

# **Population Status of Central Mountain Caribou Herds**

**within British Columbia, 2015**



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## Introduction

Caribou herds living on the east side of the Rocky Mountains, south of the Peace River in British Columbia, and extending south into Alberta to Banff National Park, constitute the Central Mountain Caribou Designatable Unit DU8 (COSWIC 2011, Figure 1). The status of caribou herds within this area are evaluated and designated separately from other caribou populations in Canada.

Several caribou herds occur exclusively within the British Columbia portion of the Central Mountain DU (Figure 2) including:

- i) Scott
- ii) Moberly
- iii) Burnt Pine
- iv) Kennedy Siding
- v) Quintette
- vi) Bearhole-Redwillow subgroup of the Narraway herd

The remainder of the Narraway herd (South Narraway subgroup) is shared by British Columbia and Alberta, and four additional caribou herds in the Central Mountain DU live primarily in Alberta. Information on population status of herds that occur in Alberta can be obtained in the Alberta Woodland Caribou Status Report (Alberta Sustainable Resource Development and Alberta Conservation Association 2010) and in Hervieux et al. (2013).

Caribou in the Central Mountain DU are federally listed as Threatened, but the Committee on the Status of Endangered Wildlife in Canada has recommended that the status be changed to Endangered due to ongoing population declines.

[http://www.cosewic.gc.ca/eng/sct1/searchdetail\\_e.cfm?id=1266&StartRow=1&boxStatus=3&boxTaxonomic=All&location=All&change=All&board=All&commonName=caribou&scienceName=&returnFlag=0&Page=1](http://www.cosewic.gc.ca/eng/sct1/searchdetail_e.cfm?id=1266&StartRow=1&boxStatus=3&boxTaxonomic=All&location=All&change=All&board=All&commonName=caribou&scienceName=&returnFlag=0&Page=1)

This report updates the 2014 population status report for Central Mountain caribou herds occurring in British Columbia (Seip and Jones 2014). Updated information includes;

- i) calf recruitment and adult mortality data for all herds,
- ii) an aerial survey of the Scott and Moberly herds, and
- iii) a total count of Kennedy Siding caribou based on a photo census using remote cameras.

## **Distribution & Ecology**

Caribou herds in the Central Mountain DU are distributed on the eastern and western sides of the central Rocky Mountains (Figure 2). These areas are characterized by marked differences in climate regimes, in particular higher snow accumulation in subalpine and alpine areas on the western side. Differences in habitat use, selection and winter foraging ecology exist among herds depending on caribou herd distribution.

Caribou that inhabit the western side of the Rocky Mountains (Kennedy Siding) migrate from mountainous terrain to low-elevation pine flats in early winter where they crater for terrestrial lichens in open and forested areas, and forage on arboreal lichens in mature-pine forests. Caribou return to alpine and subalpine areas once snow conditions prohibit cratering for terrestrial lichens at low-elevations. The Scott herd historically exhibited a similar seasonal movement pattern, but creation of the Williston Reservoir disrupted this pattern and the caribou now remain in mountainous habitat year-round.

Most caribou that inhabit the eastern side of the Rocky Mountains (Moberly, Burnt Pine, and Quintette) remain in mountainous habitat for the winter. These caribou primarily forage on windswept alpine ridges for terrestrial lichens, but also make use of arboreal lichens in old-growth parkland and subalpine forests.

The Narraway herd winters in low-elevation boreal forests where they crater for terrestrial lichens and forage on arboreal lichens in forests dominated by black spruce, pine and tamarack tree species.

Differences in winter habitat use among herds create different opportunities and challenges in conducting winter population counts.

## **Population Census and Surveys**

Population estimates were obtained using a variety of methods; aerial survey, mark-resight, modelling and a photo census. In the absence of other methods to estimate population we provide a minimum count obtained during calf recruitment surveys. Minimum counts are not population estimates, and do not reliably predict population trends, but they do provide evidence that there were at least that many caribou in the herd in a given year.

The most recent population estimates for the caribou herds in the Central Mountain DU are:

Scott/Moberly	42
Burnt Pine	1
Kennedy Siding	50
Quintette	98 – 113
Bearhole-Redwillow	17
South Narraway	40
<b>Total</b>	<b>248 - 263</b>

The greatest uncertainty regarding these numbers is for the Bearhole-Redwillow and South Narraway subgroups of the Narraway herd. These caribou winter in dense boreal forests and are difficult to locate and count from the air.

### **Calf Recruitment**

Calf recruitment surveys were conducted on an annual basis beginning in March 2003 for the Moberly, Burnt Pine, Kennedy Siding, and Quintette herds. Calf recruitment surveys for the South Narraway subgroup of the Narraway herd commenced in March 2006, and for the Bearhole-Redwillow subgroup of the Narraway herd in March 2007. The first calf recruitment survey for the Scott herd was conducted in March 2013.

Calf recruitment surveys consisted of locating radio-collared individuals from a helicopter in March and counting the number of adults and calves in each group. Additional incidental sightings of caribou groups were also included. The 2015 calf recruitment data for Kennedy Siding was obtained from the photo census. Calf recruitment was defined as the percentage of calves within the total population (number calves/number of adults and calves).

The average calf recruitment rate for most herds in the Central Mountain DU (Table 1) was below the generally accepted level of percent calves required to ensure a stable or increasing population (15-16% of the total population, Bergerud 1992). With exception, the Scott herd had an annual calf recruitment rate slightly above 16%. This estimate is unreliable, however, as it is comprised of only two years of calf recruitment data.

