



## Example Farm

327.8 acres

Sauk County, WI

[43.21335, -89.96995](#)

June 13, 2025

Generated by [CanopyCompass.com](#)

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## About this Report

### What is a Compass Report?

The [Canopy Compass website](#) and this Compass Report support data-driven decisions for your land. Regenerative agriculture, especially permanent crops and agroforestry, has great potential to enhance the economic and environmental outcomes of agriculture.

Many crops and practices are available, but it is difficult to know which are best suited for specific contexts. The comprehensive data provided in this report can help remove the guesswork, improve outcomes, and avoid pitfalls.

### Who is this report for?

- **Farmers** considering adding regenerative practices to their portfolio
- **Landowners** exploring regenerative options for their land
- **Investors** scouting fields for investments in regenerative agriculture
- **Lenders** evaluating the risk of a particular crop in a field
- **Consultants** and **Land Managers** gathering information for their clients

### Can I update my report?

Yes! As new crops and other data are added to the Canopy Compass website, you can update your report to include this new information for **free**.

### Can I talk to an expert?

Yes! Click the 'Ask an Expert' button below. We'll set you up with a **free** intake call and then connect you with one of our regional experts to help you interpret this report, evaluate options, validate soil data, and source plants.

*Click here to:*  
**Ask an Expert**

### Disclaimer

The analysis in this report is not a recommendation by Canopy. The analysis is provided without representation or warranty of any kind. The accuracy of the analysis varies by location. Validation with real soil samples is recommended.

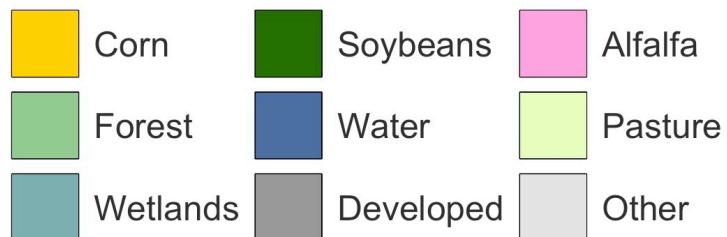


## General Context

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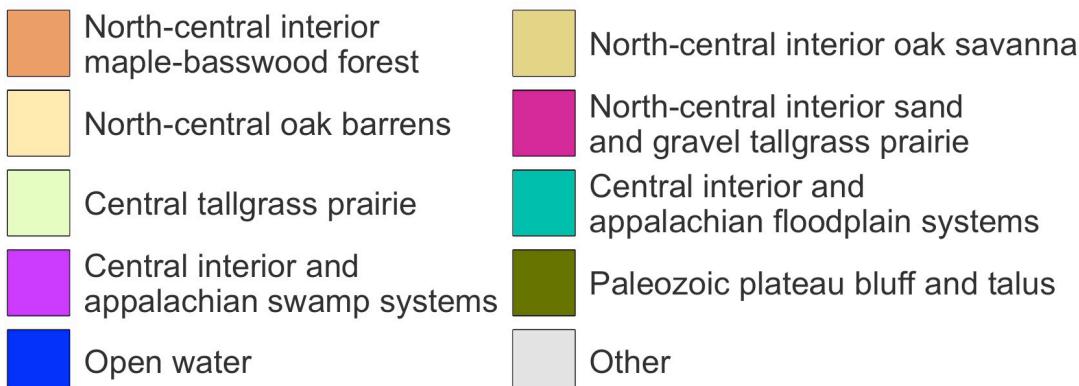
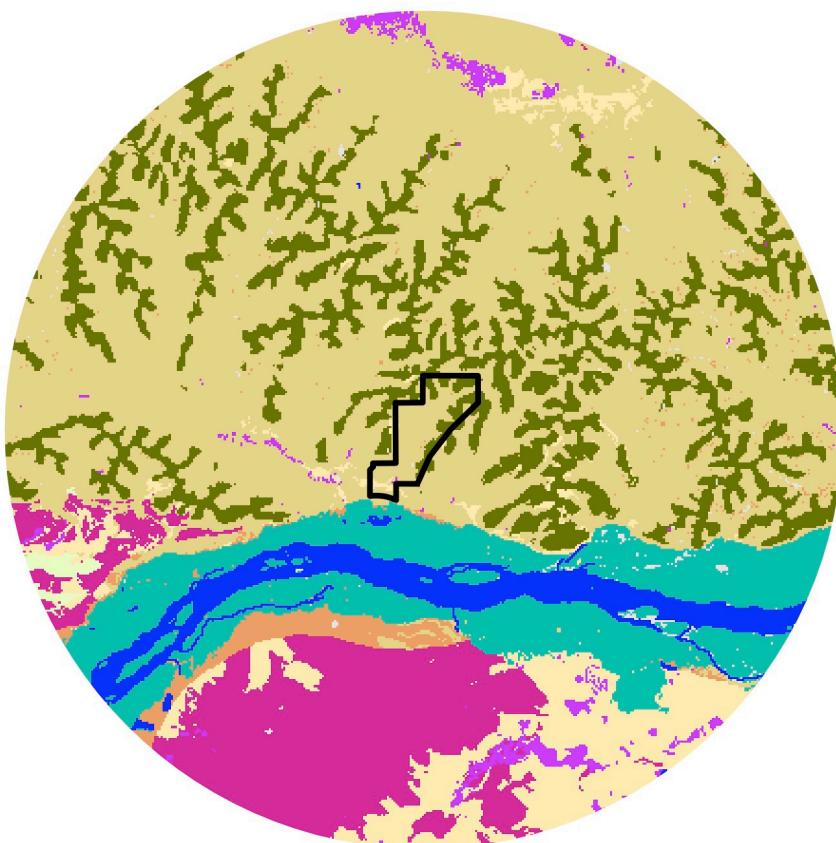
## Existing Land Cover

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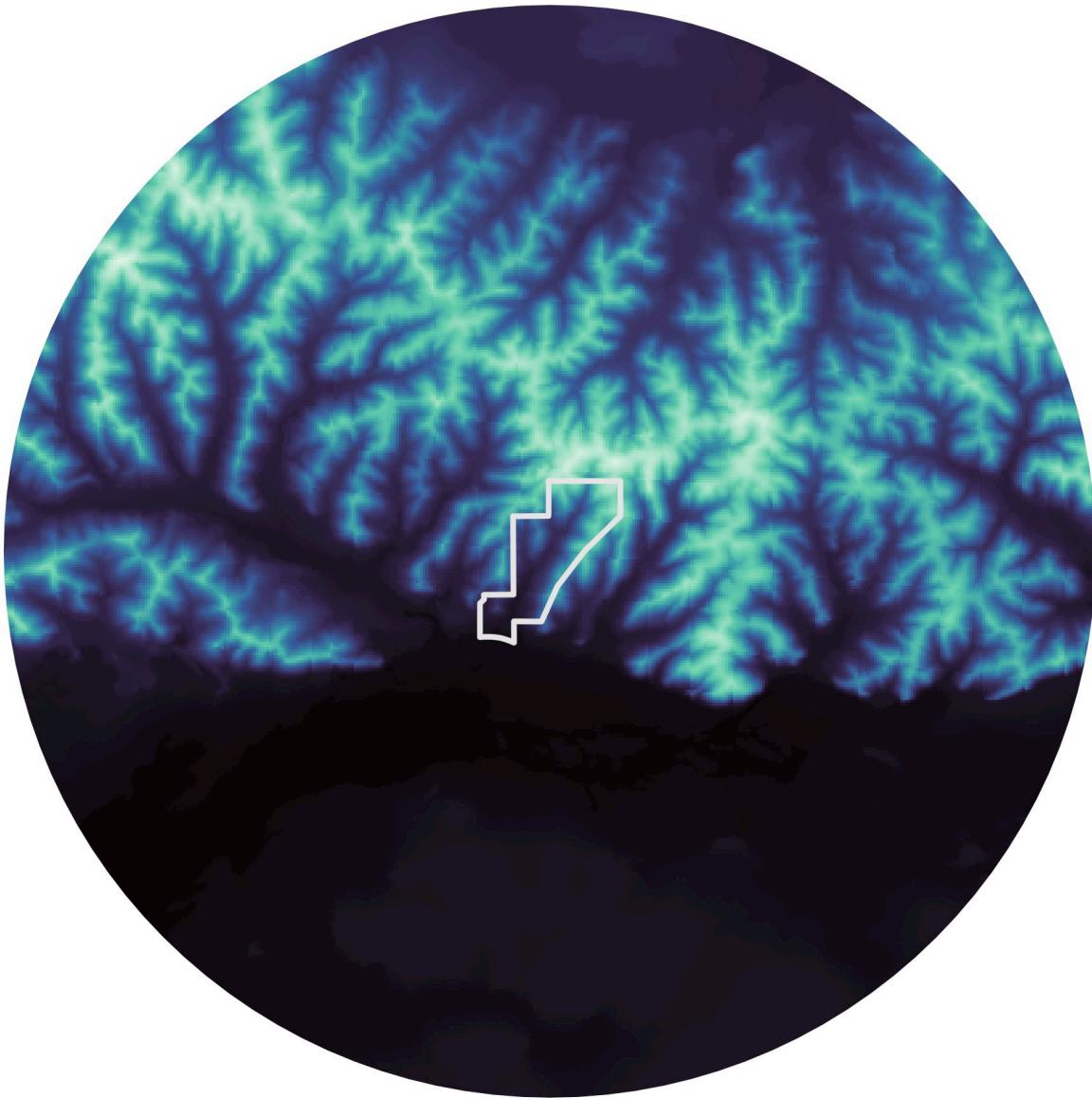
## Historical Vegetation

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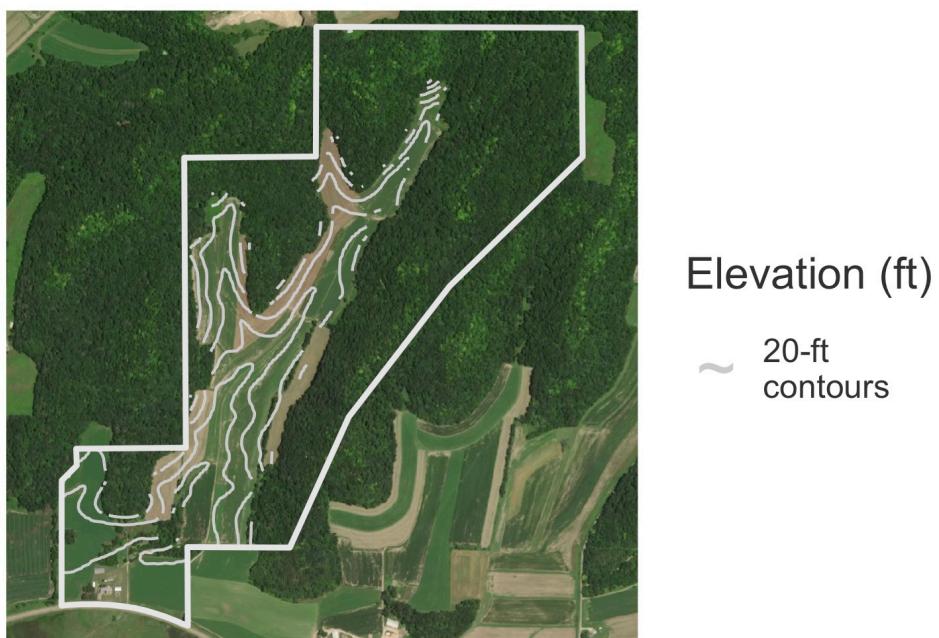
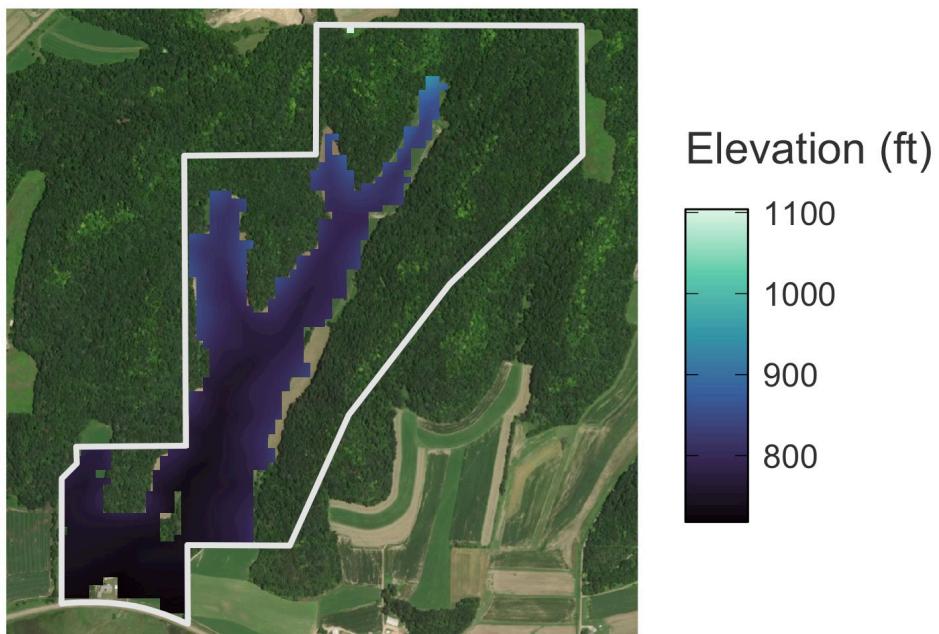
## Regional Topography

