

2008 Population Census of Mountain Caribou in Wells Gray
Park, the North Thompson Watershed and a portion of the
Adams River Watershed of the Ministry of Environment
Thompson Region

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March 2008

Prepared for: BC Ministry of Environment, Thompson Region and BC Ministry of
Forests Research Branch

Executive Summary

Staff and Contractors from the Ministry of Environment, Thompson Region conducted a total count census of part of the Wells Gray and Allan subpopulations and all of the Groundhog subpopulation on March 6th, 7th, 31st and April 1st and 2nd. Coverage of the survey area was complete, however, survey conditions were variable overall, with good tracking and weather conditions for some areas (the south part of Wells Gray Park), and poor tracking (Miledge, Allan and MU 3-40-Berry Creek) or weather conditions (north part of Wells Gray Park) in some areas. The coverage area was similar to 2006, but more hours were spent searching, due to poor weather, and difficult tracking conditions.

Mountain Caribou in the Headwaters Forest District were studied using radio-telemetry from 1995 to present. The small number of radio-collared caribou remaining in the area (n=8) precluded making population estimates with confidence intervals for this year. Surveys conducted prior to 2002 reflected jurisdictional rather than ecological boundaries. However, where possible, the 2008 survey results are compared to previous surveys (summarized in Furk (2006)).

There were fewer caribou counted overall in this survey (182) than the 2006 (225) survey. However, this primarily reflects a decline in the number of caribou counted in MU-3-44 south of the North Thompson River (Miledge Creek). Tracking conditions were difficult in this area, and it is unknown how much of the apparent decline is due to a decrease in sightability.

In the Allan Creek, Groundhog and the portion of the Wells Gray subpopulation that was surveyed, the total number of caribou sighted was the same or slightly lower than those seen in 2006. Overall, the percentage of calves in the survey area remained relatively high at 16.5%.

The Cariboo Region did not conduct a total count survey this year, so it wasn't possible to make an estimate of the Wells Gray subpopulation. The entire range of the Allan subpopulation was surveyed by the Thompson Region staff this year.

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Acknowledgements

Many thanks to projects partners that make possible ongoing research that includes radio collaring and monitoring that provides marks for caribou census. These partners include SIMPCW Development Corporation and the Kamloops TSA forest Licensees.

The BC Ministry of Environment funded the survey. Thanks to the staff at the Ministry of Environment in Kamloops that helped to make the survey happen (Sue Lemke, Doug Jury, Francis Iredale, Mike Rowden, John Surgenor) and to Dave Jones for his excellent spotting skills and perseverance. Thanks also to Kevin (CC Helicopters) and John Graham (Yellowhead Helicopters) for their excellent piloting.

Introduction

Mountain caribou are an ecotype of woodland caribou (*Rangifer tarandus caribou*) that, except for a small population in Idaho, are found exclusively in south-eastern and east-central British Columbia. In 2000, mountain caribou were moved from the blue list to red list in British Columbia indicating that populations within the province are at risk of becoming endangered. In May 2002 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) confirmed that the southern mountain population of caribou was threatened. Reasons for the designation include the small size and isolation of populations, the large majority of which are declining (COSEWIC website, 2003).

Survey Area and Subpopulations

The survey area discussed in this report covers part of the continuous band of occupied caribou habitat that stretches from north of Prince George south to Glacier National Park. Prior to 2002, caribou survey areas were bounded by jurisdictional boundaries due to funding constraints and a lack of knowledge regarding subpopulation boundaries. Subsequent analyses of telemetry data by Wittmer et. al. (2005) determined that 18 different subpopulations exist within British Columbia and their distributions cross many of the jurisdictional boundaries previously used to delineate survey boundaries. We now know that caribou move across boundaries of earlier censuses, making it difficult to make comparisons over time.

Since 2002, caribou have been surveyed province wide. This report covers the area staff from the MOE Thompson Region were responsible for surveying in 2008. The surveyed area is shown in Figure 1. Staff and contractors from the Columbia Forest District surveyed caribou habitat east and south east of the survey area. Staff and contractors from the Cariboo region did do a total count survey of caribou in 2008 (although a calf count was completed).

