Resource Management Guide
Pike State Forest Compartment 12, Tract 7
October, 2008

Location

This tract is located in Pike County in parts of Section 12 and 13 Township 2 South, Range 7 West.

The tract is approximately 4.4 miles south east from the town of Winslow.

General Description

This tract covers about 136 acres. The majority of the tract is flooded seasonally, with some areas remaining wet year long. Currently the tract consists mostly of bottomland hardwoods with some open wetlands.

History

The tract was put together from parts of two separate land purchases. The northern portion of the tract was acquired from a larger land purchase in 2006 from the Ellis Estate. The southern portion and majority of the tract was acquired from the Board of Commissioners of Pike County on 7 February 1935. This area is speculated to be an old field bottom site. Much of the area surrounding this tract has been strip mined. Acid drainage from the strip mines has accumulated in this area.

In 1967 a salvage cut was performed on 40 acres of the southern portion of this tract. The sale marked 219,560 bd. Ft. in 995 trees. The majority of the sale, 62%, was composed of Pin Oak with 136,780 bd. Ft. in 496 trees. The sale was also composed 13% of Sweet Gum with 28,160 bd. Ft. in 165 trees and 13% of White Oak (most likely Swamp White Oak) with 27,660 bd. Ft. in 133 trees. The rest of the sale was reported to have small portions of Red oak, Hickory, Soft Maples, Black gum, Tulip, and Ash.

In 1971 Rick Burgeson reevaluated the site. He determined that timber potential was low on this area because of frequent flooding and acid-mine tailings. In order to improve production on tract he recommended planting Sweet gum and Soft Maple on the areas cut in salvage operations. He also recommended a possible drainage if possible of area.

In 1976 the site was reevaluated by S Brandsasse. A full cruise was not performed due to a low mean DBH. Water and soil sampled taken from the uncut areas indicated pH levels ranging from 4.6-5.4 with a mean of 5.2. The previously cut areas had pH values ranging from 4.4-5.0 with a mean of 4.7. It was recommended that the site be rechecked every five years to see if mortality of non-tolerant species increased over time.

Landscape Context

The landscape surrounding this tract consists of both mined and unmined areas. The Division of Forestry property lies to the northwest of the area. The U.S. Fish and Wildlife Service owns some land surrounding the tract to the east that is managed as a wildlife refuge. There are is also a presence of agriculture around the area. Throughout the area there are scattered residences and farmsteads.

Topography, Geology and Hydrology
The tract is located in the floodplain surrounding the Patoka River. Overall the tract has a flat homogenous topography.

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

The upper Northwest boundary of the tract is bordered by the Patoka River. There is also a large man made drainage ditch that originates southeast of the tract and flows north making up the far east boundary of the tract. The ditch then turns northwest and crosses the tract in the northern portion to drain into the Patoka River. There is some impediment of this drainage as it enters the tract due to several beaver dams. There are also many small depressions and hollows across the tract that have standing water after seasonal flooding or in times of high precipitation.

There is also a large wetland in the south east portion of the tract. The center of this wetland is comprised of various sedges and rushes and little woody vegetation. The upper northern portion of the tract is also bordered by a large wetland with sparse woody vegetation.

Soils
The most common soil found on this tract is Belknap (Bg). It is a nearly level silt loam that is formed from acid, course-silty alluvium. Belknap is a somewhat poorly drained soil that frequently floods during spring and winter. 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. Pin oak has a SI of 90. It is poorly suited to harvesting equipment due to its wetness and poor strength.

The next most common soil on this tract is Bonnie, ponded (Bp). It is a nearly level silt loam that is formed from fine-silty alluvium. It is often present on backswamps on floodplains. Bonnie, ponded is very poorly drained and is often ponded or flooded for long periods of time. The soil's available water capacity is very high, permeability is moderately slow and surface runoff is very slow. A seasonal high water table is near or slightly above the surface during the winter and spring. The organic matter content is moderate in the surface layer. Most areas of this soil are wooded or are swampy shallow water areas. Pin oak has a SI of 90. It is poorly suited to harvesting equipment due to its wetness and poor strength.

Bonnie flooded (Bo) also makes up the tract. It is a nearly level silt loam made from fine-silty loam alluvium. It is poorly drained and is often flooded in winter or spring and may pond. This soil's available water capacity is very high, permeability is moderately slow and surface runoff is very slow. The soil has a seasonal high water table near or slightly above the surface during winter and spring. Organic matter is moderately low. Equipment limitations, plant competition, and seedling mortality are the major hazards. It

is recommended not to isolate remaining trees during thinning operations due to windthrow hazards. Pin oak has a SI of 90. It is poorly suited to harvesting equipment due to its wetness and poor strength.

The smallest component on the tract is Steff silt loam, frequently flooded (Sf). These soils formed in acid, silty alluvium. It is a near level and moderately well drained soil on floodplains. It is subject to brief flooding in winter and spring. This soil has high available water capacity, permeability is moderate and surface runoff is slow. There is a seasonal high water table at a depth of 1.5 to 3 feet during winter and spring. Organic matter in this soil is moderate. Plant competition is the main concern. Sweetgum has a SI of 100. It is moderately suited to harvesting equipment due to its low strength.

Access

This tract has moderate access. Presently there are firelanes that connect county roads to a rail road grade trail that runs along the west boundary of the tract. Some work would need to be done on the firelanes so that they may be navigable by heavy equipment. There are a couple of hills on firelane 10 that may be difficult to pass with large trucks. It is possible that a logging yard could be constructed at the top of one of these hills or an opening could be made where firelane 10 meets the northwest boundary of the tract.