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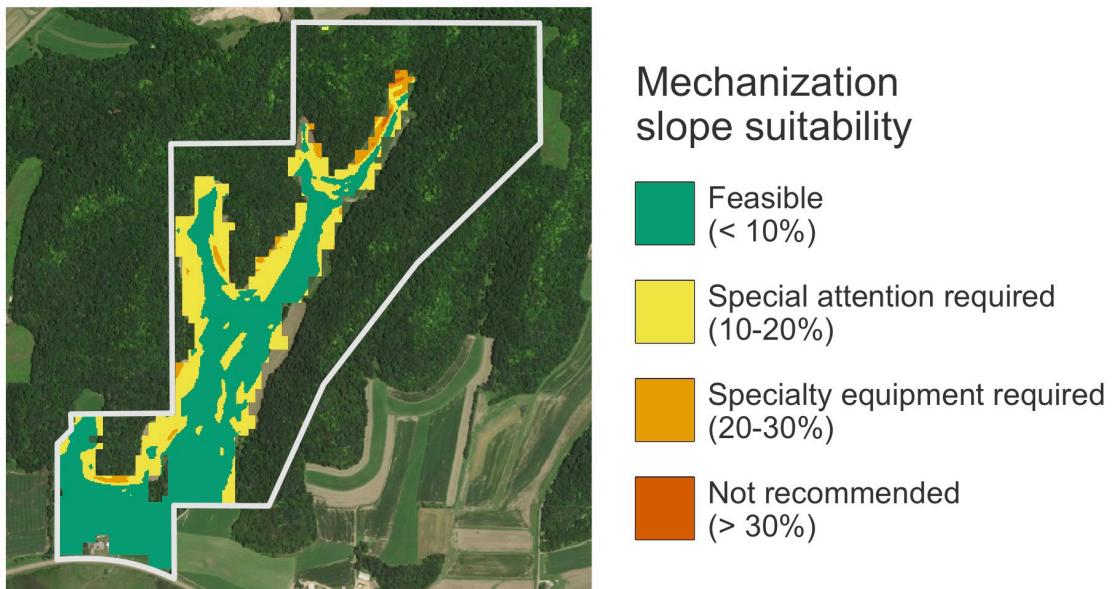
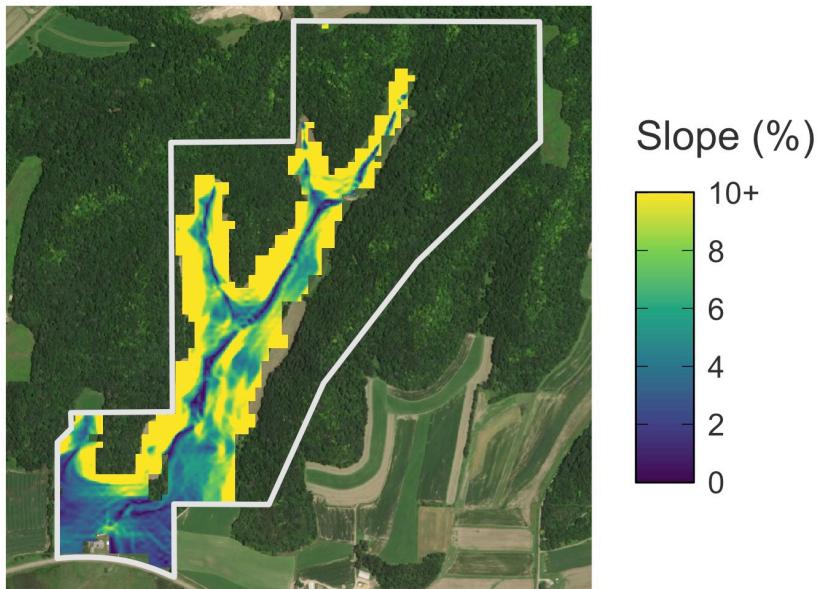
## Local Topography

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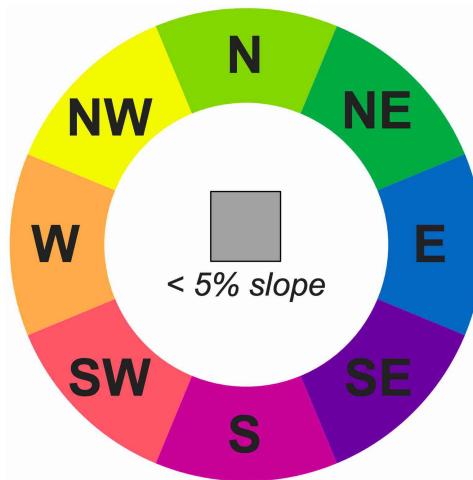
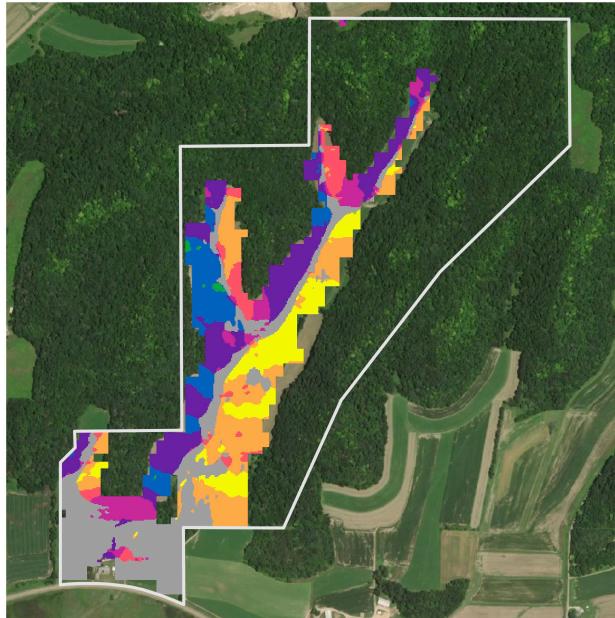
## Slope

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## Aspect

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## Hydrology

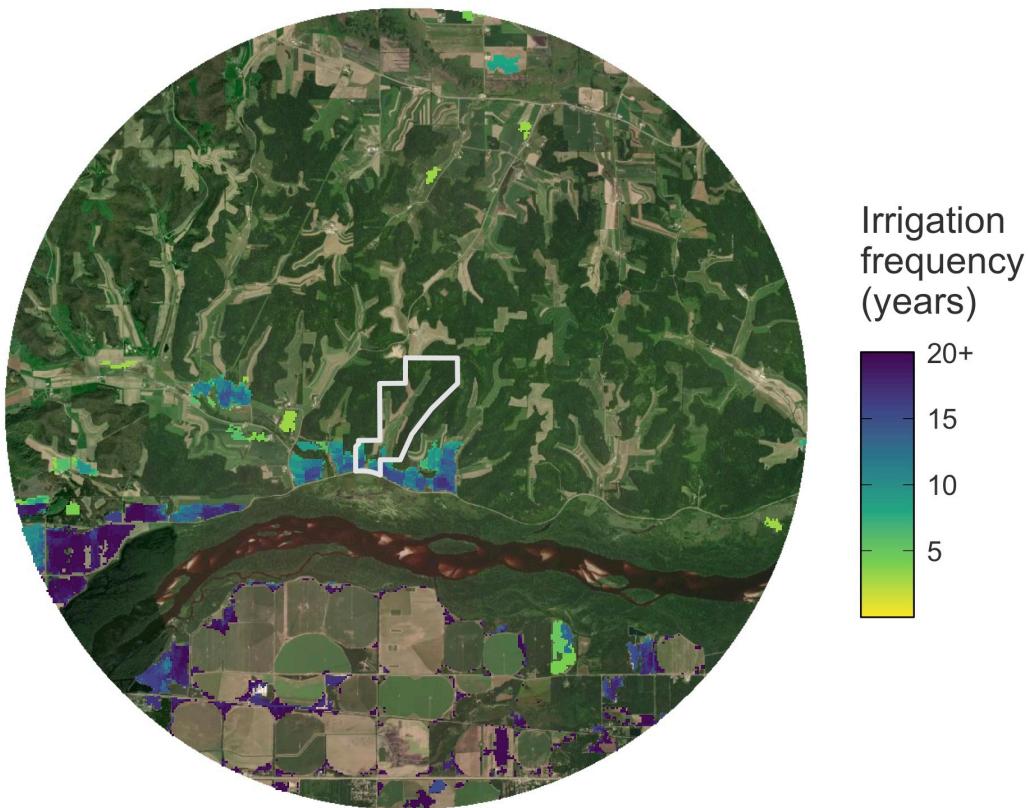
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Category	Name	Hydrologic Unit Code
Subwatershed	Wilson Creek	070700051202
Watershed	City of Spring Green	0707000512
Subbasin	Lower Wisconsin	07070005
Basin	Wisconsin	070700
Subregion	Wisconsin	0707
Region	Upper Mississippi	07

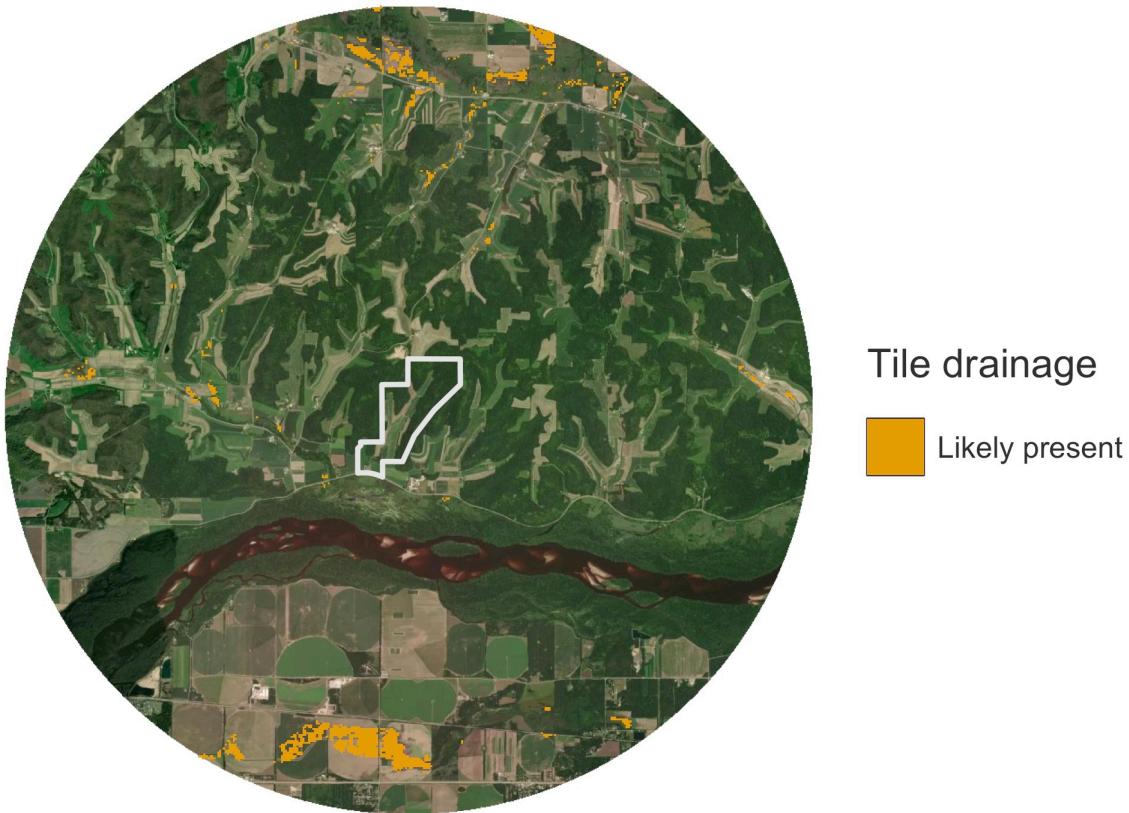
## Irrigation

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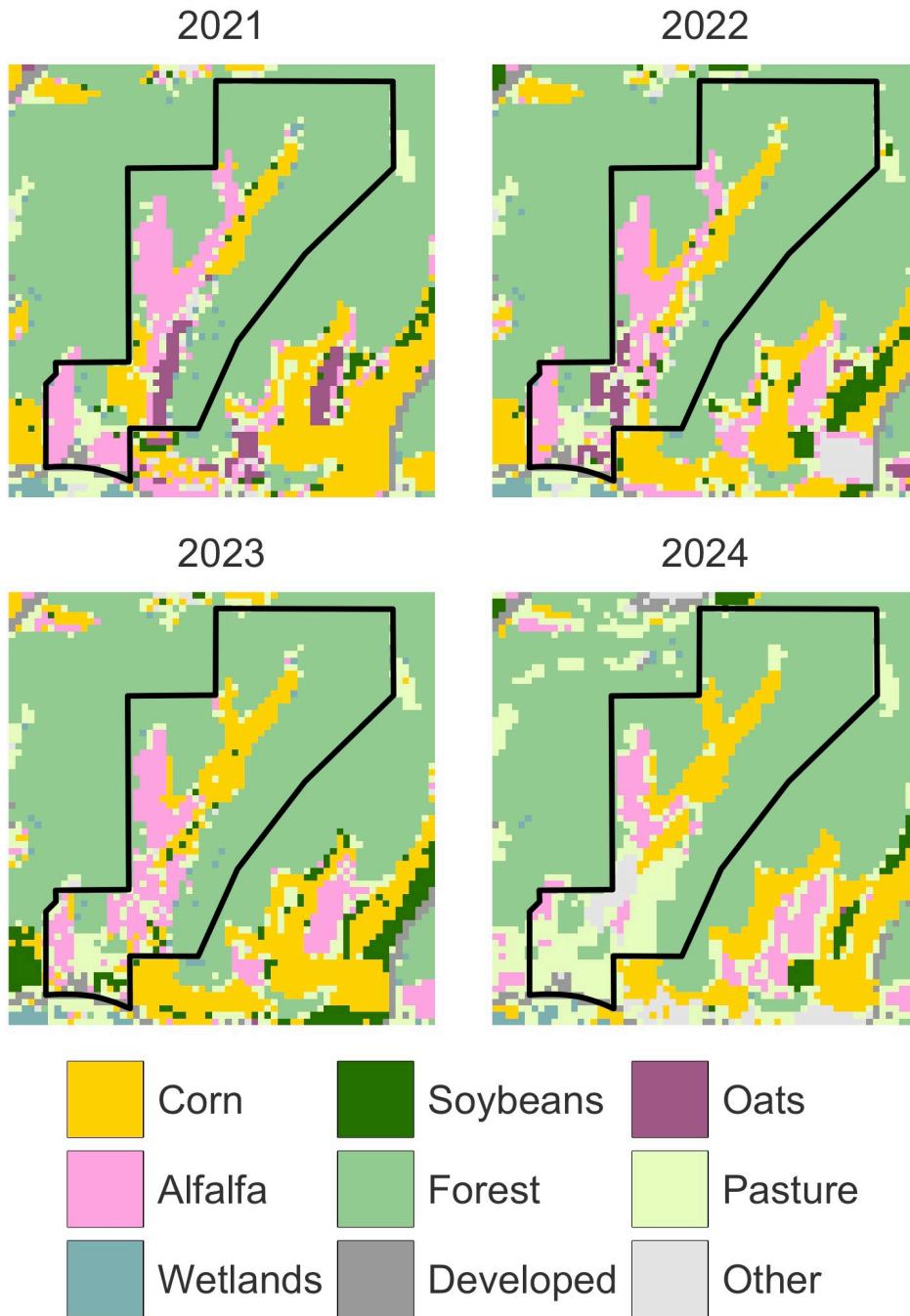
## Tile Drainage

