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Wildlife Habitat Education Program— Teaching and Learning Wildlife Management Practices

The Wildlife Habitat Education Program (WHEP) helps students understand wildlife ecology and management practices. In addition, students gain skills in teamwork, oral and written communication, decision-making, and leadership.

The WHEP career development event includes three activities—Wildlife Challenge, Wildlife Management Practices, and Wildlife Management Plan. Each activity has an important role in teaching about management of wildlife populations.

The instructions in this publication can help teach students to evaluate habitat for Wildlife Management Practices (WMPs). Students

in WHEP first learn the biology and ecology of wildlife species and gain a basic understanding of their habitat requirements. Then they learn how various wildlife management practices can meet wildlife needs under a given set of circumstances.

With this knowledge, students develop a wildlife management plan that describes in detail how to implement and evaluate management practices to meet landowner objectives. For more information about the other aspects of WHEP, check the Resources section at the end of this publication.

www.fnr.purdue.edu

What Are WMPs?

Wildlife management practices are the key to maintaining and improving habitat for wildlife species. Wildlife species depend on food, water, and cover to survive. Without management, one or more of these components may be insufficient or absent. Even when food, water, and cover are abundant, some management is usually required to maintain them, since habitats change over time through plant succession. Early successional habitats such as grasslands can change substantially in species composition and structure within a few years. Even mature forests change over time, although more slowly. Many WMPs focus on the use of disturbance to manipulate plant succession in a habitat.

In addition to altering habitat, wildlife management practices can also directly affect wildlife populations. A wildlife manager may need to increase or decrease the harvest of game species, or use lethal control of nongame species, depending on site conditions and landowner objectives. A complete list of WMPs used in WHEP along with detailed descriptions may be found in the national WHEP manual (Harper et al., 2014).

Overview and Scoring

The Indiana WHEP only uses the WMPs recommended for the species listed under the Eastern Deciduous Forest, Urban, or Wetland ecoregions of the national WHEP manual. And, in any given year, students are only evaluated on WMPs for **one** of these sections for both the WMP activity and the Wildlife Management Plan activity. Coaches will be notified of that year's ecoregion by February 1. Detailed and final instructions are updated annually on the Indiana Wildlife Habitat Education CDE website (see Resources).

Eight wildlife species are considered for the state WMP activity; only five are considered for regional invitationals. During the activity, students are given a summary of existing site conditions and circumstances to consider when recommending wildlife management practices. The unit boundaries are given during the explanation of the scenario. Students must consider **only** habitat conditions within the unit boundary. Based on this information and their evaluation of the existing habitat on site, each student recommends WMPs necessary to manage wildlife

and vegetative type. Management recommendations must consider each species **separately**. That is, WMPs are recommended as if each species were the only species (focal species) considered on the site. This is different from what participants do for the Wildlife Management Plan (see Carroll and Williams, 2014).

Each WMP should also be considered independently from other WMPs. Recommending a WMP that fulfills a missing habitat requirement does not preclude selecting other WMPs that meet the same missing habitat requirement. Students mark recommended WMPs on a score sheet (see Appendix 1 for a sample score sheet) and have 30 to 60 minutes to complete this activity. This is an individual activity, so no talking or collaboration among team members is allowed.

Participants receive credit for correctly marking recommended WMPs **and** for leaving blank WMPs that should not be recommended. Each student will begin with a baseline of 200 points. Four points will be awarded for each practice correctly identified and two points will be deducted for each incorrectly identified practice. Students can earn 0 to 400 points on this activity.

Strategies for Choosing Wildlife Management Practices

The national WHEP manual, *Wildlife Habitat Education Program* (see Resources), lists appropriate wildlife management practices for wildlife species within each ecoregion, although not all wildlife management practices listed are used in every ecoregion. Most practices are appropriate for at least one species in the *Eastern Deciduous Forest* ecoregion (see Appendix 2). For example, within this ecoregion, "Water Control Structures" is a wildlife management practice suitable for only mourning doves, wood duck, bluegill, and largemouth bass. However, students should avoid automatically checking a practice listed for a particular species. Simply memorizing the matrix of WMPs and wildlife species in Appendix 2 is not a workable strategy, as checking every WMP as listed in the matrix could result in a score of zero if more WMPs are selected than necessary.

