"DRAFT" RESOURCE MANAGEMENT GUIDE

Yellowwood State Forest Compartment **1** Tract **17**
Total Tract acreage: **86** Commercial Acres: **86**
Forester: **L. Burgess** Date: **6/1/10**

Location
Located in Sections 19& 24, T8N, R1E of Brown County. The tract is accessed from an old county road that is utilized as a driveway of the private property to the east. This old county road is accessed east off Deckard Ridge Road, 0.7 miles south of Gilmore Ridge Road.

General Description
The dominant cover types within this tract are mixed hardwoods and Oak/Hickory with 7 acres of Virginia pine. Another 5 acres within the tract contain old-field Sassafras. 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):

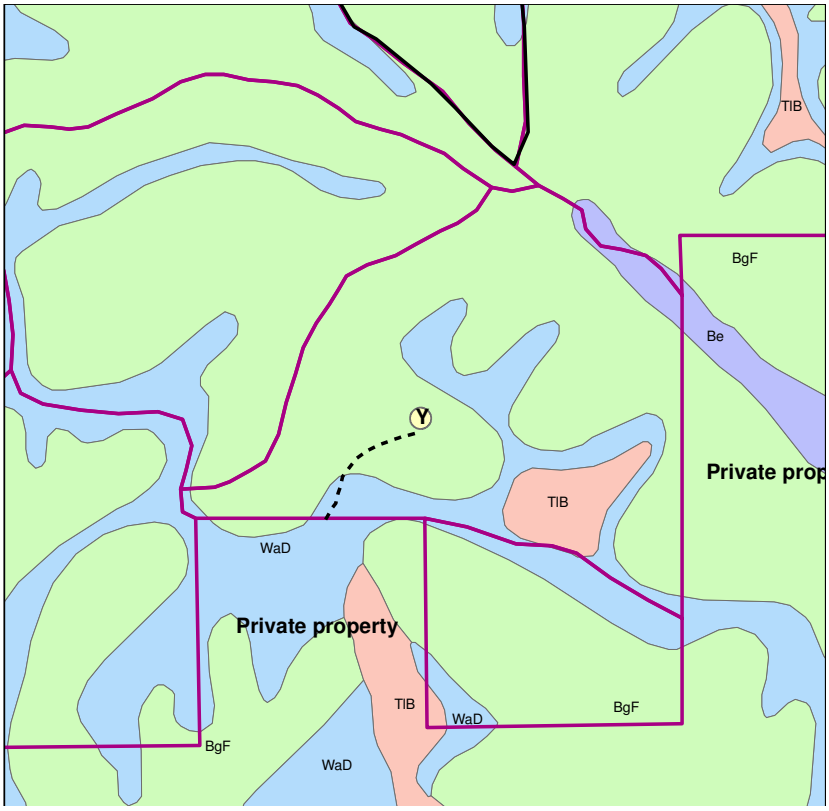
Overstory	Understory	Regeneration
Chestnut oak	Yellow poplar	Sugar maple
Yellow poplar	Chestnut oak	American beech
Sugar maple	American beech	Dogwood
Black oak	Sugar maple	Red maple
Pignut hickory	Shagbark hickory	Bluebeech
Northern red oak	Largetooth aspen	Sassafras
Scarlet oak	Virginia pine	Pawpaw
American beech	Red maple	Pignut hickory
Virginia pine	White ash	Shagbark hickory
Black cherry	Blackgum	Yellow poplar
American sycamore	Black walnut	Ironwood
Basswood		White oak
Shagbark hickory		Blackgum
White ash		White ash

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

Resource management history:
1976 TSI by CETA Crew
1977 Autumn olive planted by CETA Crew
1986 Recon for potential harvest, forester Unversaw
1987 Timber inventory, forester Unversaw. Present 6549 BF/ac, harvest 2842 BF/ac.
1988 Management plan, timber marking, road construction, forester Unversaw
1988 Timber sale and harvest 85,139 BF in 377 trees sold to Foley Hardwoods
1989 Harvest completed. TSI marking, forester Unversaw
1990 Post harvest improvements to skid trails and landing including waterbars and seeding
1991 TSI completed by contractor R. Hopwood
1994 Haul road disked and seeded, forester Eckart
2009 Tract inventory, forester Burgess

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 Lake Monroe-Crooked Creek watershed.

