INVASIVE PLANT SPECIES TREATMENT DECISION NOTICE AND FINDING OF NO SIGNIFICANT IMPACT FOR THE ENVIRONMENTAL ASSESSMENT

DANIEL BOONE NATIONAL FOREST

BATH, CLAY, ESTILL, HARLAN, JACKSON, KNOX, LAUREL, LEE, LESLIE, MCCREARY, MENIFEE, MORGAN, OWSLEY, PERRY, POWELL, PULASKI, ROCKCASTLE, ROWAN, WAYNE, WHITLEY, AND WOLFE COUNTIES, KENTUCKY

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INTRODUCTION
The actions in this proposal are intended to treat a variety of non-native invasive plant (NNIP) species and a small number of native invasive plant (NIP) species. These efforts by the USDA Daniel Boone National Forest (DBNF) would help manage national forest system (NFS) lands by protecting native ecosystems and biodiversity to help restore native plants and animals to our forestlands. The opportunity to control or eliminate known or new populations of invasive plant species would help restore and sustain native ecosystems.

The Chief of the USDA Forest Service identified non-native invasive species, including plants, as one of the four critical threats to ecosystems. Invasive species, including plants, are reported to be the second-most critical threat to conservation of biodiversity (Wilcove et al. 1998). Of particular concern are those NNIPs that are successful at invading natural habitats. Invasive plants species can alter natural ecosystems by displacing native species, inducing changes in water or fire regimes, causing changes in soil characteristics, adding a new or displacing an existing wildlife food source, and altering erosion and sedimentation processes (Westbrooks 1998, p. 57).

About 22% of the plant species that occur in Kentucky are not native (Jones 2005), about the same is found on the DBNF. Not all are considered serious threats or even threats to the ecosystem and not all are addressed in this proposal. In general, invasive plant species is defined here as it is in Executive Order 13122 (EO, 1999): It is not native to the ecosystem under consideration, and; its introduction causes or is likely to cause economic or environmental harm or harm to human health.

The EA documents the analysis of a no action alternative, Alternative 1, and two action alternatives, Alternative 2 and Alternative 3. Pages 1-3 of the July 2016 Environmental Assessment (EA) for this project provides additional discussion of the purpose of and need to control or eradicate non-native invasive plant species. When “EA” is used henceforward, it shall refer to the July 2016 version.

DECISION
I have decided to implement Alternative 2 Proposed Action, as described on pages 4-22 of the EA. Under Alternative 2, the DBNF will control or eradicate prioritized NNIP and NIP species (EA, pp.4-11) with one or more of eight methods (EA, pp. 12-15) using consistency check forms (EA, p. 4; pp. 15-16). Resource specialists on the Interdisciplinary Team (IDT) developed sixty design criteria (EA, pp. 17-20) and maximum limitations of each treatment methods annually. These measures will minimize the impacts of the treatment on soil and water quality, on wildlife species or habitats, and in areas where forest visitors may be present.
My decision to implement Alternative 2 addresses one of the four threats to ecosystems named by the Chief of the Forest Service. My decision meets the intent of 1999 Executive Order 13121 on Invasive Species applicable to this treatment proposal (emphasis added):

Sec. 2. Federal Agency Duties. (a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

(2) (i) Prevent the introduction of invasive species;
(ii) Detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner;
(iii) Monitor invasive species populations accurately and reliably;
(iv) Provide for restoration of native species and habitat conditions in ecosystems that have been invaded;
(v) Conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and
(vi) Promote public education on invasive species and the means to address them;

My decision addresses the southern Regional Framework for NNIP species provides an interdisciplinary framework for strategic management on NFS lands. The goal is to reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of NNIP species across all landscapes and ownerships with the vision of preventing and controlling NNIP through appropriate and successful measures.

In selecting to implement Alternative 2, the DBNF will be addressing a number of forestwide and goals and objectives from the Forest Plan. Forestwide Goal 2.3, to reduce outbreak populations of invasive species, or eradicate isolated infestations of invasive species from becoming established, is a major driving force for the proposed treatments. Forestwide Objective 2.3.C, to reduce the risk of damage from native and non-native invasive species through integrated pest management strategies is best reflected in Alternative 2, which would employ eight tools available for the control or eradication of NNIP and NIP species.

The design criteria developed by the IDT enable these treatments to be implemented in accordance with the requirements. See Intensity item #10 below in the Finding of No Significant Impact for details relating to compliance with legal requirements, Forest Service direction and public expectations. Public involvement for this project, as described, brought forth comments expressing concern about persistent water pollution, the destruction of terrestrial wildlife habitat and threats to human health. While popularity for organic foods free of pesticide or genetic modification is on the rise, public sentiment regarding the use of chemicals is mixed. One commenter provided an in depth list of magazine and blog articles regarding the politics and public perception of the use of herbicides, particularly focused on glyphosate and the Monsanto formulation Round-Up. While some of these sources were reviewed and considered by the IDT, most were not peer-reviewed science, and many expressed opinions. A portion of the sources listed by this commenter related to genetically-modified organisms, and politics
between the US government and the chemical manufacturers. Genetically-modified organisms are outside of the scope of this decision because nothing of the sort is included in any alternative. These opinions have been noted and considered, as well as opinions of others who support multi-tool methods of controlling or eradicating NNIP and NIP species.

