RESOURCE MANAGEMENT GUIDE

DRAFT

State Forest: Yellowwood **Compartment:** 12 **Tract:** 13
Forester: Amy Zillmer **Date:** August 20, 2008
Management Cycle End Year 28/29 **Management Cycle Length:** 20 yrs

Location
This tract is located in the SW ¼ of Section 16, T10N, R2E , Brown Co. It is approximately 3 miles northwest of Helmsburg.

General Description
This tract covers 48 acres of which 43 are commercial. Oak hickory is the dominate cover type with sections of mixed hardwoods, planted pine, and old openings.

History
What is today tract 13 was once tract 23. It was combined with tract 24 in November of 1986 and then changed to tract 13 in December of that same year.

This area was inventoried in 1984 by Lee Eckart. In 1986 this area was marked and sold by Bill Fischer. Foley Hardwood purchased the sale and completed the harvest in the fall of 1986. 51,991 BF out of 164 tree and 45 cull were removed over 22 acres. The trees had an average volume of 317 BF with 2,363 BF/ac removed across stand.

Past file notes indicate that the area east of the tracts main drainage were separated into recent and less recently grazed stratums. Management objectives included improving spacing of future potential crop trees and removing scattered over mature trees to release small sawtimber understory trees. West of the drainage a three acre opening was put in where the timber was deemed to be over mature and five acres were thinned.

400 red oak seedlings were planted in the opening in the spring of 1987. Post harvest TSI was completed later that year. TSI entailed opening completion, pre-merchantable thinning, and vine control.

Landscape Context
The majority of the surrounding landscape is closed canopy forest under both public and private ownership. Agricultural fields dot the landscape. There is an increase in residential and recreational usage of land. This increase seems to be concentrated near SR46 and feathers out moving north on Carmel Ridge.

Topography, Geology and Hydrology
This tract consists of a main drainage with gentle to moderate east and west facing slopes. A mapped intermittent stream flows south down the center of the

tract into Brier Creek. Ephemeral drainages between the smaller ridges drain into the stream. The underlying geology is most likely a combination of shale and sandstone.

Soils

Be-Beanblossom channery silt loam, occasionally flooded

It is formed from channery alluvium. Slopes range from 1 to 3 %. It has a very low available water capacity and is moderately rapidly permeable. Overall this soil is well suited to woodlands. Wetness is a concern for harvesting and planting operation, but can be dealt with by avoiding wet times of year. Beanblossom holds a 95 SI, a land capability class of IIIw, and woodland ordination symbol of 7F.

BgF-Berks-Trevlac-Wellston complex, 20 – 70% slopes

It is formed from a combination of siltstone interbedded with sandstone and shale. It has a very low available water capacity and is moderately rapidly permeable. This soil is well suited to woodlands, and has some limitations to harvest. Employing standard BMP regulations such as waterbars or contour shaping for haul roads mitigate these limitations. Other special logging methods, such as uphill yarding with cables can be beneficial when using rubber tired or crawler tractors. This complex holds a SI of 70 in northern red oak, a land capability class of VIIe, and woodland ordination symbol of 4R.

WaD-Wellston – Berks – Trevlac Complex, 6 to 20 % slopes

It forms from weathered sandstone-shale-siltstone bedrock at a depth of 51" with a loess cap. The slopes range from 6 – 20%. This soil is unsuited to urban development due to slope. It is very well suited to forestry, with only moderate equipment limitations due to slope and depth to bedrock on some components of complex. Following natural contours for road construction and land shaping can mitigate erosion hazards. This soil has a site index of 70 for northern red oak and a woodland ordination symbol of 4A.

WeC2-Wellston-Gilpin silt loams, 6 to 20 % slopes, eroded

It is formed from loess over loamy residuum over shale. It is well drained with a moderate available water holding capacity. In general the soil is well suited to trees. Only slight equipment limitations exist. Wellston-Gilpin has a SI of 71 in northern red oak, a land capability class of IVe, and a woodland ordination symbol of 4A.

