United States Department of Agriculture | **Forest Service** | **Midewin National Tallgrass Prairie** | **30239 South State Route 53**
Wilmington, IL 60481
(815) 423-6370

File Code: 1950-1
Date: November 16, 2004

Dear Friends of Midewin:

The Environmental Assessment (EA) for the West Side Recreation Trail and Picnic Area at the Midewin National Tallgrass Prairie is now available for public review and comment over the next 30 days. We propose to construct a permanent, shared-use trail, picnic area, and associated facilities for visitors to Midewin, including hikers, bicyclists, and equestrians.

The project area is located mostly on the west side of Midewin, but includes a trailhead east of the iron bridge that crosses over State Route 53. The shared-use portion of the trail runs in a southwesterly direction from the bridge toward a second trailhead in the vicinity of the River Road seedbeds. From here, the pedestrian-only trail segment runs northerly to a return loop.

On October 18, 2002 we requested public comments on potential issues regarding the proposed trail and picnic area. This scoping period ended December 16, 2002. Public comments received were used to identify significant issues and mitigation measures, and to develop alternatives.

The alternative that was initially proposed during the scoping process for this project (Alternative 2) would make the greatest use of existing infrastructure such as roads and abandoned rail beds. The alternative that is preferred (Alternative 3) would provide for wildlife viewing areas, a scenic overlook, and a more scenic route taking advantage of the natural contour of the land. An alternative for no action was also considered during the analysis for this project.

Public participation is an important part of the analysis and I encourage you to take a look at the West Side Recreation Trail and Picnic Area EA. To ensure that I have an opportunity to consider your comments before I make my final decision, they must be postmarked or received within 30 days beginning the day after publication of the legal notice announcing this comment period in the Joliet Harold News. When the comment period would end on a weekend or Federal holiday, then comments will be accepted until the end of the next Federal working day. No comments will be accepted after the 30-day comment period ends. Public comments on the EA will be addressed in my final decision. As the Prairie Supervisor, I am the Forest Service deciding official for this project.

To request a copy of the Environmental Assessment for the West Side Recreation Trail and Picnic Area, please contact Enid Erickson at (815) 423-6370 or email her at eerickson@fs.fed.us. The EA is also available on our web site at http://www.fs.fed.us/mntp/.

Comments may be mailed to the Prairie Supervisor at the address above or emailed to: comments-eastern-midewin@fs.fed.us. Office hours, for those who wish to hand-deliver or provide oral comments, will be 8:00 a.m. to 4:30 p.m., Monday – Friday (except Federal holidays) after December 11, 2004. Until that date, office hours are 8:00 a.m. to 4:30 p.m., Monday – Saturday. Oral comments must be provided at the Midewin Supervisor's Office or by telephone at (815) 423-6370 during those hours. Alternately, comments may be submitted by facsimile at (815) 423-6376.

In order to be considered, comments must be substantive, or specific to the actions that are proposed. Please be sure to include your name, address, organization represented, and title. Each individual or representative of a group or organization that submits comments must sign or provide for verification of identity. Please include the title of the document you are commenting on and specific facts and supporting reasons regarding your comments for me to consider. If you wish to reference scientific literature among your comments, then please send a copy of the reference you have cited and include rationale as to how you feel it is pertinent to this specific project. This will allow me to fully evaluate your comments.

Copies of the Decision Notice will be mailed to those submitting comments and to those who request copies. For further information regarding this project, please contact Enid Erickson at (815) 423-6370.

Sincerely,

LOGAN LEE,
Prairie Supervisor
Midewin National Tallgrass Prairie

United States
Department of
Agriculture

Forest
Service

November 2004

Environmental Assessment

WEST SIDE RECREATION TRAIL AND PICNIC AREA

Midewin National Tallgrass Prairie
Will County, Illinois

For More Information Contact:
Enid Erickson
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1. INTRODUCTION

Document Structure

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and state laws and regulations. This EA discloses the direct, indirect, and cumulative environmental effects that would result from three alternatives developed for this project: the proposed action, preferred action, and no action alternatives. This EA addresses issues and analyses that will help to determine whether or not an Environmental Impact Statement (EIS) or a Finding of No Significant Effect (FONSI) is applicable. Additional detailed documentation, including in-depth analyses of project area resources, may be found in the project planning record located at the Midewin National Tallgrass Prairie Supervisor's Office in Wilmington, Illinois. This EA is organized into four parts:

- ***Introduction:*** This section contains information on the history of the proposed project, the purpose and need for the project, and the agency's proposal for achieving the purpose and need. The Forest Service process used to inform the public of the trail proposal and how the public responded are described, and effects are compared for the alternatives based on significant issues generated from the "scoping" process.
- ***Comparison of Alternatives, including the Proposed Action:*** This section provides a detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. Alternatives were developed based on the significant issues raised by the public, Interdisciplinary (ID) Team resource specialists at Midewin, and other agencies. Mitigation and monitoring measures are discussed, and a summary table of the activities associated with each alternative is provided.
- ***Environmental Consequences:*** This section describes the environmental effects of implementing the proposed and preferred actions as well as not implementing any action at this time. This analysis is organized by important issues and by key resources likely to be affected. For each section, the affected environment and anticipated effects are described. The No Action Alternative provides a baseline for evaluation and comparison of the other alternatives.
- ***Agencies and Persons Consulted:*** This section provides a list of agencies consulted and persons involved in developing this EA.

Background

This EA is a more streamlined document than has been seen in the past. It analyses effects for, and focuses on, the disclosures required by the National Environmental Policy Act (NEPA) and those issues that are pertinent to this EA rather than the numerous issues addressed in previous EAs. Issues brought forth during public scoping for this project that were outside the scope of this site-specific EA are therefore not analyzed, including the issue of access to regional trails outside of Midewin. Trail connections will be addressed

in analyses conducted for future trails at Midewin that are suitable for linking to regional trails. By focusing on the legal requirements and issues that may result in significant effects as defined by the law, we have reduced the amount of information we are asking readers to review.

The Midewin Land and Resource Management Plan (Prairie Plan, 2002c) identifies a network of 48 miles of trail corridor as a long-term recreation goal at Midewin based on the public's growing interest in gaining access to the site for recreational and educational activities. This project is not a new proposal for Midewin, as a non-motorized, trail-based recreation program is directed in the Prairie Plan for most of the unit in order to assure the protection of sensitive prairie ecosystems. This proposed project and all other activities at Midewin adhere to the goals and objectives laid out in the Prairie Plan and tie into the Illinois Land Conservation Act that established Midewin and allowed for recreation that is compatible with habitat restoration goals. A balance of goals is laid out programmatically in the Prairie Plan, which allows for combinations and trade-offs in recreation and restoration to achieve this balance.

In addition to the Prairie Plan, the Interpretive Master Plan (DeVore et al 2002) for Midewin envisions restoration of the prairie environment with trails development by "…allowing the public to enjoy the property in a variety of ways, including hiking, hunting, and wildlife watching. Visitors will be encouraged to discover the site through a network of pedestrian, equestrian, and bicycle trails" (p. 8).

Within Forest Service recreation programs, five primary considerations of trails are: 1) Recreation Opportunity Spectrum (ROS) classification, 2) Scenery Management System, 3) miles of trail, 4) potential user conflicts, and 5) potential interpretive opportunities. This project meets Prairie Plan direction for ROS and for scenery management, which establishes "goals and objectives for the management of scenery" (FSH 2382). ROS "identifies experience levels and management prescriptions to assure a diversity of recreation experiences" (FSH 2309.18.19-2). Most of the trail falls within a management criterion of high scenic integrity. Figure 5 in the Prairie Plan (2002c) illustrates the Scenery Management System for Midewin.

This first piece of Midewin's permanent trail system is mostly on the west side and was determined primarily by safety concerns. Public access to parts of Midewin continues to be restricted while the U.S. Army completes the cleanup of contamination remaining from decades of TNT manufacturing and packaging. Public activities have gradually increased to include interim hiking trails, escorted tours, volunteer work projects, and deer and turkey hunting in areas that have been cleaned up. Future permanent recreation trails in other parts of Midewin, including the eastern portion of the site, will be proposed and considered as cleanup continues.

Pre-analysis information from consultation and scoping has enabled us to compare the No Action Alternative to two action alternatives that meet the purpose and need of the Prairie Plan. Prior to selecting the two action alternatives, several other alternatives were studied but dropped from consideration owing to anticipated effects on natural and cultural

resources or high cost that would make the trail project impossible to implement in the foreseeable future. Rather than to serve as a decision document, this EA refines and analyzes alternatives, providing relevant information from which a Decision Notice will be developed.

Purpose and Need for Action

There is increasing demand and need for quality public recreational use and enjoyment of the Midewin National Tallgrass Prairie in conjunction with continuing prairie restoration actions and protection of prairie ecosystems. This action responds to the goals and objectives outlined in the Prairie Plan and helps move the project area toward the desired condition described in the Plan (p. 2-9).

Desired Condition: The existing condition at Midewin does not currently provide for the level of recreational opportunities identified in the Prairie Plan; there is no permanent recreation infrastructure. Existing interim trails consist of mowed vegetation or existing roads with poor-quality surfacing. Throughout the planning process for the Prairie Plan, input from recreational groups such as hunters, equestrians, hikers, and bicyclists was balanced with habitat restoration objectives, indicating a need to provide areas to the public for a variety of uses. Specifically, this action is needed at this time to work toward the desired condition of providing multiple-use trails for the different uses identified in the public scoping process for the Prairie Plan. By adhering to the goals and objectives laid out in the Prairie Plan and to the direction of the Illinois Land Conservation Act that established Midewin, this project would help achieve a balance of recreational opportunities and restoration, bringing Midewin closer to the desired future condition that integrates recreation and restoration.

Starting at the East Trailhead just east of State Highway 53, the desired condition is for parking, toilets, information, interpreted historic sites, a location for interpretive activities, and a departure point for the shared-use trail. Trail users ranging from pedestrians, bicyclists, and equestrians to cross country skiers and hunting enthusiasts, would cross the iron bridge over the highway and Union Pacific Railroad, then proceed southward over a rolling landscape of grasslands interspersed with occasional trees and fence lines. Visitors would cross a bridge over Prairie Creek, then continue southwest across a level landscape and through a large restoration project at the South Patrol Road wetlands. Vistas would overlook a bunker field and an outwash plain to the west. During spring and early summer, grassland birds and their songs would be evident, whereas in the fall and winter, hawks and other raptors would be visible as they hunt over the existing grasslands and restored prairie. Over time, old tree lines and shrubby thickets would be removed, and the grasslands now dominated by pasture grasses would be restored to native prairie grasses and wildflowers. Interpretive points along the shared-use trail would enable visitors to learn about Midewin’s natural and cultural resources.

After arriving at the River Road seedbeds, several options would be available for visitors. The seedbed area has been fenced to keep deer out, and the River Road Trailhead would be located within this fenced area. While horses and bicycles would remain outside the

fenced enclosure, pedestrians entering through gates might picnic or walk among the seedbeds, where displays of prairie wildflowers in bloom may be seen from spring through fall. Trail users could either return to the East Trailhead using the shared-use trail for a round trip or continue on foot along the pedestrian trail.

Hikers using the pedestrian trail could complete a round trip of approximately 10 miles in length, passing through a diverse environment of native oak woodlands, wetlands, native prairie remnants, prairie and wetland restorations, pastures, shrubby thickets, and fence lines. Over time, trail users would experience a more open and natural-appearing landscape consisting of restored prairie and grasslands. Fence lines, thickets, and other human-caused features would be removed. Hikers could expect to experience a changing mosaic of habitats, with ample opportunities to spot wildlife (such as deer and grassland birds) and native wildflowers. Restoration activities would continue to be implemented to achieve the desired condition of balance between recreation and restoration goals at Midewin.

Proposed Action

The action initially proposed by the Forest Service calls for routing the trail on existing roadbeds and rail grades to the extent possible. Two trail segments would be constructed along with two trailheads, one with a picnic area near River Road and a second just east of State Highway 53. One trail segment would be for shared-uses and run from the River Road Trailhead northeast and over the State Highway 53 overpass to the East Trailhead. The other segment would be for pedestrian use only and run from the River Road Trailhead northward to the Blodgett Marsh area and loop into areas with existing prairie remnants.

Proposed to skirt portions of the River Road seedbeds, the shared-use trail segment would be located outside areas identified in the Prairie Plan that are to be unfragmented and maintained as habitat blocks that are of sufficient size to sustain sensitive species of plants and animals in a more natural environment.

The River Road Trailhead would provide parking areas for automobiles and buses, cover 1.25 acres, and include a picnic area and shelter. The East Trailhead would provide parking areas for automobiles, trailers, and buses, covering 3.25 acres (including the entry road). Interpretive signs and features would be strategically placed along the trail.

Decision Framework

Given the purpose and need, the Prairie Supervisor will review the proposed action, preferred action, and no action alternatives in order to make the following decisions:

- What trail construction activities will be implemented?
- How will trail design meet the various public access and capacity needs?
- Where and when will this project be implemented?

- Does the project move toward the goals and objectives outlined in the Prairie Plan?
- How will natural and heritage resources be protected?
- What mitigation measures are needed to avoid or minimize resource damage?
- How will trail construction/use best coordinate with restoration activities?
- In considering the effects analyzed in this EA, will preparation of an Environmental Impact Statement be needed?

Public Involvement

Formal public involvement with this project began with the mailing of an informational scoping package to approximately 600 members of the public and other agencies on October 18, 2002. The comment period lasted through December 16, 2002. The proposal was also mentioned in the Schedule of Proposed Actions for Midewin, starting with the Spring/Summer 2002 issue of the Midewin Quarterly. A news release was submitted on October 24, 2002 to local news media. As part of the public involvement process, the agency hosted field trips with individuals interested in the development of Midewin's first permanent trail in order to facilitate a collaborative process for this project. As a result of scoping efforts, 15 letters were received with comments about the proposed action. These letters are contained in the project file for this project, located at the Midewin Supervisor's Office in Wilmington, Illinois. Using the comments from the public and other agencies, the Interdisciplinary Team developed the major issues to address.

Issues

NEPA requires that we look at the intensity or severity of impacts, both beneficial and adverse, along with effects on public health and safety, effects on significant heritage resources, and effects on endangered or threatened species or their habitats. We must determine if effects will be highly controversial, uncertain, or are related to other actions with individually insignificant but cumulatively significant impacts. Additionally, we are required to look at the degree to which an action may establish a precedent for future actions with significant effects and determine if the action violates Federal, State, or local laws or requirements that protect the environment. In order to arrive at a *Finding of No Significant Impact*, these considerations may not pass the threshold of significance that would require preparation of an EIS, and this is the primary purpose of an EA – to analyze effects in this context.

