

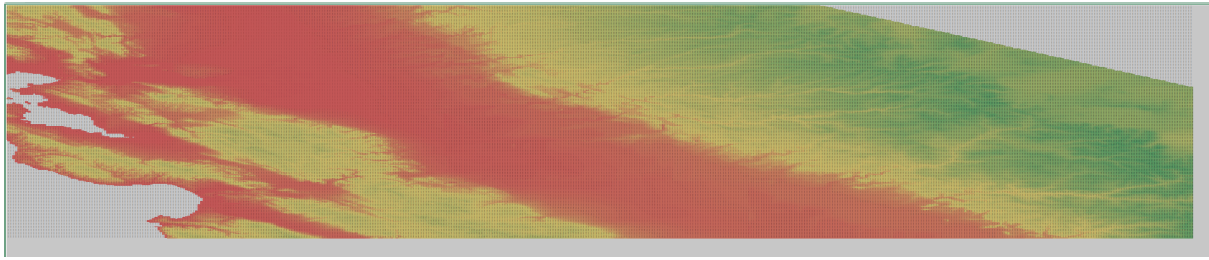
Laboratory 2 (Case Study 2-1)

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Engr 180 Summer 2022

Zoom out and take a screenshot of your window.

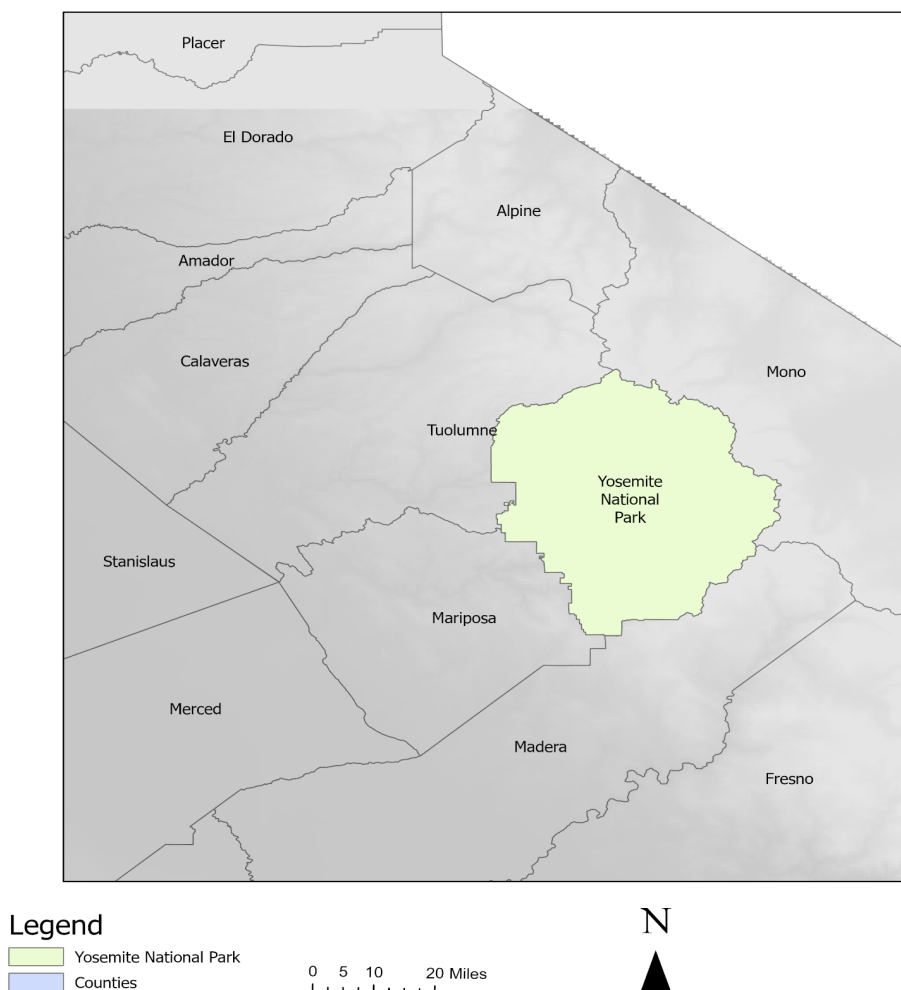


Describe what you see in a few sentences to accompany your screenshot.

