Wyoming State Veterinary Laboratory Newsletter – September 2005

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MESSAGE FROM THE DIRECTOR

On 7 September 2005 the Wyoming Game and Fish Department renamed its Sybille wildlife research facility after Drs. Tom Thorne and Beth Williams. The Governor of Wyoming, Dave Freudenthal, unveiled two plaques that gave a short biography of Beth and Tom, and listed some of their contributions to veterinary medicine and wildlife management in the Rocky Mountain west. Tom's brother and Beth's father and stepmother were present, along with friends, colleagues and admirers.

Governor Freudenthal at renaming and dedication of Thorne-Williams Wildlife Research Center, Sybille,WY

Later that week, Beth and Tom were inducted into the Wyoming Wildlife Hall of Fame in Casper. That same week, an important article that Beth was working on at the time of her death was published in the international journal *Veterinary Pathology*. This is an authoritative review of chronic wasting disease by the person who discovered it. It includes many previously unpublished observations Beth made in the 25 years she studied in the field and the laboratory. A pdf copy of the article is on the WYOVET web site under Disease Updates and Alerts. I am grateful to Beth's colleagues and collaborators, Dr. Jean Jewell and Dr. Mike Miller, for bringing the paper to publication.

The laboratory will continue to do the work to which Beth gave so much time and thought. In 23 years at the University of Wyoming, she developed a course in Diseases of Wildlife. Dr. Todd Cornish will now take it over. She cultivated an extraordinary network of contacts with wildlife biologists and agencies around the country. We

continue that work, particularly the surveillance for chronic wasting disease in states other than Wyoming. A $2M grant she obtained to improve detection methods for CWD has been transferred to collaborators in the Department of Molecular Biology. Another grant from the Wyoming Wildlife-Livestock Partnership is being amended with the agreement of the USDA so that its goals can be fulfilled. A ten year study of the effects of oral exposure of cattle to the CWD agent will be completed by Dr. Montgomery. It has two more years to run. We continue to attempt to get funding for this critical study, which cost the department $300K to date. If cattle contract a BSE-like disease from CWD following oral exposure, we need to know. Beth has the foresight to plan and cohones to conduct this critical study.

Dr. Beth Williams
Nov 15 1951 - Dec 29 2004
Elk Mountain Hotel, WY

To help with the diagnostic case load in the wake of Beth's death, we had the good fortune to hire Dr. Jon Ayers on contract until October. Jon's presence has been a life-saver, and we will be sorry to see him go. We continue to search for a tenure-track, board-certified pathologist. Interviews are scheduled for October. We have two excellent candidates we will be interviewing. I hope to have one of them on board by January 1 next year.

The laboratory has a new face: Dr. Kenji Sato is the laboratory's epidemiologist. Dr. Sato got his Master's in Public Health at UC Davis and his PhD at Michigan State University. This is the first time the laboratory has had a trained epidemiologist on faculty. Kenji's job is to make better use of data accumulated by the laboratory, conduct field investigations, and teach an upper division course on epidemiology in the University's microbiology program. I hope to get Kenji out into the state to meet and work with you. There is a short article in the newsletter about Dr. Sato.

We recently made a formal offer of a tenure track position to a well-trained DVM PhD virologist. We should know in the next week whether the offer is accepted and when she will be on board.

Donal O'Toole

DIAGNOSTIC CASES OF INTEREST

Plague in Wyoming cats, big and small

All of you should by now be aware that for the first time since 1982, Wyoming is confirming plague in domestic cats. The first case was confirmed by Dr. Mills' unit in June. The owners of a semi-feral cat brought in its carcass to the laboratory for rabies testing. The redoubtable Mrs. Howell suggested to the couple that they might want the cat tested for the cause of death, not just rabies. It was good advice. The cat had septicemic pulmonary lesions. The owners immediately went on prophylactic antibiotics. Of 23 people known to have developed plague due to contact with cats in the US in the last 20 years, 5 of them died.

Following the recognition of feline plague, or perhaps in part because of it, we received a succession of samples from cats with typical clinical signs for culture and/or fluorescent antibody testing (see map). We've had cases from Laramie, Cheyenne, Casper and Jackson.

