

REPORT OF THE COMMITTEE ON BRUCELLOSIS

Chair: Marty Zaluski

James Averill, MI; Gary Balsamo, LA; Bill Barton, ID; Randall Berrier, CO; Tom Bragg, NE; Richard Breitmeyer, CA; Becky Brewer-Walker, AR; William Brown, KS; Nancy Brown, KS; Beth Carlson, ND; Michael Carter, MD; Robert Cobb, GA; Michael Coe, KS; Walter Cook, TX; Joseph Corn, GA; Wendy Cuevas-Espelid, GA; Donald Davis, TX; Jacques deMoss, MO; Bud Dinges, TX; Leah Dorman, OH; Mark Drew, ID; Anita Edmondson, CA; Hank Edwards, WY; Dee Ellis, TX; Philip Elzer, LA; Donald Evans, KS; Tony Frazier, AL; Mallory Gaines, CO; Francis Galey, WY; Tam Garland, TX; Robert Gerlach, AK; Michael Gilsdorf, MD; Linda Glaser, MN; Chelsea Good, MO; Paul Grosdidier, KS; Rod Hall, OK; Greg Hawkins, TX; Burke Healey, CO; Carl Heckendorf, CO; Linda Hickam, MO; Bob Hillman, ID; Bruce Hoar, WY; Brad Hoxit, NC; Dennis Hughes, NE; Noah Hull, WY; David Hunter, MT; Jamie Jonker, VA; Susan Keller, ND; Bruce King, UT; Diane Kitchen, FL; John Lawrence, ME; Brad LeaMaster, OR; Eric Liska, MT; Jim Logan, WY; Gene Lollis, FL; Travis Lowe, MN; Bret Marsh, IN; Barbara Martin, IA; Chuck Massengill, MO; Paul McGraw, WI; Andrea Mikolon, CA; Eric Mohlman, NE; Sherrie Nash, MT; Cheryl Nelson, KY; Dustin Oedekoven, SD; Steven Olsen, IA; Gary Olson, MN; Elizabeth Parker, TX; Janet Payeur, IA; Alejandro Perera, MEX; William Pittenger, MO; Valerie Ragan, VA; Jennifer Ramsey, MT; Jeanne Rankin, MT; Suelee Robbe-Austerman, IA; Keith Roehr, CO; Shawn Schafer, OH; David Schmitt, IA; Brant Schumaker, WY; Andy Schwartz, TX; Charly Seale, TX; Laurie Seale, WI; Kathryn Simmons, DC; Daryl Simon, MN; Robert Stout, KY; Nick Striegel, CO; Diane Sutton, MD; Patrick Tarlton, TX; Lee Ann Thomas, MD; Tracy Tomascik, TX; Curt Waldvogel, OH; James Watson, MS; Margaret Wild, CO; Richard Willer, HI; Kyle Wilson, TN; Thach Winslow, WY; Mary Wood, WY; Ching Ching Wu, IN; Marty Zaluski, MT; Glen Zebarth, MN.

The Committee met on October 17, 2016 at the Sheraton in Greensboro, North Carolina. There were 38 members and 24 guests present.

Brucellosis Ring Test and ELISA Bulk Tank Milk Testing

Mike Carter, APHIS-VS, Surveillance, Preparedness and Response Services (SPRS)-Cattle Health Center

In a review of resolution 24 regarding the re-evaluation of the Brucellosis Ring Test, the National Veterinary Services Laboratories (NVSL) reported on the first part which was a review of the process for, and evaluate the production of Brucellosis Ring Test (BRT) antigen. NVSL evaluated the cell propagation, cell inactivation, cell dye procedures, and pH range of final antigen. NVSL also produced several lots using different centrifugation parameters and no differences were found. Furthermore, Animal Health and Veterinary Laboratories Agency antigen was evaluated against the NVSL produced antigen and no improvements in sensitivity and specificity was seen. NVSLs conclusion is it does not appear the quality of the BRT antigen has changed from previous years.

The second part of the resolution was a request to review the BRT procedures, interpretation, and program use to determine where discrepancies may exist and solutions be implemented to correct them. NVSL discussed the BRT procedure and interpretation with laboratories performing the test. They found that negative and positive control use was variable and inconsistent between laboratories. At least two laboratories reported difficulties with specificity at test volumes > than 1 mL, not including NVSL. In general Heat Inactivation Ring Test follow up testing would significantly reduce the false positivity, but low positive controls would occasionally revert to negative, suggesting reduced sensitivity.

