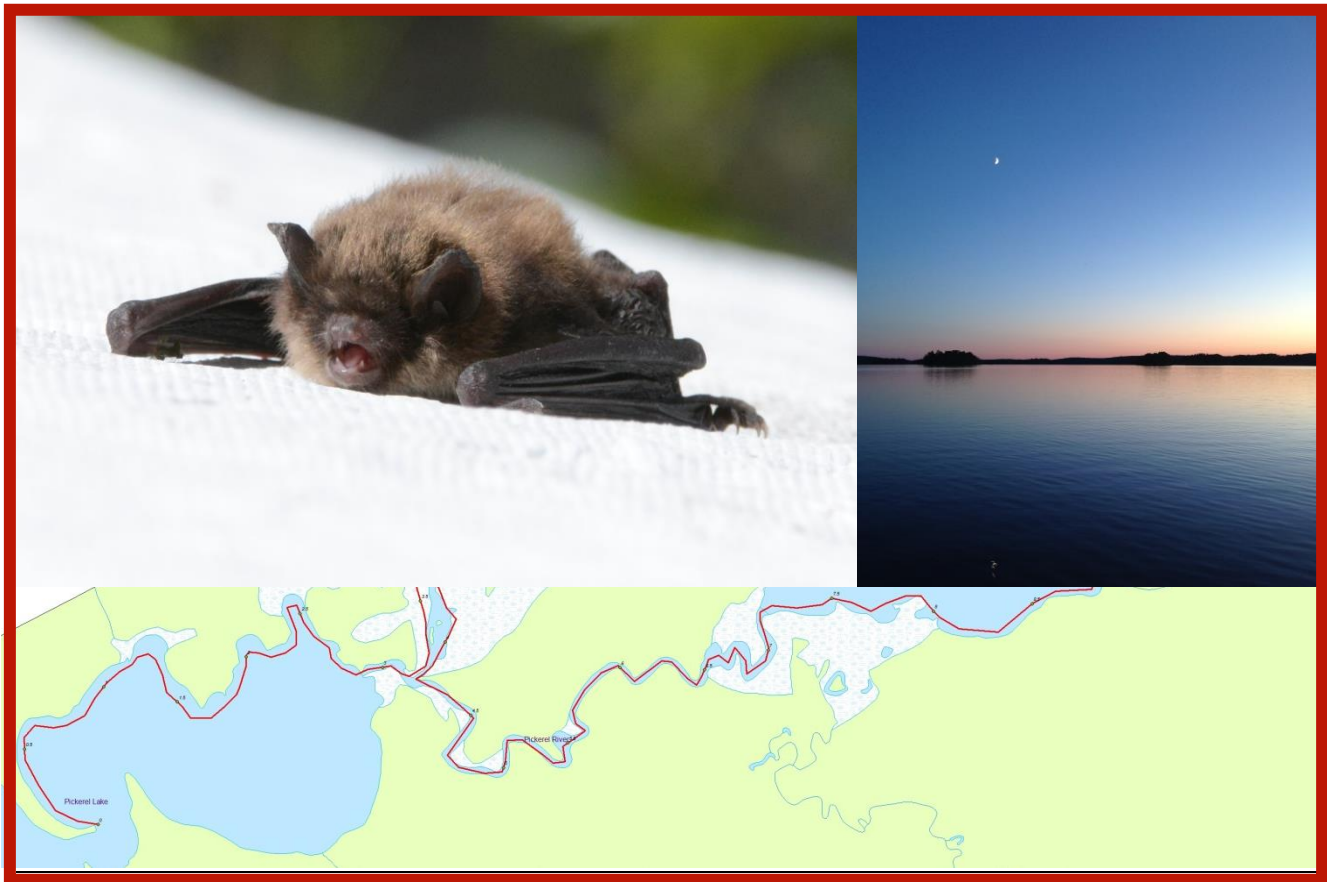

Quetico Provincial Park Acoustic Bat Survey: 2017 Data Summary

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March 2018*



*Quetico Provincial Park acknowledges that the surveys summarized
in this report were carried out on the traditional lands
of the Anishinaabe people of Treaty Three.*

