U.S. National Park Service

Fire Management Plan

Wilson's Creek National Battlefield – 2024

Prepared by:
SCOTT BRESSLER
Digitally signed by SCOTT BRESSLER
Date: 2024.04.18 08:35:28 -05'00'

Missouri/Iowa National Parks Zone FMO

Approved by:
SARAH CUNNINGHAM
Digitally signed by SARAH CUNNINGHAM
Date: 2024.04.18 09:09:11 -05'00'

Superintendent Wilson's Creek NB

FMP/NEPA REVISION TRIGGERS

Over time, an FMP and its supporting NEPA document may become outdated due to changes in policy or circumstances in the park and thus require revision.

The following questions will help you to determine whether FMP revisions and a new environmental compliance process needs to be initiated. Some items may require discussions with staff from other divisions to complete. An FMP can be amended through a categorical exclusion (CE), environmental assessment (EA) or environmental impact statement (EIS) depending on the complexity of the issues involved.

If you answer YES to any of the questions below, additional compliance may be necessary. Consult with your Regional Fire Planner and Park Compliance Specialist to determine if additional NEPA and/or other compliance (section 7, section 106, etc.) will be necessary.

In the space to the right, please list the current FMP NEPA compliance with date: EA – 2004, CE – 2024

	FMP/NEPA REVISION TRIGGERS	**YES**	**NO**
1	Is the park strategy for managing wildfires and implementing fuel treatments inconsistent with the FMP and NEPA documents?		X
2	Are FMP goals and objectives inconsistent with newer, approved park planning documents (Foundation Document, GMP, RSS, etc.)? *If FMP goals and objectives are inconsistent with park planning documents, please provide a brief description of the inconsistency or conflict:*		X
3	Have there been changes in the status of cultural resources, historic properties and/or sensitive species in the park that could affect FMP implementation? *If yes, consult with appropriate specialist.*		X
4	Since FMP approval or update, have there been changes in park policy or legal requirements that require changes to the FMP and supporting compliance documents? *Explain if yes:*		X

5	If new lands with burnable vegetation have been added to the park since the last FMP approval or FMP NEPA review/amendment: ● Is the new land going to have a fuels treatment plan this year? ● Is management of the new land different from the rest of the unit? ● Does the new land have any threatened or endangered species? ● Does the new land have any cultural resources and/or historic properties? *Note: if you answered YES to any of these questions, consult your regional fire planner to determine if additional environmental compliance is needed for the area.*		X

Prepared by: SCOTT BRESSLER Digitally signed by SCOTT BRESSLER Date: 2024.04.18 08:36:54 -05'00' Date: _____

Fire Management Officer

Approved by: SARAH CUNNINGHAM Digitally signed by SARAH CUNNINGHAM Date: 2024.04.18 09:09:42 -05'00' Date: _____

Superintendent

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1.0 INTRODUCTION, LAND MANAGEMENT PLANNING, and COMMUNICATION

Wilson's Creek National Battlefield (WICR) is about 10 miles south of the city of Springfield, Missouri, on the boundary between Greene and Christian Counties in the southwestern corner of the state. The park encompasses 2,035 acres that are owned in fee; an additional 172 acres are protected by Ozark Greenways, Inc., in easement outside park boundaries. The park was established on April 22, 1960, to preserve and commemorate the Battle of Wilson's Creek, the site of the second battle of the Civil War and the first major battle west of the Mississippi River. Many of the park's 70 known archeological sites are associated with the battle, but more than half date to pre-European contact. The park preserves cultural landscapes and historic Civil War-era structures including the Ray House, a 19th-century home that was used as a field hospital and where General Lyon's body was taken after the battle.

The park is located at the far western edge of the eastern broadleaf forest province near the edge of the prairie parkland province (Bailey 1995). Historical documentation describes much of the park landscape as savanna (Gremaud 1986). Savanna is a fire-dependent environment that supports an understory of herbaceous, prairie species, and an overstory of scattered trees. At the time of the battle, oaks were the dominant trees in the park area. In uncultivated areas, blackjack oak dominated the uplands, while other species of oaks were present in smaller numbers. Black oak, white oak, and post oak were dominant overstory species in the draws and bottoms. Current plant communities include reconstructed tallgrass prairie, glades, savanna, and woodlands.

The mission of the National Park Service Wildland Fire Program is to manage wildland fire to protect the public, park communities, and infrastructure, conserve natural and cultural resources, and maintain and restore natural ecosystem processes (NPS Wildland Fire Strategic Plan, NPS 2023). Each park unit with burnable vegetation must have an approved Fire Management Plan that will address the need for adequate funding and staffing to support the fire management program. (Directors Order #18, Wildland Fire Management, NPS 2008). To align with the DOI FMP Framework, the NPS developed fire management planning guidance described in NPS Reference Manual (RM) - 18, Fire Planning, Chapter 4 (2023), that considers fire program complexity and efficient and effective planning direction.

The WICR's Fire Management Plan is a strategic plan that defines a program of work to manage wildland fire (includes prescribed fire and wildfire) and non-fire fuel treatments and is based on direction contained in existing park unit planning documents. This fire management plan provides for firefighter and public safety and includes strategies for managing wildland fire. The fire management plan addresses values to be protected and is consistent with WICR's resource management objectives and environmental laws and regulations such as the National Environmental Policy Act (NEPA), the National and State Historic Preservation Acts, the Clean Air Act, etc.

The Missouri/Iowa Parks Fire Management Zone Fire Management Officer (FMO) determines program requirements to implement land use decisions through the FMP to meet land management objectives. The FMO is responsible for developing, maintaining, and annually evaluating the FMP to ensure accuracy and validity by completing an annual review. (Interagency Standards for Fire and Fire Aviation Operations (Red Book), Chapter 3, NPS Program Organization and Responsibilities).

1.1 Program Organization

WICR is part of the Missouri/Iowa Parks Fire Management Zone. The Zone Fire Management Officer (FMO) is currently duty stationed at Ozark National Scenic Riverways (OZAR) in Van Buren, MO. Other fire management support personnel are also located at OZAR. Ultimately, the fire program at WICR is the responsibility of the park superintendent

and the assigned park fire coordinator, but technical oversight and support is provided by zone fire management staff. The Missouri/Iowa Parks Fire Management Zone consists of the following NPS units:

Ozark National Scenic Riverways
Wilson's Creek National Battlefield
George Washington Carver National Monument
Gateway Arch National Park
Herbert Hoover National Historic Site
Effigy Mounds National Monument

Local Park Unit Organizational Structure

All positions will meet current, relevant Interagency Fire Program Management (IFPM) standard where applicable. For IFPM purposes, OZAR and associated parks in the Missouri/Iowa Parks Fire Management Zone are a moderate/high complexity fire management program due to the wildland urban interface and fuels management programs.

Superintendent

The superintendent is responsible for all fire management activities within the park and must manage the program in accordance with Department of the Interior and NPS policy, as set forth in Director's Order 18 (DO-18) and Wildland Fire Management (RM-18). The superintendent is responsible for public and media relations pertaining to both wildland and prescribed fire and will ensure effective cooperative fire relations with other fire entities and adjacent landowners.

Chief Ranger

The chief ranger is the fire coordinator for the park. The position requires coordination with the Missouri/Iowa Parks Fire Management Zone FMO and AFMO concerning fire and resource management objectives, along with all prescribed and wildland fire suppression actions. This individual has delegated authority to close the park during prescribed burns and may function as a SEC1 or a firefighter as qualified.

Facilities Manager

The facilities manager provides technical assistance around available suppression equipment including light tools and knowledge of known utilities and services. This individual coordinates with the fire coordinator and zone FMO to prepare burn units to standards.

Heartland Network I&M (HTLN I&M)

HTLN I&M coordinates long term ecological monitoring activities and data analysis for the park and makes recommendations regarding fire effects to the FMO/AFMO and fire coordinator.

Fire Organizational Structure

Zone Fire Management Officer (FMO)

Provides professional fire management support to the WICR. The FMO is responsible for coordinating all wildland fire prevention, pre-attack, suppression, prescribed fire activities and fire management planning with the WICR Superintendent and the Chief Ranger. The FMO acts as WICR's representative for Memoranda of Understanding with other agencies

regarding wildland fire. The FMO also coordinates in-park fire dispatches and out-of-park fire assignments through the Missouri Iowa Coordination Center in Rolla, MO. The FMO or delegate will coordinate budget requests and tracking and provide oversight for employee fire training, qualifications and planned prescribed fires.

