National Park Service
U.S. Department of the Interior



Olmsted Center
for Landscape Preservation

Cultural Landscape Report for Big Meadows

Shenandoah National Park



Once more they will lay hold of the perspective that comes to men and women who every morning and every night can lift up their eyes to Mother Nature.

Franklin D. Roosevelt at the dedication of Shenandoah National Park

Cultural Landscape Report for Big Meadows

Shenandoah National Park

Page and Madison Counties, Virginia

Site History

Analysis and Evaluation

Treatment

Prepared by
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Historical Landscape Architect

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Olmsted Center for Landscape Preservation
National Park Service, Boston, Massachusetts, 2019

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Library of Congress Cataloging-in-Publication Data

Names: Hammond, John W. (John William), 1971- author. | Commisso, Michael, author. | Olmsted Center for Landscape Preservation (U.S.), issuing body.
Title: Cultural landscape report for Big Meadows, Shenandoah National Park, Page and Madison Counties, Virginia : site history, analysis and evaluation, treatment / John W Hammond, Michael Commisso.
Description: Boston, Massachusetts : Olmsted Center for Landscape Preservation, National Park Service, 2019. | Includes bibliographical references. | Summary: "Big Meadows is one of four original multi-use developments constructed along the 105-mile Skyline Drive, a National Historic Landmark that winds along the crest of the Blue Ridge Mountains through the length of Shenandoah National Park in Virginia. Shenandoah National Park was one of two national parks in the southern Appalachians authorized by Congress in 1926 and established in the 1930s. The 440-acre Big Meadows site is situated at milepost 51 of Skyline Drive, with most of the developed area located on the northwest side of the road and a large, open meadow on the southeast side. Ttreatment of the Big Meadows cultural landscape will address the three complimentary goals of providing convenient services for visitors while protecting natural and cultural resources and perpetuating a scenic, natural visual experience. "-- Provided by publisher.
Identifiers: LCCN 2019049218 | ISBN 9781911282136
Subjects: LCSH: Camp sites, facilities, etc.--Virginia--Big Meadows. | Big Meadows (Va.) | Shenandoah National Park (Va.)
Classification: LCC F232.S48 H355 2019 | DDC 975.5/9--dc23
LC record available at https://lccn.loc.gov/2019049218

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Cover Photo: Big Meadows, 2008 (OCLP).

Title Page: Wooden sign at Big Meadows Wayside in 1939 (Shenandoah NP Archives, Classification P-9, Negative No. P-736d).

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Foreword

Shenandoah National Park was established in 1935 as an "eastern park in the western tradition." National Park Service supporters wanted to establish large natural area parks in close proximity to the population centers on the East Coast of the United States to shore up support for the National Park idea. Prior to establishment, much of the Shenandoah National Park lands were populated, farmed, timbered, and grazed. Early Park managers saw the restoration of the natural landscape as their mandate. Those early visions have been realized. The park now has a robust natural forest and wildlife populations. While the natural resources of the park flourished, the cultural resources were largely ignored.

Big Meadows is within the boundaries of the Skyline Drive Historic District, which in 2008 was designated a National Historic Landmark. Big Meadows has been an important area throughout human history. From the first occupation by native people in 9,000 BCE to European settlement to Park establishment and development, Big Meadows has served as a crossroads for people to meet and gather. This area was important to the early development of the Park as a central hub for visitor services, and the National Park Service practices of road design, landscape naturalization, and rustic architecture is embodied here. Shenandoah National Park management is committed to giving this cultural landscape the care its significance requires.

This cultural landscape report is a tool that will support our efforts to assure that in the coming years the cultural resources at Big Meadows receive the same level of care and protection as the natural resources. This document will serve as our road map moving forward.

Jennifer Flynn
Superintendent
Shenandoah National Park

Acknowledgments

The Cultural Landscape Report for Big Meadows was a collaborative effort by the Olmsted Center for Landscape Preservation and Shenandoah National Park, with technical assistance from the University of Tennessee. At the Olmsted Center, the report was prepared by John W. Hammond, Historical Landscape Architect, and Michael Commisso, Historical Landscape Architect. Eliot Foulds, Senior Project Manager, contributed to the report and served as the project manager. Robert Page, Director, provided project oversight.

The Olmsted Center gratefully acknowledges those at Shenandoah National Park who provided invaluable assistance in the completion of this report, especially Jennifer Flynn, Superintendent, and Jim Northup, former Superintendent. We would particularly like to thank Ann Kain, who until her retirement in 2018 served as the project coordinator for the park and contributed her insight and experience throughout the project.

We are grateful to Kandace Muller, Museum Specialist, who provided assistance in the park archives, located and identified historic photographs, maps, and documents, and provided information about Big Meadows history. Wendy Cass, Botanist, offered her expertise in the native plants and ecology of Shenandoah National Park and helped develop the palette of recommended plants. Jim Schaberl, Division Chief of Natural and Cultural Resources, contributed to the final effort to shepherd the report to its completion. Several other park staff, including Jeb Wofford, Fish and Wildlife Biologist, Tim Taglauer, Deputy Chief of Interpretation and Education, Claire Comer, Interpretive Specialist, and Steve Herzog, Chief of Maintenance, reviewed drafts and provided comments, participated in meeting and site visits, and generously offered their expertise in their respective fields.

Finally, the analysis and recommendations in this report would have been incomplete without the expert analysis of Dr. Jennifer Franklin, Associate Professor, and her team of students from the University of Tennessee Institute of Agriculture. The information they generated on soil conditions, vegetation species, forest density, and canopy regeneration allowed us to offer treatment recommendations with a confidence that would have otherwise not been possible.



OCLP

INTRODUCTION

Big Meadows is one of four original multi-use developments constructed along the 105-mile Skyline Drive, a National Historic Landmark that winds along the crest of the Blue Ridge Mountains through the length of Shenandoah National Park in Virginia. Shenandoah National Park was one of two national parks in the southern Appalachians authorized by Congress in 1926 and established in the 1930s (Figure 0.1) The 440-acre Big Meadows site is situated at milepost 51 of Skyline Drive, with most of the developed area located on the northwest side of the road and a large, open meadow on the southeast side (Figure 0.2). The development is composed of five historic sub-areas arranged along an access road that include a wayside and visitor center area, picnic grounds, lodge and cabin area, campground, and maintenance area, as well as two non-historic sub-areas consisting of a wastewater treatment facility and employee residences. A series of spurs and interior loop roads provide access to these areas. The Civilian Conservation Corps (CCC) constructed the picnic grounds, campground, and maintenance area, including buildings, roadways, parking areas, trails, comfort stations, drinking fountains, log guardrails, boulder bollards, and fireplaces. More recent site furnishings have been introduced in the picnic grounds replacing original CCC work, including picnic tables and grills. The park concessionaire constructed the Big Meadows Lodge along with the Wayside building and guest cabins, following the rustic style developed by the National Park Service to design and build structures that blend into the landscape using native materials and traditional construction methods. Additional buildings have been built since the period of significance (1931 to 1952), most notably the Byrd Visitor Center adjacent to the Wayside. Built as part of the National Park Service Mission-66 program, the Visitor Center features interpretive exhibits and other amenities. Development since the period of significance also includes several employee residences and guest accommodations, an amphitheater, a wastewater treatment plant, and expanded camping facilities.

PROJECT SCOPE AND METHODOLOGY

The Cultural Landscapes Inventory (CLI) documentation for the Big Meadows landscape was completed in 2009, providing an evaluated inventory of all landscape characteristics and features of historical significance that are listed on or eligible for listing on the National Register of Historic Places or are otherwise

managed as cultural resources. The CLI is a national program of the National Park Service that identifies and documents cultural landscape location, size, physical development, condition, landscape characteristics, character-defining features, and management. However, the scope of the CLI program did not prescribe treatment recommendations to enhance historic character or accommodate contemporary site management needs. In discussions with park staff during the course of preparing the CLI, several issues were identified in the Big Meadows landscape, including the encroachment of trees and woody vegetation into formerly panoramic historic viewsheds and open grasslands, the piecemeal widening of park circulation features through successive pavement overlays, and the future of non-historic motel development that is approaching the end of its useful lifecycle.

In the National Park Service, the cultural landscape report serves two important functions: it is the principle treatment document for cultural landscapes and the primary tool for long-term management of those landscapes. The *Cultural Landscape Report for Big Meadows* provides a narrative site history, documentation of existing conditions, an analysis and evaluation of landscape characteristics and features, and treatment framework and recommendations. This report incorporates and expands upon the site history, existing conditions, and landscape characteristics and features information contained in the Big Meadows CLI. The primary focus of this report defines a treatment framework for long-term management of the Big Meadows landscape, along with short and long-term treatment tasks to preserve and enhance the historic character of the Big Meadows and address contemporary site management needs. Specifically this report:

- Assembles historical documentary information from a variety of primary and secondary sources including historic maps, photographs, correspondence, and first person narrative accounts;
- Provides a description of the landscape through every historic period up to the present, and identifies and describes the historic context(s) and period(s) of significance associated with the landscape; and documents the existing conditions of the landscape through text, photographs, and graphic plan;
- Compares the findings from the site history and existing conditions to identify the landscape characteristics and associated features that have historical significance;
- Utilizes existing planning documents, park staff and park partners to develop an overall guiding treatment philosophy supporting the preservation of landscape character within the proposed study area, while developing approaches to address issues related to continued use as a major visitor use area within the park.

- Provides illustrative maps identifying significant cultural landscape resources and proposes treatment measures within the study area, supporting the park's resource management responsibilities under Section 106 of the National Historic Preservation Act;
- Provides documentation that supports park consultation responsibilities under Section 106 of the National Historic Preservation Act.

This report has been developed according to the *Guide to Cultural Landscape Reports: Contents, Process and Techniques* (National Park Service, 1998). The treatment guidelines and tasks are consistent with the guidelines established by the *National Park Service Management Policies* (2006), *Director's Order 28: Cultural Resource Management* (1999), *NPS 28: Cultural Resource Management Guideline* (1997), and *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (1996).

Research for this cultural landscape report has been undertaken at a thorough level of investigation, which includes review of all historical resources including both primary and secondary sources.[1] Primary source materials included construction documents, plans, maps, photographs, and written documentation from the Shenandoah National Park administrative files and museum collection, as well as that of the Northeast Regional Office.

REPORT ORGANIZATION

This report is organized into three chapters beginning with a detailed history of the evolution of the Big Meadows landscape through the present, followed by an analysis and evaluation of the integrity of the landscape with respect to the historic period (1931 to 1952), and concluding with treatment guidance for the ongoing management of the landscape. Additional detailed information is included in appendices. The contents of the three chapters are summarized below:

Site History

The site history chapter is organized into four sections corresponding to distinct periods in the development of the Big Meadows landscape. The periods are American Indian Use (9000 BCE to 17th Century), European Settlement (1669 to 1924), Park Development (1924 to 1952) and Later Development and National Park Service Era (1952 to present). Each section describes the contextual history of the study area, as well as the site-specific history of the study area during each period. Sections conclude with a summary description that documents the character of the Big Meadows landscape at the end of each era. The site history is accompanied by historic photographs, diagrams, and period plans illustrating the detailed condition of the landscape at the end of each period.

Analysis and Evaluation

The analysis and evaluation chapter provides an overview of the historical significance of the Big Meadows landscape, describes the characteristics and features that contribute to the significance of the landscape, and evaluates the integrity of the historic landscape. The analysis and evaluation is based on the criteria developed by the National Register of Historic Places. By comparing the historic condition with the existing conditions of landscape characteristics and features, the report presents a list of characteristics and features that contribute or that do not contribute to the historic character of the landscape.

Treatment

The treatment chapter describes the preservation strategy for management of the Big Meadows landscape. It includes a framework for treatment that establishes a treatment character date and preferred treatment, addresses park issues, and provides an overall philosophy that guides the individual treatment tasks. The treatment tasks are organized according to landscape characteristics, which include spatial organization, circulation, vegetation, buildings and structures, views and vistas, and small-scale features. The narrative guidelines and tasks are supplemented by annotated treatment plans, diagrams, and images.

SUMMARY OF FINDINGS

HISTORICAL OVERVIEW

Prior to the establishment of Shenandoah National Park, the area was inhabited by Native Americans and later settled by European immigrants beginning in the early 1700s and reaching its peak population in the nineteenth century. Homesteads were established where families raised a variety of crops and fruit trees and kept pastures for livestock/cattle grazing. A large portion of the Big Meadows site belonged to a family farm that used the land for a cattle range. Tenant families occupied the site, looked after the cattle and expanded the meadow by cutting down timber for their own use.[2]

During the early part of the twentieth century, several environmental changes diminished the economic livelihood of area residents. The chestnut blight brought catastrophic change to the forest ecosystem, decimating chestnut trees that once made up twenty percent of the forest. Chestnuts were a food source for animals and could be sold for cash. The bark was used for tanning, and the wood was used in the construction of telephone poles, railroad ties, wheel rims, and tools. Hardships brought on by the chestnut blight were exacerbated by drought in 1930, which caused crops and the apple harvest to fail.

Limited recreational use of the Appalachian Mountains had begun as early as 1830 with the construction of Black Springs Hotel and the development of Stony Man Camp (later Skyland) in 1894. In 1924, the U.S. Secretary of the Interior formed the Southern Appalachian National Park Committee (SANPC), which explored the potential of locating a scenic drive atop the Blue Ridge Mountains in northern Virginia with dramatic views of the Shenandoah Valley to the west and the Piedmont Plain to the east. In 1926, Congress authorized Shenandoah National Park to provide a large, western-type park accessible from the urban centers of the East Coast, although the authorization did not include federal funding to acquire land for the park. Until the park was officially established in 1935, lands were acquired through private donations and funding from the Commonwealth of Virginia.

In an effort to provide economic relief and jobs to the region, which was suffering the combined effects of the drought of 1930 and the Great Depression, and to make the Shenandoah area more accessible to motorists, the National Park Service and the Department of Agriculture's Bureau of Public Roads began construction of Skyline Drive in 1931. During the Roosevelt Administration, as part of the New Deal legislation, the CCC was established to help create jobs through natural resource conservation efforts on federal, state, and municipal properties. At Shenandoah, the CCC was involved in erosion control, planting trees and shrubs, and the construction of site amenities including trails, shelters, overlooks, parking lots, picnic tables, fireplaces, drinking fountains, and other site furnishings. President Roosevelt also established the Public Works Administration (PWA), which later became a part of the Federal Works Agency. The PWA was involved with a comprehensive program for federal and nonfederal public works projects. The program's objectives were to reduce unemployment, increase consumer purchasing power, improve standards of labor, and conserve natural resources. At Shenandoah, PWA funds were used for the construction of the Equipment Storage building at the Big Meadows site.[3] The Works Progress Administration (WPA), also established under the New Deal, employed millions of people across the country to work on new buildings, roads, and utilities. At Big Meadows, the water and sewer system was constructed with WPA labor and funds.[4]

Big Meadows was planned as one of four multi-use developments constructed by the park concessionaire to provide services to motorists along Skyline Drive. By 1937, the CCC had constructed the main access road, the picnic grounds, and campground. During the same year, the Virginia Sky-Line Company secured the concessionaire contract, and soon after constructed the Wayside station, Big Meadows Lodge, and five guest cabins. Following design and planning principles promoted by the National Park Service, the Big Meadows development was sited to harmonize with the natural topography while also taking advantage of the panoramic views and vistas. Site amenities were sited to take advantage of views of the meadow to the east and views of the valley to the west. An access road,

herein referred to as Big Meadows Road, intersected with Skyline Drive at a wye intersection, where the Wayside station offering a filling station, lunchroom, and gift shop. From its intersection with Skyline Drive, Big Meadows Road continued north, providing access to the maintenance area, campground, picnic grounds, and lodge and cabin area that offered overnight accommodations. The CCC constructed landscape elements that enhanced the rustic and naturalistic setting by using stone for drinking fountains and fireplaces, boulders for bollards, and logs for guardrails and signs. The CCC also completed construction of rustic style comfort stations within the picnic grounds and the campground and built trails throughout the site. CCC workers planted trees to define spaces at the campground and picnic area, provide shade, and as specimens at the Lodge and Wayside. In addition, the CCC established a nursery near their camp in the meadow in order to propagate native plants for installation throughout the park and Skyline Drive.

After the United States entered World War II in 1941, further development of the park temporarily ceased. Visitation to the park fell as fuel shortages curbed opportunities for leisurely drives and people were encouraged to conserve resources for the war effort, forcing the closure of concession facilities. After the war, the concession facilities re-opened, but business remained slow for a few more years. By the late 1940s, business began to improve at Big Meadows, and the park concessionaire expanded guest amenities by constructing two multi-unit cottages at the lodge and cabin area.

During the late 1950s, the National Park Service underwent a comprehensive expansion and development program in order to meet the dramatic increase in visitation at the parks and to update existing facilities. Referred to as "Mission-66," the program was planned to coincide with the fiftieth anniversary of the National Park Service in 1966. The Big Meadows campground was expanded with a new loop circulation and additional associated facilities, and new trails were constructed, such as the "Story of the Forest" Trail. Visitor centers were a major component of the Mission-66 initiative, envisioned as the center of the park interpretive program. At Big Meadows, the National Park Service constructed the Byrd Visitor Center, and associated parking lot, adjacent to the Wayside. The Visitor Center building was designed as a split-level structure with large plate glass windows overlooking the meadow. Additional housing for National Park Service employees was built at the maintenance area and concession employee residences were built near the lodge and cabin area.

New construction has continued through the 1990s, including an amphitheater at the picnic grounds, a wastewater treatment plant, and new overnight guest accommodations. Some of the original CCC-built site features have been replaced with newer styles, including picnic tables and grills. Remnants of earlier development, including tennis courts, the former CCC camp, and nursery are

still evident. Log guardrails have also been replaced with concrete wheel stops. Additional site furnishings have been installed, such as benches, an information kiosk, signage, site lighting, bicycle racks, and dumpsters and recycling bins. A statue and memorial installed at the Byrd Visitor Center in 2000.

SUMMARY OF SIGNIFICANCE AND INTEGRITY

Big Meadows is located within the boundaries of the Skyline Drive Historic District, which was designated a National Historic Landmark on October 6, 2008. Skyline Drive, with its adjoining overlooks, waysides, picnic areas, campgrounds, and developed areas, is nationally significant under National Historic Landmark Criterion 1 and 4. The period of significance for the Skyline Drive Historic District is 1931 to 1952. Construction of Skyline Drive began in 1931 and occurred in three distinct phases, extending to 1952, including work done to complete the guard walls after World War II and some minor changes that were consistent with the 1930s master plans. Rapidan Road, which connected Skyline Drive and Big Meadows to President Herbert Hoover's summer retreat, Rapidan Camp, was built in 1931. While construction of the Big Meadows developed area did not begin until 1935 as part of a park master plan, it shares the same areas and period of significance as the Skyline Drive historic district.

The historic significance of Big Meadows is evaluated according to the National Register Criteria A and C which aligns with National Historic Landmark Criteria 1 and 4, respectively. Big Meadows is nationally significant under National Register Criterion A in the areas of entertainment/recreation and politics/government for its association with Shenandoah National Park as one of the first eastern national parks. It is also associated with the early twentieth century movement to accommodate the growing popularity of the automobile while protecting the natural and scenic values of national parks. Skyline Drive was created as a scenic park road that provided motorists with a shifting panorama of the Blue Ridge Mountains, the Shenandoah Valley, and the Northern Virginia Piedmont. Located off Skyline Drive in the Central District of the park, Big Meadows offered motorists a place to stop and enjoy the views, obtain gasoline, have a meal, and/or stay the night. Big Meadows is also associated with federal government efforts to mitigate widespread unemployment during the Great Depression through work programs, most notably the CCC, which constructed many of the site amenities along Skyline Drive and throughout Shenandoah National Park.

Big Meadows is also nationally significant under Criterion C in the areas of architecture and landscape architecture for its association with the rustic design style developed by the National Park Service in the 1930s and 1940s. This style emphasized the use of local materials and traditional methods in the construction of buildings, structures, and site furnishings, the incorporation of scenic views in the layout of buildings and circulation features, and the use of native vegetation to

protect the natural values of the landscape. The overall layout of the Big Meadows developed area harmonized with the existing topography as much as possible and highlighted the views of the Shenandoah Valley and the meadow. Parking areas were integrated with the vehicular circulation that curved and looped through the site, following the topography of the land. Trails also meandered through the site linking parking areas to the picnic grounds and the lodge. Trees were planted for screening at the campground, and in clusters at the picnic grounds to provide shade and spatial definition. Specimen trees and foundation plantings were also installed around the Big Meadows Lodge and the Wayside. Existing trees were preserved when possible in order to enhance the naturalistic setting. Lawns were established around the Wayside to maintain views of the meadow beyond, as well as views to and from Skyline Drive. Buildings, structures, and other site furnishings were constructed of wood and stone from the area.

Big Meadows, and specifically Rapidan Road, is also nationally significant under National Register Criterion B for its association with Herbert Hoover. The road provided access to Hoover's summer retreat, Rapidan Camp, and was built as part of an appropriation for Skyline Drive. The significance of Herbert Hoover and Rapidan Camp is addressed in a separate Cultural Landscape Report.

The physical integrity of Big Meadows is evaluated by comparing landscape characteristics and features present during the period of significance (1931 to 1952) with current conditions. Many of the site's historic characteristics and features remain unchanged. The site's historic layout is still intact, featuring distinct areas grouped by function that include the wayside and visitor center, picnic grounds, lodge and cabin accommodations, campground, and maintenance facilities. The historic rustic design is evident through the surviving circulation layout, materials, and vernacular building techniques reflecting the philosophy of a romanticized natural environment that was executed through the 1930s and 1940s. Pathways, access roads, and parking areas remain much as they did during the period of significance. The Wayside, Big Meadows Lodge, guest cabins, and several comfort stations retain integrity in their overall exterior design with subsequent treatments using similar materials and/or workmanship. More extensive alterations have occurred inside the buildings in order to accommodate new uses and repairs. Historic viewsheds of the meadow and the valley to the west have been maintained, further emphasizing the historic setting of the site. The use of local resources in the design of site amenities, such as native plants, rockwork, and wood, to harmonize with the natural surroundings can be seen in the landscape today. Historic small-scale features include boulder drinking fountains, boulders used as bollards, and remnants of the CCC camp and nursery.

Since 1952, the most significant changes to the Big Meadows site have been the construction of the Byrd Visitor Center adjacent to the Wayside, several new buildings for overnight guest accommodations and employee housing, an addition

to the campgrounds, a wastewater treatment plant, and an amphitheater. Some of the small-scale features constructed by the CCC, including the picnic tables, fireplaces, and entrance signs, have been replaced with contemporary fixtures. New site elements have been added over time, including information kiosks, flagpoles, bicycle racks, fire hydrants, recycling bins, dumpsters, and new wooden planters. The overall impacts of these additions on the landscape have been minimal and do not detract from the site's historic setting.

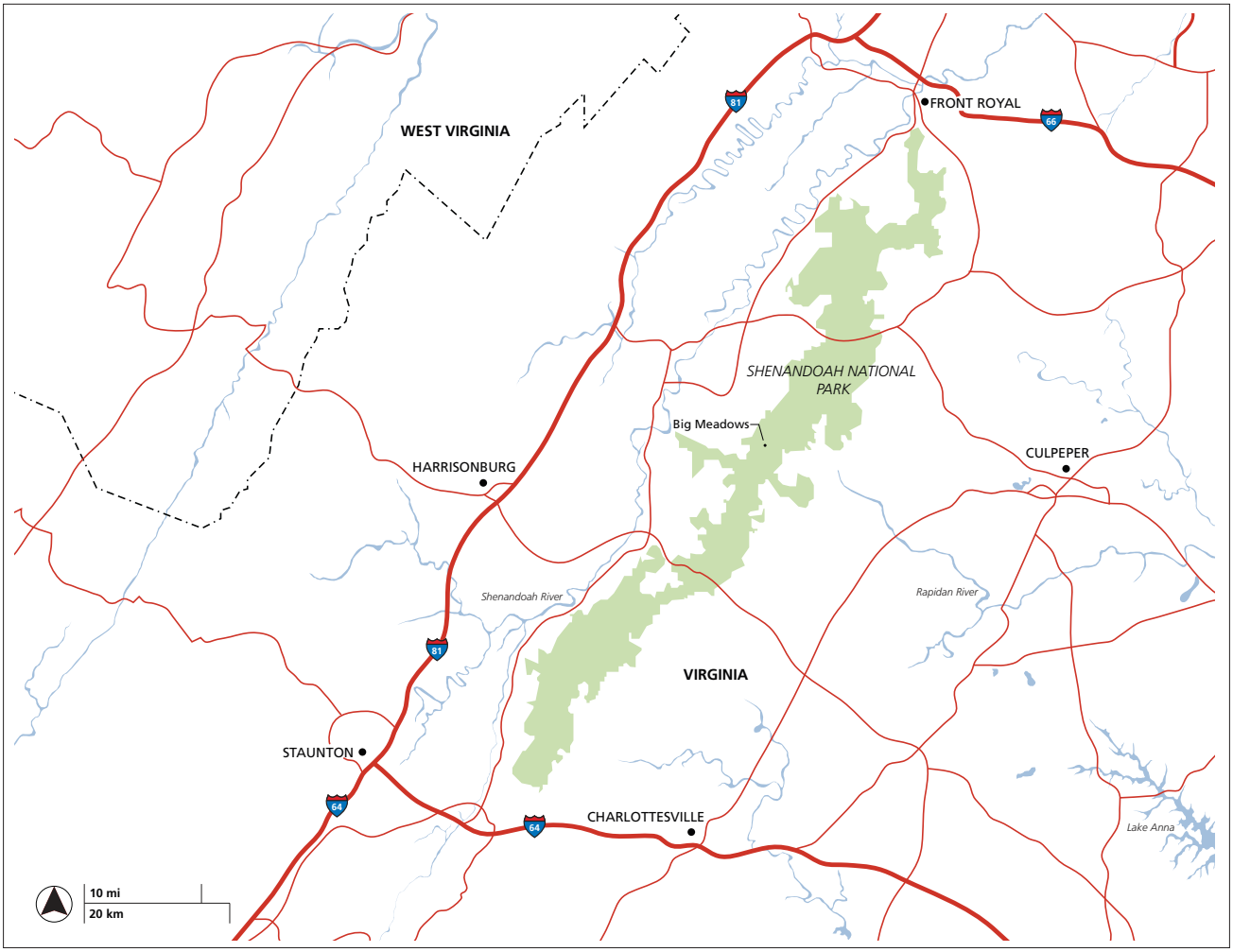


Figure 0.1. Location Map Information.
Shenandoah National Park is located in northwest Virginia (Map courtesy of Great Outdoors Recreation pages).

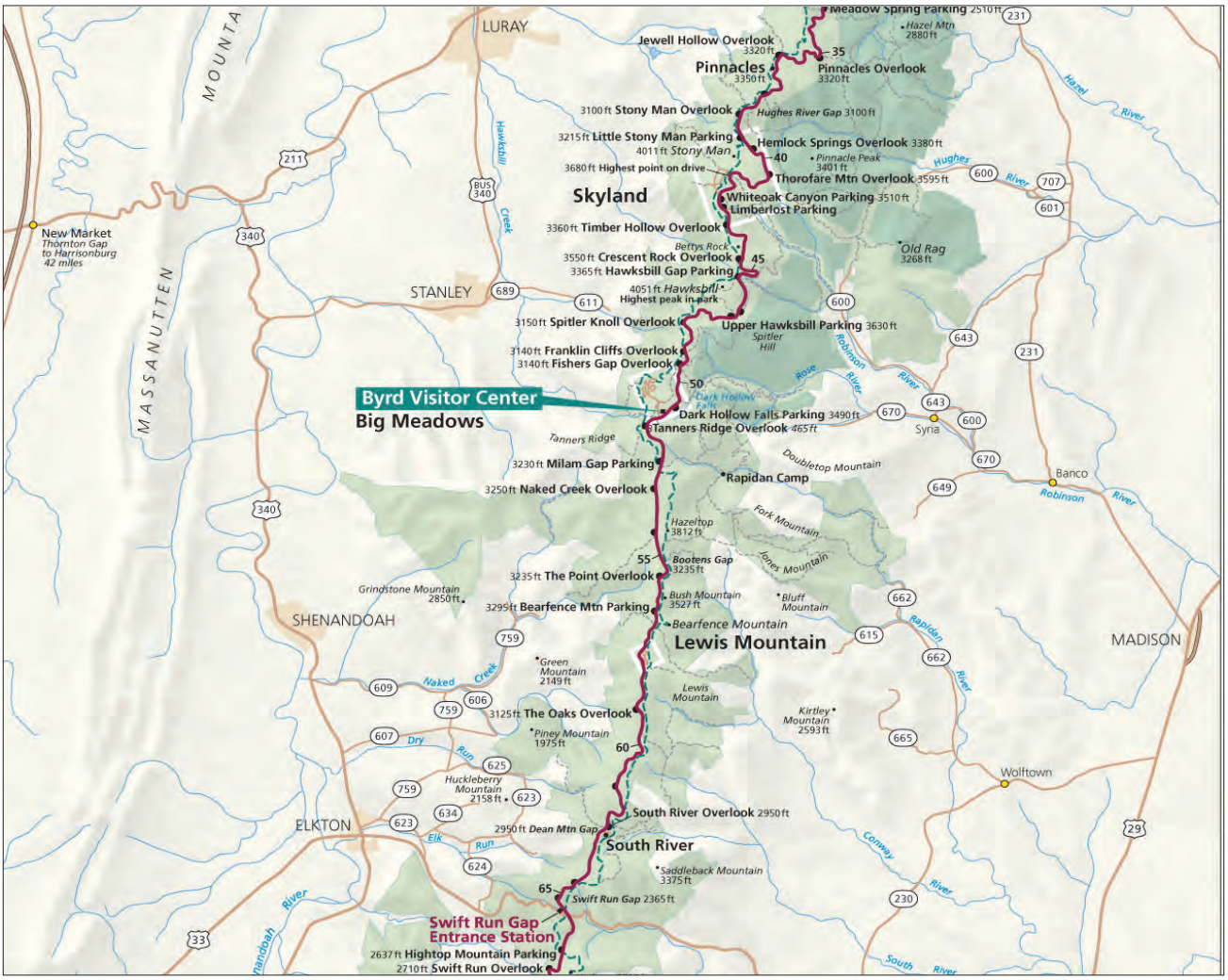


Figure 0.2. Regional Landscape Context.
(Shenandoah NP website, http://www.nps.gov/shen/planyourvisit/upload/central.jpg)

ENDNOTES

1 As defined in the National Park Service *Cultural Resource Management Guidelines* (DO-28, 1998), "thorough" means research in selected published and documentary sources of known or presumed relevance that are readily accessible without extensive travel and promise expeditious extraction of relevant data; interviewing all knowledgeable persons who are readily available, non-destructive investigation, and presenting findings in no greater detail than required by the task directive. *National Park Service, Cultural Resource Management Guideline*, NPS-28, web edition, 11 June 1998, http://www.cr.nps.gov/history/online_books/nps28/28contents.htm, 17–19.

2 Reeder 1991:59

3 Historic Resource Study 1997:73

4 NHL documentation 2008:63)



NPS

SITE HISTORY

NATIVE AMERICAN USE: 9000 BCE TO 17TH CENTURY

For thousands of years, the Virginia Blue Ridge Mountains and its surroundings have supported human occupation. Although initial habitation of the Upper Rappahannock region took place approximately 11,000 years ago, the first human occupants at Big Meadows occurred 2,000 years later (9,000 BCE). At this time, the region was transitioning from colder Pleistocene climates to the warmer Holocene climates. The boreal forest and spruce parkland in the lower elevations and alpine tundra in the highest elevations shifted to predominately deciduous hardwood forests that supported a host of new plant foods and small mammals that allowed a more intensive use of the upland areas. This more intensive use of the higher altitudes was supported by small seasonal camps that were peripheral to the larger base camps on the lower flatlands and riverbanks. Settlement patterns reflected the opportunity of highly productive, if seasonally restricted, environments. The riverine areas offered fish and shellfish during the spring and summer, while the mountainous areas were favored in the fall when the chestnut and hickory forests produced abundant harvests. Small bands moved through the hollows and passes of the Blue Ridge Mountains gathering these foods and hunting deer and small game. The smaller mountain base camps were also used for processing resources, including stone tool production, plant and nut processing, and hide working.[1]

Based on archeological investigations carried out over the years, numerous habitation sites have been documented along the ridgeline and near small rivers on the eastern slope of the Virginia Blue Ridge Mountains. Many of these sites, occupied periodically and repeatedly beginning around 4,500 years ago, were clustered within or near Big Meadows. Lowland groups from both sides of the Blue Ridge were attracted to the Big Meadows area for its varied landscape that included broad open meadows, forests, and wetlands, as well as a diverse array of game, nuts, and plant foods. The Big Meadows area served as a temporary base camp for these groups during two periods of occupation in June or July and early fall. Artifacts associated with the Middle Archaic, Late Archaic, and early Woodland sub-periods have been found throughout the Big Meadows project area, with a high concentration located in close proximity to the Hogcamp Branch. The watercourse, coupled with a meadow and open terrain, likely presented a

very attractive upland setting for these cultural groups.[2]

Archeological evidence also suggests the establishment of American chestnut forests in the high elevations of the Blue Ridge by 3500 BCE highly influenced the occupation of many sites within or near the Big Meadows project area. The American chestnut (*Castanea dentata*) once dominated forty to fifty percent of southern Appalachian forests. A single mature tree could produce six thousand nuts per year and the growth was exceptionally fast, with a tree attaining twenty-five feet in height in fifteen years. The nuts dropped from late September through October, providing a nutritious staple high in protein and fat. At Shenandoah National park, ecologists suggest that the mature stands of chestnut described at Big Meadows extend back to the late Archaic period. Although chestnut stands are no longer extant today due to the Chestnut Blight, the Northern Red Oak forest community that currently surrounds Big Meadows is seen as a reminder. The majority of Northern Red Oak Forests were formerly dominated or co-dominated by American chestnut. Taken together with the faunal resources of white tailed deer, black bear, and wild turkey, Big Meadows would have offered an abundance of food sources.[3]

EUROPEAN SETTLEMENT: 1607 TO 1924

European settlement in the upland Piedmont areas, which includes today's Shenandoah National Park, began even as American Indians—particularly the Monacan and Manahoac, both Siouan speaking tribes—were active within the James River and Rappahannock River Valleys. Although initial contact with these tribes occurred during John Smith's explorations of Virginia's Coastal Plain in 1607, there was limited information on these tribes until John Ledger's expedition more than sixty years later.[4]

In 1669, Sir William Berkeley, colonial governor of Virginia, commissioned a German immigrant named Dr. John Lederer to make three expeditions to the Blue Ridge between 1669 and 1670. During his three journeys, Lederer described, among other things, the major landforms and physiography of Virginia. Lederer's first recorded journey started on March 9, 1669. A t that time, Lederer, accompanied by three Indian guides, traveled up the York and Pamunkey River before crossing the Rapidan River. Lederer described the rugged terrain and various encounters with great herds of deer, howling wolves, bears, beavers, otters, a bobcat, and grey foxes. Upon seeing the Appalachian Mountains for the first time, Lederer commented, "I first descried the Apalatean[sic] Mountains, bearing due West to the place I stood upon: their distance from me was so great, that I could hardly discern whether they were Mountains or Clouds. . . ."[5] Lederer eventually reached the crest of the Blue Ridge, but never crossed over into the Shenandoah Valley; settlers did not adventure west of the Blue Ridge until about

1725. Although historical research reveals that small Indigenous communities continued to live in the lower elevations of the Blue Ridge into the 18th century, at the time of Lederer's expedition, the population of the American Indians within the Piedmont had been greatly reduced by European diseases. Lederer later described that many villages along the Rappahannock River Valley were abandoned and the fields overgrown.[6]

In 1716, Alexander Spotswood, Lieutenant Governor of the Colony of Virginia, led an expedition across the Blue Ridge Mountains to encourage settlement and to extend the boundaries of the colony. The expedition included sixty-three men, later known as the Knights of the Golden Horseshoe, with seventy-four horses, dogs, and supplies. Although the precise route is uncertain, the crossing place was presumably was Swift Run Gap or near Big Meadows through Milam Gap.[7] Investors, including the "knights" who accompanied Spotswood, soon bought up large tracts of land in the area claimed by Spotswood for the colony. These transactions eventually led to an increasing number of settlers occupying the flat land on either side of the Blue Ridge. Despite these transactions by the Colony of Virginia, the ownership of much of the land was in dispute from the early 1700s until 1746; a large portion of the land claimed by Spotswood was also claimed by Lord Fairfax. Because of this controversy, numerous large parcels of land were left unoccupied, a number of which remained largely intact until the establishment of Shenandoah National Park (Figure 1.1). [8]

Settlement (as opposed to land ownership) within the current boundary of Shenandoah National Park remained minimal well into the early nineteenth century. However, by the early 1800s, the fertile lowlands on either side of the mountains began to fill in. Settlement was largely concentrated near transportation corridors, which were located within Mountain passes. These passes, referred to as "hollows" or "gaps," were often named for the family who occupied them. Near Big Meadows, just beyond the project boundary to the northeast, settlements sprang up along the Gordonsville Newmarket Turnpike (Blue Ridge Turnpike), completed in 1853, within Fisher's Gap (historically Milam's Pass or Gap). [9] At that time, the land now encompassing the Big Meadows project area was owned by Stephen Fisher. During the Civil War, General Thomas J. "Stonewall" Jackson's Corps from the Shenandoah Valley crossed through Fisher's Gap via the turnpike to join up with General Robert E. Lee in the defense of Fredericksburg. Later accounts by Capt. James Cooper noted the existence of apple orchards and apple brandy near Fisher's Gap, possibly within the Big Meadows project area (Figures 1.2–1.4). [10]

Although many of the earliest occupants in the vicinity of the park were of English ancestry, by the mid-eighteenth century, a large number of Germans and Scotch-Irish immigrants were settling within the region. Settlers moved from the Tidewater area to the Piedmont region, and from Pennsylvania to the Shenandoah

Valley. As the better farming land was taken, new settlers moved into the mountain hollows where they developed a subsistence life reliant on hunting, farming, grazing, and timbering that led to extensive clearing of the land.[11] Industrial use also developed in some areas from 1845 to 1850, such as the Mt. Vernon Iron Furnace and the Stony Man Mountain Tract, where copper was mined and charcoal produced for smelting.[12]

In 1830, the first recreational use of the area occurred in what is now the South District of the park. A resort called Black Rock Springs Hotel touted seven mineral springs with curative powers. The resort became a popular regional tourist destination and maintained operation until 1909 when a fire destroyed most of the buildings.[13] In 1894, George Freeman Pollock built a popular resort north of Big Meadows, initially called Stony Man Camp and later renamed Skyland. It was a destination and summer residence for the middle and upper middle classes mostly from Baltimore, Washington, Richmond, and Philadelphia. Pollock strongly supported the establishment of a national park in the area and would play a key role in this effort.[14]

By the mid-1850s, large farms developed in the region, typically cultivating tobacco for a few years, followed by corn crops and then left fallow to recover. Smaller scale farms also existed in the area and were mainly subsistence farms including small gardens with corn, rye, and other vegetables, and small orchards. Other land uses included cattle grazing, and lumbering that provided material for rebuilding after the Civil War and for railroad expansion. A large portion of the Big Meadows site belonged to a Shenandoah family who used the land for a cattle range. Mountain families, who occupied the land as tenants, tended the cattle and expanded the meadow by cutting down timber for their own use. [15] The American chestnut was also economically important to mountain families within the region, specifically near the Big Meadows area. The reddish-brown wood was lightweight, soft, easy to split, very resistant to decay; and it did not warp or shrink. Because of its resistance to decay, the wood was used throughout the region for posts, poles, piling, railroad ties, and split-rail fences. It was also ideal for building cabins and furniture. Finally, the chestnut bark was rich in tannic acid which was used in the tanning of leather. As a result, tanneries also became an important industry within the region. Local reliance on the chestnut tree soon ended with the introduction of the Chestnut blight into the United States around 1904.[16]

CHESTNUT BLIGHT

The chestnut blight was first discovered in chestnuts growing within the grounds of the New York Zoological Garden by Herman W. Merkel, a forester at the Bronx Zoo in 1904. It is believed that the fungus entered the country around the turn of the twentieth century on nursery stock from Asia. W. A. Murrill, a mycologist on the staff of the New York Botanical Garden, later identified the disease and gave

it the name of *Endothia parasitica*. From its initial infestations in New York the blight quickly spread throughout the northeast, eventually hitting Virginia twenty years later.[17]

By the 1920s, the blight reached the area slated to become Shenandoah National Park. As the trees began dying, the character of the forests changed dramatically. Unlike most species, which when killed deteriorate in weeks or months, the dead American Chestnut stood for decades as ghost-like forests among the mixed deciduous trees. "Ghost forests," as the dead chestnut trees were later referred to, covered large areas of the Big Meadows site during the early twentieth century. In the ensuing years, during the initial development of Skyline Drive near Big Meadows, Walter Mallohee with the U.S. Department of Agriculture's Bureau of Public Roads commented, "…It just seemed that all of the trees died at the same time and no one knew how to prevent it. It was a sad sight to behold. Every tree was completely stripped of all its foliage, including all the bark and leaves."[18]



Figure 1.1. A map of the first patents in Madison County, Virginia (University of Virginia Archives).



Figure 1.2. A Civil War map of northeast Virginia created by Jedediah Hotchkiss in 1864. This map shows towns, waterways, rivers, and geographic features. Within the Big Meadows site (identified by rectangle) is the Gordonsville and New Market Turnpike, Rose River, and horse path (Library of Congress, G3880 1864, P7 Vault: Hotch17).

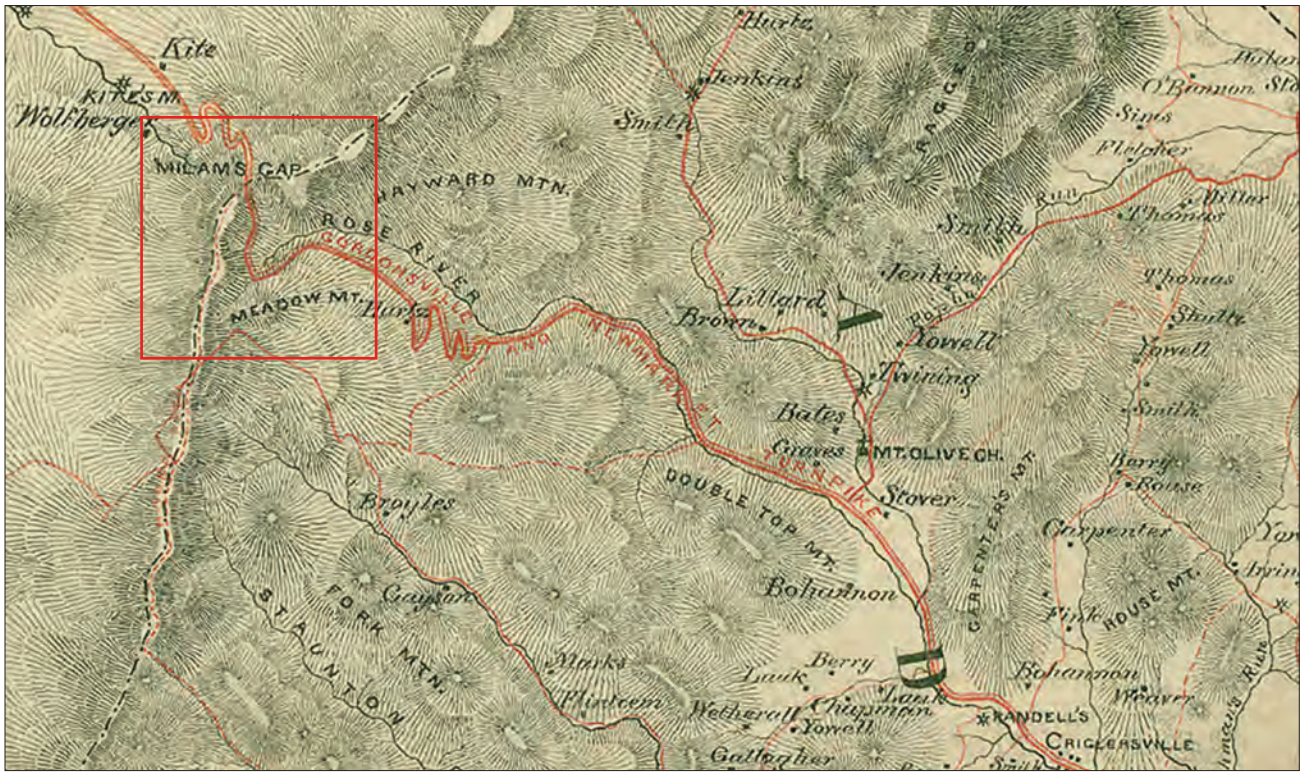


Figure 1.3. A Civil War map, created in 1864 by Confederate Engineer General J.F. Gilmer. Note the circulation patterns within the Big Meadows project area, specifically the Gordonsville and New Market Turnpike (Library of Congress, Virginia Historical Society, Map F232 R7 1864:1; annotated by the Olmsted Center for Landscape Preservation).



Figure 1.4. A USGS survey topographic map, 1884-1891. Note the circulation patterns within the Big Meadows project area (University of Virginia Archives).



Cultural Landscape Report

Big Meadows

Shenandoah National Park

1924 Period Plan

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

SOURCES

1. Olmsted Center for Landscape Preservation, Cultural Landscape Inventories, 2006
2. Civil War map of northeast Virginia (LOC, G3880 1864, P7 Vault: Hotch 17)
3. Civil War map, created by Gilmer (LOC, Virginia Historical Society, Map F232 R7 1864:1)
4. Aerial Photography, 1929 and 1937
5. USGS Survey Topo Map, 1884-1891 (UVA Archives)

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LEGEND

- Buildings
- Roads
- Parcel Boundary
- Trees/Forest
- Wetlands
- County Boundary
- Contours
- Rock Outcrops
- Ghost Forests of Dead Chestnut Trees

NORTH

0' 650' 1300'

DRAWING 1

SHENANDOAH NATIONAL PARK ESTABLISHMENT AND DEVELOPMENT: 1924 TO 1952

CREATION OF A NATIONAL PARK

The idea of an eastern national park in the southern Appalachian Mountains was first conceived during meetings held in Washington beginning in 1901 between Virginia and Tennessee Congressmen.[19] Although there was legislation introduced in Congress, nothing transpired from these early efforts until 1923. At that time, Stephen T. Mather, the first director of the National Park Service, again suggested an eastern national park, more specifically, one located in the Appalachian Mountains. In the *Seventh Annual Report of the National Park Service* (1923) Mather wrote:

> I should like to see additional national parks east of the Mississippi, but just how this can be accomplished is not clear. There should be a typical section of the Appalachian Range established as a national park with its native flora and fauna conserved and made accessible for public use and its development undertaken with Federal funds.[20]

In 1924, Mather met with Secretary of the Interior and former Colorado psychiatrist, Hubert Work, to discuss the eastern national park concept. Shortly thereafter, Work assembled a five-member Southern Appalachian National Park Committee (SANPC) to study the issues regarding establishing a national park in the region.[21] The Committee distributed a questionnaire to gain public input into suggested sites for a new national park. Early on, there was strong support for a park in the Smokey Mountains between North Carolina and Tennessee, but various groups in Virginia acted quickly to provide equal support for a park. In January 1924, a group of local Chambers of Commerce banded together to form Shenandoah Valley Inc., the purpose of which was to "Proclaim to all the world the material resources and scenic attractions of the area."[22] The group later elected Luray realtor and self-proclaimed "park nut" Ferdinand Zerkel as Director. By June, George Pollock, with the assistance of several colleagues, filled out a SANPC questionnaire not surprisingly advocating the establishment of a park near Skyland. Pollock personally met with the members of the SANPC, and his enthusiasm and persuasive manner convinced the committee of the merits of his proposal.[23]

Although many people were in favor of a national park within the Blue Ridge, its creation was not without opposition. According to local papers, several landowners, farmers, and stock raisers between Front Royal and Waynesboro opposed the Skyland location stating, "For the reason that we own valuable grazing land on the Blue Ridge. It would be a great sacrifice…as we do not have grazing lands down in the valley sufficient to pasture our cattle."[24] Although uncertain, it is assumed that the aforementioned grazing lands may have included

the Big Meadows area. Influential people also had second thoughts. Frederick Law Olmsted, Jr. initially was "much perplexed" as to whether the American Society of Landscape Architects should endorse Shenandoah. He believed it deserved to be a public park, but questioned it as a national park; however, he eventually leaned in favor of it being a national park.[25]

In February 1925, Congress passed legislation allocating $20,000 for survey and evaluation of proposed parks, including Shenandoah National Park. It specified that a minimum of 385,000 acres would have to be donated before the park could be accepted into the national park system.[26] It also stipulated that the Commonwealth of Virginia purchase the land and present it to the federal government for such a purpose. Soon after, the Virginia Chamber of Commerce and Shenandoah Valley, Inc. established the Shenandoah National Park Association to raise funds and donations for the park.[27] Zerkel was appointed Executive Secretary of the association. By 1926, the Shenandoah National Park Association reported that it received over $1,200,000 in pledges. This ultimately led Congress to authorize Shenandoah National Park on May 22, 1926 to contain 521,000 acres, but requiring a minimum acreage of 250,000 before the unit could be established.

During this time, the newly elected Virginia Governor Harry F. Byrd established the Commission on Conservation and Development to oversee management of the funds obtained by the Shenandoah National Park Association. The new commission was headed by Byrd's former campaign manager, William Carson. In this position, Carson was responsible for surveying, appraising, and purchasing the estimated 5,000 properties within the 521, 000-acre proposed park area. However, the acquisition of the land for the park proved to be an onerous and contentious process. As time elapsed, landowner resistance mounted, and actual property values inflated due to government purchase. Due to these circumstances, between 1927 and 1928, Carson convinced the Virginia legislature to pass a streamlined condemnation process, as well as get legislation passed through Congress in to reduce the required size of the park.[28]

In the ensuing years, Carson and the Commission, with assistance from the United States Geological Survey (USGS), made substantial changes to the proposed boundary to reflect the current funding that was available for creation of the park. Changes included eliminating expensive acreage in the rich bottomlands of hollows and tracts that still retained mature and valuable timber, orchards, and cultivated fields. By 1931, the park boundary was substantially reduced in size encompassing approximately 160,000 acres. However, the earlier authorized boundary of 327,000 acres was retained.[29] Finally, with the park boundary issues resolved and funding in place, Carson pursued condemnation of almost 1, 100 tracts. Within the Big Meadows project area, a number of properties eventually acquired were owned by Fannie Lamb (#143 or #517), Lee Long (#145), P.P.

Long (#420), Isaac N. Long (#141), Isaac Long Sr. (#346-a), M.V. Gander (#372 and #142),R.S Graves (#148-a) John McDaniel (#174), S.R. and H.L. Aleshire (#140) and Charles G. Koontz (#139) (Figure 1.5).[30] Because of lawsuits related to the condemnation of land, the need to setup programs to help resettle former residents of the park, and the difficulty in obtaining donations for the procurement of land, it wasn't until December26, 1935, that Shenandoah National Park was fully established.

CONSTRUCTION OF THE APPALACHIAN TRAIL

Parallel to the work being carried out for the national park, efforts were underway to establish a hiking trail along the Appalachian Mountains. In 1927, George Freeman Pollock and others helped organize the Potomac Appalachian Trail Club (PATC) in Washington D.C. in order to develop and maintain the Appalachian Trail in the mid-Atlantic region. The Appalachian Trail Conservancy had been formed two years earlier by Benton MacKaye, a forester for the U.S. Division of Forestry (a forerunner of the Forest Service), with the aim of establishing a continuous recreational route along the mountain crests of eastern United States. One of Pollock's underlying goals in forming the PATC was to further promote the establishment of Shenandoah National Park.[31] Beginning in 1928 construction of the Appalachian Trail within the park began between Thornton Gap and the Skyland resort. The following year, work continued from Skyland to Swift Run Gap. At that same time, work was also being carried out in the northern section of the park, from Chester Gap to Thornton Gap. By 1930, the PATC had finished the southern section of the trail through the park, marking the completion of the Appalachian Trail in Shenandoah National Park. Members of the PATC constructed a trail on weekend visits during the next four years, with much of the trail traversing property that was later developed for Skyline Drive.

HERBERT HOOVER AND THE CREATION OF SKYLINE DRIVE

With the park boundary and funding finally in place, and the condemnation of lands underway, William Carson had two final objectives: convince the newly elected President Herbert Hoover to establish a camp in the park and plan the initial construct of a drive through the park. In 1929, Carson successfully promoted the merits of the Blue Ridge Mountains to President Hoover, convincing him to build a fishing camp and retreat on a 164-acre site along the Upper Rapidan River on the eastern slope of the Blue Ridge, south of Big Meadows (Figures 1.6 and 1.7). After constructing their summer retreat, the Hoovers became very active within the community, later establishing the Hoover Mountain School for local children in the area. After losing his bid for re-election, Hoover donated the Rapidan Camp to the federal government in 1933 to become part of Shenandoah National Park.

In 1930, a severe drought hit the Piedmont region of Virginia, drastically reducing the agricultural livelihood of many farmers and farm workers. Coinciding with the drought disaster were the effects of the Great Depression caused by the stock market crash of October 1929. As economic conditions remained bleak, it became more imperative to bring jobs to the area. William Carson promoted a plan to both create jobs and make the Shenandoah area more accessible by building a road. As described in the report of the SANPC dated June 30, 1931: "the greatest single feature. . .is a possible skyline drive along the mountaintop, following a continuous ridge and looking down westerly on the Shenandoah Valley. . .and commanding a view [to the east] of the Piedmont Plain. . .Few scenic drives in the world could surpass it." [32] President Hoover also supported the construction of a "skyline drive" along the mountain. In an interview years later, former National Park Service Director Horace Albright recalled a conversation he had with President Hoover while riding horseback along the crest of the mountains in May 1931. At one point during the ride, specifically near Big Meadows, Hoover commented:

> . . .these mountains were just made for a highway. I think everybody ought to have a chance to get the views from here. I think they're the greatest in the world, and I've been nearly everywhere in the world.[33]

He later directed Albright to proceed with a survey for the construction of a skyline drive. Meanwhile, Carson, with assistance from others, was already at work behind the scenes trying to jumpstart the cause. Efforts were also underway to construct an additional road from Hoover's Rapidan Camp. It was determined that there was a need for another road for both presidential security and to provide access to Skyland where the press covering Hoover stayed.[34] Despite reluctance to fund work-relief projects, in 1931, Hoover authorized drought relief funds to finance the work of building Skyline Drive, as well as a smaller to Fish Rack (south of Rapidan Camp), provided that much of the labor be accomplished by locals using traditional hand tools and farm implements.[35]

Construction of the major roads in national parks at this time was carried out cooperatively by an inter-bureau agreement between the National Park Service and the Department of Agriculture Bureau of Public Roads (BPR), combining the expertise of BPR's civil engineers with NPS standards for protection of natural scenery in parks. NPS staff selected the route of Skyline Drive and located the scenic overlooks and recreational waysides. BPR personnel oversaw the surveying, awarding of contracts, and actual construction. Road builders were required to fit the roadway into the surveyed route, and the grade was not to exceed eight percent or the curves to have radii less than 200 feet.[36]

The official groundbreaking of Skyline Drive, at Thornton Gap heading south toward Swift Run Gap, took place on July 18, 1931, and work continued through the summer. Construction of the road occurred in three phases starting with Central District, then North District followed by South District.[37] Project One was

Central District, from Thornton Gap to Swift Run Gap and is the section where the Big Meadows developed area was eventually located. The Central District was constructed first because this section was located between U.S. Route 211(at Thornton Gap) and the recently completed U.S. Route 33 (at Swift Run Gap), which would provide immediate access to the drive. In addition, Central District included an access road to Rapidan Camp, the President's retreat.[38] Project Two, or the second section phase of the construction, comprised North District, from Front Royal to Thornton Gap. Project Three comprised South District, from Swift Run Gap to Jarman Gap (Figure 1.8).[39]

The Central District was constructed as projects 1-A and B, 1-C, and 1-D and F, totaling thirty-four miles of Skyline Drive. Section 1-A and B extended from Thornton Gap to Big Meadows, and Section 1-C continued from Big Meadows to Swift Run Gap and included five miles of Rapidan Road which led to President Hoover's camp. On June 21, 1934, Albert Brothers of Salem, Virginia was awarded the contract to prepare a graded roadbed for the twenty-mile Section 1-A and B. A second contract was awarded to the West Virginia Construction Company for Section 1-C, comprising roughly twenty-one miles. Final road paving began in the spring of 1934 and completed in August. Ralph E. Mills Construction Company of Kentucky was awarded the Thornton Gap to Big Meadows stretch, and Keeley Construction Company of Clarksburg, West Virginia was awarded the Big Meadows to Swift Run Gap section. Stone was quarried from three sites within the park, and then crushed and stockpiled at various points along the road for use in road paving[40].

THE NEW DEAL AND THE CIVILIAN CONSERVATION CORPS

In 1933, Franklin D. Roosevelt was inaugurated as President of the United States. In March, one of his first presidential acts was to freeze all federal funding. Not until he visited the area in April did he release funding, and construction of Skyline Drive resumed (National Register 4/1997: Section 7, 7). As part of his New Deal legislation, Roosevelt initially established the Public Works Administration (PWA) as the Federal Emergency Administration of Public Works under the authority of the National Industrial Recovery Act, and later became a part of the Federal Works Agency. The PWA was involved with a comprehensive program for federal and nonfederal public works projects. The program's objectives were to reduce unemployment, increase consumers' purchasing power, improve standards of labor, and conserve natural resources. The organization supplied funding and hired inspectors to ensure that projects were being constructed according to plans and specifications. The NPS received a substantial amount of funds from the program, and at Shenandoah, PWA funds were used for the construction of the Equipment Storage building at the Big Meadows site.[41]

Roosevelt also established the Civilian Conservation Corps (CCC), created to help

relieve high unemployment and carry out a broad program of natural resource conservation on federal, state, and municipal lands. Six CCC camps were set up in Shenandoah National Park, including one at Big Meadows, Camp NP-2, later named Camp Fechner in honor of Robert Fechner, the Director of the CCC who died in 1939. The camp, housing about 200 men, extended from Milam Gap to Fishers Gap and north to the present Big Meadows campground. Camp Fechner began as a group of surplus tents, field kitchens, and latrines but more permanent buildings were soon constructed, including barracks, an infirmary, administration buildings, a garage, and a recreation building (Figures 1.9–1.13). CCC workers who lived at the camp formed a recreational athletic team and called themselves the "Fechner Indians" due to the fact that the camp was located on former Manahoac Indian hunting grounds.

The CCC laborers undertook a wide range of projects including erosion control, removal of dead chestnut trees, planting trees and shrubs, the construction of trails, shelters, and picnic areas with drinking fountains, tables, and fireplaces. The CCC also established a nursery at the northeastern edge of the meadow to propagate native vegetation for use in stabilizing cut and fill slopes and blending them into their surroundings as well as reducing soil erosion (Figure 1.14). The plantings were also installed at the developments along Skyline Drive to enhance their natural settings.[42] The nursery stock included Virginia creeper, trumpet creeper, bittersweet, arrowwood viburnum, rhododendron, dogwood, and sumac as well as pitch pine, red spruce, fir, and walnut trees.[43] Another agency established under the New Deal was the Works Progress Administration (WPA), funded under the Emergency Relief Appropriation Act of 1935, which employed millions of people across the country to work on new buildings, roads, and utilities. At Big Meadows, the water and sewer system was constructed with WPA labor and funds.[44]

As construction of Skyline Drive moved ahead, it became apparent that portions of the recently constructed Appalachian Trail conflicted with the proposed road alignment and would have to be relocated. At Shenandoah, CCC workers took on the task of rebuilding approximately eighty miles of the trail below the ridgeline and away from the new drive. By relocating the trail lower down the mountain slopes, hikers were able to enjoy panoramic views of the region.[45] At Big Meadows, the Appalachian Trail traversed along the western edge of the site, including Blackrock where an overlook was constructed with views of the valley to the west.

During the early 1930s, Big Meadows was designated a national soaring, or gliding, site to accommodate the growing popularity of sailplanes as a recreational activity (Figures 1.15 and 1.16).[46] The CCC constructed a runway and a temporary hangar in the meadow for the use of the sailplanes, also called gliders. The sailplanes were towed and released at Big Meadows, ultimately drifting to the valley to the west. In 1934, Big Meadows was the site of the National Glider Meet.[47]

DEVELOPMENT OF BIG MEADOWS

The first Master Plan for Shenandoah National Park was produced in 1935 through the collaboration of the superintendent, landscape architects, chief engineer, and sanitary engineer. Revisions occurred each year until 1942, with the exception of 1941. One of the overall aims of the master plan was to locate facilities at convenient intervals along Skyline Drive, providing picnic areas and overnight accommodation while offering visitors the opportunity to take in the natural scenery and surroundings of the park through a series of views and vistas. Preserving the existing landscape and restoring disturbed landscapes were also critical tenets in the development of the master plan and design guidelines. The design and layout of buildings were to blend in with the landscape, and groups of buildings shared a common architectural theme in order to create a unified and harmonious assemblage.[48]

Initial plans for Skyline Drive had called for significant construction every eight miles, with fourteen major developments and eight picnic areas. Secretary of the Interior Harold Ickes expressed his concern that this number of developed areas would compromise the inherent natural character of the area and consequently encouraged a more modest approach to development. In the end, four sites became multi-use developments, including Big Meadows, Skyland, Loft Mountain, and Dickey Ridge.[49] Big Meadows was the largest of these developments, consisting of 118 acres at the south slope of Blackrock Mountain with an elevation ranging from 3,570 feet to 3,720 feet. The site was named for the open meadows in the area that had been historically used for grazing.[50] Besides the open fields, there were large stands of dead chestnut trees, also referred to as ghost forests that resulted from the chestnut blight, as well as several rock outcroppings and wetlands (Figures 1.17 and 1.18).

The earliest plans for Big Meadows in 1935 showed a lodge and a large number of guest cabins overlooking the Shenandoah Valley, connected to Skyline Drive via a curving road. In this plan, there was little planned along Skyline Drive and no campground or maintenance area (Figure 1.19). Additional facilities were proposed very soon after and incorporated into revised plans the following year, along with a reduced number of cabins. By the end of 1936, the CCC completed grading on the main entrance road, measuring about twenty feet wide and extending a mile west from Skyline Drive, to a proposed cabin and lodge area. A mortared, coursed stone culvert system was constructed along the road as well to divert and drain storm water runoff.[51]

Later plans for Big Meadows indicated development of the site into five distinct sub-areas, organized by function and arranged along an access road (herein called Big Meadows Road) (Figure 1.20). The sub-areas were comprised of a wayside/gas station, lodge/cabin area, campground, picnic grounds, and a park maintenance area. The master plan located the wayside station along Skyline Drive near the

intersection with Big Meadows Road. Accommodations in the form of guest cabins and a lodge were sited further to the west to take advantage of valley views. Between these two areas, a maintenance area was proposed that also included employee housing. The maintenance area was planned around the base of a knoll, out of view from Big Meadows Road as motorists drove westward toward the guest cabins and lodge.

