

PLENARY NOTES

Introductions to People and Process

- Daryl Lutz, WY Game & Fish Department Lander Region Wildlife Manager
 - WM herd is important to all: 3 public meetings plus Sheep Summit March 14
 - WY Game and Fish is hosting this process, partnering with WY Wild Sheep Foundation, Ruckelshaus Institute at UW & National Bighorn Sheep Center to make these workshops happen
 - Paid for primarily by the WY Wild Sheep Foundation
 - This process has worked elsewhere with Mule Deer Working Group
 - Lots of challenges but lots of opportunity
- Steve Kilpatrick, WY Wild Sheep Foundation
 - Board & members have been watching WM herd for a long time & have invested considerable time and money in this herd
 - WY G&F needs your help
 - Bighorn trends are worrisome, but WM herd has been dropping
 - Expert panel in March-bringing in people from elsewhere to come up with some recommendations
- Jessica Western, Ruckelshaus Institute
 - Share results of situation assessment
 - Outline this process of these workshops
 - Tonight's Goal: What do you think are the **issues** related to this herd?

Summary of Situation Assessment, description of Collaborative Learning, and Objectives for Workshop #1 (Jessica Western)

- Talked to 21 people from almost all stakeholder types for the assessment. The only stakeholder type that did not respond to the invitation to participate were local elected officials.
- All respondents were willing to contribute to a collaborative process
- All respondents were deeply concerned regarding this herd
- Respondents attributed a variety of causes to low lamb recruitment in the herd including disease, predation or presence of carnivores who elicit the movement of sheep to less nutritious areas, lack of nutritious forage generally and in specific areas, and absence of people or too many people emerged, the most dominant causes that emerges from the interviews for the herd's decline were disease and low lamb recruitment
- Key findings: participants felt that facilitation or leadership in a collaborative process was important, scientists and technical expertise needs to be included, and using a combination of public engagement and scientific information sharing would be most helpful
- Collaboration and Collaborative Learning: a process in which interdependent parties work together to affect the future of an issue of shared interests
- Website holding information: www.wgfd.wyo.gov/wmbhs (as well as the National Bighorn Sheep Center website <https://bighorn.org/>), Wyoming Wild Sheep - <https://www.wyomingwildsheep.org/news.asp>
- Objectives for Workshop #1:
 - Introduce Whiskey Mountain Bighorn collaborative process.
 - Provide summary of the recently completed Situation Assessment.

- Provide information regarding WGFD understanding of herd's condition.
- Explore all issues and interests related to the Whiskey Mountain Bighorn herd.
- Discuss next steps at next meeting.
- Meeting Ground Rules:
 - We all have an interest in the Whiskey Mountain Bighorn Sheep Herd and will use respectful behavior to all.
 - It's okay to disagree
 - We will seek to understand while seeking to be understood: ask "why?".
 - We will all participate in making this a successful collaborative learning opportunity – please don't interrupt others, dominate or withhold information.
 - We will be constructive: Discuss less what does not work and more what we think will work.
 - Side conversations are disruptive.
 - If possible, we will turn off cell phones and pagers. If we can't, we will take the call outside the room.

Information regarding herd's condition from WY Game & Fish Department (Jason Hunter-Regional Supervisor in Lander & Greg Anderson, Wildlife Biologist)

- Department personnel present included: habitat and wildlife biologists (Lander and Pinedale, game wardens (Dubois and Pinedale), and large carnivore biologists. WY G&F Commission is concerned about this herd-lamb mortality/nutrition study this summer, wolf issues), G&F needs the public's input and support
- 2019 Whiskey Mountain Bighorn Sheep Status Summary
 - Status of population
 - What G&F has tried
 - Also includes large management area on Pinedale side of the mountains too (entire northern Wind River Range)
 - Primary winter range sites within the Dubois area pockets and those around the Green River Lakes-these all go into the annual count numbers for the larger WM herd
 - Historical importance of WM herd: trapped transplanted from WM herd (150 taken out every year to supplement BHS herds in WY, across west to augment herds across the west), once was the largest wintering herd in the US (not now due to long decline)
 - Used to see ~ 50 sheep on Sheep Ridge (now only a handful)
 - Sheep count trends: decline from 1989-2017, 360 sheep total, utilizing different habitats
 - Primary concerns: habitat/nutrition, disease, predators
 - Disease: impacts on the ground is underlying #1 issue
 - Habitat: low elevation winter range is in pretty good shape, nutrition, utilization figures from past decade (below 50% usage), habitat issues on high elevation summer ranges (lower nutrition perhaps, unusual)
 - Predator activity: mountain lion presence, wolves have demonstrated impact on behavior of sheep (moving into higher elevation ranges with less nutrition during winter)
 - Impacts of population decline to local economy/way of life: hunting licenses, hikes/outings, tours with huge recreational impact to Dubois
 - What has been done?
 - Lamb survival survey (1997-2001)
 - Mineral blocks (1999-2004) (did not see much indication of improvements)
 - Coyote control (2004-2005)
 - Sheep ridge burn (2004)
 - Herbicide application (2005)