In Summary, as laboratories have implemented quality assurance (QA)/quality control (QC) procedures by using standardized controls and interpretation guidelines, the problems with specificity (especially at volumes > 1 mL) have become more apparent. Pilot studies looking at side by side testing with the ELISA in some of problematic herds in collaboration with TAHC suggests the ELISA may be significantly more specific and warrants further work.

B. suis Outbreak in New York (and Several Other States in the Northeast)

Tom McKenna, USDA-APHIS, Veterinary Services (VS)

A human case of Brucellosis (a female in New York) led to the identification of a transitional swine operation in New York. Testing of this operation yielded several *Brucella* seropositive swine. There was a history of feral swine contact several years ago at this farm. Trace outs from this farm identified several other positive farms (NY, VA, NJ, ME). One of the trace out farms had 59 of 73 tested animals test seropositive for *Brucella*. This farm housed several heritage breeds raised outside.

Depopulation of the two contact herds from New Jersey and Virginia included sending some Brucellosis reactors to a slaughter plant in Vermont (VT). This resulted in the VT Department of Health questioning whether or not the slaughter plant workers had appropriate personal protective equipment (PPE) to protect them from potential exposure to the *B. suis* organism. This concern grew, and led to discussions among Food Safety Inspection Service, Centers for Disease Control, VT Department of Health, VT Department of Agriculture, and APHIS. These discussions are still ongoing, and may result in a modification of how reactor, and exposed swine herds are handled in future outbreaks.

The response to this outbreak was done in coordination among the New York State Department of Agriculture and APHIS.

Federal Expert Select Agent Panel

Marty Zaluski, Montana Department of Livestock

Dr. Zaluski presented on the Federal Experts Select Agent Panel (FESAP) using a presentation provided by Dr. Steve Olsen, USDA-ARS, who could not attend.

FESAP was established in 2010 and tasked with policy issues relevant to the security of biological select agents and toxins. Per recommendations from Department of Health and Human Services (DHHS) and USDA, FESAP was tasked in 2016 with considering removal of *Coxiella burnetii*, *Rickettsia prowazekii*, *Brucella abortus*, *Brucella suis*, and *Brucella melitensis*. *Brucella* was put on Select Agent list because of efforts by Department of Defense to develop *B. suis* bioweapon in the 1950s.

The listing of *B. abortus* has had a dramatic effect on research done on the organism with the number of facilities shrinking from 11 in 1996 to just one currently. This is due to the extreme administrative burden of operating a select agent facility, and the high consequence for any violations. With fewer facilities conducting research, there are fewer studies conducted, and therefore, the costs to states with brucellosis infected wildlife are continuing with no additional tools being developed.

FESAP addressed several concerns during the evaluation process including Infectious dose, severity of disease with pulmonary exposure, mortality, laboratory exposure, more laboratory exposures to *brucella* than *francisellai*, concern that brucella will be obtained from laboratories. After consideration of these issues, FESAP recommended the delisting of *B. abortus* and *Rickettsia prowazekii*.

National Brucellosis Eradication Program Report

Mark Camacho, USDA-APHIS-VS

All 50 states are currently brucellosis class-free. There is one domestic bison herd under quarantine with a test and remove herd plan in place while two affected beef herds were released from quarantine in 2016. In FY 2016, Wyoming found two new affected bovine beef herds. One herd was released from quarantine in July 2016 leaving just one herd still under quarantine.

Approximately 1,717,165 cattle and bison were brucellosis tested under the National Surveillance Plan including approximately 162,166 cattle in the Greater Yellowstone Area. There are nine cattle and two bison national surveillance slaughter facilities. Approximately 92 fluorescence polarization assay (FPA) positives (>20mP) were identified from slaughter surveillance during FY 2016 with no confirmed infected herds found. In addition, 148 trace investigations from slaughter occurred revealing that Texas also investigated FPA results in the suspect range FPA $\geq 10 - 20\text{mP}$ explaining why there were more trace investigations than FPA (+)s.

