Parks Canada Preliminary Screening under the *Mackenzie Valley Resource Management Act*

TYPE OF DEVELOPMENT:

- ☐ New
- ☐ Amended
- ✓ Requires a permit, licence or authorization under the *Preliminary Screening Requirement Regulations* (issuance of a Business Permit pursuant to the *National Parks of Canada Business Regulations* s 4.1)
- ☐ Does not require permit, licence or authorization and is proposed by PCA

1. DEVELOPMENT TITLE & LOCATION

Retrieval of bat acoustic and microclimate data loggers and opportunistic collection of bat DNA samples from caves within Nahanni National Park Reserve

2. PROPONENT INFORMATION

Organization Name: Wildlife Conservation Society Canada (WCS Canada)
Organization Contact: Cori Lausen
Organization Address: PO Box 606, Kaslo, BC, V0G1M0
E-mail: clausen@wcs.org

3. PROPOSED DEVELOPMENT DATES

Planned commencement: 2019-07-08
Planned completion: 2019-07-17

4. INTERNAL FILE

NAH2019-005

5. DEVELOPMENT DESCRIPTION

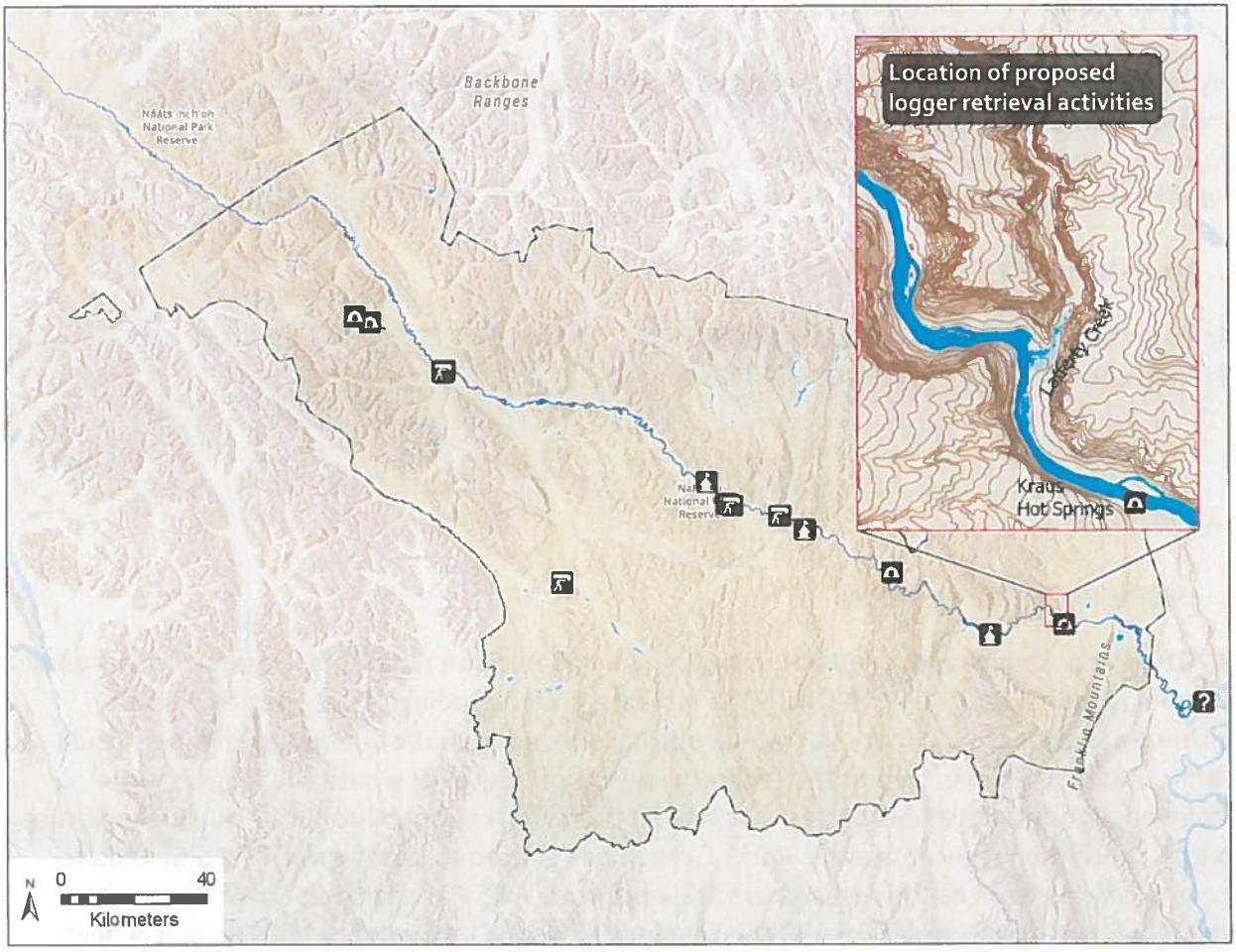
In 2016, Parks Canada deployed bat roost loggers and microclimate data loggers in caves within Nahanni National Park Reserve (NNPR) to increase understanding of bat species diversity (including species at risk), bat over-wintering activity, and climatic conditions of hibernacula within the park reserve. Due to the technical nature of the caves where the loggers were deployed, and the sensitive species that inhabit them, Parks Canada requires outside expertise to assist with the logger retrievals. Parks Canada has chosen to partner with WCS Canada to accomplish this work as the researchers affiliated with WCS Canada's Bat Caver Program (http://www.batcaver.org/) possess the caving abilities (i.e., experience with technical, high angle caving and enclosed spaces), familiarity with caves within NNPR, and bat knowledge