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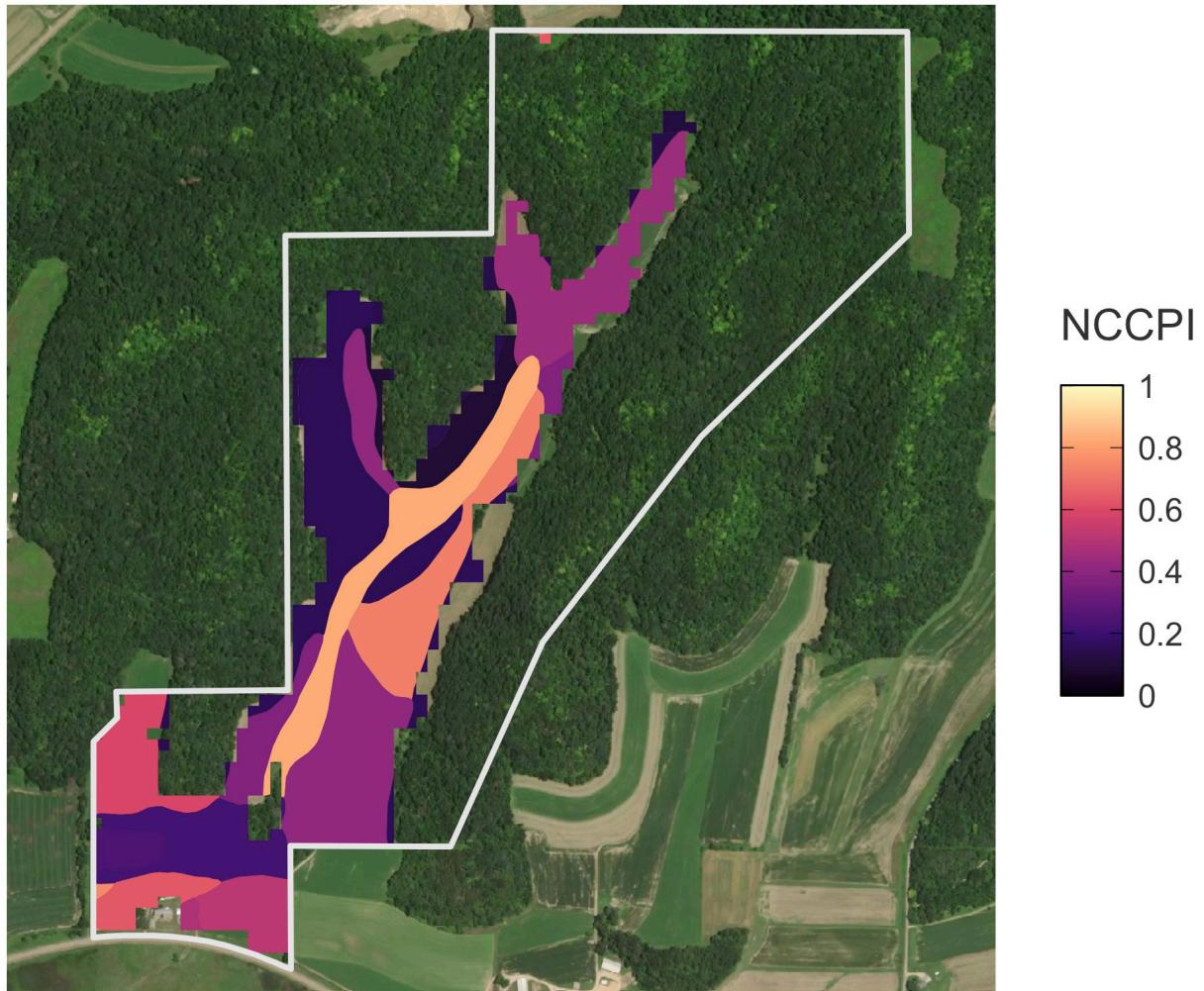
## Crop History

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## Row Crop Productivity

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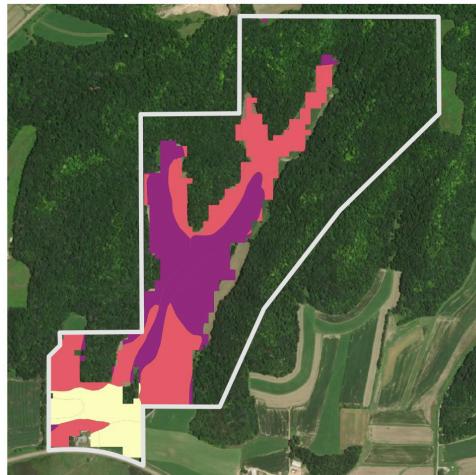


## Environmental Concerns

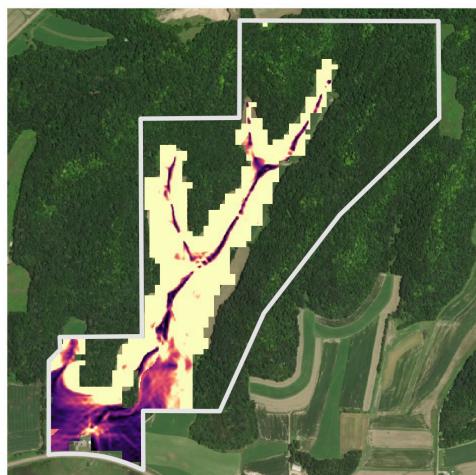
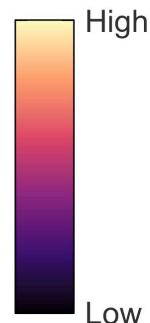
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## Soil Erosion

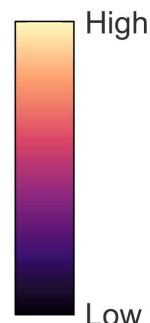
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Wind erosion risk

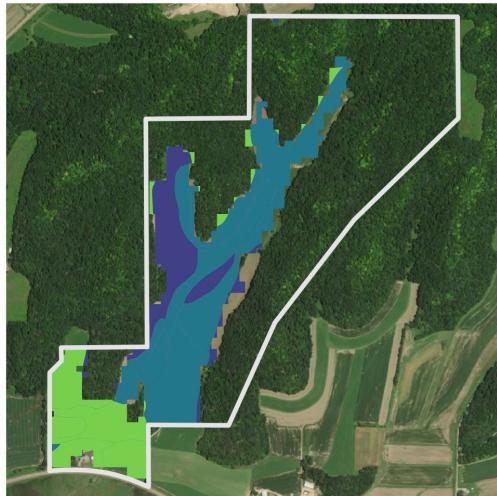


Water erosion risk



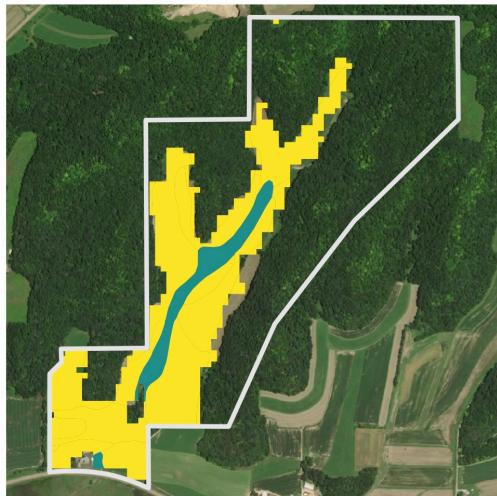
## Water Runoff & Flooding

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**Water runoff potential**

	Very high
	High
	Moderate
	Moderate if drained
	Low
	Low if drained



**Flood frequency**

	Very frequent
	Frequent
	Common
	Occasional
	Rare
	Very rare
	None

## Species Richness

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Amphibian



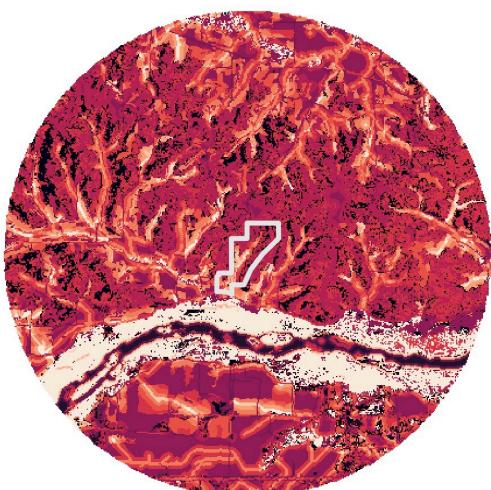
Bird



Mammal

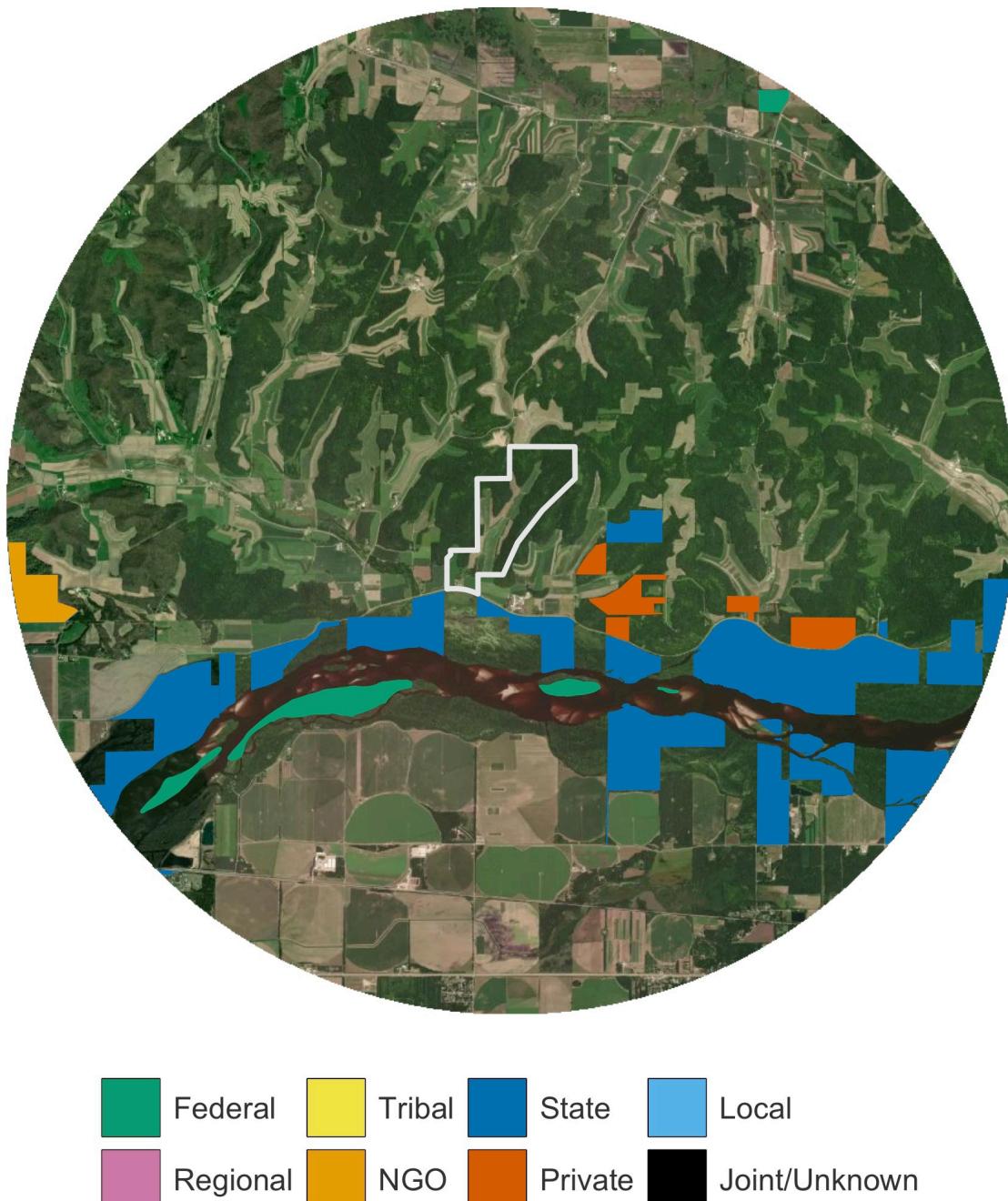


Reptile



## Protected Areas

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## Crop Suitability

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## Included Crops

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### Tree fruits

- Apple
- Cherry
- Mulberry
- Pawpaw
- Peach
- Pear
- Persimmon
- Plum
- Quince

### Small fruits

- Aronia

Black currant

Blueberry

Elderberry

Hardy kiwi

Honeyberry

Serviceberry

Poplar

Swamp white oak

White oak

Willow

### Nuts

- Chestnut
- Heartnut
- Hybrid hazelnut
- Pecan

### Other

- Sugar maple

## FAQ - Crop Suitability

### How are the crop suitability maps generated?

The crop suitability maps on the [Canopy Compass website](#) and in this section are based on the [Savanna Institute's](#) peer-reviewed crop suitability algorithm ([Shea and Wolz, 2024](#)). In this methodology, data on a crop's soil and climate preferences are first gathered from scientific literature, extension publications, and expert insights. Then, these preferences are used, in conjunction with soil and climate data, to predict how suitable a field is for a given crop.

Your field is divided into zones of common soil and climate traits. For each soil/climate variable, each zone is classified as ideal, suitable, or unsuitable. If any single variable is **unsuitable** in a zone, that zone is deemed unsuitable as a whole, regardless of the suitability of other variables. If no variables are unsuitable, the relative proportion of **ideal** vs. **suitable** variables in a zone generates a 'suitability index', which is displayed on the main maps in this section.



### What about different varieties, cultivars or genetics?

The crop suitability algorithm is meant to be *inclusive of all varieties, cultivars, and genetics within a given crop*. In other words, the analysis asks: 'Can at least one variety of this crop grow here?' This is the first step in evaluating crop suitability. If this analysis deems an area suitable, the varieties that work best for your field must then be identified. Ask our experts for help with that!

