



# **BISON CONTROL AREA PROGRAM**

## **ANNUAL REPORT 2020/2021**

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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 (BCA), 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 the 2020/2021 season with two survey flights covering the majority of Zone 1 and part of Zone 2 of the BCA. In total, 54.9 hours were spent flying these surveys in fixed-wing aircraft over nine days.

During the 2020/2021 season, there were no reports of bison in or approaching the BCA.

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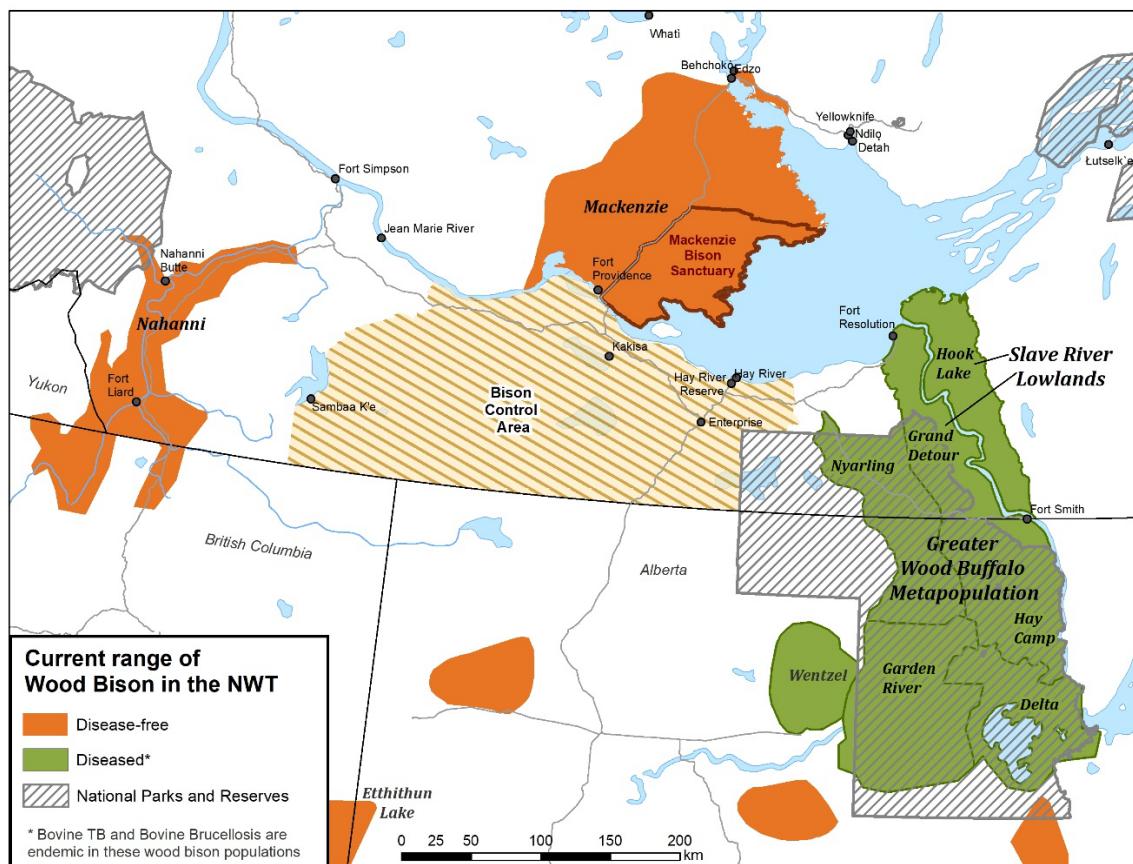
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# INTRODUCTION

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).



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

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*.

