Item #14: Moose and Mountain Goat Populations

Evaluation Objectives: To evaluate the changes in the population status of moose and mountain goats on the forest and the relationship of population changes to forest management practices.

Methods: Moose and mountain goat populations are monitored using MT FWP permit, harvest data, and aerial counts. The Flathead National Forest participated in a partnership in 2005 with MT FWP for goat monitoring. State hunting district (HD) boundaries for moose and mountain goats differ from each other and differ from the general HDs used for deer and elk. Harvest numbers are reported from those HDs that overlap National Forest System (NFS) lands. Hunting districts for moose are from a low of about 14% NFS lands in HD 112 up to 100% in HD 150. Hunting Districts for goats have a higher percentage of NFS lands and range from about 60% for HD 131 and 95 - 100% for the remaining HDs. It is assumed, due to the habitat preferred by moose and mountain goats, that all hunting within the HDs occurs on the forest. Moose and mountain goat harvest data have a lower error rate in that all hunters are permitted, the permit numbers are few in number, and permits are HD specific. Harvest information up to 2006 is found at http://fwp.mt.gov/hunting/planahunt/harvestreports.html.

Evaluation: Moose harvest data are reported for the 1998 - 2006 period (Table 14-1). Harvested moose numbers tend to be higher in the northern portions of the forest, the North Fork of the Flathead River Drainage and the Tally Lake Ranger District. Moose harvest has decreased from the early 1990s when highs were due to an increase in the number of permits and harvest allowed, and also from a more accurate monitoring of the Native American harvest. Table 14-2 displays total moose harvest values from the 1986 – 1997 reporting period.

Mountain goat harvest data from the forest are reported for the 1998 - 2005 period (Table 14-3). Mountain goats are associated with high elevation rocky terrain and tend to occur at low numbers across the more remote portions of the forest. The highest goat numbers occur along the mountain range dividing the South and Middle Forks of the Flathead River. Table 14-4 displays total goat harvest values from the 1986 – 1997 reporting period.

Table 14-1. Estimated Moose Harvest on Forest by Hunting District From 1998 to 2005.

Year	110	111	112	130	140	141	150	Total Harvest from Hunting Districts within NFS lands
1998	9	17	12	4	3	4	2	51
1999	7	15	5	4	4	5	2	42
2000	7	17	4	4	5	2	1	40
2001	6	14	3	2	5	2	1	33
2002	8	9	5	4	5	5	1	37
2003	10	8	3	2	4	5	1	33
2004	10	9	4	4	4	5	2	38
2005	9	9	5	2	5	4	1	35
2006	12	9	5	5	3	5	1	40
Ave								**39**

Table 14-2. Estimated Moose Harvest on Forest by Hunting District from 1986 to 1997.

Year	110	111	112	130	140	141	150	Total Annual Harvest from Hunting Districts within NFS lands
1986	21	24	3		4	4		56
1987	21	20	4		4	6		55
1988	16	18	8		5	8		55
1989	23	32	11		7	6		79
1990	34	32	12	3	15	4		100
1991	27	35	12	3	13	9		99
1992	32	46	10	3	16	7		114
1993	30	40	13	3	13	7		106
1994	29	39	13	3	13	5		102
1995	30	35	12	2	7	8		94
1996	24	23	6	3	8	5	1	70
1997	13	27	13	3	4	7	2	69
Ave								**81**

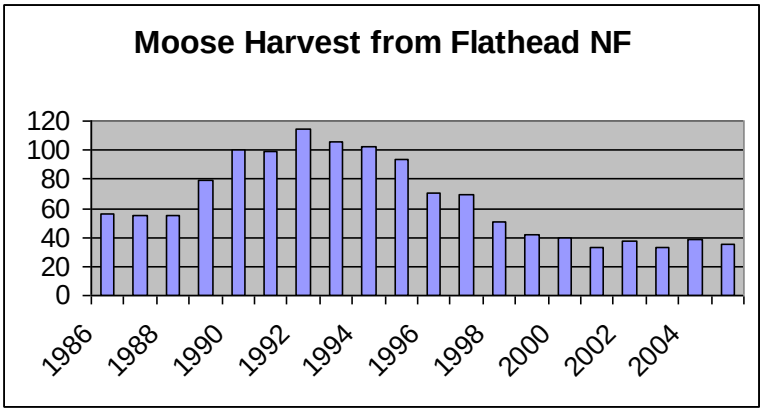

Figure 2 – Moose Harvest on the Flathead NF from 1986 to 2004

Table 14-3. Mountain Goat Harvest on Flathead National Forest by Hunting District (HD) from 1998-2005.