### How should the suitability index (from suitable to ideal) be interpreted?

The suitability index mapped for each species indicates the relative proportion of factors that are either 'suitable' or 'ideal' for that crop. The suitability index should not be interpreted as directly proportional to growth rate or yield.

### Will the suitability analysis change over time?

Yes! Many alternative crops are just now developing robust data on soil and climate preferences. We are constantly working to improve our suitability algorithm as new research is published and more data becomes available. As crops are added or updated on the Canopy Compass website, you can update this Compass Report to include this new information for **free**.

## What factors are considered or not considered?

The factors considered in the suitability analysis vary across crops. The specific factors considered for each crop are shown on the pages titled "Criteria Breakdown". Factors can include:

### CLIMATE

- **Minimum winter temperature** - Cold hardiness often limits crops at the northern end of their range.
- **Maximum summer temperature** - Heat tolerance often limits crops at the southern end of their range.
- **Precipitation** - On existing agricultural land, precipitation criteria are ignored - we assume that installation of irrigation is feasible if necessary. On non-agricultural land, precipitation criteria are enforced.
- **Chilling hours** - Some crops need enough winter chill time to trigger flower or fruit production.
- **Growing degree days** - This is a metric of growing season length. Some crops need longer growing seasons to fully ripen their crop.

### SOIL

- **Soil depth** - Too shallow of bedrock or restrictive layer can restrict roots.
- **Water table depth** - Plant roots generally cannot survive for long if submerged in the water table, but some crops prefer having intermittent access to the water table.
- **Soil texture** - The soil's sand, silt, and clay composition.
- **Soil drainage** - Some crops are more tolerant of soggy soils than others.
- **Flood frequency** - Some crops are more tolerant of flooding than others.
- **Soil pH** - Nutrient availability is strongly influenced by soil pH - how acidic or alkaline the soil is.

### NOT INCLUDED

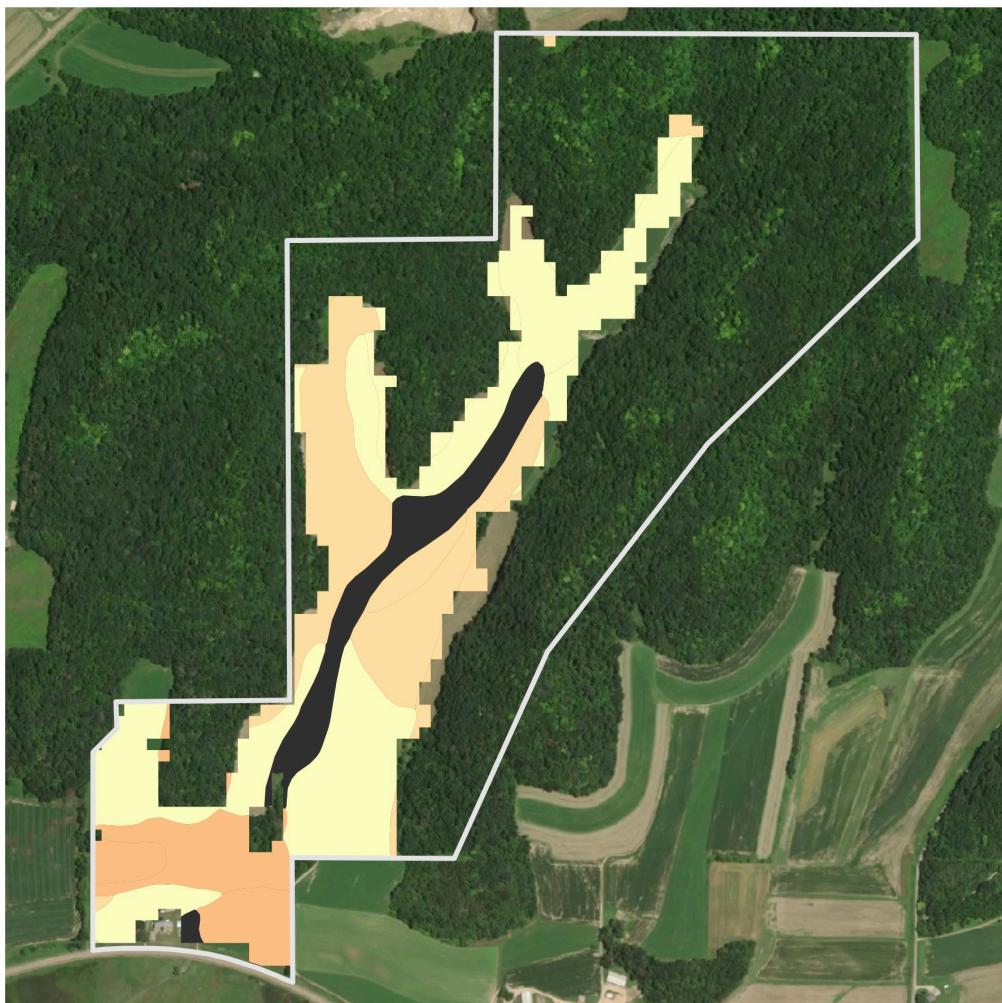
- **Microclimate effects** - You can't beat on-the-ground observations for this!
- **Future climate change** - Analyses utilize present-day climate data.
- **Slope** - This can be important for some types of mechanical harvesters.
- **Management-related variables** - e.g., if a certain soil texture is necessary for a specific management practice, rather than just for crop growth.

## Apple



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120 suitable acres



Not agriculture



Unsuitable

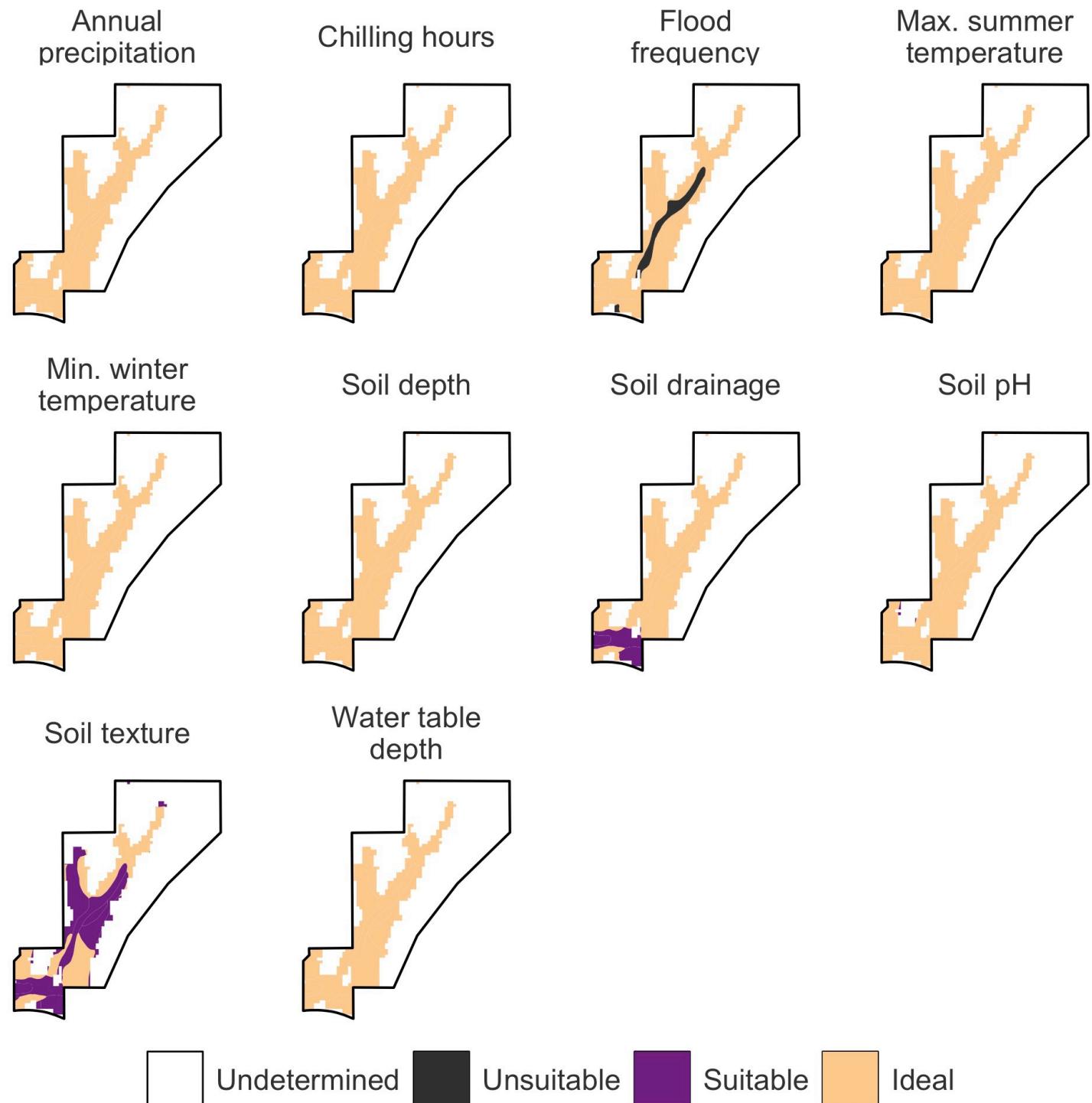


Suitable

Ideal

### Apple - Criteria Breakdown

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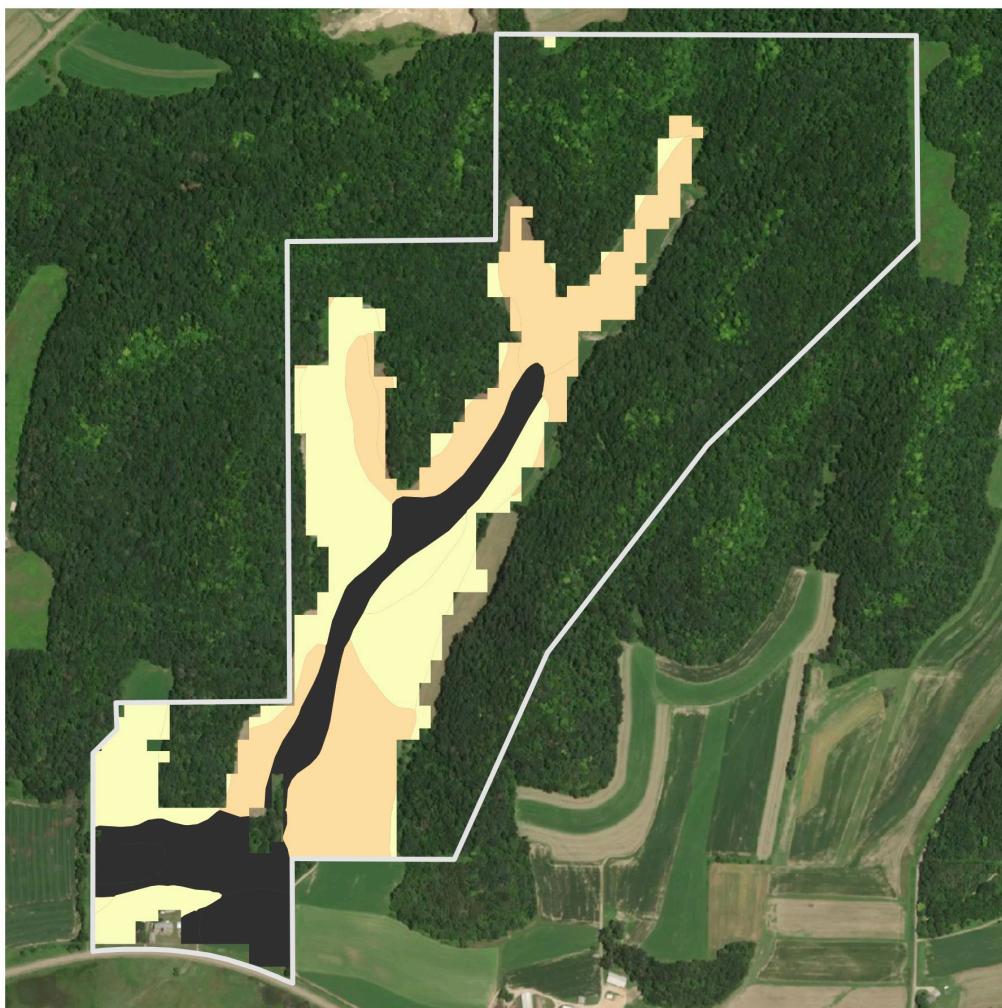