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Introduction

Five species of bat have been recorded in Quetico Park, including three species of migratory bats - Eastern Red Bat (*Lasiurus borealis*), Hoary Bat (*Lasiurus cinerius*) and Silver-haired Bat (*Lasionycteris noctivagans*) - as well as two non-migratory species – Big Brown Bat (*Eptesicus fuscus*) and Little Brown Myotis (*Myotis lucifugus*). In addition, Northern Myotis (*Myotis septentrionalis*) has been confirmed immediately north of Quetico and may also be present within the Park. Bats are an important component of biodiversity, particularly as a voracious insect (including many forest pests) predator. Hibernating bats use caves and abandoned mines that remain above freezing as hibernacula over the winter. They also depend on warm maternity roosts (in attics, buildings and occasionally tree cavities) to raise their young in the summer (MNRF 2015). However very little is known about their population status or habitat use in the Park.

Due to the risk of white nose syndrome (WNS), Little Brown Myotis and Northern Myotis as well as the Tri-coloured Bat (*Perimyotis subflavus*) have been classed as Endangered in Ontario (COSSARO 2012a; COSSARO 2012b). White nose syndrome (*Pseudogymnoascus destructans*) is a cold and damp-loving fungal disease that causes a skin infection in bats. The characteristic white fuzz around the infected bat's nose are the fruiting bodies of the fungus. Discomfort from the infection causes hibernating bats to wake up more frequently during the winter. This unplanned activity, at a time of year when food and water is not available, causes bats to dehydrate and use up fat reserves prematurely, often resulting in death (MNRF 2015). First observed in New York in the winter of 2006-07, white nose syndrome was observed in the area around Thunder Bay during 2014-2015, northern Wisconsin in 2015-16, and north of Kenora in 2016-2017 (WNS 2017) (Figure 1).

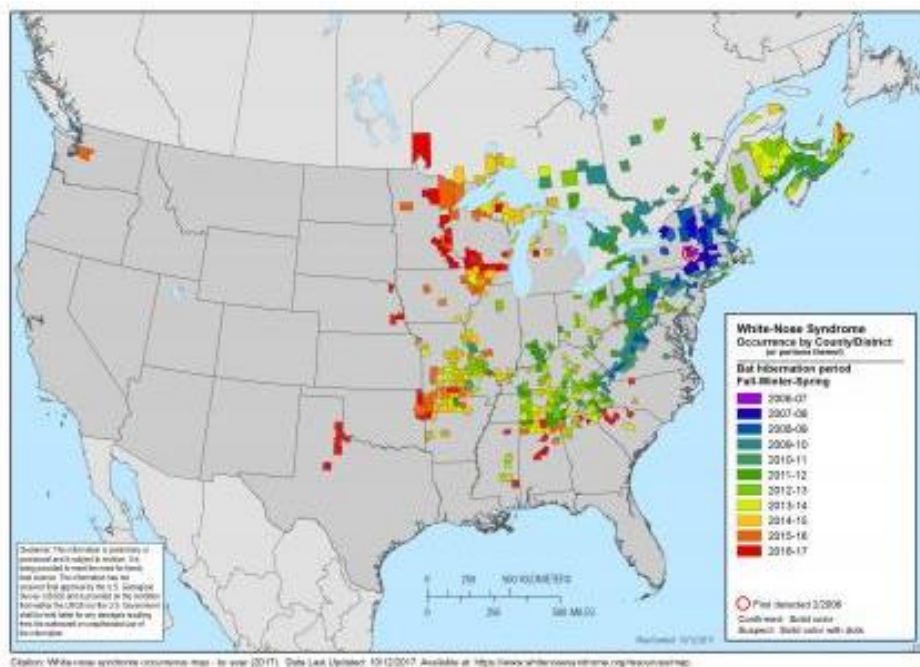


Figure 1: Confirmed locations of white-nose syndrome as of October 2017. To view updated maps visit <https://www.whitenosesyndrome.org/resources/map>

The Ontario Ministry of Natural Resources and Forestry has developed a *White-nose Syndrome Response Plan* (2015) to be prepared for the threat posed by white-nose syndrome. However, without baseline information, it is difficult to assess the impact of white-nose syndrome on bat populations in the Park. This study is a preliminary assessment of bat populations in Quetico Park.