One of the more interesting cases was in a large cat - a mountain lion. This well nourished 45 kg pregnant mountain lion walked through a camping ground during daylight. The abnormal behavior was reported to the Wyoming Game and Fish Department, which arranged for the collared cougar to be euthanized and examined post-mortem. The examination was done by biologists working for a conservation organization. They noted "very swollen neck glands…so that the collar was very tight." The histopathological examination was performed by Dr. Cornish and lesions were typical of plague. Yersinia pestis was cultured.

MULE-DEER PLAGUED BY BLINDNESS

One of Dr. Williams' last cases was an unusual cause of blindness in a mule deer. She was presented with the carcass of a recently shot adult male mule deer. Hunters east of Laramie noticed that the animal was blind and stumbling into trees and bushes. The major gross change was severe inflammation of both eyes, primarily keratitis and uveitis. Histologically the uveal tract and anterior and posterior chambers contained large colonies of coccobacilli, with associated necrosis.

Dr. Mills' laboratory isolated *Yersinia pestis* in pure culture from the media of the eye and from conjunctival sac. Other lesions in the deer were severe necrotizing nephritis, adrenalitis and lymphadentitis. The organisms in tissues stained immunohistochemically for antigens of *Y. pestis*. The deer was beyond unlucky, since it also tested positive for chronic wasting disease ("every animal is entitled to two diseases" - Dr. Stuart Young). CWD was probably incidental

since the animal was in excellent nutritional condition. No lesions were present in brain.

Plague is unusual in big game since ungulates are considered resistant. There is a published report of plague in a free-ranging mule deer in Wyoming,[1] an unpublished, laboratory-confirmed case in a mule deer in Montana,[2] and bilateral plague-associated necrotizing panophthalmitis in a black-tailed deer in California.[3] Ocular plague has been seen in Colorado (Dr. M. Miller, Colorado Division of Wildlife, unpublished observations; see image). As an aside, ocular plague also occurs rarely in people.[4]

Plague panophthalmitis in a mule deer. The image on the left shows buphthalmos with exudation. The image on the right shows the sagittally sectioned globe with exudates in the anterior chamber and vitreous. Both images courtesy of Dr. Mike Miller, Colorado Division of Wildlife

If you are presented with a deer that is blind and hunters ask you if it is safe to eat, bear in mind the possibility that it may be plague. Leviticus had it right: we should not eat sick animals.

Dr. Williams' graduate student, Dave Edmunds, will present this case at the annual meeting of the AAVLD this November.

Donal O'Toole/Beth Williams

1. Thorne E. T., Quan, T.J., Williams, E. S., Walthall, T.J., Daniels, D.: 1987, Plague in a free-ranging mule deer from Wyoming. J Wildl Dis 23(1): 155 - 159

2. http://archives.foodsafetynetwork.ca/animalnet/2003/9 2003/animalnet_september_12.htm#PLAGUE

3. Jessup, D. A.; Murphy, C. J.; Kock, N.; Jang, S.; Hoefler, L Ocular lesions of plague (*Yersinia pestis*) in a black-tailed deer (Odocoileus hemionus columbianus) Journal of Zoo and Wildlife Medicine 20 (3), 1989 p.360-363.

4. Carter, D. B., Ellis, P. P.: 1987, *Yersinia pestis* endophthalmitis. Am J Ophthalmol 103 (5): 721 - 722.

Parasite reminders

1. **Coccidiosis**: The peak part of the season for "bloody scours" has now passed, but you may still see cases. This year was no different from other years: appreciable numbers of calves were affected, some killed by one of the two *Eimeria* species that cause the mucosal damage typical of coccidiosis in the large intestine. Treatment of animals in patency (scouring, passing huge numbers of oocysts in the feces) involves use of antibiotics to prevent secondary bacterial killers, and rehydration of anorexic animals.

Coccidiostats will not affect the protozoa that cause coccidiosis after patency begins. The only known method of medical control is prevention: the administration of an effective coccidiostat in feed or water, which the vulnerable animals must consume at least twice daily during the pre-patent period. The prepatent period precedes the patent period by 18 to 21 days, during which the animals will not show any signs of infection, including significant passage of oocysts in the feces. Successful prevention of coccidiosis depends on the event being relatively predictable in a herd, so that the medication can be provided daily, beginning at least 3 weeks before the "normal/annual" outbreak, and continuing through the "normal" period during which it has occurred in past years. Each individual occurrence is somewhat different in timing, some of which affect calves on range during hot summer months, some in the fall soon after weaning and some in mid-winter. The earliest occurrences usually involve animals about 4 weeks old, but from that point on may be seen in herd segments up to 2 years of age. Animals that survive a coccidial infection are normally immune to any recurrence by infection with the species that caused the first clinical event. Only two species of *Eimeria* are thought to be significantly pathogenic in cattle. Approximately 4 species are pathogenic in sheep. Calves, lambs or other animals that scour within a week or 10 days of birth may be infected with *Cryptosporidium parvum*, closely related to the *Eimeria* species, and/or a rota or corona virus.