As construction continued on Skyline Drive and plans were further developed for park amenities, the actual boundaries of the new park were still being established. In December 1935, Secretary Ickes accepted title to 176,419 acres, thus creating Shenandoah National Park. Roosevelt officially dedicated the park on July 3, 1936 at a ceremony held at Big Meadows (Figures 1.21–1.25). The following October, another thirty-two miles of Skyline Drive opened to the public, encompassing North District from Thornton Gap to Front Royal.

In 1937, the CCC completed construction of the picnic grounds at Big Meadows. Accessed by a spur off of Big Meadows Road, the picnic grounds were organized around a one-way loop road with three parking areas along its perimeter, totaling thirty-five spaces. Footpaths led from the loop road to the center of the grounds, forming a cloverleaf pattern. The picnic sites were mostly located within the loop and included fireplaces and picnic tables. Four boulder drinking fountains were constructed, consisting of single boulders through which a pipe and bubbler were added (Figure 1.26). The CCC also planted clusters of trees for shade and spatial definition. In addition, the CCC built a comfort station, centrally located within the picnic grounds loop road. The building was constructed of squared logs joined by V-notches, and roofed with chestnut shake shingles[52].

The CCC also constructed a campground adjacent to the picnic grounds off of the same spur. The campground consisted of a major one-way loop road crossed by multiple one-way roads dividing the area into separate tiers (Figure 1.27). The resulting fan-shaped road system created five camping areas, containing fifty trailer sites and twenty tent sites. Most of the sites had parking areas spanning the width of the loop for the convenience of motorists towing trailers. This layout allowed cars with trailers to pull into the site and exit without backing up.[53] Other sites had traditional pull-in spots. The design of the campground was modeled on concepts developed by E. P. Meinecke, a plant pathologist who promoted a theory for the design of campgrounds and picnic areas for the U.S. Forest Service, which heavily influenced the work done by the NPS. Probable influences on Meinecke's ideas include the work of Andrew Jackson Downing who advocated a naturalistic aesthetic, the rustic camp style architecture found in the Adirondacks beginning in the 1880s, as well as the Arts and Crafts Movement.[54] Meinecke called for a circulation system of one-way loop roads and individual campsites each having a parking space defined by boulder or other barriers and vegetative screening, and include a tent clearing, fireplace, and table. At Big Meadows, all the campsites

included wood picnic tables with metal supports and fire grates (Figure 1.28). The CCC built two comfort stations at opposite ends of the campgrounds, in a traditional log cabin style with pitched roofs covered in chestnut shingles. The CCC also constructed six boulder water fountains and installed trees and shrubs to create screening for privacy between campsites.

During the same year, the NPS awarded a contract to Virginia Sky-Line Company Inc. to become the park concessionaire, which included the responsibility of planning and designing most of the associated facilities within the park. Marcellus Wright, Jr., an architect from Richmond, Virginia, was hired by the Virginia Sky-Line Company to design all of the park concessionaire buildings. Wright's designs were inspired by the site's natural setting which resulted in long buildings comprised of smaller components that could be adjusted to the existing topography.[55] Wright's ideas coincided with the overall NPS rustic style that was being advocated for all the buildings at Shenandoah where primacy was given to the landscape and local building styles and materials were employed to further blend in with the surroundings.

In 1938, the Virginia Sky-Line Company built five cabins at Big Meadows and began construction on the lodge. The cabins were grouped in an informal circular arrangement south and west of the future lodge, facing Blackrock, and were named Petersburg, Bridesburg, Blacksburg, Lynchburg, and Mountain View (Figure 1.29). Wright designed the cabins as simple wood frame T-shaped buildings with hipped roofs. Each cabin contained two separate housing units with a large stone chimney with hearths opening onto both main rooms. The buildings were faced with flitched-edge (wooden board with natural edges) wood siding, which became a recurring architectural theme at Big Meadows. Every housing unit had a separate walkway leading to the entrance. A linen storage building was also constructed adjacent to the cabins.

In July 1939, the Virginia Sky-Line Company completed construction of the lodge. The building was located at the westernmost portion of the site to provide views over the Shenandoah Valley to the distant mountains beyond. The lodge was accessed via Big Meadows Road, terminating at a circular drive in front of the lodge. On the southwest side of the circle was a parking area that incorporated a segment of the road that eventually led back to Big Meadows Road. The parking area was edged with wood guardrails and divided by a wooded island (Figure 1.30). A service drive led to the west side of the building. Wright developed an elaborate massing for the 300-foot long, two-story lodge, incorporating a number of component parts of different materials and with varying roof forms to fit the irregular hillside elevation and to follow the outer mountaintop ridge (Figure 1.31). The effect of the massing and the choice of materials created a village-like scale to the lodge which housed a gift shop, dining room, a lounge, lobby, and second-story accommodations with twenty-six guest rooms.[56] The exterior walls

were of coursed stone masonry, quarried from nearby Massanutten Mountain, with wood siding. The dining room accommodated 150 guests and was oriented so that diners could enjoy views of the surrounding countryside. On either side of the main entrance were a single column of glass blocks, which Wright utilized in many of his designs. On the second floor, above the entrance doors, Wright designed a decorative wood balcony. The rear of the building, facing the valley, featured a flagstone terrace that extended most of the length of the building. Shade trees were planted along the front of the lodge, and it appeared that mature trees at the site were preserved as well (Figure 1.32).

Wright also designed a Wayside building with a gas station at the intersection of Skyline Drive and Big Meadows Road. The building faced Skyline Drive with service and parking located in the rear to preserve the scenic view from the road. Motorists could access the area directly from Skyline Drive and pull up to the gas pumps, or enter off of Big Meadows Road (Figures 1.33–1.35). A parking lot with a planted island provided sixteen parking spaces. The Wayside building, consisting of wood siding and cross gabled sections, included restrooms as well as a coffee shop and gift shop. The coffee shop was located on the south façade of the building, offering diners views of the meadow while they had their meal. The CCC installed foundation plantings around the Wayside building as well as a number of trees and shrubs in the parking lot island.

Also in 1939, the NPS developed a maintenance area, with adjacent employee residences, off of Big Meadows Road (Figure 1.36). A spur curved around a knoll to the south, terminating at the service area. A smaller road led from the spur to employee housing to the west. Another small road provided access to the stable area to the east. Seven service buildings were designed as rectangular one-story frame buildings with concrete floors and footings. They included an Equipment Shed/Garage, Maintenance/Vehicle and Equipment Storage, Blacksmith Shop/Storage Shed, Storage Shed, Carpenter Shop/Storage Building, Warehouse/Storage, a Gas/Oil building, and stables that initially served as an employee garage. The buildings were all faced with vertical slab siding consisting of three- to four-foot half-round boards arranged in parallel rows. The buildings also had gabled roofs covered with wood shingles. The largest maintenance building, the Maintenance/Vehicle and Equipment Storage, was built by private contractors with PWA funds, and the other buildings were CCC work projects. The buildings were organized parallel or perpendicular to each other, forming a rectangular maintenance yard enclosed by a roughly six-foot high wooden palisade fence (Figure 1.37).[57] The layout and design of the maintenance area adhered to ideas advanced by Charles Punchard, who had worked in the early years of the NPS overseeing landscape issues in national parks. Punchard promoted the concept of grouping maintenance facilities as an ensemble of warehouses, workshops, garages, storage and equipment sheds, and stables arranged for efficiency and located on side roads, away from park visitors.[58]

Other CCC-related projects at Big Meadows included a Visitor Contact Station at the center of the campground. The Contact Station was designed as a rustic style log building with a stone and mortar foundation and a pitched roof covered with chestnut shakes. The walls were constructed with squared, V-notched logs and mortar chinking, and the south façade featured a large fieldstone chimney (Figures 1.38 and 1.39). The CCC also constructed a number of trails throughout the site including a bridle path from northeast to southwest roughly paralleling Skyline Drive and passed by a stable at the maintenance area. The Lewis Falls Trail was another CCC-built trail comprised of a winding three mile foot trail that began near the lodge and wrapped around the west side of the mountain descending to Lewis Spring Falls, a picturesque waterfall descending into a gorge. In addition, the CCC constructed a variety of rustic wood signs throughout the Big Meadows site. The largest signs were typically constructed out of chestnut logs with wood panels hanging by metal straps (Figure 1.40).

In the early 1940s, the NPS developed designs for a recreational area located on the west side of Big Meadows Road between the maintenance area the lodge and cabin area. Plans from 1940 and 1941 included a tennis court, swimming pool with bath houses, and parking. Remnants have been found suggesting that at least the tennis courts and a fence were constructed, but further investigation is needed. In 1941, the Virginia Sky-Line Company constructed a new multiple-unit accommodation, designed by the firm of Ballou and Justice from Richmond, Virginia, and located south of the lodge on the opposite side of the parking area from the guest cabins. The eight-unit structure, called Piedmont Cottage, was a wood frame building with cross gabled sections on either end and faced with vertical board-and-batten siding. A porch ran along most of the length of the building. Two walkways led from the parking lot to either end of the building. During the same year, Secretary Ickes designated a rock formation on the northeastern side of the meadow as a memorial to Robert Fechner who had directed the CCC until his death in 1939.[59]

WORLD WAR II AND POST-WAR DEVELOPMENT

After the attack on Pearl Harbor on December 7, 1941, the United States entered World War II, ending most development in the park until after the war. As the country directed all its manpower toward the war effort, the CCC camps were closed by the end of March 1942.[60] The park's workforce at this time shrank to 1/20th of its size.[61] Some former CCC foremen and technicians remained at the park for a short time to help close down operations. Visitation at the park drastically declined with most resources, including fuel, directed to the war effort.

In July 1942, the Big Meadows Lodge closed and two months later all park concession facilities closed as well. In August, the Civilian Public Service (CPS) established a camp for conscientious objectors in Shenandoah National Park,

in the former CCC camp NP-10 at Pinnacles. The CPS provided work for men unwilling to serve in the military based on religious upbringing or belief. At Shenandoah, the CPS took over fire and erosion control projects previously done by the CCC continued the revegetation efforts, installed utilities, and built trails, roads, and park structures. They were also assigned to raze pre-park structures. CPS workers did not receive wages and were financially supported by their churches or families.

Other activity in the park during the war involved the U.S. Army Corps of Engineers who established training camps throughout the park. During this time, soldiers from the Engineer Replacement Training Center (ERTC) at Fort Belvoir, Virginia were assigned to do team training within the park to simulate as much possible life in an active combat theatre. At Big Meadows, a base camp was established slightly south of the former Camp Fechner CCC Camp to serve as a repository for provisions and supplies from which other battalions would operate during training maneuvers. The base camp contained approximately 2,000 men at all times, and included a city of small pup tents and prefabricated buildings that were used a chapel, mess hall, camp commander's office, dispensary, and recreation hall. Within the park, soldiers constructed and repaired roads, bridges, and trails, and assembled power, telephone, and water lines and machine gun nests in the park in preparation for the Italian campaign (Figures 1.41–1.47).[62] However, the use of the area was not without restrictions. Care had to be taken to preserve the natural features of the park, and to avoid damaging individual objects of geological or historical value. Road and bridge construction had to be approved in advance by the park superintendent. At this time, the army also demolished CCC camps including many Fechner facilities at Big Meadows.[63]

In 1945, the NPS moved a building from the vicinity of Rapidan Camp to the maintenance area at Big Meadows for use as a ranger's quarters. The building, originally constructed in 1930 by President and Mrs. Hoover as a schoolhouse for local children, consisted of a frame, gable-roofed building with wood siding and concrete-block foundations. A small gabled porch covered the entrance. The building was expanded at both the front and rear, and interior partition walls were added (Figure 1.48).[64]

By 1946, all concession facilities at the park reopened, including Big Meadows, but business was slow to return. The CPS camp also closed in June.[65] Visitation at the parks began to rise by the late 1940s, generating a need for more guest lodging. The Virginia Sky-Line Company built two more multi-unit buildings, Blackrock and Hawksbill Cottages, located adjacent to the Piedmont Cottage and designed in the same style with cross gable sections and vertical board and batten siding.

In 1951, the Superintendent of Shenandoah National Park renewed a twenty-year term contract with Virginia Sky-Line Company to help expand Skyland and Big Meadows' overnight capacity. During the same year, mileposts were installed

along Skyline Drive, and in 1952 guardwalls were completed at the South District, marking the official completion of the drive.[66] During this time, pressure was mounting from Washington to end segregation of NPS facilities at Shenandoah National Park. Secretary Ickes mandated full desegregation in the parks. After several park-wide attempts to limit or end segregation, both blacks and whites were using the Lewis Mountain picnic area by October 1947. In 1950, a park planner from Washington visited the park and spoke with personnel as well as tourists. The planner reported back with the conclusion that the park was fully integrated.[67]

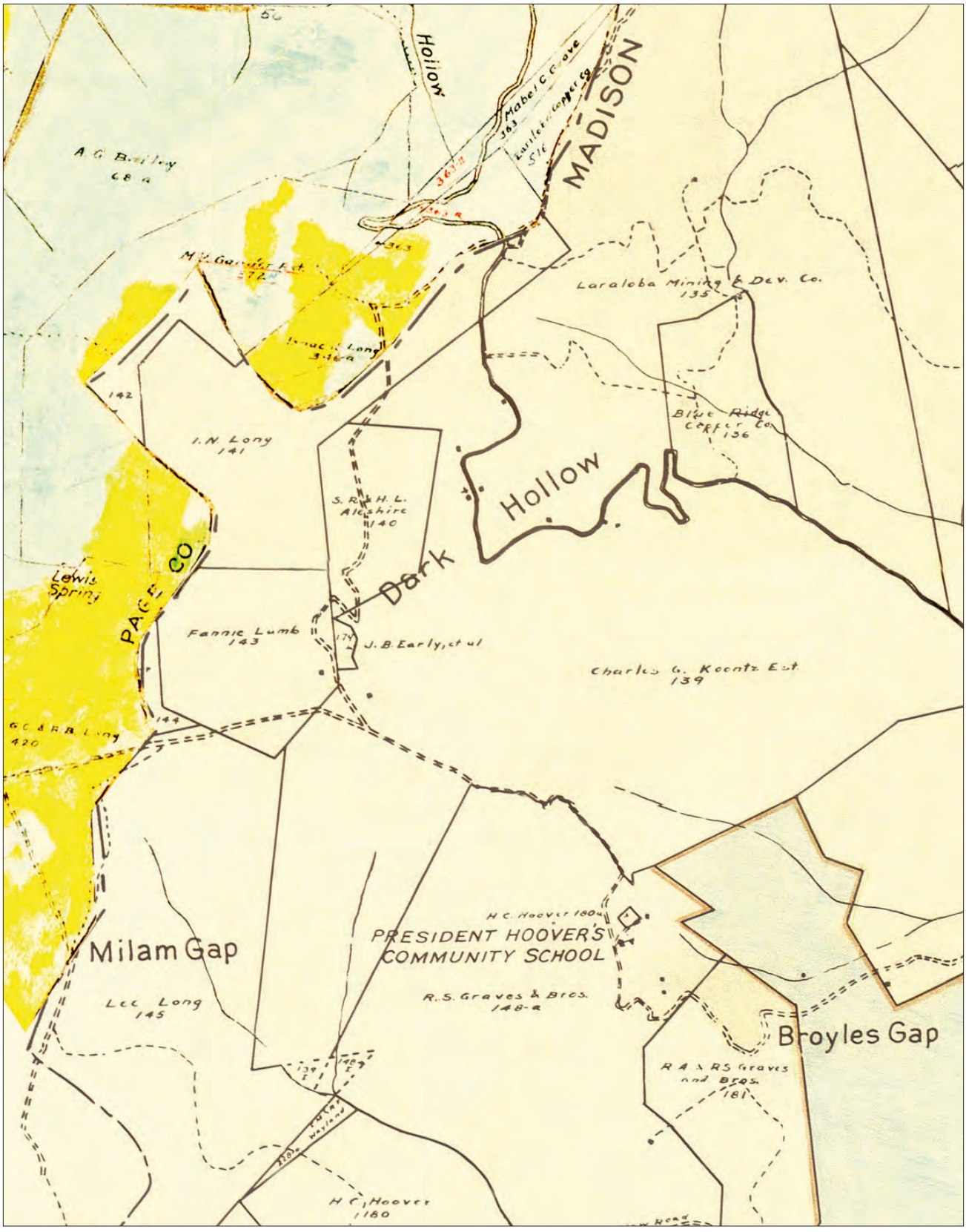


Figure 1.5. A composite of maps created by the U.S. Geological Survey showing the Proposed Shenandoah NP falling within Madison and Page Counties. Shown on the map are the circulation patterns and property boundaries within the Big Meadows project area (SHEN Archives, US Geological Survey).



Figure 1.6. Oblique aerial photograph, taken in July 1929, showing President Herbert Hoover's camp site and Marine Camp. Shown in the background is the Big Meadows area (indicated by the red rectangle). Note the open character of the area in 1929 (Marine Camp Airscapes, Courtesy of Photographic Officer).

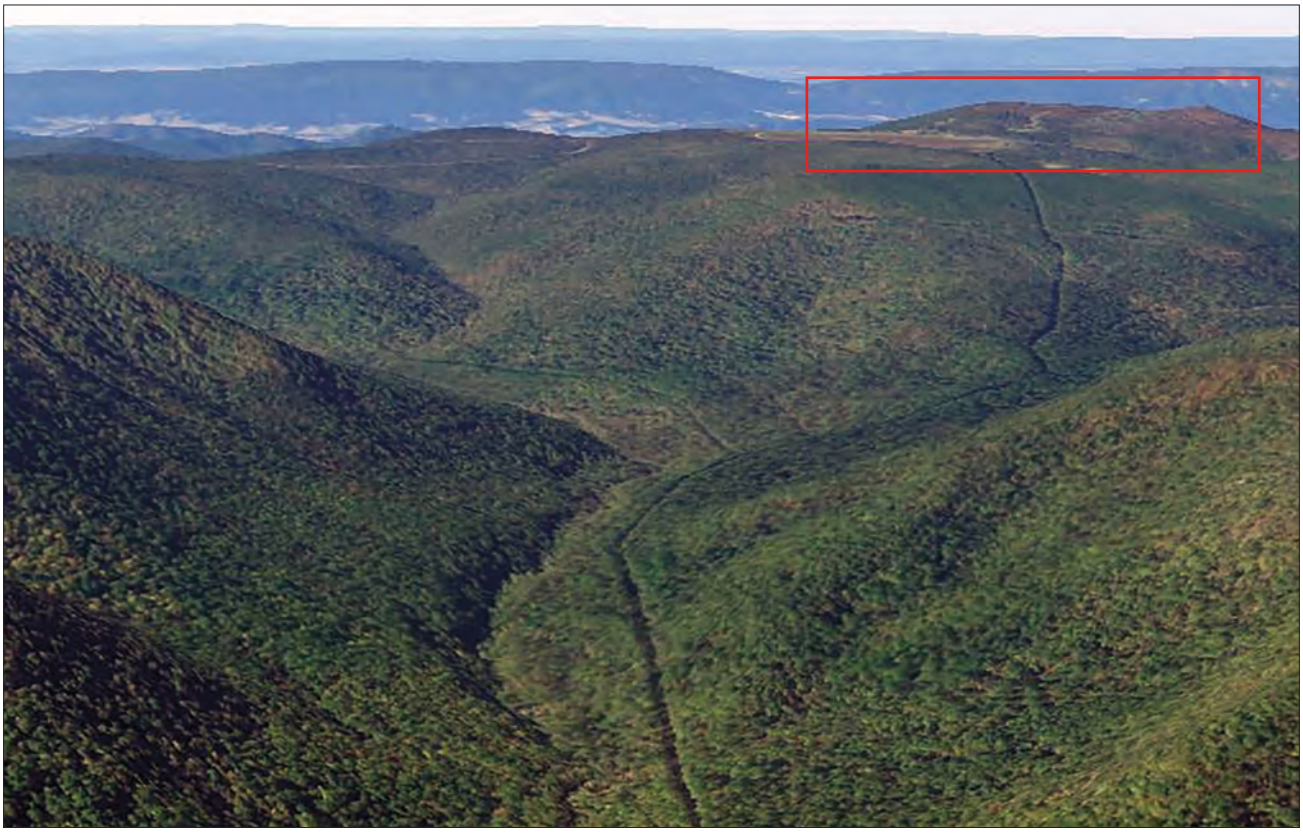


Figure 1.7. Simulated vantage point from a 2017 aerial photo showing a more forested landscape (Google).

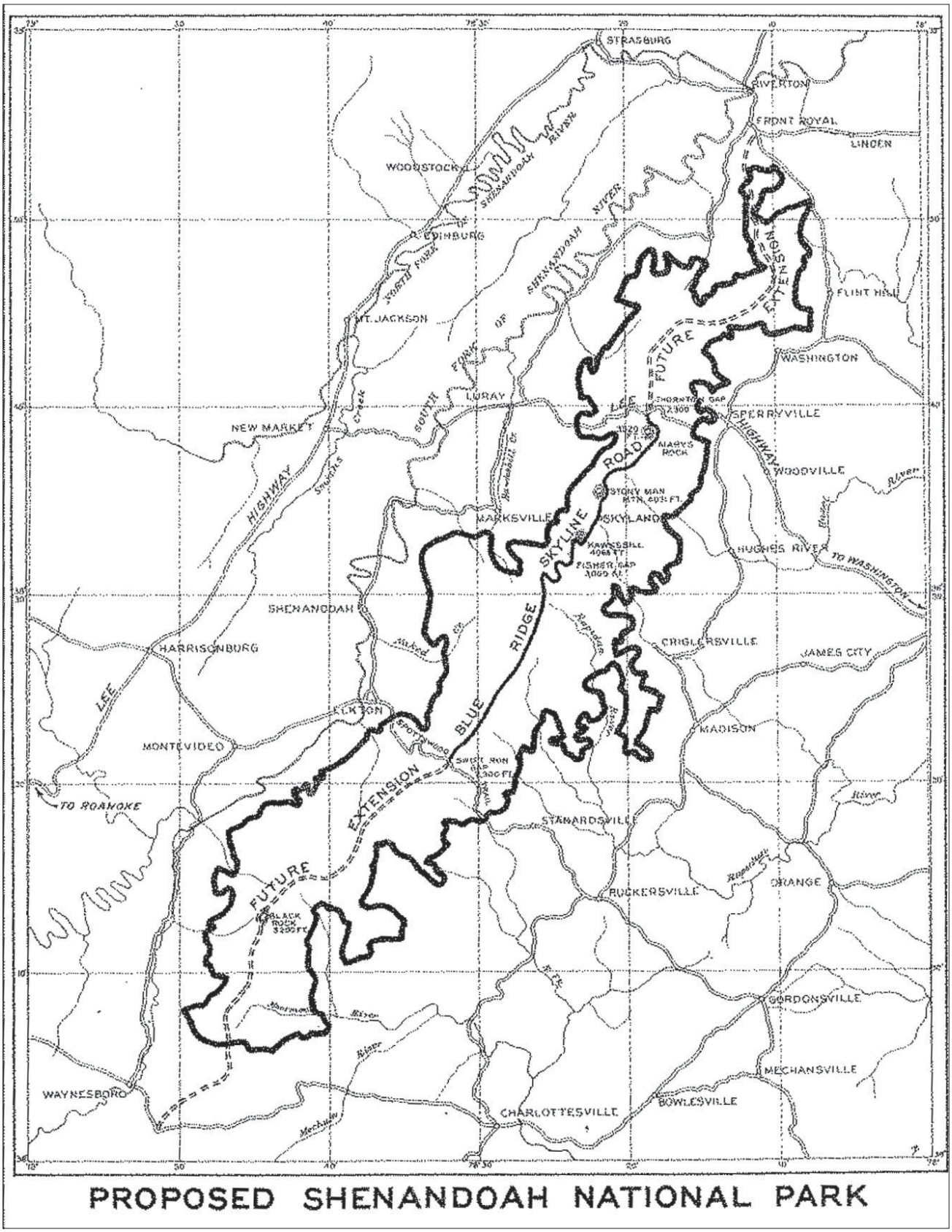


Figure 1.8. This map of the "Proposed Shenandoah National Park" issued in the Department of the Interior press release of March 25, 1931, showed the proposed initial section of the Skyline Drive from Panorama to Swift Run Gap. (Reed Engle, *The Greatest Single Feature...A Sky-Line Drive*, 2006).



Figure 1.9. View of the CCC Camp NP-2 located at Big Meadows. Established in the early 1930s, the camp began as a group of surplus tents, field kitchens, and latrines. More permanent buildings were later constructed. (Shenandoah NP Archives).



Figure 1.10. View of CCC Camp NP-2, later named Camp Fechner, at Big Meadows in the late 1930s (Shenandoah NP Archives).



Figure 1.11. View of the entrance to the CCC Camp established at Big Meadows in the 1930s. Note the wooden fencing and young tree plantings along the entrance drive (Shenandoah NP Archives).

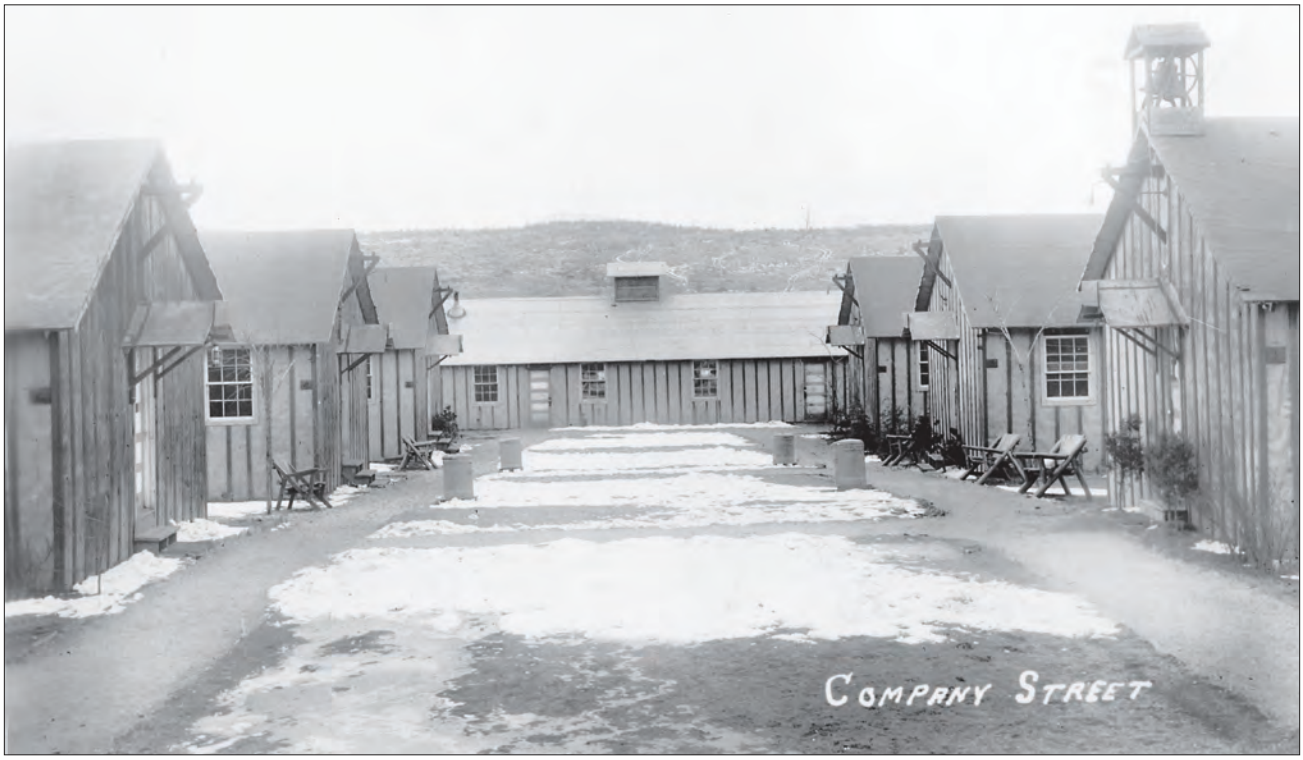


Figure 1.12. View of the buildings located at CCC Camp NP-2, later named Camp Fechner. Shown is the image are the barracks, the bath house (background) and tech and army quarters buildings (right foreground) (Shenandoah NP Archives).



Figure 1.13. Panoramic image of the CCC Camp No. 2, later referred to as Camp Fechner, at Big Meadows in 1934. Note the open character of the meadow and ghost forest in the background (Shenandoah NP Archives, Camp Fechner, Home of CCC Co. 350, Big Meadows, Luray, VA Sept. 1934).

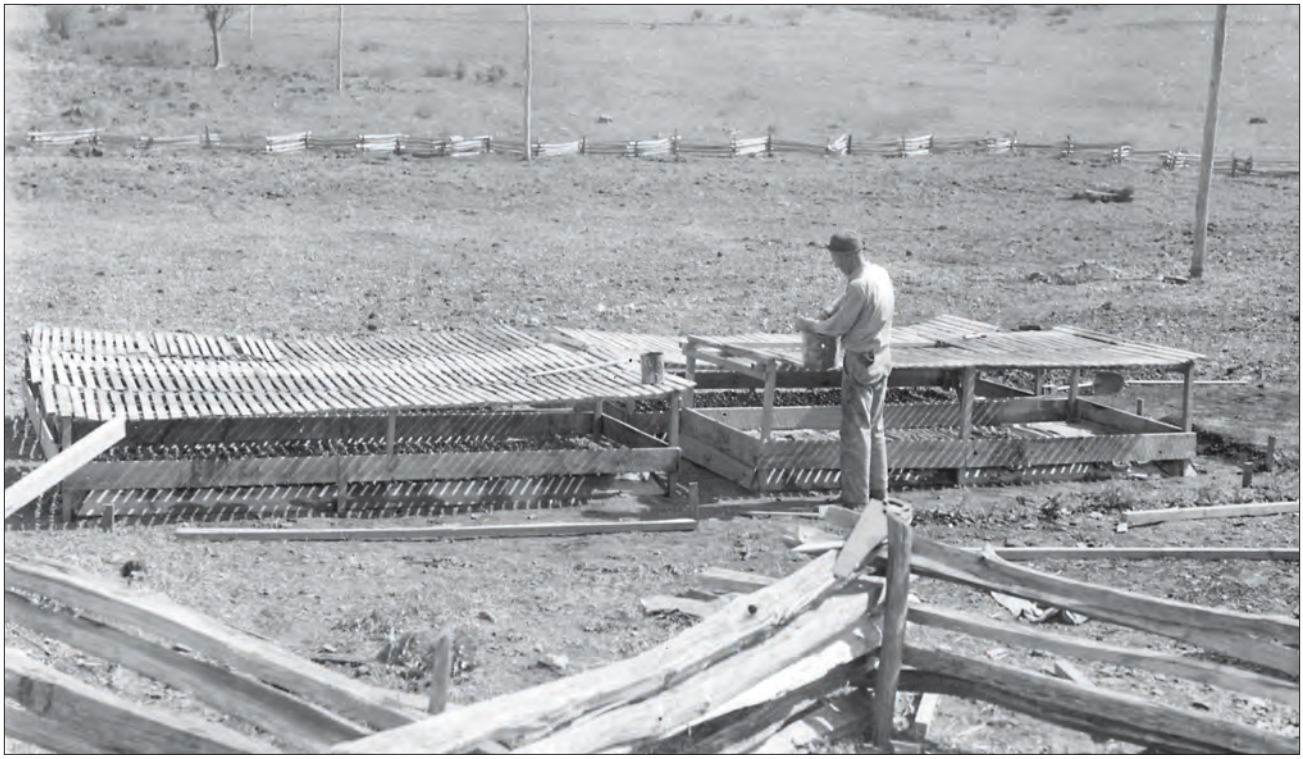


Figure 1.14. View of the seed and transplant flats located within the nursery at the CCC camp in Big Meadows (Shenandoah NP Archives).

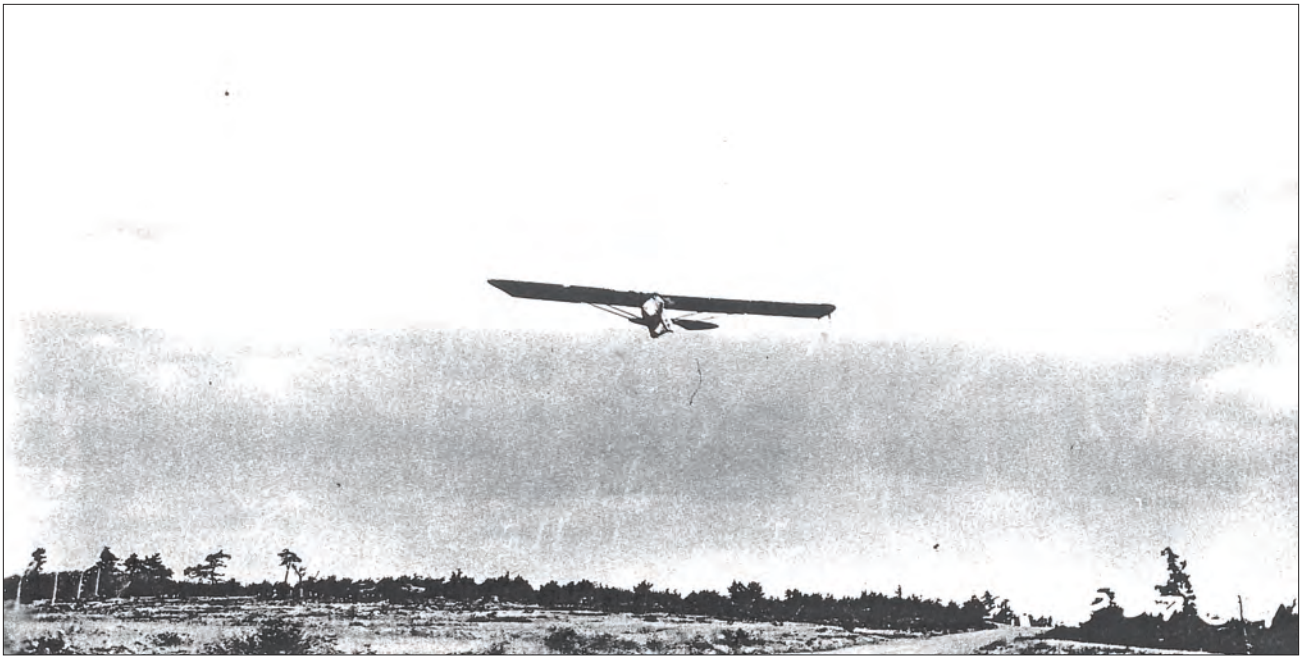


Figure 1.15. View of sailplane aloft at Big Meadows in 1935 (Shenandoah NP Archives, Negative No. 826-I).

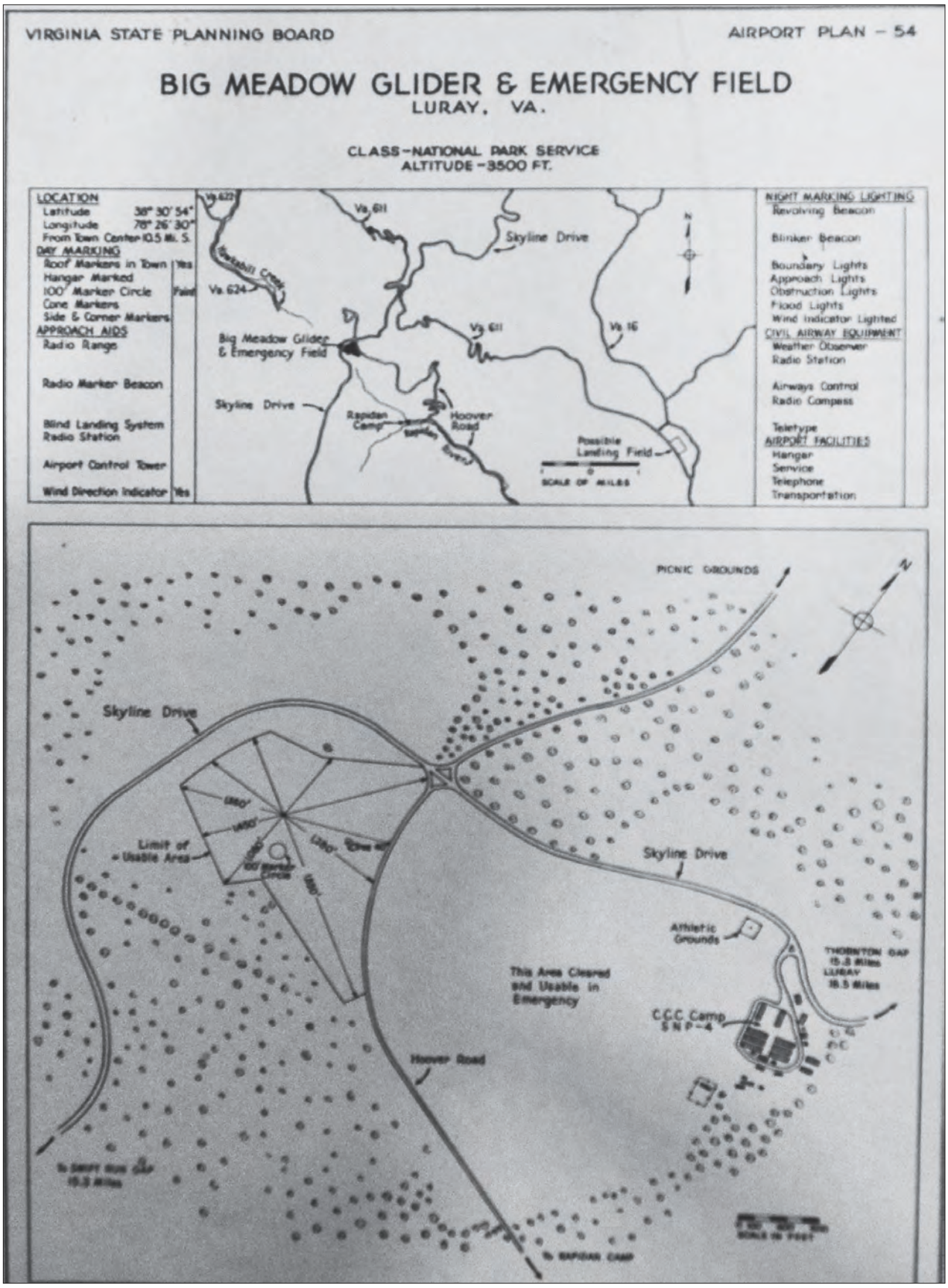


Figure 1.16. Plan of the Glider and Emergency Field at Big Meadows. Note the CCC Camp NP-2 and athletic grounds to the east (University of Virginia Archives).



Figure 1.17. Stand of dead chestnut trees, also known as "ghost forests," at Big Meadows development entrance off of Skyline Drive between 1936 and 1938. The road in the foreground is Rapidan Road (Shenandoah NP Archives, Classification B 200-2, Negative No. P-438f).



Figure 1.18. View from the access road to the Big Meadows lodge looking southeast showing the open, shrubbery character of the Big Meadows area in late 1930s. A wetland basin can be seen to the left of the road (Shenandoah NP Archives, Classification B 200-2, Negative No. P-438f).

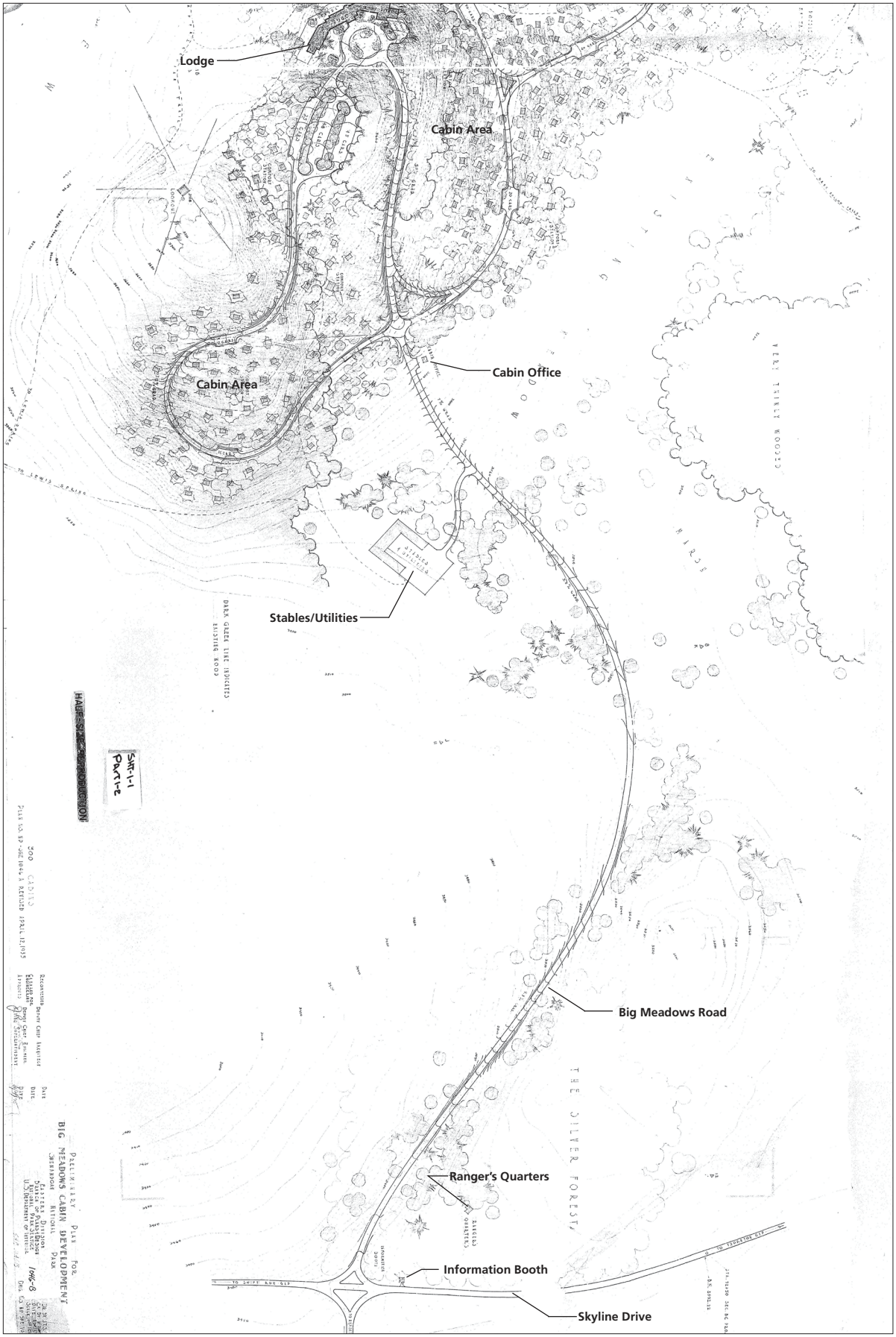


Figure 1.19. Preliminary development plan for Big Meadows in 1935 (SHEN 134-1046B, Doc. Id. 336205, Denver Service Center).

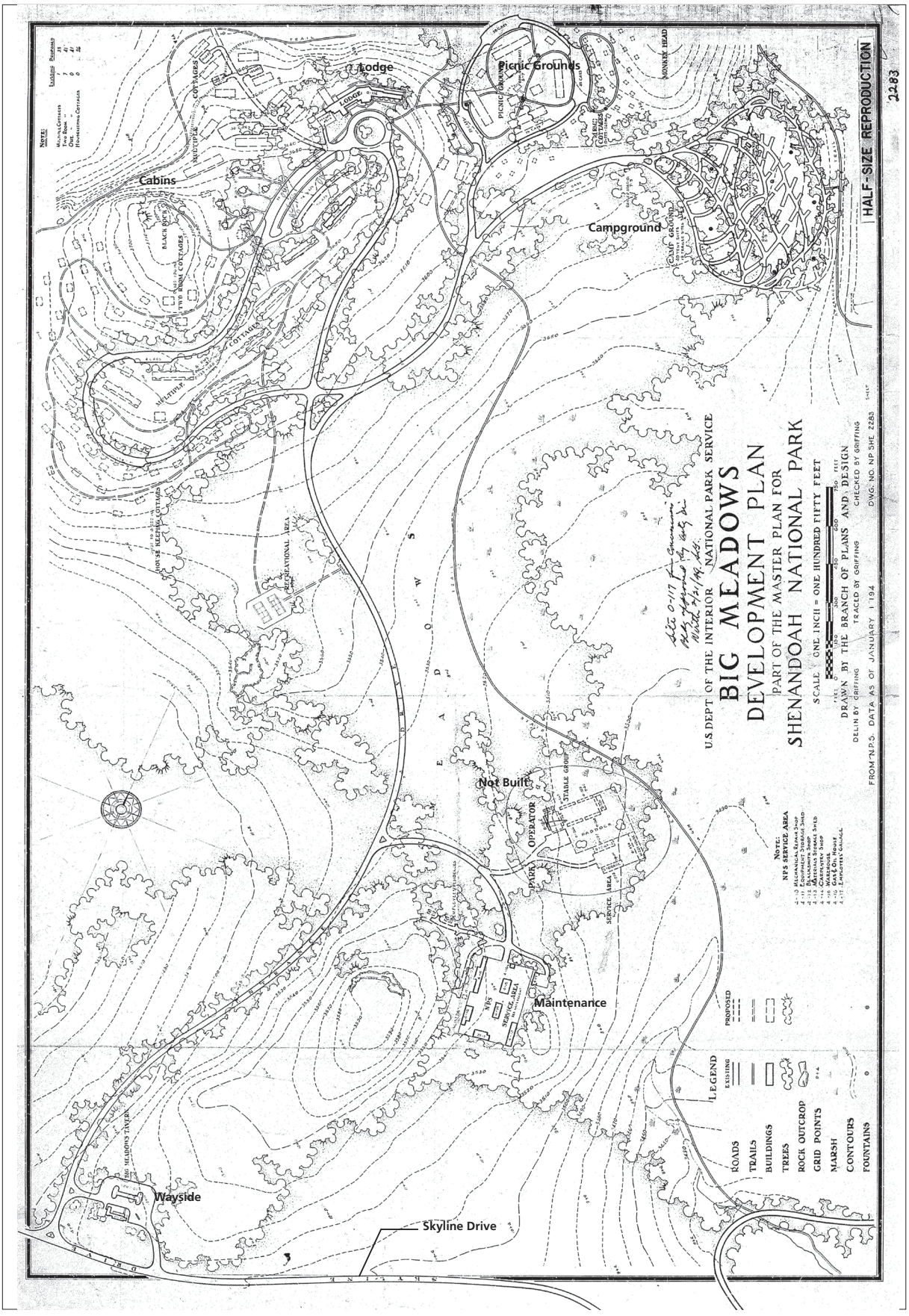


Figure 1.20. Master Plan for Big Meadows from the early 1940s (SHEN 134-2283, Doc. Id. 336486, Denver Service Center).

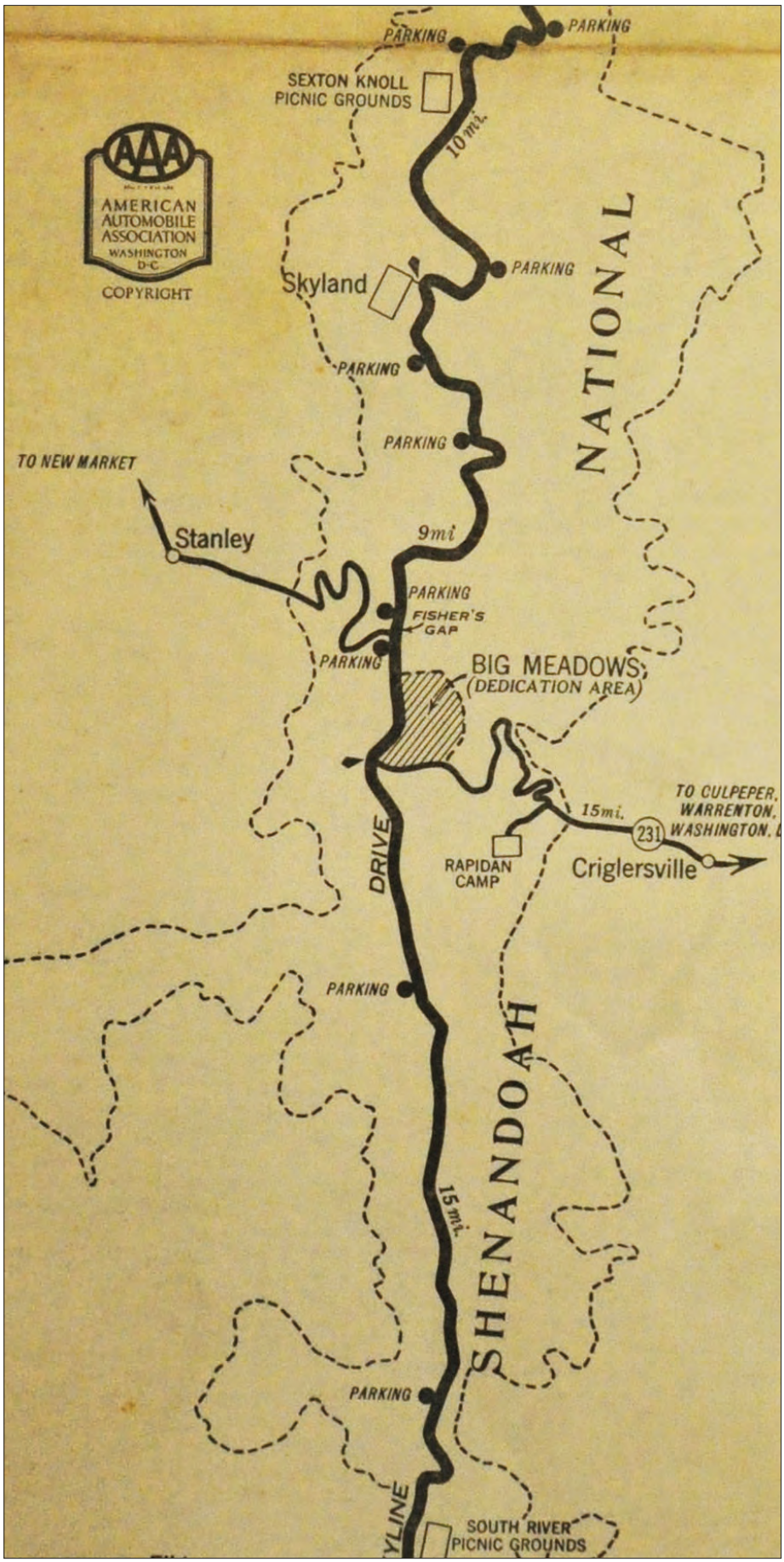


Figure 1.21. Plan identifying parking areas for the dedication of Shenandoah National Park. Big Meadows was the site of the dedication by President Franklin Delano Roosevelt, July 3, 1936 (University of Virginia Archives).



Figure 1.22. View looking east towards the Shenandoah National Park dedication site at Big Meadows. Note the large stands of dead chestnut trees in the background, located in the approximate location of the current visitor center (SHEN NP Archives).



Figure 1.23. View looking south towards the Shenandoah National Park dedication site at Big Meadows. Note the CCC Camp NP-2, later named Camp Fechner (SHEN NP Archives).

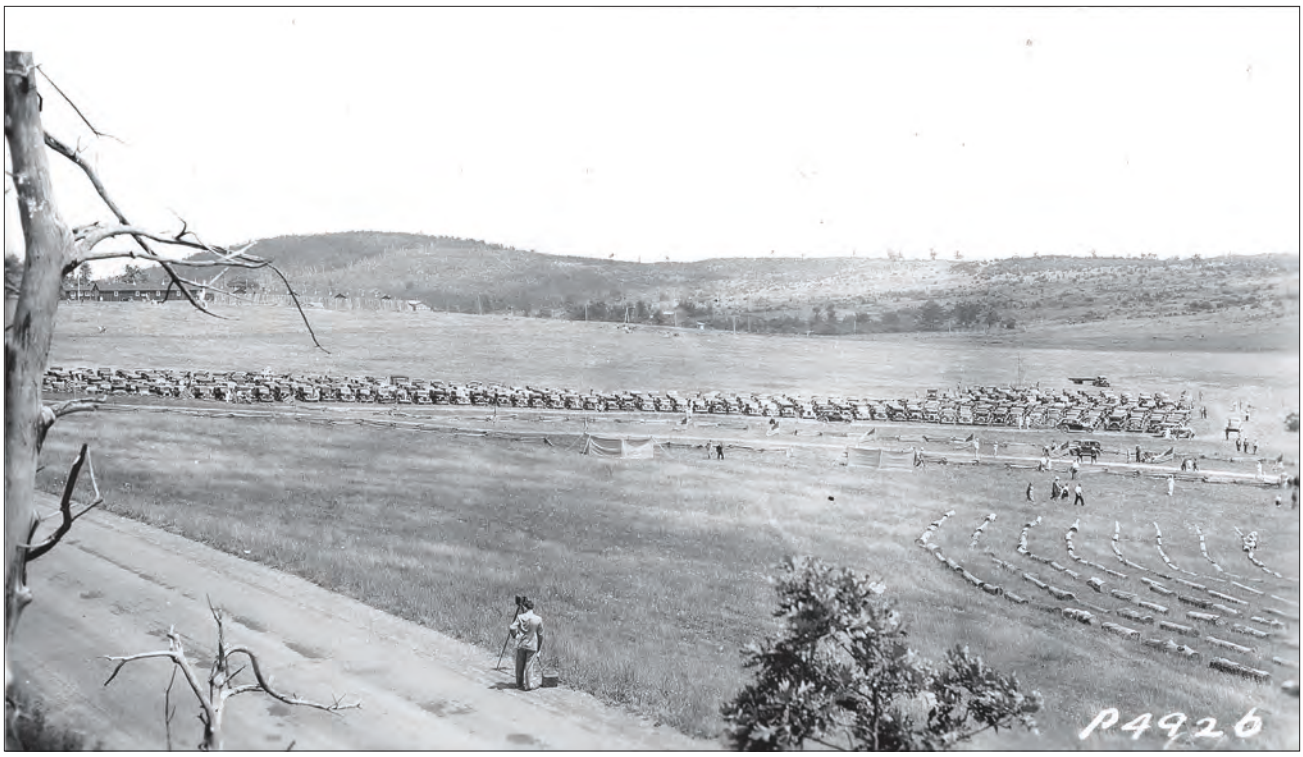


Figure 1.24. View looking southwest towards the dedication cermony for Shenandoah National Park, held at Big Meadows, July, 1936. Skyline Drive can be seen in the foreground and the CCC Camp, No. 2, can be seen in the background (SHEN Archives, Neg. P492b ANCS 02926).



Figure 1.25. Dedication ceremony for Shenandoah National Park, held at Big Meadows, July, 1936. President Roosevelt is in the car in the foreground (Shenandoah website). Note the dead chestnut trees in the upper left hand corner.

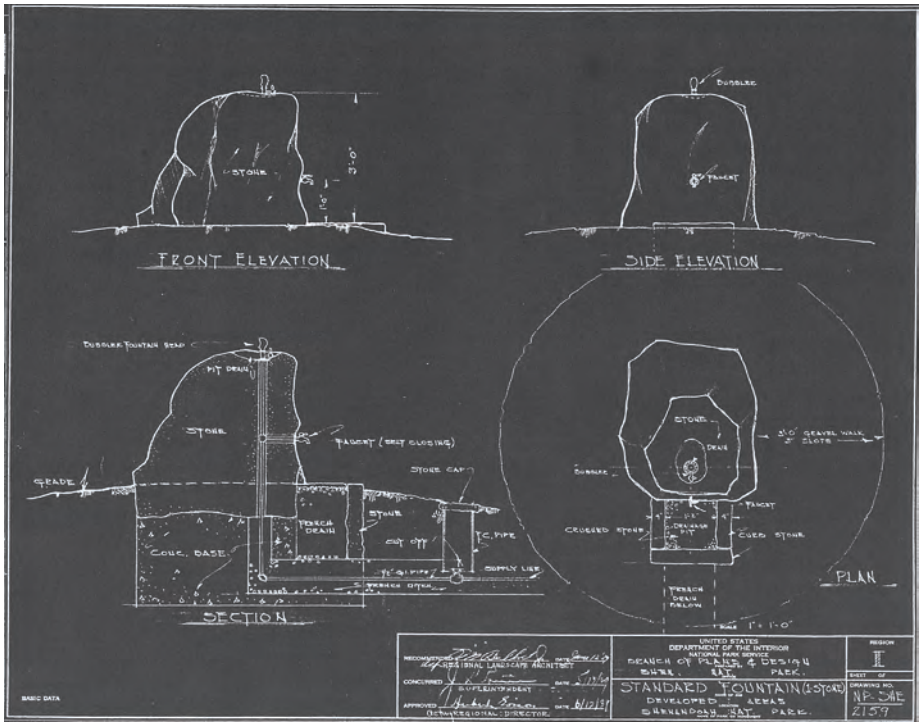


Figure 1.26. Architectural details for typical boulder drinking fountain installed at Big Meadows and other developments along Skyline Drive (Shenandoah NP Archives, scanned from "The Greatest Single Feature" by Engle, 2006:107).



Figure 1.27. Two historic images of the campground layout at Big Meadows in the late 1930s showing the tiered circulation system. Note in the bottom image the newly constructed Rangers' Station at the entrance to the campground (Shenandoah NP Archives, Classification 0-97, Negative No. P-646e, undated).



Figure 1.28. Typical stacked stone grill constructed by CCC at the campground at Big Meadows in 1937 (Shenandoah NP ArchNegative No. 665-5).



Figure 1.29. View from 1940 of cottages designed by Marcellus Wright, Jr. and constructed by Virginia Sky-Line Company at Big Meadows, with Blackrock beyond. In the foreground is the parking area for the cabins and the Lodge, edged with log guardrails (Shenandoah NP Archives, Negative No. 613-7).



Figure 1.30. View of the Big Meadows Lodge in 1941 and driveway loop, with a parking lot in the foreground (Shenandoah NP Archives, Negative No. 665-5).

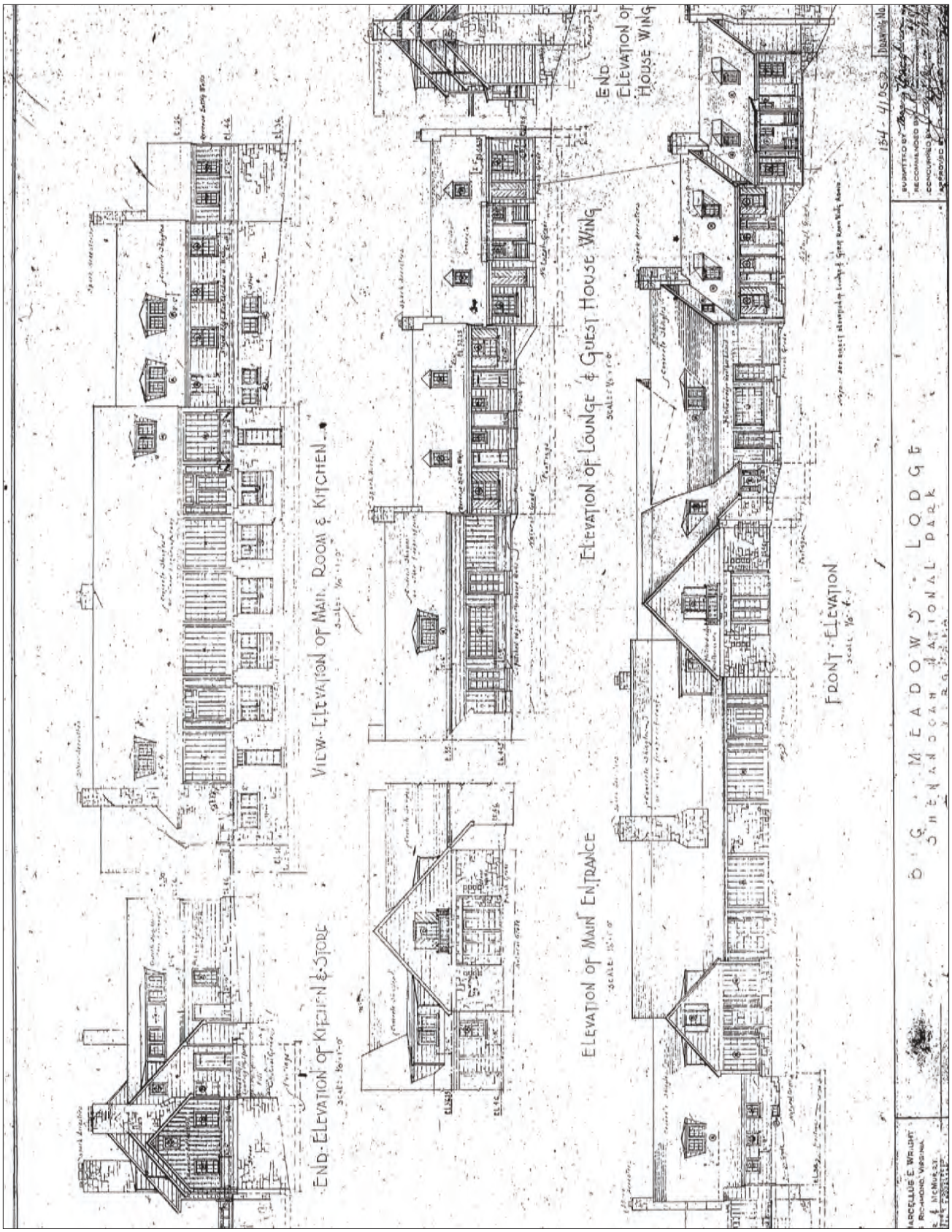


Figure 1.31. Elevations of Big Meadows Lodge designed by Marcellus Wright, Jr. in 1938 (SHEN 134-4105, Id. No. 335174, Denver Service Center).

