

2014 - JCR Evaluation Form

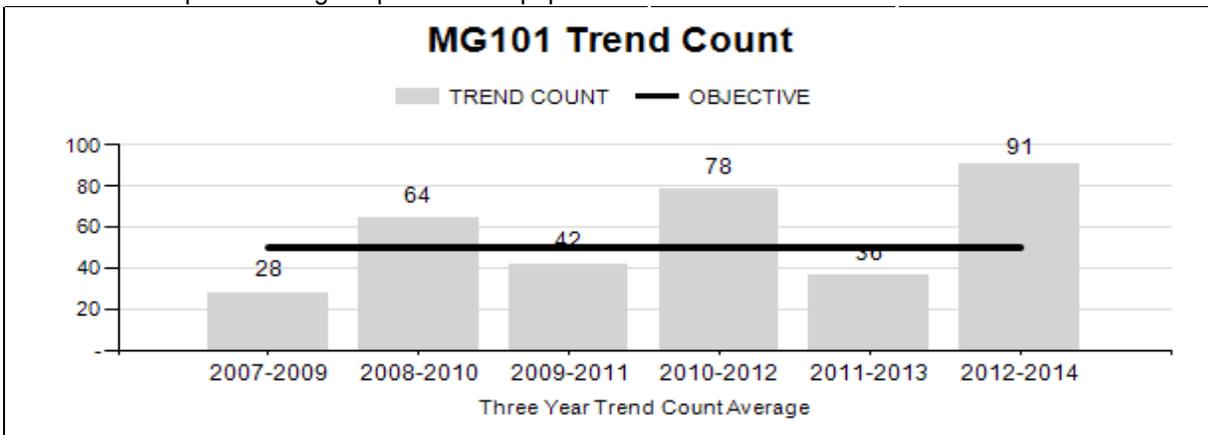
SPECIES: Mountain Goat
 HERD: MG101 - PALISADES
 HUNT AREAS: 2

PERIOD: 6/1/2014 - 5/31/2015
 PREPARED BY: GARY FRALICK

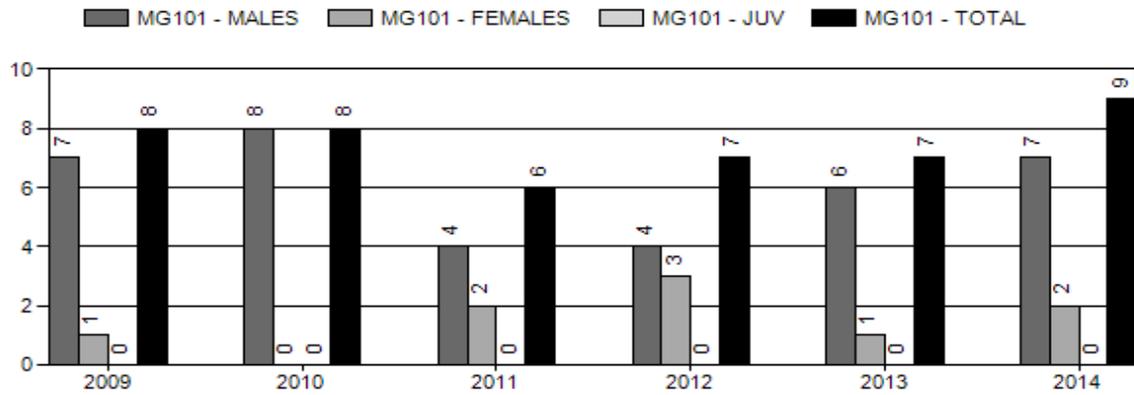
	<u>2009 - 2013 Average</u>	<u>2014</u>	<u>2015 Proposed</u>
Trend Count:	47	165	120
Harvest:	7	9	12
Hunters:	8	9	12
Hunter Success:	88%	100%	100%
Active Licenses:	8	9	12
Active License Success	88%	100%	100%
Recreation Days:	40	39	65
Days Per Animal:	5.7	4.3	5.4
Males per 100 Females:	0	0	
Juveniles per 100 Females	31	15	
 Trend Based Objective (± 20%)			50 (40 - 60)
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			230%
Number of years population has been + or - objective in recent trend:			15

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

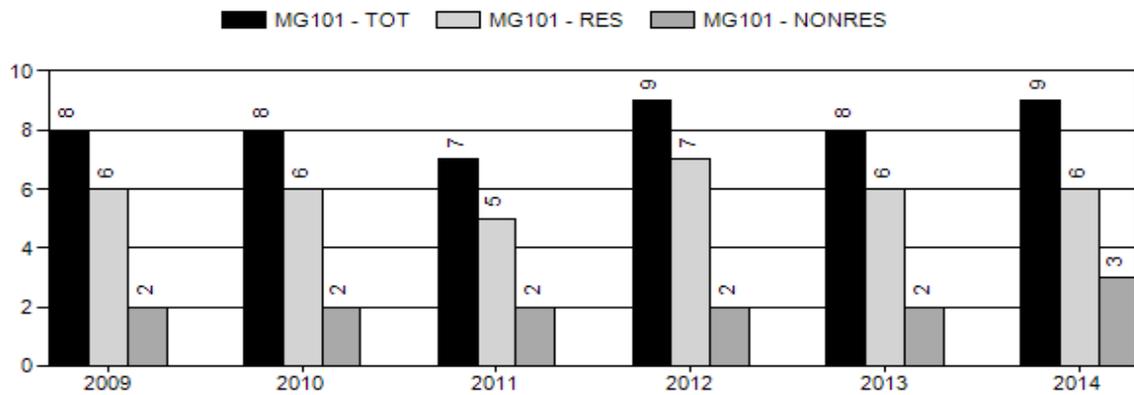
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	NA%	NA%
Males ≥ 1 year old:	NA%	NA%
Juveniles (< 1 year old):	NA%	NA%
Total:	NA%	NA%
Proposed change in post-season population:	NA%	NA%



