

APPENDIX D:

**ASSESSMENT OF CONSERVATION AND RECREATIONAL VALUE FOR
THE MDI / IDNR / IDOC LAND EXCHANGE PROPOSAL**

(Conservation and Recreational Assessment)

Assessment of Recreation and Conservation Value for the MDI / IDNR / IDOC Land Exchange Proposal

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Introduction

A proposal has been put forward where a single land parcel (1,250 acres) in Johnson County, IN, currently owned by the Indiana Department of Natural Resources (IDNR) and managed by the Indiana Division of Fish (IDFW) as wildlife as part of Atterbury Fish and Wildlife Area, would be acquired by the Military Department of Indiana (MDI) as part of the Camp Atterbury Joint Maneuver Training Center. In return, three unconnected parcels of land (1,990 acres) in Putnam County, IN, currently owned by the Indiana Department of Correction (IDOC) as part of the Putnamville Correctional Facility, would be acquired by the Indiana Department of Natural Resources to be managed as a fish and wildlife area under the Indiana Division of Fish and Wildlife. The purpose of this biological assessment is to determine the impact of the proposed actions on wildlife management and recreational opportunities on the specific parcels of Atterbury Fish and Wildlife Area and the Putnamville Correctional Facility.

Species Selection

Because the primary use of these parcels currently is or will be for recreational hunting, our biological assessment focused on populations of game species native or naturalized to central Indiana.

Game Species – Mammals

White-tailed Deer
Northern Fox Squirrel
Eastern Gray Squirrel
Eastern Cottontail

Game Species – Birds

Eastern Wild Turkey
Ruffed Grouse
Northern Bobwhite
Mourning Dove
American Woodcock
Ring-Necked Pheasant

Game Species – Waterfowl

Canada Goose
Mallard
Wood Duck

Research Information

Parcels were assessed using fish and wildlife area use and harvest data summaries, the 2008-2009 small game harvest survey, the 2009 deer harvest survey, 2007 color aerial photographs, and ArcGIS 2001 land cover data.

Field Inspections

Each of the proposed parcels was visited between February 23 and 24, 2008. To facilitate the assessment of forest composition, landscape pattern, and wildlife habitat condition, IDFW staff utilized aerial photographs and GIS data layers.

There were two principal objectives for field inspection of the parcels; 1) to qualitatively assess the forest structure and wildlife habitat conditions, and 2) to assess both primary activity and secondary activity user issues. Formal wildlife population surveys were not conducted on the parcels. Thus, inferences about the species that may actually inhabit the parcels are based on assumptions about species-habitat associations, geographic range maps, and biological surveys conducted in the surrounding areas.

Assessment of Parcels

Atterbury Fish and Wildlife Parcel

The Atterbury FWA consists of 6,206 acres. The affected parcel, 1,250 acres, (Figure 1) is located north of Hospital Rd, east of the Johnson County Park, and from Burnside Rd on the northside to Mauxferry Rd on the eastside. The area does include the current headquarters for Atterbury Fish and Wildlife Area, but does not include the Atterbury public shooting range or fishing lakes.

Habitat Composition

Using 2001 land cover data (Figure 2), the Atterbury Fish and Wildlife Area parcel contains 71% (887 acres) early successional grass land to late successional brushy scrub land, 25% (313 acres) forested land, and 4.0% (50 acres) developed land (Table 1).

Wildlife Populations and Habitat

This parcel at Atterbury Fish and Wildlife Area (FWA) is largely upland habitat, with limited areas for deer to take cover. The lack of mature timber on Atterbury FWA as a whole and particularly the exchange parcel, as well as the lack of a nutritious food source (when compared to the surrounding areas), appears to show that relatively few deer are found on Atterbury FWA, with an even smaller proportion found in this parcel. Like deer, tree squirrels are probably not found on most of this parcel due to the lack of mature forests.

The most important habitat element for upland game (eastern cottontail, northern bobwhite, ring-necked pheasant) is early succession grassy or weedy areas. These areas are essential for feeding, nesting, and winter cover. When these areas are mixed with small areas of brushy shrubs and small woodlots, the habitat has the potential to support healthy sizable populations of upland species. The loss of the land (whether developed or allowed to mature) could have a detrimental effect on eastern cottontail and northern bobwhite on Atterbury FWA.

Migratory game birds (i.e. mourning dove and American woodcock) use early successional grasses and brushy cover for nesting, roosting and feeding, and a loss of this habitat could keep these migratory birds from using the area all together. Several existing dove fields have been created by the staff at Atterbury FWA within this parcel for hunters to use.

The habitat on this parcel is not considered the best for wild turkey and the population is likely not significant in the area. The habitat is also not conducive for ruffed grouse and populations are currently so low, there may not be any of these birds within any local proximity to this parcel.

With a lack of water on this specific parcel, waterfowl will be unaffected by any changes to the current state of Atterbury Fish and Wildlife Area.

Habitat Management

To keep the area in quality upland habitat, primarily maintaining early successional habitat for eastern cottontail and northern bobwhite, the staff at Atterbury FWA has implemented several different management practices, or prescriptions. These prescriptions include burning, disking, planting, spraying, plowing, mowing, and brush-cutting. Over the past five years, a significant amount of time and money has been invested in the improvement of upland habitat within portions of the specific parcel on Atterbury Fish and Wildlife Area. During this time period, the cost of implementing various management prescriptions has totaled \$65,456.60, an amount that calculates to \$55.24 spent per acre (Table 2). The staff uses these practices and others to cater the habitat to specific upland species such as the creation of brush piles for eastern cottontail escape cover, but also to provide recreational activities, including disking and mowing to open areas for hunters.

Primary Recreational Access and Use

Public use of Atterbury FWA is managed primarily for recreational hunting. The vast majority of sportsmen using the proposed exchange parcel at Atterbury annually are upland game hunters, also referred to as small game hunters (small game at Atterbury FWA includes eastern cottontail, mourning dove, American woodcock, fox and gray squirrels, and northern bobwhite). Based on data collected over the past five years, about 40% of upland game hunters at Atterbury FWA

hunted this specific parcel, approximately 1482 hunters annually. Looking at hunter harvest cards for Atterbury FWA, 75% of the eastern cottontails, 50% of the northern bobwhites, 25% of the mourning doves, 25% of the American woodcock, and 10% of the eastern wild turkeys are typically harvested within this specific parcel.

Aside from the wild upland game, Atterbury FWA releases ring-necked pheasants for put-and-take hunts in November. Over 1600 Hunters participate in this hunt annually, and 50-75% of these sportsmen hunt on this parcel. Glendale FWA in Daviess County is the only other area in the southern half of the state that provides put-and-take hunts. Over the past five years, Atterbury has taken in more than \$60,000 from put-and-take hunt fees.

In regards to deer hunting, only 36 deer were legally taken on Atterbury FWA during the 2009-2010 hunting season. With mature forests in other areas of the FWA, it would be expected that relatively few deer were harvested within this parcel (10% or less). Approximately 1 deer was harvested for every 170 acres of available land in Atterbury FWA in 2009, with less than 1% of success rate in attempts (estimated 4,477 efforts) to harvest a deer, indicating a relatively small deer herd throughout the FWA.

