Montana Fish, Wildlife & Parks

# DECISION NOTICE
## Depopulation and Restocking of the Tendoy Mountains Bighorn Sheep Herd
**June 2015**

**Proposed Action Description**

**1. Type of proposed state action:**

The proposed action is to depopulate the chronically low-performing Tendoy Mountains bighorn sheep herd in which disease has become endemic and restock the area with healthy bighorns.

Public hunting would be the principle tool used to depopulate the herd. A hunt format similar to the unlimited bighorn areas is proposed, except no harvest quota would control the length of hunt and licenses would be valid for either-sex bighorn. Proposed season dates would follow the general season format, with an archery only season from the first Saturday in September through September 14 and a general season opening September 15 and running through the Sunday following Thanksgiving. Mandatory reporting of all harvest through established FWP reporting numbers will be necessary to track harvest. Successful hunters harvesting a ram ¾ curl or greater would be subject to a 7-year wait before applying for a bighorn license. By Commission rule all rams of ½- curl or greater would have to be "plugged" with an identifying aluminum plug that goes in one of the horns to show that the animal was legally harvested. Any sheep remaining after aggressive public hunting removal would be removed by FWP by whatever means necessary, to include aerial gunning, and the meat donated to a local food bank.

Following confirmation that the bighorns are gone from the project area, the area would be restocked with approximately 50 healthy bighorns from one or more of Montana's source populations into one or more release sites previously accessed by FWP. The specific source of bighorns is unknown at this time and will depend upon which herd(s) in Montana are in need of a management reduction at that time. All ~50 sheep could be introduced at one time or we could put in 25-30 sheep per year over the course of 2-3 years. It is possible that bighorns from out of state could be used to restock the Tendoys, although we anticipate using Montana sheep exclusively. At this time we anticipate a winter reintroduction, although the pros and cons of moving sheep in other seasons have been discussed internally by FWP staff.

**2. Agency authority for the proposed action:**

Montana Fish, Wildlife and Parks is granted authority to manage wildlife in the state under MCA 87-1-201. Additional authority for introduction and transplantation of wildlife is under 87-5-711(1) and 87-5-713. ARM 36.25.127 addresses domestic sheep grazing on Montana DNRC lands within or adjacent to occupied bighorn habitat.

## Comment Period and Summary of Public Comment

The comment period started April 17, 2015 and ran for 36 days ending on May 22, 2015. Thirteen individuals and four organizations submitted written comments. Twelve individuals attended the public meeting on May 7, 2015 in Dillon and submitted a total of twelve comments to the proposal. Fifty-two comments total, with some comments addressing multiple points, were made in response to the draft EA.

In summary, three individuals did not support the proposed action. Two of these comments cited ongoing livestock grazing and one cited the need for additional genetic research. One organization took no position on the proposed action. One individual delivered technical input only. Several comments suggested the proposed population objective of 150 was too low, for both genetic and connectivity reasons. The balance of the comments directly or implicitly supported the proposed action and provided limited comments or comments directed at either bighorn sheep management, disease management or the conduct of the depopulation.

Organizations commenting included the Montana Wool Growers Association (MWGA), Skyline Sportsmen, Wild Sheep Foundation, and the Montana Wild Sheep Foundation. The MWGA did not take a position on the proposed action but provided multiple comments. The other three organizations endorsed the proposed action and both the Montana and National divisions of the Wildlife Sheep Foundation provided additional comments.

## Comments and Responses

**Comment 1:** Skyline Sportsmen's Association supports FWP's Tendoy depopulation proposal. The opportunity to try something different to help Montana's struggling bighorn sheep populations only seems appropriate. Continuing to do the same old unsuccessful programs is a waste of time, effort and money. Skyline will continue to monitor the success and usefulness of this opportunity.

> ***Response:*** Comment noted.

**Comment 2:** We support alternative A and would suggest following the standard licensing process that MTFWP uses to issue any over the counter permits and suggest a two week period in June or July to sell the permits. In the period leading up to reintroduction we suggest any habitat work that might help range condition, water access and predator reductions that could assist the restocking of the Tendoy Bighorn range.

> ***Response:*** FWP will continue to work with the BLM and USFS forest to improve habitat for bighorn sheep and other wildlife. We anticipate these projects will take many years to design and implement. No water developments are contemplated at this time, but FWP will assist the BLM in any maintenance required to keep the existing systems operational. Predator control was not contemplated in the draft EA beyond a general increase in the mountain lion quota that applies to a broad general area, including the Tendoys and three adjacent deer and elk hunting districts.

**Comment 3**: I am submitting my comment against eradicating the sheep population in the Tendoys. I do not know if there is a wolf population in the area at this time or what effect they would have. The pneumonia die-off in my view was not related to other sheep, it was related to interaction with domestic livestock. The sheep need their own territory and domestic grazing on the BLM lands need to stop in areas where the sheep hang out. They would utilize the Big Sheep creek for water - the creek needs protection also. Please continue to support a population of Bighorns in the Tendoys. There are a lot places to cut the budget, especially areas that have no bearing on improvement of wildlife and habitat. Do that long before cutting such a worthwhile project in the Tendoys.

