"DRAFT" RESOURCE MANAGEMENT GUIDE

Yellowwood State Forest Compartment **5** Tract **13**
Total Tract acreage: 46 acres Commercial Acres: 46 Date: 4/27/10
Forester: L. Burgess

Location
Located in Section 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 predominate cover type within this tract is mixed hardwood with oak species dominating the timber size groups. About 10 acres is in Virginia pine or Virginia pine and Red pine stands and another 6 acres are regeneration openings from past harvest. The 2009 inventory data notes 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	Sugar maple	Sugar maple
Virginia pine	Virginia pine	Red maple
Black oak	Yellow poplar	American beech
Northern red oak	Red maple	Yellow poplar
Red pine	Pignut hickory	White ash
Pignut hickory	White oak	Black locust
Sugar maple		Largetooth aspen
Shagbark hickory		Black cherry
Bitternut hickory		Blue beech
American beech		Dogwood
Blackgum		American elm
Scarlet oak		Ironwood
Black cherry		Redbud
		Black oak

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

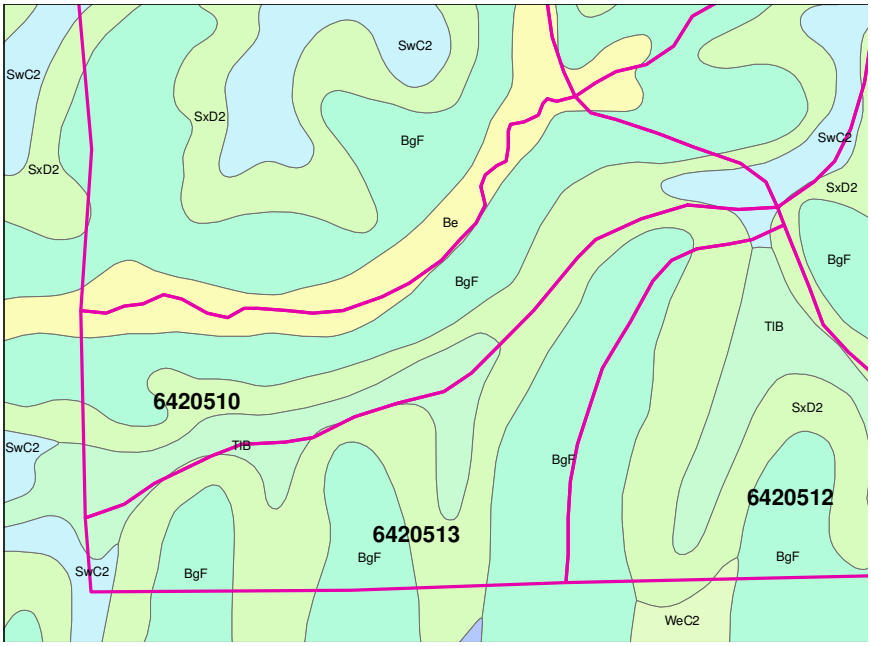
Resource management history:

1987 Forester Duncan; Recon to locate Red Pine stand. Boundary sale of 4.6 acres with approx. 246 Red pine and 46 Virginia pine (Sale # 8805). Sale of >11,000 bf. of pine and aspen sold to Frontier Builders for $445.00
1988 Harvest of the boundary sale. Closed out sale area.
1990 TSI in 4.6 acre opening completed by contractor Hopwood
2009 Inventory completed by forester Burgess

Topography, Geology and Hydrology
The tract is comprised of about 35% ridgetop , sloped acreage ranges 5- 30% and is primarily east facing with about 6 acres west facing slopes. The soil types noted in next section are unglaciated soils and have formed from the bedrock material of sandstone, shale and siltstone.

The tract contains two mapped intermittent streams. This tract is located within the North Fork Salt Creek-Lower Schooner Creek watershed.

Soils
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 40% of tract acreage.
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 40% 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.



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

Boundary
Tract is adjacent to state forest acreage to the north and east. Western and southern lines border private property. The northern tract boundary splits the ridgetop with Tract 10.