Soils
Beanblossom (**Be**) silt loam is characterized by nearly flat or very gentle sloping terrain with well-drained soils; 5% of tract acreage. Slight to moderate limitations.
Berks-Trevlac-Wellston (**BgF**) silt loams have moderately steep to very steep slopes ranging from 20 to 70% grade; 70% of tract acreage. Severe limitations noted for logging due to slope.
Wellston-Berks-Trevlac (**WaD**) silt loams have moderately sloping to steep grades between 6 - 20%; 15% of tract acreage. Slight to moderate limitations.
Tilsit silt loam (**TIB**) 2 – 6 percent slope. Gently sloping, deep, moderately well drained soil on the tops of ridges in the uplands. Severe wetness due to fragipan. Slight limitations. Comprises 10% of tract acreage.



Access
The old county road off Deckard Ridge Road is the access to this tract.

Boundary
Tract is surrounded by State Forest acreage with the exception of the southwest section and east line bordering private property. The boundary remarking is up-to-date with

repainting of line completed in 2007/2008. The southern edge is the old county road/shared driveway and the northern edge is 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 Ecological Resource 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 and cavity count estimates are included in the following table.

Legacy trees*	**Maintenance level**	**Inventory**	**Available above Maintenance**
11″ + DBH	774	1060	268
20″ + DBH	250	250	-8

*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	344	602	606	262	4
9″ + DBH	258	516	424	166	-92
19″ + DBH	43	86	39	-4	-47

Cavity trees (all species)	**Maintenance level**	**Optimal level**	**Inventory**	**Available above Maintenance**	**Available above Optimal**
7″ + DBH	344	516	170	-174	-346
11″ + DBH	258	344	89	-169	-255
19″ + DBH	43	86	41	-2	-45

Communities

A Heritage database review was submitted for this tract. No RTE or species of special concern were noted within the tract in the review. The following species were noted within the Heritage database review in nearby acreage: Hooded Warbler*, Black-and-white Warbler, Worm-eating Warbler, Timber rattlesnake, Rough green snake, Smooth green snake, Bobcat, Broad-winged hawk, American ginseng, Goldenseal and Dry upland forest –upland dry and Mesic upland forest –upland mesic, Dry-mesic upland forest – upland dry-mesic.

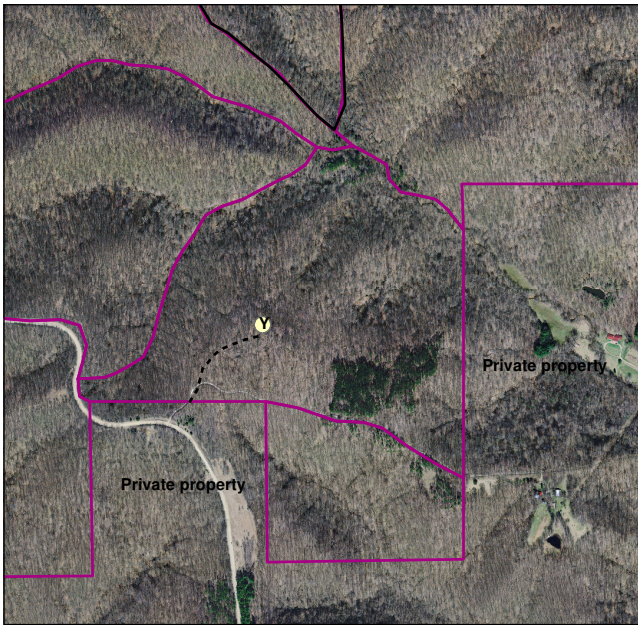
Improvement harvests and group selection harvests will increase prey habitat for bobcats and Timber rattlesnakes through down woody debris and group selection harvests will provide early successional habitat for feeding habits of the Hooded warbler, Rough green snake and Smooth green snake as well as the Broad-winged hawk. The Worm-eating warbler “breeds in mature deciduous forests or mixed deciduous- coniferous forests with patches of dense understory, usually on steep hillsides” It forages in the understory gleaning insects from low shrubs and rarely on the forest floor other than probing into

dead leaves. It depends on large forests for nesting. Given this information, the proposed management will have a slight negative impact on this species especially within the group selection openings. The effects will be temporary as the openings will revert into mature forests through succession.

References:

(Hanners, L. A., and S. R. Patton. 1998. Worm-eating Warbler (Helmitheros vermivorus). June 15, 2010. <allaboutbirds.org/guide/Worm-eating_Warbler/lifehistory>)
In The Birds of North America, No. 367 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.
Goodrich, L. J., S. C. Crocoll, and S. E. Senner. 1996. Broad-winged Hawk (*Buteo platypterus*). *In* The Birds of North America, No. 218 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C. June 15, 2010 <allaboutbirds.org/guide/Broad-winged_Hawk/lifehistory>

The habitat types utilized by the Hooded warbler 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>.

