

RESOURCE MANAGEMENT GUIDE

STATE FOREST: Harrison Crawford

COMPARTMENT: 09 TRACT: 06

Date: October 9, 2009

Forester: Wayne Werne, Christine Martin,
Amanda Bradshaw

(Inventory - June 2007)

INVENTORY SUMMARY

NUMBER OF STANDS:	2	Est. growth: ?? bd. ft/ac/yr
PERMANENT OPENINGS:	0.0 ac	Est. cutting cycle: ?? yrs
TOTAL ACREAGE:	78.9 ac	(no prev. inventory - no growth info)
AVERAGE SITE INDEX:	70-80 (for upland oaks)	
AVERAGE BASAL AREA:	118 sq. ft/ac	

TRACT 906 TOTAL VOLUME (bd ft)

SPECIES	CUT		LEAVE		TOTAL	
	per acre	total	per acre	total	per acre	total
Blackgum	50	3,945	50	3,945	100	7,890
Black oak	980	77,322	300	23,670	1,280	100,992
Chinkapin oak	20	1,578	60	4,734	80	6,312
Eastern redcedar	30	2,367		-	30	2,367
Northern red oak	70	5,523	160	12,624	230	18,147
Pignut hickory	120	9,468	70	5,523	190	14,991
Post oak	10	789	80	6,312	90	7,101
Red maple		-	30	2,367	30	2,367
Scarlet oak	60	4,734		-	60	4,734
Shagbark hickory		-	60	4,734	60	4,734
Sugar maple	60	4,734		-	60	4,734
White ash		-	40	3,156	40	3,156
White oak	680	53,652	2,140	168,846	2,820	222,498
Yellow-poplar	200	15,780	1,240	97,836	1,440	113,616
TOTAL	2,280	179,892	4,230	333,747	6,510	513,639

STAND 1 – Oak hickory

	ACREAGE: 56.3			
	CUT	LEAVE	TOTAL	SNAG
VOLUME/ACRE:	2,870	5,150	8,020	
TOTAL VOLUME:	161,581	289,945	451,526	
BASAL AREA/ACRE:	43.9	74.6	118.5	
# TREES/ACRE:	42	287	329	

STAND 2 – Old field

	ACREAGE: 22.6			
	CUT	LEAVE	TOTAL	SNAG
VOLUME/ACRE:	960	2,170	3,130	
TOTAL VOLUME:	21,696	49,042	70,738	
BASAL AREA/ACRE:	41.6	76.3	117.9	
# TREES/ACRE:	89	664	753	

Note: Please reference the appendix for tables and graphs of various stand statistics

TRACT BOUNDARIES: This tract is part of an outlying block of state forest land lying north of the interstate highway. It is bordered on the north by private land. The northern neighbor is currently Phil Etienne, and an attempt was made to purchase this property to get access to this block of state land. This process was held up by the commissioners of Crawford County who stand behind a nonbinding resolution passed several years ago that discourages the state from acquiring any additional land in that county. This private land is currently listed for sale.

The western boundary of this tract is a ridgeline that divides it from tract 907, and the eastern boundary is a ridgeline that divides it from tract 905. The southern boundary is the interstate highway R.O.W. fence apparently, though older maps show a small sliver of private land between what was the state forest and what is now the interstate. It is assumed this land was bought as part of the right of way acquisition and subsequently transferred to the state forest. The tract line as it appears in the GIS layer is apparently somewhat off from the actual right of way fence for the interstate (actual line farther south).

There are old fence fragments forming part of the north boundary line. Also, what is currently tract 906 was formerly part of a larger tract 905. The tract boundaries were re-delineated sometime in the 1990's.

ACCESS: Currently, access is being obtained by driving down the private road coming off of Shafer Ridge Road which goes into the Etienne property. This road is in excellent condition, but currently serves multiple parcels in that tract, because it was parcelized for sale as smaller tracts. There is apparently a road maintenance covenant in place for the future owners that requires shared maintenance costs for this road. Currently, Phil

Etienne does not have a problem granting access to the state property from this property, but if this land does sell to other assorted private buyers in the future, the state will probably not be able to use that road. Currently, Phil Etienne is in the process of seeing if the current covenant can be amended to allow state access via the access road even after the land might sell. This problem was foreseen and was why the state was trying to acquire outright ownership of the Etienne property until the deal was stalled by the Crawford County officials.

This tract was also reconned/cruised in 2006 by Will Hirschfeld who noted that there was an old frontage road that extended beyond the Jasper Engines/industrial park access road to the west of tract 907. This frontage road intersects the southwest corner of the tract 907, and could have well been established when the interstate came through and cut off certain property's former access. The legal status of this access and road is not clear, and apparently the road would require some fixing up to be used as an access road.

ACQUISITION HISTORY: The northern portions of this tract were acquired from Wilson and Alma Bye in 1954 and George Harper in 1939 for undisclosed sums of money (deeds 131.197 and 131.84). The property to the north of this that is now owned by Phil Etienne was also owned by Alma Bye up until a few years ago, so this was all part of one farm at one time. The southern portions of this tract were part of a transfer by INDOT to DNR as they acquired I-64 right-of-way acreage, and the leftover acreage to the north of this was added onto the state forest ownership.

TRACT DESCRIPTION: This tract was divided into two stands based on cover type and past management – oak hickory and old field. The old field also included some flat creek bottomland along the main drainage that might be more aptly described as mixed mesophytic, but this area was limited in size and blended into the actual old field sites so much, that it was included in old field stand type. Realistically, these low flat areas were undoubtedly cleared and farmed historically, with the exception of a narrow line of trees along the drainage, and have just grown back to a better stand than most of the other old field areas. The stands will be described in detail below.

Stand 1 – Oak hickory

This 56-acre stand was found on the entire west facing slope on the east side of the tract, as well as on the east facing slopes on the west side of the tract. It is the dominant stand type on this tract. Anything that was not flat farmed ridgetop or bottomland fell within this stand type.

The total volume of the stand (8020 bd. ft/ac) is composed overwhelmingly of white oak (3820 bd. ft/ac), and also black oak (1750 bd. ft/ac), and yellow-poplar (1190 bd. ft/ac). The remaining 15% of the volume consists of northern red oak, pignut hickory, post oak, blackgum, and various other species.

Stand 2 – Old field

This 23-acre stand is found mostly along the lower slopes by the main drainage, and along the flat ridgetop areas. The areas along the drainage have grown back to a more mixed mesophytic component, while the areas going up the slopes and on the ridgetops have been colonized by sassafras and cedar. Likely, these areas suffer from old erosion and reduced site productivity.

The total volume of the stand (3130 bd. ft/ac) is composed overwhelmingly of yellow-poplar (2030 bd. ft/ac), and also white oak (590 bd. ft/ac), and black oak (230 bd. ft/ac). The remaining 10% of the volume consists of white ash, eastern redcedar, and pignut hickory. This old field area is coming back to an oak hickory stand type in places. There is also a lot of cedar growing in much of this area, but all of it was small enough not to show up on the volume tally, though it makes up a substantial part of the basal area and number of trees per acre. This stand was not cruised using the cedar scale (which gives volume to much smaller trees), like others subsequently were, and so the cedar does not appear as dominant as it truly is.

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

TblG Tipsaw-Adyeville complex, 25-75% slopes Upland oak SI is 70-80, Yellow-poplar SI is 70-80, est. growth is 185-260 bd. ft/ac/yr. for both oaks and yellow-poplar.

WhfD3 Wellston silt loam, 12-18% slopes, severely 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.

WhfD2 Wellston silt loam, 12-18% 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.

AgrC3 Apalona silt loam, 6-12% slopes, severely 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.

WhfC3 Wellston silt loam, 6-12% slopes, severely 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.

AgrB Apalona 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.

GacAW Gatchel loam, 1-3% slopes Yellow-poplar SI is 95-105, est. growth is 375-450 bd. ft/ac/yr.

RECREATION: Due to limited access, and its location directly north of the interstate, this tract probably receives limited recreational use by the public. There are no trails or facilities here. Likely it receives some hunting use by neighbors, but the noise of the interstate nearby would also limit its utility for that as well.

WILDLIFE: This tract represents typical upland forest habitat, in addition to a small component of old field with cedar and smaller hardwoods. Consequently, it likely receives use from a typical assemblage of common game and nongame wildlife species such as white-tailed deer, wild turkey, squirrels, songbirds, snakes, box turtles, and others. Hard mast food sources are provided by the oak hickory stand, but another habitat component would come from the scattered cedar trees. These areas provide cover and bedding areas, especially during the winter months.

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. The categories of optimal and maintenance guideline numbers were broken down by size class subcategory, but are inclusive of size classes above that. In other words, the maintenance guideline for number of snags in the 6" class and larger was 4 per acre, but of that number 0.5 per acre should be 20"+ and 3 should be 10'-18" or greater. This was done because larger trees are more valuable and less common, and were given the greater importance when calculating total guideline numbers.

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

# of live trees per acre	Guidelines maintenance	Tract 906 actual present – harvest = residual
12"-18" DBH class	6	41.2 - 20.4 = 20.8
20" DBH and greater	3	11.6 - 6.4 = 5.2
Total	9	52.8 - 26.8 = 26.0

# snags per acre	Guidelines maintenance	Guidelines optimal	Tract 906 actual
6" - 8" DBH class	1	1	6.1
10"-18" DBH class	2.5	5	3.6
20" DBH and greater	0.5	1	0.2
Total	4	7	9.9

These numbers show that both live tree densities as well as snag densities meet maintenance guidelines on this tract with the exception of the largest category of snags. 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, and seem to hover at about 0.3 per acre. The vast majority of snags are in the smaller size classes, which makes them unsuitable for most nesting or roosting purposes, but some feeding use might be gained from them.

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

Additionally, management activities involving a timber sale should not affect this habitat long-term from the perspective of any wildlife utilizing it due to the maintenance of a forested habitat on the tract. Creation of openings will create early successional forest habitat that will be beneficial to certain groups of wildlife dependent upon this habitat. Likely, early successional habitat created with such management will also benefit a wider segment of wildlife species that preferentially utilize such habitat for feeding and cover more so than later successional stage habitat.

This tract is bordered on the south by Interstate 64, which itself represents a barrier to free travel by wildlife in a north-south direction. There should be no disruption of any potential wildlife travel corridors by forest management activities. This is due to fact that this portion of the landscape is 50-75% forested, and management in this area will not eliminate or isolate this habitat. The habitat on this tract in the context of the surrounding landscape does represent a component that would be used more preferentially by wildlife for traveling or dispersion in an east-west direction. But, again, it is not an isolated fragment of forest that would be unduly impacted with management activities.

Since this tract is part of an outlying piece of state forest acreage not connected to the main body of the forest, it is less likely that forest management activities might disrupt any forest interior species by creating edge habitat for generalist species to “invade” the area. This would possibly occur if regeneration openings were put in place that offered a habitat preferred by such generalist species which might move in and start using such habitat. In the context of the surrounding landscape, this tract represents a moderate chunk of forest in a matrix of surrounding forest and agricultural land.

WATERSHED / HYDROLOGY: The majority of the tract contains gentle to moderately steep slopes that drain into a tributary of Jordan Creek which generally runs north-south through neighboring tract 907 to the west. This portion of Jordan Creek is near the upstream reaches, but qualifies as an intermittent that is usually dry, and has a wide well defined channel bottom. Shortly after Jordan Creek leaves tract 907, it flows under I-64 and drains into Dry Run Creek. Dry Run eventually drains into Blue River near its confluence with the Ohio River.

This area is starting to get more distant from the karst landscape with underground drainage that is more common toward the east and south. There were no caves or open

sinkholes noted in this tract, but there are stories that the back reaches of Eric's River Cave (south of I-64) once had another opening near where Jasper Engines is located on the north side of the interstate, which would put it close to the west of this tract. The story states that at one time, this opening allowed for a flush of leaves and other debris to be deposited throughout the cave. This opening has since reclosed.

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.

RARE, THREATENED, OR ENDANGERED SPECIES: The natural heritage database check shows no recorded occurrences for any RTE species on tract 907, 906, 905, or any other nearby tracts as of 2009.

EXOTICS: At the time of the inventory, there were no notations made as to presence of exotic species. There is probably some multiflora rose in the southern portion, and possibly some other species that have come up in the old field portion. As always, ailanthus should always be monitored in case it is invading or spreading into the area. If this area is marked for a sale, an effort will be made to paint any ailanthus with a bright color for followup management.

SILVICULTURAL HISTORY AND PRESCRIPTION:

General: There were no records of previous inventories done in this tract in the files. Because of this, and since no increment cores were taken, it is not known what the overall growth rate is on this tract. The potential productivity on this tract is probably in the range of moderate based on the current cover type and soils association. The creek bottom soils likely have higher productivity, while the old eroded hillside farm fields undoubtedly have lower productivity.

Number of trees per acre and basal area per acre figures indicate that all stands are overstocked at between 110% to 130%. Removal of trees tallied as "cut" either via a timber sale or TSI would reduce the stocking levels to about 75-90% stocking. Stocking levels would be reduced to a level considered fully stocked above the B-line.

The only record of sale activity for this tract is the northwestern portion for which the deed transfer in 1954 called for reservation of the rights to cut treetops for firewood from a recent logging operation by the previous owners. Due to the amount of volume being carried on the merchantable majority of the tract (8020 bd. ft/ac), the fact that no managed sale has taken place in the 50+ years the state has owned this tract (according to

any records in the files), and the general condition of the overstory trees in the majority of the tract, the initial impression was that a light to medium level harvest could be undertaken in this tract at any time. This would produce a sale volume of about 180,000 board feet or about 2280 board feet per acre and leave about 335,000 board feet, or about 4230 board feet per acre (across the entire tract acreage).

Worthy of note is the fact that in 1983, an actual wildfire burned through parts of tracts 905, 906, and 907. It was caused by an overheated truck tire that threw chunks of burning rubber off from the interstate, which caused four separate ignitions that coalesced into one larger fire that burned over an estimated 60-80 acres of forest and 15-20 acres of fields in this area. This fire may or may not have affected the composition of the understory of this stand, depending on how hot the fire became. Some evidence of this fire was noted in the southeastern portion during the inventory.

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 may be required for thinning in places, and to open up the understory for potential oak regeneration to take hold or be released. Vines did not seem to be a big problem in this tract, but need to be kept at bay with TSI activities as well. Extensive understory treatment of shade tolerant species will be necessary to encourage oak regeneration where present. Ailanthus needs to be monitored and eliminated when found to be present or establishing itself.

Stand 1: Oak hickory

This 56-acre stand contains a volume of 8020 board feet per acre of which 2870 was classified as harvestable and 5150 was classified as residual. This would remove 44 square feet of basal area, which would leave the residual stand with 75 sq. ft. Stocking would drop from 110% to about 75% with the indicated management (fully stocked above the B-line).

Since there is no record of harvest in this tract since the state has owned it (50+ years), and because it currently contains a moderate volume of harvestable material and a high volume of residual growing stock, the recommendation would be to rank this stand as a medium to high priority for conducting a harvest. Any timber sale would primarily include this entire stand as well as parts of stand 2, and possibly being combined with neighboring tract 907 and 905. The majority (74%) of the harvest volume for stand 1 (2870 bd. ft/ac) would be contained in black oak (1360 bd. ft/ac) and white oak (770 bd. ft/ac). The remainder would be contained in yellow-poplar, pignut hickory, red oak, and various other species.

Most of the stand would probably be harvested under a single tree 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. The residual stand should be much heavier to white oak – the primary residual tree species, with a lesser component of other oak species, as well as mesophytic species.

Post harvest TSI should be performed to eliminate any residual cull or small pole-sized trees not cut during the harvest, as well as thin where necessary, complete any regeneration openings, and kill grapevines where present. As always, any ailanthus present should also be treated and eliminated.

Stand 2: Old field

This 23-acre stand is located primarily along ridgetops and creek bottom. It contains a volume of 3130 board feet per acre of which 960 was classified as harvestable and 2170 was classified as residual. This would remove 42 square feet of basal area, which would leave the residual stand with 76 sq. ft. Stocking would drop from 130% to about 89% with the indicated management (fully stocked above the B-line).

Since this stand intermingles with the more merchantable oak hickory stand, there would likely be some trees included from here along with any timber sale taking place in stand 1. All of the harvest volume tallied in this stand (960 bd. ft/ac) was represented by white oak, yellow-poplar, black oak, cedar, and pignut hickory. Much of the composition of this area was made up of small cedars, many of which should be removed to release the oak regeneration present. Since these are relatively small areas on the hillsides and along the creek, they likely will be left alone to maintain some habitat diversity, with the exception of some hardwood trees along the edges that might be included in any hardwood sale.

TSI could be performed to eliminate any residual cull or small pole-sized trees not cut during the harvest, as well as thin where necessary, and treat the cedar and understory to eliminate shade tolerant species in favor of oaks and other more desirable species. As always, any ailanthus present should also be treated and eliminated.

PROPOSED ACTIVITIES LISTING

Summer 2007	Field inventory
Fall 2009	Write mgmt plan
Fall 2009 - 2010	Mark timber sale
Winter 2009 or Winter 2010	Sell timber sale
2010 / 2011	Post harvest TSI
2015	Recon & monitor for exotics
2020-2025	Inventory for next mgmt cycle

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You **must** indicate “Harrison-CrawfordC9 T6” 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.

APPENDIX

(Various tables and graphs describing tract 906)

A SUMMARY OF VARIOUS STATISTICS FOR TRACT 906

Summary of basal area (sq ft per acre)

STAND	LEAVE	CUT	(SNAG)	TOTAL (live)
Oak hickory	74.6	43.9	??	118.5
Old field	76.3	41.6	??	117.9

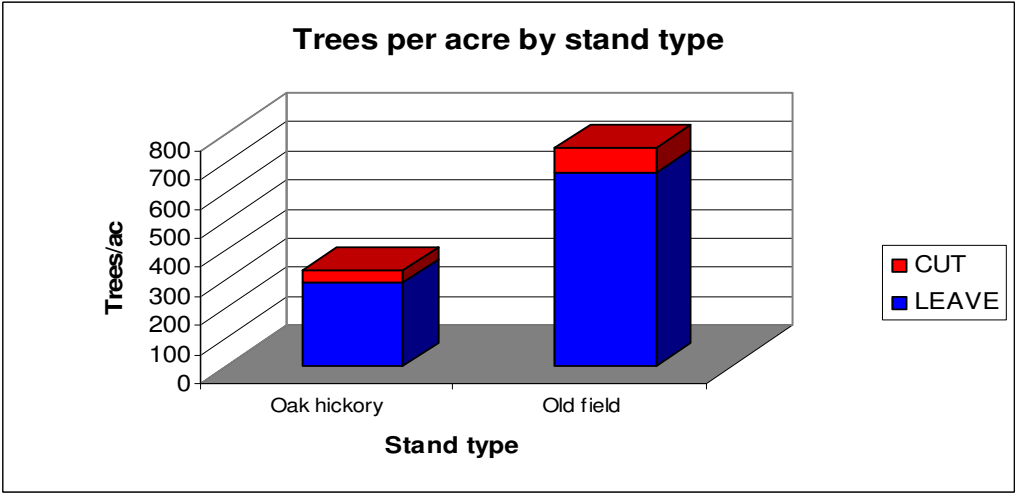
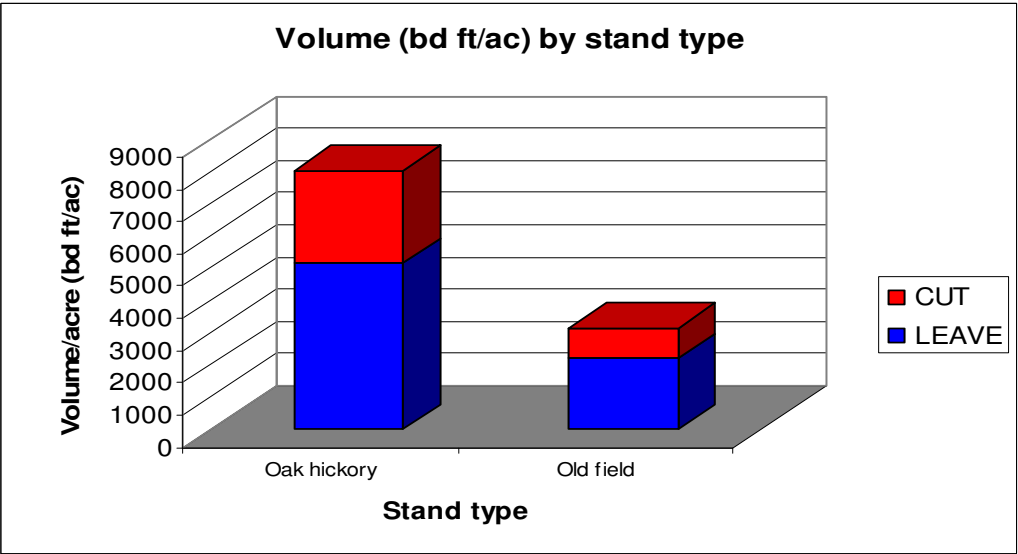
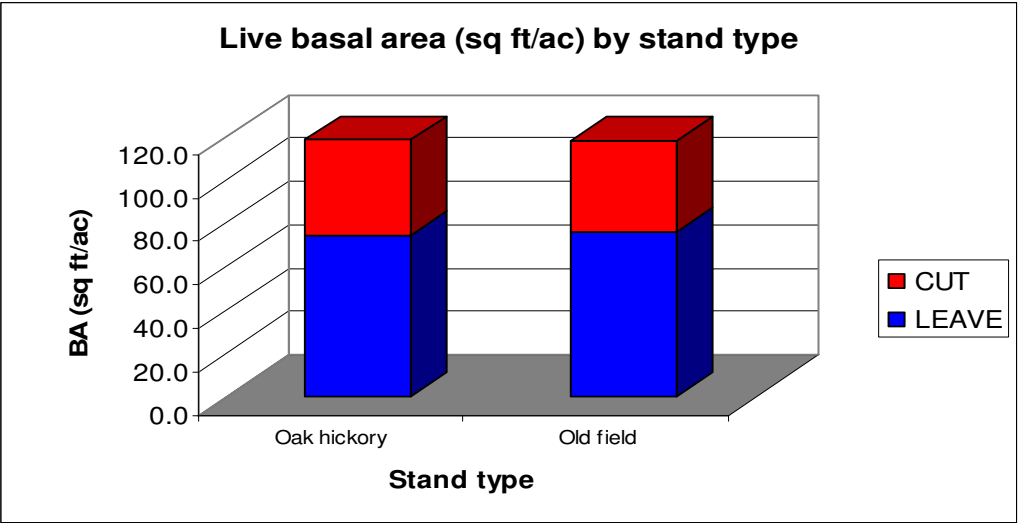
Summary of volume (bd ft per acre)

STAND	LEAVE	CUT	TOTAL (live)
Oak hickory	5150	2870	8020
Old field	2170	960	3130

Summary of number of trees per acre

STAND	LEAVE	CUT	(SNAG)*	TOTAL (live)
Oak hickory	287	42	?	329
Old field	664	89	?	753

*snags/acre \geq 9" DBH = 3.8/acre across entire tract



A SUMMARY OF VOLUME PER ACRE (bd ft/ac) BY SPECIES FOR TRACT 906

Stand 1: Oak hickory

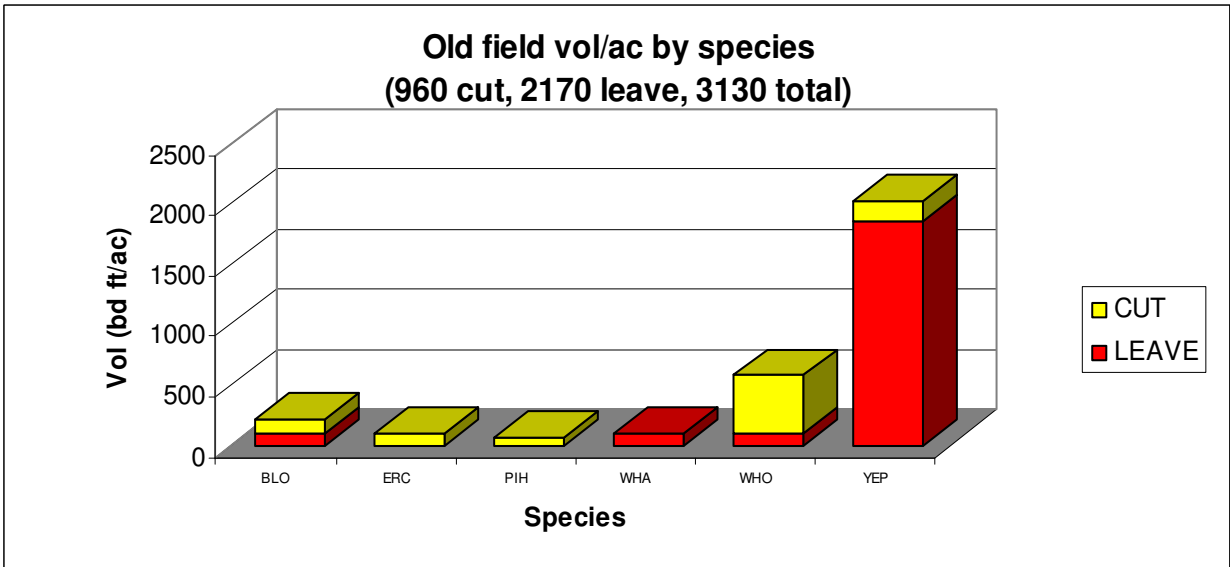
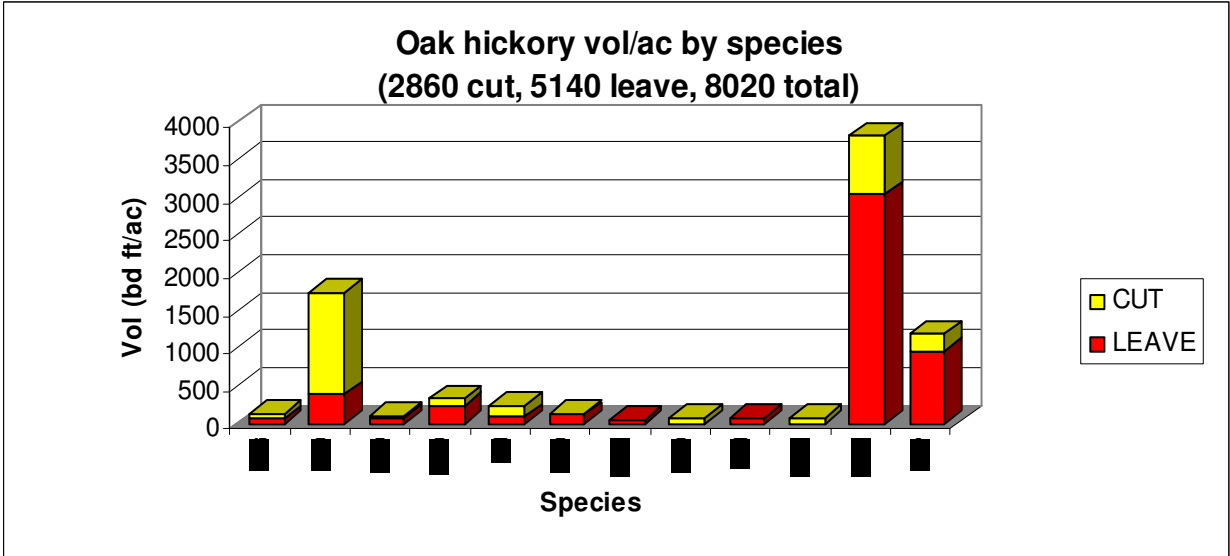
Volume (bd ft/ac)

