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Service



Environmental Assessment

Hunters Creek Road Right-of-Way Conveyance

Hoosier National Forest Brownstown Ranger District

Lawrence and Monroe Counties, Indiana

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Chapter 1 - Purpose and Need

1.1 Introduction

The Hoosier National Forest (the Hoosier) is proposing to convey right-of-way easements to Lawrence and Monroe Counties to authorize widening and realigning those portions of the existing county-owned Hunters Creek Road that cross National Forest System land.

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant laws and regulations. This EA discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and the no action alternative. The document is organized into four chapters with appendices:

- *Purpose and Need:* This chapter includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- *Alternatives:* This chapter describes the No Action Alternative and the Action Alternative, which are analyzed in detail in Chapter 3. This chapter also includes design measures that would be used in implementing the action alternative.
- *Environmental Effects:* This chapter describes the environmental effects of implementing the Proposed Action and the No Action Alternatives. This analysis is organized by resource area. Within each section, the affected environment is described first, followed by the effects of the Proposed Action, as well as the effects of the No Action Alternative.
- *Consultation and Coordination:* This chapter provides a list of preparers and agencies consulted during the development of the EA.
- *Appendices:* The appendices provide more information to support the analyses presented in the EA.

Additional documentation, including detailed analyses of project-area resources, may be found in the project planning record located at the Hoosier National Forest Supervisor's Office in Bedford, Indiana.

1.2 Background Information

Hunters Creek Road is located between State Road 446 and Tower Ridge Road. Approximately 0.4 mile of the proposed project is located within Lawrence County. The remaining 3.9 miles are located within Monroe County. Approximately 2.9 miles of the road are located on or adjacent to National Forest System (NFS) land.

Lawrence and Monroe Counties have jurisdiction for Hunters Creek Road. As the lead for the Hunters Creek Road project, Monroe County contracted American Structurepoint to analyze the overall effects of the road construction project. In a separate Indiana Department of Transportation (INDOT) Categorical Exclusion (CE) document (INDOT 2014), environmental effects from the road construction itself, which included both private and NFS lands, were analyzed and disclosed. This Environmental Assessment analyzes the effects of the conveyance of the right-of-way.

As stated in the INDOT CE document, the need for the project is based on safety concerns and a failure of the road, in its current state, to meet INDOT standards. Specifically, INDOT's CE states the needs as "substandard geometrics on Hunters Creek Road which includes substantial vehicle serviceability concerns, stopping sight distance which fails to meet INDOT

criteria, and undesirable vertical and horizontal alignment at multiple locations. Existing roadway width is inadequate to maintain two-way traffic, and lacks suitable roadside shoulders and clear zone. Horizontal alignment along Hunters Creek Road is winding in nature with many sharp curves. There are also abrupt reversals in alignment including compound curves, reverse curves, and S-curves (INDOT 2014).”

Lawrence and Monroe County requested right-of-way easements from the Hoosier National Forest to accommodate the redesign and realignment of Hunters Creek Road.

1.3 Purpose and Need for the Proposed Action

The need for this project is to provide Lawrence and Monroe County with the authorized right-of-way on National Forest System lands necessary to redesign and realign Hunters Creek Road. The current road is very narrow and contains numerous hazardous curves (see Figure 1). The current road is used by local residents and receives substantial use by visitors to the Hoosier, including those using the adjacent Charles C. Deam Wilderness (see Figures 2 and 3).

Figure 1: Example of hazardous curve.



Figure 2: Example of difficult passing on Hunters Creek Road.



Figure 3: Example of the narrowness of Hunters Creek Road.



Both county highway departments and the Hoosier recognize the safety issues associated with the road due its current alignment and width. The proposed road improvements require the conveyance of a right-of-way easement from the Forest Service to proceed on the sections of road located on or adjacent to NFS land.

1.3.1 Forest Plan Direction

The 2006 Hoosier National Forest Land and Resource Management Plan (*Forest Plan*) (USDA FS 2006) meets the requirements of the National Forest Management Act of 1976 and represents forest level planning. The *Forest Plan* provides direction at the forest level and describes future resource conditions that we intend to attain. This plan also provides direction Forest-wide and at the management area level in the form of desired conditions, standards, and guidelines. The *Forest Plan* contains eight broad goals that the Hoosier will work to achieve

during the planning period. A *Forest Plan* goal that is applicable to this site-specific analysis includes “Provide a Usable Landbase.”

This project incorporates direction from the *Forest Plan* and represents site-specific, project-level planning necessary to implement *Forest Plan* and higher levels of planning. The right-of-way conveyance would implement portions of the *Forest Plan* by providing a usable landbase; specifically, access rights. The *Forest Plan* states, “Consider on an individual basis requests for easements or special-use permits for new or improved road access across NFS land by State or local units of government, private landowners, or other interests” (USDA FS 2006).

The *Forest Plan* divided the Hoosier into various management areas. Activities proposed in this project would take place in Management Area 5.1 (north and west of Hunters Creek Rd.) and 6.4 (south and east of Hunters Creek Rd.). Management Area 5.1 guidance directs that the 100-foot set-back from Hunters Creek Road be managed under Management Area 6.2 guidance, as this land is not part of the Congressionally designated Wilderness area as identified in the legal description for the Charles C. Deam Wilderness. Monroe County has determined the current condition of Hunters Creek Road is substandard and fails to meet INDOT criteria and must be corrected by reconstruction. The desired condition for Management Areas 6.2 and 6.4 as described in the *Forest Plan* emphasizes the forest is generally accessible...from county or state roads around the perimeter of these areas.

1.4 Proposed Action

The Hoosier National Forest is proposing to convey right-of-way easements to Lawrence and Monroe Counties on the 2.9 miles of Hunters Creek Road that are on or adjacent to NFS land to facilitate reconstruction. The additional 1.4 miles of the road are located entirely on private land and are outside of Forest Service control and authority. Thus, any effects to private land are discussed as a connected action throughout this document, often referring to the INDOT CE document (INDOT 2014).

The actual width of the authorized right-of-way would vary from segment to segment within the road corridor, but would generally average 70 feet and would not exceed 100 feet in width. Vegetation within the right-of-way would be cleared. The proposed roadway centerline would generally follow one of the edges of the existing roadway. The roadway widening would therefore typically occur on only one side of the corridor, minimizing disturbance to forested areas (INDOT 2014).

The overall road reconstruction project facilitated by the Monroe County Highway Department would occur in multiple phases, depending on funding, with an estimated completion time of 3 to 8 years. The right-of-way conveyance of NFS land would occur before the project begins. The subsequent vegetation clearing would be phased with the road reconstruction.

Separate permits or permit amendments would authorize any utility line relocation associated with the road realignment. Any potential effects associated with utility (i.e., water, electric, and telephone/fiber) location would be consistent with the effects of the road construction considered within this EA, so long as it is confined within the construction limits. Any utility relocation outside of the construction limits would require separate analysis.

1.5 Project Location

The project is located along Hunters Creek Road in Monroe and Lawrence Counties, Indiana. The legal descriptions for the project area include:

- T7N, R2E, Sections 20, 29, 31, 32 (Monroe Co.)
- T7N, R1E, Section 36 (Monroe Co.)
- T6N, R1E, Section 1 (Lawrence Co.)

For maps of the project area, see Appendix A.

1.6 Decision to be Made

Based on the environmental analysis, including the entire project record, the Forest Supervisor will decide whether to implement the Proposed Action or the No Action alternative. If the Forest Supervisor selects the action alternative, he will determine which mitigation and monitoring requirements are appropriate to include. A decision on this proposal will not determine the decision on future projects, even those that may be similar in nature.

1.7 Public Involvement

On July 10, 2014, the Hoosier mailed a scoping letter (USDA FS 2014) for this proposal to 15 landowners of Hunters Creek Road and requested comments on the proposal. We also made the scoping letter and project maps available electronically on our website. The Hoosier also published project information in the Schedule of Proposed Actions (SOPA), which lists project and contact information. The Hoosier's SOPA, found at <http://www.fs.fed.us/sopa/forest-level.php?110912>, included this proposal in the July and October 2014 issues and the January 2015 issue.

We received seven responses. All comment letters are in the project record at the Hoosier National Forest Supervisor's Office in Bedford, Indiana.

Appendix B includes a detailed description of the public involvement process followed for this proposal.

1.8 Issues

At the end of the scoping period, the interdisciplinary (ID) team reviewed the comments. To be considered an issue, a comment is required to meet the definition of an issue - a disagreement with an action of a proposal based on an anticipated effect of the proposed action.

Many of the commenters are residents living near Hunters Creek Road and oppose the proposed project. The respondents do not want any changes to the area. The majority of comments focused on the County's proposed action and discussed a general disagreement with the purpose and need of the overall project. Few comments focused on the Hoosier's proposed action, which is to convey right-of-way easements to Lawrence and Monroe Counties.

Issues were separated into two groups: key and non-key issues. Key issues were defined as those directly or indirectly caused by implementing the proposed action. Non-key issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, *Forest Plan*, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. These issues are addressed in the EA, Appendix B, Response to Comments.

One key issue was identified that was relevant to the Forest Service's Proposed Action – the potential for spread of nonnative invasive plant species.

The commenter brought forward that invasive species are present and would likely increase due to the clearing of vegetation within the right-of-way. This issue of NNIS is addressed in the Environmental Effects section of this document.

Chapter 2 - Description of the Alternatives

This chapter describes and contrasts the alternatives considered in the Hunters Creek Right-of-Way Conveyance. The ID team developed two alternatives in detail, the Proposed Action and No Action. Because issues identified from scoping did not result in additional alternatives, we analyzed those two alternatives. We can display the effects of the proposal by contrasting the Proposed Action and the No Action.

2.1 Alternative A - Proposed Action

The Hoosier National Forest is proposing to convey right-of-way easements to Lawrence and Monroe Counties allowing the reconstruction of the sections (approximately 2.9 miles) of Hunters Creek Road that are on or adjacent to NFS land.

2.2 Alternative B - No Action

This alternative would not implement any aspect of the proposal to convey right-of-way easements to Lawrence and Monroe Counties. This alternative does not meet the purpose and need for this project; however, it provides a baseline or reference point against which to describe the environmental effects of Alternative A. With the selection of Alternative B, no right-of-way conveyance would occur. If this alternative were selected, Monroe and Lawrence Counties could still consider whether to implement all or part of the roadway improvements that are not on NFS land and those that fall within the existing road prism on National Forest.

2.3 Design Measures

As part of project development, the ID team established design measures (or implementation requirements). Appendix C contains design measures that would be required if the decisionmaker decides to implement the action alternative. Chapter 3, Environmental Effects, describes the effects of implementing the alternatives with design measures included.

2.4 Summary of Effects of Alternatives

Table 1: Summary of Effects by Alternative

Effects	Alternative A	Alternative B
Cultural Resources	No effect	No effect
Recreation, Wilderness and Visuals	Minimal effects on recreation and visuals, no effect on wilderness	No improved access to Forest
Soil and Water	Potential negative impacts - reduced by BMPs and design/mitigation measures	No effect
Vegetation	Minimal effects	No effect
NNIS	Potential effects - minimized through design measures	Negative effects likely
Threatened, Endangered, and Sensitive Species	May affect the Indiana bat, but is not likely to adversely affect the species	No effect
Regional Forester Sensitive Species	May affect six plants, three mammals, four birds, one reptile, and one terrestrial invertebrate but not likely to cause trend toward federal listing or reduce viability of the population or species.	Potential indirect effects
Management Indicator Species	May effect individuals but not likely to cause a trend to federal listing or loss of viability for two bird species	No effect

Chapter 3 - Environmental Effects

This chapter presents the environmental effects of implementing each alternative. It forms the scientific and analytic basis for the alternative comparison in the previous section. Knowing the expected environmental consequences of proposed activities gives the decisionmaker a basis for selecting which actions to implement. Environmental effects expected from implementing the proposed action determine the need for an environmental impact statement.

