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# A Conservation and Action Plan for the Aishihik Bison (*Bison bison*) Population



  
Yukon



**A Conservation and Action Plan for the  
Aishihik Bison (*Bison bison*) Population**

**Prepared by the Yukon Bison Technical Team**

**Recommended by the Yukon Fish and  
Wildlife Management Board**

**Approved by:**

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The Honourable Nils Clarke  
Minister of Environment  
Government of Yukon

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Date

# A Conservation and Action Plan for the Aishihik Bison (*Bison bison*) Population

Government of Yukon  
Fish and Wildlife Branch  
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## Authors

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## Acknowledgements

We acknowledge that the known range of the Aishihik bison population falls within the Traditional Territories of the Champagne and Aishihik First Nations, Kluane First Nation, Little Salmon/Carmacks First Nation and the asserted traditional territory of White River First Nation. We thank these First Nations for their thoughtful contributions to this bison conservation and action plan. As bison return to the lands they previously occupied, they are slowly returning to the hearts and minds of its people.

This plan would not have been possible without the hard work and guidance provided by the Yukon Bison Technical Team and others that participated in planning workshops (for a list of team members and workshop participants see Appendix A). Alistair Bath kindly facilitated the planning workshops with the technical team and, along with Monica Engel, led the analysis of the public survey.

The Yukon Fish and Wildlife Management Board conducted a final public review of this plan. Importantly, we would like to thank the hundreds of Yukoners that contributed to the public surveys or the review of the draft plan for their interest in bison management and conservation in the Yukon.

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## Disclaimer:

This management plan does not create any commitments or obligations that are legally binding on the planning participants. Without limiting the generality of the foregoing, this management plan does not create, affect, define, interpret or apply any roles, responsibilities or interests under Final or Self Government Agreements or Indigenous rights affirmed under the Constitution Act 1982.

## Plan highlights



Since bison were re-established in the Yukon over 30 years ago, the herd has grown and human relationships with bison have evolved. This plan modernizes the management goals for the Aishihik bison population by ensuring that the associated outcomes reflect the aspirations of Yukoners. An explicit aim of this plan is to align local management with national and international bison conservation efforts. Notable updates found in this plan include:

- Ensuring the population remains healthy and viable
- Fostering appreciation for bison in the Yukon through cultural connections
- Recommendations for managing the harvest on a sustainable basis
- Providing mechanisms to resolve land use issues such as effects of bison hunting on traplines
- Aligning with the [Recovery Strategy for the Bison \(\*Bison bison athabasca\*\) in Canada](#)
- Improving knowledge-sharing between bison management partners and the public



Bison on a steep grassland near Aishihik Lake. Photo by Caitlin Willier.

## Contents

|  |           |
|--|-----------|
| <b>Plan highlights</b>   | <b>v</b>  |
| <b>1. Context</b>  | <b>1</b>  |
| Bison in the Yukon .....   | 1         |
| Conservation and legal status.....   | 3         |
| Population status of Aishihik bison .....  | 5         |
| Management of the Aishihik bison population .....  | 6         |
| Management of bison hunting in the Yukon .....   | 7         |
| Management plans for the Aishihik bison population .....   | 8         |
| The planning process.....  | 10        |
| <b>2. Vision and goals</b>   | <b>12</b> |
| <b>3. Outcomes and actions</b>   | <b>14</b> |
| GOAL 1: Ensure a viable bison population is restored to the land .....   | 14        |
| Outcome 1: The Aishihik bison population maintains<br>a minimum population of 1,000 animals .....                      | 14        |
| Outcome 2: Our knowledge of the impact of climate change on the Aishihik<br>bison population is better understood..... | 15        |
| Outcome 3: The Aishihik bison herd remains healthy, disease-free and<br>genetically pure.....                          | 16        |
| GOAL 2: Promote greater awareness of, and connection to, bison .....   | 18        |
| Outcome 4: Inform and involve communities in bison management .....  | 18        |
| Outcome 5: Increase public outreach and appreciation about bison.....  | 18        |
| GOAL 3: Strengthen cooperative bison management.....   | 20        |
| Outcome 6: Share information, listen, and participate in collaborative decision-making .....                           | 20        |
| GOAL 4: Provide opportunities for respectful and sustainable bison hunting .....                                       | 20        |
| Outcome 7: Maintain sustainable long-term bison hunting opportunities .....  | 20        |
| Outcome 8: Support hunters to be active stewards in bison management .....   | 21        |
| Outcome 9: Encourage respectful hunting and reduce the<br>effects of hunters on the land .....                         | 22        |

|   |           |
|---|-----------|
| GOAL 5: Acknowledge and address human-bison coexistence issues.....   | 23        |
| Outcome 10: Decrease potential for bison risks to human safety .....  | 23        |
| Outcome 11: Reduce collisions with vehicles through various mitigation measures .....   | 24        |
| Outcome 12: Mitigate impacts from bison to private property, and cultural sites,<br>including on First Nation Settlement Lands..... | 25        |
| GOAL 6: Assess the effects of bison on ecosystems .....   | 25        |
| Outcome 13: Monitor the effects of bison on other species and ecosystems.....   | 25        |
| GOAL 7: Secure habitat for the Aishihik population .....  | 28        |
| Outcome 14: Identify critical habitat.....  | 28        |
| Outcome 15: Secure critical habitat .....   | 29        |
| <b>4. Implementation and plan review</b> .....  | <b>30</b> |
| Guiding principles for adaptive harvest management.....   | 30        |
| Implementation and plan review .....  | 30        |
| Roles and responsibilities .....  | 31        |
| <b>Appendices</b> .....   | <b>32</b> |
| Appendix A. Planning workshop participants .....  | 32        |
| Appendix B. INTERIM bison harvest guidelines.....   | 33        |
| Appendix C. Selected references .....   | 35        |

# 1. Context



## Bison in the Yukon

For thousands of years, bison (*Bison bison*) were a dominant presence on the Yukon landscape. Here, they lived alongside Woolly Mammoths (*Mammuthus primigenius*), Yukon Wild Horses (*Equus lambei*), caribou (*Rangifer tarandus*), thimhorn sheep (*Ovis dalli*), Arctic Ground Squirrels (*Urocitellus parryi*) and other ice age species. Ice age predators of bison included humans, American Lions (*Panthera atrox*), wolves (*Canis lupus*) and Short-faced Bears (*Arctodus simus*). While some of these ice age species no longer exist, others have persisted, coexisting with Indigenous peoples, such as bison, caribou and sheep.

By the close of the 19<sup>th</sup> century, bison had largely vanished from the North American boreal forest. The last known bison in the Yukon was observed near Watson Lake in the 1930s. They died out earlier in southwestern Yukon with the most recent evidence indicating bison presence being approximately 350 years ago. Loss of bison from the Yukon was likely a response to a gradual conversion of steppe habitats to boreal forest, as the climate of northwestern North America gradually became warmer and wetter. Disease or human hunting may have also played a role in extirpating small, isolated remnant bison populations, particularly in the latter part of the 19<sup>th</sup> century.

The Government of Yukon has participated in the global recovery of bison since 1980, with the explicit aim of establishing a free-ranging herd within their historical distribution in the southwestern Yukon. Collective effort by the governments of Canada and Yukon, with support by the Yukon Fish and Game Association, resulted in the release of 170 Wood Bison from a temporary enclosure near Mount Nansen between 1988 and 1993. This was the origin of the Aishihik bison population.

Two other reintroduced bison populations extend into the southeastern Yukon (the Nahanni and Nordquist populations), but they are outside the scope of this plan.

Figure 1 (below) shows the core range for the Aishihik bison population. The core range was determined through aerial surveys and radiotelemetry conducted by the Government of Yukon's Department of Environment. Over 95% of the bison population resides year-round within the core range. Although it is possible to encounter small numbers of bison outside the core range, the farther outside the core range you travel the less likely you are to find bison.



