RAC AGENDA – December 2023

1. Welcome, RAC Introductions and RAC Procedure
   - RAC Chair

2. Approval of Agenda and Minutes **ACTION**
   - RAC Chair

3. Wildlife Board Meeting Update **INFORMATIONAL**
   - RAC Chair

4. Regional Update **INFORMATIONAL**
   - DWR Regional Supervisor

5. Utah Black Bear Management Plan Revision and Rule R657-33 **ACTION**
   - Darren DeBloois, Mammals Coordinator

6. Elk Management Unit Plans **ACTION**
   - Daniel Sallee, Wildlife Coordinator

7. Poaching Reported Reward Permits Rule Revisions **ACTION**
   - Wyatt Bubak, Law Enforcement Chief

Regional Presentations Only

Researching Endangered Woundfin in the Virgin River – SR Only **INFORMATIONAL**
– Melinda Bennion, NER Native Aquatic Biologist

Meeting Locations

CR RAC – Dec. 5th 6:00 PM
Wildlife Resources Conference Room
1115 N. Main Street, Springville
https://youtube.com/live/oDTGOPX_fyQ

NR RAC – Dec. 6th 6:00 PM
Weber County Commission Chambers
2380 Washington Blvd. Suite #240, Ogden
https://youtube.com/live/qkQ3D3bDtuY

SR RAC – Dec. 12th 6:00 PM
DNR Richfield City Complex
2031 Industrial Park Rd., Richfield
https://youtube.com/live/5NoRx-JsKJc

SER RAC – Dec. 13th 6:00 PM
John Wesley Powell Museum
1765 E. Main St., Green River
https://youtube.com/live/W48K9w3oWE4

NER RAC – Dec.14th 6:00 PM
Wildlife Resources NER Office
318 North Vernal Ave., Vernal
https://youtube.com/live/oH-o7EHtWTo

Board Meeting – January 4th 9:00 AM
Eccles Wildlife Education Center, Farmington Bay
https://youtube.com/live/b09caB9kv58

State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
Lieutenant Governor

Department of Natural Resources

JOEL FERRY
Executive Director

Division of Wildlife Resources

J. SHIRLEY
Division Director

MEMORANDUM

TO: Utah Wildlife Board

FROM: Darren DeBloois, Predatory Mammals and Furbearer Program Coordinator

DATE: November 16, 2023

SUBJECT: 2024 BLACK BEAR PLAN REVISION AND RULE AMENDMENT

2024 Black Bear Plan Revision

In 2023 DWR recommended and the Wildlife Board adopted amendments to the Black Bear Management Plan. One of those changes was to eliminate a statewide requirement for certain numbers of units to be in one of the three management strategies (light, moderate or liberal harvest). This change gives district biologists, regional wildlife managers and the program coordinator more flexibility to recommend management strategies to address bear population needs on a unit by unit basis, including responding to drought, human conflict, agricultural damage, and potential impacts to mule deer populations.

After the process and reviewing the current plan, we realized that the requirement for a statewide rollup of all harvest parameters fall within the moderate harvest range is incompatible with the objective of the change adopted last year. We are recommending removing that requirement from the plan. This means removing the following language from the Black Bear Management population objectives.

> *The statewide rollup of harvest variables (adult male 5 years and female in the sport harvest category) will not be outside the performance target ranges identified in the moderate harvest strategy. Additional adjustments at the unit level may be necessary to move variables within normal range during the following three-year recommendation cycle. This will be accomplished by adjusting permits an additional ± 10% at the unit level.*
>
> *a. Predator management plan units will not be considered as part of the statewide rollup.*

2024 Black Bear Rule Amendment

Last year the Wildlife Board directed DWR to continue to require a bear hunting orientation course, but to require it after a person had drawn their permit rather than before they put into the drawing. DWR is recommending a change to the Taking Bear Rule (R657-33) to allow for this change. The changes will be made to R567-33-3(5) as follows:

(5)(a) A person must complete a mandatory orientation course before hunting in ~~applying for or obtaining~~ a limited entry, harvest objective season, or pursuing a bear using a bear pursuit permit.

(b) A person must possess a certificate of completion of the mandatory orientation course while hunting of pursuing black bear.

(~~b~~c) The orientation course is not required to receive a bear control permit under Subsection R657-33-23(4).

(~~c~~d) The orientation course shall include training on hunter ethics.

The certificate of completion can be printed and carried while afield, or downloaded to the DWR's application along with any other licenses the hunter may have.

2024 Permit Numbers and Seasons

2024 is the final year of the three-year management cycle for black bears approved by the Wildlife Board in 2021. DWR is not recommending any changes to permit numbers, and season dates will be adjusted for the calendar year.

UTAH BLACK BEAR MANAGEMENT PLAN
2023 - 2035

Utah Black Bear Advisory Committee

DWR Publication 23-03

Utah Division of Wildlife Resources
1594 West North Temple
Salt Lake City, Utah 84114

Approved by the Wildlife Board January 3, 2023

Black Bear Advisory Committee Members

Ben Lowder	Utah Archery Association
Travis O'Niel	Bait Hunters
Cory Huntsman	Utah Houndsmen Association
Bret Guyman	Utah Houndsmen Association
Kirk Player	Big Game Hunter
Sunshine Brosi	At Large
Kaya Wasilewska	BLM
Julie K. Young	Utah State University
Sierra Nelson	Utah Woolgrowers
Brayden Richmond	Sportsmen for Fish and Wildlife
Chad M Heuser	USDA Wildlife Services
Wade Heaton	Wildlife Board
JW Hackett	At Large
Ross Worthington	Big Game Hunters
Barb Smith	US Forest Service
Dustin Mitchell	DWR

DWR Representatives:

Darren DeBloois	Game Mammals Program Coordinator
Chris Wood	Facilitator
Elicia Cotcher	Recorder
Lindy Varney	Licensing
Gary Cook	Outreach
Eric Bond	Law Enforcement
Seth Decker	Law Enforcement

UTAH BLACK BEAR MANAGEMENT PLAN V. 2.0 2011-2023

Plan Goal

Maintain a healthy bear population in existing occupied habitat and expand distribution while considering human safety, economic concerns, and other wildlife species.

Definition: A "healthy" bear population is one that has a proportion of breeding age animals that will maintain population levels consistent with habitat, and that maintains genetic variability.

Introduction

The purpose of the Utah Black Bear Management Plan is to provide direction for management of black bear (*Ursus americanus*) in Utah. This purpose is in accordance with the mission statement of the Utah Division of Wildlife Resources (UDWR). The mission of UDWR is:

To serve the people of Utah as trustee and guardian of the state's wildlife

The Utah Black Bear Management Plan will direct black bear management statewide for a period of twelve years (2023-2035). Over the life of the plan, four three-year harvest recommendation cycles will be presented to the Utah Wildlife Board for approval. In 2029, six years after the plan has been adopted, an evaluation of key objectives will occur, primarily those associated with the population management system. However, earlier reviews and updates may be needed in response to new scientific information. Similarly, an additional evaluation may be necessary after the first six years. In all cases, this document will be reviewed, management progress will be evaluated, and an updated management plan will be written and presented to the Utah Wildlife Board for approval in 2035.

Background

In 1999, the UDWR Director appointed an *ad hoc* committee, which became known as the Black Bear Discussion Group, to address concerns with black bear management and develop Utah's first black bear management plan. This group contained citizen representatives of sportsmen and animal protection groups, researchers, livestock

operators, and representatives from Federal and State agencies. In 2010 the Division revised the Utah Black Bear Management Plan using a similar process.

In 2022, UDWR established a committee to recommend changes to the black bear plan because the current plan was expiring in 2023. This plan is the product of those meetings and recommendations.

For details about subjects covered during these committee meetings, see Appendix A.

Natural History

The range of the American black bear historically included all the forested areas of the continent from Alaska to the northern states of Mexico and from California, east to Florida and the Canadian provinces of Newfoundland and Nova Scotia. Today, the range of black bear is reduced but still includes all or parts of 38 states, 11 Canadian provinces, and 7 Mexican states. In Utah, the black bear is present in much of the forested habitat and desert systems where oak (*Quercus sp.*) trees exist. The Deep Creek Mountains, Pilot Range, Henry Mountains, and Raft River Mountains are notable exceptions (Figure 1).
The black bear is secretive, long lived, and has a low annual reproduction rate compared to other large North American wildlife species. Based on harvest levels, Utah may have the smallest bear population of all the western states, except Nevada. Data from Utah during the past twenty years suggests the population may be growing.

Description

In the mountain west, most black bears have brown to dark chocolate pelage while a few are black. In the eastern USA, they are generally black except for the frequent presence of a white triangle on the upper chest, and brown muzzles. Bears from the west tend to have lighter muzzles, and some individuals are blonde. In Utah, the white chest patch is infrequent. The dark brown pelage may appear black, especially in low light conditions.

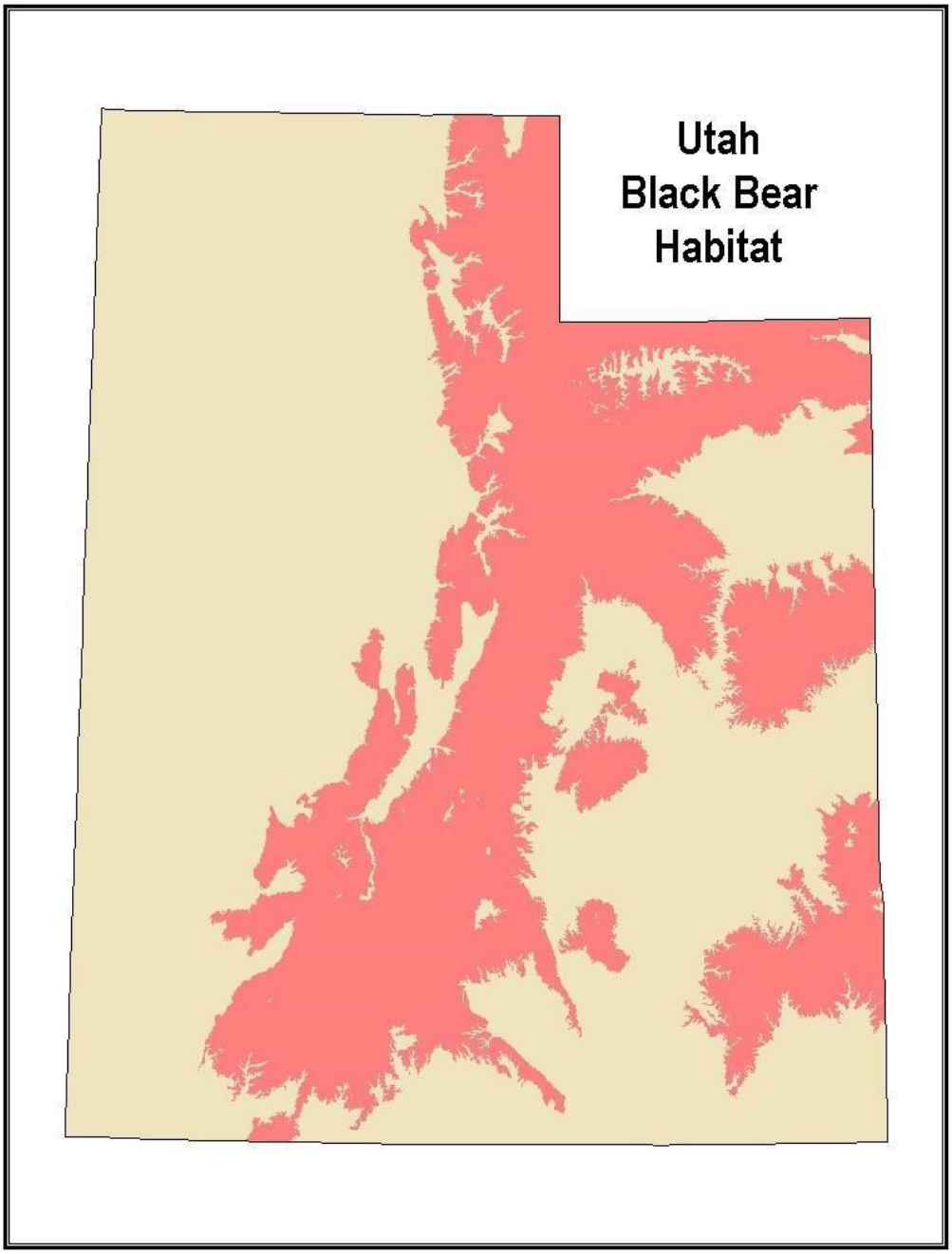
The weight of black bears varies. A male black bear that weighed 816 lbs was recorded in Minnesota in 1991. A female in Pennsylvania weighed 454 lbs. However, the mature western black bear male will typically be 250 - 300 lbs and the female 150-180 lbs in mid summer. These weights vary depending on season, age, and food supply. An Idaho study (Beecham and Rohlman 1994) showed a weight difference between male and female bears of all ages of 77 lbs (n=132). A Colorado study (Beck 1991) of a limited number of bears showed mean summer weights of 280 lbs for males and 167 lbs for females. In Utah, large males in summer may weigh over 300 lbs and adult females 130 - 150 lbs.

Black bears have a compact body with stout legs, especially the forearms, and feet. They have recurved claws, a straight facial profile and no shoulder hump. Mature males are about 60 in long while mature females are about 50 in. After about seven years, growth

slows. The length measurements from the Colorado study showed greater lengths than Idaho in both males and females. Some differences in measurement techniques could account for part of the difference but the heavier weights from Colorado suggest that the Colorado bears may genetically be slightly larger or have access to better food supplies. Weights and lengths from ongoing studies in Utah are comparable to Colorado. Black bears have a keen sense of smell and stand on their hind legs to aid in seeing and smelling. They are strong swimmers.

In the west, black bears of both sexes occasionally live in excess of 20 years of age. Study animals, as well as harvested animals, have exceeded 20 years in Utah. In hunted populations, average life span is shorter than in unhunted populations and differences between sexes may emerge. For example, males averaged several years younger than the females in hunted populations of Idaho (Beecham and Rohlman 1994), and males have only a 0.1% probability of living to be 20, while females have a 0.5% chance in hunted populations of Michigan (Waples et al. 2018) In Utah, apparent survival of bears is 2.2x higher in females than males (Pederson et al. 2012). Hunter selectivity for larger bears coupled with the male bears larger range make them more likely to be taken.

Figure 1. Distribution of black bear habitat in Utah, represented by dark (red) area on map.



Reproductive Biology

Black bears tend to be solitary, except for females with cubs, and during the breeding season of June and July. After fertilization, the egg remains free and unattached in the uterus until implantation in late fall. Birth occurs in late January or early February. The cubs are born with eyes closed and weigh 8 to 12 oz. In the Intermountain West, age at

first reproduction is typically 4.5 years. Males are sexually mature at 3.5 to 4.5 but do not reach physical maturity until age 7.5. Occasionally, first litters occur at 3.5 or as late as 7.5 years. Litter sizes may increase with the age of the female but two cubs are most common. Poor food crops may result in females skipping a year or more between cub production. While the average is 2 cubs per litter, litter sizes range from 1 to 4. Typically, litters are produced every other year (Beck 1991, Waples et al. 2018). The sex ratio of cubs is either 1:1 or slightly male biased. Cub mortality is higher in the west with Utah fitting the pattern at 45 to 50% (Beecham and Rohlman 1994; Tolman and Black 1998). The average annual litter frequency (number of litters for all females in a population) for a typical western population is 16 to 18% (Beecham and Rohlman 1994) and may vary significantly year to year. Cubs stay with the females for 16 to18 months after birth. Family groups break up in late spring prior to the breeding season. Causes of cub mortality are starvation, predation, and a variety of other causes of unknown significance. Yearlings and subadults have a survival rate as high as 90% depending largely on the level of human caused mortality, primarily hunting, and removal for depredation and nuisance activity.

Predation

As omnivores, black bears use a wide variety of foods, changing diets seasonally based on availability (Beck 1991, Kolenosky and Strathearn 1987) and typically do not obtain much of their food through predation. In Utah, carnivory is correlated to sex and elevation, with more carnivory observed in males and in bears living at higher altitudes (Hatch et al. 2019). Within this study, elevation was also correlated to density of ungulates. Rogers (1987) found that fruits, nuts, and insects were the foods most important to fall fattening and reproductive success. A study in Idaho (Beecham and Rohlman 1994) revealed that typically less than 2% of the diet is mammals. Black bear research in Utah (Richardson 1991, Bates 1991, Bunnell 1999, Black 2004) has found that vegetative matter is the most important item in their diet, followed by mast, insects and animal matter. Ogborn (1990) documented the importance of ants in the diet.

In the La Sal Mountains, Richardson (1991) found that animal matter was present in 2.3% of 859 bear scats. It was most important as a food item in summer and fall. Mule deer (*Odocelius hemionus*) remains were the most common mammal, occurring in 9 scats, or 1.1% of all scats. Other mammal remains included black bear (mostly from grooming), domestic cattle, rock squirrel, *Microtus sp*., cottontail rabbits, deer mouse, least chipmunk, jumping mouse, domestic sheep, and pocket gopher. Bone size and teeth of deer remains indicated that both adults and fawns were eaten. The presence of maggots in the scats indicated that cattle could have been fed upon as carrion. Bird remains were found in 2.1% of the scats analyzed.

LeCount (1986) reported that there are three different ways that black bears obtain animal matter as food: 1) predation, where the bear kills a healthy animal; 2) pseudo-predation, where a bear kills an animal that is sick or otherwise stressed and would have died anyway; and 3) scavenging, where death comes from other causes.

Black bear predation on young deer, moose (*Alecs alecs*), caribou (*Rangifer tarandus*), and elk (*Cervus elaphus*) has been reported in several studies (Kolenosky and Strathearn 1987, Franzmann et al. 1980). Smith (1983) radio-collared 54 newborn mule deer fawns on the La Sal Mountains. He found that fawn survival was 54% during the first month of life. Of the 22 fawns that died, predation was the cause of death for 16 (73%). Coyote (*Canis latrans*) and black bear predation accounted for most of these deaths, although he did not indicate how many were taken by which species. One was taken by a cougar. With a peak fawning date of 24 June, all bear predation had ceased by 24 July. Coyote predation continued past 18 August. While most black bear predation consists of newborn animals their first month of life, Bates (1991), Richardson (1991), and Bunnell (1999) reported limited black bear predation on adult deer in Utah.

Projar (2004) in a three-year mule deer fawn survival study in west-central Colorado attributed 4% of the fawn mortality to bears. Likewise, Lomas (2007) in a similar study in north-central New Mexico reported 3% of the mule deer fawn mortality was due to black bear predation.

At times, black bears are effective predators on domestic livestock. In Utah, from 1992 to 1999 and 2000 to 2009, an average of 373 and 516 livestock kills, respectively, by bears were confirmed annually. Almost 97% of all livestock kills were domestic sheep. Bears typically attack sheep herds after dark when sheep are bedded for the night. The majority of sheep predation occurs in June, July and August. Lambs accounted for 58%, and ewes 39% of black bear kills, respectively. The average number of livestock taken in a single predation incident was 6. In an apparent rare event in eastern Utah, a nine year old adult female bear killed three 150-200 lbs calves over a nine day period. This radio collared female had not exhibited this pattern of behavior in the five previous years when her behavior was monitored (Bunnell 1999). Records from 2003-2013 showed the most livestock and agricultural damage by bears in Utah was near Green River (Miller et al. 2016).

While black bears on occasion act as predators, they are also preyed upon. Rogers (1987) reported that nine wolves killed a female bear and her cub in a den. Cub mortality due to predation was less than 12% in years of good nutrition. Richardson (1991) found two cases of black bear cannibalism in southeastern Utah. A radio-collared two-year old female was eaten by another bear, while another yearling female was apparently eaten by the adult female while in the den.

Most researchers indicate that black bears are poor predators. As omnivores, they have not evolved behaviors found in cooperative hunters (Rogers 1987). Their bulky, heavy bodies lack the agility needed for effective predation. Legs are adapted for climbing, turning rocks and tearing apart logs and stumps, rather than speed. Most mammals, both large and small, are generally too fast for bears to catch (Kolenosky and Strathearn 1987). A bear's distance vision is poorly developed. These limitations prevent black bears from taking most prey, other than newborns or other animals whose escape is hampered by behavior, injuries, disease or deep snow.

Denning

Denning and hibernation in black bears is an evolved means of dealing safely with a winter food shortage. It also offers a protected situation for females to give birth to and raise young cubs. The choice of den location, size, and type are affected by topography and ease of construction. Concealment appears to be a higher priority than avoiding thermal loss. Where large trees are available they are generally selected, and the dens are dug into the tree or in the root system. The other options are ground dens which are excavated into a brushy hillside, or dens in rocky areas where rock provides a part of the den structure. In Utah, dens are predominately rock related (Tohlman and Black 1998). Females select sites that are at a slightly higher elevation than males in a given area. Few dens are reused from year to year but a yearling female may use a den previously used by the adult female. Availability of acceptable den sites is not likely to limit bear densities.

Beck (1991) noted that at least some bears made periodic movements to den-sites in the summer to prepare them with a lining of green vegetation. He also suggested that the primary function of the den is to provide protection from predators rather than weather. Both wolves (Pacquet and Carbyn 1986) and grizzly bears (Ross et al. 1988) have been observed killing black bears in winter dens.

Denning varies by reproductive groups: males den later and for shorter duration than subadults, non-parturient females, and parturient females (Fowler et al. 2019). This trend is true in the west; females tend to enter dens earlier, and exit dens later than males (Beecham 1980, Beck 1991). The onset of denning may be delayed by two to three weeks if plentiful food is still available from late mast crops. In the Intermountain West, denning occurs in October and November. Female denning typically peaks in late October while male denning peaks in mid-November. The dens are left in April and May. The timing is affected slightly by elevation of the den and aspect with the higher dens being left later. Beck (1991) noted females exited dens about 14 days later than males. The peak of den abandonment for males is late April and the peak for females is mid May. Den emergence is related to ecoregion and negatively correlated to spring temperatures and temperatures the spring and summer before denning in Utah (Miller at al. 2016). Broadly, black bears are capable of changing denning patterns in response to climate and this will likely be more variable in future years.Black bears enter dens later when food availability is good and snow accumulation is low (Fowler et al. 2019).

Home Range

Black bears are generally active early and late in the day. In areas of human activity they tend toward being more nocturnal. Several may be found in areas where food is concentrated, but otherwise are solitary. Black bear home range size varies widely depending on sex of the bear and quality of habitat. Adult males may have a home range 5 times that of an adult female. Female ranges overlap other females, particularly their

offspring. With their much greater range, the males have up to 100% overlap with other males and their territories will include several females. This range overlap helps assure breeding of all the females. Subadult males that are searching for a home range may temporarily share territory with adult males and females. The resulting density of bears varies widely depending on habitat quality. Home range varies from .15 bears per square mile in an Arizona study area to 1.7 bears per square per square mile in three disjunct areas in Virginia (Beck 1991). For the western states the average is around 0.8 bears per square mile. In a low density population in northern Utah, Pederson et al, (2010) found .03 bears per square mile.

Habitat

Pelton (1982) characterized black bear habitat throughout its range as having "relatively inaccessible terrain, thick understory vegetation, and abundant sources of food in the form of shrub or tree-borne soft or hard mast (fruit and nuts)". He summarized black bear food habits as "primarily grasses, forbs and insects in spring, soft mast in the form of shrub and tree-borne fruit in summer, and a mixture of soft and hard mast in fall". The spatial arrangement, abundance, and dependability of seasonally important food sources may explain much of the variation in black bear density, fecundity, home range size, and seasonal habitat use throughout the range of the species.

Western North America Perspective

The following is a review of information relating to black bear habitat, obtained largely from studies in Utah and other western states and provinces.

Food Habits

Understanding black bear food habits may be the key to understanding bear-habitat use. Foods eaten by black bears throughout their distributional range reflect the omnivorous feeding habits of the species. Bears primarily eat grasses, berries, and ants (Baldwin and Bender 2009), but also consume other vegetation, animal matter, and anthropogenic foods. In Rocky Mountain National Park, scats with anthropogenic foods were 15.2 times more likely to occur in the mid-2000s compared to scats collected in the late 1980s (Baldwin and Bender). This increase is likely occurring in many areas where humans and bears co-occur. The spring diet consists primarily of grasses and forbs. The summer diet also includes grasses and forbs but includes increasingly more ants in summer and fruits as the season progresses to fall. The fall diet consists primarily of a mixture of soft mast (fruits) and hard mast (nuts of deciduous and evergreen trees). Animal matter, primarily insects and carrion, generally comprises a smaller portion of the diet.

Spring (April-June) black bear diets in southwestern Colorado consist largely of grasses and forbs in oakbrush and aspen stands (Beck 1991). Bears in central and southeastern

Utah forage on grasses and forbs in aspen, aspen-conifer and mountain brush, as well as riparian areas and low elevation timbered canyon bottoms (Bates 1991, Richardson 1991).

Aspen buds are frequently observed in spring bear scats in southeastern Utah. Ants, carrion, rodents and ungulates provide spring dietary protein sources in the Utah studies (Ogborn 1990, Black 2004). Rodents, winter-killed and new-born mule deer comprise a portion of the spring diet in central Utah (Bates 1991). In two western state studies, neonatal mule deer fawn mortality attributed to black bear predation was less than 5% (Projar 2004, Lomas 2007).

Summer black bear diets consist of insects (primarily ants), grasses, forbs, and the flowers of some shrubs, until berries ripen. Fruits and flowers constitute the bear-food group highest in fats and carbohydrates (Richardson 1991). Larval ants are also high in fats and protein, and are sought by black bears in summer. In the La Sal's, ants made up >1% volume of nearly 40% of the bear scats collected (Auger et al. 2004). The authors suggest ants are an important source of food for black bears. Bears actively hunt ants when larvae occur close to the soil surface in response to warming temperatures (Bates 1991, Richardson 1991).

When available, berries are heavily used by bears during summer months. Although berries are eaten by bears prior to ripening (Tisch 1961), most use occurs after fruits ripen.

In Utah, areas likely to produce abundant berries include canyon bottoms with perennial water, where species such as elderberry (*Sambucus spp*.), currants (*Ribes spp*.), raspberries and thimbleberries (*Rubus spp*.) and others frequently occur. In the low to mid-elevation mountain brush types, species such as squawapple (*Peraphyllum ramosissimum*), serviceberry (*Amalanchier spp*.) and others (Table 1), ripen in midsummer and can provide an abundant source of food. Berry producing shrubs found at higher elevations are most productive in aspen stands, riparian areas, timber cuts, and along the edges of conifer stands in central and southeastern Utah, and southwestern Colorado. Aspen, mountain brush and oakbrush are the primary habitats that supply summer forage for bears in the intermountain west (Beck 1991, Bates 1991, Richardson 1991).

Fall diets consist largely of berries and hard mast. Berries ripen first at lower elevations and somewhat later as elevation increases. Seasonal bear movements may reflect their tracking of ripening fruits (Amstrup and Beecham 1976). Chokecherry (*Prunus virginiana*), which tends to bloom and fruit later than other brush species at similar elevations, is used heavily when available in Utah, Idaho and Colorado (Amstrup and Beecham 1976, Beck 1991, Bates 1991, Richardson 1991).

Hard mast species consumed by bears in Utah include gambel oak acorns (*Quercus gambelli*) and pinyon pine nuts (*Pinus edulis*). Fruits of these two species ripen somewhat later than the berry producing species (Table 1). Bears foraging at higher

elevations, or in areas which do not contain oak, may make long movements to lower elevation oakbrush communities in years when acorns are produced (Pelton 1982, Kellyhouse 1977, Beck 1991). Bears often remain in these areas until denning if mast is abundant. Bears feed heavily on hard and soft mast in the fall, prior to denning, and are physiologically capable of immense weight gains in a few weeks. Pinyon pine seed was reported as a bear food in the mountains of southeastern Utah, and the plateaus of the southern Dixie National Forest (Danvir et al. 1983). Bears may respond to abundant pinyon nut crops as they do to abundant oak mast. Seeds of other pines, most notably whitebark pine (*Pinus albicaulis*) are used heavily when available in Montana (Tisch 1961). Limber pine seeds (*Pinus flexilis*) are also eaten in Montana, and may provide food for bears in Utah as well.

Factors influencing production of both hard and soft mast include temperature, light, moisture, soil nutrients, insect predators and disease (Shopmeyer 1974). Freezing temperatures during the flowering period and extreme dryness during spring and summer appear to significantly affect mast production. Either of these conditions may result in nearly complete crop failure. Although data concerning the frequency of catastrophic mast failures is lacking, interviews with commercial seed collectors and survey respondents estimated ten-year intervals between abundant acorn crops in portions of Utah (Danvir et al. 1983). Bates et al. (1991) observed oak mast failure in central Utah during all three years of their study. Beck (1991) and Richardson (1991) observed concentrations of bears in patches of abundant acorn production.

Table 1. Plant species used as food items by black bears in Utah.

Species	Flowering Dates	Fruit Ripening Dates	Interval (yrs.) Between Abundant Berry Crops	Habitat and Distribution Dates
Serviceberry (*Amalanchier* spp.)	May-June	July-Aug	1-5 yrs.	Common in arid areas, in canyons and foothills, 4000-8000 ft
Bearberry or Manzanita (*Arctostaphylos spp*.)	March-May	June-Aug	Annually	Dry-moist soils, usually grows in association with lodgepole or Ponderosa pine in Utah
Squawapple (*Peraphyllum ramosissimum*)	May-June	June-July	Annually	Dry foothills and mountain slopes, welldrained soils, 4000-9000 ft
Chokecherry (*Prunus virginiana*)	May-June	July-October	2-5 yrs.	Widely distributed, esp. abundant along streams and moist canyon bottoms 45008000 ft
Currant (*Ribes spp*.)	April-June	June-August	2-3 yrs.	Exposed slopes and ridges 4000-11,000 ft
Raspberry Thimbleberry (*Rubus spp*.)	May-July	July-Sept	Annually	Widely distributed, wooded and open slopes alike, 5000-11,000 ft
Elderberry (*Sambucus spp*.)	April-July	July-Sept	Annually	Commonly found along streams and canyon bottoms, moist soils, 5000-9500 ft
Buffaloberry (*Shepherdia spp.*)	April-June	June-August	1-4 yrs.	S. argentea found along streams and river bottoms 3000-7500 ft

Snowberry (*Symphoricarpos spp.*)	June-August	August-Oct	Annually	S.rotundifolia found on steep, rocky slopes, 5000-8000 ft S. longiflorus and S. rotundifolius found in rocky slopes, canyons and valleys 4000-10,000 ft S. orephilus an S. alba found on wooded mountain slopes, valleys and riverbanks 5500-10,000 ft
Whortleberry or huckleberry (*Vaccinium spp.*)	June-July	June-September	Annually *poor berry production	Largely restricted to Uinta Mountains, grows on forested slopes 7000-12,000 ft
Pinyon pine (*Pinus edulis*)	June	September	2-10 yrs.	Dry, rocky foothills and mesas, 5000 - 7000 ft
Gambel oak (*Quercus gambellii*)	February-May	August-Oct	5-10* yrs.	Widespread, 4000-8000 ft, central and southern Utah. Dominant tree on dry foothills and canyon walls, but best stands grow on moist, rich well-drained soils

Physical Characteristics of Bear Habitat in Utah

Elevation: In a survey of bear observations recorded by resource managers in Utah, eighty percent of bear survey observations occur between 7,000 ft and 10,000 ft (Danvir et al. 1983). About 12% occur between 4,600 ft and 6,988 ft and 8% occurred between 10,000 ft and 12,000 ft. The only geographic unit in which the elevational distribution of observations differed markedly from this trend was in the Book Cliffs east of Desolation Canyon where elevation rarely exceeds 8,000 ft. Bears were commonly observed below 7,000 ft in the eastern Book Cliffs.

Bears in central Utah use low elevation (7,102 ft) mountain brush in summer and higher elevation (7,152 ft) aspen and conifer in spring and fall (Bates 1991). Bears in southeastern Utah are similarly found in higher elevations spring and fall (8,727 to 8,858 ft) and lower elevations (8,202 to 8,530 ft) in summer (Richardson 1991).

In contrast, bears in southwest Colorado use low elevation oakbrush (8,202 to 8,530 ft) spring and fall, summering in higher elevation aspen communities (8,858 ft) (Beck 1991). Similar patterns of low elevation use in spring and fall, with higher elevation use in summer has been observed in Idaho (Amstrup and Beecham 1976, Reynolds and Beecham 1977).

Topography: Most observations of black bears occur in areas of marked topographic relief. Eighty-five percent of those who responded to a survey on Utah bear observations indicated that bears were generally found in areas with steep, rugged topography including mountain slopes, cliffs, escarpments, and canyons (Danvir et al. 1983). Forty Three percent stated bears were most frequently observed in and near canyons, regardless of elevation.

In studies performed in Idaho, Utah and Colorado, black bears predominantly used steeper, more rugged topography and made seasonal elevational movements in response

to food resources (Amstrup and Beecham 1976, Bates 1991, Richardson 1991, Beck 1991). Bears in central Utah used progressively steeper slopes as the year progressed, whereas bears in southeastern Utah and southwestern Colorado made significant use of canyons.

Moisture: Although black bears obtain winter metabolic water from fat stored the prior fall, they require free water during the summer. Richardson (1991) found bears using areas closer to water in the fall and areas farthest from water in spring. Bates (1991) found bears, especially females, associated with creeks in spring and summer. Survey results (Danvir et al. 1983) indicated that bears in Utah most frequently occurred in areas containing moist soils and associated vegetation. Eighty percent of observations recorded in this survey fell within areas characterized by moist to wet soils. Forty-seven percent of observations were associated with perennial water, primarily streams in canyon bottoms. Soils within frequently used bear range are typically loamy soil associations on mountains and plateaus that receive sufficient precipitation to remain moist through all or part of the summer months. Precipitation level and soil characteristics largely dictate vegetative composition and availability of succulent forage. Vegetation types occurring on moist soils, such as riparian woodlands, wet meadows, mountain meadows and aspen provide year-round bear foraging areas for grasses, forbs and soft mast (Jonkel and Cowan 1971, Kellyhouse 1977, Pelchat and Ruff 1983, Smith and LeCount 1983, Beck 1991).

Food shortages resulting from summer droughts may affect the manner in which bears use their range. Annual home range sizes can double when food is scarce (Pelchat and Ruff 1983, UDWR unpublished CMR data) Summer drought was believed to have resulted in the dispersal of black bear cubs and yearlings out of the Book Cliffs into lower elevation areas in September and October of 1976 (Fair 1977).