- It is a matrix of values and when you zoom out it shows a raster of a part of California. I think I see the raster depicting areas near the San Francisco or Santa Cruz area of California. At first, it looks like a heat map of an area of California. Depending on the conditional formatting color scale chosen, it can be interpreted differently. For example, it can sometimes be interpreted as a heat map or temperature map in this case. However, if you change the color scale, it can be interpreted as an elevation map.

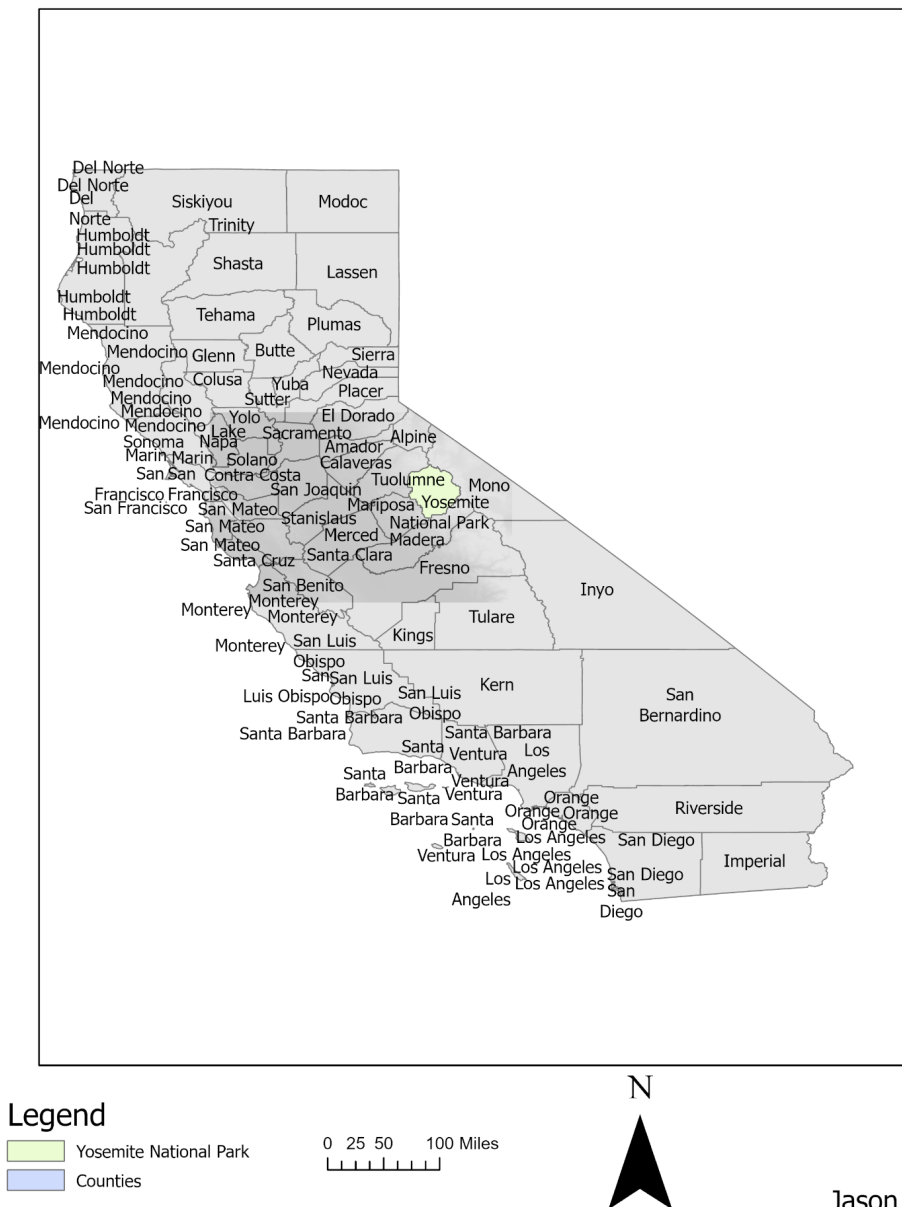
Export a PRODUCTION QUALITY MAP (remember your key map elements from 2c?) showing both shapefiles overlaid over the raster DEM. Use Labels to identify county boundaries.