Approximately 3,955,575 calves were reportedly brucellosis officially calf hood vaccinated but the brucellosis committee felt that this was a reporting error and this number was too high to be accurate. In addition, approximately 228,866 animals were brucellosis adult vaccinated nationwide during FY 2016. Approximately 914 herds were certified as Brucellosis-Free herds.

The proposed TB/Brucellosis combined rule was published in December 2015 and generated much discussion and public comment. VS is meeting to address these concerns and hopes to modify the rule to incorporate the best comments and suggestions into the new rule.

Research Update

Jack Rhyan, USDA-APHIS, Wildlife/Livestock Disease Investigations Team

Preliminary results of a study examining the use of GonaCon, an immunocontraceptive vaccine, in bison show lack of *Brucella abortus* shedding or transmission in a pasture containing contracepted *Brucella*-seropositive bison and sentinel seronegative bison after four calving seasons. This is compared to a control pasture containing an equal group of unvaccinated seropositive bison; in the control pasture 18 *B. abortus*

shedding events have occurred from 11 cows over the four calving seasons. Of the 11 cows, 5 have had two or more shedding events. Work on the DryDart continues as an option for remote vaccination of bison with Rb51. An ongoing study shows DryDart vaccination of bison with Rb51 results in antibody production. Gamma interferon assays are in progress. Work on a killed, spray-dried, brucellosis vaccine designed for elk continues with encouraging results from a mouse study. Two attempts to develop an outdoor model for vaccine testing in elk using natural exposure as the challenge have not produced positive results. That work and the detection of breath and fecal volatile organic compounds as a screening tool for brucellosis in wildlife continue.

National Brucellosis Testing Protocol for Cattle, Bison and Cervids

Mark Camacho, USDA-APHIS-VS

Prior to 2007, brucellosis testing was not consistent across states and across laboratories with different numbers and types of tests used in many instances. Interpretation of these different protocols was difficult across state lines. Depending on the specific testing regimen the interpretation of the testing protocol would vary depending on parallel or series testing approaches which can affect sensitivity and specificity dramatically.

In 2013, USDA developed a national standardized testing protocol for brucellosis in cattle, bison and cervids that consisted simply of a screening test followed by a confirmatory test. The protocol is Rapid Automated Presumptive (RAP) or Buffered Acidified Plate Antigen (BAPA) screening test which, if positive, will be followed by the fluorescence polarization assay (FPA) test. If the FPA test is positive, then NVSL will also run a Complement Fixation test for supplemental information for the epidemiologist.

All non-negative brucellosis samples from approved laboratories are supposed to be confirmed at National Veterinary Services Laboratories (NVSL). If samples come to NVSL which have not followed the national protocol, then NVSL will simply perform the standardized testing protocol. If samples come to NVSL that were non-negative to a screening test only, then NVSL will run the FPA and complement fixation (CF) in series. If samples come to NVSL with non-negative confirmatory tests, then NVSL will perform both of the confirmatory tests and report both to the customer.

Summary of Elk Brucellosis Surveillance in Montana

Jennifer Ramsey, Montana Fish, Wildlife and Parks

From 2011-2015, Montana Fish, Wildlife and Parks carried out a targeted brucellosis surveillance project to delineate the geographic distribution of brucellosis, evaluate risk of seropositive elk shedding *Brucella abortus*, identify potential pathogen exchange through elk movement, and evaluate transmission risk to cattle. Results of the targeted surveillance project will be summarized, and results of 2016 brucellosis surveillance in Montana will be presented, and planned efforts for future work will be discussed.

Current Status of Brucellosis in Elk in Idaho

Mark L. Drew, Idaho Department of Fish and Game (IDFG)

Idaho has recognized brucellosis in elk since 1998. Although brucellosis is not considered a population limiting disease, it is of importance to the livestock industry in Idaho and IDFG is cooperating with Idaho State Department of Agriculture (ISDA) and USDA to minimize elk-cattle interactions during the high-risk period, January to June. Elk management in Idaho is done by zones which typically configure around a known population of elk which are managed within a population objective using population surveys conducted every 3-5 years.

Brucellosis in elk in Idaho is restricted to eastern Idaho, in four elk management zones – from north to south, Island Park, Palisades, Tex Creek and Diamond Creek. Total elk population in these zones is approximately 10,000. In eastern Idaho, most elk populations are at objectives or below. Elk movements from summer to winter range is not a specific pathway and the final destination depends on the year, snow depth and food availability. Live elk captured for management or research activities have been sampled for brucellosis across the state.

