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# A History of Land Use and Vegetation Change in California Park, a High-Elevation Rangeland in Northwestern Colorado

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## ABSTRACT

For centuries, humans occupied and altered California Park, a unique high-elevation rangeland in northwestern Colorado. The area's rich biodiversity attracted Native American hunters and successive European-American cattlemen, sheepherders, homesteaders, and recreationists. All of these groups influenced the area's plant and animal composition and diversity, but heavy cattle and sheep grazing from the 1870s into the 1940s had a drastic and lasting impact on California Park. The area became part of the National Forest System in 1905 and since then the U.S. Department of Agriculture, Forest Service has managed livestock, hunting, and forest resources. Early accounts of California Park create a complex picture of the historical vegetation; some describe the landscape as a meadow supporting a variety of wildlife and surrounded by forest, and others refer to shrubland habitats. This report documents land-use change, management decisions, and subsequent ecosystem change in California Park since the late 1800s. Much of the report is based on a recent interview with a lifelong resident of the area, a retired Forest Service range manager. Other local primary and secondary historical sources supplement material from this interview. This chronology of land use helps to explain how present-day conditions developed and can inform management decisions. In recent years, the Forest Service has focused its management on sustaining native vegetation and wildlife and reversing upland and riparian degradation caused by humans. Despite land managers' efforts, however, widespread invasive plants and soil limitations remain significant obstacles to maintaining desired vegetation composition within California Park. Knowledge about land-use change in California Park can assist restoration efforts in upland landscapes to favor ground-nesting birds and ungulates, and along stream corridors to enhance native trout and boreal toad populations.

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**Keywords:** *oral history, ecological restoration, rangeland management, sagebrush steppe, herbicide treatment, sage-grouse habitat, land-use change, northwest Colorado, Medicine Bow-Routt National Forest*

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**COVER PHOTOS:** *Upper Left:* California Park, Colorado, September 2018. Courtesy photo by Dillon Maxwell, Colorado State University. *Upper Right:* A range technician spotting ground-dwelling birds in advance of herbicide operations in California Park, 1953. The view faces southwest toward Bears Ears (left) and Sugar Loaf (right) Mountains. USDA Forest Service photos, Routt National Forest. *Lower Left:* Oral history interview with John Sundberg (fourth from left) and employees of the Medicine Bow-Routt National Forests, Colorado State University, and the Forest Service's Rocky Mountain Research Station, 2 August 2017, in California Park. Courtesy photo by Mark Paschke, Colorado State University. *Lower Right:* A field of mule's ears (yellow flowers; *Wyethia amplexicaulis*) near the confluence of Adams and Slater Creeks in California Park, June 2018. Courtesy photo Mark Paschke, Colorado State University.

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## CONTENTS

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INTRODUCTION .....	1
METHODOLOGY AND HISTORICAL SOURCES .....	2
CALIFORNIA PARK'S ECOLOGICAL SETTING .....	3
UTES IN NORTHWESTERN COLORADO .....	3
A HALF CENTURY OF OVERUSE (1870–1920) .....	3
Cattle and the Beef Trail .....	3
Sheep and Sheepherders .....	6
Homesteaders .....	6
Hunting and Fishing .....	7
FIRST EFFORTS TO REVERSE ECOSYSTEM DEGRADATION (1930s–1950s) .....	7
CHEMICAL-BASED VEGETATION MANAGEMENT (1950s–early 1990s) .....	10
CURRENT CONSIDERATIONS AND CHALLENGES FOR CALIFORNIA PARK .....	13
REFERENCES .....	16