Whether or not a student selects a WMP depends on the current habitat conditions under the given the scenario. The best strategy is to use the list provided in the manual as a **list of potential practices** to consider. Potential WMPs for species may or may not be appropriate under a given set of conditions and circumstances for a particular scenario. That is, students should avoid automatically checking the "Water Development for Wildlife" box just because mourning dove was one of the species listed for the activity. If permanent, open water sources are already available on a given property, "Water Development for Wildlife" is not an appropriate management practice and should be left unchecked for mourning dove, even though the landowner desires to maintain or increase mourning dove use of the property.

It may be unclear which WMP to recommend when given a choice of potential practices with similar goals and outcomes. When similarities between or among WMPs arise, students should consider both the intended purpose of each practice **and** the vegetation type. For example, both "Construct Fish Pond" and "Water Developments for Wildlife" will result in open water of some value to a variety of fish and wildlife species. The purpose of "Construct Fish Pond" is to develop habitat for fish. The purpose of "Water Developments for Wildlife" is to create aquatic habitat for wildlife. This may seem trivial, but the physical design of each and how they are managed are quite different for fish compared to wildlife.

Similarly, the vegetation type as well as the different aspects of each WMP should be considered when selecting appropriate WMPs. For example, both "Forest Management" and "Set-back Succession" WMPs may involve the use of mechanical disturbance (e.g., chainsaw) that results in setting back plant succession. With the "Forest Management" WMP, trees may be removed with a chainsaw to renew or maintain a forest stand (forest regeneration), improve the quality and composition of a forest stand (timber stand improvement), or increase sunlight exposure for forest roads (forest road maintenance).

With the "Set-back Succession" WMP, trees may be killed or removed (chainsawing) where trees are not desired for the focal wildlife species. The practice of chainsawing within the "Set-back Succession" WMP is intended to increase and maintain an early successional community—not a forest. Even though herbaceous plants will develop where trees are removed from the "Forest Management" WMP, these will be short-lived and trees will eventually dominate the site. However, some activities within the

"Set-back Succession" WMP are applicable to managing woodlands and forests. "Prescribed Fire," for example, can be used to reduce litter, limit succession of woody plants, and encourage herbaceous groundcover. Even chainsawing can be used in woods if the goal is to convert hardwood forests to early succession or savanna. Again, these differences may seem trivial, but the methods used and the desired vegetation structures are quite different for these practices. When applicable, explanations are listed in the notes section for each WMP in the national WHEP manual (Harper et al., 2014). Notations and examples are also provided for each WMP listed for each wildlife species account in the manual.

Lastly, a common point of confusion regarding WMPs is whether or not a practice should be recommend based on need versus benefit. The manual lists food, water, and cover requirements of each wildlife species. If the site under consideration has a required element in sufficient quantity and/or condition for the target species, then students should not select practices which meet that required element, even though it could be utilized by the target wildlife species in some capacity (and thus, "benefit" them in some way; see the mourning dove example above). Thus, for the purposes of the WMP activity, if it's there already and in sufficient quantity and/or condition for the target species, it's not needed.

A Step-by-Step Approach
As a general step-by-step approach for completing this activity, students should:

1) know the habitat requirements of each species

2) assess the species composition and structure of the vegetation community already available on the site

3) determine what habitat requirements are missing on the site for each wildlife species, and

4) determine which practices will supply the missing habitat requirements from the list of available WMPs for each wildlife species.

Figure 1. In this view of the small 1-acre pond looking from the dam, some slopes are gentle, but others are steep. Dense woods and shrubs grow to the pond's edge on two sides. A crop field is located on other side.

