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GEOG 93

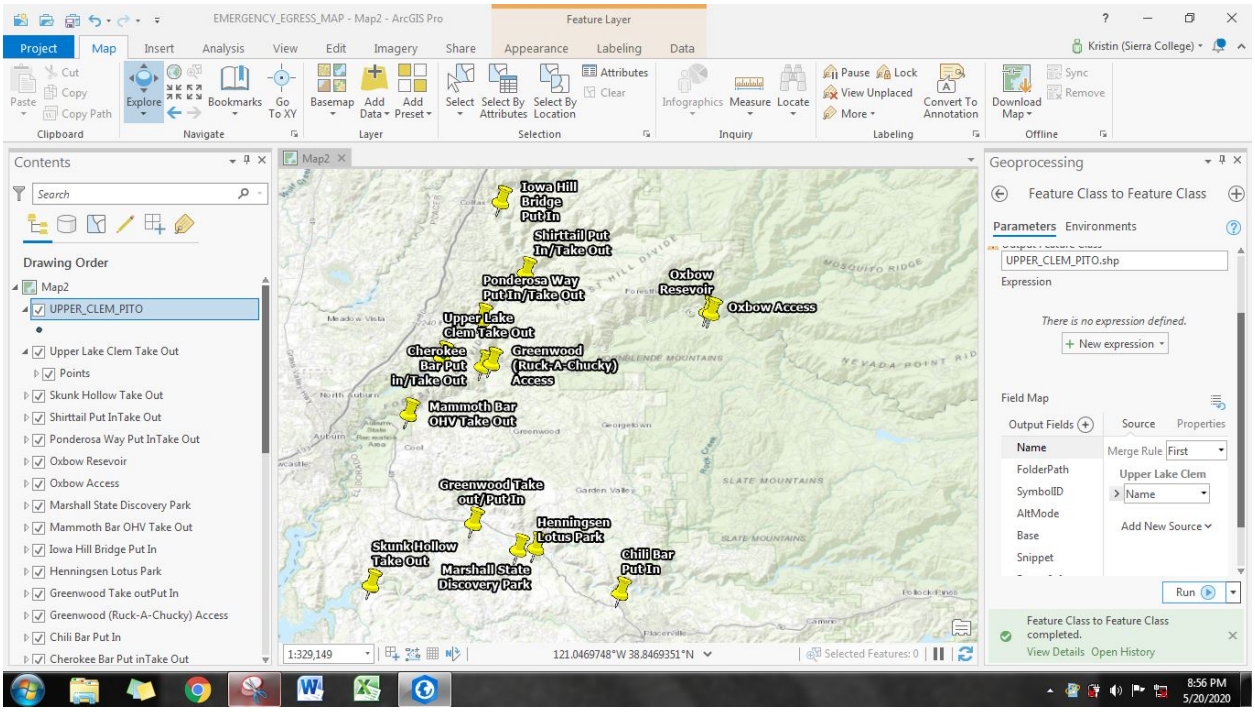
May 2020

Emergency Egress Maps

For my final project I have mapped out the three forks of the American River along with the emergency egress points and trails for each fork. One map consists of the South Fork of the American River and the other includes the Middle and North Forks. The purpose of my two maps are to show an up-to-date representation of the rivers and the emergency egress trails. The current maps that are available are outdated which makes them less reliable. Prior to covid-19 shutting down the country, I was going to hike some of the emergency egress trails to collect data such as: trail condition, public vs private property, accuracy of current maps, as well as getting an exact trail marked out. I substituted hiking for marking the trails on Google Earth and converting the KMZ files into usable shapefiles through a serious of functions in ARC Pro. Once I got all of my data onto my map I then analyzed how many miles of emergency egress trails there are.

