#### MOUNTAIN GOAT UNIT MANAGEMENT PLAN

Uinta Mountains (Kamas / N. Slope / S. Slope) Wildlife Management Units #7, #8, #9 August 2019

#### **BOUNDARY DESCRIPTION**

Boundary begins at the Junction of Highway US-40 and Highway SR-87 in Duchesne; then north on SR-87 to Highway SR-35; west on SR-35 to Francis and Highway SR-32; west on SR-32 to Highway US-40 near Jordanelle; north on US-40 to Interstate 80; north on I-80 to the junction with SR-32 (Wanship); then south on SR-32 to the Weber Canyon road at Oakley; east on this road to Holiday Park and the Weber River Trail; east on the Weber River Trail to Highway SR-150 near Pass Lake; north along SR-150 to the Utah-Wyoming state line; east along this state line to the Utah-Wyoming-Colorado state line (Three Corners); south along the Utah-Colorado state line to the White River; west along the White River to the Green River; north along the Green River to the Duchesne River; west along the Duchesne River to US-40 at Myton; west along US-40 to SR-87 in Duchesne.

(See Appendix A for individual Wildlife Management Unit descriptions). (See Appendix B for individual hunt unit descriptions).

#### LAND OWNERSHIP

Land ownership and approximate area of modeled mountain goat habitat  $\geq$ 8,000 ft elevation for the Uinta Mountains unit.

OWNERSHIP	AREA (Acres)	PERCENT OWNERSHIP				
U.S. Forest Service	621,992	98%				
Private	11,570	1.8%				
SITLA	93	<1%				
BLM	13	<1%				
Tribal	5	<1%				
Total	633,672	100%				

### HISTORY AND CURRENT STATUS

A total of ninety mountain goats were transplanted onto the Uinta Mountains between 1987 and 2000. At least one radio collared female left the unit soon after release in 1996 and never returned.

Mountain goats are not known for pioneering well into new areas on their own but they do well in new areas when transplanted into suitable habitat. Small supplemental transplants were used to expand distribution throughout available habitat across the Uintas to preclude any detrimental resource impacts that may have resulted from localized high animal densities prior to natural pioneering across the Uintas. See Table 1 for history of mountain goat transplants onto the Uinta Mountains.

Hunting is the primary population management strategy on the Uinta Mountains. Hunting was initiated on the Uintas in 1997. The Uinta Mountains are currently divided into five hunt units (Figure 1, Appendix B) to distribute hunters and harvest pressure. Mountain goat permits are issued on a once-in-a-lifetime permit basis.

The Ute Tribe also issues Exterior Boundary Permits for mountain goats based on a formula in the Cooperative Agreement between the Ute Tribe and the State of Utah. Those permits are in addition to the public permits the Division issues. See Table 2 for a summary on harvest of mountain goats on the Uinta Mountains. Harvest data from the Tribal permits is very limited so it is not included in this table.

The mountain goat population on the Uinta Mountains has been increasing slowly and steadily for the last ten years. Most of the increase in recent years has been on the western portion of the Uintas. The population appears to have stabilized on the east end of the Uintas in the Leidy Peak and High Uintas East hunt units. The Uinta Mountains were most recently surveyed by helicopter in September 2017. A total of 593 adult mountain goats were found with 140 kids. See Table 3 for a history of population trend count and classification surveys on the Uinta Mountains.

# **ISSUES AND CONCERNS**

<u>High Uintas Wilderness Area and Native Status</u> - Mountain goats are currently found throughout the High Uintas Wilderness Area. Mountain goats are considered indigenous on the Uinta Mountains by the Utah Division of Wildlife Resources. UDWR will continue to work with USFS on wilderness issues and active management of mountain goats utilizing wilderness areas.

The native status of mountain goats is discussed in detail in the current Utah Mountain Goat Statewide Management Plan in Appendix A. The DWR's position is that mountain goat habitat exists in Utah and that mountain goats are a valuable part of our wildlife resource diversity and are a legitimate part of our modern Utah faunal landscape. As with any other ungulate species in our now pervasively human-altered ecosystem, they require pro-active management.

<u>Habitat monitoring</u> - The U.S. Forest Service and the Utah Division of Wildlife Resources have developed a cooperative agreement for monitoring mountain goat utilization and impacts on alpine habitat and ecosystems (1998). This plan utilizes hundreds of USFS habitat monitoring study sites across the Uinta Mountains. To date, this habitat monitoring has found no negative impacts from mountain goats (See Appendix C).

