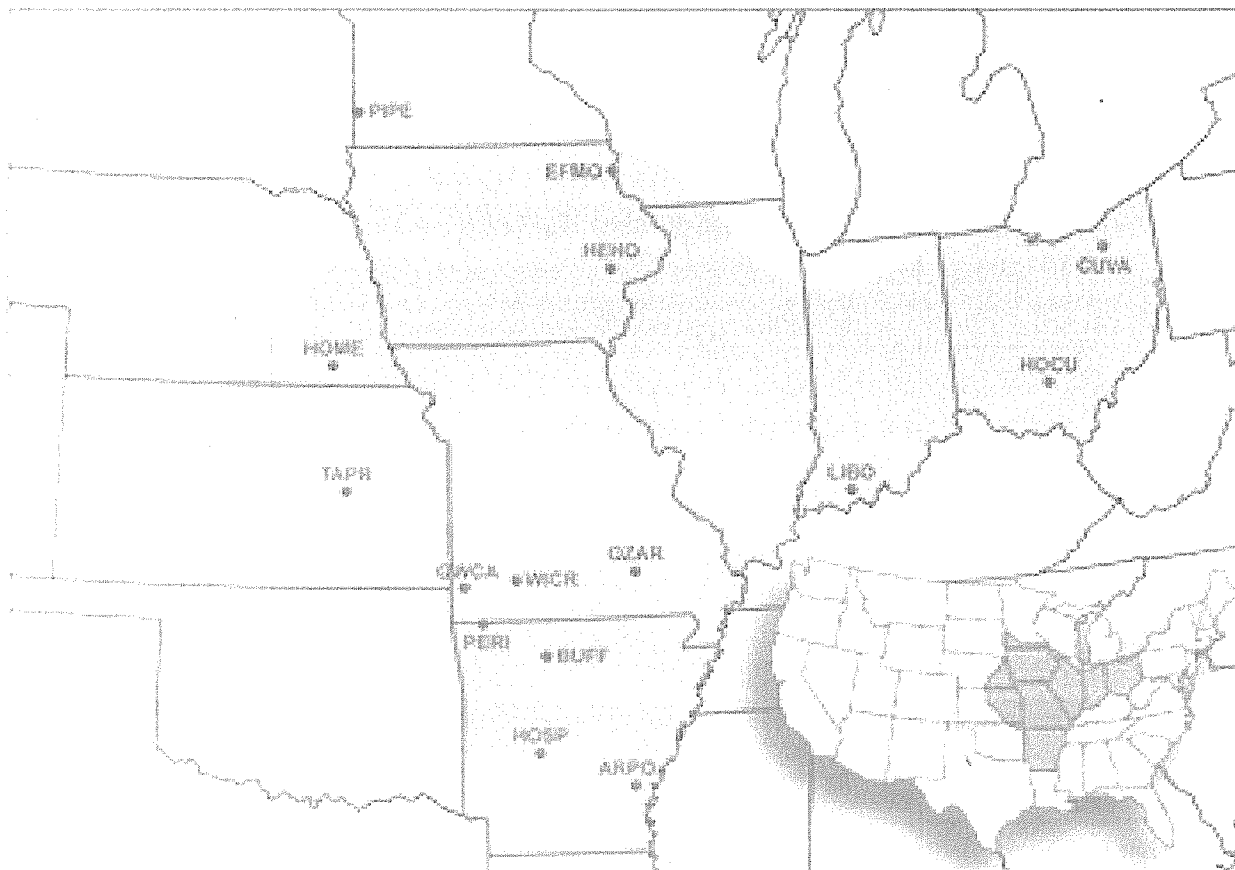




# Heartland Invasive Plant Management Plan

## *Finding of No Significant Impact*



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### ON THE COVER

The Heartland I&M Network of the National Park Service covers 15 parks and eight states in the Midwest.

## Finding of No Significant Impact

In compliance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) has prepared an Invasive Plant Management Plan (IPMP) and Environmental Assessment (EA) to examine alternatives and potential environmental impacts associated with the proposal to implement invasive plant management treatments to preserve fundamental resources and values within 15 National Park Service (NPS) units in the Midwest. Parks included in this plan are Arkansas Post National Memorial, Buffalo National River, Cuyahoga Valley National Park, Effigy Mounds National Monument, George Washington Carver National Monument, Lincoln Boyhood National Memorial, Herbert Hoover National Historic Site, Homestead National Monument of America, Hopewell Culture National Historic Park, Hot Springs National Park, Pipestone National Monument, Ozark National Scenic Riverways, Pea Ridge National Military Park, Tallgrass Prairie National Preserve, and Wilson's Creek National Battlefield. The IPMP/EA proposes potential management options for terrestrial and emergent wetland invasive plants. Implementation of these treatments would aid in the preservation or restoration of fundamental natural resources. The NPS proposes to implement these management treatments on lands managed by the NPS. While this EA is intended only for lands managed by the NPS, the NPS will seek to work cooperatively with other landholders throughout the Heartland Inventory and Monitoring Network (HTLN) area who may wish to manage their property in a manner consistent with the goal of this EA.

## Heartland Invasive Plant Management Plan

This project identifies long-term invasive plant management strategies that would reduce the impacts of or threats from invasive plants to natural and cultural resources, and provide opportunities for restoring native plant communities, and enhancing and supporting cultural landscape treatment in accordance with approved desired conditions in parks. The program would target species and locations where success is most feasible and critical resources are most threatened. Examples of threats from invasive species that exist within the parks include,

- Threats to threatened and endangered species at Pipestone National Monument (western prairie fringed orchid [*Platanthera praeclara*]) and Wilson's Creek National Battlefield (Missouri bladderpod [*Lesquerella filiformis*]).
- Threats to globally rare plant communities at Homestead National Monument of America (mesic bur oak [*Quercus macrocarpa*] forest), Pipestone National Monument (Sioux quartzite outcrop prairie), and Wilson's Creek National Battlefield (limestone glade)
- Threats to cultural landscapes at 12 parks.
- Threats to rare habitat, restored habitat, or natural areas at 13 parks.

The management strategies advance a cooperative, multi-park program for Integrated Plant Management (IPM), providing park staff with broad, adaptive options for treatment, a plan that guides park staff to select the most appropriate treatment option(s), and an Exotic Plant Management Team (EPMT) that assists with planning, funding, and implementing IPM. Integrated pest management is defined as a decision-making process that coordinates knowledge of pest (in this case, plant) biology, the environment, and available technology to prevent

unacceptable levels of pest damage, by cost-effective means, while posing the least possible risk to people and park resources. Integrated pest management can also include reducing the risk of new introductions, determining acceptable levels of infestation, use of multiple techniques for control, and continued monitoring and management.

This IPMP/EA serves as the programmatic NEPA document for invasive plant management within the 15 parks, intended to achieve program objectives:

- Attain / maintain desired conditions within parks.
- Restore sustainable communities with a sustainable program.
- Prevent unacceptable threat to resources, and support early detection and response.
- Ensure planning and compliance.
- Use best management practices (BPs).

The EA and this Finding of No Significant Impact (FONSI) constitute the record of the environmental impact analysis and decision-making for this program. The NPS will implement the Preferred Alternative, based on IPM with the best practices and mitigation measures for protection of park resources stated in the alternative. It was selected after careful review of resource and visitor impacts, consultation with other agencies, and stakeholder and public comment. Invasive plant actions analyzed in the IPMP/EA would not require further analysis under general NEPA compliance for park-specific actions, but work plans derived from this IPMP/EA would be reviewed to ensure that all mitigations are enacted and that National Historic Preservation Act compliance is completed, where applicable.

## **Selection of the Preferred Alternative**

The IPMP/EA analyzed three alternatives to manage invasive plants:

- The No Action Alternative, Alternative 1, continue management by parks prior to programmatic activities.
- The Preferred Alternative, Alternative 2, use Integrated Pest Management to achieve program goals.
- Alternative 3, use a limited suite of treatment options, excluding pesticides, biocontrols, and heavy equipment (tractors, utility vehicles, and similar).

The Preferred Alternative, Alternative 2 of the IPMP/EA, is the NPS Selected Alternative. It creates a procedural and organizational structure for plant management that addresses options for invasive native and non-native (exotic) species that threaten park resources and values. It is a strategic, standardized, systematic, and collaborative IPM program. Systematization allows implementation of project-planning tools that assist in planning and assessing individual projects in each park. This collaborative effort also consolidates expertise, administration, and funding to create a network-scale program that plans and organizes actions, disperses funds, lends specialized expertise, and coordinates parks to implement actions.

Under the Selected Alternative, the EPMT would use an IPM approach to eradicate, control, or contain invasive plants, using a broad spectrum of tools and techniques. Integrated Pest Management is a science-based decision-making process that determines a strategy that balances

costs, benefits, public health, environmental quality, the significance of a site, and the importance of protecting resources. It also encourages managers to place pest problems in the context of ecological systems and processes, to correct underlying causes of infestations, when possible.

The Selected Alternative was selected because:

- IPM offered the greatest opportunity to successfully attain and maintain desired conditions within parks, and restore sustainable communities and function.
- IPM in a multi-park context would be a sustainable program to prevent unacceptable threats to resources.
- As implemented by the HTLN, it emphasizes early detection and response.
- It lays out a pathway to ensure thorough planning and compliance procedures.
- It has delineated, and will continue to improve upon, best management practices and mitigations to ensure protection of resources, park values, and the human environment. Best practices and mitigations limit impacts to negligible or minor levels.