I am aware that some areas of the world are prohibiting the use of glyphosate and/or Round-Up. I understand the public concern that there has been use and abuse of this and other pesticides in the history of the United States. The Forest Service, as well as other federal agencies such as the Environmental Protection Agency, has evaluated and considered the potential impacts of chemical treatment through the EPA pesticide evaluation process\(^1\), and the Forest Service Human Health and Ecological Risk Assessments\(^2\), Risk Assessment Worksheets\(^3\). Each chemical included for use in this proposal is approved by the EPA, the Southern Regional Forester, and in compliance with the Forest Plan. Pesticide treatment remains a tool that is more effective in controlling some rhizomatous and vine NNIP species than are non-pesticide methods. Resource specialists on the DBNF routinely keep up to date with scientific studies applicable to the resource management on the Forest. The Forest Service Planning Handbook, FSH 1909.15, (Ch. 10, (sec. 18)) directs us to consider new information pertinent to project that might arise after I, as Responsible Official, make a decision. This consideration must evaluate whether the new information has an impact on the decision already made, and steps to take to incorporate that information into the existing, or at times, a new decision. If new information relating to pesticide use, or other treatment methods, it will be reviewed in light of my decision to implement Alternative 2 of the EA.

Another commenter suggested we add a line item to the flow chart (EA, pp. 15-16) to evaluate whether herbicide is an effective treatment methods for each species considered. Ultimately, the IDT recommended, and I agree that the design of the proposal allows DBNF managers to adapt the treatment using one or more method(s). This will allow us to conduct effective treatment for appropriate species resulting in desired results, i.e., the right tool for the job.

In the early years of the Forest Service over a century ago, the First Chief Gifford Pinchot understood there would be debate over actions taken and methods used to manage conservatively our national forests. He said, *where conflicting interests must be reconciled, the question shall always be answered from the standpoint of the greatest good of the greatest number in the long run.* I know each management action produces results that can be felt for

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1 https://www.epa.gov/pesticide-registration/about-pesticide-registration

2 http://www.fs.fed.us/foresthealth/pesticide/risk.shtml

3 http://www.fs.fed.us/foresthealth/pesticide/worksheets.shtml
years to come. I make this decision with that in mind, to maintain ecosystem health and biodiversity for future generations.

ALTERNATIVES CONSIDERED
In addition to Alternative 2, I considered two other alternatives. A comparison of these three alternatives can be found in the EA on pages 23-26.

Alternative 1 - No Action
Alternative 1 represents the current condition of NFS lands in the DBNF and the baseline to help consider the potential effects of not taking action at this time. Under the No Action alternative, current management plans would continue to guide management of the project area.

Alternative 3 – No Herbicide Alternative
Alternative 3 is identical to Alternative 2 except that no herbicide treatment would be authorized for these treatment projects.

PUBLIC INVOLVEMENT
This project was first listed in the quarterly Schedule of Proposed Actions in 2009. It will appear in each subsequent edition until my decision is made and released to the public. I sent a letter on July 13, 2009, announcing my proposal to treat NNIP and requesting comments about the proposal. I asked the public to consider the proposal, provide comments specific to this proposal, such as those directly related to the activities proposed, and demonstrate that a significant cause-effect relationship exists. Comments received during “scoping” are used by the IDT to help me identify issues, or unresolved conflicts, that the public has with this project. Twenty-four comments were received from 20 individuals and/or organizations. The IDT considered those comments and incorporated new developments in industry and research into a new proposal, which was released to the public with a letter I sent July 17, 2013. Five more comments were received. Comments from the 2009 and 2013 scoping efforts, as well as the Forest’s consideration of those comments are located in the project record.

Each resource specialist on the IDT prepared a resource report to analyze the potential impacts of the proposal within their specialty. On May 2, 2016, I sent a letter announcing the release of the environmental assessment to the contact lists for all the units of the Forest, and anyone who had previously submitted comments or indicated interest in the project. A 30-day comment period was announced with a legal notice published in the Lexington Herald-Leader newspaper in Lexington, Kentucky May 4, 2016. The April 2016 environmental assessment and the resource reports were posted on the DBNF website at the same time. (http://www.fs.usda.gov/projects/dbnf/landmanagement/projects). Three letters from two
commenters were received. The consideration of these comments by the IDT and their responses are located in Appendix E.

**ADMINISTRATIVE REVIEW (36 CFR 218)**

All the information from the resource analysis and public involvement was used to develop a draft Decision Notice and a Draft Finding of No Significant in July 2016. On July 20, 2016, I sent a letter to the DBNF project notification list announcing the opportunity for an administrative review of my draft decision; this project was subject to the pre-decisional objection process pursuant to 36 CFR 218 Subparts A and B. The 45-day objection-filing period was announced with a legal notice in the Lexington Herald-Leader newspaper in Lexington, KY on July 22, 2016.

Objections could be accepted only from those who have previously submitted specific written comments regarding the proposed project during scoping or other designated opportunity for public comment. All objections are available for public inspection during and after the objection process. We received one letter from an individual who had previously submitted comments; his letter indicated he was providing follow up comments to the EA; there was no indication it was an objection. The letter contained none of the requirements to file an objection outlined in 36 CFR 218.8. Because it contained no indication it was an objection, and included vehement language and graphic images, the Objection Reviewing Officer, Regional Forester Tony Tooke, did not accept this letter an objection.

