



## WAFWA Wild Sheep Working Group 2019 Summer Meeting Notes



Sunday, July 14, 2019, 8 am - noon (only half day)  
Big Blue River Room, Hilton Garden Inn  
Manhattan, Kansas

Welcome, announcements, introductions, attendance sign-up sheet, and agenda Review  
Mike - Welcome, Introductions, Agenda review

Attendees: 32 Total (7 of 27 WSWG members) and 25 guests (representing states, federal agencies, and NGOs)  
Members in Attendance: Andy Holland (CO), Hollie Miyasaki (ID), Todd Nordeen (NE), Mike Cox (NV), Colin Gillin (OR), Brian Logan (USFS), Clay Brewer, (WSF),

### Progress and Updates on Committees

#### Mycoplasma ovipneumoniae west-wide strain map and analyses

- Mike - chasing bugs, evolution in our detection, still many unknowns, acknowledging the primary pneumonia trigger is M.ovi, Seems to be varied virulence levels in Movi strains in relation to herd response, lots of data collected across the west; we set up Movi Strain Committee to work on this;  
- DMV Strategy document recognizes the varied response by herds to Movi; is there any pattern/explanation for some herds recovering well vs. struggling from disease events involving particular Movi strains; acknowledge the entire west is one big meta-population when you look at strains that cross state lines; project objectives are to assess and compare herd performance to different strains; used Desert BHS Movi strains in Mojave Desert on map shown as an example.
- Peri - What constitutes a strain? Looking at a set number of genes and seeing if they can be related or if distant. Movi strain mapping has been done on wild sheep and domestic sheep and goats; Phylogenetic or “dendrogram” tree of Movi strain relatedness shown on screen. Strains named based on where originally detected. Some strains replaced by others.
- Mike - why are some herds demographically impacted by one strain but not so much by another one? For example, in the Nevada/California Mojave Desert, initially the Southern Nevada strain had limited impacts to herds in Nevada, but when the Mojave strain was detected first in California and then year later in Nevada, poor herd responses occurred in both California and Nevada. Another example just north of this metapopulation is where NTTR (Nevada Test and Training Range - DOD lands) strain was detected and we have had single digit lamb ratios for 5 years having huge impact to herds. This strain seems to be spreading from wild sheep to wild sheep herd in both directions. So is the herd a “rock star” herd (because of some immunity) or is it the virulency level in the Movi strain that causes the differences in herd responses?
- Annette Roug - Some herds they have found 3-4 different Movi strains, testing many years, Composition of the other pathogens (Pasteurellaceae bacteria and viruses) has not changed much.
- Mike can we find patterns of Movi strain/herd responses across states, regions, and the entire west?
- Covy - hard to understand the pathogens and fatal ones, etc...
- Andy - We seem to be chasing strains that are changing all the time in herds; don't see the utility of monitoring Movi; what is the end game? You can't get just one flu shot.
- Mike - what herds are overcoming this and why?
- Peri - One of the important uses of knowing Movi strains is stated in the DMV strategy that we would experiment with relocating bighorn with like Movi strains of the recipient herd and

- see if there is any impacts to either animals to see if that is a viable translocation management option. But could all change tomorrow, strains move with the sheep.
- Mike - novel (direct linkage to domestic sheep) vs naturalized (still originated in domestics but has persisted and been shared among wild sheep herds for some time) strains. Many in the livestock industry still don't believe domestics are involved but rather want to point the finger at other wildlife. Can we find herds as source stock that are safe to use? In Nevada, do not want to move strains across landscape but are they able to share less virulent strains without concern? Good to know what herds are appropriate for translocations.
  - Peri - Chasing the bugs - We will need get over our concerns and accept the fact that we need to continue to learn and spend time and money on monitoring to understand their affect so to make informed management decisions. Livestock industry spends millions to understand pathogens and have yet to uncover and make sense of things; they have yet to produce vaccine for Mycoplasma.
  - Mike - what management actions can we apply with Movi strain? Test and removal. Have positive results from test and removal in Nevada, Hells Canyon, and Custer State Park (SD).
  - Collin - all wildlife diseases are related to actions taken by human activities, Human dimensions and interactions with domestic industry - stay in the human dimensions game with stakeholders.
  - Mike - document on screen - In Nevada, Dr. Kezia Manlove contracted, giving her all our demographic, health, and pathogen data. Other SW states provided snapshot of testing/ pathogens in their DBS herds. Comparing herds across the region.
  - Covy - other species as vectors; are other states Movi sampling other ungulates? not a question where it originated but what if other wildlife are a vector. Utah has sampled deer and so has Nevada;
  - Peri - Continuing work on other species, MD - with poor lamb recruitment. Tested 40 deer which were all negative with swabs. Movi - Didn't appear to survive in water long enough to worry about it being a viable reservoir for Movi. Bank swabs from other species. Idaho and others are doing. Most of the Cervidae animals that are presumably testing Movi positive are from captive facilities not in free ranging populations.
  - Dr. Bob Dittmar - Pasteurella species in Aoudad in Texas but still not confirmed with Movi.
  - Mike - big part of the DMV was to experiment and conduct trials to learn more; we learned a great deal when Arizona moved Movi positive DBS to the Santa Catalina Mtns.