Live elk surveillance from 1998-2015, over 3,100 animals have been sampled, with 174 seropositive, 113 of which are from Rainey Creek, Game Management Unit (GMU) 67 – the feedsite in eastern Idaho that was disbanded in 2005. The highest seroprevalence in elk occurs in the Smokey Bennett, near Sun Valley where a feeding operation with lots of *Yersinia* spp. cross reactions were found. The feed site was disbanded in 2003. The second zone of high seroprevalence is Palisades – showing brucellosis in the Rainey Creek feed site which was disbanded in 2005. From live animal samples, the majority of seropositive

animals are in eastern Idaho, but there are a few scattered animals in other places that are considered to be *Yersinia* cross reactions. Using hunter killed elk samples in a similar protocol to Wyoming and Montana and aimed primarily at cow hunters, IDFG sends out about 1,500 samples per year, expects to get 15% back and 50% of those are suitable samples. Summarizing elk hunter surveillance from 1998-2015, over 3,500 samples, but only 97 seropositive animals have been found. All of them are in eastern Idaho with the majority in GMU 61, 62, 62A, 64, 65, 67 all in eastern Idaho. Island Park and Pallasades zones have the highest seroprevalence. Elk cattle interaction management is a cooperative effort with ISDA and USDA, primarily focused on actions to minimize elk-cattle interactions in the high-risk period (January to June) and include fencing haystacks and winter cattle feeding areas, hazing elk, depredation hunts on elk, and hunter management to keep elk population levels within social and biological tolerance levels.

REPORT OF THE BRUCELLOSIS SCIENTIFIC ADVISORY SUBCOMMITTEE

Phil Elzer, Chair
Louisiana State University

The Subcommittee met on October 16, 2016 at the Greensboro Sheraton Hotel in Greensboro, North Carolina from 12:30-5:30pm. Attending subcommittee members were: Don Evans (KS), Valarie Ragan (VS), Jack Rhyan (CO), Phil Elzer (LA) Chair.

Discussions

There was an interactive discussion on what to do with animals which have cross reacting titers using the standard diagnostic tests. There are numerous microorganisms which may cause a false positive on the current diagnostic tests for brucellosis. Points to keep in mind regarding cross reactions: 1.) Are the tests being run properly; 2.) What is the age and pregnancy status of the animal; 3.) Do the titers wane over time; 4.) Were multiple tests run; 5.) What is the vaccination status of the animal; 6.) Does the animal have another infection which is activating the immune response? One must perform a complete epidemiological investigation prior to releasing the herd; and one possible outcome of the investigation might be animal slaughter for the collection of tissues for bacterial culture.

Old Business

No action has been taken on these items. The committee feels that these issues need to be addressed.

- a. The committee recommends that Dr. Zaluski solicit the state veterinarians primarily from Florida, Texas, Hawaii and any others 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 in cattle.
- b. The committee recommends that Wyoming, Montana and Idaho work with National Veterinary Services Laboratories (NVSL) to culture any sheep that are serologically positive on the *B. ovis* test.

New Business

Review of 2011 USAHA Resolution 26

RESOLUTION NUMBER: 26 APPROVED

SOURCE: COMMITTEE ON BRUCELLOSIS

SUBJECT MATTER: CALFHOOD VACCINATION OF BISON UP TO TWENTY-FOUR MONTHS OF AGE

BACKGROUND INFORMATION:

The United States Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services requested that United States Animal Health Association's Brucellosis Scientific Advisory Subcommittee evaluate the use of *Brucella abortus* "Strain RB 51 vaccine" in bison between the age of 12 and 18 months due to the later maturity of bison as compared to cattle. Data was previously presented by Dr. Steven Olsen regarding serological responses in bison calves vaccinated with RB 51 between the ages of 12 and 24 months. Bison calves vaccinated during this time frame remained seronegative after vaccination. The scientific advisory subcommittee of the Brucellosis committee recommended the use of this vaccine in this age of animal.

RESOLUTION:

The United States Animal Health Association urges that the United States Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services adjust the allowable age of RB51 official calfhood vaccination of bison through 24 months of age.