Zone Assistant Fire Management Officer (AFMO)

The AFMO assists with coordination and supervision of prevention, preparedness, writing/revising of prescribed fire burn plans, installation of control lines on prescribed burn units, managing wildland fire response, monitoring, and post-fire activities on NPS lands. The AFMO also assists in coordination with other governmental, non-government organizations, and local landowners. Budget requests and monitoring of allocated funds may also be included in AFMO responsibilities. The AFMO assists with IQCS updates (listed above in FMO responsibilities) and can also serve as DO.

Zone Fire Budget Analyst/Fire Program Management Assistant (FPMA)

The FPMA provides support services in terms of procurement, travel, budget, and other fiscal matters. The FPMA tracks expenditures against fire accounts for prescribed fire operations, suppression actions, mechanical fuel treatment projects, and preparedness activities for the park and maintains administrative files for recordkeeping.

1.2 Fire Management Actions

All unplanned ignitions, regardless of cause, will be suppressed using an aggressive suppression response. It is anticipated that local fire departments will continue to cooperate in this effort. Suppression operations are simplified by the number of roads and trails allowing good access to all portions of the unit. An active fuels management program will be implemented at WICR. This will include prescribed fire to rehabilitate and preserve the cultural landscape, control non-native invasive species, manage natural resources, and reduce hazard fuels. Non-fire treatments include mechanical thinning in forests, mowing of grasslands, and use of herbicide.

1.3 Environmental Compliance

Below are the relevant National Environmental Policy Act (NEPA) document(s) and supporting decision documents that are associated with this FMP (indicate N/A if not applicable).

Although new additions to the park lands described in this version of the fire management plan were not evaluated in the original environmental assessment (E.A.) for the plan, fuels in the recently acquired areas are similar to fuels described in the E.A. and plans and procedures outlined herein and in the original plan are relevant.

NEPA Document Name	Document Date Signed (month/day/year)	Project ID Number#
Categorical Exclusion (CE)	Fire Management Update 07/20/2023	PEPC #116217
Environmental Assessment (EA) Finding of No Significance (FONSI)	12/29/2004	

Environmental Impact Statement (EIS) Record of Decision (ROD)	N/A	

Table 1. Environmental Compliance documents for fire management activities at Wilson's Creek National Battlefield.

1.4 Park Unit/Resource Management Planning

1) General Management Plan (2003)

The GMP identified 1,418 acres that require some level of vegetation management.

- Landscape maintenance zone, 546 acres. Emphasis will be on treating non-native invasive species, mowing, and prescribed burning.
- Resource preservation zone, 154 acres. Emphasis will be on habitat management such as treating exotic species, prescribed burning, and stand thinning.
- Battlefield landscape enhancement, 718 acres. Emphasis will be on clearing (i.e., mowing, cutting, prescribed burning) weedy, woody, vegetative growth, maintenance of historic open fields, and the reestablishment of tall grass prairie, open timber communities, and other elements of the 19th century vegetation that characterized the park.

2) Foundation Document (2017)

One of the described fundamental resources and values impacting fire management at WICR is Battlefield Landscape and Historical Views, the cultural landscape and features present during the time of the battle or evocative of the landscape that those present at the battle would have experienced. Key features include Bloody Hill, oaks (witness trees), Wilson's Creek, springs, Edgar Cemetery, and a sinkhole that was used as a burial site. Views within the battlefield landscape of significant Union and Confederate positions provide an understanding of how the battle was fought.

Threats

- Woody encroachment into landscape features and viewsheds threaten historic views of the battlefield and glades and forest that require vegetation management.

Opportunities

- Ensure other management plans and actions (fire management, vegetation management, etc.) are aligned with the goals of cultural landscape management.
- Improving views of forest, glade, and savanna through prairie restoration using native grasses.

3) Resource Management Plan (1999)

Vegetation and water quality are the natural resources most studied at WICR. These resources have typically been the most visible to the public and are key to the visitor's understanding and enjoyment of the facilities. The most studied plant within the park is the federally endangered Missouri bladderpod. In December of 1996, a population of federally endangered gray bats were also located within the park. Park staff is trying to restore oak savanna and historic fields that were present during the battle. Current vegetation communities also include tallgrass prairie, glades, and woodlands in various structural stages. Several hundreds of acres within the park have populations of non-native invasive plant species that staff is trying to contain or eliminate.
Water resources within the park are being adversely affected by pollution from external sources. Aquatic insects are monitored annually which gives an indication of overall stream quality. Wilson's Creek is currently in fair condition. The park also has an active prescribed fire program which attempts to mimic the natural fire regime that created

much of the savanna landscape that was present at the time of the battle. Several hundreds of acres of vegetation are burned each year under the direction of fire management personnel. There are five caves located within the park totaling approximately 60 feet of undeveloped cave passages. Two caves have been mapped and initial surveys completed. All caves are closed to the public until an inventory of resources has been completed and staff can make informed decisions about their future management. Finally, urban development of the surrounding communities such as Springfield, Republic, and Battlefield, have diminished available wildlife habitat thus making the park a refuge for various wildlife.

4) Cultural Landscape Report (2018)

The park has expanded by 280 acres totaling 2,035 acres. An additional 172 acres of battlefield land have been placed under conservation easement since 2004. Much of the newly acquired land fell outside of the original 1960 legislative boundary for the park. A Congressionally authorized boundary expansion in 2004 allowed for the acquisition of additional parcels located on land identified as important to protect.

The CLR update addresses the park landscape that falls within the expanded boundary, and applies the principles espoused in the 2004 CLR to the parcels that have since been acquired. The CLR update follows the guidance afforded in a 2007 General Management Plan Amendment in addressing treatment of the more recently acquired parcels.

- The Cultural Landscape Report (CLR) identifies fire as a critical resource management tool to be used to control woody and native and exotic invasive species.
- The application of prescribed fire to manage vegetation has increased, helping to reduce the threat of invasive species and post-agricultural weed growth, while helping to open views of the landscape that allow visitors to better understand the events of the battle.
- Many of the vegetation communities are managed using prescribed fire. A fire management plan prepared in 2004 identified burn units that coincided with the recommendations in the CLR. The burn units are in the process of being updated to reflect current mapping technology and vegetation data.

1.5 Collaborative Planning

WICR's staff members have worked with the Brookline Fire Protection District in coordinating a plan of action for a response to wildland fires. The park has worked with the Brookline VFD, Missouri Department of Conservation (MDC), and the U.S. Forest Service who have proven to be valuable resources for providing qualified personnel and equipment to carry out prescribed fire operations and by participating in the implementation of prescribed fire burn plans.

The Wildland Fire Leadership Council (WFLC) adopted the following vision for the next century:

"To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire."

- Restore and maintain landscapes: Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
- Fire-adapted communities: Human populations and infrastructure can withstand a wildfire without the loss of life and property.
- Wildfire response: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

1.6 Communication and Education

The park will conduct a fire prevention program with appropriate emphasis prior to the fire season and during high-risk periods. This will primarily be an effort to communicate a greater awareness of wildland fire prevention through media and public contacts. Signing will be used at strategically located points throughout the park to indicate high-risk periods.

Emphasis will be placed on interpreting the role of fire as a natural process, and on prescribed fire as part of the restoration process. The common and long-term use of prescribed fire by WICR has made the public reasonably receptive and informed regarding prescribed burning.

To further public information and education, the following guidelines will be followed:

- Timely and accurate information will be provided to the media and WICR visitors regarding the status of fire actions and suppression efforts.
- During periods of prescribed burning, informational handouts explaining the fire management program will be prepared, updated as necessary, and distributed to both visitors and area residents.
- The prescribed fire program, plans, and implementation will be discussed in informal contacts with all unit personnel. Reasonable attempts will be made to contact neighbors and visitors.
- Adjacent landowners will be notified when fire, particularly wildland fire, is a threat to off unit residential areas.
- When feasible and necessary, a Public Information Officer with knowledge of fire operations will be on-site or at minimum available by phone/video.

