DRAFT

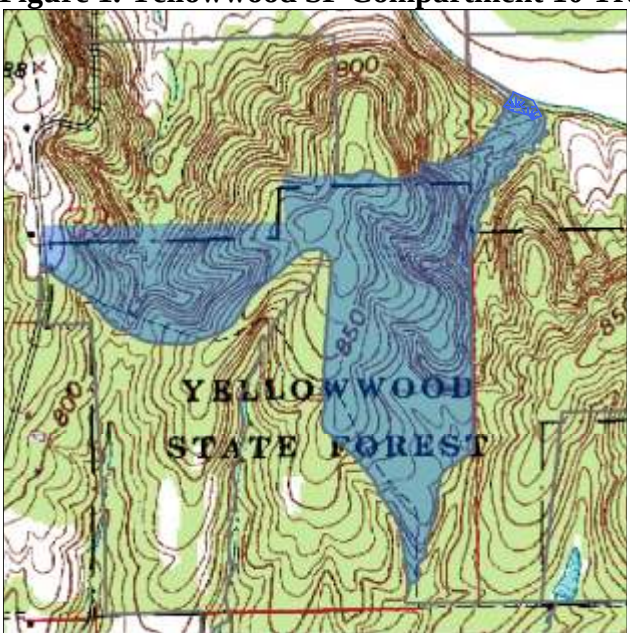
RESOURCE MANAGEMENT GUIDE

State Forest: **Yellowwood** Compartment **10** Tract **13**
Total Tract acreage: **86 acres** Commercial Acres: **76 acres** Date: **7/11/11**
Forester: **L. Burgess**

Location

This tract is located in Section 33, T10N, R2E of Brown County off of Indian Hill Road. It is located approximately ¾ mile southwest of Helmsburg, Indiana. The tract is accessible by a firetrail and public parking area on the east side of Indian Hill Road.

Figure 1. Yellowwood SF Compartment 10 Tract 13



General Description

Y1013 contains 86 acres, 76 acres of which are commercial. The noncommercial 10 acres include excessively steep forested stands and less than 1 acre of a Riparian management area. The cover types within this tract are primarily Oak-Hickory along with some areas of Mixed Hardwood. The Oak-Hickory type is dominated by Black Oak in the sawtimber size class whereas the Mixed Hardwoods are dominated by Yellow Poplar. The 2011 inventory data noted in Table 1 lists the frequency of tree species within each category of the tract's forest canopy (listed in descending order of occurrence).

Table 1. Overview of Forest Resources of Y1013 in June 2011

Overstory Sawtimber Layer	Understory Poletimber Layer	Regeneration Layer

Black Oak	Red Maple	American Beech
White Oak	Sugar Maple	Sugar Maple
Yellow Poplar	Yellow Poplar	Yellow Poplar
Northern Red Oak	White Oak	Red Maple
Sugar Maple	Bitternut Hickory	Blackgum
Pignut Hickory	Pignut Hickory	Shagbark Hickory
Shagbark Hickory	White Ash	Chestnut Oak
Scarlet Oak	Shagbark Hickory	Flowering Dogwood
Black Cherry	Black Oak	Ironwood
Blackgum	Northern Red Oak	White Oak
Bitternut Hickory		Sassafras
American Beech		
American Sycamore		
Basswood		
Black Walnut		

History

The State Forest acquired this acreage from the federal government in December 1956.

Resource management history:

1/76 First Tract Resource inventory completed by Forester Williams. Tallied present stand 3,346 BF/Ac., harvest 183 BF/Ac.

11/77 TSI Performed by Forester Bull using a CETA crew.

9/95 Second Tract Resource inventory completed by Forester Eckart. Tallied present stand 6,431 BF/A, harvest 1,995 BF/Ac.

12/96 Timber marking completed by Forester Eckart.

8/97 Timber sale by Forester Eckart of an est. 95,730 BF in 269 trees sold along with 37,474 BF marked from Tract 15. Sold to Foley Hardwoods for a total of $40,460.00

12/97 Forester Eckart: Timber harvest completed.

