

REPORT OF THE COMMITTEE ON BRUCELLOSIS

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Vice Chair: Tony Frazier, AL

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The Committee met on October 26, 2015 in room 551 of the Convention Center in Providence Rhode Island from 1:00 to 4:30 PM. There were 45 members and 15 guests present. The agenda was affected by a canceled presentation by Dr. Steve Olsen (ARS) due to unexpected travel delays. Dr. Olsen planned on presenting on RB51 booster vaccination in cattle.

Overview

The Committee on Brucellosis meeting was called to order by chair, Dr. Martin Zaluski, who introduced the vice chair, Dr. Tony Frazier. Subcommittee chairs, Dr. Phil Elzer, Scientific Subcommittee; Dr. Bill Barton, Brucellosis in the Greater Yellowstone Area Subcommittee; and Dr. Joe Corn, Swine Subcommittee were in attendance. The committee heard subcommittee reports, state reports from the GYA states of Idaho, Montana, and Wyoming, and several presentations on relevant topics. The committee considered and passed one resolution dealing with the recently identified shortcomings of the Brucellosis Ring Test.

Presentations and Reports

Subcommittee Reports

Dr. Phil Elzer presented the Scientific Advisory Subcommittee Report. Dr. Joe Corn presented the Feral Swine Subcommittee Report. Dr. Bill Barton presented the Greater Yellowstone Area (GYA) Report. All subcommittee reports are included at the end of this report.

National Brucellosis Program Update Dr. Arnold Gertonson, USDA-APHIS-VS

The quarantine was released on two beef herds in Montana's Designated Surveillance Area for Brucellosis (DSA) that were found to be affected with brucellosis in 2014. Three domestic bison herds (one in each GYA state of Idaho, Montana and Wyoming) remain under quarantine. All GYA States remain classified as Class Free for bovine brucellosis.

National brucellosis surveillance program facilities reported 1,726,675 head tested through the Market Cattle Identification (MCI) program. The GYA reported 123,506 cattle tested. Some cattle may have

been tested through the MCI program and also in the GYA prior to entering slaughter channels. Brucellosis vaccination numbers are 861,138 Official Calfhood Vaccinates (OCV) and 228,866 Adult Vaccinates (AV). Certified Brucellosis-Free Herds number 513 which is an increase over the previous year.

The national slaughter surveillance program collects samples from nine cattle and two bison slaughter facilities. The primary surveillance laboratory for the national surveillance program is in Kentucky. The Texas state laboratory is part of the national slaughter surveillance program and samples from 2 slaughter facilities in Texas. The state laboratories in the three GYA States test samples that are collected within those states.

Montana Report Summary

Dr. Eric Liska, Montana Brucellosis Veterinarian

Two cattle herds were found to be affected with brucellosis in the fall of 2014. Both herds underwent rigorous epidemiologic investigation and were released from quarantine following the third negative test completed at the time of calving in the spring of 2015. Currently, whole herd assurance testing is underway. One domestic bison herd, found to be affected in 2010, remains under quarantine. This herd undergoes whole herd testing with removal of suspects and reactors annually. Combined testing totals for these investigations required approximately 39,000 tests.

Based on elk surveillance findings in 2015, Montana adjusted the DSA boundary to include the area north of Hwy 84 between Norris and Four Corners (west of Bozeman).

350 Producers utilize Montana's DSA with approximately 80,000 cattle and domestic bison. In the State fiscal year 2015, approximately 80,000 brucellosis tests were performed.

Idaho Report Summary

Dr. Bill Barton, Idaho State Veterinarian

Idaho currently has one herd under quarantine for brucellosis. The domestic bison herd, located well within Idaho's DSA, was determined to be affected with brucellosis in 2012 following testing due to known interaction with wild elk. The herd was put under quarantine and a herd plan implemented. 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 herd has completed two (2) consecutive negative whole herd tests with the next test scheduled for December, 2015.

In 2014, 8,220 head of cattle were tested to meet DSA testing requirements. This included; 137 in an affected herd, 619 for herd certification, 2,264 due to change of ownership testing and 5,198 returning from grazing in the 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 State Department of Agriculture and Idaho's cattle producers remain committed to managing appropriately to prevent transmission of brucellosis from wildlife to cattle. Industry support and assistance with enforcement of Idaho's brucellosis testing requirements for cattle leaving Idaho's DSA are paramount to our success.