Species	CUT	LEAVE	TOTAL
BLG	70	70	140
BLO	1360	390	1750
ZCO	30	80	110
NRO	100	240	340
PIH	140	100	240
POO	20	120	140
REM		50	50
SCO	80		80
SHH		80	80
SUM	80		80
WHO	770	3050	3820
YEP	220	970	1190
TOTAL	2870	5150	8020

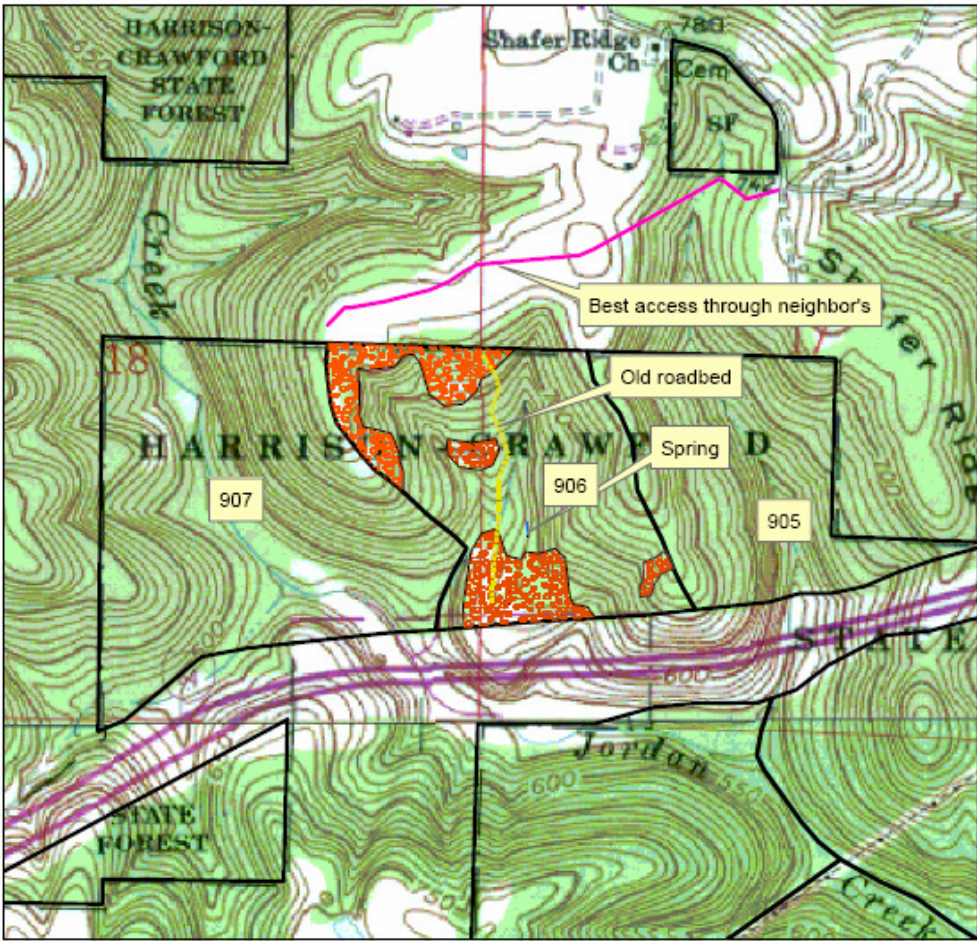
Stand 2: Old field

Volume (bd ft/ac)

Species	CUT	LEAVE	TOTAL
BLO	130	100	230
ERC	100		100
PIH	70		70
WHA		110	110
WHO	490	100	590
YEP	170	1860	2030
TOTAL	960	2170	3130



Tract 906



0 1,200 2,400 3,600 4,800 6,000 Feet

Legend

- ! Historic sites
- Tract boundaries
- Oak hickory stand type - 56 acres
- Old field stand type - 23 acres