8/98 Forester Kaina: Tract set up for commercial firewood cutting.

6/11 Third and current Tract Resource inventory completed by Forester Burgess.

Topography, Geology and Hydrology

Nearly 13 acres of this tract contain flat to gently sloping ridgetops. Sideslopes vary greatly in their steepness with most being modest however some very steep slopes in the eastern tract portions range over 70%. The soil types noted in the next section are unglaciated soils and were formed from the bedrock material of sandstone, shale and siltstone. One perennial (mapped blue line) stream just touches the tract at its northeastern boundary. The entirety of the tract's water resources flows into the Bean Blossom Creek watershed that drains into Lake Lemon.

Soils

Berks-Trevlac-Wellston Complex (BgF): 20-70% slopes. Approximately 48% of tract's acreage. Moderately steep to very steep, well drained soil. Harvest limitations due to slope.

Wellston-Gilpin Silt Loam (WeC2): 6-20% slopes. Approximately 37% of tract's acreage. Moderately sloping to moderately steep, well drained soils. Harvest limitations due to slope and erosion potential.

Cincinnati Silt Loam (CnC2): 6-12% slopes. Approximately 5% of tract. Moderately sloping, deep, well drained soil. Slight limitations.

Hickory Silt Loam (HkD2): 12-20% slopes. Approximately 5% of tract. Strongly sloping and moderately steep, deep, well drained soil. Moderate harvest limitations due to slope.

Steff Silt Loam (Sf): 0-5% slopes. Approximately 2% of tract. Nearly level, deep moderately well drained soil found on floodplains. Harvest limitations due soil moisture content and potential for compaction.

Chetwynd Loam (CdF): 20-50 % slopes. Approximately 3% of tract. Moderately steep to very steep, deep, well drained soil. Moderate to severe harvest limitations due to slope.

Access
Resource management access to the south portion of the tract is available from Indian Hill Road using an existing firetrail road that feeds Tracts 13-16. A public parking area is available for public recreators at the head of this firetrail at Indian Hill Road.

Boundary
This tract is surrounded by State Forest acreage with the exception of privately held forestland along the northwest boundary. In 2010 the Goodman land acquisition added acreage to the tracts northern portion which added some west line and deleted its northeast boundary. Boundary remarking in orange along the north tract boundary was completed in 2010 by Forester Spalding. In August of 2012 Forester Burgess is reassessing the adjacent tracts that were added or enlarged by this acquisition. No change in tract boundaries at this time, other than blacking out the old boundary line.

Wildlife
Wildlife resources in this tract are abundant. Common species which are present include: squirrels, white-tailed deer, turkey, various small furbearing animals, and a variety of songbirds. An official ecological review was completed on the tract. This review focuses on wildlife habitat, looking at what is present in the tract and what can be created through management activities. The inventory for this tract also included recording structural habitat features at each data point; these records include snag (dead, standing tree) tree counts. The results of this collected data for snag counts are included Table 2.

Table 2. Wildlife Habitat Features Summary Inventory of Y1013 in June 2011

Legacy trees*	Maintenance level	Inventory	Available above Maintenance
11″ + DBH	774	1623	858
20″ + DBH	258	311	53

*Species include American elm, Bitternut Hickory, Cottonwood, Green Ash, Red Oak, Post Oak, Red Elm, Shagbark Hickory, Shellbark Hickory, Silver Maple, Sugar Maple, White Ash and White Oak.