Vegetation: Interspersed oakbrush, mountain brush, aspen and conifer communities tend to be used year-round in Utah and southwestern Colorado (Danvir et al. 1983, Bates 1991, Richardson 1991, Beck 1991). Black bears in southern California prefer canyon oak habitats for food and cover year-round (Novick et al. 1981). In Alberta, aspen communities are considered to be the most important plant community for black bears (Pelchat and Ruff 1983), containing important food items and used year-round. Large contiguous stands of mature conifers, such as the dense lodgepole pine (*Pinus contorta*) stands on the Uinta Mountains, and high elevation spruce-fir stands (*Picea engelmaniiAbies lasiocarpa*) were generally felt by bear survey respondents to support low bear densities (Danvir et al. 1983). Most observations in extensive coniferous forests occurred in canyons, where the diversity and interspersion of vegetative types is generally greater. Jonkel and Cowan (1971) found black bears in Montana preferred spruce-fir communities to lodgepole pine and were generally associated with forest edges. Bears used all seral stages of the spruce-fir/pachystima association, except recent burns and clearcuts. Barnes and Bray (1967) estimated bear density to be greater (1.4 bear/mi ^{2}) in a spruce, fir, whitebark pine, aspen and meadow interspersion than in monotypic lodgepole pine (1 bear/ 20 mi.^{2}). Bears in central and southeastern Utah preferred mesic,

north-slope conifer patches and 'stringers' as resting areas year-round (Bates 1991, Richardson 1991).

Most bear survey observations in pinyon-juniper woodlands were reported from the Bookcliffs, La Sal Mountains, and Abajo Mountains, where mast-producing mountain brush species intermix along mesa rims and in canyon bottoms (Danvir et al. 1983). Richardson (1991) noted use of pinyon-juniper primarily by adult male bears in late fall. There appears to be little black bear occurrence above timberline or in sage-steppe. Infrequent use of these types, particularly by females with cubs, may be due to lack of security cover. Both black and grizzly bears are believed to have evolved from a common forest-dwelling eurasian ancestor (Ursus etruscus) (Herrero 1972). Ancestral grizzly bears evolved to an open-ground dwelling species, where aggressive behavior became the principal means of protection from other predators. Black bears continued to evolve in woodland habitats, therefore tree-climbing behavior offered protection (Herrero 1972). Climbable trees or shrubs provide security to black bears, particularly females with young. While male bears will utilize sparser Arizona chaparral, females with young remain in denser stands of riparian woodland or shrub oak, presumably for security as well as forage advantages (Smith and LeCount 1983). LeCount et al. (1984), Bates (1991) and Richardson (1991) found black bears preferred shrub dominated feeding sites having dense horizontal cover. Bears in southeastern Utah selected areas of dense cover within all vegetation types, and by all sex and age classes, especially females with cubs (Richardson 1991).

High interspersion of preferred habitat types (such as aspen, conifer and brush patches) may improve bear-habitat quality. Richardson (1991) found bears and bear foods more common along patch edges in summer. Jonkel and Cowan (1971), Lindzey and Meslow (1977) and Bates (1991) similarly found bears associated with edges.

Females with cubs, as a group, tended to select areas having a rich diversity of plant species, a high interspersion of plant communities, proximity to water, hiding and climbing (escape) cover, and areas removed from roads (Bates 1991, Richardson 1991). Females used high elevations more than expected (Richardson 1991). Females utilized steeper, moister, higher elevation, more species-rich sites than did male bears.

Accessibility: Most survey respondents (85%) indicated that black bear observations generally occur in rugged canyons, on plateaus and mesa rims, and steep mountainous areas which are not accessible by vehicle and with little human use (Danvir et al. 1983). Black bears avoided roads in summer and fall in an Idaho study (Young and Beecham 1983). Bates (1991) noted that female bears avoided roads during spring. Bears of both sexes avoided roads and trails in fall. Young (1995), however, noted significant use of roads by bears in the Bookcliffs, and in fact used tracks on roads as an abundance index. Females tended to den in areas removed from human activity, and remain in these areas during spring. The apparent association of bears with canyons and similar steep, rugged topography may be related to several factors. Bears studied in mountainous terrain exhibited seasonal elevation shifts dictated by the abundance and phenological development of forage species (Amstrup and Beecham 1976, Bates 1991). Within the

elevation range that most bear observations occur, a wide range of topographic relief results in a greater interspersion of aspen, mixed conifer, and mountain brush. Bears may be able to obtain seasonally abundant foods within smaller home ranges in areas characterized by canyons than in terrain with less topographic relief. Areas with less relief may necessitate longer movements by bears to obtain seasonally abundant foods. Canyons and escarpments may serve as security cover as well as allowing bears to travel through areas which are otherwise heavily used by humans.

Denning habitat: Bears in Idaho, Arizona, California, Colorado and Utah primarily den in excavated or naturally occurring chambers in hillsides, under rocks, trees or shrubs (Beecham 1980, LeCount 1980, Novick et al. 1981, Beck 1991, Black 2004.) Bears in southwestern Colorado denned in all elevations and plant communities (Beck 1991). Bears in central and southeastern Utah generally denned at higher elevations in aspen or coniferous habitats (Bates 1991, Richardson 1991). Den sites are often located on steeper slopes, in areas of minimal human disturbance (Novick et al. 1981, Bates et al 1991, Beck 1991).

Relationship between food, seasonal movements and home range size: Resident black bears apparently make short-term exploratory excursions into 'new' territory periodically throughout the non-denning period (Amstrup and Beecham 1976, Pelchat and Ruff 1983, Beck 1991). These activities allow bears to discover changes in food availability and distribution through time. Studies in the mountainous portions of Idaho, Utah and Colorado (Amstrup and Beecham 1976, Reynolds and Beecham 1977, Bates 1991, Richardson 1991, Beck 1991) describe predictable, seasonal movements (in elevation and between vegetation types) in response to vegetation growth, flowering and fruiting of preferred bear foods. Rather long excursions to abundant, but patchy, chokecherry and oak mast crops have been observed in Idaho, Utah and Colorado. Tolerance of other bears apparently increases at abundant food sources. Richardson (1991) observed 9 telemetered bears feeding in a 7.4 acre patch of acorn-rich Gambel's oak. Beck (1991) observed annual migrations of bears from summer ranges lacking oakbrush into areas with abundant mast. These bears commonly moved distances of 9-25 mi to feed for several weeks prior to denning. Beck (1991) describes bears residing in a 193-386 mi ^{2} area concentrating in a single 10 mi ^{2} oakbrush stand each fall. Pelchat and Ruff (1983) saw similar 17 mi movements by bears to preferred seasonally abundant foods.

Lindzey et al. (1983) found that home range size of black bears in coastal Washington (coniferous forest) is influenced by food availability resulting from successive changes following logging. Bears selected more recently logged areas where berry producing shrubs (and berries) were most abundant. Home range sizes were smaller, and bear density greater, in more recently logged habitat dominated by early seral stages.

Relationship between food, fecundity and bear density: Studies in forested habitats suggest that food supply influences bear fecundity and density. Lindzey et al. (1983) noted a rapid population increase and high cub production following a period of logging on an island in coastal Washington. Bear density and cub production declined as preferred bear food plants were replaced by coniferous trees. Rogers (1987) determined

that the principal non-hunting factor limiting bear density was starvation of cubs and yearlings, and nutrition-related reproductive failure of adult female bears. Research from Montana (Jonkel and Cowan 1971) and Colorado (Beck 1991) suggest that fall food availability influences fall bear condition (weight) and subsequent cub production. Cub production in the Bookcliffs similarly appears to be dependent on prior-year food availability and body condition of breeding-age females (Black 2004).

Management of Black Bear Habitat

Management of plants and plant communities involves using human creativity in the application and manipulation of the following "tools" and processes; succession, fire, rest, grazing (herbivory), animal impact and technology, to achieve desired conditions (Heady 1975, Savory 1988, Augustine and McNaughton 1998). Successful management of black bear habitat requires sound vegetation management, management of access and behavior of recreationists in "bear country", and maintaining connectivity between seasonally important large blocks and patches of habitat.

Forest management: Forested habitats supply escape and resting cover, food, and denning habitat to black bears. Aspen stands are probably the most important forest community in Utah, providing both cover and food. Aspen communities can provide abundant herbaceous forage, berry production and animal matter (insects and ungulates) for bears. Coniferous forests appear to have high cover values, but lower food value. Successional replacement of aspen stands by conifers can significantly reduce bear-food production in aspen communities. Both fire and selective logging of conifers can be used to maintain aspen vigor.

In portions of the state where conifer stands are uncommon, large-scale logging may be detrimental to bears (Bates 1991). Since black bear foods are often abundant on forest edges, selective cuts appear to be preferable to clear cutting of timber (Young and Beecham 1983, Hugie 1983). Small-scale openings in timbered habitats, providing early seral shrub-borne mast and herbaceous forage in close proximity to cover, can be beneficial (Lindzey and Meslow 1977, Young and Beecham 1983, Hugie 1983). Hugie (1983) found bears preferred abandoned roads and small clearings having early seral stage growth, but avoided clearcuts greater than 15 ac in size. Young and Beecham (1983) found bears used shrub fields resulting from selective cuts more than expected in spring and summer, but avoided clear cut areas all seasons.

Mountain shrub communities containing oak, chokecherry and other mast-producing species should be managed to avoid successional shifts to pinyon-juniper monocultures. Fire, selective cutting and mechanical treatements can all be used to retard succession to pinyon-juniper. Dependable mast-producing areas should be identified and managed for taller, older-age shrubs to maintain fruit production despite browsing by wild and domestic ungulates. While many mast-producing shrub species will vigorously resprout and produce fruit following winter defoliation by ungulates, excessive growing season utilization can significantly reduce both foliage and fruit production (Willard and McKell

1978, Kay 1995). Animal density of both wild and domestic herbivores should be managed to maintain diversity and vigor of both woody and herbaceous vegetation in all seasonally important vegetation types. Season-long livestock grazing can have negative impacts on both woody and herbaceous vegetation. Season long grazing may reduce seasonal bear food availability and increase the likelihood of predation. Jorgenson (1980) found bears and sheep competed spatially and temporally for food and space when grasses and forbs were limited, resulting in depredation, dead sheep, and dead bears. Conversely, livestock grazing can be used to reduce herbaceous competition, reduce suckering and promote apical dominance and seed production in shrubs (Urness 1990). Herded livestock, which are moved across the landscape, can maintain herbaceous plant diversity and vigor, and may reduce opportunities for predation.

Recreation management: Minimizing road density, human habitation and human access in high quality bear-habitat should reduce human contact with bears. Minimizing contact should increase longevity of breeding female bears, since they tend to utilize smaller ranges in less accessible areas when possible (Bates 1991, Beck 1991).

Graber and White (1983) noted that black bears in the coniferous forests of Yosemite spend a disproportionate amount of time near people and their high quality concentrated foods. Bear diets are generally high in carbohydrates and lacking in fats and protein. Consequently, bears seek out not only animal matter, but also human foods and garbage at campsites (Pelton 1982). Bears feeding on protein-rich sources (like contents of campground dumpsters) show significant weight gains (Rogers 1976). Augmenting bear habitat with human food-sources can result in increased size, fecundity and density of black bears (Herrero 1980). Since bears are extremely curious and learn quickly, it is important to avoid introducing these high quality food sources into bear habitat. Once bears become successful at exploiting human food-sources, they will continue to do so. With increased recreational demand in Utah's forested lands, education and enforcement of rules designed to minimize bear-access to human food-sources is essential in order to have both recreation and viable bear populations in bear country.

Landscape management: Successful bear management requires maintaining an adequate density of breeding females in high quality bear habitat. High quality bear habitat in Utah may be characterized as large interconnected blocks of land exhibiting high interspersion of aspen, mountain brush and coniferous plant communities with a healthy herbaceous and shrub component; well connected movement corridors between seasonal food sources and less accessible areas with variable topography. This requires management and planning at multiple scales, i.e. managing for healthy plants at the patch level, and managing at scales large enough to allow movement between blocks of important habitat. Connecting seasonal food sources maintains bear-condition, production and density; connecting habitat blocks maintains genetic diversity.

Utah Bear Harvest and Mortality

The black bear has been a protected species in Utah since 1967, when a group of sportsmen petitioned the Utah State Legislature to protect both cougar (*Puma concolor*) and bear. Management methods have evolved since then, from unlimited permits with a spring and fall season from 1967 to 1989, to a limited entry spring and fall hunt from 1990 to 1992, a limited entry fall only hunt from 1993 to 2000, a limited entry fall and experimental spring hunt from 2001 to 2005 and then a limited entry statewide spring and fall hunt from 2006 to 2010. Current hunting seasons include spring and fall hound hunts, a late spring, early summer bait hunt, and long fall spot and stalk hunt.

Black bear harvest and mortality statistics in Utah have been collected since 1967 (Harvest
Reports are available on the DWR Website here:
https://wildlife.utah.gov/annualreports/?dc=bear.

Utah's black bear population appears to have increased since 1990, as indicated by a) a trend of increasing hunting harvests, coupled with sustained hunter success, b) a preponderance of young age classes in recent bear harvests, c) evidence of reproduction by research bears in the Book Cliffs during most of the period, d) increasing numbers of bear/livestock conflicts and rising numbers of bears killed in control efforts despite declining numbers of sheep on the State's open range and, e) increasing numbers of human-bear conflicts and rising numbers of bears trapped, moved and euthanized as a consequence. Population reconstruction estimates minimum adult bear numbers have likely increased since 2006, and continue to grow, with some slowing in overall growth rate since 2015.

Assessment

The Black Bear Advisory Committee the following list of issues and concerns were reviewed from the previous plan and amended to reflect current opinions. In addition, regional wildlife managers and biologists listed their issues and concerns to be addressed by the advisory committee. Subsequent meetings focused on updating plan goals and objectives as well as changes to hunting regulations and season structure. Issues identified for discussion at the 2022 meetings are listed below.

For a more detailed view of topics discussed in the 2022 review process, see Appendix A.

Issues and Concerns

<u>Outreach and Education</u>

- Human safety
- Need for public education about hunting with hounds
- Need for improved sex and age determination by hunters
- Increase utilization of the meat from harvested bears

Habitat Management

- Loss of habitat (need to manage)
- Need for monitoring habitat (mast/food production)

Human/Bear Conflict Management (Largely Policy Driven)

- Conflict bear management
- Coordination with land management agencies on conflict bear translocations
- Techniques for dealing with conflict bears

Livestock and Agricultural Depredation

- Impact on livestock operations (prevention, compensation)
- Need to learn more about bears in Utah (ecology, biology, behavior) in general and relative to livestock depredation
- Appropriateness of depredation control on public land
- Adequate funding for livestock damage compensation
- Explore education, collaboration and funding for livestock producers to use nonlethal tools to prevent depredation by bears
- Impacts from bears on agricultural crops (primarily watermelons and bee hives).

Recreation

- Collaboration with public land management agencies on bait site locations
- Mitigate conflict between hound and bait hunters, and hound and archery hunters
- Maintain traditional hunting heritage and opportunity

Population Management

- Need to learn more about bears in Utah (ecology, biology, behavior), including in relation to other carnivores
- Identify reliable population measurement method(s)
- Need to manage metapopulation (connecting corridors)
- Adequate funding for management
- Effects of climate change (drought, fire) on bear densities
- Assuring continued viability of species in Utah

Research

- Identify reliable population measurement method(s)
- Identify reliable monitoring methods for diseases
- Techniques to improve use and awareness of nonlethal tools to reduce human-bear conflicts
- Effects of bears on other predators and prey species
- Impacts of bait stations on nontarget wildlife and disease risk (e.g., CDW)

Goal, Objectives, Strategies and Management System

The Black Bear Advisory Committee reviewed the plan goal, objectives, strategies and management system to address identified issues and concerns in 2022. After review on recent data, and looking at available literature, very few changes were warranted to plan goals and objectives beginning in 2023. One notable change is an allowance for district biologists, in consultation with regional wildlife managers and salt lake city staff, to determine hunt strategies for their district bear management units.

Outreach and Education

Objective 1:

Increase awareness of reasoning for the use of hounds to pursue bears, and the regulations on the limits on the numbers of hounds allowed during a pursuit.

Strategy:

1. Partner with the Utah Houndsmen Association to help the public understand methods and best practices for the use of hounds in bear hunting.

Objective 2:

Reach and educate general public about bear safety and how to avoid conflicts with bears

Strategies:

1. Continue to work with the WAU Program; an effort generated by the Conservation Outreach Section of the Division of Wildlife Resources.
2. Continue to coordinate / standardize bear safety information materials amongst state and federal agencies and others.

Objective 3:

Continue to educate all bear hunters on how to determine the age/sex of bears to increase harvest selectivity through 2023 and continue to educate Division employees tagging bears.

Strategies:

1. Obtain high quality digital images of bears for sex and age identification purposes.
2. Produce an online orientation course for bear hunters.
3. Evaluate the relative effectiveness of mandatory and voluntary education efforts
4. Publish and refine information about sex and age identification techniques to be sent to bear permit holders.
5. Train Division employees responsible for tagging bears at least every other year.
6. Consider different color ear tags for male and female yearlings marked through the reproduction and survival study (denning) to provide an opportunity to improve sex identification in the field.
7. Investigate making collared females off-limits to harvest.

Objective 4:

Increase the utilization of bear meat from harvested bears.

Strategies:

1. Collect baseline hunter harvest meat utilization data by modifying the black bear mortality form to include a question about meat consumption.
2. Publish techniques on how to utilize bear meat on the UDWR web site and in the Black Bear Guidebook.
3. Encourage organizations to publish techniques on how to utilize bear meat in their newsletters and promote consumption to clients and members.
4. Monitor hunter response concerning bear meat consumption from data collected on the black bear mortality form.
5. Identify charities that will accept bear meat.
6. Educate hunters about proper care of meat, examples at:
   https://cpw.state.co.us/thingstodo/Pages/BearHtgTips.aspx
   https://dnr.maryland.gov/huntersguide/Pages/BearHunt_Care.aspx

Habitat Management

Objective 1:

Seek to prevent the loss of occupied and suitable unoccupied bear habitat and to improve existing bear habitat.

Strategies:

1. Define crucial bear habitat and review and update the Division's statewide suitable bear habitat coverage map.
2. Evaluate the potential for currently unoccupied habitat and habitat with low bear densities to support bear reintroductions / augmentations while considering human safety, economic concerns, and other wildlife species.
3. Use the results of Strategies 1-2 and Black Bear Research Objective 1, Strategy 2 to identify target areas for habitat improvement projects that would benefit bears and other wildlife associated with aspen and hard and soft mast producing communities, through the Utah Watershed Restoration Initiative.
4. Provide recommendations to land management agencies on ways to improve bear habitat and when projects, plans and practices may negatively influence the quality and quantity of bear habitat.
5. Coordinate law enforcement efforts in support of land management agency travel plans targeted at reducing wildlife habitat impacts in accordance with existing MOUs.

Human-Bear Conflict Management

Objective 1:

Work to reduce the number of human-bear conflicts that resulted in the removal (lethal or nonlethal) of bears.

Strategies:

1. Train existing Division employees involved in black bear conflict management on the policy for handling black bear incidents
2. Encourage land management agencies and other organizations to train employees and volunteers regarding the prevention of humanbear conflicts.
3. Continue to monitor black bear incidents through reporting and database updates.

4. Evaluate and report progress by comparing the three year average removal rates to subsequent three-year periods (four over the life of the plan) at the black bear Regional Advisory Council and Wildlife Board meetings.
5. Continue to provide land management agencies and the general public with standardized bear literature, signs and placards to deliver a consistent message about how to safely recreate and live in bear country.
6. Encourage land management agencies and private campgrounds to provide bear proof storage containers and dumpsters (provide literature for designing bear proof containers).
7. Continue to develop and evaluate aversive conditioning techniques to discourage human-bear conflicts.
8. Coordinate with affected agencies when bear translocations are being considered as defined in Division policy (W5WLD-03).

Livestock and Agricultural Depredation

Objective 1:

Reduce the level of depredation on livestock caused by bears.

Strategies:

1. Remove depredating bears by targeting offending individuals in accordance with the MOU with Wildlife Services. Track removal locations in support of Strategy 9.
2. Encourage land management agencies and livestock operators to utilize best management grazing practices to minimize bear depredation opportunities.
3. Encourage the implementation of nonlethal methods to reduce bear depredation on livestock such as:
    a. Use of herders
    b. Guard dogs (where potential for impacting other wildlife is low, e.g. deer fawns and elk calves)
    c. Moving animals away from conflict
4. Work to develop and test new non-lethal techniques and evaluate the effectiveness of existing non-lethal techniques.
5. Continue to compensate operators for livestock losses from confirmed bear depredation.
6. Work to improve the detection of livestock killed by bears.
7. Develop a GIS coverage map that identifies areas of high livestock / bear conflict.
8. Evaluate the impacts of recreational pursuit (+ and -) on livestock depredation.

9. In areas with chronic livestock depredation, facilitate a dialogue between the Division, the land management agency, Wildlife Services and the livestock producer focused on identifying / developing non-lethal ways to decrease depredation and the lethal removal of bears.

Objective 2:

Reduce the level of agricultural depredation caused by bears.

Strategies:

1. Provide recommendations (e.g. electric fencing, guard dogs, aversive conditioning…..) to agricultural operators on ways to reduce or eliminate damage from depredating bears.
2. When damage becomes extensive and abatement techniques have proven ineffective consider removing offending animals using sportsmen or agency personnel.
3. Allow commercial agricultural producers, in areas that the Division identifies as having chronic depredation problems, to lethally remove bears that are found in the act of depredating on commercial crops.
4. Develop a GIS coverage map that identifies areas of high agricultural / bear conflict to help focus preventative efforts.

Recreation

Objective 1:

Maintain the quality and quantity of black bear recreational opportunities, both consumptive and non consumptive.

Strategies:

1. Continue to offer a variety of black bear hunting opportunities, including hounding, baiting, pursuit and spot and stalk as management tools.
2. Eliminate the need for the bear baiting COR requirement, but allow each bait hunter up to two bait sites that are located in areas outside restricted areas identified in rule.

a. Require bait hunters to register bait sites online to capture GPS coordinates to depict the location of bait stations.
b. Allow bait hunters to give written permission for other licensed hunters to hunt from their bait sites.

3. Implement bear harvest and pursuit strategies designed to reduce conflicts between other resource users (recreationists, bear and big game hunters) (e.g. hunting, pursuit, pack size, season dates).
4. Coordinate with land management agencies to implement land use restrictions designed to reduce conflicts between resource users.

Population Management

Objective 1:

Maintain a stable bear population while considering other wildlife population objectives, the level of human-bear conflict and source-sink population dynamics.

Performance Targets:

Performance Target	Light Harvest	Moderate Harvest	Liberal Harvest
Adult Male (5 yrs old) in the sport harvest category	>35%	25 – 35%	<25%
Female in the sport harvest category	<30%	30 – 40%	40 – 45%
Population Growth Rate (DNA study)	+10 to +20%*	-10 to +10%	-10 to -20%

*Only applies if units have been moved from liberal to light within the last 2 recommendation cycles.

Management System (Figure 2):

1. Select one of the following harvest strategies for bear management units at the beginning of each three-year recommendation cycle:

    a. Light Harvest Strategy

        i. Manage based on performance targets referenced in the harvest strategy.
        ii. Criteria used to select this strategy include providing opportunity to harvest adult male bears, a low level of human-bear conflict, low bear population in need of harvest protection or population acting as source for adjoining bear management units.

    b. Moderate Harvest Strategy

i. Manage based on performance targets referenced in the harvest strategy.
ii. Criteria used to select this strategy includes moderate levels of human-bear conflict and a stable bear population.

c. Liberal Harvest Strategy

i. Manage based on performance targets referenced in the harvest strategy.
ii. Criteria used to select this strategy includes high levels of human-bear conflict, an increasing bear population, source population (refuge) adjacent or within the unit, chronic livestock issues on private land or when Wildlife Services bear mortalities have exceeded sport harvest on the unit during two of a three-year recommendation cycle or a high level of human-bear conflict has occurred.

d. Predator Management

i. If a unit is placed under a predator management plan, according to DWR Policy W1AG-4 (Managing Predatory Wildlife), that unit will be managed under the Liberal Harvest Strategy for the duration of the predator management plan.

2. Harvest variables (adult male 5 years and female in the sport harvest category) identified in the performance targets at the bear management unit level over a three-year period will be evaluated as follows:

a. When both variables are within the normal range, permits will be stabilized or adjusted upward or downward by " 20% depending on the location within the range for the desired population level.
b. When one variable is inside the normal range and one variable is outside the normal range, permits will be stabilized or adjusted upward or downward by " 20% depending on the location within the range for the desired population level.
c. When both variables are outside the normal range in opposite directions, permits will be stabilized or adjusted upward or downward by " 20% depending on the location within the range for the desired population level.
d. When both variables exceed the normal range in the same direction, permits will be adjusted upward or downward by 20 – 40%.
e. When moving to a new harvest strategy at the end of a three-year recommendation cycle, permits will be adjusted upward or

downward depending on the new management direction but not to exceed ±50%.

f. When working with a small sample size (< 10 individuals) over the three-year period, decisions to adjust permits will be based on best professional judgment.

3. ~~The statewide rollup of harvest variables (adult male 5 years and female in the sport harvest category) will not be outside the performance target ranges identified in the moderate harvest strategy. Additional adjustments at the unit level may be necessary to move variables within normal range during the following three-year recommendation cycle. This will be accomplished by adjusting permits an additional ± 10% at the unit level.~~

   ~~a. Predator management plan units will not be considered as part of the statewide rollup.~~

Strategies:

1. Select the appropriate harvest strategy and manage to the performance targets identified in the management system.
2. Evaluate performance target ranges, harvest strategies and management system every 6 years.
3. Develop a GIS coverage map that identifies areas containing source-sink populations to help focus future harvest strategies

Black Bear Research

Objective 1:

Continue to improve basic understanding of black bear management and ecology through applied research.

Strategies:

1. Continue to support research efforts that utilize harvested bears and publicize the study results.
2. In addition, focus on the following research topics, as funding allows, during the life of the plan.
   a. Identify population connectivity and travel corridors
   b. Explore source / sink population dynamics
   c. Human-Bear conflict management
   d. Techniques for reducing livestock and agricultural depredation
   e. Document impacts to other resource users from summer bear pursuit activities, and implement actions to reduce impacts if warranted

f. Short term population density estimates
g. Potential impacts of selective versus non-selective hunt strategies
h. Dispersing yearling survival as compared to survival of established adults
i. Effects of bear on prey species such as deer fawns and elk calves
j. Monitor productivity of hard and soft mast producing communities
k. Short and long-term black bear use of wildfires or vegetation treatments in aspen, mixed conifer and mixed mountain browse habitats
l. Effects of roads and energy development activities (habitat fragmentation) on black bear use
m. Continue to monitor the survival of rehabbed bear cubs
n. Determine if there is a relationship between baiting and human-bear conflicts (i.e. does baiting increase the potential for human safety issues in the area of the bait). https://digitalcommons.unl.edu/icwdm_usdanwrc/2182/

3. Explore partnerships to leverage research funding.
4. Continue to use universities to conduct research.
5. When possible, use employees involved in the Division's continuing education program to conduct research.

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Appendix A

This appendix is meant to capture thoughts and rationales from the 2022 plan review process that created this plan. Included here are notes from the 5 committee meetings and resources presented as part of the process.

The committee was tasked with simplifying the plan in 2022 including separating hound and bait hunting to avoid law enforcement concerns about chasing bears off of bait stations which is illegal. Having those two activities occur simultaneously made enforcement very difficult. The committee also was asked to try to simplify the bear plan and make it easier for biologists, hunters and the public at large to understand how recommendations are made.

The committee separated hound and bait hunting in time to address enforcement concerns. They also shifted hound hunting in the fall to give archery big game hunters time in the field without bear hunting hounds. They also expanded fall spot-and-stalk hunting seasons to provide expanded bear hunting opportunities.

Meeting resources

The six meeting roles are:

1. Participant: The participants have a real stake in the meeting objectives. This is the group that will participate in providing the meeting content. Another job of the participants is to call foul if the facilitator or recorder strays from their neutral role and begin to comment on or offer content.
2. Recorder: The recorder captures the group memory (record of major points of discussion and decisions). This is done on flip charts at the front of the room. The recorder must write large enough so that people at the back can read. The recorder should use the words of the speaker as much as possible. Also the recorder should change the colors between major points and the recorder should number the pages sequentially.
3. Chair: The role of the chair of the meeting has several duties. This is the person that calls the meeting and sets the purpose (objectives) and any constraints on the meeting. The chair assigns follow-up tasks and represents the group to outsiders. The chair is responsible for the meeting results however; the chair does not run the meeting. Because the chair calls the meeting and sets the purpose and constraints it is the chair who is responsible for the meeting results.
4. Subject Expert: This person(s) participates only by giving unbiased information on the topic and answering questions. They do not recommend solutions to the issue at hand. This person may wear a uniform or other symbols of their authority and expertise. They are neutral and provide accurate information to the group. The subject matter expert does not offer opinions or suggestions unless asked by the group. They definitely should not run the meeting. Their power is in their neutrality and the information they present.
5. Observers: The role of observer is to watch and evaluate effectiveness of the meeting. OBservers participate only if asked. There is a tendency to jump into the conversation unless observers are clear on their role. Also, observers are seated separately from the group actually doing the work.
6. Facilitator: The facilitator role is that of a neutral servant of the group. The facilitator does not contribute content to the group's discussions. It is the job of the facilitator to keep the group focused on task and prevent straying away from the topic of discussion. The facilitator also encourages discussion and calls on people that have been very quiet asking for their opinions. Another critical role of the facilitator is that of protecting all participants from verbal attacks. The facilitator is to ensure a level and safe playing field for discussions. In addition, the facilitator works with the chair in planning the meeting and the facilitator supervises/assists the recorder during the meeting.

Discussion Items

NEEDS DISCUSSION	CATEGORIES

Bear hunting strategies Conflicts	Recreation
Pursuit season and dates for lion and bear permits	Recreation
Hounds versus bait, overlap of season dates	Recreation
Hounds during the big game archery season	Recreation
Weapon types available for bear take. Has liberalized weapon type over bait increased applications and take?	Recreation
Addressing how bears are managed across the state, and connectivity issues	Research/Pop Management
Are we meeting the metrics outlined in the current plan?	Recreation
Season structures	Recreation
Using containers for bait	Recreation
Maximum number of dogs	Recreation
Cost of various permits	Recreation
What tools are available, what is used the most	Population Management
Spot and Stalk doesn't control populations like bait/hounds, different hunt strategy success	Population Management
Overpopulation and oversaturation of bears in certain units. Plan for population reduction	Population Management
Improve and update "Performance Targets" in current plan (percentages with harvest). Simplify?	Population Management
How do we know density of bears?	Population Management
Do we always give biologist discretion over unit performance targets categories? How are they decided?	Population Management
Manage for trophy hunts while increasing opportunity	Recreation
Obtaining accurate population estimates across the state/per unit. What type of data is collected?	Research
Update plan with recent literature	Research
Across agency coordination with bear management	Population Management
Trail cameras and bear hunting	

Weeding out the noise, not addressing every complaint (ppl complain about everything) Public land is equal opportunity	All
Depredation, livestock producers	Depredation
Tools for livestock owners	Depredation
How to increase chances of public hunters removing conflict bears	Nuisance
How to improve hunting opportunities without increasing negative public sentiment (example wanted waste)	Outreach
What is the current public sentiment, what is on social media? Wanted waste in Utah	Outreach
Translocations for nuisance bears	Population Management
What is used as bait, are there concerns with CWD spread	Population Management
Hunter education for identifying sows versus boars	Population Management
How improve hunt opportunities by using different strategies (increase opportunity w/out hurting the resource)	Recreation
Strengthen language in plan to encourage consumption of bear meat. Avoid Oregon situation where wanton destruction of bears occurred	Recreation
Special opportunities for youth in bear hunting, no group applications permitted	Recreation
Baiting CORs, necessary or not?	Recreation
Baiting COR, allowing alternate hunters on one bait and preapproving baits if they want to move it	Recreation
Distance between different hunter's baits, standardize the way regions handle it	Recreation
Prevalence of trichinosis	Research
Data on bear meat consumption	

Meeting Agendas:

Statewide Bear Plan Committee

Draft Agenda

August 15, 2022 - 5:00 - 8:30 pm

CRCC Building Central Region Office (1115 N Main Street, Springville)

Facilitator: Chris Wood Chair: Darren Debloois Recorder: Elicia Cotcher

Committee Members: Ben Lowder , Travis O'Niel , Cory Huntsman , Bret Guyman, Kirk Player, Sunshine Brosi , Kaya Wasilewska , Julie Young , Sierra Nelson , Brayden Richmond , Chad Heuser, Wade Heaton , JW Hackett, Ross Worthington, Barbara Smith, Dustin Mitchell

Purpose: Assist the DWR in writing the statewide black bear plan.

Time	*Topic*	*Person*	*Process*	*Product*
4:30	Dinner (provided by DWR)	All	-	-
5:00	Welcome by Director	J Shirley	Present	-
5:10	Introductions	All	Open Discussion	Know participants
5:20	Purpose, goals, roles, agenda of meeting	Chris	Present / Discuss	Functional agenda
5:30	Charter, ground rules, parking lot	Chris	Present / Discuss	Finalize charter and create ground rules
6:15	Expectations and direction from the Wildlife Board	Darren	Present	
6:20	Discussion- What is working? What is not working?	All	Discussion	
8:15	Assignments	All	Discussion	Assign tasks
8:20	Plan next meeting(s)	All	Discussion	Determine timing and purpose of next meeting
8:30	Adjourn	All	-	-

Statewide Bear Plan Committee

Draft Agenda Meeting #2

September 1, 2022 - 6:00 - 9:00 pm

CRCC Building Central Region Office (1115 N Main Street, Springville)

Facilitator: Chris Wood Chair: Darren DeBloois Recorder: Elicia Cotcher

Committee Members: Ben Lowder , Travis O'Niel , Cory Huntsman , Bret Guyman, Kirk Player, Sunshine Brosi , Lisa Church, Julie Young , Sierra Nelson , Brayden Richmond , Chad Heuser, Wade Heaton , JW Hackett, Ross Worthington, Barbara Smith, Dustin Mitchell

Purpose: Assist the DWR in writing the statewide black bear plan.

