

TUSHAR COLLABORATION

Existing Conditions narrative for deer and elk on the Pine Creek/Sulphurbeds and Ten Mile Allotments...compiled by Sean Kelly (UDWR) and Steve Flinders (USFS) Feb. 2009.

Elk Population...based on UDWR Elk Herd Unit #22 Beaver Management Plan completed in April 2007 (in appendices).

...(excerpt from UDWR Elk Herd Unit #22 Beaver Management Plan completed in April 2007 (in appendices)).

UNIT MANAGEMENT OBJECTIVES

Habitat

Improve a minimum of 15,000 acres of elk range over the life of this plan, with a minimum of 10,000 acres of this total completed in the mountain brush or aspen communities (summer range) within focus areas outlined by the Beaver Elk Management Plan Committee (see appendix).

Population

A target population winter population of 1,050 (computer modeled) with minimum post season bull to cow ratio of 15:100. This is a slight increase over the previous objective of 950.

Manage for an average age of harvested bulls of 6-7 years (average across all hunt types). Maintain general season spike-only and limited entry any-bull hunt format.

Status of elk herd on entire Unit (Flight Data)

Every three years the UDWR conducts helicopter census flights during winter and estimates herd size using typically 80% sightability—see data below.

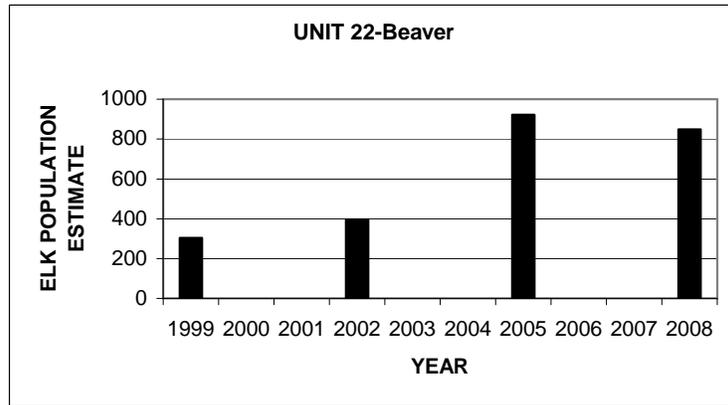
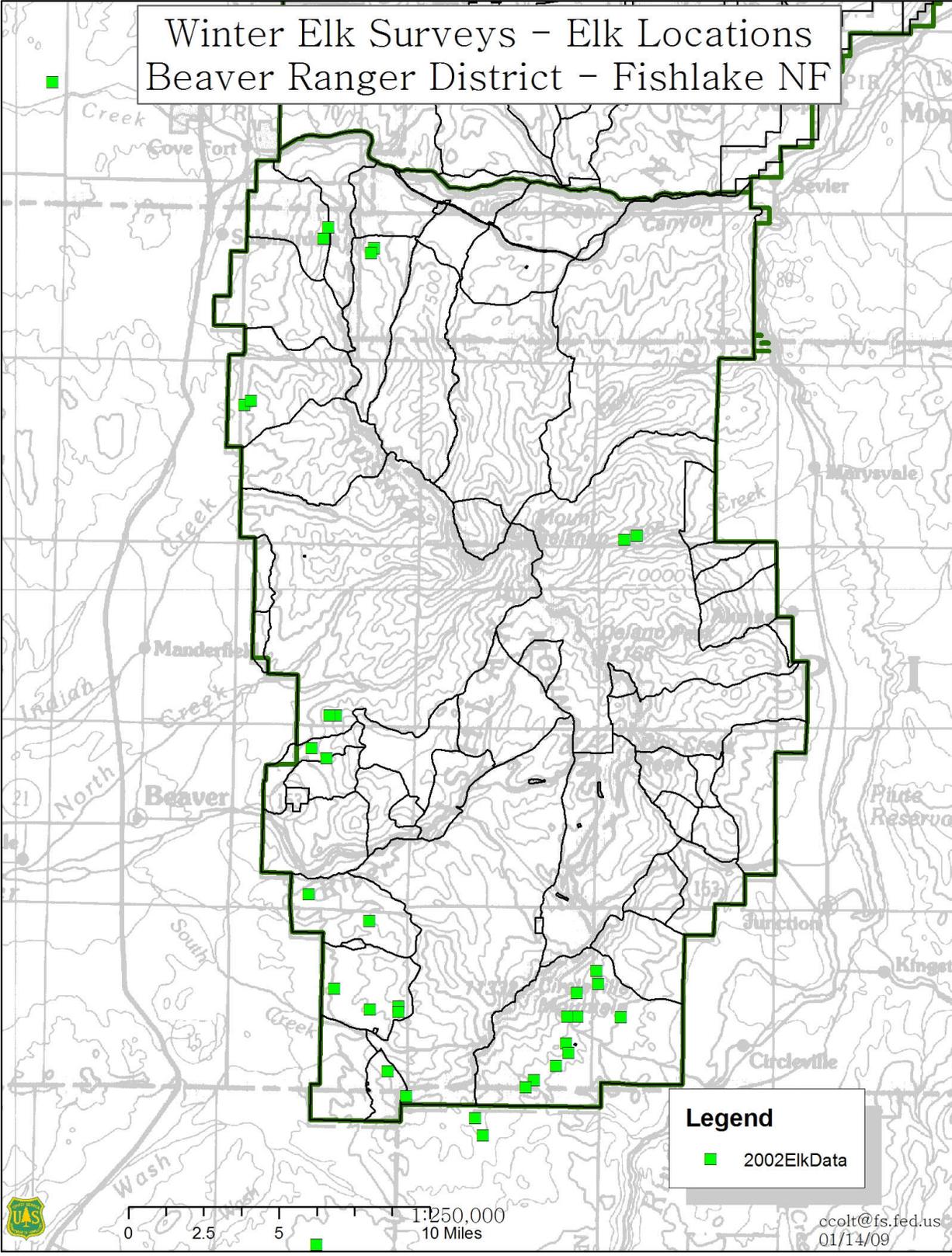


Table 1. Elk population estimates based upon winter helicopter surveys adjusted for elk sight-ability.

