Indiana Department of Natural Resources – Division of Forestry

Draft

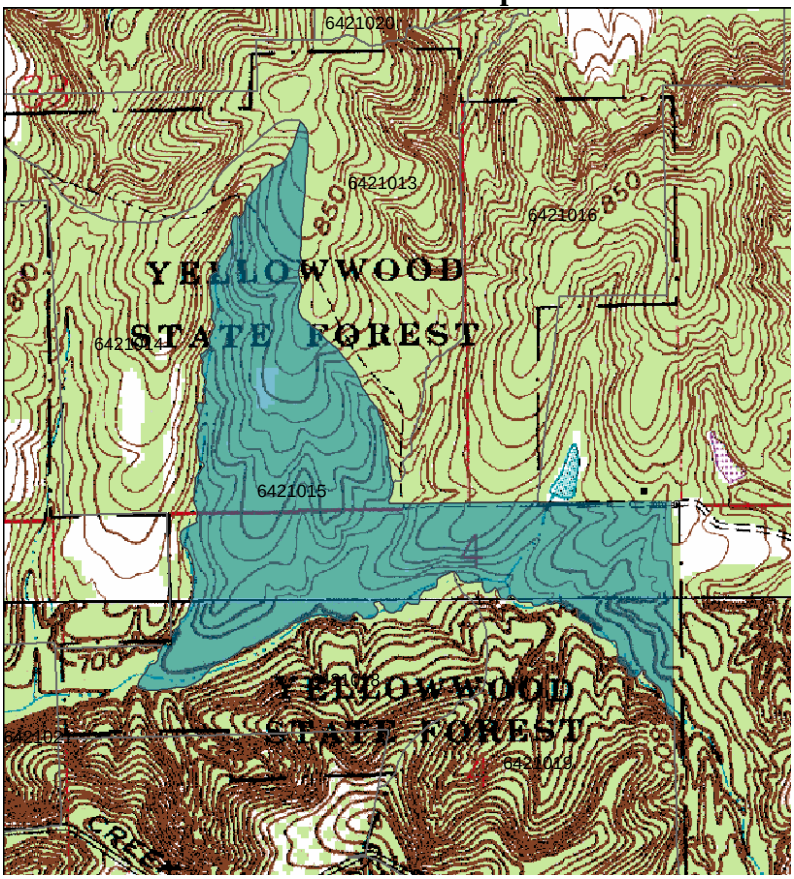
Resource Management Guide

State Forest: Yellowwood
Compartment 10 **Tract** 15
Tract Acreage: 99
Commercial Acreage: 99
Forester: Laurie Burgess
Date: January 24, 2014
Management Cycle End Year: 2029
Management Cycle Length: 15 years

Location:

Yellowwood State Forest Compartment 10 Tract 15 is located in the northern portion of Section 4, in Township 9N, Range 2E and the southeastern portion of Section 33 in Township 10N, Range 2E in Jackson Township of Brown County, Indiana. Y1015 is approximately 6 miles north northwest of the town of Nashville, Indiana.

Figure 1. – Yellowwood State Forest Compartment 10 Tract 15



General Description:

Y1015 consists of a total of 99 forested acres comprised of Bottomland Mixed Hardwoods, Oak-Hickory, Mixed Hardwoods and Yellow Poplar timber types. The tract's timber resource ranges from small to large sawtimber in size. The overall timber quality of this tract is fair to average with scattered quality trees. A summary of the forest resources in Y1015 in relation to species dominance is noted below in Table 1.

Table 1. – Overview of Forest Resources in Y1015 in January of 2014

Overstory Canopy Layer	Understory Poletimber Layer	Regeneration Layer
Yellow Poplar	**Yellow Poplar**	**Red Maple**
Black Oak	**Pignut Hickory**	**American Beech**
American Sycamore	**Red Maple**	*American Elm*
White Oak	**Sugar Maple**	*Sugar Maple*
Pignut Hickory	*Blackgum*	*Yellow Poplar*
Virginia Pine	*Virginia Pine*	*Flowering Dogwood*
Scarlet Oak	*White Oak*	*White Ash*
Jack Pine	*American Elm*	*Pignut Hickory*
Sugar Maple	*Sassafras*	*Bluebeech*
Shortleaf Pine	*American Sycamore*	*Ironwood*
Black Cherry	*Black Cherry*	*Black Oak*
Black Walnut	*Shortleaf Pine*	*White Oak*
Largetooth Aspen	*Bluebeech*	*Shumard Oak*
Northern Red Oak	*Bitternut Hickory*	*Blackgum*
Red Maple	*American Beech*	*Eastern White Pine*
Bitternut Hickory	*White Ash*	
Shumard Oak	*Black Oak*	
	Jack Pine	
	Scarlet Oak	

