

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit # 8
(North Slope)
May 2012

BOUNDARY DESCRIPTION

Summit and 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.

LAND OWNERSHIP

Ownership	Yearlong range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	8926	78	456,996	86	93,008	49
Bureau of Land Management	1534	13	21,326	4	31,564	16
Utah State Institutional Trust Lands	610	6	5938	1	22,383	12
Native American Trust Lands	0	0	0	0	0	0
Private	304	2	40,105	8	41,254	22
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	47	1	2134	1	482	1
TOTAL	11,421	100	526,500	100	188,691	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 capability of the available habitat. This unit will be managed within three subunits (Summit, West Daggett and Three Corners).

Continue habitat projects to improve forage for all wildlife populations. Numerous habitat projects have occurred within this unit over the past decades. Past and proposed projects include prescribed fires in pinyon-juniper areas, followed by aerial reseeding with forbs, grasses and browse species; mechanical treatment of pinyon-juniper and conifer encroachment in critical browse / grassland areas; and working with land agencies and livestock grazers to improve overall forage conditions for both wildlife and livestock.

UNIT MANAGEMENT OBJECTIVES

Habitat

Enhance forage production on a minimum of 10,000 acres of elk habitat, through direct range improvements to maintain population management objectives.

Continue working with private landowners and federal, state, and local agencies to maintain and protect crucial and existing winter range from future losses.

Continue providing improved habitat security and escapement opportunities for elk by working with federal agencies on motorized vehicle travel plans.

Population

Target Winter Herd Size— Manage elk numbers to achieve a target population size of 2100 wintering elk (computer modeled number).

Radio telemetry data confirm, under certain conditions, some animals move back and forth across the subunit boundaries and state lines. Therefore, the entire unit will be surveyed at one time (snow conditions permitting), and the distribution of elk during the trend count will be taken into account when determining if the subpopulations are actually above or below objective.

Subunit population objectives are listed below:

Summit (8a) – 300 elk

West Daggett (8b) – 1300 elk

Three Corners (8c) – 500 elk

Bull Harvest Objective for Limited Entry Subunit - For the Three Corners subunit, maintain a minimum average bull age of a 5.5-6 year-old bull in the harvest.

CURRENT STATUS OF ELK MANAGEMENT

Habitat

Current Status

(Unit 8a, North Slope Summit subunit)

DWR Range Trend sites are found on steep slopes that have high erosion potential. However, the understory, especially the bunch grasses, is dense and vigorous and provides adequate soil stabilization. Browse trends on the unit for the key browse species (birch leaf mountain mahogany) are stable. The sites in this area all show a stable to slightly increasing trend. Browse communities at lower elevations, especially sagebrush, suffered die-offs from the sustained drought in the early 2000s. However, where these browse die-offs have occurred, perennial native grasses have increased.

(Unit 8bc, North Slope Daggett and Three Corners subunits)

Overall range trend within these subunits has been greatly impacted by a sustained drought, which has impacted forage production and plant survival. Browse communities at lower elevations, especially sagebrush, suffered die-offs from the sustained drought. However, where these browse die-offs have occurred, perennial native grasses have increased.

The greatest positive impact to this unit occurred in 2002 from the Mustang / Dutch John wildfire. The fire area was reseeded and has significantly increased the amount of perennial forbs and grasses, although annual grasses have also increased.

The DWR Range Trend crew read 9 range trend study sites during 2010. Three sites had improving browse trend, one was stable, and five had declining trends though some were minimal. The key browse species are principally Wyoming big sagebrush, mountain big sagebrush and mountain browse species such as true mountain mahogany. Areas where sagebrush is the key species have shown continuing increases in decadence and loss of plants. The perennial forb understories associated with mountain big sagebrush and Wyoming big sagebrush have similar downward trends, but upward trends for perennial grasses.

When looking at elk population objectives, the Division has taken into account barriers 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.

In general, summer elk habitat is extensive within this unit; however, elk winter habitat is limited and impacts of elk on private land agriculture and ranching. On the West Daggett and Summit subunits, the elk population is limited by winter range. During winters with deep snow, elk move to lower elevations. Elk conflict with agricultural and ranching practices on private land. Significant depredation occurs in these areas. The Three Corners subunit consists of a higher percentage of year-round habitat and also experiences substantial depredation on private land year round.

The wildfire that occurred in 2002 in the Dutch John and Goslin Mountain area burned approximately 20,000 acres. Much of the area burned was mature pinyon-juniper with very little understory of grasses and forbs. This burn area was successfully reseeded and is producing significantly more forage than before the fire. Elk have been drawn into this area and use it year round.

Factors Limiting Elk Populations

Several factors limit elk populations on this unit including agricultural depredation, competition for forage with domestic livestock, over utilization of winter browse in areas of heavy concentration of deer and elk during hard winters.

Some of the winter range in this unit is located in Wyoming where that state also has elk depredation and concerns with elk numbers. Control of the elk once they enter Wyoming is out of DWR's hands.

Elk within this unit are sometimes in conflict with both agriculture and ranching. This is especially relevant on winter range and yearlong elk range. Concerns

over elk use on summer range conflicting with livestock grazing on USFS and BLM lands also exist.

Completed Habitat Improvement Projects

Over the past decades many habitat improvement projects have occurred that benefit elk and livestock. These projects include prescribed and wild fire, pinyon-juniper chainings, timber sales, conifer thinning, etc.

Projects completed over the past 10 years on the West Daggett and Three Corners subunits include:

Completed Project	Subunit	Land Agency	Acres	Cooperators	Year
Bare Top Conifer Lop & Scatter	8c	USFS	1100	DWR, USFS	2003
Goslin Mtn PJ Lop & Scatter	8c	BLM	1700	DWR, BLM	2006
Clay Basin PJ Lop & Scatter	8c	BLM	1000	DWR, BLM	2006
Mustang Wildfire Reseed	8c	BLM, USFS, SITLA, DWR	20,000	BLM, USFS, SITLA, DWR	2002-04
Red Ck Flat PJ Lop & Scatter	8c	BLM	900	DWR, BLM	2006
King's Point PJ Lop & Scatter	8c	BLM	3,000	DWR, BLM	2006
Red Creek Flat State Lop and Scatter	8c	SITLA	480	DWR, SITLA	2006
Clay Basin State-Lop and Scatter	8c	SITLA	410	DWR, SITLA	2006
Teepee Mtn Bullhog	8c	BLM	535	DWR, BLM	2007
Goslin Mtn Phase II L&S	8c	BLM	1185	DWR, BLM	2008
Red Creek Flat Bullhog	8c	BLM	200	DWR, BLM	2008
Red Creek Flat Bullhog Phase ii	8c	BLM	150	DWR, BLM	2008
Goslin Mtn bullhog	8c	BLM	300	DWR, BLM	2009
Goslin/Martin Draw bullhog	8c	BLM	245	BLM	2010
Goslin mtn bullhog phase III	8c	BLM	413	BLM	2011
Home Mtn L&S	8c	BLM	1000	BLM	2011
Dowd Mtn. PJ Lop & Scatter	8b	USFS	1700	DWR, BLM	2004-05
Red Canyon Understory Burn	8b	USFS	100	USFS	2005
Fire Fighters PJ Lop & Scatter	8b	USFS	50	USFS	2004
Hickerson Park Wildfire	8b	USFS	1700	USFS	2005
Cedar Springs fuel reduction	8b	USFS	184	DWR, USFS	2009
Road Decommissioning and reseed on the Mountain View and Evanston Ranger Districts	8a	USFS	3200	USFS	2003-06
TOTAL			39,552		

Proposed Habitat Projects

Following is a partial list of proposed habitat enhancement project. Others may be added as opportunities arise.

