

Yukon Bison Management Plan

1998 to 2003



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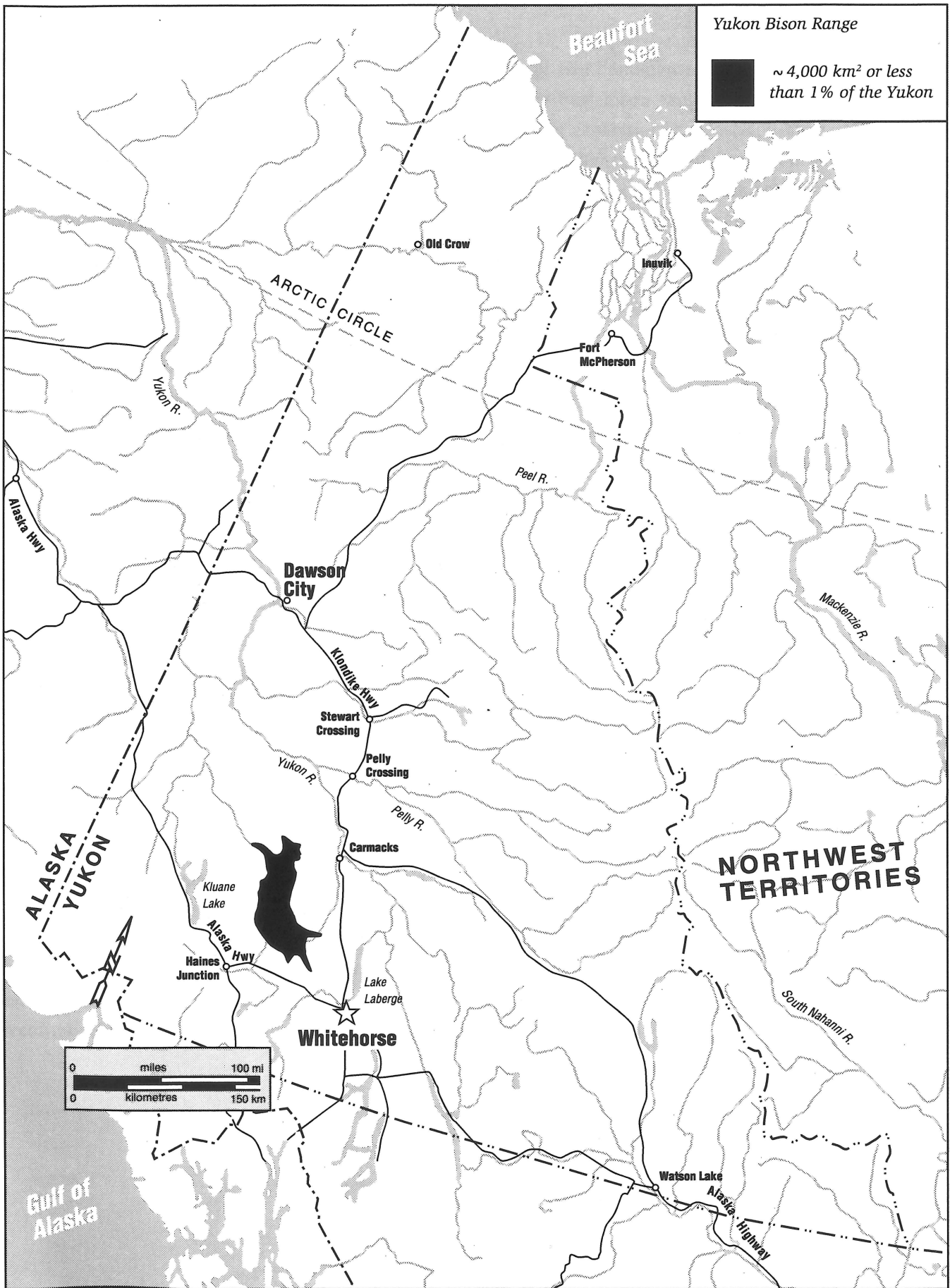
Yukon Bison Management Plan

1998 to 2003



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EXECUTIVE SUMMARY

Pleistocene bison have inhabited the Yukon for perhaps as long as 700,000 years. Wood bison evolved from them in the Beringia Refugium about 5,000 years ago. They were once one of the most common grazing mammals. However, successional changes in habitat from cold steppe to spruce forests during recent centuries caused a decline in numbers and reduced distribution. Around 1800 there were still 160,000 Wood bison in existence, but the arrival of white people, the fur trade and the availability of firearms caused drastic reductions. By the turn of the century, only 200 to 300 Wood bison were left.

Early conservation efforts included the establishment of Wood Buffalo National Park in 1922. Wood bison numbers began to rise, but the release of over 6,000 Plains bison into the park caused hybridization. This genetic contamination, plus three cattle diseases (tuberculosis, brucellosis and anthrax) which were introduced with the Plains bison, have been the most serious obstacle in Canada's Wood Bison Recovery Program. However, a small herd of pure, healthy Wood bison were discovered in a remote area of the park in 1959. Forty-two of these bison were captured, of which 24 were released in Elk Island National Park and 18 north of Great Slave Lake, into what is now the Mackenzie Bison Sanctuary. These two new herds were the beginning of the current Wood Bison Recovery Program.

In 1980, the Yukon decided to participate in the national effort to bring about recovery of this endangered species by making the commitment to establish one free roaming herd of viable size. Range reconnaissance by the Canadian Wildlife Service

(CWS) had documented the Nisling River watershed as the best bison range in southern Yukon with a carrying capacity of at least 400 head. An enclosure was established to habituate Wood bison to Yukon's environmental conditions and, between 1986 and 1992, 142 bison were brought to the Yukon, primarily from Elk Island National Park.

Between 1988 and 1992, 170 bison were set free. The wild herd has grown at a rate of 10 to 20% per year, expanding its range southward into the Aishihik, Selkumun and Hutshi lakes' watersheds, an area of about 4,000 km². The herd is presently about 300 head, and the first management plan expired in 1994.

Objectives of the new five-year plan are:

- To establish a viable, free-roaming herd of Wood bison of about 500 in the area currently occupied by them.
- To maintain the genetic purity of the Yukon's Wood bison and, if possible, enhance their genetic repertoire to improve adaptation to the subarctic environment.
- To maintain the disease-free status of the Yukon's Wood bison.
- To develop habitat management strategies that will ensure the maintenance of the Wood bison range in its pristine condition.
- To optimize opportunities for hunting as well as non-consumptive uses of the Wood bison resource for the benefit of all Yukoners and visitors.
- To implement mitigative measures to reduce the impact of bison on other ecosystem components.

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HISTORY OF WOOD BISON

IN NORTH AMERICA

Bison are not “exotics” but have inhabited the Yukon for perhaps as long as 700,000 years. The Wood bison as a distinct subspecies evolved about 5,000 years ago in the Beringia refugium — the ice-free area extending from central Yukon westward across Alaska, via the exposed Bering land bridge, into eastern Siberia. During and after the ice age they were one of the most common large grazing animals in the area. However, climatic changes in the following millennia brought about a decline in the extent of cold steppe with the accompanying invasion of spruce forests. Bison habitat shrank and bison numbers declined.

It is estimated that around the year 1800 there were about 160,000 Wood bison in North America. With the initiation of the fur trade and the

introduction of firearms in the latter part of the last century, bison numbers declined rapidly; they became almost extinct with only 200 to 300 left by the 20th century.

Early this century, Wood bison conservation measures, such as the establishment of Wood Buffalo National Park, brought about a slow recovery of the Wood bison herd, with numbers climbing from 500 to 2,000 in the 1920s.

In an attempt by government to save the Plains bison subspecies, between 1925 and 1928, 6,673 Plains bison from Buffalo Park near Wainwright, Alberta, were shipped to Wood Buffalo Park and released there. Unfortunately, these two subspecies mixed readily and produced a hybrid bison herd that grew to a size of about 12,000 by 1934. Besides this genetic contamination, the introduction of Plains bison brought such diseases as tuberculosis and brucellosis and possibly anthrax. This has been a great handicap to Wood bison recovery efforts ever since.