Time	*Topic*	*Person*	*Process*	*Product*
5:30	Dinner (provided by DWR)	All	-	-
6:00	Welcome/Introductions	All	Open Discussion	Know participants
6:10	Agenda overview	Chris	Present / Discuss	Agreement on meeting content
6:20	Bear Management overview.	Darren	Present	Better understanding of hunt strategies/structure/dates, big game/cougar season dates, current toolbox
6:40	Law Enforcement overview	Officers Bond & Decker	Present	Better understanding of LE experiences challenges and perspectives
7:00	Licensing overview	Lindy	Present	Better understanding of hunting success and hunting interest
7:20	Break			
7:30	Q&A about presentations	All	Discussion	Answer questions about all three presentations
8:00	Discussion & resolutions	All	Discussion	
8:40	Assignments	All	Discussion	Assign tasks
8:50	Plan next meeting(s)	All	Discussion	Determine timing and purpose of next meeting
9:00	Adjourn	All	-	-

Statewide Bear Plan Committee

Draft Agenda Meeting #3

September 22, 2022 - 6:00 - 9:00 pm
Southeastern Region Office (319 N Carbonville Rd Ste A)

Facilitator: Chris Wood Chair: Darren DeBloois Recorder: Elicia Cotcher

Committee Members: Ben Lowder , Travis O'Niel , Cory Huntsman , Bret Guyman, Kirk Player, Sunshine Brosi , Lisa Church, Julie Young , Sierra Nelson , Brayden Richmond , Chad Heuser, Wade Heaton , JW Hackett, Ross Worthington, Barbara Smith, Dustin Mitchell

Purpose: Assist the DWR in writing the statewide black bear plan.

Time	*Topic*	*Person*	*Process*	*Product*
5:30	Dinner (provided by DWR)	All	-	-
6:00	Welcome/Introductions	All	Open Discussion	Know participants
6:05	Agenda overview	Chris	Present / Discuss	Agreement on meeting content
6:10	Direction from DWR's Directors Office	Darren	Present	Understand the purpose of the committee and additional direction received form DWR leadership
6:15	Recap from law enforcement on season overlap challenges	Officers Bond & Decker	Present	Understand what challenges/complaints they are hearing from other hunters and user groups. Hear any recommendations on how to address those issues.
6:25	Discussion on season overlaps	All	Discussion	Generate recommendations on how to separate hunts and lessen conflicts among hunts/hunters.
6:50	Discussion on hounds, baiting, spot and stalk opportunities in units throughout the state	All	Discussion	Generate recommendations on hunting methods for units across the state
7:30	Break			
7:40	Presentation & discussion on pack including recent reg changes, avg # of dogs in units, social tolerances, etc	All	Discussion	Generate a recommendation on # of dogs for pursuit and hunting seasons
8:45	Assignments	All	Discussion	Assign tasks
8:50	Plan next meeting(s)	All	Discussion	Determine timing and purpose of next meeting
9:00	Adjourn	All	-	-

Statewide Bear Plan Committee

Draft Agenda Meeting #4

October 4, 2022 - 6:00 - 9:00 pm
Central Region Office

Facilitator: Chris Wood Chair: Darren DeBloois Recorder: Elicia Cotcher

Committee Members: Ben Lowder , Travis O'Niel , Cory Huntsman , Bret Guyman, Kirk Player, Sunshine Brosi , Lisa Church, Julie Young , Sierra Nelson , Brayden Richmond , Chad Heuser, Wade Heaton , JW Hackett, Ross Worthington, Barbara Smith, Dustin Mitchell

Purpose: Assist the DWR in writing the statewide black bear plan.

Time	*Topic*	*Person*	*Process*	*Product*
5:30 pm	Dinner provided by Director J J Shirley.	All	-	-
6:00 pm	Welcome/Introductions	All	Open Discussion	Know participants
6:05 pm	Agenda overview	Chris	Present / Discuss	Agreement on meeting content
6:10 pm	Season structure- Wrap up discussion on season overlap ideas and hunt strategy discussion. Discuss feedback from biologists	All	Present/Discuss/ Agree-vote	Decide on- fall bait season, expanding spot and stalk, rest of the season dates
6:50 pm	Dogs- presentation & discussion on dogs- including recent reg changes, avg # of dogs in units, social tolerances, etc	All	Present	Generate a recommendation using hounds for bear hunting including- # of dogs for pursuit and hunting seasons
7:30 pm	Break			
7:40 pm	Bear Baiting- # of stations, location restrictions, permitting process, tracking bait stations, locations, land agency concerns	All	Discussion	Generate a recommendation on bear baiting
8:10	Plan parameters and harvest strategies	All	Discussion	Discuss three categories and how to determine which units have- light, moderate, heavy harvest categories.
8:45	Assignments	All	Discussion	Assign tasks
8:50	Plan next meeting(s)	All	Discussion	Determine timing and purpose of next meeting
9:00	Adjourn	All	-	-

Statewide Bear Plan Committee

Draft Agenda Meeting #5

October 25, 2022 - 6:00 - 9:00 pm
Central Region Office

Facilitator: Chris Wood Chair: Darren DeBloois Recorder: Elicia Cotcher

Committee Members: Ben Lowder , Travis O'Niel , Cory Huntsman , Bret Guyman, Kirk Player, Sunshine Brosi , Lisa Church, Julie Young , Sierra Nelson , Brayden Richmond , Chad Heuser, Wade Heaton , JW Hackett, Ross Worthington, Barbara Smith, Dustin Mitchell

Purpose: Assist the DWR in writing the statewide black bear plan.

Time	*Topic*	*Person*	*Process*	*Product*
5:30 pm	Dinner provided by DWR	All	-	-
6:00 pm	Welcome/Introductions	All	Open Discussion	Know participants
6:05 pm	Agenda overview	Chris	Present / Discuss	Agreement on meeting content
6:10 pm	Recap- What the plan looks like, what decisions have been made	Darren	Present	An understanding of where we are and what we still need to discuss/recommend
6:20 pm	Bear Baiting- # of stations, sharing/changing stations, location restrictions, permitting process, tracking stations, locations, containers, land agency concerns	All	Present/Discuss/ Recommend	Generate a recommendation on bear baiting
7:20 pm	Break			
7:30 pm	Plan parameters and harvest strategies	Daren/All	Discussion/Recommend	Discuss three categories and how to determine which units have- light, moderate, heavy harvest categories.
8:00 pm	Outreach strategies	DWR Outreach personnel/All	Present/Discuss/ Recommend	Learn about DWR's outreach toolbox. Make recommendations on messaging and strategies.
8:25 pm	Statewide predator management plan	Darren/All	Present/Discuss	Understanding on how the plan applies to bear management
8:35 pm	Misc items to discuss	All	Discuss/Recommend	Wanton waste, recommendation on permit prices,
8:50 pm	Assignments	All	Discussion	Assign Life History, Habitat, etc sections
8:55 pm	Discuss next steps	All	Discussion	Determine whether additional meeting(s) and/or email communication is needed
9:00 pm	Adjourn			

Additional reading offered during discussions

- Who Takes the Bait? Non-target Species Use of Bear Hunter Bait Sites

(Thompson et al. 2008, Sorensen et al. 2014, Uehlinger et al. 2016

- Sorensen, A., F. M. van Beest, and R. K. Brook. 2014. Impacts of wildlife baiting and supplemental feeding on infectious disease transmission risk: A synthesis of knowledge. Preventive Veterinary Medicine 113:356–363.
- Thompson, A. K., M. D. Samuel, and T. R. Van Deelen. 2008. Alternative feeding strategies and potential disease transmission in Wisconsin white-tailed deer. Journal of Wildlife Management 72:416–421.
- Uehlinger F. D., A. C. Johnston, T. K. Bollinger, and C. L. Waldner. 2016. Systematic review of management strategies to control chronic wasting disease in wild deer populations in North America. BMC Veterinary Research 12:173.
- Chocolate and cocoa products and bear mortality https://wildlife.onlinelibrary.wiley.com/doi/full/10.1002/wsb.647

R657. Natural Resources, Wildlife Resources.
R657-33. Taking Bear.
R657-33-1. Purpose and Authority.

(1) Under authority of Sections 23A-2-304 and 23A-2-305, the Wildlife Board has established this rule for taking and pursuing bear.

(2) Specific dates, areas, number of permits, limits and other administrative details which may change annually are published in the guidebook of the Wildlife Board for taking and pursuing bear.

R657-33-3. Permits for Taking Bear.

(1)(a) To harvest a bear, a person must first obtain a valid limited entry bear permit, a harvest objective bear permit, a spot-and-stalk permit, or a bear control permit for a specified hunt unit as provided in the guidebook of the Wildlife Board for taking bear.

(b) Any person who obtains a limited entry bear permit or a harvest objective bear permit which allows the use of dogs may pursue bear without a pursuit permit while hunting during the season and on the unit for which the take permit is valid, provided the person is the dog handler.

(2)(a) A person may not apply for or obtain more than one bear permit per year, except:

(b) if the person is unsuccessful in the drawing administered by the division under Rule R657-62, the person may purchase a permit available outside of the drawing; and

(c) a person may acquire more than one bear control permit as described in Subsection R657-33-23(4).

(3) Any bear permit purchased after the season opens is not valid until three days after the date of purchase.

(4) Residents and nonresidents may apply for and receive limited entry bear permits, and may purchase harvest objective bear permits and bear pursuit permits.

(5)(a) A person must complete a mandatory orientation course before [~~applying for or obtaining~~]hunting in a limited entry, harvest objective season, or pursuing a bear using a bear pursuit permit.

(b) [~~The~~]A person must possess a certificate of completion of the mandatory orientation course while hunting of pursuing black bear.

(c) The orientation course is not required to receive a bear control permit under Subsection R657-33-23(4).

([~~c~~]d) The orientation course shall include training on hunter ethics.

(6) To obtain a limited entry, harvest objective, spot-and-stalk permit, or bear pursuit permit, a person must possess a valid Utah hunting or combination license.

KEY: wildlife, bear, game laws
Date of Last Change: October 1, 2023
Notice of Continuation: October 31, 2022
Authorizing, and Implemented or Interpreted Law: 23A-1-101; 23A-2-304; 23A-2-305;

R657. Natural Resources, Wildlife Resources.
R657-62. Drawing Application Procedures.
R657-62-1. Purpose and Authority.

(1) Under authority of Sections 23A-2-304 and 23A-2-305, the Wildlife Board has established this rule for drawing applications and procedures.

(2) Specific season dates, bag and possession limits, areas open, number of permits and other administrative details that may change annually are published in the respective guidebooks of the Wildlife Board.

R657-62-19. Black Bear.

(1) Permit and Pursuit Applications.

(a) For the purposes of this section, "restricted bear pursuit permit" means a limited entry permit issued in a division drawing that authorizes an individual to pursue bear using trained dogs, consistent with the restrictions found in Utah Admin. Code R657-33.

(b) A person must possess or obtain a valid hunting or combination license in order to apply for or obtain a limited entry bear permit or restricted bear pursuit permit.

(c) A person may not apply for or obtain more than one bear permit and restricted bear pursuit permit distributed pursuant to this rule within the same calendar year.

(d) A person may simultaneously possess both a limited entry bear permit and a restricted pursuit permit.

(e) Limited entry bear permits and restricted pursuit permits are valid only for the hunt unit and for the specified season designated on the permit.

(f)(i) Applicants may select up to three hunt unit choices when applying for limited entry bear or restricted bear pursuit permits. Hunt unit choices must be listed in order of preference.

(ii) Applicants must specify in the application a specific season for their limited entry or restricted bear pursuit permit.

(g) Any person intending to use bait during their bear hunt must obtain a certificate of registration as provided in Sections R657-33-13 and 14.

(h) Applicants must meet all age requirements, proof of hunter education requirements and youth restrictions as provided in Sections 23A-4-704 , 23A-4-708, and 23A-4-1001 .

(2) Group applications are not accepted.

(3) Waiting periods.

(a) Any person who obtains a limited entry bear permit through the division drawing, may not apply for a permit thereafter for a period of two years.

(b) Any person who obtains a limited entry restricted bear pursuit permit through the division drawing, may not apply for a permit thereafter for a period of two years.

(c) Waiting periods do not apply to bear wildlife expo permits, as provided in R657-55-6.

[~~(4) A person must complete a mandatory orientation course prior to applying for any bear permit offered through a division drawing or obtaining bear permits as described in R657-33-3(5).~~]

KEY: wildlife, permits
Date of Last Change: 2023
Notice of Continuation: April 9, 2019
Authorizing, and Implemented or Interpreted Law: 23A-2-304 ; 23A-2-305

SPENCER J. COX
Governor
DIEDRE M. HENDERSON
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
JOEL FERRY
Executive Director
Division of Wildlife Resources
J. SHIRLEY
Division Director

MEMORANDUM

TO: Utah Wildlife Board / Regional Advisory Councils

FROM: Daniel Sallee, District Wildlife Biologist

DATE: November 17, 2023

SUBJECT: Elk unit plan revisions.

After the approval of the new Statewide Elk Management Plan in the fall of 2022 Division staff conducted reviews and updates of all unit elk management plans. The Statewide plan directs that unit plans with minor updates are reviewed and approved by the Division Director. Unit plans with significant changes, including changes to population objectives and/or unit boundaries are presented to the RACs and Board for approval.

These updated plans were developed with input and support of local unit elk plan committees comprised of diverse constituencies and local stakeholders. The following table shows the unit plans with proposed changes to the population objectives.

Elk Units with Changes to Population Objectives			
Unit name	**Current objective**	**Proposed objective**	**Difference***
Box Elder	675	1,075	400
Morgan-South Rich	3,800	4,200	400
Yellowstone	5,000	3,500	-1,500
Nebo	1,450	2,200	750
Southwest Desert	975	1,050-1,250	175
Fillmore	1,600	1,450-1,750	0
Beaver	1,050	1,150-1,350	200
Panguitch Lake	1,100-1,300	1,100-1,500	150

*In population objectives with ranges, the mid-point of the range is used for calculations.

The Division also proposes splitting two of the unit plans that were previously combined so the plans more closely represent separate elk populations. The Central Mountains

1594 West North Temple, Suite 2110, PO Box 146301, Salt Lake City, UT 84114-6301
telephone (801) 538-4700 • facsimile (801) 538-4709 • TTY (801) 538-7458 • *www.wildlife.utah.gov*

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elk unit plan would be split into separate plans for the Manti and Nebo units. We also propose splitting the South Slope unit plan to have a plan for the Yellowstone unit and a plan for the Diamond Mtn/Vernal/Bonanza elk population.

Please see the proposed unit plans in their entirety included in the RAC packet.

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ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit #1
BOX ELDER
2023

BOUNDARY DESCRIPTION

Box Elder, Davis, Salt Lake, Tooele and Weber counties - Boundary begins at the Utah-Idaho state line and I-15; west on this state line to the Utah-Nevada state line; south on this state line to I-80; east on I-80 to I-15; north on I-15 to the Utah-Idaho state line.

Subunit Boundaries

Box Elder, Grouse Creek (subunit 1a) - Box Elder County - Boundary begins on the Utah-Idaho state line at the Lynn/Almo, Idaho road and the Utah-Idaho state line; southwest on this road through the Raft River Narrows to Lynn and the Lynn Valley road; south on this road to the Dove Creek road; southeast on this road over Dove Creek Pass to SR-30 near Rosette; south and west on SR-30 to the Utah-Nevada state line; north on this state line to the Utah-Idaho state line; east on this state line to the Lynn/Almo, Idaho road.

Box Elder, Hansel Mountain (subunit 1b) - Box Elder and Weber Counties - Boundary begins at 12th Street and I-15 in Ogden; north on I-15 to the Utah/Idaho state line; west on this state line to SR-42; southeast on SR-42 to SR-30; southwest on SR-30 to township line of R15W and R16W; due south on this line to Union Pacific railroad tracks; east on these tracks(causeway) to 12th Street; east on this street to I-15 in Ogden.

Box Elder, Pilot Mountain (subunit 1c) - Box Elder and Tooele Counties - Boundary begins at SR-30 and the Utah-Nevada state line; east along SR-30 to the township line separating Range 15 West and Range 16 West; south along this township line to I-80; west along I-80 to the Utah-Nevada state line; north along this state line to SR-30. This subunit also includes Nevada's Unit 091. Nevada's Unit 091 boundary begins at I-80 and the Utah-Nevada state line, west on I-80 to the Pilot Creek Valley Road, north on Pilot Creek Valley Road to SR-233, east on SR-233 to the Utah state line, south on the state line to I-80.

Box Elder, Sawtooth (subunit 1d) - Box Elder County - Boundary begins at the Lynn/Almo, Idaho road and the Utah-Idaho state line; southwest on this road through the Raft River Narrows to Lynn and the Lynn Valley road; south on this road to the Dove Creek road; southeast on this road over Dove Creek Pass to SR-30 near Rosette; northeast on SR-30 to SR-42; northwest on SR-42 to the Utah-Idaho state line; west on the state line to the Lynn/Almo, Idaho road.

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
- Use multiple strategies to help manage elk populations and address the complex private/public land interface throughout the unit
- Prioritize the use of Cooperative Wildlife Management Units (CWMU's), depredation plans, and private land only tags in sections of the unit with large amounts of private land and agricultural production

- Prioritize habitat restoration and enhancement efforts to increase the amount and quality of habitat on public lands to draw elk away from agricultural areas

The Pilot Mountain subunit is co-managed with the Nevada Department of Wildlife to abide with an interstate hunt agreement. An annual coordination meeting with the Nevada Department of Wildlife should be held to address management strategies for the Pilot subunit to abide by the interstate hunt agreement.

UNIT MANAGEMENT OBJECTIVES

Habitat - Summer and winter ranges should be maintained and improved to sustain healthy herds of elk across all subunits. Summer habitat improvements should be prioritized to distribute elk throughout each subunit and hold elk away from areas of agricultural production. Winter ranges should also be improved to maintain healthy elk herds and limit the amount of time elk spend depredating agricultural fields. Subunit-specific habitat objectives are as follows:

- **Grouse Creek 1a -** Increase summer range through habitat improvement projects and water improvements to distribute elk away from agricultural production areas.
- **Hansel Mountain 1b -** Improve habitat on public land through invasive species management and water development projects to reduce pressure on private land and provide public hunting opportunities.
- **Pilot Mountain 1c -** Improve both summer and winter range to increase the carrying capacity of the elk herd year-round. Coordinate with the Nevada Department of Wildlife where interstate projects may be useful.
- **Sawtooth 1d -** Improve summer range through habitat projects, controlled burning, and natural water source improvement to sustain the herd at the management objective.

Population - Population objectives have been set for several subunits using subcommittees consisting of private landowners, representatives from state, federal, and tribal organizations, and representatives of hunting and agricultural interest groups. The goal is to maintain elk herds at the objectives that have been set and use multiple strategies to alter elk distribution in areas of agricultural concern. The overall objective for winter herd size on the unit is 1,075 elk. The specific elk population objectives for each subunit are as follows:

- **Grouse Creek 1a** 175
- **Hansel Mountain 1b** 400
- **Pilot Mountain 1c** 400
- **Sawtooth 1d** 100
- **Unit Total** 1,075

Bull Elk Harvest Objectives - As per the Statewide Elk Management Plan, harvest strategies are used to provide diverse hunting opportunities for the public. The subunit specific harvest strategies are as follows:

- **Grouse Creek 1a -** This is a limited entry bull elk hunting unit. The objective for the average age of harvested bull elk is 5.5-6.0 years old. General season spike elk hunting is allowed to increase hunting opportunities on this unit.
- **Hansel Mountain 1b -** This is a general season any bull hunting unit.
- **Pilot Mountain 1c -** This is a limited entry bull elk hunting unit. The objective is for the average age of harvested bull elk to be 5.5-6.0 years old. No general season spike hunting on this unit due to the cooperative agreement with Nevada.
- **Sawtooth 1d -** This is a general season any bull hunting unit.

CURRENT STATUS OF ELK MANAGEMENT

Habitat - All areas of this unit have undergone a general decline over the last several years due to persistent drought conditions, large wildfires, and invasive species. Primary concerns are the

expansion of cheatgrass and other invasive grasses in recently burned areas, as well as the persistent habitat decline observed in areas of excessive juniper expansion. Subunit specific habitat statuses are as follows:

- **Grouse Creek 1a -** The primary concern affecting elk habitat that occurred recently was the Goose Creek Fire in 2018. This fire burned 132,127 acres in both Utah and Nevada in areas of good elk habitat. Restoration efforts have been underway to aid in the recovery of this fire. Other concerns include degradation of natural water sources, invasive species expansion, and some areas of excessive juniper encroachment. Several habitat projects have been completed in this subunit and are outlined in the table below.
- **Hansel Mountain 1b -** The majority of elk habitat in this subunit is on private land. The areas elk use on public land have excessive juniper cover, poor water resources, and a large amount of cheatgrass.
- **Pilot Mountain 1c -** This area has experienced excessive drought conditions and has undergone a steady decline in quality of both summer and winter habitat. There is excessive juniper cover in much of the unit. Natural water sources have also been degrading. Several habitat projects have been completed in this subunit and are outlined in the table below.
- **Sawtooth 1d -** A large amount of coniferous trees have been dying off and aspen regeneration has been low throughout the summer range. Some natural water sources have also degraded due to erosion and overuse by cattle. Several habitat projects have been completed in this subunit and are outlined in the table below.

Range Area and Approximate Ownership

	Yearlong Range		Summer Range		Winter Range	
Ownership	**Area (acres)**	**%**	**Area (acres)**	**%**	**Area (acres)**	**%**
Forest Service	0	0	30,115	54	5,913	13
Bureau of Land Management	190,324	48	5,459	10	21,528	48
Utah State Institutional Trust Lands	28,082	7	1,553	3	3,447	8
Native American Trust Lands	0	0	0	0	0	0
Private	182,078	45	18,277	33	13,800	31
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	0	0	0	0	0	0
TOTAL	400,484	100	55,404	100	44,688	100

Habitat Projects Completed and Proposed 2012-2023

Pole Creek Bullhog	1,619 acres
North Grouse Creek Bullhog	1,066 acres
Grouse Creek Bullhog ph II	1,031 acres
Grouse Creek Bullhog ph III	705 acres
West Grouse Creek Bullhog ph II	1,079 acres
West Grouse Creek Bullhog ph III	950 acres
Black Pine Fire Rehab	368 acres
Pilot Peak Brush Treatment	330 acres
Grouse Creek Watershed Stream Restoration ph II	64 acres
Raft River Aspen Restoration Project ph II	410 acres
Goose Creek Fire Stream Restoration ph II	27 acres
Grouse Creek Valley Brush Removal	290 acres
Mountain Meadow Ranch WRI Water	N/A
Goose Creek Fire Stream Restoration ph I	27 acres
Raft River Aspen Restoration Project ph I	410 acres
Raft River Riparian and Meadow Restoration Project	1,013 acres
Goose Creek Fire Rehabilitation	24,684 acres
Warm Creek Brush Treatment	1,294 acres
Grouse Creek Livestock Assoc. Upland Water System	N/A
Junction Creek Sage Grouse Habitat Improvement	445 acres
Pilot Mountain Range Brush Management ph I	330 acres
North Grouse Creek Habitat Restoration	1,650 acres

Population - Elk populations in each subunit follow different patterns. The history of elk movement in each subunit is unique and somewhat interrelated. A history of elk in each subunit as well as the current status is outlined below:

- **Grouse Creek 1a -** This elk herd has been growing and expanding for several decades. Elk movement across the state line is common and makes management difficult. In the early 2000's the population was increasing, particularly in the summer. Elk move into Utah from Nevada in the summer, with peak summer counts being observed above 400 animals. Through intensive harvest on private land, the implementation of CWMU's, and habitat change the current summer population is near the objective of 175 animals. Movements of 100 animals into or out of the unit from Nevada can be common, which can lead to short-term increases or decreases of elk in the subunit. The winter population has been observed at about 150 animals in the last couple years, with most elk in or around the towns of Etna and Grouse Creek. Summer elk classification surveys currently take place to keep track of herd growth and production. Aerial surveys to count elk and moose have been occurring in the winter and are intended to be repeated every 3 years. In 2016, the West Box Elder Elk Subcommittee established a population objective of 275 animals throughout the entire subunit, with a subpopulation objective of 100 animals in the Raft River portion of the unit. In the time since that meeting was held, the Raft River portion of the unit was split into Subunit 1d. To keep the overall objective of Subunit 1a in compliance with the original intent, the new population objective is 175 animals and the new Subunit 1d has an objective of 100 animals. Public bull elk harvest has averaged 17 elk per year over the last 5-years, while CWMU harvest has averaged 25 elk per year over the same time period. An average of 4

spike bulls per year have been harvested as well. An average of 3 cow elk were harvested in the public draw, while six cow elk were harvested per year on CWMUs.

- **Hansel Mountain 1b -** Elk began moving into this subunit in the late 1980's from Idaho. Originally, elk moved into this subunit during the winter and returned to Idaho in the spring. A wildlife drift fence in Idaho limited movements along this route, but in the mid 1990's the drift fence was removed and 200-300 elk began crossing the state line. The majority of these elk would return to Idaho, but several began staying year-round in Utah. When the summer population reached 20 animals in this subunit, the UDWR initiated several hunts in an attempt to eliminate the population. A general any bull season was initiated as well as antlerless depredation vouchers to landowners and a public antlerless hunt. The subunit was expanded in 2016 to include the area from I-15 west to SR 30. The elk population has grown significantly since that time and the overwinter herd in 2022 was observed to be around 600 animals. Tolerance for the animals was low and the population objective for the subunit was 0 until 2023. In July 2023 a subcommittee composed of several landowners, agricultural groups, sportsman groups, and public agencies met in Snowville to discuss the population objective. At that meeting, the subcommittee voted to increase the population objective of subunit 1b to 400 elk year-round. All management tools, including the private lands only antlerless hunt and depredation vouchers, will remain in place in order to reduce the population down to the objective and prevent the herd from growing over the objective again. An average of 27 bull elk per year were harvested on this subunit on the general hunt over the last five years, while an average of 17 cow elk were harvested each year over the same time period.
- **Pilot Mountain 1c -** This population is co-managed with the Nevada Department of Wildlife (NDOW). Aerial helicopter surveys occur every other year on this unit with Utah and Nevada scheduling and paying for the flight every other survey. Nevada will schedule and pay for the winter 2023-24 survey and Utah will be responsible for the 2025-26 survey.
  The data from helicopter surveys are input into a population model run by NDOW. Based on this model, the population has increased slowly to near the population objective of 400 animals. To coordinate hunt timing with Nevada, the any weapon bull elk hunt on this unit will be recommended to start the 2nd Saturday in September and run for three weeks. An average of 12 bull elk were harvested per year on this subunit.
- **Sawtooth 1d -** This elk population has been transitory and minimal for the last several years. Elk move into this subunit from the Grouse Creek subunit to the west, from Idaho to the North, and from the Hansel Mountain subunit to the east. There has not appeared to be a permanent elk population in this unit year-round up to this point. Elk sightings are rare in the higher elevations of this unit. Agricultural fields on the Idaho border get depredated by elk, but it seems these elk come in from Idaho at night and return in the morning. Collared elk from the Hansel Mountain subunit move into the eastern side of the unit in the spring and leave in the fall, but these elk spend most of their time on the private rangelands east of Crystal Peak. There have been sightings reported of elk in the meadows around Rosevere Point and elk have been photographed by a UDWR trail camera in Rosevere Canyon. In March, 2023 a herd of approximately 60 elk was observed southwest of Yost by UDWR personnel, but there is no evidence they stayed in the unit in the summer.

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat - In general, each subunit suffers from habitat degradation due to drought, invasive species invasion, and fire. Habitat improvement projects aimed at removing invasive species, re-establishing productive rangelands, and preserving natural sources of water would improve elk habitat. Subunit specific habitat status are as follows:

- **Grouse Creek 1a -** Limited summer habitat in the east Grouse Creek Range, as well as substantial habitat loss in the Goose Creek Range due to fire, is affecting this population. Elk depredate agricultural land in the summer, leading to landowner conflict and elk removal. Based on a subcommittee meeting in Grouse Creek in 2016, landowners are not expected to tolerate elk depredation causing sustained measurable damage to crops. Increases in elk

population are only allowed through immigration, so any habitat projects should be aimed at changing elk use of private lands, not increasing the herd size.

- **Hansel Mountain 1b -** Most elk in this unit reside on private lands year-round. Elk depredate agricultural land in areas with low tolerance by private landowners. There is limited elk summer habitat in the Hogup Mountains and winter habitat on Cedar Hill and in the Wildcat Hills. Improving habitat on public land may shift some elk use, but it is unlikely it would pull large numbers of elk off private land. In 2023 the population objective was increased to 400 animals, up from 0. Due to this, CWMU's plan on forming in areas where private landowners are tolerant of elk. If possible, working with private landowners to improve elk summer range on their land may shift elk use out of agricultural areas.
- **Pilot Mountain 1c -** Both summer and winter habitat appear to be limiting. In the 1980's and 1990's summer crop depredation was not an issue but has become a significant issue in current years. This may be due to extended drought, juniper expansion, and habitat loss due to fire. Winter range has also had limited feed in recent years, which may lead to limited elk survival and immigration out of the unit.
- **Sawtooth 1d -** Summer range in this unit appears good, however elk have not used it to any significant extent. It is possible that excessive conifer growth and tree diseases have led to reduced understory and poor habitat. There is also limited winter range on the subunit, leading to elk wintering in other areas.

Population - Elk population limitations are unique to each subunit. Subunit 1a and 1b have social carrying capacities that limits herd growth, while subunits 1c and 1d appear to have habitats limiting herd growth.

- **Grouse Creek 1a -** This unit has a social carrying capacity based on agricultural land around Grouse Creek and Etna. At the current time, any elk population increase in the southern portion of this subunit would lead to increased depredation, which is not allowed under current management goals.
- **Hansel Mountain 1b -** This unit also has a social carrying capacity based on agricultural land. The social carrying capacity was increased from 0 to 400 animals in 2023, so all management goals need to focus on bringing the population down to the agreed upon number.
- **Pilot Mountain 1c -** Habitat conditions appear to be limiting the growth of this herd. Currently, the herd is at the population objective, so management goals need to focus on maintaining the current herd size and limiting agricultural depredation.
- **Sawtooth 1d -** Habitat conditions appear to be limiting the growth of this herd as well. The herd is currently below the population objective. Management action should focus on improving habitat and natural water sources.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

West Box Elder Elk Committee Input
- CWMU'S Subunit 1a: Maintain and enhance the existing CWMU's, and pursue ways to address the remaining elk that are depredating on cropland.

Actions to Remove Elk Committee Barriers
- Recommend continued support for elk management through the CWMU program. This includes the 6 current CWMU's, their acreage requirements, permit splits and the use of additional public/private checkerboard properties to manage this elk population as allowed in the CWMU administrative rule R657-37.
- Continue to encourage and support the damage control technicians to promptly respond and address elk damage complaints.

Habitat - All subunits would benefit from habitat improvement. The goals of habitat improvement should focus on redistributing elk away from agricultural areas and improving rangeland productivity. Subunit specific strategies are as follows:

- **Grouse Creek 1a -** Range improvements should be used to hold elk out of agricultural areas. Habitat treatments including pinyon-juniper projects, rangeland restoration, and invasive species management, may be used to meet these needs. Controlled burns may also be used in specific areas to improve habitat. Protection and improvement of natural water sources, as well as water development projects, may also be used to encourage elk to stay out of agricultural areas.
- **Hansel Mountain 1b -** The majority of elk habitat in this subunit is on private lands. Elk do spend time in public areas where habitat projects could be used to maintain and improve elk habitat. These projects may include pinyon-juniper treatments, water developments, and control of invasive species. Partnering with private landowners may be appropriate to improve herd health and encourage elk to stay in areas with high tolerance from the landowners.
- **Pilot Mountain 1c -** Elk would benefit from both summer and winter range habitat projects. Habitat projects focusing on improving rangeland production would provide more forage resources for the herd. Juniper treatments may be a good way to achieve this goal in winter range areas.
- **Sawtooth 1d -** Summer range habitat treatments would improve rangeland productivity and allow elk to increase to the population objective. Controlled burns of thick and dead conifer stands would increase understory and allow aspen regeneration to occur. Improving natural water sources would lead to healthy riparian zones for elk to use as well.

Population - All subunits have some barrier to overcome. On several subunits the barrier is the social aspect of depredation on agricultural land. On others the barrier is resource based due to inadequate habitat. Subunit-specific strategies to overcome barriers are as follows:

- **Grouse Creek 1a -** This subunit has social barriers to overcome due to depredation on agricultural land. Over the past decades CWMU's, depredation vouchers, hazing, and other strategies have been used successfully to prevent conflict with landowners. These strategies should remain in place to deal with conflicts as they arise. Timely responses to all depredation complaints will be used to address and resolve problems as they arise.
- **Hansel Mountain 1b -** This subunit also has significant social barriers. The increase of the population objective this year is a step in the right direction. To continue improving landowner relationships, the use of CWMU's, depredation vouchers, hazing, and prompt response to complaints is a priority. This population is over the agreed upon population objective and all efforts will be focused on removing elk to meet the objective.
- **Pilot Mountain 1c -** Both social and habitat barriers affect this population. Through the Landowner Association and depredation tags, the social barrier has been minimized. Tolerance for elk on private land is high in this unit. Habitat limitations affect the population as well. Improving habitat will allow the population to be maintained at the current objective and reduce depredation of agricultural land.
- **Sawtooth 1d -** The primary limiting factor in this subunit is habitat. Despite elk being in adjacent units and even using this unit, there has not been a summer herd in this unit. Improving habitat conditions will allow the herd to expand to the current objective. There are multiple agricultural operations in the lower elevations of this unit, so damage payments, mitigation vouchers, hazing, and CWMU's will be used to address and resolve any depredation issues.

Duration of This Management Plan - This Unit Management Plan was revised in 2023 following the revision of the Statewide Elk Management Plan. This Unit Management Plan will be revised after the next Statewide Elk Management Plan revision to ensure all current management tools are being used. Revision of this plan may also take place as needed to address future issues or incorporate new management strategies. Unit elk plan goals, objectives, recommendations and strategies are

constrained within the sideboards set in the Statewide Elk Plan, which supersedes unit plans. It is possible that changes to the Statewide Elk Plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rule may also affect elk plans.

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit # 4
MORGAN-SOUTH RICH
2023

BOUNDARY DESCRIPTION

Morgan, Rich, Summit and Weber Counties - Boundary begins at I-80 and the Utah-Wyoming state line; west on I-80 to Echo Junction and I-84; west on I-84 to SR-167 at Mountain Green (Trappers Loop Road); north along SR-167 to SR-39; east along SR-39 to Woodruff and SR-16; southeast on SR-16 to the Utah-Wyoming state line; south along the state line to I-80.

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 elk population at levels that allow for healthy mule deer populations on shared year-round ranges
- Work to protect and improve existing habitat through a variety of strategies to maximize the number of animals the unit can support
- Build and maintain professional relationships with Cooperative Wildlife Management Unit (CWMU) operators and landowners across the unit to achieve population objectives

UNIT MANAGEMENT OBJECTIVES

Habitat -

- **(HO1)** Make efforts to prevent development on winter range.
- **(HO2)** Reduce noxious weeds and restore damaged winter ranges to healthy native vegetation.
- **(HO3)** Educate landowners on the negative impacts feeding has on habitat and encourage them to stop feeding. For those who insist on feeding, encourage them to implement feeding strategies that reduce negative impacts to winter range.
- **(HO4)** Protect and enhance summer range on private and public property by increasing quality and quantity of summer range forage and encouraging optimal animal distribution across the landscape with water improvements.
- **(HO5)** Protect and facilitate elk seasonal migration across roads and private/public land.

