



# **BISON CONTROL AREA PROGRAM**

## **ANNUAL REPORT 2013/2014 – 2015/2016**

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## ABSTRACT

Bovine tuberculosis (*Mycobacterium bovis*) and brucellosis (*Brucella abortus*) are endemic in bison (*Bison bison*) herds in and around Wood Buffalo National Park, and the adjacent Slave River Lowlands. In 1987, the Bison Control Area, and a surveillance program, was created to minimize the risk of disease transmission to the disease-free Mackenzie and Nahanni populations in the Northwest Territories by preventing bison from moving through or establishing herds within the area south of the Mackenzie River between the Trout and Buffalo Rivers. To keep this area free of bison, aerial surveys are flown to search for bison, and public participation by reporting any sightings or signs of bison is encouraged.

This program continued through 2013/2014 to 2015/2016 seasons with two annual survey flights and several weekly winter shoreline patrols.

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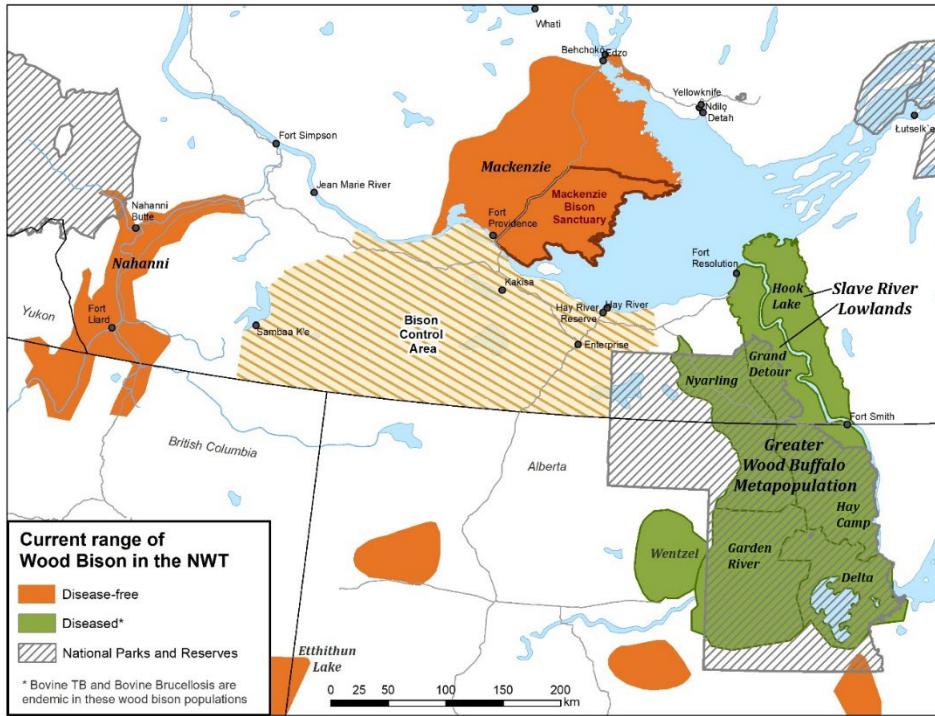
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# INTRODUCTION

The Bison Control Area (BCA) was established in 1987 to reduce the risk of contact between bison infected with bovine tuberculosis or brucellosis and disease-free bison in the Mackenzie, Nahanni and Hay-Zama (Alberta) populations. The two diseases are endemic in bison in the Slave River Lowlands and Wood Buffalo National Park (WBNP; Figure 1). The BCA is intended to be a buffer zone between infected and uninfected populations to prevent the spread of disease. This zone encompasses over 39,800 km<sup>2</sup> bounded in the south by the Northwest Territories (NWT) border, in the north by the Mackenzie River and Great Slave Lake, in the west by the Trout River and in the east by the Buffalo River. All bison found within the BCA are assumed to be diseased and are removed and tested. The history of wood bison in the NWT and the disease status of bison populations in the NWT were further reviewed in previous annual reports on the Bison Control Area (BCA) (e.g. Sayine-Crawford et al. 2012, Greig and Cox 2012).

Since 1993 the BCA program has been jointly funded by the Government of the Northwest Territories' Department of Environment and Climate Change (ECC) (formerly the Department of Environment and Natural Resources (ENR)) and the Government of Canada's Parks Canada Agency. Both governments realize the importance of maintaining healthy wood bison herds and promoting the growth of the species. The BCA program supports the objectives of the national *Recovery Strategy for the Wood Bison (Bison bison athabascae) in Canada* and the *Recovery Strategy for Wood Bison (Bison bison athabaskan) in the Northwest Territories*.