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). With testing conducted in July 2015 being negative, the entire herd is at two-test negative status. Testing will be conducted during October and November 2015. If there are no positives found, then the release requirements will be met and the quarantine will be lifted with a hold order on any non-parturient females (heifers) until they undergo a post-calving test.

In 2013, the Wyoming Game and Fish Department (WGFD) found two Brucellosis sero-positive elk on hunter-killed elk surveillance (from the 2012 hunt season) about 30 miles east of the DSA. This represented the first time Brucellosis sero-positive animals had been found outside the boundaries of the DSA since Wyoming achieved Brucellosis-free status in 1985. Two (2) additional sero-positive elk were found during the 2013 hunt season in the same hunt area (HA 40). In 2014, three sero-positive elk were found; one from Hunt Area 39, one from Hunt Area 40, and one from Hunt Area 41, which are contiguous. The Wyoming Livestock Board (WLSB) responded to these findings by designating the area as a "Brucellosis Area of Concern," conducting testing on test-eligible, female cattle in two counties (Big Horn County & Sheridan County), which are in the vicinity of the elk herd units from which the sero-positive elk were found. According to NASS, there are 64,000 head of cattle in these two counties. Testing of cattle from this area is being done on ranches/farms and at all Wyoming markets, along with two Montana markets, at WLSB expense. Additionally, risk assessments are being conducted on area herds to determine if cattle/wildlife conflict exists that could cause exposure. The WGFD has also increased its elk surveillance activities in the area to determine the elk sero-prevalance rate in the elk herd unit. Elk movement studies will soon be conducted on radio-collared elk to determine movement patterns of area elk, and the WGFD will also be conducting vaginal implant transmitter studies in the area to verify elk calving locations to better clarify wildlife/cattle conflict probability. The WLSB will utilize cattle and elk surveillance data and study results to determine any rule changes of DSA boundary change proposals.

Wyoming requires calfhood vaccination statewide for all heifers that will remain in a breeding herd. All sexually intact female cattle that inhabit the DSA must be calfhood vaccinated or adult vaccinated. From July 1, 2014 to June 30, 2015 (state FY2015), 238,472 female cattle/bison were Brucellosis vaccinated – this includes calfhood, yearling booster and adult vaccinations. Many herds were adult and/or yearling booster vaccinated during the state fiscal year 2015, which accounts for 7,020 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, 2014 and June 30, 2015, 36,906 head of cattle were tested from Wyoming's DSA and the "Brucellosis Area of Concern". 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 approximately 85,000 head. We have 151 DSA Brucellosis herd plans and 22 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.

The WLSB is in the process of updating and revising its Chapter 2 Brucellosis rules to reflect changes in federal requirements and continue to protect our producers and our trading partner states.

National Research Council: Revisiting Brucellosis in the Greater Yellowstone Area Dustin Oedekoven, South Dakota State Veterinarian

In May 2015, the National Academies of Science, Engineering, and Medicine appointed a committee on revisiting brucellosis in the Greater Yellowstone Area. In an update to the 1998 report "Brucellosis in the Greater Yellowstone Area," the current committee will comprehensively review and evaluate the available scientific literature and other information on the prevalence and spread of *Brucella abortus* in the Greater Yellowstone Area (GYA) in wild and domestic animals and examine the feasibility, time-frame, and cost-effectiveness of options to contain or suppress brucellosis across the region. As part of the committee's charge, it will also examine the increased occurrence of brucellosis transmission from wildlife to livestock, examine disease management activities and vaccination strategies, examine societal and economic costs and benefits of implementing various measures, and describe and prioritize further research needed to reduce uncertainties and advance the knowledge base on brucellosis vaccines, vaccine delivery mechanisms, and diagnostics. The committee held its first meeting in July 2015 in Bozeman, MT, and its second meeting in September 2015 at the Jackson Lake Lodge, WY. The third meeting will be held in November 2015 in Washington, DC. The committee welcomes any information or comments from the public, which can be submitted to the study director (Peggy Tsai Yih, pyih@nas.edu). A final report is expected to be released to the public in summer 2016.

