# Research and Monitoring Priorities for NWT Species at Risk

Updated: January 2025

The Conference of Management Authorities establishes priority actions and approaches for the management and recovery of NWT species at risk. Currently, there are:

**12 species** listed on the NWT List of Species at Risk

**10** NWT management plans and recovery strategies to support the conservation and recovery of these species (provided at the end of this document, on page 14)

**367 recommended actions or approaches** identified to conserve or recovery these species

In total, 141 of these actions or approaches (38%) are focused on **research and monitoring,** which can be further divided into themes (see Figure 1). Applicants to the NWT Species Conservation and Recovery Fund planning to conduct research or monitoring are encouraged to use this document to identify which priority actions and approaches their projects will address.

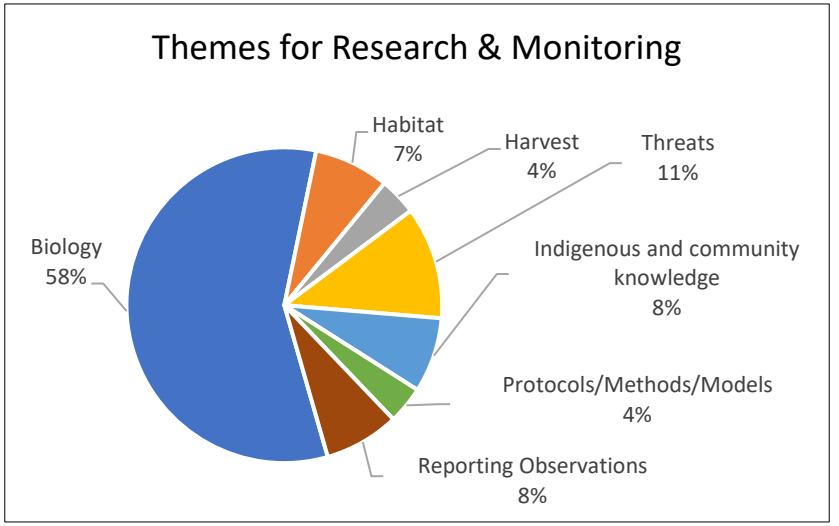


**Figure 1.** Themes for research and monitoring across NWT management plans and recovery strategies for species at risk.

## How to use this document

The NWT Species Conservation and Recovery Fund (SCARF) supports the conservation, recovery and protection of species at risk in the Northwest Territories. Funding is available for projects that are directly linked to NWT management plans and recovery strategies.

This document provides a quick reference for the priority *research and monitoring* activities identified in current **NWT management plans and recovery strategies** for species at risk. Other types of actions (e.g. addressing threats, education and awareness) are also important and eligible for SCARF funding but are not summarized in this document.

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Research and monitoring actions are organized **by theme**, including: biology, habitat, harvest, threats, Indigenous and community knowledge, protocols/methods/models and reporting observations. Within each theme, actions are further organized into **categories** and **species**. For a more detailed description of each action and approach, please refer to the management plan or recovery strategy for each species.

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| High priority – Critical |
| Medium priority – Necessary |
| Low priority – Beneficial |

Actions and approaches in the tables below are colour-coded according to their priority—that is, the degree to which the action contributes directly to the conservation and recovery of the species. Your SCARF application must outline which actions and approaches that your proposed project will address. Projects that fill knowledge gaps or implement initiatives targeting **high priority** actions and approaches (in red) will be prioritized for funding, but all applicants that identify specific research and monitoring priorities addressed by their project will be considered.

To apply, visit www.nwtspeciesatrisk.ca/SCARF.

