1400 South 19th Avenue
Bozeman, MT 59718

December 18, 2009

To: Governor's Office, Mike Volesky, State Capitol, Room 204, P.O. Box 200801, Helena, MT 59620-0801
Environmental Quality Council, State Capitol, Room 106, P.O. Box 201704, Helena, MT 59620-1704
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
Dept. of Natural Resources & Conservation, P.O. Box 201601, Helena, MT 59620-1601
Montana Fish, Wildlife & Parks:

Director's Office	Parks Division	Lands Section	FWP Commissioners
Fisheries Division	Legal Unit	Wildlife Division	Design &Construction

MT Historical Society, State Historic Preservation Office, P.O. Box 201202, Helena, MT 59620
MT State Parks Association, P.O. Box 699, Billings, MT 59103
MT State Library, 1515 E. Sixth Ave., P.O. Box 201800, Helena, MT 59620
Silver Bow County Commissioners, 155 West Granite, Butte, MT 59701
James Jensen, Montana Environmental Information Center, P.O. Box 1184, Helena, MT 59624
Janet Ellis, Montana Audubon Council, P.O. Box 595, Helena, MT 59624
George Ochenski, P.O. Box 689, Helena, MT 59624
Jerry DiMarco, P.O. Box 1571, Bozeman, MT 59771
Bob Raney, 212 South 6th, Livingston, MT 59047
Montana Wildlife Federation, P.O. Box 1175, Helena, MT 59624
Wayne Hurst, P.O. Box 728, Libby, MT 59923
Glenn Hockett, Gallatin Wildlife Association, 745 Doane Road, Bozeman, MT 59715
Tom Sathers, Headwaters Fish & Game Association, P.O. Box 1941, Bozeman, MT 59771-1941
John Gatchell, Montana Wilderness Association, P.O. Box 635, Helena, MT 59624
William Fairhurst, Public Lands Access Association, P.O. Box 247, Three Forks, MT 59752
Skyline Sportsman Association, P.O. Box 173, Butte, MT 59701
Anaconda Sportsman Club, #2 Cherry, Anaconda, MT 59711
Jefferson Valley Sportsman Association, Don Drake, PO Box 255, Whitehall, MT 59759
State Land Coalition, Jack Atcheson President, 3210 Ottawa Street, Butte, MT 59701
State Land Coalition, Jack Jones, Vice President, 3014 Irene Street, Butte, MT 59701
Bill Tash, 1200 Hwy 178, Dillon, MT 59725
Janet Krivacek, U.S. Forest Service, 1820 Meadowlark Lane, Butte, MT 59701
George Grant Chapter of TU, PO Box 563, Butte, MT 59703
Pioneer Technical Services, Inc., Roger Gordon, PO Box 3445, Butte, MT 59702
Water & Environmental Technologies, Joshua Vincent, 480 East Park Street, Suite 20, Butte, MT 59701
Bill Peterson, 1055 Durant Canyon Road, Opportunity, MT 59711
Jack and Linda Erickson, 119490 German Gulch Road, Butte, MT 59750
Allen Schallenberger, 53 Elser Lane, Sheridan, MT 59749-9604
Smith 6 Bar S Livestock, PO Box 320007, Glen, MT 59732-0007
Russel Dupuis, PO Box 74, Melrose, MT 59743

Ladies and Gentlemen:

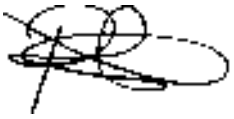
The enclosed Draft Environmental Assessment (EA) has been prepared to maintain a coordinated rest-rotation grazing program on Fleecer Wildlife Management Area (WMA) near Divide, MT for a 3-year term to extend April 2010 through October 2012. The program, which began in 1982 and has been in effect in its current format since 1987, consists of a spring grazing exchange agreement (500 Animal Unit Months, AUM) with Smith 6 Bar S Livestock and a separate fall fee-grazing agreement (94 AUM) with Smith 6 Bar S Livestock and Russel Dupuis.

The proposed grazing program would encompass 3,700 acres owned by FWP and 875 acres that FWP leases from Montana Department of Natural Resources and Conservation (DNRC). In addition, 1,920 acres owned by Smith 6 Bar S Livestock and 640 acres that Smith 6 Bar S Livestock leases from DNRC would also be incorporated into the Fleecer WMA Coordinated Grazing System.

This Draft EA is available for review in Helena at FWP's Headquarters, the State Library, and the Environmental Quality Council. It also may be obtained from the Bozeman or Butte FWP offices, or viewed on FWP's website: http://www.fwp.mt.gov.

Montana Fish, Wildlife & Parks invites you to comment on the attached proposal. Public comment will be accepted until 5:00 p.m. on January 16, 2010. Comments should be sent to the following address: Montana Fish, Wildlife & Parks, Fleecer WMA Grazing Lease EA, 1820 Meadowlark Lane, Butte, MT 59701 or emailed to vboccadori@mt.gov.

Sincerely,



Patrick J. Flowers
Region Three Supervisor
Attachment

DRAFT
ENVIRONMENTAL ASSESSMENT

FLEECER WILDLIFE MANAGEMENT AREA GRAZING LEASE

December 2009
MEPA, NEPA, MCA 23-1-110

I. PROPOSED ACTION DESCRIPTION

1. Type of proposed state action: Montana Fish, Wildlife & Parks (FWP) proposes to maintain a coordinated rest-rotation grazing program on the Fleecer Wildlife Management Area (WMA) for a 3-year term to extend April 2010 through October 2012. The program consists of a spring grazing agreement (500 Animal Unit Months, AUM) with Smith 6 Bar S Livestock and a separate fall grazing agreement (94 AUM) with Smith 6 Bar S Livestock and Russel Dupuis.

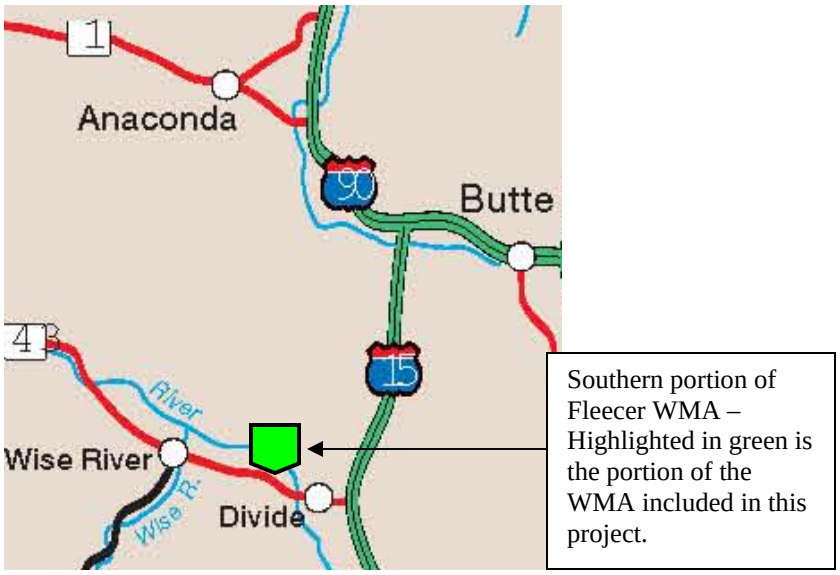
The proposed grazing program would encompass 3,700 acres owned by FWP and 875 acres that FWP leases from Montana Department of Natural Resources and Conservation (DNRC). In addition, 1,920 acres owned by Smith 6 Bar S Livestock and 640 acres that Smith 6 Bar S Livestock leases from DNRC would also be incorporated into the Fleecer WMA Coordinated Grazing System. Total acreage involved would be 7,135 acres.

2. Agency authority for the proposed action: FWP has the authority under Section 87-1-210, M.C.A. to protect, enhance, and regulate the use of Montana's fish and wildlife resources for public benefit now and in the future. Any consideration of continued livestock grazing on the Fleecer WMA would have to be consistent with the management goals and objectives as outlined in the Fleecer WMA Management Plan (draft, 1992) [Note, the draft Fleecer WMA Management Plan is currently being updated and is expected to be completed by Summer 2010]. In addition, FWP is required to conduct an environmental assessment for all leases under the FWP Land Lease-Out Policy in accordance with Section 87-1-303, M.C.A. Lastly, the FWP Commission must approve all grazing leases on Wildlife Management Areas owned by FWP.

3. Anticipated Schedule: Public Comment Period: Friday, December 18 – Wednesday, January 16, 2010.
Presented to the FWP Commission for Approval: March 2010
Proposed Leases in Effect: April 2010

4. Location: The Fleecer WMA is located in Silver Bow County in Southwestern Montana (Fig. 1). It is situated on the southeastern face of Fleecer Mountain approximately 20 miles southwest of Butte, Montana. This WMA borders lands administered by the Beaverhead-Deerlodge National Forest (FS), Bureau of Land Management (BLM), DNRC, and private lands owned by Smith 6 Bar S Livestock. The WMA encompasses parts of Township 1 South, Range 9 West, and Township 1 North, Range 9 West.

Figure 1. General Location of the Affected Area



5. Project size:

	Acres		Acres
(a) Developed:		(d) Floodplain	0
Residential	0		
Industrial	0	(e) Productive:	
(existing shop area)		Irrigated cropland	0
(b) Open Space/Woodlands/	0	Dry cropland	0
Recreation		Forestry	960
(c) Wetlands/Riparian Areas	300	Rangeland	5,875
		Other	0

6. Costs and Jurisdictions:
(a) Permits: Grazing lease with DNRC
(b) Costs to FWP: $25 Annual Pasturing Agreement fee to DNRC
(c) Other Overlapping or Additional Jurisdictional Responsibilities: None

7. Need for Proposed Action:
Historical Background
In 1962, FWP acquired the Fleecer Wildlife Management Area in order to expand elk winter habitat provided by Forest Service (FS) lands that border the property to the west. Since the 1930's, the area had received intensive year-round grazing from domestic livestock including horses, cattle, and sheep. As a result, livestock grazing was excluded from the WMA from 1962 to 1982, and the FS agreed to delay making any increases to livestock on the adjacent Fleecer allotment during this time until sufficient time could be given to study the needs of wildlife over the entire Fleecer elk winter range.

One of the goals for the management of the Fleecer WMA was to use coordinated resource management across ownerships to alleviate conflict between wildlife and agricultural land use. To address conflicts between elk and cattle on elk winter range, FWP, FS, and the neighboring Smith 6 Bar S Livestock Ranch initiated a program in 1982 that combined research with sound range management principles to design a grazing system with the following six objectives:

1. Maintain soils, vegetation, and riparian zones in good or better condition on public and private lands
2. Increase elk populations to potential on public land ownerships
3. Increase cattle grazing potential
4. Minimize impact of winter and spring use by elk on private land by providing adequate habitat on public lands
5. Manage the entire elk winter range in the Fleecer area as one unit, regardless of ownership
6. Maintain optimum level of livestock production on Smith 6 Bar S lands

After some adjustments to the initial design, the Fleecer Coordinated Grazing Program was fully implemented in 1987 and has been in continuous use since it was approved by the FWP Commission in 1998. The Fleecer Coordinated Grazing Program demonstrates the compatibility of livestock production and wildlife/recreation based economies. The designers of this program have been recognized at the state and national level for their abilities to resolve wildlife and livestock conflicts through a sound grazing system design. The program is well known and has served as a template for other cooperative grazing systems on WMAs across the state.