### **Measures Included under the Selected Alternative**

Under the Selected Alternative, resource managers and the EPMT coordinator would assess the abundance of invasive plants, establish specific objectives, and establish action thresholds for each park. The EPMT and resource managers would identify temporal changes in the distribution and abundance of plants, relative to management objectives. Highest priority is to manage invasive plants that disrupt, or potentially would disrupt, park resources, purpose, and operations, and impact public health and safety, while having a reasonable expectation of being controlled. Small infestations of a species may be given high priority, if trends indicate that the species would meet the stated threshold in the future and early detection and treatment would be prudent.

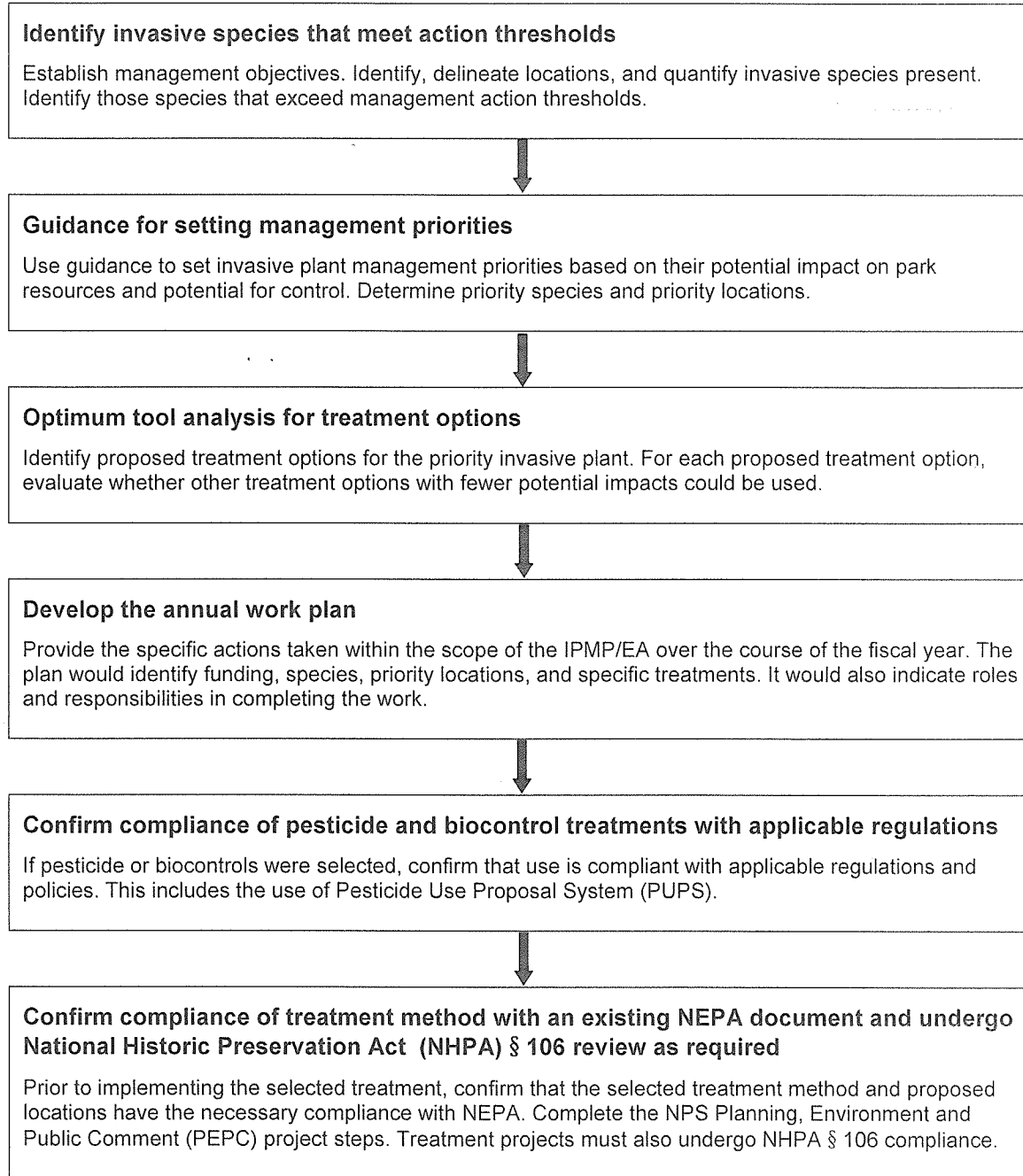
Once target species are prioritized, the manager selects an appropriate treatment strategy, the desired outcome (eradication, control, or containment), and the Optimum Tool. The Selected Alternative offers five potential treatment categories:

- Cultural Methods -- Practices reduce opportunities for invasive plants to establish and grow or that promote competition from native species. Methods range from prevention through education to restoration of disturbed sites.
- Manual and Mechanical Treatments -- Methods include hand pulling, hand tools, light mechanical equipment and power tools, heavy equipment (e.g., tractors and utility vehicles). Very heavy equipment, such as bulldozers, is excluded.
- Biological Treatments – Biocontrols use introduction of natural enemies to reduce the abundance of an invasive plant species.
- Pesticide Treatments -- Chemical herbicides, applied according to their labels prevent, destroy, or control invasive plants. Aerial spraying is excluded.
- Prescribed Fire Treatments – Parks that approved the use of prescribed fire for vegetation restoration and invasive plant treatment will continue to use their approved plans.

Integrated Pest Management incorporates multiple management practices rather than relying on a single solution to resolve a problem. A decision-tree assists in choosing the combination of tools

that will meet goals and requirements of the individual situation, while minimizing environmental impacts of actions (Figure 1).

**Figure 1.** Plant Management Decision Tree Overview



Annual work plans will be established based on the IPM decision process that confirm consistency with NPS policies and NEPA, including compliance with applicable regulations and policies regarding pesticide use (Pesticide Use Proposal System, PUPS) and potential to affect cultural resources (National Historic Preservation Act, NHPA, Section 106). Once compliance is

completed, the park superintendent will sign the Letter of Compliance Completion to initiate actions.

The EPMT coordinator ensures the accurate collection of information needed to evaluate program effectiveness for projects implemented by the EPMT so that future actions are planned using adaptive management principles. The pesticide use log, summarizing information on the dates, weather conditions, products, and amounts of pesticides applied in a particular project area, will be maintained by the crew leader, and pertinent data will be included in the annual PUPS reports. A data management system would consist of two geodatabases: a project planning geodatabase and a treatment geodatabase.

All best practices and mitigations associated with the treatment type, location, or co-located resources will be applied. Pesticide mitigations accompany the product label and trained applicators must follow all label instructions and mitigations at all times. Therefore, pesticide mitigations and label instructions are best practices. Best practices are standard practices that demonstrate state-of-the-art methods. They are derived from experience, expert recommendations, manufacturers' labels, and professional literature. Mitigations are actions that address specific resource concerns or environmental conditions. They are derived from expert consultation and recommendations (e.g., US Fish and Wildlife Service), manufacturers' labels (e.g., Environmental Protection Agency, pesticide label), and the scientific literature. Best practices and mitigations include, but are not limited to those defined in Appendix B of this document. These lists of best practices and mitigations are dynamic. They will expand as needed to ensure state-of-the-art best practices and mitigations are applied during all management actions. They enter into the decision-making process and on-the-ground implementation actions.

## **Other Alternatives Considered**

Alternatives for invasive plant management were developed during internal and external scoping. Management alternatives were proposed where invasive plants would be contained, controlled, or eradicated to protect resources or to attain/maintain desired conditions within undeveloped areas with terrestrial or emergent-wetland plant communities.

### ***Alternative 1 – No Action***

The No Action Alternative is a status quo approach that continues strategies and treatments that each park has taken to manage invasive plants prior to establishment of an EPMT. Invasive plant management is based on past project decisions, management plans, and park policies. Park actions rely on park base funds and project funds. The NPS does not implement the activities of a multi-park IPMP, but individual parks persist in their already established treatments, exclusively based on park planning and compliance.

### ***Alternative 3 – No Pesticides, Biocontrols, or Heavy Equipment***

This alternative restricts what tools may be considered, excluding pesticides, biocontrols, and heavy equipment, for use in treatment of invasive plants. This alternative cannot be considered an IPM option, because it removes several potential treatments from consideration without the scientific evidence that they are always inappropriate as a feasible, cost effective, efficient control measure with low environmental risk.

### ***Alternatives Dropped without Further Analysis***

Some alternatives were dropped without analysis of environmental consequences because they did not meet one or more of the following criteria.

1. The alternative must be consistent with NPS management policies and guidelines.
2. The alternative must respond to the purpose of and need for action.
3. The alternative must be feasible from a technical and economic standpoint, while remaining environmentally responsible.
4. The alternative must be compatible with the policies and regulations of other agencies and jurisdictions.
5. The alternative must be capable of being implemented in a timely manner because the purpose of and need for action is immediate.

#### **Alternative 4 -- Stop All Invasive Plant Management Activities within Parks**

This alternative is inconsistent with Executive Order 13112 on invasive species, the Federal Noxious Weed Control Act, NPS management policies, and state noxious weed laws.

#### **Alternative 5 -- Use Prescribed Fire Only**

Parks have found that fire does not adequately control all invasive species, and so does not respond to the purpose of and need for action. It is not technically feasible.

#### **Alternative 6 -- Exclude Prescribed Fire**

Each park manages fire in accord with their approved Fire Management Plan and Environmental Assessment in accordance with NPS policies.

#### **Alternative 7 -- Spot Spraying Only**

The alternative is not consistent with NPS management policies requiring the use of IPM and is not feasible from a technical and economic standpoint. NPS staff tends to prefer spot spraying, when feasible, it cannot be considered as the sole treatment tool.

#### **Alternative 8 -- Use Only General-use Pesticides**

The alternative is not consistent with NPS management policies, relative to IPM requirements. Although general-use pesticides tend to be preferred by NPS staff, preventing the use of other pesticides is not feasible or consistent with IPM procedures.