Figure 1. Shown are flight data locations from the 2002 elk survey on the Beaver Unit.

Winter Elk Surveys - Elk Locations Beaver Ranger District - Fishlake NF



Legend
■ 2002ElkData

Figure 2. Shown are flight data locations from the 2005 elk survey on the Beaver Unit.

Winter Elk Surveys - Elk Locations Beaver Ranger District - Fishlake NF

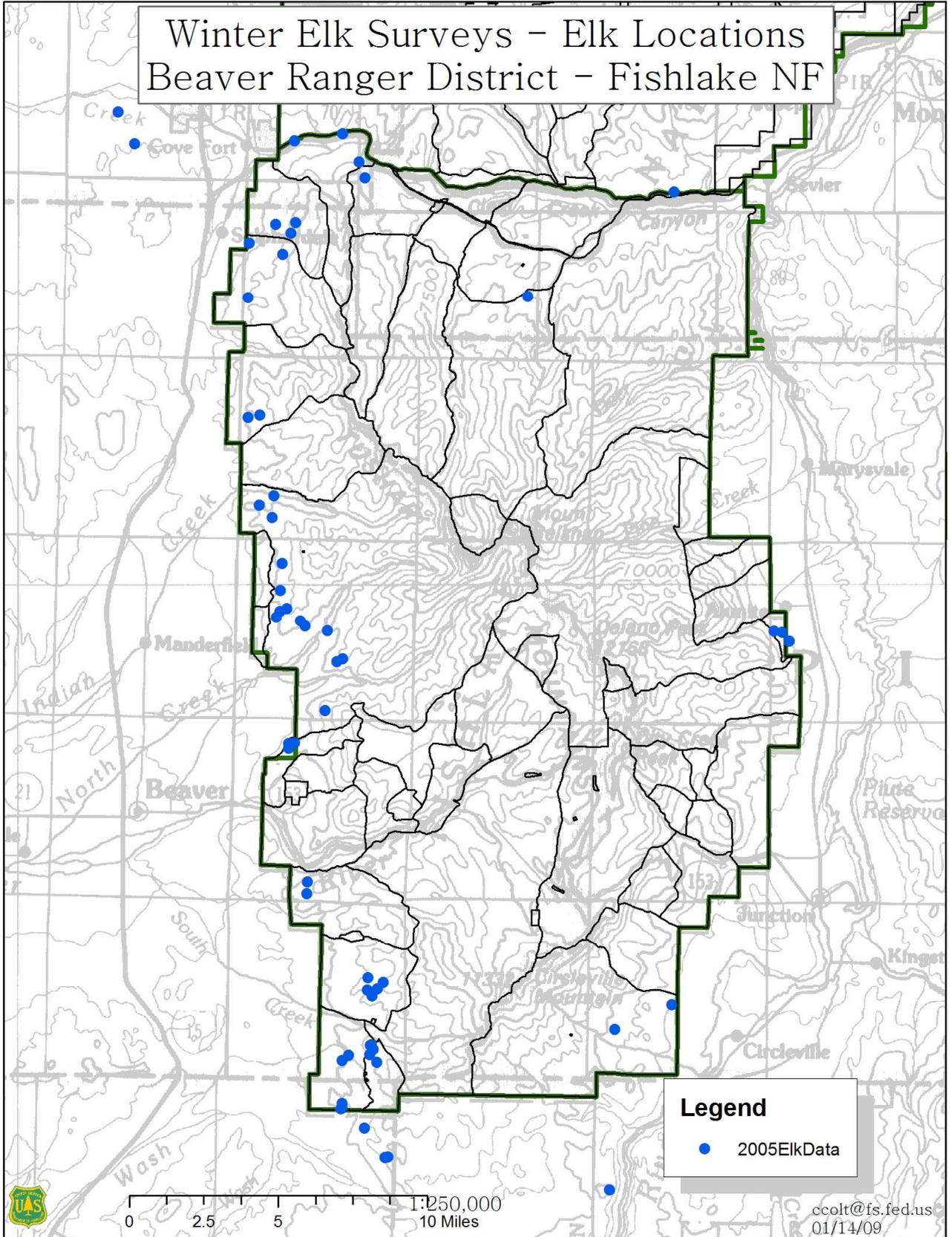
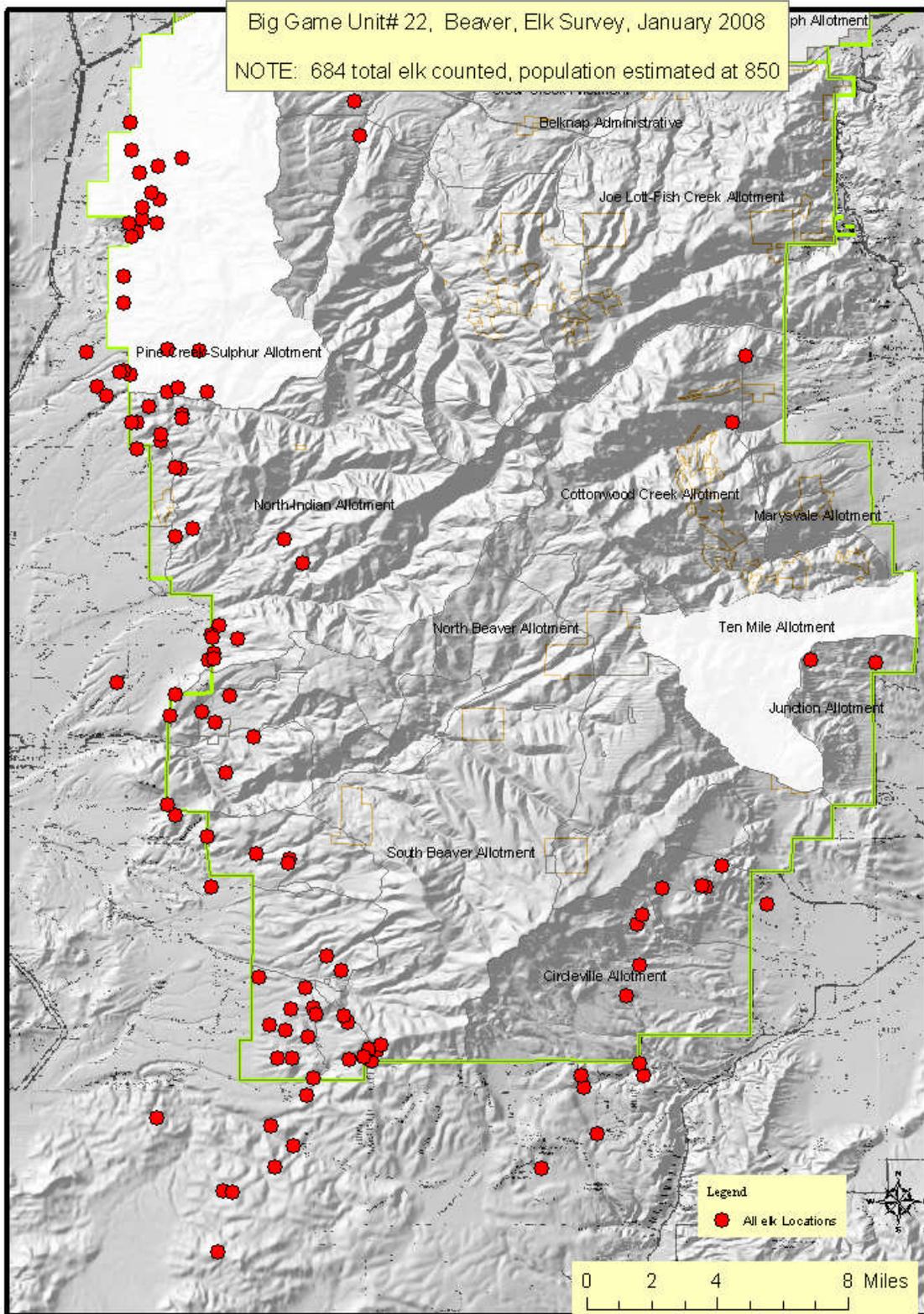


