

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

DRAFT

RESOURCE MANAGEMENT GUIDE

State Forest: **Yellowwood**
 Tract Acreage: **83**
 Forester: **Amanda Smith (for Amy Spalding)**
 Management Cycle End Year: **2027**

Compartment: **02** Tract: **38**
 Commercial Forest Acreage: **83**
 Date: **September 26, 2012**
 Management Cycle Length: **15 years**

Location

Y0238 is located in Section 18 of Township 8N, Range 2E of Brown County. It is located approximately 1.5 miles southeast of Belmont and 1.8 miles northeast of Lake Monroe. The Tract is accessible by a firetrail off of Dewar Ridge Road.

General Description

Y0238 consists of a total of 83 forested acres of closed canopy Oak-Hickory and Mixed Hardwoods of which all of its acres are of commercial forest land. The tract's timber resource ranges from small to large sawtimber in size and overall timber quality is moderate. A summary of the forest resources in Y0238 in relation to species dominance is noted below in Table 1.

Table 1. Overview of Forest Resources in Y0238 in August 2012

Overstory Sawtimber Layer	Understory Poletimber Layer	Regeneration Layer
White Oak Chestnut Oak Black Oak Northern Red Oak <i>Bitternut Hickory</i> <i>Yellow Poplar</i> <i>Pignut Hickory</i> <i>Scarlet Oak</i> <i>Red Maple</i> <i>American Beech</i> <i>Sugar Maple</i> <i>Shagbark Hickory</i> <i>White Ash</i> <i>Largetooth Aspen</i> <i>Blackgum</i> <i>Basswood</i>	Sugar Maple Red Maple Chestnut Oak White Oak American Beech <i>Yellow Poplar</i> <i>Blackgum</i> <i>Bitternut Hickory</i> <i>Sassafras</i> <i>Shagbark Hickory</i> <i>Northern Red Oak</i> <i>Pignut Hickory</i> <i>Flowering Dogwood</i> <i>Basswood</i> <i>Virginia Pine</i> <i>White Ash</i>	American Beech Sugar Maple <i>Blackgum</i> <i>Yellow Poplar</i> <i>Ironwood</i> <i>Red Maple</i> <i>Sassafras</i> <i>Pignut Hickory</i> <i>Shagbark Hickory</i> <i>Flowering Dogwood</i> <i>Pawpaw</i> <i>Bluebeech</i> <i>White Ash</i> <i>*White Oak</i> <i>*Black Oak</i> <i>*Chestnut Oak</i> <i>*Northern Red Oak</i> <i>*Bitternut Hickory</i> <i>*American Elm</i>

Bold – Species that comprise ≥ 10% of the total BA in each structural class

Italicized - Species that comprise ≤ 10% of the total BA in each structural class

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

History

The land area that includes Y0238 (see Figure 1) was deeded to the State of Indiana in 1948 by Clarence and Mary Feiock. Historical aerial photography suggests that prior to government acquisition the valleys and ridgetops were farmed and the sideslopes likely to have been grazed.

- Y0219 contains current portion of Y0238 from 1948-1984.
- Small pond and garage encroachment noted by Forester Akard in 1975.
- Property line survey by Vollmer for encroachment completed: encroachment not resolved.

- Inventory/recon in Nov. 1980 by Forester Seig: not completed due to low quality.
- Timber encroachment documented March 17, 1982 by Foresters Fischer & Duncan: 3 WHO & 17 firewood trees taken.
- Resolution & payment of timber encroachment made Sept. 26, 1983.
- 90+ ricks firewood cut by public on ridgetop thinning by Forester Duncan in Nov. 1982.
- Timber sale review on 3/20/84: no harvest recommended.
- Y0219 subdivided to create Y0219 & Y0238 in Dec. 1984.
- Log road constructed from Bartley Ridge into Tract June 30, 1992 to facilitate future timber harvest.
- Log road was seeded and mulched on July 7, 1992 by Forester Eckart.
- First resource inventory of Y0238 was completed in September 1992 by Forester Eckart.
- Tract marked for harvest during February and March of 1993 by Forester Duncan: 146,114 BF.
- Timber sale sold on September 15, 1993 by Forester Duncan to Wright Timber for \$41,000.
- Harvest began on October 15, 1993 and was completed on November 1, 1993.
- TSI was conducted in January of 1994 by property Foresters Eckart and Breedlove.
- 190 wildlife habitat packet seedlings including silky dogwood, eastern chinquapin, Washington hawthorn, hazelnut, highbush cranberry, and bayberry planted around the perimeter of 2 log yards to improve wildlife habitat and aesthetics in March of 1994 by Foresters Eckart and Breedlove.
- Second and current forest resource inventory of Y0238 was completed on August 16, 2012 by Intermittent Forester Amanda Smith.