Bison grazing in the meadows.

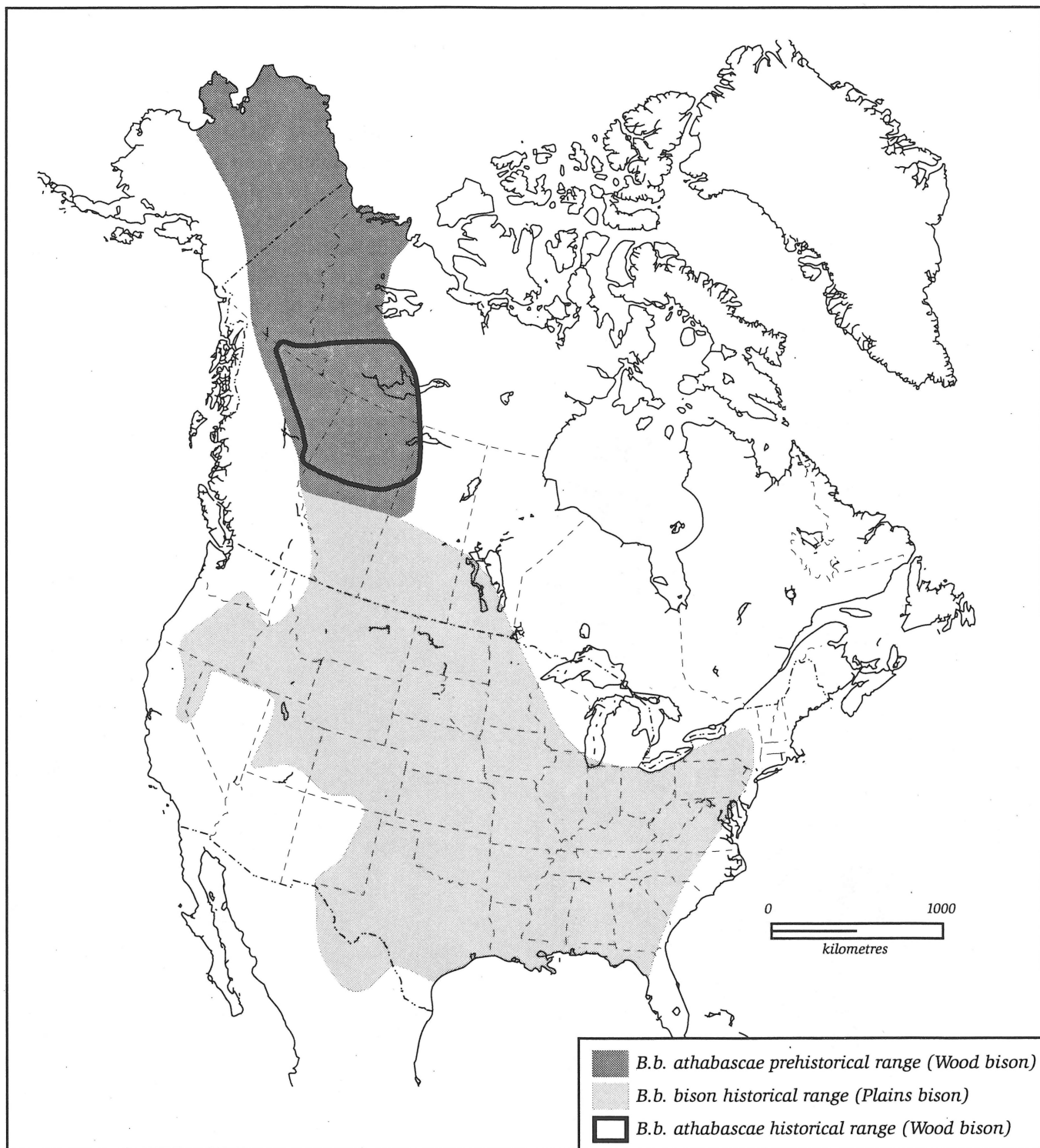


History of Wood bison

By 1940, the Wood bison, as a taxonomically distinct type of bison, was assumed to be extinct. However, in 1959, a small herd was discovered in an isolated part of Wood Buffalo Park around the Nyarling River. Inspection of these animals revealed that they were indeed pure Wood bison that had escaped contact with the introduced Plains bison. To

save this gene pool, two transplants were carried out: 18 bison were shipped to an area north of Great Slave Lake in 1963, which is now the Mackenzie Bison Sanctuary, and 24 were relocated to Elk Island National Park in 1965. Both these efforts were successful. This formed the beginning of the current Wood bison recovery program.

Historic and prehistoric distribution of Wood bison and historic range of Plains bison, after van Zyll de Jong (1986)



IN THE YUKON

Fossil evidence indicates that bison were widespread in the Yukon 2,000 to 3,000 years ago. Even as recently as about 500 years ago, bison still occupied the Fairbanks area of Alaska, the Baillie Island area of the Beaufort Sea in the western NWT and presumably adjacent areas in the Yukon.

Four Yukon bison skulls in private collections were dated for this Yukon Recovery Project. The bison of most recent origin lived about 930 years ago in the Cowley Lake area south of Whitehorse.

Reports by explorers from the turn of the century do not mention bison, but some more recent reports do make reference to them. In the early 1950s, anthropologist Catherine McClellan (1975) concluded, from Teslin elders, that bison were last hunted when their grandparents were small children. This is interpreted as being in the mid-to-late 18th century.

The most recent documentation comes from federal biologist C.H.D. Clarke (1945) who reported that "Indians at Lower Post near Watson Lake killed a bull buffalo about 1939." Recent interviews with First Nation elders in southeastern Yukon also support the assumption of bison still being present in the Ross River and Liard area last century, with the last bison disappearing early this century. While they were abundant, bison were an important food animal for First Nations (McClellan, 1975).

Why bison disappeared from the Yukon is not exactly known, but as already pointed out, habitat deterioration through the succession of grassland to forests, followed by the arrival of white people, the fur trade and the availability of firearms, are generally considered the most plausible explanation.

