

## **Staff Summary**

**Policy Issue:** Define testing and reporting requirements upon death of a captive cervid as directed by the commission during the May 9, 2008 commission meeting.

**Background:** The Cervid Disease Surveillance List (CDSL) was developed jointly by Oregon Department of Fish and Wildlife (ODFW) and Oregon Department of Agriculture (ODA) veterinarians as a result of a directive from the ODFW Commission. This action was based on a newly implemented administrative rule adopted May 29, 2008:

### **635-049-0055 - Disease Testing**

**After consultation between the Department and the Department of Agriculture, the Commission will adopt a cervid disease surveillance list by rule and update it when necessary. The list shall include diseases posing risk to cervids, cervid diseases posing risk to livestock, wildlife or humans, testing standards, test methods, prohibitions, and deadlines for required disease analysis and reporting. The list will also address disease testing requirements and prohibitions for gamete or embryo transfer and importation. Any person holding cervids must comply with the requirements of the cervid disease surveillance list.**

### **Important Diseases of Captive Cervids**

Viral, bacterial, prion, parasitic, and mycotic pathogens pose a disease risk to both farmed and wild cervids. While many diseases of farmed cervids are treatable and controlled prophylactically by the producer, others are considered highly infectious, difficult to control, and are identified as requiring mandatory reporting to state and federal animal health agencies to ensure a rapid and effective response to any outbreak

At least 29 viral diseases have been identified in captive and wild cervids including malignant catarrhal fever, adenovirus, poxvirus, vesicular stomatitis, foot and mouth disease, blue tongue and epizootic hemorrhagic disease viruses, and bovine viral diarrhea virus as an example. Currently there is only one identified prion disease, referred to as chronic wasting disease, affecting captive and wild North American (New World) cervids.

Bacterial pathogens are also numerous with more than 30 identified as causing disease in cervids. Several bacterial pathogens of importance in captive and wild cervid management include brucellosis, leptospirosis, clostridial diseases, bovine tuberculosis, and Johne's Disease.

Parasitic infections occur in all species and individuals of captive and wild cervids. Ticks, lice, biting flies and internal parasites such as flukes, tapeworms, and roundworms are common in both farmed and wild cervids. However, only a few parasite species pose an animal health or economic risk to cervids and other species of wildlife or livestock. These include several tapeworm species (*Echinococcus granulosus* and *Taenia*

*hydatigena*), and meningeal worm. There are also a variety of lung, muscle and tissue worms. However, most internal parasitic infections can be treated directly with anthelmintics and externally with antiparasitic agents and alternative husbandry practices to effectively reduce or remove parasites from captive species.

Mycotic or fungal infections (*Aspergillosis*, *Absidia*, and *Coccidioides* Spp.) occur in cervids often due to grain overload and rumenitis caused by lactic acid fermentation.

### **Cervid Disease Surveillance List**

The priority diseases included in the CDSL are those that pose the greatest risk to captive and wild cervids, livestock and the agricultural economy, or human health. These diseases were selected from a large list of documented pathogens occurring or known to occur in captive cervids. They are pathogens that are highly infectious and can be transmitted via direct contact between captive and wild cervids or livestock. The diseases selected can be acute with rapid development of disease after infection or chronic, making them difficult to diagnose prior to the appearance of clinical signs. Chronic disease progression and lack of effective diagnosis is often a result of poor sensitivity (probability of a positive test among animals with disease) and specificity (probability of a negative test among animals without disease) of the test used. This can result in shedding of pathogens that will infect new, healthy individuals for months to years before the disease is known to occur.

Diseases recommended for the CDSL require mandatory reporting by regulatory and accredited veterinarians to the Oregon Department of Agriculture and US Department of Agriculture. The diseases included on the CDSL pertain to live and dead cervids including importation of gametes and embryos. In accordance with other program diseases administered by USDA and ODA, all CDSL tissues will be collected by a regulatory (USDA, ODA, ODFW) veterinarian or a private practitioner with federal accreditation.