Novel Applications of Whole Genome Sequencing Suelee Robbe-Austerman, NVSL

Whole genome sequencing continues to help resolve new cases of *Brucella* sp. diagnosed in the laboratory. The Center for Disease Control and Prevention has teamed up with NVSL to identify and resolve cases at the human-animal interface. The agencies are working on implementing a harmonized database so identifying and investigating new cases with links in both food, wildlife or production animal and human health can be seamless. Preliminary data on genotyping using a metagenomics approach to sequencing and genotyping were shown. NVSL will continue to improve on this technique so that samples identified in the field that are not culture quality can still be tested.

Montana 5-year Summary of Elk Surveillance & Movement Study Jennifer Ramsey, DVM, Montana Department of Fish Wildlife & Parks

Montana Fish, Wildlife and Parks (MFWP) is conducting a multi-year targeted elk brucellosis surveillance project to 1) evaluate the prevalence and spatial extent of brucellosis exposure in southwest Montana elk populations, 2) evaluate the extent of elk interchange between infected and adjacent elk herds, and 3) evaluate the risk of seropositive elk shedding and potentially transmitting *Brucella abortus*. Since 2011, we have captured in areas adjacent to the previously documented distribution of brucellosis and tested elk for exposure to *B. abortus*. We have radiocollared a sample of elk in each study area to identify the timing and extent of herd interchange. We have outfitted seropositive, pregnant elk with vaginal implant transmitters to monitor birth events and sample for *B. abortus* at birth sites. We documented brucellosis in 4 areas beyond the previously documented distribution of the disease (Blacktail, Sage Creek, Northern Madison, and Greeley), found a higher exposure rate than previously documented in elk in the Mill Creek area, and found no exposure to *B. abortus* in elk in 2 areas (Pioneer Mountains, Tobacco Root Mountains). Levels of exposure to *B. abortus* ranged from 0% in the Pioneers and Tobacco Roots to a high of 53% in Mill Creek. We deployed radiocollars on a total of 38 seropositive and 144 seronegative elk. We monitored 51 seropositive elk pregnancies during 2011 – 2015 and documented 3 abortions, 45 live births, and 3 unknown events. *B. abortus* was detected at all 3 abortion sites, and 1 of the 45 live birth sites.

Committee Business:

A motion was passed to accept the three subcommittee reports. One resolution was brought before the committee for discussion. Following discussion and amendments being made to the draft resolution, the resolution was voted on and passed unanimously.

BRUCELLOSIS SCIENTIFIC ADVISORY SUBCOMMITTEE AGENDA AND REPORT

Phil Elzer, Chair
Louisiana State University

October 25, 2015
Room 556 A 12:30 – 5:30

1. Introduction of sub-committee members.

Present: Don Evans (KS), Valarie Ragan (VS), Jack Rhyan (CO), Walt Cook (TX), Phil Elzer (LA)
Absent: Steve Olsen (IA), Don Davis- retired (TX)

2. Presentations:

a. Research Update from J. Rhyan USDA,APHIS,VS, Wildlife/livestock Disease Investigations Team:

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, 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. Finally, a description of how the tools under development could be used in a strategy to eradicate brucellosis was given.

b. Update on FPA from Miladin Kostovic, Ellie LLC:

They have been working on a FPA for milk which is tricky because milk is not a clear solution. Initially the milk FPA could only be used to detect individual animals but after a clarification step the FPA can be used to find a positive in milk samples from 100 animals.

c. USAHA BRT resolution 21 update (Suelee Robbe-Austerman)

Data was presented that the current antigen produced might not be appropriate to be used in large bulk tank samples. NVLS commented that the BRT is not performing as expected. The BRT antigen is difficult to make and it requires large amounts of quality control time and efforts to get a batch that might be viable in the current test.

- a. In response to Resolution 21 regarding the validation of the Brucella Ring Test for large dairies, the committee cannot make a recommendation until NVSL provides a study design for 5000 animals or a viable alternative. Currently the BRT is approved for samples containing milk from up to 1500 animals.
- b. The committee is concerned with the data that was presented in the meeting regarding the BRT. It appears that interpretation of the BRT in this study is not consistent with OIE standards for interpretation.
- c. After further discussion with NVSL the committee determined that the BRT issue of trying to get the test using 5000 animals should no longer be pursued.

