Heritage Resources Working Paper
NNIS Project Environmental Assessment
Shawnee National Forest
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Heritage Resources

This section describes the heritage resource concerns with the project area, including: (1) Affected Environment, (2) Design Criteria developed to protect and preserve the heritage resources and (3) a discussion of the potential effects of each of the proposed alternatives.

Affected Environment - Heritage Resources

The primary heritage resource issue in this analysis is the preservation and protection of heritage resources and the assurance that significant heritage resources will not be affected by project implementation. Archaeological sites are located on and in the ground and are affected by any activity that disturbs the soil. Because all project-related activities will be confined to the project area, the area under consideration is the project area itself. Since project activities are confined to the project area and other heritage resources beyond the project boundary are protected by law, it is reasonable to limit the analysis to the project area boundary.

Design Criteria - Heritage Resources

The design criteria developed for the analysis of the project area included methods developed decades ago with the passage of the National Historic Preservation Act of 1966 (NHPA) and its implementing regulations. According to Section 106 of the NHPA, "The agency official shall take the steps necessary to identify historic properties within the area of potential effects. The area of potential effect is defined as "....the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties...The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." [36CFR 800.16(d)]. The future temporal boundary of the project was determined to be five years or the proposed life of the project. Five years was also chosen as the past boundary. The effects of these specific actions would be negligible beyond a five-year timeframe.

Much of the project area is located in areas that have been previously subjected to decades of traditional farming activities such as plowing and disking and therefore the top 4-8 inches of soil are already disturbed and the cultural deposits are mixed. This mixed layer of soil is called the plow zone. Invasive species management activities that further mix the soil within the plow zone will not adversely affect any cultural material that might be contained in the plow zone.

As noted earlier, the area of potential effects may vary depending upon the level of disturbance and what earth-disturbing activities are planned. Invasive species management activities include both non-earth-disturbing activities, as well as a variety of earth-disturbing activities, which also include variations in earth disturbance. Mowing, weed-whipping, tarping (smothering), spot-torching and herbicide treatments are not considered to be earth-disturbing activities, and will not have an affect on

heritage resources. However, there is also variation within the earth-disturbing activities. Hand-pulling, digging with a shovel, and tilling, all of which are included in Alternative 2, are all considered to be earth-disturbing activities, but are much less invasive than bull dozing, back hoeing and grubbing, as called for in Alternative 3. Because of this variation, the level of inventory and other archaeological investigations will vary within the area of potential effects.

Effects of the Alternatives – Heritage Resources

Alternative 1

There will be no direct, indirect or cumulative effects on heritage resources as a result of the implementation of this alternative because no additional non-native invasive species eradication projects would be implemented and, therefore, activities that might potentially damage archaeological sites and other historic properties would not take place. Currently 100-150 acres of non-native invasive species are either pulled or spot torched. Treatment of invasive species with manual (hand pulling herbaceous invasive plants such as garlic mustard and Japanese stiltgrass), or torching would have no effect on subsurface or sub-plow zone heritage resources. Although some invasive vegetation can affect heritage sites, especially in non-forested areas, this would be comparable to natural vegetation encroachment.

Alternative 2 – Proposed Alternative

There will be no direct, indirect or cumulative effects on heritage resources as a result of the implementation of an action alternative. Methods used to control invasive species as outlined above include the use of prescribed fire, mowing and weed-whipping, tarping (smothering or covering the plants with a tarp to block photosynthesis), hand- and mechanical-pulling and digging with a shovel, spot-torching, tilling and herbicide treatments.

A methodology is in place to protect heritage resources from earth-disturbing activities associated with prescribed fire (see project file: Programmatic Agreement Among The Advisory Council on Historic Preservation, the United States Department of Agriculture Forest Service Shawnee National Forest and Midewin National Tallgrass Prairie, and the Illinois State Historic Preservation Officer regarding the Process for Compliance with Section 106 of the National Historic Preservation Act for Undertakings related to Prescribed Fire Programs on the Shawnee National Forest and Midewin National Tallgrass Prairie). It has been determined that Eastern Woodlands prescribed fire, in the absence of earth-disturbing activities, will not have an adverse effect on heritage resources (Cultural Resource Report No. 09-08-04-119, as amended and SHPO/IHPA Log #023092407. However, other activities associated with prescribed fire, such as fire line and water bar construction, and mechanical removal of trees and shrubs, may affect heritage resources. The protocol and mitigation measures included the Prescribed Fire Programmatic Agreement were designed to protect heritage resources that might be adversely affected during prescribed fire projects such as the ones included in this alternative (prescribed fire of 12,000 acres in an around natural areas).