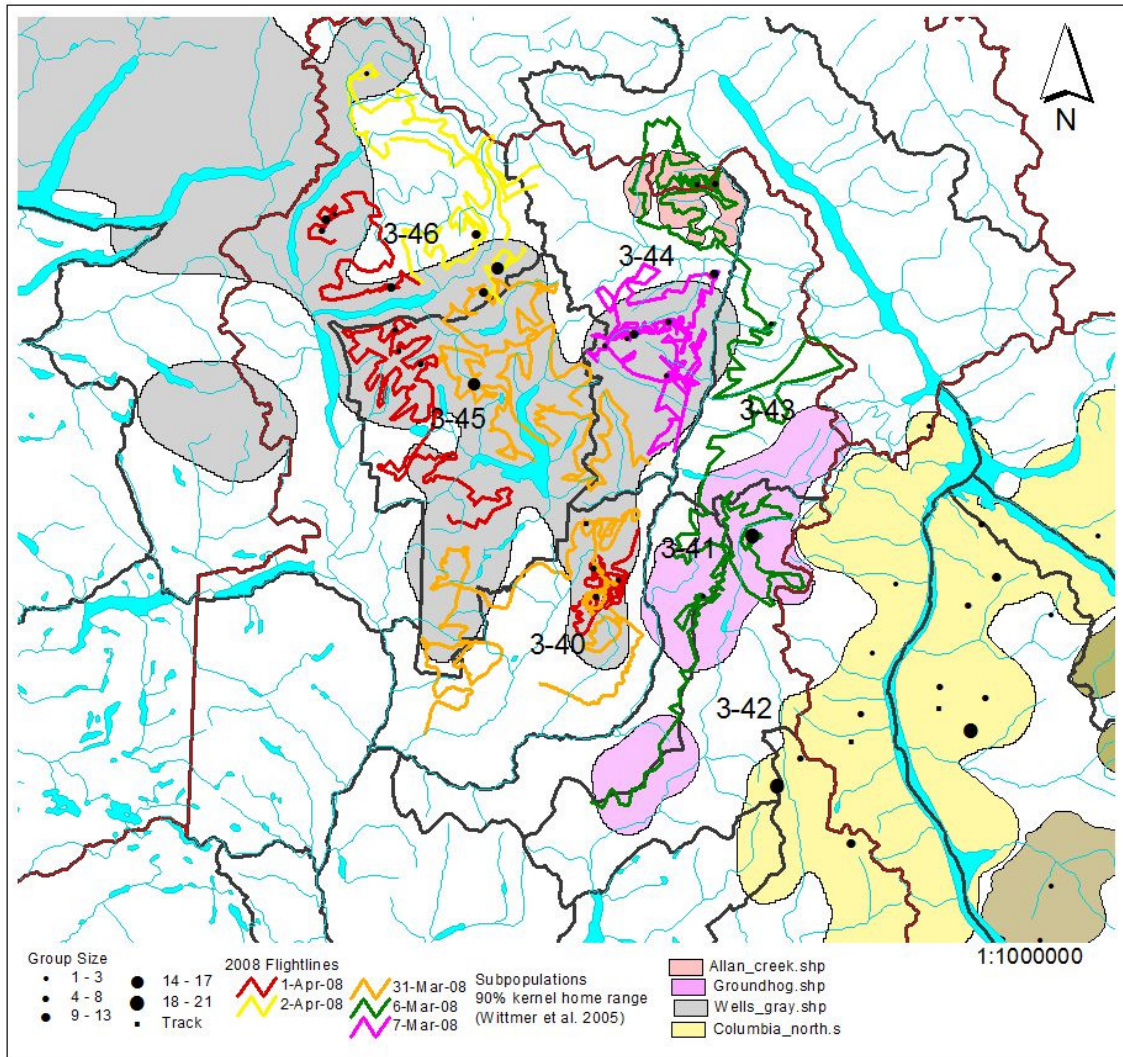


Figure 1. Flight paths by date and locations of caribou observed during the 2008 census flown by staff from the Thompson Region.

