



# Annotated Table of Contents

## Wildlife Management and Monitoring Plans

June 2019

# Overview

Early engagement with the Government of the Northwest Territories (GNWT) through the Department of Environment and Natural Resources (ENR) is encouraged at the initial stages of planning a development to identify what content will likely be required. However, content for a Wildlife Management and Monitoring Plan (WMMP) should be scalable to the size and type of the development.

The following annotated table of contents (TOC) is meant to detail the expectations regarding the required sections for a full-scale Tier 3 WMMP. Specific sections of the WMMP that would be required for Tier 1 and 2 WMMPs are described in Appendix 2 of the WMMP Process and Content Guidelines and a template for a Tier 1 WMMP is provided on the [ENR website \(www.enr.gov.nt.ca\)](http://www.enr.gov.nt.ca).

The items listed in the annotated table of contents below are not intended to be exhaustive. Developers are encouraged, but not obligated, to follow the organization format outlined below as long as the pertinent information is provided in the document. Certain sections of the WMMP may be excluded from preliminary drafts, as they would be developed throughout the regulatory process.

## BEST PRACTICE

Developers are encouraged to consult wildlife mitigation and monitoring plans and wildlife monitoring reports from similar development projects to incorporate lessons learned from these projects into their own WMMP. Developers are encouraged to use plain language as much as possible in the WMMP to ensure the content is accessible to a range of reviewers.

## 1) EXECUTIVE SUMMARY

## 2) INTRODUCTION

Provide some bullets outlining the purpose and objectives of wildlife and habitat mitigation and monitoring programs that will be carried out as detailed in the plan.

## 3) DEVELOPMENT PROJECT DESCRIPTION

- a) Provide a basic overview of the proposed development, location, infrastructure, points and modes of access, development schedule or work plan, and duration.
- b) Provide a map of the development's location, including location of any other existing developments and infrastructure in the area, detailed map(s) of the development footprint, and for each wildlife species, a map showing the local study area (LSA) and regional study area (RSA). The RSAs for wildlife species chosen as valued ecosystem components (VECs) in an environmental assessment are usually defined in that process; however, boundaries may change over a development's life as new information about the extent of impacts becomes available. The study boundaries for each species should be appropriately scaled for the purpose of the study.

**NOTE:** the content for this section of the WMMP can be reproduced or simplified from other materials prepared by the developer during the preliminary screening or environmental assessment (EA)/environmental impact review (EIR) of the development (e.g. developer's assessment report (DAR) or EIR).

## 4) CONTEXT

### a) **Measures, conditions and developer commitments concordance table**

WMMPs for Tier 2 and 3 projects should provide a summary table of measures, recommendations and developer commitments resulting from the EA/EIR of the development, and permit conditions and other legislated requirements (e.g. *Species at Risk (NWT) Act*, *Wildlife Act*, and associated regulations) relevant to wildlife and wildlife habitat, and indicate the sections of the WMMP in which they are addressed. This table can be provided as an appendix.

### b) **Engagement**

Describe any communications and outreach activities or external agreements (e.g. Impact and Benefit Agreements) with affected parties (e.g. Indigenous governments and organizations (IGOs), renewable resources boards, local harvesting committees and communities) that are applicable to the development, implementation and

review of the WMMP. This may be achieved by simply referring to existing engagement plans or engagement logs prepared in accordance with the Mackenzie Valley Land and Water Board's (MVLWB's) Engagement Guidelines<sup>1,2</sup> or the Environmental Impact Screening Committee (EISC) and Environmental Impact Review Board (EIRB) guidelines<sup>3,4</sup>. If specific activities were undertaken to inform development of the WMMP, such as hosting a workshop on caribou mitigations, it would be helpful to describe it in this section.

**c) Associated operational or management plans**

Provide an overview of other management plans prepared by the developer that may contain mitigation and monitoring measures that are relevant to protection of wildlife and wildlife habitat (e.g. waste management plans or spill contingency plans).

## **5) POTENTIAL IMPACTS**

**a) Identify wildlife species and associated habitat addressed by the WMMP**

For the purposes of the WMMP, wildlife would include big game and other prescribed wildlife species most likely to interact with the development, species that are of conservation concern that may interact with the development, those species in the region that may have a key ecological role in relation to other species, and those species that have cultural or economic value.

