled intra-service requirements for Section 7 of the Endangered Species Act for both CPW research projects.

The Final EA which we are adopting in-part is on file in the Wildlife and Sport Fish Restoration Program Office, U.S. Fish and Wildlife Service, 134 Union Boulevard, Lakewood, Colorado 80228, and is available upon request. The final EA is also available online at: <https://www.fws.gov/mountain-prairie/wsfr/nepa.php>

United States Department of Agriculture Animal and Plant Health Inspection Services - Wildlife Services (WS); Wildlife Damage Management (WDM) Program Colorado, Environmental Assessment and Finding of No Significant Impact, 2017.

United States Department of Agriculture, Animal and Plant Health Inspection Services - Wildlife Services (WS); Wildlife Damage Management (WDM) Program Biological Assessment, 2016.

White, G. C., and R. M. Bartmann. 1998. Effect of density reduction on overwinter survival of free-ranging mule deer fawns. *Journal of Wildlife Management* 62:214-225.