#### **Alternative 9 -- Use Only Pesticides**

The alternative is not consistent with NPS management policies and guidelines, requiring an IPM approach with pesticide use as a last resort treatment.

### **The Environmentally Preferable Alternative**

National Park Service policy requires that an EA identify the environmentally preferable alternative. The environmentally preferable alternative is the alternative that would promote the national environmental policy expressed in NEPA (Sec. 101 (b)). This includes alternatives that:



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1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
2. Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
4. Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
5. Achieve a balance between population and resource use that would permit high standards of living and a wide sharing of life's amenities.
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Based on the impact analysis, Alternative 2 - Integrated Pest Management, the Selected Alternative, was selected as the environmentally preferable alternative. However, none of the three alternatives assessed would cause significantly adverse impacts to the environment. Alternatives 2 and 3 meet the purpose and need of the project, but to varying degrees, but the No Action Alternative fails to meet purpose and need by inadequately achieving the objectives of an invasive plant management program. Parks that do not have a standardized approach to assist in decision-making under the No Action Alternative have difficulty selecting the most appropriate treatment option that takes into account feasibility, costs, efficiency, efficacy, environmental safety, public health, park priorities, and individual site factors. Alternative 3 is a very conservative approach to invasive plant control that uses a decision-tree to select optimum treatment tools, but it limits the tools available for treatment and thus may limit effectively and efficiently achieving program goals.

The Selected Alternative best fulfills the park's responsibilities of environmental stewardship without degradation, risk of health or safety, or other undesirable and unintended consequences. It promotes safe, healthful, productive, and aesthetically and culturally pleasing surroundings. An effective invasive plant management program will preserve important historic, cultural, and natural aspects of our national heritage and maintain an environment that supports diversity and variety of individual choice in a sustainable manner.

***Why the Selected Alternative Will Not Have a Significant Effect on the Human Environment***

Significant effect, as used in NEPA, requires considerations of both context (setting) and intensity (severity of impact). No significant effect is an outcome with negligible to minor intensity and site-specific or local extent. As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

**Impacts that may be both beneficial and adverse.**

A significant effect may exist even if the federal agency believes that on balance the effect will be beneficial. The analysis did not identify any long-term adverse impacts greater than minor intensity. However, the selected alternative will result in short-term and long-term, site-specific beneficial effects, ranging from negligible to major. These effects lessen as they extend beyond the immediate treatment area, becoming local. Vegetation communities,

threatened and endangered species (particularly plant species), cultural landscapes, and ethnographic resources would likely benefit from improved environment. Major beneficial, site-specific impacts lend relatively minor changes to the overall park conditions. In other words, a major improvement to habitat conditions for Missouri bladderpod in a 10-acre limestone glade will only be a minor improvement in the overall natural landscape of the entire 1,750-acre park.

**The degree to which the proposed action affects public health or safety.**

The selected alternative would have little impact on public health and safety. Visitor access to certain areas may be restricted during mechanical vegetation removal or pesticide application as a precautionary measure.

**Unique characteristics of the geographic area such as proximity to historic or cultural resources, parklands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.**

The selected alternative includes several BPs and mitigations (Appendix B) that are intended to reduce or eliminate potential negative impacts of invasive plant treatments to resources.

*Water, Wetlands, and Karst Hydrology*

Restoration of native vegetation and management of invasive plants would have beneficial effects on water resources, particularly in a karst landscape, where ground water is poorly filtered. Potentially adverse impacts would not exceed negligible, short-term, and site-specific for physical properties of water and values of wetlands, floodplains, and riparian areas.

*Geological Resources, Including Soils and Karst Features*

Invasive plant management may enhance the natural soil functions and properties by enhancing native plant communities. Potentially adverse impacts would be negligible, short-term, and site-specific. No impacts to geological resources, including karst, are expected.

*Vegetation Communities*

Potentially adverse impacts of treatment on vegetation communities would be negligible, short-term, and site-specific. Invasive plant management would help parks to achieve the desired conditions and maintain native vegetation as part of the natural systems of the parks.

*Wildlife and Fish*

Invasive plant management would help parks achieve desired conditions to maintain native animals as part of the natural ecosystems of parks by improving habitat. Potentially adverse impacts would be negligible, short-term, and site-specific.

*Specially Protected Species*

Endangered, threatened, and candidate species are specifically addressed in the significance criteria. Other species receive special consideration as well, such as bald eagles under the Bald and Golden Eagle Protection Act, and birds under the Migratory Bird Treaty Act.

Potentially adverse impacts to these species and similarly protected species would be negligible, short-term, and site-specific.

#### *Archeological Resources*

Only undocumented resources would be subject to potential impacts. Invasive plant management would not inhibit maintenance of desired conditions and protection of material integrity. Potentially adverse impacts would be minor or less, long-term, and site-specific.

#### *Cultural Landscapes*

Actions in cultural landscapes would be guided by approved cultural landscape treatment plans. Actions proposed in work plans that may affect cultural landscapes would be vetted through the NHPA§106 process before implementation. Potentially adverse impacts would be short-term, negligible, and likely outweighed by beneficial effects.

#### *Ethnographic Resources*

By removing or controlling invasive plants, the native landscape might be restored to conditions that best serve traditional uses and protect ethnographic resources and values. Potentially adverse impacts would be negligible, short-term, and site-specific.

#### **The degree to which the effects on the quality of the human environment is likely to be highly controversial.**

No highly controversial effects were identified during external scoping, agency consultation, preparation of the IPMP/EA, or public review.

#### **Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks.**

A plethora of research and literature centers on invasive plant management. The information available is a result of a general concern about pesticide use and broad distribution of invasive plants. No highly uncertain, unique, or unknown risks were discovered or suggested during external scoping, preparation and consultation, or public review for the proposals under consideration in this IPMP/EA.

#### **Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.**

The selected alternative does not have significant effects. It neither establishes a NPS precedent for future actions with significant effects, nor represents a decision in principle about a future consideration.

#### **Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.**

Because each work plan would be analyzed for expected impacts, during Optimum Tool selection and during compliance assessment, cumulative impacts would be avoided. The impact analysis for each resource topic considered the potential for cumulative impacts from interactions with environmental stressors, and with park projects and plans. Best practices,

mitigations, adherence to regulations, and NPS policies would ensure that other past, present, and reasonably foreseeable future actions have little adverse impact on resources. Working through adaptive management, connected and similar actions are expected to add minor beneficial effects to this project. Connected actions differ from adverse cumulative actions in that they are planned with a predetermined, beneficial, and collective outcome. Similar actions are those that have similar geography, timing, purpose, or any other feature that provides a basis for evaluating their combined impacts. Connected and similar actions will occur under the Selected Alternative, but would not contribute adverse impacts that affect park resources significantly.

**Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places, or may cause loss or destruction of significant scientific, cultural, or historical resources.**

The analysis determined that the selected alternative would not adversely affect resources listed on or eligible for the National Register of Historic Places, nor would it adversely affect significant scientific, cultural, or historical resources. State Historic Preservation Officers (SHPO) and Tribal Historic Preservation Officers (THPO) have entered into consultation with NPS on this proposal. Iowa, Ohio, Kansas, Missouri, and Nebraska SHPOs concurred with our analysis. Parks continue to consult with SHPOs and Tribes/THPOs to determine the effect of implementation actions on resources as part of the ongoing nature of this program.

Minnesota SHPO preferred Alternative 3 at Pipestone National Monument, but acknowledged that results from attempting Alternative 3 could justify Alternative 2 with further consultation. Similarly, Arkansas SHPO raised concerns relative to impacts from heavy equipment and pesticides on archeological sites. Indiana SHPO recognized that the programmatic plan does not provide specifics on work projects, and they will withhold comment until implementation is proposed through work plans. Work plans with potential to impact cultural resources are subject to NHPA§106 compliance. Therefore, further consultations will ensure that implementation of this programmatic plan will meet the Secretary's Standards for the Treatment of Historic Properties and 36 CFR 800, not only in Arkansas, Indiana, and Minnesota parks, but in all parks.

**Degree to which the action may adversely affect an endangered or threatened species or its critical habitat.**

Section 7 of the Endangered Species Act of 1973 requires federal agencies to consult with US Fish and Wildlife Service (USFWS) when any proposed activity may affect listed species or designated critical habitat, or if it may affect proposed candidate species or proposed critical habitat. The NPS has identified 11 threatened, endangered, or candidate species as potentially occurring near management areas. Mitigations have been identified that reduce potential impacts to "not likely to adversely affect."

Consultation with the USFWS was undertaken in developing this plan and the Ohio Field Office provided mitigation recommendations included in the Selected Alternative that apply to all instances where these species are documented or expected in parks. As stated in the Selected Alternative, further consultation may be required for site-specific treatment proposed in a work plan that deviates from the IPMP/EA or that may impact listed species

or their critical habitat. Should undocumented threatened, endangered, or candidate species be discovered in a treatment area, all work will cease and consultation with USFWS will ensue.

Review of the draft IPMP/EA resulted in six USFWS Field Offices (Iowa, Indiana, Minnesota, Missouri, Nebraska, and Ohio), indicating no anticipated adverse impacts to federally listed species or critical habitats, provided that mitigations and best practices of the Selected Alternative are followed. Invasive plant management would help parks achieve the desired conditions to maintain critical habitat and natural landscapes of the parks, while threats of adverse impacts remain negligible, short-term, and site-specific. If implementation actions potentially could affect a documented threatened, endangered, or candidate species, the EPMT will consult with the USFWS.

Protection will be afforded species and communities identified by state wildlife action plans, and other organizations and agencies identifying species of conservation concern, during implementation actions. This IPMP will seek to reduce the threat imposed on those species and communities by invasive plants.

