

**RESOURCE MANAGEMENT GUIDE**

STATE FOREST: Harrison Crawford

COMPARTMENT: 28 TRACT: 08

Date: May 30, 2006 – inventory  
November 26, 2007 - plan

Forester: Wayne Werne & Will Hirschfeld

**INVENTORY SUMMARY**

**NUMBER OF STANDS:** 3                      **Est. growth: 180 bd. ft/ac/yr**  
**PERMANENT OPENINGS:** 1.6 ac            **Est. cutting cycle: 10-14 yrs**  
**TOTAL ACREAGE:** 71.2 ac  
**AVERAGE SITE INDEX:** 75-85 (for upland oaks)  
**AVERAGE BASAL AREA:** 111.2 sq. ft/ac

**TRACT 2808 TOTAL VOLUME (bd ft)**

SPECIES	CUT		LEAVE		TOTAL	
	per acre	total	per acre	total	per acre	total
Bitternut hickory	48	3,306	145	10,092	193	13,398
Black oak	65	4,538	342	23,768	407	28,306
Blackgum	55	3,828	57	3,981	112	7,809
Black walnut		-	78	5,457	78	5,457
Chinkapin oak	34	2,394	208	14,470	242	16,864
Hackberry	37	2,575		-	37	2,575
Northern red oak	39	2,700	16	1,079	54	3,779
Pignut hickory	154	10,691	469	32,608	622	43,298
Persimmon		-	21	1,462	21	1,462
Sassafras	10	710		-	10	710
Shagbark hickory	114	7,914	596	41,454	709	49,367
Shumard oak	156	10,823	137	9,528	292	20,351
Shingle oak	21	1,455		-		1,455
Sugar maple	608	42,282	950	66,085		108,367
Sweetgum	64	4,420		-	64	4,420
White ash	57	3,953	304	21,138	361	25,091
White oak	316	21,966	1,103	76,748	1,418	98,714
Yellow-poplar	453	31,515	922	64,199	1,375	95,714
<b>TTOTAL</b>	<b>2,228</b>	<b>155,069</b>	<b>5,346</b>	<b>372,068</b>	<b>7,574</b>	<b>527,136</b>

*(using 69.6 acres of forest cover of the 71.2 tract acres)*

**STAND 1 – Oak hickory****ACREAGE: 19.9**

	<b>CUT</b>	<b>LEAVE</b>	<b>TOTAL</b>	<b>SNAG</b>
VOLUME/ACRE:	3,108	7,084	10,192	
TOTAL VOLUME:	61,849	140,972	202,821	
BASAL AREA/ACRE:	34.1	80.8	114.9	4.2
# TREES/ACRE:	20	185	205	9

**STAND 2 – Mixed mesophytic****ACREAGE: 42.3**

	<b>CUT</b>	<b>LEAVE</b>	<b>TOTAL</b>	<b>SNAG</b>
VOLUME/ACRE:	2,136	5,142	7,278	
TOTAL VOLUME:	90,353	217,507	307,859	
BASAL AREA/ACRE:	27.3	83.3	110.6	4.7
# TREES/ACRE:	18	225	243	5

**STAND 2 – Old field****ACREAGE: 7.4**

	<b>CUT</b>	<b>LEAVE</b>	<b>TOTAL</b>	<b>SNAG</b>
VOLUME/ACRE:	389	1,835	2,224	
TOTAL VOLUME:	2,879	13,579	16,458	
BASAL AREA/ACRE:	17.5	87.5	105.0	17.5
# TREES/ACRE:	15	382	397	61

**TRACT BOUNDARIES:** The entire tract is surrounded by state forest property and is bordered by Cold Friday Road to the east. The north boundary is formed by Potato Run Creek and the horse camp beyond to the north. The west boundary is a drainage dividing it with neighboring tract 2807 to the west.

**ACCESS:** This tract is easily accessed directly west off of Cold Friday Road.

**ACQUISITION HISTORY:** One of the original purchases, most of the land that makes up this tract seems to have been acquired from Joseph and Carrie Pfeister in 1931 as part of the second land acquisition for the state forest. The land was purchased for a sum of \$5 per acre.

