

Fredericksburg and Spotsylvania National Military Park (FRSP)
Spotsylvania Burn Unit
2010 Fire Effects Monitoring Annual Report

I. Introduction

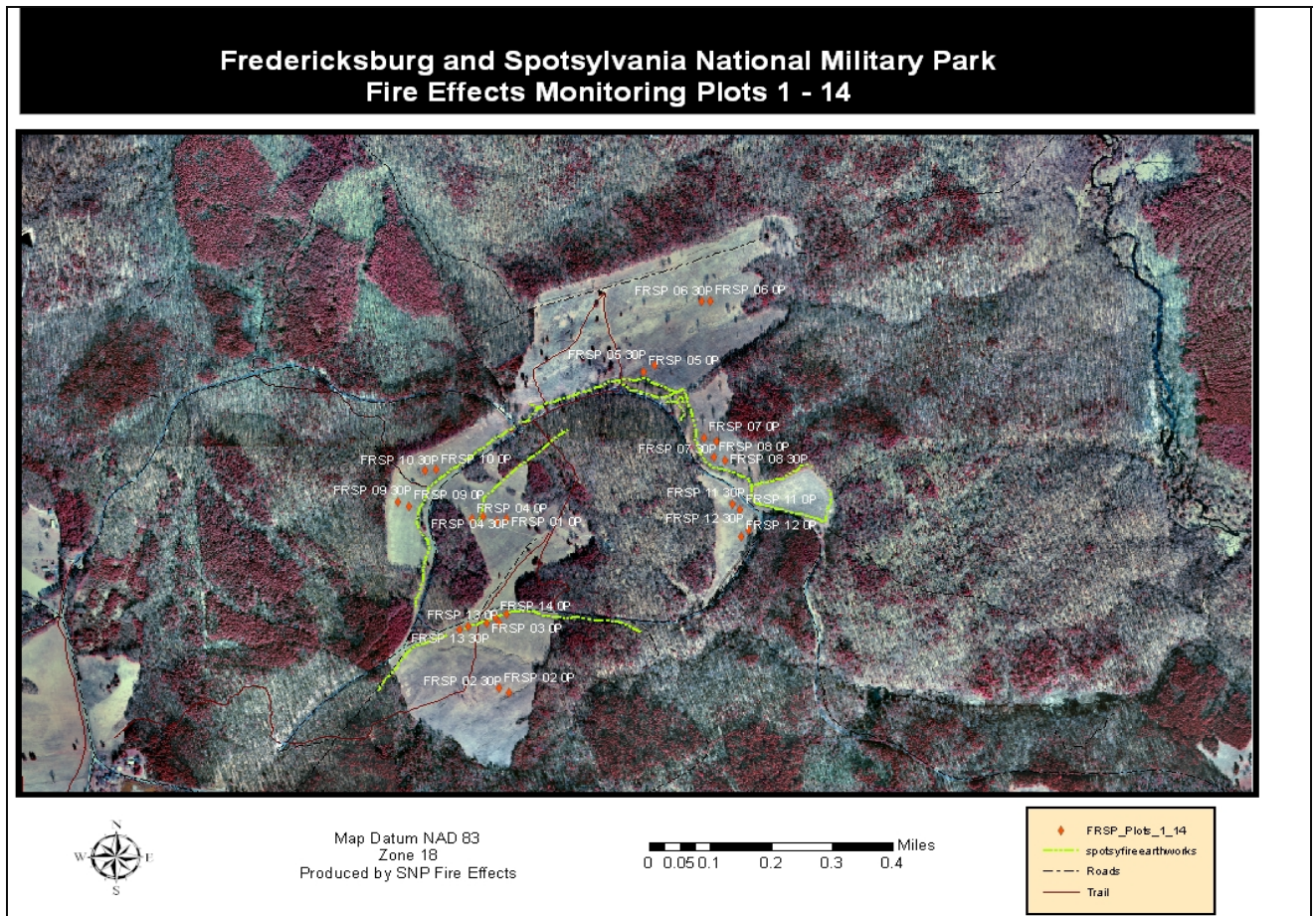
Fredericksburg and Spotsylvania National Military Park is located approximately 50 miles south of Washington, D.C. The park is spread out over a 145-square mile area in the city of Fredericksburg, Virginia, at the junction of Interstate 95 and State Route 3, and in Caroline, Orange, Spotsylvania, and Stafford Counties. It is comprised of four separate Civil War battlefields: Fredericksburg, Spotsylvania Court House, Chancellorsville, and Wilderness, and four related sites: Salem Church, Chatham Manor, Jackson Shrine, and the Fredericksburg National Cemetery.

