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Introduction

FRi Ecological Services was retained by Wayne Simpson & Associates to complete an Environmental Impact Study for a proposed 6-lot consent in the former Township of Franklin in the Township of Lake of Bays. The property fronts on Spring Lake Road on approximately 6.1 hectares of land with three 0.81ha lots proposed to be severed and the remainder retained (Figure 1).

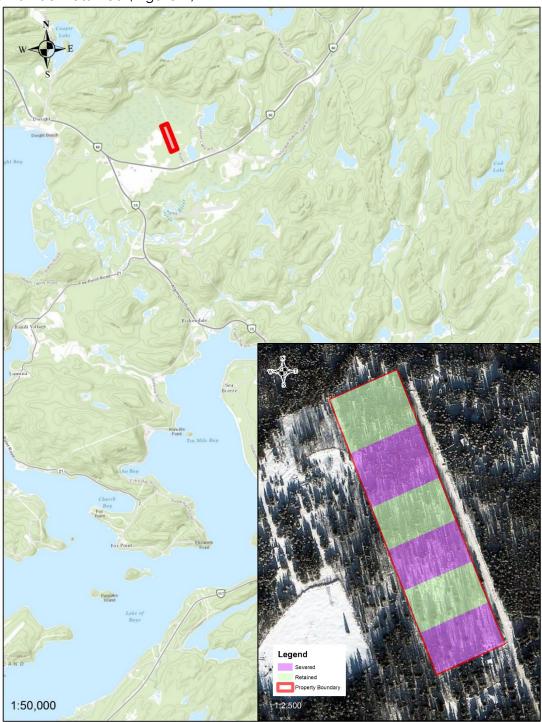


Figure 1: Location and proposed lot layout on subject property

A review of the available natural heritage information was conducted and the Ministry of Natural Resources and Forestry (MNRF) was consulted for additional information with respect to natural heritage values to guide field investigations and reporting. The following sources were reviewed:

- Make-a-Map, MNRF, Natural Heritage Values
- Township of Lake of Bays Official Plan
- e-Bird
- Atlas of the Breeding Birds of Ontario
- Ontario Reptile and Amphibian Atlas

Five natural heritage categories were considered to complete an EIS that is consistent with the *Provincial Policy Statement* (2014) (PPS), and the Township of Lake of Bays Official Plan (OP) and further scoped by township staff. Considerations included habitat of endangered and threatened species, significant wetlands, significant wildlife habitat, Areas of Natural and Scientific Interest, and fish habitat.

Field investigations were conducted in Summer 2019 on the subject lands. Natural heritage information and background values on and within 120m of the subject lands were consolidated by FRi biologists prior to conducting field investigations.

Ecological Land Classification

Ecological land classification or ecosites are determined by assessing the soil and vegetation characteristics of a site and assisted in assessing the potential presence of habitat and natural heritage features. The ecosites on the property were:

- G052Tt Dry to Fresh, Coarse: Spruce Fir Conifer
- G055Tt Dry to Fresh, Coarse: Aspen Birch Hardwood

These two ecosites exhibit deep, coarse, mineral soils (Photo 1) and are located on the subject lands as represented in Figure 2.



Photo 1: Coarse, mineral soils identified using a hand auger in the field



Figure 2: Mapped ecosites on the subject lands

G052Tt Dry to Fresh, Coarse: Red Pine - White Pine Conifer

This ecosite is represented for the most part to the north of the subject property. Trees are mostly balsam fir (*Abies balsamea*), spruce (*Picea sp.*) with some poplar (*Populus* sp.), red maple (*Acer rubrum*), and occasional eastern white pine (*Pinus strobus*). Understory species include bracken fern (*Pteridium aquilinum*), bunch berry (*Cornus canadensis*), wild sarsaparilla (*Aralia nudicaulis*), and sphagnum spp.



Photo 2: Representative photo of the G052Tt ecosite

G055Tt Dry to Fresh, Coarse: Aspen - Birch Hardwood

The G055Tt ecosite is present mainly in the south half of the subject property with a second, smaller region mapped slightly more to the north. The hardwood canopy is dominated aspen and birch species with red maple (*Acer rubrum*). Balsam fir (*Abies balsamea*), beaked hazel (*Corylus cornuta*), fly honeysuckle (*Lonicera canadensis*), wild sarsaparilla (*Aralia nudicaulis*), and bracken fern (*Pteridium aquilinum*) are all found in the understory.



