Indiana Department of Natural Resources - Division of Forestry

Resource Management Guide
Compartment 14 Tract 08

Pike State Forest May 26, 2010
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Site Index*: 79

Location: This tract is located in parts of SE ¼ Section 22, N ½ NE ¼ Section 27 T2S R7W Lockhart Township, Pike County, IN. It lies approximately one half mile to the east of Augusta, IN.

General Description: This tract covers 167 acres. It has both forested areas and areas of mine spoils/reclaimed mine spoils. About three quarters of the tract has been mined. These areas have either been reclaimed and are now open fields or they were left as spoils with some tree plantings that accompanied the natural regeneration. There are some small areas of water, some of which are retaining ponds build during mine reclamation.

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.

Evidence of a previous timber harvest is present in the form of old stumps and the indication of old skid trails in the closed canopy portion of the tract. While there is no paperwork for this activity it is assumed that it was logged at the same time as the rest of the compartment. This was done sometime in the 1970's and almost all timber of any commercial value, down the firewood sized trees, was taken. The exception to this is a few small pockets of hardwoods that were either intentionally or accidentally overlooked.

The remainder of the tract was mined for coal. After they were finished with that, the area was either reclaimed by spreading out the spoils and planting grasses and some trees or left as mine spoils with some tree planting done for soil stabilization.

Landscape Context: This tract is within a group of 8 tracts that make up compartment 14. This tract is on SW corner of this grouping and is connected on the eastern boundary to other tracts of this compartment. Compartment 12 is just to the north of this compartment. 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.

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 currently being managed as a multi use area. This is true for all the tracts in this area.

The mine reclamation area to the northeast 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 Patoka River Watershed. Much of the water that drains off of this tract is held within the retaining ponds on the northwest corner of the tract. The topography is rolling hills and a general sloping to the northwest into the open water present on the northern boundary of the tract.

In the reclaimed mine spoils area; there are retaining ponds and rock-lined drainage ditches that were put in place for treatment of the water from the spoils to drain into. These were put in to catch the water coming off of the mined areas and direct it to the pond to be remediated by treatment by a bio-system to make the water suitable.

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

Soils:
***Note**: Site index was found without using the Fairpoint-Bethesda complex (FbC and FbG) soils. This is because there is no site index is given for these soils as they are mine spoils. The SI given is a weighted average of the remaining soils on this tract.

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.

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.

Zanesville Silt Loam (ZaB), 2-6% slopes- This soil is found on gently sloping, deep, and moderately well drained soil on ridgetops in uplands. Sandstone bedrock is found at 78 inches. The soil has moderate available water capacity and permeability is moderate above the fragipan and slow in the fragipan. Surface runoff is medium. There is a firm and brittle fragipan at 24-32 inches and a perched seasonal high water table is in or above this fragipan during winter and early spring. Organic matter content is moderately low. Erosion is the major hazard for this soil. The soil has a land capability classification of IIe, a woodland ordination symbol of 4A and a site index of 68.

Access: Access to this tract is very good as it is bordered on the south side by Hwy 64. From Hwy 64 county road 650 heads north. From here, head east on a short rocked access road and it leads to the northwest corner of the tract. Access to the rest of the tract is by foot.

Boundary: The southern boundary is marked by Hwy 64. The eastern boundary has been flagged with pink ribbon but it is unclear how accurate this line is it as there is absolutely no line evidence present on the ground. It runs straight north/south and is not marked by any type of natural landmark on the ground. The northern boundary is marked by a small creek surrounded by riparian areas. The western boundary also runs straight north/south and is not marked by any type of landmark or flagging on the ground.

Wildlife:
A search of the Natural Heritage Database was dated 6/15/2009. If any endangered, threatened, or rare species were noted, the plan of activities for this tract took those into consideration.

This tract has a wide range of habitat types so it has the potential to support a diverse number of species.

The majority of this tract has been strip-mined at some point. After it was mined the area was either reclaimed or remained in mine spoils and trees were planted on it. This has created a number cover types that are unique to this area.