**Whether the action threatens a violation of federal, state, or local environmental protection law.**

An extensive search was made of the laws, regulations, and policies to ensure compliance. Another method of ensuring compliance with all federal, state, or local environmental protection laws is by consulting with other agencies. The EPMT initiated consultation in December of 2010 with letters to 84 agencies or organizations having jurisdiction over park resources or sharing a management role for resources within park boundaries. Additionally, these agencies and organizations were informed of availability of the draft IPMP/EA for their review. No violations of law were found by outside organizations, NPS regional reviewers, or other entities during the preparation of the IPMP/EA. The selected alternative would not violate any federal, state, or local environmental protection laws.

## **Public Involvement**

In all planning and strategy development, the NPS seeks input from its stakeholders. By engaging people with traditional, cultural, or ethnic ties to NPS lands, and other partners and stakeholders, the NPS broadens its perspective on stewardship of public trust resources. Public, stakeholder, and agency involvement exemplifies the NPS desire to conduct the management of public resources in an open and inclusive manner.

Public involvement included consultation with other agencies and organizations beyond consultations required by law. The EPMT sent letters during December 2010 and January 2011 to more than 60 public agencies with expertise in resource management, inviting participation in the identification of concerns, issues, mitigations, and potential alternatives. Parks also made public notifications and sent letters to stakeholders and agencies unique to their parks (Table 1, External Scoping letters, and post cards). These agencies and organizations represent the interests of the public on the federal, state, and local levels.

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Table 1. Parks engaged the public and stakeholders using the following methods.

Park	Type
<b>Arkansas Post National Memorial</b>	External Scoping news release to media External Scoping letter to stakeholders Announcement of public comment period through PEPC
<b>Buffalo National River</b>	External Scoping news release External Scoping post cards Announcement of public comment period through PEPC
<b>Cuyahoga Valley National Park</b>	External Scoping – 231 news releases External Scoping homepage announcement External Scoping – 97 stakeholder letters Announcement of public comment period through PEPC
<b>Effigy Mounds National Monument</b>	External Scoping news release Draft availability notification made by news release Announcement of public comment period through PEPC
<b>George Washington Carver National Monument</b>	External Scoping letter to stakeholders External Scoping news release Draft availability notice made by letters to stakeholders, posting at visitor center, on website, and on friends' group website Announcement of public comment period through PEPC
<b>Herbert Hoover National Historic Site</b>	External Scoping news release External Scoping Twitter and homepage Draft availability notice made by news release, Facebook posting, and letters to partners/stakeholders Announcement of public comment period through PEPC
<b>Homestead National Monument of America</b>	External Scoping Facebook and Twitter announcing meeting to cover all park projects Public meeting for upcoming projects Draft availability made by news release, Facebook, Twitter Announcement of public comment period through PEPC
<b>Hopewell Culture National Historical Park</b>	External Scoping news release to media External Scoping 18 stakeholders' letters External Scoping press release posted to website Draft availability made by personal contact of neighboring landowners, post cards to stakeholders, and news release Announcement of public comment period through PEPC
<b>Hot Springs National Park</b>	External Scoping news release Announcement of public comment period through PEPC
<b>Lincoln Boyhood National Memorial</b>	External Scoping news release to media Announcement of public comment period through PEPC
<b>Ozark National Scenic Riverways</b>	External Scoping news release External Scoping stakeholder letters (12) Draft availability notification by post cards to stakeholders and news release Announcement of public comment period through PEPC
<b>Pea Ridge National Military Park</b>	External Scoping stakeholder letters (27) External Scoping news release Draft availability notification made by letters to stakeholders Announcement of public comment period through PEPC

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Park	Type
<b>Pipestone National Monument</b>	External Scoping news release External Scoping stakeholder letters Announcement of public comment period through PEPC
<b>Tallgrass Prairie National Preserve</b>	Civic engagement is only done for draft availability, not for External Scoping (news release was sent) Draft availability notification by letters to stakeholders, news release, radio interview, posting at visitor center, on park website, and on friends' group website. Announcement of public comment period through PEPC
<b>Wilson's Creek National Battlefield</b>	External Scoping news release External Scoping stakeholder letters Draft availability notification made by news release and a copy of IPMP/EA at the public library Announcement of public comment period through PEPC

The NPS Planning, Environment and Public Comment (PEPC) online software (external access: <http://parkplanning.nps.gov/>) provided the location for documents related to public comment. The EPMT invited public participation in the planning process through PEPC. External Scoping remained open on PEPC from November 15, 2010 through March 1, 2011. The long scoping period accommodated the 15 parks' and their need to contact their stakeholders. Responses to external scoping and early consultation included:

- Identification of issues and concern, including stressors that may contribute to the invasive plant problem or to cumulative impacts.
- Strong support for invasive plant management.
- Mitigations and best practices to protect park resources, such as historical resources and species of special management concern.
- Other invasive plant management by partner agencies and organizations near the parks.

Consulting agencies received a letter requesting review of the draft IPMP/EA sent on December 3, 2012. Agencies were given until January 28, 2013 to review the document and make comments that would be included in a subsequent version of the draft document. The revision was published to the PEPC site for public comment on February 5, 2013. Agencies were invited to comment further on the revised document during public comment. Public comment was originally set to close on March 14, 2013, but was extended to April 1, 2013 to meet the needs of the parks.

Three avenues of comment were provided to the agencies and the public from External Scoping through Draft IPMP/EA public comment. Comments could be made online through PEPC, to the EPMT coordinator by letter or email, or to the park by letter, email, or personal discussion. The parks provided documentation of consultation and public engagement in which the EPMT did not directly participate. During the review of the Draft IPMP/EA, the following types of comments were received:

- Numerous comments regarding support for the plan and thoroughness of analysis in EA.
- Concurrence with IPMP/EA findings.
- Improved mitigations for specific resources, and suggestions improving the document.

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- Recommendation to consider state wildlife action plans and to make education themes consistent across parks.
- Out of scope comments.

The EPMT incorporated changes from the results of consultation and public comment in the final EA and this FONSI.

## Decision

The Selected Alternative, selected as the environmentally preferable alternative, does not constitute an action that normally requires preparation of an Environmental Impact Statement. The selected alternative will not have a significant impact on the human environment. Adverse environmental impacts that could occur are negligible or minor in intensity. There are no significant impacts on public health, public safety, threatened or endangered species, or other unique characteristics of the region. There are no unmitigated adverse impacts on sites or districts listed in or eligible for listing in the National Register of Historic Places. No uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the selected action will not violate any federal, state, or local environmental protection law.

Based on the analysis, it has been determined that an EIS is not required for this project and thus will not be prepared.

**Approved:**



Deputy Director, Midwest Region

7.18.13

Date



## Appendix A: Impairment Analysis

The NPS Management Policies 2006 requires analysis to determine whether actions would impair park resources. The fundamental purpose of the national park system, as established by the Organic Act and reaffirmed by the *General Authorities Act 1970*, (84 Stat. 825 as amended), mandates conservation of park resources and values. However, laws do give the NPS discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the park purposes, as long as the impact does not constitute impairment. Impairment is any impact that in the professional judgment of the responsible NPS manager would harm the integrity of park resources or values, particularly if the impact has a major or severe adverse effect upon a resource or value whose conservation is:

- Necessary to fulfill specific purposes in the establishing legislation or park proclamation; or
- Key to the natural or cultural integrity of the park, including opportunities for enjoyment of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

The criteria from the NPS Management Policies 2006 were used to determine if any adverse effect constituted impairment, should the Selected Alternative be implemented. The following process was used to determine whether the alternatives had the potential to impair park resources and values:

- The park legislation and other relevant NPS documents were reviewed with consideration of park purposes and significances, resource values, and resource management goals or desired conditions.
- Management objectives specific to resource protection goals at the park were identified.
- Thresholds were established for each resource of concern to determine the context, intensity, and duration of impacts.
- An analysis was conducted to determine if the magnitude of impact reached the level of "impairment," as defined by the NPS Management Policies 2006.

An alternative that leads to impairment must be rejected as an alternative. Resource values, management goals, and desired conditions were addressed thoroughly within the analysis of consequences.

## Resources

The alternatives were designed to meet objectives for resource protection. Best practices and mitigation measures were established to prevent major adverse impacts to resources. A team of resource experts and park decision-makers made the determination of **no impairment** for every resource impact topic, during the analysis process. No major adverse impacts were identified, and no impacts were judged to exceed thresholds of concern. The potentially adverse impacts

would be mostly short-term, site-specific, and minor or less in intensity. No resources would be irreparably harmed.

### ***Water, wetlands, and Karst Hydrology***

Both indirect and direct, potentially adverse impacts were identified, but these are negligible in intensity, of short duration, and site-specific. The decision tree and IPM addresses potential impacts to these resources. Mitigations are listed that will be applied during implementation. Impairment would not occur because of implementing the IPMP.

### ***Geological Resources, Including Soils and Karst Features***

Direct, potentially adverse impacts were identified, but these are negligible in intensity, of short duration, and site-specific. The decision tree and IPM addresses potential impacts to these resources. Impairment would not result from implementation.

### ***Vegetation Communities***

The intension of the IPMP is to improve vegetation communities and their function in restored and native landscapes. The connection of vegetation communities and cultural landscapes has also been carefully considered. Both indirect and direct, potentially adverse impacts were identified in vegetation communities, but these are negligible in intensity, of short duration, and site-specific. Impairment would not occur from implementation of the IPMP.

### ***Wildlife and Fish***

Indirect, potentially adverse impacts were identified, but these are negligible in intensity, of short duration, and site-specific. The decision tree and IPM addresses potential impacts to fish and wildlife and applies best practices and mitigations to ensure that impacts are negligible. Impairment would not result from implementation.

