Resource Management Guide

Harrison-Crawford State Forest **Compartment: 10 Tract: 1**
Christine Martin **Date: June 2010**

Acres Commercial forest:	138	Basal Area ≥ 14 inches DBH:	51.8bd.ft./acre
Acres Noncommercial Forest:	16	Basal Area < 14 inches DBH:	39.5bd.ft./acre
Acres Permanent Openings:	0	Basal Area Culls:	1.5 bd.ft./acre
Acres Other:	0	Total Basal Area:	92.8 bd.ft./acre
Acres Total:	154	Number Trees/Acre:	321

Location

This tract is located in Crawford County Indiana, Sec 16, T3S, and R2E. This tract is located off of Shafer Ridge Road.

General Description

This is overall a stand of timber in the small sawtimber class range. Sugar Maple is the main species that is regenerating. There are some white oak poles that are out competing the maple regeneration.

There are a couple different stand types on this tract. The main stand is the oak-hickory stand type. The riparian stand is growing along the creek and alongside the road. There are two softwood stands on this tract. The stands are Virginia pine and cedar. There is also a mixed hardwoods stand type which is growing close to the ridgetop close to the interstate.

History

The majority of this land was acquired in the late 30's and early 40's. There was a 50-acre piece acquired in 1975 after interstate 64 was built.

There was a timber sale performed on this tract in 1987. There were 185,393 Doyle board feet removed with this sale. White and black oaks comprised 60% of the total sale volume. There were 4 different regeneration openings on this sale.

The timber stand improvement was completed in 1989.

In 2007 it was reported that someone was stealing stones from the lined spring on this tract. The majority of the stones have been removed from this site.

Landscape Context

The main landscape context that surrounds this tract is a forested land type. Half of this tract is surrounded by Harrison Crawford State Forest. The other half is mostly private forested land. There are some field and pasture areas located within a mile of this tract. This tract is bordered on the south by interstate 64. To the south of the interstate there is more forest cover, mainly Harrison Crawford land base.

Topography, Geology, and Hydrology

This tract consists of a couple different aspects. There is a main ridge that cuts to the south therefore creating east, west, and a south facing slope. The majority of the tract falls along the west facing slope.

There are a couple major drainages and some minor drainages on this tract. One of the major drainages is Dry Run. Dry Run Hollow runs through this tract. The eastern boundary is another major drainage that feeds Dry Run. There are a couple of minor drainages located in the west slope that are more severe than the topo map depicts.

There is one deep sinkhole on this tract that could possibly be a cave. There is one cave, Crowbar cave, that is mapped in the general location but on the opposite side of the road. This cave may be mapped in the wrong location. There was no evidence that a cave found on the east side of the road.

Soils

Adyeville Very Fine Sandy Laom (AbqE2, AciE)

The Adyeville series consists of moderately deep, somewhat excessively drained soils. Surface Horizon is 9 inches thick. The subsurface horizon then grades into 8 inches of silt loam then with the remaining 60 inches turns into a loam texture type soil. The bedrock consists of moderately cemented sandstone with some siltstone, and shale. The permeability is moderately rapid. The mean annual precipitation is about 43 inches and the mean annual temperature is about 54 degrees F.
Degree Slope: 8-60%
Woodland suitability group: 3o10
Site Index: 70
Growth Range potential: 200
Management Concerns: Runoff and erosion

Apalonia Silt Loam (AgrA. AgrB, AgrC2, AgrC3)

The Apalonia series consists of very deep, moderately well drained soils forms in loess and the underlying residuum from shale with limestone and siltstone. They are moderately deep or shallow to a fragipan. The surface horizon is a silt loam 8 inches thick. The first 8 inches of the subsoil is a silty clay loam. The next 33 inches is a silt loam. The next 11 inches is clay then it turns into a clay loam for 9 inches. The last 21 inches of the subsoil is a loam. The bedrock is weakly cemented shale with moderately and strongly cemented sandstone. The mean annual precipitation is about 43 inches and the mean annual temperature is about 54 degrees F.

