An Environmental History of Invasive and Exotic Species in Moraine Park Campground

Invasive and Exotic Species Report

May 2018



Stead's Ranch, located in Moraine Park, ROMO Digital Image Gallery, 18579. https://www.nps.gov/romo/learn/historyculture/places.htm

An Environmental History of Invasive and Exotic Species in Moraine Park Campground Invasive and Exotic Species Report

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Rocky Mountain National Park
Resource Stewardship

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Executive Summary

Project Background

This report is a supplement to the ROMO Exotics and Restoration Crew project between Rocky Mountain National Park (RMNP) and the Public Lands History Center (PLHC). The report investigates if the introduction of exotic plants species to RMNP's Moraine Park Campground correlates with the National Park Service Mission 66 program or previous development efforts within RMNP. The study area is the Moraine Park Campground, which spreads across approximately fifty acres, and the immediately surrounding areas within Moraine Park. Moraine Park and Moraine Park Campground currently have exotic plant species; RMNP manages these areas today. Park personnel treat exotic plants with a variety of herbicide applied with backpack sprayers or park staff removes the plants by hand, depending on the root system of the plant. Because RMNP built Moraine Park Campground during the Mission 66 era, this report investigates the possible connection between Mission 66 infrastructure and development projects and the introduction of exotic species to the area of study. The research questions this report addresses include:

- When were exotics introduced in Moraine Park?
- How were they introduced?
- Is there a connection with the goals and implementation of Mission 66?

Methodology

Research for this report included archival study at the RMNP Museum Storage Facility, as well as informal interviews with Kelly Cahill, Curator, and a brief informal interview with Kevin Gaalaas, Ecologist, (Restoration). Materials that proved particularly useful included catalogued materials such as the RMNP Historic Photograph Collection and un-catalogued materials such as the RMNP exotics boxes, species-specific briefs, cultural resource documentation of Moraine Park Campground (including Colorado Office of Archaeology and Historic Preservation cultural resource forms 1403s and 1404s), Mission 66 documents, and digitized and publically accessible park management plans. Also of great use were the Integrated Resource Management Applications (IRMA) Portal for access to public administrative histories, and the Electronic Technical Information Center (eTIC) for access to historic planning, design,

and construction drawings. The secondary research included environmental histories, historic contexts, and recent newspaper articles about Moraine Park.

After speaking with Kevin Gaalaas and Kelly Cahill, the project researcher/author learned there are no easily accessible, consistent, accurate records of exotics treatments within Moraine Park. The project team originally hoped to find records of where RMNP exotic crews identified and treated exotics in Moraine Park from the beginning of the exotics program in the 1960s to the present. The records at the Museum Storage Facility are limited to a small number of records from the early 2000s. Because the lead researcher/author of this project worked on the Exotics and Restoration Crew during the summer of 2017, she was aware that mapping of treatment areas existed from the summer of 2017; however, it proved difficult to locate those maps and treatment areas for this report.

Findings

The research did not support a finding that the introduction of the exotic and invasive species present in the Moraine Park Campground area occurred as a result of Mission 66 development. Some species, however, may have been introduced during the ranching period and others may have come from visitors to or near Moraine Park Campground. Using the materials collected during the project timeframe, the project team was unable to determine the exact moment of introduction and exactly what species first arrived in Moraine Park. An interdisciplinary team or an environmental historian with a longer research period would be able to answer these questions.

Historic Context

Introduction

There is nothing quite like the Beaver Meadows Entrance to Rocky Mountain National Park (RMNP) – except maybe the drive into Moraine Park on Bear Lake Road. Other than the glimpses of Longs Peak to the south of Highway 36, the drive from the Beaver Meadows Visitor Center seems unassuming, winding through trees on either side of the road, other than the glimpses of Longs Peak to the south of Highway 36. The stunning panorama of the continental divide seemingly pops out of nowhere as your car or bike approaches the entrance station (Error! Reference source not found.).

After you navigate past the entrance station, you catch a view of Longs Peak and its many frosty companions before the entrance station dips behind moraines, bordering either side



Figure 1. "Beaver Meadows Entrance Station," May 2017. Photo courtesy of author.

of the road, carved from ancient glaciers. Turning south onto Bear Lake Road takes you up and over the North Lateral Moraine of Moraine Park. The descent into Moraine Park, especially as the road parallels the continental divide to the west, offers breathtaking views of the valley between the North and South Lateral Moraines.

RMNP is in part renowned as a natural park because of these views. Over the last one hundred years, since its inception in 1915, RMNP has sought to provide its visitors with the pristine wilderness aesthetic, effectively erasing human manipulation and interaction with the landscape historically seen as "unnatural." Without knowing the deep human history of Moraine Park before visiting RMNP, a visitor would never know a homestead, boasting a haying operation and cattle ranch, once stood in the valley, or later, that same valley hosted a resort containing golf course and swimming pool. The landscape, however, offers insight into this erased history.

Visitors can attribute what they see today in large part to the 1960s federal program called Mission 66. Thanks to this massive ten-year initiative across the National Park Service (NPS), RMNP saw an increase in infrastructure improvements, roads, campgrounds, and visitor centers. During the 1960s, RMNP built Moraine Park Campground on the site of what had been Stead's Ranch. Stead's was a resort in Moraine Park before RMNP acquired the land in the 1960s. The Park removed the structures associated with Steads as part of the Mission 66 initiative.

Visitors cannot, however, connect the introduction of exotic and invasive plant species with Mission 66 within Moraine Park. Within the context of this report, exotic means "non-native species that originated in other parts of the world" and invasive means plants that are "vigorous and competitive enough to crowd out desirable plants." Studying the human interaction with Moraine Park before, during, and after RMNP acquired the land offers a way to understand how exotic and invasive species entered Moraine Park and what is now the Moraine Park Campground. The introduction of exotics and invasive plants into the Moraine Park area is most likely due to the presence of domestic stock grazing and high public use in Moraine Park before Mission 66. The area of study consists of the Moraine Park Campground and surrounding areas outside of designated wilderness (See Figure 8 and Figure 9 in the Maps Chapter of this report).

¹ Fourteen Very Unwanted Weeds in the Estes Valley: Identification and Management Guide (Estes Park, Colorado: Estes Land Stewardship Association, 2016), 2.

² "Resource Management Plan: Rocky Mountain National Park and Shadow Mountain National Recreation Area," (Report, National Park Service Rocky Mountain Region, 1975), Section E, II–2.

