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Agriculture

Forest  
Service

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File Code:1570

Date:March 19, 2014

Mr. Mark Donham, et al.  
Regional Association of Concerned Environmentalists  
RR 1 Box 308  
Brookport, IL 62910

Dear Mr. Donham:

Your objections have been considered by an impartial, dedicated team in the light of the project record and documentation and I have completed my review of their findings. I had hoped you would have taken the opportunity to meet with me and District Ranger Pohlman to discuss your concerns and perhaps come to some understanding of how they have been considered. In any case, I have given careful consideration to your concerns and prepared these responses to your objections.

As you are aware, there are specific regulatory requirements for obtaining eligibility to file an objection and for filing objections that may be considered. Based upon the record before me, I note that some of your objection issues would not be subject to review under the regulation, as they are issues that were not raised during designated opportunities to comment on this proposal (see 36 C.F.R. 218.5 and 218.8); these issues are underlined in the responses. Given that your objections were filed during the transition between the administrative appeal and objection processes, the agency has accepted these issues and prepared this detailed response. I am required to caution you to adhere to the regulatory requirements in the future.

Under 36 C.F.R. 218.12, the Responsible Official may not sign a project decision until all concerns and instructions identified in this objection response have been addressed. I have summarized at the end of this letter items the Responsible Official must address prior to signing the decision notice. There will be no further administrative review of this objection response (36 C.F.R. 218.11(b)(2)).

**Project Summary:** The Invasive Species Management Project affects Alexander, Gallatin, Hardin, Jackson, Johnson, Massac, Pope, Saline and Union Counties, Illinois on the Shawnee National Forest (Forest). The proposed action is to integrate manual, mechanical and chemical methods in a dual approach to invasive species management: The treatment of all known sites with four highly invasive species and management of 23 natural areas and their treatment zones.

**Objection Summary:** The legal notice of the opportunity to object to the proposed decision notice for the Invasive Species Management Project was published November 3, 2013. On December 18, 2013, I received your objections to this project (#14-09-08-0009 O-218). You were eligible to file an objection and your objection letter was filed during the objection-filing period.



As the Objection Review Officer, I emailed you on January 27, 2014, requesting you to contact me regarding a meeting to discuss your concerns. On January 31, you responded that you and others would be interested in a meeting and, on February 10, you requested a date beyond February 23. On February 11, Matthew Lechner sent out a “doodle poll” to all interested parties in order to identify a date agreeable to all. You contacted Mr. Lechner on February 14 and suggested March 5 for a meeting date. After advising you that we could plan to meet at my office in Harrisburg on March 5, you requested a “more neutral location.” Accordingly, we arranged for the meeting at the Harrisburg Public Library.

On March 5, you advised me by email that you did not feel safe driving on icy roads to come to Harrisburg and requested we meet by conference call instead of face-to-face. Richard Blume-Weaver emailed you our toll-free conference-line number and login so we could meet by phone. At the agreed-upon time, 6:30, I was waiting with Ranger Pohlman for you to call in. After some 15 minutes, Ranger Pohlman emailed you the conference-line number again and advised you we would wait five minutes more. No one called in.

**Objection Responses:** Under 36 C.F.R. 218.11 (b)(1), my response to objections does not need to be point-by-point, but must set forth the reasons for the response. I have opted to respond to each of your objections in detail so you might understand how the Forest has addressed your concerns in the development of this proposal. You raised three “pre-objection” issues and eight primary issues with multiple sub-issues, all of which are addressed below.

**Common Acronyms:**

**CFR** – Code of Federal Regulations

**FONSI** – Finding of No Significant Impact

**DN** – Proposed Decision Notice for Invasive Species Management (Project Record 6.B.c.iii)

**IDT** – Interdisciplinary Team

**NEPA** – National Environmental Policy Act

**EA** – Invasive Species Management Environmental Assessment Rev. 2 (Project Record 6.B.c.ii)

**NO** – Notice of Objection

**PR** – Project Record of the Invasive Species Management Environmental Assessment Revision 2

**Pre-objection STATEMENT #i, LEGAL NOTICE ILLEGAL:** “...*The agency has issued two legal notices for this project, neither of them comply with the regulations. There is no legal authority to correct a deficient legal notice with another deficient legal notice. This created great confusion as to when the objection period began and which date was the last day for submitting objections...Therefore, the objectors request that these legal notices be withdrawn.*” (NO, page 1)

**Analysis:** The regulations for notice of opportunity to object are at 36 C.F.R. 218.7. They address publication of the legal notice of opportunity to object in the Forest’s newspaper of record and on the Forest’s website. This was done with the first notice, on November 3, 2013. Two weeks after publication, it was necessary to correct the published email address due to a technical issue, i.e., the published email address would not generate an auto-response to objectors. Not only did the Responsible Official publish a correction in a subsequent legal notice,

but he also notified all potential objectors. There should have been no confusion over the date to be used for the objection period.

As the regulations are silent on how to treat a minor correction such as an email address, I believe the Responsible Official properly interpreted the regulation to allow for the process used. All objections submitted to the agency have been considered. There is no violation on this point.

**Pre-objection STATEMENT #ii, ARBITRARY SELECTION OF SPECIES:** *“Although there are many hundreds of ‘exotic’ species, more than a few of which are ‘invasive,’ the Shawnee is arbitrarily choosing only 4 such species to target...Why species such as kudzu, which covers a relatively small area across the region, are chosen while hundreds of others aren't isn't explained. Nevertheless, it is clearly arbitrary.”* (NO, page 2)

**Analysis:** The EA describes the reasoning for the identification of four priority species to target for treatment on the Forest: The proposed action discloses why each was chosen for treatment (EA, page 12 **12-13**). The EA acknowledges that invasive species other than the four selected for treatment have rapidly spreading populations on the Forest. Many of these are proposed for treatment in the 23 priority natural area treatment zones. The EA notes that there are 65 different invasive species on over 1600 sites on the Forest (EA, pages 7-8 **8**). These could be proposed for treatment in the future, with project-specific environmental analyses. The background for choosing the four priority species is addressed in the EA Appendix C, response to comment 9, pages 126-127 **129-130**; also see the response to comment 9 at PR 6.B.b.i, pages 103-104, and the response to comment 51 at PR 6.B.a.i, pages 80-81.

Other places in the PR where reasons for choosing the four species are explained include IDT meeting notes (PR 4.B.d, page 3; PR, 4.B.f, page 3 and PR, 4.B.i, pages 2-3). It is clear, based on review of the PR, that the Forest devoted considerable thought and attention to the problem of invasive plant species on the Forest and developed a reasonable approach to addressing a long-term problem. The PR demonstrates the Forest investigated the best available science and based its decision on a thorough knowledge of local field conditions. The objection does not bring any further science or data to the table, but simply suggests that there are other invasive plants on the Forest that are also problematic. The PR documents the Forest’s rationale for identifying the species included in the proposal.

Based on review of the PR, I find that the selection of four priority invasive species for treatment was not arbitrary.

**Pre-objection STATEMENT #iii, MANUAL REMOVAL OF INVASIVE PLANTS:** *“...the EA claims that previous attempts at control have been less than successful. Yet, the agency has never tried to train a hand crew at plant identification and minimum ground disturbing hand plant removal.”* (NO, page 2)

**Analysis:** While comments about manual plant removal have been submitted in the past by the Objectors, training a hand crew is unique to this objection. The Objectors do not bring forward information that would lead me to believe this is based on new information. Therefore, this is not an eligible issue for objection. (However, as stated above, I will respond to it during this transition period.)

It is clear from the PR that the Forest thoroughly investigated past attempts to use manual methods alone to address invasive plant species. The PR also explains why a manual-only treatment approach would not be successful in meeting the purpose and need for the project (EA, pages 6-7 **6-7**, 21 **21-22** and Appendix C response to comment 6, pages 124-125 **127-128**).

**ISSUE #1, SHAWNEE FOREST PLAN:** *“The proposed Decision Notice states ‘The design, analysis and implementation of this project occur in the context of a multiple-use framework described in the Forest Plan.’ The problem with such an assertion is that the 2006 Shawnee Land and Resource Management Plan has already been found by a U.S. District Court in the D.C. District to be inconsistent with the Federal Advisory Committee Act, which makes the plan arbitrary and capricious because it is not otherwise in accordance with law. The plan was developed in violation of the Federal Advisory Committee Act. This violation has prevented the objectors from receiving notice and participating in meetings and public comment periods within such meetings that would have been required to be open to the public had the agency complied with the FACA.”* (NO, page 2)

*“The Record of Decision for the Shawnee Plan indicates that the Hoosier-Shawnee Ecological Assessment was relied upon repeatedly by the Shawnee in developing some of the most controversial aspects of the LRMP...The problem with [the Plan’s] relying on the Hoosier-Shawnee Ecological Assessment is that it was done under contract to a team of mostly non-public, hand-picked scientists, out of the light of public scrutiny and public involvement. This was ruled to be in violation of the Federal Advisory Committee Act, or FACA, by a U.S. District Court in Washington, D.C. (Case 1:02-cv-01898-RWR, DC Dist. 2006).”* (NO, pages 2-3)

*“The Shawnee Plan is arbitrary and capricious, and should be reversed and reopened with full compliance with all public participation laws.”* (NO, page 4)

**Analysis:** The objection implies that the 2006 US District Court decision in *Heartwood Inc. et al. v. United States Forest Service*<sup>1</sup> ruled that the 2006 Forest Land and Resource Management Plan (Forest Plan) was arbitrary and capricious because it was in violation of the Federal Advisory Committee Act (FACA). As the Objectors state, this issue has been raised before and a response was provided in the 2011 Invasive Species Management Environmental Assessment (PR 6.B.a.i., page 85).

Based on review of the district court’s decision, it is clear that the court’s findings were specific as to whether the Hoosier-Shawnee Ecological Assessment Committee (Committee) was subject to the FACA and if the draft report they produced was subject to exemption from the Freedom of Information Act (FOIA). The ruling found that the Committee was an advisory committee within the meaning of the FACA and that the draft ecological assessment was not exempt from public release under the FOIA. However, no part of the court decision found the Forest Plan to be arbitrary and capricious or enjoined the use of the assessment’s science or the Forest Plan itself. The court provided no relief to the plaintiffs specific to the Forest Plan decision. The document at issue was made public in accordance with the court’s ruling.

The Committee ultimately finalized the *Hoosier-Shawnee Ecological Assessment* and it was used as a source of information for the Forest Plan revision process (PR 7.A.c, Forest Plan FEIS, page

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<sup>1</sup> *Heartwood, Inc. et al. v. United States Forest Service*, 431 F. Supages 2d 28 (D.C. Cir. 2006)  
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124). The assessment provided a part of the best available scientific information used by the Forest Planning Team as the basis to define desired, ecologically favorable changes in the vegetation patterns and species composition on the Forest over time (PR 7.A.a, Forest Plan Record of Decision, pages 4 and 14).

As noted previously, the science contained in the assessment is not illegal. Moreover, based on review of the PR, I find no evidence of a legal violation regarding the scientific information used to develop this project (PR, 6.B.a.i., page 85). To the contrary, the PR is replete with scientific research used in project development. It is clear the IDT sought the best science in developing alternatives, evaluating effects and compiling the project design criteria. Much of this science, including local monitoring and field information, was developed after the 2006 Forest Plan revision. Development of this project has been a transparent and public process. The Objectors and others have had many opportunities to participate and provide scientific information. The public input, including scientific information submitted during project development, has been considered and shaped the proposed decision for this action.

The 2006 Forest Plan is a 10-to-15-year programmatic framework for managing and protecting national forest system resources. The revised Forest Plan was approved by the Regional Forester in March 2006, and has since been the guiding document for implementing management activities on the Forest. Approval of the revised Forest Plan established programmatic direction for future site-specific resource management decisions such as the current Invasive Species Management Project (PR 6.B.c.ii). The Plan includes an “interdisciplinary approach to achieve integrated consideration of physical, biological, economic and other sciences” in accordance with the National Forest Management Act (Forest Plan, page 93). The programmatic Final Environmental Impact Statement (FEIS) prepared for the Plan and its decision were upheld on administrative appeal, including the FACA issue raised again here.

The assessment was finalized, released, and is part of the revised Plan PR and available for public inspection. There is no court order or law that identifies that the ecological assessment prepared for the Forest Plan revision nearly a decade ago was insufficient or flawed. Based on review of the court decision cited by the Objectors and the PR compiled for this project, I conclude that there is no violation of law or regulation.

**ISSUE #2, FINDING OF NO SIGNIFICANT IMPACT (FONSI):** *“A FONSI is a document under the National Environmental Policy Act which signifies that a project will not have a significant impact on the environment and thus, is not a major federal action. In this case, the Shawnee is wrong to issue a FONSI, and is using the FONSI process to avoid having to do the detailed impact analysis which the NEPA requires in such cases through the EIS process. Significantly,” as used in NEPA requires considerations of both context and intensity.”* (NO, page 5)

**Analysis:** Per the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the NEPA (40 C.F.R. Parts 1500-1508), a federal agency may prepare an EA for major federal actions (§1501.3). Based on the EA, the agency then makes a determination on whether or not to prepare an environmental impact statement (EIS) (§1501.4). If an impact statement is not prepared, the agency must prepare a FONSI. If a FONSI is prepared, the analysis for the EA only needs to be detailed enough to come to a reasonable

conclusion that the impacts will not significantly impact the human environment (as defined at §1508.27).

This EA looks at six areas of resource impact in detail (human health and safety, botanical, watershed, wildlife, wilderness and heritage). Pages 26-60 **27-64** of the EA and supporting specialist reports provide the basis for the determination of the FONSI. The FONSI (EA, pages 64-67 **67-70**) and the response to the Objectors' comments on the EA, pages 142-143 **145-146**, summarize impacts by context and intensity factors defined in the NEPA regulations (§1508.27).

This objection does not specify an impact that might have been left out of the analysis, nor does it identify which impact analysis in the EA was not sufficient enough to make a significance determination. In general, I found that the process used for this EA (PR 6.B.c.ii) complied with NEPA and its regulations concerning the issue of a determination of no significant impact. Following are more-specific objection sub-issues related to significance (both context and intensity factors):

**ISSUE #2a(1)(a), FONSI – CONTEXT – LOCALE:** *“...the context is 23 natural areas and other acreage where they will...attempt to kill certain plant species. However, it still makes no real analysis of the context of this project. It does identify certain natural areas and other acreage to be treated...but doesn't attempt to explain the locale of the project and the significance of the natural areas. It obfuscates the context. The project is authorizing work to be done across general areas of the forest which, while generally identified on maps, are still non-specific as to exactly where actions, including chemicals, will be used.”* (NO, page 6)

**Analysis:** “Context” is defined in the CEQ regulations at §1508.27(a): *“Context...means that the significance of an action must be analyzed in several contexts such as society as a whole...the affected region, the affected interests, and the locality...For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole.”* The objection contends that the work proposed for this project was only identified in general locations rather than specific locations.

A review of the PR indicates that the treatment areas are described in detail: First, maps in the PR (PR 1.A.d.i) and posted on the Forest website show where invasive species occur and include burning-unit boundaries and boundaries of natural areas and priority natural area treatment zones. Another set of maps in the PR (PR 1.A.d.ii) and posted on the Forest website shows priority natural areas and locations of all invasive species within them. These maps also show the burn units. EA Appendix A, pages 88-114 **91-117**, details the invasive species and treatment methods to be used in each HUC6 watershed affected by the project. Each natural area and its treatment zone is described in detail within the HUC6 watershed where it is located. The specific invasive species to be treated in each natural area are listed, as well as the herbicides planned for use in the treatments. In the description of the alternatives in the EA, Tables 4 and 5 (EA, pages 16-19 **16-20**) show the types of treatments that would be applied to each invasive species (chemical, mechanical, manual, prescribed fire).