Objectives

- 1) Determine the presence and abundance of Species At Risk bats (i.e. Little Brown Myotis (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*)) relative to other bat species in Quetico Provincial Park.
- 2) Compare distribution of identified bat species along survey route.

Methods

Monitoring occurred in the north-east corner of the Park, along Pickerel River between the Pines on Pickerel Lake and ending at the QPP staff house on French Lake. The methodology used is consistent with that outlined in *Bat Driving Transects: Using Acoustic Surveys to Monitor Population Trends in Ontario Bats* (OMNRF 2013) with the exception that a canoe was used instead of a vehicle. A SM4BAT FS recorder was used to detect bat calls.



BatDrivingTransects
_UsingAcousticSurve

The surveyed transect was estimated at 10.1 km based on GPS track and travelled through a variety of forested, wetland and over-water habitat in an area that has not previously been surveyed for bats. Crews monitored the same route three times in 2017 on June 15, June 27, and July 13. The surveys began half an hour after sunset and attempts were made to maintain canoe speed at 5km/hour and 20m from shore. Actual speed was approximately 5.5 kph, mostly because Jared wouldn't slow down, resulting in survey duration being consistent between surveys (between 110 to 113 minutes - Table 1).

Date	Start Time	End Time	Duration (min)	Temp. (°C) (Start-End)	Wind (kph) (Start-End)	Cloud Cover % (Start-End)	Moon phase	Bats seen
June 15, 2017	21:44	23:25	111	17 - 15 °C	2 – 0 kph	90 – 10%	3/4	2
June 27, 2017	21:47	23:40	113	13 - 13 °C	1 – 0 kph	65 – 40%	1/4	2
July 13, 2017	21:35	23:25	110	18 – 13 °C	0 – 0 kph	0 – 0%	3/4	2

Because it is not possible to identify multiple bats from multiple calls from an individual bat, this methodology does not allow estimates of bat numbers.