The Fleecer Coordinated Grazing Program follows rest-rotation grazing principles described by Hormay (1970). The complete grazing program consists of twelve pastures with the rotation of livestock, pasture ownership, and seasonal use by cattle and elk. There are nine pastures providing winter habitat for elk; three each of FWP, Smith 6 Bar S Livestock, and FS lands. Elk use the remaining three pastures on Forest Service land during summer and fall. For a complete description and maps of the Fleecer Coordinated Grazing Program, refer to Frisina and Morin (1991) in “Appendix A- Related Literature”.

The Fleecer WMA is divided into three pastures, allowing for full implementation of a rest-rotation system that is independent of but coordinated with the rotation on the Forest Service and Smith 6 Bar S Livestock lands (Fig. 2). A 3-year rotation schedule for Fleecer WMA pastures is shown in Table 1.

Figure 2. Map of FWP and private pastures within the Fleecer Coordinated Grazing Program.

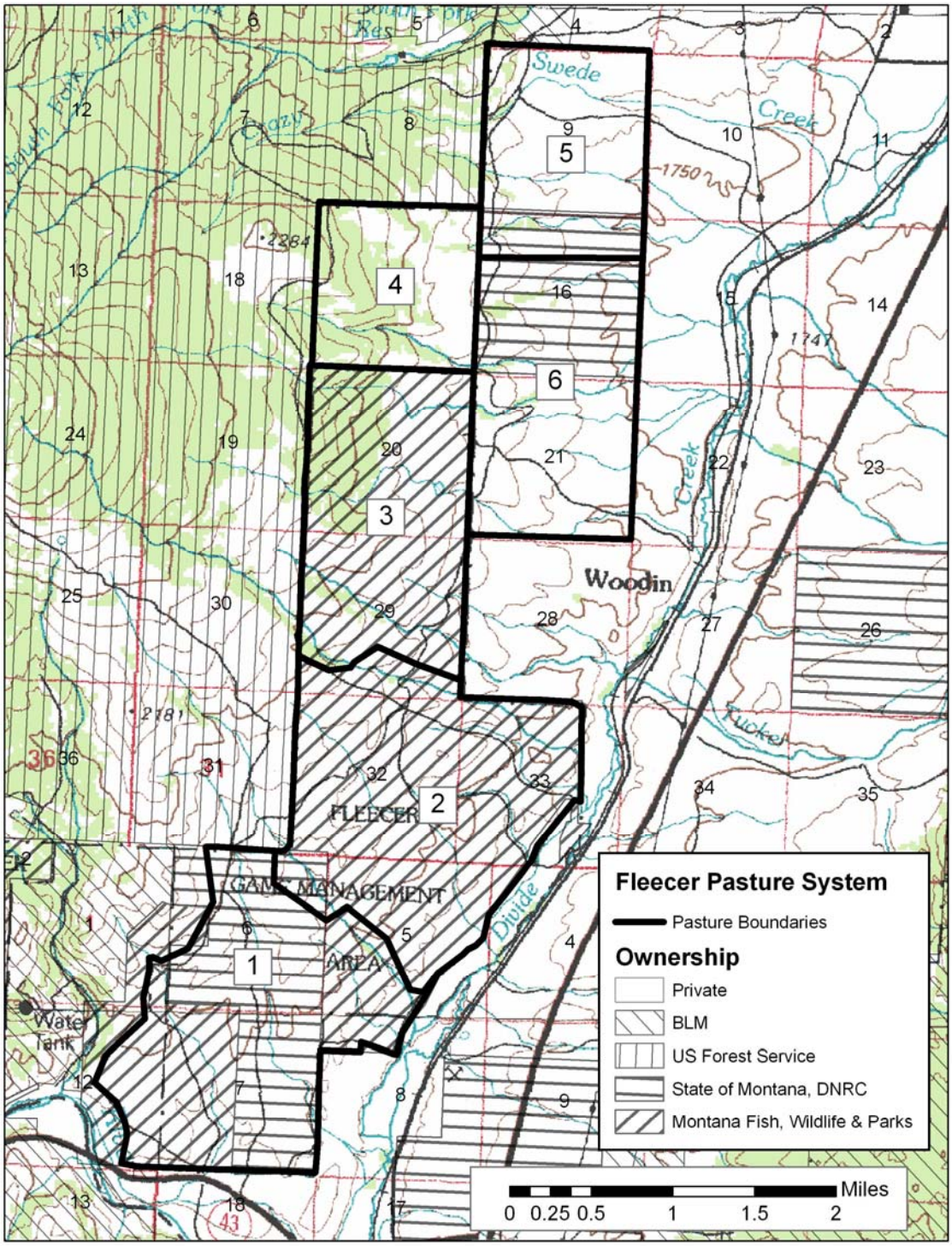


Table 1. Projected grazing schedule for the FWP portion of the Fleecer Coordinated Grazing Program, 2010-2012. Spring = mid April- late May, depending on onset of rapid growth stage of Bluebunch Wheatgrass; Late Fall = October 1-October 15; Rest = no use by livestock.

PASTURE	YEAR		
	2010	2011	2012
1	Spring	Late Fall	Rest
2	Rest	Spring	Late Fall
3	Late Fall	Rest	Spring

Separate contracts currently govern spring and fall grazing treatments. The spring grazing contract is an exchange of use with Smith 6 Bar S Livestock and allows for a maximum of 500 Animal Unit Months (AUM). Grazing takes place from approximately mid April to late May, or prior to the onset of rapid plant growth of bluebunch wheatgrass (*Agropyron spicatum)*. In FWP Pasture 3 which is located at higher elevation than the other FWP pastures and includes old hayfields of nonnative grasses, livestock grazing may extend into early June by agreement of both FWP and Smith 6 Bar S Livestock depending upon the growth stage of bluebunch wheatgrass. Payment to FWP is complete rest from livestock grazing in one of three pastures on adjacent Smith 6 Bar S Livestock lands which are also in an independent rest-rotation system. The spring grazing treatment is designed to promote removal of accumulated old growth by cattle and timed to provide maximum regrowth of native grasses and forbs that same growing season.

The fall grazing contracts are with two lessees: Smith 6 Bar S Livestock and Russel Dupuis. A total of 94 AUMs is allowed and charged fair market value with grazing occurring October 1 through October 15. The fall grazing on the WMA allows livestock to be moved off Forest Service pastures located at higher elevations adjacent to the WMA, thus allowing permittees to use the full grazing season while providing rest to a Forest Service elk winter range pasture. The regrowth provided on the Fleecer WMA pasture used in the spring, along with the rested pasture on Smith 6 Bar S Livestock land and the additional forage available on the other WMA and FS pastures, provide maximum production of nutritious winter forage for elk and other wildlife. With this grazing program, none of the FWP pastures receive livestock grazing during the intense growing season. For further details on the spring and fall cattle stocking rates on the Fleecer WMA, refer to “Appendix B – Stocking Rates on Fleecer WMA”.

For both the spring and fall grazing leases, lessees are responsible for maintaining existing WMA interior pasture fences while FWP is responsible for providing materials and any fence replacement or construction. Table 2 lists operation and maintenance costs for Fleecer WMA since 1988, some of which are incurred due to livestock grazing. Since the inception of the Fleecer Coordinated Grazing Program in 1982, at least 11,342 AUM of spring livestock use and at least 1,425 AUM of fall use has been provided on the WMA. Fall grazing fees since 1982 total

at least $13,380.39 (data is missing for some years). Refer to "Appendix B - Stocking Rates on Fleecer WMA" for more details.

Table 2. Operation and maintenance costs for Fleecer WMA, 1988-2009.

Expenses	Costs
DNRC Annual Pasture Agreement (7yrs x $25/yr)	$175
Road maintenance	$59,800
Fencing	$139, 735
Weed Spraying	$1,995
Total Costs	**$201,705**

Need for Proposed Action

The proposed action is to continue the Coordinated Grazing Program on the Fleecer WMA, thereby continuing FWP's involvement in a grazing system that's been in place for over 25 years and has demonstrated the ability to improve elk winter habitat conditions across ownerships in a way that is compatible with neighboring Smith 6 Bar S Livestock interests.

The need for the proposed action is to:

- Maintain or improve soils, vegetation, and riparian zones through systematic grazing on the WMA
- Maintain high-quality vegetation for wintering elk and other wildlife through planned rest from grazing across multiple ownerships
- Minimize impacts of winter and spring use by elk on private land by providing adequate habitat on public lands
- Manage the entire elk winter range in the Fleecer area as one unit, regardless of ownership
- Maintain optimum level of livestock production on Smith 6 Bar S Livestock lands by minimizing elk depredation through a rest-rotation grazing system

8. Alternatives:

The following general proposed lease terms are common to both Alternatives A and B:

1) Lessees would be responsible for maintaining existing interior pasture WMA fencing while FWP would provide materials and be responsible for fence replacement and construction
2) Lessees' livestock must reside in the state for 30 days prior to being placed on the WMA to prevent the invasion of noxious weeds
3) Lessees are responsible for moving their cattle at the prescribed times and to the prescribed pasture.
4) Both the spring and fall grazing leases will be for a 3-year period beginning in 2010 and ending in 2012.

<u>Alternative A</u>: Renewal of both the spring and fall grazing leases on Fleecer WMA.
This alternative will continue the grazing system on Fleecer WMA as it currently exists for three additional years. This alternative would allow continuation of the stated objectives for the Fleecer Coordinated Grazing Program as previously noted.

Separate contracts would continue to govern spring and fall grazing treatments. The spring grazing contract would be an exchange of use with Smith 6 Bar S Livestock and would allow for a maximum of 500 Animal Unit Months (AUM). Grazing would take place from approximately mid April to late May, or prior to the onset of rapid plant growth using bluebunch wheatgrass as the trigger species for native range sites. In FWP Pasture 3, which is located at higher elevation than the other FWP pastures and includes old hayfields of nonnative grasses, livestock grazing may extend into early June by agreement of both FWP and Smith 6 Bar S Livestock depending upon the growth stage of bluebunch wheatgrass. Payment would be complete rest from livestock grazing in one of three pastures each year on adjacent Smith 6 Bar S Livestock lands (an independent rest-rotation system), which constitute elk winter range. The fall grazing contracts would be with two lessees: Smith 6 Bar S Livestock and Russel Dupuis. A total of 94 AUMs (56 AUMs to Smith 6 Bar S Livestock and 38 AUMs to Russel Dupuis) would be allowed and charged fair market value ($6.97/AUM in 2009). Grazing would occur from October 1 through October 15 annually.