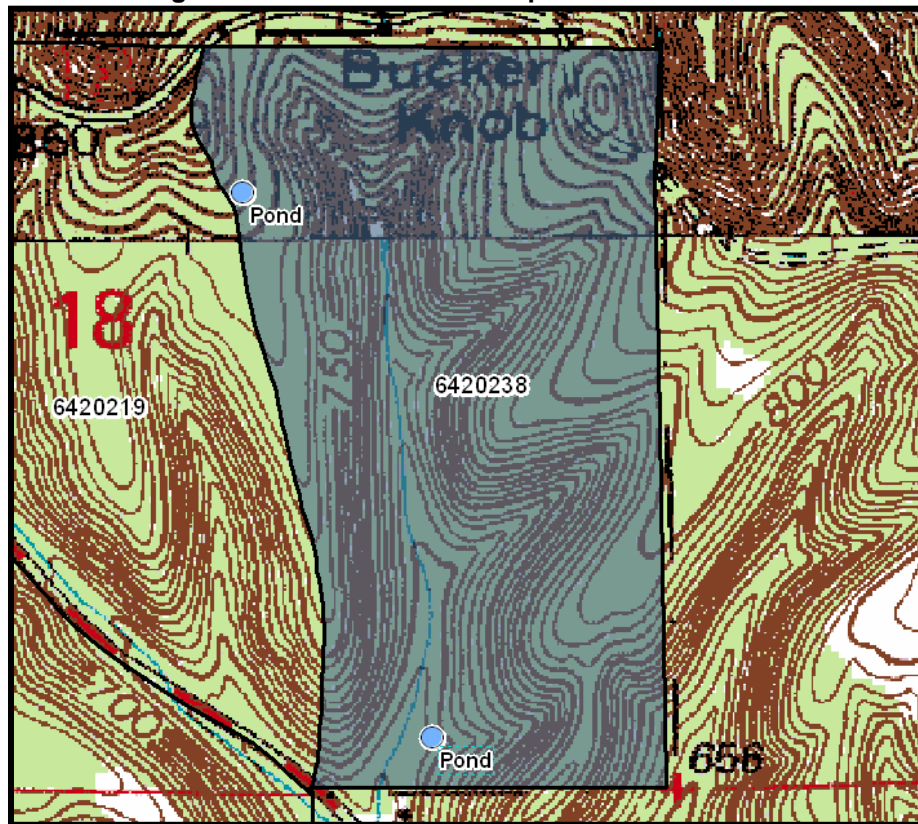
Landscape Context

The majority of the surrounding matrix is closed canopy hardwood 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.

Topography, Geology and Hydrology

Y0238 consists of predominantly southwest and southeast sloping finger ridges that slope towards a center mapped intermittent stream. The slopes are generally east and west facing aspects. The ephemeral drainages drain into the mapped intermittent drainage running north and south through the center of the Tract and which eventually flows into Lake Monroe. There are two man-made wildlife ponds on Y0238. One is near the northwestern boundary and the second is near the southern boundary. In general, these upland soils were formed in residuum from sandstone, siltstone, and shale.

Figure 1. Yellowwood SF Compartment 02 Tract 38



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 slopes. 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.

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

Y0238 is accessible for management and recreational purposes by a firetrail off of T.C. Steele Road/Dewar Ridge Road. The entrance to the firetrail is fairly steep and will need improvement prior to any planned harvest. A DHPA roadwork project will need to be reviewed by the Division of Forestry Archaeologist prior to completing any timber sale roadwork improvements.

Boundary

Y0238 is bordered by State Forest to its west, privately owned property to the south and east, and by the T.C. Steele Memorial to the north. The tract's boundaries have been marked and repainted by orange paint along the line for many years and are up to date. The west boundary of Y0238 coincides with a ridgetop that forms the east boundary of Y0219.