Calf recruitment for herds that winter in the boreal forest (i.e., Bearhole-Redwillow and South Narraway subgroups) was notably lower than calf recruitment for most other herds (Table 1),

and both rates were far below the unsustainable rate of <15-16% calves within the total population (Bergerud 1992).

## **Adult Mortality**

Adult mortality was determined annually (01 April to 31 March) for Moberly, Burnt Pine, Kennedy Siding, Quintette and Bearhole-Redwillow radio-collared caribou beginning in 2003, and for the Scott herd in 2014.

Adult mortality was calculated by dividing the number of caribou that died by the number of caribou that were monitored for the entire year ( $\pm 30$  days to accommodate irregularities in capture and drop-off schedules). We attempted to determine the cause of death for caribou when the collars were recovered, but because telemetry flights occurred only monthly for much of the study period, evidence of cause of death at mortality sites was often minimal and inconclusive.

Annual female mortality rates typically range between 7-15% for caribou populations whose numbers are not declining (Bergerud and Elliot 1986). Adult mortality rates above this threshold indicate that the caribou herd is likely decreasing in numbers. The average adult mortality rate for caribou herds in the Central Mountain DU was above the 15% threshold, with the exception of the Quintette herd (Table 2).

## **Scott and Moberly**

In the past, the Scott and Moberly herds were relatively distinct, although there was some overlap in range use and interchange of animals. In March 2014, a maternity penning project was initiated on the Moberly range, which included moving some Scott caribou into the Moberly maternity pen. Some Scott caribou remained on the Moberly range after release from the pen, resulting in an increased number of caribou on the Moberly range and a reduction in the number of animals on the Scott herd range. We combined the 2015 population, calf recruitment and adult mortality data for the Scott and Moberly herds in order to reflect the current change in distribution.

In March 2014, ten adult female caribou were moved into a predator-proof maternity pen on the Moberly range. All ten females gave birth to a calf, but one of the calves died in the pen due to an accident. The ten adult females and nine remaining calves were released back to the wild in July. Subsequent monitoring of those ten adult females, plus five additional radio-



collared females that had not been penned, detected four mortalities, for an annual mortality rate of 26.7%. The March 2015 calf recruitment count found six calves and 36 adults for a calf recruitment rate of 14.3%. The calf recruitment rate and adult mortality rate were similar to levels found in recent years prior to the implementation of the maternity pen (Tables 1& 2).

In March 2015, a total of eight caribou were counted on the Scott Range, and 34 were counted on the Moberly range, for a total of 42 caribou. This total is similar to combined population numbers reported for Scott and Moberly caribou in previous years (Seip and Jones 2013, Seip and Jones 2014).

Our estimates indicate that Scott/Moberly caribou have been declining. The Moberly herd contained at least 189 caribou in 1995 (Wood 1995) and have been in decline since then (Table 3, Figure 3).

## **Kennedy Siding**

A motion-sensitive trail camera (Reconyx Hyperfire HC500 semi-covert IR cameras) and a salt block were placed at a previously identified salt lick location at Kennedy Siding from 12 October 2014 to 04 January 2015.

Fifty individual caribou (26 cows, 7 calves (one an orphan) and 17 bulls) were identified by the examination of about 70,000 photographs taken with the trail camera. That appeared to be the complete population census of the total number of caribou using Kennedy Siding in fall 2014 because;

- i. each individual adult was recognizable based on their antler structure, except for two antlerless females with different body sizes,
- ii. no new animals were photographed at the salt lick between 27 November 2014 (day 47) and 20 January 2015 (day 101),
- iii. no other caribou were identified elsewhere in Kennedy Siding, based on direct observation or examination of about 34,000 pictures taken with the other trail cameras, and
- iv. all four radio-collared cows in the Kennedy Siding herd were present and photographed at least twice at the salt lick.

Kennedy Siding caribou have averaged a calf recruitment rate of 13.1% and an adult mortality rate of 15.6% over that past 13 years, indicating that the population has been declining. The 50

caribou identified at Kennedy Siding is greater than the 41 caribou estimated during an aerial census in 2012, but still much lower than the 120 caribou counted in 2007 (Table 3, Figure 3).

## **Quintette**

Quintette caribou have averaged a calf recruitment rate of 14.2% and an adult mortality rate of 12.9% over that past 13 years. These numbers should be a reflection of a population that is stable or increasing. A mark-resight estimate for the Quintette herd conducted in 2014, however, indicated that the caribou numbers had declined from 173-218 in 2008 to 98-113 (Table 3, Figure 3).

The Quintette herd had calf recruitment rates below 10% for two years in a row (2012 and 2013, Table 1), followed by two unusually high years of adult mortality (Table 2). This combination may have resulted in a population decline that was not reflected in the annual average rates.

Similarly, numerous collars have gone missing from the Quintette herd over the years and have not been observed during subsequent surveys or capture programs. Those individuals were removed from the mortality calculation. It is likely that those missing animals, however, were somewhat more likely to represent mortalities, and consequently our calculation may underestimate the true adult mortality rate.