Currently, access to any part of Atterbury Fish and Wildlife Area is convenient from Hospital Road, with most of hunters traveling Mauxferry, Burnside, North, School House, and Stone Arch Roads. Proposed changes to the access of several of these roads, including Burnside and North Streets would greatly hamper the public ability to travel through Atterbury FWA decreasing convenience and, in turn, lowering user satisfaction.

Most of the hunters that use the public land of Atterbury Fish and Wildlife Area live near the FWA or live in and around the Indianapolis metro area. Atterbury FWA is the closest public hunting area to Indianapolis and is one of only two fish and wildlife areas within an hour's drive of the city; the other area, Wilbur Wright FWA, is barely over 1000 acres in size (Figure 5) and does not have ring-necked pheasant releases. There are four DNR-owned properties within 30 miles of Atterbury that provide hunting opportunities, and these properties are almost entirely composed of either aquatic or forested areas. Atterbury FWA is also only one of three designated fish and wildlife areas in all of southeastern Indiana.

Secondary Recreational Access and Use

This parcel provides other opportunities for recreation aside from hunting. Although not quantified, the staff of Atterbury FWA has found that many people drive the roadways in and around this parcel to observe wildlife such as deer, songbirds, and hawks. Others from the surrounding communities spend time collecting natural foods such as blackberries or morels mushrooms. Again, proposed changes to the access of several of these roads, including Burnside and North would greatly hamper the public ability to travel through Atterbury FWA decreasing convenience and, in turn, lowering user satisfaction.

Putnamville Correctional Facility Parcels (proposed Deer Creek FWA)

The three parcels totaling 1,990 acres (Figure 3) surround the Putnamville Correctional Facility, both north and south of US Highway 40, and between State Road 243, and County Road 250.

Habitat Composition

Using land cover data (Figure 4), the Putnamville Correctional Facility parcels contain 57% (1,134 acres) crop land to late successional brushy scrub land (mostly in crop land), 41% (816 acres) forested land, 1% (20 acres) standing and flowing water, and 1% (20 acres) developed land (Table 1).

Wildlife Populations and Habitat

These parcels of Putnamville Correctional Facility are mixed forest and crop land, with some pasture land. This high interspersion of mature timber and open fields and the amount of edge between these two habitat types provides ideal conditions for deer use and deer hunting.

This interspersion of mature timber and crop land also provides quality habitat for eastern wild turkey, and the mature timber on these parcels provides quality habitat for tree squirrels.

Both northern bobwhite and eastern cottontail have been found on the Putnamville parcels, but these parcels are currently significantly lacking in early successional grass land and late successional brushy scrub. If some of the crop land was left to go fallow, this habitat type would improve in three to five years, providing some nesting and wintering habitat for northern bobwhite and appropriate habitat for eastern cottontail.

Mourning doves could use the current habitat, but there was little to no habitat available for American woodcock, which prefer areas of damp soil area with heavy brush.

Ruffed grouse and ring-necked pheasant are not likely to be found currently on these parcels, but are found in areas not far from this Putnam County property. There is potential for these species to establish themselves if the habitat is manipulated properly.

With the presence of Deer Creek and several wooded ponds, the primary breeding duck to be expected on these parcels is the wood duck. Wooded areas near these bodies of water may hold trees with suitable nest cavities, and either the creek or the lake could provide brood rearing habitat. Although most of the water appears to be surrounded by trees, Canada geese may still breed on these parcels. Geese have already been seen floating Deer Creek.

Habitat Management

Considering known habitat management data from Atterbury FWA, a significant amount of time and money must be invested annually on these parcels to provide and maintain quality habitat for as many species as possible and to provide the best hunting opportunities. The Putnamville property provides an excellent opportunity to save some of this time and labor if a partnership can be developed between the Department of Natural Resources, Department of Correction, and Division of Fish and Wildlife. Through this partnership, prison labor could be provided to enhance

woodland/crop boundary edge areas on the parcels as part of a wildlife management plan. This activity will provide a rough feathered forest edge, important to many species, along with brush piles and openings for underbrush growth. Some tenant farming should be maintained to provide summer cover for many species and feeding areas for species such as mourning doves and Canada geese and to acquire services and materials through barter arrangements (seed, chemicals, fertilizer, and equipment) to assist with wildlife habitat management. These services and materials will allow staff to conduct spraying, disking and native grass planting which must be done to develop and maintain long-term early successional habitat. Additionally, prescribed burning, essential to maintaining early successional habitat, must be allowed within a reasonable proximity to the correctional facility.

After 5 years of management of this area by DFW personnel, we anticipate the land cover to contain 15% crop land, 42% early-mid successional stage wildlife cover, 41% forested land, 2% wetland, and less than 1% developed land (See Figure 6-13).

Primary Recreational Access and Use

The Putnamville parcels will be primarily used for recreational hunting. Putnam County has a higher deer harvest than Johnson County, so it is anticipated there will be more opportunities for deer harvest and deer hunting on the Putnamville property.

There will also be significant opportunity to harvest squirrel and wild turkey on these parcels by virtue of high local populations.

With managed dove fields, these parcels should have potential for excellent mourning dove hunting.

Without extensive habitat management, northern bobwhite, eastern cottontail, and American woodcock hunting on these parcels may be limited. With appropriate management for the necessary early succession habitats, populations of these species will likely approximate those on the exchange parcel at Atterbury.

These parcels may provide regular (if limited) hunting for ducks and, depending on management regime, Canada geese as well. A few species may use the ponds during migration (wood ducks, American green-winged teal, and mallard seem most likely), and wood ducks may provide jump-shooting along Deer Creek.

With the proximity to the Putnamville Correctional Facility, dog running or training and large hunts, such as put-and-take pheasant hunts, are not likely to occur on this property.

There is excellent public access to the property as there are major highways: Interstate 70, US 40, US 231 and State Rd 243 leading people to the area and black top county roads providing direct access. Access could also be obtained by watercraft along Deer Creek. However, the parcels will require interior road improvements and parking lot creation, which would be at the expense of the Division.

It is likely that the proximity of the Correctional Facility, and particularly the highly visible guard towers, could make some hunters uncomfortable, especially when discharging a firearm. This could have the potential to lower user satisfaction.

The Putnamville location will be convenient to those hunters living in and around the Indianapolis metro area. There are seven other DNR-owned properties, totaling 47,536 acres, within 30 miles of the Putnamville parcels that provide quality hunting opportunities.

Secondary Recreational Access and Use

These parcels should provide other opportunities for recreation aside from hunting. There is not a great amount of roadway along any of the parcels to provide passive wildlife observations, but there should be opportunities for individuals to spend time hiking and collecting natural foods such as blackberries or morels mushrooms. There are ten DNR-owned properties within 30 miles of the Putnamville parcels that also provide secondary recreational opportunities.

Conclusion

After examining the current habitat at both properties, and with consideration for the need for successional habitat statewide, the value of the habitat to wildlife is not equal for all the common game species that could be found on these properties. Currently, the value of the overall early succession habitat at Atterbury FWA is higher than that of the Putnamville property because there has been a significant decline in quality upland game habitat statewide over the past several decades. Few areas have such large contiguous areas of managed early successional habitat open to public hunting. Additionally, exchange associated changes (e.g. fences, clearing, etc.) to the 1,250 acre tract by the Military Department of Indiana could have an effect on upland game populations and the quality of hunting opportunities on the remaining accessible areas at Atterbury FWA.