2.0 WILDLAND FIRE PROGRAM MANAGEMENT GOALS AND OBJECTIVES

2.1 Goals

Fire Management Goals

- Provide for the safety of fire staff, park employees, visitors, and park neighbors.
- Protect the visiting public from all wildland and prescribed fire activities while continuing to provide a quality visitor experience.
- Protect National Register properties (i.e., 1750 acres), structures on the List of Classified Structures (i.e., 27), features of the cultural landscape, and park assets from unwanted fire.
- Protect values at rick such as threatened and endangered species (i.e., gray bats and Missouri bladderpod), by avoiding or mitigating significantly adverse impacts, from wildland fire, prescribed fire, and suppression activities.
- Follow the Endangered Species Act requirements for all listed species.

Ecological Goals

- Use prescribed fire and fuel management projects to increase the distribution and abundance of Missouri bladderpod.
- Use prescribed fire and fuel management projects to maintain the ecological integrity of habitat and improve glade habitat in resource preservation zones.
- Use prescribed fire and fuel management projects to reduce invasive plant species distribution and abundance and mitigate significant increases in invasive plant species due to wildland fire, prescribed fire, and suppression activities.
- Increase public awareness of the role of fire in natural processes and the use of fire in the restoration of natural habitat and rehabilitation of the cultural landscape through interpretive programs during the prescribed fire season.
- Use prescribed fire to restore savanna, tallgrass prairie, glades, and open woodland community types.

Cultural Resource Goals

- Use prescribed fire and fuel management projects to manage natural resources in support of the rehabilitation and interpretation of the historic cultural landscape.
- When using prescribed fire and fuel management projects, use the best available scientific information and technology to support, monitor, and adaptively manage for the benefit of natural resources and the cultural landscape.
- Deploy prescribed fire to reduce tree encroachment in the cultural landscape.

2.2 Objectives

- Firefighter and public safety are first and foremost the most important goal of the OZAR's fire program. Suppression strategies and tactics will be developed with public and firefighter safety in mind. Prescribed fire burn plans will incorporate firefighter and public safety within the framework of the plans.

- Prevent Eastern redcedar (*Juniperus virginiana*) from establishing in grassland monitoring sites. On glades, maintain tree canopy cover < 51%, but Eastern redcedar should remain less than 10% of the canopy. In upland woodland monitoring sites, reduce Eastern redcedar below five stems/ha (2020 level). Reduce Eastern redcedar in the viewshed below 2023 levels by 50%.

- Use prescribed fire to aid the rehabilitation of glade areas to promote habitat for the federally threatened Missouri bladderpod (*Physaria filiformis*). Maintain populations within monitored range (2007-2023) or greater for each population.

- Utilize prescribed fire in the implementation of viewshed opening and maintenance. Specific recommendations are listed in the Cultural Landscape Report EA (Commonwealth Heritage Group and L. Sargent 2018) and in Riebold et.al. (2020). Use prescribed fire and cutting to thin the canopy cover of upland deciduous woodland and bottomland deciduous forest. Reduce woodland canopy cover in the uplands to reflect open woodland structure (average canopy cover of 61% (range 38- 86%) in lowland forest reduce canopy to at most 83% (±1 std)) (Hanberry et al. 2014)

- In prairie and glade habitats enhance native species. Maintain average number native grassland species at >35 native species in long-term monitoring sites. Reduce woody

plant species to average cover of 5-8% based on monitoring data from vegetation monitoring sites (Leis 2022).

- Reduce cover of nonnative species such as sericea lespedeza (*Lespedeza cuneata*). Sericea lespedeza ranged from a maximum of 47.7% in 2008 to a low of 8% in 2020 (Leis 2022).
- Reduce grassland fuel loads by >75% of pre-burn levels in grassland and in upland oak-hickory woodlands maintain fuel loads below 15 tons/ha through prescribed burns.

3.0 WILDLAND FIRE OPERATIONAL GUIDANCE

3.1 Management of Wildfires

All wildland fire, regardless of cause, will be suppressed using a full suppression strategy. It is anticipated that local fire departments will continue to cooperate in this effort. Suppression operations are simplified by the number of roads and trails allowing good access to all portions of the unit. With the increase in residential construction close to the boundary, there is a corresponding increase in the potential of fires impacting urban areas. Due to the small size of WICR and the proximity of urban development, use of unplanned wildland fires to achieve resource management objectives will not be implemented.

3.1.1 Wildfire Response Planning

Expected Fire Behavior

Critical fire behavior variables, such as flame length, rate of spread, and fireline intensity may be estimated using the BEHAVE computer software and Scott & Burgan's fuel model GR8 (Heavy, coarse, continuous grass 3 to 5 feet tall. Spread rate very high; flame length very high) as the predominant fuel.

The flame height in GR8 is expected to be between 1 and 13.9 feet. However, the fuel models surrounding the FM GR8 are FM TL3 (Moderate load conifer litter. Spread rate very low; flame length low), TL6 (Moderate load, less compact. Spread rate moderate; flame length low), and GR3 (Moderate grass/shrub load, average grass/shrub depth less than 2 feet. Spread rate high; flame length moderate) which have significantly lower flame heights. There is no FM GR8 outside WICR's boundary. FM GR3 is the primary fuel surrounding the park. FM GR3 around WICR and structures in the park consists of manicured lawns or grazed pastures with less than two inches of grass and little to no residual cured grass. Therefore, BEHAVE over predicts the expected flame length and rates of spread in FM GR3. The Adequate Holding Resources Worksheet reflects the ability of resources to contain a fire in Fuel Model TL3, TL6, and GR3.

Rate of spread is expected to be between 0.5 and 61.6 chains per hour (fuel model GR8), 0.1 and 3.4 chains per hour (fuel model TL3), 0.4 and 17.3 chains per hour (fuel model TL6), and .2 and 35.8 chains per hour (fuel model GR3).

Extreme conditions in fuel model GR8, the rate of spread of a running fire can reach 267 ch/hr with flame lengths up to 33 feet. Fuel model GR3 may produce flame lengths up to 8 feet and rate of spread up to 73 ch/hr. Fuel model TL6 may produce flame lengths up to 6 feet and rate of spread up to 35 ch/hr.

Initial Response Procedures

Initial response to wildfires will keep firefighter and public safety as top priority.

A suppression strategy will be implemented on every fire in the park. Strategies and tactics will be commensurate with firefighter and public safety and values to be protected. Numerous roads and trails along with natural barriers allow for many opportunities to stop fire spread.

For purposes of initial attack, the first qualified IC on scene will assume the duties of initial attack IC. The initial attack IC will assume the duties and responsibilities for all suppression efforts on the incident up to his/her level of qualification until relieved by an IC qualified at a level commensurate with incident complexity. As an incident escalates and de-escalates, a continuing reassessment of complexity should be completed to validate the current command organization or identify the need for a different level of incident management. An IC is expected to establish the appropriate organizational structure for each incident and manage the incident based on his/her qualifications, incident complexity, and span of control. If the incident complexity exceeds the qualifications of the current IC, the IC must continue to manage the incident within IC's capability and span of control until replaced.

Transition to Extended Response

If a wildfire cannot be contained in the first 24 hours, the fire may transition to extended attack. At that time, the park will use a decision support process to guide and document wildfire management decisions. Incidents on NPS lands must use the current decision support process (e.g., Wildland Fire Decision Support System, WFDSS) to publish a decision. For decision requirements see Chapter 11 in the *Interagency Standards for Fire and Fire Aviation Operations*. The process will provide situational assessment, analyze hazards and risk, define implementation actions, and document decisions and rationale for those decisions. When complexity levels exceed initial attack capabilities, the appropriate Incident Command System (ICS) positions should be added commensurate with the complexity of the incident. The Wildland Fire Risk and Complexity Analysis, PMS 236 assists the manager in determining the appropriate management structure to provide for safe and efficient fire suppression operations. Refer to Chapters 3 and 11 of the *Interagency Standards for Fire and Fire Aviation Operations* for further guidance.

If a fire transitions from initial attack to extended attack, a complexity analysis will be completed to determine the level of command. A Delegation of Authority will be developed and signed by the Incident Commander (IC) and the Agency Administrator (Park Superintendent). Resources will be ordered through Rolla Dispatch.

Minimum Impact Strategy and Tactics (MIST)

When managing wildland fire, utilization of Minimum Impact Strategy and Tactics (MIST) as described in Exhibit 1 of RM - 18, Managing Wildland Fire, Chapter 2 is the policy of the National Park Service.

Fire management requires the fire manager and firefighter to select management tactics commensurate with the fire's existing or potential behavior while causing the least possible impact on the resource being protected. The term used to describe these tactics is *Minimum Impact Strategy and Tactics*, commonly called MIST. Simply put, MIST is a "do least damage" philosophy.