Snags (all species)	Maintenance level	Optimal level	Inventory	Available above Maintenance	Available above Optimal
5″ + DBH	344	602	21	-323	-581
9″ + DBH	258	516	21	-237	-495
19″ + DBH	43	86	0	-43	-86

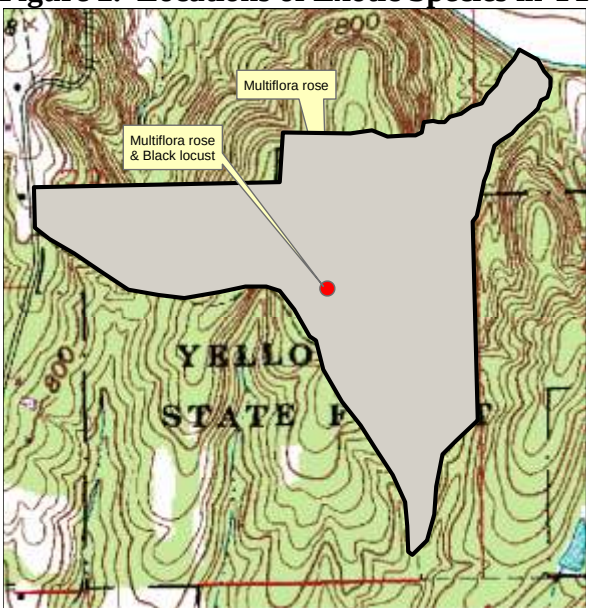
The wildlife habitat feature summary lists deficiencies in the number of snags for both "Available above Maintenance" and "Available above optimal" category in all 3 snag

categories. The proposed timber harvest will create some additional snags as well as the planned post-harvest Timber Stand Improvement project.

Communities
A Heritage Database Review was completed for this tract in 2012. 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.

Old Growth and Representative Sample Area (RSA) Assessments
During the current resource inventory all portions of the tract were reviewed and evaluated for old growth potential as well as for Representative Sample Areas. A Representative Sample Area (RSA) is an ecologically viable representative example of a natural community that is designated to establish and/or maintain an ecological reference condition, to create or maintain an under-represented ecological condition, or to serve as a refugia for species, communities, and community types. No representative stands of Type 1 or Type 2 Old Growth nor RSA's appear to exist within Y1013. An area should be considered for Type 1 Old Growth classification if it contains 3 or more acres of forest land that appear to have never been harvested or disturbed by man. An area should be considered for Type 2 Old Growth classification if it contains 20 or more acres that have not been logged in the last 80 years and shows developing old growth characteristics.

Figure 2. Locations of Exotic Species in Y1013.



Invasives/Exotics
Multiflora Rose and Black Locust were observed during the June 2011 inventory (Figure 2). Marking and subsequent removal of most of the larger poletimber and sawtimber Black Locust is planned. The postharvest TSI project is expected to assist in removal of a fair number of this invasive species. Planned regeneration openings will have Black Locust trees treated to inhibit sprouting. As Multiflora Rose is generally naturalized in the State Forest, only larger clumps within planned regeneration openings will be treated to reduce competition with forest seedlings.

Recreation
Primary recreational use of this tract is hunting and hiking. The Tecumseh Hiking Trail runs through the southern portion of this tract. During the active harvest this trail will be rerouted temporarily to reduce recreational conflicts and address safety issues for hikers.

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

2011 Forest Resource Inventory Summary
Present tract volume estimates:
(Data from the 63 acres ofmerchatable timber)

		Basal Area
Harvest volume	1,830 bd.ft./acre	23
Leave volume	3,386 bd. ft. /acre.	69
Total tract	5,216 bd/ft./acre	92

Table 3. Harvest/Leave Inventory Summary in June 2011 for 63 merchantable acres in Y1013

Species	**Harvest Bd. Ft./Acre**	**Leave Bd. Ft./Acre**	**Total Bd. Ft./Acre**
Black Oak	636	946	1,582
Yellow Poplar	835	347	1,182
Northern Red Oak	200	611	810
White Oak	24	605	630
Bitternut Hickory	0	260	260
Pignut Hickory	0	171	171
Shagbark Hickory	0	109	109
Scarlet Oak	89	0	89
American Sycamore	0	77	77
Basswood	0	75	75
Black Walnut	0	72	72
Sugar Maple	23	49	72
Blackgum	0	43	43
American Beech	24	0	24
Black Cherry	0	20	20
TOTAL Bd. Ft. PER ACRE	**1,830**	**3,386**	**5,216**
TRACT TOTAL Bd. Ft.	**115,310**	**213,290**	**328,600**

