APPENDIX R TERRESTRIAL WILDLIFE STUDY 2013

TREASURY METALS INC.
GOLIATH GOLD PROJECT
TERRESTRIAL WILDLIFE BASELINE STUDY (2013)

Prepared for:

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February 2014

DST File No.: OE-KN-018101

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EXECUTIVE SUMMARY

Treasury Metals Inc. (TML) is a Canadian gold exploration and development company focused on its 100% owned high-grade Goliath Gold Project (the Project), situated in the Kenora/Dryden Mining District of northwestern Ontario. The Project is located adjacent to the village of Wabigoon, Ontario, approximately 20 km east of the city center of Dryden or 330 km west of the city of Thunder Bay. The Project is expected to require the completion of federal and provincial environmental assessments and permits prior to development. To support ongoing drilling activities and project permitting, TML retained DST Consulting Engineers Inc. (DST) to gather baseline data and to submit environmental reports summarizing data collection efforts that occurred in 2012 and 2013. Terrestrial baseline data collection involved surveys for breeding birds, Whip-poor-wills (WPW), waterfowl, marshbirds, amphibians, reptiles, and small mammals.

In general, bird densities and species richness observed during the field surveys were typical of the Boreal forest. A total of 83 avian species were observed. Of the 83 avian species, 33 species were noted as probable breeders based on the 2012 surveys. Species richness was the highest in point count stations that were in deciduous habitats. Avian species at risk (SAR) detected at the Project Site included Bald Eagle, Common Nighthawk, Barn Swallow, Canada Warbler and Olive-sided Flycatcher. No Whip-poor-will were detected during surveys.

All animals captured during the small mammal trapping program are common throughout northwestern Ontario and their capture rates and relative abundance are comparable with those found in similar habitats. All species captured are habitat generalists with the exception of southern red-backed voles and red squirrels, which tend to prefer mature wooded areas as opposed to disturbed or regenerating sites.

Ultrasonic recorders were set up at six locations, with bats being recorded at four of the locations. Although exact population numbers are not determinable based on recorder information, there was a clear indication that bats are present within the Project study area. In January 2013, three species of bats were officially added to the Ontario SAR list (Tri-coloured, Little brown myotis, and Northern myotis).

A total of 21 sites were surveyed for amphibians in conjunction with the WPW studies. These sites were visited on two separate occasions; once in June and again in July 2012. Species encountered included: Spring peepers *(Pseudacris crucifer)*, Grey treefrogs, Wood frogs and Boreal Chorus frog (Table 3.10). No reptile species were observed during any surveys. A blue spotted salamander was captured in a pitfall trap in October as well.

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1. INTRODUCTION

Treasury Metals Inc. (TML) is a Canadian gold exploration and development company focused on its 100% owned high-grade Goliath Gold Project (the Project), situated in the Kenora/Dryden Mining District of northwestern Ontario. The Project is located adjacent to the village of Wabigoon, Ontario, approximately 20 km east of the city center of Dryden or 330 km west of the city of Thunder Bay (refer to Figure 1.1).

The Project Area consists largely of two historic properties, the “Thunder Lake Property”, previously owned by Teck-Corona and the “Laramide Property”, located partially within both the Hartman and Zealand townships. The properties have a total area of approximately 4,881 hectares, comprised of 4,064 hectares of 137 unpatented land claims and 19 patented land claims for the remainder. Treasury holds the entire project subject to specific royalties on 13 of the patented land parcels. The site can be readily accessed year round from Highway 17 and from multiple public secondary roads that extend north from the highway, including Anderson Road, Maggrah Road and Tree Nursery Road.

The Project is expected to require the completion of federal and provincial environmental assessments and permits prior to development. To support ongoing drilling activities and project permitting, TML retained DST Consulting Engineers Inc. (DST) to gather baseline data and to submit environmental reports summarizing data collection efforts that occurred in 2012 and 2013.

The Baseline Assessment Studies include the following components:

- Sediment Quality;
- Benthic Invertebrates Community;
- Fisheries;
- Wildlife;
- Birds;
- Wetlands and vegetation; and,
- Hydrology.

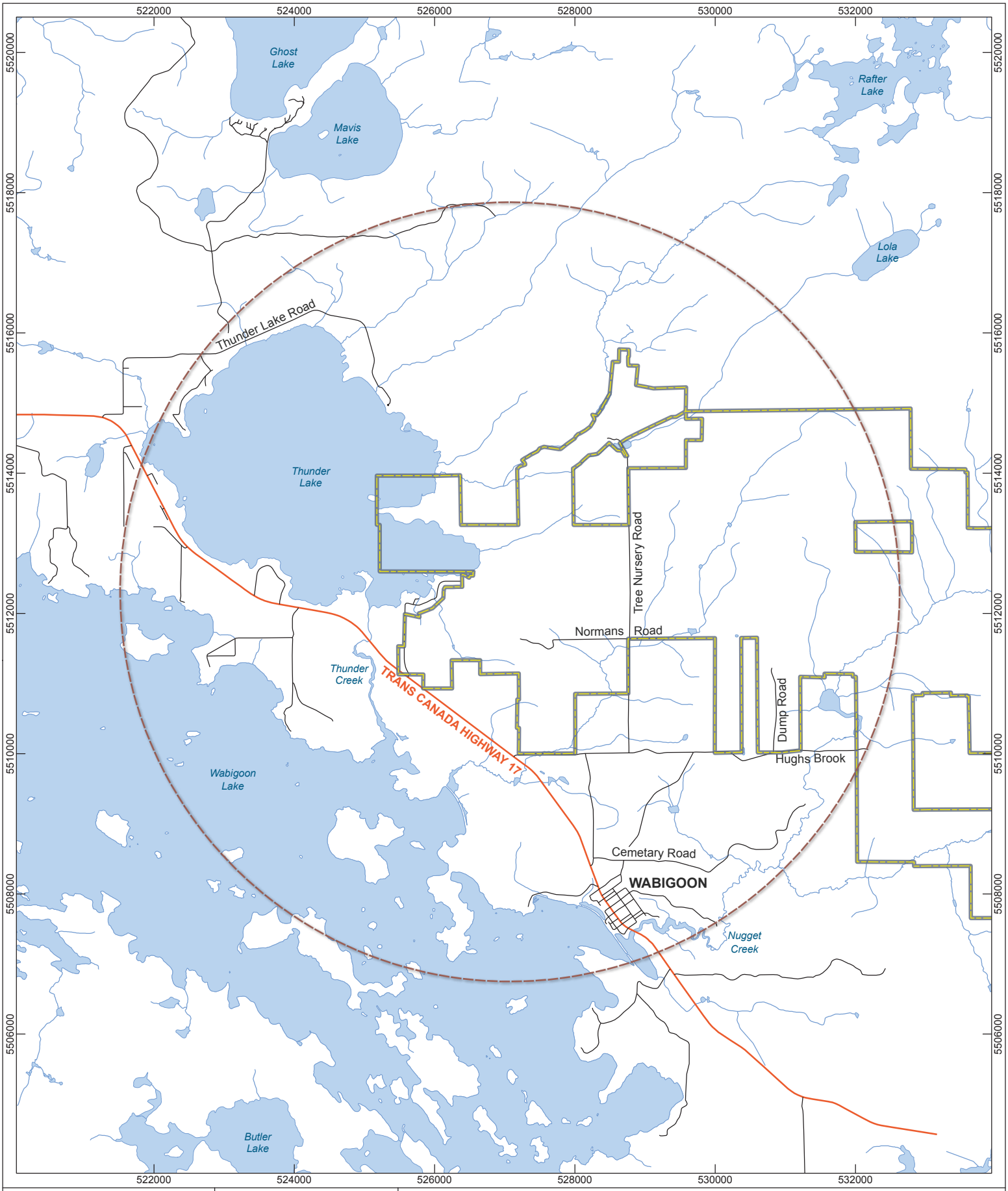
The following report presents the results of the terrestrial wildlife component for the 2012 terrestrial baseline data collection efforts.

1.1 Study Areas

The project site is located within the Lake Wabigoon Ecoregion (Ecoregion 4S) which extends from the northern portion of the Lake of the Woods east to Lac Seul and Dryden. The climate in Ecoregion 4S is cool and dry with warm, moist summers and cold winters. The vegetation of ecoregion 4S is predominantly mixed forest (25%), sparse forest including peat lands (24%), and

coniferous forest (14%). Water makes up about 24%. This ecoregion is within the Lower English River Section in the Boreal Forest Region. Mixed stands of boreal forest species, such as trembling aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*), and white spruce (*Picea glauca*) make up much of the forest cover, on well drained sites. Jack pine (*Pinus banksiana*), balsam fir (*Abies balsamea*), and white birch (*Betula papyrifera*) are common typically on well-drained soils but are also prevalent on and around bogs and other wetlands. Extensive peat lands with black spruce (*Picea mariana*), tamarack (*Larix laricina)*, eastern white cedar (*Thuja occidentalis*), willow (*Salix spp*.), and speckled alder occupy low lying, poorly drained sites. Red and white pine (*P. resinosa and P. strobus*) communities are restricted to warmer than average sites.

In order to keep data collection efforts consistent among years, DST utilized the Project Study Area delineated by Kloen Crippen Berger Ltd (KCB) (Figure 1.1). This study area is approximately 10 km in radius centered on the site and encompasses a total area of 9,492.49 ha. The study area encompasses Treasury's claims as well as the areas immediately adjacent to these locations that could be physically impacted by development. Avian, amphibian, small mammal, and bat surveys were conducted within the Project Study area, but were concentrated in areas of potential disturbance such as the proposed open pit, tailings area and Treasury's office location.



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

LOCATION OF GOLIATH GOLD PROJECT STUDY AREA

FIGURE: 1.1 | REV.01

SCALE: 70000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 18 FEB. 2014
CHECK: XX ADD DATE
REVIEW: XX ADD DATE

LEGEND

- Local Study Area
- Property Boundary
- Highway
- Local Road
- Waterbody
- Watercourse

N

0 500 1,000 1,500
Meters

REFERENCE

Data by Treasury Metals Inc. and DST Consulting
Projection: NAD83 UTM Zone 15N

TREASURY METALS INCORPORATED

DST consulting engineers

2. METHODOLOGY

2.1. Background Research

The Ontario Ministry of Natural Resources (OMNR) Species at Risk (SAR) website was consulted, in order to determine what SAR had the potential to occur within the Project Study Area. The Natural Heritage Information Centre (NHIC) database and the Ontario Breeding Bird Atlas (OBBA) were reviewed to determine what provincially significant species and breeding birds have been observed in the study area.

The NHIC compiles, maintains and distributes information on flora, fauna, plant communities and areas of conservation concern in Ontario. Global and provincial ranks are used to prioritize conservation and protection efforts focused on globally and provincially rare species. The NHIC provides a provincial designation prioritizing protection efforts for each species, known as the S-Rank. These ranks have been assigned by the NHIC based on current scientific information, and follow a systematic ranking procedure developed by The Nature Conservancy. Ranks are determined by the estimated number of occurrences, community extent, and community range within the province. The provincial ranks are as follows (NHIC 2009):

- SH - Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could receive the SH designation without a 20-40 year delay if the only known occurrences in a province were destroyed or if an extensive search was unsuccessful. The SH rank is reserved for species or communities for which some effort has been made to relocate occurrences.
- S1 Critically Imperiled – Critically imperiled in the province due to extreme rarity, or steep declines.
- S2 Imperiled – Imperiled in the province due to very restricted range, very few populations (≤ 20), or steep declines.
- S3 Vulnerable – Vulnerable in the province due to restricted range, relatively few populations (≤ 80), or steep declines.
- S4 Apparently Secure – Uncommon but not rare; may be cause for long-term concern due to declines or other factors.