<u>Alternative B</u>: Renewal of only the spring or only the fall grazing lease on Fleecer WMA.
This alternative would significantly reduce the overall effectiveness of the Fleecer Coordinated Grazing System. If the spring grazing exchange of use agreement was eliminated, tolerance for wintering wildlife on adjacent private lands would be greatly reduced and carrying capacity of the winter range may be lowered in the absence of an available rested pasture on private land. If fall grazing was eliminated, Forest Service winter range pastures may not receive current levels of rest thereby diminishing winter range values and AUMs may be reduced as a result. Loss of either grazing lease might lead to increased hunting opportunity in the short term but lower elk populations and decreased hunting opportunity in the long term.

<u>Alternative C</u>: Elimination of livestock grazing on the Fleecer WMA.
This alternative would completely eliminate livestock grazing on the Fleecer WMA. This would eliminate the exchange of use agreement with Smith 6 Bar S Livestock and may lead to increased use of the Forest Service winter range pastures that currently receive scheduled rest. Overall, loss of a coordinated management program across ownerships would likely lead to less forage on the elk winter range due to fewer rested pastures and less tolerance for elk on private land, leading to an increase in game damage complaints. Elimination of grazing on the WMA might translate to increased hunting opportunity in the short term but lower elk populations and decreased hunting opportunity in the long term.

II. <u>EVALUATION OF IMPACTS ON THE PHYSICAL ENVIRONMENT</u>

1. Vegetation
The Fleecer WMA ranges in elevation from approximately 5,500 feet to approximately 7,000 feet and is predominantly nonforested, open rolling grasslands interspersed with rubber rabbit brush, big sagebrush, and mountain mahogany, especially at the southern end of the WMA.

Bluebunch wheatgrass and Idaho fescue grasslands are the predominant vegetation with some Douglas fir occurring along ridge tops and southerly aspects. Some rough fescue is also present. Aspen and willow stands are common along stream banks and in wet areas. Two perennial streams (Water Gulch and Mitchell Gulch) flow across the area. For a complete list of plant species known to occur on Fleecer WMA, refer to "Appendix C- Plant and Wildlife Lists for Fleecer WMA". Average annual precipitation varies from 14 to 18 inches. Mean annual precipitation at Divide is about 12 inches with 2.5 inches of rain occurring during June.

From the turn of the century to 1962 when FWP acquired the property, the previous owners of the WMA acres grazed cattle, horses, and sheep on the range from early June through late September under a continuous grazing strategy which significantly reduced forage for wintering wildlife. Under FWP's ownership of the property, livestock grazing was eliminated from the WMA for 20 years until the rest-rotation Fleecer Coordinated Grazing Program was implemented between FWP, FS, and Smith 6 Bar S Livestock in 1982. After several adjustments, full implementation of the system as it exists today began in 1987. Range conditions as measured by the frequency and coverage of native vegetation on the WMA have responded positively under this grazing program and have visibly improved.

Long-term vegetation monitoring has been occurring on Fleecer WMA since 1986. Eight permanent photo points, comprising a total of 34 photos, were established on the WMA. These are generally located in the grassland/shrubland cover type. Photos are taken on an annual basis during mid- to late summer after the growing season has peaked.

Two vegetation exclosures measuring 330 ft. by 330 ft. were erected on the WMA in 1986 (Water Gulch and Mitchell Gulch Exclosures). The structures were designed to keep cattle out but allow entry to wildlife. The original exclosures were constructed of wooden jackleg and posts. Due to deterioration of the wood, cattle were getting into the Mitchell Gulch Exclosure during the period of 2000-2003. Both exclosures were replaced with a four-strand wire and post fence in 2003 and are fully functioning to keep out livestock. Monitoring at each exclosure includes two permanent transects within and two transects located outside each exclosure. These transects provide quantified Daubenmire canopy cover data and are read approximately every 5 years. Refer to "Appendix D -Vegetation Monitoring" for more information and a map of photo point and exclosure location.

A study conducted on the Fleecer WMA in 2002 examined how stem height and girth of aspen influenced the selection of stems by ungulates (antelope, deer, elk, and cattle) for browsing, rubbing, and gnawing (Keigley and Frisina 2008). This research found that elk were primarily responsible for the observed impacts to aspen based on the timing of occurrence, the stability of livestock numbers from 1986 – 2001 while at the same time the wintering elk population on Fleecer was increasing, and the significant amount of scarring of aspen stems caused by antler rubbing.

Another study conducted on the Fleecer WMA (Wambolt et al. 1997) examined the affects of cattle grazing on the nutritive quality of bluebunch wheatgrass, an important forage plant for elk. The study found no significant difference in nutrient content from bluebunch wheatgrass that is grazed in the spring by cattle over that which is totally rested for one year or never grazed during

the growing season. However, the amount of more desirable current year's growth of bluebunch wheatgrass that is available to elk is likely greater where cattle have grazed versus never grazed areas due to the removal of residual forage. On FWP's Mount Haggin WMA, Frisina (1992) found that elk use increased in pastures that had been grazed by cattle the previous year during early summer. During July and August when cow elk are rearing calves, use switched to the rested pasture where more security cover and forage was available.

In general, the WMA hosts a variety of desired native plants in desired amounts. Repeat photos and vegetation measurements do not suggest a decline in health and vigor of the plant communities with the implementation of the Fleecer Coordinated Grazing Program. Non-native plants are present on the WMA but in small amounts and are not causing a negative shift in plant composition. Noxious weeds that have been identified on the WMA include spotted knapweed, Canadian thistle, leafy spurge, and white top. Ongoing weed management on the WMA has included both chemical herbicides and bio-control releases in compliance with FWP's Integrated Noxious Weed Management Plan.

"Appendix C: Plant and Animal Lists for Fleecer WMA" provides a current list of plant species found on the WMA. This list will be updated in 2010 once a comprehensive survey and inventory of plants on the WMA is completed.

Alternative A: Renewal of both the spring and fall grazing leases on Fleecer WMA. Some changes in the vegetation community are expected under the continuation of both the spring and fall grazing leases on the WMA. It is expected that this grazing program would positively influence native vegetation by providing:
1) maximum rest during the growing season which promotes the highest quality potential standing crop of vegetation for wintering wildlife
2) rest and a standing crop of available winter forage on adjacent Forest Service and private lands
3) improved plant vigor, plant health, and soil stability.

Vegetation in pastures that have been grazed that year will look grazed. Due to the removal of cattle in the spring prior to the intense growing season followed by a complete year of rest, plants will quickly recover. Additionally, stocking rates are relatively low at 3 acres per AUM for the spring grazing treatment and 16 acres per AUM for the fall.

Mineral blocks will be used to manage livestock. They will be placed in mutually agreed upon locations such as rocky areas and hard-packed ground.

Alternative B: Renewal of only the spring or only the fall grazing lease on Fleecer WMA. If only the spring or only the fall grazing lease were renewed, vegetation in two of the three pastures on the WMA would not receive any grazing from livestock two of every three years. Annual livestock use would be decreased by two weeks (94 AUM) if the fall grazing lease was discontinued or by approximately one month (500 AUM) if the spring grazing lease were discontinued. This would initially lead to an increase in the standing crop of quality vegetation for wintering elk, but over time would lead to a build-up of residual growth that is less attractive to elk resulting in an increase of elk use on adjacent private land which experience has shown to

be true in the past. In addition, since the Fleecer winter range is currently being managed cooperatively on a landscape level across ownerships, elimination of either grazing lease on the WMA may lead to an overall loss of forage to wintering elk from a decrease in rested pastures as well as tolerance on private land. Accumulation of previous years' growth from lack of spring or fall grazing would provide additional nesting cover and food source for certain species of small mammals and birds.

Alternative C: Elimination of livestock grazing on Fleecer WMA. If neither the spring nor the fall grazing lease on Fleecer WMA were renewed, impacts to vegetation would be similar to Alternative B except that residual vegetation may build up faster due to the complete lack of removal by livestock. This will likely cause a shift in grazing by elk onto other portions of the Fleecer winter range not owned by FWP. In addition, no cattle grazing on the WMA may cause livestock use to be shifted and increased on the Forest Service and Smith 6 Bar S Livestock portions of the overall winter range which would negatively impact the plant community across the winter range.

2. Fisheries and Water Resources

The WMA contains portions of two intermittent streams, Water Gulch and Mitchell Gulch. There are no known fisheries in either body of water. While livestock grazing is expected to have some short-term negative impacts to riparian areas under Alternatives A and B, these impacts are expected to be minor and mitigated by the light stocking rates.

***3*. Wildlife**

In 1962, Montana Fish, Wildlife & Parks acquired the Fleecer WMA primarily as elk winter range. At the time of FWP's acquisition, there was a wintering population of 200-400 elk found on and adjacent to the WMA. Over time, this herd grew to a high of over 1,400 elk during the late 1990's- early 2000's as part of the approximately 2,000-2,500 elk that wintered in the larger area (Hunting District 319). As stated in the Elk Management Plan (2005), Hunting District 319 is part of the Fleecer Elk Management Unit (EMU) along with Hunting District 341. The population objective for the EMU is to maintain the number of elk observed during post-season aerial surveys within 15% of 1,475 elk (1,250 – 1,700). For HD 319 specifically, the objective is for a maximum of 1,100 elk with no more than 800 on the Fleecer winter range. Since 2005, liberal hunting seasons designed to reduce the population have resulted in a steady reduction in the number of elk observed on Fleecer winter range during post-season aerial surveys. Elk numbers are currently below the range of the population objective (593 total elk observed in HD 319 with 517 of those on Fleecer winter range), and a proposal is being made to the FWP Commission to restrict hunting opportunities in HD 319 for the 2010-2011 biennium. "Appendix E – Wildlife Survey and Inventory Data" provides both historical and current survey data for elk, mule deer, and antelope on Fleecer WMA and the surrounding area.

Fleecer WMA supports a year-round population of mule deer and serves as a major winter range for mule deer that migrate from as far away as the Pintler Mountains to the west. Trend surveys for this area (HD 319) indicate an average population of approximately 450-550 animals for the past ten years ranging from approximately 200 to 800. During the most recent trend survey, a count of 451 mule deer were observed in HD 319, with 133 of those on the WMA. Most of the

mule deer winter range and spring green-up use occurs at the southern end of the WMA where the majority of sagebrush and mountain mahogany occurs.

Fleecer WMA is part of Antelope Hunting District 319. The WMA supports year-round use from a resident herd of approximately 60 animals and also provides winter range to approximately 80 additional animals that migrate from summer range located north of the WMA. Population trend counts for HD 319 indicate a 5-year average of approximately 200 antelope ranging from approximately 180 to 250.

White-tailed deer and moose occur on the WMA in relatively low numbers. The WMA supports a population of less than 20 white-tailed deer found mainly in the lower elevations where moist areas occur. Moose are mostly transitory on the WMA due to the lack of suitable habitat. During the 2008 hunting season, a cow and calf were observed in the Charcoal Gulch area of the Fleecer WMA.