For this analysis we primarily use new subpopulation boundaries described by Wittmer et al. (2005). The survey area contains portions of three (Wittmer et al. 2005) subpopulations (Wells Gray, Allan and Groundhog). The entire Groundhog and Allan subpopulations defined by Wittmer et. al. (2005) was contained within the survey boundaries for 2008. The Cariboo region did not conduct a survey this year, so the the Wells Gray subpopulation is not estimated.

Methods

Caribou were censused during late winter (March/April) when they are located in the sub-alpine parkland during normal to high snowfall winters. The census was conducted using a Bell 206

helicopter with bubble windows and 3 observers plus a pilot. Within the survey area a contour near treeline (1800-2130m) was flown including all suitable caribou habitat in the study area. Tracks were followed until animals were sighted, unless tracks descended into the timber and were lost from view. An estimate of the number of caribou in these unsighted groups was based on separate tracks and or beds. The flight path and location of each group was marked and numbered on a 1:250,000 map and recorded with a GPS. Animals were only classified consistently to adults and calves. This methodology is considered the standard for obtaining total counts of mountain caribou (RIC 2002).

Between 1996 and 2006 70 caribou were captured by net gunning from a helicopter in the Headwaters Forest District. Caribou were fitted with mortality (motion) sensitive GPS or VHF radio-collars.

Collared caribou were used as marks for mark-resight calculations. Prior to 2004, the number of radio collars sighted by observers in each group was recorded as the number of re-sights. Since 2004, caribou were counted as sighted after scanning for functioning collars using a telemetry receiver after a group was found. This method ensures that all marked animals counted during the survey are identified as marked and that marked animals were limited to a known number of functioning radio-collars. It also allows surveyors to track missing caribou post survey and determine why they were missed and how many animals were in the missed group.

Population estimates were not calculated using the program NOREMARK (1996) using the maximum likelihood joint hypergeometric estimator due to the small number of marked animals in the sample.

Results

Staff from the Thompson Region surveyed winter range of caribou in the Groundhog, Allan Creek and a portion of the Wells Gray and Columbia North subpopulation was surveyed on March 6th, 7th, 31st, April 1st and 2nd, 2008 (Figure 1).

Flight lines were viewed against a backdrop of 1800-2000m contour lines in order to determine the extent of survey coverage. The following areas were not surveyed: the North Thompson watershed upstream of Manteau and the area north of Moonbeam Creek.

Overall the survey coverage area is similar to previous surveys. Notable variation in extent between this survey and previous surveys was the coverage of the upper Adams River, the entire range of the Allan Creek subpopulation, and the upper Clearwater River (Figure 2).

Total survey time was 31 hours excluding ferry and fuel time. Three observers plus the pilot were present except in one helicopter on March 31st, April 1st and 2nd when there were 2 observers plus a pilot. Weather was clear and cool for the survey of Miledge, Allan, Groundhog, Berry and the south end of Wells Gray Park. Weather was poor for the survey of the north end of Wells Gray Park. In general tracks were easy to find, but groups were difficult to find and count, especially below treeline. This is due to the lack of significant snowfall in the five days preceding the survey.

A total of 170 caribou were seen in 23 groups in the survey area, an additional 12 animals were seen in groups tracked using a receiver (Figure 2). Details of all sightings are contained in Appendix A. A total of 30 (or 16.5%) calves were seen. Group size in this survey area varied from 1 to 20, with a mean of 7.3 and median of 6. An additional 13 caribou were estimated from tracks that were followed unsuccessfully.