Figure 1. Aishihik bison core range.

## Conservation and legal status

Wood Bison were once nearly extinct. Currently only 11 small, isolated wood bison populations occur in northwestern Canada and Alaska, and they occupy a small fragment of their original distributional range. All but one of these populations are reintroduced. The reintroduced Aishihik bison population in the southwestern Yukon is one of the largest free-ranging bison populations left on Earth. As such, the Yukon is an important global steward of bison.

Given their dramatic decline, Wood Bison were among the first species in Canada designated as a species at risk. Given the conservation concern, Wood Bison were listed as Threatened under Canada's Species at Risk Act (see Box 1).

### Box 1: Conservation status categories used in Canada to determine legal listing of species in the federal Species at Risk Act

Species in Canada that have a conservation concern may be listed in the federal Species at Risk Act, based on a species status assessment and legally required consultations. There are seven potential categories, as defined in the table below. Wood Bison are currently listed as Threatened in the federal Species at Risk Act.

Classification to determine which category a species falls under is done by the Committee on the Status of Endangered Wildlife in Canada.

| Conservation Category | Definition   |
|-----------------------|--|
| Extinct               | A wildlife species that no longer exists.  |
| Extirpated            | A wildlife species that no longer exists in the wild in Canada but exists elsewhere.   |
| Endangered            | A wildlife species facing imminent extirpation or extinction.  |
| Threatened            | A wildlife species that is likely become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.<br><b>* Wood Bison are legally listed as Threatened.</b>                 |
| Special Concern       | A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.   |
| Not at Risk           | A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.  |
| Data Deficient        | A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction. |

As a species legally listed as *Threatened* in the federal *Species at Risk Act*, bison are afforded legal protection on federal lands and their recovery is guided by a national recovery strategy. In 2018, the Government of Canada, in consultation with the Wood Bison Recovery Team, produced a national *Recovery Strategy for the Wood Bison in Canada*.

The recovery strategy identified population and distribution objectives for Wood Bison, threats to bison recovery, and strategies for addressing the threats. Two primary objectives were identified: i) in the short-term, to maintain the disease-free status of healthy populations, and ii) in the long-term, to ensure the existence of at least five disease-free, genetically diverse, connected, self-sustaining, free-ranging local populations throughout their original Canadian range with a minimum size of 1,000 animals. The recovery strategy recommended the creation of one or more Action Plans to inform recovery objectives and to support bison recovery.

In the Yukon, bison are listed as a Transplanted species under the Umbrella Final Agreement. This is because they were explicitly brought back to the Yukon for conservation purposes. Since 1998, the population reached a local recovery goal and was listed as a big game animal under the *Yukon Wildlife Act*, which enabled harvest by eligible hunters with a permit. Bison hunting is regulated and monitored to ensure that harvest does not pose a threat to population persistence.



Bison in winter. Photo by Jim Welsh.



Bison in the springtime.

### Population status of Aishihik bison

By 1998, it was estimated that the Aishihik population was close to 500 animals. However, early population counts relied on so-called total counts, and their accuracy became increasingly questionable as the population grew. Beginning in 2007, biologists began using a mark-resight methodology to estimate population size and provide 95% confidence intervals around the modeled estimate. In July 2022, the population size was estimated to be 1,951 adult bison (95% confidence intervals = 1,688–2,295). This indicates the herd has continued to grow during the years between 2007 and 2022 (see Box 2). Rapid growth of reintroduced populations of bison is not unique, and similar rapid growth was reported for other bison populations after they were re-established elsewhere.

#### Box 2: Abundance of Aishihik bison

Summary of results from periodic mark-resight surveys of the Aishihik bison population. All surveys used similar methods and the results do not include calves.

| Survey Year | Years since last survey | Estimated population size | Estimated 95% confidence intervals |
|-------------|-------------------------|---------------------------|------------------------------------|
| 2007        | 0                       | 899                       | 891-1,128                          |
| 2009        | 2                       | 1,004                     | 850-1,220                          |
| 2011        | 2                       | 1,053                     | 749-1,266                          |
| 2014        | 3                       | 1,192                     | 1,039-1,404                        |
| 2016        | 2                       | 1,325                     | 1,157-1,552                        |
| 2022        | 6                       | 1,951                     | 1,688-2,295                        |

## Management of the Aishihik bison population

Management of the Aishihik bison population is at the discretion of the Government of Yukon's Minister of the Environment, who is guided by recommendations of the Yukon Bison Technical Team and by responsibilities laid out in the federal Species at Risk Act. The technical team was established in 1999 and serves as a co-management body for the Aishihik population. Organizations with a role in bison management are on the technical team, including the federal and territorial governments, four affected First Nations (Champagne and Aishihik First Nations, Little Salmon/Carmacks First Nation, Kluane First Nation, and White River First Nation), four Renewable Resource Councils (Aisek, Carmacks, Dän Keyi, and Laberge), and the Yukon Fish and Wildlife Management Board. The Yukon Fish and Game Association, Parks Canada and the local outfitter are permanent observers on the team.

The technical team strives to cooperatively manage the Aishihik bison population and typically meets twice a year to share information about bison research, monitoring and management. It makes recommendations to the Government of Yukon regarding the management of the Aishihik population, with a particular emphasis on the bison-hunting regime. The technical team has developed hunting management principles (see Section 4) to guide their hunting recommendations in an adaptive management framework (see Box 3). When requested by the Minister, the technical team also periodically reviews or develops a new draft management plan for the Aishihik bison population and makes recommendations on plan implementation. The Government of Yukon consults with Champagne and Aishihik First Nations, Little Salmon/Carmacks First Nation, Kluane First Nation and White River First Nation before making management decisions that could affect their rights.

### Box 3: Adaptive management

Adaptive management is a framework used to adjust course when a sudden response is needed or when management outcomes are not being met. In 2008, bison were the first species in the Yukon to which an adaptive management framework was explicitly applied. Specifically, the Minister of Environment can make in-season changes to bison hunting following consultation with affected First Nations, Renewable Resources Councils and the Yukon Fish and Wildlife Management Board. An adaptive management approach requires monitoring the impact of management actions and modifying those approaches to achieve desired outcomes, when necessary. Using new information as it becomes available is part of an adaptive approach.



Conservation officer glassing for bison during a patrol.

## Management of bison hunting in the Yukon

Since 1998, Yukoners have been increasingly hunting the Aishihik bison population, with the increase in harvest being connected to the growth of the population. Four of the last five hunting seasons (from the 2018-2019 to the 2022-2023 season) have been records in terms of the number of bison seals sold and the number of animals harvested. Indeed, bison hunting has become popular, and bison are pursued by many Yukon hunters. For instance, the number of bison harvested by licensed resident hunters is now second only to Moose (*Alces americanus*) and similar to caribou (*Rangifer tarandus*). Thus, managing this popular hunt for a species of conservation concern requires an adaptive approach (Box 3) that uses up-to-date information.

Bison hunting in the Yukon occurs largely during the winter, and in many respects is managed similarly to other big game species in the territory. A notable exception being that the harvest of females (cows) is allowed (and in some years encouraged) as a management tool to reduce population growth. There have been no restrictions on which age or sex of bison hunters could harvest, to date. Licensed hunters are permitted to harvest only one bison per year.

The primary tools that wildlife managers can use to regulate the harvest include: (a) setting when bison hunting is permitted in specific game management subzones, (b) establishing bag and possession limits and (c) determining an annual allowable harvest. All bison hunters require a seal, which stipulates conditions that must be met by seal holders to harvest a bison.