MIST is not intended to represent a separate or distinct classification of firefighting tactics but rather a framework for identifying ways to manage a wildfire while minimizing the long-term effects of the management action. MIST is the concept of

using the minimum tool to accomplish the task safely and effectively. MIST should be considered for application on all fires in all types of land management areas.

While MIST emphasizes managing wildfire with the least impact to the land, actual fire conditions and good judgment will dictate the actions taken. Consider what is necessary to halt fire spread and containment within the fire line or designated perimeter boundary while safely managing the incident. Use of MIST must not compromise firefighter safety or the effectiveness of management efforts. Safety zones and escape routes must continue to be a factor in determining fire line location.

Effective minimum impact fire management techniques originate with instructions that are understandable, stated in measurable terms, and communicated both orally and in writing. Once the techniques have been implemented, on-the-ground monitoring helps ensure that minimum impact objectives are being met. Evaluating the tactics both during and after implementation furthers the understanding and achievement of good land stewardship during fire management activities.

NPS Reference Manual #18 (RM-18) states that: "Methods used to suppress wildland fires should minimize impacts of the suppression action and the fire, commensurate with effective control and resource values to be protected."

Fire managers and firefighters select tactics that have minimal impact on values-at-risk. These values are identified in approved land or resource management plans. Standards and guidelines are then tied to implementation practices that result from approved fire management plans. In implementing MIST, follow these recommendations:

- Every effort should be made to use natural and existing man-made control lines, rather than new lines, to minimize bare soil and erosion potential.
- Emphasize firefighter and public safety (safety cannot be compromised)
- Evaluate management tactics during planning and strategy sessions to ensure they meet agency administrator objectives and MIST. Include the agency resource advisor and/or designated representative.
- Communicate MIST where applicable during briefings and implement during all phases of operations.

3.1.2 Wildland Fire Decision Support System (WFDSS)

The Wildland Fire Decision Support System (WFDSS) will be used to document the management objectives and strategies if a wildfire escapes initial attack or exceeds initial attack response. Current direction on WFDSS pertaining to the NPS can be found in the Interagency Standards for Fire and Fire Aviation Operations (Red Book) in Chapters 3 and 11. Based on the size of the park as well as surrounding ownership and land use, it is unlikely that unplanned fires will require a published Incident Decision.

Management Requirements (M.R.) and Strategic Objectives (S.O.)
Management Requirements and Strategic Objectives are derived from land and resource management plans, as well as related compliance documents, and provide the framework, and limitations/challenges for wildfire response. M.R. and S.O. provide the foundation of the WFDSS decision. To publish an Incident Decision in

WFDSS, applicable fire related protection and resource management objectives and requirements must be incorporated pre-season into WFDSS. NPS recommends pre-loading M.R. and S.O. pre-season in the WFDSS Production System (Red Book, Incident Management and Response, Chapter 11).

Management Requirements

- Firefighter caution in areas of acquired property with abandoned power lines and associated transformers (potential pollution hazard and safety issue).
- No fire management operations will be initiated until all personnel involved receive a safety briefing describing known hazards and mitigating actions, current fire season conditions and current and predicted fire weather and behavior.
- Avoid adverse effects on caves containing bat populations.
- Maintain Class II air quality.
- Bulldozers and other tracked vehicles will not be used without approval of the superintendent.
- Archeological sites will be identified prior to a fire and protected wherever possible. Minimize ground disturbance to protect cultural resources. No soil disturbance permitted at or near known cultural resource sites. Site locations for archeological resources are federally protected under the Archeological Resources Protection Act and must be maintained on secure servers and not released to the public.
- All park closures will be at the discretion of the superintendent.
- Avoid adverse effects on T&E species.
- Fire management operations will be carried out by qualified individuals that promote the safe and skillful application of fire management strategies and techniques.
- No retardant use within 300 feet of open water.
- Utilize MIST on all fire suppression activities.
- Protect historic and park structures from fire.
- Avoid use of retardant or foam in riparian areas

Strategic Objectives

- All unwanted wildland fires receive a prompt, safe, and cost-effective suppression response causing the least possible resource damage.
- Minimize losses of structures and property during fire events.
- Utilize suppression-oriented actions to reduce risk from fire to specially identified resources, private lands, developed areas and infrastructure.

3.2 Fuels Treatments

Prescribed fire will be utilized to manage natural resources in support of the rehabilitation of and interpretation of the historic cultural landscape. Prescribed fire will also be used to manage vegetation to produce healthier habitats and increase rare species populations. Using both mechanical means and prescribed fire as fuel management can reduce the risk to the historic structures and the NPS infrastructure on the unit as well as adjacent to park lands.

Fuels Management Goals and Objectives

- Use prescribed fire to manage vegetation near historic vistas in former battlefield areas.

- Utilize clearing and thinning operations to reduce fuels loads, open viewsheds, and return the woodlands to their approximate composition and structure during 1861.
- Rehabilitate and preserve oak savanna, prairie, and glade habitats, and enhance native species.
- Protect and enhance threatened and endangered species habitat, specifically Missouri bladderpod.
- Reduce distribution and abundance of problematic native invasive and non-native plant species such as eastern red cedar and sericea lespedeza.
- Protect core areas dominated by native plant communities and support expansion of native plant communities where feasible.
- Maximize the size of prescribed fire units and attempt to apply prescribed fire in designated areas as often as fuel loads and/or park resources allow.

General Fuels Management Implementation Procedures
Activities proposed in the Fire Management Plan will be planned and implemented in accordance with RM 18, Fuels Management Chapter 7, the NWCG Standards for Prescribed Fire Planning and Implementation, and the Red book, Fuels Management, Chapter 17.

Multi-year Fuels Treatment Plan
The NPS Fuels Management Program will use the Bureau approved system for submitting proposed projects for approval, tracking accomplishments of the program, reporting performance, and measuring. A three year Planned Program of Work (PPOW) can be found in that system. The Active Management (Fuels) v2.0 | Wildland Fire Risk Assessments displays Fuels Treatments accomplished by the National Park Service's Wildland Fire Management program. Additional information can be found in RM-18, Fuels Management Chapter 7, the Interagency Prescribed Fire Implementation Guide, and the Red Book, Fuels Management, Chapter 17.

The current burn units are depicted below.

Non-Fire Fuel Treatments
Non-fire treatments include manual and mechanical thinning in forests, mowing of grasslands, and use of herbicide. Specifically:

- Mow grass units to control woody encroachment and invasive plant species.
- Cut and pile eastern redcedar growing on glades. Piles should be placed strategically to avoid damaging glade soils.

Defensible Space
The NPS has adopted the International Code Council's (ICC's) International Urban-Wildland Interface Code (2006; revised 2018) through the parameters described in Executive Order Wildland-Urban Interface Federal Risk Mitigation (May 18, 2016). Contained in the ICC's code (sections 603 and 604) are descriptions of defensible space and maintenance requirements for urban wildland interface areas. Maintenance of defensible space includes modifying or removing flammable vegetation and keeping needles, leaves, and other dead vegetative material regularly removed from around structures and roofs. See RM - 18, Fuels Management, Chapter 7 for additional information.

Structure protection efforts are ongoing through mowing, prescribed fire and non-fire treatments. Current information on NPS Structure Protection needs can be found at NPS

Wildland Fire Risk Assessment (WFRA) https://wildfire-risk-assessments-nifc.hub.arcgis.com/.

3.3 Preparedness

The Annual Delegation of Authority, Inter-Park Agreement, Cooperative and Interagency Agreements, Fire Danger Operating Plan, Step-up Plan /Staffing Plan, and Initial Response Plan are found in the Appendix section of this FMP. Reference Red Book, Preparedness, Chapter 10 for preparedness planning requirements.

Preparedness Activities
Fire preparedness is the state of being ready to respond to wildfires based on identified objectives and is the result of activities that are planned and implemented prior to fire ignitions. Preparedness requires:

- Identifying necessary firefighting capabilities.
- Implementing coordinated programs to develop those capabilities.
- A continuous process of developing and maintaining firefighting infrastructure.
- Predicting fire activity.
- Implementing prevention activities.
- Identifying values to be protected.
- Hiring, training, equipping, pre-positioning, and deploying firefighters and equipment.
- Evaluating performance.
- Correcting deficiencies.
- Improving operations.