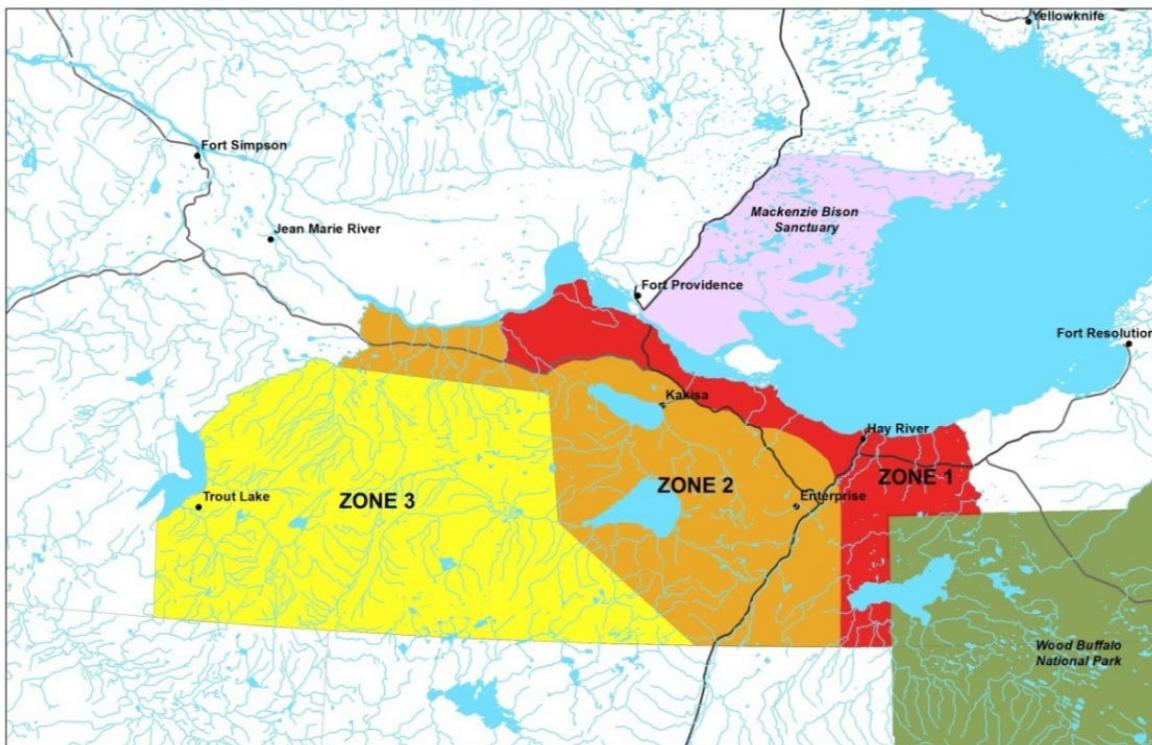
The objectives of the BCA program are to prevent bison from moving between the Slave River Lowlands/WBNP and the Mackenzie, Nahanni and Hay-Zama populations by detecting and removing any bison that may come into the area. To achieve this objective, the goals of the program are:

- 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.