Figure 2. This 10-acre, row-crop field is located adjacent to the pond and part of the woods and can be managed for desirable wildlife species, if necessary. Note that the depression in the middle of the field may be suitable for a restored wetland or marsh. Stubble from the previous year's crop is also visible.

Examples

For the site conditions and scenario listed below, I provide examples for only two wildlife species, wood duck and northern bobwhite, due to space limitations. For the activity, students will be provided stated objectives for eight wildlife species.

Instructions

The area considered is 15 acres. Consider no other habitat features outside of this area. There is a small woodlot (approximately 5 acres) that surrounds a small pond on two sides (Figure 1). The landowners also have a 10-acre, row-crop field adjacent to the other side of the pond and part of the woods (Figure 2). Although the field is not planted yet, the entire field will be planted to corn this season, and you should consider the field to be an existing cornfield. The crop field provides supplemental income, but the landowners are willing to convert all or parts of the field to wildlife habitat.

> *Note to instructors:* These instructions are representative of the type of information provided to students prior to the activity.

Information students should gather while assessing the site

A few hard-mast species, including American beech and shagbark hickory, are scattered throughout the woods. Very few of these trees are large (>16 inches) in diameter and, thus, capable of producing any substantial mast crop or cavities. Most of the woods are composed of relatively smaller (<10 inches) diameter, soft-mast species including black cherry, hackberry, basswood, and cottonwood (Figure 3), although some smaller oaks (pin oaks, bur oak) are sparsely scattered in the woods.

Figure 3. When looking at a site, students need to look at the successional stage(s), species composition including desirable plants as well as invasive plants, and the presence and characteristics of required habitat components for the focal species. In this woodlot, there are a couple of large, shagbark hickory trees in the stand, but most of the stand is composed of smaller, soft-mast species including hackberry, black cherry, and cottonwood.

Figure 4. For this relatively common plant, many basil rosettes were scattered throughout the woodlot (left). A few plants with the same kidney-shaped basal leaves were taller with small white flower clusters (right). The leaves of both forms have a garlic smell when crushed. This species is herbaceous—that is, it has no woody stems. *Credits: Tom Heutte, USDA Forest Service, Bugwood.org (left), Chris Evans, Illinois Wildlife Action Plan, Bugwood.org (right)*

Figure 5. Many small woody seedlings with leaves similar to those of the plant in Figure 4 were scattered throughout the woodlot. The leaves of this plant are maple-leaf shaped (not kidney-shaped), are more sharply serrated (points on the edges of the leaves), and lack the garlic smell when crushed. They are also arranged on the plant in opposite pairs. *Credit: Wendy VanDyk Evans, Bugwood.org*

Figure 6. This fairly common shrub is growing vigorously in the understory and along the woods' edge. It has completely leafed out (most shrubs are just now breaking bud or are still dormant). The stems are hollow when broken. The branching and leaf arrangement are opposite. Very few, if any, herbaceous plants are found growing directly under these shrubs.

Size class distribution of the overstory trees as well as the open understory structure is generally consistent throughout the woodlot. The understory is relatively open, but several common plant species were found throughout the understory and/or along the edge of the woods (Figures 4-6). The pond has a simple dam along one edge that appears to be functional; no water control structure is visible. Woods and shrubs border two sides of the pond with the crop field bordering the remaining edge. A small depression is located in the crop field and stubble from the previous year's crop is also apparent.

> *Note to instructors:* This description is not provided during the activity. These are examples of characteristics students should assess on a given site (Step #2 above).

During the activity, a specific area will be delineated for students. It is their responsibility to walk the area while noting the presence or absence of the habitat requirements for each species. Important habitat features that are very rare or difficult to see will be provided to students in the scenario since it wouldn't be reasonable to expect students to find them in a limited amount of time. For example, when only a few non-native invasive plants are located in the area, students will be instructed that non-native invasive plants are present. Remember that each WMP should be considered separately from others. In a situation where hard mast is desired but lacking, and the unit being evaluated contains both woods and open areas, then both "Forest Management" and "Plant Trees" practices could be selected.