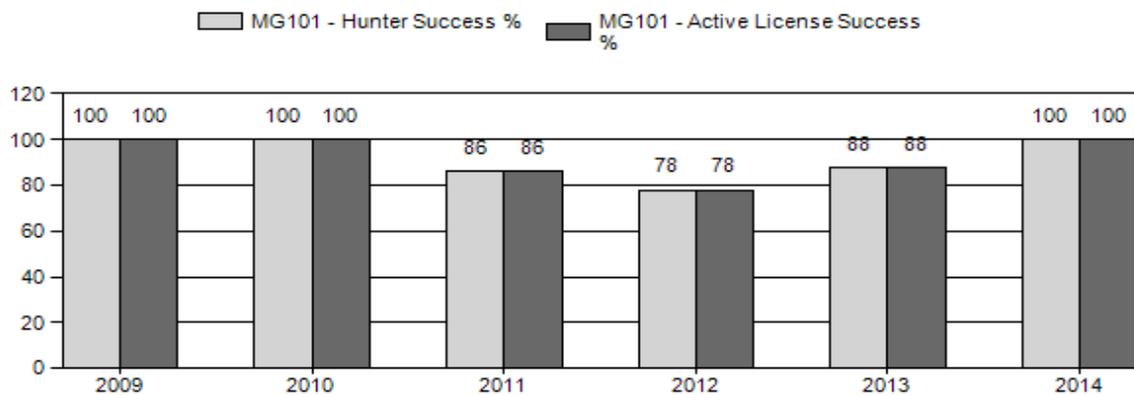
Harvest



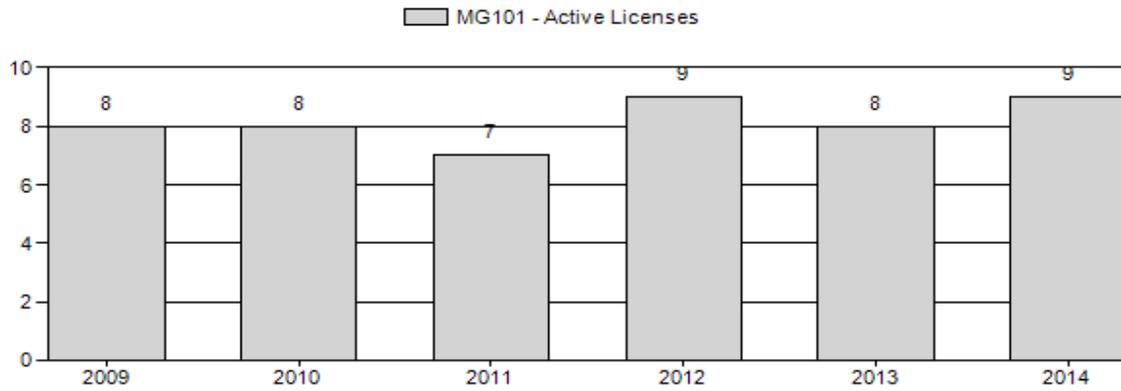
Number of Hunters



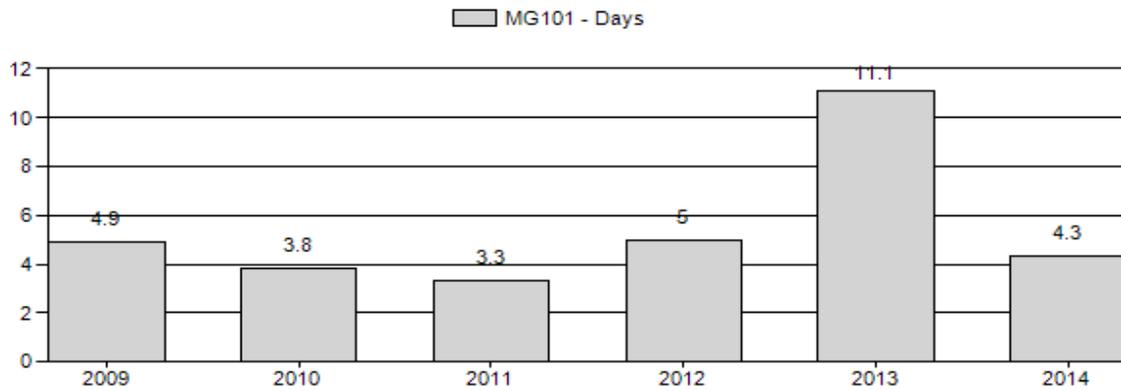
Harvest Success



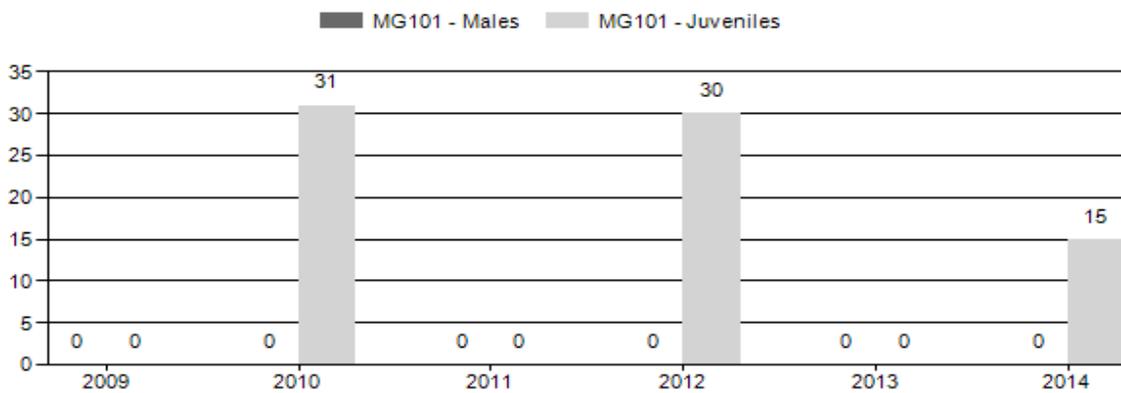
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2009 - 2014 Preseason Classification Summary

for Mountain Goat Herd MG101 - PALISADES

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females			Young to			
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2009	100	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2010	140	0	0	0	0%	97	76%	30	24%	127	0	0	0	0	±0	31	±0	31
2011	130	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2012	130	0	0	0	0%	83	77%	25	23%	108	0	0	0	0	±0	30	±0	30
2013	130	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2014	180	0	0	0	0%	144	87%	21	13%	165	0	0	0	0	±0	15	±0	15