There is a lot of reclaimed mine spoil area on this tract. It consists of open areas that are covered in grasses with a few trees scattered about. Many of the trees that are present

have been planted and are in the bottom of drainages and along waterways. Planted tree species include black locust, cottonwood, river birch, and Virginia pine. It is assumed that they were planted to both remediate the soil and prevent soil erosion. These open, early successional areas have the potential to support a variety of species that require this type of habitat; specifically, songbirds. Due to the degradation of the soil here from mining operations, it would take no effort to maintain this area as a wildlife clearing. Additionally, this degraded soil makes the area unsuitable for tree planting. While there are some tree species that will survive in these types of soils they are typically low value, weedy trees and the cost of planting and maintaining them to timber size is not worth the value of the trees.

There are a number of seasonally wet, marshy areas on this tract. These areas have the potential to support small aquatic animals that require this type of habitat as well as providing a water source for other wildlife.

Along the gravel road to the retaining ponds in the northwest corner there is an abundance of clover which is a favored browse of many animals. 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 and this edge habitat is also favored by whitetail deer.

The rest of the tract consists of closed canopy forest. The majority of the timber type is hardwood with a few small pockets of pine present as well. This area most likely supports wildlife that is typical of the area. Whitetail deer, turkey, songbirds, skinks, rat snakes, multiple songbirds, crows, lizards, and frogs were all noted on this tract during inventory.

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 217 additional trees are needed to meet the requirements. The best way to achieve this is to allow pre-selected trees that are close to the size requirement the time needed to mature to this size.

This tract does meet the snag requirements of the 5"+ size class but does not meet the snag requirements in the 9"+ or 19"+ size classes. In order to meet the requirements 89 snags of 9"+, and 69 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).

Communities:
Black locust, multiflora rose, honeysuckle (both bush and vine), lespedeza, autumn olive, and Phragmites are all present on this tract in varying degrees of infestation. The multiflora rose and honeysuckle have infestations typical of the area. It is somewhat patchy. The honey suckle is much more prevalent in areas that were previously disturbed within the closed canopy forest (skid trails, etc.). The Phragmites is present in the drainage areas that are present within the mine spoils. These patches are relatively small

so it would be beneficial to treat this invasive soon before it spreads further and is much harder to treat/eradicate. The autumn olive is present sporadically in small groups on the south east corner of the tract.

Lespedeza is very prevalent in all the areas of reclaimed mine spoils. It has taken over and is pushing out native grass species. While it would be ideal to eradicate it, it is not practical to do so over such a large area. Not only is the infested area very large, lespedeza seeds remain viable for quite a long time so the treatment would have to be repeated for a number of years. Some areas could be planted with tree species that will do well on such a disturbed site to try and shade it out in places. What could also be done is to treat strips of the affected area and encourage native plants to grow with the hopes that they will eventually out-compete the Lespedeza. This is a long shot, but may be worth the effort to see if it is an effective way to combat this invasive species.

Vine honeysuckle and bush honeysuckle is present over many areas within the wooded portion of this tract. It is especially prevalent on the old skid trails and other areas of disturbance within the forest. Montiflora rose is also present sporadically throughout this tract. It is present within both the closed canopy and open areas of the tract. Neither of these species are a high priority right now, but they should be monitored.
Black locust trees have the possibility of being considered invasive species. They were planted sporadically throughout the areas where mining took place. This was likely done to restore the soil and prevent soil erosion. Black locust, as a nitrogen fixer, is the perfect candidate for planting on such an area. This is because not only will it help to remediate the soil, but it does well on such disturbed areas. It should be left to continue this process. One concern is where the black locust has spread into the closed canopy forest. Black locust has low timber value and spread readily; this makes it a highly undesired species within the forested areas where it is competing with more desirable tree species. A solution to preventing further spread of this species within the forest is to maintain shade to the understory. Black locust will grow in full sun to partial shade so if shade can be maintained it will slow the spread. TSI to remove it from the closed canopy forest before or during a harvest will be effective as well.