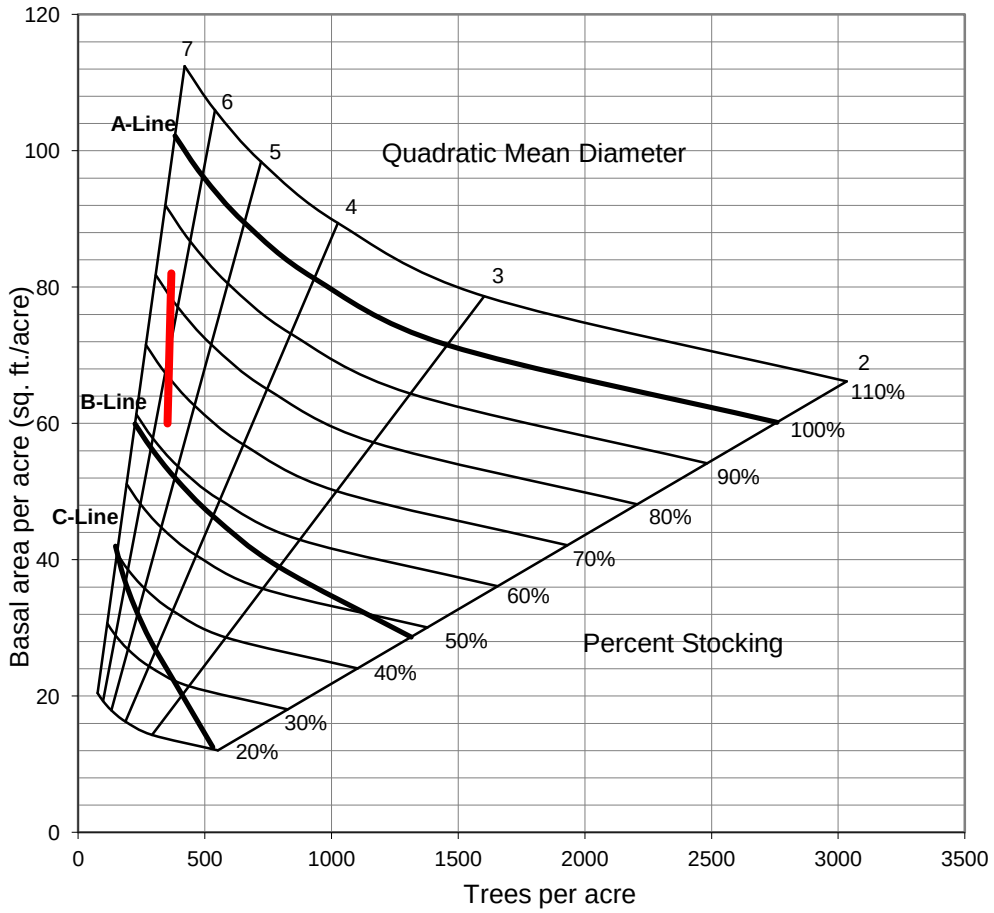
Discrepancies due to rounding.

Hardwood Stratum Acreage	63 acres	**Present Volume per Acre**	5,216 bd. ft.
Basal Area per Acre	92 sq. ft.	**Harvest Volume per Acre**	1,830 bd. ft.

Number Trees per Acre	361	**Residual Volume per Acre**	3,386
Stocking Percentage	85%	**Average Tree Size**	6.5″ dbh

Basal area per acre includes only live trees tallied as pole or sawtimber. Submerchantable and culls were excluded.
Number trees per acre includes only live trees

The following Chart includes all tallied trees: Pole, Sawtimber, Sub-merchantable and Culls



Tract Prescription and Proposed Activities

This tract was inventoried by Forester Burgess in June 2011 at an intensity of 1 point per 3.5 acres using point sampling prism plots. The tract's forest resource is comprised primarily of Oak-Hickory type with some Yellow Poplar/mixed hardwoods, and oldfield areas of low quality Sugar Maple, Black Locust and poletimber Sassafras. Approximately 13 acres of this tract constitute oldfield regeneration. These oldfield areas are included in the commercial acreage but presently are generally unmerchantable. Another 10 acres were observed to be exceptionally steep (70% slope) and are mostly excluded from harvest operations, although some limited harvest and general TSI could be applied. A small portion of the NE corner of the tract lies adjacent to Beanblossom Creek. As this is a perennial stream, approximately 1 acre of the tract within 100 feet of the stream is classified as a Riparian Area.

