

REPORT OF THE COMMITTEE ON BRUCELLOSIS

Chair: Jim Logan, WY

Vice Chairs: Bill Barton, ID; Tony Frazier, AL

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The Committee met on October 20, 2014 at the Sheraton Hotel in Kansas City, Missouri, from 1:00 to 6:00 p.m. There were 44 members and 30 guests present. One agenda topic was canceled: this was a presentation on how Brucellosis adult vaccination differs between Strain 19 and RB51.

Overview

The Committee on Brucellosis meeting was called to order by chair, Dr. Jim Logan, who introduced the vice chairs, Dr. Bill Barton and Dr. Tony Frazier; and the subcommittee chairs, Dr. Phil Elzer, Scientific Subcommittee; Dr. Marty Zaluski, GYA Subcommittee; and Dr. Joe Corn, Swine Subcommittee.

Dr. Frazier presented an overview of the 2013 Committee meeting, the resolutions passed in 2013, and the responses to those resolutions.

Presentations and Reports

Dr. Phil Elzer presented the Scientific Advisory Subcommittee Report, which is included at the end of this report.

Dr. Joe Corn presented the Feral Swine Subcommittee Report, which is included at the end of this report.

Dr. Marty Zaluski presented the Greater Yellowstone Area (GYA) Report, which is included at the end of this report.

National Brucellosis Program Update

Dr. John Belfrage, USDA-APHIS-VS

Current Status of Brucellosis: Each year, more and more states move into the longer time categories from when they've gone to Class Free. At this time, only Montana is still in the 5 years or less category, and next year they will move up so there will be no states left in that low category.

There are four affected herds in the Greater Yellowstone Area with all in the Designated Surveillance Areas in the three states. Of those, the Wyoming bison herd will probably be released soon. In Montana, one bison herd was released this last summer. In Idaho, the one cattle herd elected to keep the heifers that were in the herd while there were still reactors. Those will calve this next spring. If all tests

are negative, then they will be released. That would leave just two bison herds, one in Montana and one in Idaho, left unreleased.

While we still haven't gotten down to our target of about 1.3 million head, we have dropped the number to 2 million head tested at slaughter. Part of the reason is that some of the plants had not gotten everything in order to get their numbers down. We also had two cull cow plants go out of business this year, one in Wisconsin and one in Texas, and have brought two others online. Both the new plants are in the same states and have a similar source base as the old plants. Of course, there will be some changes in where the cattle from the closed plants go. We will just have to evaluate those changes as we go along.

There were still close to 97,000 head of cattle tested at market, about 250,000 head tested on farm or ranch, 1.9 million head calfhood vaccinated, 262,000 head adult vaccinated, and about 276 certified herds.

Rules: The Interim Rule has been moving through the governmental approval process and will be published as a Final Rule before too long. The combine Brucellosis/TB rule is also progressing through the approval process. We are anticipating that the Proposed Combined Rule will be published next spring.

Alaska Woods Bison Introduction: In 2003, there was an illegal introduction of Woods Bison from Canada into Alaska. These were confiscated by the US Fish and Wildlife Service and sent to the Alaska Wildlife Conservation Center. While there were natural additions to that group, there are no livestock near the Center. In the meantime, a Risk Assessment was done and in 2008, 53 brucellosis and TB tested bison were also brought to the Wildlife Conservation Center. All the bison from both groups have been tested at the Center twice more and found negative for brucellosis and TB. These bison are to be released in Southwestern Alaska in the Lower Innoku-Yukon River area where there are a few moose but no other wildlife or livestock in that area. Other areas in Alaska have *B. suis* biovar 4 in caribou and captive reindeer.

Montana Report Summary

Dr. Marty Zaluski, Montana State Veterinarian

The Designated Surveillance Area (DSA) in Montana includes cattle operations at risk of transmission of brucellosis from infected wildlife.

The northern boundary of the DSA was adjusted in the summer of 2014 based on wildlife surveillance performed in January-February of 2014. The results of the wildlife surveillance yielded 10 positive samples 40 samples in HD 311 positive with a greater number of positive elk being found towards the east (Belgrade) of the study area. This is the fourth year that elk have been captured and collared as part of an enhanced effort to ensure that all cattle at risk to wildlife brucellosis are within the DSA. The DSA now includes 333 producers with approximately 85,000 cattle.