The following 3 diseases make up the CDSL as of November 14, 2008 (Table 1):

#### **Chronic Wasting Disease**

Chronic wasting disease is a fatal neurological disease that infects captive and wild cervids. It is a transmissible spongiform encephalopathy of North American cervids including elk, deer, and moose. The disease is caused by proteinaceous agents called prions. Prions disrupt the production of normal proteins in the host animal's central nervous system leading to a degenerative lack of control of body function and ultimately, a "wasting" death.

It is believed that the most likely way cervids are infected is by ingestion of the prion through environmental contamination or direct contact with infected, shedding animals.

In general, the disease is not diagnosed in animals under a year of age although due to CWD's chronic nature, the initial age at which an animal may be infected is unknown.

There is no cure or treatment for CWD and after a lengthy incubation period, it proves to be 100% fatal. Confirmatory diagnosis of the disease is conducted on deceased animal's brain tissue by microscopic evaluation the obex. Other presumptive evaluations may be conducted of the cranial lymph nodes. There is developing technology for a live animal test that evaluates rectal lymphoid tissue. Currently, presumptive negative evaluations on lymphoid tissue does not constitute a negative diagnosis without the confirmatory evaluation of the obex. CWD diagnostic testing is conducted at the National Veterinary Services laboratory, Ames Iowa or other USDA certified laboratories.

### **Bovine Tuberculosis**

Bovine tuberculosis (*Mycobacterium bovis*, aka Tb) is a bacterial disease that infects a wide host range of captive and free-ranging wildlife. The disease can be transmitted to cattle or any mammal including humans. The bacterium is spread primarily through oral secretions and aerosolized droplets of respiration. Depending on environmental conditions, the bacteria can survive in the environment for weeks to months.

Bovine Tb in cervids is subacute or chronic with some animals exhibiting clinical signs within 6 months of infection while others survive for years without exhibiting apparent infection. It is generally characterized as chronic granulomatous lesions which may become necrotic, caseous and calcified. Tubercles of caseous lesions in lung tissue are classic presentations in many animals. In cervids, abscesses and proliferative granulomas within the cranial lymph nodes may be the common presentation. Abscesses and granulomatous nodules are also seen on the thoracic wall and in lung tissue. Other lymph nodes and organs can be affected. Research indicates all ages of deer may be infected, with prevalence increasing in older age classes.

Surveillance and diagnosis of the disease is conducted presumptively through visual inspection of lymph nodes, organs and thoracic cavity tissues. Gross excision and examination of the cranial lymph nodes serves as a standard surveillance technique. Presumptive positive diagnostic tissue may then be evaluated using tissue staining techniques and histopathological examination. Confirmatory diagnosis is conducted through culture and polymerase chain reaction testing at the National Veterinary Services laboratory, Ames Iowa.

### **Brucellosis**

Brucellosis is an infectious, contagious bacterial disease of mammals including humans. *Brucella abortus* is one of several species in the genus *Brucella* and is particularly infective to cattle, bison, captive and free-ranging cervids and other wild ruminants. Clinical presentations generally involve the reproductive tract resulting in abortions or birth of nonviable offspring, epididymitis, orchitis, and infertility. In elk, abortions and birth of non-viable calves was the most frequent clinical presentation with occasional instances of hygroma and synovitis associated with severe lameness.

The bacteria is principally transmitted between susceptible animals through ingestion of contaminated feed, or oral contact with an infected fetus, calf, or placenta. Dams can transmit the bacterium to their off-spring via milk. Also, the Brucella bacterium can survive on infective tissue such as aborted fetuses for months given optimal environmental conditions.

Table1. CDSL diseases approved by the ODFW Commission on November 14, 2008. Table depicts diseases associated with species surveyed and surveillance type.

**Cervid Disease Surveillance List (CDSL)**

<b>Cervid Species Surveyed</b>	<b>CDSL Diseases</b>		
	<b>CWD*</b>	<b>Tb **</b>	<b>Brucellosis</b>
Rocky Mountain Elk	Active <sup>a</sup>	Active	Passive <sup>b</sup>
Roosevelt Elk	Active	Active	Passive
White-tailed Deer	Active	Active	Passive
Black-tailed Deer	Active	Active	Passive
Sika Deer	No test <sup>c</sup>	Active	Passive
Muntjac Deer	No test	Active	Passive
Fallow Deer	No test	Passive	Passive
Reindeer	No test	Passive	Passive

\*Chronic Wasting Disease- Collection and sampling of obex, tonsillar nodes, and medial retropharyngeal lymph nodes.

