

Itcha-Ilgachuz and Rainbow Caribou Herd Population and Habitat Information

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

1 ITCHA-ILGACHUZ CARIBOU HERD

1.1 ITCHA-ILGACHUZ POPULATION

Since 2003 the Itcha-Ilgachuz caribou herd population has declined steadily (Figure 1). The most recent estimate from 2018 is 637 animals (Fig. 1). The population trend is considered to be *decreasing* and has declined by 77.3% since 2003. The population trend over the past 4 years (2014-2018) has been declining at an average rate of -17.2%. The Itcha-Ilgachuz population increased from a low of about 350 animals in 1977 to 2800 animals in 2003. A portion of this increase is likely due to improved aerial survey techniques over this time period.

In general, caribou populations increase when annual recruitment exceeds the 15-16% required to balance natural adult mortality and maintain population stability (Bergerud 1992). Between 1996 and 2003, neo-natal recruitment for the Itcha-Ilgachuz herd averaged 25.8% in June while late winter (annual) recruitment was 17.0%. During this period survey effectiveness was improved through more extensive search and having radio-collared animals. Both real population increases and more thorough surveys contributed to higher population estimates.

Beginning in 2004, population estimates began decreasing (Figure 1) and calf recruitment has remained below population replacement levels since 2003 (Figure 2). In 2007, a post-calving survey estimated the population to be 2100 caribou, which was a 25% decrease from the most recent survey in 2003, which counted 2800 caribou. Poor survey conditions contributed to the low count in 2007. However, follow-up surveys under excellent conditions in 2009 and 2012 resulted in population estimates of 2150 and 1600 caribou, respectively. The 2007 and 2009 survey results found stable female numbers but declining calf, bull and yearling numbers relative to 2002–03. Adult female mortality, based on radio-collar data, was 8.7% in 2012–13 and 33.3% in 2013–2014, which is a high mortality rate (McNay and Cichowski 2015).

Although spring calves (estimated from June aerial surveys) remained relatively high from the 1990s to 2017, the sharp reduction in late winter calf percentages from 2002-2016 suggests that a reduction in recruitment is contributing to population declines. However, the percent of spring calves in June 2018 dropped by 17%, from 27% to 10%. Given that the percent of calves generally has fallen by 10-15% between June post-calving and March recruitment surveys since 2004, the significantly lower number of spring calves in June 2018 may result in little to no recruitment for the herd for the 2018-2019 year.