Of the remaining proposed activities, mowing, weed-whipping, tarping (smothering), spot-torching and herbicide treatments are not considered to be earth-disturbing activities, and will not have an affect on heritage resources. In general, herbicide treatments do not have the resident time of pesticides and would not affect the chemical structure or character of surface or subsurface archaeological materials. However, hand-pulling, digging with a shovel, and tilling are all considered to be earth-disturbing

activities. The great majority of the project area is located on ridge tops that have already been disturbed by decades of plowing and other agriculturally-related activities. Hand and mechanical-pulling, digging with a shovel to a depth of eight inches or less, and tilling in previous plowed and disked old fields will not further affect heritage resources (SHPO/IHPA concurrence dated 7/10/2009). Areas known to contain invasive plant species that have not been previously disturbed by agricultural activities will be reviewed and inventoried for heritage resources prior to project implementation (SHPO/IHPA concurrence dated 7/10/2009).

Alternative 3

There will be no direct, indirect or cumulative affects to heritage resources as a result of the selection of Alternative 3. The methods to control invasive plant species proposed in Alternative 3 consist of aggressive manual and mechanical treatments (prescribed fire, clipping, cutting, torching, weed whipping, hand and mechanical pulling, grubbing, tilling, tarping, and bull dozing and/or back hoeing. Natural weed killers would be applied when manual and mechanical methods are ineffective. This alternative is designed to control invasive plant species, but not eradicate them.

Although much of the same methodology proposed for Alternative 3 is the same as Alternative 2, this alternative proposes more aggressive earth-disturbing activities, such as grubbing (repeatedly hacking at individual plants) and excavating the invasive plant populations with dozers and/or back hoes. Areas for which this type of eradication is proposed will be reviewed and inventoried for heritage resources prior to implementation (SHPO/IHPA concurrence dated 7/10/2009). However, the level of earth-disturbance included in these aggressive management activities is much higher and more likely to extend below the plow zone and adversely affect any archeological materials located there. Therefore, the level of heritage inventory will be greater for Alternative 3, than either Alternatives 1 or 2. Although there will be greater heritage program involvement if Alternative 3 is selected, all heritage resources will be protected during invasive species management activities.

Cumulative Effects

The analysis of cumulative-effects takes into account all known past actions, present and reasonably foreseeable future actions which would be likely to affect the area of analysis, none of which have an cumulative effect on heritage resources located within the area of potential effects. Prescribed fire, timber harvest and timber stand improvement, tree planting, openland management, utility right-of-way, special-use permits, trail construction and maintenance, and recreation use will have no cumulative affect because there are no direct or indirect effects as a result of the implementation of any of the alternatives. A methodology which includes mitigation measures, is in place to protect heritage resources from earth-disturbing activities associated with the activities listed above.

Agriculture, residential development, ATV use and use of non-system trails, and NNIS treatment on private lands will not have a cumulative effect on heritage resources on the Shawnee National. All of these actions have the ability to affect

heritage resources located on private land, but SHF management has no control over them (residential development and invasive species management). Other actions that may affect heritage resources on federal land, but are not controlled by Forest management (wildfires, ATV use and non-system , undesignated trails) The effects to heritage resources will remain the same regardless of which alternative is chosen.

Table X. Design Criteria Summary for the Non-Native Invasive Species Project.		
Resource Area	**Design Criteria**	**Rationale / Effectiveness**
Heritage	The Area of Potential Effects for each invasive species management activity will be reviewed and inventoried as needed to ensure that all heritage resources are adequately protected from project-related impacts.	Following inventory and mitigation methodologies agreed upon by the Illinois State Historic Preservation Office will ensure that heritage resources will be protected (SHPO/IHPA concurrence 7/10/2009).

Table X. Mitigation Measures, Heritage Resources, Non-Native Invasive Species Project.		
Resource Area	**Design Criteria**	**Rationale / Effectiveness**
Heritage	The Area of Potential Effects for each invasive species management activity will be reviewed and inventoried as needed to ensure that all heritage resources are adequately protected from project-related impacts.	Sites located within the project area will be protected from earth-disturbing activities associated with invasive species management and prescribed fire such as grubbing, digging down more than eight inches with a shovel, and bull dozing. Mitigation measures include review of planned earth-disturbing activities, and the use of non-earth disturbing methods such as mowing, clipping, cutting, weed-whipping, tarping (smothering) torching and herbicide treatments to achieve the desired results.
	After completion, this project will be included in the Forest monitoring plan in order to assess the nature and degree of effects to historic properties as a result of project implementation.	The use of non-earth-disturbing management activities will have no effect on heritage resources. Monitoring this project will determine the effectiveness of the agreed upon invasive species management protocol (SHPO/IHPA concurrence 7/10/2009).

Table X. Monitoring, Heritage Resources, Non-Native Invasive Species Project.		
Heritage Resources	Ensure that heritage resources are protected and preserved during and after project implementation.	The use of non-earth-disturbing management activities will have no effect on heritage resources. Monitoring this project will determine the effectiveness of the agreed upon invasive species management protocol (SHPO/IHPA concurrence 7/10/2009).