\*\* Bovine Tuberculosis- Collection and sampling of head lymph nodes including medial retropharyngeal, parotid, and mandibular.

<sup>a</sup> Active Sampling- Tissue sampling from submitted heads of all deceased animals listed in this species

<sup>b</sup> Passive Surveillance- Sampling and testing following mortality reporting phone interview and investigations into suspect morbidity or mortality events.

<sup>c</sup> CWD currently not documented in sika deer, muntjac deer, fallow deer, or reindeer.

**Cervid Deaths - Reporting**

**Revision Alternative**

- Current rule – Anyone possessing cervids under the provisions of OAR Chapter 635, Division 049 must, at their own expense, subject any animal that dies to necropsy by a licensed veterinarian and report the cause of death to the Oregon Department of Agriculture within 14 working days from date of death or completion of any required laboratory tests; unless death is due to obvious non-disease related causes.
- Proposed revision - Captive cervids listed under Type 1 facility permits that die of any cause within the borders of Oregon will be reported within 24 hours of death or discovery to the ODFW Wildlife Health Laboratory at 541-757-4186 during

regular business hours or 541-231-9271 during non-business hours. Contacts for reporting elk deaths include notification of staff (veterinary or laboratory) at the Wildlife Health Laboratory. Producers may also report cervid deaths by electronic media by emailing veterinary staff at [colin.m.gillin@state.or.us](mailto:colin.m.gillin@state.or.us) or [peregrine.l.wolff@state.or.us](mailto:peregrine.l.wolff@state.or.us).

- Alternative 1 – Reporting of deaths of held cervids will be reported only in non-USDA slaughter facility.
- Alternative 2 - No reporting of deaths of held cervids is required.

**Staff Rationale:** Under the current rule, captive cervid deaths are reported only during filing and permit renewal at the end of the year. Prior to the Division 049 rule revision earlier this year, cause of captive cervid death has not been routinely reported to ODA or ODFW by a producer or licensed veterinarian. The proposed reporting rule will increase communication between producers and ODFW and allow for appropriate and effective response in the event of a disease outbreak.

### **Disease Testing Requirements**

#### **Revision Alternative**

- Current Rule – Reported information must include examination and, where appropriate, test results for any communicable disease or parasite that may have, in the professional opinion of the veterinarian, led to or contributed to the cause of death of the animal.
- Proposed Revision – Held cervids dying of any cause will be tested as part of a disease surveillance program for specific diseases on the CDSL. In the event of a circumstance suggestive of a reportable disease, the ODFW in consultation with the ODA State Veterinarian may subject the carcass to a necropsy by a state, federal, or accredited veterinarian at ODFW expense.
- Alternative 1 – Held cervids dying of any cause will not be required to be tested for disease as part of a surveillance plan.

**Staff Rationale** – The current rule does not permit for surveillance of specific diseases of concern to ODFW and ODA. Some producers have submitted samples to USDA for CWD testing however, many do not and results from testing are not reported to ODFW or ODA. By testing all cervid deaths that are over a minimum age of susceptibility and requiring submission of specific tissues from the head region, staff believes an effective surveillance program can be implemented with minimal fiscal impact to producers. If veterinarians from ODFW in consultation with ODA believe a necropsy is warranted following the initial reporting phone consultation, the necropsy will be conducted by regulatory agency veterinary staff or a federally accredited veterinarian at ODFW expense. An accredited veterinarian means a veterinarian approved by an Administrator of APHIS to perform functions required by cooperative state-federal animal disease control and eradication programs.

To implement the testing protocol and in accordance with OAR 603-011-0382, all captive cervids listed under Type 1 facility permits that die of any cause (including slaughter) within the borders of Oregon that are 6 months of age or older will be tested for bovine tuberculosis. Elk and Type 1 North American deer species 12 months of age or older will be tested for chronic wasting disease. Testing for other diseases listed on the CDSL may be conducted depending on clinical signs and factors associated with the cause of death.

