(DRAFT)
RESOURCE MANAGEMENT GUIDE

State Forest: Yellowwood
Forester: Derrick Potts
Management Cycle End Year: 2030
Compartment: 14 **Tract:** 21
Date: April 16, 2010
Management Cycle Length: 20 years

Location

This tract is located in Section 1 of T10N, R1E of Brown County, Indiana. This area is commonly referred to as Compartment 14 Tract 21 of the Yellowwood State Forest. It is located approximately 1 mile south of Mahalasville, IN and 6 miles southeast of Martinsville, IN.

General Description

This tract is located in the central portion of the Brunner Tract Forest & Wildlife Management Unit. This tract was part of a large acquisition acquired by the State in 1988. Forest management practices within this portion of the State Forest are directed toward creating and maintaining an array of early successional wildlife habitats such as old fields, warm season grasslands and early successional timber stands. Large openings (greater than 5 acres) are permissible within this tract if silviculturally warranted. The tract is 97 acres of which 95 acres are in commercial forest. About two acres are currently in a permanent wildlife (oldfield) opening. This tract is primarily hardwood forest. The following structure was noted during the 2008 inventory, listed according to relative frequency.

Overstory	Understory	Regeneration
Chestnut Oak	Yellow Poplar	American Beech
White Oak	Sugar Maple	Sugar Maple
Yellow Poplar	American Beech	Yellow Poplar
Sugar Maple	Largetooth Aspen	Sassafras
Black Oak	Black Cherry	Red Elm
Red Oak	Sycamore	Scarlet Oak
White Ash	Chestnut Oak	Red Maple
American Beech	Red Elm	Largetooth Aspen
Sycamore	White Ash	Blackgum
Scarlet Oak	Red Maple	Chestnut Oak
Shagbark Hickory	Sassafras	White Ash
Bitternut Hickory	Redbud	Black Oak
Red Maple	Black Walnut	Red Oak
Sassafras	White Oak	Black Cherry
Black Cherry	Basswood	Basswood
Basswood		Redbud

History

This area was purchased in 1988 from George Bruner. Several timber harvests had occurred by the Brunner family prior to State acquisition. Akard Forestry Consulting performed the work for timber sales and follow-up timber stand improvement (TSI) in 1981, 1983 and 1986. Following IDNR acquisition, additional TSI and a public firewood offering began in 1988. The primary objective of the TSI was to complete two regeneration openings(30 acres and 10 acres) from the latest Brunner harvest. The work was completed the same year (1988). In 1990 a wind storm caused extensive damage, but due to previous harvests the area did not contain sufficient size and quality of trees to justify a salvage sale. In 1991 an explosives demonstration was performed by Tovex. The wildlife field has been bushhogged periodically to maintain early successional grassland vegetation. The current inventory was completed 7-29-08 by Forest Intermittent Sean Rock.

Landscape Context

Closed canopy deciduous forest is the most common and dominant cover type in this area. Near this tract (to the east) are additional wildlife oldfields that are mowed periodically to prevent/reduce woody encroachment. Residential development has been increasing to the east along Downey Road.

Topography, Geology and Hydrology

This tract consists of three main ridges. The north ridge coincides with the northern tract boundary. The middle ridge extends from the present haul road to the middle of the tract. To the north and south of the middle ridge are two main drainages that intersect in the western portion of the tract. The southern ridge is also the southern tract boundary. There is one mapped intermittent stream that is located in between the middle ridge and the south ridge. In between the north ridge and the middle ridge is an unmapped intermittent stream that leads into a mapped intermittent. The water from this tract flows down Bud Davis Hollow into Robertson Creek and then into the Indian Creek. The Indian Creek eventually drains into the White River. This tract falls within the Indian Creek-Robertson Creek watershed. The underlying bedrock is siltstone interbedded with sandstone and shale.

Soils

Berks-Trevlac-Wellston (BgF) Complex 20-70% slope (76% of tract)

The available water capacity is very low in the Werks soils, low in the Trevlac soil and high in the Wellston soils. The Berks soil is moderately rapidly permeable and the Trevlac and Wellston soils are moderately permeable. Surface runoff is very rapid on all three soils. This Complex has a land capability class of VIIe and a woodland ordination of 4R.

Wellston-Gilpin silt loams (WeC2) 6-20% slope (24% of tract)

The water capacity is high in the Wellston soil and low in the Gilpin soil. Both soils are moderately permeable. This Complex has a land capability class of IVe and a woodland ordination of 4A.