Proposed Project	Subunit	Land Agency	Acres	Cooperators	Approx. Year
Home Mtn Prescribed burn	8c	BLM	3000	DWR, BLM	2017
O-Wi-Yu-Kuts prescribed burn	8c	BLM	1600	DWR, BLM	2017
Misc Burns & Mechanical / Conifer PJ	all		2000		
Dutch John Gap L&S	8c	USFS	80	DWR, USFS	2012
Antelope Flat/Boars tusk PJ removal	8c	USFS	1500	DWR, USFS	2014
Lower Red Creek bullhog	8c	BLM	500	DWR, BLM	2013
Flaming Gorge PJ burn/L&S	8c/8b	USFS	2000	DWR, USFS	2015
TOTAL			10,680		

Population – Current Status

Summit (8a) subunit:

Year	Trend Count	Pop Est	Bull Ratio	Calf Ratio	Bull Hunters	Bull Harvest	Cow Permits	Cow Harvest	LO Cow Permits	LO Cow Harvest
07-08		280			2505	278	59	46	20	2
08-09		300			2654	220	29	36	6	0
09-10		300			2489	266	28	28	11	4
10-11	268	335	16	34	2912	363	58	54	35	17
11-12		335			2478	264	45	50*	20	

West Daggett (8b) subunit:

Year	Trend Count	Pop Est	Bulls / 100 Cows	Calves / 100 Cows	Bull Hunters	Bull Harvest	Cow Permits	Cow Harvest	LO Cow Permits	LO Cow Harvest
07-08		1000			1313	189	121	50	23	8
08-09		1100			1276	177	117	34	14	4
09-10		1200			1349	121	165	91	62	33
10-11		1200			1487	197	149	79	44	20
11-12		1100			1492	219	125	71	42	16

Three Corners (8c) subunit:

Year	Trend Count	Pop Est	Bulls / 100 Cows	Calves / 100 Cows	Bull Permit	Bull Harvest	Bull Ave Age	Cow Permits	Cow Harvest	LO Cow Permits	LO Cow Harvest
07-08		830			56	46	5	323	206	24	4
08-09		800			53	43	5.1	344	159	30	17
09-10		650			51	35	5.7	332	160	29	8
10-11		550			48	33	5.5	154	55	30	5
11-12		550			46	30	5.7	95	22	30	6

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat Barriers

- Loss of winter range due to sagebrush die off and resulting cheatgrass expansion.
- Poor range conditions during drought years.
- Reduced quality summer/transitional range due to conifer dominance.
- Conifer and PJ invasion of grasslands and browse areas critical for wildlife
- USFS lack of manpower and funding to conduct NEPA clearances.

Population Barriers

- Conflicts with antlerless hunt season structure and other hunts.
- Difficulty harvesting antlerless elk to maintain populations due to herds staying in difficult areas to hunt.
- Resistance by federal land agencies and landowners to increasing the population objective.

Other Barriers

- Crop Depredation throughout the unit.
- Elk use on private rangelands throughout the unit and in Wyoming.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat Strategies

Monitoring

Continue to monitor permanent range trend studies located throughout the herd unit.

Conduct cooperative seasonal range rides and surveys to evaluate forage condition and utilization.

Actions to Remove Habitat Barriers

Work cooperatively with the USFS and BLM to utilize prescribed burning, mechanical conifer and PJ removal, and grazing to enhance elk forage quantity and quality.

Utilize antlerless elk harvest to improve or protect forage conditions if and when vegetative declines are attributed to elk overutilization.

Cooperate with and provide input to land management planning efforts dealing with management affecting habitat security, quality and quantity.

Population Strategies

Monitoring

- Population Size - The population is monitored using harvest data, aerial trend counts and classification, preseason classification, and survival estimates.

- Bull Age Structure - Monitor age class structure of the bull population through the use of checking stations, uniform harvest surveys, field bag checks, preseason classification and aerial classification. Average age of harvest on the Three Corners limited entry subunit will be determined by tooth age data from bull harvest.

- Harvest – The primary means of monitoring harvest will be through the statewide uniform harvest survey and the mandatory harvest reporting for the Limited Entry hunts on the Three Corners subunit. The target population size will be achieved through antlerless harvest using a variety of harvest methods and seasons.

Management Actions to Remove Population Barriers

- Continue focused antlerless elk hunts east of Red Creek and in Manila area to place pressure on that portion of the elk herd that cause crop and rangeland depredation on private land.

- Continue working with federal agencies and private landowners to monitor elk numbers and elk use. Implement collaring study to determine movement of elk across state lines.

- Continue Landowner Depredation hunts.

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit #9
South Slope
May 2012

BOUNDARY DESCRIPTION

Wasatch, Summit, Daggett, Uintah, Duchesne counties - Boundary begins at the junction of US-40 and SR-87 in Duchesne; north on SR-87 to SR-35; 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 SR-150; north along SR-150 to the Summit/Duchesne county line (summit of the Uinta Mountains); east along the summit of the Uinta Mountains to 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 Whiter 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. Includes subunits 9a (Yellowstone), 9b (Vernal), 9c (Diamond Mountain) and 9d (Bonanza). **(EXCLUDING ALL INDIAN TRUST LANDS).**

This unit will continue to be managed with four subunits. A change in the boundary between the Yellowstone and Vernal subunits was made to make it consistent with the new deer unit boundary. See Appendix A for subunit boundary descriptions.

LAND OWNERSHIP

Ownership	Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%
Forest Service	857,114	79%	55,705	8%
Bureau of Land Management	77,627	7%	173,728	26%
Utah State Institutional Trust Lands	8,861	1%	25,800	4%
Native American Trust Lands	30,119	3%	228,531	34%
Private	88,798	8%	180,042	27%
Department of Defense	0	0	0	0
USFWS Refuge	0	0	125	1%
National Parks	7,240	1%	9,486	1%
Utah State Parks	0	0	2,862	1%
Utah Division of Wildlife Resources	11,398	1%	1237	1%
TOTAL	1,081,157	100	677,516	100

UNIT MANAGEMENT GOALS

Manage for a population of healthy animals capable of providing a broad range of recreational opportunities including hunting and viewing. Consider impacts of the elk herd on other wildlife and land uses including private property rights, agricultural crops and local economies. Maintain the population at a level that is within the long-term capacity of the available habitat.

Existing habitat needs to be protected and crucial habitat needs to be improved. A number of habitat projects have occurred within this unit over the past 20 years. Past and proposed projects include commercial lumber harvest, prescribed fire, wildfire, mechanical treatment of brush, etc... Conifer domination on summer and transition range needs to be addressed and natural fire intervals in the conifer zone re-established. Old and decadent stands of mountain sagebrush need to be thinned and regenerated on the winter range to minimize winter depredation on lower elevation agricultural areas. Critical private property parcels need to be protected from development through conservation easements, etc...

Remove or significantly reduce year round resident elk from all low elevation agricultural areas to increase tolerance of elk on private property. Depredation due to year round resident elk in agricultural areas has become unmanageable and will continue to increase and spread if not addressed. These animals are not readily available to the public for recreation and are very difficult to manage due to property ownership issues.

UNIT MANAGEMENT OBJECTIVES

Population

Target Winter Herd Size Objective— maintain a total of 8,000 wintering elk. The herd will be distributed between two wintering subpopulations:

- 9a Yellowstone wintering subpopulation - approximately 5,000
- 9b,c&d Vernal/Diamond Mountain/Bonanza wintering subpopulations - approximately 3,000

(These subunit objectives have been adjusted by 500 elk from the Yellowstone wintering population to the Vernal/Diamond/Bonanza wintering population to address the boundary change between the Yellowstone and Vernal subunits).

Radio telemetry data on the South Slope confirm that while the subunit populations are fairly distinct populations, elk sometimes move back and forth across the subunit boundaries during the winter when aerial counts are conducted depending on conditions. Therefore, the entire unit will be surveyed at one time and the distribution of elk during the trend count will be taken into consideration when determining if the subpopulations are above or below objective.

Limited Entry Age Objective - Manage for a mean age of harvested bulls between 6.5-7.0 years of age on subunit 9c (Diamond Mountain). The remainder of the unit will be managed for general season Any Bull hunting. Limited Entry Youth Any Bull Elk permits will also be issued for the Any Bull portion of the unit.

Habitat

Enhance forage production on elk habitat through direct range improvements to maintain population management objectives.

Winter Range - Maintain the existing crucial winter range. Increase the quality of at least 5,000 acres of winter range within the next 5 years.

Summer range - Increase the quality of at least 5,000 acres of summer and transitional range over the next 5 years.

CURRENT STATUS OF ELK MANAGEMENT

Population

The current population estimate indicates that in 2010 the unit was over objective by around 9% or 700 elk. The unit will be managed towards the objective

utilizing increased antlerless harvest to reduce the herd towards the objective.

