

Wyoming Brucellosis Coordination Team

April 15, 2015

Pinedale, WY

I. Welcome and Introductions.

Chairman Galey called the meeting to order. Members in attendance: Bill Williams (DVM, Former G&F Commissioner), Scott Talbott (WGFD Director), Senator Fred Emerich DVM (WY State Senate), Albert Sommers (WY State Representative, Rancher), Joel Bousman (Rancher, Sublette County Commissioner), Charles Price (WG&F Commission president), Jim Logan (WY State Veterinarian), Bill Lambert (Rancher, Weston County Commissioner), Bob Meyer (WY State Assistant Veterinarian), Karl Musgrave (WY State Public Health Veterinarian), Will Laegreid (WSVL Director), John Keck (National Parks Service), Mary Wood (WGFD Veterinarian), Terry Pollard (WY Outfitters and Guides Assoc), Scott Werbelow (WGFD), Marty Griffith (US BLM), Doug Miyamoto (WY Dept Agriculture Director), Bob Wharff (Sportsmen for Fish and Wildlife), Mike McDole (USDA APHIS WY ADD), Bruce Hoar (COANR), Rob Hendry (Rancher, Natrona County Commissioner), Jose Castro (US Forest Service). Jessica Crowder (Governor Matt Mead's Office) was on speaker-phone.

Guests: Eric Liska (MT Assistant State Vet), Ryan Clarke (USDA APHIS Regional Brucellosis Epidemiologist), Pauline Kamath (USGS Bozeman), Noah Hull (UWYO), Hank Edwards (WGFD), Brandon Scurlock (WGFD), Peggy Yih (NAS), Robin Schoen (NAS)

II. WY State Vet Report

Dr. Jim Logan (JL) provided the WY State Veterinarian report to the group (see attached file for complete details). Wyoming currently has one bison herd under quarantine for brucellosis. This herd is undergoing its second complete herd test (three are required before it can be released from quarantine). Surveillance in Big Horn and Sheridan Counties is ongoing, with a letter from the Wyoming Livestock Board (WLSB) being sent to producers and veterinarians in the area to encourage additional testing. A total of 181 voluntary herd plans have been completed statewide, with 11 of those being developed since July 1, 2014. The WLSB will be considering changes to Chapter 2 Brucellosis Rules and Chapter 6 Brucellosis Reimbursement Rules at upcoming meetings. The proposals need to go before the Board before they can be presented to the BCT. The primary goal of the proposed changes is to simplify cattle movement out of the Designated Surveillance Area.

III. MT / ID Case Updates

Dr. Eric Liska (EL), Assistant State Veterinarian from Montana gave an update on their Brucella situation in 2014-15. Two cattle herds tested positive during this time. In Madison County, a herd of 2,300 head had one positive reactor. Twenty eight adjacent herds, with a total of 18,500

cattle have been tested so far in association with this herd. The herd is a member of 5 separate grazing associations, and was likely infected in the DSA in late June. The herd is currently working on the third whole-herd test (post-calving). This single positive cow has resulted in about 45,000 serological tests being performed. She was last in the DSA 3 years ago, and was culture positive on lymph nodes, but not uterus.

Rob Hendry (RH): Have there been studies on how long the bacteria can last in the environment?

JL: Under ideal conditions, *Brucella* can remain viable for a long period of time – up to 89 days under ideal conditions of temperature and moisture. This adds to the debate about what is an appropriate date when testing is required.

EL: The other herd was located in Park / Carbon Counties. A single cow in a herd of 630 head tested positive as she was leaving the DSA in October 2014. Four adjacent herds were in Park County and another 4 adjacent herds were in Carbon County. Quarantine was released on this herd in March 2015. MT also has a large bison herd that is being tested annually. It has yet to have a negative whole-herd test.

Dr. Ryan Clarke (RC), USDA APHIS provided a report on cases in Idaho. Two herds are currently under quarantine. A 280-head herd of bison first tested positive in 2012. This group is close to an elk feedground. They have had 3 reactors in total and are approaching their (hopefully) final whole-herd test this fall. A beef cattle herd of 60 cattle that has summer pasture in Fremont County, near Lemon Lake (where positive elk have been found), also had a positive test in April 2012. This herd has gone through a test and removal process and the final testing will occur in May 2015. If all tests are negative it will be released from quarantine at that time.

