Indiana Department of Natural Resources
Division of Forestry

DRAFT

RESOURCE MANAGEMENT GUIDE

State Forest: **Yellowwood** Compartment: **09** Tract: **10**
Tract Acreage: **75** Commercial Forest Acreage: **75**
Forester: **Amanda Smith (for Amy Spalding)** Date: **7/26/2012**

Location

Tract 10 is located in Section 25 of Township 9N, Range 1E of Brown County, Indiana. It is located roughly 1.2 miles west of the Yellowwood State Forest office and 2.2 miles northwest of Belmont, Indiana. The tract is accessible by a firetrail off of the west side of Scarce O' Fat Ridge Road.

General Description

This tract is a total of 75 acres with roughly 53.8 acres of Oak-Hickory forest, 17.5 acres of Mixed Hardwoods, and 3.8 acres of old regeneration openings in Yellowwood State Forest. All 75 acres are considered commercial acres. The area's timber ranges from small to large sawtimber in size with the older regeneration openings being poletimber sized. Regeneration openings have mostly regenerated to YEP and are in severe decline from both the strains of the 2011 & 2012 droughts and the current year Tulip Poplar Scale outbreak. The overall timber quality of this tract is fair to moderate.

Table 1. Overview of Forest Resources in Y0910

Overstory Sawtimber Layer	Poletimber Layer	Regeneration Layer
Chestnut Oak	Sugar Maple	American Beech
Black Oak	Chestnut Oak	Sugar Maple
Scarlet Oak	Virginia Pine	Blackgum
Yellow Poplar	White Oak	Yellow Poplar
Virginia Pine	Red Maple	Sassafras
White Ash	American Beech	Ironwood
White Oak	Shagbark Hickory	Red Maple
Northern Red Oak	Pignut Hickory	Pignut Hickory
Sugar Maple	White Ash	Scarlet Oak
Bitternut Hickory	Yellow Poplar	White Ash
Red Maple	Blackgum	Bluebeech
Pignut Hickory	Northern Red Oak	Redbud
Shagbark Hickory	Bitternut Hickory	Shagbark Hickory
Black Walnut	Black Oak	*Bitternut Hickory
Basswood	American Elm	*Black Oak
Black Cherry	Sassafras	*Chestnut Oak
Blackgum		*Redbud
		*Northern Red Oak
		*White Oak
		*Virginia Pine

* Species not captured in Prism Plots but present within the tract.