Degree Slope: 0-12%
Woodland suitability group: 3d9
Site Index: 60
Growth Range potential: 258
Management Concerns: runoff and erosion

Elkinsville Silt Loam (ElA, ElB2, ElC2, ElC3) Deep, nearly level to moderately sloping, well-drained soils on terraces. Surface layer is about 12 inches thick. Subsoil is about 50 inches thick. The underlying material is stratified layers of silt or sand and minor amounts of gravel. Moderate in content of organic matter. Available water capacity is high, and permeability is moderate. Runoff is slow to rapid.
Degree Slope: 0-12 %
Woodland Suitability: 1o1
Site Index: 85-95
Growth range potential (Upland oaks): 300-375 bd.ft./acre/year
Management Concerns: Runoff and erosion

Gatchel Loam (GacAW)
The Gatchel series consists of very deep, somewhat excessively drained soils on flood plains. They formed in loamy alluvium containing a high percentage of rock fragments in the lower part. The surface horizon is a loam that is 4 inches thick. The first 5 inches of the subsoil is loam, the next 9 inches is a fine sandy loam. The substratum is a coarse sandy loam turning into a sandy loam. Mean annual precipitation is about 43 inches and mean annual temperature is about 54 degrees F.
Degree Slope: 0-2%
Woodland Suitability: 1o8
Site Index: 60
Growth Range potential: 155
Management Concerns: runoff and erosion

Haymond Silt Loam (HcgAH, Hm, Ho)
The Haymond series consists of very deep, well drained, soils that formed in silty alluvium. These soils are on flood plains and flood-plain steps. Slope ranges from 0 to 3 percent. Mean annual air temperature is about 55 degrees F, and mean annual precipitation is about 42 inches. The surface horizon is a brown silt loam plow layer that extends approximately 10 inches. The first subsurface horizon is a dark yellowish brown silt loam that extends to 25 inches. The second subsurface horizon is a yellowish brown silt loam that extends until 44 inches. The stratum is a massive yellowish brown fine sandy loam.

Tipsaw Very Fine Sandy Loam (TbIG)
The Tipsaw series consists of moderately deep, somewhat excessively drained soils. They formed in loamy residuum from sandstone with shale and siltstone. The surface is a dark grey very fine sandy loam about 2 inches thick. The subsurface horizon is also a very fine sandy loam about 3 inches thick. The subsoil is 15 inches is a fine sand loam and the last 20 inches is a loam. The bedrock consist of a weakly cemented and moderately cemented

sandstone with shale, siltstone. The mean annual precipitation is about 43 inches, and mean annual temperature is about 54 degrees F. Permeability is moderate or moderately rapid
Degree Slope: 20-70%
Woodland Suitability: 3r12
Site Index: 70
Growth Range potential: 342
Management Concerns: runoff and erosion

Wellston Silt Loam (WhfC2, WhfD2, WhfD3)
The Wellston 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. These soils have moderate permeability. The surface horizon is a silt loam which is 2 inches thick. The subsurface horizon is a silt loam about 8 inches thick. The first portion of the subsoil consists of 11 inches of a silt loam, the next portion consist of 4 inches of a silty clay loam. The last portion of the subsoil is one inch of a clay. The stratum is 9 inches of loam. The bedrock which is at 45 inches form the surface is an acid fine-grained sandstone. Mean annual precipitation is about 40 inches, and mean annual temperature is about 53 degrees F. Well drained. Runoff is medium to rapid.
Degree Slope: 0-50%
Woodland suitability group: 3o10
Site Index: 80
Growth Range potential: 342
Management Concerns: runoff and erosion

Access

There is good access to this tract. This tract lies along Shafer ridge Road. There is a road that leads north through state land to private property which runs of off Shafer Ridge Road. This road runs along the eastern boundary to this tract. At this time this road is not a county road but it is in the process of being converted. There is also a small section which Devils Hollow Road comprised the western boundary.