Population -

- **(PO1)** Manage the population to a target winter herd size of 4,200 elk. This is an increase of 400 elk from the previous plan, in which the objective was 3,800.
- **(PO2)** Maintain a healthy bull:cow ratio that maximizes hunting opportunity while maintaining high quality bulls on CWMUs.
- **(PO3)** Determine annual recruitment and status of the population.

Bull Elk Harvest Objectives - As per the Statewide Elk Management Plan, harvest strategies are used to provide diverse hunting opportunities for the public. The subunit specific harvest strategies are as follows:

- **Morgan-South Rich -** This is a general season any bull hunting unit.

CURRENT STATUS OF ELK MANAGEMENT

Habitat - The summer range of the Morgan-South Rich unit maintains stable habitat conditions, yet the winter range is showing signs of deterioration and susceptibility to development. The ongoing rapid pace of development in Morgan County raises significant concerns for elk management on the unit. Fortunately, a pivotal property, crucial for elk, has recently been safeguarded through a conservation easement in Morgan County, precluding any future development. Additionally, a handful of other properties within the unit have been secured under conservation easements in the past few years. The Division will continue to evaluate conservation easements to benefit elk and elk management as opportunities become available in the interest of the long-term sustainability of elk populations on the unit.

The combination of high elk densities, annual winter elk feeding by landowners, and consecutive years of drought has led to the degradation of portions of the winter range. These areas have experienced significant loss of their shrub species, including sagebrush and bitterbrush, being replaced by cheatgrass and other non-native grass species. To revitalize these areas to quality winter range, a combination of restoration efforts and favorable climatic conditions is imperative. Although some areas have received extensive damage, several private landowners have actively enhanced habitat conditions for both livestock and wildlife which has proven advantageous for elk across summer and winter ranges. They have developed springs, built catch basins, seeded their property with favorable plant species, implemented stream restoration practices and improved their livestock grazing techniques, which benefit elk. UDWR and other partners have worked to restore and improve more than 7,600 acres of habitat on the Morgan-South Rich unit since the elk plan was last revised eight years ago.

Range Area and Approximate Ownership

	Yearlong Range		Summer Range		Winter Range	
Ownership	**Area (acres)**	**%**	**Area (acres)**	**%**	**Area (acres)**	**%**
Forest Service	0	0	21,700	7.3	15,943	6.4
Bureau of Land Management	0	0	5,023	1.7	22,523	9
Utah State Institutional Trust Lands	0	0	632	0.2	3,123	1.2
Private	0	0	265,436	89	192,549	78
Utah Division of Wildlife Resources	0	0	5,194	1.7	12,196	5
TOTAL	0	0	298,309	100	246,532	100

Habitat Projects Completed and Proposed 2016-2023

Henefer-Echo Road Shed Fire Rehab	336 acres
Northern Region Browse Scalping	22 acres
Henefer-Echo WMA Fire Canyon Rehab	1,385 acres
Henefer WMA Browse Scalping and Fence	370 acres
Northern Region WMA Browse and Water Enhancement	235 acres
Henefer WMA Browse Scalping and Pipeline Arc Clearance	223 acres
Lost Creek Discretionary Seed for Deer	18 acres
Henefer-Echo Boundary Fence	NA
Henefer-Echo WMA Fire Rehabilitation	27 acres
Wolf & Mud Spray/Reseed	124 acres
HEWMA Pond Restoration and Fencing	2 acres

Northern Region WMA Annual Browse Enhancement	5 acres
Water Hollow Fire Reseeding	164 acres
Dairy Ridge Sagebrush Treatment	406 acres
Eli Ridge Pipeline	NA
Cornia's Middle Ridge Ranch	640 acres
Stacey's Wonderful Water	NA
Meachum Canyon Stage 1 Juniper Removal	1,809 acres
Home Ranch Bullhog	1,866 acres
Last Stretch Water System	NA

Population - More than 70% of the land on the Morgan-South Rich unit is currently enrolled in a CWMU. This program has not only increased the tolerance landowners have for wildlife, but has created a desire for landowners to hold large numbers of elk on their property. While occasional human conflicts with depredation, livestock competition, wildlife-vehicle collisions and ornamental damages occur, especially in harsher winters, CWMUs have helped mitigate some of these issues and consequently, the overall social tolerance for elk is extremely high. The Morgan-South Rich may be the first unit in the state to have a higher social tolerance for elk, than what the habitat can support.

Managing an elk population on a unit that is primarily comprised of private property, with most landowners eager to have more elk, presents unique challenges. The unit consistently exceeds objective, and cooperation from CWMUs is necessary to achieve the objective. Achieving sufficient antlerless harvest has proven to be a persistent challenge for years and merely adding more permits has not consistently resulted in increased elk harvest. The current objective, set at 4,200 elk, was determined to be sustainable based on the balance between harvest and recruitment. The combined average harvest of public land hunts and the number of elk CWMUs are willing and capable of harvesting needs to align with the amount of elk recruited annually to avert population expansion beyond manageability. It is important to note that this objective does not surpass biological thresholds. However, potential reductions may become necessary if significant portions of winter range continue to be lost or degraded further, or winter elk feeding on Deseret Land and Livestock or Durst Mountain ceases.

The population estimate in December 2022 was 6,700. Record snowfall and extended cold temperatures occurred in winter of 2022/23. The elk population experienced 10% mortality and the deer population experienced 80% mortality. It is evident from the high mortality rates that the unit exceeded biological carrying capacity, and there is a clear need to reduce the elk population. The unit typically has a bull:cow ratio greater than 80 bulls:100 cows. The average annual bull harvest is 469 and the average annual cow harvest is 517. Population and harvest statistics are shown below.

Year	Population Estimate	Bull Harvest	Antlerless Harvest
2003	4,300	393	153
2004	4,100	451	438
2005	5,100	459	426
2006	4,502	447	664
2007	3,800	485	649
2008	4,400	276	366
2009	3,800	369	563
2010	3,500	444	662
2011	5,000	454	451

2012	5,000	550	599
2013	5,000	553	671
2014	4,100	546	491
2015	3,800	576	540
2016	3,850	565	625
2017	4,100	476	335
2018	3,650	572	441
2019	6,500	478	452
2020	6,900	482	500
2021	6,800	340	594
2022	6,700	463	727

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat - Strategies that may be used to achieve the objectives. These are linked with the (HO) number to the objectives listed above. Additional strategies may also be implemented as new options become available and needs arise.

- **(HO1)** Encourage landowner enrollment in conservation easements, the walk-in access program, the CWMU program, and other incentivized programs that motivate property owners to maintain their land for the benefit of wildlife.
- **(HO1)** Allocate current funds and collaborate with sportsmen groups to secure additional funding for the acquisition of land within critical winter range when opportunities arise.
- **(HO2)** Combat annual grasses with chemical treatments in winter range understory.
- **(HO2)** Implement seeding and shrub planting.
- **(HO2)** Use mechanical treatments to revitalize decadent shrub stands and open up the understory of oakbrush stands.
- **(HO2)** Redirect run-off with on-contour furrows on more gradual slopes from flowing directly out of a system and out to the ridges to increase soil moisture.
- **(HO3)** Stay up to date on feeding literature and provide that information to landowners.
- **(HO4)** Implement controlled burns or other mechanical treatments in areas where conifer encroaches aspen stands.
- **(HO4)** Reintroduce or augment current beaver populations or use BDAs to raise water tables to maintain higher forage protein content longer into the summer and fall.
- **(HO4)** Establish new water sources and improve existing ones, such as catch basins, guzzlers, and springs.
- **(HO5)** Collaborate with UDOT and private landowners to build exclusionary fences on roads with high mortality.
- **(HO5)** Improve range fencing to be more permeable to elk along migration corridors.

Population - Strategies that may be used to achieve the objectives. These are linked with the objectives above via the (PO) numbers. Additional strategies may also be implemented as new options become available and needs arise.

- **(PO1)** Implement a variety of antlerless hunts, including but not limited to CWMU antlerless, public draw antlerless, private lands only, mitigation, and antlerless control.
- **(PO1)** Work closely with CWMU operators and landowners to garner support and effort towards appropriate levels of antlerless harvest.
- **(PO1)** Use “outside-of-the-box” thinking on ways to reduce elk numbers on large tracts of private land when the population exceeds biological carrying capacity.
- **(PO1)** Alter season dates and permit numbers to achieve sufficient antlerless harvest.
- **(PO2)** Implement new hunt strategies, including but not limited to, late season bull hunts, restricted weapons hunts, and private lands only bull permits.

- **(PO2)** Encourage CWMU's to increase harvest on bulls, with an emphasis on taking management (non-trophy) bulls.
- **(PO3)** Collect and use preseason classification data, collar survival data, harvest survey data, and winter aerial survey data to determine population estimates.

Duration of This Management Plan - This Unit Management Plan was revised in 2023 following the revision of the Statewide Elk Management Plan. This Unit Management Plan will be revised after the next Statewide Elk Management Plan revision to ensure all current management tools are being used. CWMU operators and landowners requested a mid-plan review and revisions may take place when improved data or management tools become available, or to address future issues. Unit elk plan goals, objectives, and strategies are constrained within the sideboards set in the Statewide Elk Plan, which supersedes unit plans. It is possible that changes to the Statewide Elk Plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rule may also affect elk unit plans.

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit #9A
Yellowstone
2023

BOUNDARY DESCRIPTION

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 **(EXCLUDES ALL NATIVE AMERICAN TRUST LANDS).**

UNIT MANAGEMENT GOALS

- Manage for a population of healthy animals providing a broad range of recreational opportunities including hunting and viewing
- Consider impacts of the elk herd on other wildlife and land uses including agricultural crops. Maintain the population at a level within the long-term capacity of the available habitat
- Encourage elk to return to public lands by adjusting hunt strategies and hunting pressure

UNIT MANAGEMENT OBJECTIVES

Habitat -

- Maintain sufficient habitat to support elk herds at population objectives
- Encourage elk to remain on public lands as much as possible throughout the year
- Maintain the existing crucial elk habitat across the unit
- Work with partners to improve and protect the quality of elk habitat.

Population - Past management practices have resulted in elk emigrating to Tribal Trust lands or private property in the fall where they are not available to the public. The state has no management authority over elk on Tribal Trust lands. One of the objectives of the 2022 Statewide Elk Plan is to try to encourage more elk to return to public lands by changing hunt strategies. To achieve this objective while providing landowners more tools to benefit from elk on their lands and to reduce elk damage on private property, new hunt options are recommended. Elk coming from tribal or other refuge areas are not readily available to the public for recreation and are very difficult to manage due to jurisdiction and private property issues. To help landowners address these issues, Private-Lands-Only antlerless elk permits have been available since 2016 and have proven to be a successful tool from August 1-January 31st. To further increase tolerance of elk on private property by addressing the number of bull elk on these lands, it is recommended that a Private-Lands-Only general season Any Bull elk hunt with extended season dates for the Uinta Basin agricultural areas be instituted starting in 2025. This hunt will allow landowners an additional opportunity to harvest bull elk from their private property.

Target Winter Herd Size Objective - Manage towards an objective of 3,500 wintering elk on the unit, this estimate will exclude Tribal Trust Lands where the Division does not have management authority. This represents a change to how the unit population estimate was calculated in the past, and is why the objective is being reduced from 5,000 elk to 3,500 elk.

Population estimates will be based on elk that winter on non-Tribal Trust Lands where the state has management authority. The Division will continue to survey elk on tribal lands to maintain an estimate

of total population for future management decisions, but the state will manage the herd toward the objective of elk on lands where the Division has management authority.

Radio collar data across the south slope of the Uintas confirm that while the unit boundaries represent fairly distinct wintering populations, some elk occasionally move back and forth across the boundary between the Yellowstone and the Vernal during the winter when aerial counts are conducted depending on winter conditions. Therefore, the Yellowstone and Vernal units will continue to be surveyed at the same time and the distribution of elk during the trend counts will be taken into consideration when determining whether the populations are above or below objective.

CURRENT STATUS OF ELK MANAGEMENT

Habitat - Existing habitat needs to be protected and crucial habitat needs to continue to be improved. Several prescribed burns and wildfires have significantly increased and improved elk habitat on the Yellowstone unit over the past 20 years. The Petty Mtn., Pigeon Water & Burnt MIll understory prescribed burns (6,000), the Neola North fire (43,000 acres) and the East Fork & Center Creek fires (89,000 acres) resulted in increased elk habitat by reducing conifer and increasing available grasses.

Range Area and Approximate Ownership

	Summer Range		**Winter Range**	
Ownership	**Area (acres)**	**%**	**Area (acres)**	**%**
Forest Service	593,508	94	23,708	7
Bureau of Land Management	0	0	0	0
Utah State Trust Lands	0	0	0	0
Native American Trust Lands	30,141	5	202,749	59
Private	4,745	1	118,651	34
Department of Defense	0	0	0	0
Utah State Parks	0	0	0	0
Utah Division of Wildlife Resources	0	0	14	1
TOTAL	**628,394**	**100**	**345,122**	**100**

Population - The post-season 2022 population estimate is 3,050 elk on the Yellowstone unit. This estimate excludes elk located on Tribal Trust Lands.

Winter Trend Counts by subunit (excludes Tribal Trust Lands)			
	Year	**Trend Count**	**Population Estimate**
Yellowstone	2013	1680	2,100
Yellowstone	2019	2,441	3,050

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat - There are issues with poor quality summer/transitional range due to conifer dominance. Drought conditions can be a real limitation for elk habitat. Over utilization of winter browse in areas of heavy concentrations of deer and elk during hard winters is also a limiting factor. Decreasing winter range due to loss of sagebrush, resulting in cheatgrass expansion and the loss of wildlife forage due to an increase in feral horses on critical ranges are also a cause for concern. Pinyon Juniper invasion of grasslands and browse areas critical for wildlife continues to be a challenge.

Population Barriers - It is challenging to maintain elk distribution on public lands due to refuge areas on tribal trust lands and private property. Chronic Wasting Disease (CWD) could reduce future elk production if it becomes widespread across the unit at a high prevalence rate.

Other Barriers - The primary factor limiting this unit from supporting larger elk populations is agricultural depredation and competition for forage with domestic and feral livestock. There are consistent conflicts in the spring and summer with large numbers of elk in agricultural areas, such as Arcadia, Duchesne River corridor, lower Uinta River, Mtn. Home, Clay Basin, Bluebell, Neola, and others. The inability to remove depredating animals from agricultural areas due to tribal trust lands or private lands exacerbates the conflict.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat

- Cooperate with USFS to reinstitute a natural fire interval in the conifer zone to improve elk habitat.
- Cooperate with USFS & sportsman's groups to reseed after wildfires and prescribed burns.
- Cooperate with Ute Tribe, County, USFS & sportsmen to remove feral horses from the unit.
- Cooperate with USFS to treat cheatgrass and reseed problem areas in the Neola North burn scar between White Rocks Canyon and Uinta Canyon.
- Cooperate with the Ute Tribe to increase vegetative under story and reduce Pinyon & Juniper encroachment into the sagebrush zone.
- Cooperate with the Ute Tribe to improve and re-vegetate winter range areas like Clay Basin and the Neola North fire area to reduce cheat grass dominance and increase desirable forage for elk.
- If drought conditions become serious enough to limit forage availability, emergency drought permits may be approved by the Wildlife Board to reduce elk density.
- Critical private property parcels need to be protected from habitat loss through measures

like the Young Living conservation easement that recently protected 11,500 acres in the Utahn area, while keeping it in agricultural production.

Population

- Encourage elk to remain on public lands by adjusting hunt strategies to reduce hunting pressure where elk are commonly pushed onto refuge areas. Implement Private Lands Only bull and cow hunts with long season dates to encourage elk back onto public lands.
- As funds are available, pursue a GPS collar study for the Yellowstone unit to better understand the effects of hunting in relation to refuge areas, better define habitat classification and identify migration corridors and future wildlife crossing sites, etc
- Monitor CWD prevalence across the unit in accordance with the statewide CWD management plan and assist Utah Department of Agriculture and Food in monitoring elk farms/ranches for compliance.

Other Barriers

- Provide private landowners with Private Lands Only cow and bull permits with long seasons to increase tolerance of elk or remove elk by increasing hunting pressure on private lands to push elk back to public lands.
- Coordinate with the Ute Tribe to try to remove elk that are causing problems in agricultural areas adjacent to Tribal Trust lands.
- Whenever feasible, hunts will be targeted to address elk herds in agricultural areas to reduce depredation and fence damage and shift elk back to public lands.
- If Private Lands Only hunts, depredation hunts, tribal hunts, and landowner harvest are insufficient to reduce elk herds in low elevation agricultural areas, DWR removal will be implemented following approved action plans.

Duration of This Management Plan - This Unit Management Plan was revised in 2023 following the revision of the Statewide Elk Management Plan. This Unit Management Plan will be revised after the next Statewide Elk Management Plan revision to ensure all current management tools are being used. CWMU operators and landowners requested a mid-plan review and revisions may take place when improved data or management tools become available, or to address future issues. Unit elk plan goals, objectives, and strategies are constrained within the sideboards set in the Statewide Elk Plan, which supersedes unit plans. It is possible that changes to the Statewide Elk Plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rule may also affect elk unit plans.

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit #9 B,C,D
Vernal/Bonanza/Diamond
2023

BOUNDARY DESCRIPTION

Daggett, Uintah, Duchesne counties - Boundary begins at the Green River and the Utah-Colorado state line; west along the Green River to Flaming Gorge Reservoir; west along the south shoreline of Flaming Gorge Reservoir to Cart Creek; south along this creek to US-191; south on US-191 to the Uintah/Daggett county line (summit of the Uinta Mountains); west along this summit to the Dry Fork-Whiterocks drainage divide; southwest along the divide to USFS Trail #025 and Whiterocks Lake; south along the lake and trail to 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; south along this river to the Green River; south along this river to the White River; east along this river to the Utah-Colorado state line; north on this state line to the Green River. EXCLUDES ALL NATIVE AMERICAN TRUST LANDS WITHIN THIS BOUNDARY.

Any Bull Elk Unit Boundaries

Unit 9b Vernal Subunit - Daggett and Uintah counties - Boundary begins at the Dry Fork-Whiterocks 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 USFS-Private Land boundary on the west side of Davenport Draw and continuing south along this USFS boundary to the BLM boundary on the Diamond Mountain rim; southeast along the Diamond Mountain rim to the Diamond Mountain road (Jones Hole Road); southwest 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; northeast 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; north 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). EXCLUDES ALL NATIVE AMERICAN TRUST LANDS WITHIN THIS BOUNDARY.

Unit 9d 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. EXCLUDES ALL NATIVE AMERICAN TRUST LANDS WITHIN THIS BOUNDARY.

Limited Entry Bull Elk Unit Boundaries

Unit 9c Diamond Mountain Subunit - Daggett and Uintah counties--Boundary begins at the Utah-Colorado state line and the Green River at Browns Park; west along this river to Gorge Creek; south along Gorge Creek to the USFS/private land boundary at the head of Davenport Draw; south along the USFS/private land boundary on the west side of Davenport Draw to the BLM boundary; south along the BLM boundary approximately one-third of a mile to the rim of Diamond Mountain; south and easterly along this rim until the rim intersects the Diamond Mountain road (Jones Hole Road); south and west on this road to the Brush Creek road; south on this road to the Island Park/Rainbow Park road; east on this road to the Dinosaur National Monument boundary; north and east on this boundary to the Utah-Colorado state line; north on this state line to the Green River.

UNIT MANAGEMENT GOALS

- Manage for a population of healthy animals providing a broad range of recreational opportunities including hunting and viewing
- Consider impacts of the elk herd on other wildlife and land uses including agricultural crops
- Maintain the population at a level within the long-term capacity of the available habitat.
- Encourage elk to return to public lands by adjusting hunt strategies and hunting pressure

UNIT MANAGEMENT OBJECTIVES

Habitat -

- Maintain sufficient habitat to support elk herds at population objectives and reduce competition for forage between elk and livestock
- Encourage elk to remain on public lands as much as possible throughout the year
- Maintain the existing crucial elk habitat across the unit
- Work with partners to improve and protect the quality of elk habitat

Population - Past management practices have resulted in elk emigrating to areas of refuge such as tribal trust lands, private property or the Dinosaur National Monument where they are not available to the public. One of the objectives of the 2022 Statewide Elk Plan is to try to encourage more elk to return to public lands by changing hunt strategies. To achieve this objective while providing landowners more tools to benefit from elk on their lands and to reduce elk damage on private property, new hunt options are recommended. Elk coming from tribal or other refuge areas are not readily available to the public for recreation and are very difficult to manage due to jurisdiction and private property issues. To help landowners address these issues, Private-Lands-Only antlerless elk permits have been available since 2016 and have proven to be a successful tool from August 1-January 31st. To further increase tolerance of elk on private property by addressing the number of bull elk on these lands, it is recommended that a Private-Lands-Only general season Any Bull elk hunt with extended season dates for the Uinta Basin agricultural areas be instituted starting in 2025. This hunt will allow landowners an additional opportunity to harvest bull elk from their private property.

Target Winter Herd Size Objective - Manage towards an objective of 3,000 wintering elk on the unit, this estimate will exclude Tribal Trust Lands where the Division does not have management authority. This represents a change to how the unit population estimate was calculated in the past. Because tribal lands only comprise a small portion of elk habitat on this unit, the objective was not adjusted.

Population estimates will be based on elk that winter on non Tribal Trust Lands where the state has management authority. The Division will continue to survey elk on tribal lands to maintain an estimate of total population for future management decisions, but the state will manage the herd toward the objective of elk on lands where the Division has management authority.

Radio collar data across the south slope of the Uintas confirm that while the unit boundaries represent fairly distinct wintering populations, some elk occasionally move back and forth across the boundaries between units and subunits during the winter when aerial counts are conducted depending on winter conditions. Therefore, the Yellowstone and Vernal/Diamond/Bonanza units will continue to be surveyed at the same time and the distribution of elk during the trend counts will be taken into consideration when determining whether the populations are above or below objective.

Bull Elk Harvest Objectives - As per the Statewide Elk Management Plan, harvest strategies are used to provide diverse hunting opportunities for the public. The subunit specific harvest strategies are as follows:

- **Subunit 9B -** This is a general season any bull hunting unit. Limited Entry Youth Any Bull Elk permits are available on this subunit on a statewide basis.

- **Subunit 9C -** This is a limited entry bull elk unit with a mean age harvest objective of 6.0-6.5 years old.
- **Subunit 9D -**This is a general season any bull hunting unit. Limited Entry Youth ANy Bull Elk permits are available on this subunit on a statewide basis.

CURRENT STATUS OF ELK MANAGEMENT

Habitat - Existing habitat needs to be protected and crucial habitat needs to continue to be improved. A number of habitat improvements have occurred within this unit over the past 10 years. Recent habitat improvements for elk habitat include commercial lumber harvest, prescribed fire, habitat restoration on the Simplot phosphate mine, mechanical treatment of brush, etc. Conifer domination and encroachment on summer and transition range needs to be addressed, possibly by re-establishing the natural fire intervals in the conifer zone. Decadent stands of mountain sagebrush need to be thinned and regenerated on the winter range to minimize winter depredation on lower elevation agricultural areas. The primary factor limiting this unit from supporting larger elk populations is agricultural depredation and competition for forage with domestic & feral livestock. Over utilization of winter browse in areas of heavy concentrations of deer and elk during hard winters is also a limiting factor.

Range Area an Approximate Ownership

	Summer Range		**Winter Range**	
Ownership	**Area (acres)**	**%**	**Area (acres)**	**%**
Forest Service	259,549	58	32,164	10
Bureau of Land Management	77,659	17	172,469	52
Utah State Trust Lands	5,662	1	24,955	7
Native American Trust Lands	0	0	25,955	8
Private	84,465	19	63,111	19
USFWS Refuge	0	0	125	0
National Parks	7,210	2	9,649	3
Utah State Parks	0	0	2,935	1
Utah Division of Wildlife Resources	13,429	3	1,599	0
Total	**1,078,460**	**100**	**677,886**	**100**

Population - The post-season 2022 population estimate is 2,700 on the Vernal/Diamond/Bonanza unit. This estimate excludes elk located on Tribal Trust Lands.

Winter Trend Counts (excludes Tribal Trust Lands)			
	Year	**Trend Count**	**Population Estimate**
Vernal/Diamond/Bonanza	2013	2,431	3,000
Vernal/Diamond/Bonanza	2019	2126	2,700

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat - There are issues with the loss of winter range due to sagebrush decline and cheatgrass expansion. Poor range conditions during drought years is also a challenge as well as poor quality summer/transitional range due to conifer dominance. Conifer and PJ invasion of grasslands and browse areas critical for wildlife continues to be a barrier.

Population - It is difficult to maintain significant elk numbers on public lands due to refuge areas like Tribal Trust lands, Dinosaur National Monument, and private property. Chronic Wasting Disease (CWD) could reduce future elk production if it becomes widespread across the unit at a high enough prevalence rate.

Other Barriers - There are consistent conflicts with agricultural crop depredation and fence damage on private lands. These challenges occur in the winter and year round with resident elk in lower elevation agricultural areas including Jensen, Ouray, lower Uinta River, and others. The inability to remove depredating animals from agricultural areas due to tribal trust lands or private lands exacerbates the conflict.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat

- Cooperate with USFS & BLM to reinstitute a natural fire interval in the conifer zone to improve elk habitat.
- Cooperate with USFS & sportsman's groups to reseed after wildfires and prescribed burns.
- Cooperate with USFS to treat cheatgrass expansion and reseed problem areas in old burn scars between Deep Creek and White Rocks Canyon.
- Cooperate with BLM & the Ute Tribe to increase vegetative under story and reduce Pinyon & Juniper encroachment into the sagebrush zone.
- Cooperate with Simplot to maximize elk habitat on the phosphate mine to 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 elk herds in agricultural areas with Private Lands Only hunts to reduce depredation impacts on private property and shift elk back to public lands.
- If drought conditions become serious enough to limit forage availability, emergency drought permits may be approved by the Wildlife Board to reduce elk density.

Population

- Encourage elk to remain on public lands by adjusting hunt strategies to reduce hunting pressure where elk are commonly pushed onto refuge areas. Implement Private Lands Only bull and cow hunts to encourage elk back to public lands.
- When funds are available, pursue a GPS collar study for the Yellowstone and

Vernal/Bonanza/Diamond units to better understand the effects of hunting in relation to refuge areas on these units, better define habitat classification and identify migration corridors and future wildlife crossing sites, etc.
- Monitor CWD prevalence across the unit in accordance with the statewide CWD management plan and assist Utah Department of Agriculture and Food in monitoring elk farms/ranches for compliance.

Other Barriers
- Provide private landowners with Private Lands Only cow and bull permits to increase tolerance of elk or remove elk by increasing hunting pressure on private lands to push elk back to public lands.
- Whenever feasible hunts will be targeted to address elk herds in agricultural areas to reduce depredation and fence damage.
- If Private Lands Only hunts, depredation hunts, tribal hunts, and landowner harvest are insufficient to reduce elk herds in low elevation agricultural areas, DWR removal will be implemented following approved action plans.

Duration of This Management Plan - This Unit Management Plan was revised in 2023 following the revision of the Statewide Elk Management Plan. This Unit Management Plan will be revised after the next Statewide Elk Management Plan revision to ensure all current management tools are being used. CWMU operators and landowners requested a mid-plan review and revisions may take place when improved data or management tools become available, or to address future issues. Unit elk plan goals, objectives, and strategies are constrained within the sideboards set in the Statewide Elk Plan, which supersedes unit plans. It is possible that changes to the Statewide Elk Plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rule may also affect elk unit plans.

ELK UNIT MANAGEMENT PLAN
Elk Herd Unit #16A
NEBO
2023

BOUNDARY DESCRIPTIONs

Nebo Unit Boundary
Juab, Millard, Sanpete, Sevier and Utah counties—Boundary begins at US-6 and I-15 at Spanish Fork; southeast on US-6 to US-89 near Thistle; south on US-89 to US-50 at Salina; northwest on US-50 to I-15 at Scipio; north on I-15 to US-6 at Spanish Fork.

Nebo/San Pitch Mountains Limited Entry and Spike Unit Boundary
Juab, Millard, Sanpete, Sevier and Utah counties—Boundary begins at US-6 and I-15 at Spanish Fork; southeast on US-6 to US-89 near Thistle; south on US-89 to Big Hollow Rd; west on Big Hollow Rd to SR-132 in Fountain Green; South on SR-132 to Main St (SR-116) in Moroni; East on SR-116 to US-89 in Mount Pleasant; south on US-89 to SR-28 in Gunnison; north on SR-28 to I-15 in Nephi; north on I-15 to US-6 at Spanish Fork.

Moroni Hills Any Bull Boundary
Sanpete County--Boundary begins at SR-132 and Big Hollow Rd in Fountain Green; east and northeast on Big Hollow Rd to US-89; south on US-89 to Main St (SR-116) in Mount Pleasant; west on SR-116 to SR-132 in Moroni; north on SR-132 to Big Hollow Rd in Fountain Green.

Valley Mountains Any Bull Boundary
Sanpete, Millard and Juab counties – Boundary begins at I-15 and SR-28at Nephi; south on SR-28 to US-89 in Gunnison; south on US-89 to Main St (SR-50) in Salina; northwest on SR-50 to 400 N in Scipio; west on 400 N to I-15 at Scipio; north on I-15 to SR-28 at Nephi.

UNIT MANAGEMENT GOALS

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities including hunting and viewing
- Maintain an elk population consistent with available range resources that are in balance with other range uses such as livestock grazing and watershed protection
- Consider impacts of the elk herd on other land uses and public interests including private property rights, agricultural crops and local economies.
- 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 from oil and gas development, road construction, urban expansion, increased recreation or other land use impacts

UNIT MANAGEMENT OBJECTIVES

Habitat -
- Maintain and protect existing critical elk ranges sufficient to support the population objectives.
- Seek cooperative projects to improve the quality of elk habitat.
- Promote enhancement of habitat security and escapement areas for elk.
- Pursue protection of crucial habitats to development through conservation easements.
- Coordinate with federal agencies to protect and enhance aspen communities on summer habitats. Management techniques that assure a diverse age structure of aspen communities will be utilized.
- Cooperate with livestock operators and federal agencies to improve range management practices in such a way to optimize both livestock and elk forage production and thus minimize conflicts.
- Remove pinion-juniper encroachment into winter range sagebrush parks and summer and

transitional range mountain brush communities.
- Minimize and mitigate for habitat loss and displacement of elk as a result of coal, oil and gas development and urban expansion.

Population -
- Maintain healthy elk populations at biologically and socially sustainable levels.
- Foster support among stakeholders for Utah's elk management program.
- Achieve a proper distribution of elk on private and public lands.

Target Winter Herd Size Objective - Maintain a wintering elk population of *2,200, based on aerial counts; supplemented with available harvest data, preseason sex and age classifications, and survival estimates. Unless range conditions become unsuitable as evaluated by the Utah Division of Wildlife Resources (DWR). Desired elk population levels are guided by habitat conditions and public tolerance of elk. The elk population objective will be evaluated each time the unit management plan is up for renewal.

Utilize general season spike-only hunting and limited entry any bull hunting to accomplish herd composition objectives. Target population size will be maintained through the use of antlerless harvest using a variety of harvest methods and seasons.

*Unit elk committee changed the population objective from 1,450 to 2,200 in 2023

Bull Elk Harvest Objectives - Maintain an average age of harvested bulls between 5.5-6.0 years old on the Nebo/San Pitch Mountain limited entry unit. The age objective was changed from 6.5-7 to 5.5-6 in 2020. Average age of harvest will be determined by tooth age data from limited entry harvest.

The Moroni Hills and Valley Mountains portions of the Nebo unit will be managed as Any Bull general elk hunting units to reduce conflicts with agriculture and provide additional elk hunting opportunity. The change to the hunting strategy in these areas was made in the statewide elk plan revision in 2022.

CURRENT STATUS OF ELK MANAGEMENT

Habitat - There are approximately 20 range trend study locations on the Nebo unit that occur primarily on deer winter ranges but in many cases show trends in elk winter range productivity. The Nebo was last read in 2022. Most range trend sites across the unit show declining trends in browse density and cover on low elevation deer ranges inhabited primarily by deer. Range Trend Study locations at mid elevations where elk typically winter show a better trend. The majority of range trend sites monitored on predominantly elk ranges were in fair to good condition with stable browse and herbaceous understory components. The average of all of the DCI scores on elk winter ranges suggest the winter elk habitat is in Fair to Good condition.

Elk Habitat occurs on 322,339 acres of the unit comprised of 55% spring/summer/fall range and 45% winter range. Of positive note within this unit are the study sites located in the canyons along the base of Mt. Nebo: Willow Creek Gardner Canyon, and Birch Creek. These study sites are host to valuable preferred browse populations that include varying amounts of species such as Utah serviceberry, alderleaf mountain mahogany, and Stansbury cliffrose, among others. Cover and density data indicate that the preferred browse components on these study sites have remained fairly stable between 2017 and 2022.

In summer ranges, introduced perennial grasses are present and may become invasive and outcompete native species. Invasion of annual grasses are posing a threat on the lower elevation summer ranges. Conifer encroachment is also occurring across many sites and should be targeted for removal. Some mountain browse sites are experiencing heavy use by elk which can lead to decreased shrub and herbaceous vigor. Increasing the availability of these habitats may decrease pressure in localized areas. In winter ranges, introduced perennial grass species may be providing competition against annual grasses but also may be leading to reduced abundance of more desirable grass and forb species.

Pinyon-juniper encroachment is also occurring into shrub sites. The threat of noxious weeds from development, disturbance, and grazing is high on winter ranges.

In the last decade several major wildfires have burned much of the unit. The Pole Creek and Bald Mountain fires burned over 120,000 acres in 2018. Most of the burn took place in summer range habitat. These fires have promoted early successional species that have benefited elk. Elk distribution and migration patterns have changed due to these fires.

Summer ranges are also impacted by fairly high recreation use during the summer months. This tends to displace elk from portions of important summer range. High levels of development and recreation pose risks to habitat from direct loss to introduction of noxious weeds.

Range Area and Approximate Ownership

	Spring/Summer/ Fall Range		Winter Range	
Ownership	**Area (acres)**	**%**	**Area (acres)**	**%**
Forest Service	149,478	85	36,958	25
Bureau of Land Management	790	<1	10,356	7
Utah State Institutional Trust Lands	88	<1	3,490	2
Private	13,995	8	74,517	51
Utah Division of Wildlife Resources	11,881	7	20,787	14
TOTAL	176,231	100	189092	100

Habitat Projects Completed and Proposed 2019-2025

Completed Habitat Treatment Area	Acres
Nebo Creek Mitchell Drill Seed	31.39
Fountain Green WMA Cheatgrass Control	138.96
Levan WMA Shrub Planting Project FY-22	5.90
Santaquin and Mona Benches WMA Shrub Restoration	30.12
Thistle Creek Watershed Restoration Phase 2	809.11
Williams Fire Rehabilitation Project	699.86
Hollow Fire Aerial Seeding Project	219.52
Thistle Creek Watershed Restoration and Fire Rehab Project	3,510.26
Central Region Shrub Restoration Project FY 2021	35.03
Pole Creek/Bald Mountain Fire Rehabilitation	31,481.73
TOTAL ACRES	36,961.88

Population - The Nebo unit has shown an increasing trend from 1,300 elk in 2018 to 2,400 elk in 2022.