Key issues determined from scoping deal with fragmentation of grassland bird habitat and the potential for user conflict following trail construction. Other issues brought up during scoping that are automatically covered under existing laws, regulations, or Forest Service policy are not addressed in this document; nor are issues included that have already been analyzed in the Prairie Plan or that are not specifically relevant to this analysis. In addition to analyzing the conditions mentioned above in this EA, a major decision point and primary factor that will influence the decision is the quality of the

recreational trail use experience and the degree to which trade-offs between recreation development and prairie restoration will be worthwhile.

ISSUE 1. Potential for Fragmentation – Response to this issue will focus on how any limited or temporary fragmentation of existing or future grassland bird habitat will be negated or reduced through mitigation of disturbances from construction and public use. Response will also address habitat restoration efforts planned to increase overall grassland bird habitat at Midewin in accordance with the Prairie Plan, which identifies acceptable short-term risks relative to future restored areas. Comments made during scoping for this project included the following:

"The primary purpose of Midewin is 'to manage the land and water resources…in a manner that will conserve and enhance the native populations and habitats of fish, wildlife, and plants.' Recreational and educational opportunities should be consistent with this primary purpose."

MEASUREMENT INDICATOR

1. Acres of TES/ unfragmented grassland habitat affected by trail development.
2. Acres of TES/ unfragmented habitat gained with project mitigation.
3. Total acres of TES/ unfragmented habitat gained with future restoration.

ISSUE 2. Potential for User Conflicts – Response to this issue will focus on how to achieve maximum enjoyment of the trail and its facilities by different types of trail users and other recreationists while reducing the potential for conflicts. Scoping comments varied depending on the individual's perspective:

"I would be particularly concerned about mixing large horses and small children on a shared trail."

"It is important to assess the impact a hiking trail will have on hunters."

MEASUREMENT INDICATORS

1. Trail width & length.
2. Hunting sites affected.

ISSUE 3. Quality of the Recreational Trail Use Experience – Response to this issue will focus on how to achieve the most visually appealing and "natural" experience for trail users while protecting natural and cultural resources.

"To fully demonstrate the value of your work, this effort must include providing access for various non-intrusive citizens to view, appreciate, and enjoy the uniqueness of the restored prairie."

MEASUREMENT INDICATORS

1. Degree to which trails follow natural topography and slopes.
2. Use of existing roadbeds and rail grades affecting scenic quality and visitor experience.
3. Provision of natural screening, concealment, or removal of man-made or unnatural features.
4. Trail locations along peripheries of large open areas to maximize scenic views.
5. Obliteration and re-grading of existing roads and rail beds.

Comparison of Alternatives by Issues

The table below provides a summary of the effects of implementing each alternative that are specific to the issues that were raised during scoping for this project. Information in the table is focused on activities and effects of the alternatives, where different levels of effects or outputs can be compared quantitatively.

Table 1. Summary of the Effects of Alternatives by Resource Issue

Improvements	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3 (Preferred Action)
Objective: Provide a quality setting for permanent public recreation trails	No	Moderate quality	High quality
Objective: Provide increased opportunities for public education & interpretation	No	Yes	Yes
Issue 1: Fragmentation Indicators			
1. Acres unfragmented grassland habitat affected by trail development	No existing or future habitat occupied or fragmented by trail or facilities. High potential for disturbance from dispersed recreation.	577 acres of habitat affected.	586 acres of habitat affected.
2. Acres unfragmented habitat gained with project mitigation	None.	743 acres gained.	743 acres gained.
3. Acres unfragmented habitat gained with future restoration	Dispersed recreation effects would decrease potential for gaining viable habitat.	10,260 acres in 5 tracts.	10,260 acres in 5 tracts.
Issue 2: User Conflict Indicators			
1. Trail width & length	N/A	9.6 total miles. Up to 6' pedestrian only – 4.2 miles. Up to 8' shared use – 5.4 mi. Greater potential for conflict.	10.5 total miles. Up to 6' pedestrian only – 5.4 miles. Up to 10' shared use – 5.1 mi. Reduced potential for conflict.
2. Hunting sites affected	None	45 sites.	64 sites.
Issue 3: Quality of Trail Use Experience Indicators			
1. Follows natural topography & slopes	N/A	Rarely	Often
2. Maintained road beds & rail grades that will affect scenic quality & visitor experience	N/A	3.6 miles. (3 miles to deviate from existing infrastructure.)	1.2 miles. (9.2 miles to deviate from existing infrastructure.)
3. Provision of natural screening	None	None	High
4. Trail along edges of open areas to maximize scenic views	N/A	Low	High
5. Obliteration & re-grading of existing roads and rail beds	None	No	Yes

2. ALTERNATIVES

This chapter describes and compares the alternatives considered for the West Side Recreation Trail and Picnic Area project. It includes a description of each alternative considered. Maps of the alternatives may be found in Appendix A. This section also presents the alternatives in comparative form, sharply defining the differences between them and providing a clear basis for choice among options by the Prairie Supervisor and the public. Some of the information used to compare the alternatives is based upon the design of the alternatives (i.e., new trail configuration versus use of existing infrastructure) and some of the information is based upon the environmental, social, and economic effects of implementing each alternative.

Alternatives, Including the Proposed Action

Public issues concern the potential for disturbance to grassland birds and the potential for recreational user conflict. To address these issues, alternatives were developed and analyzed for implementing the proposed action. These include a minimum resources impact alternative (Alternative 2), as described in the scoping package for this project, and a preferred alternative that provides for a higher quality visitor experience along with a balance of user accommodations and resource protection (Alternative 3).

Alternative 1 – No Action

Under the No Action Alternative, no permanent trail or facilities construction would be implemented at this time. Within one to two years, the project area would be open to unrestricted, dispersed use by the visiting public. Interpretive and informational signing would be used to educate the public and direct behaviors. The Forest Service would continue to make available the existing three miles of interim hiking trail on the west side, in addition to over 16 miles of interim hiking and shared use trails on the east side of State Highway 53. Consistent with the Prairie Plan, permanent recreational trails in other locations could be proposed and considered in the future as additional Midewin lands are opened to the public. Ongoing routine and recurrent management activities, such as invasive species treatments, prescribed burning, road maintenance, and prairie restoration would continue. Actions prescribed in the Prairie Plan such as old road and rail bed obliteration would be unaffected. The No Action Alternative provides a baseline from which to compare each of the action alternatives as well as an opportunity to analyze the environmental and social effects associated with not constructing the trail, picnic area, and other facilities proposed for this project. Table 2 presents and compares the actions proposed for each alternative, including the No Action Alternative.

ACTION ALTERNATIVES

Alternative 2 – Proposed Action

Alternative 2 (Figure 2) is the action proposed in the scoping letter for this project for construction of two trailheads, a picnic area, and approximately 9.6 miles of trail in two segments, including 3.6 miles on existing roads and rail beds. A shared-use segment would be developed for equestrians, bicyclists, and pedestrians, while another segment would be limited to pedestrians only. The shared-use segment would run west from the 3.25-acre East Trailhead across the State Highway 53 iron bridge overpass. This segment would remain on the rail bed and use the existing bridge over Prairie Creek that would be converted for trail use. Running southwest along Diagonal Road, the trail would traverse the South Patrol Road restoration area. Portions of the River Road seedbed gardens would then be skirted. A picnic area, shelter, and parking would be located near the 1.25-acre River Road Trailhead.

The second segment would be limited to pedestrians starting at the River Road Trailhead, where it would head west toward Prairie Creek Woods. The pedestrian trail would be located on portions of the rail bed north of Prairie Creek. A new footbridge would be constructed over Grant Creek. Phased construction, if needed, would consist of an initial pedestrian trail followed by a shared-use trail as funding becomes available.

The trailheads would include bus parking and turn-arounds, along with 30 spaces for automobile parking at the River Road Trailhead and 32 spaces at the East Trailhead, where 10 additional spaces would be provided for trailer parking. Trailer parking would not be available at the River Road location, although a shelter and picnic area would be constructed. Neither of the trailhead facilities would have electricity or equestrian and bike amenities under this alternative, although “sweet smelling” vault toilets would be available at both trailheads.

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Alternative 2 was proposed to be located outside the existing security fence of the old Joliet Arsenal. For the most part, existing roads and rail bed surfaces would be utilized and none would be removed or restored; they would be modified, as necessary, to conform to trail and safety standards. Use of existing roadbeds could require aggregate removal, bed reconditioning, and grading of shoulders and drainage to provide “a suitable structural base and footprint for trail construction” (Midewin Road Analysis 2002d).

Scenic quality would be limited under Alternative 2, where extensive use of existing infrastructure would bring trail users into close proximity of the sights and sounds associated with traffic and future developments outside of Midewin.

Alternative 3 – Preferred Action

Alternative 3 (Figure 3) is the action preferred for development of the first phase of the trail system. It includes two trailheads, a picnic area, and approximately 10.5 miles of trail in two segments, including 1.2 miles of modified existing roads and rail beds. Most of the additional mile proposed under this alternative would occur along the pedestrian trail to accommodate a trail loop through Prairie Creek Woods and to provide for a larger

trail loop north of Grant Creek. The two segments would accommodate shared-use (from the East Trailhead to the River Road Trailhead) and pedestrian-only use (west and north of the River Road Trailhead). This alternative emphasizes visitor amenities and the quality of recreation experience. It provides for greater scenic interest and visual quality because it follows the natural topography of the land and removes rail grades and roadbeds to restore open areas and promote prairie restoration. In the eastern portion of the project area, a new bridge would be constructed over Prairie Creek and the existing bridge would be removed to avoid routing the trail on the floodplain.

In addition to the amenities in Alternative 2, the 3.25-acre East Trailhead would include an outdoor council ring and 10 trailer/bus spaces in a separate parking area. This trailhead would not have electricity. The 1.25-acre River Road Trailhead would provide additional parking for 10 buses and include electricity.

Scenic improvements in this alternative include an overlook west of the State Highway 53 iron bridge overpass, and prairie savanna tree planting to screen noise and visual impacts west of the State Highway 53 overpass and near the Prairie Creek Granary. Oak savanna restoration would be added under this alternative to mitigate for foregoing the opportunity to maintain some areas of grassland bird habitat in the eastern part of the project area west of State Highway 53, even though this area is not designated in the Prairie Plan to be future unfragmented habitat. However, this mitigation measure would provide added insurance of refuge for displaced bird species prior to completing restoration at Midewin. The former temporary Hotshot headquarters site would be maintained as a trail construction staging area following relocation of the Hotshot base facilities to the Supervisor’s Office complex.

As in Alternative 2, the pedestrian-only trail segment would make a loop from the River Road Trailhead, extending westward toward Prairie Creek Woods, then north to the Blodgett Marsh area using the existing bridge over Prairie Creek and a newly constructed footbridge over Grant Creek. Horse trailers would not be permitted at the River Road location. However, a storage facility, shelter, and picnic area would be located at that site. Two spur trails along the pedestrian-only portion of the trail would be added to allow for observing wildlife at Prairie Creek Woods and Blodgett Marsh.

Actions Common to Alternatives 2 and 3

The following actions apply to the action alternatives:

- Two interim pedestrian trails totaling three miles (Newton and Henslow trails) would be decommissioned upon completion of permanent trail segments.
- The trail would be maintained as a non-motorized trail except as deemed necessary for administration use and law enforcement.
- The Prairie Supervisor would authorize closure orders or restriction of trail sections by different user groups as necessary for resource protection or other management activities such as maintenance.

- Maintenance activities would include upkeep of trailheads, picnic area, restrooms, and parking facilities along with mowing, placing gravel where needed along trails, clearing brush, and cleaning culverts to ensure visitor safety and enjoyment.
- The existing iron bridge over State Highway 53 would be refurbished for trail use.
- The deer fence surrounding approximately 100 acres of the native seed gardens at the River Road Trailhead area would also enclose parking, a picnic area, and shelter. Horses and equestrian amenities would remain outside the fenced area.
- The existing bridge over Prairie Creek in the western portion of the project area would be converted for pedestrian-only trail use. Access would be over approximately ½-mile of Army land. Uses of Army lands are authorized under the Illinois Land Conservation Act. Effects on these lands are analyzed in this EA.
- A footbridge would be constructed over Grant Creek.
- Parking, “sweet smelling” vault toilets, a picnic area, and a shelter at the River Road Trailhead would cover 1.25 acres, including a bus turn-around and parking for 2 buses and 30 automobiles (with provisions for additional parking).
- “Sweet smelling” vault toilets and facilities at the East Trailhead would cover 3.25 acres, including a bus turn-around and parking for 10 horse trailers/buses and 32 automobiles.
- All applicable Best Management Practices would be utilized.
- Ongoing and recurrent management activities would continue, including planned restoration actions, prescribed burning, invasive plant treatment, and road maintenance. Other authorized activities such as obliteration of old roads and rail beds would continue to be implemented.
- Trail development would be prioritized and phased as funding becomes available.

The following table compares similarities and differences of the activities that would be implemented for each alternative, including the no action, proposed action, and preferred action alternatives.