Wood bison



THE CANADIAN WOOD BISON RECOVERY PROGRAM

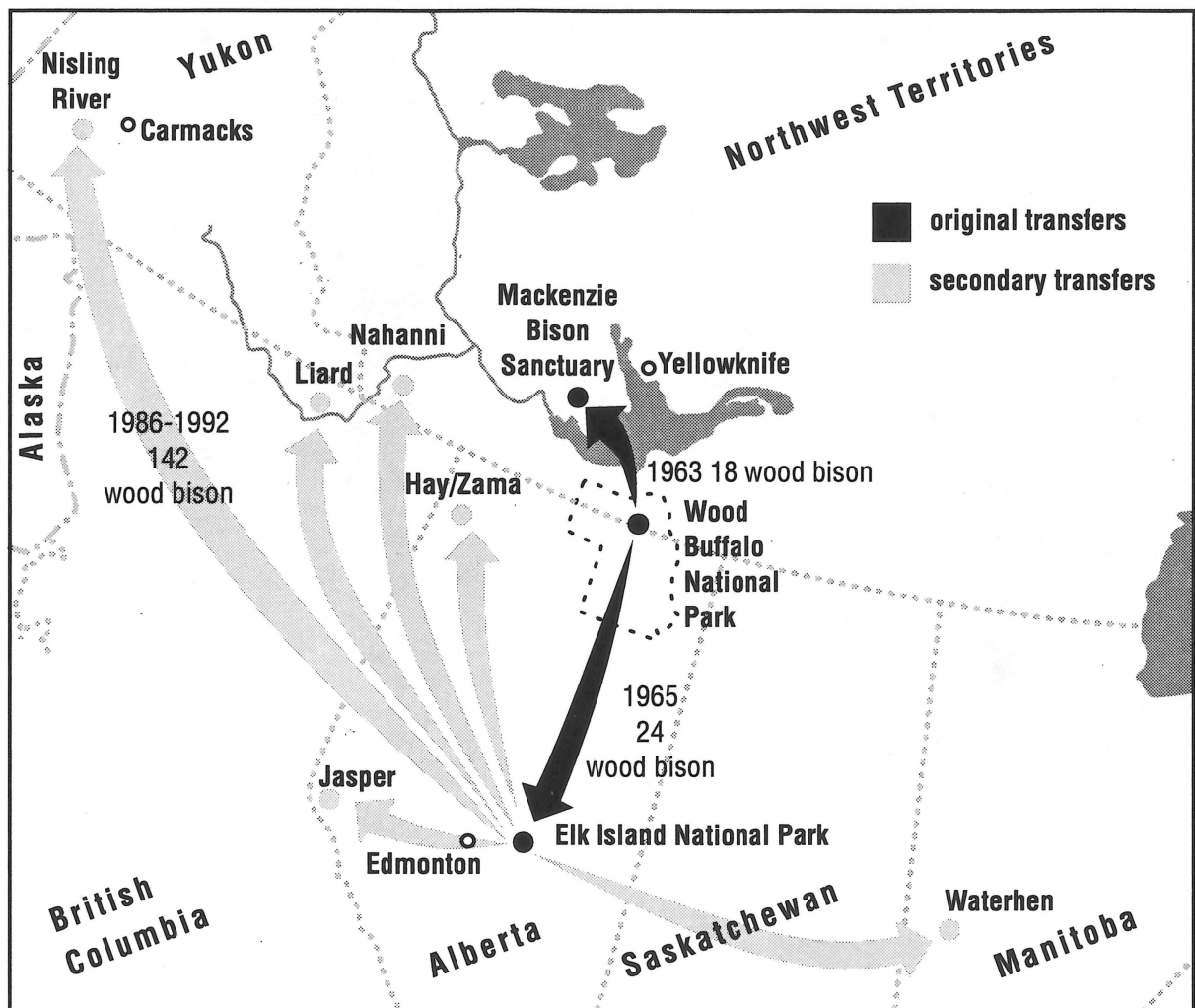
The small bison herd of 18 released north of Great Slave Lake grew at a rate of 20% per year. With a present population size of about 1,300, it is the largest free-roaming Wood bison herd in North America. The bison translocated to Elk Island National Park also did well. However, this is a fenced-in-area and the herd has to be kept at a level of less than 300 to prevent range damage. This herd has been the source of Wood bison for various reintroduction projects carried out over the past 20 years.

Since 1975 a national Wood Bison Recovery Team has been active in promoting reintroduction projects to Jasper Park, Nahanni Park, the Waterhen area of Manitoba, the Hay Zama Lake area of Alberta and most recently the Liard area of B.C.

In 1980, the Yukon government decided to participate in the national effort to bring about recovery of this endangered species. In preparation, the Canadian Wildlife Service (CWS) did a range reconnaissance in 1982 and recommended the Nisling River watershed as the most promising release site with a carrying capacity of at least 400 bison.

An agreement for a cooperative Wood bison reintroduction project was signed by the federal Minister of the Environment and Yukon's Minister in charge of Renewable Resources in 1983. It stipulated the contributions of both parties to this joint undertaking with the long-term objective of establishing one additional, viable, free-roaming Wood bison herd as part of the national recovery effort. The Yukon made the commitment to build a two-square-mile enclosure, provide winter access to it, manage the captive herd and, after release of the

Transfer of Wood bison for recovery project



bison, monitor the performance of the wild herd. The Canadian Wildlife Service provided the bison, arranged for their disease testing and transportation to the Yukon and contributed financially to such management costs as purchase of hay and radio transmitters.

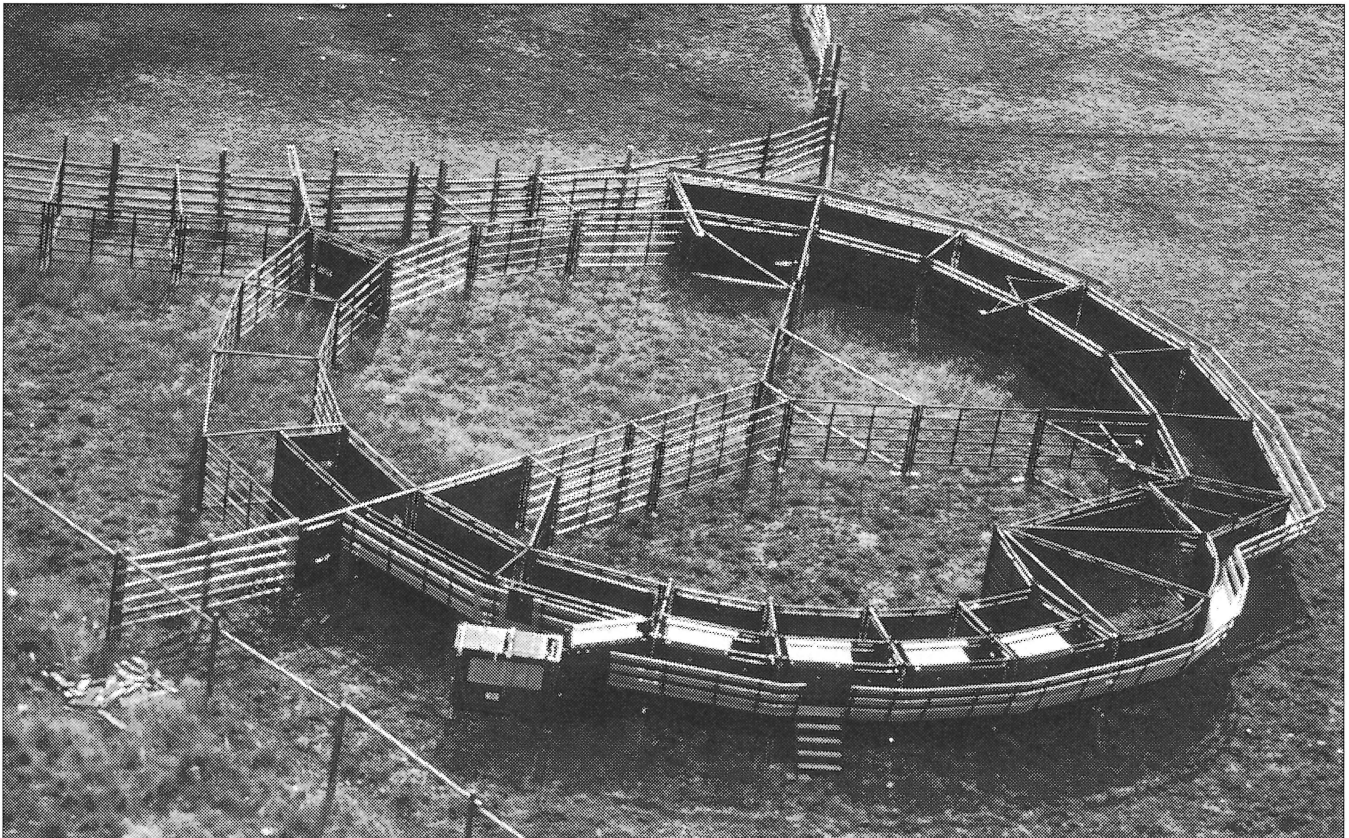
Both the Yukon government and the Canadian Wildlife Service agreed that this project

should only proceed if the bison were first kept in an enclosure to habituate them to Yukon conditions. Construction of the enclosure fencing in 1985, located in the Nisling River valley 80 km west of Carmacks, completed preparations for the return of Wood bison to the Yukon. When the Yukon's herd reached a size of about 200, as per agreement, CWS withdrew from the project.

Release of the first Wood bison into the Yukon.



Enclosure used for handling Wood bison prior to release



YUKON WOOD BISON

HERD SIZE AND RANGE

The first bison coming from Elk Island National Park arrived at the Nisling enclosure in March 1986. By 1992, four additional shipments had been received, making a total of 142 bison, with an even sex ratio.

