

Decision Notice
For the Potential Reintroduction of Bighorn Sheep into the
Madison Mountains, Southwest Montana
Prepared by Region 3, Montana Fish, Wildlife & Parks
November 22, 2013

Proposal

Montana Fish, Wildlife and Parks (FWP) is proposing to reintroduce Rocky Mountain bighorn sheep into the Madison Mountains of southwest Montana at either Indian or Wolf Creek. Both areas were once native bighorn sheep habitat, but bighorn have not been documented in either area since the 1960's. The southern Madison mountains support a currently healthy native population of bighorn sheep, although in the past the herd endured several all-age die-offs and have been augmented with bighorn from Thompson Falls, Lost Creek, and Wildhorse Island.

The purpose of the reintroduction is to establish a long-term viable bighorn sheep population in Indian or Wolf Creeks, increasing the overall herd size and distribution in the Madison Mountains. A viable population would provide new recreational opportunities to include wildlife viewing and sport hunting. Biologically, establishing a new wintering area for bighorn in the Madison would increase biodiversity and restore a native species to known winter areas after a 50-year absence. From a conservation perspective, increasing the number and distribution of viable bighorn sheep populations in Montana has a long-term survival benefit for the species.

Montana Environmental Policy Act (MEPA) Process

The proposal was outlined by FWP in an Environmental Assessment (EA). The purpose of the EA is to satisfy the letter and intent of the Montana Environmental Policy Act (MEPA). FWP is required through the MEPA process to assess the potential impacts of this project on the human and natural environment. The EA was the focus of a public meeting, distributed to interested parties upon request, and was posted on the FWP website. A 29-day public comment period on the proposal was held from September 17 to October 16, 2013, but was extended to November 8, 2013, in response to public comment and request. The Final EA provides the FWP Decision Maker (FWP Region 3 Supervisor) with the best available information to assist in evaluating the project and deciding whether to approve, not approve, or modify the proposed action in a Decision Notice. The proposed action is then subject to approval by the FW Commission.

Issues Raised in the Environmental Assessment (EA)

The EA describes management issues and alternatives in detail. In summary, FWP would manage for a restored population of 100-150 bighorn sheep at either Wolf or Indian creek. As the population increases, FWP biologists will recommend if and when sport hunting would begin. Establishing recreational hunting to manage bighorn numbers and to provide new hunting opportunities is an objective of most bighorn sheep transplants. Typically, newly transplanted

bighorn sheep are not hunted until they have reached 80% of a Minimum Viable Population (N=125) or approximately 100 bighorn sheep and there is sufficient annual recruitment to maintain herd growth while allowing for the anticipated harvest. Bighorn hunting seasons are managed by issuing a small number of licenses through an established limited drawing system. Currently, 5 either-sex bighorn licenses are offered in hunting district 301 (north of Indian Creek to Spanish Peaks), and 4 either-sex and 20 ewe/lamb licenses are available in hunting district 302 (south of Indian Creek). Protections on the newly-reintroduced herd unit would be important to allow their establishment, whereupon the area occupied by the bighorn will likely be incorporated into hunting district 302 with appropriate adjustment to quota levels and/or unit boundaries. If necessary, further trapping and transplanting live bighorn sheep is an option to manage population size.

Summary of Public Comments

Immediately following the release of the Draft Madison Mountains Bighorn Sheep EA, a 52-day public comment period on the proposal was held from September 17 to November 8. Public comment was solicited from interested individuals and groups. A public meeting on the proposal took place from 6-8 p.m. on October 8, 2013, at the Ennis School. Interested parties were encouraged to comment on the proposal in writing or by email to a designated FWP address. About 24 persons attended the public meeting on October 8, 2013.

A total of 35 comments were made in writing by e-mail or mail. Additional verbal comments received during pre-scoping and the public comment period were not included toward the total as all parties were informed that only written comments were accepted. Public comment varied from short, brief statements with little detail to longer comments with considerable detail and explanation. The summary of alternatives supported is as follows:

- 1 person supported Alternative A (no action, no release)
- 13 persons and groups supported Alternative B, release at Indian Creek (of which 3 would also accept Alternative C).
- 2 persons supported Alternative C, release at Wolf Creek alone.
- 17 persons and groups supported either Alternative B or C.
- 2 persons wrote commentary that did not identify support for any alternative but identified issues or concerns from the EA. Of these, one did identify that he did not support reintroduction to Wolf Creek (Alternative C).