3. New Business

- a. The committee recommends that Dr. Zaluski solicits the state veterinarians primarily from FL, TX, HI 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 WY, MT and ID work with NVSL to culture any sheep that are serologically positive on the *B. ovis* test.
- 4. Charges from Dr. Zaluski - Examine the data on the on Sentry 2000S instrument.**
- a. Data from three instruments (Sentry 1000, Synergy 2 and Sentry 2000S) were compared. The specificity for all three instruments was 99.9% The calculated sensitivity for each instrument was 96.1% for the Sentry 1000, 99.0% for the Synergy 2 and 97.6% for the Sentry 2000S.

Recommendation: The Committee recommends that the Sentry 2000S instrument be approved as an equivalent to the previous instrumentation.

SUBCOMMITTEE ON BRUCELLOSIS IN THE GREATER YELLOWSTONE AREA (GYA)

Bill Barton, Chair
Idaho State Veterinarian

The annual meeting of the Subcommittee was called on October 25, 2015 at approximately 12:30 PM by Subcommittee Chair, Bill Barton. Subcommittee members in attendance included Marty Zaluski, Bill Barton, Susan Keller and Dave Hunter. With no old business on the agenda, the chair introduced Dr. Dannele Peck, an economist at the University of Wyoming. Dr. Peck gave a presentation entitled "Brucellosis Through an Economist's Lens" (abstract attached). Following the presentation, with no new business, the subcommittee adjourned.

Brucellosis Through an Economist's Lens. *Dannele Peck, University of Wyoming, Dept. of Agricultural & Applied Economics, dpeck@uwyo.edu, (307)766-6412.*

Cattle in the Greater Yellowstone Ecosystem occasionally contract bovine brucellosis from free-ranging elk. When an infected cattle herd is detected, it may be quarantined for several months until test-eligible animals pass three rounds of testing. The cost of this regulatory response depends on several factors: the index-herd's size, number and size of contact herds, length and timing of the quarantine (relative to the normal winter-feeding period), whether quarantine-eligible pasture exists, and if not, the price of hay. For a herd with 400 bred cows, 80 replacement heifers and 280 yearlings, the cost of a 12-month quarantine when no quarantine-eligible pasture is available is roughly \$146,000, or \$192 per head when spread across all 760 animals in the herd. This per-head cost is roughly the same whether the herd is smaller (200 bred cows) or larger (800 bred cows). However, it can be reduced to as little as \$57 per head if the case is detected earlier in the winter feeding season, and quarantine can be reduced to 6 months. Once a producer knows the financial consequences of their herd contracting brucellosis, they could choose from a variety of prevention activities: (1) calling state agency personnel to haze elk off private land, (2) fencing haystacks, (3) administering adult booster vaccination, (4) spaying heifers, (5) altering the winter-feeding schedule of cattle, (6) hiring riders to prevent cattle–elk commingling, and (7) delaying grazing on high-risk allotments. The cost of these activities range from roughly \$200 per year (for hazing) to \$15,000 per year (for delayed grazing). Which of the activities are economically worthwhile depends on the baseline level of risk the producer faces, the cost of quarantine, the cost of the activity, and its effectiveness. Little is known about the effectiveness of most activities, so we instead estimate a "breakeven level of effectiveness." This allows us to identify activities that cannot possibly be effectiveness enough to justify investing in them. Producers who face higher levels of risk and higher quarantine costs can justify investing more in brucellosis prevention activities. A similar analysis is conducted for three elk

management activities that aim to reduce seroprevalence among Wyoming's winter-feedground elk: test-and-slaughter, strain 19 vaccination, and low-density feeding. None of these activities generate enough annual benefits to outweigh their annual costs. However, if the Wyoming Game and Fish Department wishes to invest in elk brucellosis management, low-density feeding on existing elk winter-feedgrounds generates the least negative net benefit of the three activities.

USAHA FERAL SWINE SUBCOMMITTEE ON BRUCELLOSIS AND PSEUDORABIES

Dr. Joseph Corn, Chair

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

October 25, 2015

REPORTS

National Feral Swine Mapping System (NFSMS)

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.

USDA-APHIS-Veterinary Services - Update

Dr. Troy Bigelow

United States Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services, provided an update on USDA-APHIS-VS programs on feral swine. USDA-APHIS-Veterinary Services is working directly with USDA-APHIS-Wildlife Services on all feral swine issues, and supports the National Feral Swine Mapping System.

USDA-APHIS-Wildlife Services - Update

Dr. Thomas Gidlewski and Dr. Dale Nolte, United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services provided an update on Wildlife Services programs.