The Putnamville location will provide new quality opportunities to hunt deer, turkey, and squirrel, as well as waterfowl, but in its current state, will not provide the upland small game hunting opportunities for which Atterbury FWA has developed a reputation. Professional management for early succession habitats, through field edge feathering and similar techniques, could eliminate this disparity within about three years. Overall, the Putnamville property has the potential to provide excellent upland small game hunting opportunities with an appropriate investment of time, labor, and funds. With professional wildlife management, the conservation and recreation values of the Putnamville parcel are equal to and likely to exceed the values of the Atterbury exchange parcel.

The Division has learned from experience at Atterbury FWA that continuous habitat management must be maintained. Lack of Division staff and equipment in the Putnamville area to effectively manage this property to its fullest potential is a concern, but with the aid of other funding sources, the Putnamville property can be one of the state's best. Significant assistance and a long-term continuous management effort will be needed to manage the Putnamville tract to its fullest potential.

Both properties have high recreational value because of their accessibility and proximity to the Indianapolis metro area (Figure 5). However, due to their location in relation to Indianapolis, they will likely have different local patronage. Additionally, other DNR-owned properties close to the

Putnamville property provide quality public hunting opportunities, where these are not found near Atterbury FWA. Atterbury FWA would seem to currently have a greater impact to the local hunting population than the Putnamville property, which may be due to the fact that Atterbury FWA has been established as a fish and wildlife area since 1969.

Currently, the species provided for at the Atterbury tract are different from the species provided for at the Putnamville property. This is largely due to the fact that the Atterbury tract has established early successional habitat that is in short supply across the state and the Putnamville property has established woodland habitat that is more common. However, the potential for early successional upland habitat establishment at the Putnamville property surpasses the potential for similar habitat at the Atterbury tract. This opportunity for establishment and conservation of wildlife habitat at the Putnamville property should eventually allow for recreational opportunities at Putnamville to exceed those of the Atterbury tract, provided adequate staff, equipment and funding can be secured.

Tables and Figures

Table 1. Breakdown of habitat composition by acres within both the Atterbury Fish and Wildlife Area Parcel and the Putnamville Correctional Facility Parcel.

Area	Total Area Acres	Crop/Grass/Scrub Acres	Forested Acres	Development/Roads Acres	Water Acres
Atterbury Parcel	1250	887	313	50	0
Percent Composition ¹		71%	25%	4.0%	0.0%
Putnamville Parcel	1990	1134	816	20	20
Percent Composition ¹		57%	41%	1%	1%

¹Habitat Composition estimated using 2001 land cover data in ArcGIS 9.3.

Table 2. Cost Estimates of habitat management prescriptions implemented on the Parcel at Atterbury Fish and Wildlife Area over the past five years (2003-2007).

Prescription	Acres*	Rate/Acre	Cost
Burning	1030	\$6.52	\$6,715.60
Disking	216	\$15.00	\$3,240.00
WSG planting	75	\$160.00	\$12,000.00
Spraying	57	\$80.00	\$4,560.00
Plowing	97	\$16.00	\$1,552.00
Mowing (Bushhog)	409	\$21.00	\$8,589.00
Brush-cutting (Kershaw)	144	\$200.00	\$28,800.00
Total	2028	N/A	\$65,456.60

* Some acres had multiple prescriptions applied to them

Figure 1. Parcel of Atterbury Fish and Wildlife Area to be acquired by the US Department of Defense (Camp Atterbury Joint Maneuver Training Center) from the Indiana Department of Natural Resources.

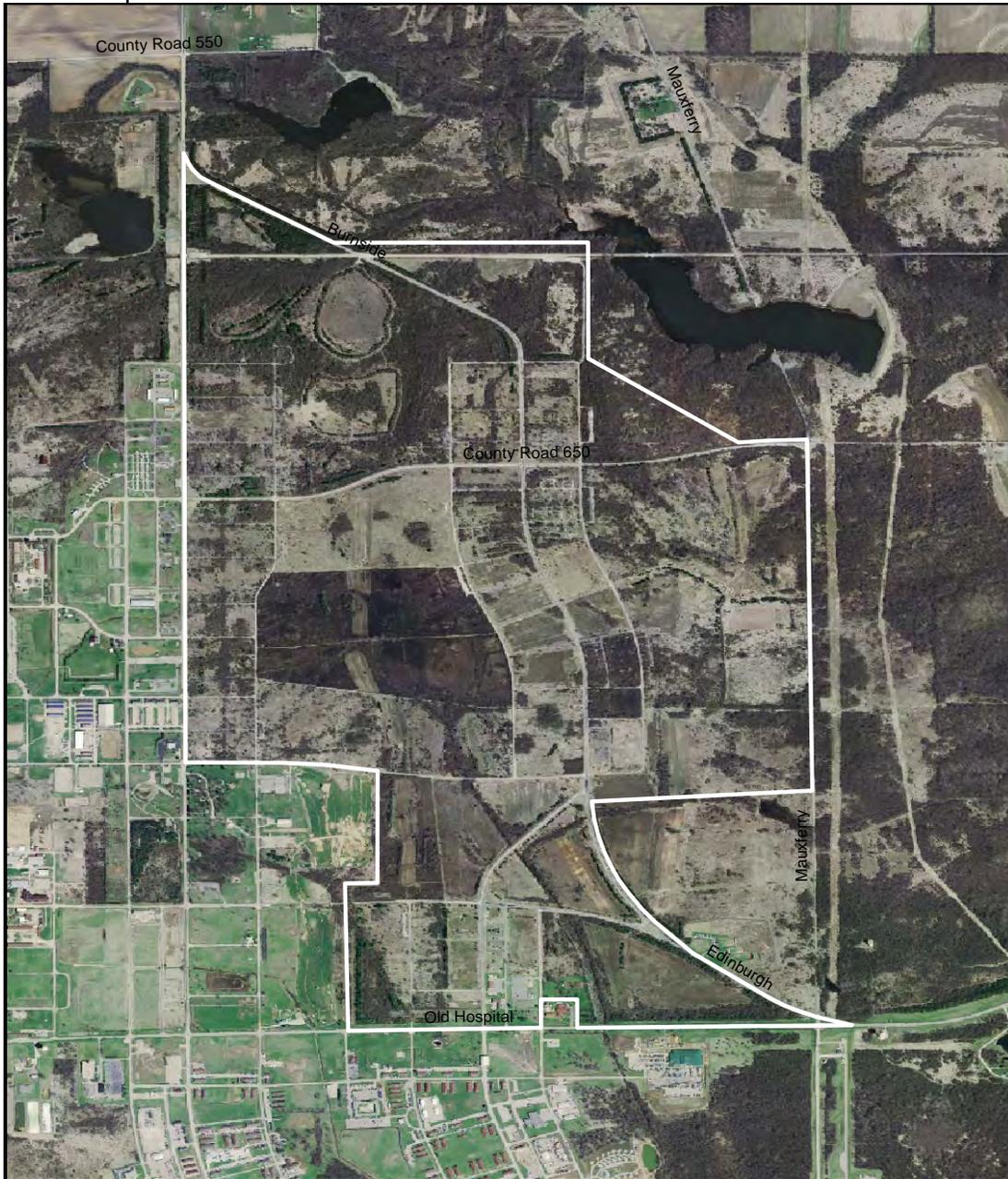


Figure 2. Land Cover Data of the parcel of Atterbury Fish and Wildlife Area to be acquired by the US Department of Defense (Camp Atterbury Joint Maneuver Training Center) from the Indiana Department of Natural Resources

