



# Lockhart All-Season Road Project Spring 2024 Wolf Den and Fall 2024 Bear Den/Raptor Nest Surveys

Wildlife Research Permits WL501100 and  
WL501334

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## Background

The Lockhart All Season Road Project (the LASR Project) is being proposed by the Government of the Northwest Territories (GNWT) as a 174 km all-season public highway based on a preliminary alignment running from Highway 4 at Tibbitt Lake to Lockhart Lake.

Each year, a winter road is built by the Tibbitt to Contwoyto Winter Road Joint Venture at the end of Highway 4 to access several diamond mines. The proposed LASR Project is located to the east of the existing Tibbitt to Contwoyto Winter Road and is proposed to replace the Tibbitt to Contwoyto Winter Road between Tibbitt Lake and Lockhart Lake.

The construction of the LASR project, including development of associated borrow sources and quarries, has the potential to disturb, damage or destroy dens and denning habitat of wolves and bears. The project could also cause sensory disturbance to denning bears and wolves during construction activities or during operation and maintenance of the road once it opens for use.

Wolf and bear dens are protected from damage or destruction under sub-section 51(2) of the *Wildlife Act*. Denning wolves and bears are also subject to protection from disturbance while denning under section 52 of the *Wildlife Act*. Setback distances of 800 to 1500 m are recommended to protect bear dens from general industrial activities and blasting, and an 800 m setback is recommended for wolf dens for general development activities (GNWT 2015).

In the central arctic, wolf dens are typically located on eskers, as den excavation is easier on well-drained sand and gravel (McLoughlin et al. 2002, Klaczek et al. 2015). Wolves will reuse dens excavated in previous years. Wolf dens may be active from mid-May to mid-September. Grizzly bears also select esker habitats for their den sites, and typically enter their dens in the last 2 weeks of October and emerge the first week of May (McLoughlin et al. 2002). While grizzly bears don't tend to reuse the same den in consecutive years, they may reuse the same general area to excavate a new den each year. Black bears use a wide variety of den sites, but in northern regions tend to use excavated ground dens where temperatures are colder and large diameter trees are uncommon. Dens may be excavated under upturned root masses, fallen trees, into hillsides, or on relatively level ground (Alberta Government 2016).

The Department of Environment and Climate Change (ECC), with funding from the Department of Infrastructure (INF), undertook two aerial surveys in 2024 to document the

location of active or suspected wolf dens and bear dens along the preliminary LASR alignment, as well as at potential borrow source and quarry locations provided by INF. The fall bear den survey was also used as an opportunity to document any unoccupied raptor stick nests or cliff nests. Occupied and unoccupied raptor nests are also protected from destruction, under paragraph 51(1)(c) of the *Wildlife Act* and Schedule B of the Wildlife General Regulations, unless authorized by a permit or licence issued by GNWT-ECC. Recommended setback distances to protect occupied raptor nests from disturbance during the nesting season vary between 500 to 1500 m (GNWT 2015).

## May 2024 Wolf Den Survey

### Survey Design

The LASR wolf den survey was combined with a broader regional survey of eskers to assess changes in the number and occupancy of wolf dens within the summer range of the Bathurst barren-ground caribou herd conducted in late May 2024 (Wilson et al. 2024). This is considered a good time to conduct the survey because wolves rest at the den site during the day and are easily visible (Wilson et al. 2024). The survey was conducted under Wildlife Research Permit WL501100. For the LASR portion of the survey, planned survey routes followed the preliminary LASR alignment, with additional parallel transects spaced 800 m on either side of the alignment. Flight lines were also planned to deviate to fly over potential borrow source locations, and along eskers that occur within a 10 km buffer around the LASR alignment (Figure 1).

### Survey Logistics

The LASR wolf den survey was completed on May 23-24, 2024, using an Aviat Husky fixed-wing aircraft. The aircraft was piloted by Dave Olesen (Hoarfrost River Huskies) with Stefan Goodman (GNWT-ECC) as the navigator/observer. The pilot and observer searched for evidence of dens on either side of the aircraft and recorded any other wildlife or other features of interest seen. Survey conditions were good with clear skies (sun) and good visibility on both days and temperatures around 10 degrees Celsius.

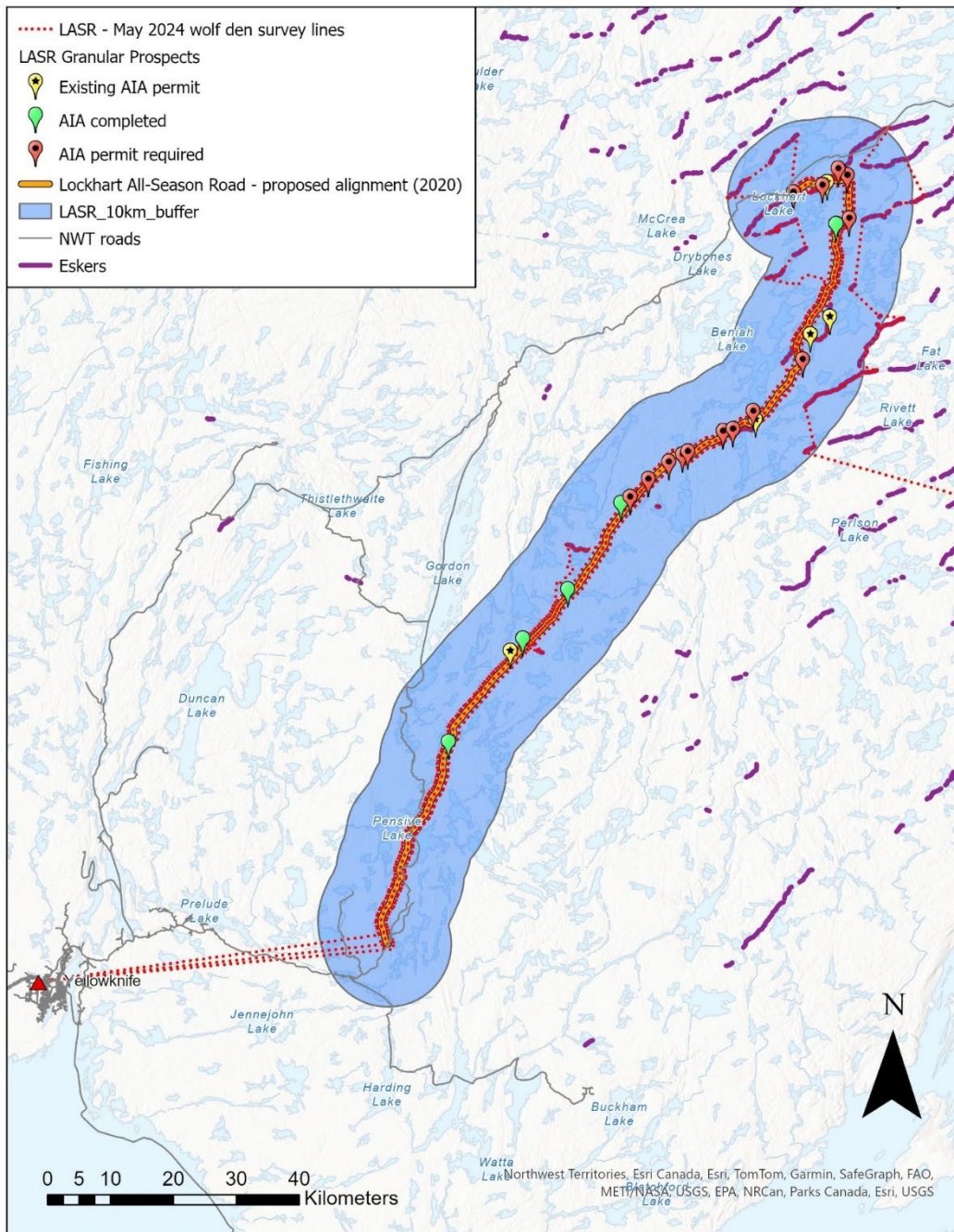


Figure 1. Wolf den aerial survey routes flown along the preliminary Lockhart All-Season Road alignment, potential borrow sources, and eskers within a 10 km radius around the road alignment.