In addition to project-specific data, all resource specialists consulted the best available science in making their determinations. To do this, they reviewed scientific literature, including many peer-reviewed, scientific articles that discuss responsible opposing views. We cited recent studies and did not disregard any relative studies. This combination of information constitutes the best available science for the individual resource areas.

Each discussion in this chapter identifies direct, indirect, and cumulative impacts (effects) by resource area. As described by NEPA, direct effects are impacts occurring at the same time and place as the action; indirect effects are seen later in time after an action but are reasonably foreseeable; and cumulative effects result from incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

3.1 Cultural Resources

The National Historic Preservation Act (NHPA) of 1966, as amended, requires Federal agencies to consider the effect of their undertakings on historic and prehistoric properties (16 U.S.C. § 470 (f) and 36 CFR Part 800). This section discloses the historic and prehistoric resources that Hunters Creek Right-of-Way Conveyance activities could potentially affect.

The Forest Heritage Resource Specialist reviewed the architectural and initial archaeological survey reports for the Hunters Creek Road Project (Monroe County Highway Department) and completed a subsequent archaeological survey on NFS land. Three sites were identified in proximity to the project area and should be avoided (INDOT 2014).

3.1.1 Environmental Effects of Alternative A (Proposed Action)

With the avoidance of archaeological sites by project activities, there would be no direct or indirect effects to cultural resources (Doyle 2014).

3.1.2 Environmental Effects of Alternative B (No Action)

Because no action would be taken, there would be no direct or indirect effects to cultural resources.

3.1.3 Cumulative Effects

By implementing the required avoidance, there would be no direct or indirect effects on cultural resources for either alternative. Therefore, by definition, there would be no cumulative effects.

3.2 Nonnative Invasive Species

Nonnative invasive plant species pose a threat to forest health and biodiversity on the Hoosier National Forest. Invasive plants can invade and alter natural ecosystems by displacing native species and thus changing habitats, community structure, and ecosystem function. They can also damage soil and water resources.

The spatial boundary used to evaluate direct effects was the boundary of the proposed ground disturbance expected for the Hunters Creek Road realignment. To evaluate indirect effects, we used the same boundary with an additional 1,000-foot maximum distance.

The spatial boundary used to address cumulative impacts was also the project area, plus the adjacent lands for a distance of up to 1,000 feet beyond in those areas proposed for ground disturbing activities.

The overall road reconstruction project facilitated by the Monroe County Highway Department is estimated to take three to eight years to complete. Generally, for most NNIS plants within the cumulative effects area, their seed remains viable in the soil from two to seven years. For some species, their seed may lie dormant and remain viable for 15 to 20 years. If these plants invade and develop new infestations within areas specifically disturbed by project proposals (in spite of implementing mitigations and control measures) developing effective control of new infestations may not occur until the end of this 15 to 20 year period.

The Hunters Creek Road Right-of-Way Conveyance does not include invasive plant control treatments as part of the project proposal. To address the possible spread of NNIS plants, the Hoosier would implement invasive plant control treatments as directed by the actions in the forest-wide Nonnative Invasive Species Plant Control Program Analysis (USDA FS 2009a).

Table 2 is a modified version from the invasive plants presented in the forest-wide project, which includes the NNIS species documented as occurring with the Hunters Creek Road project area as of September 2014.

Table 2: Species of Nonnative Invasive Plants Known to Occur within the Hunters Creek Road Project Area¹

COMMON NAME	SCIENTIFIC NAME	TREATMENT PRIORITY
Japanese stiltgrass ²	<i>Microstegium vimineum</i>	High
Japanese honeysuckle ²	<i>Lonicera japonica</i>	High
Garlic mustard ²	<i>Alliaria petiolata</i>	High
Crown vetch ²	<i>Coronilla varia</i>	Medium/High
Autumn olive ²	<i>Elaeagnus umbellata</i>	Medium/High
Japanese barberry ³	<i>Berberis thunbergii</i>	Medium/High
Chinese (sericea) lespedeza ²	<i>Lespedeza cuneata</i>	Medium
Ground ivy ²	<i>Glechoma hederacea</i>	Medium
Multiflora rose ²	<i>Rosa multiflora</i>	Medium/Low
Queen Anne's lace ³	<i>Daucus carota</i>	Low

¹Data collected through September 2014

²Species included in Table 3.38, page 3-192 in Hoosier Forest Plan EIS (USDA FS 2006b)

³Priority ratings reflect potential threat to nearby native plant communities due to invasiveness or location

Nonnative plant control would occur on NFS lands within the project boundary, as well as other nearby sites on the Forest. Most of these areas are along roads, trails, disturbed sites, and power line corridors, but some may occur in other areas, especially those locales with adjacent populations of rare native plant species. Where any treatment occurs, Forest personnel would monitor and evaluate work completed for effectiveness. The Forest would also work collaboratively with willing landowners and partners to control invasive species across ownership boundaries. Integrated pest management includes restoration of native plant habitat by seeding and planting, so the Hoosier may use these techniques where necessary.

During the summer of 2014, surveys of the proposed project area were conducted and documented the NNIS present within the project area (Table2). Surveys and mapping would continue as analysis and implementation for this project and considered during NNIS treatment planning.

All effects analyses related to any future herbicide use would tier to the Nonnative Invasive Species Plant Control Program Analysis EA regarding various resources, environmental effects, or human health and safety. The forest-wide document also included a review of selected Material Safety Data Sheets and individual chemical ecological risk assessments (USDA FS 2009a, 2009b). When conducting any invasive plant treatments with the project area, the Forest would use the techniques identified in the forest-wide Nonnative Invasive Species Plant Control Program Analysis (USDA FS 2009a). Where herbicide application is necessary, the Forest would follow all Environmental Protection Agency (EPA) and label directions.

3.2.1 Environmental Effects of Alternative A (Proposed Action)

The activities associated with the initial clearing of trees along the proposed corridor would increase light for current NNIS populations to grow, reproduce, and spread. Likewise, the soil moving required by the project would move existing NNIS seed banks around the project area and provide the disturbance necessary for their establishment. Therefore, the project activities would create a mosaic condition of disturbed and damaged vegetation that may facilitate the spread of NNIS plants, depending on the proximity of local infestations to disturbance activities.

By properly implementing project-level design criteria and mitigation measures, the Hoosier anticipates a low to moderate risk for new introductions and possible spread of NNIS plants associated with the project activities. The current NNIS populations exist primarily along road and the trails leading to them, in old fields, and along the edges between forest and fields. These are the areas with the greatest likelihood for project activities to contribute to the spread of invasive plants.

The primary objective regarding NNIS plants is to avoid introducing new infestations and slow the spread of existing populations affected by project activities. Prevention measures include equipment cleaning during project implementation and using native or non-persistent, nonnative species to re-vegetate disturbed soils.

By diligent and prioritized application of invasive plant control treatments using an integrated pest management process in appropriate areas where feasible and necessary, we anticipate a further reduction for the possible spread of NNIS plants through implementation of the Nonnative Invasive Species Plant Control Program Analysis (USDA FS 2009a). Subsequent application of supplementary control treatments over several years, plus the inclusion of using an adaptability process where additional treatment would occur to control those infestations not

yet known within the project area boundary, would contribute to the process of restoring the ecosystem, and reducing the level of NNIS plant infestations to less than existing conditions. Hoosier personnel would continue conducting surveys for NNIS plants within the project area prior to, during, and after implementation. The primary focus would be looking for any additional NNIS plants not currently known within the project area (Table 2), while treating the priority species prior to or after implementation has occurred. Likewise, the surveys would continue to locate new infestations of high priority species for possible inclusion in control treatment activities. Other surveys and monitoring would occur to determine the efficacy of any control treatments done in the project area and any effects upon non-target vegetation or animals.

3.2.2 Environmental Effects of Alternative B (No Action)

Nonnative invasive plant populations would likely increase within the project area regardless of the alternative selected, including no action. This is in part because the road itself would continue to act as a potential vector for invasive plants through its use and maintenance.

3.2.3 Cumulative Effects

Nonnative invasive plants occur throughout the cumulative effects area on NFS lands, as well as adjacent private ownership. The cumulative effect of implementing the action alternative combined with ongoing human and natural disturbances is the continuing spread of these species. The actions and processes differ in various locations in the project area and across the Forest, so the rate of spread would also differ. Vehicles, equipment, wind, rain, animals, and humans have the potential to carry invasive plant seed to new and currently uninfested areas. This spread has no limit other than the susceptibility of the receiving habitats. Given the inherent susceptibility of some habitats across the Forest and within the project area, spread is likely. At the same time, Forest-wide NNIS plant management and site-specific project level control activities are increasing, which may result in reduced invasive plant populations. Private landowners are sporadically taking action against NNIS on their lands, with some actions possibly occurring within the project area. Site-specific mitigations such as seeding of disturbed areas and prevention measures like equipment cleaning would help in controlling the problem.

Past and present disturbances, when added to reasonably foreseeable actions, have an effect on the expansion of NNIS through distribution of seed, ground disturbance, and the creation or perpetuation of spread vectors. The degree of effects would vary depending on the number of entrances over time for road construction and the proximity of infestations.

Since invasive plant infestations occur at widely scattered locations on both private and NFS lands, land use decisions made by other owners may affect the spread of invasive plants as much as activities carried out by the Hoosier. Land use decisions made by other owners also could influence the effectiveness of the future colonization of NNIS depending on the proximity of existing infestations to any ground disturbance.

Continued implementation of the Nonnative Invasive Species Plant Control Program Analysis in selected portions of the project area where most needed according to the identified treatment priorities, would work against the cumulative effect of many other activities, which are creating conditions for the spread of NNIS. To act quickly in response to any new infestations that may result from project activities, the Forest would use future hand, mechanical control, and herbicides on NNIS plants where needed and appropriate.

The Forest Openings Maintenance project includes prescribed burning and mowing in the Hunter Creek wildlife and vernal pool complex area. Generally, mowing does not create ground disturbance and would reduce seed production of invasive plants as well as native plant species, depending on timing and seed development.

Other reasonably foreseeable projects are ongoing Forest trail maintenance, county and state road maintenance, and gas line maintenance. As part of highway maintenance activities, some limited roadside herbicide application has occurred along various highways across the Forest. This action may occur where allowable along State Road 446. Trucks, with a much greater potential for adversely affecting non-target species normally do roadside herbicide spraying.

Trail maintenance activities have potential to spread NNIS such as Japanese stilt grass, if it exists where project activities would occur. Scattered infestations of stilt grass occur throughout the Charles C. Deam Wilderness system where trail maintenance would occur annually. Because the work occurs mostly to the existing trail, there are few effects to nearby vegetation. However, at the same time mowing, if done at the proper time just before seed set and release, can provide some effective control of Japanese stilt grass especially if done repeatedly. Other county roadside mowing has occurred along the county roads across the Hoosier, including areas within the project area that can result in reducing seed production of Johnson grass, tall fescue, and other roadside NNIS or exotic pasture grasses depending on the timing of this activity.

Cumulatively, all of the projects and other smaller projects that involve some sort of direct or indirect NNIS control aid in the ability of the Hoosier to resist the introduction of NNIS plants within the Hunters Creek Road project area. Subsequent work in the current Nonnative Invasive Species Plant Control Program Analysis could include both NNIS control treatments and restoration activities where appropriate and needed. With implementation of Alternative A, the Hoosier would coordinate all of the Forest NNIS control to maximize effectiveness for control of and minimize possible negative effects to desirable non-target vegetation.

The cumulative effect of Alternative B would be to allow invasive species to spread, largely unabated in most locations along the Hunters Creek Road project area. As mentioned previously, other Forest projects may provide some limited NNIS control in selected locales of the project area, but the cumulative effect would result in further spread of invasive plants.