To inform harvest management, the population is regularly monitored. Monitoring relies largely on information from periodic aerial surveys, a sample of radio-collared animals, mandatory hunter submissions (e.g., incisor bars for aging harvested bison), hunter effort surveys, and local information from First Nation land/game guardians, conservation officers, and local residents, trappers and hunters. The Yukon Bison Technical Team comes together annually to share information about bison monitoring and management, and each April recommends an annual allowable harvest and potential changes to the harvest regime or permit conditions. Regulations for bison hunting in the coming season, as well as harvest statistics from the previous season, are provided annually in the Yukon Hunting Regulations Summary.



## Management plans for the Aishihik bison population

This plan is the fourth management plan for the Aishihik bison population in the southwestern Yukon. Previous plans came into effect in 1989, 1998, and 2012, each replacing the former as overall management direction for the population (see Box 4).

Restoring bison in the Yukon has not been without challenges. The overall intent of the 2012 plan was to provide short-term direction for an increasing population that was raising concerns with local communities over the bison's relationship with other species, ecosystems and land uses. Some concerns have persisted since bison were first re-established. These challenges were a focus in the 1998 and 2012 management plans. One key issue is low tolerance toward increases in bison abundance by some affected First Nations, because of concerns about ecological and socioeconomic effects of bison. The 2012 plan describes hunting as the primary tool to manage the growth of the population and reduce the potential or realized effects of bison and accommodate the interest of hunters. Interest in bison hunting by Yukoners has been high and direction from previous management plans have increased harvest opportunities. For over 20 years, bison have provided Yukoners with both tangible and intangible benefits such as meat and on-the-land experiences with family and friends. The benefits accrued through bison hunting have increased public awareness, appreciation and value for the population. An example of this is the popularity of the school bison hunts, which are often accompanied by First Nations Elders, in which students learn about respect for the land and animals. Increases in bison hunting have also brought new concerns regarding the effects of bison hunters on First Nations subsistence, other wildlife, the land and bison themselves. Reported impacts include trail proliferation, hunter congestion and disturbance to traplines. Many of the issues identified in the 2012 plan are being addressed by targeted scientific or social science research (see Appendix C) and management actions, including discussions between management partners and substantial public education and outreach. However, these issues persist.

This new plan updates the previous plan and articulates a longer-term vision and recommendations for conservation and management of the Aishihik bison population. This plan will also serve as an action plan for the Aishihik population under the umbrella of the 2018 national recovery strategy.

### Box 4: An evolution of Yukon bison management plans



**1989** plan focused on re-establishing bison in the Yukon, with a focus on the logistics of transplanting them to a remote enclosure on the Nisling River. Several biological studies were recommended and completed (see Appendix C). An initial population target was established to deem if the project was a success.



**1998** plan established a co-operative management strategy, implemented bison harvest, and identified emergent issues with bison reintroduction. The main intent was to address community concerns with a growing population of bison.



**2012** plan also addressed both long-standing and emergent issues on ecological and social impacts, established population targets and identified where to harmonize efforts with national bison conservation initiatives. Several biological studies were recommended and completed under the plan.



The Yukon Bison Technical Team meeting at Airport Lake, September 2021. Photo by Ryan van der Marel.

## The planning process

A plan review process was initiated in response to the national recovery strategy and interest in re-examining the long-term vision for the Aishihik bison population, and to address arising concerns over hunter impacts to the land. The Yukon Bison Technical Team came together for four planning workshops between September 2019 and September 2021 to develop a new plan. With the support of an independent facilitator, workshops were hosted in the affected communities: first in Haines Junction, then Burwash Landing, Carmacks and then on the land at Airport Lake.

The plan was additionally informed by a survey to understand views of the Yukon public, Yukon hunters and bison managers about bison. This survey showed that public concern over the effects of bison hunters is similar to the concern of bison managers themselves (results were published in 2022, see Appendix C). Overall, the public favoured population growth of the herd despite a detectable degree of conflict within some groups, which included hunters and managers. More work would be needed to fully capture First Nations' perspectives and this plan identifies the intent to undertake further human dimensions work (see Box 5). Other key, new pieces that informed the plan were Environment and Climate Change Canada's 2018 [Recovery Strategy for the Wood Bison \(\*Bison bison athabasca\*\) in Canada](#), a 2022 population survey, a 2021 bison hunter survey, and various research and monitoring reports and studies completed since the 2012 management plan (see Appendix C).



Group of bison in the boreal forest.

#### Box 5: Human dimensions of wildlife management

Traditionally, wildlife management has focused on wildlife and wildlife habitats. However, this focus ignores that management or conservation actions operate within and are influenced by people's social, cultural and economic realities. This acknowledgement of the human influence on wildlife management is called "human dimensions of wildlife management". Increasingly, wildlife management practitioners are recognizing that successful wildlife management requires addressing and incorporating both the wildlife and human dimensions.

How human dimensions influence wildlife management is a broad and complex topic. In general, the focus is on:

- how humans value wildlife;
- how humans want wildlife to be managed; and
- how humans affect, or are affected by, wildlife and wildlife management decisions.

While this renewed focus on the human component of human-wildlife relationships does present a more human-centered perspective, it is not intended to diminish the importance or intrinsic value, of wildlife and their habitats. In fact, it acknowledges that management or conservation actions are inherently about managing, guiding or influencing human actions, and doing so requires an understanding of the social or cultural context for those actions.

## 2. Vision and goals



It is envisioned that over the life of this plan, the Aishihik bison population will increasingly be valued by Yukoners. Healthy, wild bison are in keeping with the Yukon's vast wilderness landscape that provides space for large mammals to persist in intact ecosystems. Bison should continue to provide a source of high-quality on-the-land hunting experiences, supporting food security for local communities.

Prospects for bison conservation in the Yukon are also strongly connected to national and international bison restoration efforts. On an international scale, recovery efforts have focused on re-establishing multiple herds within their historic range, distributed widely across the boreal forest of western Canada and Alaska. The Yukon's Aishihik Bison are well-placed to support these broader conservation objectives because the population sustains a minimum of 1,000 bison, is disease-free, and there is substantial community support for bison recovery in the Yukon.

The vision for the Aishihik bison population is:

*Through fostered appreciation that inspires and sustains human cultures, bison are ecologically and culturally restored to the land, in balance with the fullest possible set of other native species.*

This vision provides overarching recommendations for the management of the Aishihik bison population. It is where we would like to be in the near and long-term future. Key to the vision is that the population is both ecologically and culturally restored. Ecological restoration means that they are a contributing part of fully functioning ecosystems including predation, competition, migration, and maintaining habitat for other species. Cultural restoration entails that bison are part of the fabric of local people and are fully integrated into regional socio-ecological systems.

To achieve this vision, seven goals were developed to help ensure a long-term, biologically viable, and healthy population in the Yukon. When met, these goals will ensure a bison population that provides both non-consumptive and consumptive opportunities for Yukoners to interact with bison, while also contributing to the global conservation of bison. Each goal has a series of outcomes and specific actions that will be taken to meet it.

**GOAL 1: Ensure a viable bison population is restored to the land.**

**GOAL 2: Greater awareness of, and connection to, bison.**

**GOAL 3: Strengthen cooperative bison management.**

**GOAL 4: Provide opportunities for respectful and sustainable bison hunting.**

**GOAL 5: Acknowledge and address human-bison coexistence issues.**

**GOAL 6: Assess the effects of bison on ecosystems.**

**GOAL 7: Secure habitat for the Aishihik population.**

### 3. Outcomes and actions



This section reflects the desired outcomes that align with the vision and goals for the Aishihik bison population. Actions are identified which satisfy criteria for being SMART (specific, measurable, achievable, relevant and timely), while leading toward the aspirational vision of the plan. Restoration of bison is a long-term venture that requires a sustained vision.

