

Montana Department of Livestock
Bison Management Cooperative Agreement #05-9730-0124-CA
Final Report of FY2005
(October 1, 2004 – September 30, 2005)

**BISON MANAGEMENT IN THE MONTANA
GREATER YELLOWSTONE AREA (GYA)**

OBJECTIVES:

- ❖ Maintain Montana’s Brucellosis Class Free status.
- ❖ Reduce the risk of *Brucella abortus* transmission from YNP bison to livestock in Montana.
- ❖ Protect the economic interests and viability of Montana’s livestock industry.
- ❖ Protect private property in Montana.
- ❖ Preserve a viable wild population of YNP bison.
- ❖ Cooperatively implement the Interagency Bison Management Plan with member agencies.
- ❖ Provide science-based, factual information to the public regarding brucellosis in the GYA.

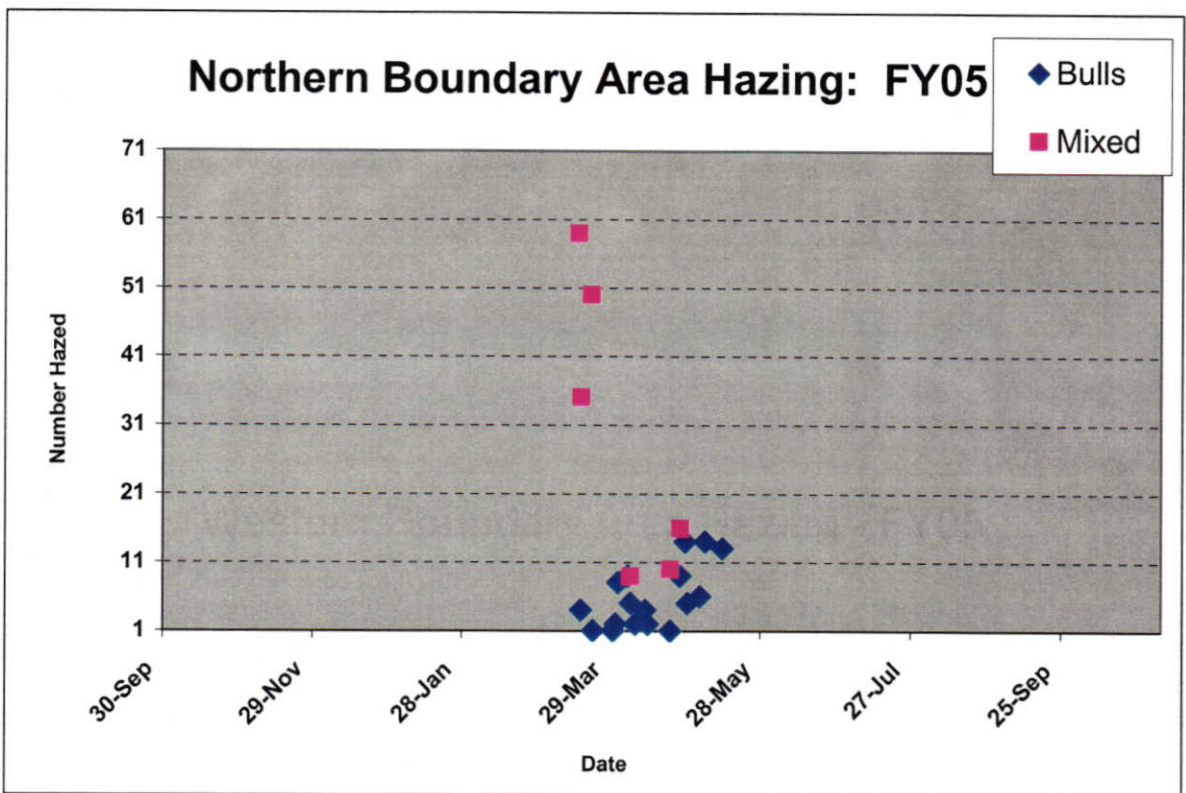
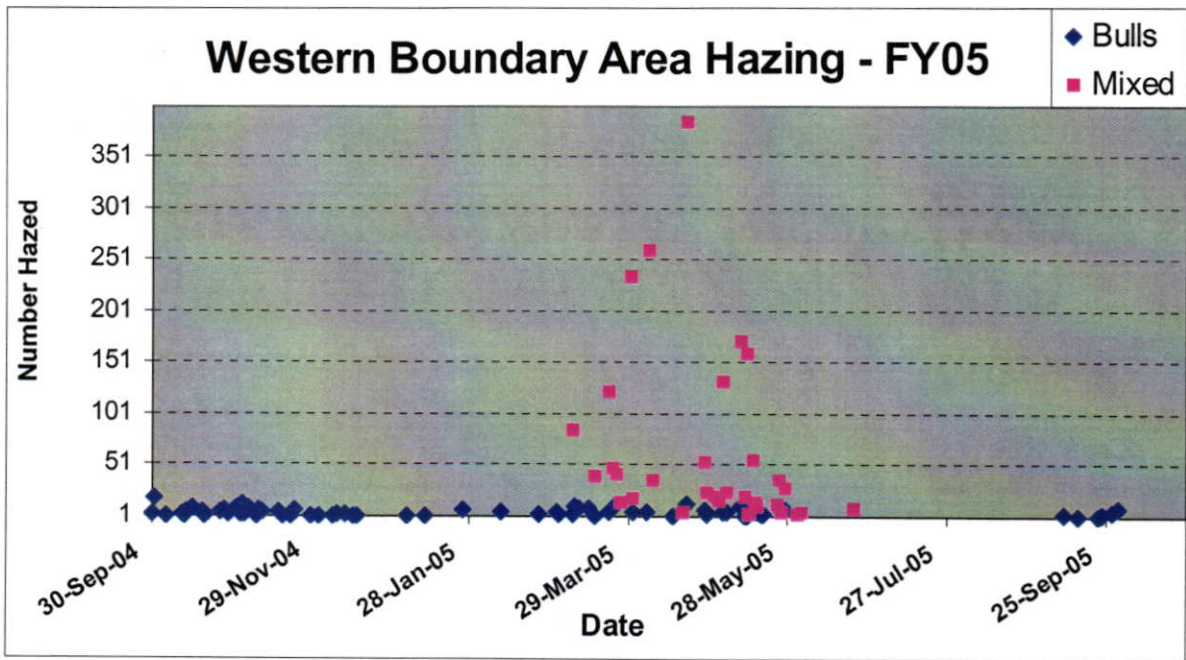
PROGRAM ACTIVITY:

During FY2005, the Department of Livestock (MT DOL) continued to jointly implement the Interagency Bison Management Plan (IBMP) with National Park Service, US Forest Service, USDA Animal and Plant Health Inspection Service (APHIS), Montana Fish, Wildlife and Parks. Through implementation of the IBMP, the member agencies were successful in realizing the program objectives (above). Activities during FY2005 included:

- ❖ **Bison Hazing.** Implementation of the IBMP continues to focus on spatial and temporal separation of bison and cattle outside YNP. Department personnel monitored the distribution and abundance of bison in the Montana Greater Yellowstone Area (GYA). Hazing operations were conducted on 89 different days in the Western Boundary Area and on 19 days in the Northern Boundary Area. The tables below and the graphs on the following page summarize hazing activities, in which MT DOL was the lead agency, conducted in the Western and Northern Boundary Areas of YNP.

Western Boundary Area Hazing	
October 1, 2004 - September 30, 2005	
# Hazing Operation Days	89
Total Bull Bison Hazed	317
Total Mixed Bison Hazed	2094
Total Hazed- Successful	2306
Total Not Successful	105
Total Bison Hazed	2411

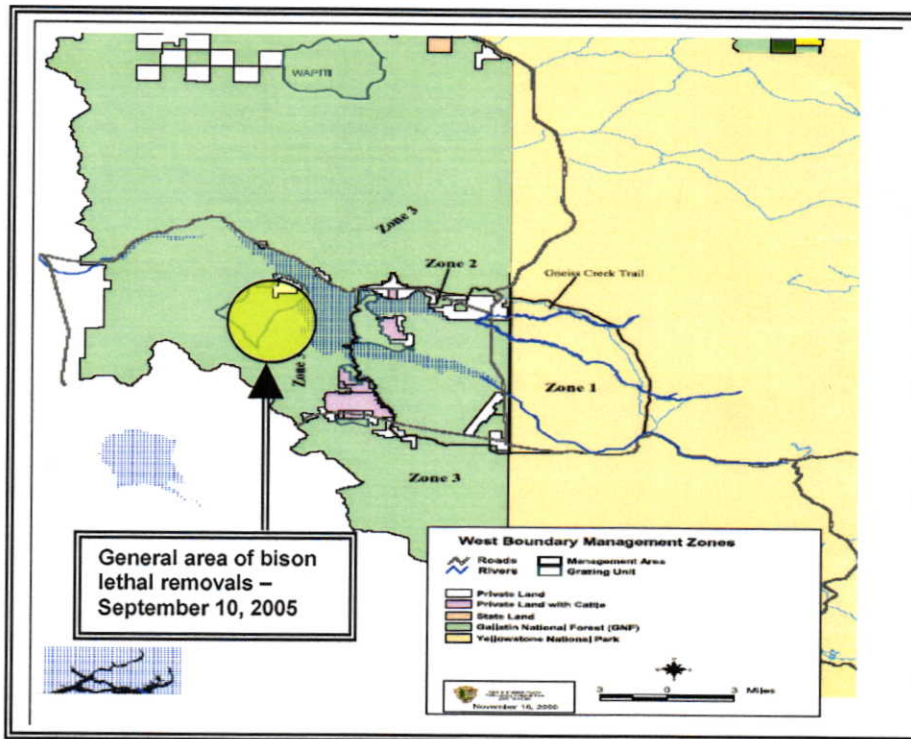
Northern Boundary Area Hazing	
October 1, 2004 - September 30, 2005	
# Hazing Operation Days	19
Total Bull Bison Hazed	100
Total Mixed Bison Hazed	179
Total Hazed- Successful	278
Total Not Successful	1
Total Bison Hazed	279



❖ **Bison Capture.** During FY2005, there were a total of twelve capture operations conducted at the Western Boundary, in which 184 bison were captured (66 bulls, 87 cows, 12 yearlings, and 19 calves). Of those captured, 69 were test negative and subsequently released (24 bulls, 33 cows, and 12 yearlings), 97 were transported to slaughter facilities (41 bulls, 54 cows, and 2 calves), 17 calves were transported to the Bison Quarantine Feasibility Study (BQFS) site, and 1 aged bull died in the capture facility. Of the 17 calves introduced into the BQFS, 3 subsequently sero-converted and were removed from the study. All three of these calves were determined to be culture positive (*Brucella abortus* biovar 1). Of the 33 seronegative cows released, 21 were pregnant and were radio-collared and implanted with vaginal radio telemetry devices in order to conduct additional monitoring. All of the 12 seronegative yearlings captured and subsequently released were vaccinated with *Brucella abortus* strain RB51 vaccine (9 vaccinated in 2005, 3 vaccinated in 2004 as calves). The following summarizes the capture operations during federal FY 2005:

WESTERN BOUNDARY AREA CAPTURE OPERATIONS FY2005					
DESCRIPTION	CAP.	REL.	SL.	L.R.	BQFS
ADULT BULLS	66	24	41		2
ADULT COWS	87	33	54		0
YEARLINGS	12	12	0		0
CALVES (2004)	19	0	2		0
TOTALS	184	69	97	2	17
*CAP - Captured *REL - Released *SL - Slaughtered *L.R. - Lethal Removal *BQFS - Bison Quarantine Feasibility Study					

❖ **Bison Lethal Removal.** Two bull bison, in Zone 3 in the Western Boundary Area, were lethally removed September 10, 2005.