The first release of bison from the enclosure took place in March 1988 and the last bison left the enclosure in the summer of 1992. In total, 170 bison were set free.

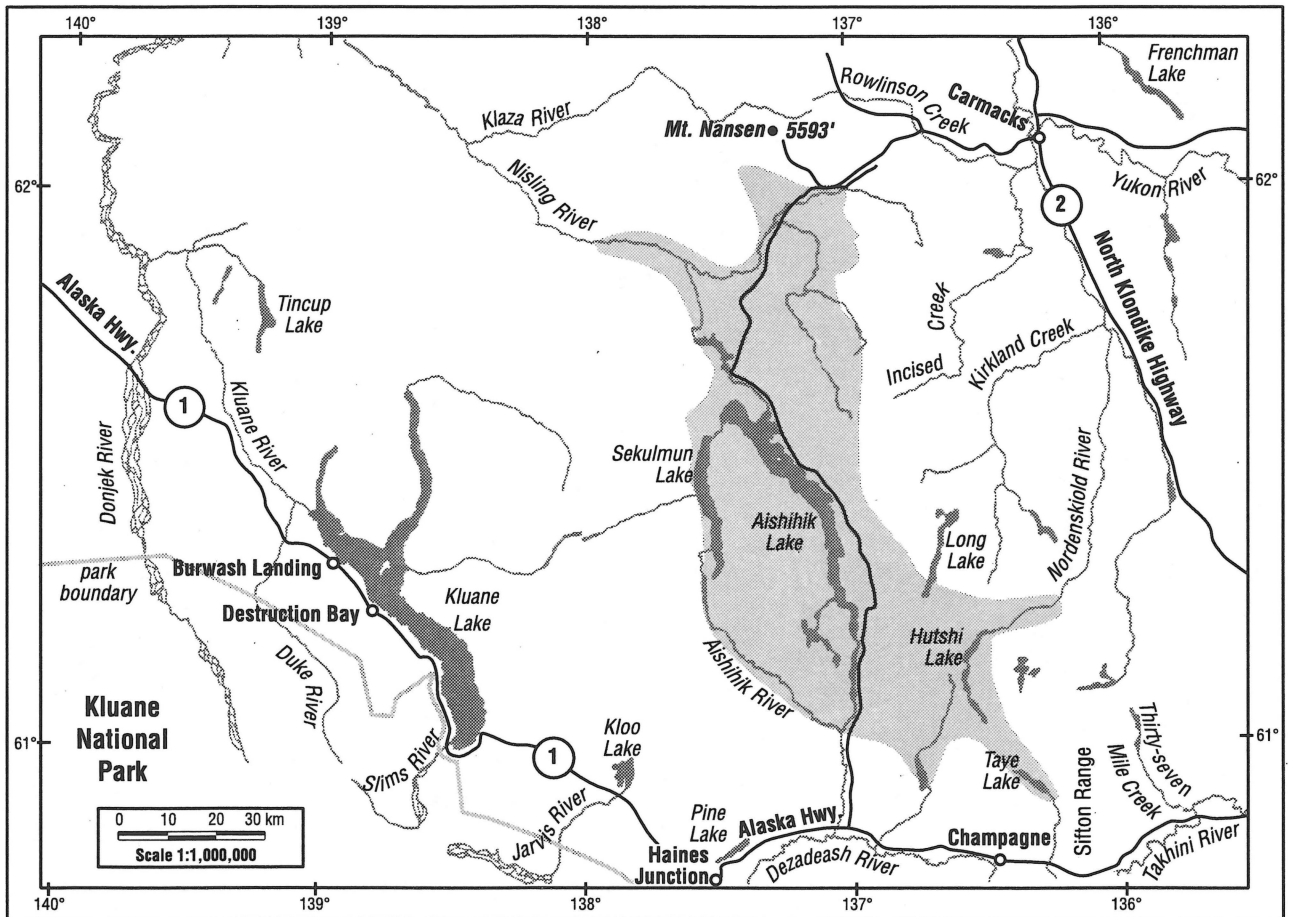
The wild herd has been growing at a rate of 15 to 20% per year, but in 1992/93, 36 bison had to be recaptured and moved to a game farm since they were causing problems along the Alaska Highway. In addition, eight bison were killed in collisions with vehicles and five were disposed of as "problem" wildlife. In all, the Alaska Highway situation set back growth of the wild herd by about two years due to the removal of 49 bison.

The herd has now recovered from this temporary setback and is currently (winter 1997/98) estimated at about 320.

To fulfil the Yukon's commitment to the recovery plan, the herd must attain a viable population size of about 500. This makes annual monitoring of herd size critical. In addition to assessing the herd's size, its distribution must also be documented. Bison will not be tolerated in the vicinity of the Alaska Highway, and a bison-free buffer zone will have to be maintained to prevent the Yukon's Wood bison from mixing with introduced Plains bison of northern British Columbia or Alaska.

Herd monitoring is done by aerial census. Radio-collared animals have to be maintained in each subherd to make monitoring cost-effective. It is estimated that for a herd of 500 bison, at least 20 bison will have to have radio-collars. These collars must be replaced on an ongoing basis when they become dysfunctional.

Distribution of the Yukon's Wood bison

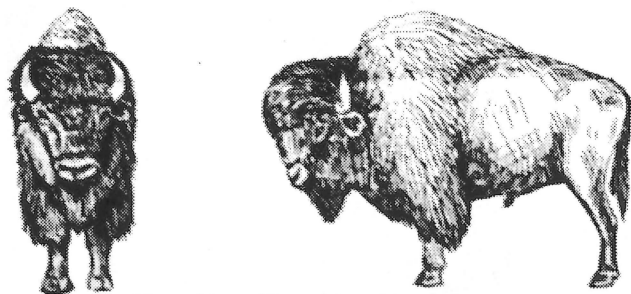
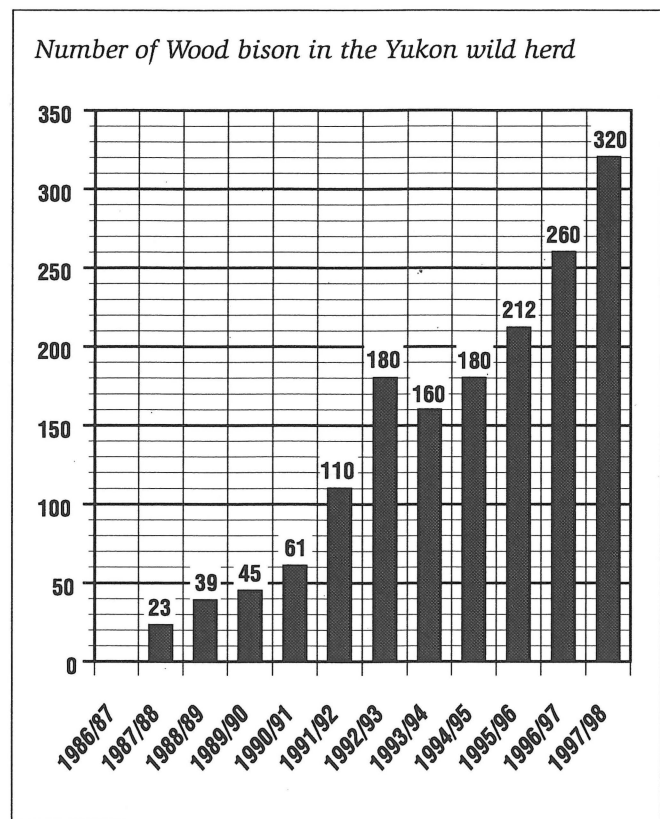


GENETICS

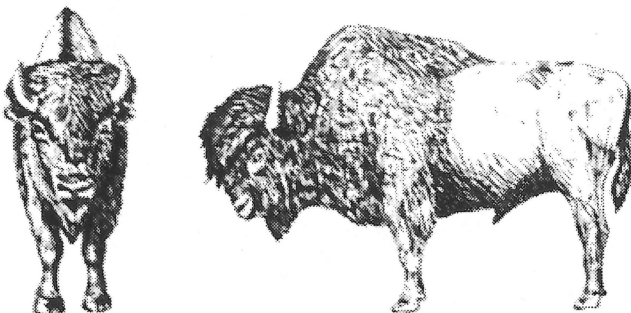
The Wood bison is a recognized subspecies of the North American bison, closely resembling the Plains bison, but having some distinct morphological differences, such as larger size, longer horns and longer hair on the head, neck and shoulders. More important is its adaptation to the subarctic where the flora, fauna and weather differ from the environment the Prairie bison has evolved in. Mixing of these 2 subspecies is therefore undesirable, not only from the point of maintaining biodiversity, but also in the context of preserving a gene pool best suited for northern conditions.