#### GOAL 1: Ensure a viable bison population is restored to the land

##### Outcome 1: The Aishihik bison population maintains a minimum population of 1,000 animals

A minimum of 1,000 adult bison satisfies the long-term population objective from the 2018 national recovery strategy and assumes a sufficiently large population to remain reasonably resilient to known threats. Managing the Aishihik bison population this way is a shift toward managing them like we do other wild species, like moose or caribou. Field surveys and deployment of radio-collars, as well as population modeling, are to be used to annually estimate and track population size and trends. Given that the carrying capacity of bison is unknown, monitoring density-dependent demographics, such as births and survival, in the population is vital to ensure that the land can sustain a potentially growing bison population. Changes in these demographics can be a key signal that the carrying capacity has been exceeded.

| Outcome 1 implementation table |  |                   |  |         |
|--------------------------------|--|-------------------|--|---------|
| #                              | Action   | Role <sup>1</sup> | Details/Performance metrics  | Date    |
| 1.1                            | Assess the status of the herd                  | YG                | <ul style="list-style-type: none"> <li>Annually monitor changes in population size based on various indicators, including conducting surveys, as necessary.</li> <li>Determine annual survival and calving rates by monitoring a sample of the population with radio-collars.</li> </ul> | Ongoing |
| 1.2                            | Model population dynamics of the Aishihik herd | YG                | <ul style="list-style-type: none"> <li>Model population dynamics to project population growth or decline, understand trends, and assess the likely impacts of various management scenarios.</li> </ul>   | Ongoing |
| 1.3                            | Use adaptive management approach (see Box 3)   | BTT               | <ul style="list-style-type: none"> <li>Until a more comprehensive model of the bison population exists, use the Interim Bison Harvest Guidelines (see Appendix B) to provide recommendation for population size.</li> </ul>  | Ongoing |

<sup>1</sup>Implementation tables throughout this plan refer to: the Government of Yukon as 'YG'; the Yukon Bison Technical Team as 'BTT'; Champagne and Aishihik First Nations, Little Salmon/Carmacks First Nation, Kluane First Nation, and White River First Nation as 'FNs'; Alsek, Carmacks, Dän Keyi, and Laberge renewable resources councils as 'RRCs' Environment and Climate Change Canada as 'ECCC' and to all of the above agencies as 'ALL'.



Bison marked with paint during a population survey. Photo by Lorne Larocque.

### Outcome 2: Our knowledge of the impact of climate change on the Aishihik bison population is better understood

Little information is available on the impact of climate change on contemporary bison populations in the boreal forest. Yet, large scale shifts in climate over the past ten thousand years were likely responsible for bison being reduced from being one of the most dominant large mammals on the landscape to remnant populations by the time European settlers arrived. Bison are a cold-adapted species that may have difficulty adapting to a warming climate or extreme heat events. They are also sensitive to snow depth, which is becoming variable in recent years, but with an overall decreasing trend. Moreover, some of the habitats that Aishihik Bison rely on are also changing due to shrub encroachment, reducing suitable habitat and likely food availability. In turn, changes in food supply and habitat availability will have impacts on the carrying capacity of the region for bison. We do not know how resilient or adaptable bison will be to climate change. This is a key gap in our knowledge.

| Outcome 2 implementation table |  |           |   |         |
|--------------------------------|--|-----------|---|---------|
| #                              | Action   | Role      | Details/Performance metrics   | Date    |
| 1.4                            | Examine the potential impact of climate change on bison              | YG        | <ul style="list-style-type: none"> <li>Use existing and/or new data to explore bison responses to annual variability in climate (e.g., seasonal temperatures and snow depth), with a focus on demographic variables (e.g., births and survival) and spatial ecology (e.g., movements and habitat use).</li> </ul>           | 2028    |
| 1.5                            | Examine the potential impact of extreme weather events on bison      | YG        | <ul style="list-style-type: none"> <li>Use existing and/or new data to explore bison responses to extreme weather events (e.g., heat waves, cold snaps, excessive snow falls, and flooding), with a focus on demographic variables (e.g., survival) and spatial ecology (e.g., movements and habitat use).</li> </ul>       | 2028    |
| 1.6                            | Examine the potential impact of climate change on key bison habitats | BTT<br>YG | <ul style="list-style-type: none"> <li>Develop a bison habitat monitoring plan that focuses on examining habitat modification likely to be impacted by climate change.</li> <li>Implement monitoring on changes to key bison habitats as a result of climate change and report the results regularly to the BTT.</li> </ul> | Ongoing |

### Outcome 3: The Aishihik bison herd remains healthy, disease-free and genetically pure

Diseases can pose a major threat to bison, with tuberculosis, brucellosis and anthrax being of greatest concern for bison. Previous work has indicated that the Aishihik herd is likely free of these diseases of concern; nonetheless, genetic diversity and purity are a concern for all wild bison. This is particularly true given that the Aishihik bison population was established from a small number of individuals. The strategies to maintain genetic purity are generally the same as managing for disease prevention: preventing contact between free-ranging and captive bison, limiting imports of bison, and controlling, eliminating and/or preventing contact with plains bison, game-farmed bison, and cattle to mitigate hybridization or disease spread. The closest wild plains bison herd is located near Delta Junction, Alaska, approximately 470 km from the Aishihik bison. Should genetic diversity prove to be low, augmentation with the DNA of new individuals from other populations may be necessary to improve genetic health.

| Outcome 3 implementation table |   |           |  |         |
|--------------------------------|---|-----------|--|---------|
| #                              | Action                                  | Role      | Details/Performance metrics  | Date    |
| 1.7                            | Monitor the general health of the bison | YG<br>BTT | <ul style="list-style-type: none"> <li>Develop a bison health monitoring plan for the Aishihik population that includes items such as serology, parasitology, nutrition, body condition and stress.</li> <li>Contribute to national initiatives to monitor bison health, where feasible.</li> <li>Include hunter-contributed samples for health monitoring where possible.</li> <li>Wherever possible, use non-invasive sampling.</li> <li>Implement health monitoring studies and report the results regularly to the BTT.</li> </ul> | Ongoing |



Nisling River, near where the Aishihik bison were first released. Photo by Amy Law.

| Outcome 3 implementation table |  |           |  |         |
|--------------------------------|--|-----------|--|---------|
| #                              | Action   | Role      | Details/Performance metrics  | Date    |
| 1.8                            | Assess and, if needed, improve the genetic diversity of the herd | YG        | <ul style="list-style-type: none"> <li>Collect genetic samples from harvested bison.</li> <li>Assess genetic status of the population when opportunities arise.</li> <li>Consider genetic enhancement, if deemed necessary after modeling future genetic scenarios.</li> <li>If considering this work, discuss appropriate methods for enhancing genetic diversity with the Yukon Bison Technical Team and First Nations.</li> </ul> | Ongoing |
| 1.9                            | Prevent contact between bison and farmed animals                 | BTT<br>YG | <ul style="list-style-type: none"> <li>Discourage new bison farms in the Aishihik bison core range and explore the feasibility of bison control areas, which would outline zones in which there are no new bison farms.</li> <li>Develop protocols to prevent contact between wild bison and livestock.</li> <li>Develop a contingency plan for how to deal with cases of bison coming into contact with farmed animals</li> </ul>   | 2023    |
| 1.10                           | Prevent contact between different bison populations              | BTT       | <ul style="list-style-type: none"> <li>Develop a plan that includes no bison zones in the Yukon to ensure that Aishihik bison and Plains bison do not interbreed.</li> <li>Codify a protocol for all bison transported through the Yukon.</li> </ul>   | 2023    |
| 1.11                           | Develop a disease monitoring and mitigation plan                 | YG        | <ul style="list-style-type: none"> <li>Monitor and report on disease status of wild bison.</li> <li>If disease is suspect, sample bison to assess prevalence.</li> <li>Develop a contingency plan that details the response to the occurrence of diseases of concern.</li> </ul>   | Ongoing |



Bison snow sculpture at the 2024 Rendezvous Festival in Whitehorse. Photo by Amy Law.