## Survey Results

No active wolf dens were observed along flight lines within the LASR wolf den study area. Two suspected old dens were observed (Table 1; Figure 2). The first (waypoint 272) suspected old den was observed along the south slope of an esker in treed habitat near an area where two wolf GPS collars had been retrieved the previous year and thus was attributed to wolves (Figure 3). The second suspected old den (waypoint 277) had signs of excavation but was difficult to photograph and it could not be confirmed definitively whether it might have been an old wolf or bear den (Figure 4). Three observations of muskox were recorded, in groups ranging from 1 to 45 individuals, and there was one observation of a black bear standing in a marsh (Table 1; Figure 5, Figure 6). An old grave site was also recorded on an esker to the northwest of Lockhart Lake (Figure 7).

*Table 1. Wildlife and suspected wolf den observations from a fixed-wing aerial survey conducted on May 23-24, 2024, along the preliminary Lockhart All-Season Road alignment and along eskers occurring within 10 km of the alignment.*

| Waypoint Number | Date         | Observation Type | Species    | Count | Notes  |
|-----------------|--------------|------------------|------------|-------|--|
| 270             | 2024-05-23   | Visual           | Black Bear | 1     | In Marsh   |
| 271             | 2024-05-23   | Visual           | Moose      | 1     |  |
| 272             | 2024-05-24   | Suspected den    | Wolf       | NA    | Potential den; esker south facing slope; at base of tree; likely old den; two wolf collars retrieved near here in previous year. |
| 273             | 2024-05-24   | Visual           | Muskox     | 1     | Standing on shore of lake  |
| 274             | 2024-05-24   | Visual           | Muskox     | 45    | 30 adults; 15 calves   |
| 275             | 2024-05-24   | Other            | NA         | NA    | Grave site on esker  |
| 276             | 2024-05-24   | Visual           | Muskox     | 2     | Laying down  |
| 277             | 2024-05-24 9 | Suspected den    | Unknown    | NA    | Old den? Difficult to get photos. Probably not a den. No tracks in the area.   |

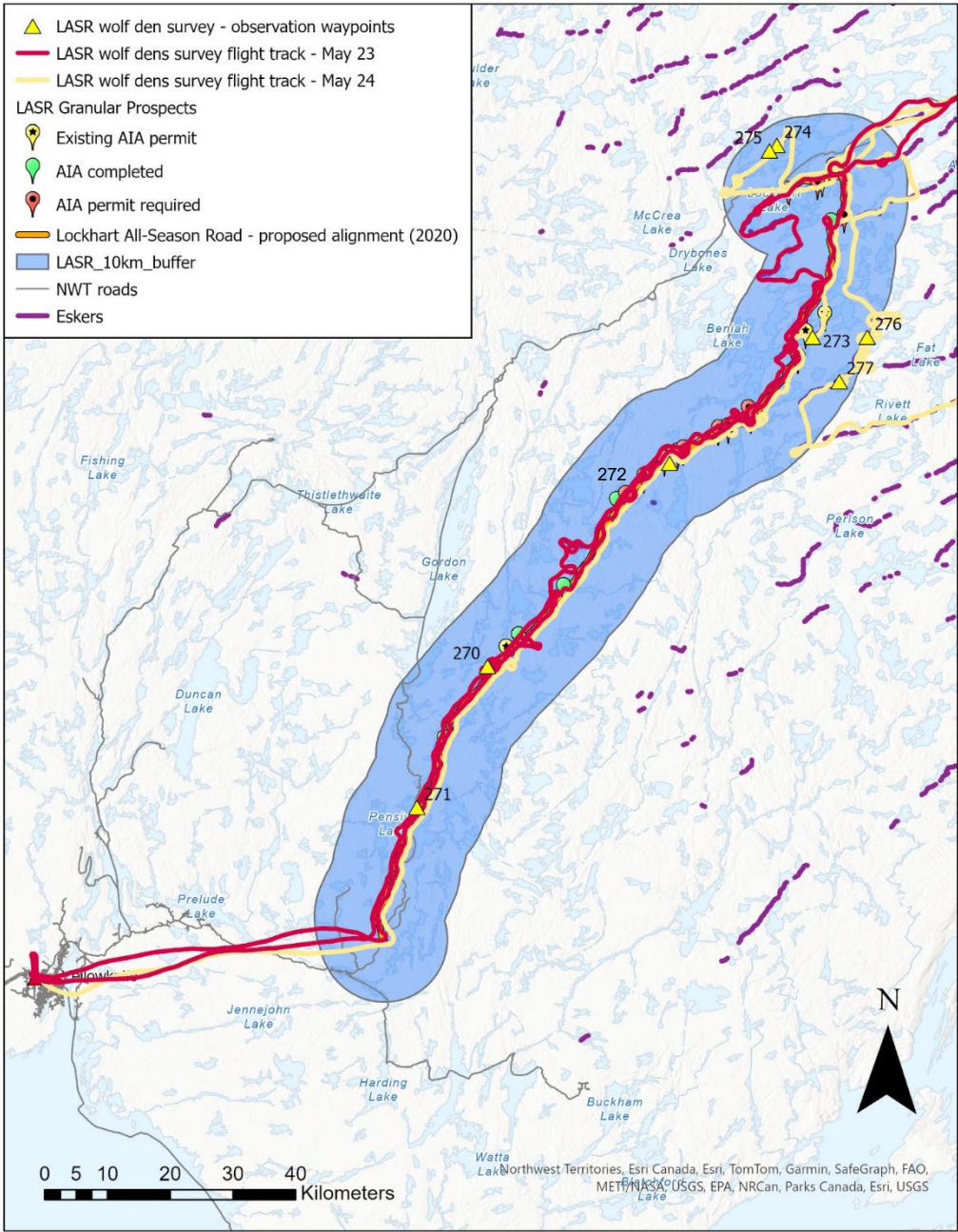


Figure 2. Flight tracks and waypoints from observations recorded during the May 2024 LASR wolf den surveys. See Table 1 for more details about the observations at each numbered waypoint.