Table 2. Comparison of Actions for Each Alternative

Activities	**Alternative 1** **No Action**	**Alternative 2** **Proposed Action**	**Alternative 3** **Preferred Action**
Total trail length	19+ miles existing interim trails available	9.6 permanent miles of permanent trail	10.5 miles of permanent trail
Use Hwy. 53 overpass	No	Yes	Yes
Use former Hotshot site as trail staging area	No	No	Yes
Use existing east Prairie Creek bridge	No	Yes – shared crossing	No – remove old bridge & construct new bridge
Use existing west Prairie Creek bridge & construct bridge over Grant Creek	No	Yes – pedestrians only	Yes – pedestrians only
Scenic overlook, spur trails & wildlife viewing	No	No	Yes
Oak savanna mitigation restoration & screening areas	No	No	Yes
Size of trailheads & facilities	N/A	East Trailhead: 3.25 ac. River Road: 1.25 acres	East Trailhead: 3.25 ac. River Road: 1.25 acres
Trailhead bus turn-around & parking	N/A	Yes – both trailheads	Yes – both trailheads
Trailer parking	No	10 spaces at East Trailhead only; **no separate** parking for trailers and vehicles	10 spaces at East Trailhead only; **separate** parking for trailers and vehicles
Vehicle parking	No new parking	32 spaces at East Trailhead & 30 at River Road Trailhead	32 spaces at East Trailhead & 30 at River Road Trailhead
Facilities electricity	N/A	No at East Trailhead; **No** at River Road	No at East Trailhead; **Yes** at River Road
Equine amenities/bike racks at trailheads & rest areas/benches along trail	No	No	Yes
Shelter & picnic area at River Road Trailhead	No	Yes	Yes
Storage facility at River Road Trailhead	No	No	Yes
Council ring at East Trailhead	No	No	Yes
Toilets	Continued use of portable toilets	"Sweet Smelling" vault toilets at both trailheads	"Sweet Smelling" vault toilets at both trailheads
Modify existing roads and rail beds for trail use	No, though available for dispersed recreation	Yes – 3.6 miles	Yes – 1.2 miles
Trail mowing and/or gravel application	N/A	Yes	Yes
Management activities: road maintenance; prescribed burns; invasive species RX; other restoration actions	Yes – ongoing and recurrent activities to continue	Yes	Yes
Obliteration of old roads & rail beds	Yes, but for overall restoration goals rather than this trail project	No	Yes where trail deviates from existing infrastructure

Mitigation and Monitoring Measures

In response to public comments, mitigation measures were developed to lessen potential impacts the action alternatives may cause. The mitigation measures may be applied to either of the action alternatives. Mitigation measures for this project are tiered to the standards and guidelines outlined in Chapter 4 of the Prairie Plan (2002c) for *Soil and Watershed Protection* (p. 4-6 through 4-8), *Noxious Weeds and Invasive Species* (p. 4-5 & 4-6), *Ecological Sustainability* (p. 4-20 through 4-30), *Scenery Management* (p. 4-11 & 4-12), *Recreation* (p. 4-8 through 4-11), and *Heritage Resources* (p. 4-12 through 4-14). Other mitigation measures applicable to this assessment are listed in the EA for *Herbicide Use for Invasive Plant Species and Noxious Weeds Control* (Forest Service 2002a).

Under Alternative 3, the trail would traverse a portion of a remnant of native vegetation in the Prairie Creek Woods, where specific mitigation measures have been incorporated to avoid or minimize impacts, including:

1. Seed mixes for revegetation of areas disturbed by the trail will consist of an appropriate mixture of native grasses and forbs from a suitable provenance.
2. To the extent possible, route the trail to minimize disturbance to existing vegetation, including root systems of canopy oaks and hickories.
3. Do not exceed six feet in trail width for pedestrian trails, and use hand tools for construction.
4. Use wood chips and/or mowed turf for trail surfaces.

In some areas under Alternative 3, the trail would deviate from existing road grades and rail beds, which would be removed to enhance prairie restoration efforts and mitigate for routing the trail off existing infrastructure and along the natural topography of the land.

Other mitigation measures specific to the expected management and administration needs of the West Side Trail and Picnic Area project under both action alternatives include:

1. Implement additional trail use restrictions for safety reasons, if necessary, during firearm hunting seasons.
2. Lock gates to control access by unauthorized motorized vehicles.
3. Use fences, baffles, turnstiles, stock guards, gates, or other structures to allow public access through grassland habitat managed with livestock grazing.

Monitoring of trail construction activities and the affects of trail development and use would be completed on an ongoing basis to assess the effectiveness of project actions and mitigation measures. Monitoring would be consistent with guidance provided in the Prairie Plan (Chapter 6). Trail-specific monitoring would address project effects on soils; streams and wetlands; invasive plant species; wildlife; and threatened, endangered, and sensitive plants and animals. Additional monitoring would cover trail visitation, use activities, heritage resources, and visitor compliance with rules governing trail use.

3. ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social, and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for the comparison of alternatives.

Recreation

With the exception of the two interim pedestrian trails, recreational use of much of the project area is currently limited to hunting. Whitetail deer are hunted in the fall, and turkey hunting takes place in the spring. The proposed trail, with the exception of the East Trailhead area, lies within the River Road Hunting Area, where approximately 90 percent of the area is now open for hunting. Approximately 200 posted sites have been placed as reference points for hunters. Although none of the posted sites would be removed, proximity of the sites to proposed trail routes is used as a measure of potential contact between hunters and recreational trail users. Table 3 indicates the number of deer hunting sites within 150 yards on each side of the trail for each action alternative.

Table 3. Number of Posted Hunting Sites Within 150 Yards of the Action Alternatives

	Alternative 1	Alternative 2	Alternative 3
Number of hunting sites within 150 yards of trail edges	N/A	45	64
Number of hunting sites displaced by trail	N/A	0	0

Environmental Consequences

Each of the action alternatives could result in increased contact between hunters and non-hunters, and each action alternative would likely result in some disturbance to game animals within the project area. Immediate consequences of trail construction would be short-term disturbances to game species within portions of the project area where construction activities are underway.

Cumulative Effects

Approximately 2,100 acres of additional land east of Illinois State Highway 53 is planned to be open for hunting. Effects on hunting opportunities in the trail project area would be temporary, whereas the overall, long-term effects would be positive. Since hunters would

be dispersed and equestrians and bicyclists restricted to the trail, less interaction and potential for conflicts are expected. Under Alternative 1, the recreation trail would not be constructed and the entire area would be open to all recreationists. Future hunting conflicts would likely be greater with dispersed recreation at Midewin.

Heritage Resources

The project area has undergone intensive agricultural use starting in the mid-nineteenth century prior to Joliet Arsenal use, which started in 1940. Disturbed soils over the past 150 years have resulted from draining the wetlands for conversion to agricultural uses, most of which occurred between 1880 and 1914. Plowing, disking, and planting have generally affected cultivated soils to a depth of 20-25 cm (8-10 inches) below today's ground surface. Additional impacts resulted from stream channelization, excavation of drainage ditches, and the placement of drain tiles. Later impacts occurred from arsenal development after 1940, when farmsteads were vacated and then demolished by the U.S. Army. Most of the arsenal infrastructure was constructed within the perimeter fence. A network of roads and railroad lines was constructed to facilitate the transport of explosives and supplies. Remains of these obsolete transportation lines are still found within the project area. A large iron bridge was erected over State Highway 53 to link rail lines on the east and west portions of the arsenal; the obsolete trestle remains intact.

As no farm-related structures remain standing, expected heritage resource types are archaeological in nature, including prehistoric sites dating from as early as 12,000 BC until European contact in the 1600s, proto-historic or historic sites from the 1600s into the 1800s, or Euro-American farmsteads dating from the 1830s to 1940, after which Army features were constructed. In addition to foundations from houses and other structures, Euro-American features relating to agricultural activities include old roads, discard localities, fence lines, and wells.

Heritage resource/archaeological inventories have been conducted for the West Side Trail and Picnic Area project pursuant to the National Historic Preservation Act and its implementing regulations in 36 CFR Part 800 (Harvey and Rognsvoog, 2004). Section 106 requires Federal agencies to take into account the effects of their actions on significant heritage resources that could include prehistoric or historic districts, sites, buildings, structures, or objects included in or eligible for inclusion in the National Register of Historic Places (NRHP).

Environmental Consequences

Forty-two heritage resources are located within the trail corridor for both of the action alternative routes (Harvey and Rognsvoog, 2003 and 2004), including seventeen historical sites and 25 prehistoric sites. Of these heritage resources, 25 may be eligible for listing on the National Register of Historic Places (NRHP). The potentially eligible sites would be avoided and protected during trail design and construction activities and monitoring would be implemented to assure site protection. Appropriate signage would be utilized to inform the public about the legal requirement to protect heritage resources.

The possibility exists that prehistoric heritage resources could be missed during the course of archaeological surveys. However, because the kinds of sites most likely to be missed are small, ephemeral, or consist of an isolated find, it is highly improbable that they would contain information that could add substantially to our understanding of Illinois' prehistory; effects on these site types would be minimal. If heritage resources were to be discovered during the course of project activities, work in the immediate vicinity would be temporarily halted until the situation could be assessed by the Prairie Archaeologist.

Cumulative Effects

Prior to 1978, heritage inventories were not systematically undertaken for lands of the Joliet Arsenal, resulting in past impacts on some sites from farming and arsenal development activities. Since then, surveys have been conducted for planned earth-disturbing activities, and heritage resources have been protected from impacts related to those activities. Planned project actions are not expected to result in cumulative effects on prehistoric sites, since any effects would be mitigated through avoidance, data recovery, or other types of protective measures during construction and trail use activities.

Soils and Watershed

Wetlands at Midewin are defined as habitat types with some vegetation, standing water, and saturated soils present during part of the annual growing seasons. All of the project area's hydric, or wet, soils are silty clay loam, clay loam, or coarser-textured soils.

Environmental Consequences - Soils

Most of the trail would be constructed without substantial excavation or grading. A new trail would not alter the condition of underlying native soils, although the width of trail construction would exceed the actual trail surface to accommodate construction needs. In all alternatives, disturbance would be minimal where the trail is constructed near grade on level land. Soil disturbance would be greatest where drainage structures are needed or where the trail is built up to cross low areas. Off-trail traffic, mowing, or maintenance vehicles could cause occasional, temporary disturbances to soils.

Although no major effects to soils would occur with mowed pedestrian trails, minimal soil disturbances could occur along mowed trail paths from high use levels, wet or erosive conditions, and exposure of soil surfaces. Some erosion would occur on the trail or adjoining disturbed ground following construction or unmanaged or inappropriate trail use. Under the No Action Alternative, roads and rail beds would continue to occupy the landscape in their present condition and there would be no change in soil conditions resulting from trail construction or recreational use.

Cumulative Effects

Cumulative effects are considered in the context of local landforms. Under each action alternative, the shared-use trail would impact a small fraction of the soils and less than one percent of the ground surface of the local landforms. Foreseeable future actions at Midewin include the removal of abandoned roads and rail beds. Alternative 3 includes restoration of roads and rail beds following their removal. The acres restored would result in long-term improvements to soil conditions. Alternative 2 involves the re-use of roads and rail beds, which in the past were constructed by placement of grade materials on top of the native loams with little or no excavation and replacement. Their integrity today indicates that they would be able to support a trail without the need for excavation of native soils; replacement might be necessary in short reaches. Adverse cumulative effects are therefore not expected under either action alternative.

Cumulative effects of no action (Alternative 1) would be both positive and negative. Soil conditions would gradually stabilize and improve over time from rooting by vegetation, lessening of erosion, and other physical changes. On the other hand, dispersed recreation could lead to extensive soil disturbance from user-made trails in sensitive areas with unstable or fragile soil conditions.

Environmental Consequences – Water Resources

Trails proposed for construction with limestone screenings, or gravel, would occupy less than one percent of areas that drain into the nearest channels or wetlands. Runoff from most trail stretches would discharge onto adjoining vegetated lands. Adjacent slopes or drainage patterns could be temporarily altered by the interruption or redirection of runoff during trail construction. Construction of the trail at or near existing grade on floodplains would not alter the movement of floodwaters across it. Trail design would include Best Management Practices to protect water quality and reduce the potential for undesired impoundments. No major effects are expected from construction on the floodplain, including no loss of floodway capacity, no increase in flood velocities, and no increase in downstream flooding. A beneficial effect could occur from removal of existing floodplain barriers at stream crossings.

Construction of a trail through a wetland or riparian area would result in a direct impact, whereas restoration of an existing road or rail bed in these areas would result in a direct gain in wetland or riparian acreage. Construction through or along some wetlands is unavoidable, but could nevertheless prove beneficial in promoting the formation or expansion of wetlands and provide trail users with the opportunity to experience and observe wetlands under restoration.

Riparian areas within the project area are located along an unnamed tributary to Prairie Creek, the two Prairie Creek crossings, and Grant Creek, where riparian alterations such as loss of vegetative cover could temporarily impair ecological interactions or reduce stream quality. Soil erosion and stream sedimentation effects caused by trail construction

near streams could also cause some short-term degradation of aquatic resources and their habitat. (Specifications dealing with trail development are outlined in the Trails Management Handbook [FSH 2309.18] and in Engineering Management publications EM-7720-103 and EM-7720-104 [USDA FS 1996a, 1996b].) No new adverse effects to water or wetland resources would occur under the No Action Alternative.

Cumulative Effects

The area for cumulative effects on wetlands within Midewin is defined as an area between Prairie Creek and Grant Creek on the edge of a moraine spanning the watersheds of Prairie Creek and Grant Creek on the outwash plain. The National Wetland Inventory (1987) shows approximately 675 acres of wetlands in this area. However, the entire Prairie Creek watershed covers approximately 32,000 acres, extending well outside of Midewin's boundaries. Foreseeable future actions within Midewin include conversion of row crops to perennial grassland, future construction of trails in the watershed near Prairie Creek on the east side of Midewin, and ongoing obliteration of old roads and rail beds. Alternative 3 would have fewer cumulative effects because it would obliterate existing roads and rail beds. The Grant Creek watershed covers some 11,000 acres. Foreseeable future actions in this watershed within Midewin include removal of three or more bridges on the former arsenal and conversion of portions of the watershed from row crops to perennial grassland at Midewin. Cumulative hydrological effects of a mowed turf trail within Midewin would be negligible.

Outside of Midewin, heavy urbanization is occurring in the upper Prairie Creek watershed. Despite extensive restoration planned on Midewin, the balance of watershed conditions could be affected by this growth in future years, a trend over which Midewin has no control. Portions of the upper watershed will become urbanized in future years as Deer Run Industrial Park and the Village of Elwood are developed. In the Grant Creek watershed, railroad, interstate roads, bridges, and private lands lie adjacent to Grant Creek downstream from proposed portions of the pedestrian trail. Given the strong potential for adverse future cumulative effects from heavy upstream development within the two watersheds, new trail construction at Midewin would be negligible in terms of contributing to the loss of watershed quality. Restoration of Midewin in future years will have beneficial cumulative effects on prairie wetlands.

Vegetation

Midewin currently supports approximately 400 acres of native vegetation remnants, mostly in the form of woodlands and forests, but also as wetlands and small tracts of prairie. The remainder of Midewin consists of cropland, agricultural grasslands, and successional vegetation. The successional vegetation consists of former agricultural land now covered with herbs, grasses, shrubs, and trees of varying ages. Several tracts on Midewin are now being restored to native prairie and wetlands; as of September 2004, these combined tracts exceeded 700 acres.