## GOAL 2: Promote greater awareness of, and connection to, bison

### Outcome 4: Inform and involve communities in bison management

Opportunities to learn about the bison can contribute to community support for management actions and overall social acceptance of bison. Methods to increase community participation include sharing information about bison management and communication of scientific, local and Traditional Knowledge.

| Outcome 4 implementation table |   |           |   |           |
|--------------------------------|---|-----------|---|-----------|
| #                              | Action  | Role      | Details/Performance metrics   | Date      |
| 2.1                            | Host community events where bison managers can interact with community members  | BTT       | <ul style="list-style-type: none"> <li>Periodically host and attend community events to discuss bison conservation.</li> <li>Provide space for community members to share their concerns.</li> </ul>  | Ongoing   |
| 2.2                            | Make the results of research and monitoring initiatives publicly accessible   | YG        | <ul style="list-style-type: none"> <li>Publish and distribute research results using the various media available (e.g. Hunter Education brochure, front counter display, community events, etc..)</li> </ul>  | Ongoing   |
| 2.3                            | Conduct human dimensions research to better understand community perspectives and to evaluate effectiveness of education and outreach | BTT<br>YG | <ul style="list-style-type: none"> <li>When possible, collect human dimensions data and use it to guide co-management of bison conservation.</li> <li>Use human dimensions data to evaluate the effectiveness of education and outreach efforts.</li> </ul> | As needed |

**Outcome 5: Increase public outreach and appreciation about bison**

As intelligent, powerful animals, bison evoke strong emotions. Increasing the understanding of, and respect for, bison may translate into a willingness for long-term stewardship and conservation. Opportunities to learn about and interact with the population may contribute significantly to increased community support for management actions. Youth participation in these activities has benefits to bison conservation and to youth directly. Methods to increase public outreach and appreciation include presentations in schools, providing information to local residents and through arts and culture—this could be visual arts, photography, literature, storytelling or some other media that profiles the uniqueness of having bison in the Yukon.

Opportunities to view wildlife are an important component of Yukon's tourism industry and are cherished by residents. As a relatively accessible population, the Aishihik herd can, in some seasons, provide outstanding wildlife viewing opportunities.



School bison hunt. Photo by Jim Welsh.

| Outcome 5 implementation table |   |      |   |           |
|--------------------------------|---|------|---|-----------|
| #                              | Action  | Role | Details/Performance metrics   | Date      |
| 2.4                            | Provide opportunities to foster appreciation of bison among youth | BTT  | <ul style="list-style-type: none"> <li>Identify opportunities for youth bison appreciation (e.g. school hunts).</li> <li>Develop ongoing partnerships to implement identified opportunities.</li> </ul> | Ongoing   |
| 2.5                            | Produce and distribute coordinated public information about bison | YG   | <ul style="list-style-type: none"> <li>Identify opportunities for education and outreach on bison.</li> <li>Produce media-appropriate content for dissemination.</li> </ul>                             | Ongoing   |
| 2.6                            | Promote bison viewing opportunities                               | YG   | <ul style="list-style-type: none"> <li>Explore the feasibility of bison viewing opportunities during the non-hunting season.</li> <li>Maintain bison interpretive sites.</li> </ul>                     | As needed |
| 2.7                            | Promote appreciation for bison through the arts                   | YG   | <ul style="list-style-type: none"> <li>When possible, support local artists or cultural events that include bison.</li> <li>Showcase local bison artwork in educational material.</li> </ul>            | Ongoing   |

**GOAL 3: Strengthen cooperative bison management**

**Outcome 6: Share information, listen, and participate in collaborative decision-making**

Plan implementation requires coordination and collaboration by all responsible organizations. Management of the Aishihik population relies primarily on guidance provided in this management plan, adaptively implemented through sustainable harvest. Adaptive decision-making requires a constant inflow of information and clear communication between partners and communities. Traditional, local and scientific knowledge are important ways of knowing that complement and enhance each other.

| Outcome 6 implementation table |  |      |   |             |
|--------------------------------|--|------|---|-------------|
| #                              | Action   | Role | Details/Performance metrics   | Date        |
| 3.1                            | Integrate Traditional Knowledge, western science and local knowledge | BTT  | <ul style="list-style-type: none"> <li>Seek out observations and knowledge from community members.</li> <li>Identify, discuss and utilize various ways of knowing in bison management.</li> </ul> | Ongoing     |
| 3.2                            | Increase communication between all bison management partners         | BTT  | <ul style="list-style-type: none"> <li>Increase communication between game guardians and conservation officers.</li> </ul>  | Ongoing     |
| 3.3                            | Continue to set regular meetings for the Yukon Bison Technical Team  | BTT  | <ul style="list-style-type: none"> <li>Meet at least twice a year in affected communities to discuss implementation, progress, and concerns and share information.</li> </ul>                     | Bi-annually |
| 3.4                            | Support broader information exchange nationally and with Alaska      | YG   | <ul style="list-style-type: none"> <li>Participate in teleconferences and meetings with the National Bison Technical Advisory group and other bison expert groups.</li> </ul>                     | Ongoing     |

## GOAL 4: Provide opportunities for respectful and sustainable bison hunting

### Outcome 7: Maintain sustainable long-term bison hunting opportunities

Hunting is used as a management tool to manage population size and meet other management objectives for the Aishihik population. Hunting opportunities are provided in a manner that is consistent with the other goals and outcomes of this plan. An annual allowable harvest is permitted when the population is estimated to be greater than 1,000 adults on April 1. The annual allowable harvest is to be set based on the number of bison available to be hunted, along with a need to mitigate other management concerns. Examples of management concerns could be human-bison conflicts such as bison on the highway or in communities or in other areas where they are not desired. If there are fewer than 1,000 adults as of April 1, then harvest will not be permitted. The annual allowable harvest should be informed by population models that predict population outcomes under different harvest scenarios. Harvest guidelines, based on sustainability and supported by population models, should be developed to guide annual allowable harvest decisions by the technical team. Harvest management applies an adaptive process where the Yukon Bison Technical Team modifies management recommendations as new information becomes available. Hunting management principles are in Section 4 and interim guidelines for harvest are provided in Appendix B.

| Outcome 7 implementation table |   |           |   |                               |
|--------------------------------|---|-----------|---|-------------------------------|
| #                              | Action  | Role      | Details/Performance metrics   | Date                          |
| 4.1                            | Adaptively manage bison numbers through changes to the annual allowable harvest                             | BTT       | <ul style="list-style-type: none"> <li>Agree on the annual allowable harvest.</li> <li>Use the harvest management guidelines (Appendix B) and principles (Section 4).</li> <li>Review the bison population status and harvest management guidelines.</li> <li>Do not permit bison hunting if the adult population is estimated at less than 1,000 adults before April 1.</li> </ul> | Annually                      |
| 4.2                            | Use population models that consider different harvest scenarios to guide annual allowable harvest decisions | YG<br>BTT | <ul style="list-style-type: none"> <li>Model harvest scenarios and develop/use guidelines under different scenarios to determine short and long-term harvest sustainability.</li> </ul>   | 2027                          |
| 4.3                            | Monitor harvest statistics and communicate results to the public  | YG        | <ul style="list-style-type: none"> <li>Collect and summarize hunting statistics.</li> <li>Publish statistics in the Yukon Hunting Regulations Summary or online.</li> </ul>   | Annually or earlier as needed |

| Outcome 7 implementation table |  |      |   |      |
|--------------------------------|--|------|---|------|
| #                              | Action   | Role | Details/Performance metrics   | Date |
| 4.4                            | Examine the potential impacts of climate change on bison harvest rates | YG   | <ul style="list-style-type: none"> <li>Use existing harvest and weather data to determine the impact of climatic variables on bison hunting success and, hence, food security.</li> <li>Report the results to the BTT.</li> </ul> | 2024 |

