



Canine distemper in Alberta



Common name

distemper,
canine distemper (CD),
la maladie de Carré,
hard pad disease

Scientific name

canine distemper
virus (CDV)

What's Bugging Wild Critters?

Fact sheet #42 :
Canine distemper

Significance

In some situations, canine distemper virus (CDV) can spread rapidly and cause sickness and death in a variety of domestic and wild carnivores.

What? Where? How?

Canine distemper (CD) occurs around the world in a wide variety of wild mammals, particularly canids (coyotes, wolves, foxes), mustelids (skunks, ferrets, mink, badgers, weasels), felids (lions), and procyonids (raccoons, pandas). There is increasing evidence that the canine form mutated to phocine distemper virus that now occurs in many marine mammals (seals, dolphins, walrus).

Canine distemper is characterized by high fever, eye and nose discharge, blood-shot eyes, vomiting, diarrhea, lethargy, loss of appetite, labored breathing and/or coughing, and hardening of footpads and the nose. Infected wildlife often stumble or are uncoordinated - they are often described as 'acting strange'.

The virus tends to localize in lung tissues and, depending on the immune response of the infected individual, it 1) may be destroyed and disappear, 2) may develop into mild illness that spontaneously disappears, or 3) may develop into severe disease throughout many tissues and end in death of the individual. In some species, the

virus is highly infectious and spreads rapidly among individuals.

In prairie regions, cyclic outbreaks of disease in coyotes generally occur each 3-7 years. Similar patterns of repeated outbreaks are known in raccoons and skunks.

Transmission Cycle

The virus can occur in various body fluids, including those from the mouth, nose, and eyes, thus infected animals are commonly described as having "runny eyes and nose". Transmission to uninfected individuals occurs via virus-contaminated air or direct contact with fluids (nasal and eye secretions, urine) or faeces from infected individuals. Virus may be shed for up to three months after infection.

CDV does not survive well outside an animal, and thus close contact between infected and uninfected individuals is required for disease to remain in a population. As a result, outbreaks of distemper occur most frequently in high-density populations of susceptible species. In addition, infection occurs most often in young of the year.



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Distribution in Alberta

The virus probably occurs at low levels in coyote, skunk, raccoon, and perhaps wolf populations throughout the province. In other situations it can spillover into wild populations directly from infected dogs.

Infection is most common in young pups and thus could easily be undetected. However recruitment (production and survival of young) in the wild species remains quite high so any effect of the disease appears limited to individuals or small local outbreaks.

Outbreaks of the disease occur sporadically in coyotes, skunks, and more recently, raccoons in southern and central Alberta. Recurrent outbreaks in coyotes in south-central Alberta are relatively common. A similar pattern is anticipated as raccoon populations increase in southern Alberta.

Canine distemper also occurs commonly in unvaccinated domestic dogs.

Importance for Wildlife Management

Generally, CDV does not have a significant effect on most wild populations. However, in some regions it can be a limiting factor for species that do not mount a strong immune response, e.g., raccoons, gray fox, mink, and black-footed ferrets. Local populations can have significant mortality until the density declines, transmission opportunities decline, and the outbreak peters out.

CD can become a significant management-concern in declining populations of wild carnivores. For example, endangered black-footed ferrets were nearly wiped out in the late 1980s following outbreaks of CD in the few remaining individuals in the wild in Wyoming. Similarly, endangered painted dogs in Africa are threatened by both rabies and canine distemper. Similarly some lion populations have been devastated by canine distemper outbreaks.

The virus also can threaten wild carnivores held in captivity, and ranch mink in many areas cannot be raised without vaccination against CD.

Some infected individuals show neurologic signs that are similar to those of rabies infection and thus are a concern for wildlife managers and public health officials. The potential for rabies infection is always a concern when wildlife 'act strange'.

Public Significance

Canine distemper, the disease, is not known to occur in humans. However, there is some evidence of a possible link between canine distemper virus and Paget's disease - a debilitating bone disease in humans. Similarly there is some concern that the virus could be associated with multiple sclerosis; however, this relationship has not been established. Further investigation is necessary to better understand whether these are incidental findings. Domestic dogs are the most likely source of human exposure to canine distemper virus.

Prevention/Control

Vaccination can be effective in protecting pets and captive susceptible wildlife. However, it is not possible to vaccinate free-ranging wild carnivores.

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Summary

Canine distemper is a highly infectious viral disease that can result in mortality of free-ranging carnivores and domestic dogs. Outbreaks in wildlife in Alberta tend to be localized and involve relatively few individuals. Mortality events are documented in local coyote, skunk, and raccoon populations in Alberta. Dogs and susceptible captive wildlife can be protected through vaccination.

Additional Information

Infectious Diseases of Wild Mammals, Third Edition. Edited by Elizabeth S. Williams and Ian K. Barker. 2001. Chapter 2 - Morbilliviral Diseases.

Merck Veterinary Manual Online: http://www.merckvetmanual.com/mvm/generalized_conditions/canine_distemper/overview_of_canine_distemper.html

Michigan Department of Natural Resources: http://www.michigan.gov/dnr/0,1607,7-153-10370_12150_12220-26505--,00.html

University of Northern British Columbia: http://wildlifedisease.unbc.ca/bc_wildlife_disease_manual_v2.pdf