It is difficult to fully fund NNIS control in any one location or project area. Projects that have the greatest likelihood for contributing to the spread of NNIS plants would receive priority for future invasive control. Therefore, by selection of the no action alternative, future invasive plant control would probably not occur at any other level than the current hand removal of garlic mustard from Mitchell Cemetery west to highway 446. Similarly, with no action, continued NNIS inventories would most likely occur only in site-specific project areas and nowhere else within the project area or happen elsewhere on the Hoosier. Thereby, increasing the numbers of undetected infestations and if highly invasive, those populations would be more problematic to control in future NNIS projects.

3.3 Recreation, Wilderness, and Visuals

This section discloses the effects to recreational use, wilderness, and the visual quality within the area surrounding Hunters Creek Road.

The spatial boundary used to evaluate direct, indirect, and cumulative impacts to recreational use, wilderness, and visual quality was the area of the proposed ROW conveyance. This boundary was chosen because the ROW encompasses the construction limits. It includes the sight distance from any point within the construction limits, extending to the tree line; the Hunter Creek Trail trailhead; and Hunters Creek Road. We do not expect effects to wilderness and recreational use along Hunters Creek Road to last beyond 8 years because road construction, plantings and reseeding would be complete by this period. The temporal boundary for visuals extends one summer after reconstruction is completed. This would give the ground vegetation enough time to establish and rehabilitate any construction imprints.

3.3.1 Recreation

Recreationists use Hunters Creek Road to access the surrounding areas of the Hoosier National Forest. Recreation activities include nature watching, hunting, trail use, and backpacking (USDA FS 2006).

3.3.1.1 Environmental Effects of Alternative A (Proposed Action)

The proposed action would likely create some occasional inconvenience and disruption to recreationists accessing the Forest via Hunters Creek Road during implementation of each phase of the realignment period (spread out over up to 8 years). Visitors would have to use an alternate route accessing the Forest during periods of construction that required road closure. Access to Hunter Creek Trail trailhead would be disrupted at times and may not be accessible during certain limited phases of the Proposed Action.

Realigning Hunters Creek Road would benefit recreation opportunities long-term by providing a safer travel route to access the Forest in the vicinity. By improving access to the forest via Hunters Creek Road, it would likely decrease travel on less safe, gravel, secondary roads such as Tower Ridge Road, McPike Branch Road, and Hickory Ridge Road.

3.3.1.2 Environmental Effects of Alternative B (No Action)

With the selection of Alternative B, conditions of Hunters Creek Road would continue in its existing state and accessing the Forest via Hunters Creek Road would remain in its current condition.

3.3.1.3 Cumulative Effects

There are no other related projects in the past, present, or future that would have additional effects on recreation. Given the Proposed Action, along with past, present and reasonably foreseeable future actions, no significant cumulative effects are anticipated.

3.3.2 Wilderness

The proposed Hunters Creek Road Right-of-Way Conveyance and the subsequent realignment project are located near the southern boundary of the Charles C. Deam Wilderness. The wilderness boundary is identified by a 100-foot set-back from the centerline of the existing Hunters Creek Road and this set-back is managed under Management Area 6.2 guidance (USDA FS 2006). This provides 100 feet of space between the road and the Wilderness boundary, which allows for roadway improvements.

3.3.2.1 Environmental Effects of Alternative A (Proposed Action)

Effects of the Proposed Action would be confined within the 100-foot buffer, which is managed by Management Area 6.2 guidance. There would be no effect to the Charles C. Deam Wilderness because the boundary is outside the buffer.

3.3.2.2 Environmental Effects of Alternative B (No Action)

Because the Charles C. Deam Wilderness boundary is outside of the extent of the proposed ROW conveyance, there would be no effect.

3.3.2.3 Cumulative Effects

There would be no direct or indirect effects on wilderness resources for either alternative. Therefore, by definition, there would be no cumulative effects.

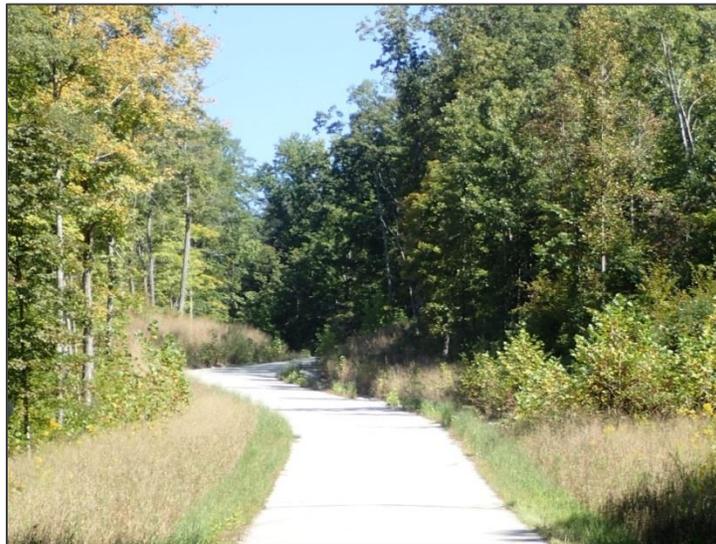
3.3.3 Visuals

This section discloses the effects to visual quality. The entire length of Hunters Creek Road occurs in a visual quality objective (VQO) area of Retention. “Under retention, activities may only repeat form, line, color, and texture which are frequently found in the characteristic landscape” (USDA 1974). Although the road is in a VQO area of retention, a 100-foot buffer exists to the north and west of Hunters Creek Road, which allows for roadway improvements.

3.3.3.1 Environmental Effects of Alternative A (Proposed Action)

The proposed project would require vegetation removal on approximately 2.9 miles of conveyed right-of-way along the sections of NFS Lands along Hunters Creek Road. The visual character would not be significantly altered because clearing single trees, or rows of trees, would have minimal visual effects, as the landscape would continue to possess a strong visual forested character. Proposed road improvement activities would not create a notable change to the existing scenic character. The scenic character would be very similar to the section of Hunters Creek Road reconstructed in 2009 (see Figure 4).

Figure 4: The section of Hunters Creek Road reconstructed in 2009.



Because the Proposed Action would not significantly alter the scenic character and reconstruction would occur on a road that is already in place, no impact to the VQO is expected. Temporary impacts to the visual environment would occur during roadway reconstruction when travelers view construction equipment, land clearing, and exposed soil areas. After construction is complete and vegetation grows, there would be minimal impacts to the visuals of the site. We expect the road to return to a more natural look 5 years beyond project completion.

3.3.3.2 Environmental Effects of Alternative B (No Action)

Alternative B would initiate no actions, and because there would be no resulting change in the visual landscape, there would be no effects to the visual quality.

3.3.3.3 Cumulative Effects

Past actions include the reconstruction of the approximate 1,050-foot section of Hunters Creek Road completed in 2009, the 2008 Hunter Creek Riparian Area Restoration, and activities on private land associated with nearby residences.

The previous road project, completed in 2009, gives no evidence that this past action has left lingering, unacceptable negative effects. There are no other related projects in the past, present, or future that would have additional effects on the visual environment. Given the proposed action, along with past, present and reasonably foreseeable future actions, we do not anticipate any significant cumulative effects.

3.4 Soil and Water Resources

The spatial boundary used to evaluate direct effects for soil resources was the construction limits of the entire Hunters Creek Road. This boundary was chosen because it is generally the area where any direct effects would occur. The spatial boundary used to evaluate indirect effects was the Hunter Creek – Little Salt Creek sub-watershed. The spatial boundary used to evaluate direct and indirect effects on water was also the construction limits as well as the associated watercourses draining the area. We do not expect effects to soil and water resources to exceed one complete vegetative growing cycle after project completion.

The project does not occur in a municipal watershed. A wetland delineation was completed for the INDOT CE document (INDOT 2014) and one wetland was identified but no impacts are anticipated to occur to this wetland because it is outside of the construction limits of the project. A review of the Lawrence County and Monroe County flood hazard maps indicates this project does not occur in a floodplain (INDOT 2014).

3.4.1 Environmental Effects of Alternative A (Proposed Action)

The primary concerns for soils would be erosion and compaction both of which can reduce long-term soil productivity. Disturbed soil can easily become mobilized and end up as sediment in the streams. There is no way to eliminate erosion and sedimentation on a project of this size and scope. However, following Best Management Practices (BMPs) and mitigation measures as outlined in the INDOT CE document (INDOT 2014) and in INDOT's Design Manual for Temporary Erosion and Sediment Control (INDOT 2013) should provide adequate protection to reduce soil erosion and sedimentation, thus minimizing the effects of soil disturbance.

The Hoosier recommends Monroe County incorporate many of the Environmental Commitments found in Section J of the INDOT CE document (INDOT 2014) that are for consideration into the construction contract. The ID team incorporated these as design measures, listed in Appendix C, to reduce any potential negative impacts.

Areas used for staging of equipment and supplies, travel routes outside of the roadbed and parking areas should be ripped prior to re-vegetation to reduce the impact of compaction.

There are 20 stream crossings in the project and one area where the road runs immediately adjacent to Taylor Branch. Stream impacts would require permit coordination with the Indiana Department of Environmental Management and the US Army Corp of Engineers, which would require best management practices (BMPs) and proper mitigation measures to be followed to minimize impacts. The USDI Fish and Wildlife Service and Indiana Department of Natural Resources also recommended mitigation measures to minimize impacts to streams and riparian buffers and those plants and animals using this habitat along with mitigations measures to minimize the effects of roadwork and culvert replacement on affected streams. These mitigation measures are incorporated into the INDOT's CE document (INDOT 2014) and the measures should minimize negative effects.

3.4.2 Environmental Effects of Alternative B (No Action)

With the selection of this alternative, the current roadway corridor would remain in its current state. Right-of-way conveyance would not occur and no widening or realignment would occur on NFS land and possibly not on private land. Soil and water resources would not be affected by this alternative because no new activities would be proposed. The existing condition of the roadway would continue.

3.4.3 Cumulative Effects

The area of consideration for cumulative effects was the Hunter Creek – Little Salt Creek sub-watershed. We do not expect the effects of this project to extend beyond the sub-watershed. The effects should also be ephemeral in nature. Once the site is re-vegetated, the effects of the project's soil disturbance on erosion and sedimentation would be minimal. This should occur within a year of project completion. For this same reason, only recent projects were considered for cumulative effects. Anticipated future Forest Service activities in this area would include disking or burning of the Hunter Creek wildlife openings. Mitigation measures would be applied to this project to minimize any impacts; therefore, there would be no appreciable impacts to the soil and water resources in this watershed as the result of future Forest Service activities. On private lands, timber harvests, agricultural crop production, livestock grazing, and activities associated with nearby residences are occurring and would likely continue.

The use of mitigation measures would result in minimal long-term effects on soil and water. These effects, when added to the effects of past and current practices on public and private lands and the anticipated effects of future activities would result in no adverse cumulative effects to soil and water resources.

3.5 Vegetation

Approximately 2.9 miles of Hunters Creek Road are located on or adjacent to NFS land. The clearing of vegetation on private land was also analyzed as a connected action as it is unlikely that the project could proceed without the right-of-way conveyance from the Hoosier. An additional 1.4 miles of the road are located on private land.

The table below shows the existing age class and forest type for the clearing area. These figures include the existing road in many locations.

Table 3: Forest Type by Age Class on Federal lands (acres)

Age Class	Forest Type				Totals
	Pine	Oak-Hickory	Elm-Ash-Sycamore	Maple-Beech	
0-9	0	0	0	0	0
10-39	0.5	0	2.8	0	3.3
40-59	0	1.1	0	0.4	1.5
60+	0.8	8.1	0	0	8.9
Totals	1.3	9.2	2.8	0.4	13.7

Aerial photo interpretations and a visual survey show that the majority of private lands along the proposed project are either residential or agricultural. Approximately 4.8 acres of forested land within the proposed clearing limits could potentially be affected. There is no data available to classify this acreage into forest types, but the visual survey showed it to be similar to Table 3.