On four separate occasions, the main eastern armies of the United States and the Confederate States fought major battles in and around Fredericksburg, Virginia. The woods and fields of the battles are the primary resources of the park: federal lands encompass 1,200 ac of open fields, 6,000 ac of forest, 540 ac of wetlands, and 102 mi of boundary. In addition, the park has significant terrain features, historic roads and traces, structures, house sites, ruins, cemeteries, monuments, markers, and historic objects. A number of historic structures dating from the mid-19th century add to the park's significance, including more than 43 mi of earthworks built by the soldiers, Salem Church, the house where Stonewall Jackson died, Ellwood, Chatham Manor, and several other structures that were landmarks on the historic fields.

The Spotsy Fields Monitoring unit consists of open fields and earthworks. Open fields in Spotsylvania Court House Battlefield are considered cultural meadows. Cultural Meadow includes all mowed or maintained fields in the park, and are managed to maintain the open fields characteristic of Civil War battlefields. These meadows have a mix of native and exotic grasses and forbs with scattered shrubs. Dense stands of cool season grasses such as meadow ryegrass (*Lolium pratense*) and orchard grass (*Dactylis glomerata*) typically occur.

Common vegetation encountered in fire monitoring plots include; native grasses and sedges such as, beaked panic grass (*Panicum anceps*), poverty oatgrass (*Danthonia spicata*), rosette grass (*Dichanthelium dichotomum*), broomsedge (*Andropogon virginicus*), little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*) and sedges (*Carex spp.*). Shrubs include blackberry (*Rubus spp.*) and winged sumac (*Rhus copallinum*) and herbaceous plants include trailing bush clover (*Lespedeza procumbens*) yarrow (*Achillea millefolium*) and cinquefolia (*Potentilla spp.*) Tree seedlings include blackjack oak (*Quercus marilandica*), sweet-gum (*Liquidambar styraciflua*) and locust (*Robinia pseudoacacia*). Additionally, there are a few exotic species of concern found in the fields. Some of which include, but are not limited to, Japanese Honeysuckle (*Lonicera japonica*), colonial bent grass (*Agrostis capillaris*), sweet vernal grass (*Anthoxanthum odoratum*), cat's ear (*Hypochaeris radicata*) and red sorrel (*Rumex acetosella*).

The Northeast Region Fire Effects Monitoring Crew began monitoring fire effects at the park in 2004. Currently there are 14 FMH brush transect monitoring plots in a complex of seven fields for a total of 125 acres in size. Upton Field 11.8 ac, McCoull House Field 19.3 ac, Harrison House Field 29.7 ac, Crescent Field 5.3 ac, Native Grass Field 4.8 ac, Middle Field 7.2 ac, Landram House Field 46.4 ac.



II. Goals and Objectives

Goal

Open fields would preserve the historic scene as it appeared at the time of the battle while providing critical habitat for birds and small mammals. Native warm season grasses would dominate the vegetation cover while non-native cool season grass cover would be minimal.

Burn Objectives

- Provide for personnel safety.
- 90% - 100% of overall area to be burned.
- Limit mineral soil exposure to no more than 5% until greenup.

Monitoring Objectives

- Maintain woody species < 25%.
- Percent Cover on non-native grasses and forbs <25%.
- Percent cover of native grasses and forbs >75%.

Monitoring Unit	Management Objective (80% C.I.) <i>a</i> .2	Monitoring Results Treatments	Objectives Achieved?	YR Last Analysis
Spotsylvania Mixed Grassland	Maintain woody species < 25%.	Low Shrub Cover Fields Shrubs= 19 (±4) Trees=19 (±2)	NO NO	2010
		High Shrub Cover Fields Shrubs= 54(±7) Trees=22 (±4)	NO NO	
	Percent Cover of non-native grasses and forbs <25%.	Low Shrub Cover Fields Non-native grass = 2 (±1) Non-native forbs = .3(±.3)	YES YES	2010
		High Shrub Cover Fields Non-native grass = 21(±5) Non-native forbs = .3(±.3)	YES YES	
	Percent cover of native grasses and forbs >75%.	Low Shrub Cover Fields Native grass = 80 (±4) Native forbs = 41 (±3)	YES YES	2010
		High Shrub Cover Fields Native grass = 67(±12) Native forbs = 67(±10)	YES YES	

