Resource Management Guide
Compartment 14 Tract 07

Ferdinand State Forest June 22, 2009
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Location: This tract is located in portions of the S ½, N ½ of the NE ¼ of Section 22 T2S R7W. It lies about 1.25 miles to the east of Augusta, IN.

General Description: This tract covers 109 acres. It is forested on approximately four fifths of the tract. The rest of the tract is reclaimed mine spoils consisting of open areas that is covered in grass. Of the forested areas, there is a large section of pine on the west side. This area is mine spoils that were planted in pine. There is open water present in the southern corner. It consists of two different holding ponds installed in the mine reclamation efforts. While much of the tract is forested, about a third of this forested area is non-commercial due to the steep slopes of the mine spoils area. This is the area of pine the west side of the tract. The rest of the forested land consists of oak/hickory and was extensively logged down to firewood sized trees sometime in the 1970's.

History: This tract was purchased from James C. Ellis on September 27, 2007 in a large purchase. Due to the recent purchase of this land, this inventory is the first action taken on it by the DNR.

A little less than half of the western side of the tract was mined for coal. Part of this mine area is mine spoils that have been planted with a mixture of White, Red, and Virginia Pine. The landscape here is very steep rolling hills which make the area non-commercial for timber. In the areas that are not planted in pine, it consists of mine reclamation areas that are open and covered in grass. An effort was made to do some planting in these areas. There is a scattering of Virginia Pine, Red Cedar, Black Willow, and Black Locust. All are small in size with an average DBH of approximately 4-6". Along the road that accesses the holding ponds clover is present that could have been planted. River Birch and Bigtoothed Aspen is also present in small pockets throughout the tract, mostly along the edges of the fields.

Two retaining ponds were installed in the southern corner of the tract during reclamation efforts. There is a graveled road to this area that maintained for further reclamation efforts/evaluation.

The rest of the forested portion of this tract was logged extensively in the 1970's. It was logged down to firewood sized trees. This is evidenced by numerous stumps that are still present on the tract. Much of the timber in this area is small sawtimber and/or large pole sized. It is also rather low quality with lots of poorly formed trees. There are a few small pockets of larger and better quality trees present. These pockets are pretty small and scattered around the tract.

Landscape Context: This tract is within a group of 8 tracts that make up compartment 14. This tract is on W side of this grouping and is connected on the east and southern boundaries to other tracts of this compartment. Compartment 12 is just to the north and tract 1209 connects to the northern boundary of tract 1406. The land to the west has been clear-cut and is slated to be surface mined. After this, the land will become part of Pike State Forest land.

The previous land use for this tract (and the surrounding areas) was both coal strip mining and timber harvesting. The areas that have been mined have ether been reclaimed or planted with pine. The oak/hickory forested areas were extensively harvested and are now starting to recover some value. Both the forested and reclaimed spoils areas are now being managed for timber and/or wildlife value. This is true for all the tracts in this area. The mine reclamation area to the north of this tract is currently under further reclamation and it has been planted with trees mechanically as of June, 2009.

Topography, Geology and Hydrology: This tract is located in the watershed surrounding the Patoka River. Much of the water that drains off of this tract is held within the retaining ponds on the southern corner of the tract. The topography is rolling hills and a general sloping to the southwest into the open water present on the southern boundary of the tract.

The geology of this area consists of underlying shale and sandstone. As indicated by the history of mining, there are seams of coal in the area surrounding the tract.

Soils: Fairpoint-Bethesda complex (FbG) – These steep and very steep, deep, well drained soils are in surface-mined areas on uplands. Included with these soils in mapping are abandoned haul roads and narrow, elongated pits that contain water. The pits and roads are extremely acid and can support little, if any, vegetation unless major reclamation measures are applied. They occur as narrow elongated mounds of discarded overburden. In some areas the slope is less than 25 or more than 70%. The subsoil is 60" deep. Available water capacity is low and permeability is moderately slow. Surface runoff is very rapid. The organic matter content is very low in the surface layer. Most areas are used a woodland. The land capability classification is Vlle. No woodland ordination symbol or site index is assigned.

Fairpoint-Bethesda complex (FbC) - These moderately sloping and strongly sloping, deep, well drained soils occur as mine spoil in surface-mined areas on uplands that have been shaped and smoothed. Also included are some abandoned haul roads. The subsoil is 60" thick. Available water capacity is low and permeability is moderately slow. Surface runoff is medium or rapid. The abandoned haul roads and mine dumps cannot support vegetation unless major reclamation measures are applied but they are fairly well suited to a wide variety of grasses and legumes for hay or pasture. The organic matter content is very low in the surface layer. The land capability class is Vls. No woodland ordination symbol is assigned. No sight index is given.

Gilpin Silt Loam (GnE), 15-30% slopes- This is a strongly sloping to steep, moderately deep and well drained soil on side slopes in uplands. The subsoil is 29" thick and

fractured sandstone bedrock occurs at 35 inches. The soil's available water capacity is low, permeability is moderate and surface runoff is rapid. Organic matter content in the surface layer is moderate. Erosion is a major hazard. The soil's land capability is VIe, the woodland ordination symbol is 4R and the site index is 80.