**2015 HUNTING SEASONS
PALISADES MOUNTAIN GOAT HERD (MG101)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
2	1	Sep. 1	Oct. 31	12	Limited quota	Any mountain goat
		Aug. 15	Aug. 31			Archery only – SEE SECTION 8

Summary of Proposed Change by License Type

Area	License Type	Changed from 2014
2	1	+4
Herd Unit Total		+4

Management Evaluation

Current Mid-Winter Trend Count Management Objective: 50

Management Strategy: Recreational

2014 Mid-Summer Trend Count: 165

Most Recent 3-year Running Average Trend Count: 91

The Palisades mountain goat population objective is 50 goats. Management strategy is recreational. The population objective was established in 1999. The 2014 mid-summer trend count was 165 goats. The three-year average mid-summer trend count is 91 goats. This population has exceeded the objective over the last 11 years. The next mid-summer trend count will be conducted in 2016. The population objective will be reviewed in 2015 (Appendix A).

Herd Unit Issues

To ensure the long-term welfare of this population, Idaho and Wyoming have committed to a cooperative management effort that entails sharing population data, coordinating habitat

management projects, and surveying the entire goat population concurrently every two years. Management goals of the Wyoming subpopulation have focused on maintaining a conservative hunting approach through the annual issuance of 4 - 8 licenses valid for any goat since 1999. This approach has resulted in a high degree of hunter satisfaction, exceptionally high hunters success and low days/animal harvest statistics, and trophy class males being taken in most years since the hunt was initiated in 1999. A consequent concern associated with population growth has been a one year reduction in juvenile production observed in 2014. The observed kid:adult ratio was the lowest (15 kids:100 adults) since is this population has been monitored. Five of the six females captured in 2014 were not pregnant, and the sixth female pregnancy status was undetermined.

Mountain goats have dispersed north into Grand Teton National Park. In an effort to provide additional hunting opportunity the Department has expanded the area to hunt mountain goats to Area 2 licenses holders in 2014. The west slope of the Tetons, on National Forest System Lands, will be open to the hunting of mountain goats in 2014. General license hunting season structure in this portion of the herd unit will be discussed in 2015.

This cooperative management approach expanded in 2013 to include the Greater Yellowstone Area Mountain Ungulate Project. The Greater Yellowstone Area Mountain Ungulate Project is a collaborative research initiative to study the ecology and population dynamics of bighorn sheep and mountain goats throughout the Yellowstone ecosystem
<http://gyamountainungulateproject.com/contact.html>.

Concurrent with the relatively conservative management is a lack of knowledge associated with interstate movements, distribution, reproductive success, and fecundity. Moreover, since goats in Wyoming have never been exposed to herd specific research and monitoring efforts, the opportunity to initiate a baseline herd health monitoring effort is warranted. This initial effort to assess herd health will focus on determining the presence and persistence of disease and parasites in a substantial segment of the Palisades goat herd that inhabits Wyoming.

Mountain goats have dispersed into Grand Teton National Park, and adjacent Wyoming bighorn sheep hunt areas 6, 7, 8, and 24. Mountain goat dispersal into these areas may present other management challenges in the future.

Greater Yellowstone Area Mountain Ungulate Project:

Project Objectives

Project objectives include: collecting migration information on segments of the Palisades mountain goat herd, documenting any interstate movements of collared goats, determining the presence of *Mannheimia* sp., *Mycoplasma* sp. and other pathogens that may potentially be transmitted to bighorn sheep; monitor herd health during the winter (Appendix B).

Scientific Merit/Management Relevance

Disease monitoring in mountain goat is critical, especially in those herds where little or no monitoring information has been collected. The Palisades herd is believed to be the source herd of dispersing mountain goats in western Wyoming. This population occupies active domestic sheep allotments there is the potential that mountain goats harbor infectious diseases that contribute to pneumonia outbreaks in bighorn sheep.

Weather

Weather conditions during the 2014 were ideal for forage production beginning in early spring and continuing through fall. By late summer the moisture regime had changed frequent precipitation scenario that persisted into the fall hunting season. Drought conditions in the early portion of the summer abated by late fall as persistent snow storms began to deposit snowpack in the Snake River Mountain Range. By mid winter snow conditions on winter ranges had changed significantly. Minimal snow had accumulated on core winter ranges. These conditions persisted throughout the remainder of the winter. By late winter 2015 snowpack in western Wyoming watersheds were estimated to be at or below normal. For additional weather and precipitation data please visit the following websites: <http://www.ncdc.noaa.gov/temp-and-precip/time-series> and <http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html>.

Habitat

No habitat data has been collected on goat summer and winter ranges. There are no established vegetation transects in this herd unit. Please refer to the 2014 Annual Report Strategic Habitat Plan Accomplishments, pages 61-77 for Jackson Region habitat improvement project summaries (<http://wgfd.wyo.gov/web2011/wildlife-1000708.aspx>).

Harvest

The 2014 hunting season was the 16th year that goats were hunted in Area 2. A total of nine (9) licenses were issued; nine goats were harvested. A total of seven (7) billies and two (2) nannies were harvested in 2014. Since 1999, a total of 98 mountain goats (84 billies, 14 nannies) have been harvested in Hunt Area 2.

Population

The population trend is increasing, and remains above the desire population objective of 50 goats. The population objective will be reviewed in 2015. A population model has not been developed because of the small size of this population.

Summer aerial surveys were conducted from a helicopter. These surveys are coordinated with Idaho Department of Fish and Game to ensure this interstate population is surveyed concurrently. Surveys are initiated every biennial. Helicopter surveys were first initiated in August 1997 (Appendix C). The highest number of goats counted in Wyoming occurred in 2014. A total of

165 goats were counted. Comprehensive winter surveys were not conducted in February 2007 - 2014. This population may have attained its reproductive potential as well as habitat carrying capacity as kid:adult ratios have been observed below 30 kids:100 adults since 2002.