Preparedness activities should focus on developing interagency response capabilities that will result in safe, effective, and efficient fire operations aligned with risk-based fire management decisions.

Coordination and Dispatching
The Missouri-Iowa Interagency Coordination Center is managed by the Mark Twain National Forest and can be contacted for assistance at any time circumstances dictate. This contact will bring any resources necessary to the assistance of WICR. The center is in Rolla, MO and can be reached at (573) 341-7484.

Duty Officer
The Zone FMO, or designee, is responsible for ensuring duty officer (DO) coverage. DO's responsibilities may be performed by any individual with a signed delegation of authority from the local AADM. The DO may be in a location remote from the park but will be familiar with local incident response procedures, agreements, and resources. The required duties for all DOs are:

- Monitor unit incident activities for compliance with NPS safety policies.
- Coordinate and set priorities for unit suppression actions and resource allocation.
- Keep AADMs, suppression resources, and information officers informed of the current and expected situation.
- Plan for and implement actions required for future needs.
- Document all decisions and actions.

DOs will provide operational oversight of these requirements as well as any specific duties assigned by fire managers through the fire operating plan. DOs will not fill any Incident Command System (ICS) functions connected to any incident. If the DO is required to accept an incident assignment, the FMO will ensure that another authorized DO is in place prior to the departure of the outgoing DO.

The Fire Coordinator will contact the Zone DO. The DO will provide coordination of resources and ensure qualified personnel are assigned.

Prevention
Though WICR does not meet the necessary criteria for a formal fire prevention plan, the park has publications available for the public to support fire mitigation and prevention. Reference Section 1.6 Communication & Education, subsections Fire Information and Education/Outreach.

Safety Program / Plan
The Park Safety Plan is located at Park Headquarters.

The WICR Superintendent or Visitor and Resource Protection Chief Ranger will use the Leadership Notification Tool and assess further needs as situations dictate.


Leadership Notification Tool Me


LOHL_Final_8-21-2013_508.pdf

Job Hazard Analysis
Wildland Fire JHA's have been developed and are included in Prescribed Fire Burn Plans. These are reviewed and updated annually and can be found electronically on the Big Spring Fire Cache server.

3.4 Post-Fire Programs and Response

In the unlikely event that a wildfire at WICR results in the need for utilization of the Burned Area Emergency Response (BAER) program, contact the regional BAER coordinator. RM 18, Post Wildfire Programs Chapter 18 (2019) and the Red Book, Incident Management and Response Chapter 11 (2021) provide direction on current processes and timeframes. After the fire is declared out, all flagging, litter and trash associated with the suppression operations will be removed. Fire lines will be rehabbed, and erosion control devices installed as necessary. Brush will be scattered, and stumps will be flush cut and covered with soil.

The park unit is responsible for taking prompt action after a wildfire to minimize threats to life or property, and to prevent unacceptable degradation to natural and cultural resources. Damages resulting from wildfires are addressed through four activities:

Suppression Repair: The intent is to repair suppression damages and is the responsibility of the Incident Commander. This activity is paid for from wildfire suppression funding.

Emergency Stabilization: The intent is to protect life and property and critical resource values and is the responsibility of the Superintendent. This activity is paid for from Emergency Stabilization (ES) funding.

Rehabilitation: The intent is to repair wildfire damaged lands that are unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by wildfire. This activity is paid for from Burned Area Rehabilitation (BAR) funds.

Restoration: The intent is to continue the rehabilitation efforts started in the BAR process beyond the time limitation set by the department. This activity is paid for from regular program funds.

3.5 Air Quality/Smoke Management

Air quality will take on more importance at WICR in upcoming years. A population boom in the greater Springfield area, particularly in the suburban outlying areas, has been occurring the last 15 years. Smoke management in the park will become more difficult as the urban sprawl along the boundary of the park continues.

A smoke management plan may be developed in the future. If or when it is developed, it will be included in this plan.

3.5.1 Air Quality Issues

In the state of Missouri, prescribed fire is considered agricultural burning. The area is classified as a Class II airshed. Missouri Department of Natural Resources Air Quality regulations have specific stipulations for the Springfield and Greene County area. Within Greene County, burn permits are required, but they are not in Christian County. Smoke generated by prescribed fire in the Christian County area of the park will likely impact Green County.

3.5.2 Smoke Management Activities

The proximity of the towns of Republic, Nixa, Ozark, Battlefield, Billings, Clever, and Springfield, along with multiple smoke sensitive receptors such as schools, airports, hospitals and high-volume road systems, limit managers to burning only during good smoke dispersion days. Burning small units and adjusting ignition patterns in conjunction with frequent monitoring of smoke production are all approved methods of managing smoke. To manage smoke productions, ignition will be completed early enough in the burn period that residual smoke can mix with high level winds and be carried out of the area before nightfall. Residual smoke may settle in at eye or surface level and cause problems for sensitive receptors, so it is important to identify wind patterns capable of dispersing the smoke.

3.6 Data and Records Management

Planned project shapefiles will be entered in Treatment Inspector. Once treatments are completed, the completed projects' shapefiles will also be entered in Treatment Inspector. Those projects will be reported through the Inform system.

The FMO and/or AFMO will enter training and experience in IQCS. Individual responders will submit experience records annually and red cards will be printed yearly for each responder.

4.0 PROGRAM MONITORING AND EVALUATION

4.1 Monitoring

Monitoring of prescribed fires is intended to provide information for quantifying and predicting fire behavior and its ecological effects on the park resources while building a

historical record. Monitoring measures the parameters common to all fires, fuels, topography, weather, and fire behavior. The complete program is detailed in Appendix E. The FMP identifies general fire management goals and objectives for the park. Addressing if, and how well, the management application of fire is meeting defined resource management objectives is addressed by the Fire Monitoring Plan.

1. **Short-term monitoring**
   The definition of short-term monitoring as used in this park is monitoring done to measure fire effects on vegetation, fuel reduction and other measurable changes occurring immediately following fire application.

2. **Long-term Monitoring**
   Long-term monitoring at Wilson's Creek National Battlefield is defined as that level of effort required to track changes in vegetative composition occurring over a multi-year period.

The prescribed fire burn boss will ensure that qualified personnel are assigned to monitor prescribed fires. The most efficient utilization of personnel for fires of low complexity will utilize individuals with multiple qualifications when possible (ignition, holding, and monitoring). An efficient and flexible monitoring program uses appropriate tactics and assesses the potential ability to characterize and quantify the resulting effects. This is to determine if the fire is within prescription and is meeting identified resource goals and objectives.

Fire weather and fire behavior will be monitored on all prescribed fires. Operational monitoring provides a check to ensure that the fire remains in prescription and serves as a basis for evaluation and comparison of management actions.

The Heartland Inventory and Monitoring Network (HTLN) monitors both terrestrial and aquatic natural resources at the park. Plant communities, breeding birds and habitat, and non-native plants are monitored every four years (Leis et al. 2022, Peitz et al. 2008, Young et al. 2007). Missouri bladderpod is monitored annually (Young et al. 2007). Aquatic resources are also monitored on a rotating basis. Missouri bladderpod (*Physaria filiformis*) is monitored on glades in the park annually (Young et.al. 2007). Reports are provided to the park and published in the IRMA portal. In addition, ecological changes such as species composition and vegetation structure are currently monitored on a regular four-year rotation. Plant communities are monitored at four sites in Manley Woods and six to eight prairie sites. The vegetation monitoring protocol is available here (Leis et.al. 2022). The long-term monitoring information has been very useful in adjusting the prescribed fire program to better meet short and long-term resource objectives.

As time and funding allows, additional vegetative response monitoring may be monitored using the Fire Monitoring Handbook (FMH) as established by the NPS. An adaptive monitoring approach will be used. Monitoring may consist of sampling permanent vegetation plots. In these plots some or all the following protocols may be used but are not limited to: overstory and pole-size tree measurements, seedling response; fuel loading; dead and down fuels, litter, and duff measurements; replicated photos; herbaceous lines; and nested frequencies. These plots will be sampled on an established rotation based on prescribed fire entry.

The state Natural Heritage Biologist assigned to the region regularly monitors state species of concern at the park. These species range from plants to animals, as well as an insect. Some of these species require glade and grassland management including the application of fire as described previously in this plan. At least one species is cave dwelling and will not be affected by prescribed fire.

