Ferdinand State Forest – Compartment 3, Tract 3
RESOURCE MANAGEMENT GUIDE

Location

Compartment 3 Tract 3 is located in Dubois County in parts of Section 3 and 4 Township 3 south Range 3 west. It is located approximately 3.15 miles southwest of the town of Birdseye.

General Description

This tract is 115.8 ac. It is predominantly planted pine with a belt of oak-hickory/mixed hardwoods running east west through the center on the tract. This belt follows a drainage that drains west into Hurricane Creek.

History

The division, through acquisitions of the Mary Bayer and Chervenak properties, acquired this tract in 1943. The area was most likely cleared and used for agriculture. Pine was planted on the tract between 1951-1953.

This area was cruised by Janet Eger in 1984. Over 80% of the tract was classified as a pine cover type. The majority of that being Virginia pine and largely unmarketable with some pockets of quality eastern white pine. Access to the white was poor. Her findings also highlighted a belt of oak-hickory, yellow popular, and beech maple running east-west along a drainage in the center of tract. The most pressing concern at the time was firelane maintenance. This was completed in 1986 by widening the lanes and other general maintenance using inmate labor. In 1990, the north firelane was further improved using a dozer to provide access to a timber sale in Tract 2.

In 1996 there was a large snowfall that caused a lot of damage on the tract. The heaviest hit area on the tract is located in the northwest. Virginia pine received the brunt of the storm damage.

Landscape Context

This tract is bordered on the north, south, and partially on the east by adjacent tracts of the Ferdinand State Forest. Both public and private land surrounds the area around the tract. Agriculture also has a strong presence in this area. There are an increasing number of residential areas popping up across the landscape. This trend will only increase with time.

Topography, Geology and Hydrology

The slopes on the tract range from gentle to steep. Two ridgetops run along the north and south boundaries of the tracts. There are fingerlike extensions of the ridgetops that extend toward the center of the tract. There are ephemeral drainages between these fingerlike projections that drain into the unnamed drainage in the center of the tract. The drainage runs west into Hurricane Creek, which drains into the Anderson River.

This area was unglaciated and the underlying geology of this area is most likely sandstone or siltstone.

Soils

Gilpin Silt Loam (GlD3) is a severely eroded soil that is found on 47 acres (41%) of the tract. It is the most dominant soil found on the tract. This strongly sloping soil is moderately deep and well drained. The soil is on uplands. It is on 12-18% side slopes along drainage ways. Rock outcrops are in some areas. Inclusions of other soils make up about 15-20 percent of the soil. The soil has a low available water capacity and is moderately permeable. Surface runoff is very rapid. The surface layer has low organic matter content and is friable. This soil is in capability subclass of VIe, a woodland suitability subclass of 2r and a site index of 80 for northern red oak. This soil has moderate limitations with both erosion and equipment and only slight with seedling mortality and windthrow.

Gilpin-Berks complex, (GoF) is a moderately steep soil found on about 25 acres (21%) of the tract. This soil consists of moderately steep to very steep Gilpin and Berks soils that are moderately deep and well drained with 20-50% slopes. These soils are on hillsides and are in the uplands. This soil is rated as severe for both erosion hazards and equipment limitations and only slight for seedling mortality and windthrow. Individual areas of this soil are 50 percent Gilpin soils and about 35 percent Berks soils. The soils in this unit have low available water capacity and are moderately permeable. Surface runoff is very rapid. The surface layer has moderate organic matter content and is friable. The complex is in capability subclass of Vlle, while the Gilpin part is in woodland suitability subclass 2r and the Berks part is in woodland suitability subclass of 3f. The complex has a site index of 80 for northern red oak.

