"DRAFT" RESOURCE MANAGEMENT GUIDE

Yellowwood State Forest Compartment **5** Tract **10**
Total Tract acreage: 43 acres Commercial Acres: 43 Date: 4/23/10
Forester: L. Burgess

Location
Located in Sections 3 & 4 T8N, R2E of Brown County. The tract is accessed from Bond Cemetery Road, 0.2 miles north of St. Rd. 46.

General Description
The cover types within this tract primarily mixed hardwood. About 7 acres is Virginia pine and another 7 acres are regeneration openings from past harvest (actually the 1985 harvest notes indicate completing the 5-acre opening created in 1975 harvest). The 2009 inventory data noted the frequency of tree species within each category of the tract's forest canopy (listed in descending order of occurrence):

Overstory	Understory	Regeneration
Virginia pine	Virginia pine	Sugar maple
Sugar maple	Sugar maple	American beech
Yellow poplar	Black cherry	American elm
Black oak	Yellow poplar	Red maple
White oak	Pignut hickory	White ash
Pignut hickory	Red maple	Dogwood
Shagbark hickory	American beech	Black cherry
Black cherry	Shagbark hickory	Pignut hickory
Largetooth aspen	Black oak	Blue beech
American beech	White ash	Sassafras
Scarlet oak	Shumard oak	Blackgum
Northern red oak	Osage orange	Yellow poplar
Bitternut hickory	Blackgum	Shagbark hickory
American sycamore	Largetooth aspen	Ironwood
White ash		American sycamore

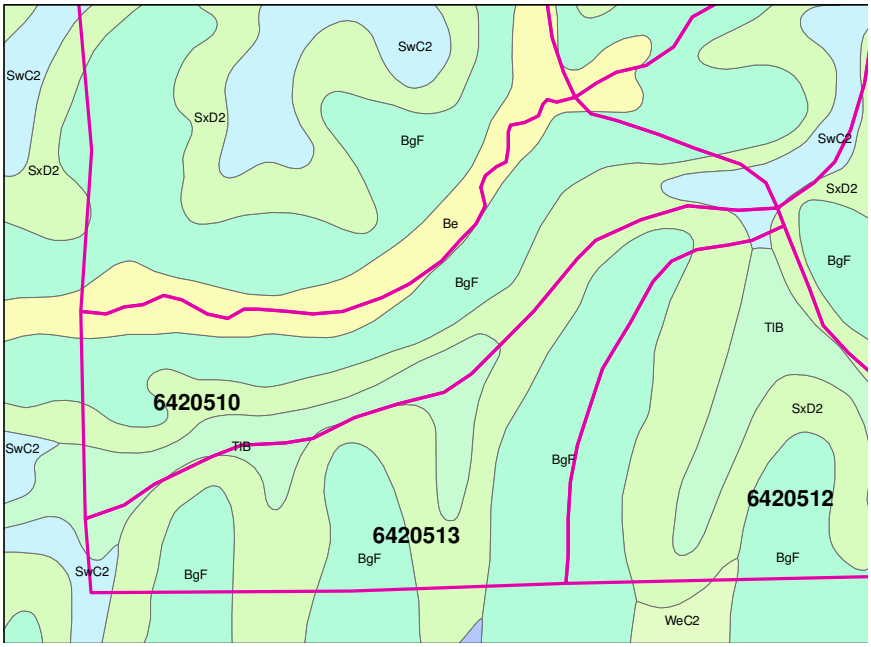
History
The state acquired this acreage from the federal government in November 1956.

Resource management history:

1975 CETA TSI, Timber cruise, timber harvest (Sale #7602 of 37,400 bf, 199 trees sold to Steele Lumber for $2800.00)
1984 Post harvest inventory and mgmt. recon, vine control in valley
1985 Completed 5 acre opening created in 1975 (11,063 bf, 60 trees, 33 culls sold with Comp 5 tract 12 sold to David R. Webb for $14,225.00 (total combined sale volume = 97,221 bf)
1986 Stump jump. TSI completed in 5-acre opening
1990 Management recon
1992 Passed archeological review
2009 Inventory by Burgess completed 10/25/09

Topography, Geology and Hydrology
The tract is comprised of about 15% ridgetop and the remaining acreage is primarily north facing slopes ranging 5- 40%. The soil types noted in next section are unglaciated soils and have formed from the bedrock material of sandstone, shale and siltstone. This tract is located within the North Fork Salt Creek-Lower Schooner Creek watershed.