To sample the appropriate tissues, all captive cervids listed under Type 1 facility permits dying of any cause and 6 months or older will have the head removed. The head, with permanent mark (OAR 6350049-0200 (2)) and ear tag attached, will be processed for CDSL tissues either by an accredited veterinarian (Option A described below) or a regulatory veterinarian (Option B). All captive cervids listed under Type 1 facility permits that are 6 months or older and slaughtered at USDA certified facilities will have heads collected at the facilities and tissues recovered and submitted by an accredited or regulatory veterinarian.

**Option A:** CDSL tissue collection can be conducted by private, producer hired veterinarians with federal accreditation. Accredited veterinarians will collect all required tissues [obex, tonsillar, medial retropharyngeal, parotid, and mandibular lymph nodes, ear tags and permanent mark (tattoo, permanent ear tag (NAEBA) or Radio-Frequency Identification)] to have CWD and TB testing conducted. These tests can be conducted at NVSL in Ames, Iowa. All veterinary, collection, and shipment costs will be the responsibility of the producer. Reports received by the hired accredited veterinarian will be mailed or faxed directly to the ODFW Wildlife Health Lab (Fax: 541-757-4252) within 48 hours of receipt. ODFW will distribute copies of the reports to the ODA State Veterinarian and include the reports in the producer's record for future state and federal certification programs.

In accordance with **Option A**, slaughtered cervid tissue collection can be conducted by a federally accredited private practitioner hired by individual producers. All veterinary, tissue collection, and shipment costs by the accredited veterinarian will be the responsibility of the producer. All collected samples [obex, tonsillar, medial retropharyngeal, parotid, and mandibular lymph nodes and ear tags and permanent mark] may be sent to the ODFW Wildlife Health Laboratory for sample processing and submission of tissues to NVSL or a USDA certified laboratory or submitted directly by the accredited veterinarian to the NVSL in Ames, Iowa for CWD and TB testing. Expenses occurring following receipt of tissues collected by the accredited veterinarian and delivered to an ODFW District or Wildlife Health lab staff will be processed and submitted at ODFW expense.

**Option B:** The head will be removed by the producer and delivered to the nearest ODFW office or biologist within 24 hours of death or discovery in a fresh or cooled (on ice) condition or within 5 business days frozen. Complete heads with hide attached will be delivered in a large plastic bag or similar leak-proof container. Submitted heads with

cape and skull caps removed (as prepared for taxidermy), will include permanent mark and ear tag. Heads may also be collected at the producer's facility by ODFW biologists or Wildlife Health Lab personnel following notification of death by the producer. Collection of tissues for submission and testing will be conducted at the ODFW Wildlife Health Lab at the expense of ODFW.

Additionally, the obex and lymph nodes with the ear tag and permanent mark can be sent to the ODFW Wildlife Health Lab directly by the producer hired accredited veterinarian. Tissues collected from the accredited veterinarian by ODFW District or Wildlife Health lab staff will undergo preliminary preparation and submission of diagnostic tissues to the NVSL at ODFW expense.

All captive cervids listed under Type 1 facility permits harvested or euthanized within the borders of Oregon for any reason or purpose, including personal use or at non-USDA certified slaughter facilities, will require reporting within 24 hours and tissue collection under Option A or B, described above. Accredited veterinarians may also submit tissues and permanent mark and ear tag or entire head to a Department biologist or office.

Under **Option B**, at slaughter facilities, cervid heads will be collected by ODFW personnel within 24 hours of death following notification by Type 1 cervid permit holders of the cervid's death. The permanent mark and ear tag will accompany the head. The tagged head will be placed in a leak-proof bag and cooled or frozen prior to collection.

The heads will be transported by ODFW personnel to the Wildlife Health Laboratory for tissue collection or sampled on-site by ODFW veterinary personnel. To facilitate coordination of tissue examinations, it is recommended that Type 1 cervid licensees contact their local ODFW biologist one week prior to planned slaughter.