**Figure 1.** The current distribution of wood bison (*Bison bison athabascae*) in northern Canada.

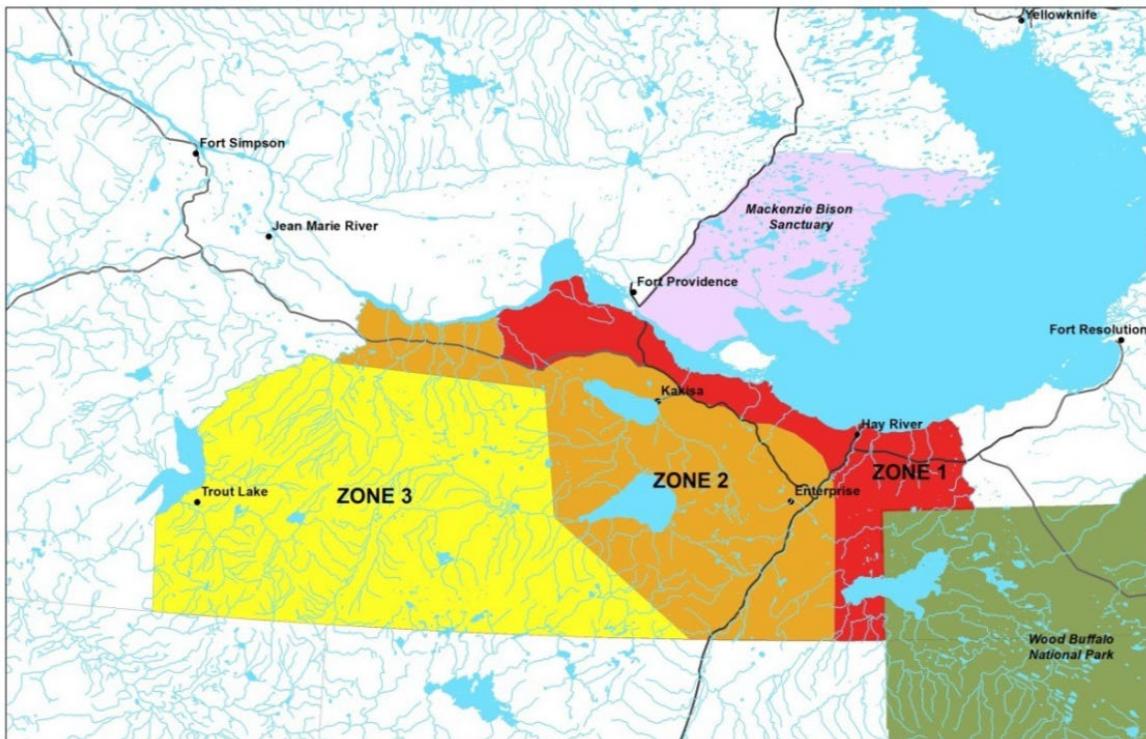
The objectives of the BCA program are to prevent bison from moving between the Slave River Lowlands/WBNP and the Mackenzie, Nahanni and Hay-Zama populations by detecting and removing any bison that may come into the area. To achieve this objective, the goals of the program are:

- Conduct aerial surveillance of the BCA twice during the winter months;
- Investigate all reports of bison in the BCA;
- Maintain the BCA free of bison and prevent any herds from establishing within its limits;
- Increase public awareness about the program; and
- Confirm disease status of any bison found in the BCA.

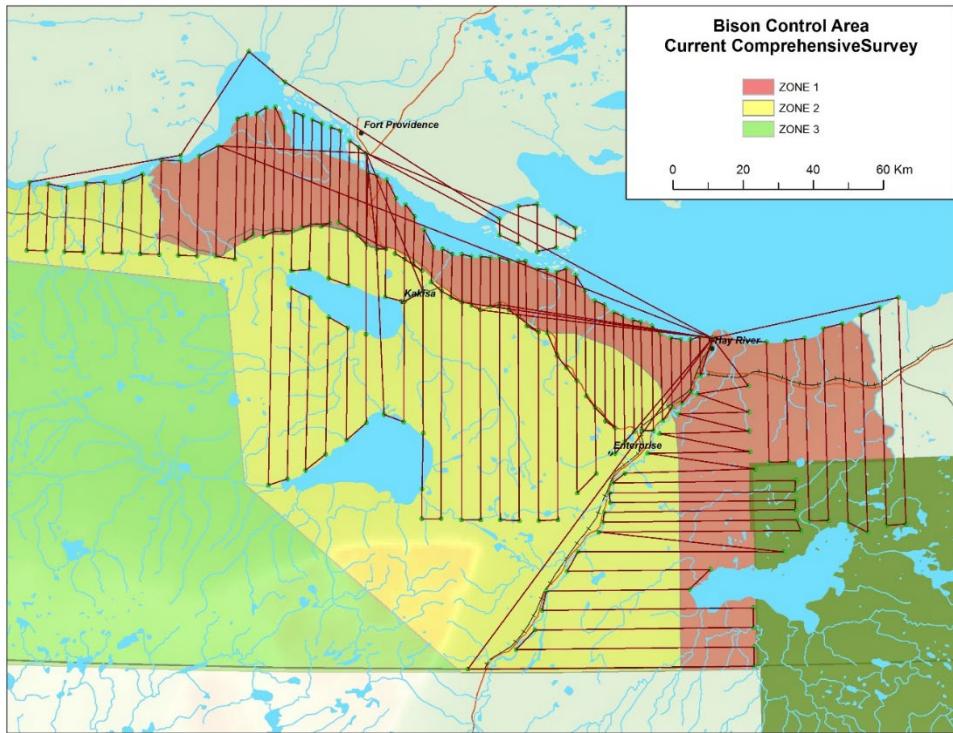
## METHODS

Survey methods were similar to those used in previous years (Gates et al. 1992, Williamson et al. 1995, Bohnet and Gates 1997, Nishi 2002, Boulanger et al. 2002, Bidwell et al. 2004, Campbell et al. 2004, Hartop et al. 2009) to ensure repeatability and comparability of wildlife sightings. The exception to this is that transect markers were not used on the windows or wings since the purpose of the BCA program is to determine presence/absence of bison and is not to conduct a population survey. Comprehensive surveys are no longer conducted in this program.