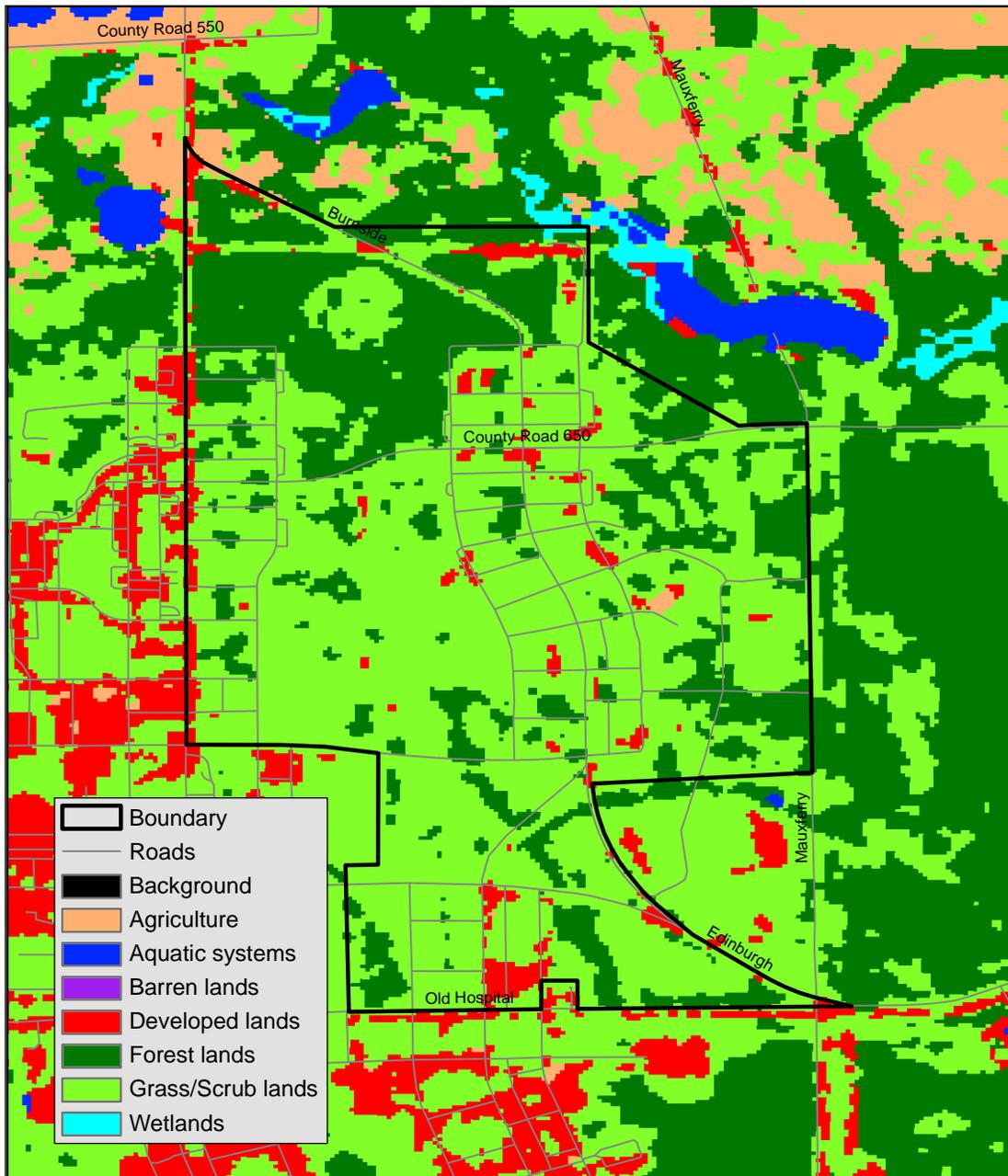


Figure 3. Parcels of Putnamville Correctional Facility to be acquired by the Indiana Department of Natural Resources from the Indiana Department of Correction.