- Torrey Rim burn (2005)
- De-worm (2009)
- Remove/necropsy sick sheep (2010) (biotypes of pathogens that may cause pneumonia in BHS)
- Test 24 sheep (2010)
- Test 47 sheep (2012)
- Test 22 sheep (2014) (not putting on weight in the summer)
- Herbicide application (2014)
- Fertilizer application (2015)
- Body condition study (2015-2018)
- Created new wolf hunt area (2018) (with idea of increasing harvest)
- Initiate lamb survival study (2019) (need to identify when, where and why lambs are or are not surviving)
- Dubois Badlands herd: around 12 years ago there were ~150 sheep, now moreso ~70 sheep in 2018 winter (lots of pick-up heads in badlands likely due to pneumonia), lamb recruitment is very poor here too, north side interact primary in Area 5 but there is also resident group stays in Dubois Badlands
- History: 1920's/30's not a lot of sheep around, big burn on Whiskey Mountain in 30's-40's for elk and started having a lot of BHS on Whiskey, 1969 Technical Committee formed, fire in 1970's population grew exponentially (peaked out right before 1991 die off)

Breakout Groups (individual notes per 6 breakout groups on flipcharts)

- All of this will be used in a path forward: WM bighorn sheep herd strategy/plan grounded in public input and science (focus on the issues tonight, thoughts or ideas denoted with an asterisk (*) are those that were agreed upon by the groups.

Report Back

- Highlighted similar take-aways from each group discussion (will be included in the notes from the breakout groups-highlighted/asterisked or starred/circled in the notes)
- April 3: handout to see the results of the summary that captures all of these notes/input with breakout groups on solutions
- This report back/summary will be emailed out to everyone after Jessica and her graduate students summarize these breakout group notes

Questions & Discussion

- Access: Why haven't roads into winter range been opened? Increased presence of people would keep wolves away from bighorns. Game and Fish has considered this but decided this year they wouldn't allow access. Impact to the sheep herd from this/human activity? "Should open it back up to all"
- Livestock: What is the livestock grazing allotment activity in the Whiskey Mountain area? Traditionally not too much but the allotment activity has lessened over the years. (Cold Springs area on USFS Wilderness still grazing sheep?)

Next steps

- NBSC mentioned the organization's upcoming Annual Meeting (2/21) in Dubois to learn about WM herd update as well as lamb mortality study coming up this summer
- Pinedale meetings: Meeting next Tuesday night (2/19) in Pinedale with that community as well as a wrap-up June 5 meeting with strategy/plan

BREAKOUT GROUP NOTES

Flipchart Notes Whiskey Mountain Bighorn Sheep Collaboration Workshop February 11 and Pinedale, February 19, 2019

Breakout Groups: Tell WGFD what you think the issues are that are affecting this herd?

Thoughts or ideas denoted with an asterisk (*) are those that were agreed upon by the groups

DUBOIS MEETING

Group 1

Important, integrated factor*

Summer habitat nutrition in question*

Poor condition coming off summer range*

Mineral availability?*

Unknowns in nutritional deficits on summer range?

WGFD funding and accountability e.g. for summer range studies*

Examination of historical protections, synthesis and gaps?...results.*

Competition on summer range? Wild and domestic*

Invasives*

Coyotes at Red Creek? Impacts and behavioral response?*

Predation as driver of distribution on summer/winter range?*

Need results from UW lamb survival study to evaluate impact of predators....

Coyote vs. lion?

Historical effects of predation vs. current conditions.*

Human access (e.g. hunters and motorized and equal access for all.

Wilderness regulations restrictive of habitat projects*

Lack of data (or shortage) on winter ranges outside Whiskey/Torrey rim.