Zanesville Silt Loam (ZaC3) 6-12% slopes, severely eroded- This soil is found on moderately sloping, deep and moderately well drained soils. The Available water capacity is moderate. Permeability is moderate above the fragipan and slow in the fragipan. Surface runoff is moderate in cultivated areas. There is a slowly permeable fragipan at a depth of about 2 feet. The perched seasonal high water table is above the fragipan during winter and early spring. Organic matter content is low. The land capability class is IVe, it has a woodland ordination symbol of 3D and a site index of 60.

Zanesville Silt Loam (ZaD3), 12-18% slopes, severely eroded.-This is a strongly sloping, deep and moderately well drained soil on narrow sideslopes. The available water capacity is moderate. There is a slowly permeable, brittle fragipan at 2 feet restricts roots and downward movement of water. Surface runoff is very rapid. There is a perched seasonal high water table in or above the fragipan in winter and early spring. Organic matter content is low. Erosion is a hazard. The land capability classification is VIe, it has a woodland ordination symbol is 3D and a site index of 60.

Wellston Silt Loam (WeE), 15-30% slopes- This soil is found on strongly sloping to steep hills. It is a deep, well drained soil on sideslopes in uplands. There is sandstone bedrock at 60 inches. The available water capacity is high, permeability is moderate and surface runoff is rapid. Organic matter is moderately low. The major hazard for this soil is erosion. The soil has a land capability classification of VIe, has a woodland ordination symbol of 4R and a site index of 71.

Belknap Silt Loam (Bg), frequently flooded- This soil is a nearly level, deep and somewhat poorly drained soil on flood plains. The soil is flooded for brief or long periods of time during the winter and spring. The soil has a very high available water capacity. Surface runoff is slow and a seasonal high water table at 1 to 3 feet in the winter and spring. Organic matter content is moderately low. This soil is well suited for trees. The land capability subclass is IIw, the woodland ordination symbol is 6A and the site index 90.

Note: When the site index for this tract was found, it was found with the exclusion of the Fairpoint-Bethesda complexes (FbG and FbC). The reason for this is that no site index is given to these soils within their soil description. As these soils are present in mine spoils, any timber produced is non-commercial due to steepness or extremely poor soil quality. Because of these facts, the soil was omitted when finding the site average. The site index given is for the commercial timber sites.

Access: Access is good to this tract. A road (650 off of Hwy 64) runs along the west and north side of the tract. There is also a graveled road that goes into the holding ponds on

the south side. This road is maintained and is in excellent shape. Access to the interior is limited to foot traffic.

Boundary: The northern boundary of this tract is the road (650). The eastern side is marked by a drainage ditch. The south side border is a small creek which most likely dries up during dry parts of the year. The western boundary runs through a field and is not marked.

Wildlife: This site has a wide variety of habitats present so it has the potential to support a wide variety of wildlife. At the southern corner there is open water that is most likely there all year long. This provides habitat for many species of wildlife that require an aquatic habitat. Numerous frogs were heard and seen in this area as well as Indigo Buntings. Evidence of beaver was noted here as well although it looked to be a few years old. One barrier to the wildlife in this area is that the ponds have been wrapped with some sort of netting on the edges. This was most likely put in during the establishing of the ponds to mitigate soil erosion. Now, it may post a hazard for small creatures to get entangled in.

The west side of the tract is mine spoils. The area has been planted with various pine species. As the steepness of this area will not allow a timber harvest, conversion to hardwoods for more suitable habitat is not possible.

Within the western side of this tract is some areas of reclaimed mine spoils. They are marked by open areas that are covered in grasses. This early successional area has the potential to support a variety of species that require this habitat; specifically, songbirds. Due to the degradation of the soil here, it would be easy to maintain this area as a wildlife clearing. Along the road to the retaining ponds there is an abundance of clover which is a favored browse of whitetail deer. Whitetail deer trails and bedding areas were noted in this area. There is quite a bit of edge habitat where the mine spoils transition to forest. This edge habitat is especially favored by whitetail deer.

The southeastern boundary of this tract is a small creek. It most likely dries up during dry parts of the year but it has water in it for part of the year. This creek and the riparian areas around it have the potential to support small aquatic animals that require this type of habitat as well as providing a water source for other wildlife.

The rest of the tract consists of closed canopy forest. This area most likely supports wildlife that is typical of the area. Wildlife noted in this area are whitetail deer, songbirds, and toads.

Current policy on managing for the federally endangered Indiana bat requires a certain component of snags and live trees of specific sizes and species. This tract meets the live tree target in the 11"+ size class but not within the 20"+ size class. Within this larger size class 107 additional trees are needed to meet the requirements. The best way to achieve this is to allow pres-selected trees that are close to the size requirement the time needed to mature to this size.

This tract does not meet the snag requirements in any of the size groups. In order to meet the requirements 211 additional snags of 5"+, 149 snags of 9"+, and 31 snags of 19"+ need to be created. This is easily done by girdling trees that are appropriate to reach this goal. These trees could be culls or lower valued species (within the desired species list for the Indiana bat).

