

RESOURCE MANAGEMENT GUIDE

Yellowwood State Forest
Forester S. Sheldon

Compartment 06 Tract 06
Date 8/8/2008
Revised: 1/19/2010

Management Cycle End Year 2028

Management Cycle Length 20 years

Location

C06T06 is located approximately 2 miles northeast of the Yellowwood State Forest office. The tract is located east of Dubois Ridge Road in Brown County in Sect. 20&21, Township 9N, Range 1E.

General Description

C6T6 is 86 acres of closed canopy hardwood forest. Hardwood species are mostly medium to large sawtimber size classes. This tract includes a 9 acre poletimber to small sawtimber Virginia pine stand. The southern ¼ of the tract is primarily pole-sized timber. The Ten O'Clock Line hiking trail runs through the southern portion of the tract and the "Y" horseback riding trail follows the N boundary of the tract which also contains the tract's access from Dubois Ridge.

Overstory	Understory	Regeneration
Sugar Maple	White Ash	White Ash
White Ash	Sugar Maple American	Red Maple
Chestnut Oak	Beech Mockernut	Sugar Maple
White Oak	Hickory	American Beech
Black Oak	American Elm	Pawpaw
Red Oak	Yellow Poplar	Redbud
Chestnut Oak	Dogwood	Red Oak
Black Cherry	Pawpaw	Chestnut Oak
Black Walnut	Redbud	White Oak
Yellow Poplar	Red Maple	Red Oak
Shagbark Hickory	American Sycamore	Pignut Hickory
Pignut Hickory	Black Walnut	Shagbark Hickory
Mockernut Hickory	Chestnut Oak	Mockernut Hickory
Red Maple	White Oak	Yellow Poplar
American Elm	Dogwood	American Elm
White Pine	Black Cherry	Sassafras
Red Pine	Sassafras	Black Walnut
Norway Spruce		Ironwood
Sassafras		Dogwood
Basswood		
Blackgum		
Ironwood		
American Beech		
American Sycamore		

History

This portion of Yellowwood State Forest was acquired in 1955 from The US Forest Service. Virginia pines were probably planted in the tract in the 1950's using WPA labor. Virginia pines are species that were often planted in areas of modest erosion hazard (probable pastureland or abandoned farmland). In September of 1972 Forester Winicker completed a Quick Cruise. This cruise indicated 3,070 BF/Ac Present and 915 BF/Ac harvest. In November of 1975 TSI was performed on 50 acres on the east slope. This TSI was of an improvement nature to release oaks from other mixed hardwoods. A haul road was constructed along the northern boundary of tract in July of 1992. Forester Eckart completed an inventory on July 28, 1992. The "Y" horsetrail was established subsequent to this haul road and follows it into adjacent tract 7. This inventory found 7,575 BF/Ac Present, 2,647 BF/Ac Harvest, and 4,369 BF/Ac Leave. Intermittent forester Sean Rock completed an inventory on August 8, 2008. Forester Sean Sheldon marked the tract for harvest in 2009.

Landscape Context

Land on all sides of the tract is State Forest. There is developed private land nearby to the southeast that includes some pastureland. This tract is a portion of Yellowwood State Forest along Dubois Ridge that has had many acres of planted pines in the past. This modest amount of pine-hardwoods is fairly uncommon over the rest of the forest and provides additional wildlife variety and habitat diversity.