## THEME: BIOLOGY OF SPECIES

*This theme includes actions/approaches related to disease, health, movement, population, abundance, distribution, interactions and predation.*

| Category | Species | Actions/Approaches |
|---|---|---|
| Disease | Amphibians | Approach 3.1: Monitor amphibian diseases (chytridiomycosis and ranavirus) and their impacts in the NWT. |
| | Bats | Approach 1.6: Participate in collaborative research and monitoring for bats and white-nose syndrome in Canada. |
| | | Approach 2.1: Develop and maintain an effective and coordinated surveillance program to monitor for white-nose syndrome, including timely collection, diagnosis, and reporting of test results. |
| | | Approach 2.4: Support national/international efforts and research in disease prevention and mitigation. |
| | Peary Caribou | 18. Investigate parasites and diseases from other species (e.g. muskoxen, migratory birds) and their potential impact on Peary caribou, as parasites and diseases could increase with climate change. |
| | Polar Bear | Action 1.3.7: Research changes in parasites and disease prevalence over time, in consideration of demographics and subpopulations. |

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| Health | Amphibians | Approach 1.1: Identify knowledge gaps and encourage research and monitoring focused on amphibian health/disease, biology, population, distribution, habitat, threats, climate change, and cumulative effects. |
| | Barren-ground Caribou | Approach 2.1: Collect information on the size, trend, and health of all NWT barren-ground caribou herds. |
| | | Approach 3.2: Promote the collection and exchange of information on caribou ecology, movements, health, status, and threats. |
| | Bats | Approach 1.1: Identify knowledge gaps and encourage research and monitoring on bats, including collecting information on distribution, abundance and trends, health, biology, physiology, genetic, habitat, threats, and cumulative effects. |
| | Dolphin and Union Caribou | Action 3.2.5: Promote and/or continue research on Dolphin and Union caribou population, habitat, vital rates, and health and condition, including possible contaminants. |
| | Northern Mountain Caribou | Approach 3.1: Assess natural and human-caused health risks that limit or influence the population (disease and parasites, contaminants, genetic composition and climate change). |
| | Polar Bear | Action 1.3.6: Research changes in diet over time, in consideration of sex, age, and condition, using samples from research activities and harvested bears (fat, bone, hair/skin). |
| | Wood Bison | Approach 3.1: Monitor health in all populations. |
| Movement | Peary Caribou | 8. Determine/refine knowledge of migratory routes, connectivity and identify sea-ice crossings (e.g. location and frequency of use) within the species' distribution. |
| | | 12. Identify crossing locations on ice fields. |
| Population, Abundance and Distribution | Amphibians | Approach 1.2: Periodically survey known breeding sites, especially for at-risk amphibian species. |
| | Barren-ground Caribou | Approach 3.1: Update or develop population models using current information. |
| | Bats | Approach 1.3: Monitor population and distribution trends. |
| | Boreal Caribou | Action 3.1.2: Explore methods for using local population trend information to estimate the trend of NWT's population as a whole. |
| | | Action 6.3.2: As new information becomes available, use it to improve and refine population status indicators for the NWT. |

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| | | Action 3.2.1: Investigate relationships among different types of caribou and whether the NWT population of boreal caribou has subpopulation structure (e.g., using genetics and traditional knowledge). |
| | | Action 3.2.2: Improve range map for boreal caribou, using the best available information on their changing locations and movements. |
| | Dolphin and Union Caribou | Action 3.1.3: Develop and implement a schedule to assess population status every five years, based on a framework in section 6.6. |
| | | Action 3.2.8: Promote research on feasibility of alternative tools for population growth (e.g., translocation, domestication). |
| | Hairy Braya | Approach 1.2: Collect baseline information (numbers and map distribution). |
| | | Approach 1.3: Based on priorities, conduct census of herd. |
| | | Approach 2.1: Survey the distribution and abundance of hairy braya every 10 years and investigate possible range further south on the Cape Bathurst peninsula to determine if hairy braya is found there. |
| | | Approach 1.1: Conduct monitoring to track herd distributions, trends and composition. |
| | | Approach 3.1: Investigate the reported possible existence of hairy braya in Russia. |
| | Peary Caribou | 6. Conduct population studies of Peary caribou to understand/refine local population delineations, population structure, demographic parameters, trends, movement patterns and exchange rates. |
| | Polar Bear | Action 1.3.1: Set up an inventory schedule (plan to monitor subpopulations). |
| | | Action 1.3.3: Finalize Viscount Melville subpopulation abundance estimate in collaboration with Nunavut. |
| | | Action 1.3.2: Investigate alternative methods to assess subpopulation size. |
| | | Action 1.3.5: Refine understanding on subpopulation delineation, including seasonal fidelity. |
| | Wood Bison | Approach 3.6: Develop studies to learn what factors regulate population size of bison in the NWT. |
| Interactions | Dolphin and Union Caribou | Action 3.2.4: Promote research on relationships between Dolphin and Union caribou and other species (e.g., other ungulates, geese). |
| | Hairy Braya | Approach 3.2: Study the relationship between hairy braya and other related species (smooth braya and Greenland braya) to better understand whether hybridization is a threat. |
| Predation | | Approach 2.2: Monitor predator populations that may affect barren-ground caribou, and assess predator-prey relationships and predation rates. |

