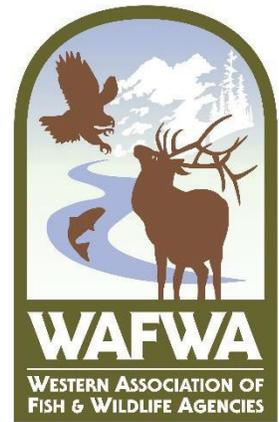




WAFWA Wild Sheep Initiative

2024 Winter Meeting Minutes

Tuesday, January 15, 2024 1:00 PM – 5:00 PM
Wednesday January 16, 2024 8:00 AM – 11:30 AM
Mountain Time Reno, NV



WSI Member Attendance: Todd Nordeen (NE), Andy Holland (CO), Froylan Hernandez (TX), Katie Pecora (NM), Nate Lahue (NV), Hollie Miyasaki (ID), Kevin Hurley (WSF), Callie Hartson-Cavalcant (AZ), Rusty Robinson (UT), Bill Jex (BC), Brent Lonner (MT), Don Whitaker (OR), Brett Wiedmann (ND), Daryl Lutz (WY), Brian Logan (USFS), Elroy Masters (BLM)

Guests: Anne Justice-Allen, Vern Bleich, Kate Huyvaert, Marcus Blum, Dustin Darveau, Erin Butler, Mike Schegel, Steve Rosenstock, Charlie Boder, Michele Lovara, Danielle Glass, Chris Carter, Helen Schwantje, Julian Gullo, Katie Cheesbrough, Molly McCarthy-Cunter, Tony Kavalok, Chris Morris, Frances Cassirer, Lauren Ricci, Virginia Stout, Jamin Grigg, Terry Myers.

Welcome, Announcements, and Introductions

WSI's Construct and Chairmanship

- From the January, 2023 Meeting Minutes – “WAFWA changing chairmanship construct. Daryl will Chair for at least the next 2 years while carrying on with his Wyoming Game and Fish full time duties. Daryl is confident he has the efficiency and capacity to do this. ***He asks that the WSI is critical of him and the “working group” over the next year or two as we evaluate whether this construct works.*** After two years if Wyoming Game and Fish, WAFWA leadership, you, and the working group determines the chairmanship needs to be somebody/something different, then we'll retool accordingly. ***This construct will be an item of discussion at each of the WSI's bi-annual meetings (Summer and Winter) for the foreseeable future.***
 - Daryl asked the group about their thoughts of the WSI's performance and his effectiveness as chairman over the past year - per the commitment made to do so at the January, 2023 meeting.
 - Many felt the WSI was effective and productive and with a show of hands approved of the WSI construct and the continuation of Lutz's chairmanship.
- **Vice Chair Position** – Approval from WAFWA Executive Committee has been granted to offer a vice chair position for WSI to assist Daryl and to serve as a possible successor. In general, Daryl explained what he thought the scope of duties would be for a vice-chair and that once a person was identified details of responsibilities, etc. would be further defined. He did ensure that while there would be an expectation of additional work, it

would not be onerous.

Action Item: If interested, discuss with your agencies leadership to ensure your support in this role send an email to Daryl by Feb 15, 2024.

Capture and Handling Guidelines -

Review Remaining Chapters & Schedule for Completion – All remaining chapters, listed below, were reviewed and finalized. All remaining chapters included edits provided at this meeting are to be incorporated and final chapter provided to Daryl and Vern by January 31, 2024. Those chapters will go to Cortney Mycroft for format editing no later than Feb. 15. Format editing to be completed no later than March 31. Final, date stamped chapters completed by April 15th and submitted to WAFWA for inclusion in the WAFWA summer packet for Director approval.

Action Item: All revisions to these chapters are to be completed and sent to Daryl and Vern by January 31, 2024, to keep this project on track for completion and approval by WAFWA Directors at the June meeting.

Remaining comments and issues were discussed and resolved. Details for completion for each chapter:

- ***Introduction/Pre-Planning*** – There was one concern this chapter is too long and much of the information is redundant with the content in other chapters. It was recognized there is redundancy between chapters and that was the intent so each chapter could stand alone. No comments other actionable comments from the group – chapter done.
- ***Helicopter Netgun*** – States can provide additional data for this chapter including Appendix B mortality data.
 - Additional Dall sheep data will also be added to Appendix C. Short term data (ie., a couple years) is preferred.
- ***Basecamp Operations*** – Comments and edits included:
 - Add restroom facilities.
 - Expand on language related to drone use with more restrictive language and timing of use within the entire project area – not just at base camp but include area where captures occur.
 - Ensure a restriction on dogs at base camp operations is included.
- ***Collaring/Marking*** – Comments and edits included:
 - Additional language will be added regarding neck swell and the possible need for collar extensions on both rams and ewes.
 - Necks do swell anywhere from ½” to 2”.
 - Need for expansion collars is important to include.
 - Understand difference between swelling and growth with age.
 - Include there are many variables to consider such as collar type, placement, collar fit/spacing.
 - Describe placement of collars on neck, and tear drop vs. round collars
 - Collar spacing finger measurement rule (size of fingers, number of fingers, perpendicular vs. horizontal). Use images showing proper collar fit including collar placement on the neck.