## **Bearhole-Redwillow and South Narraway**

The Bearhole-Redwillow and the South Narraway caribou inhabit boreal forests in winter and are difficult to census by aerial survey. Population estimates for these caribou were calculated using a model that predicts probable number of groups in a population based on the distribution of collars in groups during calf recruitment surveys (Tables 4 and 5).

Model estimates and minimum counts indicate that these subgroups have also been experiencing a population decline (Tables 4 and 5, Figure 5).

Average calf recruitment rates for Bearhole-Redwillow and South Narraway caribou (Table 1) were far below thresholds required to support a stable or increasing population (Bergerud 1992). Population growth rates (data provided by the Alberta Department of Environment and Sustainable Resource Development from 2006 to 2012) for South Narraway caribou showed a continuous annual population decline ( $\lambda < 1.0$  in 6 out of 7 years). Low calf recruitment

combined with high adult mortality rates (Table 2) further support evidence that the Narraway caribou population has been declining.

## Summary

A summary of population estimates and minimum herd counts over the past decade indicate that caribou in the Central Mountain DU herds were decreasing in numbers (Table 3, Figures 3 and 5). Data on calf recruitment and adult mortality rates further supports the declining status of these herds (Table 6).

Minimum population counts for caribou herds that inhabit the British Columbia portion of the Central Mountain DU in the past 20 years indicate that there were at least 672 caribou in the recent past, and probably at least 1000. The most current population estimate was approximately 248 – 263 animals (Table 6).

The combination of low calf recruitment and high adult mortality for Central Mountain caribou has resulted in the drastic population declines observed over the past decade. Wolf predation was the cause for over 40% of the 61 adult mortalities investigated since 2002 (Table 7). The rate of wolf predation on adult caribou was likely higher than our estimate as some portion of the unknown predator and unknown cause categories were almost certainly due to wolf predation.

Wolves and caribou co-existed for thousands of years in the south Peace area. The recent declines in caribou have corresponded to a period of extensive industrial activities including forest harvesting, road building, mining, and gas exploration and other development within caribou ranges. It is widely accepted that those habitat changes have altered the predator-prey balance leading to unnaturally high levels of wolf predation and caribou mortality.

A wolf control program was initiated on the ranges of the Scott/Moberly, Kennedy Siding, Burnt Pine and Quintette caribou herds in winter 2015. The impact of that program on caribou recovery will not be evident until March 2016. This March 2015 population status report will provide the pre-treatment data for comparison.

## **Acknowledgements**

Cover photo was taken by Michael Klaczek and caribou feeding photo was taken by Doug Heard. Doug Heard also provided the methodology and results of the photo census for the Kennedy Siding caribou herd. Wildlife Infometrics Inc. conducted the Moberly and Scott aerial survey and provided the caribou count, calf recruitment, and adult mortality data for these herds.

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Table 1. Annual calf recruitment rates for caribou herds inhabiting the Central Mountain Designable Unit within British Columbia, March 2003 to March 2015.

<b>Herd</b>	<b>Year</b>	<b>No. Adults</b>	<b>No. Calves</b>	<b>Total Caribou</b>	<b>Percent Calves</b>
Scott	2013	15	5	20	25
	2014	16	2	18	13
<b>Sum</b>		<b>31</b>	<b>7</b>	<b>38</b>	
<b>Average</b>					<b>18.4</b>
Moberly	2003	25	4	29	14
	2004	16	3	19	16
	2005	31	10	41	24
	2006	4	1	5	20
	2007	8	1	9	11
	2008	34	8	42	19
	2009	42	6	48	13
	2010	21	2	23	9
	2011	33	2	35	6
	2012	22	3	25	12
	2013	15	1	16	6
	2014	18	4	22	18
<b>Sum</b>		<b>269</b>	<b>45</b>	<b>314</b>	
<b>Average</b>					<b>14.3</b>
Scott/ Moberly	2015	<b>36</b>	<b>6</b>	<b>42</b>	<b>14.3</b>
Burnt Pine	2003	14	2	16	13
	2004	12	2	14	14
	2005	8	1	9	11
	2006	15	2	17	12
	2007	-	-	-	-
	2008	11	2	13	15
	2009	11	0	11	0
	2010	19	0	19	0
	2011	5	0	5	0
	2012	1	0	1	0
	2013	-	-	-	-
2014	1	0	1	0	
2015	-	-	-	-	
<b>Sum</b>		<b>97</b>	<b>9</b>	<b>106</b>	
<b>Average</b>					<b>8.4</b>

Table 1. Continued

<b>Herd</b>	<b>Year</b>	<b>No. Adults</b>	<b>No. Calves</b>	<b>Total Caribou</b>	<b>Percent Calves</b>	
Kennedy Siding	2003	34	9	43	21	
	2004	51	9	60	15	
	2005	48	4	52	8	
	2006	75	16	91	18	
	2007	103	17	120	14	
	2008	-	-	-	-	
	2009	56	4	60	7	
	2010	25	3	28	11	
	2011	42	2	44	5	
	2012	35	6	41	15	
	2013	22	4	26	15	
	2014	11	1	12	8	
	2015	43	7	50	14	
	<b>Sum</b>		<b>545</b>	<b>82</b>	<b>627</b>	
	<b>Average</b>					<b>13.1</b>
Quintette	2003	45	13	58	22	
	2004	81	16	97	16	
	2005	55	8	63	13	
	2006	83	13	96	14	
	2007	92	13	105	12	
	2008	147	26	173	15	
	2009	66	9	75	12	
	2010	63	17	80	21	
	2011	88	17	105	16	
	2012	77	6	83	7	
	2013	105	9	114	8	
	2014	58	13	71	18	
	2015	57	9	66	14	
	<b>Sum</b>		<b>1017</b>	<b>169</b>	<b>1186</b>	
	<b>Average</b>					<b>14.2</b>

