Landscape Management

Introduction

The vast majority of land within Shenandoah National Park is in a more or less natural state and unmanaged. Yet, the active management required to maintain the Park's roadways, developed areas, and historic landscapes represents a large and complex challenge that extends well beyond simply mowing lawns.

Management Needs

Landscape management is often undertaken to addresses aesthetic concerns. Examples of this might include re-seeding the edge of Skyline Drive where traffic has killed the grass, or mowing the lawns around buildings. Other types of landscape management, such as hazard tree removal in campgrounds, are needed to ensure visitor safety. Additional management actions are often required to preserve the integrity and appearance of historic plantings and landscapes at locations like Camp Rapidan.

Prescribed fire in Big Meadows for controlling woody vegetation.

Current Procedures

Landscape management within the Park typically takes place according to a written plan or project clearance document. These documents specify the location, type, and extent of work to be completed, and are created through a project evaluation process that involves Natural and Cultural resource specialists, and Grounds Maintenance Supervisors.

Landscape management often involves vegetation control using a variety of mechanical and chemical techniques. Some of the most popular techniques used for park projects include mowing, herbicide application, and cutting. Mowing includes work done with standard lawn mowers, long- armed mowers, and brush- hogs. Herbicide application can be done as a broadcast application, direct cut- stump application, or injection. Cutting includes the pruning, and complete removal of trees and shrubs.

Fire is also used to assist in vegetation management projects. Fire can be used within larger landscapes to consume dead material, stress undesirable species, and stimulate new growth. Fire can also be used in a more concentrated way to consume piles of woody material generated from tree removal or thinning activities.

In some cases, the management of park landscapes involves the enhancement of existing vegetation through seeding and planting. Seeding is done to prevent erosion and improve appearance. The park is currently moving toward the use of local varieties of native seed for stabilization and re- seeding projects. In addition, the planting of native vegetation is sometimes undertaken to restore historic landscape features, replace trees in developed areas, and repair landscapes damaged by invasive species removal.

Restoration / replanting plot at Hogwallow Flats.

Accomplishments

Developed Areas
The ongoing work to manage developed area landscapes is very noticeable to most park visitors. This work keeps the lawns and shrubs trimmed around buildings, and keeps the picnic grounds and camp grounds open and clear of unwanted vegetation. The high concentration of visitor use in developed areas also requires periodic evaluation and removal of hazard trees. Vegetation management in developed areas is most intense during the growing season, when mowing is required approximately every two weeks. Pruning and hazard- tree removals typically take place in the late fall or early spring.

Cultural Landscapes
Three of the most notable cultural landscape areas that need site specific vegetation management are Judd Garden, Camp Rapidan, and Big Meadows. Judd Garden is located

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at the edge of the Skyland development and is the historic garden of the George H. Judd family. The garden was abandoned in the early 1960's, but was the subject of a vegetation survey in 1995 (NPS, 1995). This survey confirmed the presence of many non- native ornamental species, and lead to efforts to eradicate two plantings of aggressive invasive exotic species, Japanese Knotweed (Fallopia japonica), and oriental bittersweet (Celastrus orbiculatus).

The vegetation at President Hoover's summer retreat, or Camp Rapidan (also known as Camp Hoover), has undergone some dramatic changes in the last nine years. The dense hemlock grove that once sheltered the Camp was severely damaged by the hemlock wooly adelgid (Adelgis tsugae), and was removed in 1999 when the trees became hazardous to visitors and the historic structures. A vegetation survey done in 1998 was used to look for evidence of former plantings and document the camps vegetation prior to the death and removal of hemlock trees. The results of the 1998 survey are being combined with historic records of the Camp's original plantings to gradually restore the Camp's vegetation so that it represents the area as it was in the early 1930's.

Hemlock wooly adelgid (Adelgis tsugae).

Big Meadows has a long and complex history of human use and management. Mowing was the primary means of Meadow maintenance from the time of park establishment (1933) through the early 1970's. This was followed by piecemeal attempts at meadow management using fire, mowing, and herbicide through 1982. In 2000 the Park began a new landscape management initiative, following 18 years of inactivity. At this time the Meadow was shrinking in size because of trees encroaching on the perimeter, and was losing it's grassy character and coverage of rare plants, as shrubs invaded the interior. The Park began by burning the entire Meadow in the spring of 2000, followed by mowing in the fall. The Meadow was then burned for three more consecutive years to discourage woody re- growth and promote the regeneration of herbs. These vegetation management actions were successful and reducing woody cover and encouraging herbaceous vegetation growth. The meadow is now being managed using a rotation of burning, mowing, and fallow treatments, with each treatment being applied to one third of the Meadow each year.

A Meadow Management Plan was completed in 1985 but it does not reflect current management practices and needs to be updated.

Roadside Areas

Roadside areas include the grass edges and banks of Skyline Drive, the vista clearing zones associated with Overlooks, and the Administrative roads, often referred to as fire roads. Together these represent a very large and varied area of vegetation management.