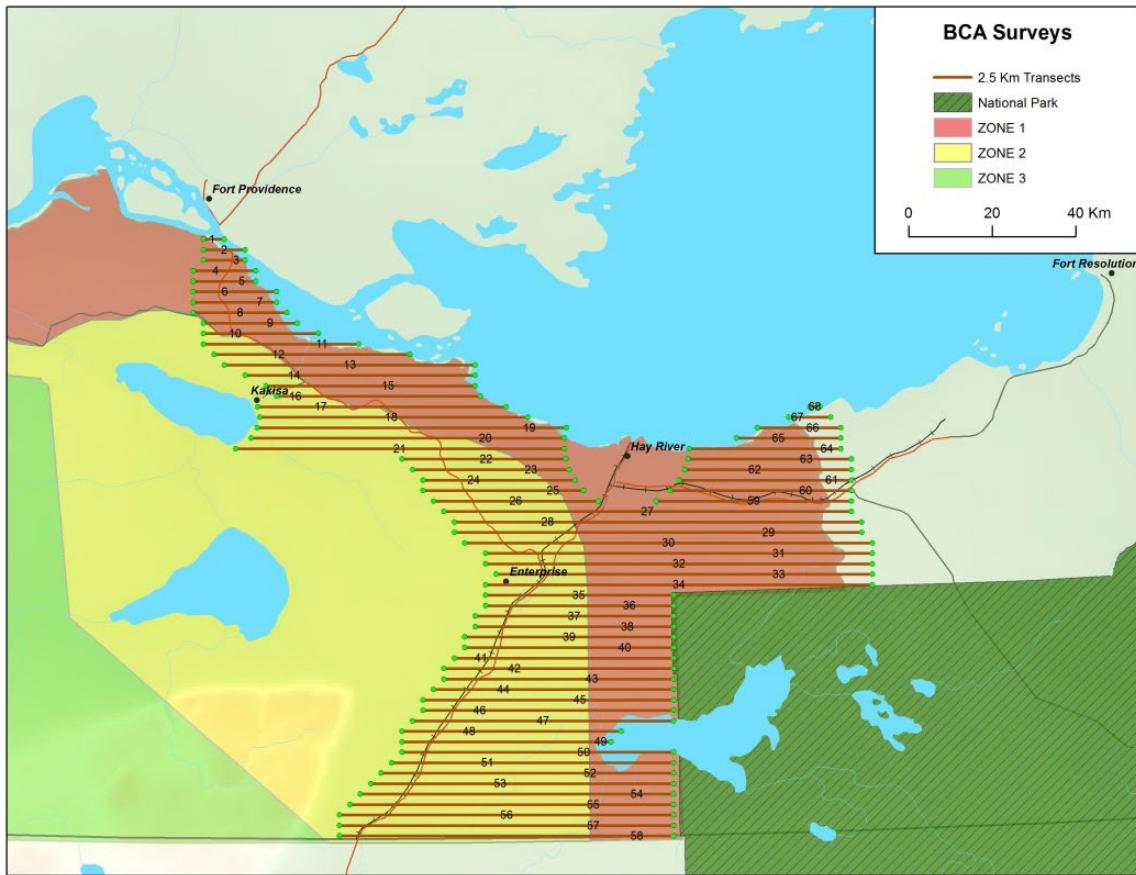
## METHODS

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). Zone 1 is the area in which bison are most likely to be seen, since it is the section of the BCA that is nearest to both the Mackenzie population's range and WBNP. Therefore, the program focuses on this particular zone, with aerial surveys conducted twice a year. Zone 2 is a larger zone and part of this zone is incorporated into the annual aerial surveys (Figure 3). Surveillance of the remaining areas of Zone 1, 2 and 3 relies on reports from people living and travelling in the area instead of aerial surveys.



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



**Figure 3.** Transects for the two annual Bison Control Area aerial surveys.

Aerial surveillance is conducted during the winter months when bison and signs of their presence (feeding craters and tracks) are most visible. Also, the probability of bison moving through the BCA is potentially higher in the winter because bison may be more likely to walk across the frozen Mackenzie River than swim across it in the summer.

Two survey flights were completed between February 15 - March 18, 2021, using a Cessna 337 from Landa Aviation Ltd. The GIS Specialist from the ENR office in Fort Smith conducted both surveys along with local community members as observers.

The first aerial survey was flown in February 15-19, 2021, and the second was flown in March 15-18, 2021. During both surveys the aircraft flew at 150-250 m above ground level (AGL) at speeds of 180-220 km/h. 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

During the 2020/2021 season, there were no reports of bison either entering or approaching the BCA. A total of 54.9 hours of fixed wing flight was conducted over nine days (Table 1). Weather conditions were recorded for each survey flight (Table 1). Weather conditions were acceptable (e.g. bright light, clear visibility) for most of the survey days. If the light or weather conditions were poor (e.g. low, flat light) flights were terminated or delayed until the next day.

**Table 1.** Summary of Bison Control Area aerial surveys for the 2020/2021 season. Survey types are titled 'semi' for semi-comprehensive and 'comp' for comprehensive.

Survey Type	Date	Hours Flown	Temp. (°C)	Wind (Direction-knots)	Sky	Brightness	Snow Cover
Semi	15-Feb-2021	3.1	-18	NNW-8kts	Scattered	Bright	Complete
Semi	16-Feb-2021	7.2	-27	NNW-5kts	Overcast	Medium	Complete
Semi	17-Feb-2021	4	-21	SSE-5kts	Broken	Bright	Complete
Semi	18-Feb-2021	7.5	-15	S-8kts	Scattered	Bright	Complete
Semi	19-Feb-2021	6.1	-13	S-5kts	Scattered	Bright	Complete
Comp	15-Mar-2021	4.6	-15	S-10kts	Clear	Bright	Complete
Comp	16-Mar-2021	7.9	-16	NW-7kts	Partially Obscured	Medium	Complete
Comp	17-Mar-2021	8.5	-16	NW-6kts	Clear	Bright	Complete
Comp	18-Mar-2021	5	-2	Calm	Partially Obscured	Bright	Complete
<b>Total</b>		<b>54.9</b>					

A total of 21 moose, 62 boreal caribou and one wolf were observed during both aerial surveys, no bison were observed (Table 2).

