



United States Department of Agriculture



Forest Service

Final Decision Notice

INVASIVE SPECIES MANAGEMENT PROJECT

USDA Forest Service

Shawnee National Forest

Alexander, Gallatin, Hardin, Jackson, Johnson, Massac, Pope, Saline and Union Counties, Illinois

May 2014

Tim Pohlman, Responsible Official
District Ranger
602 N. First Street
Vienna, Illinois

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INTRODUCTION

The objective of this project is to restore and protect native ecosystems on the Forest by utilizing all available, environmentally responsible tools for the control or elimination of populations of invasive plants at the locations identified in the environmental assessment (EA). Action is needed now because:

- ❖ invasive species are jeopardizing the survival of some ecological communities,
- ❖ invasive species are increasingly degrading native plant communities,
- ❖ established invasives populations are serving as a source for spreading infestations,
- ❖ taking action now can avert a more widespread and costly future problem,
- ❖ existing invasive species populations can spread to adjacent lands,
- ❖ past control efforts in small areas using mainly manual methods have been laborious and only marginally effective in preventing the establishment of invasive species populations,
- ❖ invasive species populations are persisting and continuing to spread, pointing to the need for a comprehensive and integrated approach to treatment, and
- ❖ prevention of the establishment of new infestations is more effective than trying to control and eradicate entrenched infestations.

The project follows guidance in the Forest Land and Resource Management Plan (Forest Plan) (USDA FS Shawnee 2006):

The risk of damage from existing invasive species should be reduced through integrated pest management. Invasion-prevention measures should be implemented to maintain native ecosystems. Existing populations of invasive species should be eradicated, controlled and/or reduced. Effects of management activities on the encroachment and spread of invasive species should be considered and mitigated, if needed. Natural areas and lands adjacent to natural areas have the highest priority for the prevention and control of invasive species (Forest-Wide Guideline 34.2.1).

The Forest Service has prepared an EA in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This document, prepared by an interdisciplinary team, discusses the reasons for taking action and discloses the environmental effects of the proposed treatments. The EA for the Invasive Species Management Project can be viewed at the Forest Supervisor's Office located at 50 Highway 145 South, Harrisburg, Illinois, or on the [Shawnee National Forest Website](#). Paper copies of the EA are available upon request. The EA evaluates invasive species management on about 1,747 acres of the Forest (Table 1), and the application of prescribed fire on about 10,650 acres (see details at EA Appendix A). Legal descriptions of affected areas can be found at EA Appendix A.

OBJECTION PROCESS

Regulations at 36 Code of Federal Regulations (CFR) 218 required that I prepare a proposed Decision Notice for review as part of the pre-decisional, administrative review process that is now required for EAs. This new process became effective on March 27, 2013.

One primary difference of the objections process from the former appeals process is that eligible parties are able to seek resolution of their unresolved concerns. Objections could be filed based on unresolved concerns for the actions outlined in the July, 2014 proposed Decision Notice, prior to a final decision being made. We published a legal notice on November 3, 2014 to announce the release of the proposed Decision Notice and accompanying EA and Finding of No Significant Impact, and to offer the opportunity to object (Project Record 6.A.c.iii, Legal Notice of Opportunity to Object). This initiated a 45-day objection period. Individuals who submitted a comment regarding our proposal during any designated opportunity for public comment, and whose comment contained the required elements outlined in 36 CFR 218.8, were eligible to file an objection to the proposed Decision Notice.

This Final Decision Notice has been prepared pursuant to 36 CFR 218.12, which states that a decision can only be signed once the project's Objection Review Officer has responded in writing to all pending objections, and concerns and instructions identified by the Review Officer have been addressed. The project's Objection Review

Officer, Hurston Allen Nicholas, the Shawnee's Forest Supervisor, received one objection letter on the November, 2014 Draft Decision. A meeting of the objectors with Mr. Nicholas and Mr. Pohlman, the Responsible Official, was not possible, so there was no resolution of the objections. The Objection Review Officer issued a letter to the objectors responding to their objections and including six instructions (see letter at Appendix B). The following is a summary of how this Decision Notice responds to the Objection Review Officer's instructions.

Objection Review Officer Instructions

1. In order to enhance understanding of the location of planned project treatments, include the location maps of treatment areas in the final version of the EA. Key the maps to the watershed tables in EA Appendix A. The tables detail specific information for each treatment area shown on the maps. Amend EA Table 4 to include the acres of treatments for Alternative 2 (similar to Table 5 under Alternative 3). The objectors stated they were unable to discern the exact locations of the proposed treatments. Placing the treatment area maps within the EA (at Appendix D) alleviates this concern.

2. Amend EA project design criteria for human health and safety to include elements from burn plans intended to prevent or reduce the potential for prescribed fire to impact private land and/or residents. The objectors asserted that the Forest's application of prescribed fire could affect private residences. Since prescribed burn plans include precautions regarding smoke, the inclusion of this element in the project design criteria (Table 6) addresses this issue. The design criteria for human health and safety now include the requirement of the burn plans, namely, to identify anyone near the burn who might be sensitive to smoke and to notify these individuals prior to the application of fire.