***Response:*** Livestock grazing in the Tendoys is outside of the authority of Montana FWP. Grazing permits are issued and administered by the BLM, US Forest Service and Montana DNRC. Montana FWP routinely comments on allotment management plans and specific management actions related to livestock grazing. Montana FWP supports systematic livestock grazing as a beneficial, multiple use of the public land and as a means to maintain open space and fish and wildlife habitat on private land. Cattle and bighorn sheep are compatible range competitors within livestock grazing systems. This does not mean that exposure to pathogens is not possible. Exposure to common livestock viruses was detected in necropsies following the 1993 die-off, but these agents were determined to not be the causal factor in the event.

Big Sheep Creek is a general concern identified in the draft EA in Section 3.5. The Big Sheep Creek road parallels the creek for several miles and creates refuge dust which can create respiratory issues and creates the potential for vehicle collisions with bighorns. FWP can request assistance from Beaverhead County to monitor vehicle traffic if specific issued are identified.

The proposed action is to both depopulate and restock to assure a continued presence of bighorn sheep in the Tendoys. There are no budget implications identified in the draft EA.

**Comment 4:** I have read the Draft Environmental Assessment. I believe that it was well written, documented, and gives one a lot of information to form an honest opinion concerning the future of Bighorn Sheep in the Tendoy Mountains. I remember the release of the sheep in 1985 and was very happy about it, over the years I have enjoyed seeing them from time to time. My son was able to harvest a fine ram from the herd a couple of years ago. It is hard to accept the fact that the herd is not healthy and probably from the information in the study will never be. It makes the most sense to depopulate the chronic diseased herd and start over. I would hope that it can happen sooner than later as I would like to see a healthy herd in the Tendoy Mountains before my time is up. The Fish and Game has my full support in this endeavor and I think it would be money well spent to start over and try to establish a healthy and self-sustaining herd in the Tendoy Mountains and surrounding area.

***Response:*** Comment noted.

**Comment 5:** I attended the public meeting in Dillon on May 7th, that addressed the Draft EA for the Depopulation and Restocking of Bighorn Sheep in the Tendoy Mountains.

I fully support the EA as written, and believe this a very worthwhile project. The Tendoy herd has struggled to recover from the effects of a disease outbreak for over 20 years. Augmenting this herd has not been successful! It is time to try a different approach.

Please move forward with The Tendoy Depopulation & Restocking plan. Montana needs to find New Tools to help solve low Bighorn lamb recruitment in many of It's herds. This will be a good test area to see if the Restocking of healthy sheep can work in the future for other struggling populations!

***Response:*** Comment noted.

**Comment 6:** I support the Tendoy Sheep Management Plan.

***Response:*** Comment noted.

**Comment 7:** I noticed in your Draft Environmental Assessment you give reference to a Mr. Koch who said that by 1941 the Tendoy herd was extinct . I would like to tell you I personally observed Big Horn Sheep in the Tendoy Mountains numerous times in the fifties.

***Response:*** We appreciate the information regarding bighorns in the Tendoy Mountains in the 1950s. No records regarding bighorn observations were found in the FWP files so we relied on other sources to estimate when and how bighorns were extirpated from the Tendoys.

**Comment 8:** I'm not sure that the situation with existing domestic sheep herds will prevent pneumonia/bacterial transmission, regardless of how slight the risk. It only takes one wandering sheep, of either species, to make contact.

I also wonder if removing the resident bighorns and re-stocking with new ones form other herds addresses the issue of lungworm, since infected feces will remain. Lungworm may not be the mortality factor that pneumonia is, but it can still be a debilitating zootic under certain conditions.

I also wonder if it is necessary to de-populate or re-stock given the statement that if a herd did not currently exist, the Tendoy Range would not be considered suitable for stocking. Are there better uses for bighorns in herds over carrying capacity (i.e. increased hunting opportunities in the donor herds)?

***Response:*** FWP acknowledged the Tendoy Mountains may not be ideal bighorn habitat given the several potential points of exposure to domestic sheep and goats in the surrounding area. However, the risk of contact with domestic sheep or goats has also diminished with the conversion of the last public land allotment from sheep to cattle in 2013. The EA identifies several proactive measures designed to minimize risk including: a Bighorn Sheep/Domestic Sheep Comingling Management Zone in the Lima Peaks, a reduced population objective of 150, half-curl ram licenses to reduce density of rams and a liberal number of real-time GPS collars on new bighorns to asses both habitat use and risk. FWP also sought both comment and buy-in from the landowners in the affected area.

The Tendoy bighorn population is one of twelve populations in the state that is impaired by epizootic pneumonia. There is currently very little demand for bighorns in existing herds due to ongoing herd health issues or adverse risk assessments and/or landowner opposition to new transplants in unoccupied habitat. The proposal is an experiment that may lead to a restored bighorn population in the Tendoy Mountains and also has potential to be a template for restoring other impaired herds in the state by applying the same techniques.