Dr. Bill Jolley

2. Type II Ostertagiosis: Oh, oh, by next spring it will be time to expect an attack by the O. O. worm, *Ostertagia ostertagi* (and its relatives and friends). Yearling and two-year-old cattle that were pastured and not dewormed with a systemic anthelmintic late this fall are at risk next spring of developing Type II ostertagiosis The larval stages of the OO worm and its trichostrongylid relatives will hibernate in the abomasum and small intestine of infected animals, beginning in late last fall or early winter. Animals poised for this event are those that are not gaining or have not gained expected weight or condition commensurate with feed supplies. The "crash" usually occurs after a week or so of warm, spring-like weather, during which the hibernating/hypobiotic larvae spontaneously break out of their "caves" in the gastric glands and other sites in the intestine, develop to adult worms, and begin to suck blood, erode mucosal tissue and produce eggs.

This maturation event is referred to as "spring rise", referring to the sudden production of large numbers of eggs that appear in the feces. If enough worms are involved, the animals may die or suffer damage sufficient to produce permanent stunting of growth or other development. The condition is especially detrimental to animals bearing their first calves, and those about to enter their first breeding season. It is often predictable by the observance of substandard body condition of animals that have been supplied with nutritious feed during the winter months.

It is usually not a problem with animals adequately treated during the late fall or early winter with an avermectin, benzimidazole or other dewormer capable of killing the hypobiotic larvae, which often accumulate in young animals in huge numbers after a season on pasture.

Dr. Bill Jolley

IS HARJO WORTH VACCINATING FOR?

Pfizer has released a new vaccine, Spirovac™, on the American market. It is designed to protect cattle against one form of leptospirosis in cattle, due to *L. borgpetersenii* serovar hardjo (previously called *L. interrogans* sv hardjo). The rationale is that standard 5-way vaccines for leptospirosis are considered to be unprotective for hardjo.

There has been considerable promotion of this product in western states, including Wyoming. Pfizer has run a diagnostic program to document the existence of hardjo in herds. Testing is based on urine sampling of cattle. Analysis is largely done by the same research group now in Michigan that generated data about the effectiveness of the vaccine. The product has been on the UK, Irish and Australian market for some years. This is its American debut.

In the experience at this laboratory, based on submission of fetuses, placental tissue and blood from dams, leptospirosis is an uncommon cause of abortion in Wyoming cattle. That said, we recognize that we obtain a diagnosis in only ~40% of submitted fetuses, which mirrors the national picture. It might be argued that we are in a weak position to detect infertility and abortions in the first and second trimesters, since most samples we receive are from late gestation animals. Nevertheless it is problematical that a commercial company underwrites a test demonstrating a widespread problem of leptospirosis infertility and abortion, and simultaneously sells a vaccine that purports to solve the problem. It is like hiring McDonalds as your nutrition and fitness advisor.

If your clients had their herd tested for hardjo by Pfizer and a high incidence of infection is reported, please bear in mind:

- In the largest recent review of bacterial abortions in the United States, the South Dakota laboratory reported that *Leptospira* (all serovars) constituted 1.09% of all abortions/stillbirths with an identified bacterial cause (79 of 8,995 cases).[1] It ranked fifth as a bacterial cause of abortion, after *A. pyogenes* and *E coli.* This is similar to our experience. The study acknowledged that diagnosing leptospirosis is problematical, since infected fetuses are often moderately autolytic. This hampers the isolation or molecular detection of a fastidious organism.
- I posted a note to the diagnosticians' listserv to find out whether our laboratory was unusual in diagnosing so little disease due to hardjo. Responses from diagnosticians in Washington, California and Pennsylvania expressed skepticism that the high prevalence that Pfizer reports to owners about hardjo correlates with reproductive wastage.
- Finding evidence of hardjo in the urine of dairy and to a lesser extent in beef cattle is interesting. Pfizer reports high figures for hardjo nationally: ~45% of all dairy herds with ~10% of all cows positive. This does not establish that the agent causes reproductive problems that owners are experiencing in their herds. This is only done by a combination of serological, microbiological, morphological and epidemiological studies that conclusively link abortion and infertility to the presence of hardjo.[2]
- I am not aware of a published peer-reviewed study of the effectiveness of Spirovac™ in preventing abortion in cattle using a conventional challenge model. There are several published studies about the vaccine by the Michigan group.[3-6] One showed that it results in higher antibody titers and elimination of renal infection in challenged non-pregnant cattle. Another showed that the vaccine induced antigen-specific proliferative responses by peripheral blood mononuclear cells. A third reported details of the Th I immune response following vaccination.
- Pfizer's promotional literature includes a citation for a study using a challenge model. Unfortunately this paper does not appear to have been published.[7] This might allow veterinarians to make an informed decision about whether the product is worth using.
- The diagnostic method used by Pfizer's collaborators involves immuonofluorescence examination of urine from cattle given furosemide. Care is needed with this method, particularly when positive organisms are detected. The conjugate is not specific for hardjo. One needs to be sure that positive organisms have the typical spiral morphology of spirochetes. Backup tests (culture and PCR) must be done routinely to establish that these are not false positives (binding of antibody to bacteria other than hardjo).
- The Spirovac™ web site was taken down in March 2005 after interesting discussions between the USDA and Pfizer about the latter's prevalence data. Until prevalence data establish a link with reproductive failure and they are peer-published, a little skepticism may be in order.

The bottom line: when clients tell you that Pfizer identified hardjo in their herd, make sure that it is a real problem, and not one driven by a marketing campaign that incorporates diagnostic testing

Dr. Donal O'Toole

1. Kirkbride CA: 1993, Bacterial agents detected in a 10-year study of bovine abortions and stillbirths. J Vet Diagn Invest.5(1):64-68.

2. Wagenaar J, Zuerner RL, Alt D, Bolin CA: 2000, Comparison of polymerase chain reaction assays with bacteriologic culture, immunofluorescence, and nucleic acid hybridization for detection of Leptospira borgpetersenii serovar hardjo in urine of cattle. Am J Vet Res. 2000 Mar;61(3):316-220.

3. Bolin CA, Alt DP: 2001, Use of a monovalent leptospiral vaccine to prevent renal colonization and urinary shedding in cattle exposed to *Leptospira borgpetersenii* serovar hardjo. *Am J Vet Res* 2001; 62:995-1000.

4. Brown RA, Blumerman S, Gay C, Bolin C, Duby R, Baldwin CL: Comparison of three different leptospiral vaccines for induction of a type 1 immune response to Leptospira borgpetersenii serovar Hardjo. Vaccine. 2003 Oct 1;21(27-30):4448-58

5. Naiman BM, Blumerman S, Alt D, Bolin CA, Brown R, Zuerner R, Baldwin CL. Evaluation of type 1 immune response in naive and vaccinated animals following challenge with Leptospira borgpetersenii serovar Hardjo: involvement of WC1(+) gammadelta and CD4 T cells. Infect Immun. 2002 Nov;70(11):6147-6157.

6. Naiman BM, Alt D, Bolin CA, Zuerner R, Baldwin CL: Protective killed Leptospira borgpetersenii vaccine induces potent Th1 immunity comprising responses by CD4 and gammadelta T lymphocytes. Infect Immun. 2001 Dec;69(12):7550-7558
7. "Alt DP, Hornsby R, Bolin CA. Use of a monovalent leptospiral vaccine to prevent placental and fetal infection in cattle exposed to Leptospira borgpetersenii serovar hardjo during mid-gestation. J Am Vet Med Assoc. Submitted for publication 2002." Cited in Pfizer promotional literature.

