**Indiana Department of Natural Resources**
**Division of Forestry**
**DRAFT**

# RESOURCE MANAGEMENT GUIDE

State Forest: **Yellowwood** Compartment: **01** Tract: **10**
Tract Acreage: **92** Commercial Forest Acreage: **92**
Forester: **Amanda Smith (for Amy Spalding)** Date: **October 10, 2012**

## Location

Y0110 is located in Section 18 of Township 8N, Range 2E of Brown County. It is located approximately 1.4 miles south of Belmont and 1.8 miles northeast of Lake Monroe. It is accessible off of T.C. Steele Road/Dewar Ridge Road and Gilmore Ridge Road.

## General Description

Y0110 consists of a total of 92 forested acres of which all are commercial acres. Y0110's timber resource ranges from small to large sawtimber in size. The overall timber quality of is good. A summary of Y0110's forest resources in relation to species dominance is noted below in Table 1.

**Table 1. Overview of Forest Resources in Y0110 in August 2012**

| Overstory Sawtimber Layer | Understory Poletimber Layer | Regeneration Layer |
|---|---|---|
| Chestnut Oak | Sugar Maple | American Beech |
| White Oak | Chestnut Oak | Sugar Maple |
| Black Oak | Virginia Pine | Red Maple |
| Yellow Poplar | White Oak | Blackgum |
| Northern Red Oak | Blackgum | Sassafras |
| Virginia Pine | Red Maple | Ironwood |
| Scarlet Oak | American Beech | White Ash |
| Eastern White Pine | Sassafras | Yellow Poplar |
| Sugar Maple | Yellow Poplar | Pignut Hickory |
| Bitternut Hickory | Black Oak | Black Oak |
| White Ash | American Sycamore | Pawpaw |
| Blackgum | Pignut Hickory | Black Cherry |
| American Beech | American Elm | Bluebeech |
| Pignut Hickory | Shagbark Hickory | Chestnut Oak |
| Shagbark Hickory | | Flowering Dogwood |
| Red Maple | | Hawthorn spp. |
| Basswood | | Shagbark Hickory |
| Sassafras | | *White Oak |
| | | *Bitternut Hickory |
| | | *Northern Red Oak |
| | | *Scarlet Oak |

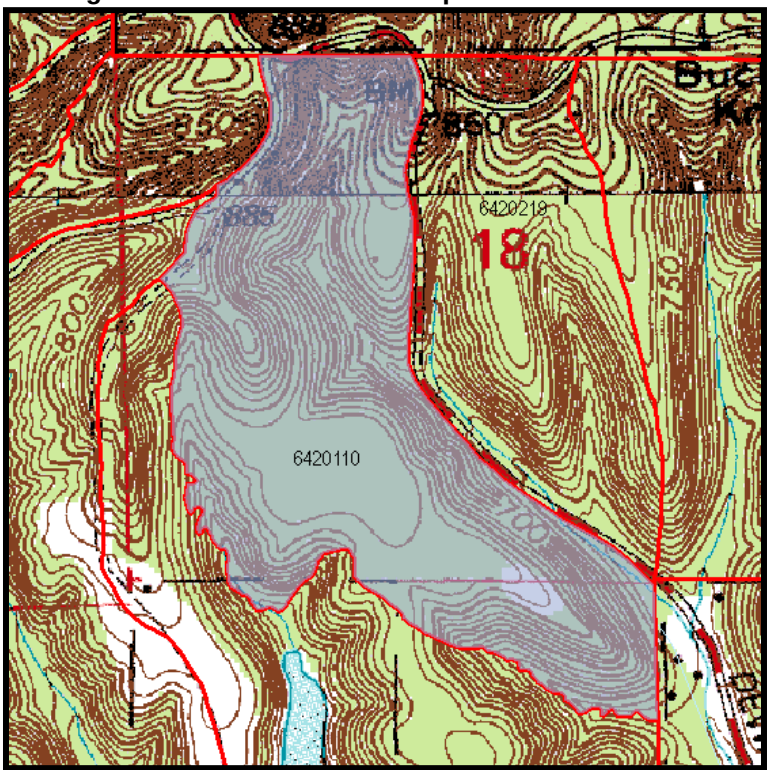
* Species not captured in Prism Plots but present within the tract.

