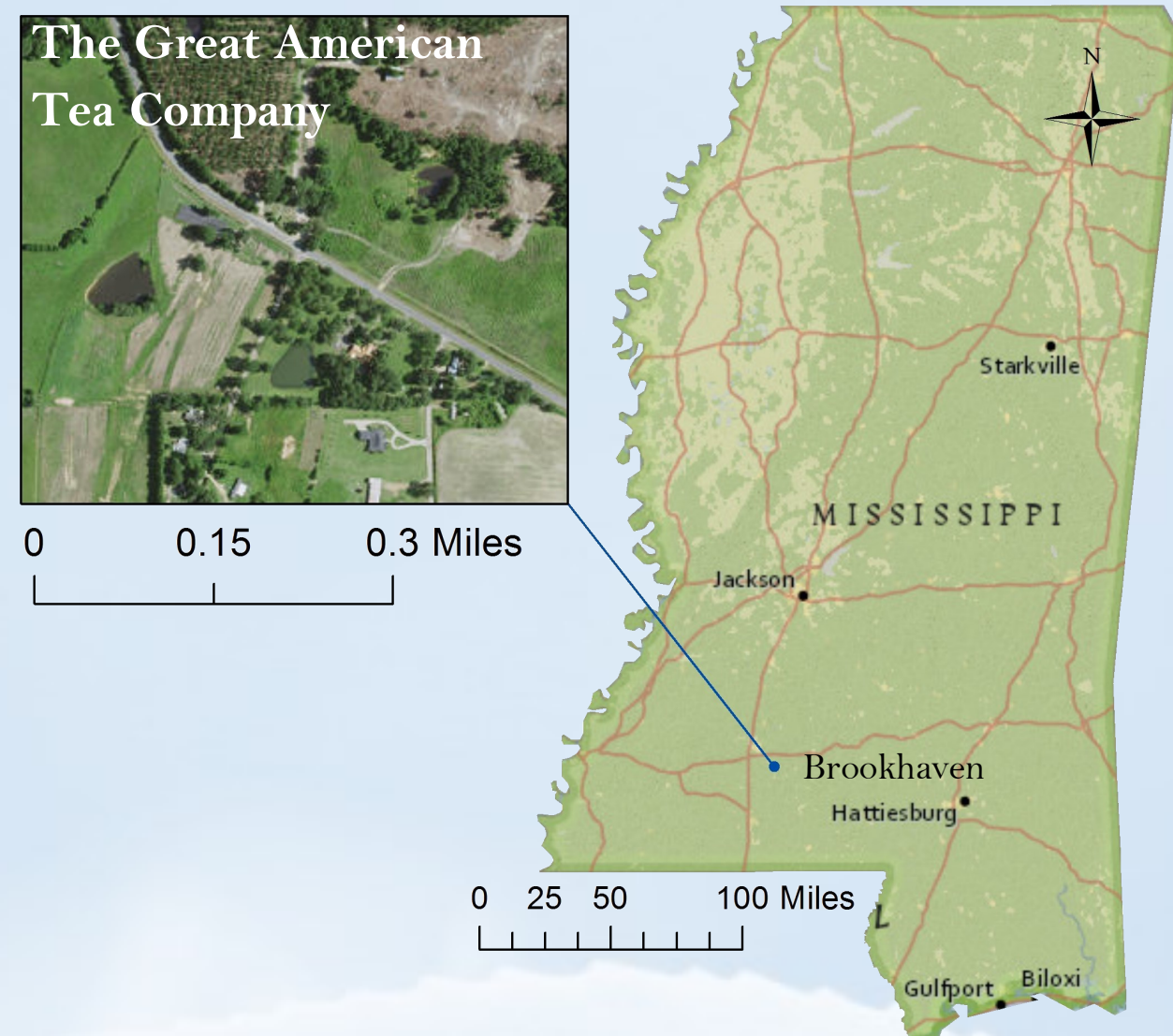


Finding America's Next Tea Farm

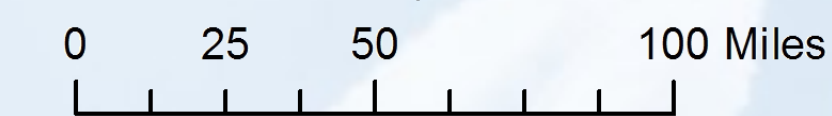