### Outcome 8: Support hunters to be active stewards in bison management

Hunting bison is challenging and requires knowledge of the animal and the land. Given that bison are a species at risk in Canada, the opportunity to hunt them is unique. Hunters should be informed as to the methods and ethics of harvesting bison. Hunters contribute to bison management and conservation by providing samples from bison they kill. Moreover, hunters, trappers and other people on the land often have intimate knowledge of the area and animals. Their observations can be very valuable for better understanding and managing bison and should be shared with bison managers.

| Outcome 8 implementation table |  |                   |   |         |
|--------------------------------|--|-------------------|---|---------|
| #                              | Action   | Role              | Details/Performance metrics   | Date    |
| 4.5                            | Provide hunter training about safe and ethical bison hunting | YG<br>FNs<br>RRCs | <ul style="list-style-type: none"> <li>Include more bison-specific content in the mandatory Hunter Education and Ethics Development course.</li> <li>Continue to provide a Bison Hunter Workshop.</li> <li>Host workshops in interested communities, as requested.</li> </ul> | Ongoing |
| 4.6                            | Engage hunters in collection of biological samples           | YG<br>FNs<br>RRCs | <ul style="list-style-type: none"> <li>Continue to make the collection of necessary bison samples from hunters a permit requirement.</li> <li>Engage hunters in collecting additional bison samples, as needed.</li> </ul>  | Ongoing |



Looking for bison. Photo by Adam Henderson.

| Outcome 9 implementation table |  |           |   |           |
|--------------------------------|--|-----------|---|-----------|
| #                              | Action   | Role      | Details/Performance metrics   | Date      |
| 4.9                            | Conduct outreach to reduce environmental degradation   | All       | <ul style="list-style-type: none"> <li>Target affected communities and bison hunters with education and awareness to address respect for the land, including habitat degradation by snowmobiles.</li> </ul>   | Ongoing   |
| 4.10                           | Conduct outreach to target bison hunters with education and awareness to respect active traplines  | YG        | <ul style="list-style-type: none"> <li>Continue to include respect for trapping cabins and trails in bison hunting workshops and seminars.</li> <li>Maintain 'respect for trapping' signage at popular bison hunting locations.</li> <li>Continue to provide "Active Trapping Area" signs for licensed trappers.</li> </ul> | Ongoing   |
| 4.11                           | Promote cultural sensitivity between licensed hunters and affected First Nations in their respective Traditional Territories/ asserted traditional territory | All       | <ul style="list-style-type: none"> <li>Target affected communities and bison hunters with education and awareness to address cross-cultural relationship-building and respect for First Nations and their rights.</li> </ul>  | Ongoing   |
| 4.12                           | Consider mechanisms to reduce the number of permits in areas to address problems   | YG<br>FNs | <ul style="list-style-type: none"> <li>Identify areas of concern to affected First Nations.</li> <li>Temporarily limit the number of permits available for identified areas to reduce hunter impacts.</li> <li>Evaluate the effectiveness of these measures in reducing hunter effects.</li> </ul>                          | 2024      |
| 4.13                           | Enable the enforcement of no access to hunting on Settlement Lands where it is not permitted by a First Nation   | YG<br>FNs | <ul style="list-style-type: none"> <li>Explore means to enforce no access to hunting on Category A and B Settlement Lands without a First Nation permit.</li> <li>Continue to work collaboratively to ensure that bison hunting on Traditional Territories is respectful.</li> </ul>  | 2024      |
| 4.14                           | Assess the impact of bison hunting on bison and possibly other species   | YG        | <ul style="list-style-type: none"> <li>Complete a study on the effect of bison hunting activity on bison using measures such as habitat use, nutrition and stress.</li> <li>Consider the same as above but for moose and other wildlife.</li> </ul>   | 2026      |
| 4.15                           | Create hunting refugia to reduce hunter-induced impacts on bison, moose and other wildlife, as needed  | YG<br>BTT | <ul style="list-style-type: none"> <li>Identify one or more bison and moose refugia from scientific data and local and Traditional Knowledge.</li> <li>Recommend closure of identified areas to bison hunting during a portion or all of the hunting season, if needed.</li> </ul>  | As needed |

| Outcome 8 implementation table |  |                   |  |         |
|--------------------------------|--|-------------------|--|---------|
| #                              | Action   | Role              | Details/Performance metrics  | Date    |
| 4.7                            | Encourage hunters to report on-the-land observations                     | YG<br>FNs<br>RRCs | <ul style="list-style-type: none"> <li>Encourage hunters to record and report on-the-land observations while bison hunting (e.g. T.I.P.P. line).</li> <li>Review reporting requirements.</li> <li>Develop mechanisms for hunters to submit their observations online.</li> </ul> | Ongoing |
| 4.8                            | Effectively communicate with hunters about harvest management objectives | BTT               | <ul style="list-style-type: none"> <li>Communicate and distribute materials to hunters about bison harvest management objectives and changes in hunting regulations and requirements.</li> </ul>   | Ongoing |

### Outcome 9: Encourage respectful hunting and reduce the effects of hunters on the land

Hunters are one of the primary user groups that benefit from having bison in the Yukon. Like any human activity, the combined effects of many hunters can have adverse outcomes. Some of the issues that have been raised during the management planning process include excessive trail proliferation and noise from snowmobiles, garbage left behind, and disturbance to traplines, historic and cultural sites, and impacts on other resident wildlife such as moose. Solutions will involve participation from the hunting community and other land users to understand what may work best. In addition to promoting stewardship, targeted approaches with various interest groups and dispersing the effects of bison hunters will help reduce conflicts.



## GOAL 5: Acknowledge and address human-bison coexistence issues

### Outcome 10: Decrease potential for bison risks to human safety

Bison are large animals that may threaten human safety when they become defensive. Increased communications are needed to decrease human injuries due to bison. There are several territorial recreation parks within the Aishihik bison core range, such as Aishihik Lake and Otter Falls campgrounds. Although not reported frequently, it is possible that bison could come into campgrounds and other areas of high human use. Information on human safety when encountering bison should be provided at these campgrounds.

| Outcome 10 implementation table |   |      |  |         |
|---------------------------------|---|------|--|---------|
| #                               | Action  | Role | Details/Performance metrics  | Date    |
| 5.1                             | Educate hunters and non-hunters about being safe around bison | YG   | <ul style="list-style-type: none"> <li>Develop and distribute content that increase public knowledge of bison behaviour and recommendations for best practices when encountering a bison.</li> <li>Provide educational materials in campgrounds in the bison core range.</li> <li>Work with park management teams on appropriate responses if bison become an issue in national or territorial parks.</li> <li>Target education materials for visitors to Yukon regarding safe bison viewing.</li> </ul> | Ongoing |

### Outcome 11: Reduce collisions with vehicles through various mitigation measures

Bison (and other ungulates) are likely attracted to highway rights-of-way because of food availability and ease of travel. As such, there is a continued risk of vehicle collisions with bison. While bison-vehicle collisions are not common in the Yukon, they are a serious concern in adjacent jurisdictions, including British Columbia and the Northwest Territories.

| Outcome 11 implementation table |   |      |  |           |
|---------------------------------|---|------|--|-----------|
| #                               | Action  | Role | Details/Performance metrics  | Date      |
| 5.2                             | Take measures to reduce bison attractants in the highway corridor | YG   | <ul style="list-style-type: none"> <li>Evaluate means to reduce palatable plants on the highway verge.</li> <li>Use hunting or other measures to deter bison from loitering on highway verges during September to end of March.</li> </ul> | As needed |
| 5.3                             | Review and establish practices to address bison on the highway    | BTT  | <ul style="list-style-type: none"> <li>Review and establish measures to be taken when incidents of bison on the highway become a public safety concern.</li> </ul>   | As needed |



Bison are attracted to roads by food availability and ease of travel.