## History

The land area that includes Y0110 (see Figure 1) was deeded to the State of Indiana in 1956 by the United States Department of Agriculture and in 1962 by Elizabeth Clark.

Historical aerial photography suggests that prior to government acquisition the valleys and ridgetops were farmed and the sideslopes likely to have been grazed. The tract file did not contain records of when or by whom the VIP & WHP were planted. A light TSI treatment was conducted in November of 1976 by a CETA Crew. The first tract resource inventory was conducted in June of 1977 by Forester Williams. Forester Duncan conducted a WHO harvest reconnaissance on January 26, 1981. The 2nd tract resource inventory was completed by Forester Unversaw on 12/5/1984 using TIMPIS with 20 inventory points on a 6 x 6 chain spacing. A portion of Tract 10 was marked to be sold in conjunction with Tract 13 by Forester Eckart on July 22, 1991. The combined sale of Tracts 10 & 13 (estimated 128,385 Bd. Ft. in 596 trees) was conducted on November 29, 1991 by Forester Eckart. The successful buyer was John Hood for revenue of $19,302.00. Logging began on January 27, 1992 and was completed on April 27, 1992. The haul road was disked and seeded on September 24, 1992. The 3rd tract resource inventory was completed on August 6, 2012 by Intermittent Forester Amanda Smith. The results of that inventory are highlighted in the report below.

**Figure 1. Yellowwood SF Compartment 01 Tract 10**




## Landscape Context

The majority of the surrounding matrix is closed canopy forest. There are some small open maintained recreational areas on the adjacent T.C. Steele Historic Site and the old Girl Scout camp. The northern headwaters and intermittently flooded marshes of Monroe Reservoir lie approximately 1 mile southwest of the Tract providing habitats for migrating waterfowl as well as lowland mammals, herptiles and birds. Portions of the 100 year HEE Forest and Wildlife Research project lie east and west of the tract

wherein Management Units #6 (Even Aged Management) and Unit #8 (Uneven Aged Management), respectfully, were established in 2005.

**Topography, Geology and Hydrology**
The topography is typical of the Brown County Hills Natural Region. Y0110 consists of two southern sloping finger ridges, one small ridge at the NE portion of the Tract and the south ridge forming the bulk of the Tract's acreage. Y0110 consists of predominantly southern and eastern aspects. Several ephemeral drainages within the Tract consolidate and drain into two mapped intermittent drainages: one lays at the very southwest corner of the Tract and the other at the southeast corner, both of which eventually flow into Lake Monroe. In general, these upland soils were formed in residuum from sandstone, siltstone, and shale bedrocks.

**Soils**
BgF- Berks-Trevlac-Wellston Complex, 20 to 70 percent slopes
These moderately steep to very steep well drained soils are on hillsides in the uplands. They are fairly well suited to trees. Erosion hazards and equipment limitations are the main management concerns due to slope. Consideration should be given during sale planning and implementation of Best Management Practices for Water Quality. This Complex has a site index of about 70 for northern Red Oak.

TlB- Tilsit Silt Loam, 2 to 6 percent slopes
This gently sloping, deep, moderately well drained soil is on the ridgetops in the uplands. It is well suited to trees. The rooting depth is limited by a fragipan present at a depth of 30 inches. This soil has a site index of 68 for White Oak and 90 for Yellow Poplar.

WaD- Wellston-Berks-Trevlac Complex, 6 to 20 percent slopes
These moderately sloping to moderately steep, well drained soils are on sideslopes and narrow ridgetops in the uplands. They are well suited to trees. Seedling mortality can be an issue on the south facing Berks soils due to droughty conditions. This Complex has a site index of about 70 for northern Red Oak.

