OMNIA
ECOLOGICAL SERVICES

October 29. 2024

Sarah Benson
Environmental and Regulatory Manager
Denison Mines Corp.
345 4th Avenue South
Saskatoon, SK, S7K 1N3

**RE: Denison Wheeler 2024 Replicate Bat Surveys**

Dear, Ms. Benson,

As per your request, please see the following brief summary of the 2019 and 2024 bat echolocation bat surveys.

## Acoustic Bat Surveys

Acoustic bat surveys were completed to determine the presence/non-absence, diversity and relative abundance of bat species in the Wheeler River Project area during baseline surveys in 2019 and again using replicate surveys in 2024. Acoustic surveys measure bat passes and feeding buzzes.

## Methods

Surveys commenced one half hour after sunset and ended one half hour before sunrise. Survey stations were established 500 m apart along linear features where safe night travel was possible. Surveys were only completed during appropriate weather conditions (e.g., wind and temperature), with weather attributes (temperature, sky condition and wind (Beaufort scale)) recorded throughout the survey.

Each survey site consisted of a five-minute listening period using a Wildlife Acoustics Echo Meter Touch 2 Pro. The detector was held with the microphone at a 45 degree angle and slowly rotated 360 degrees for the duration of the sampling period. If a bat was detected, the detector was held stationary for 15 seconds to avoid duplicate counts.

Surveys were completed three times, once in 2019, and twice in 2024 to capture variations between and within seasons.

Total detector hours were calculated for the Project area and by ecosite/vegetation cover type. Ecosite/vegetation cover type for each survey point was established by utilizing the dominate ecosite/vegetation cover type within a 50 m radius of the survey point.

## Acoustic Bat Call Analysis

Data was analyzed using Wildlife Acoustics Kaleidoscope software. Echolocation call characteristics were used to identify bat species. Call characteristics used to establish species included:

- Minimum frequency.
- Maximum frequency.
- Call duration.
- Call slope.
- Call shape.

Call characteristics were compared to reference calls in literature and call libraries (WDNR 2016, WDNN 2016, Keinath 2011, Adams 2003). In addition, reference calls within Omnia's call library were used where possible.

## Results

Passive acoustic bat surveys were complete across the Project area on three occasions:

- July 22 - 23, 2019.
- June 18 – 22, 2024.
- July 26 – 28, 2024.

During each survey 61 acoustic bat survey locations were surveyed for 305 minutes per survey (915 minutes total). Of the 61 survey locations established in 2019, three had to be relocated in 2024 due to access limitations (Figure 1), the relocated survey locations were in the same habitat types as the original locations. Four bat species or species groups were detected during the survey, little brown myotis (*Myotis lucifugus*), little brown myotis/northern myotis (*M. septentrionalis*), hoary bat (*Lasiurus cinereus*), and western small-footed bat (*M. ciliolabrum*).

In the July 2019 survey, bat species or species group were detected in 30% (18/61) of survey locations at a rate of 3.5 echolocation observations per hour. Feeding buzzes were detected in 3% (2/61) of survey locations at a rate of 0.4 feeding buzzes per hour.

No bat detections were recorded in the June 2024 survey. Temperatures were cooler but we cannot confirm why not bats were detected.

In the July 2024 survey, bat species or species group were detected in 8% (5/61) of survey locations at a rate of 3.5 echolocation observations per hour. No feeding buzzes were detected in the July 2024 survey.