While the detailed maps were not included in the EA or appendices, maps and other more detailed analysis records describing the location and bounds of the proposal have been and are posted to the Forest's website and available to the public:

[http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c5/04\\_SB8K8xLLM9MSSzPy8xBz9CP0os3gDfxMDT8MwRyd](http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gDfxMDT8MwRyd)

[LA1cj72BTUwMTAwgAykeaxRtBeY4WBv4eHmF-YT4GMHkidBvgAI6EdIeDXIvdrAJuM3388jPTdUvyA2NMMgyUQQAyrgOmg!!/dl3/d3/L2dJQSEvUUt3QS9ZQnZ3LzZfs000MjZOMDcxT1RVODBJN0o2MTJQRDMwODQ!/?project=22143](https://www.dnr.state.il.us/forestry/objection/objection.html?project=22143)

The objection also contends that the importance/significance of natural areas was not put into context with respect to this project. The EA, page 8 **8-9**, describes the State of Illinois Natural Area Inventory and how the Forest's Natural Area Management Prescription (Forest Plan, page 76) relates to the state designation and protection measures for maintenance of their unique and/or exceptional features. The EA, pages 8-9 **8-9**, identifies potential risks to these areas, including the establishment and spread of invasive plants. Based on Forest Plan direction to reduce the risk of damage from invasive species and to place a high priority on invasive species management in natural areas (EA page 9 **9**), the Forest reviewed the information/data on invasive species in natural areas and identified 23 areas as most threatened by invasive plants (EA page 13 **13**). The effects described in the EA for natural areas are limited to these 23 areas (EA, pages 37-39 **38-40**). Further information on the context of the natural areas is found in the Forest Plan and its record (see, e.g., Record of Decision, pages 31-32 and Forest Plan FEIS, pages 243-244).

IDT meeting notes show that the overall context of the project started with all the natural areas, but was reduced to 23 based on the potential for impacts if invasives became established or spread (PR 4.B.d, 4.B.e, and 4.B.f). The rationale for proposed treatment of this subset of the 80 natural areas is well documented and reasonable, given the site-specific information concerning invasives and the resources of these areas. The PR (PR 5.B.a.iv) details past actions within or adjacent to the 23 natural areas and describes in detail the vegetation communities within them that could be impacted by the proposed activities; PR 5.B.a.iii describes the exceptional features within the areas. Finally, EA Appendix A, pages 88-114 **91-117**, describes all the affected watersheds within the project area and identifies the potential impacts to the 23 natural areas within them. The EA further summarizes impacts to natural areas on pages 37-39 **38-40**.

With respect to the specific locations of treatments, I am able to determine where actions, including herbicide application, could occur both in a general and specific location sense. The detailed maps and PR have been available for public inspection since publication of the 2011 EA and they have also been posted to the Forest website since that time. I conclude that the importance of the natural areas to the broader environment and ecosystem processes, as well as the potential impacts with respect to the context of the impacts was analyzed in depth and documented thoroughly in the analysis.

The FONSI further provides an overall context for the project with respect to treatment of the natural areas and what this action means in a broader context at the Forest and state level (EA, page 64 **67**). In addition, project development was informed by comprehensive data and fieldwork concerning invasive plants and their potential long-term effects on natural areas. I find sufficient documentation in the EA and PR pertaining to the context of the project's potential impacts.

However, I believe it would facilitate better public understanding and help in project implementation to publish the maps with the EA. All the information is currently in the PR and posted online, but it also could be presented in the EA. This will be discussed in my instructions at the end of this letter.

**ISSUE #2a(1)(b), FONSI – CONTEXT – SIZE AND SCOPE:** *“...amongst the national forest holdings are private in-holdings, many of which contain private residences. Impacts on residences from national forest actions...is potentially significant...the locale of some of the actions are in designated ‘natural areas,’ as well as congressionally designated wilderness areas...Any man-made manipulation into these areas is potentially significant...The size and scope of the project itself, thousands of acres of site-specific treatment, give rise to a potential for significance.”* (NO, page 6)

**Analysis:** With regard to the Objectors’ concern about the amount of treatments occurring in natural areas and wilderness: Treatment and resulting impacts in natural areas and wilderness were analyzed in detail in the EA and supporting project files (EA, pages 37-39 **38-40**, 59-60 **61-62**; PR 5.B.a.iv, 5.G.b). The EA identifies acres of treatments specific to natural area treatment zones and wildernesses and categorical indicators for estimating the effect of treatments on these areas (see analysis at objection issue #2a(1)(a)). Three natural-area indicators inform key issues related to implementing the proposal: The response of the plant community in terms of 1) acres of invasives reduced and native species restored/protected, 2) changes in the number of invasives and native species and 3) effects on the areas’ significant and exceptional features (see the EA, Table 9, pages 24-25 **25-26** and Botanical Resources, page 37 **38**). For wildernesses, the indicators of success are the restoration of their untrammelled character and natural condition (EA, Wilderness Resources, page 59 **61**). These indicators place the proposed actions in the context of the project area, the Forest, as well as past impacts. The PR demonstrates that the IDT analyzed, and the Responsible Official took a hard look at, potential effects on natural areas and wilderness-area characteristics. Both the short-term effects of treatments, as well as the long-term effects on these areas of allowing invasive plant species to remain (no action), were examined in the light of site-specific field information and the best available science.

With respect to impacts specific to private land and residences, I note that this issue was not specifically identified in previous comments except for the treatment of kudzu near a commenter’s residence. The commenter stated that the continued presence of kudzu on the Forest was preferable to having the community’s property “poisoned” (EA, page 141 **144-145**). Since no herbicide treatments are proposed on private lands and implementation of the project design criteria would ensure no significant adverse effects on private lands, the response to this comment concluded that private property would not be impacted by herbicide application.

Based on review of the PR, it is clear the potential effects on public health and safety were analyzed, including potential impacts on private property (EA Tables 6 and 7, pages 22-24 **22-24**, 28-37 **29-38** and Appendix C response to comment 29, pages 141-142 **144-145**). The objection is not specific with regard to any particular herbicide or use of prescribed fire. Regardless, the proposal incorporates comprehensive design criteria to prevent potential adverse effects on the public and lands adjacent to treatment areas (EA Tables 6 and 7, pages 22-24 **22-24**). The possible effects of herbicide drift or migration were analyzed (EA, pages 31-35 **31-37**), as were the effects of a prescribed fire (EA, pages 29-30 **30-31**, 34-35 **36-37**). There is no evidence that private land will be adversely affected as a result of any particular proposed treatment action. The short-term effects and long-term benefits and effects from treatment of the invasive species were set forth in the record.

Prescribed burning may in some instances be near or adjacent to private property. The PR documents measures specific to protection of adjacent lands, including private property (EA, pages 29-30 **30-31**, Appendix C response to comment 24, pages 138-139 **141-142** and response to comment 26, pages 139-140 **142-143**). Moreover, site-specific prescribed burn plans are required prior to burning an area, per Forest Service Manual direction, and, among other things, address potential impacts to private land by designing and mitigating potential adverse effects to avoid private lands.

With respect to the Objectors' contention that the proposal is "significant" simply because of the total amount of acres and size of project: NEPA and its regulations do not equate size or acreage-affected with significance. There is no NEPA-significance threshold specifically related to treatment-area size in and of itself. Rather, the determination of significance is based on factors set forth in the CEQ regulations at 40 C.F.R. §1508.27. For impacts to natural areas and wilderness, the analysis uses indicators of impacts that focus on the desired character of those areas (e.g., natural, untrammeled) rather than relying solely on the number of acres potentially treated. The analysis is robust and supported by local field information and observation.

Effects on wilderness character are discussed in the EA (pages 59-60 **60-62**). The PR documents that the IDT took a hard look at these potential effects, including the long-term impacts of invasive species persistence in special areas. I find sufficient documentation in the PR pertaining to the context of the project's potential impacts. There simply is no clear linkage set forth in the objection between the size or acreage of the proposal and NEPA significance. Project design criteria, with mitigation measures for a wide variety of resources, were specifically developed to prevent or minimize adverse effects. The assertion that the project's size determines significance is contradicted by the scientific evidence set forth in the PR.

Based on the analysis in the EA, there do not appear to be potential impacts to private residences or property from either herbicide use or prescribed burning because no actions are planned in proximity to private residences. In order to clarify considerations and protections in project burn plans, I am directing that this be made clearer in the EA; see instructions at the end of this letter.

**ISSUE #2a(1)(c), FONSI – CONTEXT – LONG TERM IMPACTS:** *“Also, the analysis of the context is to include both short and long term effects. Yet, there is no long term analysis of the effects to put into context.”* (NO, page 6)

**Analysis:** NEPA regulations require consideration of context in determining the significance of an action. In the Context section of the FONSI, the Responsible Official states, *“The proposed project involves limited, focused actions in discrete areas of the Forest that would have no significant short- or long-term, direct or indirect effects, and cumulative effects indiscernible from the Forest-related and private activities occurring in the HUC6 watersheds of the Forest.”* The Objectors contend that only short-term impacts were identified in the analysis and, so, long-term effects could not be put in context. Based on my review of the PR, I find that both short- and long-term impacts have been identified, analyzed and disclosed throughout the EA in the effects analyses (pages 28-61 **29-64**).

For example, the Human Health and Safety section (EA, pages 28-36) includes the following statements: *“....Some chemical solutions have an odor that may persist at spray sites for several days (EA, page 31 **33**). ..the proposed herbicides have relatively short half-times and would not*

*build up in the environment* (EA, page 31 **33**).” Another example, under Botanical Resources, Natural Areas (EA, pages 37-39 **38-40**): “...changes in forest-type due to succession and lack of fire would continue to cause an increase in shade-tolerant species (EA, page 37 **38**)...Prescribed fire would kill many seedlings, saplings and vines, opening the understory and increasing sunlight to the forest floor (EA, page 37 **38**).” A third example, in the Watershed Resources section (EA, pages 46-52 **47-54**): “Soil quality and productivity would be increased in the long term as organic matter decomposes (EA, page 49 **50**).” Finally, in the Wilderness Resources section (pages 59-60 **60-62**): “...in the long term, the number of treatments and the size of treatment areas would decrease as infestations are controlled (EA, pages 59-60 **62**).”

While the EA’s discussion of effects did not in every case delineate impacts using words such as “long-term” or “short-term,” I find the contention that long-term impacts were not considered to be unsubstantiated. Impacts over an extended period of time were considered in the EA, as shown above in a few specific examples, informing the discussion of context in the document. Based on review of the PR, I find no violation of NEPA or its regulations with regard to the context discussion, particularly the consideration of long-term effects.

**ISSUE #2b(1), FONSI – INTENSITY – BENEFICIAL IMPACTS:** “*This is discussed above. The EA repeatedly touts the ‘benefits’ of this project, but then claims there are no significant benefits. Which is it? The previous deciding officer admits that there will be only ‘minor beneficial effects.’ The new deciding officer again tries to obfuscate the issue because they don’t want to admit that they think there will be significant beneficial impacts. Now the deciding officer doesn’t even make a finding, only saying that he is ‘not biased’ by the beneficial effects. This isn’t what the criteria asks an officer to consider.*” (NO, page 6)

**Analysis:** NEPA regulations require analysis of the significance of effects through consideration of context (discussed above) and intensity. The regulations define “intensity” at 40 C.F.R. 1508.27(b): “*Intensity. This refers to the severity of impact.*” The regulations identify 10 factors that should be considered under the intensity criteria, the first of which is: “Impacts that may be both **beneficial** and adverse” [emphasis added]. Thus, NEPA regulations provide for consideration of whether effects are beneficial or adverse.

The Responsible Official demonstrated in the FONSI how both context and intensity were considered (EA, page 64 **67**). The potential beneficial effects to which the Objectors refer as appearing throughout the EA are not considered significant as that term is used in the NEPA regulations. The PR simply documents the beneficial resource effects associated with the proposed action, as provided for under the NEPA regulations.

Based on evaluation of the environmental effects of the project disclosed in the EA and the PR, including both the potential adverse and beneficial effects, the Responsible Official determined that implementation of the proposed action will not have a significant impact on the human environment (EA, page 64 **67**, FONSI). The scientific information set forth in the PR, as well as the information submitted from other agencies and resource experts in the vicinity of the Forest familiar with the proposal, natural areas and invasives, support this finding. There is no indication in the record that the Responsible Official improperly documented or disclosed potential beneficial effects, or used this information inappropriately in making a NEPA

significance finding. The trade-offs associated with the various alternatives examined in the EA are clearly described and allow for an informed decision.

The FONSI (EA, page 64 **67**) also states, “*My finding of no significant environmental effects is not biased by the beneficial effects of the action: The design criteria incorporated into this project were explicitly created to avoid significant direct, indirect and cumulative effects on non-target wildlife and plant species, as well as people. Indeed, the interdisciplinary team found that implementation of the proposal would result in no significant direct, indirect, or cumulative effects on the environment (pages 30-35 **31-37**, 37-38, 40-46 **39-47**, 49-51 **51-53**, 55-58 **56-60**, 59-61 **62-63**). The beneficial effects associated with the control or elimination of highly invasive species and invasives from natural areas and their treatment zones are documented in the revised EA, but I do not consider them to offset adverse effects.*”

The EA demonstrates throughout that there will be no significant environmental effects, adverse or beneficial. This is further demonstrated in the EA Appendix A, page 88 **91**, Summary of Effects Common to HUC6 Watersheds. Based on this, I find no violation of law, regulation, or policy on this issue.

**ISSUE #2b(2)(a), FONSI – INTENSITY – HEALTH/SAFETY – GENERAL:** “*...the objectors have repeatedly supplied information which shows that residues of these chemicals can last for weeks and months, and that some of the most severe impacts may occur when exposure levels are very small. In fact, the entire finding for this consideration is based on an assumption that ‘design criteria’ will be followed.*” (NO, page 7)

**Analysis:** The Objectors have a concern that information they provided the Forest regarding the potential adverse effects of herbicides on public health and safety related to their persistence in the environment has not been considered, and that there is no guarantee of adherence to project design criteria during project implementation.

The effects of the herbicides that may be used in this project are analyzed in the EA (pages 29-36 **31-38**, 49-51 **51-53**). Objectors’ concerns about the persistence of herbicides are also addressed in the Response to Comments (EA, pages 129-131 **132-138**). In addition to the review of scientific papers submitted by commenters, several scientific papers are cited that address persistence and bioaccumulation. Based on review of the PR, I conclude that the IDT and the Responsible Official took a hard look at the persistence of all the proposed herbicides and found that they do not persist, but degrade in the environment. Some of the chemicals are organic, enabling them to be used as a food source by soil microbes that use carbon compounds.

A key factor in the selection of the proposed herbicides was their non-persistence, degradability and low toxicity to wildlife and people. Other commercially available herbicides used in agriculture and forestry have longer persistence and greater toxicity. The PR documents the selection was based on the best available science concerning herbicide persistence, including the review of information submitted by commenters. The selection of herbicides was also informed by the fieldwork and experience of the State of Illinois and other land managers and resource experts familiar with Illinois natural areas, herbicides and invasive plants.

Project design criteria described in EA Tables 6 and 7 were developed specifically to prevent or mitigate significant direct, indirect and cumulative effects on non-target plants, wildlife and

humans (EA, pages 22-24 **22-24**). These design criteria and safeguards are based on the best available science and were incorporated as a result of public comment and input from other resource experts.