*Figure 3. Suspected old wolf den (waypoint 272). Photo credit: S. Goodman, GNWT-ECC.*



*Figure 4. Suspected old wolf den (waypoint 277). Photo credit: S. Goodman, GNWT-ECC.*



*Figure 5. Black bear in marsh (waypoint 270). Photo credit: S. Goodman, GNWT-ECC.*



*Figure 6. Group of muskox near Lockhart Lake (waypoint 274). Photo credit: S. Goodman, GNWT-ECC.*



*Figure 7. Grave site near Lockhart Lake (waypoint 275). Photo credit: S. Goodman, GNWT-ECC.*

## **Fall 2024 Bear Den and Raptor Nest Survey**

### **Survey Design**

The study area for the fall aerial bear den and raptor nest survey was defined by a 1 km buffer around the preliminary LASR alignment (2020 version), within which survey transects were placed along the alignment, with parallel transects placed at 250 m, 500 m, and 750 m on either side of the preliminary alignment. Aerial bear den surveys are most effective when they are conducted just before bears enter their dens, after a recent snowfall, which makes it easier to detect bear tracks as well as any signs of den excavation. The survey area spans the Taiga Shield High Boreal and Taiga Shield Low Subarctic ecoregions, with terrain characterized by hummocky to rolling bedrock and bouldery till, and vegetation characterized by open and closed canopy black spruce and jack pine dominated forest stands (Ecosystem Classification Group 2008). The northern end of the LASR alignment is just below treeline, and eskers are more common along the northern ~1/3 of the preliminary alignment. The study area overlaps with the ranges of both black bear and grizzly bears (source: [NWT Species and Habitat Viewer](#) – Species Distribution report; accessed August 2024). Stick nesting raptor species that might be found in the project area include Bald Eagle, Golden Eagle, Great Gray Owl, Great Horned Owl, Long-eared Owl, Merlin, Northern Goshawk, Osprey, Red-tailed Hawk, Rough-legged Hawk, and Sharp-shinned Hawk. American Crow and Common Raven also construct large stick nests

and are common in the survey area. Cliff nesting raptor species that may occur include Gyr Falcon and Peregrine Falcon (source: [NWT Species and Habitat Viewer](#) – Biodiversity Report; accessed August 2024).

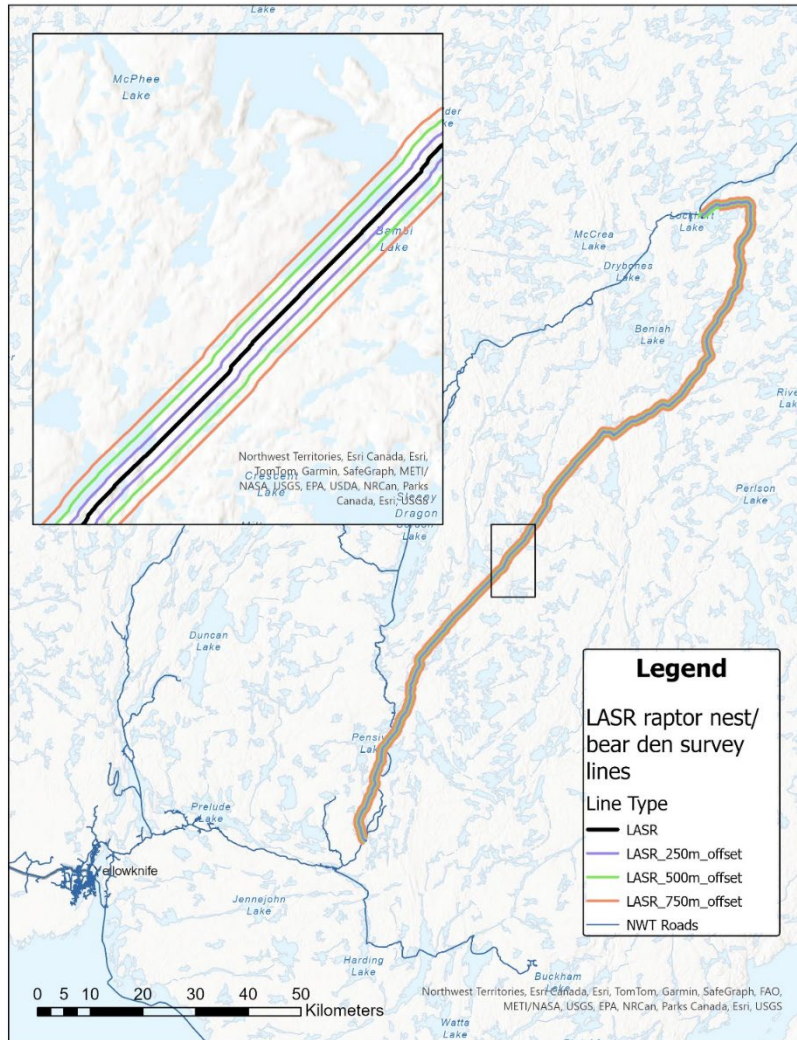


Figure 8. Planned flight lines for the fall 2024 LASR bear den and raptor nest aerial survey. Planned flight lines were spaced 250 m apart running parallel to the preliminary LASR alignment [inset map].

### Survey Logistics

The survey was conducted under Wildlife Research Permit #WL501334 with an A-Star (AS350B2) helicopter, piloted by Carter Pond of Great Slave Helicopters Ltd. The survey was flown at an altitude of 100-200 feet above ground level and speeds of 60-80 knots (~110-150 km/hr) depending on wind and ground visibility. The survey crew consisted of a navigator (James Hodson, GNWT-ECC) in the front seat and two observers in the back

seat (Stefan Goodman [GNWT-ECC], Kyle Coumont (NSMA), Peter Crookedhand (YKDFN; Ek'edia Services), Roy Judas (Tłıchq Government) and Christopher Shapka (GNWT-ECC).

The survey was conducted over 5 days between October 28 and November 01, 2024. Due to a substantial snowfall on October 22, there was 100% snow cover in the study area during the survey, with 5-10 cm of snow on the ground (Figure 9). Maximum daytime temperatures during the survey varied between -1°C and -8°C, and minimum nighttime temperatures varied between -6°C and -17°C, based on weather station data from the Yellowknife airport. There was one weather day on October 29 where the crew was unable to fly due to poor visibility and ice fog. Survey conditions on the other days were either overcast with flat light (2 days) or partially cloudy/sunny with good contrast for detecting tracks (2 days). The estimated number of days since the last track-obliterating snowfall ranged between 0 and 4 days. Appendix A – Table A1 provides a more detailed description of the survey conditions.



*Figure 9. An example of snow cover conditions within the LASR bear den/raptor nest survey study area, Oct. 28-Nov. 01, 2024.*

Survey crew members were instructed to scan for signs of wildlife, tracks, nests, and signs of den excavation within a roughly 200 m strip on either side of the aircraft. Given that survey transects were spaced 250 m apart, and observers were searching a 400 m wide strip, this essentially provided 100% coverage of the study areas with some overlap between transects. Crew members were also instructed to look for signs of whitewash on

cliff faces which could indicate presence of a raptor nest. Any tracks, visual sightings of wildlife, or suspected nests or dens were recorded using the ESRI ArcGIS Survey 123 mobile app, as well as GPS/paper data sheets as a back-up. A forward-looking infrared camera was carried on-board in the event that a suspected den was observed to assist in assessing if there was a bear present at the site.

## Survey Results

No evidence of bear denning activity (signs of den excavation), suspected dens or bear tracks were observed during the survey. Only one raptor nest was recorded, which was a stick nest (likely a raven's nest) established on a piece of equipment at the Lockhart Lake Winter Road camp (waypoint 25; Figure 16). There were 4 visual sightings of moose (three on transect with a total of four individuals and one incidental sighting with two individuals while flying off transect to a fuel cache), one wolf sighting, one red fox sighting, and four raptor sightings (3 Bald Eagles, and 2 unknown raptors; Table 2). Wolf and wolverine tracks were the most common type of wildlife track recorded (34 and 39 tracks recorded respectively). These tracks likely represented a few individuals that repeatedly crossed the survey transects at different locations. Tracks of moose, lynx, red fox, river otter, and muskox were also recorded (Table 2). Tracks of smaller bodied species such as snowshoe hare, ptarmigan, and marten were common throughout the study area but were not recorded due to their high frequency of occurrence. Figure 10 provides an overview of the location of tracks and visual sightings recorded, with finer scale maps of the wildlife observations broken down into five road segments in Figure 11 to Figure 15.