Both action alternatives cross a mosaic of these cover types: agricultural grasslands, successional vegetation, native vegetation remnants, and prairie restoration. Agricultural grasslands consist of pastures (some actively grazed) and grassy hayfields managed for grassland birds. Non-native pasture grasses dominate in these areas, although some native grasses and wildflowers are present. Field divisions and abandoned agricultural fields have grown up in shrubs and young trees, including many invasive plants. The proposed trail corridor crosses two large restoration projects. The trail passes near several native vegetation remnants and the corridors for both action alternatives traverse the northwest corner of Prairie Creek Woods, a remnant with native oak savanna and woodland.

Invasive Plants

Non-native, invasive species are of increasing concern throughout the world. Although many are best known for threats to human health, agriculture, fisheries, and forestry, other invasives threaten ecosystem integrity and biological diversity. Non-native invasive species recently featured in local and national media include the Asian long-horned beetle, emerald ash borer, zebra mussel, round goby, Asian snakehead, kudzu, Chinese yam, spotted knapweed, garlic mustard, Dutch elm disease, and sudden oak death.

The proposed trail corridor contains infestations of non-native, invasive plants. Some invasive plants, such as Amur honeysuckle, multiflora rose, Autumn-olive, Osage-orange, garlic mustard, reed canary-grass, white mulberry, and common teasel are widespread within and adjacent to the trail corridor. Other invasive species in the trail corridor are localized on Midewin. These species include cut-leaved teasel, crownvetch, spotted knapweed, leafy spurge, diffuse knapweed, bird’s foot trefoil, musk thistle, and common reed. Spread of these species is often facilitated by human actions (planting, soil disturbance, fire suppression, cross-country travel, hydrologic changes) and man-made features (roads, trails, railroads, fence lines, margins of crop fields).

Some native plants are invasive on Midewin. These species have benefited from fire suppression, soil disturbance, and other human activities, and have spread beyond their original habitat. They now pose a threat to native vegetation remnants. They are best thought of as “plants out of place” in the landscape. These invasive plant species include poison ivy, green ash, sandbar willow, cottonwood, honey locust, and giant ragweed. All these species are now widespread and common on Midewin.

Environmental Consequences

Alternative 1 would result in no loss of existing or future restored vegetation from the proposed trail system because a trail would not be developed at this time. However, without a designated trail system, considerable impacts would result from user-made trails. Many of these would develop in inappropriate sites leading to potentially extensive soil disturbance, trampling of vegetation, and introduction of invasive species.

Direct impacts on native prairie or wetland remnants, including the rare dolomite prairie, are not expected, although the action alternatives could have potential, small impacts on

native savanna, woodland, and forest habitats. Nearly all the existing vegetation impacted by trail construction would consist of agricultural grasslands and widespread seral woody vegetation, proposed in the Prairie Plan for removal and replacement with restored native vegetation. Portions of the trail traverse prairie seed production fields outside the approximate 100-acre enclosed River Road seedbeds area. Expected acres that would be affected are shown in Table 4. Because trails can have adverse impacts beyond their immediate footprint (Godefroid and Koedam 2004), mitigation measures have been developed to minimize impacts that trails could have on these savanna and woodland remnants (see page 16 for a discussion of mitigation measures).

Table 4. Impacts on Existing Vegetation by Alternative (acres* used for the trail footprint)

Vegetation Type	Alternative 1	Alternative 2	Alternative 3
1. Agricultural grasslands	0	0.7	4.3
2. Disturbed emergent wetlands and wet meadows	0	0.5	0.4
3. Seral vegetation (old fields, thickets, fencerows)	0	0.6	2.0
4. Prairie seed production fields	0	5.4	5.9
5. Prairie and wetland restoration	0	0.5	2.1
6. Savanna	0	0.0	0.1
7. Native woodland and forest	0	0.1	0.1
8. Total native vegetation remnants (6 + 7)	0	0.1	0.2

***acreage rounded to tenths**

The picnic area at the north end of the seedbeds would encourage an increase in visitation to this area. Increased visitors could have adverse impacts on seed production, largely through plant or seed theft, trampling, and introduction of invasive plants. Introduction of invasives would probably have the greatest long-term consequences, as contamination of native seed production would facilitate the spread of invasive plants throughout Midewin. Fencing, law enforcement, and careful location of facilities would minimize these threats to manageable levels.

The function of trails as dispersal corridors and habitat for invasive plants is well established (Benninger-Truax et al.1992; Soehn 2001; Stroh and Strokoff 2002; Tyser and Worley 1992). Recent evidence now suggests that sudden oak death, an invasive disease capable of devastating native oak stands, is spread in part by recreation users, including hikers, mountain bikers, and equestrians (Faden 2004). To minimize these impacts from recreational use, standards and guidelines were developed in the Prairie Plan (Chapter 4). Restricting certain users (bicyclists and equestrians) to designated trails would effectively reduce adverse impacts from these activities to manageable levels.

Although Alternative 1 is unlikely to result in new infestations resulting from trail construction and use, cross-country pedestrian travel may also contribute to the dispersal of invasive plants throughout Midewin. Such undirected travel may also create new habitat for invasives, as user-made trails are likely to develop from trampling. Detecting

and treating new infestations associated with cross-country travel and user-made trails would require considerable effort. However, by concentrating recreation users on trails, Midewin staff would be better able to focus on monitoring and treatment for user-associated invasive plant infestations. Because Alternative 3 has the greatest trail length (10.5 total miles), this alternative also has a greater amount of potential habitat for invasive plant infestations than Alternative 2 (9.6 total miles). Alternative 3 would require slightly more effort by staff to detect and treat invasive plants than Alternative 2.

Cumulative Effects

Vegetation in and around Midewin has changed greatly over the last 200 years, with nearly all the native vegetation having been converted to agricultural, industrial, commercial, or residential uses or impacted by fire suppression, local extinctions, drainage, and fragmentation. Most undeveloped land today contains seral vegetation comprised of non-native or disturbance-tolerant native species. In and near Will County, remnants of the original native vegetation survive in several tracts, mostly under 20 acres, actively managed to maintain the native vegetation (prairie, wetlands, savannas, and woodlands). Regionally important tracts include Goose Lake Prairie State Natural Area, Hitts Siding Natural Preserve, Lockport Prairie Nature Preserve, Braidwood Dunes and Savanna Nature Preserve, and Des Plaines State Fish and Wildlife Area. Some tracts include substantial prairie and wetlands reconstructions.

Future regional trends are projected to include increased conversion of agricultural and undeveloped land to residential, industrial, and commercial uses. Small, unprotected remnants of native vegetation are likely to disappear, either through development or lack of management, although some protected tracts will be managed and restored. Land not actively managed for native vegetation will become dominated by non-native plants and invasive plant species.

As the remaining native vegetation on Midewin is managed and restored, its quality will improve. Restoration of at least 9,680 acres of several types of native vegetation on Midewin, including dolomite prairie, upland typic prairie, wet typic prairie, sedge meadows, marshes, seeps, oak savanna, woodland, and forest will occur over the next few decades. Landscape-scale processes, including fire and pre-existing hydrologic patterns, will be restored. Non-native plants will be reduced, except for pasture grasses maintained as short-stature grassland habitat. Midewin will become regionally important for the survival of tallgrass prairie vegetation on a landscape-scale.

The proposed trail and amenities would have minimal impacts on future restoration of the tallgrass prairie ecosystem at Midewin. Sites receiving the heaviest impacts are outside areas proposed for ecosystem restoration in the Prairie Plan. In either action alternative (up to 10.8 acres in Alternative 2; up to 12.4 acres in Alternative 3), relatively small areas would not be restored as native habitat. Aside from a small portion of Prairie Creek Woods (less than .25 acres), no existing native vegetation would by affected by trails. However, the trails would traverse extensive areas of restored habitats, facilitating visitor understanding and appreciation of the tallgrass prairie ecosystem.

Table 5. Impacts on Future (restored) Native Vegetation (acres* committed to trail footprint)

Vegetation Type	Alternative 1	Alternative 2	Alternative 3
Upland (Typic) Prairie	0	3.5	3.5
Dolomite Prairie	0	2.4	2.6
Wet Prairie and Sedge Meadow	0	4.0	4.6
Savanna	0	0.9	1.5
Native Forest and Woodland	0	0.0	0.2
Total restored native vegetation	0	10.8	12.4

***acreage rounded to tenths**

Despite restoration activities on Midewin, non-native invasive plants will pose management problems in the foreseeable future. The number of invasive species around Midewin is likely to increase as new invasives become established. Likely "new arrivals" include gloss buckthorn, Nepalese stilt-grass, Mile-a-minute, giant hogweed, sericea lespedeza, Chinese yam, and Japanese winter-creeper. Monitoring and treatment of these invasive plants will be a long-term challenge for natural resource managers on Midewin and nearby public lands. Because of the site's size, preventative measures around Midewin's margins will facilitate keeping the interior relatively free from new infestations. Trail use could defeat this management by dispersing certain invasive plants into Midewin. However, mitigation measures presented in the Prairie Plan (such as monitoring and restricting equestrian and bicyclist use to trails), when combined with punctual treatment of new infestations, should minimize any increased adverse impacts from trail use. Given the surrounding landscape conditions, along with implementation of mitigation measures, neither action alternative should substantially increase the risk of adverse impacts from invasive plants.

Management Indicators

Management Indicators are plant and animal species, communities, or special habitats that are selected for emphasis in planning, as they are considered to be vulnerable to population decline. At Midewin, Management Indicators are represented by habitats. Direction for Management Indicators is found in 36 CFR 219.19, which establishes management and maintenance requirements for viable populations of native and desired non-native vertebrate species. Viable populations contain numbers and distributions of reproductive individuals sufficient to insure their well-distributed and continued existence, as determined by monitoring population trends to the extent possible. Cumulative effects may be indicated by long-term trends determined from monitoring within and outside of Midewin. The Forest Service Manual (FSM 1900 and 2600) provides Management Indicator direction for Planning, Wildlife, Fish, and Rare Plant Habitat Management. Effects to Management Indicator populations are assessed as those that "best represent the issues, concerns, opportunities to support the recovery of Federally-listed species, provide continued viability of sensitive species, and enhance management of wildlife and fish. ..." (FSM 2621.1).

Environmental Consequences

Native Habitat Indicators
Alternatives 2 and 3 both preclude restoration of 10.8-12.4 acres, respectively, of native habitats (Table 6). This acreage is a very small portion (less than 1%) of the total acres to be restored as native habitats on Midewin. Mitigation measures in the Prairie Plan and in this EA are sufficient to minimize adverse impacts from the trail. Such impacts include temporary disturbance from trail construction, dispersal corridors for invasive plants, and habitat fragmentation. Alternative 1 would not affect future acreage for restoration, but there could be adverse impacts from user-made trails and cross-country travel.

Grassland Habitat Indicators
No grassland habitat would be fragmented under Alternative 1. Under Alternatives 2 and 3, the large, unfragmented tracts of grassland habitat proposed in the Prairie Plan would be avoided (Prairie Plan Figure 3). Fragmentation is the interruption of otherwise contiguous tracts of habitat by features that render it unsuitable for certain wildlife. For example, many grassland birds require open grasslands of at least 75 acres as suitable breeding habitat. An otherwise suitable tract of habitat can be rendered unsuitable by the presence of one line of trees dividing the grassland into smaller parcels. Removing the line of trees would create unfragmented grassland habitat. Reducing fragmentation on larger grasslands not only creates suitable habitat; it can also lead to increases in the density of desired bird populations.

The proposed trail corridor would contribute to fragmentation of some existing grassland bird habitat (Table 8), either 332 acres (Alternative 2) or 294 acres (Alternative 3). Bird species sensitive to habitat changes and increased disturbance are likely to reduce their use of these areas. Recreational trails are known to have adverse effects on nesting birds (Miller et al. 1998). Under both alternatives, given the time gap that is likely to occur between trail development and restoration of large, unfragmented tracts, some grassland bird populations could be adversely affected. This impact is likely to be temporary, as Midewin will eventually have large tracts of unfragmented grasslands. However, habitat loss at the present time could be critical for the long-term survival of certain grassland birds at Midewin. The proposed mitigation for these impacts (743 acres of improved grassland bird habitat) should provide sufficient habitat through this critical period.

Benthic Macro-invertebrates
Benthic macro-invertebrates are animals that inhabit the bottom of streams. This type of fauna includes aquatic insects (mostly larvae of caddisflies, dragonflies, and stoneflies, but also aquatic beetles, crayfish, snails, worms, and freshwater mussels). Diversity and relative numbers of each kind can be used to indicate water quality. When stream ecosystems are disturbed by pollution or sedimentation, there is an overall decline in species diversity; the abundance of invertebrates requiring good water quality declines, while the few invertebrates tolerant of degradation become common. In addition to being sensitive to changes in stream quality, certain benthic macro-invertebrates are food for fish, aquatic birds, raccoons, muskrats, and other vertebrates.

Under the action alternatives, the trails cross Prairie and Grant Creeks on bridges, preventing streambed disturbances, sedimentation, and bank erosion associated with user-made fords from pedestrians, bicyclists, and equestrians. There may also be temporary impacts from construction or conversion of bridges for recreation use, but these impacts would be localized, of short duration, or minimized by mitigation measures, such as preventing trespass of construction equipment into stream channels. Provided mitigation measures are followed, there should be no long-term, adverse impacts. However, long-term impacts from user-made fords would be likely under Alternative 1.

Leafy Prairie-clover and Henslow's Sparrow
Effects on these species are discussed in detail under the Threatened, Endangered, and Sensitive Species section of this EA that follows. Provided that mitigation measures are followed, there should be no adverse impacts on either of these Management Indicator Species under the action alternatives.

White-tailed Deer
The action alternatives would remove some deer habitat, but not in large contiguous areas. As deer habituate to the presence of people, stress and other effects caused by nearness to people would be reduced over time (Hammitt and Cole 1998). Adverse effects would be more likely under Alternative 1 because public use without a trail system would result in more unexpected people-deer encounters than within trail corridors.

Cumulative Effects

The tallgrass prairie ecosystem has suffered the greatest decimation of any widespread ecosystem in North America. Many of the natural habitats in the tallgrass prairie ecosystem have been converted to agricultural uses. In northeastern Illinois, large areas were also converted for residential, commercial, industrial, and transportation uses. Remnants of this ecosystem exist as fragments in a highly altered landscape. At approximately 15,000 acres, Midewin represents the largest attempt at restoring the tallgrass ecosystem.