Zanesville Silt Loam (ZnC3) is a severely eroded soil that makes up about 23 acres (20%) of the tract. This moderately sloping soil is deep, well drained with 6 to 12 percent slopes. This soil is on uplands. It is on ridgetops and upper sideslopes along natural drainageways. This soil has moderate available water capacity and is slowly permeable. Surface runoff is rapid. The surface layer has low organic matter content. Depth to a seasonal high water table ranges from 2 to 3 feet during the months of December through April. A very firm and brittle fragipan, at a depth of 24 to 42 inches, restricts the downward movement of roots. This soil is in capability subclass of IVe, a woodland suitability of 4d and a site index of 60. This soil is rated as moderate for seedling mortality and only slight for erosion, equipment, and windthrow hazards.

Zanesville Silt Loam (ZnC2) is found on 8 acres (7%) on tract. It has 6 to 12 percent slopes. This moderately sloping soil is deep and well drained. It is on ridgetops and upper parts of side slopes along natural drainageways. This soil has moderate available water capacity and is slowly permeable. Surface runoff is medium. The surface layer has moderate organic matter content and is friable. Depth to a seasonal high water table ranges from 2 to 3 feet during the months of December through April. A very firm and brittle fragipan at 24 to 32 inches, restricts the downward movement of roots. The soil is in capability subclass IIIe and woodland suitability subclass 3o and a site index of 68 for northern red oak. It has only slight management concerns in terms of erosion, equipment limitations, seedling mortality, and windthrow

Gilpin Silt Loam (GlE) is a moderately steep soil found on 7 acres (6%) of the tract. It is moderately deep and well drained with 18 to 25 percent slopes. This soil is on uplands. It is on hillsides and sharp breaks along drainageways. Inclusions of other soils make up 10-12 percent of the soil and can include rock outcrops. The soil has low available water capacity and is moderately permeable. Surface runoff is rapid. The surface layer has moderate organic matter content and is friable. The soil is in capability subclass Vle , a woodland suitability subclass of 2r and a site index of 80 for northern red oak. This soil has moderate limitations with both erosion and equipment and only slight with seedling mortality and windthrow.

Tilsit Silt Loam (TlB) is a gently sloping soil. It occupies 6 acres (5%) of the tract. It is deep and moderately well drained with 2 to 6 percent slopes. This soil is on ridgetops and on the uplands. This soil has moderate available water capacity and is slowly permeable. Surface runoff is medium. The surface layer has moderate organic matter content and is friable and easily tilled. Depth to a seasonal high water table ranges from 1.5 to 2.5 feet during the months of January to April. A very firm and brittle fragipan at a depth of 20-28 inches, restricts the downward movement of roots. The soil is in capability subclass of IIe, a woodland suitability subclass of 3o, and a site index of 70 for northern red oak. Tilsit has only slight hazard with erosion, equipment limitation, seedling mortality, and windthrow.

Gilpin Silt Loam (GlD2) is found on <1 acres (<1%) of the tract. It has 12 to 18% eroded slopes. This strongly sloping soil is moderately deep and well drained. It is found on side slopes along drainage ways and hillsides. It ranked as moderate for erosion hazards and equipment limitations and slight with seedling mortality and windthrow. This soil has low available water capacity and is moderately permeable. Surface runoff is rapid. The surface layer has moderate organic matter content and is friable. The soil is in capability subclass IVe and woodland suitability subclass of 2r and a site index of 80 for northern red oak.

Access

The tract has reasonably good access. Firelane 12 runs in a circle inside of the tract. This firelane connects the tract to tracts 2, 4, and 5. The closest exit from the firelane is on the east end of tract 4. The firelane crosses drainage on both the east and west ends of the tract. Some work may need to be done if these areas were to be traversed by heavy equipment.

Boundary

The north, south, and portions of the east boundary are shared with adjacent tracts of the Ferdinand State Forest. The northern portion of the east boundary is bordered by a privately owned forest. The western boundary is also bordered by a privately owned forest. There are multiple trees flagged and painted to identify corners. Boundaries should be reflagged.

Wildlife

The tract provides a number of suitable habitats for a variety of different animals. Animals such as turkey, deer, squirrels, songbirds, raccoons, lizards, and frogs were observed on the tract. The tract contains closed canopy forest, pine stands, water features, and edge habitat from the recent harvests. The drainages provide habitats for various amphibians and reptiles.