Photo 3: Representative photo of G055Tt ecosite

Habitat of Endangered and Threatened Species

A review of the available information, consultation with approval authorities in combination with available habitat present on the site scoped the list of potential endangered and threatened species and habitat for the subject property. Species with potential to occur on the site include SAR Bat Species (Little Brown Myotis, Northern Myotis, and Tri-colored Bat), Chimney Swift, and Eastern Hog-nosed Snake. The presence of potential species at risk habitat was assessed within the property boundary and the adjacent 120 metres to the extent possible.

Species listed as endangered or threatened receive both species and habitat protection. Proposed work which may impact endangered or threatened species or their habitat may be subject to authorizations under the Endangered Species Act (ESA, 2007). The ESA has provisions for exemptions, permitting, and registration depending on the project and species impacted.

SAR Bats

Little Brown Myotis, Northern Myotis, and Tricolored Bat are bat species that were recently listed as Endangered species at risk in Ontario. They are experiencing significant population declines because of a disease called White Nose Syndrome.

During the active season, bats feed on insects at night and roost during the day. They roost either individually (males) or in groups (females with pups), usually in warm, elevated spaces. Bats often choose human-created roosts such as attics and abandoned buildings as they offer optimum habitat for summer roosts, usually close to water and open areas for foraging. Natural roosts include large hollow trees and spaces behind loose bark. All species hibernate in caves and abandoned mines in October through April where temperatures remain above freezing and humidity levels are high.¹

Little Brown Myotis (Myotis lucifugus)

According to the Significant Wildlife Habitat Technical Guide, Appendix G4, Table G4, little brown myotis use caves, quarries, tunnels, hollow trees or buildings for roosting. Maternity colonies are most often found in warm dark areas, like barns, attics and old buildings. They overwinter in caves and mine adits (horizontal mine shafts) in Ontario. This species forages mainly over open areas including wetlands and near forest edges where insect densities are greater.³

Northern Myotis (Myotis septentrionalis)

According to the Significant Wildlife Habitat Technical Guide, Appendix G4, Table G4, Northern myotis roost in hollow trees or under loose bark. Males roost individually while

¹ Dobbyn, S. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists. 120 pp.

² Ontario Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. Toronto: Queen's Printer for Ontario.

³ Forbes, G. 2012. COSEWIC. Technical Summary and Supporting Information for an Emergency Assessment of the Little Brown Myotis, *Myotis lucifugus*. 25pp.

females are found in maternity colonies of up to 60 adults. They overwinter in mines and caves similar to other species which hibernate in Ontario. Unlike little brown myotis, Northern myotis hunt primarily in forested areas, below the canopy.

Tricolored Bat (*Perimyotis subflavus*)

The tri-colored bat creates day roosts and maternity colonies in older forests and occasionally in barns and other structures. They are known to be present in open woods near water and will roost in trees, cliffs crevices, buildings or caves. They will hibernate preferably in draft-free and damp warm caves in mines or rock crevices.⁴

Potential for SAR Bats

The Ministry of Natural Resources & Forestry's *Species at Risk (SAR) Technical Note* (2015)⁵ lists forested ecosites which have the potential to function as or contain bat habitat based on specific criteria. Ecosites listed as 'candidate SAR bat habitat' according to the technical note are not found on the property. The subject lands are largely conifer and relatively thin, with no candidate bat trees observed during field investigations.

Acoustic monitoring surveys were not conducted due to the lack of suitable habitat and timing of the study, however an avoidance approach to vegetation clearing is recommended to achieve impact avoidance for bats. Although the subject property likely does not support high quality roost habitat for bats, the implementation of strategically-timed tree and vegetation removal will ensure that negative impacts to any individual bats that may transiently use the subject property will be avoided. Most bats show clearly defined seasonal changes in behaviour and roost selection, so tree removal and vegetation clearing can be strategically timed to occur outside these known time periods when these critical life processes take place. It is recommended that tree clearing and vegetation removal on the subject lands occurs outside of the active window for bat species which occurs from approximately April 1 to September 30 of any given year.

Potential for Bat Hibernacula

The subject property does not offer suitable habitat for bat hibernacula; confirmed through field investigations and a search of the Ministry of Northern Development and Mines (MNDM) "AMIS Features" geodatabase. No impacts to any of the listed species at risk bats or critical habitat are expected.