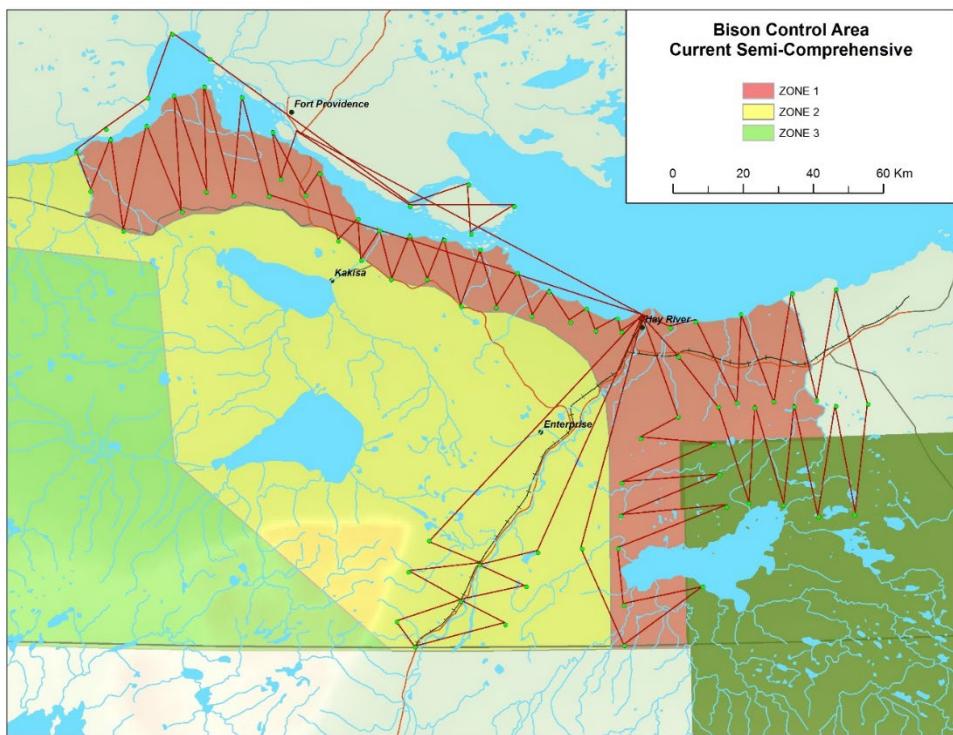
The BCA is stratified into three zones (Figure 2), based on likelihood of seeing bison. During the 2013/2014, 2014/2015 and 2015/2016 seasons, one semi-comprehensive survey (Figure 3) and one comprehensive survey (Figure 4) were completed each winter.