Table 1. Continued

<b>Herd</b>	<b>Year</b>	<b>No. Adults</b>	<b>No. Calves</b>	<b>Total Caribou</b>	<b>Percent Calves</b>
Narraway (Bearhole- Redwillow Subgroup)	2007	12	1	13	8
	2008	46	3	49	6
	2009	-	-	-	-
	2010	33	1	34	3
	2011	22	6	28	21
	2012	19	3	22	14
	2013	23	1	24	4
	2014	13	1	14	7
	2015	16	1	17	6
<b>Sum</b>		<b>184</b>	<b>17</b>	<b>201</b>	
<b>Average</b>					<b>8.5</b>
Narraway (South Narraway Subgroup) <sup>1</sup>	2006	36	4	40	10
	2007	77	10	87	11
	2008	100	2	102	2
	2009	75	11	86	13
	2010	76	15	91	16
	2011	87	10	97	10
	2012	51	4	55	7
	2013	45	5	50	10
	2014	55	4	59	7
2015	37	3	40	8	
<b>Sum</b>		<b>639</b>	<b>68</b>	<b>707</b>	
<b>Average</b>					<b>9.6</b>

<sup>1</sup>Data provided by the Alberta Department of Environment and Sustainable Resource Development.



Table 2. Annual adult mortality rates for caribou herds inhabiting the Central Mountain Designatable Unit within British Columbia, March 2003 to March 2015. Caribou were only included in adult mortality calculations if monitored for an entire year ( $\pm 30$  days to accommodate irregularities in capture and drop-off schedules).

<b>Herd</b>	<b>Year</b>	<b>No. Collared Caribou</b>	<b>No. Mortalities</b>	<b>Percent Mortality</b>
Scott	2014	<b>4</b>	<b>0</b>	<b>0</b>
Moberly	2003	2	0	0
	2004	6	0	0
	2005	6	0	0
	2006	4	1	25
	2007	4	1	25
	2008	5	3	60
	2009	3	2	67
	2010	5	1	20
	2011	3	1	33
	2012	5	2	40
	2013	3	1	33
	2014	4	0	0
<b>Sum Average</b>		<b>50</b>	<b>12</b>	<b>24.0</b>
Scott/ Moberly	2015	<b>15</b>	<b>4</b>	<b>26.7</b>
Burnt Pine	2003	0	-	-
	2004	2	1	50
	2005	2	0	0
	2006	2	0	0
	2007	1	0	0
	2008	1	0	0
	2009	1	0	0
	2010	3	0	0
	2011	1	1	100
	2012	1	0	0
	2013	1	0	0
	2014	1	1	100
	2015	0	-	-
<b>Sum Average</b>		<b>16</b>	<b>3</b>	<b>18.8</b>

Table 2. Continued

<b>Herd</b>	<b>Year</b>	<b>No. Collared Caribou</b>	<b>No. Mortalities</b>	<b>Percent Mortality</b>	
Kennedy Siding	2003	2	0	0	
	2004	5	1	20	
	2005	9	2	22	
	2006	6	0	0	
	2007	12	1	8	
	2008	9	2	22	
	2009	17	2	12	
	2010	15	2	13	
	2011	14	4	29	
	2012	3	0	0	
	2013	7	1	14	
	2014	6	2	33	
	2015	4	0	0	
	<b>Sum Average</b>		<b>109</b>	<b>17</b>	<b>15.6</b>
	Quintette	2003	2	1	50
2004		3	0	0	
2005		8	0	0	
2006		9	0	0	
2007		8	0	0	
2008		17	2	12	
2009		8	2	25	
2010		10	1	10	
2011		10	1	10	
2012		11	1	9	
2013		11	0	0	
2014		16	5	31	
2015		11	3	27	
<b>Sum Average</b>			<b>124</b>	<b>16</b>	<b>12.9</b>

Table 2. Continued

<b>Herd</b>	<b>Year</b>	<b>No. Collared Caribou</b>	<b>No. Mortalities</b>	<b>Percent Mortality</b>
<b>Narraway (Bearhole- Redwillow Subgroup)</b>	2008	5	2	40
	2009	6	1	17
	2010	3	2	67
	2011	6	0	0
	2012	7	1	14
	2013	4	0	0
	2014	5	2	40
	2015	2	1	50
<b>Sum Average</b>		<b>38</b>	<b>9</b>	<b>23.7</b>

Table 3. Annual population estimates for caribou herds inhabiting the Central Mountain Designatable Unit within British Columbia, 1997 to 2015.