Example 1 – Mr. and Mrs. Wildlifer want to manage their property to attract wood ducks throughout the year and especially for hunting in the fall.

Target species' habitat requirements (from Harper et al., 2014)

Diet: Acorns are the primary diet item in fall and winter. Other hard mast, miscellaneous seeds, and soft mast as well as waste grain (especially corn) also are eaten. Insects and other invertebrates are most important for wood duck chicks and hens prior to and during the nesting season.

Water: This is obtained through diet and by drinking freestanding water regularly.

Cover: Shallowly flooded bottomland hardwoods, emergent wetlands, swamps, and marshes are commonly used for loafing and foraging cover. Tree cavities in forested areas and artificial cavities used for nesting.

Selected WMPs[1]

- Control Nonnative Invasive Vegetation—Most habitats in Indiana have some type of invasive vegetation that should be controlled. A list of Indiana's "Most Unwanted" invasive plants is located at http://extension.entm.purdue.edu/CAPS/. At a minimum, students should be able to identify Asian bush honeysuckle, autumn olive, Canada thistle, garlic mustard, Japanese honeysuckle, multiflora rose, and tall fescue. Species A (garlic mustard) and Species C (Asian bush honeysuckle) are both non-native invasive plants that should be controlled. The seedlings of maple-leafed viburnum (Species B), wild violets, and other plants are sometimes confused with garlic mustard. The leaves of garlic mustard have a garlic odor when crushed. Compared to native plants, invasive plants in general tend to leaf out earlier in the spring and drop leaves later in the fall. They also tend to grow in large groups and dominate a site or parts of a site.

- Create Snags—While there are a few large trees in the woods, none had obvious cavities. Since cavities may be limited, creating snags out of some of the larger diameter trees will facilitate cavity development. For wood ducks, the manual lists trees >12 inches in diameter as suitable. If no trees of this size or larger exist, this practice would not be selected.

- Forest Management—The woods was mostly comprised of soft-mast tree species. While wood ducks consume soft mast, hard mast (and especially acorns) is an important fall food source. Since the landowners are especially interested in hunting wood ducks, priority should be given to enhancing hard mast. Forest regeneration can help to provide more opportunity for the oaks and American beech trees. Timber stand improvement can be used to release the existing hard-mast trees from competing soft mast species. This would be especially important adjacent to the water.

- Leave Crop Unharvested—This practice will provide a high-energy food source during the fall and winter. Waste grain, especially corn, is eaten by wood ducks. This is especially important since the field is adjacent to the pond.

- Nesting Structures—Natural cavities are limited since most of the woods is made up of smaller diameter trees and the few large trees present lacked obvious cavities. This practice is appropriate where a lack of natural cavities may be limiting.

- Plant Food Plots—While the cornfield managed for waste grain serves as a food plot for wood ducks, it only provides food during the fall (remember, they want to attract wood ducks throughout the year). Thus, adding plots that provide food during other parts of the year would be required. Even though there is no space to plant along the edges of the pond that border the woods (Figure 1), a food plot mix (e.g., smartweed) could be planted along the edge of the field that borders the other side of the pond, and/or within the small depression, since it may be seasonally wet.

- Plant Shrubs—Shrubs should not be planted in the woods, since there is not adequate sunlight for growth and development. Where additional shrub cover is needed in forested areas, "Forest Management" should be recommended. However, there is a lack of emergent vegetation along the edge of the pond. Although there is no space to plant along the edges of the pond that border the woods (Figure 1), shrubs planted along the edge adjacent to the crop field would provide soft mast. Plant shrubs for wood duck only when there is a lack of emergent woody vegetation in open areas that can be flooded.

- Plant Trees—Planting a mixture of species is usually recommended when mast production is the objective. Mast (acorns) is required by wood ducks and is currently limited on this site. Although there is no space to plant along the edges of the pond that border the woods (Figure 1), hard mast trees planted along the edge adjacent to the crop field would provide a future food source.