Figure 3. Shown are flight data locations from the 2008 elk survey on the Beaver Unit.



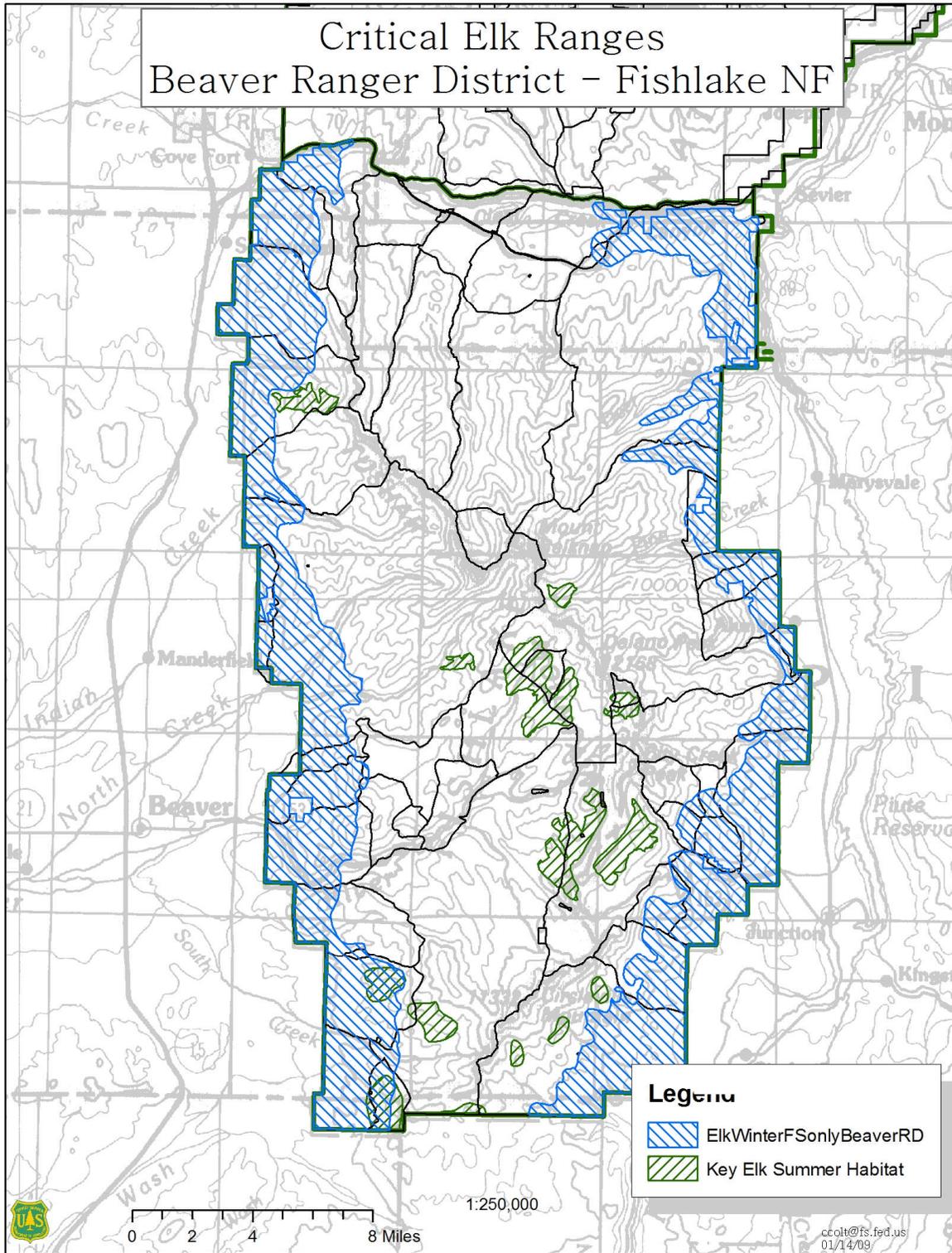
Ownership	Yearlong range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	0	0	218,746	90	70,796	34
Bureau of Land Management	63,891	81	7,401	3	104,564	50
Utah State Institutional Trust Lands	6,550	8	1,001	1	12,919	6
Native American Trust Lands	0	0	0	0	206	<1
Private	8,753	11	15,253	6	17,326	8
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	480	<1	0	0
Utah Division of Wildlife Resources	0	0	0	0	1,471	1
TOTAL	79,234	100	243,947	100	207,466	100