Recreation: There are signs of recreational activity on this site. A number of illegal ATV trails are present and have evidence of current use. These are likely used for recreation and hunting access within the interior of the tract. A hunting "camp" is set up in the far southeast corner of this tract. It consists of a parking area (marked with no trespassing signs), a gate, and ATV trails. The posted signs bear the name; "Augusta Cemetery Hunt Club" as the responsible party for posting the signs. Two "No Trespassing" signs were also found within the interior of this tract along the eastern boundary. These signs are posted significantly within the interior of this tract (they are approximately 450 – 500 ft away from a boundary that borders private land). It is unclear as to why this sign was posted as it does not bear the name of the previous owner of the land (these signs are also stamped with "Augusta Cemetery Hunt Club").

This tract is easily accessible to the public from Road 650 and from there, there is a gravel road that heads east to the retaining ponds that are located on the northwest border

of the tract. 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 more volume and 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 59%. This is just barely over the B line on the stocking chart. It is fully stocked but very close to being understocked. This stocking does not, however, represent solely the commercial areas of the tract. If the stocking of just the commercial timber is taken, the stocking comes to 78%. This is close to the middle of the fully stocked portion of the chart.

Closed canopy forest: The closed canopy portion of this tract consists of oak/hickory and mixed hardwood cover types. Generally the mixed hardwoods can be found in the lower areas and along waterways. The oak/hickory cover type can be found in the upland areas. The dominate trees are white oak, yellow poplar, black oak, and pignut hickory. This tract has a number of small pockets of very well formed white oak. These oaks tend to be on the small side (small to medium sawtimber at the largest) but have the potential to mature into high valued trees. There is a large component of yellow poplar in this area. Much of it has very good form but it is also small (pole to small sawtimber size). A TSI cut should be done over this portion of the tract to release these desirable trees. While vines are not a significant issue over the majority of this tract any vines present should be killed during the TSI cut to prevent a problem in the future.

Overall there is a good amount of oak regeneration over much of the closed canopy forest. A TSI cut will benefit this entire area. Desired trees can be released while undesirable trees are taken out.

Mine Spoils: This area is typical of most mine spoils in that it has steep slopes with some pine planted on it. The pine, mostly Virginia pine with some white pine, was sporadically planted and was not planted in as dense of a stand as the other spoils in the area. A number of different kinds of hardwood trees present as well. Some of these hardwoods have been planted, black locust and river birch for example, but sporadically and the vast majority of the river birch is dead or dying. Much of the hardwood trees in this area seem to have regenerated naturally. Evidence of this is in the relatively high numbers of oak seedlings and saplings that are in this area. Even though the slopes in this area will make a timber harvest challenging; the fact that oak is regenerating so well on this site shouldn't be ignored. TSI should be done in the appropriate areas to encourage oak regeneration and then the site should be re-evaluated at the next inventory. Care should be taken to leave enough trees present on the mine spoils to account for soil stabilization, even if these trees are of low timber value. There are some slopes present

that will never be suitable for harvesting and these areas should be left as is to maintain soil quality.

Reclaimed Mines: This area was mined for coal and the spoils were leveled. This area was then planted with grasses and some small pockets of trees. The trees are present mostly along the water ways to stabilize the soil. Trees that are present are cottonwood, sycamore, Virginia pine, staghorn sumac, and black locust. There are some areas where this open area transitions to the closed canopy forest where oaks are naturally regenerating within the area of mine spoil reclamation.

There is a fair amount of water present within this portion of the tract. Retaining ponds and drainage ditches were put in as part of the reclamation process. Many of these ponds/ditches are likely dry on a seasonal basis. Some; however, are likely to hold water all year long.

Summary Tract Silvicultural Prescription and Proposed Activities:

2011 – TSI on commercial areas

2011 – Treat Phragmites and Lespedeza

2030 – Inventory

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