3. Ensure that the requirement to implement project design criteria is included in the project decision. The objectors questioned whether the Responsible Official could rely on implementation of the project design criteria in making his finding of no significant impact. Stating the requirement plainly in the Decision Notice raises its importance and should reassure those who doubt the criteria will be observed. This final Decision Notice contains the language requiring implementation of the project design criteria. Monitoring of project implementation will provide further assurance that the design criteria are being implemented.

4. Include the number of wilderness acres and planned treated wilderness acres in the EA. The objectors were unable to discern the number of wilderness acres that may be affected during project implementation. As instructed, in the discussion of wilderness resources in the EA, a table has been added to display the affected wilderness acres in the current proposal. Additionally, the maps added to the EA at Appendix D provide further clarity as to the location and size of treatment areas.

5. Update the Biological Evaluation of Federally Listed Species with current white-nose syndrome facts and coordinate approval with the U.S. Fish and Wildlife Service. The objectors were concerned that the analysis in the EA did not include discussion of the white-nose syndrome having been detected on the Forest. We have revised the biological evaluation with the most current information and determined that the project is not likely to adversely affect any listed or candidate species. The U.S. Fish and Wildlife Service concurred with our determination on April 11, 2014 (Project Record 4.H.c).

6. Append an addendum to the 2010 Minimum Requirements Decision Guide that clarifies the reduction in acres of invasive species to be treated. The objectors questioned the legitimacy of our proposing ecological restoration work in designated wilderness areas. The 2010 Minimum Requirements Decision Guide documented our determination of the minimum tools necessary to implement the project in wilderness areas. The document has been updated with the requested table (Project Record 4.G.a.iii).

FINAL DECISION

This discussion of my decision incorporates by reference the *Invasive Species Management EA Revision 2*: November, 2013 and the March 19, 2014 Letter from the Reviewing Officer responding to the objections filed to my proposed decision notice of November 3, 2013. Both of these documents are appended to this Decision Notice as Appendix A and Appendix B, respectively. As the Responsible Official, I have considered a myriad of factors during my evaluation of this project. I have reviewed the project record, including the purpose and need for action (EA, page 9); the comments received during the proposal's comment periods (see Project Record 2.A, 2.D, 2.E, 2F and EA Appendix C, Response to Comments); and the direction in the 2006 Forest Plan.

With this balancing of environmental, social and natural resource factors in mind, I have decided to select Alternative 2 as detailed in the April, 2014 Invasive Species Management EA. This alternative offers a dual approach to effectively respond to invasive plant species that pose a risk to natural areas and other Forest resources:

1. Treatment of all known sites with four highly invasive species: The project interdisciplinary team reviewed the many invasive species on the Forest and identified four as priorities to be targeted across the Forest: Amur honeysuckle (*Lonicera maackii*), present on 411 acres at 20 sites, 37 acres of which are divided among 7 sites in natural area treatment zones; Chinese yam (*Dioscorea oppositifolia*), present on 253 acres at 22 sites, 1½ acres of which is distributed throughout 7 sites in natural area treatment zones; Garlic mustard (*Alliaria petiolata*), present on 467 acres at 31 locations, 13 acres of which are divided among 6 sites in natural area treatment zones and Kudzu (*Pueraria montana*), present on 77 acres at 9 locations, 10 acres of which are located at 1 site in a natural area treatment zone (see project maps at EA Appendix D for locations).

For the most part, these species were identified by the Forest botanist and project interdisciplinary team based on their field knowledge and review of the best available science regarding invasive plant treatments. They were chosen because of their high degree of invasiveness and/or ability to suppress or extirpate native vegetation by their aggressive growth characteristics or allelopathic abilities. Published science, monitoring and field studies indicate that active management of these species can greatly reduce both their current and potential adverse effects on native plants and wildlife with minimal impact on the surrounding environment. We propose integrated treatment using manual and mechanical methods and herbicides where appropriate to control and eliminate these species where they are currently known to occur.

We recognize that treating all invasive species everywhere on the Forest at one time is neither feasible nor practical. We simply do not have the budgets, resources, or capability to undertake such an action. We have studied invasive species treatments in the light of our field conditions, identified what is practical, effective and do-able given the current situation, and developed a reasoned, balanced approach, learning from the experience of other southern Illinois landowners as well as our neighboring national forests.

2. Management of 23 designated natural areas and their treatment zones: The project interdisciplinary team reviewed the information on invasive species in natural areas and identified those most threatened with vigorous infestations or with the most vulnerable natural communities. Based on this local knowledge of field conditions, the team selected 23 high-priority natural areas for this analysis (see EA Table 1). I have visited many of these sites myself and seen the adverse environmental effects caused by the continued spread of invasive plants in or near these natural areas. To attain maximum effectiveness in protection of the selected areas, the team configured treatment zones along streams, roads and trails—the main pathways of invasive species infestation—adjacent to and generally upstream of the natural areas. As detailed in EA Table 4 and Appendix A, we would treat all invasive species in the natural area treatment zones, following the published guidance of the Illinois Nature Preserves Commission.