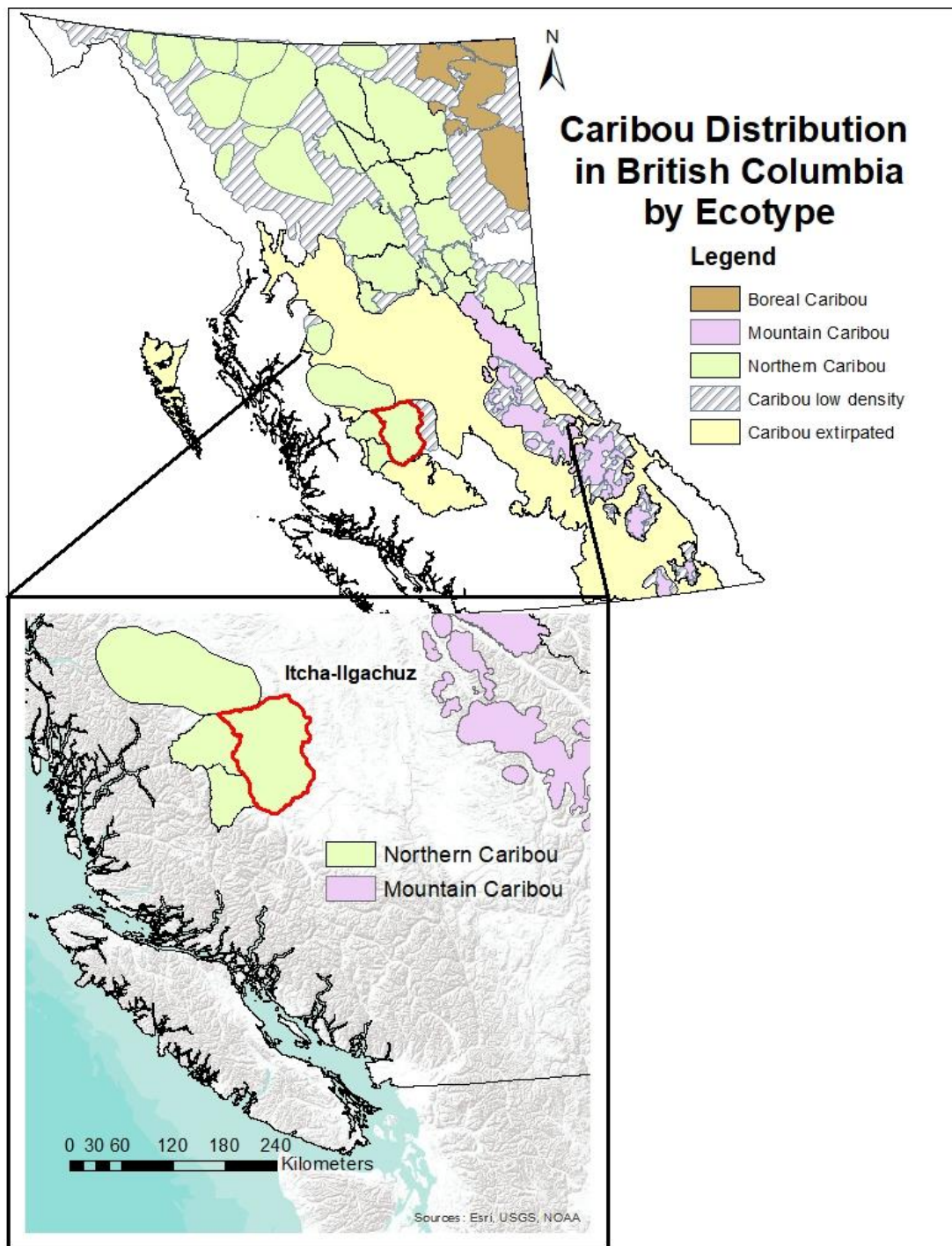


Figure 1: The geographical location of the Itcha-Ilgachuz subpopulation of woodland caribou. The 9,457 km² range (inset: red outline) is situated within the Cariboo Region of west-central British Columbia.