**Figure 2.** The Bison Control Area and its stratification into three zones.

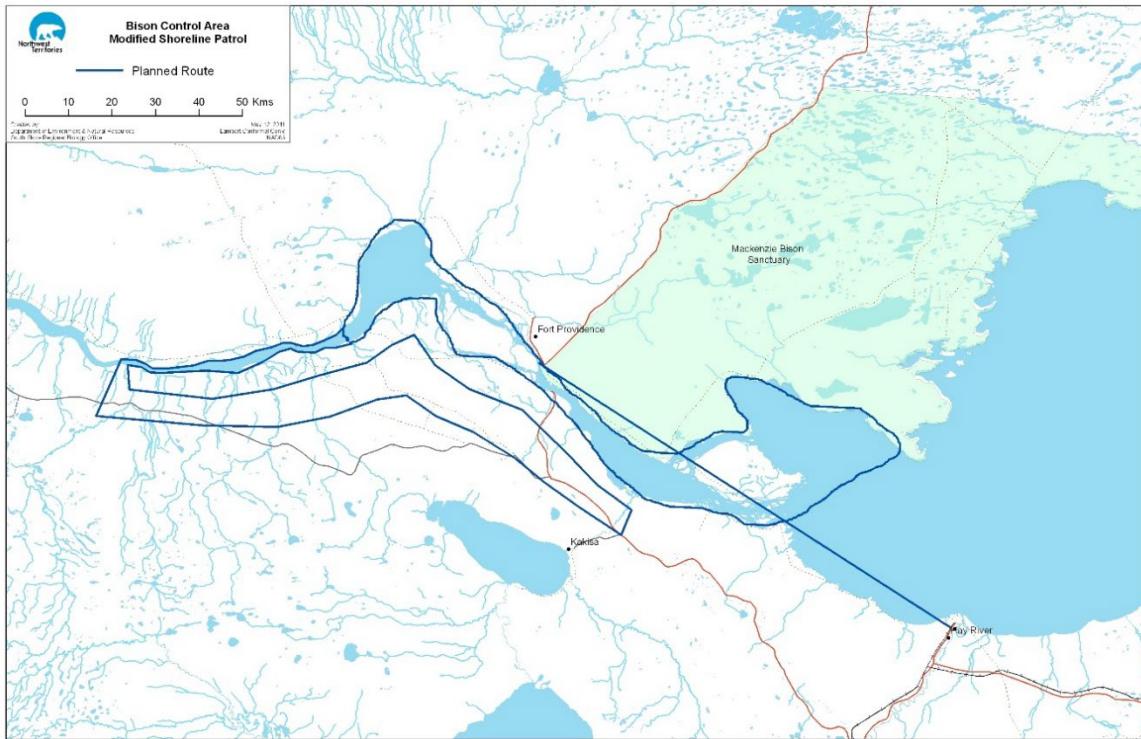


**Figure 3.** Comprehensive Bison Control Area aerial survey routes.



**Figure 4.** Semi-comprehensive Bison Control Area aerial survey route.

Shoreline patrols also occurred during the 2013/2014, 2014/2015 and 2015/2016 seasons. Shoreline patrols consisted of weekly aerial surveys of the shoreline along the Mackenzie River (Figure 5). These patrols occurred between December and April.



**Figure 5.** Shoreline Bison Control Area aerial survey route.

Surveys and shoreline patrols were conducted during the winter months when bison and signs of their presence (feeding craters and tracks) are most visible, and bison are more likely to cross the Mackenzie River.

The Wildlife Technician, Regional Biologist or GIS Specialist from the ENR office in Fort Smith conducted the surveys with community observers. The aircraft flew at altitudes 150-250 meters above-ground-level and at speeds of 160 km/h (~90 kts).

All tracks and wildlife observed were documented and their location recorded. The aircraft circled all suspected bison tracks so observers could examine closer to determine the type of tracks. Data was recorded on a tablet with GPS capabilities using ArcGIS Survey123.

# RESULTS

2013/2014

## 2013/2014 Bison Control Area Survey Results

**Table 1.** Animal observations and tracks recorded during the 2013/2014 Bison Control Area surveys. Survey types are titled 'semi' for semi-comprehensive and 'comp' for comprehensive.

Survey Type	Date	Moose Tracks	Moose	Caribou Tracks	Caribou	Wolf Tracks	Wolf	Bison Tracks*	Bison*	Kill Site
Semi	4-Feb-2014	2	2	6		1	3			
Semi	5-Feb-2014	13	2	9	4	3				
Semi	7-Feb-2014	9	12	14		1				
Comp	10-Mar-2014	23	3	1	4	3	5			
Comp	11-Mar-2014	34	1	67		7				
Comp	12-Mar-2014	35	1	17		17	2	2	25	
		<b>116</b>	<b>21</b>	<b>114</b>	<b>8</b>	<b>32</b>	<b>10</b>	<b>2</b>	<b>25</b>	<b>0</b>

\*Note both surveys covered areas outside of the BCA boundary, on the north shore of the Mackenzie River, to 1) determine the presence of bison and 2) observe if any tracks lead across the river, into the BCA. The two bison tracks and 25 bison animals recorded were observed on the north side of the Mackenzie River, outside of the BCA.

**Table 2.** Survey duration, weather, and observation conditions for the 2013/2014 Bison Control Area surveys.

Survey Type	Date	Hours Flown	Temperature	Wind (direction-knots)	Sky	Light	Intensity	Snow Cover	Days Since Last Snow
Semi	4-Feb-2014	2.7	-25.0	SW-5 kts	Scattered	Bright		Complete	unknown (3+)
Semi	5-Feb-2014	4.6	-20.0	SSW-5 kts	Broken	Bright		Complete	unknown (4+)
Semi	7-Feb-2014	5.1	-30.0	NW-5 kts	Clear	Bright		Complete	<24hr
Comp	10-Mar-2014	7.9	-15.0	NE-5 kts	Scattered	Bright	Medium	Complete	<24hr
Comp	11-Mar-2014	14.8	-16.0	ESE-5 kts	Broken	Bright	High	Complete	1
Comp	12-Mar-2014	7.5	-16.0	Calm	Broken	Bright	High	Complete	2.0
	<b>Total</b>	<b>42.6</b>							

**Table 3.** Animal observations and tracks recorded during the 2013/2014 shoreline patrols.

Survey #	Date	Moose Tracks	Moose	Caribou Tracks	Caribou	Wolf Tracks	Wolf	Bison Tracks*	Bison*	Kill Site
1	19-Dec-2013								110	
2	8-Jan-2014								100	
3	16-Jan-2014								data missing	
4	23-Jan-2014						12		110	
5	30-Jan-2014								64	
6	13-Feb-2014								99	
7	20-Feb-2014								5	
8	4-Mar-2014								94	
9	21-Mar-2014						1		117	
10	27-Mar-2014								105	1
11	8-Apr-2014								54	
12	17-Apr-2014								data missing	
13	24-Apr-2014								data missing	
14	2-May-2014								8	

\*Note the bison and bison tracks observed during the shoreline patrols were all observed on the north side of the river.

