

The image shows a top-down perspective of a forest floor. A dark green, mossy ground is overlaid with a light gray grid. Several dark green, bushy plants are scattered across the grid. In the top-left corner, there is a branch with large, vibrant green leaves and a single white flower with a yellow center. In the bottom-right corner, there is a branch with large green leaves and a cluster of small, round, yellow-green berries.

You are walking through a forest..

A detailed botanical illustration background featuring various plants. In the top left, there are pink flowers with long tubular shapes. In the top right, there are white star-shaped flowers. On the left side, there is a large yellow flower with a dark red center. At the bottom, there are green leaves and small red flowers. On the right side, there is a yellow lemon and a small white flower. The entire background is set against a dark green, textured backdrop.

Plant Species Classification

Natasha Kacoroski and Jacob Crabb

A detailed botanical illustration serves as the background. It features various plant species, including large green leaves with prominent veins, small white flowers with yellow centers, and clusters of small yellow berries. The plants are set against a dark, textured background that resembles a stone or brick wall.

**Is a plant species
invasive or
non-invasive?**



USDA Plants Database

		Raw	Processed
<ul style="list-style-type: none">Public DomainNorth AmericaMissing ValuesImbalanced 30:1	Plants	38,186	2,063
	Features	78	56
	Numeric	12	8
	Categorical	66	48



Methodology

Preprocess Data

Build Model

- Fill nulls
 - Simplify categories
 - Dummy variables
 - Standard scale
 - LogisticRegression
 - Random Forest
 - XGBoost
- 

Logistic Regression

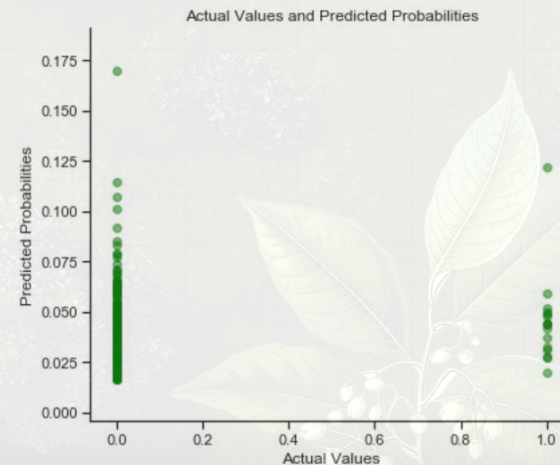
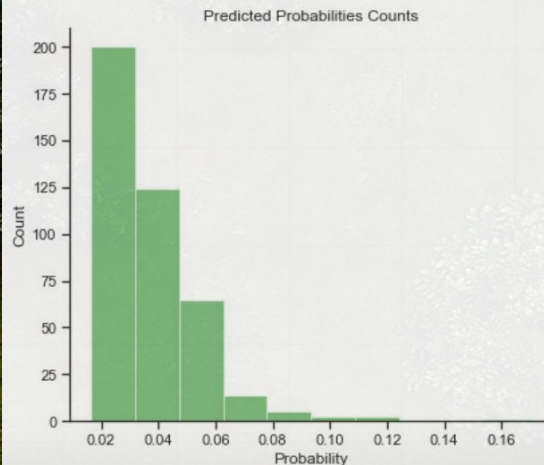
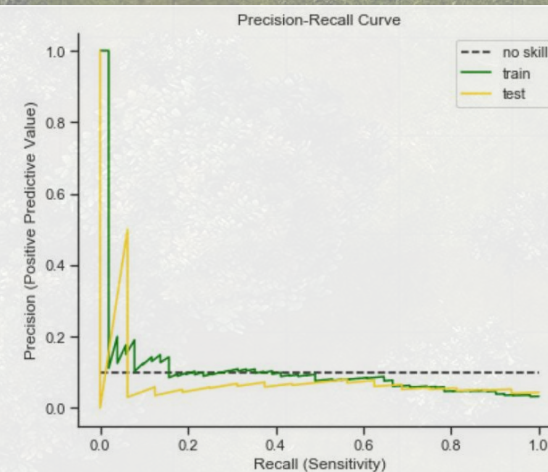
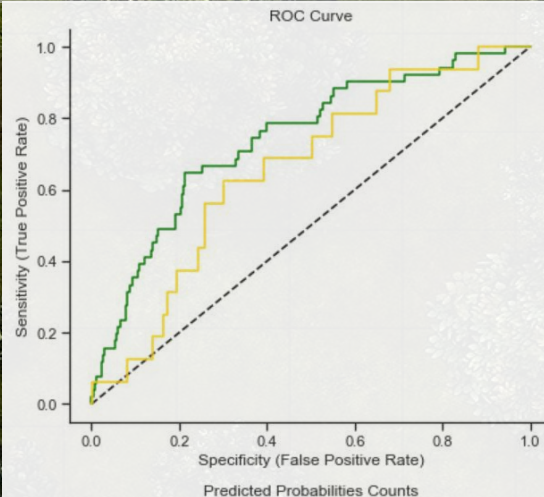
F1 Score: 0.0