Chimney Swift (Chaetura pelagica)

Chimney swifts are an aerial insectivore; commonly seen foraging over open areas and wetlands. According to the Chimney Swift COSEWIC Status Report (2007), cavity trees with a diameter at breast height (DBH) greater than 50cm are required for nesting. Common tree species hosting nesting or roosting sites are white pine, yellow birch and sometimes aspen. While not common, pileated woodpecker cavities are sometimes

⁴ OMNR. 2000. Significant wildlife habitat technical guide. Appendix G-Table G-4. p. 234

⁵ Technical Note, Species at Risk (SAR) Bats, Little Brown Myotis and Northern Myotis. Regional Operations Division, June 2015.

used for nesting and roosting. Communities supporting trees >50 cm DBH and pileated woodpecker cavities are typical of old growth forests.

More typically, the species is found nesting and roosting in human-created structures such as brick chimneys. At times, especially during migration and inclement weather, roosts may host hundreds or even thousands of birds. Structures that function as nest features are usually occupied by a single breeding pair. Breeding pairs exhibit high site fidelity for structures used as nests and roosts and will continue to use these features as long as they are functional. In Ontario, swifts return in late April through early May and breed May through July. Migration begins in late August and is usually complete by mid-October.

The loss of preferred artificial nest features, such as brick chimneys, has resulted in significant population declines in the species over a short time period. Secondarily, the loss of old growth forests and large cavity trees has resulted in fewer natural nesting and roosting structures. ^{6 7 8 9 10}

Potential for Chimney Swifts & Habitat

The subject property and surrounding area do not support large, deciduous cavity trees or snags with DBH greater than 50cm nor anthropogenic structures which are required by Chimney Swifts for roosting and nesting. No suitable habitat is present for Chimney Swifts on the subject property and no further study is required.

Eastern Hog-nosed Snake (Heterodon platirhinos)

Eastern hog-nosed snakes are highly mobile and have large home ranges. Habitat features which are required by hog-nosed snakes are widespread and in relatively abundant supply at the northern edge of the species' range.¹¹ ¹² ¹³

Ontario has adopted the federal recovery strategy for hog-nosed snakes and included an addendum which outlines the recommended areas to be considered for a habitat regulation. Egg-laying and hibernation sites are the areas described as critical habitat; essential for the long-term persistence of the species. Habitat used for foraging, thermoregulating, mating and dispersal is also important. Contiguous natural habitat is

⁶ OMNR. 2013. General Habitat Description for the Chimney Swift.

http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@species/documents/document/mnr_sar_ghd_chmny_swft_en.pdf

⁷ http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=951

⁸ http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_CHMNY_SWFT_EN.html

⁹ Cink, Calvin L. and Charles T. Collins. 2002. Chimney Swift (*Chaetura pelagica*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/646

¹⁰ COSEWIC 2007. COSEWIC assessment and status report on the Chimney Swift *Chaetura pelagica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 49 pp. (www.sararegistry.gc.ca/status/status e.cfm).

¹¹ Kraus, T. 2011. Recovery Strategy for the Eastern Hog-nosed Snake (*Heterodon platirhinos*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. i + 6 pp + Appendix vi + 24 pp. Adoption of the Recovery Strategy for the Eastern Hog-nosed Snake (*Heterodon platirhinos*) in Canada Seburn, 2009.

¹² COSEWIC. 2007. COSEWIC assessment and update status report on the Eastern Hog-nosed Snake *Heterodon platirhinos* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 36 pp. (www.sararegistry.gc.ca/status/status e.cfm)

¹³ http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR SAR ESTRN HG NSD SNK EN.html

generally described as open areas (meadow, sand, beach and beach dunes, open forest, brushland, rock barrens), wetlands, forest and forest edge in the species range.¹⁴

As outlined in the Recovery Strategy for the Eastern Hog-nosed Snake in Canada states the five physical features that are used to describe preferred habitat. These include well-drained loose or sandy soil, open vegetative cover such as open woods, brushland or forest edge, proximity to water and climatic conditions typical of the eastern deciduous forest biome.

Female hog-nosed snakes lay eggs beginning in late June in sandy soils, sometimes under rocks and driftwood and tend to use the same general area for nesting in subsequent years. Hibernation sites are also found in sandy soils; and unlike other snakes, the Eastern hog-nosed usually hibernates alone. Hibernation takes place from October through April, with sites documented in upland intolerant forests below the frost line.