<b>Herd</b>	<b>Year</b>	<b>Population Estimate</b>	<b>Estimate Method</b>
Scott	2007	22	Aerial Survey
	2013	22	Mark-Resight
Moberly	1997	191	Aerial Survey
	2011	35	Mark-Resight
	2012	25	Mark-Resight
Scott/Moberly	2015	42	Minimum Count
Burnt Pine	2003	16	Minimum Count
	2008	13	Mark-Resight
	2011	5	Aerial Survey
	2012	1	Mark-Resight
	2014	1	Total Count
Kennedy Siding	2002	99 - 119	Aerial Survey
	2007	120	Minimum Count
	2011	44 - 57	Mark-Resight
	2012	41	Mark-Resight
	2014	25 - 35	Mark-Resight
	2015	50	Photo ID Census
Quintette (Alpine)	2008	173 - 218	Mark-Resight
	2013	114 - 129	Mark-Resight
	2014	98 - 113	Mark-Resight (Partial)

Table 4. Population estimate for Bearhole-Redwillow caribou using model predictions based on the observed distribution of collared caribou among groups during calf recruitment surveys. The total count (minimum population) of caribou observed during the calf recruitment surveys is also reported.

<b>Year</b>	<b>Mean Group Size <math>\pm</math> 95% CIs</b>	<b>Minimum Mean Group Size Possible</b>	<b>Most Probable No. Groups in Herd (Model Prediction)</b>	<b>Population Estimate</b>	<b>Population Estimate Range (95% CIs)</b>	<b>Minimum Count</b>
2007	4 $\pm$ 6 <sup>1</sup>					13
2008	10 $\pm$ 5	5	7 - 10	80	35 - 150	49
2010	7 $\pm$ 4 <sup>1</sup>					34
2011	7 $\pm$ 6	4	8 - 9	56	32 - 117	28
2012	7 $\pm$ 9	7	3	21	21 - 48	22
2013	6 $\pm$ 6	3	8 - 9	48	24 - 108	24
2014	5 $\pm$ 6 <sup>1</sup>					14
2015	6 $\pm$ 4	4	5	30	20 - 50	17

<sup>1</sup> Due to distribution of collars (all groups had only 1 collared caribou) model predictions for the most probable number of groups were unreliable.

Table 5. Population estimate for South Narraway caribou using model predictions based on the observed distribution of collared caribou among groups during calf recruitment surveys. The total count (minimum population) of caribou observed during the calf recruitment surveys is also reported.

<b>Year</b>	<b>Mean Group Size <math>\pm</math> 95% CIs</b>	<b>Minimum Mean Group Size Possible</b>	<b>Most Probable No. Groups in Herd (Model Prediction)</b>	<b>Population Estimate</b>	<b>Population Estimate Range (95% CIs)</b>	<b>Minimum Count<sup>3</sup></b>
2006	7 $\pm$ 2 <sup>1</sup>					40
2007	7 $\pm$ 4	5	15 - 18	116	78 - 207	87
2008	6 $\pm$ 1	4	27 - 29	179	139 - 221	102
2009	4 $\pm$ 1	2	44 - 51	176	103 - 262	86
2010	5 $\pm$ 1 <sup>1</sup>					91
2011	6 $\pm$ 2		14 - 100 <sup>2</sup>	106	51 - 849	97
2012	3 $\pm$ 1	2	23 - 28	79	53 - 112	55
2013	5 $\pm$ 3	4	10 - 12	50	43 - 95	50
2014	8 $\pm$ 6	5	10 - 12	93	48 - 175	59
2015	7 $\pm$ 4	7	5	33	33 - 72	40

<sup>1</sup> Due to distribution of collars (most groups had only 1 collared caribou) model predictions for the most probable number of groups was unreliable.

<sup>2</sup> Based on unusual collar distribution (1 group contained 9 collared caribou) there was no difference in probabilities for number of groups from 14 to 100. 100 was the highest number of groups tested as it was highly unlikely that the Narraway herd contained more than 100 groups.

<sup>3</sup>Data provided by the Alberta Department of Environment and Sustainable Resource Development.

Table 6. Summary of population parameters for caribou herds inhabiting the Central Mountain Designatable Unit within British Columbia, 2015.

<b>Herd</b>	<b>Average Percent Calves</b>	<b>Average Adult Mortality Rate</b>	<b>Current Population Estimate (Year)</b>	<b>Population Estimate Method</b>	<b>Trend</b>
Moberly/ Scott	14 - 18	24 – 27	42 (2015)	Minimum Count	Declining
Burnt Pine	9	19	1 (2014)	Total Count	Extirpated
Kennedy Siding	13	16	50 (2015)	Photo ID Census	Declining
Quintette	14	13	98 - 113 (2014)	Mark- Resight Adjusted	Declining
Bearhole- Redwillow	9	24	17 (2015)	Minimum Count	Declining
South Narraway	10	-	40 (2015)	Minimum Count	Declining

Table 7. Causes of adult mortality for caribou herds inhabiting the Central Mountain Designatable Unit within British Columbia, 2002 to 2015.

<b>Herd</b>	<b>Accident</b>	<b>Wolf</b>	<b>Bear</b>	<b>Wolverine</b>	<b>Unknown Predator</b>	<b>Unknown</b>	<b>Total</b>
Scott	0	2	0	0	1	1	4
Moberly	1	4	0	0	3	4	12
Burnt Pine	0	1	0	0	0	2	3
Kennedy Siding	2	7	1	1	4	2	17
Quintette	0	5	1	1	2	7	16
Bearhole-Redwillow	0	6	0	0	0	3	9
<b>Total</b>	<b>3</b>	<b>25</b>	<b>2</b>	<b>2</b>	<b>10</b>	<b>19</b>	<b>61</b>