Boundary

The west boundary of the tract is a railroad grade adjacent to 1204 and 1206. This boundary connects to the Patoka River on the northwest boundary. The river forms the north boundary across from 1004. The north part of the east boundary is a ½ mile compass line. The majority of this line is marked with pink flagging tape (2007). Some areas were not accessible due to high water table. The boundary line turns east on a straight pink flagged line (2007). The line meets with the drainage ditch and then runs south on a north-south compass line. The southeast corner was not flagged due to high water table. The line then runs west until in connects with a flagged (2007) natural drainage that connect with the rail road grade on the western side of the south boundary. The entire eastern boundary from the river to the natural drainage is shared with the Patoka River National Wildlife Refuge.

Boundaries without natural or man-made indicators were estimated by a GPS unit.

Wildlife

A Natural Heritage Database search was conducted and any management activities will take in consideration those species and their habitat needs.

Wildlife noted on tract includes the eastern box turtle, songbirds, hummingbirds, frogs, owls, squirrels, beaver, lizards, and snakes. This tract has open grassy wetlands, closed canopy hardwoods, seasonally pooled water, and edge habitat to adjacent tracts.

In terms of the Indiana bat habitat, 637 live trees of preferred species with 11"+ DBH were recorded on the tract. Current parameters recommend 1227.51 live trees. The inventory also recommended 409.17 live trees with 20"+ DBH of preferred species across tract. The inventory tallied 121. In terms of snags the inventory tallies 263 snags with 9"+ diameter. Current policy recommends 818.34. Also, 13 19"+ DBH snags were recorded of the preferred species. 136.39 were recommended. Overall, the number of desired species was not met for both live tree and snags. Due to the hydrology, many preferred species are unable to occupy this site. Retention of snags of preferred species and possibly snag creation should be considered. In addition live preferred species over 20" DBH should be avoided when marking.

Communities

The tract is composed of Bottomland Hardwoods. Jewelweed and arrowroot are present throughout the tracts and are indicative of its wet nature. There was a presence of both green briar and grapevine on several points in the northern portion of the tract. A vine TSI in this area would be beneficial.

Green briar was also sporadically throughout the southern portion. Exotics, such as multi flora rose occupy a few sites adjacent to the railroad grade on the western border.

The Natural Heritage Database recorded the presence of American Snowbell in 1991. American Snowbell is small woody shrub. It grows best in poorly drained acidic soils. It is threatened in Illinois and is presumed extirpated in Ohio. It grows well in shade and will tolerate full sun.

Recreation

Many of the firelanes and trails on the Pike State Forest are utilized by horse back riders and hikers. The trail system connects to the West side railroad grade. The trail also extends and wraps around the North side of the tract boundary. Evidence of users illegally using ATV's inside of the tract and on trails surrounding area was present. There is also a permanent deer stand constructed within the tract.

Tract Description and Silvicultural Prescription

This tract was not broken down into subdivisions.

The current average BA for the tract is 104.4. There are about 275 trees/acre and the average DBH is 8.3". Overall the stand is about 93% stocked.

This tract has a total volume of 806,050 BF with 492,310 BF being recommended as harvest and 313,740 BF being recommended as leave. There are about 5910 BF/ ac. Pin oak is the most common tree on the tract with 39% of the total volume. This is followed by Red Maple (20%), Sweetgum (12%), Swamp White Oak (10%), Yellow Poplar (8%), Pignut Hickory (5%), and <2% Red Elm, Box elder, Silver Maple, American Beech, Green Ash, Black gum, Black Cherry, and Shagbark (or Shellbark) Hickory.

The harvest volume is composed of Pin Oak (36%), Red Maple (22%), Sweetgum (12%), Swamp White Oak (12%), and Yellow Popular (6%). The leave volume will be composed of Pin Oak (34%), Red Maple (17%), Sweetgum (11%), Yellow Poplar (10%), Pignut Hickory (9%), and Swamp White Oak (8 %).

Many of the overstory trees on the tract are experiencing decline or have questionable quality. This could be a result of both acidic conditions and overcrowding. The majority of the site could benefit greatly from a thin to release understory and promote regeneration. Any logging activity in the northwest portion of the tract should be timed to avoid nesting periods of the Great Blue Heron. In addition, a wider buffer strip around the Patoka River should be considered to protect the nesting sites.

Areas surrounding the wetland in the southeast and the east of the northern portion need to grow more before they may be harvested. It is presently dominated by pole sized trees. It may even be too wet to harvest, due to the prospect of wind throw.

Summary Tract Silvicultural Prescription and Proposed Activities

A vine TSI is recommended for the northern portion to control the grape vines. This could take place in the fall or winter of 2007.

Next, the roads leading to the tract need to be evaluated to see if any upgrades are needed to accommodate heavy equipment. There is a short steep hill on firelane 10 that may be difficult to traverse. The exact placement of a logging yard may also be determined. Two likely places would be where firelane 10 meets up with the northwest border of tract or on top of the hill on firelane 10. Evaluation of the roads could be performed in 2007 and any upgrades could be scheduled for 2008.

A timber harvest could be planned for 2009. The harvest would be a thinning operation. Timing of any harvest activities would be restricted to late summer and fall due to the seasonally high water table. The harvest would remove about 3610 BF/ac for a total of 492,320 BF

Due to the high recreational use of the area surrounding the tract, it is recommended that educational signs be placed along trails post harvest.

Following harvest, post harvest TSI should be conducted. The next inventory should be scheduled for 2022.

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