Mountain goats have dispersed into areas beyond the hunt area boundary. It is believed the predominate individual dispersers are billies, as no reported or observed evidence of mountain goat reproduction has been observed in the Salt Range, Wyoming Range, or Gros Venre Range. However, mountain goats are successfully reproducing within the boundaries of Grand Teton National Park. In areas outside of Grand Teton National Park, dispersing individuals are currently being monitored and when sufficient goats are regularly documented, general hunt seasons may be considered in designated mountain goat expansion areas.

Management Summary

A total of twelve (12) licenses, valid for any goat, will be issued in 2015. The season will run September 1 – October 31. The number of licenses issued will increase in response to the high number (N=165) goats observed during the 2014 trend count, and the relatively low percentage (14%) of reproductive age nannies harvested since the hunt was initiated in 1999. The size of the hunt area was expanded in 2014 in an effort to harvest goats that have dispersed from the Palisades herd into the Teton Range. The hunt area expansion area encompasses a portion of the national forest north of U.S. Highway 22. The increased hunt area size will provide additional hunter recreation.

A total of twelve (12) goats are projected in the 2015 harvest. The anticipated harvest will consist of 9 billies, and three (3) nannies. Based on the projected harvest, the posthunt population estimate is projected at 120 goats.

APPENDIX A

PALISADES MOUNTAIN GOAT HERD AND POPULATION OBJECTIVE REVIEW

Prepared by: Gary Fralick, Thayne Wildlife Biologist

POPULATION OBJECTIVE REVIEW

At a meeting in March, 1996, between wildlife managers of Idaho and Wyoming an effort was agreed to develop a management plan that would incorporate the sub-population of Wyoming goats into the overall management of the Palisades area mountain goat population. This agreement is still valid as both states continue to cooperate in population management (Fralick and Koehler 1996).

To ensure the long-term welfare of the population Idaho and Wyoming have committed to a cooperative management effort that entails sharing population data, coordinating habitat management projects, and surveying the entire goat population concurrently every two years. Management goals of the Wyoming subpopulation have been focused on maintaining a conservative hunting approach.. The management strategy in Area 2 was to ensure a sustainable goat harvest until population dynamics suggested a more liberal season was appropriate.

Prior to 1994, Wyoming had one mountain goat population (Hunt Area 1) in the Absaroka Range of northwestern Wyoming. This mountain goat population is also an interstate goat herd managed cooperatively between the states of Montana and Wyoming.

In July, 1994, the Wyoming Game and Fish Department designated the Wyoming portion of the Palisades goat population as Hunt Area 2 (Figure 1). The hunt area was added to the 1994 Hunter Application Packet but was designated as closed until sufficient baseline data were collected and a cooperative goat management plan developed with Idaho Department of Fish and Game.

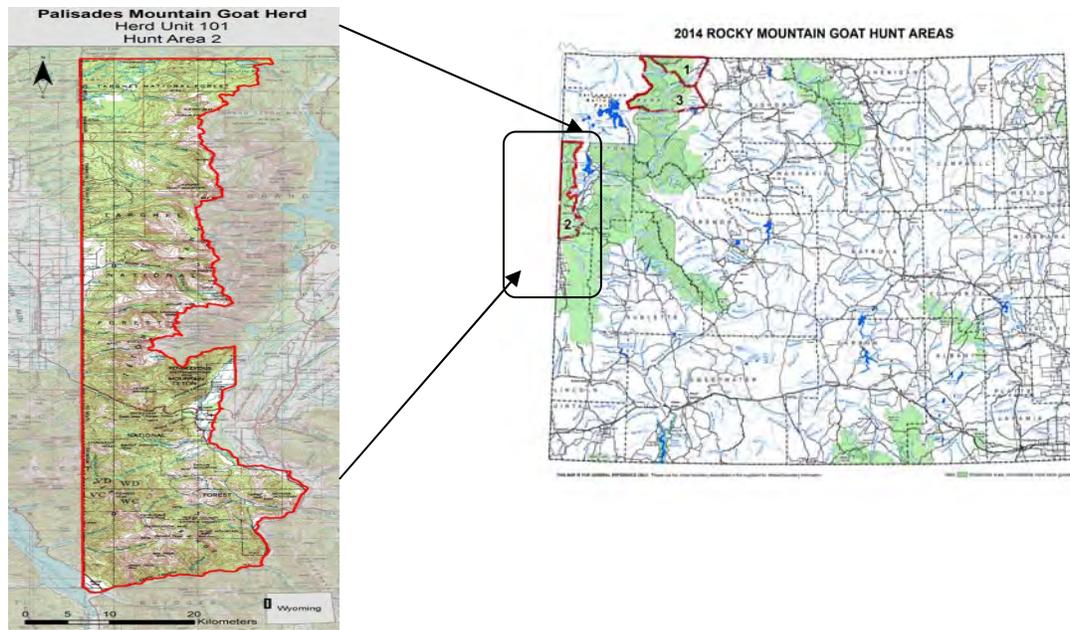


Figure 1. Palisades mountain goat herd, Hunt Area 2, Wyoming.

Mountain Goat Harvest Strategies

Historically, most wildlife management agencies have elected to manage goat populations conservatively because of the susceptibility of goat populations to overexploitation. Several strategies intended to maintain goat populations have been reported in the literature including: harvesting 4%-5% of the population estimate, (Hall 1977, Kuck 1977b); harvesting 5% of the known-minimum number (Kuck 1986); harvesting 10% of the known-minimum summer population (Ballard 1977); and harvesting an average of 7% - 16% of the population estimate for young populations (Adams and Bailey 1982, Swenson 1985). In Wyoming, John Emmerich recommended harvesting up to 8% of the total estimated population with female harvest comprising less than 40% of total harvest and maintaining 30 kids:100 adults in population. If kid:adult ratio decreased to less than 20 kids:100 adult harvest rates should be reduced to no more than 4%-5% of the total population. (John Emmerich, pers. comm. May 8, 1996)

The concept of a conservative harvest management plan may be appropriate because of the relative ease that mountain goats have been historically over-harvested in British Columbia (Foster 1977, MacGregor 1977), Montana (Chadwick 1983) and Idaho (Kuck 1986). In addition, funding for monitoring localized subpopulations may be insufficient to discover population and subpopulation declines in time to adjust harvest rates.