Comparing within the herd unit habitat and nutrition factors.*

Pollution as driver of affecting habitat/nutrition (e.g. air, water)

Wolves: Canadian wolves vs. historical species (smaller)*

Wolves: experimental status*

Wolves: added stressor/increased stress*

Wolves: 1999 promise to "take them out" if impacting wintering wildlife*

Wolves: Comparing effects of wolves within the herd unit, across ranges*

Wolves: Honesty, transparency from WGFD on effect of wolves*

Wolves: Is the priority wolves or sheep ("choose or lose"). *

Do vaccines, medicines, antibiotics, etc. work? "Why are we not trying this?"*

Adding genetic diversity? *

Difficulty of administering meds/vaccines to wild sheep. *

Predation and habitat/nutrition as added stressors that make sheep more vulnerable to disease – all tied together*

Expression of disease/asymptomatic sheep*

Disease and re-introduction/augmentation dynamics*

WGFD funding to figure out disease issues.*

Human impacts? What are they?

Budget for sheep.

Open Gates

Honesty

Estimate too high.

Group 2

Habitat/Nutrition: Advanced succession in key areas – lack of fire.

Habitat/Nutrition: poor body condition after summer

Predation: We don't know overall impacts of predators on BHS – need the science.

Disease: lack of knowledge on interactions of disease with nutrition and genetics.

Disease: lack of science/understanding of effects of specific strains of bacteria leading to pneumonia.

Other: Access to get into sheep ranges: more or less?

Habitat disturbed/negatively impacted by high recreational use (Glacier Trail and Wilderness) summer and winter.

Habitat negatively impacted by off-road ATV use.

Potential overuse by livestock – excessive competition (especially on North side).

Advanced succession on key areas/lack of fire* - Increase prescribed burns forest wide. Conduct thorough, robust forage study. Poor body condition after summer.*

Industrial pollution possibly affecting nutrition, mineral uptake in forage (i.e. acid rain)*

Mild winters affecting distribution, not moving to lower traditional winter ranges.

Has there been effects on lamb recruitment or health overall resulting from herbicide treatments in the past?

Changes in composition relative to time when sheep populations were doing well, i.e. micronutrients.

Competition with other large ungulates, especially elk.

Increased stress and displacement levels due to human presence.

Seen increases in late season hunting hunter numbers, increased road traffic.

There were more access points/ recreation back when sheep numbers were high (i.e. noon rock etc.)

Presence of invasives species, noxious weeds, nonnative plants.

Climatological changes impacting vegetation quality (i.e. drought, annual precipitation decrease).

Increased road closures have caused lack of access, leads to fewer predators taken.

Increased wolf activity/presence – longer/late wolf season.

High coyote numbers and plenty of eagles.

We don't know the impacts of predators on BHS*

Wolves: eliminate closing date, keep wolf season open until quota filled.

Proximity to domestic sheep.

Lack of science and understanding – need more studying/education re. effects of specific strains of bacteria which lead to pneumonia.*

Highway...?

Increased road closures lead to lack of knowledge.

Group 3

Disease: what's the difference between our sheep and herds that have come back?

Disease: potential white muscle disease.
Selenium: how much for wild sheep?
Eliminate private goat packing.
Disease: scrapie possible? CWD?
Disease: What is different between 70's-80's and now?
Lambs die between July and August – stress events? *
Domestic sheep come from southern Winds.
Habitat: poor nutrition intake because of predator pressures.
Do we know summer range is truly poor? *
Examine fire use on summer/winter ranges – invite Wyoming Wilderness Association – burns in Wildernesses. *
Weeds
What has changed in Nutrition between pre and post die-off? *
Herbicide effects on sheep.
Predators: Open roads for hunting (WHMA)*
Sheep's responses to dogs.
Wolves pressured off winter range – predator pressures on summer range.
Stealth vs. coursing predators – predators pressure sheep*
Disease pass through predators?
Are lambs truly being born alive?