After weighing the short-term effects of the herbicides and the native plants' long-term recovery, application of project design criteria and published science, it was concluded that there would be no significant adverse effect on the environment from the proposed action, and a beneficial effect realized over time through the elimination or control of targeted invasive species.

The Responsible Official addresses public health and safety by stating, *“My finding of no significant environmental effects is based on the analysis of the proposal in the EA. The potential effects of the proposed action on human health were among the key issues identified by the interdisciplinary team, and the team took a hard look at possible effects on people. In their analysis, they examined multiple factors in the determination of risk from the use of the proposed herbicides: the hazard quotient, or HQ, as an indicator of public health and safety, possible human endocrine system disruption, cancer risk and exposure scenarios, as well as any risk from the application of prescribed fire. They determined there would be an extremely minimal possibility of adverse impacts on human health or safety from implementation of the project in compliance with the project design criteria (pages 30-35 **31-37** and Tables 6 and 7, pages 22-24 **22-24**). Understanding the design criteria, we simply cannot foresee a scenario in which a visitor would accidentally be exposed to freshly applied herbicide. With human exposure prevented, I find no threat to health or safety.”*

The proposed decision incorporated the EA by reference and selected Alternative 2 for implementation. Since the project design criteria are an integral part of the discussion and analysis of Alternative 2, they must be implemented as part of any herbicide use that may occur. These measures are mandatory and monitoring will ensure that potential adverse effects will not be significant. The agency is undertaking this action to manage/control the spread of invasive plants and ensure that the natural resources in these natural areas are sustainable. There is no evidence in the PR or provided in the objection that the design criteria might be ignored or set aside. Indeed, the failure to adhere to the design criteria would be contrary to the spirit and intent of an action specifically developed to protect and restore natural areas and arrest their ongoing degradation. Because implementation of the project design criteria is not specifically directed in the proposed decision, I am instructing the Responsible Official to include this direction in his decision; see instructions at the end of this letter.

Based on the above, I find no violation of law, regulation, or policy on this issue.

**ISSUE #2b(2)(b), FONSI – INTENSITY – HEALTH/SAFETY – EXPOSURE LEVELS:**

*“All the project design criteria provides is certain guidelines that will be followed when the poisons are applied. There is no analysis of what exposure levels could be expected. There is reference to applying the chemicals ‘during periods of low visitor use’ but when is that? And that doesn’t address the issue of applying the chemicals in a residential neighborhood, or from people who would regularly drive by a site that is located near a road? What about exposures from the vaporization of the chemicals? The EA doesn’t address the potential of airborne exposure. The objectors have provided much information about potential health effects of the poisons proposed for use, and for the agency to just brush off any and all potential for health*

*effects to exposed individuals and say that there is none, zero, not a chance, is false, disingenuous, and arbitrary and capricious.” (NO, page7)*

**Analysis:** The Objectors have concerns about the exposure levels of the planned herbicides, herbicide application during periods of low visitor use, application in a residential neighborhood, exposure to chemical vaporization, and acknowledgment of information on potential health effects provided by commenters on the EA.

The EA discusses the project design criteria on pages 21-24 **22-25**. Table 7, Design Criteria for Human Health and Safety, (page 23 **25**) further addresses safe handling precautions that will be taken to ensure the health and safety of employees and the public. It details pre-application, application and post-application procedures. Human health and safety are discussed more in depth on pages 28-36 **29-38**. According to the human health and safety design criteria, applicators must be trained in the proper handling and application of all herbicides and must review Material Safety Data Sheets, product labeling and Job Hazard Analyses; treated areas could be closed temporarily to prevent or limit public exposure; and herbicides would be applied only when wind speed is less than 10 mph to minimize vaporization and herbicide drift.

As for the Objectors’ question on the timing of treatment during low visitor use, this is discussed in EA Table 7, Design Criteria for Human Health and Safety. This issue does not appear to have been brought up during the designated comment periods for this EA; but I will address it nonetheless. Signs will be used as appropriate to ensure that visitors are informed of a treated area (EA, page 31 **32-33**). An exact time period of low visitor presence is not given, but the EA is reasonably specific in defining what is meant: “...*during periods of low visitor use when possible.*” It is commonly understood that “low visitor use” means few if any visitors are in a particular location. Table 7 also specifies the “...*temporary closure of treatment areas in order to prevent or limit public exposure and insure public health and safety*” as another precaution to protect visitors. More precision here would not alter or improve the disclosure of effects. The record is clear that the Forest intends to prevent/mitigate effects on human health by staging treatment times and locations when people are unlikely to be present.

The objection to herbicide applications in “a residential neighborhood” was addressed in the EA, Appendix C response to comment 29, pages 141-142 **144-145**. This was in response to a comment about targeted plants occurring on a purportedly historic landscape: “*Contrary to the commenter’s assertion, the implementation of our proposal for kudzu would poison no community [‘neighborhood residential area’ in and around what used to be the town of Azotus’]. The minimal applications of herbicide that we have proposed could have virtually no effect beyond the killing of the target plants.*” I concur with that reasoning based on the information set forth in the PR, especially project design criteria and mitigation. It is clear that none of the proposed herbicide treatments would occur in a residential neighborhood.

The context of this proposal was not ignored by the IDT in the analysis: Any herbicide treatment contemplated in this project will be done on lands managed as part of the Forest, which encompasses over 280,000 acres in the most rural part of southern Illinois. (See various maps in the PR.) The natural areas at issue in this proposal are not urban or residential parks adjacent to subdivisions, as might be inferred from the objection. Moreover, only a small fraction of the Forest will be treated with herbicides at any given time, as set forth in the proposed action.

The possible health effects on people who live near, or may visit, the Forest were not ignored in this analysis. The EA does not state that there is absolutely no chance for the potential for health effects to exposed individuals, as is asserted in the objection. However, the PR analyzes the possibility of human exposure in depth and discusses the means to avoid any accidental exposure, as well as measures to minimize the potential for human exposure (see, e.g., EA, pages 21-24 **21-24**, 28-36 **29-38**, 120-121 **123-124**, 129-131 **132-134**). This analysis discusses the risk to both those that live near treatment areas and Forest visitors. The Forest clearly developed this proposal to reduce and avoid to the maximum extent practical any accidental human exposure to herbicides. The possibilities of an accidental exposure are examined in detail and set forth in the PR. This is all that is required under the NEPA and its regulations.

The specific health-effects issues raised by the Objectors have been analyzed thoroughly in the EA and PR; see, e.g., EA pages 21-24 **21-24**, 28-36 **29-38**, 129-131 **132-134**, 131-135 **134-138**, 141-142 **144-145**. There is no evidence that any information submitted by the Objectors was overlooked or ignored. It is not clear from this objection what more the Forest could have done to analyze, disclose, or further mitigate the effects of the proposal. The PR contains comprehensive discussion of possible human health effects and the various measures included to ensure that any adverse health effects are prevented or properly mitigated. Based on this analysis and disclosure, I find the IDT and the Responsible Official took a hard look at health effects and used the best available science to tailor implementation and mitigation measures appropriate to the environmental risks posed by this proposal.

Field inventory work and the experience of other resource agencies and professionals in the vicinity of the Forest informed this analysis and support the findings and reasoning of the IDT. The team fully explored the short-term risks and trade-offs associated with various alternatives, including taking no action. Design criteria and mitigation efficacy, especially with regard to human health and public safety effects, was of paramount concern. I have given careful consideration to the Objectors' concerns; but conclude, based on the record, that there is no violation of law, regulation, or policy, and find that the record supports the proposed decision.

**ISSUE #2b(2)(c), FONSI – INTENSITY – HEALTH/SAFETY – HORMONE**

**DISRUPTION:** *“One of the most serious impacts is the potential hormone disrupting capability of some of the chemicals.”* (NO, page 7)

**Analysis:** The EA considers herbicide impacts to human health and safety (EA, page 28 **29**) and specifically considered *“Possible Human Endocrine System Disruption”* (EA, pages 33-34 **34-36**) for the herbicides proposed for use. After reviewing and considering the herbicide risk assessments, scientific literature and information from the Endocrine Disruption Exchange (TEDX), it was disclosed in the EA that the TEDX lists formulations of glyphosate and picloram as *having the potential* to cause endocrine effects. However, the EA and PR also document that the project design criteria and proposed treatment methods specifically limit the method of application and use of glyphosate and picloram to discrete locations as opposed to broad applications, and require the use of the lower-toxicity formulations of glyphosate (EA, page 15 **15-16**).

Further investigation of potential endocrine disruption and the “precautionary principle” was documented in the EA (pages 33-34 **34-36**) and at Appendix C, Response to Comments (pages

119-121 **122-124**): “We took a hard look at this issue, including uncertainty, and concluded that there would be no significant environmental effects from implementing the focused, measured action we propose.” The IDT clearly was aware of this scientifically complex issue, examined the risks associated with the proposed herbicides, and developed specific project design criteria based on the best available science.

The disclosure of potential effects and scientific information supporting the finding regarding significance of effects is documented in the PR. While articles submitted by commenters added to the body of scientific information for this proposal, nothing that has been submitted changes the effects disclosure set forth in the EA, or suggests that the design criteria/mitigation included in the EA is inappropriate or inadequate. The IDT and the Responsible Official clearly took a hard look at this issue and made a reasonable determination in the light of the scientific information and site-specific field data.

Based on review of the PR, and given the project design criteria to address potential impacts of glyphosate and picloram, I find that the Objectors’ concerns were considered in the determination of potential significant impacts.

**ISSUE #2b(2)(d), FONSI – INTENSITY – HEALTH/SAFETY – AMPHIBIANS:** “A University of Pittsburgh study found that roundup herbicide formulations were “extremely lethal” to amphibians.” (NO, page 8)

**Analysis:** The potential impacts of glyphosate to amphibians were considered and discussed in the Wildlife Resource section of the EA (page 53 **54**). While some formulations of glyphosate have the potential to be toxic to amphibians, the risk of using less-toxic formulations—a commitment to which is stated in the EA (page 15 **15-16**)—was determined to be minimal (PR 7.C.52 and 7.C.53).

Given the design criteria of the project (EA, page 15 **22-24**) which include a criterion that no herbicide will be used in aquatic settings on the Forest that are not approved by the EPA for aquatic use, along with limitations on application methods, I find the PR supports a finding that there will be no significant adverse effects on amphibians. The objection does not explain how aquatic amphibians would experience significant adverse effects from glyphosate formulations approved for aquatic use, or terrestrial-phase amphibians would experience significant adverse effects from the selected, less-toxic glyphosate formulations. The risks associated with potential effects on amphibians have been carefully weighed and disclosed. After consideration of the information presented in the objection on this issue, as well as the documented evidence in the PR, I find no violation of law, regulation, or policy.

**ISSUE #2b(2)(e), FONSI – INTENSITY – HEALTH/SAFETY – CLOPYRALID:** “...the herbicide clopyralid is persistent in the environment.” (NO, page 9)

**Analysis:** The EA discloses the characteristics and potential environmental effects, long- and short-term, associated with clopyralid use, both under Public Health and Safety (pages 32-33 **32-34**) and under Watershed Resources (pages 49-50 **51**). After reviewing the herbicide risk assessments (Durkin [et al.]) and other scientific articles, the watershed resource specialist concluded that, “While clopyralid will leach under conditions that favor leaching—sandy soil, sparse microbial population, high rainfall—the potential for leaching or runoff is functionally

*reduced by its relatively rapid degradation in soil. Moderately persistent, it has a half-time in the environment of one to two months, but can range shorter or longer depending on soil-type, temperature and rates of application. A number of field lysimeter studies and a long-term field study by Rice et al. (1997) (PR 7.C.218) indicate that leaching is likely to be minimal and subsequent contamination of underground water unlikely (Durkin and Follansbee 2004) (PR 7.C.61)...As proposed, clopyralid could be applied to broadleaf, leguminous and composite plants. We expect its direct effects to be limited to targeted plants, with minor, indirect effects in soil, described above.”*

The Objectors also reference previous material they provided in comments on the EA, which indicated that clopyralid has been known to persist in compost. The EA responded: “*We considered the information provided in the comment regarding composted lawn clippings and sought further information on the long-term consequences of clopyralid. Our proposed use of clopyralid in this project is limited and subject to the constraints and caution of the design criteria in order to ensure that the indirect effects are minimal. There is no evidence of a potential significant adverse effect resulting from our proposed use of this herbicide*” (EA, page 131 **134**).

Thus, the EA does disclose the potential for clopyralid to persist in the environment and determines that due to design criteria for proposed application methods, the risk associated with this persistence would be minimal. This assessment is based on the best available science and the use of the herbicide in a forested setting. The urban example (of lawn clippings) submitted by the Objectors does not readily apply to this proposal, given application rates, methods and the forested setting. Equally important, as noted above, persistence is not a rigid factor but can vary based upon soil type and temperature. These factors were taken into consideration by the Forest in its conclusion that persistence will not result in a significant adverse effect on the environment (EA, pages 49-51 **51**). Therefore, based on the information provided in the PR, I find the concerns of the Objectors were considered in the determination of significant impacts.

**ISSUE #2b(2)(f), FONSI – INTENSITY – HEALTH/SAFETY – PICLORAM:** “*Picloram ...is widely recognized as being very mobile and a threat to groundwater contamination.*” (NO, page 9)

**Analysis:** The EA reviewed and considered the mobility of picloram in the soil and the potential risk to underground water in the project area (EA, page 50 **51-52**). While studies have indicated that the herbicide is mobile and relatively persistent in soil and, therefore, if applied heavily, can be leached to underground water (Exttoxnet 1996b (PR 7.C.70), the analysis shows that the proposed method of application (cut-stump only) and the timing of application (no rain), along with the minimal amount of picloram applied, would have no direct or indirect impacts to underground water.

Information provided by commenters was reviewed along with the project analysis and other relevant scientific information on the proposed use of picloram and the IDT concluded that the proposed limited and controlled use of picloram would ensure the protection of surface and underground water resources and non-significant direct or indirect effects. We will review the water quality monitoring of the Illinois Environmental Protection Agency to ensure that our use of picloram has no environmental effects beyond those anticipated by this analysis (EA, page 133 **136**).

Based on the information provided in the PR, I find the concerns of the Objectors were considered in the determination of potential effects. The adverse effects from picloram cited in the information submitted by commenters are readily distinguishable from the proposed action's method of application and minimal amount to be applied. The objection did not present any information that bears on the use of picloram on cut stumps in a forested setting.

**ISSUE #2b(2)(g), FONSI – INTENSITY – HEALTH/SAFETY – GROUNDWATER:**

*“...the deciding officer hasn't identified in the NEPA documents whether or not the chemicals being released, both the active and inert ingredients, have endocrine disrupting capabilities, doesn't mention the toxicity of roundup, doesn't mention the persistence of Clopyralid, and doesn't try to give a hard look at whether or not there are any groundwater threats...”* (NO, page 9)

**Analysis:** The EA discusses in numerous places the toxicity of the proposed herbicides (EA, pages 30-34 **31-37, 51-53, 55**), potential impacts of the herbicides and their various formulations on underground water (EA, pages 49-51 **51-53**) and endocrine-disrupting capabilities (EA, pages 33-34 **34-36**). All scientific literature, risk assessments (Durkin [et al.]) and other information support the conclusion of the EA and the FONSI: *“My finding of no significant environmental effects is based on the analysis of the proposal in the EA. The potential effects of the proposed action on human health were among the key issues identified by the interdisciplinary team, and the team took a hard look at possible effects on people. In their analysis, they examined multiple factors in the determination of risk from the use of the proposed herbicides: the hazard quotient, or HQ, as an indicator of public health and safety, possible human endocrine system disruption, cancer risk and exposure scenarios...They determined there would be an extremely minimal possibility of adverse impacts on human health or safety from implementation of the project in compliance with the project design criteria* (EA, pages 30-35 **31-37** and EA, Tables 6 and 7, pages 22-24 **22-24**)...*With human exposure prevented, I find no threat to health or safety”* (EA, pages 64-65 **67-68**).