A search of the Natural Heritage Database was dated 6/15/09. If any ETR species were noted, the plan of activities for this tract took those into consideration.

Communities:
Of the forested area of this tract there are two different forest types; mixed pine and oak/hickory. The pine is a mix of Virginia, White, and Red Pine. It was planted on the areas of mine spoils on the western portion of the tract. The rest of the forested area consists mainly of oak/hickory with a few very small pockets of mixed hardwoods. The mixed hardwoods are most likely the result of planting after the mining operations.

There are a number of invasive species present on this tract. Honeysuckle is prolific in parts of the reclaimed mine spoils areas and is present sporadically throughout the site. Montiflora rose is also present throughout the tract but not in especially high numbers. A few Autumn Olive trees are present in the reclaimed mine spoils area. It is assumed that this was planted to provide wildlife mast when this area was being rehabilitated. Black locust is present along the north east border of the open area in the northern half of the tract (see cover type map). It is a small stand of almost pure Black Locust that is slowly spreading into the open field. It could be taken out in a TSI cut but it may be more beneficial to leave it as a nitrogen fixer to continue to rehabilitate the soil within the field.

Recreation: No sign of recreational activities is present on this site. It is easily accessible to the public from Road 650 and the lane that goes into the water retaining ponds. Deer and turkey hunting are recreational possibilities on this site. Further recreational opportunities include hiking, bird watching, and non-timber forest product harvesting.

Cultural: Cultural resources are to be protected on State Forests. If any resources were noted on this tract the plan of activities took them into consideration.

Tract Subdivision Description and Silvicultural Prescription: The timber on this tract is not currently of particularly high value. After being so extensively logged in the 1970's the site is in need of some work and time to attain higher a value. It does seem that there are some small pockets of timber that were missed in the previous logging operations resulting in some higher valued timber. These pockets, however, are small and do not occur very frequently. The average stocking of this site is 65%. This is fully stocked but is close to becoming understocked; especially if a thinning/TSI cut were to take place. This stocking does not, however, represent the stocking of the commercial areas of the stand. If the stocking of just the commercial timber is taken, the stocking comes to 80%. This is at about the middle of the fully stocked portion of the chart. This

is a much more reasonable number as the non-commercial parts of the tract won't have any harvesting or TSI operations done on them.

This tract has a few distinct cover types. For descriptive and planning purposes each cover type will be described separately.

There are a lot of areas where mining operations took place on this tract. Approximately 25% has been mined for coal. Within the mined areas, there are mine spoils and mine reclamation areas. On the mine reclamation areas there are very few trees present and what trees are present are very small. It is recommended that these sites be left alone and kept as wildlife openings. Due to the degradation of the soil through strip mining these sites will most likely maintain themselves as openings with no intervention. Due to soil compaction on these areas, tree planting is not recommended. Species that would do well on these sites are generally undesired species so any work and time put into the cultivation of these trees would not make a comparable return. The highest value of this land is most likely for wildlife use as open areas and/or early successional areas. The areas of open water will be left as is. On the mine spoils area a mixture of pine has been planted. Virginia, Red, and White pine are all present. Due to the steepness of these slopes the pine is non-commercial as equipment cannot be operated here. In addition to this, the trees present are keeping the mine spoils from eroding. The pine should be left as is to keep performing this function and reevaluated at the next inventory.

The rest of the forested portion of the tract is covered in Oak/Hickory. Much of the timber here is either large pole or small sawtimber sized. Additionally, there are many mature double or ever triple stumped trees; the result of stump sprouting from the previous cut. There are some areas that have very low valued timber as well as some areas that have a relatively higher value and/or the potential for high(er) value. Generally, the whole site would benefit from a TSI/commercial thinning followed by time to gain value. The poorly formed and undesired species can be taken out to release the crop trees and to encourage oak regeneration. This will do much to increase the overall value of the timber of the site. Grape vines are present throughout the oak/hickory stand on this site. A vine TSI would benefit the site. Within this Oak/Hickory stand there are a few pockets of larger/higher valued trees. In these areas the crop trees should be released in order to gain value and to provide a seed source for regeneration.

On the eastern corner of the tract is an area of "scrubby" timber of about 2.5 to 3 acres. It consists of many small trees and lots of maple in the understory. The trees are a broad mixture of trees that includes Yellow Poplar, Sugar Maple, Sassafras, and Oak. There is some oak regeneration in this area so this would be a good area for a regenerational opening. This could be done during a TSI and the undesired species could be treated with herbicide after cutting/girdling.

Note: Due to the low value of the timber present it may be beneficial to plan any commercial thinnings with one or more of the adjacent tracts to make the sale more attractive to bidders.

Summary Tract Silvicultural Prescription and Proposed Activities:

2010 – Treat Black Locust as needed

2010 – Vine TSI

2011 – Commercial thinning and TSI

2012 – Cut regenerational opening

2012 – Post thinning TSI

2022 – Oak/Hardwood regeneration evaluation

2030 – Inventory

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