Best Locations for New Campsites in Tuskegee National Forest, Alabama

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Abstract

Camping is one of the most common forms of outdoor recreation in the United States. Outdoor recreation is important both as a resource in demand by the public and a source of revenue for National Parks and forests. This project aims to increase the amount of outdoor recreation opportunities available in Tuskegee National Forest in Alabama state (figure 1). This is done through the use of geospatial analysis on data from national databases. Our results show that there is room for growth in the amount of campsites present in this location, a good thing for our purposes.

Introduction

Outdoor recreation is highly important industry in our country with $887 billion being spent on it in 2017 alone (Outdoor Recreation Economy 2017). This is in line with the increasing demand for recreation opportunities in natural spaces in the US since at least the 1960's. Outdoor recreation, such as camping, provides connection to wilderness and cultivates the spirit of stewardship in all those who visit. It is an important part of environmental management and protection because it provides spaces for the public to interact with nature while reducing impacts. It can be an avenue for increased environmental education and awareness.

To keep up with the demand for outdoor recreation, we have tasked ourselves with finding suitable locations for new campsites within Tuskegee National Forest in the state of Alabama.

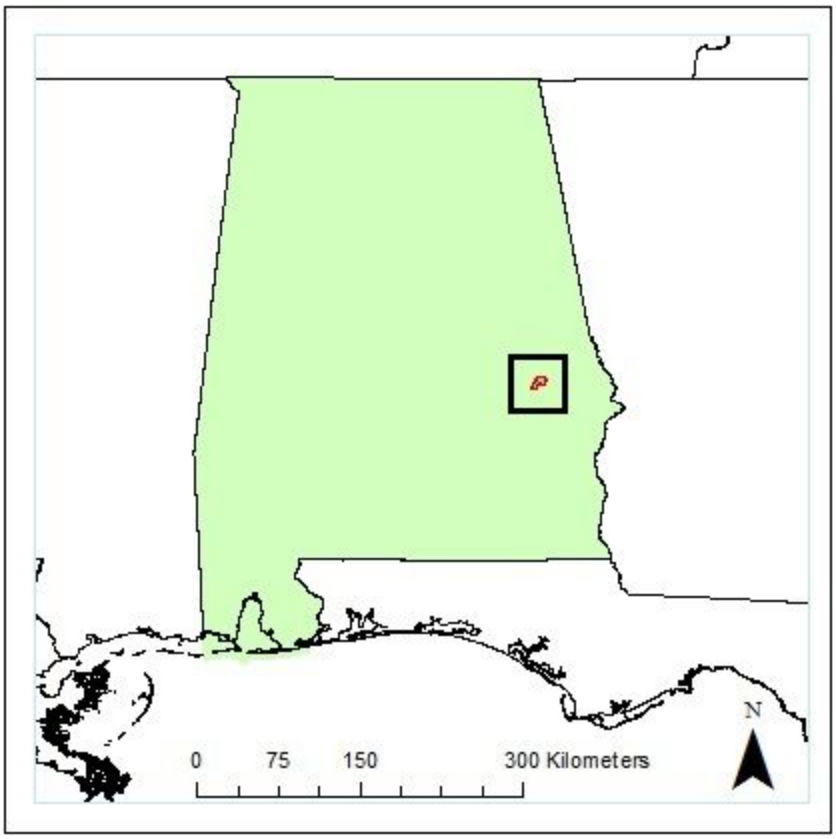

Figure 1: Location of Tuskegee National Forest (red) within Alabama

This is a unique place and is actually the smallest National Forest in the US at 11,000 acres. This area was once considered to be “the most abused land in the state of Alabama” but Forest Service management has led to improved timber resources, water, and wildlife quality. Because no other outdoor recreation areas are near this part of Alabama, we hope that we can offer more potential campsites in this National Forest to the public. A greater number of campsites will give users the ability to experience the outdoors while reducing harmful impacts to the naturally occurring animal and botanical life to a smaller area. Also, these new campsites will give the public more options for where to camp should other campsites need a chance to be rested or restored.