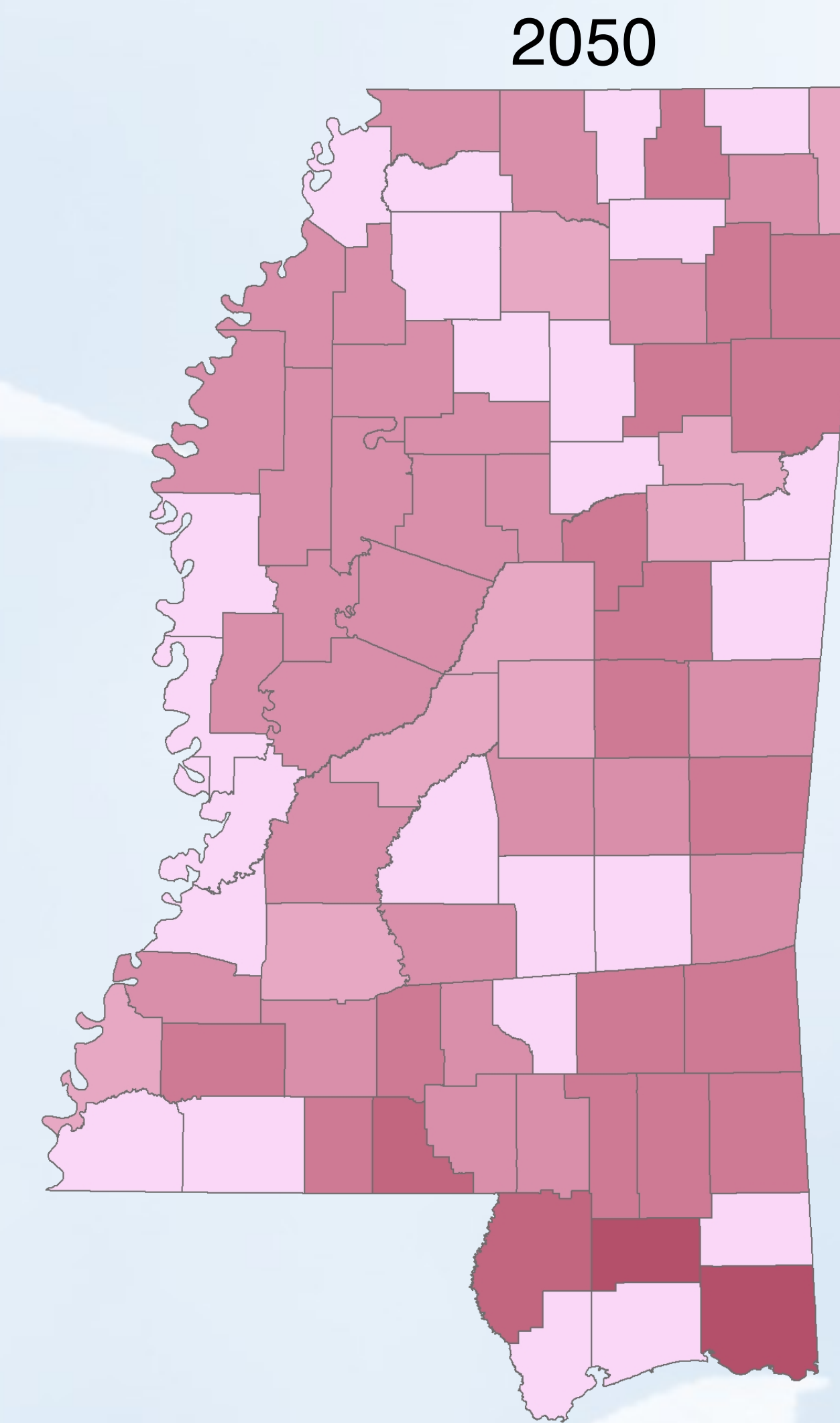
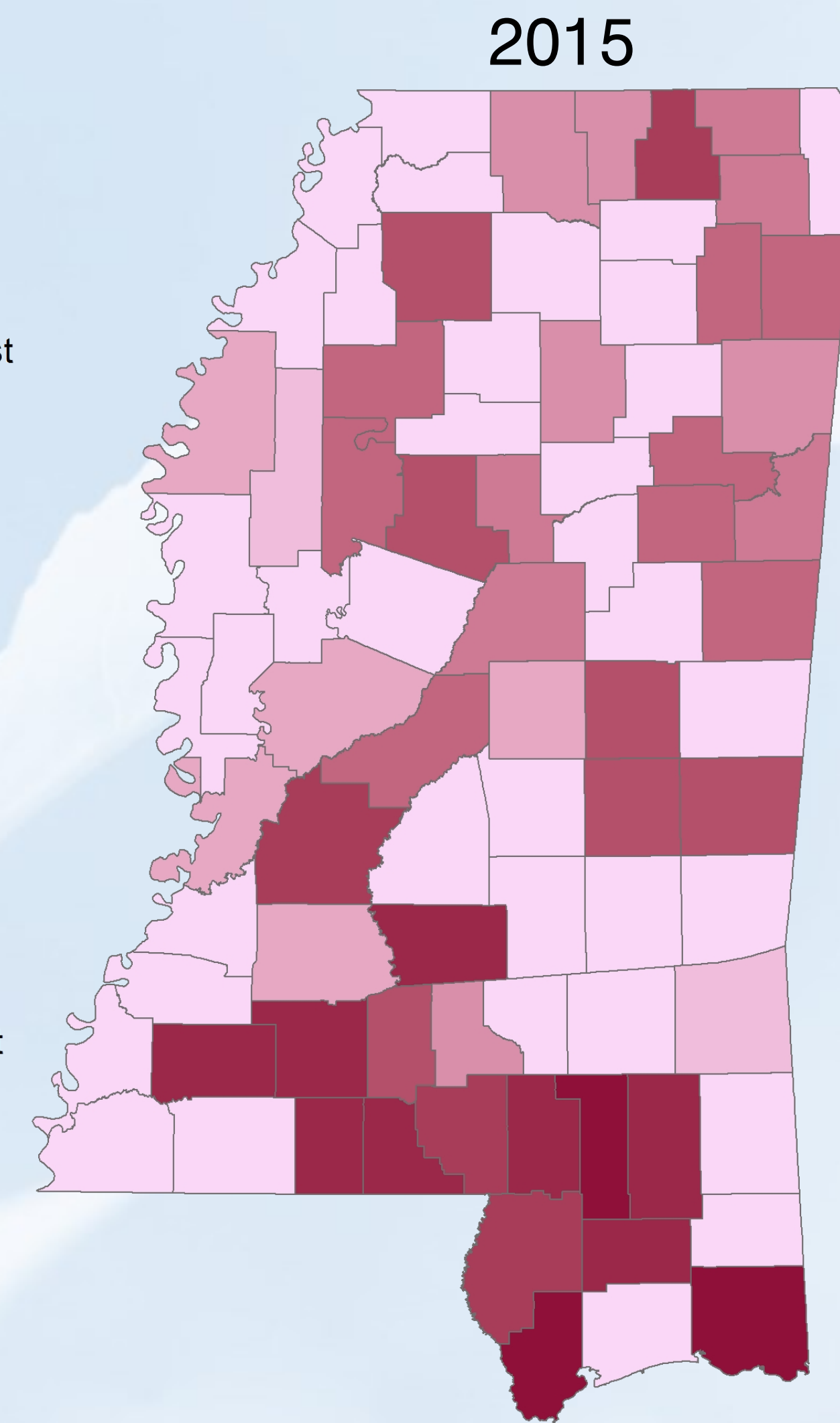