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. 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	414	772	358
20″ + DBH	138	189	51

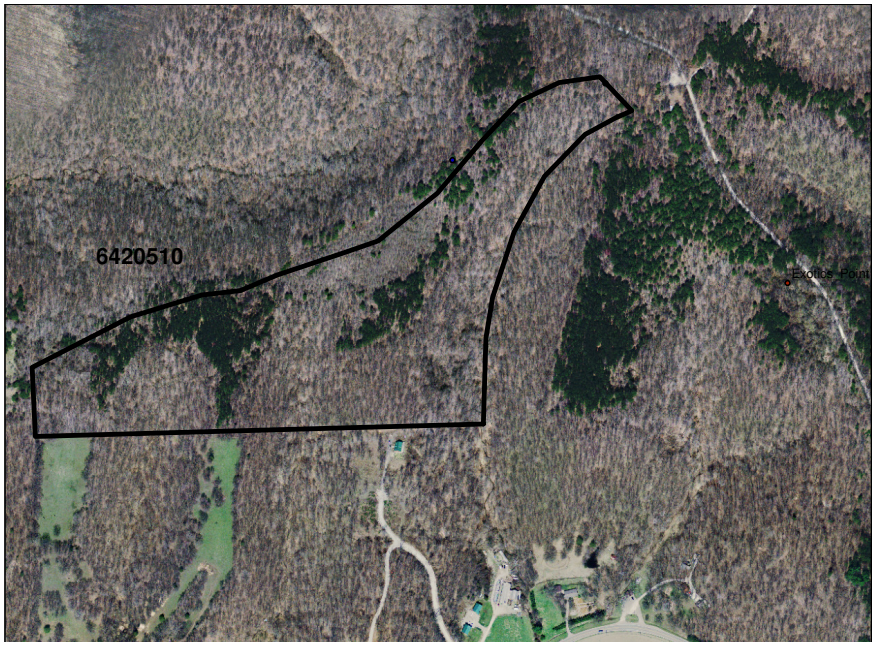
*Species include American elm, Bitternut hickory, Cottonwood, Green ash, Red oak, Post oak, Red elm, Shagbark hickory, Shellbark hickory, Silver maple, Sugar maple, White ash and White oak

Snags (all species)	Maintenance level	Optimal level	Inventory	Available above Maintenance	Available above Optimal
5″ + DBH	184	322	575	391	253
9″ + DBH	138	276	208	70	-68
19″ + DBH	23	46	0	-23	-46

Cavity trees (all species)	Maintenance level	Optimal level	Inventory	Available above Maintenance	Available above Optimal
7″ + DBH	184	276	29	-155	-247
11″ + DBH	138	184	29	-109	-155
19″ + DBH	23	46	29	6	-17

