"DRAFT" RESOURCE MANAGEMENT GUIDE

Yellowwood State Forest Compartment **5** Tract **12**
Total Tract acreage: 47 acres Commercial Acres: 47 Date: 1/27/10
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 are fairly evenly divided among mixed oak, mixed hardwood and pine (Virginia pine and Red pine). A few acres within the tract contain remnants of old homesite and the vegetation component is pole size Black walnut, American elm, Black cherry, White ash, Staghorn sumac, Flowering dogwood, Japanese honeysuckle and multiflora rose. 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):

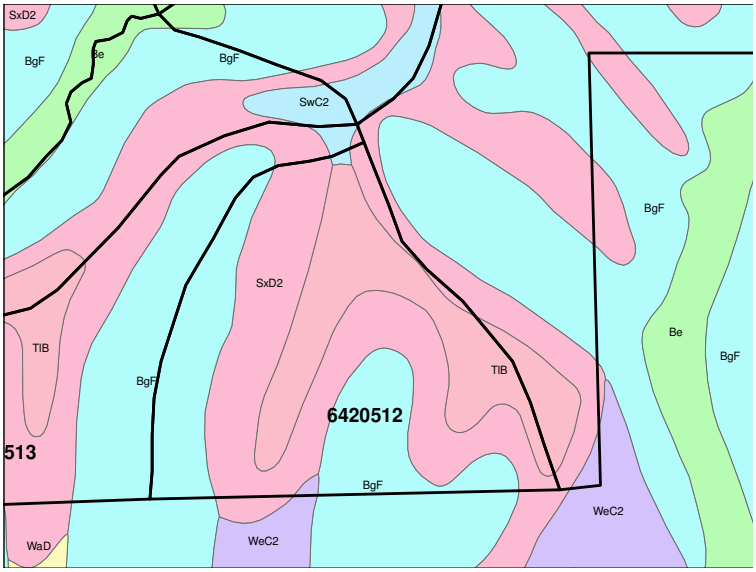
Overstory	Understory	Regeneration
White oak	Virginia pine	Ironwood
Chestnut oak	Red maple	Yellow poplar
Black oak	Sugar maple	American beech
Sugar maple	Scots pine	Red maple
Pignut hickory	American beech	Sassafras
Northern red oak	White oak	Chestnut oak
Scarlet oak	Yellow poplar	Dogwood
Yellow poplar	Pignut hickory	Pignut hickory
Red maple	Blackgum	American elm
American beech	American elm	Shagbark hickory
Virginia pine	Chestnut oak	White oak
Black cherry		Virginia pine
American sycamore		American sycamore
American elm		Blackgum
Shagbark hickory		
White ash		

History
The state acquired this acreage from the federal government in November 1956.
A low ground fire spread over extreme southeast portion of the tract in summer 1996.

Resource management history:
1981 Recon of portion of the acreage: Recommended tract-wide cruise.
1984 Cruise
1985 Recon for management plan. Timber marking; 81,597 bf, in 406 trees on 56 acres. Timber sale; combined Tract 12 with Tract 10 for combined total of 97,221 bf in 493 trees on 61 acres. Sold to David R. Webb for $14,225.00. TSI marked. Opened for firewood cutting.
1986 Stump jump. TSI completed.
1987 Commercial firewood cutting
2009 Inventory

Topography, Geology and Hydrology
The tract is comprised of about 20% ridgetop and the remaining acreage is primarily west 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. Severe limitations noted for logging due to slope. Comprises 35% of tract acreage.
Stonehead-Trevlac silt loam (**SxD2**) 10 – 20 percent slope. Slight to moderate limitations. Comprises 65% of tract acreage.



Access
Direct walk-in access from Bond Cemetery Rd. Equipment access would be from Tract 10 to the north.

Boundary
Tract is surrounded by state forest acreage with exception of southern line bordering private property. The boundary remarking is up-to-date. The eastern edge is the road and the western edge becomes defined by mapped intermittent stream.