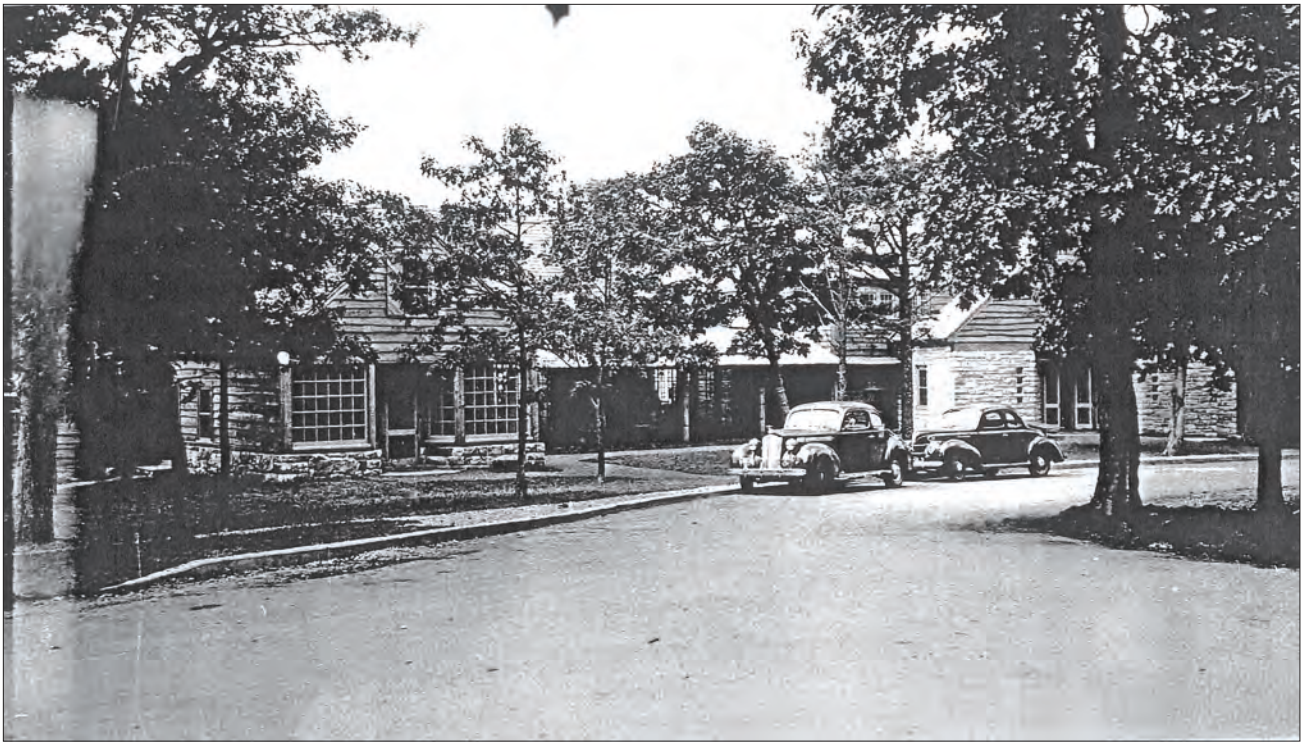


Figure 1.32. View of circular drive and entrance to Big Meadows Lodge in 1939 (Shenandoah NP Archives, Classification N-7-5, Negative No. 911-4).



Figure 1.33. View of the Wayside station along Skyline Drive at Big Meadows in 1938 with wooden sign by the road to the right (Shenandoah NP Archives, Classification N-7-5, Negative No. 912-3).



Figure 1.34. View of Wayside station in 1939 showing the gas station, parking area and planted island (Shenandoah NP Archives, Classification N-7-5, Negative No. 912-7).



Figure 1.35. View of the Wayside station along Skyline Drive at Big Meadows in late 1930s showing the parking lot, planted island, and CCC installed foundation plantings. Note the stands of dead chestnut trees in the background (Shenandoah NP Archives, P765b).

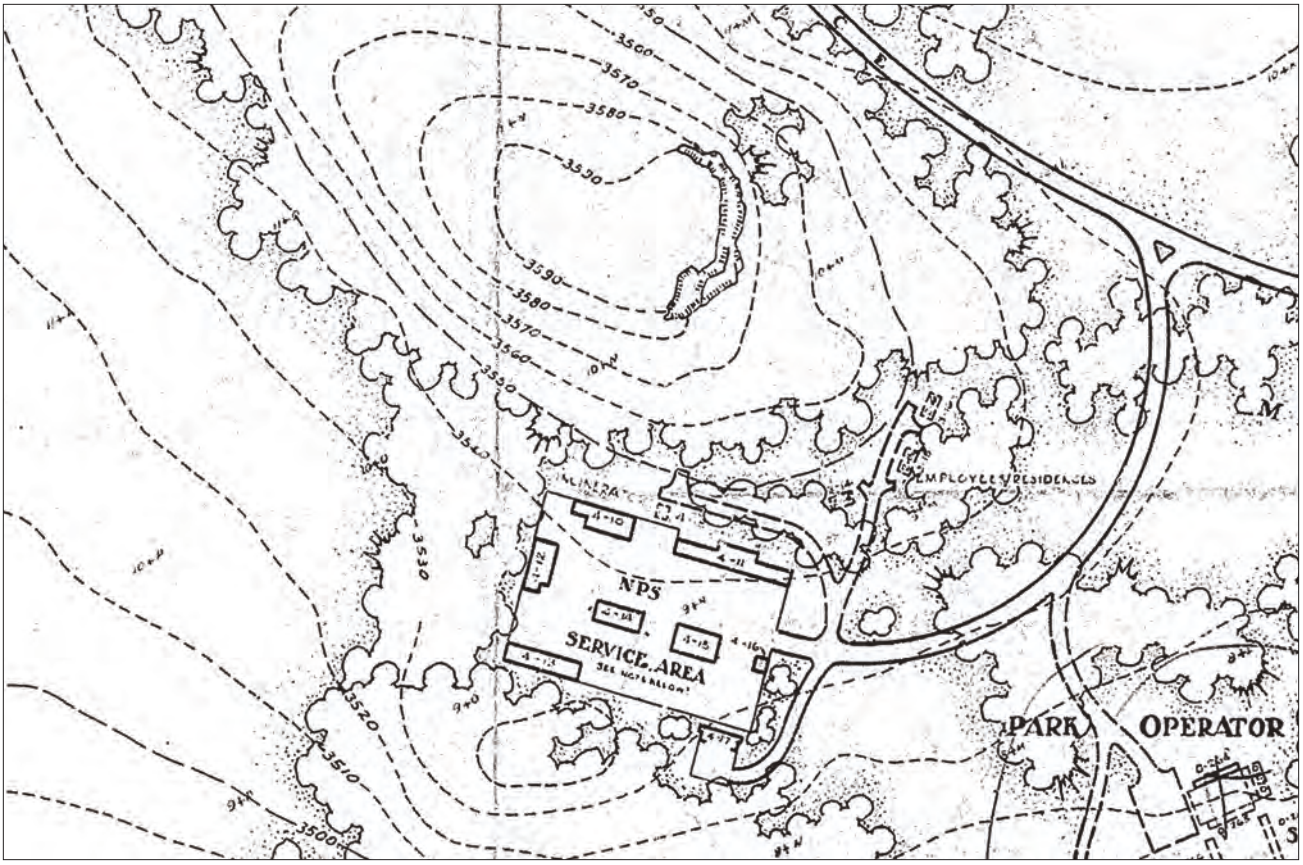


Figure 1.36. Plan of Big Meadows maintenance area from 1937 (SHEN 134-2057, Doc. Id. 336384, Denver Service Center).

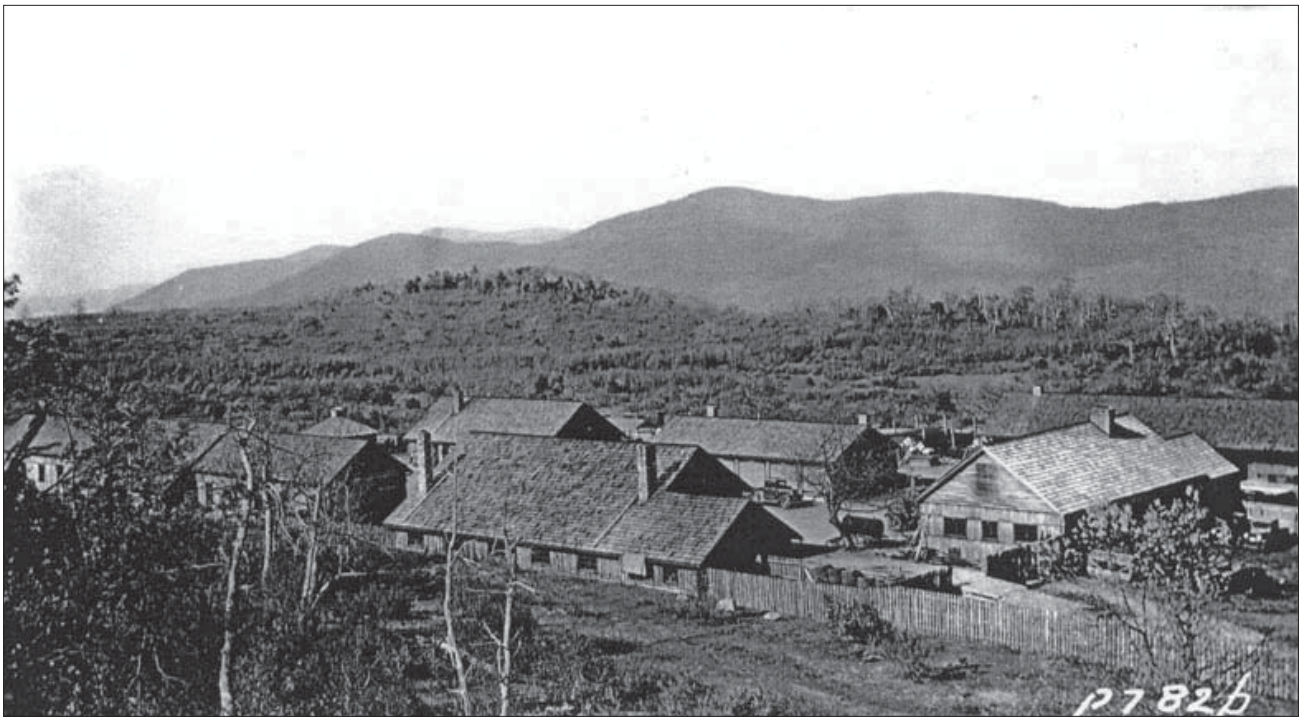


Figure 1.37. View of maintenance area, looking from southwest, at Big Meadows in 1940 (Shenandoah NP Archives, Neg. No. P-782b).

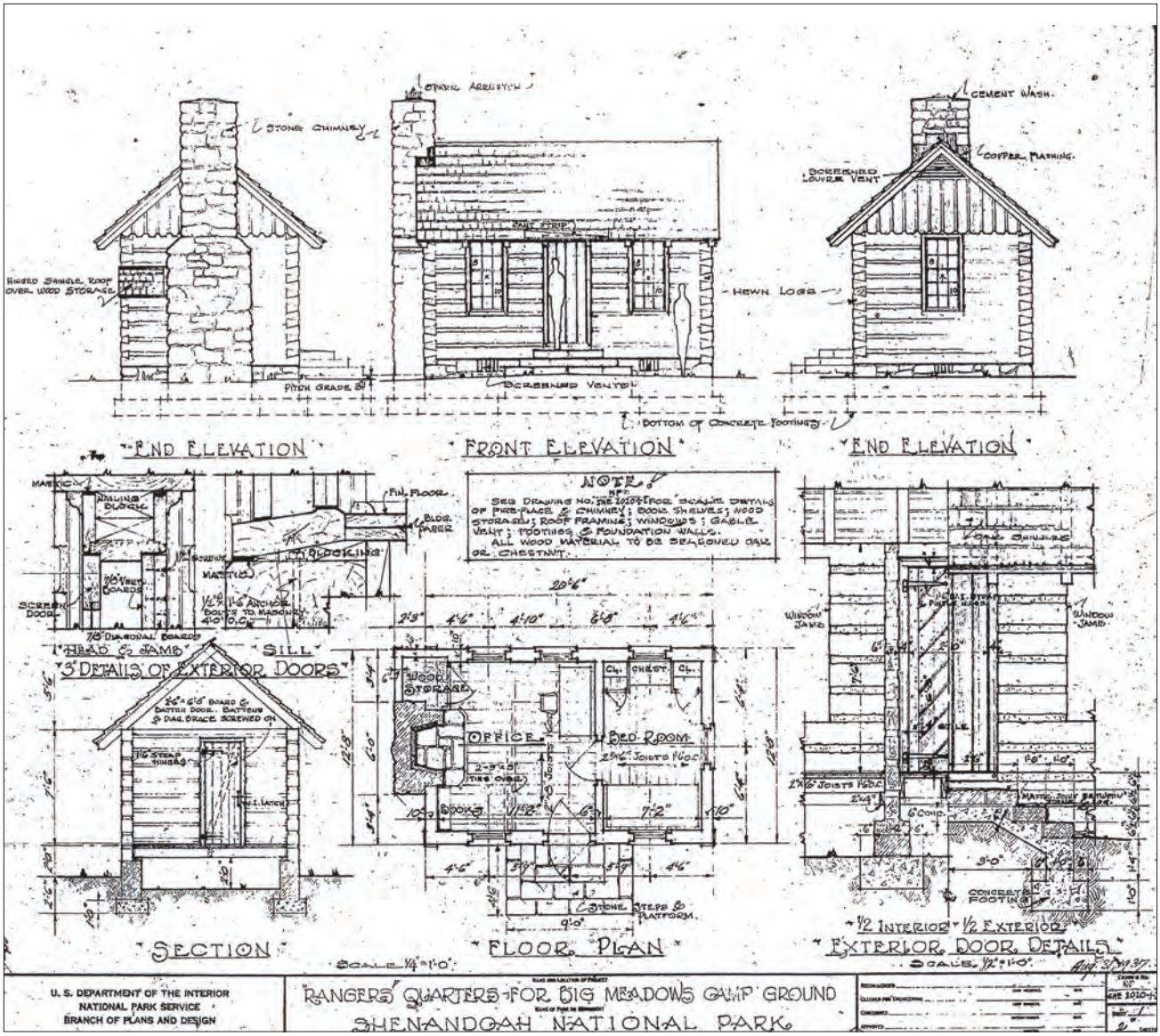


Figure 1.38. Plan of the Rangers' Quarters (Station)



Figure 1.39. View looking south towards the Rangers' Station, constructed in 1939 at the entrance to the campground. Note the open character of the landscape in the background (ETIC, SHEN_134_2020 and Shenandoah NP Archives).



Figure 1.40. Wooden sign at Big Meadows Wayside in 1939 (Shenandoah NP Archives, Classification P-9, Negative No. P-736d).



Figure 1.41. U.S Army Corps of Engineers soldiers from the Engineer Replacement Training Center at Fort Belvoir, Virginia constructing roads in the park. The soldiers were stationed at the time at a training camp at Big Meadows, (Shenandoah NP Archives, Road Construction in the Field #9).



Figure 1.42. Bridge constructed by the U.S. Army Corps of Engineers in the 1940s (Shenandoah NP Archives, Bridge Construction #3).

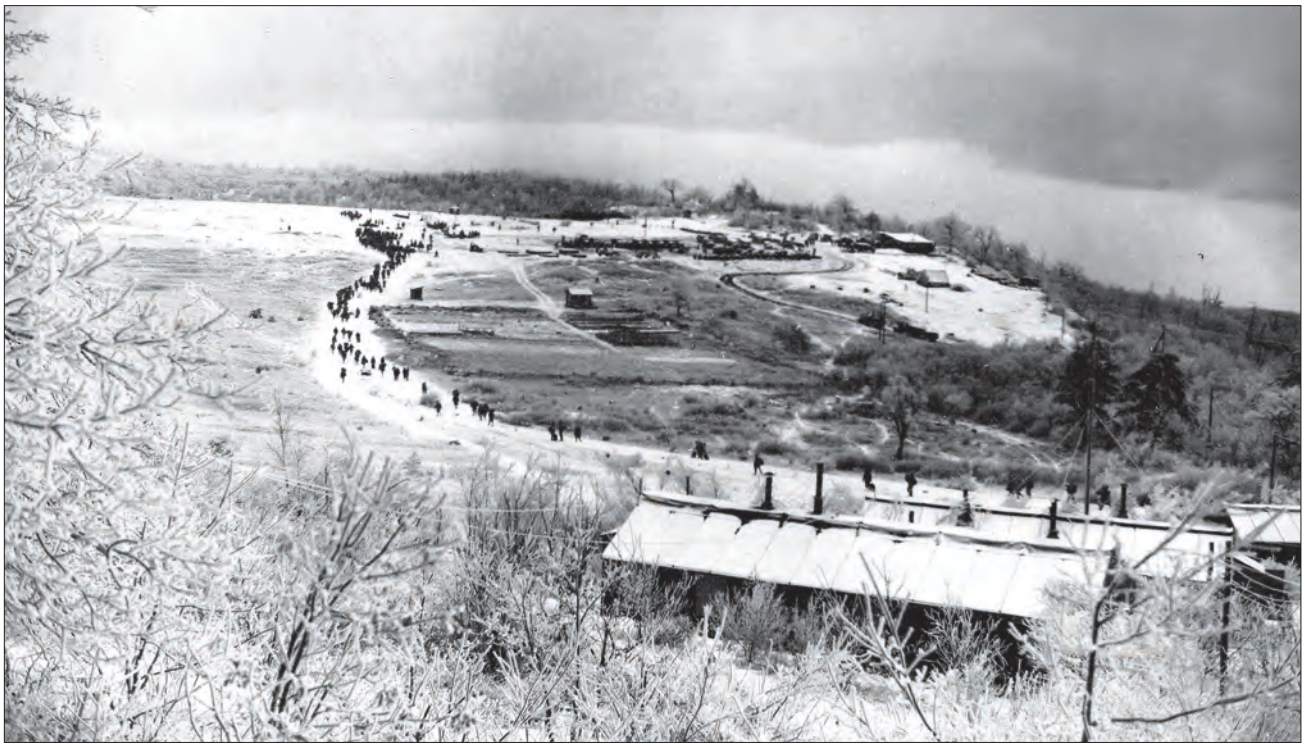


Figure 1.43. U.S. Army Corps of Engineers training camp and road construction at Big Meadows (Shenandoah NP Archives, Road Construction in the Field #9).



Figure 1.44. U.S. Army Corps of Engineers training camp at Big Meadows (Shenandoah NP Archives, Bridge Construction #3).



Figure 1.45. View looking south from Big Meadows of the camp set up by U.S. Army Corps of Engineers in 1943 for training activities during World War II (Shenandoah NP Archives, Negative ANCS # 02237).



Figure 1.46. View of camp set up by U.S. Army Corps of Engineers in 1943 for training activities during World War II (Shenandoah NP website).

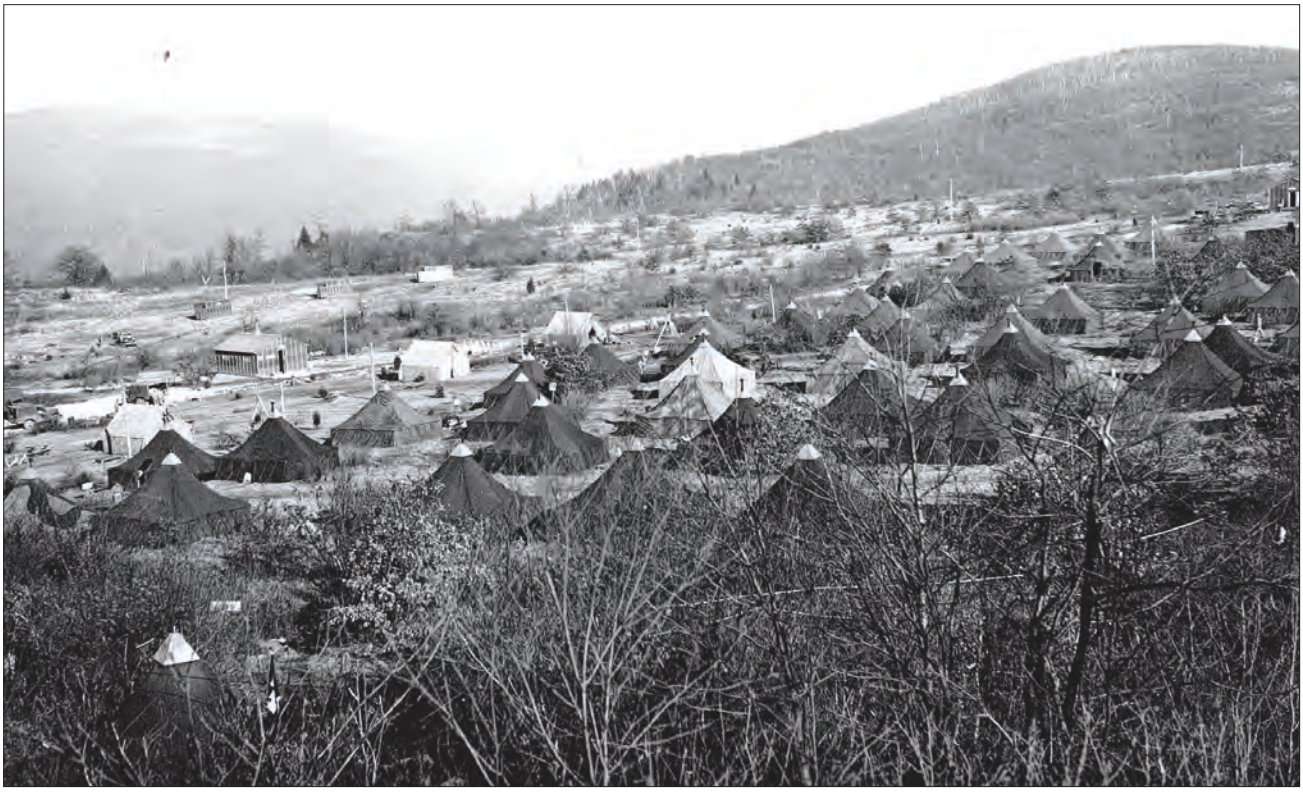


Figure 1.47. View of camp set up by U.S. Army Corps of Engineers in 1943 for training activities during World War II (Shenandoah NP Archives, Negative ANCS #02238).



Figure 1.48. View of the Hoover School constructed in 1930 for local children. The building was relocated to the maintenance area at Big Meadows in 1945 for use as a ranger's quarters (Shenandoah NP Archives, Negative 01927 P223e Hoover School).



Cultural Landscape Report

Big Meadows

Shenandoah National Park

1952 Period Plan

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

SOURCES

1. Plan of the Glider and Emergency Field at Big Meadows
2. Aerial Photography, 1937 and 1958.
3. Appalachian Trail maps, 1927, 1933, 1938, 1955, and 1961.
4. USGS GIS Survey, 1930
5. Camp Boundary, CCC NP-2, 1942 (SHEN Archives)
6. 1943 Camp Site (ERTC).

DRAWN BY:
John Hammond, OCLP
Michael Commisso, OCLP

LEGEND

- Buildings
- Roads/Parking
- Trails
- Trees/Forest
- Wetlands
- Creeks
- Contours
- Rock Outcrops

NORTH

0′ 650′ 1300′

DRAWING 2

LATER DEVELOPMENT / NATIONAL PARK SERVICE ERA: 1953 TO PRESENT

In 1955, the National Park Service moved five small tourist cabins from Swift Run to the Big Meadows area on the lodge and cabin loop road. Today referred to as Cottages A through E, the buildings were originally intended for guest accommodations, but were used as employee residences after they were moved to Big Meadows.[68] Four of the cottages were identical two-room cottages with an attached bathroom in the rear. These were side-gable structures with double entrances on the long side and either six-over-six or replacement one-over-one double-hung windows. The frame buildings had concrete-block foundations and were covered with horizontal wood siding, and featured small porches supported by thin posts. A fifth cabin, Cottage A, was similar to the other four cabins but had only a single room and bath. All of the porches were removed when the cabins were relocated.

In the mid-1950s, the NPS was planning "Mission-66," an ambitious ten-year development program designed to upgrade facilities in the national parks to modern standards to accommodate increased visitation after World War II. The goal was to develop and adequately staff NPS facilities by 1966, the fiftieth anniversary of the agency.[69] The NPS gained Congressional funding for the work in 1956. New facilities were designed in a contemporary modern style, contrasting with the rustic aesthetic that had been employed at Shenandoah and other national parks. Plans for Big Meadows under the Mission-66 initiative called for a new visitor center as well the expansion of the campgrounds and additional guest accommodations (Figure 1.49). At Big Meadows, the last of the former CCC camp buildings were also removed at this time.

In 1959, the Virginia Sky-Line Company constructed a new multiple-unit guest accommodation at the lodge and cabin area, west of the existing cabins, called Double Top Cottage. The building was designed in a typical motel style where each unit is reached by a single flight of stairs.[70] At the maintenance area, the NPS constructed a new stable and tack room. The stable was a wood frame structure with five stalls, and the tack room was a narrow, rectangular concrete block structure.

In the early 1960s, additional construction projects expanded guest accommodation as well as employee housing. The NPS built three employee residences at the lodge and cabin area on the loop road after it curves back around to rejoin Big Meadows Road. The Virginia Sky-Line Company constructed another motel-style guest accommodation next to Doubletop Cottage, called Rapidan Cottage. Both of these buildings were constructed parallel to the edge of the slope, blocking views from the guest cabins to the west. A new filling station was constructed adjacent to the Wayside, composed of a concrete-block building

with a shallow hipped roof and a front façade with four large, plate-glass panels and a single entrance. Immediately adjacent to the Wayside, new facilities were built to store ice, cans, and garbage. At the campground, an additional loop of campsites was added to the south of the original loop. The new loop was divided into four tiers and consisted entirely of sites with pull-in parking. Walk-in sites were located off the peripheral loop to the east and the south. This expansion produced a total of 200 tent sites and twenty recreation vehicle sites.[71] Two new comfort stations were also constructed at the campground.

In 1966, the NPS completed construction of the Byrd Visitor Center east of the Wayside, one of two visitor centers in the park. The building was named after Virginia Senator Harry F. Byrd, Sr., who had been instrumental in establishing Shenandoah National Park. Visitor centers were a major component of the Mission-66 initiative, envisioned as the "hub of the park interpretive program. . . staffed by trained personnel . . . [to] help visitors understand the meaning of the park and its features, and how best to protect, use, and appreciate them." The NPS hoped that the expanded orientation and education programs would also reduce vandalism and overuse in the parks. The design of the Byrd Visitor Center departed from the traditional rustic style formerly employed at the park in the 1930s and 1940s (Figure 1.50). The building was designed as a contemporary split-level structure with a low-pitched roof and large plate-glass windows. The east side of the building provided a wide view of the meadowland. The exterior stonework was of sandstone from the Massanutten Mountain to the west across the Shenandoah Valley. The Visitor Center was located prominently off of Skyline Drive with a new entrance drive to the east curving around to the west side of the building where two parking lots were laid out in a linear configuration.

Another Mission-66 construction project was the "Story of the Forest" Nature Trail, consisting of a 1.8-mile self-guided hike, with interpretive posts along the trail for about two-thirds of its length. The trail started at the Byrd Visitor Center and passed through the forest in various stages of succession to the campground, before returning to the Wayside along a paved pathway adjacent to Big Meadows Road. A laundry and service building was also built in 1966 at the campground, consisting of an L-shaped concrete block building housing a laundry and a store. Other new facilities at the campground included a shed for storing wood, and a shower building. At the maintenance area to the west of the complex, the NPS built two apartment buildings for employees with four apartment units in each building. The buildings were of concrete masonry with low gable roofs.

In the late 1970s, new construction included an amphitheater located north of the picnic grounds, near one of the parking areas and accessed by a footpath. The amphitheater was designed as a fan-shaped arrangement of benches facing a stage and screen structure. Two nearby sheds housed a projection booth and wood storage for a fire ring located west of the stage. By the time the amphitheater was

constructed, the views that had been prominent throughout the picnic area in the 1930s had become obscured with trees. The amphitheater plans specified clearing on the slopes north of the amphitheater to restore these views, creating a dramatic backdrop to the stage.

In 1978, the NPS constructed a wastewater treatment area on a new spur west of Big Meadows Road, consisting of two structures and a parking lot. The wastewater treatment building was a large concrete building faced with concrete blocks with deep vertical ridges. The second structure was an open metal structure secured to a concrete foundation that is used for open air drying of processed sludge from the treatment plant.

Around 1980, the concessionaire constructed additional employee residences on the loop road at the lodge and cabin area, opposite Cottages A through E. The buildings were of concrete block with low-pitched asphalt-shingled roofs. Each building contained either four or six employee residences. Also in the early 1980s, an air quality station was installed in the woods northeast of the maintenance area, comprised of trailers and an antenna. These structures were meant to be temporary but are still extant. In 1986, the Virginia Sky-Line Company constructed Crescent Rock Cottage, another multi-unit guest building adjacent to Hawksbill Cottage within the loop road at the lodge and cabin area.

In the early 1990s, four new buildings were constructed as seasonal ranger residences off of a new spur opposite the maintenance area. Three of the buildings are of ranch-style construction and the fourth is a two-story building. In 1998, a fire destroyed one of the CCC comfort stations at the campground, and was later restored. In 1999, the NPS restored the campground Contact Station. In 2000, six new comfort stations were also constructed throughout the campground. In addition, a playground was built west of the cabins at the lodge and cabin area and a statue was installed by the entrance to the Byrd Visitor Center to commemorate the work of the CCC. A series of restoration projects were also began in 2000 for several historic buildings, including Big Meadows Lodge, the seven original buildings at the maintenance area, and the CCC-constructed comfort stations.

In the spring of 2000, as part of a new landscape maintenance program, the park undertook a prescribed burn within the meadow, followed by mowing in the fall. Up until the 1970s, maintenance of the meadow primarily consisted of mowing, but trees and shrubs continued to colonize and encroach upon the large clearing. The size of the open meadow was shrinking as a consequence and losing its historic grass cover. The meadow was then burned for three more consecutive years to discourage woody re-growth and to promote the regeneration of herbs. This approach was judged successful and the meadow continues to be managed by using a rotation of burning, mowing, and fallow treatments[72] In September 2003, Hurricane Isabel damaged the historic Ranger's Quarters (former Hoover School) at the maintenance area, including extensive water damage and damage to the

roof by a fallen tree, necessitating its replacement. In 2004, the NPS completely restored the building.

Other changes in the landscape that have occurred at Big Meadows include the replacement of picnic tables and fire grates with more contemporary site furnishings. New features installed in the landscape include walkway and street lights, dumpsters, recycling bins, information kiosks, telephone booths, bicycle racks, flagpoles, wayside interpretive exhibits, directional signage, and memorials. A vault toilet was added to the eastern edge of the picnic area around 2010.

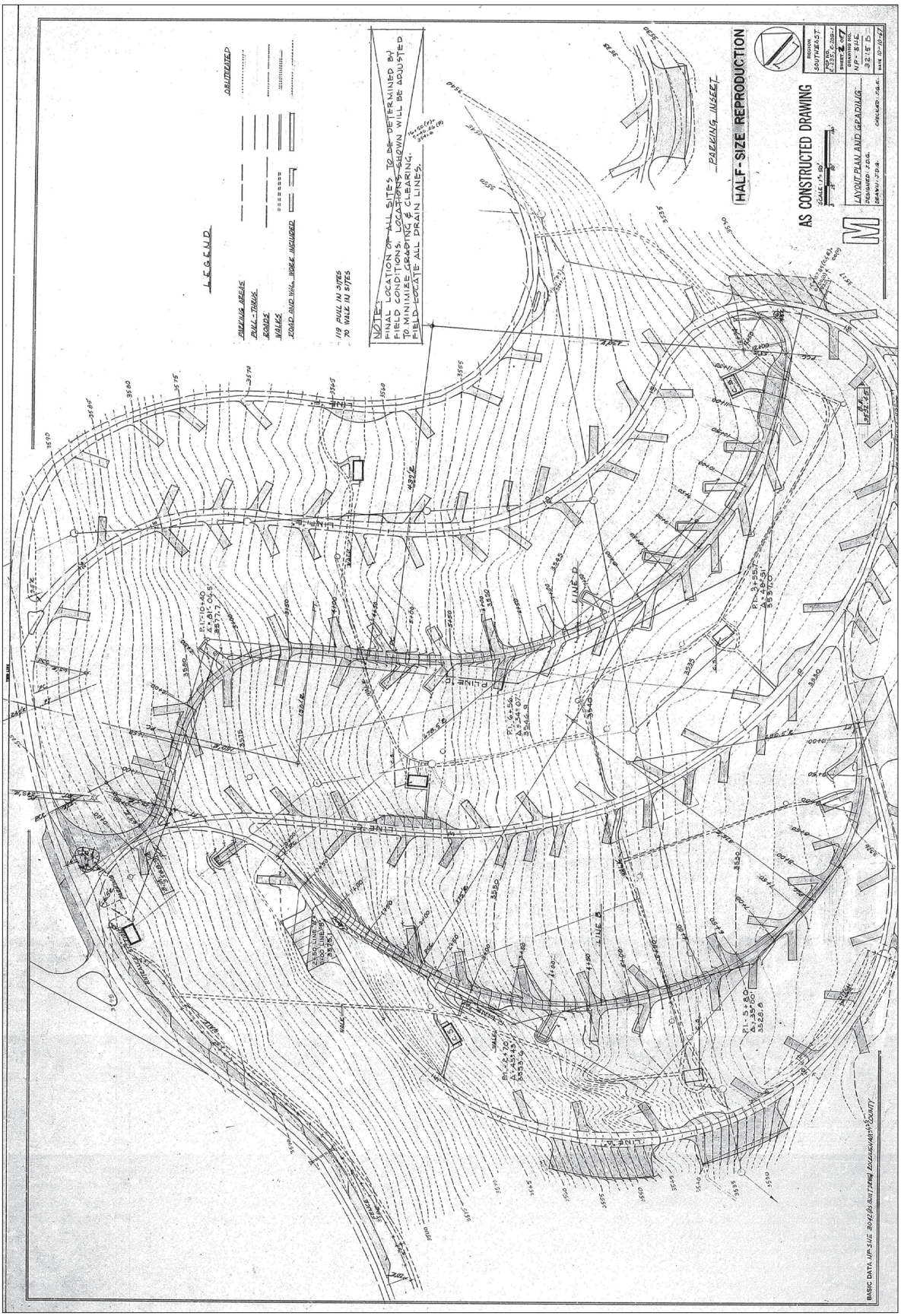


Figure 1.49. Plan of the campground expansion, completed in the early 1960s, showing the additional campsites that were added to the south of the original loop. The new loop was divided into four tiers that consisted of pull-in parking (Shenandoah NP Archives, Big Meadows Campground Conversion SHEN 3215B).

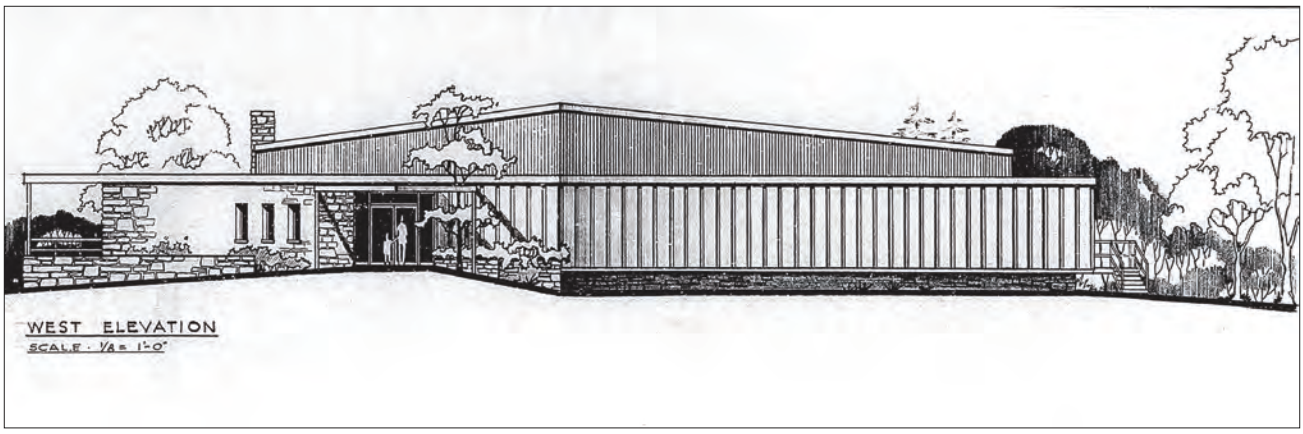




Figure 1.50. Architectural elevations for Byrd Visitor Center from 1963 (SHEN 134-3128, Doc. Id. 336126, Denver Service Center).

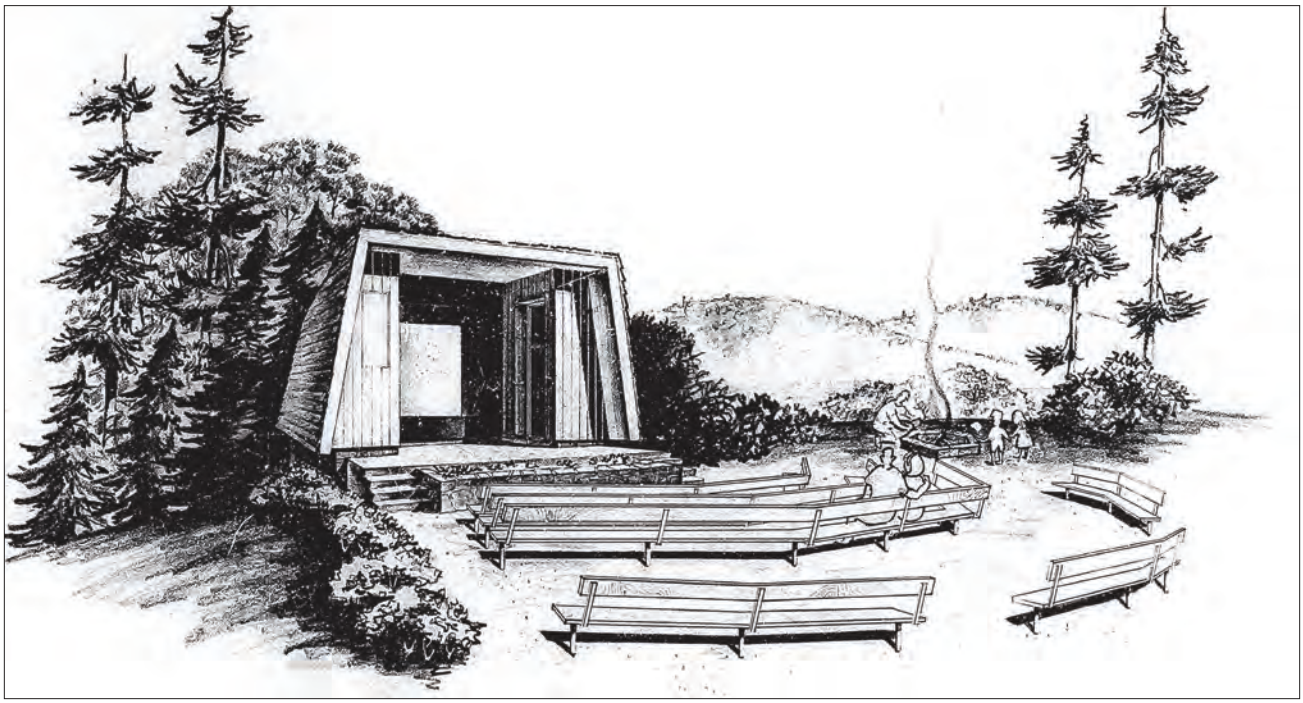


Figure 1.51. Rendering of the Big Meadows Amphitheater from the 1969 plan showing intended views to the north (SHEN 134-41008).

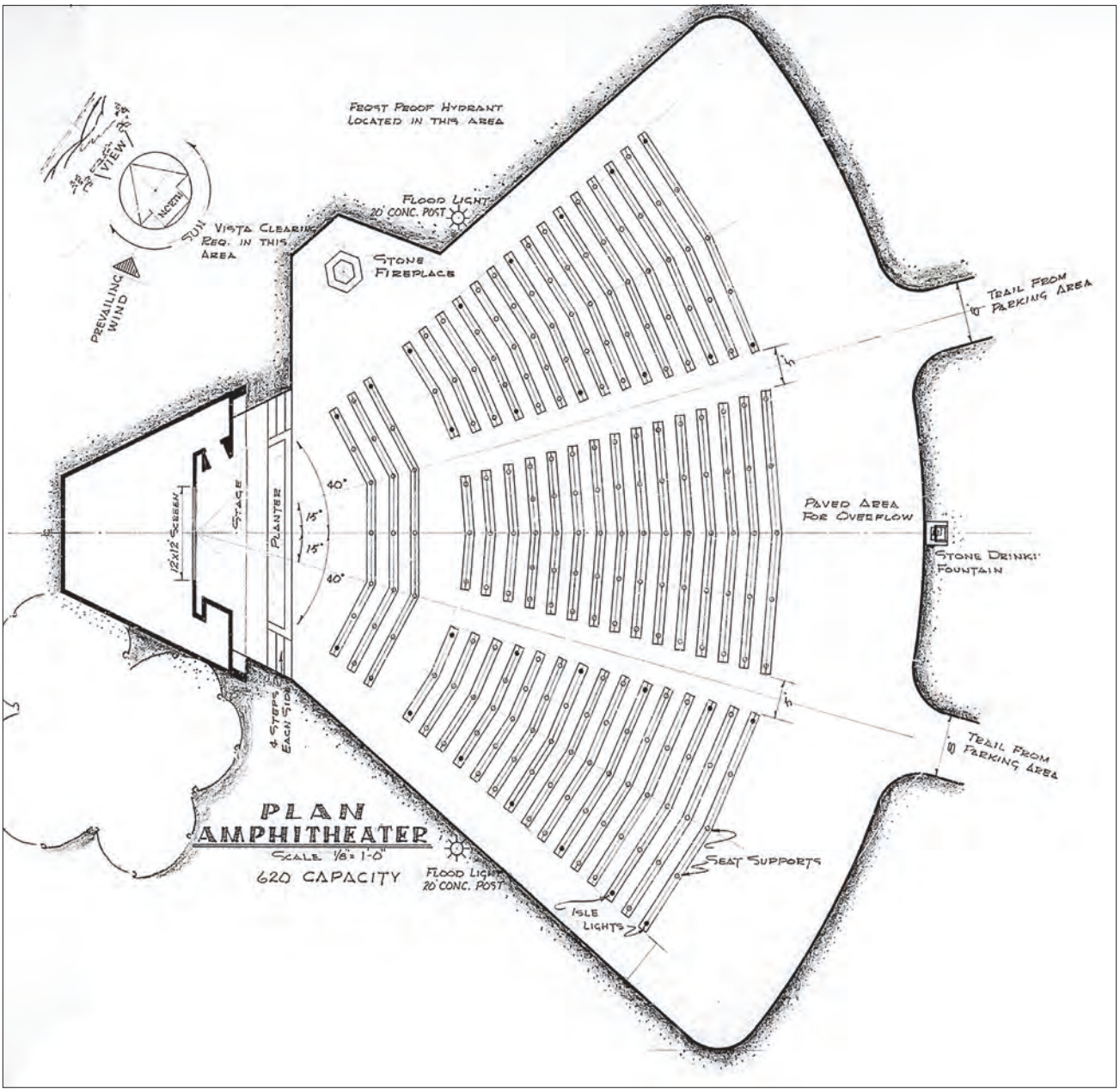


Figure 1.52. 1969 plan for the Big Meadows Amphitheater. Althoug the final design of the amphitheater differed from this 1969 design, the drawing shows the intended views to the north (SHEN 134-41008).

Lewis Falls Overlook (c.1931)
Lewis Falls
LEWIS FALLS TRAIL (1931)
TANNER'S RIDGE FIRE ROAD (Realigned 1940s)
Hawksbill Creek
SKYLINE DRIVE (1931)
Lewis Spring Spring House
Lewis Spring Pump House
APPALACHIAN TRAIL (1935)
LEWIS SPRING ACCESS ROAD (1931)
NPS Employee Housing
Black Rock Lookout
Cottages and Cabins
LODGE AND CABIN AREA (c. 1939)
Concessionaire Housing
Big Meadows Lodge
Lodge Access Road (1939)
Campground Road (1937)
Picnic Area (1937)
RAPIDAN ROAD (1931)
BRIDLE PATH (1936)
Big Meadows Wayside (1939)
Byrd Visitor Center (1966)
BIG MEADOWS ROAD (1936)
CAMPGROUND AND PICNIC AREA (c. 1937)
WAYSIDE AREA (c. 1939)
Story of the Forest Trail (1965)
HIGH ALTITUDE WETLAND (MAFIC FEN)
HIGH ALTITUDE WETLAND (MAFIC FEN)
North Campground (1937)
THE BIG MEADOW
MAINTENANCE AREA (c. 1939)
South Campground (1962)
Site of CCC Camp NP2 Camp Fetchner (1933-1950s)
Wood Bridge
Stone Bridge
Davids Spring
DARK HOLLOW FALLS PARKING (1954)
NATURE TRAIL (1935)
Dark Hollow Falls Trail (c.1935)
APPALACHIAN TRAIL (1935)
Hoarcamp Branch
SKYLINE DRIVE (1931)

Cultural Landscape Report

Big Meadows

Shenandoah National Park

Existing Conditions Overview

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

SOURCES

1. Cultural Landscapes Inventory for Big Meadows
2. Orthoimagery, 2008/2009
3. SHEN GIS data
4. Site documentation, 2013 and 2018

DRAWN BY:
John Hammond, OCLP

LEGEND

- Buildings
- Roads/Parking
- Trails
- Trees/Forest
- Wetlands
- Creeks
- Contours
- Rock Outcrops

NORTH

0′ 650′ 1300′

DRAWING 3

ENDNOTES

1 Carol Nash, *Modeling Uplands: Landscape and Prehistoric Native American Settlement Archaeology in the Virginia Blue Ridge Foothills*, Dissertation (Catholic University of America, 2009) 141-187.

2 Ibid, 325-337.

3 Ibid, 325-337.

4 Ibid, 168-170.

5 John Lederer, *The Discoveries of John Lederer*, translated by Sir William Talbot (London, Printed by F.C. for Samuel Heyrick, at Grays Inne gate in Holborn, 1672) 10-12.

6 Carol Nash, *Modeling Uplands: Landscape and Prehistoric Native American Settlement Archaeology in the Virginia Blue Ridge Foothills*, Dissertation (Catholic University of America, 2009) 169.

7 Virginius Dabney, Virginia: The New Dominion (Garden City, New York, Doubleday & Company, Inc., 1971) 79.

8 Robinson and Associates, Inc. in association with EDAW, Inc., *Shenandoah National Park: Historic Resources Study* (National Park Service, United States Department of the Interior, 1997), 7.

9 Fisher's Gap was historically known as Milam's Gap. Thomas Milam, one of the first men to find the gap, originally established a path (it likely followed the same alignment as the historic Gordonsville Newmarket Turnpike, now named the Rose River Fire Road) and a farm in the mid-eighteenth century. The gap was later named after Stephen and Magdalena Fisher acquired 216 acres of land within the pass in 1770. In 1934 when Shenandoah National Park opened Skyline Drive, this gap was officially named Fisher's Gap. Not surprisingly, the placement of Milam's Gap some was not without controversy. The History of Milam Gap/Fisher's Gap. http://www.milaminvirginia.com/milam_gap.html.

10 The History of Milam Gap/Fisher's Gap. http://www.milaminvirginia.com/milam_gap.html.

11 Robinson and Associates, Inc. in association with EDAW, Inc., *Shenandoah National Park: Historic Resources Study* (National Park Service, United States Department of the Interior, 1997), 8.

12 Reed Engle, *Everything was Wonderful* (Shenandoah National Park Association, 1998) 1.

13 Robinson and Associates, Inc. in association with EDAW, Inc., *Shenandoah National Park: Historic Resources Study* (National Park Service, United States Department of the Interior, 1997) 41-42.

14 Robinson and Associates, Inc. in association with EDAW, Inc., *Shenandoah National Park: Historic Resources Study* (National Park Service, United States Department of the Interior, 1997) 44.

15 Carolyn and Jack Reeder, *Shenandoah Secrets* (The Potomac Appalachian Trail Club, 1991) 59.

16 Robinson and Associates, Inc. in association with EDAW, Inc., *Shenandoah National Park: Historic Resources Study* (National Park Service, United States Department of the Interior, 1997), 13-15.

17 Chestnuts in Virginia. http://www.virginiaplaces.org/natural/chestnut.html#one.

18 Potomac Appalachian Trail Club, Origins of the Skyline Drive http://www.patc.net/PublicView/Custom/More_about_PAT/Regional_History_files/Origin_of_Skyline_Drive.aspx

19 Individuals in attendance included Virginia's Henry D. Flood, uncle of future Virginia Governor (1926-1928) and Senator, Harry Flood Byrd. Reed Engle, *Historical Overview*, Shenandoah National Park website; as quoted in Dennis Elwood Simmons, *The Creation of Shenandoah Nation Park and the Skyline Drive, 1924-1936* (unpublished dissertation, Corcoran Department of History, University of Virginia, 1978), 1.

20 Reed L. Engle. The Single Greatest Feature…A Sky-Line Drive: 75 Years of a Mountaintop Motorway (Shenandoah National Park Association, 2006), 16.

21 The SANPC committee included Henry W. Temple, Congressman from Pennsylvania, Col. Glenn S. Smith, topographic engineer, U.S.G.S., Major W.A. Welch, General Manager of the Palisades Interstate Parkway, William C. Gregg of the National Arts Club of N.Y.C., and Harlan Kelsey of the Appalachian Mountain Club of Salem, Massachusetts, the foremost advocate of a national Appalachian Trail. Reed L. Engle. *The Single Greatest Feature…A Sky-Line Drive: 75 Years of a Mountaintop Motorway* (Shenandoah National Park Association, 2006), 16.

22 Robinson and Associates, Inc. in association with EDAW, Inc., *Shenandoah National Park: Historic Resources Study* (National Park Service, United States Department of the Interior, 1997) 41

23 Robinson and Associates, Inc. in association with EDAW, Inc., *Shenandoah National Park: Historic Resources Study* (National Park Service, United States Department of the Interior, 1997) 41-42.

24 Darwin Lambert, *Shenandoah National Park: Administrative History, 1924-1976* (Luray, Virginia, 1979) 28; as quoted in *Page News & Courier*, November 21, 1924. The piece reprinted from *Roanoke Times*, November 19, 1924.

25 Darwin Lambert, *Shenandoah National Park: Administrative History, 1924-1976* (Luray, Virginia, 1979) 40; as quoted in Olmsted to Bremer W. Pond, May 20, 1925, National Archives.

26 In addition to setting a minimum acreage for the park, the bill also set the legal maximum acreage for the park at 521,000 acres. This represented areas where the park could expand if land was acquired. This figure was reduced and the authorized area now stands at 196,000 acres. Robinson and Associates, Inc. in association with EDAW, Inc., *Shenandoah National Park: Historic Resources Study* (National Park Service, United States Department of the Interior, 1997) 42.

27 A separate entity, also named Shenandoah National Park Association, was established in 1950 to support interpretive and educational activities of Shenandoah National Park. This association remains active today.

28 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 6; Shenandoah National Park Website, Historical Overview. http://www.nps.gov/shen/index.htm

29 Reed L. Engle. The Single Greatest Feature. . .A Sky-Line Drive: 75 Years of a Mountaintop Motorway (Shenandoah National Park Association, 2006), 24.

30 Many properties within the project area were acquired at the time when the State Commission was actively purchasing rights-of-way for Skyline Drive.

31 National Register of Historic Places, National Historic Landmark Documentation for the Skyline Drive Historic District (U.S. Department of the Interior, National Park Service, 2008) 40.

32 Reed Engle, *Everything was Wonderful* (Shenandoah National Park Association, 1998) 15.

33 Darwin Lambert, *Shenandoah National Park: Administrative History, 1924-1976* (Luray, Virginia, 1979) 271-284, 99-100; as quoted in Horace M. Albright, interview by R. Taylor Hoskins, E. Ray Schaffner and Bruce McHenry, April 14, 1969, tape in Shenandoah National Park Archives. Although Albright dates the trip to May 1931, other sources give different dates for the trip.

34 Reed L. Engle. The Single Greatest Feature. . .A Sky-Line Drive: 75 Years of a Mountaintop Motorway (Shenandoah National Park Association, 2006), 29.

35 National Park Service, Historic American Engineering Record, Skyline Drive, http://www.nps.gov/shen/naturescience/wetlands.htm.

36 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 15.

37 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 8.

38 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 17.

39 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 6-16.

40 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 16-17.

41 Robinson and Associates, Inc. in association with EDAW, Inc., Shenandoah National Park: Historic Resources Study (National Park Service, United States Department of the Interior, 1997), 73.

42 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 11.

43 Reed Engle, *Shenandoah: Wilderness by Design,* http://www.nps.gov/shen/historyculture/wilderness_by_design.

44 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 63.

45 L.F. Schmeckebier and Harold Allen, *Shenandoah National Park. The Skyline Drive and Appalachian Trail* (Potomac Applachian Trail Club, 1930s) 79.

46 Robinson and Associates, Inc. in association with EDAW, Inc., Shenandoah National Park: Historic Resources Study (National Park Service, United States Department of the Interior, 1997), 100.

47 Shenandoah National Park, *Shenandoah Overlook* [Park Newsletter] (U.S. Department of the Interior, National Park Service, 2009), 4.

48 Robinson and Associates, Inc. in association with EDAW, Inc., *Shenandoah National Park: Historic Resources Study* (National Park Service, United States Department of the Interior, 1997), 83.

49 Reed L. Engle. The Single Greatest Feature…A Sky-Line Drive: 75 Years of a Mountaintop Motorway (Shenandoah National Park Association, 2006), 119.

50 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 43.

51 National Register of Historic Places, *Skyline Drive Historic District National Register Documentation, Boundary Increase* (U.S. Department of the Interior, National Park Service, 09/1997), Section 8, pg. 78.

52 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 46.

53 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008) 44.

54 Robinson and Associates, Inc. in association with EDAW, Inc., Shenandoah National Park: Historic Resources Study (National Park Service, United States Department of the Interior, 1997), 60.

55 Robinson and Associates, Inc. in association with EDAW, Inc., Shenandoah National Park: Historic Resources Study (National Park Service, United States Department of the Interior, 1997), 106.

56 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008), 46.

57 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008), 48.

58 Robinson and Associates, Inc. in association with EDAW, Inc., Shenandoah National Park: Historic Resources Study (National Park Service, United States Department of the Interior, 1997), 90-91.

59 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008), 46-48.

60 Reed Engle, *Everything was Wonderful* (Shenandoah National Park Association, 1998) 30.

61 Darwin Lambert, *Undying Past* (Roberts Rinehart Publishers, 2001), 263.

62 Blanche D. Coll, Jean E. Keith and Herbert H. Rosenthal. *The Corps of Engineers: Troops and Equipment, U.S. Army in World War II, Office of the Chief of Military History* (United States Army: Washington, DC: 1958), 265; Major Maurice J. Gooden Army Corps of Engineers Photograph Collection, Shenandoah National Park Archives, 50821 Box 2.

63 Darwin Lambert, *Shenandoah National Park: Administrative History, 1924-1976* (Luray, Virginia, 1979) 296; Robinson and Associates, Inc. in association with EDAW, Inc., Shenandoah National Park: Historic Resources Study (National Park Service, United States Department of the Interior, 1997), 115.

64 National Register of Historic Places, *Skyline Drive Historic District National Register Documentation, Boundary Increase* (U.S. Department of the Interior, National Park Service, 09/1997), Section 7, Pg. 24.

65 Robinson and Associates, Inc. in association with EDAW, Inc., Shenandoah National Park: Historic Resources Study (National Park Service, United States Department of the Interior, 1997), 100.

66 National Register of Historic Places, *Skyline Drive Historic District National Register Documentation* (U.S. Department of the Interior, National Park Service, 04/1997), 90-91; National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008), 6.

67 Darwin Lambert, Shenandoah National Park: Administrative History, 1924-1976 (Luray, Virginia, 1979) 271-284, 305.

68 National Register of Historic Places, *Skyline Drive Historic District National Register Documentation, Boundary Increase* (U.S. Department of the Interior, National Park Service, 09/1997), 90-91.

69 Darwin Lambert, Shenandoah National Park: Administrative History, 1924-1976 (Luray, Virginia, 1979) 271-284, 314.

70 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008), 46-48.

71 National Register of Historic Places, *National Historic Landmark Documentation for the Skyline Drive Historic District* (U.S. Department of the Interior, National Park Service, 2008), 45.

72 Shenandoah National Park, Landscape Management Natural Resource Fact Sheets (2008), http://www.nps.gov/shen/historyculture/at.htm.



OCLP

Analysis and Evaluation

This chapter provides a summary analysis of the historical significance of the Big Meadows landscape and an evaluation of its historic character. The analysis and evaluation has been developed according to the National Register Criteria for Evaluation and the National Park Service's *Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (1998). This chapter is divided into two main sections. The first examines the historical significance of the landscape according to the *National Register Criteria for the Evaluation of Historic Properties*. Included within this is a summary of existing National Register documentation for Shenandoah National Park; a statement of significance for the Big Meadows landscape that includes the period of significance and areas of significance; and an evaluation of historical integrity according to the seven aspects defined by the National Register. The second section of the chapter evaluates the historic character of the Big Meadows landscape based on National Park Service cultural landscape methodology that organizes the landscape into landscape characteristics and associated features.[1] Historic and existing conditions of extant features are compared to assess historic character and change over time. Each feature is evaluated to determine whether it contributes to the historic character of the landscape or not, with an inventory of contributing and non-contributing features listed in Table 2.1.

NATIONAL REGISTER STATUS AND STATEMENT OF SIGNIFICANCE

The National Park Service evaluates the historical significance of properties through a process of identification and evaluation defined by the National Register of Historic Places program. According to the National Register, historic significance may be present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property can be found to have significance on a national, state, or local level, and must meet one or more of the following criteria in order to be considered eligible for the National Register:

A. Association with the events that have made a significant contribution to the broad patterns of history; or

B. Association with the lives of persons significant in our past; or

C. Embody the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or

D. Has yielded, or may yield, information important to that study of history or prehistory.[2]

EXISTING NATIONAL REGISTER DOCUMENTATION

Big Meadows is within the boundaries of the Skyline Drive Historic District in Shenandoah National Park. On October 6, 2008, the district was designated a National Historic Landmark (NHL) under NHL Criterion 1 and 4, with the period of significance extending from 1931 to 1952. The areas of significance were identified as community planning and development, conservation, entertainment/recreation, politics/government, social history, architecture, engineering, and landscape architecture. Previous to the NHL designation, resources within the Skyline Drive Historic District were documented in the National Register of Historic Places on April 28, 1997 and through two boundary increases on September 19, 1997 and December 5, 2003. Contributing resources located within the areas of Big Meadows situated to the northwest and southeast of Skyline Drive, as listed in the September 1997 and December 2003 boundary increases, were included in the NHL boundary.

Big Meadows was not included in the original boundaries of the Skyline Drive Historic District in the April 1997 documentation, pending future survey and evaluation. However, Rapidan Road, which is within the boundaries of the Big Meadows area, was identified as a contributing structure.

Resources in five developed areas in the park were added to the historic district through a boundary increase on September 1997, including those in the Big Meadows developed area situated northwest of Skyline Drive at milepost 51. Significance was identified under Criterion A in the areas of entertainment/recreation and politics/government, and Criterion C in the areas of architecture and landscape architecture, for the period 1931-1952. In 2009, Big Meadows was documented as part of the Cultural Landscapes Inventory (CLI). As part of that documentation, both the picnic grounds and campgrounds at Big Meadows were identified as contributing sites. Other contributing buildings, structures, and objects include the Lodge (BM-0114), Ranger Office (BM-0214), Stables (BM-1158), Equip. Shed/Workshop/Repair/Garage (BM-0410), Maintenance/Vehicle & Equip. Storage (BM-0411), Blacksmith Shop/Storage Shed (BM-0412), Carpenter Shop/Storage Building (BM-0414), Warehouse Sub. HQ/Storage (BM-0415), Gas/Oil Building (BM-0416), Wayside (BM-0113), Campground Contact Station (BM-0705), Employee Cottage “A” (BM-1156), Employee Cottage “B”

(BM-1157), Cottage "C"(BM-0314), Cottage "D" (BM-0315), Cottage "E" (BM-0316), Linen Storage (BM-0324), Petersburg Cottage (BM-0149), Bridesburg Cottage (BM-0153), Blacksburg Cottage (BM-0152), Lynchburg Cottage (BM-0155), Mountain View Cottage (BM-0154), Piedmont Cottage (BM-0115), Blackrock Cottage (BM-0116), Hawksbill Cottage (BM-0117), Campground Comfort Station (east) (BM-0509), Campground Comfort Station (west) (BM-0508), Picnic Area Comfort Station (BM-0507), Big Meadows Road, Wayside Loop/Parking, Campground Loop, Picnic Loop, Spur to Maintenance Area, Spur to Campground, Parking Area/Loop Road from the lodge, Campground Water Fountains (5), and Picnic Grounds Water Fountains (3).

Additional resources in the park were added to the historic district through a second boundary increase on December 2003, including the historically significant meadow situated to the southeast of Skyline Drive from which Big Meadows derives its name. Significance was identified under Criterion A in the areas of entertainment/recreation and politics/government, Criterion B for association with Herbert Hoover, and Criterion C in the areas of architecture and landscape architecture, for the period 1931 to 1952. The documentation identifies the historically significant Rapidan Road, which borders Big Meadows and accesses the site of Rapidan Camp, a designated NHL listed under the name Camp Hoover. Rapidan Road was built as part of an appropriation for Skyline Drive to provide a second access to Rapidan Camp. The documentation notes that although the road has a slightly disparate history, it is worthy of National Register designation due to its omission from the camp's NHL nomination form. Contributing resources for this area include open meadowland, rock outcroppings, vegetation, CCC camp building foundations, stone retaining walls, culvert, roadbed, CCC hedges/flowerbeds, and the old trans-mountain highway roadbed.

Also in the September 1997 documentation, the Mission 66-era Byrd Visitor Center was evaluated as a noncontributing feature. In May 2000, the building was reevaluated in the context of Mission 66 design as part of the proposed renovations. Several visitor centers associated with Mission 66 at other parks have already been determined eligible for the National Register, such as Cape Cod National Seashore, Rocky Mountain National Park, and Sitka National Historical Park.[3] In a letter dated June 20, 2000, the Virginia SHPO concurred that the building continued to fail to meet the criteria needed for inclusion in the National Register.

