

# Pinedale Elk Herd Unit Test and Slaughter Pilot Project Report Year Three: Muddy Creek and Fall Creek Feedgrounds, 2008

## Introduction

This report was compiled to comprehensively document efforts, expenditures, and results of the third year (winter 2007-2008) of the five-year pilot test and slaughter project in the Pinedale elk herd unit. The Wyoming Game and Fish Department (WGFD) initiated the pilot project in response to a recommendation developed by the Governor's Brucellosis Coordination Team (BCT). The goal of this recommendation is to measure the potential reduction of brucellosis seroprevalence in elk and reduce the risk of brucellosis transmission from elk to cattle.

The WGFD operates three elk feedgrounds within the Pinedale elk herd unit; Fall Creek, Scab Creek, and Muddy Creek (Figure 1). The pilot project was initiated on the Muddy Creek feedground during winter 2005-2006. During winter 2007-2008, the project was expanded to include both Muddy Creek and Fall Creek feedgrounds. All three feedgrounds within the Pinedale elk herd will be included during the final two years of the pilot project.

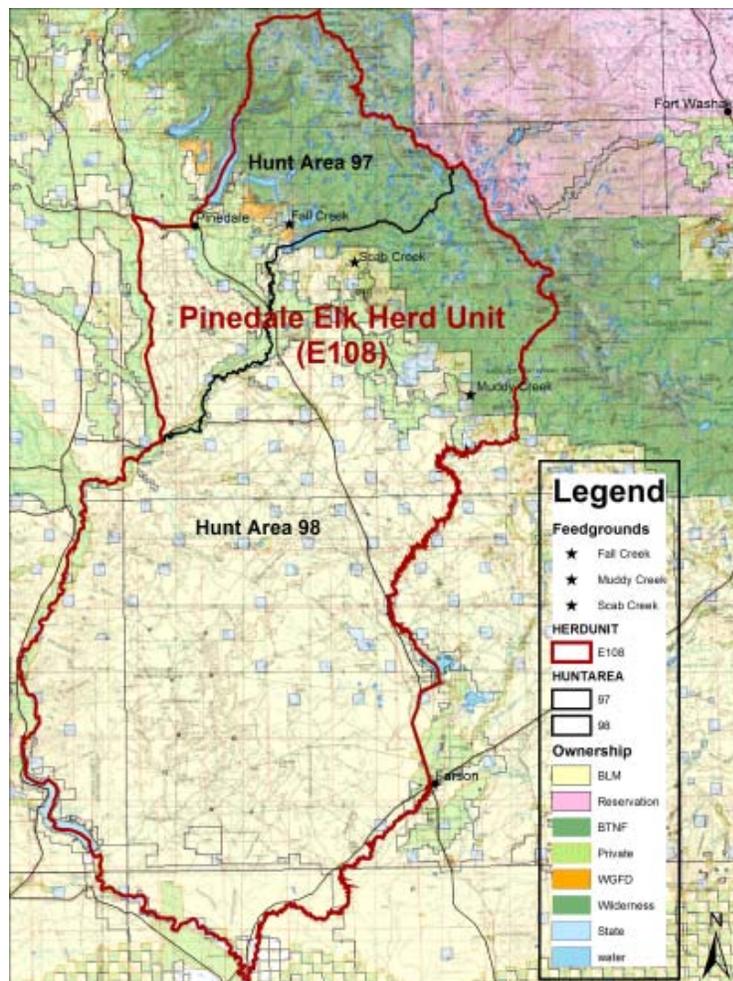


Figure 1. Hunt areas, elk feedgrounds, and land ownership of the Pinedale elk herd unit

## **Methods**

### Portable elk trap

See 2006 report for a description and overview of the trap.

### Snow and Ice Removal

Snow removal is a necessary component of elk trapping efforts. Significant snow accumulation in the main corral effectively reduces the height of the walls allowing elk to escape, and snow accumulation in all areas of the trap reduces traction and increases risk of injury to elk and trapping personnel. Additionally, roads into the feedgrounds must remain passable to ensure personnel can access the trap and allow for removal of selected elk via stock trailer.