The OBBA is a volunteer organization that creates detailed maps of the relative abundance of many bird species by compiling point count data from all over Ontario. The point count data is summarized within 10 km x 10 km squares that overlay the entire province. The Project study area falls within Breeding Bird Atlas region 39 – English River. One square (15WR21) overlapped the study area.

2.2 Bird Surveys

2.2.1 *Breeding Bird Survey*

Breeding bird surveys occurred throughout the Project study area, with a focus on the areas potentially impacted by development and followed the protocol described for the Ontario Breeding Bird Atlas (Cadman et al. 2007). This protocol uses a point-count method and requires two visits between the dates of May 24th, and June 17th. Ideally sites are visited under clear, calm and slightly damp conditions with winds under 15 km/h. All birds seen or heard were counted during a ten minute period at each station. Bird plots were stratified throughout the study area with multiple plots in all habitat types.

Point count surveys do not take into account the secretive marsh bird, crepuscular and early-nesting species. Specific surveys to target these breeding species are recommended by Environment Canada (EC) to be completed in the spring and are described below.

Avian data collected during the various surveys has been tabulated and analyzed according to EC guidelines (Environment Canada, year unknown). This involves ranking species according to abundance, distribution, richness, and habitat abundance. According to EC, the study area lies in Bird Conservation Region 8 and as such, priority species associated with this conservation region will also be ranked according to abundance, distribution and abundance by habitat.

2.2.2 *Eastern Whip-poor-will Survey*

Eastern Whip-poor-will (WPW) populations in Ontario and elsewhere have declined over the past 25 years or more. Consequently, this species is now designated as a Threatened species in Canada and Ontario. The Ontario Breeding Bird Atlas (Cadman et al 2007) shows that WPW are probable breeders within the Treasury study area, and therefore, it was decided that WPW surveys should take place in order to determine presence or absence of this threatened species. WPW triangulation surveys were conducted in the study area on the night of June 4th to the 6th and July 4th and 5th and followed the Audubon society protocol (Hunt 2011). WPW are known to call more frequently in relation to a full moon, therefore, surveys were conducted after sunset and within 10 days of a full moon. This is when birds are setting up territories and nesting, resulting in the highest rates of calls. A total of 21 stations were established, each being located at least 250 m apart, along roads that travelled through WPW habitat. Preferred habitats for the WPW include rock or sand barrens with scattered trees, savannahs, old burns in a state of early forest succession, and open conifer plantations (Cadman et al 2007). A crew of 2 qualified biologists conducted WPW surveys by listening at separate adjacent stations for 10 minutes. If a WPW call was heard, each crew member would take a compass bearing, resulting in an approximate location of the calling birds location.

2.2.3 *Waterfowl Survey*

Waterfowl surveys were conducted at six locations within the study area. Any waterfowl, nests and/or incidental species observed were recorded, as well as species number and social structure. A second visit to each waterfowl survey site was performed in July in an attempt to confirm breeding and note broods. Incidental species were also noted during these surveys.

2.2.4 *Marsh Bird Monitoring*

Marsh bird monitoring followed the Bird Studies Canada (BSC) protocol (Bird Studies Canada 2000). The protocol requires that surveys occur between May 20 and Julyl 5 (although it is generally accepted that these dates can be pushed back in northern Ontario depending on the arrival of spring conditions). Marsh monitoring points were visited on 2 occasions; once in June, and a second time in July to target the more secretive species associated with wetland habitats. Marsh monitoring points were selected in key habitat areas, located along edges of open water marsh wetlands in the study area. Marsh Bird Monitoring sites were the same as the Waterfowl Survey locations because there are few suitable wetlands within the study area. Surveys were conducted after 18:00 and completed before sunset as stated in the protocol. The call playback method was used for the marsh bird surveys, which followed the BSC protocol of 5 minutes of silent listening upon arriving at the marsh site followed by 5 minutes of playing the territorial broadcast tape. Marsh birds on the broadcast tape were Least Bittern (*Ixobrychus exilis)*, Sora (*Porzana carolina)*, Virginia Rail (*Rallus limicola)*, American Coot (*Fulica americana)* and Pied-billed Grebe (*Podilymbus podiceps)*. After the calls were played a second 5 minute period of silent listening was employed. Standardized field data sheets were used to record observed species, wetland features and weather conditions. Individual birds heard or seen within the semi-circle sample area were counted and their locations mapped on field data cards. Birds observed actively foraging above the station area (to a height of 100 metres) were counted and recorded separately. Birds detected from outside the station area were recorded as being present and were also tallied separately. Marsh bird survey stations were located at least 250 metres (275 yards) apart to help avoid double counting.

2.2.5 *Boreal Conservation Region Priority Species*

The Treasury study area lies in the North American Bird Conservation Region 8 (BCR 8) of the Ontario Landbird Conservation Plan (Ontario Partners in Flight 2008). The purpose of this plan is to guide landbird conservation efforts to ensure that the distribution, diversity, and abundance of birds across this region are sustained within the range of natural variability for this dynamic forest ecosystem.

Region 8 is known as the Boreal Softwood Shield. The Boreal Softwood Shield region in northern Ontario is an important part of the Canadian boreal forest “bird nursery”, an area of vital importance to North America’s avifauna (Ontario Partners in Flight. 2008). BCR 8 supports a rich assemblage of breeding birds including 120 species of landbirds. This region supports a substantial proportion of the global population of several landbird species in addition to several species of common landbirds that have undergone long-term declines.

2.2.6 *Bird Species At Risk in Study Area*

One of the main focusses of a baseline study is to determine if any listed Species at risk (SAR) are using the Study Area. Known and potential SAR in the study area based on historical data, survey results and presence of potential habitat will be discussed.

2.2.7 *Nest Sites*

The OMNR considers the nesting colonies of several bird species to be significant wildlife habitat, and as such, they have a list of recommended guidelines to follow regarding these features, such as minimum buffer distances for disturbance and timing restrictions for construction activities. Particular attention is used to try and locate any bird nests and nesting colonies so they will not be disturbed during any future construction activities.

2.3 Small Mammal Trapping

Small mammal trapping was conducted between October 1st and 4th, 2013, within areas of potential disturbance, to determine general abundance and species composition of small mammal populations. A total of 50 Sherman live traps (H. B. Sherman Traps, Inc. model LNATDG 235x80x90 mm) were placed throughout the study area. Traps were baited with a peanut butter/oatmeal mixture and provisioned with cotton to provide nesting and insulative value to captured animals. Where possible, traps were covered with moss to prevent rainwater from entering the trap and cooling trapped mammals. No pre-baiting occurred and each trap was set for either 48 or 24 hours. Sex and reproductive condition were recorded (when possible) for each captured animal.

The catch-per-unit-effort (CPUE) is a measure of the individual animals captured per trap night and is typically used as an index of relative abundance. CPUE is determined by the calculation:

$$\frac{\text{number of individuals captured}}{\text{total number of trap nights}}$$

2.4 Bats

In 2012, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessed the status of three Canadian bat species; Tri-coloured (*Perimyotis subflavus*), Little brown myotis (*Myotis lucifugus*) and Northern myotis (*Myotis septentrionalis*). All three species were assessed as Endangered owing to the rapid declines of their population from the *Geomyces destructans* fungal pathogen responsible for White-nose Syndrome. Also, in 2012, a recommendation was made to the Minister of Environment Canada that an Emergency Order be issued placing these bats on Schedule 1 of the Species at Risk Act (SARA). All three of these bat species have the potential to occur within the study area.

Currently there is no bat monitoring protocol for mineral exploration baseline data collection programs, however, the OMNR has advised that a modified version of the bat monitoring protocol

from the Guidelines for Wind Power Projects (OMNR 2011) can be used to conduct surveys. The presence/likely absence of foraging/commuting bats in the study area was determined by deploying a sound recorder to record bat echolocation calls in flight during June and July 2012. Six locations within areas of potential disturbance were chosen based on the variety of habitat types suitable for bat foraging and commuting corridors. This included open water, forests, tree-lines, scrub and grasslands with an abundant supply and diversity of invertebrate prey. In order to record the high frequency bat echolocation calls, the sound recorders used were set to the ultrasonic range (above 20kHz). The recorders were set to record at dusk for 5 hours and programmed to record in trigger mode, meaning they would begin recording any time a signal was detected above 18 kHz. The recorders were set approximately 2 m above the ground in both open and wooded habitats in order to detect species that fly high over open areas and those that use cluttered habitats. Species identification was conducted through an analysis of sonograms from recordings using Song Scope and Kaleidoscope software (Wildlife Acoustics), where possible.

2.5 Amphibians and Reptiles

Amphibians and reptiles represent a significant component of both terrestrial and freshwater ecosystems. Amphibians are also considered important indicators of environmental health due to their complex ecological requirements. This component of the terrestrial survey was comprised of a number of surveying techniques due to the secretive nature of amphibians and reptiles as well as their strong responses to weather variations. Survey techniques included visual encounter surveys, where all individuals seen while conducting other survey work were documented; and call monitoring, which followed the Amphibian Road Call Count methodology (Konze and McLaren 1997).The Amphibian Road Call Count is based on a road transect with unlimited distance point counts at regular intervals. These surveys are conducted at night, ideally three times during the breeding season in order to detect early and late breeding species.

In northern Ontario, the suggested dates for the first survey is between May 1 and May 15, for the second survey between June 1 and June 15, and for the third survey between July 1 and July 15 (Konze and McLaren 1997). These dates are guidelines and can be altered depending on average nighttime temperatures. Ideal survey conditions include damp nights with light rain or fog and low winds. Also, the recommended minimum night-time air temperature is 8°C for the first survey, 13°C for the second survey, and 21°C for the third survey. However, these are only guidelines and the surveys can be conducted outside these conditions. Surveyors wait approximately 30 seconds after arriving at each survey location to allow disturbed frogs and toads to resume calling. For the next three minutes the surveyor records the species of all frogs and toads observed or heard.

In the Project study area, a total of 21 sites were surveyed for amphibian call counts in conjunction with the WPW studies. These sites were visited on two separate occasions; once in June and again in July 2012.

3. RESULTS

3.1 Background Research

OMNR's Species at Risk website indicated a number of species that had the potential to occur within the study area including: American White Pelican (*Pelecanus erythrorhynchos* – Threatened), Bald Eagle (*Haliaeetus leucocephalus* – Special Concern), Barn Swallow (*Hirundo rustica* - Threatened), Black Tern (*Chlidonias niger* – Special Concern), Bobolink (*Dolichonyx oryzivorus* – Threatened), Eastern Whip-poor-will (*Antrostomus vociferous* – Special Concern), Golden Eagle (*Aquila chrysaetos* – Endangered), Least Bittern (*Ixobrychus exilis* – Threatened), Peregrine Falcon (*Falco peregrinus* – Special Concern), Short-eared Owl (*Asio flammeus* – Special Concern), Yellow Rail (*Coturnicops noveboracensis* – Special Concern)., Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), Wolverine (*Gulo gulo* – Threatened), and Woodland Caribou (*Rangifer tarundus caribou* – Endangered).

A search of the NHIC database indicated that there have been no historic observations of any SAR for the study site.