**Table 4.** Survey duration, weather, and observation conditions for the 2013/2014 shoreline patrols.

Survey #	Date	Hours Flown	Temperature	Wind (direction-knots)	Sky	Light	Intensity	Snow Cover	Days Since Last Snow
1	19-Dec-2013	2.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2	8-Jan-2014	3.7	-16.0	NA-2 kts	Overcast	Flat	Medium	n/a	n/a
3	16-Jan-2014	3.7	-18.0	NE-0-5 kts	Overcast	Flat	Medium	n/a	n/a
4	23-Jan-2014	4.1	n/a	W-0 kts	Overcast	Flat	Medium	n/a	n/a
5	30-Jan-2014	3.8	-18.0	n/a	n/a	Flat	Medium	n/a	n/a
6	13-Feb-2014	3.9	-32.0	n/a	Clear	Bright	High	n/a	n/a
7	20-Feb-2014	3.4	n/a	n/a	Scattered	Flat	Medium	n/a	n/a
8	4-Mar-2014	3.7	-29.0	S-0-5 kts	Clear	Bright	n/a	n/a	n/a
9	21-Mar-2014	3.7	-30.0	SW-0-2 kts	Clear	Bright	High	n/a	n/a
10	27-Mar-2014	3.9	-10.0	W-0-2 kts	Clear	Bright	High	n/a	n/a
11	8-Apr-2014	3.5	7.0	N-5 kts	Broken	Bright	High	n/a	n/a
12	17-Apr-2014	3.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
13	24-Apr-2014	1.8	n/a	n/a	n/a	n/a	n/a	n/a	n/a
14	2-May-2014	3.9	-4.0	n/a	Overcast	Flat	n/a	n/a	n/a
<b>Total</b>		<b>49.0</b>							

## 2013/2014 Reports and Sightings

**Table 5.** All reported bison sightings in and near the Bison Control Area, 2013/2014.

Report/Sighting Date	Details
12-Sep-2013	<p>ENR Renewable Resource Officer (RRO) observed five bison on Green Island across from Fort Providence? School Camp on the west side of Mission Island.</p> <p>A Fort Providence resident? saw one bison swimming near Providence Island and coming out of the water by the Fort Providence Health Center.</p>
13-Nov-2013	<p>ENR RRO in Hay River received a public report of a bison on Highway 1 just north of Enterprise. Two RROs searched the area and found no large mammal tracks.</p> <p>An ENR Forest Officer was also in the area and checked the location and did not find any tracks.</p>
1-Jan-2014	<p>ENR RRO in Fort Providence received a report of a bison sighting near Axe Handle Creek on Highway 1. On January 2, the RRO found bison tracks in the area. The bison had been feeding in the low areas and tracks went into a gravel pit. On January 6 at 16:30, an RRO located and destroyed the bison in the gravel pit (61.091683N, -118.709583W); the bison had been there for some time. Two local hunters assisted in tracking and skinning the young male (B2) in healthy condition.</p>
8-Feb-2014	<p>During the semi-comprehensive survey on February 7, 2014, tracks (61.14157N, -117.757083W) were observed from the air, the observers couldn't be sure whether the tracks were from a bison or human. The following day the tracks were investigated on the ground and were determined to be human.</p>

## 2014/2015

### 2014/2015 Bison Control Area Survey Results

**Table 1.** Animal observations and tracks recorded during the 2014/2015 Bison Control Area surveys. Survey types are titled 'semi' for semi-comprehensive and 'comp' for comprehensive.

Survey Type	Date	Moose Tracks	Moose	Caribou Tracks	Caribou	Wolf Tracks	Wolf	Bison Tracks*	Bison*	Kill Site
Semi	2-Feb-2015	23	4	26						
Semi	3-Feb-2015	11	3	9						
Semi	4-Feb-2015			15	1					
Comp	16-Mar-2015	24			28	6		2	71	
Comp	17-Mar-2015	46	10	31	11	8		5	54	
Comp	18-Mar-2015	23	3	35	6	2				
Comp	19-Mar-2015	9		40	22	3		2		
		<b>136</b>	<b>20</b>	<b>156</b>	<b>68</b>	<b>19</b>	<b>0</b>	<b>9</b>	<b>125</b>	<b>0</b>

\*Note both surveys covered areas outside of the BCA boundary, on the north shore of the Mackenzie River, to 1) determine the presence of bison and 2) observe if any tracks lead across the river, into the BCA. The nine bison tracks and 125 bison animals recorded were observed on the north side of the Mackenzie River, outside of the BCA.

**Table 2.** Survey duration, weather, and observation conditions for the 2014/2015 Bison Control Area surveys. Survey types are titled 'semi' for semi-comprehensive and 'comp' for comprehensive.