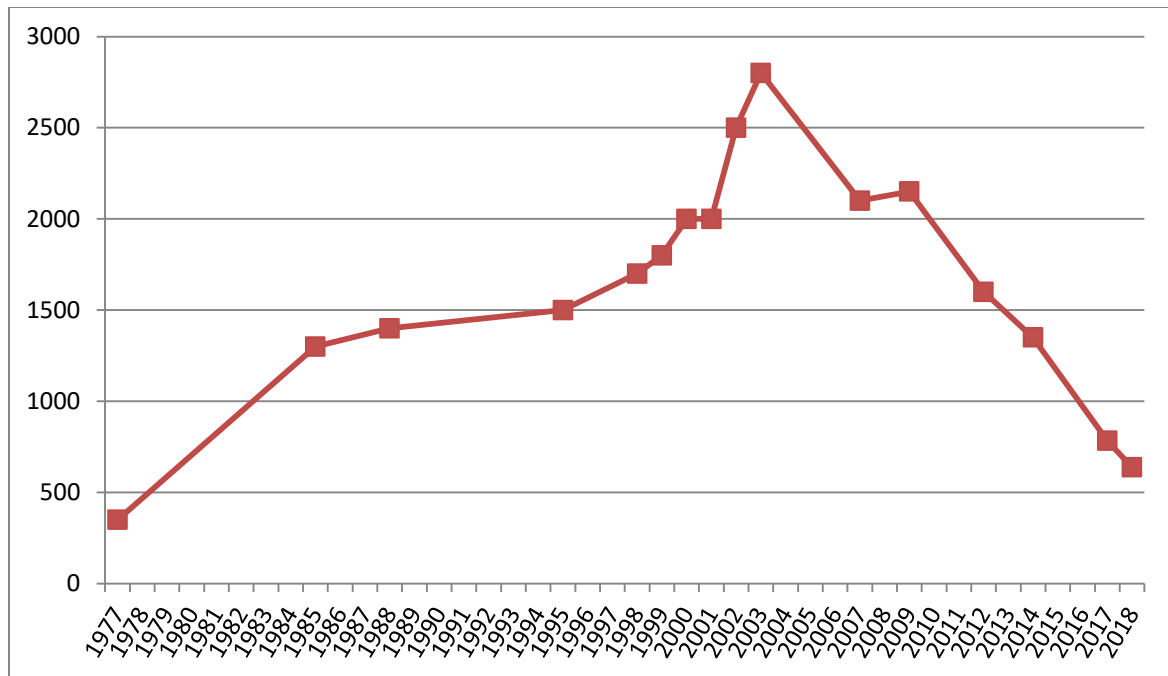


Figure 1: Sightability-corrected population estimates from 1977-2018 for the Itcha-Ilgachuz subpopulation of northern mountain caribou. Population estimates are derived from June post-calving surveys. The population estimate is calculated by applying a sightability correction factor based on the number of collared animals seen to the number of animals counted in the aerial survey.

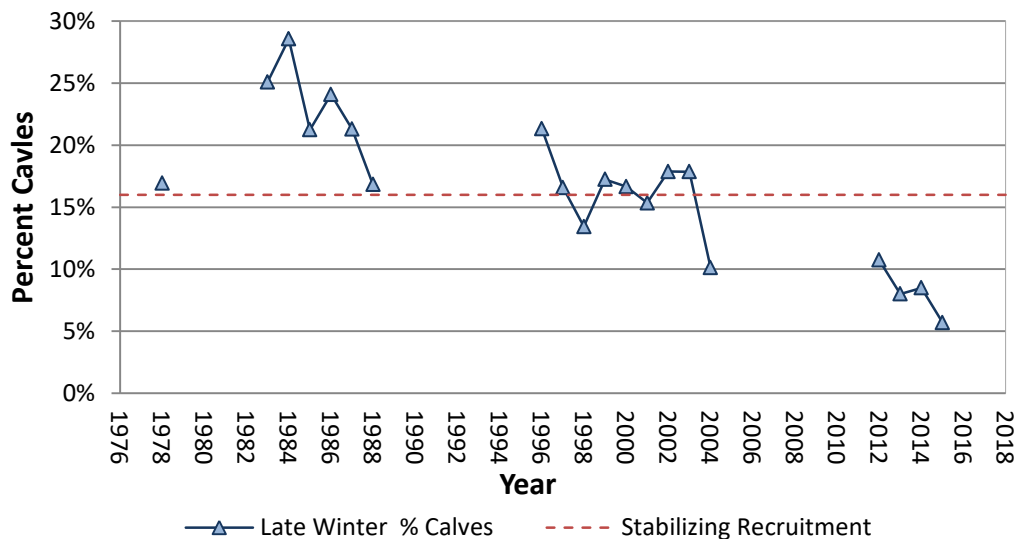


Figure 2. Calf recruitment for the Itcha-Ilgachuz caribou herd, as estimated by the percent of calves in the total number of caribou counted during late winter (March) aerial surveys.