STATEMENT OF SIGNIFICANCE FOR BIG MEADOWS

Shenandoah National Park was one of the first and largest national parks established in the eastern United States, and raised national and regional awareness of the importance of the government's role in preserving large portions

of the environment for public recreation and enjoyment. From the park's early history, a key feature has been Skyline Drive, designed and constructed primarily from 1930 to 1942, which traces the mountaintop ridges and offers panoramic views of the Piedmont to the east and the Shenandoah Valley to the west. As stated in the National Historic Landmark documentation, Skyline Drive, with its adjoining overlooks, waysides, picnic areas, campgrounds, and developed areas, is nationally significant under NHL Criterion 1 and 4:

> "Because of the pivotal role that the Skyline Drive Historic District played in the history of the national park system and the evolution of park road design, federal policies in conservation and recreation, and the employment of relief measures of the New Deal, Skyline Drive is nationally significant under the NHL theme Transforming the Environment. For its exemplary expression of the principles and practices of National Park Service road design, landscape naturalization, and rustic architectural design and as a showcase of the landscape conservation work of the Civilian Conservation Corps, the park road and its associated features are also nationally important under the theme Expressing Cultural Values (planning, landscape architecture, and architecture)."

The NHL documentation identifies the period of significance for Skyline Drive Historic District as 1931 to 1952. Construction of the road began in 1931 and occurred in three distinct phases, and extended to 1952, which recognizes the small amount of work done to complete the guardwalls after World War II and some minor changes that were in keeping with the 1930s plans. While construction of the Big Meadows developed area did not begin in earnest until 1935, the site is within the boundaries of the Skyline Drive Historic District, and therefore shares the same areas and period of significance.

The significance of the Big Meadows landscape is evaluated according to National Register Criterion A, which corresponds to NHL Criterion 1, and National Register Criterion C, which corresponds to NHL Criterion 4. As such, Big Meadows is nationally significant under Criterion A in the areas of entertainment/recreation and politics/government, and nationally significant under Criterion C in the areas of architecture and landscape architecture. Big Meadows, and specifically Rapidan Road, is also nationally significant under National Register Criterion B for its association with Herbert Hoover. The road provided access to Hoover's summer retreat, Rapidan Camp, and was built in 1931 as part of an appropriation for Skyline Drive.

National Register Criterion A

Big Meadows is nationally significant under Criterion A for its association with Shenandoah National Park. The park is significant in part as one of the first eastern national parks, and is associated with the twentieth century movement to develop national parks for public enjoyment and to conserve natural features and scenic areas as public parks. The park was one of two national parks in the

Southern Appalachians authorized by Congress in 1926 and established in the 1930s through the acquisition and donation of land by the states in which they were located. Shenandoah National Park is also associated with efforts of the federal government to provide economic relief in the form of employment for both skilled and unskilled labor during the Great Depression. These efforts included a special allocation in 1931 for drought relief funds for road construction in national parks, and the extensive economic relief programs of the New Deal era (1933 to 1942) which included the Civilian Conservation Corps (CCC), Public Works Administration (PWA), Works Progress Administration (WPA), and Federal Emergency Relief Act (FERA). The programs not only promoted economic stability, but also reflected the social-humanitarian purposes of the New Deal by advancing the conservation of natural areas and expanding the recreational resources of the nation, while creating employment for thousands of skilled and unskilled workers. PWA funds were used for the construction of the Equipment Storage building at the maintenance area, and the site's water and sewer system was constructed with WPA labor and funds. Big Meadows typifies the work of CCC laborers who were employed to install trees and other plantings and construct site amenities including log comfort stations, pathways and trails, fireplaces, picnic tables, wood signs, and drinking fountains. The park also represents the increasing popularity of recreational motoring in the United States in the 1920s and 1930s and the evolving design of national park facilities to attract and accommodate increasing numbers of visitors who were visiting the parks by automobile. Big Meadows was one of several developed areas constructed at regular intervals along Skyline Drive that offered visitors the opportunity to buy gasoline and food, use restrooms, or just stop to relax and enjoy the scenery. Big Meadows retains sufficient integrity to convey the site's significance to the entertainment/recreation and politics/government themes.

National Register Criterion C

Big Meadows is nationally significant under Criterion C for its association with the rustic design style developed by the National Park Service from the time of its creation in 1916 and the early 1940s, coalescing from a variety of trends and points of view regarding conservation, recreation, landscape architecture, and planning. These trends were based on nineteenth-century English gardening ideas further developed by Andrew Jackson Downing and Frederick Law Olmsted Sr., and others, and were further developed by E. P. Meinecke of the United States Forest Service. This style emphasized preserving existing landscapes and restoring landscapes altered by man to their original condition using native vegetation. It also promoted the incorporation of scenic views in the layout of buildings and circulation features and sited these to be as inconspicuous as possible and to blend into their surroundings. The National Park Service also encouraged the use of local materials in the construction of buildings, structures, and site furnishings.

As a component to Skyline Drive, Big Meadows is representative of scenic road construction advanced by the National Park Service in the United States in the 1920s and 1930s. The drive with its overlooks, gently curving alignment, and carefully balanced cut and fill sections, is representative as a work of naturalistic landscape architecture and as a scenic park road. Big Meadows is one of the wayside stations incorporated at regular intervals along Skyline Drive and typifies the naturalistic aesthetic established throughout Shenandoah National Park.

Big Meadows retains a high level of integrity required to convey the site's significance to the architectural and landscape architectural themes. Resources that illustrate the initial park-related development at Big Meadows include the Wayside, Big Meadows Lodge, the five 1939 cabins, three comfort stations from the late 1930s, the seven maintenance buildings built in 1939, the 1941 and two 1946 multi-unit cottages, the Ranger Office (former Hoover School), circulation features, and site furnishings. The landscape at Big Meadows illustrates the NPS design philosophy through the layout of buildings and structures as well as circulation, which were integrated with the site's natural topography and took advantage of views of the Shenandoah Valley and the expansive meadow. Vehicular access roads were designed to curve and loop through the site to blend into the landscape. Trails meandered through the landscape providing connections to parking areas and amenities. Buildings and structures were constructed with local stone and wood using vernacular building details. In addition, trees were planted to provide screening at the campground and guest cabins, to add spatial definition to the picnic grounds, and as specimens around the lodge and Wayside. Original remaining site features, such as the boulder water fountains and boulder bollards, also reflect the naturalistic design values advocated by the National Park Service.

Significant landscape characteristics identified for the Big Meadows landscape include natural systems and features, topography, spatial organization, vegetation, circulation, buildings and structures, views and vistas, small-scale features, and archeological sites. Many of these characteristics have associated with them features that contribute to the site's overall historic significance and identity, as well as features that do not contribute or are undetermined.

The physical integrity of Big Meadows is evaluated by comparing landscape characteristics and features present during the period of significance (1931 to 1952) with current conditions. Many of the site's historic characteristics and features are unchanged. The site's historic layout is still intact and features distinct areas grouped by function that include the wayside/visitor center, picnic grounds, lodge/cabin accommodations, campground, and maintenance facilities, and all which are connected by a primary access road. The historic rustic design is evident through the circulation layout, materials, and vernacular building styles reflecting the philosophy of a romanticized natural environment that was executed through

the 1930s and 1940s. Pathways, access roads, and parking areas throughout the site remain much as they did during the period of significance. The original Wayside, lodge, guest cabins, comfort stations, and maintenance area buildings retain integrity in their overall exterior design with subsequent renovations using similar materials and/or workmanship. More elaborate alterations have occurred inside the buildings to accommodate new uses and repairs. Historic viewsheds of the meadow from the wayside area and west of the cabin/lodge area have been retained, further emphasizing the historic setting of the site. The use of local resources in the design of site amenities, such as native plants, rock work, and wood, to harmonize with the natural surroundings can be seen in the landscape today. The original stone culverts and drainage systems built into the access road also remain. Historic small-scale features include boulder drinking fountains, boulders used as bollards, as well as remnants of the CCC camp, nursery and tennis courts along the edge of the meadow.

The picnic grounds have changed very little except for the replacement of some of the site furniture and the loss of the stone fireplaces. An amphitheater was constructed adjacent to the picnic grounds in 1978, but it is screened by trees and does not detract from the area's historic landscape character. The campground has been expanded with an additional loop road system, but its design is in keeping with the historic layout. New guest accommodations have been constructed at the cabin/lodge area, but the overall function and character of the area is also intact. The biggest changes have occurred at the wayside area with the construction of the Byrd Visitor Center, now the largest building at Big Meadows. While the design of the Visitor Center building is more contemporary, local stone was used for the exterior, creating a visual association to the historic buildings at the site. New parking lots were also built and the circulation system altered. The maturation of CCC-planted vegetation and natural succession have impacted the site but is in keeping with the historic design intent to encourage the landscape to return to a more forested environment. The site contains several non-historic features, including bicycle racks, trash bins, directional signage, new pathways, benches, and trash cans.

EVALUATION OF LANDSCAPE INTEGRITY

Integrity is the ability of a property to convey its significance. In order for a property to retain its integrity, it must possess the essential characteristics and features that characterized during the period of significance. The National Register program identifies seven aspects of integrity including location, design, setting, materials, workmanship, feeling and association. To retain integrity, a property must possess the aspects that best convey a sense of a particular time and place.

Location

Location is the place where the historic property was constructed or the place where the historic event occurred.

The relationship between the Big Meadows developed area and its location off of Skyline Drive is still intact and evident. The development's location on a fairly flat plateau with views of the Shenandoah Valley and the meadow influenced the physical arrangement of buildings and structures and their connection to Skyline Drive. In addition, the location of the site within Shenandoah National Park has remained unaffected by any adjacent land uses. The principal buildings at Big Meadows that were present at the end of the period of significance remain in their original locations.

Design

Design is the combination of elements that create the form, plan, space, structure, and style of a property.

Design refers to the combination of elements that characterize the built landscape at Big Meadows, recognized today as the National Park Service rustic style. The physical factors, such as natural features and Skyline Drive itself, which influenced where roads, pathways, buildings, and structures were located, are still evident. The Big Meadows Lodge, guest cabins, and the Wayside were designed in the rustic architectural style based on vernacular traditions and the idea of blending into the natural surroundings as much as possible while also taking advantage of distant views. Although utilitarian, the service buildings at the maintenance area were also designed in a rustic style using a common palette of materials. The picnic grounds and campground also illustrate the concept of fitting into the natural landscape through the layout of pathways and picnic areas that harmonized with the natural topography. In addition, the planting of native trees to define spaces and to provide shade and the installation of site furnishings using native materials, such as wood and stone, further reflect the design principles of the rustic style.

Setting

Setting is the physical environment of a historic property.

The setting of Big Meadows as a rustic NPS developed area along Skyline Drive remains intact. The development at Big Meadows was organized in a curvilinear fashion along a plateau following the natural terrain while also taking advantage of the views. The relationship between the wayside area, cabin/lodge area, the picnic grounds, campground, maintenance area, and Skyline Drive is still intact, along with the surrounding topography and viewsheds, with original pathways and

access road, and spurs weaving these areas together.

Materials

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.

Extant original materials at Big Meadows include the boulder drinking fountains, and boulder bollards in the picnic grounds, and the flagstone terrace at the lodge. Log guardrails have been replaced with concrete wheel stops at the lodge/cabin area and the picnic grounds parking areas. Few original materials remain on the roads and walkways and most have been repeatedly paved with asphalt. Historic vegetation also remains from CCC-period plantings that have matured since the historic period, including several groves of trees, trees for screening in and around the cabin area, and specimen trees around the lodge and Wayside station.

Workmanship

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.

Workmanship refers to the physical evidence of the construction techniques at Big Meadows. The boulder drinking fountains exemplify the typical rustic style in which site amenities were constructed by the CCC during the period of significance. The CCC also built the original comfort stations at the campground and picnic grounds in keeping with the NPS rustic style tenets, utilizing V-notched corners, chestnut siding, and concrete shingles. The Big Meadows Lodge, guest cabins, Wayside station, and maintenance buildings also retain much of their original workmanship.

Feeling

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.

Big Meadows continues to provide visitor amenities for motorists along Skyline Drive. The presence of the Wayside, lodge, and guest cabins, as well as the roads, pathways, and picnic areas, campground, and maintenance area combine to convey the historic character of Big Meadows. Trees planted by the CCC have matured to provide shade and woodland scenery, as well as accents by the lodge and Wayside. Historic views have also been maintained, including views of the meadow from the wayside area and the views of the Shenandoah Valley from the cabin/lodge area.

Association

Association is the direct link between an important historic event or person and a historic property.

The Big Meadows Lodge, guest cabins, Wayside station, and service buildings, as well as the historic circulation features and some of the small-scale features are still present to directly link the site to the creation of Shenandoah National Park and construction of Skyline Drive, the work of the CCC, and the rustic architectural style used by the National Park Service and the Virginia Sky-Line Company's architect, Marcellus Wright, Jr. during the period of significance.

ANALYSIS OF LANDSCAPE CHARACTERISTICS

Landscape characteristics are the broad patterns, systems, and feature categories that compose the landscape and determine how people interact with it. The analysis of landscape characteristics and features serves to identify the components of the landscape that define the historic character and contribute to the historic significance of the property. The analysis entails comparing existing conditions to what was present during the historic period and making an evaluation of whether the landscape characteristic contributes to the landscape's historic character. The landscape characteristics evaluated for Big Meadows landscape include natural systems and topography, spatial organization, circulation, vegetation, buildings and structures, views and vistas, small-scale features, and archeological sites. For each characteristic, the analysis is organized and presented in the following manner:

Historic Condition, a brief discussion of the history and evolution of the landscape characteristic as it relates to the period of significance;

Post Historic and Existing Conditions, an overview of changes that have occurred since the end of the period of significance (1952); and

Evaluation, a determination of whether the landscape characteristic contributes to the historic character of the landscape.

Contributing landscape characteristics and features generally date to the period of significance, 1931 to 1952, and retain association with the development of Big Meadows, the CCC or help convey the districts historic design and character. Non-contributing features generally post-date the period of significance or have been so altered from the historic condition that they no longer help convey the site's significance. Contributing and non-contributing features are listed at the end of the chapter in Table 2.1. Each feature includes a corresponding List of Classified Structures number and building number, if applicable, and is labeled on the existing condition plans (Drawings 3–6).

NATURAL SYSTEMS AND FEATURES

Natural systems and features include the natural aspects that have influenced the development and physical form of the Big Meadows landscape.

Historic and Existing Conditions

The Big Meadows site is located on a plateau on the Blue Ridge Mountains. The area lies within a zone of Catoctin Formation rocks characterized by dark green metamorphosed basalt with interbedded purple phyllite. Prehistorically, the greenstone or metabasalt found within this formation was utilized for the manufacture of a variety of small to large tools.[4] These geological formations are especially evident in exposed rock outcroppings at the Big Meadow in an area dedicated to Robert Fechner, and the cabin/lodge area at Blackrock. The weathering of geologic parent material of the Big Meadows plateau into mineral soil, and the admixture of organic matter from the growth and decay of plants in the presence of water made subsistence agriculture possible amidst mountainous terrain.

The Big Meadows landscape is comprised of a large meadow, today encompassing approximately 135 acres but historically larger. The meadow represents a high elevation grassland and shrub plant community resulting from thousands of years of human intervention perpetuating the growth of herbaceous meadow vegetation. The underlying landform and its comparatively level topography is what may have prompted Native American cultivation here and management of the landscape, and following that, the husbandry of European settlers.

The Big Meadows area also contains two high altitude wetlands classified as Northern Blue Ridge Mafic Fens, a globally rare plant community type. One wetland is the meadow and one is a forested wetland area extending from the south side of the campground to the east side of the maintenance area. This rare wetland plant community is endemic to the park, and supports eight state rare plant species. The site also supports an abundance of mammals, birds, amphibians, reptiles, and insects, some of which are not found elsewhere in the park. A state listed snake, a rare insect, and several salamander and bird species are among the animals that occupy the Big Meadows wetland areas.

Each of the two wetlands is drained by tributaries of the Hogcamp Branch, which in turn flow into the Rose River to the east and ultimately into the Chesapeake Bay. Between the campground and maintenance area is the Big Meadows swamp. Two streams flow from springs below the crest of the plateau. Lewis Spring is located to the northwest of the Visitor Center. From its origin, it flows about 2000 feet to the northwest to Lewis Falls, an eighty-one-foot waterfall that is a popular hiking destination. The water then flows into Hawksbill Creek and then into the Shenandoah River. The second spring is Davids Spring located to the east of the campground, which flows to the north and then west to form Little Hawksbill

Creek before it joins Hawksbill Creek. Although the two springs are located outside the historic district boundary, they contribute to the historic wetland character of the site. All of the park's streams are part of the hydrological system that forms the Chesapeake Bay watershed.

A century of tree cutting for lumber, tanbark, and firewood considerably reduced the previously dense mountain forest in the region. Although a few patches of old-growth forest existed when Shenandoah National Park was established in 1935, as much as a third of the parkland along Skyline Drive, which traces the ridgeline through the park, was pasture. Wildfires ravaged the park during its early years up to 1941. Historic panoramic photographs and detailed vegetation maps produced for the park's fire control program and master plans frequently revealed mountainsides dotted with small, open farmsteads and grazing lands, burned-over areas, or vast skeleton forests of dead American chestnut trees, the region's most dominant tree.[5] Today, sections of Big Meadows are within a mature second-growth forest ecosystem that extends throughout much of Shenandoah National Park.

As subsistence agriculture was no longer practiced under NPS management at the end of the period of significance in 1952, the meadow landscape was encroached by woody vegetation through the process of natural succession. A program of controlled burning and mowing was introduced in 2000 and has helped reclaim portions of the meadow. The Big Meadows area is home to high populations of deer. Clear evidence of high levels of deer browse have been evident for many years in Big Meadows as a distinct browse line on the gray dogwood shrubs in the central wetland (mafic fen).

Evaluation: Contributing

The primary change to the natural systems and features of Big Meadows since the historic period has been a general reduction of overall meadow area and a corresponding increase in forested area. This has reduced the open character of many areas in Big Meadows, including the campground, lodge and cabin area, and access roads. Despite this, the large meadow area on Skyline Drive and the expansive views available from the visitor center area still evoke the natural scenic values for which Big Meadows was developed. Other natural features, including the hardwood forest, high-altitude wetlands, streams, springs, rock outcrops in and near Big Meadows, remain much as they were during the historic period. Contributing natural systems and features are listed in Table 2.1.

SPATIAL ORGANIZATION

Spatial organization describes the three-dimensional organization of physical forms and visual associations in the landscape, including the articulation of ground, vertical, and overhead planes that define and create spaces.

Historic Conditions (through 1952):

Big Meadows was the first of four multi-use facilities developed in the park along Skyline Drive, offering visitors overnight accommodation, dining, and other amenities. Beginning in 1935, these facilities were planned as village-like clusters



Figure 2.1. Big Meadows is located on the top of the Blue Ridge Mountains in Shenandoah National Park. The land to both the east and west drops off sharply into a series of ridges and valleys, providing dramatic views (OCLP).



Figure 2.2. The eponymous "Big Meadow" stretches for about 135 acres on the south side of Skyline Drive, opposite the Big Meadows development (OCLP).





Figure 2.3. (above left) Big Meadows drains into a number of small streams that flow down the east and west sides of the Blue Ridge Mountains. Mill Prong, seen here, flows southeast before joining Laurel Prong to form the Rapidan River (OCLP).

Figure 2.4. (above right) Lewis Spring, located to the northwest of the visitor center, feeds Hawksbill Creek, which cascades over Lewis Falls. The falls is accessible from Big Meadows lodge via a 2.8-mile loop trail (Kelly Bolinger).



Figure 2.5. (right) The flat terrain that characterizes portions of Big Meadows creates two high-altitude wetlands, called mafic fens. This globally rare wetland plant community contains several species of rare plants and animals. This photo shows a portion of the wetland near the Big Meadows campground (OCLP).



Figure 2.6. The typical forest around Big Meadows is composed of mixed hardwood dominated by oak with an open, herbaceous ground cover (OCLP).



Figure 2.7. The Big Meadows area is home to diverse wildlife, including black bear (OCLP).



Figure 2.8. Big Meadows supports a large deer population, which often come into close interaction with visitors and vehicles. Deer also cause significant damage to the vegetation of Big Meadows (Jonathan Willier).

with overnight cabins, shops, a gas station, campsites, and lunchrooms. One of the planning principles for Shenandoah National Park was the separation of NPS facilities and concessionaire facilities. Big Meadows was therefore developed as five separate sub-areas, including a wayside station, a cabin/lodge area, a campground, picnic grounds, and a maintenance area all connected by a curving, one-mile long access road, referred herein as Big Meadows Road, with two spurs. Trails also meandered throughout the Big Meadows site, providing hiking and horseback riding opportunities.

The Wayside station was located prominently off of Skyline Drive adjacent to Big Meadows Road, and offered a lunchroom, gift shop, and filling station. The maintenance area was located off of a spur east of Big Meadows Road out of the view of passing motorists. The maintenance area contained a rectangular arrangement of service buildings, and a ranger's quarters were located to the east outside of the maintenance complex.

Further west along Big Meadows Road was a spur leading to a campground and picnic grounds. The campground was organized around a major one-way loop road subdivided by multiple one-way roads dividing the area into separate tiers, creating five camping areas. The design of the campground was based on ideas promoted by forest pathologist E. P. Meinecke who called for a system of one-way loop roads and individual campsites each having a parking space defined by boulders or other barriers, and included a tent clearing, fireplace, table, and vegetative screening. To accommodate the increasing popularity of trailer camping, the campgrounds at Shenandoah provided elongated, drive-through parking spurs so that cars pulling trailers could drive off and on the road without having to back up. The CCC also built two log comfort stations at the east and west ends of the campground. The picnic grounds at Big Meadows were one of six picnic areas built along Skyline Drive located between twelve (five miles, if Lewis Mountain were counted) and twenty miles apart. The spacing of the picnic areas at regular intervals along the motor road to serve the motoring public was an important characteristic of Skyline Drive's design. The Big Meadows picnic grounds were organized around a loop road with three parking areas integrated within the road. Site furnishings, including tables and fireplaces, were scattered within the loop with additional picnic sites to the east. A comfort station, built by the CCC, was located at the intersection of several footpaths in the center of the loop.

The cabin/lodge area was situated at the westernmost and highest portion of the site to take advantage of panoramic views of the Shenandoah Valley. Big Meadows Road led visitors to a circular drive with a drop-off at the main entrance of Big Meadows Lodge and continued to curve around to a parking lot to the south and adjacent cabins before completing its loop. A cluster of guest cabins were located south of the lodge and were accessed by footpaths from the loop road. The loop

road then completed its circuit by connecting back with Big Meadows Road.

Post-historic and Existing Conditions:
Since the period of significance, the overall spatial organization of Big Meadows remains intact. The most notable changes in the landscape have occurred at the wayside area with the construction of the Byrd Visitor Center and its parking lots, along with the expansion of accommodations at the cabin/lodge area and camping facilities. Two new sub-areas were also added off of two new road spurs from Big Meadows Road leading to a new wastewater treatment facility and seasonal employee housing.

The Harry F. Byrd Visitor Center, constructed in 1966 at the wayside area, is now the largest building at Big Meadows. The original vehicular circulation was modified to accommodate access to the building and its associated parking at the rear of the building. The gas station was also moved to the opposite side of the Wayside building, with pull-in access only off of Big Meadows Road instead of both Skyline Drive and the access road. While the gas pumps remain today, the gas station structure was removed in 2019. Additional employee housing has been constructed at the maintenance area, and several new guest accommodations have been built at the cabin/lodge area, including multi-unit motel style buildings and apartments. At the campground, the most significant alteration has been the construction of a new loop system, expanding campground capacity to 200 tent sites. The National Park Service also constructed six new comfort stations at the campground to accommodate the additional number of visitors. Another new structure at Big Meadows is an amphitheater constructed in a wooded area adjacent to the picnic grounds and accessed by a footpath from the existing adjacent parking area.

Although a number of new buildings and facilities have been constructed at Big Meadows since the period of significance, the overall layout remains intact and retains its historic functions.

Evaluation: Contributing
The spatial organization of Big Meadows, including the arrangement of buildings, alignment of roads, viewpoints, and other features, continues to reflect the rustic and scenic values that guided its development.

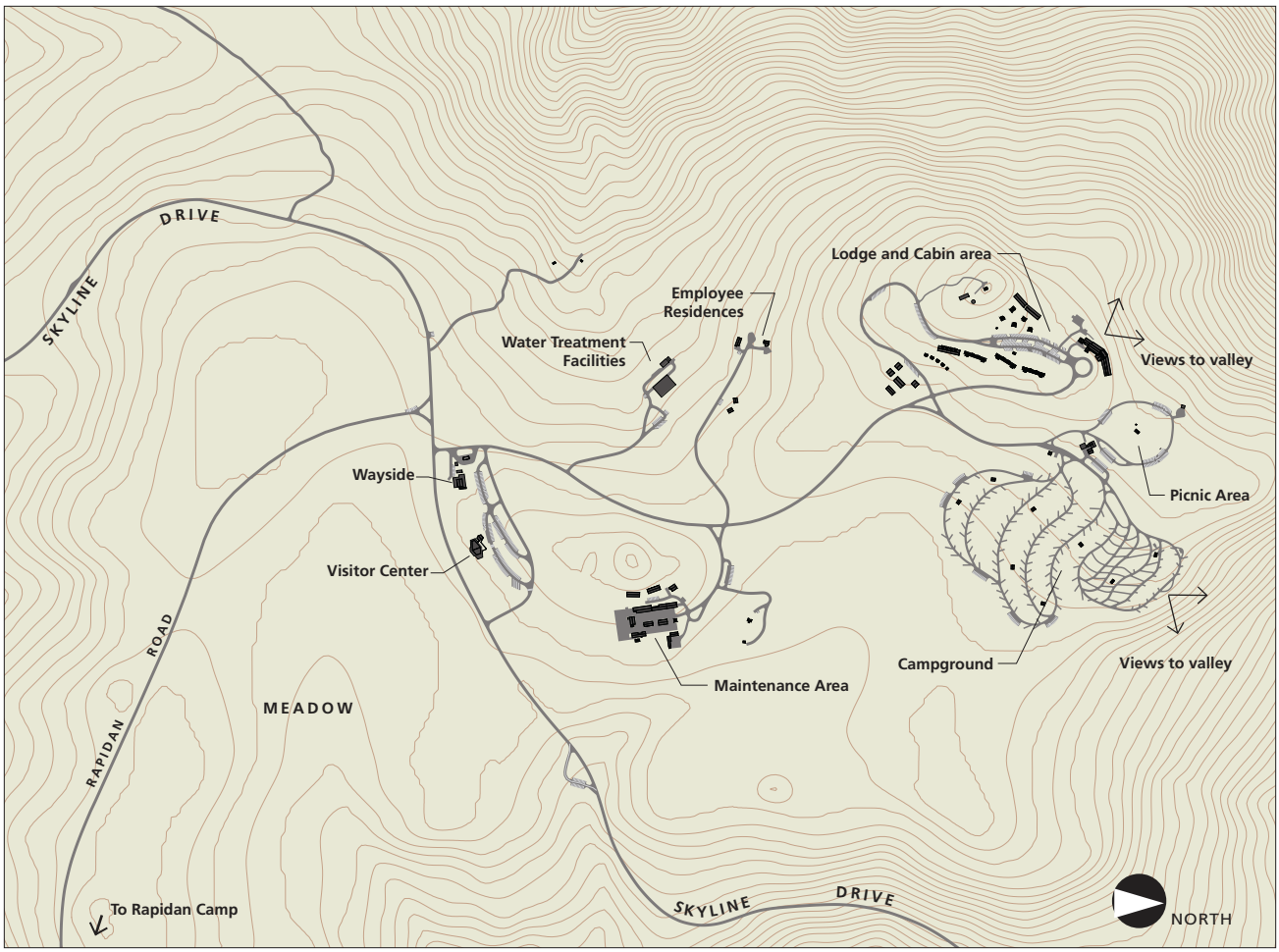


Figure 2.9. Big Meadows was organized to take advantage of the natural features of the site, including the broad, level plateau, open meadow, and sweeping views to the north and west. Primary visitor accommodations areas including the lodge, cabins, and campground, were sited at the edge of the plateau area to maximize views of Shenandoah Valley, while Skyline Drive, the Wayside, and visitor center were located on the edge of the meadow.

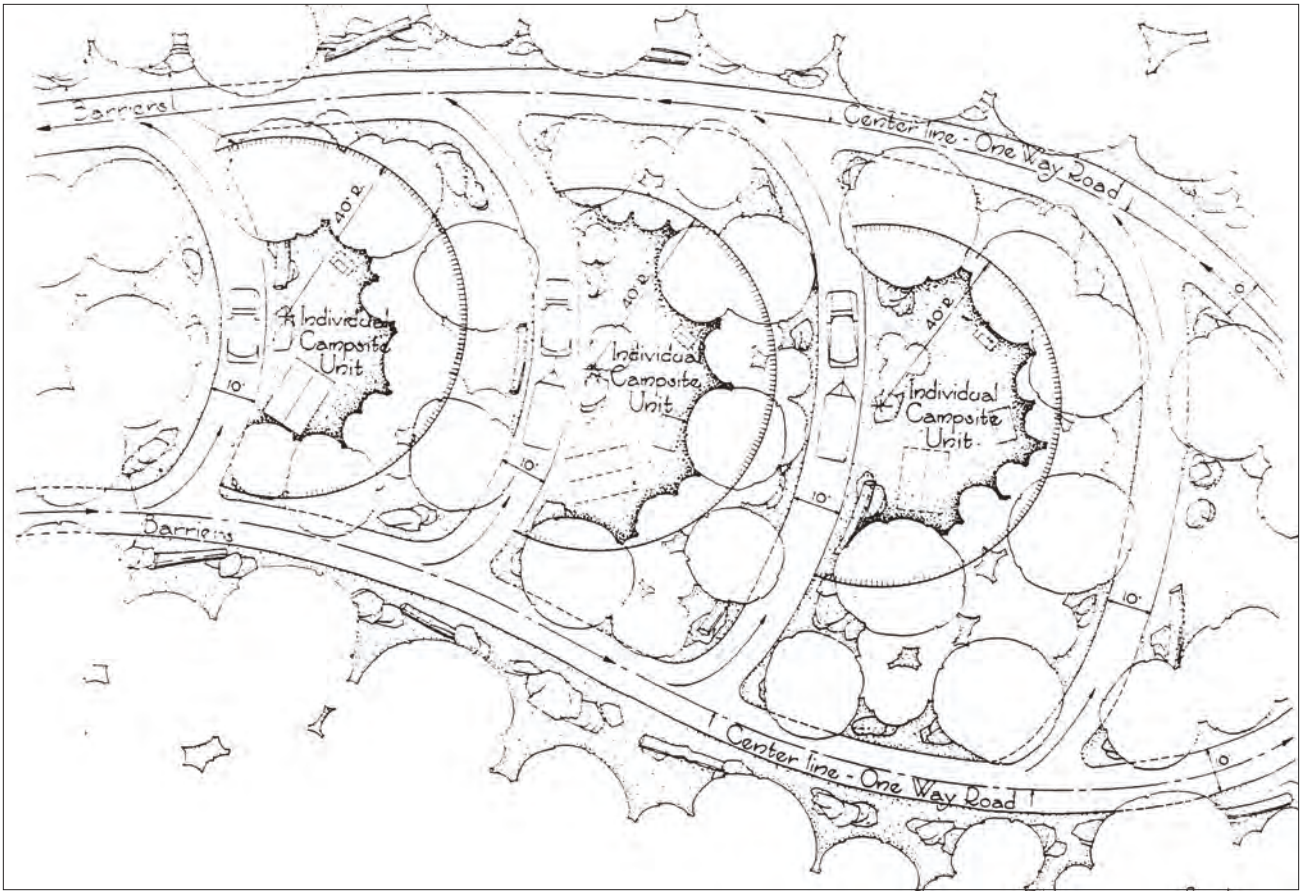


Figure 2.10. Diagram from Albert H. Good's *Park and Recreation Structures*, 1938, showing a typical model for pull-through trailer campsites based on ideas promoted by E.P. Meinecke (Albert H. Good, *Park and Recreation Structures*, 1938).

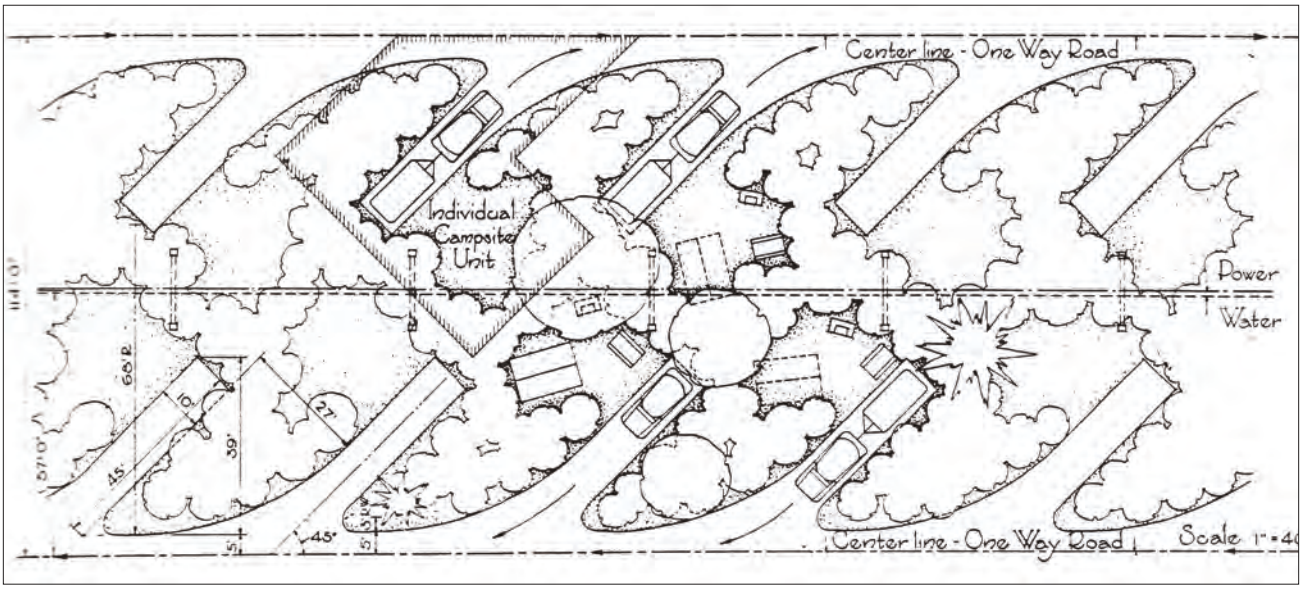


Figure 2.11. Diagram from Good's report showing a typical model for spur campsites based on ideas promoted by E.P. Meinecke (Albert H. Good, *Park and Recreation Structures*, 1938).



Figure 2.12. Diagram showing the layout of the campground at Big Meadows. The north campground, developed in 1937, exhibits both the pull-through and spur campsite arrangement promoted by Meinecke (OCLP).

LAND USE

Land Use describes the principal activities in the landscape that have formed, shaped, or organized the landscape as a result of human interaction.

Historic Conditions (through 1952):
Big Meadows has historically been an open space surrounded by woods and wetlands. Early Native Americans may have cleared part of the land that is now Big Meadows to encourage animal grazing. Records of Shenandoah Valley town meetings showed interest in using the Big Meadows area for summer pasture as early as 1732.[6] When Big Meadows became parkland two centuries later, it belonged to a Shenandoah Valley family that had used it as a summer cattle range. Other historical records indicate that early European settlers overgrazed the meadow with herds of beef cattle, particularly during the Civil War era.

During the period of significance, the meadow was the location of the CCC Camp named NP-2 or Camp Fechner. The camp began as a group of surplus tents, field kitchens, and latrines but more permanent buildings were soon constructed, including barracks, an infirmary, administration buildings, a garage,

and a recreation building. The CCC also established a nursery at the northeastern edge of Big Meadows to propagate native vegetation for use in stabilizing cut and fill slopes along roadsides and blending them into their surroundings as well as reducing soil erosion. The nursery stock was also installed at the developments to enhance their naturalistic settings. In 1936, President Franklin Roosevelt officially dedicated Shenandoah National Park from the baseball diamond in the meadow adjacent to the CCC camp. The CCC was disbanded in 1942 during the early months of the country's entry in World War II, and the former camp became a training base for the U.S. Army Corps of Engineers.

The Big Meadows site was developed beginning in 1935 as a visitor facility, along with a service area, located on Skyline Drive in the park's Central District. The development offered dining, picnicking, campsites, overnight lodging, as well as a gas station and a gift shop. The National Park Service constructed the access road, picnic area, campground, maintenance area, and hiking trails. The Virginia Sky-Line Company, the park concessionaire, developed the visitor service facilities, including the Wayside station, Big Meadows Lodge, and cabins. Recreational use at Big Meadows included a baseball diamond and glider field, and tennis courts. A series of hiking and horseback riding trails also weaved through the site, including a section of the Appalachian Trail.

Post-historic and Existing Conditions:
Land use at Big Meadows remains essentially as it did at the end of the period of significance. The lodge and guest cabins, Wayside, picnic grounds, and campground continue to serve visitors as intended. The maintenance area also continues to function as service facilities, although employee housing had been added. The picnic area has remained intact except for the replacement of site furnishings such as the picnic tables and fireplaces. The campground was expanded in 1962, doubling the site's capacity, but the original layout is still extant. In the late 1950s and early 1960s, the Virginia Sky-Line Company constructed several new motel facilities immediately south of the lodge on the ridge adjacent to Blackrock. Concession employee housing was also constructed at the cabin/lodge area across the loop road from Cottages A through E. In 1978, another land use was introduced with the construction of a wastewater treatment area on a new spur west of Big Meadows Road, consisting of two buildings and a parking lot.

Starting in 2000, the National Park Service began implementing a new landscape maintenance program consisting of a controlled burn of the entire meadow in the spring, followed by mowing in the fall. The meadow was subsequently burned for three consecutive years to discourage woody re-growth and to promote the regeneration of herbs. This approach was successful and the meadow continues to be managed by using a program of burning, mowing, and fallow treatments. Since 1999, second growth trees and shrubs have been removed from over thirty acres of land. Big Meadow remains the largest open meadow within the Shenandoah

National Park boundary.

Currently, the land use of the Big Meadows site, for visitor and service amenities, maintenance area, and maintained open meadow, is consistent with that of the end of the period of significance, with the exception of the two new sub-areas, the wastewater treatment plant and the seasonal employee housing area.

Evaluation: Contributing
Contributing land use at Big Meadows include recreation, interpretation, camping, lodging, and other visitor services, as well as park maintenance and administration.

TOPOGRAPHY

Topography includes the three-dimensional configuration of the landscape surface characterized by features, such as slope and articulation, and orientation, such as elevation and solar aspect.

Historic Conditions (through 1952):
Topography was a major factor in locating a park developed area at Big Meadows. The complex was located at a unique divide in the Blue Ridge, on a plateau or basin in the ridgeline. Elevations within most of the Big Meadows area ranged between 3,440 feet above sea level, to about 3,600 feet, the approximate elevation of the lodge, the knoll above the maintenance area, and the peak of Stony Man Mountain. This allowed much of the site's development to be sited on nearly level to gently rolling ground. Blackrock Point is the highest point in the immediate area rising above the cabin/lodge area to a height of 3,720 feet. Sections of the Appalachian Trail and other trails in the area descend to lower elevations. The Lewis Falls trail begins at the amphitheater and leads to a waterfall with a viewing platform northwest of the cabin/lodge area. The lodge, guest cabins, and campsites were sited to provide views of the valley and mountains beyond. The Wayside was oriented to take in views of the expansive meadow. The lodge and picnic areas occupied the largest area of land above 3,600 feet, with the campground located on slightly lower ground. Manipulation of the topography was limited to grading for drainage, circulation, and building sites.

Post-historic and Existing Conditions:
The overall topography of the historic landscape has not been significantly altered since 1952 except for the construction of several new buildings and parking areas, including the Byrd Visitor Center, the wastewater treatment facility, the multi-unit employee residences and guest accommodations, and an amphitheater at the picnic grounds. None of the grading involved in the construction of these new facilities resulted in substantial changes in the topography.

Evaluation: Contributing
The natural topography of Big Meadows contributes to the significance of the cultural landscape. Non-contributing topography includes the road cut and embankments along Skyline Drive just north of the Big Meadows entrance, created as part of the road realignment in 1954.

CIRCULATION

Circulation includes the spaces, features, and applied material finishes which constitute systems of movement in the landscape.

Historic Conditions (through 1952):
Numerous roadways and trails crossed the ridgeline of the Blue Ridge Mountains in the late nineteenth and early twentieth centuries prior to the establishment of Shenandoah National Park. Among the earliest of these were established by Native Americans who used the area for hunting. European exploration was recorded in 1669 when John Lederer traveled the area and visited the Big Meadows area, followed by Alexander Spotswood and his expedition in 1716. Routes in this area were largely dictated by the terrain over which they passed.

The Big Meadows developed area was located at milepost 51 along Slyline Drive within the park's Central District. Construction of this section of the scenic road began in 1931 and opened for traffic in 1934. A separate two lane gravel access road, named Rapidan Road, was also built at this time leading eastward from Big Meadows to Rapidan Camp, which was President and Mrs. Hoover's fishing camp on the upper tributaries of the Rapidan River.

The Big Meadows landscape was designed to serve motorists traveling along Skyline Drive and as a maintenance area for the park. A wye intersection with Skyline Drive allowed traffic to safely move on and off the drive and access the picnic grounds, campground, guest cabins, and lodge via a curvilinear access road, referred to as Big Meadows Road. Adjacent to the access road's intersection with the drive was the wayside area. Gasoline pumps were located to the side of the Wayside station, and a parking lot was located to the rear, out of view from the road. The Wayside station offered a lunchroom, gift shop, and restrooms. Visitors could then exit onto Big Meadows Road and access the rest of the site without driving back onto Skyline Drive.

Further west along Big Meadows Road, a spur curved around a knoll and led to a maintenance area that also included employee housing and stables located off of two smaller roads. Since the maintenance area only served a utilitarian park use, it was located away from the view of passing motorists. Big Meadows Road then continued to the lodge and cabin area, terminating at a loop drive for cars to discharge passengers at the front entrance of Big Meadows Lodge before

continuing on to the parking area. The parking lots were incorporated into the loop road and were divided into two linear lots with 150 spaces and edged with wood guardrails. A service road intersected with the loop road and continued to the rear of the lodge building. The lodge also featured a flagstone terrace in the rear overlooking the valley to the west. The access road then curved back to Big Meadows Road. Adjacent to the parking lots and lodge were a cluster of two-unit guest cottages with separate walkways leading to each entrance.

Southeast of the lodge, a spur off of Big Meadows Road lead to the picnic grounds and campground. The picnic grounds were arranged around a loop road with most picnic sites located within the loop. Three parking areas were located along the perimeter of the loop with thirty-five spaces. A system of footpaths originated from the perimeter road and intersected in the center where a comfort station was located, forming a cloverleaf pattern. A spur also split off and led to a campground southeast of the picnic grounds. The campground was organized around a one-way loop road crossed by multiple one-way roads that divided the area into separate tiers. Most of the campsites had parking areas that spanned the width of the loop and provide access from two roads. This design allowed for convenient use by cars pulling trailers, which could pull into the sites and exit without backing up. The design of the picnic grounds and campground circulation was based on principles developed by forest pathologist E. P. Meinecke who endorsed the use of one-way loop roads with off-road parking and individual campsites with fireplaces and tables. He also promoted the idea of using vegetation, boulders, and logs to define spaces and provide a sense of privacy.

Pedestrian circulation at Big Meadows consisted of a network of hiking and horseback riding trails that weaved through the site. The Appalachian Trail, portions of which were reconstructed by the CCC in the early 1930s, meandered closely along the western edge of the Big Meadows development, including the campground, picnic grounds, and the cabin/lodge area. A bridle path crossed Big Meadows north to south, passing by the stables at the maintenance area. Another trail led from the parking area in front of the guest cabins to Blackrock. The Dark Hollows Trail wound its way through Big Meadows from the lodge and terminated at a waterfall east of Skyline Drive. Big Meadows Road itself did not appear to have contiguous sidewalks or walkways.

Post-historic and Existing Conditions:
Additions to the circulation network since the period of significance at Big Meadows include the parking and circulation serving Byrd Visitor Center overlooking the meadow along Skyline Drive. The design and construction of the Byrd Visitor Center also prompted a redesign of some of the circulation at the Wayside, including the removal of the original access road off of Skyline Drive to the gasoline pumps, the addition of a new entrance and exit, a new filling station, and expanded parking connected to the parking lots for the Visitor

Center. Additionally, a spur road leading from the Big Meadows Road to a wastewater treatment plant was constructed in 1978. A second campground loop was built adjacent to the existing campground in the 1960s to accommodate the unprecedented growth in visitation. The new loop was composed of campsites with a pull-in area from the loop road, where cars and recreational vehicles could be parked. Paths connected the sites to nearby masonry block comfort stations and stacked stone drinking fountains. Tent sites were also located south and east of the new loop with walk-in sites consisting of a small clearing among the trees and shrubs.

The configuration of most hiking trails and the bridle path remains the same with minor alterations. The Dark Hallows Falls Trail starting at the lodge was renamed the Nature Trail and includes interpretive signage at various points along the way. The Dark Hallows Falls Trail was restored in the late 1990s by the Back Country Trails Department and has no historic CCC-related remnants. The Lewis Springs Trail runs parallel with the Appalachian Trail but further down the slope of the hillside. Originally proposed in 1941 as part of the overall Master Plan, the actual date of construction and completion of the trail is unknown. A new trail, the Story of the Forest Trail, was constructed under the Mission 66 program and consists of a 1.8-mile circuit from the Byrd Visitor Center to the campground.

Evaluation: Contributing

The circulation network of roads and trails, and pathways at Big Meadows continues to reflect the design characteristics present during the period of significance. Big Meadows Road remains as the main access road linking all the sub-areas of the development. The site also retains the original campground loop, the picnic area loop, the lodge drop-off and parking, the park maintenance area, and several trails. Contributing circulation features are listed in Table 2.1.



Figure 2.13. The 105-mile Skyline Drive passes through the Big Meadows area (OCLP).



Figure 2.14. Road cut on Skyline Drive just north of the Big Meadows entrance. The road cut was constructed when Skyline Drive was realigned in 1954 (OCLP).



Figure 2.15. Big Meadows is organized along the two-lane Big Meadows Road. A paved pedestrian walkway adjacent to the road connects the visitor center area with the lodge and cabin area (OCLP).



Figure 2.16. Drop-off and registration at Big Meadows Lodge is accommodated by a circular loop drive (OCLP).



Figure 2.17. The campground area is accessed by a system of single-lane paved roads with either spur parking spaces or pull-through trailer spaces (OCLP).



Figure 2.18. Service drives, restricted to park use, are typically surfaced with gravel (OCLP).



Figure 2.19. Pedestrian circulation in the lodge and cabin area is provided by a network of asphalt pathways (OCLP).



Figure 2.20. Pedestrian circulation in the picnic area consists of narrow gravel pathways (OCLP).



Figure 2.21. The Appalachian Trail, seen here, and other backcountry trails, feature natural, earth treads (OCLP).

BUILDINGS AND STRUCTURES

Buildings are defined here as the elements primarily built for sheltering any form of human activities. Functional elements constructed for other purposes than sheltering human activity, including circulation and engineering systems, are considered structures.

Historic Conditions (through 1952):
The design of the facilities throughout Shenandoah National Park involved the coordination of government and private entities. The NPS San Francisco and Philadelphia planning offices undertook the master planning design work and developed the standards with which the CCC constructed many of the site's buildings and structures. Other buildings associated with visitor services were constructed under the direction of the concessionaire's architect, Marcellus Wright, Jr., with oversight provided by the NPS regional office.

The historic development of buildings and structures at Big Meadows occurred from 1937 to 1950. Buildings were grouped according to function and located in separate areas within the development. Guest accommodations were grouped in adjacent locations, while the maintenance area was sited out of view. Facilities for motorists traveling on Skyline Drive were located conveniently adjacent to the road. Though grouped in separate zones, all of the buildings at Big Meadows shared a similar rustic-style design vocabulary. Big Meadows contains numerous examples of rustic park architecture made of native stone and timber, in the form of comfort stations, guest cabins, the lodge, and service buildings, and reflect the master planning process guiding the development of national park facilities in the 1930s.

The Big Meadows Lodge, one of the original park structures, was built in 1939 by the park concessionaire, the Virginia Sky-Line Company, and designed by Marcellus Wright, Jr. as a multi-gable structure in the rustic style. Wright's architectural designs typically utilized local materials and native stone, and scaled buildings to blend into their surroundings. The two-and a half-story building was covered with flitched-edge wood siding with stone sections along the façade, and concrete shingles. The entire structure was sited to provide views of the valley from guest rooms, the lounge, dining room, and the elevated flagstone terrace along the back side of the lodge. The massing of the building helped to integrate the structure with the existing topography as well. Wright also designed the Wayside building at the entrance to the Big Meadows development, comprised of a lunchroom, gift shop, restrooms, and a gas station. The building consisted of wood siding and cross-gabled sections. The lunchroom was oriented to the south so that diners could enjoy views of the meadow during their meal.

Other guest accommodations designed by Wright included five guest cabins southwest of the lodge. The two-unit cottages were named Petersburg,

Blacksburg, Bridesburg, Lynchburg, and Mountain View. The cabins were wood frame T-shaped buildings with hipped roofs and flitched edge wood siding. Each building featured a stone chimney that opened onto two separate hearths.

Across the parking lot from the five guest cabins was a staggered line of four longer lodge buildings. The concessionaire constructed the first three in the 1940s with nearly identical exteriors. All had rustic lap siding knee-walls with board-and-batten upper walls, stone chimneys, and cross-gable roofs covered in cement shingles. Piedmont Cottage, constructed in 1941, and Hawksbill Cottage, constructed in 1946, each contained ten units and had five stone chimneys. Black Rock Cottage, constructed in 1946, was located between Piedmont and Hawksbill. Near Hawksbill Cottage was a row of small cottages referred to as Cottages "A" through "E". The National Park Service moved these cottages to this location in 1955 from the park's Swift Run area, where they were originally built from 1931-1934.

The CCC constructed several comfort stations at the picnic grounds and campground that represent the typical standard utilitarian design rendered in native chestnut timbers and stone veneered foundations built throughout Shenandoah National Park. Chestnut logs were salvaged from the debris gathered by the CCC during the cleanup of forests and the roadside and was used for wooden guardrails (no longer extant) and many of the concessionaire's and government buildings in the park. The comfort station at the picnic area was constructed of squared logs joined by V-notches and roofed with chestnut shake shingles. The CCC constructed two other comfort stations at the northern and southern sections of the campground in a similar fashion. In addition, the CCC constructed a campground Contact Station consisting of a small log building with asphalt shingles and a stone foundation and chimney.

At the maintenance area, the CCC constructed a complex of seven service buildings laid out in a rectangular configuration on a spur off of Big Meadows Road and enclosed by a wood palisade fence. The buildings were rustic in design, with vertical siding made of half-round timbers, about three or four feet long, and gabled roofs with wood shingles. Some of the buildings had wood shingles and others green asphalt roofing. The buildings included the Equipment Shed/Garage, Maintenance/Vehicle and Equipment Storage, Blacksmith Shop/Storage Shed, Carpenter Shop/Storage Building, Warehouse/Storage, a Gas/Oil building, and stables that originally served as an employee garage. The layout and design of the maintenance area adhered to ideas developed by Charles Punchard, who promoted the concept of grouping maintenance facilities as a collection of buildings arranged for efficiency and located on side roads, away from park visitors. Another building at the maintenance area was the ranger office located on a separate road off of the spur. The building, a gabled roof structure with wood siding, was originally constructed near Rapidan Camp in 1930 by President and

Mrs. Hoover as a schoolhouse for local children. The building was moved to its current site in 1945 and altered for use as a residence.

Other structures built during the period of significance, include a series of culverts and other drainage structures constructed by the CCC along Big Meadows Road and its spurs. Eight culverts on Big Meadows Road consisted of either headwalls or drop inlets built with coursed, mortared stone over a concrete core with corrugated metal pipes varying in diameter from fourteen to eighteen inches. Big Meadows Road also featured stone gutters constructed in a V shape with an overall depth of eight inches and three feet in width. The gutters were laid above tile underdrains and drained into drop inlets. Culverts were also constructed at the campground, also composed of corrugated metal pipes with headwalls of coursed, mortared stone over a concrete core and included drop inlets with semicircular outer walls.

Post-historic and Existing Conditions:
Since the period of significance, the Big Meadows area has continued to evolve to meet the needs of visitor services and park operations. Overall, however, the general layout, design, and function of buildings and structures at Big Meadows remains intact. Many historic buildings and structures from the period of significance are extant, including the lodge, guest cabins, Wayside building, maintenance buildings, campground contact station, and comfort stations. Some buildings have been reconfigured or adapted for other uses, such as the Hoover School, moved to the maintenance area in 1946 to be used as a ranger's residence and now used as ranger offices.

The most significant addition to the site since 1952 is the Byrd Visitor Center and associated parking lot, completed in 1966. The Visitor Center was designed according to principles developed for the NPS Mission 66 program, which was initiated in 1956 to update park facilities and accommodate the dramatic rise in visitation. A key component of the program was the development of park visitor centers, a new building type created by the National Park Service in order to concentrate public services into one facility, offering interpretive exhibits, museum displays, restrooms and other visitor amenities, as well as housing administrative offices. The visitor centers were sited at convenient and highly visible locations in the parks where visitors could park and have access to a range of services and attractions.[7] Visitor center buildings combined the previously separate contact stations, museums, and administrative buildings into one centralized resource for visitors. The architectural style of these new buildings were contemporary, utilizing mid-century design motifs first adopted in Europe, such as open floor plans, flat roofs, concrete construction, and pre-fabricated building components. The design of the visitor centers also incorporated flexible space plans as well as spaces for new technology such as slide and movie projectors. A stand-alone restroom building was constructed on the northwest side of the Byrd Visitor

Center in 2003.The restroom building is connected to the visitor center with a covered breezeway, designed to appear as an integral part of the larger building.

The Byrd Visitor Center houses exhibits installed in 2006 that interpret the history of the park, including its establishment, the construction of Skyline Drive, segregation and desegregation, and wilderness designation. The facility also includes a large theater and a cooperating association sales area, and features views overlooking the meadow to the east. Although the overall massing of the building is of a more contemporary and larger scale, the use of stone on the exterior does provide a stylistic reference to the historic buildings on site. Visitor centers associated with Mission 66 have been determined eligible for the National Register if they possess exceptional importance even though they are less than fifty years old. Additional investigation and research is necessary to determine the building's eligibility for the National Register based on its context within the history of Mission 66. However, in the September 1997 National Register documentation for Skyline Drive, the Byrd Visitor Center was evaluated as a noncontributing feature. This evaluation was reaffirmed by the Virginia State Historic Preservation Office on June 20, 2000 prior to renovations to the building.

The Wayside was expanded significantly between 1957 and 1961. Additions to the original structure included the enclosure of the original north porch and expansion northward, new additions to the south façade facing the meadow, and extension of the building on the east side. By the time the building renovations were complete, the original structure was nearly enclosed by new additions, with the only historic façade still visible on the northwest corner of the building. About this time, the circulation and parking around the building were reconfigured and the fueling services were moved from the east to the west side of the building. The interior space of the Wayside has been reconfigured several times since it was built, with the dining area ultimately being moved to the north side of the building away from the meadow. A recently completed remodel of the interior space moved the dining area back to the south side and reestablished views to the meadow from inside the building.

At the cabin/lodge area, several new buildings have been constructed since the period of significance. Adjacent to the lodge is a small frame building used for refuse storage, built in 1971. Additional non-contributing buildings include a storage shed for flammable materials near the Lynchburg Cabin. The Virginia Sky-Line Company built the multi-unit Doubletop Cottage in 1959 and the adjacent Rapidan Cottage in 1963, sited between the cluster of two-unit cabins and the edge of the west facing bluff. These two buildings were constructed parallel to the edge of the slope, blocking views to the valley from the original 1939 cabin cluster located to the east. Above the Doubletop Cottage, a telecommunications station is housed in a small shed-roofed building on the top of Blackrock Point. The concessionaire also constructed Crescent Rock Lodge in 1986, composed of

ten units and a vending area. It was constructed of concrete block and wood, with clapboard siding and private decks across the west facing facade. A small, modern building near Blackrock was used for storage, ice, and concessions. Across the loop road is a cluster of five buildings used for concessionaire employee housing. These buildings are of relatively modern construction, built of concrete block with low-pitched asphalt shingled roofs. Each building contains either four or six employee apartments.

At the picnic grounds, the biggest change occurred with the construction of an amphitheater in 1978. The amphitheater is comprised of a fan-shaped arrangement of benches facing a stage and screen structure. A simple stage structure was built with a painted plywood projection screen across the back. A projection booth is housed in a shed that sits behind the amphitheater. A vault toilet was added near the eastern parking area on the picnic area loop road around 2010.

The campground at Big Meadows has undergone a major expansion since the period of significance, with an additional loop road system that increased the camping capacity to 200 sites. To accommodate a larger number of users, several new buildings were constructed between the campground and the picnic area, including showers, laundry facilities, and restrooms, of concrete block construction. A firewood storage shed was also built with open wood slat siding. Six additional comfort stations were also built throughout the campgrounds of concrete block. Two buildings from the period of significance have undergone restoration, including the CCC-constructed contact station, and a log comfort station to the east of the campground that was nearly destroyed by a fire in 1998.

At the maintenance area, the buildings that originally comprised the service complex survive with relatively few alterations. The Equipment Shed/Garage, Maintenance/Vehicle, and Equipment Storage buildings have been joined into one long building. On the north end of the building, a new extension houses fire equipment. On the south end of this building is the Pitch Tar Storage Retaining Wall, a stone retaining wall with tanks mounted above to load tank trucks. Adjacent to the maintenance cluster are two buildings constructed in the 1960s as motel-style, single story, concrete block buildings. One building contains apartments and the other has been converted to office space. These buildings are currently scheduled for removal. To the east of the maintenance area is the remains of the former stables area. There are currently two buildings there. One building was built as a garage in 1939, before being converted to a stable. The other building was built as a stable in 1959, and is now used as a trail cache.

In 1978, the National Park Service constructed a wastewater treatment facility on a new spur off of Big Meadows Road, consisting of two structures and associated parking. The wastewater treatment building consists of an exterior of concrete blocks with deep vertical ridges. The second building is an open metal structure

on a concrete foundation that is used for open air drying of processed sludge from the treatment plant.

Four buildings located along a spur road north of the wastewater treatment plant are used as park housing. Three of the structures are two-story (a basement and a main floor) ranch style structures with upper floors that are wood-framed with vertical siding, concrete block walk-out basement levels, and low pitch asphalt shingled roofs. The fourth building uses the same materials, but is of a different style. It has two stories, steep pitched roof, and sits on a concrete foundation with no basement. All of these buildings were built in the 1990s and are noncontributing.

In addition, there are three subterranean structures associated with the Big Meadows water supply system. The Lewis Spring house, located on the south side of Lewis Spring Road, is a small concrete chamber set into a westward sloping hillside. The passage to the entrance of the spring house is flanked by a pair of stylized curved stone walls which decrease in height from roughly seven and a half feet on either side of the door to about one foot. The pump house is a larger concrete room set into a south facing slope on the north side of Lewis Spring Road. The entrance to this structure is flanked by a simple pair of flared stone wing walls that taper from a total height of about eight feet down to ground level. Several steel pipes can be seen just below the surface leading between the structures. Currently, water from these structures is pumped to a subterranean reservoir atop Blackrock, but after a proposed plan will convert the spring-fed system to a well water system, the spring house and pump house will be decommissioned. This 10,000-gallon concrete reservoir is visible on the surface only by way of three steel hatches and by the geometric grading over the structure. According to Reed Engle, former Park Cultural Resource Specialist, the current system was originally installed by the CCC in the 1930s to provide water for the Big Meadows complex.[8]

Evaluation: Contributing

Big Meadows contains several buildings and structures from the historic period that reflect the rustic design principles for which it is significant. Notable contributing buildings and structures include the lodge, cabins, Wayside, and campground structures. Development after the period of significance resulted in a number of non-contributing structures, including the visitor center, visitor cottages, employee housing, and other structures. Despite dating to the end of the period of significance, the employee cottages, also known as the maids' cabins, are non-contributing due to the fact that they were moved to the site after the period of significance, and because of their extreme poor condition. These cabins are scheduled to be removed in 2019. Contributing and non-contributing buildings and structures are listed in Table 2.1.



Figure 2.22. The showcase feature of the lodge and cabin area is the Big Meadows Lodge, constructed in 1939 by the park concessionaire (OCLP).



Figure 2.23. The visitor center, constructed in 1952 as part of the National Park Service's Mission 66 initiative, occupies a prominent position on Skyline Drive across from the meadow (OCLP).



Figure 2.24. Adjacent to the visitor center, the Wayside, constructed in 1939, provides visitor services, including a dining room, gift shop and camp store, restrooms, and gas station (OCLP).



Figure 2.25. Five individual cabins were constructed just south of the Big Meadows Lodge in 1939 to provide an alternative lodging experience (OCLP).



Figure 2.26. Two comfort stations in the north campground date to the campground's initial construction in 1937 (OCLP).



Figure 2.27. The Big Meadows maintenance area contains several historic buildings, including the stables, built in 1939 (OCLP).



Figure 2.28. Several of the Big Meadows maintenance buildings are linked together in a long row. Like the rest of the historic structures in the maintenance area, these timber and stone buildings were constructed in 1939 (OCLP).



Figure 2.29. Several concrete-block buildings were constructed in the 1960s to provide housing for concessionaire employees (OCLP).



Figure 2.30. Five small cabins were relocated from the park's Swift Run area in 1955. The cabins, originally constructed in the 1930s, are in very poor condition and are not currently being used by the park. The cabins are currently scheduled for removal (OCLP).

VEGETATION

Vegetation includes the deciduous and evergreen trees, shrubs, vines, ground covers, and herbaceous plants and their associated plant communities, whether indigenous or introduced to the landscape.

Historic Conditions (through 1952):
Early travelers on Skyline Drive enjoyed a multitude of panoramic views framed by pastures and fields and some forested areas. In 1931, the Big Meadows area was noted for its expansive open fields and large stands of dead chestnut trees, often referred to as "ghost trees." During the construction of Skyline Drive and the park facilities, an emphasis was placed on preserving the existing natural landscape and restoring altered landscapes through the planting of thousands of native trees, shrubs, vines, and groundcover. The National Park Service aimed to reduce introduced non-native vegetation as well, and to remove dead or diseased trees.