IV. Big Horn and Sheridan County Brucellosis Surveillance testing

Dr. Bob Meyer (BM), Wyoming Assistant State Veterinarian presented data on testing of cattle in these two counties (see attached report for complete details). In the fall of 2012, *Brucella* seropositive elk were identified in Big Horn County, and WLSB started voluntary surveillance. Between September 1, 2013 and March 31, 2015, a total of 7,170 test-eligible, adult cattle have been tested. Testing occurs both on the farm and at sales barns in WY and MT. Rate of testing seems to have slowed, which may be of concern for certain trading partners, with significant decreases in testing at WY sales barns.

Albert Sommers (AS): The results may be skewed since Year 2 data are only from Oct 1 to Mar 31, while Year 1 was an entire calendar year.

BM: The data support that the trend in testing is down. This represents a trading concern, and will be brought to the WLSB.

JL: When started in 2012, there was a concerted effort to do testing. In 2013/14, producers may have thought testing was not as important, therefore less was done. Now, we are re-doubling

efforts to raise awareness as this is an ongoing issue and we need to keep the word out. There have been several meetings recently with producers to emphasize the importance of testing. Sheridan County had several large herds do whole-herd testing which may have skewed the numbers.

BM: It is very important to get to sale barns for testing. This way, surveillance will occur over many herds, rather than a few large herds.

Joel Bousman (JB): I assume that we are not testing enough to achieve a high level of confidence?

JL: Correct, we also need to assure trading partners that we are doing adequate surveillance.

AS: Do you provide money to sales barns for testing and could that amount be increased?

JL: Yes, vets and sales barns are paid for testing. That payment may be able to be increased, will have to check on that. This will be discussed when the Chapter 6 rules changes are considered.

Bill Williams (BW): How many cattle are there in those two counties?

BM: 57,000 adult female cattle total. 28,500 in Big Horn County and 38,500 in Sheridan County.

BW: How many cattle do trading partners want tested? Right now, it looks like about 10% have been tested.

JL: There isn't a hard and fast number, but would like to be at a rate equal to the level of open cows or turnover rate, which is more like 15% annually. At this time, vets are paid \$5/head for testing on ranches, but only \$3.50/head at sales barns, which requires additional effort on their part.

Rob Hendry (RH): Big herds cover a lot of country (i.e. they have cows located on very large acreages), therefore testing a large herd covers a large area.

EL: What does voluntary testing mean? Can a producer decline testing?

JL: Yes, they can decline to have their animals tested under this program.

V. BSL-3 Laboratory update

Dr. Will Laegreid (WL), Director of Wyoming State Veterinary Laboratory, provided an update on the current status of the Bio-Safety Level-3 Laboratory at WSVL. As background, the laboratory was built for diagnostic and research purposes. It was completed in 2011, but at close-out in 2012, it was obvious that there were problems with the construction. In 2013, the ceiling gave out, and it was apparent that there were now "big problems". Since then, the Attorney General has been trying to recover funds from contractors, architects, etc. Progress is slow.

FG: Once everything is figured out, how long will it take to repair?

WL: Probably 2 years, once construction commences.

JB: Has the AG's office been successful in recovering money?

WL: I am not privy to those discussions.

BW: Can work proceed before litigation is complete?

WL: Litigation and construction are now tied together.

FG: This has been reported to the Governor. Now meeting with architects and looking at drawings, with hope that we may be able to move ahead.

AS: Is it the same architect as was previously used?

FG: Yes, the same architect as well as the same construction company.

Fred Emerich (FE): There are two philosophies that could be used. Get entirely new people and start over, or try to twist the tail of the old one with the idea of "shaming" that team into doing a better job, and potentially doing it cheaper.

WL: There are now two external firms that will be providing oversight of the project.

RH: Is it possible to test for brucellosis in a different area?

WL: Serological testing for brucellosis is not affected by the BSL3 issues. WSVL is able to do all the serology needed for our surveillance program. The real issue is necropsy. If a suspect case comes to the lab, it essentially shuts the lab down until decontamination can occur. Also, research projects are currently farmed out to labs and facilities in Iowa and Colorado. This drives up expense tremendously.

VI. Using genomics to assess brucellosis transmission dynamics in the Greater Yellowstone Ecosystem

Pauline Kamath from USGS in Bozeman, MT then presented on her research looking at transmission of brucellosis among and between livestock and wildlife. A total of 245 *Brucella* genomes were used in the study. Five separate lineages were identified, with a common ancestor dating back to approximately 1764. There are linkages from the National Elk Refuge that are important to pay attention to. In Montana, there is little east to west connection. There are older, rarer connections between WY feedgrounds and MT. For further information on this study, please contact Pauline at: pkamath@usgs.gov.