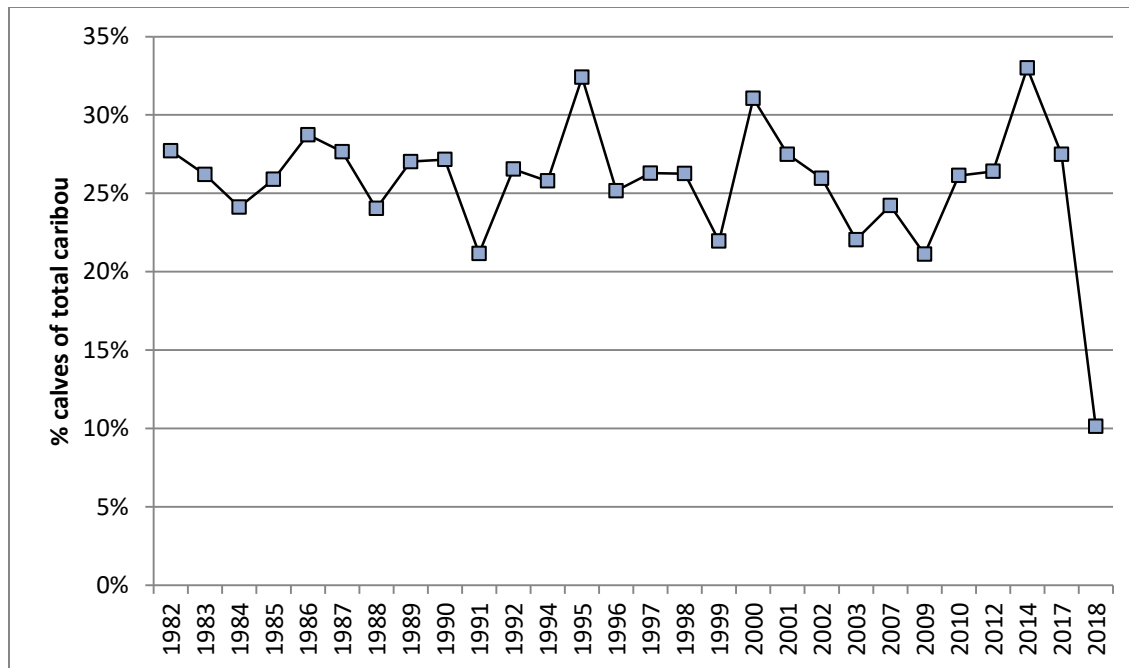


Figure 3. June post-calving survey % calves of the total number of caribou counted during aerial surveys from 1982-2018.

1.2 ITCHA-ILGACHUZ HABITAT

During the winter, Itcha-Ilgachuz caribou have two habitat use strategies: low-elevation forest dwelling and high-elevation alpine dwelling. The majority of caribou in the Itcha-Ilgachuz herd use the low-elevation forest dwelling winter strategy and winter in low-elevation pine forests north, east and south of the Itcha-Ilgachuz mountain ranges. The small minority remain on windswept alpine slopes in Itcha-Ilgachuz Provincial Park. Itcha-Ilgachuz caribou calve near treeline within low-elevation summer habitat or within the high-elevation summer habitat areas of Itcha-Ilgachuz or Rainbow Provincial Park. Areas of proposed road upgrades for the Anahim Connector road are 3.5 km away from potential calving grounds used by the Itcha-Ilgachuz caribou herd. Itcha-Ilgachuz caribou move between their herd range into the Tweedsmuir herd range using the low-elevation area between Eliguk and Moose lake between Tweedsmuir and Itcha-Ilgachuz Provincial Park. Itcha-Ilgachuz caribou also move into the Rainbow herd range over the Dean River Valley.

Of the 878,261 hectares (ha) total of Itcha-Ilgachuz critical habitat delineated by the Itcha-Ilgachuz herd boundary, 22% (193,470 ha) is within provincial parks or “no harvest” caribou Wildlife Habitat Areas (WHAs). 25% (219,152 ha) of the herd’s critical habitat is within modified timber harvest areas with timber harvesting practices designed to maintain lichen, the main winter forage of caribou. The majority (97.3%) of the Itcha-Ilgachuz herd’s low-elevation winter habitat is subject to timber harvesting. 26.8% of the herd’s low-elevation winter habitat is within conditional harvest WHAs which have timber harvesting strategies that protect lichen, the main forage for caribou. Disturbance in the herd’s range exceeds the threshold of 35% recommended by Environment and Climate Change Canada (ECCC) to maintain caribou populations. ECCC specify that within Low Elevation Winter Range,

management should strive to keep 65% of the habitat in an undisturbed state, or inversely to keep disturbance below 35%. Disturbance is not restricted to anthropogenic activities and includes natural disturbances such as wildfire. Currently, 69% of the Itcha-Ilgachuz herd's low-elevation critical winter habitat is disturbed. Disturbance is defined as timber cutblocks, roads, private residences, and wildfires, surrounded by a 500 meter buffer.