Winter Trend Counts by subunit			
	Year	Trend Count	Population Estimate
Yellowstone	2004	3305	5000
Vernal	2004	783	1045
Diamond/Bonanza	2004	1067	1425
Total	2004	5155	7470
Yellowstone	2007	4745	5580
Vernal	2007	941	1100
Diamond/Bonanza	2007	1633	1920
Total	2007	7319	8600
Yellowstone	2010	4721	5900
Vernal	2010	899	1050
Diamond/Bonanza	2010	1447	1750
Total*	2010	7067	8700

*Conditions resulted in different sight ability rates in 2010 than in 2007.

Habitat

Twenty vegetative trend studies were monitored by the Utah Division of Wildlife Range Crew in 2010. In 2010, the browse and herbaceous understory components, on the majority of studies in his unit, showed some improvement since the 2003 drought related sagebrush die off. Most of the improvements occurred in the higher elevation mtn. brush and mountain big sagebrush communities. However, the most crucial winter range areas in the lower elevation Wyoming sagebrush communities continue to struggle and are only in Fair condition. There are several critical winter range sites that are in Poor or Very Poor range condition on the Vernal subunit. Those areas should be managed to protect the remaining desirable vegetation. Overutilization by elk of those areas should be avoided.

When looking at elk population objectives , the Division has taken into account barriers 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 including agricultural depredation, competition for forage with domestic livestock, over utilization of winter browse in areas of heavy concentration of deer and elk during hard winters.

Completed habitat improvement projects

Over the past decade extensive habitat improvement projects have been completed that benefit elk on this unit. These include, both prescribed and wild fire, pinyon-juniper chainings, conifer thinning, lop & scatter, Dixie harrow projects, etc...

This table lists specific habitat improvements that have occurred in the last 10 years.

Completed Project	Land Agency	Acres	Cooperators
Petty Mtn Prescribed burn	USFS	2,000	USFS
Petty Mtn Face understory burn	USFS	500	USFS
Pigeon Water prescribed burn	USFS	2,000	USFS
Burnt Mill understory burn	USFS	1,500	USFS
Reseed wildfire north of Neola	BIA	4,000	DWR, BIA

Wildfire Towanta Flat	Ute Tribe	150	Ute Tribe
Lodgepole pine thinning	USFS	400	USFS
Miner's Gulch prescribed burn	USFS	450	USFS
Yellowstone brush treatment	USFS	350	USFS
Deadman Bench Aerator	BLM	500	BLM, DWR
Snake John Greenstrip	BLM	300	BLM, DWR
Snake John Lop & Scatter	BLM	1500	BLM, DWR
Blue Mtn Dixie Harrow	BLM, SITLA	450	BLM
Red Fleet Lop & Scatter	BLM	1650	BLM, DWR
Red Fleet Interseeding	BLM	450	BLM, DWR
Dry Fork Bench Fire	BLM	370	BLM
Dry Fork Lop & Scatter	BLM	700	BLM, DWR
Steinacker Draw Lop & Scatter	BLM	250	BLM, DWR
Shindy Draw Lop & Scatter	BLM	700	BLM, DWR
Dry Fork Face Fire	BLM	520	BLM
Steinacker Draw Bullhog	BLM	290	BLM
Bowery Springs Bullhog	BLM	330	BLM, DWR
Mustang Fire Reseed	BLM, SITLA	400	BLM, DWR
Marshall Draw RX Fire	BLM,DWR	3,600	BLM, DWR
Mail Draw Wildfire Reseed	BLM, SITLA	1900	BLM, DWR
Taylor Flat Lop & Scatter	BLM, SITLA, DWR	1000	BLM, SITLA, DWR
Ruple Cabin Aerator	BLM, SITLA, Private	1850	BLM, SITLA, DWR
Ruple Wildfire	BLM, Private	1200	BLM, DWR, Private
Neola North Wildfire	Ute Tribe, FS	40,000	Ute Tribe, BIA, F.S., DWR
Yellowstone ponderosa thinning	USFS	1,000	USFS, DWR
Yellowstone Sagebrush burn	USFS	1,000	USFS, DWR
North Neola Plateau treatment	Ute Tribe, BIA	1,700	Ute Tribe, BIA
Reseed Neola North Fire	,USFS	3,626	USFS, DWR
Diamond Rim Lop and Scatter	BLM	972	DWR, BLM
West Stuntz/Blue Mountain Sage Grouse Habitat Improvement	BLM, SITLA	200	DWR, BLM
Chew/Blue Mountain Sage Grouse Habitat Improvement	BLM	235	DWR, BLM, NRCS, Private
Brush Creek Bench Harrow Project	BLM	300	DWR, BLM
Neola North Seed Supplement	BIA, USFS	5,465	DWR, GIP, MDF, BIA, USFS
Marshall Draw Prescribed Fire	BLM, UDWR	2,736	DWR, BLM
Range Reseeding. Neola North Fire #1	Private	12	GIP, Private
Range Reseeding Neola North Fire #2	Private	84	FFSL, Private
Deadman Bench Range Imp.	BLM	523	DWR, BLM
Tolivers Creek Bullhog	BLM	195	DWR, BLM
North Dry Gulch Ponderosa Pine Thinning	USFS	608	DWR, USFS
Brotherson Lop and Scatter	Private	1,104	DWR, Private,GIP
Brotherson Chaining	Private	346	DWR, Private,GIP, NRCS
Browns Park Fields	DWR	200	DWR
Diamond Mountain Bullhog	BLM	207	BLM, DWR
Brotherson Discretionary Seeding	Private	200	DWR, Private
Spring Creek Rangeland Drill	Private	85	DWR, Private, NRCS
Marshall Draw Bullhog	DWR	400	DWR
Cedarview Dixie Harrow	Private	20	DWR, Private, NRCS
Garden Creek Fire Rehabilitation	Private	102	DWR, Private, FFSL
Brush Creek Bench Seeding	BLM	550	DWR, BLM
Little Hole Cheatgrass Project	DWR, BLM	180	DWR, BLM
Deadman Bench Sagebrush Project	BLM	561	DWR, BLM
Mail Draw Lop and Scatter	BLM, DWR	1,350	DWR, BLM
Rye Grass Lop and Scatter	BLM	350	DWR, BLM
Sears Canyon Lop and Scatter	DWR, BLM	425	DWR, BLM
Raven Ridge Harrow Project	BLM	500	DWR, BLM
Salt Creek Ponderosa Pine Thinning Project	USFS	657	DWR, USFS

Alma Taylor Vegetation Mgmt.	USFS	1,084	DWR, USFS
Simplot Phosphates Browse Seeding	Private	40	DWR, Simplot Phosphates
Alma Taylor Wildlife Project	USFS	3500	USFS, DWR
Little Hole Bullhog	BLM	200	DWR, BLM
Little Hole Lop & Scatter	BLM	300	DWR, BLM
Brush Ck Bench Dixie Harrow	BLM	300	DWR, BLM
Marshall Draw RX Fire	DWR, BLM, SITLA	4000	DWR, BLM, SITLA
Bowery Spring PJ cut & burn	BLM	200	DWR, BLM
Diamond Rim Lop & Scatter	BLM	1000	DWR, BLM
Cherry Spring Lop & Scatter	BLM	1000	DWR, BLM
Cherry Spring Dixie Harrow	BLM	900	DWR, BLM
South King's Point Lop & Scatter	BLM	1000	DWR, BLM
TOTAL		109,227	

Proposed Habitat Projects

Following is a partial list of proposed habitat enhancement projects on unit 9. Others will be added as opportunities arise.