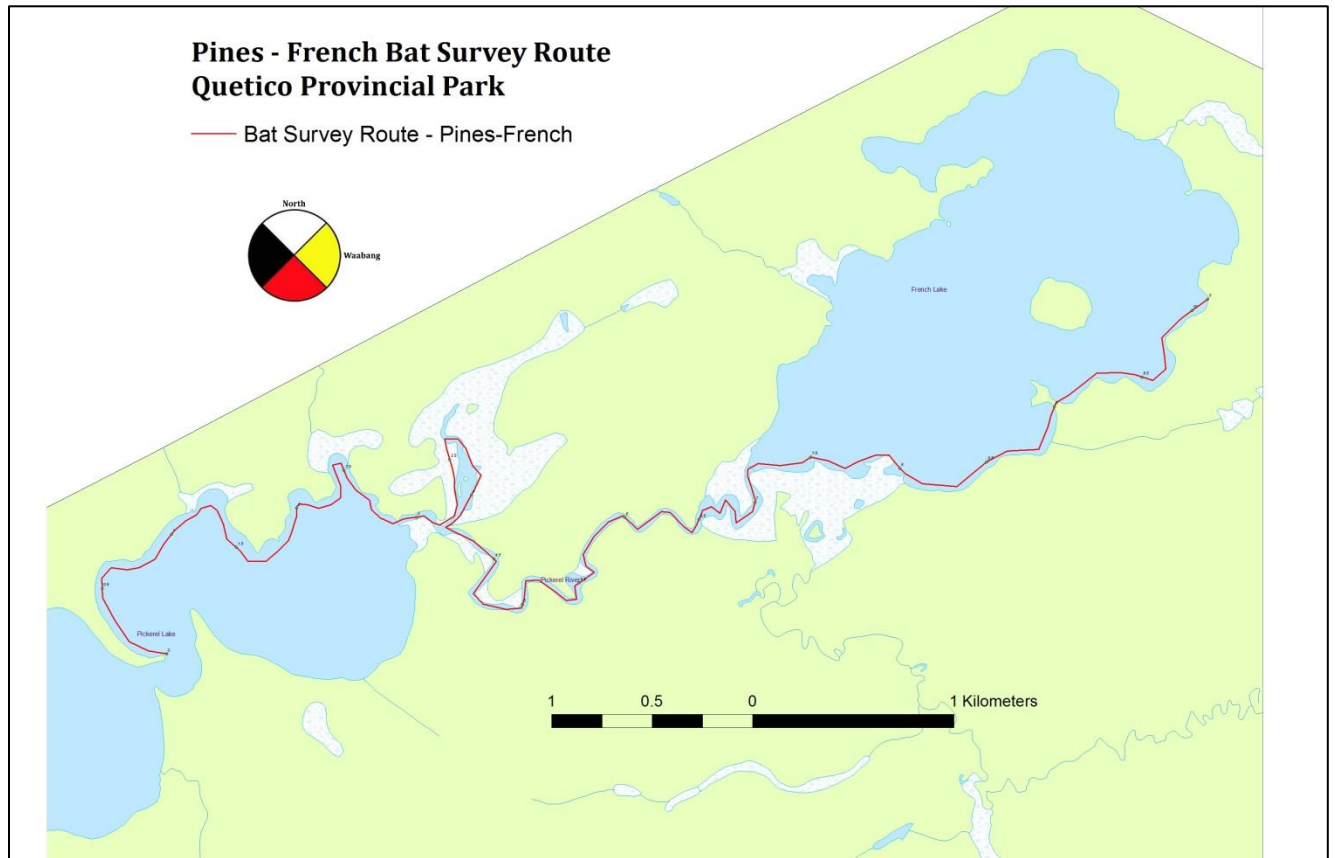


Figure 2: The Pines-French acoustic bat survey route

Results

Acoustic data was analyzed using a combination of software (Kaleidoscope Pro version 4.1.0a) and manual identification of suspected bat calls with manual identification being used for species determination. Of the 125 recorded calls, 112 (90%) were identified to one species and 6 (5%) being identified to one of two species. The June 15th survey recorded fewer calls 19 (15% of total calls) than the June 27th or July 13th survey (45% and 40% of calls respectively)

Hoary Bats (*Lasiurus cinereus*) were by far the most commonly identified bat species based on the acoustic monitoring making up 66% of the identified calls from the three trips combined (Figure 3). Silver-haired Bats (*Lasionycteris noctivagans*) were the next most frequently identified call representing 20% of the total calls. Eastern Red Bats (*Lasiurus borealis*) were only identified once as a single confirmed species but were possibly heard 3 other times although each of these times, call signals may have been other species (Tri-coloured Bat (*Perimyotis subflavus*) or Little Brown Myotis (*Myotis lucifugus*)). Big Brown Bat and Tri-coloured Bat were never identified from individual calls.

Tri-coloured Bat has not been previously identified from Quetico which is approximately 200km north of the current known range.

Calls from Myotis species (ie SAR species susceptible to White Nose Syndrome) made up just over 6% of the total recorded calls. All but one of the calls were identified as Little Brown Myotis. One Northern Myotis was possibly heard although could not be clearly separated from Little Brown Myotis based on the recording. Northern Myotis have not been confirmed from Quetico but they have been identified from areas around the Park.