The 1993 and 1999 bighorn die-offs in the Tendoys were attributed to lungworm pneumonia. Lungworm was presumed to be a stressor that ultimately contributed to the pneumonia epizootic. However, the role of lungworm has since been reevaluated. Epizootic pneumonic bighorn die-offs in Montana have occurred without lungworm as well as low to high prevalence of lungworms (Aune et al. 1998). FWP supports anthelmentic (antiparasitic) treatments when bighorns are captured, and applies a specific dewormer in cases where lungworm load is known to be high. However, such treatments are impossible at a population level in wildlife and lungworm is impossible to remove from the environment altogether. Maintaining a reasonable density of sheep should also mitigate lungworm to some extent.

Comment received at the May 7, 2015 Public Meeting is summarized in Comments 9-13.

**Comment 9:** One individual objected to the proposed, reduced population objective of 150. A suggestion was made to raise the objective to at least the modeled carrying capacity of 250 bighorns.

***Response:*** Population density is the one factor that FWP can reasonably control. The proposed action is designed to address the long-term health of the reintroduced population of bighorns and, as such, must address potential risks going forward. The Draft EA addresses population density and associated risks in section 1.1.6.

**Comment 10:** One individual recommended a limited hunting opportunity due to over-interest (crowding) and safety. Another commenter suggested there would not be crowding due to the lack of big rams. This individual also suggested setting up a call list and directing hunters. A third individual suggested offering licenses to previous Hunting District 315 applicants. A fourth commenter suggested age/sex specific licenses due to rams being quickly harvested and interest in ewe harvest diminishing as a result.

***Response:*** The proposal has generated numerous inquiries regarding the opportunity to participate in the depopulation of the existing Tendoy herd. FWP is anticipating a fairly low level of success given there are 30-40 bighorns remaining in a large landscape. To accomplish the depopulation, harvest pressure throughout the landscape over a long period will be necessary. FWP is constrained on issuing licenses by law and regulations. Limited entry would necessitate a 7-year wait regardless of success and would be counterproductive given the anticipated low level of success. Call lists and directing hunters assumes FWP has precise knowledge of bighorn distribution, which we do not. FWP is concerned with hunter safety and to this end will recommend offering licenses for sale for a two-week time period with associated press releases designed to balance interest and expectations.

**Comment 11:** Will private or closed lands be an issue? Pressure might put bighorns on private land.

***Response:*** FWP does not anticipate bighorns seeking refuge on private land. The primary sheep habitat in the Tendoys is administered by the BLM and US Forest Service.

**Comment 12:** Letting the herd die-off naturally might be more acceptable to the public than harvesting. I do support harvesting.

***Response:*** Letting the herd die-off naturally was considered in Section 2.2 under the No Action alternative and under Section 2.3.4. Both of these alternatives would require further environmental review and could result in no bighorns occupying the Tendoy Mountains due to the risk of disease transmission present on the landscape or social intolerance. The proposed action is a proactive attempt to remove a struggling population of bighorns and replace it with a healthy population.

**Comment 13:** We are happy as sportsmen that you are including us in this process. We do not like FWP employees killing sheep.

***Response:*** FWP is aware of, and sensitive to, the negative public perception regarding employees killing bighorns or other wildlife. FWP will lethally remove any bighorns that remain on the landscape following an aggressive hunting strategy.

**Comment 14:** Removal of a herd seems to me just a rationale for more killing. I believe all state and even federal entities have allowed too much grazing on federal and state lands, and perhaps the result of that is seen nowhere more conclusive than in bighorn sheep. I would like to see more intense genetic study on this herd and other herds first before we just go and exterminate any herd. We do not need to solve every issue at the barrel of a gun.

***Response:*** FWP believes the Tendoy herd would die-off within a decade due to endemic disease. The proposed action provides an avenue for the public to derive some benefit from the existing bighorns through hunting plus provide an avenue to establish another population that will hopefully be healthy and self sustaining. Please see the response to Comment 3 with regards to the grazing issue. FWP is engaged in long term research through Montana State University to try and understand how bighorns respond to various pathogens, habitat and herd behaviors.

**Comment 15:** I ask you to please support public hunting as a means of removing the chronically troubled herd of Bighorns residing in the Tendoy Mountains. These are sheep that the public has been very involved with supporting over the years and should be able to enjoy the pursuit of them if they're going to be removed.

***Response:*** Comment noted.

**Comment 16:** In section 3.0, where the EA is supposed to consider the effect on all resources potentially affected by this project, it is disconcerting that in the analysis in section 3.4 Wildlife

Species, the discussion for the mountain lion and coyote only focuses on their effect on the sheep and their availability for hunting. The discussion should focus on the impact on them, and their viability. Likewise in section 3.6 Aesthetics and Recreation Opportunities, the discussion focuses only on sheep. Mountain lions and coyotes are not considered even though they would be affected by the proposed Action. These omissions should be addressed.