Figure 1

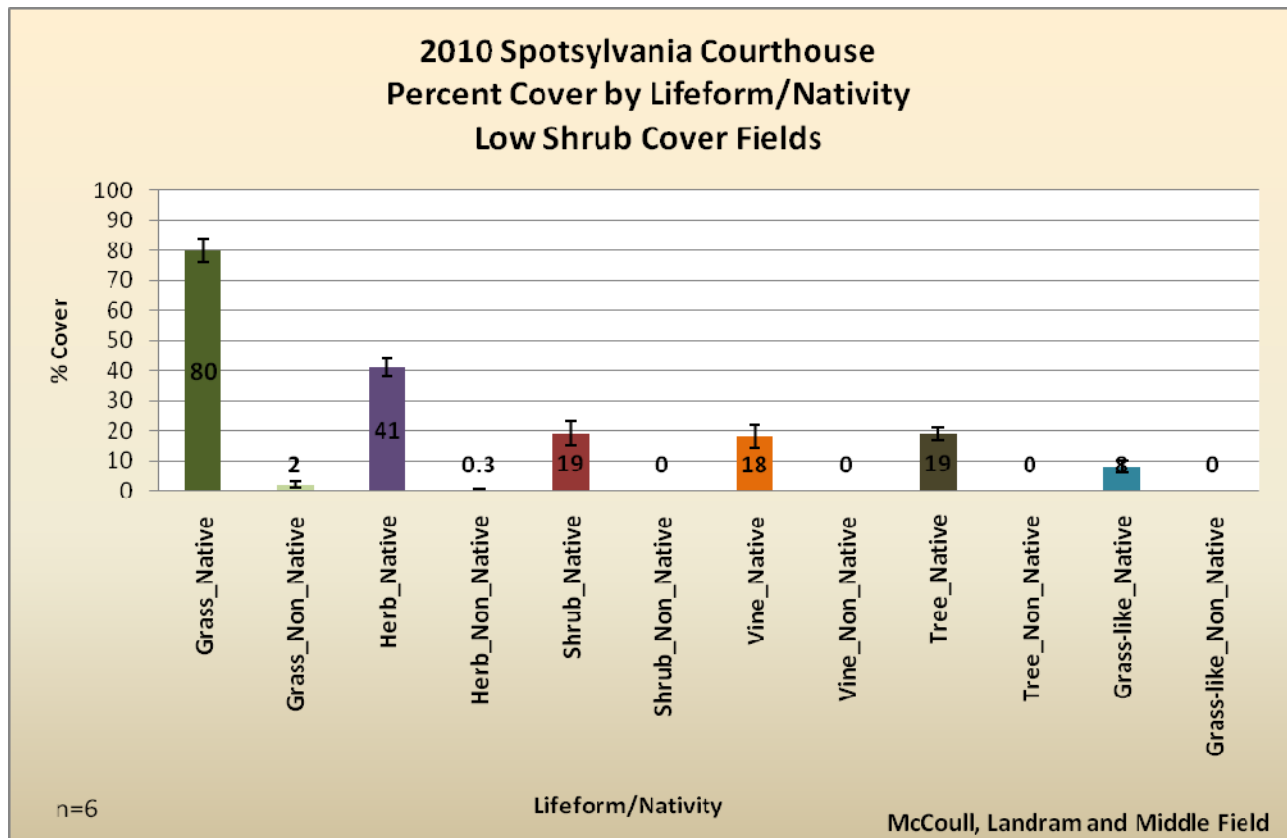
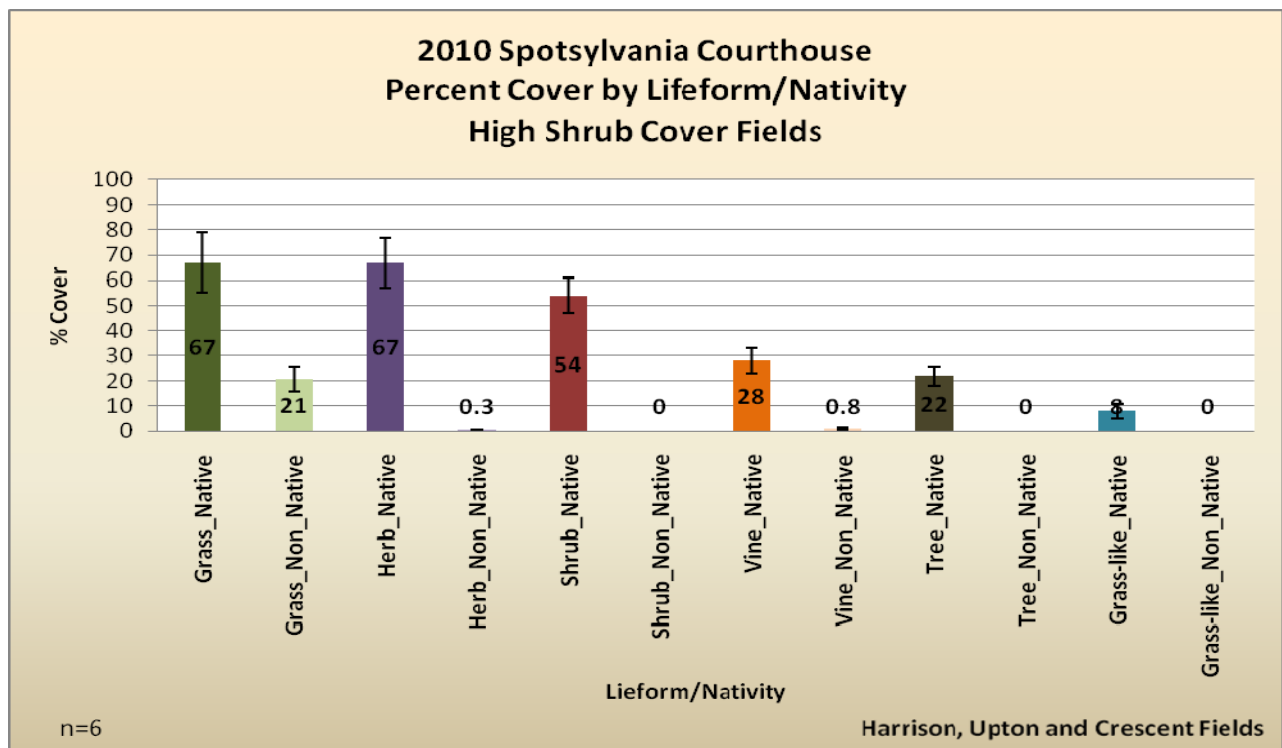