The spatial boundary used to evaluate direct and indirect effects was the clearing limits because this area adequately analyzes these consequences and the clearing limits are large enough to get a good idea of the effects.

The spatial boundary used to address cumulative impacts was also the clearing limit area. Most of the direct and indirect effects would be contained in the clearing limits. The effects from these activities are limited in the spatial context. Expanding to a larger cumulative effects area would only dilute the minimal effects to a point where they would not be meaningful.

We do not expect effects to the vegetation resource to last beyond 5 years because proposals in the action alternative would be completed by then and the resulting vegetation changes would be significantly complete. Past activities completed within the last ten years were analyzed for cumulative effects. This includes the previous Hunters Creek Road project completed in 2009.

3.5.1 Environmental Effects of Alternative A (Proposed Action)

Including the existing ROW, 13.7 acres would be cleared of vegetation. Trees would be cut and stockpiled on site and sold commercially or as firewood. Most of these trees have little to no commercial value due to poor form, so firewood would be the likely choice. Surveys of the area found no butternut or any other unique trees. Clearing the right-of-way would not significantly alter the forest in the project area. The affected stands would remain in the same forest type and age as shown in Table 3. Similar effects are expected on private lands in the clearing area.

3.5.2 Environmental Effects of Alternative B (No Action)

Since no action would occur under this alternative, Hunters Creek Road would remain where it is on NFS lands with no widening or realignment. It is likely that it would do the same on private land, as it would be very difficult to improve the road in spots and not affect the other areas. No trees would be cleared and forest types in the clearing area would stay the same.

3.5.3 Cumulative Effects

Since the direct and indirect effects to vegetation resources are minimal, cumulative effects would also be minimal. Effects of the 2009 road project are becoming less noticeable (see figure

4). The road is wider in that area and adjacent forested areas are intact. Vegetation is beginning to grow and the road is returning to a more natural appearance.

3.6 Wildlife

3.6.1 Threatened and Endangered Species

In accordance with Forest Service Manual 2672.41, we review all Hoosier National Forests projects for possible effects on endangered, threatened, or proposed species. There are four documented endangered species on the Forest. They are Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), eastern fanshell mussel (*Cyprogenia stegaria*), and rough pigtoe (*Pleurobema plenum*).

The northern long-eared bat (*Myotis septentrionalis*) is currently being evaluated for listing with the USDI, Fish and Wildlife Service. Effects to this bat are discussed in the Regional Foresters Sensitive Species section of this document.

The spatial boundary used to evaluate direct, indirect, and cumulative effects was the current Hunters Creek Road plus a 1-mile buffer. This boundary is adequate since this project is minimal in size, the clearing would be completed in a short time span, and large tracts of forested areas are immediately adjacent to the project area. The cumulative effects temporal boundary for this project was determined to be eight years out. This was based on the anticipated date of project completion.

No T&E species were located at the time of project evaluation. In addition, no T&E species have been recorded inside the project area or within 1 mile of the project area (IDNR 2012).

3.6.1.1 Environmental Effects of Alternative A (Proposed Action)

Fanshell and rough pigtoe mussel

The fanshell mussel typically occurs in the gravel-bottomed stream of medium to larger sized rivers. The rough pigtoe typically occurs in coarse sand-gravel-cobble substrates of medium to larger sized rivers. Within the vicinity of Hunters Creek Road, there are no known records of the rough pigtoe and no habitat and no known records of the eastern fanshell mussel (IDNR 2012). Therefore, there would be no direct, indirect or cumulative effects to these species from implementing this project.

Gray bat

The gray bat is Indiana's only true cave bat, requiring caves for both roosting and hibernation. Summer habitat requirements for the gray bat include forests near permanent water and caves (NatureServe 2013). During the 2010 bat surveys, acoustical surveys showed a strong likelihood of gray bat occurrence in the Patoka River bottoms (McClanahan 2010). This would be the closest occurrence, 37 miles from the project area.

Because there are no known caves used by gray bats in or near the project area and sightings are over 37 miles away, the Proposed Action should not directly or indirectly affect the gray bat. Since there are no direct or indirect effects, there are no cumulative effects.

Based on the above information, the proposed project would have no effect on eastern fanshell, rough pigtoe, and gray bat.

Indiana bat

There are no known occurrences of the Indiana bat within the action area (IDNR 2012); however, we assume they are present in the vicinity because potential habitat (mature forests containing trees with exfoliating bark) exists in the project area and Indiana bats have been captured just over 1 mile away.

White-nose syndrome, a fungal disease known to affect bats, is known to occur in this species. Census counts for this bat on the Forest are at their lowest point (Harriss 2014) for winter surveys and no Indiana bats were caught during recent mist-net surveys in 2014.

The project is not in or near critical habitat for the Indiana bat. There are no caves or mines with conditions suitable for Indiana bats in the project area or in the vicinity. Thus, the Proposed Action should not directly or indirectly affect hibernacula of these species nor affect swarming behavior of the Indiana bat. The project would not create or decrease foraging opportunities for the Indiana Bat. Travel corridors potentially used by bats would not be created or destroyed

Due to the moderate amount of tree clearing, this project may affect the Indiana bat. Several trees over 3-inch diameter at breast height (d.b.h.) would be removed. The estimate of potential clearing is 13.7 acres on NFS land and 4.8 acres on private land. No trees would be cut when bats are present (October 1- March 31), so there would be no direct effects to the Indiana bat. It is unknown if any of the trees to be cleared have been used for roosting; however, appropriate roosting trees do exist. The project may indirectly affect roosting sites that could be used in the spring. The amount of optimal snags available for bats to use in the project area is low and there are large tracts of nearby forest containing snags. The potential for bats to locate new roosting sites after the project is completed is likely. For these reasons, the proposed Hunters Creek Road Right-of-Way Conveyance is not likely to adversely affect the Indiana bat.

Table 4 shows the summary of the effects for the proposed Hunters Creek Right-of-Way Conveyance on federally threatened and endangered species. No critical habitat for any of the Federally threatened or endangered species occurs within the project area.

Table 4: Summary of Effects on Federally Threatened (T) and Endangered (E) Species

Federally Listed Species:	Status	Species Present	Habitat Present	Species Affected	Habitat Affected	Effects
Fanshell <i>Cyprogenia stegaria</i>	E	No	No	No	No	NE
Gray bat <i>Myotis grisescens</i>	E	No	No	No	No	NE
Indiana bat <i>Myotis sodalis</i>	E	Yes	Yes	Yes	Yes	NL
Rough pigtoe pearly mussel <i>Pleurobema plenum</i>	E	No	No	No	No	NE
Northern long-eared bat <i>Myotis septentrionalis</i>	T/E*	Yes	Yes	Yes	Yes	NL

Federally listed species determination: **NE** = No effect; **NL** = Not likely to adversely affect; **LT** = Likely to adversely affect.

* USDI Fish and Wildlife Service received a petition to list this species as endangered. The proposed listing date is spring 2015.

3.6.1.2 Environmental Effects of Alternative B (No Action)

Taking no action would not negatively affect any of the four endangered species.

3.6.1.3 Cumulative Effects

Because there would be no direct or indirect effects to the two mussels or the gray bat, there would be no cumulative effects to these three species.

Foreseeable Forest Service activities near the project area that could directly or indirectly affect the Indiana bat, or potentially cause cumulative impacts in conjunction with the proposed action are the continuation of early successional management (forest openings maintenance), Hunter Creek Wetland maintenance, potential trail reroutes, and nonnative invasive species herbicide applications. These activities however, are considered not likely to result in direct or indirect take of the Indiana bat (USDI FWS 2006).

There are no known projects that overlap in time and space that would contribute to degradation in roosting sites, hibernacula, or foraging areas. Because of this, there are no known cumulative effects for the Indiana bat.

3.6.2 Regional Forester Sensitive Species (RFSS)

There are currently 137 RFSS for the Hoosier National Forest. These sensitive species with known occurrences on the Forest occur in 10 community types and habitat: barrens; caves and karst; cliffs; dry forests; mesic forest; open lands; ponds; wetlands; streams and rivers; and multiple habitat types (wide-ranging) for species that use several habitats.

Animal species include 5 mammals, 7 birds, 2 fish, 2 amphibians, 2 reptiles, 3 mollusks, 39 terrestrial invertebrates, and 42 karst invertebrates. There are 33 vascular plants and 2 non-vascular plants on the RFSS list.

Cliffs, barrens, caves or karst, wetlands, ponds and lakes, and larger river habitat do not occur within the project area. Therefore, the RFSS associated with those habitat communities would be unaffected.

The project analysis area included the current Hunters Creek Road edge with an additional 100-foot buffer to each side. The geographic scope for direct, indirect and cumulative effects was based on various scales depending on the habitat communities found within the analysis area. Based on the anticipated date of project completion, the cumulative effects temporal boundary for this project was determined to be eight years

3.6.2.1 Environmental Effects of Alternative A (Proposed Action)

Bats were the only mammals, on the RFSS list, that prefer the type of habitat found in the project area: the northern long-eared bat (*Myotis septentrionalis*), little brown bat (*Myotis lucifugus*), tri-colored bat (*Perimyotis subflavus*) and the evening bat (*Nycticeius humeralis*). All four of the bat species on the RFSS list are wide-ranging and use this area for feeding, roosting and corridors. Three of the four bats are considered present and have been located in this area during the 2010 mist-net surveys (McClanahan 2010).

Northern long-eared bats roost in many tree species. Tree-roosting bats generally select trees that are larger in diameter and taller than the surrounding stand. However, some studies have shown that northern long-eared bats select smaller diameter trees (Owen et. al. 2001).

Foraging habitat requirements for the little brown bat are much generalized, feeding in wooded areas and usually around streams (Natureserve 2011). This species is one of the most tolerant of bats in terms of roost selection.

The tri-colored bat can roost in tree leaf foliage, predominately in oak leaf clusters (Perry 2007). The size of these trees seems to be almost any tree greater than 1-inch d.b.h.

Due to the varying size of tree species these bats utilizes for roosting, the Proposed Action may impact the northern long-eared bat and the little brown bat. The Proposed Action may impact the tri-colored bat due to the random tree species this bat utilizes for roosting. Because of the small size of the project area (18.5 acres), short duration of tree clearing activities, and the availability of existing cover habitat adjacent to the project area, there should be no trend toward federal listing and no negative cumulative effects to these bat species from implementation of this project.

No documented sightings have occurred for the evening bat inside the project area. The evening bat, though wide-ranging, appears to be most closely associated with mature river bottom habitats where it forms colonies within tree cavities or hollows (Whitaker and Gummer 2003). This type of habitat does not occur within the project area. Therefore, there would be no impact to the evening bat.

These determinations also consider white-nosed syndrome, the disease that is affecting bat species across the eastern United States. White-nosed syndrome has been found throughout the hibernacula on the Forest and bat census counts have drastically reduced (Harriss 2013). White-nosed syndrome across the U.S. has created a trend toward federal listing for the northern long-eared bat, expected to occur within the next year. The implementation of the Proposed Action does not have the size or scope to cause a trend toward federal listing of the northern long eared bat, nor a trend toward federal listing for the other two bat species.

The ruffed grouse (*Bonasa umbellus*), bald eagle (*Haliaeetus leucocephalus*), American woodcock (*Scolopax minor*), and cerulean warbler (*Dendroica cerulean*) are the four bird species on the RFSS list that were analyzed for this project due to habitat types existing inside the project area. Review of the Indiana Heritage Database indicated no species on the RFSS list within the project area (IDNR 2012).

Although partial habitat is present (dry forest) for the ruffed grouse, the project area contains only small amounts of early successional component required by this species. However, we consider this species present due to the past observation of a grouse in the project area during grouse monitoring surveys (Bucks 2010). Therefore, the project may impact the ruffed grouse. Due to the availability of existing cover habitat adjacent to the project area (Hunter Creek vernal complex), there should be no trend toward federal listing and no negative cumulative effects to this species from implementation of this project.