### Outcome 12: Mitigate impacts from bison to private property and cultural sites, including on First Nation Settlement Lands

The long-term viability of bison in the Yukon relies on identifying and addressing local concerns about the impacts bison have to private property and sites of cultural significance. This may include sites with plants of cultural significance, such as those used for traditional medicines. A socioeconomic impact study (published in 2016, see Appendix C) describes the impacts and informs adaptive management practices.

| Outcome 12 implementation table |  |           |  |           |
|---------------------------------|--|-----------|--|-----------|
| #                               | Action   | Role      | Details/Performance metrics  | Date      |
| 5.4                             | Address property damage issues as they arise                           | YG        | <ul style="list-style-type: none"> <li>Review the Wildlife Conflict Directive as it applies to bison and ensure a measured approach to human-bison conflicts.</li> <li>Update the directive if necessary.</li> </ul>             | As needed |
| 5.5                             | Implement methods to exclude bison from sites of cultural significance | YG<br>FNs | <ul style="list-style-type: none"> <li>Identify sites of cultural significance that may be vulnerable to bison disturbance.</li> <li>Work with affected First Nations to develop protocols to protect cultural sites.</li> </ul> | 2023      |



Yukon Wild Buckwheat (*Eriogonum flavum*) next to bison scat. This plant is rare, found only in a few locations in Yukon and Alaska. Photo by Amy Law.

## GOAL 6: Assess the effects of bison on ecosystems

### Outcome 13: Monitor the effects of bison on other species and ecosystems

Local people have been long concerned about negative impacts of bison to the land and other valued species, such as moose or caribou. A socio-economic impact study, completed in 2011, showed that participants desire a population large enough to sustainably harvest but avoid crossing a threshold beyond which bison may negatively alter the regional ecosystem.

Different knowledge systems provide different views on the presence or absence of negative effects on other species, like moose or caribou, or ecosystems. Scientific research on the impacts of bison on other species has found limited evidence for bison negatively impacting moose or caribou; however, there may be negative impacts to seasonal sheep range and muskrats. So far, researchers have not found a negative impact of bison on relict boreal grasslands or rare plant communities; rather, bison use of grasslands appears to help maintain them and promote plant diversity. Appendix C provides a summary of relevant references.

Additional work should focus on monitoring interactions between bison and other species that may be indicators of change (e.g. in moose, caribou, sheep, or muskrat populations, as well as grassland plant communities). For instance, Kluane First Nation has expressed concern about sheep populations in their Traditional Territory possibly being affected by range degradation due to bison grazing, and research on this concern is encouraged. Also, predation of bison by wolves and bears should be monitored.

Monitoring range expansion and developing new research initiatives or management interventions, if necessary, is key to mitigating negative effects. In the past, requesting hunters to focus efforts to direct bison away from certain areas, such as west of Kloo Lake, has apparently been a successful management intervention. Furthermore, an explicit outcome of this plan is for bison restoration to be measured on whether bison are fulfilling some of the ecological functions they once did before becoming extirpated.

| Outcome 13 implementation table |  |            |   |           |
|---------------------------------|--|------------|---|-----------|
| #                               | Action   | Role       | Details/Performance metrics   | Date      |
| 6.1                             | Monitor for range expansion  | BTT<br>YG  | <ul style="list-style-type: none"> <li>Use telemetry data, aerial surveys, local observations and Traditional Knowledge to monitor for range expansion.</li> </ul>  | Ongoing   |
| 6.2                             | Communicate and collaborate with all affected managers on appropriate responses to range expansion | YG         | <ul style="list-style-type: none"> <li>Communicate proactively about changes to the range and potential responses, if required, with all affected First Nations within and bordering the bison range.</li> </ul>  | As Needed |
| 6.3                             | Monitor for impacts on other valued wildlife by bison  | YG         | <ul style="list-style-type: none"> <li>Monitor for changes in local populations of other species, specifically moose, caribou, sheep and muskrats.</li> <li>Study the impact of bison on sheep habitat.</li> <li>If necessary, develop research projects to examine the interactions between bison and other species.</li> <li>Monitor for ecological interactions between bison and other species that may be indicators of ecological restoration.</li> </ul> | Ongoing   |
| 6.4                             | Monitor for bison predation by large carnivores  | YG         | <ul style="list-style-type: none"> <li>Monitor and periodically report on predation of bison by wolves and bears.</li> </ul>  | Ongoing   |
| 6.5                             | Monitor for impacts on local ecosystems and rare plants by bison                                   | ECCC<br>YG | <ul style="list-style-type: none"> <li>Monitor for changes in remnant boreal grasslands or other ecosystems (e.g., wet sedge meadows) used extensively by bison.</li> <li>Monitor for changes in rare plant communities in the bison range.</li> <li>Continue to determine the role, if any, of bison on impacts to those species and ecosystems.</li> </ul>  | Ongoing   |
| 6.6                             | Assess impacts of bison on permafrost  | BTT        | <ul style="list-style-type: none"> <li>Explore First Nation concerns about bison impacts on permafrost.</li> <li>Determine the need to conduct field research.</li> </ul>   | As Needed |



Tagged bison. Photo by Gordon Court.

## GOAL 7: Secure habitat for the Aishihik population

### Outcome 14: Identify critical habitat

The federal *Species at Risk Act* requires that residences and critical habitat be protected from destruction for threatened and endangered species. While this legal requirement applies to bison, habitat loss does not appear to be a pressing threat for the Aishihik population. Regardless, a framework is needed to fill the knowledge gaps on range and habitat use of the Aishihik herd, in order to fulfill federal obligations.

| Outcome 14 implementation table |   |      |   |      |
|---------------------------------|---|------|---|------|
| #                               | Action  | Role | Details/Performance metrics   | Date |
| 7.1                             | Obtain knowledge on habitat use and suitability                     | YG   | <ul style="list-style-type: none"> <li>Develop seasonal habitat suitability maps using radio-collar data.</li> <li>Validate habitat maps with local and Traditional Knowledge holders.</li> </ul> | 2024 |
| 7.2                             | Develop and apply a Yukon-specific approach to map critical habitat | BTT  | <ul style="list-style-type: none"> <li>Determine how best to delineate critical habitat areas for the population.</li> <li>Recommend areas that should be considered critical habitat.</li> </ul> | 2025 |

### Outcome 15: Secure critical habitat

Once critical habitat areas have been identified, it may be necessary to protect it. Doing so will ensure that bison habitat remains into the future, and that the Government of Yukon meets the legal requirements of the federal *Species at Risk Act*. The approach for securing critical habitat will be tailored to the unique situation in the Yukon.

| Outcome 15 implementation table |  |      |  |             |
|---------------------------------|--|------|--|-------------|
| #                               | Action   | Role | Details/Performance metrics  | Date        |
| 7.3                             | Provide management guidelines for critical habitat areas | BTT  | <ul style="list-style-type: none"> <li>Develop guidelines consistent with the national recovery strategy and this plan.</li> </ul>   | If required |
| 7.4                             | Designate and manage critical habitat areas              | YG   | <ul style="list-style-type: none"> <li>Designate and manage critical habitat areas with available policy and legal tools.</li> </ul> | If required |



Bison wallowing, or rolling in the dirt, which provides some relief from insects.