**Access**
Y0110 is accessible for management and recreational purposes off of T.C. Steele Road/Dewar Ridge Road and Gilmore Ridge Road. A firetrail, cable gate and parking area exists off the south side of Gilmore Ridge Road. This firetrail provides access to Y0110, Y0111, & Y0113. A DHPA roadwork project will need to be reviewed by the Division of Forestry Archaeologist prior to completing any roadwork improvements.

**Boundary**
Y0110 is bordered by other State Forest Tracts to its east, west, and south and by the T.C. Steele Memorial to the north. The southeast boundary runs along privately owned property. The tract's private ownership boundaries have been marked and are currently up to date. The east boundary of Tract 10 is T.C. Steele Road/Dewar Ridge Road which connects with the west boundary of Y0219.

**Wildlife**
A Natural Heritage Database Review was completed for Y0110 in 2013. If Rare, Threatened or Endangered species (RTE's) 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 Indiana Division of Forestry recognizes the potential to improve the habitat on its lands by implementing comprehensive management practices. These management practices include obtaining data on size, species, and numbers of snag trees. A post harvest Timber Stand Improvement (TSI) project is planned and could increase Y0110's standing snag densities.

**Communities**
Y0110 is mostly dry-mesic upland hardwoods. The dominant overstory timber species include Chestnut, Black, & White Oaks with Yellow Poplar, northern Red Oak along with Virginia Pine and Scarlet Oak well represented. The understory contains some Oaks, but consists mainly of Beech, Maples and some Blackgum.

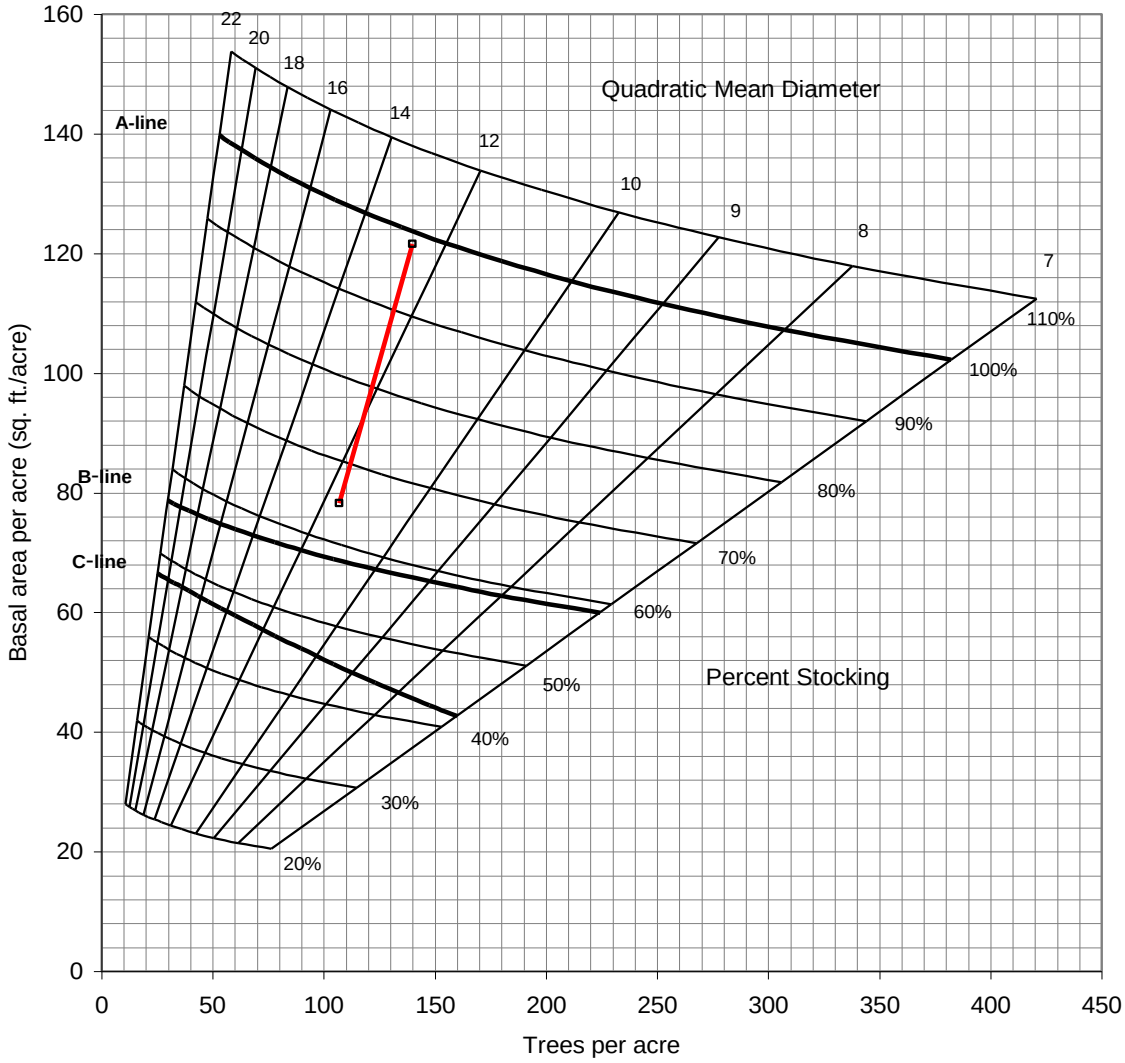
**Exotic Species**
Japanese Stiltgrass was observed on the firetrail southeast of the old log yard. Eradication of the Japanese Stiltgrass is unlikely; however, treatment to areas prior to harvest operations should be considered to reduce viable seed in conjunction with reseeding of disturbed areas. Japanese Honeysuckle and Autumn Olive were observed in the old log yard during the inventory. Populations of both exotics should be evaluated and treated as necessary.