## INTRODUCTION

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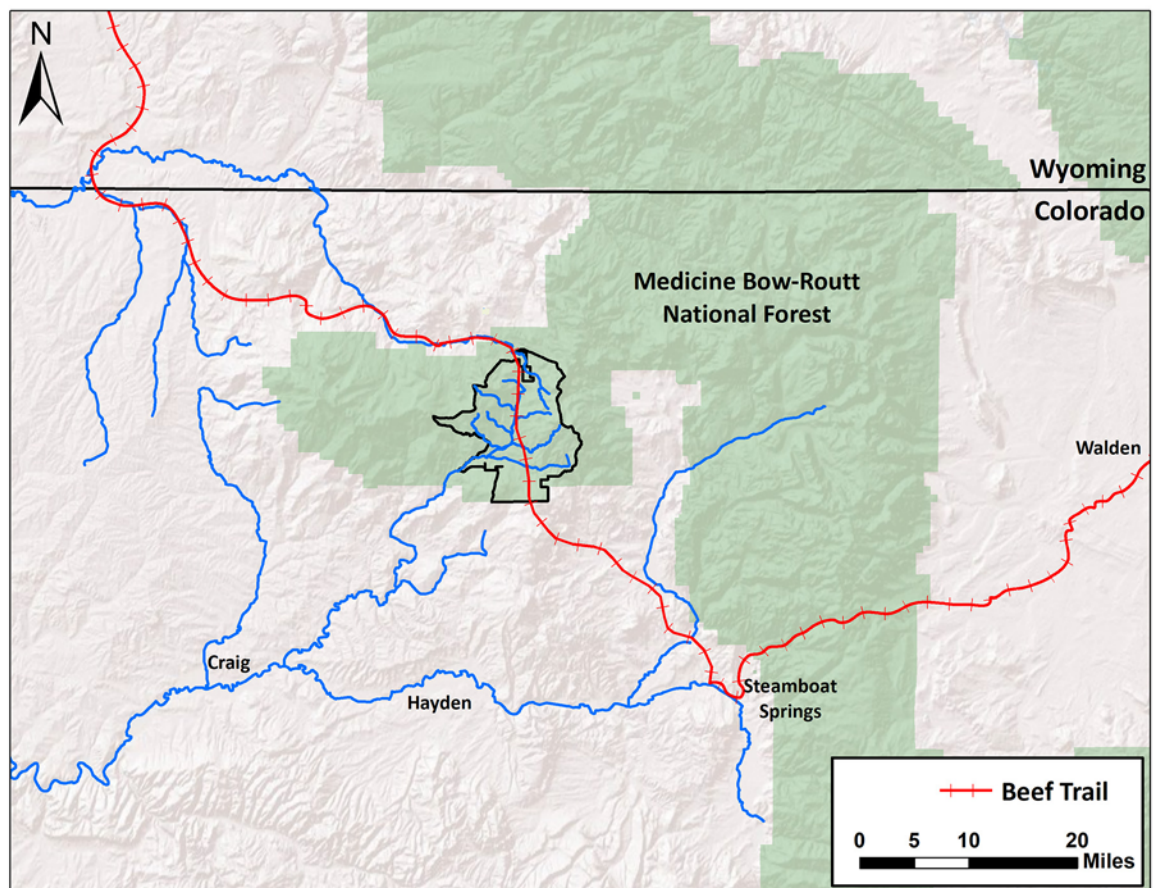
For centuries, humans occupied and altered California Park, a unique high-elevation rangeland located in the Bears Ears District of the Medicine Bow-Routt National Forest in northwestern Colorado (figs. 1, 2). The area's rich biodiversity attracted Ute hunters and successive European-American cattlemen, sheepherders, homesteaders, and recreationists. All of these groups influenced the area's plant and animal composition and diversity, but heavy cattle and sheep grazing from the 1870s into the 1940s had a drastic and lasting impact on California Park. The area became part of the National Forest System in 1905 and since then the U.S. Department of Agriculture, Forest Service has managed livestock, hunting, and forest resources. In recent years, the Forest Service has focused its management on sustaining native vegetation and wildlife and reversing upland and riparian degradation caused by humans. This report documents land-use and subsequent ecosystem change in California Park since the late 1800s.

Written and oral accounts of the landscape depict a variety of views of the landscape. A newspaper article from the turn of the last century described California Park as “beautifully situated in an immense meadow ... 10,000 acres comprised of low flats, surrounded by an excellent growth of timber. The soil is of the richest and the natural advantages of the locality cannot be excelled ...” (Routt County Sentinel 1902). Another newspaper reported that the land was “stocked with abundant wildlife including deer, elk, sage chickens and ducks” (Steamboat Pilot 1896). Citing his grandfather's recollections from that period, retired Forest Service range manager and lifelong Hayden resident John Sundberg recalled that there was “no brush in California Park ... the entire thing was solid grass.” However, reports from the same time period document the presence of ‘sage-chickens’ (sage-grouse) and associated sagebrush habitats. Taken together these records create a complex picture of the historical vegetation of California Park (Gilbert 1881; Routt County Sentinel 1902).



**Figure 1**—California Park, Colorado in 1926, looking to the north. Photo from Campbell 1926.





**Figure 2**—The California Park Special Interest Area (black outline) and the historical “Beef Trail.” Tens of thousands of cattle passed along the trail between 1870 and the 1920s, and local residents recalled that cattle kicked up so much dust that it looked like smoke from a forest fire (Sundberg 2017). The trail originally extended from rangeland west of California Park, through Steamboat Springs, and over Buffalo Pass to North Park and rail lines in Wyoming. (Dodder and Arroyo 1987).

## METHODOLOGY AND HISTORICAL SOURCES

In 2017, researchers from the Forest Service, Rocky Mountain Research Station, Colorado State University, and managers from the Medicine Bow-Routt National Forest conducted an on-site oral history interview with John Sundberg, a life-long Hayden, Colorado resident and retired Routt National Forest employee. The goal of the interview was to gain local knowledge about the ecological changes and land-use history of California Park to aid ongoing restoration activities. Sundberg’s connection to California Park runs deep. It begins with his grandfather, who drove cattle through the area in the late 1800s, and continues through his childhood visits to the park, and his career with the Routt National Forest, where he worked on the Bears Ears District starting in the 1950s. After the interview, the research team added relevant primary and secondary historical sources to expand on Sundberg’s oral history and fill gaps. Primary sources ranged from historic newspaper articles to reports from the Routt National Forest from the 1930s to the 2000s. Secondary literature on California Park’s history is minimal and histories of northwestern Colorado, the Forest Service, and grazing were used to pull context into the narrative.