Table 2. Summary of wildlife observations recorded during the LASR bear den / raptor nest survey, Oct. 28-Nov.1, 2024.

| Species                   | Observation Type       |                        |                        |                            |
|---------------------------|------------------------|------------------------|------------------------|----------------------------|
|                           | Nest                   | Tracks                 | Visual Sightings       |                            |
|                           | Number of Observations | Number of Observations | Number of Observations | Total Individuals Observed |
| <b>Moose</b>              |                        |                        |                        |                            |
| Incidental (off transect) |                        |                        | 1                      | 2                          |
| On transect               |                        | 14                     | 3                      | 4                          |
| <b>Wolf</b>               |                        | 34                     | 1                      | 1                          |
| <b>Wolverine</b>          |                        | 39                     |                        |                            |
| <b>Red Fox</b>            |                        | 16                     | 1                      | 1                          |
| <b>Lynx</b>               |                        | 3                      |                        |                            |
| <b>River Otter</b>        |                        | 8                      |                        |                            |
| <b>Muskox</b>             |                        | 2                      |                        |                            |
| <b>Raven</b>              | 1                      |                        |                        |                            |
| <b>Bald Eagle</b>         |                        |                        | 3                      | 3                          |
| <b>Unknown Raptor sp.</b> |                        |                        | 1                      | 2                          |
| <b>Total</b>              | <b>1</b>               | <b>116</b>             | <b>11</b>              | <b>14</b>                  |

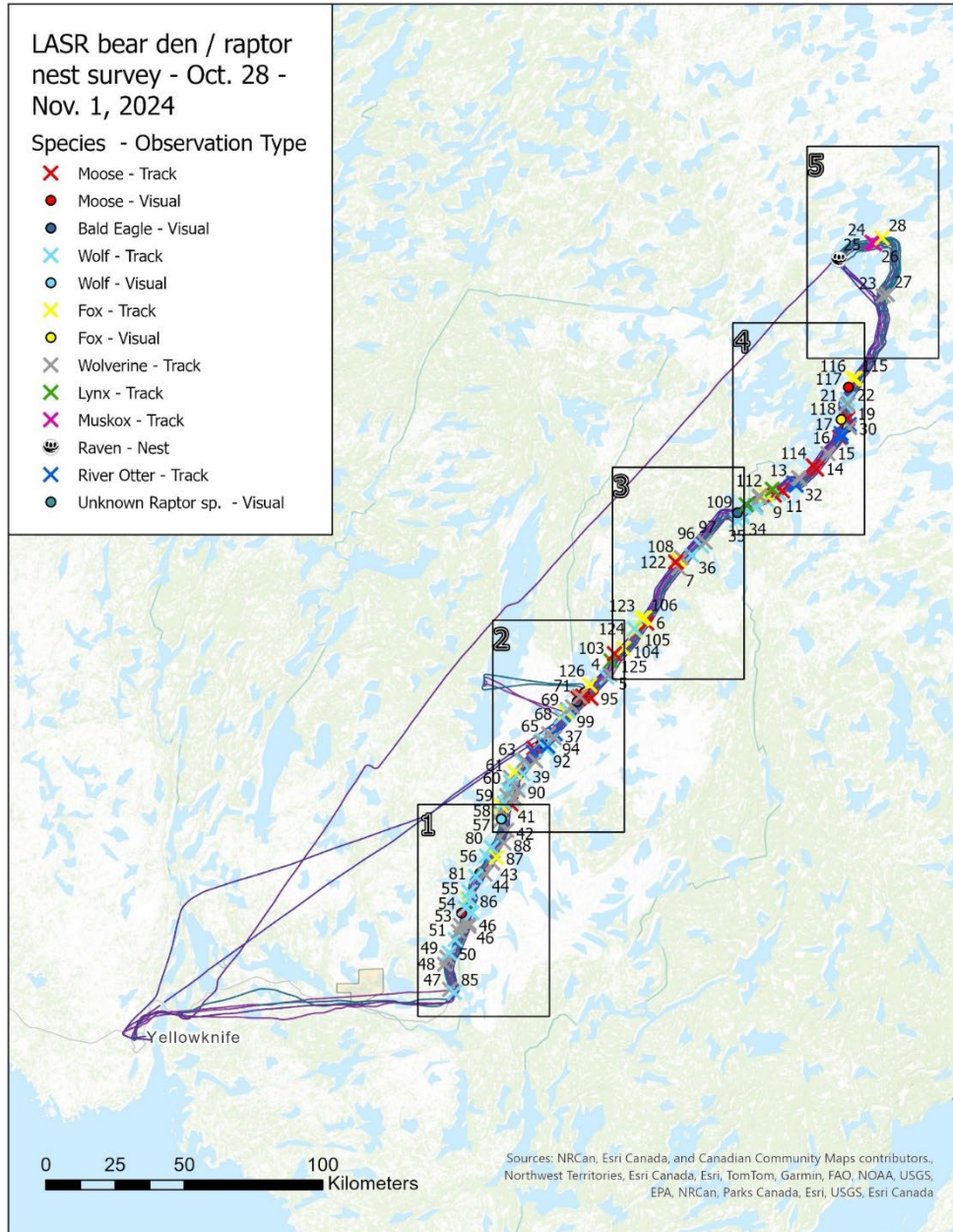


Figure 10. Overview map of survey transects flown and wildlife observations recorded during an aerial bear den / raptor nest survey along the preliminary Lockhart All-Season Road alignment, Oct. 28-Nov. 1, 2024. The numbered rectangles correspond to finer scale maps presented in Figures 11-15.