Methods

Deciding on Data

We first needed to determine what data we would need to select our ideal campsite locations. We thought it would be best if all campsites were:

- Between 60 and 160 meters from a water source
- Between 5 and 55 meters from a road
- Fall outside of timber exclusion zones
- Not within 100 meters of major highways
- On a slope between 0 and 2 degrees
- At least 1/4 kilometer (250 meters) from existing campsites
- Have an area of at least 1000 square meters

We agreed on these parameters for several reasons. We wanted our campsites to be near a water source to provide drinking water and scenic atmosphere but far enough away to prevent any degradation to the water source. This meant we needed data on the water sources in our study area. We also wanted our campsites to be accessible so that visitors could easily get to them, so between 5 and 55 meters of a trail. This meant that we needed trail data. Each campsite should have an area of at least 1000 square meters to give campers ample room to settle in. Another consideration was the slope of potential campsites. We wanted each campsite to have minimal slope so that there would be no added difficulties when campers are setting up their tents or other equipment and to provide for a more comfortable sleeping area. This meant that we would need elevation data. Lastly, we decided that new campsites should be at least a quarter of a kilometer away from any existing campsites. This will help ensure that campers can enjoy solitude in nature if that is what they want. To do this, we would need data showing the locations of current campsites in the National Forest. All datasets were opened into the ArcMap 10.4.1. program and then projected

into UTM North American Datum (NAD) 1983, Zone 16N using the project and define tools. This ensured that all data would be useable for our purposes.

Data Collection

We obtained all of our data from the United States Geological Survey (USGS) and the United States Department of Agriculture (USDA) Forest Service websites. These sources provided elevation, hydrology, trail, boundary, roads, and current campsite data. All of the data we used was in vector format except for elevation, which was raster. We downloaded the National Forest boundary, current campsites, roads, and trails shapefiles from the USDA geodatabase. The hydrography and elevation shapefiles were downloaded from the USGS GIS data database.

Analysis

We placed all of our downloaded data and its associated metadata files into our “Originals” file within our created file system. We then used the elevation and boundary data files to create a map (figure 2) showing all areas with suitable slope for a campsite over the hydrography data to help us fully visualize the amount of available space we were working with.