Early History

Approximately ten thousand years before the founding of RMNP, Ute and Arapaho tribes, and later the Cheyenne and Comanche, occupied the landscapes of the region.³ Archaeological evidence such as trails and hunting blinds demonstrate movement of Native populations from the eastern plains to the high mountain valleys of the Rockies as these peoples followed big game into what is now RMNP. The same animals that attracted the indigenous peoples to the area also attracted Anglos seeking hide and meat in the nineteenth century.⁴ As more white settlers entered the Rocky Mountain region in search of gold and land, they contested Native claims to the mountains. Through a series of treaties between 1861 and 1878, the U.S. Government completely removed the Arapaho from Colorado. Although the Ute held onto their claims longer than the Arapaho, they too eventually lost claims in the Colorado Rockies.⁵

Abner Sprague's Moraine Park

Native populations no longer inhabited this area by the time Abner Sprague, in May 1875, filed a land claim under the Homestead Act of 1862 for what is now Moraine Park. Sprague was born in 1850 on a farm in Dundee, Illinois. After visiting Estes Park three times between 1868 and 1874, Sprague decided to develop a cattle ranch consisting of cows along the Big Thompson River. Sprague originally filed two 160-acre claims with his childhood friend Clarence Chubbuck. Unfortunately, one month after filing the claims a man named John Phillips murdered Chubbuck over a cattle roundup dispute on the eastern plains. Sprague's father, Thomas, took Chubbuck's place bringing Sprague's mother, Mary, along with him to Colorado. Also joining the party of settlers was Sprague's sister Areanna, known as Arah, and her husband,

³ Associated Press, "Rocky Mountain National Park to Expand Native American Representation," *Coloradoan* (Fort Collins, CO), Nov. 29, 2017, https://www.coloradoan.com/story/news/2017/11/29/rocky-mountain-national-park-expand-native-american-representation/904707001/

⁴ Michael Welsh, "An Environmental History of Rocky Mountain National Park," (Resource Study, University of Northern Colorado, 2003), 1–2.

⁵ C.W. Buchholtz, "Chapter 1: Tales, Trails, and Tribes," *Rocky Mountain National Park: A History* (Boulder, CO: University Press of Colorado, 1987), https://www.nps.gov/parkhistory/online_books/romo/buchholtz/chap1.htm

⁶ Abner Sprague, *My Pioneer Life: The Memoirs of Abner E. Sprague*, ed., Edgar M. Stopher (Estes Park, CO: Rocky Mountain Nature Association Rocky Mountain National Park, 1999), x.

⁷ Ibid., 2.

⁸ Ibid., x; 127.

⁹ Ibid., 129.

Alson Chapman. Chapman also filed a claim for a 160-acre homestead in Moraine Park, as did Sprague's brother Fred.¹⁰ The Sprague family's legacy was just beginning.

Originally, Sprague started homesteading to raise cattle with an idea to ranch and hay on the land (**Error! Reference source not found.**). To use Moraine Park for ranching and haying,

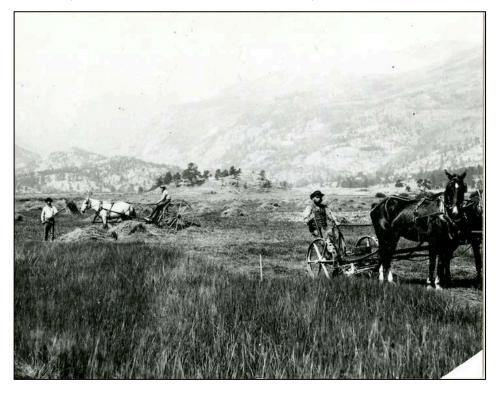


Figure 2. Haying in Moraine Park 1890. Rocky Mountain National Park Historic Photograph Collection, 10-c-1-n 307.

Sprague and his family cleared the landscape of willow, beavers, and beaver dams. But Sprague found ranching difficult due to limited space within the area and the challenges of using the small space to make a profit. He soon learned that in order to make a living he and his family "must turn

from calves, butter and milk to tourists" along with ranching and haying. ¹¹ One story about why the Spragues turned to tourism reports some visitors of the Earl of Dunraven's English Hotel, a more "luxurious" hostelry in Estes Park, plodded past the Sprague cabin. As they passed the cabin, the visitors told Abner and his mother they would stop by after their hike along the Big Thompson River for a chicken dinner if one would be prepared for them. Betting on their return, the Spragues prepared the dinner and the rest is history. ¹²

¹⁰ Ibid., x.

¹¹ Ibid., 131–132.

¹² Ibid., v, 131.

Just as Sprague and his family came west and homesteaded within the area of Estes Park in the mid-1870s, many other pioneers followed. Around this time, prospectors "began sweeping across the mountains when tales of hidden wealth struck men with mineral on their minds." Hunters, mountain climbers,

and tourists in the area increasingly depended on locals for food and shelter. By the turn of the century, the prospectors were gone after realizing the area contained no valuable minerals and many ranchers would start resorts. ¹⁴ Capitalizing on the increasing numbers of people visiting the



Figure 3. "Spragues Hotel," Moraine Park 1890. Rocky Mountain National Park Historic Photograph Collection, 10-c-1-n 2598.

area, the Spragues began to build cabins to host visitors. By 1904, the resort could accommodate one hundred guests with a main lodge, dining room, kitchen, and a number of small cabins (Figure 3).¹⁵

In 1902, Abner Sprague's cousin Dora Stead and her husband J.D. Stead visited Estes Park. J.D. Stead asked Sprague if he would be interested in having a business partner and Sprague agreed. The partnership, however, was not to last as after the summer season of 1903; Dora and Sprague's wife, Alberta did not get along. Thinking Stead could not afford to buy him out, Sprague offered Stead the ranch and resort for \$20,000. In 1904 Stead was able to raise the funds and bought out Sprague. J.D. and Dora Stead changed the name of the resort to Stead's Ranch and continued to run the resort until they died in the early 1930s. Sprague and his family

¹³ C.W. Buchholtz, "Chapter 4: Dreams with Silver Lining," *Rocky Mountain National Park: A History* (Boulder, CO: University Press of Colorado, 1987),

https://www.nps.gov/parkhistory/online books/romo/buchholtz/chap4.htm.

¹⁴ Ibid

 ¹⁵ F. Ross Holland, Jr., "Rocky Mountain National Park: Historical Background Data," (Report, National Park Service Office of History and Historic Architecture: Western Service Center, March 1971), 40.
 ¹⁶ Sprague, My Pioneer Life, xiii.

focused on their other land holdings within the region and in 1910 opened Sprague's Lodge near Sprague Lake on Bear Lake Road.¹⁷

The Steads remained central figures in the Moraine Park area until their deaths in the 1930s. J.D. passed away in 1931 and Dora's sister, Myra Lewis (also Abner's cousin), and her husband, Will Lewis, moved to Moraine Park to help Dora run Stead's Ranch. Dora passed away

in 1936. After the death of the Steads, the fate of Moraine Park transitioned to Myra and Will. 18 The Lewis family ran the resort until 1950, when Abner Sprague's nephew, Edgar M. Stopher purchased Stead's Ranch from Mr. and Mrs. Lewis. 19 A successful wife-and-husband team and owners of three prosperous guest ranches in Arizona, Dorothy and Edgar Stopher bought the ranch and



Figure 4. "Steads Ranch, Pool," no date. Rocky Mountain National Park Historic Photograph Collection, 10-c-1-n 5413.

resort for less than \$100,000.²⁰ The Stead and Lewis families made few improvements over the near fifty years of operating Stead's Ranch. When the Stophers purchased the ranch, it had "very few bathrooms and it was not at all modern." They kept the name Stead's Ranch and over the next twelve years the Stophers made improvements to the resort. The improvements included adding a pool and a nine-hole golf course in Moraine Park, consisting of eighteen tees and greens, a driving range, a clubhouse with a parking area, and several irrigation and drainage ditches²² (Figure 4).