Table 2. Shown is range area and approximate ownership of lands within the Beaver Elk Unit—from UDWR elk plan 2007.

Number of elk on Beaver Ranger District and estimate of forage used on subject allotments.

Sean Kelly (UDWR) estimates that 1250 elk currently reside on the Beaver Ranger District based on estimated herd size and extent of Forest Service seasonal range (this is an average year-round estimate, i.e. slightly higher in summer and slightly lower in winter). An estimate of elk on the subject allotments is far more difficult due to several important factors that greatly influence elk behavior on a daily basis like the following: habitat relationships relating to water and cover availability, snow accumulation, plant communities and phenophase, predator pressure, disturbance by humans, and even cattle avoidance. Elk are well distributed across the District and are of course not influenced by fencing meant to keep cattle on the subject allotments. Therefore, an estimate based simply on the percent of land area the allotments represent, may be as good a starting point for discussion in the absence of any more specific data of elk use patterns in the allotments. The authors also consulted elk seasonal range maps based on UDWR GIS coverages, see Figure 4.

Figure 4. Shown are seasonal use ranges for elk on the Beaver Herd Unit with crucial winter and key summer (calving) depicted along with Forest grazing allotment outlines.



Name	Area	%	Calving	%	Crucial Winter	%
Pine Creek	30213	11	721	7	15695	19
Ten-Mile	12472	4	183	2	3991	5
Remainder... Beaver RD	254751	85	10110	91	63070	76

Table 3. Shown are acreage figures for elk habitat on the Beaver Ranger District and the proportion within the subject allotments. Source: 2006 UDWR GIS data

Forage used annually by elk could be estimated by beginning with the 1250 elk estimated on average on BRD, consuming 12 lbs of forage on average per day, or 1250 elk x 12lbs x 365 days= 5,475,000 pounds a year. Using Table 3 above, 11% of this for Pine Creek equals 602,250 pounds of forage, while 4% for Ten-mile is 219,000 pounds. To estimate this forage requirement by the acre one needs to estimate the total acres in each allotment utilized by elk on an annual basis. Based on the many variables alluded to earlier and their inherent transient nature, elk grazing pressure is very difficult to characterize over a given year. This said, we would estimate lands capable of providing forage sometime during the year for elk to be greater than lands capable for cattle during the grazing season but less than 100% for these two allotments given the terrain, vegetation, and other variables. If we estimate this number to be somewhere between 55-75% of the lands within the allotments (capable lands for cattle were 45% and 21% for Pine Creek and Ten-mile, respectively) then we would predict elk consumed on average between 27- 36 lbs/acre on Pine Creek and 23-32 lbs/acre on Ten-mile. Presumably, this use would be heaviest in wintering/spring use areas where animals tend to concentrate and lightest in summer and fall. Based on the values in Table 3, these allotments represent a rather small amount of elk calving habitat and crucial winter range, with Pine Creek having a slightly higher proportion of winter range than just the land area comprises.

Elk Unit	Elk Density (acres of elk habitat/elk)
Plateau, Fish Lake/1000 Lakes	109.5

Central Mtns., Manti	151.1
Central Mtns., Nebo	244.2
Wasatch Mountains, Central Reg	270.5
Wasatch Mountains, Currant Crk-Avintaquin	302.6
Fillmore, Pahvant/Oak Creek	480.5
Beaver	737.2

Table 4. Shown are various elk densities for surrounding elk management units as well as the Beaver elk Unit.

