GAME MANAGEMENT UNIT 13

Nelchina Caribou Herd

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DESCRIPTION

Game Management Unit 13 contains approximately 23,400 square miles of diverse wildlife habitat between the Chugach Mountains and the Alaska Range. The unit is bordered on the west by the Susitna River drainage and on the east by the Copper River. Road access from major population centers, relatively open terrain, well developed ATV trails, and abundant moose and caribou populations have drawn thousands of hunters into Unit 13 every fall for decades. It is a hunting area for urban Alaskans as well as rural residents living within the unit.

NELCHINA CARIBOU HERD (NCH)
BIOLOGICAL STATUS:

Since the mid 1990s the goal for managing the Nelchina Caribou Herd (NCH) has been stabilization at 35 – 40,000 caribou. At this level, history has shown this herd will maintain good calf weights and moderately high productivity. Keeping this herd stabilized has been an ongoing management experiment considering the natural tendency of caribou populations to peak and crash.

	Herd Estimate	Calves/100cows Summer	Fall	#Tier II permits issued	# Tier II caribou taken	Tier II hunt dates	# Other NCH * permits	Total NCH harvest
1998	38,554	54	38	10020	2474	8/10-9/20;10/21-11/20	3480	3319
1999	31,365	32	23	8015	2017	8/10-9/20	2939	2456
2000	29,602	31	20	2000	765	8/10-9/20;10/21-3/31	2665	1090
2001	33,745	44	40	1996	982	8/10-9/20;10/21-11/22	2668	1500
2002	34,381	52	48	2003	966	8/10-9/20;10/21-3/20	2723	1344
2003	30,141	39	35	2005	752	8/10-9/20	2749	1087
2004	36,677		45	1869	894	8/10-9/20	2731	1261
2005	36,428	52	41	4001	2177	8/10-9/20;10/21-3/31	2748	2816
2006			40	5496	2503	8/10-9/20;10/21-2/4	2793	3090
2007	32,569	48	35	3003	966	8/10-9/20	2586	1391
2008			40	2500	1053	8/10-9/20	2783	1372
2009	33,837	44	29	None	None		3655	810
2010	*43,370*	65		*2500*		10/21-*3/31*		

Table 1. Population and harvest data for the NCH (preliminary data in italics)

*Other NCH hunts include Federal FC412/513/514, State DC590, State RC460 (1998), Ahtna Community Hunt (2009), State RC566 (2009-2010)

The NCH has been near or within population objectives for over a decade. To maintain this stability, harvest must equal the available harvestable surplus each year. The NCH model takes into account the annual population estimate, fall recruitment (calf) data, harvest, and survival estimates. For the past decade, the annual harvestable surplus has averaged 5% of the herd and has ranged 3-9%.

In 2005 the herd estimate was just over 36,000 caribou. Given several years of conservative harvests, good productivity data, and increasing survival estimates, the herd trend was positive. An unusually cold spring disrupted normal post calving grouping of caribou, preventing a photocensus in 2006. Given excellent pregnancy rates that year and good fall composition data, continued herd growth was expected. In 2007, a photocensus was conducted. Unexpectedly, the summer count came in below population objectives at 33,744. Due to higher than predicted calf loss over the summer, the final fall estimate was even lower.

When the herd is below management objectives, harvest pressure is reduced. For the 2007-08 hunting season, the harvest quota was lowered to 1400 caribou. Poor weather conditions precluded a count in 2008, and composition data had to be used again to predict the available surplus. The harvest quota was held at 1400. In 2009 environmental conditions again precluded a photocensus, although a conventional count was conducted from fixed-wing aircraft. These counts are minimum estimates. Despite model predictions indicating an increasing trend, the herd appeared to be stable just below the population objective.

Without observing the desired increase in the herd, the harvest quota was reduced to 1000 caribou in 2009. Given the new harvest regulations, it was difficult to predict hunter effort or success. Excluding the community hunt, the final total 2009-2010 harvest was 682. The total 2009-2010 harvest was 810 caribou.

CURRENT YEAR

On 9 July 2010 a photocensus produced a count of 44,954 caribou. During the composition survey, 65 calves:100 cows were observed – the highest calf ratio ever recorded for this herd. This equates to nearly 15,000 calves, or 33% of the total herd. May calving surveys supported the fact that initial productivity was very high. Once the fall composition survey is completed in early October, a final herd estimate will be calculated. It is expected to be somewhat lower than the summer count due to calf mortality.

The preliminary harvestable surplus (quota) calculated in July, was established with the goal of bringing the herd back to the upper end of the population objective (40,000). By modeling annual survival and productivity, the preliminary harvestable surplus as of July for 2010-2011 was 2300 caribou (1500 bulls and 800 cows). The final quota will be established using fall composition survey data.