Five of the 8 animals with functioning radio collars were seen and identified during the survey. The five collars that were located successfully during the census were at Camp Creek (Allan subpopulation), east of McDougall Lake (Wells Gray Park; MU 3-45), Berry Creek (MU 3-40),

east of the Adams River (Groundhog subpopulation; MU 3-42) and in Serpentine Creek (MU 3-43). Two missed collared caribou were located in a group of six on the Berry plateau one day after the census. Another missed group of 6 was tracked with a collared caribou in Lempiere creek after it became clear that we could not spot the group in the trees (although we had found their tracks and had searched extensively).

Only the portion of the Wells Gray subpopulation east of Hobson and Clearwater Lake was surveyed this year, so no population estimate is given. In the Miledge area (MU 3-44 south of the North Thompson River) 4 of 35 caribou observed were calves (11.4%) (this value includes the group of 6 caribou that were tracked using a receiver). In Wells Gray Park, 17 of 101 caribou observed were calves or 16.8%. In the Berry plateau area (MU 3-40) 3 of 14 caribou observed were calves (this value includes a group of 6 that were tracked using a receiver).

The entire Allen subpopulation was surveyed in 2008. One group of 7 (including 2 calves) was found. Tracks from an additional group were located, but the group could not be found. There were a maximum of 11 animals in this group (based on a bed count). The single collar in this area was located during the survey.

There were 23 caribou sighted in the Groundhog subpopulation, including 4 calves. They were located east of the Adams River in an area not normally included in the survey. There were 2 caribou sighted in Serpentine Creek, in MU 3-43.

Other notable sightings during the survey included 2 moose found at the headwaters of Angus Horne Creek at 1800m. There were also 2 moose observed in a slidepath at the headwaters of Serpentine Creek at relatively high elevation. A wolverine kill of a goat was found at Munter Creek, NW of Murtle Lake.

