

RESOURCE MANAGEMENT GUIDE

State Forest: Jackson-Washington
Forester: Sandy Derringer
Management Cycle End Year: 2037

Compartment: 7 Tract: 2
Date: 1/23/2015
Management Cycle Length: 20 years

Location

This tract is located in part of Section 30 and Section 31, T4N, R4E of Washington County. The tract contains 41 acre. It is approximately 10 miles south of the intersection of State Road 135 and US 50.

General Description

This 41 acre tract is composed of the fingers that run between two main ridges. The ridges run northeast and northwest forming a “v” that opens to the north. It contains a mapped intermittent stream on the north end and an ephemeral and unmapped stream that runs to the north into the intermittent stream. The tract is made up of mixed hardwoods, oak-hickory, chestnut oak, and beech- maple- yellow poplar timber types.

History

The tract is part of a parcel of land obtained from Alice E. Denney, as administratrix of the estate of Mary E. Coffey on March 31 1969.

Twenty seven acres of this tract was harvested by Jackson-Washington state forest in 1989 along with timber from tract 3. An estimated volume of 7,665bd.ft was marked in 39 trees and 5 cull trees. The property lines have been located in the past on the east and west side and in the northeast corner between a known corner stone and rebar with a cap. A trespass of a trailer was noted and the owner was asked to relocate it.

Landscape Context

State forest land lies to the north and west of this tract with private ownership to the east and south. The ground to the north and west both state and private is forested. The private property to the east and south is a mixture of scattered rural housing, and agriculture. One 10 acre private parcel, containing a home, is located to the northwest of this tract and is surrounded by state on three sides and their only access is through an easement on the state forest. State Road 135 is also the tract boundary to the east.

Topography, Geology and Hydrology

This tract is mainly composed of fingers that come off ridges forming a “v” running northwest and northeast. It is very steep near where the two ridges meet at the south end of the tract and off the ridge running northwest. The north end of the ridge running northwest has ground sloughing off on the north side. There is an ephemeral that turns into an unmapped intermittent stream that then joins the mapped intermittent stream. The intermittent stream area is fairly flat. The whole tract seems to have geodes. Fossils (crinoid stems, horn corals and corals) were found in the intermittent stream.

The bedrock is composed of sandstone and some limestone in the area of State Road 135.

Soils

Bedford silt loam (BdB) The Bedford series consists of moderately well drained soils formed in loess and the underlying loamy material over a paleosol from clayey residuum. They are very deep soils that are moderately deep to a fragipan. Permeability is moderate above the fragipan and very slow in the fragipan. Slopes range from 0 to 12 percent. Native vegetation is mixed hardwood forest, chiefly oaks, maple, hickory, elm, ash, and hackberry. This soil complex is suited for trees. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. Seedlings survive and grow well if competing vegetation is controlled and if livestock are excluded from area. The site indexes for hardwood species range from 70 (white oak) to 90 (tulip poplar). Preferred trees to manage for are black oak, bur oak, chestnut oak, scarlet oak, shingle oak, red oak, and white oak.

Berks-Weikert complex (BhF) This soil series is steep to very steep, well drained soils are on side slopes in the upland areas. The Berks soil is moderately deep, and the Weikert soil is shallow. The two soils occur as areas so intricately mixed that mapping them separately is not practical. This soil complex is suited for trees. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species range from 50 (black oak) to 70 (white oak). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Burnside silt loam (Bu) This series consists of deep, well drained soils that formed in 30 to 61 centimeters (12 to 24 inches) of medium-textured alluvium and the underlying loamy-skeletal alluvium. These soils are on flood plains and alluvial fans. It is occasionally flooded for brief periods in the spring. Native vegetation is deciduous hardwoods. This soil is well suited for trees. Plant competition is moderate. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site index for hardwood species is 95 for yellow-poplar. Preferred trees to manage for are bitternut hickory, white oak, red oak, black walnut, and yellow-poplar.

Wellston silt loam (WeC2) This series consists of deep or very deep, well-drained soils formed in silty material from loess and from fine-grained sandstone or siltstone and with bedrock at depths of 40 to 72 inches. Wellston soils are on nearly level to steep uplands in areas of acid sandstone, siltstone, or shale bedrock; but are most common on ridgetops. Slope ranges from 0 to 50 percent but are dominantly 4 to 18 percent. Native vegetation consisted of oak, hickory, dogwood, tulip poplar, and cherry. This soil is fairly well suited to trees. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. Seedlings survive and grow well if competing vegetation is controlled. The site indexes for hardwood species is 81 (red oak) and 90 (yellow-poplar). Preferred trees to manage for are black oak, chestnut oak, persimmon, red oak, scarlet oak, shagbark hickory, yellow-poplar, and white oak.

Zanesville silt loam (ZaC2) This gently sloping, deep, moderately well-drained or well-drained soil is found on ridge tops on the uplands. The soil is well suited to trees. Plant competition is moderate. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site index for this soil ranges from 70 (white oak) to 90 (yellow-poplar). Preferred trees to manage for are black oak, bur oak, chestnut oak, persimmon, scarlet oak, red oak, and white oak.

Access

To access this tract go approximately 10 miles south from the intersection of US50 and State Road 135 and the property will be located to the west side of State Road 135. Old unused dirt roadbeds running in the tract are only accessible through private property on the south and northeast.

Boundary

The northern tract boundary is the intermittent stream and then runs northeast up an ephemeral to the property corner. The east line is a private property line until it hits State Road 135 at which point it follows the road until it hits private ownership on the south end of the tract. The west line runs along a ridge top running to the northwest.

Wildlife

Wildlife Habitat Feature Tract Summary

Snags (all species)	Maintenance Level	Optimal level	Inventory	Available above maintenance	Available above optimal
5"+DBH	164	287	291	127	4
9"+DBH	123	246	291	168	45
19"+DBH	20.5	41	33	13	-8

The wildlife habitat feature summary indicates that the 5"DBH and 9" DBH class for snags exceed in both the maintenance and optimal levels. The 19" DBH class is above the maintenance level. Additional snags will be created in each DBH class through post harvest Timber Stand Improvement (TSI).

A Natural Heritage Database review was completed for this tract. If Rare, Threatened or Endangered species (RTE's) were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Communities

A Natural Heritage Database review was completed for this tract. If Rare, Threatened or Endangered species (RTE's) were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Forest Condition

TM 901 RESOURCE MANAGEMENT GUIDE			
INVENTORY SUMMARY			
		Compartment: 7	
State Forest:	Jackson-Washington	Tract: 2	
Forester:	Sandy Derringer	Inventory Date:	1/23/15
ACREAGE IN:			
Forest	41		
Non-Forest			
Water			
Permanent Openings			
Other Uses			
TOTAL AREA	41		
(Estimated Tract Volumes for Commercial Forest Area-Bd.Ft., Doyle Rule)			
SPECIES	HARVEST STOCK	GROWING STOCK	TOTAL VOLUME
Chestnut oak	38,110	97,950	136,060
Sugar maple	24,490	23,090	47,580
American beech	11,460	26,000	37,460
Yellow poplar	2,750	19,520	22,270
White oak	2,700	18,260	20,960
Pignut hickory	0	20,300	20,300
White ash	13,830	0	13,830
Northern red oak	0	12,510	12,510
Shagbark hickory	0	10,060	10,060
Black oak	1,700	2,520	4,220
Black walnut	0	2,780	2,780
			0
TRACT TOTALS	95,040	232,990	328,030
PER ACRE TOTALS	2,318	5,683	8,001

The inventory for this tract showed an estimated total volume of 328,030bd.ft, harvest volume of 95,040bd.ft and a leave volume of 232,990bd.ft. The estimated per acre volumes are 8,001bd.ft.per acre total volume, 2,318bd.ft.per acre harvest volume and 5,683bd.ft.per acre growing stock. The top three species by volume in the harvest category are chestnut oak, sugar maple and white ash. The top three species in the tract by total volume are chestnut oak, sugar maple and American beech. The stocking shows current stocking at 66% with a reduction to 46% stocking after the harvest. Current basal area is 86.5sq.ft.per acre with a post harvest basal area estimated at 61.28sq.ft.per acre.

This area seems very open with scattered large yellow poplar and American beech. There are no visible stumps indicating a past heavy harvest. The trees per acre will decrease from 63 trees per acre to an estimated 47 trees per acre after the harvest. The dominant understory in the tract is American beech and sugar maple with some of the dryer ridgetops having chestnut oak also.

Recreation

Primary recreational use of this tract is hunting.

Cultural

Cultural resources may be present but their location(s) are protected. Adverse impacts to significant cultural resources noted will be avoided during management or construction activities.

Tract Subdivision Description and Prescription

Mixed hardwoods

Beech –Maple – Yellow poplar – The overstory species in this tract consist of mainly American beech with some sugar maple and yellow poplar. The understory is American beech and sugar maple and the regeneration is mainly American beech. This timber type is located in the area of the unmapped intermittent stream and the ephemerals that run into it.

The management prescription for this subdivision would be to implement an improvement harvest utilizing single tree and group selection openings. The single tree selection will focus on removal of poor quality, competing and overmature American beech and sugar maple to release the healthy more vigorous tree present. The group selection would be to remove pockets of low quality American beech to encourage growth of other species such as oak and hickory to spread down the slopes farther. This will provide more sunlight and nutrient to enhance the development of the forest that remains. Within the regeneration openings species likely to occur in the years following removal of overstory and completion of the openings via post harvest timber stand improvement (TSI) are the following: Yellow poplar, hickories, white oak, black oak, and chestnut oak.

Mixed Hardwoods - This area makes up the northern end of the tract containing the intermittent stream, the northern hillside south of the stream on the ridgetop on the west side of the tract and the beginning of the ephemeral on the south side of the tract. The overstory consists of American beech, sugar maple, yellow poplar, white ash, pignut hickory, shagbark hickory, sycamore, and some red oak. There were some large American beech and yellow poplar in the area of the intermittent stream. Understory trees were American beech, sugar maple, sycamore and oak. Regeneration was mainly American beech and sugar maple.

The management prescription for this subdivision would be to implement an improvement harvest utilizing single tree and group selection openings. The single tree selection will focus on removal of poor quality, competing and overmature trees such as

the American beech, to release the healthy more vigorous trees present. This will provide more sunlight and nutrient to enhance the development of the forest that remains. White ash with any signs of Emerald Ash borer should be removed due to a next to zero survival rate. Other white ash will be left in the tract. Within the regeneration openings species likely to occur in the years following removal of overstory and completion of the openings via post harvest timber stand improvement (TSI) are the following: American beech, yellow poplar and sugar maple.

Oak-Hickory – This area is about a third of the way down the slopes on the finger of the ridge running northeast. The overstory is composed of chestnut oak, black oak, red oak, white oak, and pignut hickory. The understory is composed of chestnut oak, pignut hickory, and sugar maple. Regeneration is American beech and sugar maple.

The management prescription for this subdivision would be to implement an improvement harvest utilizing single tree and group selection openings. The single tree selection will focus on removal of poor quality, competing and overmature trees to release the healthy more vigorous oak and hickory trees present. The group selection openings will focus on removal of areas with a lot of butt rot or scattered large yellow poplar and white oak. Within regeneration openings species likely to occur in the years following removal of overstory and completion of the openings via post harvest timber stand improvement (TSI) are the following: sugar maple, yellow poplar, white ash and some oaks.

Chestnut oak – This area is the upper section on the ridge running to the northwest, but comprises more of the ridge that runs to the northeast. The overstory is mostly Chestnut oak. The understory contains sugar maple, American beech, red oak, black oak, and pignut hickory. Regeneration is composed of American beech, sugar maple and sassafras with an occasional white ash and chestnut oak.

The management prescription for this subdivision would be to implement an improvement harvest utilizing single tree and group selection openings. The single tree selection will focus on removal of poor quality, competing and overmature chestnut oak to release the healthy more vigorous oak trees present. Group selection openings will focus on removal of groups of poor quality and dying chestnut oak. Within regeneration openings species likely to occur in the years following removal of overstory and completion of the openings via post harvest timber stand improvement (TSI) are the following: sugar maple, yellow poplar, hickories and chestnut oak.

Tract Prescription and Proposed Activities

Although the basal area of this tract is near the lower level of a fully stocked stand, I believe a harvest would benefit the stand and still leave the basal area of the tract at an appropriate level. The large, over mature American beech and yellow poplar have suppressed the growth of other trees. The management prescription for this subdivision would be to implement an improvement harvest utilizing single tree and group selection openings. The single tree selection will focus on removal of poor quality, competing and

over mature trees to release the healthy more vigorous trees present. This will provide more sunlight and nutrient to enhance the development of the forest that remains. The regeneration openings will focus on the removal of pockets of low quality American beech and areas of poor quality dying chestnut oak. Within the regeneration openings species likely to occur in the years following removal of overstory and completion of the openings via post harvest timber stand improvement (TSI) are the following: American beech, sugar maple, yellow poplar, sassafras, hickories and oaks. Much of the white ash will be removed during the harvest with some to remain in the tract even after post harvest TSI. Best management practices will be implemented during and after the harvest to minimize impact on soil and water resources.

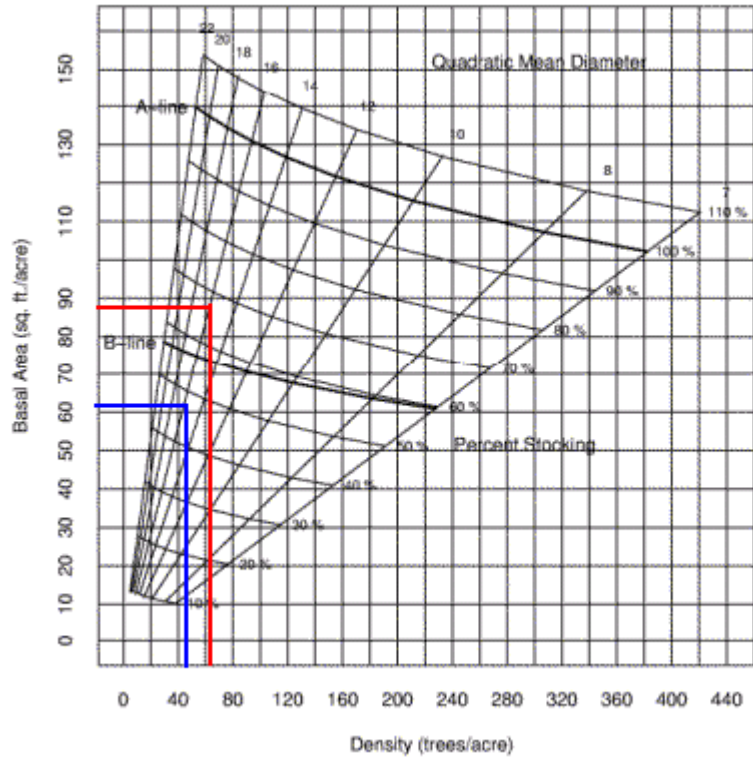
Follow the harvest with TSI to deaden any culls, release any future crop trees and reduce the amount of American beech and Sugar maple competing with the oak regeneration. TSI would also focus on the removal of grapevines present. Another inventory will be performed in approximately 20 years.

Proposed Activities Listing

Proposed Management Activity	Proposed Date
Mark, harvest and sell timber	2015 – 2016
Post-harvest TSI	2017 – 2018
Regeneration monitoring > 1 acre in size	2018 – 2020
Inventory and management plan	2037

Attachments

Stocking Guide Compartment 07 Tract 02 41 acres



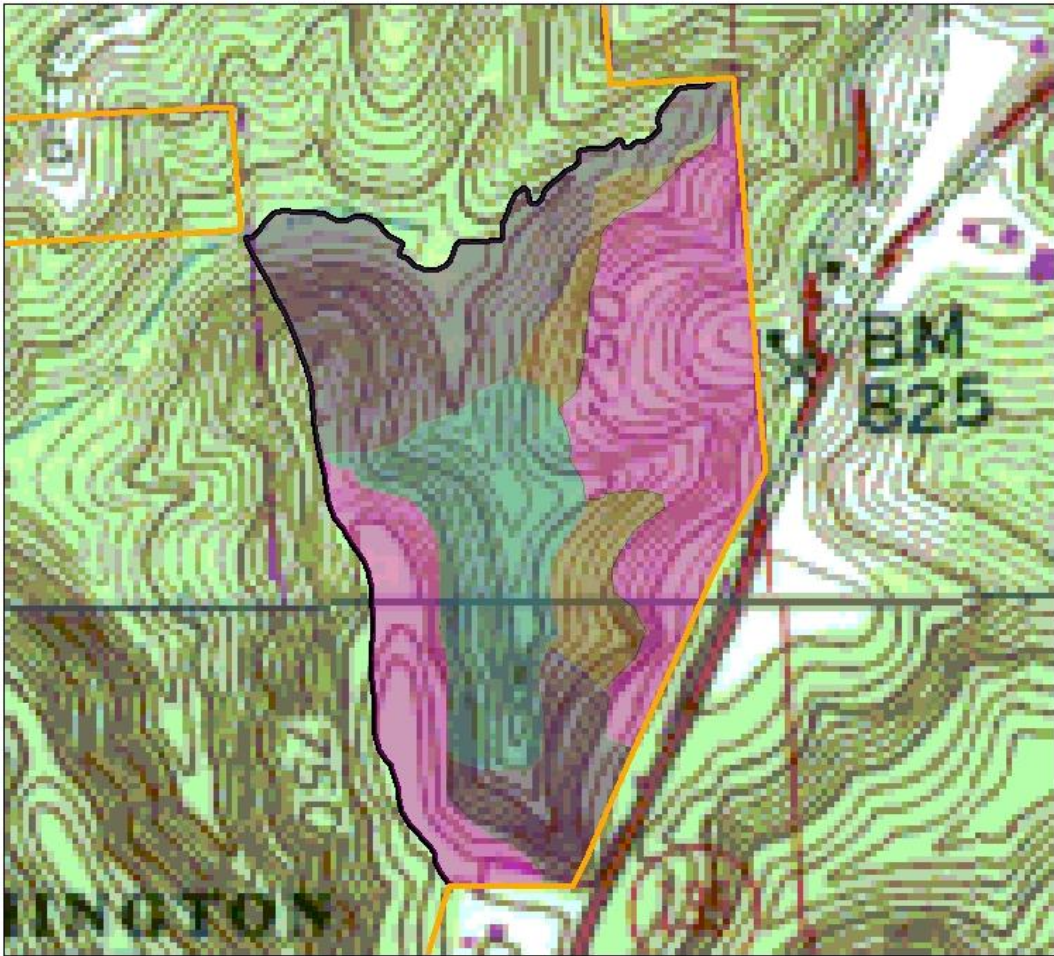
Pre-Harvest Inventory Data in Red (Sub merchantable trees excluded)

Total BA/A = 86.5 sq.ft. per acre
Total #trees/acre = 63 trees per acre
Avg. tree diameter = 15.9 inches
Percent stocking = 66%

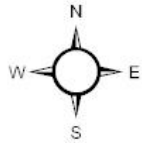
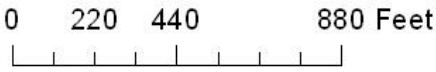
Post-Harvest Inventory Data in Blue (Sub merchantable trees excluded)

Total BA/A = 61.28 sq.ft. per acre
Total #trees/acre = 47 trees per acre
Avg. tree diameter = 15.1 inches
Percent stocking = 46%

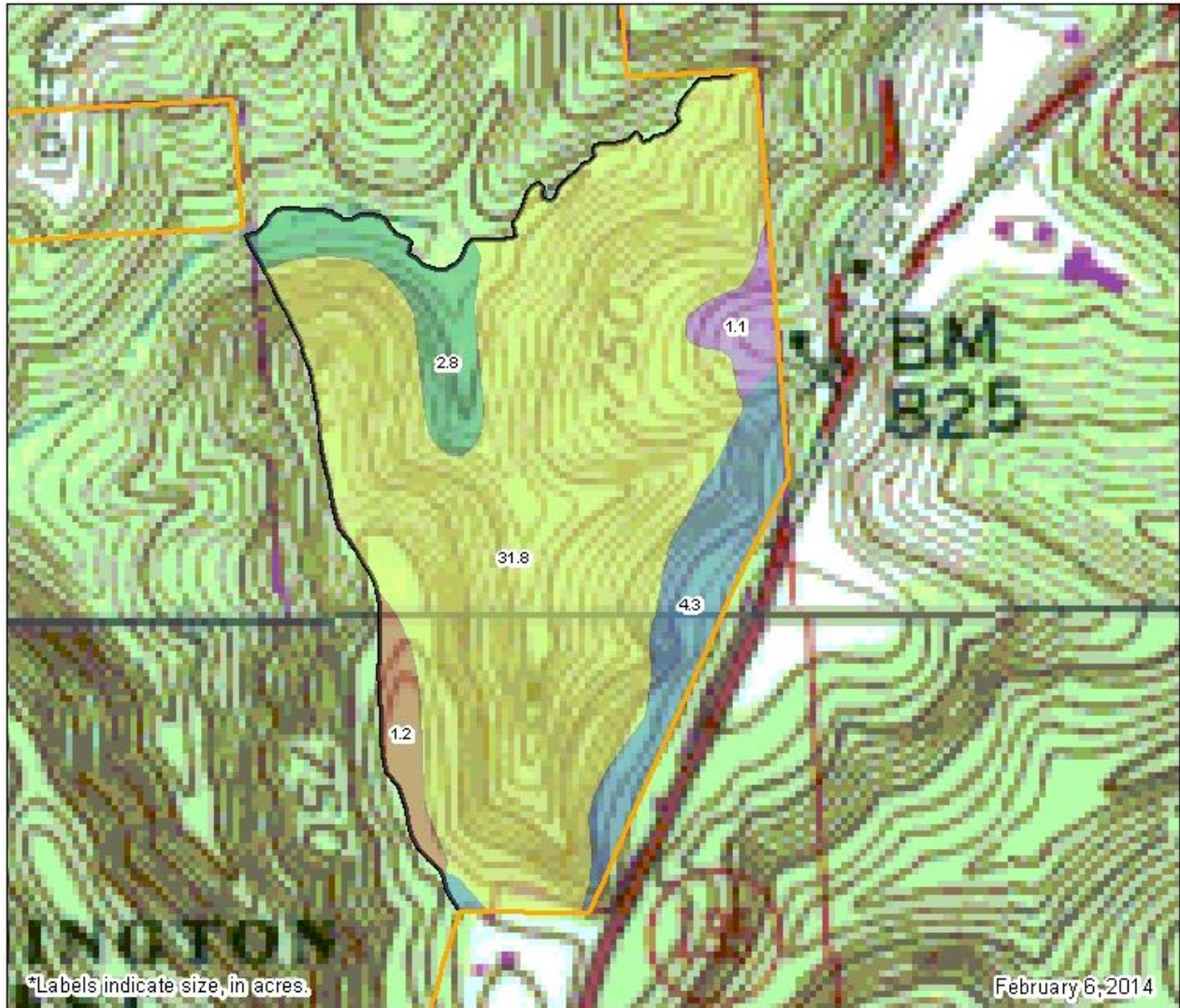
Jackson-Washington State Forest Compartment 7 Tract 2 Tract Subdivision Map



Legend	
	American beech, sugar maple, yellow poplar
	Chestnut oak
	Mixed hardwoods
	Oak-hickory
	Tract Boundary
	Property Boundary



Jackson-Washington State Forest Compartment 7 Tract 2 Soils Map

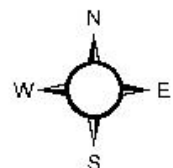


Legend

Soils

- BdB
- BhF
- Bu
- WeC2
- ZaC2
- Property Boundary
- Tract Boundary

0 230 460 920 Feet



RESOURCE MANAGEMENT GUIDE

State Forest: Jackson-Washington
Forester: Sandy Derringer
Management Cycle End Year: 2037

Compartment: 7 Tract: 3
Date: 2/11/2015
Management Cycle Length: 20 years

Location

This 67 acre tract is located in section 30, T4N, R4E in Washington County. It is located about 10.5 miles south of Brownstown, IN.

General Description

This 67 acre tract is composed of steep slopes in the southern section that have 2 main ridges forming a “v”. The northern section is composed of less steep slopes with a mapped intermittent stream. There is an unmapped intermittent stream that flows north into the mapped intermittent stream. The forest cover type is composed of mixed hardwoods and chestnut oak.

History

This tract is composed of two purchases. The first is from Alice E. Denney as administratrix of the estate of Mary E. Coffey on March 31, 1969. The second is from Erman Hall on February 7, 1997.

A harvest operation was conducted in 1989 from tract 3 and 2. The harvest in this tract consisted of 323 trees and 106 culls containing an estimated 55,111bd.ft. Lines have been located in the past and marked with flagging.

Landscape Context

Land around this tract is mostly forested; both private and state owned. There is a 10 acre private parcel to the north that contains a residence and is surrounded by the State owned property on the north, east and south sides. Scattered rural residential homes are located on Goat Hollow as well as Old 135 and Hwy 135. A few agricultural fields are located east of HWY 135 and to the south of Goat Hollow road as well as Collett Cemetery. The Muscatatuck River is approximately a mile north of the tract. There is also a private lumber mill to the northeast and southwest of the tract.

Topography, Geology and Hydrology

This tract is composed of two ridges that form a “v” with the opening to the north. The ridge running to the northwest is very steep. The slopes on this ridge go down very steep to a flat area that appears to be a side cut and then down again repeating this twice in some areas. The ridge running to the north east has less steep slopes. Near the end of this ridge are rock outcroppings with some loose. An unmapped intermittent stream runs north and flows into the mapped intermittent stream that runs to the west. North of the intermittent stream are less steep fingers going to the southwest. Old unused dirt roadbeds run both ridges. Another road bed that appears to be used by unauthorized ATV users runs onto state in the area of the intermittent stream crossing it and heading east.

Areas in the drains on the northern end of the ridge running northwest seem to have unstable soil with sloughing off of the soil.
Bedrock in this area is sandstone and siltstone.

Soils

Bedford silt loam (BdB) The Bedford series consists of moderately well drained soils formed in loess and the underlying loamy material over a paleosol from clayey residuum. They are on hills underlain with limestone bedrock. They are very deep soils that are moderately deep to a fragipan. Permeability is moderate above the fragipan and very slow in the fragipan. Slopes range from 0 to 12 percent. Native vegetation is mixed hardwood forest, chiefly oaks, maple, hickory, elm, ash, and hackberry. This soil complex is suited for trees. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species range from 70 (white oak) to 90 (tulip poplar). Preferred trees to manage for are black oak, bur oak, chestnut oak, scarlet oak, shingle oak, red oak, and white oak.

Berks-Weikert complex (BhF) This soil series is steep to very steep, well drained soils are on side slopes in the upland areas. The Berks soil is moderately deep, and the Weikert soil is shallow. The two soils occur as areas so intricately mixed that mapping them separately is not practical. This soil complex is suited for trees. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species range from 50 (black oak) to 70 (white oak). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Burnside silt loam (Bu) This series consists of deep, well drained soils that formed in 30 to 61 centimeters (12 to 24 inches) of medium-textured alluvium and the underlying loamy-skeletal alluvium. These soils are on flood plains and alluvial fans. It is occasionally flooded for brief periods in the spring. Native vegetation is deciduous hardwoods. This soil is well suited for trees. Plant competition is moderate. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site index for hardwood species is 95 for yellow-poplar. Preferred trees to manage for are bitternut hickory, white oak, red oak, black walnut, and yellow-poplar.

Crider silt loam (CoB, CoC2, CoD2) This soil series consists of deep, well drained, moderately permeable soils on uplands. They formed in a loess mantle and the underlying residuum from limestone. Slopes range from 0 to 30 percent. Nearly all of the soil is used for growing crops and pasture. The original vegetation was mixed hardwood forest, chiefly of oaks, maple, hickory, elm, ash, and hackberry. These soils are well suited for trees. There is no major hazards affecting the harvest and planting of trees until you reach a slope in excess of approximately 12%. Once this percent slope is reached special considerations need to be addressed. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species range from 90 (white oak) to 98 (tulip poplar). Preferred trees to manage for are black cherry, black oak, black walnut, bur

oak, chinkapin oak, Kentucky coffeetree, red oak, pecan, shagbark hickory, yellow-poplar, and white oak.

Gilpin silt loam (GID2) This strongly sloping, moderately deep, and well drained soil is on side slopes in the uplands. This soil is fairly well suited to trees. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site indexes for hardwood species range from 80 (red oak) to 95 (yellow-poplar). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Wellston silt loam (WeC2, WeD) This series consists of deep or very deep, well-drained soils formed in silty material from loess and from fine-grained sandstone or siltstone and with bedrock at depths of 40 to 72 inches. Wellston soils are on nearly level to steep uplands in areas of acid sandstone, siltstone, or shale bedrock; but are most common on ridgetops. Slope ranges from 0 to 50 percent but are dominantly 4 to 18 percent. Native vegetation consisted of oak, hickory, dogwood, tulip poplar, and cherry. This soil is fairly well suited to trees. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. Seedlings survive and grow well if competing vegetation is controlled. The site indexes for hardwood species is 81 (red oak) and 90 (yellow-poplar). Preferred trees to manage for are black oak, chestnut oak, persimmon, red oak, scarlet oak, shagbark hickory, yellow-poplar, and white oak.

Access

To access this tract, go south on HWY 135 from HWY 50 about 10 ½ miles, turn west on Goat Hollow Road and it is approximately one tenth of a mile on the north side of the road. This tract has no access from Goat Hollow Road. Access must be obtained from one of five private landowners that adjoin the state forest in this area.

Boundary

The northern tract boundary also serves as a state boundary line that runs east to a property corner at which point it goes south-east slightly to the top of a ridge. It then follows the ridge line south to a property corner. The tract boundary, also serving as the state boundary, goes south from this corner to another east-west boundary line that lies just short of Goat Hollow Road. This line goes west until it reaches another property corner where it then goes northwest following a ridgeline until it meets another property corner. From this corner the tract/boundary line runs north to the northern tract boundary.

Wildlife

Snags(all species)	Maintenance Level	Optimal Level	Inventory	Above Maintenance	Above Optimal
5"+ DBH	240	420	223	-17	-197
9"+ DBH	180	360	164	-16	-196
19"+ DBH	30	60	38	8	-22

The wildlife habitat feature summary indicates that the 5"DBH and 9" DBH classes for snags are below the maintenance level. The 19" DBH class is above the maintenance level. Additional snags will be created in each DBH class through post harvest Timber Stand Improvement (TSI).

Evidence of White-tailed deer, raccoon and birds were seen in the tract.

A Natural Heritage Database review was completed for this tract. If Rare, Threatened or Endangered species (RTE's) were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Communities

A Natural Heritage Database review was completed for this tract. If Rare, Threatened or Endangered species (RTE's) were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Some multiflora rose was observed in the area where the intermittent stream splits and heads to the northeast. This should be monitored for further spread and possible treatment.

Forest Condition

TM 901 RESOURCE MANAGEMENT GUIDE			
INVENTORY SUMMARY			
		Compartment:	7
State Forest:	Jackson-Washington	Tract:	3
Forester:	Sandy Derringer	Inventory Date:	2/13/15
ACREAGE IN:			
Forest	60		
Non-Forest			
Water			
Permanent Openings			
Other Uses			
TOTAL AREA	60		

(Estimated Tract Volumes for Commercial Forest Area-Bd.Ft., Doyle Rule)

SPECIES	HARVEST STOCK	GROWING STOCK	TOTAL VOLUME
Chestnut oak	23,860	86,650	110,510
Sugar maple	5,250	54,010	59,260
American beech	4,410	41,170	45,580
Yellow poplar	0	32,860	32,860
Pignut hickory	0	18,840	18,840
White oak	1,920	16,910	18,830
Northern red oak	2,390	9,820	12,210
Shagbark hickory	0	8,080	8,080
Red maple	0	6,490	6,490
Black oak	2,640	2,950	5,590
White ash	3,290	1,100	4,390
Black walnut	0	2,010	2,010
Honey locust	0	900	900
			0
TRACT TOTALS	43,760	281,790	325,550
PER ACRE TOTALS	729	4,697	5,426

The inventory for this tract showed an estimated total volume of 325,550bd.ft, harvest volume of 43,760bd.ft. and a leave volume of 281,790bd.ft. The estimated per acre tract volumes are 5,426bd.ft.per acre total volume, 729bd.ft.per acre harvest volume and 4697bd.ft.per acre growing stock. The top three species by volume in the harvest category are chestnut oak, sugar maple and American beech. The top three species in the total volume are chestnut oak, sugar maple and American beech. The stocking shows a current stocking at 73% with a reduction to 67% stocking after the harvest. Current basal

area is 89.4sq.ft.per acre with a post harvest basal area estimated at 81.35sq.ft.per acre. The trees per acre will decrease from 117trees per acre to an estimated 112trees per acre after the harvest. The dominate understory in the tract is American beech, sugar maple and chestnut oak with some areas containing yellow poplar and hickories as well. Some areas of this tract had openings created in a past harvest that are beginning to grow up in poplar.

Recreation

This tract is mainly used for hunting.

Cultural

Cultural resources may be present but their location(s) are protected. Adverse impacts to significant cultural resources noted will be avoided during management or construction activities.

Tract Subdivision Description and Prescription

American beech-sugar maple-yellow poplar- This subdivision is found mainly along the mapped intermittent stream and the unmapped intermittent stream and continues about 1/3 to 1/2 up the slope especially in the ephemerals. The overstory species in the tract are mainly American beech, sugar maple and yellow poplar. The understory is composed of mainly American beech, sugar maple, yellow poplar and a few scattered oaks and hickories. Most of the trees seem to be of good quality with some poor quality beech by the unmarked intermittent stream.

The management prescription for this subdivision would be to implement an improvement harvest utilizing single tree and group selection openings. The single tree selection will focus on removal of poor quality, competing and over mature American beech and sugar maple to release the healthy more vigorous trees present. Some American beech can be removed around an old opening on a slope on the east side of the tract to open up the area more. The old opening from a previous harvest is full of several 6-10" yellow poplar. The group selection openings would focus on the removal of poor quality American beech or large areas of American beech next to an opening that could be expanded from a past sale. This will provide more sunlight and nutrient to enhance the development of the residual stand. Within the regeneration openings species likely to occur in the years following removal of the over-story and completion of the openings via post harvest Timber Stand Improvement (TSI) are the following: Yellow poplar, chestnut oak, pignut hickory, and sassafras.

Grapevines in this area would also need to be treated during the TSI.

Chestnut oak – This area is mostly on the ridgetops of this tract. The over-story species are mainly chestnut oak, sugar maple, and pignut hickory with a few scattered white and black oak. The understory is composed of chestnut oak, sugar maple, pignut hickory, yellow poplar and white oak. The management prescription for this subdivision would be to implement an improvement harvest utilizing single tree and group selection openings. The priority would be to remove the lower quality chestnut oak. The single tree selection would be to remove scattered large over mature and low quality trees competing with the better quality trees. The group selection would be removal of large areas of low quality

trees in order to promote the growth of remaining oaks and hickories. Within the regeneration openings species likely to occur in the years following removal of overstory and completion of the openings via post harvest Timber Stand Improvement (TSI) are the following: Yellow poplar, chestnut oak, pignut hickory, and sassafras. Grapevines in this area need to be treated during the timber stand improvement.

Mixed hardwoods – This subdivision is in the northern area of the tract and about midslope in the rest of the tract. The overstory is composed of American beech, sugar maple, white oak, red oak, black oak, chestnut oak, pignut hickory, white ash and yellow poplar. The understory is composed of yellow poplar, American beech, sugar maple and chestnut oak. The management prescription for this subdivision would be to implement an improvement harvest utilizing single tree and group selection openings. Most of the subdivision should be harvested to encourage growth of better quality oaks and hickories with removal of low quality, suppressed, and dying species present in the tract. The single tree selection will focus on the removal of the over mature, poor quality and competing trees in the tract to allow growth of the better quality trees remaining. The group selection harvest will remove areas of poor quality trees near old openings to expand them and remove areas of poor quality trees. This will provide more sunlight and nutrient to enhance the development of the residual stand. Within the regeneration openings species likely to occur in the years following removal of over-story and completion of the openings via post harvest TSI are the following: Yellow poplar, chestnut oak, pignut hickory, and sassafras.

Tract Prescription and Proposed Activities

The management prescription for this subdivision would be to implement an improvement harvest utilizing single tree and group selection openings. The single tree selection will focus on removal of poor quality, competing and over mature trees to release the healthy more vigorous trees present. This will provide more sunlight and nutrients to enhance the development of the residual stand. Within the regeneration openings species likely to occur in the years following removal of overstory and completion of the openings via post harvest TSI are the following: yellow poplar, chestnut oak, pignut hickory and white ash. Although some white ash will remain in the tract, those trees impacted by the Emerald Ash Borer should be removed. Best management practices will be implemented during and after the harvest to minimize impact on soil and water resources.

The multiflora rose in the tract should be monitored for spread.

Follow the harvest with TSI to deaden any culls, release any future crop trees and reduce the amount of low quality American beech and Sugar maple competing with the oak and hickory in the understory regeneration. TSI should also concentrate on removal of grapevines in the area. Another inventory will be performed in approximately 20 years following the harvest.

Proposed Activities Listing

Proposed Management Activity	Proposed Date
Mark, sell and harvest timber	2015 – 2016
Post harvest TSI	2017 – 2018
Regeneration monitoring >1 acre in size	2018 – 2020
Inventory and management plan	2037

To submit a comment on this document, click on the following link:

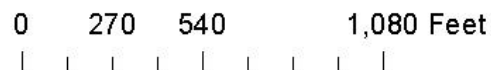
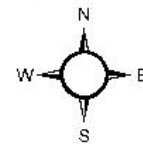
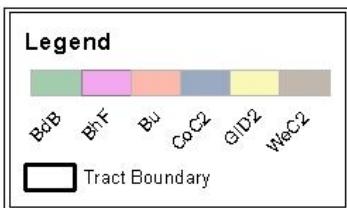
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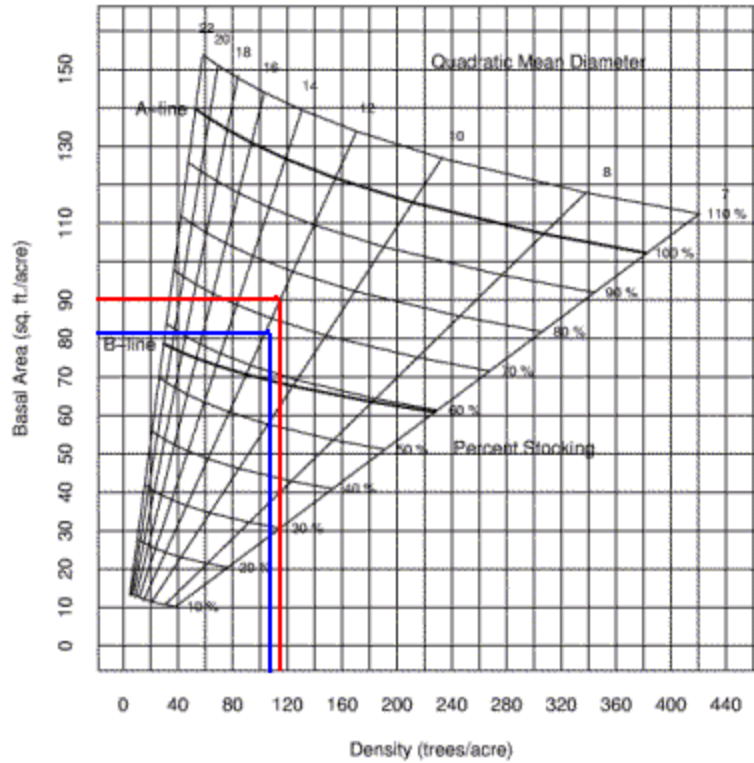
Note: Some graphics may distort due to compression.

Attachments

Jackson-Washington State Forest Compartment 07 Tract 03 Soils Map



Stocking Guide
Compartment 07 Tract 03
60 acres



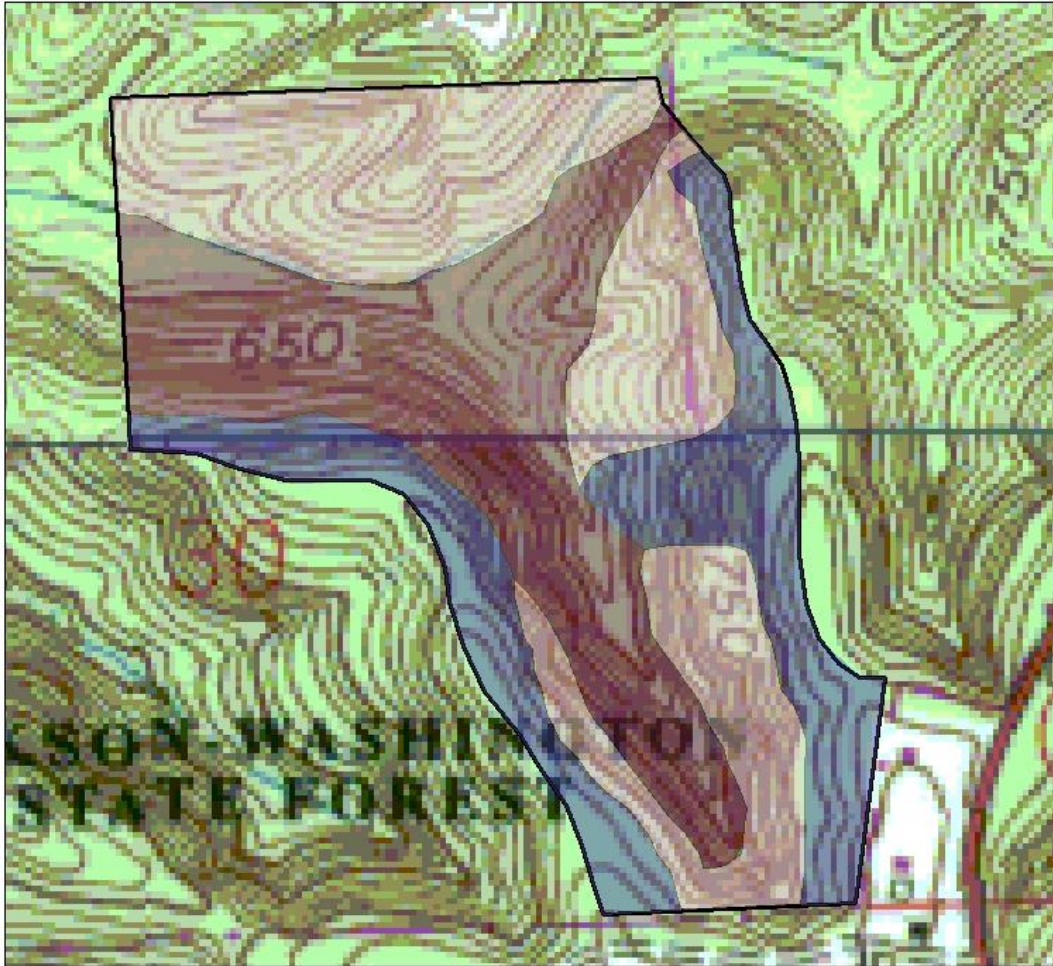
Pre-Harvest Inventory Data in Red

Total BA/A = 89.7 sq.ft./AC
Total #trees/acre = 116
Avg. tree diameter = 12 inches
Percent stocking = 73%





Post-Harvest Inventory Data in Blue

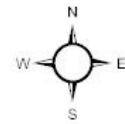
Total BA/A = 81.35 sq.ft./AC
Total #trees/acre = 112
Avg. tree diameter = 11.5 inches
Percent stocking = 67%

**Jackson-Washington State Forest
Compartment 07 Tract 03
Tract Subdivision**



Legend

-  American beech-sugar maple-yellow poplar
-  Chestnut oak
-  Mixed hardwoods
-  Tract Boundary



RESOURCE MANAGEMENT GUIDE

State Forest: Jackson-Washington
Forester: Taylor Ardisson
Management Cycle End Year: 2050

Compartment: 07 Tract: 05
Date: 04/17/2020 Acres: 35
Management Cycle Length: 30 years

Location

The tract is located in Washington County, Indiana, more specifically, the Southeast and Southwest quarter of section 30, Township 3 North Range 4 East within the Monroe Township. This tract is approximately 11 miles south of Brownstown and approximately 11 miles north of Salem off of state road 135.

General Description

Most of this tract is dominated by a middle aged dry Oak-Hickory cover type of primarily Chestnut Oak. Although the tract is almost overstocked the overall health of this stand is generally good at this time with a few signs of mortality. The aspect, soil conditions, and abundance of Chestnut Oak have allowed there to be a fair amount of Oak regeneration and very few invasive plants.

History

On March 30th, 1969 105 acres was purchased from Alice E Denney. Approximately 17 acres of this purchase makes up compartment 7 tract 5.

On November 15th, 1963 40 acres was purchased from George E Williams. The other 18 acres of compartment 7 tract 5 is within this purchase.

In 1995, this tract was inventoried and a resource management guide was developed.

This tract shows no signs of previous harvest prior to acquisition.

Landscape Context

Directly to the East for a half a mile and the West, a mile and a half, is continuance of Jackson Washington State Forest compartment 7.

The surrounding property to the North and South is primarily forested that is slightly fragmented with agricultural land use. No predicted changes occurring to the nearby land use in the near future.

Topography, Geology and Hydrology

The topography of this tract is gentle to steep western and southern facing slopes with one main ridge.

There is one mapped intermittent stream in this tract. The stream runs to the northwest from the southwest corner where it begins as an ephemeral drainage for the first ~500 feet. During any management activities tops would be removed from the stream. Due to the topography of this tract there is also many ephemeral drainages between the razor backs.

The geology of the tract consists of four different soil series with the majority of the tract composed of the Berks-Weikert Complex soil series. The parent material of these 4 soil

series are a mixture of loess and loamy residuum weathered from siltstone, limestone, sandstone and shale.

Soils

Berks-Weikert complex (BhF) This soil series is steep to very steep, well drained soils are on side slopes in the upland areas. The Berks soil is moderately deep, and the Weikert soil is shallow. The two soils occur as areas so intricately mixed that mapping them separately is not practical. This soil complex is suited for trees. The erosion hazard, the equipment limitations, seedling mortality, windthrow hazard, and plant competition are concerns in managing the woods. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species range from 50 (black oak) to 70 (white oak). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Crider silt loam (CoB, CoC2, CoD2) This soil series consists of deep, well drained, moderately permeable soils on uplands. They formed in a loess mantle and the underlying residuum from limestone. Slopes range from 0 to 30 percent. Nearly all of the soil is used for growing crops and pasture. The original vegetation was mixed hardwood forest, chiefly of oaks, maple, hickory, elm, ash, and hackberry. These soils are well suited for trees. There is no major hazards affecting the harvest and planting of trees until you reach a slope in excess of approximately 12%. Once this percent slope is reached special considerations need to be addressed. The erosion hazard, the equipment limitations, and plant competition are the main concerns in the management of wooded areas. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species range from 90 (white oak) to 98 (tulip poplar). Preferred trees to manage for are black cherry, black oak, black walnut, bur oak, chinkapin oak, Kentucky coffeetree, red oak, pecan, shagbark hickory, sugar maple, yellow-poplar, and white oak.

Gilpin silt loam (GID2) This excessive sloped, moderately deep, and well-drained soil is on side slopes in the uplands. This soil is fairly well suited to trees. The erosion hazard, the equipment limitations, and plant competition are the main concerns in the management of wooded areas. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. During wet periods, roads tend to be slippery and ruts form easily. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site indexes for hardwood species range from 80 (red oak) to 95 (yellow-poplar). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Wellston silt loam (WeC2, WeD) This series consists of deep or very deep, well-drained soils formed in silty material from loess and from fine-grained sandstone or siltstone and with bedrock at depths of 40 to 72 inches. Wellston soils are on nearly level to steep uplands in areas of acid sandstone, siltstone, or shale bedrock; but are most common on ridgetops. Slope ranges from 0 to 50 percent but are dominantly 4 to 18 percent. Native

vegetation consisted of oak, hickory, dogwood, tulip poplar, and cherry. This soil is fairly well suited to trees. The erosion hazard, the equipment limitations, and plant competition are the main concerns in the management of wooded areas. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. During wet periods, roads tend to be slippery and ruts form easily. Seedlings survive and grow well if competing vegetation is controlled. The site indexes for hardwood species is 81 (red oak) and 90 (yellow-poplar). Preferred trees to manage for are black oak, chestnut oak, persimmon, red oak, scarlet oak, shagbark hickory, sugar maple, yellow-poplar, and white oak.

Access

Currently there is no direct vehicle access to this tract. The tract is accessible by foot off of Goat Hollow Road. From SR 135, head west on Goat Hollow Road for approximately a tenth of a mile and the southern edge of this tract is off the road by approximately 10 feet. Within the tract itself accessibility is by the main ridge, which is also an old fire access road #502 that heads to the north. The tract is only restricted between razorbacks where topography may be a limiting factor for any management activities.

Boundary

The northern and southern boundary serves as the state forest boundary line. The state forest boundary line was identified using field evidence such as corner stones or rebar and GPS handheld units when no field evidence was identified. The eastern tract boundary runs to the north/northwest following the main ridge top/fire access road. The south western boundary of the tract starts in the southwest corner and continues to the northwest following the drainage and eventually the intermittent stream until it reaches the property line.

Ecological Considerations

A diverse assortment of wildlife resources are found on this tract conducive to providing habitat for a variety of wildlife species. Habitat includes:

- Contiguous Oak-Hickory canopy
- Contiguous Mixed hardwood canopy
- Diverse age, size, and species composition throughout the understory and midstory of the canopy.

Hard mast trees such as oaks, hickories, and American beech provide food source to both game and non-game species.

Forest wildlife species depend on live trees for shelter, escape cover, roosting and as a direct (e.g., mast, foliage) or indirect (e.g., foraging substrate) food resource. The retention of live trees within various diameter classes is of particular concern to habitat specialists such as the Indiana bat.

The Division of Forestry has developed compartment level guidelines for two important wildlife structural habitat features: snags and legacy trees. Snags are standing dead or dying trees. Snags provide value to a stand in the form of habitat features for foraging

activity, den sites, decomposers, bird perching, and bat roosting. Snags eventually contribute to the future pool of downed woody material. Downed wood debris provides habitat for many species and contributes to healthy soils. Legacy trees are specific tree species that are preferred by the Indiana bat for roost trees.

Snags (All Species)	Maintenance Level	Inventory	Available Above Maintenance
*Legacy Trees 11" + DBH	315	444	129
*Legacy Trees 20" + DBH	105	100	-5
Snag 5" + DBH	140	112	-28
Snag 9" + DBH	105	112	7
Snag 19" + DBH	18	10	-8
*Selected Tree Species: AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO			

Inventory data for Compartment 7 Tract 5 shows that legacy trees 11" + and snags 9" + exceed maintenance levels, while legacy trees 20" + and snags 5" + and 19" + are below target maintenance levels.

It is important to note that these are compartment guidelines and that even though the estimated tract data does not quite meet all target levels, it is likely that suitable levels are present for these habitat features in the surrounding landscape. The prescribed management will maintain or enhance the relative abundance of these features.

A Natural Heritage Database Review is part of the management planning process. If Rare, Threatened or Endangered communities were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Communities

This tract consists of a typical plant community found on dry southern facing slopes. The plant diversity consists of primarily but not limited to blackberry, greenbrier, and viburnum species. In the mixed hardwoods stand found near the stream and bottom portions of the razorbacks, the plant community consists of spicebush, paw paw, and miscellaneous native grasses. Within this tract there was very little invasives species found. Multiflora rose was the most common if seen, however there was small patches of garlic mustard near the stream as well. Treatment efforts should be focused on the garlic mustard due to its prolific seeding capabilities, availability to spread by moving water, and ease of treatment due to biannual life cycle.

Recreation

If there is any recreational use of compartment 7 tract 5, it would be hunting for nearby landowners due to no available parking near this tract. During any management activity, specifically a timber harvest, access into this tract will be restricted due to safety concerns. Following the management activity the tract would be reopened to public use.

Cultural

Cultural resources may be present but their location(s) are protected. Adverse impacts to significant cultural resources noted will be avoided during any activities.

Tract Subdivision Description and Prescription

Forest Condition

A current forest resource inventory was completed on 04/07/2020 by Forester Taylor Ardisson. A summary of the estimate tract inventory results are located in the table below.

Tract Summary Data (Trees > 14" DBH)

Species	# Sawtimber Trees	Total Bd. Ft
American Beech	149	32,300
Black Cherry	20	4,990
Blackgum	14	560
Black Oak	18	750
Chestnut Oak	954	122,850
Northern Red Oak	13	5,880
Pignut Hickory	52	7,780
Red Maple	33	4,030
Scarlet Oak	11	2,280
Shagbark Hickory	26	3,920
Sugar Maple	125	26,130
White Oak	101	20,390
Yellow Poplar	16	6,740
TRACT TOTALS	1,532	238,600

Oak-Hickory (26 acres)

This stand type is characterized as Oak-Hickory because of dominant overstory species consisting of oak and hickory species. The Oak-Hickory stand type makes up 74% of the tract and is currently fully stocked at ~91% with approximately 139 trees per acre and an average basal area of 111. The dominant species is chestnut oak with an estimated 6,150 bd. ft. of saw timber per acre. White oak and American beech are the next most abundant species with an estimated 4,301 bd. ft. and 1,127 bd. ft. of saw timber per acre, respectively. The bulk of the remaining tree species in this stand type are Northern Red Oak, Pignut Hickory, and Red Maple. The mid-story (pole sized timber) is comprised of mostly chestnut oak (92%), American beech (5%) and red maple (2%). The understory is diverse while the leading three regenerating species are sugar maple, red maple and American beech. However, saplings of pignut hickory and chestnut oak were more common than on other nearby sites. This stand is small to medium size sawtimber. Due to the stand just entering maturity the recommend management activity is to conduct an improvement harvest utilizing single tree selection targeting poorly formed individuals, trees declining in health and trees with a small live crown percentage. This type of

management will give the residual healthier trees with better form and crown more available resources above and below ground. In conjunction with a single tree selection harvest, understory and midstory maple and beech should be removed from the stand to continue the favor of oak and hickory regeneration.

The top species for removal in this subdivision are chestnut oak, American beech, and red maple. The harvest volume for this stand is projected at 1,750 – 3,500 bd. ft. per acre. Following the timber harvest, timber stand improvement (TSI) should be conducted to complete the management process. Specifically, TSI will concentrate on completion of crop tree release, reduction of problem grapevines and understory and midstory removal.

Desired Future Condition

The objective of this cover type is to provide for multiple economic and ecological services specifically a quality hardwood timber stand, dominated by oak and hickory, while providing diverse habitat structure, hard mast and early to mid-seral habitat for wildlife.

Mixed Hardwoods (9 Acres)

This stand type is characterized as mix hardwoods because of the diverse species composition within the stand. This stand type is 26% of the total tract and is fully stocked with a stocking rate of 89% with ~103 trees per acre and an average basal area of 114. The stand currently is growing an estimated 8,439 bd. ft. per acre. The three dominant species in the dominant and codominant crown position are: sugar maple (32%), American beech (28%) and chestnut oak (13%). The midstory (pole sized timber) consists of primarily sugar maple (40%), American beech (14%) and sassafras (12%).

This stand has areas of higher quality sugar maple and American beech. Within the stand there is also areas where there is over mature yellow poplar, sugar maple with rot or hollowness most likely originating for maple borer damage, and few areas of problematic grapevines.

The recommended management activity is to conduct an improvement harvest utilizing single tree selection targeting poorly formed individuals, trees declining in health and trees with a small live crown percentage. In return this will give the diverse healthier trees with good form and larger live crown percentage more available resources above and below ground. Where conditions warrant, group selection silviculture should be utilized to facilitate the regeneration of shade intolerant species as well as a new cohort of young forest habitat. When possible, selection should also favor releasing future crop trees. The northern most edges of the stand there is an increase presence of chestnut oak, white oak, and hickory species and management should favor the retention of the healthier of these species.

The top species for removal within this stand are American beech, sugar maple and yellow poplar. The harvest volume for this stand is projected at 2,750 to 4,000 bd. ft. per acre. Following the timber harvest timber stand improvement (TSI) should be conducted to complete the management process. Specifically, TSI will concentrate on completion of

regeneration openings, crop tree release, and reduction of problem grapevines. In regards to invasive species, foresters should focus on treating any garlic mustard noticed before, during and after any management activities.

Desired Future Condition The objective of this cover type is to provide for multiple economic and ecological services specifically a quality hardwood timber stand, dominated by mid- and late-seral species, while providing diverse habitat structure, hard mast and mid to late-seral habitat for wildlife.

Tract Prescription and Proposed Activities

The proposed management activity is to conduct an improvement harvest to promote the overall health, resiliency, and quality of the stand. This improvement harvest will utilize single tree and group selection silviculture. The purpose of single tree selection is to remove trees with poor form and health, drought stressed or wind damaged trees to promote a healthier growing forest. It will also target declining ash from Emerald ash borer, mature and over mature trees where present, and other intermediate trees needed to release residual crop trees. Group selection will be used to target groups of trees that fit the above description growing together. Group selection openings will cover less than 15% of the tract.

Within two years of the timber harvest, a TSI operation should follow to release crop trees that were not adequately released during the harvest and complete regeneration openings. Additionally, TSI should be utilized to control targeted invasive species in the stand, and deaden a small percentage of low value trees to create snags for wildlife, such as the Indiana bat.

During and after completion of the proposed management activity BMP's will be implemented in order to minimize soil erosion. This tract should receive another inventory and management guide 25-35 years following the completion of the timber harvest.

Effect of Prescription on Tract Properties:

Landscape: Landscape forest patterns will remain similar to the current situation due to this tract being kept in a forested condition.

Soils: The management activities prescribed in this plan should have minimal impact on soils in this tract. Some soil disturbance is likely during harvesting but this should be confined to landings and main skid trails. These areas should will be properly closed out according to Indiana's BMPs to minimize the impact of management activities on soils.

Hydrology: Hydrology should not be permanently affected by management on this tract. Water quality and yield should not be altered if BMPs are followed during harvest. BMP use will be contractually required of management operators and monitored by property foresters.

Wildlife: Snags and coarse woody debris should remain at viable levels in the stratum and should continue to provide habitat. Managing to recruit newly established or released oaks and hickories will help to ensure that this important food source is available into the foreseeable future. Regeneration openings, such as prescribed have been shown to be of less of an issue from nest predators and generalist species as compared to hard edges such as public roadways, utility corridors and crop field edges. Placement of regeneration openings away from hard edges can minimize these potential impacts. The prescribed activity will promote wildlife diversity and enhance habitat structural components.

Additionally, management activities involving a timber harvest 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 regeneration openings will create early successional 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.

Recreation: Hunting and mushroom collecting by nearby locals would likely be the only recreation within this tract because of ease of access. Hunting would benefit from forest management by improving the health of the residual trees thus promoting an increase in hard mast, understory plant diversity, and young forest habitat. For user safety, these uses may be temporarily suspended during management activities.

Proposed Activities Listing

Proposed Management Activity

Proposed Date

Management Guide	2020
Treat vines and invasive plants	2020- 3 Years Post Harvest
Mark and Sell Timber Sale	2021-2022
Post-harvest Timber Stand Improvement	1-2 years after harvest
Forest Growth and Periodic Monitoring	3 years post-harvest - 2050
Inventory and Revise Management Guide	25-35 years after

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