We would apply prescribed fire on 10,650 acres in and around the natural area treatment zones, burning at intervals of 1-3 years, depending on our monitoring and assessment of effects to determine the need for additional fire, as well as fuel availability. The fire would help restore native vegetation and arrest the progression of invasive species. We would do further burns as needed to maintain the areas' ecological integrity once invasive vegetation has been suppressed. We could apply herbicides to control invasive species in the

natural area treatment zones either before or after the application of fire, depending on species present (see EA Table 4 and Appendix A). We would apply herbicides as described in the EA until infestations are controlled or eliminated.

In view of the field data and needs identified in the purpose and need portion of the EA, the Project Record and comments, endorsements and concerns received during project scoping and the designated comment periods, I am deciding to implement the herbicide treatment methods summarized in Table 1.

We will continue to use public information and education to increase awareness of invasive species issues and we will treat invasive plants on National Forest System lands as discussed in the EA, pages 11-19, and displayed on project maps at EA Appendix D, given available time and resources. My decision includes direction to implement the project design criteria during all project activities (EA Tables 6 and 7, pages 23-25). We will monitor our results post-treatment to evaluate success as specified in EA Table 8, page 24; we will document the results in our monitoring reports.

The Forest Service, through interdisciplinary team input and analysis of the issues, along with my input and review as the responsible official, considered three alternatives in the project EA. The alternatives developed in detail were No Action, the Proposed Action and Invasives Treatment with Natural Herbicides. The analysis of these alternatives provides all the information I need to make a reasonable, informed decision about the management of invasives species and natural areas for the next 10 years in a way that advances the ecological restoration goals and objectives set forth in the Forest Plan.

| Table 1. Proposed Treatment Methods under Alternative 2. | | |
|---|---|---------------|
| Species | <u>BROADLEAF PLANTS</u> Treatment Method | Acres* |
| Adam’s needle (yucca) | Remove entire plant by hand and grub out root. | 0.01 |
| Asiatic dayflower | Hand-pull where control is desired. | 0.83 |
| Chinese yam (PRIORITY SPECIES) | Difficult to control, Chinese yam is so widespread that complete eradication is not likely possible; however, it is important to eradicate populations and sources in and around natural areas. Apply triclopyr on dormant or early-germinating bulbils in early spring through April. | 253 |
| Beefsteakplant Common sheep sorrel | Apply triclopyr before bloom or seedset in areas where broadleaf-selective herbicide is preferable; alternatively, glyphosate may be applied where non-selective herbicide is acceptable. | 2 |
| Creeping jenny (bindweed) | Apply glyphosate on heavy infestation in summer-early fall. Extensive root systems of established infestations may require repeat applications. | 0.08 |
| Curly dock Common dandelion | Hand-pull individuals where possible, removing taproot. Alternatively, apply triclopyr to young, growing plants, ideally before seeding. | 0.1 |
| Garlic mustard (PRIORITY SPECIES) | Control of garlic mustard requires depletion of the seedbank; treatment may be required for several years. Hand-pull light/small infestations anytime soil is not frozen, removing all parts of plant. Apply glyphosate in spring or fall. Apply in spring to head off seeding, but take care not to affect early ephemerals that may be in proximity; or, apply in fall/dormant season when garlic mustard is still green. This process may need to be repeated, depending on persistence of seedbank. | 467 |
| Japanese knotweed | Apply glyphosate or triclopyr in fall when leaves are translocating to rhizomes. | 0.07 |