required to successfully retrieve the loggers while ensuring that sensitive bat cave habitat (including critical habitat for two species of endangered bats) is not impacted by logger extraction activities.

Activities

Bat Caver researchers are proposing to spend a maximum of 10 days in NNPR to retrieve the roost loggers and microclimate data loggers that were deployed in 2016 in the following 8 caves near Lafferty Creek and Kraus Hot Springs on the South Nahanni River: Grotte Claudette, Trou Jean, Grotte Louise, Grotte Mickey, Grotte Andree, Grotte Valerie, Cave 93B, and Frost Pocket Cave (see Figure 1). During fieldwork, Bat Caver researchers will opportunistically collect bat carcass and guano samples from the cave sites to help confirm the bat use and species diversity in the area. Parks Canada staff will accompany the Bat Caver researchers for the duration of fieldwork within NNPR. Proposed access to the cave sites is by jet boat, which will be operated by NNPR staff, and by hiking.

Figure 1: Location of proposed logger retrieval activities within NNPR



6. VALUED COMPONENTS

Soil/Land Resources

- The area of the park reserve where the development will be occurring is located within the Boreal Cordillera ecological region of the Northwest Territories. This region includes a complex landscape of rugged peaks and ridges, rolling hills, eroded plateaus, deep V- and U-shaped valleys, fast-flowing braided rivers and streams and slow-flowing meandering rivers. Glacial deposits are widely distributed and occur mainly on the floors and lower slopes of valleys, lakes and ponds are small and sparsely distributed, and wetlands are locally common only on the floodplains and lower slopes of large rivers and on a few broad plateaus. It is an area of discontinuous permafrost (ECG, 2010).
- There are numerous caves and karst features in this area (Horne 2009).

Air/Noise Quality

- No formal observations of air/noise quality have occurred in the park reserve, however it is expected that these valued components are excellent and representative of their natural state.

Aquatic Resources

- No SARA-listed fish species have been reported in the South Nahanni River watershed or in the Nahanni North Karst area (Babaluk 2015), however Bull Trout (*Salvelinus confluentus*) has been recommended by COSEWIC to be listed as Special Concern.
- The South Nahanni River is silt-laden (March and Scotter 1975), as is common of many of the rivers and streams in this area as they flow through glacial deposits (ECG 2010).

Flora and Fauna

- Coniferous forest, mixed predominantly coniferous forest, and montane-spruce – lichen woodland ecotypes dominate lower elevations in the Lafferty Creek area (Ponomarenko and Quirouette 2015) whereas treeless shrubland and alpine vegetation can be found on steep slopes and at higher elevations (Parks Canada 1984).
- Moose, lynx, red foxes, grizzly bears (typically in open alpine or tundra habitats) and black bears (usually restricted to forested valleys) are widespread within this ecoregion (ECG 2010).
- Dall's sheep and a nesting pair of peregrine falcons were observed in the vicinity of the caves when the roost and microclimate loggers were installed in 2016 (Carroll 2016).
- Little Brown Bat (Myotis lucifugus), Northern Myotis (M. septentrionalis), both SARA-listed bat species, Longeared Myotis (M. evotis), Long-legged Myotis (M. volans), Big Brown Bat (Eptesicus fuscus), Hoary Bat (Lasiurus cinerus), and Eastern Red Bat (L. borealis) have been recorded at various locations along the shoreline of the South Nahanni River (Lausen et al. 2014). There are no confirmed bat hibernacula in the parks other than in Grotte Valerie. However, based on evidence of bat usage in many more caves, it is possible that other hibernacula exist. Current evidence suggests that Grotte

Valerie is likely used as a hibernacula by five species: Little Brown Bat, Northern Myotis, Long-legged Myotis, Big Brown Bat and Longeared Myotis (Parks Canada 2019). Collared pika (*Ochotona collaris*), a SARA-listed species, may be encountered en route to cave sites however, no adverse effects are anticipated if the mitigation measures described in this screening are followed.