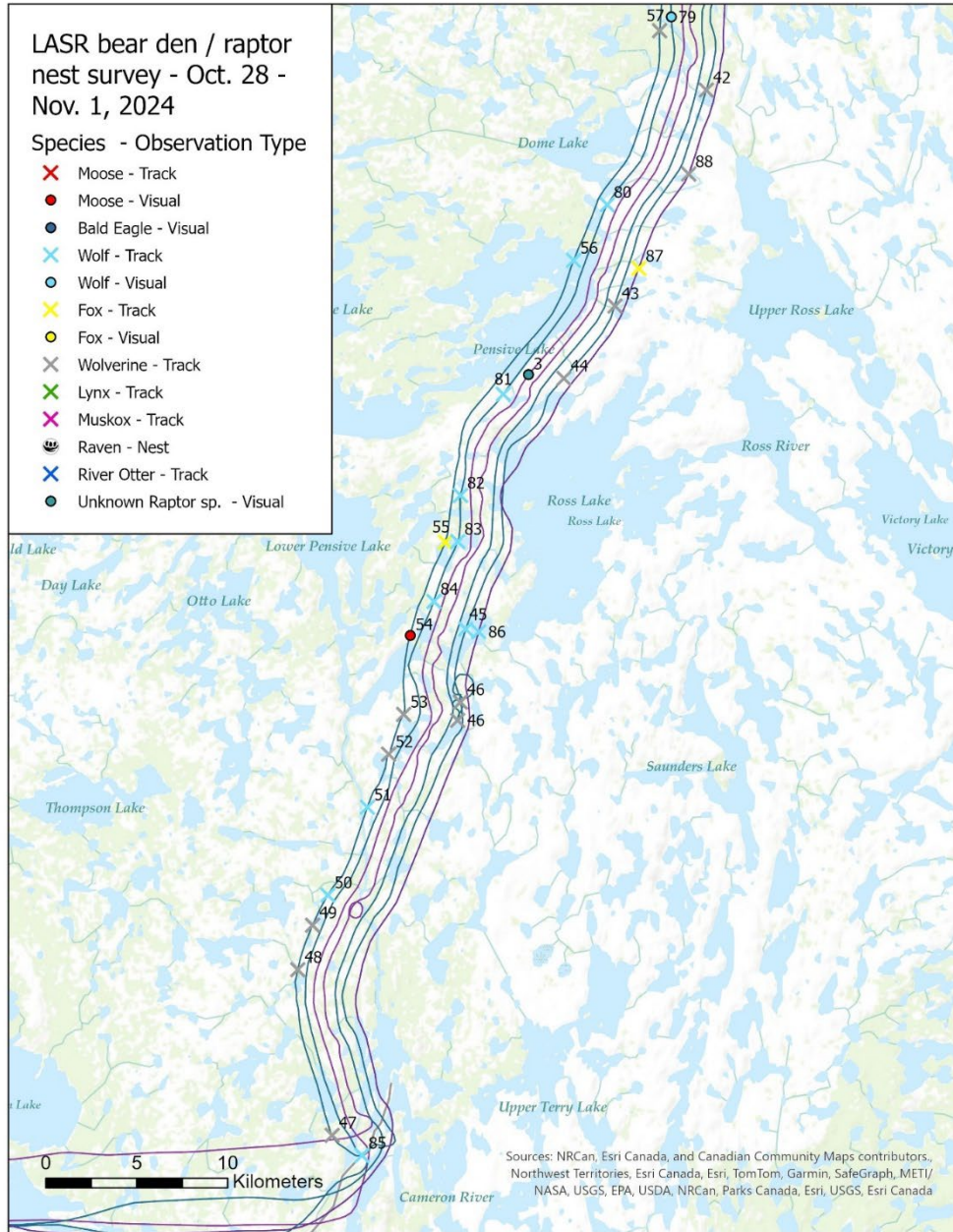


Figure 11. Wildlife observations recorded during an aerial bear den / raptor nest survey along the preliminary Lockhart All-Season Road alignment, Oct. 28-Nov. 1, 2024. Map extent corresponds to area 1 in Figure 10.

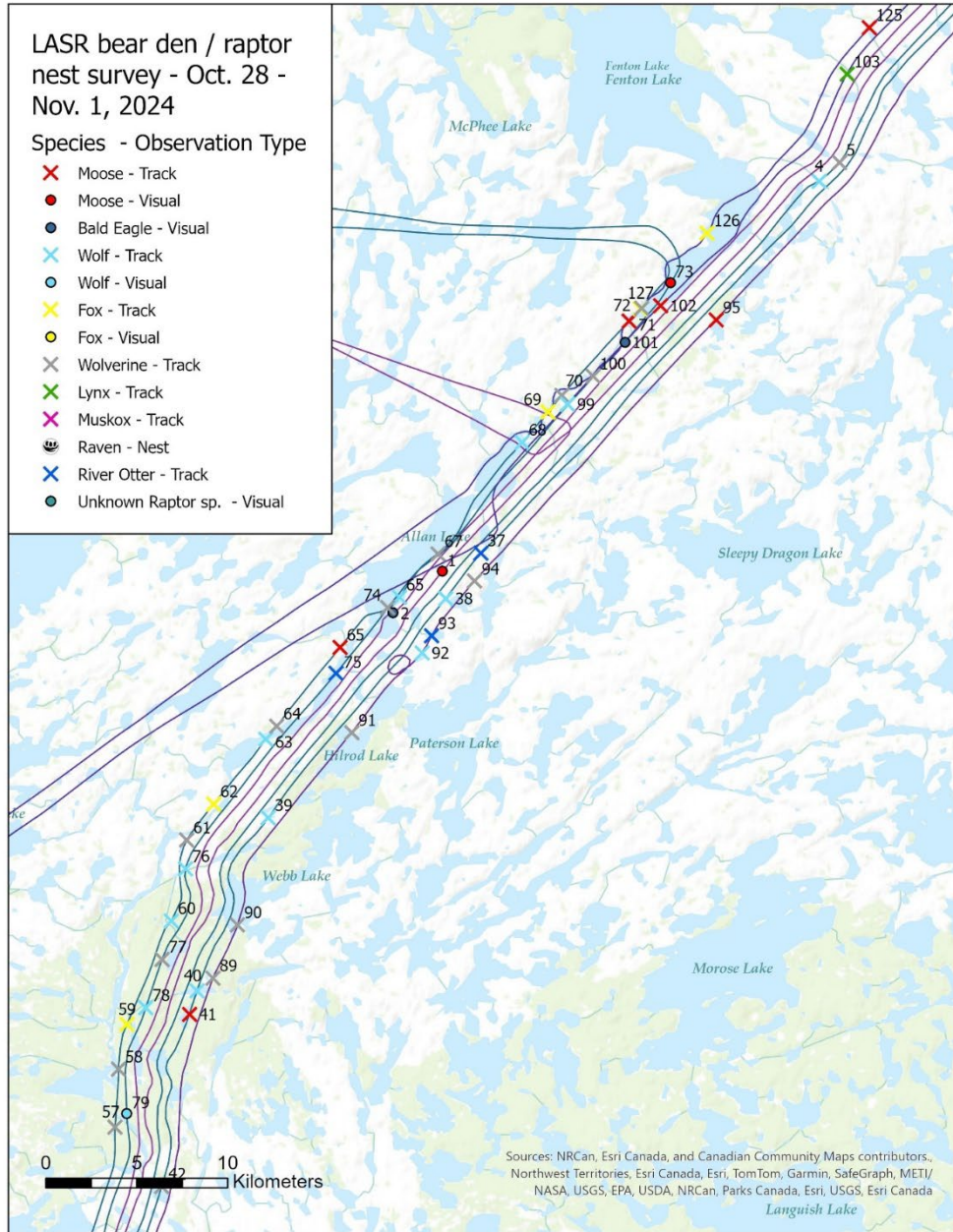


Figure 12. Wildlife observations recorded during an aerial bear den / raptor nest survey along the preliminary Lockhart All-Season Road alignment, Oct. 28-Nov. 1, 2024. Map extent corresponds to area 2 in Figure 10.