### ***Threatened and Endangered Species***

As with vegetation communities and wildlife/fish, indirect, potentially adverse impacts were identified. Special mitigations prevent direct impacts and ensure that impacts are negligible, short-term, and site specific. Informal consultation with U.S. Fish and Wildlife Service (U.S. Department of Interior) resulted in a determination that implementation of the plan would “may affect – not likely to adversely affect” threatened, endangered, and candidate species. Discovery of protected species in the proposed work area may trigger further consultation, a change in work plans, or immediate cessation of work. Consultation will ensue with the U.S. Fish and Wildlife Service before any actions are taken that may adversely affect species, or that deviate from those proposed in this plan. Therefore, impairment would not result from implementation of the IPMP.

### ***Archeological Resources***

Potential impacts to archeological resources are direct, potentially adverse impacts, but they are negligible and minor in intensity. These impacts were very critically analyzed, because unlike some other resources, once damaged, there is no potential for natural restoration. Thus, the potentially adverse impacts are long-term. Accessing treatment sites could impose stress on undiscovered archeology, unless protections are implemented. The decision tree in the Selected Alternative, and the best practices and mitigations, will practically prevent disturbance to

archeological sites. Work plans will be reviewed by archeologists to ensure that proposed actions will not damage archeology. If undiscovered archeology is found during work, work will cease and consultation with NPS archeologists will ensue. Therefore, archeology will not be impaired by actions taken in implementing this IPMP.

### ***Cultural Landscapes***

Improvements in the vegetation community, resulting from invasive plant management, are intended to enhance cultural landscapes with approved desired conditions for community structure. Although most impacts from this IPMP are beneficial, potentially adverse impacts that are negligible in intensity, short-term, and site-specific can occur. The decision tree, mitigations, and best practices all take into account cultural landscapes, and the approved plans associated with them. Therefore, impairment would not result from implementation of this plan.

### ***Ethnographic Resources***

Ethnographic resources are similar to cultural landscapes, in that some parks have ethnographic landscapes, but they also include access to traditional areas and traditionally gathered plants. Consultation with Tribal Historic Preservation Officers did not result in major concerns for traditional resources or access to those resources. Work plans will be submitted to those tribes who have requested the opportunity to consult further on the implementation of the plan. This will be done as part of the work plan compliance with National Historic Preservation Act, Section 106 review. The decision tree, best practices, and mitigations will ensure that potentially adverse impacts do not exceed negligible, short-term, and site-specific for identified ethnographic resources. Implementation of this plan will not result in impairment of ethnographic resources.

### **Fundamental values**

Beyond the resource topics addressed, consideration was made of impacts to fundamental aspects of each park, such as its purpose, significance, and integrity. These are often considered values of the park and are not tangible resources. Therefore, they are analyzed separately from resources.

### ***Arkansas Post National Memorial***

The park was federally designated in 1960 to “*preserve and commemorate the site of the first European settlement of the lower Mississippi Valley.*” Arkansas Post was a frontier institution that played an important part in the history of Arkansas. The Memorial Unit contains developed areas that are excluded from this proposal, as well as natural areas that suggest a historical connection to nature and the river. The Osotouy Unit contains American Indian mounds and a historic cemetery. Both units rely upon a contemplative setting to fulfill the purpose of the park. The Selected Alternative would not result in impairment of values associated with the park purpose and significance.

### ***Buffalo National River***

Congress established the Buffalo River as the first National Scenic River in the United States in 1972 “*for the purposes of conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free flowing stream an important segment of the Buffalo*

*River in Arkansas for the benefit and enjoyment of present and future generations.”* As a scenic waterway, visitors would expect the sights and sounds of nature to predominate. The Selected Alternative would not result in impairment of values associated with the park purpose and significance.

### ***Cuyahoga Valley National Park***

The park was established in 1974 to “*preserve and protect the natural and recreational values of the Cuyahoga River and adjacent lands.*” This includes the preservation of the historic and scenic values of the valley in a manner that will provide for the recreation and education needs of visitors. Visitor experience is critical to this park purpose and significance. The Selected Alternative will not result in impairment of values associated with the park purpose and significance.

### ***Effigy Mounds National Monument***

The park was established by Presidential Proclamation 2860, on October 25, 1949, “*to preserve and commemorate the Eastern Woodland culture and their prehistoric mounds because of the variety of their forms, which include animal effigy, bird effigy, conical and linear types.*” Values include opportunities to contemplate the meanings of the mounds, the peoples who built them and the relationships to modern descendants. Opportunities for contemplation go beyond the existence of the mounds, and incorporate the picturesque natural setting, extraordinary views, and quiet environment. Although any intrusion of park personnel for park operations may impose on the quality of these values, the imposition would be short-term and localized. Therefore, the Selected Alternative would not result in impairment of values associated with the park purpose and significance.

### ***George Washington Carver National Monument***

The park was established by an act of Congress on July 14, 1943 “*to memorialize the birthplace and childhood of Dr. George Washington Carver and to preserve the setting of the Moses Carver farm.*” The park manages natural and cultural resources to memorialize Carver’s life in a dignified and inspirational setting. The Selected Alternative would not result in impairment of opportunities for contemplation life experiences of George Washington Carver. The historical sense of place, limited to certain areas within the park, would be occasionally experience short-term interruptions. The Selected Alternative would not result in impairment of values associated with the park purpose and significance.

### ***Herbert Hoover National Historic Site***

The park is located in east-central Iowa within the city of West Branch. It was established in August 12, 1965 to “*preserve in public ownership historically significant properties associated with the life of the 31<sup>st</sup> United States President, Herbert Hoover.*” This commemorative site creates a simple and serene setting with a late nineteenth-century sense of place and time. A Fundamental Value of the site is the simple and serene setting that is somewhat compromised by proximity to a rural town and an interstate highway. Actions associated with the Selected Alternative would not result in impairment of values associated with the park purpose and significance.

### **Homestead National Monument of America**

The park was established in March 1936 to “commemorate the Homestead Act of 1862 and its effects upon the settlement of the West as well as advancements in agricultural technology.” The sense of place is enhanced from the open space, natural vistas, and natural sounds. Temporary intrusions of personnel implementing the Selected Alternative and the results of those actions would not result in impairment of values associated with the park purpose and significance.

### **Hopewell Culture National Historical Park**

The park was established as Mound City Group National Monument on March 2, 1923 because “the Mound City Group of prehistoric mounds is an object of great historic and scientific interest and should be permanently preserved and protected from all depredation and from all changes that will to any extent mar or jeopardize their historic value.” Opportunities for serenity and harmony with nature while contemplating the lives of mound builders, goes beyond the existence of the mounds. Intrusion of park personnel for park operations may impose on the quality of these opportunities, but the imposition would be short-term and localized. Therefore, the Selected Alternative would not result in impairment of values associated with the park purpose and significance.

### **Hot Springs National Park**

The park was first set aside as the Federal Hot Springs Reservation on April 20, 1832 “to protect the hot springs flowing from the southwestern slope of Hot Springs Mountain.” Hot Springs Reservation became Hot Springs National Park by a Congressional name change on March 4, 1921. The park’s enabling legislation mandates the thermal waters be preserved and provided to the public in an unending and unaltered supply. The Selected Alternative would not result in impairment of values associated with the park purpose and significance.

### **Lincoln Boyhood National Memorial**

The park was established by an Act of Congress on February 19, 1962 to “preserve the site associated with the boyhood and family of Abraham Lincoln.” The setting memorializes President Lincoln through stately developed areas. The historical farm presents another impression with its feeling of place and time. The natural areas lend a sense of sanctuary and serenity to the site, consistent with the historical farm. The short-term intrusion caused by the Selected Alternative into the settings would not exceed greatly the standard maintenance activities and background sound levels. The Selected Alternative would not result in impairment of values associated with the park purpose and significance.

### **Ozark National Scenic Riverways**

The park was established in 1964 to “conserve and interpret unique scenic and other natural values and objects of historic interest, including the preservation of the Current River and the Jacks Fork River as free-flowing streams, preservation of springs and caves, management of wildlife, and provision for use and enjoyment of the outdoor recreation resources.” It was the first park in the NPS specifically designated to preserve the scenic river experience. The rivers can be congested with visitors in canoes and motor boats during certain times. Temporary intrusions from implementing the Selected Alternative and the consequences of those actions

would occur, but would not result in impairment of values associated with the park purpose and significance.

### ***Pea Ridge National Military Park***

The park was established in 1956 to “*preserve and commemorate the March, 1862 civil war battle that saved Missouri for the Union and allowed Union forces to gain control of the Missouri and Mississippi Rivers.*” The park’s mission statement, “*to preserve the cultural and natural resources therein; to commemorate, interpret and foster the appreciation of associated historical events; and to promote resource stewardship through education*” further defines the fundamental values of the site. As a commemorative site, the visitor expectation is for a sense of place while viewing the battlefield. The temporary intrusion of personnel implementing the Selected Alternative and resulting consequences would not cause impairment of values associated with the park purpose and significance.

### ***Pipestone National Monument***

The park was established by an Act of Congress on August 25, 1937 (1) to administer and protect the pipestone quarries, reserving the quarrying of pipestone for Indians of all tribes, (2) to protect cultural and natural resources within the park boundaries, and (3) to provide for the enjoyment and benefit of all people. Values to be protected include sounds from the quarry and ethnographic landscape, and the sense of place. The Selected Alternative would occasionally intrude on these conditions and values, but the temporary nature of intrusion would not result in impairment of values associated with the park purpose and significance.

### ***Tallgrass Prairie National Preserve***

The park is a designated National Historic Landmark, to preserve, protect, and interpret a rare tallgrass prairie ecosystem on the Spring Hill Ranch in the Flint Hills. The Selected Alternative and its resulting actions would not cause impairment of values associated with the park purpose and significance.