Potential for Eastern Hog-nosed Snakes & Habitat

Due to the species' large home range and regionally abundant habitat, it is impossible to completely rule out the potential presence of hog-nosed snakes on the property. Field investigations confirmed a notable lack of wetlands, rock barrens, and large open areas on the property. Overall, given the lack of specific critical habitat within the proposed development area, it is unlikely that the critical life stages such as oviposition and hibernation of Eastern hog-nosed snakes will be negatively impacted by the proposed development.

Significant Wetlands

There are no wetlands; provincially-evaluated or otherwise, found on the property. No negative impacts are anticipated to wetlands as a result of the proposed development.

Significant Wildlife Habitat

The site was surveyed for potential significant wildlife habitat including seasonal concentration areas, rare vegetation communities and specialised habitat for wildlife, habitat of species of conservation concern, and animal movement corridors. Significant wildlife habitat investigations are guided primarily by two documents, The Significant Wildlife Habitat Technical Guide (SWHTG) (MNR 2000) and the Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (SWHCS-5E), (MNRF 2015).

For each of the four categories, the ecosites were cross-referenced with potential significant wildlife habitats and the associated criterion for significance was assessed.

Raptor Wintering Area (G052, G055)

The G048 and G065 tall-treed ecosites have the potential to function as Raptor Wintering habitat. In order to meet the criteria for significance, the ecosite must be adjacent a large

field area to provide foraging opportunities. There are no large field ecosites adjacent the property and it is unlikely that raptors would be found wintering on the subject lands. No further study is required.

Bat Maternity Colonies (G055)

The trees found on the property are largely thin and do not possess the required diameter at breast height (DBH) or decay class to support tree-roosting bats with pups. This lack of suitable habitat; most notably large snags in early stages of decay found in mature, deciduous forest stands, precludes the possibility of bat maternity habitat from the subject property.

Deer Yarding/Wintering Areas: (G052)

Deer migrate seasonally to deer yards in the winter along migration trails to deer yarding areas that are used for generations. Successful deer populations require three basic habitat components: a summer range, core wintering areas, and winter staging areas. The latter two winter components are known as Stratum I and Stratum II habitat, respectively. In the colder months, deer will congregate in Stratum II habitat where deciduous browse is plentiful and mast producing trees are abundant. Deer take advantage of the nourishment provided by these forested staging areas, which are often adjacent core wintering areas (Stratum I). Core wintering areas serve to protect congregations of deer from cold temperatures, deep snow, and predators. These forested ecosites effectively intercept snow providing both significantly reduced snow depths and access to woody browse.

The most recent 'Wintering' GIS layer from LIO/MNRF's database shows the deer yard and wintering areas (Stratum I and II) to be present on the subject lands (Figure 3). The subject property is included in a Stratum I and II regional classification as determined by MNRF aerial surveys conducted in 1987 and 1989. As outlined in the OP, it is the township's conifer forests, particularly hemlock, that provide shelter, food and travel corridors for deer during the winter. Field investigations on the property did not reveal any physical evidence typical of significant use by deer populations such as game trails, browse, or scat and the subject lands lack large hemlock or cedar trees. The canopy is relatively open and would not provide enough shelter from snowfall to support core deer wintering (Photos 4 & 5).



Photos 4 & 5: Representative photos of the canopy openness found on the subject property

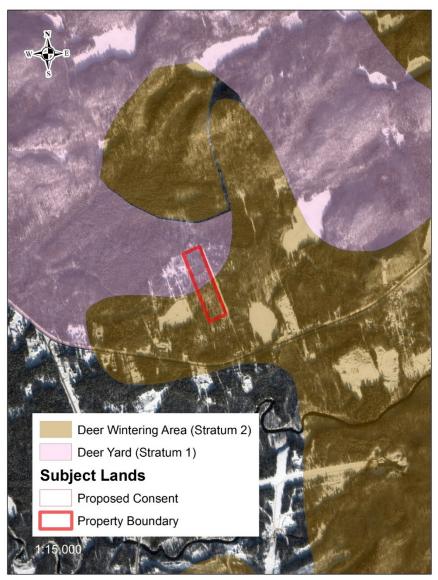


Figure 3: Deer Wintering Habitat mapped in 1987 & 1989 MNRF aerial surveys

Field investigations and the subsequent assessment of potential for deer wintering habitat suggests that there is no suitable wintering habitat on the property.

Despite the noted absence of suitable deer wintering habitat on the subject property, it is recommended that building envelopes are setback a minimum of 7.5 meters from Spring Lake Road, as mapped in Figure 4. This setback will serve to retain vegetation in a natural state between the road corridor and the building envelopes.