Mountain lions, bobcats, coyotes, and black bear have the potential to occur on Fleecer WMA but only for occasional use given the limited amount of forested habitat. Wolves have been observed on the WMA in recent years. Given their large home ranges, use on the WMA is mostly transitory although predation of wintering big game is likely to occur.

Wolves have re-occupied most of the mountains of southwest Montana and have been present in the Fleecer area for the last several years. Sightings have occurred on both public and private land. Since livestock are an integral part of the Fleecer landscape, not only from the Smith 6 Bar S Ranch but from other producers in the area as well, wolf-livestock conflicts in the area have and will continue to impact wolves through depredation removals whether or not livestock grazing occurs on the Fleecer WMA.

Blue grouse, Franklin grouse, and occasional ruffed grouse and Hungarian partridge occur on the WMA as well as a variety of small mammals although no population estimates have been made for these species.

In an effort to be more comprehensive in our management of wildlife species, FWP will implement a long-term nongame monitoring plan on Fleecer WMA. An initial survey and inventory of the area will be conducted during summer 2010 and will focus on small mammals, songbirds, raptors, amphibians, and reptiles. The objectives of the long-term monitoring are to: 1) comprehensively document species occupancy of Fleecer WMA; and 2) evaluate species occupancy and diversity relative to the grazing system. All surveys and monitoring will follow the same sampling protocol that has been developed and intensively employed by the Montana Natural Heritage Biodiversity Monitoring Program. All information on species distribution and occurrence will be sent to the Montana Natural Heritage Program to be integrated into their statewide biodiversity-monitoring database.

“Appendix C: Plant and Animal Lists for Fleecer WMA” provides a current list of wildlife species found on the WMA. This list will be updated after the nongame survey and inventory is completed in 2010.

Alternative A: Renewal of both the spring and fall grazing leases on Fleecer WMA. Continuation of both the spring and fall grazing leases on the WMA is intended to be beneficial for all wildlife. Grazing treatments are timed to leave high quality vegetation that is attractive to wildlife, particularly wintering elk. The spring grazed pasture gets maximum regrowth due to the removal of livestock prior to rapid plant growth while the fall grazed pasture is at a very light stocking rate. None of the pastures receive livestock grazing during the growing season. This provides nesting and hiding cover for birds and small mammals. Renewing the spring and fall grazing leases as part of the Fleecer Coordinated Grazing Program will continue the landscape level benefits to wildlife on FWP, Forest Service, and Smith 6 Bar S Livestock lands.

Alternative B: Renewal of only the spring or only the fall grazing lease on Fleecer WMA. Elimination of either the spring or fall grazing lease on the WMA may have a long-term negative impact on elk realized through a reduction in the quality and quantity of available habitat across the winter range and ownerships. If the spring grazing exchange of use were eliminated, tolerance for elk on Smith 6 Bar S Livestock land likely will be reduced making this portion of the winter range unavailable and resulting in an increase in game damage complaints and management actions that would put additional stress on wintering elk. Elimination of fall grazing on the WMA may lead to lessees being allowed to stay longer on the FS pastures, which are elk winter range, thereby reducing the quality of feed for wintering elk and causing them to seek feed on adjacent private lands, again leading to depredation events and game damage concerns.

Alternative C: Elimination of livestock grazing on Fleecer WMA. Elimination of both the spring and fall grazing leases on Fleecer WMA will have negative impacts for wildlife, primarily wintering elk. In the short term, there may be more forage available. However, after a few years of no livestock grazing, previous years' growth of grasses will accumulate across the WMA making it more difficult for elk to reach the more desirable current year's growth underneath and causing them to seek out grazed pastures on private land. Without FWP's participation in the Fleecer Coordinated Grazing Program, the ability to manage elk winter range across the landscape will be lost which may greatly reduce the quantity and quality of available vegetation and may lead to a reduction in the number of elk. Small mammals and birds may benefit from the increase in accumulated old growth of grasses that provide nesting and hiding cover.

4. Soil Resources

Soils in the area of the WMA are of granitic origin, ranging from slightly developed and very shallow on the steeper slopes to highly developed and deep in the stream bottoms. Geologic origin of the area and the soils are typical of unglaciated foothills. The U.S. Forest Service classified the soils as Ochrepts, Boralfs, and Borolls.

Over the past 50 years, soils on the WMA have been exposed to disturbance from cattle movements as well as resident and transient wildlife. If Alternative A or B is selected, some disturbance of soil will occur under the grazing system. Such disturbance would be minor due to the design of the grazing system where pastures receive complete rest during the growing season two out of every three years. Some disturbance to the soil from livestock grazing in the fall is beneficial for seedling establishment through seed trampling (Hormay 1970). If Alternatives B or C were chosen, this would not occur.

III. EVALUATION OF IMPACTS ON THE HUMAN ENVIRONMENT

1. Access and Recreation

The WMA is located in deer/elk Hunting District 319. Recreation hunting in this district is among the highest in the state due to the large elk population, large proportion of public land, and the proximity to Butte and Anaconda. In 2008, approximately 1,500 elk hunters spent approximately 11,000 days in the field during hunting season. Deer populations in this hunting district provided approximately 632 hunters with more than 4,500 days spent hunting. Approximately 82 antelope hunters enjoyed more than 300 hunting days in HD 319. The WMA also provides limited moose, black bear, and mountain lion hunting opportunities in addition to mountain grouse hunting. Opportunities for camping, hiking, wildlife watching, and other forms of non-consumptive recreation are boundless.

Alternative A: Renewal of both the spring and fall grazing leases on Fleecer WMA.
The presence of cattle would minimally restrict recreational use of the WMA mainly in the form of opening and closing pasture gates. During the period of use, cattle would only occupy approximately one-third of the WMA and the recreating public would be permitted full access and use of the WMA, even in pastures that may be occupied by cattle. Due to the timing of the winter closure on the WMA from Dec. 2 – May 15, cattle grazing on the WMA in the spring would be removed from the WMA prior to or soon after the opening depending on rapid plant growth. Horn hunting is the main activity that occurs on the WMA at this time of year and the presence of livestock would not impede this recreational event. While fall grazing is concurrent with several game hunting seasons, grazing occurs at low density (approximately 8 acres per animal unit) and for a short period (2 weeks) that it would not cause significant restrictions to hunting or other recreational opportunities on the WMA. In addition, cattle would be removed from the WMA prior to the start of big game general season. Overall, the proposed action would have a positive effect on the quality and quantity of recreation in the area. Smith 6 Bar S Livestock land involved in the spring grazing exchange helps maintain the viability of big game populations by providing quality winter range. In addition, Smith 6 Bar S Livestock has participated in the Block Management Program since its inception. Vegetation on the WMA is enhanced through grazing treatments designed for the benefit of wildlife and the recreating public.

Some members of the public may be impacted aesthetically depending on their level of tolerance for the presence of livestock on the WMA. Otherwise, no significant changes to recreational opportunities are anticipated if this alternative was implemented.

Alternative B: Renewal of only the spring or only the fall grazing lease on Fleecer WMA.
Elimination of livestock from either the spring or fall grazing period would not significantly improve public access to the WMA since the public would continue to have full access and use of the WMA regardless of the presence or absence of livestock grazing. Elimination of the spring grazing exchange of use would negatively impact range conditions on FWP winter range over time causing an increase of elk use on Smith 6 Bar S Livestock lands during the hunting season and winter and thereby reducing recreational opportunities to hunt or view elk on the WMA.

Increased elk use on private lands would degrade that portion of winter range in addition to causing reduced tolerance to elk that may lead to loss of hunting opportunity on private land. Elimination of the fall grazing treatment could have the same effect. For those members of the public that find the presence of livestock on the WMA aesthetically unpleasant, there will be less negative impact to their experience on the WMA.

Alternative C: Elimination of livestock grazing on Fleecer WMA. Complete elimination of livestock from the WMA would not significantly affect access except that the public would not need to close gates along interior pasture fences while recreating on the WMA. Otherwise, the public would continue to have full access and use of the WMA. In the short term, complete elimination of livestock from the WMA may increase hunting and wildlife watching opportunities on the WMA. Cattle would not be present on the WMA to offend some segments of the public who do not like to recreate on public lands in the presence of livestock. However, over time and in the absence of livestock grazing on the WMA, habitat quality across the winter range may suffer, leading to a decrease of elk on the WMA during hunting season and winter, thereby decreasing hunting, wildlife viewing, and horn-hunting opportunities. In addition, elimination of the spring grazing exchange of use may lead to increased use of elk on private land causing reduced tolerance and loss of hunting opportunity on Smith 6 Bar S Livestock lands.

2. Community Impacts and Land Use

Alternative A: Renewal of both the spring and fall grazing leases on Fleecer WMA. Locally owned ranches would be allowed to utilize portions of the WMA for spring and fall livestock grazing. The proposed grazing treatments would have a positive influence on the productivity and economics of existing public and private land use in the area. Grazing the WMA in exchange for rest on adjacent public and private lands illustrates the compatibility of livestock production and wildlife/recreation based economies. This alternative would result in no change in the total number of 500 AUMs in the spring and 94 AUMs in the fall that are currently allowed to graze the WMA.

Alternative B: Renewal of only the spring or only the fall grazing lease on Fleecer WMA. Under this alternative, the 594 total AUMs currently allowed to graze the WMA would be reduced by 500 if spring grazing were discontinued or by 94 if fall grazing were discontinued. Elimination of either grazing treatment would negatively impact the current lessees since they would have to find other means to feed their cattle during that time of year. In addition, without livestock grazing previous years' plant growth on the WMA, elk may spend more time on the grazed 6 Bar S pastures causing game damage conflicts and intensifying forage use by both livestock and elk on private land.

Alternative C: Elimination of livestock grazing on Fleecer WMA. Under this alternative, there would be no livestock grazing on the WMA. FWP would continue to manage the WMA for the benefit of its natural resources (wildlife and vegetation) while providing for the public access to hunt and recreate. Current lessees would have to locate additional spring and fall grazing lands for their livestock.

3. Cultural and Historic Resources
The area of the Fleecer WMA is historically important for providing livestock grazing, habitat for wintering elk, and hunting oriented recreation. Livestock grazing has been a practice on the properties incorporated in the Fleecer Coordinated Grazing Program at least since the 1930s. In 1910, two carloads of elk trapped in Yellowstone National Park were released near Divide, MT, to augment a small herd of native elk in the Fleecer Mountain vicinity (Picton and Lonner 2008). The first open season for bulls only was held in 1939.

If Alternative A or B were implemented, the grazing of cattle on the WMA is not expected to disturb existing cultural or historic resources. If Alternative C were chosen, FWP would continue to watch for previously undiscovered resources and consult with the State Historic Preservation Office for guidance and assistance.

4. Risk/Health Hazards
None of the alternatives are expected to result in increased risk or health hazards to humans or wildlife. Noxious weed control within the WMA will involve the use of chemical herbicides and will be applied in recommended amounts that should have minimal impacts on nontarget vegetation under all alternatives.