- Set-back Succession—"Forest Management" is used in woods to remove trees when permanent openings are not desired, which is the case here. However, prescribed burning would promote more herbaceous vegetation that provides seeds and insects—both dietary needs of wood ducks.

- Water Control Structures—This pond has no visible water control structure (and was not referenced in the scenario). This practice should be recommended when inadequate or no structure is present on an existing dam or dike. The management of water levels facilitates the management of the amount and type of aquatic vegetation in the pond, and the creation of shallow water areas and mud flats. Lowering the pond level may also allow for planting trees and shrubs that can withstand seasonal flooding.

- Wildlife or Fish Survey—This should be checked unless it is specifically addressed in the scenario.

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[1] If the scenario explicitly stated that the field must remain in crop production to supply income, then Leave Crop Unharvested, Plant Shrubs, Plant Food Plots, and Plant Trees would not be selected for this example, because these practices would have to be done in the open field and would take ground out of production.

Unselected WMPs

• Livestock Management—None observed on the area.

• Repair Spillway/Levee—Pond dam does not need repair.

• Tillage Management—Wood ducks readily consume waste grain (especially corn). Reducing or eliminating fall tillage can increase access to waste grain during the fall hunting season until planting. However, since no-till or delayed-till practices are already in place because stubble from previous crop is still present, it is not recommended in this case.

• Water Developments for Wildlife—An additional water source is not needed since the existing pond is functional and not in need of repair. "Water Developments for Wildlife" are recommended when "an additional water source is <u>needed</u> or when an existing water development for wildlife is essentially not functioning because it is in need of repair."

Example 2
More northern bobwhites are desired. Although they have been seen in the area, little is known about their use of the property.

Target species habitat requirements (from Harper et al. 2014)

Diet: Young quail eat insects and other invertebrates (such as spiders). Adult quail eat a variety of seeds (especially legumes, ragweed, crotons, lespedeza, etc.), green vegetation (mostly forbs), invertebrates, various crops (corn, soybeans, wheat, millets, grain sorghum), and mast (such as acorns and blackberries).

Water: Necessary water is obtained through the diet.

Cover: Quail need shrub cover for escape and thermoregulation throughout the year, perennial native grasses for nesting, and native forbs for brood rearing.

Selected WMPs[2]

• Control Nonnative Invasive Vegetation—See explanation above for Example 1.

• Edge Feathering—Opening the canopy along the woods' edge adjacent to the field can increase shrubby, understory structure along the edge. The increase in shrubs will provide soft mast and insect production for food as well as escape cover for quail broods.

• Field Borders—Field borders are uncropped areas around crop fields or unhayed areas around hay fields designed to provide nesting, brooding and escape cover for many wildlife species. Early successional areas dominated by forbs such as ragweed are commonly used for nesting and brooding quail. This is limiting on the site in its current state. Field borders would also increase useable space of the area.

• Leave Crop Unharvested—This practice will provide some access to the crop during the fall and winter, and provide bugging area along edge for broods. Corn, soybeans, and wheat are readily eaten by quail.

• Plant Food Plots—In its current state, the crop field will provide some waste grain in the fall and winter, which in turn will provide some seeds and insects along the existing woodland edge. Planting a food plot along the crop field edge adjacent to the woods would enhance spring/summer foods and brood habitat (seeds and invertebrates are limiting given the lack of early successional habitat).

• Plant Native Grasses and Forbs—Some agricultural crops can provide seasonal food for bobwhites, but they are not a substitute for diverse native plant communities. Perennial native grasses provide nesting habitat, while native forbs provide brood-rearing habitat. Converting a large portion of the crop field to native cover would benefit quail.