## CALIFORNIA PARK'S ECOLOGICAL SETTING

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The California Park Special Interest Area is a 27,877-acre high-elevation rangeland (7,800–8,100 feet) surrounded by forested mountains (8,100–9,500 feet). The geography creates a bowl-like setting with a mixture of conifer forests and aspen with forb associations surrounding sagebrush-bunchgrass communities. California Park supports high wildlife biodiversity including a number of species currently on the State of Colorado's Special Concern list (SC). Historically, Greater sage-grouse (*Centrocercus urophasianus*, SC), Colombian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*, SC), and blue grouse (*Dendragapus obscurus*) occurred in California Park; this is the only Forest Service land in Colorado where these species co-occur. Greater sage-grouse leks have not been observed in California Park since the mid-20th century (MBRNF 2003; Sundberg 2017). Greater sandhill crane (*Antigone canadensis*, SC) also breed in the park. Elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), pronghorn antelope (*Antilocapra americana*), and black bear (*Ursus americanus*) live in California Park. Six named tributaries drain southwest from California Park into Elkhead Creek and then into the Yampa River (figs. 2, 3). These streams support Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*, SC) and a boreal toad (*Anaxyrus boreas boreas*, SC) population.

## UTES IN NORTHWESTERN COLORADO

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Prior to the 1840s, Yampa Ute bands lived near the White and Yampa Rivers and in the North and Middle Park regions. Archaeological sites and tribal knowledge indicate that they hunted game and gathered edible plants in California Park and surrounding areas (May and May 1977; MBRNF 2003). From the 1840s to 1870s, European-American trappers, ranchers, farmers, and miners arrived in northwestern Colorado and began to settle on ancestral Ute lands (Athearn 1981). At the same time, the Federal Government established assimilation programs to encourage the Ute to adopt European practices. After years of tension and a deadly skirmish between the Ute and Indian Agents in 1879, the Government forced the Ute to abandon their ancestral lands and relocate to reservations in Utah in 1881 (Athearn 1981).

## A HALF CENTURY OF OVERUSE (1870–1920)

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### Cattle and the Beef Trail

The first cattle drives into northwestern Colorado occurred between the 1860s and 1870s (Dodder and Arroyo 1987; Stanko et al. 1979). By the 1890s, tens of thousands of head arrived each spring to graze on the open range in California Park (Stanko et al. 1979). The “Beef Trail,” which passed through California

Park (see fig. 2), became a critical waypoint between northern Colorado and stockyards in Wyoming (May and May 1977; Sundberg 2018). Drives moved up to 20,000 cattle through California Park in a given year (Stanko et al. 1979; Sundberg 2017).

The number of cattle moving along the Beef Trail abated in 1905 after President Theodore Roosevelt established the Park Range National Forest (renamed the Routt National Forest in 1908), and the Forest Service instituted a permit system to limit grazing in an effort to sustainably manage natural landscapes. The policy established specific grazing periods and allotments, determined stocking rates, and set annual grazing fees. Western cattlemen resisted Federal oversight and large cattle drives continued to pass through California Park until the mid-1910s (Yampa Leader 1905, 1906, 1907). Chronic cattle trespassing during this period prompted Federal range managers to round up cattle, fine owners, and fence the western boundary of the park (RNF 1975).

Completion of the Denver, Northwestern, and Pacific Railroad line to Steamboat Springs in 1909 accelerated growth of the cattle industry in northern Colorado. California Park cattle bound for Midwestern stockyards could now be loaded in Steamboat Springs rather than driven to railyards in Wyoming (Cook and Redente 1993). By 1913, Steamboat Springs had become one of the busiest livestock towns in the United States (Athearn 1981; Stanko et al. 1979). During this period, cattle were also transported from elsewhere in Colorado to Steamboat Springs to graze on California Park rangeland (Oak Creek Times 1911).

Years of heavy grazing and large cattle drives degraded range conditions, and by 1915 California Park was described as a “desert” (Dodder and Arroyo 1987; Routt County Sentinel 1915a). Grazing reduced native forb, grass, and sagebrush cover and habitat quality, eroded stream banks, and degraded aquatic habitat. Cattle activity was concentrated near streams and lower landscape positions that had compaction- and erosion-prone soils. The poor condition of allotments near the Beef Trail forced cattle to migrate upslope toward the forest margin where larkspur (*Delphinium* spp.) was abundant. Several cattle died in California Park in 1915 from eating the poisonous forb. In response, the Forest Service constructed 6 miles of fence to keep cattle out of larkspur patches, and local cattle associations prohibited their herds from entering the larkspur-infested areas (Routt County Sentinel 1915b; Steamboat Pilot 1915). By 1917, Federal range managers began manually removing larkspur from 200 acres in California Park (Routt County Republican 1917; Routt County Sentinel 1917).