At Big Meadows, the CCC established one of two nurseries near Fechner Camp, to "ensure the success of transplants" to be used throughout the park.[9] Transplants (and in some cases cuttings) spent a limited time in special beds in order to strengthen the plants and their root systems. The presence of a nursery offered a ready stock of a number of types of plants, including Virginia creeper (*Parthenocissus quinquefolia*), trumpet creeper (*Campsis radicans*), asiatic bittersweet (*Celastrus orbiculatus*), arrow-wood viburnum (*Viburnum dentatum*), rhododendrons (*Rhododendron spp.)*, dogwoods (*Cornus spp.*), and sumac, as well as pitch pine (*Pinus rigida*), red spruce, (*Picea rubens*), balsam fir (*Abies balsamea*) and walnut (*Juglans nigra*) trees. Balsam fir, red spruce, and Canadian yew (*Taxus canadensis*) were especially singled out for cultivation. These declining species in the park were started via transplants and seeds, and studies were made about their germination and growth to understand the appropriateness of these species in the park. Stock was planted on slopes along the drive to control erosion, around picnic areas and campgrounds for screening for privacy, and to frame views and vistas. Under this project, 300,000 trees and shrubs were transplanted.[10]

At Big Meadows, the CCC installed plantings throughout the site, including deciduous trees, such as red oaks and black walnuts, and evergreen trees for screening and shade. Historic photographs of Big Meadows Lodge show several mature trees that were preserved during construction in order to maintain as much of the original vegetation as possible. Existing trees were also preserved where possible at the cabin/lodge area, picnic area, and campground. At the wayside area, an open lawn was dotted with trees to keep views to and from Skyline Drive open, as well as provide views to the meadow. The CCC also installed foundation plantings and trees within the wayside area parking lot island. At the maintenance area, the CCC installed foundation plantings at several buildings. As they matured, the plantings throughout the site began to define spaces within the picnic grounds as well as the cabin/lodge, and campground.

Post-historic and Existing Conditions:
In the spring of 2000, the park began to address the loss of the open landscape through removal of recently established black locust trees (*Robinia pseudoacacia*) from the perimeter of the meadow, and black locust and pine trees near Skyline Drive to restore its historic open character. In 2000, park staff also initiated a program of mowing and controlled burning portions of the meadow in rotation to restore it to a more open vegetation community. Efforts are underway to control the invasive Asiatic bittersweet vine and to selectively remove shrubs from the wetland area at the center to encourage rare plant growth.

Remnant plantings exist around the location of Camp Fechner on the east edge of the meadow. The plantings are believed to be remnants of the CCC era because they appear in locations where they would not naturally have occurred and/or because they are arranged in unnatural configurations. On the edge of the meadow there are rows of lilac (*Syringa vulgaris*), witch hazel (*Hamamelis virginiana*), and barberry (*Berberis thunbergii*). Further back into the tree line are isolated groups or individual plants out of character with the natural plant associations common in the area, including sugar maples (*Acer sacharum*) and masses of witch hazel.

At the wayside area, there are scattered trees in the lawn on the side nearest the parking lot and in taller grass on the Skyline Drive side. The trees include oaks, black locust, hemlock, a Norway spruce (*Abies picea*), and dogwood. Recent tree plantings include white pine and oaks south of the Wayside station. At the cabin/lodge area, there are plantings that include mixed oaks with scattered pine trees and under-plantings of spirea. The vegetation within in the driveway circle in front of the lodge includes red and white oaks, pine, and dogwood.

At the picnic area, there are primarily mixed oaks and a few pines scattered about the lawn, and some understory trees such as witch hazel, apple (*Malus spp.*), hawthorn (*Crateagus spp.*), and mountain laurel (*Kalmia latifolia*). At the amphitheater, the surrounding tree canopy is made up of oaks with an understory of witch hazel. Black locusts flank the entry at the road with witch hazel present as the understory along the length of the entry path. The tree canopy at the campground Contact Station is comprised of mixed oaks and maples. Some species of pine are found in the tent area, and around the comfort stations there are pines, spruce (*Abies*) and cherry (*Prunus*).

At the maintenance area, there is a mixture of trees including hawthorn and black locust. At the ends of the CCC buildings there are semi-circular beds that are currently planted in grass. One bed at the Carpentry Shop still has a mountain laurel that may have been part of the original planting. Along the embankment in back of the Equipment Shed/Garage and the Maintenance/Vehicle and Equipment Storage there is a mature row of red oaks (*Quercus rubra*) under-planted with a row of three witch hazels. There is a former horse pasture below

the stables consisting of an open area with grass and thistles, and a few scattered trees, the remnants of a tree nursery located there in the 1990s and 2000s. At the wastewater treatment facility south of the maintenance area there are scattered trees that include white pine, hemlock, oaks, hawthorn, and witch hazel.

Planting plans dating to the period of significance have not been discovered to provide exact information regarding all the plantings installed by the CCC. Many decisions were typically made in the field as to what plantings to install at various park locations. The plantings were also intended to blend in with existing vegetation, and in the course of over seventy years they have done so. Therefore it cannot be known with certainty how much of the original plantings remain.

Evaluation: Contributing

Natural vegetation patterns, including meadow vegetation, hardwood forests, and wetland vegetation, contribute to the Big Meadows cultural landscape. Contributing cultural vegetation include canopy trees, turf grass, and shrubs throughout the Big Meadows area, and remnants of tree and shrub planting in the area of the CCC camp in the meadow. Contributing and non-contributing vegetation is listed in Table 2.1.



Figure 2.31. Several oaks, such as this mature tree growing in a stone tree well in front of the lodge, were likely planted shortly after the lodge was built (OCLP).



Figure 2.32. Vegetation in the lodge and cabin area is dominated by oaks growing over grass or other low ground cover (OCLP).



Figure 2.33. The oaks in the lodge and cabin area create a dense canopy with an open understory (OCLP).



Figure 2.34. Mature oak and ash trees in the campground (OCLP).



Figure 2.35. Forested areas in Big Meadows are generally characterized by low shrub and herbaceous understory layer (OCLP).



Figure 2.36. Mature shrubs, such as the large lilacs in the picnic area, may have been planted by the CCC in the 1930s (OCLP).



Figure 2.37. The campground also contains mature shrubs, such as mountain laurel (OCLP).



Figure 2.38. Vegetation in the walk-in tent sites in the campground has a more naturalistic character (OCLP).



Figure 2.39. Until recently, the lodge featured a number of shrubs in front, seen here in 2013 (OCLP).



Figure 2.40. The same area in 2018 contains no shrubs (OCLP).



Figure 2.41. Trees and shrubs growing on the east side of the meadow were likely planted by the CCC in and around their camp (OCLP)



Figure 2.42. A row of lilac and other shrubs grow at the CCC camp site on the east side of the meadow (OCLP).

VIEWS AND VISTAS

Views and vistas include the prospects afforded by a range of vision in the landscape, conferred by the composition of other landscape characteristics and associated features.

Historic Conditions (through 1952):
Views and vistas were one of the most important characteristics of the park's Skyline Drive as it traced the spine of the Blue Ridge Mountains. Views were so fundamental to the motoring experience that all developed areas were carefully sited to highlight views. As vehicles traced the ridge, their views alternated between the Shenandoah Valley and Appalachians to the west to the Piedmont to the east. At the time of the drive's construction beginning in 1931, the patchwork landscape of Virginia's Blue Ridge was comprised of cultivated lands, farms and mills, as well as a few old-growth woodlands. This resulted in predominantly open expansive views at the beginning of the period of significance. Successional forests, and plantings installed by the CCC around the developed areas, began to limit some of the views by the end of the period of significance.

The views and vistas at the Big Meadows site were a major consideration in its development in the early 1930s. The lodge and guest cabins were sited to take advantage of spectacular views primarily to the northwest across the Shenandoah Valley. Trails were also laid out to provide views of the valley and included overlooks from rock outcroppings. The most notable of these was the view westward from Blackrock. The Wayside building, and specifically the dining room, was designed to offer sweeping views across the open meadow across Skyline Drive.

Post-historic and Existing Conditions:
Today there are excellent panoramic views of the valley from Big Meadows Lodge, Rapidan and Doubletop Cottages, and from the original section of the campground. The addition of Rapidan and Doubletop, in 1959 and 1963 respectively, blocked the westward views to the valley from the original cluster of the Petersburg, Blacksburg, Bridesburg, Lynchburg, and Mountain View cabins. There has been recent clearing in swaths along the back of lodge, Rapidan, and Doubletop cabins to reestablish views to the valley. The Byrd Visitor Center was located near the Wayside to take advantage of the same panoramic views across to the open meadow as the Wayside building. Views from the Wayside were diminished when the building was reconfigured to place the lunchroom on the west side. The building is currently being reconfigured to place the lunchroom on the east side and reestablish views of the meadow.

Historic views have been impacted following the end of the historic period. Poor air quality has reduced the visibility of the Shenandoah Valley and the mountains to the west. Despite efforts to reestablish some views, overgrown vegetation has

continued to limit or obscure some other views and vistas.

Evaluation: Contributing

Prominent contributing views include the distant views of Shenandoah Valley from the lodge and visitor cottages, as well as the expansive meadow views from the Wayside, visitor center, and Skyline Drive. Although partially obscured, views of the valley from the campground continue to contribute to the cultural landscape.



Figure 2.43. One of the most notable characteristics of the Big Meadows area are the arresting views of the Shenandoah Valley to the north and west. These views are most prominent from the lodge and the Rapidan and Double Top Cottages (OCLP).



Figure 2.44. The views from the lodge terrace are perpetuated by maintaining a tree-free area just below the lodge (OCLP).



Figure 2.45. The trees at the lower edge of the view clearing obscure the lower portion of the valley view (OCLP).



Figure 2.46. The view from Black Rock, just southwest of the lodge and cabin area, is unobstructed for nearly 360 degrees (OCLP).



Figure 2.47. The big meadow on the south side of Skyline Drive provide sweeping views from the road and from the visitor center and Wayside area (OCLP).



Figure 2.48. Views of the meadow from the visitor center are framed by mature trees in the foreground (OCLP).



Figure 2.49. During the summer, much of the view of the Shenandoah Valley, seen here from the north side of Rapidan Cottage, is blocked by trees (OCLP).



Figure 2.50. The cabins, constructed in 1939, originally had views of the valley to the north. The Rapidan and Double Top Cottages were constructed on the edge of the plateau in 1963, blocking the view from the cabins (OCLP).

SMALL-SCALE FEATURES

Small-scale features are the elements which provide detail and diversity for both functional needs and aesthetic concerns in the landscape.

Historic Conditions (through 1952):
Albert H. Good's 1938 "Park and Recreation Structures" catalogued variations on small-scale features within the National Park Service. The three-volume encyclopedic work provided examples of barriers, water fountains, picnic tables, picnic fireplaces, signs, and comfort stations, which spoke to a craft tradition romanticizing early American pioneer efforts. The collection assembled in these books highlighted NPS features that were sensitive to regional vernacular design vocabularies.

Throughout Shenandoah National Park, the built small-scale features followed the same design language described in Good's work. Log and rock barriers; boulder water fountains; rusticated log-framed signage; wood picnic tables; and stacked-stone all appeared within developed areas along Skyline Drive. Small-scale features at Big Meadows were highly characteristic of park-wide and even NPS-wide standardized variations on rustic-style features. Among these variations, the following have been verified at Big Meadows in historic photographs: rusticated log-framed signage, boulder drinking fountains, log guardrails, wood fencing, wood picnic tables, and boulder bollards.

Boulder water fountains used at the picnic grounds and campground at the Big Meadows complex represent one of several historic types found along Skyline Drive. The boulder drinking fountains were each made of a single large boulder with a fountain head mounted to the top and a spigot with hose attachment mounted near the base. The CCC constructed the water fountains at the picnic grounds.

Photographs of the historic campground and picnic area show one of the original stacked stone fireplaces with a grate covering the top. The construction consisted of stacked stone with coursed and mortared stone. The fireplaces were located throughout the campground and picnic grounds.

Many of the original signs at Big Meadows were constructed by the CCC in the late 1930s and early 1940s. Signs featured a rustic style using salvaged chestnut logs with wood panels suspended by metal straps. Rustic style signs were installed at the wayside area, the entrance to the campground, and at the cabin/lodge area. Another historic sign is the concrete milepost installed along Skyline Drive during the road construction. Trail signs along the Appalachian Trail were composed of square concrete pillars with the name indented vertically along the side and location information on a metal band encircling the pillar near the top. Markers associated with the Appalachian Trail and Skyline Drive are evaluated in separate

CLIs.

Large boulders were used as bollards along drives, paths, and trailheads at Big Meadows to provide barriers and define campsites. The use of boulders as bollards followed ideas proposed by E. P. Meinecke, of the U.S. Forest Service, who promoted their use to define parking areas. The use of boulders also protected vegetation from parked automobiles.

Historic images reveal the use of log guardrails along the outer edges of the parking lots at the cabin/lodge area and the picnic grounds. The guardrails were typically built as two posts roughly eighteen inches high, topped with a log roughly nine to ten feet in length. These log guardrails provided a barrier discouraging cars from going over the edge, which sloped down in some areas.

The tables at the picnic area at Big Meadows were fairly typical in construction, using wood with a cross-braced frame connecting benches and table.

Post-historic and Existing Conditions:
Several small-scale features in the Big Meadows contemporary landscape date to the historic period of significance. They include the boulder water fountains and the boulder bollards. Alterations to the historic picnic grounds landscape include the removal of the stone grills and wood picnic tables. The original picnic tables have been replaced with tables of similar but contemporary materials. There are also split log benches along a trail from the wayside/visitor center area to the lodge that may date to the period of significance, but this has yet to be determined.

Non-historic additions to the landscape include standard NPS signage in the 1960s, contemporary benches placed at the Byrd Visitor Center, and metal outdoor grills in the picnic grounds. Some of the newly installed site furniture also accommodates universal access. At the cabin/lodge area and picnic grounds parking lots, log guardrails have been removed and replaced with concrete wheel stops. A variety of exterior lighting has been added throughout the site, such as pathway lighting, floodlights, and bollard lights at the cabin/lodge area, and several lights mounted on poles in the parking lots.

A range of signs have also been added to the landscape since the period of significance. Most notably, a new sign was constructed along with the Byrd Visitor Center in the late 1960s that used similar materials as the historic signs, including stone and wood, but the overall design is more contemporary. In addition, simpler carved wood signs have been utilized that are mounted on wood posts, and generally painted or stained brown with white lettering. They are used for labeling structures and trails, and giving directions. Other wood markers include small kiosks with bulletin boards at the Big Meadows Lodge, campground, and the Wayside. In addition, wayside interpretive exhibits have been located throughout the site.

At the Byrd Visitor Center, a bronze statue of a worker was dedicated in 2000 to the CCC laborers and their contributions to the park during the 1930s and 1940s. A monument consisting of a bronze plaque mounted on a boulder was also dedicated to the CCC with the following text: "Between 1933 and 1942, more than 10,000 young men served in the Civilian Conservation Corps camps in Shenandoah National Park. These 'boys' created the form and fabric of the new park so that future generations could find recreation and re-creation here."

In the early 1960s, stacked stone drinking fountains were built near at the campground and at the Byrd Visitor Center and Wayside. This type of fountain consisted of a square pillar roughly three feet in height, which tapered from about a sixteen-inch square at the base to about a twelve-inch square at the top. The fountains were made of random coursed ashlar sandstone, sometimes with a step made of a single stone block to one side. An oval enameled steel basin with a chromed steel fountain head was set into the top of the pillars with concrete. Although not constructed during the historic period of significance, their style is similar to those built at other locations in the park during the 1930s and early 1940s. At the cabin/lodge area, a playground was added near Petersburg Cabin, consisting of a wood chip surface among the trees with a metal swing set and wood climbing structure with plastic slides.

A range of fencing types has been installed at various locations at Big Meadows. There is stockade fencing around the upper service entrance of the lodge, separating the terrace from the lower service area, and around dumpsters. It is five and one half feet tall, with narrow wooden pickets. Along the valley side of Doubletop and Rapidan fence rails are supported by stone pillars.

Stone and concrete remnants are located in the meadow that may date to the CCC camp period or after, when the Army Corps of Engineers occupied the site during World War II for training purposes.

Other miscellaneous additions to the landscape respond to the change in site management as well as changing recreational needs and infrastructure improvements throughout the site, including dumpsters and recycling bins, three flagpoles, bicycle racks, and fire hydrants, and a telephone booth.

Evaluation: Non-contributing

Contributing small-scale features at Big Meadows are limited to the stone boulder water fountains in the campground and picnic area. Other small-scale stone features added after the period of significance are non-contributing, but compatible in character. Numerous small-scale features and site furnishings that post-date the period of significance are of a character not compatible with the historic landscape. Contributing and non-contributing small-scale features are listed in Table 2.1.



Figure 2.51. Water fountains in the campground and picnic area were fashioned from large boulders (OCLP).



Figure 2.52. During the historic period, small-scale features throughout the Big Meadows area were constructed of natural materials in a rustic style. A mortared stone water fountain in front of the lodge exhibits is representative of the design principles promoted by the National Park System from the 1920s through the 1940s (OCLP).



Figure 2.53. Non-historic site furnishings, such as this metal bench in the lodge and cabin area, exhibit a wide variety of non-compatible materials and styles (OCLP).



Figure 2.54. A playground with plastic play structures has been located prominently in the lodge and cabin area since about 2000 (OCLP).



Figure 2.55. A typical campsite group contains a picnic table, fire pit, and bear-proof food locker (OCLP).



Figure 2.56. Picnic tables near the Wayside and visitor center are constructed of a composite material (OCLP).



Figure 2.57. Signs throughout the Big Meadows area, such as the sign for the Harry F. Byrd, Sr. Visitor Center, adhere to a standard NPS design aesthetic, featuring simple white letters on brown wooden signs and often incorporating stone materials (OCLP).

ARCHEOLOGICAL SITES

Archeological sites include the locations of ruins, traces, or deposited artifacts in the landscape, and are evidenced by the presence of either surface or subsurface features.

Historic and Existing Conditions:
The open area of the meadow forms one of Shenandoah's sites that was used by Native Americans as long as 10,000 years ago.[11] CCC Camp NP-2, Camp Fechner, is located at the east and north edge of the meadow. This site was the home of the CCC laborers who shaped Big Meadows from 1933 to 1942.[12] Their work is evident everywhere throughout the area and the park. Investigation of the site in July 1999 revealed remnant vegetation believed to survive from the time of the occupation of the camp. The camp and its features are evident today in the topography of the site, including the building locations, road traces, and the baseball diamond with its pitcher's mound.

A second remnant landscape was observed and documented during the July 1999 field survey, an old tennis court site located along Big Meadows Road between the turn off to the maintenance area and the intersection where the lodge loop drive splits from the drive to the picnic and camping areas. The tennis court is about two hundred feet to the west of the entrance drive, but is barely recognizable as tennis courts. Trees have encroached to the edges of the large, open rectangular area, which is covered in a near monoculture of short grass, clearly surviving on little nutrients. Further investigation would be necessary to determine the type of surface used on the courts. It is possible that the courts had a hard packed clay surface and that the grass has been the only successful colonizer or they could have been surfaced in asphalt and the grass cover could be surviving in a thin layer of decomposed leaf matter. Remnants of the fence that once surrounded the courts also remain. Along the south end of the courts, some of the galvanized steel posts, which once held the fence, are still standing. Along the west side of the area, some of the concrete bases for the posts still remain, but with no posts remaining.

An archeological survey in the summer of 2000 yielded remains of all CCC buildings and utility systems. The survey also identified a nineteenth century home site. Several types of possible built features and artifacts were located at the campsite. The most distinct and significant feature located was a low dry-laid stone retaining wall approximately ten feet long and eighteen inches high along the east side of what was believed to be the trace of the camp entrance road. The wall was discovered under the low spreading boughs of a small group of hemlocks. Evidence was also found of a trash dumping site located along the far east edge of the site. Within the tree line beyond the east edge of the meadow the ground rises several feet amongst outcroppings of rock to form a rocky ridge which then drops sharply into a small ravine. Scattered among the rocks were bits of barbed wire, scraps of treated wood, and pieces of iron bands and pipe. As discussed under

Vegetation, there are also plantings in the area that are believed to date from the CCC era at the edge of the meadow.

Other features were found in this area, including small chunks of broken concrete as well as stones which appeared to be arranged in rectangular patterns which could have acted as markers for the corners of small beds or as sleeper stones supporting the corners of camp structures. The stone and concrete remnants may date to the CCC camp period or after, when the Army Corps of Engineers occupied the site during World War II for training purposes. Further investigation of this area is needed in order to accurately identify and map features which may be of significance.

Evaluation: Undetermined
Traces of former features in Big Meadows, including road traces and remnants of the CCC camp in the meadow, help convey former aspects of the spatial organization of the district. Further archeological investigation may yield more information about former features and activities at Big Meadows.

Table 2.1: Contributing and Non-Contributing Features

Big Meadows was documented for inclusion in the NPS Cultural Landscapes Inventory in 2009 (CLI-300117), with updated documentation for existing conditions and contributing features in 2018. The following table lists the contributing features and selected non-contributing features of Big Meadows organized by landscape characteristic. The table includes a cross-reference for the List of Classified Structures (LCS) if applicable. Items noted in the table below and listed with an * are entered on the National Register of Historic Places.

CHARACTERISTIC / FEATURE	EVALUATION	LCS NAME	LCS NUMBER	Date
Natural Systems and Features				
Blackrock	Contributing	n/a	n/a	n/a
Wooded area around Picnic Area	Contributing	n/a	n/a	n/a
Big Meadows Swamp (portion)	Contributing	n/a	n/a	n/a
Rock Outcroppings *	Contributing	n/a	n/a	n/a
Hogcamp Branch (portion)	Contributing	n/a	n/a	n/a
Circulation				
Big Meadows Road *	Contributing	TBD	TBD	1936
Appalachian Trail (Portions)	Contributing	TBD	TBD	1935
Skyland – Big Meadows Horse Trail (portion)	Contributing	TBD	TBD	1936
Parking Area / Loop Road from Lodge *	Contributing	Big Meadows Parking Area/Loop Road from Lodge	083069	1938
Lodge Service Drive	Contributing	TBD	TBD	1939
Blackrock Trail (portion)	Contributing	TBD	TBD	1940
Picnic Loop *	Contributing	Big Meadows Picnic Loop	083088	1931
Picnic Grounds Path System *	Contributing	Big Meadows Picnic Grounds Trail	083091	1931
Spur to Campground *	Contributing	Big Meadows Campground Road	083092	1931
Campground Loop * (1937)	Contributing	Big Meadows Campground Road	083092	1937
Campground Paths * (1937)	Contributing	TBD	TBD	1937
Wayside Loop / Parking *	Contributing	Big Meadows Wayside Loop/Parking	083071	1963
Spur to Maintenance Area *	Contributing	Big Meadows Spur to Maintenance Area	083087	1938
Rapidan Road *	Contributing	Rapidan Camp Road	083060	1931
Pedestrian Pathway (parallel to Big Meadows Road)	Noncontributing	n/a	n/a	1980
Story of the Forest Nature Trail (portion)	Noncontributing	n/a	n/a	1966
Campground Loop (1962)	Noncontributing	n/a	n/a	1962
Campground Paths (1962)	Noncontributing	n/a	n/a	1962
Visitor Center Parking Lots	Noncontributing	n/a	n/a	1966
Spur to New Housing Area	Noncontributing	n/a	n/a	1995

CHARACTERISTIC / FEATURE	EVALUATION	LCS NAME	LCS NUMBER	Date
Spur to Sewage Treatment Plant	Noncontributing	n/a	n/a	1978
Lewis Falls Trail	Undetermined	n/a	n/a	1931
Buildings and Structures				
Big Meadows Road Culvert Systems	Contributing	Big Meadows Lodge Access Road Culvert Systems	083101	1936
Big Meadows Road Gutters	Contributing	Big Meadows Lodge Access Road Gutters	083102	1938
Lodge * (BM-0114)	Contributing	Big Meadows Lodge	081827	1939
Petersburg Cottage * (BM-0149)	Contributing	Big Meadows Petersburg Cottage	083080	1939
Bridesburg Cottage * (BM-0153)	Contributing	Big Meadows Bridesburg Cottage	083081	1939
Blacksburg Cottage * (BM-0152)	Contributing	Big Meadows Blacksburg Cottage	083082	1939
Lynchburg Cottage * (BM-0155)	Contributing	Big Meadows Lynchburg Cottage	083083	1939
Mountain View Cottage * (BM-0154)	Contributing	Big Meadows Mountain View Cottage	083084	1939
Linen Storage * (BM-0324)	Contributing	TBD	TBD	1939
Piedmont Cottage * (BM-0115)	Contributing	Piedmont Cottage	083072	1941
Black Rock Cottage * (BM-0116)	Contributing	Black Rock Cottage	083073	1946
Hawksbill Cottage * (BM-0117)	Contributing	Hawksbill Cottage	083074	1946
Employee Cottage "A" * (BM-1156)	Contributing	Big Meadows Cottage "A"	083075	Relocated c. 1950
Employee Cottage "B" * (BM-1157)	Contributing	Big Meadows Cottage "B"	083076	Relocated c. 1950
Cottage "C" * (BM-0314)	Contributing	Cottage "C"	083077	Relocated c. 1950
Cottage "D" * (BM-0315)	Contributing	Cottage "D"	083078	Relocated c. 1950
Cottage "E" * (BM-0316)	Contributing	Cottage "E"	083079	Relocated c. 1950
Picnic Area Comfort Station * (BM-0507)	Contributing	Big Meadows Picnic Area Comfort Station	083089	1937
Campground Contact Station * (BM-0705)	Contributing	Big Meadows Campground Contact Station	083094	1937
Campground Comfort Station (west) * (BM-0508)	Contributing	Big Meadows Campground Comfort Station #1, West	083095	1937
Campground Comfort Station (east) * (BM-0509)	Contributing	Big Meadows Campground Comfort Station #2, East	083096	1937

CHARACTERISTIC / FEATURE	EVALUATION	LCS NAME	LCS NUMBER	Date
Spur to Campground Culvert System (no #)	Contributing	Big Meadows Campground Road Culvert System	083093	1931
Wayside Building * (BM-0113)	Contributing	Big Meadows Wayside	082849	1939
Equipment Shed / Workshop / Repair / Garage * (BM-0410)	Contributing	Big Meadows Equip Shed/ Wrkshop/Repair/ Garage	081828	1939
Maintenance / Vehicle & Equipment Storage * (BM-0411)	Contributing	Big Meadows Maintenance/ Vehicle & Equip Storage	081829	1939
Blacksmith Shop / Storage Shed * (BM-0412)	Contributing	Big Meadows Blacksmith Shop/Storage Shed	081830	1939
Carpenter's Shop / Storage Building * (BM-0414)	Contributing	Big Meadows Carpenter's Shop/Storage Building	081832	1939
Warehouse Sub HQ / Storage * (BM-0415)	Contributing	Big Meadows Warehouse Sub. Hdqtrs/Storage	081833	1939
Gas / Oil Building * (BM-0416)	Contributing	Big Meadows Gas/Oil Building	081834	1939
Stables * (BM-1158)	Contributing	Big Meadows Maintenance Area Garage	081835	1939
Ranger Office* (BM-0214)	Contributing	Big Meadows Hoover School	083086	1930, Relocated 1940
Pitch Tar Storage Retaining Wall	Contributing	TBD	TBD	1939
Stables (BM-0379)	Contributing	n/a	n/a	1939
Rapidan Road Stone Retaining Walls *	Contributing	TBD	TBD	1931
Rapidan Road Culverts *	Contributing	Rapidan Camp Road Headwalls and Culverts	082931	1931
Can Storage (BM-0382)	Noncontributing	n/a	n/a	Relocated c. 1950
Double Top Cottage (BM-0118)	Noncontributing	n/a	n/a	1959
Rapidan Cottage (BM-0344)	Noncontributing	n/a	n/a	1963
Crescent Rock (BM-0397)	Noncontributing	n/a	n/a	1986
Concessionaire Housing (BM-0319)	Noncontributing	n/a	n/a	1966
Concessionaire Housing (BM-0320)	Noncontributing	n/a	n/a	1963
Concessionaire Housing (BM-0326)	Noncontributing	n/a	n/a	1961
Concessionaire Housing (BM-0327)	Noncontributing	n/a	n/a	1961
Concessionaire Housing (BM-0396)	Noncontributing	n/a	n/a	1987
Storage & Service Building (BM-0385)	Noncontributing	n/a	n/a	Unk.

CHARACTERISTIC / FEATURE	EVALUATION	LCS NAME	LCS NUMBER	Date
Blackrock Cellular Relay Station Building (BM-0462)	Noncontributing	n/a	n/a	Unk.
Amphitheater (BM-AMPH)	Noncontributing	n/a	n/a	1978
Projection Booth (BM-0467)	Noncontributing	n/a	n/a	1978
Vault Toilet (Picnic Area) (BM-2471)	Noncontributing	n/a	n/a	2000
Comfort Stations Campground (3) (BM-0541, 0542, 0543)	Noncontributing	n/a	n/a	2000
Comfort Stations Campground (3) (BM-0551, 0552, 0553)	Noncontributing	n/a	n/a	2000
Laundry & Service Building (BM-0356)	Noncontributing	n/a	n/a	1966
Wood Sales Building (BM-0393)	Noncontributing	n/a	n/a	1966
Shower Building (BM-0398)	Noncontributing	n/a	n/a	1966
Byrd Visitors Center (BM-2302)	Noncontributing	n/a	n/a	1966
Gas Pumps	Noncontributing	n/a	n/a	1963
Wayside Ice Storage (BM-0381)	Noncontributing	n/a	n/a	Unk.
Wayside Garbage Storage (BM-0390)	Noncontributing	n/a	n/a	Unk.
Apartments (BM-0725)	Noncontributing	n/a	n/a	1966
Apartments (BM-0726)	Noncontributing	n/a	n/a	1966
Tackroom-Office (BM-0321)	Noncontributing	n/a	n/a	1959
Tool Shed behind Warehouse / Storage (BM-4128)	Noncontributing	n/a	n/a	Unk.
NPS Residence (BM-0269)	Noncontributing	n/a	n/a	1995
NPS Residence (BM-0270)	Noncontributing	n/a	n/a	1995
NPS Residence (BM-0271)	Noncontributing	n/a	n/a	1995
NPS Residence (BM-0272)	Noncontributing	n/a	n/a	1995
Wastewater Treatment Plant (BM-1724)	Noncontributing	n/a	n/a	1978
Sludge Storage (BM-4127)	Noncontributing	n/a	n/a	1978

CHARACTERISTIC / FEATURE	EVALUATION	LCS NAME	LCS NUMBER	Date
Blackrock Storage Tank Reservoir (no #)	Undetermined	n/a	n/a	1931
Lewis Spring Spring House	Undetermined	n/a	n/a	Unk.
Lewis Spring Pump House	Undetermined	n/a	n/a	Unk.
Story of the Forest Trail Stone Bridge	Undetermined	n/a	n/a	Unk.
Story of the Forest Trail Wood Bridge	Undetermined	n/a	n/a	Unk.
Vegetation				
Turf along Shoulders of Historic Roads	Contributing	n/a	n/a	n/a
Lodge / Cabin Area Lawns	Contributing	n/a	n/a	n/a
Trees around Lodge	Contributing	n/a	n/a	n/a
Trees around Guest Cabins	Contributing	n/a	n/a	n/a
Circular Drive Island Grove	Contributing	n/a	n/a	n/a
Picnic Area Lawns	Contributing	n/a	n/a	n/a
Oak Grove	Contributing	n/a	n/a	n/a
Campground Area Lawns	Contributing	n/a	n/a	n/a
Oak Grove	Contributing	n/a	n/a	n/a
Lawns	Contributing	n/a	n/a	n/a
Remnants of CCC Plantings Along Edge of Meadow	Contributing	n/a	n/a	n/a
Foundation Planting Beds	Contributing	n/a	n/a	n/a
Row of Red Oaks (behind Equipment/ Storage Building)	Contributing	n/a	n/a	n/a
Remnant Pasture	Contributing	n/a	n/a	n/a
Open Meadowland Vegetation *	Contributing	n/a	n/a	n/a
CCC Hedges / Flowerbeds *	Contributing	n/a	n/a	n/a
CCC Hedges / Flowerbeds *	Contributing	n/a	n/a	n/a
Raised Perennial Bed near Visitor Center	Noncontributing	n/a	n/a	n/a
Shrub Massing near Gas Station	Noncontributing	n/a	n/a	n/a
Housing Area Lawns	Noncontributing	n/a	n/a	n/a
Wastewater Treatment Plant Lawns	Noncontributing	n/a	n/a	n/a
Mountain Laurel at Carpentry Shop	Undetermined	n/a	n/a	n/a
Views and Vistas				
View West to Valley from Lodge	Contributing	n/a	n/a	n/a
View West to Valley from Rapidan Cottage and Double Top Cottage *	Contributing	n/a	n/a	n/a
View West to Valley from Blackrock	Contributing	n/a	n/a	n/a
View North to Valley from Campground	Contributing	n/a	n/a	n/a
View East to Meadow from South Side of Wayside Area *	Contributing	n/a	n/a	n/a

CHARACTERISTIC / FEATURE	EVALUATION	LCS NAME	LCS NUMBER	Date
Small-scale Features				
Picnic Grounds Water Fountains (3) *	Contributing	Big Meadows Picnic Grounds Boulder Fountains	083090	1940
Boulder Bollards	Contributing	TBD	TBD	n/a
Campground Water Fountains (5)*	Contributing	Big Meadows Campground Water Fountains	083097	1940
Bollards	Noncontributing	n/a	n/a	n/a
Fire Hydrants	Noncontributing	n/a	n/a	n/a
Trash Cans and Dumpsters	Noncontributing	n/a	n/a	n/a
Recycling Containers and Signs	Noncontributing	n/a	n/a	n/a
Interpretive Wayside Exhibits	Noncontributing	n/a	n/a	n/a
Signs (wood and metal)	Noncontributing	n/a	n/a	n/a
Bike Racks	Noncontributing	n/a	n/a	n/a
Black Metal Site Furniture	Noncontributing	n/a	n/a	n/a
Concrete Wheel Stops	Noncontributing	n/a	n/a	n/a
Playground	Noncontributing	n/a	n/a	n/a
Wood Fencing	Noncontributing	n/a	n/a	n/a
Parking Lot Lamp Posts	Noncontributing	n/a	n/a	n/a
Picnic Tables	Noncontributing	n/a	n/a	n/a
Metal Grills	Noncontributing	n/a	n/a	n/a
Sign Kiosk	Noncontributing	n/a	n/a	n/a
Parking Lot Light Posts	Noncontributing	n/a	n/a	n/a
Trash Receptacles	Noncontributing	n/a	n/a	n/a
Concrete Wheel Stops	Noncontributing	n/a	n/a	n/a
Wood and Metal Benches	Noncontributing	n/a	n/a	n/a
Fire ring by Amphitheater	Noncontributing	n/a	n/a	n/a
Outhouse	Noncontributing	n/a	n/a	n/a
Fire Pits / Grills	Noncontributing	n/a	n/a	n/a
Stacked Rock Water Fountains (5)	Noncontributing	n/a	n/a	n/a
Telephone Booths	Noncontributing	n/a	n/a	n/a
Metal Bench	Noncontributing	n/a	n/a	n/a
Camp Site Markers	Noncontributing	n/a	n/a	n/a
Directional Signs	Noncontributing	n/a	n/a	n/a
Chain and Bollard Gates	Noncontributing	n/a	n/a	n/a
Bear-proof Storage Boxes	Noncontributing	n/a	n/a	n/a
Flagpole	Noncontributing	n/a	n/a	n/a
Statue	Noncontributing	n/a	n/a	n/a
Memorial Plaque and Boulder	Noncontributing	n/a	n/a	n/a
Stacked stone water fountain	Noncontributing	n/a	n/a	n/a

CHARACTERISTIC / FEATURE	EVALUATION	LCS NAME	LCS NUMBER	Date
Big Meadows sign	Noncontributing	n/a	n/a	n/a
Wood Benches	Noncontributing	n/a	n/a	n/a
Air Quality Station (BM-4117)	Noncontributing	n/a	n/a	n/a
Propane Tank	Noncontributing	n/a	n/a	n/a
Gas Tanks	Noncontributing	n/a	n/a	n/a
Generator	Noncontributing	n/a	n/a	n/a
Clothes Line	Noncontributing	n/a	n/a	n/a
Split Log Benches	Undetermined	n/a	n/a	n/a
Stone Tree Wells	Undetermined	n/a	n/a	n/a

ENDNOTES

1 Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (Washington, D.C.: National Park Service, 1998).

2 United States Department of the Interior, National Park Service, Cultural Resources, National Register Bulletin 16A: How to Complete the National Register Nomination Form (Washington, DC: Government Printing Office, 1991).

3 Sarah Allaback, *Mission 66 Visitor Centers: The History of a Building Type* (Washington D.C.: Government Printing Office, 2000), Appendix IV.

4 Paul Y. Inashima, "Preliminary Archeological Reconnaissance at Dickey Ridge Visitor Center and Big Meadows" (National Park Service/Denver Service Center, 1997), 3.

5 National Park Serrvice Historic Engineering Record, Skyline Drive, 1996.

6 Carolyn Reeder and Jack Reeder, *Shenandoah Secrets* (Potomac Appalachian Trail Club, 1991), 59.

7 Allaback 2000, appendix III)

8 Reed L. Engle, *Everything Was Wonderful* (Shenandoah National Park Association, 1999).

9 Robinson & Associates and EDAW, Inc., *Shenandoah National Park Historic Resources Study* (National Park Service, 1997), 84.

10 Robinson & Associates, 198.

11 National Park Service, *General Management Plan for Shenandoah National Park* (National Park Service, 1998), 5.

12 Engle, 30.



Cultural Landscape Report

Big Meadows

Shenandoah National Park

Existing Conditions Lodge and Cabin Area

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

SOURCES

1. Cultural Landscapes Inventory for Big Meadows
2. Orthoimagery, 2008/2009
3. SHEN GIS data
4. Site documentation, 2013 and 2018

DRAWN BY:
John Hammond, OCLP

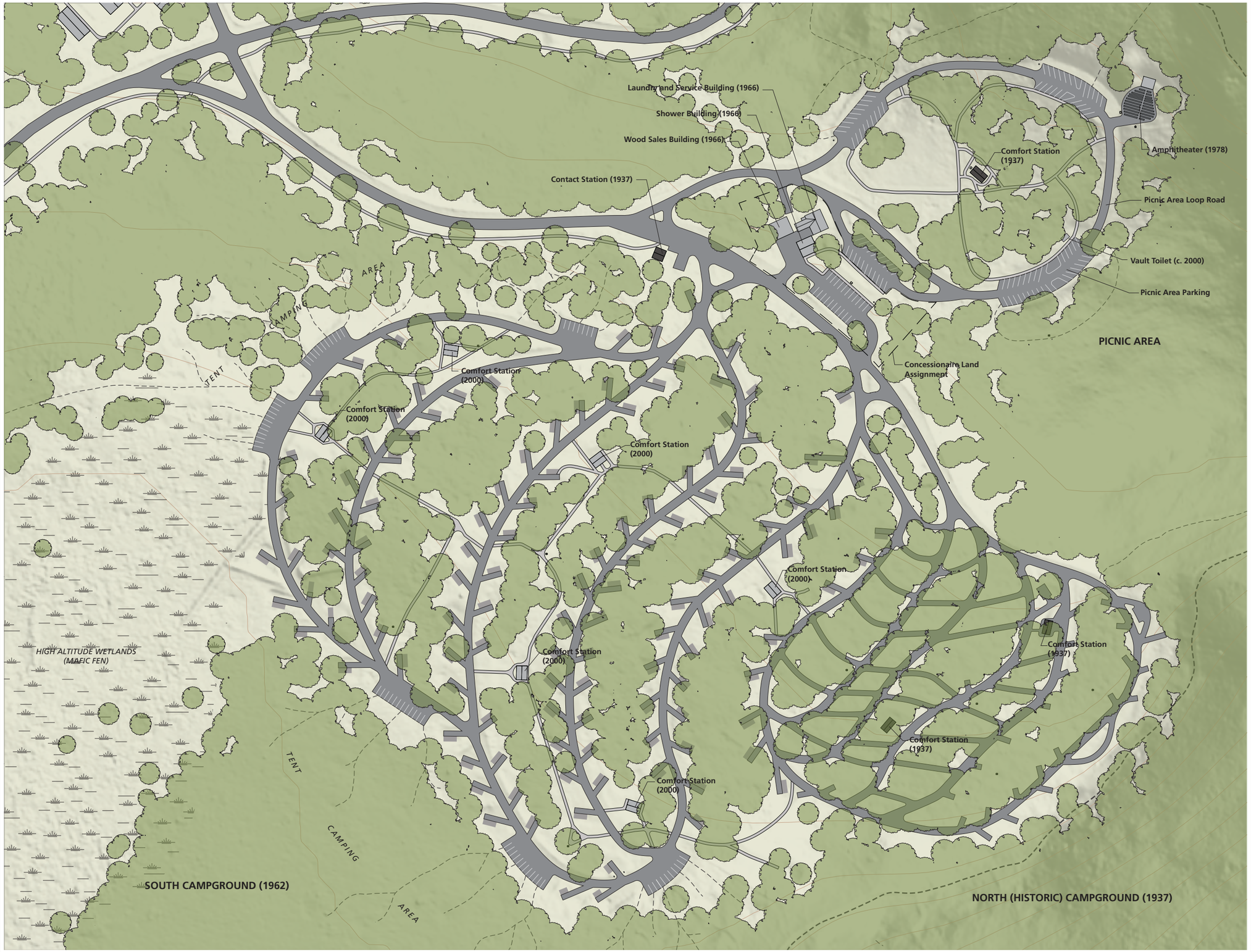
LEGEND

- Contributing Building
- Non-Contributing Building
- Road
- Pedestrian Path/Sidewalk
- Trail
- Trees/Forest
- Rock Outcrop
- Contours (1m)
- Concessionaire Land Assignment

NORTH

0′ 150′ 300′

DRAWING 4



Cultural Landscape Report

Big Meadows

Shenandoah National Park

Existing Conditions Campground and Picnic Area

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

SOURCES

1. Cultural Landscapes Inventory for Big Meadows
2. Orthoimagery, 2008/2009
3. SHEN GIS data
4. Site documentation, 2013 and 2018

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John Hammond, OCLP

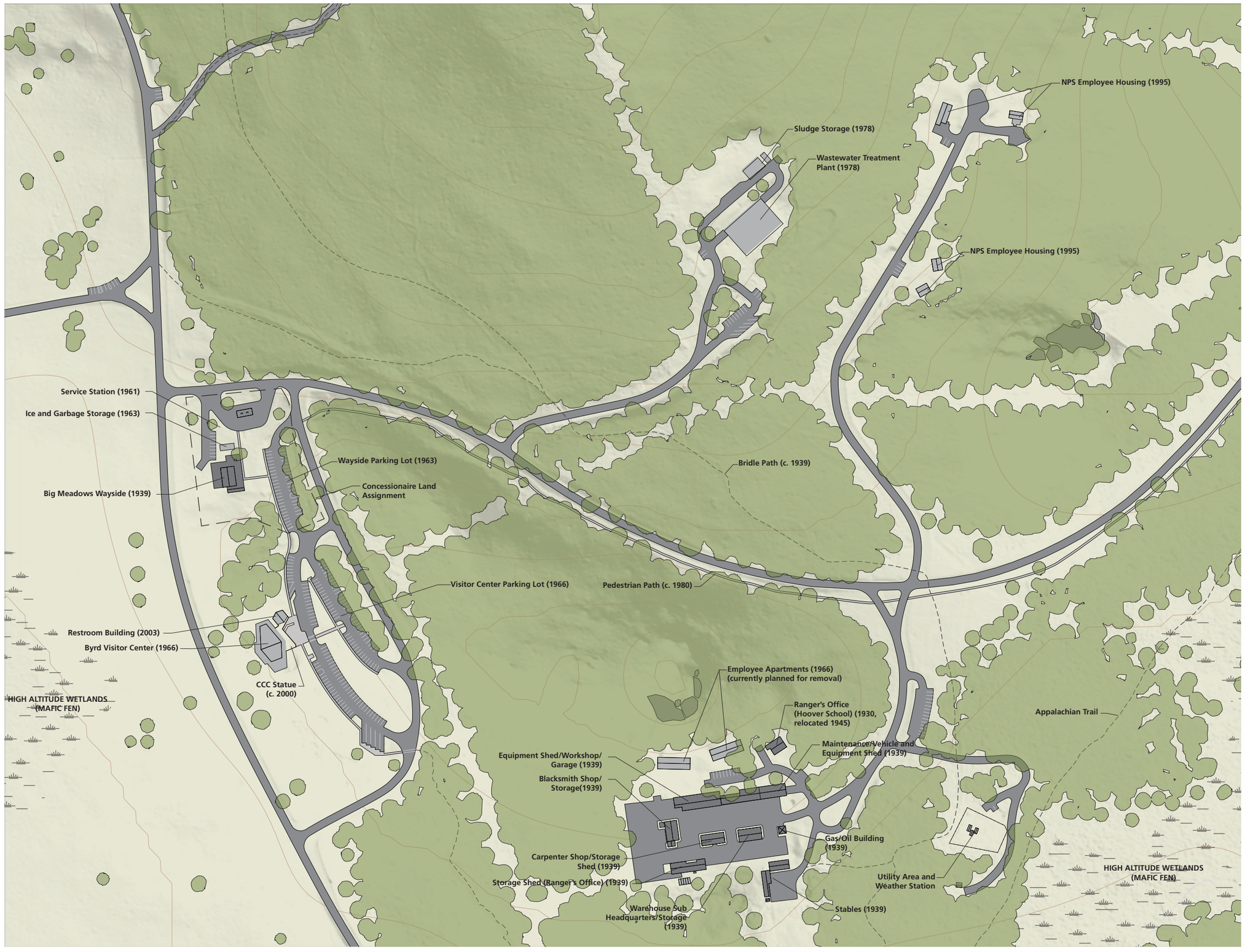
LEGEND

- Contributing Building
- Non-Contributing Building
- Road
- Pedestrian Path/Sidewalk
- Trail
- Parking Spur Campsite with Concrete Pad
- Pull-through Campsite
- Trees/Forest
- Wetland
- Contours (1m)

NORTH

0’ 175’ 350’

DRAWING 5



Cultural Landscape Report

Big Meadows

Shenandoah National Park

Existing Conditions Visitor Center, Wayside, and Maintenance Area

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

SOURCES

1. Cultural Landscapes Inventory for Big Meadows
2. Orthoimagery, 2008/2009
3. SHEN GIS data
4. Site documentation, 2013 and 2018

DRAWN BY:
John Hammond, OCLP

LEGEND

- Contributing Building
- Non-Contributing Building
- Road
- Pedestrian Path/Sidewalk
- Trail
- Trees/Forest
- Wetland
- Rock Outcrop
- Concessionaire Land Assignment

NORTH

0′ 250′ 500′

DRAWING 6



OCLP

Treatment

This chapter presents a treatment strategy for long-term preservation and management of the Big Meadows cultural landscape. According to National Park Service policy, cultural landscape reports serve as the primary supporting document guiding treatment of cultural landscapes, and are required before major interventions. Treatment is the collective set of actions taken within a cultural landscape intended to ensure the protection and preservation of the resources and characteristics that contribute to its historic significance and perpetuate its historic character. Treatment guidance may range from broad guidelines and principles to specific tasks. The overall goal of treatment is to provide a basis for the sound stewardship of the cultural landscape as outlined in the *National Park Service Cultural Resource Management Guideline* (1997) and the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1996).

Treatment for Big Meadows is focused on enhancing the qualities that defined its character during the historic period and for which it is significant. Primary among these qualities are the eponymous meadow character, the striking westward views toward the Shenandoah Valley, and the embodiment of design principles that guided campground and visitor services development in the early years of the National Park Service.

The following recommendations have been informed by the technical assistance provided by the University of Tennessee Institute of Agriculture, Department of Forestry, Wildlife, and Fisheries. The group, led by Dr. Jennifer Franklin, Associate Professor, provided analysis of the soils, canopy cover, forest density, seedling regeneration, and predominant plant species within the study area. Based on their analysis, the University of Tennessee team provided recommendations for achieving the preservation objectives for the Big Meadows cultural landscape. The treatment strategy builds on these recommendations within the context of the overall management of the cultural landscape.

Additionally, the treatment recommendations that follow are based on findings of the site history, existing conditions, and analysis and evaluation chapters of this report. The recommendations were developed through discussion and collaboration with park staff and resource specialists and were refined during a treatment workshop at the park in June 2013.

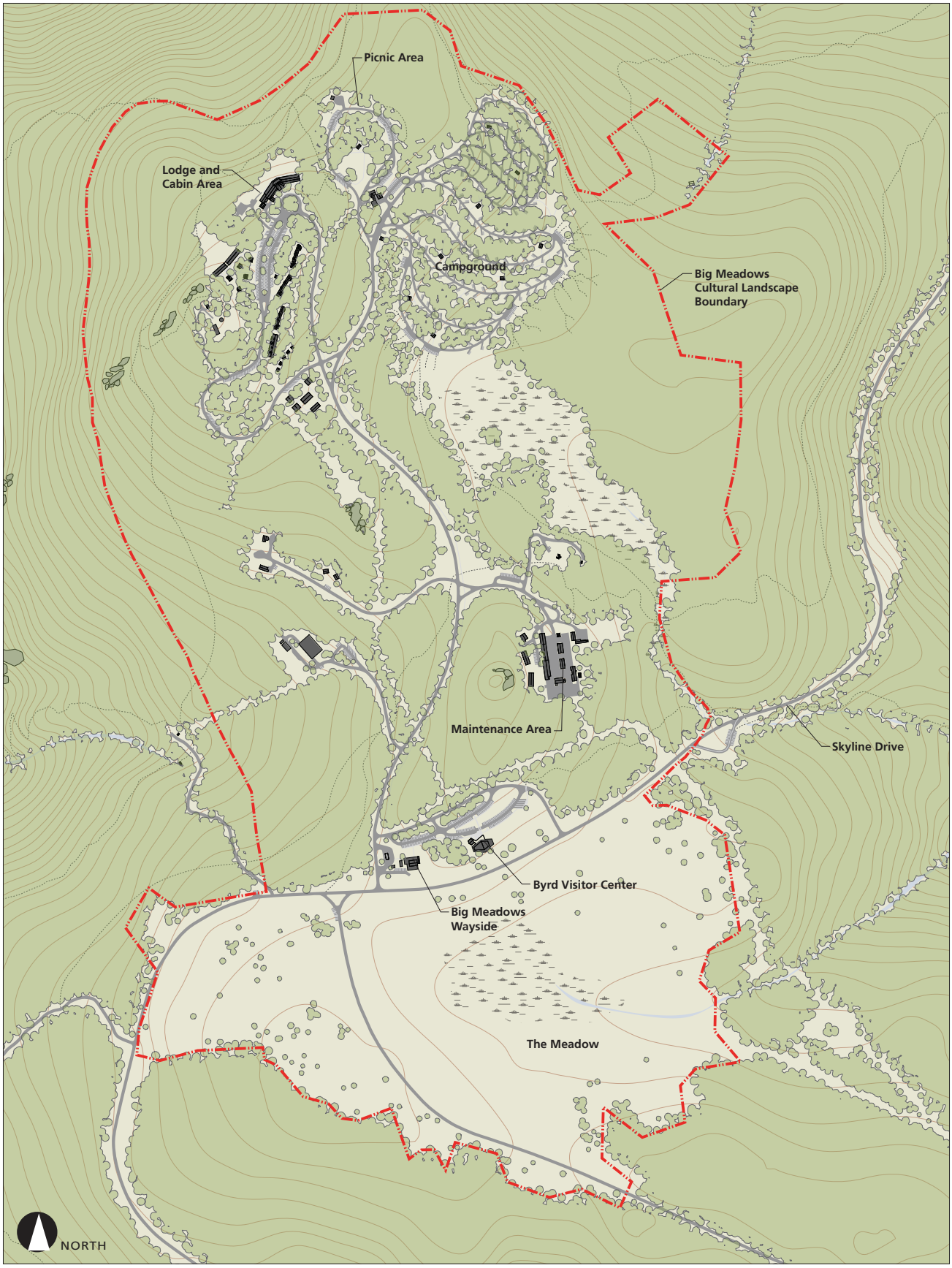


Figure 3.1. Map of Big Meadows development showing the general layout and primary features. The study boundary for the cultural landscape report, indicated in red, is based on the Cultural Landscapes Inventory boundary established in 2009. (OCLP)

FRAMEWORK FOR TREATMENT

This section describes the legislation, policy, and planning documents that serve as the underlying basis for the following recommendations.

ENABLING LEGISLATION, MISSION, AND POLICIES

Shenandoah National Park was authorized by Congress on May 22, 1926 along with Great Smoky Mountains National Park and Mammoth Cave National Park. While the language within the legislation is limited as to the purpose of the park, it states that the lands were "set aside as public parks for the benefit and enjoyment of the people. . . ." Treatment for Big Meadows is also guided by the National Park Service Organic Act (1916), which establishes the National Park Service and defines its purpose "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations."[1]

As a part of the Skyline Drive National Historic Landmark and its inclusion in the National Register of Historic Places, the Big Meadows cultural landscape is also subject to the terms of the National Historic Preservation Act of 1966. The law and its subsequent guidance documents clearly stipulate how historic resources are identified, documented, evaluated, and managed. According to the law, the park assumes the responsibility for the preservation of the historic properties within its jurisdiction. At Big Meadows, the resources include contributing buildings, structures, vegetation, and landscape patterns described in the National Register documentation and in the Cultural Landscapes Inventory. The park must take into consideration the historic value of these resources when undertaking any actions that may affect the resources and comply with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.[2]

Additional guidance shaping treatment choices is contained within the *National Park Service Management Policies* (2006), *Director's Order #28*, *Cultural Resource Management*, and *National Park Service Resources Management Guidelines* (NPS-28). NPS-28 provides guidance on management of a number of issues related to landscape preservation, including biotic systems, which are defined as plant and animal communities associated with human settlement and use. NPS-28 directs management of specimen vegetation such as trees, hedges, and orchards to ensure health and vigor and, if appropriate, provide for propagation of the next generation, especially for rare plants or those unavailable in commerce. For natural systems, NPS-28 calls for managing landscape patterns to allow for natural dynamics. Exotic plant species, which are often found in cultural landscapes, should be monitored and controlled to avoid spreading and disrupting adjacent natural plant communities. In addition to biotic systems, NPS-28 states that historic circu-

lation features are to be rehabilitated to accommodate health and safety codes in ways that minimize impacts to historic character.

PARK PLANNING

The National Park Service expresses its priorities and goals for the management of its resources through its publicly reviewed planning documents, including General Management Plans, Master Plans, Development Plans, and Foundation Documents. These planning documents articulate the park's purpose and fundamental resources, establish long-term goals and strategies, and provide opportunities for public review and input. These documents provide umbrella guidance under which the treatment recommendations of the Cultural Landscape Report are developed.

The combined document "General Management Plan and Development Concept Plan for Shenandoah National Park," completed in 1983, was originally intended to be used to guide park management for ten to fifteen years. Although by this measure the document is out of date, it has not been updated and continues to serve as the official planning guidance for the park. At the time the 1983 General Management Plan was written, the park was less than fifty years old, and resources like Big Meadows that were associated with the initial development of park infrastructure were only beginning to be recognized for their historical significance. The plan recommended undertaking the necessary research and documentation for determining the resources' significance and stipulated that they be treated as historic until such determinations could be made. New structures in the vicinity of historic structures were to be complementary in design and compatible in scale to existing buildings. Specific resources, such as the lodge, cabins, and the "Big Meadows Landscape" were identified in the General Management Plan for preservation, interpretation, and adaptive reuse.

The General Management Plan also identified the need for more lodging at Big Meadows, including a ten-unit building (Crescent Rock, built in 1986) and a twenty-unit building between the Big Meadows Lodge and the Rapidan Cottage (never built). The plan also recommended relocating the five 1939 cabins to the interior of the lodge access road loop near the Big Meadows parking lot.

At the time the General Management Plan was written, the large meadow area south of Skyline Drive was being maintained with periodic prescribed burning and mowing. The plan reaffirmed this practice and suggested it be extended to the maintenance of roadside vistas, with considerations for safety and air quality.

TREATMENT PHILOSOPHY

An effective treatment philosophy articulates the overall approach to managing a cultural landscape with the goal of enhancing historic character and perpetuating those characteristics and features that convey historic significance. The treatment philosophy defines the essential qualities of the landscape that convey the historic character and prioritizes treatment efforts to preserve and enhance those qualities.

Big Meadows is the centrally located focal point of Shenandoah National Park. Its rustic and naturalistic character is consistent with National Park Service design values of the early twentieth century. The Big Meadows landscape harmonizes artifice and nature by minimizing the visual impact of constructed developments, while accentuating the picturesque qualities of nature. Big Meadows is carefully laid out to offer visitors an uncompromised national park experience combining convenient lodging and day-use services with striking valley views, picturesque scenery, rustic features, and immersion in nature.

Consistent with the philosophy that guided its original design and development, treatment of the Big Meadows cultural landscape will address the three complimentary goals of providing convenient services for visitors while protecting natural and cultural resources and perpetuating a scenic, natural visual experience. This will be accomplished through careful management of vegetation, including selective clearing and planting of vegetation, as well as the rehabilitation of site, soil, and plant communities. Maintenance practices will be adjusted to establish optimal growing conditions for the desired landscape character. Treatment will also include recommendations for compatible features and structures that provide necessary visitor services and accommodate park operations without detracting from the historic character.

A primary element of the character of Big Meadows during the historic period were the expansive areas of open meadow stretching out on either side of Skyline Drive. A stark contrast from the forest enclosing much of the park, the grassland created a dramatic sense of openness, vastness, and elevation, highlighting the development's position high atop the Blue Ridge. This effect was enhanced by the abundant views of the Shenandoah Valley to the north and west, available from several locations within Big Meadows, including the lodge, cabin area, campground, and picnic area.

Treatment will showcase and enhance the open meadow character of the Big Meadows landscape and return elements of former grassland character to areas north and west of Skyline Drive. While it is impractical to restore the meadow to its former extent, the experience of the meadow landscape can be enhanced through strategic limited opening of forested areas and converting portions of turf grass to meadow vegetation.

Landscape treatment will also employ strategies to restore and manage important

distant views of Shenandoah Valley from the lodge and campground. This will include the identification of view management areas and management guidelines for the vegetation within these discrete management areas. Vegetation management may include selective tree removal, treating tall woody vegetation within the view management areas, and modifying view management areas. Interventions will be targeted to maximize improvements to the views, minimize impacts to natural systems, and establish sustainable maintenance strategies for perpetuating these historic views.

Primary Treatment: Rehabilitation

The Secretary of the Interior is responsible for establishing professional standards on the preservation of cultural resources listed in or eligible for listing in the National Register of Historic Places. The *Secretary of the Interior's Standards for the Treatment of Historic Properties*, revised in 1992, were codified as 36 CFR Part 68 in the 12 July 1995 Federal Register (Vol. 60, No. 133). These standards define four primary treatment approaches according to preservation goals: *preservation*, *restoration*, *rehabilitation*, and *reconstruction*. Preservation standards require retention of the greatest amount of historic fabric, including the landscape's historic form, features, and details as they have evolved over time. Rehabilitation standards acknowledge the need to alter or add to a cultural landscape to meet continuing or new uses while retaining the landscape's historic character. Restoration standards allow for the depiction of a landscape at a particular time in its history by preserving materials from the period of significance and removing materials from later periods. Reconstruction standards establish a framework for re-creating a vanished or non-surviving landscape with new materials, primarily for interpretive purposes.

Rehabilitation is the recommended treatment for the Big Meadows cultural landscape because it provides the flexibility needed to preserve the resources and enhance the historic character while facilitating the continued use of its visitor and administration infrastructure. Rehabilitation will accommodate adaptive vegetation management to enhance the meadow character in portions of the property, and to improve distant views from the lodge areas, campground, and picnic ground. Rehabilitation will also accommodate the addition or alteration of non-historic features in support of other park goals, including improving esthetic values, modeling environmentally sustainable practices, improving visitor access and safety, and providing needed services.

According to the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, rehabilitation treatment actions must conform to the following standards:

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial

relationships.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

The recommended primary treatment of rehabilitation applies to the landscape as a whole, describing an overall approach to the management of the cultural resources. Under the umbrella of rehabilitation, treatment of different areas of the landscape or of individual features may include any of the four treatment approaches (preservation, restoration, rehabilitation, and reconstruction), depending on historic integrity, interpretation, natural resource management, and park operations.

Treatment Reference Date: 1952

Identification of a treatment reference date provides an objective benchmark for managing historic landscape character. The treatment reference date corresponds to a time during the historic period when the landscape reached the height of its development or a time when the property best illustrated the property's significance and interpretive themes. In rehabilitation, identifying a treatment reference

date is not for the purpose of replicating conditions present at the time, but rather to avoid introducing anachronistic elements that never coexisted on the property.

At Big Meadows, the recommended treatment reference date is 1952, the end of the period of significance. By this date, the overall composition of Big Meadows, as envisioned in the Master Plan, was complete, and the site as a whole reflected the qualities for which it is significant. The visual character, layout, and function of the site in 1952 will be used as a guide to inform treatment recommendations.

UNIVERSITY OF TENNESSEE FINDINGS AND RECOMMENDATIONS

In an effort to develop a comprehensive analysis of the existing conditions of the vegetation communities of Big Meadows and to ground the treatment recommendations in ecology and forestry science, the Olmsted Center has partnered with the University of Tennessee Institute of Agriculture, Department of Forestry, Wildlife, and Fisheries. Dr. Jennifer Franklin, Associate Professor, worked with a team of students to provide analysis of soils, canopy cover, forest density, seedling regeneration, and predominant plant species. This analysis was used to generate management considerations and recommendations for achieving the desired treatment goals. Treatment recommendations in this document were based in part on the guidance provided by the University of Tennessee team.

The scope of the technical assistance provided by the University of Tennessee team was to provide analysis of the soils and vegetation within the two view management areas below the Big Meadows Lodge and the Double Top and Rapidan Cottages, in the area below the amphitheater, and within the Big Meadows campground. The team defined four areas of investigation, or "management zones": the lodge and cabin (cottages) viewshed, the amphitheater viewshed, the campground proper (north portion of the campground and tent sites), and the central campground, referred to in this document as the south campground. The team consulted soil maps and collected soil samples in each area, which were analyzed for physical and chemical properties. Vegetation analysis included inventorying seeding and saplings to assess forest regeneration, identifying species present, and measuring the density of the overstory by determining the overstory basal area.[3] The team then provided recommendations based on the management objectives of managing views and maintaining healthy vegetation structure of a native overstory, mid-story, and understory within the campground.

