Rabies & rabies management in Alberta

Wherever rabies virus occurs it carries significant inherent concerns associated with potential risks to wildlife, livestock, companion animal, and human health. These risks are secondarily associated with significant financial, social, and environmental costs using millions of dollars and hundreds of staff hours spent on prevention, detection, control, management, and treatment of rabies infections. As a result Alberta has taken a proactive approach over the last 60 years to prevent the establishment of enzootic terrestrial rabies in the province.

This document briefly outlines the successive programs delivered by the provincial government, in conjunction and cooperation with federal agencies and local municipalities, in the ongoing battle against rabies virus in Alberta.

Alberta's first documented brush with terrestrial rabies variants [terrestrial rabies] occurred in the early 1950s. In association with extremely high fox populations in the Northwest Territories and northern Alberta, arctic fox rabies variant swept down out of the arctic and entered northern Alberta in 1952. Rabies cases as far south as Lethbridge were seen within a year. Response to incursion of the virus was swift and decisive. A cooperative program between Alberta Fish and Wildlife and Alberta Agriculture began in 1951. A massive program to trap, poison, or shoot any wild carnivore was delivered throughout the province, with particular emphasis on major human settlements in the Peace River area, as well as in central and southern Alberta (Figure 1). The program was active from 1951 to 1956 and resulted in the removal of large numbers of potential rabies hosts, including coyotes, red fox, wolves, bears, lynx, and cougar. At the same time, the disease itself killed many individuals.

It appears that the combined effects of the removals and the disease losses prevented arctic fox rabies variant from establishing in Alberta.

From 1957 to 1969 no cases of rabies in wild species were detected in the province.
In the early 1960s prairie skunk rabies variant was detected in the southeast corner of Saskatchewan (Figure 2). In successive years, a wavefront of rabies infection spread westward over southern Saskatchewan like a ripple in a pond. By 1969/70 the infection front reached the immediate vicinity of the Alberta border. Again, the provincial government action was fast and aggressive, and cooperative between the Alberta wildlife and agriculture departments.

Skunk removal was general throughout the buffer zone, with the dual purpose of detecting rabies-infected individuals and reducing the general skunk population along the border in order to minimize the potential for disease transmission. Skunks were trapped, poisoned, or shot during night-light operations. In addition, a 5-mile radial depopulation using traps and strychnine-laced chicken eggs was applied around the site of any infected skunk. From 1970 to 1977, a peak of positive skunks was detected, which diminished in later years.

In 1970 a buffer zone 18 miles wide and 380 miles long, extending from Cold Lake to the US border was established (Figure 3). Unlike the previous control efforts, only skunks were targeted for removal (Figure 4). This decision was based on new information regarding ecological variants of rabies in wild populations.

Also in 1970, the province re-established the Central Rabies Control Committee (CRCC) with representation from provincial agriculture, wildlife, and health departments as well as federal agriculture and county pest control programs. The committee was first struck in January 1953 but lapsed through the 1960s. The purpose of the revitalized committee was to “take all possible actions to reduce rabies and its associated costs”. The committee designed and directed programs specifically aimed at waging battle against rabies in skunks along the eastern border. Public information was a big part of the program and often was combined with ongoing efforts aimed at keeping Norway rats out of eastern Alberta. The CRCC met on an “as-needs” basis but no less than once a year.

More information on wildlife diseases in Alberta: srd.alberta.ca/BioDiversityStewardship/WildlifeDiseases/
Through the 1970s, 1980s, and early 1990s occasional 'sparks' of rabies infection were detected along the Alberta/Saskatchewan border (Figure 5). Radial skunk trapping and depopulation efforts were applied around all rabid skunks (Figure 6). The number of rabies cases remained small and the virus soon disappeared in local areas. These occurrences included a short local epizootic in Newell Country in 1982 (33 infected skunks in 1982, 5 cases over the next 4 years) and a more prolonged outbreak south of Lethbridge first in Forty Mile, and then Warner and Cardston counties from 1979 to 1988. The latter situation was deemed to be spillover into southern Alberta from areas in Montana that were experiencing high numbers of skunk rabies cases adjacent to the Alberta border. The outbreak sputtered and died out completely by 1994.

Ongoing surveillance of skunks in areas of rabies risk has been delivered continually since 1970, although annual efforts differed based on the actual risk of disease occurrence. Initially surveillance efforts focused along the border with Saskatchewan but later expanded to include areas along the Montana border. The program initially was funded by Alberta Agriculture but in 1989 evolved into a cost-share program between the provincial government and local municipalities. The federal government provided testing.

To round out the complete story of rabies in wildlife, bat rabies variants occur in native bat populations in Alberta; however, as is the consistent pattern in insectivorous bats throughout the rest of North America, the occurrence of rabies is extremely low and the distribution is widespread. Individual rabid bats can be found almost anywhere in Alberta and rarely is another rabid bat found in the same location.

Of the few bats in Alberta that are found to have rabies, most are big brown bats (Figure 7) and there are slightly more cases in southern Alberta where there is a higher proportion of big browns among the bat population. Rabies in little brown bats (Figure 8), the most common bat species in Alberta, is extremely rare.

In Alberta we record an average of 4-6 rabid bats each year scattered throughout the province. Public education to avoid contact with sick bats is the primary program directed towards management of rabies in bats.

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Alberta does not have an enzootic population of rabies in any terrestrial species. Small outbreaks occur as incursions from adjacent areas and are dealt with aggressively.

Saskatchewan has an enzootic population of prairie skunk rabies variant. The numerical and geographical distribution tends to wax and wane in a 3- to 5-year cyclic pattern.

Summary

Despite the ongoing surveillance, Alberta has not detected rabies in skunks since 1994. We believe that over the years the combined surveillance and response program has been effective in preventing the establishment of terrestrial rabies, particularly prairie skunk variant, in areas where there seem to be no other limiting factors to prevent the virus from establishing an enzootic population. Skunk habitat, behaviour, and reproductive potential are the same in eastern and southern Alberta as in neighbouring jurisdictions that experience cyclic rabies outbreaks in their skunk populations (aka Saskatchewan and Montana). The combined efforts and resources of the provincial, federal, and municipal governments appear to have provided security and peace of mind to local residents, as well as protection to livestock, companion animals, and wildlife.

Additional Information


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