

Memo to: Moose files

From: Wildlife Biologist (Mason Reid)

Subject: 2003 Moose Surveys

On 3-4 December 2003, Harley McMahan and I performed moose surveys between Boulder Creek and the Copper River. This area was selected due to the following factors: a) the area is near where a significant moose harvest takes place (along the Nabesna Road), b) the area had been surveyed by Neil Barten/Harley McMahan in 1996, providing information for comparisons to be made, c) the area had been surveyed using the non-stratified technique by Bill Route in 1993, and d) the area abutted the Mt. Drum trend count area used by ADFG since 1969, and so would provide a more robust estimate of moose demographics in the western Wrangells.

In 2001, while funds were available for moose counts, I contacted a variety of people across the state, from a variety of agencies, to help determine what method was the most effective for determining moose populations within WRST. Interestingly, there was no consensus of opinion. Methods considered included trend counts (attempting to cover all moose habitat within an area and classifying all animals observed), non-stratified Gasaway (1986), and the ver Hoef method (2001, 2002). Interestingly, the non-stratified Gasaway technique (Dale et al. 1994), developed in WRST with Bruce Dale (ADFG), was not used by any other agency, and Dale recommended using trend counts so as to be able to maintain efforts.

Without having performed moose surveys myself (and having arrived in WRST in summer 2001), and not having adequate direction on methodology, I elected to familiarize myself with habitat and classification by flying selected areas with Jim Hannah WRST Ranger/Pilot, who had flown moose surveys with Carl Mitchell, the previous Wildlife Biologist. In FY03, a severe (70%) reduction in the wildlife program funding precluded moose surveys (as well as a variety of other projects). With such variation in available funding, I was reluctant to try to integrate an expensive, but statistically valid, moose survey protocol into the wildlife program for fear it could not be maintained. Thus, I chose to use more economical methods (trend count) to ensure that some information could be collected on a repeatable basis. Should funding allow in future years, the trend count can be augmented with randomized intensive surveys to provide the statistical rigor currently preferred. The NPS Vital Signs Monitoring Program contains moose surveys as a high priority, and currently the ver Hoef survey methodology is planned. This may be implemented as early as FY06.

Methods

The area surveyed was the same used by Barten (1996), extending from the upper Copper River (north of Black Mt.) south to Boulder Creek. Surveys included most of the likely moose habitat within the boundaries. With Harley's knowledge of the area, and his experience with WRST and other moose surveys, I relied heavily on him to cover the

likely areas. Classification of moose followed that of all previous surveys in WRST, based on Gasaway (1986). Moose were classified as follows: cow, calf, yearling bull, medium bull (less than 50" antler spread), and large bull (greater than 50" antler spread). All moose locations and flight lines were collected using a GPS (Garmin Map76S). While in the air, the moving map on the GPS facilitated survey coverage and identifying previously classified moose.

Results

A total of 331 moose were counted and classified (Table 1, Figure 1) during 7:57 hours of survey time. Calf recruitment was relatively low (9.8 calves : 100 cows), but bull counts (45.1 : 100 cows) were similar to that found previously in WRST (Table 2), but lower than the ADFG Mt. Drum trend count area, which has averaged 84.2 bulls : 100 cows from surveys conducted 1969-2003.

	Bulls				Cow/calves					Unk	Total
	Small	Med	Lg	Total Bulls	Cow	cow/1	cow/2	Total Cows	Total Calves		
Observed	25	43	29	97	195	19	1	215	21	0	333
Per 100 Cows	11.6	20.0	13.4	45.1					9.8		

Table 1. Moose observed during Upper Copper River trend count area, Wrangell-St. Elias NPP, 3-4 December 2003.

Count Area	Year	Total	Calves : 100 Cows	Bulls : 100 Cows	Source
Upper Copper	2003	331	9.8	45.1	WRST
Upper Copper	1996	367	13.2	48.5	WRST
Mt. Drum	2003	138	15.0	115.0	ADFG
Tetlin NWR	2003	564	34.7	85.2	USFWS

Table 2. A comparison of regional moose surveys. Tetlin NWR survey was a modified Gasaway (ver Hoef 2001), while the others were trend counts.

Discussion

Compared to other surveys conducted in the region, the Upper Copper River trend count shows lower calf survivorship and lower bull counts. However, such a comparison is problematic in that little is known of the movements of this segment of the population, and so there may be age/sex class biases to this sample. Also, this is the first year of this survey (actual flight path of the 1996 survey is not known). Repeated annual efforts should begin to show trends in what is only an index of the population.

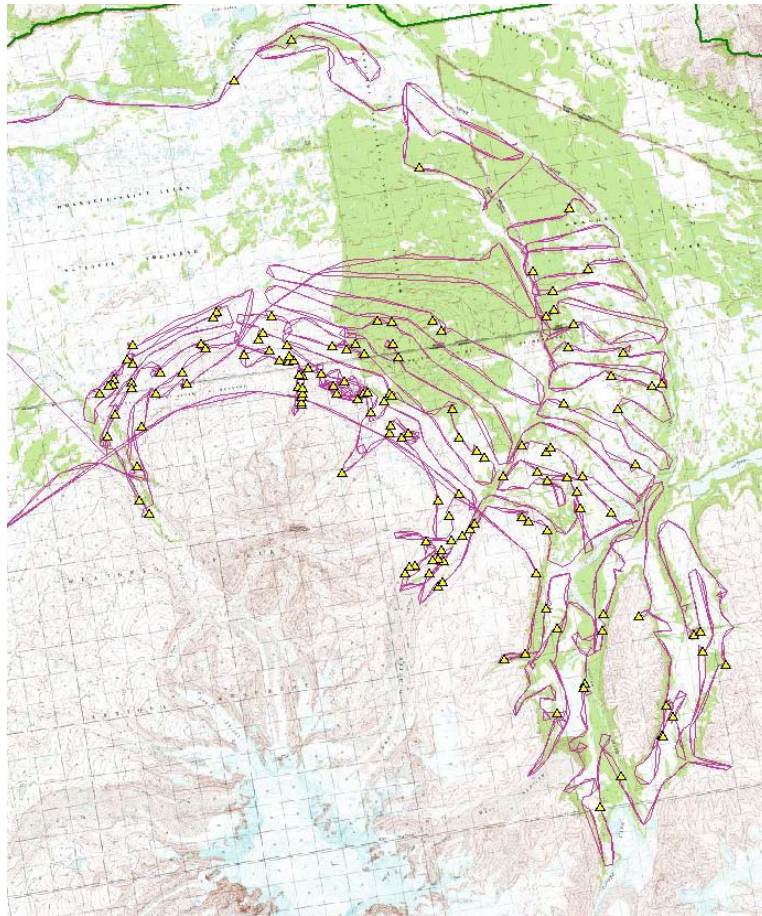


Figure 1. Flight path and locations of moose observed, 3-4 December 2003.

Literature cited

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