- Include photos to show collar placement technique including use of two fingers to check collar fit.
 - *Froylan requested images or illustrations from any state that can provide them which will be included in the document.*
 - *Helen and Anne will also provide images to Froylan for proper ear tag placement.*
 - Reference emerging GPS ear tag technology.
 - For table with weights of subspecies, rows with no data available should either be provided or removed.
- *General* –
- Chapters vs Sections was discussed for use within the guidelines. “Chapters” will likely be the choice of use which Daryl, Vern and Cortney will decide.
 - The use of the word shall vs should will also be edited to “should”.
 - A short comment about emerging technology will be added to the document.
 - Discussion about publishing – PDF chapters published individually on WSI website, videos of capture and drop net for website, possibility for hardcopy version.
 - Each chapter will be date stamped.
 - If circulated to AAWV, veterinarians could help with IACUC perspective.
 - Could explore options to publish in California Fish and Wildlife Journal.
 - Consider developing a simple plan to share or get the word out in better way to better distribute this document.

Action Item AGAIN: All authors need to get additional edits to Vern and Daryl by January 31st, 2024.

WSF’s Revenue Data Request –

Action Item: Remaining states/provinces please get this data to Clay Brewer ASAP

Project for WSI Support

Kate Huyvaert, Washington State University – Professor Rocky Crate - Wild Sheep Foundation Endowed Chair) provided a project summary (attached) and proposal to request \$10,000 from the WSI. This project will compare and validate different field-testing methods to detect pathogens (i.e., *Mycoplasma ovipneumoniae*).

A motion was provided and seconded (names were not captured) to approve the \$10,000 request. Discussion included a recognition that this project affects and would be valuable to all WAFWA member jurisdictions. This request, and therefore recommendation to be made to WAFWA’s Executive Committee for funding, was approved unanimously by vote.

Action Item: Daryl will engage with WAFWA/Zach Lowe on procedures for distributing the funds.

General – A group discussion on the use of the WSI’s funds and the need to continue producing products. Future products to consider could be Foray distances and Gene transcription. Any

product should meet the majority of the WAFWA agencies involved. WAFWA may move away from the model to pay for WSI chair position.

Circuitscape Analysis

Bighorn Sheep Connectivity presentation – Lauren Ricci

Circuitscape is a model in development to better predict bighorn sheep forays and connectivity movement/disease transmission. This model has similarities to the Risk of Contact model but is a completely different approach using landscape features, vegetation, etc. – similar to a resource selection function analysis. Lauren is still working on the analysis and will be able to answer questions with follow up meetings.

- A Circuitscape/Landscape Assessment workshop may be a possibility at next year's "professional day" held in conjunction with the WAFWA winter meeting at Sheep Week.
- A subcommittee to further evaluate this tool and a future landscape assessment workshop and will include: Mike Cox (chair – if he agrees), Melanie Woolever, Frances Cassirer, Elroy Masters, Don Whittaker, Daryl Lutz Clint Epps, Kezia Manlove, and Lauren Ricci.

2012 Domestic Sheep and Goat Management Guidelines

Hollie Miyasaki and her subcommittee made a number of modifications and updates to the document. There was little time for the WSI to review this latest draft, but there was discussion focused on: .

- A narrow focus on separation as they only tool to minimize interaction
- Foray distances
- Hunting key role discussion – potential need for fact sheet option instead.
- Additional parasites, pathogens, etc. info was added (page 8)
- Other species spillover perspectives (page 10)
- Fencing bullet changes (page 25)
- Attention to places referring to the WSI webpage – comes back to keeping the webpage up to date

Action Item: WSI to review and provide feedback to Hollie by February 26th, 2024.

Action Item: Rusty Robinson and Kevin Hurley will take the lead on developing a "Effects of Hunting" fact sheet with a draft by April 30, 2024.

MoviFree.org Update (Jeremy Ayotte)

Bighorn Sheep Separation Program (Presentation-Helen Schwantje)

Helen S. and Bill J. provided BC Wild and Domestic Sheep & Goat updates including the M.ovi Strategic Advisory Group interest in solving the disease problem. The Ministry of Agriculture is expanding testing in domestic with sampling entered into a database. Next steps may include adding new partners (First Nations) and expanding domestic sampling efforts into new regions. Helen is organizing a symposium February 22nd in BC to discuss how to develop more resilient

populations. Bill and others exploring options on backyard, small flocks and the difficulties to find and locate those.