¹⁷ F. Ross Holland, Jr., "Rocky Mountain National Park: Historical Background Data," 41.

¹⁸ Sprague, My Pioneer Life, xxv–xxvi.

¹⁹ Ibid., 40.

²⁰ Ibid., xxv.

²¹ Ibid., xxvi.

²² "Moraine Park Golf Course," (Report, Rocky Mountain National Park Museum Storage Facility, Uncatalogued Exotics Box 5 of 8, 2009), 1.

In 1962, the Stophers sold the ranch and 560 acres of land within Moraine Park for \$750,000 to the National Park Service. Within two years, the NPS removed all buildings and structures associated with Stead's Ranch, including structures associated with the golf course, as part of the Mission 66 program.²³ Restoration of the golf course started in 1962 but RMNP did not completely finish the restoration of the nine-hole golf course until 2008.²⁴ While the resort and ranch within Moraine Park remained privately owned between 1875 and 1962, RMNP owned increasing amounts of the surrounding area.

Moraine Park under NPS

After wartime rationing and travel restrictions ended in 1945, Americans flocked to their national parks in unprecedented numbers. The budgets (adjusted for inflation) for the NPS in the 1940s and early 1950s, however, were lower than they had been in the 1930s. With visitor numbers increasing from about 3.5 million to almost 30 million between 1931 and 1948 and no funds to maintain roads, provide more parking lots, or more comfort stations, the visitor experience at national parks degraded significantly during this period. ²⁶

The compromised visitor experience hurt NPS's image. The public, who previously revered their national parks, now questioned their parks' validity and contribution as cultural icons within American society. Without the support of the public, journalists and policymakers criticized the parks, claiming it might be better to close the parks than keep them open without the safety and basic services and facilities required for recreational enjoyment. Newton Drury, the director of the NPS during and after World War II (WWII), felt helpless in the face of such daunting condemnations.²⁷ Drury knew modern facilities could help limit public impact on fragile natural areas but could not secure the required appropriations from Congress to make such improvements during his tenure as director.²⁸

²³ F. Ross Holland, Jr., "Rocky Mountain National Park: Historical Background Data," 40.

²⁴ "Moraine Park Golf Course," 1.

²⁵ Ethan Carr, *Mission 66: Modernism and the National Park Dilemma* (Amherst, MA: University of Massachusetts Press, 2007), 4.

²⁶ Sarah Allaback, "Introduction: The Origins of Mission 66," *Mission 66 Visitor Centers: The History of a Building Type* (Washington, D.C.: U.S. Department of the Interior, National Park Service, 2000), https://www.nps.gov/parkhistory/online_books/allaback/vc0.htm.

²⁷ Carr, *Mission* 66, 6–7.

²⁸ Allaback, "Introduction: The Origins of Mission 66"

Near the end of 1951, Conrad L. Wirth became the director of the NPS.²⁹ With a background in landscape architecture, Wirth saw modern planning and technology as a possible solution for the crisis posed by too many visitors and too little funding.³⁰ After three years as director of the NPS, the end of the Korean War, and the inauguration of Dwight D. Eisenhower, Wirth saw an opportunity to put his experience and faith in planning to work. Eisenhower felt better about spending money on public works to stimulate the economy after the armed forces demobilized and economic recession threatened. Wirth proposed a ten-year program, starting in 1956, that would modernize and expand the National Park system. Wirth sought to create a sense of urgency and patriotism for his newly envisioned infrastructure project, and so he borrowed language associated with war and the military, titling his program Mission 66.³¹

Wirth's ten-year program would be completed by 1966, the same year the NPS would celebrate its fiftieth anniversary.³² Combining this call-to-action and the fiftieth anniversary in the title Mission 66, Wirth named what would become one of the most significant and expansive growth periods of park infrastructure. Wirth gave a special presentation to Eisenhower and the cabinet on January 27, 1956, highlighting the program's National Park Service-wide planning proposals and ten-year construction plans. During his presentation, Wirth requested a budget of over \$700 million for the ten-year program.³³ With Eisenhower's personal endorsement, Congress funded Mission 66, and the program received the desired funding request during the spring of 1956.³⁴

By 1966, Congress had spent approximately \$1 billion on land acquisition, construction of new roads, updating existing infrastructure, construction of public use and park administration buildings, new comfort stations, and to hire new staff and train NPS employees. Before Congress had passed Mission 66 program funding, it was private concessioners who organized public transportation services. Wirth worked to democratize the visitor experience with increased

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²⁹ Carr, *Mission* 66, 8.

³⁰ Maren Thompson and Janet Ore, "The Mission 66 Program at Rocky Mountain National Park: 1947–1973," (Public Lands History Center, Colorado State University, 2010), 3.

³¹ Carr, *Mission 66*, 10.

³² Ethan Carr, Elaine Jackson-Retondo, and Len Warner, "National Park Service Mission 66 Era Resources," National Register of Historic Places Multiple Property Documentation Form, 2015, Sec. E, pp. 3.

³³ Lary Dilsaver, ed., *America's National Park System: The Critical Documents*, 2nd ed. (Landham, Maryland: Rowman & Littlefield, 2016), 169–173.

³⁴ Carr, *Mission 66*, 10.

³⁵ Ibid., 11–12.

automobile travel through the parks. Overall, Mission 66 helped the NPS better serve its growing numbers of visitors each year while also addressing the needs of its employees.³⁶ At the end of Mission 66, the NPS had a new identity, one that better met the demands of postwar American society.³⁷

RMNP felt the impacts of Mission 66 roughly forty years into the park's history.³⁸ Following national trends, RMNP experienced a growing number of visitors to the parks after



Figure 5. "Former site of Stead's Ranch and Sprague's Hotel," Moraine Park, 1970. Rocky Mountain National Park Historic Photograph Collection, 10-C-1-q 6322.

WWII. Mission 66 offered the opportunity to build more infrastructure to support tourists, as well as modernize RMNP.

Under Superintendent James V. Lloyd, the implementation of Mission 66 in RMNP greatly altered the built environment with the construction of visitor centers, campgrounds, and roads. But per the goals of Mission 66, RMNP did not build any overnight accommodations. The goals of the Mission 66 program focused on its visitors experiencing the natural environment, including removing lodges

and cabins that "obstructed use and marred scenery for years."⁴⁰ Per the goals of Mission 66, RMNP did not build any "hotel, lodge, or motel types within the Park."⁴¹ Relying on campgrounds to accommodate visitors, RMNP built its largest campground complex during Mission 66: Moraine Park Campground.

Before Congress created the Rocky Mountain National Park in 1915, as previously stated, independent landowners developed Moraine Park. Cottages, lodges, shops, corrals, maintenance

³⁸ Thompson and Ore, "The Mission 66 Program at Rocky Mountain National Park: 1947–1973," 3.