### **Mycoplasma ovipneumoniae FAQ document -FAQ doc to overview testing protocols, interpretation of diagnostic results and what the research actually says.**

- Mike - Lot of effort to discredit the work done on Movi, Besser's work, etc... FAQ document would provide a factual explanation of Movi detection and how agencies and even general public should interpret the results. Helen leading the committee on that. Hope to have by this fall. Been detected in caribou, moose, white-tailed deer, muskox?
- Peri, - waiting on more information from other species
- Mike - Even if it's in mule deer or other wildlife species it does not change the high prevalence of Movi in domestic sheep and goats
- Covy - Puts more focus on the domestic sheep industry
- Mike - we have a few instances of pathogens in cattle that likely were transmitted to bighorn and may have contributed to the severity of pneumonia or other disease outbreaks; can't ignore that but tough to address

### **West-wide Disease Event dataset**

- Mike - Tom Carlson and Mike developed. Small committee of Anne Justice Allen and Melanie to work on this (see document on screen). Added columns to spreadsheet - Ex: Pop trend before Event, (See spreadsheet); most of what was added was information on pathogen detection during the event and any outcomes from trying management action during or right after the event.

### **Wild Sheep Capture and Handling Guidelines -**

## Review June 12 Committee Conference Call Notes and topic list

- Foster developed original guidelines in 2005.
- Fall 2018 - Peri, Helen, and Lisa Wolfe drafted new Health-related guidelines that are primarily under the purview of veterinarians.
- Reviewed Capture Guidelines (See document)
- Peri - we pulled out some items that were in Health Committee Guidelines and incorporated them into the Capture Guidelines; Updated drugs and new techniques. Added Bio-security considerations (cleaning nets, blindfolds, etc. to prevent pathogen transmission). Provided veterinarian input throughout the document.
- Mike - Google Folder; will send out link to it again. Folder contains:
  - Original Wild Sheep Capture Guidelines document
  - Current version of Wild Sheep Health Guidelines
  - Google Doc of running list of methods and topics to address in new guidelines; encourage folks to add methods/topics/comments in the live document any time
  - Folder of agency capture plans, capture/handling guidelines, and forms to glean things that we would want in westwide guidelines
- Mike concerned about collars; we need to reduce effects on animal behavior, welfare, and survival caused by collars; shouldn't be on entire life; they need to be more humane (better fitting and design, lighter weight, and expansion section for both males and females of better material/design to allow for annual changes in neck size due to seasonal hair coat molting, pregnancy, neonate loss, severe winter body weight loss, etc.
- Peri - Example: captured cow elk not pregnant; collar put on snug, but she put on a ton of weight after collar deployment and collar was too tight and likely led to her demise. See wear patterns a lot on loose collars
- Mike Miller - need to look at the weight and shape of collars. May want to remove collar is causing problems. Will take publishing bad examples to get collar companies back to table
- Mary - collars not field tested
- Mike - More collaboration with collar companies. Demand a better product
- Andy - Encourage drop-off mechanisms if not going to monitor for life of animal.
- Mike - weight is a concern, tried to keep under 600 grams but hard to do. What is the preferred way to collar animals?
- Keith Norris (TWS) - Can use other things beside collars
- Hollie - Using cotton spacers
- Mike Miller - Cotton spacers have shown to be unreliable. GPS collars - quit using big batteries because the collar won't likely last as long as the battery is rated anyway.
- Mike - Subcommittee to look at some standards. Are there some things we can agree to that should be standards within the guidelines?
- Peri - Standards for Hyperthermia, Ear-tagging.
- Colin - Lots of debate over methods
- Andy - Drop-off, use this mechanism for research projects that aren't life of animal
- Mike - need more interactions with companies, Idaho spent \$1 million and Utah \$2 million in one year! With all these collars deployed we need to ensure we are doing it right for the animals!
- Collin - Invite the agency reps to that meeting.
- Mike - Sometimes companies will make the change if you ask.
  - What else needs to be added or delved into more on the Capture/Handling Guidelines?
  - Contracting through WAFWA with Janet George as editor for revised Wild Sheep Handling Guidelines