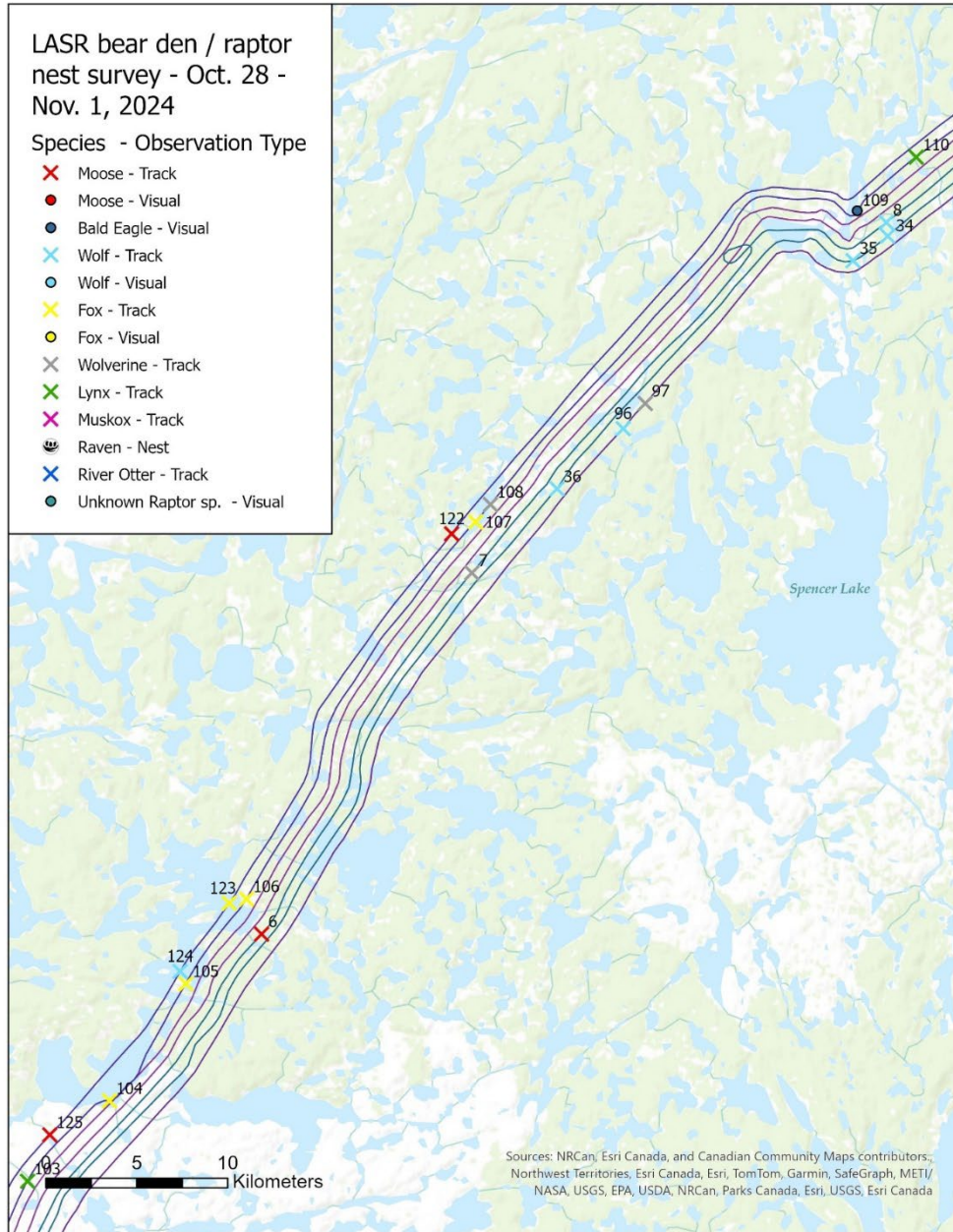


Figure 13. Wildlife observations recorded during an aerial bear den / raptor nest survey along the preliminary Lockhart All-Season Road alignment, Oct. 28-Nov. 1, 2024. Map extent corresponds to area 3 in Figure 10.

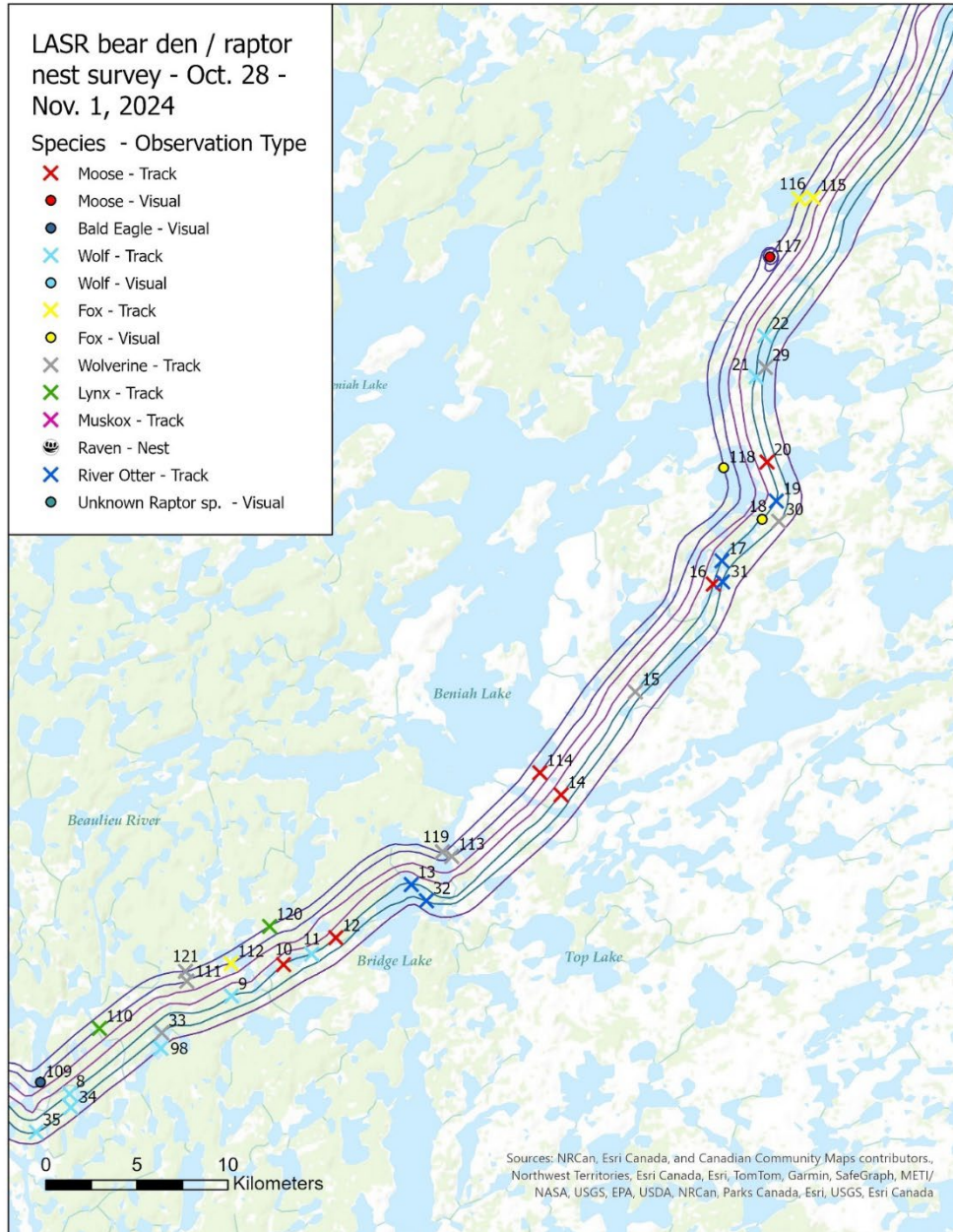


Figure 14. Wildlife observations recorded during an aerial bear den / raptor nest survey along the preliminary Lockhart All-Season Road alignment, Oct. 28-Nov. 1, 2024. Map extent corresponds to area 4 in Figure 10.