Within the two view management areas below the lodge and cottages, the University of Tennessee team identified the presence of dense stands of black locust (*Robinia pseudoacacia*)and black cherry (*Prunus serotina*) as the primary challenge in maintaining the views. These tree species grow quickly and sprout readily from roots and cut stems, making them difficult to control with cutting alone. They also noted thin but nutrient-rich soils and the presence of native and non-native

grasses and herbaceous plants. The forest around the edges of the view management areas were dominated by oaks, with other tree species including striped maple (*Acer pensylvanicum*), sweet birch (*Betula lenta*), black locust (*Robinia pseudoacacia*), eastern hophornbeam (*Ostrya virginiana*), black cherry (*Prunus serotina*) and witch hazel (*Hamamelis virginiana*). Basal area was between 80 and 150 square feet per acre, typical for an Appalachian hardwood forest.

While the recommendations for maintaining an open viewshed below the lodge and cottages included some methods that may not be feasible in this context, they did include recommendations for managing the black locust and cherry with a combination of cutting and treating with herbicide. They also recommended selective removal of tall trees around the edges of the view management areas and the establishment of mid-story and understory vegetation that would suppress the growth of taller trees while maintaining the view above them.

Viewshed management was also considered in the area north of the amphitheater. The slopes north of the picnic area featured open meadow area in the 1930s, but by the time the amphitheater was constructed the views had become obscured. When the amphitheater was constructed, these views were reestablished through tree clearing. Today, the amphitheater has no view management area. On the slopes below the amphitheater, the team noted a young, healthy oak forest, with a small number of other tree species. The basal area in this area was between 100 and 130 square feet per acre, allowing some visibility through the trunks, but the closed canopy blocks all views to the west except during the winter. To improve views, the team recommends thinning the forest to a basal area of between 60 and 80 square feet per acre, removing specific target species from the mid-story first (black locust, striped maple, birch, and red maple), followed by selective removal of individual overstory trees that would generate the greatest benefit to the view.

The University of Tennessee team noted compacted surface layers throughout the north and south portions of the campground, as well as pH and calcium levels much higher than would be expected for soils in the area. The reasons for the high pH and calcium levels is unknown, but it may be the result of the historic use of gravel or paving substrates that contain high amounts of limestone. The soil conditions are suppressing the growth of young trees and shrubs, precluding regeneration of the overstory and resulting in an open character beneath the canopy trees. In order to ensure perpetuation of the tree canopy and to introduce understory vegetation that will create privacy, campsite enclosure, and visual screening, the team recommended remedying the adverse soil conditions and planting shrubs and young trees.

The report containing the complete findings of the University of Tennessee team is included as Appendix A.

Table 3.1. CLR landscape management zones and their corresponding FMSS locations.

CLR Landscape Management Zone	FMSS Location	Asset Type	Location Number
Lodge and Cabin Area	Big Meadows Lodge and Cabins Area	3100	226347
Campground and Picnic Area	Big Meadows Historic Campground Area Big Meadows New Campground Area Big Meadows Picnic Area Big Meadows Amphitheater Area Big Meadows Laundry and Shower Area	3100 3100 3100 3100 3100	3697 226349 4092 53771 226362
Wayside and Visitor Center	Big Meadows Wayside Area Big Meadows Visitor Center Area	3100 3100	226348 115482
Maintenance and Employee Housing	Big Meadows Offices and Maintenance Area Big Meadows Housing and Apartment Area Big Meadows Waste Water Treatment Area	3100 3100 3100	226356 226355 226354
Roads and Trails	Big Meadows Entrance Road RT 34 Big Meadows Lodge Access Road RT 201 Big Meadows Campground Access Road RT 35 Big Meadows Maintenance Access Road RT 36 Big Meadows WWTP Access Road RT 37 Big Meadows Employee Residence Road RT 463	1100 1100 1100 1100 1100 1100	47005 103685 51335 46995 46303 46259
Meadow	Big Meadows Meadow/CCC Area	3100	88951

FMSS

The Big Meadows cultural landscape is tracked and managed through the National Park service Facility Management Software System (FMSS). This system is structured to track costs associated with asset management, as well as asset condition. FMSS is also fundamental in generating funding requests for capital improvement projects. Integration with FMSS is essential to implementing the landscape treatment recommendations of this report.

The Big Meadows FMSS data is currently organized around twelve maintained landscape locations: Big Meadows Wayside Area (226348), Big Meadows Laundry and Shower Area (226362), Big Meadows Lodge and Cabins Area (226347), Big Meadows Picnic Area (4092), Big Meadows Amphitheater Area (53771), Big Meadows New Campground Area (226349), Big Meadows Historic Campground Area (3697), Big Meadows Visitor Center Area (115482), Big Meadows Housing and Apartment Area (226355), Big Meadows Waste Water Treatment Area (226354), Big Meadows Offices and Maintenance Area (226356), and Big Meadows Meadow and CCC Area (88951). Many of the landscape features are tracked as part of these maintained landscape locations, including small-scale features, vegetation, and land surface features. The Big Meadows cultural landscape also contains numerous locations of other types, including roads, trails, parking areas, buildings, water systems, waste water systems, and fuel systems.

These locations and their assets together represent the Big Meadows cultural landscape and its landscape characteristics and features as they are documented in this Cultural Landscape Report. Although the methodology of cultural landscape documentation does not correlate directly to the structure of FMSS, the data generated in this report can supplement FMSS data, refine asset organization, ensure

all contributing features are being tracked, and facilitate preservation work.

The treatment recommendations that follow are organized by six landscape management zones, defined in the next section. Each of these management zones generally corresponds to one or more of FMSS locations. Table 3.1 provides a cross-reference between the landscape management zones and their corresponding FMSS locations. Treatment recommendations cover a number of resources that are currently not tracked in FMSS, including vegetation within the lodge and cabin area and the campground and picnic area, view management areas that require regular maintenance to preserve, and areas of maintained meadow throughout Big Meadows.

LANDSCAPE MANAGEMENT ZONES

In order to facilitate management of the Big Meadows cultural landscape, consolidate treatment efforts, establish priorities, and articulate historic character, the larger Big Meadows cultural landscape has been organized into six landscape management zones. These management zones are based on geographic location, as well as use, character, and the type of resources each contains, and while the management zones may have different treatment issues and tasks, the zones do not reflect differing treatment approaches, and the treatment philosophy and overall goals apply to the cultural landscape as a whole.

These management zones are the lodge and cabin area, the campground and picnic area, the Wayside and Visitor Center, the maintenance area and employee housing, the roads and trails, and the meadow. These zones are described below and depicted in Figure 3.2. The zones are indicated with a two-letter code that will be used to organized and enumerate treatment tasks.

Lodge and Cabin Area (LC)

The lodge and cabin area includes the Big Meadows Lodge and the associated cabins, cottages, and employee quarters located around the lodge access road loop, as well as the circulation and outdoor spaces associated with these. The primary function of the lodge and cabin area is to provide visitor overnight accommodations along with the associated services such as dining and parking. The area also serves as a day-use area for park visitors who may stop at Big Meadows to dine at the Spotswood Restaurant in the lodge, or to hike, picnic, or partake of the views. The lodge and cabin area includes the view management areas associated with the distant views available from the lodge and cottages, as well as the parking lot, walking paths, and Blackrock vista point.

Campground and Picnic Area (CP)

The Big Meadows campground and picnic area is located at the north end of the Big Meadows cultural landscape along the north edge of the plateau. The management area includes the picnic area, north campground, south campground, and tent campground. The campground is bordered on the west by the lodge and cabin area, on the north and east by steep wooded slopes, and on the south by the mafic fen, a rare type of wetland characterized by soils eroded from magnesium- and iron-rich rock.

The Big Meadows campground is the largest of four formal campgrounds within Shenandoah National Park, providing overnight camping at more than two hundred sites. The north campground, or historic campground, was constructed by the CCC in 1937 and features primarily pull-through trailer sites. This portion of the campground is characterized by a nearly closed canopy of trees with no understory and a turf-grass ground surface. The south campground, finished in 1962, presents a similar character, but with smaller, more sparse overstory trees and more abundant understory shrubs and herbaceous plants. The south campground contains campsites with parking spurs and no pull-through sites. Walk-in tent sites are located within a largely forested area around the southern and eastern periphery of the south campground. The picnic area, constructed at the same time as the north campground and located to the west of the campground, is composed of a single loop road with parking, and picnic tables and other facilities within the loop road. The picnic area, a primarily open and grassy space with scattered shade trees, provides important rest and recreation space for visitors, many of whom have spent considerable time in their cars. The campground and picnic area are adjoined with the campground service facilities between them.

Wayside and Visitor Center (WV)

The Wayside and Visitor Center management area includes the Big Meadows Wayside and Byrd Visitor Center together with the parking areas, gas and service area, picnic tables, and associated landscaped grounds. The management zone extends between the two vehicle entrances from Skyline Drive on the east and west and between the vehicle drive on the north and Skyline Drive on the south. The Wayside and Visitor Center area provides day-use services, including visitor contact and interpretation, dining, a grocery and camp store, fuel station, and picnicking, as well as serving as a trailhead for visitors exploring the big meadow on the south side of Skyline Drive. While the Wayside dates from the 1930s, the area in general exhibits the character of a Mission 66 service area, with modern landscape features, broad circulation features, well-maintained lawns, and landscape plantings.

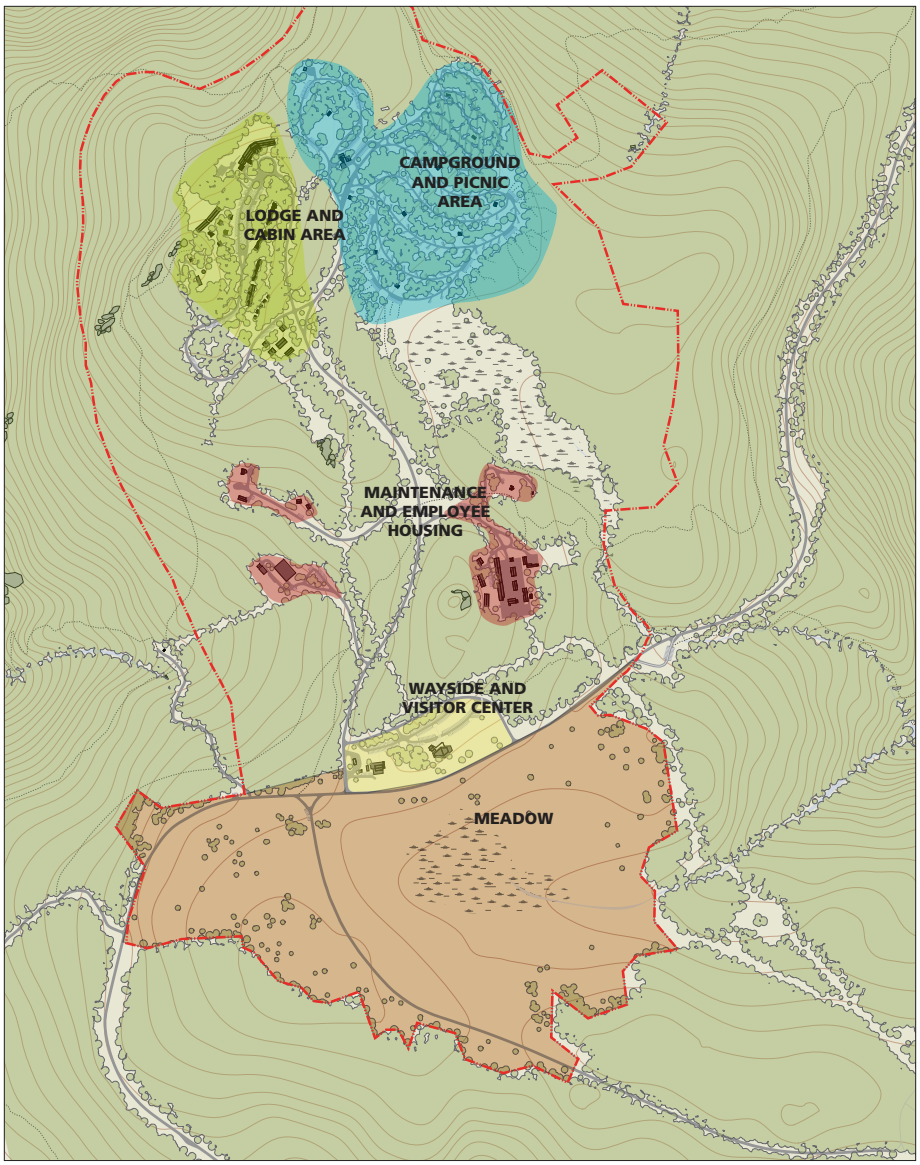


Figure 3.2. Diagram showing the landscape management zones within the Big Meadows cultural landscape. (OCLP)

Maintenance Area and Employee Housing (MN)

The maintenance area and employee housing management zone comprises several discontiguous areas around the Big Meadows maintenance area, water treatment plant, apartment area, and employee housing units. Historic resources, including the maintenance buildings built by the Civilian Conservation Corps in the 1930s and the historic circulation and service areas, are intermixed with non-historic structures and other features. The area also includes the ranger offices, formerly the Hoover school, constructed in 1930 and moved to its present location in 1945. In general, these areas provide facilities for park operations or employee housing and are not used by visitors.

Roads and Trails (RT)

The roads and trails management zone includes all of the roads, drives, parking areas, footpaths, and trails not included in another management zone, including the entrance road and footpath, the Story of the Forest Trail, and spur roads. Although an inherently linear zone, the roads and trails management zone includes visible area along the sides of the roads and trails that impact their character.

Meadow (MD)

The meadow landscape management zone encompasses the large open meadow on the south side of Skyline Drive across from the Big Meadows development. Both a natural and cultural resource, the meadow represents what is left of the vast open meadows that stretched across the Big Meadows area when the park was developed. The meadow contains the site of the Civilian Conservation Corps camp, NP-2, which is maintained as a visible trace by mowing the cabin footprints, as well as a portion of the Skyline Drive road trace and a number of archeological resources from American Indian and European American agricultural use before the park was established. The extent of the meadow landscape management zone corresponds to the current extent of the managed meadow.

GENERAL TREATMENT GOALS

The following general treatment goals establish a strategy for accomplishing the objectives outlined in the treatment philosophy by targeting the essential qualities of the historic character, including meadow character, valley views, naturalistic arrangements of native vegetation, and compatible features and structures that harmonize with the natural landscape.

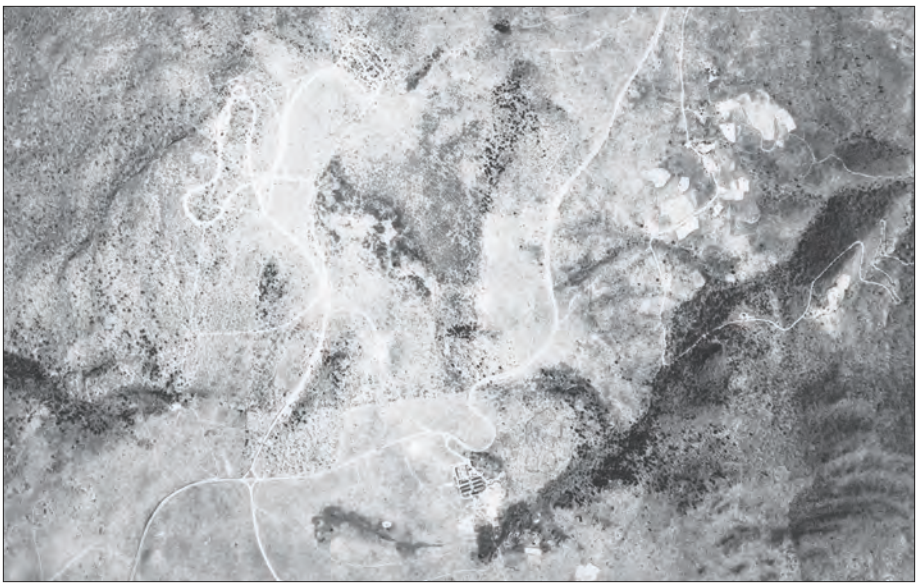


Figure 3.3. Aerial photograph from 1937 showing the limited coverage of dense forest and the extensive areas of meadow and open forest (SHEN Archives).



Figure 3.4. Photograph from the 1930s showing the campground contact station. At the time the campground was established, the area around it, like much of the land on the north side of Skyline Drive, was open meadow.

Enhance Meadow Character

At the time that Shenandoah National Park was established, the large upland area of Big Meadows was covered extensively with open meadow, wetland, and grazing land. In addition to meadow areas dominated by grasses and sedge, large portions were characterized by open woodland with widely spaced chestnut and other trees over grassland. The large primary meadow on the south and east side of Skyline Drive was only a portion of the overall mosaic of meadow and wetland areas that extended on both sides of Skyline Drive. The lodge and original campground were located on the verge of these meadow areas, and the roads and drives that accessed Big Meadows from Skyline Drive traveled through wide open areas.

The area covered by open meadow and grassland began to diminish as soon as the park was established and agricultural practices were discontinued. This transformation was accelerated in parts of the Big Meadows development, such as the lodge, campground, and maintenance area, by the planting of trees for screening, shade, or other aesthetic reasons. By the end of the period of significance, the meadow areas on the north side of Skyline Drive were greatly reduced, yet large swaths of meadow remained along the Big Meadows entrance road and in the area of what would later become the campground extension.

Since the end of the historic period, the area of open meadow has decreased further. South of Skyline Drive, the large primary meadow today is only about half of the area it was in 1957. Despite this decrease in area, the large contiguous meadow area, prominent to motorists and other visitors, continues to convey the open character that identifies Big Meadows. On the north side of Skyline Drive, however, the meadow areas have largely been replaced with young oak forest. The lodge and cabin area now sits within a deep forested setting, and areas of the campground and picnic area that are not covered in forest vegetation, consist of a park-like character of trees and turf grass.

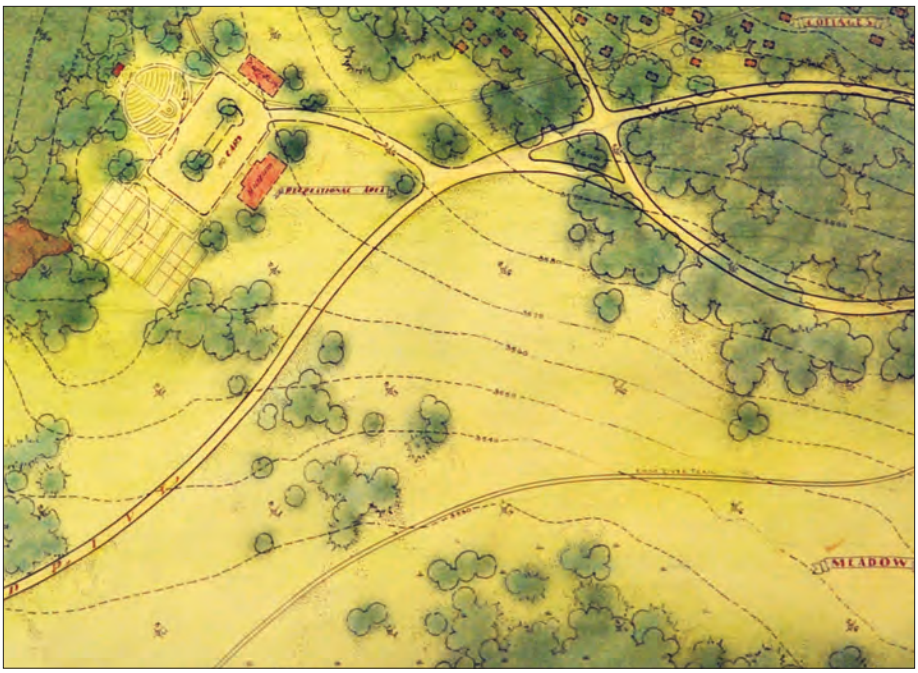


Figure 3.5. Detail from the 1937 Big Meadows master plan, showing the open meadow character along the entrance drive.

It is neither feasible nor desirable to return the meadow area to its former extents. Such an undertaking would require extensive clearing of forest, as well as unsustainable levels of maintenance to keep the meadows open. Reasonable steps may be taken, however, to enhance a more widespread perception of meadow character at Big Meadows by strategically targeting areas that will have maximum impact on visitor experience. These include areas around the Wayside and Visitor Center and along the lodge entrance road.

Areas around the Wayside and Visitor Center on the north side of Skyline Drive are of primary importance because of their high visibility. Portions of this area already exhibit meadow character, with tall grass and other meadow species and few trees. Other portions, particularly around the Wayside development, have been maintained as turf grass, with a scattering of young trees that have struggled to thrive. Much of this area may be returned to meadow character through the modification of current maintenance practices, including modification of mowing frequency and seeding with meadow species. Maintaining modest, contiguous meadow areas on the north side of Skyline Drive, between the road and the visitor service buildings, will enhance the perception of the large meadow to the south of Skyline Drive continuing to the north side of the road.

The second area identified for meadow treatment lies along the entrance road, northward from the intersection with the road to the maintenance area for a distance of approximately half a mile. This area remained open as meadow throughout the historic period, until as late as the 1960s when the area began to transition to forest. Today, an open corridor around the road and pedestrian walkway, between fifty and a hundred feet wide, is maintained through mowing, but the edge of the forest is abrupt. The mowed portion is currently maintained as

a combination of meadow mowing and turf grass. In order to impart a character more consistent with historic conditions, areas along the side of the entrance road should be cleared of trees and understory vegetation and maintained as meadow. The area delineated for conversion to meadow will balance a reasonable level of maintenance with maximizing interpretive and resource management values.

In addition to these larger areas, many smaller areas throughout the Big Meadows development that are currently being maintained as turf grass could be converted to meadow vegetation. These areas include road shoulders, parking lot islands, and areas around buildings and maintenance facilities. Conversion of theses areas from turf grass to meadow vegetation will enhance the overall meadow character of Big Meadows, reduce mowing, and add natural resource value.

Emphasize historic views

Distant views are an essential element of the visitor experience at Big Meadows. Unlike elsewhere along Skyline Drive where views came at intervals as drivers wound their way along the ridge top, the broad meadows and pastures that once covered the Big Meadows area imparted an open character and provided sweeping views, both within the area and of the valley to the north and west. Primary visitor services, including the lodge, picnic area, and campground, were sited at the edge of the relatively level area, maximizing the impact of the views of the valley below. Photos and drawings of these areas from the 1930s through the 1950s prominently feature the valley views as the highlight of a stop at Big Meadows.

Since the historic period, transition of much of the meadow area to forest has eliminated many of the views from the Big Meadows area. Today, the primary views of the valley are from the lodge and the Double Top/Rapidan Cottages, which have been partially maintained by periodic clearing of trees on the slopes below the terraces of the structures. The managed view areas require continual



Figure 3.6. Photo from the 1930s showing the lodge and cabin area, demonstrating the open character and expansive views.



Figure 3.7. Illustration from the 1937 master plan showing the meadow character and views from Big Meadows.



Figure 3.8. Photograph from the 1940s showing the view from either the campground or picnic area at Big Meadows.

maintenance to clear larger shrubs and trees that would otherwise quickly obscure the view. Trees along the periphery of the managed view area have grown into large specimens and block the lower portion of the valley view. Other historic views, including views from the campground, picnic area, and amphitheater, have been lost entirely. Dense forest grows on the slopes below these areas and block all views of the valley below. Vegetation below the picnic area is particularly dense, with thick understory vegetation blocking views through the trees.

A primary goal of treatment is to develop a strategy to effectively define and manage the view management areas below the lodge and cottages to preserve the existing views, and to indicate actions that will improve the existing views and reestablish limited views from the campground and picnic area. This will involve periodic clearing and treating unwanted woody vegetation within the view management areas, selective removal of tall trees that block views, and planting and establishing native mid-story vegetation to suppress taller shrubs and trees. Emphasis will be on improving views while maintaining a naturalistic appearance and keeping maintenance levels reasonable.



Figure 3.9. Illustration from the plan for Big Meadows Lodge showing the south elevation. The conceptual planting plan includes naturalistically arranged trees and shrubs along the building foundation.

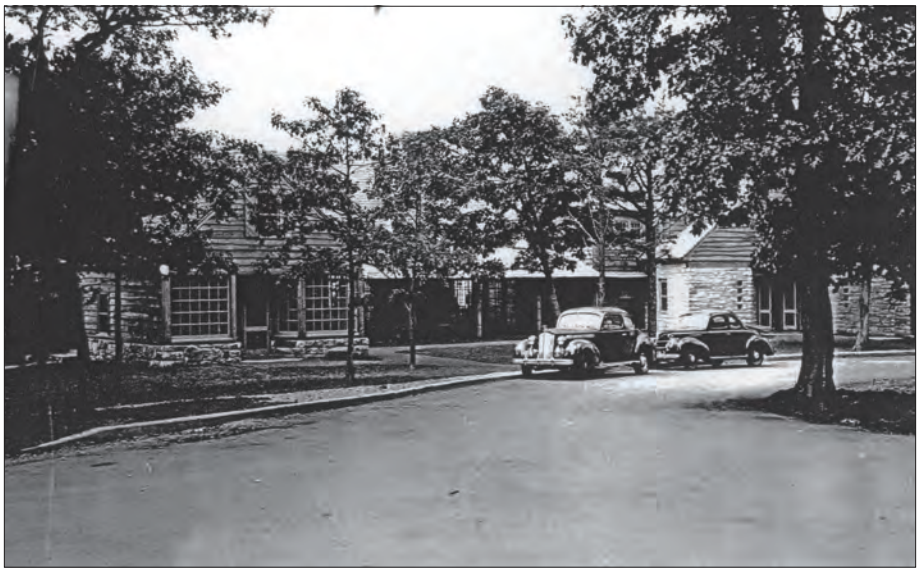


Figure 3.10. Photograph of Big Meadows lodge from the 1940s showing the character of plantings.



Figure 3.11. Photograph from the 1940s showing the character of vegetation around the cabins at Big Meadows.

Enhance naturalistic landscape character

Early National Park Service developments like Big Meadows were designed with the acknowledgement that visitors came to such places expecting a natural experience. Structures, utilities, and other features necessary to provide important visitor services, park administration, and maintenance needs were deemphasized and designed to harmonize with nature. This was done through the use of natural

building materials and rustic style elements, softening the architectural lines of buildings with vegetation, and screening unsightly features or siting them entirely out of view of visitors. Native vegetation was planted near building foundations, along the sides of roads and trails, and within open spaces in informal groupings that mimicked the surrounding forests and meadows. Natural features such as rocks and logs were used as barriers or boundaries to control vehicle and pedestrian movement and to protect natural areas.

The Big Meadows landscape should be treated to ensure that the naturalistic landscape principles that guided its original development remain evident. Vegetation should be abundant throughout the developed areas, with informal groupings of native plants placed in such a way as to deemphasize the built elements of the landscape and blend them visually with the surrounding landscape. Plantings within the developed areas should strike a balance of a naturalistic style that mimics the structure and aesthetic of nature without looking wild or unkempt. Plantings should feature a variety of species, size, form, and character of plants. And while the presence of logs and boulders are consistent with the style, the planted areas within developed areas should not contain excess dead matter, weedy vegetation, or woody debris.

Promote a healthy landscape ecosystem

In an effort to ensure thriving plant communities, reduce maintenance, and model sustainable management practices, emphasis should be placed on building a healthy system of vegetation, soil, and site conditions. Vegetation that is well suited to the conditions of the site and to the chemical and structural make-up of the soil grow more vigorously with less intervention. To achieve this, a variety of sustainable landscape practices and integrated weed management should be employed, including proper plant selection and placement, use of mulch and compost, soil aeration, and water practices that encourage deep, healthy root systems.

Vegetation

Select locally native plant species and plant them in locations that provide their optimal growing conditions. The use of native vegetation is part of an overall sustainable approach to treatment of the cultural landscape. Establishing a diverse community of native plants will enhance the landscape's historic character, while reducing maintenance efforts, minimizing potential impacts to natural systems, and building resiliency to future changes in environmental conditions. Utilizing appropriate native vegetation will also blend seamlessly with the surrounding forest, increasing the sense of being immersed in nature. Species should be selected for desired characteristics, including historic character, suitability to the site, longevity, resistance to pests and diseases, and other factors.

The large eastern whitetail deer population in and around Big Meadows has a

significant impact on the vegetation. Deer browse heavily on herbaceous vegetation, shrubs, and young trees, often causing significant stress and plant mortality. This presents a challenge for many of the vegetation treatment recommendations, including the establishment of native meadow vegetation, shrub plantings, and the planting of young trees to facilitate campground canopy regeneration. While physical protection in the form of tree cages or fencing may be used on individual trees until they reach an age that they are resilient to the deer browsing, this is not feasible on ornamental shrub plantings. Therefore, species should be selected that have shown a resistance or resilience to deer browsing. A trial-and-error approach, wherein frequently damaged plants are replaced by species that have demonstrated success, will lead over time to a more stable vegetation system that will require less protection and maintenance.

Soil

One key to healthy and vigorous vegetation is ensuring that the soil has the proper characteristics needed by the plants. Healthy soil is a vital, living ecosystem of mineral elements, organic matter, microbes, invertebrates, fungus, and plant roots. Soil with proper structure, composition, chemical characteristics, and life activity will support plant growth with minimal maintenance. While soils in natural environments tend to reach a balance through natural processes, these processes are disrupted in heavily used landscapes, requiring intervention to maintain healthy soil characteristics.

As part of the cooperative project with the University of Tennessee, soil samples were taken within the study areas of the campground and the viewsheds below the lodge and cabins. The team tested soil structure and composition, nutrient content, pH, and cation exchange capacity (CEC—a measure of the soil's ability to retain positively charged nutrients). The full results of their analysis are included in their report, included here as Appendix A. The developed areas around the lodge and cabins were beyond the scope of the initial project and were not tested. In order to develop a more complete analysis of the soils at Big Meadows and to maximize the success of planting efforts, similar testing should be done in this area.

New planting efforts should be accompanied by appropriate actions to improve soil health, including the addition of organic matter, pH adjustment, aeration, and protection from compaction. Existing turf and other plantings should be rehabilitated as needed to improve the quality of the soil.

Ensure compatibility of structures and landscape features

The style and materials of structures and site furnishings were an essential part of the design philosophy that guided the National Park Service development of Big Meadows. Built elements were of sturdy, rustic style, showcasing (and often

simulating) traditional hand-construction techniques with locally obtained natural materials such as stone and timber. These elements blended with the landscape more effectively than modern materials like concrete, steel, or brick, and projected a character of a rustic camp in the wilderness. Elements that were not of natural material or of rustic design style were constructed to recede visually into the landscape, featuring colors, materials, or designs, making them inconspicuous.

At Big Meadows, many structures and features have been added to the landscape since the historic period, from large structures for lodging, employee housing, or park operations, to numerous small-scale features such as signs, benches, picnic tables, lighting, trash cans, and fire and safety protection features. The style and materials of these features vary considerably, and many are not compatible with the historic character of the Big Meadows landscape. Structures built in the late 1950s and 1960s are particularly incongruous with the historic character of Big Meadows, including the motel-style Double Top and Rapidan Cottages and the employee apartments located near the maintenance area. The concrete-block construction and modern style of these buildings, combined with their evident age and condition issues, detract from the scenic qualities and rustic character of the cultural landscape. The use of these and other post-historic structures should be evaluated and consideration should be given to replacing them with more compatible structures.

TREATMENT TASKS

The following treatment tasks are recommended to achieve the treatment goals, preserve the cultural landscape, and enhance its historic character. The tasks are organized by the six landscape management areas and include the existing conditions that should be addressed, a description of desired conditions, and task actions to achieve these conditions.

LODGE AND CABIN AREA

It is in the lodge area that the characteristics of rustic design of Big Meadows are the most evident. The architecture of the lodge and cabins, the layout of the buildings and circulation, the arrangement of the vegetation, and the detail added by the small-scale features continue to demonstrate the design principles that guided early National Park Service design. However, changing vegetation patterns, deferred maintenance, and constant evolution to meet changing visitor service needs has resulted in a diminished visitor experience and a character not entirely consistent with historic conditions.

Big Meadows Lodge and its setting should be one of the iconic features within Shenandoah National Park, strongly reflecting the rustic and naturalistic aesthetics that are associated with early-twentieth-century National Park Service design and modeling current resource management values. Built features should recede into the landscape, with masses of informally arranged vegetation screening or softening the hard lines of structures. Features throughout the area should be constructed of local, natural materials such as stone and rough-finished timber, or materials that are otherwise visually unobtrusive. Consistent design standards should be applied to buildings and small-scale features to ensure visual harmony. Utility areas should be located out of public view or effectively screened.

Footpaths and sidewalks should be of consistent width and surface, without excessive piecemeal patches or accretion of paving material along edges or path junctions. Edges should be distinct and uniform, and grass or native vegetation should extend up to the pavement edge without bare spots. Asphalt surfaces should be allowed to age to a light gray with visible aggregate. Social paths across vegetated areas should be discouraged, either by realigning circulation or by creating a vegetative or other barrier.

Native vegetation should be arranged in naturalistic groupings of shrubs, small trees, and herbaceous plants around building foundations and along and between the paths. Vegetation should break up visual sightlines and screen buildings, roads, and other built elements. Native vegetation should be used exclusively and selected for resistance to deer browsing. Plantings near the lodge may be protected from deer browsing during the winter months.

Views from the rear areas of the lodge and the Double Top/Rapidan Cottages should be wide and unobscured by trees. Visitors should have clear view of the valley floor below. Foreground slopes below the viewing areas should be maintained as low meadow or rock outcrop vegetation.

Task LC-1. Preserve and Improve historic views from the lodge and cottages

Existing Conditions

Views are currently managed in two areas below the Big Meadows Lodge and the Double Top and Rapidan Cottages. The current management zones, with areas of 0.65 and 0.72 acres respectively, are cleared periodically to remove tall woody vegetation, resulting in clearings in the forest vegetation. Current management zones are delineated by the extent of the existing clearings and management efforts are confined to those clear areas.

Black locust and cherry are both abundant within the lodge and cottages view management area. These trees grow rapidly and block the foreground of the views with dense thickets of vegetation. The two species are tolerant of a wide range of soil pH, nutrients, and moisture, and are highly resistant to deer browsing. These species grow densely and rapidly from cut stems, and spread aggressively through the growth of new shoots from existing root systems. The spread is stimulated by cutting, and periodic cutting over a number of years has resulted in dense and robust stands.

The tops of the canopies of the large trees along the edges of the clearings currently block the lower portions of the views from the lodge and cottages. This is particularly the case at the cottages, where the slope is shallower. The transition from clearing to forest is abrupt, giving the sense of a wall of trees enclosing the view clearing.



Figure 3.12. Photo showing the view from the cottages terrace. The lack of leaves allows the view of the valley to come through the tree canopy, demonstrating how the view may be opened up by selectively removing trees along the forest edge. (OCLP)



Figure 3.13. Photo showing the view from the lodge terrace. The foreground of the photo shows dense thickets of black locust trees that will eventually block the view. (OCLP)



Figure 3.14. Photo looking south from the Appalachian Trail toward the cottages showing the view management area. (OCLP)

The Appalachian Trail passes just below the lodge and cottages view management areas. While the trail is generally not visible from the lodge, the cottages are visible to hikers for a short portion of the trail.

Desired Conditions

Managed views should be identified and described in terms of point of origin, quality of view, and view management area. View management areas, as well as zones within them with different management actions, vegetation heights, or desired qualities, should be delineated based on topographical elevation with respect to the view point of origin.

View management areas should be maintained with low-stature vegetation that remains below eye-level of visitors on the terraces behind the lodge and cottages.



Figure 3.15. Photo of the view from the lodge terraces, showing the desired quality of the view, including a visible portion of the valley floor. (OCLP)

Because of the drop in slope, the highest topographical elevations of the management areas, closest to the structures, should have the shortest vegetation, with taller vegetation located further from the observer. Taller tree species, such as black locust and black cherry, should be removed and controlled within the view management areas. The development of a dense layer of mid-story vegetation will help suppress unwanted tree species that would otherwise regrow and block the view foreground.

Views from the terraces should include not only the horizon and distant mountains, but portions of the valley floor as well. The general angle of unobstructed view should be between three and five degrees below the horizontal (Figure 3.17). The view may be interrupted by individual tree crowns that block portions of the valley view at intervals (Figure 3.15).

Task Actions

Establish view management areas

View management areas below the lodge and cottages should extend along lines perpendicular to the building faces to an elevation of sixty feet below the elevation of the terraces. At this elevation, the majority of the mature trees will be below the eye level of a viewer on the terraces. Zones within these management areas should be established at three feet (Zone A), fifteen feet (Zone B), thirty feet (Zone C), and sixty feet (Zone D) as measured below the level of the view point of origin (Figure 3.15). These zones will help define vegetation heights and types within the view management area that will ensure open views (see task actions below).

Remove black locust, black cherry, and other tree species within view management areas (Zones A–D)

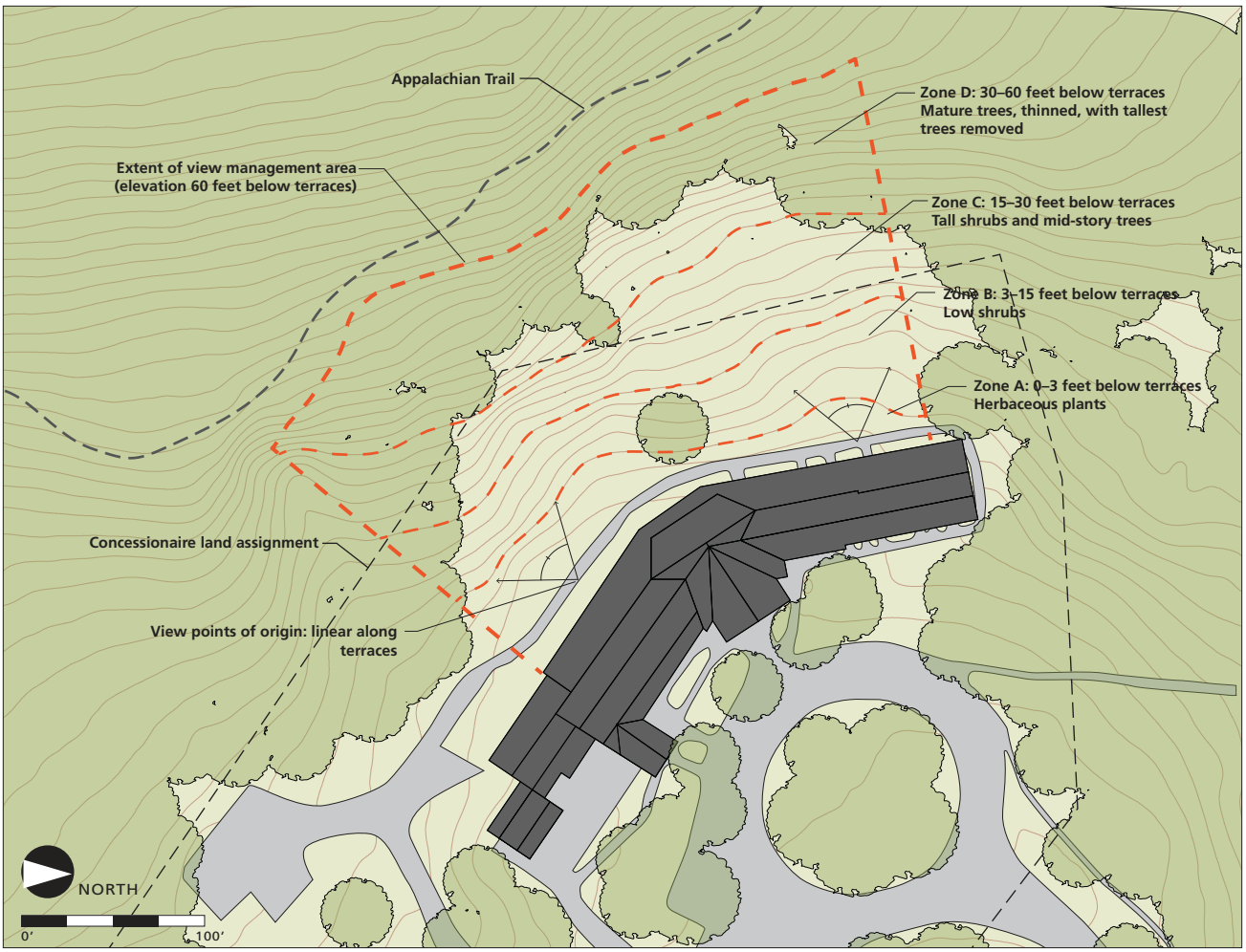


Figure 3.16. Diagram of lodge view management area and sub-zones. View point of origin is linear along the lodge terraces, and all elevations are measured relative to terraces. (OCLP)

The species black locust and black cherry are undesirable within the view area. Within the area that is currently forested, the few black locust trees that are present are nearing the end of their lives, and removing them will help thin the forest.

Within the areas that are currently clear of forest cover, black locust and black cherry are particularly problematic, growing in dense thickets that quickly grow tall enough to block views. Effective control of these species will involve a combination of cutting and treatment with herbicide. Hand cut trees and shrubs of these species and immediately apply an appropriate herbicide to the cut surface in order to kill the remaining root system. Repeat cutting and herbicide treatment as needed until roots no longer generate sprouts. Basal application of herbicide without cutting may also be effective. Periodically monitor the clearings for these species and treat immediately to prevent reestablishment.

Zone A: Establish herbaceous vegetation under three feet high

Vegetation in the border area between the terraces and three feet below should be constrained to a height of three feet and should exhibit a naturalistic appearance as the foreground of the view. To accomplish this, establish a border of native herbaceous plants that may be maintained by periodic mowing or trimming. The

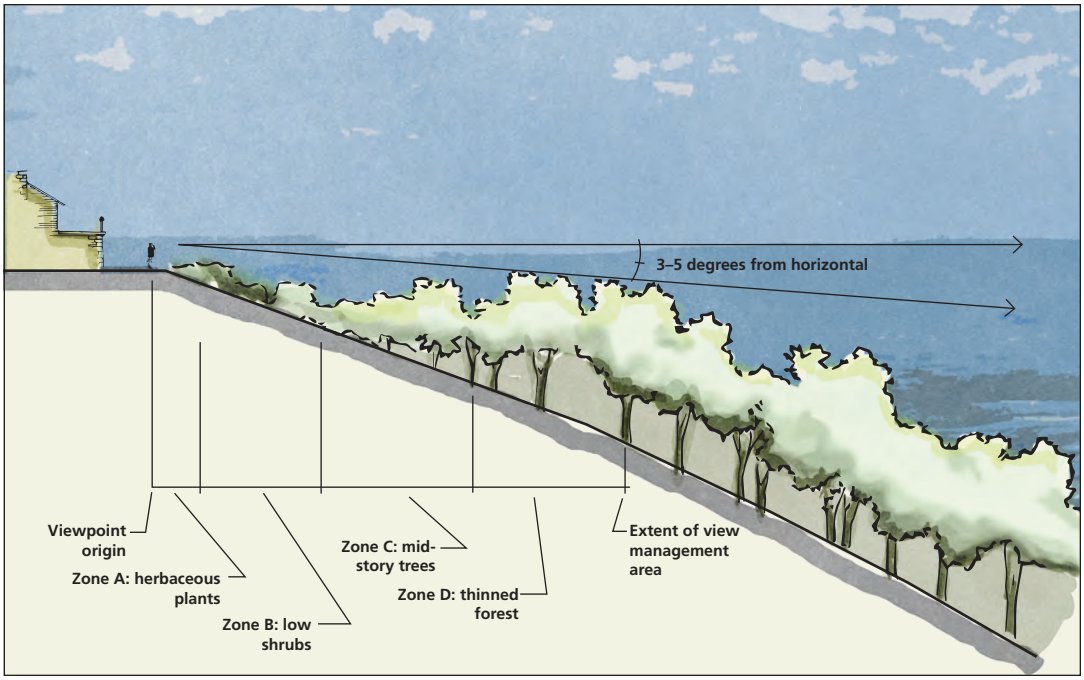


Figure 3.17. Section diagram showing the transition of shorter to taller vegetation within the view management areas. (OCLP)

area should only be mowed annually to suppress woody vegetation, and not to establish low turf grass. Monitor this zone for invasive vegetation and seed regularly with desirable species. Suggested herbaceous species are included in Table 3.2.

Zone B: Establish low shrubs and herbaceous vegetation under ten feet tall

Establishing a dense layer of low shrubs will help suppress taller tree species, including the problematic locust and cherry trees. Select native shrub species that grow quickly and densely, are adapted to site conditions, are deer resistant, and reach a maximum height under ten feet tall. Shrub planting may be complemented with the establishment of herbaceous plants, particularly in places where the soil is very thin or otherwise can't support shrub growth. Selecting strongly scented herbaceous plants, such as common yarrow (*Achillea millefolium*), allium species, and aster species, may have the additional advantage of discouraging deer browsing. Shrub and herbaceous planting should be accompanied by the continued control of black locust and black cherry as described above, and regularly monitored for success. Repeated planting and adjusting of the species selection based on success rates may be needed. Suggested shrub and herbaceous plant species are included in Table 3.2.

Zone C: Establish shrub and mid-story trees under thirty feet tall

Recommendations for Zone C are similar to those of Zone B, with the inclusion of mid-story trees under thirty feet tall. Establish mid-story trees fifteen to thirty feet tall with an understory of native shrubs. Remove species that have a mature height over thirty feet. Monitor the area regularly and remove undesirable species.

Zone D: Selectively thin large trees at edge of clearings



Figure 3.18. Annotated photo demonstrating the application of vegetation zones within the view management area. (OCLP)

Zone D should function as the transition to the forest beyond the view management zone. Mature canopy trees may be retained in this zone, particularly near the lower edge of the zone. Trees within Zone D should be thinned to allow filtered views between and over the canopies, selectively removing trees that are in a visible state of decline and trees that are blocking portions of the view from the terraces above. Black locust, a short-lived tree species, should also be removed. Care should be taken not to disturb any young oak seedlings or saplings. These are present but not common, and should be preserved to grow into the canopy. The remaining canopy can then be assessed to determine its impact on the view based on tree height, location, and topography. Large trees near the edge of the clearing can be cut, and replaced with shade-tolerant or intolerant understory trees on the eastern side of both lodge and cabin clearings. Where large trees are cut further down the slope, they should be replaced with shade-tolerant understory trees.

Thinning the forest in Zone D will result in more sunlight reaching the forest floor, making the area more susceptible to colonization by invasive vegetation. Managed areas should be monitored regularly for invasive species and managed as needed to suppress them.

Task LC-2. Plant native shrubs and herbaceous plants in informal groups around lodge and cabins

Existing Conditions

Vegetation throughout the lodge and cabin area is predominantly composed of

Table 3.2. Recommended vegetation for use in the view management areas

The following table provides a limited list of recommended species for use in the view management areas. The park may supplement this list with other species as appropriate.

Specific Name	Common Name	Mature height (feet)	Notes
Mid-story trees			
Ostrya virginiana	Eastern hophornbeam	40	Shade tolerant
Hamamelis virginiana	Witch hazel	20	
Acer pensylvanicum	Striped maple		
Crataegus calpodendron *C. intricata* *C. flava* *C. uniflora* *C. flabellata* *C. punctata*	Hawthorne	20 10 26 10 30 30	Shade tolerant
Shrubs			
Sambucus racemosa *S. nigra*	Elderberry	20	Shade tolerant
Kalmia latifolia	Mountain laurel	6	Shade tolerant
Herbs			
Achillea millefolium	Common yarrow	3	
Allium cernuum	Nodding onion	1	
Eupatorium purpureum	Joe pyeweed	6	
Hypericum punctatum	Spotted St. John's wort	3	Shade tolerant
Salvia lyrata	Sage	1	
Monarda fistulosa	Beebalm	4	
Coreopsis verticilata	Tickseed	2	
Dryopteris intermedia	Wood fern	3	Shade tolerant
Athyrium filix-femina	Northern lady fern	3	
Symphytrichum pilosum	Frost aster	1-4	

tall overstory trees over turf grass, with very few shrubs or understory vegetation. This creates an open, park-like character with unobstructed views through the area. Structures, circulation, signage, and other utility features are clearly visible through the trees, and built elements are generally not screened or softened by vegetation.

Desired Conditions

Views through the developed area should be broken up with groupings of native shrubs and herbaceous plants. This creates a more natural appearance, deemphasizes structural elements, and reduces the overall scale of the developed area. Shrubs and herbaceous plants should be planted in informal groups of mixed species and varying size and form to give the effect of naturally growing vegetation.

Task Actions

Establish ornamental groupings of native shrubs and woodland herbaceous plants

Plant native shrubs and annual plants in informal groupings throughout the lodge and cabins area. Group plantings should be established in open spaces between paths, around the parking lot, along the foundations of buildings, and around utility structures. Groupings should be arranged in a naturalistic manner, varying in size, shape, arrangement, and species composition. Groupings may be as small as two or three plants or much larger depending on location and context. The fol-



Figure 3.19. Photo of the entrance to the lodge showing the character of existing vegetation. (OCLP)



Figure 3.20. Photo of the cabin area showing the character of existing vegetation. (OCLP)



Figure 3.21. Photo of the Big Meadows Lodge utility area. Service areas should be screened from view with vegetation plantings. (OCLP)

lowing guidelines may be used to locate plantings:

- Plant vegetation along walking paths in front of the lodge and between the cabins, particularly near path junctions, curves, and steps. Vary the size, location, and distance from the path, and maintain adequate empty space between the groupings to preserve an open character and avoid a tunnel or hedge effect.
- Use vegetation to screen large service areas and structures, such as the lodge loading dock, dumpsters, storage sheds, and large electrical boxes.
- Plant groups of vegetation near smaller utility features, like manhole covers, small utility boxes, fire hydrants, and waste receptacles. These features need not be completely obscured by vegetation, but by locating vegetation groupings near the features, their visual impact in the landscape is reduced.
- Add additional vegetation around existing shrubs in front of the lodge to increase their variety.

Species should be selected from locally native understory plants for their attractiveness, suitability to site conditions, and deer resistance. Some recommended species are listed in Table 3.3.

Task LC-3. Rehabilitate walkways

Existing Conditions

Numerous walkways crisscross the lodge and cabin area, particularly in front of the lodge and around the cabins. These walkways, primarily surfaced with asphalt (bituminous concrete), vary considerably in width, surface color and texture, and



Figure 3.22. Photo showing existing conditions at the lodge entrance. (OCLP)



Figure 3.23. Photo-simulation showing suggested placement of and character of shrub and herbaceous plantings at the lodge entrance. (OCLP)

condition. Repeated repairs have resulted in a patchwork of different surfaces, with numerous patched potholes, some areas looking considerably darker and newer than other portions. In some places the walkways are larger than they need to be, having expanded over time with repeated paving. In other places, compacted edges denuded of grass indicate that the paths are too narrow for current foot traffic or maintenance vehicles. Many of the path edges and junctions have an excess of substrate material, such as sand and aggregate, that prevents the growth of grass. These conditions lend a somewhat urban character to the landscape that is incompatible with park goals.

Desired Character

Paths should be of a consistent material and surface character offering predict-



Figure 3.24. Photo showing existing conditions in the cabin area. (OCLP)



Figure 3.25. Photo-simulation showing the recommended placement and character of shrub and herbaceous plantings in the cabin area. (OCLP)

able footing, with clearly defined edges and vegetation growing right to the path edge. Paths should curve naturally through the landscape with consistent width. All pathways should be kept in good condition, and repairs should carefully match the color and texture of adjacent material. Unnecessary or redundant circulation should be removed. If asphalt is used, surface material should be of light color and coarse texture, conveying the character of gravel. Alternative surface materials include chip seal, stone dust, or stabilized aggregate surface.

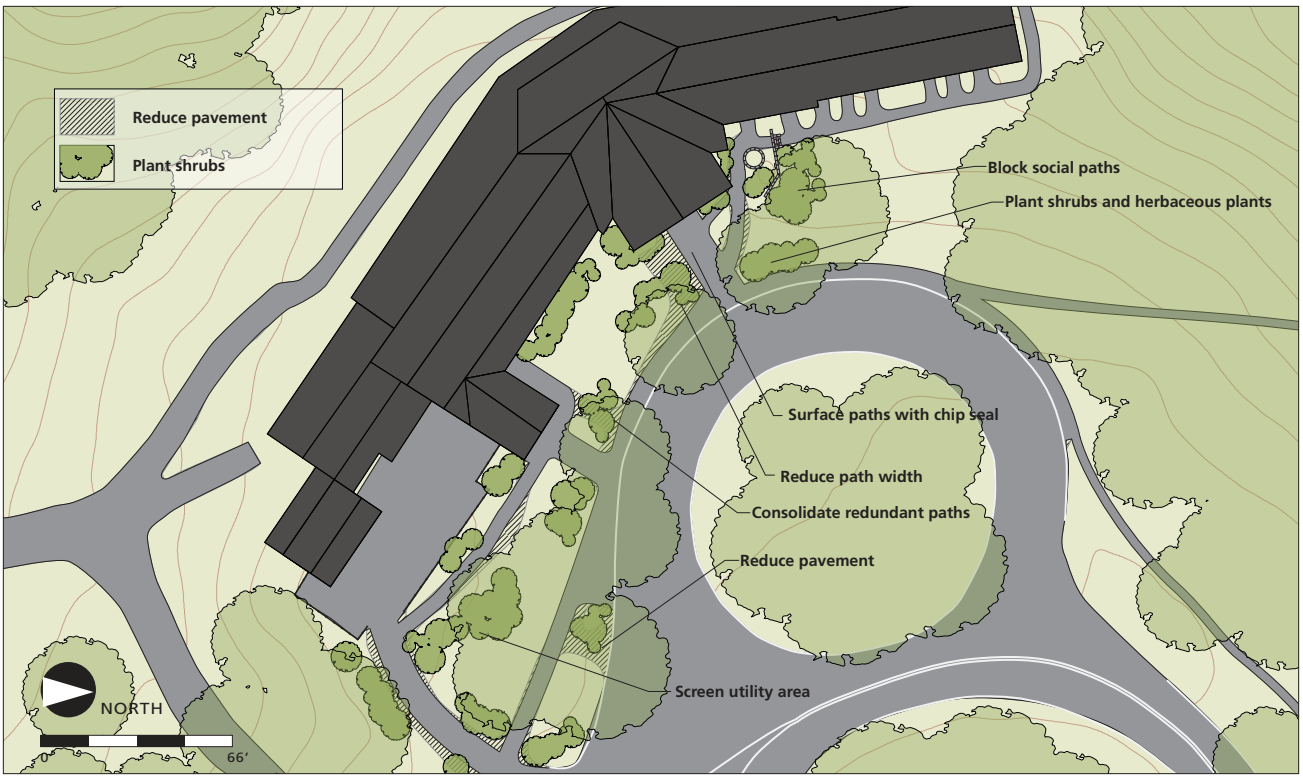


Figure 3.26. Schematic diagram illustrating recommended changes to circulation and vegetation at Big Meadows Lodge. (OCLP)



Figure 3.27. Schematic diagram illustrating recommended changes to circulation and vegetation around the cottages and cabins at Big Meadows. (OCLP)

Table 3.3. Native plant list for supplemental planting in Big Meadows

Specific Name	Common Name	Mature height (feet)	Notes
Small trees			
Acer pensylvanicum	Striped maple	35	
Amelanchier arborea	Serviceberry	20	
Hamamelis virginiana	Witch hazel	20	
Ilex montana	Mountain Winterberry	15-40	
Ostrya virginiana	Hop hornbeam	30	
Prunus virginiana	Chokecherry	30	
Sorbus americana	American mountainberry	40	
Shrubs			
Corylus cornuta	Beaked hazelnut	4 to 8	
Kalmia latifolia	Mountain laurel	7 to 15	
Lyonia ligustrina	Maleberry	12	
Photinia melanocarpa	Black chokeberry	5	
Rhododendron periclymenoides *R. prinophyllum*	Azalea (deciduous)	4 to 6 2 to 8	
Sambucus racemosa, nigra	Elderberry	20	
Spiraea latifolia	Meadowsweet	1 to 6	Prefers sun
Vaccinium angustifolium *V. stamineum* *Vaccinium pallidum*	Blueberry	1 to 2 5 to 10 1 to 2	Prefers sun
Viburnum acerifolium *V. rafinesquianum*	Viburnum	3 to 6 6 to 10	
Perennials and Ground Cover			
Asclepias tuberosa	Butterfly weed	1 to 2	
Aquilegia canadensis	Columbine	2	Deer resistant
Ageratina altissima	White snakeroot	3 to 5	
Arisaema triphyllum	Jack-in-the-pulpit	1.5	Deer resistant
Aruncus dioicus	Goat's beard	4	Deer resistant
Asclepias exaltata	Poke milkweed	2 to 5	
Amianthium muscitoxicum	Fly poison	1 to 3	
Campanula divaricata	Bellflowers	1 to 2	
Caulophyllum thalictroides	Black cohosh	2	
Eupatorium purpureum	Joe pye weed	6	Deer resistant
Eurybia divaricata	White wood aster	2	
Eurybia macrophylla	Large leaved aster	2 to 4	
Geranium maculatum	Wild geranium	2	
Heuchera americana	American alumroot	1	Deer resistant
Hydrophyllum virginianum	Waterleaf	1 to 3	
Hypericum punctatum	Spotted St. John's wort	3	Deer resistant
Lilium superbum	Turk's cap lily	3	
Lysimachia quadrifolia	Whorled yellow loosestrife	1 to 3	
Maianthemum canadense *M. racemosum*	Canada mayflower False Solomon's seal	1 2	
Medeola virginiana	Indian cucumber	2	
Monarda clinopodia *M. fistulosa*	Beebalm	2 4	Deer resistant
Oenothera biennis	Evening primrose	5	

Table 3.3. (continued) Native plant list for supplemental planting in Big Meadows

Packera aurea	Golden ragwort	<1 to 3	
Penstemon canescens	Beardtongue	4	
Polygonum biflorum, pubescens	Solomon's seal	2	
Prenanthes altissima	Rattlesnake root	3 to 7	
Scrophularia lanceolata	Early figwort	5	
Spirea betulifolia	White spirea	3	Deer resistant
Trillium grandiflorum	White trillium	1	
Uvulara perfoliata, U.sessilifolia	Bellwort		
Viola x palmata, sagitatta, sororia	Violet	1	
Zizia aptera	Golden alexanders	1 to 3	
Ferns			
Asplenium platyneuron	Ebony spleenwort	1	Deer resistant
Dennstaedtia punctilobula	Hayscented fern	1 to 2	Deer resistant
Dryopteris intermedia *D. marginalis*	Wood fern Marginal shield fern	3 2	Deer resistant
Polystichum acrostichoides	Christmas fern	2	Deer resistant
Grasses			
Andropogon virginicus	Broomsedge bluestem	2	
Agrostis perennans	Upland bentgrass	2	
Brachyelytrum erectum	Bearded shorthusk	<1 to 3	
Carex appalachica *C. pensylvanica* *C. virescens*	Sedge	2 1 1 to 3	
Danthonia compressa *D. spicata*	Flattened oatgrass Poverty oatgrass	1 to 3 1 to 3	
Deschampsia flexuosa	Crinkled hair grass	2 to 3	
Festuca rubra *F. subverticillata*	Red fescue Nodding fescue	<1 2 to 3	
Panicum clandestinum	Deer-tongue grass	1.5 to 4	
Schizachyrium scoparium	Little bluestem	2	

Task Actions

Resurface pathways with chip seal

A cost-effective way to rehabilitate path surfaces and achieve both a consistency of surface quality and a character more compatible with historic conditions is to re-surface existing paths with chip seal. Apply chip seal with a natural-colored gravel top dressing to paths throughout the lodge and cabin area, including immediately in front of the lodge and in the area around the cabins. Chip seal surface should cover and conceal the different asphalt below, creating a surface that is consistent



Figure 3.28. Photo of lodge entrance showing excess pavement, pavement encroaching on tree, and a patchwork of surface conditions. (OCLP)



Figure 3.29. Photo of the lodge entrance, showing redundant pathways. (OCLP)

in color and texture throughout the area. Any future repairs should be similarly treated to blend with adjacent surface.

Rehabilitate path edges

Paths should be of consistent width with clean, consistent edges. Remove asphalt along the edges of pathways where it deviates from a consistent width, particularly where pathway repairs have extended beyond the edges of the original path alignment. Remove excess aggregate along path edges, rehabilitate the soil, and reestablish vegetation.

Remove redundant pathways and paved areas

Reduce the width of paths that are wider than necessary, remove excess paving at path intersections, and remove redundant paths that duplicate circulation routes. Remove asphalt surface and aggregate substrate and replace with a quality, local topsoil, and establish vegetation.

Reconstruct paths

While the paths within the lodge and cabin area will benefit from individual rehabilitation efforts, including resurfacing and rehabilitating path edges, they should eventually be reconstructed with new substrate, new surface, and refined alignment. Remove existing asphalt and repair any portions of the substrate that have deteriorated. Remove any excess substrate along path edges and junctions to no more than is necessary for the path width. Repave with an appropriate surface material, which may include asphalt, chip-seal, and stabilized aggregate surface. Path alignments should curve naturally through the landscape, with organic curves at path junctions. Rehabilitate areas formerly covered with path surface by replacing



Figure 3.30. Photo showing a path in the picnic area, demonstrating several desirable characteristics, including consistent surface, consistent edge character, narrow width, and graceful curves. (OCLP)

substrate with a quality topsoil and establishing turf grass or native vegetation. Utilize vegetation and natural barriers, such as large stones and logs, to constrain foot traffic to path surfaces and reduce social paths across the landscape.

Task LC-4. Rehabilitate compacted soil and reestablish vegetation

Existing Conditions

Several areas along the walkways around the lodge, cabin, and cottages have become bare as a result of compacted soil and the accumulation of sand and aggregate from paving. Compaction occurs with repeated foot traffic and from periodic passage of service vehicles. This is exacerbated by the accumulation of pathway substrate migrating beyond the edges of the path and of aggregate fill used in utility repairs. These areas are particularly pronounced at pathway junctions, along paths that are too narrow to carry pedestrian traffic loads, and along desire lines that cut across grassy areas.