Yosemite Park and Counties in California



Jason Gates
6/3/2022

Yosemite Park and Counties in California



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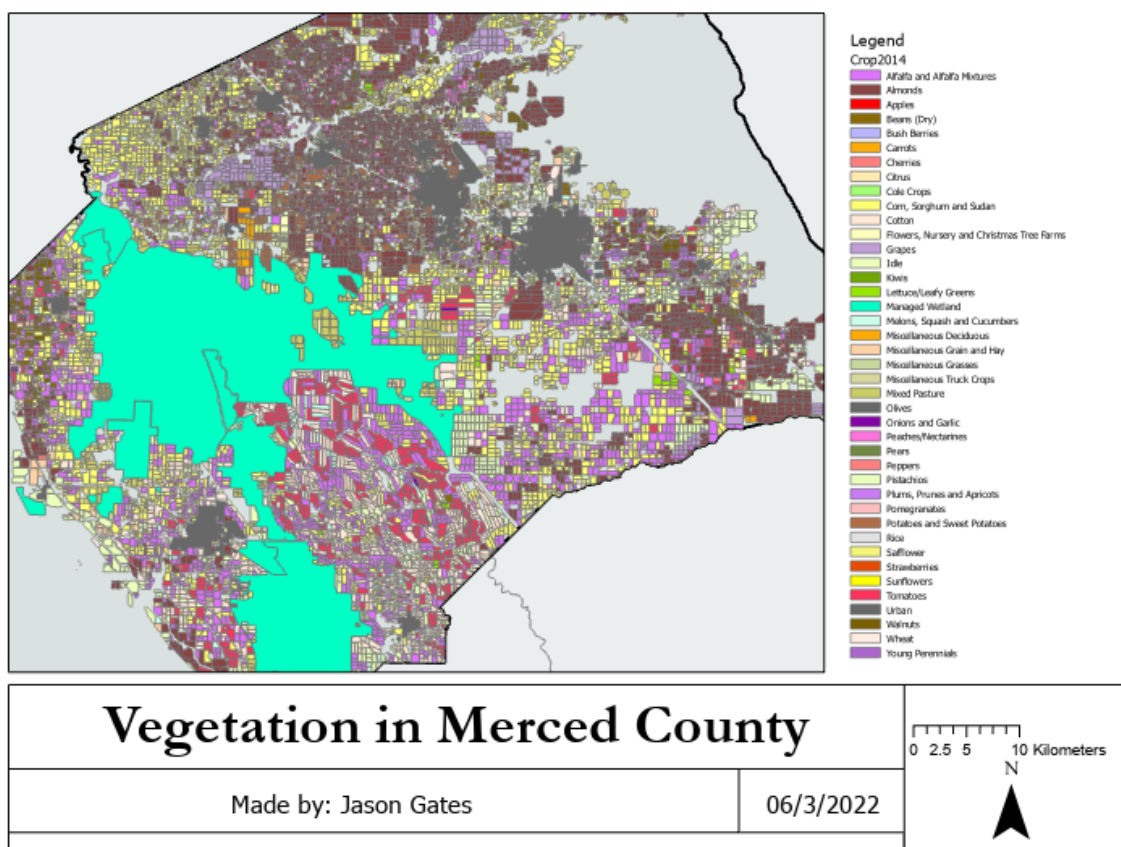
Here is an alternative map that is more zoomed out to see the scope of California and all of its counties including Yosemite.