⁴¹ ROMO Mission 66 Master Plan, (Volume I, Chapter I: Objectives and Policies, 1964), 8.

³⁶ Thompson and Ore, "The Mission 66 Program at Rocky Mountain National Park: 1947–1973," 3.

³⁷ Carr, *Mission 66*, 12.

³⁹ Lloyd K. Musselman, "Inholdings, Concessions and Boundary Extensions," in *Rocky Mountain National Park Administrative History 1915 – 1965* (Washington, D.C.: U.S. Department of the Interior National Park Service, 1971), https://www.nps.gov/romo/learn/historyculture/upload/chapter12.pdf.

Thompson and Ore, 3.

buildings, a golf course, tennis courts, and even a swimming pool populated the large meadow through the 1940s. ⁴² In keeping with Mission 66 goals, RMNP razed the private structures when it acquired the 560-acre Stead's Ranch land in 1962 (Figure 5). ⁴³ Having just removed sizable structures to house many visitors, the Park needed to provide alternative accommodations for its ever-increasing visitor load. Conscious of the Mission 66 goal to restore landscapes that had previously been tainted with buildings, RMNP staff decided to construct a campground off the main meadow of Moraine Park nearer to Stead's Ranch rather than closer to Bear Lake Road, in hopes of making the campground "less conspicuous." ⁴⁴ In 1963, construction on Moraine Park Campground began (Figure 6). ⁴⁵

The design of Moraine Park Campground follows the intentions of Mission 66. Inspired by plant pathologist E.P. Meinecke's 1934 report, "A Campground Policy," NPS built Mission

66 campgrounds with visitor impact in mind. Meinecke examined the degradation of the environment due to visitor use. He recommended that campgrounds include one-way loops; individual parking for each campsite; amenities including a grill, picnic table, and space for a tent; as well as campsite containment using natural materials such as boulders, vegetation, and native trees. RMNP's landscape architect, Jay O'Shea, altered Meinecke's design only in the parking arrangement for the campground. O'Shea designed the



Figure 6. "Moraine Park campground, clearing, stacking, brush & trees," Moraine Park, 1963. Rocky Mountain National Park Historic Photograph Collection, 11-Q-8 9.

 $\underline{https://www.nps.gov/romo/learn/historyculture/upload/chapter12.pdf.}$

⁴² "Moraine Park Campground Overview," Rocky Mountain National Park Mission 66 Inventory (Public Lands History Center, Colorado State University, 2009), 1–2.

⁴³ Thompson and Ore, "The Mission 66 Program at Rocky Mountain National Park: 1947–1973," 35.

⁴⁴ Musselman, "Inholdings, Concessions and Boundary Extensions,"

^{45 &}quot;Moraine Park Campground Overview," Rocky Mountain National Park Mission 66 Inventory, 2.

campsites to have "walk-in" sites, allowing for remote parking of two to three cars. 46 Moraine Park Campground boasted all of these amenities when it opened to the public in the 1966 season, and it still maintains all of them today (See Figure 12 through Figure 22 in the Maps chapter of this report).⁴⁷

Careful consideration during planning stages of Mission 66's managerial goals and implementation included recommendations to use historic plant material during any Mission 66 construction. Chief Architect John B. "Bill" Cabot's guiding principles requested buildings be constructed with the "least amount of ground disturbance and native vegetation removal." 48 Assuming RMNP followed these guidelines during the construction of Moraine Park Campground, there is no connection between Mission 66 and the *intentional* introduction of invasive or exotic plant species within the campground.

Exotic and Invasive Vegetation at Moraine Park Campground

But somewhere between the construction of Moraine Park Campground in the 1960s and today, the campground has experienced an influx of invasive/exotic plants such as musk thistle, Canada thistle, leafy spurge, wooly mullein, and yellow toadflax. Across the entire Park, seventy-four exotic plants are reported from RMNP. 49 While the exact moment of introduction is not possible to determine within this report, understanding the land use history of the area (even before it was RMNP), RMNP's resource management and growing awareness of affected areas allows for a greater understanding of exotic plant species in RMNP.

Awareness and management did not start until 1960; RMNP did not have an exotic plant control program then. Records of affected areas within the park did not exist until the program's inception in 1960. RMNP created the program in response to growing concern over the maintenance of native plant ecosystems as well as the desire to establish and maintain a "good

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⁴⁶ Carr, Jackson-Retondo, and Len Warner, "National Park Service Mission 66 Era Resources," Sec. E, pp.

⁴⁷ "Moraine Park Campground Overview," 2.

 ⁴⁸ Carr, Jackson-Retondo, and Warner, "National Park Service Mission 66 Era Resources," Sec. E, pp. 12.
 49 "Exotic Plant List," Rocky Mountain National Park, National Park Service, February 24, 2015 https://www.nps.gov/romo/learn/nature/exotic plants.htm.

neighbor" policy. 50 The park's proximity to private and public lands meant that the spread of exotic and invasive species left unchecked within the park could infest the neighboring lands (or vice versa). The new program offered identification of exotic plant species and treatment of areas affected within the park.

Park personnel associated with the original program focused their attention on the eradication of the small patches of leafy spurge that had emerged in the Hondius Park. The program soon grew to include control of Canada thistle, then wooly mullein in 1969, and musk thistle in 1985.⁵¹ Control tactics, including the use of chemicals and removal by hand, started with the imitation of the program. For example, park personnel applied chemicals such as 2-4-5-T, "Tritac," and "Weedone" on Canada thistle between 1960 and 1971, except in 1965. In 1965, with influence from Rachel Carson's Silent Spring, RMNP stopped chemical application and worked to remove the thistle by hand until the Park could find a "more appropriate solution." ⁵² The mechanical removal of the thistle did not stop the spread of existing stands of Canada thistle, as it reproduces vegetatively and produces rhizomatous root systems. Spraying Canada thistle resumed in 1966. Experimental use of "Round-up" occurred between 1976 and 1978, but was abandoned, along with work on Canada thistle, until 1985.⁵³

According to a 1975 RMNP resource management plan, resource staff identified 115,000 square feet of wooly mullein in Moraine Park and worked to remove the plants by hand.⁵⁴ A little over ten years later, resource staff still struggled to contain wooly mullein and identified Canada thistle, musk thistle, leafy spurge, and yellow toadflax as other problem exotics in Moraine Park. 55 In the most recent management plan from 2003, the report specifically includes Moraine Park Campground and lists the following exotic plants as being identified and treated: Canada thistle, curly dock, diffuse knapweed, field bindweed, houndstongue, musk thistle, spotted

⁵⁰ "27 Years of Exotic Plant Control in Rocky Mountain National Park – Summary and Recommendations," (Rocky Mountain National Park Resource Management No. 1, 1987), Rocky Mountain National Park Museum Storage Facility, Uncatalogued Exotics Box 7 of 7, "Assessment of Exotics" folder, i.

⁵¹ Ibid., 2.

⁵² Ibid., " 3. ⁵³ Ibid., 3 – 4.