Current Management Strategy

A preseason population objective of 50 goats was established in 1999. The objective was based on late summer surveys that documented the distribution of goats in Wyoming and established a minimum population estimate for the Wyoming portion of the Palisades goat herd. Survey data

collected since 1994 indicates that the Wyoming subpopulation has ranged from a minimum count of 24 goats in 1996 to 54 goats in 1997 and 62 in 1998 (Appendix A). During the initial hunting season in 1999, four (4) permits were issued. The number of licenses was increased to eight in 2005 after trend counts from 1998 through 2004 indicated an increasing population (Figure 2). The conservative harvest strategy followed most of the recommendations provided by Colorado, Idaho, Montana, Alberta and Wyoming. The current management strategy in the Palisades herd has been to harvest approximately 7% of the known minimum summer population.

Mountain goats have dispersed into Grand Teton National Park, and adjacent Wyoming bighorn sheep hunt areas 6, 7, 8, and 24. Mountain goat dispersal into these areas may present a potential diseases risk to native bighorn sheep herds in the area. Initial disease sampling from the Palisades herd indicates that mountain goats carry many of the same pathogens that have been linked to bighorn sheep pneumonia die-offs. In addition, mountain goats may compete with bighorns sheep for space and forage during the winter months. In order to assess disease risk and to evaluate the potential for competition managers began a mountain goat telemetry study in 2013. In an effort to control mountain goats movements to the north, managers expanded Hunt Area 2 to include the Teton Range west of Grand Teton National Park in 2014. General license hunting of mountain goats is also be considered to control the expansion of goat populations in Western Wyoming.

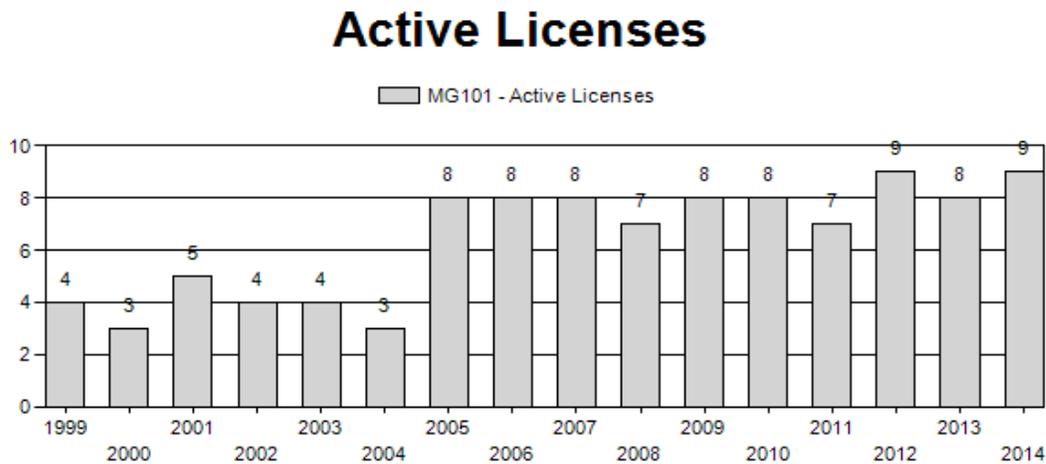


Figure 2. A summary of active licenses issued, 1999 – 2014, Palisades mountain goat herd, Wyoming.

To ensure the long-term welfare of the population Idaho and Wyoming committed to surveying the entire goat population concurrently every two years. Since 1996 pre-season mountain goat surveys have been conducted by both states. The number of mountain goats counted during these biennial trend counts have generally increased in Wyoming (Figure 3).

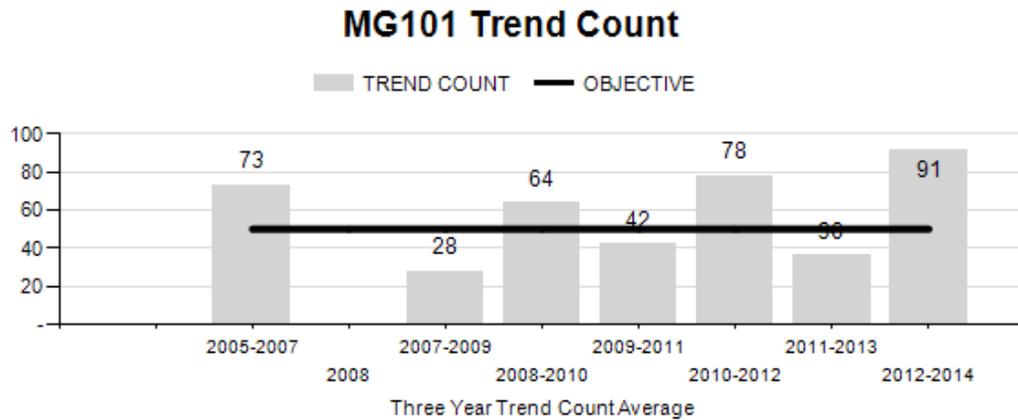


Figure 3. A summary of mountain goats observed during the three year trend count average, 2005 – 2014, Palisades mountain goat herd, Wyoming.

Since 1999, a total of 98 mountain goats (84 billies, 14 nannies) have been harvested in Hunt Area 2 (Figure 4). The relatively low percentage (14%) of reproductive age nannies harvested since the hunt was initiated in 1999 has resulted in the maintenance of a robust mountain goat herd. Licensed hunters have focused efforts primarily on harvesting billies because of the trophy class potential. Since the hunt was initiated several trophy class males have been taken in the Palisades goat herd.