| Table 1. Proposed Treatment Methods under Alternative 2. | | |
|--|---|--------------|
| Oriental lady's-thumb | Apply glyphosate when plant is actively growing. | 2.13 |
| Periwinkle | Cut plants, then apply glyphosate to new growth. | 1 |
| Queen Anne's lace Garden yellowrocket | Apply glyphosate to rosettes; apply triclopyr to rosettes the following year if necessary. Plants are biennial; goal is to treat before seeding. | 0.77 |
| Common St. Johnswort Sleepydick | Apply glyphosate. | 1 |
| Species | <u>GRASSY PLANTS</u> Treatment Method | Acres |
| Bald brome Canada bluegrass Kentucky bluegrass Smooth brome | Apply fire in late spring after plants are growing, and in late season to ensure control. If application of fire or repeat fire is not possible, apply sethoxydim to new growth. | 2 |
| Japanese bristlegrass | Do not burn. Apply glyphosate or sethoxydim in late spring before warm-season grasses appear; the former where use of non-selective herbicide is acceptable, the latter where a grass-selective herbicide is more desirable. | 0.08 |
| Johnsongrass | Apply glyphosate during June, just prior to seed maturity. | 0.25 |
| Nepalese browntop | Efforts to eliminate or prevent seedbank are critical to control. Plant is easily pulled and can be cut or burned prior to seed production. Where chemical control is necessary in large infestations, apply sethoxydim when plants are 6-8 inches high, actively growing, and not under stress. Depending on persistence of seedbank, repeat applications may be required. | 95 |
| Orchardgrass Tall fescue | Single clumps can be dug, ensuring whole plant and all stems are removed. If digging is not practical, apply glyphosate when plants are actively growing and not stressed. | 10 |
| Reed canarygrass | Apply fire in late spring; apply glyphosate in June and September to ensure control. | 0.08 |
| Species | <u>LEGUMINOUS / COMPOSITE PLANTS</u> Treatment Method | Acres |
| Annual ragweed | Control with prescribed fire and/or remove by cutting/mowing, most effectively prior to seeding. If these methods are not possible, apply triclopyr before seeding. An herbicide containing at least 40% clopyralid could also be used at the rate 21 ounces to the gallon. | 0.12 |
| Bristly oxtongue | Remove by digging if possible. If large infestation, apply glyphosate. | 0.08 |
| Bull thistle | Apply fire in late spring, if possible, to increase exposure of rosettes to herbicide application. Apply glyphosate to plants in late bud-stage or early bloom-stage and root reserves are lowest. | 1 |
| Common plantain Common yarrow | Remove by digging individual plants, if possible, ensuring removal of taproot or rhizomes (yarrow). If digging is not practical, apply glyphosate to actively growing plants/rosettes. | 0.4 |
| Common mullein | Mullein is prolific seed-producer; treatments should be done prior to seeding to effect control. Cut plant below crown prior to seeding, if possible. Alternatively, apply glyphosate or triclopyr to rosette when plant is actively growing. | 0.54 |
| Crownvetch | Apply triclopyr before seed maturity; clopyralid if a more legume-specific herbicide is desired. | 0.3 |

| Table 1. Proposed Treatment Methods under Alternative 2. | | |
|--|--|--------------|
| Field clover Yellow sweetclover Red clover Korean clover | Apply glyphosate or triclopyr to actively growing plants; the former where use of non-selective herbicide is acceptable, the latter where a broadleaf-selective herbicide is more desirable. | 2.6 |
| Kudzu (PRIORITY SPECIES) | <p>Eradication by direct root removal is not practical because of the nature of the root system. Total eradication of kudzu is necessary to prevent regrowth. Cut and remove all parts of the plant, or burn where possible. Apply an herbicide containing at least 40% clopyralid at 21 ounces to the gallon to remaining growth during the period August 15 to October 15. Add a non-ionic surfactant to the mixture to help penetrate the leaf cuticle. (Clopyralid targets legumes and composites, so will not harm non-leguminous trees beneath the kudzu.) A second application can be made during the specified timeframe. Follow-up treatments can be made to young stems and leaves in early summer using an herbicide containing at least 44% triclopyr. The target area should be monitored and if residual plants are located treat them with the clopyralid mixture. If follow-up treatments are not made, kudzu will quickly reclaim an area. Picloram can be applied directly to cut stumps to further effect eradication.</p> <p>Outside of natural areas, thin-line and hack-and-squirt herbicide application could be done using clopyralid or triclopyr at the specified solutions.</p> | 77 |
| Lesser burdock | Apply glyphosate to actively growing plant rosettes. | 0.08 |
| Oxeye daisy | Apply an herbicide containing at least 40% (21 ounces to the gallon) clopyralid to actively growing plants. | 0.16 |
| Sericea lespedeza | Apply triclopyr during June to mid-July when plants are still vegetative and during early flowering. An herbicide containing at least 40% clopyralid could also be used at the rate 21 ounces to the gallon. | 3.6 |
| Species | <u>WOODY PLANTS</u> Treatment Method | Acres |
| Amur honeysuckle (PRIORITY SPECIES) Bush honeysuckle | <p>Apply prescribed fire if sufficient fuel is present to sustain fire; treat resprouting with glyphosate. In heavy infestations of honeysuckle, spray foliage with glyphosate in late fall when non-target plants are dormant and honeysuckle is still actively growing.</p> <p>Outside of natural areas, thin-line and hack-and-squirt herbicide application could be done using glyphosate at the specified solution.</p> | 411 |
| Autumn olive Multiflora rose Tree-of-heaven | <p>Cut plant at main stem(s); apply glyphosate to cut surfaces late in growing season—July – September. For tree-of-heaven, apply glyphosate at 20-50% solution to cut surfaces in summer to late fall. Additionally, for multiflora rose, routine application of prescribed fire will hinder invasion and prevent establishment.</p> <p>Outside of natural areas, thin-line and hack-and-squirt herbicide application could be done using glyphosate at the specified solution.</p> | 64 |
| Black locust Princess-tree | <p>Cut plant at main stem(s); apply triclopyr at 50% solution to cut stump at any time of year, preferably in dormant season.</p> <p>Outside of natural areas, thin-line and hack-and-squirt herbicide application could be done using triclopyr at the specified solution.</p> | 0.5 |
| Burningbush Japanese meadowsweet Mock orange | <p>Apply prescribed fire if sufficient fuel is present to sustain fire; treat resprouting with glyphosate. Alternatively, cut plant at main stem(s); apply glyphosate at 10-20% solution to cut surfaces.</p> <p>Outside of natural areas, thin-line and hack-and-squirt herbicide application could be done using glyphosate at the specified solution.</p> | 0.03 |

| Table 1. Proposed Treatment Methods under Alternative 2. | | |
|---|---|-------------|
| Japanese honeysuckle | Apply prescribed fire and treat resprouting with glyphosate. Cut any vining in canopies before burning. | 350 |
| Wintercreeper | Hand-pull and grub small populations, removing all parts of the plant from the site. Otherwise, cut plant as close to ground as possible and apply triclopyr to cut surfaces. | 0.13 |
| Total | | 1747 |

* Note: Descriptions of area are approximate.