VII. Development and validation of a molecular assay for diagnosis of Brucellosis.

Noah Hull (NH) discussed his PhD research program, using Polymerase Chain Reaction, or PCR, for diagnosis of brucellosis (see attached pdf file). He has 4 objectives for his study. First, determine the best DNA extraction method on tissues taken at necropsy for isolation of *B. abortus*. Second, to determine gene targets for *B. abortus* using a computer analysis of whole genome sequences. Third, to compare sensitivity and specificity of PCR candidates and bacterial culture. Finally, to fully develop and validate a PCR assay for *B. abortus*. Currently, objective 1 is completed and work is proceeding on the next ones.

JB: Could this lead to a chute-side test for elk?

NH: There are several scientific questions that would need to be answered, but it may be possible. Chute-side would be difficult, though, because a clean area is required.

AS: With the current test, a seropositive result indicates that there was exposure. How will a blood test find a hidden organism?

NH: We don't know for sure if the organism is in white blood cells or not. The goal of this test is to improve sensitivity and specificity over culture.

Brant Schumaker: Culture is a messy process – if successful, this test will help. If bacteria are present in low numbers, we may be able to detect it using PCR.

RC: Is it conceivable for an animal with *Brucella* to have DNA fragments in the blood?

Brant Schumaker: If bacteria fragments are in the blood, PCR should be able to detect it.

VIII. Brucellosis surveillance in elk

Hank Edwards (HE), Wyoming Game and Fish Department, presented results from surveillance in hunter-killed elk, which is a program designed to monitor non-feedground elk. In 2014/15 sampling was focused on the Bighorn Mountains and areas around the DSA. A total of 10,500 sampling kits were distributed through direct mail and hand-outs. With enhanced surveillance in the Bighorns, WGFD focused on increased collection, increased quality, and rapid turnaround times. One thousand four hundred ninety four samples were submitted, and 72% were suitable for testing. There were 646 samples from the Bighorn Mountains; 3 were seropositive. Hunt Area 40 (cow), hunt area 39 (bull), and hunt area 41 (bull) were areas with positive findings. Since 2012, 7 elk have tested positive in the Bighorns: 5 from Hunt Area 40, and one each from HA 39 and 41. In 2015/16, sampling will be focused on the Bighorns and areas around DSA.

Scott Talbott (ST): WGFD appreciates all funding that helps support these sampling efforts.

IX. Proposed study of elk migration in the Bighorn Mountains

Dr. Mary Wood (MW), WGFD Veterinarian, discussed a proposal to track elk movement in the Bighorns. Given that brucellosis seems to be established in this region, she feels that it is time to

take more action, more than just surveillance. The prominent questions are how are the elk moving in the Bighorns and how did brucellosis arrive in the area. The proposal is to do a 3-year study, collaring about 50 elk per year with GPS collars, and follow their movements in and out of the Bighorns. Is there some corridor of movement? Are there some management strategies that can interrupt movement? If brucellosis is established in the region, what might happen in the future, where might it spread? WGFD is starting to identify likely herds that would be collared. A study like this would cost about \$150,000 per year.

FG: Have discussions occurred with MT colleagues? Elk likely move between the states.

MW: Yes, further discussions are to come. The Reservation might cause some issues, but with GPS collars, will know where the elk are at all times.

RH: This study is a good idea. We know there are positive elk on the west slope, but where do they summer?

MW: The sooner the study is undertaken, the better. This information is needed as soon as possible.

JL: I would support this. This would help WLSB to know if the DSA needs to be changed. I hope that elk would be tested when collars applied and removed if found to be positive.

MW: Yes, that is the plan, it would be good to get a culture from any positive animal.

Jose Castro (JC): Forest Service interested in this idea as well, and would like to explore the possibility.

Mike McDole (MM): USDA APHIS would also be very interested.

JB: Let's assume we do the study and find out where brucellosis is from – what management strategies might be done?

MW: Hard to say until we know the findings.

BW: WLSB and producers are concerned about trading partners. Such a study would provide answers, and may provide confidence to the livestock industry, determine the level of infection, and establish elk migration routes.

JL: I hope that if the project comes about that knowledge gained can be used to mitigate risk to the cattle industry.

Charles Price (CP): Right now, we are operating in a vacuum. Is the infection being fed from outside? We need knowledge. Doing nothing is not a good approach.

RH: Once the data is collected, hunting seasons could be changed and other management strategies taken.