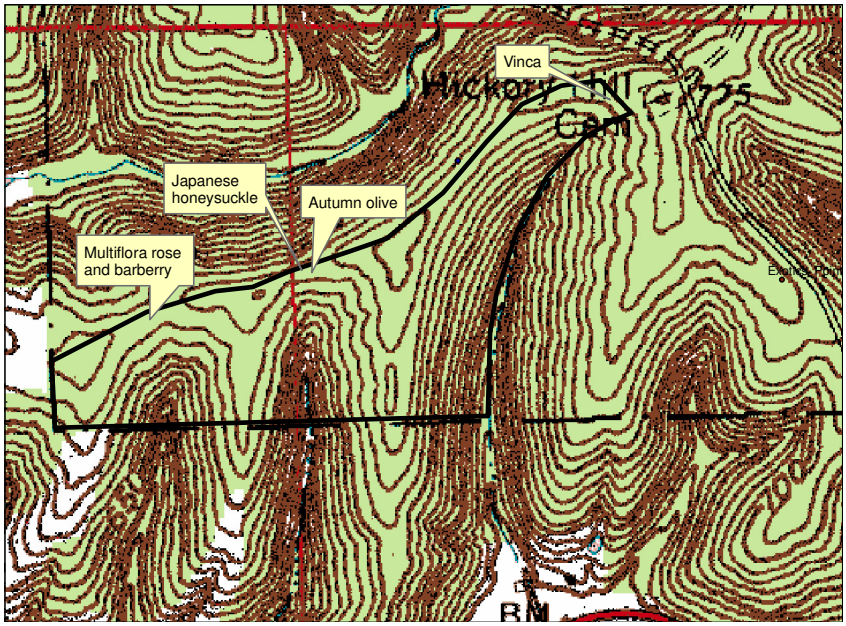
Communities

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

No cultural sites noted during inventory within this tract.

Inventory Results: Current inventory completed by forester Burgess 11/3/09

Stand 1. Mixed hardwoods (30 acres):

Present tract volume estimates:		Basal Area
Harvest volume	2,085 bd.ft./acre	31
Leave volume	4,544 bd. ft. /acre.	73
Total tract	6,629 bd/ft./acre	104

Harvest/Leave Report Summary for Hardwood stand (30 acres)
MBF=1000 board feet

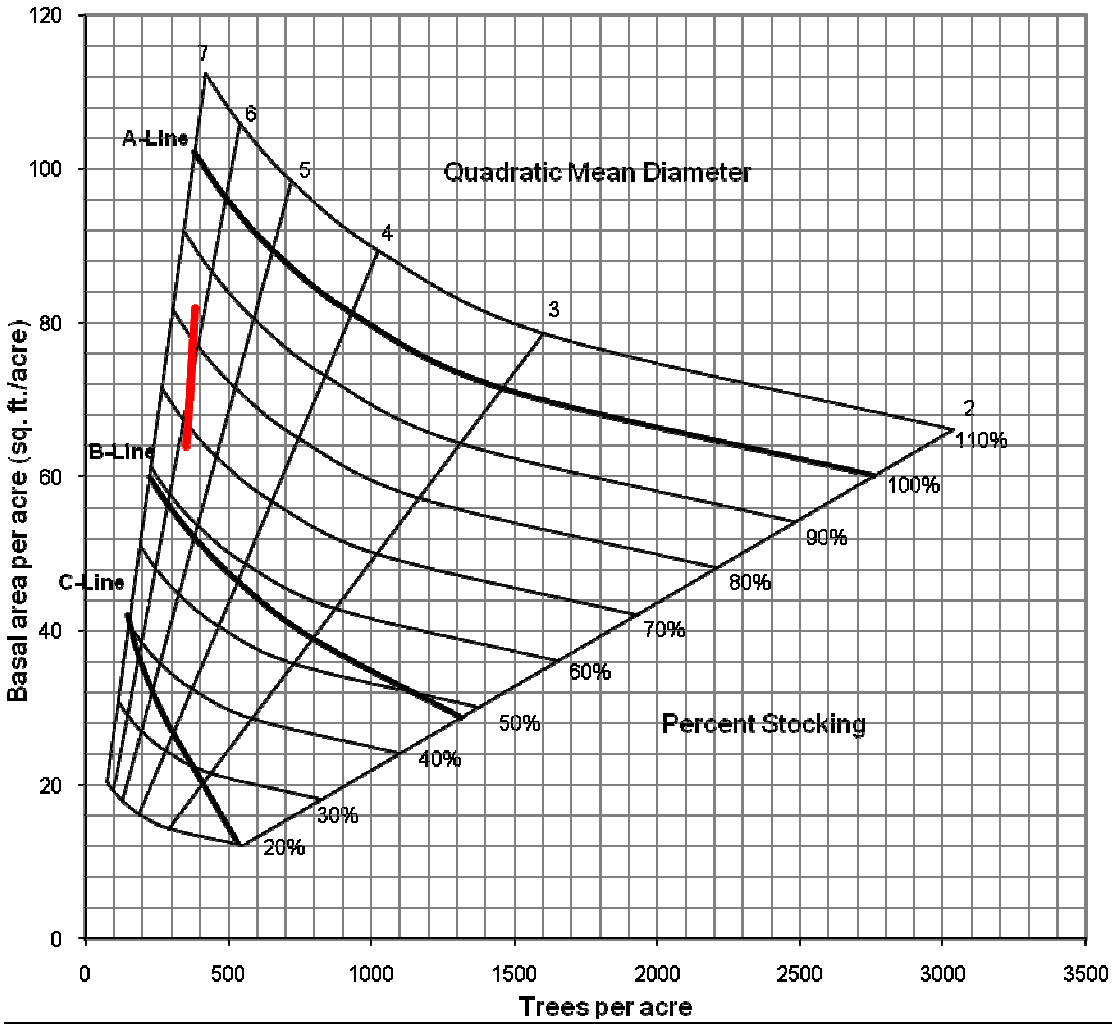
SPECIES	HARVEST MBF	LEAVE MBF	TOTAL MBF
White oak	0.488	2.022	2.511
Black oak	0.927	0.258	1.185
Virginia pine	0.103	0.740	0.842
Northern red oak	0.124	0.618	0.742
Pignut hickory	0.056	0.420	0.476
Sugar Maple	0.233	0	0.233
American Beech	0.098	0.089	0.187
White ash	0.056	0.101	0.157
Bitternut hickory	0	0.134	0.134
Shagbark hickory	0	0.121	0.121
Blackgum	0	0.041	0.041
Totals			
PER ACRE	2.085	4.544	6.629
TRACT TOTAL	62,550	136,330	198,880