Montana continues to test Designated Surveillance Area (DSA) cattle at a high rate with 42,000 DSA related samples being tested in 2013 (the last complete year). DSA regulations are enforced with the use of technology and partnership with the Brands Enforcement Division. The Brands Enforcement Division shares key staff with the Animal Health division. Brands personnel at markets use handheld units which identify DSA cattle.

Three affected herd quarantines were released in calendar year 2014. This includes 2 cattle (detected in 2013) and one domestic bison herd (detected in 2011). One of the cattle herds, and the domestic bison herd had only one reactor animal. One large domestic bison herd remains under quarantine in the state of Montana.

Idaho Report Summary

Dr. Bill Barton, Idaho State Veterinarian

The Idaho State Department of Agriculture (ISDA) continues to work with livestock producers throughout the state to address the risk of transmission of brucellosis from infected elk to cattle. Two (2) livestock herds that were identified in 2012 as affected with brucellosis remain under quarantine.

A herd of domestic bison located well within Idaho's DSA was determined to be affected with brucellosis following testing due to known interaction with elk. The herd was put under quarantine and a herd plan implemented. The herd has had three (3) whole herd tests and at least one reactor was identified on each of the tests. Heifer and bull calves from this herd are being fed to slaughter only in an Idaho approved feedlot. The herd will remain under quarantine until three (3) consecutive negative whole

herd tests have been achieved. The first whole herd negative test was completed in December 2013. Another whole herd test is scheduled for late fall 2014.

A small beef herd was identified in April, 2012 as affected with brucellosis. The herd was located just outside of Idaho's DSA and prompted expansion of the DSA. The herd was put under quarantine and a herd plan implemented. The herd had undergone two (2) consecutive negative whole herd brucellosis tests however another reactor was identified on the April, 2013 post calving whole herd test. Whole herd negative tests were completed on October 11, 2013, March 19, 2014 and April 28, 2014 (post calving test). Although typically eligible for release from quarantine following the post calving negative test, the producer elected to retain 24 heifers from the 2013 calf crop as replacement heifers. Because a reactor was identified in the April 2013 whole herd post calving test, this herd will remain under quarantine until these heifers have completed a negative post calving test in the spring of 2015.

2014 was the first full year that Idaho had movement and change of ownership testing requirements as part of our brucellosis rule. 11,020 head of cattle were tested in 2014 due to movement out of or change of ownership within Idaho's DSA. This number does not include cattle in other areas of the state outside of the DSA that were tested to meet other states import requirements.

In an effort to enhance compliance with Idaho's DSA movement and change of ownership testing requirements, the ISDA, with full industry support, proposed a change to our Rules Governing Brucellosis in the 2014 Idaho Legislature. The change requires producers moving cattle out of the DSA to call and acquire a movement permit no less than 24 hours in advance of moving test eligible cattle outside of Idaho's DSA. The rule change was passed by the legislature and went into effect at the conclusion of the legislative session in March, 2014. The permitting process will allow us to ensure that test eligible cattle are tested prior to movement. A civil penalty provision for non-compliance with permitting was included in the rule change.

The ISDA and Idaho's cattle producers remain committed to managing appropriately to prevent the risk of transmission of brucellosis from wildlife to cattle. Industry support and assistance with enforcement of Idaho's brucellosis testing requirements for cattle leaving our DSA are paramount to our success. That support has never been greater as we work to ensure that the brucellosis risk in Idaho is managed appropriately.

Idaho fish and game tested 350 elk in 2013 and found 7 seropositive animals. 2.3% seroprevalence in elk is stable at 2 to 3% from 1998 to 2013. DSA boundary based on elk seroprevalence and locations of likely elk and cattle interaction in then risk period (January to May). Primary strategy is separation of elk and cattle in winter using hazing, depredation hunts and fencing of haystacks and winter cattle feeding enclosures.

Wyoming Report Summary

Dr. Jim Logan, Wyoming State Veterinarian

Wyoming currently has one (1) herd of domestic bison under quarantine for Brucellosis. This herd was initially placed under quarantine in the fall of 2010 and it has been verified that the source of infection was wild elk. All suspect and reactor animals found on any herd test have been removed direct to slaughter or strict isolation for terminal feeding and conditioned for slaughter. This herd is within the boundaries of Wyoming's Designated Surveillance Area (DSA). The herd has completed one negative whole-herd test. The next herd test is scheduled for late October 2014.