⁵⁴ "Resource Management Plan: Rocky Mountain National Park and Shadow Mountain National Recreation

^{55 &}quot;27 Years of Exotic Plant Control in Rocky Mountain National Park – Summary and Recommendations," 26.

knapweed, wooly mullein, and yellow toadflax.⁵⁶ The report also includes a map of exotic weed infestation areas marked as black dots, showing infestations in Loop B and Loop C of Moraine Park Campground (Figure 7).⁵⁷

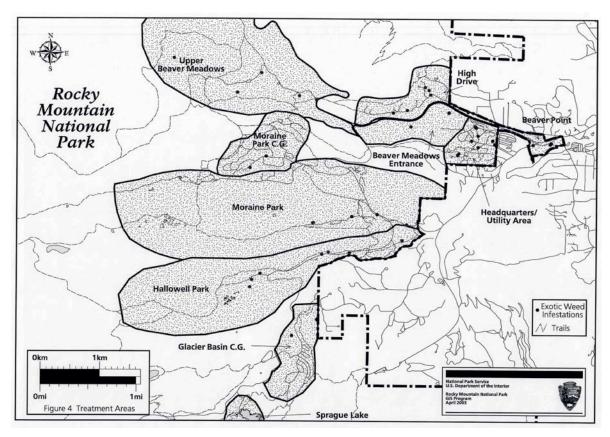


Figure 7. "2003 Treatment Area, Figure 4" – one of six treatment areas, Invasive Exotic Plant Management Plan and
Environmental Assessment: Rocky Mountain National Park.

https://www.nps.gov/romo/learn/management/upload/exotic plant ea final.pdf

Today, resource staff must give Moraine Park careful consideration because, as of 2009, RMNP considers the majority of the area to be a designated wilderness (See Figure 8 and Figure 9 in the Maps Chapter).⁵⁸ Only Congress may designate wilderness, the highest level of

 ^{56 &}quot;Invasive Exotic Plant Management Plan and Environmental Assessment: Rocky Mountain National Park," (Report, US. Department of Interior National Park Service: Rocky Mountain National Park, 2003), 14.
 57 Ibid., 9.

^{58 &}quot;Wilderness," National Park Service: Rocky Mountain National Park, August 4, 2016, https://www.nps.gov/romo/planyourvisit/wilderness.htm.

conservation protection for federal lands.⁵⁹ Although Moraine Park Campground is outside the boundaries of the wilderness area, designated wilderness almost completely surrounds the campground. Nature knows no boundaries, and the high public use within and around the campground attracts and increases the spread of both exotic and native plant seeds into the wilderness areas.

Though RMNP resource staff has often treated Moraine Park and Moraine Park Campground's affected areas, Moraine Park Campground has seen few changes since its design and construction during Mission 66. The biggest changes since the 1960s are the addition of metal bear-proof food containers called "bear boxes" throughout the campground, solar rise stations, which provide campers more privacy to get clean than their campsite, the replacement of picnic tables, and rebuilding two of the original six comfort stations within the campground. Overall, the Moraine Park Campground retains its historic integrity within the context of the Mission 66 program. ⁶⁰

Because extensive ranching, haying, public use, and livestock within Moraine Park started as early as 1875, it is not possible to connect the introduction of exotic plant species in Moraine Park and the campground with the Mission 66 era. RMNP did not create an exotic control program until 1960, and records do not indicate that the park had a thorough understanding at that time of what plants existed within Moraine Park before the construction of Moraine Park Campground started in 1963. Responsible for the removal of over forty structures within Moraine Park and how visitors view the "natural" landscape of Moraine Park today, Mission 66 provided the design and construction of Moraine Park Campground, a very successful piece of the Mission 66 program within RMNP.

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⁵⁹ Dilsaver, America's National Park System, 242.

⁶⁰ Kelly Stehman, "Colorado Cultural Resources Survey: Historic Cultural Landscapes, 5LR13979," (Form 1404, Office of Archaeology and Historic Preservation, 2016), 2–3.

Applicable Cultural and Natural Resource Laws

As an eligible historic district on the National Register of Historic Places, Moraine Park Campground falls under the purview of the National Historic Preservation Act of 1966 (5LR13979). Since the completion of the Colorado Historic Cultural Landscapes (1404) form in 2012, no changes have occurred within the Moraine Park Campground. Due to listing on the National Register of Historic Places as an historic district, the Secretary of the Interior's Standards for the Treatment of Historic Properties should be consulted as a guideline for the maintenance of historic buildings, structures, and the landscape.

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) is the primary legislation behind federal policies for historic preservation. As a district eligible for listing on the National Register of Historic Places, RMNP should preserve Moraine Park Campground in the spirit of the NHPA: to maintain historic cultural heritage for the benefit of future generations. Heritage for the Moraine Park Campground Historic District, Section 106 of NHPA requires a process for assessing adverse effect to work with State Historic Preservation Offices, or, in Colorado, History Colorado's Office of Archaeology and Historic Preservation. This section requires that any federal projects or projects using federal dollars are defined as "undertakings," and they must go through the process of Section 106. During Section 106, the SHPO and other interested parties are given an opportunity to comment on an adverse effects to the historic properties.

Wilderness Act of 1964

In 2009, Secretary of the Interior Ken Salazar, members of the Colorado Congressional delegation, and local officials dedicated 250,000 acres within RMNP as the Rocky Mountain National Park Wilderness Area, with permanent protection under the Omnibus Public Lands Management Act of 2009. Moraine Park is part of that wilderness, which is defined under the 1964 Wilderness Act as land "retaining primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as a to preserve its

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⁶¹ Dilsaver, America's National Park System, 268.

natural conditions" from human impacts. 62 The Wilderness Act protects designated lands from construction of roads, motorized equipment and transport (unless in health and safety emergencies), landing of aircrafts, or construction of structures within the designated area. As wilderness almost completely surrounds Moraine Park, The Wilderness Act must be considered when managing Moraine Park Campground. The Wilderness Act dictates how park staff can interact with the landscape in order to maintain its status, which can affect the management of Moraine Park Campground.

62 Dilsaver, America's National Park System, 246.

Assessment of Potential Impact

Moraine Park has a long history of homesteading and ranching, starting with the Sprague Homestead of the the 1880s, which later became Stead's Ranch until the park acquired the land in the early 1960s. Activities that impacted the natural environment and landscape within Moraine Park between 1875 and 1962 included haying, raising cattle, and irrigating the meadow. Systematic removal of willows, beavers, and beaver dams also occurred. Landowners constructed over forty structures in Moraine Park, as well as multiple access roads, a pool, and a golf course. Ranching and livestock also bring in and perpetuate exotic species due to haying, livestock feeding, and livestock movement along trails and within previous grazing spaces. Because RMNP built Moraine Park Campground after over seventy-five years of these continuous activities, exotic and invasive plant species existed in this area before the construction of the campground.

