Larimar Cannon

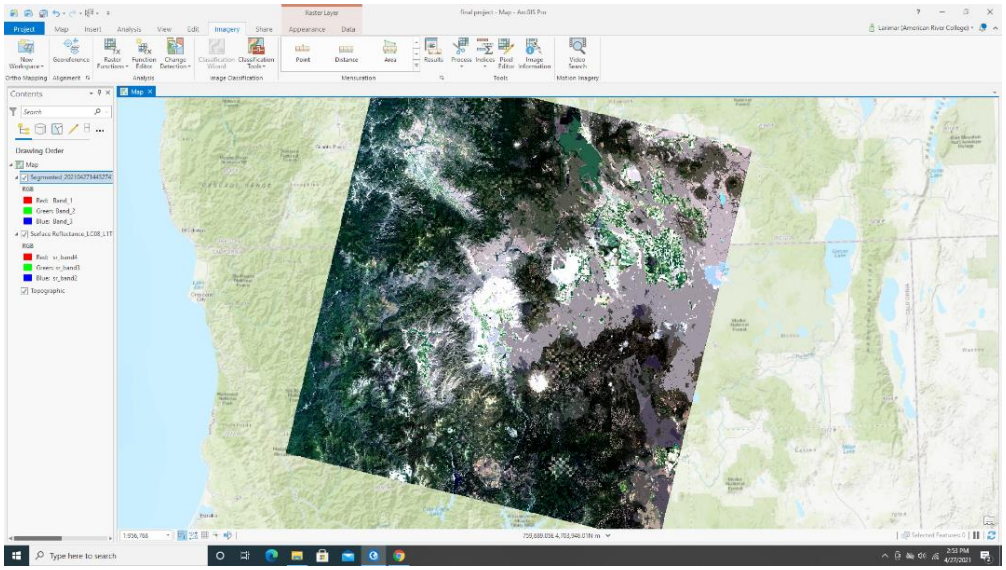
Geog 342

May 18, 2021

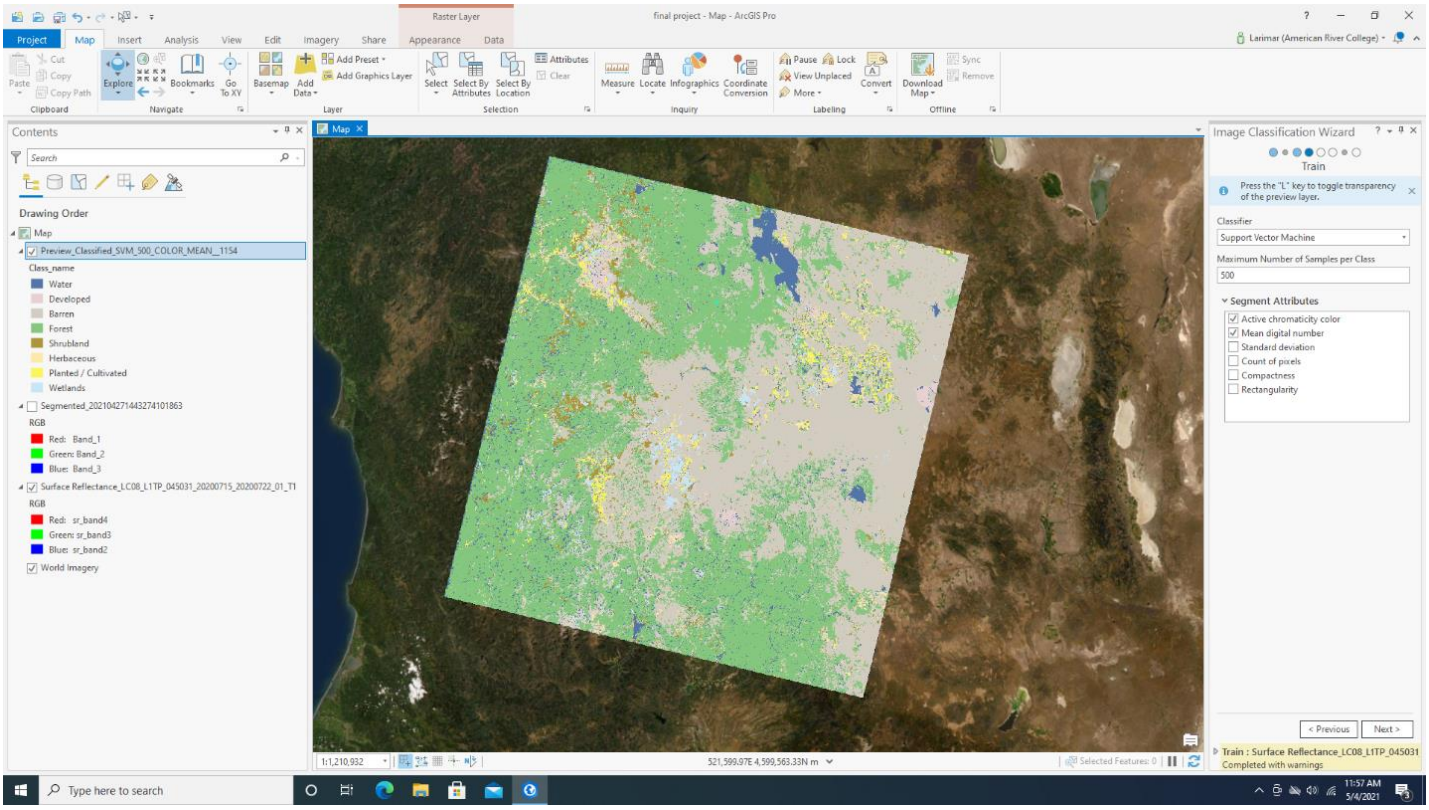
# Project

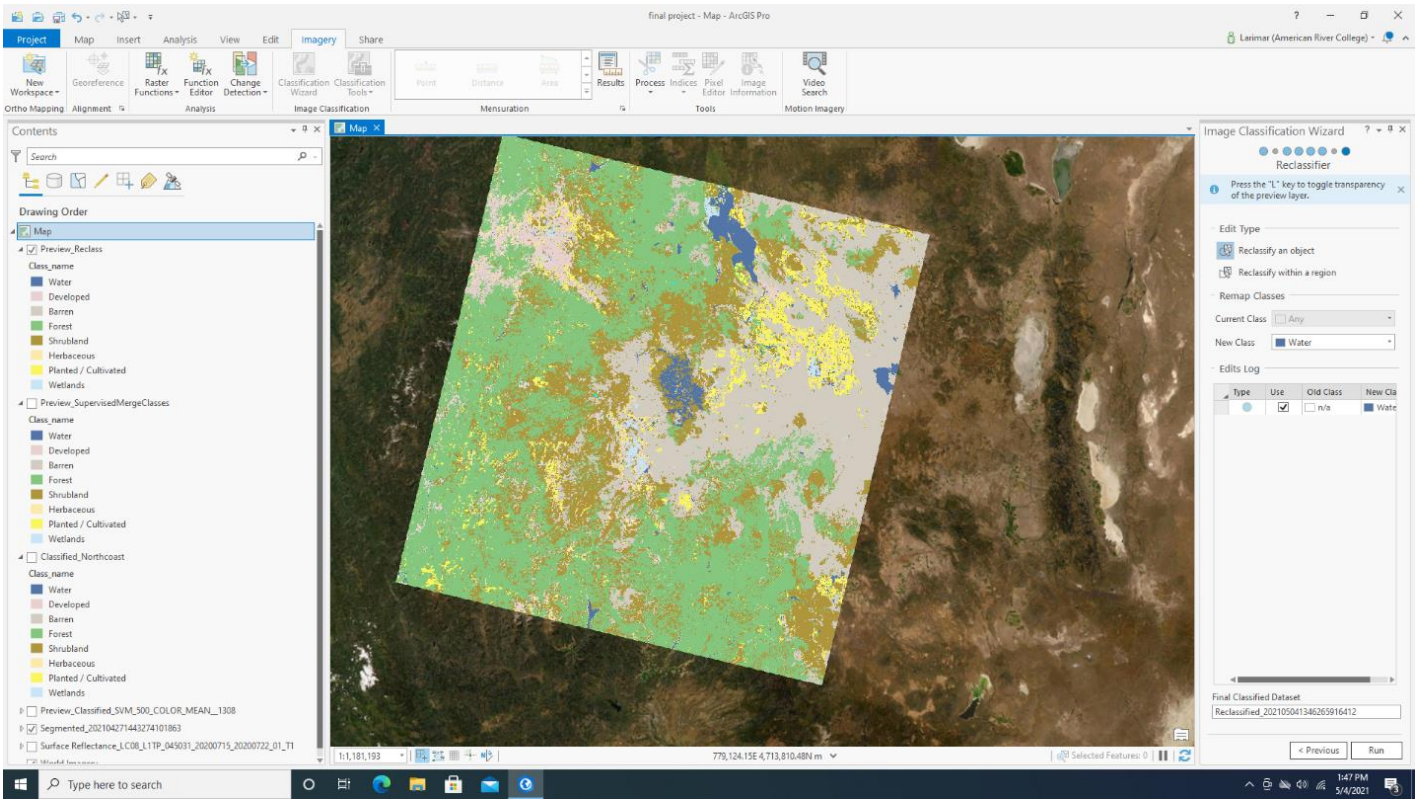
For my final project, I conducted a land cover image classification on Northern California. During the project, I classified the image, selected training sites and re-classified the image. An accuracy assessment was also conducted on the image to verify my selected training sites (which was used to classify forests, water, and other land cover(s). I then used zonal statistics to form a table that will determine the sum of acres of each type of land cover. My purpose for this project is to find what landcover types make up California and how much space these landcover types take up.

I started this project by finding my image on USGS Earth Explorer. I changed the color bands of red to 4, green to 3 and blue to 2. I segmented the image by using the segmentation tool and created an output clip.



I then used the classification wizard on the clipped image I just conducted. To do this, you must segment the image, then configure the classification method. Training samples are then created, and the classification is running, the classes will need to be merged. If there are misclassifications, one must go back and fix it with reclassification; something I had to do. Below, was my first classification image.

