MOUNTAIN GOAT UNIT MANAGEMENT PLAN
Beaver
Wildlife Management Unit #22
August 2019

BOUNDARY DESCRIPTION

Iron, Garfield, Piute, Beaver, and Millard counties: Boundary begins at SR-130 and I-15; north on SR-130 to SR-21; north on SR-21 to SR-257; north on SR-257 to the Black Rock road; east on the Black Rock road to I-15; south on I-15 to I-70; east on I-70 to US-89; south on US-89 to SR-20; west on SR-20 to I-15; south on I-15 to SR-130.

LAND OWNERSHIP

Land ownership and approximate area of modeled mountain goat habitat ≥8,000 ft elevation for the Beaver unit.

OWNERSHIP	AREA (Acres)	PERCENT OWNERSHIP
U.S. Forest Service	152,992	92%
Private	10,398	6%
BLM	2993	1.8%
SITLA	720	<1%
Total	**167,104**	**100%**

UNIT MANAGEMENT GOALS

This plan will guide future management decisions consistent with the Utah Statewide Mountain Goat Management Plan. Specific goals are to:

1) Maintain a sustainable mountain goat population on the Tushar Mountains (Beaver Unit).
2) Allow for a calculated strategic surplus of goats to provide for transplants and/or increased hunter opportunities.
3) Provide good quality habitat for a healthy population of mountain goats.

HISTORY AND CURRENT STATUS

Mountain goats were introduced to the Tushar Mountains in 1986, when seven goats were taken from the Lone Peak area of the Wasatch Mountains and released on the south side of Mt. Holly. In 1988, seventeen goats from Washington state were released to supplement this herd. Since that time the population has steadily increased to a point that animals have been transplanted

from the area to other parts of the state to augment or start new populations. The unit was most recently surveyed in August 2019 and population was estimate at 174 mountain goats.

ISSUES AND CONCERNS

Interspecific Competition: Dietary overlap between livestock and mountain goats does not appear to be affecting mountain goats or their habitat at this time with very limited cattle use in these high elevation areas and no sheep use. Mule deer and elk use this area during the summer, but interactions between these species and mountain goats appear to be minimal.

Disease: Disease has not been a limiting factor for the mountain goat population on the Tushar Mountains. *Mycoplasma ovipneumoniae* has been associated with respiratory disease in bighorn sheep (Besser et al. 2012), inhibited weight gain in domestic lambs (Besser et al. 2019), and in rare instances respiratory disease in mountain goats (Garde et al 2005). Because the mountain goat populations that were used as source populations for the Tushar Mountains do harbor *Mycoplasma ovipneumoniae*, we suspect that individuals in this herd may potentially harbor it as well. If respiratory disease or other diseases known to potentially affect mountain goat populations such as Johne's disease or contagious ecthyma are found to be impacting this goat herd, the Utah Division of Wildlife Resources (UDWR) will take appropriate actions to ensure a healthy mountain goat population.

Predation: Although some predation of mountain goats occurs from mountain lions, coyotes, and golden eagles, predation does not appear to be a significant limiting factor for mountain goats on the Tushar Mountains. If predation becomes a limiting factor, predator control work will be administered within the guidelines of the UDWR predator management policy and the authorized plan of the administering land management agency.

Poaching: Poaching can have a detrimental effect on recreational viewing and hunting opportunities for mountain goats. Currently, the UDWR and local law enforcement agencies work together to minimize illegal activity relating to goats on the Tushar Mountain range. These agencies spend significant time patrolling since there are substantial outdoor recreation and wildlife viewing opportunities in this area.

POPULATION MANAGEMENT

Population Management Objectives:

1) Maintain a sustainable mountain goat population on the Tushar Mountains. The population objective for the unit will be to manage for 175 mountain goats. Potential mountain goat habitat was modeled using 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° (Gross et al.

2002), therefore we used slopes >30° as potential mountain goat escape terrain. Gross et al. (2002) found that applying a 258 m (846 ft) buffer to escape terrain correctly classified 87% of active mountain goat habitat. We applied a 258 m buffer to all slopes ≥ 30º on the Tushar Mountains and calculated potential habitat ≥ 8,000 ft in elevation resulting in 261 square miles of habitat. This indicates that the density of the Beaver Unit will be 0.67 mountain goats per square mile of available year-round habitat.

2) Allow for a calculated strategic surplus of goats to provide for transplants and/or increased hunter opportunities.

Population Management Strategies:

Transplant/Hunting Plan: Since this herd will be used as source stock for transplants as needed, the population may be allowed to exceed this number and be brought back into objective in successive years. When populations surpass the objective, UDWR will implement a transplant or increase nanny hunting opportunities to regulate population numbers.

Monitoring: Monitor population size and composition using statewide survey protocols. Perform aerial helicopter surveys every 1-3 years and annual ground classification as resources allow for increased monitoring as a source population. Utilize population or sight-ability models to determine the relationship between surveys and population size. This information will be useful in evaluating transplants and nanny hunts in achieving population objectives.

Predator Management: If predation becomes a limiting factor for mountain goats, predator control work will be administered within the guidelines of the UDWR Predator Management Policy.

HABITAT MANAGEMENT

Habitat Management Objectives:

1) Maintain or improve sufficient mountain goat habitat to achieve population objectives.
2) Support and encourage regulated livestock grazing on all identified mountain goat habitat within approved grazing allotments.

Habitat Management Strategies:

Monitoring: The UDWR will coordinate habitat monitoring with land management agencies to detect changes in habitat quantity or quality and identify and protect critical mountain goat habitats. At this time, the UDWR, US Forest Service, and Brigham Young University are performing a coordinated habitat monitoring study to assess if the abundance of selected alpine plant species are changing over time. We will also monitor what animal species use the alpine habitats where these selected species occur, so that if changes in abundance are observed, we can attribute what animals may be contributing to those changes. We also hope to identify what species of plants the mountain goats on the Tushar Mountains are selecting for when foraging.

Habitat Improvement: Work with land managers to minimize and mitigate loss of mountain goat habitat due to human disturbance and development. Inform and educate the public concerning the needs of mountain goats including the effects of human disturbance and the need for habitat improvements. Encourage land management agencies and private landowners to protect alpine tundra habitats from overuse in recreational activities. Identify specific habitat restoration projects to immediately benefit mountain goats. While competition with other species is currently not an issue, if livestock grazing in alpine tundra habitats is not regulated, then there is potential that these habitats can be overused. Therefore, we encourage land management agencies and private landowners to prevent summer livestock grazing outside of approved grazing allotments in alpine tundra habitats to avoid overuse.

RECREATION MANAGEMENT

Recreation Management Objectives:

1) Provide high quality opportunities for hunting and viewing of mountain goats.
2) Increase public awareness and expand viewing opportunities of mountain goats.

Recreation Management Strategies:

Hunting: Continue to educate the public about the difference between a nanny and billy to encourage hunters to harvest mature males during the hunter's choice hunts. Recommend hunting seasons to provide maximum recreational opportunity while not imposing on UDWR management needs.

Non-Consumptive Uses: Work with the USFS to install and maintain interpretive signs in mountain goat areas for public information. Continue to expand mountain goat viewing events for interested public.

LITERATURE CITED

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Figure 1. Occupied and modeled suitable mountain goat habitat on the Beaver Unit.