Deer Population...based on UDWR Deer Herd Unit #22 Beaver Management Plan completed in 2006 (in appendices).

UNIT MANAGEMENT OBJECTIVES

Population

A target population winter population of 11,000 (computer modeled).

Status of deer herd on entire Unit (computer modeled based on harvest data)

Post-season 2007 herd estimated at 10,200 animals.

Number of deer on Beaver Ranger District and estimate of forage used on subject allotments.

Don Beale, retired UDWR research biologist, conducted significant seasonal range research on deer radio collared while summering in the Beaver Unit back in the early 1980's. Surprisingly high numbers of deer migrated in some cases 20 miles west of what is now the Interstate-15 corridor. Since, the completion of I-15 and subsequent fencing options for seasonal migration have been reduced despite several structures meant to aid in deer movement across the Interstate. Recent data show a few dozen individual deer permeating the structures but not a significant part of the deer herd. Limited winter range and occasional drought conditions over the past decade have reduced the population as demonstrated by the harvest to a low of 587 buck deer in 2003 and a high of 1185 bucks in 2007.

With around 10,500 deer unit wide, the majority of which summer on National Forest, a rather small minority winter on the Beaver RD in a typical year. While using 6 pounds of forage per day, a deer's diet is quite different than cattle and elk, with a dietary overlap to cattle depending on the season that ranges from perhaps 5% in winter to as high as 40% in spring and summer.

Pellet Group Transects and UDWR Range Trend Data

Pellet Group Transects were established in both allotments and read before the onset of cattle during 2007 and 2008. The Ten-mile transect begins in lower Price/Order Canyon (UTM

0386996/4239954 Zone 12 NAD 83) proceeding on a 300 degree heading and parallels the stream in open sagebrush and ends at the base of the slope in dispersed aspen and mtn. brush. The Pine Creek transect begins on NF system lands just east and north of the Sulphurdale Geothermal site (UTM 0363000/4269973 Zone 12 NAD 83) and proceeds northeast. The methodology is relatively simple, employing 100 circular plots of 10 square meters in size (1.78m radius), and tallys the number of deer and elk pellet groups. By employing a factor relative to the number of plots, one can arrive at an estimate of elk and deer days use per acre or hectare. By reading these annually in the spring, a trend of days use or pounds of forage can be estimated for the area by species, see Table 4.

Allotment	2007		2008	
	deer	elk	deer	elk
Ten-mile	125	88	162	102
Pine Creek/Sulphurdale	33	226	63	130

Table 4. Shown are pellet group data for the subject allotments expressed as pounds estimated used per acre for the entire season, by elk and deer (12 lbs forage/day for elk and 6 lbs forage/day for deer), along transects.

UDWR has established for the most part, “winter” range trend sites on the Beaver Herd Unit that are re-visited every 5 years. These sites numbered 16 during the 2003 sampling year but none occurred within the subject allotments. These data are offered as further reference information to consider when discussing big game population levels, range condition, and carrying capacity—see URL for link to report: <http://wildlife.utah.gov/range/wmu22.htm>

Appendix I

UDWR Elk Herd Unit #22 Beaver Management Plan completed in April 2007

Also-

URL for Utah statewide elk plan:

http://wildlife.utah.gov/hunting/biggame/pdf/elk_plan.pdf

URL for Utah statewide deer plan:

http://wildlife.utah.gov/hunting/biggame/pdf/mule_deer_plan%20approved_12_4_2008.pdf

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit #22
Beaver
April 2007

BOUNDARY DESCRIPTION

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

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 the population at a level that is within the long-term capability of the available habitat to support.

UNIT MANAGEMENT OBJECTIVES

Habitat

Improve a minimum of 15,000 acres of elk range over the life of this plan, with a minimum of 10,000 acres of this total completed in the mountain brush or aspen communities (summer range) within focus areas outlined by the Beaver Elk Management Plan Committee (see appendix).

Population

A target population winter population of 1,050 (computer modeled) with minimum post season bull to cow ratio of 15:100. This is a slight increase over the previous objective of 950.

Manage for an average age of harvested bulls of 6-7 years (average across all hunt types). Maintain general season spike-only and limited entry any-bull hunt format.

CURRENT STATUS OF ELK MANAGEMENT

Habitat (Current (2007) Status)

Range trend study data was last collected on the Beaver unit in summer of 2003. At this time the overall range conditions for winter ranges on the Beaver was poor with a downward trend.

RANGE AREA AND APPROXIMATE OWNERSHIP*

Ownership	Yearlong range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	0	0	218,746	90	70,796	34
Bureau of Land Management	63,891	81	7,401	3	104,564	50
Utah State Institutional Trust Lands	6,550	8	1,001	1	12,919	6
Native American Trust Lands	0	0	0	0	206	<1
Private	8,753	11	15,253	6	17,326	8
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	480	<1	0	0
Utah Division of Wildlife Resources	0	0	0	0	1,471	1
TOTAL	79,234	100	243,947	100	207,466	100

Factors that reduce carrying capacity of Unit

When looking at the overall carrying capacity (CC) of a unit, the Division has taken into account during the writing of this plan barriers which include depredation issues, winter and summer range not under Division control, social and political factors, current range improvements, future range improvements and range health. Based upon these criteria, the DWR believes the current population objectives of this plan are slightly below the current CC. As habitat conditions are improved the division can and will consider adjusting current CC.