The methods described in the Table 1 will be employed as detailed in EA Appendix A, Invasive Species Management by HUC6 Watershed, page 91.

RATIONALE FOR THE FINAL DECISION

I have chosen Alternative 2 because it is sound forest ecosystem management, best meets the purpose and need for invasives species and natural areas management, and meets the desired future condition for affected management areas while incorporating public and agency concerns. The purpose of this project is to restore and protect native ecosystems on the Forest by utilizing all available, environmentally responsible tools for the control or elimination of populations of invasive plants at specified locations.

Implementation of the selected alternative will enable us to comprehensively treat invasives infestations with prescribed fire and manual, mechanical and/or chemical methods, allowing us to integrate use of the proposed herbicides as necessary to effectively and economically treat invasive plant species. The severity of the invasives problem affecting our natural areas and the need to address infestations of the four priority species in the EA indicate the necessity of our turning to herbicides to aid in the control of invasive species.

The design, analysis and implementation of this project occur in the context of a multiple-use framework described in the Forest Plan. In addition to planning for resource protection, we considered the interests of all types of Forest users during project analysis. We developed the selected alternative to address the threat posed by invasive plants, and incorporated numerous safeguards in order to avoid adverse effects (see, e.g., project design criteria, EA pages 22-24). In response to issues raised in scoping comments, we developed an alternative that proposed the use of non-synthetic, “natural” herbicides.

Our responsibility to provide for multiple uses of Forest resources while at the same time ensuring resource conservation presents a management challenge. In order to meet this responsibility, we have collaborated with resource experts from other agencies and organizations to learn about the successes and difficulties of invasives management from those who perform activities such as we propose in order to protect and conserve natural areas. In developing alternatives, we strived to balance divergent interests and considered the insights of those who are already making significant progress in reducing the adverse effects of invasive plants, especially with regard to natural areas.

I am keenly aware that, although many land managers and resource professionals support this proposal, not everyone agrees with our approach. We have spent years looking at data, especially field conditions and effects of herbicide use on the people and the environment. We solicited information, especially scientific findings on herbicide effects, and used the information we received with the best information available within the agency. The analysis documents the tradeoffs in the various approaches to addressing invasive plants, given field conditions. Cumulative effects and impacts on neighboring landowners and forest visitors were a focal point of this analysis. Although we have studied this problem from many angles for a long time, we recognize that we will probably not ever satisfy everyone. However, there will be environmental tradeoffs and risks associated with any future course of action, including the no-action alternative. With the a strong, science-based foundation, and the lessons learned from and support of other land managers, the Forest is ready to take a

carefully measured step forward to implement a balanced project addressing the growing, accelerating environmental concern presented by invasives in and around natural areas.

This action enjoys a broad range of support, including the endorsement of state agencies, local partnerships and national environmental organizations. Among their statements of support and endorsement:

The Illinois Department of Natural Resources:

(We) have reviewed all of the changes made to the Invasive Species EA Revision 2 and continue to be supportive of the actions proposed, including re-introduction of prescribed fire...as a management tool and actions regarding invasive species control. The adjustments to the EA based upon the new risk assessment for glyphosate are reasonable and appropriate measures to ensure safe and effective treatments of invasive plants on the Forest.

As stated in previous comments, the approach proposed by the Forest in the EA is based upon sound science and management principles, and the equipment-sanitation and spread-prevention techniques detailed within the EA are a vital component of an effective management program. A combination of mechanical and chemical treatments is often necessary for control, as many of the invasive species present in southern Illinois cannot be adequately controlled using mechanical means alone.

Invasive species are a direct threat to natural resources, native communities, and ecosystem health and functioning. They also severely impact recreation and have the ability to readily move off the Forest onto adjacent lands. Effective control on the Forest is vital to conservation efforts in southern Illinois and will directly benefit adjacent state and private lands. It is imperative to protect the Forest and to maintain the health of adjacent lands, that invasive species be controlled.

The IDNR agrees with the emphasis the Forest places on natural area management with this EA. The management strategies and expected outcomes outlined in this EA are common to those outlined in our State's Wildlife Action Plan specifically for those noted in our Invasive Species and Forest Campaigns. Controlling invasive species within natural areas on the Forest will help protect these remnants of high-quality native communities that are home to many rare, threatened, or endangered species.

...the IDNR fully supports the Forest's efforts to control invasive plants and believes that the actions proposed in the Invasive Species EA Revision 2 are appropriate and necessary.

