

## A Little About the Little Brown Myotis and What You Can Do

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Little Brown Myotis is the most common and widespread of the nine bat species in Saskatchewan. Little Brown Myotis range from 7-9 grams in weight and have a wingspan of 22-27 centimeters. They have shiny brown fur with black ears and black wings. Females and males are similar in appearance, but the females are slightly larger than males.

Little Brown Myotis can live up to seven years. These bats fall prey to owls, snakes, raptors, cats, raccoons and weasels. Little Brown Myotis does not migrate long distances, but they will migrate from their summer roosts to winter roosts which can be up to 1,000 km apart. These bats will hibernate in their winter roosts, which are often caves or abandoned mines that are chosen because of their high humidity and stable, above-freezing temperatures. Little Brown bats are true hibernators, meaning that they slow down their metabolism, heart rate and breathing, but will wake periodically to drink or eliminate guano (waste). Hibernating bats rely solely on their fat reserves to survive from early fall to the spring (mid-April for females, mid-May for males).

Most bats will return to the same roosts every year, but others will switch roosts. They are found in a variety of habitats, including forest, prairie and even the southern edge of the Arctic tundra and urban centers. In the summer, they prefer areas near wetlands, lakes and streams because of greater food availability.

Little brown bats contribute to the ecological function of many Canadian ecosystems. Little Brown bats forage opportunistically at night using echolocation to locate a variety of small, flying insects, typically moths, flies, mosquitoes, mayflies, beetles and midges. Most Little Brown bats can consume about 1,000 insects per night or half of their body weight, whereas females with suckling pups can consume the equivalent of their weight in insects. From a human

perspective, bats are very important for insect pest control, including mosquitoes, that can be vectors for illnesses and agricultural pests, thereby reducing the need for pesticide use. It was estimated that the economic importance of bats is valued at about \$74/acre of cropland. Meaning, if all bats were lost, more pesticides would be needed to suppress the insects that would normally be consumed by bats. Therefore, in Saskatchewan, with our 7 million acres of cropland, the services provided by bats could be valued at \$0.5 billion/year.

Little Brown Myotis was listed as Endangered under the Species at Risk Act in 2014 as population declines started in 2010 with the first appearance of white-nose syndrome in eastern Canada. White-nose syndrome is an invasive fungus that grows on the bats' nose, wings and skin during hibernation. It causes the bats to wake up more frequently than usual due to dehydration and to the need to groom the fungus, causing them to be more active during the winter. This depletes their fat reserves more quickly, leading to starvation. In eastern Canada, where white-nose syndrome is more common, bat populations in hibernacula have been reduced to less than 10% of the original population.

Myotis lucifugus  
Photo credit: M. Brock Fenton



There is currently no cure for white-nose syndrome and experts believe that the Little Brown bat will be extirpated from parts of Canada between 9 and 30 years from the disease onset in 2010. However, as of 2019, the fungus has not reached Saskatchewan, but has been located in Manitoba and suspected in North Dakota. In addition to white-nose syndrome, other threats include the disturbance or destruction of hibernacula and maternity colonies, habitat loss, pesticide use, toxins in the food web and wind energy. Bats can be killed through direct collisions with turbine blades or more commonly barotrauma (the sudden drop in air pressure behind the blades). As Little Brown Myotis, and other Myotis species, are short distance migrants and generally fly below the turbines during the summer, mortalities due to turbines may be fewer compared to long-distance migrants.

As most of the declines are due to white-nose syndrome, entering hibernacula should be avoided to prevent the spread of the fungus. There are mitigation measures for wind energy developments that have been effective at reducing mortalities such as feathering wind turbine blades or increasing the cut-in speed during high risk periods. There are a number of resources available with wind energy development guidelines.

There are a few things that could be done to improve bat habitat in your area as well:

- Maintain roost sites like old trees and buildings, or provide bat boxes, etc.;
- Avoid or minimize the use of pesticides, especially near drainages and wetlands near riparian zones;
- If eviction from buildings is required, bat houses can be installed well in advance of the eviction. As bats are raising young during the summer, they shouldn't be evicted before the end of August. It is best to use one-way exit devices which would allow bats to exit without re-entering to avoid trapping bats inside a roost;
- Avoid degrading roosting and foraging habitat within riparian areas by setting conservative grazing rates, providing alternate watering sites and avoiding the installation of barbed wire fences that bisect water troughs or other sources of open water.



A well-used bat house.  
Photo credit: Anne Brigham

Many more beneficial management practices can be found here:  
<http://multisar.ca/wp-content/uploads/2015/10/Multisar-Bat-BMP-Report-Final.pdf>

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