A contract for snow removal was established, after a bid-process, with the Muddy Creek elk feeder to keep the road open and remove snow from accessible portions of the trap. Sublette County Road and Bridge conducted snow removal from approximately 10.2 miles of the road into the Fall Creek feedground. WGFD personnel removed snow and ice from elk traps after each significant snowfall.

### Trap Acclimatization

#### *Muddy Creek*

The elk feeder began baiting the trap with hay approximately 5 days prior to the first trapping attempt in 2008. Feeding was also conducted earlier in the day than normal to acclimatize elk to a routine similar to when a trapping would be attempted. Bull excluders (17" wide x 68" tall metal guards placed over gate openings to deter branch-antlered bulls) were not placed into position before the initial trapping, as branch antlered bulls were not frequenting the trap during the day. However, bull excluders were placed into position several days prior the second trapping.

#### *Fall Creek*

Elk behavior at Fall Creek prior to trapping was unique. Approximately 150 elk had been utilizing the feedground since late-December and were relatively conditioned to feeding routines and activities. Around January 22<sup>nd</sup>, an additional 450 elk arrived on the feedground, having wintered until then on the Half Moon Mountain Wildlife Habitat Management area. This large group of elk were not conditioned to feeding activities and remained flighty and unpredictable throughout the trapping effort.

The elk feeder began regularly baiting the trap about a week prior to the initial trapping attempt. Limited baiting occurred earlier when the feeder acclimatized the draft horse team to the trap corrals. Bull excluders were not positioned to encourage more elk to enter the trap.

## **Trapping**

### Orientation

A meeting was held the afternoon of January 27th to review the trapping plan with the statewide WGFD trapping crew. Trap trigger teams would travel to both Muddy Creek and Fall Creek feedground in an attempt to increase chances for a successful catch.

Additionally, an advanced team would stage at each site to ensure efficient removal of branch antlered bulls and sorting of elk into three groups.

### Muddy Creek

*28 January 2008*

The trap trigger team arrived at the feedground, loaded the feed sled, distributed hay throughout the trap and trailed a light line to the bedded elk. Elk consumed the light line of hay, advanced toward the trap gates, and slowly began entering the trap. Approximately 90 cow elk entered, but soon spooked. The trigger team began to initiate another feed line when a significant blizzard enveloped the canyon around 11am. The decision was made to terminate the effort and try again the next day. Trap gates were closed and elk were not fed additional hay.

*29 January 2008*

The trap trigger team again arrived at the feedground, loaded the feed sled, distributed hay throughout the trap, and trailed a light line to the bedded elk. Elk began to enter the trap, but soon spooked and moved back to the bedding area. Information was relayed that elk had been caught at the Fall Creek site, so operations were terminated for the day.

*30 January 2008*

The trigger team repeated the feeding and trap setting process and the elk immediately began entering the trap. An estimated 100 cows were observed entering, and the gates were triggered around 1030. The advanced team soon arrived at the trap and 4 branch-antlered bulls were chemically immobilized. Animals were then herded from the pods into the alleyways and sweep boxes, bulls were reversed and turned loose, the rest of the trapping crew arrived, and processing commenced around 1130. All elk worked through chutes were sexed, aged, and permanently ear tagged (Table 1). All yearling and adult females were bled, ear tagged, and collared with unique letter-number markings. While herding the bled females back into the large corral to be held overnight from the holding pen, the elk pressured a corral door causing a wire to break. The gate opened and 41 elk escaped. One adult cow with a large, visible infection on its brisket was unable to move back into the large corral and was euthanized in the holding pen. The remaining elk were held in the large corral overnight while serologic testing was conducted at the WGFD Veterinary Laboratory in Laramie. Blood was driven to the Lab by WGFD personnel.

*31 January 2008*

The entire trapping crew left the Pinedale Regional WGFD office at 0700, arrived at the feedground, and divided elk into two pods. Processing commenced on both chute sides around 0830. Serologic tests completed overnight revealed 15 cows were positive for *Brucella* exposure (Table 1). Both collars and eartags were read to identify and sort animals; positives were retained and negatives released. Eleven seropositive elk were loaded onto a horse trailer and hauled to the slaughter facility in Idaho, unloading at 1330. Four seropositive elk were among the 41 that escaped the previous day.