INTERIM RESPONSE:

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS) appreciates the opportunity to collaborate with the United States Animal Health Association (USAHA) on brucellosis vaccination. We have reviewed the resolution to adjust the allowable age of RB51 official calfhood vaccination of bison to 24 months of age. We recognize that the Brucellosis Scientific Advisory Subcommittee's evaluation of the serologic responses in bison calves indicated that calfhood vaccination with *Brucella abortus* RB51 stimulated an immune response and, when tested, these bison calves remained sero-negative throughout the study.

We also recognize that the safety and efficacy of the use of the *B. abortus* Strain RB51 vaccine in bison calves of the proposed 4 to 24-month age range must be evaluated before considering changes to regulations and program standards. USDA Agricultural Research Service (ARS) is evaluating serologic responses of bison to multiple inoculations with *B. abortus* RB51 and evaluating the safety and efficacy of booster vaccination of bison.

In addition to this work, further evaluation is needed to support this resolution, and we request your assistance. Specifically, we ask that the USAHA Brucellosis Scientific Advisory Subcommittee evaluate relevant data and provide recommendations on the feasibility of adjusting the age for vaccinating bison. If relevant data are not available, we would appreciate input on a plan to scientifically validate the vaccination age for bison. A report from the USAHA Brucellosis Scientific Advisory Subcommittee at or before the 2012 USAHA meeting would facilitate further discussion and decision-making.

Other issues, such as extra-label use of the *B. abortus* Strain RB51 vaccine in bison, need to be addressed as well. VS will continue to seek appropriate options and resolutions to these issues.

If a change in age of brucellosis vaccination for bison is feasible, we will reflect changes in the new comprehensive regulations and program standards that VS is developing for the brucellosis and bovine tuberculosis programs.

Recommendation:

The Brucellosis Scientific Advisory Committee contents that multiple safety studies on the use of RB51 in bison of all ages have already been conducted and published. The Committee also recognizes that USDA Agricultural Research Service (ARS) is evaluating serologic responses of bison to multiple inoculations with *B. abortus* RB51 and evaluating the safety and efficacy of booster vaccination of bison. However, the Committee feels that the data from that study will inform future decisions on the potential use of multiple inoculations with RB51, yet does not further inform the policy question of increasing the age of acceptable calfhood vaccination for bison. As safety of RB51 vaccination in bison calves and adults has been documented, efficacy of RB51 in calves and adults as been documented with various results, and more importantly, it has been shown that RB51 vaccination of bison at various ages has been shown to not induce titers on standard brucellosis tests. The Committee is not aware of APHIS' requirements to "validate" a vaccination age. If APHIS will provide the process used to "validate" the vaccination age for cattle, the Committee will be pleased to evaluate the literature for similar such studies in bison.

The Committee recommends that the age for official calfhood vaccination in bison be raised to 24 months due to the documented later age of maturity in bison.

Select Agent delisting of *Brucella abortus*.

If *Brucella abortus* is not removed from the select agent list, the committee recommends that a message be sent to the Department of Homeland Security expressing the need to have the organism delisted. Each *Brucella* species should be considered separately for removal from the list.

Future of the Scientific Advisory Subcommittee.

Due to the lack of scientific issues over the past three years, the members' recommendation that the subcommittee be retired until further notice.

REPORT OF THE SUBCOMMITTEE ON BRUCELLOSIS IN THE GREATER YELLOWSTONE AREA (GYA)

Bill Barton, Chair
Idaho Department of Agriculture

The annual meeting of the Subcommittee was called to order at 12:30 p.m. on October 16, 2016. In his absence, Chairman Bill Barton delegated responsibility for chairing the meeting to Dr. Scott Leibsle, Idaho Deputy State Veterinarian. There were 18 members of the Committee on Brucellosis and GYA subcommittee in attendance.