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| | Barren-ground Caribou | Approach 3.3: Promote the collection and exchange of information on the relationships among barren-ground caribou, predators, competitors, and their wider environment. |
| | Dolphin and Union Caribou | Action 3.2.3: Promote research on relationships between Dolphin and Union caribou and predators (including relatively new predators such as grizzly bear on Victoria Island). |
| | | Action 3.2.2: Monitor changes in predator abundance. |
| | Northern Mountain Caribou | Approach 4.1: Map distribution and conduct census of predators and other large herbivores. |
| | | Approach 4.2: Assess the relative importance of predators and/or competitors when identified as a possible limiting factor (e.g., determine if intensive management of other species applicable to Northern Mountain caribou). |
| | Peary Caribou | 16. Investigate the relationship between Peary caribou and muskoxen, wolves, other caribou and predators. |
| General | Boreal Caribou | Action 3.1.1: Expand upon or develop and implement monitoring program(s) that provide key information on boreal caribou vital rates, numbers, population trends, health, and condition. |
| | | Action 3.2.3: Promote research to improve our understanding of the relationship between habitat disturbance, alternate prey, predator density and behaviour, and boreal caribou in the NWT. |
| | Dolphin and Union Caribou | Action 3.1.2: Develop and implement both a short- and long-term monitoring schedule, to monitor demographic indicators such as pregnancy, survival, and recruitment rates. |
| | | Action 3.2.6: Promote research on Dolphin and Union caribou diet and vegetation growth, including changes as a result of climate change. |
| | Peary Caribou | 7. Investigate factors affecting reproductive output, survival and fidelity to calving areas. |
| | | 11. Develop and conduct in-depth studies on vegetation used by Peary caribou (e.g. diet, grazing impact, vegetation recovery after grazing, plant growth). |
| | Wood Bison | Approach 3.5: Explore options to increase genetic diversity of Mackenzie and Nahanni wood bison, and avoid loss of genetic diversity from bison in the Slave River Lowlands. |

# Research and Monitoring Priorities for NWT Species at Risk

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## THEME: HABITAT

*This theme includes actions/approaches that identify or map key habitat, gather information on habitat use, monitor changes to habitat/habitat features, and improve our understanding of habitat restoration or regeneration.*

| Category | Species | Actions/Approaches |
|---|---|---|
| Identify/ Map Key Habitat | Amphibians | Approach 2.1: Identify and map key amphibian habitats using information from 1.1 to 1.5. |
| | Barren-ground Caribou | Approach 3.5: Promote the collection and exchange of information on barren-ground caribou habitat, including the identification of key areas and habitat features. |
| | Boreal Caribou | Action 6.1.1: Measure total undisturbed habitat in the NWT range annually and compare it to the 65% threshold in the national Recovery Strategy. |
| | | Action 6.3.1: As new information becomes available, use it to improve and refine habitat indicators for the NWT. |
| | Dolphin and Union Caribou | Action 3.2.1: Identify geographic areas of importance to Dolphin and Union caribou through research and community/TK. |
| | Peary Caribou | 5. Identify calving areas and other key habitats critical at different life stages or times of the year. |
| Habitat Use | Peary Caribou | 9. Investigate patterns of habitat use at a finer scale (e.g. local population scale, improved location data in association with habitat types or attributes). |
| Monitor Changes | Barren-ground Caribou | Approach 2.4: Monitor changes in habitat quality, quantity, and availability for caribou resulting from natural and human-caused landscape changes. |
| | Bats | Approach 1.2: Identify, describe, and map key bat habitats (such as hibernacula and maternity roosts). |
| | Boreal Caribou | Action 1.2.1: Track natural landscape changes, especially fire disturbance. |
| | | Action 1.2.2: Track human-caused landscape changes, using both remote sensing and current disturbance data from industry. |
| | | Action 1.2.3: Compile and improve existing records of human-caused landscape change. |
| | | Action 1.2.7: Compile and manage spatial information on landscape change. |