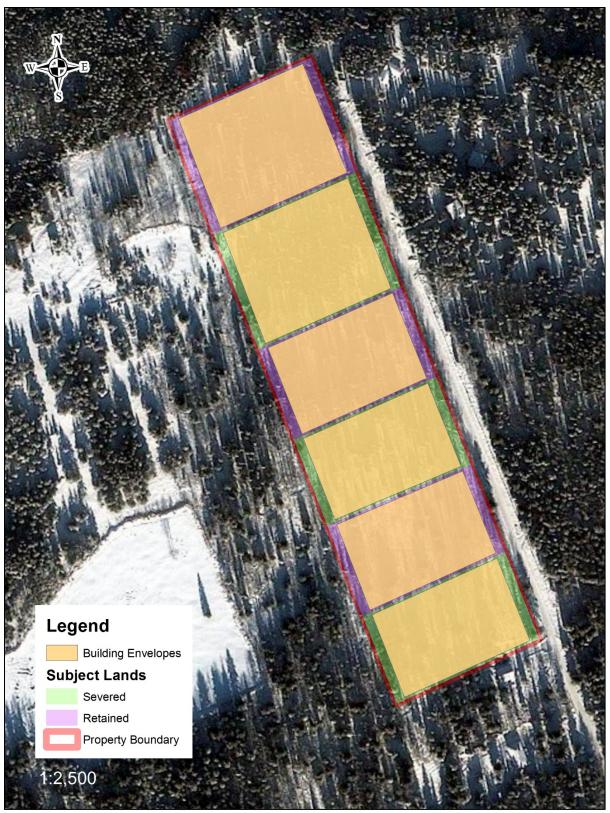


Figure 4: Recommended building envelopes setback 7.5m from Spring Lake Rd

Habitat of Species of Conservation Concern

Special Concern Species

SAR species that are listed as *special concern* do not receive protection under the *Endangered Species Act*, rather they are considered in significant wildlife discussions. Proposed work which may impact special concern species should consider the provisions outlined in the PPS made under the *Planning Act (1990)*. There was potential for the following 'special concern' species at risk, including Canada Warbler, Olive-sided Flycatcher, and Wood Thrush.

Canada Warbler (Cardellina canadensis)

Canada Warblers are most often found in cool, wet, low-lying areas; including swamps, sphagnum bogs and moist forest edges and openings. They are often associated with sites that have a dense understory near open water, vegetation associations including alder and willow. Female Canada Warblers build a loosely constructed cup-shaped nest on or near the ground in early May. The nest is well-concealed, often in thickets or areas with dense ferns. These are typically wet, mossy areas within forest among ferns, stumps, and fallen logs. Nests have been documented in a variety of micro-habitats including within a recessed hole of upturned tree root mass, rotting tree stump or sphagnum moss hummock. They're less often reported within a clump of grass, at base of tree stump, tucked under overhanging bank, beside fallen log, in rock cavity, at base of sedge tussock, or in a brush pile. Eggs are laid at the end of May, fledglings leave the nest and are ready to migrate by the end of July, early August. Migration peaks at the end of August, beginning of September.

Potential for Canada Warbler

There is no suitable habitat for Canada warblers on the subject property. No further studies are required.

Eastern Wood-pewee (Contopus virens)

Eastern Wood-pewees are found in almost every forested ecosite in Ontario, usually associated with edge habitat and less often found in wetter sites. They are a medium-sized flycatcher with a signature 'pee-a-wee' call. Wood-pewees perch on dead branches in the mid-canopy and sally out after flying insects. Its diet includes flies, bugs, butterflies, moths, bees, wasps, beetles, grasshoppers, crickets, stoneflies, and mayflies. The pewee also eats small amounts of vegetable matter, including the berries and seeds of dogwood, blueberry, raspberry, and poison ivy. They nest mainly in deciduous saplings including oak and maple, and less so in conifer, usually restricted to pine species. A small, inconspicuous cup nest is built along a branch, woven with grasses and other vegetation and covered with lichen. Their size and design provide superb camouflage. Pewees are territorial, averaging territories 2 – 8 hectares in size.