Describe your submission in a few sentences. Be sure to describe the following bullet points for full credit.

- This map shows the boundaries between the counties in California and how each area in California is all divided. It also shows the location of Yosemite National Park and what counties are adjacent to it. Lastly, it shows that Yosemite National Park is in Mariposa county.

- What is the resolution of the GTOPO30 dataset?(hint: This data originates from USGS)
 - It is 30 arc seconds.
- What exactly an arc-second represents (hint: 30 arc seconds = a kilometer). Why are arc seconds a lousy method of measuring distance?
 - Arc-second represents the distance of latitude or longitude traveled on Earth while traveling one second which is 1/3600th of a degree. Arc seconds are essentially the resolution of the human eye, which can be lousy at measuring distance. This is because using the human eye often estimates distance which can cause inaccuracies and inconsistencies. There is also no consistent scale in measuring distance.
- If they're such a lousy method of measuring distance then why are so many rasters defined in angular units (degrees/arc seconds/arc minutes)?
 - Rasters have angular units and geography heavily uses angular units in measurements. Rasters are very useful in geography because of their angular units.

Export a PRODUCTION QUALITY MAP (5 key map elements!) of your clipped crop cover feature class (don't forget to remove the original statewide crop layer.)

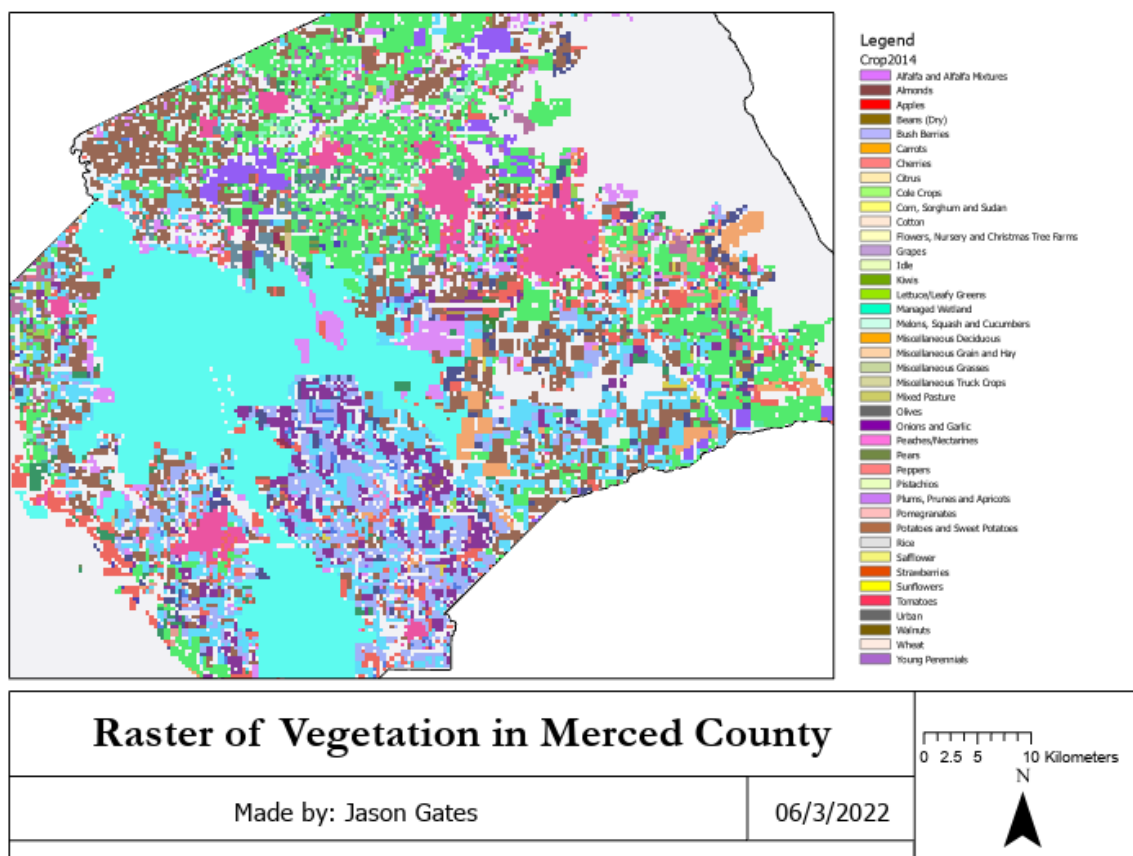


Describe your submission in a few sentences. Describe what your map is visualizing. Read the land cover file metadata (source also linked in the References section below) and briefly describe how the dataset was produced.

- It shows a visualization of the different types of vegetation in Merced County. There are different types of fruits and vegetables or crops listed in the legend. It also shows urban boundaries and wetlands most likely to give a better perspective on what areas are currently being used.
- The land cover file metadata says the dataset was produced and supplied by LandIQ LLC, under contract to California Department of Water Resources. The dataset presents the 2014 agricultural land use, wetlands and urban boundaries for all counties in California. The data is derived from a combination of remote sensing and agronomic analysis and ground verification.