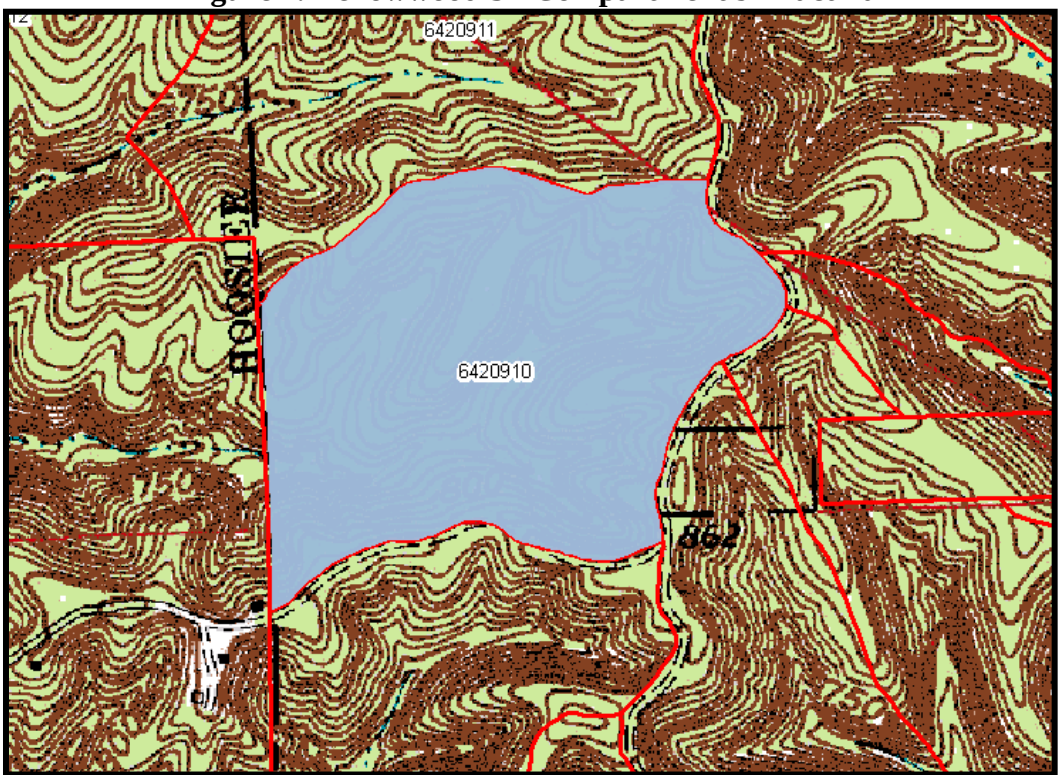
History

The land area containing Tract 10 was deeded to the State of Indiana in 1950 by Betty Jean Malott and in 1956 by the United States Department of Agriculture. A quick cruise was conducted in April of 1972 by Forester Gosnell. Boundary lines were marked on 2/13/1987 by Forester Unversaw. Road maintenance occurred on 4/23/1987 by Forester Unversaw. Tract 09 passed an archeological review in September of 1992 by Forester Duncan. Forester Eckart completed the 2nd forest resource inventory on 6/22/1993 and prepared the Tract's management plan on 6/22/1993. Tract 09 was marked for harvest by Forester Eckart between 2/9/1995 and 2/23/1995. Log roads, haul roads, and skidtrails were constructed on 8/2/1995 by Forester Eckart. A timber sale on 8/16/1995 received zero bid offers but Forester Eckart rebid the timber resale on 9/20/1995 and the harvest was purchased by Wright Timber & Veneer for $23,500.00. The timber harvest was completed by November of 1995. The sale area was opened for public firewood cutting from November 1995 through January 1996. TSI of the regeneration openings was completed by a contracted crew on 2/28/1996. The third forest resource inventory was completed on June 27, 2012 by Intermittent Forester Amanda Smith.

Landscape Context

Tract 10 is bordered by State Forest on all sides except for the western boundary which is bordered by private property. The immediate area around Tract 10 consists mainly of publicly and privately owned hardwood forests. However, there is a small amount of farmland, cropland, residential development, and conifers within a mile radius of the center of the tract. Yellowwood Lake, which is approximately 133 acres in size, is located approximately 1 mile east of the Tract's east boundary.

Figure 1. Yellowwood SF Compartment 9 Tract 10



Topography, Geology and Hydrology
Topography ranges from 6 - 70% slopes with predominantly north to northeast aspects. The area's soils range from 36 – 60 inches in depth to unweathered bedrock. Soils present in this Tract were formed from sandstone and shale. A mapped intermittent runs through the center of the Tract and drains into Brummett's Creek which flows into Salt Creek and then into Lake Monroe. There are several unmapped ephemeral drainages throughout the tract.

Soils
BgF (Berks-Trevlac-Wellston Complex, 20 – 70% slopes) Moderately steep to very steep slopes and well drained soils. This tract is comprised of approximately 75.5% of this soil type and presents moderate to severe erosion hazards, severe equipment limitations, slight to moderate seedling mortality, and slight windthrow hazards. Management considerations should include building haul roads on a contour and constructing water bars to prevent erosion.

WaD (Wellston-Berks-Trevlac Complex, 6 – 20% slopes) Moderately sloping to moderately steep. This tract is comprised of approximately 23.2% of this soil type and presents slight risks for erosion hazard and equipment limitation.

Access
6420910 is accessible for management purposes by a firetrail off of the Scarce O' Fat Ridge Compartment Road. For the public, the Tract is most easily accessed at the end of Sewell Road. Management access will need to be upgraded for equipment from the long firetrail that proceeds from off the west side of Scarce O' Fat Ridge Road. As 6420910 and 6420911 are proposed to be harvested together, a DHPA roadwork project will need to be reviewed by the Division of Forestry Archaeologist prior to completing the timber sale roadwork improvements. Log trucks and equipment will travel in and out the north end of Scare O' Fat Ridge Road during a timber harvest.

Boundary
Tract 10 is surrounded by other State Forest tracts on all sides except for its western boundary which borders private ownership. This western boundary has been marked and repainted in orange paint along the line for many years and is up to date. The northern Tract 10 boundary is designated by an old skidtrail separating T10 from T11, the southern boundary is designated by the Sewell Road access and T09, and the eastern boundary runs along Scarce O' Fat Ridge Road.