Topography, Geology and Hydrology

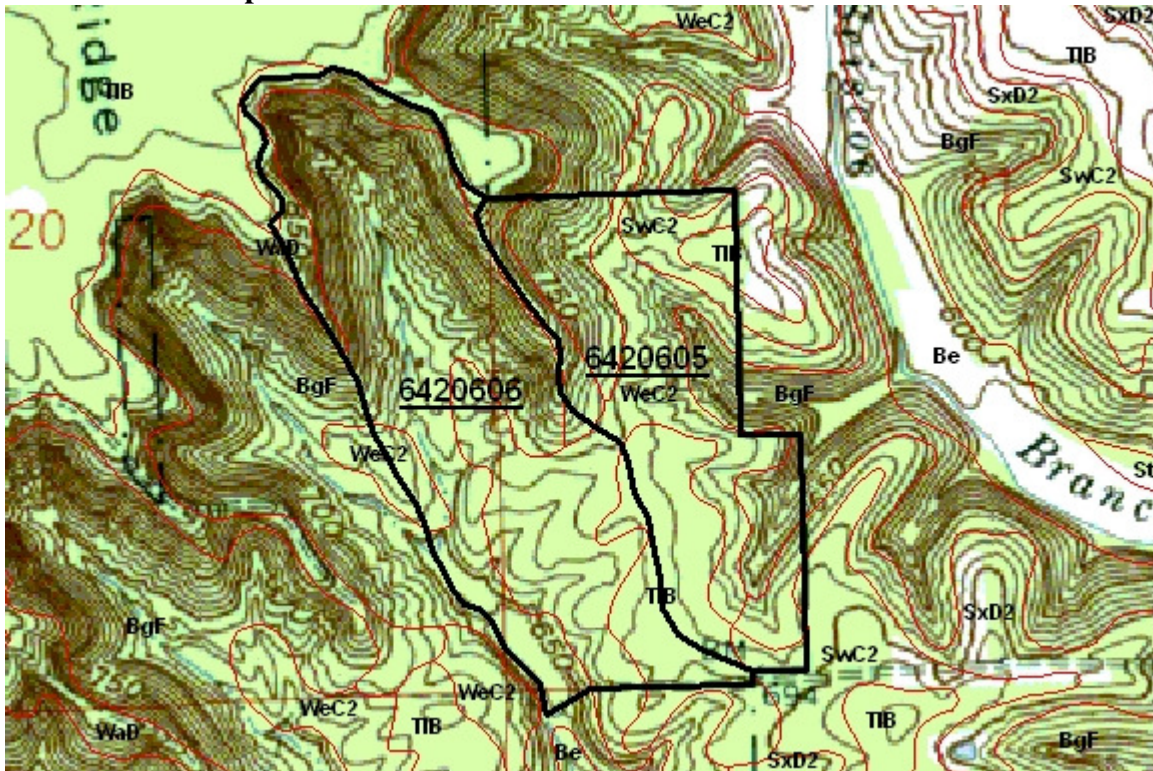
This tract is bounded by 2 ridges on the East and West with a central intermittent stream drainage dividing them. The eastern ridge constitutes about 75% of the acreage and has a predominantly southwestern aspect with a xeric (dry) site and contains most of the dry site hardwoods such as chestnut oak, white oak and black oak. The southern portion of this eastern ridge has a nearly level, upland oldfield with more mesic mixed hardwoods such as red maple, tuliptree, sugar maple and mixed oaks. The western ridge has a smaller acreage of east aspects from 30-60% slopes containing mostly mixed hardwoods such as tuliptree, red oak, sugar maple, white ash and white oak. The soils in this tract are derived from unglaciated weathering of sandstone, siltstone and shale bedrock parent materials. Soils depths of these soils typically are shallow and limit the size of the timber resource due to periodic windthrow hazards. The central intermittent stream drains into Salt Creek to the south.

Soils

The tract is fairly diverse in soil types with Wellston-Gilpin, Tilsit, Berks-Trevlac-Wellston Complex and Stonehead silt loams predominating. There is a small component of Wellston-Berks-Trevlac Complex and Stonehead-Trevlac silt loams at the northwest corner and southeast corners of the tract respectively (see Soil Type Map). Soil fertility ranges from 115-155 BF/A/Yr for the BTW soils to 185-260 BF/A/Yr for the WBT and WG soils (Oak species). Average soil site indices are 70' for oak and 80' for tulipwood. The Wellston-Gilpin, Stonehead and Stonehead-Trevlac silt loams have experienced long term erosion and the Tilsit, Stonehead and Stonehead-

Trevlac soils all have seasonal wetness concerns (fragipan). Due to the shallow Berks soils, windthrow is a limiting factor for timber size on some slopes.