Presentations

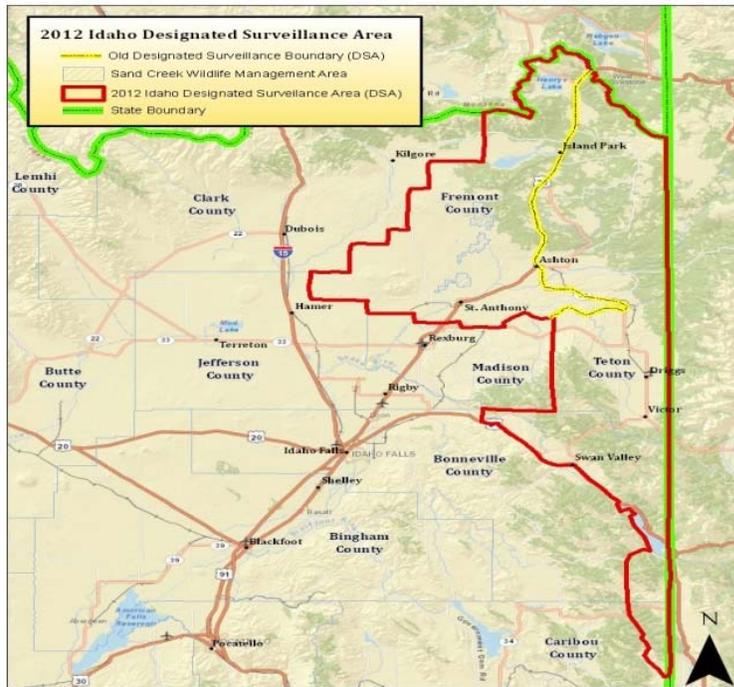
Idaho Update

Scott Leibsle, Idaho Department of Agriculture

Idaho currently has no herds under quarantine for brucellosis. A domestic bison herd in Swan Valley and a small beef herd west of Ashton, both identified as affected with brucellosis in 2012, were released from quarantine in 2015. The affected beef herd completed post quarantine assurance testing in May 2016 and all cattle tested negative. The domestic bison herd has a post quarantine assurance test scheduled for December 2016. In 2015, 12,242 head of cattle were tested to meet designated surveillance area (DSA) testing requirements. This included 863 for herd certification; 2,234 due to change of ownership; and 9,145 returning from grazing in a 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.

The Idaho Department of Fish and Game (IDFG) continues to conduct wild elk surveillance around the outside borders of Idaho's DSA. In 2015, IDFG distributed 1,500 hunter test kits in the west and southern region of the DSA. Fifteen (15%) percent of the hunter test kits were returned to the Animal Health Laboratory for testing, which yielded 157 useable samples. Twelve (12) samples were seropositive, resulting in a seroprevalence of 7.79%. Landowner kill permits and depredation hunt permits are also utilized in areas known to be affected by brucellosis. This year, surveillance will focus on the northwestern and western edge of Idaho's DSA. The Idaho Brucellosis Coordination Team consisting of Idaho State Department of Agriculture (ISDA), IDFG and Idaho Veterinary Service (VS) personnel continues to meet annually to discuss surveillance and mitigation strategies and make improvements when necessary.

The ISDA and Idaho's cattle producers remain committed to managing appropriately to prevent the risk of transmission of brucellosis from wildlife to cattle. A regulation, established in 2014, requiring producers transporting test eligible cattle or bison in the DSA, to any location outside of the DSA, to obtain a movement permit prior shipment, has increased Idaho's oversight of the DSA and provided for additional opportunities to conduct surveillance and outreach activities. Industry support and assistance with enforcement of Idaho's brucellosis testing requirements for cattle leaving our DSA are paramount to the program's success.