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 wildlife 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. The inventory for this tract 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	423	684	261
20″ + DBH	141	97	-44

*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	188	329	248	60	-81
9″ + DBH	141	282	248	107	-34
19″ + DBH	23.5	47	9	-14	-38

Cavity trees (all species)	Maintenance level	Optimal level	Inventory	Available above Maintenance	Available above Optimal
7″ + DBH	188	282	85	-103	-197
11″ + DBH	141	188	47	-94	-141
19″ + DBH	23.5	47	16	-8	-31

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 is 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 Japanese honeysuckle and multiflora rose. These species are prevalent in the acreage of the old homesites and where the fire in 1999 occurred. The best approach for controlling the Jap. Honeysuckle would be foliar application of Glyphosate herbicide, 1.5-2% solution, applied during the fall before a hard freeze but when preferred species are dormant. The multiflora rose will require the same chemical application but will require more precision in application due to adjacent desired species.

Recreation

This tract is used for hunting, hiking 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: Current inventory completed by Burgess 11/25/09

Mixed hardwoods (25 acres):

Present tract volume estimates:		Basal Area
Harvest volume	2433 bd.ft./acre	34
Leave volume	2716 bd. ft. /acre.	58
Total tract	5150 bd/ft./acre	92

Pine (18 acres):

Present tract volume estimates:		Basal Area
Harvest volume	3624 bd.ft./acre	66
Leave volume	1424 bd. ft. /acre.	61
Total tract	5048 bd/ft./acre	127

Harvest/Leave Report Summary for **Mixed Hardwood Stand**
MBF=1000 board feet

SPECIES	HARVEST MBF	LEAVE MBF	TOTAL MBF
American Beech	0.078	0.00	0.078
American Sycamore	0.071	0.00	0.071
Black Oak	0.631	0.213	0.844
Northern Red Oak	0.08	0.126	0.206
Pignut Hickory	0.067	0.438	0.505
Red Maple	0.106	0.00	0.106
Red Pine	0.071	0.0	0.071
Scarlet Oak	0.032	0.078	0.110
Shagbark Hickory	0.00	0.088	0.088
Virginia Pine	0.171	0.00	0.171
White Ash	0.039	0.00	0.039
White Oak	0.809	1.773	2.582
Yellow Poplar	0.277	0.00	0.2877
Totals			
PER ACRE	2.433	2.716	5.150
TRACT TOTAL	60.825	67.900	128.750

Discrepancies due to rounding.

Hardwood stand Acreage	25 acres		Present Volume per Acre	5,150 bd. ft.
Basal Area per Acre	79.4 sq. ft.		Harvest Volume per Acre	2,433 bd. ft.
Number Trees per Acre	420		Residual Volume per Acre	2,716bd. ft.
Stocking Percentage	83%		Average Tree Size	6″ dbh

