

2011 Hay-Zama bison



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The Hay-Zama wood bison population was established in 1983 and has been reported on in three previous survey reports (Morton 2003; Moyles 2007, 2008). In 2008, a seven month hunting season was initiated for bison in the Hay-Zama complex from 1 September 2008 to 31 March 2009. Hunting continued in the area in the 2009/2010 and 2010/2011 hunting seasons. The objectives of the introduction of a hunting season was to reduce bison numbers and their range, due to growing concerns over disease transmission among herds, with bison moving west from Wood Buffalo National Park. There has also been concern for public safety with conflicts in communities and risks associated with road collisions in the region. We monitored the Hay-Zama bison population in March 2011 using aerial surveys.

Study area

The Hay-Zama wood bison herd established itself in the area west of High Level, east of Rainbow Lake and north to Zama City (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 herd distribution has changed in recent years, expanding to the south along Highway 58 and easterly along the Zama Highway. Expansion to these northerly and westerly areas appears to be seasonal, occurring during the summer. Six townships (Township 112, 113 and 114, Range 2 and 3) have been established as a "No Hunting Area" to provide a refuge of important winter habitat for the bison.

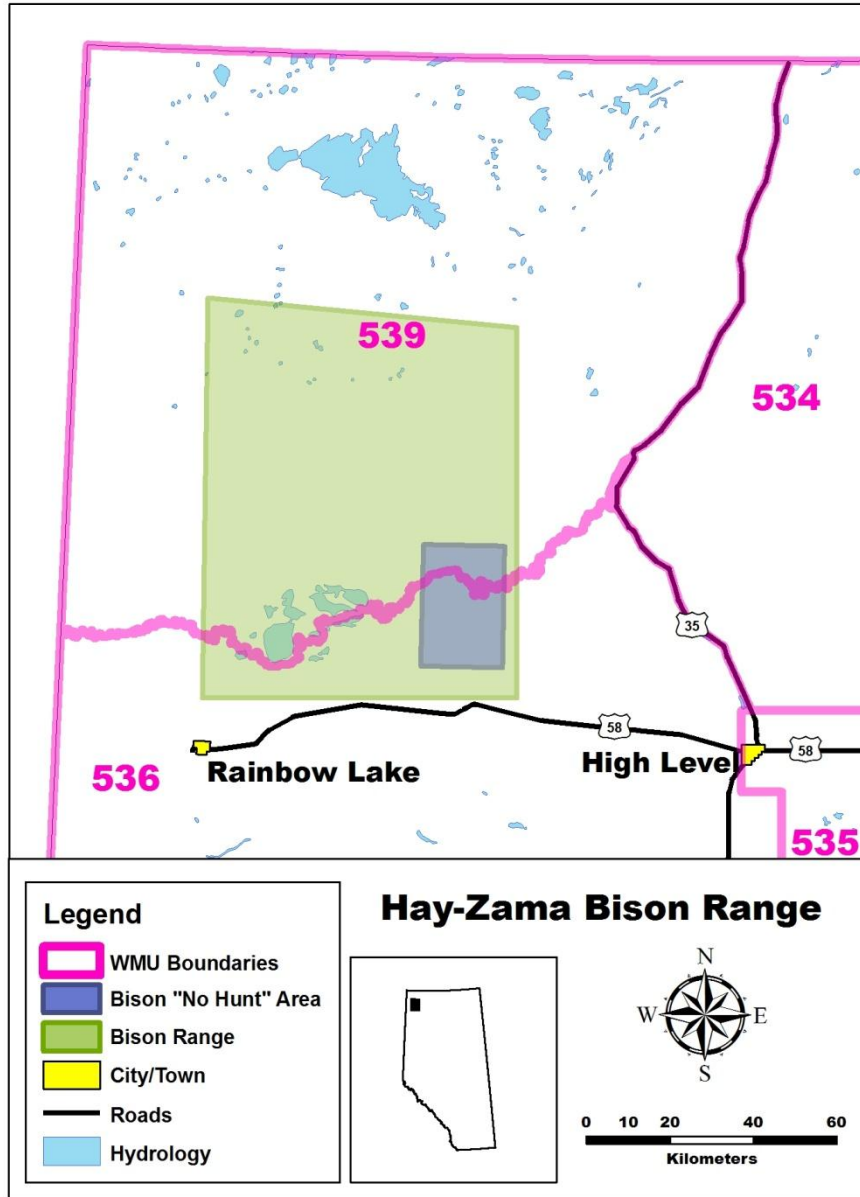


Figure 1. Location of the Hay-Zama bison herd range in Alberta.

Survey methods

From 15 - 17 March 2011, a two-person crew in a Cessna 206 airplane performed pre-flight surveys for bison in the Hay-Zama area. The pre-flight surveys consisted of transect lines flown in an east/west direction along lines of latitude spaced 1 minute apart, covering an area of approximately 6,900 km². Included in this area were flight lines not previously flown, north of the preferred bison range, to investigate a reported bison sighting. Bison sightings and areas of bison tracks were recorded, and a GPS waypoint was taken using a handheld unit. Although the light was flat, overall weather and sightability conditions were acceptable for the pre-flight surveys, with fresh snow having fallen on 14 March.

On 19 - 20 March 2011, the same two-person crew flew intensive surveys in a Bell 206B helicopter to locate and count the bison observed during the pre-flight surveys. All observed bison were counted and calves/adults delineated. Photos were taken of herds to confirm the number of calves, which 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. 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 winds were light, ranging from 0 - 20 km/h. Skies were 80 - 100% overcast on 15 - 17 March and then mainly clear for the remainder of the survey. Temperatures ranged from -17 to -10 degrees Celsius.

Results

A total of 561 bison (500 adults and 61 calves) were found at 31 sites throughout the area surveyed (Table 1). A significant number of bison were located within the Hay-Zama Wildland Provincial Park. A total of 11 bison were located in the Shekilie Oilfield area (Township 116 Range 6 and Township 118 Range 8). North of Zama City (Township 119 Range 3), a total of 3 bison were located and one herd of 26 bison was located within 5 km of the Zama Highway (Township 117 Range 3). The remaining bison were observed in traditional wintering areas throughout their range. 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 - 2011.

Year	# of Groups	Number of bison			% Calves ^b
		Adults ^a	Calves	Total	
Mar. 2011	31	500	61	561	11
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 ^c	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 ^d	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

^a Adults includes yearlings.

^b % Calves = calves/total population x 100.

^c This is a minimum count due to difficulties in distinguishing calves from yearlings.

^d 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 ASRD, Fish and Wildlife Division, High Level, Alberta, Canada. 10 pp.

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