Calf production based on summer preseason classification counts has averaged 64 calves per 100 cows over the past 3 years. Limited entry bull harvest on the unit has steadily increased during this period. Despite these increases, the average age of harvested bull has increased as well. The three year average is currently 7.1 years. Spike harvest has remained stable.

Trends in Elk Harvest Central Mountains, Nebo/San Pitch

Proposed Habitat Treatment Area	Acres
Indianola Harrow Project – FY24	330.22
Crab Creek Discretionary Seed Project FY- 24	11.72
Sanpitch Mountains Collaborative Phase I	17,588.67
Levan WMA Shrub Planting Project FY-23	38.95
Nebo Unit 16A Big Game Winter Habitat Improvement FY 23	1,461.08
Levan WMA Shrub Restoration Project - FY24	6.14
Central Mountains (Nebo) Big Game Winter Habitat Restoration FY24	1,776.09
TOTAL ACRES	21,212.87

YEAR	# of Elk on Unit	LE BULL HARVEST (public and CWMU)	GEN.SEASON SPIKE HARVEST.	AVE. AGE OF HARVESTED BULLS	ANTLERLESS HARVEST
2018	1300	36	126	5.8	467
2019	1900	36	105	5.7	224
2020	1850	48	130	6.7	210
2021	1700	49	116	7.2	199
2022	2400	59	110	7.5	206

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat -

- Further development near Woodland Hills/Mount Loafer will increase disturbance, disrupt movements of elk, increase vehicle collisions, and damage habitat. Most of these elk summer at higher elevations on Mount Loafer and winter near Woodland Hills. Similar concerns exist if land near Fountain Green (Big Hollow/Moroni Hills and Water Hollow) is further developed.
- Loss of winter ranges and summer shrub habitats to pinion-juniper encroachment and shrub decadence.
- Competition for forage with domestic livestock on both summer and winter ranges.
- 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.

Population -

- Public resistance to increasing numbers of bull hunting permits to reduce mean age of harvest.
- Damage to agricultural crops and rangelands may decrease public support for elk on this unit.
- Depredation near Fountain Green, Levan, Mount Pleasant, and Woodland Hills are a concern.
- Elk may be maintained at levels below the stated objective if excessive levels of crop depredation or forage consumption on private lands occur.

- Other Mortality Causes – disease outbreaks, highway mortalities, poaching, etc.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat -

- Cooperate with federal agencies to establish natural fire policies that will allow wild fires to burn in beneficial and non-threatening areas to recover lost elk habitat.
- Continue to improve forage production on winter and other shrub lands by aggressive pinyon-juniper removal.
- Cooperate with federal agencies to assure a diverse age structure of aspen communities on summer habitats.
- Pursue conservation easements on critical parcels of private property to protect important elk habitat from development.
- Cooperate with federal agencies to develop access management plans to enhance elk habitat value. This may include seasonal road closures or vehicle restrictions.
- Involve livestock operators in spring range rides and assessments in an effort to keep good relationships and address any potential concerns about competition between livestock and elk.

Population -

- Target depredation hunts to address elk herds that habitually move into agricultural areas.
- Utilize Private–Lands-Only permits to reduce elk numbers on private lands.
- Cooperate with private landowners to fence haystacks and provide compensation when necessary in high winter depredation areas.
- Utilize antlerless hunts to address range concerns in specific areas.
- Utilize depredation bull hunts and extended archery season options if needed to address depredation and public safety issues by bulls according to DWR depredation policy.
- Cooperate with UDOT to pursue funding to reduce highway mortalities.

RESEARCH

Mt Nebo Mule Deer and Elk Study

In 2023 a large-scale study began to gain a more in depth understanding of adult and neonate ungulate survival on the Central Mountains Nebo/San Pitch management unit. This study focuses on both elk and mule deer. The study will run through 2026. Below is a description of the study.

Because of landscape juxtaposition (e.g., relatively productive habitat) and timing (e.g., relative to the current Wasatch Front cougar study, recent Pole Creek fire, and recent increases in understanding derived from the Statewide, Book Cliffs, Cache, South Manti studies and monitoring) the Central Mountains Nebo Unit provides a unique and rare opportunity to better understand factors that drive population dynamics of ungulates. The objective of this project is to determine the relative influence of top-down (predation) vs bottom-up (habitat quality) characteristics on the population dynamics of elk and mule deer in a system that appears to have relatively high-quality summer and winter range. More specifically, we propose to examine the health of adult ungulates, rates of pregnancy, production of offspring, and the survival and cause-specific mortality of neonate, juvenile, and adult mule deer and elk. In addition, we will examine resource selection and associated measures of health by deer and elk relative to space use by predators (e.g., cougars) and stochastic events that potentially influence habitat quality (e.g., fire and weather) at time scales ranging from hours to years. Results from this study will be compared to results from previous studies (e.g., the Book Cliffs comprised of relatively marginal habitat that limits herd health, the South Manti study that illustrated the factor likely limiting mule deer was predation, etc.) to better understand the population ecology of mule deer and elk throughout the entire region. The results from this study will lead to more informed decision making and better management/conservation of our big game resources across the entire state of Utah.

Duration of This Management Plan - This Unit Management Plan was revised in 2023 following the revision of the Statewide Elk Management Plan. This Unit Management Plan will be revised after the next Statewide Elk Management Plan revision to ensure all current management tools are being used. CWMU operators and landowners requested a mid-plan review and revisions may take place when improved data or management tools become available, or to address future issues. Unit elk plan goals, objectives, and strategies are constrained within the sideboards set in the Statewide Elk Plan, which supersedes unit plans. It is possible that changes to the Statewide Elk Plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rule may also affect elk unit plans.

ELK UNIT MANAGEMENT PLAN
Elk Herd Unit # 16
MANTI
2023

BOUNDARY DESCRIPTION

Utah, Carbon, Emery, Sevier, and Sanpete counties - Boundary begins at the junction of US-6 and I-89 in Spanish Fork Canyon; southeast on US-6 to Price and SR-10; south on SR-10 to I-70; west on I-70 to US-89; north on US-89 to US-6 in Spanish Fork Canyon.

UNIT MANAGEMENT GOALS

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities including hunting and viewing
- Maintain an elk population consistent with available range resources that are in balance with other range uses such as livestock grazing and watershed protection
- Consider impacts of the elk herd on other land uses and public interests including private property rights, agricultural crops and local economies
- 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 from oil and gas development, road construction, urban expansion, increased recreation or other land use impacts

UNIT MANAGEMENT OBJECTIVES

Habitat - The unit habitat objectives will follow the goals and objectives outlined in the statewide elk plan with the primary goal to "conserve and improve elk habitat throughout the state." This will be done by maintaining sufficient habitat to support elk herds at population objectives, reducing competition for forage between elk and livestock, and reducing adverse impacts to elk herds and elk habitat.

Unit habitat objectives will include:

- Coordinate with federal agencies to protect and enhance aspen communities on summer habitats
- Management techniques that assure a diverse age structure of aspen communities will be utilized
- Cooperate with federal agencies to improve summer range forage production and forest health by actively managing vast acreages of beetle-killed conifer stands. This may include salvage logging, prescribed fire, and other techniques
- Remove pinion-juniper encroachment into winter range sagebrush parks and summer and transitional range mountain brush communities
- Pursue protection of crucial habitats to development through conservation easements
- Minimize and mitigate for habitat loss and displacement of elk as a result of coal, oil and gas development and urban expansion
- Cooperate with livestock operators and federal agencies to improve range management practices in such a way to optimize both livestock and elk forage production and thus minimize conflicts

Population - Desired elk population levels are guided by habitat conditions and public tolerance of elk.

Target Winter Herd Size Objective - Maintain a wintering elk population of 12,000. This is the same objective as the previous plan.

Bull Elk Harvest Objectives - Maintain an average age of harvested bulls between 5.5-6.0 years. Utilize general season spike-only hunting and limited entry any bull hunting to accomplish herd composition objectives. Utilize private lands only permits, depredation permits, and CWMU permits to increase antlerless harvest on private lands.

CURRENT STATUS OF ELK MANAGEMENT

Habitat - There are approximately 25 permanent range trend study locations on the Manti unit that occur primarily on elk winter ranges. The Manti unit was read in 2019. Most range trend locations target winter ranges for deer but in many cases show trends in elk winter range productivity. Most range trend sites across the unit show declining trends in browse density and cover on low elevation deer ranges inhabited primarily by deer. Range Trend Study locations at mid elevations where elk typically winter show a better trend. The majority of range trend sites monitored on predominantly elk ranges were in fair to good condition with stable browse and herbaceous understory components. The average of all of the DCI scores on elk winter ranges suggest the winter elk habitat is in fair to good condition.

One of the habitat limiting factors on the unit is encroachment of pinyon juniper into shrub communities. On summer ranges, introduced perennial grasses are present and may become invasive and outcompete native species. Some mountain browse sites are experiencing heavy use by elk which can lead to decreased shrub and herbaceous vigor. The threat of noxious weeds from development, disturbance, and grazing is high on winter ranges.

Cooperative DWR/BLM/USFS spring range rides have shown relatively stable to declining elk utilization patterns on winter ranges with some localized areas being over utilized. Declines in elk use can be attributed to aggressive antlerless harvest that has reduced the overall population and changed migration patterns.

Elk summer habitat appears to be in stable condition. This unit has benefitted from numerous wildfires in the last decade that have promoted early successional species that will likely benefit elk. These wildfires have changed elk distribution and migration patterns. Domestic sheep graze much of the summer range on the unit. Although there may be localized competition between sheep and elk, stocking rates are well below historical averages. Summer ranges are also impacted by fairly high recreation use during the summer months. This tends to displace elk from portions of important summer range. High levels of development and recreation pose risks to habitat from direct loss to introduction of noxious weeds.

Crop depredation by elk on this unit is most pronounced during late winter and spring when elk migrate to low elevation ranges and inhabit irrigated fields at the mouths of most major drainages. Depredation to haystacks, standing alfalfa crops, and fencing can at times be significant. This depredation is mitigated by aggressive antlerless harvest on private lands and payments.

Several habitat improvement projects that will benefit elk have been completed or are planned by federal agencies, UDWR, and private landowners (see Appendix I). These projects should allow elk numbers to be maintained at the population objective without creating conflicts with other land uses.

Range Area and Approximate Ownership

	Yearlong range		Summer Range		Winter Range	
Ownership	**Area (acres)**	**%**	**Area (acres)**	**%**	**Area (acres)**	**%**
Bureau of Land Management	8447	4	1054	<1	111,282	16
Private	64292	30	100,262	19	165180	23
Utah State Institutional Trust Lands	1572	1	3539	1	85913	12
Forest Service	134218	62	429328	80	295502	42
Utah State Parks	78	<1	17	<1	386	<1
Utah Division of Wildlife Resources	6269	3	2608	<1	45733	6
TOTAL	214878	100	536808	100	703996	100

Population - The elk population on the Manti unit was reduced to 9300 elk in 2019 as a result of aggressive antlerless harvest the previous several years. Since then, the population has been allowed to slowly increase. The aerial survey data collected in January 2023 suggests a current population of 11,700 elk. Calf production based on summer preseason classification counts has averaged 47 calves per 100 cows over the past 5 years. Limited entry bull harvest on the unit has steadily increased during this period. Despite these increases, the average age of harvested bull has remained stable at 6.6 years. Spike harvest has remained stable.

Year	Population Estimate	LE Bull Harvest (public and CWMU)	Gen. Season Spike Harvest	AVE. Age of Harvested Bulls	Antlerless Harvest
2017	11300	385	257	6.1	468
2018	11300	366	383	6.5	731
2019	9300	364	301	6.4	629
2020	9500	408	292	6.8	537
2021	9900	428	412	6.6	455
2022	11700	451	418	6.6	534

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat -

- Loss of winter range due to development and urban expansion
- Drought impacts to rangeland forage condition and abundance
- Loss of winter ranges and summer shrub habitats to pinion-juniper encroachment and shrub decadence
- Conifer encroachment on essential aspen communities
- Large expanses of beetle-killed conifer stands are providing little elk habitat value and are susceptible to large scale fires
- Competition for forage with domestic livestock on both summer and winter ranges

Population -

- Elk / Livestock Competition - Elevated concern about depredation on crops and competition with domestic livestock on rangelands occur when elk are near or above the population objective.
- Harvest Age Objective - Public resistance to increasing numbers of bull hunting permits to reduce average age of harvest to meet the plan objective.

Other Barriers -

- Agricultural Depredation - Elk on privately owned crops and rangelands may decrease public support for elk on this unit. Elk numbers may 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 - Disease outbreaks, highway mortalities, poaching, predation, etc.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat -

- 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
- Continue to cooperate with federal agencies to establish natural fire policies that will allow wildfires to burn in beneficial and non-threatening areas to recover lost elk habitat
- Continue to improve forage production on winter range and other shrublands by aggressive pinion-juniper removal
- Support and coordinate with land management agencies on projects that maintain a diverse age structure of aspen communities on summer habitats
- Pursue conservation easements on critical parcels of private property to protect important elk habitat from development
- Continue to cooperate with land management agencies and development interests to attempt to protect key areas and minimize or mitigate losses due to development
- Cooperate with federal agencies to develop access management plans to enhance elk habitat value. This may include seasonal road closures or vehicle restrictions.

Population -

- 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 limited entry 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. Target population size will be maintained through the use of antlerless harvest using a variety of harvest methods and seasons
- Utilize tools outlined in statewide plan to address elk herds that habitually move into agricultural areas
- Utilize Private-Lands Only permits to achieve adequate harvest on private lands
- Cooperate with private landowners to fence haystacks and provide compensation when necessary in high winter depredation areas
- Utilize antlerless hunts to address range concerns in specific areas
- Utilize depredation bull hunts and extended archery season options if needed to address depredation and public safety issues by bulls according to DWR depredation policy
- Cooperate with UDOT to pursue funding to reduce vehicle mortalities

Duration of This Management Plan - This Unit Management Plan was revised in 2023 following the revision of the Statewide Elk Management Plan. This Unit Management Plan will be revised after the next Statewide Elk Management Plan revision to ensure all current management tools are being used. CWMU operators and landowners requested a mid-plan review and revisions may take place when improved

data or management tools become available, or to address future issues. Unit elk plan goals, objectives, and strategies are constrained within the sideboards set in the Statewide Elk Plan, which supersedes unit plans. It is possible that changes to the Statewide Elk Plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rule may also affect elk unit plans.

Appendix I. Completed and Proposed Habitat Treatment Projects on the Manti Unit, 2016 – 2023.

Habitat Projects **Completed Projects Fall 2016-Spring 2023**		
Project Name	*Acres**	*Treatment Type*
North Springs PJ Removal Phase II	1531	Lop and Scatter
Birdseye WMA Bullhog Project	230	Bullhog
Swasey Wildlife Habitat Improvement and Hazardous Fuels Reduction Project Phase VII	621	Bullhog
Gordon Creek Tamarisk and Russian Olive Removal	427	Herbicide
Spring City Fuels Reduction and Habitat Improvement	533	Lop and Scatter, Bullhog
Willow creek Habitat Improvement and Fuels Reduction	447	Pile and Burn, Bullhog
LeeKay Phase III Land Exchange	5523	Land Acquisition
Swasey Wildlife Habitat Improvement and Hazardous Fuels Reduction Project Phase 8	353	Bullhog
South Horn Wildlife Habitat Improvement Project	609	Bullhog
Grimes Wash Phase 2	111	Bullhog, Seeding
Ephraim Foothills PJ Removal	254	Bullhog
Trail Mountain Wildlife Habitat Enhancement and Aspen Regeneration Project	985	Prescribed Fire
Miller Creek Watershed Restoration	1098	Lop and Scatter, Bullhog, Pile and Burn, BDA, Pond Cleaning
Muddy Creek riparian, wetland, and upland restoration Ph. 1	208	Invasive Species Removal
Willow Fuels Project-Phase 1	801	Bullhog, Herbicide
White Hill WMA Plateau Project	296	Herbicide
Trail Mountain Fire	1500	Seeding
Coal Hollow Fire Rehabilitation Project	4823	Seeding, Chaining
Hilltop Fire Rehabilitation Project	1732	Seeding, Chaining
Pole Creek/Bald Mountain Fire Rehabilitation	5075	Seeding
Dairy Fork Bullhog	505	Bullhog
Six Mile WMA In-House Bullhog Project- Phase 1	447	Bullhog
Grimes Wash Phase 3	465	Seeding
Dry Wash Units 4, 5, 9	117	Lop and Scatter

Willow Fuels Project-Phase 2	892	Lop, Pile, and Burn
Willow-New Canyon Phase 1	303	Lop, Pile, and Burn
Lake Fork Allotment Water System Repair-Helicopter Lift Project		Spring Development, Water Troughs
Jolly Mill Solar Pump and Pipeline		Pipeline, Trough, Solar Pump, Storage Tank
Gordon Creek WMA Livestock Water Improvement		New Pond Construction (8)
Thistle Creek Watershed Restoration and Fire Rehab Project	3497	Bullhog, Seeding
New Canyon Watershed Restoration Phase 2	107	Lop, Pile, and Burn
Swasey/Dry Wash/Grimes Wildlife Habitat Improvement and Hazardous Fuels Reduction	2092	Bullhog, Prescribed Fire, Lop and Scatter
Miller Creek 3.0	269	Lop and Scatter, Planting
Muddy Creek riparian, wetland, and upland maintenance	207	Spot Treatment
Salina Creek Ecosystem Restoration Project Phase 3	9994	Bullhog, Prescribed Fire, Lop, Chaining
Trail Mountain Ignition Slash Lines	843	Lop and Scatter
Cowboy Fire Seeding Project	150	Seeding
Ephraim Watershed Restoration Phase 3	1679	Bullhog, Prescribed Burn, Lop and Chip, Herbicide, Planting, BDA
Thistle Creek Watershed Restoration Phase 2	748	Bullhog, BDA
Manti-La Sal Healthy Forest Restoration	14938	Prescribed Fire, Bullhog, BDA
Mount Pleasant Twin Creek Habitat Improvement Project	30	Chaining, BDA
Lower Fish Creek Forest Health Restoration	178	Lop, Pile, and Burn, Herbicide
Price Slashing	790	Lop and Scatter
Bear Fire	3553	Seeding
Bennion Fire Rehabilitation Project	2547	Seeding
Mahogany Point Sage Grouse Habitat Improvement Phase 2	1492	Lop and Pile, Bullhog, Prescribed Fire

Twelve Mile Watershed Restoration Project FY 23	2047	Bullhog, Lop and Scatter, BDA, Spring Development, Pond Construction
Salina Creek Ecosystem Restoration Phase 4	7194	Prescribed Fire, Bullhog, Lop
Spanish Fork River Watershed Post Fire Restoration Phase III	32	BDA
Bear Fire Weed/Herbicide Treatment	2252	Herbicide
Upper Price River Watershed	2885	Lop and Scatter, Pile Burn, Wet Meadow Enhancement

Habitat Projects **Projects in Progress**		
Project Name	*Acres* *	*Treatment Type*
Central Utah Habitat Maintenance Project Phase III	627	Lop and Scatter
Salina Creek Phase 5	9732	Prescribed Fire, Bullhog
Upper Price River Watershed FY24	5312	Lop, Pile, and Burn, Lop and Chip, Prescribed Fire, Herbicide, Planting
Twelve Mile Watershed Restoration Project FY 24	2793	Lop, Pile, and Burn, Thinning, BDA, Pond Construction, Pipeline
Thistle Creek Watershed Restoration - Phase 3	58	BDA, Check Dam, Fence
Central Region Riparian Restoration FY24	3	BDA
Southern Region Riparian Restoration FY24		Beaver Relocation
Ephraim Watershed Restoration Phase 4 (FY24)	2903	Prescribed Fire, Lop, Pile, and Burn, Buck and Pole Fence
West Emery County Watershed Restoration	9638	Bullhog, Prescribed Fire, Herbicide, Guzzler Construction (3)
East Mountain Boreal Toad Fence Improvement		Buck and Pole Fence
Carbon and Emery County Habitat Restoration and Maintenance	195	Lop and Scatter

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit #20
SOUTHWEST DESERT
2023

BOUNDARY DESCRIPTION

Beaver, Iron and Millard counties - Boundary begins at the Utah-Nevada state line and US-6/50; east on US-6/50 to SR-257; south on SR-257 to SR-21; south on SR-21 to SR-130; south on SR-130 to I-15; south on I-15 to SR-56; west on SR-56 to the Lund highway; northwest on this highway to Lund and the Union Pacific railroad tracks; southwest along these tracks to the Utah-Nevada state line; north on this state line to US-6/50.

Hunt unit boundaries

Southwest Desert, North (Sept. Archery and HAMSS unit) - Beaver, Iron and Millard counties - Boundary begins at the Utah-Nevada state line and US-6/50; east on US-6/50 to SR-257; south on SR-257 to SR-21; west on SR-21 to the Utah-Nevada state line.

Southwest Desert, South (Limited entry) - Beaver, Iron and Millard counties - Boundary begins at the Utah-Nevada state line and US-6/50; east on SR-21; south on SR-21 to SR-130; south on SR-130 to I-15; south on I-15 to SR-56; west on SR-56 to the Lund highway; northwest on this highway to Lund and the Union Pacific railroad tracks; southwest along these tracks to the Utah-Nevada state line; north on this state line to US-6/50.

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
- Maintain and enhance forage and cover habitat through vegetative manipulation, domestic grazing and other management techniques
- Manage for increased water distribution which will in turn distribute ungulates
- Mitigate against habitat fragmentation, degradation and loss stemming from an increased wild horse population, energy development, roads, increased recreation and other impacts

UNIT MANAGEMENT OBJECTIVES

Habitat - The 2023 committee set the following goals for the next cycle of unit plan revisions. A unit committee will be assembled in 3-5 years to assess the status and discuss if any changes to the objective or any unit boundaries are warranted.

- Treat 30,000 acres on the SWD unit
- Support additional wild horse removal
- Implement antlerless hunts in specific areas with high elk use
- Continue collaring elk to show areas of high use
- Continue to coordinate with Nevada on elk populations, flights, etc.
- Be cognizant of drought and poor habitat conditions and issue antlerless permits accordingly, a trigger for this action would be if livestock on public land are removed early
- Three water developments in elk habitat
- Implement targeted hunts to distribute elk out of conflict areas
- Managed within the objective

Population - Following a lot of discussion, a consensus on an objective range of 1050-1250 for the Southwest Desert. A range will allow DWR to be reactive to changing climatic conditions. During years where forage availability is low due to drought, DWR will target the low end of the objective and make recommendations to keep the population at 1050 or possibly lower in extreme conditions. One of the triggers for targeting the lower end will be if land management agencies ask for livestock to leave public grazing leases early. During years where forage availability is adequate, DWR will target the upper end of the objective at 1250. For reference, the previous population objective was 975.

The 2023 committee also discussed the possible need of holding targeted cow elk hunts when it is necessary for private land conflicts, and range health on public land. Ideas included standard public antlerless hunts, but also more quick reaction efforts like depredation hunter pool hunts. These would allow for DWR to have hunters on the ground within a week to put pressure on elk and distribute them to other areas. DWR will also continue to be aggressive with issuing mitigation permits, doing DWR removals on cropland, and holding depredation hunts for private land conflicts. (August 1-January 31 legal season dates)

Target Winter Herd Size Objective - Manage toward a herd unit modeled elk winter population size of 1050 – 1250 (previous objective 975). This new objective was settled on by the 2023 committee after the evaluation and of the goals that were set in the 2016 plan that stated that an increase would be considered if a minimum of three of five goals listed below had been reached. Those Goals and what was completed are listed below.

1. Complete 15,000 acres of additional habitat treatments.
   - Acres treated in Elk Habitat – 31,077 = $9,982,089.63
   - Acres treated out of Elk Habitat – 33,351 = $9,488,142.68
   - Total acres treated on the SWD – 66,428 = $19,470,232.31

2. Install a minimum of 3 new wildlife guzzlers.
   Five Guzzlers were constructed - $175,000
   - Wah Wah Summit
   - Mt. Home East
   - Headlight
   - Mormon Gap
   - Oak Tree

3. Elk population is managed to 975 or below for the next survey cycle.
   - SWD elk population estimate in January 2021 aerial survey – 975
   - Elk population has been maintained at that number post-season since then.

4. Reduce wild horse population.
   - 2016-2022 SW Desert unit horse gathers removed 3,585 horses
   - 2018-2021 In the adjacent Eagle HMA (Nevada) 2,864 horses removed

5. Livestock grazing AUM's that have been suspended due to drought or habitat restoration have been reinstated or increased beyond original levels.
   - The 5-year average of actual livestock use in elk habitat is currently half of what is permitted. Grazing AUM's have been in non-use for various reasons. Cedar City BLM manages for 40% forage utilization. All allotments in Elk habitat have been at or below that number. Allotment trends are static to improving overall.

Bull Age Structure Objective - Maintain a 3-year average bull harvest age of 6.0 – 6.5 years for limited entry hunts on the Southwest Desert, South. This is a reduction of ½ year and was approved in the 2022 statewide elk plan. Maintain a success rate of 20%-40% OR a 3-year average bull harvest age of 3.5 – 4.5 years for the September archery and HAMSS hunts on the Southwest Desert, North.

Recruitment Objective - Determine annual recruitment and population status of the herd through annual pre-season classification and every third year winter trend counts.

Harvest Objective - Maintain antlerless harvest that will stabilize the population and keep the population within the range of its objective. Use limited entry bull harvest and general season spike bull harvest to provide hunting opportunities and maintain healthy population sex and age ratios.

Since the 2021 hunting season the portion of the unit north of Highway 21 has been managed as a Limited Entry HAMS unit. This management strategy has allowed the DWR to offer a different hunting opportunity with increased bull harvest in that area that has not affected the quality of the bull harvest on the remainder of the unit.

CURRENT STATUS OF ELK MANAGEMENT

Habitat - The current BLM assessment is that habitat is stable on this unit; although it may be declining on a few allotments. Actual forage use by elk on BLM lands is estimated to be less than 10 percent that of livestock. The land ownership of the elk habitat on this unit is largely public land with some of the key areas still being on private lands. There is currently a Landowners Association working with the DWR to address the benefits that elk receive on private lands. Tolerance of elk on these and other private rangelands on this unit are one of the factors affecting the population objective of elk on this unit.

The population objective of elk is impacted by the following factors: 1) water distribution, 2) horse population that is beyond DWR control, 3) social and political factors, 4) current and future range improvements, and 5) range health and species competition potentials. Drought over the past decade has affected elk habitat. Pinion and juniper invasion is reducing more beneficial forage production and threatening open and mosaic habitats. 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.

Numerous habitat improvement projects have been completed during the past seven years through the WRI program. These include taking advantage of naturally caused wildland fires through reseeding and other more labor-intensive accomplishments. In total, more than 31,000 acres of habitat improvement have been completed in elk habitat in the past seven years. In that same time frame, five 10,200-gallon big game guzzlers have been newly built or rebuilt to expand their capacities. The Hamlin Valley EA is completed and covers 78,000 acres. It is planned that a minimum of 6,000 acres of improvements be done each year over the next 5 years. BLM is also working on an EA to retreat, old treatments on the unit and new EA's for Mountain Home and Pine Valley areas. Specific project areas and acreage totals of projects completed are given below.

Range Area and Approximate Ownership

	Southwest Desert Unit Land		Yearlong range	
Ownership	Area (acres)	%	Area (acres)	%
Forest Service	55,545	1.70	0	0.0
Bureau of Land Management	2,602,306	78.10	729,801	83.4
Utah State Institutional Trust Lands	313,722	9.40	87,436	10.0
Native American Trust Lands	0	0.00	0	0.0
Private	348,302	10.50	47,736	5.5
Department of Defense	163	<1	0	0.0
USFWS Refuge	0	0.00	0	0.0
National Parks	0	0.00	0	0.0
Utah State Parks	0	0.00	0	0.0
Utah Division of Wildlife Resources	10,270	<1	10,253	1.2
TOTAL	3,330,308	100.0	875,225	100.0

Habitat Projects Completed 2016 2020

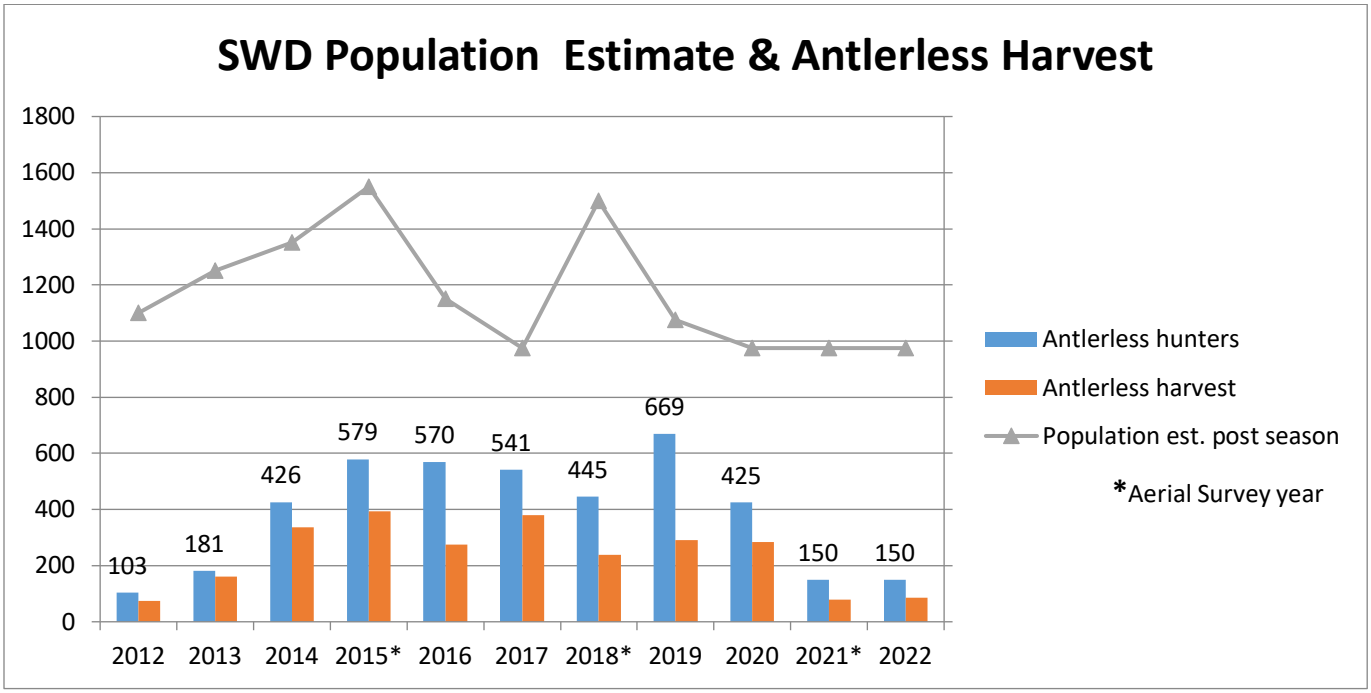
FY	Project Name	TreatmentType	Acres
2016	Spanish George Bullhog	Bullhog	1424
2016	Butcher Trough Lop and Scatter	Lop and scatter	1622
2017	Blawn Wash Lop and Scatter	Lop and scatter	764
2017	Jackson Wash Lop and Scatter	Lop and scatter	1306
2017	Jackson Wash Bullhog	Bullhog	1614
2017	Jackson Wash Chaining	Anchor Chain	1891
2017	Indian Peaks WMA Lop and Scatter Phase I	Lop and scatter	990
2018	Mackleprang Homestead Bullhog	Bullhog	201
2018	Spanish Georg North/Atchison Creek Bullhog	Bullhog	707
2018	Miners Cabin Chaining	Anchor Chain	2262
2018	Indian Peaks WMA Lop and Scatter Phase II	Lop and Scatter	751
2018	South Pine Valley Lop and Scatter	Lop and scatter	4879
2018	Stateline to Butcher Bullhog	Bullhog	841
2020	Blawn Wash Chaining	Anchor Chain	1110
2021	Blawn Mountain/Seeps Lop and Scatter	Lop and scatter	2365
2021	Culver Spring Lop and Scatter	Lop and scatter	881
2021	Lund Fire Chaining	Anchor Chain	455
2021	Hamlin Valley Wash Chaining	Anchor Chain	1203
2021	Big Summit Fire Rehab Chaining/Bullhog	Bullhog	108
2021	Big Summit Fire Rehab Chaining/Bullhog	Anchor Chain	780
2022	Cougar Fire Chaining	Anchor Chain	310
2022	Blawn Mountain Bullhog	Bullhog	1557
2022	Blawn Mountain Chaining	Anchor Chain	2037
2022	Blawn Mountain Lop and Scatter Phase II	Lop and scatter	602
2022	Choke Cherry Fire Chaining	Anchor Chain	417
2016	Cottonwood Meadow riparian fence	Fence	
2018	Demille Spring Pipeline	Pipeline	
2018	Pine Grove Pipeline	Pipeline	
2021	Hamlin Valley Wash Chaining Pipeline	Pipeline	
2021	Hamlin Valley Wash Chaining fencing	Fence	
2021	Big Summit fire fencing	Fence	
2020	Blawn Wash Chaining fencing	Fence	
2022	Blawn Mountain Bullhog fencing	Fence	
2018	DeMille Spring development	Spring Development	
2018	Demille Spring ringtanks	Tank	
2018	Pine Grove Pipeline Reconstruction/ring	Tank	
2020	Pine Valley Mesic Meadow Habitat	Cultural Clearance	
2021	Smith Spring	Spring Development	
2021	Kiln Spring	Spring Development	
2021	Hamlin Wash Chaining 2 troughs	Troughs	
2017	Wah Wah Summit Guzzler	Big Game Guzzler 10,200 gal	
2017	Mountain Home East Guzzler	Big Game Guzzler 10,200 gal	
2017	Headlight Guzzler	Big Game Guzzler 10,200 gal	
2020	Mormon Gap Guzzler	Big Game Guzzler 10,200 gal	
2020	Oak Tree Guzzler	Big Game Guzzler 10,200 gal	
	Total acres treated		31,077