See also the response to the Objectors' Issue #2b(2)(c) and Issue #2b(2)(d) above.

The analysis set forth in the EA took into consideration all of the relevant factors suggested by the objectors for this issue and reached a reasoned conclusion based on the science, site-specific data and information learned from the state and others in treating invasive plants with the same herbicides. Contrary to the Objectors' assertions, environmental issues such as persistence of herbicides identified for use, underground water effects and toxicity were specifically investigated and thoroughly analyzed. This objection issue does not provide any new evidence or science which contradicts the effects disclosure documented in the PR or the efficacy of the mandatory project design criteria/mitigation. Based on the information provided in the PR, I find the concerns of the objectors were considered in the determination of significant impacts.

**ISSUE #2b(3), FONSI – INTENSITY – UNIQUE CHARACTERISTICS:** *“By any objective analysis, natural areas are ecologically critical areas with unique characteristics. If they aren't, why have they been given this special designation? Not only are the actions within proximity of natural areas, they are within them! In addition, the treatments will occur within congressionally designated wilderness areas. This means introducing completely man-made compounds which*

*do not exist in nature into wilderness areas. The EA is vague as to how many wilderness areas will be entered and how many acres of wilderness land will be impacted.”* (NO, page 9)

**Analysis:** This objection issue concerns the NEPA regulations’ intensity factor concerned with “...unique characteristics of the geographical area such as proximity to historical or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas” (40 C.F.R. 1508.27(b)(3)). The requirements of this regulatory subsection were clearly in view in the design and development of this proposal to restore and protect natural areas. The Forest specifically identified the unique characteristics of 23 natural areas as being at risk due to invasive plants and non-management for a prolonged period of time. The Forest purposefully chose to address the invasive plant issue in these particular areas because of the threat they pose to the unique botanical and ecological values of these 23 areas.

The Forest Plan (Appendix D) describes management objectives for the Forest’s 80 natural areas, including invasive species control. Forest Plan, page 76, states, “*This management prescription provides for the preservation, protection and/or enhancement of the unique scientific, educational or natural values found on about 15,000 acres of research natural areas, national natural landmarks, ecological areas, geological areas, zoological areas and botanical areas.*” The mandatory standards included in this prescription indicate that the purpose for management in natural areas is to perpetuate the natural communities and protect the unique values of these areas. Thus, this proposal was intentionally designed to ensure that the unique characteristics of these 23 areas would be protected and enhanced.

According to the Illinois Natural Areas Preservation Act (INAPA) a “natural area” is “*an area of land in public or private ownership which, in the opinion of the Commission, either retains or has recovered to a substantial degree its original natural or primeval character, though it need not be completely undisturbed, or has floral, faunal, ecological, geological or archaeological features of scientific, educational, scenic or esthetic interest*” (525 ILCS 30/3.10). The state law recognizes that these areas are not necessarily “undisturbed” or pristine, nor is there any legal prohibition against taking management action to protect and restore these areas. The areas may be managed or developed as long as they retain the features of interest set forth in the statute. Indeed, the PR documents the State of Illinois has an ongoing program of work to do the same type of natural area protection and restoration as proposed in this project (PR 7.C.238-241). The Illinois Department of Natural Resources (IDNR) has taken action against invasive plants threatening other natural areas and strongly supports this proposal to do the same types of activities on federal lands for the sake of the unique characteristics of concern to the Objectors. The PR explains that this proposal is in accord with the overall state goals of ensuring that the resources of these areas are protected.

As documented in the PR, natural processes, as well as the introduction of invasive plants, jeopardize the unique resources associated with these 23 natural areas. Review of the PR indicates that the IDT thoroughly investigated the resources of each of the 23 natural areas proposed for treatment. The botanical, geological, ecological and other characteristics of these areas were studied by Forest resource experts on the ground. The risk associated with taking no action, as well as with implementing the action alternatives, was weighed and evaluated using the best available science. The focal point of this action is the restoration and protection of these natural areas for future generations. Clearly, the sustainability of the unique aspects of these particular areas was foremost in mind during project development.

The objection does not provide any additional scientific or factual evidence that there will be significant adverse effects related to the unique characteristics and resources in these natural areas. Simply put, the objectors believe that the invasives should be allowed to continue to progress in these areas, or they take issue with the possible use of herbicides in natural areas as a matter of principle.

With regard to the five wilderness areas affected by the proposal, the EA (page 59) describes effects in terms of two key indicators, natural condition and untrammelled condition. The effects on these indicators are set forth for each alternative, including the option of continuing manual methods of control only. The EA discloses that the effects of the selected alternative on wilderness values (untrammelled and natural condition) are short-term and result in longer-term protection of the biological communities and ecological processes in these wilderness areas.

In addition, the PR provides greater detail and disclosure of potential effects in support of the finding of non-significance regarding the unique characteristics of the five wilderness areas. A Minimum Requirements Decision Guide (Guide) to identify, analyze and select the minimum required actions necessary for the treatment and control of invasive species was prepared in 2010, and approved by the Eastern Regional Forester on October 12, 2010. The Guide sets forth a detailed look at the risks, alternatives and minimum required methods for addressing invasive species in the five wildernesses involved in the proposal.

Based on this, I find no violation of law, regulation, or policy on this issue. However, it would be more transparent to the public if the acres to be treated in wildernesses were disclosed in the body of the EA. This will be discussed in the instructions at the end of this letter.

**ISSUE #2b(4), FONSI – INTENSITY – CONTROVERSY:** *“...the deciding officer...states that “no evidence has been brought to my attention that disproves the conclusions of the EA (that “implementation of the selected alternative will have no significant adverse effect on the quality of the human environment...” ) Apparently he has not read the information which the objectors have submitted repeatedly which do contradict the EA. (NO, page 10). The objectors provided information to the Shawnee about...the persistence of Clopyralid...about the endocrine disrupting capability of some of the chemicals. (NO, page 10)...there is scientific controversy over the level of exposure which triggers effects, in addition to the synergistic effects of additional exposures in combination with ambient pollution levels already in the atmosphere and water. (NO, page 10)*

**Analysis:** The objection refers to “controversy” as a term of art used in the NEPA regulations at 40 C.F.R. 1508.27(b)(4), relating the significance of effects to “...the degree to which the effects on the quality of the human environment are likely to be highly controversial.” The Responsible Official speaks directly to this regulatory provision in the FONSI (EA page 65): *“The EA determined that implementation of the selected alternative will have no significant adverse effect on the quality of the human environment. The analysis that led to this determination was informed by human health and ecological risk assessments of the herbicides proposed for use, as well as the best available scientific studies conducted on the herbicides we propose. These risk assessments and published science indicated low toxicity and minimal persistence levels for the proposed herbicides. Although some feel that any use of herbicides on the Forest is controversial in and of itself, no evidence has been brought to my attention that disproves the conclusions of the EA or the risk assessments. I can find no evidence that there is substantial scientific dispute,*

*or controversy, regarding a use of herbicides or other treatment methods at the limited scale and duration that we propose ([EA] pages 26-60 27-64)."*

The Responsible Official concludes that there will be no significant adverse effect on the human environment based on the analysis and best available science. The public and scientific debate concerning use of herbicides generally does not equate to a finding of significance pursuant to Section 1508.27(b)(4). Rather, the effects related to the use of herbicides in a forested setting as analyzed in this project must be found to be "highly controversial" in order to support a conclusion that use of the herbicides proposed here will have significant adverse effects on the environment.

The Forest has fully considered the science and information supplied by commenters in light of the current proposal. The EA addresses the persistence of clopyralid (pages 49-50 51 and 129-136 132-139), the question of endocrine-disruption (pages 33-34 34-36 and 119-121 122-124), and human exposure and effects (pages 31-33 33-34). Based on their review, the IDT found information that had already been considered and information not applicable to the scope and context of the proposal. It is clear, however, that this information does not demonstrate that the effects of the proposal are highly controversial as that term is used in Section 1508.27(b)(4).

Based on review of the PR, it is clear that the IDT and the Responsible Official took a hard look at potential environmental effects from implementation of the proposal. The PR clearly supports a finding that the effects of herbicide use as proposed in this project are not "highly controversial." Numerous studies of herbicide effects were consulted (see "Literature Cited," EA, pages 68-73 71-76 and "References," EA, pages 73-87 76-90), including those submitted by commenters. The only true "controversy" we could discern was related to adverse effects on human health from the ubiquitous agricultural row-crop application of Roundup on Roundup-ready crops. Based on the above, I find no violation of law, regulation, or policy on this issue.

**ISSUE #2b(5)(a), FONSI – INTENSITY – UNCERTAINTY – CHEMICALS:** *"The uncertainty comes from several sources. These include but aren't limited to: The effects of the chemicals...on the hormone system of various living organisms, including humans, at what levels in the environment these effects occur, and what the synergistic effects of these substances are when they mix with other contaminants in the ambient environment."* (NO, page 10)

**Analysis:** This objection issue relates to 40 C.F.R. 1508.27(b)(5), pertaining to the degree to which the possible effects are "highly uncertain." Potential effects of the proposed herbicides are discussed in the EA on pages 28-36 29-38 under the heading, Human Health and Safety. Characteristics of the herbicides are detailed and their effects on soil, water and air are included in the EA on pages 47-52 47-54. The hazard quotient (HQ) of the proposed chemicals is discussed at length in these pages. The discussion of the five herbicides proposed for use (EA, pages 50-51 51-52) discloses how long the proposed herbicides could be expected to last in the environment. The EA, pages 31-34 34-36, includes a discussion of possible human endocrine-system disruption. The PR documents a thorough review of the environmental and human effects associated with use of these herbicides.

The EA discusses project design criteria (pages 21-24 22-24) intended to prevent or mitigate adverse effects. The EA, Table 7, Design Criteria for Human Health and Safety (pages 23-24 24), further addresses safe handling precautions that will be taken to ensure the health and safety

of employees and the public. It details the pre-application, application and post-application procedures. Human health and safety, along with the half-time of the proposed herbicides are discussed more in depth on pages 28-36 **29-38** of the EA. Half-time is also discussed on pages 49-51 **51-52** of the EA.

Signs will be used as appropriate to prevent/mitigate adverse effects by ensuring that people are informed about the use of herbicides (EA, page 31 **32-33**). Design criteria for Human Health and Safety also state, “... *temporary closure of treatment areas in order to prevent or limit public exposure and insure public health and safety*” as another precaution to protect visitors. The document discusses additional mitigation measures and steps to minimize the chance for adverse effects in a number of places (EA, pages 21-24 **22-24**, 28-36 **29-38**, 120-121 **123-124**, 129-131 **132-134**).

The degree of uncertainty (40 C.F.R. 1508.27(b)(5)) associated with the effects is plainly considered in the PR which is replete with information concerning risk assessment and project design criteria/mitigation specifically developed to address those risks. The judicious, carefully balanced design of the project and broad limitations on the use of herbicides are clearly explained. Trade-offs between alternatives are disclosed in detail. Nothing submitted by commenters contradicts the site-specific field information used here.

Ecosystems like the Shawnee are complex, even more so when they have been altered by the unintentional spread of invasive species over a long period of time. The Forest has compiled an extensive record—especially with regard to human health and public safety effects—and closely studied the environmental effects experienced by other land managers in southern Illinois. The scientific foundation and fieldwork is comprehensive for this analysis. The experience of other national forests in the east with the same chemicals and forested ecosystem types is a matter of record. The risks are well understood and have been studied in the development of this action for over six years.

The Objectors have not provided site-specific data related to the actual proposal or specific to the natural areas involved, but rather have submitted general scientific information only indirectly related to this project. The general information has been carefully considered and helped shape the thinking on the proposed treatment. However, nothing submitted in this objection contradicts or refutes the findings regarding whether the action presents “highly uncertain” environmental effects, either to people or natural resources. I have listened carefully not only to the Objectors’ concerns, but also the guidance, advice and experience of state resource experts, and the observations of resource specialists concerning the ongoing degradation of these natural areas. The uncertainty of effects has been analyzed and reviewed in the light of the best science: It does not support a finding of significant adverse effects.

I find this issue has been adequately addressed. Based on the above, I find no violation of law, regulation, or policy on this issue.

**ISSUE #2b(5)(b), FONSI – INTENSITY – UNCERTAINTY – ECOLOGICAL ROLES:**

*“The deciding officer...brushes off this consideration [ of uncertainty and risk] by stating that he finds “no uncertainty or unique or unknown risks associated with this project”... brushes aside information submitted by the objectors, finding by incorrect and erroneous consideration that the information isn't applicable to this decision. “ (NO, page 10-11)*

*“The uncertainty comes from several sources. These include but aren’t limited to:*

*...what ecological functions the plants being targeted are filling and what kind of plant community (and how that will affect animal and other communities) will come into the area after the herbicide kills the existing vegetation...In addition, how is the establishment and flourishing of various species connected to global warming or climate change?...the Shawnee sets forth no plan for trying to guide what will come after [the treatments]... With no plan...what is going to keep more invasive species from occupying the disturbed territory?”* (NO, pages 11-13)

**Analysis:** The biological evaluation (BE) of federally listed threatened and endangered species (PR 5.H.c), Regional Forester Sensitive Species (RFSS) plants (PR 5.B.d) and animals (PR 5.H.b), and the general wildlife report (PR 5.H.a) all analyze the impacts of the proposed action on the existing communities (or condition). To establish a baseline of the existing condition of the project area, surveys have been conducted either by Forest Service personnel or by the IDNR. (In partnership with the Forest and others, the IDNR has been very aggressive in conducting species surveys and maintaining data on both listed and common species (PR 5.H.c, page 13)). In addition to this baseline condition, a field assessment would be conducted prior to treatment to further affirm the findings with regard to site-specific impacts to sensitive plants and appropriate site-specific treatment options (EA, page 21 **21**). All of this information reduces the amount of uncertainty of the existing condition and what impacts the proposed project might have on that condition.

Consideration and discussion of how the proposed project would impact ecological communities, including the natural areas as a whole (EA, pages 37-39 **38-40**) and individual species (EA, pages 39-45 **40-47**), given the area species composition, was analyzed and it was determined that, *“Prescribed fire in all the natural areas included in our proposal would give the species restricted to these fire adapted and fire-dependent communities a better chance to germinate and grow into the canopy gaps. The use of herbicides to control or eradicate invasive plant species would be beneficial to the significant and exceptional plant species in these natural areas”* (EA, page 38 **39-40**). In addition, Appendix A of the EA (page 88 **91**) provides a summary of the effects on the individual rare plant species and impacts to natural areas by watershed.

Referring to the uncertainty of ecological roles, the Objectors ask *“how is the establishment and flourishing of various species connected to global warming or climate change?”* They go on to contend that the EA does not take a hard look or explain how *“disrupting the stability of the environment (i.e. treating invasive species) is going to make it (the environment) more resilient (to climate change) (NO, page 13).”* The EA in fact does consider how the treatment of invasive plants (i.e. the removal of non-native species) will contribute to the sustainability (or resiliency) of the natural areas in the face of a changing climate (EA, page 37 **38**, Appendix C response to comment 5, pages 122-124 **125-127**). See also PR 6.B.a.i, 2011 EA, response to comment 11, page 59.