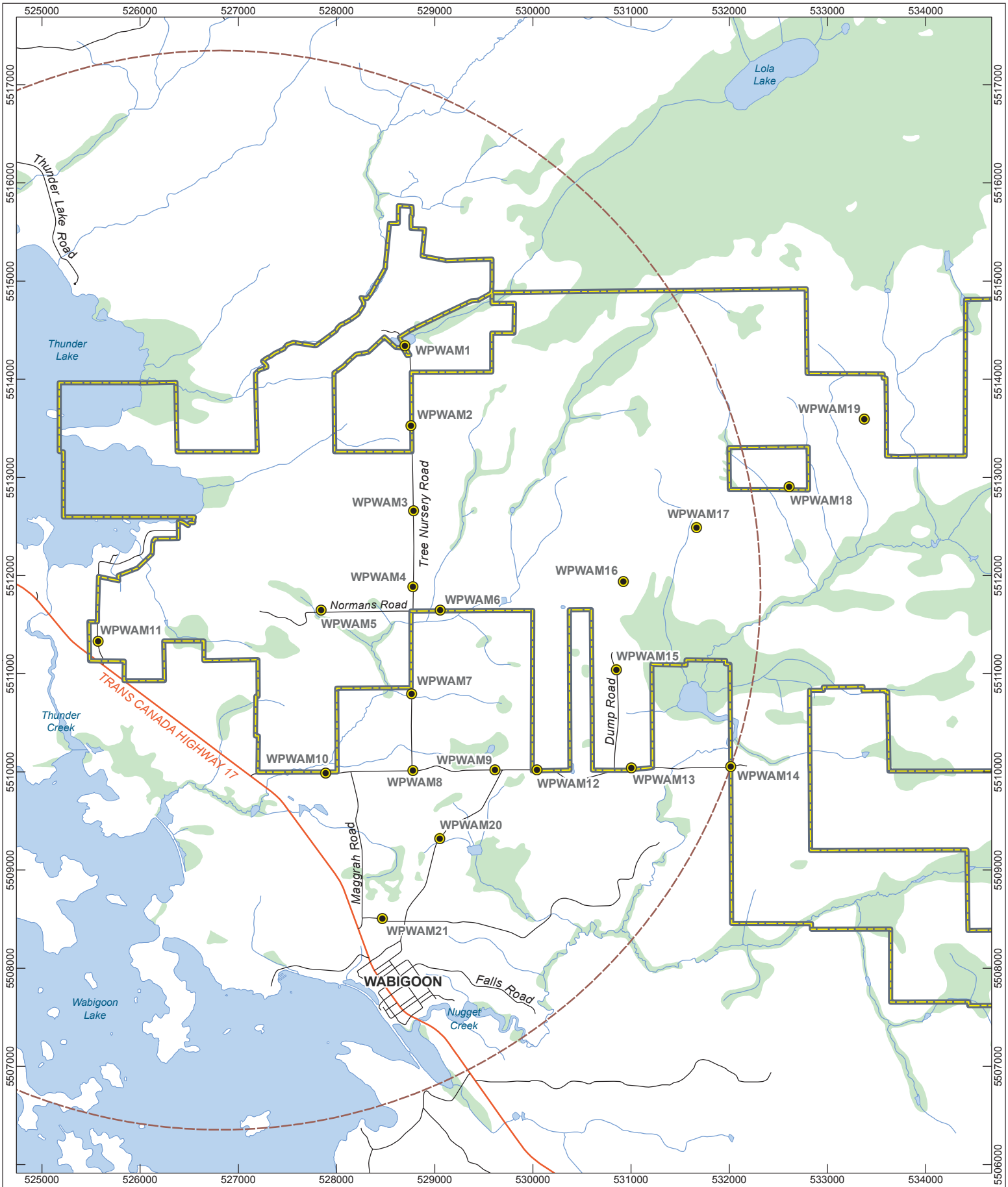
One OBBA point count square overlaps the TML study area (15WR21). Species observed and their breeding status are listed in Appendix A. Several species at risk were listed in the OBBA observations for the study area including Bald Eagle, Barn Swallow, Canada Warbler (*Wilsonia canadensis* – Special Concern), and Olive-sided Flycatcher (*Contopus cooperi* – Special Concern).

3.2 Bird Surveys

3.2.1 *Eastern Whip-poor-will Surveys*

The Goliath Project study area had little suitable WPW habitat. Preferred habitats for the WPW include rock or sand barrens with scattered trees, savannahs, old burns in a state of early forest succession, and open conifer plantations. Eggs are laid directly on leaf litter. A total of 21 WPW survey plots were conducted along the roads throughout the study areas (Figure 3.1). No WPW were heard or seen during the surveys in 2012, however, one Common Nighthawk (Chordeiles minor) was heard. Other crepuscular avian species encountered during the survey include American Woodcock (*Scolopax minor*) and Common Snipe (*Gallinago gallinago*) (Table 3.1).

All sites were located along the road network throughout the study area. These 21 sites were surveyed on June 4th and 5th, and July 4th and 5th for WPW presence. These dates coincided with nights around the full moon, which are the optimal times for WPW surveys. Conditions encountered during the surveys were favorable.



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

LOCATION OF EASTERN WHIP-POOR-WILL SURVEY PLOTS FOR THE GOLIATH GOLD PROJECT

FIGURE: 3.1 | REV.00

SCALE: 50000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 20 FEB. 2014
CHECK: XX ADD DATE
REVIEW: XX ADD DATE

LEGEND

- Whip-poor-will Survey Location
- Local Study Area
- Property Boundary
- Highway
- Local Road
- Waterbody
- Watercourse
- Wetland

N

0 500 1,000
Meters

REFERENCE

Data by Treasury Metals Inc. and DST Consuting Engineers
Projection: NAD83 UTM Zone 15N

TREASURY METALS INCORPORATED

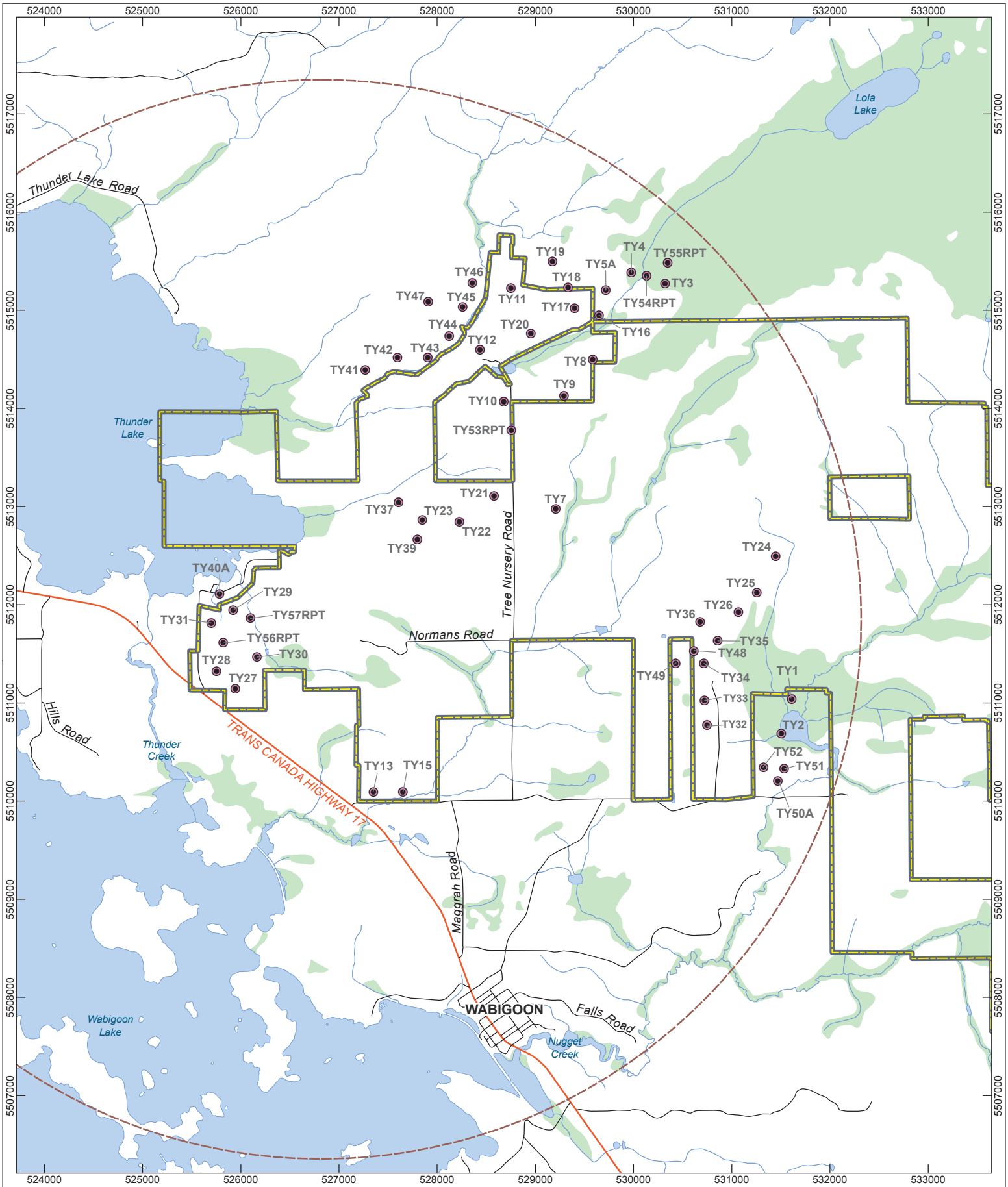
DST consulting engineers

Table 3.1. Results of Whip-poor-will surveys in the Treasury study area (2012)

Location	1st Visit	Species	2nd Visit	Species
WPWAM1	4-Jun-12		5-Jul-12	
WPWAM2	4-Jun-12	American Woodcock	5-Jul-12	American Woodcock
				Swainsons Thrush
				Common Snipe
WPWAM3	4-Jun-12	Common Nighthawk	5-Jul-12	Common Snipe
		Common Yellowthroat		
WPWAM4	4-Jun-12	White-throated Sparrow	5-Jul-12	Common Snipe
WPWAM5	4-Jun-12	American Woodcock	5-Jul-12	Killdeer
				Common Snipe
WPWAM6	4-Jun-12	Hermit Thrush	5-Jul-12	
		American Woodcock		
WPWAM7	4-Jun-12		5-Jul-12	
WPWAM8	4-Jun-12		5-Jul-12	
WPWAM9	5-Jun-12		4-Jul-12	
WPWAM10	4-Jun-12		5-Jul-12	
WPWAM11	4-Jun-12		4-Jul-12	
WPWAM12	5-Jun-12		4-Jul-12	
WPWAM13	5-Jun-12		4-Jul-12	
WPWAM14	5-Jun-12	American Woodcock	4-Jul-12	
WPWAM15	5-Jun-12		4-Jul-12	
WPWAM16	5-Jun-12		4-Jul-12	
WPWAM17	5-Jun-12	White-throated Sparrow	4-Jul-12	Common Snipe
		American Woodcock		
WPWAM18	5-Jun-12		4-Jul-12	Common Snipe
WPWAM19	5-Jun-12		4-Jul-12	American Woodcock
WPWAM20	5-Jun-12		4-Jul-12	
WPWAM21	5-Jun-12		4-Jul-12	

3.2.2 *Breeding Bird Survey*

Breeding bird surveys were carried out in June and July 2012. A total of 46 point count stations were surveyed once in June and repeated in July. An additional five point counts were also completed in July (Figure 3.2). A total of 648 individual birds from 66 different species were observed. An additional 17 species were seen during other surveys and fieldwork in the area totaling 83 species observed over the 2012 field season. A list of all bird species encountered by DST during the 2012 field season is listed alphabetically in Appendix A.