The major barrier to increasing elk numbers on the Beaver unit is the condition of the habitat. The Beaver unit has a relative abundance of summer and winter range. With a total of 530,000 acres the Beaver unit has about 35% more range than the Pahvant but winters much fewer elk. Invasion by spruce-fir and pinyon-juniper has reduced the productivity of much of the summer and winter ranges for elk, deer and livestock.

Heavy human activity along the Piute ATV trail and areas developed for summer homes may also be responsible for reducing elk use of traditional calving areas and increasing use of posted private land and roadless areas on the Forest.

Completed habitat improvement projects

Projects completed during the past five years include prescribed burns in Brush Hollow, Dixie harrow treatments above Circleville and juniper thinning on the South Creek drainage. Additional projects planned for the South Creek area should improve several thousand acres for deer and elk in the next 5-10 years.

Population (Current (2007) Status)

The current winter population is estimated at 900 elk with a bull:cow ratio of approximately 32 bulls per 100 cows. The number of elk counted during winter helicopter surveys more than doubled between 2002 and 2005.

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Population

No population related barriers are present on the Beaver unit at this time.

Other Barriers

Crop Depredation – Crop depredation west of Marysvale and near Sulfurdale and Manderfield present barrier to increasing elk numbers in these areas.

Highway mortality - I-70 is source of heavy highway mortality for both elk and deer.

Development – Development of the LaBaron and Puffer Lake areas has the potential to increase disturbance, disrupt movements of elk and deer, increase vehicle collisions and damage habitat.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat

Monitoring

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

Actions to Remove Habitat Barriers

Continue to maintain and enhance reseeds by burning, cutting and roller chopping. Participate with the Fish Lake National Forest in treating approximately 10,000 acres of aspen and mountain brush habitat in the Jimmy Reed, Pine Creek, and South Creek drainages to improve forage for both elk and cattle. Address excessive habitat utilization on a case-by-case basis.

Population

Monitoring

Population Size - Utilizing harvest data, aerial trend counts, postseason classification and mortality estimates, a computer model has been developed to estimate winter population size

Bull Age Structure - Monitor age class structure of the bull population through the use of checking stations, uniform harvest surveys, field bag checks, postseason classification and aerial classification.

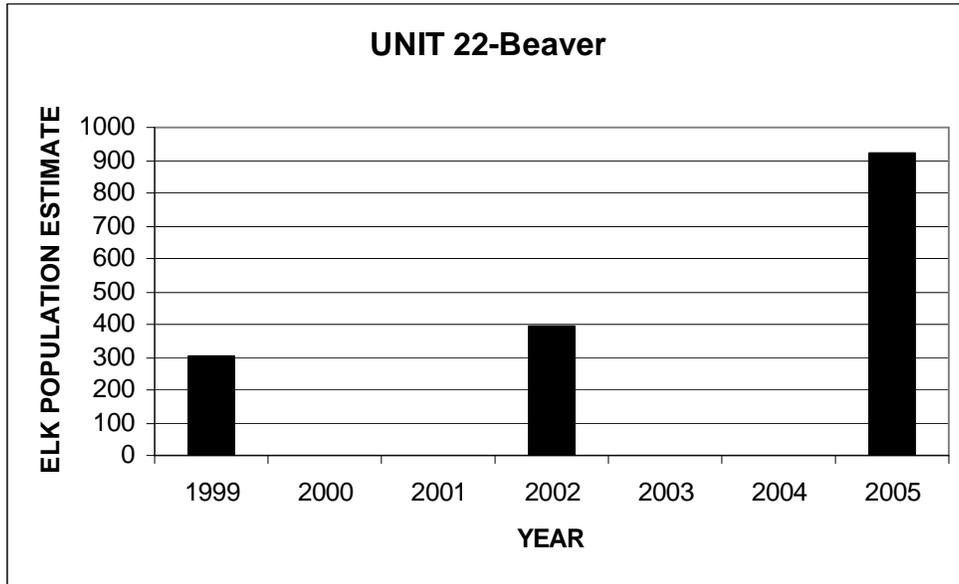
Harvest - The primary means of monitoring harvest will be through the statewide uniform harvest survey. Achieve the target population size by use of antlerless harvest using a variety of harvest methods and seasons. Bull harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives for bull:cow ratios.

Management Actions to Remove Population Barriers

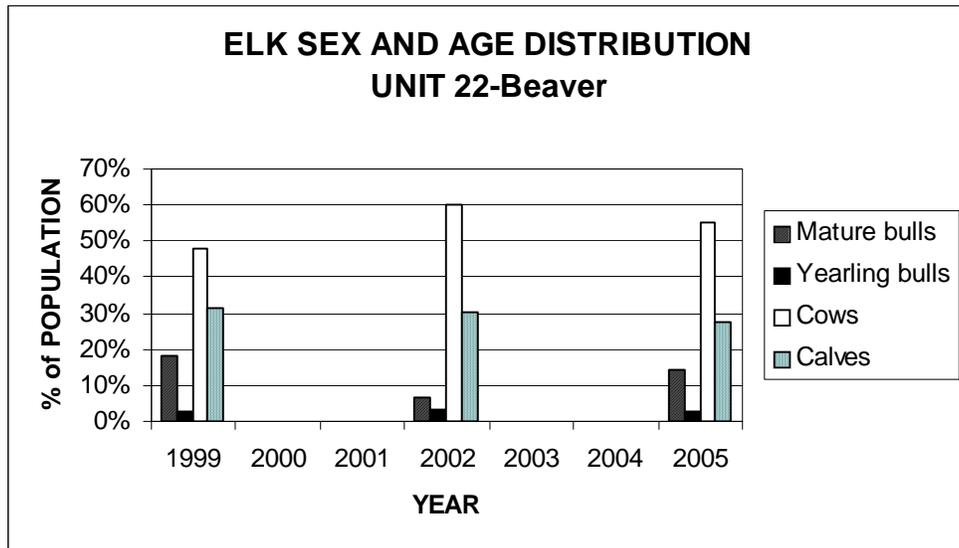
Depredation – Take all steps necessary to minimize depredation as prescribed by state law and DWR policy. Continue to address crop depredation in Sulfurdale, Wildcat, North and South Creek, and Marysvale. Elk numbers on the portion of the unit west of I-15 will be kept as low as possible.