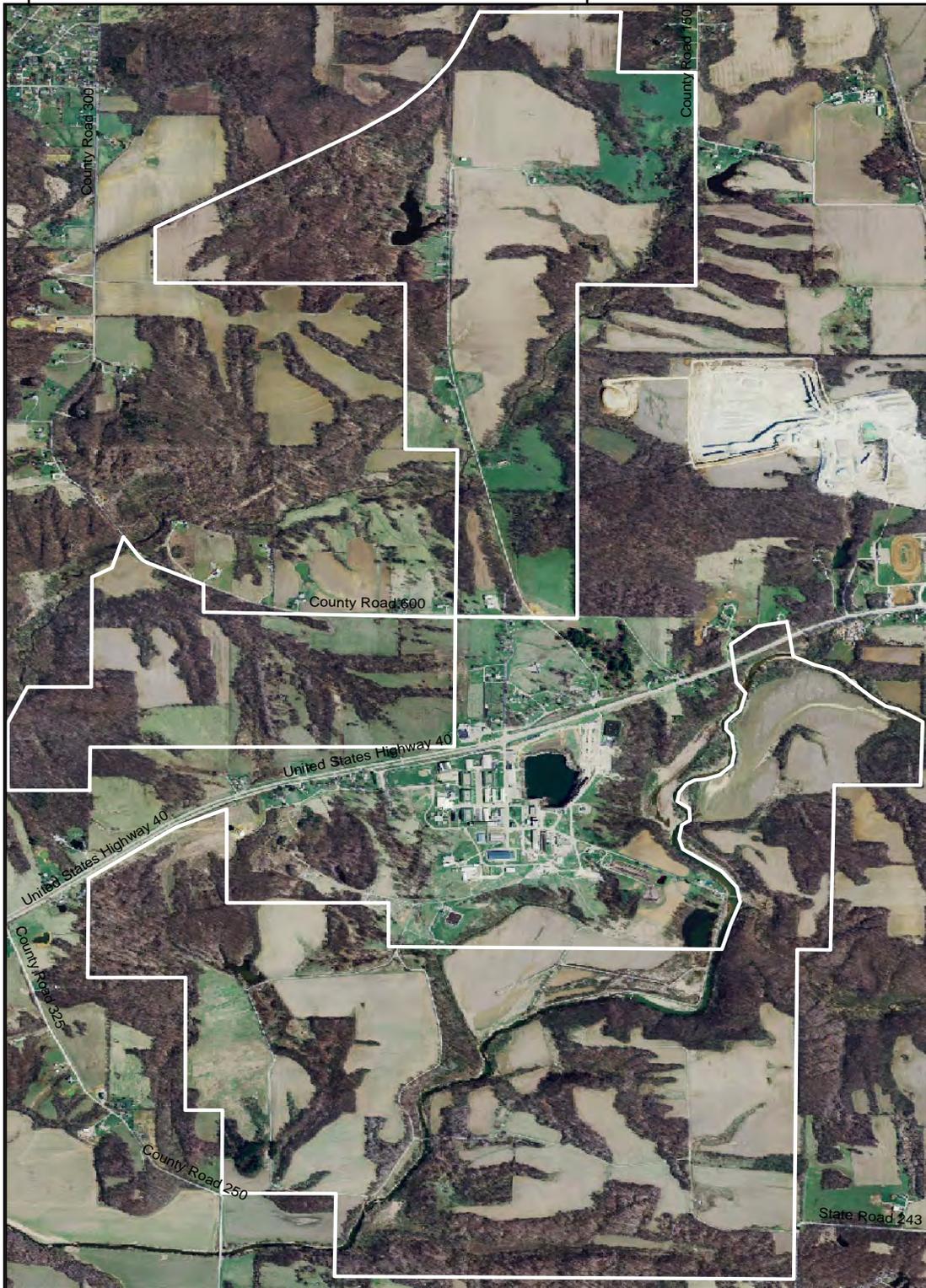


Figure 4. Land Cover Data of the parcels of Putnamville Correctional Facility to be acquired by the Indiana Department of Natural Resources from the Indiana Department of Correction.

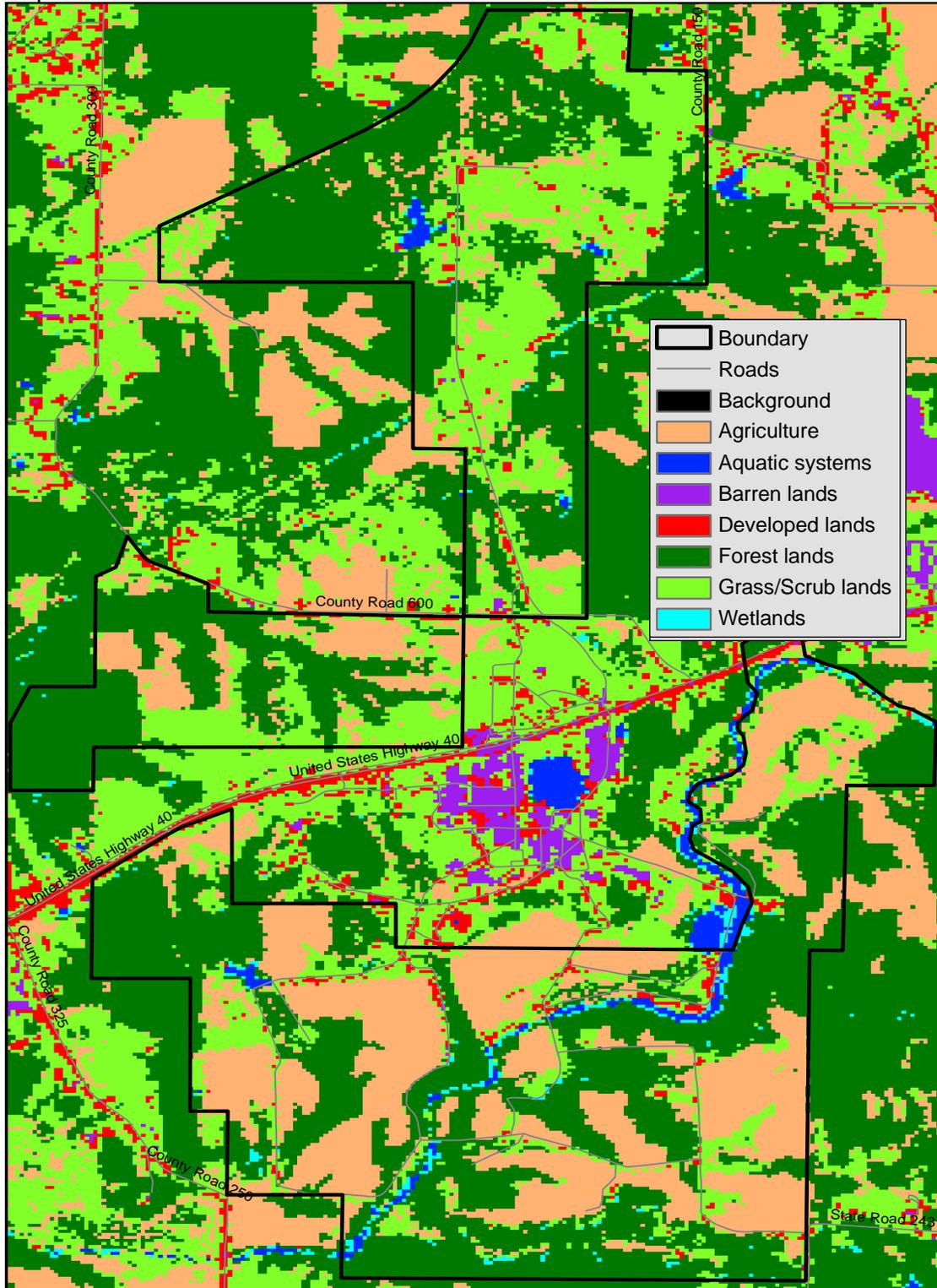


Figure 5. State Map depicting the locations of DNR-owned fish and wildlife areas and reservoirs open to public hunting (Putnamville is depicted as a fish and wildlife area, but does not currently hold this state).