6420606 Soils Map:



Access

Access to the tract is available from the north ridgetop as well as from the southern tract boundary. The access at the north ridge off of Dubois Ridge was first constructed by Forester Eckart in 1992. The “Y” horse trail was later established along this and loops back to the north part of Dubois ridge through the adjacent tract 7. The access from the north is the preferred resource management access for timber extraction. An additional side haul road and yard were created in the northeast portion of the tract in December 2009 to avoid excessive skidding of harvestable timber along the coexisting “Y” horse trail. Also, this horse trail was rehabbed in December 2009 to reinforce several ephemeral head drainage crossings with riprap & stone as these crossings were seasonal bogs for horse riders due to wetness. This work has improved the access road into this tract as well as provides a significant long term improvement of a portion of the Yellowwood Horseback riding trail system. The south access into the tract is an eroded, abandoned county roadway that is seasonally wet and would require substantial road drainage and stoning. Also, this south access crosses private boundary would require private landowner involvement if developed. This road entry is an existing access for the Ten O’ Clock Line hiking trail.

Boundary

State forest property lies adjacent to this tract on all sides. The southeast corner of the tract is bounded by private property and is noted as US monument.

Wildlife

At present the tract is an excellent area for providing habitat and food for a great diversity of wildlife that live in mixed hardwood and oak-hickory stands. The best management of the tract would be to selectively favor the oaks and hickories that are most adapted to this tract. These species are longer lived and provide the most abundant and consistent mast. Beech are uncommon but are succeeding into the tract in the understory and will have wildlife value in the future stand. Virginia pines planted in 1950's are now pole to small sawtimber size and cover nearly 9 acres of this tract. These pines originally covered several more acres than they do now but have succeeded to red maples, yellow poplar and pole oaks in the southern portion of the tract. The current pine complement provides wildlife shelter and cover in inclement weather as well as provides roosting for game species like grouse and turkey. In other areas of the tract, Yellow poplar and maple are plentiful but provide little hard mast. This tract is well adapted for the squirrels, white-tailed deer, ruffed grouse and wild turkey game species as well as non-game songbirds that thrive in mixed hardwood and oak forests. An appropriate number of shagbark hickories, mast producing species and den trees will be retained to provide additional habitat benefits. The south portion of the tract is still in transition from pines to upland hardwoods predominated by red maple, sassafras and yellow poplar. There is a small wildlife waterhole (approx. 10' diameter) along the NE tract boundary adjacent to the newly constructed haul road access on the eastern ridge. This waterhole was presumably built by the Division of F&WL in the 1980's.

Legacy Trees*	Maintenance Level	Inventory	Available Above Maintenance
11" DBH	504	729	225
20" DBH	168	156	-12

* 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	224	392	537	313	145
9" DBH	168	336	91	-77	-245
19" DBH	28	56	18	-10	-38

Communities

The Indiana Heritage Database has no listing of any rare or endangered plant communities within this tract. There are records of timber rattlesnake, bobcat, and Yellowwood trees in nearby tracts. Improvement harvests and group selection harvests should not impact these species negatively however both harvest processes will increase prey habitat for bobcats and rattlesnakes while group selection harvests can aid in providing early successional habitat for Yellowwood tree regeneration.

Forest Condition

There are two distinct areas of this tract that differ in density and size class. The north and western portions of the tract is comprised of mixed hardwoods of medium to large sawtimber size while the southern portion of the tract has areas of dense, pole-size hardwoods and a pole-size to small sawtimber sized Virginia pine stand. The overall stocking is at 115% with an approximate average diameter of 7.0". The inventory shows 5,960 bd. ft. per acre Total volume. There is 3,390 bd. ft. per acre Harvest volume and 2,570 bd. ft. per acre Leave volume. The majority of volume will come from the northern portion of the tract while the southern portion will benefit more from TSI.