The EA explains that in cooperation with the State of Illinois and its vision for sustainable natural areas—*“Our cooperation with the state in advancing the sustainable natural areas vision demands our attention to the challenges facing the natural areas—invasive species, degradation and climate change (Glosser 2011)”* (PR 7.C.86)) (EA, page 37 **38**)—along with information from Forest Service internal guidance regarding climate change (USDA-FS 2011 (PR 7.C.283)), the proposed project would make these natural areas more resilient by increasing native

diversity, which in turn would increase their capacity to overcome forest-health stressors, such as those that may be caused by global climate change (Carpenter et al. 2001 (PR 7.C.25), Thompson et al. 2009 (PR 7.C.257)) (EA, page 124 **125-127**).

Consideration of the post-treatment condition of existing vegetation was discussed and analyzed in the EA (page 37 **39-40**, Botanical Resources). Through previous experience with herbicide application on administrative sites, monitoring and consultation with partners who currently use herbicides to control invasive plants (EA, page 126 **129**), the EA determines that in general, “*within the next year, seeds from adjacent areas easily re-populate a previously sprayed area*” (EA, page 38 **39**). The EA indirectly acknowledges that there is some uncertainty of post-treatment condition but has a contingency plan based on post-treatment monitoring: “*Following treatment and control/elimination of targeted plants, we would ensure the repopulation of the treated areas by native plant species. We expect that dormant native seedbanks would once again germinate and restore the areas to native species. However, if monitoring indicates that this is not occurring following a growing season, we would take action to reseed or replant the areas with native species*” (EA, page 21 **22**).

Thus, while there are always complexities in dealing with natural ecosystems, the project EA considers and analyzes all known existing conditions and provides plans for the uncertainties of nature. I find no violation of law, regulation, or policy on this issue.

**ISSUE #2b(5)(c), FONSI – INTENSITY – UNCERTAINTY – EFFECTIVENESS:** “*There is uncertainty about the effectiveness of the herbicide in eradicating the targeted species, and how many applications of the chemical will be required. Multiple applications could significantly increase the impacts of the chemical. For example, common literature indicates that ‘eradication requires multiple broadcast applications of herbicide and follow-up spot treatments over a period of 4 to 10 years’ (Clemson University). And that was for a “clear patch” with no trees, no water, and nothing else sensitive, not the conditions that the respondents find in the kudzu patches in southern Illinois.*” (NO, page 13)

**Analysis:** As noted above, NEPA regulations at 40 C.F.R. 1508.27(b)(5) require that impacts that are highly uncertain or involve unique or unknown risks be taken into consideration when determining “significance.” It is the degree of uncertainty concerning environmental effects, not the effectiveness of the proposed action, that is the focus of Section 1508.27(b)(5). Regardless, the effectiveness of various treatment alternatives has been discussed in detail in the PR. Alternative 2 specifically identifies the potential for multiple treatments of herbicide and a need to monitor the effectiveness and success of the treatment in a post-treatment monitoring plan that would be reported annually (EA, pages 11, 13 **12, 14**).

The Objectors contend that this uncertainty about the effectiveness of a treatment directly equates to an impact, or outcome. In reviewing the EA, the expected outcome is that, with the use of an integrated combination of treatments (manual /mechanical /prescribed fire /herbicides) and continued prevention and education efforts, invasive species establishment and spread will be reduced (EA, pages 9, 11 **9, 12**). Expected number of years to control the four highly invasive species has been identified (EA, page 12 **12-13**). The EA also recognized that the potential use of herbicides multiple times in the same area was not expected to result in a build- up of chemicals in the environment, based on the relatively short half-times in which they would break down

(EA, pages 31, 49-50 **31-33, 51-52**). Also see the FONSI item 5 (EA, page 65 **69**): “...*The proposed herbicides are of low toxicity and persistence and would be applied in discrete locations at a limited scale...*”

The EA recognizes that herbicides may be used more than once in the same locations to control specific invasive plants. The EA specifies monitoring of the outcome of treatments and considers potential impacts, such as the potential build-up of chemicals in the environment and any potential risk to human health and safety. I find that the information in this objection issue (multiple applications of herbicide needed) was considered in the analysis and, while the exact number of treatments needed to reach the desired outcome cannot be predicted with certainty, the outcomes and impacts can be estimated based on available data and monitoring of similar projects in southern Illinois. This use of scientific information, as well as field monitoring, strongly supports a finding of non-significance with regard to the effectiveness of the treatments.

**ISSUE #2b(5)(d), FONSI – INTENSITY – UNCERTAINTY – NON-TARGET:** “*The deciding officer...brushes off this consideration [of uncertainty and risk] by stating that he finds “no uncertainty or unique or unknown risks associated with this project”... brushes aside information submitted by the objectors, finding by incorrect and erroneous consideration that the information isn't applicable to this decision.*” (NO, pages 10-11)

“*The uncertainty comes from several sources. These include but aren't limited to: ...what non-target organisms will be impacted both by the spraying and the burning.*” (NO, page 14)

**Analysis:** The BE for federally listed threatened and endangered species (PR 5.H.c), RFSS plants (PR 5.B.d) and animals (PR 5.H.b), and the general wildlife report (PR 5.H.a) all analyze the impacts of the proposed action on the existing communities (or condition). To establish a baseline of the existing condition of the project area, surveys have been conducted either by Forest Service personnel or by the IDNR (PR 5.H.c, page13)). In addition to this baseline condition, a field assessment would be conducted prior to treatment to investigate site-specific impacts to sensitive plants and appropriate site-specific treatment options (EA, page 21 **21**). All of this information reduces the amount of uncertainty of the existing condition and what impacts the proposed project might have on all species (target and non-target species).

I find that information available in the PR considers the objectors' concern.

**ISSUE #2b(5)(e), FONSI – INTENSITY – UNCERTAINTY – EXACT LOCATIONS:** “*...the amount of acres to be treated and exactly where these treatments will take place... Without knowing the exact locations where treatments will be applied, there is great uncertainty as to the impacts.*” (NO, page 14)

**Analysis:** The Objectors contend that there are significant adverse effects related to uncertainty with regard to location. At the outset, it is important to note that the 40 C.F.R. 1508.27(b)(5) is concerned with “*possible effects on the human environment,*” not with specificity regarding the location of the project treatment area. It is difficult to perceive a connection between the intent of this regulatory subsection concerning uncertainty of effects and the Objectors' concerns with location. Regardless, the PR includes numerous maps and descriptions of where the treatment activity may occur. For example, maps included in PR 1.A.d.i and posted on the Forest website show where invasive species occur and include burn-unit boundaries, boundaries of natural areas

and priority natural area treatment zones. Maps in PR 1.A.d.ii and posted on the Forest website show priority natural areas and locations of all invasive species within those priority natural areas. These maps also show the burn units.

In Appendix A of the EA, pages 88-114 **91-117**, the generalized types of invasive species shown on the maps are included for each natural area. The general types of invasive species are broken down into the specific species in each natural area, and Appendix A also lists the types of herbicide treatments that would be used. In the description of the alternatives in the EA, Table 4 (EA, pages 16-18 **16-19**) shows the types of treatments that would be applied to each invasive species (chemical, mechanical, manual, prescribed fire).

Based on the EA and the supporting PR, I am able to determine exactly where actions, including herbicide treatments, will take place. Also see response to Objection Issue #2a(1)(a). Since the locations of treatments are known, I see no uncertainty of impacts that could occur due to unknown amounts or locations of treatments.

**ISSUE #2b(5)(f), FONSI – INTENSITY – UNCERTAINTY – CLIMATE CHANGE:** “...to what degree these exotic invasions are tied to global climate change.” (NO, page 14)

**Analysis:** The responses to comments on the EA provide insight into the relationship between invasive plant populations and climate change. This informed the effects analysis and disclosure for this project. The EA provides information regarding the proliferation of invasive plant species on the Forest in light of climate change (EA, pages 8, 12, 37). For example, “*Kudzu might not appear to fit the description of “highly invasive” in Illinois. We are targeting this species not only because it is highly invasive and could become more vigorous as climate change continues to warm our region, but also because the State of Illinois has an aggressive kudzu eradication program based on the ‘Illinois Noxious Weed Law’ (2002).*”

See also response to Objection Issue #2b(5)(b).

The project was prepared in accordance with existing federal and agency policies concerning NEPA analyses and climate change. The Forest clearly considered the effects climate change on the spread and possible re-establishment of invasive species under the no-action and the other alternatives.

After review of the PR, I find this issue has been considered. I find no violation of law, regulation, or policy on this issue.

**ISSUE #2b(5)(g), FONSI – INTENSITY – UNCERTAINTY – EXOTIC SPECIES**

**ESTABLISHMENT:** “*There is scientific uncertainty about exactly how the populations of ‘exotic’ species in the Shawnee got established... Without knowing this, the long term effectiveness of the treatments are in great question. How will re-infestation be avoided if it isn’t known how the original infestation began?*” (NO, page 14)

**Analysis:** This issue was not raised during a designated comment period by the Objectors. Moreover, the focus of 40 C.F.R. 1508.27(b)(5) is with “possible effects on the human environment,” not with the historical origin of a threat to the environment. Regardless, the PR indicates that there is not a high degree of uncertainty about how invasive plants are spread at

this time. To the contrary, considerable investigation and analysis was devoted to understanding the mechanisms by which invasive species may spread, germinate and recur on the Forest.

From the EA, Chapter 2, pages 13 and 20 **13-14**: “...*To enable maximum protection of the selected areas, the team configured treatment zones along streams, roads and trails—the main pathways of invasive species infestation...*” Also, see EA, page 127 **129-130**: “...*We examined information concerning the natural and human vectors for the introduction and spread of invasives.*” Also see PR 7.C.345: “US EPA Pathways for Invasive Species Introduction.” The PR also shows that future infestations would be avoided or reduced by an integrated approach that includes prevention and education as part of the Forest’s invasive species management strategy (EA, page 11 **11**). The EA also includes monitoring of treatments to determine effectiveness (EA, Table 8, page 24 **25**).

The PR does not attempt to catalog the historical vectors of establishment of invasive plants. Environmental assessments are to be concise, analytical documents concerning the effects of a proposal and not encyclopedic treatises, 40 C.F.R. 1500.4(b). The spread and establishment of invasive plant populations was assessed as a relevant factor in determining the effectiveness of treatments. The proposal included the need to treat current pathways and vectors of potential spread and to monitor the results of treatments to determine effectiveness. Information about the historical origin of various invasive plants (beyond what is already commonly known and documented) would not add anything to our understanding of how these species currently spread or become established. This type of information would not aid in understanding the significance of adverse effects or alternative treatments. It does not constitute scientific uncertainty about the degree of effects on the environment.

**ISSUE #2b(5)(h), FONSI – INTENSITY – UNCERTAINTY – RESULTS:** “*There is now significant questions being brought up within the peer-reviewed scientific journal community regarding whether or not burning the forest is ‘natural’ in the hardwoods to the degree that the agency has been applying it, and whether it will provide the desired results.*” (NO, page 14)

**Analysis:** This issue, in the context of 40 C.F.R. 1508.27(b)(5), was not raised during a designated comment period. It is now raised with the submittal of this objection and the inclusion of a single article, “Reassessment of the Use of Fire as a Management Tool in Deciduous Forests of Eastern North America,” by Glenn R. Matlack, *Conservation Biology* (Vol. 7, No. 5, 2013), published online in September 2013.

The article addresses the use of prescribed fire east of the prairie-woodland zone in North America, an area that does not include the Forest. It also excludes many areas, such as barrens and other special ecological types that have a clearly identified history of repeated fire. From the abstract: “*Prescribed burning is increasingly being used in the deciduous forests of eastern North America. Recent work suggests that historical fire frequency has been overestimated east of the prairie–woodland transition zone, and its introduction could potentially reduce forest herb and shrub diversity.*”

In reviewing the EA, prescribed burning is one of the tools proposed to set back progression of invasive species and help restore native vegetation (EA, page 13 **13-14**). The EA states that prescribed burning could occur repeatedly at 1-3 year intervals, dependent on monitoring of results and impacts on the targeted invasive plants (EA, page 13 **13-14**). In addition, the EA

states that monitoring would identify any areas that did not repopulate to native plants and that action would be undertaken to reseed or replant these areas (EA, page 21 **21-22**).

The project area is outside the area addressed in the Matlack article. Equally important, the article has a different context: fire frequency in a specific ecotype, the prairie-woodland zone. As clearly stated in the PR, this project is not attempting or purporting to identify or mimic historical fire frequency in the project area. It does not appear that this article offers new or relevant information for this project.

**ISSUE #2b(5)(i), FONSI – INTENSITY – UNCERTAINTY – CUMULATIVE IMPACTS:**

*“There is uncertainty over the cumulative effects...”* (NO, page 14)

**Analysis:** The Objectors contend that the project has significant adverse cumulative effects, 40 C.F.R. 1508.27(b)(7). The EA discusses quite extensively the cumulative effects of the proposed project (pages 26 **27-29**, 36-37 **38**, 45-46 **47**, 49, 51-52 **51-54**, 55-58 **57-60**, 60-61 **62-64**, 64, 66 **69-70**). Also, the EA response to comments 13, 16, 20, 21, 26, 28, and 30 (EA Appendix C, pages 129-130 **132-134**, 132-135 **135-136**, **137-138**, 139-143 **144**, **145**) reiterate what has been addressed in the EA on the cumulative effects of the proposed project.

The Responsible Official found no uncertainty over cumulative effects and stated, *“The design criteria incorporated into this project were explicitly created to avoid significant direct, indirect and cumulative effects on non-target wildlife and plant species, as well as people. Indeed, the interdisciplinary team found that implementation of the proposal would result in limited direct, indirect, or cumulative effects on the environment”* (EA, pages 30-35 **31-37**, **38**, 37-38, 40-46 **39-47**, 49-51 **51-53**, 55-58 **57-60**, 59-61 **62**, **63**, 64 **69-70**).

The objection does not include any additional scientific or factual evidence that would refute this finding. The PR documents that the IDT and the Responsible Official took a hard look at potential cumulative effects, including those on non-federal lands, and past, present and future cumulative effects. The increment of environmental effects on water, soils and other resources associated with herbicides and other treatments was examined in conjunction with the environmental baseline and other sources of impacts. The EA was informed by the cumulative effects analysis developed for the revised plan, and took into account the best available information on herbicides and invasive plants on private lands.

I find no uncertainty on the cumulative effects of the proposed project.

**ISSUE #2b(6), FONSI – INTENSITY – PRECEDENT:** *“...the deciding officer avoids dealing with the fact that this clearly is a precedent for future actions on the Shawnee, and therefore has significance...There has never been a forest wide project authorizing this level of chemical pesticide use...there has never been a forest wide project which combines the use of fire and pesticides across such a large area of the forest...”* (NO, page 14)

**Analysis:** The objectors suggest that the proposal to treat invasive plants with prescribed fire and herbicides will establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration and, thus, will have significant adverse effects (see 40 C.F.R 1508.27(b)(6)).

It is clear that the treatment activities proposed here have occurred on the Forest in other places for a variety of purposes. Prescribed burning, manual treatment of invasive species, even some use of herbicides to remove unwanted vegetation has occurred; these activities are simply tools to meet a specified land-management objective. For example, prescribed burning is an action that has routinely been implemented on 6,000 acres of the Forest annually for ecological restoration and other purposes (EA, pages 11 **11** and 29 **29-30**). Mechanical and manual invasive plant control methods have also been routinely implemented Forest-wide (EA, pages 9 **9** and 11 **11**), and herbicides have been used annually on about 50-100 acres within campgrounds and administrative sites (EA, page 11 **11**).