2 RAINBOWS CARIBOU HERD

2.1 RAINBOWS POPULATION SIZE AND TRENDS

The Rainbows herd's 310,128 hectare range encompasses high elevation habitat in the Rainbow Range and low elevation wintering habitat north of Charlotte Lake and west of the Dean River corridor. Additional wintering habitat is located on the northern slopes of the Ilgachuz Range. Animals are generally separated from the Itcha-Ilgachuz herd to the east by the Dean River although telemetry studies have documented multiple movements between the Rainbow Range and Ilgachuz Range. The Rainbow herd is separated from the Tweedsmuir herd to the north by Eutsuk and Tetachuck Lakes, which are manmade lakes created by the Nechako/Alcan dam.

The Rainbows herd has been monitored through a combination of spring post-calving, fall rut, and late-winter recruitment surveys. The population estimates are derived from aerial surveys conducted in the fall (October). The Rainbows' population estimate has been decreasing since a peak estimate of 175 in 1995. The most recent population estimate, from 2016 was 40 animals, down 20% from the 2008 estimate of 50 animals (Figure 4). The long term (three generation) trend for the Rainbows herd is *declining*, with an average annual rate of change of -6.4% (1996-2016). The Rainbows' post-calving percent calves has shown high variability with a low of 14% in 1997 and a high of 45% in 1987 (Figure 5). The current percentage of calves in the population immediately after calving in June is unknown as the last spring survey was in 2001. Annual calf recruitment for the Rainbows caribou, as measured during late winter surveys, is available from 1996 through 2003 (Figure 5). Recruitment averaged 10%, with 7 out of 8 surveys indicating recruitment well below levels required to maintain a stable population, which is 15%.

2.2 RAINBOWS HABITAT

Rainbow caribou calve in alpine habitat within Tweedsmuir and Itcha-Ilgachuz Provincial Park, and during spring they migrate for calving to the north side of the Ilgachuz mountains, crossing over the Dean River migration corridor. During the winter, Rainbow caribou have two habitat use strategies similar to the Itcha-Ilgachuz caribou herd: low-elevation forest dwelling and high-elevation alpine dwelling. The majority of caribou in the Rainbow herd use the low-elevation forest dwelling winter strategy, and will migrate to the north side of the Ilgachuz Mountains or the Upper Dean River Area. Alpine dwelling rainbow caribou, which are a small minority of the caribou in this herd, remain in the high-elevation alpine environments in Tweedsmuir.

Within the Rainbow herd's 310,128 ha range, 53% is protected from timber harvesting and industrial development, mostly within Tweedsmuir Provincial Park. Most of the herd's high elevation

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winter and summer habitat (92%) is protected in Tweedsmuir Provincial Park. However, all of the herd's low elevation winter range is subject to timber harvesting. 18.5% of the herd's low-elevation summer habitat is protected from timber harvesting. 18.7% of the herd's habitat is designated as a modified timber harvest WHA, with a silvicultural strategy designed to maintain terrestrial and arboreal lichen, the main forage for caribou. The disturbance levels in the Rainbow herd's critical habitat are above the 35% disturbance threshold in low-elevation winter range recommended by Environment and Climate Change Canada (ECCC) to maintain caribou populations. Disturbance within the Rainbow herd's Low Elevation Winter Range is 67% when considering timber harvest, roads and wildfires with a surrounding buffer of 500 meters.

