Daryl Phillips Property- Trip Report
White County, TN
21 March 2022

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USDA NRCS
U.S. Department of Agriculture
Natural Resources Conservation Service

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The Habitat Organization

SOUTHEASTERN GRASSLANDS INITIATIVE

Property Overview:

Property Description:

The Phillips property is in north-central White County on the north side of Goulden Mountain. It consists of two adjoining tracts purchased at different times. For the most part, the property is relatively steep and rocky with a north-facing aspect, several small flats and ridgetops provide the flattest areas of the property. The first tract was purchased several years prior and contains the house, a fishpond, and food plots. This tract was selectively cut several years prior and is in the stem-exclusion phase of establishment. Post-harvest, several invasive species, including tree-of-heaven and royal paulownia, can be found throughout this area. The second tract, immediately adjacent to the east was recently purchased. This contains mature timber, and the plan is to begin harvesting this in the coming months. This area has a moderate ash component in areas with visible damage from the emerald ash borer. The landowner manages this property for recreational purposes including hunting and hosts youth turkey hunts in cooperation with NWTF.

Property Size: 130.87

Landowner Objectives:

The landowner would like to better manage the property for white-tailed deer and wild turkey while also controlling invasive species. These management practices will augment practices in place such as the timber harvests and existing food plots.

Management Recommendations:

Savanna and/or Woodland Restoration
Acres: 12.3 Acres
FOTG Practice Code: 666- Forest Stand Improvement, 645- Upland Wildlife Habitat, 643- Restoration of Rare and Declining Habitat

Savannas and woodlands are a transition between open prairies or glades and forests and were the most common form of grassland found in the mid-south. These systems consisted of an open overstory of fire and drought tolerant tree species such as oaks, hickories, and shortleaf pine and an open, herbaceous understory. These systems were historically maintained by a variety of factors including climate conditions, human-caused and natural fires, and large herbivores such as deer, bison, elk, and eventually cattle. Found on dry ridgetops, south and western facing slopes, rock outcropping and flat areas such as the barrens of southern middle TN and the table lands of the Cumberland plateau, these systems provided enormous diversity and robust game and non-game populations. These systems have been lost in a large part due to fire-suppression and changing grazing practices in the 20th century post- WWII.

For this property, two areas have been identified as suitable for savanna/woodland restoration. These areas are relatively flat ridgetops dominated by chestnut oak and to a

smaller extent white oak, post oak, red oak, and red maple and are both within the area planned to be harvested. The goal will be to retain a relatively small number of unmerchantable oaks in the overstory and then maintain this with periodic prescribed fire.

The trees that will be retained for the purpose of a savanna will include chestnut oaks, white oaks, post oaks, red oaks, and hickories along with other trees chosen by the landowner. The goal will be to use the stems that are unmerchantable, whether by size or physical defect, to retain post-harvest. These species are relatively fire-tolerant and do well on these ridgetops. The target will be ~15 trees per acre with a basal area (BA) not to exceed 35 sq.ft/ac BA. These trees will be marked with paint and are to be left un-damaged during the harvest. Any stems that are invasive species, undesirable, and/or unmerchantable that are also not to be retained can be removed using hack-and-squirt treatments post-harvest. Allow for one or two growing seasons post-harvest for fuel to accumulate and during this period, continue treating invasive species and undesirable species using application methods and herbicides listed either below or in attached references. Once adequate fuel has accumulated, the first burn will take place to reduce remove logging slash, woody debris, and knock back any stump sprouts. Care should be taken to remove woody debris piled around leave trees to prevent damage from the prescribed fire. After this initial burn, these stands should be broken up and burned on a rotation with an initial 2-4 year return interval.

Prescribed Fire
Acres: 12.3 Acres, can be expanded to additional acres
FOTG Practice Code: 338- Prescribed Fire, 394- Firebreaks

In terms of actively managing a property for wildlife, very few practices are as versatile as prescribed fire. This tool can be used for everything from vegetation control to influencing use by wildlife. This will also be instrumental in managing the savannas that will be established on the property. While these ridgetops are fire-adapted, the north facing slopes are more so-limited due to topography and species composition. Fire was not a major factor on these slopes and results would be poor to varied in many cases.