In 2013, the Wyoming Game and Fish Department (WGFD) found two Brucellosis sero-positive elk on hunter-killed elk surveillance about 30 miles east of the DSA. Two (2) additional sero-positive elk were found during the 2013 hunt season in the same hunt area. This represents the first time Brucellosis has been found outside the boundaries of the DSA since Wyoming achieved Brucellosis-free status in 1985. The Wyoming Livestock Board (WLSB) responded to this finding by conducting testing on test-eligible, female cattle in two counties (Big Horn County & Sheridan County), which are in the vicinity of the elk herd unit from which the sero-positive elk were found. Testing is being done on ranches/farms and at all Wyoming markets, along with two Montana and two South Dakota markets, at WLSB expense. Additionally, risk assessments were conducted on area herds to determine if cattle/wildlife conflict existed that could cause exposure risks. The WGFD has also increased its elk surveillance activities in the area to determine the elk sero-prevalance rate in the elk herd unit. The WLSB will utilize cattle and elk surveillance data and results to determine any rule changes of DSA boundary change proposals.

Wyoming requires calthood vaccination statewide for all heifers that will remain in a breeding herd. All sexually intact female cattle that inhabit the DSA must be calthood vaccinated or adult

vaccinated. From July 1, 2013 to June 30, 2014 (state FY2014), 277,201 female cattle/bison were Brucellosis vaccinated – this includes calfhood, yearling booster and adult vaccinations. There were 40 herds that conducted adult and/or yearling booster vaccinations during the state fiscal year 2014, which accounts for 6,931 of the total head vaccinated statewide. The WLSB has a statewide identification requirement for sexually intact female cattle 12 months of age and over to be officially identified prior to any change of ownership. Additionally, all sexually intact female cattle, regardless of age, that are in the DSA at any time must be officially identified prior to moving from the DSA.

All female cattle from the DSA sold for breeding purposes (regardless of age) and all females 18 months and over are required to be tested within 30 days prior to change of ownership, movement from the DSA, and interstate movement. Between July 1, 2013 and June 30, 2014, 44,162 head of cattle were tested from Wyoming's DSA and the area we are currently conducting surveillance on in response to sero-positive elk previously mentioned. This figure represents cattle tested on farms/ranches, at market, and at slaughter. All cattle 12 months and over are required to be tested at Wyoming slaughter plants. Cattle numbers within the Wyoming DSA total 79,200 head. We have 149 DSA Brucellosis herd plans and 35 herd plans for producers outside the DSA. Our test and identification requirements provide good surveillance, traceability and early detection. The WLSB Brucellosis requirements are well enforced through brand inspection since any change of ownership or inter-county and interstate movements must include a brand inspection clearance.

Mexico Brucellosis Update

Dr. Jose Alfredo Gutierrez, CGRPA, Mexico

In 1966, Mexico published the NOM-041-ZOO-1995, "National Campaign against Brucellosis in animals". From the publication, it began to operate the National Campaign which had as its main lines of action diagnosis, vaccination and animal disposal. The operability of the Campaign is founded and supported under the following legal framework: Federal Animal Health Law, Regulation of the Federal Law on Animal Health, Federal Law on Metrology and Standardization, NOM-041-ZOO-1995, "National Campaign against Brucellosis in animals.", NOM-054-ZOO-1996, "Establishment of quarantine for animals and their products." Mexico has eradicated Brucellosis of cattle, goats and sheep (*Brucella abortus*, *Brucella melitensis* and *Brucella ovis*). Cattle, goats and sheep in Mexico have a low prevalence of brucellosis.

In Mexico, the total inventory of cattle is 1,366,373 heads found in free areas of the disease and 4,641,992 heads in eradication areas. By species, the following target population is reported: 3,409,221 cattle, 991,868 sheep and 240,903 goats. The livestock population is 32 million heads of cattle (30 meat and 2 dairy) at a value of \$260 billion, 8.7 million head of goats at \$6.9 billion, and 8.4 million head of sheep with a value of \$8.8 billion.

In 2014, the federal budget is U.S. \$7,275,913.00 with following figures: Cattle = \$3,589,869 and Sheep and Goats = \$3,686,044. Actions provided for the operation of the campaign are made under the following scheme which includes in the Strategic Plan: 1. Surveillance: Surveillance in slaughter houses, only for bovine in eradication areas, provided 95% of eligible animals. Field and feedlots: In goats and sheep through Minimum Sample Size. 2. Quarantine and Research. 3. Epidemiological monitoring in positive herds. 4. Animal identification and traceability through SINIIGA. 5. Meet the intensive vaccination programs, and their evaluation on the fifth year. 6. Control of mobilization. 7. Annual program of training to technical and operational staff associated with the Campaign.