As stated previously, Yukon's Wood bison are of Elk Island Park origin. This captive herd grew from the 24 bison originally transferred from Wood Buffalo National Park. Their identity as morphologically representative of Wood bison had been established (Banfield and Novakowski, 1960). While these bison are genetically pure, their genetic variability is very limited, being the offspring of 24 or fewer ancestors.

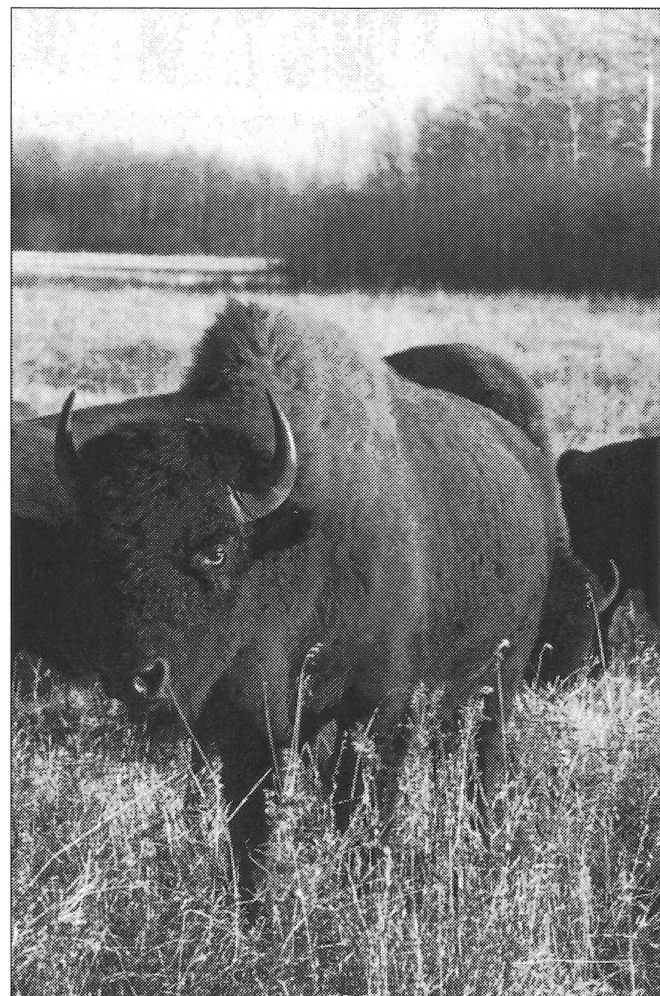
The 18 bison, which were relocated to the area north of Great Slave Lake, later called the Mackenzie Bison Sanctuary, showed phenomenal growth for many years. The herd is now estimated in



Plains bison (*Bison bison bison*)



Wood bison (*Bison bison athabasca*)



excess of 1,300 bison. Its founder animals are different from those of Elk Island Park stock, and the herd has been exposed to a different selection pressure for over 30 years in an environment very similar to the Yukon with comparable winter conditions and predator pressure.

Every effort should be made to maintain the genetic purity of Yukon Wood bison and, if possible, enhance their genetic repertoire by the addition of Mackenzie herd genes.

DISEASE

Being social animals that live in herds, bison are more susceptible to certain transmittable diseases than solitary animals like moose. The following three highly contagious diseases are found in bison from Wood Buffalo Park. Their presence there has been a major obstacle in Canada's Wood Bison Recovery Program.

- Tuberculosis caused by *Mycobacterium bovis*
- Brucellosis caused by *Brucella abortus*
- Anthrax caused by *Bacillus anthracis*

Wood bison transplanted to the Yukon were disease-free. The animals received tests for T.B. and brucellosis as well as general inoculations for parasites prior to shipment. Additional testing has been carried out by Agriculture Canada on captive bison held in Yukon game farms, as well as on road kills and animals disposed of as "problem bison."

Every possible effort should be made to maintain the disease-free status of the Yukon's bison herd.

HABITAT PROTECTION

The Canadian Wildlife Service studies selected the Nisling River watershed as the best bison habitat in the Yukon. However, after release from their enclosure, the bison only used the upper Nisling watershed and dispersed primarily southward into the Aishihik/Selkumun area, as well as the Hutshi Lake drainages. Currently, they occupy an area of about 4,000 square kilometres, but only a portion of this, perhaps 25%, is key habitat. The remainder consists of water, spruce forests, and

Aerial view of Nisling bison enclosure, prime bison range



alpine regions, which are used very little or not at all. Extrapolating from CWS's Nisling range assessment, the area currently used should support about 1,000 bison.

Bison are grazing animals that prefer tall, coarse sedges and grasses which occur in wet and dry meadows at low elevation or interspersed in buck brush communities. Such preferred habitats are relatively rare in the area and should be located, mapped and, if possible, protected. Some of these sites are also important for other species, such as caribou and waterfowl, which makes protection even more important.

In comparison to neighbouring jurisdictions, the Yukon's bison habitat is of lower quality in respect to both size of meadows and forage production. Therefore, the Yukon's bison population will not live in large groups of several hundred, but will consist of widely dispersed

smaller groups of perhaps 20 to 30 on average. There may be merging of several groups at certain times, such as during the rutting period or winter, but such congregations will be rare and temporary.

ECOSYSTEM IMPACTS

The reintroduction of a large mammal to an area from which it was absent for several hundred years will have an impact on the ecosystem. This impact may affect the terrain, the vegetation and other animals and people living in the area.

Concerns have been expressed by local residents that bison may compete with caribou and moose for forage plants and critical ranges as well as physically displace them. Scientific studies in this field are scarce, particularly when it comes to caribou. Such studies are necessary to fill this information gap and if possible, to assess and mitigate long-term effects of the introduced bison herd.

Two-week-old bison



LEGAL STATUS

Wood bison are declared an “endangered species” under Section 19(3) of the *Yukon Act* (federal legislation), and a “specially protected species” under Section 11(2) of the *Wildlife Act* (Yukon legislation).

As a “transplanted population” they are not *wildlife* under the Umbrella Final Agreement.

At the national level, Wood bison were designated as an “endangered species” by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) until 1987, when this designation was downlisted to “threatened” in recognition of the recovery efforts achieved. The draft national Wood Bison Recovery Plan, soon to be released, lists four free-roaming, healthy, genetically pure, independent populations of Wood bison of more than 400 each, as a condition for delisting Wood bison altogether. The Yukon made the commitment to contribute one of these four populations.

Internationally, Wood bison are listed in Appendix II of CITES (Convention on International Trade in Endangered Species) which regulates their import and export for commercial purposes.

They are also listed in the Red Data Book of IUCN (International Union for Conservation of Nature) which is a global catalogue of species at risk.

COMPENSATION POLICY

In 1992, the Department of Renewable Resources developed a compensation policy to pay for damages caused by bison and elk along the Alaska Highway.

This policy contains detailed criteria which must be met for compensation claims to be acceptable.

These criteria include the immediate contacting of a Conservation Officer when problems arise so that the damage can be assessed and minimized, and the problem animal can be dealt with. The claimant is also responsible for fencing-in hay piles in order to reduce depredation, and for implementing other preventative measures.

HUNTING

In the first management plan for Yukon Wood bison (1989), the Yukon government made a commitment to consider the possibility of special permit hunts once the free-roaming herd grew to over 200 animals. The herd is currently estimated at 300 and has been growing at a rate of 15 to 20% annually.