Visitors to RMNP also contribute to the distribution of exotics and invasive species. Due to the high public use of Moraine Park and Moraine Park Campground, visitors brought and continue to bring and circulate exotic plant seeds on their shoes and clothing from elsewhere, including other affected areas within RMNP, not just from areas outside of RMNP's boundaries. As the records housed at the Museum Storage Facility at RMNP do not indicate exact locations of exotics and exotics treatment until the early 2000s, it is not possible to determine the exact time of introduction of the exotics now found within the campground boundaries.

The existing exotics and invasive plants are not tied to the significance of Mission 66 within the Moraine Park Campground site and eligible historic district, under Criterion A and Criterion B. Moraine Park Campground is eligible under Criterion A for its association with Mission 66 and its subsequent association with landscape architecture and the designed environment. It is eligible under Criterion B for its association with landscape architect Jay O'Shea, who created the campground design. The Rocky Mountain National Park Resource

 ^{63 &}quot;27 Years of Exotic Plant Control in Rocky Mountain National Park – Summary and Recommendations," (Rocky Mountain National Park Resource Management No. 1, 1987), Rocky Mountain National Park Museum Storage Facility, Uncatalogued Exotics Box 7 of 7, "Assessment of Exotics" folder.
 64 Kevin Gaalass (Resource Stewardship Division) in discussion with the author, February 2018.

Division can keep treating exotics within the Moraine Park Campground without the threat of adversely affecting cultural resources that contribute the historic district.

Because the existing exotics do not contribute to the significance of the Moraine Park Campground, RMNP does not need to incorporate or protect the various exotics affecting the area under the NHPA. Similarly, as RMNP's designated wilderness does not include the Moraine Park Campground, RMNP does not need to directly consult or comply with the Wilderness Act when make management decisions regarding exotics within the Moraine Park Campground. It should, however, be considerate of the Moraine Park Campground's proximity to designated wilderness and be sensitive to maintaining its status as wilderness.

Conclusions

Based on the research conducted for this report, no connection can be made between the introduction of exotic species to the Moraine Park Campground and the Mission 66 program implementation at RMNP. Landscape architects, like RMNP's Jay O'Shea, did not include plant specifications in their Mission 66 campground designs. Though not about RMNP explicitly, NPS's Chief Architect John B. "Bill" Cabot's guiding principles for Mission 66 requested parks build structures without removing native vegetation and with careful consideration of the existing landscape. RMNP followed these guidelines and O'Shea designed Moraine Park Campground incorporating the native trees and large boulders already scattered around the area. 66

Before RMNP purchased the land that now contains Moraine Park Campground, a ranch and resort existed on the property. Ranching and recreational activity occurred between the time Abner Sprague and his friend Clarence Chubbock filed their claims for two 160-acre homesteads in 1875 and when RMNP acquired the land from the Stophers in 1962. Livestock can attract plant seeds in their coats, feet, and digestive tracts and carry them unknowingly, moving and dispersing seeds from one location to another. Humans attract plant seeds on their shoes, as well as their clothing, moving seeds just like livestock, from one location to another. Because Moraine Park experienced visitation even before RMNP obtained the land, it is likely it already had exotic species before it became part of the park. When RMNP decided to build a Mission 66 campground in Moraine Park, it is unlikely the construction introduced the exotic species that are there today.

Cattle grazing, movement of livestock, and a constant stream of out-of-town visitors to the area are likely reasons why and how the exotic species first found their way to what is now the Moraine Park Campground.

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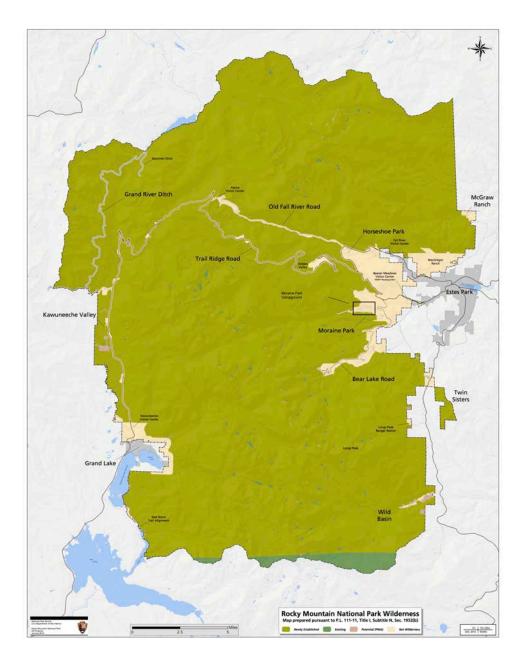
 ⁶⁵ Carr, Jackson-Retondo, and Warner, "National Park Service Mission 66 Era Resources," Sec. E, pp. 12.
 ⁶⁶ Jay O'Shea, Campground Development: Moraine Park Campground, Rocky Mountain National Park,

Colorado [map], ½" = 200 feet, eTIC, ROMO_121_3608_[id201322]

^{67 &}quot;Impacts of Grazing," Managing Invasive Plants, National Wildlife Refuge System, February 18, 2009, https://www.fws.gov/invasives/staffTrainingModule/methods/grazing/impacts.html

Maps

Originally, this section was envisioned to include maps of exotic/invasive treatment areas within Moraine Park and the Moraine Park Campground. However, after learning the Vegetation Crew does not have good maps of past treatment and affected areas, this section now includes maps of designated wilderness in RMNP, Moraine Park, the Mission 66 Moraine Park Campground plans and design, and one map of treatment areas within a larger section of RMNP that includes Moraine Park and Moraine Park Campground.



 ${\bf Figure~8.~`Rocky's~Wilderness~Map.''} \\ {\bf \underline{https://www.nps.gov/romo/planyourvisit/upload/RockyMountainNationalParkWildernessMap_121-101335A-1.pdf}$

This map shows RMNP's current park boundaries, designated wilderness areas (light green), and this report's area of research (within the black rectangle). Moraine Park Campground is not within designated wilderness, but wilderness surrounds it. To get a closer look at the boundaries between the campground and designated wilderness, see the next map, Figure 9.



Figure 9. "Rocky's Wilderness Map" zoomed in on area of study.

 $\underline{https://www.nps.gov/romo/planyourvisit/upload/RockyMountainNationalParkWildernessMap_121-101335A-1.pdf}$

A zoomed-in version of Figure 8: "Rocky's Wilderness Map," this map demonstrates the proximity between Moraine Park Campground, the area of study, and Moraine Park's designated wilderness. It also offers some spatial analysis of how large the Moraine Park Campground actually is in comparison with Moraine Park.

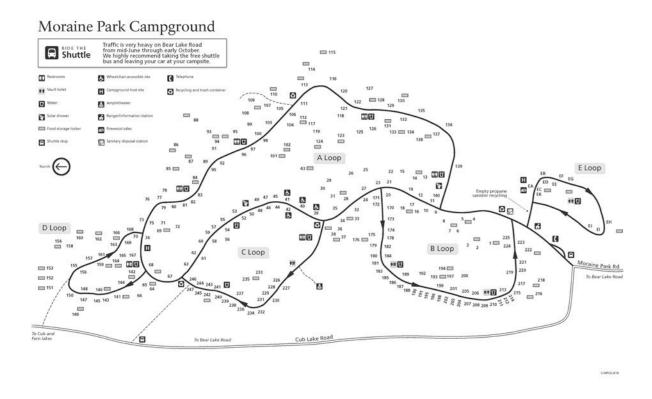


Figure 10. Moraine Park Campground, "Plan Your Visit," Rocky Mountain National Park [accessed February 14, 2018]. https://www.nps.gov/romo/planyourvisit/upload/Campground-Map-Moraine-Park.pdf

This current map of Moraine Park Campground taken from RMNP's website demonstrates how the campsites, loops, and comfort stations relate to one another. (Note the "North" symbol is pointing the wrong direction; it should point towards the top of the page instead of to the left.)