Non-consumptive use - There is great public interest in mountain goat viewing opportunities in the Uintas. Mountain goat viewing opportunities have significantly increased over the last ten years. Many visitors come to the Uintas each year with the primary goal of viewing mountain goats. Each spring UDWR sponsors a "mountain goat-viewing day" on the South Slope which is well attended with people traveling from as far as Logan and the Wasatch Front to attend.

<u>Predation</u> - Predation does not appear to be a limiting factor to mountain goats on the Uintas. The population continues to increase despite the presence of predators. Mountain lions, coyotes, and golden eagles are the most common predators of mountain goats on the Uintas.

<u>Disease:</u> Mountain goats have been established in Utah since 1967, and have not experienced any known disease related die-offs during that time. A 2018 hunter harvested goat tested positive for *Mycoplasma ovipneumoniae*. This pathogen has been associated with respiratory disease in bighorn sheep (Besser et al. 2012), inhibited weight gain in domestic sheep lambs (Besser et al. 2019), and in rare instances respiratory disease in mountain goats (Garde et al 2005). This is the first documented case of this pathogen in mountain goats on the Uintas. The positive animal was harvested on the East hunt unit.

<u>Competition</u>: The steep cliffy nature of mountain goat habitat limits the potential for competition with livestock, deer, and elk. There is currently no recognized competition between mountain goats and bighorn sheep within the unit. There is potential competition between the two species because of high dietary overlap and use of similar escape terrain particularly when seasonal habitat overlap occurs (Hobbs et al. 1990, Laundre 1994, Gross 2001). However, even where both are present, resource partitioning appears to minimize conflicts (Laundre 1994). Specifically, there is enough disparity in site selection, seasonal use, and forage preference such that range overlap does not result in as much direct competition as expected when each species' habitat requirements are considered separately. As mountain goats have increased on the Uintas they seem to have segregated somewhat or have different habitat preferences than bighorn. The core use area by bighorn is between Gunsight Pass and Divide Pass. That area has lowest density of mountain goats across the Uintas. Bighorn sheep in the Uintas will be monitored closely for areas of potential competition with mountain goats. Pika habitat and mountain goat habitat overlap on the Uinta Mountains, although pika are also found in many areas not used by mountain goats on the Uintas. Pika and mountain goats share ranges over much of the western US and Canada, and there is no evidence of mountain goats adversely impacting pika populations. Pika surveys conducted on the Uinta Mountains in 2011, 2014, and 2017 found that pika were well distributed and had high occupancy rates even in areas with high goat use.

### POPULATION MANAGEMENT

Manage for an optimal population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing. Maintain a population that is sustainable within the available habitat.

# **Population Management Objectives:**

The mountain goat population on the Uinta Mountains will continue be managed in the long term so as not to exceed the densities found in native populations of Southeastern Alaska or 6.0 goats/sq. mile of habitat. Mountain goats are currently known to be utilizing an area of around 519 square miles across the Uinta Mountains. The existing goat population is well distributed, yet has not filled all available habitats. To identify the available mountain goat habitat on the Uintas the UDWR used a simplified GIS analysis approach as described by Gross et al. (2002). Mountain goats are highly associated with escape terrain, which has been defined as slopes from >25° (Varley 1994) to  $> 33^{\circ}$  (Gross et al. 2002). We used slopes  $> 30^{\circ}$  as potential mountain goat escape terrain. Gross et al. found that applying a 258m (846ft) buffer to escape terrain correctly classified 87% of active mountain goat habitat. We applied a 258m buffer to all slopes  $> 30^{\circ}$  on the Uinta Mountains and calculated potential habitat at the > 8,000ft, > 9,000 ft, and >10,000 ft elevations resulting in 990 square miles of mountain goat habitat. The vast majority of mountain goats on the Uinta Mountains have been found above 10,000 ft but in some areas goats are consistently found down to 8000 ft, especially during the winter. A map of the modeled goat habitat across the Uinta Mountains is provided in Figure 1.

- 1) <u>Target Summer Herd Size</u>: This herd will continue to be managed towards **a** minimum population of 1,500 counted adults (summer helicopter count).
- 2) Maintain a healthy proportion of older age classes of males in the mountain goat populations across the Uinta Mountains.