Proposed Project	Land Agency	Acres	Cooperators
Calder Reservoir Lop & Scatter of PJ	UDWR	200	DWR
Big Brush Creek PJ Chaining	Private (Simplot)	515	DWR, Simplot Phosphate
Taylor Mtn Lop & Scatter	USFS	750	DWR, USFS
Burnt Mill Spring Ponderosa thinning	USFS	590	DWR, USFS
Red Fleet Lop & Scatter phase 2	BLM	300	DWR, BLM
Davis Draw Chain harrow	BLM	425	DWR, BLM
Little Mountain Lop & Scatter	BLM, SITLA	550	DWR, BLM, SITLA
Coalmine Basin Bullhog, Lop & Scatter	BLM	1000	BLM
Red Wash PJ Lop & Scatter	BLM	600	BLM
Little brush Creek PJ Chaining	Private	750	DWR, Simplot Phosphate
Little Mountain PJ Bullhog	BLM	1000	DWR, BLM
Little Mountain Lop & Scatter	BLM	1500	DWR, BLM
Marshall Draw Prescribed fire	BLM & DWR	2000	DWR, BLM
Pot Holes Prescribed Fire	USFS	2000	USFS
Rock Creek Prescribed burn	USFS	500	USFS, DWR
Pole Creek Lop & Scatter	USFS	200	USFS, DWR
Dry Gulch, Mud Springs – Ponderosa	USFS	200	USFS, DWR
Clay basin mechanical treatment	Ute Tribe	600	DWR, Ute Tribe
Towanta Flat Sagebrush thinning	Ute Tribe, BIA	200	Ute Tribe, BIA
TOTAL		13,880	

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat Barriers

- Loss of winter range due to sagebrush die off and resulting cheat grass expansion.
- Poor range conditions during drought years.
- Poor quality summer/transitional range due to conifer dominance.
- Loss of winter range due to expanding oil & gas development.
- Conifer and PJ invasion of grasslands and browse areas critical for wildlife

Population Barriers

- Difficulty harvesting enough antlerless elk to maintain populations due to the presence of refuge areas like: Tribal lands, Dinosaur National Monument, and private property.

Other Barriers

- Agricultural crop depredation.
- Establishment of year round resident herds in lower elevation agricultural areas: Arcadia, Jensen, Ouray, lower Duchesne River, lower Uinta River, etc.
- Private property owners that inhibit the removal of depredating animals from agricultural areas.
- Elk use of private rangelands on the Diamond Mountain Subunit.
- Two management systems (UDWR and Ute Tribe) for the same animals.
- USFS lack of manpower and funding to conduct NEPA clearances for habitat improvements.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat Barriers

Monitoring

- Continue to monitor permanent range trend studies located throughout the winter range.
- Annual on the ground habitat assessment surveys.

Actions to Remove Habitat Barriers

- Cooperate with USFS & BLM to reinstitute natural fire interval in conifer zone to improve elk habitat.
- Cooperate with BLM & Ute tribe to increase vegetative under story and reduce pinyon/juniper invasion of the sagebrush zone.
- Cooperate with Simplot to maximize elk habitat on phosphate mine to reduce winter depredation on adjacent agricultural areas.
- Cooperate with Ute Tribe & BIA to improve and revegetate winter range areas like Clay Basin & Neola North to reduce cheat grass dominance and increase desirable forage for elk, which would reduce winter depredation on adjacent agricultural areas.
- Utilize targeted antlerless elk harvest to reduce the impacts of elk use on critical deer winter range areas on the Vernal Subunit.
- Target resident elk herds in agricultural areas to reduce depredation impacts on private property to increase tolerance of elk.

Population Barriers

Monitoring

Population Size - The population is monitored using harvest data, aerial trend counts and classification, preseason classification, and survival estimates.

Bull Age Structure - Average age of harvest on the Diamond Mountain L.E. Subunit will be determined by tooth age data collected from L.E. harvest. Monitor age class structure of the bull population on the remainder of the unit through the use of the uniform harvest survey, field bag checks, preseason classification and aerial classification.

Harvest - The primary means of monitoring harvest will be through the statewide uniform harvest survey and the mandatory harvest reporting for the L.E. hunts on the Diamond Mountain Subunit. Target population size will be maintained through the use of antlerless harvest using a variety of harvest methods and seasons.

Other Barriers

Management Actions to Remove Other Barriers

- Where feasible depredation hunts will be targeted to address year round elk herds in agricultural areas to reduce depredation.
- Cooperate with Ute Tribe to ensure that hunting pressure occurs on Tribal lands when depredation hunts are held on adjacent private property to reduce or remove problem animals.
- Increase landowner harvest on low elevation resident elk herds by increasing the number of mitigation permits and vouchers in those areas.
- If depredation hunts, tribal hunts, and landowner harvest are insufficient for removal of resident elk herds in low elevation agricultural areas DWR removal will be implemented following approved action plans.
- Cooperate with Ute Tribe to ensure hunting pressure continues on Tribal lands to prevent elk from becoming year round residents on the winter range.
- Improve harvest survey of landowner mitigation permits to improve population estimates.
- Cooperate with Ute Tribe to increase consistency of Tribal harvest data to improve population estimates.
- Cooperate with UDOT to pursue funding to fence Hwy 40 east of Duchesne to reduce vehicle mortality.

APPENDIX A

Unit 9a South Slope, Yellowstone Subunit

Wasatch, Summit, Duchesne, Uintah counties -- Boundary begins at SR-87 and US-40 in Duchesne; north on SR-87 to SR-35; northwest on SR-35 to the Provo River; north along this river to North Fork Provo River; north along this river to SR-150; east and north on SR-150 to the Summit-Duchesne county line (summit of the Uinta Mountains) at Hayden Pass; east along the summit of the Uinta Mountains to the Dry Fork-Whiterocks drainage divide; south atop this divide to USFS Trail #025; southwest on this trail to Whiterocks Lake and the East Fork of the Whiterocks River; south along this river to the Whiterocks River; south along this river to the Uinta River; south along this river to the Duchesne River; west along this river to US-40 at Myton; west on US-40 to SR-87 in Duchesne.

Unit 9b South Slope, Vernal Subunit

Uintah, Daggett counties -- Boundary begins at the Dry Fork-White Rocks drainage divide and the Daggett-Uintah county line (summit of the Uinta mountains); east along the summit of the Uinta mountains to 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 Gorge Creek; south along Gorge Creek to the summit and the head of Davenport Draw; south along the Forest Service-Private Land boundary on the west side of Davenport Draw and continuing south along this Forest Service boundary to the BLM boundary on the Diamond Mountain rim; east and south along the Diamond Mountain rim to the Diamond Mountain road; south and west along this road to the Brush Creek road; south along this road to the Island Park/Rainbow Park road; east along this road to the Dinosaur National Monument boundary; north and east along this boundary to the Utah-Colorado state line; south along this state line to the Green River; south along this river to the Duchesne River; west along this river to the Uinta River; north along this river to Whiterocks river; north along this river to the East Fork of the Whiterocks River; north along this river to Whiterocks Lake and USFS Trail #025; northeast on this trail to the Dry Fork-Whiterocks drainage divide; north atop this divide to the Daggett-Uintah county line (summit of the Uinta Mountains).

Unit 9c South Slope, Diamond Mountain Subunit

Uintah, Daggett counties -- Boundary begins at the Green River and the Utah-Colorado state line; then west along this river to Gorge Creek; then south along Gorge Creek to the summit and the head of Davenport Draw; south along the Forest Service-Private Land boundary on the west side of Davenport Draw and continuing south along this Forest Service boundary to the BLM Boundary on the Diamond Mountain Rim; east and south along the Diamond Mountain rim to the Diamond Mountain road; south and west along this road to the Brush Creek road; south along this road to the Island Park / Rainbow Park road; east along this road to the Dinosaur National Monument Boundary; north and east along this boundary to the Utah -Colorado state line; north along this state line to the Green River.

Unit 9d South Slope, Bonanza Subunit

Uintah County -- Boundary begins at the Colorado-Utah state line and the White River; west along this river to the Green River; north along this river to the Colorado-Utah state line; south along this state line to the White River.

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit # 10
Book Cliffs
May 2012

BOUNDARY DESCRIPTION

Uintah and Grand counties -Boundary begins at I-70 and the Green River (in Green River); northeast along the Green River to the White River; east along the White River to the Utah-Colorado state line; south along the Utah-Colorado state line to I-70; southwest along I-70 to the Green River. Includes subunits 10a (Bitter Creek), 10b (Book Cliffs South) and 10c (Little Creek). See appendix A for subunit boundary descriptions. **EXCLUDING ALL INDIAN TRUST LANDS.**

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 coniferous and juniper tree 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 pinion–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 greasewood community improvement 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 herd unit computer model elk winter population size of 7,500.

Herd Composition: Utilize limited entry bull permit harvest management for all three subunits.