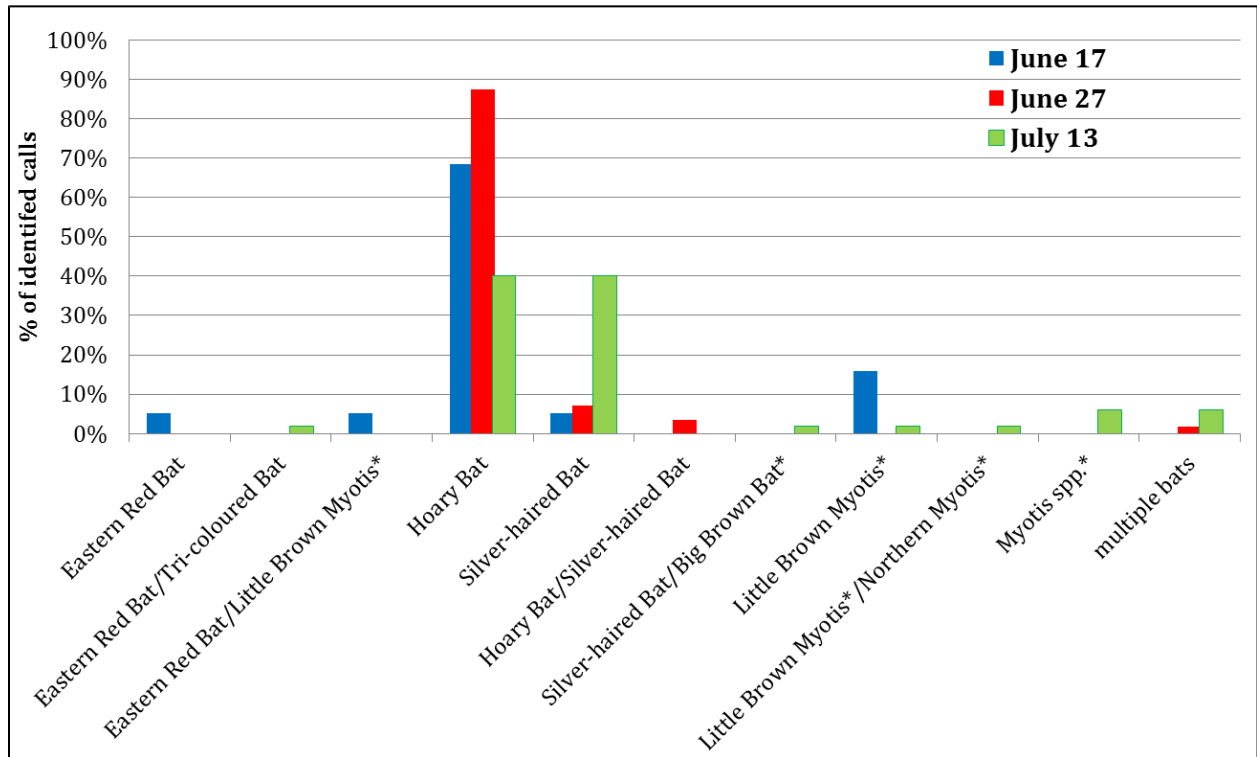


Figure 3. Bat species identified from acoustic transect surveys in Quetico Park on June 15, June 27 and July 13, 2017

Bat calls were most frequently recorded in the river section or wetlands that were close to treed shorelines (Figure 4). The open lake areas on Pickerel and French as well as the more open area in the wetland at the mouth of the Pickerel River tended to have fewer bats. The Species at Risk species (Little Brown Myotis and Northern Myotis) were distributed similarly to other bat species with a possible tendency to prefer more open water areas however sample sizes were too small to do a comparative analysis (Figure 5).