DIAGNOSTIC CASES OF INTEREST

RABID BAT IN BIG HORN BASIN

In late May a bat that was acting abnormally in Greybull bit a child on its index finger. The bat needed to be shipped to the WSVL and tested for rabies. It was late Friday afternoon and the child's physician was keen to start the child on post-exposure prophylaxis as soon as possible, if the bat tested positive. Dr. David Barber with the Wyoming Department of Health worked with the family's health care provider, a local veterinary practice, a public health nurse, Wyoming Highway Patrol, and several other individuals to get the animal to us for testing. Dr. Barber arranged to ship the bat from Worland to Laramie by plane using his personal credit card. The shipping container was picked up by a WSVL staff member on Friday afternoon. Dr. Ken Mills tested the bat first thing on Saturday morning. The bat tested positive. Dr. Mills inferred this was likely from its behavior since it came down alive, and had signs consistent with being rabid. He reported the positive result to the Wyoming Department of Health. The child's post-exposure series could be started.

We don't often get true disease emergencies. When we do, we are more than happy to work with physicians and local veterinarians. In situations like this the best way to communicate with us out of hours is via email. The fastest way to get a sample to us is via plane through the Laramie airport. If it is a true emergency, we have sometimes been able to work with the Wyoming Highway Patrol to get a critical diagnostic parcel down here by a relay of patrol officers.

Drs. Donal O'Toole/Ken Mills

TYZZER'S DISEASE IN FOALS

The most common infectious cause of sudden death in young foals is purple gut. As usual we had several of those this year. We also had a less common, sporadic cause of sudden death in foals: Tyzzer's disease.

One case was 10-day old filly in western Wyoming. She was found non-responsive, hypothermic (93ºF) and near death. She had been fine the previous night. The veterinarian gave equine plasma but she did not respond. At necropsy the liver was large, occupying "two-thirds" of the abdominal cavity. There was yellow fluid in the pericardial sac.

Histologically Dr. Cornish found disseminated necrotizing lesions with intracellular filamentous bacteria typical of the Tyzzer's disease organism, *Clostridium piliforme* (formerly called *Bacillus piliformis*).

A second case was seen by the same veterinarian several weeks later, on a property ten miles away from the first. This foal was 3 weeks old and presented with sudden onset depression, progressing to jaundice, convulsions and death. Dr. Montgomery found typical acute lesions in the liver, with intracellular bacteria in hepatocytes.

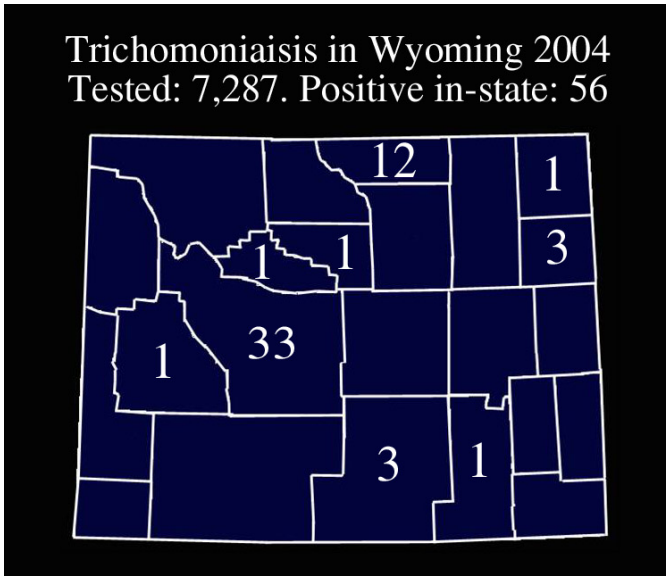
Tyzzer's disease is most commonly seen in rabbits and rodents, but can occur in other species. We've had cases of it in the past in foals and kittens. It is most commonly reported in foals between 7 and 40 days of age. Both Wyoming foals had read the textbook, and were in the typical age range. Organisms picked up from the environment establish a primary enteric infection that disseminates from the gut via the portal circulation to the liver. A recent study by Dr. Rich Walker's laboratory in California found that time of year (March-April), age of mare (<6 years), and non-resident status of mares on premises were risk factors for clinical disease.

There is no vaccine Tyzzer's disease in horses. Its sporadic occurrence makes it difficult to develop practical control recommendations. Our advice is to move other foals out of the area where the sick foal had been, assuming the source of infection was environmental.

Drs. Donal O'Toole/Todd Cornish/Don Montgomery

TRICHOMONIAISIS IN WYOMING

Dr. Jolley's laboratory tested 7,287 samples for Tritrichomonas foetus. Of these, 72 (1%) were positive. These included positive cultures from the 731 out-of-state submissions.