Overall, the inventory indicates about 63 acres of this tract for a harvest this cutting cycle. The recommendation is for an intermediate improvement cutting harvest utilizing single-tree selection over most of this portion of the tract acreage. At least two locations were

noted for needing regeneration although others may be possible once marking commences. These group selection openings would range from 1 to 5 acres in size. The first of these locations indicates evidence of fire damage in White Oaks wherein the area also contains Yellow Poplar and American Beech with a dense beech understory. The other location has low stocking of Yellow Poplar, Black Cherry and Black Locust along with a dense multiflora rose infestation. The Black Locust trees would need postharvest TSI including chemical treatment to inhibit resprouting whereas the Multiflora Rose congregations should also be treated chemically prior to harvest. This tract contains many nice White Oaks that would benefit from crown release. Overall, the dominant harvest species within the tract by volume would be Yellow poplar and Black oak. The main crop species selected for increased growth would be Black Oak, Yellow Poplar and Northern Red Oak. Stocking is adequate throughout most of the area however some areas within the tract have low stocking therefore harvest marking there should be light. The inventory noted several overmature Black Oak as well as mature Yellow Poplar that would be targeted for selection cutting. The removal of these trees with their large crowns will release several codominant and overtopped stems.

The marking objective will be the removal of mature/over-mature stems, as well as those of low quality in an effort to improve the overall health, vigor and composition of the tract. The reduction of stocking levels should provide space for pre-selected croptrees to move forward into the next cutting cycle. The Gingrich graph created from the 2011 inventory data (based only on 63 acres) gives a general guideline of removing 22 sq. ft. of basal area for best site utilization. Species composition will likely become more diverse and less susceptible to insect and disease infestation which is a common problem with homogeneous stands. The applied silvicultural techniques mentioned earlier should improve the overall health, vigor and quality of the residual stand, while utilizing stems that would drop out due to natural mortality, overstocking or maturity. The approximately 1 acre Riparian Management Area at the northeast corner of the tract will not be prescribed a harvest or postharvest TSI at this time.

A postharvest TSI project is prescribed to reduce stocking in some areas of high basal area that contain poletimber sized stems and release croptrees not successfully released during the harvest.

Wildlife will benefit from this harvest as well. Additional sunlight penetrating the forest floor will simulate the development of new ground flora, subsequently increasing nesting and foraging habitat. This is essential for both game and non-game species as well as for continued forest development. Post-harvest TSI will increase the density of snags per acre while diversifying diameter distributions of both snags and growing stock trees.

Habitat and cover types currently present within the tract will generally remain following the proposed management activities throughout the majority of the tract as the planned silvicultural prescription is predominately singletree selection. The creation of regeneration openings will convert a portion of the current closed canopy to ephemeral yet highly valued, early successional wildlife habitat.

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 harvest volumes of between 90 - 150 MBF. A combined tract timber sale to also include YSF C1016 & 20 is planned for FY12-13.

Proposed Activities Listing

Proposed Management Activity	***Proposed Period***

DHPA timber sale project review	CY 2012
Preharvest Invasives Treatment	Fall 2012
Timber Sale Roadwork & Rehabilitation	Fall-Winter 2012
Timber Marking (in conjunction with 6421020, 6421016)	Fall 2012
Combined Tract Timber Sale	Winter 2012-2013
Postharvest Timber Stand Improvement & Invasive Treatment	CY2013-2017
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

To submit a comment on this document, click on the following link:
http://www.in.gov/surveytool/public/survey.php?name=dnr_forestry

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.