## Black Currant



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89 suitable acres



Not agriculture



Unsuitable

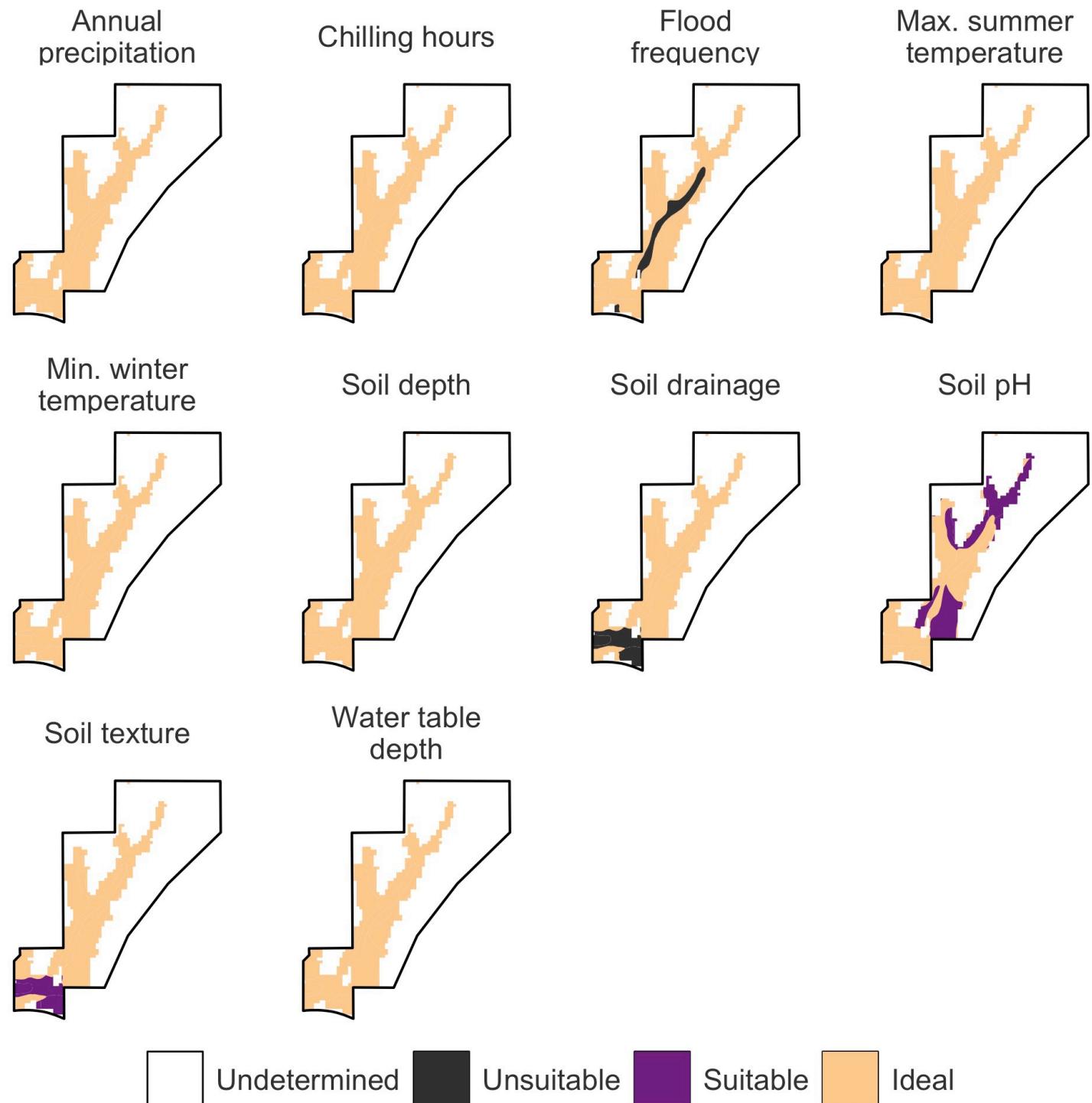


Suitable

Ideal

### Black Currant - Criteria Breakdown

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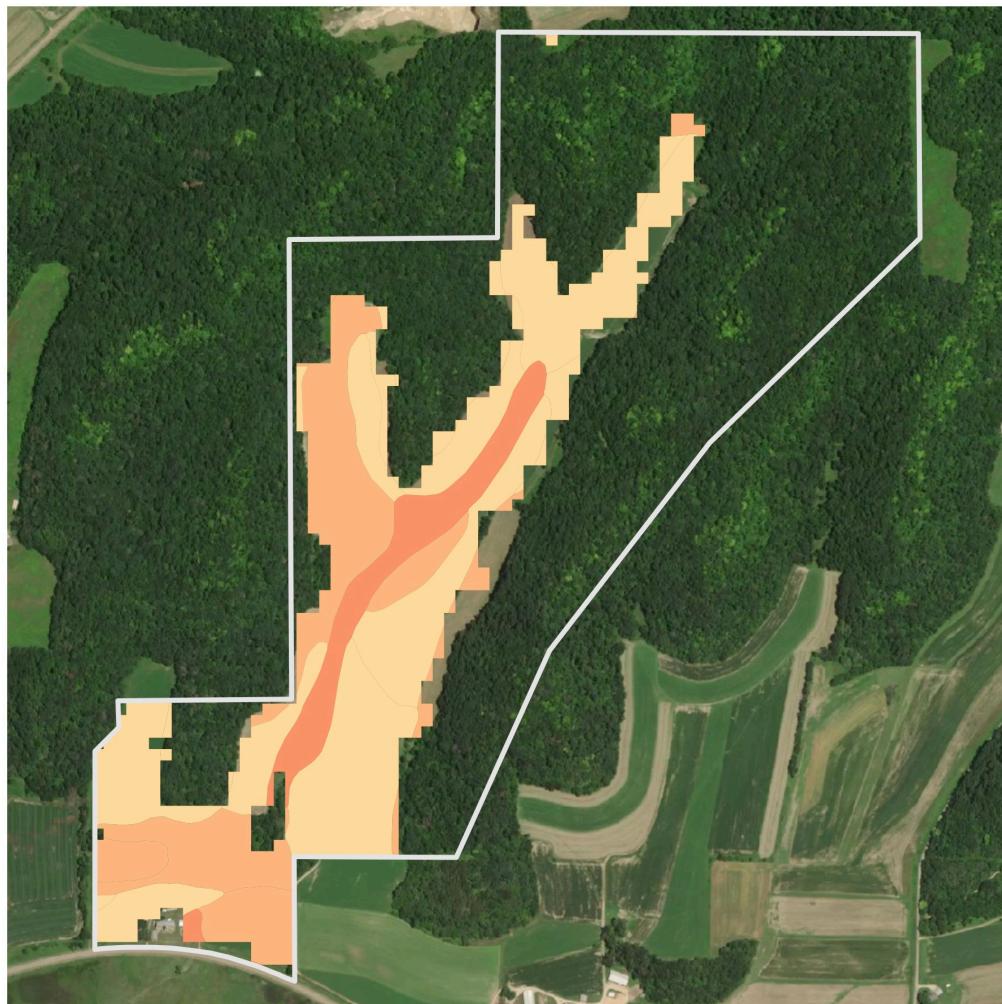


## Black Locust



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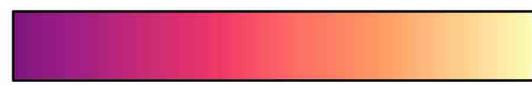
121 suitable acres



Not agriculture



Unsuitable

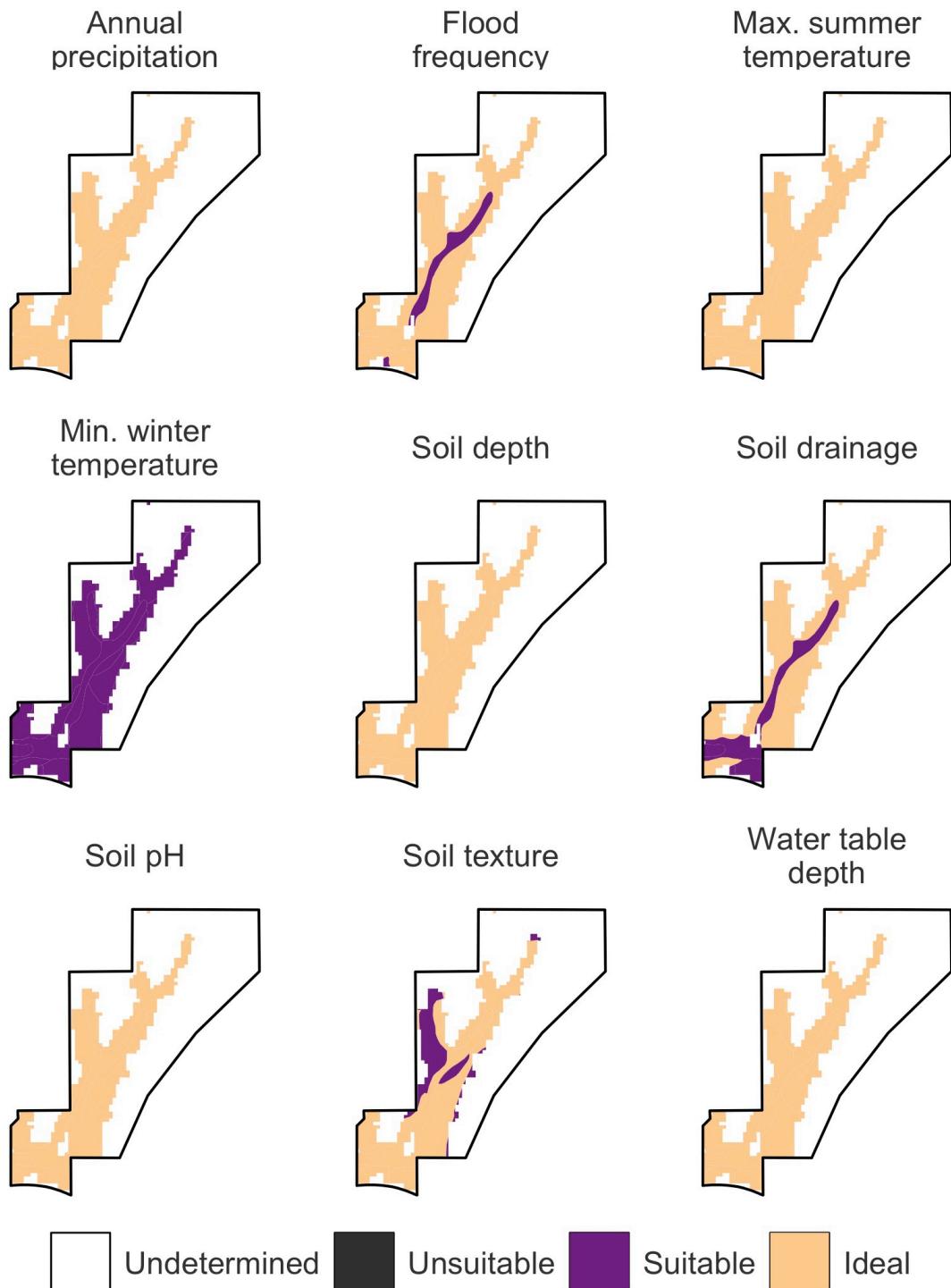


Suitable

Ideal

### Black Locust - Criteria Breakdown

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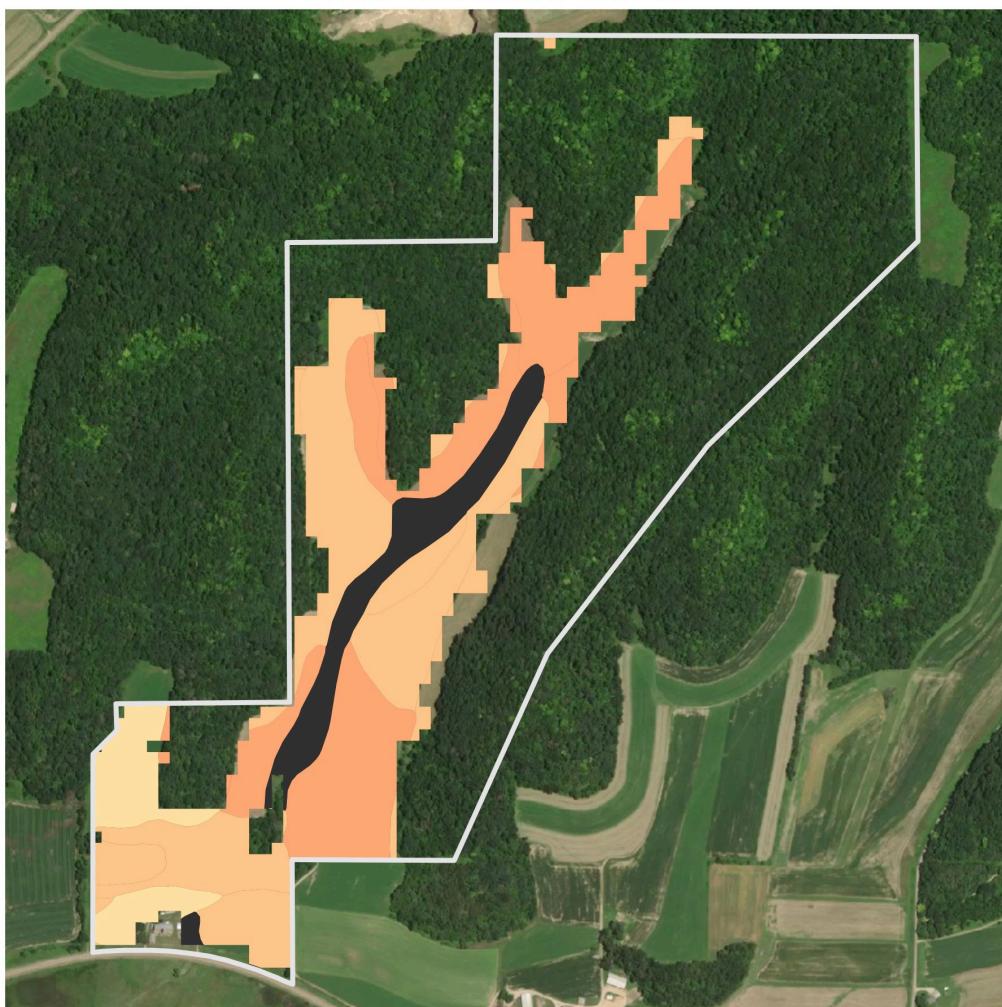