The country with the most positive animals is - as ever - Fremont County (33 cases), followed by Sheridan (12), Carbon (3) and Weston (3). These numbers have stayed pretty consistent over the past few years - we typically see about 1% of submitted samples positive.

Dr. Bill Jolley

CANINE HEARTWORM IN WYOMING -

The WSVL has been watching for canine heartworm, *Dirofilaria immitis*, for many years. Infected dogs have been found sporadically by necropsy, serotest and/or microscopic examination of blood samples. An unknown number of veterinary clinics in Wyoming also test for the worm, but their results are not reportable, therefore the true prevalence in our state is unknown. The logistics of sampling, trapping and otherwise acquiring specimens of, or from potential reservoir mammals for testing are formidable, unacceptable to certain segments of society and inefficient. Considering the number of potential hosts, including dogs, coyotes, wolves, cats, foxes, ferrets, and perhaps other species in our state, the likelihood of the worm being resident here is reasonably high. Another suggestive factor is the known endemicity of the worm in all of our neighboring states.

In all of the years during which WSVL Parasitology has been watching for the worm, infected dogs have been regularly found, most of which were known to have come from a heartworm-endemic state, or were taken to an endemic area during the mosquito season, when transmission risk is high. Only 4 infected dogs have been identified as hosts possibly or probably infected within Wyoming. One was near a state border adjacent to a neighboring state known to harbor endemic *D. immitis*. Two of the dogs were from more central locations, but were transported to areas of the state near borders, for hunting or general family purposes. Recently, from 2000 to 2004, 8 dogs have tested positive at the lab, 1 each from Crook, Laramie and Sheridan counties, 2 from Washakie and 3 from Albany county. None of those 8 are suspected of having acquired the infection within the state.

Recently, the laboratory has examined blood collected from black-footed ferrets located in Wyoming and other states. Thirty samples from Wyoming ferrets have been tested, with 3 positives. One of those positive samples was rated very weak, and therefore possibly falsely positive. The two solid positives suggest that canine heartworm does, in fact reside in Wyoming. The finding of infected wild ferrets in our state was a surprise, and an indication that we do harbor one or more endemic sites.

A graduate research project has just begun in the Department of Vet Science to survey mosquitoes collected from areas where suitable mosquito vector species are known or believed to reside. The project involves collecting, identifying and sorting mosquitoes trapped in 5 areas thought to be optimal for habituation by the vector species. A polymerase chain reaction (PCR) analysis will be performed on batches of 200 mosquito heads for detection of the L3 larvae of *D. immitis,* present in the salivary glands of the vectors. The test has been shown to be capable of identifying 1 infected mosquito head in a batch of 200. It is specific for the canine heartworm.

The graduate student is Roy Fenoff and he is preparing for the mosquito trapping phase of the study, which will continue through 2005 and possibly 2006 mosquito activity seasons, after which the laboratory testing will begin. Whether or not *D. immitis* is prevalent, scarce or absent from Wyoming should be revealed within the next year or two, after which we will inform you of the results.

Dr. Bill Jolley

PrP GENOTYPE OF MULE DEER AFFECTS OUTCOME OF INFECTION

Chronic wasting disease (CWD) is an infectious fatal neurodegenerative disease of deer species in North America. It affects wild mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*) and Rocky Mountain elk or wapiti (*Cervus elaphus nelsoni*). The disease is of concern since wild herds may be gradually destroyed by CWD. Currently we have a poor understanding of how the agent persists in the environment, and the degree to which some populations may resist what is otherwise an invariably fatal disorder. The causative agent belongs to the prion family of proteins, some of which cause neurodegenerative disease in people.

It is well established in other acquired prion diseases such as scrapie of sheep and variant Creutzfeldt–Jakob disease (vCJD) of people that amino acids encoded at key positions in the endogenous host prion protein (PrP) are strongly associated with susceptibility (or resistance) to TSE infection.