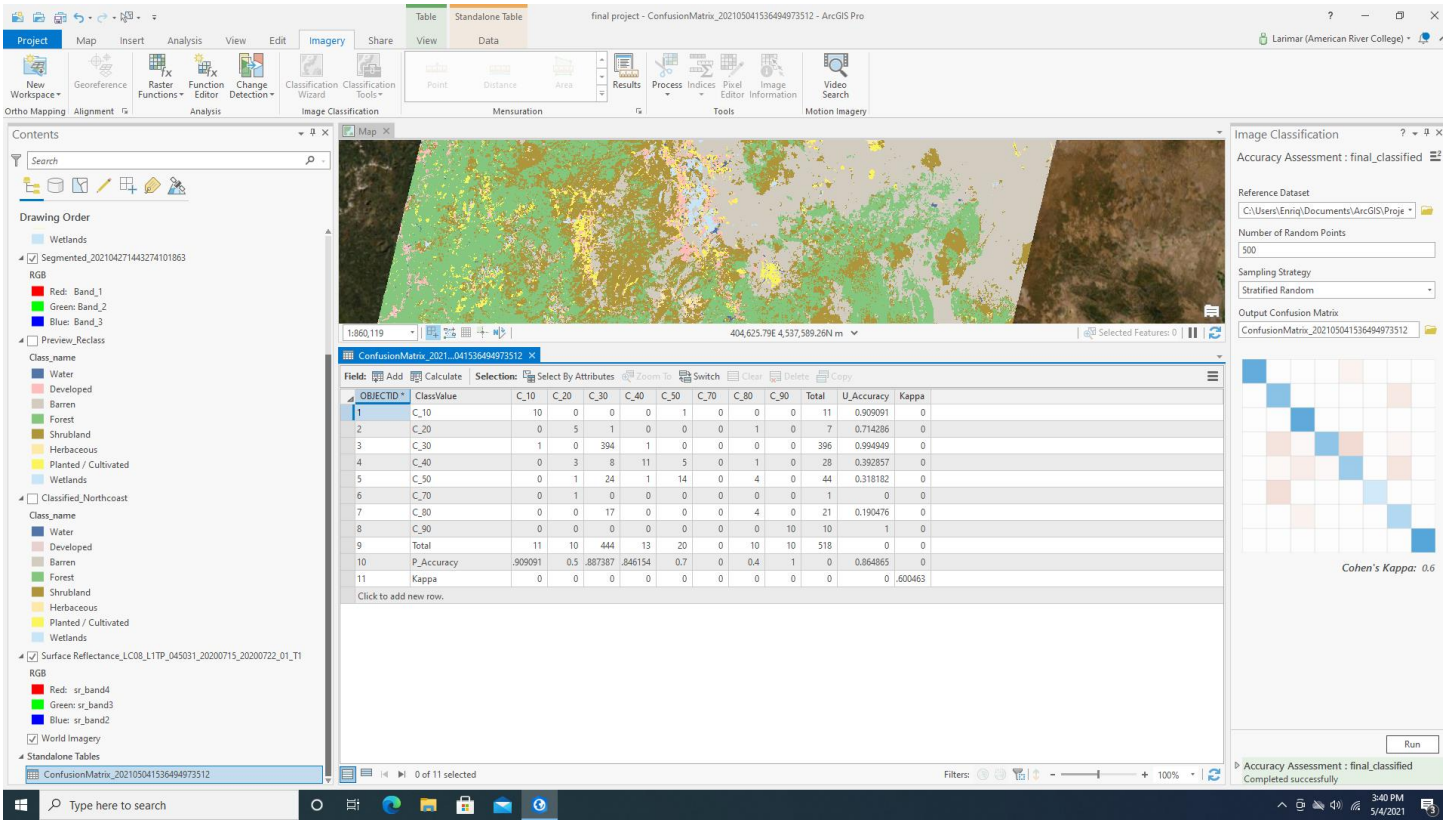




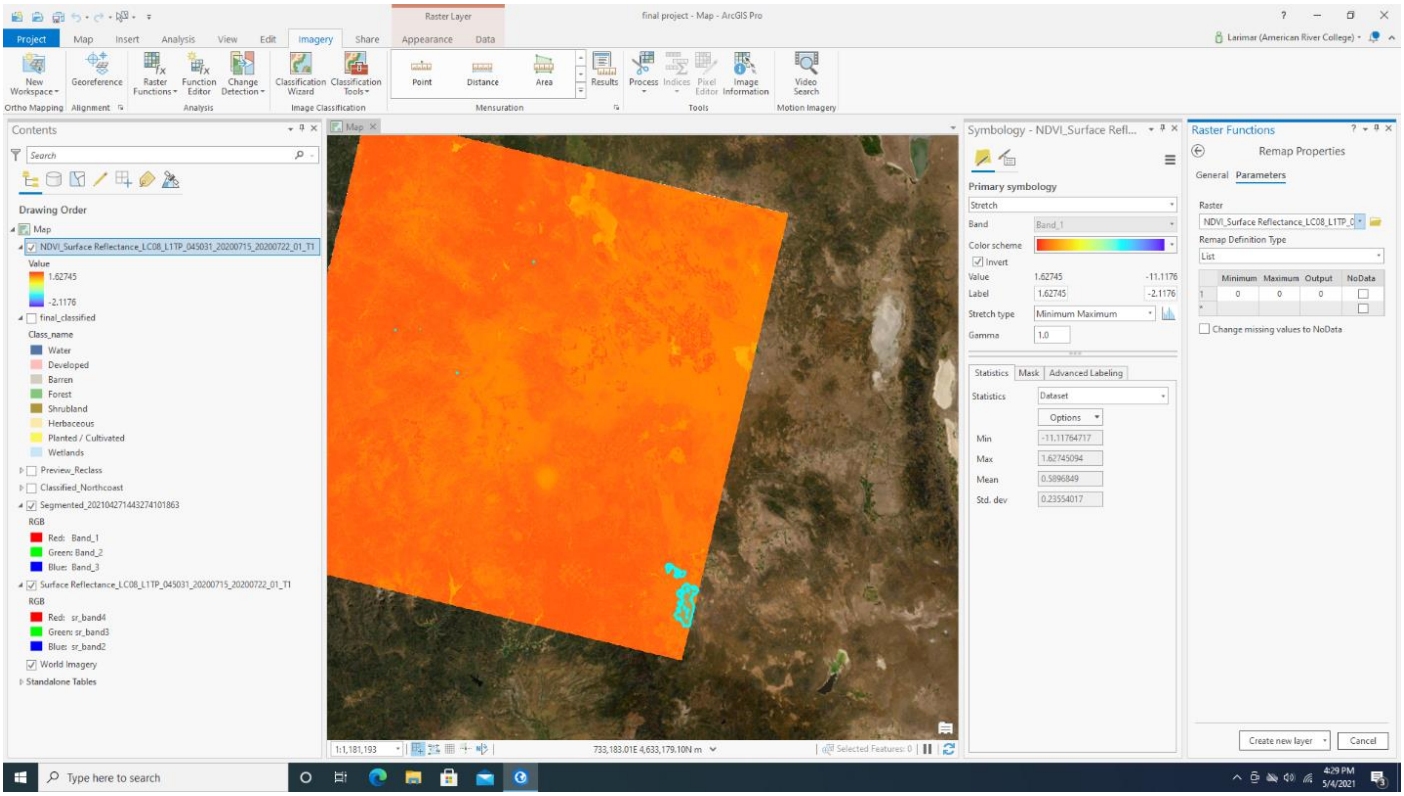

This is from my re-classification(s) on the image. Everything looks crisper and more accurate. I found the reclassification to be the hardest part because sometimes I clicked on the wrong areas; when I went back to delete them it was hard to find which one, I wanted to delete exactly. I also found it to be very time consuming because a lot of areas that I clicked on where small, and it made it difficult to select a decent number of even sections all throughout the photo.

I also then conducted an accuracy assessment on the segmented clipped image. To do this, I used the training samples manager and I used