Recreation

This tract lends itself to a variety of recreational activities. The major recreational activities are horseback riding, hunting, hiking, & mushrooming. This tract contains a horse trail on the north tract boundary and the Ten O'Clock Line hiking trail along the south boundary. Both trails touch a small portion of the tract and their viewsheds will be conserved by setting up Visual Enhancement Areas with top mitigation following any timber harvest.

Cultural

No cultural sites were noted during the inventory, however due to the large amount of pine planted in the tract there may be some sites that were missed due to pine density or were impacted during the planting operation.

Tract Subdivision Description and Prescription

Virginia Pine Stand 9 Ac.

There are approximately 9 acres of Virginia pine planted in this tract. Originally much more VIP acreage was planted during the WPA time period however as time has passed hardwood encroachment has increased whereas many of the original pines have died out. There are still a modest amount of healthy, well-growing pines available for growth that are also vital for wildlife use and habitat diversity. The proposed management of this stand is to remove the declining and poorly growing pine individuals by selection cutting to promote hardwood natural regeneration. Healthy pines that are of sawtimber size will be retained. The Virginia pine stand will be selectively thinned with an expected modest number of pine individuals for harvest.

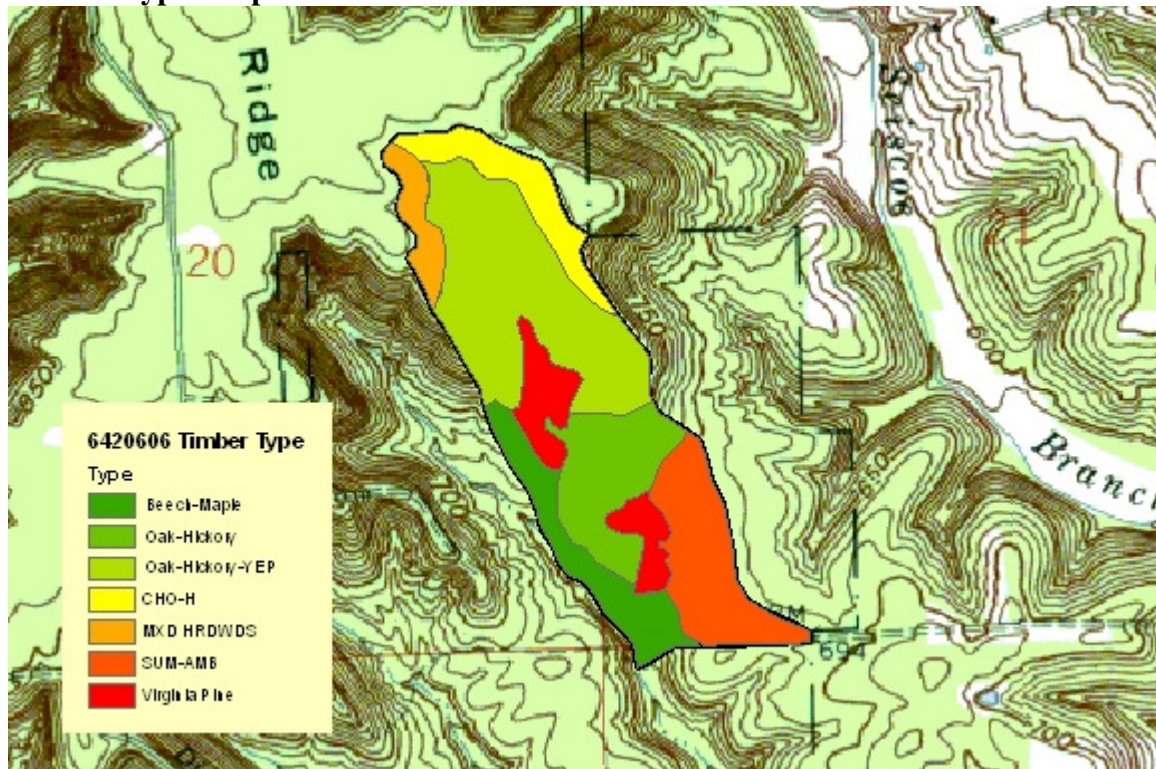
Poletimber-SST Mixed Hardwood Stand 14 Ac.