The Illinois Nature Preserves Commission:

(We have) been managing natural areas using the same techniques as proposed for 25 years and found them successful in protecting natural areas with sensitive plant species in Illinois.

The Midwest Invasive Plant Network:

(We applaud) the Shawnee National Forest for being willing to take decisive action and encourage the Forest to carry out the proposed measures to control invasive species on their lands...The actions proposed in the EA are the appropriate and safe measures needed to tackle the serious problem of invasive species. The other alternatives in the EA are not sufficient to prevent the continued spread of invasive species and subsequent degradation of the natural ecosystems which they invade...The USDA Forest Service is called upon to control invasive species on their lands within their mission statement ('to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations') and through the directive set forth in Executive Order 13112.

The Southern Chapter of the Illinois Native Plant Society:

(We support) the actions proposed in this EA and thank the Shawnee National Forest for continuing to prioritize, protect, and manage their natural areas and native plants...Managing natural areas and controlling invasive species not only benefits the Shawnee National Forest, but benefits the entire southern Illinois region as well. The proposed actions in the EA are needed to achieve these benefits. These methods are well-tested, not excessive, and would not pose a threat to the local environment.

The Nature Conservancy:

(We fully support) the Forest’s proposal...The Nature Conservancy considers invasive exotic species to be second only to habitat loss as the leading threat to imperiled and endangered plants and animals in the United States and around the world. In partnership with the IDNR, the Conservancy employs an invasive species strike team to manage critical natural areas in...southern Illinois...It is our experience that using herbicides is the most responsible and appropriate approach for eradication of initial infestations of invasive species and using prescribed fire and herbicides in combination is the most cost-efficient and appropriate approach for long-term control of infestations...

Other Alternatives Considered

The interdisciplinary team selected three alternatives for detailed analysis: the no-action alternative, the proposed action alternative, and the natural herbicide alternative. After reviewing the alternatives, I find that our taking no action is neither feasible nor practical, given the documented expansion of invasive species on the Forest. Over time, the lack of management of natural areas will jeopardize the unique resources located within them. Monitoring confirms that we are losing ground using current methods. A risk of accelerated expansion of invasives under this alternative is neither speculative nor unforeseeable, as the number, location and size of invasive species-infested areas increases annually. There is significant risk of invasives establishment in natural areas and expansion into new areas, as well as the loss of the unique features of the natural areas due to the absence of fire and encroaching vegetation. Overall, our taking no action increases the risk to the environment, as is documented in the EA and the project record. The trajectory of the affected natural areas in terms of ecological integrity will continue downward under the no-action alternative. We will not be able to protect these areas from permanent ecological degradation in the future if we simply continue to use manual or mechanical methods.

Implementing Alternative 3 with the use of natural herbicides would allow us to treat invasives infestations with prescribed fire and manual and mechanical methods, as well as natural weed-killers. I concur with the finding of the interdisciplinary team that neither of the proposed “natural” methods—hot foam and clove oil-vinegar—would actually control or eliminate a targeted plant without repeated applications. Top-kill of a plant could be readily achieved, but the plant would not be prevented from resprouting. Without effective control, we would gain little in protecting the selected natural areas or eliminating the occurrences of the four priority species.

Other Factors Considered

In reaching my decision, I have considered the science, field data and analysis in the EA, which was tiered to the 2006 programmatic final environmental impact statement on the Forest Plan and incorporated by reference the U.S. Fish and Wildlife Service’s programmatic biological opinion of the Plan. The analysis also incorporated by reference the human health and ecological risk assessments of the herbicides we propose, which indicate their relative safety. I also considered the experience, approach and support of the IDNR, as well as the Illinois Nature Preserves Commission, the Illinois Invasive Plant Species Council, the River-to-River Cooperative Weed Management Area and The Nature Conservancy, who have successfully used the methods we propose and endorse our proposal as necessary and practical for the control of invasive species (see Forest Plan page 22).

PUBLIC INVOLVEMENT

As described in the Introduction, the need for this action has been identified over the last few years. A proposal to manage invasive species was listed in the Forest’s Schedule of Proposed Actions on April 1, 2008 and has appeared in the schedule since. The proposal was sent to the public and other agencies for scoping on April 29, 2008. The Forest hosted an informational open-house meeting on September 15, 2010. We received twelve scoping responses.

The EA was published in 2011, with a decision in May. We received comments from 35 individuals and governmental and non-governmental organizations, as well as three form letters. Following review of two appeals, the responsible official withdrew the decision for further analysis of the proposal. A revised EA was published in late 2012, with a decision in January, 2013. We received comments from two individuals as well as

form letters, and endorsements of the proposal from several governmental and non-governmental organizations. Following appeal, the responsible official withdrew the decision in order that the interdisciplinary team could review new risk assessments on glyphosate and picloram. The EA was revised and published in mid-2013. Endorsements of the proposal were again received, as well as comments from three individuals and one organization.

