Planning a Music festival

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Week 4 Lab 2

Abstract

The purpose of this project is to layout and analyze capacities of three primary areas for a possible music festival: camping, parking, and the main field. The areas were digitized from an aerial photograph of the selected three parcels, with further stats calculated. Most importantly, the capacities for each of the three areas were estimated to give an idea of how many tickets to sell with this layout of the festival. Nearby lodging and leisure provide additional potential for more capacity and options for additional analyses to further refine capacity and ticket estimates.

Introduction

This project is meant to digitize the layout of and estimate capacity of a potential site for a music festival. Parking, camping, and main area locations will be digitized, with capacity estimations then done. The area chosen was selected from a previous project with the parcels located within Humboldt County in California. From this project, more decisions can be made on the feasibility of the festival, as well as any potential further questions.

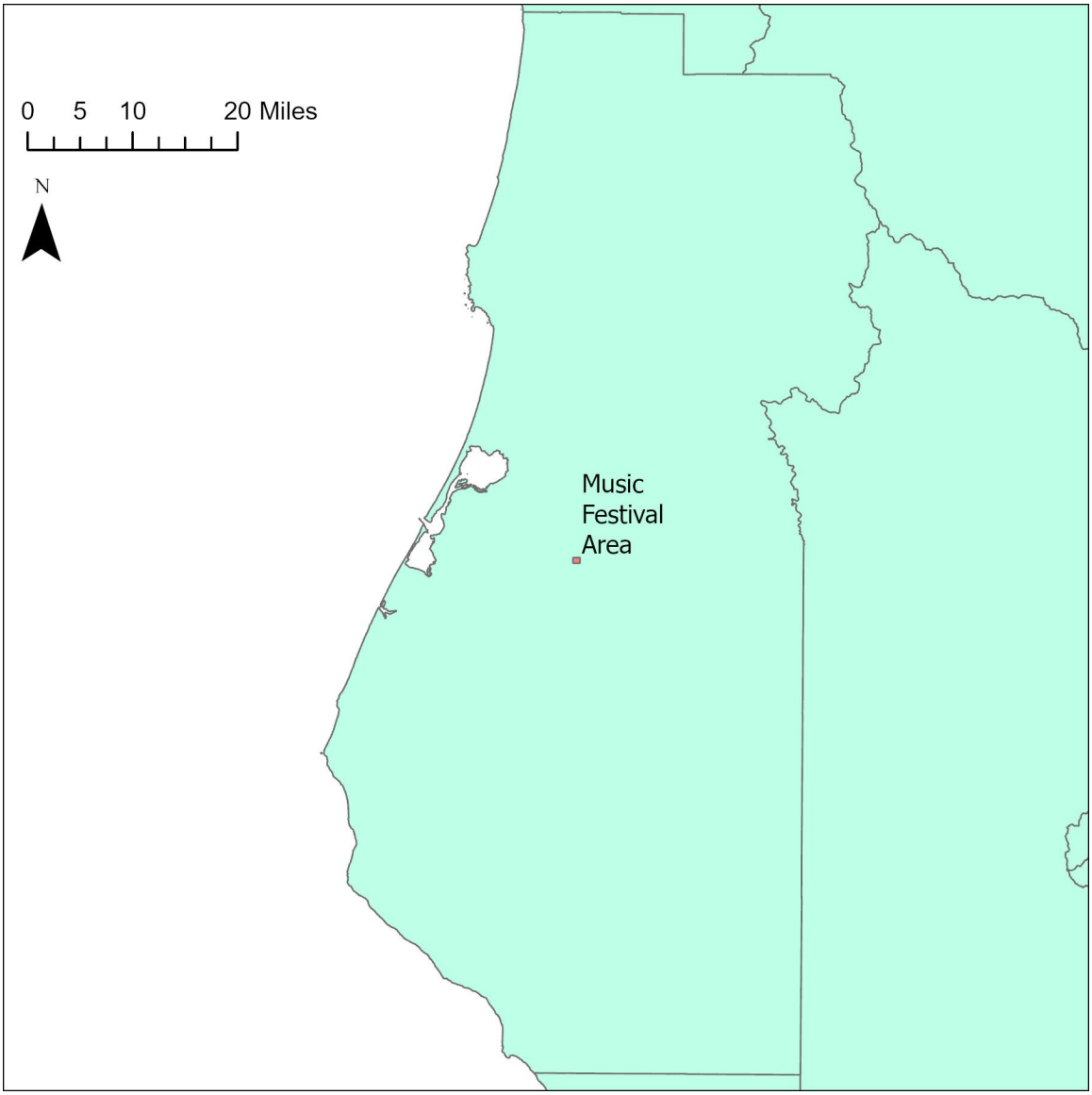

Figure 1: Humboldt County centered in frame with the festival location marked

Methods

The initial data was imported from a provided geodatabase and exported into formats usable for the project's file structure, namely shapefiles and an IMAGINE image. The new files were then brought into the map and checked to have maintained the same projection as the original files.