There are approximately 14 acres of predominantly pole-size to small sawtimber size hardwoods. This area includes SAS, REM, SUM, YEP, BLO, BLL and REO species. Grapevines and exotic species are also moderately represented in this stand. The proposed management for this area is mostly a TSI combined with an exotic species control program. As BLL is an introduced exotic tree all such individuals will be treated by chainsaw girdle with herbicide. Understory herbaceous plants such as Japanese honeysuckle and bush honeysuckle will be treated using backpack sprayers. TSI of grapevines and understory exotic plants will enable this area to resume succession to naturally occurring timber species.

Oak-Hickory Stands 63Ac.

The northern half of the tract is where the majority of volume will come from this tract's harvest. This area is a nice mixed stand of Oaks and Hickories with an abundant population of SUM on the northwestern portion of the tract. Management of this area will be to selectively remove larger black, white and chestnut oaks due to maturity and/or material defect as well as to do some free thinning in the remaining oak-hickory and mixed hardwood stands. The white oak stands tend to be of fair to good quality with approximately 15% of this specie's tree volume appears in the prime to veneer quality category. Favoring the higher quality and vigorous black, white, and chestnut oaks will be the prescription for this tract during an improvement cutting. As windthrow and wildfire damage has occurred on some of the steeper slopes in the northwest portion of the tract, group selection regeneration is planned there. Fire damage has also lightly impacted the timber in the north-central drainage.

Timber Type Map:



Overall Tract Prescription and Proposed Activities

The planned harvest consists of 2 components: the very large sawtimber harvested in a selection cut in the northwest and north-central portion of the tract and a balanced harvest

among the pole size and small sawtimber size classes. The very large sawtimber is comprised of mostly black, chestnut & white oaks along with yellow poplar. The pole size and small sawtimber size classes are primarily Virginia pine, sugar & red maples, and black & red oaks.

The breakdown of the harvest indicates a need to selectively remove larger black, white and chestnut oaks and yellow poplar due to maturity and/or material defect as well as to do some free thinning in the remaining oak-hickory and mixed hardwood stands. The white oak stands are of fair to good quality. Favoring the higher quality and vigorous black, white, and chestnut oaks will be the prescription for this tract during an improvement cutting. Regeneration openings of 1 to 5 acres are needed in the northwestern and northeastern portions of the tract where the overstory is mature to over-mature hardwoods. Regeneration openings also benefit wildlife by providing early successional habitat for species such as ruffed grouse, a diversity of songbirds, and forest floor mammals. Properly planned regeneration of hardwood sites is necessary to maintain long term goals for sustaining the valuable oak-hickory species groups.