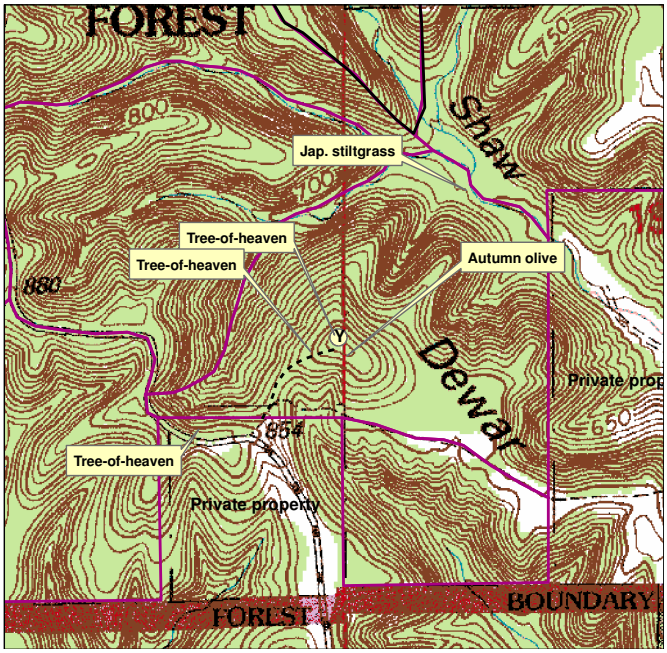


Invasives/Exotics

Invasives noted during inventory include Tree-of-heaven, Autumn olive, Japanese stiltgrass and Vinca.

Tree-of-heaven saplings found near the old log yard were treated summer 2009 with foliar application of imazapyr mixture (15% Garlon 4 + 85% Ax-It surfactant). No new saplings were found during May 2010 check, however a 4” diameter tree was found in the old log yard. This tree was treated with the same imazapyr mixture: applied bottom 18” of stem as well as frilled section around tree.

The present Autumn olive population is small enough to be treated thru basal application as the tract is being marked for harvest. The Jap. Stiltgrass is present near the mapped intermittent stream on north end of tract as well along the old county road which is the tract's south boundary and shared as a driveway for adjacent property owner to the east. Vinca is also along the same area and also is spreading into the woods. Effort will be made to treat the stiltgrass in these two noted areas, however it does continue eastward onto private property. Current recommendations for stiltgrass treatment are foliar application of 0.3% Plateau + 0.25% Nu-Film IR best applied mid July. Any attempt at controlling the Vinca would be during the dormant season.



Recreation
This tract is used for hunting, hiking and wildlife viewing although very limited parking is available.

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 7/23/09

Mixed hardwoods (74 acres):			**Virginia pine & Old field(12 acres):**		
Present tract volume estimates:		Basal Area	Present tract volume estimates:		Basal Area
Harvest volume	1960 bd.ft./acre	28	Harvest volume	1755 bd.ft./acre	27
Leave volume	2940 bd. ft. /acre.	59	Leave volume	2934 bd. ft. /acre.	61
Total tract	4900 bd.ft./acre	87	Total tract	4688 bd.ft./acre	88

The 12 acres noted as pine includes area of Virginia pine and Red pine as well as an inventory point taken adjacent to the private property to the east – this area will likely be omitted from harvest marking to proximity to the shared access road and to avoid the need to skid along this road.

Harvest/Leave Report Summaries

Stand #1 Mixed Hardwoods - 74 acres

MBF=1000 board feet

SPECIES	HARVEST MBF	LEAVE MBF	TOTAL MBF
Yellow poplar	0.231	0.908	1.139
White oak	0.081	0.709	0.790
Chestnut oak	0.524	0.205	0.729
Black oak	.319	0.144	0.463
Northern red oak	0.211	0.248	0.459
White ash	0.132	0.085	0.217
Sugar maple	0.119	0.069	0.188
Pignut hickory	0.096	0.035	0.130
Scarlet oak	0.077	0.044	0.121
Black walnut	0.00	0.095	0.095
Black cherry	0.00	0.089	0.089
American elm	0.084	0.00	0.084
Shagbark hickory	0.00	0.084	0.084
American beech	0.0657	0.00	0.067
American sycamore	0.00	0.060	0.060
Basswood	0.00	0.048	0.048
Chinquapin oak	0.00	0.048	0.048
Red maple	0.017	0.028	0.044
Blackgum	0.00	0.023	0.023
Virginia pine	0.00	0.023	0.023
PER ACRE	**1.957**	**2.943**	**4.901**
TRACT TOTAL	**144.82**	**217.78**	**362.67**

Discrepancies due to rounding.

