



Introduction

Bovine Tuberculosis (TB) is a bacterial disease found mostly in cattle and bison, but is present in cervid species including white-tailed deer, mule deer, elk, and moose. It is caused by the species *Mycobacterium bovis*, a rod-shaped bacterium in the same genus as the bacteria causing human and avian tuberculosis. Bovine TB has a high zoonotic potential and is known to cause disease in humans, particularly high-risk groups such as hunters and wildlife biologists. Hunters noticing large nodules or bumps on the lungs or ribcages of animals should contact NJ Fish and Wildlife promptly.

Species Affected

The main wildlife species potentially affected by bovine TB in New Jersey is the white-tailed deer. Other wildlife such as black bears, bobcats, coyotes, opossums, raccoons, and foxes can be affected, as well as livestock such as cattle and swine.

Clinical Signs

In subclinically infected animals, where the disease has not progressed fully, the only signs of disease may be nodules near the lymph nodes in the head or neck, and around the lungs. In more severe infections,

caseous or cheese-like lesions are present in the lungs and small nodules the size of pearls are present on the inside of the rib cage. Clinical signs that may be present prior to death include emaciation, depression, and lethargy. Infected deer commonly live only a few weeks post-infection.

Transmission

Transmission of bovine TB typically occurs through the exchange of respiratory fluids between animals. Disease can be spread by direct contact such as touching noses or through inhalation of aerosolized droplets. Cattle infected with bovine TB may shed bacteria in their feces, urine, and milk.

Similar means of transmission are suspected to introduce bovine TB into wild cervid populations and distribute it within them. Exposure of hunters, trappers, taxidermists, processors/butchers, and wildlife biologists to bovine TB can cause infection with the disease if care is not taken to avoid it.

Diagnosis

Diagnosing Bovine TB is difficult based on clinical signs alone. Due to its highly infectious nature, diagnostics must be performed by the United States Department

of Agriculture – Animal and Plant Health Inspection Services, National Veterinary Services Laboratory (USDA-APHIS NVSL) at special facilities. In captive animals, diagnosis can be performed through an intradermal tuberculin test to observe the response. In wildlife, diagnosis more commonly occurs post-mortem and is either through histological or molecular methods. Other causes of lung abscesses should also be ruled out as various other bacteria can cause similar lesions.

Epidemiology

Bovine TB occurred historically in cattle herds of the United States but has been mostly eradicated due to restrictions on the importation and movement of cattle without testing for TB. The mandatory pasteurization of milk in the early 20th century was created in large part by outbreaks of bovine TB from dairy operations into the public. In the 1990's cases of bovine TB occurred in captive cervid facilities, requiring additional regulations around these operations. The main focal point of bovine TB in wild deer

populations is in Michigan and has been present in the population there since the 1970's. Occurrence in the Michigan population of deer is less than 2%. New Jersey is currently free of TB.

Surveillance/Management

The USDA-APHIS manages the ongoing surveillance of bovine TB to prevent outbreaks in livestock. They are responsible for the National Tuberculosis Eradication Program targeting cattle and captive cervids. This program has been largely successful in reducing the number of cattle infected with Bovine TB from around 5% in the early 1900's to roughly 7 times per 1 million sampled cattle.

Tracking the prevalence of TB requires recapturing individuals and there presently are no wild distributions available outside of Michigan. Although there is no ongoing surveillance, animals that are considered probable for infection with *M. bovis* are tested appropriately to assess spread of the disease.

Additional Information:

<https://cwhl.vet.cornell.edu/system/files/public/cwhl-fact-sheetsbtb.pdf>

<https://www.vet.upenn.edu/research/centers-laboratories/research-initiatives/wildlife-futures-program/resources/fact-sheets/fact-sheet-detail/bovine-tuberculosis>

<https://www.cdc.gov/mmwr/volumes/68/wr/mm6837a3.htm>

Cover Image:

<https://www.purdue.edu/fnr/extension/bovine-tb/>



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