collected training samples of the landcover types created previously. I then ran the accuracy assessment tool on the final classified image. 500 number of random points, and stratified random strategy was the input for this as well. I had some difficulties with this part because the first time I uploaded/selected the wrong training samples and got an accuracy assessment of 0. When I found the right one and uploaded it, I received a higher assessment of 0.6. I thought I was able to receive a higher score by going back and reassessing the image, but I kept receiving a score lower

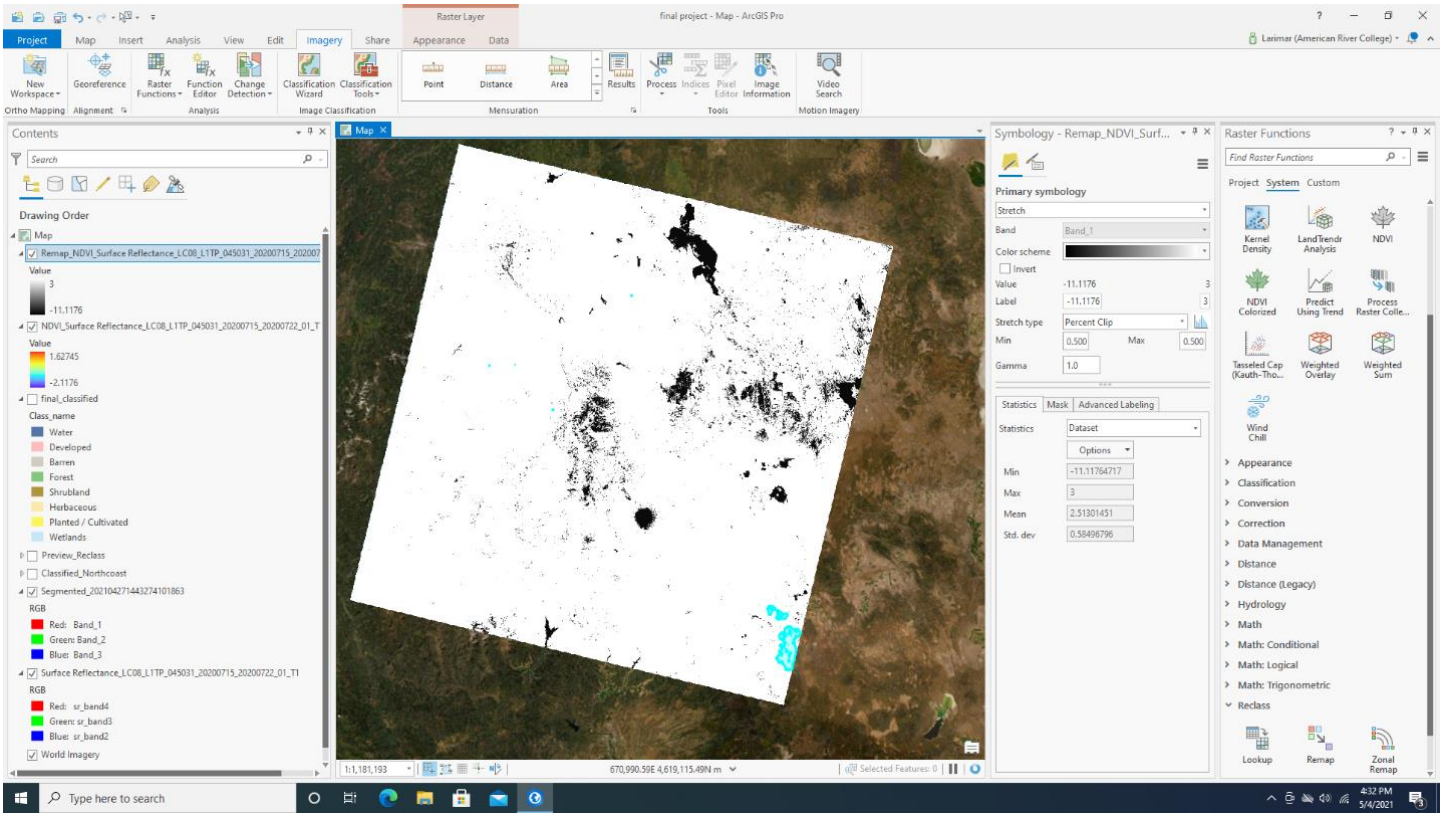
than 0.6. With all the time and difficulty, I settled for the 0.6 assessment.