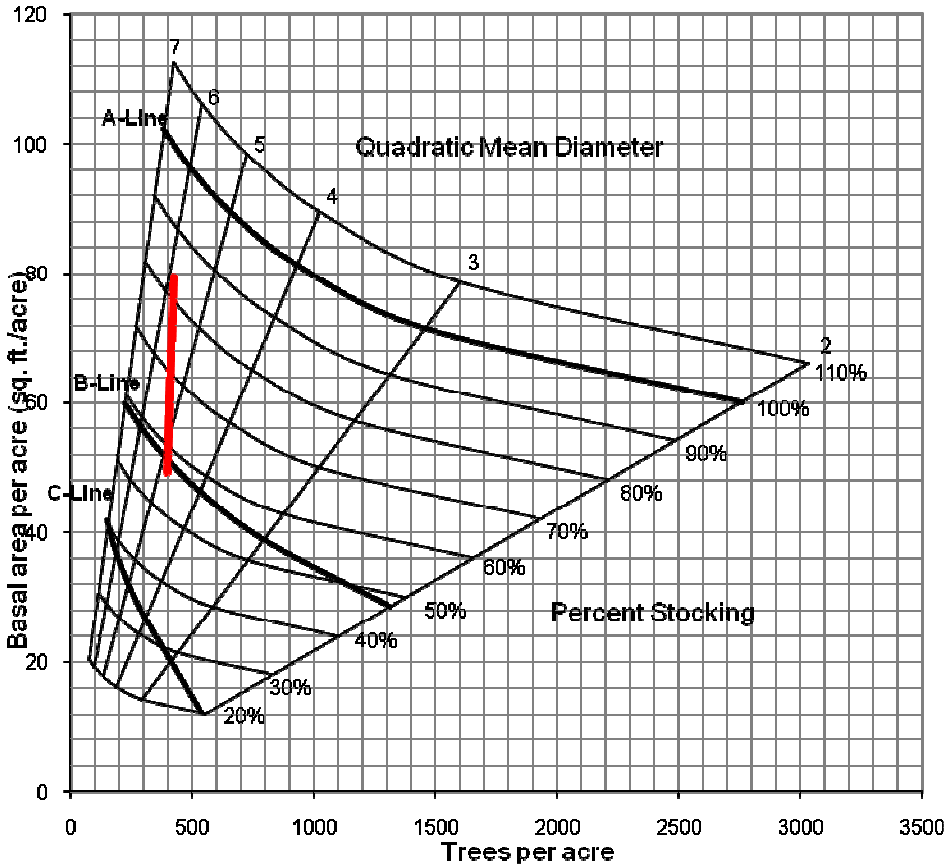
Stand 2. Pine acreage 18 acres

Present tract volume estimates:	Basal Area
Harvest Volume 2,682/acre	43
Total Volume 4,672 bd.ft./acre	101

Stand 3. Regeneration opening acreage 4 acres (No harvest trees tallied)

No volume estimates:	Basal Area
	46

Tract Total Weighted Averages:
Harvest = 2321 bf/acre
Present = 3234 bf/acre



Tract Prescription and Proposed Activities

This tract is comprised of mixed hardwoods dominated by Oak/Hickory and approximately 18 acres of pine, including Red pine and Virginia pine. In 1985 this tract received an intermediate improvement harvest over most of the acreage as well as a regeneration opening of just under 1-acre. The hardwood acreage contains some nice WHO including a stand of medium sawtimber size stems located in the south-central portion of tract with understory of very poor SUM (small and med) likely effected by maple borer. These SUM are not merchantable timber and would best be removed through TSI. The WHO would benefit from a thinning. This hardwood acreage would benefit from an intermediate improvement harvest using single tree selection to capture mortality in some declining BLO, REO and WHO with extensive epicormic sprouting as well as decline evident in the base of butt logs. An area with some noted windthrow would be best managed by harvesting a few of the adjacent trees and therefore increasing the canopy gap.

Recommended management for portions of the pine component is utilizing group selection to speed up the conversion to hardwoods. Portions of the Red pine have good oak regeneration including several 3" dbh SCO and WHO. Portions with Virginia pine had much less oak regeneration noted. Small pockets within the pine have been opened up by windthrow. The pine adjacent to these natural canopy gaps will be selected for group selection as well as those areas with advanced oak regeneration. Potentially 10 acres or more of the Red pine stand would be regenerated through group selection to promote the previously mentioned advance oak regeneration.

This tract is ready for another harvest following that of 1985. The harvest this cycle will be an improvement harvest utilizing single tree selection with some group selection primarily in the pine stands. By volume, the top species to be marked with harvest are WHO and BLO.

Leave volume is primarily in WHO, PIH and BLO. There are nice WHO within this tract primarily medium sawtimber size stems. The primary focus of much of the marking will be releasing and retaining these future crop trees.

This tract was inventoried by 1 point per 2 acres prism plots. 25 acres were tallied as hardwoods, 4 acres as regeneration from 1985 harvest and 18 acre in pine (Virginia and Red).

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. 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 hardwood stand will remain after the proposed management activities. Habitat/cover within portions of the pine will be converted to early successional habitat through the creation of regeneration openings. An analysis of the fragmentation intensity across the surrounding landscape places this tract in the "unfragmented" category. Thus, the potential for negative edge effects and fragmentation is suspected to be very low. Some of the opening will be created through harvest operations and some will be through TSI efforts. A portion of this opening would be along Bond Cemetery Road to the east. This public road is a narrow gravel road that is not day lighted. A small portion of the Red pine will remain due to the proximity to cultural points of interests that will be excluded from harvest operations. The stand of predominately Virginia pine will likely be retained with the exception of some single trees that may be selected for harvest.

Proposed Activities Listing

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

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