The campaign has the following indicators:

- Diagnostic test: Cattle, 977,256; Goats, 242,471; Sheep, 101,608.
- Vaccines: Cattle, 881,270; Goats, 248,842; Sheep, 29,274.
- National frequency of the disease: Cattle, 0.06%; Goats, 0.01%; Sheep, 0.01%.
- Free herds: Cattle, 3,575; Goats, 143; Sheep, 405.

Quarantines and Investigation: An animal or herd is positive to brucellosis when diagnostic tests have been tested with positive results (official serology and or bacteriology). With surveillance, Mexico established 1,313 quarantines en brucellosis, from this 693 from cattle and in these quarantines exists 88,683 heads; also there are 620 quarantines in goats and sheep with 44,377 heads. With Epidemiological have been possible released 101 quarantines with 8,917 heads.

Organization: The administration and coordination of brucellosis campaign carries Zoo Sanitary Campaign Direction from animal Health General with 44 official veterinarians in central offices, 169 workers across the country, 49 brucellosis work plains and 2,870 authorized veterinarians.

Outlooks 2014-15: New Legal Agreement in Brucellosis; Recognition in Eradication to Nayarit and 56 municipalities from Guerrero; A1", "A2", "A3" and "A4" areas from Jalisco; "A" zone from Aguascalientes, "A" from Baja California; Nuevo León and "A2" from Guanajuato; Recognition of Free of brucellosis to south from Sonora; Vaccination en dairy and goats (2013 – 2018); (From 2010 to 2014 has increased the cover in 7% to 9%, it means, the average increase its 250,000 heads vaccinated per Year. In 2013 were vaccinated 1'552,137.

Vision 2020: 60% of National land area is in Eradication and 40% with a prevalence lower than 3% and Goats are under a continuous and intensive vaccine system.

Update on Brucellosis Research Projects

Dr. Steve Olsen, USDA-ARS

An update on Brucellosis Research Projects were presented by Dr. Steve Olsen, USDA, ARS entitled "Vaccines for Natural Hosts of Brucella".

The efficacy of RB51 in Bison overall data for 2014 showed about the same results for hand vaccinated animals as single ballistic vaccination with a booster vaccination providing moderate results in relation to number of aborted or infected animals when challenged. A previous study suggested boosters increase vaccine efficacy. The 2014 results show that booster vaccine seems to improve protection and multiple boostes, ie 4 times, only slightly improved protection. The impact of pregnancy on susceptibility to challenge revealed most all nonpregnant vaccintaed animals had almost no colonization in lymphnodes and placentomes.

In studies on swine brucellosis, *Brucella suis* strain 353-1 was reviewed in domestic and feral swine. The antibody response was reviewed for control, parental and oral administration. Review of response was made at 4 week intervells and animals were challenged at 18 weeks post vaccination. Feral swine had higher antibody response. for parental and oral vaccine than domestic swine. Post challenge colonization revealed similar results for feral swine and domestic swine.

Whole Genome Sequencing and Overview of Progress on the NSVL Archives of Brucella Isolates

Suelee Robbe-Austerman, NVSL

Whole genome sequencing (WGS) offers an unprecedented look into the genotypes of *Brucella abortus* that have been recovered in the USA. This presentation focused on the genotypes identified in the GYA. *B. abortus* spilled over into wild elk and bison from cattle at least 5 times within the GYA, with the most recent time occurring around 1978. WGS genotyping did not support direct transmission between domestic herds within the GYA. The most closely related isolates to domestic cattle and bison herds were elk isolates, however there was significant overlap between wild bison and elk isolates suggesting between species transmission occurred regularly. All *B. abortus* affected cattle herds in the USA identified since 2001 have been sequenced, and one Texas herd that was identified in the fall of 2003 had a strain that originated from the GYA. No other cases of GYA genotypes have been identified outside the designated surveillance area.