Wildlife
A Natural Heritage Database review was obtained for this tract. If rare, threatened or endangered species were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

The current inventory was conducted during the early summer of 2012 so breeding summer bird residents were present. Songbirds were heard and the following bird species were identified during the inventory:

Eastern Phoebe	Pileated Woodpecker
Northern Parula	Red-eyed Vireo

Other species or sign observed within the tract indicates use by White-tailed Deer, Grey Squirrel, Eastern Chipmunk, Raccoon, Opossum, Coyote and other small mammals. Multiple deer trails were also noted throughout Tract 10. This Tract has an abundant supply of food resources such as soft and hard mast. The mapped intermittent stream that runs through the center of Tract 10 provides a modest watering resource for the area during non droughty periods.

The Indiana Division of Forestry recognizes the potential to improve the Indiana bat habitat on its lands by implementing comprehensive management practices. These management practices include obtaining data on size, species, and numbers of snag trees. Snag trees and some specific species of trees are a vital part of the Indiana bat policy as they are prime roosting sites for maternal colonies. According to the Wildlife Habitat Feature Summary, all levels of snags and legacy trees met or exceeded maintenance levels except for legacy trees in the 20"+ DBH range and snags in the 19"+ DBH range. This deficit can be improved during postharvest TSI by girdling a number of trees in this size range.

Table 2. Live Legacy Trees* and Snags inventoried June 2012

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Legacy Trees *					
11"+ DBH	675		1155	480	
20"+ DBH	225		185	**-40**	
Snags (all species)					
5"+ DBH	300	525	1993	1693	1468
9"+ DBH	225	450	527	302	77
19"+ DBH	37.5	75	32	**-5**	**-43**

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

Communities

The ground cover of this tract consisted of mainly mesic to dry mesic species. Observed species included:

Black Snakeroot	Greenbrier	Multiflora Rose
Blackberry	Jack-In-The-Pulpit	Poison Ivy
Blue Cohosh	Japanese Honeysuckle	Red Raspberry
Christmas Fern	Japanese Stilt Grass	Spicebush
Cleavers	Large-flowered Bellwort	Spinulose Wood Fern
Daisy	Large-flowered Trillium	Squawroot

Dittany	Leeks	Stinging Nettle
Gooseberry	Maidenhair Fern	Virginia Creeper
Grapevine	Maple-leafed Viburnum	Wild Strawberry
Grass	Milkweed	

Squawroot (Conopholis americana) is a plant that is parasitic on the roots of oak trees. Japanese Stiltgrass and Multiflora Rose were the two invasives observed during the resource inventory. Both were found along the firetrail. Multiflora Rose has become naturalized in the landscape, therefore, only large concentrations should be considered for treatment. With the improved accesses that Scarce O' Fat Ridge and Sewell Road provide, the eradication of the Japanese Stiltgrass is unlikely. However, the prompt reseeding of exposed surface roads and yarding areas during timber sale closeout can reduce the spread and extent of infestation of the stiltgrass.