**Key/Major Jurisdictional DMV or bighorn management projects/issues** - Agenda Item was skipped for the most part

**Consider revising our "Domestic Sheep and Goat Management in Wild Sheep Habitat" Publication**

- Mike - Kevin Hurley wrote initial document then Clay polished and published; need to do a full evaluation of Best Management Practices (BMPs); Clarify what new practices and knowledge we have gained (Pathogens, wild sheep forays) and be transparent on what don't we know (pack goats and camelids, ?). Capture Guidelines revision will take precedent. Looking to start revising this publication summer/fall 2020
- Brian - Explained that USFS was sued over the USFS using the guidelines but they were not vetted under the normal NEPA public process. So technically, no USFS office can following the guidelines in the document; if the publication will be revised, then WSWG needs to work closely with USFS to get the draft document to go through the NEPA public review process so it can be legally vetted and USFS can make formal decision on the document and legally support and encourage both public land users to follow the guidelines and empower USFS staff at all levels to follow and enforce the guidelines.

### Production of new documentary on Bighorn/Domestic Sheep Issue

- Mike - Wild Sheep Foundation has hired a film crew of Phillip Baribeau, Charles Post, and Adam Foss to produce a balanced film on the bighorn and domestic sheep issue to include details of disease events and side of the woolgrowers; crew has already interviewed Tom Besser, Frances Cassirer, and woolgrower that lost his grazing permit in Hell's Canyon; been working hard to find herd with sick and dying lambs (pneumonia); 2 subcontract cameramen from SLC are focused on Leppy Hills interstate NV/UT herd where we have seen beginnings of clinical pneumonia signs in lambs and adults; producers have been filming elsewhere on various other aspects of the issue; encourage WSWG members to provide ideas on important messages for crew to document.
- Brian - who is producing?
- Mike - WSF sponsoring film; 3 independent, young, and talented environmental film producers are making the film; not sure who all is funding it
- Clay - Not sure of funds for this film, but for the Horse Rich & Dirt Poor film our small production team, through grassroot efforts, raised about \$120,000 that was able to cover the cost of making the film and some of the marketing/promotion costs.

### Wild Sheep Genomics Group - Initiation of California Bighorn Taxonomy Project

- Mike - Rich Harris and I put out survey Feb. 2018 to geneticists in U.S. and Canada to get a sense of who was doing what in the wild sheep arena; one of the topics that floated up that had real management implications was the whether or not California bighorn was truly a subspecies, level of genetic diversity of origin population, genetic drift in translocated herds, and should we continue to maintain separation with Rocky Mountain bighorn. Similar question was delved into between Dall and Stone sheep with ultimately re-alignment of their geographic distribution. Boone & Crocket Club treats California and Rocky Mtn the same for records; carved away seed money from Federal Aid grant to contract with Dr. Clint Epps to initiate investigating these questions
- Hollie - been working with Univ. of Idaho and Dr. Lisette Waits in collaboration with Rich Harris in Washington to assess genetics of California and Rocky Mountain bighorn with the 2 states, looking at historic and adaptive loci; California bighorn have lower genetic diversity than Rocky Mountain bighorn; Idaho doesn't have any "blending" of the two anyway they are aware of; easy to tell apart genetically; combined samples with Rich for genetic testing; study still progressing; may have more information in January; perhaps meet this fall prior to January meeting?
- Mike - (California Taxonomy document on screen). Mix or not mix?
  - Perhaps seek more funding from other states in this effort for year 2 of project
  - North Dakota - California's may not have been a good fit for North Dakota
  - Both North Dakota and Wyoming have purposefully mixed Rocky Mountain and California bighorn and are seeing positive demographics; Brett gave paper at 2018 NWSGC in Whitefish.
- Covy - sheep highly plastic, want an animal that fits that topographic and climatic niche, will knowing the distinct species change how we manage these herds?