Four general topics appeared across multiple public comment letters. We address each of these concerns below.

1. Wolf Creek has limited public access

Several groups and individuals identified this concern as a reason for supporting Alternative B (release at Indian Creek) over Alternative C (release at Wolf Creek). It is true that Wolf Creek

does not have a public access trailhead, so wintertime viewing of these sheep will be limited. One group suggested we add public access as an issue for comparing release sites in Table 1, page 19. In this case, the table would appear as follows:

Issue	Alternative B – Indian Creek	Alternative C – Wolf Creek
Competition with livestock	Equal	Equal
Competition with wildlife (elk)	Less likely	More likely
Return to capture site	Less likely	More likely
Agency accountability	Equal	Equal
Predators	Equal	Equal
Public access	More	Less

Notably, bighorn released at Wolf Creek would be available to hunters during the September-October hunting season as they will likely move to high-elevation ranges in the Lee Metcalf Wilderness accessible through the Taylor Fork or Beaver Creek. Furthermore, during the public comment period the manager of the Sun Ranch agreed to allow reasonable access to bighorn hunters.

2. Disease concerns

Questions from the public arose about pneumonia, mountain goats as hosts for certain pathogens, whether we can quarantine bighorn before the release, and whether bighorn have brucellosis. As the EA states (page 5), the Madison bighorn herd was tested for multiple diseases in winter 2011-2012 resulting in no *Mycoplasma* or *Mannheimia* pneumonia pathogens, but a subclinical tick-borne disease (Anaplasmosis) was present. Upon capture, we will again be testing bighorn from this herd for a variety of pathogens but will not be able to determine further disease exposure before release. However, it is notable that bighorn are not known to carry diseases which affect other wildlife or livestock. Any pathogens present in the transplanted bighorn would already be occurring in the source herd, so no new infectious agent should be introduced to the population. Thus, there is no benefit to quarantining the animals before release.

Mountain goats may be carriers for pathogens which can affect bighorn sheep. However, bighorn have often been observed in close proximity with healthy populations of mountain goats on both summer and winter ranges in this area, and yet current testing suggests bighorn have not been exposed to the major pathogens responsible for die-offs. Again, moving bighorn within the mountain range should not expose them to any new pathogens.

One correspondent questioned FWP about brucellosis in bighorn sheep. Our statewide wildlife veterinarian responded as follows:

“Documented cases of brucellosis in wild bighorn sheep are very hard to come by. Clinical brucellosis has not been documented in bighorn sheep in Montana. Lack of documentation does not mean that bighorn sheep never develop symptoms or die from brucellosis; however this

combined with very low numbers of animals testing positive on serologic testing indicates that it is not likely a common occurrence, and is not likely affecting large numbers of bighorn sheep. Bighorn sheep that are captured for management and research projects are often tested for *B. abortus* by serologic methods like those used in elk. Of all the bighorn sheep tested serologically for *B. abortus*, approximately 2.5% have tested positive in the Gardiner/Yellowstone area. Statewide, approximately 0.2% have tested seropositive. It is important to remember that “seropositive” does not equal infection. Also, these testing methods are not validated for bighorn sheep, so we don’t know for sure how sensitive or specific they are for this species. There is also a possibility of some cross-reaction with other very similar bacteria. So, the very small number of seropositive bighorn sheep could include truly infected animals, animals that have been exposed but they cleared the infection, or false positives.

FWP does investigate bighorn sheep morbidity and mortality events whenever possible. When we have the opportunity to necropsy bighorn sheep, we not only look for pneumonia, but any other potential cause of death or illness. Although it is likely an uncommon event, *B. abortus* must be considered in sick bighorn sheep, especially in areas where the disease is present in elk or bison.”

It is also noteworthy that of the 11 Madison bighorn captured in 2011-2012, zero showed exposure (i.e., were seropositive) for *B. abortus*.