❖ **Monitoring Sero-negative Pregnant Bison.** 21 sero-negative, pregnant bison cows were radio-collared and implanted with vaginal radio telemetry devices in order to conduct additional monitoring. The objectives of this study are to (i) monitor all sero-negative pregnant females to locate birth and/or abortion sites and (ii) sample birth and/or abortion sites for the presence of *B. abortus* that could become a source of transmission between bison and cattle in the Montana GYA. Any site that poses a threat may be disinfected to minimize the risk of disease transmission at the discretion of the state veterinarian. Field monitoring was initiated in April 2005 and continued until mid-June 2005. Surveillance efforts outside YNP yielded no evidence of any collared bison leaving YNP after the May 15th haze back date. Approximately 90% of the radio-collared animals were relocated within the Hayden Valley in YNP by mid-June 2005. .

Field monitoring was initiated in April 2005 and continued until mid-June 2005. Collared females were relocated using radio telemetry (ground and air) or by chance encounter. Immediately following a ground sighting, the collared animal was positively identified (back tag number or color pattern on the collar) and its corresponding vaginal transmitter listened for. If a vaginal implant signal could not be detected the collared animal was observed for approximately 20-30 minutes to determine whether or not a calf was present. Additionally, weather conditions, date, time, geographical location, UTM coordinates, total number of bison present, presence of other marked bison, behavioral activity of the focal animal and habitat type were recorded.

Summary data from sero-negative pregnant bison released from Montana DOL capture facility, Duck Creek, March-April 2005.

Bison #	Animal ID (Tag #)	Estimated Age (years)	Capture Date	Pregnancy Palpation	Estimated Gestational Age (days)	Calf Observed
1	5964	8-9	3/29/2005	Yes	>120	Yes
2	5973	5-6	4/06/2005	Yes	>120	Yes
3	5982	3	4/06/2005	Yes	>120	Yes
4	5979	3	4/06/2005	Yes	>120	Unknown
5	5978	>10	4/06/2005	Yes	>120	Yes
6	5972	5-6	4/06/2005	Yes	>120	Yes
7	6430	7-8	4/12/2005	Yes	>120	Yes
8	6424	9-10	4/12/2005	Yes	>120	Unknown
9	6423	>10	4/12/2005	Yes	>120	Yes
10	6420	7-8	4/12/2005	Yes	>120	Yes
11	6426	3	4/12/2005	Yes	>120	No
12	6484	7	4/14/2005	Yes	>120	Yes
13	6479	3-4	4/14/2005	Yes	>120	Yes
14	6455	8-9	4/14/2005	Yes	>120	Yes
15	6467	6-7	4/14/2005	Yes	>120	Yes
16	3225	9-9	4/20/2005	Yes	>120	Yes
17	3223	7-8	4/20/2005	Yes	>120	Yes
18	3220	5-6	4/20/2005	Yes	>120	Yes
19	3201	7-8	4/20/2005	Yes	>120	Yes

Bison #	Animal ID (Tag #)	Estimated Age (years)	Capture Date	Pregnancy Palpation	Estimated Gestational Age (days)	Calf Observed
20	3205	4-5	4/20/2005	Yes	>120	Yes
21	3213	4-5	4/20/2005	Yes	>120	Yes

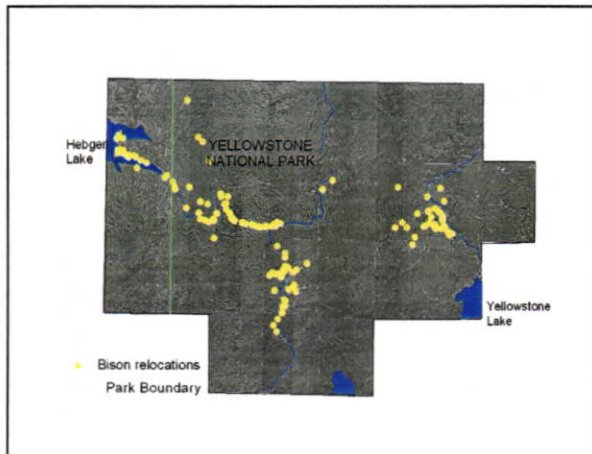
Preliminary bacteriologic results from samples collected at eight separate implant ejection sites tested negative for *B. abortus* are presented in the table below. Based on this limited set of results, it appears that no bacteria have been shed into the environment around these sites. Of particular interest are the results for animal #6424. This animal's vaginal implant was retrieved in early May 2005 although she was never sighted with a calf. The initial culture results are also negative indicating no contamination at the vaginal transmitter ejection site.