5. Public Services
Alternative A: Renewal of both the spring and fall grazing leases on Fleecer WMA. This alternative would result in a commitment of FWP funds for continuing oversight to maintain the Fleecer WMA grazing system, i.e. fence repair and replacement, as needed. No additional fencing would be required. Any maintenance expenses will be covered by the existing operations and maintenance budget for the WMA.

This alternative would have a positive impact on state and local tax revenues through its contribution to maintaining a viable livestock operation and wildlife/recreation based economy in the area. Direct revenue includes fair market compensation ($6.97/AUM in 2009) for up to 94 AUMs for the fall grazing lease. Indirect compensation includes landowner tolerance for wintering elk and maintenance of winter range/open space through a viable livestock operation on adjacent private lands.

Alternative B: Renewal of only the spring or only the fall grazing lease on Fleecer WMA. Same as Alternative A regarding fencing costs. If the spring grazing lease is eliminated, the indirect revenue listed above would not be realized. If the fall grazing lease is eliminated, the direct revenue and a portion of the indirect revenue will not be realized.

Alternative C: Elimination of livestock grazing on Fleecer WMA. Same as Alternatives A and B regarding fencing costs except that only boundary fences would need to be maintained while interior pasture fences could be left in disrepair. With total elimination of livestock grazing from the WMA, neither the direct nor indirect revenue will be realized.

IV. PUBLIC PARTICIPATION

1. Public involvement:
The public will be notified in the following manners to comment on this current EA, the proposed action, and alternatives:

• Two public notices in each of these papers: *Montana Standard* and *Anaconda Leader*

• One statewide press release

• Public notice on the Fish, Wildlife & Parks web page: *http://fwp.mt.gov*, and

• Copies of this environmental assessment will be distributed to neighboring landowners, local sportsmen's clubs, county commissioners, and other interested parties to ensure their knowledge of the proposed project.

2. Duration of comment period:
The public comment period will extend for (30) thirty days. Written comments will be accepted until 5:00 p.m., January 16, 2010 and can be mailed to the address below:

Fleecer WMA Grazing Lease
Montana Fish, Wildlife & Parks
1820 Meadowlark Lane.
Butte, MT 59701

Or email comments to: vboccadori@mt.gov. Please put "Fleecer Grazing EA" in the subject line.

V. EA PREPARATION

1. Based on the significance criteria evaluated in this EA, is an EIS required? (YES/NO)? No.
Based upon the above assessment, which has identified a very limited number of minor impacts from the proposed action most of which can be mitigated, an EIS in not required and an environmental assessment is the appropriate level of review.

2. Person responsible for preparing the EA:
Vanna Boccadori
Butte Area Wildlife Biologist
Montana Fish, Wildlife & Parks
1820 Meadowlark Lane.
Butte, MT 59701
(406) 494-2082

3. List of agencies or offices consulted during preparation of the EA:
Montana Fish, Wildlife & Parks: Fish and Wildlife Division, Legal Bureau
Montana Natural Heritage Program – Natural Resources Information System (NRIS)
Montana Department of Natural Resources and Conservation

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APPENDIX A:
RELATED
LITERATURE

Grazing Private and Public Land to Improve the Fleecer Elk Winter Range

Michael R. Frisina and Forest G. Morin

Competition for forage between elk and domestic livestock has generated controversy on both public and private lands. As a result, numerous studies documenting relationships between cattle and elk were conducted in Montana and other western states. In Montana, dietary comparisons and intraspecific competition on seasonal ranges have been evaluated by numerous studies. Range relationships between elk and cattle within "rotational" grazing systems were described by Campbell and Knowles (1978), Komberec (1975), Frisina (1986), and Gniadek (1987). Lyon et al. (1985) reported that elk generally avoid cattle-occupied areas, and Mackie (1978) described impacts of livestock grazing on wild ungulates.

Historically, most intense conflicts occur where domestic livestock and elk are competing for forage on elk winter ranges. Anderson and Scherzinger (1975) described a program of coordinated elk and cattle use on the Bridge Creek elk winter range in Oregon. However, practical solutions for resolving these conflicts on elk winter ranges are lacking. To address this issue, the Montana Department of Fish, Wildlife and Parks, United States Forest Service, and Smith 6 Bar S Livestock Company (6 Bar S) initiated a program in 1987 to combine existing research with sound range management principles to design a grazing system with the following six objectives:

1). Maintain soils, vegetation, and riparian zones in good or better condition on public and private lands.

2). Increase elk to potential on all land ownerships.

3). Increase cattle grazing potential.

4). Minimize impact of winter and spring use by elk on private land by providing adequate habitat on public lands.

5). Manage the entire elk winter range in the Fleecer area as one unit, regardless of land ownership.

6). Maintain optimum level of livestock production on 6 Bar S lands.

Description of Area

The Fleecer Coordinated Grazing Program is located on the southeast face of Mt. Fleecer, approximately 25 miles southwest of Butte, Montana. The area ranges in elevation from 5,500 feet to approximately 7,000 feet, and is mostly nonforested. Bluebunch wheatgrass and Idaho fescue grasslands are the predominant vegetation with some Douglas-fir occurring along ridgetops and southerly aspects. Some rough fescue is also present. Aspen and willow stands are common along stream banks and in wet areas. Average annual precipitation varies from 14 to 18 inches. Soils were classified as Ochrepts, Boralfs, and Borolls by the Forest Service.

The area in the grazing program is a combination of public and private lands. Approximately 9,920 acres are Forest Service, 4,160 acres are Montana Department of Fish, Wildlife and Parks, with 2,490 acres in private ownership by Smith 6 Bar S Livestock.

The area is historically important for providing livestock grazing, habitat for wintering elk, and hunting oriented recreation. Forest Service range surveys conducted in 1953 indicated range deterioration due to past heavy livestock use on a season-long basis (unpublished FS data 1970). These same records also indicate range condition has improved steadily since the 1953 survey. Livestock numbers were increased during the 1980's to a current level of 714 cattle or 1,342 animal months (AM's) (Figure 1). Recent history of the Fleecer elk herd began in

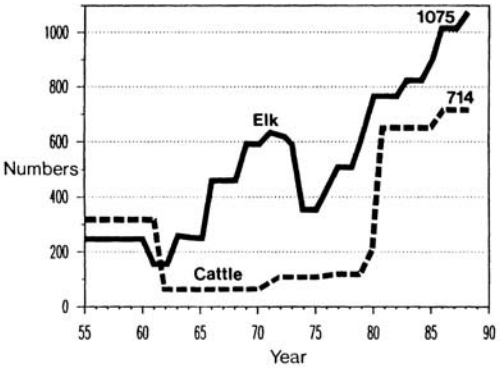

Fig. 1. *Elk and cattle number trends for the Fleecer area.*

1910 when 25 elk from Yellowstone Park were transplanted to augment a native remnant herd. The Fleecer Wildlife Management Area was purchased by Montana Department of Fish, Wildlife and Parks in 1962 to expand winter elk habitat provided by the Forest Service lands. Restrictive hunting seasons, improvements in habitat,

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Forest Morin is the Range Specialist on the Butte Ranger District on the Deerlodge National Forest, USDA Forest Service, Butte, Montana.

and additional use of 6 Bar S lands has enabled the elk herd to increase to its present wintering population of 1,100 with about 800 wintering in the Fleecer Coordinated Grazing Program (Figure 1). The Fleecer's are one of the most heavily hunted areas in Montana because of the large elk population, the large proportion of public land, and proximity to Butte (Frisina 1982).

Grazing Program

The Fleecer Coordinated Grazing Program was fully operational in 1988. It follows rest-rotation grazing principles described by Hormay (1970), and includes 9,730 acres of suitable livestock range. The program was implemented gradually from 1981 to the present as planning, range improvements, and necessary agreements were completed. With the exception of fall grazing on Montana Department of Fish, Wildlife and Parks lands, it was completed in 1987.

	LIVESTOCK ROTATION BY YEAR			SEASONAL RANGE USE	
PASTURES	1988	1989	1990	ELK	CATTLE
1-MFWP	REST	SPRING	LATE FALL	WINTER	SPRING & FALL (LATE)
2-MFWP	LATE FALL	REST	SPRING	WINTER	SPRING & FALL (LATE)
3-MFWP	SPRING	LATE FALL	REST	WINTER	SPRING & FALL (LATE)
4-6 BAR S	SUMMER	FALL	REST	WINTER	SUMMER & FALL
5-6 BAR S	REST	SUMMER	FALL	WINTER	SUMMER & FALL
6-6 BAR S	FALL	REST	SUMMER	WINTER	SUMMER & FALL
7-FS	EARLY SUMMER	REST	REST	WINTER	SUMMER (EARLY)
8-FS	REST	EARLY SUMMER	REST	WINTER	SUMMER (EARLY)
9-FS	REST	REST	EARLY SUMMER	WINTER	SUMMER (EARLY)
10-FS	FALL	REST	SUMMER	SUMMER	SUMMER & FALL
11-FS	SUMMER	FALL	REST	SUMMER	SUMMER & FALL
12-FS	REST	SUMMER	FALL	SUMMER	SUMMER & FALL

LEGEND: *Rest* - Non use by livestock; *Early Summer* - June 1 to Mid July; *Fall* - Mid August to October 1; *Spring* - Mid April to late May; *Summer* - Mid July to Mid August; *Late Fall* - October 1 to Mid October

Note: AFTER THREE YEARS THE LIVESTOCK ROTATION IS REPEATED.

ON 6 BAR S LANDS SUMMER CATTLE USE CONSISTS OF EARLY SUMMER AND SUMMER COMBINED. FALL CATTLE USE EQUALS FALL AND LATE FALL COMBINED.

Fig. 2. *Livestock grazing formula by year and pasture showing seasonal elk and cattle use within the Fleecer Coordinated Grazing Program.*

The grazing program consists of 12 pastures with the rotation of livestock, pasture ownership, and seasonal use by cattle and elk (Figures 2 and 3). There are nine pastures providing winter habitat for elk: three each of Montana Department of Fish, Wildlife and Parks; 6 Bar S; and Forest Service lands. The remaining three pastures on Forest Service land are used by elk during summer and fall. Each year, seven of the 12 pastures are used by cattle

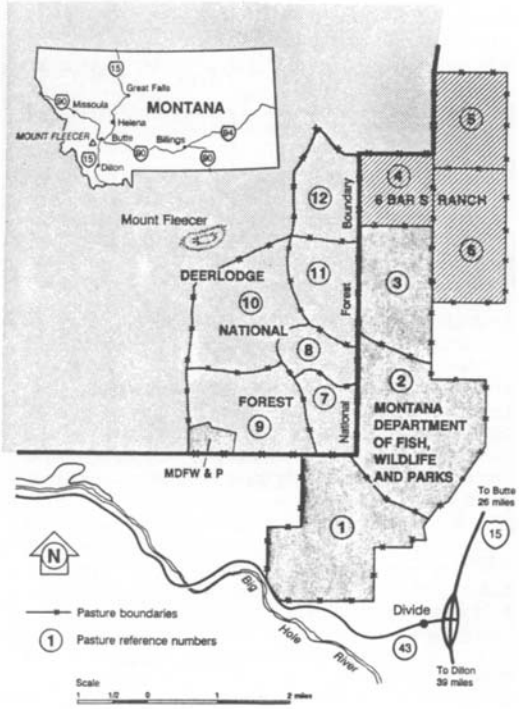

Fig. 3. *Schematic showing pasture location and ownership within the Fleecer Coordinated Grazing Program. Pasture numbers correspond to those on Figure 2.*

during summer and fall, and the other five pastures are rested from livestock use. One of three Montana Department of Fish, Wildlife and Parks pastures provides spring use (April to May) for livestock each year.