As part of this option, other regulatory veterinarians (USDA Food Safety Inspection Service (FSIS) Veterinary Medical Officers, USDA Veterinary Services Veterinarian, ODA veterinarian) can voluntarily collect CDSL specific tissues at USDA certified slaughter facilities. Collected tissues will be submitted by the regulatory veterinarian to the federal laboratory or the ODFW Wildlife Health lab for shipment to NVSL.

In accordance with all tissue collection and sample testing of all Type 1 mortalities, paired lymph node samples will be split with half of the sample stored until test results are received from the accredited laboratory. In the event of a positive test, samples can be genetically matched to submitted samples and the carcass of the deceased animal. Report results received by agencies from diagnostic laboratories will be forwarded to the producer. Reports received by the accredited veterinarian will be mailed or faxed directly to the ODFW Wildlife Health Lab (Fax: 541-757-4252) within 48 hours of receipt and distributed by ODFW to the ODA State Veterinarian and included in the producers record for future state and federal certification programs.

Alternatively, heads from slaughtered cervids can be delivered by cervid facility owners to their nearest Department biologist or Department office which will subsequently be transported by Department personnel to the Wildlife Health Laboratory for tissue collection and submittal at the Department's expense. .

Other regulatory veterinarians (USDA Food Safety Inspection Service (FSIS) Veterinary Medical Officers, USDA Veterinary Services Veterinarian, ODA veterinarian) can voluntarily collect CDSL specific tissues at USDA certified slaughter facilities. Collected tissues will be submitted by the regulatory veterinarian to the federal diagnostic laboratory or the Department's Wildlife Health lab for shipping to the NVSL.

Following reporting of a mortality and telephone interview by the Department or ODA veterinarian, circumstances may warrant a necropsy to be conducted. This determination will be made by the Department Wildlife Veterinarian in consultation with ODA State Veterinarian, who will make arrangements for the necropsy to be conducted by a Department or ODA veterinarian, a USDA veterinarian, or an agent (accredited veterinarian) identified by the Department and ODA. The necropsy may be conducted in part or entirely by the Oregon State University Veterinary Diagnostic Laboratory and at the Department's expense.

### **Import of Gametes and Embryos**

#### **Revision Alternative**

- Current Rule – The importation of live cervids is prohibited.
- Proposed Alternative – Allow importation of gametes and embryos under defined disease risk management surveillance and genetic protocol.
- Alternative 1 - Allow unregulated importation of gametes and embryos.
- Alternative 2 – Allow importation of live cervids inclusive of gametes and embryos.

**Staff Rationale:** The importation of live cervids into the state continues to provide an unacceptable risk to Oregon's wild deer, elk and moose populations. As described previously, many of the diseases on the CDSL are difficult to diagnose in live animals and can provide the avenue for infection to naïve animals from shedding hosts for months to years. The risk of disease transmission from transport of gametes or embryos has not been documented in the captive cervid industry. Presently, it is believed that any known or potential risk can be mitigated through health evaluations of the parent animals, or that the parents have originated from certified disease free herds demonstrating no evidence for Tuberculosis, CWD, or Brucellosis of the parent animals, herd, and facility. Import or exported gametes or embryos require a Transfer Permit and ODFW pre-approval.

Under OAR 603-011-0382, captive cervids shall test negative for tuberculosis and brucellosis prior to entry into Oregon. In coordination with these rules and in compliance with the ban on import of cervids into Oregon OAR **635-049-0025**, testing will be required of parent donor cervids for tuberculosis and brucellosis where gametes and embryos are



harvested for import into Oregon. Results for disease testing of the donor cervids will be sent by the importing licensee to the ODFW veterinarian and ODA State Veterinarian and approval granted by both agencies prior to importation of gametes and embryos.

#### Brucellosis

United States Department of Agriculture (USDA) has established qualifications for two brucellosis classifications of cervid herds. When brucellosis is confirmed in any privately owned herds, the gametes and embryos shall be denied entry into Oregon.

