

Indiana Department of Natural Resources – Division of Forestry
DRAFT
Resource Management Guide

State Forest: Yellowwood

Tract Acreage: 81

Foresters: S. Sheldon

Management Cycle End Year: 2031

Compartment 05 Tract 09

Commercial Acreage: 81

Date: June 27, 2016

Management Cycle Length: 15 years

Location

6420509 is located in the central portion Section 34, Township 9N., Range 2E in Brown County. The tract is bordered on the southeast by a large hollow, referred to as Moon Rock Hollow by local residents. The Northwest boundary of the tract is formed by a major ridgeline which was old State Road 46 in the early history of Brown County. The Northeast and Southwest boundaries of the tract are less defined and are formed by minor ridgelines. Access to the tract is from SR 46 up Bond Cemetery Road to haul road with forms the Northwest boundary of the tract.

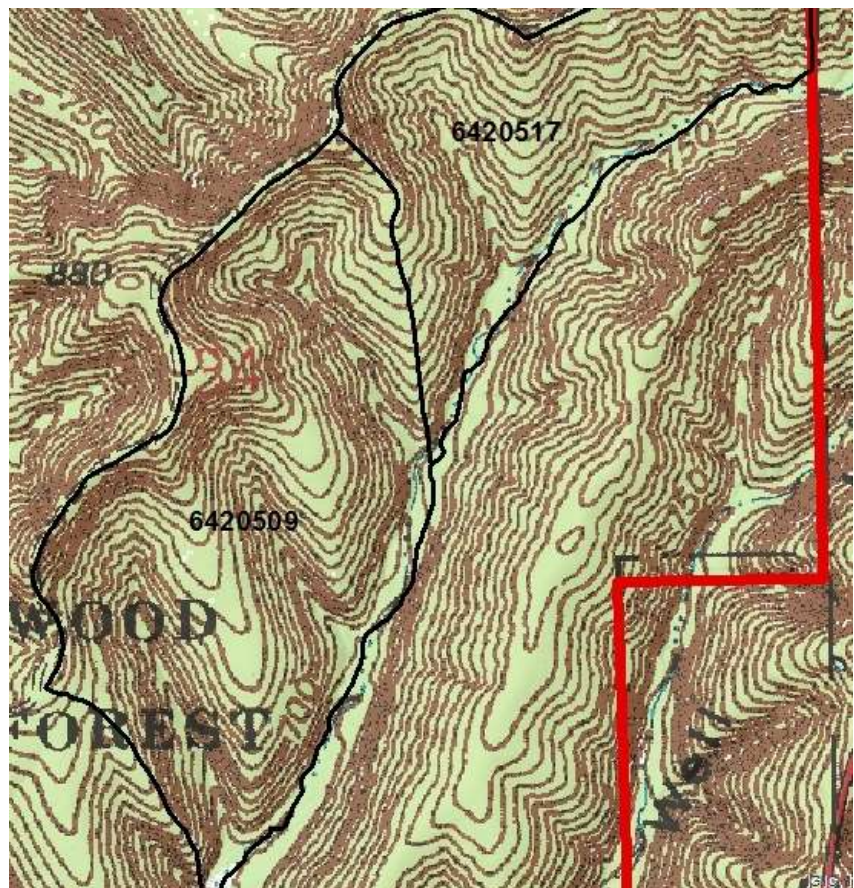


Figure 1. Yellowwood State Forest Compt. 5 Tract 9

General Description

6420509 consists of 81 acres, all of which contain some combination of hardwood vegetation. Oak-Hickory timber types comprise the majority of acreage. Stream bottoms and previously disturbed sites are a minor component.

Mixed Hardwoods such as White Oak, Black Oak, Scarlet Oak, Chestnut Oak are the primary species in the tract. Yellow Poplar, White Ash, Sugar Maple, American Beech and Largetooth Aspen are also present and interspersed throughout the tract. All 81 acres are considered commercial forest acreage. 6420509's timber resource ranges from small to large sawtimber in size. The overall timber quality of this tract is good to excellent.