***Response:*** The draft EA considers the depopulation and restocking of bighorn sheep in the Tendoys, and alternatives. Predation was identified through public comment early on as a potential alternative hypothesis for the bighorn population decline. The EA analyzed predation in the context of the proposed action and no action alternative in Section 3.4. The EA discusses the likely impacts various carnivores and predators have on bighorn sheep, but does not recommend specific management actions or impacts to their viability. Mountain lion quotas are being increased across four deer and elk hunting districts in response to very low harvest the last several years. The quota increase would provide opportunity to harvest a mountain lion that may or may not be realized by sportsmen, but has no specific tie to the bighorn proposed action. Bighorns are the only species discussed in Section 3.6 because their restoration is the topic of the EA. Other wildlife species on the landscape are discussed in Section 3.4.

**Comment 17:** There are sections of this document that appear to be in conflict. In section 2.3.4, it states that a MEPA analysis might possibly find the area not suitable for bighorns. Despite this, the Proposed Action is to reestablish a herd of bighorns. This appears to be a circumvention of the spirit of the law, or possibly a manipulation of the wording. There appears to be another conflict on the topic of connectivity. In section 1.1.6 it states that connectivity between populations maintains or increases genetic variation, which is desirable. Yet in section 2.1 it appears FWP is considering reducing connectivity. This combined with a population target of 150, which is so close to the minimum viable population of 125, sounds like a recipe for failure long term due to loss of genetic diversity.

***Response:*** The draft EA proposed both the depopulation and restocking of bighorns in the Tendoys. Several potential areas of potential disease transmission were identified in the analysis area along with recommendations to reduce the risk of disease transmission. If the herd were to die out naturally (no action alternative) a new analysis would need to be required and environmental or social factors could determine the Tendoys are unsuitable for bighorns. Such determinations were made in recent years in the Bridger and Bull mountains in southwest Montana.

Connectivity is desirable in bighorn populations. However, effective separation from known disease transmission risks is equally important and was an overarching concern in the analysis. Effective separation is generally defined as 14 miles of separation, which is not realized in the Tendoy landscape. FWP recommended a reduction in the population objective from 200 to 150 because high density populations have a greater risk of a pneumonia epizootic and the known risk factors on the landscape. We do not believe there is a great risk of failure due to a lack of genetic diversity and continue to support 125 as a minimum viable population.

**Comment 18:** The membership of the MWGA takes no position on the Department's preferred

alternative, Alternative A.

***Response:*** Comment noted.

**Comment 19:** MWGA encourages the Department to investigate making some of the existing bighorn herd available for scientific research purposes as part of the depopulation process. The herd is notable in that it has individual sheep that appear to be disease resistant.

***Response:*** In November 2014 the Fish and Wildlife Commission endorsed giving bighorns that had to be moved for population control to any of a number of accredited research facilities if there was a demand. FWP reached out to institutions in Wyoming, Colorado, South Dakota and Washington, but there was no such interest at that time. Montana has contributed 59 bighorn sheep in 7 different years between 1939 and 2004 to research facilities in Montana, Colorado and Washington. Moreover, the bighorn sheep in the Tendoy herd are not unique in having a few sheep that have survived a die-off. Any one of a number of herds that have gone through similar events could provide subject animals when and if there is a need.

The EA addresses the disease processes in Section 1.1.4. The best available science suggests that post die-off populations perform poorly because the survivors carry the disease. These sheep may be asymptomatic or resistant, but lambs are not, and they die shortly after weaning. The Tendoys are one of 12 herds in Montana that have impaired recruitment.

**Comment 20:** Much of the draft EA is premised on the Department's position that bighorn sheep die-offs have been caused by contact with domestic sheep. However, such an assertion is not supported in the draft EA by any documentation of domestic sheep transmission. FWP must recognize going forward that bighorn herd die-offs have occurred in Montana in herds that have had no contact with domestic sheep. Basing management decisions on speculation does not comport with FWP's legal obligation to manage Montana's wildlife using sound science and grounded facts.

***Response:*** There is a large and growing body of peer-reviewed scientific literature substantiating the connection between domestic sheep and disease in bighorns. The facts are established such that the authors did not see the need to summarize the literature. However, a few sources that could serve as a primer may include: Besser et al. 2012, Besser et al. 2014, Foreyt et al. 1994, George et al. 2008, Lawrence et al. 2010, Western Association of Fish and Wildlife Agencies, Wild Sheep Working Group. 2012, Wehausen et al. 2011, and The Wildlife Society and American Association of Wildlife Veterinarians 2015.

Montana Fish, Wildlife and Parks recognize the significant contribution to wildlife habitat by the agricultural and livestock community. We also want to be clear that as the trustees and stewards of Montana's wildlife we cannot ignore the known risks posed by the comingling of wild and domestic sheep. FWP is always looking for more and better ways through cooperation with domestic sheep producers, through mitigation measures, and through research to fit wild bighorn sheep into the 21st century Montana landscape.