- Development activities will be occurring within the winter range of SARA-listed Woodland caribou (ECG 2010) however, no interactions with this species are anticipated given the timing of activities.

Social/Cultural Environment (including Wildlife Harvesting)

- Harvesting (wildlife, plants, and trees) and motorized access for traditional activities within park boundaries is a right of local First Nations (Parks Canada 2010).
- Lafferty Creek and Kraus Hot Springs are popular areas for overnight camping and hiking by visitors paddling the South Nahanni River.

Heritage Resources

- Heritage resources are defined as a human work, an object, or a place that is determined, on the basis of its heritage value, to be directly associated with an important aspect or aspects of human history and culture of an heritage area (Parks Canada 2013). Heritage resources include archaeological or historic sites, burial sites, artifacts and other objects of historical, cultural, or religious significance, and historical or cultural records (MVRMA (s.2)). Heritage resources exist throughout the park reserve. Although surveys have been conducted to identify these resources at certain locations, there remains a high potential for the presence of undocumented resources throughout the park reserve.

7. EFFECTS ANALYSIS

Soil/Land Resources

- Soil compaction and rutting (from foot traffic and tent placement)
- Soil contamination (decomposition of garbage and solid human waste on the soil and spills of camp fuel, bleach etc. could release toxic chemicals that could leach into the soil)
- Soil and rock scarring/burning from fires
- Damage to sensitive cave structures

Air/Noise Quality

- Decreased site-specific air quality (jet boat refueling, campfire smoke)
- Site-specific noise pollution (jet boat operation, talking/socializing)

Aquatic Resources

- Compaction, rutting, and erosion of riparian areas (from human use and trampling at shoreline boat disembarkation and launching/pull up sites and at drinking/washing/cooking water collection locations)
- Decreased water quality (from improperly managed garbage and solid human waste and activities such as washing, bathing, and cooking)
- Negative impacts to fish populations (damage to habitat by foot traffic or decreased water quality, and the inadvertent introduction of non-native species (on waders and other gear)

Flora and Fauna

- Inadvertent introduction of non-native species (e.g.: seeds transported on footwear or clothing)
- Compaction of vegetation (from foot traffic and tent placement)
- Disturbance to plant and animal health (decomposition of garbage on the soil could release toxic chemicals that could be harmful to vegetation and wildlife)
- Conditioning of wildlife to human garbage and/or food (improperly managed solid waste and/or stored food/fuel are an attractant to wildlife, altering their behavior, movement patterns and natural feeding habits. Large wildlife (e.g.: bears) that receive food rewards are potential threats to public safety and may need to be relocated or destroyed)
- Wildlife disturbance (noise could cause displacement from habitat or alteration in the use of movement corridors)
- Disturbance, damage, or destruction of beds, roosts, or nests (by foot traffic or firewood collection)
- Human/wildlife conflict (camping and hiking near wildlife may result in human wildlife conflict. If human life is in danger, the animal may need to be relocated or destroyed)
- Species at Risk: although the development activities include entering into caves with known use by two species of endangered bats (Little Brown Myotis and Northern Myotis), it is not expected that the activities will result in residual adverse effects if the mitigations listed in **Section 8** of this screening are applied.

Visitor Experience

- Decrease in wilderness and aesthetic experience (improperly disposed of garbage and/or human waste and disturbance to visitors)

Social/Cultural Environment (including Wildlife Harvesting)

- Impacts to land use experience by Indigenous people (if project activities alter behaviours of harvested wildlife)

- Impacts to cultural and/or traditional renewable resource harvesting activities of Indigenous people (if project activities result in increased time and efforts for locating and harvesting wildlife)

Heritage Resources

- Trampling or disturbance of heritage resources
- Spills from camp stove refueling could contaminate or damage heritage resources

8. MITIGATION MEASURES

Bat Caver researchers will adhere to the mitigations described in *"Parks Canada Standards for Managing Bats in Protected Heritage Areas"*, and the *"Canadian National White-nose Syndrome Decontamination Protocol for entering bat hibernacula"* (see attachments).