### ***Wilson’s Creek National Battlefield***

The park was established by an Act of Congress on April 22, 1960 to “*preserve and commemorate the Battle of Wilson’s Creek; the first major Civil War battle west of the Mississippi River.*” As a commemorative site, the visitor expects a sense of place. Routine maintenance of the site temporarily interrupts this sense of place. Actions taken under the Selected Alternative would not result in impairment of values associated with the park purpose and significance because of their temporary and occasional occurrence.

## **Determination**

Therefore, it is determined that implementation of the Selected Alternative would not constitute impairment to water and hydrology, wetlands, floodplains, geology, soils, vegetation communities, wildlife and fish, endangered and threatened species, archeological and historical resources, cultural landscapes, ethnographic resources, or visitor use and experiences. It will not impair the fundamental resources or values on which these parks are predicated.

## **Appendix B: Best Practices and Mitigations**

### **Best Practices**

Standard best practices would be incorporated into treatment selection and implementation. Reference numbers would be used to call attention to specific best practices within an annual work plan and in compliance documentation. The EPMT would implement these practices and would consider any other special circumstances during project implementation.

#### ***Biocontrol Treatment Criteria***

BC1 – All biocontrol agents will be approved by APHIS prior to their release.

BC2 – Biocontrol agents should be released in each climatic zone that is occupied by the host, so that the natural enemy has a chance to develop in all areas where the host occurs.

BC3 – More than one release in an area may be necessary for successful establishment.

BC4 – Releases should be synchronized with the period when the host is present.

BC5 – Biocontrol agents should be released at times of the day when they will not disperse from the treatment area.

BC6 – Surveys for biocontrol agents should be completed several times during the season to monitor biocontrol agents.

#### ***Cultural Method Criteria***

CC1 - Any materials used in revegetation, including mulch, organic fertilizers, and straw, will be free of non-native plant seeds or materials. An exception to this occurs when non-native species are required to provide integrity to a historic appearance, to protect resources of the area, or as a temporary nursery crop.

CC2 – Local genotypes will be used for seeding or planting designed to restore a site, when available.

CC3 – As a preventive measure, adhere to the equipment sanitation BPs.

CC4 – Nursery crops will be used to stabilize sites, where there is potential for damage to soils during restoration and revegetation.

#### ***Cultural Resource Protection***

CR1 – Specific invasive plant management activities will avoid any structures, known archeology, and other resources that could be damaged by the type of treatment used. This includes the use of cutting tools to sever taproots in areas with shallow artifacts or paleontological resources, or the use of UTVs where remnant foundations may be obscured from sight. Application of pesticides in areas that contain sensitive paleontological resources or other potentially chemically active or corrodible materials will be limited (see Pesticide Treatment Criteria).

CR2 – Prior to any surface disturbance, such as tilling, all locations within the area of potential effect will be reviewed to determine the presence of cultural resources as part of NHPA§106 review. If any cultural resources are present, their eligibility for the National Register of Historic Places (NRHP) will need to be determined prior to ground disturbing treatment. Properties that are determined not eligible may be treated with an approved plan. Properties that are determined to be eligible must be avoided, or, if they cannot be avoided, damage to the resource must be mitigated through an approved archeological data recovery plan prior to treatment. All of these reviews will be done in coordination with the park archeologist or archeologists at the MWAC.

CR3 – Project or annual work plans that list the target species, locations, and treatment type would be reviewed for NHPA§106 compliance and potential impacts to known and unknown cultural resources. If cultural resources were inadvertently uncovered during activities, the NPS would suspend operations at the site and contact the park resource manager. This includes the discovery of species that may indicate the presence of archeological or historical sites that could be affected adversely during treatment.

CR4 – In cultural landscapes, invasive plants will be evaluated to determine their cultural or historical significance prior to treatment. This determination will be made in consultation with the appropriate cultural resource specialists in the park or regional offices. This will also apply to the occurrence of exotic species that may indicate the presence of unidentified home sites or other historic or pre-historic remnants.

CR5 – Invasive plants will be evaluated by the resource manager in consultation with the appropriate cultural resource specialist in the park or regional office to determine their ethnographic value, based on consultation with tribes. Plants that are used or harvested for traditional uses will not be treated in those areas where collection is made (see Ethnographic Resource Protection BPs).

### ***Decision Process***

DP1 – The decision tree for selection of tools will be rigorously followed.

DP2 – Monitoring, evaluation, and record keeping will be incorporated in decision-making process.

### ***Equipment Sanitation***

ES1 - Equipment used for invasive plant management will be washed prior to entering a park to reduce the potential for accidentally introducing invasive plants from another area.

ES2 – Before moving from the treatment site, all equipment, boots, and clothing must be inspected and cleaned of all vegetation debris and soil. Particular care will be taken to avoid distribution of invasive plant materials, including seeds, shoots, and roots, to locations outside of the treatment area.

ES3 – When possible, vehicles, including UTVs, operating within a single park will be washed daily at a location where removal of vegetative material cannot enter waterways or areas where the plants could infest the grounds.



### ***Erosion and Sediment Control***

ESC1 – Trucks and UTVs will be operated to minimize disturbance to vegetation and soils. Trucks and UTVs will not be operated under conditions where soil is susceptible to compaction, erosion, or creation of wheel ruts. The number of vehicle and UTV passes off-road will be minimized to the extent possible.

ESC2 – Personnel and equipment will avoid areas having sensitive soils or areas that are prone to erosion.

ESC3 – Any stream crossings to access treatment areas will be traversed at a right angle to the crossing.

ESC4 – Trucks and UTVs will be routed to avoid palustrine (wet or marshy) wetlands, and standing water or saturated soils.

ESC5 – Treatment actions will not lead to extensive erosion. This requires consideration of connected treatments, such as prescribed fire, that may predispose areas to erosion.

### ***Ethnographic Resource Protection***

TR1 – The EPMT operators and applicators will receive training on identification of traditional use plants and will avoid treating non-target plants. The EPMT will use vegetation-monitoring surveys to identify areas with ethnographically important species.

TR2 – Mechanical methods such as tilling will not be used as a method in areas known to support traditional use plants. Off-road-vehicles and heavy equipment will be used on a limited basis in areas where traditional use plants are known to occur.

### ***Health and Safety Protection***

HS1 – All management actions will be done with worker and public safety as the highest priority.

HS2 – No power equipment will be used in the treatment of invasive species during air pollution advisories for ground-level ozone or particulate pollution at the location of the intended action. Action will be postponed until the lifting of the advisory.

HS3 – All participants in treatment actions will use the appropriate PPE while engaging in management actions. A health and safety plan is included with this IPMP/EA in Appendix G.

HS4 – All equipment operators will be properly trained and meet the standards set by the NPS. All operators will be briefed on hazards and resource protection strategies.

HS5 – Plans will be followed to address accidental pesticide spills, as well as health and safety issues associated with hazardous materials. Safety and emergency response plans are located in Appendix G.

HS6 – Extensive treatment will not occur during periods of high visitation.

### ***Manual Treatment Criteria***

MaC1 – When hand-pulling plants, all propagules will be piled and burned on site or bagged and moved off site when possible. Bagged plants will either be incinerated or receive standard garbage disposal. For large woody shrubs that will be difficult to move, treatments should be scheduled prior to seed set.

MaC2 – The weed torch will be used only during times of low fire danger, on sites with low potential to carry a fire, and with a wildland firefighter on site.

MaC3 – Personnel and equipment will avoid areas having sensitive soils or areas that are prone to erosion.

### ***Mechanical Treatment Criteria***

MeC1 – All mowing will occur prior to seed set.

MeC2 – Equipment with potential for crushing or dislodging subsurface resources will not be used on sites sensitive to this type of disturbance.

MeC3 – Equipment will enter the treatment area through a pre-planned route that minimizes impacts to known and potential resources.

MeC4 – Slit seeders and seed drills will only be used where subsurface resources were deeper than the disturbance zone of the apparatus.

MeC5 – Equipment such as weed whips will be used with caution and care will be taken in maneuvering equipment near historic material.

### ***Pesticide Treatment Criteria***

All approved pesticide label instructions and mitigations will be followed.

PDC1 – Reduced application rates of pesticides will be used wherever possible. Reduced application rates are often more effective than higher application rates because translocation is enhanced prior to loss of physiologic function. Higher rates may burn off leaves and reduce translocation.

PDC2 – Pesticides will be applied only during periods of suitable meteorological conditions. Drift from a treated area increases during high winds or low humidity. Pesticides should also not be applied during periods of dead calm (this could indicate an inversion).

PDC3 – Pesticides will only be applied when conditions allow for complete and even coverage and do not lead to pesticide drift on to non-target sensitive resources or areas used by humans.

PDC4 – Pesticide applicators will account for weather at time of application, including wind speed, wind direction, inversions, humidity, and precipitation in relation to the presence of sensitive resources near the treatment area and direction provided on labels.