For species at risk, include their assessment and listing status under the federal *Species at Risk Act* (SARA), Committee on the Status of Endangered Wildlife in Canada (COSEWIC), territorial *Species at Risk (NWT) Act*, and/or NWT Species at Risk Committee (SARC), if applicable.

To better understand which species may occur in their project area, developers are encouraged to submit a data request for wildlife point data within the vicinity of their project area from GNWT's Wildlife Management Information System (WMIS) at: [www.enr.gov.nt.ca/en/services/research-and-data/wildlife-management-information-system](http://www.enr.gov.nt.ca/en/services/research-and-data/wildlife-management-information-system). Unless otherwise indicated by ENR, wildlife species chosen as VECs through an EA/EIR process should be selected for the WMMP, at minimum.

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<sup>1</sup> Developers should consult the MVLWB's engagement [policy](#) and [guidelines](#).

<sup>2</sup> Developers should consult GNWT's Department of Executive and Indigenous Affairs list of NWT Indigenous Governments at [www.eia.gov.nt.ca/en/nwt-aboriginal-governments](http://www.eia.gov.nt.ca/en/nwt-aboriginal-governments).

<sup>3</sup> EISC's EIS Guidelines can be found at: [www.screeningcommittee.ca/pdf/eisc\\_guidelines.pdf](http://www.screeningcommittee.ca/pdf/eisc_guidelines.pdf)

<sup>4</sup> EIRB's EIR Guidelines can be found at: [https://eirb.ca/wp-content/uploads/2015/03/eirb\\_guidelines.pdf](https://eirb.ca/wp-content/uploads/2015/03/eirb_guidelines.pdf)

**b) List potential impacts to wildlife and wildlife habitat**

This list could include impacts such as direct habitat loss, functional habitat loss due to noise, dust or other sensory disturbances, wildlife injury or mortality, substances that are toxic or hazardous to wildlife, human-wildlife interactions and wildlife attraction. Impacts could be broken down by species group and development phase, if applicable. Include a description of the predicted magnitude of the impacts and identify where residual impacts might be expected. These will normally have been identified during an EA or EIR process.

**6) WILDLIFE AND WILDLIFE HABITAT MITIGATION**

For each of the potential impacts identified in the WMMP, list the mitigation measures, design features, policies, procedures or guidelines that will be followed to avoid, minimize or compensate for the potential impact. Sufficient detail should be provided to describe the 'who, what, when, where, why, and how often' for each mitigation. Refer to the guidance documents, data sheet templates and reporting forms provided in the 'Resources' section of the ENR website when developing these sections.

If a mitigation measure is being implemented to ensure compliance with a legislative requirement or regulation, specify the legal requirement that is being addressed. Include any mitigation measures or design features identified through engagement with IGOs or communities. Where several mitigation options are available, provide justification for the approach being taken, citing relevant examples or literature as necessary. The WMMP should contain evidence that the developer has considered the mitigation hierarchy as well as lessons learned from past experience or other operations in choosing the mitigation approach.

Where relevant, Standard Operating Procedures (SOP), tracking forms and data sheets provided to employees to implement these measures should be provided in an appendix. For WMMPs provided during EA/EIR, unless specific SOPs are requested, a list of SOPs that will be included in the final WMMP and their intended purpose should be provided. A sample SOP can be found in the 'Resources' section of the ENR webpage.

The following is a list of possible mitigation themes that might be detailed in this section, depending on the impacts of the development. These sections could be further broken down by species group and/or development phase:

- a) Employee wildlife awareness education and training
- b) Infrastructure design and camp layout for bear safety and/or to prevent denning, nesting and roosting

- c) Management of camp waste and other wildlife attractants
- d) Timing restrictions and/or set back distances to protect wildlife and wildlife habitat features
- e) Direct habitat loss – minimizing the development’s physical footprint
- f) Habitat alteration – minimizing physical manipulation of habitat that would decrease its value to wildlife
- g) Indirect habitat loss – minimizing functional habitat loss due to sensory disturbance, dust, etc.
- h) Management of hazards to wildlife (e.g. open pits, tailings ponds, roads, airstrips, spills)
- i) Wildlife deterrence and dangerous wildlife management procedures
- j) Habitat restoration
- k) Description of the role of community wildlife monitors, Aboriginal harvesters or partnerships with local organizations in implementing aspects of the plan
- l) Offsetting or compensatory measures

## **7) MONITORING**

### **7.1) MITIGATION MONITORING**

This section will describe routine surveillance activities conducted within the development footprint to identify, document and report on proper implementation of mitigation procedures and equipment, the presence of wildlife onsite, risks to wildlife or habitat (e.g. pre-clearing surveys) and human safety, and other wildlife incidents (injury, mortality, wildlife-human interactions) that require a management response.