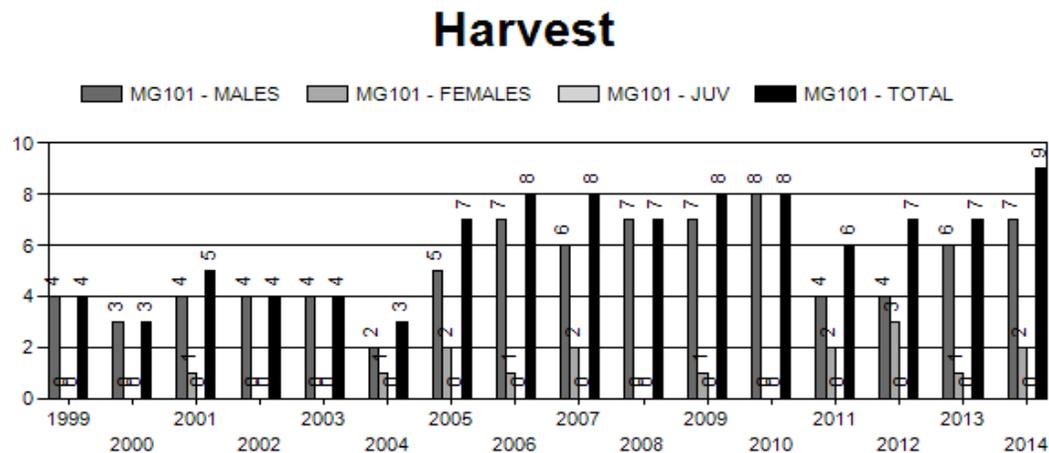


Figure 4. A summary of sex and age harvest characteristics, 1999 – 2014, Palisades mountain goat herd, Wyoming.

PROPOSED PRIMARY AND SECONDARY OBJECTIVE FOR THE PALISADES GOAT POPULATION AND SPECIAL MANAGEMENT STRATEGY

Managers propose increasing the population objective for the Palisades mountain goat herd in an effort to manage the population at the existing number animals in the population. The current

objective of 50 mountain goats in Wyoming is too low based on the public desire to maintain wildlife viewing and hunting opportunities in the Palisades herd. The proposed objective is based on the number of mountain goats observed during preseason trend counts. Managers will continue to harvest 7% of the known minimum summer population.

Primary Objective

The proposed primary objective for the Palisades mountain goat herd is to manage for a summer trend count of 120 mountain goats. This objective was derived from an average of the three most recent surveys (2010, 2012, and 2014). Managers propose using an average of the three most recent summer trend surveys to evaluate this population in an effort to minimize the effect weather may on aerial surveys. As an example, the 2016 survey will be averaged with trend counts from 2012 and 2014. The trend count objective will be $\pm 20\%$ (± 24 animals, 96 – 144 goats) of the target value.

Secondary Objective

The management criterion for the Palisades mountain goat herd is Special Management. Parameters for the Special Management designation are proposed as secondary objectives and include:

- a. Maintain a mean age of hunter-harvested males between 4-6 years of age;
- b. Maintain the percent males in annual harvest $\geq 70\%$; and,
- c. Maintain the percent females in the annual harvest $\leq 30\%$.

LANDOWNER, AGENCY AND PUBLIC INVOLVEMENT

The Palisades mountain goat herd objective review was discussed during public meetings in the Jackson and Pinedale regions during the 2015 season setting process March 23 -26, 2015. These meetings were held in Afton (open house format, 24 people in attendance); Marbleton (open house format, 7 people in attendance); Pinedale (formal meeting, 8 people in attendance); and Jackson (formal meeting, 29 people in attendance).

In addition, the review was discussed at a Jackson Hole Outfitters and Guides Association meeting, a local sportsmen group meeting and with staff members from the Jackson Hole Conservation Alliance and Greater Yellowstone Coalition. A total of 34 members and publics were in attendance at these meetings.

Regional personnel discussed the mountain goat objective review with the Bridger-Teton National Forest Supervisor and District Rangers during the annual BTNF/WGFD Coordination meeting on March 19, 2015 in Jackson.

The Idaho Department of Fish and Game statewide bighorn sheep, mountain goat, and pronghorn antelope coordinator Hollie Miyasaki discussed the proposal with department personnel during mountain goat captures on March 23, 2015.

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Appendix A.
 SNAKE RIVER MOUNTAIN RANGE
 MOUNTAIN GOAT POPULATION SURVEYS
 IDAHO/WYOMING

Idaho Summary of Mountain Goat Surveys in Unit 67 South of Palisades Creek, 1982-Present (Mt. Baird area).

Year	Hunt Area	Inclusive Location	Adults	Kids	Unknown	Total	Ratio Kid:100 Adult
1982 ^a	67-1	South of Palisades	33	13	0	46	39
1985 ^a		Creek to ID./WY.	35	16	0	51	46
1986 ^b		Stateline	0	0	104	104	--
1986 ^a			37	15	0	52	41
1988 ^b			71	21	0	92	30
1990 ^b			45	18	0	63	40
1993 ^b			104	33	16	153	34
1994 ^a			73	42	0	115	58
1996 ^a			151	66	0	217	44
1998 ^a			118	45	0	163	38
2000 ^a			61	29	0	90	48
2002 ^a			35	7	0	42	20
2004 ^a			83	24	0	107	29
2006 ^a			103	19	0	122	18
2008 ^a			96	27	0	123	28
2010 ^a			96	33	0	129	34
2012 ^a			87	23	0	113	26
2014 ^a			109	26	0	135	24

Wyoming Summary of Mountain Goat Surveys, Hunt Area 2, Palisades Goat Herd, 1996-Present

Year	Hunt Area	Inclusive Location	Adults	Kids	Unknown	Total	Ratio Kid:100 Adult
1996 ^a	2	Wyoming – Palisades	16	8	0	24	50
1997 ^a		Goat Herd	34	20	0	54	59
1998 ^a			47	15	0	62	32
2000 ^a			58	18	0	76	31
2002 ^a			37	17	0	54	46
2004 ^a			90	31	0	121	34
2006 ^a			98	32	0	130	33
2008 ^a			52	13	0	65	33
2010 ^a			97	30	0	127	31
2012 ^a			83	25	0	108	30
2014 ^a			144	21	0	165	15

^a Helicopter survey (August).