Native Habitat Indicators
Nearly 9,700 acres of native habitats (dolomite prairie, upland typic prairie, wet typic prairie, sedge meadow, marsh, seep, savanna, forest, and woodland) will eventually be restored on Midewin. The action alternatives would preclude restoration of native habitat on 10.8 acres under Alternative 2 and on 12.4 acres under Alternative 3. This acreage is not considered to be substantial when compared with the acres planned for restoration. Seeps and marshes would not be directly affected. Substantial adverse impacts could occur under Alternative 1 over time from a network of user-made trails.

Grassland Habitat Indicators
Nearly 11,820 acres of grassland bird habitat will eventually exist at Midewin, both as restored native prairie and agricultural grasslands. This will be the largest contiguous

grassland habitat in Illinois, and Midewin will play an important role in the survival of grassland birds and other wildlife requiring extensive grasslands. A corridor of grasslands will be affected by recreational trails, but these corridors are outside of the unfragmented grassland blocks designated in the Prairie Plan. The action alternatives would have temporary impacts on grassland habitat indicators, both through trail construction and other disturbances. Mitigation measures are in place for this proposed project to avoid adverse impacts on grassland habitat and grassland bird populations. Alternative 1 could have major adverse impacts over time, because it could result in a network of user-made trails and increasing disturbance in unfragmented grassland blocks.

Benthic Macro-invertebrates
Long-term, the greatest factors affecting stream quality (and its indicator fauna) at Midewin will be from off-site. The upper watersheds of both Prairie and Grant Creeks include land likely to be converted to industrial and residential uses, with increasing stormwater runoff into both streams carrying sediment and pollution. On Midewin, the watershed conditions are likely to improve as ecosystem restoration proceeds. Trail construction may have temporary and local adverse impacts on the streams and their invertebrate fauna. Once trails and other visitor amenities are in place, there should be no adverse impacts provided standards, guidelines, and mitigation measures for trail use and maintenance are followed. Alternative 1 could have substantial adverse impacts over time because it could result in many user-made fords crossing both streams.

Leafy Prairie-clover and Henslow's Sparrow
Impacts on these species are detailed under the Threatened, Endangered, and Sensitive Species discussion. Provided that mitigation measures are followed, there should be no adverse impacts on either Management Indicator Species by the action alternatives.

White-tailed Deer
White-tailed deer are expected to remain common in Will County, even with increasing urbanization. Midewin will continue to support a population that may be hunted or viewed by the public. Deer use and points of concentration may change as seral areas are restored to native vegetation. Public use would probably disrupt some established deer use patterns, although potential disturbances would be concentrated within narrow corridors. None of the alternatives would result in a substantial decline in deer populations.

Threatened, Endangered, and Sensitive Species

There are thirty-two Threatened or Endangered and Sensitive plant and animal species known or suspected to occur near the project area. For this analysis, the project area is defined as the trail footprint and ¼-mile on either side of the footprint. The bald eagle (Federal threatened) is the only Federal listed species known to occur within the proposed project area, which contains roosting habitat. The bald eagle is an occasional visitor to Midewin during its spring and fall migration.

Potential suitable habitat for the eastern prairie white-fringed orchid (Federal threatened) and leafy prairie clover (Federal endangered) occurs within the project area (Zambrana Engineering Inc. 1998), although surveys have not located either species. As prairie restoration proceeds, additional suitable habitat for both plant species will increase within the project area and elsewhere at Midewin. The nearest location of the eastern white-fringed orchid is 0.4 miles west of the proposed pedestrian trail. The nearest location of the leafy prairie clover is a mile north of the proposed pedestrian trail. As suitable habitat becomes established and managed, these species may occur within the project area.

The project area is adjacent to, contains populations of, or has suitable habitat for, twenty-nine Regional Forester Sensitive Species (RFSS) and/or state listed species, as shown in Table 7 below.

Table 6. Threatened, Endangered, and Sensitive Species Within or Near the Project Area.

Species (Status)[1]	Species Present[2]	Existing Potential Habitat	Future Potential Habitat
Leafy Prairie Clover (FE, SE)	No	No	Yes
Eastern Prairie Fringed Orchid (FT, SE)	No	Yes	Yes
Glade mallow (RFSS)	No	Yes	Yes
False mallow (RFSS, SE)	Nearby	Yes	Yes
Butler's quillwort (RFSS, SE)	No	No	Yes
Pitcher's stitchwort (RFSS, ST)	No	No	Yes
Crawe's sedge (RFSS)	Nearby	Yes	Yes
Sullivant's coneflower (RFSS)	Yes	Yes	Yes
Earleaf False Foxglove (RFSS, ST)	Nearby	Yes	Yes
Hill's Thistle (RFSS, ST)	No	Yes	Yes
Hairy Valerian (RFSS)	Nearby	Yes	Yes
Golden-seal (RFSS)	No	Yes	Yes
American Ginseng (RFSS)	No	Yes	Yes
Small White Ladies Slipper (ST)	Nearby	Yes	Yes
Ellipse (RFSS)	No	Yes	Yes
Blanding's turtle (RFSS, ST)	Nearby	Yes	Yes
Plains leopard frog (RFSS)	Nearby	Yes	Yes
Bald Eagle (FT, SE)	Yes	Yes	Yes
Least Bittern (RFSS, SE)	Nearby	Yes	Yes
King rail (RFSS, ST)	Nearby	Yes	Yes
Upland sandpiper (RFSS, SE)	Yes	Yes	Yes
Migrant loggerhead shrike (RFSS, ST)	Yes	Yes	Yes
Bobolink (RFSS)	Yes	Yes	Yes
Northern harrier (RFSS, SE)	Yes	Yes	Yes
Short-eared owl (RFSS, SE)	Yes	Yes	Yes
Henslow's sparrow (RFSS, SE)	Yes	Yes	Yes
Cerulean Warbler (RFSS)	No	No	Yes
Common Moorhen (ST)	Nearby	Yes	Yes
Pied-billed Grebe (ST)	Nearby	Yes	Yes
Red-veined prairie leafhopper (RFSS, ST)	No	Yes	Yes
Eryngium stem-borer moth (RFSS, SE)	Nearby	Yes	Yes
Liatris stem-borer moth (RFSS)	Nearby	Yes	Yes

[1] FE—Federal Endangered, FT—Federal Threatened, SE—State Endangered, ST—State Threatened, RFSS—Regional Forester Sensitive Species.
[2] Nearby species are within ¼-mile of the trail, but not directly impacted.

Environmental Consequences

The environmental consequences for sensitive plant and animal species is largely based on information from the Population Viability Assessments developed for Midewin RFSS (USDA Forest Service 2000a), the Midewin Prairie Plan (USDA Forest Service 2002c), and the Prairie Plan Final Environmental Impact Statement (USDA Forest Service 2002b). Alternative 1 would have no direct effect on species of concern, although indirect impacts on Federal threatened, endangered, and sensitive species could occur from uncontrolled access and dispersed recreational use causing user-made trails.

Alternatives 2 and 3 would affect individual grassland birds but are not expected to impact species viability. At Midewin, these bird species are area-sensitive (Herkert 1994, Vickery et al. 1994) and require species-specific nesting sites. Like hedgerows and wooded areas (Sample and Mossman 1997), large developed trails may fragment grassland bird habitat and influence the nesting success of birds. Trail and road activity can impact the use of adjacent areas for nesting, and some bird species will avoid areas adjacent to trails. Impacts from activities on trails have been shown to extend outward for approximately 75-100 meters or up to 328 feet (Miller et al 1998). Additionally, higher rates of predation have been found in small grassland fragments in comparison with larger ones. The Prairie Plan designates a minimum of 10,260 acres of unfragmented land at Midewin in “five large, open tracts.” Each tract is to range from 500 to 3,000 acres in size to achieve an unfragmented condition (p. 3-1).

As restoration proceeds, the endangered, threatened and RFSS plants and associated insects may become more common within the project area. The trail would have no direct impact on these species, but could have indirect impacts from increased numbers of visitors picking flowers or collecting plants and animals. Some activities associated with trail use could have impacts on Federal listed, RFSS, and/or state-listed species. Unleashed dogs could disturb ground nesting grassland birds and their young. Off-trail use in wetlands, newly planted restorations, or sensitive plant areas could result in impacts on species of concern. All of these activities are prohibited by Prairie Supervisor order, and an enforcement/education presence should minimize the potential for their occurrence. No major effects are anticipated from undesired actions of trail users.

No Federally endangered or threatened species are known or expected from the project area with the exception of the bald eagle, which has been seen roosting in trees along a portion of Prairie Creek in the Prairie Creek Woods area on an irregular basis, mostly during the migration season in fall or early winter. Once Prairie Creek freezes, roosting is no longer observed. Although unlikely, pedestrian traffic under the action alternatives could disturb bald eagles during their migration. Bald eagles are unknown from that portion of Prairie Creek in the eastern part of the project area, which is likely too small for roosting during migration or wintering. Additionally, the distance from the nearest prime foraging area, the Kankakee River, probably makes this area little used by bald eagles.

East of State Highway 53 near the planned trailhead, several State endangered or threatened bird species and Regional Forester Sensitive Species (RFSS) that occasionally use this area for foraging, include the upland sandpiper, bobolink, loggerhead shrike, and Henslow's sparrow, which nest in adjacent areas. Impacts to individuals may occur, although these impacts should be temporary as affected birds avoid the trail area and relocate to undeveloped appropriate habitat.

West of the state highway, State endangered and threatened and RFSS bird species are found throughout the proposed trail corridor, although to varying degrees. Individual upland sandpipers, bobolinks, loggerhead shrikes, and Henslow's sparrows could be affected by the action alternatives in areas where they forage or nest. Planted screening and savanna restoration proposed for Alternative 3 would increase fragmentation and reduce grassland bird habitat in the short term, although there would be an overall increase in this habitat type from restoration. Effects on acres of existing and planned grassland habitat in the eastern portion of the project area are presented below in Table 8.

Table 7. Short Term Direct Impacts to Grassland Habitat (eastern portion of project area west of State Highway 53)

	Alternative 2	**Alternative 3**
Fragmentation of existing habitat[1]	332 acres (4-9)	294 acres (3-7)
Grassland habitat displaced[2]	245 acres	292 acres
Total acres of unfragmented grassland affected	577	586
Fragmentation of planned habitat	495 acres	495 acres

[1]The total existing habitat acres that would be fragmented. The first number in parentheses indicates the number of current tracts, while the second number is the number of resulting tracts after fragmentation by the trail.
[2] Acres of the actual shared-use trail footprint plus a 100-meter (328 feet) buffer on each side of the trail with savanna and screening plantings.

The shared-use trail segment under Alternatives 2 and 3 could serve as a fragmenting feature, dividing up existing grassland bird habitat into smaller units. Trail activity and the trail footprint would impact nesting birds by decreasing nesting habitat and affecting 49 acres within the southern portion of the project area. Although the opportunity for use of these acres would be foregone, there will be an overall increase in grassland bird habitat from restoration efforts implementing the Prairie Plan.

In the western portion of the proposed trail project area each action alternative takes up approximately one acre of grassland bird habitat. State endangered or threatened and RFSS grassland bird species may nest in the area, including the upland sandpiper, Henslow's sparrow, bobolink and loggerhead shrike. The action alternatives would impact grassland birds, which are area-sensitive, requiring not less than the species-specific minimal area for nesting. Activities on trails could affect the use of adjacent areas for nesting as well, although the narrow pedestrian trail is not considered fragmenting to the same degree as the shared-use trail because of less extensive anticipated use. Direct habitat loss from the footprint of the trail would impact existing and planned grassland habitat. Alternative 3 would impact 1.6 acres and Alternative 2 would impact 1.5 acres in the Blodgett Marsh area north of Grant Creek.

Wide-ranging raptor species such as the northern harrier and short-eared owls use the project area for foraging. Both raptors may use portions of the area for nesting where habitat is appropriate. With restoration, these species may become more common. Slight, temporary effects could occur from trailhead development. Foraging raptors will veer from trails when in use and continue foraging at other times. Trail development and use impacts are not expected to adversely affect foraging raptors.

Marsh bird species of Blodgett Marsh include the least bittern, king rail, pied-billed grebe, and common moorhen. Neither of the action alternatives would directly affect the marsh or marsh birds. Indirect impacts from the action alternatives could occur from trail use during the nesting season. Monitoring would determine if temporary trail closures are necessary. Blanding's turtles are known from Blodgett Marsh and it is possible that plains leopard frogs also use the area. Neither of the alternatives would directly impact these species, although indirect effects are possible under both action alternatives from collecting by the public.

Prairie Creek is potential habitat for the ellipse; the trail would have little impact on mussels if they become established after construction of a trail bridge. Alternatives 2 and 3 should have no direct impact on wetland species since the trail would be located on an existing road through restoration areas. Although trails could act as barriers to the movement of water-dependent young, mitigation measures should allow the free movement of water and organisms under the trail.

Because the hydrology of the western-most area has not been restored yet, it is difficult to estimate how much wetland habitat may be impacted by the pedestrian trail. However, wetland species in the southern area would not be directly impacted, as the trail would be located on an existing road through a restoration area. Mitigation measures would include construction of features to allow movement of water and young animals under the trail; monitoring would assure the adequacy of these measures.

The trail does not pass through known Federally endangered eastern prairie fringed orchid habitat, although such habitat is located on adjacent property within ½-mile west of the pedestrian-only portion of the project area. Similar habitat exists on Forest Service

property, where it is likely that the orchid will appear in future years as restoration occurs. The Federally threatened leafy prairie clover occurs just over a mile west of the pedestrian trail near Blodgett Marsh.

One RFSS species, Sullivant's coneflower, occurs within the proposed trail project area. Sullivant's coneflower is found approximately ¼-mile from the project area west of State Highway 53, isolated by woody vegetation and pastures. As restoration proceeds, this species could become common. The population is far enough away from the trail to make impacts unlikely. Near the River Road seedbeds, Sullivant's coneflower is located within ¼-mile of the project area, but is separated from the trail by seed production fields and woody fence lines. Sullivant's coneflower is the only RFSS within the Prairie Creek Woods, and both action alternatives could directly impact this species where the trail alignment passes through. All proposed trail alignments pass through populations of Sullivant's coneflower north of Prairie Creek Woods. Under Alternative 2, no direct effects are likely. Where the trail alignment veers from the railroad bed in Alternative 3, some effects would occur. Near Grant Creek, Sullivant's coneflower is widely distributed in prairie and open wooded areas within the entire outwash plain at Midewin. Found within the vicinity of Grant Creek but not within the trail alignment, this species would not be directly affected by the trail. The alignment of Alternative 2 places the trail closest to the known populations (within 600 feet), and may have an indirect effect. Alternative 3 places the trail approximately 1,000 feet from populations of Sullivant's coneflower. At Blodgett Marsh, Sullivant's coneflower occurs within 200 feet of the proposed trail alignments; however, the action alternatives would not directly affect this species. Sullivant's coneflower will become more common as prairie restoration proceeds.