A Natural Heritage Database search was conducted and if any rare, endangered or species of special concern were identified on this tract, management activities will not impact their habitat needs.

In terms of the Indiana Bat, 595 live trees with 11" DBH+ were inventoried. This fell 443 short of the 1038 trees recommended for the tract. 125 live trees with 20" DBH+ were inventoried. This fell 221 short of the 346 recommended. The inventory also recorded 515-9" DBH+ snags across the tract. This fell 177 short of the 692 recommended. 63-19" DBH+ snags were also tallied. This fell 52 short of the 115 guideline for optimum Indiana Bat habitat.

The low level of desired species in both live and standing dead trees is a concern. The primary cause of this deficit is due to the fact the much of the tract is pine. Any regeneration efforts on the tract should be directed toward desired species. Furthermore, snag creation should be considered in the future as these species mature

Communities
There were several exotics noted on the tract including vine honeysuckle, multi flora rose, and Japanese stilt grass. Grapevine, which can be damaging to crop trees, was observed. Pockets of Japanese Stilt grass were found in patches along firelane 12. A vine TSI would be very beneficial for the tract. Special concentration could be placed in areas along the northeast where the Virginia pine experienced the most severe blowdown.

Recreation
There are no developed recreational facilities within tract. The tract is bisected by firelane 12. The firelane is closed to both ATV's and horses but is open to foot traffic. The primary use of the tract is hunting. There are several deer stands located inside of the tract. Hikers may also use the area, as the firelane connects the tract to several other tracts owned by the state forest.

Cultural
If any cultural sites were identified on this tract, by policy they will be protected from ground disturbance if at all possible. All activities will be coordinated with the Division archaeologist.

Tract Subdivision Description and Silvicultural Prescription

Overall
This tract is divided into many subdivisions that have an average basal area of 94, 8.8" DBH, and stocking levels of 83%. The 2007 inventory tallied 874,760 bf across 115.3 ac. This averages to be 7,586 bf/ac. 506,550 bf (4,393bf/ac) were designated as harvest and

368,210 bf (3,193 bf/ac) as leave. Eastern white pine in the most dominant species on the tract with 367,790 bf (42% of total inventory) tallied across the tract. 302,920 bf (60% of total harvest) of this was marked to harvest. The three main strata that are being considered for harvest contained 77 acres with 693,910 bf (9,012bf/ac). 396,390 bf (5,148bf/ac) of the total was inventoried as harvest.

Eastern White Pine
The white pine stratum makes up about 36 acres (31%) of the tract. It has an average DBH of 10.3", 109 BA, and 91% stocking. The inventory reported 10,990 bf/ac, 7,920 bf/ac being designated as harvest. White pine is the most dominant species on the tract. 7,010 bf/ ac out of the 8,610 bf/ac inventoried for this species were designated as harvest.

The white pine on tract is of variable quality. There are sections that have large amounts of damage from the white pine tip weevil and past windthrow. Since this stand has never been thinned, the majority of the white pines have developed small crowns and increased susceptibility to windthrow. The best option for this stand is to remove all overstory pines. Current inventory reported the high regeneration in sugar maple, ash, yellow poplar, American Beech, red maple, black gum, and sassafras.

Intensive post harvest TSI will be needed to mitigate exotics and direct regeneration into desired direction.

Mixed Pine
The mixed pine stratum makes up approximately 23 acres (20%) of the tract. It has an average DBH of 7.9", 86BA, and 76% stocking level. The inventory reported 4,200 bf/ac, 2,180 bf/ac being designated as harvest. Although eastern white pine contains the largest amount of bf (1,158bf/ac) to this stratum, Virginia pine contributes the most basal area (35.8 BA). The Virginia pine in this stratum is mostly pole sized and of very poor quality. Many inventory points contained evidence of windthrow and beetle activity. This area is transitioning slowly to mixed hardwoods containing yellow poplar, American beech, and sugar maple. An intensive TSI should be performed on this area to both accelerate the transition into hardwoods and to mitigate exotics (vine honeysuckle, multi flora rose).