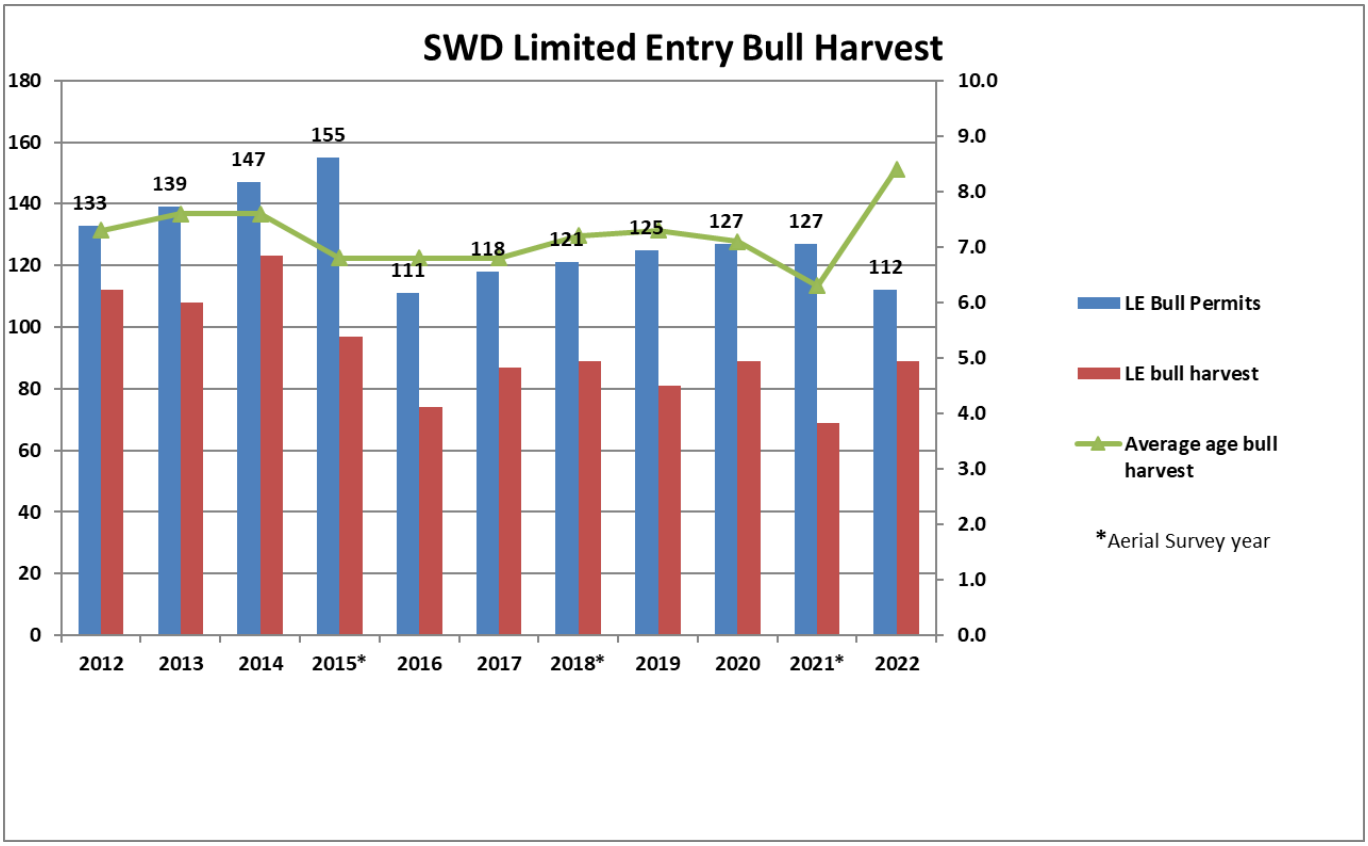
Population

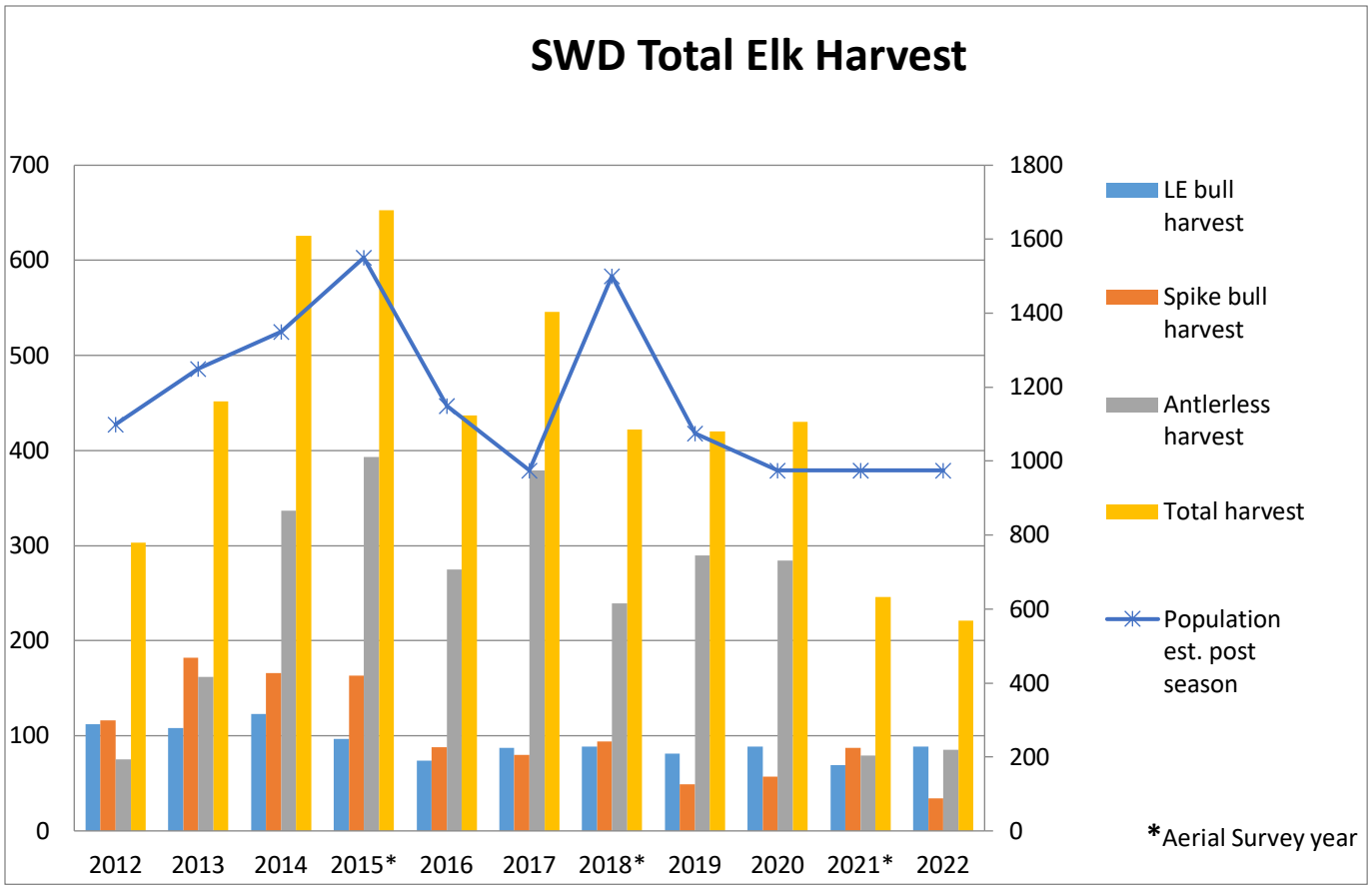
Graph 1. Is a summary of Southwest Desert elk population trend for the past ten years and projection of the population to post season 2022.

Graph 2. Shows limited entry bull permits for the past 10 years and the average age of bulls harvested.

Graph 3. Is a summary of all elk harvest on the Southwest Desert and projected harvest to reach the previous objective of 975 wintering elk.







BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat

- Drought impacts to rangeland forage condition and abundance
- Limited summer range
- Pinion and juniper invasion into sagebrush, mountain browse and aspen communities
- The maturation of pinion and juniper forests resulting in closed canopies, which reduces perennial understory vegetation and limits forage availability and diversity
- Crop depredation could become a barrier but is not at this time
- Wild horse impacts on forage potential and destruction of natural water sources

Population

- Distributing antlerless harvest across the unit to treat localized issues and problems
- Equitable elk distribution across the herd unit
- Data from GPS collared elk is confirming the suspected winter migration from Nevada into Utah that has artificially increased the wintering populations

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.
- Monitoring of water sources during drought years.

Actions to Remove Habitat Barriers

- Cooperate with land management agencies to establish natural fire policies that will allow wildfires 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.
- The goal has been set to complete a minimum of 6,000 acres of habitat improvements each year.
- Improve existing water catchments and look for opportunities to improve water distribution.
- Work with landowners and associated agencies to limit the impacts and control the population of wild horses within the Southwest Desert.

Population

Monitoring

- Population Size: Aerial helicopter surveys are conducted every three years. Effort will be made to coordinate flights with the Nevada Department of Wildlife and data share to better understand elk population distribution and numbers. These flights and a population model 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 during non-flight years.
- 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 modeling will be used to monitor population dynamics.
- 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. Bull harvest numbers will be developed through the RAC and Wildlife Board process to achieve harvested bull age management objectives.
- Migration: GPS collars have been deployed on cow elk in several areas along the Utah/Nevada state line and across the unit to monitor habitat use and movement of elk between the two states.

Management Actions to Remove Population Barriers

- Depredation: Antlerless hunts will continue to be the principal means of limiting cropland depredation. Mitigation permits and vouchers will also be used. An active landowner's association receives limited entry bull permits.
- Interagency Cooperation: The increasing demands for all natural resource use within the Southwest Desert 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, the public land grazers and sportsmen.
- Elk Population and Distribution: The Southwest Desert herd and the actual optimum population objective will be determined by factors including, but not limited to, water distribution, horse populations, social and political factors, current and future range improvements, range health, and potential species competition. Efforts to encourage elk to more uniformly utilize herd unit resources will include antlerless hunts, habitat improvements to rangeland vegetative communities, as well as water development.
- Migration: Communicate with Nevada Department of Wildlife on the timing of antlerless hunts and try to coordinate hunting seasons so that elk are not being pushed back and forth across state lines and finding refuge.

Duration of This Management Plan - This Unit Management Plan was revised in 2023 following the revision of the Statewide Elk Management Plan. This Unit Management Plan will be revised after the next Statewide Elk Management Plan revision to ensure all current management tools are being used. CWMU operators and landowners requested a mid-plan review and revisions may take place when improved data or management tools become available, or to address future issues. Unit elk plan goals, objectives, and strategies are constrained within the sideboards set in the Statewide Elk Plan, which supersedes unit plans. It is possible that changes to the Statewide Elk Plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rule may also affect elk unit plans.

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit #21
FILMORE
2023

BOUNDARY DESCRIPTION

Juab, Millard and Sevier counties--Boundary begins at SR-132 and SR-125 (300 E in Leamington); west on SR-132 to US-6; south on US-6 to SR-257; south on SR-257 to the Black Rock road; east on this road to I-15; south on I-15 to I-70; east and north on I-70 to US-89; north on US-89 to US-50 in Salina; north on US-50 to I-15 near Scipio; south on I-15 to Exit 178 and US-50; south on US-50 to Whiskey Creek Road; north on this road to McCormick Road (CR-4549); north on this road to SR-125; north on SR-125 to SR-132 in Leamington. EXCLUDES ALL NATIVE AMERICAN TRUST LANDS WITHIN THIS BOUNDARY. Excludes all CWMUs.

Any Bull Elk Unit Boundary

Fillmore, Oak Creek South (West of I-15) - Juab and Millard counties--Boundary begins at I-15 (Exit-207) and the Mills road; west on this road to the railroad tracks; west on these tracks to the Sevier River; north along this river to SR-132; west on SR-132 to US-50; west on US-50 to SR-257; south on SR-257 to the Black Rock road; east on this road to I-15; north on I-15 to Exit 207 and the Mills road. EXCLUDES ALL NATIVE AMERICAN TRUST LANDS WITHIN THIS BOUNDARY. Excludes all CWMUs.

Limited Entry Bull Elk Unit Boundary

Fillmore, Pahvant (East of I-15) - Millard and Sevier counties—Boundary begins at I-70 and I-15; north on I-15 to US-50 at Scipio; southeast on US-50 to Salina and US-89; south on US-89 to I-70; southwest on I-70 to I-15.. EXCLUDES ALL NATIVE AMERICAN TRUST LANDS WITHIN THIS BOUNDARY. Excludes all CWMUs.

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, private development rights, 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 - Maintain and/or enhance forage production through direct range improvements throughout the unit to achieve population management objectives. Projects that remove decadent conifer stands and promote aspen re-generation are a top priority for the unit. 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 elk. Provide as much opportunity as possible for elk to navigate roadways safely. Utilize GPS technology to learn more about elk movement on the unit as funding and workloads allow.

Population - The target population objective will range from 1,300 to 1,600 elk (modeled estimate) on the Fillmore, Pahvant portion of the unit (East side of I-15). DWR will manage towards the top or bottom of the range depending on forage availability. DWR will communicate annually with land management agencies regarding forage conditions. If livestock permittees are forced to limit use on public land due to poor forage conditions caused by drought, DWR will manage towards the lower end of the population objective. The target population objective on the Fillmore, Oak Creek South portion of the unit (West side of I-15) is 150 elk. Previously, the population objective was static at 1600 total elk on both portions of the unit.

Bull Elk Harvest Objectives - Maintain a 3-year average bull harvest age of 6.5-7.0 years on the Fillmore, Pahvant limited entry unit. Age structure will not be monitored on the Fillmore Oak Creek South (west of I-15) unit (General Season Any Bull) per the Statewide Elk Plan. Utilize public hunting as much as possible to manage elk on the unit. Provide antlerless, general season spike-only, limited entry bull, and general any-bull hunting opportunities.

CURRENT STATUS OF ELK MANAGEMENT

Habitat -

Range Area and Approximate Ownership

Fillmore, Oak Creek South						
	Year-long Range		**Winter Range**		**TOTAL**	
Ownership	**Area (Acres)**	**%**	**Area (Acres)**	%	**Area (Acres)**	%
BLM	1431	4	49006	74	50437	49
DNR	38	0		0	38	0
Private	995	3	9953	15	10948	11
SITLA		0	3303	5	3303	3
Tribal		0	221	0	221	0
UDOT		0		0		0
USFS	33510	93	3523	5	37033	36
	35974		**66006**		**101980**	

Fillmore, Pahvant								
	Summer Range		**Winter Range**		**Transition**		**TOTAL**	
Ownership	**Area (Acres)**	**%**	**Area (Acres)**	%	**Area (Acres)**	%	**Area (Acres)**	%
BLM		0	8081	4			8081	2
DNR	386	0	14102	8			14488	4
Private	13724	8	48063	27			61787	17
SITLA		0	118	0			118	0
Tribal		0	1419	1			1419	0
UDOT		0	22	0			22	0
USFS	165710	92	109205	60	12007	100	286922	80
	179820		**181010**		**12007**		**360830**	

Habitat Projects Completed 2016 - 2023

Title	Acres
Watts Mountain Pipeline Project	
Mortensen Creek Chain Harrow	129
Hans Pumpernickle Habitat Resortation Shared Stewardship	1717
Raspberry Canyon Habitat Restoration Project	131
Church Hills Pipeline and Water Enhancement Project	
Red Canyon Habitat Restoration Project Phase I	1224
White Sage Flat Habitat Restoration Project Phase I	3178
Church Hills/Little Long Canyon Bullhog Maintenance Project	3838
SR Mule Deer Winter Range Bitterbrush Enhancement FY20	1740
Long Canyon Water Enhancement Project Phase II	
Lower Ebbs Fire Restoration and Stabilization Project	3838
Cottonwood Trail Fire Rehab Project	1215
Canal Fire Rehabilitation Project	15514
Baker Canyon Fire Rehab Project	389
Wide Canyon Water Enhancement Project Phase I	
Central Utah Chaining Maintenance Project Phase II -	5220
Long Knoll Chaining and Restoration Project	607
Joseph Habitat Restoration Project WRI/Shared Stewardship	6614
Nixon WMA/Wide Canyon Phase III Project	
Central Utah Chaining Maintenance Project Phase I	2891
Quarry Springs Water Enhancement Project	
Meadow Canyon Fire Rehab Project	89
Meadow Creek Fire Rehabilitation and Stabilization Project	3428
Long Canyon Water Enhancement Project	
FFO Meadow Phase 3	208
East Fork Eight Mile Lop and Scatter/Water Development Project Phase I	687
West Bench Lop and Scatter Project	942
North Canyon Revegetation Project	474
Little Valley Habitat Restoration	1000
Solitude Fire Revegetation Project	651
Whiskey Creek Water Enhancement Project	
Dry Creek Meadow Canyon Phase II Restoration Project	2346
Wide Canyon Water Enhancement Project Phase II	
Watts Mountain Wildlife Habitat Improvement Project	5696
Halfway Hill Fire Rehabilitation and Stabilization Project	5278

Population - As of 2023, the elk population on this unit is estimated to be under the previous objective of 1,600 elk. An aerial survey was conducted on this unit in February 2022. During this flight 1,012 elk were counted, giving a population estimate of 1,350 animals. The average age of harvested bulls in 2022 was above objective at 8.7, with the three-year average at 8.3. Permit numbers for bulls remained relatively stable from 2016-2022 with 47 permits being offered in 2022. The Statewide elk plan decreased the age objective ½ year to 6.5-7.0 in 2022 which resulted in a significant increase of 20 permits for the 2023 hunting season to a total of 67.

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat - Invasion by spruce-fir and pinyon-juniper has reduced the productivity of much of the summer and winter ranges for elk. Heavy human activity along the Paiute ATV trail 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. The fencing of I-15 and I-70 has limited elk migration to important winter habitat in the Church Hills and Cove Fort areas. Winter range damage on the east side of I-15 could become a potential problem if elk populations become too large. DWR may apply liberal antlerless elk hunting strategies to areas with large elk densities on winter range to prevent range damage.

Population - Crop depredation near Fillmore, Holden, Scipio, and Kanosh present barriers to increasing elk numbers in these areas. Steps to minimize depredation as prescribed by state law and DWR policy will be implemented as needed. I-70 and I-15 have been a heavy source of highway mortality for elk. North and South lane fencing on I-70 and portions of I-15 have been completed which significantly decreased ungulate mortality. Additional fencing of I-15 between Cove Fort and Kanosh has been planned and is being discussed and would reduce highway mortality in that area. Highway 50 has also been a source of mortality for elk.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Fillmore Elk Committee Input
- In May 2023, the Fillmore elk committee met to discuss the elk management plan. We discussed many items including the following: changes in the statewide elk plan, current population objective, past population estimates, elk distribution, production rates, private land conflicts, forage competition between elk and cattle, etc. Below is a brief synopsis of the major decisions and discussion:
Much of the discussion centered on the population objective and why elk numbers have not reached it in recent years. Antlerless elk permit numbers have remained relatively low over the past few years which should have allowed for the population to rise and meet the objective. Other ongoing research efforts throughout the state suggest that pregnancy rates may not be as predictable as previously thought. The age structure of the population may play a larger role in production than we have considered in the past. The elk committee wants more research completed on the Pahvant side in order to understand if an older age structure is influencing production rates.

The previous population objective for the Fillmore unit included both the Pahvant side and the Oak Creek and was set at 1600 total elk, with 150 of the 1600 being on the Oak Creek side. The committee didn't push for a major increase in the objective but did want to see more flexibility at the local level by giving a range on the Pahvant side. Previously, the objective for the Pahvant side was static at 1450. The committee instead recommended a target range of 1300 to 1600 for the Pahvant. On the Oak Creek portion of the Fillmore unit, the committee recommended remaining at 150 elk.

Habitat - The 2023 Fillmore Elk Plan Committee requests an increased focus on higher elevation (>8,000 ft) habitat improvement projects. The committee especially had a lot of discussion about improvements that can be done on the Eastern portion of the unit above Joseph, Richfield, and Scipio Lake. Recent elk surveys show an absence of elk on the East side of the unit. Habitat and areas of refuge exist there and the elk committee would like to see more elk distributed on the East side. The committee also supports continued efforts on the winter range to increase native shrub and grass communities. Any efforts to suppress non-native, invasive weeds such as cheatgrass and bulbous bluegrass are especially encouraged.

- Range Improvements: Maintain and/or enhance forage production on elk summer and winter range throughout the Fillmore Unit. Coordinate with the Fillmore Ranger District and BLM to complete projects designed to improve forage production for both elk and cattle and to improve elk distribution across the unit. Support federal land management agencies in managing vehicle access in order to provide and maintain refuge areas for elk.
- Winter Range: Continue to monitor the permanent range trend studies located throughout the winter range. When helpful, conduct annual spring range rides to assess winter habitat with the land management agencies and the public.
- Corridors: Cooperate with land management agencies and private landowners to identify crucial areas of elk habitat and work together to maintain and enhance elk habitat corridors. Work with UDOT to maintain and enhance signing, wildlife ramps, over/underpasses, and other wildlife crossing structures.

Population -

- Monitoring: Utilize harvest data, aerial trend counts, and preseason classification data to estimate the wintering elk population on the unit. Monitor the age class structure of the bull population through the use of check stations, uniform harvest surveys, field bag checks, preseason classification, tooth age data, and aerial classification. Age class will not be monitored on the general season portion of the unit.
- Aerial and/or ground classification will be conducted annually to determine population status, calf recruitment, calf/cow ratios, and range distribution.
- Harvest: The primary means of monitoring harvest will be through the statewide uniform harvest survey, check stations, and field bag checks. The target population size will be achieved through antlerless harvest using a variety of harvest methods and seasons.
- Distribution: DWR may hold targeted cow elk hunts when it is necessary for private land conflicts, and range health on public land. Ideas discussed by the committee include public antlerless hunts, and quicker reaction efforts like depredation hunter pool hunts. These tools allow DWR to have hunters on the ground quickly pressure elk in small, isolated areas. DWR will also continue to be aggressive with issuing mitigation permits, doing DWR removals, and holding depredation hunts when private land conflicts occur on the Fillmore unit.

Duration of This Management Plan - This Unit Management Plan was revised in 2023 following the revision of the Statewide Elk Management Plan. This Unit Management Plan will be revised after the next Statewide Elk Management Plan revision to ensure all current management tools are being used. CWMU operators and landowners requested a mid-plan review and revisions may take place when improved data or management tools become available, or to address future issues. Unit elk plan goals, objectives, and strategies are constrained within the sideboards set in the Statewide Elk Plan, which supersedes unit plans. It is possible that changes to the Statewide Elk Plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rule may also affect elk unit plans.

APPENDIX

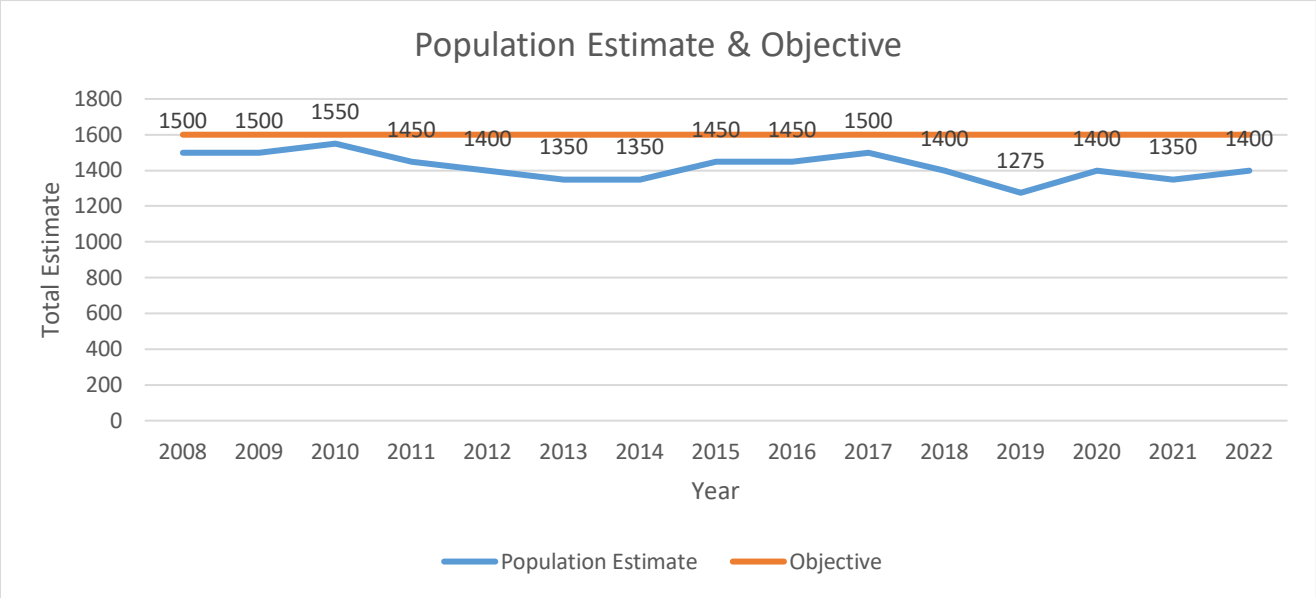


Figure 1. Fillmore Unit elk population trends, Utah 2008 - 2022.

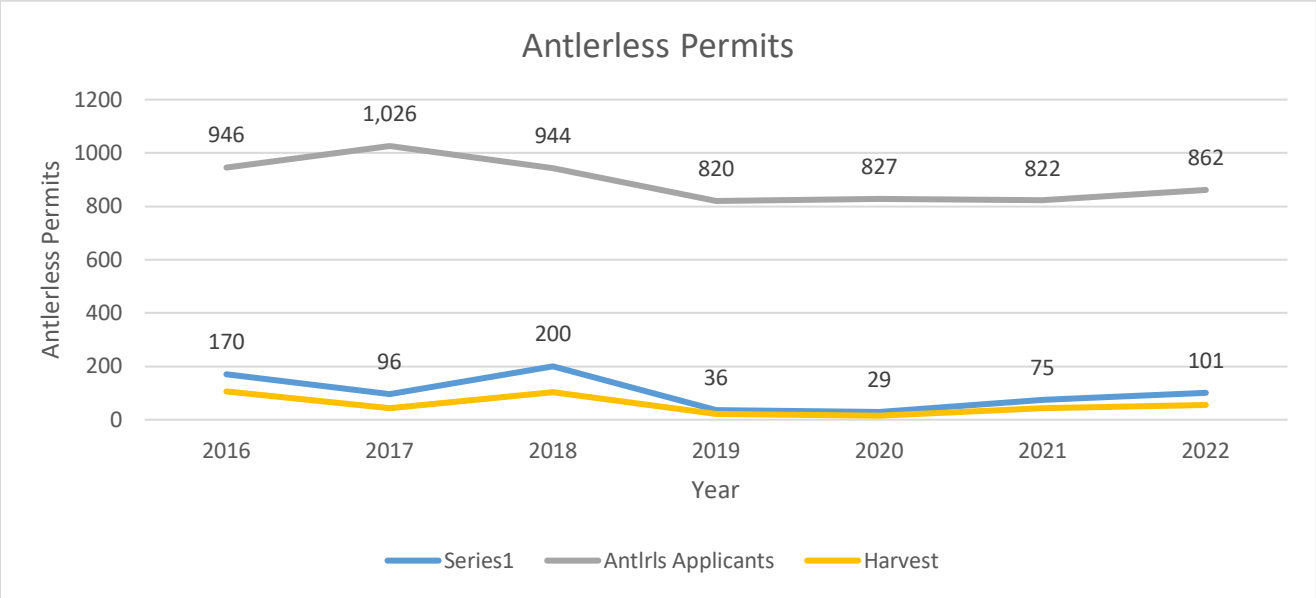


Figure 2. General season antlerless elk permits issued on the Fillmore unit. 2016-2022.

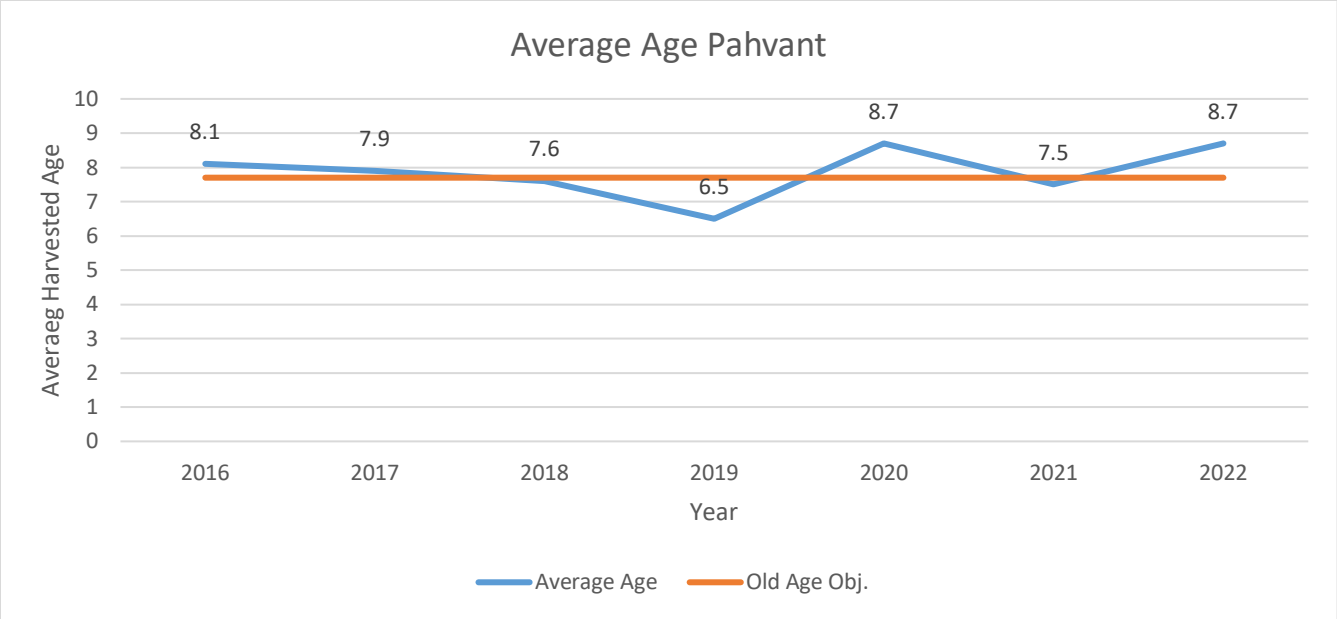


Figure 3. Average age of harvested bulls and permit numbers for the Fillmore, Pahvant Unit. 2016-2022

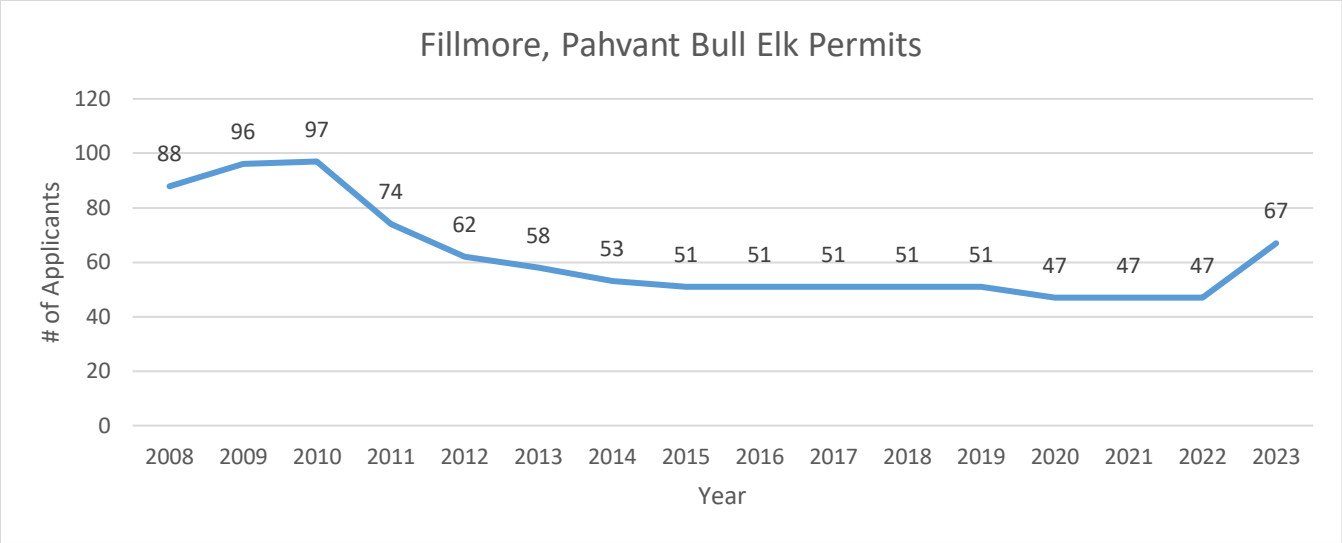


Figure 4. Limited entry bull elk permits issued on the Fillmore, Pahvant. 2008-2023

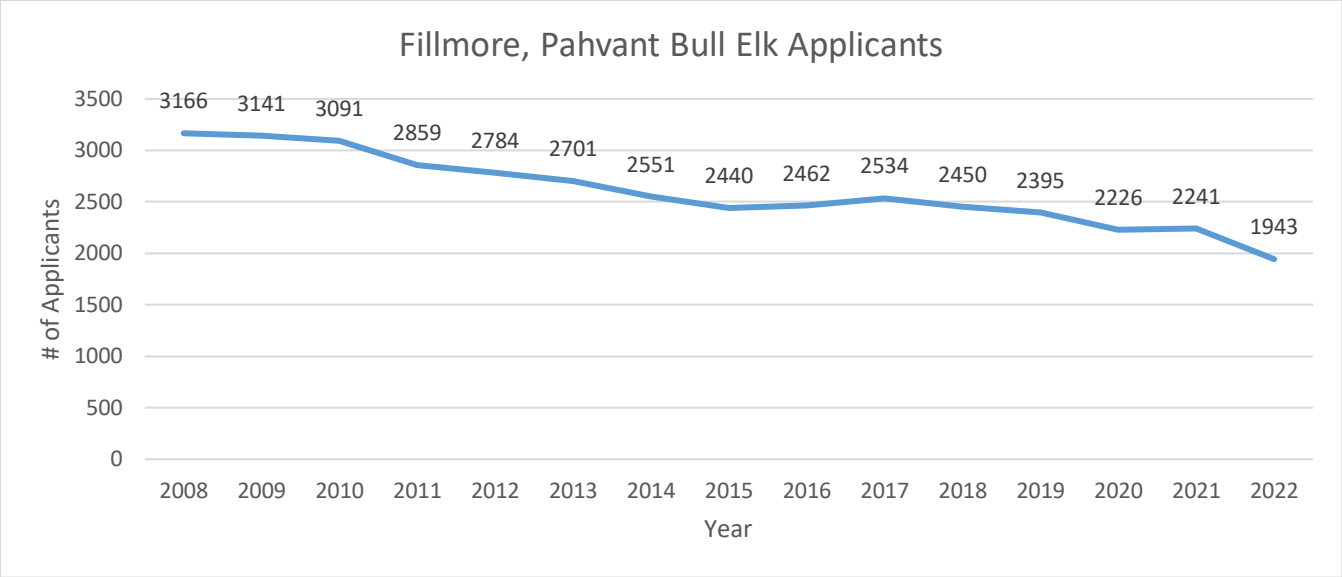


Figure 5. Total number of permit applicants for limited entry bull elk on Fillmore, Pahvant. 2008-2022

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit #22
BEAVER
2023

BOUNDARY DESCRIPTION

Beaver, Garfield, Iron, Millard, Piute and Sevier 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 Black Rock Road; east on this 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. Excludes all CWMUs.