RH: A letter from this committee might help nudge funding.

FG: Anyone opposed? Sensing no objection, we will draft a letter asking for support for an elk movement study in the Bighorn Mountains.

X. Brucellosis surveillance of elk on feedgrounds, 2014/15

Brandon Scurlock (BS), WGFD, discussed results of testing elk on feedgrounds during the previous winter. A total of 459 elk were captured from 17 different feedgrounds (trapping occurred at 4 of the grounds). Of those sampled, 206 were yearling and adult cows, with a total prevalence of 23%. GPS collars (52) and VIT's (48) were implanted in some of the elk, in order to follow their movements and discover where they calve or abort.

BS showed graphs of seroprevalence on two feedgrounds where test and removal was used. At Muddy Creek, prevalence dropped from 37% in 2006 to 5% in 2010, while at Fall Creek, prevalence decreased from 11% in 2008 to 7% in 2009. After the test and slaughter program ended, prevalence at Muddy Creek increased from 6% in 2011 to 21% in 2015, while at Fall Creek, prevalence rose from 4% in 2011 to 13% in 2015. At Fall Creek, a shorter feeding season is used.

BS presented data on seasonal ranges. Of all elk calvings, 75% occur between 20 May and 10 Jun, with the median calving date being May 31.

BS reported on ballistic elk vaccination. Solid Tech Animal Health has closed their ballistic division, and would sell everything to WGFD for \$400,000 to \$500,000. WGFD achieved full calfhoo coverage during the winter of 2014/15, but they have now exhausted their supply of vaccine. Now, WGFD will continue to use low density feeding to reduce contact between dams and fetuses, as well as truncate the feeding season as much as possible.

JB: Muddy Creek may soon be back to pre- test and slaughter levels. This feedground is also the highest risk of transmission to livestock. Is test and slaughter currently being considered for Muddy Creek elk?

ST: There would be a huge cost to do that. WGFD has focused efforts on other methods, such as fences, low density feeding, truncated feeding season.

CP: How effective is Strain 19 in elk?

BS: One study showed a 25% difference in calving success in vaccinated as compared to control elk. When comparing seroprevalence before and after vaccination, there is no difference. Also, no difference in vaccinated populations compared to non-vaccinated populations. It is likely that vaccination is reducing abortions somewhat. But it's important to recognize that a single abortion can infect a large number of elk.

AS: What does the vaccination program cost?

BS: Hard to say for sure. WGFD received \$19,000 from APHIS in FY2015. The biobullets were purchased from Solidtech Animal Health, then sent to National Veterinary Services Laboratory in Ames, Iowa who would load the bullet with vaccine and send it back to WGFD. The cost is about \$0.75 per bullet.

AS: The biggest cost for test and slaughter was in panels and fences. I think that for Muddy Creek, WGFD needs to look hard at going back to test and slaughter program.

JB: Ask WGFD to come back to the group with the “real” cost of test and slaughter. Facilities and labor are already there – what is the true real cost. If test and slaughter can reduce prevalence a lot, likely to get more bang for the buck with test and slaughter than with vaccination.

BW: This would be an ongoing issue, test and slaughter is not free. The benefit derived is for livestock producers.

RH: First livestock case was associated with Muddy Creek, another case would be very expensive. I think test and slaughter would be worthwhile.

Scott Werbelow (SW): Very difficult logistically to carry out. Over 40 WGFD were assigned to the project. Blizzards were encountered, plowing was difficult. Reducing prevalence would be hard to achieve. Test and slaughter would just be putting a band-aid on the problem.

ST: Feedgrounds historically have had a prevalence of 35-37%. This year prevalence was 23%. Are we seeing an overall decrease in prevalence on feedgrounds?

BS: On some feedgrounds, yes, but on others, no. Prevalence is known to vary quite a lot from year to year.

ST: Has low density feeding had any effect on seroprevalence?

BS: It will take 8 to 10 years to see any effect. At that time, mature elk will start to die off and any effect from low density feeding will start to emerge. Don't yet have good sample sizes from feedgrounds with low density feeding to see if there is any trend beginning.

XI. NAS Brucellosis review update

Peggy Yih (PY) and Robin Schoen (RS) from the National Academy of Sciences (NAS) gave a presentation on the upcoming review of Brucellosis in the GYA. The NAS is a non-profit that is not part of the federal government. It does not conduct original research, but rather draws upon scientific literature to provide advice. It is an independent body, with strict quality control procedures. All members of review boards work pro bono.