As illustrated by the timeline of the public involvement above, this project has been a long time in the making. I asked the IDT to make careful consideration of the science and your input when designing the proposal and developing design criteria to minimize impacts to the resources under our care. I feel this time was well spent; it ultimately resulted in a draft decision on which no objections were filed. I have spoken with many of you through the years about this and other resource management concerns. While we do not always see eye to eye on each issue, I am pleased that here we have reached a decision to treat NNIP and NIP, and I am grateful for your input along the way.

**FINDING OF NO SIGNIFICANT IMPACT FOR ALTERNATIVE 2**

Based on the information and analysis contained in the environmental assessment and all other information available, I have determined no significant impacts will result from the implementation of Alternative 2 to control or eradicate NNIP and NIP species. The design criteria developed for this proposal incorporated best available science to minimize the impacts on the resources under my management.

In consideration of the analysis documented in the environmental assessment, all other available information, and the reasons below, Alternative 2 will not constitute a major Federal action that will significantly affect the human environment. Therefore, an EIS will not be
prepared. The project analysis was used to determine significance, as defined by regulations regarding the National Environmental Policy Act (NEPA) found at 40 CFR 1508.27. “Significant” as used in NEPA requires consideration of both context and intensity of the expected project effects.

(a) Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. 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. Both short- and long-term effects are relevant.

(b) Intensity. This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:

My finding of no significant impacts is based on the following.

CONTEXT
Each infested area managed for invasive plant species would be done so using one of the treatment methods listed in Table 1 and Table 7 of the July 2016 EA; implementation will be limited to the maximum annual acres described for each alternative, and occur on NFS and/or private lands under agreement as described in the Locations section of the EA.

The scale of the Invasive Plant Species Treatment project is not indicative of significant effects beyond those already considered in the Final Environmental Impact Statement for the Forest Plan (USDA-FS 2004b). Numerous other vegetation management projects have occurred across the Daniel Boone National Forest, including those to control or eradicate NNIP. Weed treatment in the project area will have short-term impacts during treatment activities, and the long-term potential to maintain a broad diversity of native species and habitats by eradicating and controlling NNIP.

INTENSITY
Under Alternative 2, potential adverse impacts will be minimized or eliminated with the addition of design criteria developed by the IDT (See EA Table 5). Control or eradication of NNIP will occur on an annual maximum of 1,950 acres. Some treatment areas might require multiple treatment entries and/or employ multiple treatment methods. A reduction in the spread of NNIP will be a beneficial effect, and treatment will encourage or maintain native species diversity. Short-term adverse impacts from treatment could include localized erosion at a plant removal site, vegetation trampled at treatment sites. Beneficial effects have not been used to compensate or offset possible adverse impacts.
1) Impacts That May Be Beneficial or Adverse
I have determined that evaluation of both beneficial and adverse effects are disclosed in Alternative 2 (40 CFR 1508.27(b)(1)), and find them to be without significant impact.

AQUATIC WILDLIFE RESOURCES
Martin (2016) considered the potential impacts of each alternative to aquatic wildlife resources. This included the consideration of 18 PET species (i.e., 5 fish and 13 mussels), 23 segments of Designated Critical Habitat and 20 segments of Proposed Critical Habitat, 20 Sensitive species (i.e., 1 crustacean, 12 fish, 1 insect, and 6 mussels), and 1 Management Indicator Species assemblage. Presence was assumed for appropriate habitat types within the entire analysis area.

With Alternative 2, aquatic species can be affected by activities that alter water quality or otherwise affect the habitat. Species in river and stream systems could be affected by activities used to remove NNIP such as uprooting, cutting, or interfering with normal physiological functions. Project design criteria, including Forest Plan standards and pre-implementation checks, are expected to minimize impact on aquatic species and associated habitat (Martin 2016, p. 45).

Treatment of NNIP could reduce or eliminate new populations of NNIP, while minimizing treatment impacts to aquatic resources. Herbicide treatment per year will not exceed 960 acres across the forest and adjacent lands as part of this project (< 0.2 percentage of NFS acres on DBNF). Most of this work will be in small areas. With design criteria in place, cumulative effects from this treatment method would be expected to be negligible, but positive or neutral in nature, both long term and short term (Martin 2016, pp. 46-52).

BOTANICAL RESOURCES
As with all biological resources, not every location for rare plants is known. Field assessment (i.e., consistency checks) in preparation for a treatment will provide information to adjust project design criteria within the scope of the environmental assessment as needed to conserve aquatic and riparian/riverine; terrestrial; cliff, outcrop, rockshelter; and bog, streamhead, seep, wet soil plants and habitats.

Activities included in Alternative 2 are designed to kill or control plants, specifically plants that are identified as invasive species. Because activities that will kill or control these plants also have the potential to kill or control rare plants (see Taylor 2016 for rare plant species), project activities are designed and adjusted to accomplish removal or control of NNIP while not causing harm to rare species or associated habitat (Taylor 2016, p. 55). Because plants are stationary, only spray drift and run off associated with herbicide use and change in cover for 2-3 tree lengths (approximately 70-300 feet), is expected to have an effect, if any, outside the
immediate area of any rare terrestrial, cliff, ledge, outcrop, rockhouse, bog, streamhead seep, swamp, wetland or wet soil plants (Taylor 2016, pp. 7-8).