Harvested Bull Age Objectives: Manage for a harvested bull elk 3 year average age of 6.5 – 7.0 years old 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 in the Book Cliffs. To address range overutilization 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 private agricultural fields 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 that include sagebrush mortality, reduced browse vigor and forage production are evident 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 2010, 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 an ever growing wild horse herd is increasing and cause for concern among the DWR, BLM, SITLA, and livestock permittees. Recent concerns about overutilization of aspen communities prompted the initiation of an Aspen Study to be conducted by Utah State University. BLM rangeland and forestry specialists specifically expressed concern about the level of elk utilization in aspen stands.

When looking at elk population objectives , the Division has taken into account barriers 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. Limited livestock forage competition has occurred during the drought. Agricultural depredations are generally minimal but do occur.

Habitat improvement projects: Numerous habitat improvement projects have been completed during the past ten years. These include taking advantage of naturally caused wild land fires through reseeding and other more labor-intensive accomplishments. In total, 139,765 acres have been completed including wild fire reseeding. Currently proposed projects total 4,927 acres. Specific project areas and acreage totals are given below.

BOOK CLIFFS HABITAT PROJECTS COMPLETED AND PROPOSED
Completed Projects – 2002 through 2011

Project Name	Acres	Project Name	Acres
McCook/Monument fire	6,000	Augusi Ridge Bullhog	300
Diamond Fire reseeding	88,000	Atchee Ridge Lop and Scatter	1,000
McCook Ridge bobcat saw	230	Three Pines Lop and Scatter	1,942
McCook Ridge lop/scatter	100	Indian Ridge Lop and Scatter	1,000
Roadless riparian plantings		Park Ridge Bullhog	500
Monument Ridge lop/scatter	1,000	Agency Draw L&S	2,347
Horse Pt. lop/scatter	900	Cherry Mesa Bullhog	575
Big Park lop/scatter	1,000	McCook Ridge Cheatgrass	384
Wolf Pt. lop/scatter	1,000	Seep Ridge Bullhog	203

McCook Chaining bull hog	600	Johnson Draw Chaining	81
V Canyon lop/scatter	1,000	Cedar Camp L&S	2,042
Seep Ridge lop/scatter	800	Big Park Plateau	140
Bitter Crk greasewood treat	450	Pine Springs Bullhog	555
N Wolf Pt lop/scatter	2,000	Blind Canyon Fire Rehabilitation	2,132
N Big Park lop/scatter	1,000	Monument Ridge Bullhog	504
Big Park phase 2 lop/scatter	1,000	McCook Ridge Bullhog FY11	498
McCook Ridge 2 lop/scatter	620	Park Ridge Bullhog Phase II	498
Indian Springs bullhog	320	Rock Springs Bullhog	553
Winter Ridge/L Asphalt L/S	1,000	Big Park Sagebrush	65
Wolf Pt phase 2 lop/scatter	1,350	Archy Bench Sagebrush Project	1,122
Long Canyon Bench Chaining	490	Rock Springs/Cherry Mesa L&S	717
Nash Wash controlled burn	100	McCoy Reservoir L&S	1,060
Horse Pasture lop/scatter	650	Upper McCook L&S	604
Blue Knoll Lop and Scatter	1,091	Augusi Canyon Fire Rehabilitation	955
McCook Ridge Phase II Bullhog	285	Seep Ridge Bullhog Phase II	476
Big Park Phase III L&S	1,000	Seep Ridge Chaining	770
Indian Springs Ridge Phase II Bullhog	351	Indian Ridge Sagebrush Restoration	208
Blue Knoll Phase II Lop and Scatter	2,000	Rathole Fire	3,115
Winter Ridge Bullhog	475	Archy Bench Chaining	607
Total Acres Treated			139,765

Proposed Projects – 2012 and beyond

Project Name	Acres	Project Name	Acres
Cedar Camp Lop and Scatter Phase II	900	Atchee Ridge L&S Phase II	607
Moonshine Ridge Bullhog	361	Seep Ridge Maintenance	730
Boulevard Ridge Bullhog	392	Bottom Canyon Bullhog Phase I	300
Buck Camp Canyon P/J Project	213	Bottom Canyon Bullhog Phase II	416
Pine Springs Bullhog Phase II	585	San Arroyo Cyn RX fire	2,000
Moon Ridge Chaining	1,166	East Cyn RX fire	1,000
Little Jim Bullhog	665	Stateline Burn Rehab	1,000
Moonshine Ridge Bullhog Phase II	645		
Total Proposed Treatment Acres			4,927

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
02 - 03		3,560
03 - 04	1,680	3,698
04 - 05		3,869
05 - 06		4,027
06 - 07	3,334	4200
07 - 08		4385
08 - 09		4442
09 - 10	2,162	4104
10 - 11		4193

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat

- Drought impacts to rangeland forage condition and abundance.
- Limited summer range on the herd 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 evergreen 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 horse and wild cattle impacts on forage potential.

Population

- Distributing antlerless harvest across the unit to treat localized issues and problems.
- Equitable elk distribution across the herd unit.

There have been concerns about the current number of elk on the unit and impacts to aspen communities and limited summer range. The BLM, USU, and the DWR have cooperated in the design of a new study to look at impacts of herbivory to aspen stands in the Book Cliffs. There is increasing concern regarding the potential impacts of an elk herd at 7,500 animals and how that might affect aspen, limited summer range, riparian areas and water sources and potential competition with mule deer. In 5 years when this elk plan comes up for renewal, the DWR will take into consideration the results of the aspen study, the latest trend count flight data, updated range trend assessments and status of the mule deer population and will consider forming a unit elk committee to assess the situation and possible reevaluate the objective of 7,500 elk.

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.
- Interagency cooperation 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 ocular 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 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 a computer population model program are utilized to track and evaluate the elk herd distribution and annual winter population estimates. Inclusive to these efforts, annual herd classification will be conducted as warranted and possible 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. Herd composition classification every three years, annual ground classification and computer modeling will be used to monitor bull:cow ratios.

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 inequities across the herd unit may also be treated 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 are also 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.

Elk Population and Distribution: The Book Cliffs harbor a relatively young elk herd and the actual optimum population objective will be determined by factors including but not limited to biological carrying capacity. Efforts to encourage elk to more uniformly utilize herd unit resources will include antlerless hunts and habitat improvements to rangeland vegetative communities. Mineral extraction, road development and OHV use will be monitored and mitigation recommendations made when impacts are evident.

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 Sego 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 Sego 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.

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit # 11
Nine Mile
May, 2012

BOUNDARY DESCRIPTION

Uintah, Duchesne, Carbon, and Emery counties - Boundary begins at Duchesne and US-191; southwest on US-191 to US-6; south on US-6 to I-70; east on I-70 to the Green River; north on the Green River to the Duchesne River; west along this river to US-40; west on US-40 to Duchesne and US-191.

LAND OWNERSHIP

The following tables show land ownership in relation to seasonal use by elk and by subunit. Approximately 75,448 of the private acres in elk habitat in the Range Creek subunit are managed as Cooperative Wildlife Management Units (CWMU's). They comprise portions of summer, winter, and yearlong ranges.

Table 2. RANGE AREA AND APPROXIMATE OWNERSHIP* SUBUNIT 11A (ANTHRO)

Ownership	Yearlong range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	12,401	8	57,184	95	30,116	19
Bureau of Land Management	120,019	76	1050	2	21,346	13
Utah State Institutional Trust Lands	19,681	12	225	<1	2442	1
Native American Trust Lands	748	<1	0	0	56,296	36
Private	4988	3	1446	2	40,644	26
Utah Division of Wildlife Resources	0	0	0	0	7562	5
TOTAL	157,838	100	59,905	100	158,406	100

Table 2b. RANGE AREA AND APPROXIMATE OWNERSHIP* SUBUNIT 11B (RANGE CREEK)

Ownership	Yearlong range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Bureau of Land Management	126,778	51	43,097	27	253,027	83
Utah State Institutional Trust Lands	26,876	11	8866	5	26,537	9
Private	92,765	37	103,344	64	24,459	8
Utah Division of Wildlife Resources	1564	1	5316	3	0	0
TOTAL	247,983	100	160,623	100	304,038	100

UNIT MANAGEMENT GOALS

Manage for a population of healthy animals capable of providing a broad range of recreational opportunities including hunting and viewing. Consider impacts of the elk herd on other land uses and public interests including private property rights, agricultural crops and local economies. Maintain an elk population consistent with the available range resources and which is in balance with other range users such as domestic livestock, other big game and the need for watershed protection.