Any Bull Elk Unit Boundary
Beaver, West (West of I-15) - Beaver, Iron, 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 Black Rock Road; east on Black Rock Road to I-15; south on I-15 to SR-130. EXCLUDES ALL NATIVE AMERICAN TRUST LANDS WITHIN THIS BOUNDARY. Excludes all CWMUs.

Limited Entry Bull Elk Unit Boundary
Beaver, East (East of I-15**)** - Beaver, Garfield, Iron, Millard, Piute, and Sevier Counties – Boundary begins at I-15 and I-70; east on I-70 to US-89; south on US-89 to SR-20; west on SR-20 to I-15; north on I-15 to I-70. EXCLUDES ALL NATIVE AMERICAN TRUST LANDS WITHIN THIS BOUNDARY. Excludes all CWMUs.

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, private development rights, 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
- Maintain and/or enhance forage production through direct range improvements throughout the unit to achieve population management objectives.
- Projects that remove decadent conifer stands and promote aspen re-generation are a top priority for the unit. Work with private and federal agencies to maintain and protect crucial and existing winter range from future losses.
- Provide improved habitat security and escapement opportunities for elk.
- Provide as much opportunity as possible for elk to navigate roadways safely.
- Utilize GPS technology to learn more about elk movement on the unit as funding and workloads allow.

Population - Target population objective will range from 1150 to 1350 elk (modeled estimate) on the Beaver, East portion of the unit. Previously, the population objective was static at 1050 total elk on both portions of the unit. DWR will manage towards the top or bottom of the range depending on forage availability. DWR will communicate annually with land management agencies regarding forage conditions. If livestock permittees are forced to limit use on public land due to poor forage conditions caused by drought, DWR will manage towards the lower end of the population objective. Elk numbers on the Beaver, West portion (west of I-15) will be kept as low as possible.
The 2023 Beaver elk plan committee recommends a mid-plan review in 5 years following the statewide elk mid-plan review in order to discuss increasing the elk population objective. The committee recognizes that in order to increase the elk population objective further, more habitat work will need to be completed. Specifically, the committee recommends a minimum of 15,000 acres be improved South of Highway 153 that will increase the carrying capacity of the range. The main purpose of the mid-plan review will be to

discuss increasing the population objective if that 15,000 minimum acreage goal has been met.

Bull Elk Harvest Objectives - Maintain a 3-year average bull harvest age of 6.5-7.0 years for all hunt types on the Beaver, East unit per the Statewide Elk Plan. Utilize public hunting as much as possible to manage elk on the unit. Provide antlerless, general season spike-only, limited entry bull, and general any-bull hunting opportunities.

CURRENT STATUS OF ELK MANAGEMENT

Habitat

Range Area and Approximate Ownership

Beaver, East Elk Habitat						
	Summer Range		Winter Range		Total	
Ownership	Area (Acres)	%	Area (Acres)	%	Area (Acres)	%
BLM	7,408	3	95,329	49	102,737	24
DNR	350	0	1,508	1	1,858	0
Private	14,904	6	18,165	9	33,069	8
SITLA	1,977	1	10,244	5	12,221	3
Tribal	-	0	-	0	-	0
UDOT	-	0	-	0	-	0
USFS	212,633	90	70,548	36	283,181	65
Total	**237,272**		**195,764**		**433,066**	

Beaver, West Elk Habitat						
	Year-long Range		Winter Range		Total	
Ownership	Area (Acres)	%	Area (Acres)	%	Area (Acres)	%
BLM	63,975	81	9,422	85	73,398	81
DNR	39	0		0	39	0
Private	8,682	11	1,201	11	9,883	11
SITLA	6,555	8	513	5	7,068	8
Tribal	-	0	-	0	-	0
UDOT	-	0	-	0	-	0
USFS	-	0	-	0	-	0
Total	**79,251**		**11,136**		**90,388**	

Habitat Projects Completed 2016 - 2023

Project Title	Acres
Cinder Cone Fire Restoration Project	602
Cove Creek Fire Rehab	990
First Spring Road Harrow	66
Fremont-Little Valley Mastication	1322
Chipman Peak - Paragonah Allotment Vegetation Treatment	2754
Beaver Ridge Stewardship	136
Beaver River Watershed Improvement, Phase 1 WRI and Shared Stewardship	889
South Beaver and Little Dog Valley Watershed Imp, Phase I	2358
Indian Creek South Pasture II	2751
Indian Creek South Pasture	2439
Skull Flat Fire Rehabilitation and Stabilization Project	514
Beaver Ridge Stewardship Seeding	136
Deer Flat Lop and Scatter Project	725
Beaver WMA's Cheatgrass Control Project	770
North Beaver Prescribed Fire and Seeding (Baker/Face)	1003
Little Bear Valley to Fremont Canyon Sagebrush Steppe Habitat Restoration	6467
Project Maintenance - South Beaver	4252
Dog Valley Hand Thinning	9768
South Beaver Buckskin Valley Phase II	1039
Indian Creek West Drag Chaining	1684
Indian Creek (Upper Wildcat)	1573
Deer Flat/Ekker Ranch Discretionary Seed Project	80
Indian Creek Wildcat	1244

Population - As of 2023, the elk population on this unit is estimated to be under the previous objective of 1,050 elk. An aerial survey was conducted on this unit in February 2022. During this flight 644 elk were counted, giving a population estimate of 850 animals. The average age of harvested bulls in 2022 was above objective at 8.6, with the three-year average at 8.4. Permit numbers for bulls remained relatively stable from 2016-2022, but increased significantly in 2022 from 38 total permits to 65 in order to bring the average age of harvest closer to the objective of 7.5-8.0 yrs. The Statewide elk plan then decreased the age objective down to 6.5-7.0 in 2022 which resulted in another significant increase in permits for the 2023 hunting season.

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat - Invasion by spruce-fir and pinyon-juniper has reduced the productivity of much of the summer and winter ranges for elk. Heavy human activity along the Paiute ATV trail may also be responsible for reducing elk use of traditional calving areas and increasing elk use of posted private land and roadless areas on the Forest. The fencing of I-15 and I-70 has limited elk migration to important winter habitat in the areas west of Manderfield and Sulphurdale and east of Cove Fort. Winter range damage in these areas could become a potential problem if elk populations become too large. DWR will hold localized hunts to re-distribute elk in these areas if habitat degradation occurs due to over-use of elk.

Population - Crop depredation near Marysvale, Circleville, Beaver, Sulphurdale, and Manderfield present barriers to increasing elk numbers in these areas. Steps to minimize depredation as prescribed

by state law and DWR policy will be implemented as needed. DWR will be aggressive in allowing private landowners to apply hunting pressure on private land in order to re-distribute local elk populations. I-15 and I-70 were previously sources of significant highway mortality for elk. North and south lane fencing of these interstates has been completed since the fall of 2010 and has significantly decreased ungulate mortality along these roadways. Highway 20 and 89 are currently not a source of significant mortality. Development of the east bench of Beaver and LaBaron and Puffer lake areas has the potential to increase disturbance, disrupt movements of elk, increase vehicle collisions, and damage habitat. This plan supports steps taken to minimize development and protect areas of habitat and refuge for elk on the unit.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Beaver Elk Committee Input

- In May 2023, the Beaver elk committee met to discuss the elk management plan. We discussed many items including the following: changes in the statewide elk plan, current population objective, past population estimates, elk distribution, production rates, private land conflicts, forage competition between elk and cattle, etc. Below is a brief synopsis of the major decisions and discussion:

Much of the discussion centered on a possible increase in the population objective. The committee eventually reached a consensus with a flexible range objective of 1150-1350 that was dependent on annual forage production. This is an increase from the previous objective of 1050.

The majority of the committee supported a larger population objective increase with a range of 1300-1500. In order to reach a consensus however, the committee landed on the current recommendation of 1150-1350 with the caveat that in 5 years we will reconvene to review how things have gone with the new objective and discuss a further increase. It was also agreed upon that in 5 years the committee will not recommend an increase if a minimum of 15,000 acres of range improvement hasn't been completed South of Highway 153.

Another major point of discussion was how we can implement tools to distribute elk across the unit. Tools such as mitigation permits/vouchers and depredation hunts will continue to be aggressively used by DWR in order to pressure elk that cause damage on private lands. Public antlerless hunts will also be used on a more surgical basis to pressure elk away from any public land areas where concerns may arise of habitat degradation. A somewhat newer idea that was discussed heavily was using depredation hunter pool hunts in these efforts to quickly and reactively respond to high densities of elk causing damage in a localized area. DWR can often have hunters on the ground within a week to move elk during the hunting season using the depredation hunter pool to re-distribute animals. DWR will continue to communicate with land management agencies to monitor when this tool is needed.

Habitat - The 2023 Beaver Elk Plan Committee requests an increased focus for higher elevation (>8,000 ft) habitat improvement projects South of Highway 153. Recent changes in the landscape (mostly fire) has increased elk densities on the Northern half of the unit. In an effort to create more suitable habitat and better distribute elk, the committee recommends a focus be placed on the drainages South of Hwy 153 such as: Birch Creek Mountain, Big Twist, Thompson Ridge, South Fork of Beaver River, and Circleville Mountain.

- Range Improvements: Maintain and/or enhance forage production on elk summer and winter range throughout the Beaver Unit. Coordinate with the USFS and BLM to complete projects designed to improve forage production for elk to improve elk distribution across the unit. Support federal land management agencies in managing vehicle access in order to provide and maintain refuge areas for elk.
- Winter Range: Continue to monitor the permanent range trend studies located throughout the winter range. When helpful, conduct annual spring range rides to assess winter habitat with the land management agencies and the public.
- Corridors: Cooperate with land management agencies and private landowners to identify crucial areas of elk habitat and work together to maintain and enhance elk habitat corridors. Work with UDOT to maintain and enhance signing, wildlife ramps, over/underpasses, and other wildlife crossing structures.

Population

- Monitor age class structure of the bull population through the use of check stations, uniform harvest surveys, field bag checks, preseason classification, tooth age data, and aerial

classification. Age class will not be monitored on the Beaver, West general season any bull portion of the unit.

- Recruitment: Aerial and/or ground classification will be conducted annually to determine population status, calf recruitment, calf/cow ratios, and range distribution.
- Harvest: The primary means of monitoring harvest will be through the statewide uniform harvest survey, check stations, and field bag checks. The target population size will be achieved through antlerless harvest using a variety of harvest methods and seasons.
- Distribution: DWR may hold targeted cow elk hunts when it is necessary for private land conflicts, and range health on public land. Ideas discussed by the committee include public antlerless hunts, and quicker reaction efforts like depredation hunter pool hunts. These tools allow DWR to have hunters on the ground quickly pressure elk in small, isolated areas. DWR will also continue to be aggressive with issuing mitigation permits, doing DWR removals, and holding depredation hunts when private land conflicts occur on the Beaver unit.

Duration of This Management Plan - This Unit Management Plan was revised in 2023 following the revision of the Statewide Elk Management Plan. This Unit Management Plan will be revised after the next Statewide Elk Management Plan revision to ensure all current management tools are being used. CWMU operators and landowners requested a mid-plan review and revisions may take place when improved data or management tools become available, or to address future issues. Unit elk plan goals, objectives, and strategies are constrained within the sideboards set in the Statewide Elk Plan, which supersedes unit plans. It is possible that changes to the Statewide Elk Plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rule may also affect elk unit plans.

APPENDIX

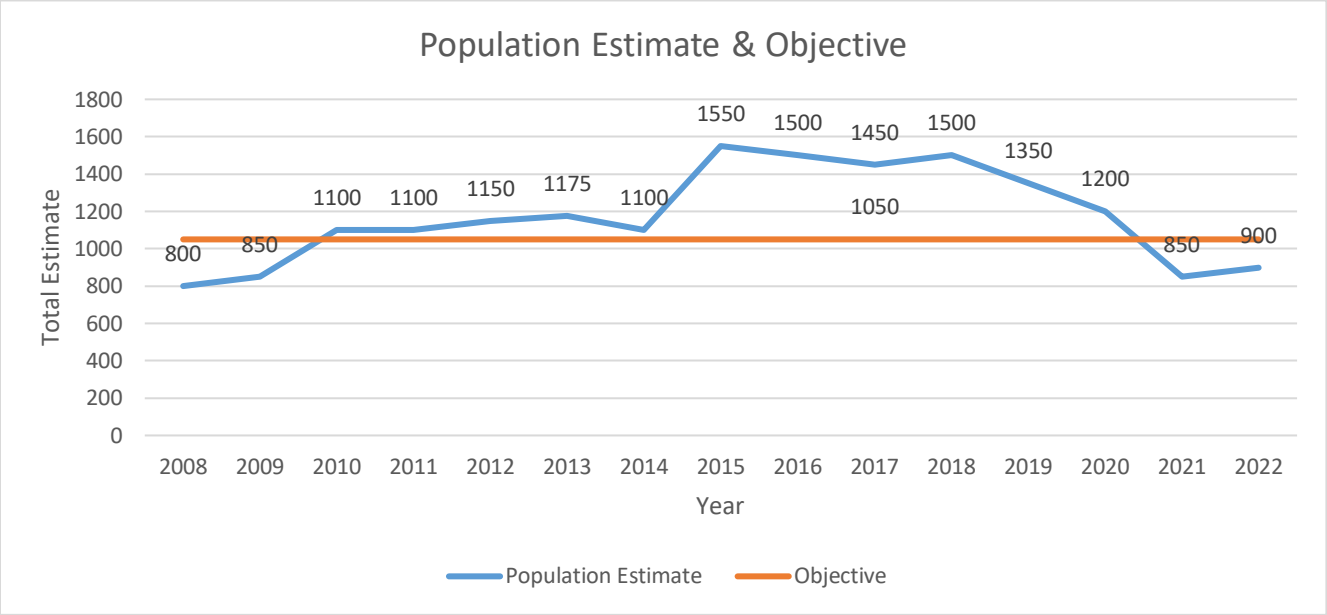


Figure 1. Beaver, East Unit elk population trends, Utah 2008 - 2022.

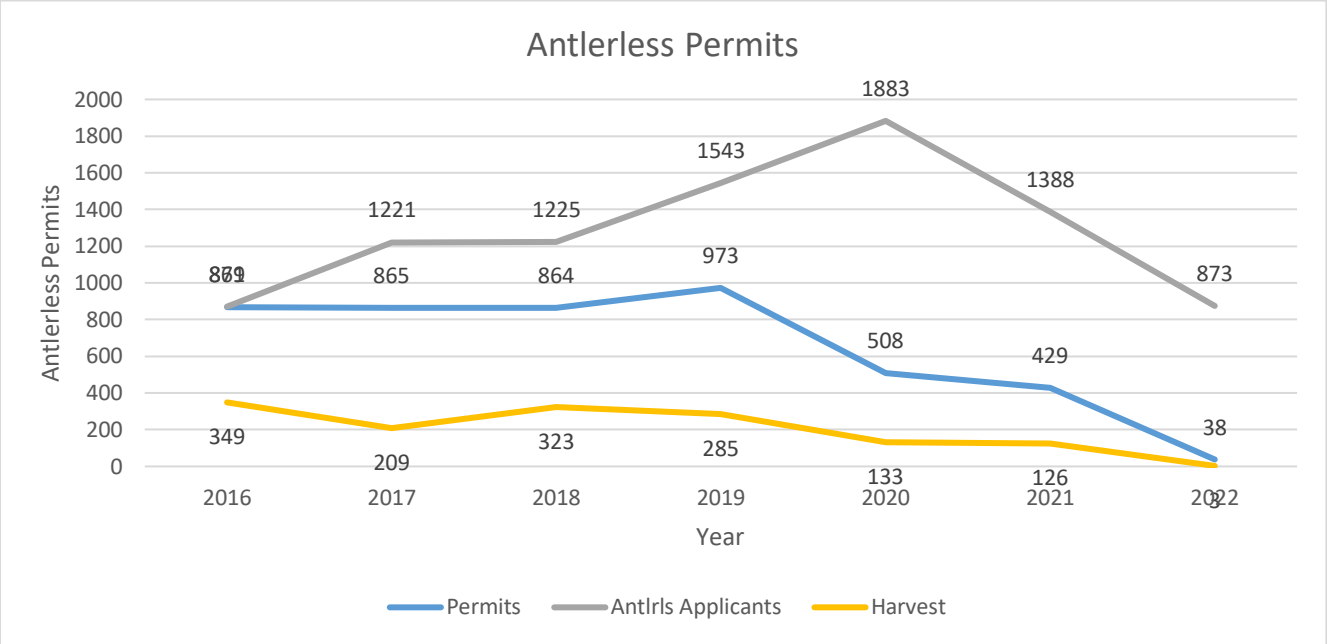


Figure 2. General season antlerless elk permits issued on the Beaver, East. 2016-2022.

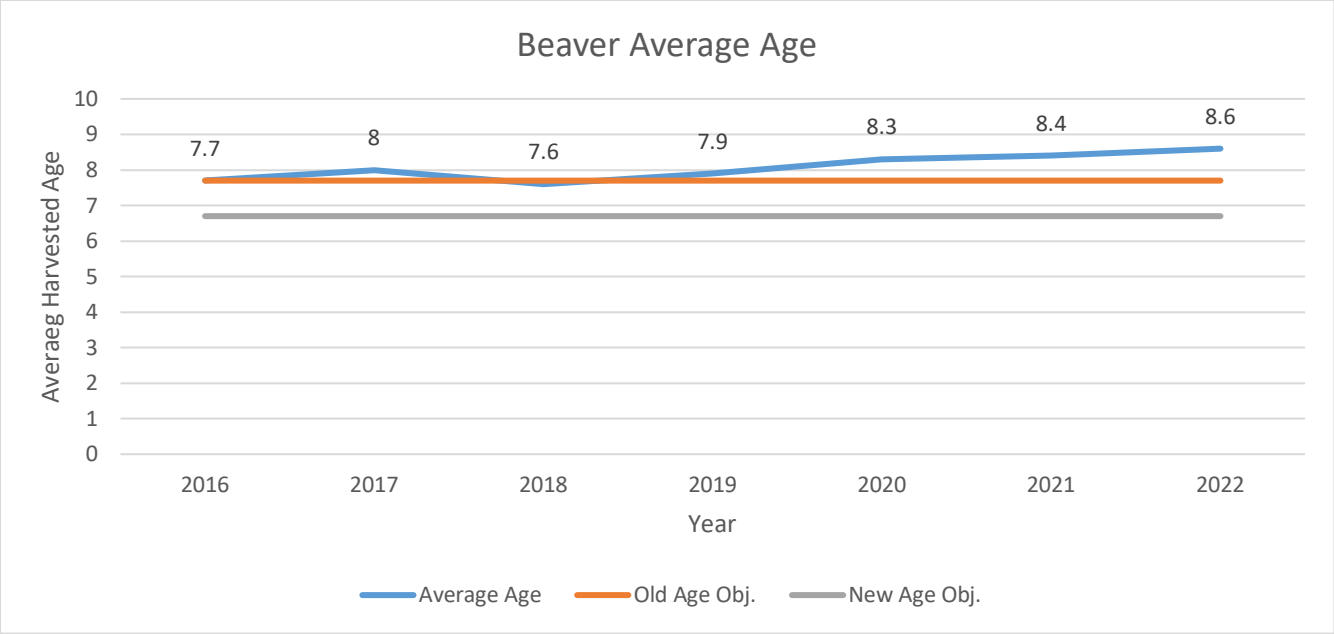


Figure 3. Average age of harvested bulls and permit numbers for the Beaver, East Unit. 2016-2022

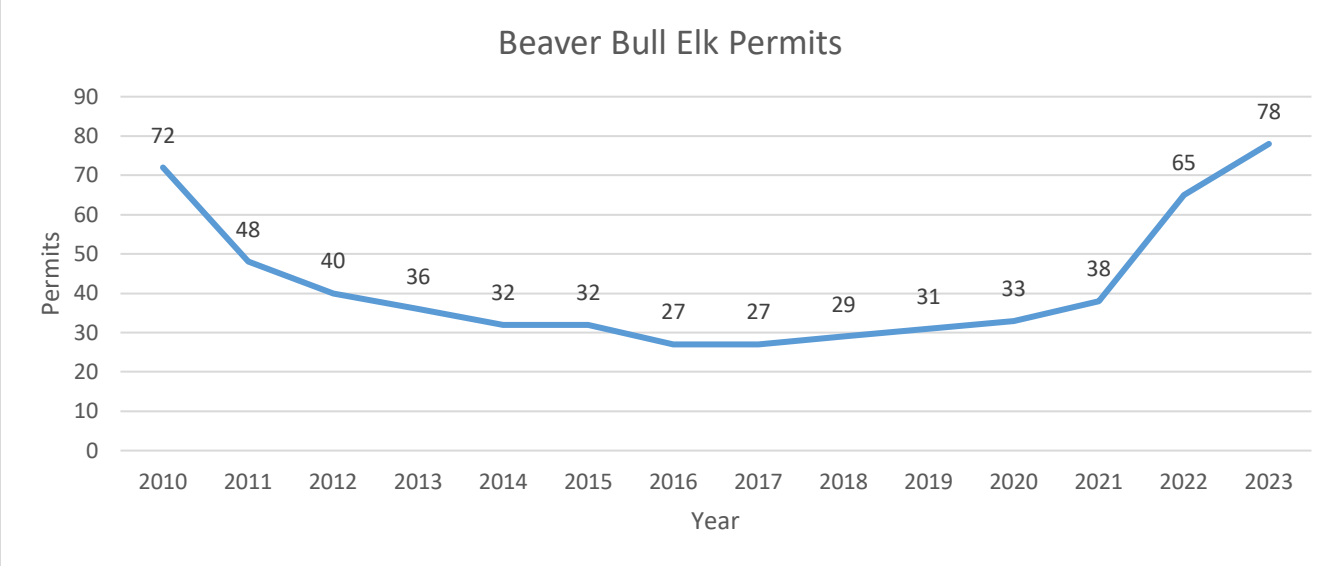


Figure 4. Limited entry bull elk permits issued on the Beaver, East. 2010-2023

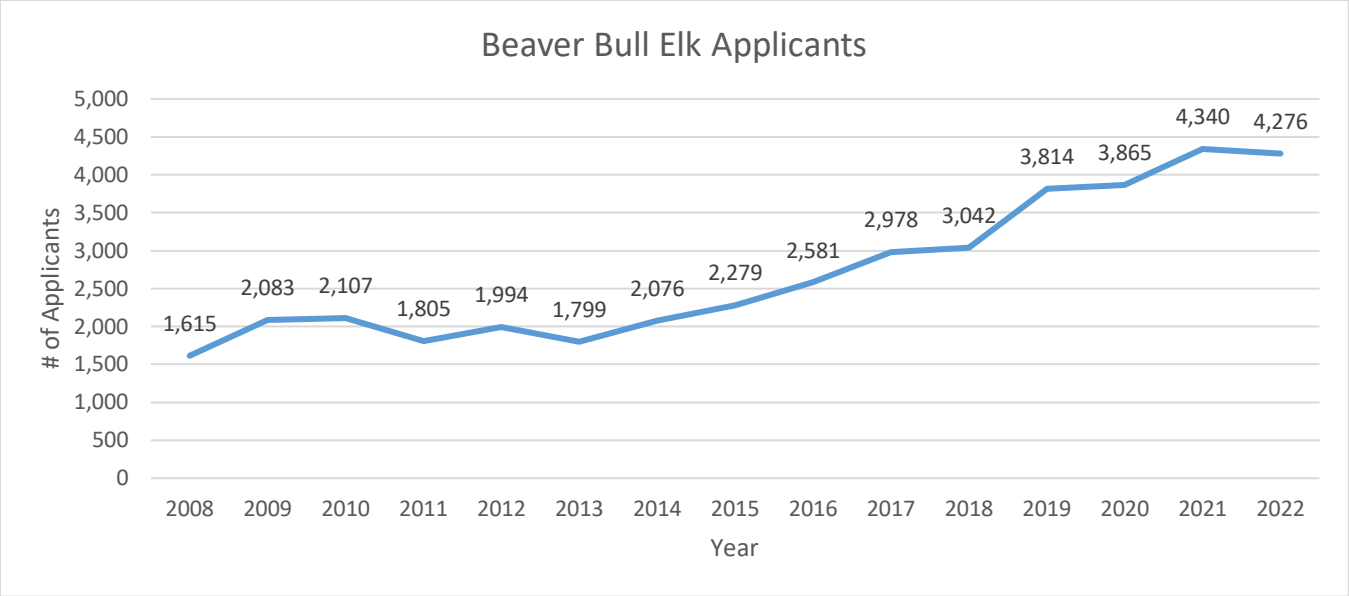


Figure 5. Total number of permit applicants for limited entry bull elk on Beaver, East. 2008-2022

ELK HERD UNIT MANAGEMENT PLAN
Elk Herd Unit #28
PANGUITCH LAKE
2023

BOUNDARY DESCRIPTION

Garfield, Iron, and Kane counties - Boundary begins at US-89 and SR-14; north on US-89 to SR-20; west of SR-20 to I-15; Sound on I-15 to SR-14; east on SR-14 to US-89. EXCLUDES ALL NATIVE AMERICAN TRUST LANDS WITHIN THIS BOUNDARY. EXCLUDES ALL NATIONAL PARKS.

UNIT MANAGEMENT GOALS

- Manage for a population of elk capable of providing a broad range of recreational opportunities including hunting and viewing
- Continue with the limited entry bull harvest strategy

UNIT MANAGEMENT OBJECTIVES

Habitat

- Continued commitment to habitat projects that increase forage for both big game and livestock
- Maintain and/or enhance forage production through direct range improvements throughout the unit to achieve population management objectives
- Work with private, state, and federal agencies to maintain and protect crucial ranges
- Continue projects with USFS, BLM, state, and private entities to enhance habitat
- Provide improved habitat security and escapement opportunities for elk through support and cooperation of approved Dixie National Forest Travel Plan
- Encourage the maintenance and development of water sources
- Focus on providing water sources in remote areas or on abandoned/sources such as old water troughs, ponds, and tanks that can benefit both livestock and wildlife. Primarily on the north end of the units were water is limited
- Discourage the encroachment of pinyon and juniper (PJ) trees into sagebrush and other habitats
- Work with land management agencies to improve elk calving habitat and minimize disturbance in calving areas
- Seek opportunities to improve aspen communities, and sagebrush ranges where elk calving and foraging are occurring
- Discourage high densities of elk wintering along the Parowan Front below 7,000ft to protect crucial deer range, reduce human safety issues from vehicle collisions, and minimize depredation issues
- Work with agencies and permittees to focus antlerless harvest in areas where elk are congregated and need to be more evenly distributed

Population - Manage for a range between 1000 - 1500 total elk wintering across the unit. Aerial surveys and annual preseason classification surveys (July – August) will be used to monitor the population. Population modeling will also be used to generate annual postseason (winter) population estimates. Antlerless harvest using a variety of harvest methods and seasons will be the primary means to achieving the wintering population objective. (Previous population objective was 1100.)

CURRENT STATUS OF ELK MANAGEMENT

Habitat - Overall, range conditions on the Panguitch Lake WMU are good with stable to increasing range conditions on most of the unit (UDWR Range Trend / USFS and BLM Vegetation Monitoring). Some challenges facing elk habitat include;

- conifer encroachment of aspen stands
- recovering forests from epidemic of spruce bark beetle
- water availability and distribution that is dependent on precipitation

Many habitat restoration projects have been completed in the past 7 years that have improved over 87,765 acres of habitat and there are several thousand additional acres proposed for restoration in the near future.

Range Area and Approximate Ownership

	Winter Range		Year Long		Summer Range	
Ownership	Area (acres)	%	Area (acres)	%	Area (acres)	%
USFS	32,570	53%	58,870	67%	186,728	75%
BLM	43,022	33%	19,084	22%	5,540	5%
SITLA	1,922	8%	1,783	2%	1,524	2%
Private	16,798	5%	7,610	9%	51,794	15%
UDWR	6,547	1%	0	0%	1,256	1%
NPS	0	0%	0	0%	6007	2%
TOTAL	100,859		87,347		252,849	

Habitat Projects Completed 2016 - 2023

Project Title	Acres	Year
Buckhorn Flat/Swayback Knoll - Chaining (Phase 1)	899	2022
Sawyer Point/Ikes Veg Phase 2	503	2020
Bone Hollow and Greenville Bench Project Maintenance	3,352	2019
Sage Hen Hollow Water Project	0	2018
Cedar City to Parowan I-15 Deer Fence and Double Cattle Guards Ph 2	0	2018
Billingsly Creek Stewardship Project	664	2020
Brian Head Fire Rehabilitation Phase II	217	2019
Panguitch Municipal Watershed Seeding	27	2020

Pickering Creek Big Game Transitional Range Enhancement	177	2022
SR Mule Deer Winter Range Bitterbrush Enhancement FY20	1,739	2020
Greater Fremont Plateau Habitat Restoration Phase II	5,745	2020
Parowan Front Braffits Creek	1,506	2020
Panguitch Creek Private Lands Lop and Scatter	58	2023
Parowan Pond Community Fishery Dredging and Inflow Structure Upgrade	0	2022
Greater Fremont Plateau Habitat Restoration Phase III	2,072	2021
Henrie Knolls North Riparian	65	2020
Parowan Front - Cottonwood Creek Phase I	1,975	2021
Restoration on the Brian Head Fire using Aspen Seedlings	0	2018
Southern Region Riparian Restoration FY22	0	2022
Sawyer Point Veg	1,369	2018
Yankee Meadow WMA Brianhead Fire Rebuild	0	2018
Co-op Valley Lop and Scatter	352	2021
Parowan Front P-Hill	1,646	2022
South Canyon Hatch Mountain	1,938	2023
Southern Region Riparian Restoration FY23	0	2023
Parowan Front Mastication	169	2019
Center Creek/Panguitch Creek Vegetation Improvement	169	2021
Panguitch Municipal Watershed NEPA	0	2017
South Canyon Water Distribution Project	0	2018
Southern Region Riparian Restoration FY 20	0	2020
Dixie National Forest FY 2016 Exclosure Repair and Rebuild project	0	2016
Parowan Front WMA Arc for Bullhog and Lop and Scatter	1,673	2016
Little Bear Valley to Fremont Canyon Sagebrush Steppe Habitat Restoration	6,466	2019
Sandy Creek Ranch Rabbitbrush Removal	126	2016
Yankee Meadow WMA Improvement Project	0	2016
FY 21 Southern Region Small Fires	1,058	2021
Dog Valley Hand Thinning	9,767	2016
South Canyon (Limestone)	3,850	2016
Garfield County Rabbitbrush Wet Mow	127	2017
Southern Region Barriers for Bonneville Cutthroat Trout Restoration	0	2016
Alton/South Canyon Retreatment - large tree removal	1,210	2016
UDWR / Dixie NF Cooperative Project - Fisheries Habitat Improvement	0	2016
Southern Region Riparian Restoration FY16	0	2016
South Canyon (Coal Pit Wash)	2,242	2017
Second Mound Water System	0	2020
South Summit WMA Boundary Fence Improvements	0	2023
Yankee Meadow WMA Improvement Project Phase 2	0	2017
South Canyon (Panguitch Creek)	2,230	2021

Bench Fire 2020	33	2022
Brian Head Fire Rehabilitation	15,987	2018
Southern Region Riparian Restoration FY21	0	2021
Rock Canyon Water Project	0	2018

Population - Population trends can be found in the Appendix. The most recent aerial surveys were conducted in February 2019 and in 2022 with estimates of 1,395 and 1,000, respectively.

2023 Unit Plan Advisory Committee - The unit elk plan committee met in August 2023 and discussed adjusting the population objective. A proposal was made to manage for a range of 1,300 to 1,600 with a target population of 1,450. After all comments were received, it was agreed that a larger range should be adopted of 1,000 to 1,500. This range will be reviewed in annual meetings to assess if it would be appropriate to change to the original proposal of 1.300 to 1,600 with a target of 1,450.

BARRIERS TO ACHIEVING UNIT MANAGEMENT OBJECTIVES

Habitat - Restoration efforts on summer ranges to improve forest health and address watershed productivity are needed. Private landowners, livestock permittees, federal and state land management agencies and the Utah Division of Wildlife Resources are encouraged to continue to work together to conduct landscape wide treatments. In an effort to regenerate aspen communities, land managers are encouraged to use fire, mechanical or chemical treatments on landscape level projects. New water developments and maintenance of existing water sources can be an issue in drier portions of the unit and in drought conditions. Drought conditions and utilization standards can create conflict if livestock reductions are needed. Improved communication about project needs and ideas are needed to facilitate greater cooperative efforts.

Population - Dry conditions or high utilization may prompt changes to grazing practices while elk numbers have not historically been reduced beyond permit numbers issued in April. Many of the local landowners and public lands grazers may experience higher depredation to private lands and fence damages from an increase in the elk population.

STRATEGIES FOR REMOVING BARRIERS AND REACHING UNIT MANAGEMENT OBJECTIVES

Habitat

- Encourage improved communication among stakeholders through Utah Partners for Conservation and Development as well as annual interagency coordination meetings
- Communicate annually with the advisory committee on elk population status and annual recommendations
- Use range trend and habitat improvement data to make appropriate habitat-related decisions
- Antlerless elk harvest may be recommended if drought conditions exist and/or if there is excessive habitat utilization. Any of these hunts should have definitive boundaries around the problem area and be focused early in the season if possible (example: Markagunt Plateau)
- Encourage USFS and BLM to control uses that negatively impact bottomlands and riparian areas. Focus areas should include Deer Creek, Little Valleys, and areas adjacent to the Cedar Breaks National Monument
- Maintain investments in previous habitat projects such as seedings, chainings, and water developments
- Encourage at least 15,000 acres of treatment in elk habitat during this plan

Population

- Monitor age class structure of the bull population through the use of harvest surveys and tooth analysis
- Support outreach efforts to document benefits of higher quality bull elk on Panguitch Lake, particularly to local economies (landowner permits, shed antler gathering, etc.)
- Support spike bull hunting to promote healthy bull to cow ratios and hunting opportunities

Duration of This Management Plan - This Unit Management Plan was revised in 2023 following the revision of the Statewide Elk Management Plan. This Unit Management Plan will be revised after the next Statewide Elk Management Plan revision to ensure all current management tools are being used. CWMU operators and landowners requested a mid-plan review and revisions may take place when improved data or management tools become available, or to address future issues. Unit elk plan goals, objectives, and strategies are constrained within the sideboards set in the Statewide Elk Plan, which supersedes unit plans. It is possible that changes to the Statewide Elk Plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rule may also affect elk unit plans.

