Resource Management Guide
Compartment 14 Tract 03

Ferdinand State Forest Oct. 1, 2009
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Location
In part of the W ½ E ½ of Section 23 T2S R7W Pike County, IN. It lies about two miles east of Augusta, IN.

General Description
This tract covers 87.1 acres. Approximately half of the tract is forested and half is reclaimed mine spoils. The forested area was logged heavily down to firewood sized trees sometime in the 70's. The reclaimed mine area consists of grasses, herbaceous plants, and sporadic trees. A mixture of trees was planted on portions of the reclaimed mine area. There are some areas of open water on this tract. The largest is a lake located on the east side of the tract (it is roughly 8 acres in size). Additionally there is some open water within the wetland area on the far north side of the tract. These are retaining areas for the water running off of the tract. There are some rock lined ditches running to the ponds to further facilitate this.

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

Coal mining was done in the northern half of the tract. After the mining operations the land was reclaimed by leveling out the soil and planting plants well suited to such disturbed sites. Either through planting or succession there are some exotic/invasive plants present in this area. This is further discussed later within this report.

There has been some further site rehabilitation by a quail habitat restoration group in the reclaimed mine areas. It looked to be some mowing and planting of grasses in swaths. Much of this area is infested with Chinese Lespedeza (*Lespedeza cuneata*), an exotic and invasive plant.

Landscape Context
This tract lies close to compartment 12. Compartment 12 is directly to the north of this compartment. This tract doesn't share any boundaries with any other compartments. Formally this area was used for mining on the north side and logging in the southern portion. Now the area is used for quail habitat in the mine reclamation area and timber production in the forested portion.

Topography, Geology and Hydrology
This tract is located in the floodplain surrounding the Patoka River. The topography is rolling hills and a general sloping to the north into the open water present on the northern

boundary of the tract. Much of the water that drains off of this tract is held within these retaining ponds. Rock lined canals were installed to further facilitate this. There is a drainage ditch on the tract that runs roughly north south.

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 north half of the tract.

Soils

Note: When the Site Index for this tract was calculated, it was calculated without taking the areas of Fairpoint silt loam (FaB) or water into account. The reason that FaB was not included in the calculation is because not only is no site index given for this soil but because it is reclaimed mine spoils, there is little potential for timber production on this land.

Fairpoint silt loam (FaB), reclaimed, 1% to 15% slopes – This a nearly level to strongly sloping, deep, well drained soil in surface-mined areas on uplands that have been shaped and smoothed. It formed in medium textured or moderately fine textured material over nonacid mine spoils. The mine spoil consists of partially weathered soil and rock material and fragments of shale, siltstone, sandstone, and coal. Available water capacity is low and permeability is moderately slow. The rooting depth is restricted in some areas due to compaction of the underlying mine spoil. The organic matter content is very low in the surface layer. The land capability classification is IVs. No woodland ordination symbol or site index is assigned.

Gilpin silt loam (GnE), 15% to 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. Eroision 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 (ZaB) 2% to 6% slopes -- This soil is found on gently sloping, deep, and moderately well drained soil on ridge tops located 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.

Zanesville silt loam (ZaC3) 6% to 12% slopes, severely eroded -- This soil is found on moderately sloping, deep and moderately well drained soils. The Available water capacity is moderate. Permeablity 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.

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.

Access
Take State Road 64 to 700E. Follow 700E heading north and this road goes through the northern portion of the tract. It also loops around the western side and goes in a little ways south. Access is very good. The road is currently in need of some repair; it seems that all the rain recently coupled with the traffic from the quail habitat rehabilitation group has created large potholes. These should be repaired before the road becomes impassible.

Boundary
The northeast boundary is marked by a wetland. There are some areas of open water. The eastern boundary is not marked on the ground. The southern boundary follows a drainage ditch. The western boundary runs along a drainage ditch on the northern portion and then runs up a ridgeline on the southern portion. There is a trail (roughly an ATV trail that is not maintained) that follows a portion of the western and southern boundaries. The trail meets up at the western boundary at roughly the center of it and the trail then generally follows the tract boundary line around to the east, following the southern border.

Wildlife
This site has a wide variety of habitats present so it has the potential to support a wide variety of critters. All along the northern border there is open water that is most likely there all year long. Additionally there is an eight acre lake located on this tract. This provides habitat for many species of wildlife that require an aquatic habitat. Numerous frogs were seen and heard in this area. A white heron was witnessed in the open water of the wetland are on the northern border. It is unclear if there are any fish in these ponds as they are man made and have never been stocked.

The northern half of the tract consists of open areas of reclaimed mine spoils. Here the area consists of grass, Chinese lespedeza, and small trees sporadically present. Honey locust was planted in this area; mostly close to the forested areas. The bean pods of this tree are a favorite food of the white-tailed deer, squirrels, rabbits, opossums, and raccoons. 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 if desired. Whitetail deer trails

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.

