

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit # 10
Book Cliffs
2016

BOUNDARY DESCRIPTION

Grand and Uintah counties—Boundary begins at Exit 164 on I-70 near the town of Green River; east on I-70 to the Utah-Colorado state line; north on this state line to the White River; west along this river to the Green River; south along this river to Swasey's Boat Ramp and the Hastings Road; south on this road to SR-19; south and east on SR-19 to Exit 164 on I-70 near the town of Green River.

This unit will continue to be managed with three subunits. See Appendix A for subunit boundary descriptions.

LAND OWNERSHIP

Ownership	Yearlong range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	0	0	0	0	0	0
Bureau of Land Management	266,492	86.6	112,927	33.7	543,873	49.9
Utah State Institutional Trust Lands	35,353	11.5	114,778	34.2	85,524	7.9
Native American Trust Lands	1,525	0.5	96,678	28.8	386,145	35.4
Private	4,126	1.3	3,912	1.2	58,783	5.4
Department of Defense	0	0	0	0	0	0
USFWS Refuge	0	0	0	0	0	0
National Parks	0	0	0	0	0	0
Utah State Parks	0	0	0	0	0	0
Utah Division of Wildlife Resources	86	0.1	7,157	2.1	15,286	1.4
TOTAL	307,582	100	335,452	100	1,089,611	100

UNIT MANAGEMENT GOALS

Manage for a population of healthy animals capable of providing a broad range of recreational opportunities including hunting and viewing. Balance elk herd impacts on human needs, such as private property rights, agricultural crops and local economies. Maintain the population at a level that is within the long term support capability of the available habitat.

Manage to maintain and enhance forage and cover habitat through vegetative manipulation, domestic grazing and other management techniques. Attempt to mitigate against habitat fragmentation, degradation and loss stemming from mineral extraction, road construction, increased recreation and other impacts.

UNIT MANAGEMENT OBJECTIVES

Habitat

- Promote sustainable livestock grazing practices that minimize negative impacts to plant health and diversity, especially on summer ranges and on SITLA and DWR lands where DWR holds the grazing permit or controls livestock grazing.
- Develop new and protect/improve existing water sources for wildlife and livestock to improve distribution, and minimize overutilization in proximity to water sources.
- Remove conifer encroachment into winter range, sagebrush park lands, and summer range aspen forest and mountain browse communities. Approximately 1,500 acres per year will be targeted.
- Open the closed canopy piñon–juniper forest lands at mid elevation zones throughout the Book Cliffs to enhance perennial understory vegetative maintenance. Approximately 1,500 acres per year will be targeted utilizing mechanical and prescribed fire technology.
- Enhance riparian system and canyon bottom vegetative communities through continued agricultural practices, prescriptive grazing and mechanical or chemical treatments.
- Emphasis on reducing greasewood and improving canyon bottoms and riparian communities will continue.
- Manage to minimize wild horse herds and their impacts.
- Explore ways to improve Wyoming sagebrush community condition and perennial vegetative health.

Population

Target Winter Herd Size: Manage toward a wintering elk population of 7,500.

Harvested Bull Age Objectives: As directed in the Utah Statewide Elk Management Plan, manage for a harvested bull elk 3 year average age of 6.5 – 7.0 years for the Bitter Creek and South subunits and 7.5 – 8.0 years on the Little Creek subunit.

Antlerless Harvest: Despite being below population objective, some antlerless elk harvest is desirable to address specific range and depredation issues. To address range issues the Division may continue to issue limited cow elk permits in the San Arroyo and Little Creek areas. To reduce competition with mule deer for crucial winter range, cow hunts may continue in the McCook Ridge area. To reduce damage to agricultural crops by a low elevation resident elk herd in the lower Willow Creek area the Division may continue to issue cow elk mitigation permits and public draw antlerless permits for that area. Other antlerless elk permits may be recommended if there is justification and need based on range conditions, competition with mule deer, and/or conflicts with agriculture.