Wildlife

Wildlife resources in the tract appear abundant. Y0238 contains habitat for a variety of wildlife species. Forested habitat includes a large amount of contiguous Oak-Hickory and Mixed Hardwoods along the sideslopes and riparian areas along its streams. Sassafras, Grapevines, and other early successional shrubs are among those present that provide modest wildlife food resources. Other habitat structures that favor wildlife include snags (standing dead trees) and cavity trees. Snags and cavity trees provide habitat for birds, bats, and other small mammals to feed, roost, and nest. Hard mast trees such as Oaks, Hickories, and Beech provide food resources for Squirrels, Wild Turkey, and White-tailed deer. Downed woody debris provides habitat and protection for forest floor wildlife and herptile species. Overall, this tract has an abundant supply of soft and hard mast. The mapped intermittent stream that runs through the center of the tract provides a temporal water source for the area during nondroughty periods of the year. There are two man-made wildlife ponds within Y0238. One is near the northwestern boundary and the second is near the southern boundary. Both ponds contained water at time of the forest inventory and represent perennial sources of water for mobile wildlife as well as a source of water for breeding herptiles.

A Natural Heritage Database Review was completed for Y0238 in 2012. If Rare, Threatened or Endangered species (RTE's) were identified for this tract, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

The Division of Forestry has instituted special procedures for conducting forest resource inventories so that the documentation and analysis of live tree and snag tree densities are examined on a compartment level basis in order to maintain long-term and quality forest habitats. Crown release performed during timber harvests will stimulate the growth of the selected croptrees and will enhance the vigor of these sawtimber trees. Timber Stand Improvement (TSI) following the harvest is planned which will increase standing snag counts. Management practices conducted on Y0238 will be conducted in a manner that will maintain the long-term and quality forest habitats for wildlife populations.

Communities

Y0238 is composed of mesic upland hardwoods dominated by Mixed Oaks along with a scattering of Mixed Hardwoods. The dominant overstory Oak timber species include White, Chestnut, Black, and Red Oaks. Bitternut and Pignut Hickories makes up most of the Hickory component. Yellow Poplar, Red Maple, American Beech and Sugar Maple comprise the majority of the remaining portion of Mixed Hardwoods in the overstory. The understory contains mostly Sugar and Red Maples, Chestnut and White Oaks and American Beech. The regeneration layer is dominated by Mixed Hardwood species of mostly Maples and Beech but does contain a component of Oak. The ground cover of Y0238 consists of mainly mesic to dry mesic species.

Exotic Species

Japanese Stiltgrass, Multiflora Rose, and Crown Vetch were observed during the resource inventory mainly along the firetrails. As Brown County is a known location of the plant "virus" rose rosette disease, the populations of MF Rose are relatively stable. Control measures may be warranted if large populations are located in or surrounding planned regeneration openings. With the spread access that T.C. Steele Road/Dewar Ridge Road provides, the eradication of 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 Stiltgrass. Crown Vetch is a perennial herb that was introduced to the United States for erosion control, however, it has been found to be invasive and take over open, sunny areas. Therefore, the prompt reseeding of exposed surface roads and yarding areas during timber sale closeout can also reduce the spread and extent of its infestation. Large infestations of Crown Vetch should be considered for treatment and will be evaluated for control measures during timber marking.

Recreation

Y0238 is readily accessible by the public via the north tract firetrail off of Dewar Ridge Road. Hunting is permitted on State Forest property and this tract also offers opportunities for off-trail hiking, hunting, mushrooming, and wildlife viewing.

Cultural

Cultural resources may be present on Y0238 but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