In the absence of effective predators, the commitment to establish a herd size of about 500 and maintain it at that level will require hunting as the principle means of population control. Hunting can also be used to remove bison from areas where they are not wanted, such as along the Alaska Highway and in buffer zones, to prevent their mixing with Plains bison of Alaska and B.C. As well, certain bison may cause damage to private property or pose a threat to local residents and thus may have to be selectively culled.

An initial harvest of 2%, limited to bulls only, is proposed for 1998. This harvest will increase as the herd grows, in order to maintain it at the level of approximately 500 head. The harvest strategy (see page 19), which specifies details of this hunt, is also tied into a Highway Contingency Plan.

INTERPRETIVE PROGRAMS

Bison are impressive social animals that live in herds. They are the largest land mammal in North America, reaching weights of over one ton (909 kilograms). They prefer open habitat and are relatively tolerant of humans and related activities. These characteristics make them an ideal species for wildlife viewing and as a tourist attraction.

Few locations exist in the Yukon where large animals can be observed with any degree of predictability. This applies particularly to the summer months when most tourists come to the Yukon. In spite of all the problems the bison along the Alaska Highway were causing some years back, they had become quite a tourist attraction and the department received many positive comments to this effect.

MANAGEMENT OBJECTIVES

- To establish a viable, free-roaming herd of Wood bison of about 500 head in the area currently occupied by them. This commitment follows recommendations by the Canadian Wood Bison Recovery Team as well as precedents set by several provinces. It would fulfil the Yukon's obligation to Canada's Wood Bison Recovery effort and be a major contribution towards removing this animal from the list of endangered species.

- To maintain the genetic purity of the Yukon's Wood bison and, if possible, enhance their

genetic repertoire to improve their adaptation potential to the subarctic environment.

- To maintain the disease-free status of the Yukon's Wood bison.

- To develop habitat management strategies that will ensure the maintenance of the Wood bison range in its pristine condition.

- To optimize opportunities for hunting as well as non-consumptive uses of the Wood bison resource for the benefit of all Yukoners and visitors.

- To implement mitigative measures to reduce the impact of bison on other ecosystem components.

Bison along the side of the highway



BISON MANAGEMENT PLAN: ACTION SCHEDULE, 1998-1999 to 2002-2003

STATUS	CONCERNS	Actions taken during planning year 1997-1998	Actions 1998-1999
<p>HERD SIZE AND RANGE Herd grew from 170 in 1992 to 300 in 1997. Increasing at 15-20% per year. Range expansion was southward rather than west as expected.</p>	<p>How do we keep track of the size and range of the herd?</p>	<p>1. Put 6-8 collars on bison</p>	<p>1. Increase to 20 radio collars and begin survey (YDRR) 2. Establish an on-the-land bison monitoring system (CAFN)</p>
<p>HUNTING has not been permitted since bison were released.</p>	<p>How do we allocate, regulate and monitor hunting?</p>	<p>1. Harvest 6 bison</p>	<p>1. Harvest XX bison according to harvest strategy</p>
<p>ECOSYSTEM IMPACTS Reintroduction of bison will have impacts on an ecosystem that has evolved without them for several hundred years.</p>	<p>What impacts are the bison having on the ecosystem and what will happen in the future?</p>	<p>1. Develop study proposal for bison impacts (YFGA, YDRR)</p>	<p>1. Begin Bison Impacts Study (YDRR)</p>
<p>HIGHWAY Bison were on highway by 1989. In 1992, the Minister ordered removal of 36 to a game farm, 13 others were killed in traffic accidents and removals.</p>	<p>Bison are a traffic hazard on the Alaska Highway.</p>	<p>1. Develop highway contingency plan as part of harvest strategy</p>	<p>1. Look into modifying highway environment to deter bison (YDRR, YFWMB, YFGA) 2. Address problem bison as part of harvest strategy (YDRR)</p>
<p>COMMERCIAL USE Owing to their present rarity, Wood bison are valuable for sale or trade. By agreement with the bison ranch, a number of animals will eventually be transferred to the Yukon government.</p>	<p>Ranch-raised bison will not be needed to increase the wild population.</p>		
<p>GENETICS Yukon bison come from 24 ancestors and therefore have limited genetic ability to adapt.</p>	<p>Yukon bison need a greater genetic repertoire to survive well in the subarctic.</p>		
<p>DISEASE Yukon bison are disease free. Bison can get tuberculosis, brucellosis, and anthrax.</p>	<p>Yukon bison must be kept disease free.</p>	<p>1. Test collared and harvested animals for disease (YDRR)</p>	<p>1. Test collared and harvested animals for disease (YDRR) 2. Test all imported game farm animals and appropriate livestock for disease (YDRR)</p>
<p>INTERPRETIVE PROGRAMS Bison tolerate humans and are highly visible. They therefore have good tourism and education potential.</p>	<p>Yukon public and tourists are unaware of bison history and viewing opportunities.</p>		<p>1. Inform public about areas where bison can be seen and look into establishing a Bison Viewing Zone (YDRR) 2. Produce information about bison for school programs and general public (YDRR) 3. Look into ways of involving students in bison management (YDRR)</p>
<p>HABITAT PROTECTION Most Yukon bison habitat is not of good quality so bison must exist as small groups rather than large herds. Good quality bison habitats are quite rare in the Yukon.</p>	<p>Key bison habitats must be protected. Competition with other species must be studied. People are concerned about expanding bison range.</p>		<p>1. Locate key bison habitats through the Bison Impacts Study (YDRR) 2. Document competition and range expansion through the Bison Impacts Study (YDRR)</p>
<p>COMPENSATION POLICY Current compensation for bison and elk damage is available to agricultural land owners along the Alaska Highway.</p>	<p>Bison can damage fences, livestock feed, and property.</p>		<p>1. Look into making compensation policy for bison available to Yukon residents (YDRR)</p>

BISON MANAGEMENT PLAN: ACTION SCHEDULE, 1998–1999 to 2002–2003

YFGA=Yukon Fish and Game Association, YDRR=Yukon Department of Renewable Resources, YFWMB=Yukon Fish and Wildlife Management Board, CAFN=Champagne and Aishihik First Nations, LSCFN=Little Salmon Carmacks First Nation

