

Appendix F

Best Management Practices Report

Evaluation of "Best Management Practices"

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Background

The Payette National Forest (Payette NF) asked me to complete a position statement on the value of "best management practices" (BMPs) related to my past experience. This task is in preparation for their Final Supplemental Environmental Impact Statement (Final SEIS) to the Final Environmental Impact Statement (FEIS) for the Land and Resource Management Plan (LRMP). The SEIS is being prepared for their response to appeal direction received from the Chief's Office of the Forest Service pertaining to bighorn sheep (*Ovis canadensis*) viability, transmission issues between domestic sheep (*Ovis aries*) and bighorn sheep and compliance with the National Forest Management Act and the Hells Canyon National Recreation Area Act.

What Are Best Management Practices

The grazing term "Best Management Practice" has recently been utilized by Idaho State Agencies and the domestic sheep industry as a means to describe on-the-ground practices that reduce the risk of contact between domestic sheep and bighorn sheep where bighorn sheep exist. Many National Forest domestic sheep permittees have been using these practices in some form or another for at least 30 years. In some cases they have been added as terms and conditions to Federal Grazing Permits. LRMPs or Comprehensive Management Plans (CMP) may also include the practices as direction in the form of standards or guidelines. To my knowledge they have not been called BMPs until just recently.

Objectives of Best Management Practices

BMPs would be applied to grazing activities on permitted Federal allotments for several reasons, ranging from utilization levels and range readiness to resource protection. For the issue of disease transmission between domestic sheep and bighorn sheep (BHS), the objective of implementing BMPs is simply to avoid contact at any time between the two sheep species. Any contact may effectively transmit disease, and result in mortality of bighorn sheep. BMPs are designed to reduce the risk of contact by providing for adequate separation. Implemented BMPs that result in contact are ineffective.

Some Forest Service biologists and range conservationists have extensive field experience of where and when these practices are effective. During my role as National Bighorn Sheep Biologist for the Forest Service for the last 18 years, I worked with range conservationists using several of these grazing practices to increase the potential for effective separation. I have assisted approximately 28 National Forests in the western United States in developing and evaluating grazing practices in the field to increase effective separation between bighorn and domestic sheep. I believe I have a unique set of skills and experiences for evaluating BMPs.

How to Determine Best Management Practices

Most annual operating plans/instructions for domestic sheep allotments contain some of these grazing practices. Each allotment includes grazing practices specific to the allotment and permittee and each allotment carries its own set of unique circumstances that need to be evaluated. What works in one location may not work in another. The following factors affect the success or failure of a grazing practice: topography, bighorn sheep source habitat connectivity, bighorn sheep population size, proximity of domestic sheep grazing allotments to bighorn sheep populations, timing of allotment use, density of vegetation, and escape terrain. None of the BMPs discussed below can be determined effective without an active monitoring effort to detect the presence or absence of bighorn sheep near domestic sheep bands. To my knowledge, no peer reviewed literature exists that evaluates the effectiveness of these grazing practices for reducing the risk of contact between the two species.

Evaluation of Best Management Practices

The following is a list of BMPs that I have used, and the effectiveness that I have seen with each type:

- 1) **Guard Dogs:** Guard dogs are typically added to a band of sheep to help control predators and monitor the domestic sheep. Using guard dogs for keeping bighorn sheep away from domestic sheep has had limited success. These dogs are designed to protect domestic sheep and goats from predators, not other sheep. Some dogs have been quite tolerant of bighorn sheep (see attached photo). It is also hard for guard dogs to be at every location of domestic sheep if they are loosely herded across forested and irregular steep terrain.
1. 2) **Extra Herders:** Some operators have added an extra herder. This practice may be of value in open gentle terrain with good visibility. Extra observers will help locate BHS and improve domestic sheep control during daylight hours.
- 3) **Propane Guns:** Using propane guns at the edge of domestic sheep flocks to scare away bighorns has not been successful because most states do not shoot females and young bighorns and have very restrictive ram hunting. Also, bighorns do not regularly associate negative effects with loud noise. Our experience in northeastern Oregon is that deer and elk become conditioned to the noise in 2-3 days and continue to damage crops. Continually moving these propane guns with the bands of sheep is also costly.
- 4) **Trucking of Sheep:** Trucking of domestic sheep instead of trailing has been effective in reducing strays. Strays increase the probability of contact with a bighorn sheep. However, because of cost and the potential for domestic sheep disease associated with this practice, most operators prefer to not truck their sheep.
- 5) **Bedding of Sheep at Night:** Although domestic sheep herders may want to bed the sheep together in a 5-acre area at night, this practice is difficult in steep terrain because sheep are spread out in a "loose herd" fashion and having fenced pens is not realistic. Predators such as coyotes, cougar, and wolves are very effective at killing or scattering domestic sheep at night. In open gentle terrain, this practice can be helpful in controlling domestic sheep.
- 6) **Counting of Sheep:** Most National Forests conduct a 100% count of all domestic sheep onto the allotment at the beginning of the grazing season. Normally, the sheep are not counted during or after the grazing season by the Forest Service. Counting at the end of the season can give an approximation of how many have been killed or lost. Looking for strays during and after the season can reduce the risk of contact with bighorn sheep. Marking domestic sheep is difficult and expensive for the operators. Some operators provide one marker sheep for every 25 head of domestic sheep and count the marker sheep daily. This practice can tell the operator if they are missing any large numbers of domestic sheep. However, this technique has limited effectiveness because it may only take one domestic sheep to transmit disease to bighorn sheep.
- 7) **Herder Communication:** Some operators are now equipping their herders with cell or satellite phones so they can immediately call authorities when bighorn sheep are observed in or close to domestic sheep. Authorities can either shoot, remove, or haze bighorn sheep. These practices can be helpful in preventing contact. However, some operators do not report to authorities when bighorn sheep are near their domestic sheep.
2. 8) **Bighorn Monitoring:** Having observers out looking for bighorn sheep is always helpful in keeping the two species apart and radio collars on bighorn sheep can make that effort more productive. However, bighorn sheep monitoring is expensive and not all sheep are collared. Most of the radio collaring has been with conventional collars (VHF) which are usually monitored only twice a month. The new GPS collars report locations several times a day and are more beneficial than VHF collars. However, people need to be mindful of the following aspects: 1) only a sample of the bighorn sheep population is collared; 2) collaring is typically skewed toward ewes, which do not foray as far or as often as rams; 3) nobody knows where the bighorn sheep have been between monitoring efforts with VHF collars; and 4) collaring is expensive.

3. 9) **Sick Domestic:** Not turning sick domestic sheep out on the allotment is standard practice. Unfortunately, the diseases that are transmitted from domestic to bighorn sheep do not make domestic sheep appear sick. While helpful, this practice does not reduce risk of contact or disease transmission.
- 10) **Stray Domestic:** Stray domestic sheep off the allotment need to be quickly removed. Unfortunately, most Forest allotments are in big areas of remote country with some timber where it is hard to detect strays. Many examples exist of strays being out for several weeks without detection. When they are detected, they are often very hard to find and remove. Grazing operators are usually very busy and can't redirect their attention to finding a few strays. Recently, a few operators have been willing to let authorities remove sheep for them under certain conditions. This practice can be helpful in reducing risk of contact, but many strays go undetected.

When all or most of the BMPs are implemented on an allotment, will enough separation be provided to effectively reduce the risk of contact and avoid contact? The key to successful BMPs depends on whether or not BMPs are consistently implemented on the ground, the operators have the ability to maintain tight control of domestics, the allotment is connected to quality bighorn sheep habitat, and bighorn sheep are in or adjacent to the allotment (up to 9 miles).