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

LOCATION OF BREEDING BIRD POINT COUNTS FOR THE GOLIATH GOLD PROJECT

FIGURE: 3.2 | REV.00

SCALE: 50000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 20 FEB. 2014
CHECK: XX ADD DATE
REVIEW: XX ADD DATE

LEGEND

- Point Count Location
- Local Study Area
- Property Boundary
- Highway
- Local Road
- Waterbody
- Watercourse
- Wetland

N

0 500 1,000
Meters

REFERENCE

Data by Treasury Metals Inc. and DST Consuting
Projection: NAD83 UTM Zone 15N

TREASURY METALS INCORPORATED

DST consulting engineers

Avian species richness was the highest in point count stations that were in deciduous habitats (43 species) compared to successional (32 species), coniferous (31 species), wetland (27 species), and upland (21 species). The 10 species encountered most frequently during point count surveys in descending order were; White-throated Sparrow (74), Nashville Warbler *(Oreothlypis ruficapilla) (42)* Swainsons Thrush *(Catharus ustulatus) (33)*, American Robin (*Turdus migratorius*) (31) Hermit Thrush *(Catharus guttatus) (30)*, Red-breasted Nuthatch (30) Ruby-crowned Kinglet *(Regulus calendula) (30)*, Ovenbird (*Seiurus aurocapilla*) (28), Chipping Sparrow (*Spizella passerine*) (26), and Red-eyed Vireo (26) The most common birds, representing 80 % of the total birds counted, are presented below (Table 3.2 and 3.3).

Table 3.2 Most Common Bird Species from Point Counts (representing 80% of total birds counted)

Common Name	Scientific Name	Abundance	Rank
White-Throated Sparrow	*Zonotrichia albicollis*	74	1
Nashville Warbler	*Vermivora ruficapilla*	42	2
Swainsons Thrush	*Catharus ustulatus*	33	3
American Robin	*Turdus migratorius*	33	3
Hermit Thrush	*Catharus guttatus*	30	4
Red-breasted Nuthatch	*Sitta canadensis*	30	4
Ruby-crowned Kinglet	*Regulus calendula*	30	4
Red-eyed Vireo	*Vireo olivaceus*	29	5
Ovenbird	*Seiurus aurocapilla*	28	6
Chipping Sparrow	*Spizella passerina*	26	7
Least Flycatcher	*Empidonax minimus*	21	8
Yellow-rumped Warbler	*Dendroica petechia*	21	8
Magnolia Warbler	*Dendroica magnolia*	19	9
Golden-crowned Kinglet	*Regulus satrapa*	18	10
Black-capped Chickadee	*Poecile atricapilla*	17	11
Winter Wren	*Troglodytes troglodytes*	15	12
Northern Parula	*Setophaga americana*	10	13
Blue Jay	*Cyanocitta cristata*	10	13
Alder Flycatcher	*Empidonax alnorum*	9	14
Lincolns Sparrow	*Melospiza lincolnii*	9	14
Northern Flicker	*Colaptes auratus*	9	14
Mourning Warbler	*Geothlypis philadelphia*	7	15

Table 3.3 Bird Species ranked according to distribution across point counts (2012)

Common Name	Scientific Name	Abundance	# of Points	% of Points	Density
White-Throated Sparrow	*Zonotrichia albicollis*	74	42	76%	0.43
Nashville Warbler	*Vermivora ruficapilla*	42	34	62%	0.24
Swainsons Thrush	*Catharus ustulatus*	33	28	51%	0.19
American Robin	*Turdus migratorius*	33	21	38%	0.19
Hermit Thrush	*Catharus guttatus*	30	26	47%	0.17
Red-breasted Nuthatch	*Sitta canadensis*	30	26	47%	0.17
Ruby-crowned Kinglet	*Regulus calendula*	30	28	51%	0.17
Red-eyed Vireo	*Vireo olivaceus*	29	24	44%	0.17
Ovenbird	*Seiurus aurocapilla*	28	22	40%	0.16
Chipping Sparrow	*Spizella passerina*	26	20	36%	0.15
Least Flycatcher	*Empidonax minimus*	21	19	35%	0.12
Yellow-rumped Warbler	*Dendroica petechia*	21	16	29%	0.12
Magnolia Warbler	*Dendroica magnolia*	19	16	29%	0.11
Golden-crowned Kinglet	*Regulus satrapa*	18	15	27%	0.10
Black-capped Chickadee	*Poecile atricapilla*	17	9	16%	0.10
Winter Wren	*Troglodytes troglodytes*	15	14	25%	0.09
Northern Parula	*Setophaga americana*	10	7	13%	0.06
Blue Jay	*Cyanocitta cristata*	10	9	16%	0.06
Alder Flycatcher	*Empidonax alnorum*	9	9	16%	0.05
Lincolns Sparrow	*Melospiza lincolnii*	9	6	11%	0.05
Northern Flicker	*Colaptes auratus*	9	9	16%	0.05
Mourning Warbler	*Geothlypis philadelphia*	7	7	13%	0.04

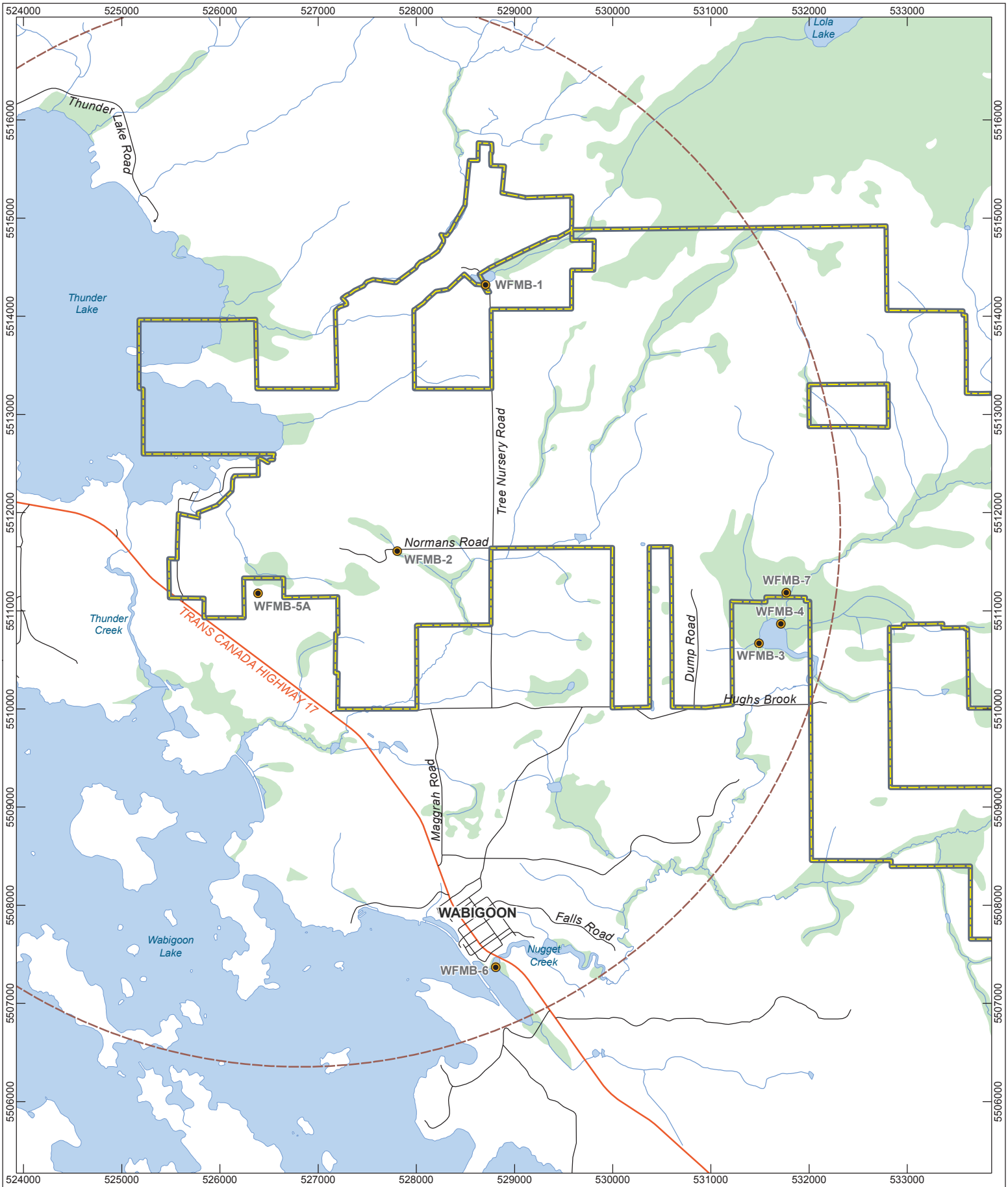
The type and structure of vegetation is important in determining the make-up of the bird community. Different vegetation communities provide nest sites, roost locations for refuge from predators, food for herbivorous birds, a prey base for carnivorous birds and structurally the vegetative habitat enable or constrain foraging. Different bird species require different habitat types as their preferred territories. Bird species richness and abundance by habitat type based on point count results is provided below (Tables 3.4 and 3.5).

Table 3.4 Breeding bird species richness by habitat

Habitat Category	# of Points	# of Species
Coniferous	14	31
Deciduous	16	43
Successional	12	32
Wetland	7	27
Upland	3	21

3.2.3 *Waterfowl/Marshbird Surveys*

Waterfowl and marshbird monitoring surveys were completed at the same survey locations as one another (Figure 3.3). Within the survey area, a total of seven locations were surveyed for waterfowl and for marshbirds over five different bodies of water in June and again in July. Forty species were encountered, with the most common species being Swamp Sparrow (11), Red-winged Blackbird (8), and Common Yellowthroat (7). The study area has a limited amount of suitable habitat (i.e. marshes). Other wetland species encountered during Marsh Monitoring were Common Yellowthroat (*Geothlypis trichas*), Northern Waterthrush (*Parkesia noveboracensis*), Sora (*Porzana carolina),* and Swamp Sparrow (*Melospiza Georgiana*). No SAR were observed during the marsh monitoring surveys. Sora was the only marsh bird target species that was encountered in any of the survey locations. Probable breeders, based on their observance at the same location on both dates includes American Bittern, Sora, and Red-necked Grebe. Canada Goose was also a probable breeder due to the presence of a mated pair with three goslings. A summary of dates, species and locations of sightings are listed below (Table 3.6).