By the 1920s, poor range condition, increases in sheep grazing, and efforts to foster the oil and mining industries nearly eliminated cattle operations from California Park and northwestern Colorado (Athearn 1981). The number of cattle in California Park continued to drop after passage of the Taylor Grazing Act in 1934 (MBRNF 2003; Taylor Grazing Act 1934). Vegetation and soil changes in California Park from historical grazing and cattle drives along the Beef Trail remain evident today.



## Sheep and Shepherders

Shepherders first brought flocks to Routt County in the 1890s and grazing increased over subsequent decades (Athearn 1981). In 1909, herders drove nearly 9,000 sheep from Wyoming to Steamboat Springs (RNF 1975). While larkspur toxicity limited regional cattle operations, sheep are not sensitive to the forb, and sheep grazing operations expanded into California Park in 1917 (MBRNF 2017). The Forest Service established seven new sheep allotments on the hill-sides flanking California Park as cattle grazing declined on the lower elevation allotments (MBRNF 2003). By the 1920s, the Routt National Forest had added 20,000 sheep grazing permits and dropped the number of allotted cattle, making sheep the dominant grazer in the region (RNF 1975). During the 1920s, sheep reportedly overgrazed about 100,000 acres on the Routt National Forest and were suspected of introducing or promoting mule's ears (*Wyethia amplexicaulis*) and other low forage quality forbs to California Park (RNF 1975; Sundberg 2017). Mule's ears is a deep-rooted forb, with a native range spanning from Colorado to Washington State. It began to dominate overgrazed soils during that decade and formed dense patches that have remained a challenge for California Park land managers for a century (Matthews 1993; Sundberg 2017; Young and Evans 1979).

## Homesteaders

In 1896, the Colorado State Land Commission secured 15,000 acres of land in the California Park area to promote agricultural settlements (Steamboat Pilot 1896). Difficult road access into California Park was an obstacle to settlers, and the General Land Office of the Department of the Interior awarded only 22 homestead patents between 1903 and 1913 (BLM 2020). Homesteaders typically selected land along stream drainages in the center of California Park. The settlers expected to grow and sell crops and hay to workers constructing a rail line from nearby coal mines, but most homesteaders left California Park during the Great Depression after those plans failed (Sundberg 2017).

The stories of two homesteaders paint a picture of life in California Park. In 1909, the State granted water rights to John Jokodowski for 160 acres along Sugar Creek and to Edgar Knowles for 140 acres along what is now called Knowles Creek (CO DNR 2020a,b; MBRNF 2003; Sundberg 2017). Both Jokodowski and Knowles constructed irrigation ditches, established pastures, and farmed lettuce and potatoes (John Smith, member of long-time local ranch family, Slater Park, CO, personal communication, 2018; Steamboat Pilot 1923a,b). They also planted the pasture grass timothy (*Phleum pratense*), which persists on portions of their former holdings (MBRNF 2003). Knowles' home still stands, but Jokodowski's home burned down in the 1990s. Jokodowski's name lives on in California Park as a creek and a dense clay soil prone to formation of deep cracks (Soil Survey Staff 2021).

## Hunting and Fishing

Visits by Theodore Roosevelt and published accounts of large wildlife populations popularized hunting and fishing in California Park in the 1890s. Accounts from the late 19th and early 20th centuries mention the presence of “sage chickens” and sandhill cranes in the area, but do not provide population estimates or specific habitat-use information (Routt County Sentinel 1902; Sundberg 2017). A general perception of abundant game caused a boom in sport hunting; by 1899 a local resident remarked that California Park was so full of hunters, one encountered “more men than deer” (Steamboat Pilot 1899). Hunting and recreation in the park remained popular through the late 1910s, although by that time over-hunting had severely reduced wildlife populations. A 1917 Forest Service survey reported “no sightings of deer and elk[,] and bear were scarce” and another from 1921 listed “5 elk, 10 deer, 100 beaver, 10 bear” with no mention of sage-grouse or other game birds (RNF 1975).

Sport fishing gained popularity in the early 20th century with numerous accounts of local residents fishing in California Park’s well-stocked streams (Routt County Republican 1911, 1915; Routt County Sentinel 1902). Federal land managers and sheepherders joined efforts to stock fish in California Park’s streams (Routt County Republican 1908; Sundberg 2017). John Sundberg recalled that fish abounded in California Park streams between the 1940s and 1960s due in part to the collaboration between the game and fish agency for the State of Colorado and local sheepherders to transport fish to backcountry streams (Sundberg 2017).

By the 1920s, the impacts of homesteading, grazing, and game hunting had altered native flora and fauna communities, introduced invasive species, and compacted soils, resulting in a dramatic transformation from the conditions when Utes occupied the park (table 1). In the coming decades, Routt National Forest managers would increase their efforts to address changes brought on by historical land use.