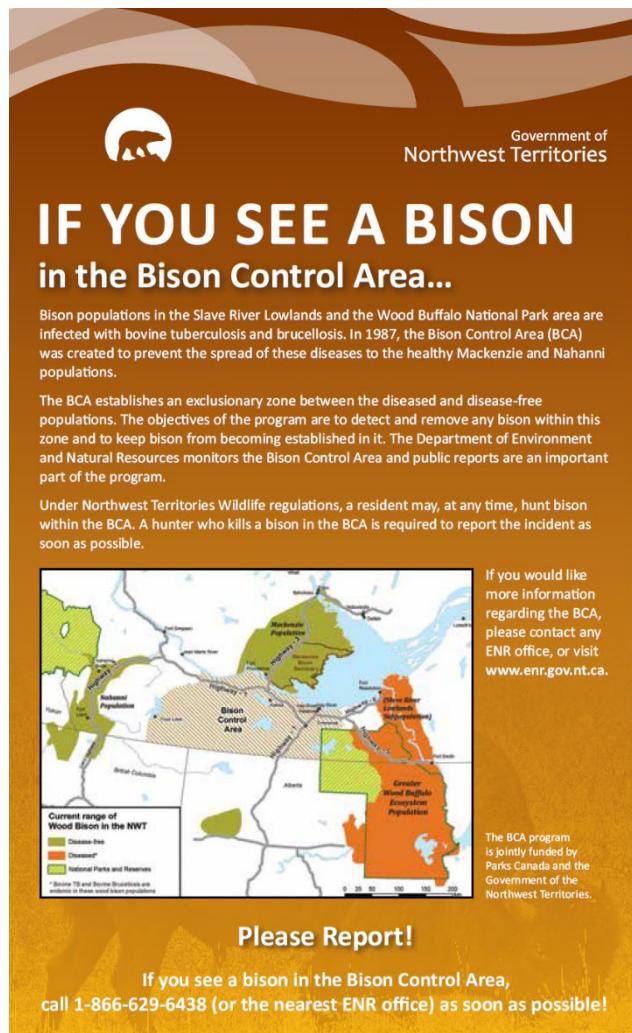
**Table 2.** All recorded observations of animals and tracks seen during Bison Control Area aerial surveys for the 2020/2021 season. Survey types are titled 'semi' for semi-comprehensive and 'comp' for comprehensive.

Survey Type	Date	Moose Tracks	Moose	Caribou Tracks	Caribou	Wolf Tracks	Wolf	Kill Site
Semi	15-Feb-2021	6		8		1		
Semi	16-Feb-2021	9		54	5			
Semi	17-Feb-2021	21		125	32	22		
Semi	18-Feb-2021	1	3	113		20		
Semi	19-Feb-2021			14				
Comp	15-Mar-2021	69		25		7		
Comp	16-Mar-2021	19	2	73	8	7	1	
Comp	17-Mar-2021	12	10	53	22	18		
Comp	18-Mar-2021	26	6	6	5	15		1
	<b>Total</b>	<b>163</b>	<b>21</b>	<b>471</b>	<b>62</b>	<b>90</b>	<b>1</b>	<b>1</b>

This survey covered approximately 3,488 km of fixed wing flying. This equates to an estimated 17.5% coverage of the BCA assuming an average transect width of 500 m on each side of the aircraft. This year there was also >2,500 km of helicopter flying by the collaring crew (February 10-16, 2021).

## PUBLIC AWARENESS

In 2020/2021 there were no public awareness actions taken. Public advertising of the BCA had been largely reduced since 2017. There are signs informing people of the BCA along highways that cross into BCA boundaries. An advertisement is regularly published in the annual Spectacular NWT Explorers' Guide, although no Explorers' Guides were published in 2021 (Figure 4). Information on the BCA is also provided annually in the Wood Bison section of *Northwest Territories Summary of Hunting and Trapping Regulations*.



**Figure 4.** Advertisement published in the 2020 NWT Explorers' Guide.

## **BISON REPORTS**

There were no reports from the public of bison in the BCA during the 2020/2021 surveillance season.

## ACKNOWLEDGEMENTS

Indigenous governments and organizations whose traditional territories overlap with the Bison Control Area (BCA) are engaged annually regarding the survey flights. We are thankful for their support and participation.

We appreciate the support for this program provided by our partner, Wood Buffalo National Park—Parks Canada Agency.

Several people were integral to the BCA program for the 2020/2021 season. Allicia Kelly and Terry Armstrong coordinated the program and provided logistic support.

The community observers were indispensable, and we thank all of them for assisting on our surveillance flights: Robert Lamalice, Anthony Beck, George Cayen and Victor Fournier. Many thanks also go to Landa Aviation Ltd. and their pilot Dane Campbell for their expertise and input.

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# APPENDIX A: SUMMARY OF SURVEILLANCE ACTIVITIES AND REMOVALS OF BISON FROM THE BISON CONTROL AREA (1988/1989 – 2020/2021)

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		
<b>2012/2013</b>	2(27)	1(36)	1(18)	81	1 <sup>g</sup>	
<b>2013/2014</b>	14(49)	1(13)	1(30)	92		1 <sup>h</sup>
<b>2014/2015</b>	10(33)	1(12)	1(34)	79		
<b>2015/2016</b>	8(30)	1(12)	1(30)	72		
<b>2016/2017</b>		2(62)		62		
<b>2017/2018</b>		2(57)		57		
<b>2018/2019</b>		2(51)		51		
<b>2019/2020</b>		2(39)		39		

Year	Shoreline Patrols	Semi-Comprehensive Surveys	Comprehensive Surveys	Hours Flown	Snowmobile Ground Patrols	Bison Removals
2020/2021		2(51)		51		

<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.