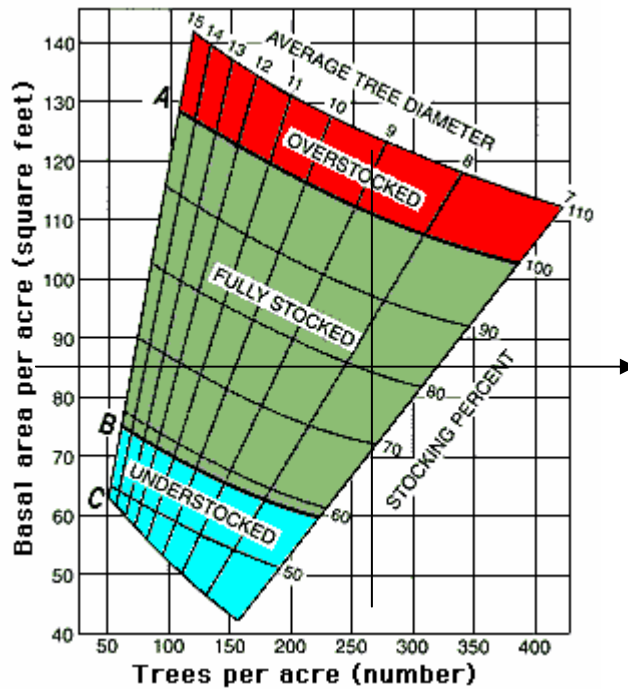
A planned timber harvest using predominantly improvement cutting is planned for fiscal year 2009-10. Two yards have been constructed along the main access road at the north boundary of the tract. All harvested timber will be skidded uphill to these yards. The access road into the yards was improved in December 2009 by stoning to rehab the wetter sections as well as to reduce skidding impacts to the coexisting "Y" horseback riding trail. This haul road access will need to have a wet weather hauling restriction on the timber sale contract due to its present location on seasonally wet soils. Rerouting of the "Y" horsetrail during the harvesting process will be needed to reduce horseback riding and harvest interactions. During and following the harvest, the application of Best Management Practices (BMP's) to the access road is required to reestablish the horsetrail for recreational use. Soil type also influences the present and future management of the timber resources within the tract. The Berks soils are shallower and limit the size of timber that can grow on them. The Wellston and Gilpin soils are more modest in depth and can grow larger timber resources. The Stonehead & Tilsit soils have a fragipan that cause seasonal wetness. Harvesting in the tract will need to be limited to moderately dry or frozen weather ground conditions. Skid trails by the logging operator should be constructed on the contour to reduce erosion hazards. As a majority of the tract has modest slopes, logging activities will need to be conducted carefully to reduce erosion hazards. Careful timber marking, haul road improvements and proper layout of skidtrails followed by a prompt closing out of all roads will moderate these hazards.

TSI needs are moderate to high especially in the south portion of the tract. Grapevines are abundant in this area and the vines have reduced the growth and development of emerging poletimber mixed hardwoods and oaks. TSI is also needed in portions of the more decadent Virginia pine stands. Also, the old fields contain modest numbers of tulipwood and oaks that could be released from competition of less desirable species such as aspen, sassafras and red maple. Exotics are a major concern on this tract and will be treated using a selective herbicide applied with a backpack sprayer.

Volume Estimates:

Table 1: Overall Tract Stocking Chart for M0801

Species	Harvest BF	Growing Stock BF	Total BF
Bitternut Hickory	0	5,970	5,970
Black Oak	36,100	23,830	59,930
Chestnut Oak	4,500	4,230	8,730
Largetooth Aspen	2,660	0	2,660
Red Oak	10,130	1,430	11,560
Pignut Hickory	0	9,680	9,680
Red Maple	1,200	6,230	7,430
Shagbark Hickory	0	9,590	9,590
Sugar Maple	8,630	0	8,630
Virginia Pine	27,160	2,980	30,140
White Ash	0	2,630	2,630
White Oak	27,460	25,840	53,300
Yellow Poplar	0	10,240	10,240
Total	117,840	102,650	220,490
Totals Per Acre	2,104	1,833	3,937



This stand is fully stocked at 267 trees per acre with an average of 84 basal area per acre.

Proposed Activities Listing

Timber Harvest planned in 2009/10 fiscal year.
 TSI work during 2009/10 fiscal year.
 Stand Re-inventory work 2028.

Attachments

The following attachments are kept in the tract file:
 Ecological Resource Review
 Aerial photo map with noted special features
 Aerial photo map with noted unique areas
 Soil type tract map
 Indiana Natural Heritage Database Map
 TCruise reports

References Cited:

Forester David C. Vadas, 642605 Management Plan and Forester's Narrative. 1/29/2001.

Note: This draft management guide was posted on the Division of Forestry Website on May 14, 2009. The guide was revised in January, 2010.