**Recreation**
Activities on this tract include hiking, bird watching, wildlife viewing, hunting, and mushrooming. A small public parking area for public access is located along the T.C. Steele/Dewar Ridge Road and another public parking area is located at the NW corner of the Tract adjacent to Tract 9 along Gilmore Ridge Road.

**Cultural**
Cultural resources may be present on this tract and their location(s) protected. Adverse impacts to significant cultural resources will be avoided during management or construction activities as prescribed by the Division of Forestry Archaeologist.

**<u>Tract Subdivision Description and Silvicultural Prescription</u>**
The overall stand structure for Y0110 is represented in the following Gingrich Stand and Stocking table that follow the individual stand summary.

**Tract Summary Data**
Total Trees/Ac. = 680 Overall % Stocking = 98% (Fully Stocked)
BA/A = 121.6 Sq. Ft./Ac. Sawtimber & Quality Trees/Ac. = 54
Present Volume = 7,617 Bd. Ft./Ac.




**Summary Tract Silvicultural Prescription and Proposed Activities**

The current forest resource inventory was completed on August 6, 2012 by Intermittent Forester Amanda Smith. 32 prism points were sampled over 92 acres (1 point for every 2.88 acres). A Tract summary of the timber resource inventory is given above and a species breakdown of the summary is given in Table 2 below. Y0110 is fully stocked and a managed timber harvest is prescribed with yield projected at 200 to 300 MBF. The prescription for Y0110 includes 3 management stratums.

**Stratum #1 - Oak-Hickory Cover Type**

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 longterm timber management program. The Oak-Hickory Stratum covers roughly 59.4% of the tract or about 54.6 acres. The overstory is dominated by WHO, BLO, REO, and CHO with an average basal area of 120 square feet per acre. Singletree selection cuttings are 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 that include low-forking, leaning, overtopped/suppressed intermediates, epicormically sprouting, and deformed trees are planned to be marked for removal in an improvement cutting. Group selections may be prescribed in areas of low quality stems, disease/damaged stems, low basal area, or maturity. Salvage of downed trees from recent storm events may also be conducted during the timber harvest.

