

Alaska Sheep and Goat Disease Workgroup
December 16, 2018
Location: Crowne Plaza Anchorage
109 W. International Airport Road, Anchorage, Alaska 99518
Meeting Summary – FINAL

ATTENDANCE

Participants: Bob Cassell, Suzy Crosby, Stacey Frost Kleinsmith, Karen Gordon, Tina Judd, Jeff Judd, Kevin Kehoe, Dan Montgomery, Jim O'Connor, Michelle Olsen, Becky Schwanke, Amy Seitz, John Sturgeon

State of Alaska Observers: Bob Gerlach, Erik Johnson, Tony Kavalok, Ted Spraker

Observers: Tiana Thomas

Facilitation: Heather Bergman and Sam Haas

PARAMETERS OF THE DIALOGUE

The group discussed the charter and protocols, the timeframe for work, and potential types of agreement.

Charter and Protocols

Heather Bergman presented the proposed protocols of engagement for the Workgroup.

- The purpose of the Workgroup is to reach agreement on solutions that protect Alaska's wild sheep and goats from transmission of *M. ovi* while minimizing the impact on domestic producers and owners.
- The members listed in the protocols document will be the only active participants in Workgroup discussions. This helps to create a rapport and relationship that assists with consensus-building. Workgroup members may send an alternate participant if they cannot attend meetings; anyone who would like to designate an alternate should speak with Heather Bergman. It is the responsibility of each Workgroup member to ensure that both they and their alternate are caught up with the Workgroup's progress to ensure that the Workgroup can advance its discussions. Representatives from the State of Alaska are present to observe the meeting and answer Workgroup questions.
- Workgroup members may form subcommittees to complete tasks. Subcommittees do not make decisions on behalf of the entire Workgroup.
- The Workgroup meetings are open to the public. The Workgroup will not accept public comments, though members of the public may speak with Workgroup members outside of meetings to share their thoughts.
- The Workgroup will make decisions based on consensus. Consensus means that it is the responsibility of Workgroup members to propose ideas in a way that encourages support from other members, and it is the responsibility of people who do not agree with an idea to help adjust the idea so that they can agree to it. If it is not possible to agree, the reasons will be listed (i.e., "some people thought X, some people thought Y).
- The facilitator is willing to include time on agendas for members to caucus, but Workgroup members are not obliged to do so.
- Peak Facilitation will write summaries for each meeting. The summaries are non-attributory. Summaries will be sent to Workgroup members in draft form, and members

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may suggest revisions. Peak Facilitation will integrate as many suggestions as possible and then send out a final summary, which Workgroup members may distribute as they like. Peak Facilitation will write a final report which will describe the Workgroup process and recommendations.

- Workgroup members may talk to whomever they like outside of Workgroup meetings but will not speak on behalf of the entire Workgroup.
- Workgroup members will adhere to the ground rules outlined in the protocols document.

Clarifying Questions

Workgroup members asked clarifying questions about the protocols. Questions are indicated in italics, followed by the response in plain text.

The Alaska Wild Sheep Foundation is concerned about the proposed Workgroup timeline, as it does not align with the legislative calendar. Is it possible to reach agreement before mid-January?

Every member of the Workgroup may follow their own plan. The Alaska Wild Sheep Foundation has indicated that they will participate constructively in the Workgroup discussion. There will be a clear sense of whether the group will find a mutually-agreeable solution after the second meeting.

Types of Agreement

Heather Bergman presented the range of potential types of agreement that the group may reach. Most groups reach a mix of the following types of agreement.

- An agreement on some principle or concept (the bare minimum of agreement)
- A geographically-specific or -variable solution
- Contingent agreements (e.g., X will happen once Y happens) or a sequenced agreement (e.g., first, this kind of thing should happen, and then if these benchmarks are met, this other set of things can happen)
- A procedural agreement (e.g., the group is going to do X and if it goes well then Y might happen), which may include joint report-writing or joint presentations
- A financial agreement (e.g., compensatory payments, fee payments, etc.)
- A joint fact-finding agreement (i.e., some questions do not have definitive answers, and the group agrees those questions should be answered in a specific way)

Positions vs. Interests

- Unlike distributive bargaining, interest-based negotiation is not based in the division of resources. Interest-based negotiation creates an opportunity for expanding the potential solutions. Rather than pursuing win-lose options, interest-based negotiation allows for a win-win solution.
- Interest-based negotiation is a more inclusive way of solving problems. Participants are encouraged to think about their underlying interests in an issue (i.e., why do you want what you want?), rather than their position (i.e., what do you want?).