#### **Population Management Strategies:**

- a. <u>Monitoring</u>: A helicopter census of the entire Uinta Mountains will be flown every 2-3 years to assess recruitment, population status, billy/nanny ratios, and distribution of mountain goats on the Uinta Mountains. A fixed wing and/or ground classification sample of mountain goats will be collected annually as funds are available to estimate kid production.
- b. <u>Harvest</u>: Utilize sport hunting as the primary method to meet management objectives in the statewide mountain goat management plan. In accordance with the statewide management plan, permits will be issued in proportion to the number of adult goats observed in each hunt unit during helicopter surveys. Female only hunts may be instigated to maintain the population level while protecting the mature billies in the population.

#### HABITAT MANAGEMENT

### **Habitat Management Objective:**

Provide good quality habitat for healthy populations of mountain goats that is in balance with the existing habitat.

# **Habitat Management Strategies:**

- a. Continue to work cooperatively with the US Forest Service to monitor and manage mountain goat habitat within the unit as per the 1998 cooperative agreement. Utilize the USFS habitat monitoring in areas of high mountain goat use to identify potential habitat impacts as the herd increases.
- b. Continue to monitor mountain goat habitat use and distribution and identify critical use areas through aerial and ground surveys.
- c. If habitat monitoring identifies areas of serious detrimental habitat impacts that are confirmed to be caused by mountain goats, the population in that area may be targeted for reduction through harvest or transplants.

#### **RECREATION MANAGEMENT**

### **Recreation Management Objectives:**

Provide high quality opportunities for hunting and viewing of mountain goats.

- 1. <u>Harvest</u>: In accordance with the statewide management plan, recommendations for hunter's choice permits will be based on 5-25% of the counted adults on each hunt unit. Continue to utilize five hunt units (See Appendix B and Figure 1) to distribute harvest across the entire unit including remote areas. Continue to monitor sex and age class of harvested goats to ensure an appropriate age distribution of males is being maintained. If hunter density becomes an issue, split seasons or additional splitting of hunt units may be instituted through the RAC & Wildlife Board process.
- 2. <u>Non-consumptive Use</u>: Increase public knowledge of and expand viewing opportunities of mountain goats. Continue efforts to increase mountain goat viewing through viewing events or installation of informational kiosks.

#### LITERATURE CITED

- Besser, T. E., M. A. Highland, K. Baker, E. F. Cassrier, N. J. Anderson, J. M. Ramsey, K. Mansfield, D. L. Bruning, P. Wolff, J. B. Smith, and J. A. Jenks. 2012. Causes of pneumonia epizootics among bighorn sheep, Western United States, 2008–2010. Emerging Infectious Diseases 18:406–414.
- Besser, T. E., J. Levy, M. Ackerman, D. Nelson, K. Manlove, K. A. Potter, J. Busboom, and M. Benson. 2019. A pilot study of the effects of *Mycoplasma ovipneumoniae* exposure on domestic lamb growth and performance. PloS ONE 14(2): e0207420. https://doi.org/10.1371/journal.pone.0207420
- Garde, E., S. Kutz, H. Schwantje, A. Vietch, E. Jenkins, and B. Elkin. 2005. Examining the risk of disease transmission between wild Dall's sheep and mountain goats, and introduced domestic sheep, goats, and llamas in the Northwest Territories. Other publications in Zoonotics and Wildlife Disease, University of Nebraska-Lincoln 29: 1–139.
- Gross, J. E., M. C. Kneeland, D. F. Reed, and R. M. Reich. 2002. GIS-Based habitat models for mountain goats. Journal of Mammalogy 83:218-228.
- Hobbs, N. T., J. A. Bailey, D. F. Reed, and M. W. Miller. 1990. Biological criteria for introductions of large mammals: using simulation models to predict impacts of competition. Transactions of the 55th North American Wildlife and Natural Resources Council 1990:620–632.
- Laundre, J. W. 1994. Resource overlap between mountain goats and bighorn sheep. Great Basin Naturalist 54:114–121.
- Varley, N. C. 1994. Summer-fall habitat use and fall diets of mountain goats and bighorn sheep in the Absaroka Range, Montana. Biennial Symposium of the Northern Wild Sheep and Goat Council 9:131-138.

TABLE 1

Mountain goat transplant history on the Uinta Mountains.

