

## 2010 Hay-Zama bison



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The Hay-Zama wood bison population was established in 1983 and has been surveyed three times in the past (Morton 2003; Moyles 2007, 2008). A hunting season was initiated in the fall of 2008 (1 September 2008 to 31 March 2009), and a second season ran from 1 September 2009 to 31 March 2010. The hunting season was initiated to reduce bison numbers and distribution due to growing concerns over disease issues associated with bison moving west from Wood Buffalo National Park and public safety concerns related to conflicts in communities and on roads. ACA monitors the Hay-Zama bison population and distribution by conducting aerial surveys in late winter. The purpose of this survey is to determine bison numbers and their distribution in the Hay-Zama area in late winter 2010.

### *Study area*

The Hay-Zama wood bison herd has established itself in the area west of High Level, east of Rainbow Lake and north to Zama City as reported by Moyles (2008). The limits of this distribution are roughly North 58 degrees 30 minutes in the south, North 59 degrees 30 minutes in the north, West 117 degrees 30 minutes to the east and West 119 degrees 30 minutes to the west (Figure 1). The distribution of this bison herd has changed in recent years, expanding to the south along Highway 58 and easterly along the Zama Highway. Expansion to the more northerly and westerly areas appears to be more seasonal (i.e. summer range). Six townships (Township 112, 113 and 114, Range 2 and 3) have been established as a “No Hunting Area” to provide a refuge for bison in critical winter habitat.

### *Survey methods*

On 19 March 2010 a two-person crew in a Cessna 206 airplane surveyed an area beginning immediately south of Highway 58 working north to the community of Habay. East-west transects were flown from approximately 11 kilometers east of the Chinchaga River to approximately 8 kilometers west of Rainbow Lake. Bison sightings and areas of bison tracks were recorded, and a GPS waypoint was taken using a handheld unit.

Poor weather conditions for flying (snow and winds) prevented flights on 20 - 21 March. On 22 March, a two-person crew in an EC 120 helicopter began surveying areas where bison had been observed during the fixed wing flight of 19 March. Additional survey lines were flown at 1 minute of latitude intervals from longitude West 118 degrees 10 minutes to the municipal road running north of Highway 58, into the oilfield road network on the west. All bison observed were counted and calves/adults delineated. Photos were taken of herds to confirm the number of calves. Calves were identified by their smaller body size and absence of horns. Yearlings were included in the adult age class because of the difficulty in distinguishing between these two age categories in an aerial survey.

On 23 March, a two-person crew in a Cessna 206 resumed surveying using 1 minute of latitude survey lines to the west and north of the survey conducted the previous day.