The Objectors contend that, since there has never been a Forest-wide approach to invasive species, this project sets a precedent for future actions and, therefore, has significant effects. The logic of this argument is specious: Simply because there has never been a broad approach to invasive plants does not mean that it now controls what will be proposed in the future. There simply is no evidence in the PR to support this supposition, as it is not clear when or where the Forest will propose additional treatments. There are many factors (budget, management priorities, and environmental threats, to name a few) that influence what may be proposed in the future, if anything. This project was developed with a specific purpose and scaled to meet reasonable accomplishment goals in the foreseeable future. There is currently no proposal for treatment of other invasive species, nor does this project determine in any way the scope, scale, treatment alternatives, or species that may be treated in future site-specific projects. All of this has yet to be determined and it is speculative to say that this site-specific action sets a precedent for future treatments.

Further, the proposed action does not include treatment on a large-scale, Forest-wide area, as implied by the Objectors. The treatment areas are clearly defined and limited in their scope (EA, pages 11-18 **12-19**, and DN, pages **2-5**). The project was intentionally designed as a balanced, judicious step forward in arresting the currently un-managed spread of invasive species. The PR indicates that considerable effort, both with maps and fieldwork, underlies the choice of treatment areas and identification of targeted species. The project is “Forest-wide” in that the most urgently needed areas across the national forest were identified, and effective, tailored treatments and mitigation developed for those specific sites.

This approach is common sense and required by the nature of invasive species, i.e., the propensity of some species to easily spread into untreated areas. The project is local or site-specific and driven by field data from specific sites. The invasives situation on the Forest developed over decades; this project will take several years to implement, as noted in the PR. The Forest does not have the financial resources or personnel to treat all species across the Forest. “Forest-wide” as used in this project analysis does not mean, as the Objectors imply, that the entire Forest will be treated all at once.

The Responsible Official specifically addressed 40 C.F.R. 1508.27(b)(6) in his determination of the significance of potential adverse effects. He clearly states, “*My decision to implement this proposal is limited to this action and unrelated to future considerations*” (EA, page 66 **69**). Based on review of the PR, I find that there is no evidence that this action is precedential for any future proposal, nor is it part of a chain or sequence of actions. The project has independent utility and was developed to address a site-specific purpose and need.

**ISSUE #2b(7), FONSI – INTENSITY – RELATED PROJECTS:** *“The deciding officer fails to make a determination about whether or not there could be significant cumulative impacts. As close as he comes is to state that ‘there is minimal possibility of any unexpected cumulative effects that could present a serious risk of significant adverse impacts.’ Again, as in the analysis of public health and safety impacts (criteria #2) he bases his findings on an assumption that ‘design criteria’ will be followed perfectly. But courts have already found that an agency can rely on conclusory statements of no impact based on mitigation without some analysis of what might happen should the mitigation fail. There has been no analysis of this at all.”* (NO, page 15)

*“In addition, the planning record admits that there will be areas in which herbicides will be applied and then the area burned. There will be cumulative from the burning of the herbicides. Dioxin can be formed by burning treated wood. (attachment #4).”* (NO, page 15)

*“Finally, it is nearly impossible for the agency to make any kind of determination about any of the impacts, because there is no plan in the project record for trying to control or manage what the impacts of the treatments will be in terms of the vegetation that comes afterward. There is no guarantee that some other exotic species might not come in to fill the ecological void. If more invasive species come in, that will trigger a whole series of cumulative impacts. That could be the worst of the cumulative impacts. To claim that there will be no cumulative effects is wrong. There is a potential for significant cumulative impacts.”* (NO, page 15)

*“In addition, the Shawnee never has had a cumulative impact analysis on the plan level which passed muster. It was struck down as arbitrary and capricious, and the new plan cumulative impact analysis does not cure the problems, and is under appeal. That makes the significance of the cumulative impacts from this project even greater. In fact, in the recent order of the court lifting the 1997 injunction, the court agreed that it was a good question how the agency could log, burn, and do other things on the Shawnee and not have a significant cumulative impact.”* (NO, page 15)

*“Also, a federal district court in Oregon recently found that the Forest Service had not completed an adequate cumulative impacts analysis for a very similar project. The basis of the ruling was that the agency had a duty to give a hard look at the cumulative impacts of the herbicide use in combination with all the previous activities that have degraded the forest. That case, Blue Mt. Biodiversity Project v. USFS, 3:10-cv-01397-SI, Dist. Court, Oregon, resulted in an injunction against the herbicide use because it found that the harm from the cumulative impacts of the herbicides and other past activities could be as serious as the impacts from the invasive plants. The issues in this situation are very similar to this case.”* (NO, page 15)

**Analysis:** The Objectors allege the project has significant adverse cumulative effects, 40 C.F.R. 1508.27(b)(7), with regard to (1) the anticipated failure to fully implement design criteria, (2) burning of plants and wood treated with the herbicides proposed for use in this project, (3) lack of re-vegetation plans and (4) past actions (citing to an Oregon court decision). The Objectors also argue that the programmatic FEIS prepared for the revised 2006 Forest Plan does not “pass muster” with regard to cumulative effects disclosure.

First, the Responsible Official states in the FONSI (EA, page 66 **69**), *“My finding of no significant impact from implementation of the selected alternative includes consideration of its cumulative impacts in relationship to other activities, whether conducted by the Forest Service Shawnee NF Invasive Species Management, Objection # 14-09-08-0009 O-218*

or others.” Later in the paragraph it is stated, “*There is minimal possibility of any unexpected cumulative effects that could present a serious risk of significant adverse impacts.*” The Responsible Official also directs the reader to the sections of the EA where cumulative effects are disclosed (EA, pages 30-35 **38**, 37-38, 40-46 **47**, 49-51 **52-53**, 55-58 **57-60**, and 59-61 **62-64**).

In response to the particular points raised in the objection: I find that the project design criteria are an integral element of the proposed action to be implemented as part of the project and not additional mitigation for potential adverse effects (see the EA, Tables 6 and 7, pages 22-24 **22-24**). The EA states, “*These criteria are based on requirements of Forest Service regulations, the Forest Plan, IDNR Forestry Best Management Practices and herbicide label directions. They are part of the design of the project rather than mitigations developed as responses to concerns or ongoing effects*” (EA page 21 **22**). CEQ guidance—Forty Most Asked Questions Concerning CEQ’s NEPA Regulations, Question 40—states, “*Mitigation measures may be relied upon to make a finding of no significant impact only if they are imposed by statute or regulation, or submitted by an applicant or agency as part of the original proposal.*”

The design criteria/mitigation are mandatory and must be followed in project implementation. These protective provisions are informed by the experience of land managers both in the Forest Service and outside the agency and have been shown to be effective. The Objectors suppose that they might not be fully implemented, but provide no evidence for this supposition. The purpose of this action is to restore and protect ecosystems, and considerable effort has been devoted to ensuring that treatments will be implemented as intended. Monitoring and other implementation controls are included in the analysis and proposed decision for this various reason. Accidental spill plans and burn plans are developed to guard against the risk of unforeseen occurrences. The project has been designed and limited purposefully to reduce any potential hazards to people or natural resources.

Second, the Objectors raised the concern about burning vegetation previously treated by herbicides in a September 25, 2012, letter in response to release of the revised EA. In response to concern about the burning of plants treated with herbicides, the IDT revisited its research of the effects of burning treated vegetation and the review of this research is presented in the EA (pages 34-35 **36-37**). The project design criteria were modified to ensure that vegetation treated with triclopyr could not be burned within 30 days of treatment to ensure degradation of that herbicide’s parent compound (EA, pages 34-35 **36-37** and PR 5.D.a, pages 11-12). The EA states that “*...there would be no significant, direct or indirect, adverse effects on human health and safety as a result of implementing the proposed action.*” The analysis concludes: “*Cumulative effects of the application of herbicides, natural or synthetic, would have no significant, adverse, direct or indirect effects on human health or safety*” (EA, p 36 **38**).

The Colborn study cited above as Attachment #4 to the objection was submitted by the Objectors and reviewed during the analysis of the EA. Response to comment 2 (EA, pages 119-120 **122-123**) explains how the Colborn study addressed the effects of a number of toxic chemicals, none of which are proposed for use in this project. The subject of the Colborn study, endocrine-disrupting chemicals, is discussed in the EA (EA, pages 33-34 **34-36**). Similarly, the IDT reviewed the study, “Dioxins and Furans: Where They Come From” (Paddock 1989), submitted by a commenter regarding the burning of treated wood. The team found that the chemicals in that

study which produced dioxin also are not proposed for use in this project (EA, response to comment 26, page 139-140 **142-143**).

Response to comment 2 (EA, pages 119-120 **122-123**) states that, “*Based upon the science, as well as information provided by state agencies and others that are using the same herbicides under similar situations, we have reasonably concluded that the anticipated effects are neither uncertain nor significant. The commenter points to no published science that we have either ignored or overlooked in the development of this analysis, nor offers any site-specific information that would alter our findings and conclusion of non-significance.*”

Third, with regard to the cumulative impacts related to re-vegetation of sites after treatment, the project specifically includes the re-establishment of native species on sites of invasive species eradication. Proposed follow-up actions for a site include monitoring for the re-establishment of native species. If previous treatments are not effective to ensure complete removal or control, the EA considers the possibility that some areas may need re-treatment. The proposed action also included the re-establishment of native vegetation through reseeded and/or planting native species if necessary to repopulate the site (EA, pages 12, 21, 23 **12-13, 22**).

Fourth, the Objectors’ statement regarding the lawfulness of the programmatic EIS prepared for the 2006 revised Forest Plan is not informative. The objection is unclear as to what deficiencies the Objectors believe exist or what nexus any of their concerns might have with the EA’s site-specific analysis. The Objectors correctly noted that a federal district court reviewed this programmatic EIS and lifted its September 1995 injunction on the Forest Plan in March 2013, in *Sierra Club v. USDA*<sup>2</sup>. There was no appeal of the 2013, decision; thus, the lawsuit concerning the 1992 Amended Forest Plan has ended and is not “under appeal” as Objectors erroneously claim. Nothing in the March, 2013 court order is specific to the treatment of invasive species either at the programmatic or site-specific level.

Review of the March, 2013, district court order lifting the injunction (PR 7.A.i) indicates that the Judge commented favorably overall on the contents of the cumulative effects analysis in the programmatic EIS prepared for the 2006 revised Forest Plan, contrary to the Objectors’ statement that the “*court agree[d] that it was a good question how the agency could log, burn, and do other things on the Shawnee and not have a significant cumulative impact.*” The main discussion of cumulative effects from the March, 2013 district court order (involving Management Indicator Species, or MIS) concludes:

*The Court is satisfied that the Forest Service has adequately cured the 1992 FSEIS's deficiencies in its explanation of the cumulative effects on MIS, even if it has not done so with the precision, organization or clarity RACE and the Audubon Council desire. The Forest Service will, of course, have to conduct another cumulative effects analysis when a specific project is proposed, at which time more concrete cumulative effects predictions will be possible because the location, magnitude and duration of the project will be known.*

Also in the 2013 order, the district court likewise commented favorably on the programmatic cumulative effects analysis concerning oil and gas leasing.

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<sup>2</sup> *Sierra Club v. USDA*, Civ. No. 94-4061 (S.D. Ill.)

Fifth, unlike the decision at issue in the Oregon court case, the EA cumulative effects analysis does take a hard look at past actions. The Objectors cite no specific past actions or effects that the Forest overlooked or ignored. The Blue Mountain Biodiversity Project v. Forest Service case<sup>3</sup> involved different herbicides, mitigation, application methods and ecosystems. The district court's findings on the administrative record for the Oregon project are clearly distinguishable from this proposal in several ways. The Oregon court faulted the analysis for being vague or general. The analysis in this EA is specific to particular sites, actions, acreages and resources (see, e.g., EA at pages 89-118 **92-117**). It is difficult to see how a cumulative effects analysis could be any more specific, and the Objectors provide no indication of what they think is missing.

The Oregon court found that the Wallowa-Whitman National Forest (WWNF) analysis was non-quantitative. The analysis in this EA is quantitative as to the number of acres in past, present, future actions on both federal and nonfederal lands. It quantitatively analyzes the amount of herbicides and the quantitative context for the proposal (EA, pages 89-114 **92-116**). Again, the Objectors simply equate the two analyses without providing any site-specific information or indication of what additional quantitative information is necessary. Indeed, the cumulative effects analysis here is field-data driven, and the PR is replete with quantitative analysis of potential environmental effects, (EA, pages 49-52 **51-53**, Appendix B, pages 115-118 **118-121**, PR 5.A.d.i and 5.A.d.ii).

The Oregon court faulted the WWNF analysis for failing to consider the impact of the continued introduction and spread of invasive species. The EA here specifically addressed these issues and took into account the effects of continued introduction and spread of invasive species and the possibility of re-treatment, or, as the court termed it, the "cyclical use" of herbicides, which could affect the natural resources of land that is already impacted by invasive species.

The Oregon court was concerned with effects on non-target species, but the EA here has taken a hard look at potential non-target vegetation effects (pages 37-38 **38-40**). Rather than simply assume, as the WWNF did, that because direct impacts will be minimal there would be no significant cumulative effects, the Forest here assessed separately the direct, indirect and cumulative effects and did not simply presume non-significance regarding cumulative effects, EA, pages 29-62 **30-64**. This analysis is in accord with the court's view that the purpose of cumulative effects analysis is to examine effects cumulatively and synergistically that otherwise might not be significant individually (40 C.F.R. 1508.7). This is precisely what the Forest has done.

Finally, the Oregon court faulted the WWNF analysis of water-quality cumulative effects on several grounds. The analysis here does not inappropriately substitute the discussion of direct effects for that of cumulative effects, but considers the cumulative effects of this action in addition to other actions on federal and non-federal land. Nor did the analysis simply describe direct effects as minimal and then automatically conclude that the cumulative effects are non-significant. Moreover, the analysis has included the ground-disturbance associated with application of herbicides, prescribed burning and non-related activities in the site-specific areas designated for treatment (EA, pages 47-52 **49-53**). The IDT did not rely on mitigation measures

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<sup>3</sup> Blue Mountain Biodiversity Project v. Forest Service, 883 F.Supp2d 979 (D. Or. Aug. 10, 2012)

and project management to assume away cumulative effects without first identifying what those effects might be.

Based on review of the PR, it is evident that the cumulative effects analysis is quantitative, site-specific and anchored in field data. There is no information in the objection as to how additional information (whatever it might have been) would have resulted in a more informed analysis regarding cumulative effects. Indeed, the cumulative effects analysis in the EA followed the letter and spirit of the CEQ publication, *Considering Cumulative Effects under the National Environmental Policy Act*, pages 27–29 (1997), which noted that “...the goal of characterizing stresses is to determine whether the resources, ecosystems, and human communities of concern are approaching conditions where additional stresses will have an important cumulative effect.” This is precisely what has been done in this EA.

It is evident from the language in the FONSI (EA, pages 64-66) and proposed DN, that the Responsible Official did make a determination of no significant impact. In reviewing the PR and EA, I found the design criteria were included with the original proposal from the beginning of the project. After reviewing the EA and PR, I find the issue regarding cumulative impacts resulting from the impacts of the treatments and what vegetation will result after those treatments to be thoroughly addressed in the analysis.