At the start of the cattle grazing season (mid April), 500 head of livestock owned by 6 Bar S are placed in one of the three Montana Department of Fish, Wildlife and Parks pastures (Figures 2 and 3). They remain in this pasture until rapid growth of vegetation occurs (late May). Cattle are then removed, thereby allowing maximum regrowth to occur. On June 1, 187 cattle owned by Forest Service permittees are moved to one of the three Forest Service elk winter range pastures. They remain there until mid July, then they are moved to one of the three Forest Service elk summer range pastures. The remaining two Forest Service elk winter range pastures are rested from livestock use all year (Figures 2 and 3). Cattle remain in one of the Forest Service elk summer pastures until seed ripe time (mid August), then are moved to a second Forest Service elk summer pasture where they remain until September 30.

The third Forest Service elk summer pasture is rested

from livestock use all year. On October 1, the livestock are moved to one of the Montana Department of Fish, Wildlife and Parks elk winter pastures for 15 days. On October 15, cattle are removed from the grazing program area for the winter.

The three pastures owned by 6 Bar S provide summer-fall grazing for 200 livestock, and are all elk winter range pastures. One of these pastures is rested from livestock use annually to provide forage for wintering elk. Forage from these elk winter pastures is payment to Montana Department of Fish, Wildlife and Parks for providing 6 Bar S with 500 AM's of spring livestock grazing. After three years the cattle rotation is repeated.

Discussion

The Fleecer Coordinated Grazing Program meets the stated objectives of coordinated livestock and elk management as follows:

Objective 1. Our application of rest-rotation grazing principles described by Hormay (1970) is designed to maintain an upward trend in vegetation and soil conditions. Forest Service monitoring data indicate rangeland and soil conditions are improving (unpublished FS data 1988).

Objective 2. Elk trend count data in Figure 1 demonstrates elk numbers are increasing. This is a result of habitat provided on lands in the grazing program. General observation of elk density on the winter range and amount of forage utilized indicates the elk population is at or near habitat potential.

Two of the three elk winter range pastures on Forest Service lands are rested from livestock use each year to provide forage for elk. Prior to this arrangement, two of the pastures were grazed under a deferred system. The third was reserved for wildlife and received no cattle use for over 20 years. By incorporating the non-use pasture into the system, more rest to improve plant vigor is provided for the formerly deferred pastures. In the formerly non-use pasture, accumulated old growth is periodically removed by cattle to improve the quality of forage for wintering elk (Anderson & Scherzinger 1975 and Jourdonnais 1985). After each of these Forest Service elk winter range pastures is grazed by cattle, it is rested from livestock use for two consecutive years, thus providing substantial forage for elk.

All three pastures on Montana Department of Fish, Wildlife and Parks lands provide winter habitat for elk. Each year one pasture is rested from livestock use and provides a full growing season of plant growth for winter elk forage.

All three pastures on Montana Department of Fish, Wildlife and Parks lands provide winter habitat for elk. Each year one pasture is rested from livestock use and provides a full growing season of plant growth for winter elk forage.

A second pasture is grazed during early spring, and cattle are removed during late May to allow a maximum amount of plant regrowth to occur. The second pasture provides almost as much forage as the one rested from livestock grazing. The third pasture is deferred from use until late fall, when about 100 AM's of cattle grazing are permitted. This light use leaves a substantial amount of forage in the pasture for wintering elk.

The arrangement between Montana Department of Fish, Wildlife and Parks and 6 Bar S through the grazing program provided an increase in the total amount of available winter habitat for elk. Prior to this program, 6 Bar S was receiving winter elk use at an increasing rate and notified the Montana Department of Fish, Wildlife and Parks that the elk population should be controlled, as it was negatively affecting their livestock operation. Incorporating 6 Bar S lands into the grazing program eliminated this conflict. All pastures are available for wintering elk use, including one pasture which is rested from livestock use. The additional winter habitat has allowed for an increase of about 300 elk beyond the previous potential.

In addition to elk winter habitat, the Forest Service elk and cattle summer range pastures are managed according to a three pasture rest-rotation grazing formula with benefits similar to those reported by Frisina (1986).

Objective 3. The number of cattle and AM's provided has gradually increased towards potential during the 1980's (Figure 1).

Objective 4. Recent research by Frisina (1986) and Grover and Thompson (1986) indicate elk prefer to forage during late winter or early spring in pastures grazed the previous growing season by domestic livestock. Abundant green growth is readily available in these pastures during spring.

Also, periodic grazing by cattle on the elk winter range pastures improves the nutritional value of forage plants by removing accumulated old growth and improves forage quality (Anderson & Scherzinger 1975 and Jourdonnais 1985). Management of the Fleecer Coordinated Grazing Program incorporates these facts to make public lands as attractive as possible to elk.

Objective 5. Incorporating 6 Bar S lands into the grazing program has allowed management of the entire elk winter range as a single unit.

Objective 6. The optimum level of livestock production is maintained on 6 Bar S lands. The exchange of use agreement with Montana Department of Fish, Wildlife and Parks has allowed 6 Bar S to provide more rest from livestock grazing on lands used for cattle production, thus helping maintain maximum plant vigor and forage production.

Management Implications

The Fleecer Coordinated Grazing Program is a practical solution to resolving elk and cattle conflicts on elk winter ranges in the West. Cattle are used to actually enhance forage quality and quantity by applying early spring cattle grazing, rest-rotation grazing principles, and integrated management of various land ownerships. Coordinated management resulted in substantially increased cattle and elk numbers, while resolving a landowner tolerance problem.

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Note: A video presentation of this grazing system was shown at the 1989 National SRM meeting in Billings, Montana. It is available upon request from: U.S. Forest Service, Butte Ranger District, Butte, Montana 59701. Telephone: (406) 494-2147.

Run, Antelope! Run!

Run, Antelope! Run! Run! Run!
Save your life from the hunter's gun.

Hunter's in a jeep, wheels driving fast,
Fifty yards behind you; can your slim legs last?

Sage brush and prairie lie ahead,
Outrun the jeep or you'll be dead!

Run, Antelope! Run! Run! Run!
Lose that man with the jeep and gun.

We cheer and pray for your strength and speed,
But the jeep is cutting down your lead.

Run, Antelope! Run! Run! Run!
You've a right to live in the prairie sun.

Ahead lies a gully, wide and deep—
You clear that chasm in one full leap!

The jeep driver brakes and drives away.
Antelope, you outran death today!

Vernette L. Palmer

APPENDIX B:
STOCKING RATES ON FLEECER WMA

SPRING **GRAZING FLEECER WMA**							
grazing year	**turn-on date**	**removal date**	**# days on**	**total # of cattle**	**AUMs**	**adjusted AUMs**	**pasture**
1982	12-Apr-82	05-May-82	23	278	213	213	Sect. 7, 8, 4, 33 (south)
	24-Apr-84	22-May-84	28	368	343	343	north 1/2
1984	29-Apr-84	22-May-84	23	85	65	59	north 1/2
	10-Apr-86	18-May-86	38	432	547	547	north 1/2
	01-May-86	18-May-86	17	4	2	2	north 1/2
1986	10-May-86	18-May-86	8	9	2	2	north 1/2
1987	14-Apr-87	16-May-87	32				south 1/2
1988	16-May-88	11-Jun-88	26	470	407	407	
1989	14-Apr-89	20-May-89	36	447	536	536	
	07-Apr-90	21-May-90	44	360	528	528	2
1990	20-Apr-90	21-May-90	31	136	136	136	2
1991	15-May-91	07-Jun-91	23	454	348	348	3
	13-Apr-92	13-May-92	30	387	387	387	1
1992	05-May-92	13-May-92	8	101	27	27	1
1993	09-Apr-93	12-May-93	33	503	553	553	2
	14-May-94	09-Jun-94	26	252	218	218	3
1994	14-May-94	17-Jun-94	34	190	215	194	3
	10-Apr-95	11-May-95	31	296	306	275	1
1995	10-Apr-95	20-May-95	40	146	195	175	1
1996	15-Apr-96	19-May-96	34	496	562	562	2
1997	24-May-97	05-Jul-97	42	240	336	302	3
1998	14-Apr-98	21-May-98	37	457	564	564	1
1999	17-Apr-99	23-May-99	36	464	557	501	2

2000	03-May-00	20-Jun-00	48	254	406	406	3
2001	17-Apr-01	16-May-01	30	470	470	470	1
2002	16-Apr-02	24-May-02	38	420	532	532	2
2003	17-May-03	23-Jun-03	37	275	339	339	3
2004	07-Apr-04	04-May-04	27	504	454	454	1
2005	12-Apr-05	13-May-05	31	565	584	584	2
2006	13-May-06	20-Jun-06	38	252	319	319	3
	07-Apr-07	14-May-07	37	170	210	210	1
2007	10-Apr-07	14-May-07	34	312	354	354	1
	8-Apr-08	16-Apr-08	8	200	53	53	2
2008	26-Apr-08	23-May-08	27	370	333	333	2
2009	04-May-09	02-Jun-09	29	417	403	403	3

TOTAL AUM: >11,342

***FALL* GRAZING - FLEECER WMA**								
grazing year	**turn-on date**	**removal date**	**# days on**	**total # of AUM allowed in lease**	**AUM used**	**pasture**	**AUM price**	**Fee Collected**
1982-1987	NR							
1988	01-Oct-88	15-Oct-88	15	94	94	middle	$7.94	$746.74
1989	01-Oct-89	15-Oct-89	15	94	94	3	$9.79	$920.26
1990	01-Oct-90	15-Oct-90	15	94	94	1	$8.04	$755.76
1991	01-Oct-91	15-Oct-91	15	94	94	2	$9.61	$903.34
1992	01-Oct-92	15-Oct-92	15	94	94	3	$10.58	$994.52
1993	01-Oct-93	15-Oct-93	15	94	94	1	$8.06	$757.64
1994	01-Oct-94	15-Oct-94	15	94	94	2	$11.40	$1,071.60
1995	01-Oct-95	15-Oct-95	15	52	52	3	$11.80	$613.60
1996	01-Oct-96	15-Oct-96	15	52	45	1	$9.06	$495.74
1997	01-Oct-97	15-Oct-97	15	52	43	2	$11.80	$507.40
1998	01-Oct-98	15-Oct-98	15	52	43	3	$12.30	$528.90
1999	01-Oct-99	15-Oct-99	15	52	51	1	$12.60	$642.60
2000	01-Oct-00	15-Oct-00	15	52	48	2	$13.20	$633.60
2001	01-Oct-01	15-Oct-01	15	52	52	3	$4.94	$258.02
2002	01-Oct-02	15-Oct-02	15	89	89	1	$6.20	$552.40
2003	Not grazed due to drought conditions							
2004	01-Oct-04	15-Oct-04	15	89	67	3	$5.48	$369.44
2005	NR							
2006	01-Oct-06	15-Oct-06	15	94	94	2	$6.22	$581.57
2007	01-Oct-07	15-Oct-07	15	94	94	3	$7.87	$739.72
2008	01-Oct-08	15-Oct-08	15	94	94	1	$6.94	$652.36
2009	01-Oct-09	15-Oct-09	15	94	94	2	$6.97	$655.18

TOTAL AUM: >1,425 TOTAL INCOME: $13,380.39

APPENDIX C:

PLANT AND ANIMAL LISTS FOR FLEECER WMA

Please note that a comprehensive plant and wildlife inventory of Fleecer WMA will be conducted in 2010 and the following lists will be updated as a result.