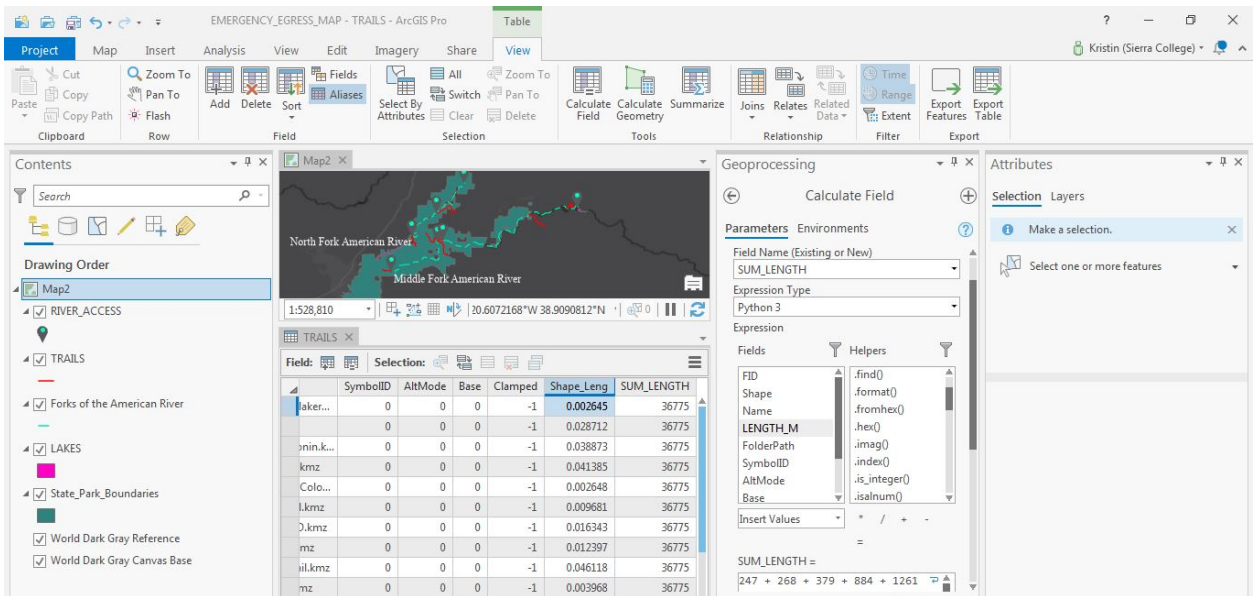
The purpose of my map was to create a current map of the emergency egress trails of the North, Middle, and South Forks of the American River. Originally, I had planned to hike some of the egress trails but due to covid-19 that was not possible. I had hoped to learn more hands on how to deal with raw data as well as working with a GPS unit. While I was not able to go out and collect the trail data myself, I did learn how to utilize Google Earth to quickly mark trails and

access points. With the downloaded KMZ data, it only took a couple of steps to take the KMZ files and turn them into usable shapefiles. This was a learning curve however, at first, I thought that by doing the KMZ to layer conversion I would end up with the usable data I needed but the layer files did not let me edit all that I needed to. This prompted me to “export” the layers into shapefiles onto my computer which was the result I wanted in the first place.



Once I had my data in the format I needed, my focus turned to merging all the single data points into the following layers: Forks of the American River, Trails, and River Access. This allowed me to easily and uniformly change symbology so that my maps were consistent. For an added feature I created polygons over Lake Clementine on the North Fork American River, Oxbow Reservoir on the Middle Fork American River, and Chili Bar Reservoir on the South Fork American River. At first, I had trouble figuring out how to create a polygon as a new feature class, what I was doing wrong was that I was not working within a new feature class so once I created it, it was fairly easy to draw polygons over the lakes.

The analysis that I preformed was the summation of trail length that I had drawn. I wanted to know roughly how many miles of emergency egress trails there are. This took a couple steps, it started with taking the "Shape_Length" column of my Trails attribute table and converting that number to a known measurement. At first I tried miles but a couple of my trails were less than a mile so it was reported as 0. This led me to using meters as my measurement of total length. Once I had a new column, "Length_M" I was then able to run the geoprocess "Calculate Field". This was not an easy process to run at first, it took me a couple of tries to figure out what I needed to do. The first time I ran it nothing happened and after a couple of times I realized I need to fill in command box with the math for adding all of the lengths together.



I did not run into many problems with ARC Pro while making my map. The biggest problems I ran into as with many of my peers was covid-19 and the sudden shift to online classes. It took a while to get my computer up to date to even download ARC Pro. The other big hurdle of online class for me personally is that I am not good with the time management that is needed to work to my highest abilities. The biggest struggles I faced with this class were not software related and part of me just thinks that's funny. I was able to get ARC Pro onto my computer and create the following maps. While I feel I could have done better if we had been in class still, I am happy with what I was able to produce and outside of not being able to collect GPS data of the trails myself, I feel I was able to accomplish my goal.

As with my last GIS project, I learned patience and how to make things work given your situation. As for things I learned with ARC Pro and GIS, I learned that it is a lot faster to create data such as trails on Google Earth and import and convert the KMZ files. Additionally, I got to learn how to analyze the attribute tables which was something I was not fully aware of before. I have run definition queries and clipped layers, but it was neat to use the attribute table to process new data, i.e. the summation of trail length. Each map that I make I learn something new and that is arguably the most exciting thing about GIS.

South Fork American River Emergency Egress Map

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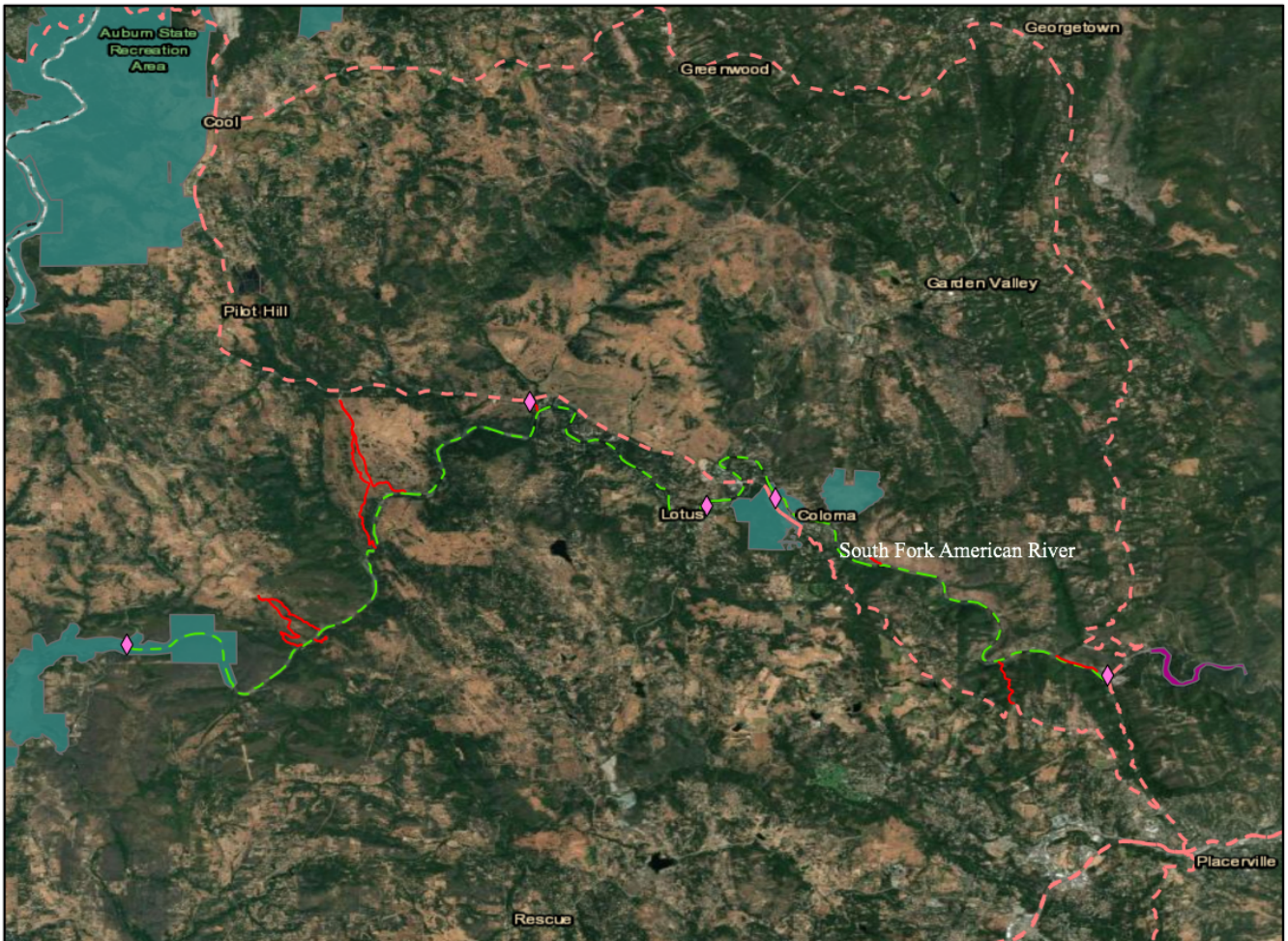

North and Middle Fork American River Emergency Egress Map

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