Range-wide Status of Wild Sheep Update

Froylan Hernandez volunteered to put this document together this year. Thank you!!! All WSI members need to update their narrative (or provide it if not done last year) and the population and harvest trend spreadsheet.

Action Item: Daryl will provide Google links to the Status Update document and the Population and harvest trend spreadsheet.

Action Item: The spreadsheet and jurisdiction updates are to be done and sent to Froylan by February 29th, 2024, or as soon as data is available. Froylan will have the updated document completed by May 1, 2024.

Conversation with Steve Kilpatrick

And the announcement of fund developed in Steve's name to support Youth education. For more information, please contact Katie Cheesbrough (Exec. Director Wyoming Wild Sheep Foundation).

Review of WSI's Website Content

The WSI's page on WAFWA's website is used to "publish" and archive the group's products and make other pertinent publications available. It needs to be better maintained and to start that the current contents need to be updated.

Action Item: Brent Lonner and Tony Mong will go through and review the site for needed updates with recommendation for additions, deletions, etc. to be presented at the summer WAFWA meeting in June.

Hells Canyon Update

Hollie and Don provided an update on the recent *Movi* detections in this herd. After years of test and removal and success clearing *Movi*, the pathogen was once again detected in the herd. Although this population covers 3 states (Oregon, Idaho, Washington) it is considered one population (Lookout Mtn herd). Monitoring efforts have been stepped up with ground and aerial survey work. There is lots of interest in this so a broader release of information will be coming.

Plugging Sheep – Who is and Why?

A review of state/province plugging requirements was reviewed and a spreadsheet completed (attached). All agencies/jurisdictions require plugging of harvested rams but differ greatly on legalities and restrictions related to dead/pick-up heads. A side discussion regarding aging sheep was also discussed with noted differences between known ages and cementum annuli techniques.

Other Business

Brief discussion on a 2-day meeting format for the winter meeting at WSF's Sheep Week with

WSI's meeting all day Tuesday and the Wildlife Professionals meeting all day Wednesday. No decision was made.

- Northern Wild Sheep and Goat Council: April 29 – May 2, 2024 in Anchorage, AK.
- WAFWA WSI summer meeting the week of June 3rd in Washington
- Arizona hosting Desert Bighorn Sheep Council Meeting in 2025
- Mobile CT Scanner – scan for sinus tumors or whole bodies, etc.. It will likely be in a 4-wheel drive vehicle (Rambulance). Contact Tony Mong if interested in partnering.

Adjourn

Field-based Testing for Bighorn Sheep Respiratory Disease

Point of contact: Kate Huyvaert, Washington State University

Background: Respiratory disease associated with infection with *Mycoplasma ovipneumoniae* has been linked to population declines of wild bighorn sheep populations across their range. Accurately identifying carriers of *M. ovipneumoniae* within bighorn sheep populations is important for effective disease management. Development and validation of rapid, field-based, sensitive, and specific assays could eliminate the need to hold animals overnight until test results come back or release and recapture them.

Using a field-based assay such as real-time PCR with the Biomeme system or LAMP (Loop-mediated Isothermal Amplification) present promising avenues for overcoming these issues. Nevertheless, reports of variable test sensitivity and specificity by our group and others, technical issues in the field, and potentially prohibitive costs and availability of materials and reagents, motivate a formal comparison of the relative sensitivity of two different field-based protocols (Biomeme and LAMP) to the WADDL 'gold standard'. Because the field-ready Go-strips for *M. ovipneumoniae* PCR are no longer available for purchase, we will compare the Biomeme test with Go-strips (in-hand) to a Biomeme master mix protocol so that we can make sense of previously collected Biomeme results and develop Biomeme for field use if it performs well compared to WADDL.

Study design: The study will be conducted at Washington State University (WSU) and USDA National Wildlife Health Center. We will spike sets of bighorn sheep nasal swabs with cultured *M. ovipneumoniae* at three different concentrations and swabs will be tested using one of the four assay protocols: 1) LAMP; 2) Biomeme with field-ready Go-strips; 3) Biomeme using a master mix with added probes and primers; and 4) WADDL real-time PCR. Together, the three *M. ovipneumoniae* concentrations and four assay types total 12 treatments; a set of sham-spiked swabs will serve as negative controls for a final sum of 13 treatment groups.

Anticipated project costs: We are targeting a sample size of 50-100 samples per treatment group which will allow us to estimate the 99% probability of detection with 95% confidence bounds between 0.89 and 0.999 and 0.95 and 0.999 with 50 or 100 samples per treatment, respectively. It will cost ~\$100 to run a full complement of all four assays (Table 1) so the total cost of testing will be between \$32,000 and \$64,000. We seek \$10,000 from WSI to cover a portion of the costs to run the assays. Additional funding and in-kind contributions from USGS, USDA, Idaho Department of Fish and Game, Montana Fish, Wildlife, and Parks, and WSU also will be contributed to the project.