Boundary

The southern boundary is interstate 64. The northern boundary is private property. There have been some pins placed flush to the ground on the eastern side of the north line. There are about three pins marking part of the line.

The eastern boundary is a drainage that flows into Dry Run. Part of the western boundary is Devils Hollow Road. The southern part of the western boundary is private property.

Wildlife

Indiana Bat
Timber harvest activities may have both positive and negative effects on the Indiana bat. While undetected but occupied roost trees could be cut during spring, summer or fall, the probability of disturbance or direct injury or death to bats is extremely small. Timber

harvest could create conditions that are beneficial to Indiana bats. Roads and/or skid trails provide improved canopy foraging conditions by reducing clutter. Roosting habitat could also be improved by reducing clutter around roost trees. Edges of log landings and regeneration openings could provide roost trees with improved solar exposure, thus improving microclimate/thermal conditions for roosting areas. This would improve reproductive success and fitness, contributing to local population stability or increase. In cases of maternity trees this could provide conditions that increase growth and activity rates of young bats, leading to reduced time for parental care.

Suitable roost trees such as large diameter snags or live trees with loose or exfoliating bark will be retained in sufficient numbers to provide continuing roosting habitat for the Indiana bat

According to the inventory of this tract there are a sufficient number of live trees per acre to support a timber harvest and still meet the requirements for the Indiana Bat Habitat Guideline. The inventory shows that there are an insufficient number of snags on this tract required for the bat. If it is decided that there should be more snag trees for the bat, a post- harvest TSI could generate the snags needed. This could be done by girdling the cull trees, especially the ones with the desirable bark characteristics.

Ecological resource guide discussions

The proposed management activities in this tract are a timber harvest, road building, and timber stand improvement. These are the activities that can alter the habitat present for the wildlife.

The harvest will affect the understory vegetation in the short term. Trees are removed thereby letting more sunlight hit the forest floor, creating more understory vegetation growth. As time passes the trees in the overstory will grow and overtake these holes in the canopy so therefore there is a decrease of light hitting the forest floor. The decreased light creates a decrease in understory vegetation growth. Approximately 5 years after the harvest the vegetation is what it was before the harvest took place.

The harvest will also provide more habitat for some wildlife. There will be more coarse woody debris on the ground after the harvest. This large amount of down material is great habitat for wildlife.

This harvest should not affect any travel corridors or drastically alter the covertypes of the area. The method used in this harvest will be single tree selection. There may be areas of regeneration openings that may exceed 5 acres in size. These openings will not overall affect the continuity of the forest. These regeneration areas will provide habitat for wildlife.

The timber stand improvement should have minimal affect on overall forest continuity.

There were a few karst features found in this tract. Most of these features were minor sinkholes, but there was one that could possibly be a cave. These karst features show that

there is an underground water system in place. These karst features will be buffered if a harvest is to take place.

Recreation

There are no recreational trails found in this tract. There is evidence that this tract is used for hunting. There was a turkey blind found while inventorying the tract.

In the past there is some evidence that the old skid trails were used as ATV trails. These trails have been abandoned by ATV use.

There is a current ATV trail that runs underneath the interstate. This trail is used heavily by the ATV riders to gain access Dry Run Road from Shafer Ridge Road. This trail is not upkept and is falling into disrepair. This area is one of the only ways to cross the interstate with an ATV.

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.

Summary Tract Silvicultural Description, Prescription and Proposed Activities

Oak-hickory

This is the largest stand type with 106 acres. The main species are white and black oaks with a strong component of yellow poplar. There is 100 square feet of basal area per acre. If there were to be a harvest approximately 140,000 board feet from the entire stand would be removed.

This stand consists of mainly small sawtimber. There is some white oak pole size regeneration found in the understory. There is a plethora of sugar maple regeneration also found in the understory. This stand could use some timber stand improvement in order to encourage the white oak regeneration. The majority of the white oak is out competing the sugar maple that is present. There are also pockets of mature black oaks that are starting to decline.

It is possible to conduct a very light improvement harvest to encourage the oak regeneration and remove the black oaks that are in decline. There may be a need for post harvest timber stand improvement in order to keep this stand in an oak-hickory stand type.

Mixed hardwoods

This stand is found along the southern boundary next to the interstate. This stand is 6 acres in size. There were many sawtimber size blackgum trees found in this stand. This stand has an overall 82 square feet of basal area per acre. There are 3,730 Doyle board feet to the acre.

This stand could use an improvement harvest to improve stand vigor. There are some poor quality sugar maples and yellow poplars that could be removed. This area is capable of producing higher quality trees that the ones that are currently growing. There is a dense understory of maple and American beech.

Riparian

This stand is mainly found along Dry Run. There are mainly sub merchantable size trees in this stand. There is mainly maple, American beech, and red elm growing in this stand type. The most abundant sawtimber size tree is yellow poplar. There is approximately 30,000 board feet in this stand type with 17,000 Doyle board feet being yellow poplar.

This stand could also have a light harvest in it. There are some yellow poplars that have defect and should be selected out of the stand to improve stand vigor. The sub merchantable trees form a dense understory that could be released.

Virginia pine

This stand is 7 acres in size. It is found on the south west corner north of Shafer Ridge Road. There are approximately 17,000 Doyle board feet and 14 cords of Virginia pine in this stand.

There are many smaller Virginia pines in this stand. There is a plethora of sugar maple and American beech in the understory. There were some black oak poles growing underneath the pines.

The pines have many blown down pockets. In these pockets is where the oak poles are found. These pines have stagnated and it would benefit the entire stand if they were removed. This stand is starting the conversion process to mixed hardwoods and would benefit from the pine removal process to speed the conversion process up.

Cedar

There are two separate stands of cedar within this tract. The stand on the south west corner is located around Dry Run. This stand is 14 acres of small cedar trees. There is some oak regeneration in the understory. It would be beneficial to remove this stand of cedar to promote the oak regeneration.

The second stand is 5 acres in size. This stand has larger cedar than the first stand. The cedars average 10 inches in diameter. There is some gully erosion in this stand.

Both stands could be removed in order to convert the site into a mixed hardwoods stand type.

Road

This stand is 4 acres in size. This stand encompasses the road and the power line right of way. This stand type consists mainly of open areas with a few trees growing along the edges of the road.

Proposed Activities Listing

Light improvement thinning to encourage the oak regeneration

Cedar removal harvest on the southwestern cedar patch.

Average Site Index: 71 Stocking Level : Fully Stocked (88%)
Calculated annual Growth (bd. ft.): 222bd.ft/acre/yr