*11 February 2008*

The trap trigger team arrived at the feedground, loaded the feed sled, distributed hay throughout the trap and trailed a light line to the bedded elk. The elk soon followed the baitline towards the trap and began entering. Elk had been slowly entering the trap for nearly an hour, when it became apparent that those in the trap were becoming full and might leave at any moment. An estimated 70 test eligible females had entered when the trap was triggered around 1000.

The advanced team soon arrived at the trap and 8 branch-antlered bulls were chemically immobilized. Animals were then herded from the pods into the alleyways and sweep boxes, bulls were reversed and turned loose, the rest of the trapping crew arrived, and processing commenced around 1035. Both chute sides completed elk processing at 1150. All elk worked through chutes were sexed, aged, and permanently ear tagged (Table 1). All yearling and adult females were bled, ear tagged, collared with unique letter-number markings, and held in the large corral overnight while serologic testing was conducted at the WGFD Veterinary Laboratory in Laramie. Blood was driven to the Lab by WGFD personnel.

*12 February 2008*

The trapping crew met at the Pinedale Regional WGFD office at 0700 and proceeded to Muddy feedground. Elk were divided into two pods, and processing commenced on both chute sides. Serologic tests completed overnight revealed 6 cows were positive for *Brucella* exposure (Table 1). Additionally, 1 of the 4 seropositive elk that escaped from the trap on 30 January was recaptured. All 7 seropositive elk were loaded onto a horse trailer and hauled to the slaughter facility in Idaho, unloading at 1300. A WGFD truck pulling a spare horse trailer following the truck and trailer with the 7 seropositive elk to Idaho

*3 March 2008*

WGFD personnel shot and killed the remaining 3 seropositive elk that had escaped the holding pen during the 30 January capture effort. Tissue samples for culture were extracted and the carcasses were donated.

### Fall Creek

*28 January 2008*

The trap trigger team arrived at the feedground, loaded the feed sled, distributed hay throughout the trap and trailed a light line to the bedded elk. Elk tepidly followed the light line of hay toward the trap entrance, but few entered. Most elk soon lost interest and bedded down near the trap. A significant blizzard arrived around 11am and the decision was made to terminate the effort and try again the next day. Trap gates were tied open with rope to encourage elk to enter the trap.

*29 January 2008*

The trap trigger team arrived at the feedground and discovered the trap gates were closed. Elk had entered the trap overnight and either pressured the gates until the ropes

holding them open broke, or strong winds caused the rope to break. The decision was made to process the large number of elk in the trap.

The advanced team soon arrived and 21 branch-antlered bulls were eventually chemically immobilized. Four to 7 bulls were darted at a time in a pod, then remaining animals were herded into alleyways or vacant pods to allow bulls to be reversed and released safely. Due to the large number of elk and bulls in the trap, elk were herded from one location to another several different times while bulls were darted, which increased trap mortality.

The rest of the trapping crew arrived, and processing commenced around 0930. All elk worked through chutes were sexed, aged, and permanently ear tagged (Table 2). All yearling and adult females were bled, ear tagged, and collared with unique letter-number markings. Processing concluded around 1400. Several mechanical problems with the elk trap were encountered during processing, which required additional time. Test-eligible elk were held in the large corral overnight while serologic testing was conducted at the WGFD Veterinary Laboratory in Laramie. Blood was driven to the Lab by WGFD personnel.

### *30 January 2008*

The trapping crew arrived at the feedground and divided elk into two pods. Processing commenced on both chute sides around 0830. Serologic tests completed overnight revealed 20 cows were positive for *Brucella* exposure (Table 2). Both collars and eartags were read to identify and sort animals; positives were retained and negatives released. Eighteen seropositive elk were loaded onto a horse trailer and hauled to the slaughter facility in Idaho, unloading at 1515. Two seropositive cow elk were among the 9 total trap-related mortalities (6 cows, 3 calves).