Highway mortality – Assist habitat section and UDOT in finishing high fences along I-15 between Cove Fort and Baker Canyon and along I-70 east of Cove Fort.

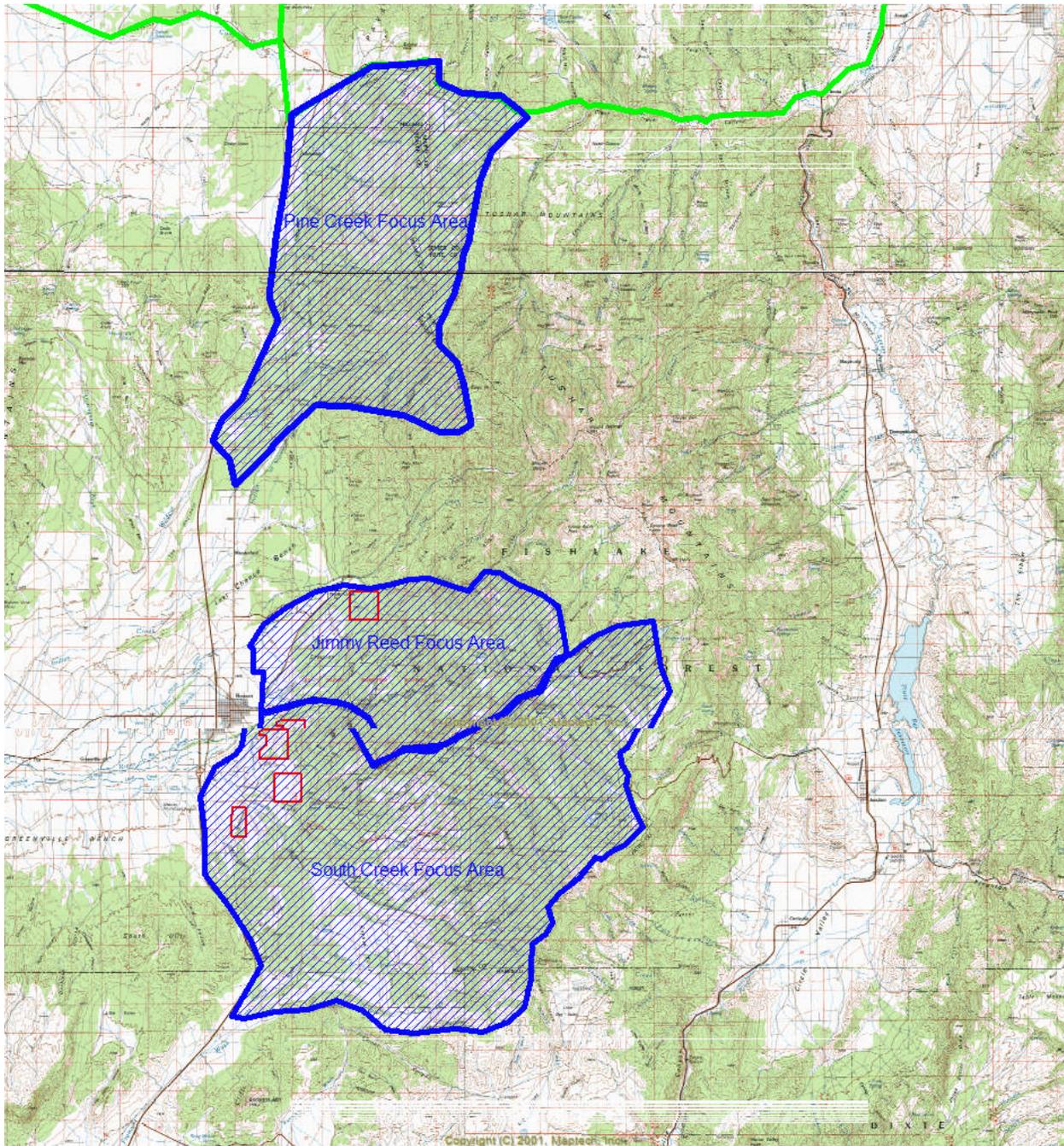
APPENDICES



Appendix 2a. Elk population estimates based upon winter helicopter survey adjusted for elk sight-ability.



Appendix 1b. Sex and age structure of the Beaver elk herd based upon pre-season classification and winter helicopter survey data.



Appendix 2. Areas in which the Beaver Elk Management Plan Committee recommends large-scale vegetation treatments in order to reduce the possibility of resource damage due to heavy use by livestock and wildlife.