The Natural and Cultural Resources and Maintenance Divisions work together to determine the details of vegetation management in roadside areas. At this time, mowing, cutting, and herbicide treatment are used to maintain the edges and banks of Skyline Drive. These operations are guided by a parkwide Mowing Plan.

Beahms Gap prescribed burn (2007) used to help control woody vegetation in the vista.

The many named overlooks and drive- by vistas present along Skyline Drive are well known and loved by Park visitors. Every overlook and drive- by vista exists because of a down- slope area of vegetation removal known as the " vista clearing zone". Vista clearing zones need periodic clearing to maintain the associated lines of sight. This work is challenging and hazardous to do by hand, because of the extremely steep slopes, thick vegetation, and unstable

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footing. For this reason the Park currently maintains vista clearing zones with broadcast herbicide application. In some cases, fire is used to maintain the clearings. The Natural and Cultural Resources Division has worked with the Maintenance Division to survey all of the vistas for species of concern, and special arrangements are made for any vista clearing zone that is close to sensitive plant communities or populations. Furthermore, routine clearing operations have been suspended when particular species of exotic plants have been identified at the vista. In those cases work is concentrated on removing the exotics and limiting their spread. A Vista Management Plan was prepared in 1982 but it is outdated and needs to be revised.

Park staff members are currently engaged in a comprehensive planning process to determine the maintenance that will be given to Administrative or fire roads throughout the park. This is a complicated project because these roads are used for many purposes and are costly to maintain in a period of diminishing budgets.

Mowing Big Meadows in October 2000.

Park botanical crew sampling monitoring transects in Big Meadows.

References

National Park Service. 1982. Shenandoah National Park Vista Management Plan. Shenandoah National Park, National Park Service, Luray, Virginia.

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National Park Service, 1995. Judd Gardens Historic Vegetation Inventory and Management Plan. Shenandoah National Park Internal Report.

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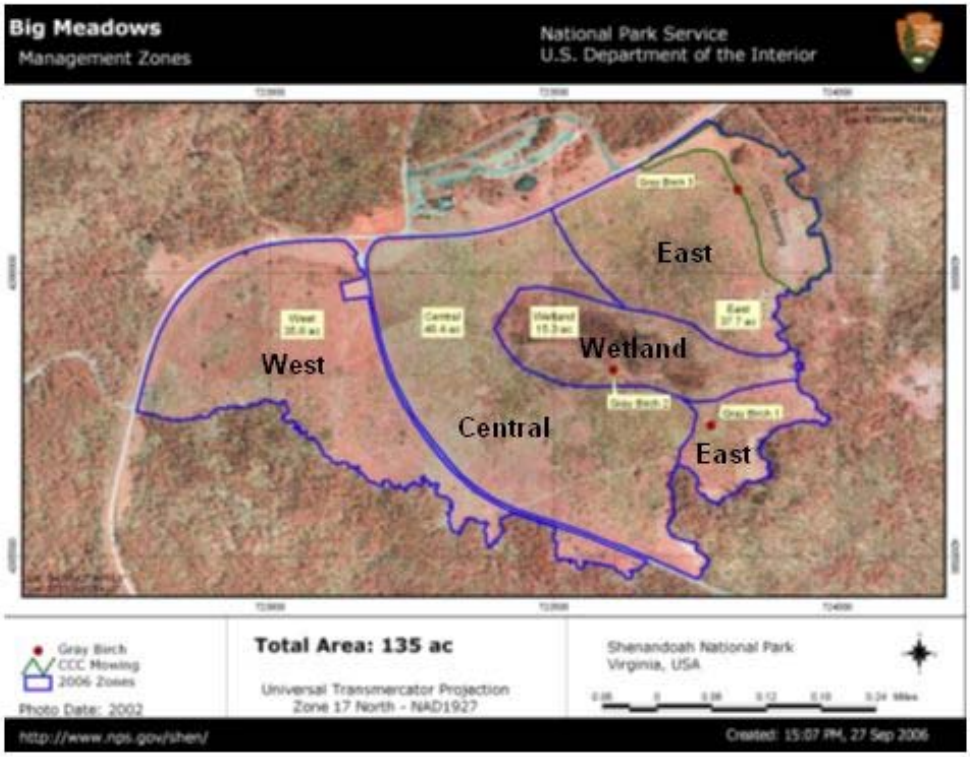
Big Meadows Management Zone map and management schedule.



YEAR	MOW (Excludes Wetland)	BURN (Includes Wetland)	FALLOW
Fiscal Year 2001	--	East + Central + West	--
Fiscal year 2002	--	East + Central + West	--
Fiscal Year 2003	--	East + Central + West	--
Fiscal Year 2004	East	Central + West	--
Fiscal Year 2005	Central	West	East
Fiscal Year 2006	West (partial)	East + West	Central
Fiscal Year 2007	East	Central	West
Fiscal Year 2008	Central	West	East
Fiscal Year 2009	West	East	Central
Fiscal Year 2010	East	Central	West
Fiscal Year 2011	Central	West	East
Fiscal Year 2012	West	East	Central
Fiscal Year 2013	East	Central	West
Fiscal Year 2014	Central	West	East
Fiscal Year 2015	West	East	Central