Mixed Hardwoods
Mixed Hardwoods are found on about 23 acres (20%) of the tract. It has an average DBH of 8.8", 78 BA, and 67% stocking level. The inventory reported 5,510 bf/ac with 2,670bf/ac being designated as harvest. Sugar maple is the most dominant species on this section with 710 bf/ac out of 1,420 bf/ac being designated as harvest. This area could use a light thinning of poorly formed trees and some TSI work for exotics and undesirable regeneration. Any thinning or TSI work should be directed to favor oak and hickory.

Oak Hickory
Oak-Hickory occupies about 18 acres (16%) of the tract. It has an average DBH of 9.1", 108 BA, and stocking levels of 97%. The inventory reported 9,530 bf/ac with 2,770 bf/ac being designated as harvest. Although black oak was inventoried as containing the most volume (3,688bf/ac), sugar maple contributed the highest basal area (27.9). The

understory is filling in with sugar maple. A very light thinning of sawtimber species and a TSI of undesirable regeneration to favor oaks is needed. Due to the lack of oak regeneration, a low intensity spring burn following thinning and TSI would also be helpful. However, the stand contains an 80 SI and due to high competition it will be difficult maintain its oak composition.

Mixed Pine Blowdown
The Mixed Pine Blowdown occupies about 8 acres (7%) of the tract. It averages a 4.9" DBH, 44.7 BA, and stocking levels of 53%. The tracts bf volume is made up entirely of Virginia pine with 133 bf/ac, all of which was inventoried for harvest/TSI. This stratum also contains a large submerchantable class. The most dominate species regenerating is yellow poplar, followed by red maple, ash, American beech, and black gum. High levels of vine honeysuckle, multi flora rose, grape vine, and green briar are present in this stratum. An intensive TSI to girdle remaining pine, control vines, and direct regeneration is needed.

Yellow Poplar
Yellow Poplar is found on about 7 acres (6%) of the tract. It has an average DBH of 11.3", 126 BA, and 105% stocking levels. Inventory reported 13,094 bf/ac with 8,830 bf/ac being designated for harvest. The most dominant species being yellow poplar with 4,550 bf/ac out of 8,200 bf/ac being designated as harvest. There is also a large amount of white pine on this stratum. This area is overstocked and filling in with sugar maple. The overstory white pine should be removed, the yellow poplar is of poor quality and should be thinned. Exotics and vines were noted on inventory. A pre-harvest TSI for vines and undesirable regeneration should be done pre harvest. Current proposed management actions will increase the number of acres in this designation over the next 15-20 years. In addition, there is also small belt of native bamboo growing south of the yellow poplar.

Summary Tract Silvicultural Prescription and Proposed Activities
The inventory reported exotics like multiflora rose, vine honeysuckle, and Japanese stilt grass. There is also a presence of grapevine, which can damage crop trees. An exotic and vine TSI could be performed in 2008. Special attention should be placed in both the mixed pine and mixed pine blowdown areas. There are both poor quality pines to be girdled and dense concentrations of exotics in the blowdown area.

In 2009, the stand can be marked to remove the overstory white pine and thin both the mixed hardwood and oak hickory stands. The sale will yield about 396,390 bf on 77 acres. Any harvests should avoid homesites. Due to both erosion and equipment limitations, harvesting activity should be restricted to dry seasons.

In the spring following harvest, a low intensity surface fire could be scheduled for the oak-hickory strata to encourage oak regeneration.

In 2012, a post harvest TSI can be performed on the harvest area to control vines and evaluate regeneration. A follow up TSI may be needed in eight years. Due to the low numbers of desired tree species for the Indiana Bat, regeneration efforts should be

concentrated on desired species. Snag creation should be considered in the future as these species mature.

The site may need to receive additional TSI treatments to direct regeneration. Area should be checked every 3-5 years for progress.

In 2022, the tract can be reinventoried.