## FIRST EFFORTS TO REVERSE ECOSYSTEM DEGRADATION (1930s–1950s)

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Dust Bowl-era drought exacerbated nearly five decades of intensive land use on California Park’s rangeland. The Federal Government sought to address environmental and economic challenges by rethinking public land management and initiating public works programs. In 1933, the Federal Government published the Copeland Report, which called for more intensive management of Forest Service lands (Godfrey 2012). This was followed by the 1934 Taylor Grazing Act, which greatly reduced the number of livestock on public land and implemented a localized, district-based approach to grazing management. In its 1936 Western

**Table 1**—Primary land-use changes in California Park, Colorado between the 1860s and 1930s (please see text for references).

Date	Cattle	Sheep	Homesteaders	Recreation	Forest Service
1860s-1870	First cattle brought into northwestern Colorado.				
1893	20,000 cattle enter California Park.	Jack Edwards brings sheep into Routt County from Wyoming.			
1896			State Land Commission secures 15,000 acres of land in California Park area and markets it as prime agricultural land.		
1898				Newspapers note “too many damn bears” in California Park.	
1899				Newspaper notes “more men than deer” in California Park.	
1902				California Park marketed as prime hunting location in newspaper.	
1905	Pierce-Reef Outfit brings 3,300 cattle into California Park; cattle must now be permitted to graze in Park Range National Forest (NF).		George Gant establishes a homestead in California Park.		Park Range NF established.
1906	Pierce-Reef drives 800 cattle in California Park.		Clarence Swisher establishes homestead in California Park.		
1907			John Jokodowski and Ed Knowles establish homesteads in California Park.		
1908	Cattle trespass across allotments in California Park.				Forest Service holds cattle roundup and fines trespassers. National forest name is changed to Routt NF.

*(Continued)*

**Table 1**—continued.

Date	Cattle	Sheep	Homesteaders	Recreation	Forest Service
1909	Railroad comes to Steamboat Springs and cattle industry booms. Snake River Stockgrowers Association builds 9 miles of drift fence.	20,000 sheep herded through Routt NF from Wyoming to Steamboat Springs.	Jokodowski granted water right off Sugar Creek.		
1910			Knowles plants potatoes on land claim and is granted water rights in California Park.	Newspaper notes eight bears killed and “plenty of sage grouse” on hunting trip.	
1911	Pierce-Reef brings 32 railcar loads of cattle to California Park.				
1912	Figure Four Outfit drives 7,000 head of cattle across California Park.				
1913	“More cattle were shipped from [Steamboat]” than anywhere else in the United States.		Gant moves out of California Park.		
1914				Routt NF begins to offer maps and information to tourists.	Routt NF begins to offer maps and information to tourists.
1915	Larkspur outbreak in California Park kills cattle. Cattle associations try to keep cattle out of California Park.		Stukey family “prove up” on “desert land claim” in California Park.		Forest Service puts up drift fence to prevent cattle from moving across allotments.
1917				Reports of no deer or elk and low numbers of bear in California Park. “Vacation Days in the Routt National Forest” is published to encourage recreation.	Forest Service manually removes larkspur from range.
1921				Report of “5 Elk, 10 deer, 100 beaver, and 10 bears” in California Park.	Temporary guard station built south of First Creek.
1923		Sheep permitted to graze in California Park. Possible introduction of mule’s ears.	Knowles and Jokodowski plant and harvest lettuce crops.		
1934	Taylor Grazing Act limits grazing on public lands.	Taylor Grazing Act limits grazing on public lands.	Taylor Grazing Act stops homesteading on public lands.		