Removal of invasive species is expected to reduce competition for and provide better growing conditions for any rare species present in the area. Potential harm from manual treatments could come to rare species from plants being dug, cut or pulled, and trampling during travel to, and working in, the site. Rare plants and their habitat could be affected by conditions that are more open and less competition following treatment activities. Design criteria will be implemented to identify any rare species in the identified treatment area prior to treatment so they could be avoided or otherwise protected. Appropriate tools will be chosen to provide as much precision in removal of invasive plants as possible where rare plants might be disturbed. Rare plants are not expected to be harmed by removal actions. Positive or neutral effects to rare plants and rare plant habitat are expected (Taylor 2016, p. 54).

CULTURAL RESOURCES
Under Alternative 2, cultural resources have the potential to be impacted by Project activities that create new ground disturbance. However, not all Project activities have equal potential to impact cultural resources because in many cases there would be little or no ground disturbance. In those cases where the invasive species are found in heavily disturbed areas, such as abandoned mine lands or the margins along roads and trails, the potential for finding significant sites is considered rather minimal. Implementation of the design criteria will protect sites through avoidance. Since any site that could be negatively impacted by project activities will be either mitigated or avoided during Project activities, there will be no adverse impacts to cultural resources (Adams 2015, p. 12).

HUMAN HEALTH AND ECOLOGICAL RISK
A risk assessment was prepared to examine the potential health effects of pesticides (Sitzlar and Taylor 2015). The process of risk assessment is used to evaluate the probability (i.e., risk) pesticide use might harm humans or other species in the environment. It is the same assessment process used for regulation of allowable residues of pesticides in food, as well as safety evaluations of medicines, cosmetics, and other chemicals (Sitzlar and Taylor 2015, p. 1). The output of this risk assessment is a series of Hazard Quotients (HQ) for human health and for ecological resources, including accidental exposure and other extreme situations that are highly unlikely occurrences within treatment areas. A hazard quotient less than 1 is considered safe for the scenario presented. Hazard quotients greater than one indicate risk of toxicity or environment harm is present for the scenario presented. Herbicides may be applied under presented scenarios even if the HQ is greater than one if the risk or toxicity can be mitigated. The use of pesticide included with Alternative 2 is not expected to impact human health (Sitzlar and Taylor 2015) due to the design criteria developed to protect human and natural resources during pesticide application.
In the FEIS for the Forest Plan (USDA-FS 2004b, p. 3-134), “... a healthy forest ecosystem would have the following characteristics (Kolb 1994, p.10-15):

- The physical environment, biotic resources, and trophic networks to support productive (based on management goals and objectives) forests during at least some seral stages
- Resistance to catastrophic change and/or the ability to recover from catastrophic change at the landscape level
- A functional equilibrium between supply and demand of essential resources (water, nutrients, light, growing space) for major portions of the vegetation; and
- A diversity of seral stages and stand structures that provide habitat for many native species and all essential ecosystem processes.”

Invasive plants species can change natural ecosystems, including displacing native species, inducing changes in water or fire regimes, causing changes in soil characteristics, adding a new or displacing an existing wildlife food source, and altering erosion and sedimentation processes (Westbrooks 1998, p. 57). Therefore, a beneficial impact of treating invasive species would be to promote a healthy forest, which would also benefit recreation opportunities on the forest.

**TERRESTRIAL WILDLIFE RESOURCES**

A wildlife biologist evaluated potential impacts to terrestrial wildlife resources. This included the consideration of four terrestrial PET species, 15 terrestrial Sensitive species, 23 Conservation Species and 15 Management Indicator Species; presence was assumed for appropriate habitat types within the entire analysis area (Kilpatrick 2016).

Treating invasive species would cause a reduction in NNIP, which may alter habitat. Some birds and mammals eat berries from autumn olive and other invasive species. Some birds may nest in shrubby invasive species. Some reptiles may use shrubby invasive species to forage for nesting birds or small mammals. Removing infestations of non-native species could cause a change in understory or midstory composition, thus altering microhabitats of wildlife species, especially shrub nesting birds, basking reptiles, invertebrates, and soil moisture dependent amphibians. The treatment areas are small in scale compared to the landscape of the DBNF. Therefore, reductions in invasive species would not reduce the overall availability of nesting / foraging habitat overall on the Daniel Boone National Forest. In fact, reduction of invasive species can help restore native habitat, thus increasing habitat availability (Kilpatrick 2016, p. 28).

Non-target vegetation removal will be minimal and limited to ingress /egress areas and therefore not contribute to a net loss of suitable habitat availability across the project area. Suitable nesting and foraging habitat will continue to occur within and adjacent to treatment areas and across the landscape. Onsite treatment for each activity will be temporary in nature and not lead to a net loss of species viability or population decline. Removal of invasive species
and the resultant native habitat improvement and lack of competition should have a net positive effect on wildlife resources. Design criteria incorporated into this project will protect individuals from being impacted and avoid suitable habitat for PETS and Conservation Species. The design project includes a pre-implementation consistency check for wildlife resources. If the prescribed treatment method at any individual treatment site were inconsistent with the analysis, then no action would be taken to treat invasive species at that particular location. Design criteria were developed for each method to reduce impacts to terrestrial wildlife species (Kilpatrick 2016, p. 28).