^b Ground count.

APPENDIX B

*Population characteristics, movements, and
disease surveillance in the Palisades mountain
goat herd, Wyoming*

2014



Prepared by:

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Population characteristics, movements, and disease surveillance in the Palisades mountain goat herd, Wyoming



INTRODUCTION

Historical mountain goat distribution (*Oreamnos americanus*) has been recorded from Alaska and the Yukon southward to the Sawtooth Range of Idaho. Research by Irby and Chezgrall (1994) have reported, based on historical accounts from the 1800s, that mountain goat distribution occurred in areas south of 40 degrees N Latitude in the Colorado Rocky Mountains. In areas where goats have been extirpated or non-existent, transplants have been used successfully to reintroduce goats into former historic or unoccupied range and augment native populations.

Prior to 1987, the state of Idaho released a total of 55 mountain goats at three locations in Idaho identified as Lake Pend Oreille in northern Idaho (releases made 1960, 1968), in the Seven Devils Range of western Idaho (1962, 1974), and the Snake River Range in southeastern Idaho (1969-1971) (Hayden, 1990).

During the period between July 1969 and 1971, the Idaho Department of Fish and Game transplanted 5 female and 7 male goats into the Snake River Range (Hayden 1989). This population increased during the next 10 years to a level that wildlife managers believed could sustain a limited harvest in 1981.

Mountain goats have since dispersed into Wyoming since the initial transplant occurred in Idaho. Department personnel, hunters, and outfitters have documented goats in the Snake River Range and in other areas outside of the core area. As a result of these observations, Hunt Area 2 was

created with a population objective of 50 goats in 1994 in order to address an expanding goat population and to provide hunting opportunity in Wyoming. Summer trend counts conducted from helicopters have been the most efficient and successful method to assess population distribution and growth. The initial aerial survey was conducted in August, 1996; 24 goats were observed. The most current surveys, completed in 2010 and 2012 documented 127 and 108 goats in Wyoming, respectively.

To ensure the long-term welfare of the population Idaho and Wyoming have committed to a cooperative management effort that entails sharing population data, coordinating habitat management projects, and surveying the entire goat population concurrently every two years. Management goals of the Wyoming subpopulation have been focused on maintaining a conservative hunting approach through the annual issuance of 4 - 8 licenses valid for any goat since 1999.

Concurrent with this relatively conservative management approach is a comprehensive absence of knowledge associated with interstate movements, distribution, and reproductive success and fecundity. Moreover, since goats in Wyoming have never been exposed to herd specific research and monitoring efforts, the opportunity to initiate a baseline herd health monitoring effort is warranted. This initial effort to assess herd health will focus on determining the presence and persistence of disease and parasite loadings in a substantial segment of the Palisades goat herd that inhabits Wyoming.

Mountain goats have dispersed into Grand Teton National Park, and adjacent Wyoming bighorn sheep hunt areas 6, 7, 8, and 24. Mountain goat dispersal into these areas may present the potential to transmit diseases to bighorn sheep. This heightened potential for mountain goat to bighorn sheep disease transmission is a result of the Palisades goat population occupying areas where domestic sheep are grazed. In order for managers to assess disease transmission risk from goats to bighorn sheep initial surveillance efforts were initiated in spring 2013.

Project Objectives

Project objectives include: collecting migration information on segments of the Palisades mountain goat herd, documenting any interstate movements of collared goats, assessing juvenile production and recruitment, determining the presence of *Mannheimia* spp. and *Mycoplasma* spp. and other pathogens that may potentially be transmitted to bighorn sheep, and monitor herd health during the winter.

Project Goals and Analysis

Goals of the project include capturing up to 20 mountain goats (2+ years of age) on winter ranges in the Palisades mountain goat herd. Biological samples will be collected to determine the presence of *Mannheimia haemolytica* and *Mycoplasma ovipneumoniae*. Radio-collars and colored, alpha-numerically labeled neck bands will be placed on female goats. Migration data will be collected on collared animals and WGF D Veterinary Services personnel will collect culture samples to determine the presence of pneumonia and evaluate herd health.

Scientific Merit/Management Relevance

Disease monitoring in mountain goat is critical, especially in those herds where little or no monitoring information has been collected. The Palisades herd is believed to be the source herd of dispersing mountain goats in western Wyoming. This population occupies active domestic sheep allotments. There is the potential that mountain goats harbor infectious diseases that are lethal to bighorn sheep.

Migration, interstate movements, and summer distribution data will be important for managers to document and evaluate.

MOUNTAIN GOAT DISTRIBUTION AND CAPTURE OPERATIONS



During late winter and early spring mountain goats occupy south exposures in search of emergent herbaceous vegetation in the Snake River Canyon, east of Alpine, Wyoming. These aggregations may exceed 60 mountain goats; and, often goats present themselves in relative close proximity to U.S. Highway 26/89.

Capture operations were initiated when goats were observed immediately adjacent to U.S. Highway 26/89, and when environmental conditions assured a capture event could be safely executed.



Mountain goats were typically darted at a distance of 18.3 meters (20 yards) or less under free ranging conditions, or from a vehicle if goats were present adjacent to the highway right-of-way. Mountain goats were immobilized with a dosage of 0.65 ml of thiafentanil deployed from a CO₂ Pneu-dart projector.

Immobilized goats were blindfolded and positioned in sternal recumbency; hollow, rubber horn sheaths were placed over the horns to protect handlers from injury during the collection of biological samples. Body temperature and breathing were monitored during anesthesia. Biological samples of blood, feces, and nasal/tonsil/ear-mite swabs were collected.



Ear-tags and VHF and GPS radio-collars were affixed to female goats; males were ear-tagged. The age of each goat was determined through replacement and eruption of lower incisors and by counting horn annuli.



Mountain goats were retained for approximately 20-25 minutes to collect biological samples. The antagonist, Naltrexone, was administered at a dosage of 6 ml. Goats were ambulatory within 2:15 minutes after administration of the antagonist.

