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Title:
Comments: Comments to the Custer Gallatin draft Forest Plan Revision and draft EIS
6-4-2019

My comments are focusing on the interaction between Bighorn sheep and other animals specifically goats used for recreational packing.

I like Alternative A and keep it the way it is currently. Has any pack goat ever transmitted disease to wildlife?

Alternative D is an outright ban on packgoats without any scientific rational or documentation.

I believe that Alternative E has enough flexibility to allow packgoats in the Henrys Lake and Madison ranges at a minimum, but really everywhere.
Some of the common sense mitigation would be yearly testing for
M Ovimpneumoniae (the current disease of concern) and a veterinary health certificate. This way a licensed veterinary could determine the health status of animals and check for pinkeye(conjunctivitis) and respiratory illnesses.
Common sense best management practices (BMP) that have been developed by the North American Packgoat Association (NAPgA) need to be followed when in Bighorn Sheep territory. The BMP's are located at the end of this document.
Here is the link to the BMP video.
https://www.youtube.com/watch?v=hTVEz04Hdl4
Packgoats and Mycoplasma ovipneumoniae Prevalence Study 2016 is located at the end of this document.
I do not think that domestic sheep should be near Bighorn Sheep due to the high illness and death rate,
Large herds of brush/weed eating goats are harder to maintain
in a disease free state.
If a packgoat is free from M, Ovipneumoniae there is no potential to infect Bighorn sheep or other animals with it. Why would they be restricted to non Bighorn sheep areas if healthy?.

I think the most important statement comes from Dr. Tom Besser who is the chair for the wild sheep disease research unit at Washington state university and Rocky Crate-Wild Sheep Foundation Chair in Wild Sheep Disease Research. In the wild sheep foundation newsletter from the summer of 2016 Dr. Besser stated "I believe that M ovipneumoniae test-negative packgoats represent a negligible risk for triggering a pneumonia outbreak's in Bighorn Sheep and that would be reasonable to take this into account when setting public lands policies."

I believe packgoats should be allowed like llamas and alpacas because they are very light on the trails and do not cause nearly the damage that horses due to trails and the environment.

Domestic sheep, goats, and packgoats should be separated in the documents. Bighorn sheep react differently when exposed to diseases that other animals carry. Animals such as other Bighorn Sheep, Mountain Goats, deer, Elk, bison, cattle and other wildlife all may carry M ovipeumoniae but there was no mention as to the percent that are infected in those species. There were no restrictions where they can go on the forest.
These animals unknowingly could expose a ram on a foray which would carry the pathogen back to the herd. That would be much more likely to happen than a M Ovipneumoniae free tested pack goat Or a Packgoat with people.

Dr Besser in the summer 2016 wild sheep magazine states that across 4 experiments that bighorn sheep had a

12.5% mortality with goats and a 9.5% mortality with cattle, llamas, and horses. This is when the goats had a 50% M.ovipneumoniae prevalence baised on his small study. In the latest Packgoat study only 3. 3 % of packable goats carried
M. Ovipneumoniae.

Shouldn't the risk assessment already be done as part of the EIS so we know what the mitigation measures could/would be? Is that going to be quantitative or qualitative? When will this be completed by? And will members of the packgoats community be involved in the process?

Are there studies that definitively show that packgoats not just a "goat strain"have caused deaths in Bighorn sheep?
The area between Hebgen Lake and Idaho is listed as a recreation area. In this area is the Continental divide Trail and those using packgoats to support them will have to abandon their hike that point.

Thank you. Kent Daniels

NAPgA Best Management Practices (BMP'S)
The BMP document is a living document which is open to editing and updating as needed.
NAPgA created the BMP's to establish responsible common sense guidelines for goatpacking. They are not intended to be overly restrictive or to discourage packgoat use in any way or in any location.
NAPgA will use best available science as a guide in which to measure and develop the BMP's to address wildlife and other resource concerns.
BMP#1: Individually Identify Your Packgoats