### *11 February 2008*

The trap trigger team arrived at the feedground and the majority of the elk that were bedded near the trap fled to the north. The feed sled was loaded, hay was distributed throughout the trap, and a light line of hay was trailed to the remaining elk. Approximately 60 test-eligible elk (most without collars), and a few spikes and calves followed the baitline towards the trap. Only two calves had entered the trap when the baitline was consumed and the remaining elk bedded. A subsequent baitline attempt was unsuccessful. Information relayed to the trigger team indicated the Muddy trigger team closed the gates to the trap and efforts at Fall Creek were ceased for the day around 1030. Gates on the Fall Creek trap were secured open with steel cable and personnel proceeded to Muddy Creek.

### *12 February 2008*

The trap trigger team arrived at the feedground and numerous elk fled from inside the trap to the north. The remaining elk, likely the same herd that remained on the feedground the day prior, were fed a light line of hay to the baited trap. Elk behavior was similar to the previous day and subsequent attempts to lure elk into the trap were unsuccessful. Two members of the trigger team returned to the feedground in the afternoon with night vision binoculars in an attempt to trigger the trap during the night.

*13 February 2008*

The trap trigger team closed the trap gate around 0200 when they determined a large number of elk were inside. The trapping crew arrived, processing commenced around 0900, and ended at 0945. The majority of the elk were recaptures from the 29 January capture (Table 2). Because only 6 new test-eligible females were caught, state-wide trapping personnel were dismissed.

*14 February 2008*

Several WGFD personnel and University of Wyoming researchers arrived at the feedground around 0830. Serologic tests revealed only 1 of the 6 females was seropositive (Table 2). The 5 seronegative elk were released and the positive elk was shot in the chute. UW researchers collected tissues for culture on site.

Table 1. Numbers of female and male elk, same year recaptures, newly captured elk for the year, total elk bled, and number of elk testing seropositive for exposure to brucellosis captured during winter 2007-2008 on the Muddy Creek Feedground.

Trap Date	Females				Males				Recaps**	New Elk	Total Bled	# Sero +
	Adults	Yrlng	Juv	Total	Adults*	Yrlng	Juv	Total				
01/30/08	94	19	39	152	4	13	28	45	0	197	113	15
02/11/08	65	9	39	113	8	15	22	45	88	70	41	6
<b>TOTAL</b>	159	28	78	265	12	28	50	90	88	267	154	21

\*Adult males were chemically immobilized, reversed and released

\*\*unclassified animals immediately released recaptured from prior trapping event during same year

Table 2. Numbers of female and male elk, same year recaptures, newly captured elk for the year, total elk bled, and number of elk testing seropositive for exposure to brucellosis captured during winter 2007-2008 on the Fall Creek Feedground.

Trap Date	Females				Males				Recaps**	New Elk	Total Bled	# Sero +
	Adults	Yrlng	Juv	Total	Adults*	Yrlng	Juv	Total				
01/29/08	151	31	34	216	24	13	24	61	0	277	185	20***
02/13/08	55	0	14	69	3	7	9	19	64	24	6	1
<b>TOTAL</b>	206	31	48	285	27	20	33	80	64	301	191	21

\*Adult males were chemically immobilized, reversed and released

\*\*unclassified animals immediately released recaptured from prior trapping event during same year

\*\*\*2 seropositive adult females were among 9 total trap mortalities (6 adult females, 3 juv)

**Meat Donation**

A total of 36 brucellosis seropositive elk were processed by the USDA approved slaughter facility in Idaho. Approximately 9,225 lbs of boxed and wrapped burger, steaks, and roasts were donated to and picked up by Rocky Mountain Food Bank for distribution to food banks throughout Wyoming.

## Expenditures

A large amount of time, effort and money were again expended on the test and slaughter project during year three. Expenditures associated with the test and slaughter project were tracked by WGFD Fiscal Division using a unique project code (Table 3). A total of \$784,330 has been spent on the test and slaughter project to date.

Table 3. Test and Slaughter General and Non-General Fund and Total expenditures incurred by the WGFD, July 1, 2007 to April 30, 2008.