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| | Dolphin and Union Caribou | Action 4.1.3: Track changes to sea ice and potential impacts to Dolphin and Union caribou. |
| | Hairy Braya | Approach 2.2: Monitor shoreline erosion in hairy braya range using satellite imagery. |
| | | Approach 2.3: Monitor storm surges in hairy braya range. |
| | | Approach 3.3: Analyze the frequency of storm surges in hairy braya range. |
| | Peary Caribou | 10. Determine current Peary caribou habitat condition and monitor habitat change/alteration. |
| | Wood Bison | Approach 4.1: Monitor and assess the cumulative effects of changes to wood bison habitat. |
| Restoration/ Regeneration | Boreal Caribou | Action 3.2.4: Promote research to improve our understanding of the natural fire regime and habitat regeneration in the NWT, as they relate to boreal caribou habitat. |
| | | Action 3.2.5: Promote research on regeneration of human disturbances in the NWT and the effectiveness of habitat restoration techniques for boreal caribou. |

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## THEME: HARVEST

*This theme includes actions/approaches on harvest reporting and sustainable harvest levels.*

| Category | Species | Actions/Approaches |
|---|---|---|
| Reporting | Barren-ground Caribou | Approach 4.3: Develop consistent, accurate, and complete reporting of barren-ground caribou harvest across the NWT along with estimates of unrecovered kills and wounding losses. |
| | Northern Mountain Caribou | Approach 2.1: Track harvest data to provide information on age and composition of herd. |
| | Polar Bear | Action 3.2.1: Continue tracking all human-caused polar bear mortalities through tag system, including harvest, defense of life and property kills, industry-related mortalities, and other mortalities. |
| Sustainable Levels | Boreal Caribou | Action 2.1.3: Continue to estimate harvest levels of resident hunters through the Resident Harvest Survey. |
| | | Action 2.2.1: Investigate and define sustainable harvest levels. |
| | | Action 2.2.5: Periodically review harvest levels and make management recommendations if necessary (e.g. temporary harvest limitations). |
| | Dolphin and Union Caribou | Action 5.2.4: Annually review harvest levels and make management recommendations if necessary (e.g., temporary harvest limitations). |
| Review | Boreal Caribou | Action 2.2.4: Review the NWT Wildlife Act Big Game Hunting Regulations for woodland caribou. As part of this review, consider whether regulations for boreal and mountain populations of woodland caribou should be further differentiated, and whether changes to seasons, bag limits, quotas, open harvesting zones and/or harvest reporting mechanisms are needed. |
| | Peary Caribou | 21. Investigate the extent and impact of harvest or potential harvest, including sport hunting, and determine mitigation activities, if required, in cooperation and accordance with land claim agreements. |
| | Polar Bear | Action 3.2.3: Annually review harvest based on all available information. |