In terms of when and how often to burn, that is highly variable and depends on objectives. Traditionally burns have been conducted in the spring with most burns being conducted Feb-April. While vegetation responses can vary between season, keeping an open window from September through April will provide more opportunities to conduct the burn. Seasonality can also be used to influence wildlife use with late-growing season burns providing benefits for deer hunting opportunities while early growing season burns (Feb.-March) can be impactful on turkeys. How often to burn and the results are also driven by objectives. A rapid return interval (1-2 years) will favor herbaceous grasses and forbs and provide an overall shorter structure. An intermediate return interval (3-5 years) will allow some woody species to compete and create shrubbier structure but overall will still be dominated by herbaceous plants. Longer intervals will allow more woody species to dominate and create more of a woodland structure with a good mix of fire-tolerant species like oaks and hickories dominating

the understory and eventually mid-story. Up front return intervals may be more frequent to achieve desired plant communities and overtime may be more gradually spaced out to maintain this.

There are several options available on how to get a burn completed. One thing that is recommended is to attend the TN Prescribed Burn Manager Course hosted by the Tennessee Division of Forestry (TDF) to obtain a better understanding of prescribed fire. This training will also be crucial if the desire is ever to conduct the burns as a landowner, both from a liability standpoint and training standpoint. One of the more common options to conduct burns is TDF who provide burning as a vendor service. They will install firebreaks, provide a burn plan, and bring a crew to complete the burn. TDF currently charges $42/acre for this service ($420 for areas 10 acres and smaller) (https://www.tn.gov/agriculture/forests/landowners/services/prescribed-burning.html). Another option is the contacting the Area TWRA Habitat Biologist (https://www.tn.gov/twra/wildlife/habitat.html) who conducts burns on private lands. Firebreaks will need to be installed prior to the burn and some help will need to be provided. This is also a good opportunity to obtain hands on training of conducting burns.

Several pieces of equipment recommended to keep on hand is a heavy-duty backpack blower, a good chainsaw, and either a backpack or UTV sprayer. Always have a written burn plan and be sure to stay within the parameters of that plan when burning. A burn permit from TDF is required between Oct. 15- May 15.

Food Plots
Acres: 1.7 Acres
FOTG Practice Code: 645- Upland Wildlife Habitat, 327- Conservation Cover

Food plots are most often successful when used to complement more intensive habitat management practices. They can provide supplemental forage and nutrition for deer and provide, depending on what species is planted, bugging areas and brooding cover for turkey poults. Food plots can also be used as firebreaks and travel lanes. For this site, an annual cool-season plot of clovers and cereal grains is recommended, due in part to the rocky and relatively poor soils of the site.

The first step and arguably the most important step to establishing any food plot is to obtain soil samples and send them off for testing. This service is provided by the University of Tennessee Extension and additional information can be obtained online (https://soillab.tennessee.edu/field-soil-samples/) or through the county extension office. Once the reports are obtained, it is important to amend the soil with lime and fertilizer as recommended in the soil report. Lime especially takes time to activate and adjust soil pH so it is important to allow time for it to do so before planting. Site preparation up front is also crucially important. Any trees in the plot area should be removed as these can cast shade and compete for resources limiting the productivity of the plot. Any large trees immediately on the edge of the plot should also be removed to allow for adequate daylight. Next, is to ensure that any

vegetation that may interfere with the success of the planting is removed to ensure a clean seedbed. This can be done by a combination of chemical applications, mowing and/or disking. Once this is done, planting can commence. A no-till drill or no-till planting method is recommended for the thin soils on this site, but conventional methods can be used also. Planting dates are provided by UT and in attached publications and are also listed below. Plant during recommended planting dates and having moisture planned in the forecast can also increase success. For traditional methods, disking and dragging/ cultipacking to ensure a well prepped seed bed and then dragging after planting are all crucial steps. Weed control once planting will be determined by species, but common herbicide options include clethodim and 2,4-DB. Some species such as common ragweed can provide additional wildlife value and can be acceptable in small amounts.

See attached references for additional information on food plots.

Invasive Species Control
Acres: 42.8 Acres
FOTG Practice Code: 314- Brush Management, 315- Herbaceous Weed Control

Invasive species are an expected part of land management in southern forests. On this site, past management practices and site conditions have allowed for the establishment of invasive species in areas. Although dominant in areas, they are at a manageable level. The main species of concern on the property are tree-of-heaven and royal paulownia, both of which are invasive tree species. As a secondary concern but at a much lower abundance would be Chinese privet and bush honeysuckle. These species are not only invasive but also provide little value for wildlife and tend to have poor form and have no timber value. Managing for these species will not only limit the spread but also improve the overall condition of the property. Annual monitoring and management is necessary to adequately control invasive species.