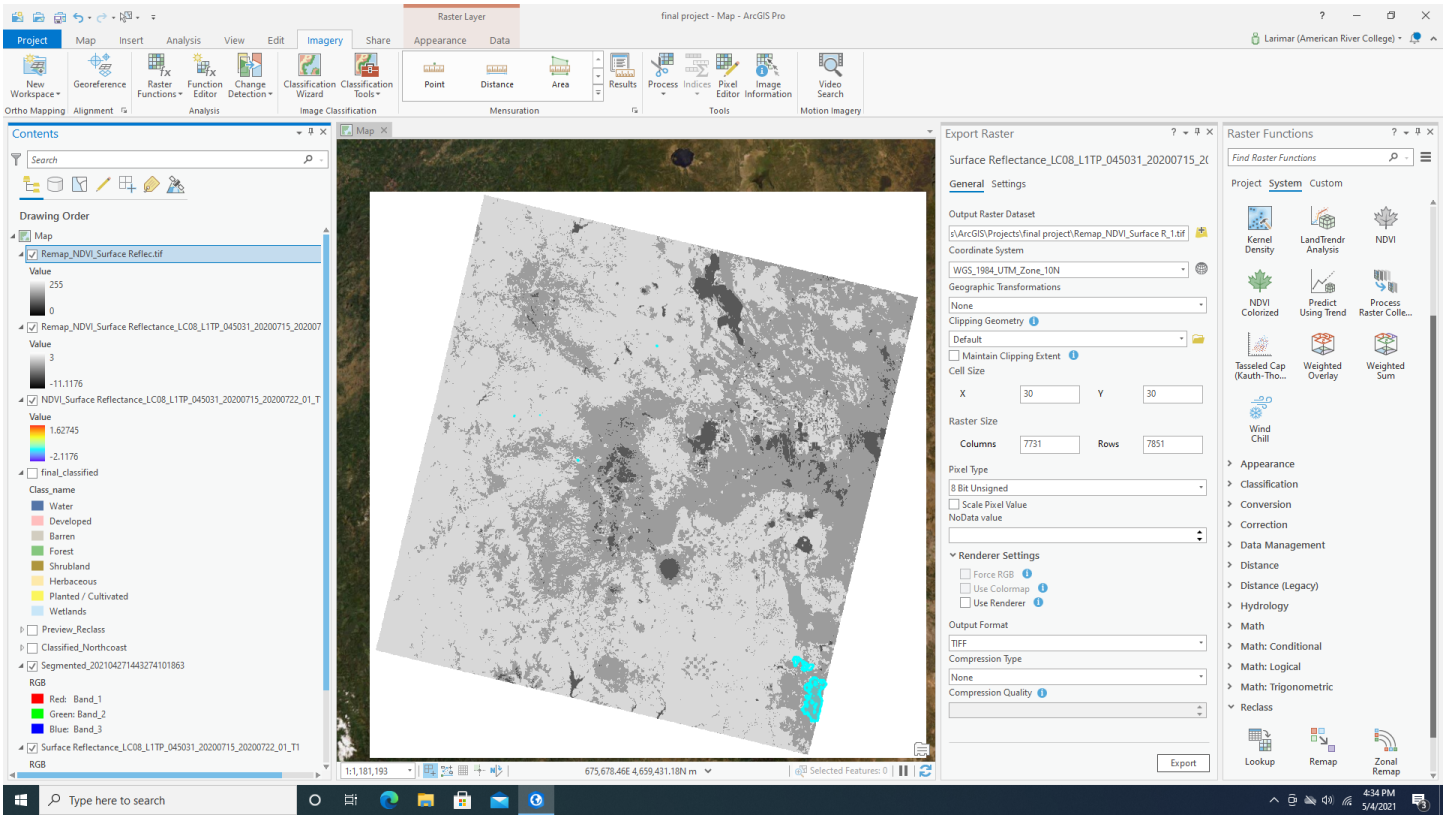

After this, I conducted zonal statistics as a table for the image as or for NDVI data. On the reclassified image, I remapped its properties and it created a new layer which is this orange image.