**TRACT DESCRIPTION:** This tract was divided into three stands based on cover type and past management. These stands include: oak hickory, mixed mesophytic, and old field. There was also a small open field at the northeast tip of the tract right off Cold Friday Road, with a small stand of eastern white pine and red pine bordering it. This area totaled about 1.6 acres. These stands will be described in detail below.

**Stand 1 – Oak hickory**

This 20-acre stand covered less than a third of the tract, and was found mostly along the midslope position of the north and northwest facing hill making up this tract. The quality of the trees was good with an overstory of mostly white oak and a typical shaded understory of sugar maple. Stocking and volume per acre were high in this stand.

The total stand volume (10,192 bd. ft/acre) is composed primarily of white oak (4,195 bd. ft/acre), shagbark hickory (1619 bd. ft/acre), sugar maple (1099 bd. ft/acre), and black oak (910 bd. ft/acre), with the remaining 25% of the volume consisting of other hickory, yellow-poplar, and various other species.

### **Stand 2 – Mixed mesophytic**

This 42-acre stand covered about two thirds of the tract, and consisted of typical mixed mesophytic species – primarily sugar maple and yellow-poplar. This stand type would be expected on this site as most of the tract consists of a north facing slope with mesic growing conditions.

The total volume of the stand (7,278 bd. ft/ac) is composed primarily of sugar maple (2,045 bd. ft/ac) and yellow-poplar (1,847 bd. ft/ac), which make up about half the total volume. Pignut hickory, white ash, shumard oak, white oak, chinkapin oak, and bitternut hickory make up most of the rest of the volume, along with various other species.

### **Stand 3 – Old field**

This 7-acre stand was found mostly in the northwest corner of the tract, with a little bit in the northeast corner. It had some larger yellow-poplar, oak, and hickory in the overstory with cedar, sassafras, and sugar maple in the understory. It was obviously an open agricultural field at one time, and since succeeded back to its current state. There was a small area that was planted to pine in the northeast corner.

The total volume of the stand (2,224 bd. ft/ac) is composed primarily of yellow-poplar (1,238 bd. ft/ac), with black oak, shumard oak, hickory, and sassafras making up the remainder of the volume.

**SOILS:** The following soils are found on the tract in approximate order of importance.

**GpF Gilpin-Berks complex, 18-30% slopes.** Upland oak SI is 70-80, Yellow-poplar SI is 70-80, est. growth is 185-260 bd. ft/ac/yr. for oaks and for yellow-poplar.

**HaD2 Hagerstown silt loam, 12-18% slopes, eroded.** Upland oak SI is 85-95, Yellow-poplar SI is 90-105, est. growth is 300-375 bd. ft/ac/yr. for oaks and 335-450 bd. ft/ac/yr. for yellow-poplar.

**CoF Corydon stony silt loam, 20-60% slopes.** Upland oak SI is 65-75, Yellow-poplar SI is 80-90, est. growth is 155-220 bd. ft/ac/yr. for oaks and 260-335 bd. ft/ac/yr. for yellow-poplar.

**TIB2Tilsit silt loam, 2-6% slopes, eroded.** Upland oak SI is 70-80, Yellow-poplar SI is 85-95, est. growth is 185-260 bd. ft/ac/yr. for oaks and 300-375 bd./ ft/ac/yr. for yellow-poplar.

**HaE2 Hagerstown silt loam, 18-25% slopes, eroded.** Upland oak SI is 85-95, Yellow-poplar SI is 95-105, est. growth is 300-375 bd. ft/ac/yr. for oaks and 375-450 bd. ft/ac/yr. for yellow-poplar.

**Hm Haymond silt loam.** Yellow-poplar SI is 95-105, est. growth is 375-450 bd. ft/ac/yr. for yellow-poplar.

**GID2 Gilpin silt loam, 12-12% slopes, eroded.** Upland oak SI is 70-80, Yellow-poplar SI is 90-100, est. growth is 185-260 bd. ft/ac/yr. for oaks and 335-415 bd. ft/ac/yr. for yellow-poplar.