Discrepancies due to rounding.

Hardwood stand acreage	30 acres		Present Volume per Acre	6629 bd. ft.
Basal Area per Acre	82 sq. ft.		Harvest Volume per Acre	2085 bd. ft.
Number Trees per Acre	384		Residual Volume per Acre	4544 bd. ft.
Stocking Percentage	85%		Average Tree Size	6.2″ dbh

(basal area per acre includes only live trees >/= 6 inch dbh)
Number trees per acre includes only live trees. Gingrich chart refers to Hardwood stand.

Tract Total Weighted Averages:
Harvest = 1665 bf/acre
Present = 5188 bf/acre



Stand 2. Pine (10 acres):

Present tract volume estimates:		Basal Area
Harvest volume	882 bd.ft./acre	16
Leave volume	1930 bd. ft. /acre.	103
Total tract	2812 bd/ft./acre	119

Stand 3. Regeneration opening acreage (6 acres)

Present tract volume estimates:		Basal Area
Harvest volume	867 bd.ft./acre	13
Leave volume	1076 bd. ft. /acre.	72
Total tract	1944 bd/ft./acre	85

Tract Prescription and Proposed Activities

This tract is comprised primarily of mix oak/hickory stands with three stands of Virginia pine (total 10 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 regeneration openings of 1 -5 acres in size. These openings will be included in post-harvest TSI along with the opening

created in 1988 harvest. This 4.6 acre regeneration opening has regenerated with YEP, BLL, VIP, BLC, sumac, LAA, and REM. There are a few scattered oaks to release in this opening through TSI efforts. Additional group selection will occur on this ridgetop to speed up the succession into a healthier stand, as the acreage currently holds several WHA, low quality SUM, REM and average quality YEP. The impeding threat of the Emerald Ash Borer in this area warrants removal of numerous ash trees in an attempt to slow the spread of this detrimental insect. This area also has heavy population of multiflora rose. Efforts will be made to control this invasive to further enhance the quality of this site.

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. While this tract contains many VIP, which are noted in the top occurrences of overstory species, not all will be removed through harvest operations. Portions will be retained for wildlife habitat value. Areas of VIP will be included in the harvest when their removal will release advance hardwood regeneration including oak and hickory.

This tract was inventoried by 1 point per 2.15 acres prism plots. 30 acres were tallied as hardwoods, 6 acres as regeneration from 1988 harvest and 10 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. 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.

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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