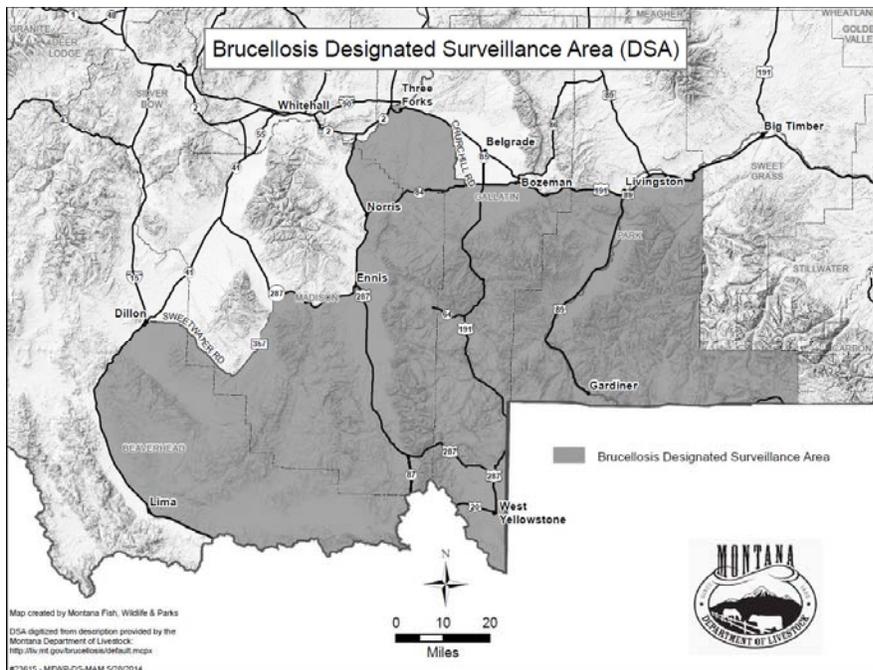
Montana Update

Marty Zaluski, Montana Department of Livestock

Affected Herd Epidemiologic Investigation: One domestic bison herd remains under quarantine since 2010 and continues annual entire herd testing. This herd is within Montana's Designated Surveillance Area (DSA).

DSA Compliance Evaluation: Montana's annual internal audit examines compliance with DSA regulations. Overall compliance is high. In FY16 over 90% of herds within the DSA were in compliance which is consistent with previous years' findings. The evaluation included 337 active producers with cattle in the DSA and approximately 78,500 cattle. Seventy-eight percent (78%) of those cattle are from herds that tested $\geq 15\%$ of the total herd size with an additional 13% from herds that were confirmed in compliance with testing requirements for movement and sale but with lower herd replacement rates (and therefore, sold fewer test eligible animals). The evaluation also includes DSA adult vaccination (AV) statistics. Over 6,000 adult vaccinations were administered in FY16. This accounts for an AV rate which remains well below the goal of 30%.

Environmental Assessment for Yellowstone Bison Quarantine: In January 2016, the National Park Service proposed to establish an operational quarantine for Yellowstone bison for conservation purposes. The environmental assessment (EA) proposed that the quarantine facility be either located near Yellowstone National Park (YNP), or at the Fort Peck Tribe near Wolf Point, Montana which is over 400 miles away from the YNP boundary. Department of Livestock (DOL) supported the local quarantine alternative and objected to locating the quarantine in a remote location where the DOL lacks authority on the sovereign nation. DOL also expressed concern that the proposed quarantine at Fort Peck is not allowed by the 2003 Brucellosis USDA Uniform Methods and Rules (Section 6.D), and Montana Code Annotated (MCA 81-2-120 (1)(d)). Currently, 49 bison are being held in YNP and awaiting a decision.



State FY	2011	2012	2013	2014	2015	2016
# of DSA tests	32000	37000	44000	49000	74000	67000

Elk Surveillance: The live elk capture study has continued in 2016 with new captures near the Wyoming/Montana border and recaptures for testing of 27 collared elk. This project began in the winter of 2011 to evaluate the prevalence and extent of brucellosis exposure in elk near Montana’s DSA boundary and to document elk movement patterns. Since 2011, elk in eleven study areas have been sampled. This information has been used by DOL to determine the extent of potential livestock exposure to brucellosis and to effectively determine the location of the DSA boundary.

Wyoming Update

Jim Logan, Wyoming Livestock Board

The bison herd in Park County that had been under quarantine since November 2010 was released from quarantine in October 2015. Two Brucellosis affected cattle herds were found by routine, required testing in Wyoming in late October 2015. Both herds are located in the Wyoming Brucellosis Designated Surveillance Area (DSA). One is in Park County (60 miles east of Yellowstone National Park (YNP)), and the other in Sublette County (60 miles south of YNP). Both herds were exposed to brucellosis infected elk and genomic testing has verified elk as the source of both infections. These two affected herds are not epidemiologically linked.

The Park County herd underwent three, consecutive, negative, whole-herd tests (with the last post-calving) and the quarantine on that herd has been released. This herd had only one brucellosis reactor and it was a relatively simple case to resolve. There was only one fence-line contact herd associated with this affected herd. A herd test was conducted on the contact herd in November 2015 and no suspects or reactors were found so the quarantine was released.