Bold – Species that comprise $\geq$ 10% of the total TPA and/or BA in each structural class
Italicized - Species that comprise $\leq$ 10% of the total TPA and/or BA in each structural class

History:

The current 99 acre tract of Y1015 (see Figure 1) was created in 2013 when adjacent tracts Y1015 and Y1017 were combined. A water line Right-Of-Way easement runs north up the eastern boundary, turns west at the property corner, runs past the cable gate, along the fire lane and turns north just past the dam of the private pond. This easement is 25 feet wide measured from the State Forest boundary inward. A forest resource inventory was completed on January 10, 2014 by Forester L. Burgess. Two histories are noted below to preserve the unique records of management within each of the previous tracts.

Past History of old Y1015 (76 acres)

- 1940 –U.S. Dept. of Agriculture acquisition for Bean Blossom Project.
- 1956 – State acquisition from U.S. Dept. of Agriculture.
- 1976 – Timber inventory - quickcruise.
- 1976 – TSI (approx. 26 acres in NW corner).
- 1/85 – Forester recon bottomland adj. to Tract 18.
- 2/6/90 – Management Recon (ravine forming west boundary).
- 8/95 – Inventory (Present 5,659 bf/acre, Harvest 2,232 bf/acre, Residual 3,803 bf/acre).
- 1/15/96 – Timber marking.
- 8/20/97 – Timber sale (37,474 bf in 100 trees) with Tract 13 (95,730 bf). Sold to Foley Hardwoods $40,460.00.

- 10/13/97 – Timber harvest began.
- 12/10/97 – Timber harvest completed.

Past History of Old Y1017 (23 acres)

- 1940 –U.S. Dept. of Agriculture acquisition for Bean Blossom Project.
- 1956 – State acquisition from U.S. Dept. of Agriculture.
- 1976 – Timber inventory – quickcruise.
- 4/14/82 – merchantable trees marked in water line ROW.
- 1/14/86 – Timber marking with Tract 16.
- 1/27/86 – Grapevine control in areas of merchantable timber.
- 3/19/86 – Timber sale with Tract 16. Total of 155,459 bf sold to Foley Hardwoods $19,122.00.
- 5/10/86 – Logging began.
- 5/12/86 – Logging completed on portion of sale area.
- 6/20/86 – Sale closeout.
- 7/9/86 – Wooden gate constructed on Yellowwood Trail to block off road vehicle use.
- 7/31/86 – Commercial firewood cutting.
- 8/31/86 – Management recon: considerable mortality of BLO in all diameter classes.
- 11/12-13/86 – Postharvest TSI marking.
- 4/3/87 – Planted AUO in log yard for wildlife habitat.
- 3/20/89 – Posts installed to prevent access to log yard.
- 3/21/89 – Seeded log yard.
- 3/31/89 – Planted AUO and EBA around log yard for wildlife habitat.

Landscape Context:
The land surrounding the east and north along Dollsberry Lane is privately owned and consists of a mixture of closed-canopy deciduous forest. An intermittent stream delineates the tract's southern boundary. The south, north and west portions of Y1015 are surrounded by Yellowwood State Forest. The majority of the land surrounding this tract is closed canopy forest however some privately owned and residential properties occur in the far eastern and western quadrants of the tract's landscape. Some diverse, hardwood bottomland habitats do occur in the Plum Creek and Beanblossom Creek watersheds that occur south and north of the tract. These sites contain lowland species groups such as Elm-Ash-Cottonwood, Maple-Birch-Basswood and Alder-Ash-Willow that are relatively uncommon over the majority of Yellowwood/Morgan-Monroe State Forest.

Topography, Geology, and Hydrology:
Y1015 contains several ridges and ravines. The intermittent streams are located along the tract's southern and western boundaries. The tract's slopes range from 2-6% on the ridgetop with 10-45% on the sideslopes. All aspects are represented within Y1015 except a northern aspect. The primary soils of this tract formed over limestone or were underlain by sandstone, siltstone, or shale. Water resources from the intermittent streams and ephemeral drainages within Y1015 drain into the Bean Blossom Creek/Lake Lemon Watershed.