Review of the PR for the EA indicates that the cumulative effects analysis was informed by the Forest planning record, including the programmatic FEIS and biological opinion, monitoring of past actions and other documents. The Objectors have provided no information demonstrating a nexus of their concerns with the programmatic EIS and the site-specific cumulative effects analysis of the EA.

**ISSUE #2b(8), FONSI – INTENSITY – SCIENTIFIC, CULTURAL OR HISTORICAL RESOURCES:** *“The deciding officer again tries to brush off the agency requirements by citing to a programmatic agreement on prescribed burning that the agency has with the state historic preservation officer...When the agency does an undertaking, which this project is, the agency is supposed to consult with local citizens about the history of the area.”* (NO, page 14)

**Analysis:** This objection issue refers to 40 C.F.R. 1508.27(b)(8), concerning possible “loss or destruction of significant scientific, cultural, or historic resources.” The Objectors are concerned with the Forest’s 2008 “Programmatic Agreement regarding the Process for Compliance with Section 106 for Undertakings Related to the Prescribed Fire Programs on the Shawnee National Forest and Midewin Tallgrass Prairie,” which was signed in early 2008 by the Eastern Regional Forester, the supervisors of the Shawnee and Midewin, the State Historic Preservation Officer and the Executive Director of the National Advisory Council on Historic Preservation. The Objectors contend that this document should have gone through the NEPA process and public involvement.

The programmatic agreement has been in place for nearly six years. The agreement provides for National Historic Preservation Act (NHPA) Section 106 compliance for a specific category or program pursuant to 36 C.F.R. 800.14. The 2008 agreement involves alternative consultation procedures for non-ground-disturbing activities and protection of above-ground heritage resources during the application of prescribed fire. It was developed with appropriate public involvement in accordance with the discretion provided under the NHPA regulations. In signing

the programmatic agreement, the executive director of the Advisory Council on Historic Preservation stated, *“We would like to express our appreciation for the efforts and cooperation of the leadership of the Shawnee National Forest and the Midewin National Tallgrass Prairie and especially the heritage program staff of the Shawnee National Forest in developing and executing this agreement.”*

The potential for adverse effects on Heritage Resources is analyzed and disclosed at EA pages 60-61 **63-64** and in the Heritage Resources working paper (PR, 5.E.b). The PR documents that no direct, indirect, or cumulative effects on these resources are expected to result from project activities. Based on analysis and knowledge of local field conditions, there is no evidence or indication of a significant adverse effect on these resources. The State Historic Preservation Officer concurred with this determination (EA, page 62 **65**). In addition, the project includes a design criterion to insure the Area of Potential Effects (on heritage resources) will be reviewed and inventoried as needed to protect heritage resources (EA, page 22 **23**).

The PR documents that the Forest took a hard look at the potential effects on scientific, cultural and historical resources. The objection does not provide any specific information concerning any potential environmental effects. It is not clear from the objection what cultural or historical resources might be affected (beyond what is already discussed in the PR) or what additional analysis should be undertaken or mitigation added. Most importantly, the objection does not contain any site-specific information that suggests there would be any significant adverse effects on historic or cultural resources as a result of this proposal.

The Objectors raise here a new issue regarding “historic resources” in their area, stating they *“... have tried to tell the agency that there are historic resources that would be impacted by the proposed project.”* The Forest received one comment on the EA about a purported “historic landscape” near the former town of Azotus and the importance of a kudzu infestation in that landscape. The Forest responded to this comment on heritage resources on pages 141 and 142 of the EA, stating that the kudzu plant was an Illinois noxious weed that the State Historic Preservation Officer encouraged us to remove. No other comment has been received. It is clear from the discussion on EA pages 60-61 that no effects are anticipated on heritage resources from implementation of the project. The Forest has heard the Objectors concern and responded.

Based on review of the PR, it is clear the Forest has addressed the potential for significant adverse effects on scientific, historical and cultural resources and has not violated NEPA regulations.

**ISSUE #2b(9), FONSI – INTENSITY – THREATENED AND ENDANGERED HABITAT:**

*“...bat populations in the eastern U.S. are plummeting as the result of... white nose syndrome... White nosed syndrome has been found in caves on the Shawnee. This was not considered in the EA. Yet, there could be cumulative impacts on the caves from chemicals, smoke, and tree removal that are not given a hard look by the agency. The EA doesn’t try to go into how many endangered bats have been killed by the white nosed syndrome.”* (NO, page 16)

*“.....there is no way that the consultation between the FS and the FWS could have considered the above finding [on white-nose syndrome], because it occurred before that finding was made.”* (NO, page 16)

“.....any additional affect [sic] on the species should be considered potentially significant.” (NO, page 17)

“...There is evidence that chemicals in the environment are weakening bats and making them more susceptible to white nosed syndrome.” (NO, page 17)

**Analysis:** The Objectors claim that the Forest did not consider the presence of white-nose syndrome in the EA. In fact, the EA disclosed that *Geomyces destructans*, the fungus that causes white-nose syndrome, has been confirmed in the Forest since early 2013. Although the EA does not give the number of endangered bats killed by white-nose syndrome, it does explain that it affects many species of bats in the eastern and central United States and has killed up to 99 percent of affected cave-dwelling bats. The EA states that, since discovery of the fungus is so recent, continued bat monitoring would tell what effect the disease is having on bats on the Forest (EA, page 55 **57-58**).

The PR includes estimated totals of bats killed as of January 2012, associated with white-nose syndrome, in the “Review of New Information (RONI) Related to White-Nose Syndrome and Occurrence on the Forest of the Indiana Bat and Gray Bat” (PR 7.A.h, page 2). The RONI documents the Forest’s review of new information related to white-nose syndrome that has become available since publication of the 2006 Forest Land and Resource Management Plan. It addresses the epidemiology, transmission and spread of white-nose syndrome, the documented bat mortality rates, and actions the Forest has taken to monitor and minimize the introduction and spread of white-nose syndrome into southern Illinois since 2008. The Forest completed the first white-nose syndrome RONI in July, 2008.

The EA includes a summary of the analysis of federally listed gray and Indiana bat species (pages 55-57 **57-58**) as well as an effects analysis of cave habitat (EA pages 57-58 **59**). The summary of the Indiana and gray bats effects analysis, taken from the BE (PR 5.B.b), explains that terrestrial habitat treatment under the proposed action is expected to cause no adverse cumulative effects. The EA discloses that, since white-nose syndrome has been discovered on the Forest, it is anticipated that there will be declines in future bat populations. The EA states, “...the disease will spread to bats that hibernate and/or roost in mines and caves in Illinois regardless of vegetation management. However, no declines associated with this disease have been documented to date in the project area vicinity” (EA, page 56 **58**).

The BE includes a comprehensive look at a number of possible effects from all aspects of the proposal, including prescribed burning, herbicide use and tree/shrub removal. Examples of effects analyzed include, but were not limited to: indirect exposure to herbicides through ingestion of contaminated insects or contaminated drinking water; aquatic or terrestrial prey distribution, abundance or diversity; direct/residual contact with herbicide; and noise or human activity (PR 5.B.b, pages 27- 35). The analysis took into consideration that white-nose syndrome is now on the Forest (PR 5.B.b, pages 35-36). The BE describes cumulative effects of the proposed action as incremental and that implementation of the design criteria will protect potentially suitable foraging and roosting habitat for gray and Indiana bat (PR 5.B.b, page 36). Additionally, the U.S. Fish and Wildlife Service (USFWS) reviewed and concurred with the BE of Federal Threatened and Endangered Species prepared for the revised proposed Invasive Species Management Project on January 29, 2013 **and on April 11, 2014** (PR 5.B.b).

It is clear the Forest took into account the presence of white-nose syndrome on the Forest (PR 7.A.h, pages 22-24). The RONI also highlights the measures taken to minimize human disturbance of hibernating and summer-roosting bats, including the buffer of entrances to mines and caves, installation of bat-friendly gates, maintenance of forested corridors between caves and mines and foraging areas. The RONI discloses that there have been no Forest Service activities in recent years that could constitute a disturbance to roosting bats, with the exception of cave-gating and mine-entrance stabilization (PR 7.A.h, page 13). The activities considered included the harvest of timber and prescribed burning. The USFWS concurred with the finding and determination of the 2012 RONI on March 9, 2012 (PR 7.A.h, page 22).

The USFWS concurred with the BE of the proposal that concluded: Implementation “*may affect but (is) not likely to adversely affect*” Indiana or gray bats on January 29, 2013 (PR 5.B.b, page 37). The Responsible Official took a hard look at the degree to which the action may adversely affect an endangered or threatened species or its habitat (PR 5.B.b, page 35). This determination on bat species found the effects are considered beneficial, insignificant and discountable. The project analysis was informed by the science and information included in the programmatic biological evaluation and biological opinion for the 2006 revised Forest Plan.

The Objectors’ assertion that bats are becoming more susceptible to white-nose syndrome due to chemicals in the environment is addressed in the EA response to comment 27 (pages 140-141 **143-144**). The IDT searched published scientific research to find a documented relationship between chemicals in the environment and white-nose syndrome. The team was unable to find any published science regarding the existence of such a relationship (EA, pages 140-141 **143-144**). Neither the commenter nor Objectors provided any reference to such documentation.

Based on review of the PR, I find that the Objectors’ claim that the Forest did not consider the presence of white-nose syndrome in the EA to be unfounded. However, for the sake of clarity, I am directing that the Forest prepare a BE updated with current white-nose syndrome facts and coordinate its approval with the USFWS. This is discussed further in the instructions at the end of the letter. I also find that the Objectors’ claim that the Forest has not taken a hard look at the potential for impacts on caves from herbicides, smoke and tree removal is unfounded. The Forest Plan provides standards and guidelines and management direction to prevent the occurrence of impacts to caves, based on the 2006 programmatic biological opinion of the Forest Plan by the USFWS.

Based on review of the PR, it is clear the Forest thoroughly investigated, analyzed and documented the potential effects of the alternatives on bats. The Forest was clearly sensitive to the environmental stress on bat populations presented by white-nose syndrome and took into account the best available scientific information concerning mortality, spread of the disease and protection. The finding of “Not Likely to Adversely Affect” is reasonable and well founded based upon the extensive data and analysis set forth in the PR.

**ISSUE #2b(10), FONSI – INTENSITY – VIOLATION OF LAW:** “...*this project, which relies on and is tiered to the Shawnee Plan and EIS, which admittedly relied on information contained in the Hoosier/Shawnee Ecological Assessment, is not in accordance with law because the Ecological Assessment was done by a committee which should have operated in accordance with the Federal Advisory Committee Act, but did not operate under the FACA rules...*”

*“...there is a potential violation of the Wilderness Act. The Wilderness Act requires that an agency use the minimum tool necessarily to accomplish the goals of the project...”*

*“...this project could violate the Clean Water Act. Some of the streams in the project area are rated as full use, and this project could reduce their rating.”* (NO, page 17)

*“This project threatens the violation of the Illinois Natural Areas Protection Act. It threatens to alter the land through human activity, something the act was passed to prohibit.”* (NO, page 17)

**Analysis:** The Objectors claim that this analysis and the Forest Plan are flawed due to a FACA violation and that this is a violation of 40 C.F.R. 1508.27(b)(10) for the project. This issue was addressed above under the response/analysis for Objection Issue #1.

The Objectors claim there is a violation of the Wilderness Act, because the Act requires the Forest to use the minimum tools necessary to accomplish the goals of the project (see 16 U.S.C. 1133(c)). The Objectors assert that the goal of the project is to *“reduce the impacts of four non-native species,”* a *“goal [that] can be accomplished with methods that do not result in non-natural compounds which are poisons being released into the environment within these wilderness areas.”* The EA (page 63 **66**) describes the purpose of the action as “treatment and control” of invasive species, which allows for elimination of invasive populations from wilderness areas. The Guide prepared for this proposal speaks to the minimum tools for control of invasive plants and clearly demonstrates that eradication or control is not possible without use of herbicides (see Guide, pages 16-17.)

The EA describes the concept of wilderness minimum requirements and the process the Forest followed using the Guide to consider the tools available to treat invasive species and ensure the proposed action did not violate the Wilderness Act (EA, page 63 **66**; and PR, 5.G.b.i). The PR describes the purpose of the proposal in the context of administration of the wilderness areas. The Guide explains why herbicide use is necessary to meet the minimum requirements for the administration of these areas under the Act, Section 1133(c). The use of herbicides was determined by the Eastern Regional Forester to be an acceptable minimal action for the treatment of invasive species (PR 5.G.b.i). The Regional Forester approved the Guide October 12, 2010.

The Objectors claim there is a violation of the Clean Water Act in that the proposed actions could decrease the full-use rating of some of the streams in the project area. The effects to the water resource were disclosed in the EA and Watershed Working Report (EA, pages 49-52 **47-53**; PR, 5.F.a.viii). Although the analysis does not specifically relate the effects of the project to the rating of the streams, the EA concludes that the cumulative effects of the activities proposed in Alternative 2 would be imperceptible, non-measurable and insignificant (EA, page 52 **53**).

The concern about surface or underground water contamination from proposed activities was also addressed in the EA response to comment 10 (EA, pages 127-128 **130-131**): *“The Illinois EPA conducts extensive monitoring of many stream-reaches on and off the Forest, including agricultural areas that employ herbicides and pesticides to a far greater degree than we are proposing. We are aware of no adverse findings on the Forest related to the herbicide use in these watersheds... Application of herbicides as we have proposed poses no risk to our high-quality streams, since none of the chemicals would persist in the environment long enough to threaten any waterbody, a fact indicated by published scientific studies. We will conduct post-treatment monitoring to confirm that water quality is not affected by our actions* (EA, page 128

**127-128).**” Finally, the EA discloses: “*Activities identified in the alternatives comply with Section 319 of the Federal Clean Water Act (EA, page 62 64).*”

The Objectors claim the project violates the INAPA because it “*threatens to alter the land through human activity, something the act was passed to prohibit.*” This issue is specific to the 23 natural areas identified for treatment in the project. Management of natural areas for invasive species control is not prohibited by the INAPA, 525 ILCS 30. For example, the state’s administrative regulations recognize that natural areas may be managed to control invasive species, see, e.g., Rules for Management of Illinois Nature Preserves (Title 17 Ill. Admin. Code Part 4000). From the State Code: “*Plant succession control measures may be undertaken as provided in the master plan or management schedule...may allow employment of prescribed burning, mowing, grazing, cutting of shrubs and trees, girdling of trees, hand pulling or cutting of invasive herbaceous species, application of herbicide as specified, and other management practices to alter plant succession*” (Section 4000.425(a)(2)).

The EA states: “*...most natural areas have not been actively managed in ten years or more, leading to the general degradation of their communities. Invasive plant species are encroaching on them; many limestone and sandstone barrens are reverting to forested conditions. This degradation is confirmed by field surveys and reports by IDNR that emphasize these areas require active management to maintain their integrity (IDNR 2008/February and July, 2011).*” The purpose of the project is to restore and protect native ecosystems, especially those found in the natural areas. The effects from the proposed actions on natural areas are detailed in the Botanical Resources section of the EA (EA, pages 37-46 **38-47** and Appendix A). In addition, response to comment 23 describes support of the proposed activities by the IDNR and the Illinois Nature Preserves Commission, the organization charged under state law with the responsibility to provide advice and other assistance in order to protect natural areas, including those identified as treatment areas in this project (EA, pp. 136-137 **139-141**) (30 ILCS 30/6.04). The project is clearly in accord with state law and complementary to the goals of the state’s natural area program (EA, pages 136-137 **139-141**).

