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Subject: Phase 2 – York Trunk Sewer:  
Bat Exit Surveys: Summary of Findings

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## INTRODUCTION

There are currently three bat species that are listed as *Endangered* under the Endangered Species Act, 2007 (ESA): Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Eastern Small-footed Bat (*Myotis leibii*). These species and their habitats are protected under Subsections 9(1) (species protection) and 10(1) (habitat protection) of the ESA. Until species-specific habitat regulations are developed, habitat for endangered and threatened species is protected according to the general definition of habitat in the ESA. Specifically, according to section 2(1), the Act protects “an area on which the species depends, directly or indirectly, to carry on its life processes, including processes such as preproduction, rearing, hibernation, migration or feeding”.

When undertaking wildlife surveys within the study area (including targeted cavity searches) in the spring of 2015, MMM Group located four cavities in a large willow tree (tree # 452) located along the proposed alignment of the York Trunk Sewer (Phase 2) that had the potential to provide bat maternity roosting habitat. Given its location relative to the proposed sewer alignment, this tree has been identified for removal. MMM subsequently recommended that bat exit surveys be completed (including visual and acoustic monitoring) to confirm whether the tree is providing maternity roosting habitat for bat species protected under the ESA. Correspondence with the Guelph District Ministry of Natural Resources and Forestry (MNRF) (Buck pers. comm. 2015) confirmed that bat exit surveys would be required to determine if protected *Myotis* species are using the tree as a maternity roost site. The City of Guelph gave approval to proceed with the additional surveys on July 14, 2015.

Based on available information and input from MNRF, maternal roosting habitat is the focus in relation to ESA compliance. While all bat life cycle component habitats are subject to provisions of the ESA, it is our understanding that MNRF Guelph considers maternal roosting habitat to be the most sensitive and limiting habitat on the landscape. Other habitats (i.e., day roosting habitat, foraging habitat, hibernacula) are to be considered, as relevant and where information is available.

## SURVEY APPROACH

In 2011 the MNRF prepared a document entitled *Bat and Bat Habitat: Guidelines for Wind Power Projects*. Although targeting wind power projects, the survey methodology within this document has been referenced as general guidance for other projects, with methods modified as appropriate. The Guelph District MNRF subsequently distributed a guidance document entitled *Use of Buildings and Isolated Trees by Species at Risk Bats: Survey Methodology* (October 2014) which adapted the methodology described in the 2011 document. MMM Group has also been corresponding directly with the MNRF to confirm survey expectations and approaches on a project by project basis. In June 2015, the MNRF Regional Operations Division released a *Technical Note for SAR Bats* with specific direction

for surveying woodlands and anthropogenic structures for bats. Direction for surveying hedgerows, edge habitats or individual trees was not included in this document.

The bat survey approach that MMM utilized for the York Trunk Sewer project drew upon the aforementioned guidance documents, MNRF correspondence and corporate experience. The location of the four cavities within one large tree allowed for exit surveys to be conducted by two observers (i.e., all four cavities were visible from two locations – see Photos 1 and 2, Appendix A). Surveys were conducted on two evenings in July 2015 under suitable weather conditions and from 30 minutes before dusk to 60 minutes after dusk. Surveyors maintained visual contact with the cavities throughout the 90 minute survey to record any bats observed exiting / entering the cavities. Two SM3BAT (Wildlife Acoustics) bat detectors equipped with SMM-U1 omnidirectional ultrasonic microphones were also set up prior to the survey. Microphones were positioned 3 metres above ground within the low clutter airspace and positioned within 5-10 m of the cavities in order to maximize bat detection and quality sound files. One microphone was positioned adjacent to the subject tree within the woodland and one on the opposite side of the gravel trail (see Photo 1, Appendix A).

## SURVEY RESULTS

Table 1 provides a summary of weather conditions and observations made during the two evening surveys. No bats were observed exiting or entering the cavities of the subject tree. However, on both evenings a few bats were observed flying overhead in the open area along the north edge of the woodland. A summary of the supplemental observations is provided in Table 2.

**Table 1. Bat Exit Survey Results**

Survey Date	Cavity Opening (s)	Weather Conditions		Survey Time		Bats Observed Exiting	Time of Observation(s)
		Start	End	Start	End		
July 16, 2015	North cavity (1)	Temp. (°C) – 19.2 Sky Code - 2 Wind Code - 0	Temp. (°C) – 18.9 Sky Code - 2 Wind Code - 0	20:58 pm	22:28 pm	0	n/a
	South cavities (3)					0	n/a
July 20, 2015	North cavity (1)	Temp. (°C) – 24 Sky Code - 1 Wind Code - 2	Temp. (°C) – 22 Sky Code - 1 Wind Code - 2	20:57 pm	22:27 pm	0	n/a
	South cavities (3)					0	n/a

**Table 2. Supplemental Bat Observations**

Survey Date	Cavity Opening	Time of Observation(s)	Tally	Notes on flight path and behaviour
July 16, 2015	North cavity (1)	21:26	1	Flying south towards woodland
		21:35	3	Flying east to west
		21:39	1	Flying north to south east of tree
		21:49	1	Flying north to south near west of tree
July 20, 2015	North cavity (1)	21:24-21:29	22	Flying east to west crossing over trail and foraging overhead. No more than five seen at one time.
		21:31-21:32	6	Flying east to west crossing over trail and foraging overhead. No more than five seen at one time.
		21:35	1	Flying east to west over trail
		21:38	1	Flying west to east over trail

**CONCLUSIONS**

No bats were observed exiting or entering the cavities of the subject tree (Tree # 452). Therefore Tree # 452 is not considered maternity roosting habitat for SAR bats and can be removed without contravention of the ESA, 2007. However, the tree removal must consider the breeding bird window (generally from April 1 through August 31) to ensure protection of nesting migratory birds in accordance with the Migratory Birds Convention Act, 1994 (MBCA). It is the responsibility of the proponent to ensure the protection of migratory birds.

**REFERENCES**

Ontario Ministry of Natural Resources (OMNR). 2011. Bats and Bat Habitats: Guidelines for Wind Power Projects. Second Edition. July 2011.

Ministry of Natural Resources and Forestry (MNR) Regional Operations Division. 2015. Technical Note: Species at Risk (SAR) Bats. Internal Use Only. June 2015.

Ministry of Natural Resources and Forestry (Guelph District). 2014. Use of Buildings and Isolated Trees by Species at Risk Bats: Survey Methodology. October 2014.

Buck, G. 2015. Personal Communication with Graham Buck, Management Biologist, Ministry of Natural Resources and Forestry, Guelph District. E-mail dated July 17, 2015.

**APPENDIX A. SITE PHOTOS**



Photo 1. Exit survey microphone location with north-facing cavity visible (circled in red).



Photo 2. South-facing cavities (circled in red)