My proposed decision on this project was published November 3, 2013 in the *Southern Illinoisan* newspaper. It was subject to a pre-decisional objection process. In response to the opportunity to object, the agency received one letter with multiple issues. The objection issues were considered by an impartial, dedicated team that reviewed the project record and EA and made recommendations to the Objection Review Officer. The letter from the Objection Review Officer to the objectors found there to be no violation of law, regulation or policy in the analysis, the Finding of No Significant Impact, or my decision. The letter can be found at Appendix B.

From the outset, our proposal has been available for meaningful public review and comment. We have thoughtfully considered all comments received and improved our analysis because of them. All were reviewed in the development and preparation of the EA.

FINDING OF NO SIGNIFICANT IMPACT

I considered and prepared a Finding of No Significant Impact (see EA page 64): I determined that the effects of implementing Alternative 2 would not have a significant effect on the quality of the human environment, and an environmental impact statement will not be prepared. I have determined, based on the discussion of effects in the environmental analysis, and from experience with similar activities, that these actions are not a major federal action, individually or cumulatively, that will significantly affect the quality of the human environment. No additional analysis or studies need to be conducted for me to make a determination.

We have studied the field conditions, experiences of other southern Illinois land managers, and scientific information concerning herbicide use for many years. The Finding of No Significant Impact is informed by a comprehensive body of scientific information concerning the nature and degree of effects, by public input, and by lessons learned by others and the interdisciplinary team's extensive knowledge of the sites to be treated. Methods of treatment with the least potential indirect and cumulative effects were studied for this project. In particular, the interdisciplinary team and I studied the cumulative effects and potential impacts on human health. We worked together to use science and the best practices of others in southern Illinois land managers to design effective mitigation and sound monitoring practices.

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS

My decision is in accordance with the Forest Plan's long-term goals and objectives and the proposed project is consistent with Forest Plan standards and guidelines (16 USC 1604(i)). The foundation of this analysis is the compilation and review of published science concerning the treatment of invasive plant species. In addition, we contacted other national forests as well as state and non-governmental experts to discuss invasive plant species management. No scientific information presented to the agency by the public was overlooked or ignored. We used the best available science in the development of this analysis. The analysis and implementation of the selected alternative meet the requirements of all relevant laws and regulations, including the following:

National Environmental Policy Act

This Act requires public involvement and consideration and disclosure of potential environmental effects. For this project, we made a strong effort to reach out to the public, identify public issues and concerns, and use that information to develop a reasonable range of alternatives, improve the effects analysis, and make a well-reasoned decision.

The Invasive Species Management project environmental analysis was conducted following the procedures and requirements of this Act and the Council on Environmental Quality regulations. An interdisciplinary team fully evaluated and disclosed the environmental effects of the proposed project based upon field study, resource inventory and survey, the best available science, the disclosure of programmatic effects in the EIS prepared for

the Forest Plan and their professional expertise. The entirety of documentation for this decision demonstrates compliance with this Act.

Forest Plan Consistency (National Forest Management Act)

The National Forest Management Act requires that all site-specific project activities be consistent with direction in the Forest's Land and Resource Management Plan: This project is consistent with the Shawnee National Forest 2006 Forest Plan. Through conformance with the Forest Plan standards and guidelines, this decision is consistent with National Forest Management Act.

Endangered Species Act

The Endangered Species Act requires that federal activities not jeopardize the continued existence of any species federally listed or proposed as threatened or endangered, or result in adverse modification to such species' designated critical habitat. As required by this Act, potential effects of this decision on listed species have been analyzed and documented in the Invasive Species Management Biological Assessment. The analysis was informed by the science and disclosure of effects in the programmatic consultation for the revised Forest Plan. On April 11, 2014, we received concurrence from the U.S. Fish and Wildlife Service with our determination in the project Biological Evaluation of "not likely to adversely affect" federally listed species.

Clean Water Act

The beneficial uses of water in streams draining the project area would be maintained during and following the implementation of Alternative 2. As the watershed resources section of the EA makes clear, application of Forest Plan standards and guidelines and the project design criteria (mitigation measures) will ensure protection of water resources. Activities identified in the EA alternatives comply with Section 319 of the Federal Clean Water Act. The Illinois Non-point Source Management Program, which recommends using IDNR Best Management Practices, was developed to comply with Section 319 of the Federal Clean Water Act (IDNR 2013). We developed this project was developed in accordance with those best management practices (see Project Design Criteria, EA pages 22-24).

Clean Air Act

The watershed resources section of the EA analyzes the effects of proposed activities on air quality and Class I airsheds. This analysis found that National Ambient Air Quality Standards are not likely to be exceeded by the activities planned in Alternative 2 (EA, pages 51-52). This decision, with impacts limited to the immediate area of activity, will not affect any Class I airsheds.

Migratory Bird Treaty Act

This proposal complies with the Migratory Bird Treaty Act and Executive Order 13186. See the Wildlife working paper for details (Project Record 4.H.a).

National Historic Preservation Act, Archaeological Resources Protection Act, Native American Graves Protection and Repatriation Act

Following consultation, the State Historic Preservation Office has concurred with our determination of no-effect on heritage resources from implementation of our proposal.