Maintain and enhance existing elk habitat through vegetative manipulation, sound domestic grazing practices, and other management techniques that will meet habitat objectives. Minimize and mitigate any habitat losses, degradation, or fragmentation coming from oil and gas development, road construction, urban expansion, increased recreation and other impacts. Improve hunter access to private and public lands on the unit.

UNIT MANAGEMENT OBJECTIVES

Habitat

- Improve forage and cover values on elk summer ranges. Practices will include prescribed fire, selective logging, and mechanical treatments that promote a diverse age structure in aspen communities. Over 300 acres per year will be targeted.
- Remove pinyon-juniper encroachment into winter range sagebrush parks and summer range mountain brush communities. Over 500 acres per year will be targeted using primarily mechanical treatments.
- Improve limited water resources on the unit by developing and maintaining existing springs and guzzlers and installing wildlife guzzlers where needed.
- Minimize conflicts between elk and wild horses through habitat improvement and encouraging wild horse gathers when horse numbers exceed population objectives.
- Improve existing canyon bottom riparian communities by treating greasewood and overmature sagebrush through chemical, mechanical, and other methods, and minimize impacts on croplands in these habitats.
- Protect crucial habitats from development and assure best possible location of wells to minimize habitat losses using best information available.

Population

Target Winter Herd Size – Manage toward a winter elk population size of 2,300 elk (computer modeled population) distributed in the subunit populations listed below.

Anthro Subunit	- 700 elk
Range Creek Subunit NW of Nine Mile Canyon	- 250 elk
Range Creek Subunit south of Nine Mile Canyon	- 1,350 elk

Total	2,300 elk
--------------	------------------

Herd Composition –Maintain a three-year average age of 5.5-6 years of harvested bulls on the Anthro Subunit

Use limited entry and any bull hunt strategies where applicable on the unit. Currently, limited entry bull harvest is employed on most of the Anthro Subunit. General season any bull hunting opportunities exist on

the Range Creek Subunit and a small portion of the Anthro Unit near the town of Duchesne to address depredation/public safety concerns (See Appendix A for boundary descriptions).

Utilize aggressive antlerless harvest to reduce elk populations as necessary. Promote public hunting access on private lands where applicable.

CURRENT STATUS OF ELK MANAGEMENT

Habitat

Habitat Conditions: Summer range is limiting on this unit. Summer elk habitat is restricted to a fairly narrow band of high elevation aspen/Douglas fir communities and elk are found at relatively high densities. Summer ranges and high elevation winter ranges (Mountain big sagebrush communities) appear to be in stable condition according to permanent range trend studies conducted by DWR in 2010. There are a total of 17 permanent range trend study locations that were read in 2010 on the unit. Of these, 8 to 10 sites are within elk winter range. Browse and herbaceous trends appear to be stable over the past 15 years and mid-potential winter ranges where elk typically winter have DCI scores indicating "Fair to Good" winter range.

Cooperative BLM/UDWR spring range transects have shown relatively stable utilization by elk. Pellet group counts and browse utilization has not increased dramatically despite increasing elk populations. BLM range assessments in the area have not noted any deteriorating range conditions or overutilization by elk.

When looking at elk population objectives, the Division has taken into account barriers 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 is the primary factor that impacts elk populations. Forage production and vigor as well as water distribution is severely limited during drought years. Oil and gas development is becoming a major factor affecting both winter and summer ranges, especially on the Anthro Subunit. Oil and gas development will continue to fragment existing elk habitat and displace elk to less productive areas. Oil and gas activities are also expanding onto summer ranges that are already limiting. Crop depredation by elk on this unit is relatively minor and typically occurs during the spring months. Competition with domestic livestock is a potential conflict on portions of the unit. Many livestock operators are not stocking ranges at full permitted numbers. If operators elect to graze at full numbers, competition would likely be evident due to increased elk numbers that have filled the void of reduced cattle use.

Habitat projects completed and proposed: Federal agencies, private landowners and the UDWR have cooperated on habitat improvement projects targeted at wildlife species that have also benefited elk. Below is a list of completed and future projects.

Table 1. HABITAT PROJECTS COMPLETED AND PROPOSED

Completed Projects – 2007 through 2011		Proposed Projects – 2012 and beyond	
East Carbon Bullhog, 2007	3400	Cold Springs Prescribed Fire Phase 2 and 3	700
Range Creek Fire Rehab, 2008	93	Cottonwood Ridge PJ Removal	1000
West Coal Creek Bullhog, 2008	1912	Tavaputs Ranch Prescribed Fire	700
Mt. Bartles Harrow and Lop/Scatter, 2009	364	Nutter Ranch Wet Meadow Project	200
Cold Springs Prescribed Fire, 2010	1054		
East Coal Creek Drill Seed, 2010	725		
Dugout PJ Removal, 2011	754		
Harmon Canyon PJ Removal, 2011	1200		
Nutter Ranch Wet Meadow, 2006-2011	300		
Nutter's Ridge Lop and Scatter	1000		
Anthro Mountain Prescribed Fire	700		
Gilsonite Ride Lop and Scatter	1000		
Project total acreage	12,502 acres		2600 acres

Population

Elk populations on both Anthro and Range Creek subunits have increased over the past decade and are above current population objectives. The Anthro Subunit was last surveyed in February of 2009. Aerial surveys and the population model suggest a winter elk population of 1450 elk. The Range Creek Subunit was last surveyed in 2012 when 1320 elk were counted. The estimated 2012 wintering population is 1650 elk. Summer classification counts show an average of 42 calves per 100 cows on both Anthro and Range Creek subunits over the past 5 years.

Table 3 shows the trend in bull and antlerless elk harvest on the Nine Mile Unit. Large amounts of antlerless permits are issued on this unit in order to control an expanding elk population. The Anthro and Range Creek South subunits have been managed as Limited Entry Bull units, while the Range Creek North subunit and a portion of the Anthro subunit near Duchesne have been managed as a General Season Any Bull hunt. Furthermore, a significant portion of the harvest on the Range Creek Subunit occurs on CWMU's. General Season Any Bull Hunting will be utilized on all of the Range Creek Subunit beginning in 2012

On the Anthro Subunit, the Ute Tribe has changed their elk hunting strategy to allow general season elk hunting by tribal members. The tribe owns 36% of the winter range on the Anthro Subunit. Although the Anthro Subunit is currently meeting age objectives on harvested bulls, if tribal harvest increases it may be difficult to maintain limited entry age objectives and hunt quality for permit holders in the future. If harvested

bull ages decline below age objective, and we experience a significant decline in harvest success rates and/or hunter satisfaction, we may consider changing the elk hunt strategy on the Anthro Subunit to match the corresponding Tribal hunting strategy.

Table 3. Summary of Harvest. Nine Mile, Anthro Subunit. 2007-2011

YEAR	LE BULL HARVEST (PUBLIC)	CWMU BULL HARVEST	GEN.SEASON ANY BULL HARVEST	AVG. AGE OF HARVESTED BULLS	ANTLERLESS HARVEST/PERMITS (% success)
2007	16	0	0	7.1	51/94 (54%)
2008	22	0	0	5.6	83/231 (36%)
2009	15	0	0	6.3	156/437 (36%)
2010	21	0	0	5.6	286/517 (55%)
2011	12	0	0	7.4	115/422 (27%)

Summary of Harvest. Nine Mile, Range Creek Subunit. 2007-2011

YEAR	LE BULL HARVEST (PUBLIC)	CWMU BULL HARVEST	GEN.SEASON ANY BULL HARVEST	AVG. AGE OF HARVESTED BULLS	ANTLERLESS HARVEST/PERMITS (% success)
2007	5	61	63	8.5	228/762 (30%)
2008	4	57	61	6.8	186/774 (24%)
2009	10	57	114	5.3	257/550 (46%)
2010	8	65	82	6.5	451/803 (56%)
2011	12	56	102	5.9	100/570 (17%)

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat

- Drought impacts to forage condition, vigor and abundance.
- Limited summer range on the unit.
- Habitat fragmentation, loss and disturbance as a result of oil and gas development.
- Pinion-Juniper invasion in limited sagebrush park areas.
- Conifer encroachment in overmature aspen communities
- Wild horse utilization on elk ranges.
- Low elevation canyon bottoms are dominated by greasewood and overmature basin big sagebrush with little forage/cover value for elk.
- Competition with domestic livestock if operators stock at full permitted numbers.