Abortion and Premature Birth in Cattle Following Vaccination with B. Abortus Strain RB51

Amanda Dougherty, University of Wyoming Dept. of Veterinary Services

Brucella abortus RB51 is the vaccine strain currently licensed for immunizing cattle against brucellosis in the United States. Most cattle are vaccinated as heifer calves at 4–12 months of age. Adult cattle may be vaccinated in selected high-risk situations. Two herds of pregnant adult cattle in the brucellosis-endemic area of Wyoming were vaccinated with a standard label dose ($1.0\text{--}3.4 \times 10^{10}$ organisms) of RB51. Reproductive losses in the vaccinated herds were 5.3% (herd A) and 0.6% (herd B) and included abortions, stillbirths, premature calves, and unbred cows (presumed early abortion). *Brucella abortus* was cultured from multiple tissues of aborted and premature calves (7/9), and from placenta. Isolates were identified as *B. abortus* strain RB51 by standard strain typing procedures and a species-specific polymerase chain reaction. Bronchopneumonia with intralesional bacteria and placentitis were observed microscopically. There was no evidence of involvement of other infectious or toxic causes of abortion. Producers, veterinarians, and laboratory staff should be alert to the risk of abortion when pregnant cattle are vaccinated with RB51, to potential human exposure, and to the importance of distinguishing field from vaccinal strains of *B. abortus*.

GYA Brucellosis Risk Assessment

Dr. Dan Gear, Ecologist at USDA-APHIS CEAH

Currently, only portions of Idaho, Montana, and Wyoming have known *Brucella abortus* infection. Each of these three states has a designated surveillance area (DSA) which they use to implement their brucellosis management plan. The DSAs represent zones that are identified by recognizable borders and allow epidemiologic separation of the subpopulations of livestock based on factors that influence disease transmission.

Inside the DSAs has known exposure in livestock and a wildlife reservoir in elk and bison. Outside of the DSAs is considered brucellosis-free in each of these three states, which allows for reduced surveillance. The objective of this risk analysis is to estimate the risk of exporting a shipment of breeding cattle infected with brucellosis, but undetected, from within the DSAs in Idaho, Montana, and Wyoming to uninfected areas outside the DSA. For the purpose of this risk assessment, disease is known to be present within the DSA and disease presence outside of the DSA is not considered.

To calculate risk of export, a data-driven epidemiological model was developed to quantify the entry and exposure that could produce an infected breeding animal leaving the DSA of Idaho, Montana, or Wyoming undetected. The model was developed under a formal risk analysis framework and several scenarios can be evaluated to produce a risk estimation based on a break-even benefit-cost value for applying additional testing and health monitoring of DSA origin breeding cattle when they are moved to herds outside of the DSAs (risk mitigation). Thus, the risk estimation was framed in terms of the costs for additional testing and reproductive monitoring for states outside the DSAs, relative the rate of receiving infected breeding cattle (exposure assessment) and the effectiveness of the post-movement mitigations. The entry and exposure results suggest that 0.006 - 0.015 shipments would likely leave the DSA of any state in an average year. When standardized by number of breeding shipments per state leaving the DSAs, the results suggest that 0.01 - 0.025 per 1,000 shipments with breeding animals could leave the DSA infected and undetected.

The risk estimation suggests that a break-even value for post-movement risk mitigation (testing and reproductive monitoring) of all DSA origin breeding cattle, weighted by the exposure and mitigation effectiveness, would be in the \$100-\$300 million range. Due to the limitations of data available, an estimation of likely outbreak size and cost outside the DSAs was not evaluated. This break-even benefit-cost value is the amount that an outbreak, in the absence of post-movement risk mitigation, would have to cost to equal the expenditures of applying the post-movement risk mitigation for as long as necessary to detect an exposure event (receiving a DSA origin infected breeding cattle) at the rate determined in the exposure assessment (0.01 – 0.025 per 1000 breeding shipments).

Committee Business:

A motion was passed to accept the three subcommittee reports. Five resolutions were brought before the committee for discussion. Following discussion and amendments being made to the draft resolutions, the resolutions were voted on individually and were passed as amended.

The subcommittee reports follow. The subcommittee meetings were held simultaneously and 43 people participated in the combined meeting.

BRUCELLOSIS SCIENTIFIC ADVISORY SUBCOMMITTEE AGENDA AND REPORT

Phil Elzer, Chair
Louisiana State University

The Subcommittee met at the Sheraton Hotel in Kansas City, Missouri on October 19, 2014 with five attendees: Phil Elzer, LA, Don Evans, KS, Steve Olsen, IA, Valarie Ragan, VA, Jack Rhyan, CO; absent: Walt Cook, TX, Don Davis, TX – Davis sent proxy to Evans.