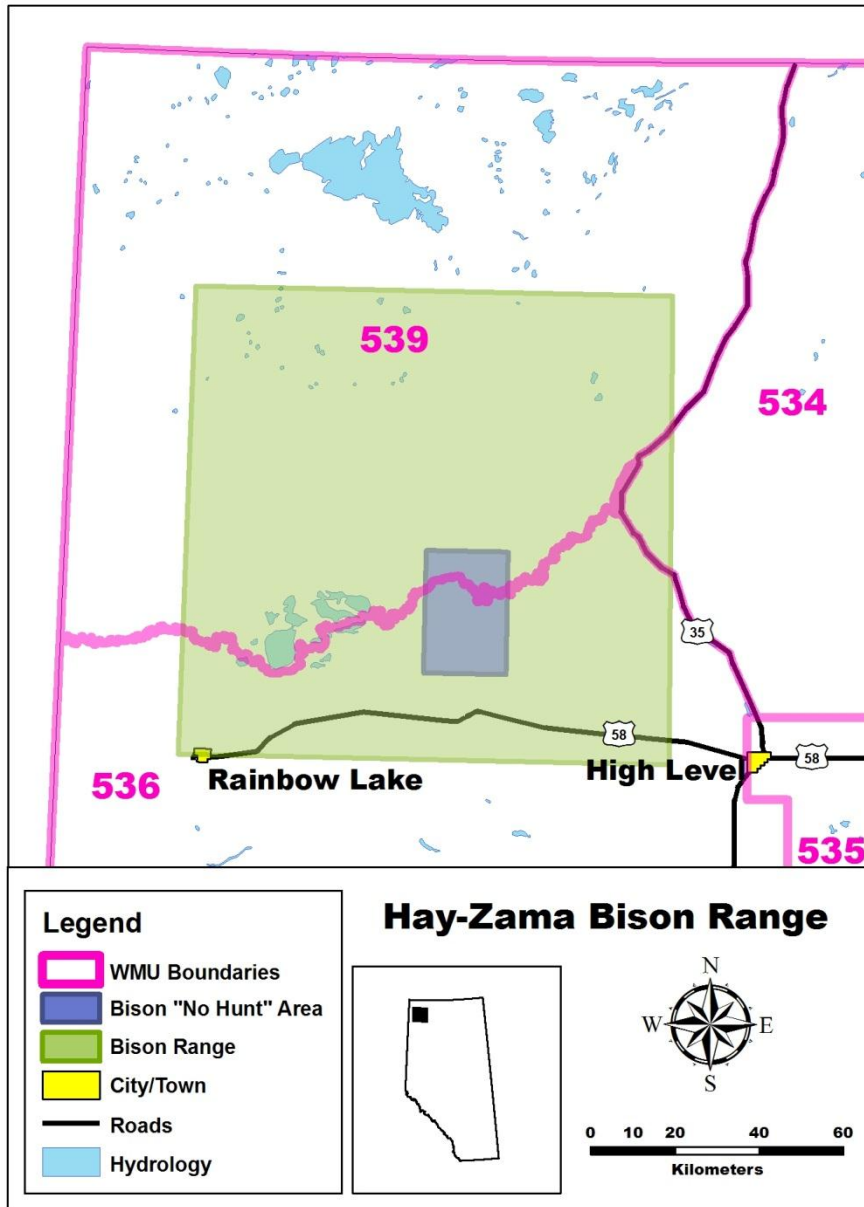


Figure 1. Location of the Hay-Zama bison herd range in Alberta.

Again, bison sightings and areas of bison tracks were recorded and a GPS waypoint was taken. On 24 March, a two-person crew in an EC 120 helicopter located bison observed during the fixed wing flight of 23 March. All bison observed were counted and calves/adults delineated. Photos were taken of herds to confirm the number of calves. We did not correct for sightability; therefore, overall counts should be considered as minimum population estimates and direct comparisons of survey results among years may be difficult.

In general, survey conditions were excellent. Fresh snow covered much of the survey area and skies were clear on all days except for 24 March, which was 100% overcast. Daily temperatures ranged from -23 to -18 degrees Celsius and wind speeds ranged from 0 – 20 km/h.

### ***Results***

A total of 527 bison (452 adults and 75 calves) were found at 39 sites throughout the area surveyed (Table 1). The vast majority of the bison were located along the Chinchaga and Hay River confluence, in or near an area set aside as a “No Hunting” protection area. A total of 4 bison were located in the Shekilie oilfield area (Township 118 Range 8) and only 1 bison was located north of Zama City. No bison were located near Highway 58 in the southern portion of their former range.

Table 1. Comparison of aerial survey results for bison in the Hay-Zama area from 1994 – 2010.

Year	# of Groups	Number of Bison			%Calves <sup>b</sup>
		Adults <sup>a</sup>	Calves	Total	
Mar. 2010	39	452	75	527	14
Feb. 2009	59	547	50	597	8
Mar. 2008	63	593	59	652	9
Mar. 2007	41	499	66	565	12
Feb. 2006	41	499	23 <sup>c</sup>	522	4
Mar. 2005	33	365	59	424	14
Mar. 2004	30	267	53	320	17
Feb. 2003	23	236	26	262	10
Feb. 2002	21	200	33	233	14
Mar. 2001	12	158	27	185	15
Mar. 2000	12	132	21	153	14
Mar. 1999	14	81	16	97	17
Feb. 1998	12	106	6 <sup>d</sup>	112	5
Mar. 1997	7	75	14	89	16
Mar. 1996	7	61	15	76	20
Nov. 1995	4	62	12	74	16
Mar. 1995	4	48	15	63	24
Dec. 1994	3	41	17	58	29

<sup>a</sup> Adults includes yearlings.

<sup>b</sup> % Calves = calves/total population x 100.

<sup>c</sup> This is a minimum count due to difficulties distinguishing calves from yearlings.

<sup>d</sup> This is a minimum count.

### *Literature Cited*

Morton, K. 2003. Population surveys in the Hay-Zama lowlands - wood bison (*Bison bison athabascae*), February 24, 2003. Produced by Alberta Fish and Wildlife Division, High Level, Alberta, Canada. 10 pp.

Moyles, D. 2007. Bison surveys in the Hay-Zama lowlands, March 27, 2007. Unpublished report, Alberta Fish and Wildlife Division, Peace River, Alberta, Canada. 5 pp.

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