The draft EA states in Section 1.1.5 that the trigger for the 1993 die-off is unknown. Bighorn

sheep rapidly expanded beyond the Hidden Pasture landscape following the 1985 release. Their wide distribution may have created points of contact with domestic sheep but there is no retrospective way to confirm such contact one way or the other. FWP acknowledges that die-offs have occurred without confirmed contact with domestic sheep or goats. However, the best available science, as summarized in the EA, recommends effective physical separation of bighorns and domestics and active management to remove bighorns that have made contact with domestic sheep and goats. Based on this science, FWP policy is to lethally remove any bighorn that comes into contact with domestic sheep or goats. Further the EA recommends a 'Bighorn Sheep/Domestic Sheep Commingling Management Zone' for the Lima Peaks to discourage potential contact with domestic sheep on an allotment in adjacent Idaho.

**Comment 21:** In paragraph 1.1.5 the draft EA asserts that domestic sheep are recognized as 'the greatest threats to bighorn sheep due to potential disease transmission." The EA actually recognizes that the cause of the 1993 die-off is unknown and that unregulated hunting was the likely cause of the 1930's die-off.

***Response:*** See response to comment 20. Unregulated hunting and scabies were listed as likely factors in the demise of bighorns in the 1980 Hidden Pasture Bighorn Management Plan based on a personal communication by BLM personnel with a Vern McMannus. There is no documentation of the exact cause beyond this communication. The draft EA states in section 1.1.2 that uncontrolled hunting, habitat lost to mining and other activities, and habitat degradation caused by overgrazing were all factors in the precipitous decline of bighorns in the west in the late 1800s and early 1900s. The EA also states that diseases introduced by domestic sheep and goats played a significant role in the decline of bighorns. Public comment to the draft EA indicated bighorns persisted in small numbers in the Tendoys through the 1950s. See Comment 7.

**Comment 22:** Science has shown that herd population density clearly plays a role in whether a herd has a pneumonia episode. Making bold pronouncements about the dangers of domestic sheep to bighorns without supporting evidence is both bad science and bad public policy.

***Response:*** FWP acknowledges that population density is an important management consideration in Section 1.1.6 of the draft EA and recommends a population of no more than 150 bighorns for the analysis area. FWP also must acknowledge the science surrounding disease transmission and physical separation of known risks. Please see the response to Comment 20.

**Comment 23:** The draft EA notes that there are domestic sheep operations operating in areas proximate to the project area. However, as correctly noted in the draft EA, the number of sheep located in the project area has decreased significantly in the last 5 to 15 years-and those herds run on deeded lands. Therefore, any contact going forward between the Tendoy sheep herd and domestic sheep and any adverse consequences associated with the same is the responsibility of the Department, not livestock producers.

***Response:*** FWP is seeking cooperation from domestic sheep and goat producers to maintain bighorns on the landscape. FWP policy is to lethally remove any bighorns as quickly as

possible following a contact event, and immediate notification of such contact is crucial to an effective response. FWP met with known producers of domestic sheep and goats to facilitate communication regarding points of contact between the species and threats to herd health. Bighorns are removed in these situations as a health threat to the remaining population and there are no implications to the livestock producer.

**Comment 24:** There are presently no public land domestic sheep allotments within the Montana portion of the project area. This is due in part to the large growth of carnivores and the associated predator losses that make it financially infeasible for sheep producers in the area to continue to operate.

***Response:*** Comment noted.

**Comment 25:** The lack of domestic sheep running on public lands in areas habituated by the Tendoy herd should provide the basis going forward for the Department to determine if domestic sheep interactions are truly the reason why prior Tendoy reintroductions have not been successful. MWGA suspects the Department will find that environmental and range factors are more determinative of the success of bighorn sheep herds than the presence of domestic sheep herds.

***Response:*** FWP will proactively maintain effective separation of bighorns and domestic sheep, in cooperation with domestic producers. The draft EA recognizes in Section 3.3 that fire suppression has had a huge impact on forested environments in the Tendoys by increasing stand density and expanding conifer into sagebrush grassland habitat. FWP will work with the land management agencies to address conifer encroachment over the coming years as an important component of bighorn habitat management.

**Comment 26:** The lack of public lands grazing for sheep in the area also should direct FWP towards further analysis on the effect predation has had and will have on the Tendoy bighorns. The draft EA engages in some discussion on the negative impact predators may have on the contemplated reintroduced Tendoy herd. The analysis as to the impact predation on Tendoy bighorns could have on the viability of the herd moving forward needs to be strengthened.

***Response:*** FWP will be able to assess relative predation rates through the application of GPS radio collars on the reintroduced herd. The draft EA recognizes in Section 3.4 that mountain lion predation in particular is likely additive mortality in conjunction with low lamb recruitment. FWP believes predation will have minimal impact on a healthy population of bighorns, much like the positive growth exhibited in deer, elk and antelope populations in the area under favorable environmental conditions.