Where applicable, for each of the potential impacts and mitigations listed in Sections 5 and 6 corresponding to the WMMP Annotated TOC , describe in section 2.4(7.1):

- a) The objective of the monitoring
- b) Methods or monitoring approach
- c) Observations to be made or metrics to be measured
- d) Frequency and duration of monitoring

- e) Supporting documents and protocols
- f) Steps taken when mitigation monitoring identifies the need for a management response

This information may be presented as text or in a table format. An example is provided in Table 1 (below).

**Table 1: Example summary table of mitigation measures and monitoring programs**

Potential Impact	Objective	Mitigation Measures	Metric	Monitoring Approach	Frequency and duration	Supporting Documentation
<b>Wildlife Attraction</b>	Minimize occurrence of wildlife attractants in landfill	Segregation of food wastes and packaging for incineration  Storage of food wastes in sealed containers while awaiting disposal	Number of consecutive waste stream inspections showing evidence of improper waste disposal or storage	Landfill and disposal bin inspections, as outlined in the Waste Management Plan	Weekly, for the life of the development	Waste Management Plan section XYZ
<b>Human/Wildlife Interactions</b>	Ensure human safety and minimize wildlife mortality from defense of life and property kills	Wildlife surveillance monitoring	Number of consecutive days of observations of bear sign and sightings within <1 km of the development	Wildlife observations and sign monitoring surveys  Wildlife sightings and encounters reported by all employees	Weekly  Daily	Wildlife Surveillance SOP

## 7.2) WILDLIFE EFFECTS MONITORING

Provide a description of formal, species-specific effects monitoring programs designed to quantify project-related effects on wildlife and wildlife habitat, test predictions made in EIA, or test the effectiveness of mitigation measures, special studies supporting

mitigation and monitoring approaches or regional participation in monitoring. This section might be broken down further into different development phases if monitoring approaches or requirements vary according to development phase.

In developing effects monitoring programs, priority should be placed on areas of uncertainty where impacts are potentially significant. When available, standardized monitoring protocols should be used, and may be required, so that monitoring results from multiple developments can be combined at a regional scale. Developers should contact ENR to inquire about standardized protocols that are currently in use or under development.

For each monitoring program, demonstrate that the survey design, metrics chosen, sample size and analysis approach will be capable of meeting the objectives of the monitoring program. Provide the following for each program:

- a) The objective, including prediction, question or hypothesis to be tested
- b) A description and maps of the study area boundaries, including the reason why it was chosen
- c) Identification of where traditional knowledge has been incorporated into the study design, or where community-based or traditional knowledge-based monitoring programs will be used
- d) A description of all relevant parameters of the study design:
  - Assumptions and limitations that may impact the validity of the results
  - Variable(s) to be measured (i.e. metrics)
  - Power analysis used to determine the sample size needed to detect the desired effect size or action levels
  - Sampling frequency
  - Methods and equipment for recording data
  - Maps of sampling locations, transects, etc.
  - Methods for statistical analysis and thresholds for statistical significance
  - Frequency of in-depth analysis (i.e. as some trends or changes may take several years to detect, in-depth analysis would not be required on an annual basis)
- e) Reporting frequency and process for periodic review of results if not otherwise identified elsewhere in the WMMP (i.e. Section 10 - Reporting Protocols)

- f) A description of how the data obtained from the program will be used to inform the need for a management response such as improved monitoring design, new or modified mitigations, development or revision of a threshold or response framework. Such a description could either be included here, or in a dedicated Adaptive Management section according to Section 9 of the WMMP Process and Content Guidelines. It is the developer's responsibility to review the data collected and use the information to improve and adapt their programs.