Soils:

Wellston-Gilpin Silt Loam (WeC2): 6-20% slopes. A moderately sloping to moderately steep, well drained soil. Harvest limitations occur due to slope and erosion potential. Occurs over approximately 40% of the tract's acreage.

Berks-Trevlac-Wellston Complex (BgF): 20 – 70 percent slopes. Contains moderately steep to very steep, well drained soils on hillsides in the uplands. Moderate limitations noted for logging due to slope. Occurs over approximately 20% of the tract's acreage.

Steff Silt Loam (Sf): nearly level, deep and moderately well drained soil found on flood plains. Harvest limitation due soil moisture content and potential for compaction. Occurs over approximately 20% of the tract's acreage.

Cincinnati Silt Loam (CnC2): 6-12% slopes. A moderately sloping, deep, well drained soil. Contains only slight harvest limitations. Occurs over approximately 10% of the tract's acreage.

Pekin Silt Loam (PeC2): 6-12 % slopes. A moderately sloping, deep, moderately well drained soil. Contains only slight harvest limitations due to slope. Occurs over approximately 10% of the tract's acreage.

Access:

Y1015 lies at the west end of E. Dollsberry Lane and is accessible for resource management from a roadway inside the cable gate. A small public parking area beside the cable gate is available for recreational visitors to use.

Boundary:

Private property lines lie adjacent to the eastern boundary of Y1015 and at the northeast portion of the tract. Other Yellowwood State Forest tracts border the west, north and south sides. Y1015's State Forest boundaries are marked with orange paint and were last remarked in 2010.

Wildlife:

Wildlife resources in Y1015 appear abundant. Y1015 contains habitat for a variety of wildlife species. Forested habitat includes a modest complement of contiguous Oak-Hickory canopy, scattered Mixed Hardwoods, and riparian bottomland forest along streams. Sassafras, Wild Grapevines, and other early successional shrubs are among those present that provide wildlife food resources. Other habitat structure that favors 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, Y1015 has an abundant supply of soft and hard mast. The mapped intermittent streams that make up the tract's southern boundary and western boundary provide ephemeral water sources for local wildlife.

A Natural Heritage Database Review was completed for Y1015 in 2013. If Rare, Threatened or Endangered species (RTE's) were identified for Y1015, 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 procedures for conducting forest resource inventories so that the documentation and analysis of live and snag tree densities are examined on a compartment and tract 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 Y1015 will be conducted in a manner that will maintain the long-term and quality forest habitats for wildlife populations.

Communities:
Y1015 is comprised of dry mesic upland hardwoods, bottomland–Mixed Hardwoods, and an 8-acre plantation of Virginia Pine and other Mixed Pines. The dominant overstory timber species include Yellow Poplar, White, Black, and Northern Red Oaks as well as Pignut, Bitternut, and Shagbark Hickories in the upland areas. Slopes and streamside areas are dominated by Mixed Hardwood species such as Yellow Poplar, American Sycamore, Sugar Maple and American Beech. Y1015's understory does contain some Oak components but consists mainly of mixed Hickories, Maple spp. and American Beech.

Exotic Species:
Japanese Honeysuckle and Multiflora Rose were observed during the forest resource inventory in this tract. Scattered Multiflora Rose aggregations are present throughout the tract in light to moderate concentration with a few small concentrations in the bottomlands. This exotic plant is subject to the "virus" Rose Rosette disease which can attribute to keeping populations of Multiflora Rose relatively stable. Control measures for Multiflora Rose may be warranted if populations are located in planned regeneration openings. Autumn Olive and European Black alder were noted as being planted in 1989 although these species were not observed during inventory.

Recreation:
Hunting is permitted on State Forest property and this tract also offers opportunities for off-trail hiking, gathering, and wildlife viewing. A portion of the Tecumseh Hiking Trail runs through the southeast portion of the tract.

Cultural:
A cultural resources review was completed during the forest resource inventory. Cultural resources may be present on Y1015 but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Y1015 Tract Summary Data from the January 2014 Inventory

Total Trees/Ac. = **153 Trees/Ac.** Overall % Stocking = **83% Stocking**
BA/Acre = **98 Ft²/Ac.** Sawtimber & Quality Trees/Ac. = **26 Trees/Ac.**
Present BF Volume per acre = **5,820 BF/Ac.**

	Acres		Sq. Ft. per Acre
Hardwood Commercial Forest:	99	Basal Area Sawtimber:	54.2
Pine Commercial Forest:	0	Basal Area Quality:	0.6