The application of herbicides will sometimes be used in conjunction with other treatment methods. Herbicide treatments could affect wildlife through direct ingestion of herbicide, direct contact, ingestion of treated prey / food, or indirect contact with herbicide accumulated in the environment. Several of the scenarios initially result in HQs that exceed 1.0. This does not mean that unacceptable impacts exist or the action should not occur. The results from the spreadsheet assessments were interpreted and project design criteria and protective measures were developed to minimize impacts. The result of this interpretation is that the use of these herbicides as proposed is within the acceptable range of risk to human health and ecological resources (Kilpatrick 2016, pp. 31-32).

**SOILS AND WATER RESOURCES**

Weed torch and the application of barriers is unlikely to have any effect on soil and water resources because no soil disturbance is involved (Cotton and Walker 2015, p. 15). Manual weed pulling and biological treatments such as grazing would have minimal effects due to the annual maximum spatial extent treated. There could be some localized erosion from removing invasive plants but each of these methods would affect less than 0.0071% of the Forest on an annual basis (Cotton and Walker 2015, pp. 15-16). Mechanical treatment and controlled fire could affect soil and water quality by increasing the erosion potential, which could then increase sedimentation. When burning a steep slope, there would be the possibility that the fire could get too hot and burn off the protective litter layer, which would cause exposed mineral soil (Cotton and Walker 2015, p. 17).

An increase in erosion potential or sediment delivery should not occur with the use of herbicides because in most cases, herbicides would be directly applied to the target plants using spot treatment. A change in the quality and effectiveness of the native riparian communities could potentially occur with the use of herbicide. Implementing Alternative 2 will reduce or control the spread of NNIP in riparian zones. This will improve the filtering capacity of this area by allowing a more diverse and in some cases, denser native plant community to grow. Therefore, this could reduce localized erosion under non-native monocultures in the riparian zone (Cotton and Walker 2015, pp. 18-19).
Considering the standards on pages 2-24 through 2-26 of the DBNF Forest Plan, the project design criteria, and the information outlined in the Herbicide Risk Assessment, there should be negligible effects from herbicide use on soil or water quality in the project area. Design criteria should reduce herbicide movement and persistence in the soil, as well as the potential for the herbicide to reach water. With less than 0.2 percent of the DBNF being treated with herbicide on an annual basis the spatial extent would be limited (Cotton and Walker 2015, p. 27).

2) Degree to Which the Proposed Action Affects Public Health or Safety

Alternative 2 will not significantly affect public health or safety (40 CFR 1508.27(b)(2)).

_HUMAN HEALTH AND RISK ASSESSMENT_

A risk assessment was prepared to examine the potential health effects of pesticides and evaluate the probability (i.e., risk) herbicide use might harm humans or other flora and fauna (Sitzlar and Taylor 2015).

Under Alternative 2, several of the risk assessment scenarios result in HQs that exceed 1.0. This does not mean that unacceptable impacts exist or the action should not occur. The results from the spreadsheet assessments were interpreted and project design criteria and protective measures taken into consideration. The result of this interpretation is that the use of these herbicides as proposed are within the range of acceptable risk to human health and ecological resources. Hazard Quotients for accidental scenarios, while they provide additional information, are theoretical and provided a means to develop project implementation criteria designed to minimize the potential of an accident occurring. This includes notifying the public of herbicide treatment by posting signs excluding entry from the area for a minimum of 30 days, or longer if required by the herbicide label. Interpretations of the HQs are summarized in Sitzlar and Taylor 2015, located in the project record.

3) Unique Characteristics of the Geographic Area Such As Proximity to Historic or Cultural Resources, Parklands, Prime Farmlands, Wetlands, Wild and Scenic Rivers, or Ecologically Critical Areas

Alternative 2 will not significantly affect any unique characteristics of the geographic area (40 CFR 1508.27(b)(3)). None of the following unique areas is found within the Invasive Plant Species Treatment Project area:

- Inventoried Roadless Areas;
- Unroaded and Undeveloped Areas;
- Prime Farmlands, Rangelands, and Forestlands
The following are found in or adjacent to the project area:

- **Municipal Watersheds:** There are municipal watersheds located within the project area. No herbicide treatment would occur in Zone 1 of the Source Water Protection Area. Local water districts would be notified when using herbicides within Zones 2 or Zone 3 of the Source Water prescription areas. Other methods would be available for use in all three zones.

- **National Park and Recreation Area:** The Kentucky portion of the Big South Fork National Park and Recreation Area is located within the proclamation boundary of the DBNF, but is under the management of the USDI Park Service. While the Park Service might wish to work cooperatively to treat NNIP on adjacent lands, they are subject to a separate NEPA process and regulations of the USDI.

- **Research Natural Areas:** The Rock Creek Research Natural Area and Tight Hollow and Right Fork Elisha Creek Proposed Research Natural Areas are located within the analysis area, and may be subject to treatment because of their Priority A status (Table 2). Forest Plan prescription area standard 1.1-A-VEG-2 requires any silvicultural activities must conform to the Research Natural Area plan. Any fire control line would be designed and maintained as directed by the research natural area management plan and would not require any additional design criteria or mitigations (Forest Plan Standard 1.1-A-FIRE-1, pp. 3-4).

- **Wild and Scenic Rivers:** Treatment activities would be expected to control invasive species and maintain a diversity of flora and natural succession to perpetuate the outstandingly remarkable values (Forest Plan 3.C.1-Goal 2, Standards 3.C.2-VEG-1, 3.C.3-VEG-1, 3.C.4-VEG-1, 3.C.5-VEG.1, pp. 3-55 to 3-66). Although some of the wild and scenic rivers that intersect the project area are proposed, prescription parameters for implementing controlled burning or other silvicultural activities to control or eradicate NNIP in areas that intersect the wild and scenic river corridors would reflect the need to protect the outstanding remarkable values.