As with the number of invasive species, management options for them are also numerous. For most of these, there is a lot of overlap in treatment options and herbicides. For the invasive tree species, the most common management technique is a hack-and-squirt style treatment. Using a machete or hatchet, cuts will be made around the stem and then injected with herbicide. These cuts should be made at a downward, 45-degree angle and should be strong enough to cut through the bark into the cambium, which is the living tissue of the tree. Once the cut is made, use the machete/hatchet to form a small pocket and immediately apply herbicide from a spray bottle into the cut. How many cuts depend on the size of the tree and the herbicide used but often one cut for every 1-3 inches of diameter is common. This can be done year-round except for mid-February through mid-April as sap flow from the roots can push the herbicide out of the stem making the treatment ineffective. Common herbicides include triclopyr amine formulation (Aka Triclopyr 3) (Garlon 3a, Element 3, etc.) and glyphosate (roundup, accord, etc.). For a triclopyr, common formulation is 50% herbicide and 50% water while glyphosate is often applied undiluted or at a 50% rate.

For small stems, roots sprouts, and shrubby species a foliar application is recommended. These are recommended in the late-growing season (August-September) for maximum effectiveness. A backpack sprayer or ATV/UTV sprayer is recommended equipment. The same herbicides listed above are commonly used and follow all label instructions for mixing rates and formulations. A 3% triclopyr solution or 5% glyphosate solution are recommended for foliar applications. Other application methods include cut-stump and basal bark applications and while not described in detail, information can be found in attached references.

Other species to monitor for can include Japanese stiltgrass, sericea lespedeza, johnsongrass, tall fescue in food plots, kudzu, among many others. When located it is important to treat aggressively to prevent infestations, this will also save time, money, and headaches down the road. NRCS, TWRA, and partner biologists and foresters are on hand to assist with identification and treatment options.

Fruit Tree and Shrub Planting
Acres: 1.0
FOTG Practice Code: 490- Tree and Shrub Site Preparation, 612- Tree and Shrub Planting

While food availability is rarely a limiting factor, increasing the available food options and quality can attract and hold wildlife to a particular area. In this case planting mast-producing trees and shrubs can be used to increase food availability and provide additional nutrition. With this we can benefit both deer and turkey along with numerous other game and non-game wildlife species and pollinators.

The first part of this process will be site preparation on the designated site. This will include clearing the site of existing tress and treating stumps to prevent re-sprouting. A few decent oaks can be left but these should not exceed 3-5/acre to ensure adequate sunlight to the planted species. If any herbicides are used, try to avoid those that have soil activity and if they do, ensure that adequate time has passed for those herbicides to break down. Planting dates are Nov 15-April 15th. Tubes are recommended on at least half of the stems, with a 75% or more preferred to protect against browse and competition. See below for spacing and species selection.

- Tree Species
    - Common Persimmon
    - Crabapple
- Shrubs
    - Allegheny Chinquapin
    - Wild Plum
    - Elderberry
    - American beautyberry
    - Chokecherry
    - blueberries

- Spacing
    - 6-8’ between shrubs
    - 10-12’ between trees
    - 16-18’ between trees and shrubs

Note on Herbicides:

Herbicides are an important tool in forest and wildlife management and when used properly can be used to meet multiple objectives. Always have a plan and specific objective before applying and only use what is needed. Specific recommendations are not included in this plan but can be found in the attached references. For additional recommendations, reach out to QF or TWRA private lands staff, county extension, or TDF. Also be sure to follow all label instructions and formulations, the label is law. Be sure to always use adequate PPE.

Cost-Share Options:

Many of these practices are eligible for cost-share through USDA Farm Bill Programs. Programs such as the Environmental Quality Incentives Program (EQIP) and Conservation Stewardship Program (CSP) provide cost-share for the implementation and management of conservation activities. Please contact your local USDA office for more information.

References:

Landowners Guide to Wildlife Food Plots (UT PB1874)- Dr. Craig Harper
https://extension.tennessee.edu/publications/Documents/PB1874.pdf
(Full Version for purchase only- https://nocsopublishing.com/)

Using Fire to Improve Wildlife Habitat- NC State Extension
https://content.ces.ncsu.edu/show_ep3_pdf/1641402961/20171/

Forest Stand Improvement for Wildlife (UT PB1885)- Dr. Craig Harper
https://extension.tennessee.edu/publications/Documents/PB1885.pdf

A Management Guide for Invasive Plants in Southern Forests (GTR-SRS-131)- US Forest Service
https://www.srs.fs.usda.gov/pubs/gtr/gtr_srs131.pdf

A Field Guide for Identification of Invasive Plants in Southern Forests (GTR-SRS-119)- US Forest Service https://www.srs.fs.usda.gov/pubs/gtr/gtr_srs119.pdf