*Heartland Invasive Plant Management Plan*  
*Finding of No Significant Impact*

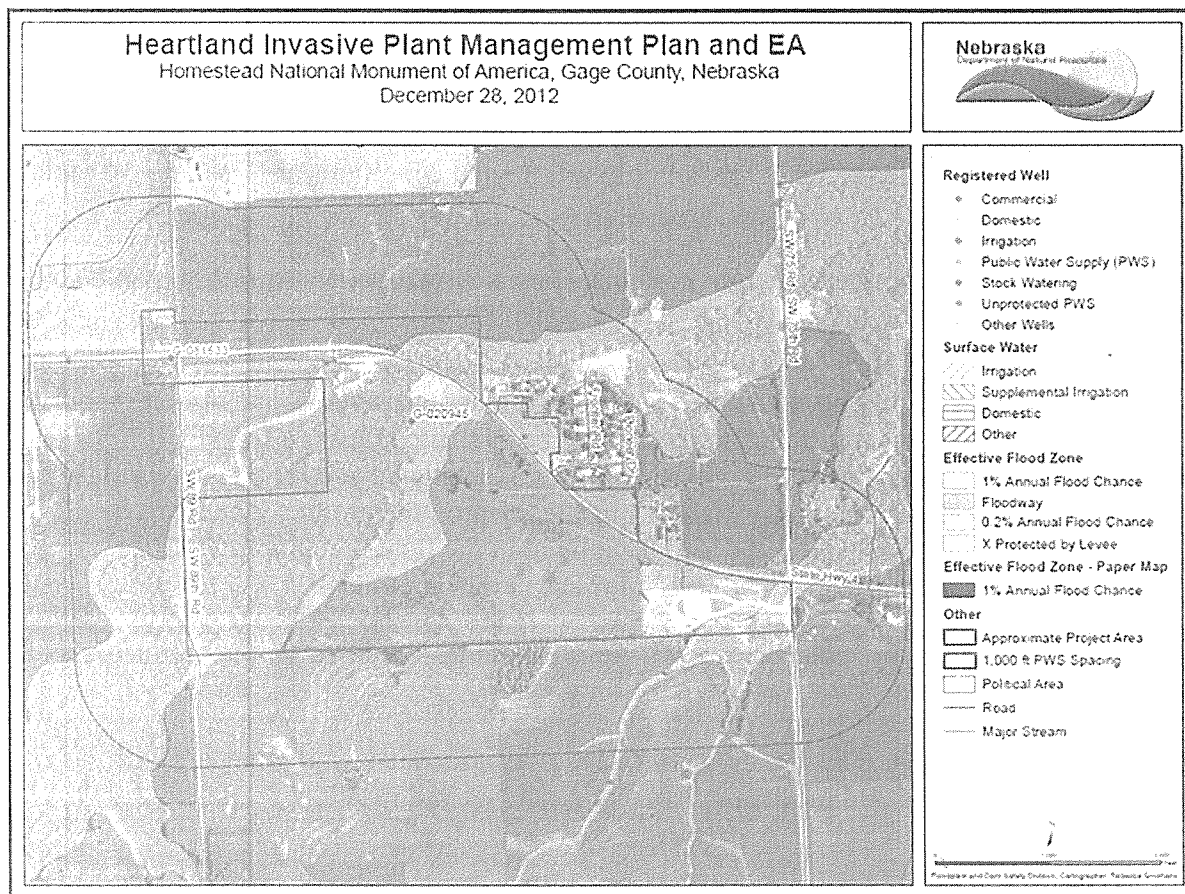
PDC5 – Pesticides will be applied using coarse sprays to minimize the potential for drift. Avoid combinations of pressure and nozzle type that would result in fine particles (mist). Add thickeners if the product label permits.

PDC6 – Lower volatility formulations will be used under conditions, such as high temperatures, that might result in a high risk of volatilization.

PDC7 – Treatment activities will be halted, if necessary, to prevent runoff during rain or drift during high wind events.

PDC8 – Pesticides will be selected based on the soil texture, depth of and distance to water, and environmental conditions. In areas where there is the potential to affect surface water or ground water resources, pesticide pH and soil pH will be considered in selecting the pesticide with the lowest leaching potential. Highly water-soluble pesticides will not be used in areas where there is potential to affect surface water or ground water resources. Pesticides with high soil retention will be used in areas where there is potential to affect surface water or ground water resources. Two irrigation wells on HOME (see Figure H1) will receive special consideration.

Figure H1. Locations of irrigation wells at Homestead National Monument of America.



PDC9 – Mixing and loading of tanks will occur 300 feet from live water where possible. In no case will it occur closer than within 100 feet of water. Use of closed systems for mixing and transferring pesticide will reduce the probability of spills. Place mixing/loading equipment on an impervious pad to contain spills whenever possible or when called for on label.

PDC10 – Allow pesticides to dry before re-entry in the site (usually about 2 hours).

PDC11 – Only pesticides certified for use in aquatic environments will be selected for use in wetlands and riparian areas. When possible, wetlands will receive pesticide application during drawdown conditions. Open water will not receive pesticide treatment.

### ***Handheld Sprayer Use***

HS1 – Each handheld sprayer will be maintained and calibrated prior to use.

HS2 – During all applications, droplet size will be controlled to decrease the risk of pesticide drift to non-target species or outside the immediate treatment area. Droplet size is controlled by nozzle settings.

### ***Boom Sprayer Use***

BS1 – Each boom sprayer will be maintained and calibrated prior to use.

BS2 – During all applications, droplet size will be controlled to decrease the risk of pesticide drift to non-target species or outside the immediate treatment area. Droplet size is controlled by nozzle settings.

BS3 – Pesticides will be sprayed with a boom only when wind conditions are less than 10 mph, or as required per label.

BS4 – The lowest boom and release height possible, consistent with operator safety, will be used.

### ***Pesticide Strategic Criteria***

PSD1 – Pesticide use will only be considered if there is not another appropriate option sufficient to meet the management objectives. Pesticide use will be evaluated through NPS PUPS. Parks will obtain approval of the regional IPM coordinator for all pesticide use for actions resulting from this IPMP/EA. All pesticide mitigations, as they appear on the product label, will be considered during pesticide selection and will be applied in the field. See Table 2.2.2 for examples of mitigations for pesticides projected for use in this alternative.

PSD2 – Pesticides will be applied according to application rates specified on the product label by a trained pesticide applicator.

PSD3 – When possible, treat existing and detect new infestation sites while they are still relatively small and manual and mechanical methods can be employed.

PSD4 – When pesticide methods are used and when feasible, an application method will be chosen that directly targets the invasive plant, with little overspray.

PSD5 – Pesticides will be applied during periods when their mode of action is most effective.

PSD6 – Broadcast sprayers for pesticide treatments will only be used for large, dense infestations of invasive plants. When a large area must be sprayed, and when feasible, apply pesticide when most adjacent native plants are dormant (usually early spring or late fall).

PSD7 – When pesticide must be applied during the growing season, a selective pesticide will be used, if available, or a selective method of application will be used to reduce effects to non-target vegetation.

PSD8 – Pesticides will not be applied directly to water in lentic or lotic systems. Pesticides intended for use near surface water or areas of high leaching rate will be selected for those areas. Such pesticides degrade rapidly in the environment, adhere to sediments, and are not highly toxic to aquatic species.

## **Mitigations**

Mitigations are actions that address specific resource concerns or environmental conditions. Treatments may be excluded from some areas because of the potential impact on resources. All pesticide mitigations on labels will be followed.

### ***Annual Work Plan and Implementation***

AWPMit1 – EPMT staff conduct projects only after delineating areas requiring a certain level of protection for sensitive resources, including cultural resources. These maps, which will be produced over the next five years, are not published within this EA because they include locations of known archeological artifacts, endangered or threatened species, and other resources, whose exact locations are protected.

AWPMit2 – The decision trees will be strictly followed in developing work plans. Best Practices will be rigorously enforced for all actions taken by the EPMT crew that is under the coordinator's supervision.

### ***Aquatic Resources***

ARMit1 – Vehicles, including UTVs, will not be driven up or down stream channels when in transit to or from project sites.

ARMit2 – Equipment will avoid wetland areas with standing water or saturated soils, to the extent practical. Equipment will avoid irrigation and other wells (see Figure H1).

ARMit3 – Apply pesticides only to areas outside of high water mark along watercourses.

ARMit4 – To minimize erosion, do not treat large patches of invasive plants within high water mark along watercourses.

ARMit5 – To minimize erosion, minimize physical disturbances within 30 ft. of high water mark along watercourses.

ARMit6 – impacts to wetlands will be avoided. Mitigation ARMit2 prevents vehicles from entering wetlands. Recommendations to minimize other impacts include:

- Perform activities in wetlands during frozen ground conditions, if feasible.
- Minimize temporary access roads that lead to wetlands and use removable or degradable construction materials.

ARMit 7 – To avoid contamination of ground water, ground water wells, such as those designated by Nebraska Department of Natural Resources, will be avoided, during mechanical and pesticide treatment.

### ***Cultural Resources***

CRMit1 – Pesticides will not be applied within 10 ft. of historic material or buildings and wind speed during application must be less than 10 mph when working within 25 ft. of such historic materials or buildings.

CRMit2 – Restoration will be consistent with desired conditions determined for that site, and guided by the Cultural Landscape Report and treatment plan.

### ***Endangered, Threatened, and Species of Concern***

A full listing of endangered species, threatened species, and species of concern, including federal candidate species and state-listed species, occurs in Appendix L. Based on this list and the HTLN and park monitoring data, the species potentially affected will be listed in the annual work plan and consultation with USFWS will ensue, as appropriate.

ESMit1 – Pesticide applicators will receive training on identification of threatened and endangered plants and animals known to exist or with high probability of occurring in the treatment area. If species were found in the field, treatments would halt until buffer areas are established. During the growing season (non-dormant), 30-foot no-spray zone for handheld sprayers and a 200-foot no-spray zone for boom-sprayers would surround threatened or endangered plants. Buffers for animal species are listed with the species mitigations.

ESMit2 - Some invasive plant management activities may be necessary within buffer zones established for each species. Any activities within buffer zones may result in take, as defined by the Endangered Species Act (ESA). These actions will be coordinated with the appropriate USFWS Field Office before implementation.

ESMit3 – Tilling, seed drilling, or vehicle use will not occur within a 100-foot buffer of areas where threatened or endangered plants are known to occur or have a high potential to occur without prior consultation with the USFWS. These actions will not occur during critical times for ground nesting birds of concern, listed herpetofauna, or listed burrowing animals, where they occur.