<u>Description</u>	<u>General Fund Costs</u>	<u>Non-General Fund Costs</u>	<u>Total Costs</u>
Portable Elk Trap Expenses	\$0	\$0	\$0
Personnel Salary and Fringe*	\$38,299	\$78,412	\$116,711
Travel Expenses	\$23,480	\$0	\$23,480
WGFD Lab and other supplies	\$6,501	\$747	\$7,248
Vehicle Usage**	\$12,502	\$10,970	\$23,472
<u>Meat Processing and Storage</u>	<u>\$9,249</u>	<u>\$0</u>	<u>\$9,249</u>
<b>TOTAL</b>	<b>\$90,031</b>	<b>\$90,129</b>	<b>\$180,160</b>

\* 3,665 personnel hours recorded conducting test and slaughter

\*\* 37,897 total miles driven for test and slaughter efforts

## Culture Results

Eleven of the 46 brucellosis seropositive elk were found to be culture positive on preliminary cultures. Of the 46, 11 had strong reactions (titers) on the 6 standard brucellosis serological assays. As a general rule, the higher the titer, the more likely the animal will be culture positive. During slaughter, lymph nodes most likely to harbor *B. abortus* were collected for culture and analysis. The results in Table 4 are preliminary and based only on cultures of fetal fluid (or uterine tissue) and internal iliac lymph nodes.

A graduate student at the University of Wyoming is conducting an investigation of the relationship between serology and culture status from elk killed during the test and slaughter pilot project. The student is planning a thorough culture of the remaining elk tissues during summer/fall 2009, and might identify additional positives. Caution should be exercised when interpreting these results, as these are preliminary findings. *Brucella* culture is very complex; final interpretations must wait until bacteriologic identifications are complete.

Table 4. Preliminary culture results from Muddy Creek feedground seropositive elk.

<b>Trap Date</b>	<b>Total Elk Cultured</b>	<b>Total Fetuses Cultured</b>	<b>Positive Elk</b>	<b>Positive Fetuses</b>
2008	46	40	11	0

## Preliminary Results

BCT members determined that capturing a large proportion of the total female elk within the feedground population is imperative to achieve the objective of the test and slaughter project, which is to achieve a statistically significant reduction in seroprevalence at a 95% confidence level. Only 60%, 35%, and 62% of total yearling and adult females counted on Muddy Creek feedground were captured and tested in 2006, 2007 and 2008, respectively. Brucellosis seroprevalence decreased from 37% to 16% to 14% over the same years (Table 5). However, 10% and 9% of females recaptured in 2007 and 2008 respectively seroconverted (Table 5), indicating exposure events likely occurred during winter/spring of 2006 and 2007. Additionally, 3 of the 4 elk that seroconverted in 2007 were culture positive, potentially indicating recent exposure. A detailed examination of the results of the pilot test and slaughter project will be conducted after the cessation of the 5-year project in 2010.

Table 5. Total numbers of yearling and adult females and % of total females and recaptures counted, bled, seropositive, killed, recaptured, and seroconverted of elk captured during winter 2007-2008 on the Muddy Creek Feedground.

MUDDY CREEK FEMALE RECAPTURE SUMMARY																
Year	Total Females on Feedground	Total Bled			Seropositive			Killed			Recaptured			Seroconverted		
		Adults	Yrlng	% Total Females	Adults	Yrlng	% Total Bled	Adults	Yrlng	% Total Females	Adults	Yrlng	% Total Females	Adults	Yrlng	% Total Recaps
2006	263	147	10	60%	56	2	37%	56	2	22%	NA	NA	NA	NA	NA	NA
2007	228	54	25	35%	11	2	16%	11	2	6%	24	16	18%	3	1*	10%
2008	249	130	24	62%	20	1	14%	17	1	8%	41	5	19%	4	0	9%

\*bled as juvenile in 2006

## Future Efforts

Numerous logistical challenges pertinent to the mechanical success of the pilot test and slaughter project still lie ahead. Snow removal from roads into Fall and Muddy Creek feedgrounds during winter 2007-2008 proved to be difficult and time consuming. Additionally, roads had to be opened numerous times throughout the two, five-day trapping periods. During the next two years of the pilot project, all three feedgrounds will be trapped simultaneously and maintaining passable roads will likely be more challenging.