Release Site	Source	Year Released	Number Released
Bald Mtn.	Lone Peak, Utah	1987	7
Bald Mtn.	Olympic NP, Washington	1988	16
Whiterocks Cyn.	Olympic NP, Washington	1989	10
Whiterocks Cyn.	Lone Peak, Utah	1992	13
Liedy Peak	Tushar Mountains, Utah	1996	3
Marsh Peak	Tushar Mountains, Utah	1996	5
Chepeta Lake	Tushar Mountains, Utah	1996	7
S.Fk. of Rock Crk.	Tushar Mountains, Utah	1997	5
Duck Peak	Tushar Mountains, Utah	1997	7
Jefferson Park	Tushar Mountains, Utah	2000	9
Center Park	Tushar Mountains, Utah	2000	8

TABLE 2
Harvest history of mountain goats on the Uinta Mountains from 1994-2018 (Additional harvest from Tribal permits is unknown).

Year	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
<b>Public Permits</b>	46	44	44	44	43	43	43	37	37	30	35
<b>Public Harvest</b>	42	39	44	44	42	42	43	39	36	30	33
Billies	31	22	28	36	25	27	36	24	29	23	24
Nannies	11	17	16	6	14	15	7	15	7	7	9
Additional Tribal Permits	8	7	7	7	7	7	7	6	6	6	6

Year	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997
<b>Public Permits</b>	35	29	29	15	15	11	5	3	2	2	2
<b>Public Harvest</b>	33	28	27	15	15	10	5	3	2	2	2
Billies	26	23	18	12	13	7	3	2	2	2	2
Nannies	7	5	9	3	2	3	2	1	0	0	0
Additional Tribal Permits	6	5	5	4	4	1	1	1	1	0	0

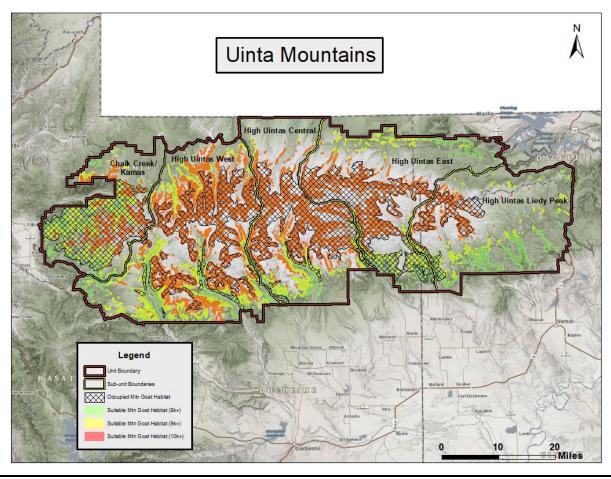
 $\frac{TABLE\ 3}{Summary\ of\ mountain\ goat\ helicopter\ trend\ count\ and\ classification\ surveys\ 2001-2017.}$ 

Hunt Unit	YEAR OF SURVEY	TOTAL GOATS	TOTAL ADULTS	KIDS	KIDS /100 ADULTS
	2017	52	42	10	24
High Uintas Leidy Peak	2014	44	31	13	42
	2013	58	46	12	26
	2011	41	34	7	21
	2009	77	62	15	24
	2008	58	47	11	23
	2006	111	76	35	46
	2004	96	72	24	33
	2001	40	31	9	29
	2017	55	43	12	28
High Uintas East	2014	64	60	4	7
	2011	89	81	8	10
	2009	81	65	16	25
	2008	95	81	14	17
	2006	166	128	38	30
	2004	139	105	34	32
	2001	59	45	14	31
	2017	220	166	54	32
High Uintas Central	2014	206	165	41	25
	2011	197	167	30	18
	2009	210	173	37	21
	2008	153	131	22	17
	2006	228	160	68	43
	2004	183	136	47	35
	2001	62	47	15	32
	2017	303	262	41	16
High Uintas West	2014	392	347	45	13
	2011	440	382	58	15
	2009	294	233	61	25
	2008	236	193	44	22
	2006	169	130	39	30
	2004	131	98	33	34
	2001	46	35	11	31
	2017	103	80	23	29
Chalk Creek/Kamas	2014	129	114	15	13
	2011	91	77	14	18

			1	ı	
	2009	108	89	19	21
	2008	37	28	9	32
	2006	24	21	3	14
	2004	34	26	8	31
	2001	8	6	2	33
TOTAL	2017	733	593	140	24
101.12	2014	835	717	118	16
	2011	858	741	117	16
	2009	770	622	148	24
	2008	579	480	10	21
	2006	698	515	183	36
	2004	583	437	146	33
	2001	215	165	50	31

# FIGURE 1.

Uinta Mountains Unit boundary, sub-unit boundaries, currently occupied mountain goat habitat, and modeled suitable mountain goat habitat.