Year	131	132	133	134	140	141	142	150	151	Annual Harvest from HD within NFS lands
1998	2	5	4	0	2	3	3	1	2	22
1999	1	3	4	1	1	3	1	2	2	18
2000	3	3	1	1	1	2	2	0	1	14
2001	2	3	3	1	2	2	0	2	1	16
2002	3	3	2	2	1	1	2	2	1	17
2003	5	4	3	1	2	3	3	1	1	23
2004	4	1	3	2	0	4	2	2	3	21
2005	2	4	3	2	1	4	3	2	3	26
2006								Data	not	available
2007								Data	not	available
Ave										**20**

Table 14-4. Mountain Goat Harvest on Flathead National Forest by Hunting District (HD) from 1986 to 1997.

Year	131	132	133	134	140	141	142	150	151	Annual Harvest from HD within NFS lands
1986	8	10	2	0	1	5	5	0	3	34
1987	8	3	6	1	2	8	4	1	2	33
1988	8	4	7	0	2	3	4	1	1	29
1989	4	3	6	0	1	3	4	2	3	24
1990	4	2	3	2	2	6	1	2	2	25
1991	5	4	4	2	2	5	1	2	0	26
1992	7	4	3	2	1	7	2	2	3	31
1993	1	2	4	2	0	7	3	2	3	24
1994	4	1	4	2	1	4	2	1	3	22
1995	4	2	5	2	1	3	2	1	1	33
1996	4	1	4	1	1	3	0	1	1	16
1997	2	5	3	1	2	1	2	1	0	17
Ave										**26**

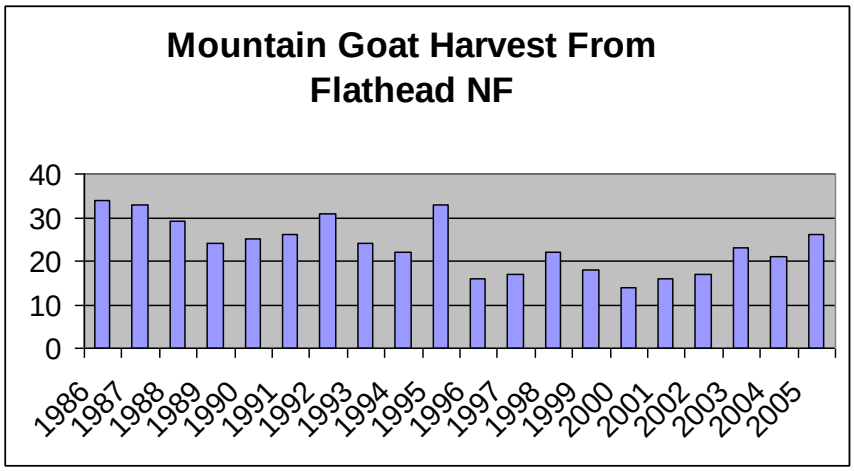

Figure 2 – Mountain Goat Harvest on the Flathead NF From 1986 to 2005

Since 1941, MT FWP has used post-season surveys of licensed hunters and permit holders as well as winter transect surveys to estimate wildlife harvest and population trends. Results of these surveys are used to develop hunting season regulations, evaluate and develop wildlife management strategies, develop wildlife research, and for hunting planning by the public. The number of permits allowed and harvest levels for moose and mountains goats is strictly controlled and should indicate MT FWP estimates of population trends for these species. The number of moose permits issued and moose harvested have decreased over the 1998 – 2005 period, and may suggest a decreasing population. Montana FWP has reported that from 1993 until about 1998, drought, severe winters and other factors caused the moose calf/cow ratio to drop to about 12 to 15 calves for every 100 cows. The ratios have now risen to 35-40:100 which translate into a steadily rising population. The number of permits issued and mountain goats harvested have remained relatively stable over the 1998 - 2005 period for mountain goats, and may suggest a stable population. However, these harvest numbers are lower harvests than the 1986 - 1997 reporting period.

The major fires of 2000 and 2003 created conditions that reduced canopy snow capture, thermal cover, and security cover for approximately 30 years over thousands of acres on and adjacent to the forest, caused an immediate and short-term reduction in forage, but will create increased big game forage values for the next approximately 30 years. Vegetation management, wildfires and fire use for resource values should continue to provide a diversity of habitats required for both species; moose a habitat generalist, and goats which are generally limited to fairly remote and hard to access locations.

Recommended Action: Short term game population changes are largely attributable to the designing and enforcement of hunting regulations within hunting districts, coupled with the effects of extreme weather. The FNF should 1) continue to coordinate project proposals with MT FWP for technical advice and to arrive at site specific objectives for the affected habitat, 2) partner with MT FWP to monitor populations as cooperative resources are requested, 3) continue to conduct analysis to review programs and activities at a landscape level to determine potential effects, and 4) provide for habitat connectivity, riparian management and access management at the project and landscape levels. Rejuvenating shrub fields by prescribe burns, allowing natural

fires to burn under prescriptions in high elevations, and create selected openings through timber management would benefit these species by creating a diversity of habitat and forage conditions.