A summary of the forest resources in 6420509 in relation to species dominance is noted below in Table 1.

Table 1. Overview of Forest Resources in 6420509 in June 2016

Overstory Sawtimber Layer	Understory Poletimber Layer	Regeneration Layer
White Oak	American Beech	Chestnut Oak
Chestnut Oak	Red Maple	American Beech
Black Oak	Sugar Maple	Sugar Maple
Scarlet Oak	White Oak	<i>Blackgum</i>
Pignut Hickory	<i>Basswood</i>	<i>Largetooth Aspen</i>
<i>Yellow Poplar</i>	<i>Bitternut Hickory</i>	<i>Red Maple</i>
<i>Bitternut Hickory</i>	<i>Sassafras</i>	<i>Sassafras</i>
<i>Red Maple</i>	<i>Scarlet Oak</i>	<i>Bitternut Hickory</i>
<i>Sugar Maple</i>	<i>Blackgum</i>	<i>Black Cherry</i>
<i>Basswood</i>	<i>Northern Red Oak</i>	<i>Bluebeech</i>
<i>Largetooth Aspen</i>		<i>Yellow Poplar</i>
<i>Chinkapin Oak</i>		<i>Flowering Dogwood</i>
<i>Northern Red Oak</i>		<i>Hackberry</i>
<i>White Ash</i>		<i>Pignut Hickory</i>
		<i>White Oak</i>

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

- 6/82 – Forester Gray- clearing trees for access
- 12/84 – Forester Duncan- Tract divided into 9 and 9A
- 2/7/90 – Forester Eckart- Management Recon
- 4/4/95 – Forester Eckart- Forest Resource Inventory
- 5/11/95 – Forester Eckart- Tract marked for harvest
- 12/13/95 – Timber Sale- 138,467BF - bid rejected - did not meet minimum
- 2/13/96- Timber Sold
- 8/8/97- Post-Harvest Timber Stand Improvement

This tract was harvested in 1969, removing approximately 15,376BF of timber and 237 tie-cuts. In 1996, a timber sale was sold containing an estimated 138,467 Board Feet (Bd. Ft.) of volume along with 230 cull trees.

Landscape Context

The surrounding landscape near the tract is predominantly Closed-canopy deciduous forest. The primary block of State Forest lies immediately to the north, south, and west of the tract, with a small portion to the east. Private landownerships dominate to the east, south, and north with a mix of developed areas, forest and agricultural lands.

Other minor cover/habitat types present on the landscape include open water (lakes, ponds, rivers, streams, etc.).

Landscape level forest threats includes the breakup (parcelization) and development of private land tracts, and introduction of invasive plants that are routinely introduced during home landscaping efforts.

Topography, Geology, and Hydrology

Overall the terrain in this tract is gentle compared to the majority of the terrain on Yellowwood State Forest. Slopes in the tract range from 10-25% with some steeper areas being found around drainages. The majority of the tract lies on a southeast aspect. There are also minor Northeast and Southwest aspects. The underlying bedrock is Interbedded Siltstone, sandstone, and shale. The mapped intermittent stream making up the southern boundary of the tract flows in Lower Schooner Creek which flows into Crooked Creek. Crooked Creek then flows into Monroe Lake.

Riparian features (intermittent streams) are present on portions of the tract. General riparian management zone (RMZ) guidelines will be implemented in these areas in accordance with the *Indiana Logging and Forestry Best Management Practices Field Guide*.

Soils

This tract contains 4 different soil types: Be, WaD, BgF and SxD2. These are pictured in Figure 2 below.

Be- Beanblossom channery silt loam, occasionally flooded

This nearly level and gentle sloping, deep, moderately well drained soil is on flood plains, alluvial fans, and colluvial benches. It is fairly well suited to trees. Wet periods contribute to equipment limitations. Rooting depth is somewhat restricted for some trees, i.e. Black Walnut, due to coarse fragments in subsoil. This soil has a site index of 95 for yellow poplar.