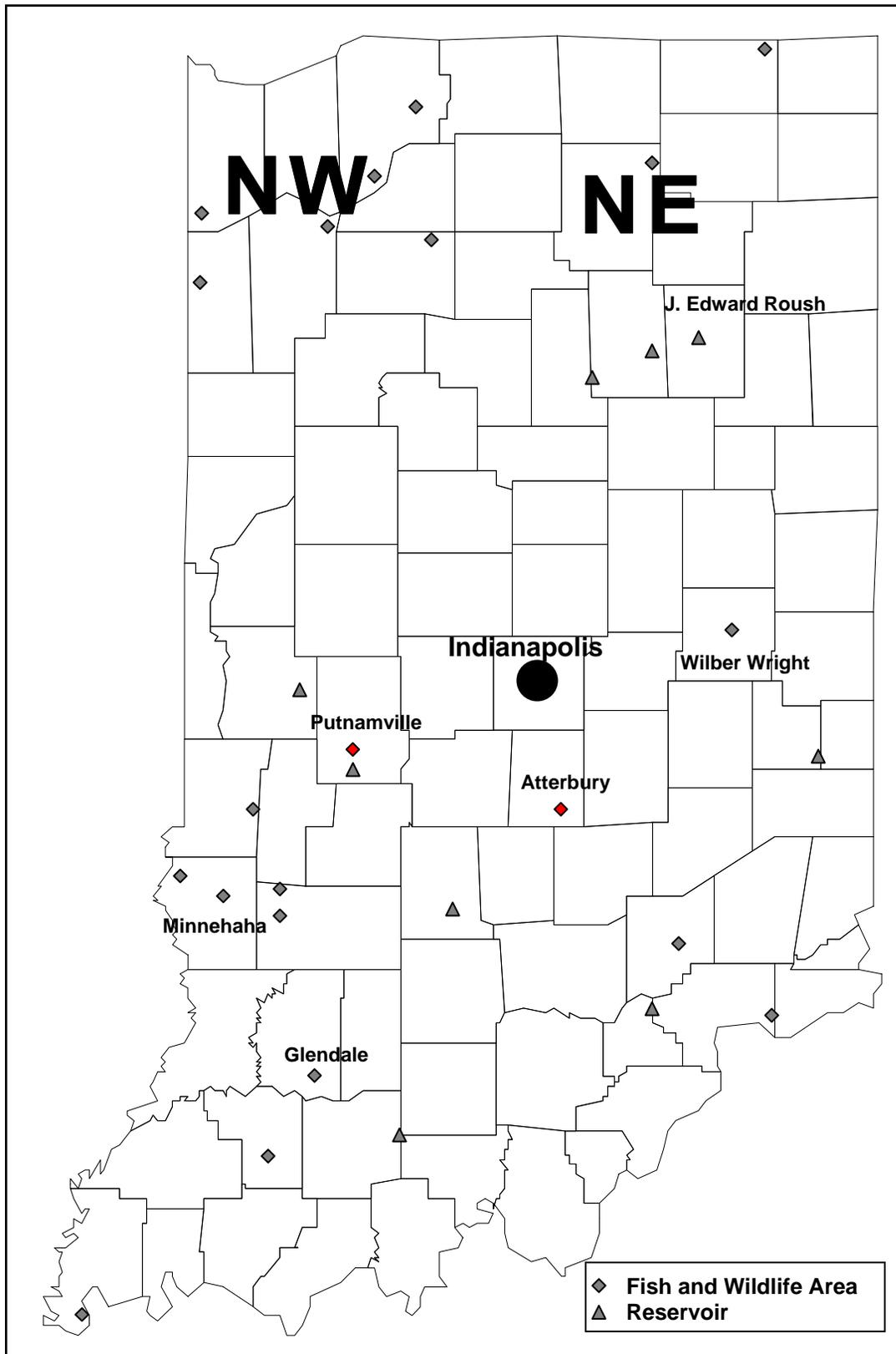
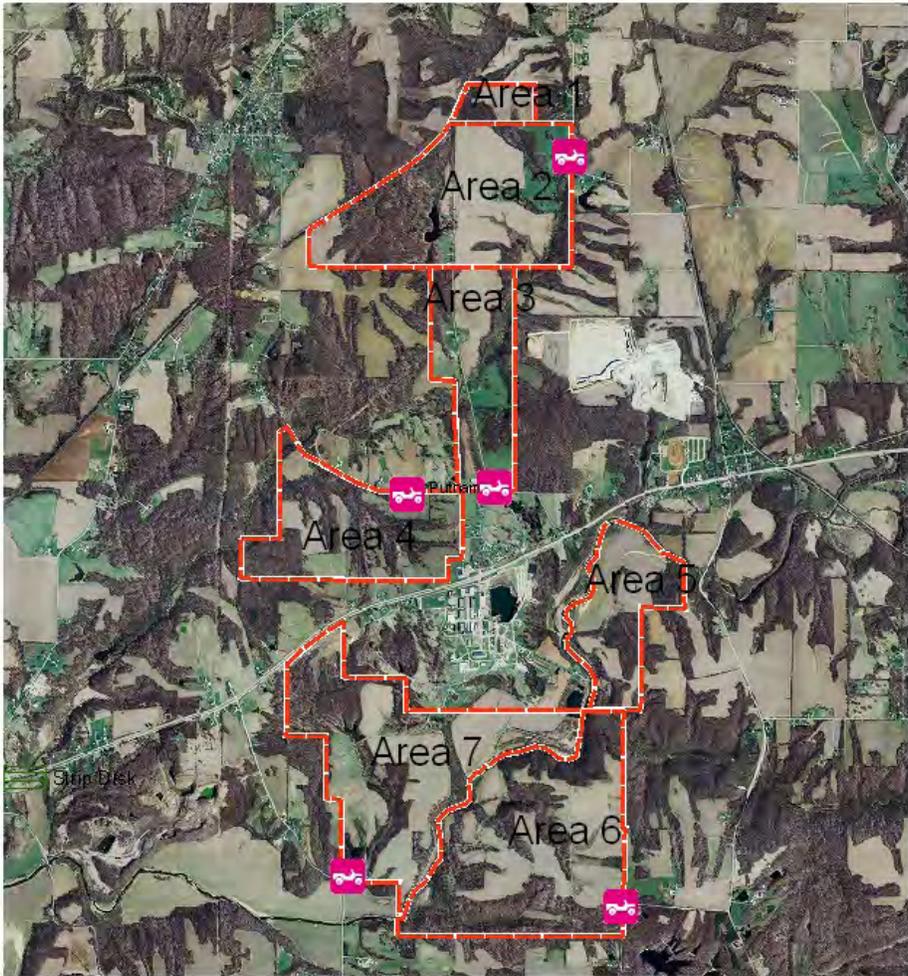
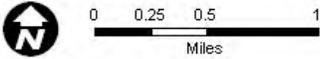


Figure 6 Deer Creek FWA

Deer Creek FWA



 Access Point



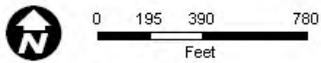
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Figure 7 Deer Creek FWA Area 1 anticipated habitat management 2011-2016

Deer Creek Area 1



-  Natural/Planted 1.9 acres m/l
-  Cropland 18.7 acres m/l
-  Edge Feathering
-  Shrub Planting-Linear 870'



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Figure 8 Deer Creek FWA Area 2 anticipated habitat management 2011-2016

Deer Creek Area 2



- | | |
|--------------------------------|--------------------------------|
| Dove Field 21 acres m/l | Pasture/Hay/TBD 25.3 acres m/l |
| Natural/Planted 36.1 acres m/l | Cropland 80.8 acres m/l |
| Edge Feathering | |



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Figure 9 Deer Creek FWA Area 3 anticipated habitat management 2011-2016

Deer Creek Area 3



- Dove Field 8 acres m/l
- Cropland 19.6 acres m/l
- Edge Feathering
- Pasture/Hay TBD 35.1 acres m/l
- Natural/Planted 12.0 acres m/l

Property Boundary

0 262.5 525 1,050
Feet

Parking Lot

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Figure 10 Deer Creek FWA Area 4 anticipated habitat management 2011-2016