Soils
Berks-Trevlac-Wellston complex (**BgF**) 20 – 70 percent slope. Moderately steep to very steep, well drained soils on hillsides in the uplands. Severe limitations noted for logging due to slope. Comprises 35% of tract acreage.
Stonehead-Trevlac silt loam (**SxD2**) 10 – 20 percent slope. Moderately sloping to moderately steep soils on side slopes and narrow ridgetops in the uplands. Slight to moderate limitations. Comprises 30% of tract acreage.
Tilsit silt loam (**TIB**) 2 – 6 percent slope. Gently sloping, deep, moderately well drained soil on the tops of ridges in the uplands. Slight limitations. Comprises 20% of tract acreage.
Beanblossom channery silt loam (**Be**) nearly level and gently sloping, deep, moderately well drained soil is on flood plains, alluvial fans and colluvial benches. Slight to moderate limitations. Comprises 15% of tract acreage.



Access
Walk-in and equipment access is from the gravel lot beside the cemetery on Bond Cemetery Road.

Boundary
Tract is surrounded by state forest acreage with exception of western line bordering private property. The southern edge is the ridge and the northern edge is defined by mapped blueline stream. Boundary lines are updated, last painted 2008.

Wildlife

Wildlife resources in this tract are abundant. Common species which are present include: Squirrels, white tailed deer, turkey, various small furbearing animals, and a variety of songbirds. An official ecological review was completed on the tract. This review focuses on wildlife habitat, looking at what is present in the tract and what can be created through management activities. A created wildlife pond, approx. 10 ft. diameter, is present within this tract on the ridgetop of the western portion. This pond will be retained. The inventory for this tract also included recording structural habitat features at each data point; these records include snag (dead, standing tree) and cavity tree counts. The results of this collected data for snag counts is included in the following table.

Legacy trees*	**Maintenance level**	**Inventory**	**Available above Maintenance**
11″ + DBH	387	1126	739
20″ + DBH	129	128	-1

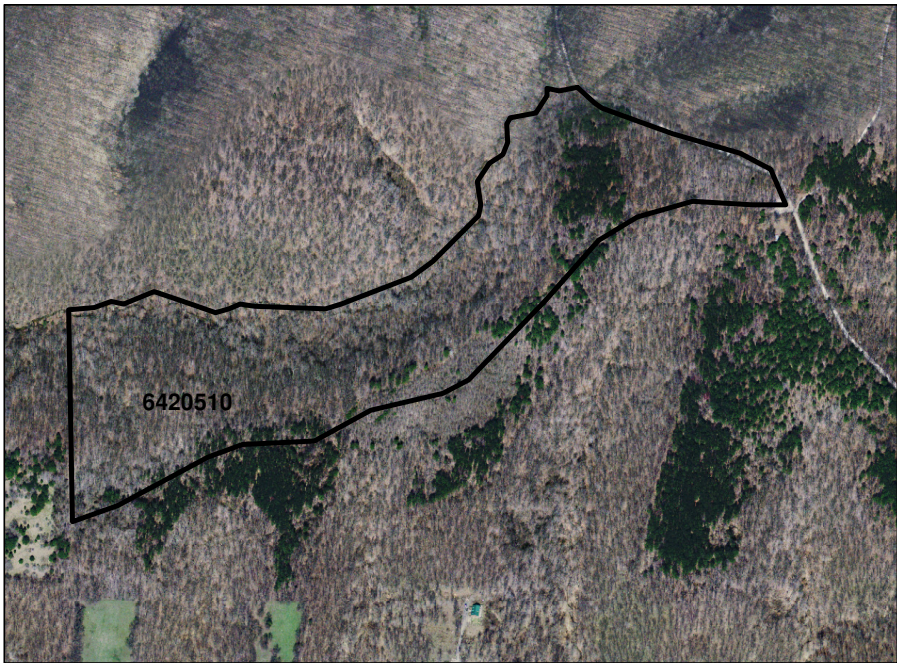
*Species include American elm, Bitternut hickory, Cottonwood, Green ash, Red oak, Post oak, Red elm, Shagbark hickory, Shellbark hickory, Silver maple, Sugar maple, White ash and White oak

Snags (all species)	**Maintenance level**	**Optimal level**	**Inventory**	**Available above Maintenance**	**Available above Optimal**
5″ + DBH	172	301	255	83	-46
9″ + DBH	129	258	98	-31	-160
19″ + DBH	21.5	43	9	-13	-34

Cavity trees (all species)	**Maintenance level**	**Optimal level**	**Inventory**	**Available above Maintenance**	**Available above Optimal**
7″ + DBH	172	258	231	59	-27
11″ + DBH	129	172	130	1	-42
19″ + DBH	21.5	43	17	-4	-26