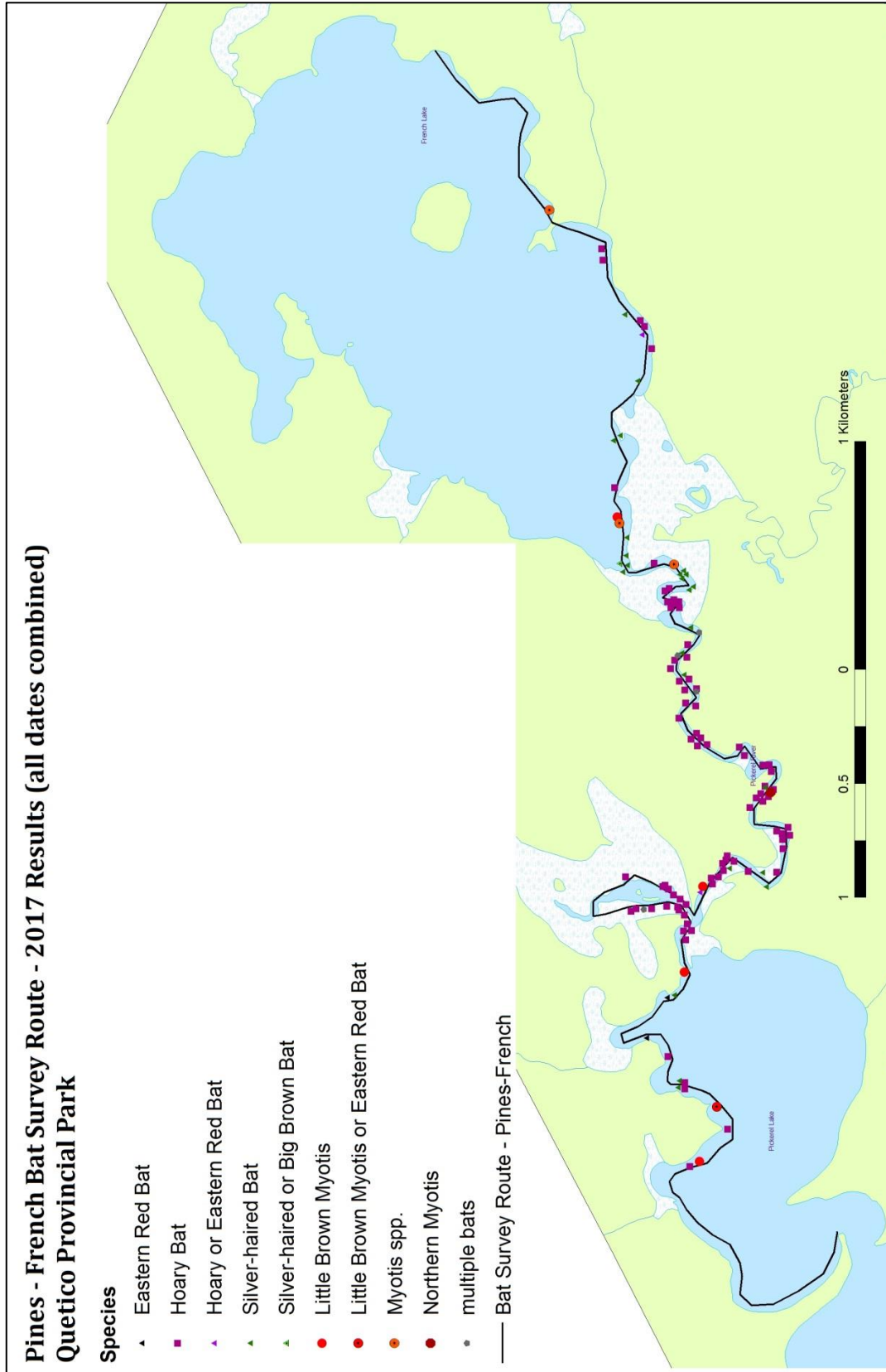


Figure 4. Approximate location of bats recorded during 2017 Acoustic bat survey – Quetico Provincial Park.