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

WATERFOWL AND MARSHBIRD MONITORING LOCATIONS FOR THE GOLIATH GOLD PROJECT

FIGURE: 3.3 | REV.00

SCALE: 50000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 20 FEB. 2014
CHECK: XX ADD DATE
REVIEW: XX ADD DATE

LEGEND

- Waterfowl/Marshbird Survey Location
- Local Study Area
- Property Boundary
- Wetland
- Highway
- Local Road
- Waterbody
- Watercourse

N

0 500 1,000
Meters

REFERENCE

Data by Treasury Metals Inc. and DST Consuting
Projection: NAD83 UTM Zone 15N

TREASURY METALS INCORPORATED

DST consulting engineers

Table 3.5 Species ranked according to abundance in each habitat category

Coniferous	#	Deciduous	#	Successional	#	Wetland	#	Upland	#
White-throated Sparrow	19	White-throated Sparrow	27	White-throated Sparrow	20	Lincolns Sparrow	6	White-throated Sparrow	4
Nashville Warbler	13	Ovenbird	18	Chipping Sparrow	13	Nashville Warbler	5	American Robin	4
Swainsons Thrush	12	Nashville Warbler	15	American Robin	11	Swamp Sparrow	5	Blue Jay	3
Red-breasted Nuthatch	12	Swainsons Thrush	15	Nashville Warbler	9	White-throated Sparrow	4	Black-capped Chickadee	3
Hermit Thrush	11	Red-breasted Nuthatch	14	Red-eyed Vireo	8	American Robin	4	Least Flycatcher	2
Ruby-crowned Kinglet	10	Red-eyed Vireo	14	Least Flycatcher	6	Ruby-crowned Kinglet	4	Chipping Sparrow	2
Golden-crowned Kinglet	10	Magnolia Warbler	13	Alder Flycatcher	6	Hermit Thrush	4	Ovenbird	2
Yellow-rumped Warbler	9	Hermit Thrush	12	Ruby-crowned Kinglet	5	Swainsons Thrush	4	Mourning Warbler	2
Mourning Warbler	8	Ruby-crowned Kinglet	11	Clay-coloured Sparrow	4	Least Flycatcher	3	Yellow-rumped Warbler	1
American Robin	6	Least Flycatcher	9	Savannah Sparrow	4	Northern Flicker	3	Common Yellowthroat	1
Ovenbird	6	American Robin	8	Red-breasted Nuthatch	3	Yellow-rumped Warbler	2	Winter Wren	1
Winter Wren	6	Golden-crowned Kinglet	7	Magnolia Warbler	3	Gray Jay	2	Red-eyed Vireo	1
Black-capped Chickadee	5	Winter Wren	7	Hermit Thrush	3	Red-Winged Blackbird	2	Clay-coloured Sparrow	1
Chipping Sparrow	4	Black-capped Chickadee	7	Yellow-rumped Warbler	3	Chipping Sparrow	1	Song Sparrow	1
Northern Flicker	4	Northern Parula	7	Song Sparrow	3	Red-breasted Nuthatch	1	Veery	1
Gray Jay	4	Chipping Sparrow	6	Northern Flicker	3	Blue-headed Vireo	1	Northern Parula	1
Brown Creeper	4	Blackburnian Warbler	6	Blue-headed Vireo	3	Common Yellowthroat	1	Yellow-bellied Sapsucker	1
Red-eyed Vireo	3	Yellow-rumped Warbler	5	Ovenbird	2	Golden-crowned Kinglet	1	Common Raven	1
Magnolia Warbler	3	Chestnut-sided Warbler	5	Swainsons Thrush	2	Winter Wren	1	Common Loon	1
Common Raven	3	Black-and-White Warbler	5	Blue Jay	2	Boreal Chickadee	1	American Crow	1
White-winged Crossbill	3	Blue Jay	4	Lincolns Sparrow	2	Brown Creeper	1	Hairy Woodpecker	1
Northern Parula	2	Song Sparrow	4	Black-capped Chickadee	1	Great Blue Heron	1	Lincolns Sparrow	0
Alder Flycatcher	2	Yellow-bellied Sapsucker	4	Blackburnian Warbler	1	Northern Waterthrush	1		
Dark-eyed Junco	2	Philadelphia Vireo	4	Chestnut-sided Warbler	1	LeContes Sparrow	1		
Boreal Chickadee	2	Dark-eyed Junco	3	Dark-eyed Junco	1	American Redstart	1		
Least Flycatcher	1	Ruffed Grouse	3	Ruffed Grouse	1	Greater Yellowlegs	1		
Blue Jay	1	Bay-breasted Warbler	3	Common Yellowthroat	1	Yellow-bellied Flycatcher	1		
Blackburnian Warbler	1	Mourning Warbler	2	Pileated Woodpecker	1				
Swamp Sparrow	1	Northern Flicker	2	Veery	1				
Common Yellowthroat	1	Common Raven	2	Killdeer	1				
Blue-headed Vireo	1	Boreal Chickadee	2	Cedar Waxwing	1				
Ruffed Grouse	1	Common Yellowthroat	2	Barn Swallow	1				
		Gray Jay	1						
		Brown Creeper	1						
		Alder Flycatcher	1						
		Swamp Sparrow	1						
		Lincolns Sparrow	1						
		Pileated Woodpecker	1						
		Great Blue Heron	1						
		Black-throated Green Warbler	1						
		Rose-breasted Grosbeak	1						

Table 3.6 Results of waterfowl and marshbird surveys

Location	1st Visit	Species	Comments	2nd Visit	Species	Comments
WFMB1	4-Jun-12	Eastern Kingbird		3-Jul-12	Barn Swallow	2
		Barn Swallow			Redbreasted Nutchatch	
		Tree Swallow			Spotted Sandpiper	2
		Hooded Merganser			Common Yellowthroat	
		Common Merganser			Swamp Sparrow	
		Ruffed Grouse			American Robin	
		Canada Goose	Pair with 3 goslings			
WFMB3	5-Jun-12	American Bittern		5-Jul-12	Red-winged Black Bird	2
		Common Raven	2 pairs		Great Blue Heron	
		Common Yellowthroat			Swamp Sparrow	
		Redeyed Vireo			Swainsons Thrush	
		Red-winged Black Bird			LeConte's Sparrow	
					Canada Goose	
WFMB4	5-Jun-12	American Bittern		5-Jul-12	American Bittern	
		Red-winged Black Bird			Swamp Sparrow	
		Ring-necked Duck			LeConte's Sparrow	
		Mallard				
WFMB5	4-Jun-12	Hermit Thrush		2-Jul-12	Eastern Kingbird	
		Swamp Sparrow			Great Blue Heron	
		Spotted Sandpiper			Spotted Sandpiper	
		Red-winged Black Bird			Red-winged Black Bird	4
		Canada Goose			Redeyed Vireo	
		Mallard	5		American Robin	
					Ring-necked Duck	
					Killdeer	2
					Northern Waterthrush	
					Nashville Warbler	
					Northern Flicker	
					Swamp Sparrow	
					Song Sparrow	
WFMB6	4-Jun-12	Bonaparte's Gull		2-Jul-12	Bank Swallow	5
		Bald Eagle			Cerulean Warbler	
		Red-winged Black Bird	4		American Crow	
		Herring Gull	3		Herring Gull	
		Ruby Crowned Kinglet			Common Yellowthroat	
		Ring-necked Duck	5		Red-winged Black Bird	4
		Northern Shrike			Whitethroated Sparrow	
		Barn Swallow			Swamp Sparrow	
		Common Yellowthroat			Blackcapped Chickadee	
		Great Blue Heron			Sora	
		Swamp Sparrow	2			
		Common Goldeneye	3			
		Sora				
WFMB6A	5-Jun-12	Red-tailed Hawk		3-Jul-12	American Robin	2
		Swainsons Thrush			Swamp Sparrow	2
		Swamp Sparrow			Northern Flicker	
		Ruby Crowned Kinglet			Whitethroated Sparrow	
		Canada Goose	~90		Redbreasted Nutchatch	
					Common Yellowthroat	
WFMB7	5-Jun-12	Common Raven		5-Jul-12	Common Raven	
		Red-necked Grebe	pair		Ring-necked Duck	
		Mallard	pair		Common Yellowthroat	
		Hermit Thrush			Swamp Sparrow	3
		Common Yellowthroat			Red-winged Blackbird	2
		Swamp Sparrow			Rednecked Grebe	2

3.2.4 *Boreal Conservation Region Priority Species*

EC has requested a priority species summary list based on the Ontario landbird conservation plan showing total abundance, frequency, abundance by habitat, and density by habitat (Tables 3.7 and 3.8). Most of the priority species are common boreal forest landbirds for which this region has a particularly high conservation responsibility. Some priority species are of high conservation concern due to a combination of population declines, high vulnerability, and high regional responsibility.

Table 3.7 Boreal Conservation Region 8 species total abundance, frequency, and abundance by habitat

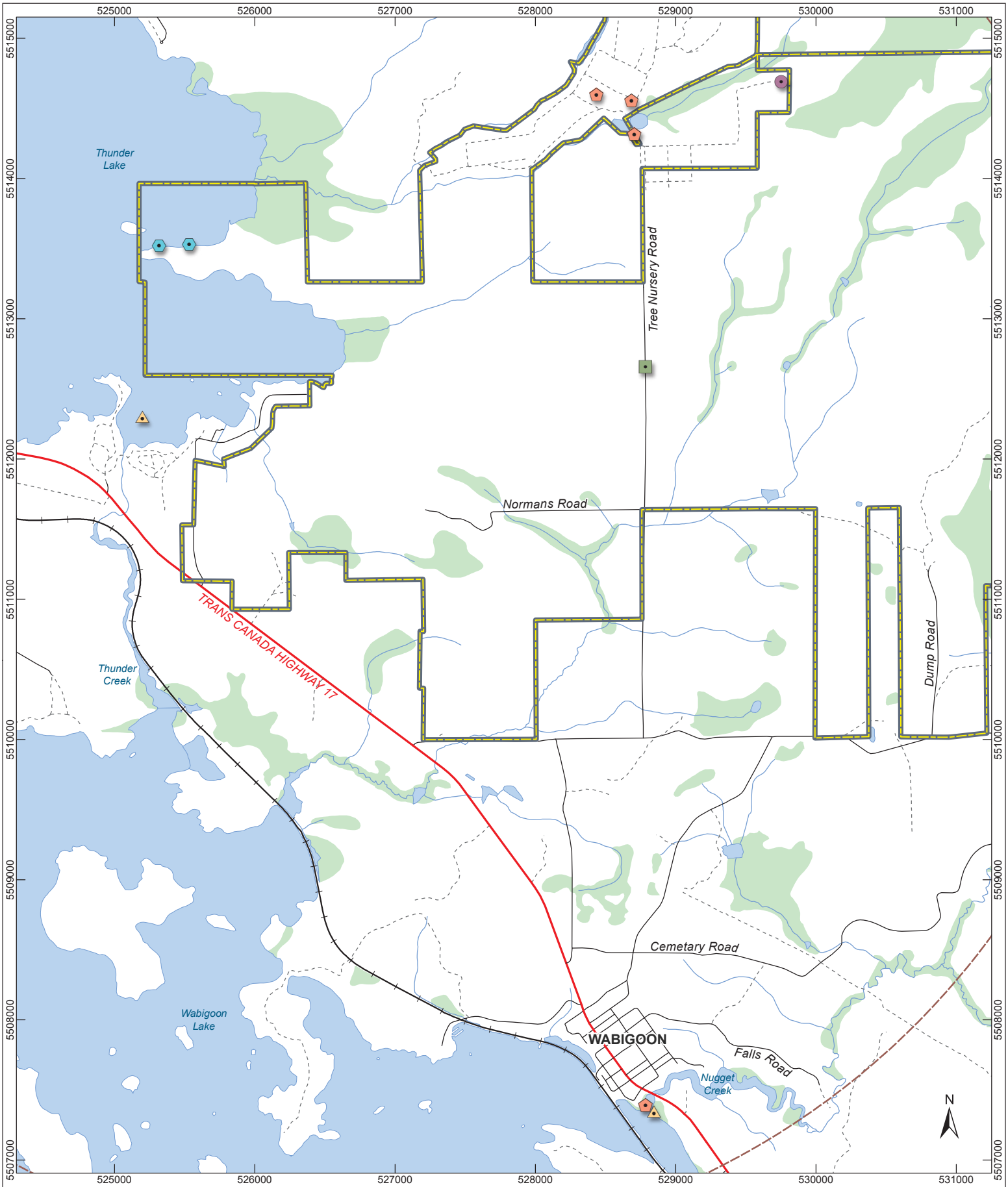
Priority Species BCR8	Total Abundance	% of Points	Coniferous	Deciduous	Successional	Wetland	Upland
White-throated Sparrow	74	76%	19	27	20	4	4
Ruby-crowned Kinglet	30	51%	10	11	5	4	0
Magnolia Warbler	19	29%	3	13	3	0	0
Nashville Warbler	42	62%	13	15	9	5	0
Winter Wren	15	25%	6	7	0	1	1
Black-and-White Warbler	5	9%	0	5	0	0	0
Bay-breasted Warbler	3	5%	0	3	0	0	0
Northern Flicker	9	16%	4	2	3	0	0
Blue-headed Vireo	5	7%	1	0	3	1	0
Ovenbird	28	40%	6	18	2	0	2
Philadelphia Warbler	0	0%	0	0	0	0	0
Swamp Sparrow	7	11%	1	1	0	5	0
Blackburnian Warbler	8	15%	1	6	1	0	0
Olive-Sided Flycatcher	0	0%	0	0	0	0	0
Yellow-bellied Sapsucker	5	9%	0	4	0	0	1
Belted Kingfisher	0	0%	0	0	0	0	0
Bald Eagle	0	0%	0	0	0	0	0
Alder Flycatcher	9	16%	2	1	6	0	0
Black-throated Green Warbler	1	2%	0	1	0	0	0
Chestnut-sided Warbler	6	11%	0	5	1	0	0
Ruffed Grouse	5	9%	1	3	1	0	0
Mourning Warbler	7	13%	3	2	0	0	2
Canada Warbler	0	0%	0	0	0	0	0
Yellow-bellied Flycatcher	1	2%	0	0	0	1	0
Tennessee Warbler	0	0%	0	0	0	0	0
Evening Grosbeak	0	0%	0	0	0	0	0