At the time of the meeting there were no official charges given since Dr. Logan did not receive any requests from USDA or any companies/individuals/organizations working on Brucellosis procedures

Presentations

- 1 Research update from Jack Rhyan, USDA APHIS VS Wildlife/Livestock Disease Investigations Team, on vaccine development and a new darting system appropriate for vaccine delivery:
Current work pertaining to brucellosis in the GYA consists of 2 studies on immunocontraception as a tool to reduce abortion and *Brucella abortus* shedding in seropositive bison, assisting Colorado State University researchers in assisted reproductive techniques to obtain brucella-free bison of Yellowstone genetics, development of a killed spray-dried *B. abortus* vaccine for oral use in elk, and development of a “dry dart” that delivers a vaccine payload approximately four times the volume of a biobullet at extended range with accuracy and is biodegradable. Additionally, analysis of volatile organic compounds from breath of animals is being tested as a screening tool for brucellosis infection. In two studies of *Brucella* seropositive and seronegative Yellowstone bison, different patterns of VOCs were detected between seropositive and negative animals by GC/MS and an electronic nose. These studies are very preliminary, yet early results of these studies suggest the need for continued evaluation of this emerging technology.
- 2 Miladin Kostovic report on the Production and Distribution of Brucella FPA test:
In 2013, Ellie LLC, a Milwaukee, Wisconsin based company has concluded an acquisition of technology for production of Brucella FPA and other tests from Diachemix LLC, and is now a sole provider of this test worldwide. Production of diagnostics is contracted from a Serbia based, USDA approved vendor, while marketing, sale and research are done in the US. Kits are available, always fresh and with consistent quality, without any interruption. Support for instruments and tests is also available in the US. Elli has just finished development of a new FPA reader, Sentry 200 which is processing 12 samples at a time. The instrument has built in precise injector for automated testing. We will be providing USAHA Brucellosis Scientific Subcommittee necessary information for approval of the instrument.
- 3 Update from Frank Galey on the Consortium for the Advancement of Brucellosis Science (CABS):
The program is still moving forward and they are trying to find funding streams through CAP grants, philanthropic organizations etc. There should be a CABS meeting in spring of 2015 and Bruce Hoar was introduced as the new CABS coordinator.

Discussions

- 1 Inconsistent *Brucella* tests on elk and bison samples, especially using the Rivanol test:
There appears to be a problem with the test in that some animals are Rivanol negative but positive on the other tests or high titer Rivanol but negative on the other tests. This has been primarily observed in elk and bison but there have been reports of issues using the test in cattle during the last few years. No data was provided. See below for committee recommendation. Serological tests to differentiate between *B. suis* and *B. abortus* in bovine samples and standardized test for *B. suis* in swine: Discussion centered around the need for a test in cattle because if there is a positive serologic test from slaughter samples and then there is a need to go bleed the entire herd. Whereas if a test could determine a *B. suis* titer that could assist with the investigation and save manpower hours and supplies. There are new antigens being produced in the laboratory via synthetic means which might be useful in the FPA test in the future. What is the true need for a test? See below for committee recommendations.

- 2 Potential for *B. suis* vaccine development:
Everyone agrees there is a need for a *B. suis* vaccine in pigs especially feral swine.

- 3 *Brucella ovis* guidelines for management based on test results (retest, neuter, slaughter etc.):

There was discussion regarding the *B. ovis* test and what constitutes a positive, indeterminate or negative. It appears that the states of WY, MT and ID are getting inconsistent serological results between the states and there are also inconsistencies when the samples go to NVSL. See below for committee recommendations. There was also an active discussion on how to culture for *B. ovis*. See below for committee recommendations.

There were no issues for the committee to address from neither the GYA Subcommittee nor the Brucellosis in Feral Swine Subcommittee.

Subcommittee Business

There was no old business. The Brucellosis Scientific Advisory Subcommittee recommends the following actions. If the appropriate data and information are collected prior to next year's meeting, the committee can meet remotely to address these points.