### **APPENDIX A**

# Wildlife Management Unit Boundaries

#### 7 KAMAS

**Summit and Wasatch counties -** Boundary begins at the junction of Interstate 80 and Highway SR-32 (Wanship); then south on SR-32 to the Weber Canyon road at Oakley; east on this road to Holiday Park and the Weber River Trail; east on the Weber River Trail to Highway SR-150 near Pass Lake; south on SR-150 to the North Fork Provo River; south along the North Fork Provo River to the Provo River; south along the Provo River to Highway SR-35; west on SR-35 to Francis and Highway SR-32; west on SR-32 to Highway US-40 near Jordanelle; north on US-40 to Interstate 80; north on I-80 to SR-32 and Wanship. Boundary Questions? Call DWR Ogden office,801-476-2740.

#### **8 NORTH SLOPE (3 subunits)**

**Summit, Daggett counties** - Boundary begins at the junction of SR-150 and the Summit-Duchesne county line (summit of the Uinta Mountains); north along SR-150 to the Utah-Wyoming state line; east along this state line to the Utah-Wyoming-Colorado state line (Three Corners); south along the Utah-Colorado state line to the Green River; west along the Green River to Flaming Gorge Reservoir; west along the south shoreline of this reservoir to Cart Creek; south along Cart Creek to US-191; south along US-191 to the Uintah-Daggett County line (summit of the Uinta Mountains); west along the summit of the Uinta Mountains to SR-150. USGS 1:100,000 maps: Kings Peak, Dutch John. Boundary Questions? Call DWR Vernal office, 435-781-9453 or DWR Ogden office 801-476-2740.

#### 9 SOUTH SLOPE (4 subunits)

Wasatch, Summit, Daggett, Uintah, Duchesne counties -- Boundary begins at the Junction of Highway US-40 and Highway SR-87 in Duchesne; then north on SR-87 to Highway SR-35; then northwest on SR-35 to the Provo River; north along the Provo River to the North Fork Provo River; north along the North Fork Provo River to Highway SR-150; northerly along SR-150 to the Summit/Duchesne county line (summit of the Uinta Mountains); east along the summit of the Uinta Mountains to Highway US-191; north along US-191 to Cart Creek; north along Cart Creek to Flaming Gorge Reservoir; east along Flaming Gorge Reservoir to the Green River; east along the Green River to the Utah-Colorado state line; south along the Utah-Colorado state line to the White River; west along the White River to the Green River; north along the Green River to the Duchesne River; west along the Duchesne River to US-40 at Myton; west along US-40 to SR-87 in Duchesne. **EXCLUDING ALL INDIAN TRUST LANDS WITHIN THIS BOUNDARY**. USGS 1:100,000 maps: Kings Peak, Duchesne, Vernal, Dutch John. Boundary Questions? Call DWR Vernal office, 435-781-9453.

### APPRENDIX B

# **Hunt Area Boundary Descriptions:**

#### Chalk Creek/Kamas

Boundary begins at the junction of SR-150 and the Summit-Duchesne county line (summit of the Uinta Mountains); north along SR-150 to the Forest boundary; west and south along this boundary to SR-150 near Samak; east and north on SR-150 to the Summit/Duchesne county line. USGS 1:100,000 maps: Kings Peak, Salt Lake. Boundary Questions? Call DWR Ogden office 801-476-2740.

### **High Uintas West**

Boundary begins at the junction of SR-150 and the Summit-Duchesne county line (summit of the Uinta Mountains); north along SR-150 to the North Slope road (USFS 058); east along this road to the East Fork of the Blacks Fork River; south along the East Fork of the USFS trail #103; south on this trail (Little East Fork of Blacks Fork River) to Squaw Pass and USFS trail #42; south on this trail to Oweep Creek; south along this creek to the Lake Fork River; south along this river to the Forest boundary; west along this boundary to SR-35; northwest on SR-35 to the Soapstone basin road (USFS 037); north along this road to Highway SR-150; north on SR-150 to the Summit/Duchesne county line. USGS 1:100,000 maps: Kings Peak. Boundary Questions? Call DWR Vernal office, 435-781-9453 or DWR Ogden office 801-476-2740.