Group 4

Excess transplanting? Impacts to this herd, success elsewhere.
Predators: wolves – area 9
Predators: increased predators lead to fewer sheep.
Predators: control and hunting methods for wolves limited.
Predators: sheep still learning how to deal with increase of wolves.
Predator hunting area closures*
Reduced predation control.
Environmental groups: Communicate with local groups to activate local involvement. More enlargement locally.*
Habitat: Fire – increased sheep.
Understand underlying reasons predators and sheep relationship has changed*
Is change in distribution influencing sheep counts?
Disease: main problem that influences the rest of the issues – learn about possible new factors, there hosts*
Fire suppression and lack of burns?
Climate change: changes forage and nutrition.
Increase in people leads to changes in sheep.
Herd genetics, bring genetics back – Genetic vigor.
Micronutrients deficient – selenium?
Acid load – change in soil nutrients. – Expert panel question.
Forage quality*
Herbicide influence on forage – current and long term.
INTERRELATEDNESS OF ALL **
Elk herd increase – impact to winter and summer range? Habitat/Nutrition: poor body condition after summer*

Increase elk – decrease sheep? *
Elk aggression and competition*
Winter range look good because of fewer sheep?
Change in forage type – has that lead to a change in stoichiometry, shift in forage?
Grazing influence on forage stand composition and nutrients*
Small sheep suggest poor forage.
Hunting season – Any ram leads to fewer ram impacts.
Don't hunt near conservation camp.
Coordinate with tribes – hunting – management.
Domestic sheep?
Influence of capture and collaring on sheep?
Research influence.
Increase winter range activity?

Group 5

Fire*
Summer Habitat*
Timber thinning and/or fire*
Wolves – predator zone? Increase take?
Migration Corridors
Stress – Migration
Encroachment between others, elk.
Disease transmission: carriers e.g. mites, black flies, eagles, etc.*
Prescribe burns.
Other Predators.
Winter access for predator hunting*
Wolf pressure causing decline in winter feed usage*
Wolf interest in sheep mortality?
Lion predation being high*
Forage nutrients analysis: selenium, summer habitat*
Salt/mineral blocks
Herbicide used
Other species' selenium levels.
Barren Ewe group – relating to habitat.
North side/Spring Mountain herd* - antibodies, genetics, difference to WMBHS
Herbicide used on Torrey* - Selenium
Glacier Lake Meadow* - high protein, nutritious seed, basin wild rye, lions live there (cover)
Poisonous noxious weeds – various stages/seasons
Control group of sheep* - move to see if habitat or animal genetics, compare Whiskey Mountain herd to other herds.
Fringed Sage loss – anti-parasite plants

Group 6

Genetics*
Disease function weak genetics*
Historically healthy herd: genetic changes?*Thin skulls relative to other hunt areas – bone density.

Lack of genetic diversity
Decrease in nutrition: Disease susceptibility*
Local pockets of summer range provide disease sink/vector: decreased nutrition.
Predators: eagles?*Habitat: Distinction between winter and summer range
Summer Range Habitat quality: Specific variables influence summer range quality - Could be acid rain/snow influence.*
Parasite, etc. in water BHS are drinking: reduction of overall fitness: susceptible to disease
Drought*
Predators – access to hunt – open WHMA Roads
Wolves/Predators – indirect impacts – Harassment of BHS - BHS in poorer habitat
Predators – access to hunt – open WHMA Roads
Poor summer range – decreased nutrition – decrease milk quality – increase disease susceptibility
Not just 1 thing: all connected (predation, disease, nutrition) *
Summer recreation displacing BHS
Summer over grazing.

PINEDALE MEETING

Is it Pregnancy, or lambs being lost after their born? Answer: No, pregnancy rates are high (~90%)
Has the change in distribution been consistent? -Answer: Yes, last 4 Years. Elk have changed distribution also, except towards the highway.
Arizona had a similar problem with some lions (10%) and took out specific, collared Mountain Lions that were taking lambs = effective
We may be seeing the result of carrying too many sheep (2,000) for too many years (i.e. habitat)
Do they mix with other herds (i.e. Badlands?) – Answer: Not Commonly
Are the sheep on the reservation declining?
Any similar Declines in Wiggins Fork Sheep? – Answer: Other Herds yes, but generally recovering
When are the sheep sampled for lungworms?
Is the mortality more with lambs, primarily? Yes
Have any lambs built a resistance?
Has there been any additional stress? Recreation?
Has there been any other high-elevation species affected?
How many sheep are being counted? How many are likely missed?
Is there chance of HA8 sheep to increase? – Answer: Our trends mimic the Dubois side
Are our resident sheep also declining? We don't know (our lamb ratios are better)
Is it too early to tell if survival is better or worse where they are wintering now?
There has been dramatic acidification in the Winds compared to other Mountain ranges. Some relation?
Upper Green has more diverse geology/minerals