CURRENT STATUS OF ELK MANAGEMENT

Habitat

Habitat Conditions: Summer range is limited. Drought impacts from the early 2000's include sagebrush mortality, reduced browse vigor and forage production throughout lower elevation ranges. Perennial grasses persist, but annual grass and weed growth have responded to moisture timing and availability. There are 33 permanent range trend study sites on the Book Cliffs (9 sites on the South Book Cliffs subunit and 24 on the Bitter Creek and Little Creek subunits). While these study sites monitor mule deer range conditions and principally target wintering areas, they reflect the impact of drought conditions on the vegetative communities.

Few elk winter in areas sampled by the South Book Cliffs range trend studies. In 2015, study sites indicated that soil and browse trends appeared stable. However, species composition of the herbaceous understory is declining in quality, as composition is primarily annual grasses. Species such as cheatgrass (*Bromus tectorum*) are increasing in frequency and cover.

The North Book Cliffs subunit study sites showed stable and improving soils. Herbaceous plant understories are generally in poor to very poor condition with unsatisfactory species composition. This is due primarily to cheatgrass and annual forb dominance. Browse plant condition and frequency trends are generally improving with problems of declining 4-wing saltbush evident.

Distribution of all ungulate herbivory (including elk) on the limited summer range is becoming a more pressing issue. Competition for forage, and especially water between elk, cattle, deer, bison, and feral horses is increasing and cause for concern among the DWR, BLM, SITLA, and livestock permittees.

When looking at elk population objectives, the Division has taken into account factors which include 1) depredation issues 2) winter range that is beyond division control 3) social and political factors 4) current range improvements 5) future range improvements and 6) overall range health. As these factors change the Division will adjust the population objective as needed.

Several factors impact the ability of this unit to support larger elk populations. Drought vegetative impacts of the past decade have interfered with elk numbers. Antlerless elk harvest was initiated to stop, and then slow, elk herd growth and provide relief to vegetative communities. Mineral extraction and associated activities fragment elk habitat and elk security. Pinion and juniper invasion is reducing more beneficial forage production and threatening open and mosaic habitat values. Canopy cover is closing in mid elevation mature pinion and juniper communities. This limits and slowly removes valuable perennial understory species. Agricultural depredations are generally minimal but do occur.

Habitat improvement projects: Numerous habitat improvement projects have been completed in the Book Cliffs. The Division of Wildlife and partners have made aggressive efforts to preserve, improve and develop wildlife habitat. These efforts include taking advantage of naturally caused wild fires through reseeding and other more labor-intensive accomplishments. In total, 157,953 acres have been completed including wild fire reseedings. Currently proposed projects total 7,109 acres. Specific project areas and acreage totals are given below.

BOOK CLIFFS HABITAT PROJECTS COMPLETED AND PROPOSED			
Completed Projects – 2011 through 2016			
Project Name	Acres	Project Name	Acres
Little Creek Boundary Fence	0	Indian Springs Bullhog Maintenance	610.22
Meadow Creek Boundary Fence	0	Bookcliffs Aspen Exclosure Phase III	0
Book Cliffs Spring Protection and Enhancement	0	Bookcliffs Water Development	0
Bitter Creek Riparian Protection	0	West Bookcliffs Aspen Study	0
Seep Ridge Bullhog Phase II	389.87	Tom Patterson Rx Line Preparation	47.49
Seep Ridge Chaining	321.86	Atchee Ridge Guzzler Project	0
Indian Ridge Sagebrush	224.04	Little Creek WMA Guzzlers	0
Cedar Camp lop and scatter phase II	869.62	Monument Ridge Slashing	1,019.70
Moonshine Ridge Mountain Browse Enhancement	361.06	Book Cliffs Gobbler Guzzler Project	0
Boulevard Ridge Pinyon and Juniper Removal	392.25	Monument Ridge Bullhog	4,625.44