- Mike - Clint feels that low diversity is not always a bad alarm for a bighorn herd; Don Whitaker thought there was low enough genetic diversity and performance issues in their California bighorn herds that Nevada gave them sheep to augment herds that started only from one source herd in BC to enhance their genetic diversity; my experience is Desert BHS deal with pathogens much better than both California and Rocky Mountain subspecies.
- Hollie - used to think California's were special and didn't get sick but not the case now. Looking at performance with their projects
- Mike - Interesting to see the changes over the last ~40 years
- Hollie - Looking at relatedness. Genomics may give a good look at relatedness

### Reality of resolving current lack of separation between wild sheep herds and domestic sheep and goats (have we reached saturation level?)

- Mike - Are we at a saturation point in our efforts to protect bighorn herds from disease west-wide. As managers, how do we build effective relationships, how do we (all agencies) work together for overall improvement in increasing separation of existing bighorn herds with domestic sheep. With our current efforts, not getting a huge return on our investment. Assessing if going down the right path or do we need a shift and move in a different direction or accept our current state of separation and do our best to keep our current herds healthy and productive even with lack of separation.

#### Main Items on Agenda for this topic to discuss

- with regards to agency leadership (including state agencies)
- process and procedures
- social, political, financial constraints
- Where is the line of compromise with livestock industry?
- Private farm flocks vs. public land grazing/trailing allotments risk levels
- Mike - Land management processes with agencies, politically charged issues, financial constraints. Do we need to be more patient? Is the WSWG functioning properly? What about private lands and farm flocks? Are they a bigger risk than originally thought?
- Covy - states successes and failures. Utah re-wrote state management plan this past year. In process of doing the plan (involvement and plan content) woolgrowers have been less contentious Realized can't protect every population in state. We must assume risk to herds at some level. Clean source herds for active management are limited. Outreach. Still hard to determine right methods. Are we paralyzed by disease or politics, etc...?
- Mike - In Nevada, I have been meeting with woolgrower's leadership on plan to increase communication and vigilance and develop relationships. Have 1 on 1 meetings with woolgrower and field biologist. Annually. Still lots of misinformation out there.
- Covy - allow producers to shoot a bighorn in domestic herd with permit
- Brian - With many of the variable listed below, situations will continue to be dynamic. Efforts to improve separation situations are complicated because not everyone is interested is working on the issue. Need to seek more opportunities for agencies, producers, and federal agencies to interact more. USFS ends up communicating with Governor's office (would help all involved if state wildlife agencies were successful to get woolgrowers and Dept. of Ag Office to first reach out to wildlife agencies and public land managers).
- Mike - Lots of land mines out there yet
- Brian - Glad to be at the table
- Linda (BLM, sitting in for Frank Quamen) - there is currently an Omnibus Bill under consideration; need to encourage DOI and Congress to direct its funding to continue BHS research and meeting with stakeholders;
- Clay - Is BLM Manual 1730 "Manage Domestic Sheep and Goats to Sustain Wild Sheep" still in place
- Linda - Policy still remains in place, no direction on changing that yet.
- Mike - Risk of contact model process; do we have a chance to make things better with bighorn given all stakeholders and variables?
- Linda - Still running with the Risk of Contact model where they have the information. Still working to get more information