Deer Creek Area 4

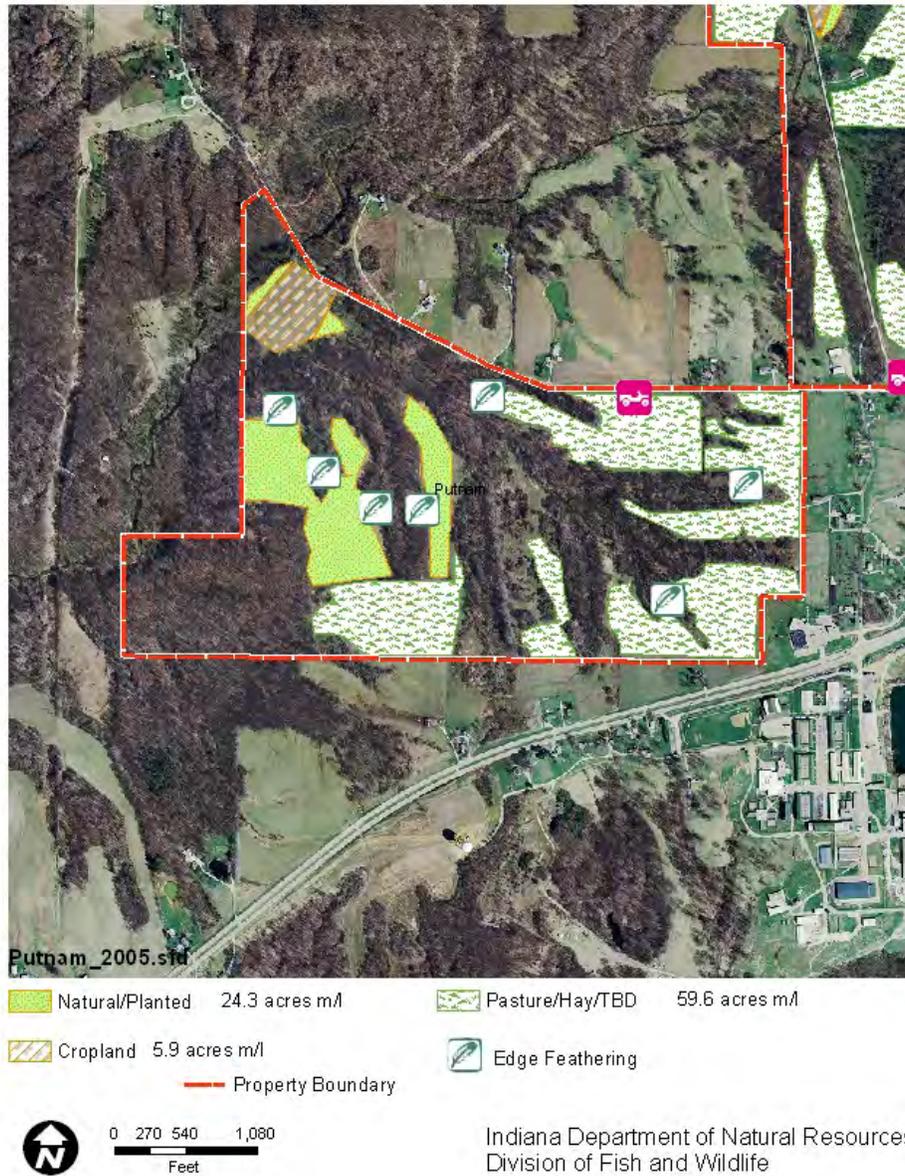
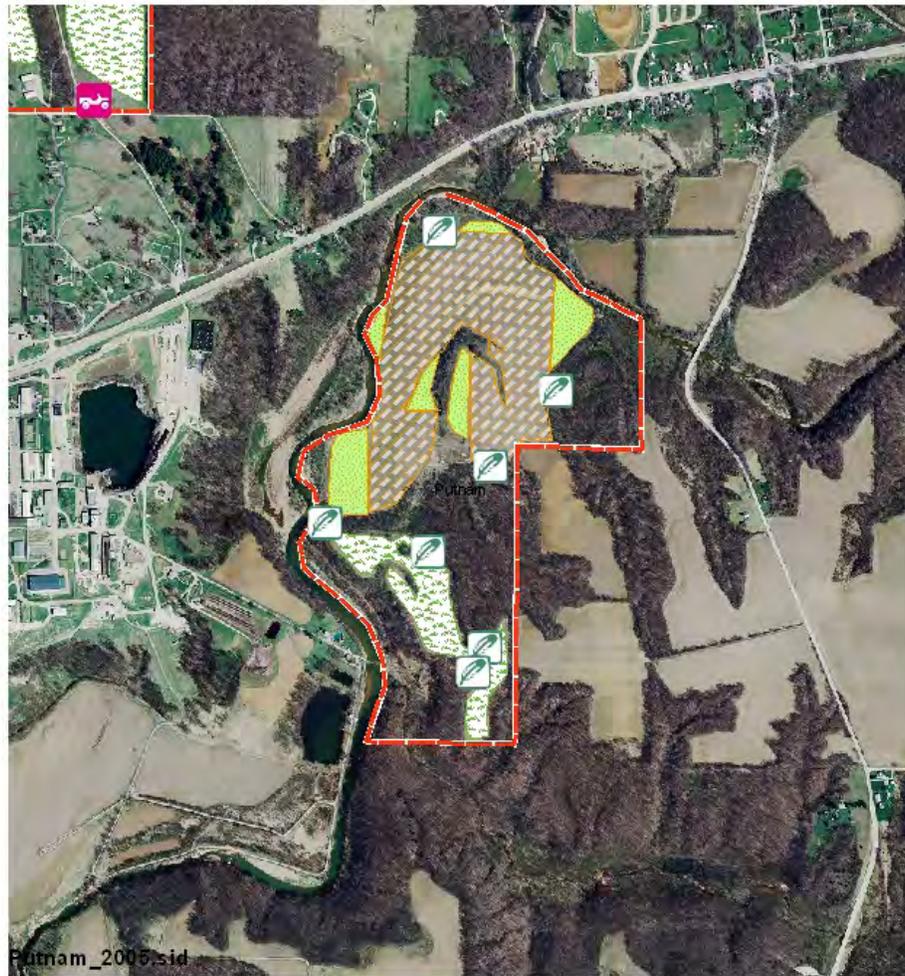
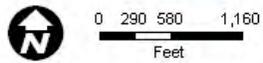
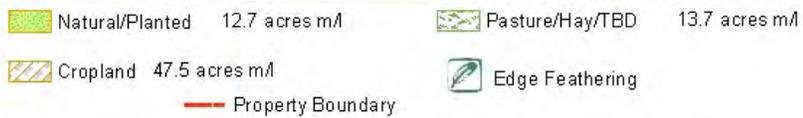