**RECREATION:** This tract is geographically located in a relatively high profile / high use area directly south of the horse camp and west of Cold Friday Road. There is a legitimate mapped horse trail that runs north-south through this tract, and one illegal trail that was found on the eastern portion of the tract. Likely, there is a fair amount of hunting pressure here due to easy access, and there were also a few small pit caves and one medium sized pit cave (Deer Pit) that were found in this tract. Consequently, there may be some use of the tract by cavers. Due to its proximity to Cold Friday Road, there may also be some general hiking going on here as well, though there are no hiking trails within the tract.

**WILDLIFE:** This tract provides habitat for a variety of forest-dwelling wildlife of many forms, including game species such as deer, squirrels, raccoons, and turkeys, as well as nongame species such as woodpeckers, songbirds, and reptiles and amphibians. One black rat snake was noted climbing a tree during the inventory. Most of the tract is of the mixed mesophytic stand type, but the oak hickory stand provides a better source of hard mast for wildlife known to depend on this for their major food source. There was a minimal amount of soft mast species noted in this tract.

Snags were tallied in this inventory for potential uses by wildlife. The following tables summarize guidelines and actual data with regard to the new strategy for consideration of the Indiana bat.

Guidelines for preferred density of live and dead trees for use by Indiana bat:

<u>Tree type</u>	<u>Number of trees per acre</u>	
	<u>10 to 18 inches DBH</u>	<u>20 inch DBH and greater</u>
<b>LIVE</b>	<b>6 (in 12-18" class)</b>	<b>3</b>
<b>SNAG</b>	<b>5</b>	<b>1</b>

Actual numbers from tract 2808:

<u>Tree type</u>	<u>Number of trees per acre (present – harvest = residual)</u>	
	<u>10 to 18 inches DBH</u>	<u>20 inch DBH and greater</u>
<b>LIVE</b>	<b>45.4 – 12.1 = 33.3 (in 12-18" class)</b>	<b>12.3 – 4.1 = 8.2</b>
<b>SNAG</b>	<b>4.7</b>	<b>0.1</b>

These numbers show that live tree densities meet guidelines, but both large and small snags do not. The result for large snags is consistent with several other recently completed inventories on other tracts of the forest, where large snag densities are below one per acre. Specifically, small snag densities are about what the target is, but the large snag density is substantially below the target.

Management activities will not intentionally remove snags, with a few exceptions of large recently dead trees or storm damage when possible, so any timber sale will not negatively impact that below target component significantly. Creation of more snags in the large size class could be undertaken by girdling large cull trees in a post-harvest TSI operation.

**WATERSHED:** The majority of the tract contains gentle to moderately steep slopes that drain directly into Potato Run Creek or ephemeral and intermittent drainages which shortly drain into that creek. Potato Run drains into the Ohio River a few miles downstream. This area appears to have a potentially extensive karst system, so much of the hydrology would consist of subsurface drainage. There is also a small wet area on the top of the ridge, which may be a naturally ponded area with a high water table.

**HISTORICAL AND 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.

**OTHER CONCERNS:** The natural heritage database check did not show any rare, threatened, or endangered plant or animal species located within this tract.

### **SILVICULTURAL PRESCRIPTION:**

**General:** Number of trees per acre and basal area per acre figures indicate that all stands are near overstocked at 100% to 105% stocking. Removal of trees tallied as “cut” either via a timber sale or TSI would reduce the stocking levels to between 70% and 80% stocking in the mature stands, and about 90% in the old field area.

There are records in the file that show some level of harvesting during the late 1970’s in this tract, but it is hard to determine exactly what the exact numbers and details are. It appears that an inventory in 1975 shows 2827 bd ft/ac, but the tally sheet from which this number is derived is not clear, and this number may be low. There are records of a white oak veneer sale in 1975 totaling 18,131 board feet that included this tract as well as tracts 1903 and 1908. It is not immediately clear how much of that total came from this tract. There is also a mention of a veneer black walnut sale in 1976 totaling 9804 board feet, but this also included tract 1903 as well as 2808. Finally there was a sale in 1978 that seems to only cover tract 2808 that totaled 46,629 board feet.