Fleecer Mountain WMA Animal Species List

List of Mammals:

Elk	Cervus elaphus
Mule Deer	Odocoileus hemionus
White-Tailed Deer	Odocoileus virginianus
Antelope	Antilocapra americana
Moose	Alces alces
Grey Wolf	Canis lupus
Coyote	Canus latrans
Red Fox	Vulpes vulpes
Mountain lion	Puma concolor
Bobcat	Felis rufus
Lynx	Felis lynx canadensis
Black Bear	Ursus americanus
Raccoon	Procyon lotor
Wolverine	Gulo gulo
Pine Marten	Martes americana
Fisher	Martes pennanti
Short-Tailed Weasel	Mustela ermine
Long-Tailed Weasel	Mustela frenata
Columbian Ground Squirrel	Citellus columbianus
Yellow Pine Chipmunk	Eutamies amoenus
Golden-Mantled Chipmunk	Citellus lateralis
Northern Flying Squirrel	Glaucomys sabrinus
Yellow-Bellied Marmot	Marmota flavinventris
Hoary Marmot	Marmota caligata
Red-Backed Vole	Clethrionomys gapperi
Water Vole	Microtus montanus
Long-Tailed Vole	Microstus longicaudus
Montane Heather Vole	Phenacomys intermedius
Western Jumping Mouse	Zapus princeps
Deer Mouse	Peromysucus maniculatus
Northern Water Shrew	Sorex palustris
Vagrant Shrew	Sorex vagrans
Dwarf Shrew	Sorex nanus
Big Brown Bat	Eptesicus fuscus
Yuma Bat	Myotis yumanensis
Northern Long-Eared Bat	Myotis evoltis

Little Brown Bat	Myotis lucifugus
Hoary Bat	Lasiurus cinereus
Silver-Haired Bat	Lasionycteris noctivagans
Small-Footed Bat	Myotis ciliolabrum
Long-Legged Bat	Myotis volans

List of Reptiles and Amphibians:

Long-Toed Salamander	Ambystoma macrodactylum
Tiger Salamander	Ambystoma tigrinum
Northern Leopard Frog	Rana pipens
Spotted Frog	Rana pretiosa
Western Toad	Bufo boreas
Painted Turtle	Chrysemys picta

List of Birds:

Cinnamon Teal	Anas cyanoptera
Barrow's Goldeneye	Bucephala islandica
Common Goldeneye	Bucephala clangula
Bufflehead	Bucephala albeola
Wood Duck	Aix sponsa
Common Merganser	Mergus merganser
Hooded Merganser	Lophodytes cucullatus
Turkey Vulture	Cathartes aura
Bald Eagle	Haliaeetus leucocephalus
Golden Eagle	Aquila chrysaetos
Red-Tailed Hawk	Buteo jamaicensis
Rough-Legged Hawk	Buteo lagopus
Swainson's Hawk	Buteo swainsoni
Ferruginous Hawk	Buteo regalis
Cooper's Hawk	Accipiter cooperii
Sharp-Shinned Hawk	Accipiter striatus
Northern Goshawk	Accipiter gentilis
Prairie Falcon	Falco mexicanus
American Kestrel	Falco sparverius
Peregrine Falcon	Falco peregrinus
Merlin	Falco columbarius
Osprey	Pandion haliaetus
Great Horned Owl	Bubo virginianus
Common Barn Owl	Tyto alba
Blue Grouse	Dendragapus obscurus
Sage Grouse	Centrocercus urophasianus
Spruce Grouse	Falcipennis canadensis
Ruffed grouse	Bonasa umbellus
Sandhill Crane	Grus canadensis

Great Blue Heron	Ardea herodias
Mountain Plover	Charadrius montanus
Long-Billed Curlew	Numenius americanus
Killdeer	Charadrius vociferus
Willet	Tringa semipalmata
Black-Billed Cuckoo	Coccyzus erythropthalmus

Fleecer Mountain WMA Plant Species List

Grasses:

Bromus inermis	smooth brome
Bouteloua gracilis	blue grama
Carex sp.	aquatic sedge
Carex filifolia	threadleaf sedge
Carex geyeri	Geyer's sedge
Carex nebrascensis	Nebraska sedge
Carex rostra	beaked sedge
Danthonia intermedia	timber oatgrass
Festuca idahoensis	Idaho fescue
Festuca campestris (*Festuca scabrella*)	rough fescue
Hesperostipa comata (*Stipa comata*)	needle and thread
Koeleria macrantha (*Koeleria cristata*)	prairie junegrass
Pascopyrum smithii (*Agropyron smithii*)	western wheatgrass
Phleum pratense	timothy
Poa secunda (*Poa sandbergii*)	Sandberg bluegrass
Poa pretensis	kentucky bluegrass
Pseudoroegneria spicata (*Agropyron spicatum*)	bluebunch wheatgrass

Forbs:

Achillea millefolium	western yarrow
Agoseris glauca	pale agoseris (mountain dandelion)
Allium sp.	wild onion
Antennaria luzuloides	rush pussytoes
Antennaria rosea	rosy pussytoes
Antennaria microphylla	littleleaf pussytoes
Arenaria congesta	sandwort
Astragalus atropubescens	hangingpod milkvetch (locoweed)
Astragalus drummondii	Drummond's milkvetch (locoweed)
Astragalus purshii	wollypod milkvetch (locoweed)
Calochortus nuttallii	sego lily
Cardaria draba	whitetop
Castilleja sp.	indian paintbrush
Centaurea sp.	spotted knapweed
Cerastium arvense	field chickweed

Comandra umbellata	bastard toadflax
Crepis acuminata	tapertip hawksbeard
Epilobium angustifolium	fireweed
Erigeron sp.	fleabane
Eriogonum umbellatum	sulphur-flower buckwheat
Euphorbia esula	leafy spurge
Fragaria vesca	strawberry
Geranium viscosissimum	sticky purple geranium
Geum triflorum	avens (old man's whiskers)
Heterotheca villosa (*Chrysopsis villosa*)	false goldenaster
Lepidium sp.	pepperweed
Lupinus sericeus	silky lupine
Melilotus officinalis	yellow sweetclover
Penstemon procerus	pincushion beardtongue
Perideridia gairdneri	yampah
Phlox hoodii	phlox
Phlox longifolia	phlox
Sedum stenopetalum	wormleaf stonecrop
Silene sp.	catchfly
Sphaeralcea coccinea	scarlet globemallow
Taraxacum officinale	common dandelion
Tragopogon dubius	yellow salsify (goatsbeard)
Trifolium longipes	clover

<u>SubShrub</u>:

Artemisia frigida	prairie sagewort (fringed sage)

<u>Shrubs</u>:

Artemisia tridentata	big sagebrush
Caragana sp.	caragana
Chrysothamnus viscidiflorus	rabbitbrush
Ericameria nauseosa (*Chrysothamnus nauseosus*)	rubber rabbitbrush
Gutierrezia sarothrae	broom snakeweed
Krascheninnikovia lanata (*Certoides lanata*) (*Eurotia lanata*)	winterfat
Potentilla gracilis	cinquefoil
Potentilla (*glauca*)	cinquefoil
Pushia tridentata	bitterbrush
Rosa sp.	rose
Salix geyeriana	Geyer willow
Salix exigua	sandbar willow

Tetradymia canescens	spineless horsebrush

Trees:

Cercocarpus leadifolius	curl-leaf mountain mahogany
Juniperus scopulorum	Rocky Mountain juniper
Pinus contorta	lodgepole pine
Populus tremuloides	quaking aspen
Pseudotsuga menziesii	Douglas-fir

Cactus:

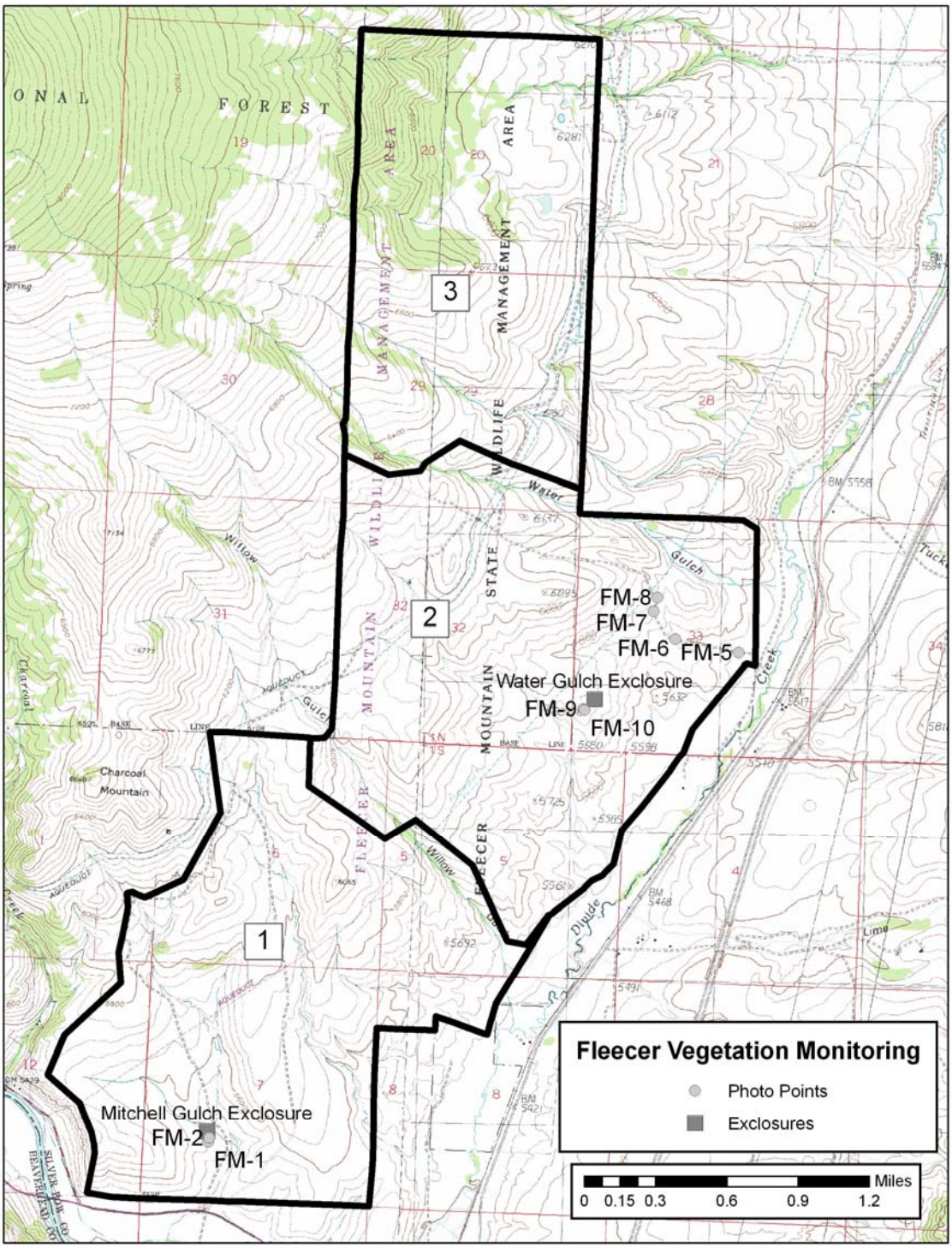
Opuntia polyacantha	prickly pear

Mosses:

Selaginella densa	lesser spikemoss

APPENDIX D:
VEGETATION MONITORING

Figure 1. Location of vegetation monitoring photo plots and exclosures on Fleecer WMA.



Percent (%) Canopy Cover Summarized By Group Report

This reports total average percent canopy cover by each group, the groups being the different plant lifeforms, litter and bare ground. The report summarizes this information by year and site. Please, note that acceptable values for total canopy may be less than or greater than 100 percent. This occurs because the original data is a class that represents a range of percent canopy. The mid point of each class is used to calculate the canopy cover estimate, and these values are then summed and averaged for each species for a transect. If there are many species which fall into Class 1, which would be 0-5% canopy, thus the midpoint of 2.5% would be used for each plot that species occurred within, those values would not amount to very much average percent canopy, even if it occurred in all 30 transects. For example: (2.5 x 30) / 30 = 2.5%. The opposite case would occur with a number of frames resulting in large canopy, or many species overlapping their canopy values, thus adding up to an average canopy of greater than 100 percent.

FLEECER MOUNTAIN

Site 01 North In Agsp

Visit Date	Group Name	Sum of Average % Canopy
6/27/2006		
	Grass	32.313
	Forb	3.813
	SubShrub	1.813
	Shrub	9.813
	Lichen	29.938
	Rock	1.188
	BareSoil	20.500
	Litter	27.750
	Total % Canopy Cover :	127.125

Site 02 North Out Agsp

Visit Date	Group Name	Sum of Average % Canopy
6/28/2006		
	Grass	36.438
	Forb	5.000
	SubShrub	2.688
	Shrub	0.563
	Lichen	38.563
	Cactus	0.500
	Rock	3.938
	BareSoil	21.938
	Litter	13.938

Total % Canopy Cover : 123.563Percent

Site 03 South Artr In

Visit Date	Group Name	Sum of Average % Canopy
6/21/2006		
	Grass	24.063
	Forb	15.750
	SubShrub	3.563
	Shrub	39.063
	Lichen	23.063
	BareSoil	19.375
	Litter	29.625
	Total % Canopy Cover :	154.500

Site 04 South Artr Out

Visit Date	Group Name	Sum of Average % Canopy
6/26/2006		
	Grass	26.000
	Forb	8.063
	SubShrub	2.000
	Shrub	17.375
	Lichen	29.125
	BareSoil	21.563
	Litter	29.063
	Total % Canopy Cover :	133.188

APPENDIX E:
WILDLIFE SURVEY AND INVENTORY DATA

Fleecer/Charcoal Area *Antelope* Population Counts, 1961-2009

NR = Not reported

Year	Date	Fleecer	319 Total	Comments
1961	17-Mar-61	15-20		Notes from elk flight report 1962-1961
1961	26-Dec-61	22		USFS count, Charcoal Gul area, notes suggest ground counts
1962	22-Jan-62	15-20		Notes from elk flight report 1962-1961
1967	27-Jan-67	28		
1969	4-Dec-69	15		Note from elk flight
1972	7-Nov-72	19		Incidental sighting
1974	12-Jul-74	8	20	Bad flight, saw "nearly 59 antelope" the previous winter
1975	14-Jul-75	10	31	Also flew 13 Jul 1975 but thunderstorms ended flight quickly
1976	14-Jul-76	3	26	
1977	17-Jul-77	26	39	
1978	13-Jul-78	32	32	On several occasions, Frisina obs ~40 antelope wintering on WMA
1979	6-Jan-79	40		Frisina obs 40 antelope near the garbage dump at WMA entrance
1979	18-Jul-79	20	35	
1980	16-Jul-80	24	24	Antelope spot check
1981	15-Jul-81	36	72	
1982	NR		60	No flight report found, data from 1995 summary table
1983	29-Jul-83	25	31	
1984	24-Jul-84	49	49	
1985	NR		49	No flight report found, data from 1995 summary table
1986	NR		31	No flight report found, data from 1995 summary table
1989	20-Jul-89	10	26	
1990	19-Jan-90	34		Incidental sighting
1990	23-Jul-90	41	81	
1991	6-Aug-91		64	No flight report found, just summary
1991	27-Dec-91	96		In Mitchell Gulch
1992	25-Aug-92	69	144	
1993	Dec-93	115		Incidental sighting, reported in 1995 season justification
1994	Nov-94	120		Incidental sighting, reported in 1995 season justification
1995	29-Jan-00	29	153	
1996	20-Jul-96	53	139	
1997	13-Aug-97	67	166	
1998	19-Jul-98	52	121	
1999	10-Jul-99	43	165	
2000	19-Jul-00	20	84	
2001	7-Jul-01	56	127	
2002	14-Jul-02	18	96	
2003	28-Jul-03	41	121	
2004	23-Jul-04	89	193	
2005	21-Jul-05	34	225	
2006	21-Jul-06	32	99	
2007	19-Jul-07	91	206	
2009	9-Jul-09	62	182	

Fleecer/Charcoal Area *Deer* Population Counts, 1962-2009

Winter/ Spring	Maximum count for Fleecer/Charcoal	Maximum count for HDs 319/341	Comments
1962	11	117	Probable ground classification, along Big Hole River from Dickie Bridge to Fleecer (winter)
1963		91	44 fawns to 100 adults, no other information available
1964	23	379	Incidental counts of deer during winter elk survey
1971		~230	Saw 103 adult and 29 fawn MD at Johnson Crk, plus ~100 more in area not classified
1972		47	Incidental ground classification during range work, not census
1975	5	121	From winter production survey
1976	37	335	
1977	43	700	
1978	89	719	Max counts from winter production survey
1979	85	980	
1980	131	1306	
1981	84	788	Mild weather, missed a lot of deer in HD 319
1982	80	1839	
1983	119	1506	
1984	158	1664	
1985	28	690	Survey was not intensive in either HD due to budget constraints
1986	25	1215	
1987	35	676	Low count in 319, no reason stated in flight report
1988	28	1206	
1989	74	1261	
1990	59	1030	
1991	91	1141	
1992	16	511	Max counts from winter production survey
1993	53	1251	
1994	81	1146	Max overall on helicopter flight, 81 deer on Fleecer seen during spring Supercub flight
1995	93	1025	
1996	110	974	Fleecer maximum from winter survey
1997	90	1076	Fleecer maximum from winter survey
1998	59	701	Open winter conditions (not valid for trend)
1999	122	1090	
2000	79	553	Max counts from winter production survey
2001	74	527	Max counts from winter production survey
2002	101	683	Deer widely scattered, greenup advanced (not valid for trend)
2003	34	384	Open winter conditions (not valid for trend), Fleecer maximum from winter survey (helicopter)
2004	70	488	Max counts from winter production survey
2005	108	600	319/341 maximum from winter survey (helicopter), Fleecer maximum from spring survey
2006	123	602	
2007	138	552	
2008	91	626	
2009	133	563	

Fleecer/Charcoal Area Winter *Elk* Population Counts, 1936-2009

Winter	Maximum count for Fleecer/Charcoal	Maximum count for HDs 319/341	Comments
1936	109	-	Based on Dec1 to April 1 ground recon and several counts
1941	-	556	Ground survey, 334 - Fleecer and High Rye, 222 - Big Hole
1942	-	626	Ground survey, 464 - Fleecer and High Rye,162 - Big Hole (10% arbitrarily added for elk not seen)
1943	-	470	Ground survey, source unknown, no other details known
1946	-	581	Ground survey, 390 - Fleecer and High Rye, 191 - Big Hole
1947	-	634	Ground survey, source unknown (USFS?), Deerlodge portion only (USFS land), reported 500 on Fleecer Mtn (and High Rye?)
1949	158	523	USFS mixed ground/aerial survey (plus track counts) on USFS land
1951	175	432	First FWP aerial survey, none seen in Jerry Creek
1954	213	435	
1955	389	681	Unknown if these data are from aerial or ground survey
1957	-	325	More detailed distribution data unavailable
1958	248	395	
1959	136	233	
1961	-	206	More detailed distribution data unavailable
1962	99	254	Did not get a good count on Fleecer this year
1964	205	389	Lack of snow made for poor observations overall, but favorable counting conditions existed on Fleecer
1965	238	407	Noted not enough snow for good observations
1967	343	575	
1968	397	717	
1969	297	514	Mild winter
1970	330	674	
1971	336	754	
1972	476	846	Helicopter classification flight
1973	321	673	Very mild winter
1974	283	458	Helicopter classification flight
1975	160	490	
1976	242	595	
1978	390	681	
1979	506	806	
1980	628	993	
1981	350	882	Minimal snow
1982	371	511	Spring grazing exchange begins, High Rye not flown
1983	420	619	Very mild winter, poor count; High Rye not flown
1984	519	1274	
1985	704	1336	
1986	23	629	Extremely mild winter
1987	737	1453	
1988	727	1522	Fall grazing begins on Fleecer WMA
1989	686	1459	
1990	697	1472	

1991	716	1615	
1992	850	1626	
1993	601	1629	
1994	754	1751	
1995	729	1570	
1996	610	1813	
1997	1440	2356	Severe winter conditions caused ~500 elk to migrate from HDs 331/332 to HD 319; maximum total excluding these elk estimated to be 1796
1998	854	1752	
1999	1401	2076	
2000	1134	2063	
2001	1232	1692	
2002	1013	1521	Poor count, missed 200+ elk
2003	1241	1918	
2004	972	1531	
2005	560	1610	
2006	856	1289	
2007	661	1091	
2008	>587	862	
2009	517	805	