A new shapefile was created to mark the parking area for the festival, with the feature digitized from the aerial image, using the treeline and driveway as primary delimiters within the north-most parcel. The attributes for the parking lot feature were then setup and calculated. The attributes added were: name, area, count (number of parking spaces), and capacity (attendee estimate based on number of spaces). Area was calculated in square meters, with the count calculated from the feature area. The equations used for both count and capacity follow.

$$Count = truncate\left(\frac{Area * 0.8}{30} - 20\right)$$
$$Capacity = Count * 3$$

A second new shapefile was used for the main event field, digitized from the image, in the middle parcel behind the house on the west side, using the tree lines as the limits. The same attributes were then added and calculated for this shapefile, with count and capacity meanings being slightly different. Count here indicates the number of people that the field can safely hold at once (while having additional reserved space for safety and essential personnel), while capacity indicates an overestimate of count since not all attendees will be in this location at one time.

$$Count = truncate\left(\frac{Area - 700}{2}\right)$$
$$Capacity = Count * 1.1$$

The final area with a new shapefile was the camping area. This area was marked as the remaining area in the middle and lower parcels that was not already marked for use in the main event field. The same attributes were added again. In this case, count indicates the number of campsites in the area, with some taken out for various unusable or otherwise reserved areas within these parcels. Capacity indicates the total maximum number of people limiting each campsite to 8 people maximum.

$$Count = truncate\left(\frac{Area - 42000}{800}\right)$$
$$Capacity = Count * 8$$

The final step for this project was to get a count of all additional lodging and leisure locations there were within 30 kilometers of the main event field.