## Chestnut



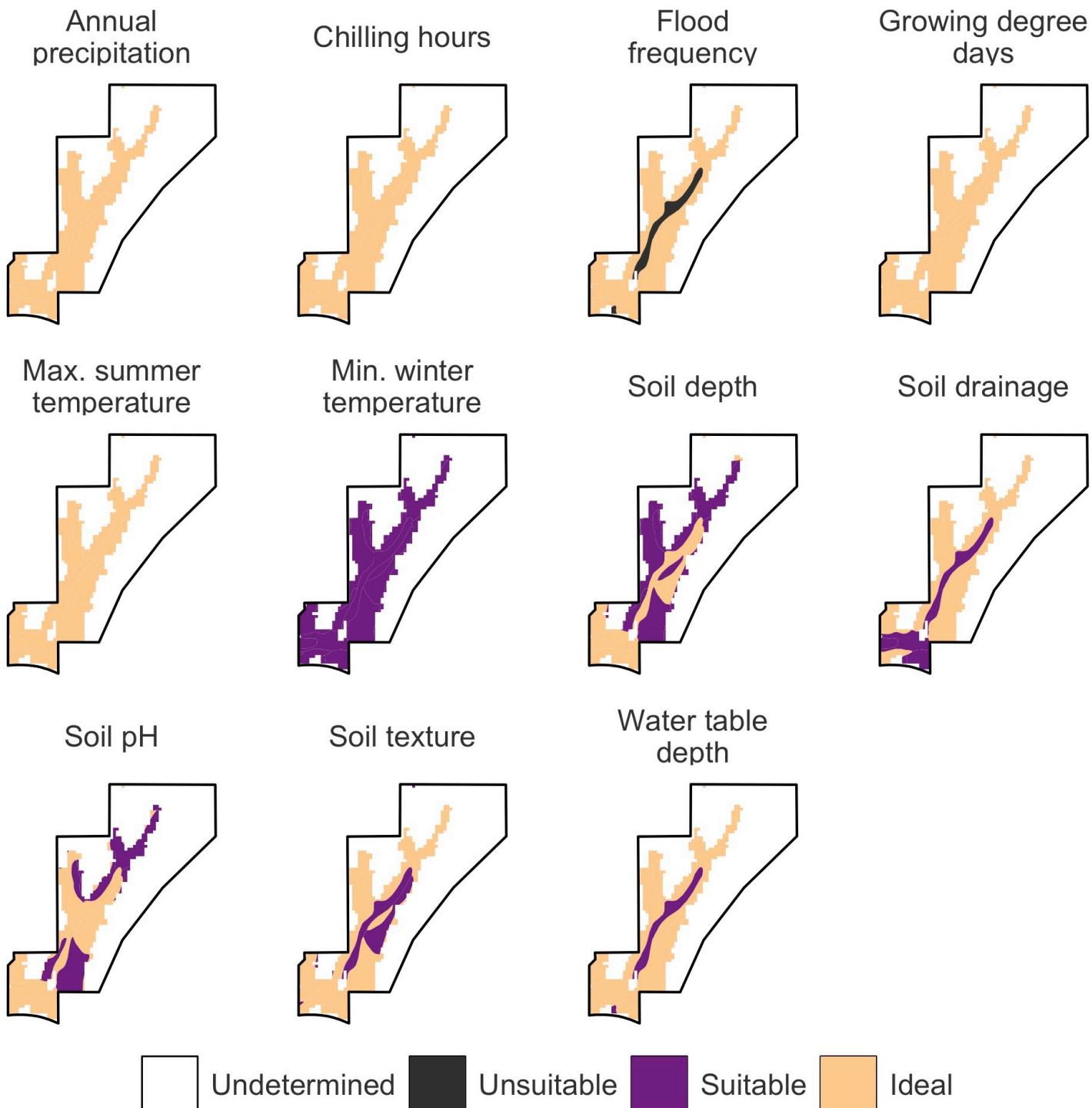
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120 suitable acres



### Chestnut - Criteria Breakdown

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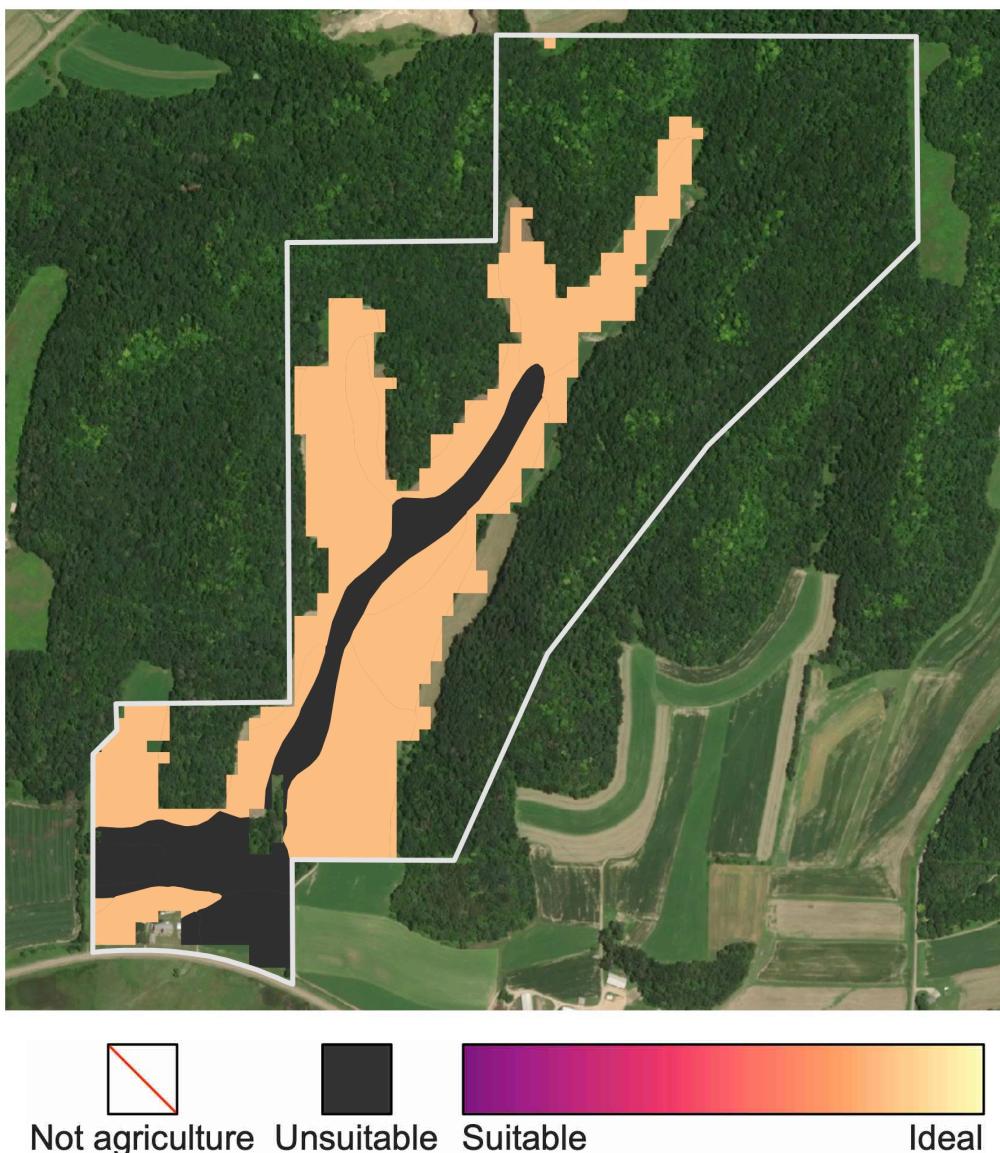


## Sugar Maple



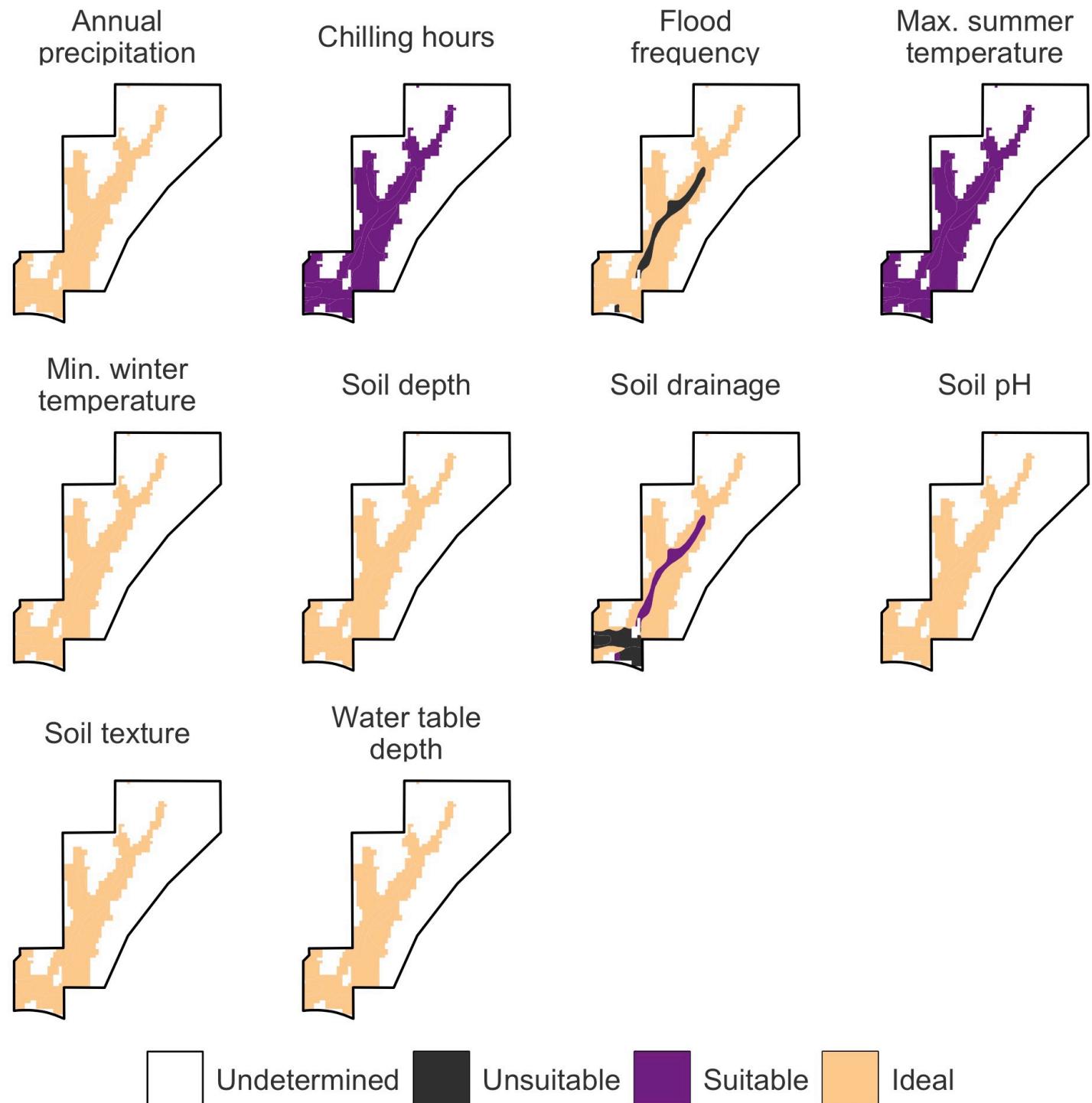
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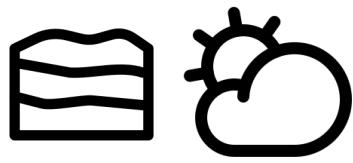
89 suitable acres



### Sugar Maple - Criteria Breakdown

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## Soil & Climate

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## FAQ - Soil & Climate

### **Is the soil data trustworthy? Did someone take soil samples in *this* field?**

The USDA SSURGO soil database contains information collected by the National Cooperative Soil Survey over *more than a century*. The data was gathered by USDA scientists who walked over the land, observed the soil, and took many deep cores for laboratory analysis.

While they may not have taken soil cores in *your* field, they did take soil cores in the same soil types in a similar landscape context nearby.

Soils vary across the landscape in a repeatable pattern influenced by steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the kinds of rock; and many other characteristics. Using these patterns, in conjunction with the soil cores that were taken, soil scientists can predict soil types and characteristics across the broader landscape. Accurately drawing the soil maps was greatly aided by aerial imagery, initially by planes, and now satellites.

### **Should I take my own soil samples?**

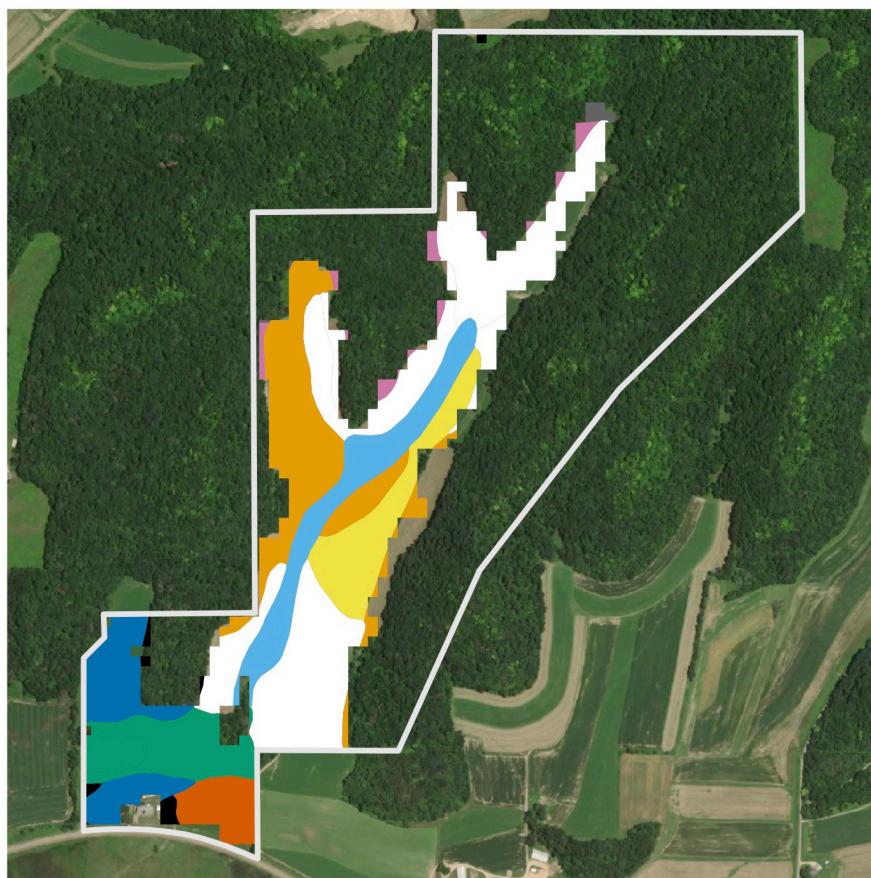
This soil database is evidence-based and robust. Nevertheless, errors and variability do exist. In addition, while many soil traits are stable over time, others can vary with time and under agricultural management (e.g. organic matter, pH).

*It is highly recommended to validate this analysis with real soil samples collected from your field, especially prior to making an investment in permanent crops.*

To get in touch with one of our regional experts for help interpreting and validating the soil data in this report, see the instructions on the 'What's Next?' page at the back of this report.