Table 3.8 Boreal Conservation Region 8 species density by habitat

Priority Species BCR8	Coniferous	Deciduous	Successional	Wetland	Upland
White-throated Sparrow	0.11	0.16	0.12	0.02	0.02
Ruby-crowned Kinglet	0.06	0.06	0.03	0.02	0.00
Magnolia Warbler	0.02	0.08	0.02	0.00	0.00
Nashville Warbler	0.08	0.09	0.05	0.03	0.00
Winter Wren	0.03	0.04	0.00	0.01	0.01
Black-and-White Warbler	0.00	0.03	0.00	0.00	0.00
Bay-breasted Warbler	0.00	0.02	0.00	0.00	0.00
Northern Flicker	0.02	0.01	0.02	0.00	0.00
Blue-headed Vireo	0.01	0.00	0.02	0.01	0.00
Ovenbird	0.03	0.10	0.01	0.00	0.01
Philadelphia Warbler	0.00	0.00	0.00	0.00	0.00
Swamp Sparrow	0.01	0.01	0.00	0.03	0.00
Blackburnian Warbler	0.01	0.03	0.01	0.00	0.00
Olive-Sided Flycatcher	0.00	0.00	0.00	0.00	0.00
Yellow-bellied Sapsucker	0.00	0.02	0.00	0.00	0.01
Belted Kingfisher	0.00	0.00	0.00	0.00	0.00
Bald Eagle	0.00	0.00	0.00	0.00	0.00
Alder Flycatcher	0.01	0.01	0.03	0.00	0.00
Black-throated Green Warbler	0.00	0.01	0.00	0.00	0.00
Chestnut-sided Warbler	0.00	0.03	0.01	0.00	0.00
Ruffed Grouse	0.01	0.02	0.01	0.00	0.00
Mourning Warbler	0.02	0.01	0.00	0.00	0.01
Canada Warbler	0.00	0.00	0.00	0.00	0.00
Yellow-bellied Flycatcher	0.00	0.00	0.00	0.01	0.00
Tennessee Warbler	0.00	0.00	0.00	0.00	0.00
Evening Grosbeak	0.00	0.00	0.00	0.00	0.00

3.2.5 *Bird Species at Risk in Study Area*

Avian SAR detected at the Project Study area include Bald Eagle, Common Nighthawk, Barn Swallow, Canada Warbler and Olive-sided Flycatcher (Figure 3.4). Other SAR that may occur based on available habitat but were not detected in 2012 include American White Pelican (*Pelecanus erythrorhynchos* – Threatened), Black Tern (*Chlidonias niger* – Special Concern), Bobolink (*Dolichonyx oryzivorus* – Threatened), Eastern Whip-poor-will (Threatened), Golden Eagle (*Aquila chrysaetos* – Endangered), Least Bittern (*Ixobrychus exilis* – Threatened), Peregrine Falcon (*Falco peregrinus* – Special Concern), Short-eared Owl (*Asio flammeus* – Special Concern), and Yellow Rail (Endangered).



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

SPECIES AT RISK OBSERVATIONS FOR THE GOLIATH GOLD PROJECT

FIGURE: 3.4 | REV.00

SCALE: 35000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 06 MAR. 2014
CHECK: XX ADD DATE
REVIEW: XX ADD DATE

- Bald Eagle
- Barn Swallow
- Canada Warbler
- Common Nighthawk
- Olive Sided Fly Catcher
- Local Study Area
- Property Boundary
- Waterbody
- Watercourse
- Wetland
- Expressway / Highway
- Local
- Resource / Recreation
- Railway

0 500 1,000
Meters

REFERENCE
Data by Treasury Metals Inc. and DST Consuting Engineers
Projection: NAD83 UTM Zone 15N

3.2.6 *Nest Sites*

Nests and eggs of all wild birds (except American crow (*Corvus brachyrhynchos*), Brown-headed cowbird (*Molothrus ater*), Common grackle (*Quiscalus quiscula*), House sparrow (*Passer domesticus*), Red-winged blackbird (*Agelaius phoeniceus*), and European starling (*Sturnus vulgaris*) are protected from disturbance and/or destruction. Specific restrictions apply to species that show strong fidelity to specific nesting structures or nesting areas, SAR, or species that are otherwise sensitive to habitat alteration because of their life history requirements. Areas of Concern exist for the nest locations of these species and restrictions would apply if construction occurs. Refer to the OMNR guide for Conserving Biodiversity for more detail (OMNR 2010). Two nest sites were observed in the study area; a Common loon nest on Thunder Lake, and a Common Grackle nest located near Marshbird monitoring site WFMB2 (Figure 3.3).

3.3 Wildlife Surveys

3.3.1 *Small Mammal Trapping*

Small mammal trapping occurred over a three night period during October of 2013. The trapping schedule was as follows (Figure 3.5):

October 1, 2012:

- 32 traps set (a transect of 20 traps, and a transect of 12 traps), in two areas of interest, covering proposed pit and laydown areas as well as the hydro right-of-way;
- Installed two pitfall trap arrays, one in the proposed pit area, the other in the southern tailings management area.

October 2, 2012:

- Checked all 32 traps, and left the traps for a second night;
- Checked both pitfall traps;
- A transect of 18 traps set in the southern tailings management area;
- Installed two more pitfall traps, one in a grassy field south of the proposed pit area, the second in a young jackpine stand in the northern tailings management area.

October 3, 2012:

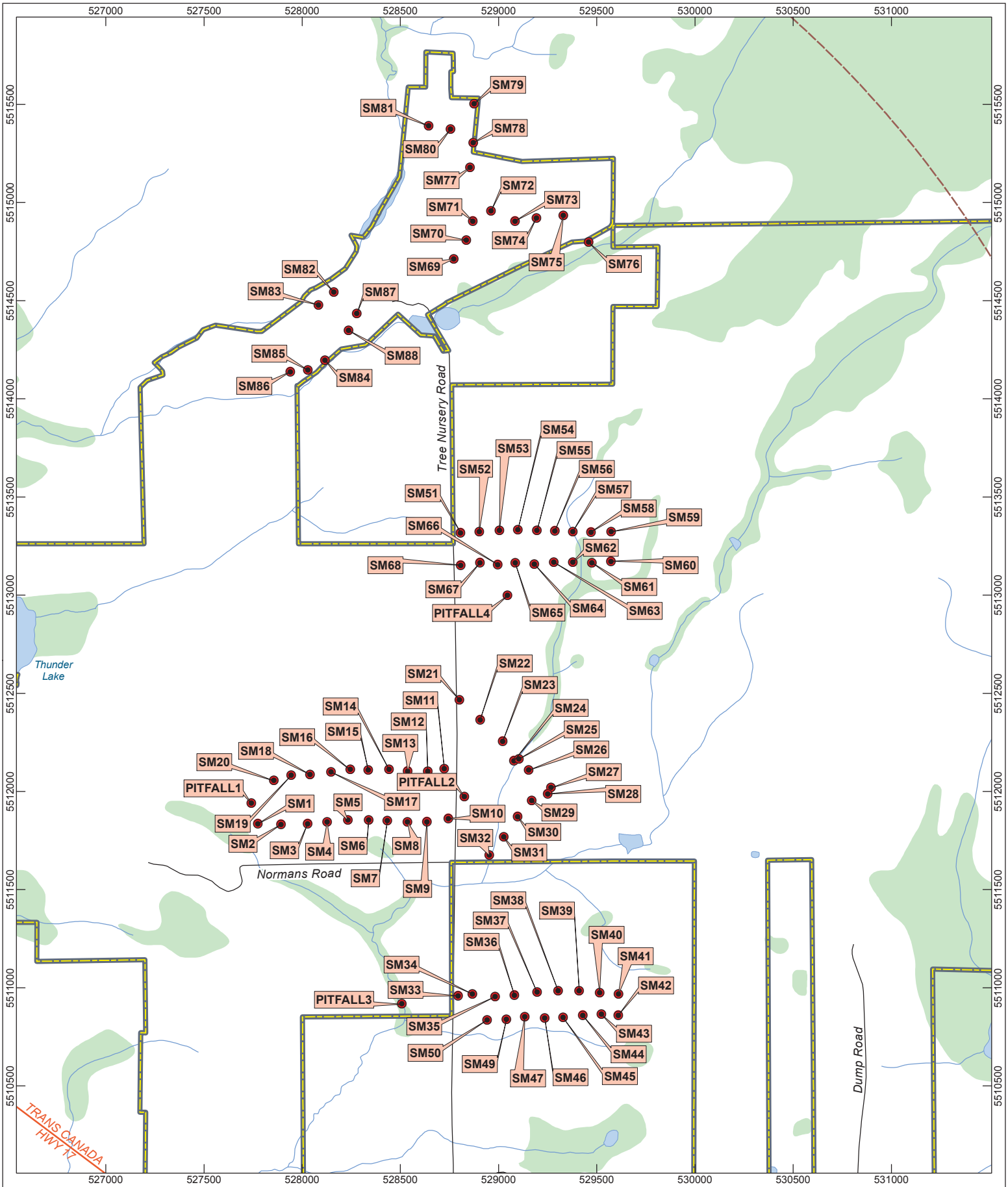
- Checked 32 traps set on Monday, October 1, 2012, and pulled the traps;
- Checked 18 traps set in southern tailings management area, and pulled the traps;
- Checked all four pitfall traps;
- A transect of 18 traps set in northern tailings management area;
- A transect of 20 traps set in tree farm/nursery.