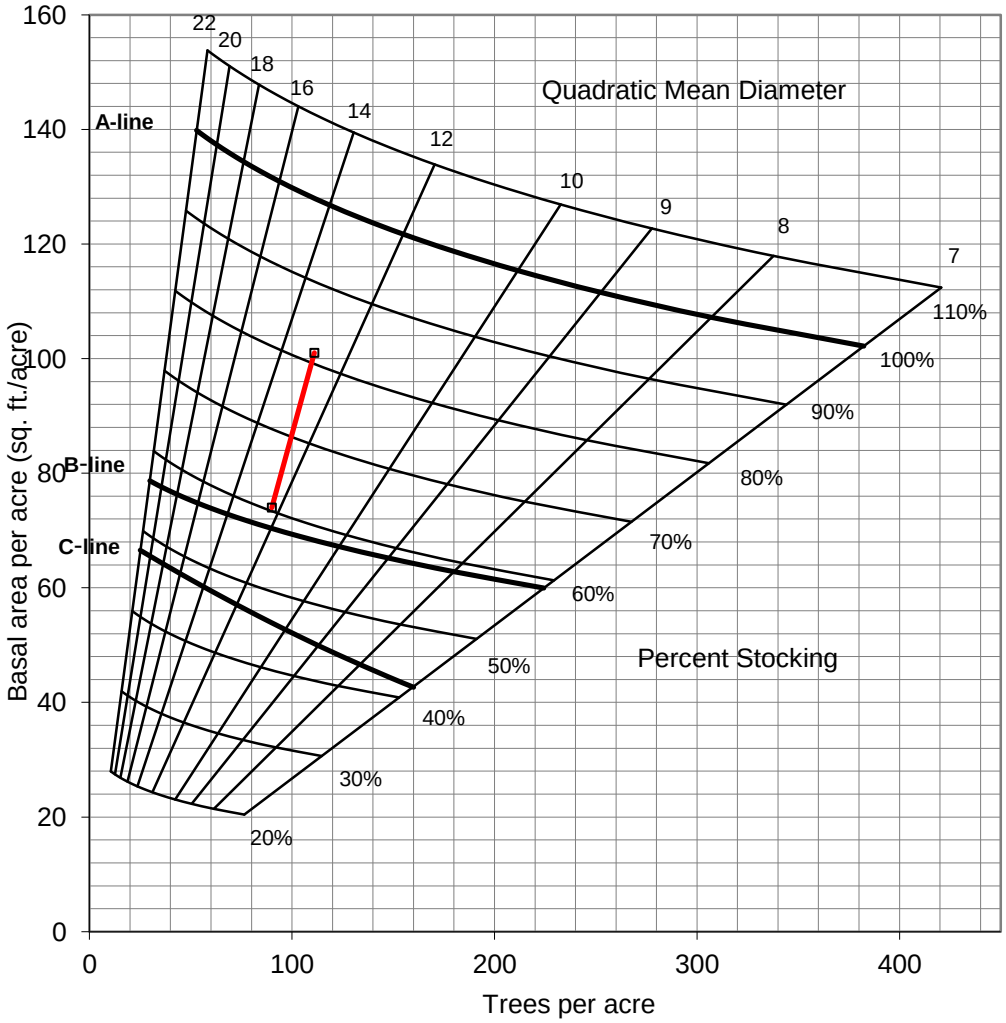
Recreation
Activities on this tract include hiking, bird watching, wildlife viewing, hunting, and mushrooming.

Cultural
Cultural resources may be present on this tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Tract Subdivision Description and Silvicultural Prescription

The overall stand structure for this tract is represented in the following Gingrich Stand and stock table that follows the individual stand summaries.

Tract Summary Data (June 2012)
Total Trees/Ac. = **452**
Overall % Stocking = **82%** (Fully Stocked)
BA/A = **115.9 Sq. Ft./Ac.**
Sawtimber & Quality Trees/Ac. = **50**
Present Volume = **7,619 Bd. Ft./Ac.**
Harvest Volume = **2,298 Bd. Ft./Ac.**
Residual Volume/Ac. = **5,321 Bd. Ft./Ac.**



Summary Tract Silvicultural Prescription and Proposed Activities

The current resource inventory was completed on June 27, 2012 by Intermittent Forester Amanda Smith. 30 prism points were completed over 75 acres (1 point for every 2. 5 acres). A stand summary of the inventory is given above and a species contribution of the summary is given in Table 3 below. These tracts are fully stocked and would benefit from a timber harvest. Tract 10's forest resource has been separated into 3 different stands which are mentioned below.

Oak-Hickory Stand

As the Oak-Hickory component of the Eastern Hardwood Ecosystem provides the most significant wildlife, timber resource, and value the retention of these stands is important in the Property's long-term timber management program. The Oak-Hickory timber type covers roughly 71.7% of the tract or about 53.8 acres. The overstory is dominated mostly by WHO, BLO, CHO, PIH, and BIH with an average basal area of 100 square feet per acre. Singletree selection is prescribed to remove lower quality stems and mature to overmature trees to release a growing stock of high quality, more vigorous stems. Likewise, careful selection of co-dominant stems will help to improve overall croptree spacing. Lower quality trees include low-forking, leaning, overtopped or suppressed intermediates, epicormically sprouting, and

deformed trees. Group selection should be used to create regeneration openings where there is an abundance of advanced regeneration of oak and hickory seedlings or where the overstory has low stocking and should be regenerated. It was observed that some WHO crowns are experiencing decline this year. This decline could be from the past two years of drought or from a late spring frost at the beginning of this growing season. The effected WHO will need further observation to determine if they will recuperate from this crown decline.