**Comment 27:** The final EA should recognize the potential for moving pathogens via the donor herd translocation, and should monitor the donor herd and the Tendoy herd routinely for pathogens of concern. Only healthy herds should be used as a source stock.

***Response:*** FWP agrees and is seeking stock from a healthy herd to replenish the Tendoys. The *Montana Bighorn Sheep Conservation Strategy* (2010) has protocol for transplant stock in place for sex and age composition, release sites, and monitoring. The protocol

recommends only using source herds that have a recent health profile. At this time it is premature to identify which population may be used as a source to replenish the Tendoys, but herd health will be a central factor in determining their origin and a single source would be highly desirable.

**Comment 28:** The draft EA should specifically recognize that FWP takes full responsibility for any interactions between the reintroduced herd and existing domestic sheep operations and assumes any liability associated with contact between the two species should such contact occur in the future.

***Response:*** FWP acknowledges the inherent risks of bighorns on the landscape and is seeking cooperation with domestic producers to minimize risk to bighorns. A series of management steps discussed in Section 2.1 that address habitat, enhanced monitoring, reduced density, exclusion and wandering bighorns are intended to promote bighorns on the landscape over time. The consequences of comingling are deleterious to bighorns and prompt notification and removal are the only sure ways to address the situation.

**Comment 29:** The final draft should evaluate and discuss the critical need for FWP to dedicate more resources to the research side of bighorn disease transmission and herd resistance. Bighorns clearly do not have much resistance to *Mycoplasma*. Consequently, the Department and other wildlife management agencies need to determine if herds can and will pass on pneumonia to other herds if there is interaction and/or comingling.

***Response:*** FWP is supporting research through Montana State University to address how bighorn sheep respond to various pathogens, habitat and herd behaviors. This is a long-term project that will be conducted on various herds across Montana for the next 7 to 10 years. Other recent research through the University of Montana focused on bighorn density and the increasing risk of pneumonia epizootics at higher densities (Sells et al. 2015). FWP will also ask hunters to voluntarily collect lung tissue for analysis as part of the Tendoy depopulation.

**Comment 30:** There is some optimism for the development of vaccines that would help bighorns fight off bacteria that cause pneumonia. See CAST article dated August 2008 attached hereto as Exhibit A. The Department should review such research as part of its final EA analysis.

***Response:*** See the response to Comment 29. FWP supports disease research in bighorns through building individual herd health histories, providing bighorns to research facilities that are working on vaccines and evaluating populations on an annual basis. FWP has reviewed the CAST commentary provided and agrees with the conclusion that effective separation of domestic sheep and bighorns is necessary to promote bighorns on the landscape.

**Comment 31:** Referring to Section 1.1.2: it is not appropriate to call bacteria and viruses 'germs'-they can be summarized as pathogens. Domestic animals are not immune to these pathogens-they get diseases too. The difference is that they have different immune reactions to the pathogens and in many cases they have evolved in high density conditions and with the pathogens.

***Response:*** The authors wanted to make the draft EA easy to read and be understood by a wide audience and employed the suggestions found in *Writing Science in Plain English* (Greene 2013). The word "germ" is understood by everyone, and is defined in Webster's New Collegiate Dictionary (Merriam-Webster 1961) as, "**3.** Any microorganism, esp. any of the pathogenic bacteria; a microbe." and "**4.b**. Of, pertaining to, or produced by disease germs." It is therefore appropriate, and in our opinion preferable, to use the word "germ" or "germs" when referring to disease pathogens.

The reference to differences in the way domestic and wild sheep react to germs is duly noted.

**Comment 32:** Referring to Sections 1.1.2 and 1.1.4 regarding the lack of bighorn immunity to pathogens: this is not the reason they are susceptible to the pathogens. It relates to the differences in the cellular ability to kill pathogens.

***Response:*** FWP recognizes that pathogen defense occurs at the cellular level and the term immunity is used very broadly in this application. A more thorough discussion of pneumonia in bighorn sheep is found in Section 1.1.4 of the Draft EA.

**Comment 33:** Referring to Section 1.1.4 and the lack of vaccine to protect bighorns: there is no vaccine available for bighorn sheep period, not just lambs.

***Response:*** FWP recognizes there is no vaccine available for any age class of bighorn sheep. The sentence in question was in the context of low lamb survival, which is the driver of the proposed action.

**Comment 34:** Referring to Section 1.1.4 and the availability of luekotoxin testing: this is not entirely true, the technique has been around for while but maybe not available in Montana.

***Response:*** The reference to luekotoxin testing was specific to the availability of the test in Montana.

**Comment 35:** Referring to Section 1.1.4 and the asymptomatic or perhaps disease resistant nature of surviving bighorns: may be asymptomatic. No real evidence of disease resistance.