The old inventory also lists the acreage of the tract as 57 acres as compared to the 71 acres currently listed. The lack of clarity of all these numbers makes it difficult to accurately estimate the growth rate on this tract, but assuming half the veneer volumes came from this tract, and assuming the early inventory figure is correct, the growth rate on this tract approximates 180 board feet per acre per year, which seems reasonable given the mesic nature of the growing site.

Due to the amount of volume being carried on the majority of the tract (7600 bd. ft/ac), and the fact that the last timber sale took place almost 30 years ago, the initial impression was that a medium level harvest could be undertaken in this tract at any time. This would produce a sale volume of about 155,000 board feet or about 2228 board feet per acre and leave about 372,000 board feet or about 5346 board feet per acre. This sale would cover the majority of the tract with the possible exception of stand 3 where sale volume would be minimal – more TSI.

It is recommended that Timber Stand Improvement (TSI) be undertaken in this tract after the harvest to accomplish a variety of tasks, including completion of any marked openings. TSI of pole-size trees would account for between 0 to 3 square feet of basal area on all stands. Cull tree removal would account for an additional 5 to 8 square feet of basal area in all stands. Vines did not seem to be a big problem in this tract, but need to be kept at bay with TSI activities as well. Any attempt to establish or encourage understory oak regeneration would require more extensive understory treatment of shade tolerant species. Due to the fact that most of this tract is a north slope with mostly a mixed mesophytic stand, this operation may not be feasible to attempt to undertake except in the old field areas where more small oak is present. Ailanthus was found in a

few areas of the tract, and needs to be monitored and eliminated when found to be present or establishing itself.

### **Stand 1: Oak hickory**

This 20-acre stand covers about a third of the tract, and is located mostly along the midslope in the center of the tract. It contains a high volume of 10,192 board feet per acre of which 3108 was classified as harvestable and 7084 was classified as residual. This would remove 34 square feet of basal area, which would leave the residual stand with 81 sq. ft. Stocking would drop from 100% to about 72% (fully stocked) with the indicated management.

Since this stand was last harvested 30 years ago, and currently contains a high volume of harvestable material and a high volume of residual growing stock, it would be included with stand 2 as a medium to high priority for conducting a harvest. The majority (75%) of the harvest volume for stand 1 (3108 bd. ft/ac) would be contained in white oak (1104 bd. ft/ac), shagbark hickory (398 bd. ft/ac), sugar maple (374 bd. ft/ac), pignut hickory (240 bd. ft/ac), and black oak (228 bd. ft/ac), with various other species making up of the remainder of the harvest volume.

Most of the stand would probably be harvested under a single tree or group selection routine with larger regeneration openings targeting groups of low-grade trees or multiple large trees growing together. When possible, selection should also favor releasing future crop trees. There appeared to be a good stand of white oak growing here, which should allow for ample opportunity to do crop tree release. As with many other mature oak hickory stands, this stand will continue to transition to a white oak-dominated stand as black oak is removed through silvicultural management to favor the longer lived and more vigorous white oak.

### **Stand 2: Mixed mesophytic**

This 42-acre stand covers almost two-thirds of the tract, and is located along the lower and upper slopes of the tract. It contains a moderately high volume of 7278 board feet per acre of which 2136 was classified as harvestable and 5142 was classified as residual. This would remove 27 square feet of basal area, which would leave the residual stand with 83 sq. ft. Stocking would drop from 99% to about 77% (fully stocked) with the indicated management.

Since this stand was last harvested 30 years ago, and currently contains a reasonable volume of harvestable material and a high volume of residual growing stock, it would be included with stand 1 as a medium to high priority for conducting a harvest. 70% of the harvest volume for stand 2 (3108 bd. ft/ac) would be contained in sugar maple (824 bd. ft/ac) and yellow-poplar (678 bd. ft/ac). Shumard oak, pignut hickory, sweetgum, and various other species would make up of the remainder of the harvest volume.