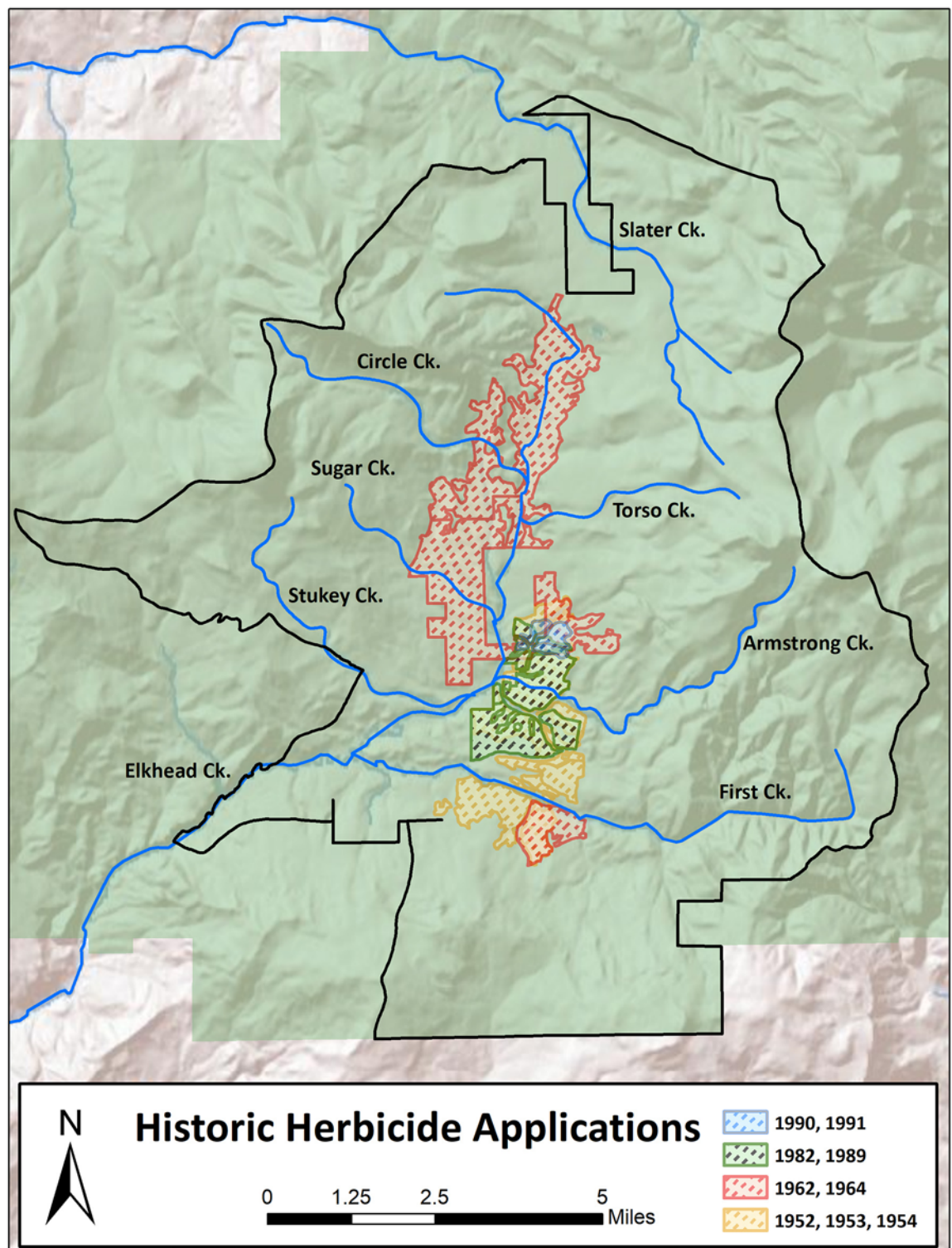
Range Report, the Federal Government stated that the Nation's rangelands were heavily degraded and recommended uniform, Forest Service oversight of grazing on public rangelands (Mitchell et al. 2005; Steen 1976). In California Park, the Civilian Conservation Corps developed watering areas to mitigate range damage and streambank erosion along Jokodowski Creek, and Routt National Forest managers reduced cattle numbers (MBRNF 2003; Sundberg 2018).

Though drought conditions in the 1930s subsided, challenges associated with invasive plants and overgrazing continued into the 1940s (Lepley 1945; Schwan and Stahl 1942). A plant inventory conducted in 1942 documented the "exceptionally uniform" distribution of palatable forage but also identified areas with dense patches of mule's ears (Schwann and Stahl 1942). That year, managers proposed a project to evaluate how to expand forage grasses and reduce mule's ears. However, increased demand for wool during World War II stimulated another period of intense grazing and interrupted efforts to rehabilitate California Park rangeland (Sundberg 2018). By the end of the war, sheep had overgrazed the Armstrong Creek, Saddle Mountain, and First Creek allotments (Lepley 1945; Pickford 1945). Rangers reported that cattle were in "poor flesh" and noted evidence of poor range conditions and cattle trespass into sheep and goat allotments (Lepley 1945; Pickford 1945). During the war, annual cattle stocking was maintained at 385 head in California Park at the urging of a Forest Service assistant regional forester. He advised local range specialists to reduce livestock carefully and with consideration of how such reductions on neighboring Federal rangeland would affect permittees (Rowley 1985). During the first few years after the war, rangeland managers did not attempt any large-scale projects to improve the weedy, "low vigor" rangelands. They kept the same cattle stocking rate until 1949, when they decreased it to 256 head in an attempt to improve conditions (Lepley 1945; MBRNF 2003; Pickford 1945).