WaD- Wellston-Berks-Trevlac complex, 6 to 20 percent slopes

These moderately sloping to moderately steep, well drained soils are on side slopes and narrow ridgetops in the uplands. They are well suited to trees. Seedling mortality can be an issue on south facing Berks soils due to droughty conditions. This complex has a site index of about 70 for northern red oak.

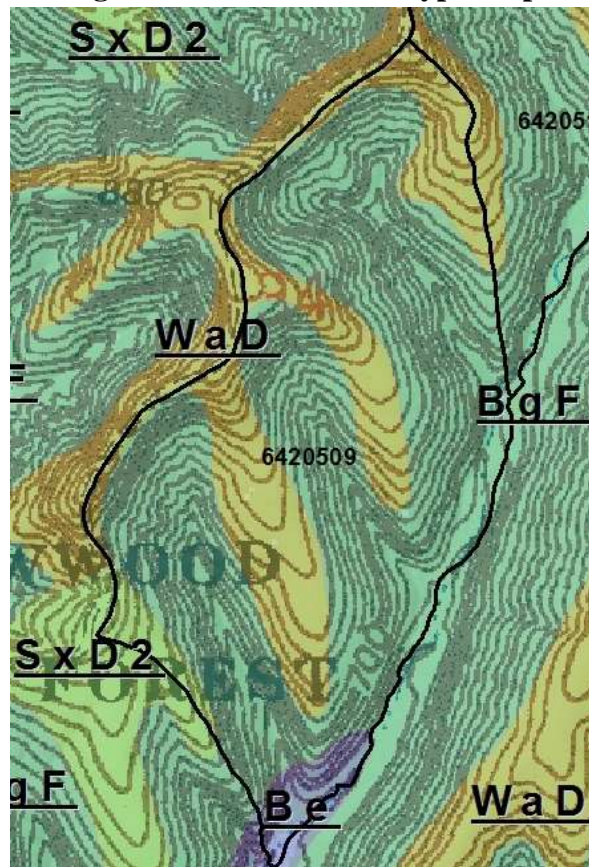
BgF- Berks-Trevlac-Wellston complex, 20 to 70 percent slopes

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 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.

SxD2- Stonehead-Trevlac silt loams, 10 to 20 percent slopes, eroded

These moderately sloping to moderately steep soils are on side slopes and narrow ridgetops in the uplands. They are fairly well suited to trees. Erosion hazards and equipment limitations are management concerns that should be considered when planning sale layout and implementing Best Management Practices for Water Quality. This complex has a site index of 90 on stonehead and 70 on Trevlac for northern red oak.

Figure 2. – 6420509 Soil Type Map



Access

This tract is accessible for public use and resource management from Bond Cemetery road. This road is in good condition. The primary haul road into this tract is also in adequate condition. It is in need of routine repair and stone.

Boundary

There are no private ownerships adjacent to 6420509. Other Yellowwood State Forest tracts border all portions of this tract. The entirety of the west tract boundary is the main haul road (formerly HWY 46). A mapped intermittent stream serves as the east boundary.

Wildlife

Wildlife resources are abundant within 6420509. This tract contains a diverse vegetation conducive to providing habitat for a wide variety of wildlife species. Forested habitat includes a large amount of contiguous Oak-Hickory timber species, interspersed Mixed Hardwood species, and forested riparian areas. These riparian areas vary in size but all present similar, dense vegetation that provides wildlife habitat food and cover. Vegetative species include Wild Grapevine, and assorted early successional shrubs.

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 American Beech provide food resources for Fox and Gray Squirrels, Wild Turkey, White-tailed Deer and Blue Jays. Downed woody debris provides habitat and cover for many wildlife species and also reduces rainfall runoff.