• Plant Shrubs—Shrubs should not be planted in the woods since there is not adequate sunlight for growth and development. Where additional shrub cover is needed in forested areas, "Forest Management" should be recommended. To enhance shrubs along the crop field edge, "Field Borders" and "Edge Feathering" should be recommended. However, this practice may be used to establish clumps of shrubs in fields and/or hedgerows that divide the field into smaller units.

• Set-back Succession—Prescribed burning in the woods would promote more herbaceous ground vegetation and set back woody plant succession. "Chainsawing" and "Root Plowing" may also be used to remove trees and convert hardwood forest to early successional habitat or open woods.

• Wildlife or Fish Survey—This should be checked unless it is specifically addressed in the scenario. Covey counts, whistle counts, point counts, and hunter harvest and observation data are used to estimate trends in populations.

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[2]If the scenario explicitly stated that the field must remain in crop production to supply income, then Field Borders, Leave Crop Unharvested, Plant Food Plots, Plant Native Grasses and Forbs, and Plant Shrubs would not be selected for this example because these practices would have to be done in the open field and would take ground out of production.

Unselected WMPs

- Conservation Easement—There is no apparent threat of real estate development or other major land-use change.

- Forest Management—Used to manage bobwhites in pine forests only. "Set-back Succession" is used to manage hardwood forests for bobwhites.

- Livestock Management—None observed on the area.

- Tillage Management—No-till or delayed-till practices are already in place, because stubble from previous crop is still present.

- Decrease Harvest—The habitat is not good for northern bobwhites in its current state, nor is there any indication given that the population is declining or hunting pressure has been excessive.

Conclusion

The application of Wildlife Management Practices can be a challenging activity for students. Once students have a basic understanding of what each practice entails, the best way to learn this activity is to practice different scenarios for different wildlife species at a variety of sites. Ideally, this is done in a field setting so students can practice evaluating habitat requirements, but it can also be done in a classroom using pictures and verbal descriptions similar to those provided in this publication. During the activity, students simply select recommended WMPs on a score sheet. These answers actually represent a complex reasoning process to determine which WMPs should be marked and which should not. During practice, instructors should have students explain why they selected a given practice(s) and why they did not select others. Only through this repetitive process of evaluating different scenarios will students develop the skills to apply WMPs in a meaningful way, regardless of the site characteristics or management goals.

Resources

Indiana Wildlife Habitat Education CDE website
www.four-h.purdue.edu/WHEP/

4-H/FFA Judging Handbook (Current WHEP CDE rules and guidelines)
http://www.four-h.purdue.edu/agjdghndbook/index.html.

Carroll, N. and Williams, R.N. 2015. Developing a Wildlife Habitat Management Plan. Purdue University Cooperative Extension Service Publication 4-H-991-W, West Lafayette, IN.

Harper, C.; Elmore, D.; Williams, R.; Deck, A.; Chapman, R.; Clayton, M.; Avery, J.; Drake, D.; Eaton, S.; Frey, N.; Gourley, B.; Higginbotham, B.; and Mathenia, R. 2014. *Wildlife Habitat Education Program*, (C.A. Harper, editor), 335 p. Accessed from www.whep.org.

Williams, R.N. and Carroll, N. 2015. Wildlife Habitat Education Program: Preparing for the Wildlife Challenge. Purdue University Cooperative Extension Service Publication FNR-509-W, West Lafayette, IN.

Acknowledgment

Appendix 1. Example blank score sheet for Wildlife Management Practices in the Eastern Deciduous Forest.