(A) Privately owned donor cervids originating in a herd classified by USDA as a Certified Brucellosis-Free Cervid Herd are exempt from the brucellosis test.

(B) Privately owned donor cervids originating in a herd classified by USDA as a Brucellosis monitored Cervid Herd must test negative for brucellosis no more than 90 days prior to entry of gametes or embryos into Oregon.

(C) Privately owned donor cervids originating in any other herd shall test negative for brucellosis no more than 30 days prior to entry of gametes or embryos into Oregon.

#### Tuberculosis

USDA has established qualifications for three tuberculosis classifications of cervid herds: Accredited herd; qualified herd; monitored herd. When tuberculosis is confirmed in any privately owned herd, the gametes and embryos shall be denied entry into Oregon.

(A) Privately owned donor cervids originating in a USDA Accredited cervid herd are exempt from the tuberculosis test.

(B) Privately owned donor cervids originating in a USDA Qualified cervid herd or a USDA Monitored cervid herd shall test negative for tuberculosis no more than 90 days prior to entry of gametes and embryos into Oregon.

(C) Privately owned donor cervids originating in any other herd shall test negative for tuberculosis twice, no less than 90 days apart. The second test must be conducted no more than 90 days prior to entry of gametes and embryos into Oregon. The animals must be isolated from all other members of the herd during the testing period.

#### Chronic Wasting Disease

Gametes and embryos shall be denied entry into Oregon from any privately owned donor cervids originating in any chronic wasting disease positive herd or previously positive testing facility or coming in prior contact with an infected facility or confirmed in any privately owned herd through purchase or trade. Gametes and embryos from any state or Canadian Province or other foreign country with previous or present occurrence of CWD shall be denied entry into Oregon.

Genetic verification of donor animals must be received and approved by ODFW prior to shipment and entry of gametes and embryos into Oregon.

### **Periodic Review of CDSL**

The CDSL will periodically be reviewed and revised as needed by the ODFW veterinarian and ODA State Veterinarian as new information, treatment protocols, and diagnostic capability improves or new or emerging diseases become relevant. After review, any proposed revisions to the CDSL would require rule making and approval by the Oregon Department of Fish and Wildlife Commission.

## **Issue 2: Record Keeping Related to Sale of Cervid Parts Proposed revisions to OAR 635-049-0205**

### **I. Background**

In June, 2008, a Type 1 Cervid licensee made the Oregon Fish and Wildlife Commission and the Oregon Department of Fish and Wildlife (Department) aware of the concern of Cervid Licensees that there would be considerable time and cost associated with complying with some reporting requirements in OAR 635-049-0205. Internal discussions with Bruce Eddy, leader of the Cervid Rule Advisory Group, indicated the primary intent of OAR 635-049-0205 was to focus on the history and sale of individual animals not parts or products. OAR Division 200 regulates the purchase, sale or exchange of wildlife parts, including cervid parts.

The current regulation is as follows:

635-049-0205

Record keeping

Licensees must keep accurate, legible and up-to-date records of:

- (1) All movement of cervids (including gametes and embryos) into or out of their facility. At minimum, these records must include all sales, purchases, loans (of cervids), trades, or other such transactions involving cervids, *cervid parts and cervid products* [italics added], as well as any cervid births or deaths at the facility. Each record must refer to individual cervids by their unique mark and ear tag and list the names, addresses, and license or permit numbers of any individuals or entities involved in the transactions;
- (2) Calving and fawning;
- (3) Escape or release;
- (4) Disease testing;
- (5) Artificial insemination and embryo implants; and
- (6) Each cervid's pedigree.

### **II. Staff Analysis and Recommendation**

The purchase, sale or exchange of cervid parts is regulated by OAR Chapter 635, Division 200. Reporting the sale of all cervid parts and products would be redundant,

time consuming, and expensive for the cervid licensee and the Department. The records required by OAR 635-049-0205 were intended to record the history and information pertaining to individual animals. The rules as adopted inadvertently asked for more detail than was necessary as long as licensees comply with the OAR found in Division 200.

Recommendation:

Staff recommends OAR 635-049-0205 be amended to remove wording referring to the reporting of cervid part and product sales.