DEER HERD UNIT MANAGEMENT PLAN
Deer Herd Unit #22
(Beaver)
April 2006

BOUNDARY DESCRIPTION

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

LAND OWNERSHIP

RANGE AREA AND APPROXIMATE OWNERSHIP

Ownership	Yearlong range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	0	??	213388	70%	83337	14%
Bureau of Land Management	0	??	65991	22%	396598	68%
Utah State Institutional Trust Lands	0	??	7386	2%	44367	8%
Native American Trust Lands	0	??	0	0%	205	0%
Private	0	??	18436	6%	53769	9%
Department of Defense	0	??	0	0%	0	0%
USFWS Refuge	0	??	0	0%	0	0%
National Parks	0	??	0	0%	0	0%
Utah State Parks	0	??	0	0%	0	0%
Utah Division of Wildlife Resources	0	??	0	0%	2288	0%
TOTAL	0	??	305201	100%	580564	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 deer herd impacts with 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 to support.

POPULATION MANAGEMENT OBJECTIVES

- < Target Winter Herd Size - Achieve a target population size of 11,000 wintering deer (modeled number). This population objective remains for both the short-term (5-year life of this plan) and long term, barring significant changes in range conditions.

Unit 22

2003 Objective:	11,000
<u>2006-2011 Objective:</u>	<u>11,000</u>
Change since 2003:	0

- < Herd Composition – Maintain a region-wide three-year average post-season buck to doe ratio ranging from 15 to 20 bucks per 100 does.

POPULATION MANAGEMENT STRATEGIES

Monitoring

- < Population Size - Utilizing harvest data, postseason and spring classifications and mortality estimates, a computer model has been developed to estimate winter population size.
- < Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, uniform harvest surveys and field bag checks.
- < Harvest - The primary means of monitoring harvest will be through the statewide uniform harvest survey. Achieve the target population size by use of antlerless harvest using a variety of harvest methods and seasons. The winter population should result in an expected annual buck harvest of 1500 when normal conditions occur, but recognize that buck harvest will be above or below what is expected due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives for buck: doe ratios.

Limiting Factors (May prevent achieving management objectives)

- < Crop Depredation - Take all steps necessary to minimize depredation as prescribed by state law and DWR policy. Closely monitor Sulfurdale, Wildcat, North and South Creek on the West and Marysvale Ten-Mile on the east.
- < Habitat - (winter/summer range conditions) Closely monitor winter ranges on the southern part of the unit where overuse currently has been documented. No increase in deer numbers is possible in this area unless habitat projects increase carrying capacity. Maintain or improve fawning habitat and summer waters west of I-15. Excessive habitat utilization will be addressed.
- < Predation - Refer to DWR predator management policy.
 - Assess need for control by species, geographic area and season of year.
 - Seek assistance from Wildlife Services when deer populations are depressed and where there is a reasonable chance of gaining some relief through a predator control effort. Concentrate WS control efforts during and immediately prior to the fawning period.
 - Recommend cougar harvest to benefit deer while maintaining the cougar as a valued resource in its own right.
- < Highway Mortality - Cooperate with the Utah Department of Transportation in construction of highway fences, passage structures and warning signs, etc.
- < Illegal Harvest - Should illegal kill become an identified and significant source of mortality attempt to develop specific preventive measures within the context of an action plan developed in cooperation with the Law Enforcement Section.
- < Interspecific competition - No limitation generated by elk/deer interactions has been documented.

HABITAT MANAGEMENT OBJECTIVES

- < Maintain and/or enhance forage production through direct range improvements throughout the unit on winter range to achieve population management objectives. Work with Federal agencies to improve critical winter ranges adjacent to the crop depredation areas identified above.

- < Work closely with the BLM on maintaining and improving critical winter range conditions south of Beaver and east of I-15.
- < Improve riparian areas in fawning habitat west of I-15 to furnish water, cover, and late to mid summer succulent forage.
- < Work with private and federal agencies to maintain and protect critical and existing winter range from future losses.
- < Provide improved habitat security and escapement opportunities for deer.

Condition of deer winter range on Unit 22, as indicated by DWR range trend surveys.

Year	Mean DCI score for Unit	Classification	Unit-specific DCI score range: Poor	Unit-specific DCI score range: Fair	Unit-specific DCI score range: Good
2003	37	FAIR	18-32	33-50	51-69

HABITAT MANAGEMENT STRATEGIES

- < Habitat - Assist BLM in developing a plan for improving winter ranges south of Beaver. Identify methods to reduce pinyon-juniper encroachment. Continue assisting BLM with planned habitat projects south of Fremont Canyon.
- < Work closely with BLM and private landowners to manage and improve riparian habitat conditions west of I-15.

Cooperate with BLM to enhance winter range west of I-15.
- < Monitoring - Herd composition and population will be monitored through post season classification, spring classification, annual spring range rides, hunter check stations, harvest surveys, and computer modeling. Continue to monitor the permanent range trend studies located throughout the seasonal ranges.
- < Harvest - Antlerless harvest will be identified in amounts adequate to prevent crop damage, protect habitat and maintain buck objectives.
- < Depredation - Damage to crops will be minimized by herding, landowner permits and depredation hunting. Antlerless permits will be made available to public in areas identified.

PERMANENT RANGE TREND SUMMARIES

Fourteen (14) range trend study sites were initially established on the Beaver in 1985. Additional sites were added in South Creek and Fremont Wash in the late 1990s. All sites were read in 2003. Only two sites had improving trends over the entire unit and these were due to fire rehabilitation efforts. For all other sites trends for soil, herbaceous, and browse components were split evenly between stable and decreasing classifications.

Duration of Plan

This unit management plan was approved by the Wildlife Board on _____ and will be in effect for five years from that date, or until amended.

APPENDIX – HARVEST AND CLASSIFICATION DATA