Survey Type	Date	Hours Flown	Temperature	Wind (direction-knots)	Sky	Light	Intensity	Snow Cover	Days Since Last Snow
Semi	2-Feb-2015	3.7	-21.0	WNW - 10.3 kts	Clear	Bright	Medium	Complete	<6 hours
Semi	3-Feb-2015	4.2	-26.0	SSE - 8 kts	Partially Obscured	Bright	Medium	Complete	1
Semi	4-Feb-2015	4.1	-26.0	WNW - 13 kts	Overcast	Bright	Medium	Complete	<4 hours
Comp	16-Mar-2015	6.6	-20.0		Clear	Bright		Complete	3
Comp	17-Mar-2015	14.0	-19.0	E - 4 kts	Partially Obscured	Bright	Medium	Complete	4
Comp	18-Mar-2015	7.4	-19.0	E - 10 kts	Overcast	Flat		Complete	5
Comp	19-Mar-2015	6.2	-27.0	E - 2 kts	Overcast	Flat	Medium	Complete	6
	<b>Total</b>	<b>46.2</b>							

**Table 3.** Animal observations and tracks recorded during the 2014/2015 shoreline patrols.

Survey #	Date	Moose Tracks	Moose	Caribou Tracks	Caribou	Wolf Tracks	Wolf	Bison Tracks*	Bison*	Kill Site
1	18-Dec-2014									
2	8-Jan-2015									
3	31-Jan-2015									
4	16-Feb-2015									
5	27-Feb-2015									
6	6-Mar-2015								14	
7	15-Mar-2015								11	
8	25-Mar-2015								37	
9	5-Apr-2015								34	
10	10-Apr-2015						1		19	

\*Note the bison and bison tracks observed during the shoreline patrols were all observed on the north side of the river.

**Table 9.** Survey duration, weather, and observation conditions for the 2014/2015 shoreline patrols.

Survey #	Date	Hours Flown	Temperature	Wind (direction-knots)	Sky	Light	Intensity	Snow Cover	Days Since Last Snow
1	18-Dec-2014	2.4							
2	8-Jan-2015	4.6							
3	31-Jan-2015	3.3							
4	16-Feb-2015	2.9							
5	27-Feb-2015	2.4	-5.0	NA-11 kts	Clear	Bright	High	Complete	
6	6-Mar-2015	3.6	-8.0	N-3 kts	Overcast	Flat	Medium	Complete	
7	15-Mar-2015	3.3	-5.0	SE-2 kts	Scattered	Bright	High	Complete	
8	25-Mar-2015	5.5	-11.0	0	Clear/Overcast	Flat	Medium	Complete	
9	5-Apr-2015	2.9	-11.0	NE-7 kts					
10	10-Apr-2015	2.5	14.0	S-7 kts	Clear	Bright	High	Complete	
<b>Total</b>		<b>33.4</b>							

## 2014/2015 Reports and Sightings

**Table 4.** All reported bison sightings in and near the Bison Control Area, 2014/2015.

Report/Sighting Date	Details
14-Mar-2015	<p>On March 14, 2015, a member of the public reported seeing bison tracks in the snow ~10 km NW of Enterprise. The observers' family had seen the animal, a bull, on the 13<sup>th</sup> at that location. It was moving NW along the treeline on the south side of the road at a trot. Weather in late afternoon of the 14<sup>th</sup> in the sighting area was snow and blowing snow.</p> <p>The Hay River RRO thought that the bison had travelled from the south. A Hay River trapper saw bison tracks near the border on his trapline a month earlier and had been hunting it but was unable to get it.</p> <p>On March 25, following the weekly shoreline patrols flights, two RROs flew 12 transects NW of Enterprise and were unable to locate bison tracks or bison.</p> <p>Note: During the comprehensive survey in 2016 a set of tracks were observed following nearly the exact route as the tracks observed in this report. In 2016, the tracks were very obviously snowshoes (with hiking poles). The tracks in this report could have been snowshoe tracks that were blown in with snow.</p>
28-Mar-2015	<p>On the morning of March 30, 2015, a member of the public reported that on March 28, 2015, he found bison scat on Highway 1 around Km 65 (south of Enterprise). They stated the tracks were coming from the west side of the road and heading SE, it was estimated the tracks and scat were about three days old.</p>

## 2015/2016

### 2015/2016 Bison Control Area Survey Results

**Table 11.** Animal observations and tracks recorded during the 2015/2016 Bison Control Area surveys. Survey types are titled 'semi' for semi-comprehensive and 'comp' for comprehensive.

Survey Type	Date	Moose Tracks	Moose	Caribou Tracks	Caribou	Wolf Tracks	Wolf	Bison Tracks*	Bison*	Kill Site
Semi	10-Feb-2016	22	20	24		1				
Semi	11-Feb-2016	3	5	13		3	5			
Semi	12-Feb-2016	9	3	27	8	10				1
Comp	15-Mar-2016	93	8	107	11	50				1
Comp	17-Mar-2016	21	4	49	7	24	9			
Comp	18-Mar-2016	93	1	160	15	144				
<b>Total</b>		<b>241</b>	<b>41</b>	<b>380</b>	<b>41</b>	<b>232</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>2</b>

\*Note both surveys covered areas outside of the BCA boundary, on the north shore of the Mackenzie River, to 1) determine the presence of bison and 2) observe if any tracks lead across the river, into the BCA.

**Table 12.** Survey duration, weather and observation conditions for the 2015/2016 Bison Control Area surveys. Survey types are titled 'semi' for semi-comprehensive and 'comp' for comprehensive.