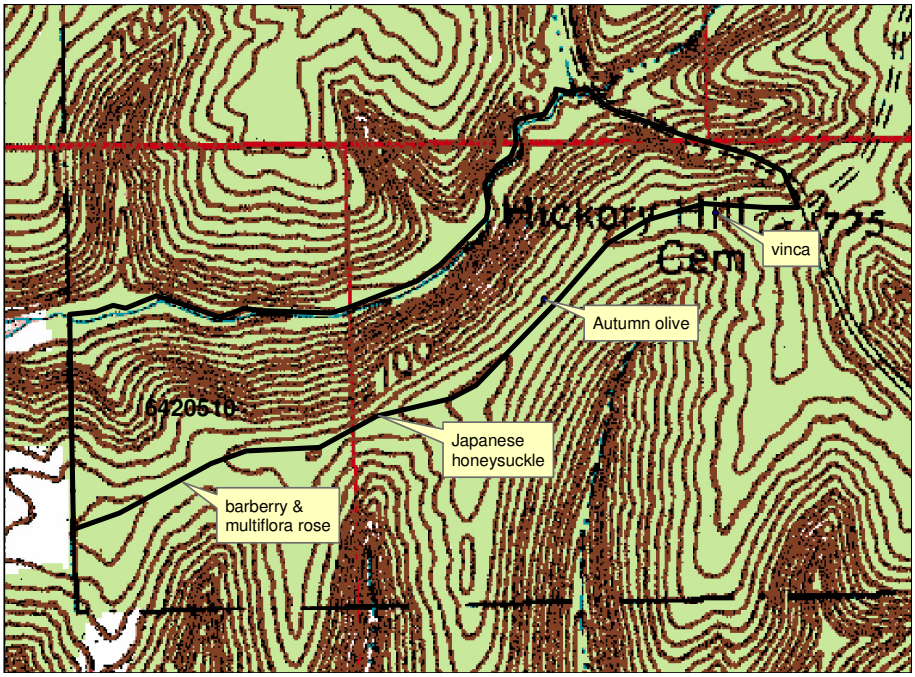
Communities

A Heritage database review was submitted for this tract. No RTE or species of special concern were noted within tract on the review. The Hooded warbler was noted within the Heritage database review in nearby acreage. The habitat types utilized by this species are currently present and will exist after the prescribed management activities.“Males are most likely found in mature forest and females in scrub, second growth and disturbed habitats.” “Females choose nest sites and build the nest. Most nest sites are located within the shrub layer of forest patches and often near edges of distinct shrub patches.” (Johns, Mark. “Wildlife Profile Hooded Warbler (*Wilsonia citrina*)**.”** Jan.22, 2010. **<**faculty.ncwc.edu/mbrooks/pif/.../hooded_warbler.htm>.



Invasives/Exotics

Invasives noted during inventory include Autumn olive, vinca, barberry, Japanese honeysuckle and multiflora rose. Autumn olive is fairly effectively controlled by basal spraying with 20% Garlon 4 +80% basal oil. Best time of application is early March, or just as plant is leafing out. The vinca, barberry, Jap. honeysuckle and multiflora rose will require foliar application of Glyphosate herbicide, 1.5-2% solution.The best timing for these is late winter, early spring before native flora comes out of dormancy.



Recreation

Primary recreational use is hunting and wildlife viewing with a public parking lot near the cemetery.

Cultural
Cultural resources may be present on the tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction projects.

Inventory Results

Stand 1. Mixed hardwoods (29 acres):

Present tract volume estimates:		Basal Area
Harvest volume	2770 bd.ft./acre	49
Leave volume	2350bd. ft. /acre.	65
Total tract	5120 bd/ft./acre	114

Harvest/Leave Report Summary for Hardwood stand (29 acres)
MBF=1000 board feet

SPECIES	HARVEST MBF	LEAVE MBF	TOTAL MBF
American Beech	0.19	0.06	0.25
American Sycamore	0.10	0.06	0.17
Black Cherry	0.0	0.12	0.12
Black Oak	0.54	0.20	0.73
Chestnut Oak	0.64	0.43	1.07
Northern Red Oak	0.20	0.25	0.45
Pignut Hickory	0.0	0.13	0.13
Scarlet Oak	0.0	0.12	0.12
Shagbark Hickory	0.04	0.11	0.16
Sugar Maple	0.57	0.04	0.61
White Ash	0.03	0.0	0.03
White Oak	0.25	.88	1.13
Yellow Poplar	0.83	0.38	1.22
Totals			
PER ACRE	2.77	2.35	5.12
TRACT TOTAL	80,330	68,150	148,480

Discrepancies due to rounding.