Population

- Much of the unit is not accessible to public hunters. Limited public access to both private and public lands makes it difficult to achieve adequate harvest of antlerless elk and quality opportunities for bull hunting.
- Equitable elk distribution across the herd unit.

Other Barriers

- Crop depredation.
- Work with private landowners and Law Enforcement to minimize trespass on private property.

- Other mortality factors – extreme weather conditions such as drought or extreme winter, disease, poaching, and road mortality.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat

Monitoring

- Continue to monitor permanent range trend studies throughout the winter range.
- Annually inspect rangeland vegetative community impacts and health through cooperative DWR/BLM habitat assessment surveys that include ocular field assessments, utilization transects, and range rides.
- Continue to develop and implement Habitat Management Plans for UDWR owned properties on the unit.

Actions to Remove Habitat Barriers

- Cooperate with private landowners, federal and state agencies to allow wildfires to burn in beneficial and nonthreatening areas and to rehabilitate fires in a way that will benefit wildlife.
- Cooperate with private landowners, federal and state agencies to increase vegetative understory and reduce pinion-juniper encroachment in important sagebrush and mountain shrub communities.
- Work with oil and gas interests to protect key areas and minimize, or mitigate for losses due to development.
- Pursue Conservation Easements on critical parcels of private property to protect elk habitat.
- Cooperate with private landowners, oil and gas development companies, federal and state agencies to prepare access management plans to enhance elk habitat value. This may include seasonal road closures or vehicle restrictions.
- Continue to foster good relationships with private landowners and promote habitat enhancement projects that will benefit wildlife on private lands as well as promote public access for hunting opportunities.

Population

Monitoring

Population Size - The population is monitored using harvest data, aerial trend counts and classification, preseason classification, and survival estimates.

Bull Age Structure - Monitor age class structure of the bull population through the use of annual preseason classification, checking stations, uniform harvest surveys, field bag checks, and aerial classification. Average age of harvested bulls from Limited Entry portions of the unit will be determined by tooth age data submitted by each hunter.

Harvest - The primary means of monitoring harvest will be through the statewide uniform harvest survey. The target population size will be

achieved through antlerless harvest using a variety of harvest methods and seasons. Aggressive and localized antlerless harvest will be used to control elk populations and respond to localized range concerns

Management Actions to Remove Population Barriers

Access. Public access is a major limiting factor on this unit. A larger portion of the total antlerless harvest must come from private lands. Cooperate with private landowners and Tribal lands to assure adequate antlerless harvest will occur on these lands.

Depredation. Utilize antlerless hunts, landowner mitigation permits, hazing, stackyard fencing and all other means necessary according to DWR guidelines to minimize crop depredation by elk.

Interagency Cooperation. Continue to work closely with federal and state agencies, as well as private landowners and the Ute Tribe. Assure them that proposed population objectives are reasonable and attainable. Respond to any range deterioration concerns.

APPENDIX A. Boundary Description of Subunits used for General Season Bull Hunting Boundaries.

Nine Mile, Range Creek . Carbon, Duchesne, and Emery counties. Boundary begins at the junction of the Green River and I-70; north along this river to Nine Mile Creek; west along this creek to the Nine Mile Canyon road near Bulls Canyon; west on this road to the Argyle Canyon Road; northwest on this Road to US-191; southwest on US-191 to US-6; southeast on US-6 to I-70; east on I-70 to the Green River.

Portion of Anthro subunit that is open to General Season Any Bull Hunting.

Duchesne and Uintah counties. Boundary begins at the Green River and the BLM/ Ute Tribal boundary near Pariette Draw; west along the BLM boundary to the junction with the Pleasant Valley/Antelope Canyon Road (CR-31); west along this road to the Antelope Canyon Road (CR-27); south along this road to the Antelope Canyon/Sowers Canyon Road junction; west along the Sowers Canyon Road (CR-24) to the Indian Canyon/Sowers Canyon Cutoff Road (CR-25); west along this road to US-191; north along US-191 to Duchesne and US-40; east on US-40 to the Duchesne River; east on the Duchesne River to the Green River; south on the Green River to the BLM boundary near Pariette Draw.

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit # 17
Wasatch Mountains
May, 2012

BOUNDARY DESCRIPTION

Carbon, Salt Lake, Summit, Wasatch, Duchesne, Utah counties - Boundary begins at the junction of I-15 and I-80 in Salt Lake City; east on I-80 to US-40; south on US-40 to SR-32; east on SR-32 to SR-35; southeast on SR-35 to SR-87; south on SR-87 to Duchesne and US-191; south on US-191 to US-6; northeast on US-6 to I-15; north on I-15 to I-80 in Salt Lake City.

LAND OWNERSHIP

RANGE AREA AND APPROXIMATE OWNERSHIP SUB-UNIT 17A

Sub-Unit 17a	Spring-Fall		Summer Range		Winter Range		Yearlong range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	406,817	77	75,006	83	58,373	38	2,221	18
Bureau of Land Management	472	>1	0	0	2,354	2	0	0
Utah State Institutional Trust Lands	669	>1	0	0	2,744	2	0	0
Native American Trust Lands	1,952	>1	768	>1	0	0	0	0
Private	105,054	20	13,737	15	71,081	46	9,523	75
Department of Defense	0	0	0	0	0	0	0	0
USFWS Refuge	0	0	0	0	0	0	0	0
National Parks	235	>1	0	0	0	0	0	0
Utah State Parks	11,917	2	0	0	7,524	5	0	0
Utah Division of Wildlife Resources	431	>1	521	>1	12,015	8	929	7
Water	87	>1	71	>1	0	0	0	0
TOTAL	527,634	100	90,102	100	154,090	100	12673	100

RANGE AREA AND APPROXIMATE OWNERSHIP SUB-UNIT 17B&C

Sub-Unit 17b&c	Spring-Fall		Summer Range		Winter Range		Yearlong range	
Ownership	Area (acres)	%	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	79,259	62	65,968	52	24,470	7	20,360	21
Bureau of Land Management	0	0	6,751	5	2,294	>1	8,729	9
Utah State Institutional Trust Lands	21,949	17	3,715	3	6,064	2	2,466	3
Native American Trust Lands	0	0	42	>1	62,970	18	9,107	9
Private	19,372	15	32,019	25	186,467	53	41,745	43
Department of Defense	0	0	0	0	0	0	0	0
USFWS Refuge	0	0	0	0	0	0	0	0
National Parks	0	0	0	0	0	0	0	0
Utah State Parks	0	0	0	0	1,150	>1	0	0
Utah Division of Wildlife Resources	6,135	5	19,273	15	70,780	20	15,244	16
Water	290	>1	0	0	0	0	0	0
TOTAL	127,005	100	127,768	100	354,195	100	97,650	100

UNIT MANAGEMENT GOALS

- To manage and sustain a healthy population of elk.
- To provide a variety of high quality recreational opportunities for viewing and harvesting elk.
- To maintain an elk population consistent with the available range resources.
- To strive for protection of key habitats with continued habitat improvements to mitigate losses by development.
- To continue to provide spike only general season and limited entry elk hunting opportunities. Limited entry hunts will be divided as archery, any weapon, muzzleloader and premium hunts.

UNIT MANAGEMENT OBJECTIVES

Habitat

Within the next five years, enhance forage production on a minimum of 20,000 acres of elk habitat, through direct range improvements to maintain population management objectives. Pursue protection of an additional 20,000 acres of elk habitat through Conservation Easements, CWMUs, Conservation agreements, etc.

Population

Target Winter Herd Size –5400 wintering elk distributed in the following subpopulations:

Wasatch Mountains West	2600
Currant Creek	1200
Avintaquin	1600

Avintaquin Subpopulation- During the fall of 2011 a committee was organized in accordance with the Statewide Elk Management Plan. The purpose of the committee was to discuss a possible increase to the Avintaquin subunit population objective. The committee met in early December 2011 and voted to raise the objective from 1250 to 1600 wintering animals. However, if U.S. Forest Service cattle grazing permittees have their grazing AUM's reduced in the future do to over grazing by elk the committee will reconvene to reevaluate the population increase.

Herd Composition - Maintain a three year average age of 5.5-6.0 years of harvested bulls. Winter aerial counts are scheduled every three years and are dependant upon operating budgets and weather conditions.