To date, the preliminary 2010-2011 harvest is < 700 caribou. The fall migration has already begun, with small groups of caribou crossing the Richardson Highway near Meier's Lake heading NE. By November, it will be evident what proportion of the herd will overwinter in Unit 13. In some years as little as 10% of the herd winters in Unit 13; these mostly concentrate along

the Denali Highway. If this is the case this winter, the winter season may need to be closed by Emergency Order to protect these small overwintering groups.

If the 2009-2010 total harvest falls short of the quota, the result will be a higher quota next year.

FUTURE CONSIDERATIONS

Annual factors influencing harvestable surplus

The annual harvestable surplus of Nelchina caribou is largely dependent on two factors: productivity and survival. Female 4-month calf weights have improved since the mid 1990s when the herd was allowed to swell to 50,000. Average calf weights improved from 115 lbs (1995-1999) to 121 lbs (2007-2009). The lowest fall average of 107 lb was observed in 1996, the year after the herd peaked. The herd is currently healthy and able to consistently produce an average of 50 calves / 100 cows each summer. Nelchina caribou habitat evaluation throughout the 1970s and 1980s, combined with current productivity data supports the current population objective of 35 – 40,000 animals. If the herd remains above this objective or continues to grow, habitat degradation could occur and reductions in productivity are likely.

While wolf numbers have been reduced across Unit 13 due to an ongoing Intensive Management plan for moose, effects on the NCH are not clear. The difference in calf:cow ratios between summer and fall composition surveys dropped dramatically between 2000 and 2001, although calf loss has apparently increased since 2003. Overwinter survival has also been highly variable in recent years. When caribou migrate to Units 12 and 20E for the winter, higher losses due to wolf predation are evident.

Annual Timeline for Field Work, Quotas, and Permit Numbers

Keeping the NCH stabilized requires close monitoring of several biological factors over the course of the year, and it depends on our ability to achieve the harvestable surplus year after year.

The recent change to a November-December application period for hunt applications creates complicated scenarios for achieving the NCH desired harvest (if permits are to be awarded through this process).

The current 2010-2011 season has been an example of how a conservative initial estimate of harvestable surplus, made nearly a year before the hunt, can cause confusion. Due to a higher than expected summer count, the initial harvestable surplus of 1000 was changed to 2300 in July, just before the fall caribou season opened. In a year without legal hurdles, this would have resulted in considerable additional hunt opportunity, particularly for the fall season.

If all NCH permits are awarded through the application process, the timeline is as follows:

Time period	Action
Mid September	An initial harvestable surplus and number of permits estimated for the following regulatory year
Early October	Fall composition survey flown; final herd estimate calculated
Nov-Dec	Hunt applications are submitted for the following regulatory year
Feb-Mar	Hunt permits are awarded for the following regulatory year
Late March	Current regulatory year hunt ends
Mid June	Compilation of current regulatory year total harvest is nearly complete
Early July	Herd count and summer composition survey are completed, and harvestable surplus is refined for new regulatory year *Scenario 1:* If the initial harvestable surplus was underestimated, then more permits need to be issued within weeks *Scenario 2:* If the initial harvestable surplus was overestimated, then too many permits were issued, and the hunt will likely need to be closed earlier than initially expected
Mid August	Fall hunt begins
Mid September	Fall hunt ends
Early October	Fall composition survey flown; final herd estimate calculated and harvestable surplus for current regulatory year is further refined and finalized
Late October	Winter hunt begins

Caribou movements and related harvest data

Nelchina herd movements and timing can be highly variable year to year. Herd size, weather, and predation all affect herd movement patterns and caribou accessibility.

The most predictable aspect of caribou movements are calving timing and location. The NCH calves from May to June in western 13A north of Eureka and west of Lake Louise. In July, the herd begins to disperse throughout Unit 13. Any given year, caribou can be available August 10th in several accessible areas between the Parks, Glenn, Richardson, and Denali highways. During mid September caribou begin to group for the rut. Most years, caribou rut near the Richardson and the Denali highways. They can be highly accessible one year, and mostly off the road system the next.

The state fall caribou hunt in Unit 13 closes September 20th; the winter hunt opens October 21st. By this time, many caribou have already migrated NE across the Richardson Highway and the Gakona River into 13C and Unit 11. By November, winter caribou distribution can be assessed. Caribou remaining in Unit 13 generally winter along the Denali Highway, and include small numbers of caribou often referred to as the Upper Susitna Herd. In recent years, the Delta caribou herd has also started to utilize this area during the fall and winter.

The following figures of radio collared cow caribou provide a recent look at these patterns.