Access

Access to this tract is through a fire lane/haul road that is located off of Bear Creek Road. The road passes by a small pond locally known as Bear Wallow, where use by bears was historically known. This haul road is used to access 8 Tracts in what is called "The Brunner Tract" because the land was acquired from George Bruner in 1988. The road is in good to excellent condition due to its continued maintenance and improvements following previous harvests in adjacent tracts. The skid trails into this tract are not currently maintained and have not been used in many years. During the timber marking process skid trails will be located and marked with flagging.

Boundary

This tract is bounded by State Forest on all sides with the exception on the west where it borders private property. This property line on the west side of the tract is marked with orange vertical bars on boundary trees. This line will be reviewed and updated with painting prior to any scheduled harvest. The eastern boundary is the haul road. The northern and southern boundaries are located on ridgetops and are also the tract boundaries coexistent with 1401 and 1423 respectively.

Wildlife

Wildlife resources in this tract are plentiful. This tract supports many woodland species including but not limited to white-tailed deer, wild turkey, eastern gray squirrel, fox squirrel, chipmunks and various songbirds. Trees and shrubs within the tract produce hard and soft masts that provide the food necessary to sustain healthy animal communities.

Indiana Bat Habitat Guidelines

The Indiana Division of Forestry recognizes the potential to enhance the Indiana bat habitat on its lands by implementing comprehensive management principles. These management principles include obtaining data on size, species, and numbers of snag (dead) trees. Maintaining adequate numbers of snag trees as well as some specific living tree species are an integral part of the Indiana bat policy as they provide or eventually will provide prime roosting sites for maternal bat colonies.

Wildlife Habitat Feature Tract Summary

Inventory Filename: C:\Documents and Settings\dpotts\My Documents\TCruisePC\Tcd_Docs\6421421I.
State Forest: Yellowwood **Compartment Number:** 14 **Tract:** 21
Reference Number: 6421421 **Tract Acres:** 96.8

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal	Marked For Harvest	Residual Above Maintenance	Residual Above Optimal
Legacy Trees *								
11"+ DBH	871.2		1100	228				
20"+ DBH	290.4		139	-151				
Snags (all species)								
5"+ DBH	387.2	677.6	348	-39	-329			
9"+ DBH	290.4	580.8	48	-243	-533			
19"+ DBH	48.4	96.8	11	-37	-86			
Cavity Trees (all species)								
7"+ DBH	387.2	580.8	641	254	60			
11"+ DBH	290.4	387.2	405	114	18			
19"+ DBH	48.4	96.8	157	109	60			

* **Species Include:** AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO

The wildlife habitat feature tract summary outlines the desired number of legacy trees, snags and cavity trees over the entire tract. Currently this tract does not meet the maintenance level for Legacy trees in the 20" + DBH or Snags 5"-19"+DBH. It does however meet the maintenance level for Cavity trees. To promote additional habitat, snags could be created in the 5"-19"+DBH class through additional TSI as well as focusing on retaining legacy tree species.

Communities

The Natural Heritage Database indicates no records of RTE's (rare, threatened or endangered) species within this tract however there are several records nearby. The following nearby records are from a Natural Database Review dated March 6, 2009:

05/21/1922- Illinois Blackberry
10/06/1997- Kirtland's Snake
08/19/1999- Timber Rattlesnake
??/??/2000- Kirtland's Snake
10/16/2000- Kirtland's Snake
07/17/2001- Timber Rattlesnake
07/30/2002- Timber Rattlesnake

Although, no records exist within or immediately adjacent to this tract, the required habitat for the above listed species does exist. If said species are identified in the future within the tract their location will be recorded and pertinent information will be submitted to the NHD.

Recreation

Due to the improved access road into this tract greater opportunities exist for recreational users. This tract has no established recreational facilities but some of the more common recreational activities may include: hunting, hiking, bird watching, nature study, wildlife viewing & mushroom hunting.

Cultural

At present, no cultural sites have been discovered. If such a resource is later discovered its location would be documented & submitted to the DOF archaeologist. In the event of a future timber harvest a management buffer of 100 feet would be observed. Cultural site locations are not disclosed to the public to protect their integrity.

Tract Inventory Summary

In July of 2008 an inventory was completed by Intermittent Forester Sean Rock. The summary data for the overstory sawtimber inventory is in the following table.

Harvest/Leave species and volume (Bd. Ft.)