3. Bighorn will return to the source population if transplanted to Wolf Creek

There is a possibility that bighorn will return to the capture site from both release locations. The likelihood of return is greater at Wolf Creek for two reasons: it is about 8-10 airline miles closer to the capture site than Indian Creek, and the topography of the drainage leads to high-elevation country which bighorn are known to already inhabit (Expedition Pass). This is one reason FWP’s preferred alternative was to release at Indian Creek. Nonetheless, release at Wolf Creek should remain a viable alternative. The drainage is large with ample habitat, and family groups would be transplanted to mitigate bighorn searching for other herd members. It is possible bighorn would return to the capture site, and it is possible they would remain at the release site. This leads to a cost-benefit comparison and a risk evaluation. The costs associated with capture will be minimized by using a drop-net instead of a helicopter (see p. 15 and 16 in the Draft EA). There is virtually no risk to the overall herd of performing the transplant to Wolf Creek – there would be no net loss of animals besides the possibility of injury during capture. FWP believes these risks are worth the potential benefit of enlarging herd winter ranges.

4. Need to expound upon past history of this herd and the future of the herd relative to population genetics

The Madison bighorn herd is a native population. Supplemental transplants into this area began in 1988 with 19 bighorn from Thompson Falls, in 1989 with 5 bighorn from Thompson Falls and 19 from Lost Creek (Anaconda), and in 1993 with 26 bighorn from Wildhorse Island.

Some comment letters inquired about whether FWP can properly store DNA samples from bighorn captures into the future so we can study the genetic composition of bighorn herds. At

capture, we do routinely take “gene cards” which store blood for DNA samples into the future so this work can be done.

One comment letter regarding genetics inquired about the need to bring in bighorn from other herds in the future to maintain genetic diversity, especially as the Madison herd experienced a genetic bottleneck after the die-offs. This is a possibility if FWP sees defects related to inbreeding in the herd or other genetic challenges. However, there are risks to introducing animals from other herds regarding disease exposure: it is important not to introduce a pathogen to the herd. The risks and benefits of both approaches must be weighed.

Additional Questions or Issues Raised During the Public Comment Period

Individual comment letters specified several other questions.

1. What are potential climate-based influences on levels of snow and vegetation that will impact survival at some point in time?

Climate change is a difficult topic to anticipate and address as it is fraught with uncertainties. Generally, it is important to note the plasticity of bighorn diets (pages 12-13 in the Draft EA) which suggests the ability to respond to some habitat shifts resulting in more or less grasslands or shrublands. Conifer encroachment can be problematic for bighorn, but habitat alteration through fire can help mitigate this concern. Notably, in this wilderness area logging would not be an option. Climatic changes to snowpack could affect bighorn. In general, deep snowpack would have a negative effect on bighorn (and other ungulate) survival through impeding movements and impacting forage accessibility. Alternately, lighter snowpack would enhance bighorn (and other ungulate) survival by alleviating these challenges.

2. Risenhoover and Bailey (1985) JWM 49:797-804 deserves citing.

The suggested article has good information about the importance of proximate escape terrain and open habitat for visibility. It noted bighorn avoidance of dense, tall vegetation. The full citation of this article is: Risenhoover, K.L. and J. A. Bailey. 1985. Foraging ecology of mountain sheep: implications for habitat management. *Journal of Wildlife Management* 49:797-804.

3. While the draft mentions the general reasons why bighorn sheep die-offs occur in Montana, it would be nice to know specifically why the sheep in these 2 locations died off in the 1980's. While I'm sure the draft would have mentioned the reason if known, not knowing makes it even more important to keep on top of the reasons for mortalities (as much as possible) for any introduced populations.

We have not found record of why bighorn disappeared from Indian and Wolf creeks. The records of bighorn mortality during the all-age die-offs during the mid-1980's did not identify a causal factor. The bighorn mortalities observed during 1996-1997 were attributed to an outbreak of lungworm and pneumonia, likely exacerbated by the severe winter conditions seen that year.

FWP acknowledges the importance of continuous monitoring of bighorn sheep populations statewide with a focus on identifying mortalities due to diseases in the herds.

4. Why not use the sheep from Wildhorse Island since there are too many sheep on the island and they can't be hunted at all or viewed by many people?