***Brucella abortus* test culture results from vaginal transmitter ejection sites sampled during monitoring of sero-negative pregnant bison, GYA, April-June 2005.**

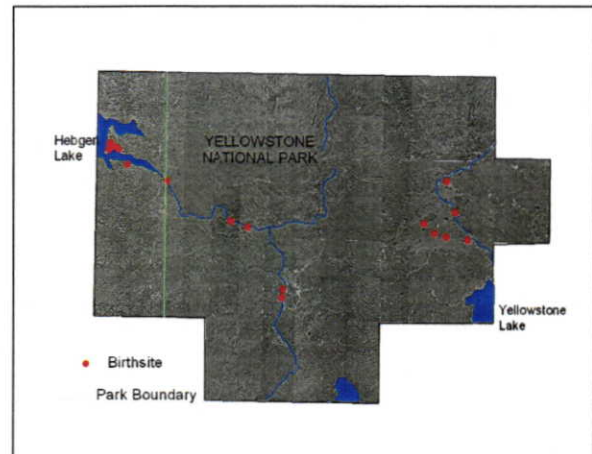
Bison #	Animal ID	Sample Date	Outside Park	Soil Sample	Vegetation Sample	Results
1	5964	5/16/2005	Yes	Yes	Yes	
2	5973	5/03/2005	No	Yes	Yes	Negative
3	5982	5/11/2005	Yes	Yes	Yes	
4	5979	-	-	-	-	-
5	5978	4/22/2005	No	Yes	Yes	Negative
6	5972	6/15/2005	No	No	No	
7	6430	6/15/2005	No	No	No	
8	6424	5/02/2005	Yes	Yes	Yes	Negative
9	6423	6/15/2005	No	No	No	
10	6420	5/12/2005	No	Yes	Yes	
11	6426	5/12/2005	No	No	No	DEAD
12	6484	-	-	-	-	-
13	6479	5/27/2005	No	Yes	Yes	
14	6455	5/09/2005	No	Yes	Yes	
15	6467	6/15/2005	No	No	No	
16	3225	5/11/2005	No	Yes	Yes	Negative
17	3223	6/15/2005	No	No	No	
18	3220	5/03/2005	Yes	Yes	Yes	Negative
19	3201	5/03/2005	Yes	Yes	Yes	Negative
20	3205	5/02/2005	Yes	Yes	Yes	Negative
21	3213	5/04/2005	Yes	Yes	Yes	Negative

Two flights and daily ground tracking yielded a total of 241 positive sightings during the study period. These sightings, gathered between April and June 2005, show animals concentrated in several locations: Horse Butte, along the Madison River drainage, Lower and Midway Geyser Basins, and Hayden Valley.

(Figure 1). Relocation Points, April – June 2005



(Figure 2). Birth Site Locations



Bison abundance outside YNP was highest during the period immediately preceding the start of the calving period. Temporal radio relocation data suggests that this subpopulation of bison winter outside YNP making use of lower elevations around Horse Butte and the Madison River drainage.

Towards the end of April and beginning of May bison movements increased. Movement patterns generally followed an easterly or southeasterly direction although sightings indicate that animals were still congregated at lower elevations along the Madison River and/or Lower and Midway Geyser Basins. Occasional sightings of collared bison were noted in the Hayden Valley during this time. Of these sightings, four collared bison (#5964, #5978, #6426 #6467) had returned from winter ranges to the Hayden Valley by early May 2005. Based on relocation data, they remained within the valley throughout mid-June (when monitoring ceased) utilizing this area exclusively. Approximately 90% of the radio-collared animals were relocated within the Hayden Valley by mid-June 2005. Surveillance efforts outside YNP yielded no evidence of any collared bison leaving YNP after the May 15th haze back date.