Actions 1999–2000	Actions 2000–2001	Actions 2001–2002	Actions 2002–2003
<ol style="list-style-type: none"> 1. Maintain 20 radio-collars and survey (YDRR) 2. Maintain on-the-land bison monitoring system (CAFN) 	<ol style="list-style-type: none"> 1. Maintain 20 radio-collars and survey (YDRR) 2. Maintain on-the-land bison monitoring system (CAFN) 3. Re-evaluate target of 500 for bison population (YDRR, CAFN, LSCFN) 	<ol style="list-style-type: none"> 1. Maintain 20 radio-collars and survey (YDRR) 2. Maintain on-the-land bison monitoring system (CAFN) 	<ol style="list-style-type: none"> 1. Maintain 20 radio-collars and survey (YDRR) 2. Maintain on-the-land bison monitoring system (YDRR)
<ol style="list-style-type: none"> 1. Harvest XX bison according to harvest strategy 	<ol style="list-style-type: none"> 1. Harvest XX bison according to harvest strategy 	<ol style="list-style-type: none"> 1. Harvest XX bison according to harvest strategy 	<ol style="list-style-type: none"> 1. Harvest XX bison according to harvest strategy
<ol style="list-style-type: none"> 1. Continue Bison Impacts Study (YDRR) 	<ol style="list-style-type: none"> 1. Summarize Bison Impacts Study for re-evaluation of population target (YDRR) 	<ol style="list-style-type: none"> 1. Continue Bison Impacts Study and Carrying Capacity Study if required (YDRR) 	<ol style="list-style-type: none"> 1. Continue Bison Impacts Study and Carrying Capacity Study if required (YDRR)
<ol style="list-style-type: none"> 1. Work on modifying the highway environment to deter bison (YDRR, YFWMB, YFGA) 2. Address problem bison as part of harvest strategy (YDRR) 	<ol style="list-style-type: none"> 1. Continue work on modifying the highway environment to deter bison (YDRR, YFWMB, YFGA) 2. Address problem bison as part of harvest strategy (YDRR) 	<ol style="list-style-type: none"> 1. Continue work on modifying the highway environment to deter bison (YDRR, YFWMB, YFGA) 2. Address problem bison as part of harvest strategy (YDRR) 	<ol style="list-style-type: none"> 1. Continue work on modifying the highway environment to deter bison (YDRR, YFWMB, YFGA) 2. Address problem bison as part of harvest strategy (YDRR)
			<ol style="list-style-type: none"> 1. Offer ranch-raised bison to other ranches or recovery programs
	<ol style="list-style-type: none"> 1. Trade bison with NWT as appropriate or consider artificial insemination from NWT bison (YDRR) 	<ol style="list-style-type: none"> 1. Trade bison with NWT as appropriate or consider artificial insemination from NWT bison (YDRR) 	<ol style="list-style-type: none"> 1. Trade bison with NWT as appropriate or consider artificial insemination from NWT bison (YDRR)
<ol style="list-style-type: none"> 1. Test collared and harvested animals for disease (YDRR) 2. Test all imported game farm animals and appropriate livestock for disease (YDRR) 	<ol style="list-style-type: none"> 1. Test collared and harvested animals for disease (YDRR) 2. Test all imported game farm animals and appropriate livestock for disease (YDRR) 3. Ensure bison traded from NWT are disease free (YDRR) 	<ol style="list-style-type: none"> 1. Test collared and harvested animals for disease (YDRR) 2. Test all imported game farm animals and appropriate livestock for disease (YDRR) 3. Ensure bison traded from NWT are disease free (YDRR) 	<ol style="list-style-type: none"> 1. Test collared and harvested animals for disease (YDRR) 2. Test all imported game farm animals and appropriate livestock for disease (YDRR) 3. Ensure bison traded from NWT are disease free (YDRR)
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<ol style="list-style-type: none"> 1. Maintain compensation policy for Yukon residents (YDRR) 	<ol style="list-style-type: none"> 1. Maintain compensation policy for Yukon residents (YDRR) 	<ol style="list-style-type: none"> 1. Maintain compensation policy for Yukon residents (YDRR) 	<ol style="list-style-type: none"> 1. Maintain compensation policy for Yukon residents (YDRR)

ACTION DETAILS

HERD SIZE

1. Increase radio-collared-bison to 20

Bison live in small groups of up to 30 animals. The larger groups consist of females and their calves; males occur in smaller groups or as individuals. To count the herd, it is necessary to locate as many of the groups as possible and it is most efficient to do this by putting radio-collars on females of different groups. At the present population size, at least 20 collars are required to make sure that most of the bison are located for the count. By the beginning of this plan (June 1998) there will be six to eight bison already with radio-collars.

2. Establish an on-the-land bison monitoring system

To carefully maintain the herd at the agreed-upon target size, accurate counting will be required. While this is primarily accomplished through radio-collaring and aerial surveying, such efforts should be complemented by an on-the-land observation

program enlisting local trappers, wilderness and big game guides/outfitters, and First Nation families. This would provide a cross check on the accuracy of the population estimates. It also allows monitoring of bison physical condition, calf production, predation, interaction with other wildlife and the status of habitats.

HUNTING

1. Harvest bison according to the harvest strategy

Over the past 5 years the herd has been growing at 15-20% per year. Since there are, as yet, no effective predators of bison in the Yukon, harvesting will be the principal means of managing total population size. In order to not exceed the temporary target of 500 animals (to be re-evaluated in 2000-2001) it will be necessary to adjust the harvest to the annual growth rate of the herd—which will be determined by annual surveys. Allocations will likewise be adjusted to the prescribed annual harvest according to the guidelines set forth in this plan. The harvest strategy begins on page 19.

Grazing Wood bison in dry meadow



ECOSYSTEM IMPACTS

1. Begin the Bison Impacts Study

Introduction of a wildlife species that has not been present for several hundred years will have some impacts on an ecosystem that has adjusted to its absence and also, over time, changed itself. The impacts of the expanding bison population on the entire ecosystem, including human residents, must be monitored in order to determine how many bison it is appropriate to maintain in the Yukon. This information will be used to re-evaluate the temporary target of 500 bison which is the minimum to fulfil the Yukon's commitment to the National Bison Recovery Program.

ALASKA HIGHWAY

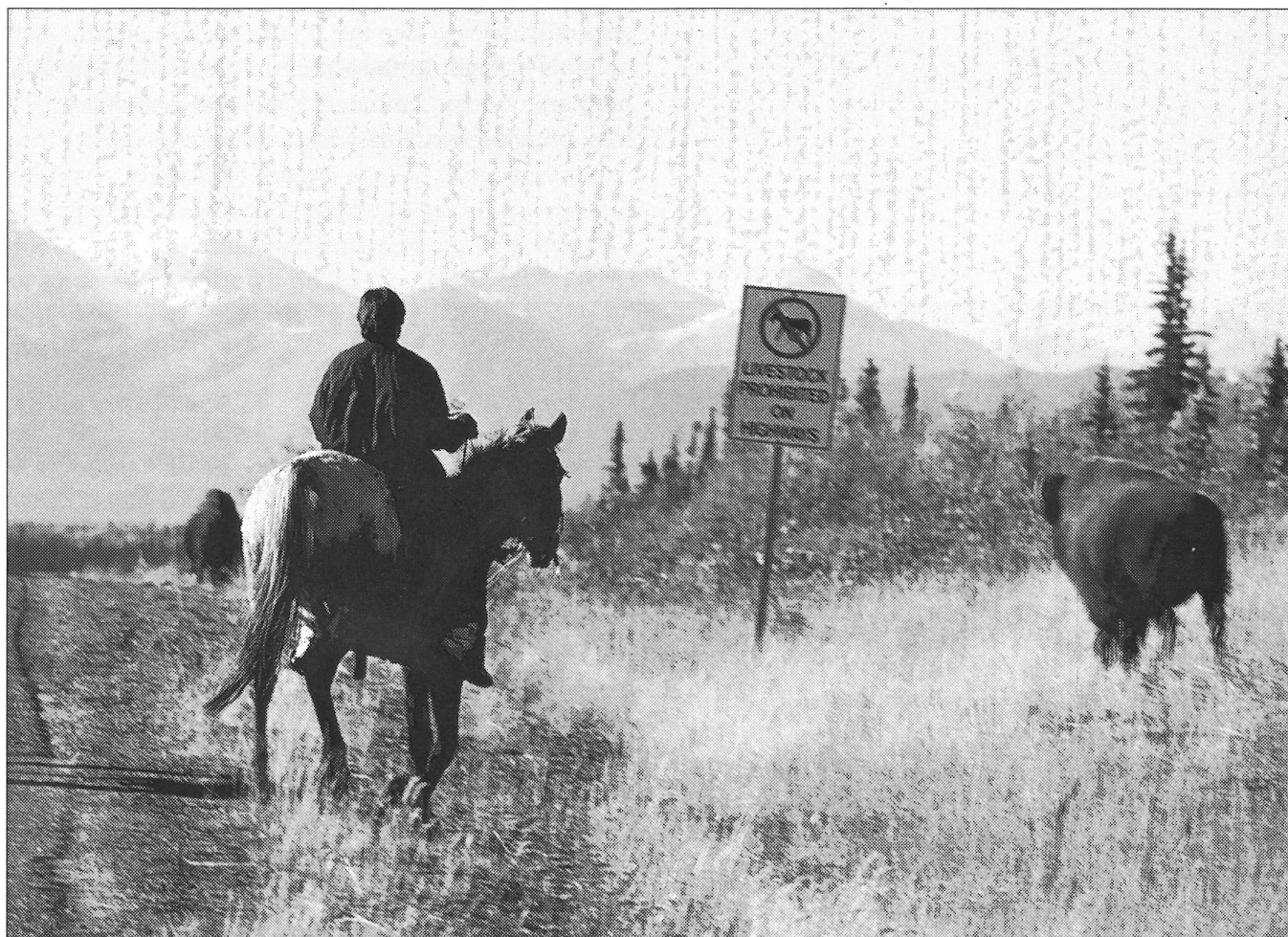
1. Modify highway environment to deter bison

Bison are attracted to the Alaska Highway because of the Brome grass that is sown and fertilized on the margins. Where the grass has been removed by machinery activity, it has been observed that bison do not frequent the area. Replacement of the grass with some other vegetation (poppies are used in Alaska) may be effective in keeping bison away from the highway.

