



Rabies

(Lyssavirus)

in Alberta



Common name

rabies, mad dog disease, hydrophobia, rage, polar madness

Scientific name

a virus, *Lyssavirus* serotype/genotype 1

What's Bugging Wild Critters?

Fact sheet #13: Rabies

Significance

There is relatively little rabies virus in Alberta even though it can survive and potentially cause fatal infections in any warm-blooded bird or mammal. Humans, pets, wildlife, and domestic livestock are all at risk.

What? Where? How?

For at least 4000 years, ancient cultures around the world describe clinical signs that are obviously those of rabies infection. Only a few island countries remain unaffected. The classic image of rabies involves a carnivore, often a pet dog, that foams at the mouth and bites at anything that moves. However, new information indicates that the virus is much more than this. It is well tuned to a variety of hosts and well adapted for survival. Various wild species, including Arctic fox, red fox, striped skunk, and various bat species provide the most suitable habitat for rabies virus in North America.

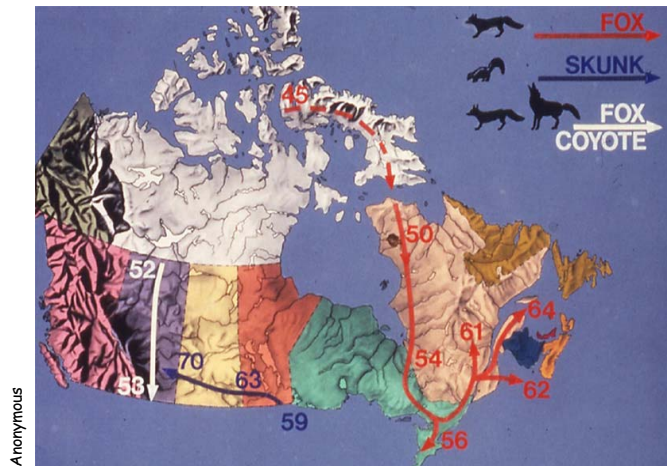
The virus occasionally spills over into livestock, pets, and, very rarely, humans.

Transmission Cycle

This virus prefers to live in nerve tissue, particularly habitats within the brain. Here the virus multiplies and causes damage to specific areas that control behaviour. The resulting behavioural changes include two very different phases: initially the animal becomes very aggressive, and later very lethargic. The duration of each phase differs among different animal species. For example, carnivores spend a relatively long time in the aggressive phase, thus the mad-dog image that is so well known. However, bats have a short aggressive period and are more likely to be found on the ground and unable to fly.

The virus accumulates in the salivary glands and is passed on when an animal eats or is bitten by an infected individual (direct transmission), or by contamination of the environment with copious amounts of saliva (indirect transmission). In direct transmission, the virus is embedded deep within the soft tissues of the predator/scavenger or the bitten individual. In indirect transmission, the virus can enter only if there is a previous wound on the skin.

Rabies virus can detect nerve endings and then move along them, up the peripheral nerves, and eventually into specific areas of the brain. All infected animals eventually die when the virus damages vital areas of the brain.

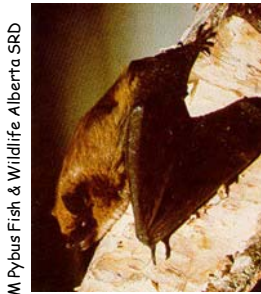


Anonymous

Rabies in Alberta

(*Lyssavirus*)

Distribution in Alberta



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Rabies in Alberta comes in two different forms: a terrestrial form in striped skunks and a bat form in various species of bats. Cases in skunks generally are limited to areas along the borders with Saskatchewan and Montana. Although rabid

bats can occur throughout the province, they are most often reported in areas with relatively high human populations, particularly in southern Alberta. In recent years Alberta records fewer than 10 cases in skunks annually. Only a few rabid bats are reported each year. Little brown bats (*Myotis lucifugus*), by far the most common bat species in Alberta, rarely has rabies.

Importance for Wildlife Management

Rabies virus kills a few bats and skunks each year in Alberta. The disease cannot be prevented. However, to address the implications for public health and agriculture, rabies control programs directed at wildlife have been in place in Alberta since the 1950s. The current program is aimed at reducing the number of infected skunks and thus limiting the risk to other species. Any skunk found dead or considered to be acting strangely is submitted to the federal rabies laboratory in Lethbridge for testing. Many of these skunks are not rabid. However, if the skunk is rabid, a cooperative program between provincial and municipal governments is implemented. Skunks within a 8-km (5-mile) radius of the positive skunk are collected and submitted to the lab for testing. This program has been very effective in preventing the establishment of skunk rabies within the province. The few cases reported each year in Alberta are considered spillover from enzootic areas (areas where the virus commonly occurs) in Saskatchewan and Montana.

There is no control program for rabies in bats in Alberta. The incidence of infection is extremely low and infected individuals are not clustered in small areas (unlike what occurs with terrestrial forms of rabies). Any bat found on the ground, unable to fly, or otherwise acting strangely should be carefully collected (so that pets or children will not pick it up) and submitted to any veterinary or Fish and Wildlife office. Do NOT handle the bat directly. Always wear gloves and/or push the bat with a stick.

Public Significance

As indicated above, rabies has the potential to infect humans, pets, and livestock. Although the risk of being infected is low, the consequences are high. Anyone visiting enzootic areas (areas where the virus commonly occurs) should be aware of the risk and take appropriate precautions for themselves and their pets. In addition, the costs to public health and to agricultural economics dictate that this disease be regarded as a significant concern.



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Prevention/Control

There has been significant progress in preventing infections in humans. The primary prevention is to avoid handling wild or domestic animals that exhibit unusual behaviour. Further to this, preventive immunization is available to persons who handle potentially infected animals on a regular basis (e.g., veterinarians, wildlife biologists, wildlife disease specialists!). Anyone who has been exposed to a potentially rabid animal should seek advice and, perhaps, treatment from a physician. Rabies post-exposure treatment involves up to five injections of human-diploid vaccine into the muscles of the upper arm. The treatment is safe and very effective at killing the virus before it enters the brain.

Pets, including cats and dogs, in enzootic areas or travelling to enzootic areas should be vaccinated regularly. Domestic livestock generally are not vaccinated against rabies. The risk of infection is extremely low and some measure of protection is afforded by preventive and control measures in other species.



Summary

There is an extremely low incidence of rabies in Alberta. Infections are limited to a few cases in skunks and bats each year. Preventive and control measures are in place.

Additional Information

Infectious Diseases of Wild Mammals, Third Edition. Edited by Elizabeth S. Williams and Ian K. Barker. 2001. Chapter 1 - Rabies.

Canadian Food Inspection Agency: <http://www.inspection.gc.ca/english/animal/hasan/disemala/rabrag/rabragfse.shtml>

Alberta Agriculture, Food and Rural Development: [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex3499?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex3499?opendocument)

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For more information on wildlife diseases in Alberta: <http://www3.gov.ab.ca/srd/fw/diseases/index.html>