Potential for Eastern Wood-pewee

There is potentially suitable habitat for eastern wood pewees on the subject property. Eastern wood-pewees nest between June 6 until August 17 within the region. The

broader forested landscape in this area would provide suitable habitat for this species and it is relatively common in this area. The small amount of young forest to be cleared for this development would not constitute a significant impact to the species. To protect any nesting activity of this species and all migratory birds, it is recommended that all vegetation clearing occur outside of the typical breeding season of April 15 to August 31. This timing restriction should serve to avoid impacts to individual birds and eliminate impacts to nests and nestlings. Provided the suggested timing restrictions are respected, no impacts to eastern wood-pewees are anticipated.

Olive-sided Flycatcher (Contopus cooperi)

In the Ontario portion of its range, the olive-sided flycatcher breeds in the boreal forest, specifically riparian zones, bogs, cutovers and areas of recent fire. Olive-sided flycatchers are a late migrant, arriving in Ontario from mid-May through mid-June. This late migration often results in migrating individuals incorrectly being identified as breeders.

Olive-sided flycatchers are aerial insectivores, foraging above or near the top of the adjacent forest canopy. They use a technique known as 'sallying' to capture flying insects including bees, wasps, flying ants and less frequently moths from a perch. Coniferous trees, tall snags and semi-open areas for foraging are important features in a breeding territory. Males and females build open-cup nests usually in a conifer tree; approximately 1 metre away from the trunk of the tree and between 3 and 15 metres off the ground although there is some variability in nest heights. Typical clutch includes 3 – 4 eggs which incubate for approximately two weeks. Hatchlings are fed at the nest for another two weeks. Fire suppression, changes to habitat including those related to forest management practices have resulted in this species decline.¹⁵

Potential for Olive-sided Flycatcher

There is no suitable habitat for Canada warblers on the subject property. No further studies are required.

¹⁵ Altman, Bob and Rex Sallabanks. 2012. Olive-sided Flycatcher (*Contopus cooperi*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/502

Wood Thrush (Hylocichla mustelina)

The wood thrush lives in mature deciduous and mixed (conifer-deciduous) forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. These birds prefer large forests but will also use smaller stands of trees. They build their nests in living saplings, trees or shrubs, usually in sugar maple or American beech.¹⁶

Potential for Wood Thrush

Wood thrushes have some potential to be found using the property. Wood thrushes typically nest from May 20th to July 29th of any given year. The overall timing restriction for breeding birds and SAR bats should serve to avoid impacts to individual birds and eliminate impacts to nests and nestlings. Provided the suggested timing restrictions are respected, no negative impacts to wood thrushes are anticipated.

Areas of Natural and Scientific Interest (ANSIs)

There are no ANSIs present on or near the subject lands. No further study is required.

Fish Habitat

There are no wetlands, watercourses or waterbodies found on the subject property as confirmed by field investigations and no suitable fish habitat is present. No further study is required.

Natural Heritage Features Summary & Recommendations

The following table summarizes the findings and provides recommendations to move forward while ensuring the intent of the natural heritage sections of the 2014 PPS and the Township of Lake of Bays Official Plan (OP) are met.

General Recommendations

The following general recommendations are included as a best practice approach to site clearing, vegetation removal and construction:

- o To minimize impacts to wildlife, site clearing and vegetation removal are recommended to occur from October 1 to March 31 of any given year.
 - Once site clearing and vegetation removal are completed, construction activities can proceed any time of the year
 - The timing restriction is intended to eliminate or reduce the risk of harm to breeding/active wildlife during the active season including bats and any special concern breeding birds with potential to occur on the property such as eastern wood-pewees and wood thrushes
 - Site clearing and vegetation removal may be permitted during the active season (April 1 to September 30); provided the site is 'swept' and confirmed clear of breeding birds and other wildlife by a qualified individual

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¹⁶ https://www.ontario.ca/page/wood-thrush

Conclusions

A habitat-based approach effectively identified any values with some potential to be present on the subject property. Several SAR species can be ruled out as they are lacking suitable habitat on the property. Those species at risk that have been identified as having a potential presence on the site are noted within this report and the associated mitigation measures and impact avoidance recommendations have been outlined. Field investigations on the property also ruled out the potential for candidate significant wildlife habitat features, such as seasonal concentration areas, as well as significant wetlands, and fish habitat present on or adjacent the subject property.

It is our opinion that the proposed consent with frontage on Spring Lake Road can proceed while minimizing or eliminating potential impacts on the natural heritage features and functions on and adjacent the site. If the recommended mitigation measures outlined within this report are followed, the proposed development will be consistent with section 2.1 of the PPS and the Township of Lake of Bays Official Plan as it relates to natural heritage features and areas.

Respectfully Submitted,

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Biologist