Indiana 4-H WHEP
Wildlife Management Practices

Eastern Deciduous Forest								
Habitat Management Practices								
Conservation Easement	○	○	○	○	○	○	○	○
Control Nonnative Invasive Vegetation	○	○	○	○	○	○	○	○
Create Snags	○	○	○	○	○	○	○	○
Delay Crop Harvest	○	○	○	○	○	○	○	○
Edge Feathering	○	○	○	○	○	○	○	○
Field Borders	○	○	○	○	○	○	○	○
Forest Management	○	○	○	○	○	○	○	○
Leave Crop Unharvested	○	○	○	○	○	○	○	○
Livestock Management	○	○	○	○	○	○	○	○
Nesting Structures	○	○	○	○	○	○	○	○
Plant Food Plots	○	○	○	○	○	○	○	○
Plant Native Grasses and Forbs	○	○	○	○	○	○	○	○
Plant Shrubs	○	○	○	○	○	○	○	○
Plant Trees	○	○	○	○	○	○	○	○
Repair Spillway / Levee	○	○	○	○	○	○	○	○
Set-back Succession	○	○	○	○	○	○	○	○
Tillage Management	○	○	○	○	○	○	○	○
Water Control Structures	○	○	○	○	○	○	○	○
Water Developments for Wildlife	○	○	○	○	○	○	○	○
Population Management Practices								
Decrease Harvest	○	○	○	○	○	○	○	○
Increase Harvest	○	○	○	○	○	○	○	○
Wildlife Damage Management	○	○	○	○	○	○	○	○
Wildlife or Fish Survey	○	○	○	○	○	○	○	○
Fish Pond / Stream Management Practices								
Construct Fish Pond	○	○	○	○	○	○	○	○
Control Aquatic Vegetation	○	○	○	○	○	○	○	○
Fertilize / Lime Fish Pond	○	○	○	○	○	○	○	○
Reduce Turbidity in Fish Pond	○	○	○	○	○	○	○	○
Restock Fish Pond	○	○	○	○	○	○	○	○
Streams: Create Pools	○	○	○	○	○	○	○	○
Streams: Remove Fish Barriers	○	○	○	○	○	○	○	○

Total Incorrect _____   **Total Score** _____

Appendix 2. Wildlife Management Practices in the Eastern Deciduous Forest (Source: Harper et al., 2014).

Eastern Deciduous Forest	American woodcock	brown thrasher	eastern meadowlark	golden-winged warbler	great horned owl	mourning dove	northern bobwhite	ovenbird	wild turkey	wood duck	bobcat	eastern cottontail	eastern gray squirrel	gray fox	Indiana bat	white-tailed deer	eastern box turtle	timber rattlesnake	bluegill	largemouth bass
Habitat Management Practices																				
Conservation Easement			X	X			X									X				
Control Nonnative Invasive Vegetation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Create Snags				X	X					X				X	X					
Delay Crop Harvest																				
Edge Feathering	X	X		X	X		X		X			X	X	X		X				
Field Borders		X			X		X		X			X	X			X	X			
Forest Management		X		X	X		X	X	X	X	X	X	X	X	X	X	X	X		
Leave Crop Unharvested						X	X		X	X		X				X				
Livestock Management	X	X	X		X		X	X	X	X	X	X	X	X		X	X	X	X	X
Nesting Structures										X										
Plant Food Plots						X	X		X	X		X	X			X				
Plant Native Grasses and Forbs			X		X	X	X		X			X				X	X			
Plant Shrubs	X	X		X	X		X		X	X	X		X			X	X			
Plant Trees	X			X	X	X		X	X	X			X	X	X	X	X	X		
Repair Spillway/Levee						X				X									X	X
Set-back Succession	X	X	X	X	X	X	X		X	X	X	X	X			X	X			
Tillage Management					X	X	X		X	X		X				X				
Water Control Structures						X				X									X	X
Water Developments for Wildlife						X			X	X						X	X			
Population Management Practices																				
Decrease Harvest	X						X		X		X	X	X	X		X			X	X
Increase Harvest									X		X	X	X	X		X			X	X
Wildlife Damage Management				X					X		X	X	X	X		X		X		
Wildlife or Fish Survey	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fish Pond/Stream Management Practices																				
Construct Fish Pond																			X	X
Control Aquatic Vegetation																			X	X
Fertilize/Lime Fish Pond																			X	X
Reduce Turbidity in Fish Pond																			X	X
Restock Fish Pond																			X	X
Streams: Create Pools																				
Streams: Remove Fish Barriers																				

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