The closest documented bald eagle sighting occurs approximately 0.7 miles from the project area. No bald eagles or perch sites were observed during surveys for RFSS. Although not located during site surveys, potential habitat for this species is present. Overstory density, composition, and structure would be changed along the road ROW where tree clearing would occur. Therefore, project activities may impact the bald eagle or its habitat, but not likely to cause trend toward federal listing or reduce viability for the population or species. This is due to the relatively small area of disturbance (18.5 acres), the availability of existing cover habitat adjacent to the project area and no known observations of bald eagles within the project area.

The cerulean warbler is a canopy-foraging insectivore, usually found in large tracts of deciduous broadleaf hardwood forests with open understories (Natureserve 2011). Cerulean warblers often place their nests on large branches near an opening in the canopy (Natureserve 2011). The cerulean warbler is uncommon on the Hoosier, and suspected to be declining locally because of fragmentation of local habitat on adjacent private lands. Site-specific surveys for this animal were negative within the project area.

The proposed project may affect overall habitat quality since the overstory, density, and structure would change because of tree clearing along the ROW, which would increase the gap in the canopy. However, since the gap already exists and the species is not known to occur within the project area, there should be no negative direct, indirect, or cumulative effects to this species from implementation of this project.

The American woodcock are associated with moist soil early successional shrublands and early successional forests. This species was not located during project area surveys, but recent surveyors heard woodcock within a mile of Hunters Creek Road (Harriss 2010, Harriss 2014). Temporary disturbance to woodcock may occur during tree clearing operations, if they do inhabit the project area, but a sufficient amount of undisturbed habitat exist nearby in the vernal complex area. The proposed removal of hardwoods within the project area may impact the American woodcock temporarily or its habitat, but is not likely to cause trend toward federal listing or reduce viability for the population or species. There are no long-term negative direct, indirect, or cumulative effects expected to this species from implementation of this project.

There are two fish species currently on the RFSS list. The lake sturgeon (*Acipenser fulvescens*), has rivers or large streams habitat requirements that are not present in the project area. The northern cavefish (*Amblyopsis spelaea*) is restricted to springs or cave streams in subterranean cave waters. No caves were located in the project area or near the project area. Therefore, there would be no impact to any RFSS fish species for the Proposed Action.

Review of the Indiana Heritage Database indicated no presence of reptile species on the RFSS list within the project area (IDNR 2012); however, there have been two sightings of the timber rattlesnake (*Crotalus horridus*) along Tower Ridge Road (Fahl 2014). Potential habitat for this species is present and since individuals were sighted near the project area, the Proposed Action may impact timber rattlesnakes. However, due to the relatively small project area (18.5 acres) and the absence of the species preferred habitat (dry, rocky) along the proposed project area, there should be no trend toward federal listing and no negative cumulative effects to this species from implementation of this project.

All of the mollusk species on the current RFSS list have rivers or large streams habitat requirements that are not present in the project area. For these three species, the Proposed Action would have no impact to these species or their habitat.

All of the terrestrial invertebrate species on the RFSS list have habitat requirements that are not present in the project area, excluding the West Virginia white (*Pieris virginiensis*) and the Mayapple borer moth (*Papaipema polymniae*). The West Virginia white has been found in the Brown County Hills Ecoregion and in the Charles C. Deam Wilderness. Although the species itself has not been found inside the project area, its habitat is considered present. The greatest threats to these species are canopy gaps and the invasive plant garlic mustard.

Within the road corridor, garlic mustard is known to exist and could be inadvertently spread by road construction activities. The widening of the road would create a canopy gap that could create a migration barrier for the West Virginia white. However, there is a large amount of adjacent mesic forest on both sides of the road. The Hoosier National Forest and partners actively control garlic mustard along the Hunters Creek road corridor and nearby streams. Therefore, while the Proposed Action may affect the West Virginia white or its habitat, it is not likely to cause trend toward federal listing or reduce viability for the population or species.

While Mayapple borer moth habitat is present in the project area, the only known population of this species on the Hoosier National Forest is further south, outside of the project area. Therefore, this moth is not considered present, and the proposed project should have no impact on it or its habitat.

All of the karst invertebrate species on the RFSS list have habitat requirements that are not present in the project area or in the vicinity. For these 42 species, the project proposal would have no impact to these species or their habitat.

There are 33 vascular plants and 2 non-vascular plants on the RFSS list for the Hoosier National Forest. After a review of the State's Heritage Program data, a review of Forest records, and visits to the project area, it was determined that seven RFSS plant species are considered as potentially present due to nearby sightings and/or habitat being present. These plants are the large yellow lady's slipper (*Cypripedium pubescens*), trailing arbutus (*Epigaea repens*), butternut (*Juglans cinerea*), Illinois wood sorrel (*Oxalis illinoensis*), yellow nodding ladies'-tresses (*Spiranthes ochroleuca*), Clingman's hedge-nettle (*Stachys clingmanii*) and American ginseng (*Panax quinquefolius*). The nearest known occurrences of these species are yellow lady's slipper within 2 miles, trailing arbutus within 2.0 miles, butternut within 0.1 mile, Illinois wood sorrel within 0.1 mile, yellow nodding ladies'-tresses within 1.2 miles, Clingman's hedge-nettle within 6 miles, and American ginseng within 0.1 mile of the project boundary.

The potential threat to yellow lady's slipper, trailing arbutus, Illinois wood sorrel, yellow nodding ladies'-tresses and American ginseng is increased sunlight through tree removal. This would be a temporary impact along the cleared edge of the constructed road until young tree seedlings respond and fill in the midstory to provide shade and similar solar environments that are currently present. Another impact to habitat in the area would be the spread of NNIS that could directly compete with native species and alter ecosystem functions.

Surveys for these seven RFSS found no individuals. Review of the Indiana Heritage Database indicated no presence of RFSS within the project area (IDNR 2012). Potential indirect or cumulative impacts to these species would be NNIS, which would be minimized through cleaning of equipment and re-vegetation (see Appendix C).

The Proposed Action may impact these seven plants. However, there should be no trend toward federal listing and negligible cumulative effects to this species from implementation of this project. This is due to the lack of known RFSS plants within the project area and equipment cleaning to minimize NNIS impacts to potential habitat.

All of the nonvascular plant species on the RFSS list have cliff habitat requirements that are not present in the project area. For these species, the project proposal would have no impact to these species or their habitat.

3.6.2.2 Environmental Effects of Alternative B (No Action)

Taking no action would have no direct negative impact on any of the RFSS. Potential indirect impacts exist because NNIS plant populations would likely increase within the project area.

3.6.2.3 Cumulative Effects

For the habitat communities found within the project area, the past activities that have most likely affected dry and mesic forests, and diverse habitats for wide-ranging species and their associated species within the Forest boundary, include conversion to agricultural or residential uses, timber harvest, and road construction.

There are no known municipal, county, or State projects proposed within the project area. Present or reasonably foreseeable future activities, which may have an impact on these communities, include the construction or maintenance of roads; future prescribed burning projects; agricultural use; timber harvest; invasive plant treatments; wildlife opening maintenance; vernal pool construction or maintenance; and activities associated with nearby residences. Private lands near the proposed project areas will continue to be a mix of forest, open pasture, and crop fields.

Because there are no known projects proposed within the project area and any future Forest Service projects would identify protection measures for any RFSS found within or near the project area, the current project proposal would not contribute to any significant negative cumulative effects to any RFSS on National Forest System land.

3.6.3 Management Indicator Species

Management indicator species are defined as "plant and animal species, communities, or special habitats selected for emphasis in planning in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent" (USDA FS 1991).

The Hoosier has five indicator species. Table 5 summarizes anticipated habitat suitability for the Hoosier's MIS related to the alternatives. We evaluated trends for the duration of *the Forest Plan*. This timeframe allows for the assessment of changes that may occur soon after implementation (e.g., 1-2 years) and those changes of a longer duration related to ecological succession.

Table 5: Summary of Anticipated Habitat Suitability for Management Indicator Species

Management Indicator Species	Habitat Present	Trends in Habitat Suitability		Acres Affected Alt 1
		Alt 1	Alt 2	
Acadian flycatcher <i>Empidonax virescens</i>	√	↓	-	18
American woodcock <i>Scolopax minor</i>	-	-	-	-
Louisiana waterthrush <i>Seiurus motacilla</i>	√	-	-	-
Wood thrush <i>Hylocichla mustelina</i>	√	↓	-	18
Yellow-breasted chat <i>Icteria virens</i>	-	-	-	-

- ↓ = Moderate decrease in habitat suitability anticipated over the course of *Forest Plan* implementation.
 - = No change in habitat suitability anticipated over the course of *Forest Plan* implementation.

Acadian flycatcher

The Acadian flycatcher is an area-dependent species of mature mesic forests. Recently, crews heard this species while surveying for another Forest project nearby (Trail 18 Reroute 2014). We assumed this species present throughout the Hickory Ridge trail system and the Charles C. Deam Wilderness due to the habitat being present. Clearing of over 18 acres of mesic hardwoods would have an impact on this species.

Habitat degradation and fragmentation (and therefore indirectly, cowbird parasitism and nest predation) are the primary threats to this species. Generally, forest management practices that produce large mature forests with closed canopies and high tree density would be favorable for Acadian flycatchers. Because this project would result in the loss of up to 18 acres of mesic hardwoods, the project has the potential to affect Acadian flycatcher. Based upon site inspection, project protocol, species habitat associations, and large tracts of nearby habitat, the proposed project may impact individuals but not likely to cause a trend to federal listing or loss of viability (Table 5).

American woodcock

American woodcock are notably associated with moist soil early successional shrublands and early successional forests. Open areas, often of bare soils, are required as display areas. The project area lacks suitable habitat for this species. Habitat for this species does exist adjacent to the project area. Due to the quick completion of this project (clearing) and lack of significant disturbance, there should be no effects to the American woodcock’s habitat. Consequently, the proposed project would not provide or alter habitat for this species (Table 5).

Louisiana waterthrush

The Louisiana waterthrush inhabits areas of mature deciduous or mixed forests with moderate to sparse undergrowth near rapid flowing streams. The project area does not include perennial streams, associated with Louisiana waterthrush habitat. However, the area does contain streams that have ephemeral tendencies that waterthrush could use. Although this MIS was not

located during surveys, we assume the Louisiana waterthrush is present due to the habitat being present near the project area.

Due to this project being small in size, phased implementation, and other nearby habitat, there should be no negative effects to the Louisiana waterthrush's habitat. Therefore, the proposed project would not provide or alter habitat for this species (Table 5).

Wood thrush

The wood thrush inhabits the interior and edges of deciduous and generally mesic mixed forests. Although this MIS was not located during the surveys, we assume the wood thrush is present due to the habitat being present near the project area. Because this project would result in the loss of up to 18 acres of mesic hardwoods, the project has the potential to affect the wood thrush. Based upon site inspection, project protocol, species habitat associations and large tracts of nearby habitat, the project biologist concluded the proposed project may impact individuals but not likely to cause a trend to federal listing or loss of viability (Table 5).

Yellow-breasted chat

Like the American woodcock, the yellow-breasted chat is associated with early successional shrublands and early successional forest. The courtship display of North America's largest warbler (yellow-breasted chat) conspicuously occurs on forest edges in areas of early successional habitat. The project area does not have an early successional shrubland component that this MIS prefers. Therefore, the proposed project would not provide or alter habitat for the yellow-breasted chat (Table 5).

Chapter 4 - Consultation and Coordination

4.1 USDA Forest Service Participation

The following Forest Service employees participated in the preparation of the Hunters Creek Road Right-of-Way Conveyance EA as members of the Interdisciplinary Team (IDT) or provided technical assistance.