A Natural Heritage Database Review was completed for 6420509 in 2016. If Rare, Threatened or Endangered species (RTE's) were identified for 6420509; 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 tree and snag tree densities are examined on a compartment and tract level basis in order to maintain long-term and quality forest habitats. Current assessments indicate the abundance of these habitat features meet or exceed recommended base levels in all diameter classes. Crown release performed during timber harvests will stimulate the growth of the selected residual trees 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 6420509 will be conducted in a manner that will maintain the long-term and quality forest habitats for wildlife populations.

Communities

6420509 is generally comprised of dry to mesic upland hardwoods. The dominant overstory timber species includes Black, Chestnut, White Oaks, and Bitternut and Pignut Hickories. Slopes and streamside areas have mainly an Oak canopy however portions of the tract contain Mixed Hardwood species such as Sugar Maple, Yellow Poplar, and American Beech. The understory contains some Oaks species however poletimber species within the tract are mainly Chestnut Oaks, Maple spp., and Yellow Poplar.

Exotic and Invasive Species

Below is a list of invasive species identified during the inventory. Priority control should be given to aianthus and if identified, bush honeysuckle. These would be treated as soon as practical, with

individuals and smaller areas being targeted if needed. A broader and/or situational approach should be taken with the species noted below. However, these species are prevalent throughout the county and eradication is not feasible. Control measures for these species could be warranted for larger scale road & trailside treatment projects, planned regeneration openings, pre or post harvest TSI projects, etc. Post-harvest control of stiltgrass is most easily accomplished through successful seeding of fescue or other highly competitive non-invasive seeding mixture.

- **Japanese Stiltgrass**
- **Multiflora Rose**
- **Autumn Olive**

Recreation

Just south of the 6420509 on HWY 46, is Schooner Valley Stables. Schooner Valley Stables is under a lease agreement with the Division of Forestry. Schooner Valley offers guided horse trail rides through the 6420509&17 areas. There are several other recreational opportunities available for the public in 6420509, these would include hunting, mushrooming, wildlife viewing and hiking. Trails will be given due consideration during layout and implementation of management activities to reduce impacts. Where necessary trails will be temporarily closed or rerouted for user safety, followed by trail rehab as may be warranted.

Cultural Resources

All portions of 6420509 were reviewed for cultural sites during the current forest resource inventory. Cultural resources may be present within this tract but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

6420509 Tract Summary Data from the June 2016 Inventory

Total Trees/Ac. = **83 Trees/Ac.**

BA/A = **73.9 Ft²/Ac.**

Present Volume = **5,434 BF/Ac.**

Overall % Stocking = **65% Stocking**

Sawtimber & Quality Trees/Ac. = **43 Trees/Ac.**

Tract Subdivision Description and Silvicultural Prescription

6420509's current forest resource inventory was completed on June 15, 2016 by Forester Sean Sheldon. 23 prism points were examined and sampled over 81 acres (1 point for every 3.52 acres). A summary of the inventory results are given above and a compilation of the total volume by species is presented in Table 3 below.

A significant amount of inventory points were located on horse trails, where stocking is considerably lower than the majority of the tract. These points, on or near horse trails, resulted in inventory results showing stocking as lower than actual. overall, the stand is adequately stocked and a managed timber harvest is prescribed.

Singletree and group selection cuttings are prescribed to thin and release desirable croptrees, remove suppressed and poorly formed trees and to regenerate areas that contain aggregations of low stocking, excessive fire or windthrow damage, or overmature timber resources. For the purpose of this guide, 6420509 has only one designated Management Stratum based on the tract dominance of its Oak-Hickory cover type.

Oak-Hickory/Mixed Hardwoods Stratum – 81 acres

Current Condition

The timber type is predominantly mature Oak-Hickory with some Mixed Hardwoods mixed within. These Mixed Hardwoods consist of mainly Yellow Poplar, Sugar Maple, White Ash, Red Maple, and American Beech. Oak and Hickories account for 89% of the total volume in the tract with White, Chestnut, and Black Oak being the most prevalent by volume. The understory is dominated by Sugar Maple, Red Maple, American Beech and Hickory species. The understory also contained numerous poletimber-sized Oak species in some areas. The majority of Yellow Poplar were found to have modest decline and mortality due to the Yellow Poplar scale infestation and severe droughts that occurred in the last 5 years.