- 1 The committee recommends that WY, MT and ID put together an elk serum panel of known positive and negative animals along with aberrant reactors to the rivanol test. This serum panel can be sent to NVLS to help standardize some of the tests which are standardized on bovidae samples not cervidae. Don Evans can help with how many samples would be needed in the panel and how they should be coded. This panel can also be used by each state to see any regional differences using the same samples. A panel like this could also help NVSL set up a proficiency metric. In addition, the committee recommends collecting data on aberrant results in cattle to determine if there is a testing or antigen problem that may be causing unexpected results.
- 2 The committee recommends that Dr. Logan solicits the state veterinarians to get data on the number of cattle which are positive on serological tests and if these positive reactions are known or thought to be due to *Brucella suis* exposure. This type of data will be important to have when asking companies to develop a test to distinguish between *B. suis* and *B. abortus* infections.
- 3 The committee recommends that WY, MT and ID put together a data set of *B. ovis* test results including numbers, which tests were run, interpretations etc. This type of information will be helpful when looking at the problem as a whole. It would also be advised that everyone provide their exact protocols on how to run the tests in a step by step fashion (do not reference a manual). The committee would like these data and protocols ASAP. Please provide the information to Dr. Logan.
- 4 The committee recommends that WY, MT and ID provide their protocols on how to culture *B. ovis*. These protocols will be compared to the OIE protocol and the NVSL protocol. These protocols should be in depth and provided to Dr. Logan.

SUBCOMMITTEE ON BRUCELLOSIS IN THE GREATER YELLOWSTONE AREA (GYA)

Marty Zaluski, Chair
Montana State Veterinarian

The subcommittee met on October 19, 2014 with subcommittee chair, Marty Zaluski, calling the meeting to order at approximately 12:30 PM. The subcommittee meeting was held in conjunction with the Scientific Advisory Subcommittee and the Feral Swine Subcommittee.

Subcommittee members present included: Jim Logan, Dave Hunter, Bill Barton, Michael Gilsdorf, Neil Anderson and Marty Zaluski, Susan Keller, John Belfrage, and Mary Wood. Mark Drew was absent. The subcommittee received a presentation by Neil Anderson on wildlife surveillance in Montana.

Montana Fish, Wildlife and Parks (MFWP) initiated a targeted surveillance project for brucellosis in elk in the winter of 2010/2011. As part of this study, abortions are monitored and submitted for culture. A relatively low number of samples from pregnancy failures have cultured positive, however, there are a number of field challenges to obtaining samples.

Neil Anderson also reported on an elk working group which made recommendations for elk/cattle separation in a focused area in Montana. The recommendations were adopted by the Commission of the Department of Fish Wildlife and Parks. Unfortunately, subsequent litigation is delaying further progress on this issue.

The subcommittee also received a presentation from Hank Edwards on Wyoming wildlife surveillance for brucellosis. In 2013 surveillance activities concentrated on the Bighorn Mountains; especially those hunt areas surrounding HA 40 where two positive elk were identified in 2012 outside of the DSA. Surveillance in the Bighorn Mountains yielded 486 suitable samples from the target hunt areas. Forty eight (48) samples were collected from hunt area 40, two of which were positive on both serological assays. These positive cases represent the furthest east location of any confirmed seropositive animal in the State, and their discovery raises concern for the spread of this disease to other elk herds as well as domestic livestock. Dr. Logan briefly presented on ongoing cattle surveillance in the area which has resulted in the testing of 8,000 cattle in the area over the last year and half.

USAHA FERAL SWINE SUBCOMMITTEE ON BRUCELLOSIS AND PSEUDORABIES

Dr. Joseph Corn, Chair

Southeastern Cooperative Wildlife Disease Study (SCWDS), University of Georgia

Reports:

Dr. Dale Nolte, United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, National Feral Swine Damage Management Program, provided an update on the USDA-APHIS National Feral Swine Damage Management Program. APHIS will serve as the lead federal agency in a cooperative effort with other federal, state, tribal, and local entities that share a common interest in reducing or eliminating problems caused by feral swine. **Overall Goal:** APHIS' goal in conducting the National Feral Swine Damage Management Program is to reduce damage and risk to agriculture, natural resources, property, animal health, and human health and safety in the United States by reducing or eliminating feral swine populations, in cooperation with states, tribes, other federal agencies, organizations, and others.