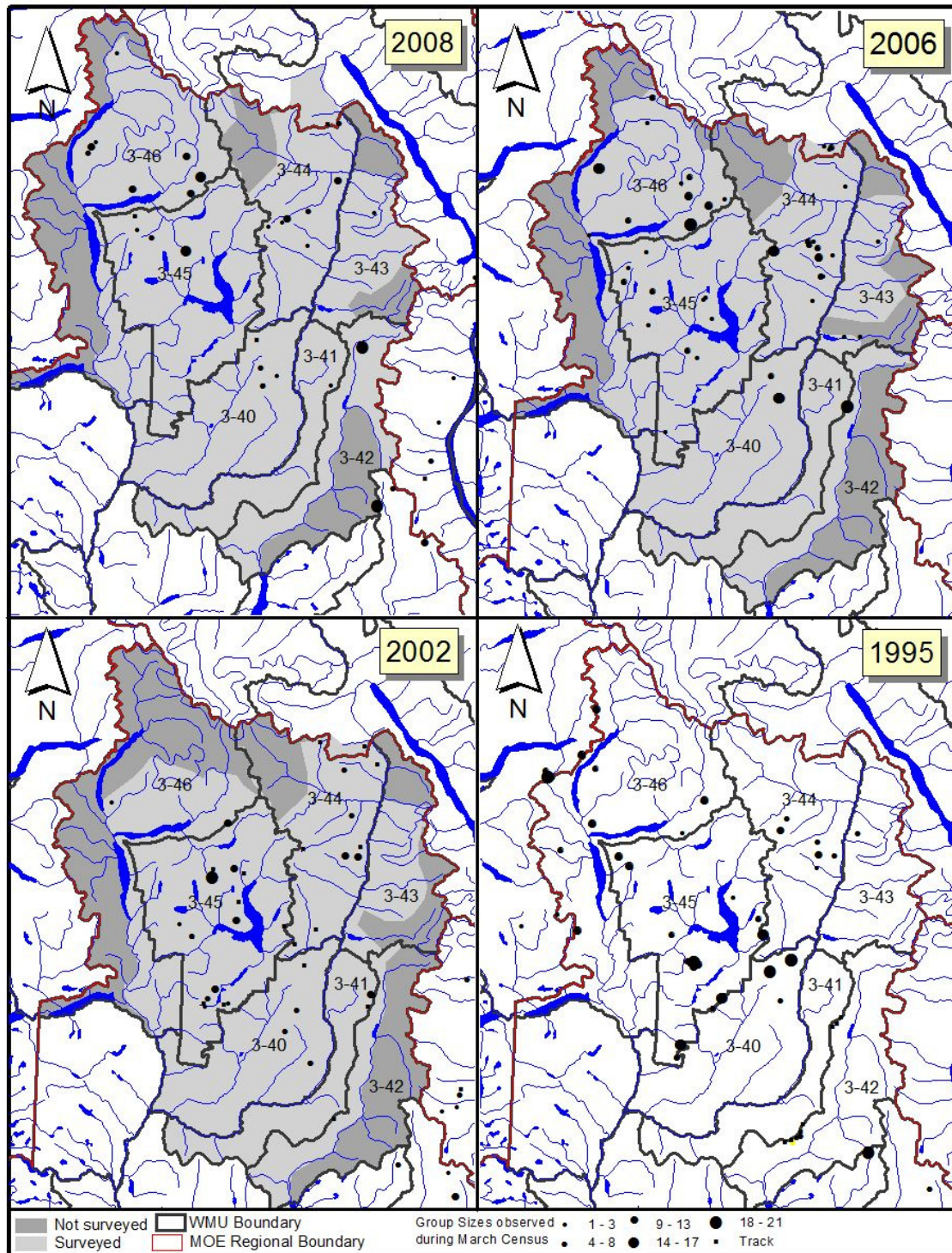


Figure 2. Caribou group sizes observed during census in 1995, 2002, 2006 and 2008. Maps outline the surveyed area in every year except 1995.

Discussion:

Tracking conditions were difficult for portions of this survey. A lack of a substantial recent snowfall often made getting an accurate count of animals difficult. Conversely tracks were virtually impossible to miss. This was most critical in MU 3-44 (Allan and Miledge Creek) and 3-40 (Berry/Avola plateau) where caribou were more often located in the timber. Reflecting this difficulty, the three collars (of 8 total) that we failed to locate during the census were in these areas.

The weather was poor for the survey of MU 3-46 (the North part of Wells Gray Park), but we are reasonably confident we located all groups due to the extensive tracking. Survey conditions for the remainder of Wells Gray Park were good and confidence in the count is good. Survey conditions for the Groundhog survey were not ideal, however, the tracking in the area was so extensive, that it was unlikely that we missed any tracks. The sparse timber in this area provides for easy spotting and the confidence in the count for groundhog is good.

The number of caribou counted in MU's 3-40, 45 and 46 (Wells Gray Park east of Clearwater/Hobson Lakes plus the Berry Creek/Avola plateau) was slightly lower this year (115, 2/4 marks sighted) than in the 2006 survey (126) (6/6 marks sighted). This is up slightly from 109 in 2004 (11/12 marks sighted), but still considerably lower than the number counted in the 80's and 90's (e.g. 246 in 1995) (Furk 2006). Of total caribou observed in this area, 17.4% were calves, similar to the 2006 survey when 18.4% of caribou seen were calves. This is similar to calf percentages reported for Wells Gray Park between 1985 and 1992 (14-18%), lower than the high reported in 1995 (21.5%) and up from 10-12% calves reported in 2002 and 2004.

Notably, there were no caribou or sign observed in the southern half of Wells Gray Park around the Trophy Mountains and Battle Mountain. This is the first recent survey of caribou that has failed to observe caribou or their sign in this area.

The 35 caribou counted in the Miledge area (MU 3-44, south of the North Thompson) was lower than the number observed in 2006 (62). However, tracking conditions this year were poor due to easy traveling conditions, a lack of recent snow, and many caribou being located below treeline. Despite these poor sighting conditions, there is high confidence we found tracks of all groups in the area and it is unlikely we missed a total of 27, suggesting the number of caribou may have declined since 2006. Numbers of caribou reported during surveys in this area are variable between 1990 and 2004 and average 33.8 (range 24-44), however 2006 had the highest count of caribou recorded during surveys between 1990 and 2004. The 2006 survey also reported a high calf percentage (23%) (Furk 2006). The number of calves recorded during surveys was 14-15% in 1999-2004 and 19-21% between 1990 and 1998 (Furk 2006). There were relatively fewer calves seen during this survey (11%), however this may reflect difficulties classifying animals that were running through timber.