DISEASE SURVEYS

Surveys for selected disease agents in feral swine being conducted by USDA-APHIS-Wildlife Services. In 2015 the USDA, APHIS, WS, NWRC, National Wildlife Disease Program sampled approximately 4,000 feral swine in 34 states and Guam for Classical Swine Fever, swine brucellosis, pseudorabies virus, influenza virus, Porcine Reproductive and Respiratory Syndrome, leptospira, toxoplasma, and trichinella. In addition to the national surveillance, the program continues to collaborate with scientists on local and regional projects. The feral swine serum archive now represents about 20,000 animals.

NATIONAL FERAL SWINE DAMAGE MANAGEMENT PROGRAM

APHIS serves 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. APHIS' overall goal in conducting the National Feral Swine Damage Management Program (Program) is to reduce damage and risks 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 others.

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 Program established a baseline capacity to address feral swine damage through WS programs at the state level. Baseline capacity is supplemented with designated national and local projects to achieve strategic accomplishments. National projects were implemented to enable comprehensive coverage of disease monitoring, risk analysis, and economic analysis, along with other research activities on feral swine. Local projects are generated annually by WS State Directors, in collaboration with partners, to address specific feral swine issues. WS established two regional helicopter teams in Tennessee and Texas to provide aerial support for operational programs. APHIS continues to seek partners in all aspects of feral swine damage management.

FY15 ACCOMPLISHMENTS:

APHIS announced its Record of Decision for the Environmental Impact Statement - "Feral Swine Damage Management: A National Approach." APHIS selected the preferred alternative, to implement a nationally coordinated, integrated feral swine damage management program, in cooperation with other agencies at the international, federal, state, territorial, Native American tribal, and local levels, and the cooperation of private management interest.

Operations

- Collaborated with partners in each WS state program receiving feral swine funds to develop a task force and management plan
- Address feral swine concerns on more than 125.5 million acres through WS' agreements with landowners
- Conducting activities to reduce feral swine impacts to 103 Threatened and Endangered plant and animal species
- Changed status of four WS' programs to Detection (Washington, Idaho, New York, Maryland)
- Established efforts to use non-lead ammunition for feral swine removal from helicopters
- Developed a National Feral Swine Genetic Archive for monitoring absence of feral swine and tracking feral swine movements
- Established 18 WS' Local Projects in Arkansas, California, Florida, Georgia, Kentucky, Louisiana, Missouri, North Carolina, South Carolina, Tennessee, Texas, and Virginia worth \$1,158,328
- Developed concept for 3 Pilot Projects in Mississippi, Missouri, and Alabama to confirm ability to reduce feral swine populations in heavily populated areas and collaborate with research to document resources saved

Disease Monitoring

- Through VS recommendation, monitoring of feral swine diseases of national concern will be reduced from five to three diseases in FY16 (classical swine fever, swine brucellosis, and pseudorabies)
- Conducted collaborative efforts with FSIS to assess zoonotic diseases carried by feral swine entering slaughter facilities in Texas
- Worked with SCWDS to develop a brochure on feral swine diseases and a 1-day course on feral swine diseases

Communication and Outreach

- Implemented approach using 1890 Institution extension agents to implement a feral swine damage survey and conduct outreach activities with Limited Resource Farmers

- Developing national outreach campaign materials for distribution across APHIS and collaborating partners (e.g., factsheets, brochure, display shades, and dedicated website)

Research

- Working with Mississippi State University in collecting information regarding public attitudes towards feral swine, conducting economic analysis, and developing a course on feral swine identification and damages for law enforcement officers
- Working with Texas A&M – Kingsville to assess feral swine impacts on wild turkeys
- Continue progress towards developing a feral swine toxicant and safe delivery system through NWRC
- Conducted NASS survey to assess damage to select field crops in 11 states
- Developed technique to detect feral swine presence through genetic markers in water

Time-Specific Papers

There were no time-specific papers.

Other Presentations/Papers

Supplemental Information

OTHER NOTES:

The following names should be removed from the GYA subcommittee membership; Neil Anderson, John Belfrage due to changes employment status. The following names should be added to the subcommittee membership; Jim Logan, Thach Winslow and Arnie Gertonson.

Also, the Feral Swine subcommittee should be moved to the Transmissible Diseases of Swine.