# Research and Monitoring Priorities for NWT Species at Risk

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## THEME: THREATS

*This theme includes actions/approaches that monitor and assess threats including climate change, disturbance and cumulative impacts.*

| Category | Species | Actions/Approaches |
|---|---|---|
| Climate Change | Boreal Caribou | Action 3.2.6: Promote research on the impacts of climate change on boreal caribou habitat. |
| | Dolphin and Union Caribou | Action 3.2.9: Promote research on the impacts of climate change on Dolphin and Union caribou habitat and population. |
| | | Action 3.2.7: Promote research on insects and insect harassment, particularly as it relates to climate change. |
| | Peary Caribou | 14. Assess the current and future potential impact of climate change on Peary caribou and their sea ice and land habitats throughout their distribution. |
| Disturbance | Dolphin and Union Caribou | Action 3.2.10: Promote research on examining the impacts of road versus flight transportation on caribou. |
| | | Action 3.3.1: Develop an approach to modelling cumulative effects to help predict the consequences of different anthropogenic impacts and to develop more effective mitigation measures. |
| | | Action 4.1.1: Track human and industry-caused landscape changes. |
| | | Action 4.1.2: Monitor industrial and tourism activity including shipping traffic. |
| | Peary Caribou | 17. Assess the extent, distribution, and possible consequences of sensory disturbance (e.g. aircraft traffic, snowmobiles, all-terrain vehicles, tourism, research, and the equipment associated with industrial exploration and development) on Peary caribou and investigate mitigation measures to reduce its effects, particularly during sensitive periods (e.g. seasonal movements, calving seasonal conditions). |
| | | 20. Monitor marine vessel traffic through the range of Peary caribou for routes, timing of travel and ship type. |
| General | Barren-ground Caribou | Approach 2.3: Monitor the impacts of other key factors affecting barren-ground caribou and their habitat, including, for example, diet, contaminants, disease, parasites, insects, and climate change. |
| | | Approach 3.4: Assess cumulative impacts of natural and human-caused landscape change on barren-ground caribou and their habitat. |
| | Peary Caribou | 15. Determine the relative importance of known and potential threats to Peary caribou across their range, and their cumulative impacts to the species. |

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| | Polar Bear | Action 4.1.2: Analyze human-bear incidents and adaptively change advice as we learn more about appropriate mitigation measures. |
| | | Action 4.2.4: Consider the need for research and provide advice on research projects to mitigate impacts to polar bears. |
| | | Action 1.2.1: Develop a monitoring plan for contaminants in polar bears and seals (DFO). |
| | | Action 1.2.2: Implement plan to collect baseline information, followed by periodic monitoring of contaminants. |

## THEME: INDIGENOUS AND COMMUNITY KNOWLEDGE

*This theme identifies actions/approaches aimed at using, collecting, recording, and analyzing Indigenous and community knowledge.*

| Category | Species | Actions/Approaches |
|---|---|---|
| Indigenous and Community Knowledge | Amphibians | Approach 1.4: Encourage the collection and recording of traditional and community knowledge about amphibians. |
| | | Approach 1.5: Explore sources and background reports from land use planning and other regulatory processes for relevant traditional knowledge on amphibians. |
| | Barren-ground Caribou | Approach 2.5: Monitor the status of the relationship between people and caribou as an indicator of caribou well-being. |
| | Bats | Approach 1.5: Encourage the collection and recording of traditional and community knowledge about bats. |
| | Boreal Caribou | Action 3.5.3: Analyze existing knowledge and gather new knowledge. |
| | Peary Caribou | 1. Utilize IQ/TEK, local knowledge and scientific knowledge for monitoring, surveying and research, respecting the importance of IQ/TEK and local knowledge to Peary caribou conservation and recovery. |
| | | 4. Conduct IQ/TEK studies to capture knowledge on Peary caribou ecology and their habitat (e.g. important habitat attributes). |
| | Polar Bear | Action 4.3.2: Finalize denning habitat maps (from traditional knowledge and Resource Selection Function model) and make them available in digital and paper format. |
| | | Action 1.1.3: Increase systematic collection and analysis of Inuvialuit observations. |

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## THEME: PROTOCOLS/ METHODS/ MODELS