Within this area of reclaimed mine spoils, there has been some effort by a local organization to provide habitat for quail. Much of this area is coved in Chinese Lespedeza. While this plant is somewhat desirable for quail habitat, it is an exotic invasive species that will outcompete native plants and grasses. There are some areas where the Lespedeza has been mowed and growing in its place are grasses.

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 is whitetail deer, box turtles, songbirds, and toads.

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

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 does not meet the live tree target in the 11"+ or the 20"+ size class. Within the 11"+ size class 20 additional trees are needed to meet the requirements and 226 trees are needed to meet the requirements within the 20"+ size class. 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 254 additional snags of 5"+, 167 snags of 9"+, and 44 snags of 19"+ need to be created. This is easily done by girdling trees that are appropriate to reach this goal.

Communities

The dominant forest type on this tract is oak/hickory. There are some pockets of almost pure yellow poplar located on some of the ridge tops. The stands are rather small in size and generally have large pole to small sawtimber sized trees.

There are a number of trees planted on the mine reclamation areas close to the forested land. Species planted include honey locust, white pine, button bush, and bald cypress. Along with these planted trees there is some natural oak regeneration present in some areas of the reclaimed mine spoils. This could be further encouraged by thinning some of the honey locust trees.

In the northern portion of the tract there is a severe infestation of Chinese Lespedeza. It covers the reclaimed mine areas and is only broken by what seems to be mowed areas (that are now grassy) assumed to be done by the Quail Association's rehabilitation efforts. Chinese lespedeza is primarily a threat to open areas such as meadows, prairies, open woodlands, wetland borders and fields. Once it gains a foothold, it can crowd out native plants and develop an extensive seed bank in the soil, ensuring its long residence at a site. Established dense stands of lespedeza suppress native flora and its high tannin

content makes it unpalatable to native wildlife as well as livestock. It is still planted for quail food plots and soil stabilization, but it is unknown how it got onto this tract.

Common Reed Grass (*Phragmites australis*) is present in the area of wetland on the north side of the tract. It has overtaken much of the native grasses in the wetlands area. Its high biomass blocks light to other plants and occupies all the growing space below ground so plant communities can turn into a Phragmites monoculture.

Japanese honeysuckle (*Lonicera japonica)* is also prevalent on much of this tract. In some areas it is starting to climb up saplings. Japanese honeysuckle colonizes disturbed areas including roadsides, open banks, old fields, forest edges, and managed forests. It is tolerant of a wide variety of soil conditions and is especially aggressive in disturbed bottomlands and floodplains. It invades native plant communities after natural or human disturbances such as windthrow, insect outbreaks, road building and logging. This plant follows this pattern by being present on the mine reclamation and old road sites. It is also starting to move into the forested area on the tract.

Due to the prevalence of invasives on this tract, management activities should be done to slow/halt the spread of the plants and to attempt to eradicate them all together. One factor that makes this more feasible is that all these invasive species can be treated with herbicide to control them. This means that the tract could be treated all at once with minimal time spent transitioning to alternative control methods.

Recreation
Quail hunting may be done on this tract as a result of the quail habitat restoration present on the north side. There is evidence of hunting within the forested portion of the tract (shotgun shells, a very old and degraded hunting stand, and a camouflage glove left behind by a hunter). Turkey and deer hunting are the most likely candidates for recreation on this tract.

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 forested portion of the tract is comprised of Oak/Hickory cover type. Scattered among the Oak/Hickory are some very small pockets of almost pure Yellow Poplar. Because of their small size and for simplicity sake, these pockets of Poplar will be included with the management guidelines of the Oak/Hickory. The timber on this tract is currently of average value. Much of the timber here is small sawtimber sized. After being so extensively logged in the 1970's the site is in need of some work and time to attain higher a value Overall the form of the trees is good and there is potential for higher valued timber to be produced on this tract. General TSI would benefit this stand. Poorly formed, overmature, and undesirable trees can be cut or killed to allow the desired trees to gain value. Grapevine control should also be done on this site. Currently vines are not a major issue but the problem could become much worse if no action is taken. The timber on the forested portion of this tract is fully stocked at about 85%.

The rest of the tract is reclaimed mine land. Here exotic/invasive plant control should be done on the Common Reed Grass and Chinese Lespedeza. The abundance of these plants is having a negative impact on the diversity and number of native herbaceous species in the area. It will, in all probability, take a few years of treatments to get this infestation under control. There are some areas where trees have been planted within this portion of the tract. The majority of these are honey locust trees. These should be monitored for their weediness to ensure they do not take over the area and outcompete the natural oak regeneration that is present in this area. There is some white oak regeneration on the north side of the lake in the mine reclamation area. The trees are around 6' – 8' tall and are doing well. The development of these and new trees in the area should be encouraged.

Summary Tract Silvicultural Prescription and Proposed Activities

2010 – Treat Chinese Lespedeza and Common Reed Grass

2011 – Vine TSI

2012 – Evaluate the effectiveness of the invasive treatment done in 2010. Treat again if necessary.

2013 – General TSI

2029 – Inventory

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