## Soil Series

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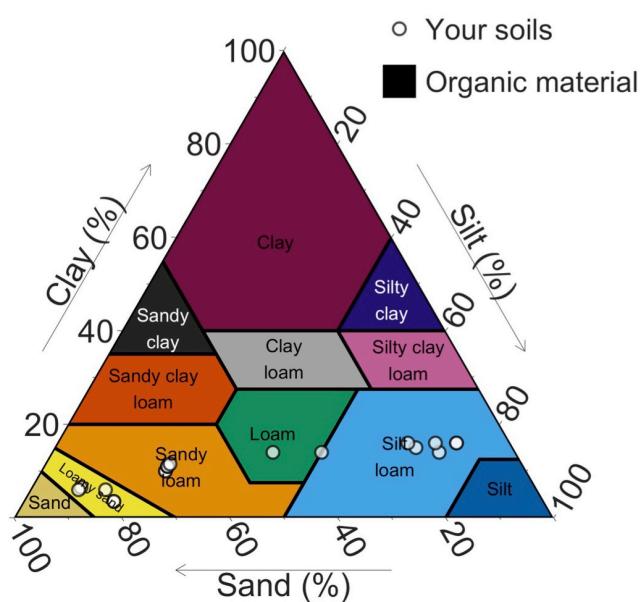
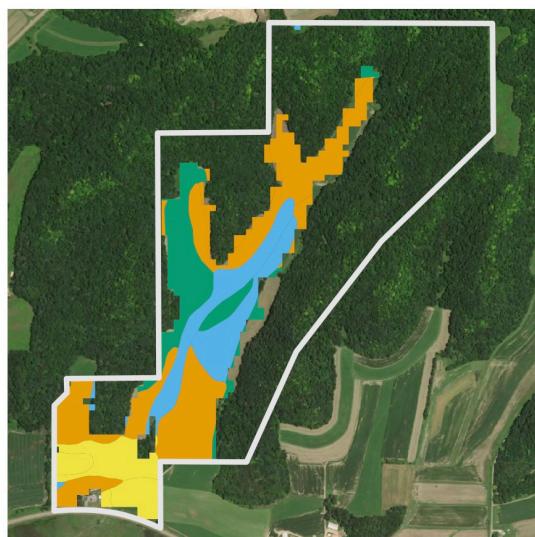


	224B, 224C2, 224D2, 224E2: Elevasil sandy loam		213E2: Hixton silt loam
	627A: Chaseburg silt loam		PFC, PFD: Plainfield loamy sand
	118D2: Seaton silt loam		BLB, BLC2: Billett sandy loam
	SPB: Sparta loamy sand		1145F: Gaphill-rockbluff complex
	1125F: Doretton		Other

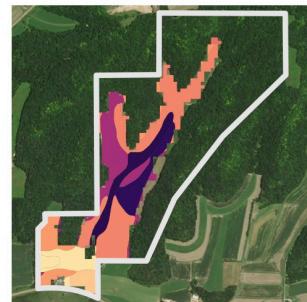
## Soil Texture

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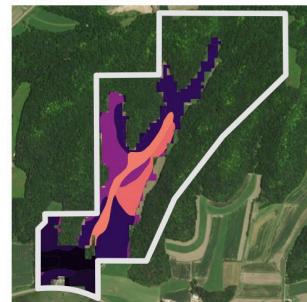
### Surface texture



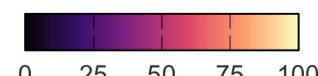
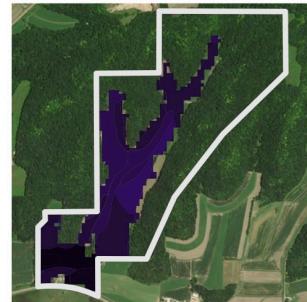
### % Sand



### % Silt

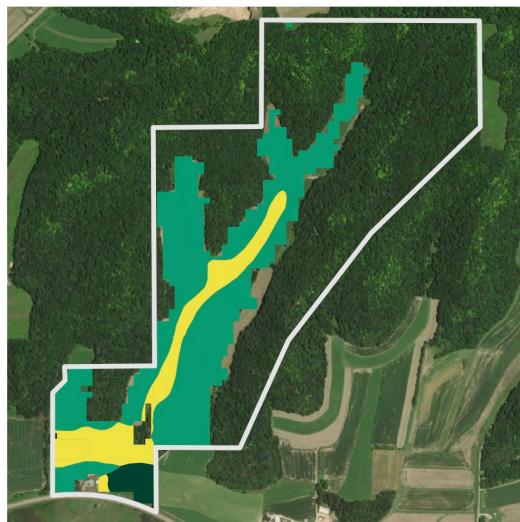


### % Clay



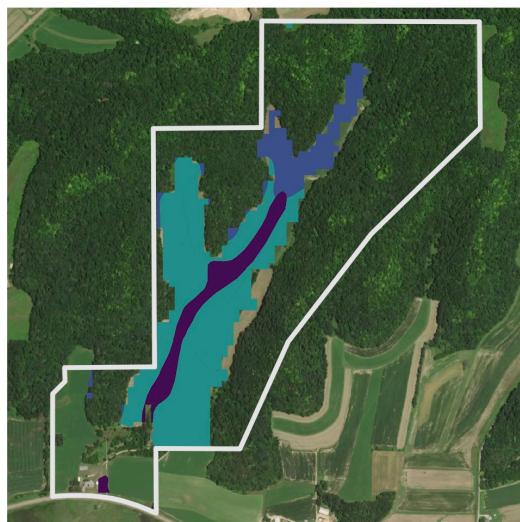
## Soil Formation & Loss

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Soil order

	Alfisols
	Entisols
	Mollisols



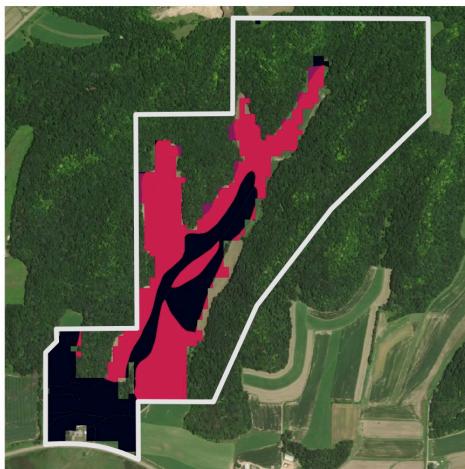
Soil lost to erosion

	100%
	75 - 99%
	25 - 75%
	1 - 25%
	None
	No data

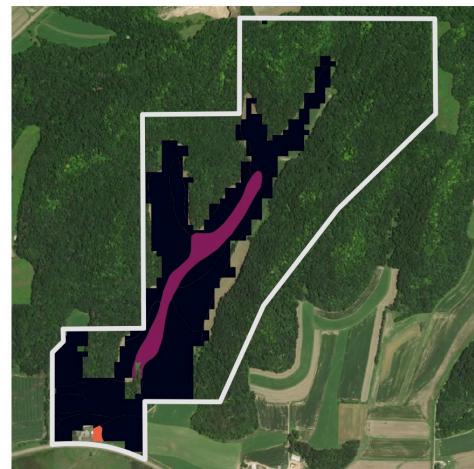
## Depth Constraints

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Bedrock



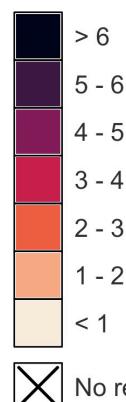
Water table



Restrictive layer

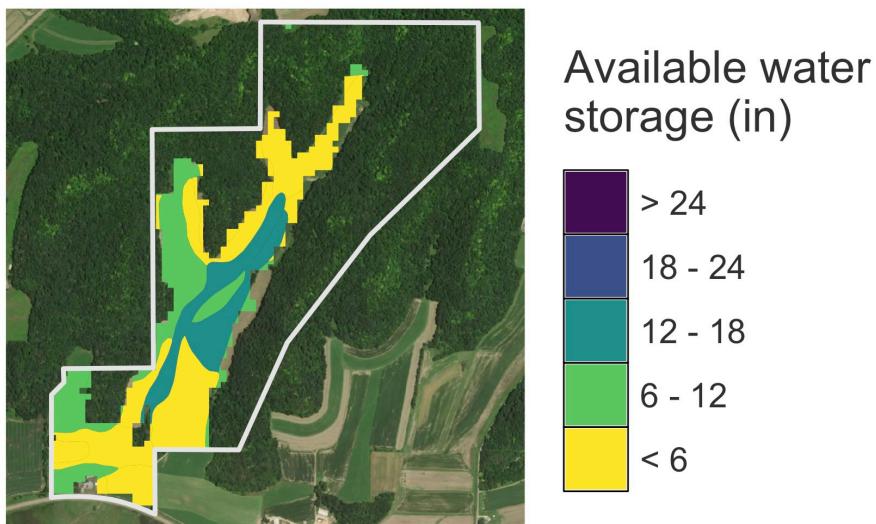
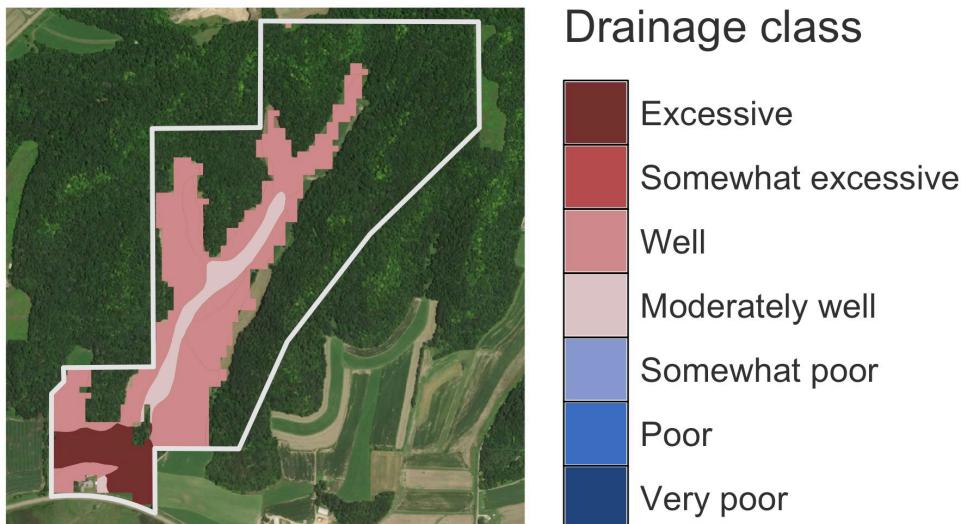


Depth (ft)



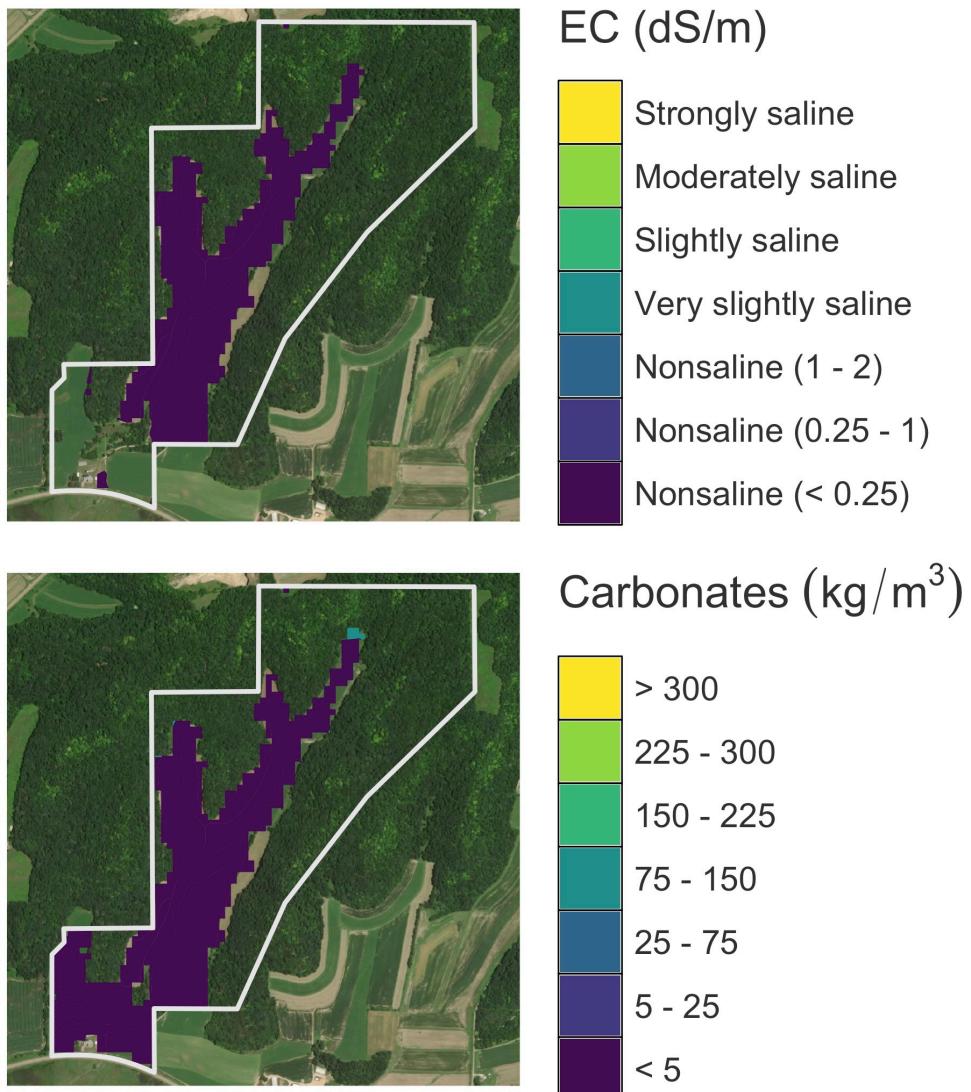
## Water Retention

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## Soil Chemistry

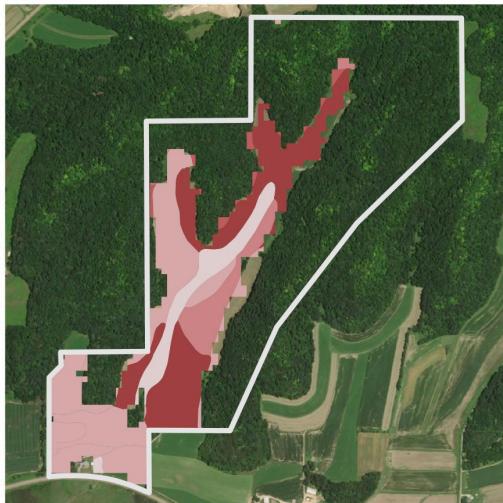
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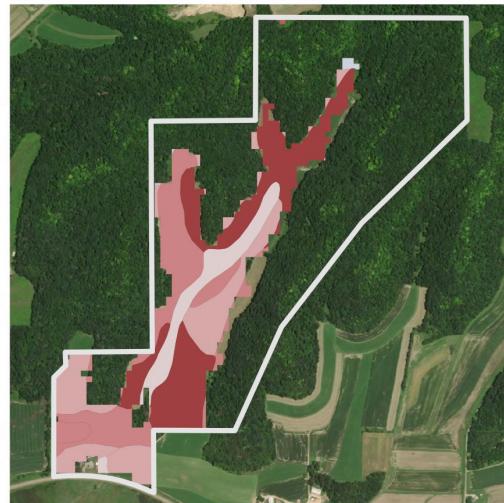
## Soil pH