CURRENT STATUS OF ELK MANAGEMENT

Habitat

Overall, range conditions for elk are good on this unit. Some wintering areas suffered a sagebrush die off due to the seven year drought that ended in late 2004. Since 2005 there has been several wet years, which resulted in good grass production that benefited elk. The majority of the Range Trend monitoring sites on this unit are in fair to good condition.

When looking at elk population objectives , the Division has taken into account barriers 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, including: agricultural depredation, urban encroachment, competition for forage with domestic livestock, over utilization of winter browse in areas of heavy concentration of deer and elk during hard winters.

Completed habitat improvement projects

Over the past decades many habitat improvement projects have occurred that benefit elk. These include; both prescribed fire and wildfire, pinyon-juniper chainings, conifer thinning, etc. This table lists specific habitat improvements & protections that have occurred in the last ten years on Unit 17.

Completed Project	Agency	Acres	Cooperators
Coyote Draw PJ lop & scatter	DWR	1,220	DWR
Cut Off Road PJ lop & scatter	DWR	415	DWR
East Side Hwy 208 anchor chaining	DWR	450	DWR
Golden Stairs anchor chaining	DWR	185	DWR
Grey Wolf Mtn anchor chaining	DWR	600	DWR
Horse Ridge PJ treatment	DWR	700	DWR
Lake Canyon aerator treatment & seeding	DWR	600	DWR

Lake Canyon PX conifer burn	USFS	500	USFS, DWR
Lower Red Creek – sagebrush seeding	DWR	600	DWR
Lower Red Creek Dixie Harrow	DWR	325	DWR
Rabbit Gulch anchor chaining	DWR	190	DWR
Rabbit Gulch PJ lop & scatter	DWR	1,400	DWR
Rabbit Gulch PJ lot & scatter	DWR	1,100	DWR
Rabbit Gulch sec 9 PJ anchor chaining	DWR	180	DWR
Sandwash/Sink Draw Cons. Easement	DWR	4,000	DWR, RMEF, SFWH, LIP
Sandwash/Sink Draw Cons. Easement	NRCS	5,000	NRCS, DWR
Santaquin Draw anchor chaining	DWR	1,800	DWR
Skitz Canyon anchor chaining	DWR	730	DWR
Stink Draw seeding	DWR	500	DWR
Strawberry River prescribed burn	DWR	4,000	DWR, BOR
Strawberry River property acquisition	BOR	1,700	BOR, CUPMC, DWR
Trout Creek sagebrush treatment	USFS	200	USFS, DWR
Two Bar Ranch PJ thinning & lop & scatter	DWR	1,300	DWR
Wallsburg Fire break seeding	DWR	100	DWR
Wallsburg shrub planting	DWR	500	DWR, SFWH
Wildcat Canyon property acquisition	BOR	1,700	BOR, CUPMC, DWR
Horse Ridge lop & scatter	DWR	500	DWR
Tabby Mt. Santaquin Draw chaining	DWR	238	DWR
Tabby Mountain lop & scatter	DWR	600	DWR
TOTAL		31,333	

Proposed Habitat Projects

Following is a partial list of proposed habitat enhancement projects on unit 17. Others will be added as opportunities arise.

Proposed Project	Agency	Acres	Cooperators
SITLA Tabby Mtn Block Acquisition/Easement	DNR	28,000	DNR, DWR, SFWH, RMEF, MDF, etc..
Sandwash sagebrush restoration	DWR	92	DWR
Buck Knoll anchor chaining	DWR	400	DWR, B.B.C., Berry P.
Bartholomew Canyon vegetation treatment	USFS	1,000	USFS, DWR
Blacktail Mountain west PJ treatment	DWR	440	DWR
Reservation Ridge burn	BLM	85	BLM, DWR
knapweed Wallsburg control	DWR	830	DWR
Springdell South vegetation treatment	USFS	2,500	USFS, DWR
Skitz Canyon lop & scatter	DWR	390	DWR
South Strawberry sagebrush treatment	USFS	310	USFS, DWR
Price Canyon burn	BLM	4,000	DWR, BOR
Blacktail Mountain east PJ treatment	Ute Tribe	1,400	Ute Tribe, DWR
Weeint Hollow anchor chaining	Ute Tribe	2,000	Ute Tribe, DWR, B.B.C.
Wallsburg shrub plantings	DWR	500	DWR, SFWH
\$1200 ridge Prescribed burn	USFS	1,200	USFS, DWR
Reservation Ridge thinning	USFS	1,000	USFS, DWR
Indian Canyon Prescribed burn	USFS	500	USFS, DWR
Reservation Ridge – Tub Ridge burns	USFS	4,000	USFS, DWR
TOTAL		48,647	

Population

The last aerial census was taken January 2011 where 6,478 elk were observed on the unit. The estimated population would include a 20% increase of non-observed elk equaling 7,774. Any elk over the management plan objective of 5400 are removed from the population, thereby, keeping the herd stable. Average calf:cow ratios for the unit are 54:100. The five year average for the spike bull harvest is 436 and 340 limited entry bulls were taken in 2010.

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat

- Loss of winter range due to development.
- Loss of winter range due to sagebrush die off and resulting cheatgrass expansion.
- Poor range conditions during drought years.
- Conifer and PJ invasion of grasslands and browse areas critical for wildlife.
- Loss of winter range due to expanding oil & gas development.

Population

- Resistance to increasing L.E. bull harvest to reduce the mean age of harvest.
- Difficulty in harvesting antlerless animals for population control on subunit 17c (Avintaquin) due to elk moving onto Ute Tribal lands.

Other Barriers

- Agricultural depredation by elk on privately owned crops and rangelands. Elk numbers may have to be maintained at levels below the stated objective if excessive levels of crop depredation or forage consumption on private rangelands occur.
- Weather Extremes - Periodic climatic extremes, especially severe winters or long term drought conditions, can cause great fluctuations in overall population size, sex ratios, and age structure.
- Other Mortality Causes - Occasionally, other sources of elk mortality such as unlawful harvest, highway mortality, winter loss, disease

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat

Monitoring

- Continue to monitor permanent range trend studies located throughout the winter range.
- Annual habitat assessment surveys.
- Continue to develop and implement Habitat Management Plans for each of the DWR Wildlife Management Areas on the unit.

Actions to Remove Habitat Barriers

- Cooperate with USFS & BLM to re-institute natural fire interval in conifer zone to recover lost elk habitat.
- Cooperate with USFS, BLM, & Ute Tribe to increase vegetative under story and reduce Pinyon/Juniper invasion of the sagebrush step zone to increase winter forage to reduce depredation on private property.
- Pursue Conservation Easements on critical parcels of private property to protect important elk habitat.
- Implement habitat enhancement & watershed initiative projects whenever opportunities arise, including those listed in this plan.
- Participate with landowners by providing seed, labor or machinery to implement improvements on private rangelands that will benefit wildlife.
- Cooperate with USFS, BLM, and local governments to prepare access management plans to enhance wildlife habitats, range conditions and escape

opportunities for elk. Such plans may emphasize a mix of permanent and seasonal road closures and vehicle type restrictions.

Population

Monitoring

Population Size - The population is monitored using harvest data, aerial trend counts and classification, preseason classification, and survival estimates.

Bull Age Structure - Monitor age class structure of the bull population through the use of annual preseason ground classification and winter aerial classification. Average age of harvest will be determined by tooth age data from L.E. harvest.

Harvest - The primary means of monitoring harvest will be through the statewide uniform harvest survey and the mandatory harvest reporting for the L.E. hunts. Target population size will be maintained through the use of antlerless harvest using a variety of harvest methods and seasons. Permits for the 3 weapon types are based on the following percentages: 30% for archery, 50% for rifle and 20% for muzzleloader. Maintain an archery only area in Salt Lake County along with an extended archery area in the Summit County portion of this unit where any bull may be harvested during the general spike hunt and the extended hunt period.

Management Actions to Remove Population Barriers

- Target depredation hunts to address elk herds that habitually move into agricultural or urban areas.
- Cooperate with private landowners to fence all haystacks in winter depredation areas.
- Cooperate with UDOT to pursue funding to reduce vehicle mortalities.
- Cooperate with Ute Tribe to ensure hunting pressure occurs on Tribal lands on subunit 17c to increase antlerless harvest for population control on that subunit.