RESOURCE MANAGEMENT GUIDE
Ferdinand State Forest Compartment 3, Tract 2
October, 2008

Location: This tract is located in Section 4, T3S, R3W in Dubois County. It is located about 2 miles southeast of Kyana and 2 ½ miles southwest of Birdseye.

General Description: This tract covers 87 acres in the upper reaches of the Hurricane Creek. It includes both the north and south slopes and over ¼ mile of the blue line Hurricane. The slopes are generally moderately steep and often eroded. It contains about 58 acres of hardwoods and 27 acres of pine.

History: This tract was purchased by the State in 1944 with part of Tract 3 to the south totaling 160 acres. It was purchased from Mary Bayer, who lived in Indianapolis, for $5.00 an acre. According to the inspection report it was mostly wooded except 3 acres in the NW corner (last cropped in 1938), 5 acres in the NE corner (last cropped in 1935) and the south ridge (also last cropped in 1935). The hardwood trees at that time were about 25-30 years old, 4-14" DBH, and consisted of white oak (25%), black oak (20%), tulip poplar (15%), maple (15%) and others (25%). The open areas on this tract and on Tract 3 were planted in 1951 and 1953 with 20,050 shortleaf pine, 23,300 Virginia pine, 18,500 white pine and 8,000 pitch pine. Most of these went on Tract 3.

In 1965, the Division of Fish and Wildlife built a small wildlife pond in the southeast corner of the tract. In 1978, Ben Hubbard did an inventory and management plan. He found an average of 1,370 board feet per acre on 40 hardwood acres. This was mostly yellow poplar (32%), white oak (18%), black oak (11%) and American beech (8%). His recommendation of pruning and thinning the white pine was never completed.

In 1989 Doug Brown did an inventory and management plan for the tract. He found an average of 4,847 board feet per acre on 48 acres of hardwood. This was mostly yellow poplar (27%), white oak (25%), black oak (18%) and American beech (8%). Off the recommendations of that plan a vine TSI was conducted in 1990 and road improvements made for access. In 1991, 274 trees and 29 culls containing an estimated 56,160 board feet were sold to DMI Furniture. This sale covered about 35 acres. This was a selection cut to remove some of the mature and damaged stems from the tract. A post harvest TSI was completed in 1992 over the entire tract.

Landscape Context: This tract lies at the very north end of a large block of State property. It has private land on the north, east and west sides with a narrow band of State property to the south for several miles. Most of the landscape is in a mix of hardwood forest or agriculture, particularly corn/soybeans, pasture or hay. A couple of large dairy operations are within a mile and a half to the south. Development outside of agriculture or Birdseye is mainly limited to residences on smaller acreages. The last few years has seen more land subdivided and developed for residential use and this trend is only expected to continue. The State land to the south contains some of the higher percentages of pine acres on the property. Very little pine is found on private property.

Topography, Geology and Hydrology: This tract is found in the Crawford Upland natural region. This is unglaciated hill country characterized by short, steep slopes often broken by relatively flat benches and rocky bluffs. The geology consists of underlying sandstone often with a loess cap on the ridgetops.

There are very few ridgetops on the tract except the south boundary (which is the ridgetop) and a few ridge fingers sticking in to the center of the tract. Most of the acreage is in either south to southeast or north to northwest slopes. The steeper slopes are the northerly slopes. The Hurricane Creek, a major tributary of the Anderson River, enters the tract in the middle of the north boundary and exits the middle of the west line. It is considered a permanent stream and is mapped as such at this point. However, this is very high in the watershed and technically is probably not a permanent stream here. The entire tract is in the Hurricane watershed.

Soils: The most common soil type on this tract, covering 54 acres, is Gilpin silt loam. These soils are found on side slopes of between 12 and 18%. All of these acres are classified as eroded to severely eroded, due to past agricultural and land use practices. Gilpin soils are moderately deep, well drained soils. Available water capacity it low, permeability is moderate and organic matter content is low to moderate, depending on the degree of erosion. Site index for upland oak is 80.

The next most common soil is a Gilpin-Berks complex. These soils consist of about 50% Gilpin silt loams and 35% Berks soils. These soils are on the steep side slopes over 20%. They are moderately deep and well drained. Available water capacity is low, permeability is low and organic matter content is low. Site index for upland oak is 80.