### **High Uintas Central**

Boundary begins where the Lake Fork River crosses the Forest boundary; north along the Lake Fork River to Oweep Creek; north along Oweep Creek to USFS trail #42; north on this trail to Squaw Pass and USFS trail #103; north on this trail and the Little East Fork to the East Fork of the Blacks Fork River; north along this fork to the Blacks Fork River; north along this river to Meeks Cabin Reservoir and the Utah-Wyoming state line; east along this state line to the Henrys Fork River; south along this river to USFS Trail # 117; south on this trail to Gunsight Pass and USFS Trail #068; east on this trail through Painter Basin to USFS Trail # 044; east on this trail to the Uinta River; south along this river to the Forest boundary; west along the Forest boundary to the Lake Fork River. USGS 1:100,000 maps: Kings Peak. Boundary Questions? Call DWR Vernal office, 435-781-9453 or DWR Ogden office 801-476-2740.

#### **High Uintas East**

Boundary begins where the Uinta River crosses the Forest Boundary; then north along the Uinta River to USFS Trail # 044 near Painter Basin; west on this trail to USFS Trail #068; north on this trail to Gunsight Pass and USFS Trail #117; north on this trail to the Henrys Fork River; north along this river to the Utah-Wyoming state line; east on this state line the Forest boundary; south and east on the Forest boundary SR 44; west along SR 44 to Crater Creek; west along this creek to Brownie Lake and Weyman Creek; south along this creek to USFS Trail # 019 in Weyman Park; south on this trail over an unnamed pass to USFS Trail # 025; west on this trail to Whiterocks Lake and the Whiterocks River; south along this river to the Forest boundary; west on this boundary to the Uinta River. USGS 1:100,000 maps: Kings Peak, Dutch John. Boundary Questions? Call DWR Vernal office, 435-781-9453 or DWR Ogden office 801-476-2740.

# **High Uintas Liedy Peak**

Boundary begins where the Whiterocks River crosses the Forest boundary; north along the Whiterocks River to Whiterocks Lake and USFS Trail #025; east on this trail to USFS Trail #019; north on this trail over an unnamed pass to Weyman Park and Weyman Creek; northeast along Weyman Creek to Brownie Lake and Carter Creek; east along this creek to SR 44; east on SR 44 to SR191; south on this road to the Forest boundary; west along this boundary to the Whiterocks River. USGS 1:100,000 maps: Dutch John. Boundary Questions? Call DWR Vernal office, 435-781-9453.

# **APPENDIX C**

Randall Thacker Utah Division of Wildlife Resources Vernal, Utah

#### Randall:

Since 2005, the number of long-term studies has increased in the alpine areas across the Uinta Mountains, adding to the numerous studies that existed prior to that time. These studies are found in every major drainage on the south slope of the Uintas from Marsh Peak to Grandaddy Lake Basin and many if not most are located within existing or potential mountain goat habitat. Repeat photography is the most common sampling method used to determine trend, but other sampling methods used include ocular macroplot, line intercept, and point ground cover. Data from these studies continue to show ground cover meeting or surpassing desired condition with trends typically stable. Low willows in alpine settings continue to show no change or increase in canopy cover, which indicates desired condition. Plant species composition in a variety of vegetation communities remains unchanged. At this time, monitoring does not show downward trend in ground cover, plant species composition, or shrub canopy cover in areas where mountain goats are present.

The Ashley National Forest believes that there are adequate number and distribution of studies in alpine to track future mountain goat impacts, but more monitoring sites are expected to be established in the years to come. Current studies are located in areas where mountain goats are currently not found or rarely frequent, in areas where goats are commonly found and populations continue to show increase, and in areas that are near or adjacent to existing goat populations, but receive limited use. We believe that we are prepared to track future and possible expanding impacts of mountain goats. As stated above there appears to be no apparent trend associated with mountain goats in the Uinta Mountains as of this date.

/S/ Allen Huber

Allen Huber Ecologist Ashley National Forest 6 June 2013