The Sublette County herd originally had 11 reactor animals and, following their removal, the herd had one negative, whole-herd test in January 2016. Unfortunately, two additional reactor cows were found in the second whole-herd test in March, so the requirement for three, consecutive, negative tests started anew. The herd was tested again on May 21 and 22 and two additional reactors were found. The herd will remain under quarantine until it has had three consecutive, negative, whole-herd tests with at least one being post-calving.

There were seven contact/commingled herds associated with this affected herd. Some ran steers and spayed heifers and were not required to be quarantined or tested. The others were placed under quarantine until a herd test was conducted. All herd tests were negative and the contact herds were released from quarantine. All contact herds will undergo an assurance test this fall following summer grazing. Wyoming worked with the producer, contact herd owners, USDA-APHIS, and the United States Forest Service (USFS) within state and federal rules to facilitate grazing management this summer, allowing only test-negative cows that had already calved to be turned out. A herd test will be conducted in late October. The quarantine remains in effect and the producer has been very cooperative.

Wyoming has been fortunate to have the valued assistance of the Wyoming State Veterinary Laboratory (WSVL) in the diagnostic work on both brucellosis cases. The laboratory has purchased most of the reactor animals and performed complete necropsies and tissue cultures as part of a research project. The state of Wyoming purchased the last reactors through a state indemnity fund and those animals were also necropsied at the Wyoming State Veterinary Laboratory. Tissue cultures were conducted at the WSVL and NVSL and *Brucella abortus* was isolated from several tissues.

The regulatory serology unit of the WSVL continues to provide excellent service for our Wyoming producers and veterinarians in testing brucellosis samples and getting results quickly and accurately. We have also been fortunate to have the good cooperation of USDA-APHIS in dealing with the epidemiology and regulation of these cases.

Due to findings of brucellosis in free-ranging elk in the Bighorn Mountains of Wyoming during the fall of 2012 (since 2012 there have been a total of nine Brucellosis seropositive elk found on hunter killed surveillance), the Wyoming Livestock Board (WLSB) initiated voluntary brucellosis testing of test-eligible, adult cattle originating from Big Horn and Sheridan counties. Approximately 11,000 head of cattle have been tested since initiation of the surveillance program in both Sheridan and Big Horn counties with no suspect or reactor cattle found. We are encouraging producers and veterinarians to have test eligible cattle from Big Horn and Sheridan counties tested prior to a change of ownership either at the ranch or at livestock markets and have commitments from several producers and veterinarians to test this fall.

Staff veterinarians have been working with producers, markets, and veterinarians in and out of the DSA to educate them about Brucellosis issues and to encourage risk assessment and herd plan development. We have held meetings in Big Horn, Sheridan, and Johnson counties with producers, veterinarians, and Wyoming Game and Fish Department (WGFD) personnel to discuss the disease risks and surveillance testing needs.

The WGFD has increased surveillance for Brucellosis in elk herds that reside in the Bighorn Mountains through hunter kill surveillance and also through a newly-initiated radio collar movement study. Although the number of elk that have been found seropositive is relatively small, both the WLSB and WGFD remain concerned and vigilant of the threat of disease transmission from elk to cattle.

Forty (40) veterinarians conducted testing for Brucellosis on cattle from the Designated Surveillance Area (DSA) and the Brucellosis Area of Concern during Wyoming Fiscal Year 2016. A total of 43,875 cattle/bison were tested on Wyoming ranches and at livestock markets and 2,094 cattle were sampled at Wyoming slaughter plants to comply with WLSB Chapter 2 brucellosis rules. An additional 6,500 head have been tested in July, August, and September.

The WLSB Brucellosis Chapter 2 rule was recently revised to clarify brucellosis testing requirements. The board voted on September 15 to require testing on all sexually intact females 12 months of age and over that leave or are sold from within the DSA. The WLSB declined to impose mandatory test requirements in Big Horn County until further information on elk surveillance testing and the WGFD's elk radio collar study are available. The board is depending on voluntary testing of cattle sold from Big Horn and Sheridan counties to provide adequate surveillance for Brucellosis.



Resolutions:

The Committee was presented a resolution passed by the Western States Livestock Health Association that advises USDA-APHIS to conduct comprehensive reviews of each Greater Yellowstone Area (GYA) state's brucellosis program at least once every three (3) years. The GYA subcommittee has chosen to allow the full Committee on Brucellosis to consider submitting a concurrent resolution to APHIS to request regular reviews of each GYA state's Brucellosis program.