Access

This tract is accessible from Carmel Ridge Rd. from fire lanes and a portion of the Tecumseh Trail. Some widening may be necessary to accommodate vehicular access. Widening work should be minimal and employ tree trimming where applicable to preserve aesthetics.

Boundary
The northern, eastern, and southern boundaries also serve as property lines. They are clearly delineated by both orange paint and carsonite posts. Capped pipes were located on the northwestern, northeastern, and southeastern corners. The western boundary follows the side of a ridgetop. It crosses over the Tecumseh trail before meeting the southern property line.

Wildlife
The natural heritage database did not report any rare, threatened or endangered species on tract. A wildlife review was also conducted and is stored in tract files. Presently the tract hosts an abundance of wildlife. The tract inventory completed on July 31, 2008 reported sightings and signs of deer, turkey, chipmunks, multiple songbirds, and various herps. The combination of hard mast and water features provide steady sources of both food and water. The tract also has a good supply of course woody debris providing habitat for herps. Harvesting activities would enhance this habitat.

<u>Indiana Bat Habitat Guidelines</u>

Live Trees – Entire Tract – Desired Species Only*

	Required	Inventory	Available for Removal
11" DBH+	432	545	113
20" DBH+	144	161	17

Snags – Entire Tract – All Species

9" DBH+	288	199	-89
19" DBH+	48	0	-48

*Desired Species Include: AME, BIH, BLA, BLL, COT, GRA, REO, POO, REE, SAS, SHH, ZSH, SHO, SIM, WHA, WHO

This tract meets current habitat guidelines for desired live trees. It is however falling behind on snags, specifically large (19"+) diameter stems. Snag creation should also be considered of cull trees following harvest to increase overall densities.

Recreation
The Tecumseh trail runs along the eastern boundary of tract. This area is used by long distance hikers. During harvest activities portions of this trail may need to be rerouted or temporarily closed. Original trail will be reopened following close out of sale.

Cultural
A homesite is present on tract. It contains the remains of a house (cornerstones, chimney, and well). Old fence line was located along an ephemeral drainage. Most likely this area had been used for grazing. These areas were gps'd,

photographed, and submitted to DHPA for clearance. Future management activities will be structured to avoid and protect these sites.

Tract Subdivision Description and Prescription

Forest Condition

Presently the tract holds 330,938 BF (6,894 BF/ac in 100 tr/ac) of which 120,405 BF (2,508 BF/ac in 14 tr/ac) is designated as harvest and 210,533 BF (4,386 BF/ac in 86 tr/ac) as growing stock. The tract has an average basal area of 97 sq. ft. per acre and an average diameter of about 13". It is fully stocked at 77%. Proposed managed would reduce the average basal area to 73 sq. ft. per acre, leaving the stand fully stocked at 63%.

Table 1. Estimated volumes Doyle Scale.

Species	Harvest	Growing	Total
Yellow Poplar	39,400	45,476	84,876
Black Oak	40,260	41,440	81,700
White Oak	4,730	42,199	46,926
Northern Red Oak	7,470	17,203	24,673
American Sycamore	2,810	18,895	21,705
Pignut Hickory	2,040	15,980	18,020
Bitternut Hickory	0	12,201	12,201
Sugar Maple	1,410	8,153	9,563
White Ash	6,858	0	6,858
Black Cherry	6,065	0	6,065
Virginia Pine	5,756	0	5,756
American Beech	2,200	3,113	5,313
Sassafras	0	3,367	3,367
Black Walnut	0	2,510	2,510
Red Maple	703	0	703
Basswood	703	0	703
Total	**120,405**	**210,533**	**330,938**
Total/acre	**2,508**	**4,386**	**6,894**