Table 1. Anticipated per sample costs for detection of *Mycoplasma ovipneumoniae* DNA using field based tests and WADDL's real-time PCR. (*Costs approximate)

	LAMP	Biomeme – Go strip	Biomeme – Master mix	WADDL PCR	Total cost/ 'replicate'
Extraction	\$4.37	\$13.27	\$13.27	\$55.00	
Test	\$5.00*	No cost/in hand	\$5.00*		
Extended cost	\$9.37	\$13.27	\$18.27	\$55.00	\$95.91

Name	Agency	Register Harvested Rams (Y or N)	Plug "Pick-up" Rams (Y or N)	Plug Harvested Rams (Y or N)	Register Harvested Ewes/Lambs (Y or N)	Primary Reason(s) for Plugging
Brad Wendling	Alaska Department of Fish & Game	Y	Y (not mandatory)	Y	N	Law Enforcement. Horn morphology data. Biological samples (e.g. tissue for DNA)
Anne Hubbs	Alberta Environment and Protected Areas	Y	Y	Y	N	Enforcement & Proof of Regulatory Compliance. Biological data including disease.
Callie Cavalcant	Arizona Game & Fish Department	Y	N	Y	N/A	Mandatory reporting/check-in for BHS harvest, which is used to gather additional information on sheep (age, DNA, hunter effort, etc.). BHS harvest are once in a lifetime and plugs are marked with year, hunt number and permit.
Bill Jex	British Columbia Ministry of Forests, Fish and Wildlife Branch	Y	Y	Y	Y	Enforcement & Proof of Regulatory Compliance/Proof of Ownership. Indigenous harvests are only 'registered' and pinned if the harvest meets the Rule of General Application (i.e., sex, species, age/horn curl, harvest season, bag limit). BC does not allow pick-ups, however when turned in, they are pinned and included in the ministry inventory.
Tom Stephenson	California Department of Fish & Wildlife	Y	N	Y	n/a	Law Enforcement. Pick-up heads are not allowed.
Andy Holland	Colorado Parks and Wildlife	Y	N	Y	Y	Law Enforcement. Permanent marker. Don't plug pickups so they are not legal for sale.
Hollie Miyasaki	Idaho Department of Fish & Game, Upper Snake Region	Y	Y	Y	N/A	We have mandatory reporting for BHS harvest and pick up. We use this to gather additional information on the sheep. The pinning/plugging also benefits law enforcement. We have rules about selling BHS horns, etc. We use silver pins for harvest and gold pins for pick ups with individual ID's.
Brent Lonner	Montana Department of Fish, Wildlife and Parks	Y	Y	Y	N	Enforcement and regulatory compliance. MT state legislature changed allowance of pick-ups beginning in 2019.
Todd Nordeen	Nebraska Game & Parks Commission	Y	Y	Y	Y	Law Enforcement

Mike Cox	Nevada Department of Wildlife	Y	N	Y	n/a	Law Enforcement
Katie Picora	New Mexico Department of Game & Fish	Y	Y	Y	N	Law Enforcement re. possession permit.
Brett Wiedmann	North Dakota Game & Fish Department	Y	Y	Y	N/A	Enforcement/deter poaching. All rams from wild sheep must be plugged in ND regardless of where there were killed/found.
Heather Sayine-Crawford	Northwest Territories Environment & Natural Resources					
Chad Lehman	South Dakota Department Game, Fish, & Parks	Y	Y	Y	Y	So far, we don't have any ewe/lamb hunts. Just to be clear, we don't allow the public to keep pick up rams. We plug them and they are state property.
Don Whittaker	Oregon Department of Fish & Wildlife	Y	N	Y	Y	Horns cannot be possessed unless from a legally harvested animal. Law enforcement.
Froylan Hernandez	Texas Parks & Wildlife Department	Y	Y	Y	N	Law Enforcement. Proof of ownership.
Rusty Robinson	Utah Division of Wildlife Resources	Y	N	Y	N	Enforcement & Proof of Regulatory Compliance, however LE is questioning importance of plugging and proposing to move away from it. Already moved away from plugging deadheads in the past year.
William Moore	Washington Department of Fish & Wildlife	Y	N	Y	Y	Law Enforcement and Biological data.
Daryl Lutz	Wyoming Game and Fish Dept.	Y	Y	Y	Y	Law Enforcement, regulatory compliance. WRR also plugs all harvested rams. Started in 1977. Have pre-77 plugs, pickup plugs, and harvest plugs
Meghan Larivee	Government of Yukon Dept. of Environment	Y	Y	Y	Y	Enforcement & Proof of Regulatory Compliance