Desired Conditions

Areas between paths in the lodge and cabin area should have a natural appearance, largely covered with vegetation, and showing minimal signs of wear due to pedestrian traffic. Soil along the path edges should be healthy, with adequate organic matter, moisture, and air voids to support plant life. Larger areas that are not subjected to high pedestrian traffic should contain primarily native forest-floor



Figure 3.31. Montage of existing conditions photos (left) and photo-simulations (right) demonstrating path rehabilitation, including resurfacing, realigning path junctions, and rehabilitating path edges. (OCLP)

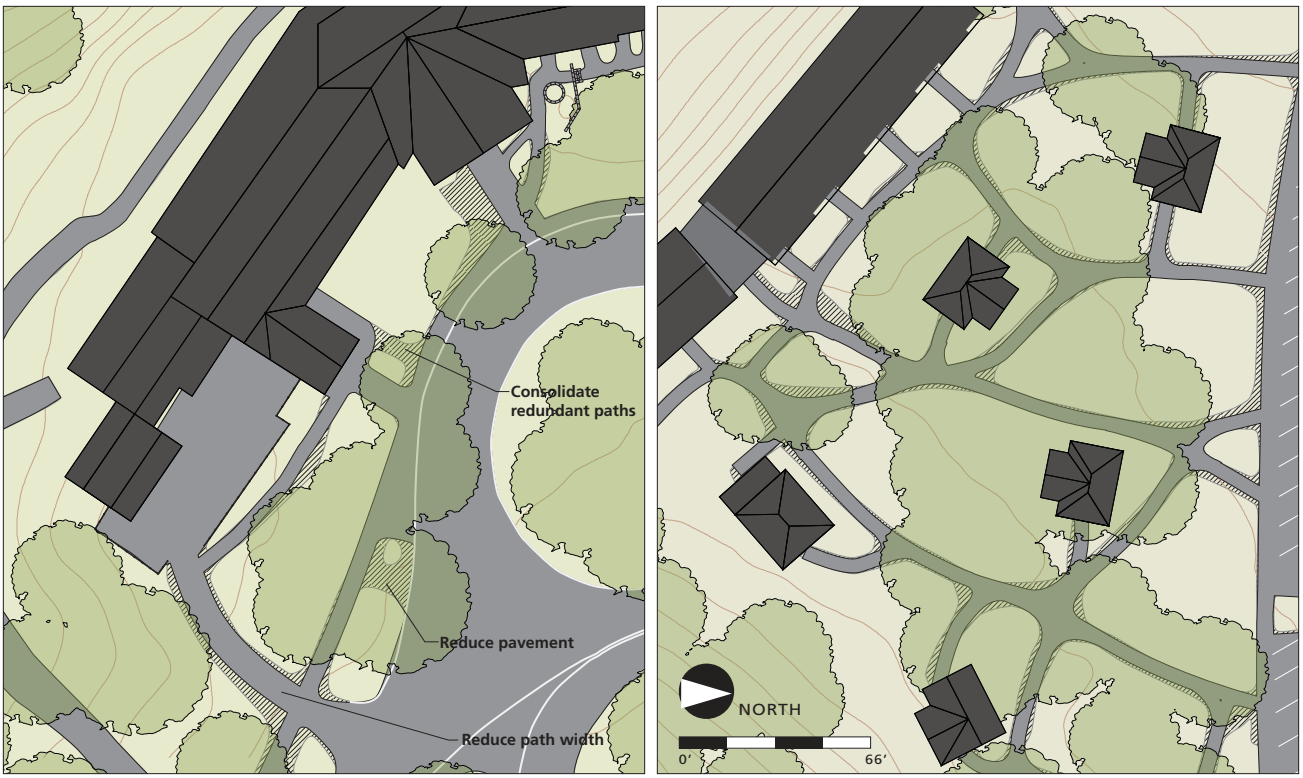


Figure 3.32. Diagrams of the lodge (left) and cabins (right) showing path rehabilitation, including recommended path alignment (grey) and paths or pavement to be removed (red). (OCLP)

vegetation or native grasses, with patches of natural soil or forest duff acceptable where vegetation is difficult to establish due to shade or other factors. Smaller areas and areas along path edges should be planted with turf grass or other low vegetation that is maintainable through regular mowing.

Task Actions

Rehabilitate compacted and degraded soils so that they will support thriving vegetation. Where soil is compacted, aerate with a core aerator and add organic matter. Where sand and aggregate has accumulated and is preventing vegetation growth, remove the impacted layer of soil and replace with a quality local topsoil amended with compost. Establish native vegetation or turf grass in rehabilitated areas, and provide protection, irrigation, or fertilization as needed to establish vegetation. Where continued foot or vehicle traffic causes repeated compaction, take steps to reduce the traffic, such as installing stone or log barriers or planting shrub vegetation.

Task LC-5. Ensure consistency and compatibility of small-scale features

Existing Conditions

Small scale features throughout the Lodge and Cabin Area vary considerably in style and materials, and many are incompatible with historic character. Incompatible features include waste receptacles, benches, chairs, signs, playground equipment, and utility features. Waste receptacles, although painted brown, still convey an industrial or utilitarian character through their corrugated metal construction



Figure 3.33. Photo showing compacted path junction bare of vegetation. To rehabilitate areas such as this, remove excess aggregate and replace with a fertile topsoil, reduce compaction, and establish vegetation. (OCLP)

and conspicuous bear-exclusion tops. A variety of bench and chair styles are represented throughout the lodge area and employee housing area. White metal benches are conspicuous and incompatible with a rustic character, and chairs constructed of tubular steel and plastic webbing are abundant. Playground equipment features brightly colored, but faded, plastic elements and rusty steel swings and ladders. The poor condition of many of these features enhances their incongruity with the landscape.

Desired Conditions

Small-scale features should be compatible in character with the principles of rustic design and naturalistic landscape architecture. They should be of natural material where possible, or made of visually inconspicuous material such as dark-painted metal. Materials such as bright metal and plastic should be avoided, as should conspicuously modern or ornamented styles. Features should be kept in good condition and cleaned, repaired, or replaced when they show damage or wear. Consistency of design is essential to ensure compatibility of features scattered through the landscape. Individual elements of a feature type should be similar in style, materials, and siting.

Task Actions

Develop consistent guidelines for the style and use of small-scale features in the landscape to ensure their compatibility with historic character. Specific guidelines should be developed for each feature type, and should specify acceptable style, material, and placement and indicate materials and characteristics that are not acceptable. Include guidelines for the style and use of landscape furnishings in concessioner contracts to ensure consistency across different management areas. Recommendations for feature types include:

Install site furniture of simple, consistent style and materials

Benches and chairs should be of wood or wood and metal, featuring simple construction, large-scale plank lumber, and a natural, unpainted surface. Metal parts should be of galvanized or dark painted tubular or flat stock steel, free of ornamentation. Materials such as plastic, composite lumber, and concrete should be avoided.

Preserve historic signs and implement consistent standards for other signage

Much of the signage around the Big Meadows lodge and cabins are historic or are consistent with the style of the signs used during the historic period. These typically feature wooden board signs painted brown or black, with white, routed lettering, installed on wooden or painted metal pipe signposts. These signs include the "Big Meadows Lodge/Office/Dining Room sign near the lodge entrance, the sign indicating the direction to Blackrock, and the signs indicating the names of the cabins. These signs should be preserved and replaced in kind when necessary.

Where possible, modern signage should conform to the National Park Service graphic identity sign standards developed by the Harpers Ferry Center. This ensures consistency, not only within the landscape, but across the National Park Service as well. In addition to the sign standards, wooden signs with carved white lettering are strongly associated with the National Park Service and are appropri-



Figure 3.34. Clockwise from upper left: incompatible metal bench located near Big Meadows Lodge; example of compatible bench with simple, rustic style and large wooden timbers; compatible directional signage with wooden sign boards, routed and painted lettering in an appropriate typeface, and wooden sign posts; historic Big Meadows Lodge sign. (OCLP)

ate to use for directional and information signs. Where needed for vehicle safety, navigation, and information, standard metal road signs may be used. Sign posts should be of wood or a dark tubular steel. Avoid perforated square tube and u-channel posts where possible.

Install new bear-resistant waste receptacles

The need for protection from bears and other wildlife limits the choices for waste receptacles within the park, however bear-resistant models are available that are more compatible with the historic character of Big Meadows than those currently in use. Examples are simple, metal box receptacles such as those available from the company Hid-a-Bag, which offers models that are also ADA compliant. Waste receptacles should be of consistent design and placement and should be kept in good visual condition.

Remove or replace playground equipment

The children's play area between Big Meadows Lodge and Rapidan Cottage is starkly incompatible with historic character. The fading plastic features, rusting swings, tires, and denuded ground enclosed by the split rail fence presents an urban and derelict character. Consideration should be given to removing the playground area altogether and rehabilitating the area. If elimination of the play area is not desired, the existing equipment should be replaced by play structures that are



Figure 3.35. Clockwise from upper left: incompatible metal garbage can near Big Meadows Lodge; incompatible metal bench; playground equipment near Big Meadows Lodge; incompatible metal and vinyl chairs located in the cabin area. (OCLP)



Figure 3.36. Images show appropriate styles of site furniture, including benches, chairs, and playground equipment. Clockwise from upper left: wooden bench available from Broxap (www.broxap.com), chairs available from Walpole Outdoors (www.walpoleoutdoors.com), playground equipment desigend by MKM Landscape Architects (www.markkmorrison.com), rocking chairs available from Walpole Outdoors.

more compatible. Play equipment should be constructed primarily of wood timbers in a rustic style, with no conspicuous materials like plastic or fanciful shapes like tubes, bubbles, or spiral slides. Equipment and the area around it should be maintained in good visual condition.

Task LC-6. Remove or Replace Double Top and Rapidan Cottages

Existing Conditions

The two motel-style buildings that comprise Double Top and Rapidan Cottages, constructed in 1959 and 1963 respectively, are incompatible in style and materials with the historic character of the Big Meadows landscape. The 1960s modern architecture, cinder-block construction, metal railings, and concrete steps all conflict with the rustic aesthetic conveyed by the historic structures and landscape characteristics for which the landscape is significant. The buildings' style, size, and condition combined with their prominent location in the landscape and their physical proximity to the historic resources of lodge and cabins have a detrimental impact on the historic character of the Big Meadows lodge and cabin area. Furthermore, the location of the buildings between the cabins and the views to the northwest has altered the spatial organization of the cabin area and cut the cabins off from their historic association with the views.



Figure 3.37. Photo showing Rapidan cottage. The modern architectural style and incompatible materials detract from the historic character of Big Meadows. (OCLP)



Figure 3.38. Photosimulation showing the character of the cabin area with Rapidan and Double Top Cottages removed and views of the valley restored (OCLP).

Desired Conditions

Any structure(s) that occupy as prominent a position as the cottages currently do should be carefully designed to preserve the historic associations and character of the lodge and cabin area. Structures should be differentiated from the historic structures, but should be compatible with their historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment. Structures should be sited to reestablish the historic spatial relationship between the cabins and the slope to the north that creates the view.

Task Actions

Consider removing the Double Top and Rapidan Cottages and replacing them with more compatible structures.

Task LC-7. Remove Cottages A–E

Existing Conditions

Five small employee quarters cabins, referred to as Cottages A–E, were moved to Big Meadows from Swift Run Gap in 1955. Today these cabins are in very poor condition and are uninhabitable. Foundations are cracked, wood is rotted, and the buildings are structurally unstable. The structures are infested with mold and wildlife. In the condition they are in, the structures are a hazard to visitors and park staff.

Desired Conditions

Cottages A–E were not part of the original National Park Service master plan for Big Meadows and were moved to the site after the period of significance. As employee housing, they were never a highly visible element of the landscape and were not essential elements of the historic Big Meadows development. Because of their poor condition and non-contributing status, it is difficult to justify the investments required to bring these structures into good condition.

The park has entered into a memorandum of agreement with the Virginia Department of Historic Resources to have the five cottages removed. Recommendations from the State Historic Preservation Officer (SHPO) include documentation of the structures in accordance with the Historic American Buildings Survey (HABS) and careful archeological monitoring during removal.

Task Actions

Remove Cottages A–E in accordance with SHPO recommendations, and rehabilitate the site with native vegetation.



Figure 3.39. Photo showing one of the cottages near Big Meadows Lodge. Due to the extremely poor condition, the cottages should be removed. (OCLP)

CAMPGROUND AND PICNIC AREA

Like the lodge area, the campground and picnic area should exemplify the rustic and naturalistic design principles developed and promoted by the National Park Service in the early twentieth century. Furthermore, the campground and picnic area should conform to the practical guidance developed by E.P. Meinecke for the design of National Park Service and Forest Service campgrounds. These design principles will ensure that natural resources are protected while visitors are offered appropriate services and amenities, privacy, scenic views, and a naturalistic experience. The overall design of the campground should promote a sense of seclusion and immersion in nature.

In the campground, individual campsites should be well-defined and buffered from adjacent campsites, public areas, roads, and paths. Vegetation should include canopy trees to provide shade, and naturalistic arrangements of native shrubs and tall herbaceous plants to provide screening and enclosure. Natural objects, such as boulders and logs, may be used as barriers to control foot and vehicular traffic and to protect vulnerable areas and areas of plantings. Campsite furnishings, including picnic tables and fireplaces, should be constructed of natural materials or of compatible materials such as metal and wood. Conspicuously synthetic materials,

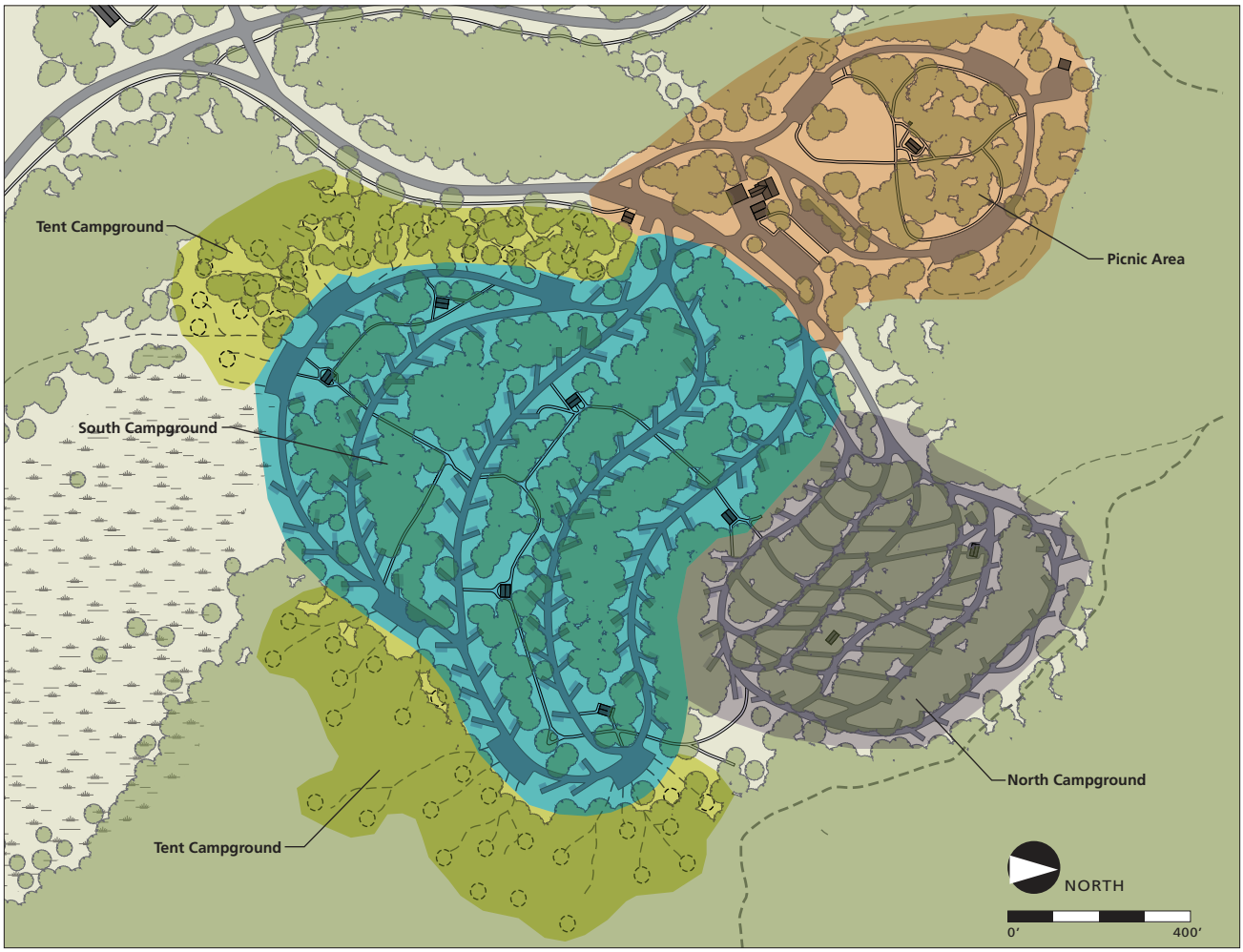


Figure 3.40. Diagram showing the approximate delinieations of vegetation management areas in the campground and picnic area (OCLP).

like plastic or engineered wood, should be avoided.

Much of the management of the campground involves the management of naturalized stands of trees and shrubs. The stands should be managed for desired species as well as vegetation structure. Tall tree species should be selected for form, longevity, disease resistance, and suitability to site conditions. Smaller trees, shrubs, and herbaceous plants below the overstory trees may be established to screen or frame views through the stands and to control foot traffic. For example, dense masses of small trees and shrubs may provide a visual buffer between campsites or screen comfort stations, parking areas, and other facilities from view, while areas of lower shrubs and un-mowed herbaceous plants may discourage cut-through traffic while preserving filtered views of the surrounding forest.

Because of their different vegetation condition and management issues, the treatment tasks for the campground and picnic area are grouped according to four subareas: the north campground, the tent campground, the south campground, and the picnic area.

NORTH CAMPGROUND

Task CP-1. Preserve canopy trees and plant tree saplings

Existing Conditions

The north campground features a healthy overstory of canopy trees, primarily oak, ash, pine, and locust. According to the documentation conducted by the University of Tennessee team in 2012, the existing trees have an average diameter of 13.6 inches and a basal area of sixty square feet per acre. A lack of seedlings and saplings under the mature trees has precluded regeneration of the canopy, which



Figure 3.41. Photo showing existing conditions in the north campground. (OCLP)

will eventually cause the decline of the canopy layer as older trees die and are not replaced. Pressure from deer browsing and adverse soil conditions, including compaction and high pH, may be having a negative impact of the growth of the canopy trees. Emerald ash borer has been detected within Shenandoah National Park and will likely infect existing ash trees if they are not protected.

Desired Conditions

The north campground should feature a healthy, tall overstory of deciduous trees and pines, offering shade and enclosure to the campsites. The mature overstory should be supplemented with adequate young trees in the understory to ensure continued regeneration as the older trees die.

Task Actions

Monitor the health and structure of the existing trees, taking action to remove declining and damaged trees and limbs as they become a safety hazard. Monitor ash trees for signs of emerald ash borer infection, treating affected trees at the first signs of damage. Remove ash trees that are heavily infected using appropriate methods to reduce the spread of the insect.

Remove any declining black locust trees, which are short-lived and pose a hazard as they decline. Plant young tree seedlings throughout the north campground, particularly where trees have been removed and openings in the canopy has been created as a result. Seedlings may also be planted near campsites as screening in association with shrub planting (see Task CP-3). Oak is shade tolerant as it becomes established and would work well as an understory planting, but may be adversely impacted by high pH in the soil of the north campground. Appropriate tree species include *Betula lenta*, *Betula allegheniensis*, *Ostrya virginiana*, *Prunus serotina*, *Acer pensylianicum*, *Quercus rubra*, *Quercus velutina*, *Quercus alba*. All seedlings should be protected from deer by shelters or fencing until trees are mature (10+ years).

Task CP-2. Improve soil conditions

Existing Conditions

Soil analysis by the University of Tennessee team noted a number of soil issues that may be impacting vegetation growth. According to their analysis, included in Appendix A,

> Soils are heavily compacted. Although this seems to be limited to the surface layer, surface compaction leads to poor infiltration with increased run-off and erosion, leading to drought and nutrient stress in established vegetation. Soil chemistry in the older campground has very high levels of calcium, an elevated CEC , pH, and nutrient content. Expected pH, based on NRCS soil maps of this area was between 5.1 and 5.5. The current pH is 6.7 which is well above the optimum pH of most oak species, and is high enough to result in the decline of pin oak (*Quercus palustris*) due to nutrient deficiency. The reason for the el-

evated CEC and pH are unknown, but the very high calcium levels suggest that lime may have been applied at one time, either as an amendment, in deicing salt, or through the use of limestone for gravel roads.

Desired Conditions

Soils should exhibit optimum chemical, biological, and physical characteristics to support native tree and shrub species. Surface layers should have adequate aeration and water retention and should contain sufficient organic matter. Soil should have pH levels below 6.5, and ideally below 6 to be in the optimum range for oak trees and forest understory shrubs. Soils should support beneficial microbe, fungal, and macroinvertebrate life. Visitor traffic, both pedestrian and vehicular, should be confined to the roadways, paths, and campsites, and discouraged from walking across planted areas between campsites.

Task Actions

Soil remediation in the north campground may involve a variety of methods depending on specific conditions and desired use. Delineate areas within the campsites, between the campsites, and along the roads to be either retained as native turf grass or converted to meadow or shrub and understory planting. In the areas to be retained as turf, the soil should be aerated with a core aerator and top-dressed with compost annually to reduce compaction and increase organic matter. Sustainable lawn management practices should be followed to cultivate a healthy, balanced turf containing a mix of native grass and low forb species. In areas where understory is to be established, aerate the soil with an air spade and add compost, working the compost into the top layer of soil. After planting, add compost and mulch regularly to retain moisture and ensure a continued supply of organic matter to the soil. Where sand and aggregate has accumulated from paving substrate or other sources, remove the accumulated material and replace with a local topsoil. Accumulated sand and aggregate increases compaction and often contains limestone, which increases pH. Continue to monitor soil conditions throughout the north campground and take corrective actions as needed to achieve and maintain desired conditions.

Task CP-3. Plant shrubs and saplings

Existing Conditions

The north campground is almost entirely covered with tall canopy trees featuring an open understory and a ground surface of turf grass. The open character beneath the trees reduces privacy between campsites and does not sufficiently screen public areas and utility features. The lack of understory shrubs also encourages unconstrained foot traffic through the campground, further reducing privacy and increasing soil compaction.



Figure 3.42. Photo showing vegetated areas in the south campground. Non-native vegetation should be replaced with native shrubs and herbaceous vegetation (OCLP)



Figure 3.43. Photo of a parking spur campsite in the south campground showing desired screening with shrubs. (OCLP)

Desired Conditions

In accordance with the principles of naturalistic campground design promoted by the National Park Service during the historic period, campgrounds should include understory vegetation around and between the campsites to provide a degree of privacy and increase the experience of seclusion and immersion in nature. While it is not necessary to completely enclose campsites with vegetation, strategically placed stands of vegetation will screen and filter views through the campground, creating the perception of fewer campsites, fewer fellow campers, and greater seclusion. Planted areas will also help constrain foot traffic to desired areas and discourage cutting across the campground.

Native vegetation should be planted in informal arrangements ranging from small groups of a few shrubs to larger planted areas with trees, saplings, shrubs, and herbaceous layers. Planted areas should contain a mix of species and vegetation types and a continuum of heights from low herbaceous plants through young trees.



Figure 3.44. Photo showing mountain laurel (*Kalmia latifolia*) and woodland herbaceous plants in naturalistic plantings. Vegetation plantings such as this should be established throughout the north and south campgrounds. (OCLP)

Task Actions

Delineate areas to be converted to planted areas located in larger areas between campsites and along vehicle loops. Prepare the soil as described in Task CP-2 and plant dense stands of young trees, native shrubs, and herbaceous plants, and protect the areas with fencing until the stands are established. After the stands are established, monitor the vegetation, replacing failed plantings and selecting species that demonstrate success. Continue to monitor soil conditions and adjust as needed for optimal growing conditions.

In smaller areas near campsites and along roads, plant small groups of native shrubs and herbaceous plants to provide screening and enclosure to the campsites and constrain traffic to roads and paths. Vegetation should be selected for suitability to growing conditions and for resistance to deer browsing. Vegetation should be protected with fencing or tree cages until established, and during the winter. Suggested species are included in Table 3.3.

Task CP-4. Reduce mowing and convert turf grass to meadow or woodland herbaceous character

Existing Conditions

The area throughout the north campground is currently managed as turf grass.

Desired Conditions

In order to enhance the naturalistic character of Big Meadows as a whole, reduce maintenance, and model sustainable practices, many of the areas within the campground should be managed with taller native plant cover, including meadow vegetation in sunny areas and woodland herbaceous vegetation beneath the tree canopy.



Figure 3.45. Photo of the picnic area showing areas that are mowed less frequently, resulting in taller herbaceous vegataion. Areas such as this should be established throughout the north and south campgrounds. (OCLP)

Task Actions

Delineate areas where turf grass is not necessary for visitor use, including areas between campsites and along roads and paths, to be managed with taller herbaceous vegetation. Remove turf grass species in these areas and seed or transplant a diverse mix of native grasses, ferns, and forbs. Maintain with annual mowing or selective removal of woody vegetation, and take appropriate actions to control non-native weeds, seeding as needed to promote native vegetation.

TENT CAMPGROUND

Task CP-5. Ensure tree canopy regeneration

Existing Conditions

The non-historic tent camping area exhibits a more natural character than the rest of the campground, with a more diverse forest cover, both in terms of species composition and vegetation structure. According to the University of Tennessee analysis (Appendix A),

> In the tent-camping areas black cherry, striped maple, declining black locust, witch hazel, sweet birch, and hawthorn were common, and basal area ranged from 80 to 120 [square feet per acre].These trees were generally small, being mainly young and smaller statured species. Mean stem diameter is 6.2 inches. There is sufficient regeneration in this area, but the composition reflects the changing composition of the overstory from past oak-dominated woods to an overstory dominated by tree species that are both deer-resistant, and tolerant of compacted and less acidic soils. Compaction is likely to prevent the growth of some sensitive species, and may slow the growth and reduce maximum height of tolerant species. The tent-camping area had a soil chemistry that was more typical of the area, being acidic and low in nutrients.
>
> The boggy area to the east of the campground is a unique biological resource.

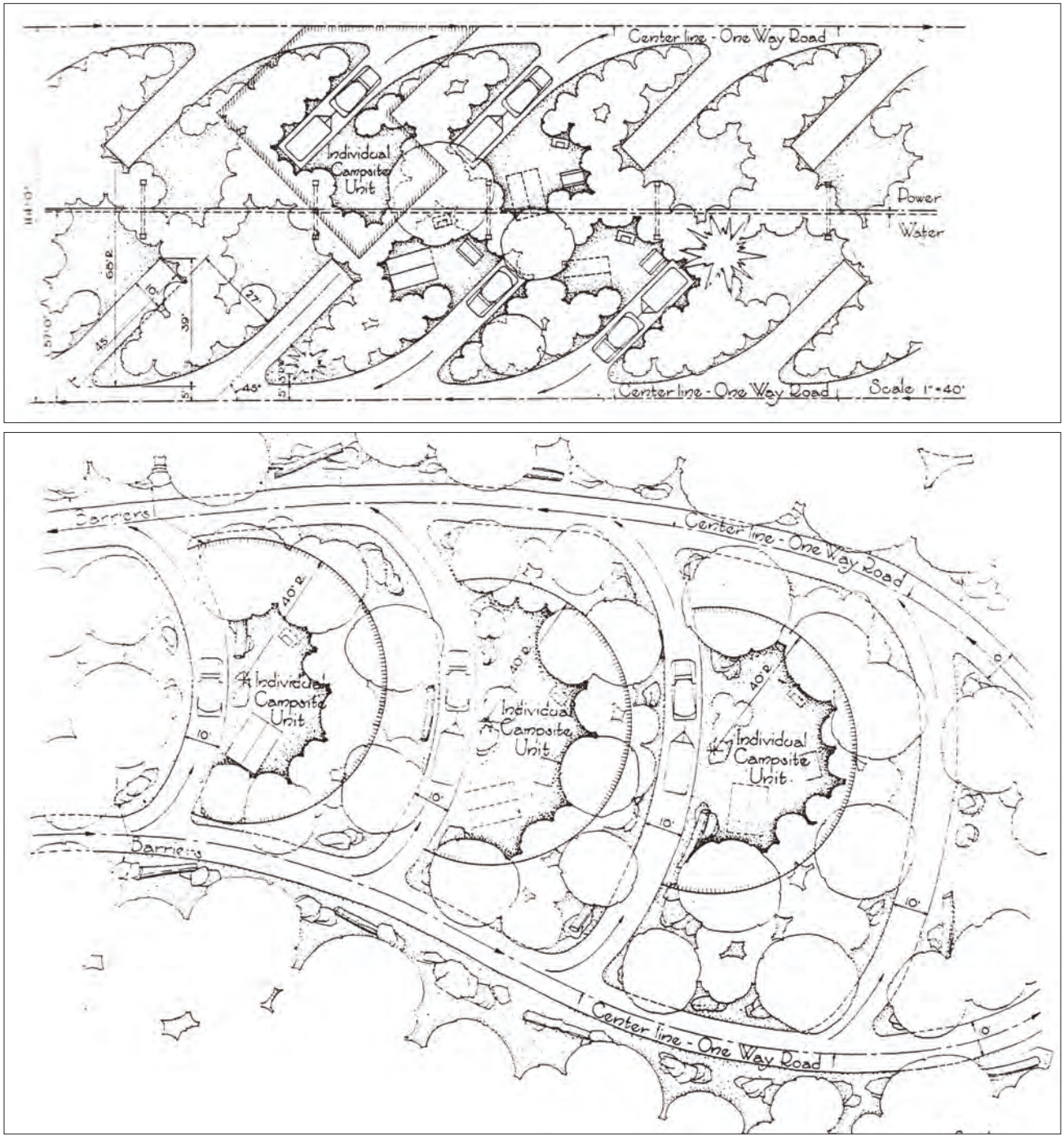


Figure 3.46. Diagrams from Albert Good's *Park and Recreation Structures* (1938) showing typical layouts for spur parking (top) and pull-through campsites (bottom). The diagrams illustrate how screening shrubs and overhead canopy trees increase the privacy of individual campsites. (NPS)

> This contained sphagnum moss and bog vegetation, that extends into the tent-camping area. Japanese stiltgrass (*Microstegium viminium*) was found to be invading the understory at two locations. This was spreading from the roadside into the forest, and threatens one edge of the bog.

Desired Conditions

The tent campground should exhibit a natural native forest character with ample canopy cover and a dense understory of native shrubs and herbaceous plants. Forest composition should feature a healthy mix of native tree species, including a substantial representation of tall, long-lived species, and should contain adequate young trees under the canopy to ensure continuous forest regeneration. Areas near the wetlands should exhibit an appropriate character with native wetland plants. As a more naturalistic area, the tent camping site should feature less turf grass than other portions of the campground, containing only as much mowed turf as is needed for camping functions.

Task Actions

Remove declining black locust trees and plant oak seedlings in the openings created by the removal. The short-lived locust present a hazard to visitors, and the planting of seedlings will ensure perpetuation of a robust overstory. The University of Tennessee report suggests a modification of the "shelter wood" method to establish young oaks:

> [A] single striped maple or hawthorn tree would be removed to create a small gap (or an existing gap could be used). An oak seedling or other partially shade tolerant overstory species would be planted in the gap (with a tree shelter) and allowed to establish for 5-6 years, then trees immediately surrounding it would be removed allowing it to move into the overstory. Several trees per year planted across the tent-camping area would likely be enough to reverse the current trend and eventually re-establish an oak-dominated overstory. Planted tree seedlings should be bare-root rather than containerized, and should not be fer-



Figure 3.47. Photo showing the existing conditions within the tent campground. The natural forest character should be preserved. (OCLP)

> tilized in the first year to promote root growth and the natural colonization by local beneficial mycorrhizal fungi. If leaves appear pale in the second year, the young tree can be fertilized using a fertilizer formulated for acid-loving shrubs.

Manage understory vegetation to suppress non-native species, such as Japanese stiltgrass (*Microstegium vimineum*).

SOUTH CAMPGROUND

Task CP-6. Manage vegetation stands

Existing Conditions

The south campground consists of large areas of turf grass in and around the campsites, with dense stands of vegetation between the campground loops. According to the University of Tennessee analysis:

> The area of dense vegetation, or "thickets" consist mainly of an overstory of black locust, hawthorn, and witch hazel. In the largest of these … has a closed canopy of small trees that also include sweet birch and hophornbeam, and an oak component of approximately 25%. This has little to no understory, however Japanese stiltgrass was observed to be invading from the southwestern corner. The other areas of thicket are smaller so that light reaches the ground.
>
> The overstory in both thickets and campsites is dominated by black locust that are in an advanced state of decline. Bark beetles infestations were found on many of these trees, but these are opportunistically attacking dying trees and are not the primary cause of mortality. Locust are very fast-growing but short-lived trees, and these are at the end of their natural life cycle. When they die, the levels of light reaching the ground increase. This normally results in the rapid growth of understory species along with tree seedlings that will become the new overstory. However there is a severe lack of seedlings and saplings. The understory here is dominated by barberry (*Berberis* spp., not identified to species). Deer don't eat the barberry, and were not observed crossing the thicket areas. However, the species composition and lack of saplings across the central campground indicates that the vegetation has been subject to very high deer browsing pressure for a number of years. *Berberis vulgaris* been reported to be allelopathic, and there is anecdotal evidence that other barberry species are as well. This would explain the lack of tree regeneration within the thickets.

Desired Conditions

The south campground should feature healthy stands of native vegetation between the campground loops to provide screening and enclosure for the campsites. The stands should exhibit a balanced structure of overstory and understory with sufficient regeneration to ensure perpetuation of a healthy overstory. The understory should be dense enough to discourage pedestrian traffic through the stands except on designated paths.

Task Actions

Due to the poor overall structure of the vegetation stands in the south campground, the goal of management should be the gradual replacement of the over-



Figure 3.48. Photo showing the existing conditions in the south campground, including abundant turf grass and dense thickets of forest vegetation. (OCLP)

story component and the cultivation of a healthy, native understory component. To that end, the black locust trees should be gradually removed and replaced with oak, pine, and other local tree species. Remove the most advanced black locust trees and plant young seedlings of the desired species in their place (see Task CP-1 for appropriate species). As these become established and move toward the overstory, further removals should be performed, until a new tree overstory is established.

The understory should be managed for a mix of native shrubs, young trees, and herbaceous plants. Non-native species, such as stiltgrass and barberry, should be removed or treated with herbicide and replaced with appropriate native deer-resistant upland shrub species, such as those noted in Table 3.3. Areas should be protected from deer with fencing or tree shelters until they are established.

Soils within the south campground are generally more acidic than in the north campground, but higher calcium levels and a high cation exchange capacity indicate a possible trend toward increasing pH. This should be kept in mind, both in tree species selection and in management practices. According to the University of Tennessee recommendations for the south campground, "given the trend toward increasing pH that is seen in the campground, the species composition of the new overstory should selected for species that will continue to thrive as pH increases over time, or stabilizes. Species that have an upper pH limit below 6 are unlikely to thrive over the long term. Most pine species prefer acidic soils and may do fine in patches of more acidic soil, but will likely do poorly in other areas. . . . Soil management should be similar to that recommended for the north campground, but here will be primarily a matter of being aware of, and minimizing activities that raise pH and calcium levels, with the goal of preventing further increases."

WAYSIDE AND VISITOR CENTER

Although the Wayside and Visitor Center area exhibits a more modern character than other parts of the Big Meadows cultural landscape, the area embodies one of the primary tenets of the design philosophy that guided early National Park Service development, namely that visitors are provided with services and amenities in a way that highlights rather than diminishes the natural scenic qualities for which they've come. Accordingly, the Wayside and Visitor Center area should project an attractive character that harmonizes with natural landscape, particularly the primary meadow across the road.

The area has two primary character spaces. The area south of the buildings and north of Skyline Drive should represent an extension of the meadow located across the road. This creates the perception that Skyline Drive passes through or along the edge of the meadow, rather than defining the northern boundary of it. Mowed areas should be limited to what is needed for visitor use, picnicking, and circulation, with other areas maintained as meadow vegetation. Groups of native trees, as are found elsewhere along the meadow edge, should be placed around the structures to help screen them and interrupt their geometric surfaces, while not blocking important views from the structures toward the meadow. Foundation plantings around all buildings should follow guidelines for fire defensible space.

The area to the north of the Wayside and Visitor Center, including the parking area, sidewalks, and outdoor terrace areas should have a character more aligned with visitor services and amenities. Picnic tables, water fountains, garbage and recycling receptacles, information and interpretive materials, and other features should be consistent in design and character and be compatible with the historic landscape, composed of natural materials, like stone and wood, or of visually inconspicuous materials, such as dark-painted metal. Vegetation should be characterized by native ornamental trees and shrubs arranged in naturalistic groups with mowed turf grass.

WV-1. Enhance meadow character south of Wayside and Visitor Center

Existing Conditions

While areas on the north side of Skyline Drive near the Byrd Visitor Center are maintained as meadow vegetation with infrequent mowing, other areas, particularly around the Wayside and along Skyline Drive itself, are mowed regularly to maintain a low turf grass. Mowing of these areas accommodates visitor use, picnicking, and circulation between the Wayside, visitor center, and meadow. The large areas that are maintained through regular mowing, however, diminish the overall meadow character as experienced by motorists on Skyline Drive, hikers in the meadow, and visitors viewing the meadow from the Wayside. The short grass also reveals a number of culverts and utility features that would otherwise be



Figure 3.49. Photo of the south side of the Wayside showing a large area managed as turf grass. (OCLP)



Figure 3.50. Photo of the Visitor Center showing desired meadow character in the area between the buildings and Skyline Drive. (OCLP)

concealed by taller vegetation.

Desired Conditions

Mowed turf grass should be limited to only what is needed for visitor user, picnicking, and circulation. Beyond these areas, meadow vegetation should dominate, with a character that is indistinguishable from that of the meadow on the south side of Skyline Drive. Groups of trees and shrubs may punctuate this area, particularly around the buildings, parking, and service areas, but the area should be primarily meadow grass. Culverts and other utility features should be concealed or screened by meadow vegetation. Mowed strips along Skyline Drive and other roadways should be maintained for traffic safety and visibility (see Task RT-1 below).



Figure 3.51. Photo showing the south side of the Wayside utility area, showing split-rail fence and sparse screening vegetation. (OCLP)



Figure 3.52. Photo showing the east side of the Wayside. Vegetation should be planted on the east side of the building to frame the structure and screen picnic tables. (OCLP)

Task Actions

Maintain an area of mowed turf east of the Wayside sufficient to accommodate the needs of visitor picnicking. Maintain a mowed buffer of approximately thirty feet around both the Wayside and visitor center for fire protection. Otherwise, maintain the area between the Wayside and Visitor Center on the north and Skyline Drive on the south as meadow vegetation with periodic mowing. A mowing schedule of once or twice a year should be developed to encourage the naturalization of native meadow species and the suppression of woody vegetation.

WV-2. Plant vegetation to screen and frame buildings

Existing Conditions

The utility area of the Wayside is located at its southwest corner, visible by motorists on Skyline Drive as well as visitors entering the Big Meadows entrance road. Visible features include dumpsters and employee parking, as well as a split rail fence. A small amount of vegetation grows along the south edge of the employee parking lot, but it is insufficient to screen the area. Several trees and shrubs that have been planted in the area are heavily impacted by deer browsing or other environmental factors and are stunted or appear to be in poor health. The east side of the wayside is also nearly devoid of vegetation, leaving that side of the building exposed and making the Wayside parking lot visible from Skyline Drive.

Desired Conditions

The Wayside utility area should be adequately screened from view using a buffer of trees and shrubs planted along the south side of the employee parking lot. The vegetation buffer should be composed of a variety of native species of small trees and shrubs planted in a dense, naturalistic grouping. The east side of the building should be framed with trees and shrubs. Views south toward the meadow from inside of the Wayside should be preserved.

Task Actions

Plant native vegetation groupings of small trees and shrubs along the south side of the employee parking lot to screen utility area, and on the east side of the Wayside building to frame and break up the visual impact of the structure. Protect vegetation with deer fencing until it is established and in the winter.



Figure 3.53. Photo showing the east side of the Wayside. Picnic tables should be moved closer to the parking lot and the area screened with vegetation. (OCLP)

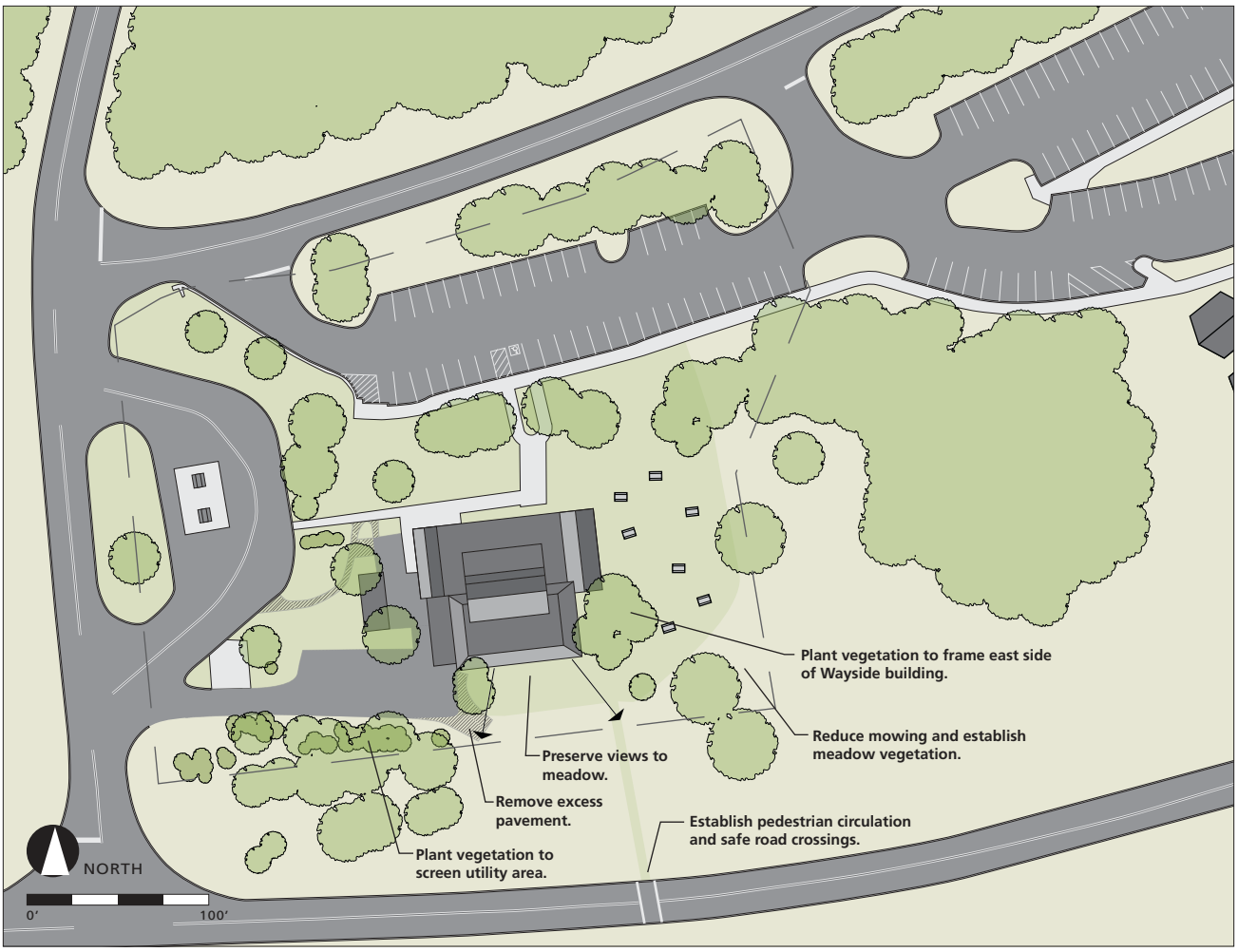


Figure 3.54. Diagram showing recommended treatment actions around the Wayside.

WV-3. Establish formalized circulation and road crossings

Existing Conditions

Circulation between the Wayside, Byrd Visitor Center on the north side of Skyline Drive and the meadow on the south side of the road is currently accommodated by mowed paths that lead south from the buildings to the road. The locations and number of these paths vary from year to year based on mowing patterns, and there are no formal pedestrian crossings across Skyline Drive. Once across the road and in the meadow, visitors encounter a network of informal footpaths and wildlife trails that cross the meadow.

Desired Conditions

For safety, visitors should be directed to dedicated pedestrian crossings across Skyline Drive. Pedestrian routes from the Wayside and visitor center should be clear and permanent, ensuring that they cross at the crosswalks. Formalized trails and signage on the south side of Skyline drive should be installed to help direct hikers through the meadow.

Task Actions

Establish two marked pedestrian crossings between the Wayside and visitor center and the meadow. Establish permanent routes, either through mowing or by installing trails with packed earth surfaces, to guide visitors from the parking areas and buildings to the crossings. Utilize existing trails or establish new, formalized trails through the meadow to connect visitors to popular destinations, such as the CCC camp site, Dark Hollow Falls trail, or other area trails. Install adequate signage for trail identification and wayfinding at the Wayside and visitor center and at trailheads and junctions at the edge of the meadow. Signage should be scaled and located as to be visible to hikers but inconspicuous to drivers on Skyline Drive.

MAINTENANCE AREA AND EMPLOYEE HOUSING

Despite the fact that visitors were never meant to see the maintenance area, it was nevertheless designed with the same attention to aesthetic value that the lodge, campground, and other features were given. Simple, frame structures were constructed of natural materials such as rough timber and stone, and organized in an orthogonal layout reminiscent of CCC and military camps. This ensemble of warehouses, workshops, garages, storage and equipment sheds, and stables was arranged for efficiency and located out of sight of park visitors.

Since the historic period, the service portion of Big Meadows has expanded beyond the original maintenance area to include employee housing, administrative offices, and water treatment facilities. The character of these new facilities varies widely, from inconspicuous wood-frame structures to utilitarian concrete-block buildings that are incompatible with historic character. The location of the facilities, generally away from visitor view, reduces their impact on the historic scene, but the proximity of some of the structures to the historic maintenance area detracts from their historic character.

Overall, the maintenance and employee housing areas should present a tidy and functional character, without excess equipment, materials, outdoor furniture, or other items visible in outdoor areas.

MN-1. Preserve historic buildings, circulation, and spatial organization

Existing and Desired Conditions

The historic structures within the maintenance area, as well as their spatial organization, circulation, and other historic features, should continue to be preserved and maintained.



Figure 3.55. Historic structure in the maintenance area. (OCLP)



Figure 3.56. Row of historic structure in the maintenance area. (OCLP)

MN-2. Remove or replace employee apartments

Existing Conditions

The two concrete-block employee apartment buildings located in the big Meadows maintenance area are incompatible in style and materials with the character of the maintenance area and the Big Meadows cultural landscape as a whole.

Desired Conditions

Employee housing should be visually inconspicuous and compatible with historic character.

Task Actions

The employee apartments are currently scheduled for removal. After removal, the area should be restored with native vegetation.



Figure 3.57. Historic Ranger Station/Hoover School in the maintenance area. (OCLP)



Figure 3.58. The style and materials of the employee apartment buildings are incompatible with the historic character of Big Meadows. (OCLP)

ROADS AND TRAILS

The roads and trails in Big Meadows should exhibit a naturalistic character consistent with the park objectives, visitor expectations, and National Park Service design principles.

The character of the natural landscape through which the roads pass should be reflected in the roadsides. Bringing the natural landscape right up to the travel surface increases the experience of immersion in nature and reduces the artificiality of the roadways. In areas where the roads pass through forest, the trees, shrubs, ferns, and woodland herbs should grow close to the road surface. Trees and larger shrubs should be set back from the travel lane for safety and visibility. In areas with an open meadow character, the roadsides should be planted with native grasses and meadow wildflowers.

Bridle trails and hiking trails that pass through the Big Meadows cultural landscape should exhibit the same naturalistic character as they do through undeveloped parts of the park. Trail surfaces should be of natural earth and stone and should be kept in good condition. The landscape through which the trails pass should appear natural, whether forest, meadow, or wetland, and structures, roads, and other signs of development should be screened with vegetation where possible. Historic trails should be preserved, retaining their horizontal and vertical alignment and surface character.

RT-1. Reduce mowing and manage meadow vegetation

Existing Conditions

Many areas along the roads of Big Meadows are managed as turf grass with regular mowing. The area managed as turf grass varies from narrow strips of mowed grass on the road shoulder to large areas of turf several yards wide. Mowed edges of roadways are necessary for traffic safety and visibility, however many areas are maintained with regular mowing to a park-like character of uniform turf grass.

Desired Conditions

Areas along roadsides and paths should exhibit a naturalistic character, dominated by native meadow grasses and herbaceous plants. Turf grass along roads and other circulation features should be reduced to only what is necessary for travel safety. Turf grass should exhibit a rough and naturalistic character rather than a short, uniform, manicured appearance.

Task Actions

Reduce the frequency of mowing along roadsides to maintain the maximum appropriate height for vehicle safety and visibility. Blend the transition zones between the shorter and taller grass with an intermediate mowed height. Beyond the immediate road edges, management practices should strive to establish and perpetuate native meadow species found in the area, and to suppress woody vegetation and non-native species.

RT-2. Clear forested areas along entrance road and manage meadow vegetation

Existing Conditions

The Big Meadows entrance road passes through a corridor of forested area that has grown up over the past few decades. The width of the road corridor between forested areas ranges from about sixty to a hundred feet. Much of the area within this corridor is managed as turf grass. This combination of conditions has created a very different character than what was present during the historic period, when much of the area was open grassland.

Desired Character

In order to enhance the overall meadow character of Big Meadows, portions of the forested area along the Big Meadows entrance road should be cleared of forest vegetation and established with meadow vegetation.

Task Actions

Clear trees and shrubs from the area along the entrance road and establish meadow vegetation. Retain a small number of tree clusters along the edge of the cleared area to create a naturalistic character. Considerations should be taken to preserve rare, threatened, and endangered species. Areas should be monitored and managed to suppress invasive vegetation.



Figure 3.59. Photo of the Big Meadows entrance road near the intersection with the Maintenance access road. Many of the areas along the roadsides of Big Meadows are managed as turf grass. (OCLP)



Figure 3.60. Mowing strips along roadsides increases the artificiality of roads and separates them from the natural landscape. (OCLP)

MEADOW

The large meadow on the south side of Skyline Drive is one of the primary natural and cultural resources of Big Meadows, giving the cultural landscape both its name and its defining character. The meadow, along with the views of the valley, was the primary impetus for locating the Big Meadows development where it is, and has continued to be a striking visual feature for visitors and motorists.

For decades, management efforts have striven to preserve the meadow against a rapidly encroaching forest. Up until the 1970s, maintenance of the meadow primarily consisted of mowing, but trees and shrubs continued to colonize and encroach upon the large clearing. The size of the open meadow was shrinking as a consequence and losing its historic grass cover. Beginning in 2000, meadow management efforts were initiated that included regular mowing, burning, and periodic herbicide application and locust removal. Today, these management practices effectively suppress forest encroachment, maintaining the meadow area at its 2000 extent.

MD-1. Preserve meadow at current extent

Existing and Desired Conditions

The meadow is currently managed to preserve its historic appearance, predominant grass and herbaceous vegetation cover, and habitat values. Management practices include a schedule of spring burning, fall mowing, selective tree and shrub removal, and limited herbicide application. These practices have resulted in a visual character similar to historic conditions, although the extent of the meadow is only about half what it was during the historic period. Current management objectives are to maintain the meadow at its current extent.

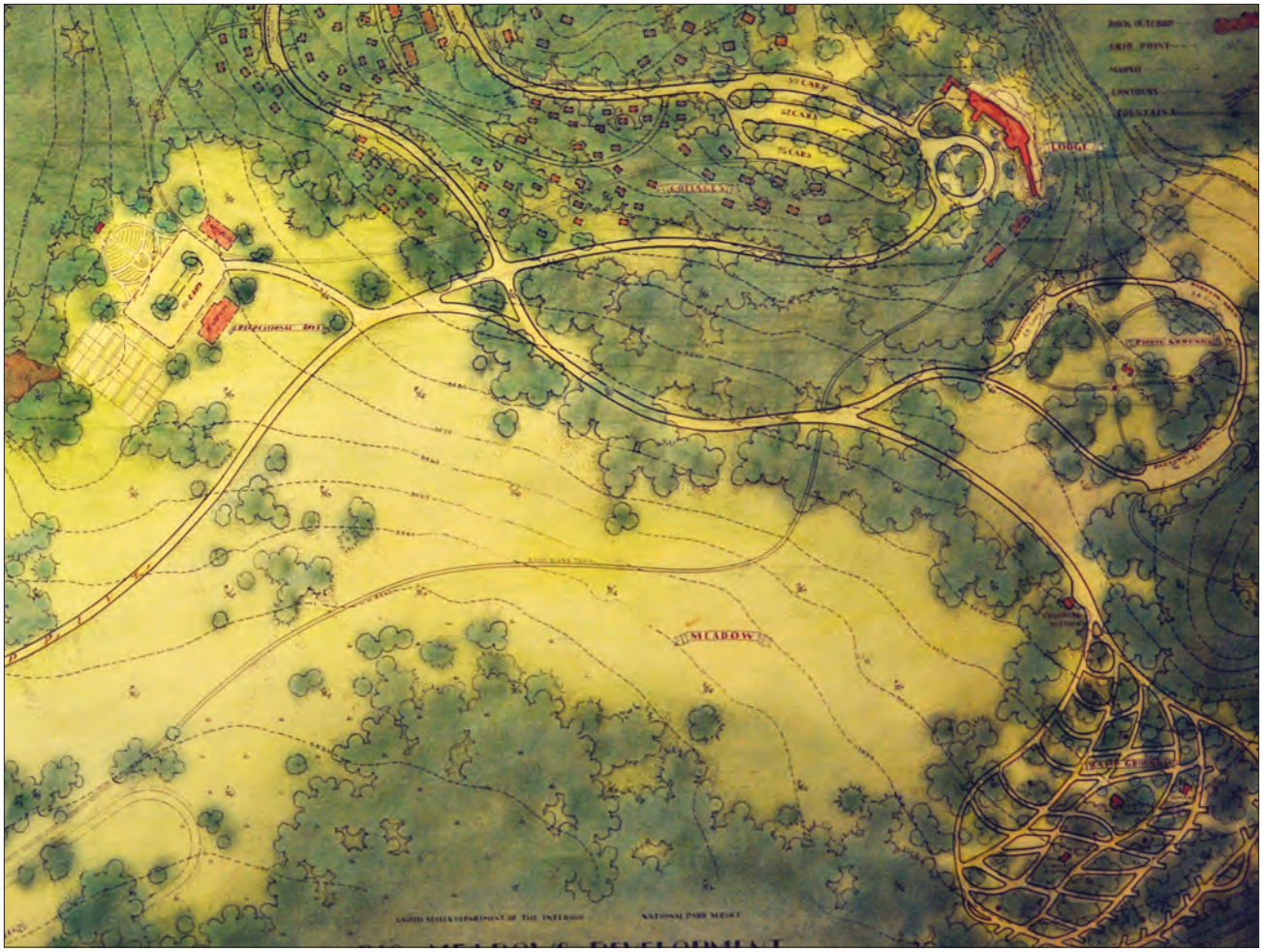


Figure 3.61. Illustration from the 1937 master plan for Big Meadows showing the open meadow character around the entrance road. (NPS)



Figure 3.62. Aerial photo (left) showing existing conditions and photo-simulation (right) showing approximate area to be cleared and managed as meadow vegetation. Total cleared area in the figure represents four to six acres (OCLP).

MD-2. Interpret the historic location and layout of CCC camp

Existing and Desired Conditions

The historic location and layout of the CCC camp at the north edge of the meadow is visually represented through mowing practices. The vegetation is mowed short in the spaces between the structures and left to grow longer within the building footprints. The visual representation of the camp is complemented with corner posts that mark former building locations and wayside exhibits. Additional options for interpretation include adding a flagpole to make to camp location more visible to motorists, hikers, and other visitors.

MD-3. Re-vegetate road cut at northeast corner of meadow

Existing Conditions

When Skyline Drive was realigned and straightened at the northeast corner of the meadow in the 1950s, the steep grade was accommodated with a through-cut. The artificiality of the road cut, which features straight, symmetrical embankments covered in turf grass, is in stark contrast to the forested areas immediately to the north, as well as to the open meadow to the south.

Desired Conditions

The road cut should be inconspicuous to motorists on Skyline Drive, presenting a naturalistic character that blends with the surrounding forest.

Task Actions

Plant native vegetation along the road cut at the northeast corner of the meadow on both sides of Skyline Drive. Plant forest vegetation, including trees and understory shrubs that are present in adjacent forested areas, along the top of the road cut, extending from the existing forest edge to the top edge of the embankment. Plant shrubs, ferns, and herbaceous plants on the embankment.



Figure 3.63. (Right) Photo showing the existing conditions of the road cut on Skyline Drive at the northeast corner of the meadow. (OCLP)

Figure 3.64. (Below) Aerial photo (left) showing existing conditions and photo-simulation (right) showing revegetation of Skyline Drive road cut. (OCLP)



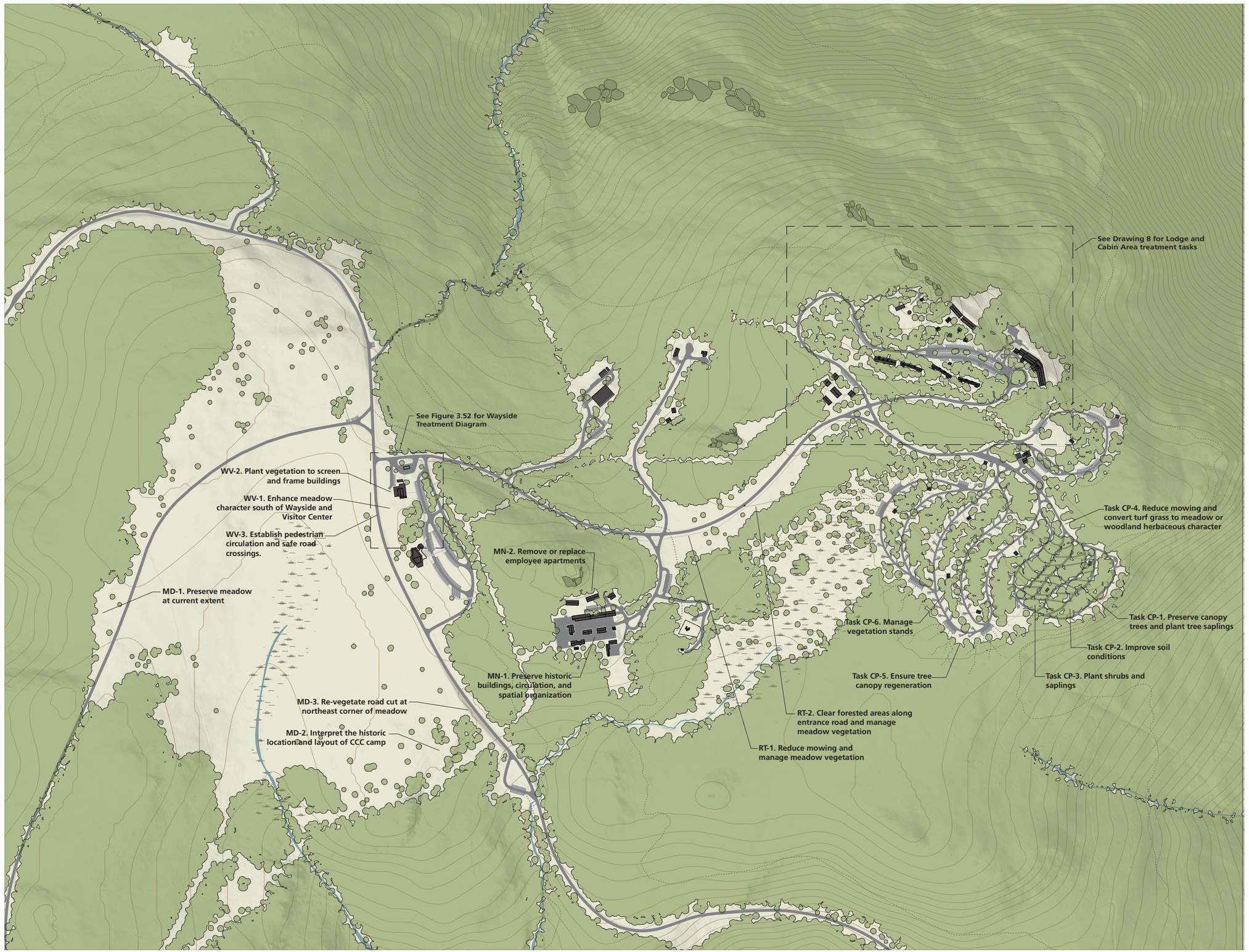


ENDNOTES

1 16 USC Sec. 1–4 (August 25, 1916) and Sec. 403 (May 22, 1926).

2 16 USC Sec. 470 (October 15, 1966).

3 Basal area measurements estimate the total area of tree trunk cross section at breast height within a given area of land, often expressed in square feet per acre. It is a measure of forest density that takes into account both the number of trees and their average cross-sectional area. An area with numerous small trees may have the same basal area as an area with fewer, larger trees.



Cultural Landscape Report

Big Meadows

Shenandoah National Park

Treatment Plan Overview

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

SOURCES

1. Cultural Landscapes Inventory for Big Meadows
2. Orthoimagery, 2008/2009
3. SHEN GIS data
4. Site documentation, 2013 and 2018

DRAWN BY:
John Hammond, OCLP

LEGEND

- Buildings
- Roads/Parking
- Trails
- Trees/Forest
- Wetlands
- Creeks
- Contours
- Rock Outcrops

NORTH

0′ 650′ 1300′

DRAWING 7



Cultural Landscape Report

Big Meadows

Shenandoah National Park

Treatment Plan
Lodge and Cabin Area

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

SOURCES

1. Cultural Landscapes Inventory for Big Meadows
2. Orthoimagery, 2008/2009
3. SHEN GIS data
4. Site documentation, 2013 and 2018

DRAWN BY:
John Hammond, OCLP
Michael Commisso, OCLP

LEGEND

- Building
- Road
- Pedestrian Path/Sidewalk
- Trail
- Trees/Forest
- Rock Outcrop
- Contours

NORTH

0′ 150′ 300′

DRAWING 8

APPENDIX A: TECHNICAL ASSISTANCE, UNIVERSITY OF TENNESSEE

The treatment guidance in this report is informed by the technical assistance provided by the University of Tennessee Institute of Agriculture, Department of Forestry, Wildlife, and Fisheries. The group, led by Dr. Jennifer Franklin, Associate Professor, provided analysis of the soils, canopy cover, forest density, seedling regeneration, and predominant plant species. Based on management objectives for Big Meadows, the team also provided recommendations for reestablishing views, improving soils, and ensuring the regeneration of forested areas. These management recommendations, based on limited criteria for meeting the natural resource goals outlined in the original project scope, were then used to generate the treatment guidelines and tasks in this report. The treatment guidance presented above is based in part on the recommendations of the University of Tennessee team, but also take into account a full range of objectives, including significance and integrity, historic character, maintenance, interpretation, and visitor experience. In some cases, these additional considerations necessitate modifications or discrepancies between the two sets of recommendations. The treatment guidance and tasks contained within the body of this Cultural Landscape Report should be considered the comprehensive recommendations for the treatment of the cultural landscape that consider the full set of relevant issues.