Hardwood stand Acreage	29 acres		Present Volume per Acre	5120 bd. ft.
Basal Area per Acre	77 sq. ft.		Harvest Volume per Acre	2770 bd. ft.
Number Trees per Acre	423		Residual Volume per Acre	2350 bd. ft.
Stocking Percentage	95%		Average Tree Size	6.5″ dbh

(basal area per acre includes only live trees >/= 6 inch dbh)
Number trees per acre includes only live trees

Stand 2. Pine (7 acres):

Present tract volume estimates:		Basal Area
Harvest volume	5690 bd.ft./acre	93
Leave volume	1460 bd. ft. /acre.	62
Total tract	7150 bd/ft./acre	168

Stand 3. Regeneration opening acreage (7 acres)

Present tract volume estimates:		Basal Area
Harvest volume	730 bd.ft./acre	7
Leave volume	1010 bd. ft. /acre.	86
Total tract	1730 bd/ft./acre	92

Tract Total Weighted Averages:
Harvest = 2913 bf/acre
Present = 4899 bf/acre

Tract Prescription and Proposed Activities

This tract is comprised primarily of mix oak/hickory stands with three stands of Virginia pine (total 7 acres). The inventory results indicate this tract would sustain and benefit from a harvest this cycle. Recommendation is for an intermediate, improvement harvest utilizing single-tree selection over most acreage with 1 or 2 regeneration openings of 1 -5 acres in size. These openings will be included in post-harvest TSI along with the opening created in 1985 harvest. The 7 acre regeneration opening created in 1975 harvest and completed is well regenerated with post/pole size stems of AMB, BLG, AME, BLC, HIC, YEP and a few grapevine. There are a few scattered oaks to release in this opening through TSI efforts. Other acreage regenerated from 1985 harvest is located on the ridgetop and has come back in to YEP, LAA and sumac. Additional group selection will occur on this ridgetop to speed up the succession into a healthier stand, as the acreage currently holds several dying VIP and short bole YEP. Many of these YEP are of large sawtimber size yet show decline in the top likely due to drought stress on this ridgetop. An additional 2 acres, formerly planted to VIP, will be removed through group selection cut to promote hardwood species back into the stand. This tract also holds a few acres that are dominated by WHA. Most of these will be selected for removal through harvesting in an effort to help slow the spread of Emerald Ash Borer.
An intermediate harvest utilizing single tree selection and some group selection would help promote regeneration of oaks and hickories through any advance regeneration that can more readily compete with the beech and maple component. The predominance of a north facing aspect will contribute to YEP becoming the dominant species. Many of the SUM and VIP, which are noted as the top occurrences of overstory species, will be removed through harvest operations. The SUM is primarily poor quality due to maple borer damage and the VIP removal will release advance hardwood regeneration including oak and hickory.

This tract was inventoried by 1 point per 2.15 acres prism plots. 29 acres were tallied as hardwoods, 7 acres as regeneration from 1985 harvest and 7 acre in Virginia pine.

The marking objective will be the removal of mature/over-mature stems, as well as those of low quality in an effort to improve the overall health, vigor and composition of the stand. The reduction of stocking levels should provide space for pre-selected crop trees to move forward into the next cutting cycle. Regeneration of a minimum of 10% of tract acres will be addressed in the tract marking objective where conditions warrant. Species composition will likely become more diverse and less susceptible to insect and disease infestation a common problem with homogeneous stands. These management techniques will improve the overall health, vigor and quality of the residual stand, while utilizing stems dropping out due to natural mortality, overstocking or maturity. TSI should follow to reduce stocking in some areas of high basal area with pole size stems and release crop trees not successfully released during the harvest.

Wildlife will benefit from this harvest as well. Additional sunlight penetrating the forest floor will simulate the development of new ground flora, subsequently increasing nesting and foraging habitat. This is essential for both game and non-game species as well as continued forest development. Post-harvest TSI will increase snags per acre while diversifying diameter distributions of both snags and growing stock trees.

Habitat/cover types currently present within the tract will remain after the proposed management activities throughout the majority of the tract as the silvicultural approach is predominately single tree selection. The creation of regeneration openings will convert current closed canopy to early successional habitat. The location of the proposed regeneration opening within the Virginia pine dominated stand will be near a maintained forest edge which is Bond Cemetery Road. Discussion with the Division's wildlife specialist concluded that the location of this opening within a relatively unfragmented landscape will have little potential for negative fragmentation effects.

Proposed Activities Listing
Timber marking, harvest and TSI planned in 2010/2011.
TSI will include treatment of any invasive exotics discovered.
Stand Re-inventory work 2029

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