Most of the stand would also probably be harvested under a single tree or group selection routine with larger regeneration openings targeting groups of low-grade trees or multiple large trees growing together. When possible, selection should also favor releasing future crop trees. Drought damage to yellow-poplar should be a factor considered when selecting trees to mark for sale.

### **Stand 3: Old field**

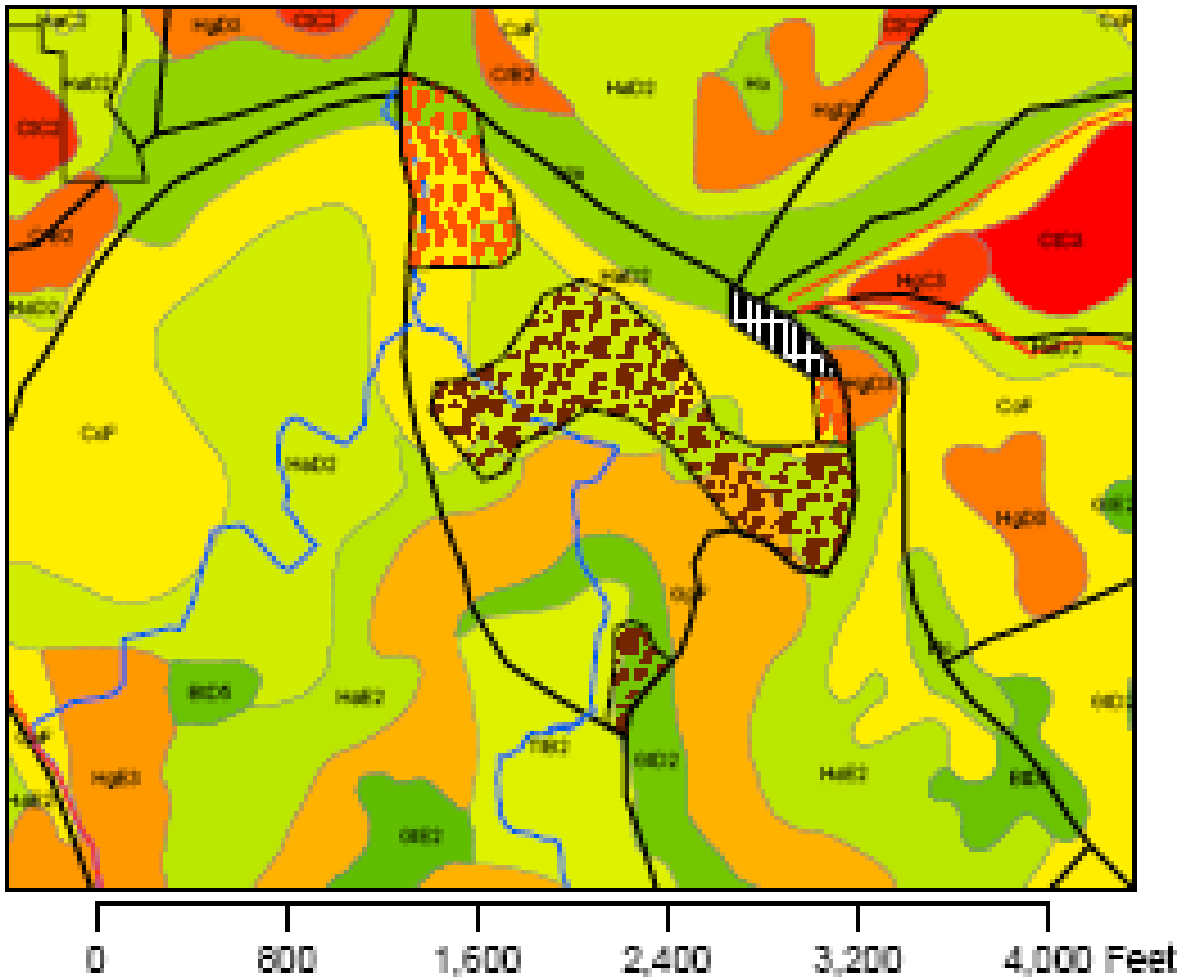
This 7-acre stand is found mostly in the northwest corner of the tract, and contains a volume of 2224 board feet per acre of which 389 was classified as harvestable and 1835 was classified as residual. This would remove 18 square feet of basal area, which would leave the residual stand with 88 sq. ft. Stocking would drop from 105% to about 90% with the indicated management (fully stocked above the B-line).

Likely, parts of this stand would be included in any timber sale taking place in the rest of the tract. Marking would target low grade overstory trees with the goal of establishing a quality stand of oak with the regeneration present. Most of the harvest volume in this stand would be made up of shingle oak, pignut hickory, sassafras, and maybe some poplar.

In places in this stand, there is good oak regeneration in the understory ranging from seedling to sapling size. Timber harvest and post harvest TSI should concentrate on releasing this oak regeneration – mostly with larger openings.



# Tract 2808 Soils

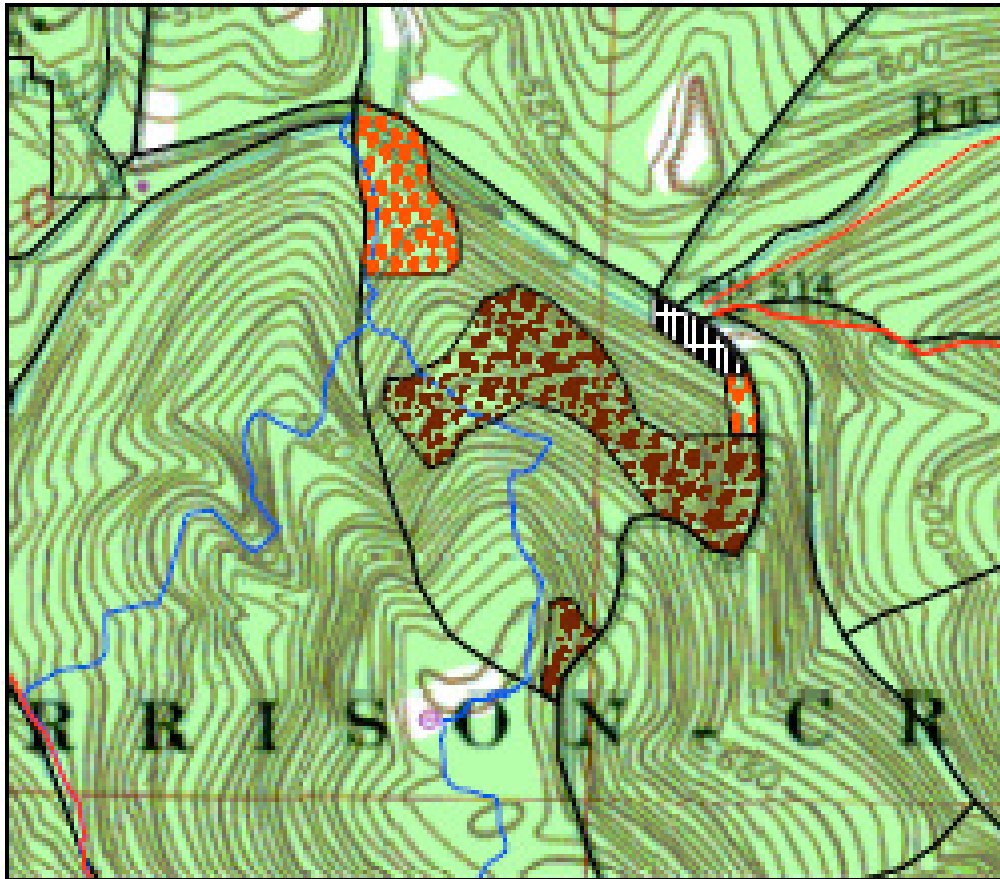


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You **must** indicate "Harrison Crawford C28 T08" in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered.

Topographic Map

# Tract 2808



0 1,000 2,000 3,000 4,000 5,000 Feet

**Legend**

- Historic Sites
- Caves
- Fire Lanes
- Horse Trail
- Tracts

- Stand 1: Oak hickory
- Stand 2: Mixed mesophytic
- Stand 3: Old field
- Open area / pine