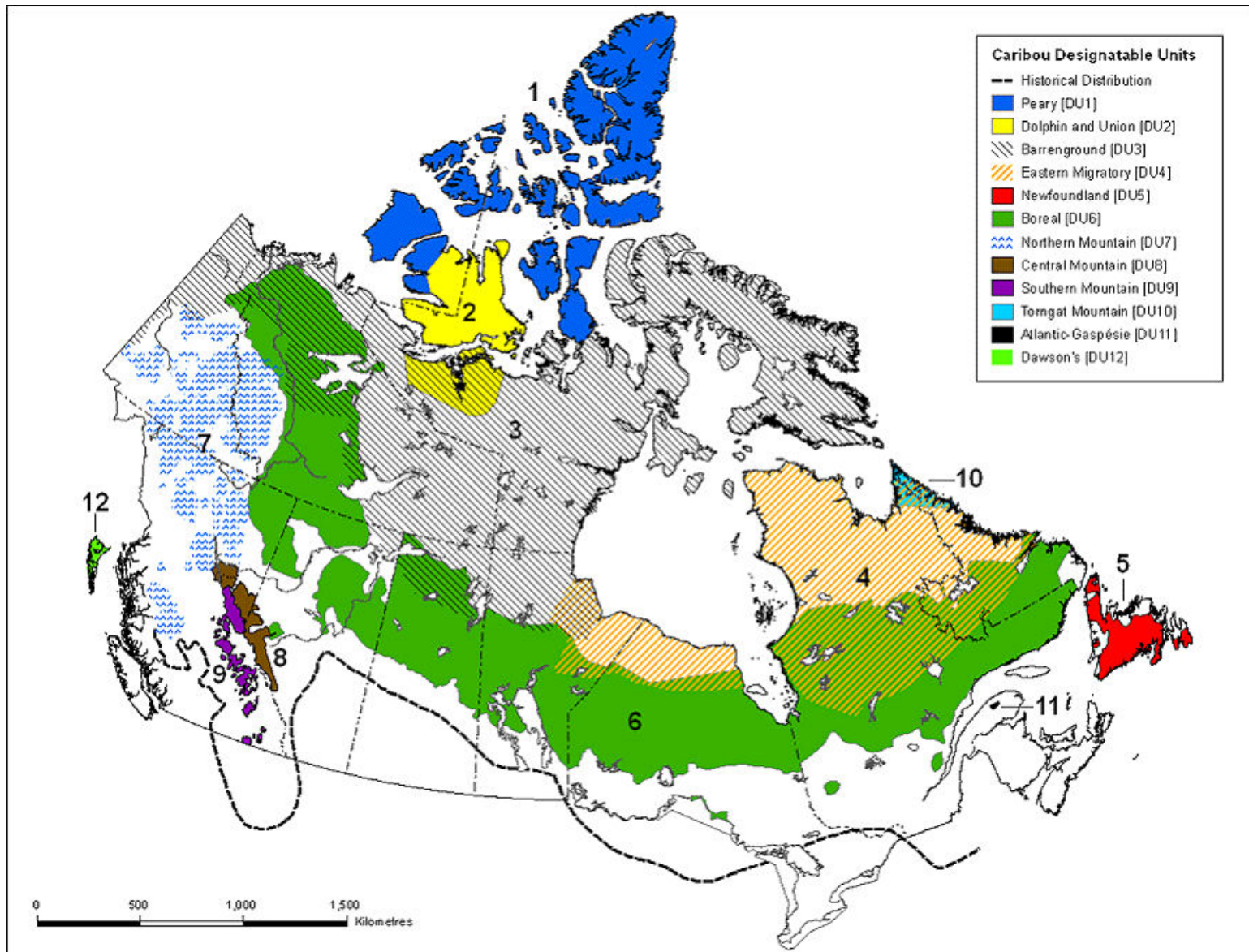


Figure 1. Caribou Designatable Units (DUs) in Canada.