- Brian - Most of the time public land management is about relationships. Need folks coming to table for agreeable solution. Shoshone National Forest decision had the stakeholders (Pack Goat Association, agencies, veterinarians, WSF) there and came together to give FS an opportunity for an effective decision
- Andy - Colorado working group. Last meeting was best they have had; day after the science workshop. May have been due to all veterinarians for Dept. of Ag, and CPW having mutual agreement on many topics in the workshop. Many stakeholders there. Have a facilitator (Peak Facilitation Group, Colorado) that has helped manage the meeting. Uncertain where things will go but working together. Have sheep in most of suitable habitat. Timeline of bighorn numbers: 7,600 in 2001 high point of numbers; 2018 estimate is 6,800. Most populations hovering below 100 without growth. Many of these small herds are like a broken record. Unless we find ways to change status quo, it will probably stay the same for foreseeable future.
- Mike - Grappling with reality of where we are and what can we do better; still learning; do not want to do things that cause setbacks; we are not going to give up. Have to do better at relationships.
- Brian Ferebee. - Have you had conversations with entities of what that would look like
- Covy - Agrees; but we don't want "analysis by paralysis"
- Brian - Curious, if folks have done more of focusing on relationships?
- Chris Worth - Meeting with USDA-ARS coming up August or September where they ask USFS how to best spend funding over next 5 years on bighorn/domestic issues/questions; Mike suggested at minimum to have Peri and Mike involved in that call/meeting to represent WSWG group to give USDA-ARS real and effective project proposals that may reduce conflicts/misunderstanding in disease ecology knowledge and promote more viable management options.
- Brian - some good success stories/models like the one on the Okanogan-Wenatchee National Forest
- Getting back to the Agenda topic question - "How do we make opportunities to have fruitful dialogue with organizations to improve on lack of separation?"
- Mike - will send email out asking for success or failures from all jurisdictions
- Andy - CO working group has allowed for identifying common ground (low-hanging fruit for all to agree with such as addressing stray domestics, working with/educating owners of 4H domestic flocks, and removing stray bighorns from domestic sheep flocks.
- Covy - UDWR is working with Utah Dept of Ag to sponsor a program at county fairs to have a "kill sale" of Movi positive sheep from kids' 4H flocks.
- Todd - Nebraska 4-H flock outreach project is primarily being done by ex-Nebraska GPC employee Laura ? under contract with South Dakota State Univ. She is doing a great job in educating folks on disease concerns (Mike mentioned like Jeremy Ayotte in BC). Would likely not be as successful if it were a NGPC biologist
- Peri - BC is working on those types of groups
- Will (Nebraska) - researchers meeting with producers is effective.
- Mike - every agency should have access to a 3<sup>rd</sup> party liaison like Jeremy Ayotte to address those issues, educate, and build relationships.

### **Occupied Habitat Mapping - Updates and Future**

- Mike - spoke with Lucretia. No demand or need any more to produce the static pdf maps by state of all occupied bighorn areas, grazing allotments and the other layers; look at members to have more easy access to GIS shapefiles (possible through web-based Arc-GIS version to cater the map to their specific needs for a particular meeting or presentation
- Mike - encourage the WSWG to develop series of "Story Maps" using ESRI GIS software to bring alive text, videos, photos, and maps (can even have time series maps like a video) to tell our stories of bighorn conservation and challenges.
- Brian - Story maps is just an app for ArcGIS
- -Chris - You are wanting a more dynamic data set for members to utilize
- Linda (BLM) - All habitat layers have been transferred to WAFWA's CHAT program.

### **West-wide GPS Collar Failure/Performance Survey in cooperation with MDWG**

- Mike - Spreadsheet survey developed to evaluate collars (see spreadsheet)
- Covy - performance varies amongst states
- Mike - asking agencies to go back the last couple of years and identify their collar performance
- Covy - It may not change what you do; we need more dialogue with the collar companies to tell them what you want fixed/changed and your concerns and frustrations
- Mike - agreed, more dialogue
- Hollie - this spreadsheet would be helpful for writing contracts for selecting vendors
- Mike - performance clause in some contracts; i.e., Don Whitaker just wrote a page of performance clauses that identifies acceptable range of collar failure and if vendor exceeds, then there is a monetary value that must be paid by vendor to Oregon.
- Agencies will be asked to list collar performance of collars used on all big game species, not just bighorn and mule deer

**Publish Records on License/Tags, Harvest, Demand, Population Estimates** - did not discuss

**Suggestions for 2020 Wildlife Professionals Meeting Topic** - did not discuss

**WSWG Apparel Orders** did not discuss

### **Upcoming Wild Sheep related events and meetings:**

- World Mountain Ungulate Conference, Sept. 10-13, Bozeman, MT
- Northern Wild Sheep and Goat Council Symposium - Alberta 2020

**Adjourn** - at noon to allow folks to attend many other working group meetings and because of such a small group of WSWG members in attendance.