2. Address problem bison as part of harvest strategy

Part of the harvest strategy includes a contingency plan to respond to problem bison on the highway.

Attempts to handle problem bison along the Alaska Highway



COMMERCIAL USE

1. Offer ranch-raised bison to other ranch or recovery programs

The agreement with the Yukon bison ranch is to return a number of bison to the Yukon government in exchange for the original bison that were taken from the highway and used to establish the captive herd. Based on the growth rate of the wild herd, the replacement bison will not be needed for that population. They should therefore be available for sale or for trade to obtain Mackenzie Sanctuary bison for genetic enhancement of the Yukon herd (see Genetics).

GENETICS

1. Trade bison with NWT as appropriate

Wood bison from the Mackenzie Bison Sanctuary come from different genetic stock than the Yukon bison which came from Elk Island Park. The Mackenzie bison have a long history of northern survival and must therefore be better adapted for the subarctic environment. Obtaining some bison from the sanctuary to release and breed with the Yukon bison would therefore enhance the genetics of the Yukon population for subarctic survival.

DISEASE

1. Test collared and harvested animals for disease

Tuberculosis, anthrax and brucellosis are highly contagious bison diseases and are very hard to eradicate. The best solution is to ensure that bison never contract these diseases. All bison which have so far been captured or killed have been tested for disease and this practice will continue.

2. Test all imported game farm animals and appropriate livestock for disease

Game farm animals and livestock must be disease free in order to ensure that bison are not contaminated. Such tests should be applied to animals imported to the Yukon or processed at the abattoir.

3. Ensure bison traded from NWT are disease free

Bison from the Mackenzie Bison Sanctuary are generally disease free but it is essential that any animals brought to the Yukon to breed with the wild herd are not contaminated, since diseases that they may bring are extremely hazardous to bison.

Aerial view of a group of Wood bison using the south-facing slope of an esker



INTERPRETIVE PROGRAMS

1. Inform public about where bison can be seen

From their original release site north of Aishihik Lake, most bison moved southward and are now often located near the Aishihik road. Bison viewing is also a component of a local wilderness tourism business. Appropriate notification of these viewing opportunities will be provided at tourist centres and on the Alaska Highway and a special Bison Viewing Zone may be established.

2. Produce information about bison for school programs and the general public

Bison are not exotic to the Yukon but have a history of some 700,000 years. Today's Wood bison subspecies were present 5,000 years ago in the Beringia Refugium. Until the last century, bison were a significant component of several First Nations' culture and economy. Information on bison in the Yukon should appear at the Beringia Centre and be available to schools for inclusion in relevant courses.

3. Look into ways of involving students in bison management

Since the Yukon bison are easily accessible and relatively tolerant of human activity, they have good potential for outdoor education programs where students could either participate in ongoing studies or undertake their own projects on bison ecology.

Wood bison in wetland habitat



HABITAT PROTECTION

1. Locate key bison habitats through an impact study

A detailed study of how bison use their range will show which areas are most important to the species. Such documentation can also be used for ensuring that those areas are not disturbed in the future.

2. Document competition and range expansion through impact study

Habitat use by bison and other wildlife will be observed as part of the impact study and such information can be used in determining what effect bison are having on habitats used by other species. This would also better predict which areas would be occupied by a population of bison larger than the temporary target of 500 in which case a carrying capacity study would be required.

3. Designate important bison areas as special habitats where appropriate

Since good quality habitats for bison are rare in the Yukon (compared to other subarctic areas), their location and importance should be documented to ensure that they are not disturbed in the future.

COMPENSATION POLICY

1. Look into making compensation for bison damage available to Yukon residents

The original compensation policy was introduced for agricultural property owners near the Alaska Highway where some “problem bison*” and elk had

gathered and were causing damage to fences and hay piles. Since the bison is an introduced species and now inhabits a much larger area, consideration should be given to revising this policy accordingly.

**“Problem bison” are bison that inhabit highway allowances and the buffer zone between Alaska and the Yukon. As well, they include those bison causing problems to humans and their property in the area. They will be removed at the discretion of a Conservation Officer.*

Enclosure fence construction in permafrost areas



HARVEST STRATEGY AND HIGHWAY CONTINGENCY PLAN

1. Objective

The harvest strategy is designed to complement and fulfil the management objective of the plan which is to maintain herd growth at no more than 8% annually until a population of 500 is reached when annual growth will be maintained at 0% thereafter, unless otherwise indicated following review of the ecosystem impact study.

2. Guidelines

Harvesting bison will be conducted according to the following basic guidelines:

- Bison in the vicinity of any major Yukon highway will be dealt with according to the Highway Contingency Plan.
- No bison hunting in the Bison Viewing Zone.
- Hunting will be focused in areas where bison are deemed a problem to local residents.
- Hunting will also be focused in areas with potential for competition with moose and caribou.
- No bison will be permitted to remain in the Buffer Zone between Yukon and Alaska.

3. Annual Harvest Program

Unlike the harvest of other wildlife in the Yukon, the following program is designed to ensure that the required number of animals are taken in appropriate regions of the herd's range. Failure to do so could seriously hamper effective control of the herd's size and its impacts on the ecosystem.

The annual harvest will be recommended to the Minister based on a meeting of technical representatives from governments that have a harvest allocation. The annual harvest will be based on a review of:

- Annual population count.
- Calf survival.
- Mortality (accidents, predation).
- Last year's harvest.
- Herd distribution.
- Guidelines for what sex/age animals should be harvested and where.
- Need to distribute the harvest.
- Location of problem bison.
- Number of bison removed as "problem" bison.
- Population goals for the herd.

The total annual harvest for the upcoming year will be assigned to governments according to the allocation formula. The harvest will also be targeted in specific regions of the herd's ranges. Administration of the harvest will be by "permit hunt" as follows:

- Harvests will be recorded from June 1 to the following May 31 (subject to reassessment).
- Regular hunting season: any bison November 1 to March 31 (subject to reassessment).
- Number of permits issued will be related to harvest allotment and allocation.

- Compulsory hunter attendance at information session prior to hunting.
- Compulsory harvest report after hunt.
- Conditions in permit will direct hunters to specific areas and ensure a safe, efficient harvest.
- Hunters may indicate willingness to harvest bison after season closure and would be contacted if removal of problem bison was required.

4. Highway Contingency Plan

The following protocol will be undertaken upon notification of the Yukon government Renewable Resources department that bison are located near a major Yukon highway:

- A Conservation Officer will immediately verify the report.
- For the period of 2-3 days after verification of the presence of bison near the highway, the following response will be made:
 - a) If the harvest allotment for the year has not been filled, the Conservation Officer will notify certain hunters who have indicated an interest in hunting after the regular season and they will harvest the bison under the Conservation Officer's supervision.
 - b) If the harvest allotment has already been filled for the year, attempts will be made to deter bison immediately following verification of their presence near the highway.
- If, after 2-3 days, the bison cannot be deterred from the highway:
 - a) Hunters will be contacted to dispose of male bison which will be taken off the following year's allotment.
 - b) Attempts will be made to capture female bison until either success is met or the Conservation Officer determines that capture is not likely, at which time the Officer will contact the Department of Renewable Resources for further direction on whether to continue capture efforts or to dispose of the animals.

5. Harvest Allocation

The annual harvest allotment will be allocated on an annual basis according to a formula determined by the Minister of Renewable Resources.

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