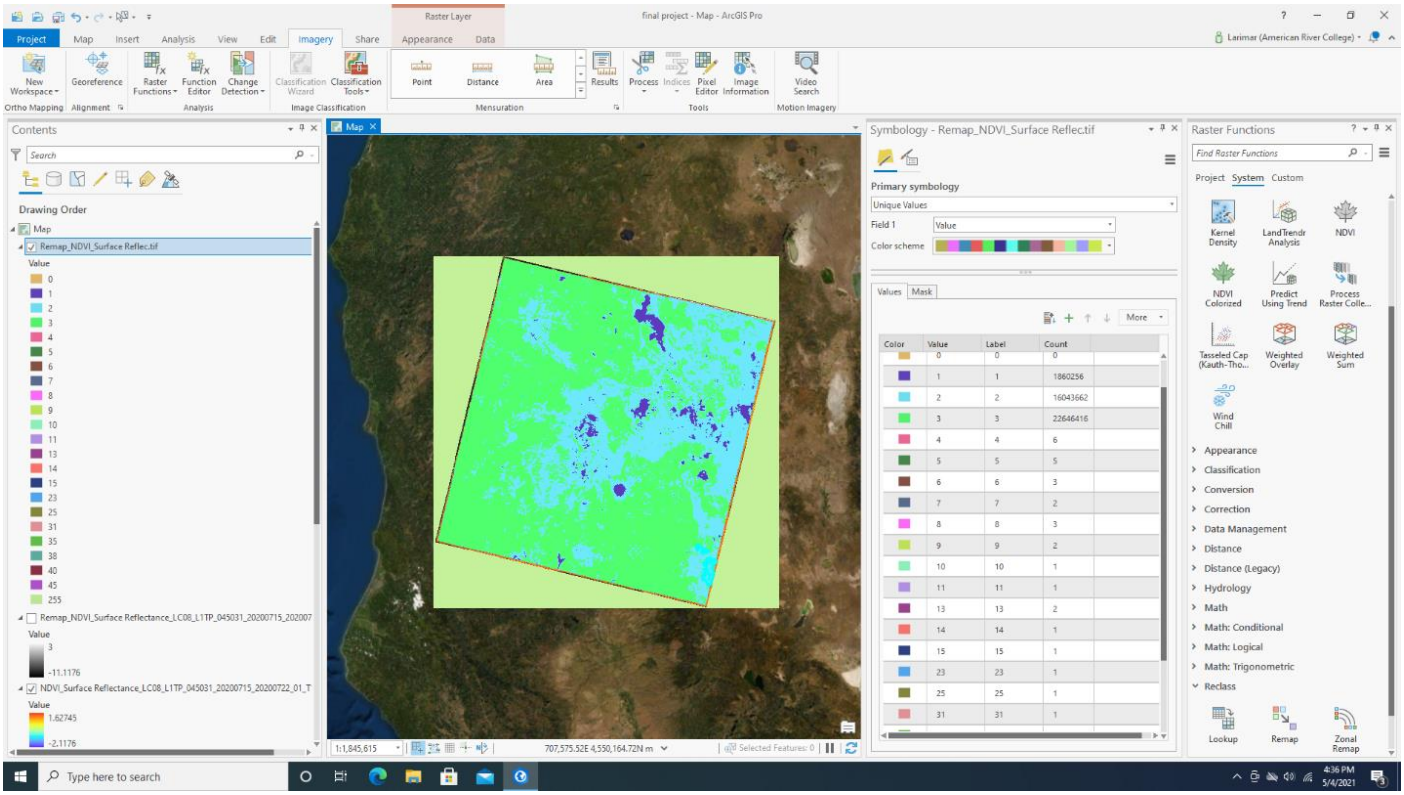

I then also created a new layer remapped this image and it created another new image.



From this image, I exported the raster and use it as 8 bit unsigned and another image/layer was created.

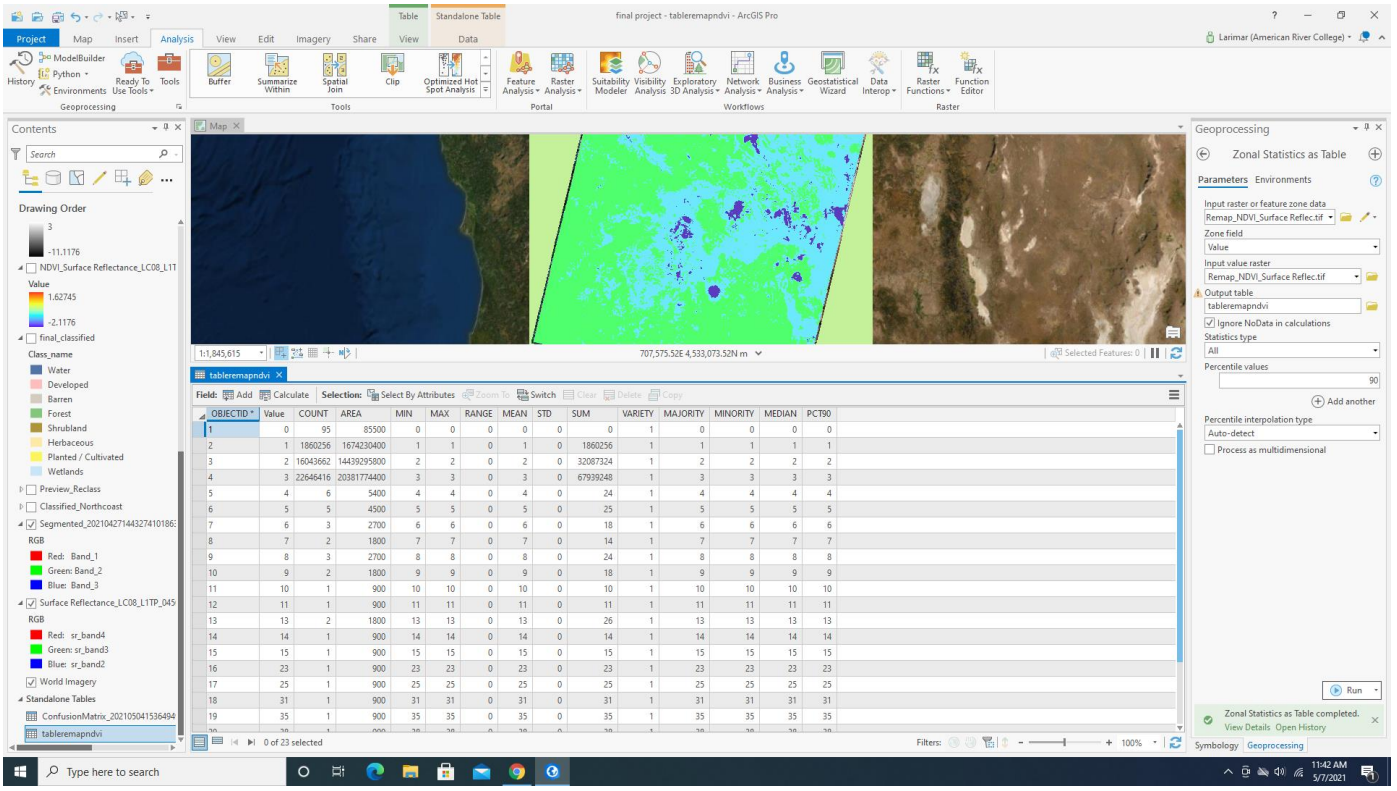


In the symbology section of the image, I changed the display type to unique values which also changed the image color.

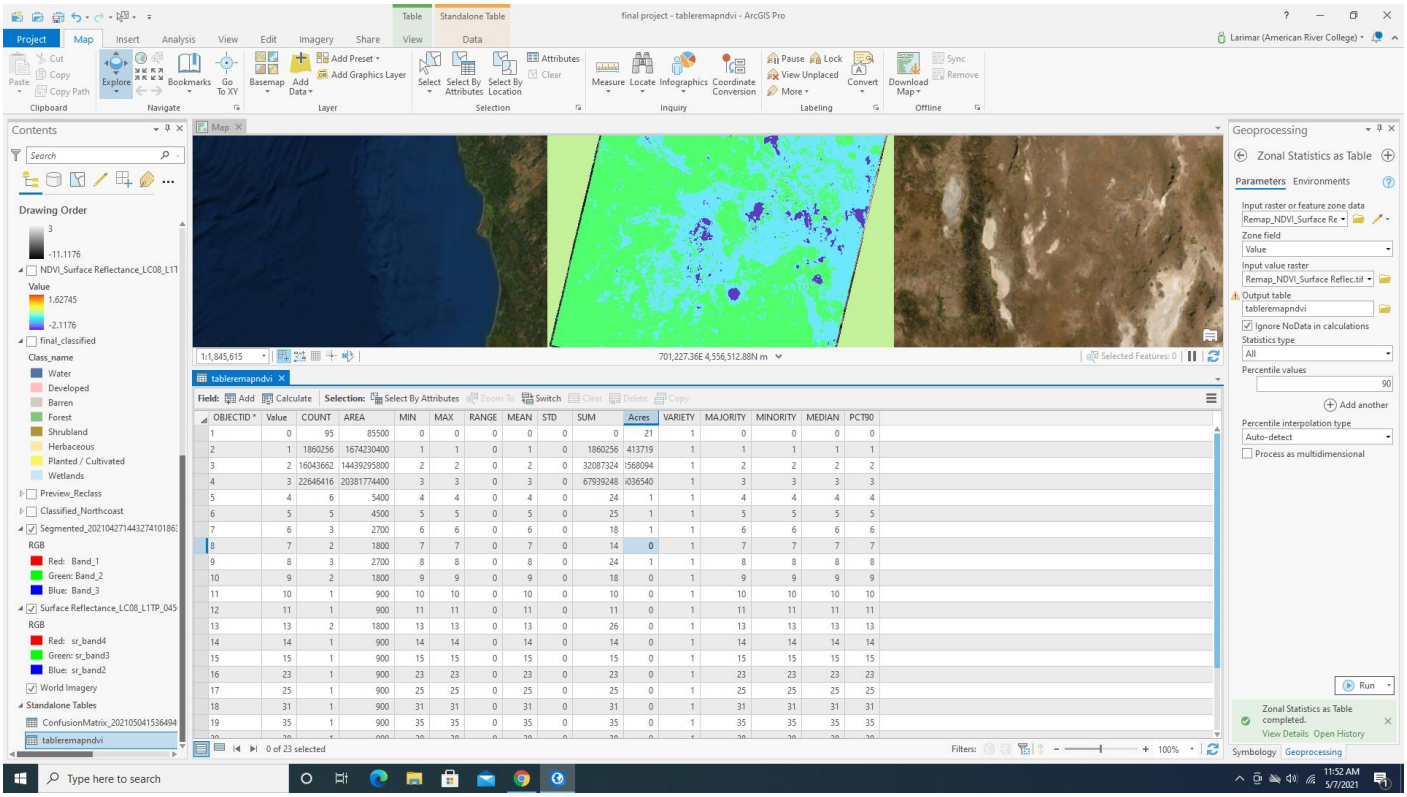


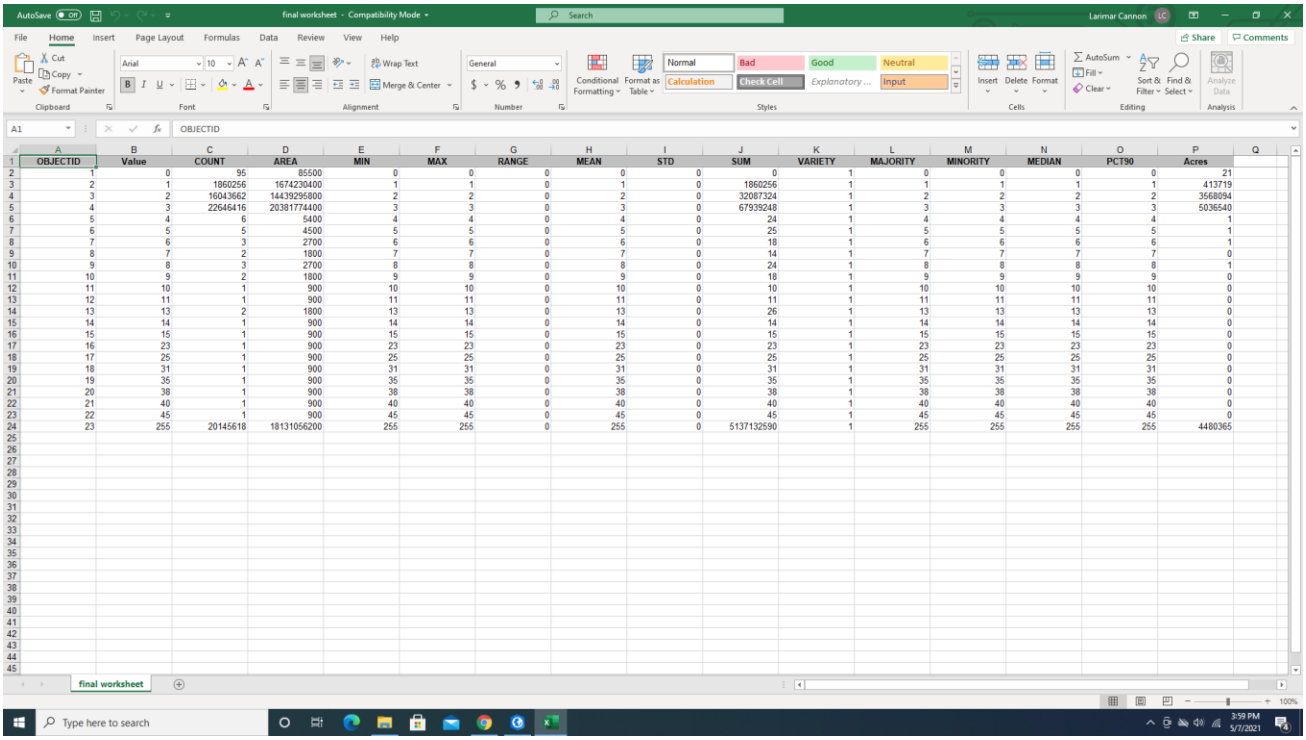

In the tools tab, I searched for zonal statistics as table while having this top image highlighted. Zone field: value and the statistics portion were set to all. I ran the tool and a table appeared. I then added a field named acres and defined it as a double. For the multiplication factor, I used the input of

0.00024711 acre to calculate each field.

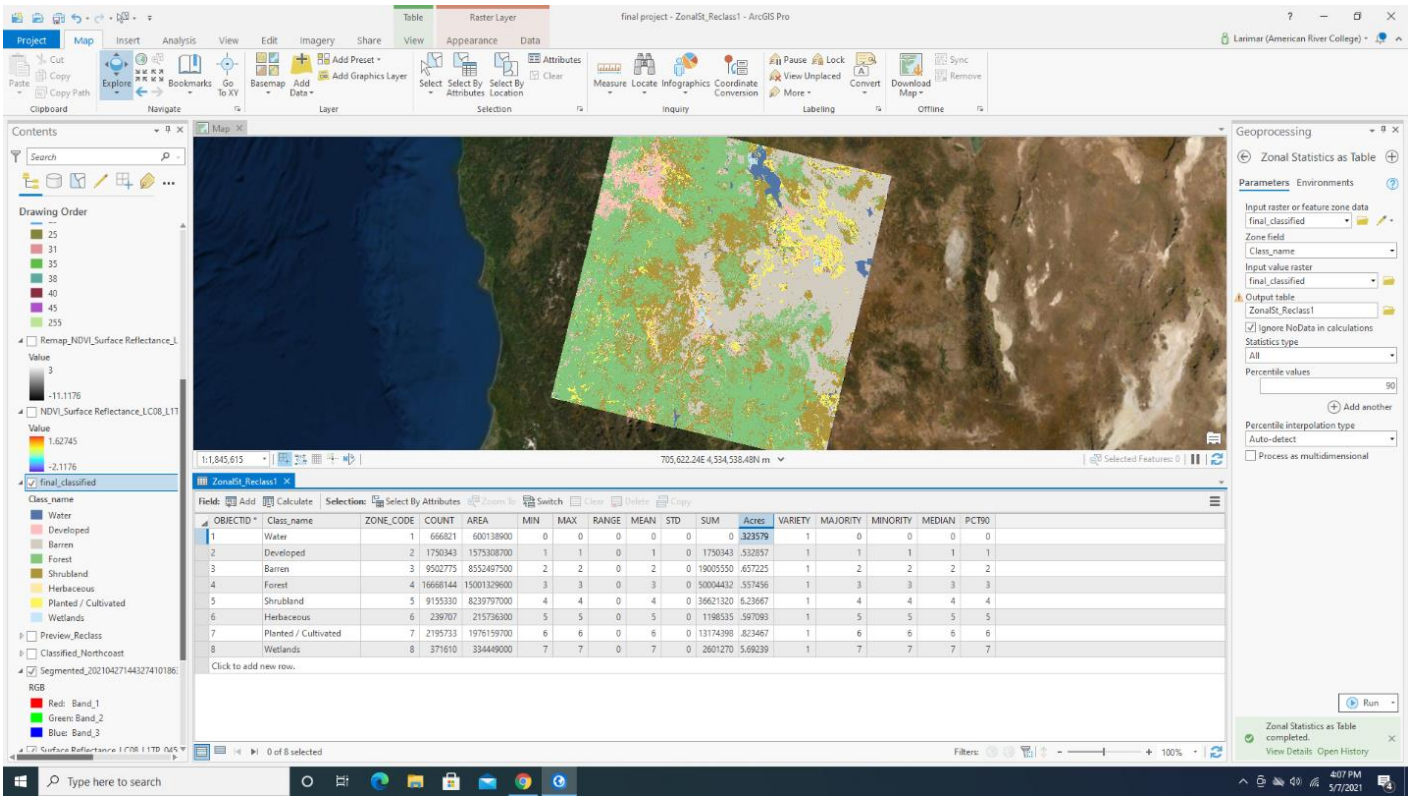


Acres was added and shown in this image here. I then imported it to excel and was able to view the results there as well.



I did all these same steps for the image classification (not in NDVI) style. I did the table on the water, developed, forest etc. sections and added acres to the output table. I did not have a difficult time with the accuracy of the NDVI image and its table but when I did the same for the land cover classification image, but I found the acres section to not be as accurate. The landcovers had a .—number of acres that came up. I know the areas can be a lot bigger than that, so it was hard to understand/fix that part. Since this was the last part of my project, I left the acres as is.




Overall, I found this to be a very successful project. My outcome was not exactly what I wanted, but very close to it. I was able to properly classify a landcover image as well as creating 2 types of zonal statistic tables. I found the information that I wanted and was able to find out how large these landcover areas are.