October 4, 2012:

- Checked 18 traps in northern tailings management area and pulled traps;
- Checked and pulled all four pitfall trap arrays;
- Checked 20 traps set in tree farm/nursery, and pulled all traps.

An effort of 119 trapping nights occurred between October 1st and 4th, 2013. However, when revisiting the traps, 10 were found with their doors closed and were likely inactive overnight. Therefore, a more accurate trap night count would be 109. A total of 32 small mammals were captured, including 18 southern red-backed voles (*Clethrionomys gapperi*), 12 deer mice (*Peromyscus maniculatus*), one northern short-tailed shrew (*Blarina brevicauda*), and one red squirrel (*Tamiasciurus hudsonicus*). All traps were left out for only a single night, with the exception of the 32 set out in on October 1, 2012, which, because of extremely low capture success after the first night, were left out for a second night. CPUE for this survey was 0.29 individuals per trap per night. This catch rate is comparable to the catch rates in other studies (personal observation).

No small mammals were captured in any of the pitfall arrays. However, a blue-spotted salamander was captured the night of October 3, 2013. It is likely that capture success of pitfall traps would improve if left for longer periods of time.



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

SMALL MAMMAL TRAPPING LOCATIONS FOR THE GOLIATH GOLD PROJECT

FIGURE: 3.5 | REV.01

SCALE: 25000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 20 FEB. 2014
CHECK: XX ADD DATE
REVIEW: XX ADD DATE

LEGEND

- Waterfowl/Marshbird Survey Location
- Local Study Area
- Property Boundary
- Wetland
- Highway
- Local Road
- Waterbody
- Watercourse

N

0 250 500
Meters

REFERENCE

Data by Treasury Metals Inc. and DST Consuting
Projection: NAD83 UTM Zone 15N

TREASURY METALS INCORPORATED

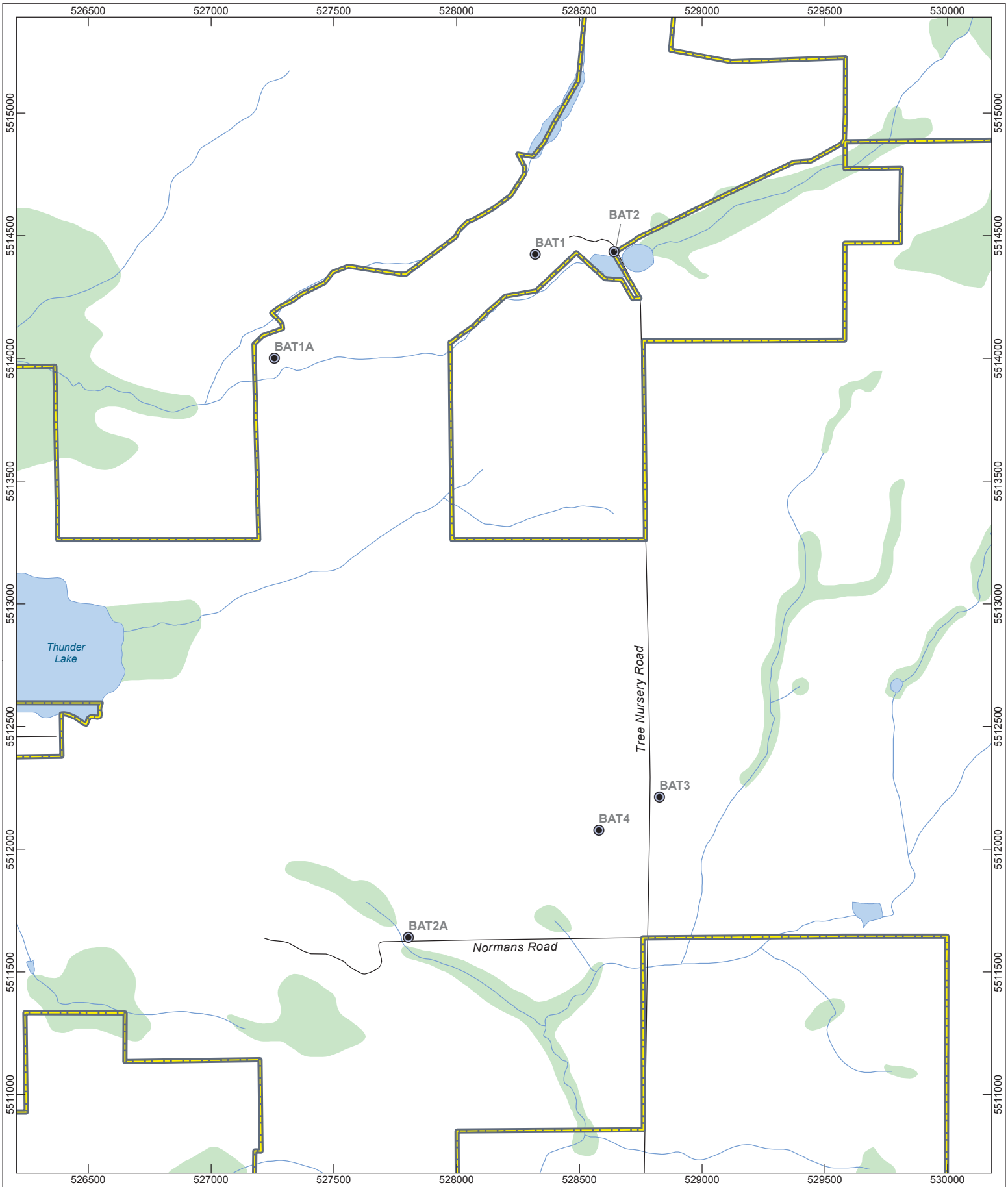
DST consulting engineers

3.3.2 *Bats*

Five out of six monitoring locations where the ultrasonic recorders were deployed recorded Little Brown Myotis (*Myotis lucifugus*), one location detected Northern Myotis *(Myotis septentrioalis*) and one location detected the Big Brown Bat (*Eptesicus fuscus*). Locations of the ultrasonic recorders are shown below (Figure 3.6). Both of the myotis species recorded are listed under COSEWIC and the Committee on the Status of Species at Risk in Ontario (COSSARO) as endangered. Ultrasonic recorders only indicate presence/absence as opposed to quantity (Table 3.9).

Table 3.9. Results of ultrasonic recording stations

Date	Location	Common Name	Scientific Name
6/26/2012	BAT1	Little Brown Myotis	*Myotis lucifugus*
6/26/2012	BAT2	Little Brown Myotis	*Myotis lucifugus*
6/27/2012	BAT3	Little Brown Myotis	*Myotis lucifugus*
6/27/2012	BAT3	Northern Myotis	*Myotis septentrionalis*
6/27/2012	BAT3	Little Brown Myotis	*Myotis lucifugus*
6/27/2012	BAT4	Big Brown Myotis	*Eptesicus fuscus*
7/5/2012	BAT2	Little Brown Myotis	*Myotis lucifugus*
7/4/2012	BAT1	Little Brown Myotis	*Myotis lucifugus*



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

ULTRASONIC MONITORING LOCATIONS FOR THE GOLAITH GOLD PROJECT

FIGURE: 3.6 | REV.10

SCALE: 20000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 20 FEB. 2014
CHECK: XX ADD DATE
REVIEW: XX ADD DATE

LEGEND

- Bat Ultrasonic Monitoring Location
- Property Boundary
- Highway
- Local Road
- Waterbody
- Watercourse
- Wetland

N

0 250 500
Meters

REFERENCE

Data by Treasury Metals Inc. and DST Consuting
Projection: NAD83 UTM Zone 15N

TREASURY METALS INCORPORATED

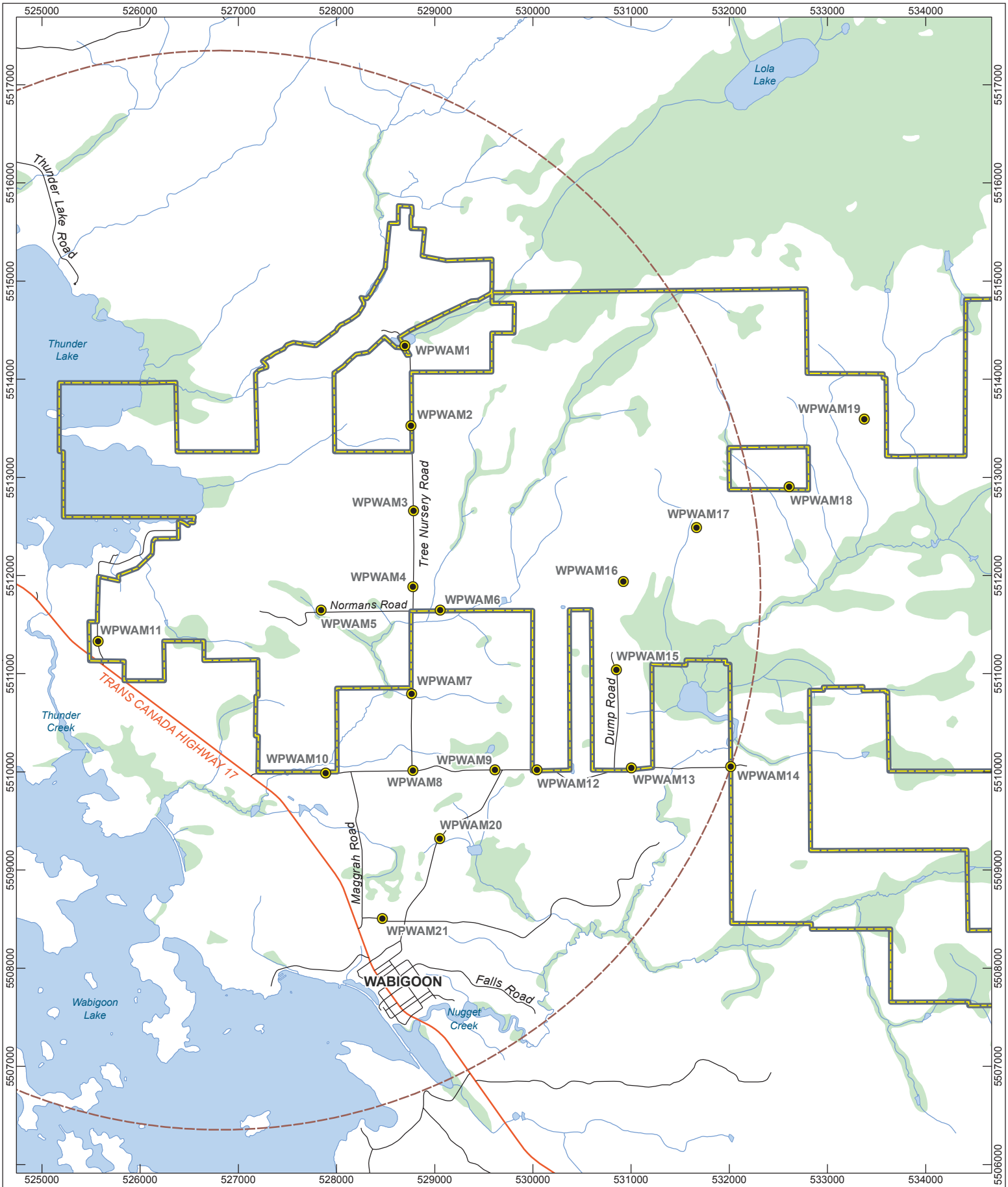
DST consulting engineers

3.3.3 *Amphibians and Reptiles*

A total of 21 sites were monitored for amphibian call counts in 2012 (Figure 3.7). The first amphibian survey was conducted on June 4th and 5th, 2012, while the second amphibian survey was conducted on July 4th and 5th, 2012. Nighttime temperatures ranged from 16 to 25 °C for survey one, and 20 to 25 °C for survey two. Species encountered included: Spring peepers *(Pseudacris crucifer)*, Grey treefrogs (*Hyla versicolor*), Wood frogs (*Rana sylvatica*) and Boreal Chorus frog (Pseudacris maculate) (Table 3.10). No reptile species were observed during any surveys. A blue spotted salamander was captured in a pitfall trap in October as well.