Bookcliffs Aspen Exlosures	0	Bottom Canyon Bullhog Phase II	415.8
Archy Bench Sagebrush Restoration	606.87	North Book Cliffs Wildlife Guzzler Project II	0
Buck Camp Canyon P-J Project	212.79	Wolf Den - Rector Ridge Fire Rehabilitation	2,228.82
Pine Springs bullhog phase II	494.83	Wolf Den Fire-Rainbow	525.52
Moon Ridge Chaining	540.88	Park Ridge bullhog maintenance	474.04
Little Jim Bullhog	668.77	Moonshine Bullhog Phase III	426.24
Moonshine Bullhog Phase II	619.59	Steer Ridge Lop and Scatter	566.19
Atchee Ridge Lop and Scatter Phase II	483.3	NER Pronghorn Guzzler Replacement	0
Book Cliffs Aspen Exlosures Phase II	0	Jack Trap Canyon	334.39
Seep Ridge Phase II/Bullhog Maintenance	729.03	Bitter Creek Restoration Phase 1	1,130
South Book Cliffs Vegetation Improvement Phase 3	458	Bitter Creek Restoration Phase 2	2,250
Total Acres Treated			22,026

Proposed/Current Projects – 2016 and beyond			
Project Name	Acres	Project Name	Acres
Red Leaf Reclamation	0.32	Boulevard Ridge P/J Removal Project	932.17
Book Cliffs Divide Ridge Water Improvements	0	Book Cliffs lower elevation guzzlers	0
Burnt Timber Bullhog	620.54	Went Ridge Guzzlers	0
Indian Spring Phase I Maintenance	319.4	Burnt Timber bullhog phase II	441.84
Chipeta Canyon Guzzler	0	Wolf Den Fire Weed Control and Restoration Phase 1	1,700.58
Seep Ridge Chaining maintenance	332.49	Monument Ridge Bullhog Implementation Phase I & II	1,999.72
Moon Ridge Chaining maintenance	698.2	Pine Springs Ponderosa	63.8
Sagers Canyon Veg Improvement	661		
Total Proposed Treatment Acres			7,770

Population

The following table provides a summary of Book Cliffs elk population information. Sightability has varied greatly due to snow conditions on trend count flights resulting in some divergence in the model and trend counts.

Winter Trend Counts and Modeled Population Estimates		
Year	Trend Count	Population Model
2002-2003		3560
2003-2004	1680	3698
2004-2005		3869
2005-2006		4027
2006-2007	3334	4200
2007-2008		4385
2008-2009		4442

2009-2010	2162	4104
2010-2011		4193
2011-2012		4270
2012-2013		4000
2013-2014		4800
2014-2015		5500
2015-2016	3224	5600

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat

- Drought impacts to rangeland forage condition and abundance.
- Limited summer range on the unit.
- Habitat fragmentation, loss and disturbance from mineral developments, road extensions and human impacts.
- Pinion and juniper invasion into sagebrush, mountain browse and aspen communities.
- The maturation of conifer forests resulting in closed canopies. This reduces perennial understory vegetation and limits forage availability and diversity.
- Canyon bottom vegetation communities dominated by greasewood and tamarisk with the associated loss of water table and native cottonwood, willow and related riparian species.
- Wild/feral horse and feral cattle impacts on forage potential.

Population

- The population will be managed by hunting antlerless elk.
- Strategic antlerless harvest will be used to address localized issues and problems.
- Elk distribution across the unit.

Other barriers

- Crop depredations on privately owned agricultural lands is limited by the amount available but can be significant depending upon crops, timing and elk distribution.
- Cooperation between DWR, BLM, SITLA, landowners and the Ute Tribe is essential to elk herd management on this unit.
- Calf-to-cow ratios have been lower than normal in recent years. With calving grounds concentrated in such a narrow band of summer habitat, it is possible that predators such as coyotes and especially black bears have become more effective at killing elk calves and could be impacting recruitment.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat

Monitoring

- Continue to monitor long term rangeland conditions and health through the permanent range trend sites.
- Annually inspect rangeland vegetative community impacts and health through habitat assessment surveys that include field assessments and range rides.

Actions to Remove Habitat Barriers

- Cooperate with land management agencies to establish natural fire policies that will allow wild fires to burn in beneficial and non threatening areas.
- Continue to cooperate with land management agencies to effectively reseed and/or rehabilitate wildfires to benefit elk and other wildlife.