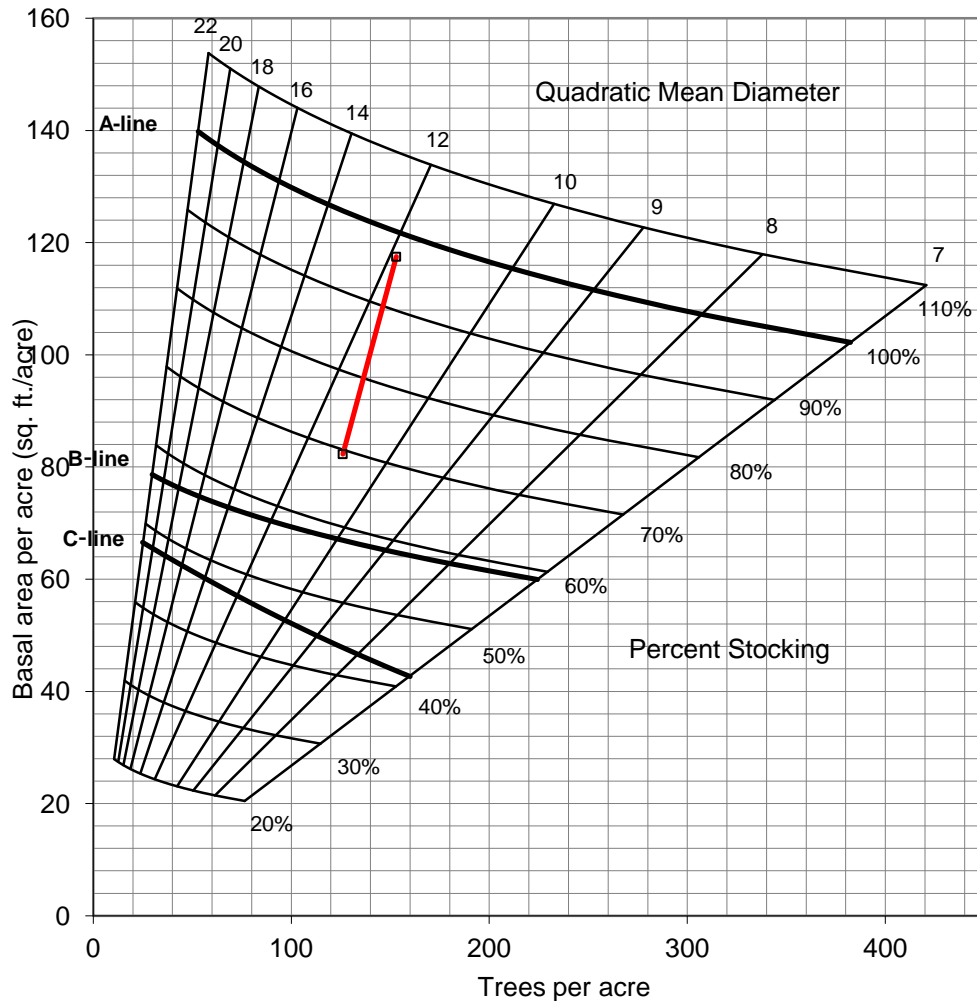
Tract Subdivision Description and Silvicultural Prescription

The overall stand structure for Y0238 is represented in the following Gingrich Stand and Stock chart in Table 2 that follows the Tract Summary Data.

Tract Summary Data for Y0238

Total Trees/Ac. = 804 Trees/Ac. Overall % Stocking = 97% (Fully Stocked)
BA/A = 146.9 Sq. Ft./Ac. Sawtimber & Quality Trees/Ac. = 52 Trees/Ac.
Present Volume = 8,315 Bd. Ft./Ac.

Table 2. Gingrich Stand and Stock Table for Y0238



Summary Tract Silvicultural Prescription and Proposed Activities

The current forest resource inventory was completed on August 16, 2012 by Intermittent Forester Amanda Smith. 39 prism points were sampled over 83 acres (1 point for every 2.13 acres). A summary of the forest resource inventory is given above and a species breakdown of the summary is given in Table 3 below. Y0238 is fully stocked and a timber sale is prescribed. The proposed timber sale on this tract would likely

yield 150 – 350 MBF. Y0238's forest resource is composed of 3 Stratum based on the 2 major timber types and the tract's harvest history as detailed below.

Oak-Hickory Stratum

As the Oak-Hickory component of the Eastern Hardwood Ecosystem provides significant wildlife and timber resource value the retention of this Stratum is important in the Property's longterm forest management program. The Oak-Hickory timber type covers approximately 77.5% of Y0238 or about 64 acres. The overstory is dominated by WHO, BLO, REO, CHO, and BIH with an average basal area of 110.3 square feet per acre. Singletree selection is prescribed to remove lower quality stems and less vigorous overstory stems to release a growing stock of high quality, more vigorous stems. Likewise, careful selection by free thinning 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 to create regeneration openings where there is an abundance of advanced regeneration of Oak and Hickory seedlings or where the overstory has too low of stocking. It was observed that some WHO crowns were 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 the 2012 growing season. The affected WHO will need further observation to determine if they will recuperate from this crown decline. Salvage of downed and crown impacted trees from recent storm events could also be conducted during the future timber harvest.