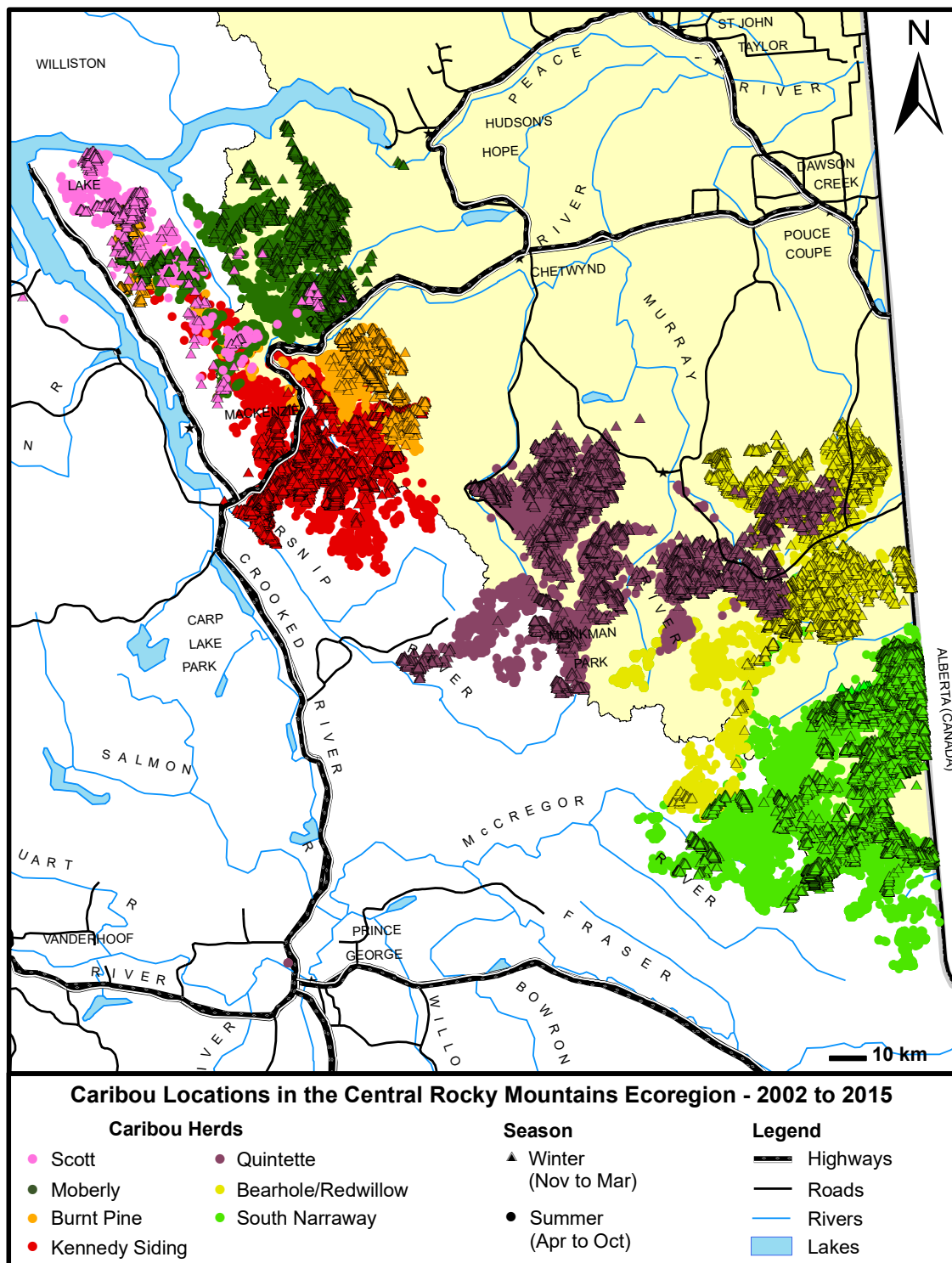


Figure 2. Radio-telemetry and GPS-collar locations of caribou herds in the Central Rockies Ecoregion of British Columbia, May 2002 to March 2015.