Each packgoat shall be individually identified. Each goat shall have a collar with a tag attached to it containing, at a minimum, the current owner's name and phone number.
Packgoats may be identified with a tattoo or microchip which is specific to each individual goat in conjunction with a collar.
Tattoos containing the individual packgoat's Scrapie Herd Number & ID or an official Scrapie ear tag may be used in conjunction with a collar.
BMP#2: Control
All packgoats shall be under direct human supervision at all times. They shall be on leads or have leads attached to their collar/halter.
In camp all packgoats shall be in direct sight or tethered in some fashion (picketing, high lining, etc.).
All packgoats shall be tethered at night within 30 feet of humans and bells will be attached to their collars.
BMP#3: Separation
Goatpackers shall minimize packgoat contact with wildlife.
BMP#4: Lost Packgoat
If a packgoat becomes lost every effort will be exhausted to locate and recover it.
If the owner is unable to locate and recover the lost packgoat the following agencies shall be contacted by telephone as soon as possible.
Information given should include a detailed description of the packgoat (size; color; ears erect, hanging or none, horned or not), any equipment they are carrying and the last known location. A photograph of the packgoat, if possible.
The local County Sheriff's office. Call 911 or the non-emergency line to dispatch of that county. Most hikers, hunters, land owners or citizens will call the sheriff's office first if they find a lost pack stock animal.
The state's Department of Fish and Game or Fish.
The local land management agency responsible for the area where the packgoat was lost. (Forest Service/BLM/DNR).
Post information, including photos if available, at convenience stores, trail heads and camp grounds with owners contact information, goat and gear descriptions.
Contact the North American Pack Goat Association (NAPgA) to report the loss. NAPgA will maintain a documentation file on all lost pack goats. NAPgA will request an initial report as well as an after-action report from the packgoat's owner/user. The information will be used for documentation as well as continued training and educational awareness training for pack goat users.
Contact the North American Pack Goat Association (NAPgA) to report the loss. NAPgA will maintain a documentation file on all lost pack goats. NAPgA will request an initial report as well as an after-action report from the packgoat's owner/user. The information will be used for documentation as well as continued training and educational awareness training for pack goat users.
BMP#5: Leave No Trace
Leave No Trace principles are strongly encouraged.
Leave No Trace principles are found on this website: https://lnt.org/learn/7-principles

North American Packgoat Association Summary of Understanding

Mycoplasma ovipneumoniae, often referred to by the nickname "Movi" (or some variation of that) is the pathogen currently believed to be the most likely primary cause of outbreaks of bighorn sheep pneumonia that have threatened recovery of that species. On November 10, 2015 information was presented at The Technical Packgoat Meeting to NAPgA and the Blue Mountain Forest Plan Revision team in Pendleton, Oregon that goats had a 90% prevalence rate of M. ovipneumoniae. In clarifying this information Dr. Tom Besser noted in an email Dec 15, 2015 that this information was obtained from a "report of a large US survey of sheep operations tested for MOVI". Domestic goats are different than domestic sheep and most certainly packgoats are very different from domestic sheep on public lands grazing allotments.

To consider packgoats the same as sheep for purposes of analyzing the risk of disease (pathogen) transmission to bighorn sheep is in error. Packgoat owners train packgoat prospects from a young age. Packgoats are inextricably bonded to their owner, which represents the "alpha goat" in their small herd. The lifestyle and care of a packgoat in herds of 2 to 10 differs greatly from that of a typical herd of domestic sheep or goats which can range in size of hundreds to thousands. Packgoats are seen by their owners as a significant investment in time and resources for 3 or 4 years before they are viable for packing purposes. Throughout a packgoat's life, the packgoat receives routine veterinary care in order to keep the goat healthy and prolong their useful life.

Available literature at the time of this 2015 meeting quoted decades-old science in its discussion of evidence for "disease transmission" from domestic goats to BHS. There was no, and to date remains no, scientific support to implicate packgoats in BHS die-offs. Goats and sheep are different species and the scientific data from captive commingling experiments concerning pathogen (M. ovipneumoniae or other historically examined pathogens, such as members of the Pasteurellaceae family of bacteria) transmission to bighorn sheep and subsequent disease is vastly different. The types of M. ovipneumoniae carried by domestic sheep differ genetically from those carried by domestic goats (Maksimovic, Cassirer, unpublished data). Goat types or "strains" of M. ovipneumoniae have resulted in relatively mild (non-fatal) respiratory illness, dramatically different than the nearly 100% fatality reported from captive commingling with domestic sheep. To group sheep and goats together, and even packgoats and other types of domestic goats, in the discussion of pathogen or disease transmission falsely implicates packgoats in BHS die-off's.

In more recent research by Besser et al. (2016), not a single domestic goat or bighorn sheep succumbed to any sort of pneumonia before or after being infected with a "goat type" of M. ovipneumoniae and not a single animal died as a result of disease during the study. Domestic goats were not shown to cause deaths of bighorn sheep as a result of pathogen ("disease") transmission, even when the 3 study goats, were inoculated/infected with a "goat type" of M. ovipneumoniae and forced to commingle with bighorn sheep for 100 days. All animals in the study, both the domestic goats and bighorn sheep began showing symptoms of respiratory illness, and all of them recovered prior to being euthanized by the researchers. While the publication would imply that "sub-lethal pneumonia" was induced in the bighorn sheep in this study, this is not consistent with the histopathology reports from lung tissue that was submitted to the Washington Animal Disease Diagnostic Laboratory in Pullman, WA. Those reports indicated that there were minimal to mild changes that are typically seen in small ruminants that are infected with M. ovipneumoniae (bronchiolar associated lymphoid tissue (BALT) hyperplasia and hyperplasia of the bronchial/bronchiolar epithelium); but no diagnosis of pneumonia was reported.