INTERESTS IN THE ISSUE

Group members identified their interests. To distinguish between interests and positions, group members asked themselves: “Are there multiple ways to achieve this?” Below is the list of interests, followed by the discussion that accompanied the brainstorming.

Interests

- Protect wild and domestic Caprinae from *M. ovi*

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- Protect Alaska-grown and harvested Caprinae for food security
- Minimize the regulatory and financial impacts on the domestic community related to *M. ovi*
- Increase understanding of livestock management strategies regarding *M. ovi*
- Preserve traditional lifestyles and the culture of farming and hunting regarding Caprinae
- Respect private property
- Preserve access to the backcountry for disease-free pack goats

Group Discussion of Interests

Group members brainstormed and discussed their interests.

- Group members have an interest in healthy Alaskan wildlife that will not succumb to an all-age pneumonia die-off. There was discussion about whether “wildlife” referred to Dall sheep or also included moose, caribou, and other Caprinae. There is an interest both in maintaining a healthy Caprinae population and in creating a healthy Alaskan wildlife economy.
- Group members have an interest in continuing to build a viable domestic sheep and goat industry in Alaska for agriculture.
- Group members would like the State of Alaska to publicly advance balanced solutions that represent the interests hunting groups and domestic sheep/goat owners. The community should have a balanced sense of the conversation, and the State of Alaska should represent the range of interests.
- Group members have an interest in maintaining the option of importing new animals for purposes of protecting the genetic diversity of the agriculture system.
- Group members have an interest in reducing social conflict through the protection of private property as it relates to this issue.
- Group members have an interest in protecting food security, both for the sake of hunters and farmers and for cultural preservation purposes.
- Group members have an interest in preserving access for pack goats through the backcountry.
- Group members have an interest in increasing understanding of livestock management for *M. ovi*.
- Group members have an interest in providing adequate resources for the continued testing of *M. ovi* to encourage owners to be part of the solution.
- Group members care about the genetic diversity of Caprinae and would like for the group to consider importing domestic Caprinae.

PERCEPTIONS ON THE SCIENCE

The Workgroup discussed what scientific information they needed to know before the discussion could proceed. Participants were given sticky notes of two different colors. On one color, they were asked to write what they think is known for certain (established scientific facts), and on the other colored sticky they were asked to write what they think is unknown (scientific questions).

Convergent Perspectives

What We Think We Know for Sure

- Mycoplasma-like species exist in both wild and domestic populations in Alaska
- There is 4% confirmed positive test on Alaska domestic species; test results from a reputable lab with multiple testing samples
- There are 200+ types of *M. ovi* in domestic sheep, and not all are fatal to wild sheep

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- *M. ovi* is a bacterium of concern for both wild and domestic populations in Alaska
- There have been no recorded die-offs in Alaska's Dall sheep populations attributed to *M. ovi*
- There is an accepted protocol for sufficiently and accurately determining the presence *M. ovi*
- Strain-typing of *M. ovi* found in wild sheep helps to identify sources of transmission to wild sheep
- Although it is possible, *M. ovi* transmission is less likely in Alaska for a variety of reasons
- *M. ovi* is well-documented in wild Caprinae as a causative agent of pneumonia
- Epizootic die-offs of wild sheep are polymicrobial
- *M. ovi* can be fatal to domestic sheep and goats in combination with other pathogens

What We Do Not Know for Sure

- Will culling *M. ovi*-positive animals prevent disease or eliminate genetics that have acclimated to *M. ovi* and lead to more disease resistance?
- Where are the current and potential locations with the greatest risk of contact between domestic and wild sheep in Alaska?
- How much distance of separation will prevent transmission of *M. ovi* from infected domestic sheep/goats to wild sheep/goats?
- Why are positive results inconsistent and what does it mean?
- What is the infection status of the wild herds of various other herbivores in Alaska?
- Based on previous tests, what are the strains of *M. ovi* carried by domestic sheep and goats in Alaska?
- How much fencing (size, height, etc.), is needed to separate domestic sheep/goats from wild sheep/goats?