In a study recently published in the Journal of General Virology by Dr. Jean Jewell in the Department of Veterinary Sciences and colleagues with the Colorado Division of Wildlife, PrP polymorphisms in select populations of free-ranging mule deer in Wyoming and Colorado were examined to establish whether there was a relationship between host PrP genotype and the likelihood of animals having chronic wasting disease. Dr. Jewell and her colleagues found that free-ranging mule deer with the 225SF genotype were 30 times less likely to develop CWD than deer with the 225SS genotype. The SF genotype does not protect mule deer from developing CWD, but animals with this genotype were slower to develop disease following experimental challenge. This indicates that not all mule deer are equal following exposure to the chronic wasting disease agent. This difference in the face of prion exposure is determined in part by animals' genetic makeup.

The article is published in the Journal of General Virology. A preprint of the article is available by going to JGV Direct where articles of special importance are put on line as soon as they are accepted by the editors.

Drs. Jean Jewell/Dr. Donal O'Toole

BSE SAMPLING IN WYOMING A CALL FOR SAMPLES FROM THE AVIC

Bovine spongiform Encephalopathy (BSE), commonly referred to as “mad cow disease,” is a chronic degenerative disease affecting the central nervous system of cattle.

In December 2003 a single dairy cow previously imported from Canada into the state of Washington was diagnosed as positive. As a result of this diagnosis the United

States lost many export markets for animals and animal products. To regain the confidence of other countries, we needed an extensive surveillance program to prove the United States was free of BSE. Each state was assigned a goal for the number of samples to be collected. **Wyoming's goal is 239 brain stems from suspicious cattle.** To date only 86 samples have been collected. We urgently need to increase our submission rate. Your assistance is necessary if we are to come close to our goal.

We are not asking you to personally collect brain stems. All you need to do is to notify Dr. Combs office of any suspicious cases. He will dispatch a federal veterinarian to do the collection.

There are two levels of suspicion that meet the surveillance criteria.

- **Highly Suspicious**. These will be handled as foreign animal disease investigations.
  - Cattle of any age
- **Not Highly Suspicious**
  - Cattle over 30 months of age
  - Downer/Non-ambulatory
  - Other signs that may be associated with BSE such as moribund, tetanus, emaciation , injuries, etc.
  - Dead - where cause of death does not preclude BSE
  - CNS signs - cattle of any age

If you have specific questions or need to report a suspicious case please contact USDA-APHIS- Veterinary Services at 307-432-7960 or toll free 866-536-7593. The bottom line: we need more brains!

Thanks for your assistance.

Dr. Bret A. Combs, DVM
Area Veterinarian in Charge, Wyoming
USDA-APHIS-Veterinary Services

VETERINARY SCIENCES HIRES EPIDEMIOLOGIST

The Department of Veterinary Sciences has hired its first ever epidemiologist specifically trained in that profession. Kenji Sato started August 23 2005

"Kenji will help map diseases of animals in Wyoming. The mapping will give us a better understanding of where pockets of diseases are occurring in the state. That will be one of his jobs," says Donal O'Toole, head of the department and director of the Wyoming State Veterinary Laboratory.

"Kenji is very well trained. I was impressed by the work he did at Michigan State University (MSU), which involved working directly with dairy producers," O'Toole says.

Sato earned a Ph.D. in veterinary epidemiology from MSU, East Lansing, Michigan, and completed a post doctoral fellowship. His master's degree in preventative veterinary medicine is from the University of California-Davis. He has a doctor of veterinary medicine from Yamaguchi University in his home country of Japan.

"I am quite interested in the interaction between wildlife and livestock. I am focusing on brucellosis right now," says Sato, who will oversee brucellosis testing at the state vet laboratory.

Sato is developing the University of Wyoming's first course in veterinary epidemiology. "It's been very challenging," he says of the upper-level class that will be offered next fall.

Asked how he landed in the United States, Sato responds, "I wanted to broaden my knowledge about epidemiology, and they don't teach veterinary epidemiology in Japan. I had a choice between America and England. My former supervisor in the FAO was from the U.S., and he recommended I come here."

Sato worked for the FAO, short for the Food and Agriculture Organization of the United Nations, for six years. Most of that time was in Southeast Asia, where he helped farmers in Vietnam, Cambodia, Laos, China, and the Philippines better use locally available feed resources for sustainable livestock production.

Dr. Kenji Sato
Epidemiologist in Department of Veterinary Sciences

He also helped villages develop water resources and harness methane from manure for a renewable energy source for their cooking stoves.

Sato says he is looking forward to becoming involved on campus, and he has already been appointed to the UW Library Council.