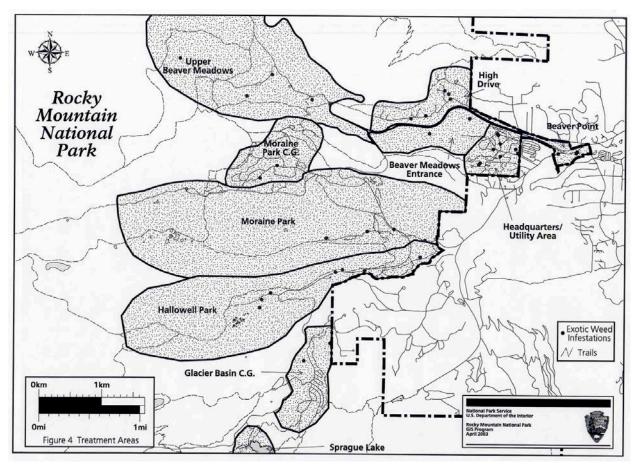


Figure 11. "2003 Treatment Area, Figure 4" – one of six treatment areas, Invasive Exotic Plant Management Plan and Environmental Assessment: Rocky Mountain National Park.

https://www.nps.gov/romo/learn/management/upload/exotic plant ea final.pdf

This map shows the highlighted areas of exotic weed infestation (black dots) within this section of RMNP. Moraine Park Campground, as well as Moraine Park have areas of exotic weed infestations. Moraine Park Campground's weed infestations are along Loop B and Loop C, according to this 2003 map of treatment areas (shaded in gray).

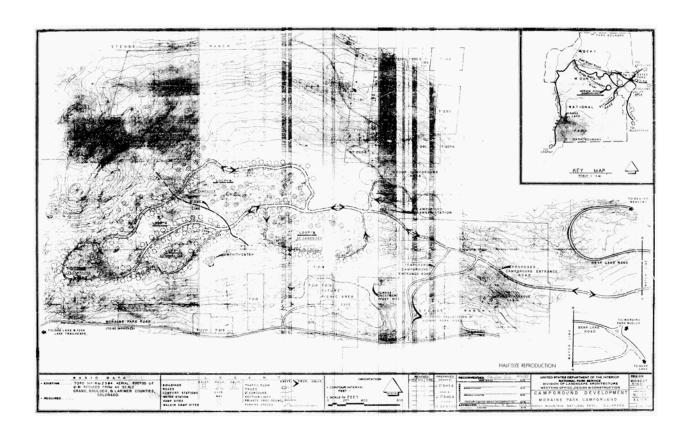


Figure 12. "MPCG Development 1963" (sheet 1 of 3). National Park Service Electronic Technology Center (eTIC), ROMO_121_3608_[id201322].

These plans reveal RMNP's Landscape Architect Jay O'Shea's 1964 designs for the Moraine Park Campground (sheets 2 and 3 of the plans follow on the next page). Of particular interest are the parking space designs (sheet 2) and attention and sensitivity to existing vegetation within the campground. When comparing the original design to the more current maps, one can see that the Moraine Park Campground loops are the same as originally planned.

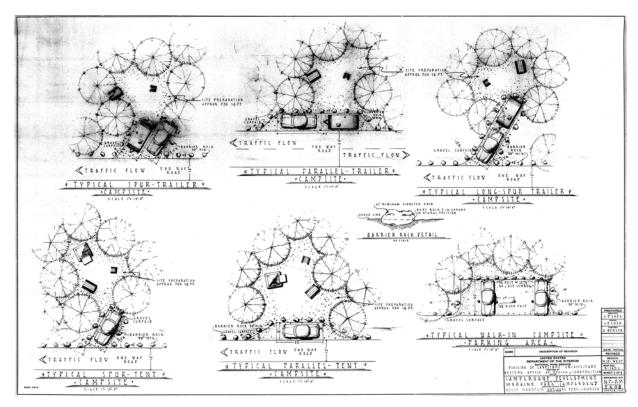


Figure 13. "MPCG Development 1963" (sheet 2 of 3). National Park Service Electronic Technology Center (eTIC), ROMO_121_3608_[id201322].

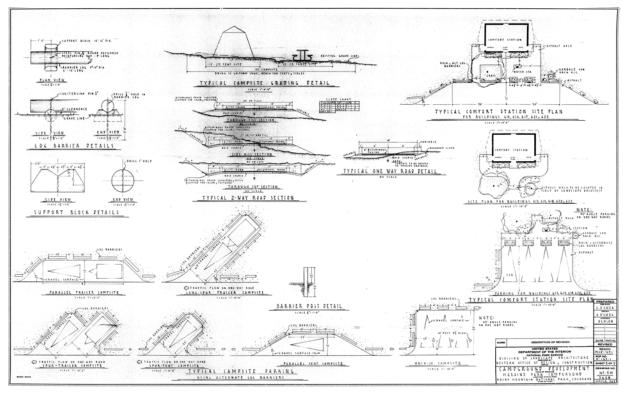


Figure 14. "MPCG Development 1963" (sheet 3 of 3). National Park Service Electronic Technology Center (eTIC), ROMO_121_3608_[id201322].

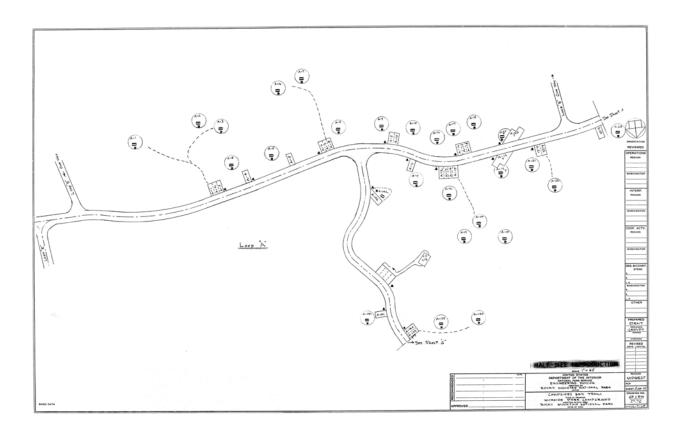


Figure 15. "MPCG Campsites and Trails," 1964 page 1 of 8. National Park Service Electronic Technology Center (eTIC), ROMO_121_2772_[id208346].