4. 1) **Implementation:** Agreeing to BMPs on paper is easier; implementing them on the ground for the entire grazing season year after year is more difficult. Many examples of BMPs not always being implemented on the ground exist. And BMPs can only be effective if fully implemented and readily adapted if not working.
- 2) **Maintaining Control of Domestic:** Controlling domestic sheep in terrain that is forested, steep, or rocky is very difficult. In allotments such as the Allison-Berg on the Nez Perce NF, the best possible way to manage vegetation with domestic sheep in this steep rocky terrain is to "loose herd" the sheep-spreading the sheep out over large areas during the day and not tightly controlling them. Such a practice makes it is easy for domestics to stray from the herder(s). Visibility is very difficult for the herders, especially in forested habitat and predators such as wolves can cut into the herd and scatter them for miles. Under these situations BMPs are not likely to be effective. The Rock Creek allotment on the Inyo NF is open gentle terrain where a herder can see for miles and can detect bighorn sheep. The Rock Creek Allotment is not in bighorn sheep habitat. BMPs implemented on these types of allotments can be effective in keeping the two species separate and reducing the risk of contact.
- 3) **Bighorn Sheep Habitat and Presence:** Bighorn sheep source habitat is usually in steep, open, rocky terrain as described above where tight control of domestic sheep is usually difficult and herder visibility is limited. In and around the Payette NF, high quality source habitat is not a limiting factor. Habitat is well connected and well distributed across the Payette NF and no natural barriers exist to dissuade bighorn sheep from pioneering, colonizing, and exploring their landscapes as demonstrated by the telemetry and sighting data. This ease of movement for bighorns across the Payette NF leaves questions about the effectiveness of BMPs to successfully provide for avoiding contact or reducing the risk of contact between the two species. Bighorn sheep presence in habitat that is in or adjacent to an allotment makes developing effective BMPs even more difficult. Separation is highly unlikely, and if the allotment is within the herd home range of the bighorn sheep population, contact with the allotment is all but a guarantee. Last year's mixing of a radio-collared ram with domestics on the Allison-Berg Allotment, despite the implementation of BMPs, is an example of their limitations. When bighorn sheep habitat is high quality and continuous for many miles, keeping the two species separate is very difficult.

Although bighorn sheep do not favor timbered areas, they will pass through them and are extremely hard to detect when this happens. Such was the case when a band of domestics was grazing near Josephine Lake on the Payette NF; no one noticed the bighorn sheep ram until it was caught in a wolf snare trap. Without radio collars, bighorn sheep can be very difficult to detect. Even with radio collars, detection on the ground can be difficult. On the Smith Mountain Allotment on the Payette NF, radio collar data showed bighorn sheep located within the allotment during the grazing season without detection by the permittee.

On the Temperance Creek Allotment in Hells Canyon in the 1980s and early 1990s, domestic and bighorn sheep

were separated by over 20 air miles and almost all of the BMPs described above were implemented. Despite these grazing practices and large separation distances, the two species could not be kept apart. Detecting bighorn and domestic sheep in this open, rocky, continuous bighorn sheep habitat was very difficult. Known mixing of the two species approximately every other year resulted in large catastrophic bighorn sheep die-offs.

Conclusion

To avoid disease transmission between domestic and bighorn sheep, contact between the two sheep species should be avoided. In limited situations, implementing BMPs can lead a reduced risk for contact. BMPs that work in one situation may not work in another so all BMPs need to be developed for site-specific situations. Connectivity of bighorn sheep source habitat, terrain, density of vegetation, and ruggedness all affect the ability to successfully implement BMPs. Monitoring bighorn sheep presence should be conducted in areas of high risk for contact. Based on my experience, the only significant reduction in risk of contact that I have witnessed is when BMPs are implemented in open, gentle, non-bighorn sheep habitat where domestic sheep can be easily controlled and monitored, and a large buffer exists between the two species.

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6. /s/Timothy S. Schommer Date: 12/21/2009

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