Zanesville silt loams are found on about 27 acres. These soils are found on the ridgetops along the firelane and the northwest corner. All of these soils are classified as eroded to severely eroded. Zanesville soils are deep, moderately well drained and slowly permeable. They have a fragipan between 24 and 32 inches deep that can cause a seasonally high water table in the winter and spring and restrict root growth. Available water capacity is moderate and organic matter content is moderately low. Site index for upland oaks is 68.

About 7 acres of the tract is found in a Tilsit silt loam. This is on a couple of the ridge fingers coming off the south ridge. Tilsit soils are deep and moderately well drained. Available water capacity is moderate, it is slowly permeable and organic matter content is moderate. Tilsit soils have a fragipan between 20 and 28 inches also, causing seasonally high water tables in the late winter to early spring. Site index for upland oak is 70.

The last soil type on this tract, Wellston silt loam, covers about 3 acres. These soils are also classified as eroded and are found on a ridge finger extending into the tract in the middle of the north line. Wellston soils are deep, well drained and moderately permeable. Organic matter content is low and available water capacity is medium to high. Site index for upland oak is 71.

Overall, about 84 acres is classified as eroded to severely eroded. All soils are now stabilized and vegetated.

Access: Access to this tract is via Firelane 12 off of Mentor Road South. It is about 1 mile off the county road. The firelane was improved in 1990 for the previous harvest, however, for modern semi trucks it will need some more work. The firelane continues and forms most of the south boundary of the tract and winds its way back out to Mentor Road South just east of Schnell Road. However, a steep hill barely navigable by a pickup truck limits its use for management purposes.

There are not any roads into the tract. Two log yards were constructed for the previous harvest and skid trails extended beyond that. One trail was constructed across the drainage to the northwest corner; however, the northeast corner has not been accessed. If possible, both of these corners may be accessed much easier across private property but the chances of that are probably minimal.

Boundary: The entire east, north and west boundaries of this tract are private boundaries. The west and north are in agriculture and forest. The east has been in agriculture fields but has a new home in it now. As of this writing, the boundaries have not been ran and posted. The south line is the firelane and ridge tops extending to the east and west boundaries.

Wildlife: This tract should provide good wildlife habitat. Water should be available nearly all year if not all year in the creek and the waterhole. There are large oak and hickory trees for hard mast and black cherry, black gum and other soft mast available. Den trees should be available, including large dens in cull beech trees. The pine stands offer some diversity, though they are not prime habitat for most native wildlife. Species noted by sign or sight during the inventory include: deer, woodpeckers, robins, squirrels, chipmunks, raccoons, blue jays, nuthatch, crows, turkeys, box turtle, cardinals and other birds.

A search of the Natural Heritage Database indicated no record of endangered, threatened or species of special concern for this tract or the surrounding area.

Current policy on managing for the federally endangered Indiana bat calls for certain components of snags and live trees of specific species and sizes. When considering only the preferred species (American elm, bitternut hickory, black ash, black locust, cottonwood, green ash, red oak, post oak, red elm, sassafras, shagbark hickory, shellbark hickory, shingle oak, silver maple, white ash and white oak), the tract target is 783 live trees over 11" DBH and 261 over 20" DBH. The tract is currently carrying only 662 and 206 respectively. Snag requirements are 261 over 9" DBH and 43.5 over 19". The tract contains 273 over 9" but only 18 over 19", a deficit of 25.5 for over 19".

Communities: Most of this tract falls into dry-mesic to mesic sites. The north slopes tend to be more on the mesic side with Christmas fern and other species present. However, even on these sites green-brier was usually present, indicating less than optimum conditions. This may be due to the degradation of soils due to the past erosion. The south slopes had higher proportions of green-brier indicating less mesic conditions. The only places spicebush and other mesic to wet-mesic species were noted was in the drainage valley in the east end and a couple of spots on the steeper, lower, north slopes.

Exotics, however, were common throughout the tract. Most common was multiflora rose and vine honeysuckle.

Recreation: Recreation use is probably limited on this tract due to the accessibility. Deer stands were noted and from past experience it is known the area is used by turkey hunters and mushroom hunters. Squirrel hunting and possibly coon hunting are also likely activities. Nearby neighbors may walk through the tract but no trails or other evidence showed anything steady. No ATV use was noted except historically on the firelane.