NAPgA is the leading organization in making recommendations on how to safely recreate with packgoats around BHS habitat. The complete lack of relevant research regarding M. ovipneumoniae prevalence in packgoats lead NAPgA to contact the USDA - Agricultural Research Unit - Animal Disease Research Unit (ARDU) in December of 2015. ADRU and APHIS (Animal and Plant Health Inspection Service) developed a packgoat M. ovipneumoniae surveillance research project.

In the spring of 2016 NAPgA recruited packgoat owners to participate in this research project. Consent was obtained from each packgoat owner. The majority of samples were collected by APHIS personnel and the remainder by Margaret Highland, DVM, PhD, Dipl. ACVP. Duplicate swabs were collected by both APHIS personnel and Dr. Highland. One swab was tested in the ADRU-ARS-USDA laboratory and the other was tested in the Washington Animal Disease Laboratory (except for kids <6 months of age and some of the non-packers that were also tested, which were tested only in the USDA-ARS-ADRU laboratory, as a means to save on research funds, since these animals are not used for packing).

A packgoat owner survey was completed. Information obtained was as follows:

*Goat information: Age, Sex, Breed

*Number of goats on premises (packers, non-packers)

*Illness(es) within the last year, including pinkeye/respiratory disease

*Any recent (last month) use of antibiotics

*Vaccination and antiparasitic regimen

*Use of packgoats on public lands? Proximity to bighorn sheep?

Samples collected (spring-fall 2016)

Packgoats

· 3 sets of duplicate nasal swabs collected at 4 week minimum intervals (few premises had only 1 or 2 sample collections)

· 1 blood sample for serum

· Other goats (milkers/breeders/etc) on premises were also tested

· At a minimum, 1 or 2 nasal swabs collected, at 1 to 3 time points

· Not all premises had "non-packer" goats on premises sampled

· All samples processed within 72 hours of collection

Sample Testing

*Nasal Swab samples tested by PCR and/or qPCR; positive samples confirmed by DNA sequencing

*PCR = polymerase chain reaction = technique that amplifies a segment of the bacteria's genome to determine if it is present

*Duplicate nasal swabs from the first sample collection submitted to the Washington Animal Disease Diagnostic Laboratory (qPCR analysis)

*Serum samples are currently banked frozen

Distribution

State	#premises	#packgoats	# other goats	Total
AZ	3	16	23	39
CA	6	16	42	58
CO	8	29	12	41
ID	25	101	35	136
KS	1	13	51	64
MT	5	21	6	27
NM	1	2	0	2
NV	2	8	0	8
OR	9	32	3	35
UT	5	34	2	36
WA	14	65	17	82
WY	4	40	3	43
Total	83	377	194	571

"Other goats" = milkers, bucks, kids under 4 months of age which would not be out packing or on long hikes

WADDL Test Results

# Goats Tested	Detected	Indeterminate *	Not Detected
485 (83premises)	18 (5 premises)	20 (9 premises, 3 overlapped with the detected premises)	474 (72 premises)
	3.7% (6.0%premises)	4.1% (10.8%premises)	92.2% (86.7%premises)

* Indeterminate indicates that either there was an extremely low number of M. ovipneumoniae present in the

sample OR the sample is truly negative, and the low detection is a false positive

WADDL Laboratory Test Results

NAPgA believes the large number of samples tested by the AAVLD accredited state diagnostic laboratory (WADDL) provide sufficient and valid evidence as to the very low prevalence of M. ovipneumoniae in packgoats.

ADRU-ARS-USDA Laboratory Results

8.2%, or 47, of all goats tested (n=571) had at least 1 sample in which M. ovipneumoniae was detected. Twenty-six of the positive animals were =4 months old, 35 were =12 months, and when considering only the "packers", 3.3% overall had M. ovipneumoniae detected on at least 1 sample collection. 10 of the 14 premises with at least 1 positive detection were premises reported to house kids or were a premises in which the packgoat(s) were in recent contact with a positive packgoat or kids from a positive premises. These results have not yet been published in a peer-reviewed venue. Overall NAPgA will provide the complete report after peer-reviewed publication.

This is a living document and will be updated as new scientific evidence-based information is available.