Average Precision: 0.09

AUC: 0.07

Confusion Matrix

		Predicted	
		False	True
Actual	False	397	0
	True	16	0





Random Forest

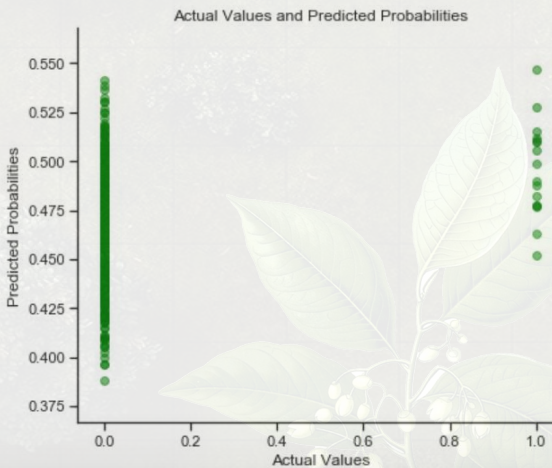
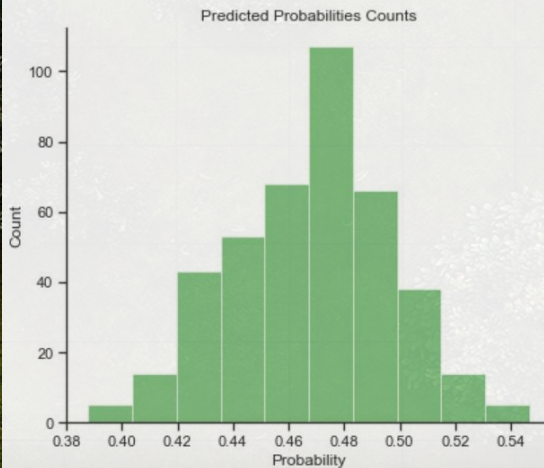
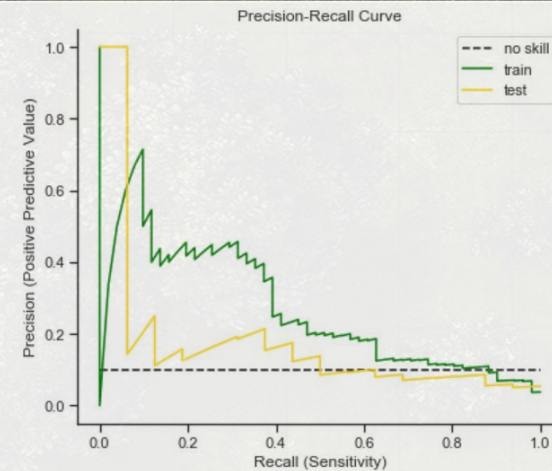
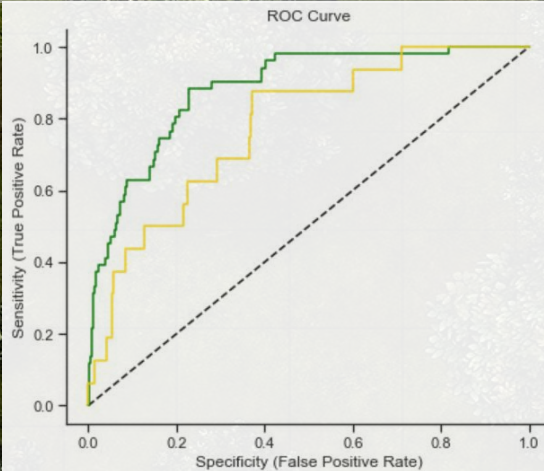
F1 Score: 0.2

Average Precision: 0.183

AUC: 0.172

Confusion Matrix

		Predicted	
		False	True
Actual	False	350	47
	True	9	7



XGBoost

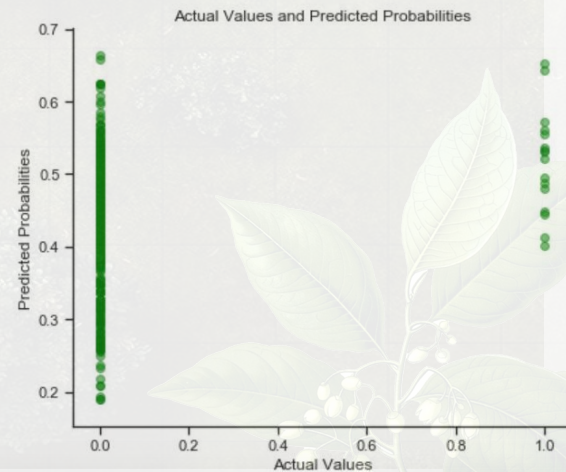
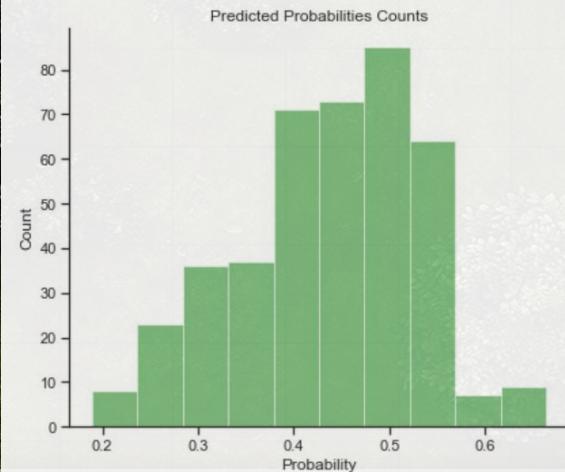
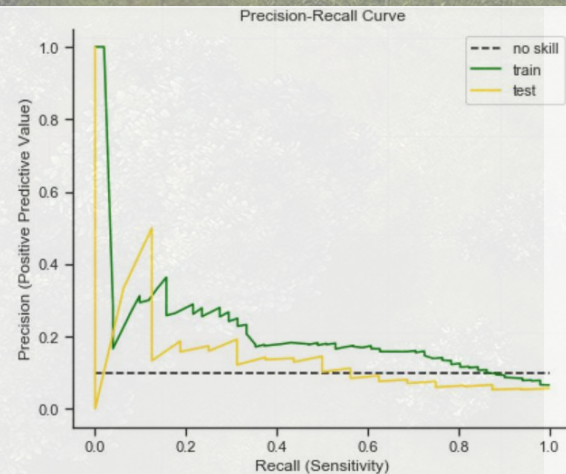
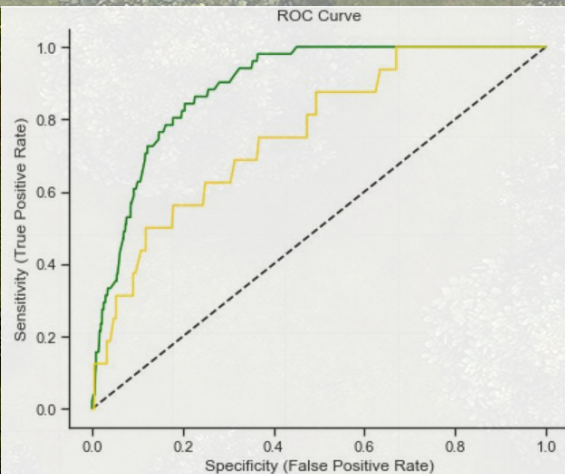
F1 Score: 0.15

Average Precision: 0.151

AUC: 0.13

Confusion Matrix

		Predicted	
		False	True
Actual	False	303	94
	True	7	9





**Looks like our
Model's a lemon!**

A detailed botanical illustration of various plants, including green leaves, white flowers, and red flowers, set against a dark, textured background. The plants are arranged around a central white rectangular box containing text.

Recommendations

- Research invasive plant mechanisms
- Acquire more relevant data



**And do it before
being eaten by
a carnivorous
plant!**