To submit a comment on this document, click on the following link:
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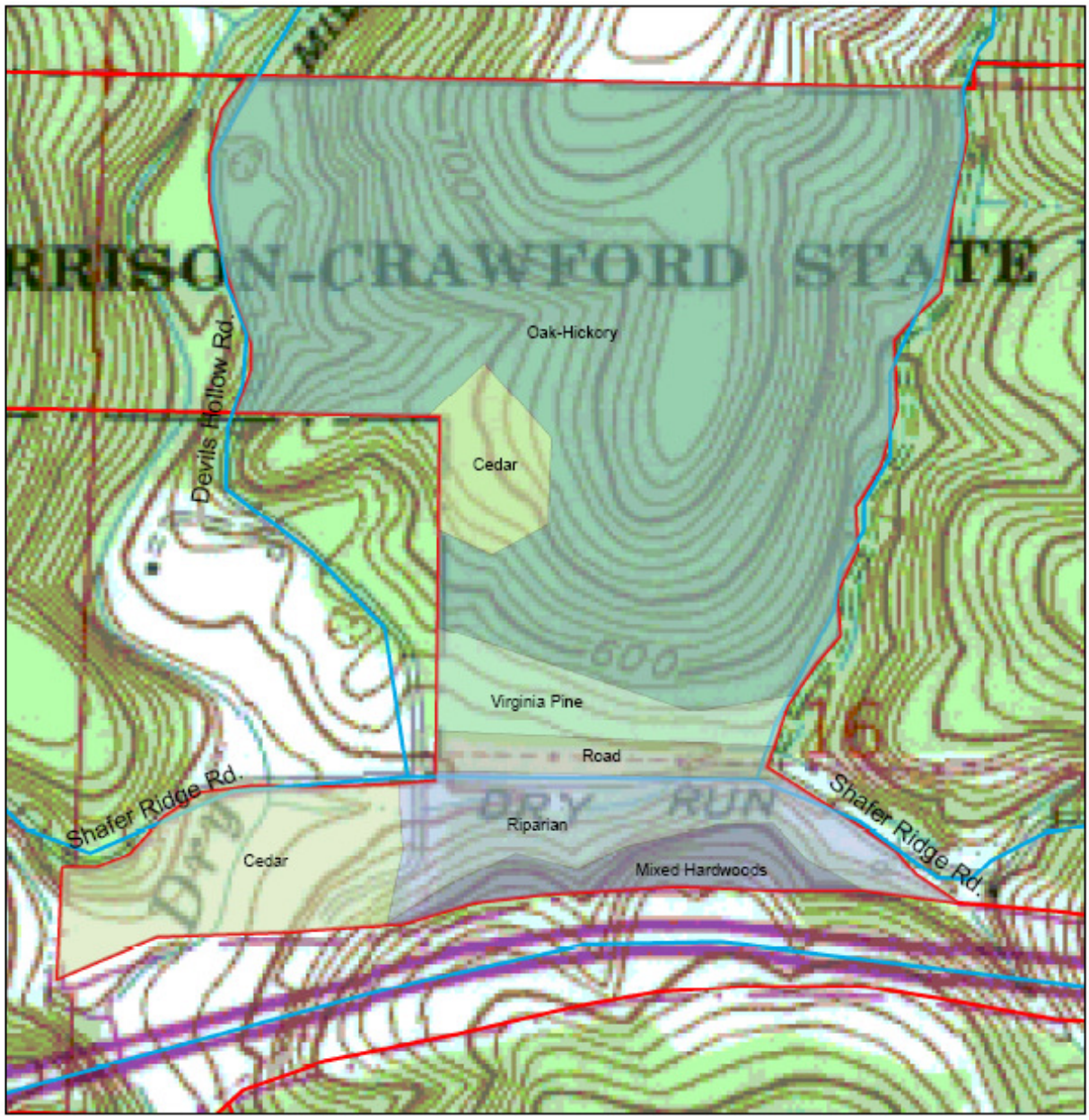
You **must** indicate State Forest Name, Compartment Number and Tract Number in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered.

Species	Harvest	Leave	Total
White Oak	19730	170180	189910
Yellow Poplar	50750	70090	120840
Black Oak	31700	85770	117470
Northern Red Oak	16880	33510	50390
Pignut Hickory	0	44820	44820
Sugar Maple	0	26140	26140
Scarlet Oak	15030	4750	19780
American Beech	0	12,330	12,330
Blackgum	1510	8790	10300
White Ash	2900	6840	9740
Black Walnut	3650	4770	8420
Chinkapin Oak	0	8370	8370
Shagbark Hickory	0	7620	7620
Red Elm	0	4540	4540
American Sycamore	0	2530	2530
Black Cherry	0	1510	1510
Red Maple	0	1510	1510
Hardwoods Total	**142150**	**494,070**	**636,220**
Eastern Red Cedar	4280	45270	49550
Virginia Pine	7540	6060	13600
Total	**153970**	**545400**	**699370**
Total/acre	**999**	**3541**	**4541**