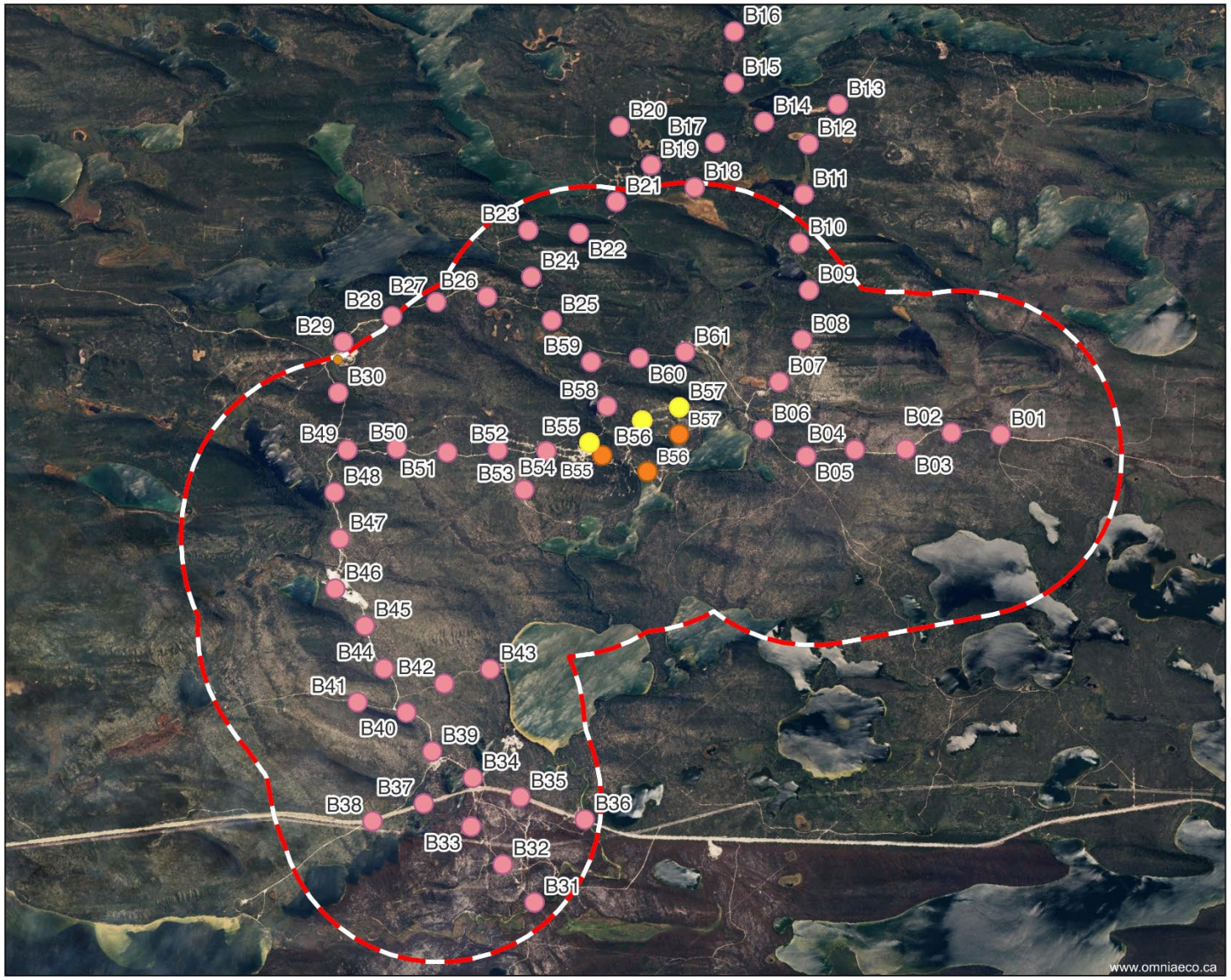
Six different mapped ecosites were sampled during the passive bat acoustic surveys. The most sampled ecosites/vegetation cover types were RF2 (regenerating forest – tall shrub dominated) (2.17hrs), BS3 (jack pine/blueberry/lichen) (2.17 hrs), and anthropogenic (polygonal and linear disturbance) (0.42 hrs). Three survey locations completed in BS3 in 2019 (locations #31 to 33) were affected by the 2023 fire. For 2024, these sites are mapped as RF3 (recent burn ecosite).

In the July 2019 survey, little brown myotis passes and feeding buzzes were most detected in the BS9 (black spruce – jack pine/feathermoss) ecosite at 72 passes/hr and 60 feeding buzzes/ hr

respectively. It should be noted the sample size in this ecosite was limited. The BS3 ecosite hosted little brown myotis passes (5.5/hr) and feeding buzzes (0.9/hr) second most frequently. Little brown myotis/northern myotis passes were most frequently detected in the BS3 (3.7/hr) and anthropogenic (2.4/hr) ecosites. No feeding buzzes were detected for the little brown myotis/northern myotis group.

During the July 2024 survey, hoary bat detections were noted within the RF3, RF2, and BS3 (n=3). Little brown myotis were detected in BS3 (n=2), western small-footed bat was recorded in BS3 (n=2).

These results are not a surprise as variation within and across years is not unexpected.




**Legend**

Local Study Area (LSA)

Bat Survey Location

- 2019, 2024
- 2024
- 2019

0 1 2 3 km

Kilometres

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**Denison Wheeler River Project**

**Acoustic Bat Surveys (2019 and 2024)**
**Denison Wheeler River Project**

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|---|---|
| DATE: OCTOBER 2024 Ver.1.01 | **Figure 1** |
| PROVIDED BY: Denison Mines | PROJECTION/DATUM: UTM zone 13V NAD83 |
| PROJECT ID: 2404-05 | CREATED BY: HS / QA / QC: MC |