Species of state concern at Wilson's Creek National Battlefield tracked by the Missouri Natural Heritage Program. (Missouri Natural Heritage Program 2023.)

Scientific Name	Common Name	State Rank[1]
Thelesperma filifolium	stiff greenthread	S2
Portulaca pilosa	kiss me quick	S3
Calephelis muticum	swamp metalmark	S3
Eurycea spelaea	grotto salamander	S2/S3
Haliaeetus leucocephalus	Bald eagle	S3
Taxidea taxus	American badger	S3

[1] *State ranks: S1-critically imperiled, S2-Imperiled, S3-Vulnerable, S4-apparently secure, S5-secure.*

4.2 Research

Fire research describing likely effects of climate change on xeric oak woodland and tallgrass prairie communities will assist managers to implement conservation and restoration techniques. Research describing effects of the pest emerald ash borer (*Agrilus planipennis)* over short and long time periods for midwestern woodlands will provide insight as to how the forests may change and what management actions are needed to maintain healthy woodlands. Fire research that can provide specific guidance around burning in areas with caves would be helpful. Additional research into fire seasonality and the effects on Missouri bladderpod would be helpful.

4.3 Climate Change

Climate patterns for southwestern Missouri tend to be variable in nature obscuring long-term patterns. However, Greene County Missouri has entered a period of increased warming. Increased temperatures are resulting from warmer low temperatures, especially in the winter months (Monahan et.al. 2016). The number of days with large precipitation events have also begun to increase (US Federal Government 2016). Furthermore, phenology is shifting to earlier first leaf date and first bloom dates that are much earlier than in the past (Monahan et al. 2016). See also Leis 2022 for a summary. Increased growing days will favor undesirable species such as eastern redcedar and woody invaders in the prairies. Grassland and xeric oak-hickory woodlands characteristic of the park have adaptations for periodic drought conditions, but it is not well understood how climate change will affect these plant communities.

Park specific data on historical and projected climate change trends has been completed by the National Park Service's Climate Change Response Program for WICR.

4.4 Evaluations, Reviews and Updates

Fire Program Review

The fire and aviation program reviews provide comprehensive program management and operational evaluations. Involvement of line management and cooperators, where applicable, is critical. The objectives of these park fire program reviews are as follows:

- Ensure consistency with current planning and program analysis, budget allocations, and acceptable administrative procedures.
- Ensure operations are conducted in compliance with Departmental, NPS, and interagency regulations and policies.
- Compile consistent and complete information to improve or refine the park's fire and fire aviation management program.
- Produce a written report that contains an executive summary, along with findings, recommendations, and action plans, in the areas of program management, operations, fuels management, fiscal management, health and safety, facilities, and fire aviation management.

All reviews will be conducted as constructive critiques aimed at determining the facts related to the specific program. They will identify commendable actions, techniques, and decisions, as well as areas needing improvement. A written report will be developed by the review team and forwarded to the park superintendent by the regional director.

Wildland Fire Incident Review
All wildland fires and fire-related incidents will be reviewed in accordance with RM - 18, Evaluations, Reviews and Investigations, Chapter 16 and the Redbook, Reviews and Investigations Chapter 18.

REQUIRED ANNUAL REGIONAL FMP REVIEW PROCESS
Follow the Fire Management Plan Regional Review Process outlined in Reference Manual 18, Fire Management Plans, Chapter 4 (2023), Sections 3.0 and 3.1.

This FMP and its appendices will be reviewed annually and regionally following MWR specific deadlines that align with RM - 18, Chapter 4 and replaced with current signed documents. Electronic copies of the FMP and required appendices with current ink or certified electronic signatures are uploaded to the Wildland Fire A123 SharePoint in addition to the MWR Fire Planning SharePoint.

NWCG GLOSSARY

REFERENCES CITED

Commonwealth Heritage Group (contractor) and L. Sargent. 2018. Wilson's Creek National Battlefield: Environmental Assessment and Implementation of Cultural Landscape Report Treatment Recommendations. Cultural Landscape Report. U.S. Department of the Interior, National Park Service. Omaha, Nebraska. Report

Gremaud, G. 1986. Wilson's Creek National Battlefield: A plan for restoration of the historic vegetation. Missouri Department of Conservation. CA-6000-5-8020.

Hanberry,B. B. D. T. Jones-Farrand, J. M. Kabrick. 2014. Historical open forest ecosystems in the Missouri Ozarks: reconstruction and restoration targets. *Ecological Restoration* Dec 2014, 32:407-416. https://doi.org/10.3368/er.32.4.407

Kull, K.A., C. C. Young, J. L. Haack-Gaynor, L. W. Morrison, M. D. DeBacker. 2022. Problematic plant monitoring protocol for the Heartland Inventory and Monitoring Network: Narrative, version 2.0. Natural Resource Report. NPS/HTLN/NRR—2022/2376. National Park Service. Fort Collins, Colorado. https://doi.org/10.36967/nrr-229

Leis, S. A. 2022. Vegetation community monitoring trends in restored tallgrass prairie at Wilson's Creek National Battlefield: 2008–2020. Natural Resource Report NPS/HTLN/NRR—2022/2368. National Park Service, Fort Collins, Colorado. https://doi.org/10.36967/nrr-2293117.

Missouri Natural Heritage Program. 2023. Missouri species and communities of conservation concern checklist. Missouri Department of Conservation. Jefferson City, Missouri. pp. 56.

Monahan, W. B., A. Rosemartin, K. L. Gerst, N. A. Fisichelli, T. Ault, M. D. Schwartz, J. E. Gross, and J. F. Weltzin. 2016. Climate change is advancing spring onset across the U.S. national park system. Ecosphere 7(10):e01465. 10.1002/ ecs2.1465.

Peitz, D. G., G. A. Rowell, J. L. Haack, K. M. James, L. W. Morrison, M. D. DeBacker. 2008. Breeding Bird Monitoring Protocol for the Heartland Network Inventory and Monitoring Program. Natural Resource Report. NPS/HTLN/NRR—2008/044. National Park Service. Fort Collins, Colorado.

Leis, S.A., L. W. Morrison, J. L. Haack, M. S. Gaetani. 2011. Fire Ecology Monitoring Protocol for the Heartland Inventory and Monitoring Network. Natural Resource Report. NPS/HTLN/NRR—2011/294. National Park Service, Natural Resource Program Center. Fort Collins, Colorado.

Leis, S. A., M. D. DeBacker, L. W. Morrison, G. A. Rowell, and J. L. Haack. 2022. Vegetation community monitoring protocol for the Heartland Inventory and Monitoring Network: Narrative, Version 4.0. Natural Resource Report. NPS/HTLN/NRR—2022/2477. National Park Service. Fort Collins, Colorado. https://doi.org/10.36967/2294948

Reibold, N.S., D. G. Peitz, M. F. Short. 2020. Tree survey of Historical Viewshed Area at Wilson's Creek National Battlefield, Missouri, 2020 Report.

U.S. Federal Government. 2016: The climax explorer. U.S. Climate Resilience Toolkit. Available at https://crt-climate-explorer.nemac.org/ local-climate-charts/?county=Greene%20 County&city=Greene%20County%2C%20 MO&fips=29077&lat=37.33&lon=- 93.5&zoom=7&id=tmax&nav=local-

Young, C.C., M.I. Kelrick, L.W. Morrison, M.D. DeBacker, J.L. Haack, and G.A. Rowell. 2007. Missouri Bladderpod Monitoring Protocol for Wilson's Creek National Battlefield. Natural Resource Report NPS/MWR/HTLN/NRR—2008/043. National Park Service, Fort Collins, Color

Scott, Joe H.; Burgan, Robert E. 2005. Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model.