## 4. Implementation and plan review



### Guiding principles for adaptive harvest management

In the implementation of this plan, every effort will be made to understand bison and their management needs to best minimize risks to Yukon ecosystems, communities and the bison themselves. In September 2021, the Yukon Bison Technical Team reviewed and revised a series of principles that guide adaptive management of bison harvest in the Yukon. These principles will inform the goals and actions of the plan, and will be a framework for adaptive management decisions during its implementation:

- 1. Respect for bison and other wildlife sharing the landscape and ecosystems.**
  - a. Take only what you need and use all that you take.
  - b. Apply the precautionary principle.
  - c. Minimize impacts to land and wildlife.
- 2. Respect for all land users.**
  - a. Promote cultural awareness of First Nations rights and land use.
  - b. Raise awareness, especially among youth.
  - c. Minimize impacts to people.
- 3. Governance, accountability, and transparency.**
  - a. Communicate proactively.
  - b. Be clear on how harvest numbers are developed.
  - c. Keep things as simple as practicable.
- 4. Bison hunting is a privilege and a management tool.**
  - a. Manage harvest to balance opportunities and effects.
  - b. Don't facilitate ease of hunt for success, promote fair chase.
  - c. Be inclusive and listen to all land users.

### Implementation and plan review

This plan will have an unspecified lifespan, having been created for a longer-term vision that recognizes the complexity of managing bison in the Yukon, and the desire to manage the population adaptively. After this plan is approved, the Yukon Bison Technical Team should develop an implementation plan to prioritize actions. It is the prerogative of any member of the Yukon Bison Technical Team to formally signal their desire for a plan review. A review will evaluate the progress towards achieving the vision, as well as provide an opportunity for ensuring the vision and long-term recommendations outlined in this plan are still relevant and consistent with overall wildlife management direction in the Yukon. A review will also consider the fact that policy and legislation evolve, potentially providing new management opportunities.

Typically, an implementation assessment should be undertaken after 5 years of the plan's enactment to evaluate whether the goals are being met and the actions fulfilled. Following the assessment, the plan's action items, or its performance indicators may be updated with an addendum, as appropriate, without triggering a full plan review. Eventually, new issues may dictate other review responses to be initiated as deemed necessary by the Yukon Bison Technical Team.



Group of bison near a wetland in summer.

### Roles and responsibilities

- The Yukon Bison Technical Team will be responsible for developing an implementation plan and yearly tracking of progress on action items. Information will be requested from other management partners, as required.
- The Yukon Bison Technical Team will be responsible for reviewing and developing a five-year implementation assessment report.
- The Yukon Bison Technical Team will be responsible for reviewing the interim bison harvest guidelines (Appendix B) annually and as needed. Any future full plan reviews will be completed when requested by the Minister of Environment, and in collaboration with all bison management partners.

# Appendices



## Appendix A. Planning workshop participants

| Organization                             | Participants   |
|--|--|
| Alsek Renewable Resources Council        | Laura MacKinnon, Mark Nassiopoulos, Cassandra Wheeler, Cameron MacKinnon   |
| Government of Canada                     | Saleem Dar, Shannon Stotyn   |
| Carmacks Renewable Resources Council     | Sheila Garvice, Joseph O'Brien   |
| Champagne and Aishihik First Nations     | Tinha Chambers, Melina Hougen, Venesa Lutz, Micheal Jim, Monica Krieger, Harry Smith   |
| Dän Keyi Renewable Resources Council     | Sian Williams  |
| Government of Yukon                      | Thomas Jung (Co-Chair), Barbara Coppard, Ryan Drummond, Shailyn Drukis, Rob Florkiewicz, Ken Knutson, Piia Kukka, Mark O'Donoghue, Russel Osborne, Robert Perry, Catherine Pinard, Shawn Taylor, Julie Thomas, Ryan van der Marel, Jim Welsh |
| Kluane First Nation                      | Kate Ballegooyen (Co-Chair), Geraldine Pope, Rachel Thom, Kristy Kennedy   |
| Laberge Renewable Resources Council      | Len Mychasiw, Ken Taylor   |
| Little Salmon/Carmacks First Nation      | Rebecca Freeman (Co-Chair), Calvin Charlie, Mike Vance   |
| Other                                    | Alistair Bath (Facilitator)  |
| Parks Canada                             | Sarah Chisholm, Craig McKinnon   |
| White River First Nation                 | Neil McGrath, Ray Sabo   |
| Yukon Fish and Game Association          | Eric Schroff, Gord Zealand   |
| Yukon Fish and Wildlife Management Board | John Burdek, Carl Sydney, Graham Van Tighem  |
| Local Outfitter                          | Tim Mervyn   |



Monitoring and tracking the health of the bison population is essential to the conservation of this species at risk. Government biologists work carefully with immobilized bison to collect samples that shed light on age, diet, genetics, disease status and more.

## Appendix B. INTERIM Bison Harvest Guidelines

These INTERIM Bison Harvest Guidelines are meant to provide short-term recommendations for the annual allowable harvest of the Aishihik bison population. Annual calf production and mortality rates were the main data considered in developing these guidelines. These guidelines are interim because detailed population modeling efforts—based on harvest scenarios—are anticipated to result in these guidelines being updated to reflect the best available science.

Recommended harvest regimes aim to balance bison conservation with optimizing harvest opportunities. Specifically, the intent is to ensure that the population does not decrease below 1,000 adults, while providing a long-term harvest opportunity. As such, the annual allowable harvest is scaled to the estimated population size and trend. As the population grows beyond the 1,000 threshold the number of bison that may be harvested increases but is dependent on whether the population trend is declining, stable or increasing. Hunting may be closed, limited to moderate, or liberal, depending on population size and trend. Implementation of these guidelines will require an annual estimation of the population size (from population censuses or modeling), which considers the number of births and mortalities each year.

Importantly, the table below is meant to provide guidelines and not management prescriptions. To address social and other issues that may arise in bison conservation and management, harvest regimes may be modified at ministerial discretion.

## Appendix C. Selected references

| Recommended harvest regime                   |   |  |
|--|---|--|
| Estimated adult population size <sup>2</sup> | Decreasing population <sup>3</sup>  | Stable or increasing population <sup>3</sup>   |
| Less than 1000                               | <ul style="list-style-type: none"> <li>Recommended hunting closure</li> <li>Up to 10 bison (bulls preferred) may be taken for cultural, community hunt or management reasons <sup>4</sup></li> </ul>  |  |
| 1001-1200                                    | <ul style="list-style-type: none"> <li>Limited hunting</li> <li>Annual allowable harvest is 5% (50–60 bison)</li> <li>4:1 bull:cow harvest ratio</li> <li>Up to 10 additional bison may be taken for cultural, community hunt or management reasons <sup>4</sup></li> </ul>       | <ul style="list-style-type: none"> <li>Limited hunting</li> <li>Annual allowable harvest is 10% (100–120 bison)</li> <li>2:1 bull:cow harvest ratio</li> <li>Up to 20 additional bison may be taken for cultural, community hunt or management reasons <sup>4</sup></li> </ul> |
| 1201-1500                                    | <ul style="list-style-type: none"> <li>Moderate hunting</li> <li>Annual allowable harvest is 12.5% (150–190 bison)</li> <li>2:1 bull:cow harvest ratio</li> <li>Up to 20 additional bison may be taken for cultural, community hunt or management reasons <sup>4</sup></li> </ul> | <ul style="list-style-type: none"> <li>Liberal hunting</li> <li>Annual allowable harvest is 20% (240–300 bison) but may be capped at a lower number <sup>4</sup></li> <li>Either sex</li> </ul>  |
| More than 1500                               | <ul style="list-style-type: none"> <li>Liberal hunting</li> <li>Annual allowable harvest is 20% (300 or more bison) but may be capped at a lower number<sup>4</sup></li> <li>Either sex but cow harvest may be encouraged</li> </ul>  |  |

<sup>2</sup> The adult population is all animals alive as of April 1 each year (post-hunt), not including calves.

<sup>3</sup> Population trend (decreasing, stable or increasing) is based on the most recent trend.

<sup>4</sup> This is at the discretion of the Minister.

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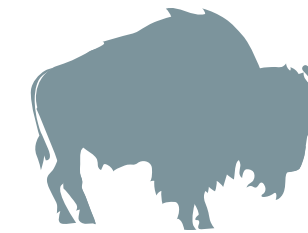
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