The earleaf false foxglove is found ½-mile from the southern portion of the project area, separated by woody encroachment and inhospitable habitat, and within 200 feet of the proposed trail alignments in the Blodgett Marsh area, where false mallow is also found. The trail would have no direct impact on either species. The earleaf false foxglove may be reintroduced in the Prairie Creek Woods. Other state listed and RFSS species may appear or be reintroduced in the Prairie Creek Woods, including golden-seal, American ginseng, and glade mallow. The Prairie Plan advises that reintroduction of sensitive species should not take place within 75 feet of a trail; the trail could restrict their site-specific reintroduction, although habitat effects would be minimal.

In the western portion of the project area, several other State-listed and RFSS plant and associated prairie insect species are located within 1,000 feet of the proposed trail under Alternative 3, whereas Alternative 2 is within 250 feet. With restoration, these species may become common, since large populations have been found nearby. Although the trail would have no direct impact, indirect effects might result from increased plant collecting by the visiting public.

Some State endangered or threatened and RFSS plant species occur in the River Road seedbeds where they have been planted for seed production. The trail and facilities would have no direct impacts on these species, although indirect impacts could occur if trail users pick flowers.

Mitigation Areas

The Prairie Plan (Chapter 3) outlines the prescriptions for restoration of tallgrass prairie ecosystems at Midewin and provides estimates of acreage to be restored for dolomite prairie, upland typic prairie, wet prairie and sedge meadow, savanna, and agricultural grassland maintained for grassland birds. The Prairie Plan projects that "a minimum of 10,260 acres of land would be maintained in five large open tracts (500 to 3,000 acres each) or in 'unfragmented' condition …" (p.3-1). Fragmentation is defined in the Prairie Plan as: "An element of biological diversity that describes the natural condition of habitats in terms of the size of discrete habitat blocks or patches, their distribution, the extent to which they are interconnected, and the effects of management on these natural conditions. Fragmentation is also the process of reducing the size and connectivity of open grasslands (e.g., a fencerow in an otherwise open pasture in which sensitive grassland birds are known to nest)" (Prairie Plan Appendix H). Although construction of a trail would affect some existing unfragmented areas and result in a foregone opportunity to maintain those areas, the overall restoration of unfragmented acres at Midewin will be substantially greater than the small losses created by the trail and still provide the opportunity to meet Prairie Plan restoration goals.

Three areas totaling 743 acres have been selected for mitigation of impacts from increased fragmentation of grassland bird habitat (Figure 4). Woody vegetation would be removed in two areas of existing grassland bird habitat to create larger unfragmented tracts. In the western-most mitigation area, a hedgerow separating a 105-acre and a 20-acre parcel would create a single 125-acre unfragmented tract inside the project boundary. In the eastern-most mitigation area, several hedgerows and former woody fence lines would be removed from three parcels (180, 60, and 60 acres) to create a single 300-acre tract outside the project boundary. This area is identified as an "unfragmented zone" in the Prairie Plan (Prairie Plan Figure 3). Rare grassland birds such as the upland sandpiper have been observed in the general area, confirming the need to decrease fragmentation. Although species individuals may be affected, there would be no effect on the viability of populations, which will benefit from prairie restoration at Midewin. Mitigation for this trail project would contribute a component of unfragmented grassland toward that restoration figure. The location selected for mitigation is 5 miles east of the project area.

In the third mitigation site, approximately 318 acres of crop field would be planted in cool season grasses and clover for grassland bird habitat. After the planted vegetation becomes established, this large tract would provide additional grassland bird habitat in an area identified as unfragmented grassland habitat in the Prairie Plan. Alternative 2 would affect 580 acres, while Alternative 3 would affect 594 acres. The 743 mitigation acres would greatly exceed the acres affected under either action alternative.

Cumulative Effects

The goals of the Prairie Plan are to restore sensitive habitats to a more natural landscape. Cumulative effects are all expected to be positive. The cumulative effects area for species that are threatened, endangered, and/or RFSS is the Prairie Parklands, an approximate

239 square-mile “resource rich” area within Grundy and Will Counties in northeastern Illinois (Illinois Natural History Survey, unknown date). Midewin is a key component of the Prairie Parklands, which is comprised of non-contiguous public, private, and corporate lands that are “significant for habitat preservation” (Prairie Plan p.1-6). Declines in populations of most Federal listed, RFSS, and state listed species have resulted from numerous past activities, including agriculture, fire suppression, introduction of non-native animal and plant species, and development of urban areas and rural communities with transportation and energy infrastructure. Nearly all of the tallgrass prairie ecosystem has been destroyed, leaving only a few small remnants of prairie - less than 0.01 percent of the original vegetation. Dolomite prairies at one time concentrated in the lower Des Plaines River Valley were destroyed by rock quarrying and industrial development, with the remainder degraded by other activities.

With restoration and Prairie Plan implementation, southern and western portions of the project area may be used by wetland species such as the least bittern, king rail, plains leopard frog, and Blanding’s turtle. Although RFSS-designated Cerulean warblers are not found in Prairie Creek Woods, this species could become established here in future years.

The southern expansion of the Chicago metropolitan region is foremost among present or reasonably foreseeable future activities in the Prairie Parklands that could affect the Federal listed, RFSS, and state listed species. This expansion of residential, commercial, and industrial development, along with associated transportation, energy delivery, and communication infrastructure, is likely to cause further loss and degradation of the remaining natural habitat in the region. Development trends adjacent to Midewin are evidenced by Deer Run Industrial Park, warehousing facilities under construction just north of Midewin, and the Will County landfill on Midewin’s southern boundary. Increasing demands for open land for outdoor recreation will likely result in recreation-use effects, but may also lead to more open land being protected. For instance, the Forest Preserve District of Will County (FPDWC) is authorized to purchase more land, and restoration projects have been undertaken on FPDWC and Illinois Department of Natural Resource lands within the Prairie Parklands. Eventually, populations of rare species and their habitats will be limited to public lands.

Present or reasonably foreseeable future activities that could affect Federal listed, RFSS, and state listed species include: restoration of native vegetation, prescribed burning, restoration of the natural hydrology, grazing of livestock, construction and public use of trails, development of picnic areas, and removal of woody invasive and non-native plant species. Specific effects of herbicide use (USDA Forest Service 2002a) and prescribed burning (USDA Forest Service 2001) have been analyzed in the Environmental Assessments for those actions.

Federally Threatened and Endangered Species

Midewin and adjacent property support the only known population of the dolomite-restricted leafy prairie-clover in the Prairie Parklands. Its survival in the region depends on protection, restoration, and management at Midewin. The northern loop of the

proposed pedestrian trail crosses a potential dolomite prairie restoration area. However, at 2.4 acres (Alternative 2) or 2.6 acres (Alternative 3), the trail footprint in this area is not considered to be substantial and is not expected to impact this clover within the region.

The Federal listed eastern prairie fringed orchid is not found at Midewin, but two populations are known to occur within the Prairie Parklands. One orchid population is adjacent to Midewin, which has similar habitat that could provide an opportunity for this species to spread onto and become established at Midewin. Portions of the project area could provide potential habitat with restoration. The trail footprint would affect a small portion of potential orchid habitat (10-18 acres). However, thousands of potential habitat acres exist at Midewin for this species, and this impact would not be substantial.

The Federal listed bald eagle is an infrequent visitor to Midewin, primarily during its fall migration. Midewin plays a minor role in providing temporary habitat, although this role could increase in the future if additional areas along the larger, more favored rivers of the Prairie Parklands are developed (Kankakee, Des Plaines, and Illinois Rivers). There should be no adverse cumulative effects on the bald eagle within the Prairie Parklands as the result of trail development at Midewin.

Regional Forester Sensitive Species

Midewin's rare dolomite prairie habitat could become the most important area for the preservation of dolomite prairie and associated dolomite prairie plants within the Prairie Parklands. Besides the Federally threatened leafy prairie-clover, other sensitive species are found, including Pitcher's stitchwort, false mallow, glade quillwort, Crawe's sedge, and red-veined leafhopper. These species have restricted ranges in Illinois and potentially could be restored in the area where the northern loop of the pedestrian trail is proposed. However, populations of these species are found elsewhere within the Prairie Parklands. Although the northern loop crosses a potential dolomite prairie restoration area, at 2.4 acres (Alternative 2) or 2.6 acres (Alternative 3), this acreage would not constitute a critical loss or impact.

Restoration at Midewin will provide future habitat for RFSS prairie, riparian and woodland species. Thousands of acres of potential restored prairie habitat will provide habitat for earleaf false foxglove, hairy valerian, Hill's thistle, and Sullivant's coneflower. These species are found elsewhere in the Prairie Parklands, some represented by fairly large populations. Because of the overall potential prairie restoration acres at Midewin and possible habitat loss elsewhere, Midewin may become the most important site for protecting these species within the region. Little information is known about golden-seal and American ginseng within the Prairie Parklands. The small populations and restoration potential at Midewin may be very important for their preservation. The Prairie Parklands and adjacent areas support relatively large populations of glade mallow. However, because of potential habitat loss within the Prairie Parklands, Midewin may also become vital for the future preservation of this plant. The footprint of the proposed trail would take up some potential restoration habitat, but the acres are not critical in consideration of the larger restoration potential at Midewin and should not impact the

survival of these species. The footprint of the proposed pedestrian trail could pass through some subpopulations of Sullivant's coneflower. However, this plant is very common; the loss of a few plants would not impact its survival.

Over ninety percent of the natural wetlands in Illinois have been lost since the middle 1800s; wildlife species dependent on wetlands have also declined. Although all the RFSS wetland species (Blanding's turtle, plains leopard frog, king rail, and least bittern) are found elsewhere within the Prairie Parklands, Midewin may make an important contribution to their survival because of the potential size and numbers of wetland restorations and associated uplands within Midewin. Habitat loss elsewhere may also increase the importance of the populations at Midewin. The proposed trail alignments would have few direct impacts on wetlands and, with appropriate mitigation, should have no adverse cumulative effect on these RFSS wetland species.

The ellipse has declined throughout its range as a consequence of sediment runoff, pollution, and stream alterations. The survival of this species in northeastern Illinois and the Prairie Parklands is dependent upon a few high-quality streams, including one on Midewin. As stream restoration work continues, additional habitat may become available for the ellipse. The proposed trail alignments do not impact current ellipse habitat and should not pose future impacts.

Many grassland birds have undergone regional or range-wide population declines over the past five decades, with some species exceeding a ninety percent loss. Midewin provides the largest concentrated habitat in Illinois for certain grassland birds and has the potential to support large, stable populations of many declining species, including Henslow's sparrow, upland sandpiper, bobolink, and migrant loggerhead shrike. Goose Lake Prairie State Natural Area is the only other area in the Prairie Parklands able to support large populations of grassland birds, although it is unsuitable for upland sandpipers and only marginally suitable for migrant loggerhead shrikes and bobolinks. During years of high vole populations, Midewin can provide large amounts of nesting habitat for northern harriers and short-eared owls. Midewin probably serves as a population source to colonize other grassland areas that cannot support breeding populations on a yearly basis.

Impacts at Midewin will result in impacts on the Prairie Parklands and on regional grassland bird populations. Although the trails project would impact some grassland bird habitat, application of appropriate mitigation measures would assure that reductions in the amount of habitat or bird populations do not occur. As the Prairie Plan is implemented, additional grassland bird habitat will be created.

State Endangered and Threatened Species

Restoration at Midewin will provide future habitat for state-listed wetland and prairie species. Thousands of acres of potential restored prairie habitat will provide additional habitat for the small white ladies slipper, found elsewhere within the Prairie Parklands in only a few populations. Although the Midewin population is small, the potential for it to

spread into restored habitat makes Midewin critical for the survival of this species in the Prairie Parklands. Trail development with appropriate mitigation measures would not substantially impact the small white ladies slipper in the Prairie Parklands. Midewin maintains very small, sporadic populations of common moorhens and pied-billed grebes, nevertheless playing a part in the preservation of these bird species within the Prairie Parklands. Although these species are more common elsewhere, Midewin could become increasingly important for these species with wetland restoration, but probably never as important as Goose Lake Prairie Natural Area. With restoration and management, Midewin stands to become the most important area, both regionally and within the Prairie Parklands, for grassland birds. The trail project will not have adverse cumulative effects on populations of these species.

Hazardous Substances

Portions of the trail are proposed to be located on rail beds to varying degrees. Midewin has approximately 115 miles of former railroad track. An arsenic-containing herbicide was applied to areas along railroad tracks by the U.S. Army to suppress weeds when the Joliet Army Ammunition Plant was in operation prior to 1977 (T N & Associates, 2000). Chemical and geotechnical analyses of ballast at Midewin found that rail bed ballast contains areas of highly localized arsenic, which does not migrate within soils unless it is disturbed. Although the ballast has not been determined to be a hazardous waste, ballast that is known to contain arsenic has been designated only for use as “below grade fill” at Midewin.

Environment Consequences and Cumulative Effects

Because the rail bed surfaces would be covered with several inches of gravel, there would be no effects expected from use of the rail beds as part of the trail corridor under either of the action alternatives. Because arsenic remains static once it has been deposited, a constructed barrier between trail users and the ballast would reduce the potential for contact with arsenic and preclude direct, indirect, and cumulative effects pertaining to hazardous substances. Alternative 3 would utilize approximately 1-1/2 miles of rail bed and entail the least cost for surfacing. Alternative 2 would require more use of old rail bed. The public would come into contact with ballast most often under the No Action Alternative because dispersed recreational use of Midewin would allow unrestricted access to rail beds without barriers between trail users and railroad ballast.