Between Convergent and Divergent Perspectives

What We Think We Know for Sure

- It is impossible to have zero *M. ovi*/mycoplasma
- If an animal has only one positive nasal swab, it is not necessarily considered positive for *M. ovi*

What We Do Not Know for Sure

- What are the different *M. ovi* strains, sources, eras of origin, etc., and do these things matter?
- *M. ovi* may have been present in the wild sheep population in Alaska for over 100 years, and testing has only recently become available; this does not mean transmission has only recently occurred within wild sheep and goat populations.

Divergent Perspectives

What We Think We Know for Sure

- *M. ovi* has been shown to exist in approximately 5% of Alaskan Caprinae, both wild and domestic (with 11% in mountain goats)
- There has been no confirmed *M. ovi* in Alaska's Dall sheep population (serotype and full DNA sequencing in an accredited lab)

Group Discussion of What We Think We Know for Sure

- Good science requires replication. Workgroup members who presented the statistic of *M. ovi* existing in 5% of Alaskan Caprinae shared that this was pulled from an Alaska Fish and

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Game study. Others shared that the domestic testing was replicated and the wild testing was reported by a single lab so is not a replicated study (except for one caribou calf, which was reported by two labs). Dr. Tom Besser, who focuses on the epidemiology of zoonotic bacteria agents, has said that the DNA sequencing does not provide sufficient evidence to guarantee that it is *M. ovi*.

- The State draws blood from wild sheep when they do research projects; both serotype and nasal swab samples are being sent to labs. There are pros and cons to both serotype and nasal swab diagnostics. When blood is drawn, it is tested for serology (the presence or absence of an antibody), which is one indicator of whether the animal has been exposed and had an immune response in the past to that pathogen. Nasal swabs are a molecular diagnostic genetic test called polymerase chain reaction (PCR) and provide a binary result (testing positive or negative for the *M. ovi* bacterium).
- Bob Gerlach, State Veterinarian, stated that the two labs that tested the domestic samples used the PCR technique. The analysis of the data from the 2 labs showed a 95% agreement in the lab results, mycoplasma was found in 4% of the domestic animals. The wildlife samples are being evaluated, mycoplasma pneumonia has been identified in several species of wildlife but there has not be any determination of strain types at this time. However, since there is a small or limited sample size collected from the population of wild sheep in Alaska, the prevalence or percentages have to be considered an estimate that could change as more samples are collected. Because there is no standard regulatory test procedure, each lab has adapted a validated PCR test procedure to evaluate the samples. The Washington Animal Disease Diagnostic Lab (WADDL) had modified or refined some of the test parameters to increase the sensitivity of the detection rate and has collaborated with the US Department of Agriculture (USDA) in this process.
- *M. ovi* is a specific strain of mycoplasma. Due to difficulty culturing the bacterium, there has been no scientific determination of virulence factors. There must be a combination of pathogens and stressors present to cause an imbalance in the lung function of the animal to result in pneumonia or respiratory disease. Presence of the pathogen does not equate to disease and subsequent death of the animal.
- Identifying a mycoplasma species in an unconventional host (e.g., moose or caribou) would require a higher scientific bar than the existing test used to define the presence or absence in domestic sheep. This higher standard could be the use of a PCR followed by a sequencing test.
- It is possible that domestic sheep in the Lower 48 have had interaction with wild sheep for 150 years; domestic sheep in Alaska have had limited contact with wild sheep. There is speculation that this makes the wild sheep in AK more susceptible to disease, as they have not developed an immunity. Others believe there is no scientific evidence of this yet.
- *M. ovi* may be a causative agent of pneumonia if other pathogens and other stressors are present; it maybe a primary positive agent. It is part of the group of pathogens that create the imbalance in a system that causes pneumonia. *M. ovi* can be fatal to domestic sheep and goats, depending on other factors or stressors. The primary susceptible animals are the young, old, and those with immune weaknesses.