RESULTS

Survival

A total of eight mountain goats were captured in March 2014 (Table 1). Six (n=6) females were outfitted with Telonics VHF and GPS radio-collars; the male goats was ear-tagged and released. The ages of the female goats ranged from 3 – 8 years of age. The male goats captured (n=2) were yearlings.

Table 1. A summary of mountain goat capture location, age, and pregnancy status in the Palisades mountain goat herd, March 2014.

Freq	Ear Tag	Capture Date	Capture Location		Sex	Age	Pregnancy Status
			Easting	Northing			
152.600	20	26-Mar	501,900	4,780,781	Female	4	Negative
152.610	15	24-Mar	501,640	4,780,623	Female	3	Negative
152.620	8	25-Mar	499,755	4,780,294	Female	8	Negative
152.630	10	26-Mar	501,645	4,780,,648	Female	3	Negative
152.640	17	24-Mar	501,444	4,780,614	Female	3	Negative
152.660	11	24-Mar	500,476	4,780,539	Female	5	Not Determined

Disease Surveillance

The biological samples collected during the 2014 captures resulted in a preliminary diagnostic assessment of disease prevalence and persistence of parasite loads for a segment of the Palisades goat population that inhabit the winter ranges in the Snake River Canyon (Table 2).

The primary disease concern is the presence of *Mannheimia haemolytica*, *Mycoplasma ovipneumoniae* and *Bibersteinia spp.* in this goat population.



Diagnostic results indicate PCR leukotoxin positive results for *Mannheimia haemolytica* was present in four of eight mountain goats captured in 2014.

Diagnostic assays were completed in an effort to isolate PCR leukotoxin positive *Mycoplasma ovipneumoniae* in the current sample of mountain goats. Results of this assay indicate *M. ovipneumoniae* were present in all goats captured.

Bibersteinia spp. is an important pathogen of sheep and is associated with serious infection that results in pneumonia. PCR leukotoxin positive results for *Bibersteinia spp.* were isolated in four of the eight goats captured in 2014.

Table 2. A summary of disease and parasite prevalence in mountain goats in the Palisades mountain goat herd, Wyoming, 2014.

Frequency	Ear Tag	Capture Date	Sex	Age	Presence/Absence of Disease or Parasite							
					<i>Mannheimia haemolytica</i>		<i>Mycoplasma ovipneumoniae</i>		<i>Bibersteinia spp.</i>		<i>Psorptic spp.</i>	
					Culture	PCR	Culture	PCR	Culture	PCR	Culture	PCR
152.600	20	26-Mar	Female	4	+	-	NSI	+	+	+	-	
152.610	15	24-Mar	Female	3	+	+	NSI	+	+	-	-	
152.620	8	25-Mar	Female	8	+	-	NSI	+	+	+	-	
152.630	10	26-Mar	Female	3	+	-	NSI	+	+	+	-	
152.640	17	24-Mar	Female	3	+	+	NSI	+	+	-	-	
152.660	11	24-Mar	Female	5	+	-	NSI	+	+	+	-	
NA	19	25-Mar	Male	1.5	+	+	NSI	+	+	-	-	
NA	13	25-Mar	Male	1.5	+	+	NSI	+	+	-	-	

FUTURE WORK

Mountain goats will be captured in winter 2015 as part of an on-going disease surveillance and population monitoring effort. A total of five female mountain goats 2+-years of age will be fitted with Telonics VHF and GPS radio-collars. Once all radio-collars are deployed additional captures will continue in an effort to collect biological samples in support of the disease surveillance effort.

Our work is in cooperation with Dr. Robert Garrott, Montana State University, and the Greater Yellowstone Mountain Ungulate Project (GYAMUP). The primary goal of the project is to gain

a better understanding and knowledge of bighorn sheep and mountain goat ecology and the interactions between the two species.

This corroborative effort between various state and federal agencies, and private entities will result in one of the most comprehensive databases of knowledge and understanding of bighorn sheep and mountain goats in the GYA.

F17
3 - YEARS OLD
FREQUENCY: 152.640
SNAKE RIVER CANYON
CAPTURED: 24 MARCH 2014



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Appendix C.
 SNAKE RIVER MOUNTAIN RANGE
 MOUNTAIN GOAT POPULATION SURVEYS
 IDAHO/WYOMING

Idaho Summary of Mountain Goat Surveys in Unit 67 South of Palisades Creek, 1982-Present (Mt. Baird area).

Year	Hunt Area	Inclusive Location	Adults	Kids	Unknown	Total	Ratio Kid:100 Adult
1982 ^a	67-1	South of Palisades	33	13	0	46	39
1985 ^a		Creek to ID./WY.	35	16	0	51	46
1986 ^b		Stateline	0	0	104	104	--
1986 ^a			37	15	0	52	41
1988 ^b			71	21	0	92	30
1990 ^b			45	18	0	63	40
1993 ^b			104	33	16	153	34
1994 ^a			73	42	0	115	58
1996 ^a			151	66	0	217	44
1998 ^a			118	45	0	163	38
2000 ^a			61	29	0	90	48
2002 ^a			35	7	0	42	20
2004 ^a			83	24	0	107	29
2006 ^a			103	19	0	122	18
2008 ^a			96	27	0	123	28
2010 ^a			96	33	0	129	34
2012 ^a			87	23	0	113	26
2014 ^a							

Wyoming Summary of Mountain Goat Surveys, Hunt Area 2, Palisades Goat Herd, 1996-Present

Year	Hunt Area	Inclusive Location	Adults	Kids	Unknown	Total	Ratio Kid:100 Adult
1996 ^a	2	Wyoming – Palisades	16	8	0	24	50
1997 ^a		Goat Herd	34	20	0	54	59
1998 ^a			47	15	0	62	32
2000 ^a			58	18	0	76	31
2002 ^a			37	17	0	54	46
2004 ^a			90	31	0	121	34
2006 ^a			98	32	0	130	33
2008 ^a			52	13	0	65	33
2010 ^a			97	30	0	127	31
2012 ^a			83	25	0	108	30
2014 ^a			144	21	0	165	15

^a Helicopter survey (August).

^b Ground count.

HERD UNIT SEASONAL RANGE MAP