REQUIRED APPENDICES

A. Annual Delegation of Authority
B. Inter-Park Agreement (where applicable)
C. Cooperative and Interagency Agreements
D. Preparedness Planning Documents
   1. Fire Danger Operating Plan (FDOP)
   2. Preparedness Level Plan
   3. Step-up Plan/Staffing Plan
   4. Initial Response Plan
E. Fire Monitoring Plan
F. Maps

Appendix A. Annual Delegation of Authority

2024 Delegation of Authority
Superintendent, Wilson's Creek National Battlefield
To
Fire Management Officer, Missouri-Iowa Parks Fire Management Zone

The Missouri-Iowa Parks Fire Management Zone Fire Management Officer (FMO), is hereby delegated authority to act on behalf of the Park Superintendent for the following duties and actions related to wildland fire management and fuels management activities in the following areas:

1. Ensure all wildland fire incidents and fuels management projects are managed in a safe, environmentally responsible, and cost-effective manner, commensurate with values to be protected.
2. Ensure Fire Management/ Fuel Treatment activities are initiated and implemented within National Park Service (NPS) policy directives and guidelines.
3. Assure that only fully qualified personnel are used in wildland fire and prescribed fire operations.
4. Initiate and certify wildland fire position taskbooks and approve lnteragency Incident Qualification Cards (red cards) in accordance with National Wildland Fire Qualification and Systems Guide 310-1 and additional NPS guidance identified in the current version of the "Interagency Standards for Fire and Fire Aviation Operations."
5. Assist and advise the Superintendent on all aspects of wildland fire incidents and fuels management projects.
6. Coordinate with Park Resource Staff on incidents/projects.
7. Coordinate and provide all fire and prevention information needs to inform internal and external customers with necessary information.
8. Wildland fire responses will be initiated based on approved Fire Management Plan objectives.
9. Formulate work plans and direct the implementation of non-fire fuels management activities in accordance with approved project proposals.
10. Coordinate preposition and order fire and aviation resources in response to current and anticipated fire conditions.

Prepared by: SCOTT BRESSLER Digitally signed by SCOTT BRESSLER Date: 2024.04.18 08:36:01 -05'00'
Fire Management Officer
Missouri-Iowa Parks Fire Management Zone

Approved by: SARAH CUNNINGHAM Digitally signed by SARAH CUNNINGHAM Date: 2024.04.18 09:10:26 -05'00'
Superintendent
Wilsons Creek National Battlefield

Appendix B. Inter-Park Agreement

Interpark MOU-FireMgmt.docx

Appendix C. Cooperative and Interagency Agreements

Wilson's Creek National Battlefield has two agreements with local Fire Protection Districts that cover areas in or near the park. Brookline Fire Protection District provides most of the wildland fire and structural fire support for the park. The district provides protection for 35 employees, 200,000 visitors each year, and protects approximately 1500 acres of the park, including 26 structures. Clever Fire Protection District provides wildland fire protection for approximately 250 acres of the park, and protects an urban interface that is one of the fastest growing in the State of Missouri. Both districts provide support to a wildland urban interface.

2022 - Clever Signed Fire Management Agreement.pdf

2022 Brookline Signed Fire Management Agreement.pdf

Appendix D. Preparedness Planning Documents

1. Fire Danger Operating Plan

   MONFDRS2021_FDOP.docx

2. Preparedness Level Plan

   The Preparedness Level is a five-tier (1-5) fire danger rating decision tool that is based on NFDRS output(s) and other indicators of fire business (such as projected levels of resource commitment). Preparedness Levels will assist fire managers with more long-term (seasonal) decisions with respect to fire danger.

   MONFDRS2021Preparedness plan_2.docx

3. Step-up Plan/Staffing Plan

   Staffing Levels will be used to make daily internal fire preparedness and operational decisions. At the local level, the staffing level forms a basis for decisions regarding the "degree of readiness" for initial attack and support resources. Specific actions are defined at each staffing level. Although Staffing Level can be a direct output in WIMS, the WIMS output is only based upon weather observations and climatological percentiles. Local staffing levels are initially determined from climatological breakpoints, then adjusted based on local experience tied to an analysis of fire business.

   MONFDRS2021_StaffingPlan.docx

4. Initial Response Plan

   The MO/IA Interagency Coordination Center (Rolla Dispatch) is the initial attack dispatch for the Zone. Initial response to wildfire will be completed by local VFDs with guidance from park managers. Non-fire employees may be used as needed in support roles, to direct traffic, assist with logistics, etc.

Notification of any fire shall be made to the MO/IA Zone FMO, Duty Officer, or AFMO at Ozark National Scenic Riverways (573-996-6561). The MO/IA Zone personnel will assist with decisions, provide NPS fire support, or arrange for immediate support through Rolla Dispatch.

When a fire is reported at WICR or within a one mile adjacent to the battlefield, the park fire coordinator will contact the Missouri/Iowa Fire Management Zone Duty Officer to coordinate a response. Personnel dispatched will be qualified and equipped to undertake initial action. Upon arrival at the fire location, a report will be made of the fire size, behavior, environmental conditions, fuels, terrain features, existence of special hazards or threats to persons or improvements, and any other factors observed which could affect fire behavior and suppression efforts. This information will be recorded and reported to dispatch. The incident commander will brief all incoming resources prior to engaging. The briefing shall include at a minimum: the fire environment situation; the mission and execution; communications; and risk management. The Initial Response Pocket Guide (IRPG, NFES 1077) contains a briefing checklist which should be used to ensure all key topics are discussed. The on-scene incident commander shall remain in command of the incident through all phases of the incident from initial size–up through the de-mobilization process unless relieved by a more qualified incident commander. Any change of command will be documented and relayed to all assigned forces. Additional resources are ordered through the Rolla Dispatch.

Typical fire response times from local cooperators is 15-30 minutes. NPS firefighters at the park are limited in number and qualifications. Zone Fire Staff from Ozark NSR can respond with firefighters, equipment, and command staff in about 3 hours.

The initial response plan is part of Appendix D – Preparedness Documents Red Book, Preparedness, Chapter 10. Current Initial Response direction is located in RM - 18, Managing Wildfire, Chapter 2 and Red Book, Incident Management and Response, Chapter 11 .

Staffing Class	Minimum Staffing	Optimum Staffing
SC-1	None	None
SC-2	None	None
SC-3	Coordinate with VFD or Interagency partners for fire response.	ICT5, and fire UTV w/water 1-ENGB and 1-FFT2.
SC-4	ICT5/ Fully staffed Type 6 engine.	ICT4, with fully staffed Type 6 engine.
SC-5	ICT4, with fully staffed Type 6 engine.	ICT4, with fully staffed Type 6 engine, and UTV w/water 1 ENGB and 1 FFT2

Table 2. Staffing classes for Wilson's Creek National Battlefield.

Staffing Class Fuel Model Y	Step-Up Plan Actions
I - Low BI 0-8 ERC 0-10	No additional step-up actions necessary. Park to continue normal operations.
II - Medium BI 9-17 ERC 11-19	Visitor Center to display medium fire danger. No step-up actions necessary. Park to continue normal operations
II - High BI 18-23 ERC 20-26	Visitor Center to display high fire danger. Park fire coordinator to coordinate with VFDs for fire response. Coordinate with Zone FMO/Duty Officer to initiate Step-up actions if necessary.
IV – Very High BI 24-28 ERC 27-31	Visitor Center to let park visitors know of the Very High fire danger to mitigate unplanned ignitions. Fire coordinator to consult with Zone FMO/Duty Officer on resource needs and coordinate with VFD and Interagency partners for fire response. The Zone FMO/Duty Officer will contact the Regional Duty Officer to coordinate Step up or Severity request and additional resource needs.
V - Extreme BI 28+ ERC 32+	Visitor Center to let park visitors know of the extreme fire danger. Consider closing trails in the park to mitigate unplanned ignitions. Fire coordinator to consult with Zone FMO/Duty Officer on resource needs and coordinate with VFD and Interagency partners for fire response. The Zone FMO/Duty Officer will contact the Regional Duty Officer to coordinate Severity request and additional resource needs.

Table 3. Step-up plan for Wilson's Creek National Battlefield.

Appendix E. Fire Monitoring Plan

The long-term plant community monitoring plan can be found at the following link: **Monitoring plan.** Vegetation monitoring was designed based on two reference frames: restored tallgrass prairie and upland deciduous hardwood woodland. Sites within each reference frame were stratified by soil type, slope, and aspect. They were not deployed based on treatment units and are monitored every four years irrespective of treatments. Vegetation monitoring is deployed in a 20 x 50 m site with 10 $10m^2$ subplots within each site. Ground flora, ground cover, and tree mid- and overstory are observed for each site. Cover classes are estimated for each ground flora species and ground cover element. Tree species are tallied and DBH is measured for mid- and overstory species. Brown's fuels lines have been collected for the four forest sites to monitor hazard fuel loads (Leis et. al. 2011). Grassland fuel loads were assessed using clip plots (Leis et. al. 2011). Fire perimeters are mapped and stored in a geodatabase. (See Leis et. al. 2022, linked above, and Leis et.al. 2011 for current and historical mapping procedures, respectively.)