***Response:*** FWP agrees that while bighorns in the Tendoy population may be asymptomatic they show no evidence of being resistant to disease as manifested by low lamb recruitment.

**Comment 36:** Referring to Section 1.1.4 and the introduction of new bighorn sheep: you do not mention the fact that many augmentations are from a variety of sources-this is recognized as an issue-many sources, many types of exposure to a variety of pathogens.

***Response:*** Reintroduction of bighorns is addressed in Section 2.1 of the draft EA. At this point it is far enough in the future that we cannot determine what the source population would be or how many years it would take to introduce 50 bighorns back into the Tendoys. Health issues and the compatibility of various populations are ongoing and will be ultimately be determined by the FWP Veterinarian and established protocols in the *Montana Bighorn*

*Sheep Conservation Strategy* (2010).

**Comment 37:** Referring to Section 1.1.6 and the issue of population density: high density populations also increase dispersal.

***Response:*** FWP agrees that dispersal increases with density. Several proactive measures are identified in the draft EA to minimize density and dispersal of bighorns. See Sections 1.1.5 and 2.1.

**Comment 38**: Referring to Section 1.1.8 and management of a similar bighorn population in Nevada: I would say treat animals rather than bolster.

***Response:*** Comment noted.

**Comment 39:** Referring to Section 1.1.8 and the introduction of new bighorns in the Tendoys: I believe if you spoke to Nevada or Colorado they would support the concept of a single source herds for replacing a herd.

***Response:*** See the response to Comment 27.

**Comment 40:** Referring to Section 2.3.1, the alternative to capture all existing sheep, test, isolate, and release: test for what? You have no guarantees even with a positive or negative as there are always false positives and negatives.

***Response:*** The comment references alternative 2.3.1 that was created from an early scoping comment. The alternative was not considered to be practical and was not analyzed further.

**Comment 41:** Referring to Section 2.3.2, the alternative to capture all existing sheep and use them to augment another herd with a disease history. Chances are they are chronic carriers-do you want to spread things around more?

***Response:*** The comment references alternative 2.3.2 that was presented and not analyzed further.

**Comment 42:** Referring to Section 3.1 and the compatibility of cattle and bighorns: I would not say highly compatible-there has been an event that had Pasteurella transmitted from cattle to bighorns with a resultant pneumonia outbreak. As well cattle and bighorns tend to not spend time sharing habitat.

***Response:*** FWP recognizes that there are inherent risks of disease transmission from a variety of sources, including domestic livestock and wildlife. We are familiar with a case in Colorado where cattle may have transferred pathogens to bighorn sheep (Wolfe et al. 2010). Pneumonia has also been experimentally manifested in bighorn sheep by injecting them with a cattle vaccine containing *Pasturella haemolytica* biotype A (Onderka et al. 1988). We recognize the potential risk posed by cattle. However, we also recognize the much greater, well established and known risk posed by domestic sheep and goats. Consequently, most of

our discussion about the risks to bighorns posed by domestic livestock had to do with domestic sheep and goats.

**Comment 43:** WSF strongly supports this proposed action as a pro-active, adaptive approach to ultimately restoring BHS to the Tendoy Mountains. The history and repetitive die-off/transplant cycle documented for the Tendoy BHS herd is similar to other BHS herds around the West. Chronic poor lamb recruitment is very indicative of *Mycoplasma ovipneumoniae* (*Movi*) infection and persistence, and while research is ongoing, to date, no one has figured out how to rid a bighorn population of *Movi*, once it has been documented to occur in a herd.

***Response:*** Comment noted.

**Comment 44:** Nevada and Colorado examples are cited, but similar actions have been taken in the Tieton herd in Washington State, and are being contemplated elsewhere (e.g., North Dakota badlands). WSF strongly agrees with utilizing sportsmen and women to help achieve MFWP management objectives, and supports a phased-in approach for liberalized recreational harvest, followed by agency intervention to completely depopulate this herd.WSF suggests, at a minimum, that MFWP follow your standard license issuance process including your Online Licensing System, visiting an MFWP Regional office or MFWP license selling agent/provider, or allowing mail-in applications. Helping sportsmen and women know when and where to purchase a license will be helpful to achieving MFWP depopulation objectives, and is appreciated.

***Response:*** FWP recognizes that the depopulation is occurring outside of ordinary season setting processes and will provide broad public notice through a variety of media regarding project objectives and details on obtaining a license. Once license sales are complete hunters will likely be notified of harvest reporting requirements, plugging requirements for rams and any biological sampling that may be requested on a voluntary basis.

**Comment 45:** WSF suggests, and is willing to collaborate with and support implementation of proposed habitat improvements originally identified in 1980, now scheduled for re-analysis in summer 2015. Active habitat enhancement during the ~2-year interim period makes great sense, to provide newly-transplanted bighorns a quality forage source when they are released (at some future date). Habitat enhancement should serve as a magnet for newly-transplanted bighorns to imprint on and utilize, and may reduce post-release dispersal and random wandering.