Results

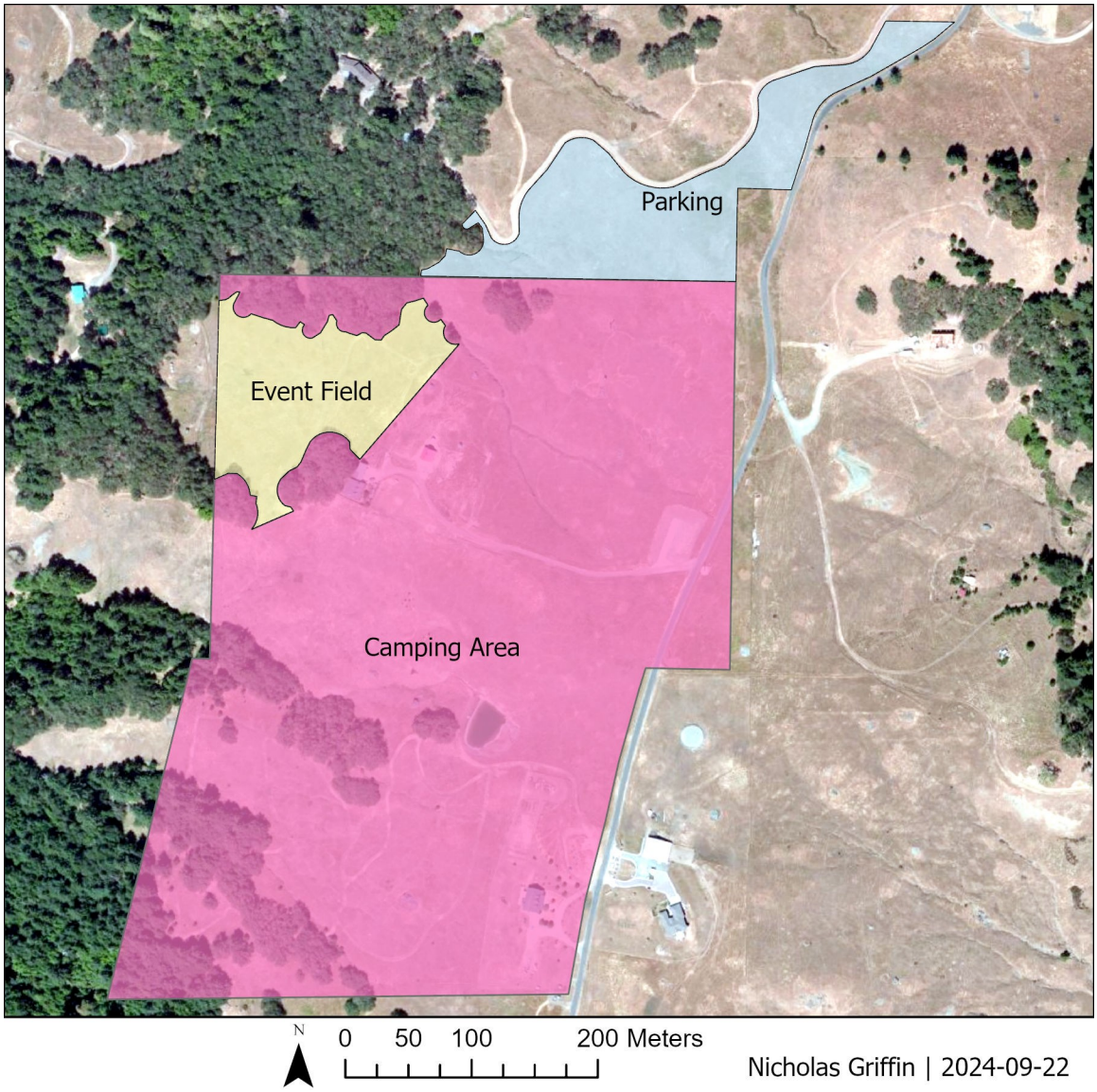

Figure 2: Layout of the festival areas

Figure 2 shows the three sections of the music festival laid out within the bounds of the three parcels, though only the portion south of the driveway was used for the upper parcel, making up the parking area. The middle parcel also extents a little east of the road, pushing the camping area out.

The numbers calculated for area, capacity, and count are shown below in table 1. The capacities for the parking and camping areas are reasonably similar, though the event field holds a capacity much higher.

Table 1: Calculated values for the three festival areas

Name	Area in sq. km.	Count	Capacity
Parking	23,447.93	605	1815
Event Field	18,077.07	8688	9557
Camping Area	202,558.42	200	1600

Conclusion

The resulting area capacities for the music festival allow for a sizable and effective initial plan. Though the main event field capacity extends well beyond that of the other two areas, there are 41 additional lodging locations within a 30 kilometer distance of the event field. In addition, there are a further 29 leisure spots within the same distance, providing the possibility of bringing in more visitors for the additional attractions. The additional leisure options can also take some pressure off of the main field. With those factors in mind, selling 9,500-10,000 tickets would be feasible, though care would need to be taken for the draw of the main events potentially overrunning the safe capacity of the event field. As such, additional investigation could be done into what those nearby leisure options are to see how much they might draw. There's also about a 200 person difference between parking and camping capacity, which could be an area to refine things further to ensure sufficient parking for all campers.