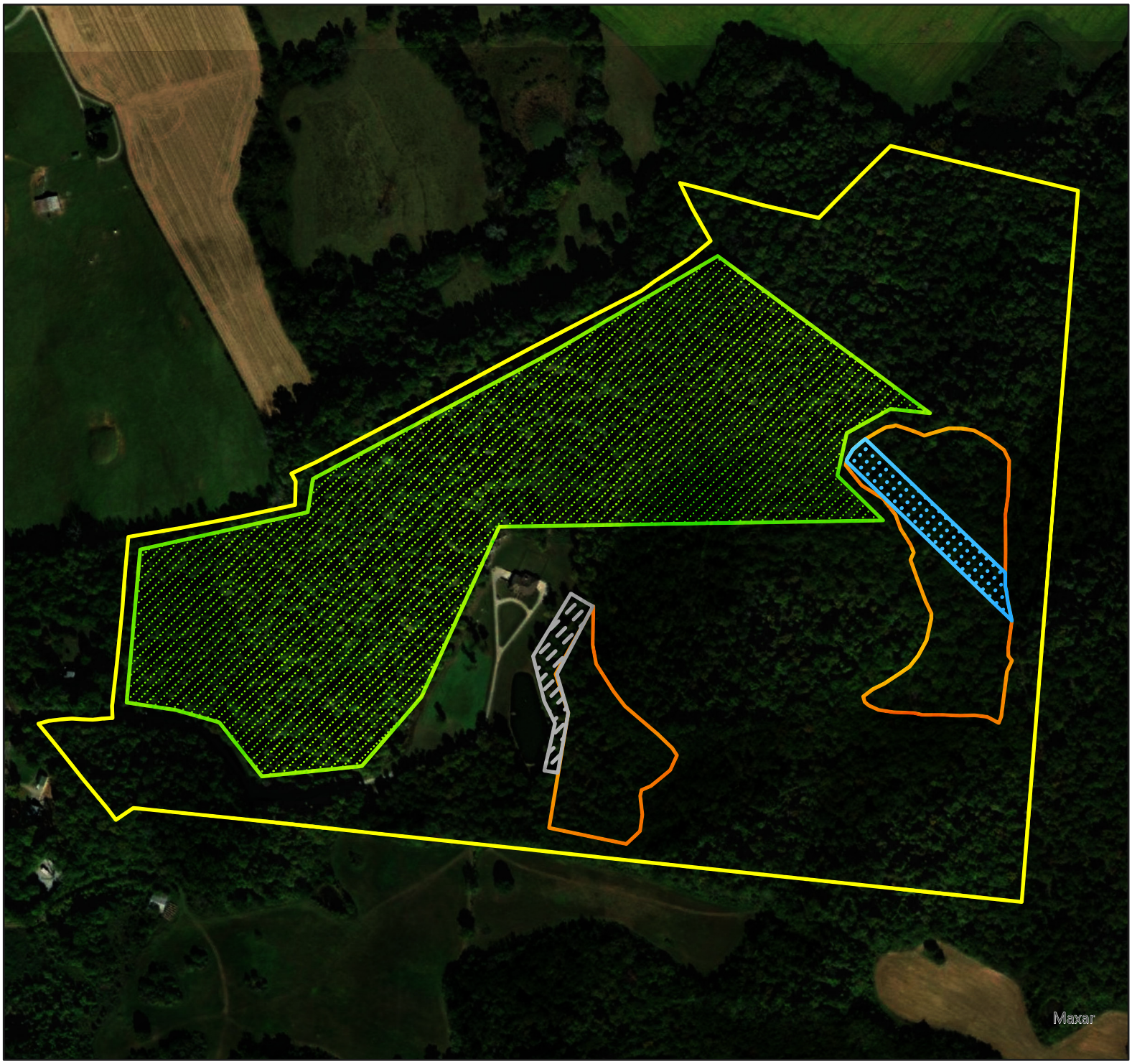
Tennessee Department of Agriculture-Division of Forestry: Guide to Forestry Best Management Practices https://www.tn.gov/content/dam/tn/agriculture/documents/forestry/AgForBMPs.pdf

Ecology and Management of Oak Woodlands and Savannahs (PB 1812)- Gary Burger, Pat Keyser, and Andy VanderYacht
https://extension.tennessee.edu/publications/Documents/PB1812.pdf

Conservation Plan Map

Landowner: Daryl Phillips
Acres:130.87
White Co., TN

Developed By: David Lowman
USDA-NRCS/Quail Forever/ SGI
Date: 08 April 2022



- Savanna/ Woodland (4.0 Acres)
- Tree/ Shrub Planting (1.0 Acres)
- Savanna/ Woodland (8.3 Acres)
- Brush Management (42.8 Acres)
- Food Plot
- Property Boundary

GPS Coordinates: 85.4940415°W 36.0124659°N

N

0 385 770 1,540 US Feet

Conservation Plan Map
10 Ft. Contours

Landowner: Daryl Phillips
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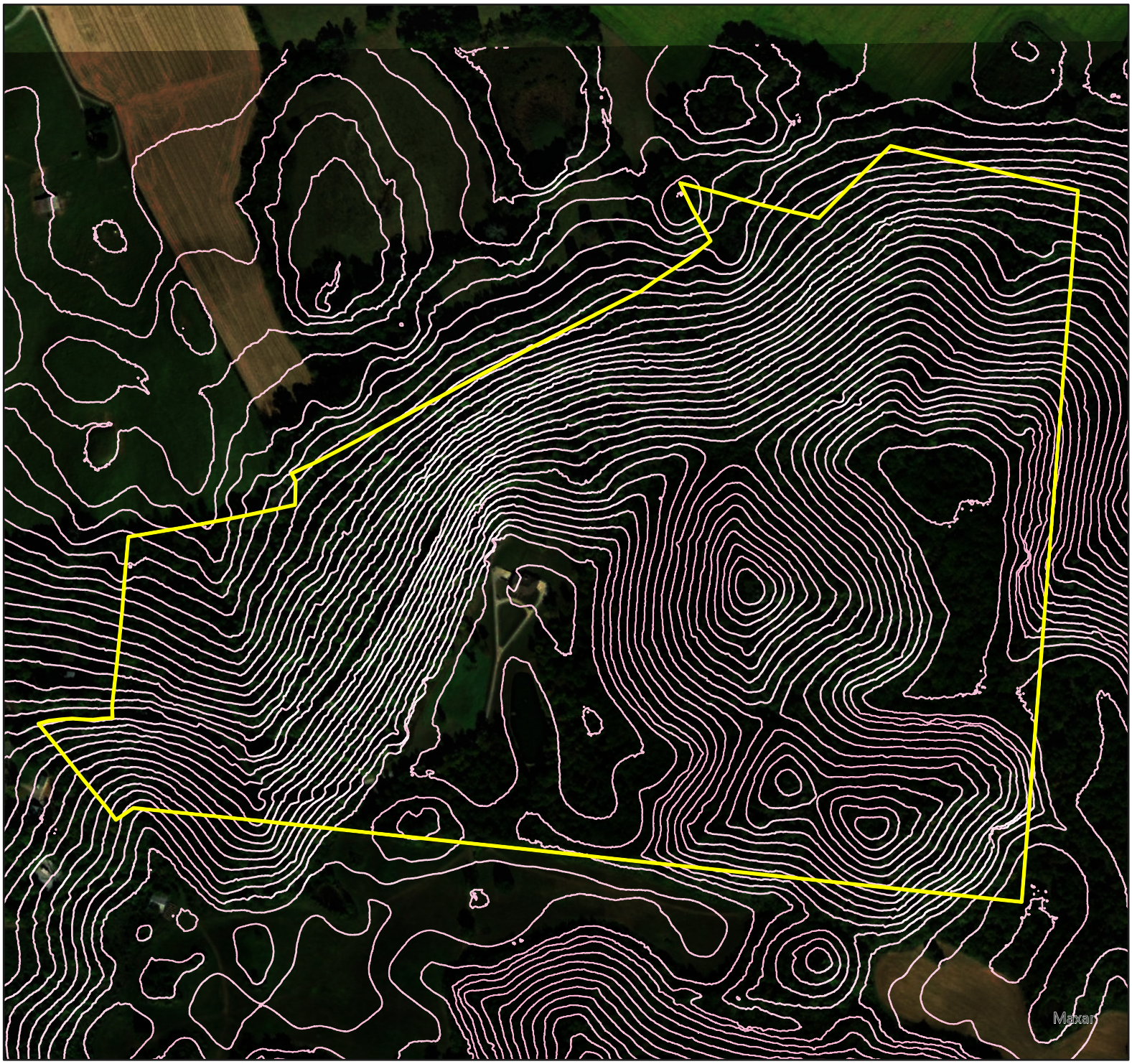

Contour_10ft
Property Boundary

GPS Coordinates: 85.4940415°W 36.0124659°N

N

0 385 770 1,540 US Feet