RESOURCE MANAGEMENT GUIDE
Pike State Forest Compartment 12, Tract 8
October, 2008

Location

This tract is located in Pike County, Section 15, Township 2 South, Range 7 West, approximately 3.8 miles southeast of Winslow and 1.3 miles northeast of Augusta.

General Description

Compartment 12, tract 8 consists of approximately 145 acres. A majority of the tract has been strip mined in the past. Currently, the tract is a mix of natural forest, forest growing on reclaimed mine areas, and some open ground.

History

This tract was purchased as part of a larger land purchase in 2006 from the Ellis Estate. In terms of historical land use, most of this tract has been strip mined. Only small portions of the north and southeast side of the tract are unmined. Division of Reclamation conducted a reclamation project in 1985 that included portions of this tract. There has been no management history by the state forest at this point, since this is the first inventory and management plan written for this new acquisition.

Landscape Context

The landscape surrounding this tract consists primarily of reclaimed strip mine areas, but Division of Forestry property is also in the vicinity, to the northeast. Sugar Ridge Fish and Wildlife area also owns mined and unmined ground in the vicinity of this tract. Over time, privately owned old strip mine areas are being developed into either full time residences or weekend homes/cabins.

Topography, Geology and Hydrology

The northern portion of this tract has a relatively gentle topography. There is a high wall at the edge of the mined area in the north portion of the tract. This is too steep to traverse in places. Beyond this steep drop, there is varied topography from level to steeply sloping. Most of the spoil piles that this area includes do not have very long slopes.

In terms of geology, this area is obviously underlain with a seam of coal. Some of this coal is now on the surface due to the mining, and soil profiles have been destroyed. The remaining soil and rocks visible on the surface are a random conglomerate.

There are no major water bodies in this tract, but there are several small ponds and wet areas. Four small water bodies are identifiable on the aerial photo. There are two mostly open areas in the tract. These act as drainageways for water and have been reformed, dammed, rip-rapped, etc, to improve water quality of the mine runoff. Most of this tract drains west to Augusta Lake, which belongs to Division of Fish and Wildlife. A small portion of the northern edge of the tract, about 20 acres, drains to Patoka River via Hog Branch.

Soils

FbC and FbG are Fairpoint-Bethesda Complex soils. Both of these soils are descriptions for soils located within a strip mined area. FbC consists of primarily leveled land while FbG consist of primarily spoil banks. These soils have no data for forestland productivity. Both soils are considered poorly suited for roads. FbG has a severe erosion hazard, while FbC has a moderate to severe hazard. The soils are poorly suited for log landings and have moderate to severe limitations for haul roads.

Gilpin silt loam (GnE) is located on hills with a slope of 15-30%. The soil has a site index of 95 for Yellow poplar. It is listed as being poorly suited for road construction, with a severe hazard of on-road erosion and a moderate hazard of off-road erosion. The soil is considered to be poorly suited to log landing construction and has a moderate limitation for haul road construction.

Hosmer silt loam (HoB2) is located on loess hills with slopes of 2-6%. Site index for White oak is 68. The soil is moderately suited to road construction, with a moderate hazard of on-road erosion and a slight hazard of off-road erosion. The soil is considered to be moderately suited to log landing construction and has a moderate limitation for haul road construction.

Wellston silt loam (WeE) is located on structural benches with a slope of 15-30%. Site index is 81 for Red oak. The soil is considered poorly suited for road construction, with a severe on-road erosion hazard and a moderate off-road erosion hazard. The soil is poorly suited for log landings, and has a moderate limitation for haul road construction.

Zanesville silt loam (ZaB) is located on hills with a slope of 2-6%. Site index is 90 for Yellow poplar, 75 for Black oak, and 69 for White oak. The soil is moderately suited for road construction, with a moderate hazard of on-road erosion and a slight hazard of off-road erosion. The soil is moderately suited to log landings and has a moderate limitation for haul road construction.

ZaC3 has a slope of 6-12%. Site indexes are identical to ZaB. The soil is moderately suited to road construction, with a severe on-road erosion hazard and a slight off-road erosion hazard. The soil is moderately suited to log landing construction and has moderate limitation for haul road construction.

ZaD3 has a 12-18% slope. Site index is 60 for White oak and Black oak. . The soil is poorly suited to road construction, with a severe on-road erosion hazard and a moderate off-road erosion hazard. The soil is poorly suited to log landing construction and has a moderate limitation for haul road construction.

Access

There is excellent access to this tract. A gravel county road runs the entire length of the tract on the eastern side. There are numerous places to park on the sides of this road. In terms of management within the tract, equipment access is more difficult. There is one firelane/access road along the southern boundary of the tract. Construction of access would be simple enough in the northern 20 or so acres of this tract, as well as in the vicinity of the county road. Access for management in the tract west of this would require a large amount of work, expense, and planning. This is because the spoil piles and artificially created wet areas create an effective barrier to road or trail construction. Trails would need to be constructed along the tops of the spoil piles, and crossings in wet

areas would need to be avoided or rocked. The high wall would need to be avoided entirely.

Boundary
The tract boundary line was flagged before the inventory was conducted. This tract boundary was estimated by measuring distances on a topographic map and then using a GPS unit to walk this line. Pink flagging was placed along this estimated line. The mining activity has obliterated any historical boundary evidence and makes running a compass line more difficult.

Wildlife
Wildlife noted during the inventory included deer, box turtle, hummingbirds, song birds, frogs, and black snakes. This tract provides a wide range of wildlife habitat that includes closed canopy hardwood forest, planted pine stands, open grassy areas, edge habitat, and wetlands. There were three identifiable ponds covering about 1 acre total in this tract, but there are numerous other small water sources from streams, wetlands, etc.