Using Wildhorse Island bighorn is an option, but not a preferred one for three main reasons. First, Wildhorse Island bighorn may be less likely to effectively use the Madison Range habitat through elevational migration than native bighorn. Second, recent testing (2011-12) revealed Wildhorse Island bighorn also show some exposure to *Mannheimia haemolytica* which was not found in Madison Range bighorn (see point 2, above in summary of public comment). Although it isn't clear whether this would become infectious to the Madison herd, it would be safer to use native animals for the transplant rather than animals from Wildhorse Island. Finally, the native animals have exceeded their winter range capacity in part due to illegal feeding by a well-meaning landowner. A reduction in the native herd simultaneous with the cessation of this activity and regulated ewe hunting will restore the native herd to balance with its environment. Transplanting Wildhorse bighorn would add more bighorn to the mountain range without alleviating this current issue.

5. Will wolves just eat them all?

This question was addressed thoroughly in the EA (pages 17-18). FWP does not think wolves will be a major influence on the reintroduced bighorn herd.

6. The EA should recognize grazing allotments west of the Madison River, discuss ways to mitigate possibility of bighorn encounters with these domestic sheep and how FWP will respond if such co-mingling occurs including whether FWP would relocate these bighorn to their source populations.

FWP does not anticipate issues arising with the major Gravelly Mountains domestic sheep operations due to the large distances (>15 miles) and substantial geographic barriers (Madison River, Highway 287, poor habitat) involved between this reintroduction site and those operations. In the unlikely event bighorn did appear proximate to these or other domestic sheep operations, FWP would not relocate the bighorn back to the source herds. It is our policy to lethally remove such wandering animals to prevent exposing the rest of the bighorn herd to any pathogens potentially encountered.

7. The EA discusses a cooperative domestic sheep grazing project with the BLM which may be discontinued in the future. Is that because of this proposal? This discussion should be in the body of the EA and not in the appendix.

This BLM domestic sheep grazing project was distant from the release site(s), across Highway 287, and contained numerous mitigation factors to prevent co-mingling (24-hour herding, limited time presence on the landscape). Additionally, the BLM biologist Katie Benzel had indicated the

project was coming to a close. For these reasons, discussion on the topic was considered appropriate in the transplant site evaluation protocol as attached in the appendix.

In response to this comment, FWP contacted the BLM to clarify why the project was discontinued. As per 11/18/13 conversation with BLM range technician and weed project coordinator Mike Mooney, the project was a term project of 3-5 year duration, and had ultimately closed and was not renewed due to budget concerns. Mooney reported the project closed in 2011, and he confirmed this closure had nothing to do with any bighorn sheep proposal or discussion.

8. Will noxious weed management with domestic sheep in different areas throughout the valley be affected by this reintroduction?

We do not believe this reintroduction will preclude noxious weed management with domestic sheep as such projects currently exist in the Madison Valley. In fact, some of the domestic sheep herds and weed projects occur closer to currently occupied bighorn habitat than to the potential release sites. If conflicts with these projects occurred, or as new projects develop, FWP would work with landowners on a case-by-case basis to prevent co-mingling.

9. FWP should demonstrate respect for private property rights by entering into cooperative agreements with, and obtaining permission from, landowners for access across private property and for releasing the bighorn on private lands. FWP should take sole responsibility should the reintroduction fail or for any die-offs. FWP should also partner with the Montana Woolgrowers Association.

FWP uses a standard cooperative agreement to obtain permission in writing from landowners on and near the release location. We have verbal agreement from landowners at the release location and will have signed voluntary landowner agreements prior to reintroduction. These agreements explicitly state FWP will assume the risk of transplant failure holding no landowner responsible. FWP will respect these agreements. Finally, FWP has been in communication with the Montana Woolgrowers Association throughout this process and considers them an important partner in this effort and bighorn conservation statewide.

10. Issues about livestock grazing relative to bighorn sheep should not have been placed in the “Social Issues” portion of the EA, and should note that current levels of grazing are compatible with a successful bighorn sheep transplant.