Floodplains

Site productivity and riparian function would be maintained in the project area in all alternatives; therefore, also on the floodplains in the project area.

Wetlands

None of the alternatives would have an adverse effect on the site productivity or function of the sites near the project area identified as having one or more wetland characteristics.

Irreversible or Irretrievable Commitment of Resources

None of the project alternatives would have an irreversible or irretrievable commitment in the project area or adjacent analysis area if design criteria and Forest Plan protections are adhered to. We anticipate no irreversible

effects on soil and water resources from any alternative. Soil erosion above natural rates is an irretrievable effect. Alternatives 2 and 3 would result in a temporary, slight increase in erosion rates above natural geologic rates.

Roadless

The Secretary of Agriculture issued a memo reserving the authority for approval of road construction and timber harvest in 2001 inventoried roadless areas. Our invasive species management proposal includes the management (herbicide treatments and prescribed fire) of two designated natural areas in the 6200-acre Burke Branch Inventoried Roadless Area.

The Regional Forester reviewed our proposal and allowed us to continue our analysis. Proposed activities comply with condition 2 (B)(2)(c) of the Secretary's Memorandum of May 28, 2010, which recognizes the need "to improve threatened, endangered proposed, or sensitive species habitat" [and] "to maintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects..." We have reviewed the roadless direction and have determined that the activities planned are consistent with the 2001 roadless rule. The proposed actions would improve the roadless character by eliminating invasive species and improving the ecological condition of these areas.

Social and Economic Environment and Environmental Justice

Executive Order 12898 requires federal agencies to respond to the issue of environmental justice by "identifying and addressing disproportionately high and adverse human activities on minority and low income populations. Ethnic minorities are defined as African Americans, American Indian and Alaska Native, Asian, Hispanic or Latino, and Native Hawaiian and other Pacific Islanders. Low income persons are defined as people with incomes below the federal poverty level, currently at \$23,850.00 for a family of four (aspe.hhs.gov/poverty/14poverty.cfm).

According to "Social Assessment of the Shawnee National Forest" (Welch and Evans 2003), "Several key characteristics distinguish southern Illinois from the rest of the state. Perhaps the most striking is the level of poverty in the region...Southern Illinois, still recovering from job losses due to coal mine closings, had relatively high rates of unemployment in 2000; "...Jackson and Massac counties had the lowest rates in the region" (Welch and Evans 2003). The area is also characterized by low population density and declining population.

Although the area is marked by high unemployment, high poverty rates, and lower-than-average minority numbers, the action alternatives described in this environmental assessment are limited to Forest Service-managed lands, and potential effects resulting from these activities would not affect residents, including minority or low-income populations, bordering National Forest System lands. The project design criteria outlined in Chapter 2, including herbicide application procedures, short-term closures during herbicide applications and other measures, would ensure that the proposed activities would have no effect on neighboring private property or on the health and safety of forest visitors and, therefore, the health of minorities or low-income individuals will not be affected.

Minimum Requirements Decision Guide for Proposed Actions in Wilderness

The Minimum Requirements Decision Guide assists wilderness managers in making appropriate decisions regarding management actions in wilderness areas. The concept of Minimum Requirements comes from Section 4(c) of the Wilderness Act of 1964:

Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and except as necessary to meet *minimum requirements* for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area. (Emphasis added.)

Applicable actions include, but are not limited to, scientific monitoring, research, recreational developments and, as proposed in this environmental assessment, invasive species treatment and control. We have prepared a Minimum Requirements Decision Guide to identify, analyze and select the minimum actions necessary for the treatment and control of invasive species in the wilderness areas on the Forest. Its findings are incorporated in the EA and it is included in the project record.

IMPLEMENTATION DATE

Pursuant to 36 CFR 218.12, this Final Decision can be implemented immediately. We anticipate implementing the decision sometime this spring, based on the availability of time and resources. At the outset, we'll focus on the most at-risk natural areas, as described in the EA.

RESPONSIBLE OFFICIAL AND CONTACT PERSON

Tim Pohlman, District Ranger, is the responsible official for the Invasive Species Management Project EA. Further information about this Final Decision can be obtained several ways:

Telephone: Contact Amanda Kunzmann, Deputy District Ranger, at the Vienna Office during business hours (8:00 a.m. – 4:30 p.m. CT) at (618) 658-1328.

In writing: Contact Ranger District, 602 N. First Street, Vienna, IL 62995, Attention: Amanda Kunzmann
Facsimile requests: Address to: Amanda Kunzmann at: (618) 658-1300.

E-mail requests: comments-eastern-shawnee@fs.fed.us. Please include the project name (Invasive Species) in the subject line of the e-mail.

SIGNATURE AND DATE

Tim Pohlman

5/7/14

TIMOTHY POHLMAN

District Ranger
Shawnee National Forest

Date

APPENDIX A

INVASIVE SPECIES MANAGEMENT ENVIRONMENTAL ASSESSMENT

APPENDIX B

OBJECTION REVIEW OFFICER RESPONSE TO OBJECTIONS