Figure 2



III. Discussion

Objectives are currently being met at the Spotsylvania Court House burn unit with the exception of maintaining woody vegetation below the 25% threshold. A meeting was held in November of 2010 with the parks Superintendent, Chief of maintenance and staff, Chief of natural resources and park FMO, cultural resources specialist, MTTs area FMO and fire ecologist, to discuss concerns of the visual appearance of the fields. The park had received a few complaints regarding overgrown vegetation impacting the historic vista. In past years, the park bush hogged all of the fields in this unit annually. However, when prescribed burning began in 2004 the amount of bush hogging was significantly scaled back. An analysis of our data shows an increase in the desired native warm season grasses and herbs, however no detectable decrease in woody vegetation. Small diameter shrubs and tree species appear to be top killed, however vigorously re sprout. The reduction in bush hogging has also resulted in taller vegetation with the stems rarely consumed by the fire. As a result of this meeting, it was decided to re-implement bush hogging on a biennial (every other year) basis rotating thorough all the fields. Bush-hogging will occur during the late summer to have the most effect on killing woody vegetation. The fields were divided into two groups. The low shrub cover fields include; McCoull, Landram and Middle fields. The high shrub cover fields include; Harrison, Upton and Crescent fields. The fields with the highest percent of woody vegetation (high shrub cover fields) will be treated with prescribed fire beginning the Summer of 2011. Recent literature supports that rotating burning during the growing season to kill woody vegetation in conjunction with burning in the spring to promote the growth and establishment of native warm season grasses. Bush-hogging will also be used to control the height of woody species thereby preserving the historical vista. Bush-hogging will take place in the late summer after ground nesting birds have fledged and fire effects monitoring plots have been read.

Tentative Cutting / Summer - Spring Prescribed Burning Schedule for 2011 - 2016

	2011	2012	2013	2014	2015	2016
Upton Field	Summer RX	Bush - hog	Summer RX	Bush - hog	Spring RX	Bush - hog
Landram Field	Spring RX	Spring RX	Bush - hog	Spring RX	Bush - hog	Summer RX
Harrison Field	Summer RX	Bush - hog	Summer RX	Bush - hog	Spring RX	Bush - hog
McCoull Field	Spring RX	Spring RX	Bush - hog	Spring RX	Bush - hog	Summer RX
Middle Field	Spring RX	Spring RX	Bush - hog	Spring RX	Bush - hog	Summer RX
Crescent Field	Summer RX	Bush - hog	Summer RX	Bush - hog	Spring RX	Bush - hog
Native Grass Field	Spring RX	Spring RX	Bush - hog	Spring RX	Bush - hog	Summer RX

Percent cover of non-native grasses and forbs still remain below the 25% threshold for both the low shrub cover fields and the high shrub cover fields. Non native herbs are barely detectable at .3% (± 0.3) in both groups of fields. In contrast, the high shrub cover fields have a much larger proportion of non native grasses 21% (± 5) than the low shrub cover fields 2% (± 1). An increase in woody mortality in the high shrub cover fields should allow for the germination of the desired native warm season grasses. The percent cover of native grasses and forbs is excellent with the low shrub cover field having 80% (± 4) and 41% (± 3) respectively and 67% (± 12), 67% (± 10) for the high shrub cover fields.