Tracking conditions were similarly difficult for the Allan creek area (MU 3-44, south of the North Thompson River). The estimated total of 18 caribou for this year is similar to the 2006 survey (11 observed and 8 tracks) and the 2004 survey (11 observed and 4 estimated from tracks).

The number of caribou observed in the Groundhog population was unchanged from 2006 and has stabilized at less than half the number observed in the late 80's. Calf numbers in this subpopulation have been above 15% since 1999. Most of the caribou in this subpopulation were counted in an area not normally included in the survey boundaries. This area should be included in future surveys. It is possible that this unusual movement is due to snowmobiling activity on Groundhog Mountain.

Two adult caribou seen in MU 3-43 were likely the same two animals seen during the 2006 survey. Surveys have inconsistently covered MU 3-43, and sightings have also been inconsistent

(5 in 1977, 8 in 1979, none in 1988, 9 in 1990, 5 in 1995, none in 1998, none in 1999, none in 2002, 3 in 2003 and none in 2004). Recent telemetry suggests the source of this group of caribou is caribou in Howard and/or Foster Creek that are part of the Columbia North subpopulation.

The percent of the total survey area that were calves was 17%, down slightly from 19% in the 2006. Bergurud (1992) suggested the required stabilizing recruitment of the population to balance out natural mortality of adults was 15-16%. A continued increase in calf recruitment in Wells Gray Park over the 2002 and 2004 surveys is encouraging, however, we have yet to see a corresponding increase in total population.

Recruitment and total numbers are essentially stable across the survey area (compared to the 2006 survey) except for the Miledge area, where numbers and calf recruitment may have declined. However, poor sightability in Miledge area make the confidence in this conclusion low.

Recommendations:

In the future, surveys should continue to be coordinated with staff in each of the adjacent Regions. Allan Creek should continue to be surveyed from the North Thompson River at least as far north as the Canoe River. The northern part of Wells Gray Park (the Clearwater River upstream of Hobson Lake) should be surveyed since caribou were found in this area. Also the Groundhog subpopulation survey should include the area north of Oliver Creek, east of the Adams River, to ensure all caribou habitat is surveyed.

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<http://www.cnr.colostate.edu/~gwhite/software.html>

Appendix

Table 1. 2008 census locations surveyed by staff from the Thompson BC MOE Region. Eight collared caribou were functioning during the census.

DAILY ID	RECORD	DATE	TIME	Counted?	SIGHTIN G ID	ZONE	DATUM	EASTIN G	NORTHIN G	TOTAL	TOTAL W/ TRACKS	CALF	YEARLING	UNCL ADUL
20080201	31	06-Mar-08	9:29	Yes		1	11 NAD 83	349813	5753698	3	3	0		
20080201	32	06-Mar-06	10:12	Yes		2	11 NAD 83	359170	5764955	20	20	4		
20080202	33	06-Mar-08	12:43	Yes		3	11 NAD 83	362535	5804695	2	2	0		
20080203	34	06-Mar-08	13:33	Yes		4	11 NAD 83	352103	5831185	7	7	2		
20080203	35	06-Mar-06	13:50	Yes		5	11 NAD 83	348763	5830815	0	11			
20080204	36	06-Mar-08	8:44	Yes		6	11 NAD 83	343029	5795109	2	3	0		
20080204	37	06-Mar-08	9:35	Yes		7	11 NAD 83	351987	5814278	11	11	3		
20080204	38	06-Mar-06	10:35	Yes		8	11 NAD 83	335549	5801955	1	1	0		
20080204	39	06-Mar-08	10:50	Yes		9	11 NAD 83	336989	5803004	12	12	0		
20080204	40	06-Mar-08	11:24	No		10	11 NAD 83	343314	5805289	6	8	1		
20080204	41	06-Mar-06	12:56	Yes		11	11 NAD 83	331331	5800615	3	3	0		
20080205	42	31-Mar-08	11:35	Yes		12	11 NAD 83	327865	5767331	0	2			
20080205	43	31-Mar-08	12:11	Yes		13	11 NAD 83	329720	5753811	6	6	2		
20080205	44	31-Mar-08	12:11	Yes		14	11 NAD 83	329720	5753811	0	12			
20080205	45	31-Mar-08	14:20	Yes		15	11 NAD 83	329720	5753811	0	2			
20080205	46	31-Mar-08	14:20	Yes		16	11 NAD 83	334014	5756734	2	2	0		
20080206	47	01-Apr-08	10:03	Yes		17	11 NAD 83	297073	5797462	7	7	1		
20080206	48	01-Apr-08	10:20	Yes		18	11 NAD 83	292820	5799594	3	3	0		
20080206	49	01-Apr-08	10:33	Yes		19	11 NAD 83	292141	5803657	0	5			