Tract Stand Description and Silvicultural Prescriptions: For description purposes, this tract was broken down into four stands. They are commercial hardwoods, non-commercial forest, white pine and mixed pine.

Commercial Hardwoods: This stand consists of 58 acres of the 87 acre tract. These were the hardwoods found on most of the south slopes, drainages and lower parts of the north slope. Overall, this stand averaged about 10,952 board feet per acre, which is fairly high. This was primarily yellow poplar (39%), white pine (13%), white oak (13%) and black oak (9%). The high volume can partly be attributed to the abundance of yellow poplar and the inclusion of white pine intermixed with and on the edges of the stand. The stand basal area is about 118.8 square feet/acre and there are about 157 trees per acre. This makes the stand right at 100% stocked and average tree DBH at 11". Quality is fair overall with some areas of nice oak. Much of the yellow poplar is in serious decline and mortality is beginning to occur. Beech/maple succession is well underway on most sites and will be difficult to reverse in many places.

The prescription for this stand includes a vine TSI for the entire tract. While not heavy, it will be easier to control them before a harvest. Also before the harvest, the exotics need to be addressed. The multiflora rose and vine honeysuckle should at least be treated in future openings. Heavy concentrations in the thinned areas should be addressed as well. A harvest is also prescribed for this tract in the next few years. A hardwood harvest could be combined with a pine harvest and cover virtually the entire tract. The pine should be regenerated except possibly some of the white pine. Following the harvest, a post harvest TSI should be conducted on the entire tract. There are some sites on the south slopes and possibly in the pine areas that oak regeneration may be possible with some understory control.

Non-commercial Forest: The site contains mostly sawtimber white pine and yellow poplar, though the yellow poplar is of low quality. Since it sits on the ridge top access to the rest of the ridge to the west may be limited if it is not possible to skirt this site. Exotics including multiflora rose and vine honeysuckle were noted.

The prescription for this stand is to protect it from soil disturbance. However, the exotics can still be treated with the rest of the tract.

White Pine: The white pine stand covers about 4 acres. This is in two small areas both on the south side of the tract. White pine trees were located in other areas but they were either missed in the inventory or were part of other stands. As with the commercial hardwoods, there was overlap and inclusions resulting in a component of hardwoods in this stand. Overall the stand

averaged 21,163 board feet/acre. This was mostly white pine (73%) and yellow poplar (15%) with small volumes of black oak, black cherry, scarlet oak and Virginia pine. Basal area stands at 150.9 square feet/acre. The white pine is only about 60 years old and could be carried but the hardwoods mixed in are of low quality and regeneration is heavy to beech and maple. Both areas are also adjacent to potential regeneration areas.

The prescription for this stand is to regenerate it to native hardwoods. While the option of carrying the trees is still open it may make the most sense to start over, particularly the area in the middle of the tract. These areas should come back very strong to yellow poplar with other hardwoods mixed in.

Mixed Pine: This stand covers 23 acres. This is the bulk of the area that was open when the property was purchased and planted to pine in the 1950's. This includes much of the eroded north slope, the northeast corner and the ridge top along the firelane. Some of these areas are breaking up, and have been for years, and naturally converting to hardwoods. The mixed pine species (Virginia, shortleaf, pitch and red) dominated the stands in number of trees and basal area. However, most of trees were small sawlog sized or smaller while the inclusion white pine and hardwoods were much fewer but larger. That is why the stand average of 8,172 board feet/acre was mostly in white pine (39%) and yellow poplar (18%). Virginia pine (17%), shortleaf pine (14%) and other hardwoods and some red and pitch pine followed. The basal area of 146.5 square feet/acre is 59% mixed pine while white pine and yellow poplar account for only 20% of the basal area. The pine that is not falling out of the stand is stagnant and low quality. The majority of the hardwoods mixed in are low quality as well. Even the regeneration is heavy to less desirable beech, blackgum and other species. Exotics including vine honeysuckle and multiflora rose are present in a few places.

The prescription for this stand is once again to regenerate. There is very little to gain by carrying this stand into the next cutting cycle while it should regenerate very nicely to yellow poplar and other hardwoods. It is possible some places may be harsh enough to favor oak and if present it should be helped along. Care will have to be taken to removing the timber in some of the gullied areas and some may be inaccessible with equipment.

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September 12, 2008

Ferdinand State Forest
Comp. 3, Tract 2
Sec. 4, T3S, R3W
Possible Harvest Map