APPENDIX

Figure 1. Population estimates of elk on Panguitch Lake WMU #28.

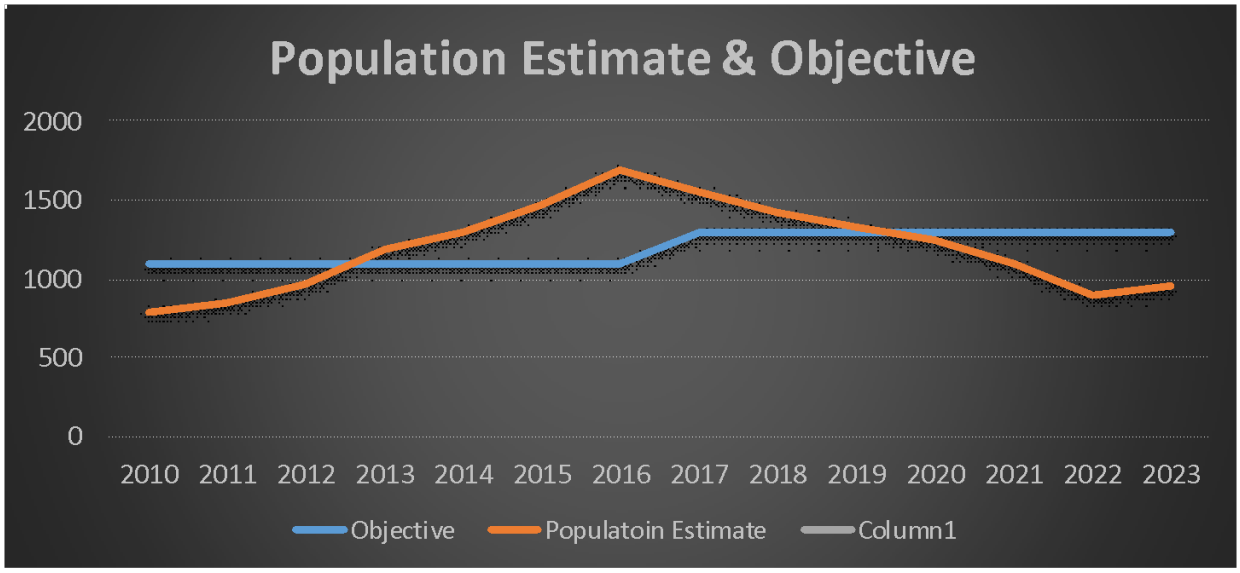


Figure 2. Harvest of elk on Panguitch Lake WMU #28.

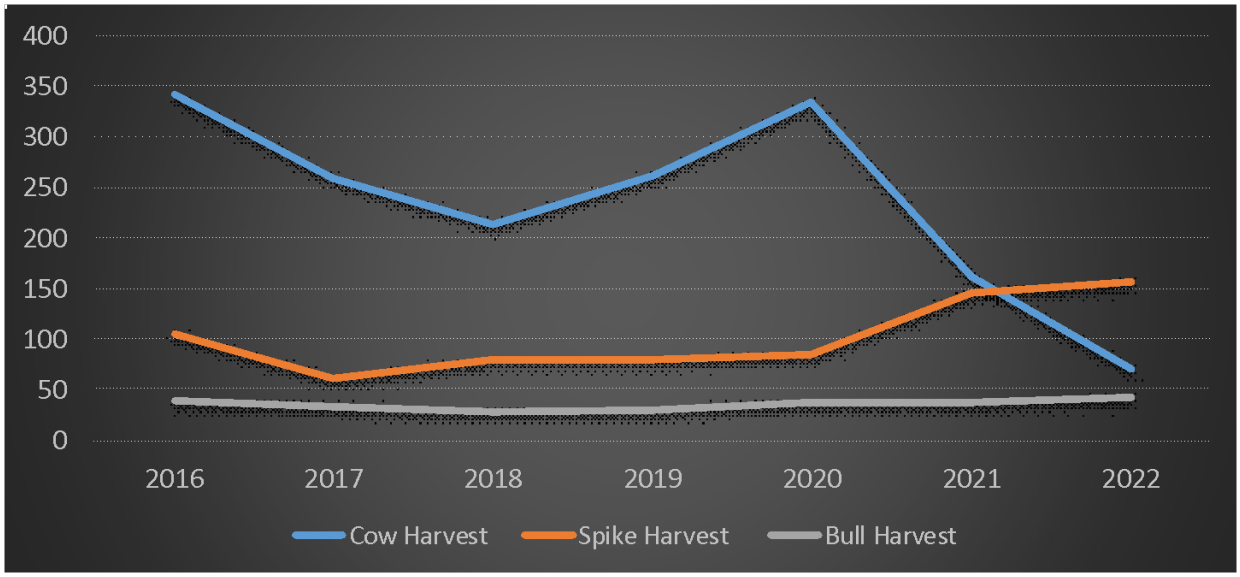


Figure 3. Map of WRI habitat projects 2016-2022

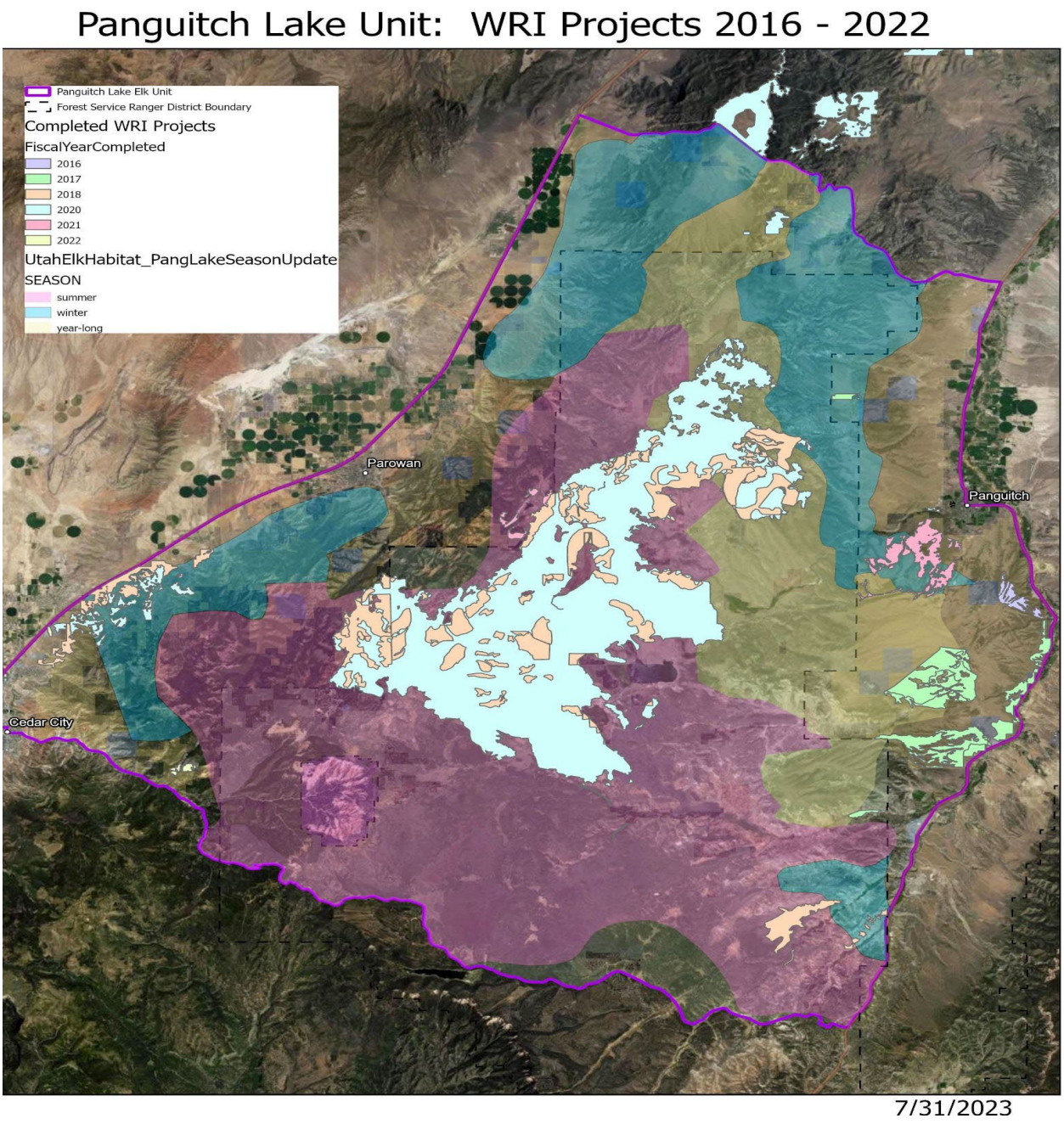
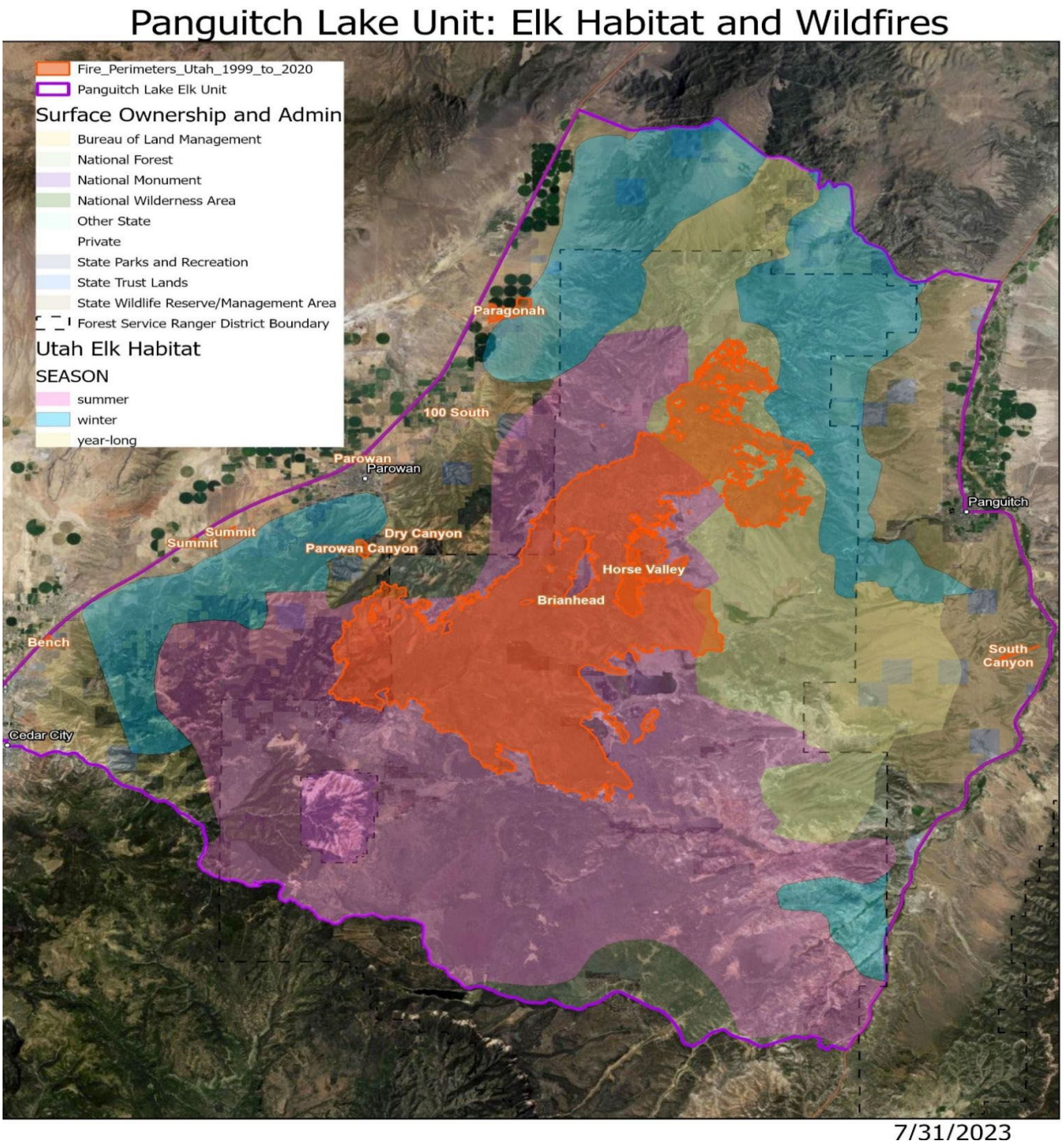


Figure 4. Panguitch Lake fire map 2016-2023.



SPENCER J. COX
Governor
DIEDRE M. HENDERSON
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
JOEL FERRY
Executive Director
Division of Wildlife Resources
J. SHIRLEY
Division Director

MEMORANDUM

TO: Regional Advisory Council Members and Wildlife Board

FROM: Wyatt Bubak, Law Enforcement Chief

DATE: November 16, 2023

SUBJECT: Changes to Admin. Rule R657-51

The UDWR is recommending changes to Admin. Rule R657-51. The following changes are proposed:

- ADD allowances for tags to be issued outside the standardized guidance of this rule to protect the identity of reporting parties, when deemed appropriate and necessary
- ADD additional permit options for reporting parties who report multiple poaching reported reward permit eligible violations in a single year
- ADD a definition of "Immediate Family"
- ADD a definition for "Poaching Reported Reward Permit"
- MODIFY violations that are eligible for Poaching Reported Reward Permits to include the unlawful taking of a trophy animal under 23A-5-309
- REMOVE the ability to receive/issue a Poaching Reported Reward Permit for cougar

1594 West North Temple, Suite 2110, PO Box 146301, Salt Lake City, UT 84114-6301
telephone (801) 538-4700 • facsimile (801) 538-4709 • TTY (801) 538-7458 • *www.wildlife.utah.gov*

UTAH DNR WILDLIFE RESOURCES

R657. Natural Resources, Wildlife Resources.
R657-51. Poaching-Reported Reward Permits.
R657-51-1. Purpose and Authority.

(1) Under authority of Sections 23A-2-304 and 23A-2-305, the Wildlife Board has established this rule describing procedures the division may use in issuing permits to individuals who report unlawful taking of protected wildlife in Utah.

(2) The division may deviate from this rule when granting a poaching-reported reward permit to protect an individual's identity as requested by the division's Chief of Law Enforcement.

(a) Deviations may include:

(i) authorizing a permit on a near or similar unit;

(ii) authorizing a permit for a different species;

(iii) authorizing a premium limited-entry or once-in-a-lifetime permit if a recipient is eligible for multiple poaching-reported reward permits; or

(iv) authorizing a voucher that may only by redeemed by the recipient's immediate family member.

R657-51-2. Definitions.

(1) Terms used in this rule are defined in Section 23A-1-101 and Rule R657-62.

(2) In addition:

(a) "Immediate Family" means a recipient's spouse, children, sons-in-law, daughters-in-law, father, mother, father-in-law, mother-in-law, brothers, sisters, brothers-in-law, sisters-in-law, stepchildren, and grandchildren.

(b) "Poaching Reported Reward Permit" means a permit obtained for a specific hunt area published in the hunt tables of the guidebook of the Wildlife Board for taking big game, turkey, or bear as established in Rule R657-51.

(c) "Successful Prosecution" means:

(i) the issuance of a Class B misdemeanor citation for a wildlife violation under [~~Utah Code~~]Section 23A-5-311; [~~or~~]

(ii) the filing of criminal charges eligible for a Class A or Class B misdemeanor or any felony under Section 23A-[~~5-311.~~]5-31; or

(iii) the issuance of a citation or filing of criminal charges of a Class B misdemeanor for a violation of Section 23A-5-309 involving a trophy animal.

([~~b~~]d) "Qualifying Individual" means:

(i) an individual who provides accurate and credible information concerning a wildlife violation in Utah;

(ii) the division uses that information in securing a Successful Prosecution; and

(iii) the individual fully cooperates and supports the division throughout the prosecution process.

R657-51-3. General Permit Availability and Eligibility Provisions.

(1)(a) A poaching-reported reward permit may only be issued on a unit having 10 or more public draw permits issued in the upcoming season.

(b) If a poaching-reported reward permit is unavailable on a given unit, an alternative permit may be issued using the process identified in each species-specific section of this rule.

(c) The division may determine that a permit is unavailable on a unit if:

(i) less than 10 public draw permits will be issued for a given unit in the upcoming season;

(ii) the illegally harvested animal was taken outside of established unit boundaries; or

(iii) issuing a poaching-reported reward permit would exceed 10% of the total number of permits issued on that unit.

(2) A Qualifying Individual remains eligible to receive a poaching-reported reward permit, regardless of any applicable waiting periods they may otherwise be subject to.

(3) A Qualifying Individual receiving a poaching-reported reward permit will not:

(a) forfeit bonus points or preference points accumulated; or

(b) incur a waiting period, except as described in Subsection (4).

(4) A Qualifying Individual receiving a poaching-reported reward permit for a once-in-a-lifetime species is ineligible to apply for or obtain another once-in-a-lifetime permit for the same species and sex through the division's big game drawing.

(5)(a) The division may only issue one poaching-reported reward permit for any one animal illegally taken.

(b) No more than one poaching-reported reward permit may be issued to any one person per Successful Prosecution.

(c) No more than one poaching-reported reward permit per species shall be issued to any one person in any single calendar year.

(d) Nothing in this rule authorizes an individual to use or possess more than one permit for an antlered or horned animal of the same species in a single hunt year.

(e) The Qualifying Individual may choose the weapon type for the permit, so long as a permit for that weapon type is available.

(f) The Qualifying Individual may choose the season for the permit if different seasons are offered, except that multi-season permits may not be issued through the poaching-reported reward permit program.

(6)(a) Poaching-reported reward permits may only be issued to the individual who provides the most pertinent information leading to a Successful Prosecution, unless granted under Subsection R657-51-1(2)(a)(iv).

(b) If information is received from more than one individual, the director of the division shall make a determination based on the facts of the case as to which individual is eligible to receive the permit.

(7) Poaching-reported reward permits are non-transferrable, unless granted under Subsection R657-51-1(2)(a)(iv).

(8) Any person who receives a poaching-reported reward permit must possess or obtain a Utah hunting or combination license and otherwise be eligible to hunt the species for which the permit is issued for.

(9) The division may determine whether to offer monetary rewards in lieu of issuing a poaching-reported reward permit for a Qualifying Individual.

(10) If a poaching-reported reward permit is authorized for transfer under Subsection R657-51-1(2)(a)(iv), a person may not purchase, sell, offer, barter, exchange or trade the voucher.

R657-51-4. Big Game Poaching-Reported Reward Permits.

(1) Successful Prosecutions for the illegal take of bull moose, desert bighorn ram, rocky mountain bighorn ram, rocky mountain goat, bison, bull elk, buck deer, and buck pronghorn may be eligible to receive a poaching-reported reward permit.

(2)(a) Poaching-reported reward permits for desert bighorn ram, rocky mountain bighorn ram, bull moose, Rocky Mountain goat, and bison may be issued on units or hunts meeting the general permit availability requirements as follows:

(i) a permit may be issued for a male animal of the same species and on the same unit as the animal illegally taken;

(ii) if a permit described in Subsection (a) is unavailable, a permit may be issued for a male animal of the same species on an alternative unit that is closest in proximity to where the animal was illegally taken;

(iii) if a permit described in Subsections (a) and (b) is unavailable, a permit may be issued for a male animal of another once-in-a-lifetime species on a unit that is closest in proximity to the unit where the animal was illegally taken; or

(iv) if a permit described in Subsections (a), (b), and (c) is unavailable, a permit may be issued for a male animal of a limited entry species on an alternative unit selected by the division.

(b) The division may issue a hunter's choice permit in lieu of a permit for a male animal for bison and Rocky mountain goat poaching-reported reward permits.

(3) Poaching-reported reward permits for premium limited entry deer may be issued on units or hunts meeting the general permit availability requirements as follows:

(a) a permit may be issued for a buck deer on the same premium limited entry unit as the animal illegally taken;

(b) if a permit described in Subsection (a) is unavailable, a permit may be issued for a buck deer on an alternative premium limited entry unit that is closest in proximity to where the animal was illegally taken; or

(c) if a permit described in Subsections (a) and (b) is unavailable, a permit may be issued for a buck deer on an alternative limited entry unit closest in proximity to where the animal was illegally taken.

(4) Poaching-reported reward permits for limited entry buck deer, bull elk, and buck pronghorn may be issued on units or hunts meeting the general permit availability requirements as follows:

(a) a permit may be issued for a male animal of the same species and on the same unit as the animal illegally taken; or

(b) if a permit described in Subsection (a) is unavailable, a permit may be issued for a male animal of the same species as the animal taken on an alternative limited entry unit for that species that is closest in proximity to where the animal was illegally taken.

(5) Poaching-reported reward permits for general season buck deer and bull elk may be issued on units or hunts meeting the general permit availability requirements as follows:

(a) a permit may be issued for a male animal of the same species and on the same unit as the animal illegally taken; or

(b) if a permit described in Subsection (a) is unavailable, a permit may be issued for a male animal of the same species as the animal taken on an alternative general season unit for that species that is closest in proximity to where the animal was illegally taken.

(6) If a violation occurs at a location having both general season and limited entry opportunities for the species illegally taken, the division may issue a limited entry permit for that species using the parameters identified in Subsection (4).

R657-51-5. [~~Cougar Poaching-Reported Reward Permits.~~]

[~~(1) Limited-entry and harvest objective cougar units are eligible for poaching-reported reward permits.~~]

[~~(2) Only one poaching-reported reward permit may be issued for each limited-entry cougar unit per year.~~]

[~~(3) Poaching-reported reward permits for cougar may be issued on units or hunts.~~]

[~~(4) Meeting the general permit availability requirements as follows:~~]

[~~(a) if the animal was illegally taken on a harvest objective unit, a permit may be issued for a limited entry unit closest in proximity to that harvest objective unit;~~]

[~~(b) if the animal was illegally taken on a limited entry unit, a permit may be issued on the same limited entry unit; or~~]

[~~(c) if a permit described in Subsections (a) and (b) is unavailable, a permit may be issued on the limited entry unit that is closest in proximity to where the animal was illegally taken.~~]

[~~R657-51-6.~~]Bear Poaching-Reported Reward Permits.

(1) Limited-entry and harvest objective bear units are eligible for poaching-reported reward permits.

(2) Only one poaching-reported reward permit may be issued for each limited-entry bear unit per year.

(3) Poaching-reported reward permits for bear may be issued on units or hunts meeting the general permit availability requirements as follows:

(a) if the animal was illegally taken on a harvest objective unit, a permit may be issued for a limited entry unit closest in proximity to that harvest objective unit;

(b) if the animal was illegally taken on a limited entry unit, a permit may be issued on the same limited entry unit; or

(c) if a permit described in Subsections (a) and (b) is unavailable, a permit may be issued on the limited-entry unit that is closest in proximity to where the animal was illegally taken.

R[~~657-51-7~~]657-51-6. Turkey Poaching-Reported Reward Permits.

(1) General season and limited-entry turkey units are eligible for poaching-reported reward permits.

(2) Poaching-reported reward permits for turkey may be issued on units or hunts meeting the general permit availability requirements as follows:

(a) a permit may be issued on the same unit as the animal that was illegally taken; or

(b) if a permit described in Subsection (a) is unavailable on that unit, a permit may be issued on a limited-entry or general season unit selected by the division.

KEY: wildlife, game laws, big game seasons
Date of Last Change: October 1, 2023
Notice of Continuation: June 15, 2023
Authorizing, and Implemented or Interpreted Law: 23A-2-304; 23A-2-305; 23A-11-201; 23A-11-202

Project Title: Woundfin Stocking above the Quail Creek Diversion

Background: The Woundfin (*Plagopterus argentissimus*) has been federally listed as an endangered species since 1970 (35 FR 16047), and since their listing, Woundfin populations have continued to decline range-wide. The historical range of Woundfin includes the Virgin River and its tributaries in Utah, Arizona, and Nevada (La Rivers 1994). Presently, Woundfin have been extirpated from >85% of their historical range and remain most abundant in the upper extent of their historical range, between Pah Tempe Springs and the Washington Fields Diversion in Utah (Fridell et al. 2004, Fridell and Bennion 2019). Population declines in Woundfin, as well as other native Virgin River fishes, are attributed to a combination of factors including introduction of non-native fish species, habitat loss and alteration, and ecologically limiting factors such as low streamflow and water quality conditions (USFWS 1994, Huizinga and Fridell 2012).

The source of most of the culinary water supply for Washington County is diverted from the mainstem Virgin River at the Quail Creek Diversion (QCD), located upstream of Pah Tempe Springs, a series of more than 100 hot springs. Below Pah Tempe Springs the water quality of the Virgin River changes dramatically and is considered unfit for consumption. More specifically, Pah Tempe Springs adds approximately 11 cubic feet per second of highly mineralized water into the Virgin River, with water temperatures ranging from 38-43°C and average dissolved-solids concentration (i.e., salinity) ranging from 9,220-9,440 milligrams per liter (Gerner and Thiros 2014, Williams and Deacon 1998).

Pah Tempe Springs is also the upstream extent (historical and present) for Woundfin populations (Fridell and Bennion 2019). This distribution may suggest that Woundfin are reliant on the salinity or other water quality conditions provided by Pah Tempe Springs. A recent study initiated by the United States Geological Survey (USGS) has proposed to study the costs and benefits of removing the inflow of Pah Tempe Springs from the Virgin River (Gerner and Thiros 2014). However, it remains unknown how the removal of Pah Tempe Springs will impact downstream water quality and as a result, the subsequent survival and reproduction of Woundfin in the Virgin River. Therefore, before any projects that alter Pah Tempe Springs proceed, it is imperative to evaluate the potential impacts of altering downstream water quality on Woundfin populations.

Purpose: Based on the proposal from USGS to investigate the costs and benefits of removing the Pah Tempe Springs inflow from the Virgin River, the purpose of this research proposal is to evaluate the potential long-term ecological impacts on Woundfin populations if Pah Tempe Springs were altered or removed from the system.

Goals and Objectives: The goal of this research proposal is to provide in-situ documentation of Woundfin survival and reproduction in the absence of Pah Tempe

Springs. In order to do so, we propose to introduce hatchery reared Woundfin into the Virgin River upstream of the QCD, and to collaborate with Bozeman Fish Technology Center on a series of laboratory studies. The following questions will be addressed: 1) does Pah Tempe Springs play an important role in the survival of Woundfin?, 2) if Woundfin survive in the river reach above QCD, will they reproduce?, 3) will naturally produced Woundfin above QCD survive to age-2 or older?, and 4) could reproduction from the above QCD reach contribute to reestablishing a viable Woundfin population above the Washington Fields Diversion?

In order to gain local and State support to stock Woundfin above QCD two important considerations must be realized: 1) Woundfin stocked above the QCD would be considered surplus fish that do not contribute to the survival of Woundfin, and therefore neither the stocked Woundfin nor their progeny would be protected in the river reach above QCD under the Endangered Species Act; however, if any of the stocked fish or their progeny move below the QCD, they would be considered endangered species and be fully protected, and 2) under this designation, absolutely no change to current water management, grazing, recreation, or related activities would be required as a result of stocking Woundfin above the QCD.

Methods: Since 1998, the Utah Division of Wildlife Resources (UDWR), in cooperation with the Virgin River Resource Management and Recovery Program (VRP), has been actively managing the Virgin River within Utah to prevent the extinction of endangered Woundfin populations and other endangered and sensitive native fish species. Part of the recovery efforts for Woundfin involve maintaining broodstock and refuge populations, as well as providing production from these stocks to supplement wild populations in the Virgin River (USFWS 1994, UDNR 1999). Southwestern Native Aquatic Resources and Recovery Center (SNARRC) has maintained a refuge and broodstock population of Woundfin since the 1970s, and has attempted to produce 20,000 Woundfin for annual stocking efforts since the early 2000s.

The most efficient method to evaluate if Woundfin are dependent on Pah Tempe Springs is to introduce hatchery reared Woundfin provided by SNARRC into the Virgin River above QCD, and to monitor the stocked population for survival and reproduction (Fridell and Bennion 2019). There have been a variety of theories suggesting Pah Tempe Springs is important to Woundfin survival; for example, Woundfin are very susceptible to “Ich” (*Ichthyophthirius multifiliis*) and local water quality provided by Pah Tempe Springs is thought to play a significant role in reducing fish vulnerability to this parasite. However, laboratory studies alone are not adequate to address the remaining questions. This field study will correspond to concurrent laboratory studies conducted by the U.S. Fish and Wildlife Service’s Bozeman Fish Technology Center.

All Woundfin would be provided by SNARRC and marked with Visible Implant Elastomer (VIE) tags unique to Woundfin stocked above the QCD. Stocking methods would follow protocols established for the Virgin River below the QCD (Fridell et al.

2006, Fridell and Bennion 2019) and stocking site(s) will be prioritized based on suitable Woundfin habitat (e.g., sand/runs).

Proposed monitoring would be conducted over a 10-year period to allow for natural variability in environmental conditions (i.e., water year and discharge regimes), hatchery production, and cyclical fluctuations in fish populations. Population monitoring would consist of monthly Population Response Station (PRS) sampling at the Grafton station located above QCD. A complete description of PRS methods can be found in Bennion and Fridell (2019). Additional sampling above QCD will also be conducted to detect survival, reproduction, and distribution of stocked populations. The use of unique VIE tags will also enable UDWR to monitor the potential for dispersal below the QCD.

Temperature probes will be added in stocked reaches and salinity samples will be collected during PRS sampling in order to correlate Woundfin survival and reproduction to environmental variables upstream of the QCD.

Project Work/Task Description and Schedule:

- Annual stocking plans will be coordinated through the Virgin River Program and Virgin River Fishes Recovery Team. It is anticipated that Woundfin will be stocked annually for up to five years.

- Annual surplus production of Woundfin from SNARRC will be stocked in the Virgin River above QCD in spring.

- The presence of VIE tagged fish will be monitored throughout the year using PRS and distributional sampling for up to 10 years.

- An annual report summarizing Woundfin stocking, subsequent recaptures, fish length histograms, and presence of young Woundfin (i.e., reproduction), along with any recommendations will be completed in February of each year.

Recommendations/Results:

Results will be summarized annually and recommendations for future years will be developed in consultation with the Virgin River Program Technical Team and Virgin River Fishes Recovery Team.

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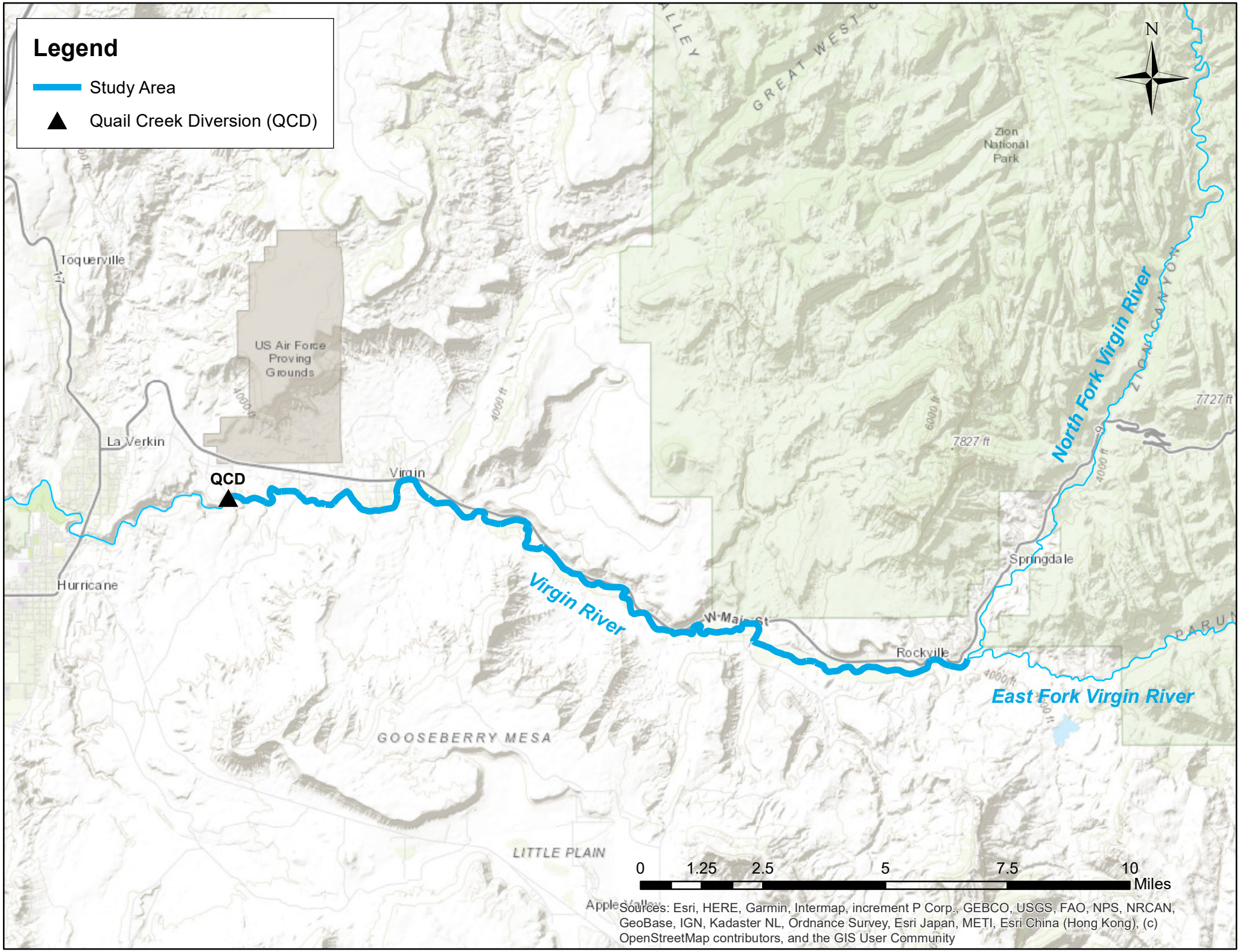
Legend
Study Area
Quail Creek Diversion (QCD)
N
Zion National Park
Toquerville
US Air Force Proving Grounds
La Verkin
QCD
Virgin
Hurricane
Virgin River
North Fork Virgin River
Springdale
Rockville
East Fork Virgin River
GOOSEBERRY MESA
LITTLE PLAIN
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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community