**Stratum #2 - Mixed Hardwoods Cover Type**

The Mixed Hardwoods component of the Eastern Hardwoods Ecosystem can be very variable in their composition and thereby have more complicated prescriptions. The Mixed Hardwoods timber type covers roughly 18.8% of the tract or about 17.3 acres. The overstory is dominated by YEP, SUM, REM, VIP, and WHO with an average basal area of 90 square feet per acre.

Singletree selection and improvement cutting is prescibed to remove lower quality stems and mature to overmature trees which will help to improve crop tree spacing and release quality oaks and hickories from crown competition. The results of these prescribed cuttings will increase timber diversity as well as provide for enhanced wildlife habitat as most of the species within the mixed hardwood component are neither heavy mast producers nor tend to provide valuable timber resources. Improvement cuttings in this component will also be applied to remove low-forking, leaning, suppressed intermediates, epicormically sprouting, and deformed trees.

Group selections may be prescribed in areas of low quality stems, disease/damaged stems, low basal area, or maturity. Planned regeneration openings within this Stratum will likely return to Mixed Hardwoods with a strong component of YEP.

Overall, the marking objectives within this Stratum should consider Oak and other species of significant wildlife value as preferred crop trees for future conservation.

Much of the area's YEP appeared to be in modest decline as a result of the past three years of drought and the Tulip Poplar Scale insect infestation that occurred in the late spring of 2012.

Sugar maple borer damage was noted in throughout the Tract's understory. In time, this borer pest creates a girdling dead area on the bole of the tree that result in the stem breaking apart during moderate and severe windstorms. The removal of these stems is a combination improvement and sanitation cutting. Salvage of downed trees from recent storm events could also be conducted during the future timber harvest.

**Stratum #3 - Pine Plantations w/intermixed Mixed Hardwoods Stratum**

Virginia Pine and White Pine was planted for erosion control purposes during the early management history of YSF. These plantations have served their purpose well yet have matured and are in decline. This cover type constitutes approximately 21.9% of Y0110 or about 20.1 acres with an average basal area of 114.3 square feet per acre. The overstory

is dominated by VIP and WHP with some YEP, BLG, REM, SAS, BLO, and WHO intermixed. Areas of pine were noted to be experiencing decline due to overcrowding, natural senescence, wind damage, etc. Group selection cutting methods are recommended to salvage this resource and promote the establishment and release of native hardwoods. Regeneration openings will most likely return to Mixed Hardwoods with a strong component of YEP however a presence of Oak on the drier aspects is expected. Some of the quality and vigorous Pine may be retained as they provide habitat diversity and cover.

Given the recent inventory, Y0110 is suitable for a 15 year management cycle. A combined Tract timber sale to include Tracts 19 and 38 of Compartment 02 is planned for FY13-14.

**Table 2. Summary of Sawtimber Volumes in Y0110 in August of 2012**

| **Species** | **Total** |
|---|---|
| Chestnut Oak | 131,080 |
| White Oak | 118,010 |
| Black Oak | 94,360 |
| Yellow Poplar | 83,230 |
| Northern Red Oak | 54,430 |
| Virginia Pine | 50,710 |
| Scarlet Oak | 37,540 |
| Eastern White Pine | 28,140 |
| Sugar Maple | 22,190 |
| Bitternut Hickory | 19,470 |
| White Ash | 13,730 |
| Blackgum | 10,640 |
| American Beech | 8,950 |
| Pignut Hickory | 8,830 |
| Shagbark Hickory | 6,400 |
| Red Maple | 6,220 |
| Basswood | 5,980 |
| Sassafras | 840 |
| **Tract Totals (Bd. Ft.)** | **700,750** |
| **Per Acre Totals (Bd. Ft./Ac.)** | **7,617** |

**Proposed Activities Listing**

| *Proposed Management Activity* | *Proposed Period* |
|---|---|
| DHPA timber sale project review | CY2013 |
| Roadwork Rehabilitation | CY2013/14 |
| Timber Marking & Invasive Evaluation | CY2013/14 |
| Timber Sale | FY2013/14 |
| Postharvest TSI & Invasives | CY2014-2018 |
| New inventory and Management Guide | CY2027 |

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