- **Wildernesses:** Beaver Creek Wilderness and Clifty Wilderness are located within the project area. However, no treatment is proposed for either wilderness under this proposal.

**CULTURAL RESOURCES**

Forest Service Policy (FSM 2361.3) requires that projects with the potential to affect cultural resources be surveyed for cultural resources to comply with: a) 36 CFR § 800 – Protection of Historic Properties; b) Section 106 of the National Historic Preservation Act of 1966, as amended; c) the Archaeological Resources Protection Act of 1979; d) the National
Environmental Policy Act; e) the Native American Graves Protection and Repatriation Act (1990) and f) the American Indian Religious Freedom Act of 1978. There would be no adverse effects from the proposed action with regard to these laws (Adams 2015, p. 12).

4) Degree to Which the Effects on the Quality of the Human Environment Are Likely To Be Highly Controversial

Alternative 2 does not involve effects to the quality of the human environment that are likely to be highly controversial (40 CFR 1508.27(b)(4)). The control or eradication of NNIP occurs on public and private lands. Various control methods proposed in this project are included in other project decisions already being implemented to address invasive species and other resource management (e.g., manual and mechanical control, controlled burning, and pesticide use). Some people disagree with the use of herbicides on public lands. Others support the use of herbicide as a management tool. A sample of the comments received include:

- The persistent water pollution, terrestrial wildlife habitat destruction and threat to human health and environmental safety posed by the forest-wide use of herbicides is too great to be justified (Comment Letter 5)
- I am very glad to see the array of eight treatment options, including fire and herbicide. Each of these has its appropriate role, time, and place (Comment Letter 8)

The adverse effects from this project on the quality of the human environment are expected to be short-term, and would exclude certain areas from recreation (i.e., warning signs would be posted for herbicide treatment to exclude entry for the applicable time). The resulting condition from treatment should be to maintain species and habitat diversity on the DBNF, which add to the recreational experience. Long-terms impacts include the maintenance of ecosystem composition and function.

5) Degree to Which the Possible Effects on the Human Environment Are Highly Uncertain or Involve Unique or Unknown Risks

Alternative 2 will not impose highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)). The impacts from controlling and eradicating NNIP can be predicted and have been disclosed in this environmental assessment. The Forest Service has extensive experience in the use of the eight treatment methods as tools to manipulate vegetation. Pre-implementation field checks would help to verify the ground conditions under which the resource specialists based their analysis; when conditions are within those described in this environmental assessment, prescriptions would be written to control or eradicate NNIP.

6) Degree to Which the Action May Establish a Precedent for Future Actions with Significant Effects or Represents a Decision in Principle about a Future Consideration

Alternative 2 will not establish a precedent for future actions with significant effects and does not represent a decision in principle about future consideration (40 CFR 1508.27(b)(6)).
Activities proposed in this project are site-specific to this project and would not set any precedents.

7) Whether the Action is related to Other Actions with Individually Insignificant but Cumulatively Significant Impacts

Alternative 2 is not related to other actions with individually insignificant but cumulative significant impacts (40 CFR 1508.27(b)(7)). Activities that could occur within the project area include road and trail maintenance, timber harvest, controlled fire, wildfire, wildlife habitat creation and maintenance, and oil and gas and utility development and maintenance. Of these, only controlled fire is not likely to occur on adjacent private lands (Martin, p. 24; Kilpatrick 2016, p. 27; Taylor 2016, p. 65).

The IDT designed the proposed action so that site-specific adverse cumulative effects to sensitive resources would be unlikely. Long-term impacts would be positive as a diversity of habitat conditions would be maintained or expand. The proposed action would protect the Invasive Plant Species Treatment Project area watershed, plants, wildlife, aquatic species, and other sensitive resources.

The cumulative effects from past, present, and reasonably foreseeable future forest actions on resources managed by the DBNF were considered in this document and in the following reports: the terrestrial and aquatic wildlife resource reports; botanical resource report; soil and water resource report; heritage resource report; human health risk assessment; and the project biological assessment and evaluation. These resource reports are incorporated by reference and summarized below. Based on the work completed during the planning process and the way in which the project is designed (i.e., consistency check forms and adaptive management by species and location), resources in the analysis area are expected to be protected during implementation and improved and sustained in the long term. Project design criteria are listed in Table 5.

AQUATIC WILDLIFE RESOURCES

Measures are in place for other NFS projects to minimize the spread of non-native invasive species while implementing these projects. However, without treating current infestations, non-native plants will continue to thrive and disperse on the Forest competing with native plants for space and nutrients.

Considering the treatment time of year, duration and frequency under Alternative 2, this action will not be detrimental to connectivity for spawning, foraging and resting sites. Therefore, it is reasonably foreseeable that this alternative will not have a negative cumulative effect on normal behavior, growth and survival of aquatic fauna over the long term. If a PET or Sensitive species were identified during the pre-implementation consistency check, it would be avoided.
BOTANICAL RESOURCES
Relative to rare plant species, cumulative effects would be expected in two general forms: 1) those effects which tend to maintain the status quo or promote the rare species, and or rare species habitat and 2) those that tend to reduce or eliminate rare species or rare species habitat.