Oak Hickory

Oak hickory is the most dominant covertype covering approximately 36 acres. This stratum contains 7,700 BF/ac with 3,034 BF/ac designated as harvest and 4,666 BF/ac as growing stock. Currently the stand holds a basal area of 97 sq. ft per acre. It is fully stocked at 73%. Dominant overstory species include black oak, yellow poplar, white oak, northern red oak, pignut hickory, and bitternut hickory. Understory species included sugar maple, yellow poplar, pignut hickory,

sassafras, northern red oak, white oak, American beech, and basswood. Regeneration was dominated by American beech, sugar maple, and blackgum. Currently the stand is experiencing decline. Sections of the tract contain over mature timber, while others contain trees of poor form and quality. Single tree thinning from both above and below will release higher quality stems and increase vigor. Group selection harvesting may also be beneficial to areas that are at or above maturity.

Mixed Hardwoods

This stratum covers about 8 acres and follows the tracts main drainage. This stratum holds a basal area of 110 sq. ft. per acre in 94 trees. Out of the estimated 6,890 BF/ac, 1,920 BF were designated as harvest and 4,970 BF as growing stock. Dominant overstory species include American Sycamore and yellow poplar. To a lesser extent planted white ash, black oak, pignut hickory, white oak, black walnut, sugar maple, and Virginia pine were noted. Understory and regenerating species included American beech, sugar maple, yellow poplar, black cherry, and blackgum. Harvested species will be predominately Virginia pine and white ash to hasten hardwood transition and slow spread of EAB.

Old Opening

There is one old opening that covers about 4 acres. This area had 400 red oak seedlings planted in 1987. Based upon on ground recon and inventory results, this planting was not successful. Dominant species regenerating include yellow poplar, black cherry, and blackgum. This area should receive postharvest TSI to release more vigorous stems and promote diversity.

Tract Prescription and Proposed Activities

This tract should employ an improvement cutting to increase overall vigor and diversity. Both single tree and group selection cutting techniques should be employed on the oak hickory and mixed hardwood stands. Post-harvest TSI should include opening completion and future crop tree release in old openings. Snag creation along with vine control should be considered following harvest. These areas should be reexamined during marking.

This tract should be marked and sold during the 08/09 fiscal year in conjunction with tract 12. Harvest volumes were predicted at 120,000 BF. This total may be lower due to aesthetics on the Tecumseh Trail.

Proposed Activities Listing

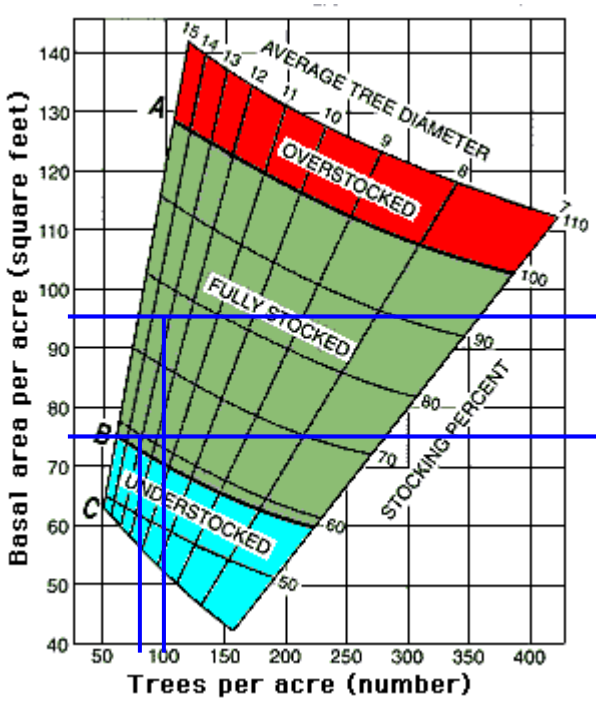
Activity	***Date***
Mark 100,000 BF	08/09
Sell 100,000 BF in conjunction w/ 6421213 (est. 165,000 BF total)	08/09
Post-Harvest TSI	09/10
New Management Guide	2028/29