The findings and recommendations of the University of Tennessee technical assistance were presented to the Olmsted Center for Landscape Preservation in a report submitted in November, 2012. The report is reproduced here in full for reference.

Big Meadows Cultural Landscape Technical Assistance

Final Report: Oct. 4, 2012

Prepared for: National Park Service,

Shenandoah National Park

Prepared by: Jennifer Franklin

Department of Forestry, Wildlife and Fisheries

University of Tennessee

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1 OVERVIEW

The goal of Shenandoah National Park is to manage vegetation on specific portions of the area in a manner that will maintain desired conditions. To make efficient use of available resources, areas of concern must be identified, current conditions documented, desired conditions defined, and targeted management strategies identified. Forested areas within the campground and adjacent to the lodge are unlikely to reach a desired condition without an alteration of current management practices. The objective of this project is to assist NPS staff in preparing a Cultural Landscape Report by assessing forestry and fisheries issues present on the Big Meadows area within Shenandoah National Park, recommending management strategies to meet NPS goals, and reviewing and contributing to the report.

The approach taken was to divide the larger area into stands based on vegetation structure, desired conditions, and management requirements. Stands of different forest types were first delineated using satellite imagery and topography prior to the site visit, then confirmed by visual inspection during the site visit and revised as needed. Data was collected during the site visit, and the current condition of each delineated area is described in this report. Estimates of tree diameter by species, basal area, seedlings by number and height class, and saplings by number and diameter class, and soil chemistry and density are included in the description.

A walk-through of the site was completed on Apr. 25, 2012, with the historical landscape project team. Measurements of vegetation were made on Apr. 26 and 27, and soil samples were collected. Forest overstory composition was consistent with the Northern Red Oak Forest ecological community group (Fleming et al. 2006) that is found at elevations above 3000 feet in the Blue Ridge Mountains. The shrub layer was sparse to patchy, placing these forests in the Central Appalachian Northern Red Oak Forest subtype (USNVC: CEGL008506). Plant species found in the shrub and herbaceous layers differed from those typically found in this forest community type. The density of tree seedlings and saplings is much below what is required for forest regeneration. The shrub and herbaceous layers were dominated by species with poor palatability, thus deer were found to be the most important factor affecting vegetation structure and composition. Deer pressure appears to be greatest within the campground and lodge and cabin viewsheds, where the overstory as well as shrub layer have become dominated by deer-resistant species. Soils in the central portion of the campground were found to have characteristics that may severely limit vegetation.

2 DELINEATION OF MANAGEMENT AREAS

2.1 SOILS

Soil maps were obtained from NRCS. These indicated that three soil series were present within the study area. The old campground and northeastern corner of the new campground are classified as Catoctin silt loams with slopes of 7 to 15 percent. Lodge, cabin, and amphitheater viewsheds were also within this soil series. These soils are characterized by a water table greater than 200 cm deep, well-drained, but a restrictive layer at 50-100 cm depth. This results in low water availability, restricting the

overstory and understory to drought-tolerant species. Forest productivity was rated as low. This soil series has a pH of 5.6-6.0, and cation exchange capacity of 7.2 meq/100g.

The northwestern side of the new campground is classified as Myersville-Catoctin very stony silt loams with slopes of 7 to 15 percent. Similar to the above, these soils are characterized by a water table greater than 200cm in depth and well-drained, but have deeper soils with 100-150cm to a restrictive layer. This soil series has a pH of 5.3 and cation exchange capacity of 7.2 meq/100g. Due to the greater soil depth and lower pH, forest productivity is rated as moderate for northern red oak.

The southeastern side of the new campground is classified as a Baile stony silt loam, with 2 to 7 percent slopes. Soils here are deeper, greater than 200 cm to a restrictive layer, but due to topography have a water table at less than 25 cm in depth and are poorly drained. This soil series has a pH of 4.6, and cation exchange capacity of 11.5 meq/100g. Topographic maps show a marshy area at the outer edge of the walk-in camping area. The shallow water table is likely to favor tree species different from those of the well-drained soils in other parts of the campground.

2.2 DATA COLLECTION

Consideration of history, intensity of use, and intensity of management suggested that walk-in camping areas, the new portion of the campground, and older portion of the campground should be considered separately. To sample soils and vegetation within these areas, as well as within the 3 soil series discussed above, two transects were run as shown in figure 2.1. All seedlings and saplings were counted in a 2 m wide belt along the transect, and a 4 m wide belt was used to record the presence of trees greater than 4 feet in height. Seedlings, saplings and trees were identified to species when possible. Soils were collected at 50 m intervals along each transect, and at two locations within the lodge and cabin viewsheds. At each soil sampling point, three soil density measurements were made with a Lang penetrometer, and these were averaged. Soil samples were returned to the lab and dried at room temperature. Dried soil was passed through a 2 mm sieve, then pH of a subsample was determined in a 1:1 soil to water solution. Soil nutrient composition was determined by ICP, and results used to calculate cation exchange capacity.

Overstory basal area was determined using a factor 10 prism, and species and diameter at breast height were determined for all counted trees. The relative importance of each species is based on the percentage of total basal area that is occupied by that species. An attempt was made to distinguish between oak species, but this is best done in the summer or fall, when leaves and acorns can be used for identification. Because our accuracy of identification was estimated at only 75%, we recorded all as oak, but noted species present and approximate ratios of these. Seven plots were measured across the lodge and cabin viewsheds, with 4 plots being above, and 3 plots below the Appalachian Trail. Three plots were measured within the amphitheater viewshed, and 3 within the walk-in camping area.

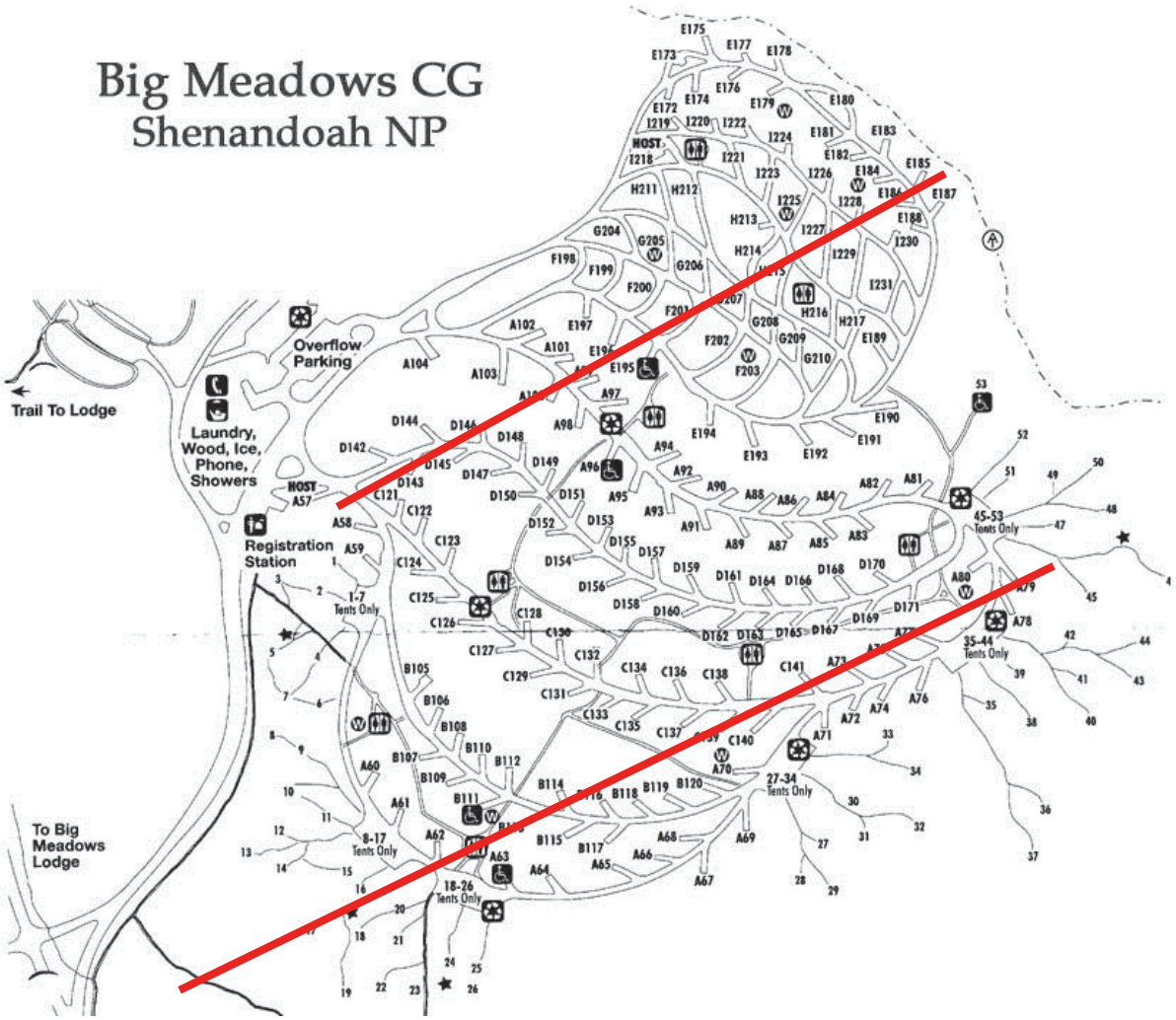


Fig. 2.1 Location of transects used for the collection of tree and soil data. A width of 2 m was used for seedlings and saplings, and 4 m for trees. Soil samples were collected at 50 m intervals along each transect.

2.3 MANAGEMENT AREAS

Based on goals and management needs, the following regions have been delineated within the Big Meadows project area:

- Lodge and cabin viewsheds
- Amphitheater viewshed
- Campground proper
- Central campground

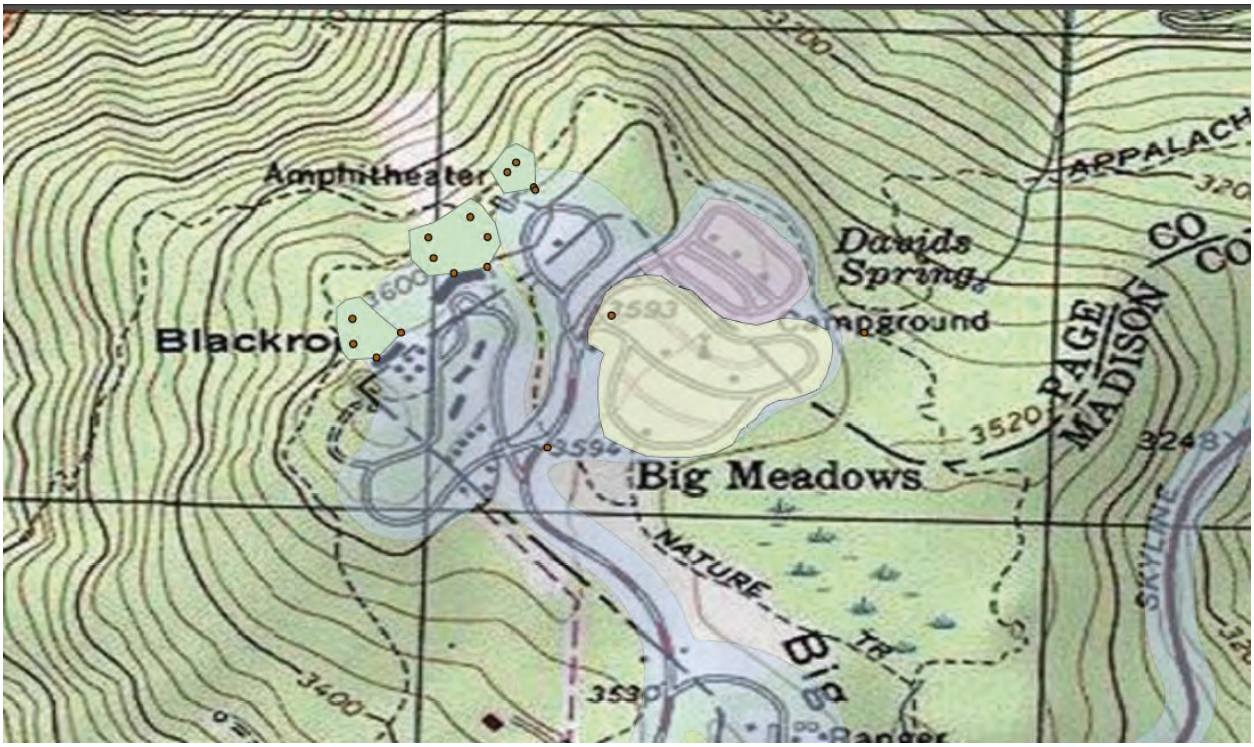


Fig. 2 Management areas delineated within the Big Meadows project area showing GPS shapefiles generated. Lodge and cabin viewsheds (green), amphitheater viewshed (green), campground proper including old portion of the campground (blue/purple) and the central portion of the campground (yellow) are shown.

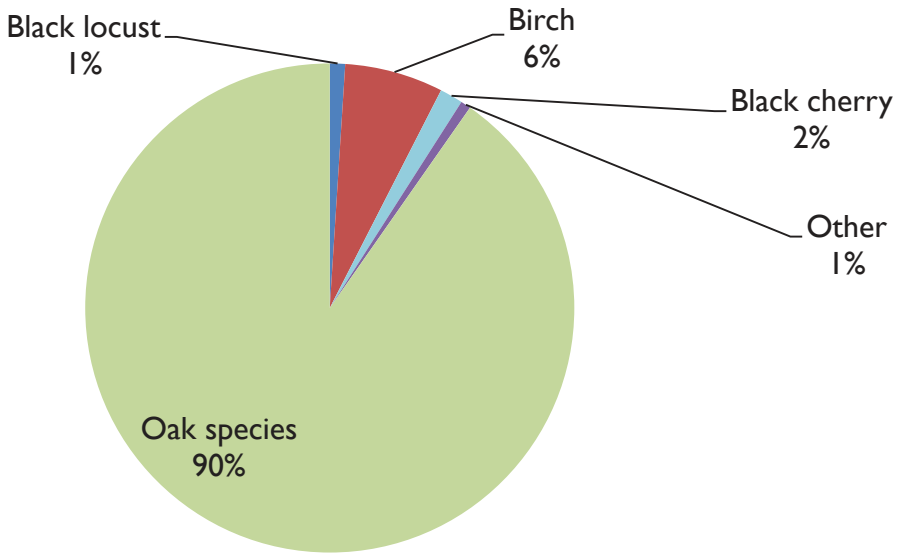
3 LODGE AND CABIN VIEWSHEDS

3.1 CURRENT CONDITIONS:

Forest

The forest below has an overstory primarily of oak, which is predominantly northern red (*Quercus rubra*), scarlet (*Quercus coccinea*) and pin oaks (*Quercus palustris*) in approximately equal quantities, and a small proportion of white (*Quercus alba*) and chestnut oak (*Quercus prinus*). Oaks are tolerant of the sparse nutrients available in the thin soils of the upland forest, and have a deep taproot that allows them to access deep water tables, and so are commonly the dominant species at high elevations in this area. Other species seen at a low frequency included striped maple (*Acer pensylvanicum*), sweet birch (*Betula lenta*), black locust (*Robinia pseudoacacia*), eastern hophornbeam (*Ostrya virginiana*), black cherry (*Prunus serotina*) and witch hazel (*Hamamelis virginiana*). A few sweet birch were found in the overstory, but many of these were over-mature and in various stages of decline. Between the trail and viewshed, basal area was consistent at 120. Below the trail, basal area varied between 80 and 150. All plots had basal areas within the range considered typical (80 to 150) of an Appalachian hardwood forest.

Fig. 3.1.1 Composition of the overstory in the forest below Big Meadows Lodge and cabins.



The mid-story was comprised mainly of sweet birch and striped maple, with some black cherry, and was moderate in density. Some locust in the mid-story was in decline. There was a notable scarcity of oak seedlings and saplings, suggesting that a gradual change in forest composition to cherry, locust and birch will occur if existing conditions remain. The shrub layer (woody vegetation below 12 feet) was sparse, occurring mainly at the edges of the viewshed clearings and in gaps created by dead or declining overstory trees. Seedlings and saplings of witch hazel were common, as was elderberry (*Sambucus spp*). Of the species listed above, all are highly resistant to deer browsing, with the exception of oak, and these were found only in the overstory.

The data suggests that deer are having a strong influence on mid-story and shrub composition, which may eventually impact overstory composition. However the majority of oak trees have a diameter of 6 to 14 inches, and appear to be in relatively good health. Because oaks in excess of 22 inches DBH were recorded, most trees in this forest appears to be in "early middle age" and would not be expected to reach a stage of overmaturity, in which decline and death are common, within the next 60 years.

Lodge viewshed clearing

The eastern side of the clearing (on the right, as viewed from the lodge) is dominated by a dense stand of young black locust, and an herbaceous layer of non-native grasses were present over much of the area (Figure 3.1.2). Native sedges were present toward the center of the clearing, clusters of black cherry were found, and soils here were a thin (less than 4") organic or a sandy loam, with a pH of 4.6-4.9 and a fairly high nutrient content due to a layer of deer an d bear feces covering the soil (Table 3.1). The western side of the clearing is characterized by exposed rocky outcrops and seeps. Soils here are a thin (1-2 inch), wet, organic layer over bedrock, and vegetation is more diverse, and is generally shrubby and herbaceous. Black cherry and a native currant were the most common shrubs.



Fig. 3.1.1

Clearing below Big Meadows Lodge. Photos taken at the center of the clearing showing the eastern side (top) and western side (bottom) of the clearing.



Table 3.1.1

Soil chemistry on east and west sides of lodge viewshed clearing.

ppm	East	West
Ca	5680	944
Mg	617	138
P	35	45
K	527	302
pH	4.6	4.9
CEC	36	8

The rockiest area (Fig. 3.2.2) had the greatest diversity of shrubs and herbaceous plants, the majority of which appeared to be native. Soils were thinner, generally less than 1" in depth, and more organic. The presence of sedges, and the presence of grassy hummocks suggest that soils remain wet for a large portion of the year. The general shape and location of the clearing is oriented parallel to the contour of the land, and appears to be sufficient for providing an optimum view, but could be expanded slightly on the western side. The lodge is visible from the Appalachian Trail along the eastern side of the clearing. The elevational change ranges from around 30 feet on the western side to 40 feet on the eastern side.





Fig. 3.1.2

Clearing below Big Meadows cabins. Photos show the eastern side (top) and western side (bottom) of the clearing.

Table 3.1.2

Soil chemistry on east and west sides of cabin viewshed clearing.

ppm	East	West
Ca	13116	5810
Mg	1114	739
P	49	47
K	229	421
pH	6.4	4.9
CEC	77	38

Cabin viewshed clearing

Within the clearing dense stands of young black locust and black cherry and a herbaceous layer dominated by non-native grasses were present over much of the area. Soils here are organic or a sandy loam, 1 to 4 inches deep, with many large rocks. The western side of the clearing has a relatively high pH of 6.4, and the cation exchange capacity ranges from high to extremely high across the site. The edge of the clearing is abrupt, particularly on the right-hand side of the viewshed.

The orientation of the clearing is along the contours of the land, and occupies almost the entire area between cabins and trail, but due to the topography, the right-hand side (north) of the clearing extends out 250 ft. from the cabins and drops 35 ft. in elevation (14% slope) but contributes very little to the

view, while the left-hand side of the clearing extends only 55 ft. from the cabins but has a 27% slope and offers a better view.

3.2 DESIRED CONDITIONS

The management goal is to maintain the forest below as a native forest. Targeted removal of some trees would allow better views of the valley from the perspective of the lodge and cabin visitors. From the perspective of the hiker on the AT, the forest above the trail should appear similar to that below the trail, and should obscure the lodge and cabins. The boundaries of the cabin viewshed could be redrawn to improve the view, and reduce the amount of cleared area that must be managed. Within the clearings the creation of a low stature, low-maintenance vegetation is desired. Vegetation height should increase toward the bottom of the viewshed to appear as a natural gradient into the forest and provide screening between the lodge and cabins, and Appalachian Trail below.

Areas of low-stature vegetation occur naturally on rocky soils and outcrops at high elevations in the Appalachians. Many of these types of ecosystems are of conservation interest, and support a diversity of native plants, many of which are rare or endangered. These systems also provide habitat for a number of wildlife species. Vegetation is maintained at a low stature due to thin soils, poor nutrient availability, high winds, deep winter snowpack, excessive or poor drainage, or most often, a combination of these. Three of these are described below:



Fig. 3.2.1 An alpine ravine thicket in Tuckerman ravine, NH. Photo by Ben Kimball.

An alpine ravine thicket (Fig. 3.2.1) occurs on low slopes or level areas of talus or cobbles, and is generally found at elevations above 4000 feet. The vegetation is dominated primarily by mountain alder (*Alnus viridis* ssp. *crispa*) which forms dense thickets along with other deciduous shrubs such as alpine meadowsweet (*Spiraea septentrionalis*), meadowsweet (*Spiraea alba*), silver willow (*Salix argyrocarpa*), and Bartram's serviceberry (*Amelanchier bartramiana*). Herbaceous forbs are common in the understory. These areas often have a high level of snowpack which results in we soils, despite the rockiness of the sites.



Fig. 3.2.2 A Sheep laurel - Labrador tea - heath krummholz on Shelburne-Moriah Mtn., NH (photo by Ben Kimball)

A krummholz (Fig. 3.2.2) is a vegetation type characterized by stunted and twisted

trees. This occurs on areas of poor and thin soil at high elevations. Vegetation includes species found in both high elevation spruce-fir forest, and northern wetland species. The shrubby component is typically red spruce (*Picea rubens*), dwarfed by nutrient deficiency and exposure to wind, along with mountain alder. The herbaceous layer is diverse and variable, often containing common hairgrass (*Deschampsia flexuosa*), northern lady fern (*Athyrium filix-femina* var. *angustum*), large-leaved goldenrod (*Solidago macrophylla*), intermediate wood fern (*Dryopteris intermedia*), mountain wood fern (*Dryopteris campyloptera*), and purple-stemmed aster (*Symphyotrichum puniceum*).



Fig. 3.2.3 A spruce-laurel-peat woodland in the Allegheny Mountains of WV. Photo from Byers et al. 2007. (Byers et al. 2007)

A spruce-laurel-peat woodland (Fig. 3.2.3) occurs in small patches at elevations above 2800 feet, downslope of seeps on flat to gently sloping land. In some years soils remain wet for extended periods which, along with highly acidic soils due to the presence sphagnum moss (*Sphagnum* spp.), kills or severely stunts trees. Peat and moss hummocks occur toward the center, with vegetation increasing in height toward the edges. Commonly found shrubs are great laurel (*Rhododendron maximum*), mountain laurel (*Kalmia latifolia*), and cinnamon fern (*Eriophorum virginicum*).

3.3 MANAGEMENT RECOMMENDATIONS

Forest

The forest between the clearing and trail can be thinned to 70-80 BA and still remain similar in appearance, by those walking through on the trail, to the forest below the trail. The first priority for removal should be those trees that are in a visible state of decline. These include several large birch. All black locust should also be removed. These are short-lived species, and few of the black locust found are expected to still be present in 10 years. Care should be taken not to disturb any young oak seedlings or saplings. These are present but not common, and should be preserved to grow into the canopy, if the goal is to maintain the characteristic forest type now present. The remaining canopy can then be assessed to determine its impact on the view. This will depend on topography (Fig. 3.3.1). Large trees near the edge of the clearing can be cut, and replaced with shade-tolerant or intolerant understory trees (Table 3.3) on the eastern side of both lodge and cabin clearings. Where large trees are cut further down the slope (Fig. 3.3.1B), they should be replaced with shade-tolerant understory trees. This may be more appropriate at the north and center portions of the cabin viewshed, due to the close proximity of the trail, and relatively shallow slope.

At the forest edge both shade-tolerant and shade-intolerant understory trees can be planted. The elevation change from top to bottom of viewshed is 25-40 ft., so these species should remain below the view of lodge visitors, but effectively screen the view of the lodge from the trail. These may be planted, but simply encouraging them by cutting competing vegetation annually for 2-3 years may be enough to promote natural establishment. Shade-tolerant shrubs (Table 3.3) can also be planted along the forest edge.

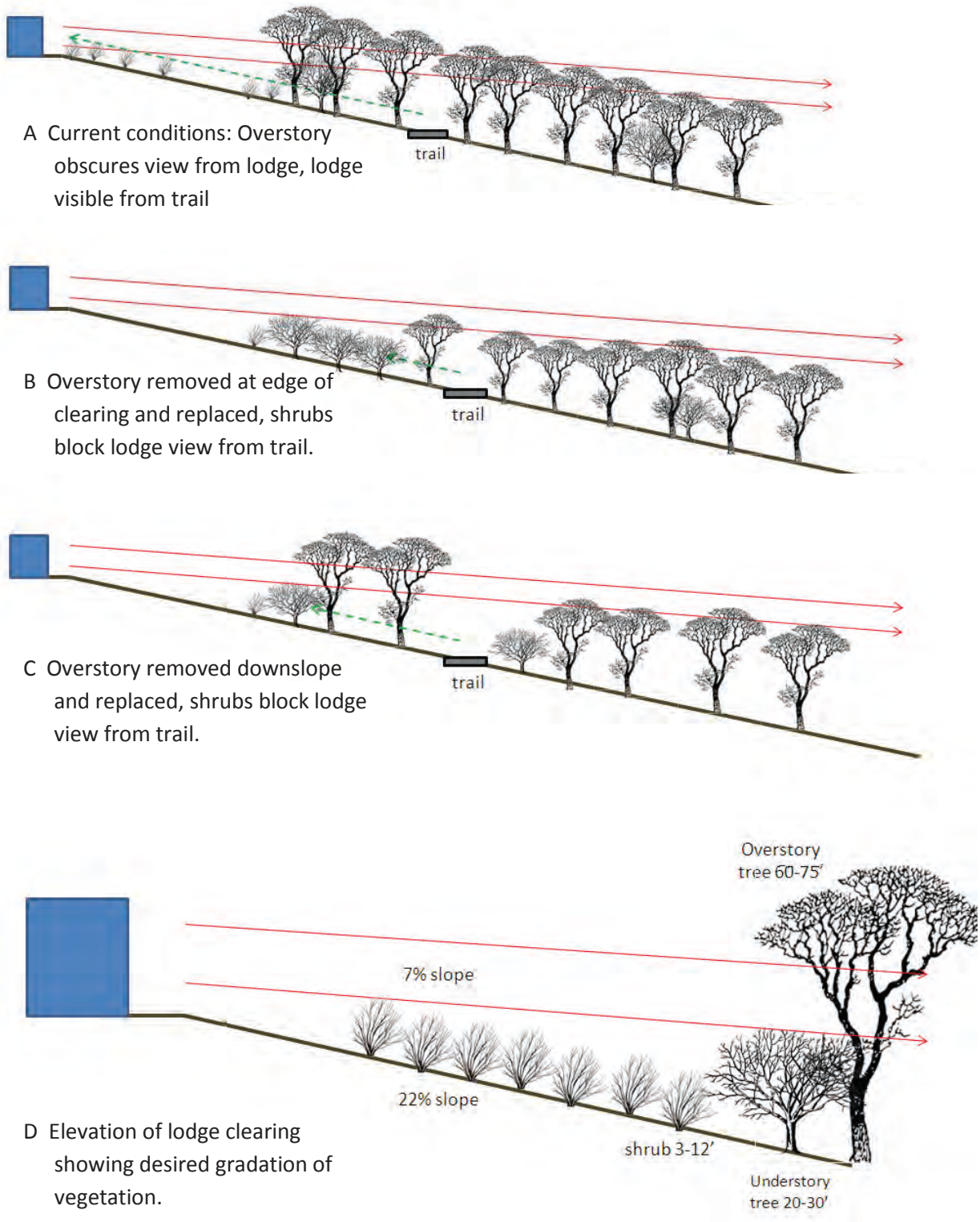
Clearings

Within the clearings, black locust is problematic on northern and central portions of the sites, and small dense stands of cherry are found across both areas. These two species are tolerant of a wide range of soil pH, nutrients and moisture, and are highly resistant to compacted soils and deer browsing. These grow densely and rapidly from cut stems, and spread aggressively through the growth of new shoots from existing root systems. The spread is stimulated by cutting, and periodic cutting over a number of years has resulted in dense and robust stands. Herbicide is the only effective means of control of these species. The stems can be cut, and a solution of 2% triclopyr (ie. Garlon 4) in diesel fuel applied as a spray or painted on the cut stem. This systemic herbicide will kill the remaining root system. Removal in the spring is often more effective than summer or fall treatment, because the roots have the lowest levels of stored energy. It is important to follow up several months, and again a year later to ensure no new stems have grown from the root systems. The cutting of stems must again by followed by herbicide treatment, because cutting alone will lead to the re-establishment of these aggressive species.

Two possible solutions to establishing low-growing vegetation are outlined below. Both assume that deer will continue to exert a strong influence on vegetation establishment. The first is less expensive and less disruptive to the area. This approach will be most successful if maintained by annual removal of overstory saplings followed by herbicide application as outlined, above. The second option is a more intensive treatment, with a goal of establishing of unique native ecosystems with a greatly reduced need for management. Ecosystems such as the 3 shown in Figures 3.2.1-3 are often rare or endangered ecotypes because they occur due to a specific type of climate and underlying rock, and are often restricted to very small areas. But these infrequent vegetation types are important habitat for many native birds and amphibians, and make a large contribution to overall biologic diversity within a landscape.

Option 1:

Planting to rapidly develop a dense shrub layer is recommended to prevent locust and cherry colonization on the site. Other species recommended for the viewshed are red or black elderberry (*Sambucus racemosa* or *S. nigra*), and. These attractive native shrubs have dense foliage, and grow to a height of 7-10 feet. Black elderberry was observed in the forest immediately below the clearing. Shorter shrubs native to the area, tolerant of site conditions, and resistant to deer browse are common juniper (*Juniperus communis*), and eastern prickly gooseberry (*Ribes cynosbati*). Soils are slightly more acidic than is preferred by this species, so a light application of crushed limestone prior to planting will benefit establishment and help to maintain vigor. To discourage deer use of the area while shrubs are establishing, a seed mix of strongly scented herbaceous plants should be applied. The composition of the mixture depends on the time of year it will be seeded, but common yarrow (*Achillea millefolium*),



A Current conditions: Overstory obscures view from lodge, lodge visible from trail

B Overstory removed at edge of clearing and replaced, shrubs block lodge view from trail.

C Overstory removed downslope and replaced, shrubs block lodge view from trail.

D Elevation of lodge clearing showing desired gradation of vegetation.

Fig. 3.3.1 Diagram showing relationships of forest and clearing vegetation to lodge or cabins (blue square), to scale using average slopes and distances within viewsheds. Current conditions (A), and two approaches to improving views (B and C) are shown. Viewshed slopes range from 14-27%. Line of sight to valley floor was calculated from topographic maps.

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allium species, and aster species are good options. The likelihood of deer browsing a particular species is dependent on many factors, and a species left untouched in one habitat may be browsed in another. Therefore, the planting of a single species has a potential for failure, while planting a wide variety of deer-resistant species is more likely to result in the successful establishment of one or more species. A table of potential herbaceous and shrubby species is shown below.

Table 3.3 Species of understory tree, shrubs, and herbaceous plants appropriate for planting in the lodge and cabin viewsheds. All are native to the area, and reported as being deer-resistant. Where available, species noted as being aggressive speaders or allelopathic were selected, as these will reduce the incidence of non-native species. Species tolerance of shade and wet soils, and its presence in the surrounding area is noted.

		Mature height(ft)	Shade tolerant	Wet soils
Understory trees				
Eastern hophornbeam	*Ostrya virginiana*	40	√	√
Witch hazel	*Hamamelis virginiana*	20		
Striped maple	*Acer pensylvanicum*	35	√	
Hawthorne *	*Crataegus calpodendron* *C. intricata* *C. flava* *C. uniflora* *C. flabellate* *C. punctata*	20 10 26 10 30 30		√
Shrubs				
Elderberry*	*Sambucus racemosa* *S. nigra*	20	√	√
mountain fetterbush	*Pieris floribunda*	6	√	√
juniper	*Juniperus communis*	10		
gooseberry	*Ribes cyanosbati*	5		√
Mountain laurel	*Kalmia laifolia*	6	√	√
Herbs				
Common yarrow	*Achillia millefolium*	3		
Buttercup	*Ranunculus species*	1		√
Nodding onion	*Allium cernuum*	1		√
Joe pyeweed	*Eupatorium maculatum*	6	√	
Spotted St. John's wort	*Hypericum punctatum*	3	√	√
Sage	*Salvia reflexa* *Salvia lyrata*	1 1		
Beebalm	*Monarda clinopodia* *M. didyma* *M. fistulosa*	2 3 4	 √	 √
Tickseed	*Coreopsis grandiflora* *C. tinctoria*	2 2		 √
Purplestem aster	*Symphyotrichum puniceum*	3		
Wood fern	*Dryopteris intermedia*	3	√	√
Northern lady fern	*Athyrium filix-femina*	3		

* Several species occur within the park, but trees were not identified to species in our survey.

Option 2:

Lodge viewshed

Soils in the lodge viewshed clearing are thin, less than 1" in depth over most of the area, and an area similar in appearance to a Krummholz could be created. The existing soils are organic, originating mainly from feces due to the heavy use of the clearings by wildlife. It should be relatively easy to remove this thin organic layer using a pressure washer. Washing should be done in the late fall or early spring, when herbaceous vegetation is not present and woody vegetation is leafless.

Preparation should include the control of existing black locust and black cherry treatment with herbicide, as described in option 1. At the bottom edge of the clearing a barrier of straw bales should be constructed to catch the material washed from the clearing surface. The run-off will be nutrient-rich and potentially high in bacteria. Because run-off from the clearing has been ongoing, the small amount of added nutrient-rich water from the washing activity should not have a discernible effect on the downslope vegetation. Washing in late fall or early spring, when temperatures have been low for several days prior, will also reduce the bacterial content of the material and minimize risk. Some desirable vegetation such as gooseberry is present, and this could be flagged for retention if wanted.

Working from the top of the slope to the bottom, the slope can be pressure washed to remove as much organic material as possible and expose the underlying rock. Organic material should be washed out of cracks and crevices to as great a depth as possible, as these will contain seeds and roots of non-native species that could quickly re-colonize the site. Around any vegetation flagged for retention, the surface should be washed, but crevices should not be washed deeply. The organic material collected at the bottom of the slope can be collected and removed from the site.

Wide cracks between the rocks, and any areas where rock could not be exposed, can be planted with desirable vegetation. Planting will occupy the few available spaces , greatly reducing the opportunity for undesirable species to establish. Shrubs and ferns listed in table 3.3 would be appropriate for planting. Commercially available peat moss can be packed into the crevice around the root systems of planted plants.

Cabin viewshed

The relatively gentle slope, and deeper soils provide a good growth environment for woody plants. Black locust, one of the primary problem species on the site, is highly tolerant of alkaline, saline, and compacted soils, limiting the approaches that could work to control woody vegetation on the site. However one option for a semi-permanent control of woody vegetation on this site is to create conditions that favor the formation of a peat woodland (see Fig. 3.2.3). The site appeared fairly wet at the time of the site visit, suggesting that seeps were present within the clearing. The approach would be to slow the movement of water off the area to promote the growth of sphagnum moss which would be introduced. Black locust and black cherry should be removed and treated with herbicide before beginning the site treatment. These species are intolerant of wet soils, as are most other tree species in the area.

Once sphagnum becomes established, it will naturally create a high level of water retention on the site, creating conditions for its further spread. The placement of a low (12-18 inch) rock and earthen berm across the bottom edge of the clearing should be completed in fall or winter, to take advantage of wet spring conditions for moss propagation. A sodium bentonite pond liner can then be applied to the area between the cabins and the berm. The berm will prevent the movement of the bentonite clay off-site, and once sealed with the clay it will create a small perched water table in the central to bottom portion of the clearing. It is not necessary to create an impermeable clay layer across the entire clearing; the objective is only to slow water movement off the central portion of the site. Hydrologic changes can affect slope stability, but this is unlikely to be a problem because of the slope and bedrock underlying the cabins. However, consultation with a hydrologist is advisable and would improve chances for the successful creation of the desired ecosystem type.

Sphagnum moss can be collected from the boggy area on the southeastern side of the campground. The bog itself is an environmentally sensitive area, and should not be disturbed. However the sphagnum moss was found to extend well into the walk-in camping area, and collections could be made here. Moss should be collected in spring, as early as possible after the ground thaws. Moss can be placed in a food processor and mixed with enough water to make a loose slurry that can be sprayed or applied by hand on the surface of the site. Once established, sphagnum creates wet, acidic conditions that inhibit the growth of most plant species. Bog species will naturally colonize the site, and the seeds of some of these species will likely be present in the moss slurry applied to the site.

4 AMPHITHEATER VIEWSHED

4.1 CURRENT CONDITION

Unlike the other viewsheds, oak saplings were present here, although they were in low enough numbers that none occurred within the measured plots. The forested slope below the amphitheater has a composition dominated by oaks with a basal area of 100 to 130. Pin oak is most common, making up an



Fig. 4.1.1 Photo of the forest below the amphitheater showing a varied composition and size distribution of trees.

estimated 50% of the canopy, with northern red and chestnut oaks also common. Yellow birch, sweet birch, red maple, and striped maple were also present, along with black locust that is either dead, or in a state of decline. The overstory is a closed canopy of oak, however basal area is fairly low. Sweet and yellow birch, along with striped maple, made up a sparse mid-story. Like the forest in the cabin and lodge viewsheds, this is a relatively young oak forest, and appears healthy.

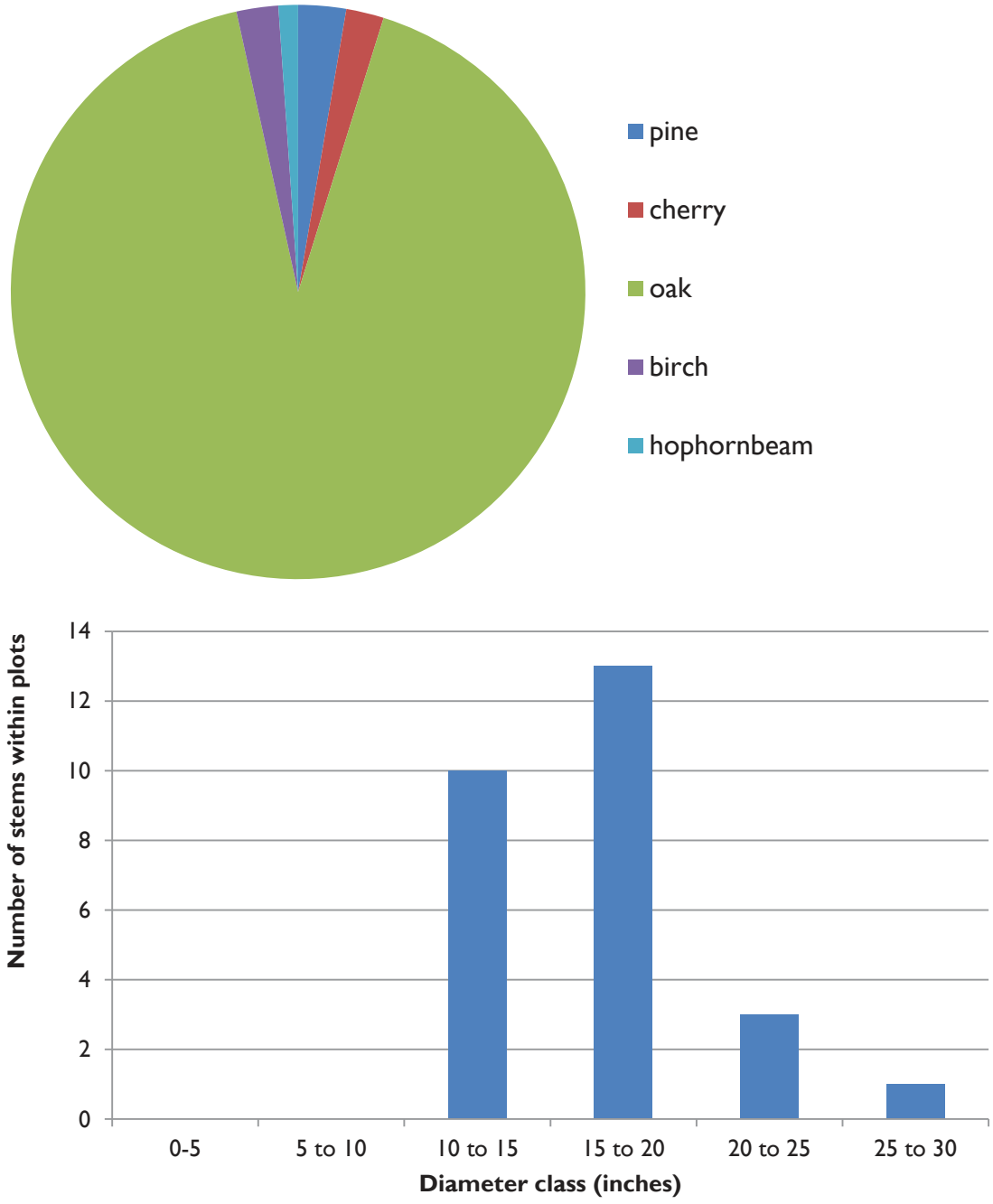


Fig. 4.1.2 Current conditions in the amphitheater viewshed showing overstory composition (top), and diameter distribution of oaks, which are the primary overstory component (bottom).

4.2 DESIRED CONDITIONS

Maintain the forest as closely as possible to its current state, while creating small openings in the forest canopy to provide glimpses of the view beyond from the amphitheater.



Fig. 4.2 The lights of valley below can be seen over the canopy of the forest, and below the canopy of nearby trees.

4.3 MANAGEMENT RECOMMENDATIONS

A similar thinning approach as that recommended for the lodge and cabin viewshed (see Fig. 3.3.1 C) can be used. Here, all black locust should be removed first, followed by striped maple, birch, and red maple within the mid-story removal zone (Fig. 4.3). Because the slope is not very steep, removal will need to be primarily mid-story within the top portion of the viewshed. The view should then be assessed to determine which tree crowns dominate at eye level. The zone within which overstory trees impede the view is in close proximity to the Appalachian trail, and so the extent to which overstory removal is desirable in this regard should first be assessed by management. Selected overstory oaks can then be removed to reduce basal area to 60 to 80. If BA should be reduced below 60, the open canopy will allow light to reach the ground, stimulating the growth of the shrub layer. If several trees are removed just above the trail, the development of a shrub layer would screen the view of the amphitheater from the trail, if that is desirable.

The same thinning approach can be used at the campground edge, although the most effective zone of tree removal would be close to the campground edge due to the steeper slope. Oak saplings should

not be removed, and care should be taken not to damage these during the thinning operation as they are needed to maintain the oak overstory in the future.



Fig. 4.3 Topographic map overlain on aerial image of amphitheater. Yellow polygon shows area within which mid-story removal will improve view, red polygon shows area in which overstory removal will improve view.

5 CAMPGROUND PROPER

5.1 CURRENT CONDITION

Old campground

A healthy overstory of pine, white and northern red oak, and ash are present in the old campground (Fig. 5.1.1). These are mainly mature trees and have a mean diameter of 13.6 inches, with the overall basal area being 60. There is an absence of seedlings or saplings in this area. Soils are heavily compacted. Although this seems to be limited to the surface layer, surface compaction leads to poor infiltration with increased run-off and erosion, leading to drought and nutrient stress in established vegetation. Soil chemistry in the older campground has very high levels of calcium, an elevated CEC , pH, and nutrient content. Expected pH, based on NRCS soil maps of this area was between 5.1 and 5.5. The current pH is 6.7 which is well above the optimum pH of most oak species, and is high enough to result in the decline of pin oak (*Quercus palustris*) due to nutrient deficiency. The reason for the elevated CEC and pH are unknown, but the very high calcium levels suggest that lime may have been applied at one time, either as an amendment, in deicing salt, or through the use of limestone for gravel roads.

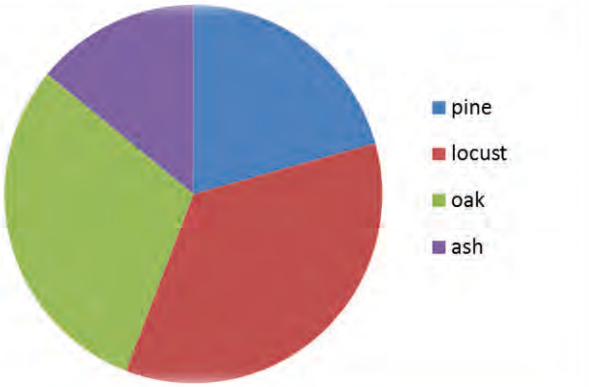
Old campground area

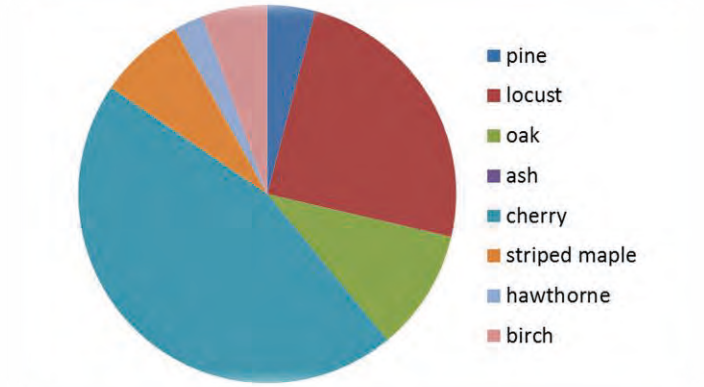


Tent-camping area



Overstory species composition





seedlings/acre	
pine	0
locust	0
oak	0
ash	0
cherry	0
striped maple	0
hawthorne	0
birch	0
apple	240
red maple	0

Soils		
Ca	12230	ppm
Mg	1149	ppm
P	59	ppm
K	238	ppm
pH	6.7	ppm
CEC	72	meq/100g
density	13.8	lb f

seedlings/acre	
pine	0
locust	0
oak	0
ash	0
cherry	2041
striped maple	761
hawthorne	167
birch	19
apple	19
red maple	37

Soils		
Ca	4460	ppm
Mg	499	ppm
P	26	ppm
K	302	ppm
pH	5.2	ppm
CEC	28	meq/100g
density	9.5	lb f

Fig. 5.1.1 Summary of current conditions in the campground proper. Left: The oldest portion of the campground, at the north end of the campground proper. Right: Walk-in camping area.

Tent-camping areas

In the tent-camping areas black cherry, striped maple, declining black locust, witch hazel, sweet birch, and hawthorn were common, and basal area ranged from 80 to 120.These trees were generally small, being mainly young and smaller statured species. Mean stem diameter is 6.2 inches. There is sufficient regeneration in this area, but the composition reflects the changing composition of the overstory from past oak-dominated woods to an overstory dominated by tree species that are both deer-resistant, and tolerant of compacted and less acidic soils. Compaction is likely to prevent the growth of some sensitive species, and may slow the growth and reduce maximum height of tolerant species. The tent-camping area had a soil chemistry that was more typical of the area, being acidic and low in nutrients.

The boggy area to the east of the campground is a unique biological resource. This contained sphagnum moss and bog vegetation, that extends into the tent-camping area. Japanese stiltgrass (*Microstegium viminium*) was found to be invading the understory at two locations. This was spreading from the roadside into the forest, and threatens one edge of the bog.

5.2 DESIRED CONDITIONS

There is a desire in both areas to maintain the overstory. In both older camping area and new camping area (next section), it would be desirable to establish a shrub and herbaceous layer between campsites to provide screening.

5.3 MANAGEMENT RECOMMENDATIONS

Forest regeneration

The management emphasis for the campground proper is the maintenance of the existing overstory. I minimal amount of tree planting would be beneficial to ensure future canopy trees, and to prevent major shifts in overstory species composition. Any declining black locust should be removed. These are at the end of their natural lifespan, and are dead or declining, posing a hazard to staff and visitors. Where these are removed, the newly created openings present an opportunity to plant overstory species such as oaks that have a partial shade tolerance. Oaks are the typical forest species in this area, and make up most of the overstory. Oak regeneration was absent in the old campground and in the southern portion of the tent-camping areas, so planting of saplings is recommended to maintain the overstory over a long time period. White and pin oaks are tolerant of some soil compaction, but may be adversely affected by the high pH in the old campground, and would be best planted in the tent-camping area. White ash is very tolerant of higher pH and of compaction, and would be a good choice for the old campground area. These species need at least partial sunlight, and should be planted in openings, protected with a 5 foot tall tree shelter to prevent deer browse. If deer pressure remains, the conversion of the tent camping area to a scrubland of short-statured and thorny trees is likely to continue. One approach to reverse this trend would be to use a modification of the shelterwood method (Loftis 1990) to re-introduce oak. In this case a single striped maple or hawthorn tree would be removed to create a small gap (or an existing gap could be used). An oak seedling or other partially shade tolerant overstory species would be planted in the gap (with a tree shelter) and allowed to establish for 5-6 years, then trees immediately surrounding it would be removed allowing it to move

into the overstory. Several trees per year planted across the tent-camping area would likely be enough to reverse the current trend and eventually re-establish an oak-dominated overstory. Planted tree seedlings should bare-root rather than containerized, and should not be fertilized in the first year to promote root growth and the natural colonization by local beneficial mycorrhizal fungi. If leaves appear pale in the second year, the young tree can be fertilized using a fertilizer formulated for acid-loving shrubs. The use of mulches should be avoided, as these tend to raise soil pH.

Table 5.3 Native woody species appropriate for planting in Big Meadows campground. Included are overstory trees with heights greater than 60 ft. at maturity, and smaller statured or understory trees and shrubs that could be used as part of a visual barrier. These have some tolerance to soil compaction, but are not resistant to deer browse so should be planted with a shelter. All are tolerant of a fairly wide range of soil moisture conditions and partial shade, unless noted.

Species		Ht. at maturity	pH range	Comments
White ash	*Fraxinus americana*	90 ft.	4.5 – 7.5	Due to the emerald ash borer, ash should be a minor component of planted trees.
Kentucky coffeetree	*Gymnocladus dioicus*	100 ft.	6.0 – 8.0	Also deer resistant. Pods and seeds are toxic. Slow growth rate of 1 ft/yr or less.
Witch hazel	*Hammamelis virginiana*	20 ft.	6.0 – 7.0	
hophornbeam	*Ostraya virginiana*	45	4.2 – 7.6	Slow growth of 1 ft/yr or less
ninebark	*Physocarpus opulifolius*	10	4.5 – 8.0	Not shade tolerant, use in open areas.
Scarlet oak	*Quercus coccinea*	80	5.0 – 7.0	
Northern red oak	*Quercus rubra*	90	4.5 – 7.0	
Fragrant sumac	*Rhus aromatica*	10	6.0 – 7.0	Somewhat deer resistant.
Elderberry	*Sambucus nigra*	12	6.0 – 8.0	Also deer-resistant.
Black cherry	*Prunus serotina*	80	4.0 – 7.5	Also deer-resistant. Not shade tolerant.

Soil management

Compaction is likely to remain an issue for herbaceous and shrubby species, but because of the very rocky soil the compaction is limited to the surface and should allow tree roots to grow beneath. Wheeled traffic is the main source of compaction. Compaction will need to be alleviated to allow the establishment of shrubs and tall herbs that are desired as screening between campsites. This could be done manually on small areas to be planted, or on a larger scale by the use of an air spade. To avoid re-compaction, mulch can be applied on a regular basis but the placement of large woody debris or rocks to inhibit vehicle traffic on these patches of soil would be most beneficial . Small patches of uncompacted soil between campsites will also allow for water infiltration, which reduces run-off and erosion, and improves growth conditions for the vegetation. A small un-compacted depression, in addition to elevated elements will be particularly effective in water infiltration and nutrient retention.

It should be a priority to halt or reduce the trend of increasing soil pH. Unfortunately, while it is easy to raise pH it is much more difficult to lower it. However, if the cause of high pH can be identified and removed, soil pH will slowly decrease on its own. It would be good to keep soil pH in mind when considering future management activities. Calcium application is often recommended to help alleviate soil compaction, however over time it raises pH which causes nutrient deficiency and a shift in the composition of vegetation to more alkaline-loving species. Avoid the use of lime, limestone, and concrete, and when these are used try to minimize their spread. Broken concrete should be removed from the site, rather than broken up and used on paths. The use ammonium and sulfur-based fertilizers instead of nitrate-based ones, and avoid the use of calcium chloride de-icing salts. Application of elemental sulfur will help to reduce pH.

Screening vegetation

Shrub species listed in table 5.3, and noted as shade tolerant would be good candidates for screening vegetation. Another potential screen are seedlings and saplings of overstory species; many of these grow very slowly in the shade, and would provide screening over the first part of their life. Having shade tolerant saplings present below the canopy is beneficial in that when an overstory tree dies, the sapling can quickly grow into the gap. Deer browse appears to be the main factor preventing natural establishment, and even though these species are resistant to deer browsing, they may be eaten at certain times of the year. The use of chicken wire cages may be beneficial to allow planted shrubs to establish. Shade-tolerant herbaceous species listed in table 3.3 would also be appropriate for planting in the campground area.

Other considerations

Japanese stiltgrass is an invasive species that rapidly spreads into the intact forest, displacing native understory species. It has been reported that deer do not eat this species, and so spread is likely to be vigorous in the campground due to human traffic and deer pressure on other plants. Aggressive and immediate treatment is recommended, as populations can quickly spread beyond the extent where control is feasible. The native bog is unique, and this rare habitat type is home to a number of rare and threatened plant and animal species. Currently the bog is fully accessible to visitors, with no protection from foot traffic that can trample sensitive species and facilitate the spread of invasive species into the area. The boggy area could be protected and highlighted by placing signs, and by the construction of a boardwalk to allow visitors to explore and enjoy this small area while reducing their impact.

6 CENTRAL CAMPGROUND

6.1 CURRENT CONDITION

The central portion of the campground is characterized by open expanses of non-native turfgrass interspersed with patches of dense vegetation (Fig. 6.1). This area should be considered a separate management unit from the campground proper due to the condition of vegetation, and intensity of use. While the tent-camping areas and old campground have a healthy overstory and require minimal management, the central portion of the campground is in need of intensive rehabilitation.





Fig. 6.1.1 In the central portion of the campground the paved roads are bordered with turfgrass, with wooded thickets occurring between roads. Large thickets are shown in yellow on the aerial photo. These are comprised of an overstory with a dense layer of barberry (arrows) in the understory.

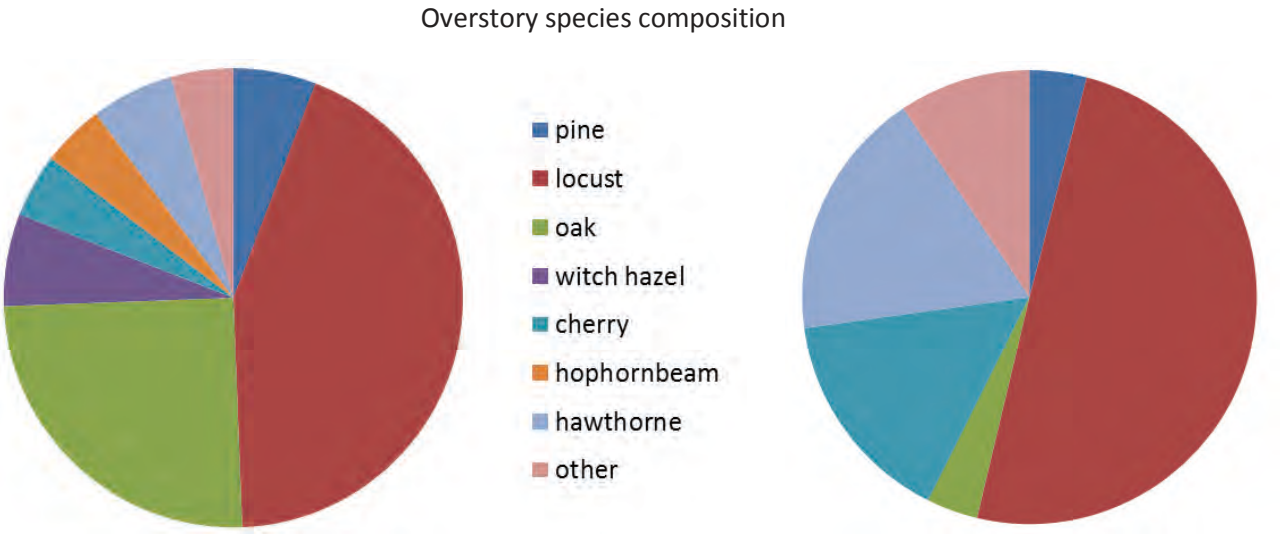
The area of dense vegetation, or "thickets" consist of mainly of an overstory of black locust, hawthorn, and witch hazel. In the largest of these (labeled "A" in figure 6.1) has a closed canopy of small trees that also include sweet birch and hophornbeam, and an oak component of approximately 25%. This has little to no understory, however Japanese stiltgrass was observed to be invading from the southwestern corner. The other areas of thicket are smaller so that light reaches the ground.

The overstory in both thickets and campsites is dominated by black locust that are in an advanced state of decline. Bark beetles infestations were found on many of these trees, but these are opportunistically attacking dying trees and are not the primary cause of mortality. Locust are very fast-growing but short-lived trees, and these are at the end of their natural life cycle. When they die, the levels of light reaching the ground increase. This normally results in the rapid growth of understory species along with tree seedlings that will become the new overstory. However there is a severe lack of seedlings and saplings. The understory here is dominated by barberry (*Berberis* spp., not identified to species). Deer don't eat the barberry, and were not observed crossing the thicket areas. However, the species composition and lack of saplings across the central campground indicates that the vegetation has been subject to very high deer browsing pressure for a number of years. *Berberis vulgaris* been reported to be allelopathic, and there is anecdotal evidence that other barberry species are as well. This would explain the lack of tree regeneration within the thickets.

Soils in this area are poor, but not as poor as those in the old campground. The pH averages 5.6, but it is highly variable, and heavily compacted. The high CEC results in poor availability of P and S. Soil chemistry in the central campground appears to be on a trend toward conditions that are currently found in the old campground. There is an imbalance in Ca:Mg, which should be about 1:4, but is around 10:1, resulting in magnesium deficiency in plants. Soil below a visibly yellow young eastern white pine was tested, and was found to have a pH of 6.7, CEC of 246, and Ca:Mg of 20:1. The tree was planted

Thickets

Campsites



seedlings/acre	
pine	0
locust	0
oak	0
ash	0
cherry	30
striped maple	0
hawthorne	90
birch	15
apple	300

Soils		
Ca	4402	ppm
Mg	492	ppm
P	27	ppm
K	334	ppm
pH	5.5	ppm
CEC	28	meq/100g
density	9.3	lb f

seedlings/acre	
pine	0
locust	0
oak	0
ash	0
cherry	64
striped maple	28
hawthorne	37
birch	0
apple	9
red maple	0

Soils		
Ca	6418	ppm
Mg	517	ppm
P	32	ppm
K	263	ppm
pH	5.8	ppm
CEC	38	meq/100g
density	9.3	lb f

Fig. 6.1.2 Summary of current conditions in the central campground. Left: within wooded thickets, and right: within campsites and open areas along roads.

and had been mulched, and soil chemistry was so different from the other samples that this has been removed from averages and presented here, separately. The phosphorus level was very high, but inaccessible to the tree due to the high pH and CEC. The very high calcium level creates deficiencies in magnesium and manganese. Very high levels of zinc and boron were also found in the soil under this tree. This localized adverse soil chemistry could have resulted from the application of fertilizer and commercial mulch, or may be the result of visitors emptying wastewater beneath the tree.

6.2 DESIRED CONDITION

It would be desirable to maintain overstory trees that are in good health, and establish a shrub and herbaceous layer between campsites to provide screening.



Fig. 6.2 Desirable conditions of forest structure for the campsite area for the near future. On removal of the declining locust the forest will be open, as shown here. Ample light reaches the ground to support a diverse herbaceous and shrub layer that includes seedlings and saplings of future overstory trees. The tall overstory and lack of mid-story allows for a long line of sight just below the canopy, while a layer of shrubs 4-10 feet in height creates a short visual distance at eye level.

6.3 MANAGEMENT RECOMMENDATIONS

The emphasis of forest management in the central portion of the campground will be the establishment of a new stand. Many of the locust present a hazard, and due to their state of decline it is recommended that all locust be removed. The rot-resistant wood of larger trees may be useful as landscape features. Barberry was not identified to species, and could be either native or invasive. It does provide a low screen and is deer-resistant, and so may be an acceptable understory. However, it appears to restrict natural regeneration and may have other undesirable characteristics. If removal is desired, a foliar spray of 2% glyphosate can be used in the early spring just after barberry has leafed out. Proper timing of spray can maximize the mortality of barberry but have a minimal impact on non-target species. Where vegetation is to be established, the soil surface should be tilled or broken up by hand to

relieve compaction. Deer-resistant upland shrub and herbaceous species (Table 3.3) can then be planted for screening vegetation, in the same manner as recommended for the old campground. Seedlings of overstory tree species should be planted in areas where locust and barberry are removed, as this soil will be less compacted, and enriched in nitrogen. Five foot tree shelters should be used to protect young trees from deer. Trees listed in table 5.3 can be planted and in addition, pin oak (*Quercus palustris*) and white oak (*Quercus alba*) can be planted due to the lower pH. American chestnut would also be appropriate, if available. Given the trend toward increasing pH that is seen in the campground, the species composition of the new overstory should selected for species that will continue to thrive as pH increases over time, or stabilizes. Species that have an upper pH limit below 6 are unlikely to thrive over the long term. Most pine species prefer acidic soils and may do fine in patches of more acidic soil, but will likely do poorly in other areas. Bare-root tree seedlings are preferable for planting stock, and mulch should not be applied. Soil management should be similar to that recommended for the old campground, but here will be primarily a matter of being aware of, and minimizing activities that raise pH and calcium levels, with the goal of preventing further increases. In the old campground, the health of the existing overstory was an important factor, and action to remediate soil conditions should be considered to maintain tree health.

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