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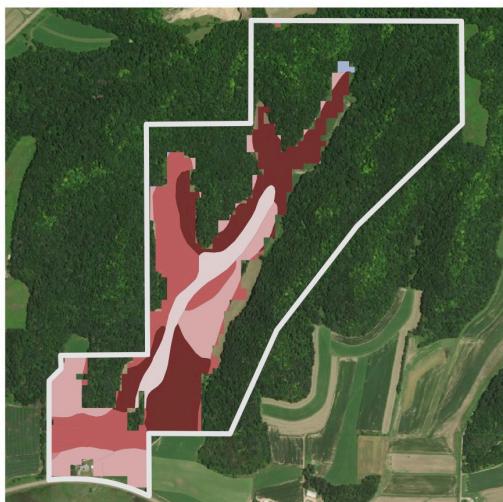
Surface



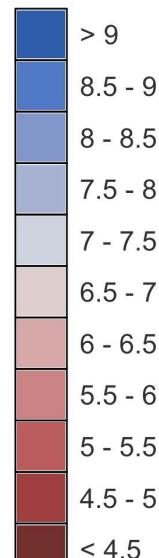
Average



At max depth

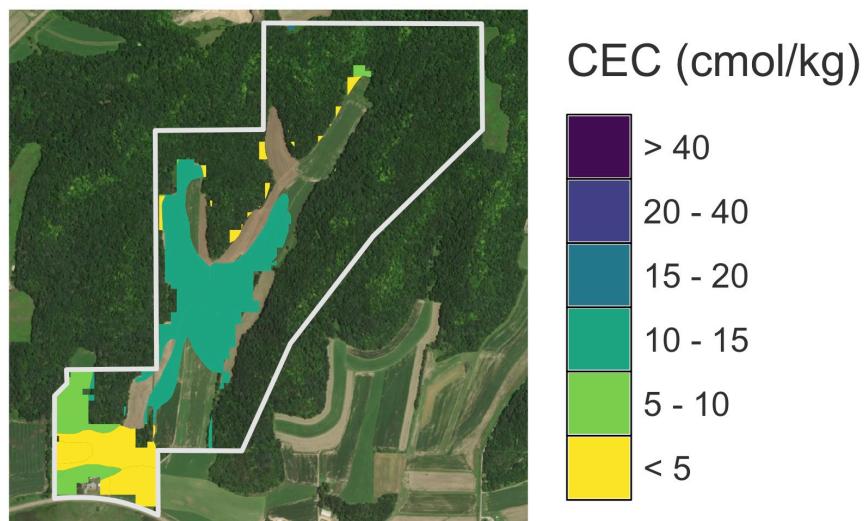
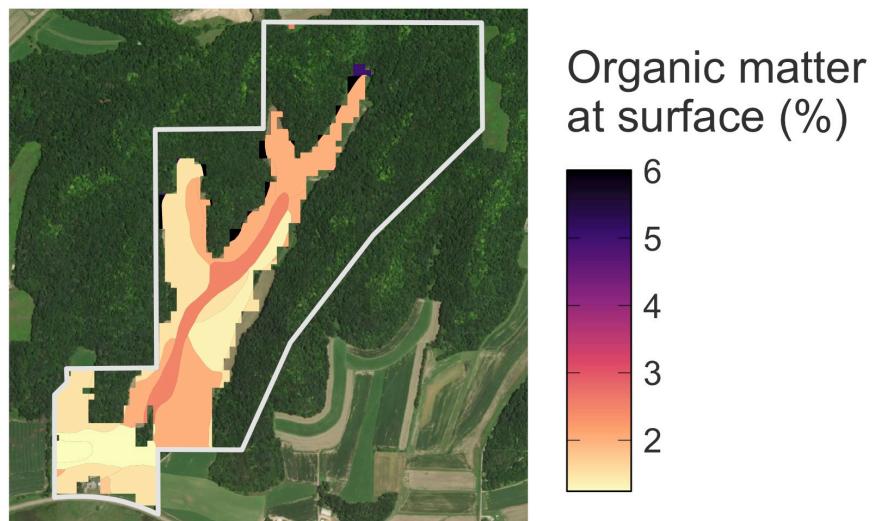


pH



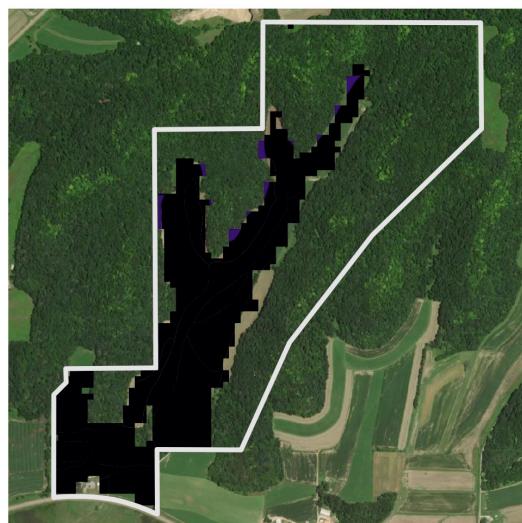
## Soil Fertility

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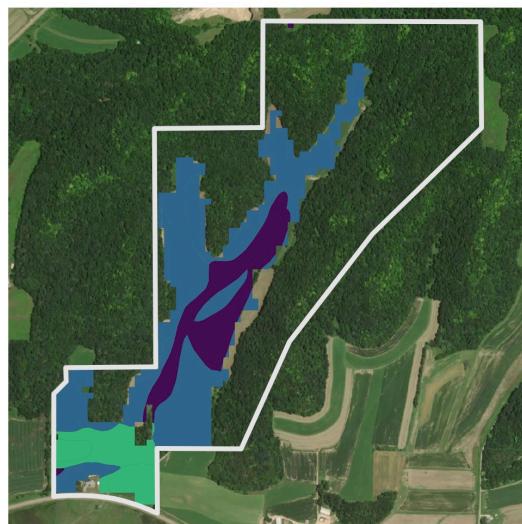
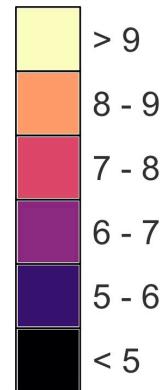


## Tree Planting Considerations

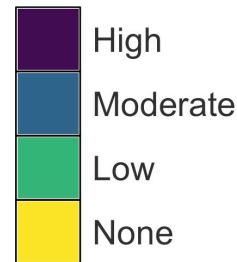
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Rock fragments  
in top 1 foot (%)



Frost heave  
potential



## Climate Statistics

*Lorem ipsum dolor sit amet, con.*

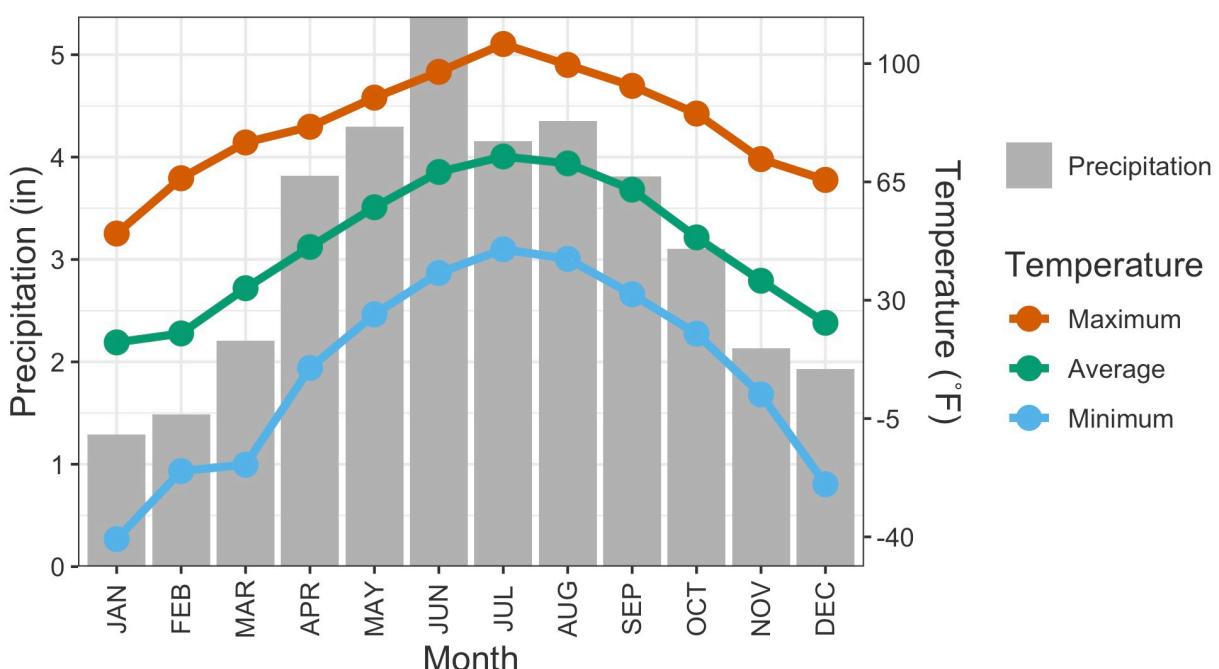
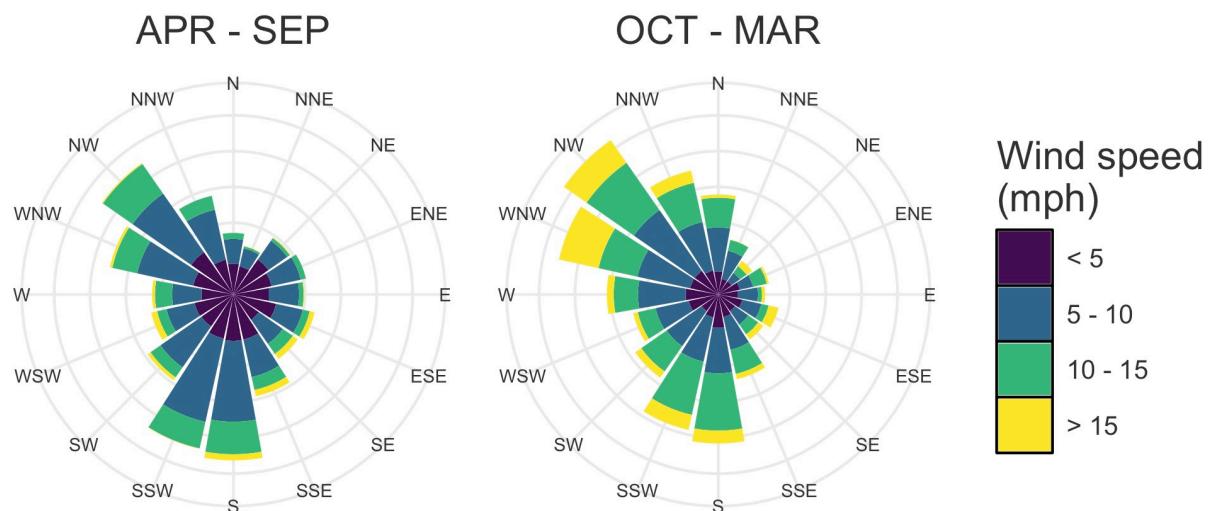
**Average minimum winter temperature:** -18 °F

**USDA plant hardiness zone:** 5a

**Average winter chill time:** 1,785 hours

**Average growing degree days (GDD):** 2,586 °F-days

**Average annual precipitation:** 37 in



## FAQ - General

### Where does the data in this report come from?

- Land Cover & Crop History: [USDA Cropland Data Layer \(CDL\)](#)
- Historical Vegetation: [USFS LANDFIRE Biophysical Settings](#)
- Hydrology: [USGS National Hydrography Dataset \(NHD\)](#)
- Topography: [USGS 3D Elevation Program \(3DEP\)](#)
- Row Crop Productivity: [USDA NCCPI v3.0](#)
- Species Richness: [USGS Gap Analysis Project \(GAP\)](#)
- Protected Areas: [USGS Protected Areas Database \(PAD-US\)](#)
- Crop Suitability: [Savanna Institute via \(Shea and Wolz, 2024\)](#)
- Soils: [USDA National Soil Survey Geographic Database \(gNATSGO\)](#)
- Climate: [PRISM Climate Group](#); [NASA POWER](#); [IL State Climatologist](#)
- Irrigation Frequency: [Xie and Lark 2021](#)
- Tile Drainage: [Valayamkunnath et al. 2020](#)

### How do I utilize the included supplementary data files?

This report comes with two supplementary data files, which are available in your account on [CanopyCompass.com](#).

The included KML file contains basic spatial data shown in this report, such as the outline of your field and crop suitability zones. This file can be opened on your computer using Google Earth Pro, which can be downloaded [HERE](#).

The included ZIP file holds an array of advanced data files (e.g. TIF, GPKG) that contain comprehensive spatial data shown in this report. These files are most often provided to technical consultants for use in GIS software such as ArcGIS or QGIS.

### Where can I purchase plants for the crops evaluated in this report?

Canopy's [in-house nursery](#) is a great place to start. We produce the highest quality genetics across a range of permanent crops. Our bare-root trees and shrubs can be shipped across the US. If we don't grow a particular crop, we will connect you with a trusted partner that does!

## About Canopy

Canopy **plants and manages** tree crops, timber plantings, conservation practices, and integrated agroforestry systems. In addition to our home offices in the Midwest, we are connected to regional experts across the US.

We help farmers and landowners via:

- **Our expert team** of agronomists, scientists, and business specialists
- **Thoughtful design** using state-of-the-art spatial analysis and mapping
- **Top tree genetics** across a range of species, from our [in-house nursery](#)
- **Precision tree establishment** enabling trees to survive and thrive
- **A mobile equipment fleet**, custom-engineered for precision management
- **Opportunity and impact mapping** at any scale across the US



## What's Next?

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*Click here to:*  
**Ask an Expert**



*This report was created using Canopy Compass version 0.7.5-0.7.6-0.7.6.*



Give your farm  
**a second story.**