A NAS review is a 4-step process. In Step 1, NAS works with a sponsor to define the study. Step 2 involves selection and approval of a committee. For this study, over 100 recommendations of potential nominees have been received, and the final slate has been submitted for approval. After

approval, there is a 20-day comment period. Step 3 consists of committee meetings, information gathering, deliberations, and drafting of a report. The first meeting for this review will likely occur in late June/early July in the GYA. The second to fourth meetings will occur later in 2015 and early 2016. Finally, Step 4 consists of an external peer review of the draft document. The public can sign up for updates by sending an email to banr@nas.edu.

XII. Select agent de-listing of *B. abortus*

FG: Every two years, congress calls for comments on the listing of select agents. This year, *B. abortus*, among others, is being considered for de-listing.

JL: Presented a letter drafted for the BCT to consider sending to the public comment section (see attached letter).

JB: I move that BCT send the letter

SW: Second that motion.

FG. Any discussion? All in favor, say aye. Motion carried.

XIII. Legislative Update

FE: Discussed the most recent legislative session. Felt there were several failures, but a few wins.

FG: Anything related to brucellosis and this committee?

FE: No

AS: Funding and the budget will affect the brucellosis program. All programs in the State will have to justify their presence.

JL: WLSB is asking for continued funding for surveillance. The current appropriation is handling needs.

FE: Wants to ensure that the College of Agriculture and Natural Resources receives fair funding. Need to emphasize agriculture more in the Senate.

AS: The University needs to come forward with an overall plan.

FG: Does the Department of Agriculture have any thoughts on funding for this committee?

DM: Funding should be ongoing.

RH: I hope the work of this group will continue, especially considering the finding of positive elk in the Bighorn Mountains.

XIV. Public Comment

Jim Magagna, Wyoming Stockgrowers Association: Expressed gratitude to the committee and researchers who engage on this issue. The work of NAS is hopeful. Need to keep all alternatives for elk control on the table. Disappointed that vaccination has not been too successful. Stand ready to work with groups to push forward for funding and other needs.

Lloyd Dorsey, Sierra Club: Appreciate those who work on the issue. I can see limited successes and some failures. Strain 19 is not working. Test and slaughter is ethically repugnant. Suggest pilot projects to phase out feedgrounds, which would serve the public interests for the long term, not the short term. Feedgrounds need to be phased out. Allow predators to attend to populations, achieve ecosystem health.

Danelle Peck, UWYO COANR: University of Wyoming has done a lot of work on cost of elk management tools. The material is available, along with budgets, including elk management budgets. Strain 19 vaccination costs approximately \$2,200 per feedground per year. Elk proof fences cost about \$2,300 per mile. Test and slaughter program cost \$1.3 Million over a 5 year period, and physical structures were only about one quarter of the total cost.

RH: Comment about predators. GYA elk numbers are really being reduced. We are losing a lot of wildlife to predators.

TP: I totally agree. We're losing moose, elk, and others. Movement of wildlife has also changed.

FG: Any other business? If not, is there a motion to adjourn?

CP: I move to adjourn.

Appendix 1
Guest Attendees

Name	Affiliation
Eric Peterson	Sublette County Conservation District
Eric Liska	Montana Department of Livestock
Gary Hart	USDA
Thach Winslow	Wyoming Livestock Board
Jim Magagna	WY Stock Growers
Steve True	Wyoming Livestock Board
Less Romsa	Wyoming Livestock Board
Dannele Peck	UW Ag Econ
Brant Schumaker	UW Veterinary Sciences
Jessica Richardson	UC Davis
Noah Hull	UW Veterinary Sciences
Kerry Sondgeroth	UW Veterinary Sciences / WSVL
Pauline Kamath	USGS – NOROCK, Bozeman MT
Dan Bachen	USGS – NOROCK, Bozeman MT
Ryan Clarke	USDA, APHIS, VS
Don Herriott	USDA, APHIS, VS
Tony Gosar	Concerned Citizen
Robin Schoen	National Academy of Sciences
Peggy Yih	National Academy of Sciences
Lloyd Dorsey	Sierra Club, Wyoming Chapter
Brandon Scurlock	Wyoming Game and Fish Department
Hank Edwards	Wyoming Game and Fish Department
Holly Ernest	UW Veterinary Sciences
Holly Kennedy	Wyoming Farm Bureau

Pat Aullman

Nikki Blunner

Joy Ufford

US Representative Lummis

US Senator Enzi

Sublette Examiner / Pinedale Roundup