***Response:*** FWP anticipates any habitat improvement project will take many years to fully implement. The BLM analyzes watersheds on a 10-year cycle and develops projects that are implemented over the following decade. The Beaverhead-Deerlodge National Forest works on a longer cycle for large habitat projects and the Tendoys are not currently a priority.

**Comment 46:** WSF remains quite concerned about the >5 known domestic sheep/goat points of contact on private land around the perimeter of BHS range in the Tendoys. Designation and implementation of a "no-contact" zone, with aggressive protocols, should help reduce potential contact with domestic sheep/goats, but that is certainly not guaranteed. The highest percentage possible of adult BHS should be radio-collared (preferably with real-time, GPS satellite collars), to not only facilitate monitoring and to track dispersal, but these GPS collars would also provide

huge data sets to map fine-scale habitat selection. WSF encourages hiring of a contract/project technician to help with post-release BHS monitoring. We want to make certain you are aware of our July/ August window to apply for Grant-In-Aid (GIA) project funding assistance. No guarantees, but we will closely review any GIA application submitted re the Tendoy situation.

***Response:*** FWP agrees that a high percentage of bighorns should be radio collared to assess distribution, habitat use and risk. FWP will likely need to pursue partnerships to obtain sufficient radio collars to monitor bighorns. We will have to evaluate going forward if a Grant-In-Aid request is appropriate at a later date.

**Comment 47:** WSF can initially support a proposed herd objective of N=125-150 BHS, but we also encourage active monitoring by MFWP, and adaptive evaluation of this herd objective, through time. This proposed depopulation action and subsequent transplants are certainly novel approaches to BHS management in Montana, and may yield knowledge and insights that will help guide future BHS management in the state, and beyond. Implementation of somewhat novel harvest strategies (e.g., non-trophy ♂ licenses, for ♂ between ¼-curl and ¾-curl in size, liberal ♀ licenses) will be required to maintain a small but healthy herd size, and help minimize dispersal.

***Response:*** Comment noted.

**Comment 48:** MTWSF strongly supports this proposed action as a pro-active, adaptive approach to ultimately restoring bighorns to the Tendoy Mountains. MTWSF has been consulted and has coordinated with Game Management Bureau Chief John Vore on this approach.

***Response:*** Comment noted.

**Comment 49:** MTWSF suggests, and is willing to collaborate with and support implementation of proposed habitat improvements to provide newly-transplanted bighorns a quality forage source when they are released (at some future date). Habitat enhancements completed in the area will serve as a magnet for newly-transplanted bighorns and may reduce dispersal and random wandering.

***Response:*** See the response to Comment 45.

**Comment 50:** MTWSF remains concerned about the known domestic sheep/goat points of contact on private land around the perimeter of bighorn range in the Tendoys. MTWSF is willing to collaborate and support conservation easements, buyouts or other solutions to help mitigate the risk of domestic sheep and bighorn sheep contact.

***Response:*** Comment noted.

**Comment 51:** The repetitive die-off/transplant cycle documented for the Tendoy bighorn herd is similar to other bighorn herds in Montana. By taking the approach of depopulation and restocking it will give this area a chance to flourish with a bighorn sheep herd in the near term. MTWSF strongly agrees with utilizing sportsmen and women to help achieve FWP management objectives, and supports a phased-in approach for liberalized recreational harvest, followed by agency intervention to completely depopulate this herd.

***Response:*** Comment noted.

**Comment 52:** I support whatever action would be considered most beneficial to increasing the sheep hunting opportunity in Montana.

***Response:*** Comment noted.

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**Final Environmental Assessment**

Based on the Environmental Assessment (EA) findings and public comments regarding the depopulation and restocking proposal, FWP makes the above corrections and additions to the draft EA.

Several comments suggested further development of various aspects of bighorn management for the final EA including: comingling issues with domestic sheep, genetics, disease transmission, and predation. FWP points out in the draft EA that there is ongoing research regarding these issues. Further the proposed action is tiered to the Montana Bighorn Sheep Conservation Strategy (2010) which provides comprehensive strategies for bighorn management in Montana. Mountain lions, which the draft EA identifies as the most likely bighorn predator in the Tendoys, similarly have a planning process that is ongoing and an established Fish and Wildlife Commission season setting process.

Several references to pathogens and technical disease processes were over simplified or misstated in the draft EA. These mistakes are identified and corrected in the comments and responses above.

The Draft Environmental Assessment, together with this Decision Notice, will serve as the final document for this proposal. Based on our analysis of comments, I have decided the EA with the above modifications and additions be finalized and Alternative A be adopted with these provisions.

**Decision**

I find there to be no significant impacts on the human and physical environments associated with this project. Therefore, I conclude that the Environmental Assessment is the appropriate level of analysis, and that an Environmental Impact Statement is not required.

K Pratt for Sam Sheppard

Sam Sheppard
Region 3 Supervisor
Montana Fish, Wildlife & Parks

6/9/15
Date