All of cumulative effects actions described in paragraph one of this section have the potential to harm rare plant species or their habitat. Best management practices for these kinds of activities would greatly reduce the likelihood of invasive plant establishment in the disturbed zones, but invasive plants could become established in the disturbed areas. Any treatment of NNIP under the current proposed project would protect or avoid rare plants in these areas. Treatment of NNIP under the current proposed project could reduce or eliminate any new populations of NNIP. With design criteria in place, cumulative effects from this treatment method would be expected to be negligible, but positive or neutral in nature, both long term and short term (Taylor 2016, pp. 67-154).

CULTURAL RESOURCES
All significant cultural resources found because of previous surveys or surveys to be conducted prior to implementation will be either avoided or mitigated according to plans developed in accordance with the Kentucky State Historic Preservation Office and consulting tribes in the Memorandum of Agreement (USDA-FS 2015). Other future activities in the area would require site inventory prior to implementation, and appropriate mitigation measures to be implemented to avoid or minimize adverse effects to National Register eligible sites. Therefore, there effects on cultural resources would be negligible or entirely absent (Adams 2015 pp. 12-13).

SOIL AND WATER RESOURCES
Because negligible direct/indirect effects are expected from Alternative 2 and Alternative 2, there are negligible cumulative effects (Cotton and Walker 2015, p. 27, p. 28).

TERRESTRIAL WILDLIFE RESOURCES
Road and trail maintenance, timber harvest, controlled fire, wildfire, oil, gas, and utility development may each independently cause effects to individual wildlife and may alter habitat. The Forest Plan has standards that are reflected in the Biological Opinion prepared by the USDI Fish and Wildlife Service (FWS), which are applied to all projects on the DBNF. The standards are designed to protect wildlife resources during project activities while reducing the potential impacts of those actions on individuals and habitat. The cumulative effects that would result from the treatment of invasive species would be negligible when considering the potential impacts from future activities. As a result and considering the continued availability of suitable habitat, implementation of this alternative would not measurably contribute to any other past,
current or reasonably foreseeable future activity that would result in long-term adverse effects to this species (Kilpatrick 2016, p. 51).

8) **Degree to Which the Action May Adversely Affect Districts, Sites, Highways, Structures, or Objects Listed in or Eligible for Listing in the National Register of Historic Places or May Cause Loss or Destruction of Significant Scientific, Cultural, or Historical Resources**

Alternative 2 does not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or cause loss or destruction of significant, cultural, or historic resources (40 CFR 1508.27(b)(8)). There will be no adverse effects from the proposed action with regard to these laws (Adams 2015, p. 12). Treatment actions that do not include ground disturbance will not disturb cultural resources. Treatment actions that will occur in a previously disturbed area (e.g., abandoned mine lands) are unlikely to uncover new cultural resources. In areas where ground disturbance will occur, a cultural resource survey will also occur prior to implementation. If significant cultural resources were found, they will either be avoided or mitigated according to the Memorandum of Agreement for the Project (Adams, p. 12).

9) **Degree to Which the Action May Adversely Affect an Endangered or Threatened Species or its Habitat Determined to be Critical under the Endangered Species Act of 1973**

In a letter dated February 18, 2016, the U.S. Fish and Wildlife Service, Kentucky Field Office identified 27 federally listed species as potentially occurring on or adjacent to the Daniel Boone National Forest (USDI-FWS 2016a). Forest Service Biologists completed a Biological Assessment considering those species, and consulted with the FWS pursuant to Section 7 of the Endangered Species Act. The Biological Assessment contains determinations the proposed actions are “not likely to adversely affect” 24 of the 27 listed species. Of the eight treatment methods to be used in implementation of Alternative 2, seven are “not likely to adversely affect” northern long-eared and Indiana bats. The FWS agreed that formal consultation is not necessary for the proposed threatened Kentucky arrow darter and its 23 designated critical habitat units. Additionally;

> We further concur with the determination that controlled fire is “likely to adversely affect” the Indiana bat and [northern long-eared bat]; however, the effects of controlled fire on these species are consistent with previous programmatic biological opinions referenced above (Andrews 2016, p. 9).

This project will be consistent with the formal consultation FWS 2007-B-0580, which includes 50,000 acres of annual incidental take for the Indiana bat from prescribed burning; this project would use less than 360 acres of incidental take annually. The FWS also concurs with the determination for northern long-eared bats that, “... no effects beyond those previously
disclosed in the [US Fish and Wildlife] Service’s January 5, 2016 programmatic biological opinion for the final 4(d) rule dated January 5, 2016 (FWS Log# 03E00000-2016-F-0001). Any taking that may occur incidental to this project is not prohibited under the final 4(d) rule (50 CFR §17.40(o))” (Andrews 2016, p. 9).

Given the consideration by Forest Service Biologists and the FWS, the degree to which the proposed action of prescribed burning will adversely affect an endangered or threatened bat species or its habitat is not expected to be significant. During the analysis process, the IDT developed 60 design criteria to minimize the potential impacts of the proposed action. Approximately 20% of those design criteria were developed specifically to protect threatened and endangered species and critical habitats. Individual resource reports were prepared to address terrestrial wildlife, aquatic wildlife, and botanical resources, including those listed under the Endangered Species Act (Kilpatrick 2016, Martin 2016, Taylor 2016), and the potential effects to listed species are disclosed therein.