Additional monitoring of Missouri bladderpod (*Physaria filiformis*) occurs annually within designated glade communities within the park. See the published protocol: Missouri bladderpod monitoring. Missouri bladderpod abundance is recorded in each sampling grid cell and populations are subsequently estimated for each grid.

Invasive plant monitoring is also deployed at the park. Sample design includes monitoring every four years using a grid-based design. Abundance of target plants is estimated for the whole park irrespective of treatments. The protocol can be found here.

Appendix F. Maps

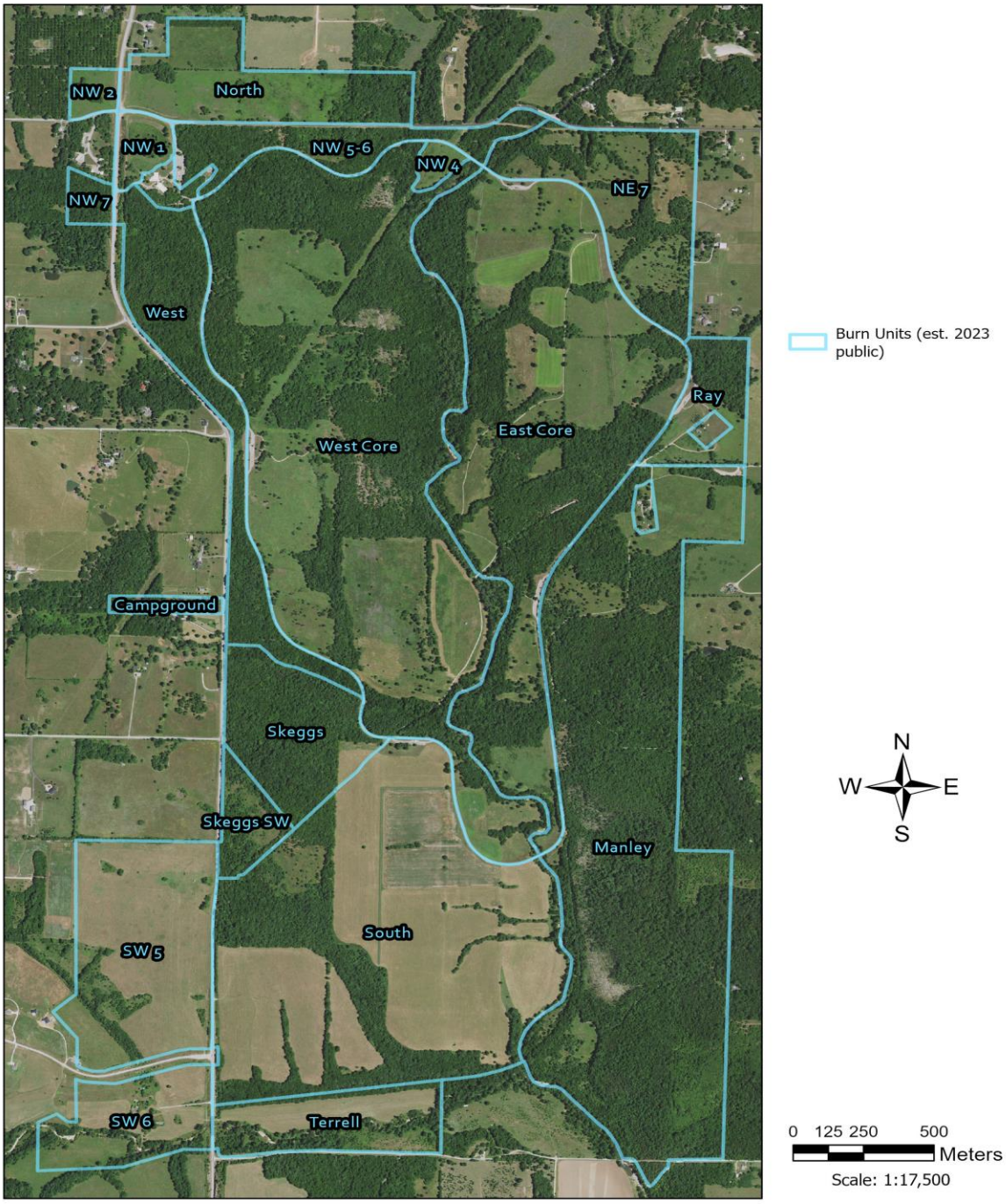

Figure 1. Burn units for Wilson's Creek National Battlefield.

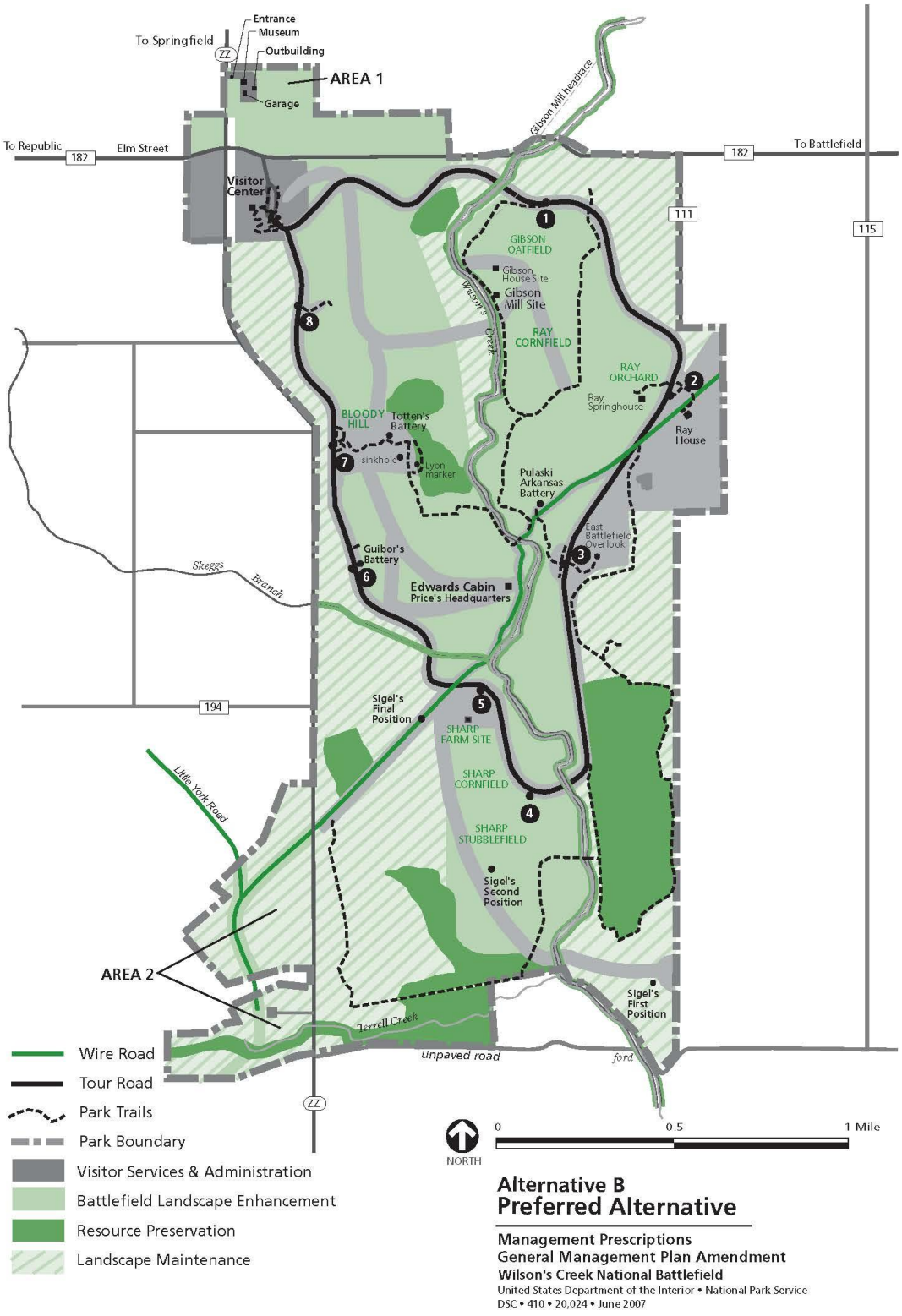

Figure 2. General Management Plan Vegetation Map at Wilson's Creek National Battlefield.