This design sheet, along with the next seven after it, when read together, create the 1964 designs for the loops A through E. Without detailed drawings of vegetation and parking spaces, these plans allow for the reader to understand the space of the campground from a more abstract and design-oriented approach. Again, these early designs demonstrate the continuity between the original Mission 66 designs and what remains at Moraine Park Campground today.

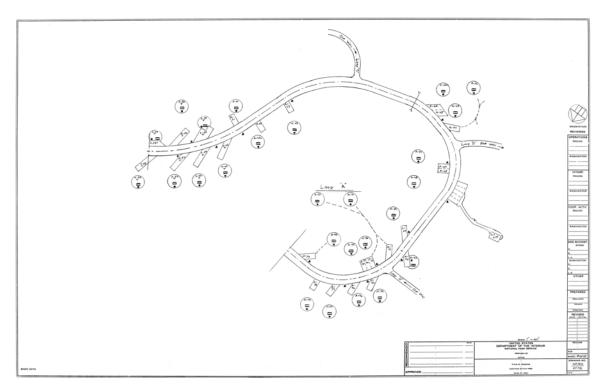


Figure 16. "MPCG Campsites and Trails," 1964 page 2 of 8. National Park Service Electronic Technology Center (eTIC), ROMO_121_2772_[id208346].

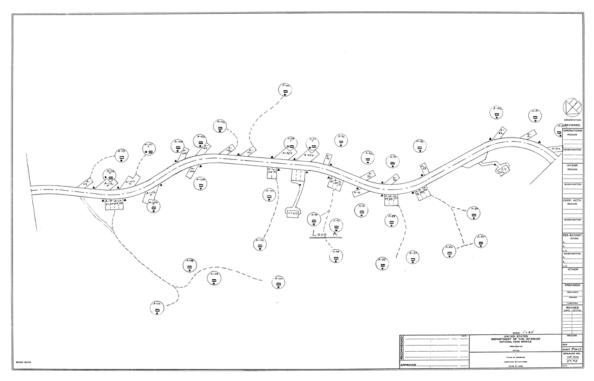


Figure 17. "MPCG Campsites and Trails," 1964 page 3 of 8. National Park Service Electronic Technology Center (eTIC), ROMO_121_2772_[id208346].

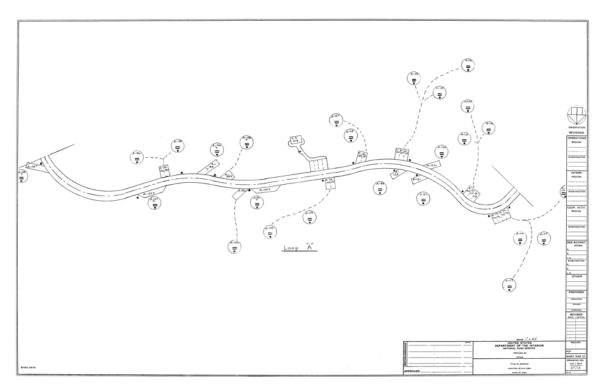


Figure 18. "MPCG Campsites and Trails," 1964 page 4 of 8. National Park Service Electronic Technology Center (eTIC), ROMO_121_2772_[id208346].

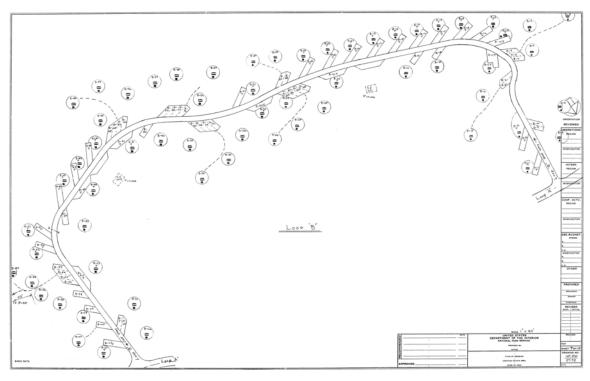


Figure 19. "MPCG Campsites and Trails," 1964 page 5 of 8. National Park Service Electronic Technology Center (eTIC), ROMO_121_2772_[id208346].

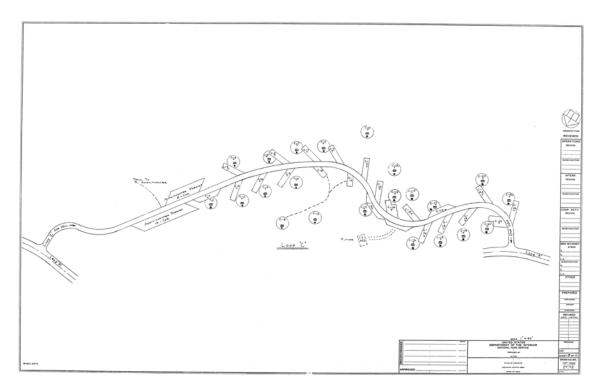


Figure 20. "MPCG Campsites and Trails," 1964 page 6 of 8. National Park Service Electronic Technology Center (eTIC), ROMO_121_2772_[id208346].

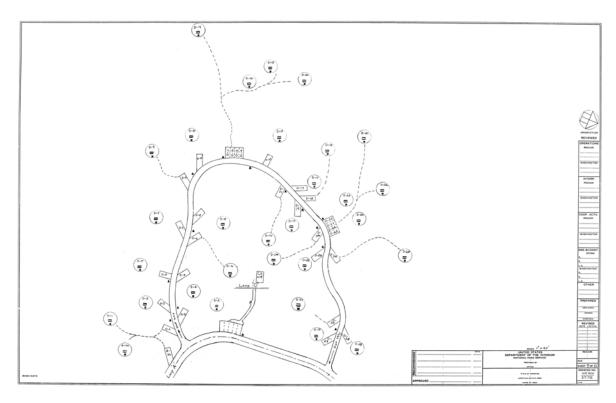


Figure 21. "MPCG Campsites and Trails," 1964 page 7 of 8. National Park Service Electronic Technology Center (eTIC), ROMO_121_2772_[id208346].

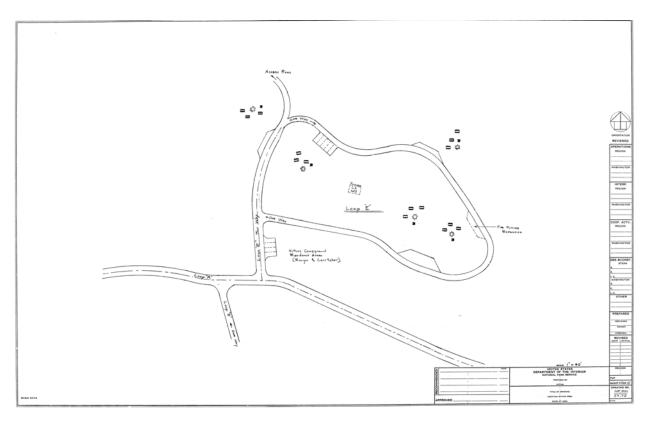


Figure 22. "MPCG Campsites and Trails," 1964 page 8 of 8. National Park Service Electronic Technology Center (eTIC), ROMO_121_2772_[id208346].

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