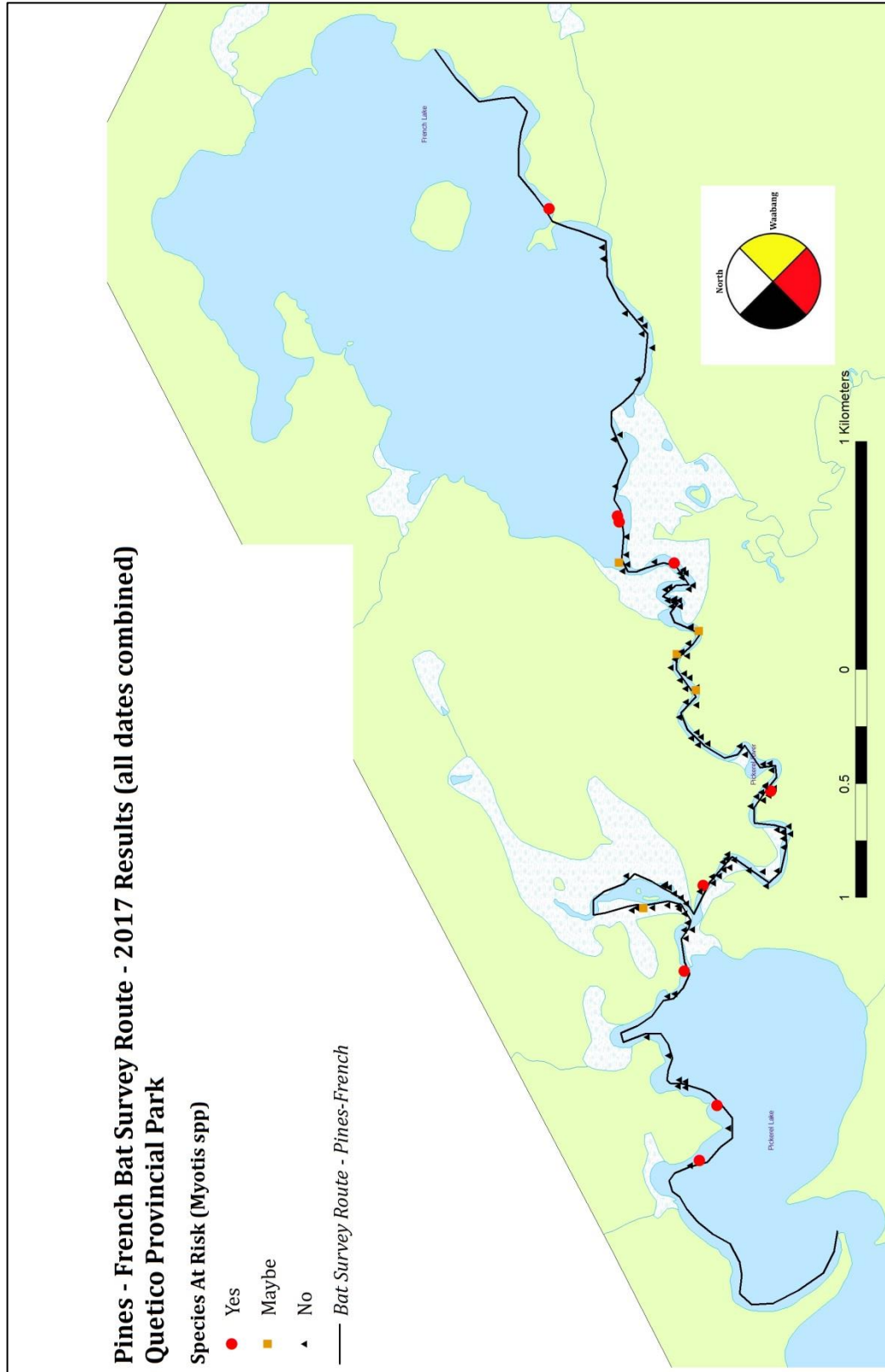


Figure 5. Approximate location of Species At Risk bats (i.e. Myotis spp.) relative to other bat species recorded during 2017 Acoustic bat survey – Quetico Provincial Park.

Discussion

These results represent the first year of a multiple year project. Future surveys will focus on tracking any changes in the relative abundance of *Myotis* species to other bat species to assess impacts of WNS on local bat populations.

Acknowledgements

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Appendix1: Useful Resources

<https://www.whitenosesyndrome.org/>
<http://www.cwhc-rclf.ca/docs/WNS%20Decontamination%20Protocol.Oct%2028%202014.pdf>

Current Status

<https://www.sciencebase.gov/gisviewer/wns/>