Prescription

The management goal of this Stratum is to maintain a fully stocked, healthy stand dominated with vigorous Oaks and Hickories. This Stratum is prescribed an improvement and release cutting to release the highest quality and most vigorous residual Oak and Hickory stems. Trees targeted for removal include the following: competing Mixed Hardwoods; suppressed trees; trees damaged by past fire or grazing; wind-damaged trees; drought-stressed trees; and any other dominant or co-dominant trees that are overtopping or suppressing quality growing stock. An understory harvest is also planned in portions of this Stratum to reduce the density of Red Maple, Sugar Maple and American Beech so that Oak-Hickory advance regeneration is promoted and established. Overall, the prescription is to perform an improvement cut over the majority of the area. This should be accomplished primarily through singletree selection. However, small group selections may be implemented in areas dominated with poor growing stock. Emerald Ash Borer is known to have infested a large portion of Yellowwood SF. A sanitation harvest is prescribed to utilize the majority of ash trees before they die and decay. This will also allow ash seed to be captured and new seedlings generated before the loss of seed bearing trees to EAB. Many ash trees will not be utilized due to accessibility and the rapid spread of EAB and mortality of ash across the infested landscape.

Summary Tract Silvicultural Prescription and Proposed Activities

The prescription for 6420509 is predominantly a combination improvement cutting and singletree selection cutting over the tract acreage. Group selections may be prescribed in portions of the tract where aggregations of low stocking, low quality, or mature timber occur. The Indiana guidelines for Best Management Practices (BMP's) will be followed during the timber harvest and closeout activities to maintain water quality. The prompt installation of water diversions following harvesting will be employed to minimize any effects to neighboring water resources.

Riparian areas exist along portions of 6420509's east tract boundaries which contain mapped intermittent streams. The management within these areas will be prescribed according to current Division of Forestry guidelines.

Portions of or all of 6420509 will be submitted for a postharvest Timber Stand Improvement (TSI) project along with any invasive work if deemed appropriate by the administering forester. Post-harvest TSI may include Wild Grapevine control, croptree release, large snag creation and possibly small opening completion. Preharvest Wild Grapevine control may also be required in potential group selection openings. TSI work is planned to be most intensive in the older regeneration openings. A field review for regeneration opening success is planned 3-4 years after opening TSI completion.

Given the recent inventory and projected growth of 6420509's forest resources, this tract is suitable for a 15 year management cycle wherein growth and development of the tract's forest resource is evaluated by a forest inventory every 15 years. The current inventory projects a harvest of between 150 to 200 MBF.

Table 3. Volume estimates from the June 2016 inventory on 6420509

Species	Total Volume (Bd. Ft.)
White oak	184,670
Chestnut Oak	66,130
Black Oak	48,860
Pignut Hickory	30,350
Scarlet Oak	30,310
Sugar Maple	23,200
Northern Red Oak	23,100
Bitternut Hickory	7,080
Largetooth Aspen	7,100
American Sycamore	6,710
American Beech	5,810
Red Maple	3,130
Yellow Poplar	1,680
Black Cherry	1,030
Shagbark Hickory	1,030
Tract Totals*	440,190
Per Acre Total	5,434

*Rounded figures.

Proposed Activities Listing

Proposed Management Activity

Timber Marking/Invasive treatments
Timber Sale
Post Harvest recreation trail rehab as needed
Postharvest TSI & Invasives treatment (if needed)
Regeneration Success Review
Reinventory and Management Guide

Proposed Period

CY 2016
FY 2016-17
CY 2018-2019
CY 2017-18
3-4 years after harvest
CY 2031

To submit a comment on this document, go to:

www.in.gov/dnr/forestry/8122.htm

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.