Survey Type	Date	Hours Flown	Temperature	Wind (direction-knots)	Sky	Light	Intensity	Snow Cover	Days Since Last Snow
Semi	10-Feb-2016	4.4	-25.0		Broken	Bright	Medium	Complete	<24 hours
Semi	11-Feb-2016	3.8	-27.0		Overcast	Bright	Medium	Complete	
Semi	12-Feb-2016	3.7	-17.0					Complete	
Comp	15-Mar-2016	12.0	-17.0		Clear	Bright	High	Complete	7+
Comp	17-Mar-2016	7.8	-8.0	NW-13.5 kts	Overcast	Flat	Medium	Complete	<2 hours
Comp	18-Mar-2016	10.3	-17.0	NA-5 kts	Clear	Bright	High	Complete	1
<b>Total</b>		<b>42.0</b>							

**Table 13.** All recorded animal observations and tracks during the 2015/2016 shoreline patrols.

Survey #	Date	Moose Tracks	Moose	Caribou Tracks	Caribou	Wolf Tracks	Wolf	Bison Tracks	Bison	Kill Site
1	11-Jan-2016		2				1		143	
2	21-Jan-2016								95	
3	3-Feb-2016									
4	8-Feb-2016						1		143	
5	19-Feb-2016									
6	11-Apr-2016								28	
7	21-Apr-2016									
8	29-Apr-2016									

\*Note the bison and bison tracks observed during the shoreline patrols were all observed on the north side of the river.

**Table 14.** Survey duration, weather, and observation conditions for the 2015/2016 shoreline patrols.

Survey #	Date	Hours Flown	Temperature	Wind (direction-knots)	Sky	Light	Intensity	Snow Cover	Days Since Last Snow
1	11-Jan-2016	3.8	-22.0		Scattered		Medium	Complete	
2	21-Jan-2016	3.7	-18.0	N-3 kts	Overcast	Flat	Medium	Complete	
3	3-Feb-2016	3.7							
4	8-Feb-2016	3.5	-16.0	S-2 kts	Overcast	Flat	Medium	Complete	
5	19-Feb-2016	3.7							
6	11-Apr-2016	4.1	-12.0	N-7 kts	Overcast	Flat	Medium	Complete	
7	21-Apr-2016	3.7							
8	29-Apr-2016	3.6							
<b>Total</b>		<b>29.8</b>							

## 2015/2016 Reports and Sightings

**Table 15.** All reported bison sightings in and near the Bison Control Area, 2015/2016.

Report/Sighting Date	Details
27-Aug-2015	The Fort Providence RRO received a report of bison near the Hwy 1 and Hwy 3 Junction (it sounded like the sighting was on August 25 <sup>th</sup> ). It was investigated and on August 27 transport truck drivers reported seeing four bison within 2 km of Kakisa in a burn. The area was flown during the anthrax patrol, on the 27 <sup>th</sup> and nothing further was sighted.
10-Jun-2016	A contractor from the North of 60 Territorial Park stated that an individual from Fort Smith reported seeing bison droppings approximately 50 km north of the border. The individual stated they were a hunter and could identify the droppings. A Hay River RRO investigated the report, checking the highway between km 40-60 and found no bison droppings or tracks.
6-Jun-2016	<p>A member of the public called the BCA toll-free line and reported seeing 12-14 bison plus four calves at km 161 on Highway 1. A video (May 31, 2016) of the sighting was submitted, noting the location was on Highway 1 between Enterprise and the Highway 3 junction. The person further reported that approximately 5 km west of the area of the video there was a lone male.</p> <p>On June 7, the South Slave wildlife technician and Fort Providence RRO searched for the reported bison aerially via fixed-wing aircraft. They were unable to locate any bison in the reported area. After landing, staff reviewed the video and the RRO thought he recognized some of the landmarks north of Providence (namely, what appears to be a stump of a power pole). It was later confirmed the location of the reported bison as being in the area of km 158-160 on Hwy 3.</p>

## **PUBLIC AWARENESS**

During the 2013/2014 surveillance season public awareness actions taken were advertisements online via Facebook, via radio broadcasts via CJCD and CKLB (in English, Tłı̨chǫ, and South Slavey) and via print advertisements in the Northern Journal (published 29-October-2013 and 05-November-2013) and the Hay River Hub (published 30-October-2013 and 06-November-2013). No public awareness actions were taken during the 2014/2015 and 2015/2016 seasons.

## DISCUSSION

During the 2013/2014 season there was one instance of bison being harvested as a result of BCA program efforts. Surveillance efforts were scaled back beginning with the reduction of the aerial survey area in 2013/2014.

A review of the BCA program was conducted in 2016 to assess the effectiveness of the program and to identify any potential cost savings. Recommendations were taken into consideration for future BCA activities.

Prior to 2016/2017, weekly winter shoreline patrols were conducted along the north and south shores of the Mackenzie River in an effort to detect bison crossing the river. The review recommended discontinuing shoreline patrols for three reasons: (1) there had been few bison using habitat immediately adjacent to the Mackenzie River since 2012/2013; (2) shoreline patrols had not detected crossing events although crossing events had been detected by local residents who are active on the river during the winter; and (3) to shift focus to surveillance of the eastern boundary of the BCA, i.e., where any bison moving into the BCA could be diseased.