"The council is an advisory body composed of faculty members, students, and a community member who advise the UW library system on policies and collections," says Maggie Farrell, dean of University Libraries. Sato's term starts this fall, and he will represent the College of Agriculture.

By Robert Waggener, Editor
Office of Communications and Technology
College of Agriculture

B. ovis test

As those of you who submitted serum samples to us for testing over the past few years will know, this is a suboptimal test. Multiple AAVLD-accredited laboratories, including ours, experience a high number of inconclusive test results, as well as false positives. This is not acceptable.

The problem with the test is that the antigen supplied by the USDA's National Veterinary Services Laboratories varies in quality. Becky Wills and Dr. Ken Mills spent a lot of time this past year trying to tweak the test so that we could support the result. Even though the problem is the USDA's, test results come from us and it's our reputation that is on the line. We and you catch the heat for dodgy results.

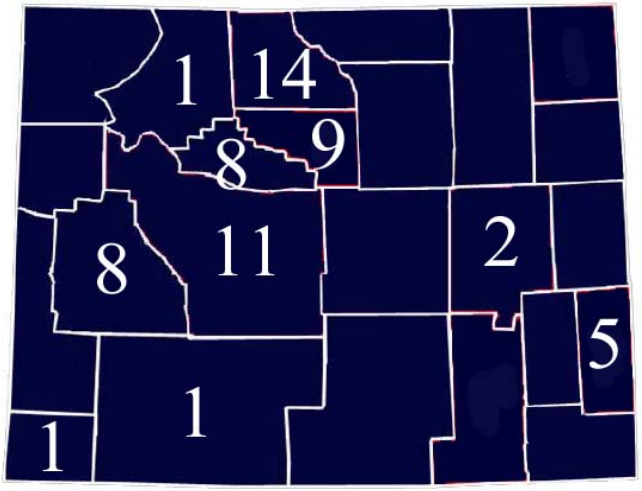
For that reason and until further notice, this laboratory no longer offers *B. ovis* serological testing.

Dr. Jonathon Katz with NVSL has worked with us and other laboratories to develop a better test reagent. When he is successful and the test is validated on known negative, weak positive and strong positive samples, we will re-offer it. Dr. Gerry Andrews in the Department of Veterinary Sciences has a grant in which he will use a different approach to come up with a better diagnostic antigen.

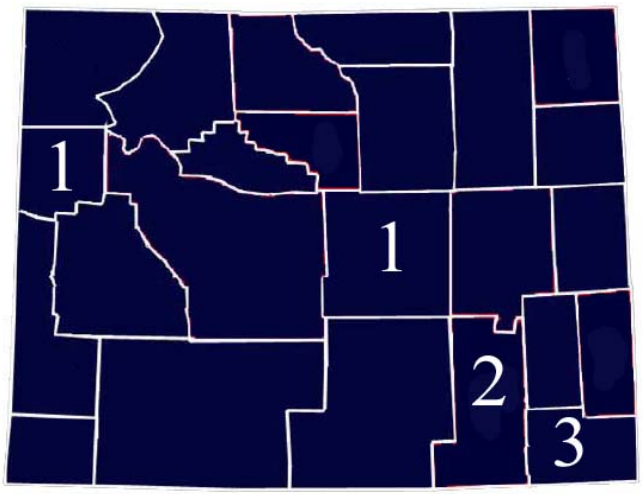
I apologize if this causes you or your clients inconvenience. We've spent a year trying to finesse the test. I have no confidence in the antigen we are provided.

Dr. Donal O'Toole
Director WSVL
September 15, 2005

VESICULAR STOMATITIS
SEPT 8 2005



FELINE PLAGUE
JUNE - SEPT 2005



Note: we have also picked up tularemia cases cats, which can present with similar signs: swollen lymph nodes, cats febrile and weak. Please mark **PLAGUE SUSPECT** in large letters on the accession, so that we can handle them safely in the mail room area. Staff members are not vaccinated for this disease. If this is written in very tiny letters we may not flag it before routing samples to multiple laboratories.

WNV - WYOMING
16 SEPT 2005

As this newsletter was being finalized, Dr. Cornish commented that we are seeing a very definite up tick in the number of WNV cases this week. This is about one month later than last year, when equine and avian cases peaked in mid-August.

In the past few days additional case (not shown on map above) have been identified after a fairly quiet summer, including a total of 4 human cases this year.

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To: