Indiana Department of Natural Resources
Division of Forestry

RESOURCE MANAGEMENT GUIDE

State Forest Jackson-Washington	Compartment 04 Tract 09
Forester D. Potts	Date December 17, 2012
Management Cycle End Year 2037	Management Cycle Length 20 years

Location
This management area is located approximately 2.5 miles south of Brownstown, Indiana. More specifically section 26 of Driftwood Township, Township 5N and Range 4E. The area is more commonly referred to as Compartment 04 Tracts 09 of Jackson-Washington State Forest.

General Description
This general cover type is hardwood forest. The tract is 45 acres, all of which are considered commercial forest.

History
This tract is comprised of three separate land acquisitions. The first occurred in 1932 from Emil V. Heller and Edna Heller, 301.5 acres. The second, in 1933, from William Schaub, Roger S. Schaub and Myrtle Dee Schaub, W.F. Schaub and Barbara J. Schaub, sole and only heirs of Eva B. Schaub, deceased, 40 acres. The final acquisition, in 1950, from William A Shaw and Kathrine R. Shaw, 76 acres.

Landscape Context
The tract is completely surrounded by hardwood forest which are primarily used for timber production, recreation, and hunting. There is very limited agriculture being practiced within a one mile radius. Development is limited and primarily consists of single-family residences.

Topography, Geology and Hydrology
Topography in this tract varies from flat on the ridgetop to very steep on the side slopes. The underlying geology is made up of sandstone, siltstone, and shale bedrock. This tract contains a mapped intermittent stream that forms the southeast tract boundary. There are also two small wildlife ponds within the tract. Both are located approximately 100 feet from the fire lane. Any proposed management activities will adhere to the Indiana Logging and Forestry Best Management Practices 2005 field guide. Following these guidelines will minimize the impact to soil and water resources, thereby mitigating impacts to the wildlife ponds and the intermittent stream.

Soils
Beanblossom silt loam (BcrAW) (5.03 acres) This deep, well drained soils that formed in 0 to 24 inches of medium-textured alluvium and the underlying loamy-skeletal

alluvium. The Beanblossom soils are on flood plains and alluvial fans below steep and very steep hillslopes. Native vegetation is deciduous forest, dominantly sycamore, elm, hickory, beech, maple, and tulip poplar. This soil is well suited to trees. Plant competition is moderate. Seedlings survive and grow well if competing vegetation is controlled. Preferred trees to manage for are bitternut hickory, white oak, sugar maple, and yellow-poplar.

Berks channery silt loam (BeG) (16.29 acres)This steep and very steep, moderately deep, well drained soil is on side slopes and knolls in the uplands. Slopes are 25 to 75 percent. The native vegetation is hardwoods. It is fairly well suited to trees. The equipment limitations, seedling mortality, and the erosion hazard are management concerns. Overstocking helps to compensate for seedling mortality. Building logging roads and skid trails on the contour and constructing water bars help to control erosion. North aspects generally are more productive than south aspects. The site indexes for hardwood species range from 70 (white oak) to 90 (yellow-poplar). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Coolville silt loam, 12 to 20 percent slopes (CoD) (0.54 acres)
This moderately well drained soil has a seasonal high watertable at 1.0 to 2.0 ft. and is on side slopes on uplands. Slopes are 12 to 20 percent. The native vegetation is hardwoods. The surface layer is silt loam and has moderately low or moderate organic matter content (1.0 to 3.0 percent). Permeability is very slow (<0.06 in/hr) in the most restrictive layer above bedrock. Available water capacity is moderate (6.6 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 3.5 to 5.5. Bedrock is at a depth of 40 to 60 inches. This soil type has a site index of 66 for northern red oak.

Gilpin silt loam, 25 to 55 percent slopes (GnF) (18.02 acres) This well drained soil has a water table at a depth greater than 40 inches and is on side slopes on uplands. Slopes are 25 to 55 percent. The native vegetation is hardwoods. The surface layer is silt loam and has moderate organic matter content (2.0 to 4.0 percent). Permeability is moderate (0.6 to 2.0 in/hr) in the most restrictive layer above bedrock. Available water capacity is low (4.8 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 3.5 to 5.5. Bedrock is at a depth of 20 to 40 inches.

Kurtz silt loam (KtF) (1.83 acres) This series consists of deep, well drained soils on hills. They formed in residuum weathered from interbedded soft siltstone and shale bedrock. Slopes range from 20 to 55 percent. Most Kurtz soils are in forest. Native vegetation consists of mixed hardwood with oaks, hickory, beech and yellow-poplar. These soils are well suited to trees. The potential productivity or site index for this soil type is 60 (northern red oak). Preferred trees to manage for are black oak, chestnut oak, persimmon, northern red oak, scarlet oak, shagbark hickory, sugar maple, and white oak.

Stonehead silt loam (SsC2) (1.24 acres) This series consists of deep and very deep, moderately well drained soils formed in loess and the underlying residuum weathered from soft shale or soft siltstone bedrock. Slopes range from 4 to 12 percent. Native vegetation is mixed hardwoods with oaks, hickory, beech, maple, and tulip-poplar as the major species. This soil is well suited for trees. Prolonged seasonal wetness hinders

logging activities and planting of seedlings. The equipment limitations, seedling mortality, windthrow hazard, and plant competition are management concerns. The potential productivity or site index for this soil type is 90 for northern red oak. Preferred trees to manage for are black oak, chestnut oak, common persimmon, northern red oak, scarlet oak, shagbark hickory, sugar maple, yellow-poplar and white oak.

TlB2--Tilsit silt loam, 2 to 6 percent slopes, eroded (1.96 acres)
This moderately well drained soil has a seasonal high watertable at 2.0 to 3.0 ft. and is on ridgetops and side slopes on uplands. Slopes are 2 to 6 percent. The native vegetation is hardwoods. The surface layer is silt loam and has moderately low or moderate organic matter content (1.0 to 3.0 percent). Permeability is very slow (< 0.06 in/hr) in the most restrictive layer above bedrock. Available water capacity is moderate (7.9 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 4.5 to 5.5. Bedrock is at a depth of 40 to 80 inches.

Access

This tract is located at the western end of Skyline Drive, on the Brownstown side. From the intersection of Poplar Street and US 50 in Brownstown, travel south on Poplar street for approximately 2 miles, the street will change from Poplar Street to County Road 50 West and then to Skyline Drive. Continue on Skyline Drive for .5 miles to the top of the hill the tract is on the south side of the road.

Boundary

This tract is primarily an east facing slope that is bounded by an access road/horse trail to the west and an access road to the east and then a mapped intermittent drainage to the southeast. The northern boundary is Skyline Drive. The southern boundary is an ephemeral drainage.

Wildlife

	Maintenance Level	Optimal Level	Inventory	Above Maintenance	Available Above Optimal
Snags (all species)					
5"+ DBH	180	315	286	106	-29
9"+ DBH	135	270	286	151	16
19"+ DBH	22.5	45	26	3	-19

Inventory data indicates that the number of snags meet the maintenance level. The number of snags above optimal are lacking in the 5" + size class and the 19" + size class. Post harvest TSI will create additional snags, therefore the number of snags throughout the tract will likely increase.

Communities
A Heritage Database Review was completed for this tract in 2012. If rare threatened or endangered species 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
The forest is generally healthy and vigorous. The 2012 inventory shows a total volume of 525,390 bd. ft. for the tract with a harvest volume of 156,810 bd. ft. and a leave volume of 368,580 bd. ft. These numbers translate to per acre volumes of 11,675 bd. ft. total, 3,485 bd. ft. harvest and 8,191 bd. ft. leave. The stocking chart shows current stocking at 82%, with a reduction to 60% stocking post harvest. Currently basal area is 106.5 sq. ft./ acre. Post harvest basal area is estimated to be 73 sq. ft./acre. Trees per acres will decrease from 84 to 62 after the harvest. The three top harvest species by volume are chestnut oak, yellow poplar, and white ash. Regeneration in the understory is comprised primarily of American beech and sugar maple.

Recreation
This tract has a horse trail on the western boundary and a horse trail through the middle of the tract. This tract has excellent public access due to Skyline drive bordering this tract to the north and the fire access road to the east as well the horse trails. Given the proximity to a main road and ease of access, this tract is visited by many hunters during all hunting seasons. During any harvest operations the sale area and portions of the horse trails will be closed due to safety concerns. Following the harvest, horse trails and access roads will be re-opened and returned to similar or better conditions.

Cultural
Cultural resources may be present on this tract, if present their location is protected. Adverse impacts to significant cultural resources noted will be avoided during any management or construction activities.

Tract Subdivision Description and Silvicultural Prescription

Chestnut Oak (~19 acres)
This subdivision contains primarily chestnut oak with lesser amounts of white oak, black oak, red oak and pignut hickory. The inventory data for this subdivision estimated the volume at 12,854 bd.ft./acre, with 4,459 bd.ft./acre available for harvest and 8,395 bd.ft./acre leave for the residual volume. The data also estimate that sawtimber chestnut oak contributes to 62.5 sq.ft. basal area and sawtimber white oak contributes to 25.1 sq.ft basal area. Those two species alone make up ~88% of the basal area within this subdivision. The recommended management prescription for this area is to remove competing lesser quality and declining trees, favoring white oak and chestnut oak with well formed crowns and good growth characteristics. Also, trees with considerable decay, significant lean (which are more prone to uprooting) and trees that are hollow should also be removed. These actions should promote a tract that is healthy and well stocked with vigorous growing residual trees.

Mixed Oak (~26 acres)

This subdivision is not dominated by any one oak species, rather a mix of chestnut oak, black oak, northern red oak, scarlet oak and white oak. All oak species combined within this subdivision make up 50 sq. ft. of the total sawtimber basal area. The estimated volume for this subdivision is 10,890 bd. ft./acre, with the harvest removing 2,835 bd. ft./ acre, leaving the residual volume at 8,055 bd. ft./ acre. Located on the ridge top adjacent to the fire lane are a significant number of tulip poplar trees. Many of these trees are declining due to drought stress and should be removed through a harvest. Several of these trees were removed as part of a salvage sale in 2011. Regenerating these areas will be necessary due to insufficient stocking after the tulip poplar trees are removed. Throughout the rest of the subdivision effort should be made to provide release to better formed and healthy crop trees by harvesting lower quality competing trees.

Summary Tract Silvicultural Prescription and Proposed Activities

Silvicultural prescription: single-tree and group selection improvement harvest in 2014. A harvest should focus on removing the declining tulip poplar trees along the ridge top, to allow for the creation of new cohort of young trees. Throughout the rest of the tract harvesting should focus on removing wind damaged and drought stressed trees as well as many of the merchantable white ash. Within this tract there is a possibility an area will have very low stocking, significant decline, or contains many trees that are hollow. In these instances the recommended management prescription is to regenerate the area. The number of regeneration openings and size of openings will vary based on the conditions discovered in the field. Following these recommendations should provide for a tract of well stocked healthy and more vigorous growing trees. During and after harvest operations best management practices (BMP's) will be implemented to minimize the impact to soil and water resources. Following the harvest, timber stand improvement should be performed to remove grapevines, release future crop trees and complete regeneration openings. A re-inventory should occur in 20 years, following the harvest.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Mark harvest and sell timber	2014-2015
Post-Harvest TSI	2017-2018
Inventory and Management Guide	2037

TM 901 RESOURCE MANAGEMENT GUIDE				
INVENTORY SUMMARY				
			Compartment:	4
Jackson-Washington State Forest			Tract:	9
Forester:	D. Potts		Date:	12/17/12

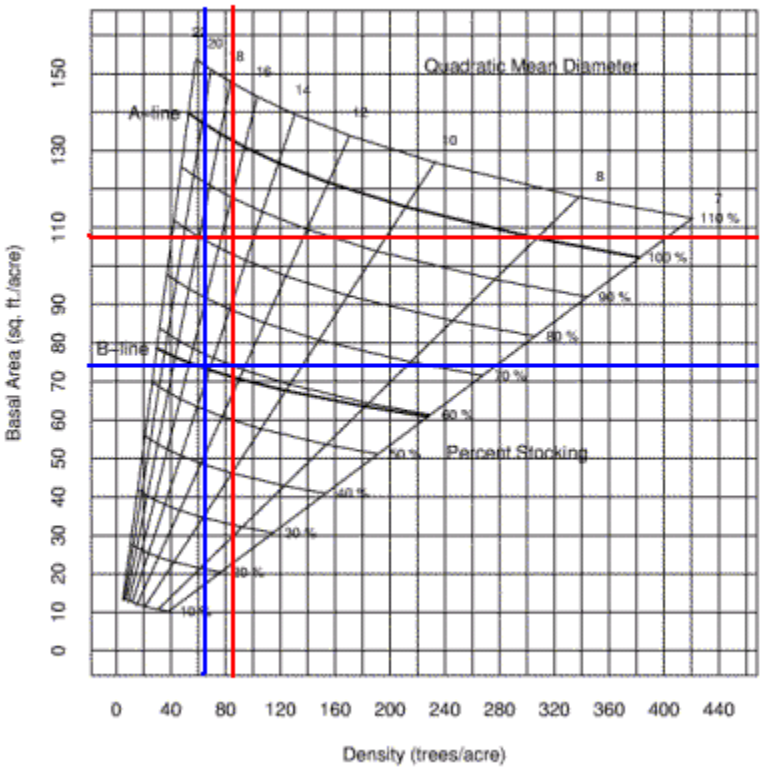
ACREAGE IN:

Commercial Forest	45
Non-Commercial	0
TOTAL AREA	45

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

SPECIES	HARVEST STOCK	GROWING STOCK	TOTAL VOLUME
chestnut oak	62,310	125,980	125,980
white oak	12,080	110,360	110,360
yellow poplar	24,110	23,240	23,240
pignut hickory	5,600	22,200	22,200
northern red oak	3,030	19,260	19,260
black oak	9,630	18,510	18,510
sugar maple	3,420	15,340	15,340
shagbark hickory	0	12,340	12,340
red maple	5,400	5,450	5,450
black cherry	0	4,010	4,010
scarlet oak	0	3,420	3,420
mockernut hickory	0	3,080	3,080
red elm	0	2,180	2,180
black walnut	0	1,770	1,770
largetooth aspen	0	1,430	1,430
white ash	31,240	0	0
TRACT TOTALS	156,820	368,570	525,390
PER ACRE TOTALS	3,485	8,190	11,675

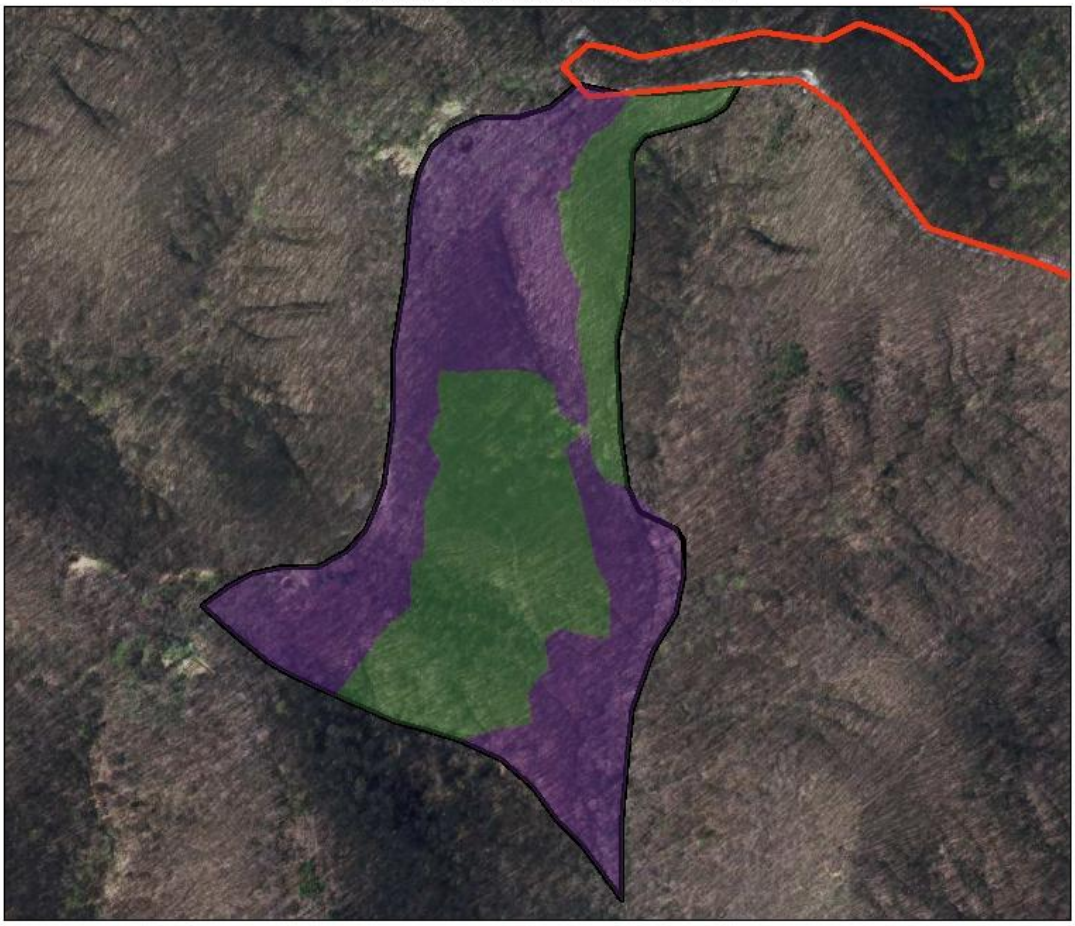
Stocking Guide
Compartment 04 Tract 09



Pre-Harvest Inventory Data in Red
(Sub merchantable trees excluded)
Total BA/A = 84 sq.ft./AC
Total #trees/acre = 106.5
Avg. tree diameter = 15.5 inches
Percent stocking = 82%

Post-Harvest Inventory Data in Blue
(Sub merchantable trees excluded)
Total BA/A = 73 sq.ft./AC
Total #trees/acre = 62
Avg. tree diameter = 14.5 inches
Percent stocking = 60 %

Jackson-Washington State Forest
Compartment 4 Tract 9
Tract Subdivisions



Legend

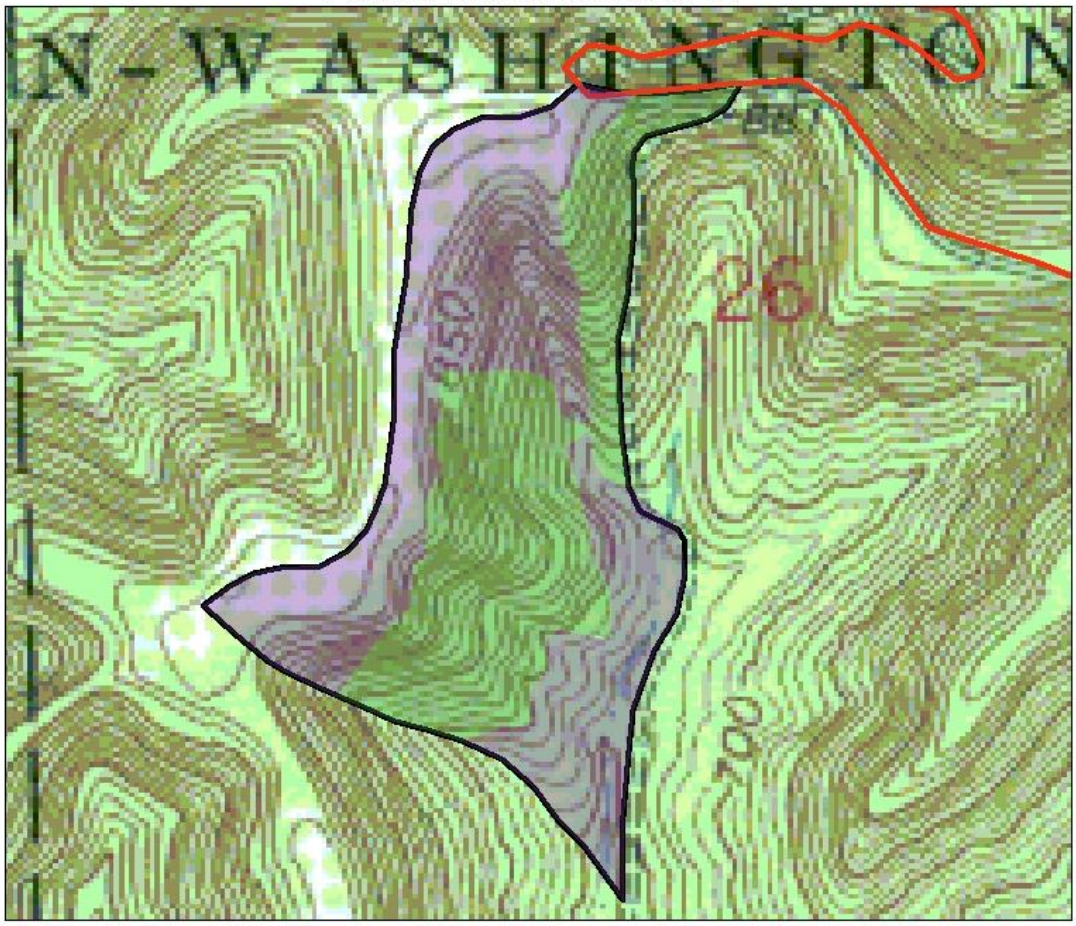
Tract subdivisions

- chestnut oak
- mixed hardwoods
- Skyline Drive
- Tract Boundary

0 0.025 0.05 0.1 0.15 0.2 Miles

N W E S

Jackson-Washington State Forest
Compartment 4 Tract 9
Tract Subdivisions



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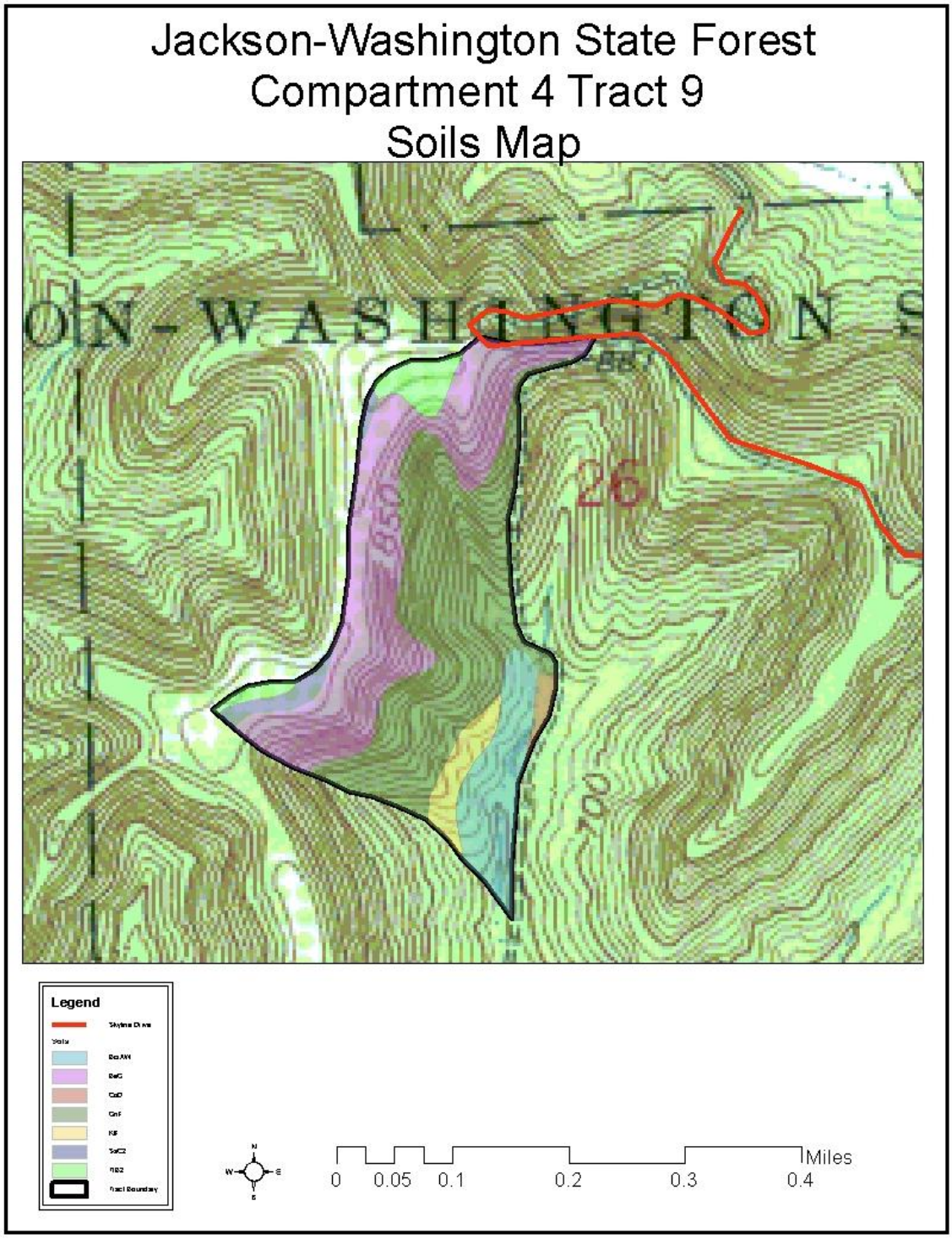

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You must indicate the State Forest Name, Compartment Number and Tract Number in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered. Note: Some graphics may distort due to compression.