Kevin Amick, NEPA Coordinator
IDT Leader

Cheryl Coon, Botanist
IDT Member

Stacy Duke, District Recreation Manager
IDT Member

Steve Harriss, Wildlife Biologist
IDT Member

Christopher Thornton, Silviculturist
IDT Member

Gary Dinkel, Ecosystem Program Manager
IDT Consultant

Brad Lidell, Forest Engineer
IDT Consultant

Ron Scott, Lands and Minerals Program Manager
IDT Consultant

4.2 Consultation with other Agencies, Organizations, and Persons

USDI Fish and Wildlife Service

Indiana Department of Natural Resources

Monroe County Highway Department

American Structurepoint, Inc.

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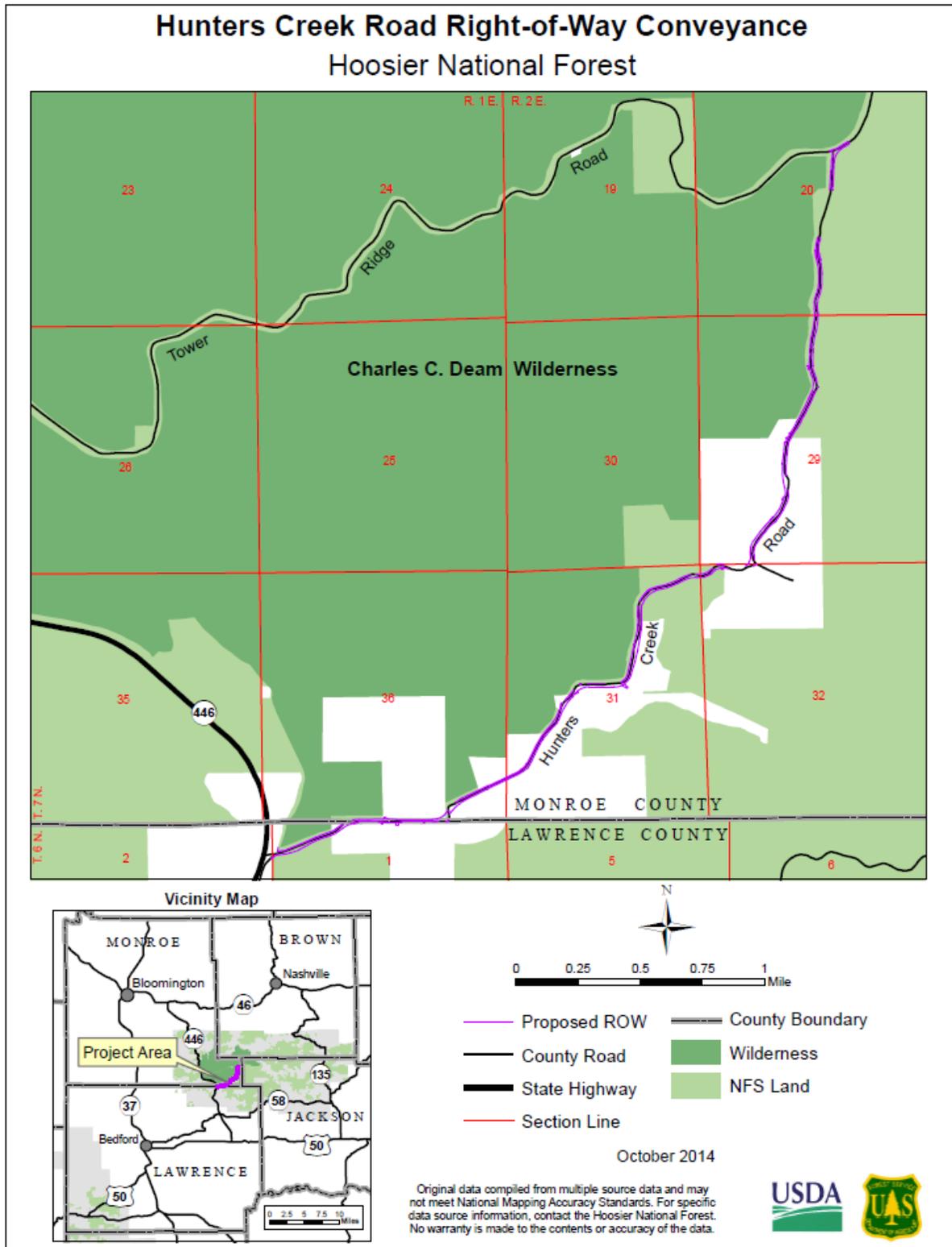
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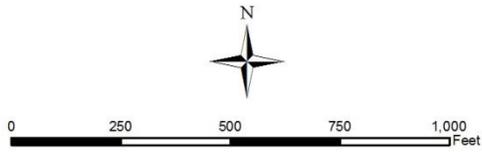
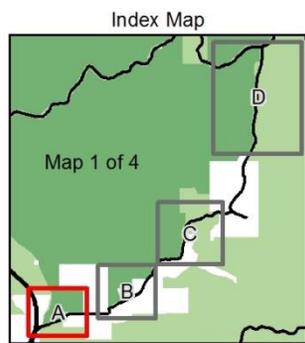
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Appendix A - Maps



Hunters Creek Road Right-of-Way Conveyance Hoosier National Forest Map A



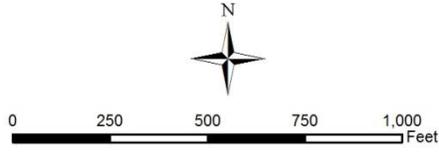
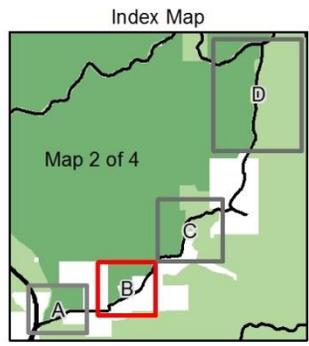
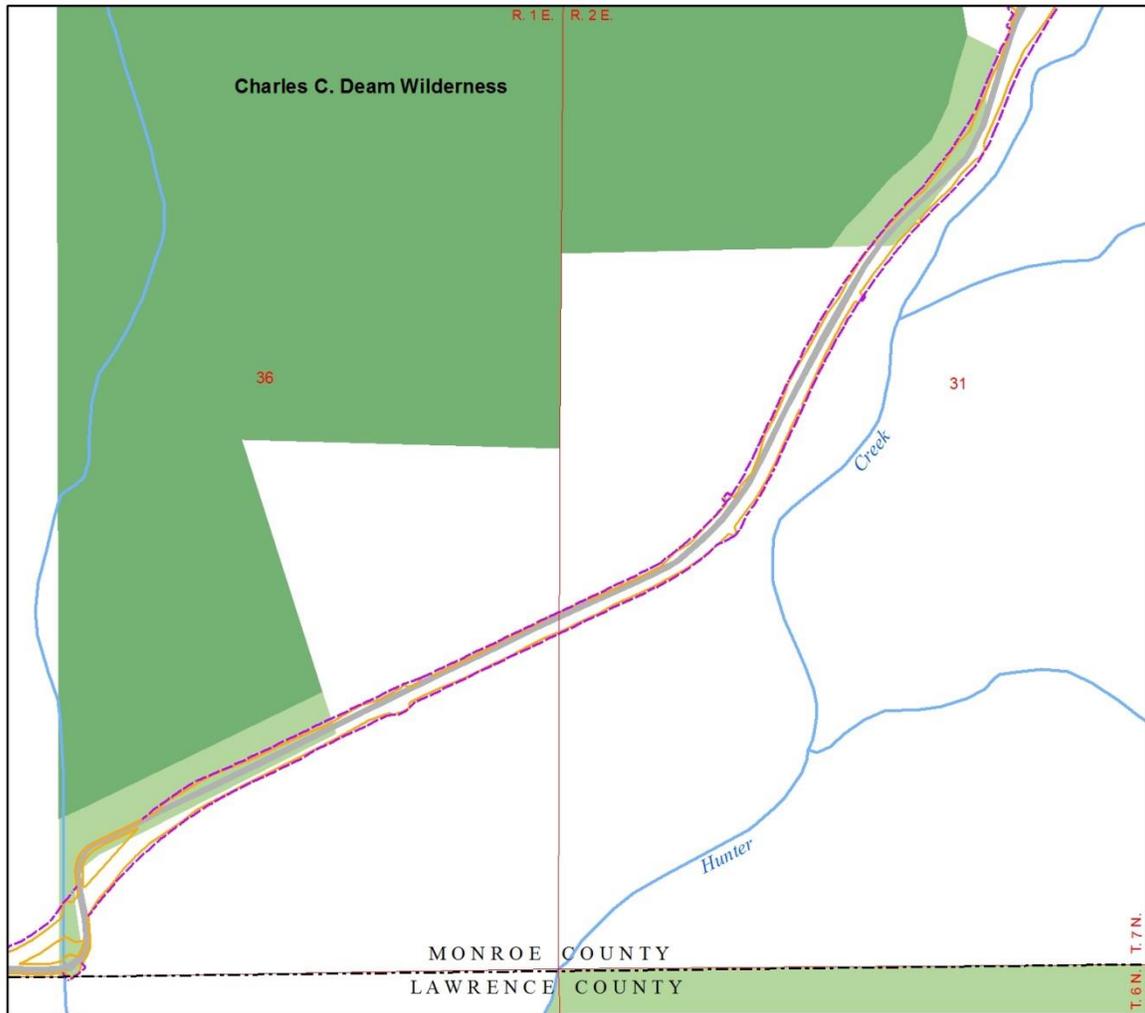
Original data compiled from multiple source data and may not meet National Mapping Accuracy Standards. For specific data source information, contact the Hoosier National Forest. No warranty is made to the contents or accuracy of the data.

- Construction Limits
- - - Proposed ROW
- Existing Road
- Stream
- Section Line
- - - County Boundary
- Wilderness
- NFS Land

October 2014

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Hunters Creek Road Right-of-Way Conveyance Hoosier National Forest Map B