Export a PRODUCTION QUALITY MAP (all 5 key map elements!) of your crop cover raster and describe your submission in a few sentences. Describe which parameters you used in the polygon-to-raster conversion. Describe how the tool recommends a default cell size. Include a screenshot of your Model.

- The map shows the raster data of the vegetation in Merced County. There are different types of fruits and vegetables or crops listed in the legend. It also shows urban boundaries and wetlands most likely to give a better perspective on what areas are currently being used. Compared to the vector map, the pixelated aesthetic of the raster map makes the map harder to look at and less aesthetically pleasing than the vector map. To me, the vector map is clearer and easier to look at.
- The parameter I used in the polygon-to-raster conversion for input was i15_crop_mcd because that is the thing we need to convert from polygon to raster. The value field was Crop2014 which is the field used to assign values to the output raster. The output raster dataset was mcd_crops_330. The cell assignment type was cell center which is when the polygon that overlaps the center of the cell yields the attribute to assign to the cell. Priority field was set to none and cellsize was 330. The tool recommends a default cell size by getting a parameter that can be defined by a numeric value or obtained from an existing raster dataset. If the cell isn't specified as a parameter value, the environment cell size value is used instead.



- The circular or oval components represent the inputted data variables. These were originally the layers and datasets, but when they are added to the model, they are input data variables. The rectangular component is the geoprocessing tools. The arrows represent the connection between the inputted data variables and the geoprocessing tools. Arrows show where the data is going to. Blue is the original inputted data, green is the modified data and yellow is the geoprocessing tasks.

Esri. (n.d.). *Measuring in Arc-Seconds*. Retrieved June 8, 2022, from <https://www.esri.com/news/arcuser/0400/wdside.html>

Esri. (n.d.-b). *Use ModelBuilder*. Retrieved June 8, 2022, from <https://webgis.wr.usgs.gov/globalgis/gtopo30/gtopo30.htm>

USGS Planetary GIS Web Server. (n.d.). *GTOPO30 Documentation*. Retrieved June 8, 2022, from <https://webgis.wr.usgs.gov/globalgis/gtopo30/gtopo30.htm>

Esri. (n.d.). *Polygon to Raster*. ArcGis Desktop. Retrieved June 9, 2022, from <https://desktop.arcgis.com/en/arcmap/10.7/tools/conversion-toolbox/polygon-to-raster.htm>