A Natural Heritage Database review was conducted and any management activities planned will take into consideration those species and their habitat needs.

In terms of Indiana Bat habitat, the inventory determined there were a total of 1.8 snags per acre of 9+ inches DBH and 0.1 snags per acre of 19+ inches DBH. These do not meet the requirements under the guideline of 6 snags per acre of 9+ inches DBH and 1 per acre of 19+ inches DBH. Snags in this tract should be maintained while marking any harvest, and additional snags should be created during timber stand improvement work. The inventory determined that there were 9.6 live trees per acre of 11+ inches DBH and 1.6 live trees per acre of 20+ inches DBH. This does meet the requirement under the guideline of 9 live trees per acre of 11+ inches DBH, but it does not meet the requirement of 3 live trees per acre of 20+ inches DBH. These numbers would indicate that, based solely upon Indiana Bat guidelines, a harvest should avoid cutting any trees over 20 inches DBH. Retention of snags in this tract should also be a consideration.

Communities
The summer inventory forester identified a Yellow birch tree during the inventory on this tract. No rare, threatened, or endangered plants were identified to be in this tract. Several exotic/invasive species were present in this tract. These included bush and vine honeysuckle, Multiflora rose, Autumn olive, and Garlic mustard in the spoils. Grapevines are also present. While not an exotic/invasive, these vines will damage crop trees. There are a sufficient number of them in this tract to warrant a vine TSI.

Recreation
There are no developed recreational facilities within the tract. The tract is utilized for hunting, and may be used for other types of recreation due to the easy walk-in access from the county road.

Cultural
Cultural resources may be present on the tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction projects. Most of the potential cultural resources would have been obliterated by the mining.

Tract Subdivision Description and Silvicultural Prescription

Overall
The inventory across the entire 145 acre tract yielded a total volume of 386,174 board feet. This corresponds to 2,595 board feet per acre. Leave volume is 267,870 Bd.Ft. and 1,850 Bd.Ft./Ac. respectively. Harvest volume is 114,770 Bd. Ft. and 790 Bd. Ft./Ac. respectively. Stocking is 70%, above the B-line. Average tree diameter is calculated to be 7.3 inches.

Pine
The inventory summary indicated that there are approximately 31 acres in the pine strata. Total volume in the pine area is 40,940 board feet, which corresponds to 1,320 board feet per acre within the 31 acre pine subdivision. Harvest volume is 13,270 board feet total, or about 428 board feet per acre. Leave volume is 27,670 board feet total, or about 892 board feet per acre. Stocking for the pine stand is 71%.

The pine in this tract consists almost entirely of Virginia pine, which accounts for 39% of the volume within the pine strata. Yellow poplar is the next most common tree within the strata, accounting for 32% of the volume. Pin oak, Scarlet oak, Shingle oak, Black oak, River Birch, and Largetooth aspen are other species identified in the strata. The pine areas generally contain over 100 square feet of basal area. Size range varies from 6-14 inches DBH. According to the inventory notes, most of the areas containing pine also have hardwoods that could be promoted through TSI.

Hardwood
The inventory summary indicated that there are approximately 89 acres in the hardwood strata. Total volume in hardwoods is 345,240 board feet, which corresponds to 3,874 board feet per acre within the 89 acre hardwood subdivision. Harvest volume is 101,500 board feet total, or about 1,140 board feet per acre. Leave volume is 240,200 board feet total, or about 2,699 board feet per acre. Stocking for the hardwood stand is 70%.

Yellow poplar is also the most common tree within the hardwood strata, accounting for 25% of the volume. White oak is the next most common tree, accounting for 15% of the volume. Other common species include Eastern cottonwood, Black oak, Scarlet oak, Virginia pine, and American sycamore. The best timber quality in this tract occurs in the unmined portion of the tract. This area consistently needed thinning prescribed during the inventory, and also needs vine TSI. The unmined areas are a mix of oak-hickory timber type and Yellow poplar. An opening was prescribed for a plot within the Yellow poplar stand. The mined portions of the tract vary quite a bit. Most of the better quality timber here is growing on the spoil piles. The reclaimed areas tend to have either no trees

or lower quality trees growing on them. The timber quality on the spoil piles varied considerably as well. There were some nice White pine near the high wall, and fair quality oak were scattered among the spoils. Most of this was shingle oak, but White oak, Black oak, Scarlet oak, Red oak, and Pin oak were represented.

Open

The inventory summary indicated that there were 24.8 acres classified as open ground. These areas are typically reclaimed mine ground that was not revegetated to trees. This could include grassy areas or wetland areas. Management objectives for the reclaimed mine ground has not been determined yet. Options include reforestation or wildlife management areas. Management decisions will be addressed after the bulk of land acquisition in this area has been completed.

Summary Tract Silvicultural Prescription and Proposed Activities

Due to the low stocking, low per acre harvest volume figures, and poor access to timber within the tract, a timber harvest is not recommended for this tract at this time. The unmined areas could be thinned, but this is a relatively small portion of the tract and may not be commercially viable. TSI could accomplish release of oaks and other crop trees in these areas. TSI would also be beneficial in the spoil piles within the mined areas. There were some quality oaks here that should be released.

There were numerous plots in this tract where grapevines were a problem, so a vine TSI is recommended for this tract. There were scattered exotic/invasive species within this tract that should be controlled if possible, especially bush honeysuckle. The vine honeysuckle and Garlic mustard is probably too widespread to effectively control with the current manpower and time. The TSI for this tract could be planned for the fall or winter of 2008.

The next inventory should be scheduled for 2017.

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