## **8) SUPPORT FOR RESEARCH OR CUMULATIVE EFFECTS ASSESSMENT, MONITORING OR MANAGEMENT INITIATIVES**

For developments that trigger paragraph 95(1)(d) of the *Wildlife Act* and require a Tier 3 WMMP, this section provides a description of participation in or contribution to research programs, species-based collaborations or cumulative impacts initiatives that are not strictly tied to testing project-specific effects predictions but which contribute to the overall understanding and management of cumulative impacts (e.g. participation in a regional monitoring program or financial/in-kind contributions to monitoring/research programs or cumulative impact management initiatives led by other parties such as government, communities or academia). Developers are encouraged to collaborate with IGOs, renewable resource boards, communities and/or academics.

## **9) ADAPTIVE MANAGEMENT**

This section provides a description of the structured response frameworks the developer will use to link its monitoring results to its management responses. It includes identification of how the monitoring results may be incorporated into improving monitoring protocols, mitigation measures taken or other management responses for each type of monitoring the operator proposes. This section will describe what the management response will be when monitoring results indicate that impacts to wildlife or habitat have exceeded predictions, predefined action levels or thresholds.

Where appropriate a series of tiered action levels can be defined. For example, at lower action levels, an appropriate response could be to increase monitoring intensity and/or begin to identify mitigation options. At higher levels, further investigations into sources of the problem and implementation of more intensive mitigation measures could be appropriate. Action levels for wildlife effects monitoring would largely be established during or following EIA or be based on guidelines, species management, recovery or range plans, regulations or engagement.

This section should identify:

- The objective in terms of the impact to be mitigated
- The key mitigation strategies
- The metrics to be collected
- Action level(s) with rationale for their selection
- Management responses appropriate to each action level

This information may be presented as text or in a table format. An example is provided in Table 2 (below). If using a table to present this information, developers may choose to combine Tables 1 and 2.

**Table 2: Example adaptive management summary table**

Objective	Mitigation Strategies/ Monitoring Approach	Metrics	Action Levels	Management Responses
To prevent wildlife attraction and habituation	Routine surveillance to identify wildlife presence on site	Number of days that a wolverine/fox/bear is detected at development site	Level 1: wildlife observed for two consecutive days	<ul style="list-style-type: none"> <li>• Increase frequency of surveillance or change method of monitoring (i.e. remote cameras)</li> </ul>
			Level 2: Wildlife observed for five consecutive days	<ul style="list-style-type: none"> <li>• Investigate all sources of attractants</li> <li>• Review waste management protocols</li> <li>• Secure waste management structures/areas</li> <li>• Survey development area for potential denning sites</li> </ul>
			Level 3: Persistent wildlife on site	<ul style="list-style-type: none"> <li>• Contact ENR to discuss options to address the issue including possible relocation options.</li> <li>• Increase frequency of waste stream inspections</li> </ul>

	Minimize attractants at landfill	Number of waste stream inspections showing evidence of improper waste disposal or storage	Level 1: Two consecutive weekly landfill or disposal bin inspections showing evidence of improper food waste disposal	<ul style="list-style-type: none"> <li>• Increase monitoring frequency to twice weekly.</li> <li>• Review waste management protocol</li> </ul>
			Level 2: Two of next six waste stream inspections show evidence of improper food waste disposal	<ul style="list-style-type: none"> <li>• Implement communications program to workers to educate on proper disposal</li> </ul>

## 10) REPORTING PROTOCOLS

Describe the procedure, format and frequency for reporting on implementation of the WMMP, as prescribed in Section 5.2 of the WMMP Guidelines. Describe how data will be stored and managed and with whom it will be shared. Describe who reports will be shared with, the process for review of the reports, and how feedback will be incorporated into the WMMP.

## 11) ROLES AND RESPONSIBILITIES

Provide information on who within the company is responsible for implementation of specific actions contained in the WMMP. This may be provided under the various sections of the WMMP or within an individual section.

## 12) LITERATURE CITED

Provide a list of literature cited throughout the WMMP.

## 13) GLOSSARY

Provide definitions of terms and acronyms used throughout the report.

## 14) APPENDICES

1. SOPs
2. Monitoring forms/data collection sheet template(s)
3. Reporting forms template(s)
4. WMMP revisions tracking table