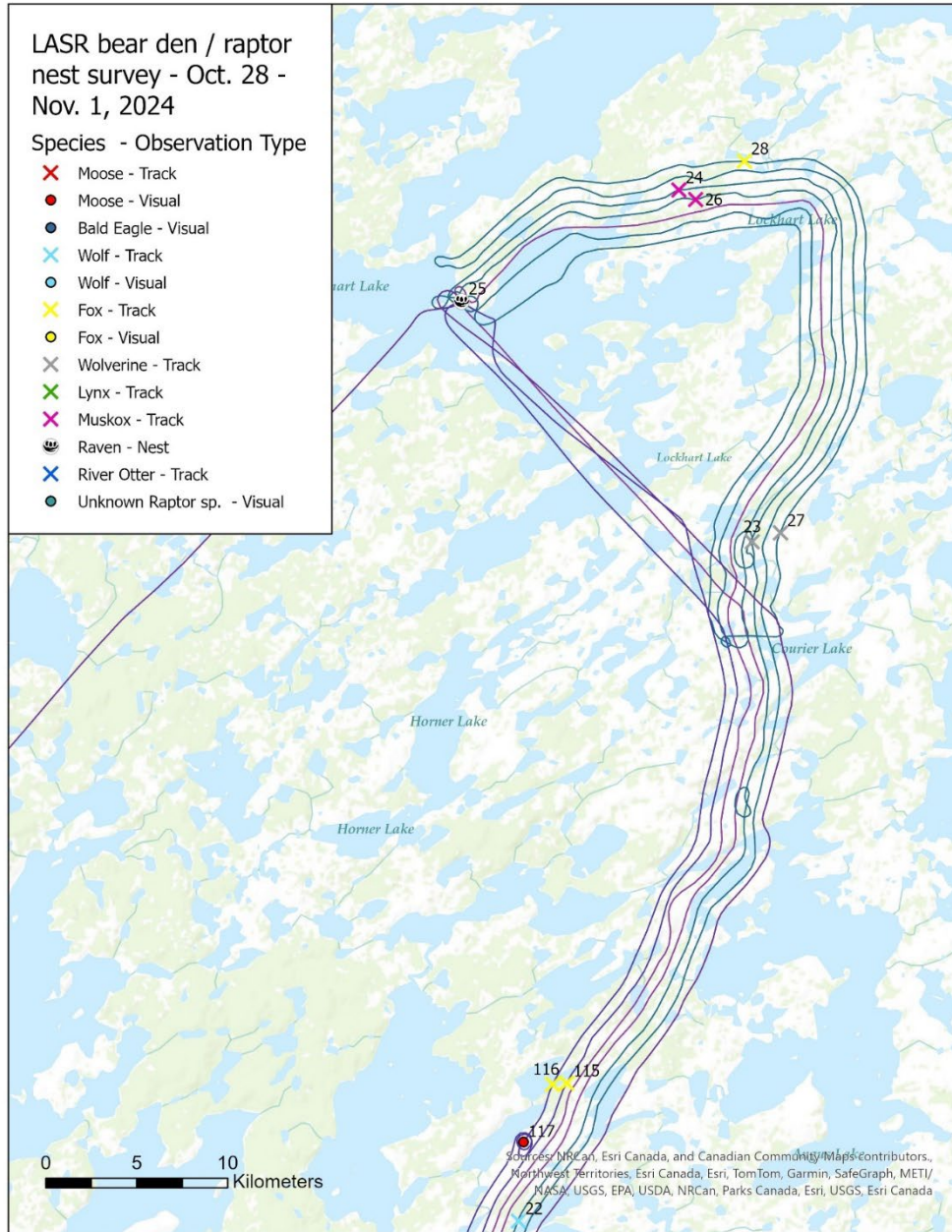
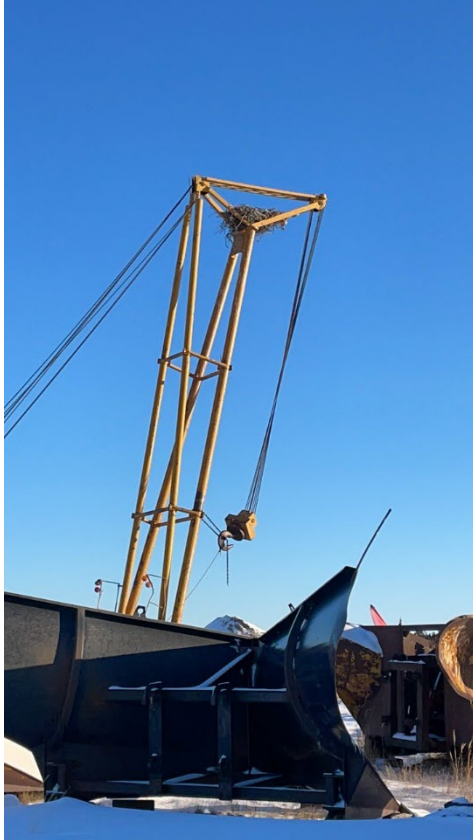


Figure 15. Wildlife observations recorded during an aerial bear den / raptor nest survey along the preliminary Lockhart All-Season Road alignment, Oct. 28-Nov. 1, 2024. Map extent corresponds to area 5 in Figure 10.



*Figure 16. Raven nest (waypoint 25) observed at the Lockhart Lake winter road maintenance camp. Photo credit: J. Hodson, GNWT-ECC.*



*Figure 17. Moose pair observed near the northern end of the proposed LASR alignment (waypoint 117). Photo credit: S. Goodman, GNWT-ECC.*

## Discussion and Recommendations

### Wolf Den Surveys

Suitable wolf denning habitat is present along eskers that are mostly found within the northern third of the LASR survey area. Although no active wolf dens were found within the LASR survey area, 7 active dens, 5 inactive den sites and 22 wolves were observed, within the broader Bathurst caribou summer range wolf den survey area (Wilson et al. 2024). Excluding the Nunavut (NU) portion of that study area, only 3 active dens were observed in the NWT in summer 2024 (3 were found in 2023 in the same study area; Wilson et al. 2024). For comparison, a survey conducted in the same area in 2012 found 22 active wolf dens at a time when the Bathurst caribou herd population size was much higher. The absence of active wolf dens detected in the LASR study area may reflect that 1) most of the study area is below treeline and eskers habitat is less common along the southern ~2/3 of the road alignment and 2) active wolf dens in the summer range of barren-ground caribou in the NWT and NU (i.e., Bathurst caribou herd) have decreased in density in response to caribou decline (Klaczek et al. 2015).

Given that suitable denning habitat exists within broader LASR study area, that the road alignment and selection of borrows is not yet finalized, and that the number and occupancy of wolf dens may change as abundance of barren-ground caribou changes, additional aerial wolf den surveys within the LASR study should be considered. These surveys should focus on esker habitat within the LASR study area and be conducted in combination with any broader Bathurst caribou summer range wolf dens surveys. During construction of the road, ground-based pre-clearing surveys of esker habitat that is directly within the footprint of the road alignment and borrow sources, and areas within 800 m of the project footprint, should take place during the wolf denning season to identify and protect any active dens from disturbance or destruction.

### Bear Den and Raptor Nest Surveys

The LASR fall bear den/raptor nest survey followed a similar approach to that used for pre-construction surveys along the Tł̨ch̨q̨ All-Season Road (Hodson 2019) alignment and the Mackenzie Valley Highway alignment (Pathmanathan 2022). Although the Tł̨ch̨q̨ All-Season Road survey did observe suspected dens and bear tracks, no active dens were found (Hodson 2019). Similarly, the Mackenzie Valley Highway survey did not find any active or suspected dens (Pathmanathan 2022). In both these surveys, which occurred in late October, snow cover was approximately 90%, which, although suitable for detecting bear tracks, may have meant most bears were already in their dens at the time the survey took place. While an aerial survey may be the only logistically feasible option for conducting

bear den surveys over broad areas, the likelihood of having all of the necessary conditions align for a successful survey is very low. Ideally the survey needs to be conducted shortly after the first snowfall of the season so that there is enough snow cover to detect bear tracks and evidence of den excavation. It needs to be late enough in the season that bears have started to investigate and excavate potential den sites, but not so late in the season that temperatures are cold enough for them to have already entered their dens. For the 2024 LASR bear den survey it is likely the ideal timing window was just missed. There were reports of active grizzly bears at the Ekati mine the weekend (Oct. 26-27, 2024) before the LASR survey took place, but during the survey temperatures were below freezing and there was 100% snow cover in the study area due to a large snowfall a few days before the survey began.