In summary, the *Hoosier-Shawnee Ecological Assessment* was finalized and the draft document released. Moreover, these documents are part of the Forest Plan project file and available for public inspection. There is no court order that found the Assessment was insufficient or flawed. Accordingly, I conclude that there is no violation of law or regulation pertaining to FACA. I find that the Forest completed a Guide and complied with the Wilderness Act. Finally, the Objectors have not shown that the project will violate the Clean Water Act or the INAPA.

**ISSUE #3, RISK ASSESSMENT OUTDATED:** “*The environmental assessment, FONSI, and Decision Notice all rely heavily for much of their impact analysis of the herbicides on ‘risk assessments’ done by one individual, Patrick Durkin, for a private company, the Syracuse Environmental Research Associates, Inc. These risk assessment were published 9–11 years ago. In that regard, they are missing much of the newest information regarding the impacts of hormone disruption, and the persistence and impacts of chemicals proposed for using.*” (NO, page 18)

*“In addition, these risk assessment are already stale and out of date, and NEPA requires a higher standard of utilizing high quality, up to date science, not stale, old risk assessments that*

*are not equivalent to impact analysis, and have not been subject to public review.”* (NO, page 18)

**Analysis:** From the EA, page 10, *“Finding that risk assessments for glyphosate and picloram had been updated, the responsible official withdrew his (January 2013) decision so that the project interdisciplinary team could review the analysis in light of the new risk assessment information.”*

The IDT thoroughly searched for the most up-to-date discussions of risk related to the herbicides proposed for use. The EA addresses potential human health risks of herbicide use on pages 28-37 **29-38** and potential ecological risks on pages 49-51 **51-53** and 53-59 **54-60**. Some of the specific potential human-health risks considered in the impact analysis included eye and skin irritation, lung irritation, toxicity if inhaled or absorbed, endocrine system disruption and cancer risks. Risk assessments and scientific papers on risk used in preparation of the analysis of impacts are dated from 1977-2013, 19 of these references—44 percent—are dated from 2008-2013 and include several other authors besides Durkin (EA References, pages 73-87 **76-90**). In any case, the most recent available risk assessments of the proposed herbicides were used in the effects analysis of the proposal.

Also, in the EA (page 31 **33-34**), there is discussion of the degree of human exposure to the herbicides required for there to be a risk to human health. Additional references were utilized to determine potential exposure risk; these included information on persistence, degradation and movement of the herbicides (EA, pages 31-36 **33-38** and Appendix C, response to comment 12, page 129 **132**). With regards to the Objectors’ claim that risk assessments were not subject to public review, the EA response to comment 1 notes that these documents are posted on the Forest Service’s Forest Health website (address provided) and encouraged public comments on the risk assessments used, particularly with respect to new information (EA, Appendix C, page 119 **122**). The Forest Service analysis of potential health effects relies on toxicology data used by EPA to certify the safety of pesticides as well as risk assessments prepared for the agency by Syracuse Environmental Research Associates (EA, page 119 **122**).

Based on the EA and the supporting PR, it is evident that the most up-to-date information available was used for the analysis of human health and ecological impacts; and that the Objectors’ claims that the Forest relied solely on risk assessments published 9-11 years ago that “are already stale and out of date” are incorrect. All of this information, including the risk assessments and background information, were included in the NEPA process for this action. The IDT reviewed these documents and found them to be the best available scientific information. Their reliance on their information in development of the EA is consistent with NEPA regulations (see 40 C.F.R. 1500.1(b), 1500.4). The objection does not point the agency to better scientific information or indicate what is lacking in the quality of the risk assessment information. The Forest did not simply assume the risk assessments were the best available science, but diligently investigated and used as appropriate other sources of published scientific information.

In summary, there is no evidence or new information from the objection that would support contentions that the best available science was not used in the analysis of human health impacts.

**ISSUE #4, NO POST-TREATMENT PLAN:** “...*The only plan set forth in the EA, FONSI, and DN is to use various techniques to kill patches of “exotic species.”* (NO, page 19)

**Analysis:** Consideration of post-treatment conditions of the existing vegetation were discussed and analyzed in the EA (page 37 **38-47** – Botanical Resources). Through previous experience of herbicide application on administrative sites, monitoring, and consultation with partners who currently use herbicides to control invasive plants (EA, page 126 **129**), the EA determines that in general, “*within the next year, seeds from adjacent areas easily re-populate a previously sprayed area*” (EA, page 38 **39**). The EA indirectly acknowledges that there is some uncertainty of post-treatment condition, but has a contingency plan based on post-treatment monitoring: “*Following treatment and control/elimination of targeted plants, we would ensure the repopulation of the treated areas by native plant species. We expect that dormant native seedbanks would once again germinate and restore the areas to native species. However, if monitoring indicates that this is not occurring following a growing season, we would take action to reseed or replant the areas with native species*” (EA, page 21 **22**).

I find the Objectors’ claim that there is no post-treatment plan to control what kind of vegetation will follow to be unsubstantiated.

**ISSUE #5, HERBICIDE PERSISTENCE:** “*The Forest Service claims that the herbicides used are not persistent. That is incorrect. These substances do not immediately disappear from the environment...Detectable traces of the chemicals can be found for many weeks or months after the chemical has been applied...One of the chemicals, Clopyralid, is so persistent that it has ruined a number of municipal composting facilities by leaving residues. ...users of the forest, or local residents around treated areas, will be exposed or face the risk of exposure for many weeks or months...The EA, FONSI, and DN do not properly give a hard look at the consequences of the persistence of the chemicals.*” (NO, page 19)

**Analysis:** The effects of the proposed herbicides are analyzed in the EA (pages 49-51 **51-53**). The Objectors’ chemical-persistence concerns are also addressed in the Response to Comments (EA, pages 129-131 **132-134**). Several scientific papers are cited that speak to persistence and bioaccumulation. After a hard look at all the proposed chemicals, it was found that the proposed herbicides do not persist, and do degrade in the environment. Some of the chemicals are organic, enabling them to be used as a food source by soil microbes that use carbon compounds. Selection of the proposed herbicides was based on their non-persistence and degradability, and low toxicity to wildlife and people.

The EA Appendix C, response to comment 14 acknowledges the persistence of clopyralid in compost piles and its ban from municipal composting operations in California and elsewhere. However, it must be noted that differences between a compost pile and a forest ecosystem were pointed out to the commenter (EA, page 131 **134**). Design criteria described in the EA were specifically identified to avoid significant direct, indirect and cumulative effects on non-target plants, wildlife and people (EA, pages 22-24 **22-24**). These design criteria and safeguards were incorporated as a result of public comment and input from other resource experts.

After weighing the short-term effects of the herbicides and the native plants’ long-term recovery, application of project design criteria and published science, it was concluded that there

would be no significant adverse effect on the ecological environment from the proposed action, and a beneficial effect in the elimination of targeted invasive species.

This issue of persistence was also addressed above. Based on the PR, it is clear this issue has been adequately addressed and there is no violation of law, regulation or policy on this issue.

**ISSUE #6, ROUNDUP AND FROGS:** “...researchers from the University of Pittsburgh found that Roundup herbicide was highly toxic to frogs and other amphibians...other researchers have found that Roundup is toxic to the placenta and has hormone disrupting characteristics. Yet, the agency claims that no Roundup will get into water because they aren’t going to be using it near water. This defies logic and science. Roundup will get into the watershed during rain events. It also could be distributed by air and by animals.” (NO, page 19)

**Analysis:** The potential impacts of glyphosate, the active ingredient in Roundup, to amphibians were considered and discussed in the Wildlife Resource section of the EA (page 53 **55**) and the BE for RFSS and SVE (PR 5.H.b, page 20). While some formulations of Roundup have the potential to be toxic to amphibians, the risk of using less-toxic Roundup formulations—which are incorporated in the project design criteria (EA, page 15 **15-16**)—were determined to be minimal (PR 7.C.52, Durkin 2011a).

“The effects of Roundup on frogs and other amphibians have been reported in several studies and are reviewed in the 2011 Forest Service glyphosate risk assessment. The risk assessment addresses these studies, the types of glyphosate formulations under review, and the potential for toxicity issues related to use of the less-toxic formulations of glyphosate (Durkin 2011a) (PR 7.C.52)). See the discussion in the EA at page 53. The Post information on glyphosate (submitted by the commenter), offered no new information; the Dinehart article (PR 7.C.38) addressed herbicide formulations that would not be used in our implementation of this project” (EA, page 132 **135**).

The objectors also commented that, “...the record does not indicate that comprehensive surveys for frogs or other amphibians was done in the streams near where the treatments are going to take place” (NO, page 20). However, the BE for RFSS and SVE indicates that “Significant portions of the Forest, including natural areas, openlands and timber stands, have been surveyed many times by Forest wildlife biologists and botanists, IDNR Heritage Staff, numerous researchers from Southern Illinois University and Ball State University (Indiana) over the last 30 years, and especially since the early 1970’s. (PR 5.H.b, page 11). All this survey information, along with other scientific articles (PRs 7.C.36, 7.C.38, 7.C.52, 7.C.53, 7.C.87, 7.C.88, 7.C.183, 7.C.136, and 7.C.224), was used to analyze the potential for glyphosate to leach into the environment and impact amphibians (PR 5.H.b pages 20-21).

Given the design criteria of the project (EA, page 15 **22-24**), which include a criterion that no herbicide will be used in aquatic settings on the Forest that are not approved by the EPA for aquatic use, along with limited applications methods, I find that the PR adequately addresses the Objectors’ concerns.

**ISSUE #7, ILLINOIS NATURAL AREAS PRESERVATION ACT:** “The Illinois Natural Areas Protection Act protects Illinois nature preserves from being altered by human activity. The objectors assert that applying compounds to the environment in substantial amounts that do not

*exist in a natural form, do not exist in nature, constitutes human activity that alters the areas. This is in violation of the purpose and function of the INPA, which is for the “preservation and protection” of natural areas”* (NO, page 20)

**Analysis:** The Objectors claim the project threatens to violate the INAPA because it *“threatens to alter the land through human activity, something the act was passed to prohibit.”* This issue was previously discussed in the response to Issue #2b(10), above. The Objectors also assert that the 23 natural areas *“are the legal equivalent of Illinois nature preserves,”* when in fact this is not the intent of the state law, see, e.g., definitions distinguishing between the purposes and management of these two different areas at 525 ILCS 30/3.10 and 30/3.11. The INAPA clearly distinguishes between the two areas and it is incorrect to say that they are *“legal equivalents.”* Additionally, the Forest manages the natural areas on its lands pursuant to applicable Forest Plan direction and federal law. The agency has neither designated nor dedicated (525 ILCS 30/9) any of these 23 natural areas as *“nature preserves.”*

As noted previously, altering the land through human activity is not prohibited by the INAPA, 525 ILCS 30. Management for protection of natural areas is clearly contemplated, as evident in the *“Rules for Management of Illinois Nature Preserves”* (Title 17 Ill. Admin. Code Part 4000): *“Plant succession control measures may be undertaken as provided in the master plan or management schedule...may allow employment of prescribed burning, mowing, grazing, cutting of shrubs and trees, girdling of trees, hand pulling or cutting of invasive herbaceous species, application of herbicide as specified, and other management practices to alter plant succession”* (Section 4000.425(a)(2)).

The use of herbicides is not only contemplated in the law, it is a tool frequently utilized by the IDNR in its management of state natural areas. From the *Southern Illinois Invasive Species Strike Team 2012 Annual Report*: *“The Nature Conservancy, in partnership with the Illinois Department of Natural Resources, and the USDA Forest Service Northeast Area State and Private Forestry Program developed the Southern Illinois Invasive Species Strike Team (ISST)...to control exotic plants in state parks, state nature preserves and adjacent private lands that serve as pathways onto these properties.”* Natural areas treated by the strike team in 2012 included: Cache River and Gibbons Creek Barrens; nature preserves treated include: Berryville Shale Glade, Brown Barrens, Cave Creek Glade, Cedar Draper Bluff, Chestnut Hills, Collier Glade, Cretaceous Hills, Fern Rocks, Heron Pond-Little Black Slough, Horseshoe Lake, Lusk Creek Canyon, Massac Forest, Ozark Hills, Round Bluff and Spivey’s Valley Glade (PR 7.C. 238-242).

The EA describes that, *“...most natural areas have not been actively managed in ten years or more, leading to the general degradation of their communities. Invasive plant species are encroaching on them; many limestone and sandstone barrens are reverting to forested conditions. This degradation is confirmed by field surveys and reports by IDNR that emphasize these areas require active management to maintain their integrity (IDNR 2008/February and July, 2011).”* The purpose of the project is to restore and protect native ecosystems, especially those found in the natural areas. The effects of the proposed actions on natural areas are detailed in the Botanical Resources section of the EA (EA, pages 37-46 **38-47** and Appendix A). In addition, response to comment 23 also describes the support of the proposed activities by the IDNR and the Illinois Nature Preserves Commission (EA, pages 136-137 **139-141**). See the

response to Issue 2b(10), above.

I conclude that there is no violation of law or regulation pertaining to the INAPA.

**ISSUE #8, CLIMATE CHANGE:** *“This is relevant, as it is important to try and understand how the proliferation of these plants is connected to climate change, and how they are functioning in the ecosystem.”* (NO, page 20)

**Analysis:** This is an issue that was not raised during a designated comment period. It is clear that consideration of climate change influenced the effects analysis of this project. The EA addressed the relationship among climate change, the spread of invasives and Forest health resilience (Appendix C, response to comment 5, page 123 **125-127**). In the response to comment 5, the EA states: *“Acres of land occupied by invasive species are taking away living space from native species and decreasing diversity, thus reducing the resilience of the Forest and reducing its capacity to overcome forest-health stressors, such as those that may be caused by global climate change (Carpenter et al. 2001, Thompson et al. 2009)”*; and *“We must maintain our native ecosystems and habitats in as resilient a condition as possible in the face of global climate change, and the dominance of invasives produces a less-diverse and less-resilient forest-floor plant community (Carpenter et al. 2001, Thompson et al. 2009).”*

I find this issue has been adequately addressed.

**Instructions:**

- 1) In order to enhance understanding of the location of planned project treatments, include the location maps of treatment in the final version of the EA. Key these to the watershed tables in Appendix A, which detail the 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).
- 2) Amend EA Table 6 to include elements from burn plans intended to prevent or reduce the potential for prescribed fire to impact private land and/or residents.
- 3) Ensure that the requirement to implement project design criteria is included in the project decision.
- 4) Include the number of wilderness acres and planned treated wilderness acres in the EA.
- 5) Update the BE with current white-nose syndrome facts and coordinate approval with the U.S. Fish and Wildlife Service.
- 6) Append an addendum to the 2010 Minimum Requirements Decision Guide that clarifies the reduction in acres of invasive species to be treated.

**Conclusion:** I find that the Responsible Official’s rationale for this project is clear and the reasons for the project are logical and consistent with direction in the Forest Plan. As described above, I made a reasonable and appropriate effort to resolve the concerns that were brought forward, while maintaining a balanced approach to managing the lands and meeting the purpose of the project.

By copy of this letter, I am instructing District Ranger Timothy Pohlman to proceed with issuance of a Decision Notice for this project. My instructions will be followed before it is

signed. There will be no further review of this response by any other Forest Service or U.S. Department of Agriculture official as per 36 C.F.R. 218.11(b)(2).

Sincerely,

*/s/ Hurston A. Nicholas*  
HURSTON A. NICHOLAS  
Reviewing Officer  
Forest Supervisor

cc: Timothy Pohlman  
Matthew Lechner  
Ronald W Mulach  
Patricia R Rowell