10) Whether the Action Threatens a Violation of Federal, State, or Local Law or Other Requirements Imposed for Protection of the Environment

Alternative 2 does not threaten a violation of Federal, State or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)).

Clean Water Act: This project complies with the Clean Water Act. Based on the analysis, the Invasive Plant Species Treatment Project is consistent with Forest Plan direction for hydrologic resources (Walker and Cotton 2015, p. 11).

Endangered Species Act: (See the description for 9) - Degree to Which the Action May Adversely Affect an Endangered or Threatened Species or its Habitat Determined to be Critical under the Endangered Species Act of 1973 above.

Environmental Justice in Minority Populations and Low-Income Populations (Executive Order 12898): The treatment of NNIP would occur where NNIP or NIP identified in Table 2 occur, and not due to the proximity to minority or low-income populations. This project would be compliant with Executive Order 12898, Federal Action to Address Environmental Justice in Minority Population and Low-Income Populations.

Floodplains (Executive Order 11988): Numerous floodplains exist throughout the project area, but these areas should not be adversely affected. Many of the design criteria, herbicide application instructions, and DBNF LRMP standards are designed to protect the function and values of floodplains.

Herbicide Labels: Every label for an EPA-approved herbicide includes specific directions for application targets, timing, and formulation (Sitzlar and Taylor 2015, p. 5).
**Invasive Species (Executive Order 13112):** The purpose of the eight treatment methods proposed to control or eradicate NNIP would be compliant with Executive Order 13112, which requires the consideration of invasive species in actions taken by Federal agencies. The entirety of this project is invasive species management.

**Municipal Watersheds:** There are 18 municipal water intakes within or near the DBNF Proclamation Boundary. In this document and in the Forest Plan, these areas are referred to as Source Water Protection areas. These areas were created to protect municipal drinking water and were developed in close cooperation with the Kentucky Division of Water. Through the standards in the Forest Plan and Design Criteria 30 - 40 in this document, drinking water would be protected.

**National Forest Management Act (Forest Plan consistency):** Based on the analysis, the proposed actions and associated design criteria are consistent with Forest Plan direction for NNIP treatment. The project would comply with the National Forest Management Act requirements relating the maintaining viable populations of native and desirable non-native vertebrate wildlife species and conserve all listed threatened or endangered species populations (Kilpatrick 2016 pp. 22-23; Martin 2016, pp. 41-42; Taylor 2016, pp. 52-53).

**National Historic Preservation Act; Archaeological Resources Protection Act; Native American Graves Protection and Repatriation Act; American Indian Treaty Rights:** See the description for 8) Degree to Which the Action May Adversely Affect Districts, Sites, Highways, Structures, or Objects Listed in or Eligible for Listing in the National Register of Historic Places or May Cause Loss or Destruction of Significant Scientific, Cultural, or Historical Resources above.

**Wetlands (Executive Order 11990):** No treatment of wetlands would occur unless using an herbicide approved for water application. Wetlands have been considered in Cotton and Walker 2015, Sitzlar and Taylor 2015, Taylor 2016, Kilpatrick 2016, and Martin 2016. The intent of Executive Order 11990 would be met.

**Wildlife, Botanical, and Fish Resources:** A diversity of terrestrial and aquatic wildlife and plants will be maintained; the proposed action is consistent with the following direction related to wildlife: (1) Forest Plan direction (USDA-FS 2004a), (2) 36 CFR 219.19 (1982 Planning Rule) requirements to manage fish and wildlife habitat to maintain viable plant and animal populations of all native and desired non-native wildlife species and conserve all listed threatened and endangered species, (3) Endangered Species Act requirements to manage for the recovery of species and the ecosystems they depend on, (4) the Migratory Bird Treaty Act, and (5) Forest Service Manual direction to prevent adverse modifications or effects to threatened, endangered, and sensitive plants and animals (Forest Service Manual 2670, 2670.31 (6), (2670.32)) and to manage fish and wildlife habitat (Forest Service Manual 2630).
Sensitive Species (Forest Service Manual 2670); This Manual direction requires analysis of potential impacts to sensitive species, those species for which the Regional Forester has identified population viability concern. Potential effects of this action on sensitive species have been analyzed and documented in a Biological Evaluation located in the project record.

National Environmental Policy Act - This Act requires opportunity for public involvement and consideration and disclosure of potential environmental effects. The entirety of documentation for this decision supports compliance with this Act.

IMPLEMENTATION DATE
The objection-filing period closed in early September 2016; no objections were received. Following my signature on this Decision Notice, implementation may begin immediately.

CONTACT PERSON
For further information on this decision, contact Forest Botanist and Project Lead David Taylor at (859) 745-3167 or email dtaylor02@fs.fed.us.

/s/ Bill Lorenz 10/5/2016
BILL LORENZ Date
Forest Supervisor

Attachment (1) – Description of Alternative 2 actions and associated design criteria
Sensitive Species (Forest Service Manual 2670): This Manual direction requires analysis of potential impacts to sensitive species, those species for which the Regional Forester has identified population viability concern. Potential effects of this action on sensitive species have been analyzed and documented in a Biological Evaluation located in the project record.

National Environmental Policy Act - This Act requires opportunity for public involvement and consideration and disclosure of potential environmental effects. The entirety of documentation for this decision supports compliance with this Act.

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Bill Lorenz
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