Noncommercial Forest:	0	Basal Area Poles:	36
Permanent Openings:	0	Basal Area Culls:	5.4
Other Use:	0	Sub-merchantable:	1.9
Total:	99	Total Basal Area:	98.1

Timber Type Descriptions and Silvicultural Prescriptions:

The current forest resource inventory for Y1015 was completed on January 10, 2014 by Forester L. Burgess. Thirty two prism points were sampled over the 99 acre tract. A summary of the forest resource inventory is noted above in the Tract Summary Data and a species summary is given in Table 3 at the end of this guide. Table 2 contains the stocking level table for this current inventory. Y1015 is presently fully stocked and a timber harvest is prescribed. For the proposed harvest 5 Management Stratums were identified based upon the tract's prevalent timber types and are described below followed by the overall tract prescription. The 5 Stratum areas noted are mapped in Figure 2. The proposed sale within Y1015 would yield between 100-250 MBF. A timber sale is planned for FY2013-14.

Table 2. Gingrich Stand and Stock Table for Y1015 in January 2014

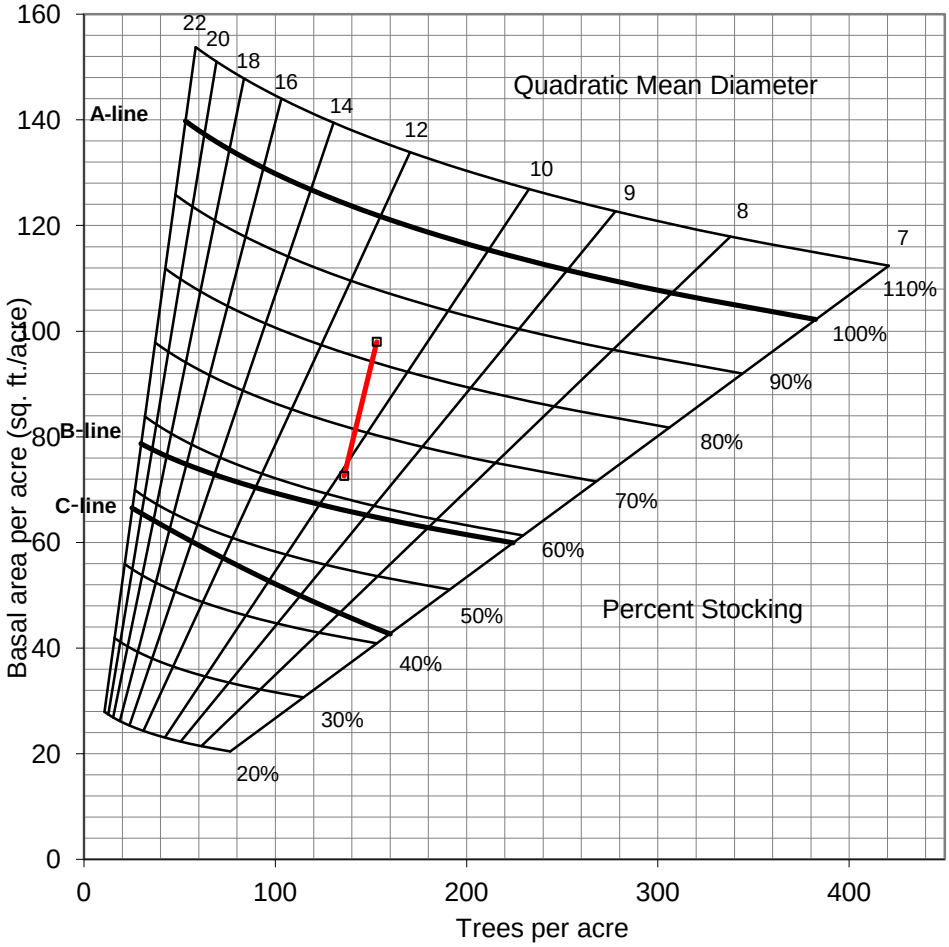
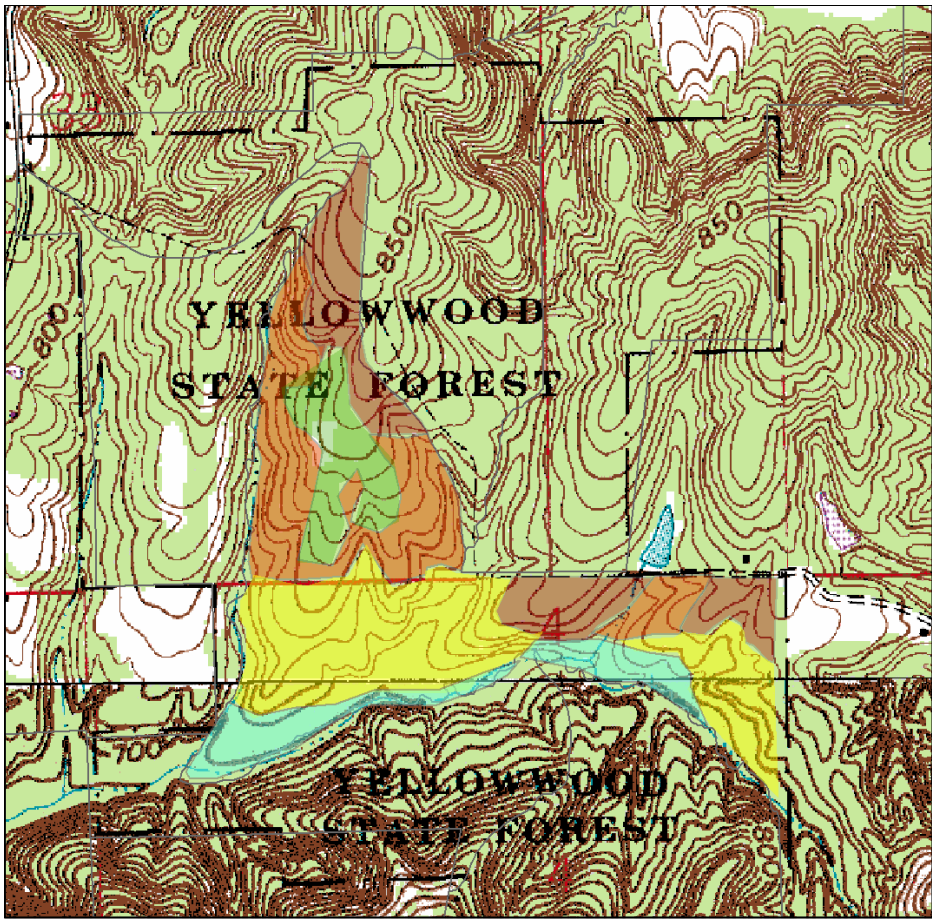