*This theme identifies actions/approaches aimed at developing, standardizing, advocating and improving protocols, methods and models to gather species information and/or to minimize disturbance on species.*

| Category | Species | Actions/Approaches |
|---|---|---|
| Protocols/ Methods/ Models | Boreal Caribou | Action 3.4.1: Develop a model that shows how monitored indicators relate to the state of the population. |
| | | Action 4.3.5: Develop standard monitoring protocols for boreal caribou that could be adopted by government, industry and other parties to facilitate data sharing and increase the geographic scope of monitoring programs. |
| | Dolphin and Union Caribou | Action 3.1.4: As technologies and research methods evolve, continue investigating alternative, effective methods to obtain population information. |
| | Peary Caribou | 19. Minimize sensory disturbance to Peary caribou during monitoring and research programs, investigate new techniques that cause less disturbance to animals, and select monitoring and research techniques that have a minimal disturbance (e.g. non-invasive techniques such as genetics, remote sensing, IQ/TEK collection). |
| | | 13. Maintain standardized protocols and survey designs (data collection and analysis) for local populations and their habitat. |
| | Polar Bear | Action 4.2.1: Annually provide information to PBTC on bears handled in the ISR and documented impacts. |
| | | Action 4.2.2: Advocate for further research regarding the impacts of handling. |
| | | Action 4.2.3: Explore alternate methods for subpopulation monitoring. |
| | | Action 4.2.5: Advocate for power analysis of existing data to determine the minimum number of bears needing to be handled to achieve sufficient confidence in results. |
| | | Action 4.3.1: Improve tracking of the human footprint in polar bear range so that environmental screening and review can better take cumulative effects into account. |
| | | Action 4.3.5: Develop protocol for surveying polar bear maternity denning habitat prior to industrial activity. |
| | | Action 4.3.9: Develop protocol for polar bear monitoring at industrial facilities. |

## THEME: REPORTING OBSERVATIONS

*This theme promotes reporting and compilation of species observations.*

| Category | Species | Actions/Approaches |
|---|---|---|
| Reporting Observations | Amphibians | Approach 1.3: Encourage people to report observations of amphibians to WILDLIFEOBS@gov.nt.ca, and periodically compile all records. |
| | Bats | Approach 2.2: Encourage reporting of unusual bat behaviour, such as flying outside during the day, and investigate these observations promptly. |
| | | Approach 1.4: Encourage people to report observations of bats and keep compiled records. |
| | Peary Caribou | 2. Develop and maintain a central repository (database) for Peary caribou monitoring/research to ensure timely sharing of data. |
| | Polar Bear | Action 1.3.4: Encourage enhanced reporting of local observations (e.g., body condition, litter size, sex, age, location, habitat, bear observations), quantify and map (linked to 1.1.3). |
| | | Action 4.1.1: Systematically track and compile records for all human-bear encounters or incidents (implement PBHIMS format). |
| | | Action 4.3.3: Continue to collect denning information through local observations of denning and collared polar bears. |

# Research and Monitoring Priorities for NWT Species at Risk

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## NWT MANAGEMENT PLANS AND RECOVERY STRATEGIES

*All NWT management plans and recovery strategy for species at risk can be found here: www.nwtspeciesatrisk.ca/en/management-plans-and-recovery-strategies.*

Current NWT management plans and recovery strategies accepted and/or adopted by the Conference of Management Authorities are listed below.

- **Amphibians** - Management plan (2017)
- **Barren-ground Caribou** - Recovery strategy (2020)
  - Executive summary (French)
- **Bats** - Management plan (2020)
  - Executive summary (French)
- **Boreal Caribou** - Recovery strategy (2017)
- **Dolphin and Union Caribou** - Management plan for NWT and NU (2018)
- **Hairy Braya** - Recovery strategy (2015)
- **Northern Mountain Caribou** - Management plan (2023)
  - Executive summary (French)
- **Peary Caribou** - Recovery strategy (2024)
  - Recovery strategy (French)
- **Polar Bear** - Joint management plan (2017) and Framework for action (2017)
- **Wood Bison** - Recovery strategy (2019)

### National Plans and Strategies

For documents related to the federal *Species at Risk Act*, including federal recovery strategies, action plans and management plans, visit the Species at Risk Public Registry.