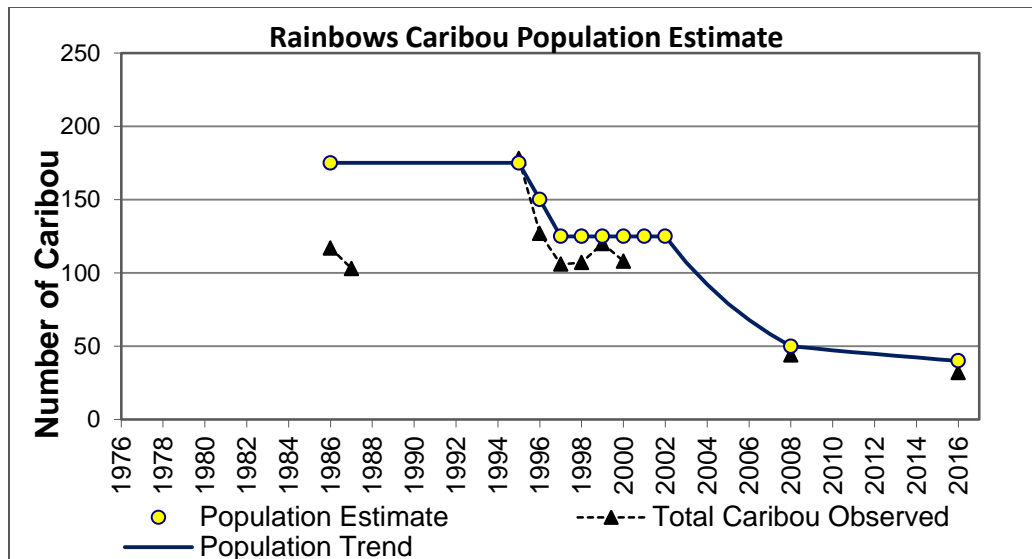


Figure 2. Total observed caribou and population estimates for the Rainbows caribou herd from 1974 to 2016.

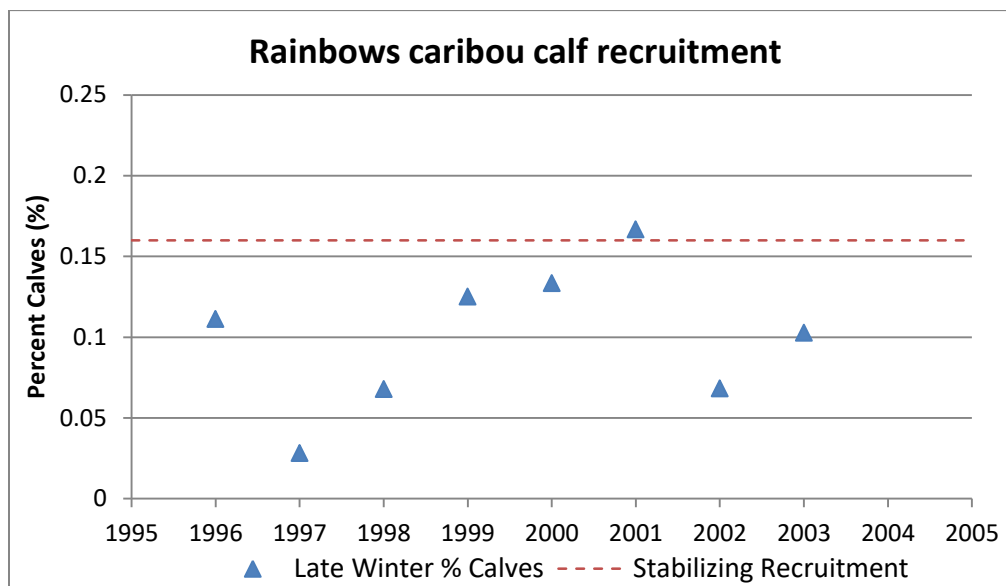


Figure 5. Late winter (March) calf recruitment for the Rainbows caribou herd from 1996 to 2003.