The LASR survey area was predominantly in treed habitat which added to the challenge of detecting bear tracks, if there had been any to detect at the time. The helicopter pilot advised that 60 nautical miles/hr was the slowest speed he could safely fly at the planned survey altitude (100-200 ft above ground). At this speed it would have been very unlikely to spot a den excavation site or small opening in the snow unless there was also a network of bear tracks around it. The survey speed also made it challenging to look for unoccupied raptor nests (both stick nests and cliff nests). Raptor nests would be more easily detected on this type of survey during the nesting season as observers would be likely to detect a raptor that flushed from its nest, which would then trigger a more intensive search of the area to find the nest. Although raptors were observed near open water along the Cameron River, the timing of the fall survey was well past the end of the raptor nesting season.

Despite the absence of detection of any bear tracks or suspected dens, the survey did provide a good inventory of the medium- to large-bodied mammal community (7 species detected) that are active in the study area during early winter based on observations of tracks and a few visual sightings.

Ground-based and/or drone-based fall den surveys could be carried out by environmental monitors hired for the construction phase of the LASR project. These surveys should occur in the fall immediately prior to any vegetation clearing, blasting, quarrying or other construction activities scheduled for that winter in previously undisturbed areas. Surveys should focus on both the immediate area of the proposed ground/vegetation disturbance (ground-based surveys) and within an 800 m buffer around it (drone-based surveys may work well for these larger areas). The use of forward-looking infrared cameras to increase likelihood of detecting occupied bear dens should also be considered. If such surveys cannot be completed in the fall prior to disturbance, construction crews and environmental monitors should remain vigilant for any signs of suspected dens during winter, immediately halt activities if a bear is disturbed from a den, and contact ECC for further advice.

ECC is planning to conduct further aerial raptor nest occupancy and productivity surveys along the LASR alignment in June and July 2025 in combination with ECC's recurring survey of raptor nests around the Ekati and Diavik diamond mines, which takes place every 5 years (last survey was in 2020; ECC unpublished data).

Further raptor nest surveys could be completed prior to any vegetation clearing along the project alignment or at proposed borrow sources and quarries. These surveys should be conducted during the nesting season to maximize the likelihood of detecting nests. A combination of ground-based and/or drone-based surveys (e.g. Spaulding et al. 2024) may be appropriate to survey the direct project footprint and a larger buffer (e.g. 800 m) around it.

## References

- Alberta Government. 2016. Management Plan for Black Bears in Alberta. Wildlife Management Planning. Alberta Environment & Parks Branch, Edmonton, Alberta. 81 pp.
- Ecosystem Classification Group. 2008. Ecological Regions of the Northwest Territories – Taiga Shield. Department of Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, NT, Canada. viii + 146 pp. + insert map.
- GNWT. 2015. Northern Land Use Guidelines - Northwest Territories Seismic Guidelines. Department of Lands. 48 pp.
- Hodson, J. 2019. Tłıchǫ All-Season Road Project Aerial Bear Den Survey Results. Wildlife Research Permit #WL500763. Department of Environment and Natural Resources, Wildlife Division, Government of the Northwest Territories. 17 pp.
- Klaczek, M.R., Johnson, C.J. and Cluff, H.D., 2015. Den site selection of wolves (*Canis lupus*) in response to declining caribou (*Rangifer tarandus groenlandicus*) density in the central Canadian Arctic. *Polar Biology*, 38, pp.2007-2019.
- McLoughlin, P.D., Cluff, H.D. and Messier, F., 2002. Denning ecology of barren-ground grizzly bears in the central Arctic. *Journal of Mammalogy*, 83(1), pp.188-198.
- Pathmanathan, H. 2022. Mackenzie Valley Highway Project Aerial Bear Den Survey Report. Wildlife Research Permit # WL500993. Department of Environment and Natural Resources, Wildlife Division, Government of the Northwest Territories. 10 pp.
- Spaulding, R., Gallego-García, D. and Bird, D.M., 2024. Conservation Letter: The Use of Drones in Raptor Research. *Journal of Raptor Research*, 58(4), pp.535-546.

Wilson, A., Hodson, J., Abernethy, A., Behrens, S., Jutha, N., Nishi, J. and Woodworth, B.  
2024. Draft Technical Report - Wolf (Diga) Management Program - January-October  
2024. Environment and Climate Change, GNWT, Tlicho Government, and Ecoborealis  
Consulting Inc. 76 pp. Available at:  
[https://wrrb.ca/sites/default/files/DRAFT%202024%20Wolf%20Management%20Annual%20Report V3 fnl.pdf](https://wrrb.ca/sites/default/files/DRAFT%202024%20Wolf%20Management%20Annual%20Report%20V3%20fnl.pdf)

## Appendix A

**Table A1. Survey conditions and observers participating in the fall 2024 LASR bear den and raptor nest survey.**

| Date:      | Pilot:      | Navigator:         | Left Observer:       | Right Observer:                | Departure from YK | Survey Start Time | Temp (°C) | Wind Speed (Knots): | Wind Direction | Precip | Sky                | Contrast   | Light Intensity: | Snow Cover:         | Days since last snow / wind event? | Survey End Time (approx.) | Return Time - Yk |
|------------|-------------|--------------------|----------------------|--------------------------------|-------------------|-------------------|-----------|---------------------|----------------|--------|--------------------|------------|------------------|---------------------|------------------------------------|---------------------------|------------------|
| 10/28/2024 | Carter Pond | James Hodson (ECC) | Stefan Goodman (ECC) | Kyle Coumont (NSMA)            | 9:46              | 10:03             | -1        | 10                  | W              | Snow   | Obscured           | FLAT LIGHT | LOW              | Complete Snow Cover | 1                                  | 13:00                     | 13:36            |
| 10/29/2024 | Carter Pond | James Hodson (ECC) | Stefan Goodman (ECC) | Peter Crookedhand (YKDFN)      | 9:59              | NA                | -9        | 5                   | NW             | None   | Partially Obscured | FLAT LIGHT | MEDIUM           | Complete Snow Cover | 2                                  | NA                        | 10:01            |
| 10/30/2024 | Carter Pond | James Hodson (ECC) | Stefan Goodman (ECC) | Roy Judas (Tłı̨chǫ Government) | 9:21              | 9:40              | -15       | <3                  | NA             | None   | Partially Obscured | HIGH       | MEDIUM           | Complete Snow Cover | 3                                  | 15:00                     | 15:33            |
| 10/31/2024 | Carter Pond | James Hodson (ECC) | Stefan Goodman (ECC) | Chris Shapka (ECC)             | 9:27              | 9:50              | -7        | 9                   | ESE            | None   | Overcast           | FLAT LIGHT | MEDIUM           | Complete Snow Cover | 4                                  | 12:00                     | 12:20            |
| 11/1/2024  | Carter Pond | James Hodson (ECC) | Stefan Goodman (ECC) | Peter Crookedhand (YKDFN)      | 11:29             | 11:50             | -9        | 7                   | ENE            | None   | Broken             | HIGH       | MEDIUM           | Complete Snow Cover | 0                                  | 13:45                     | 14:20            |