APHIS Strategy:

APHIS' strategy is to provide resources and expertise at a national level, while allowing flexibility to manage operational activities from a local or state perspective. The overall objective of the program is to minimize damage inflicted by feral swine. APHIS will implement activities to reduce problems associated with feral swine in most states where they are present. In states where feral swine are emerging or populations are low, APHIS will cooperate with local and state agencies to implement strategies to eliminate them. **Leadership:** Wildlife Services will lead the APHIS National Feral Swine Damage Management Program. A WS Feral Swine Program Manager will report to the WS Deputy Administrator's Office and coordinate activities across organizations. The Program Manager will serve as the dedicated point of contact for all aspects of the APHIS National Feral Swine Damage Management Program. The Feral Swine Program Manager also will serve as lead for three groups: 1) a National Multi-Agency Feral Swine Committee; 2) an APHIS Feral Swine Coordinating Committee; and 3) a WS Feral Swine Steering Committee. **Funding:** Wildlife Services will establish baseline capacity to address feral swine damage through WS State Programs. Level of baseline capacity that is established will primarily depend on current feral swine populations and current damage to resources. Baseline capacity will be supplemented with designated national and local projects to achieve strategic accomplishments. National projects will be implemented to enable comprehensive coverage of disease monitoring, risk analysis, and economic analysis, along with other research activities on feral swine. Local projects will be generated by WS State Directors, along with cooperators, to address specific feral swine issues. WS will establish two helicopter teams in central locations to provide aerial support for operational programs. APHIS will seek partners in all aspects of feral swine damage management.

Dr. Joseph Corn, Southeastern Cooperative Wildlife Disease Study (SCWDS), University of Georgia, provided an update on the National Feral Swine Mapping System (NFSMS). SCWDS began producing nationwide feral swine distribution maps in 1982 by working directly with state and territorial natural resources agency personnel. In 1982, 17 states reported feral. With support from USDA-APHIS-Veterinary Services (VS) the SCWDS developed and implemented the National Feral Swine Mapping System (NFSMS) in 2008. The NFSMS is an interactive data collection system used to collect and display current data on the distribution of feral swine in the United States. The feral swine distribution maps are produced using data collected from state and territorial natural resources agencies, USDA-APHIS-Wildlife Services, and other state/federal wildlife and agriculture agencies. Distribution data submitted by agency personnel are evaluated by SCWDS on a continual basis, and the distribution map is updated with verified additions on a monthly basis. Feral swine populations and/or sightings are designated either as established breeding populations, or as sightings, but only established breeding populations are included on the map and in the total of the number of states with feral swine. Over 600 additions have been made to the feral swine distribution map through the NFSMS since January 2008. The NFSMS internet address has changed; the new address is <http://swine.vet.uga.edu/nfsms/>. Additional data are provided to state/federal agencies and universities on request. Established feral swine populations currently are reported in 36 states.

Dr. Thomas Gidlewski, United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services provided an update on surveys for selected disease agents in feral swine being conducted by USDA-APHIS-Wildlife Services. In 2014 the USDA, APHIS, WS, NWRC, National Wildlife Disease Program sampled approximately 3000 feral swine in 31 states for Classical Swine Fever, swine brucellosis, pseudorabies virus, influenza virus, and Porcine Reproductive and Respiratory Syndrome, leptospira, toxoplasma, and trichinella. Most of these endemic diseases continue to exist in feral swine and pose zoonotic and agricultural risks. In addition to the national surveillance, we continue to collaborate with scientists on local and regional projects. Our feral swine serum archive now represents about 15000 animals. We are very excited to be working with the National Feral Swine Damage Management Program to expand our surveillance into areas underrepresented in the past.

Drs. Ellen Kasari, Barbara Porter-Spalding, and Ryan Miller, United States Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services, provided an update on USDA-APHIS-VS programs on feral swine. The USDA is moving towards a comprehensive and integrated surveillance system (CIS) for all commodity groups. Monitoring for diseases in feral swine has a role in the swine CIS system. A brief overview of the comprehensive and integrated surveillance system will be provided. The current status of USDA swine activities will be covered and will include information on modifications being made to align with the CIS concept. Finally a brief overview of the role of Veterinary Services in the National Feral Swine Damage Management Program will be reviewed.

Dr. Gregory N. Hawkins, Texas Animal Health Commission reported on a case of a *B. suis* infected hog dog, the investigation of which led to an unpermitted feral swine facility and an infected transitional swine herd. The management of the case in the dog and comparison of test results is also presented. In addition, the disposition of the swine (both domestic and feral) is presented. It is emphasized that positive Brucellosis test results should be reportable for all species, and that epidemiological investigations should be conducted in each case reported. In addition, it is recommended that supplemental tests be evaluated/validated as confirmation on card test positive dogs and the public health significance of *B. suis* infected dogs be determined. Finally, the prevalence of feral swine sporting events is discussed as well as the need for increased awareness of their existence.

Time-Specific Papers

There were no time-specific papers.

Other Presentations/Papers**Supplemental Information****OTHER NOTES:**