ESMit4 – Although candidate species are not afforded any protection under the ESA, efforts will be made to avoid or minimize potential impacts to these species, as if they were listed species. State species of concern, including state endangered, state threatened, state candidate, or state species of concern, are not part of a federal designation of threatened or endangered species

made by the USFWS. The IPMP/EA will provide these species with the same protections as federal species of concern. Parks will identify state species of concern based on lists developed by each state and by recognized conservation organizations, such as Partners for Flight.

ESMit5 – Precautions as outlined for the Kirtland's Warbler and migratory bird species will be applied to all bird species of concern.

ESMit6 – Identifying a previously unknown occurrence of an endangered species habitat will elicit notification of the park resource manager and the USFWS.

ESMit7 – Special protections will be afforded aquatic resources associated with habitat for threatened, endangered, or species of concern. When threatened, endangered or candidate species have been identified within a stream, a no-spray buffer of 30 feet for handheld sprayers and 200 feet for boom sprayers will be established to protect those species.

The following specific mitigations and BPs apply to listed species. Other listed species that are similar to those below will be similarly protected.

**Bats – Gray Bat (*Myotis grisescens*), Indiana Bat (*Myotis sodalis*), and Ozark Big-eared Bat (*Corynorhinus townsendii ingens*)**

BatMit1 – Avoid application of pesticides within 100 ft. of cave openings, sinkholes, or other karst features.

BatMit2 – Apply pesticides only to areas outside of high water mark along watercourses.

BatMit3 – Effects on federally endangered Indiana bat at CUVA, LIBO, and other parks in range would be considered and work sites would be surveyed in coordination with the USFWS if they meet certain characteristics as specified by the USFWS. Characteristics of large roost trees include dead or live trees and snags, greater than 12 inches diameter, with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas; and live trees (such as shagbark hickory and oaks) which have exfoliating bark. At this time, large trees are not targeted for removal, and it is highly unlikely that any invasive trees will have the characteristics of a potential roost tree (USFWS Ohio Field Office consultation), but the EPMT will consult with USFWS in the event that potential roost trees are targeted. This action will prevent direct and indirect impacts to maternity colonies of Indiana bats, which will roost in large trees. Invasive trees targeted for removal that are smaller than 12 inches diameter and that meet the criteria for Indiana bat roosting habitat will be removed outside the summer roosting season to avoid direct impacts to male Indiana bats. These trees should be removed after September 30 and prior to April 1 in areas where Indiana bats occur.

BatMit4 – Workers will not enter caves during field operations.

BatMit5 – Only invasive trees will be felled.

**Rattlesnakes – Timber Rattlesnake (*Crotalus horridus*) and Eastern Massasauga (*Sistrurus catenatus*)**

RSMit1 – Pesticides will not be applied within a no-spray buffer of 30 feet for handheld sprayers and 200 feet for boom sprayers around wetlands known to harbor the eastern massasauga.

RSMit2 – Mechanical treatments will be avoided within 100 feet of wetlands known to harbor eastern massasauga or within 100 feet of timber rattlesnakes and/or their dens.

RSMit3 – To the extent possible, all activities near rattlesnake habitat should only occur between November 1 and March 1.

RSMit4 – All workers in these areas will be informed of potential presence of the respective rattlesnake species in the work area, and will be instructed not to harm or kill such snakes.

**Arkansas Darter (*Etheostoma cragini*) and Topeka Shiner (*Notropis topeka*)**

FishMit1 – These species require a no-spray buffer of 30 feet for handheld sprayers and 200 feet for boom sprayers established where they are known to occur.

FishMit2 – Follow BPs for aquatic resources that are intended to maintain water quality.

**Ozark Hellbender (*Cryptobranchus alleganiensis bishopi*)**

HBMit1 – Generally, only formulations of glyphosate and other herbicides labeled for use in aquatic settings will be used within 300 feet of streams currently or historically occupied by the Ozark Hellbender or within 300 feet of tributaries to these streams for 0.5 miles upstream of the confluence. If the use of terrestrial formulations is necessary, and if it may result in an effect to the species (i.e., a “May Affect” determination), then consultation with the appropriate USFWS Field Office will ensue.

HBMit2 – Within the 300-foot buffer, any additives to aquatic herbicides will be evaluated for effects to the Ozark Hellbender and other aquatic resources. Consultation with the appropriate USFWS Field Office will ensue if use of the additives may result in an effect to the species (i.e., a “May Affect” determination).

HBMit3 – Modifications to any best practices or mitigations relevant to the Ozark Hellbender will be coordinated with the appropriate USFWS Field Office before implementation.

**Higgins-eye Pearly Mussel (*Lampsilis higginsii*) and Rare Bivalves**

BVMit1 – To minimize erosion, do not treat large patches of invasive plants within 30 ft. of high water mark along watercourses.

BVMit2 – Follow BPs for aquatic resources that are intended to maintain water quality.

BVMit3 – Where rare bivalves are known to occur in the Sciota River at HOCU and Yellow River at EFMO, maintain a 30-foot no-spray buffer for handheld sprayers and a 200-foot buffer for boom sprayers.



**Least Tern (*Sterna antillarum*) and Piping Plover (*Charadrius melodus*)**

LTMit1 – Workers will not disturb sand bars, gravel bars, or mud flats during field operations.

**Missouri Bladderpod (*Lesquerella filiformis*)**

Conservation measures developed by the park or recommended by USFWS for threatened and endangered species would be implemented. Additionally:

MBMit1 – Within glades known to support Missouri bladderpod, only spot treatments that avoid Missouri bladderpod plants are permitted and will be done in accordance with stipulated buffers when plants are not dormant.

MBMit2 – Any broadcast pesticide treatments within glades known to support Missouri bladderpod are limited to June-August, the dormant season.

MBMit3 – Workers will identify the Missouri bladderpod to the extent possible (depending on the life-stage) in order to avoid trampling.

MBMit4 – Tilling will not be used as a cultural control within glades known to support Missouri bladderpod.

**Western Prairie Fringed Orchid (*Platanthera praclaera*)**

Conservation measures developed by the park or recommended by USFWS for threatened and endangered species would be implemented. Additionally:

WPFOMit1 – Within prairies known to support western prairie fringed orchids, only spot treatments that avoid the western prairie fringed orchids are permitted and will be done in accordance with stipulated buffers, when plants are not dormant.

WPFOMit2 – Workers will identify the western prairie fringed orchid to the extent possible (depending on the life-stage) in order to avoid trampling.

WPFOMit4 – Tilling will not be used as a cultural control within prairies known to support western prairie fringed orchid.

**Caves and Karst Species**

KarMit1 – Pesticide application will not be permitted in areas where pesticides could reach the karst conduits. Cave drip sites and uncapped permeable rock layers will be avoided entirely. Mitigations for rare bats will be followed, as appropriate.

KarMit2 – Surface disturbing activities above or adjacent to cave and karst resources that eliminate all vegetative cover near karst conduits will be prohibited.

**Migratory Birds and other Federally Protected Birds**

MBMit1 – Several species of concern may migrate through parks in spring and autumn and care will be taken to avoid affecting these species while treating invasive plants from approximately March through May and late August through early October (dates are geographically dependent).

Due to the transient nature of migrating birds, delay of treatment in a roosting area may be adequate to avoid impacts.

MBMit2 – In areas actively used by breeding birds, mowing, tree cutting, and brush cutting will not be done during breeding bird season to the extent practical. If necessary, woody plants will be inspected for bird nesting activity prior to cutting. If nests are found, no cutting will occur. If no nests are discovered, cutting may be done and pesticides may be used in cut-stump, basal-bark, injection, and/or spot-application treatments, methods that reduce the likelihood of contacting birds. Application of treatments could occur outside of bird breeding season (roughly March 1 - July 15, depending on park location) within breeding habitat. Care will be taken when affecting large trees from February 1 through July 15 (see BEMit) to avoid affecting raptors.

### **Bald eagle (*Haliaeetus leucocephalus*) and Other Raptors Project Design Criteria**

BEMit1 – During the breeding season, maintain a 330-ft buffer around nests when working without noise-producing equipment. No restrictions are required outside of the breeding season for such equipment.

BEMit2 – When using noise-producing equipment during the breeding season, maintain a ½-mile buffer around active nests or roosting areas where bald eagles congregate.

BEMit3 – Removal of living large trees with greater than 12 inches diameter at 48 inches height (DBH) along streams, wetlands, lakes, or other water features will be avoided to help preserve bald eagle nesting habitat. Suitable roosting habitat will be preserved as well. Any removal of large (>12 in. diameter) invasive trees will constitute less than 25% of the available mature canopy within an acre radius of the felled trees.

BEMit4 – Apply pesticides only to areas outside of high water mark along watercourses.

### ***Wilderness and Wild and Scenic Protection***

WildMit1 – The Minimum Requirement Analysis will be used to select the “minimum tool”, or treatment or combinations of treatments that pose the least risk to wilderness values in designated wilderness, while still accomplishing invasive plant management objectives.

WildMit2 – Efforts will be made to minimize the number of trips and to reduce the visibility, duration, and sounds of activities in designated wilderness and near Wild and Scenic Rivers. Whenever possible, invasive plant management activities in wilderness will be timed to avoid peak visitor-use periods.

WildMit3 – Unavoidable impacts, such as vehicle tracks, will be mitigated immediately after invasive plant control activities are completed. Mitigation methods will be included in the administrative record for the Minimum Requirement Analysis.

WildMit3 – Any Wilderness visitor complaints regarding invasive plant management activities will be passed on to the Wilderness Coordinator and handled under the park established policies and protocols. The EPMT coordinator will be made aware of the complaint and will work with the park to minimize future disturbance to visitor experience.