Figure 2 – Y1015 Management Stratums



Legend

- Bottomland hardwoods
- YEP
- Mixed hardwoods
- Virginia pine
- Oak/Hickory

1) Yellow Poplar Management Stratum – 40 acres

The Yellow Poplar timber resource in Y1015 generally appears healthy. However with the widespread Tuliptree Scale insect infestation that occurred in southern Indiana in the spring of 2012 followed by a severe summer drought it is expected that Yellow Poplar stems in this area will continue to show modest crown dieback and mortality. There are also portions of this Stratum that contained Mixed Pine plantations that have become decadent. These include plantings of Jack Pine, Shortleaf Pine and Virginia Pine. Natural succession has occurred in these Pine plantations with the result of their conversion to a mostly Yellow Poplar timber type. The Jack and Shortleaf Pine are generally in the large sawtimber size class and the few Virginia Pine in this Stratum are mainly poletimber. Other associated timber species that are mixed in this Stratum include American Sycamore, Black Cherry, Red Maple, Sugar Maple along with some Oak and Hickory species on sideslopes. Overall, Yellow Poplar timber accounts for over 20% of Y1015's total BA and volume. These YEP contain on the average 3 merchantable logs.

The thinning of the YEP and removal of several Sycamore will reduce the basal area and promote growth to the residual stems. YEP showing modest dieback will be targeted to a salvage cutting before further decline and mortality occurs. Some group selection openings may be made if the YEP decline is aggregated. Scattered Pines will be evaluated for harvest to release vigorous hardwoods or retained for wildlife habitat.

2) Oak-Hickory Management Stratum – 22 acres

This forest resource area is predominantly Oak-Hickory with some Mixed Hardwoods such as Yellow Poplar, Sugar Maple, White Ash, Red Maple, Largetooth Aspen and American Beech. Oak and Hickory species account for over half of the total volume and BA in the Stratum with Black Oaks being the most prevalent. The understory is dominated by Red Maple, Sassafras, Sugar Maple, American Beech and Blackgum. Several BLO individuals in this Stratum were observed to be in decline and are planned for harvest as well as some lower quality SCO individuals. Timber stocking is variable throughout this Stratum. Improvement cuttings and general thinnings will be prescribed to reduce the Stratum's stocking to promote growth on the residual stocking. Aggregations that contain low stocking and poor quality stems will be considered for regeneration. There are quality WHO in portions of this Stratum however they tend to only have two merchantable logs on average. The SCO and BLO individuals in the Stratum tend to average from two to three merchantable logs.