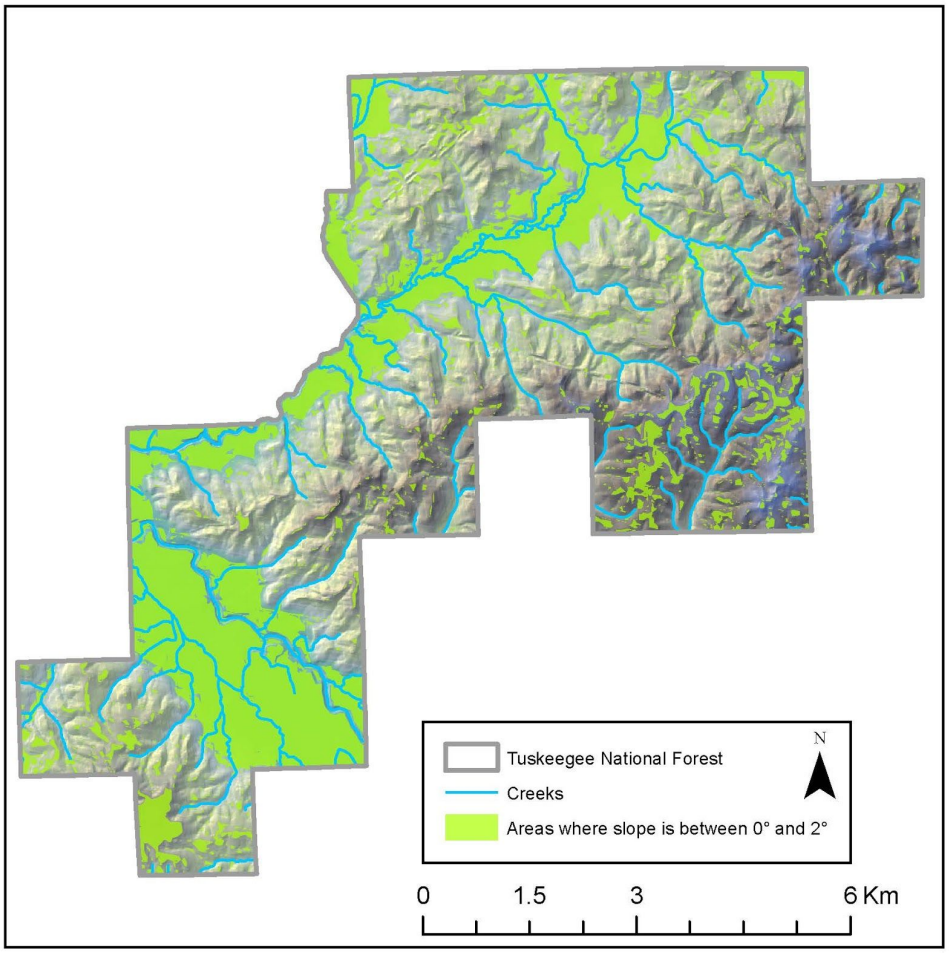

Figure 2. Map displaying creeks and slope within Tuskegee National Forest

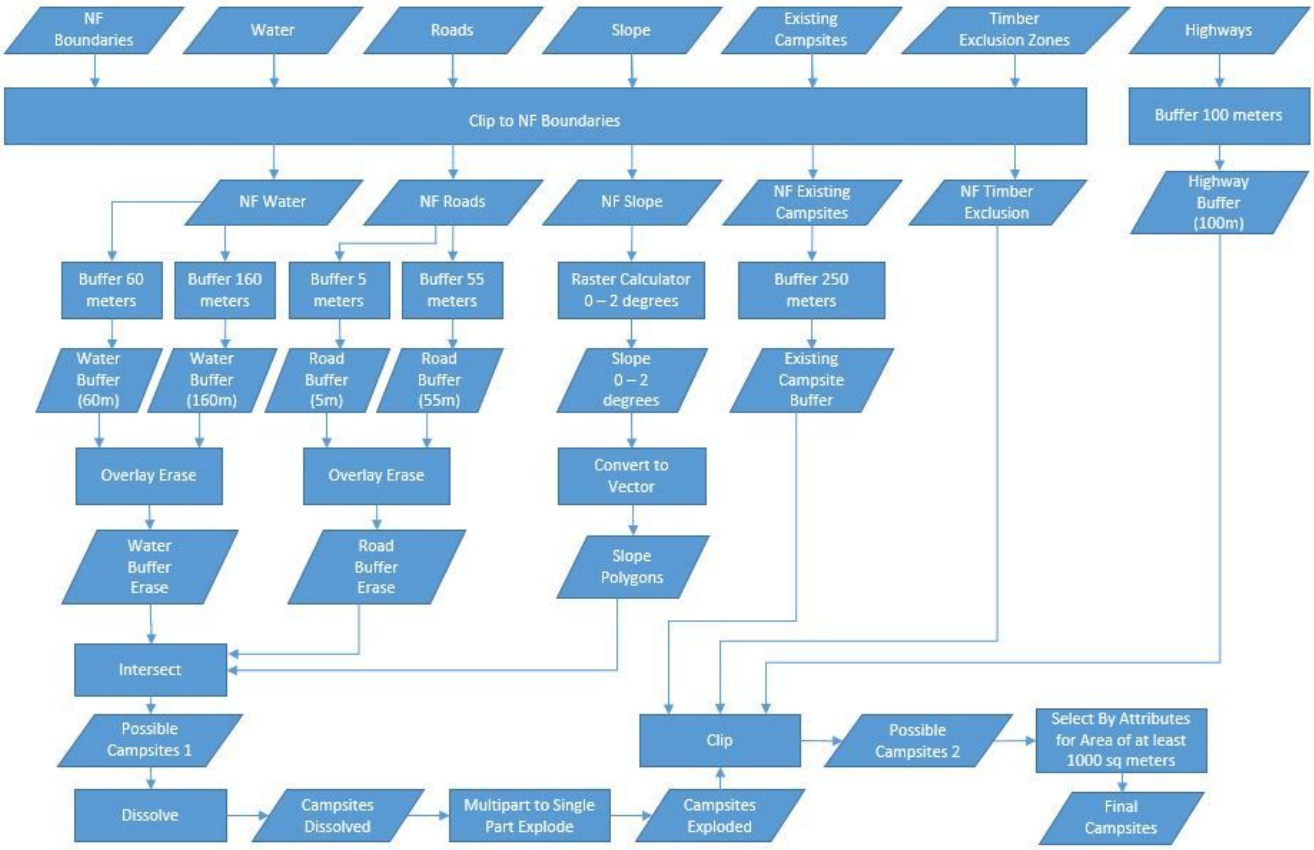

Figure 3. Flow chart displaying steps taken within Arcmap

Results

Our created map shows the best locations for a campsite within Tuskegee National Forest according to the parameters we set and the latest available data. Through our analysis, we identified 91 sites that meet our parameters. Altogether they cover 805,590 square meters and average 8852.6 square meters per site. This map could easily be made of use by the National Forest Service to grow their recreation capacity in an environmentally responsible way.