Mixed Hardwoods Stratum

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 18.6% of Y0238 or about 16 acres. The overstory is dominated by YEP, SUM, REM, AMB, CHO, and WHO with an average basal area of 70 square feet per acre. Singletree selection is prescribed to remove lower quality stems and less vigorous overstory trees which will help to improve croptree spacing. An improvement cutting is prescribed to release quality Oaks, Hickories and other valued species from crown competition of lesser-valued timber species. The result of these prescribed cuttings will increase timber diversity as well as enhance Y0238's wildlife habitat as most of the species within the Mixed Hardwood component are not heavy mast producers or tend to provide valuable timber resources. Improvement cuttings in this Stratum will also be applied to remove low-forking, leaning, overtopped/ suppressed intermediates, epicormically sprouting, and deformed trees. Group selections may be prescribed in areas where low quality stems, understocked areas, and disease/damaged stems are aggregated. Regeneration openings will most likely return to Mixed Hardwoods with a strong component of YEP. Overall, marking objectives within the Mixed Hardwood Stratum should consider Oak and other species of significant wildlife value as the best croptrees for future conservation. Much of this Stratum'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. The affected YEP will need careful review when Y0238 is marked as continued mortality is expected. Sugar Maple borer damage was also noted in understory SUM throughout the Tract. In time this pest creates a girdling dead area on the bole of the tree that results in the stem breaking apart during moderate and severe windstorms. The removal of these stems would be classified as a combination improvement and sanitation cutting. Salvage of downed and damaged trees from recent storm events could also be conducted during the future timber harvest.

Old Regeneration Openings Stratum

Regeneration openings created from the tract's timber harvest in 1993 cover approximately 3.8% of Y0238 or 3 acres (estimated in 1993 as 3.1 acres). These group selections are presently dominated by Yellow Poplar with an average basal area of 50 square feet per acre. The YEP regeneration appeared to be in modest decline as a result of the past two years of drought and disease. These affected YEP will be reviewed prior to the planned postharvest Timber Stand Improvement (TSI) Project as modest mortality is expected. All of these regeneration openings will be scheduled for a croptree release and Grapevine removal treatment in the planned postharvest TSI project.

There are two man-made wildlife ponds in Y0238 that are widely separated. As these provide significant watering and breeding habitat for local wildlife these ponds will be buffered from any proposed management activities. Snags and downed logs should be retained within 100 feet of each pond thereby promoting herptile

habitats. The disturbance of ground vegetation and soil adjacent to these ponds will be minimized to reduce wildlife habitat impacts.

Given the recent inventory and growth of Y0238's forest resources, this tract is suitable for a 15 year management cycle wherein growth and development of the forest resource is measured and evaluated through a forest inventory every 15 years. The current inventory indicates a possible harvest of between 150 - 350 MBF. To minimize reentry periods into this area, a combined tract timber sale is being planned that may include 6420110 and 6420219 for FY13-14.

Table 3. Y0238 Inventory Sawtimber Volume Estimates in August 2012

Species	Total Volumes
White Oak	218,950
Chestnut Oak	123,740
Black Oak	122,640
Northern Red Oak	41,200
Bitternut Hickory	37,420
Yellow Poplar	34,910
Pignut Hickory	30,810
Scarlet Oak	15,180
Red Maple	14,700
American Beech	11,450
Sugar Maple	11,420
Shagbark Hickory	7,500
White Ash	7,480
Largetooth Aspen	6,680
Blackgum	4,830
Basswood	1,230
Tract Totals (BF)	690,140
Tract Totals Per Acre (BF/Acre)	8,315

Proposed Activities Listing

<u>Proposed Management Activity</u>	<u>Proposed Period</u>
DHPA Timber Sale Project Review	CY2013-14
Roadwork Rehabilitation	CY2013-2014
Timber Marking	CY2013-2014
Timber Sale (Combined w/Y0110&Y0219)	FY2013-2014
Postharvest TSI Project and Invasives Follow-up	CY2014-2018
Regeneration Opening Review	CY2019-2020
Reinventory and Management Guide	CY2027

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