## **CHEMICAL-BASED VEGETATION MANAGEMENT (1950s–early 1990s)**

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In the early 1950s, the Forest Service increased intensive vegetation management and initiated rangeland experiments aimed at improving conditions (Freeman 2002; Godfrey 2012; Mitchell et al. 2005). In addition to efforts to rehabilitate California Park rangeland by controlling grazing, the Forest Service started using chemical-based approaches that became available after World War II (figs. 3, 4). To enhance grass forage and reduce herbaceous and woody plants, the Forest Service began applying 2,4,5-Trichlorophenoxyacetic acid (2,4,5-T) herbicide in the park. In 1952, the agency treated 245 acres of mule's ears and silver and big sagebrush (*Artemisia cana* and *A. tridentata*) using a truck-mounted spray rig (fig. 5) (MBRNF 2003; Sundberg 2017). Workers treated an additional 333 acres in 1953 and 550 acres across the Armstrong Creek, East Quaker, Stukey Creek, Meaden Peak, and Saddle Mountain Units in 1954 with



**Figure 3**—Historical herbicide applications for control of mule's ears (*Wyethia amplexicaulis*) and sagebrush (*Artemisia* spp.) in California Park (Correia 2016). At least 7,500 acres received ground-based or aerial herbicide applications between 1952 and 1991.





**Figure 4**—California Park (a) in 1953, before herbicide application, and (b) in 1955, after herbicide application to remove mule's ears (*Wyethia amplexicaulis*) and subsequent seeding with slender wheatgrass (*Elymus trachycaulus*), brome (*Bromus* spp.), and fescue (*Festuca* spp.). USDA Forest Service photos, Routt National Forest.



**Figure 5**—Ground-based herbicide application to eradicate mule’s ear (*Wyethia amplexicaulis*) in California Park, 1953. A range technician is seen spotting ground-dwelling birds in advance of the operation. The view faces southwest toward Bears Ears (left) and Sugar Loaf (right) Mountains. USDA Forest Service photo, Routt National Forest.

2,4,5-T (MBRNF 2003; Sundberg 2017). These herbicide applications eradicated mule’s ears and sagebrush “in excess of 90 percent with some areas showing nearly 100 percent kill” (Pickford 1956) (fig. 4). Chemical treatments were followed by reseedings with slender wheatgrass (*Elymus trachycaulus*), brome (*Bromus* spp.), and fescue (*Festuca* spp.), increasing grass cover and forage quality for livestock (RNF 1982).

Mule’s ears and sagebrush reappeared by 1957 and the Forest Service responded with aerial applications of 2,4-Dichlorophenoxyacetic acid (2,4-D) along First Creek (285 acres) and Stukey Creek (112 acres) and near Jokodowski Mesa (694 acres) (MBRNF 2003). Rangeland managers also reduced stocking rates to aid these revegetation efforts (Lewis 1961). From 1962 to 1964, the Forest Service conducted three large-scale aerial spraying campaigns in California Park to limit regrowth of sagebrush, larkspur, and mule’s ears. In some instances chemical drift during aerial application damaged nontarget, riparian willows (*Salix* spp.) (RNF 1961; Sundberg 2017). Widespread aerial spraying ceased in the mid-1960s in favor of ground-based applications in smaller areas to control mule’s ears (Sundberg 2017). By the 1980s, after nearly 15 years without large-scale spraying, mule’s ears recovered, and livestock forage declined to “near the 1953 pre-spraying levels” (RNF 1982). Managers experimented with manual removal of mule’s ears followed by grass seeding and fertilization, but once again resorted to widespread herbicide applications (MBRNF 2003). In

1982, the Forest Service treated 884 acres with aerial (fig. 6) and ground herbicide applications to control mule's ears and sagebrush, and in 1987 another 175 acres were treated with ground-based equipment (MBRNF 2003; Sundberg 2017). From the 1950s to the early 1990s, the Forest Service sprayed a total of 7,500 acres in California Park, yet mule's ears still persists throughout California Park (fig. 3; table 2) (MBRNF 2017). Despite land managers' efforts to reverse degradation, widespread invasive plants and soil limitations remain significant obstacles to maintaining desired vegetation composition within California Park.

## CURRENT CONSIDERATIONS AND CHALLENGES FOR CALIFORNIA PARK

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Starting in the 1990s, land managers once again altered their approaches to addressing range degradation and restoration of California Park's native plant and animal diversity. Conservation concern and endangered species review of sage-grouse halted a half-century-long campaign to eradicate sagebrush (Getches 1983). Sage-grouse were present in California Park during the 1940s and 1950s, but their population declined drastically due to loss of forb and shrub cover caused by herbicide applications (Sundberg 2017). In the 2000s, Forest Service staff observed two Colombian sharp-tailed grouse leks near First Creek and light use of California Park by sage-grouse in summer and fall but no lek establishment (MBRNF 2003, 2017). In spite of considerable controversy regarding legislated protection of the sage-grouse, conservation and restoration of sagebrush and ground-nesting bird habitat remain management priorities in California Park.