20080206	50	01-Apr-08 10:33 Yes	20	11 NAD 83	292141	5803657	2	2	0	
20080206	51	01-Apr-08 12:37 No	21	11 NAD 83	329259	5759102	6	6	1	
20080206	52	01-Apr-08 12:48 No	22	11 NAD 83	330288	5757596	6	6	2	
20080207	53	31-Mar-08 15:35 Yes	23	11 NAD 83	308720	5810684	12	12	1	
20080207	54	31-Mar-08 17:35 Yes	24	11 NAD 83	306942	5793432	16	16	3	
20080208	55	01-Apr-08 8:37 Yes	25	11 NAD 83	291530	5811741	11	11	3	
20080208	56	01-Apr-08 9:30 Yes	26	11 NAD 83	279294	5824441	12	12	1	1
20080208	57	01-Apr-08 9:45 Yes	27	11 NAD 83	280685	5825442	3	3	1	
20080208	58	01-Apr-08 9:55 Yes	28	11 NAD 83	278449	5822390	4	4	0	
20080209	56	02-Apr-08 9:36 Yes	29	11 NAD 83	307421	5821651	13	13	2	2
20080209	57	03-Apr-08 11:20 Yes	30	11 NAD 83	286872	5851660	3	3	1	
20080209	58	04-Apr-08 14:30 Yes	31	11 NAD 83	311270	5815274	15	15	4	

Table 2. Details for each day of census in 2008.

Daily ID	Date	Search time (Hours)	Area covered	Subpopulation	Observers
20080201	06-Mar-08	5.92	Groundhog	Groundhog	Kelsey Furk, Dave Jones, John Surgenor
20080202	06-Mar-08	0.45	NE of Blue River	unclassified	Kelsey Furk, Dave Jones, John Surgenor
20080203	06-Mar-08	1.95	Allan Creek	Wells Gray	Kelsey Furk, Dave Jones, John Surgenor
20080204	07-Mar-08	4.10	Miledge Creek	Wells Gray	Kelsey Furk, Dave Jones, John Surgenor
20080205	31-Mar-08	6.50	Trophy Mts and Avola north to Blue River	Wells Gray	John Surgenor, Doug Jury, Sue Lemke
20080206	01-Apr-08	1.95	South of Azure Lake west of Mcdougall Lake	Wells Gray	John Surgenor, Sue Lemke, Francis Iredale
20080207	31-Mar-08	4.62	South of Azure lake, east of Mcdougall Lake, North of Blue River to park boundary plus, North Blue headwaters.	Wells Gray	Kelsey Furk, Dave Jones
20080208	01-Apr-08	1.77	North of Azure lake, west of Ovis Creek/East Creek	Wells Gray	Kelsey Furk, Dave Jones
20080209	02-Apr-08	3.92	Azure River, Hobson R., Upper Clearwater River	Wells Gray	Kelsey Furk, Dave Jones