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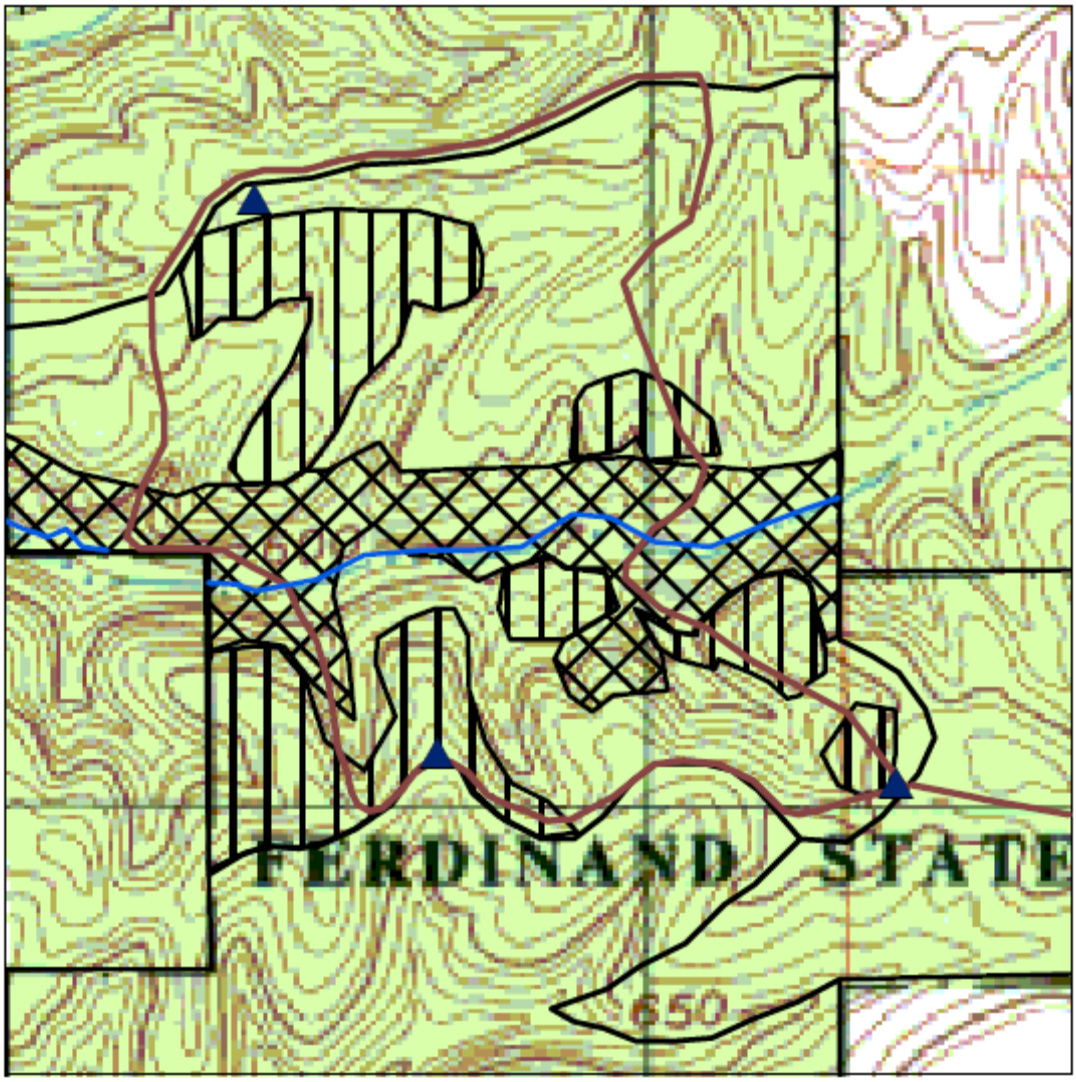
Ferdinand State Forest
Comp. 3, Tract 3
Sections 3 & 4, T3S, R3W
Proposed Harvest Area



Legend

- ▲ - Possible Log Yards
- — - Firelanes
- — - Creek
- ▨ - Proposed Hardwood Thinning
- ▥ - Proposed White Pine Harvest