Socio-Economics and Environmental Justice

Executive Order 12898 mandates that Federal agencies take appropriate steps to identify, address, and mitigate all disproportionately high and adverse impacts of Federally funded projects on the health and socioeconomic condition of minority and low-income populations. Within Will County, 6.5% of the population lives below poverty level in numbers that are not concentrated. This is well below the statewide percentage (11.3%)

of the population that is below poverty level. Most trail users from the metropolitan Chicago area and points beyond would access the Midewin National Tallgrass Prairie as a “destination point” (DeVore et al 2002). However, according to the Will County Land Resource Management Plan (Wallace et al 2002), by 2020, Will County is projected to increase in population by 47% from the year 2000, bringing more people into contact with Midewin. Environmental consequences and cumulative effects of permanent trails are expected to be positive, as trails could serve as an available recreational outlet for Will County’s influx of inhabitants.

Irreversible and Irretrievable Commitment of Resources

There are no irreversible or irretrievable effects of any of the action alternatives on resources at Midewin. An irreversible commitment of resources is one that cannot be undone or regained, most often involving a non-renewable resource. For instance, extinction of a species or loss of an important archaeological site, where future options are no longer available, would be irreversible. An irretrievable commitment of resources is one that results in the loss of production or use of a resource for a period of time, but will be renewed in the future. At Midewin, there would be a small, temporary decrease in grassland bird habitat, ranging from 0.7 acres (Alternative 2) to 4.3 acres (Alternative 3), depending on whether either of the action alternatives is selected; the use of that habitat would be foregone while it is committed to use as a trail. However, there will be a substantial net increase in grassland bird habitat when prairie restoration has been completed, an increase that was envisioned in the Prairie Plan (p. 2-5). Irretrievable effects would not occur from construction of a recreational trail at Midewin.

4. Consultation and Coordination

The various planned trail construction and picnic area development activities may require coordination or concurrence with the following Federal, state, and/or local agencies:

- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- Illinois Environmental Protection Agency
- Illinois Department of Natural Resources
- Illinois State Historic Preservation Office

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Experience – 26 years

5. REFERENCES

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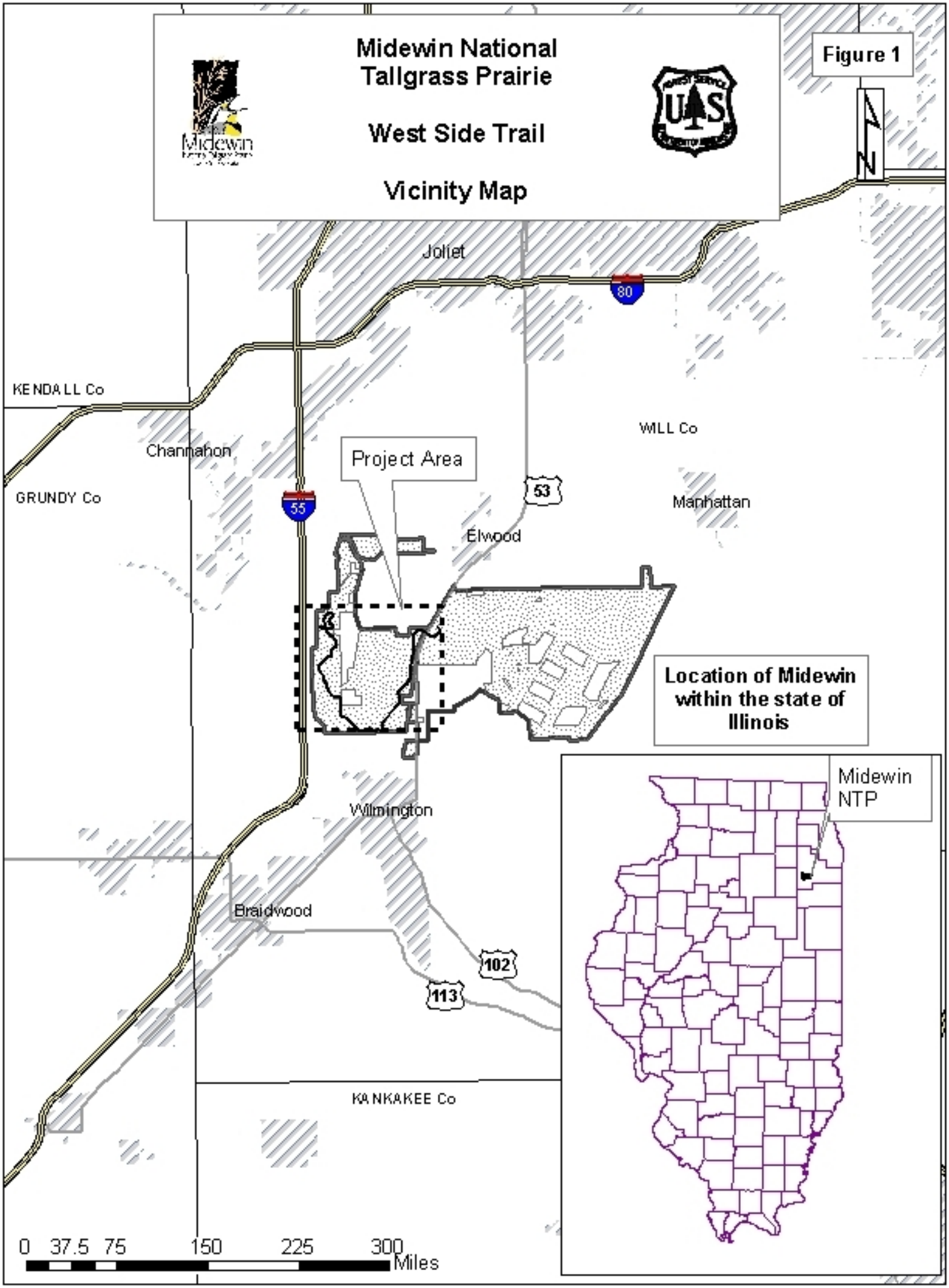
Appendix A: Maps

Figure 1: Trail Vicinity Map
Figure 2: Alternative 2 Map
Figure 3: Alternative 3 Map
Figure 4: Mitigation Map


Midewin National
Tallgrass Prairie
West Side Trail
Vicinity Map
Figure 1
Joliet
80
KENDALL Co
WILL Co
Channahon
Project Area
GRUNDY Co
55
53
Manhattan
Elwood
Location of Midewin
within the state of
Illinois
Midewin
NTP
Wilmington
Braidwood
102
113
KANKAKEE Co
0 37.5 75 150 225 300
Miles

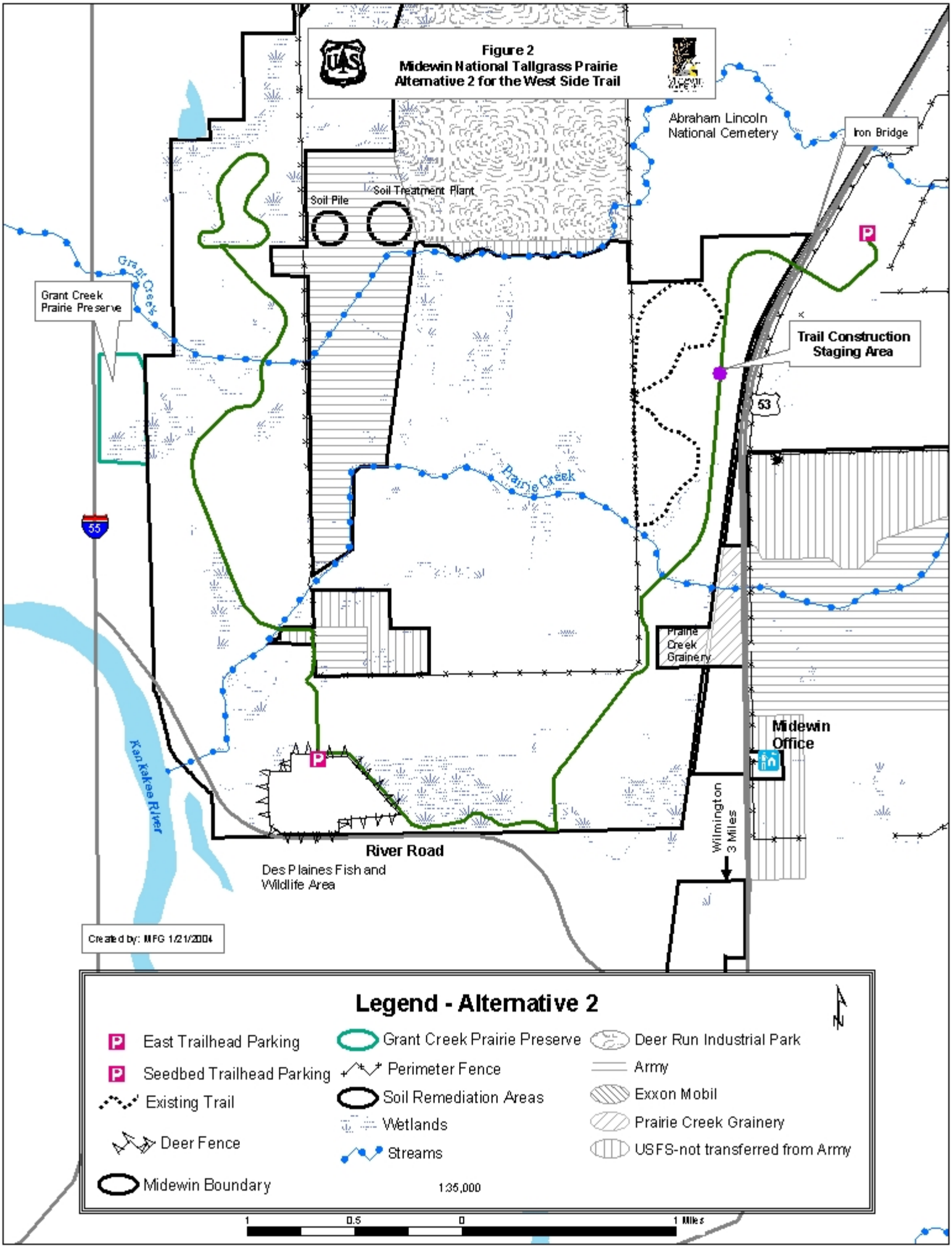


Figure 2
Midewin National Tallgrass Prairie
Alternative 2 for the West Side Trail
Abraham Lincoln National Cemetery
Iron Bridge
Soil Pile
Soil Treatment Plant
Grant Creek
Grant Creek Prairie Preserve
Trail Construction Staging Area
53
Prairie Creek
55
Prairie Creek Grainery
Midewin Office
Kankakee River
River Road
Des Plaines Fish and Wildlife Area
Wilmington 3 Miles
Created by: MFG 1/21/2004
Legend - Alternative 2
East Trailhead Parking
Seedbed Trailhead Parking
Existing Trail
Deer Fence
Midewin Boundary
Grant Creek Prairie Preserve
Perimeter Fence
Soil Remediation Areas
Wetlands
Streams
Deer Run Industrial Park
Army
Exxon Mobil
Prairie Creek Grainery
USFS-not transferred from Army
1:35,000
1
0.5
0
1 Miles

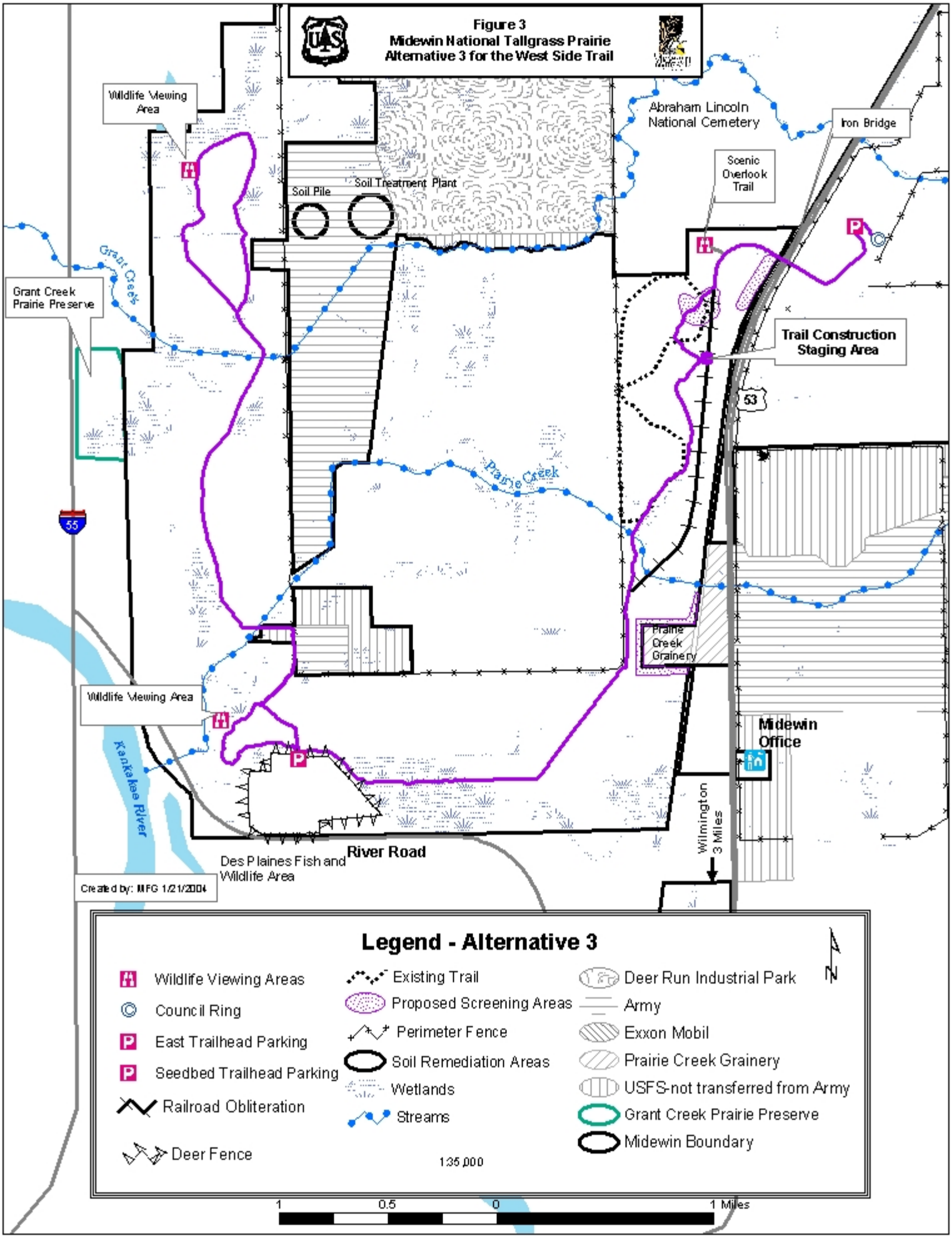


Figure 3
Midewin National Tallgrass Prairie
Alternative 3 for the West Side Trail
Wildlife Viewing Area
Abraham Lincoln National Cemetery
Iron Bridge
Scenic Overlook Trail
Soil Pile
Soil Treatment Plant
Grant Creek
Grant Creek Prairie Preserve
Trail Construction Staging Area
53
Prairie Creek
55
Prairie Creek Grainery
Wildlife Viewing Area
Midewin Office
Kankakee River
Wilmington 3 Miles
River Road
Des Plaines Fish and Wildlife Area
Created by: MFG 1/21/2004
Legend - Alternative 3
Wildlife Viewing Areas
Council Ring
East Trailhead Parking
Seedbed Trailhead Parking
Railroad Obliteration
Deer Fence
Existing Trail
Proposed Screening Areas
Perimeter Fence
Soil Remediation Areas
Wetlands
Streams
Deer Run Industrial Park
Army
Exxon Mobil
Prairie Creek Grainery
USFS-not transferred from Army
Grant Creek Prairie Preserve
Midewin Boundary
1:35,000
1
0.5
0
1 Miles