Group Discussion of What Is Not Known for Sure

- The origination era of *M. ovi* is still unclear. The belief is that *M. ovi* came from domestic animals when they came to America. It would be interesting to determine the source of *M. ovi* in wild animals.

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- Hunting statistics can be evaluated determine numbers of animals harvested. The total harvest is determined by ADFG based on population dynamics. If there is a decline in hunter harvest, it is it may be a result of any number of factors (quality of habitat, weather conditions, increased population of animals over the habitats carrying capacity). Hunting is just one contributing factor to population dynamics.
- It has been shown that some wild animals survive an infection of *M. ovi* but are susceptible to other strains. Evidence indicates that infection of one strain does not prevent infection of another strain.

BRAINSTORMING IDEAS TO MEET MULTIPLE INTERESTS

Participants briefly shared their preliminary ideas for ways to meet the identified interests. Participants asked clarifying questions to help them understand other participants' preliminary ideas. Proposed ideas are shown in italics, followed by discussion below.

Offer in-state artificial insemination of domestic sheep and goats

- Artificial insemination reduces the need to import fresh bloodlines to Alaska.
- Implementation of artificial insemination would not be simple.

Create a grant program to offset artificial insemination costs

*Develop import protocols for *M. ovi*-free animals*

Help farmers understand and form a biosecurity plan for individual farms

- *M. ovi* would be a factor in the plan.
- Some states have educational webinars for farmers; Alaska could do the same.

Develop a pack goat certification program recognized by State agencies to allow pack goats access to wilderness and free them from disease

- There were several questions about why the certification program should be limited to pack goats. Pack goats are hiking companions and are taken into the backcountry.
- Alaska's Department of Environmental Conservation (DEC) would be the entity responsible for the certification program.

*Continue funding for testing of domestic and wild populations to enhance learning and develop a more scientific understanding of *M. ovi**

*Develop protocols for farms to get certified as *M. ovi*-free and receive assistance for the testing costs*

- The protocols would be aimed toward farms that do not take their animals off their property but may breed their animals to sell.
- There is a value, both for the owners and the State of Alaska, in ensuring that animals are *M. ovi*-free.

*Use 4H clubs and fairs as a venue for education and testing for *M. ovi**

*Define what it means to be *M. ovi*-positive*

*Outline protocols for actions if an animal is found to be *M.ovi*-positive*

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Add M. ovi to the reportable disease list

Provide enhanced confidentiality for personal private records (e.g., Health Insurance Portability and Accountability Act for sheep and goats.).

Map at-risk zones and develop protocols for higher-risk areas (wild contact with domestics; could be temporal, too)

- Risk zones (areas where domestic animals are more likely to come into contact with wild animals) could be mapped spatially.
- There could be a temporal aspect to the at-risk protocols (times of particular concern).

Develop protocols for domestic and wild Caprinae interface/contact (“if..., then...”)

Develop an outreach and education plan for off-grid domestic owners

Develop a funding program for replacement costs for voluntary culling of M. ovi (+) animals (through an impartial third party)

Develop buffer/separation zones and protocols for domestic and wild populations

Develop a decision matrix for scientific concerns/questions and policy options that provide an ability to meet the desired interests and potential outcomes

Consider M. ovi-free as a desired outcome

M. ovi-free, as an option, is part of the implementation/execution phase.

Universal fencing

All domestic animals would be contained in an approved enclosure that prevents nose-to-nose contact.

Create a financial compensation program for universal fencing

The program could be part of a sequenced set of recommendations. First, the areas and times of greatest risk should be mapped. In areas where risk is highest, X fencing should be set up with Y system of financial support.

NEXT STEPS

- Participants should plan for an all-day meeting on January 5 and a half-day meeting on January 6. The location and details will be sent out soon.
- During the January meeting, the Workgroup will begin to work through the proposed ideas by engaging in a “yes, if” discussion.
- Michelle Olsen and Becky Schwanke will work together to identify scientific questions that they have and a point-person to answer those questions. They will create a written document in advance of the next meeting and present it.
- Workgroup members should also hold February 2 in their calendars.

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