- Continue with the aggressive juniper, pinion and other conifer treatment projects that target areas of invasion into sagebrush, mountain browse and aspen communities.
- Develop projects to improve vegetative diversity and perennial understory health in closed canopy pinion and juniper forests.
- Continue to treat greasewood and tamarisk communities and reestablish native woody vegetative species in riparian habitat types. Concurrent with these efforts, explore ways to bring water tables closer to the ground surface.
- Work with mineral development interests to attempt to mitigate for habitat fragmentation and losses.
- Seek to expand summer range values by extending and improving canyon-type habitats down drainage systems.
- Work with landowners and associated agencies to limit the impacts and control populations of wild cows and wild horses within the Book Cliffs.

Population

Monitoring

Population Size: Aerial helicopter surveys are normally conducted every three years. These flights are cooperatively timed with the Ute Indian Tribe and data shared to better understand elk population distribution and numbers. These flights and population models are utilized to track and evaluate the elk herd distribution and annual winter population estimates. Inclusive to these efforts, annual herd classification may be conducted to estimate herd productivity.

Bull Age Structure: Harvested bull ages will be monitored annually through cementum annuli lab analysis of hunter-submitted central incisor teeth

Harvest: The primary means of monitoring harvest will be through the statewide uniform harvest survey. Population size will be achieved through utilizing a variety of harvest methods and seasons. Elk distribution across the herd unit may also be addressed through selective public antlerless harvest and hunt areas.

Management Actions to Remove Population Barriers

Depredation: Antlerless hunts will continue to be the principle means of limiting cropland depredation. Mitigation permits and vouchers may also be used. An active landowner's association receives limited entry bull permits.

Interagency Cooperation: The increasing demands for all natural resource use within the Book Cliffs mandate close association and cooperation between all resource management agencies. While good cooperation and communication is established, this effort will be a priority and will include Private Landowners, BLM, SITLA, Ute Indian Tribe, the public and developers.

Translocations: Trap and transplant elk within the unit may be used to address depredation or distribution issues.

APPENDIX A SUBUNIT BOUNDARY DESCRIPTIONS

Unit 10a Book Cliffs, Bitter Creek Subunit

Grand and Uintah counties—Boundary begins at the Utah-Colorado state line and the White River; south along this state line to the Book Cliffs summit (north-south drainage divide); west along this summit and drainage divide to Ten Mile Knoll and the Steer Ridge road; north and west along the Steer Ridge road (atop the drainage divide) to the Uintah and Ouray Indian Reservation Boundary (NW 1/4 Sec 7, T17 S R 21 E); north along this boundary to the Uintah-Grand county line; west along this county line to the Green River; north along this river to the White River; east along this river to the Utah-Colorado state line.

Unit 10b Book Cliffs, South Subunit

Grand County—Boundary begins at the Utah-Colorado state line and the summit and drainage divide of the Book Cliffs; west along this summit and drainage divide to Diamond Ridge; southwest along Diamond Ridge and the Book Cliffs summit (north-south drainage divide) to the Uintah and Ouray Indian Reservation boundary (Hells Hole/head of Segó Canyon); west along this boundary to the Green River; south along the Green River to I-70; east along I-70 to the Utah-Colorado state line; north along this state line to the summit and drainage divide of the Book Cliffs.

Unit 10c Book Cliffs, Little Creek (Roadless) Subunit

Grand County--Boundary begins at the Steer Ridge road at Ten Mile Knoll and the Book Cliffs summit (north-south drainage divide); southwest along the Book Cliffs summit on Diamond Ridge to the Uintah and Ouray Indian Reservation boundary (Hells Hole/head of Segó Canyon); north on this boundary (west side of West Willow Creek) to the DWR Wildlife Management Area/Ute Tribe Fence at the confluence of East and West Willow Creek; northeast from this confluence cross-country to the Steer Ridge road (NW 1/4 Sec 7, T17 S R 21 E); south and east on the Steer Ridge road (atop the drainage divide) to Ten Mile Knoll and the Book Cliffs summit.