Additionally, Bat Caver researchers and accompanying Parks Canada staff will follow "Leave No Trace" camping etiquette when camping (e.g.: grey water is strained before disposal, all garbage is packed out or completely burnt (if organic), where no pit privies or outhouses/composting toilets are available waste is buried in "cat-holes" away from aquatic environments, and personal hygiene products/used toilet paper are packed out with the garbage).

Jetboat operation by Parks Canada staff, in support of this development, will be kept to a minimum to limit the potential impacts on the wilderness experience of park visitors. During jetboat refueling, Parks Canada staff will ensure absorbent material is available to soak up any small spills, use an environmentally safe fuel purge system to keep fuels in the jetboat, and contain all fuel in approved primary containment (e.g. fuel drum or jerry can).

9. OTHER CONSIDERATIONS

- ☐ Surveillance
- ☐ Follow-up monitoring, general
- ☐ Follow-up monitoring, required by legislation or policy (indicate basis of requirement e.g. required by the *Species at Risk Act)*
- ☐ SARA Notification

10. SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS

Given the limited and short-term magnitude of effects and the application of mitigation measures the development is not expected to cause residual adverse effects to natural/cultural resources or visitor experience.

11. EXPERTS CONSULTED

The development description was publically circulated for a 15 day review period (June 13th to June 27th, 2019).

The proposal has been approved by the Nahɔą Dehé Consensus Team.

11.1 References

Babaluk et al. 2015. Distribution of Fish Species within the South Nahanni River Watershed, Northwest Territories. Department of Fisheries and Oceans Canada. Winnipeg, MB

Carroll, M. 2016. Trip Report – Bat Caves. Nahanni National Park Reserve. Report. 5 pp.

Ecosystem Classification Group. 2010. Ecological Regions of the Northwest Territories – Cordillera. Department of Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, NT, Canada. x + 245 pp. + insert map.

Horne, G. 2009. An Overview Survey of Cave and Karst Resources Managed by Parks Canada. Parks Canada. Report. 38 pp.

Lausen et al. 2014. Bats of Nahanni National Park Reserve and Surrounding Areas, Northwest Territories. Northwestern Naturalist. 95:186-196.

Mackenzie Valley Resource Management Act (MVRMA). 2016. Available online at: http://laws-lois.justice.gc.ca/eng/acts/M-0.2/

March, A.H. and G.W. Scotter. 1975. Vegetation Survey and Impact Assessment of the Nahanni Hot Springs and Virginia Falls Areas, Nahanni National Park. Prepared for Parks Canada by the Canadian Wildlife Service, Edmonton.

Parks Canada. 1984. Nahanni National Park Reserve Resource Description Analysis. Natural Resource Conservation Section, Parks Canada, Prairie Region, Winnipeg, Manitoba.

Parks Canada. 2010. Nahanni National Park Reserve of Canada Nahɔą Dehé Management Plan.

Parks Canada. 2013. *Cultural Resource Management Policy*.

Parks Canada. 2018. Parks Canada Best Management Practice (BMP) for Commercially Guided Eco-tourism Activities in Nahanni and Nááts'įhch'oh National Park Reserves of Canada.

Parks Canada. 2019. Parks Canada Preliminary Screening under the Mackenzie Valley Resource Management Act – Outfitter Guided Trips in Nahanni National Park Reserve.

Ponomarenko, S. and J. Quirouette. 2015. Ecotype Mapping Report for Nahanni National Park Reserve. Monitoring and Ecological Information. Protected Areas Establishment and Conservation Directorate. Parks Canada. Gatineau, QC.

12. DECISION

Taking into account the analysis and implementation of mitigation measures outlined in the analysis, the development:

- ❑ Might have a significant adverse impact on the environment, and the proposal should be referred to the *Mackenzie Valley Environmental Impact Review Board* for environmental assessment.
- ✓ Does not have a likelihood of causing significant adverse impact on the environment.
- ❑ Might be a cause for public concern, and the proposal should be referred to the *Mackenzie Valley Environmental Impact Review Board* for environmental assessment.
- ✓ Does not have a likelihood of causing public concern.

13. APPROVAL

Prepared by: *Colleen Murchison* Resource Management Officer II, Nahanni National Park Reserve *Sarah Arnold* Ecologist Team Leader, Nahanni National Park Reserve	Date: June 28, 2019
Approved by: *Jonathan Tsetso* Superintendent, Nahanni National Park Reserve	Date: June 28, 2019

APPENDIX 1: *Parks Canada Standards for Managing Bats in Protected Heritage Areas*

APPENDIX 2: *Canadian National White-nose Syndrome Decontamination Protocol for entering bat hibernacula*

Note: see attachments in accompanying email