Issues regarding livestock grazing and potential competition were thoroughly evaluated in Chapter 2, “Issues and Alternatives and How They Were Identified”. Chapter 3 referred to the Affected Environment which traditionally encompasses soil, water, vegetation, other wildlife, and social issues. The “social issues” category refers to the human environment and land use patterns which is why livestock grazing fit there. We recognize that another organizational option could have been placing livestock grazing under the vegetation heading.

The EA examined livestock grazing issues predominantly from concerns about competition between bighorn and domestic livestock (pages 12-13, 32-33). In this section, we noted that there “are many reasons to expect that bighorn and livestock overlap will not result in a deleterious competitive relationship.” This should be interpreted in both directions: that the current levels of grazing are compatible with a successful bighorn transplant, and that bighorn sheep should not be expected to compete with domestic livestock.

11. The EA should note other reasons for die-offs besides those related to disease and domestic sheep.

Wild bighorn populations can see mortality or reduced lamb production and recruitment from several factors. Severe winter conditions or drought can reduce quality, quantity, and/or availability of forage which may reduce body condition resulting in direct mortality or negative impact to lamb survival. Parasites can be naturally present in bighorn herds but can be exacerbated by high density and/or poor physical condition resulting from environmental factors. If forage became limited for any reason (including competition with other grazers/browsers see EA pages 12-14), pregnancy, recruitment, and even survival could be affected. Mountain lion predation has also been known to affect bighorn sheep herd survival (see EA page 17-18).

12. FWP should collaborate with Montana State University

FWP collaborates with Montana State University professors from the Ecology and Animal & Range Science departments on many of our local and statewide projects. Regarding this herd, we have long been sharing count, classification, and radio-collar data with Dr. Bob Garrott who shares with us his knowledge and expertise regarding bighorn habits, habitats, and bighorn capture. Furthermore, we just began a new statewide collaborative research project between FWP and MSU regarding the roles of disease in fitness of bighorn sheep herds. One of the study herds will be this Madison Taylor-Hilgard herd.

13. How does the bighorn HEP model analyze “visibility”? In simple models, this is usually handled by disqualifying habitat with dense, often forest, vegetation. If the HEP model does not include this procedure, the amount of potentially suitable bighorn habitat will be overestimated.

FWP acknowledges that the literature differs on the degree bighorn use forested and non-forested habitat. For this reason, two tables are presented in the HEP: the population supported in ALL landcover, and the population supported in NON-FORESTED land cover (see Appendix A, Transplant Site Assessment, Table 5 page 41). The expectation is that the non-forested number is the best estimate as to suitable habitat considering the variety of generalizations and assumptions present in the model. The non-forested land cover estimation still allows for a population of at least 100 bighorn sheep.

14. There is some confusion in using “AUM” for animal-unit months, when “AU” for animal unit seems to be correct. See pages 13 and 32.

The author (Cunningham) did mistakenly use AUM instead of AU in these cases. Animal Units were compared, there was no time frame implied (Animal Unit Months). We acknowledge and appreciate this correction.

15. It would provide some useful clarification to mention the season or month in which surveys were conducted for given numbers of animals, such as elk and deer.

Elk are generally surveyed in March, although may also be surveyed in February under ideal conditions. Mule deer are generally surveyed in April concurrent with spring green-up.

16. On page 21, note that conifer encroachment not only reduces forage production but also compromises visibility which is a bighorn habitat requirement, especially where slopes are not steep and broken.

So noted.

Final Environmental Assessment

Based on public comment, there are no necessary modifications to the draft environmental assessment. That draft along with the clarifications in this Decision Notice will serve as the final environmental assessment for this proposal.

Decision

Based on the environmental assessment and public comment, I choose preferred Alternative B, release at Indian Creek, with Alternative C as an acceptable alternate release site pending the physical logistics to be determined as the year progresses. This choice accepts release at Indian or Wolf Creeks, Madison Range, during winter 2013-2014 with recognition that in future years, transplants/augmentations to either or both locations may be necessary.

I find there are no significant impacts on the human and physical environment associated with the selected Alternative B or Alternative C for this project. Therefore, I conclude that the environmental assessment is the appropriate level of analysis and that an environmental impact statement is not required.



Patrick J. Flowers
MFWP Region 3 Supervisor
Bozeman, MT
November 22, 2013