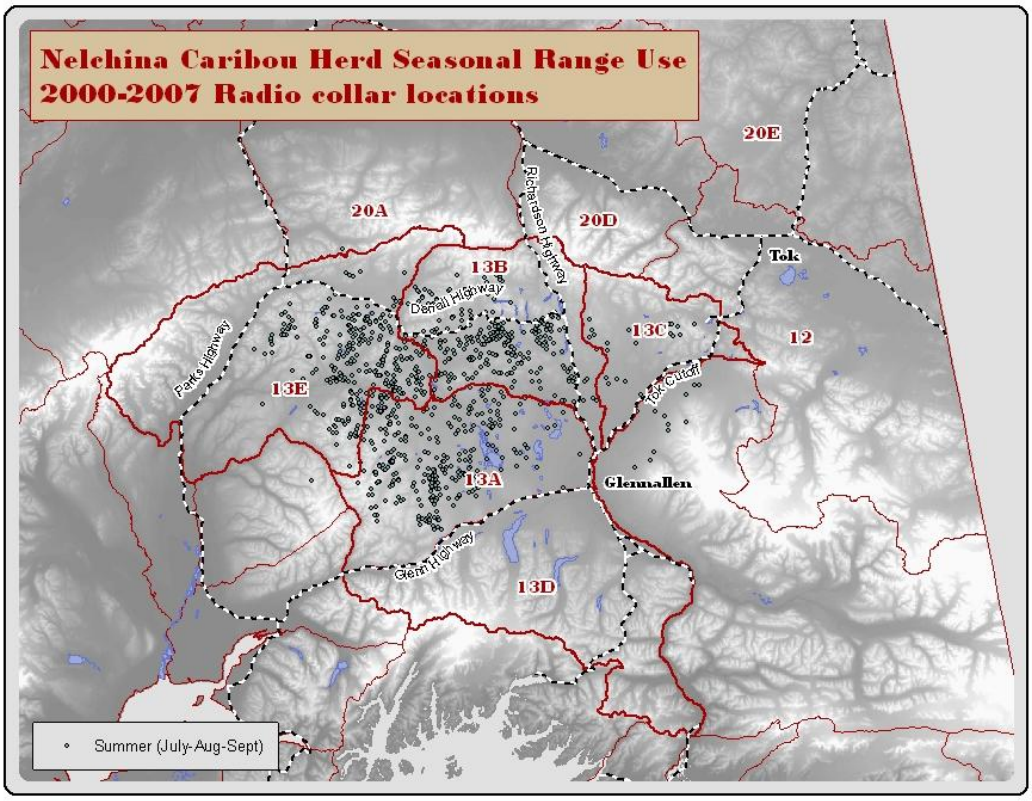

Figure 1. NCH female radio locations post-calving, July, August, and September (2000-2007)

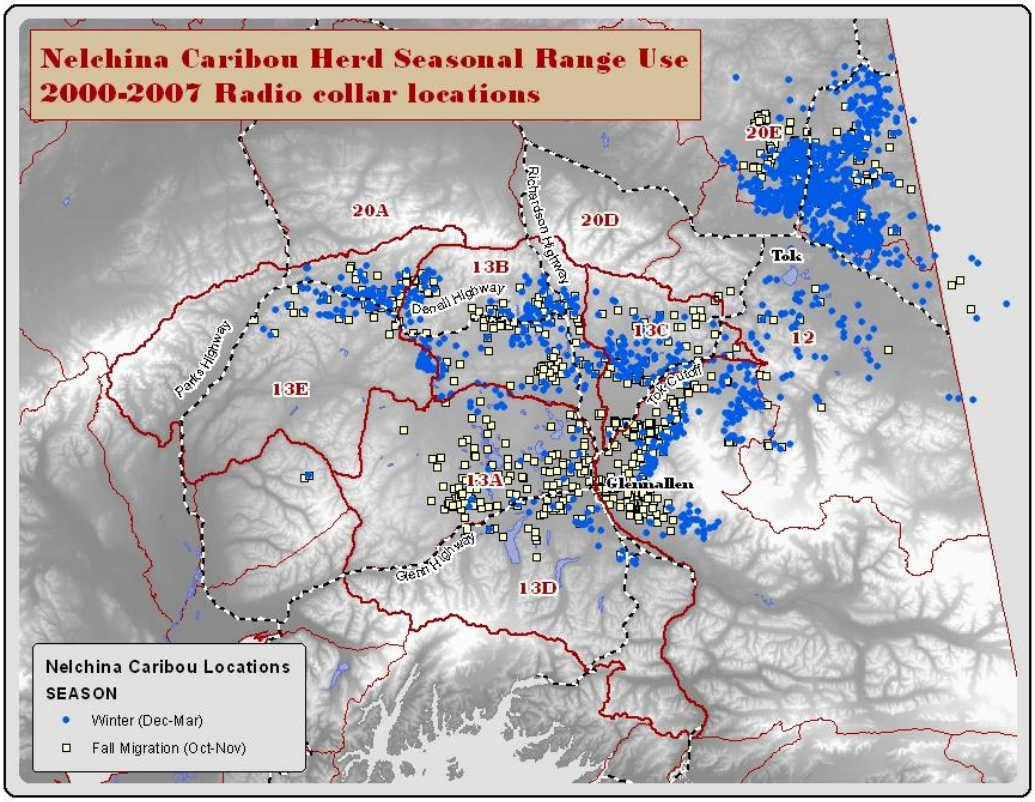

Figure 2. NCH female radio locations late fall / winter, October - March (2000-2007)