Table 3.10 Amphibian survey sites and associated species heard

Location	1st Visit	Species	2nd Visit	Species
WPWAM1	4-Jun-12	Wood Frogs	5-Jul-12	
		Grey Tree Frogs		
WPWAM2	4-Jun-12	Wood Frogs	5-Jul-12	
WPWAM3	4-Jun-12		5-Jul-12	
WPWAM4	4-Jun-12	Wood Frogs	5-Jul-12	
		Spring Peepers		
WPWAM5	4-Jun-12	Wood Frogs	5-Jul-12	
WPWAM6	4-Jun-12	Wood Frogs	5-Jul-12	
		Spring Peepers		
WPWAM7	4-Jun-12	Wood Frogs	5-Jul-12	
		Grey Tree Frogs		
		Spring Peepers		
WPWAM8	4-Jun-12	Wood Frogs	5-Jul-12	
		Spring Peepers		
WPWAM9	5-Jun-12		4-Jul-12	
WPWAM10	4-Jun-12		5-Jul-12	
WPWAM11	4-Jun-12		4-Jul-12	
WPWAM12	5-Jun-12	Wood Frogs	4-Jul-12	
		Grey Tree Frogs		
WPWAM13	5-Jun-12	Wood Frogs	4-Jul-12	
		Grey Tree Frogs		
WPWAM14	5-Jun-12		4-Jul-12	
WPWAM15	5-Jun-12		4-Jul-12	
WPWAM16	5-Jun-12		4-Jul-12	
WPWAM17	5-Jun-12	Wood Frogs	4-Jul-12	Wood Frogs
		Spring Peepers		
WPWAM18	5-Jun-12	Boreal Chorus Frogs	4-Jul-12	
WPWAM19	5-Jun-12		4-Jul-12	
WPWAM20	5-Jun-12		4-Jul-12	
WPWAM21	5-Jun-12		4-Jul-12	



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

LOCATION OF AMPHIBIAN AND REPTILE CALL COUNTS FOR THE GOLIATH GOLD PROJECT

FIGURE: 3.7 | REV.01

SCALE: 50000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 20 FEB. 2014
CHECK: XX ADD DATE
REVIEW: XX ADD DATE

LEGEND

- Amphibian and Reptile Call Count Survey Location
- Local Study Area
- Property Boundary
- Highway
- Local Road
- Waterbody
- Watercourse
- Wetland

N

0 500 1,000
Meters

REFERENCE

Data by Treasury Metals Inc. and DST Consuting Engineers
Projection: NAD83 UTM Zone 15N

TREASURY METALS INCORPORATED

DST consulting engineers

4. SUMMARY

In general, bird densities and species richness observed during the field surveys were typical of the Boreal forest. A total of 83 avian species were observed. Of the 83 avian species, 33 species were noted as probable breeders based on the 2012 surveys. Species richness was the highest in point count stations that were in deciduous habitats. Avian SAR detected at the Project Site include Bald Eagle, Common Nighthawk, Barn Swallow, Canada Warbler and Olive-sided Flycatcher. Other SAR that may occur based on available habitat but were not detected in 2012 include American White Pelican, Black Tern, Bobolink, Eastern Whip-poor-will, Golden Eagle, Least Bittern, Peregrine Falcon, Short-eared Owl, and Yellow Rail. An active Common Loon nest was discovered along the shoreline of Thunder Lake and an active Common Grackle nest was discovered near the center of the Study area.Habitat for the avian SAR observed is present within the local and the regional area surrounding the Project.

All animals captured during the small mammal trapping program are common throughout northwestern Ontario and their capture rates and relative abundance are comparable with those found in similar habitats. All species captured are habitat generalists with the exception of southern red-backed voles and red squirrels, which tend to prefer mature wooded areas as opposed to disturbed or regenerating sites.

Ultrasonic recorders were set up at six locations, with bats being recorded at four of the locations. Although exact population numbers are not determinable based on recorder information, this is a clear indication that bats are present within the Project study area. In January 2013, three species of bats were officially added to the Ontario SAR list (Tri-coloured, Little brown myotis, and Northern myotis). Two of these species were confirmed to occur in the study area – Little brown myotis and Northern myotis. Any mitigation regarding bats in the future, will be mitigated according to regulatory standards and requirements.

5. LIMITATIONS OF REPORT

NATURAL SCIENCE INVESTIGATIONS

The information, conclusions and recommendations given herein are specifically for this project and this Client only, and for the scope of work described herein. It may not be sufficient for other uses. DST does not accept responsibility for use by third parties.

The data, conclusions and recommendations which are presented in this report, and the quality thereof, are based on a scope of work authorized by the Client. Note, however, that no scope of work, no matter how exhaustive, can identify all ecological and/or environmental conditions. This report therefore cannot warranty that all conditions on or off the site are represented by those identified at specific locations.

Any recommendations and conclusions provided that are based on conditions or assumptions reported herein will inherently include any uncertainty associated with those conditions or assumptions. In fact many aspects involving professional judgement contain a degree of uncertainty which cannot be eliminated. This uncertainty should be managed by periodic review and refinement as additional information becomes available.

Note also that standards, guidelines, methodologies and practices related to environmental investigations may change with time. Those which were applied at the time of this investigation may be obsolete or unacceptable at a later date.

Any topographic benchmarks and elevations documented in this report are primarily to establish relative elevation differences between study locations and should not be used for other purposes such as grading, excavation, planning, development, etc.

Any comments given in this report on potential environmental conditions/site ecology are intended only for the guidance of the Client. The scope of work may not be sufficient to determine all of the environmental factors at each site. Contractors bidding on this project should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the conditions may affect their work.

Any results from an analytical laboratory, federal or provincial government agencies, other subcontractor, or any other third party, reported herein have been carried out by others, and DST Consulting Engineers Inc. cannot warranty their accuracy. Similarly, DST cannot warranty the accuracy of information supplied by the Client.

6. CLOSURE

We appreciate this opportunity to provide environmental services to Treasury. If you have any questions or comments, please contact the undersigned.

For DST CONSULTING ENGINEERS INC.

Terry Honsberger, MSc., HBSc.
Junior Associate

Andrew McKinley, Ph.D., MA.Sc., BA (Hons.), EP
Peer Reviewer/Senior Biologist

7. REFERENCES

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APPENDIX A
Avian Species List

Common Name	*Scientific Name*
Alder Flycatcher	*Empidonax alnorum*
American Bittern	*Botaurus lentiginosus*
American Crow	*Corvus brachyrhynchos*
American Redstart	*Setophaga ruticilla*
American Robin	*Turdus migratorius*
American Woodcock	*Scolopax minor*
Bald Eagle	*Haliaeetus leucocephalus*
Bank Swallow	*Riparia riparia*
Barn Swallow	*Hirundo rustica*
Bay-breasted Warbler	*Setophaga castanea*
Black-and-white Warbler	*Mniotilta varia*
Blackburnian Warbler	*Setophaga fusca*
Black-capped Chickadee	*Poecile atricapilla*
Black-throated Green Warbler	*Setophaga virens*
Blue Jay	*Cyanocitta cristata*
Blue-headed Vireo	*Vireo solitarius*
Bonaparte's Gull	*Chroicocephalus philadelphia*
Boreal Chickadee	*Poecile hudsonica*
Brown Creeper	*Certhia americana*
Canada Goose	*Branta canadensis*
Canada Warbler	*Cardellina canadensis*
Cedar Waxwing	*Bombycilla cedrorum*
Cerulean Warbler	*Dendroica cerulea*
Chestnut-sided Warbler	*Setophaga pensylvanica*
Chipping Sparrow	*Spizella passerina*
Clay-coloured Sparrow	*Spizella pallida*
Common Goldeneye	*Bucephala clangula*
Common Grackle	*Quiscalus quiscula*
Common Loon	*Gavia immer*
Common Merganser	*Mergus merganser*
Common Nighthawk	*Chordeiles minor*
Common Raven	*Corvus corax*
Common Snipe	*Gallinago gallinago*
Common Yellowthroat	*Geothlypis trichas*
Connecticut Warbler	*Oporornis agilis*
Dark-eyed Junco	*Junco hyemalis*
Eastern Kingbird	*Tyrannus tyrannus*
Evening Grosbeak	*Coccothraustes vespertinus*
Golden-crowned Kinglet	*Regulus satrapa*
Gray Jay	*Perisoreus canadensis*
Great Blue Heron	*Ardea herodias*
Greater Yellowlegs	*Tringa melanoleuca*

Hairy Woodpecker	*Picoides villosus*
Hermit Thrush	*Catharus guttatus*
Herring Gull	*Larus smithsonianus*
Hooded Merganser	*Lophodytes cucullatus*
Killdeer	*Charadrius vociferus*
Least Flycatcher	*Empidonax minimus*
LeContes Sparrow	*Ammodramus leconteii*
Lincolns Sparrow	*Melospiza lincolnii*
Magnolia Warbler	*Dendroica magnolia*
Mallard	*Anas platyrhynchos*
Mourning Warbler	*Geothlypis philadelphia*
Nashville Warbler	*Vermivora ruficapilla*
Northern Flicker	*Colaptes auratus*
Northern Parula	*Setophaga americana*
Northern Shrike	*Lanius excubitor*
Northern Waterthrush	*Parkesia noveboracensis*
Ovenbird	*Seiurus aurocapilla*
Palm Warbler	*Setophaga palmarum*
Philadelphia Vireo	*Vireo philadelphicus*
Pileated Woodpecker	*Dryocopus pileatus*
Pine Sisken	*Spinus pinus*
Red-breasted Nuthatch	*Sitta canadensis*
Red-eyed Vireo	*Vireo olivaceus*
Red-necked Grebe	*Podiceps grisegena*
Red-tailed Hawk	*Buteo jamaicensis*
Red-Winged Blackbird	*Agelaius phoeniceus*
Ring-necked Duck	*Aythya collaris*
Rose-breasted Grosbeak	*Pheucticus ludovicianus*
Ruby-crowned Kinglet	*Regulus calendula*
Ruffed Grouse	*Bonasa umbellus*
Savannah Sparrow	*Passerculus sandwichensis*
Song Sparrow	*Melospiza melodia*
Sora	*Porzana carolina*
Spotted Sandpiper	*Actitis macularius*
Swainsons Thrush	*Catharus ustulatus*
Swamp Sparrow	*Melospiza georgiana*
Tennessee Warbler	*Oreothlypis peregrina*
Tree Swallow	*Tachycineta bicolor*
Veery	*Catharus fuscescens*
White-throated Sparrow	*Zonotrichia albicollis*
White-winged Crossbill	*Loxia leucoptera*
Wilson's Snipe	*Gallinago delicata*
Winter Wren	*Troglodytes troglodytes*
Yellow-bellied Flycatcher	*Empidonax flaviventris*
Yellow-bellied Sapsucker	*Sphyrapicus varius*

Yellow-rumped Warbler	*Dendroica petechia*