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Update on Bat Rabies in Alaska

Introduction

Rabies in bats is well documented in much of North America; however, few bats have ever tested positive for rabies in Alaska. Bats are generally found in forested areas. Being nocturnal, bats sleep during the day and hunt and feed on insects at night; the short duration of darkness during summer nights at high latitudes reduces foraging opportunities, thereby limiting their northern range. As such, only seven species of bats are known to live in Alaska, and the geographic ranges of most of them are limited to the Southeast region of the state.¹

Alaska's most common bat is *Myotis lucifugus*, the little brown bat (LBB), which is the only species found in most of the state.² Other bat species are found only in Southeast Alaska, including the long-legged myotis (*Myotis volans*), the California myotis (*Myotis californicus*), the silver-haired bat (*Lasionycteris noctivagans*), the hoary bat (*Lasiurus cinereus*), and the Yuma myotis (*Myotis yumanensis*). In recent years, bat researchers have determined that the species previously identified as the Keen's myotis (*Myotis keenii*) is indistinguishable from the western long-eared bat (*Myotis evotis*).³ A single big brown bat (*Eptesicus fuscus*) was once recorded in Alaska; it is thought to have been inadvertently transported to Alaska by humans. All of the bat species in Alaska, except the hoary bat, are believed to be year-round residents.^{2,4}

Laboratory Testing for Rabies

Since the 1970s, rabies testing for animals involved in a potential or confirmed human exposure has been performed at the Alaska State Virology Laboratory (ASVL) using the direct fluorescent assay (DFA) method – still the gold standard confirmatory test for rabies. The Centers for Disease Control and Prevention (CDC) Rabies Laboratory in Atlanta performs molecular typing to determine the rabies virus variant.

Starting in 2011, Alaska Department of Fish and Game (ADF&G) and US Department of Agriculture Wildlife Services staff began performing a field screening presumptive assay, DRIT (direct rapid immunohistochemical testing), on selected animals that were captured or found dead and not involved in a potential or known human exposure. Animals that tested indeterminate or positive by DRIT were then sent to CDC for confirmatory (real-time reverse transcriptase polymerase chain reaction, RT-PCR) testing. In 2023, given chronic limitations in availability of DRIT reagents and other factors, ADF&G began to work with CDC on piloting a new rapid screening method for surveillance testing of animals.

Bat Rabies in Alaska

Since the 1970s, ASVL has evaluated over 200 bats for rabies from many regions of the state, including the Kenai Peninsula and Anchorage-Mat-Su. Three of the six positive bats were identified by ASVL; the three most recent positive bats (October 2014, July 2015, and June 2022) were identified by ADF&G screening using DRIT. All six rabid bats demonstrated abnormal behavior or were found dead in Southeast Alaska (Table).

Table. Summary of Rabid Bats in Alaska, 1993–2022

Date	Species	Location	Virus Variant
Jun 1993	Little brown bat	Ketchikan near Tongass ⁵	Silver-haired bat
Jul 2006	Keen's myotis	Prince of Wales Island, Whale Pass ⁶	Red bat
Jul 2014	Keen's myotis	Prince of Wales Island, Harris River ⁷	Silver-haired bat
Oct 2014	Keen's myotis	Wrangell	Eastern red bat and <i>Myotis</i> sp.

Jul 2015	Little brown bat	Point Couverden, Haines Borough	Silver-haired bat
Jun 2022	Silver-haired bat	Douglas Island, Juneau Borough	Silver-haired bat

Discussion

Over the past 50 years of rabies testing in Alaska, only six bats have tested positive, and all were from Southeast Alaska. It is unclear if rabies circulates among bat populations in southeastern Alaska, or if it is periodically imported into Alaska by migrating bats. The 2015 case of bat rabies in the southern part of Haines Borough represents Alaska's northernmost case. This animal was found dead and was only tested after being reported to the ADF&G bat and rabies surveillance programs.

Most animal rabies in Alaska occurs among Arctic and red foxes in the northern and western coastal areas. Occasionally, dogs and other mammals are also infected.⁸ Terrestrial animal rabies virus variants have not been observed in Alaska bats.

Any bat that is acting abnormally should be tested for rabies. Bats with human contact should be routed to ASVL for immediate DFA testing to inform post-exposure prophylaxis (PEP) recommendations. Sick or dead bats without human exposure should be reported to ADF&G for disease testing.

Recommendations

1. The general public should not touch bats with their bare hands, even to remove them from the home.
2. Biologists or professional exterminators who handle bats should receive a rabies pre-exposure immunization series.
3. Anyone who may have been bitten or scratched by a bat should contact a health care provider *immediately* to be evaluated for rabies PEP. If available, the bat should be submitted to ASVL for immediate rabies testing. Exposed persons will most often require PEP – *even those persons who have previously received a rabies pre-exposure series.*
4. Health care providers can call the Section of Epidemiology for guidance on current PEP recommendations: 907-269-8000, M-F 8AM-4:30PM, or 800-478-0084, after-hours.
5. Bats seen on the ground or acting abnormally should be reported immediately to a local ADF&G office or after hours to the ADF&G Wildlife Health and Disease Surveillance veterinarian at 907-328-8354.
6. Bats with suspected or confirmed human exposures should be sent to ASVL for immediate testing. Other bats will be batched for future testing; more information available at: <http://www.adfg.alaska.gov/index.cfm?adfg=livingwithbats.deadbats>.

References

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