Species	Harvest	Leave	Total
chestnut oak	80,080	68,700	148,780
white oak	11,530	48,160	59,680
yellow poplar	20,300	6,040	26,350
black oak	17,210	8,040	25,250
sugar maple	8,030	14,710	22,730
white ash	14,640	2,960	17,600
largetooth aspen	0	13,770	13,770
red maple	2,800	3,070	5,870
black cherry	0	5,520	5,520
American beech	1,010	2,770	3,780
American sycamore	3,180	0	3,180
basswood	0	2,670	2,670
shagbark hickory	0	2,050	2,050
bitternut hickory	0	2,000	2,000
scarlet oak	0	1,010	1,010
sassafras	710	0	710
Total	**159,490**	**181,470**	**340,950**
Tract average/acre	**1,644**	**1,871**	**3,515**

Tract Inventory Summary Table

Total Tract Acreage	97 acres		Present Volume per Acre	3,515 Bd. Ft.
Basal Area per Acre	73.2 sq.ft.		Harvest Volume per Acre	1,644 Bd. Ft.
Number Trees per Acre (all trees)	454		Residual Volume Per Acre	1,871 Bd. Ft.
Stocking Percentage	61%		Average Tree Size	11 DBH

The predominant timber type within this tract is mixed oak with some yellow poplar. Overall, the sawtimber species composition within the tract is: 62% oak (BLO, CHO, REO, SCO, and WHO), 12% yellow-poplar, 11% sugar maple and 4% white ash. According to the Gingrich stocking guide the tract is fully stocked at 61%. Although 61% stocking is rated at full stocking, this level just falls above the B-line (understocked area). The tract contains 34 sawtimber trees per acre and has an overall basal area of 73.2 square feet. The average tree diameter is 11.1" DBH. Understory regeneration is composed primarily of AMB and SUM. Oak regeneration is present in some of the previous regeneration openings. Timber stand improvement within previous regeneration openings can promote growth and vigor in these young oaks by removing competing trees. According to the current forest inventory, the present tract volume is 3,515 BF/Acre and the total number of trees per acre is 454. Overall, the tract's harvest volume is 1,650 BF/Acre with the residual volume at 1,871 BF/Acre. The number of harvestable sawtimber trees per acre is 11 which would correspond to an average harvest tree of 150 BF. Based upon this information a tractwide harvest should be delayed to allow for additional growth. However, if a harvest were to occur in an adjacent tract, there is sufficient stocking to sustain a light harvest on adjoining ridges.

Tract Silvicultural Prescription and Proposed Activities

This tract would benefit from forest management. Tractwide TSI is recommended to remove grapevines that compete with trees for light and crop-tree release to promote growth and vigor in crop trees. In July of 2009 one of the larger openings that was regenerated in 1983 on the tract's northern end was given a croptree release and grapevine removal by the 2009 YHCC resource crew. Additional TSI work in the tract is possible in other areas that were regenerated in the 1980 harvests. Overall, the tract's stocking is slightly above the Gingrich B-line and a tractwide harvest should be delayed. However, combining a lighter harvest on adjoining ridges with an adjacent tract may be feasible and is planned. An improvement thinning utilizing singletree and group selection methods will improve overall stand health and improve croptree spacing. Singletree selection will remove poorly formed, low vigor and mature stems as well as improve spacing of croptrees to increase their growth. Group selections will be implemented in areas of inadequate stocking, poor quality, or mature timber.

The impacts to the forest resource in the event of a future harvest should be temporary and minimal. Some soil disturbance does occur due to equipment operation on skid trails, haul roads and log yards. Following the completion of a harvest closeout operations are planned. These operations are planned to follow the Indiana Logging and Forestry Best Management Practices field guide: constructing waterbars on skid trails, smoothing haul roads and log yards

as well as seeding and strawing areas that have exposed soil. Normally all closeouts will be completed within 2 weeks of the harvest completion. The harvest site will then again be monitored by Division staff for the application and effectiveness of the closeout of the timber sale (BMP field review).

Postharvest management will include the application of TSI directed towards felling or girdling trees remaining in group selection openings to promote full sunlight reaching the forest floor. Also, trees can be girdled in forest canopy areas between group selections to create snags for enhancing wildlife habitat features as discussed earlier. In 20 years the tract will be re-inventoried and the management guide will be updated.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Pre Harvest TSI	2010-2012
Combined Tract Harvest w/T01 or T23	2012-2014?
Post Harvest TSI	2014-2015?
Post Harvest BMP Field Review	2014-2015?
Tract Re-inventory	2030
Tract management guide update	2030

Attachments (in tract file)

1. Gingrich stocking chart
2. Soils map and Topographic map
3. Aerial photograph map

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