Mixed Hardwoods Stand

The Mixed Hardwoods component of the Eastern Hardwoods Ecosystem can be very variable in their composition and therefore have more complicated prescriptions. The Mixed Hardwoods timber type within Tract 10 covers roughly 23.2% of the tract or about 17.5 acres. The overstory is dominated mostly by SUM, REM, AMB, YEP, VIP, BLW, WHA, and WHO with an average basal area of 91.4 square feet per acre. Singletree selection can be prescribed to remove lower quality stems and mature to overmature trees which will help to improve croptree spacing. An improvement cutting is prescribed to release quality oaks, hickories and walnuts from crown competition of lesser-valued timber species. The result of this cutting will increase timber diversity as well as provide for enhanced wildlife habitat as most of the species within the Mixed Hardwood component are not heavy mast producers nor tend to provide valuable timber resources. Improvement cuttings in this component will also be applied to remove low-forking, leaning, overtopped/suppressed intermediates, epicormically sprouting, and deformed trees. Group selections should be used to create regeneration openings within this stand. In order to meet our Property's International Forest Certification goals, group selections will be marked in appropriate areas. Certification standards seek to provide 10% of the tract acreage in regeneration harvests to maintain long-term forest regeneration and sustainability. The Mixed Hardwood stand is often where most of these goals are applied as they tend to have lower Oak-Hickory elements. Planned regeneration openings within this stand however tend to return to Mixed Hardwoods with a strong component of YEP. Overall, marking objectives within this component should consider oak and other species of significant wildlife value as the best croptrees for future conservation. Much of the VIP has died or is starting to be overtopped by hardwood species, such as YEP and REM. The surviving VIP could be harvested to make room for desired species, could be girdled and allowed to die in place or left standing and allowed to die out over time.

Old Openings Stand

Old regeneration openings cover roughly 5% of the tract or about 3.8 acres. These areas are dominated mostly by YEP, VIP, and BLO with an average basal area of 66.6 square feet per acre. The YEP regeneration was observed however to be in modest decline as a result of the past two years of drought and the Tulip Poplar Scale insect infestation that occurred in the late spring of 2012. The affected YEP will need careful review prior to the planned post harvest timber stand improvement project as modest mortality is expected. Much of the VIP has died or is starting to be overtopped by hardwood species, such as YEP and REM. The surviving VIP could be harvested to make room for desired species, could be girdled and allowed to die in place or left standing and allowed to die out over time. All old regeneration openings should be scheduled for a crop tree release and grapevine removal in the planned post harvest timber stand improvement project.

Given the recent inventory and growth of this tract's forest resources, this tract is suitable for a 15 year cutting cycle wherein growth and development of the tract is reevaluated by a forest inventory every 15 years. The current inventory indicates a possible harvest of roughly 170 MBF. A combined tract timber sale to include YSF C0911 as well as Tracts 12 and 15 of Morgan Monroe SF Compartment 17 is planned for FY12-13. Some of the tract's downed trees are salvageable and will be considered for marking.

Table 3. Volume Estimates: Y0910
(June 2012 Inventory Data)

Species	Harvest	Leave	Total
Chestnut Oak	69,520	127,840	197,360
Black Oak	46,350	70,210	116,560
White Oak	5,890	77,550	83,440
Yellow Poplar	10,530	41,810	52,340
Scarlet Oak	10,870	18,040	28,910
Bitternut Hickory	2200	16510	18710
Pignut Hickory	0	18,090	18,090
Northern Red Oak	5,640	10,610	16,250
Virginia Pine	9,060	2,200	11,260
White Ash	8,520	0	8,520
Shagbark Hickory	0	4,050	4,050
Red Maple	1,330	2,700	4,030
Black Walnut	0	3960	3960
Sugar Maple	2,430	1,240	3,670
Basswood	0	1,740	1,740
Black Cherry	0	1,680	1,680
Blackgum	0	870	870
Tract Totals (Bd. Ft.)	**172,340**	**399,100**	**571,440**
Per Acre Totals (Bd. Ft./Ac.)	**2,298**	**5,321**	**7,619**

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
DHPA timber sale project review	Summer 2012
Invasives Treatment	Fall 2012
Timber Marking (in conjunction with 6420911, 6371712, & 6371725)	Fall 2012
Timber Sale (in conjunction with 6420911, 6371712, & 6371725)	Spring 2013
Timber Stand Improvement	CY 2013-2016
Reinventory and Management Guide	2027

Attachments (Included in Tract File)

- Topo Map of Tract Features
- Tract Soils Map
- Aerial Photo of Tract
- INHD Review Map
- Stocking Guide Chart

- Printed TCruise Reports

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You must indicate the State Forest Name, Compartment Number and Tract Number in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered.

Note: Some graphics may distort due to compression.