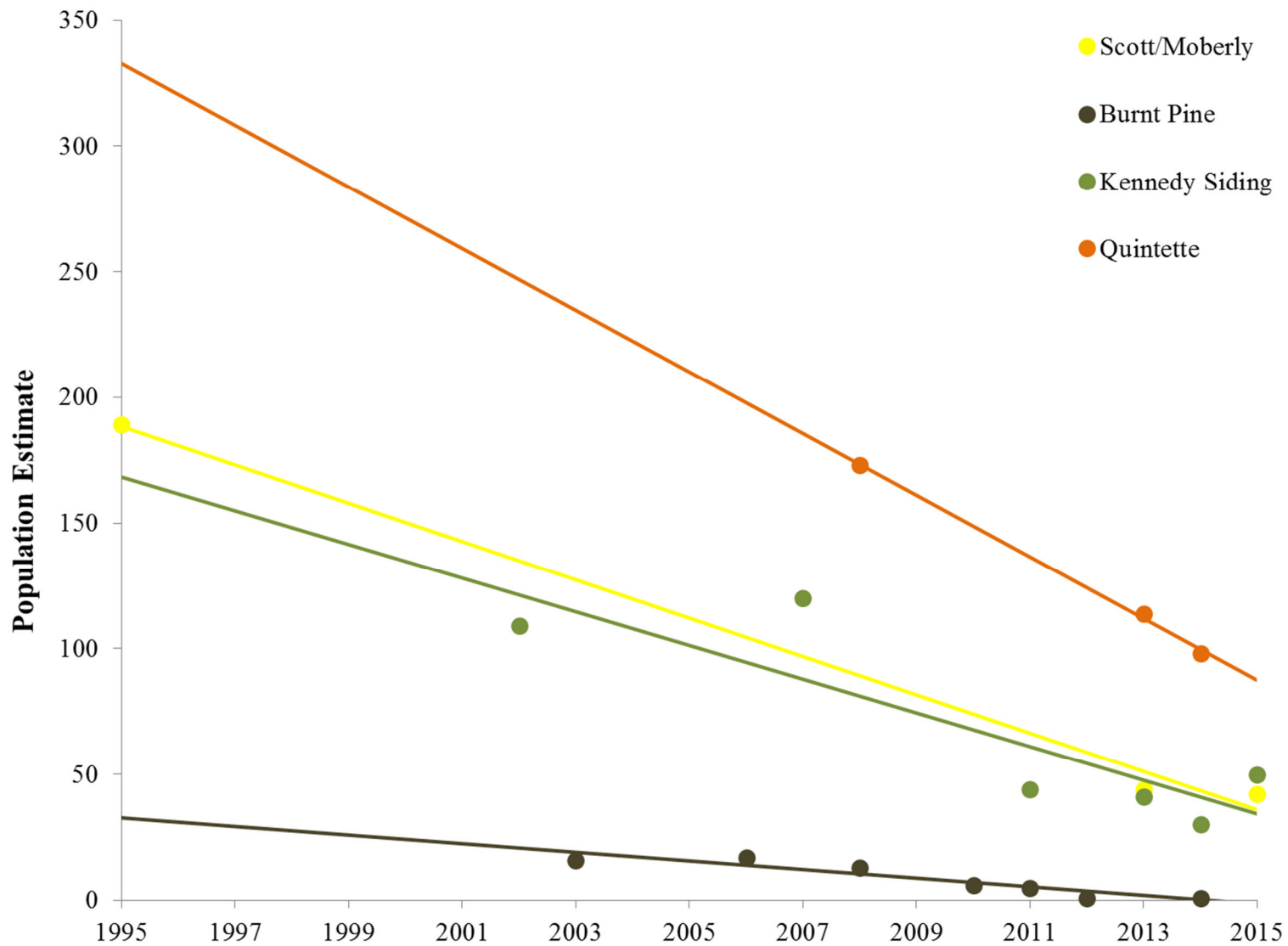


Figure 3. Population estimates and trends for caribou herds inhabiting the Central Mountain Designatable Unit within British Columbia, April 2015.



Figure 4. Example of a photograph taken by remote camera for the Kennedy Siding caribou photo census.

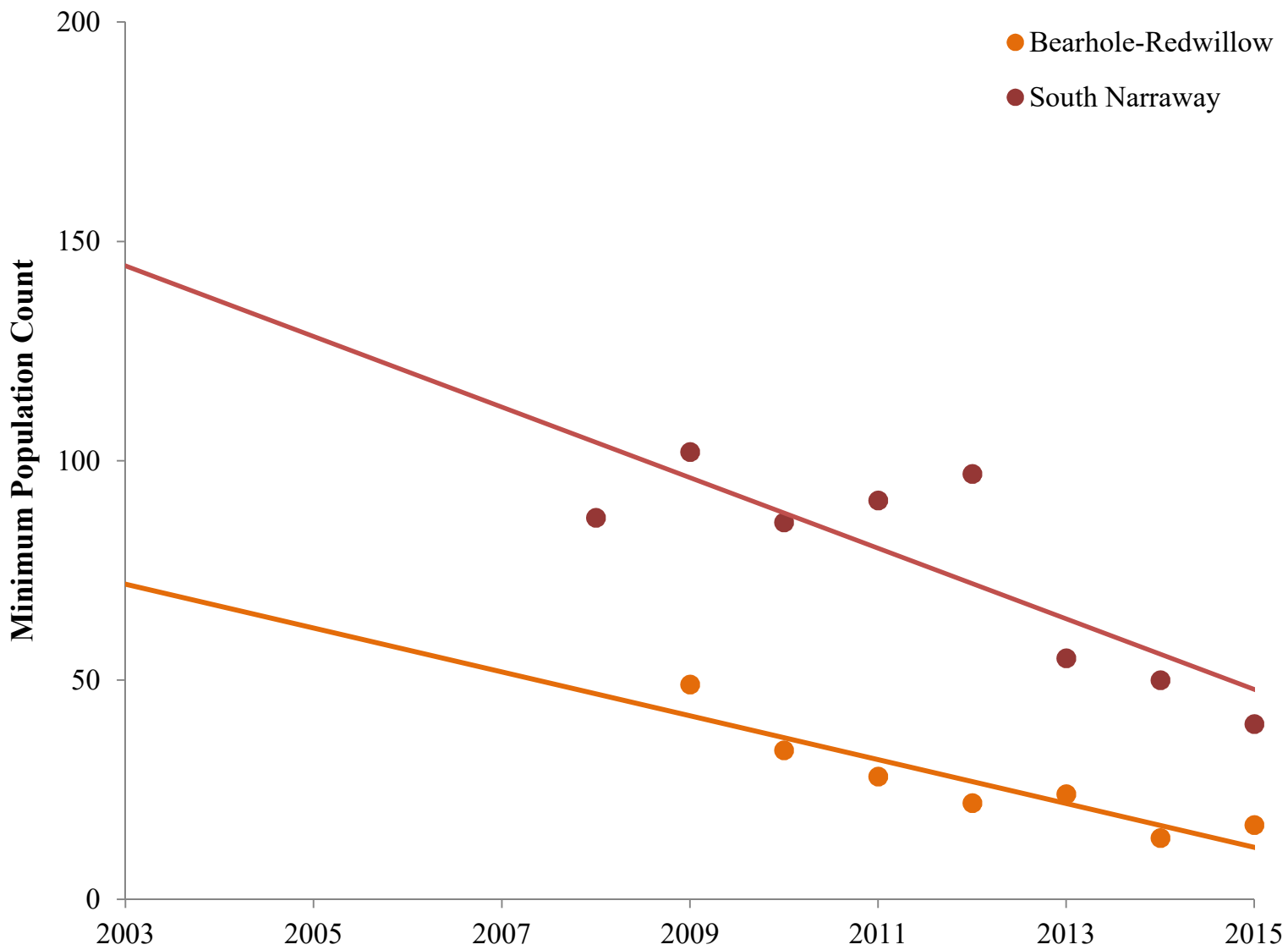


Figure 5. Minimum population counts and predicted population trends for caribou herds inhabiting the Central Mountain Designatable Unit within British Columbia, April 2015.