Figure 11 Deer Creek FWA Area 5 anticipated habitat management 2011-2016

Deer Creek Area 5



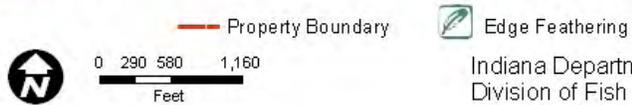
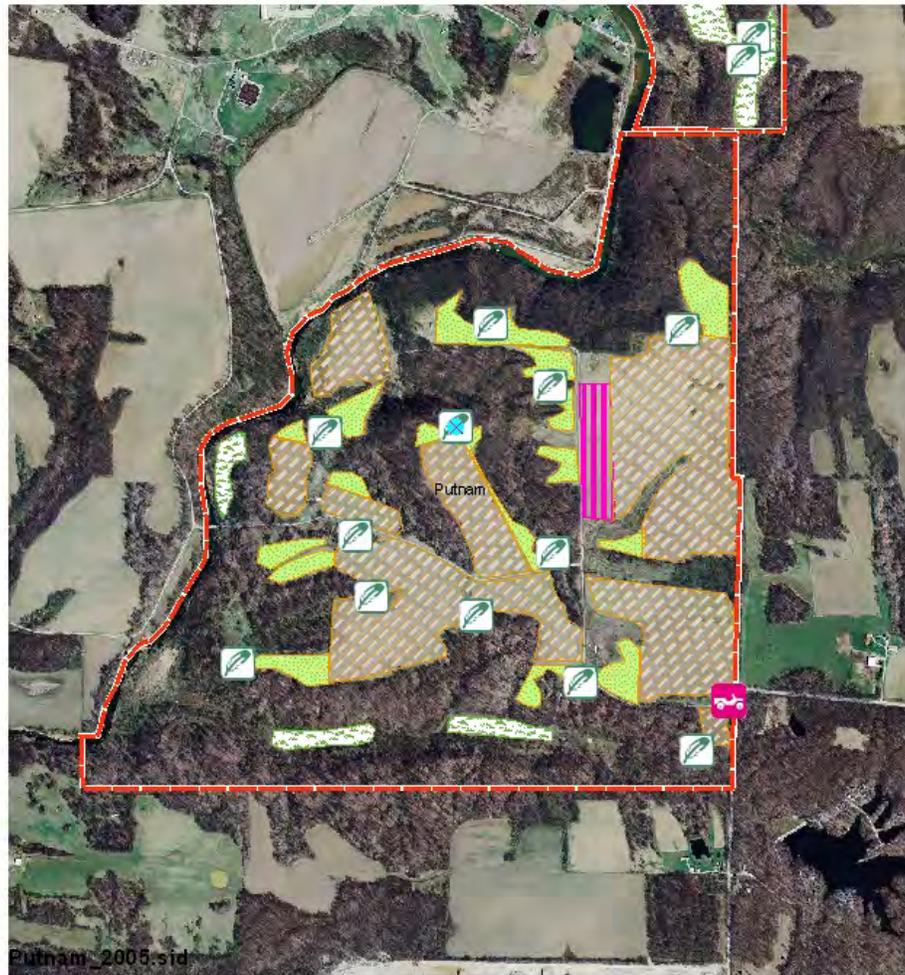
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Figure 12 Deer Creek FWA Area 6 anticipated habitat management 2011-2016

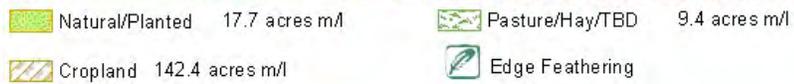
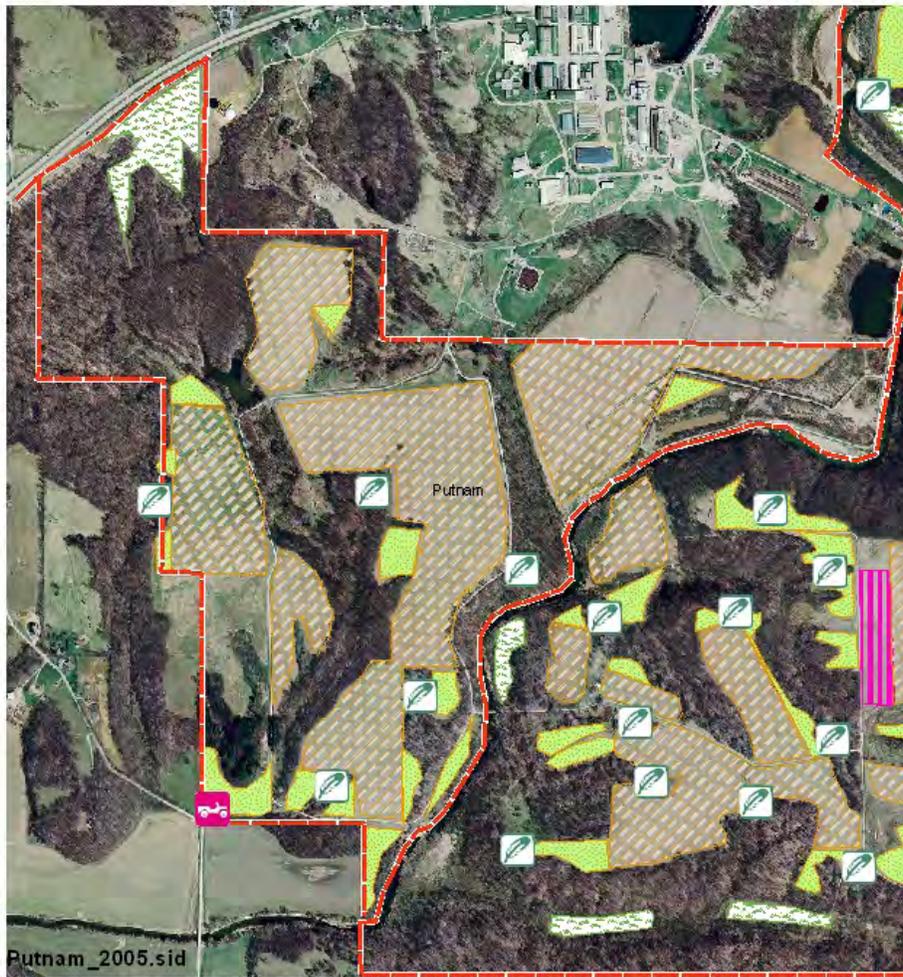
Deer Creek Area 6



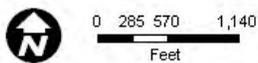
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Figure 13 Deer Creek FWA Area 7 anticipated habitat management 2011-2016

Deer Creek Area 7



— Property Boundary



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Side-by-side comparison of existing resources on proposed exchange parcels

		Atterbury	Proposed Deer Creek		
Conservation	Land type (acres)				
		Grass/Scrub/Shrub (includes crops)	887	1134*	
		Forest	313	816	
		Water	0	20	
		Roads/Developed	50	20	
		Total acres	1250	1990	
	Special Classifications (acres)				
		Wetlands	0	17.5	
		Floodplains	0	300	
	Federally-listed species				
		Indiana bat	assumed presence	assumed presence	
	Game Species (with value number)				Gain/Loss
		White-tailed deer	minimal (1)	abundant (3)	2
		Squirrel, fox and gray	minimal (1)	abundant (3)	2
		Rabbit	abundant (3)	present (2)	-1
	Wild turkey	minimal (1)	abundant (3)	2	
	Ruffed grouse	none to minimal (0.5)	none to minimal (0.5)	0	
	Northern bobwhite (quail)	abundant (3)	present (2)	-1	
	Mourning dove	present (2)	minimal (1)	-1	
	American woodcock	present (2)	minimal (1)	-1	
	Pheasant	abundant (3)	minimal (1)	-2	
	Goose	absent (0)	present (2)	2	
	Mallard	absent (0)	present (2)	2	
	Wood duck	absent (0)	present (2)	2	
	Overall	16.5	22.5	6	
Recreation	Primary uses (efforts/opportunities)			(not existing - these are projections)	
		Small game	1482	1325	
		Deer	minimal	2000	
		Turkey	minimal	85	
		Trapping	minimal	40	
		Fishing	0	100	
		Waterfowl	0	50	
		Total primary recreation	1482	3600 (conservative estimate)	
	Secondary uses				
		wildlife viewing, berry-picking, mushroom gathering, etc	3,700 (estimated)	650 (initial use)	
Population centers of 30,000 or more within 50 miles					
	Indianapolis metro area	Indianapolis metro area			
	Bloomington	Bloomington			
	Columbus	Terre Haute			

*Initially includes 588 acres tenant-farmed cropland, and to decrease to 300 acres over time. Crop land will be managed to provide wildlife benefits like cover, winter food supply, and control of succession.