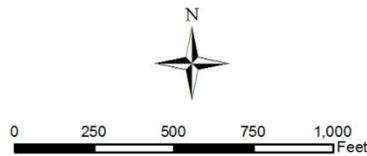
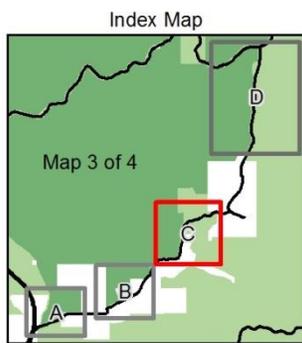
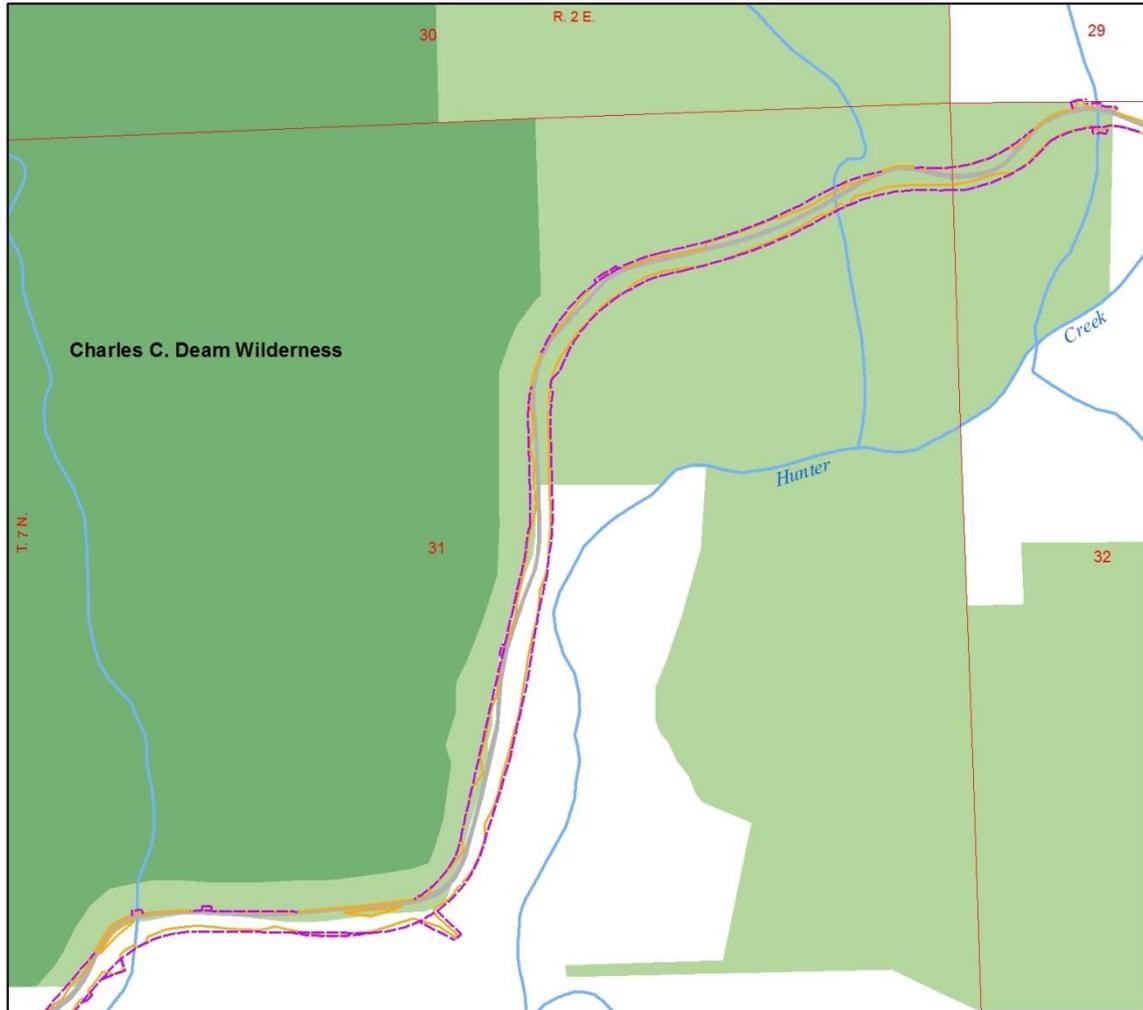
Original data compiled from multiple source data and may not meet National Mapping Accuracy Standards. For specific data source information, contact the Hoosier National Forest. No warranty is made to the contents or accuracy of the data.

October 2014

- Construction Limits
- Proposed ROW
- Existing Road
- Stream
- Section Line
- County Boundary
- Wilderness
- NFS Land

ka

Hunters Creek Road Right-of-Way Conveyance Hoosier National Forest Map C



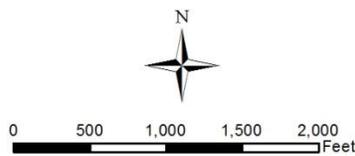
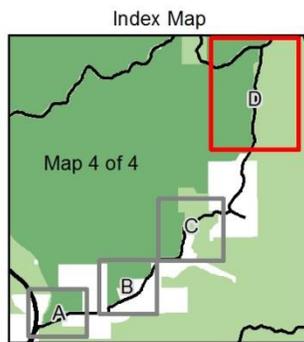
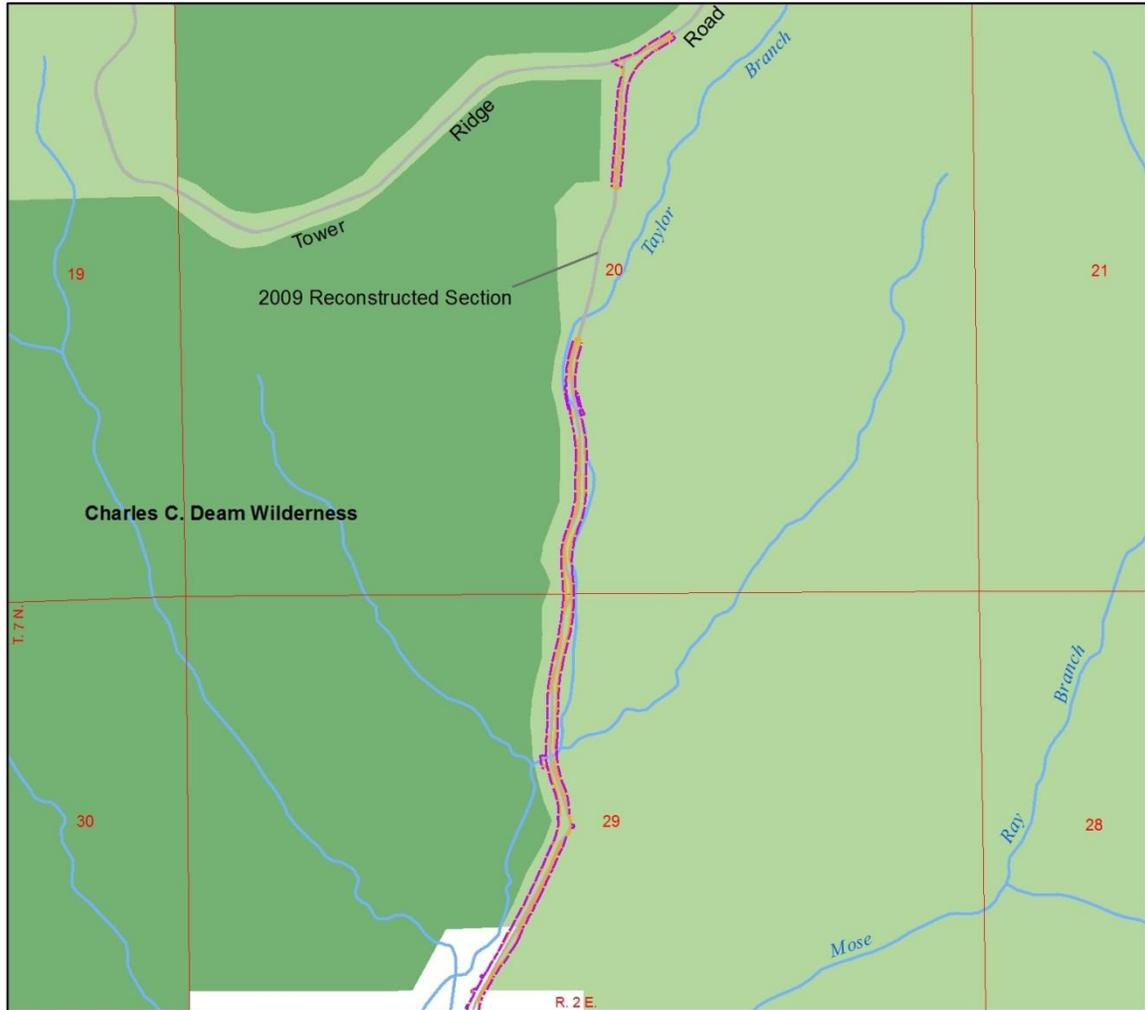
Original data compiled from multiple source data and may not meet National Mapping Accuracy Standards. For specific data source information, contact the Hoosier National Forest. No warranty is made to the contents or accuracy of the data.

- Construction Limits
- - - Proposed ROW
- Existing Road
- Stream
- Section Line
- Wilderness
- NFS Land

October 2014

ka

Hunters Creek Road Right-of-Way Conveyance Hoosier National Forest Map D



Original data compiled from multiple source data and may not meet National Mapping Accuracy Standards. For specific data source information, contact the Hoosier National Forest. No warranty is made to the contents or accuracy of the data.

October 2014

- Construction Limits
- Proposed ROW
- Existing Road
- Stream
- Section Line
- █ Wilderness
- █ NFS Land

ka

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Appendix B - Scoping Comments and Responses

The following written comments were submitted in response to a scoping letter sent out on July 10, 2014. All comment letters are in the project record at the Hoosier National Forest Supervisor's Office in Bedford, Indiana.

Table B-1: Public Comments and Responses from Initial Scoping

Comment #	Name	Summary	Forest Response
1-1	Michael Hubbard	Unhappy that we are realigning the road	The Monroe County Highway Department is the proponent and implementer of this project. The Hoosier National Forest is proposing to convey right-of-way easements to Lawrence and Monroe Counties only on National Forest System land.
1-2	Michael Hubbard	The only reason the County was fixing Hunter's Creek Road was so that the "Feds" could close Tower Ridge Road and that this would be a problem, Tower Ridge Road is supposed to stay open.	The Hoosier National Forest is not considering any project regarding Tower Ridge Road at this time.
2	Kerry Axsom	Concerned about water system – cistern sits approximately 40 feet and well approximately 70 feet from the centerline of the road. Does not want digging or road reconstructing to affect water source or drinking water.	The County's NEPA document (INDOT 2014) states, "Residential wells are presumed to be located within the proposed project limits. No impacts are anticipated to residential wells." The Hoosier will still convey this concern to the Transportation Engineer for Monroe County, who is the project lead.
3-1	Michael Baker	Does not agree that there are currently any safety issues. To his knowledge, there have not been any major accidents, injuries, or loss of life. The current condition of the road (curves and narrow width) forces motorists to drive slowly. If the project is completed, there will be a safety issue because of increased traffic and speed.	Lawrence and Monroe Counties have jurisdiction for Hunters Creek Road. The need for the project was proposed by Monroe County Highway Department. As stated in the County's NEPA document (INDOT 2014), the need for the project is "substandard geometrics on Hunters Creek Road which includes substantial vehicle serviceability concerns, stopping sight distance which fails to meet INDOT criteria, and undesirable vertical and horizontal alignment at multiple locations. Existing roadway width is inadequate to maintain two-way traffic, and lacks suitable roadside shoulders and clear zone. Horizontal alignment along Hunters Creek Road is winding in nature with many sharp curves. There are also abrupt reversals in alignment including compound curves, reverse curves, and S-

			<p>curves.”</p> <p>The Hoosier National Forest is only proposing to convey right-of-way easements to Lawrence and Monroe Counties only on National Forest System land. Thus, this comment is beyond the scope of our proposal.</p>
3-2	Michael Baker	<p>What is the purpose of the project? Traffic is currently light and mostly local use. Hunter’s use of the road has diminished over the years, estimated to be a fifth of what it was 20 years ago.</p>	<p>The Monroe County Highway Department established the purpose and need of the proposed road construction project.</p> <p>Lawrence and Monroe County requested ROW easements from the Hoosier National Forest to accommodate the redesign and realignment of Hunters Creek Road.</p>
3-3	Michael Baker	<p>Concerned that his (and others) property will be taken.</p>	<p>The Hoosier National Forest is proposing to convey right-of-way easements to Lawrence and Monroe County only on National Forest System land. Private land acquisition by the County is beyond the scope of this proposal.</p>
3-4	Michael Baker	<p>What is the real motivation of the project? Is it worth the resource damage that will occur?</p>	<p>The Monroe County Highway Department established the purpose and need of the proposed road construction project, which is to improve safety for motorists (see response 3-1). Lawrence and Monroe County requested ROW easements from the Hoosier National Forest to accommodate the redesign and realignment of Hunters Creek Road.</p> <p>Monroe County has analyzed the overall effects of the road construction project and the Hoosier will analyze the environmental effects of conveying ROW easements to the Counties only on NFS lands.</p>
3-5	Michael Baker	<p>Invasive species are present and will increase due to the clearing of the trees.</p>	<p>Non Native Invasive Species will be analyzed in Chapter 3 of the EA.</p>
4-1	Gillian Johnston	<p>Does not support this proposal and finds it to be very environmentally unjust</p>	<p>Comment noted, thank you for your input.</p>
4-2	Gillian Johnston	<p>(Proposal) will destroy a local rural community that has existed since the early 1800’s</p>	<p>The Hoosier will analyze the effects of conveying right-of-way easements to Lawrence and Monroe Counties on National Forest System land. Monroe County contracted American Structurepoint to analyze the overall</p>