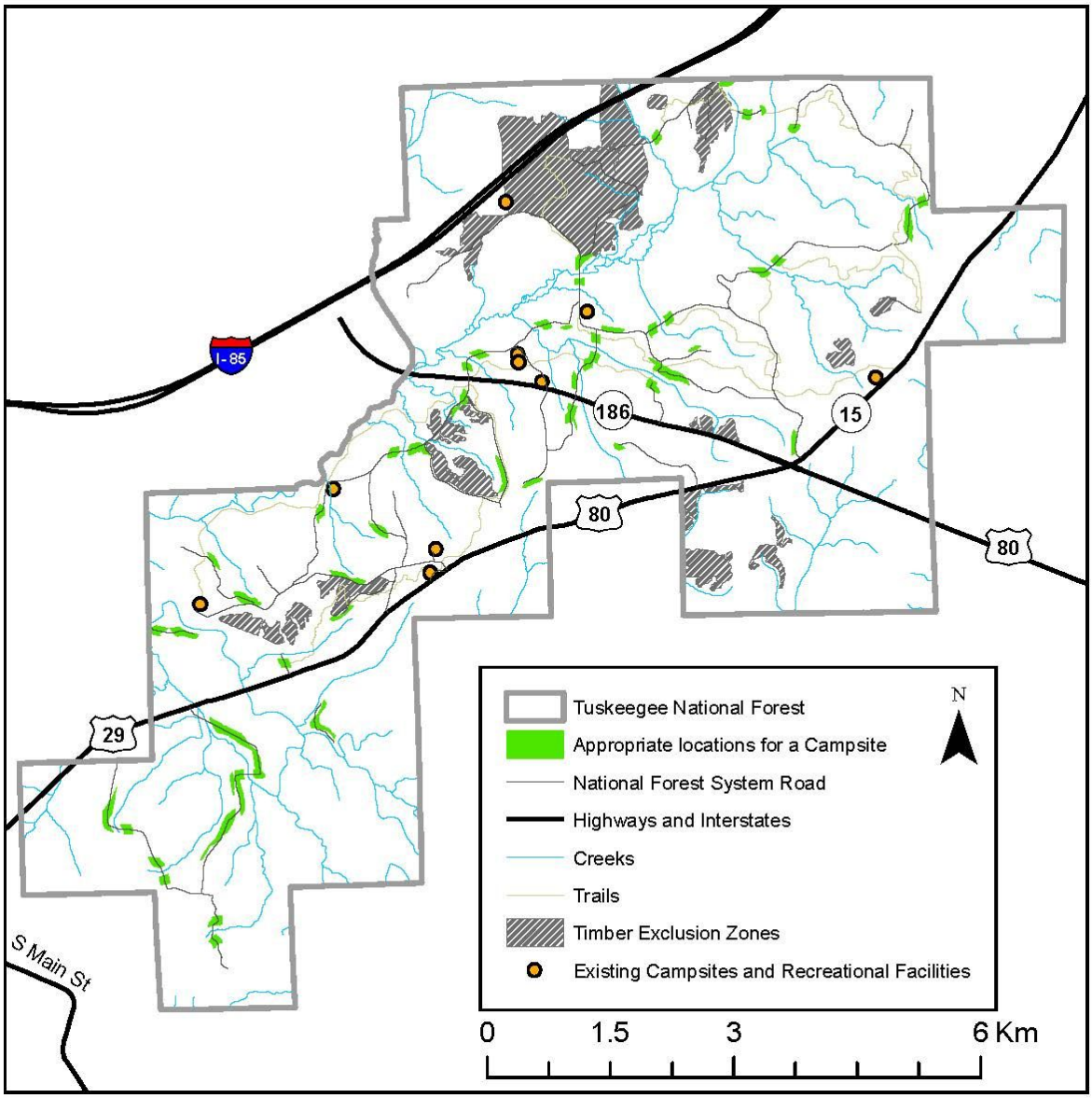

Figure 4. Final map displaying suitable locations for campsites based on the criteria we set.

Conclusion

Within our map we discovered ample space for new campsites throughout most of the National Forest. According to our analysis, outdoor recreation opportunities could be greatly increased in this area. New campsites have to be chosen according to careful standards to help guarantee minimal effect on the environment while maintaining maximum enjoyment for campers.

References/Bibliography

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