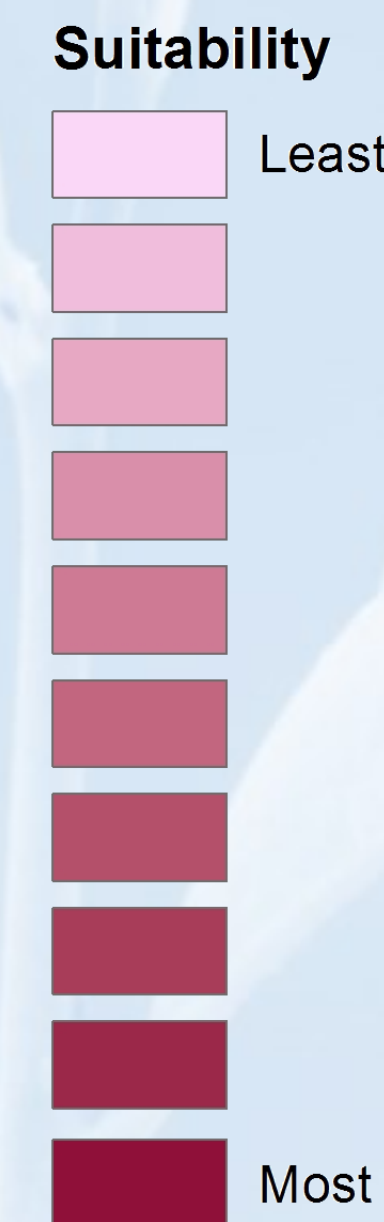
A Suitability Analysis of Mississippi's Tea Growing Potential