Prior to 2016/2017, annual semi-comprehensive and comprehensive surveys were conducted within the boundaries of the BCA. The semi-comprehensive survey did gather observations, but its design did not provide consistent coverage of the survey area. The comprehensive survey was not consistent in transect spacing and alignment, so use of the data for other purposes was more difficult than a standard survey with fixed transect widths with parallel spacing. The review recommended replacing the semi-comprehensive and comprehensive surveys with a redesigned aerial survey with systematic coverage of Zone 1 and part of Zone 2 that would be conducted twice each winter. The new survey was designed to focus on the eastern boundary of the BCA to detect potentially diseased animals moving of WBNP as opposed to non-diseased animals moving south of the Mackenzie River.

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# APPENDIX A: SUMMARY OF SURVEILLANCE ACTIVITIES AND REMOVALS OF BISON FROM THE BISON CONTROL AREA (1988/1989 – 2015/2016)

Year	Shoreline Patrols	Semi-Comprehensive Surveys	Comprehensive Surveys	Hours Flown	Snow-mobile Ground Patrols	Bison Removals
<b>1988/1989</b>	1					
<b>1989/1990</b>	2					
<b>1990/1991</b>	2					
<b>1991/1992</b>		7				
<b>1992/1993</b>			3			9 <sup>a</sup>
<b>1993/1994</b>	14 <sup>b</sup>		1		23	
<b>1994/1995</b>	10(26) <sup>c</sup>	6(94)	1(34)	153	33	2 <sup>d</sup>
<b>1995/1996</b>	11(35)	3(48)	1(41)	123		3 <sup>e</sup>
<b>1996/1997</b>	21(62)	3(45)	1(46)	153		
<b>1997/1998</b>	14(43)	3(46)	1(48)	137		
<b>1998/1999</b>	14(43)	2(30)	1(45)	117		
<b>1999/2000</b>	14(42)	2(28)	1(46)	115		
<b>2000/2001</b>	13(40)	2(30)	1(50)	120		
<b>2001/2002</b>	14(42)	2(29)	1(42)	113		
<b>2002/2003</b>	11(25)	2(22)	1(40)	87		
<b>2003/2004</b>	13(31)	1(11)	1(37)	78		
<b>2004/2005</b>	12(29)	1(14)	1(33)	76		
<b>2005/2006</b>	11(23)	1(14)	1(36)	88		
<b>2006/2007</b>	12(38)	1(19)	1(36)	93		
<b>2007/2008</b>	13(40)	1(15)	1(33)	88		
<b>2008/2009</b>	11(33)	1(15)	1(30)	78		
<b>2009/2010</b>	9(27)	1(13)	1(13)	53		
<b>2010/2011</b>	11(30)	1(17)	1(27)	74		1 <sup>f</sup>
<b>2011/2012</b>	10(25)	1(16)	1(23)	64		

Year	Shoreline Patrols	Semi-Comprehensive Surveys	Comprehensive Surveys	Hours Flown	Snowmobile Ground Patrols	Bison Removals
2012/2013	2(27)	1(36)	1(18)	81	1 <sup>g</sup>	
2013/2014	14(49)	1(13)	1(30)	92		1 <sup>h</sup>
2014/2015	10(33)	1(12)	1(34)	79		
2015/2016	8(30)	1(12)	1(30)	72		

<sup>a</sup> 17 May 1992: eight bulls shot near Point de Roche. 31 May 1992: one bull shot near Point de Roche (no lymph nodes collected). Serological testing for *Brucella* was negative for all nine bulls, no lesions consistent with tuberculosis observed on gross pathology or histopathology.

<sup>b</sup> Four patrols covered the Hay River area and extended inland to the northwest park boundary.

<sup>c</sup> Numbers in brackets represent survey hours (rounded off to the nearest hour).

<sup>d</sup> 13 October 1994: prior to the surveillance season beginning, one bison shot by hunter near the eastern boundary of the BCA. Blood and tissue samples collected but no evidence of brucellosis or tuberculosis. 8 March 1995, one cow shot by hunter along south shore of Mackenzie River. Cow had likely been wounded by wolves. Blood serum and retropharyngeal lymph nodes collected.

<sup>e</sup> 19 March 1996: three cows killed by hunter on the south shore of Mackenzie River. Blood serum (n=2) and retropharyngeal lymph nodes (n=3) collected. No serological reactors to brucella, and lymphatic tissue normal on gross examination.

<sup>f</sup> 5 January 2011: one injured young of the year female was killed by a fisherman north of Hay River on Great Slave Lake (coordinates: 60° 59' 17.1" N, 115° 51' 05.5"W). It was collected on January 12<sup>th</sup> and brought back to Fort Smith. A necropsy was performed, and wounds were found on the front left shoulder and the hindquarters and appeared to be from a wolf attack. Retropharyngeal, submandibular, prefemoral, prescapular, popliteal and bronchial lymph nodes and tonsils were collected for testing.

<sup>g</sup> Snowmobile patrol conducted from Fort Providence to investigate bison sighting. No bison observed.

<sup>h</sup> 1 January 2014: ENR RRO in Fort Providence received a report of a bison sighting near Axe Handle Creek on Highway 1. On January 2, the RRO found bison tracks in the area. The bison had been feeding in the low areas and tracks went into a gravel pit. On January 6 at 16:30, an RRO located and destroyed the bison in the gravel pit (61.091683N, -

118.709583W); the bison had been there for some time. Two local hunters assisted in tracking and skinning the young male (B2) in healthy condition.