Stand Map
Compartment 10 Tract 1



Legend
- Roads
- HCSF Tracts

0 0.025 0.05 0.1 0.15 0.2 Miles

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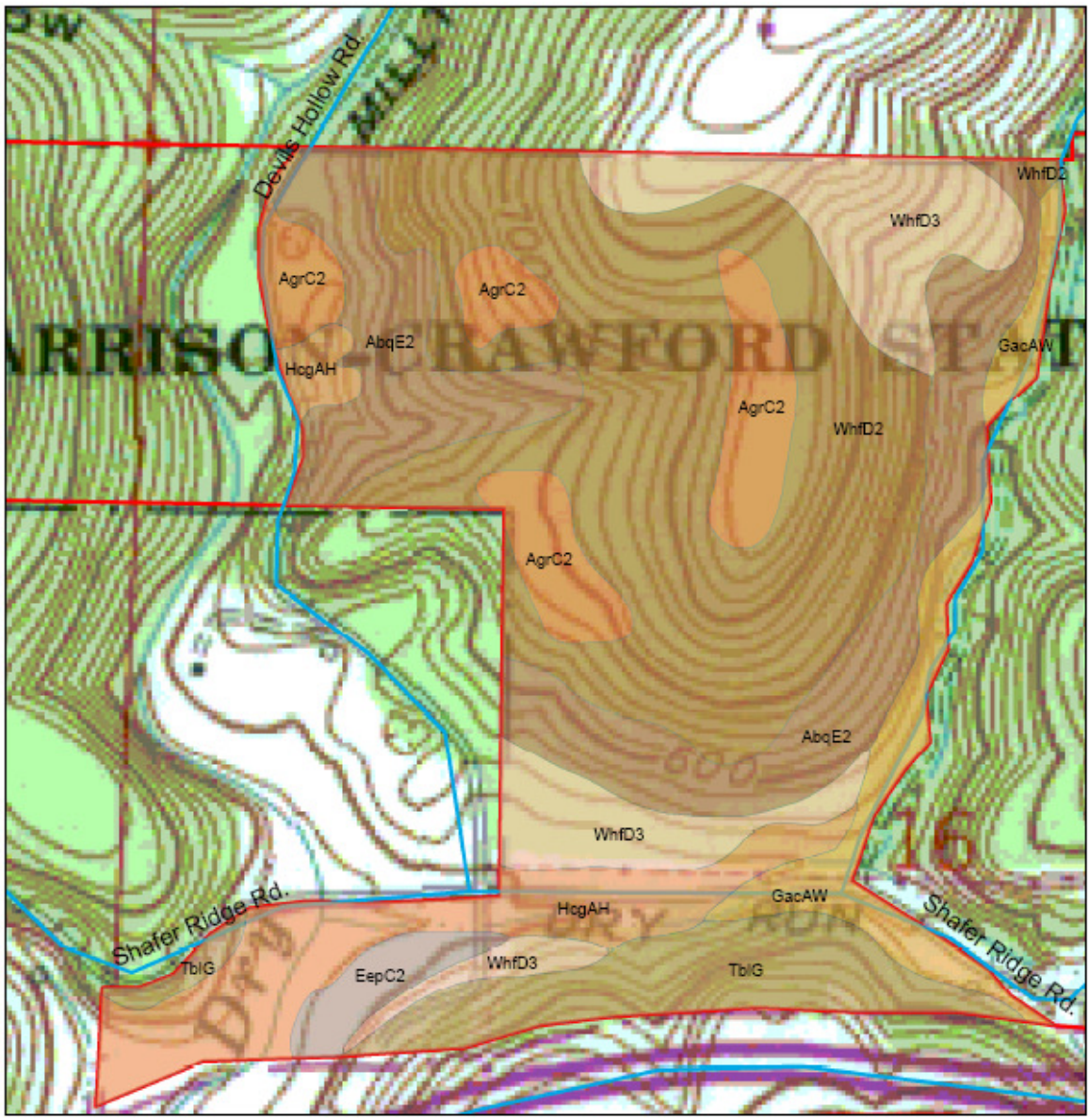
Soil Map
Compartment 10 Tract 1



0 0.03 0.06 0.12 0.18 0.24 Miles

Soil Types

AbqE2	EepC2	HcgAH	WhfD2
AgrC2	GacAW	TblG	WhfD3

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