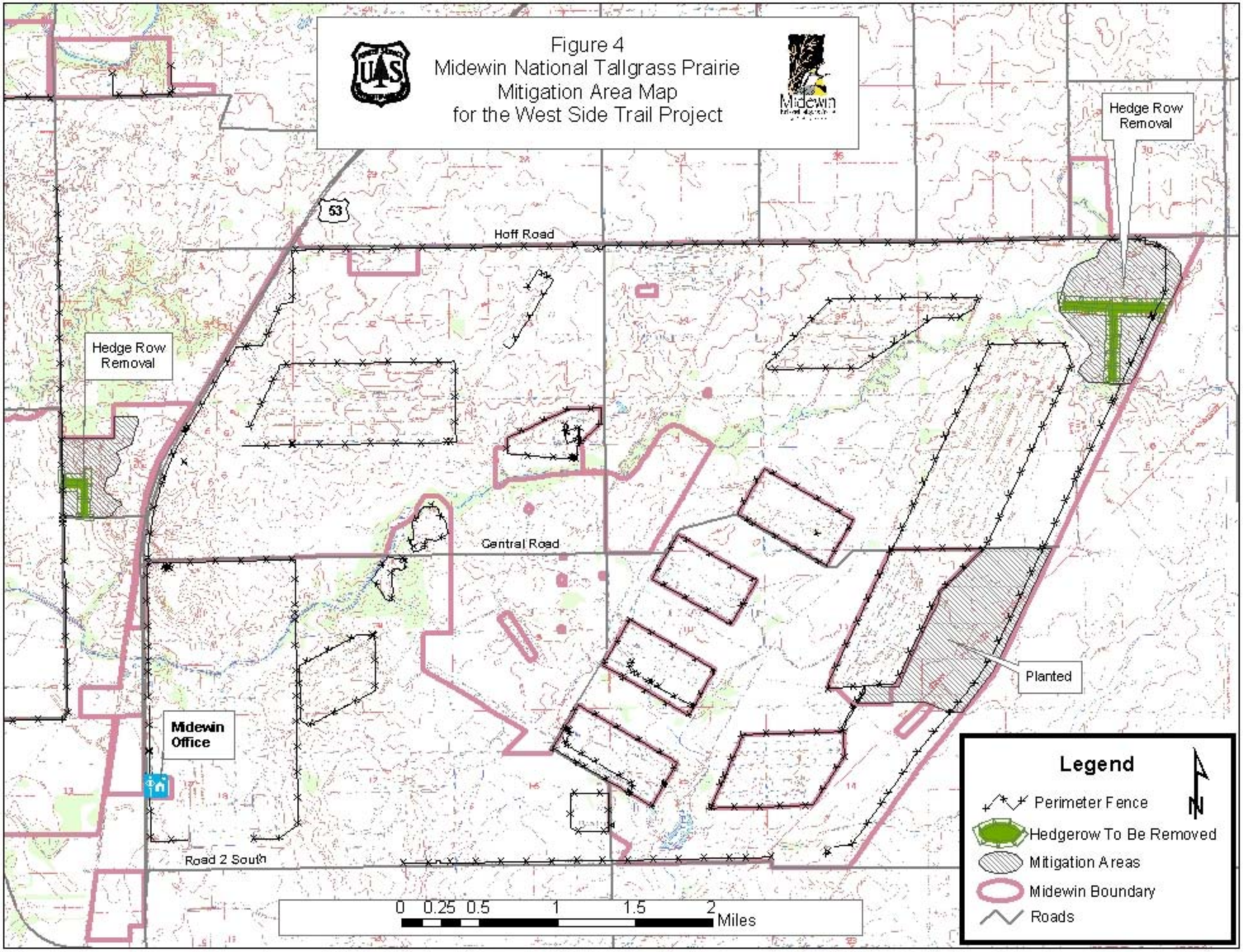


Figure 4
Midewin National Tallgrass Prairie
Mitigation Area Map
for the West Side Trail Project
Midewin
Hedge Row Removal
Hedge Row Removal
53
Hoff Road
Central Road
Road 2 South
Midewin Office
Planted
Legend
Perimeter Fence
Hedgerow To Be Removed
Mitigation Areas
Midewin Boundary
Roads
N
0 0.25 0.5 1 1.5 2 Miles

APPENDIX B

Appendix B:
Cost Estimate for Trail Project Alternatives

This section addresses approximate costs of trail construction, bridge construction and removal, mitigation for removal and restoration of rail beds, and annual trail maintenance.

The cost of not implementing either of the action alternatives is difficult to estimate. The potential for user-made trails and dispersed recreational impacts is unknown at this initial phase of increasing access to Midewin for public use and enjoyment. However, the direct and cumulative damage could be high with repeated and unrestricted use, making the potential for heavy damage to Midewin's resources likely.

Estimated cost for trail construction

	Alternative 3	**Alternative 4**
Seedbed Trailhead	326,420	364,680
East Trailhead	217,870	247,740
Shared-use Trail	413,370	534,040
Pedestrian Trail	44,200	65,740
Total	**$1,001,860**	**$1,212,200**

The table below provides the estimated cost of removing an approximate 400-foot long rail bed approach to the existing trestle over Prairie Creek East, where work would involve clearing, excavating and hauling, and grading and reseeding. Mitigation for restoration in the Moraine Edge area would involve regrading and reseeding south from where the proposed trail leaves the rail bed.

Estimated Mitigation Cost for Removal of Railroad Grades.

Prairie Creek Area - Alt. 3	
$1,450	Clear and grub
$8,630	Excavation
$4,300	Fill
$2,082	Fine grading and seeding
Total $16,462	
Rail bed north of East Prairie Creek – Alt. 3	
$2,356	Excavation
$3,336	Fill
$3,122	Fine grading and seeding
Total $8,814	

TOTAL $25,276	

The following table provides estimates for new bridge construction at Prairie Creek East under Alternative 3 and at Grant Creek under both action alternatives. It also covers the estimated cost of converting two existing trestles over Prairie Creek East and West for trail use and the estimated cost of removing the existing bridge at Prairie Creek East, including the deck, abutments, and piers. Finally, estimates are provided for refurbishing the iron bridge over State Highway 53 for equestrian, pedestrian, and bicyclist use under both action alternatives. The cost estimate for this overpass includes $20,000 for an architectural engineering contract.

Estimated Cost for Bridge Construction and Conversion of Existing Trestles

	Alt. 1	**Alt. 2**	**Alt. 3**
State Hwy. 53 Iron Bridge decking & refurbishing (240 ft.). Includes $20,000 architectural engineering contract.	0	$84,000	$84,000
Prairie Creek E. bridge decking and refurbishing (100 ft.).	0	$40,000	0
Prairie Creek W. bridge decking & refurbishing (100 ft.).	0	$32,000	$32,000
Removal of existing Prairie Creek Bridge East.	0	0	$35,000
New Prairie Creek East bridge construction (100 ft.).	0	0	$108,000
Grant Creek footbridge construction (70 ft.).	0	$81,000	$81,000
TOTAL	**0**	**$237,000**	**$340,000**

The table below estimates yearly trail and trail-related facilities maintenance for the alternatives, including no action. Trailhead maintenance includes seasonal labor for the parking areas, litter and trash collection, and bulletin boards and signs. Included at the picnic facility, or shelter, is litter and trash collection, shelter maintenance, and sign upkeep. The cost of maintaining the pedestrian-only and shared-use trails includes mowing, sign upkeep and installation, litter collection, trail tread work, brush clearing, and tree pruning. Contracted trail tread maintenance is estimated at $3,700 per mile yearly, and would include grading the crushed limestone trail surfaces, replacing 10% of the crushed limestone screening, repairing or replacing geo-textile material, and repairing, cleaning, or replacing culverts.

Estimated cost for annual trail maintenance

	Alt. 1	**Alt. 2**	**Alt. 3**
Seasonal Labor Cost to Maintain Trailhead Parking Facilities ($2,450/parking area/year)	$2,450	$4,900	$4,900
Seasonal Labor Cost to Maintain Picnic Facility	0	$4,900	$4,900
Seasonal Labor Cost to Maintain Pedestrian-only Trail Segment ($940/mile/year)	0	$3,929	$5,076
Seasonal Labor Cost to Maintain Shared Trail Segment ($280/mile/year)	0	$1,514	$1,428
Service Contract to Maintain Shared Trail Segment	0	$15,967	$18,850
Service Contract for Restroom Trailhead Facilities ($1,440/restroom/year)	$1,440	$2,880	$2,880
TOTAL MAINTENANCE	**$3,890**	**$34,090**	**$38,034**

APPENDIX C

Appendix C: Trail Mileage

Number of Trail Miles by Alternative

	Alternative 1	Alternative 2	Alternative 3
Pedestrian Only Trail	0	4.2	5.4
Shared-Use Trail	0	5.4	5.1
TOTAL MILES	0	9.6	10.5

The table below provides the percentage of trail proposed on and off existing rail grades and roadbeds. Numbers relate to the alternatives' ability to meet the proposed ROS classification and Scenic Integrity Objectives.

Use of Existing Roadbeds and Rail Grades by Alternative

	Alternative 1	Alternative 2	Alternative 3
Shared-use trail *on* existing rail grade or road bed in miles (% of total)	N/A	2.7 (49.9%)	1.0 (20.3%)
Shared-use trail *off* existing rail grade or road bed in miles (% of total)	N/A	2.7 (50.1%)	4.0 (79.7%)
Pedestrian trail *on* existing rail grade or road bed in miles (% of total)	N/A	0.9 (20.7%)	0.2 (3.5%)
Pedestrian trail *off* existing rail grade or road bed in miles (% of total)	N/A	3.3 (79.3%)	5.2 (96.5%)

APPENDIX D

Appendix D:
Design Comparison by Alternative

	Alternative 1 **No Action**	**Alternative 2** **Proposed Action**	**Alternative 3** **Preferred Action**
Shared-Use Trail			
Trail configuration	None	Shared	
Trail surface	N/A	Crushed gravel or mowed turf	Crushed gravel
Trail width (overall)	N/A	Up to 8’	Up to 10’
Re-use of State Highway 53 overpass	N/A	Yes	
Re-use of Prairie Creek bridge east	N/A	Yes	No
Prairie Creek floodplain mitigation	No	No	Yes
Shared bridge crossing	N/A	Yes	
Scenic Moraine Edge spur trail and overlook	N/A	No	Yes
Screening and oak savanna restoration area	No	No	Yes
Pedestrian Only Trail			
Trail surface	None	Mowed turf, mulch, crushed gravel, or boardwalk where needed	
Trail width (overall)	N/A	Up to 6’	
Re-use Prairie Creek bridge west	N/A	Yes	
Construct Grant Creek bridge	N/A	Yes	
Wildlife spur trails – Blodgett Marsh & Prairie Creek Woods	N/A	No	Yes
Trails General			
Rest areas with benches along trails	N/A	No	Yes

Design Comparison by Alternative (continued)

	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3 Preferred Action
East Trailhead			
Parking & trailhead facilities	N/A	3.25 acres	
Separate trailer & vehicle parking	N/A	No	Yes
Trailer parking surface	N/A	Crushed gravel	
Vehicle parking surface	N/A	Crushed gravel	
Trailer parking / bus parking (#)	0	10	
Vehicle parking (#)	0	32	
Bus turn-around	0	Yes	
Pull-through trailer parking	N/A	No	Yes
Bike racks	No	No	Yes
Equestrian amenities	No	No	Yes
Facilities electricity	N/A	No	
Toilets	No	Yes	
Toilet type	N/A	SST Vault	
Toilet risers (#)	N/A	6	
Council Ring	No	No	Yes
Council Ring trail surface	N/A	N/A	Crushed gravel
Council Ring trail width	N/A	N/A	8’
Council Ring trail lighting	N/A	N/A	Primitive
Council Ring area (sq. ft.)	N/A	N/A	3,000
River Road Trailhead			
Parking & Trailhead facilities	N/A	1.25 acres	
Facilities electricity	N/A	No	Yes
Additional parking	No	Yes	
Parking surface	N/A	Crushed gravel	
Parking spaces (#)	0	30	
Bus turn-around	No	Yes	
Bus parking spaces (#)	0	2	
Toilets	No	Yes	
Toilet type	N/A	SST Vault	
Toilet risers (#)	N/A	4	
Bike racks	No	No	Yes
Equestrian amenities	No	No	Yes
Shelter	No	Yes	
Storage facility	No	No	Yes
Picnic area	No	Yes	

APPENDIX E

Appendix E:
Direct Loss or Gain of Existing or Potential Wetland

Loss or gain of wetland area*	**Alternative 1 No Action**	**Alternative 2 Proposed**	**Alternative 3 Preferred**
Loss of existing wetlands by construction of trail	0	0.3	0.04
Expansion of existing wetlands by obliteration of rail beds	0	0	0.7
Net change in existing wetlands	0	(-0.3)	0.7
New trail construction through potential wetlands (hydric soils)	0	3.3	3.3
Removal of rail beds in potential wetlands (hydric soils)	0	0	0.6
Net change in potential wetlands (hydric soils)	0	(-3.3)	(-2.7)
Net change in existing or potential wetlands	0	(-3.6)	(-2.0)

*Assumes that drainage design maintains existing flow patterns; actual losses or gains might vary depending on drainage structures used.