Gingrich Stocking Charts

Yellowwood State Forest

Compartment 12 Tract 13

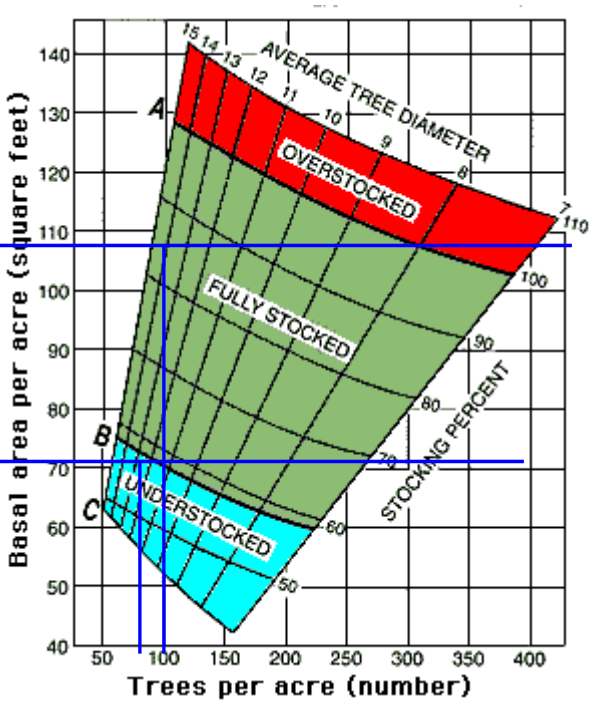
Overall



Current Stand
Basal Area 96.5 sq. ft/ac
100 trees per acre
Fully Stocked 73%
Avg DBH 5.1" according to TCruise

Leave Stand
Basal Area: 73 sq. ft. /ac
86 tr/ac
Fully Stocked 60%

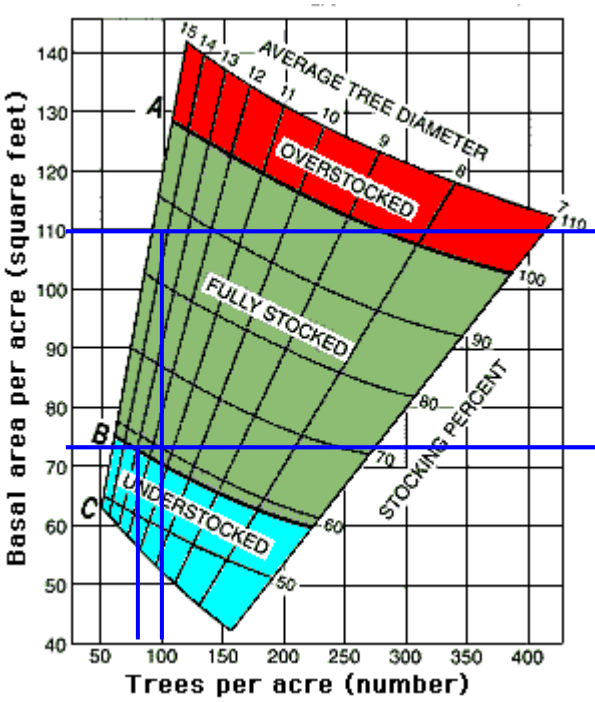
Oak-Hickory Stratum



Current Stand
Basal Area 97 sq. ft/ac
98 trees per acre
Fully Stocked 85%
Avg DBH 5.1" according to TCruise

Leave Stand
Basal Area: 71 sq. ft/ac
83 tr/ac
Fully Stocked 59%

Mixed Hardwoods



Current Stand
Basal Area 110 sq. ft/ac
91 trees per acre
Fully Stocked 73%
Avg DBH 5.1" according to TCruise

Leave Stand
Basal Area: 85 sq. ft/ac
74 tr/ac
Fully Stocked 59%

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http://www.in.gov/surveytool/public/survey.php?name=dnr_forestry

You **must** indicate "Yellowwood C12 T13" 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.