Introduction

Over the past several decades, tea consumption in the United States has greatly increased. In 1990, less than two billion dollars was spent on wholesale tea; almost a quarter of a century later, this number has jumped to over ten billion. Despite this drastic growth in the market, very little tea is produced in this country. Although there are some smaller growers sprinkled throughout the states, there is only one large scale commercial tea operation in the United States. This farm is the Charleston Tea Plantation in South Carolina and is able to boast that it is "America's only tea garden." However, this may not be an accurate statement in several years; The Great Mississippi Tea Company in Brookhaven, Mississippi hopes to expand their relatively new commercial operation to 150 acres by 2020.

The purpose of this study is to find other regions in Mississippi that would be suitable for the development of largescale tea farms, in the hopes that the state can make a new name in American tea.



Conclusions

As one would expect, the best regions for optimal tea growth are in the southern part of the state, where rainfall and temperature are highest. This map supports the locational suitability of the relatively new Great Mississippi Tea Company operation. However, not all counties in this region are prime areas, despite the beneficial climate factors for tea growth. Many of these regions include developed areas and land, which are publically owned and therefore would not be suitable locations to place a tea farm.

Interestingly, when current conditions are compared to those of 2050 (predicted), there is little pattern continuation; more suitable spots don't tend to get increasingly suitable and the same holds for less suitable spots. Instead the whole state begins to even out in its tea growing potential. This is mostly due to the fact that average annual temperature is expected to increase, whereas average annual rain fall is expected to decrease on accounts of the A1B climate model. Further research would be helpful to determine if one of these factors plays a bigger role in the viability of tea growth.

References

- Cartographer: Taylor Smyrnos
- Course: Introduction to GIS, GIS 101
- Date: December 18, 2015
- Data Sources: PRSIM Climate Group 30 Year Normal; Mississippi Geospatial Clearing House; ESRI; The Nature Conservancy
- Projection: Transverse Mercator

Methodology

Five factors were used to create these suitability maps: mean annual precipitation and temperature, slope, land availability and soil drainage. These factors were included in this analysis as their characteristics are all pertinent to the growth and harvest of tea. Each factor was individually scored based on its suitability pertaining to tea growth, i.e. warmer temperatures received higher ranks than lower temperatures as they are more favorable for growing tea. Temperature, rainfall, slope and soil drainage were all weighted equally, outputting scores

from 4-20. However, if land was not suitable due to improper environment, such as developed areas or public land, the land was given a score of 0.

To create the 2050 suitability map, the same data and methods were implemented, except for temperature and precipitation values. These values were obtained from the A1B climate model from the International Panel on Climate Change (IPCC) that predicts climate change based on equal fossil fuel and renewable energy dependence.

Land Availability

Annual Precipitation

Average Temperature

Elevation

Soil Drainage