3) Mixed Hardwoods Management Stratum – 19 acres

This Mixed Hardwood timber type is a combination of mature Oak-Hickory and Mixed Hardwoods such as Yellow Poplar, Sugar Maple, White Ash, Red Maple and American Beech. Oak and Hickories account for nearly 50% of the sawtimber volume and BA in the Stratum although Yellow Poplar is the top species by volume. The understory is dominated by Sugar Maple, Sassafras, Red Maple, American Beech and Hickory spp. Improvement cuttings and general thinnings will be prescribed to reduce the Stratum's stocking to promote growth on the residual stocking. Aggregations that contain low stocking and poor quality stems will be considered for regeneration.

4) Bottomland Hardwoods Management Stratum – 10 acres

This Bottomland Hardwoods timber type consists of American Sycamore, Yellow Poplar, American Elm, Sugar Maple, White Ash, Red Maple and American Beech. There are also a few scattered Pine remaining from decadent Pine plantations; these include Jack Pine, Shortleaf Pine and a few Virginia Pine. The Jack and Shortleaf Pines are generally in the large sawtimber size class. This Stratum has some scattered thickets of Multiflora Rose as well as some areas heavy to Wild Grapevine. As with other portions of this tract some Yellow Poplar show crown dieback but overall the Yellow Poplar appear healthy and presumably unaffected by the drought and insect infestation that occurred in 2012. The prescription for this Stratum is to mark a release cutting favoring quality hardwoods followed up by a postharvest timber stand improvement project that will also reduce Wild Grapevine populations.

5) Virginia Pine Management Stratum – 8 acres

This Stratum had been planted to Virginia Pine prior to State acquisition. This Stratum has some YEP timber that has naturally developed in the plantation gaps that are of sawtimber size. American Beech, Red maple and Sugar maple are the dominant understory species. The Virginia Pine that is present in this Stratum are primarily pole to small sawtimber in size. Little Oak or Hickory advance regeneration was noted during the inventory. Although this Pine species is not native to Brown County it does serve as a useful summer and winter habitat for several native birds and mammals as it provides a dense canopy year-round. The prescription for this Stratum is to mark a release cutting favoring quality hardwoods followed up by a postharvest timber stand improvement project.

Overall Tract Prescription

The forest resource management goal of Y1015 is to maintain a fully stocked stand composed of healthy and vigorous Oaks, Hickories and Mixed Hardwoods. The recommendation is to prescribe an improvement cutting over the majority of the tract. This will be accomplished primarily through singletree selection. Trees selected for harvest in Y1015 would primarily be damaged or defective, poorly formed, stressed, or low valued timber species that are competing with quality growing stock in the improvement cutting. Declining vigor and drought stressed overstory canopy trees would be reviewed and marked for removal in a selection cutting. Some group selections may be prescribed in areas where aggregations of low quality, understocked and/or low vigor growing stock occur.

Postharvest Timber Stand Improvement (TSI) is also prescribed and would include Wild Grapevine control, croptree release, large snag creation and regeneration opening completion. Preharvest Wild Grapevine control may be required in some potential group selection openings.

Table 3. – Estimated Tract Volumes in Y1015 in January 2014

Species	Total Volume (bd. ft.)
Yellow Poplar	216,630
Black Oak	144660
American Sycamore	51,010
White Oak	41,640
Pignut Hickory	29,140
Jack Pine	16,870
Scarlet Oak	13,790
Virginia Pine	11,300
Black Cherry	10,130
Largetooth Aspen	8,100
Shortleaf Pine	7,230
N. Red Oak	5,240
Sugar Maple	5,180
Shumard Oak	5,040
Shagbark Hickory	4,140
Red Maple	2,630
Bitternut Hickory	2,220

Black Walnut	1,700
Tract Total	**576,650**
Per Acre Tract Total	**5,820**

Proposed Management Activities:	Proposed Period
Timber Marking	CY2014
Timber Sale	FY2013-14
Timber Harvest	CY2014-2016
Timber Stand Improvement Project	CY2015-2018
Regeneration Opening Review	CY2021
Inventory and New Management Guide	CY2029

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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.