Assignment 4: Electoral Politics

Project Description

For this project, you'll participate in a scenario. You work in the field of electoral politics, and you are specifically interested in ballot measures, where citizens vote directly to enact new laws. You are a GIS analyst for a nongovernmental organization that either supported or opposed (your choice) California's 2012 ballot measure that would have required labeling of genetically modified organisms (GMOs) in food. Your task is to look at the broad voting patterns in California on this issue, knowing that the initiative did not gain enough votes to pass.

Tasks

An agency partner in California has provided you with precinct level voting data – polygons matching the actual voting locations in the state. As you can see from the image, it's too noisy of information, containing 21,500 polygons, to notice true trends.

You have been tasked with aggregating this precinct information up to the county level polygons – which your agency partner has also provided you in a file geodatabase.

The precinct level voting data has attributes for who voted in favor of the measure, as well as the total number of voters. Because we are interested in a normalized map, showing percentage of voters rather than total number of voters, you will need to aggregate both of these attributes to the counties, the most likely tool being a spatial join (see the lecture on the "Spatial Join Tool"), then create a normalized map of the voting data (see the lecture on "Setting up Symbology in ArcGIS") in order to better assess the geography of the issue. You will also put the total number

of people who voted in the election on your map (see the lecture on “Using Feature Classes and Attribute Tables”).

When done, you will create a map of the county-level data with all appropriate elements, as well as labels and metadata. Specifics of what must be on the map are below. You will share this map via a PDF in your submission to Coursera, and as a map package on ArcGIS online, providing a link to the publicly available in your submission as well.

The data you need for beginning the assignment is attached here. Please see the section, "Instructions," for more specific instructions on how to complete the assignment.

What We’re Providing You

A file geodatabase named ElectionData2012.gdb (you will need to unzip/decompress it) containing two feature classes:

1. Counties: The feature data for California counties

2. PrecinctVotingData: Feature data for California precincts for the 2012 election. Has two relevant attributes:

a. total_votes: a field containing the total number of individuals who voted in the precinct

b. proposition_37_yes_votes: a field containing the number of individuals that voted for the measure in the precinct

What you need to do

You will need to:

1. Load the data into a new map document

2. Add a basemap

3. Conduct your analysis and aggregate the precinct total votes and yes vote data up to the county level

4. Symbolize the counties by yes vote data, normalized by total votes. You can choose any color ramp you like, but use just 5 classes and use the default classification method of Natural Breaks (Jenks) in order to have your map be comparable. The broad trend should look like the following, but the colors are up to you, though they should be appropriate for the theme:

5. Make an appropriate map layout with: a title, a legend with information about the symbol classes (just the range of votes in each is fine), a list of data sources, your name, the date you publish the map, a scale bar, a north arrow, and, of course, the map itself. Make sure to include a basemap for reference. Additionally, the counties should be labeled with their names (just the name is sufficient, you do not need to add the word “County” at the end as in the lecture on labeling).

6. Somewhere on your map (prominent enough for a viewer/grader to find), indicate the total number of people who voted in this election in California. Use the data you attached to your counties layer to generate this number (rather than the precinct data) in order to make sure you get results consistent with a grader.

7. Add metadata to your final county layer indicating the geoprocessing workflow you conducted on the data. Make sure to indicate your name, the source data involved, where the source date was obtained, the date you did the processing, and relevant details of what you did to generate the layer. For this project, use the default *Item Description* format for the metadata.

8. Export a PDF of the map’s layout and a map package of the map What you need to submit You will submit the PDF here on Coursera, and you will submit the map package on ArcGIS Online. Make the item publicly available, and then submit the link in the appropriate field on the submission page. You will be graded on each item.

Things to Watch Out For

Spatial Join: The data we're using isn't totally clean - use the default "INTERSECT" match option on your spatial join, but know that it won't be an exact aggregation of the precinct data since some of our precinct lines cross the county lines. Consider how you might clean this up if you wanted a completely accurate count, but you may not have the tools in this course yet to do that.

Spatial Join: Also, when doing the spatial join, make sure to select the merge rule correctly in order to get the **total** value from all of the precincts attached to the counties. We won't tell you what to set it to exactly, but you want the total value.

Map Packages: Map packages can be finicky and often fail to export if the map package is too large. Before exporting your map package, completely remove any layers that aren't necessary to your final map document. This should help your map package export completely. Removing these layers should help it export and upload more quickly as well!

Sharing: Some students who have ArcGIS Online accounts from before this course (from an employer, school, or other class) have had trouble sharing their map packages after uploading them because their accounts don't have permissions. This points you to two things. First, make sure to test your link from another web browser (or after logging out of ArcGIS Online in your main browser) to make sure it's truly available. If you don't seem to be able to publicly share your map package, then try creating a new, free Public account in ArcGIS online (https://www.arcgis.com/home/createaccount.html) and uploading your map package there.

If you have extra time, try getting the total number of voters from both the precinct data and from the counties data – and see that they differ. Why might they differ? Discuss in a forum thread with classmates.