**Figure 6**—Aerial herbicide application in California Park, 1982. USDA Forest Service photo, Routt National Forest.

**Table 2—Vegetation management activities in California Park between 1940 and 1987.**

Year	Acres	Description
1940	115	Reseeding
1951	100	Proposal to reseed with smooth brome ( <i>Bromus inermis</i> ), timothy ( <i>Phleum pratense</i> ), and intermediate wheatgrass ( <i>Thinopyrum intermedium</i> ) in Sec. 22, T.9N., R.87W., south of First Creek
1952	245	Sprayed with 2,4,5-T primarily to reduce mule's ears ( <i>Wyethia amplexicaulis</i> ); killed other forbs and shrubs
1953	333	Sprayed with 2,4,5-T
1954	550	Sprayed with 2,4,5-T mostly in California Park Unit, but also some acres in Meaden Peak and Saddle Mountain Units, and a few acres in Armstrong Creek, East Quaker, and Stukey Creek Units
1957	285	Aerial spray with 2,4-D primarily for mule's ears and sagebrush ( <i>Artemisia</i> spp.) in First Creek
	112	Aerial spray with 2,4-D primarily for mule's ears, sagebrush, and snowberry ( <i>Symphoricarpos rotundifolius</i> ) in Stukey Creek
	694	Aerial spray with 2,4-D primarily for sagebrush, and, to a minor extent, mule's ears on Jokodowski Mesa
	368	Aerial spray with 2,4-D primarily for mule's ears on Saddle Mountain
1962	1,320	Aerial spray with 2,4-D primarily for mule's ears and sagebrush
1963	1,152	Aerial spray with 2,4-D primarily for mule's ears and sagebrush
1964	1,405	Aerial spray with 2,4-D primarily for mule's ears and sagebrush
1981	40	Mechanical treatment (mowing, flailing, ripping, reseeding, fertilizing) of mule's ears near East Armstrong Creek
1982	884	Aerial and ground spray with 2,4-D primarily for mule's ears and sagebrush
1987	175	Ground spray with 2,4-D primarily for mule's ears

Historical observations document the occurrence of sagebrush in California Park, though the specific distribution and extent of various sagebrush species and communities remain uncertain. Early characterization of northern Colorado rangeland described a link between soil type and sagebrush community composition (Robertson and Nielsen 1966). For example, an abrupt transition from low-statured alkali sagebrush (*Artemisia arbuscula* ssp. *longiloba*), colloquially known as “chicken sage” and taller, big sagebrush (*A. tridentata* ssp. *vaseyana*) adhered to boundaries between claypan soils and deeper, loam soils. Presettlement sagebrush habitat likely consisted of open stands of shrubs with diverse grass and forb species assemblages (Beetle 1960; Blaisdell 1953; Ellison 1960; Laycock 1991). Within California Park, sagebrush is currently more common on upland slopes and terraces with loamy, lighter-textured soils compared to heavy, shrink-swell clays with shallow root-restrictive layers that typify the Jokodowski soil series and other soils typical of lower slope positions (Kachergis et al. 2012).

It is likely that degradation and restoration options may differ between the soil and vegetation associations. For example, California Park managers continue to struggle to establish or maintain desired native plant species and community types on the area's heavy clay soils. The undesired native plant mule's ears is well-adapted to the heavy clay found throughout California Park, and the plant's tap root structure allows it to exploit early-season soil moisture and resprout after grazing (Matthews 1993; Mueggler and Blaisdell 1951). Efforts to decompact these heavy clay soils or replace mule's ears with grasses have had limited success (Correia 2016; MBRNF 2003). Current restoration research is taking a holistic approach to evaluate the potential to establish desired native plant communities on distinct soil associations in California Park. One aspect of this evaluation is to determine what native plant seed remains viable within the soil seedbank, especially on heavy clay soils dominated by nonnative plants (Schroeder 2019). Based on a broader understanding of the potential plant diversity across soil landscape types, ongoing trials are evaluating native plant seeding, mulch techniques, soil heterogeneity treatments, and herbivory controls.

The condition of California Park rangeland also influences aquatic biota, fisheries, and downstream water users. Watershed specialists recognize the need to couple riparian revegetation and streambank stabilization with efforts to increase upland shrub cover and soil infiltration. For example, an ongoing project to improve boreal toad and Colorado River cutthroat trout habitat aims to reverse impacts of historical livestock and current elk grazing within both riparian and upland vegetation communities (MBRNF 2017).

The management history of California Park is similar to that of other multiple-use Federal lands in the western United States. The changes in natural resource conservation and management described here reflect paradigm shifts from extreme exploitation to conservation-minded approaches and more recently to ecosystem restoration interests. This land-use chronology helps pinpoint when and where key activities occurred within California Park and illustrates how some of the present-day conditions developed. Such knowledge may assist efforts to restore upland vegetation to favor ground-nesting birds and ungulates, and stream corridors to enhance native trout and boreal toad populations. The current management challenges for maintaining or restoring California Park's distinctive habitats, vegetation, and ecological conditions are tied not only to historical land use, but also to diverse soil and vegetation associations and uncertain future climatic conditions. Though some historical land-use practices were widespread, their impacts were concentrated in specific parts of California Park. It remains unclear to what degree current conditions resulted from historical land use, natural variability in soil characteristics, or a combination of the two.



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