- ❖ **Recording and Reporting of Management Activities.** MT DOL recorded and reported on all IBMP activities and management operations in the Western Boundary Area of YNP. Daily activity reports related to management activities are provided to IBMP member agencies following management activities. Similarly, the MT DOL communicated with the National Park Service (NPS) regarding bison management activities in the Northern Boundary Area of YNP, where the NPS is the lead agency within YNP. Additionally, the MT DOL provided media releases regarding IBMP activities.
- ❖ **IBMP Managers Meeting.** Throughout FY2005, MT DOL personnel participated in several IBMP “Managers” meetings to discuss and review bison management and issues related to implementation of the IBMP. These meetings focused on the following:

- Agency management and research updates
 - The Environmental Persistence of *Brucella abortus* strain RB51 study
 - The Fetal Disappearance study
 - Vaccination of bison – Montana bison vaccination environmental assessment and YNP remote vaccine delivery environmental impact statement
 - Proposed bison hunt
 - Bison Quarantine Feasibility study
 - IBMP Status review report
- ❖ **IBMP Status Review.** Dr. Linfield participated in developing the IBMP Status Review Report 2000-2005. Developed adaptive management adjustments regarding bison management in the Western Boundary Area. These adjustments included utilizing hunting as an additional management tool. Dr. Linfield participated in an IBMP Managers conference call September 9, 2005 and in an IBMP Managers meeting September 12, 2005 to finalize the IBMP Status Review report. The report was released September 29, 2005, and included the following:
- Goals of IBMP
 - Accomplishments
 - Adaptive management progress
 - Subsequent management actions, including those necessary to proceed to Step 2 in the Northern and Western Boundary Areas of YNP.
- ❖ On October 1, 2004, the MT DOL concurred with the Bison Hunting EA and Decision Notice released by MT FWP and authorized a limited public bison hunt as described in the EA and Decision Notice. The MT FWP Commission, after initially setting a bison hunting season, subsequently cancelled the season.
- ❖ Dr. Linfield developed proposed adaptive management adjustments to the IBMP regarding bison management in the Western Boundary Area. Specifically, bison hunting, through a proposed bison hunting demonstration project in the Western Boundary Area will be considered as an additional management tool. Hunting will potential be permitted November 15 thru February 15, when cattle are typically not present in the West Yellowstone basin. The MT Board of Livestock subsequently approved the adjustments to the IBMP Operating Procedures.
- ❖ Following supplemental environmental assessment, on September 20, 2005 the MT DOL concurred with a Revised Bison Hunting Decision Notice, released by MT FWP. A bison hunt was authorized, as described under the preferred alternative with some modifications. The modifications focus on what areas are suitable for hunting bison. Hunting will be limited to areas where hazing is not occurring under the Interagency Bison Management Plan (IBMP). The annual season-setting process will be used to identify the specific area that is suitable for hunting and the appropriate number of permits in that defined area.
- ❖ MT DOL and USDA-APHIS-VS met with livestock producers grazing cattle in the Montana GYA to discuss brucellosis-related risks and herd management recommendations. Subsequently, Dr. Linfield, Dr. Ryan Clarke (USDA-APHIS-VS), and MT FWP personnel developed a questionnaire to survey livestock producers in the Greater Yellowstone Area (GYA). The purpose of the survey is to (1) gauge the risk of brucellosis transmission

between wildlife and livestock in the Montana portion of the Greater Yellowstone Area; (2) determine the extent of interactions between wildlife and livestock; (3) livestock producer education; (4) compare risks and management alternatives with other GYA states (ID, WY). The survey of livestock producers was initiated in September 2005. Evaluation of individual producer surveys will be conducted in FY2006.

