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## Update on Bat Rabies in Alaska

### Introduction

Rabies in bats is well documented in many of the lower 48 states and in several Canadian provinces, including British Columbia; however, few bats have ever tested positive for rabies in Alaska.

Bats are only 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 Alaska, and the geographic ranges of most of them are limited to the Southeast region of the state.<sup>1</sup>

Alaska's most common bat is *Myotis lucifugus*, the little brown bat (LBB), which is the only species found in most of the state.<sup>2</sup> Other bat species are found only in Southeast Alaska, including the Keen's myotis (*Myotis keenii*), 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*). A single big brown bat (*Eptesicus fuscus*) was once recorded in Alaska; it is thought to have been inadvertently transported here by humans. All of the bat species in Alaska, except the hoary bat, are believed to be year-round residents.<sup>2,3</sup>

### 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) in Fairbanks using the direct fluorescent assay (DFA) method, which is still the gold standard confirmatory test for rabies. Molecular typing to determine the rabies virus variant is done at the Centers for Disease Control and Prevention (CDC) Rabies Laboratory in Atlanta.

Starting in 2011, Alaska Department of Fish and Game (ADF&G) and U.S. 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 test indeterminate or positive by DRIT are then sent to CDC for confirmatory (polymerase chain reaction) testing. In total, 60 Alaska bats have been tested using DRIT technology.

### Bat Rabies in Alaska

Since the 1970s, ASVL has evaluated over 165 bats for rabies from many regions of the state, including the Kenai Peninsula and Anchorage-Mat-Su. Three of the five positive bats were identified by ASVL; the two most recent positive bats (October 2014 and July 2015) were both identified by ADF&G screening using DRIT. All five rabid bats demonstrated abnormal behavior or were found dead in Southeast Alaska (Table).

**Table. Summary of Rabid Bats in Alaska, 1993 – 2015**

| Date     | Species          | Location  | Virus Variant                         |
|----------|------------------|---|---------------------------------------|
| Jun 1993 | Little brown bat | Ketchikan near Tongass <sup>4</sup>               | Silver-haired bat                     |
| Jul 2006 | Keen's myotis    | Prince of Wales Island, Whale Pass <sup>5</sup>   | Red bat                               |
| Jul 2014 | Keen's myotis    | Prince of Wales Island, Harris River <sup>6</sup> | 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                     |

### Discussion

Over the past 45 years of rabies testing in Alaska, only five 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.<sup>7</sup> Terrestrial animal rabies virus variants have not been observed in Alaska bats.

Any bat that is acting abnormally should be tested for rabies (see recommendations below). Bats with human contact should be routed to ASVL for immediate DFA testing to inform post-exposure prophylaxis recommendations. Bats without such exposures should be reported to ADF&G for DRIT testing, which is done in batches.

### Recommendations

- The general public should not touch bats with their bare hands, even to remove them from the home.
- Biologists or professional exterminators who handle bats should receive a rabies pre-exposure immunization series.
- Anyone who may have been bitten or scratched by a bat should contact a health care provider *immediately* to be evaluated for rabies post-exposure prophylaxis (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*.
- Health care providers who would like guidance about current PEP recommendations should consult with the Section of Epidemiology; call 907-269-8000, Monday through Friday 8AM-5PM, or 800-478-0084, after-hours.
- 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 Reporting Line at 907-328-8354. Bats with a suspected or confirmed human exposure should be routed to ASVL for immediate testing. Other bats will be batched for future DRIT testing (more information is available at: <http://www.adfg.alaska.gov/index.cfm?adfg=livingwithbats.deadbats>).

### References

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