			effects of the road construction project.
4-3	Gillian Johnston	The projected thoroughfare will most likely have an increased speed limit, which means that the majority of the traffic will travel at higher speeds, and some will drive in excess through our rural community. This will actually make the passage extremely unsafe and more hazardous.	Comment noted. See Response 3-1
4-4	Gillian Johnston	(Proposal) will open a large pathway of sunlight into a mature old growth forest which will provide way for invasive species, which will in turn destroy the ecosystem.	There is no old growth forest within the project area. Non Native Invasive Species and tree removal will be analyzed in Chapter 3 of the EA.
4-5	Gillian Johnston	The widening and straitening of the road will greatly impact the peace, enjoyment, quietude and safety of our community along Hunters Creek Road. Who stands to gain?	Comment noted. See Response 3-1.
5	David Derse	Please do what you can to stop the widening of Brooks Creek Rd.	We assume the commenter is referring to Hunters Creek Road. Comment noted, thank you for your input.
6-1	Cassidy Raley	Strongly oppose the idea to widen our road	Comment noted, thank you for your input.
6-2	Cassidy Raley	I believe that Hunters Creek has always been safe for driving and that by widening our road, you are going to make it easier for people to drive faster and there will be more traffic.	Thank you for your input, See response 3-1.
6-3	Cassidy Raley	Not to mention the damage it does to the forest and the ecosystem of something that has been untouched and growing for a very long time	The environmental effects of conveying right-of-way easements to Lawrence and Monroe Counties on National Forest System land will be analyzed in Chapter 3 of the EA.
6-4	Cassidy Raley	I think that the road that is here now is completely useful and safe for people seeking an alternate route to the Deam Wilderness and that by adding this giant road, you are increasing traffic and will damage the National Forest that the people of this area cherish very much.	Thank you for your input, see responses 3-1 and 6-3.

6-5	Cassidy Raley	I really hope that the people working on this project can see what they are doing to the beautiful forest and wildlife in this area and that you will affect many people's lives on this road who have lived here for years and years. By keeping a small, less traveled road, you are keeping things safe and preserving the forests and wildlife.	Comment noted, thank you for your input.
6-6	Cassidy Raley	Every person that lives on this road is against this. No one wants more traffic, and I know for a fact that this road will not create more "safety."	Comment noted, thank you for your input.
6-7	Cassidy Raley	The people who travel these roads respect that they are small, they mind the speed, and we all are aware that we need to be careful when driving in a rural area.	Comment noted, thank you for your input.
6-8	Cassidy Raley	Since I have lived here, I do not recall an accident or any unsafe circumstances.	Comment noted, thank you for your input.
6-9	Cassidy Raley	Please reconsider this project, for the respect of the national forest and the people that love it.	Comment noted, thank you for your input.
7-1	John Cook	I disagree with the proposal to widen Hunters Creek Rd located in both Lawrence County as well as Monroe County.	Comment noted, thank you for your input.
7-2	John Cook	I know of no safety concerns that warrant the destruction of federally held natural habitat or diminishing of private properties held by local residents. Please leave Hunters Creek Road as it is.	Comment noted, thank you for your input.

Responses to Comments Made During 30-Day Comment Period

On January 7, 2015, we sent the Hunters Creek Road ROW Conveyance Environmental Analysis document (EA) to those who commented during the initial scoping period. The EA was also available on the Hoosier’s website. During the comment period, one response was received.

Public Comments and Responses from 30-Day Comment Period

Comment #	Name	Summary	Forest Response
1	Michael Baker	To couch that this will correct safety issues is preposterous. I challenge the forest service to find any amount of accidents on this road that would be considered above any norm for a road like this.	As stated in Monroe County’s project documents, the current roadway does not meet INDOT safety standards or roadway design criteria. In its current condition, Hunters Creek Road has the potential for accidents due to its geometrics. The Monroe County Highway Department established the purpose and need of the proposed road reconstruction project. The Hoosier National Forest’s proposal is to convey right-of-way easements to Lawrence and Monroe Counties to facilitate the reconstruction on National Forest System land.
		On any given day except maybe in hunting season it would be rare to see more than a dozen vehicles that are not locals on this road. The curves are the only thing that keeps strangers from treating the road as a raceway. Any straightening of the road will greatly increase average speeds and thus increasing the risk of serious injuries.	Lawrence and Monroe Counties have jurisdiction for Hunters Creek Road. The need for the project was proposed by Monroe County Highway Department. As stated in the County’s NEPA document, the need for the project is “substandard geometrics on Hunters Creek Road which includes substantial vehicle serviceability concerns, stopping sight distance which fails to meet INDOT criteria, and undesirable vertical and horizontal alignment at multiple locations. Existing roadway width is inadequate to maintain two-way traffic, and lacks suitable roadside shoulders and clear zone. Horizontal alignment along Hunters Creek Road is winding in nature with many sharp curves. There are also abrupt reversals

			<p>in alignment including compound curves, reverse curves, and S-curves.”</p>
		<p>The Forest service made no effort to contact us to see how we felt. We only found out because a concerned relative of one of the neighbors saw the article in an obscure corner of a local paper. As most of us do not read or even have access to The Herald Times we were lucky they happened to see the article. Without this person none of us would never have even heard about it. I hope in the future if someone tries to steal your property you will be treated better. No one, especially land owners and taxpayers should be treated with such disrespect.</p>	<p>The respondent may be referring to Monroe County’s method of public notice.</p> <p>The Hoosier National Forest mailed a scoping letter on July 10, 2014 to the 15 landowners along Hunters Creek Road, including the commenter. The Forest received seven responses to scoping.</p> <p>The legal notice announcing the 30-day notice and comment period was posted in the <i>Hoosier Times</i> on January 11, 2015; however, those that responded to scoping were sent a copy of the Environmental Assessment.</p> <p>The Hoosier National Forest proposes to convey right-of-way easements to Monroe and Lawrence counties, not private land acquisition.</p>
		<p>In fig. #4 you show some small section that was redone on 2009 this is almost irrelevant because it is not a 70 foot wide clearing so to use it as an example of how the project will look is insulting to the intelligence of most people.</p>	<p>Figure 4 displays the section of road reconstructed in 2009 and represents the scenic character of what the road will look like on National Forest System land.</p> <p>The existing right-of-way at the south end of the 2009 reconstruction, where the photo was taken, is approximately 60 feet.</p> <p>It is important to note that the actual width of the authorized right-of-way would vary from segment to segment within the road corridor, but would generally average 70 feet. Also, the clearing limit within the right-of-way varies as well and does not always extent to the right-of-way.</p>

		<p>You state in Section 3.5 that the project would not likely to be able to proceed without the right of way conveyance. We can only implore you to put yourself in the place of the residents here and consider the way it will alter our way of life and destroy an area we all love and desire to protect. I am not saying that there are not improvements to the road that could be made. None of them would require a 70 foot right of way and or massive damage the trees and private property that will result.</p>	<p>Comment noted, thank you for your input.</p>
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Appendix C - Design Measures

The ID team incorporated management requirements and design measures in the project design to reduce any potential negative impacts of the project. We do not list all *Forest Plan* standards and guidelines (USDA 2006a) and statewide best management practices (BMPs) here, but they are required of implementers of the project.

Table C-1: Hunters Creek Road Right-of-Way Conveyance Design Measures

SITUATION TO BE PREVENTED OR AMELIORATED	MEASURE	RESPONSIBILITY OF
NNIS		
Potential spread of NNIS plants	All equipment used (tree clearing, soil moving, road building) shall be cleaned prior to entry onto the Hoosier National Forest to prevent the introduction of any additional non-native invasive species (NNIS) to the area. If equipment leaves the Hunters Creek Road project area to work on other locations, it must be cleaned again prior to re-entry onto the Forest. The special use administrator for the Forest Service may ensure that all equipment is clean before construction occurs. Equipment can be cleaned at any high-pressure wash facility or with a high-pressure air hose. The easement holder will be required to keep an equipment-cleaning log on site for inspection by the Forest's special use administrator.	Easement Holder (comply/implement) FS Special Use Administrator (monitor/enforce)
Potential spread of NNIS plants	If soils from cuts on the Hunters Creek Road project are not enough to use for road fills in the project, the contractors will need to identify the potential borrow areas for Forest Service inspection. This is to ensure that invasive species are not introduced to the project area and adjoining federal properties through seed infested soil. Inspections of borrow sites can be done by a Forest Botanist or Biologist to identify the presence of any NNIS in the area.	Easement Holder (comply/implement) FS Special Use Administrator and FS Botanist (monitor/enforce)
Potential spread of NNIS plants	Disturbed soils on this project shall be re-vegetated with the Hoosier National Forest seed mix). If different seed mixes or plant species are suggested for the site, they must first be approved by a Forest Biologist or Botanist prior to use.	Easement Holder (comply/implement) FS Special Use Administrator and FS Botanist/Biologist (monitor/enforce)
Potential spread of NNIS plants	Prohibit mowing by tractors of road ROW on NFS lands for 30' either side of any stream or waterbody crossing to prevent spreading NNIS seeds into the waterways; vegetation control will be limited to hand-held trimmers in these areas; Holder shall be required to place "no mowing signs" 30' either side of stream crossings to help ensure adherence to this requirement.	Easement Holder (comply/implement) FS Special Use Administrator (monitor/enforce)
Soil and Water		
Effects to aquatic resources	To the maximum extent practical, limit the physical disturbance of the stream and riparian vegetation, especially large trees overhanging any affected water bodies.	Easement Holder (comply/implement) FS Special Use Administrator (monitor/enforce)
Erosion, sedimentation	Require easement holder to employ appropriate structures and techniques be utilized both during construction phase and after completion of the	Easement Holder (comply/implement)

	project to minimize the impacts associated with storm water runoff.	FS Special Use Administrator (monitor/enforce)
Erosion, sedimentation	Install silt fence or other erosion control measures around the perimeter of any wetland or other water bodies to remain undisturbed at the project site.	Easement Holder (comply/implement) FS Special Use Administrator (monitor/enforce)
Soil movement	Minimize the extent of artificial bank stabilization and use bioengineering methods wherever feasible.	Easement Holder (comply/implement) FS Special Use Administrator (monitor/enforce)
Erosion, sedimentation	Require implementation of temporary erosion and siltation control measures in accordance with the terms and conditions of the special use authorization and provisions of the accompanying Operation and Maintenance Plan.	Easement Holder (comply/implement) FS Special Use Administrator (monitor/enforce)
Erosion, sedimentation	Re-vegetate all disturbed soil areas immediately upon project completion.	Easement Holder (comply/implement) FS Special Use Administrator (monitor/enforce)
Erosion, sedimentation	Seed and protect all disturbed slopes that are 3:1 or steeper with heavy-duty biodegradable erosion control blankets.	Easement Holder (comply/implement) FS Special Use Administrator (monitor/enforce)
Wildlife		
Effects to bats	Tree cutting cannot occur from April 1 through September 30 in order to protect bats that could be roosting and raising young in the tree canopy.	Easement Holder (comply/implement) FS Special Use Administrator (monitor/enforce)
RFSS Plants		
Effects to RFSS Plants	Spraying of herbicides was not analyzed for this project and therefore is not allowed for use for road maintenance along any of the federal portions of the road ROW.	Easement Holder (comply/implement) FS Special Use Administrator (monitor/enforce)

Appendix D - Monitoring

In addition to all required monitoring, the Hoosier will pursue the following monitoring activity related to this project.

- Conduct monitoring to determine the efficacy of any NNIS control treatments done in the project area and any effects upon non-target vegetation or animals.