Harvest patterns reflect the migratory nature of the NCH. Given the large hunt area allowed under NCH Tier II hunts since 1995 (all of GMU 13), hunters have been able to harvest caribou throughout the fall season (unlike the federal hunts which occur on small land corridors which caribou migrate through). The bulk of the Tier II harvest has occurred during the fall (Figure 3) season considering caribou availability has been less reliable during the winter hunt. In some years the harvest quota was met during the fall hunt, and the winter season was closed by Emergency Order.

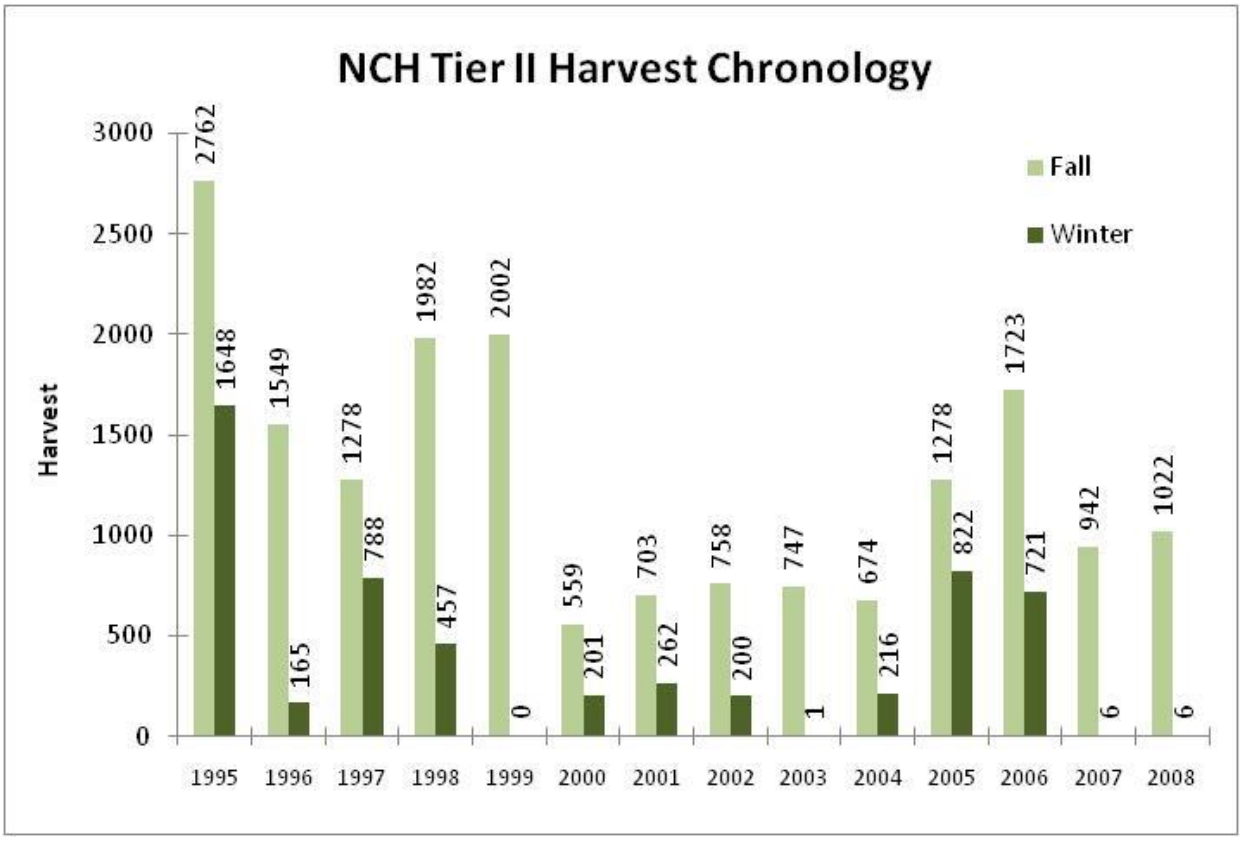

Figure 3. NCH Tier II harvest by season