- ❖ Dr. Linfield and IBMP agency personnel provided written responses to Horse Butte area property owners regarding questions and concerns they had relative to the IBMP and implementation thereof.
- ❖ MT DOL consulted with MT FWP and USDA-APHIS-VS regarding the proposed Bison Quarantine Feasibility Study and the associated Environmental Assessment. This consultation included the development of Standard Operating Procedures (SOP) pertaining to the BQFS.
- ❖ MT DOL released a Decision Notice and Responses to Public Comments on the Bison Vaccination Environmental Assessment (EA) on February 4, 2005. Based on the analysis in the EA and the comments received, it was MT DOL's decision to authorize vaccination of bison calves and yearlings in the Western Boundary Area, as described under the proposed action in the EA. Specifically, the MT DOL will vaccinate seronegative bison calves and yearlings, consistent with the adaptive management steps for the Western Boundary Area, as described in the IBMP in the Western Boundary Area. Vaccination eligible bison include bison that meet all of the following criteria: 1) calves (4 to 12 months of age) and yearlings (12 to 24 months of age); 2) captured as a result of other management actions to manage bison numbers and distribution in the Western Boundary Area; 3) tested to determine that the bison are seronegative for brucellosis; and, 4) otherwise eligible for live release because bison numbers do not exceed the population objective for the respective management area or the population does not exceed the population target of 3,000 for the whole bison herd. When the population exceeds the defined objective for the Western Boundary Area (100 seronegative bison) or for the target for the whole bison herd, the MT DOL may exercise discretion in determining whether to vaccinate and release otherwise eligible bison. Vaccination will occur opportunistically, as an incidental activity to normal bison management activities. Capture operations will continue at the level required to maintain bison numbers and distribution in the Western Boundary Area, as defined by the IBMP. The MT DOL does not propose additional capture operations specifically for the purpose of increasing the number of bison available for vaccination.
- ❖ MT DOL consulted with MT FWP regarding proposed legislation that would impact, or potential impact, IBMP implementation.
- ❖ Dr. Linfield participated in several conference calls with a USAHA Special Committee on Brucellosis in the GYA. The Special Committee is planning a working symposium to focus on wildlife brucellosis vaccines, vaccine delivery systems, and diagnostics. Dr. Linfield initiated and developed a "Virtual Tour" of the GYA for the August 16 – 18, 2005 Working Symposium.

FINANCIAL ACTIVITY

During Federal Fiscal Year 2005, a total of \$660,000 was budgeted and expended in this cooperative agreement. These expenditures are summarized as follows:

Personnel Services

Direct and indirect personnel expenses for management and operation of the bison activities were \$322,744. This included the cost for 6.00 FTE working at the bison capture and testing facilities and the costs for veterinarian, administrative, professional, and support personal services working with the bison management program.

Contracted Services

Contracted services included a contract with Montana Department of Fish Wildlife and Parks for a warden and operational costs for working with bison in the GYA. It also included security, consulting services, legal and environmental services, lab testing, printing and other costs. Consulting and professional services also included expenses for contract veterinarians to conduct bison brucellosis tests. A total of \$95,386 was expended in this category.

Supplies and Materials

A total of \$70,543 was expended for supplies and materials for bison program operations. This includes such items as fuel for vehicles, minor tools and equipment, munitions, electrical supplies for lighting the facility, uniforms and clothing for personnel working on site, office supplies, law enforcement items, lab supplies, veterinarian supplies, housing supplies, hay and grain, photo and reproduction supplies and miscellaneous supplies.

Communications

Communications included expenditures for cellular and regular phones and related charges, phone equipment, long distance charges and postal services. These expenditures totaled \$8,542 during this contract period.

Travel

A total of \$19,388 was expended for travel. Travel was for bison ground crews and other department employees traveling to Gardiner and West Yellowstone to perform bison disease control duties. It also included travel to in-state and out-of-state meetings on bison and brucellosis issues attended by officials of the department.

Rent

The rent category included such items as snow removal equipment, snowmobiles, loaders, rental of aircraft to count bison, and other specialized equipment. It also included rent for the housing of bison ground crew workers. A total of \$28,279 was expended in this category.

Utilities

The utility costs were for the propane, and electricity for housing and to operate the lab test trailer. These expenditures totaled \$1,682.

Repair and Maintenance

A total of \$41,118 was expended in repair and maintenance for vehicles, snowmobiles, and radio and communication equipment.

Other Expenses

The other expenses category included expenditures for education and training, subscriptions, research material and public relations materials, freight, and position recruiting. A total of \$1,029 in other expenses was expended during this contract period.

Equipment

A total of \$71,289 was expended for equipment during the contract period. A heavy-duty pickup for bison operation work was procured. Snow removal demands necessitated a bobcat skid loader. Snowmobiles were procured for bison work in the GYA. Also capture facility panels and other field equipment was necessary for program operations.