Hardwood stand Acreage	74 acres		Present Volume per Acre	4,901 bd. ft.
Basal Area per Acre	87 sq. ft.		Harvest Volume per Acre	1,957 bd. ft.
Number Trees per Acre	406		Residual Volume per Acre	2,943 bd. ft.
Stocking Percentage	89%		Average Tree Size	6.3″ dbh

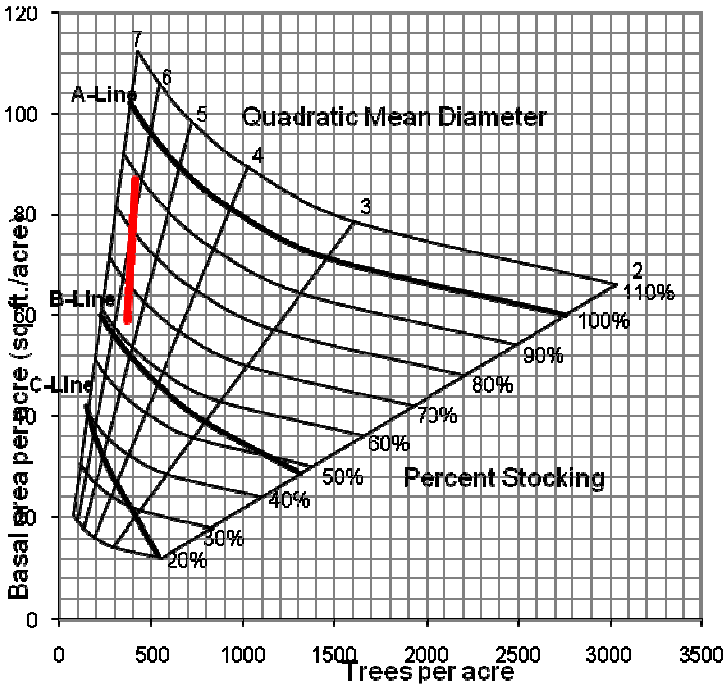
Stand #2. Pine & Oldfield acreage - 12 acres

Present tract volume estimates:		Basal Area
Harvest Volume:	1,755 bd. ft./acre	27
Total Volume:	4,688 bd.ft./acre	88

Tract Total Weighted Averages:

Harvest = 1,926 bd. ft./acre

Present = 4,871 bd. ft./acre



Tract Prescription and Proposed Activities

This tract is primarily composed of mixed hardwood stands with a modest oak component. A small portion of the tract is Virginia pine with this acreage also including the oldfield. The mixed hardwood acreage is ready for another intermediate improvement harvest following that of 1989. During the most recent inventory some portions of the tract were noted as potential regeneration areas, especially those that would favor oak due to the presence of advance oak regeneration. Several inventory points noted the opportunity of releasing oaks with single-tree selection. By volume, the top species to be marked with harvest are CHO, BLO and YEP. Leave volume is primarily in YEP, WHO and CHO. This tract was inventoried by 1 point per approx. 3.5 acres prism plots.

The hardwood acreage contains some nice WHO that would benefit from release by the removal of lower quality neighboring stems, therefore an intermediate improvement harvest using single tree selection as well as some regeneration openings will continue the improvement of this tract's timber resource. Harvesting will also allow the capture of mortality of some oak stems affected by windthrow or past looper defoliation. The primary focus in much of the marking will be releasing and retaining future crop trees especially the quality oaks located throughout the tract.

A small grove of poletimber to small sawtimber sized BLW is present in the northeast corner of tract. TSI would be the best prescription for this area to release these trees. The southeast portion contains some overmature BLO. This area would be marked and a skid trail designated to the northwest to avoid skidding on the old county road that is now a firetrail and shared driveway. Some areas likely have fire damage as evident by a few scattered stumps from last harvest, particularly in the tract's central portion. Further examination may warrant regenerating an area to initiate a healthier stand of timber.

Overall, the harvest 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 increase growth & quality in between cutting cycles. 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 as is common in unmanaged, 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 be prescribed to follow the harvest to reduce stocking in some areas of high basal area with pole sized 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 not change significantly from the proposed management activities and additional cover types comprised of brushy/early successional will occur with the creation of regeneration openings.

Proposed Activities Listing

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

Attachments (on file in property office)

Cultural Site Map.
1988 Management Plan by forester Unversaw.
1988 Timber sale notice & map by forester Unversaw.

To submit a comment on this document, click on the following link:
http://www.in.gov/surveytool/public/survey.php?name=dnr_forestry

You **must** indicate 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.