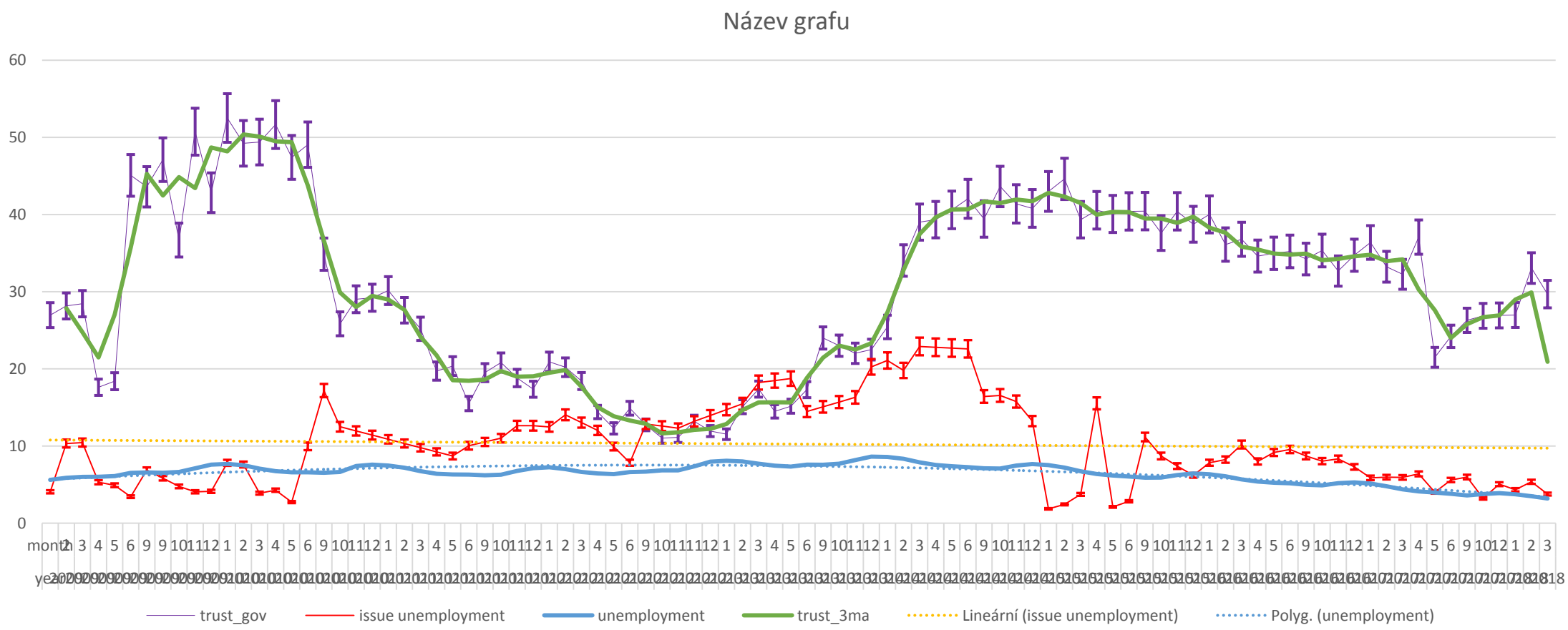
Visualization of spatial data


Název grafu
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trust_gov
issue unemployment
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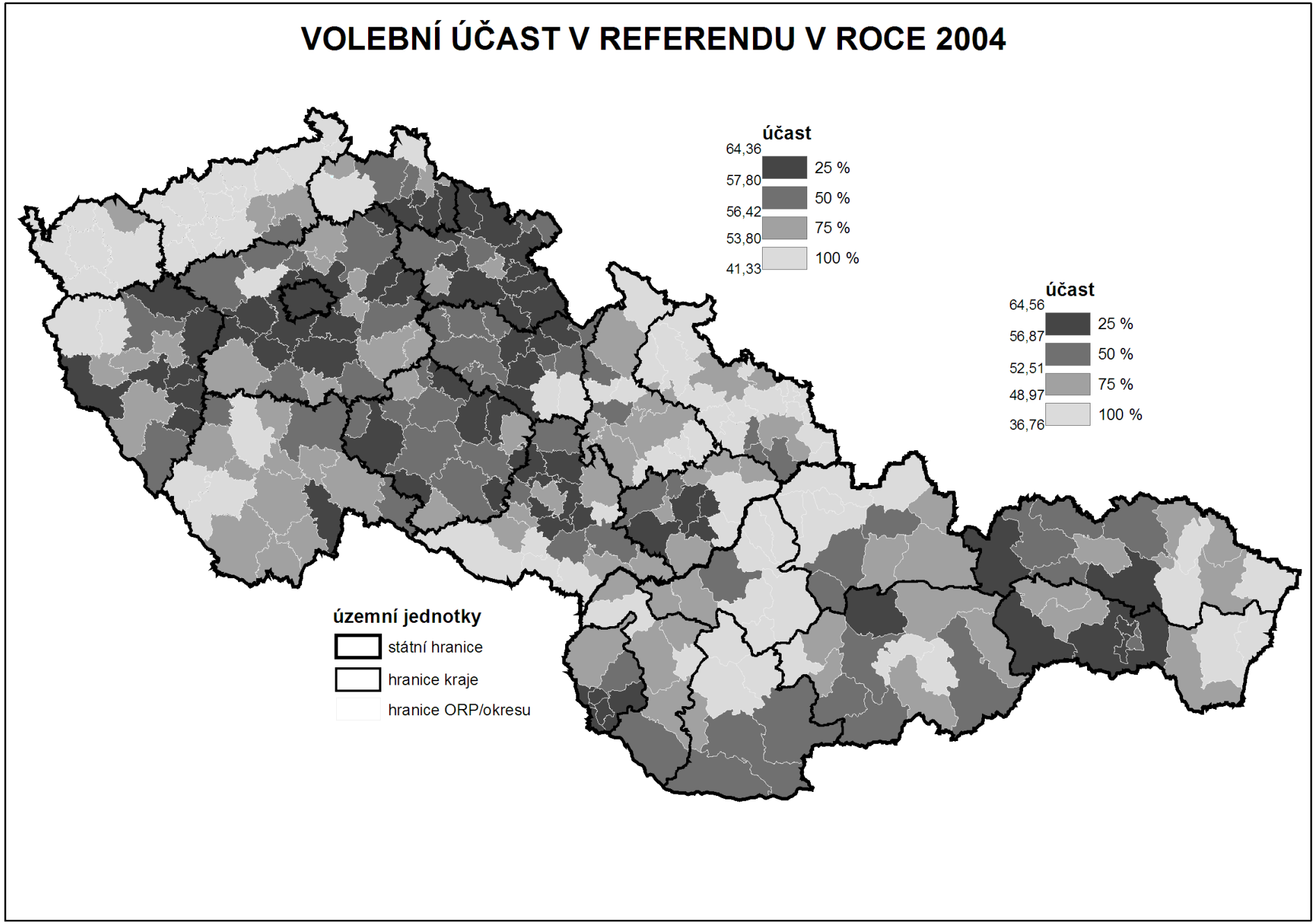
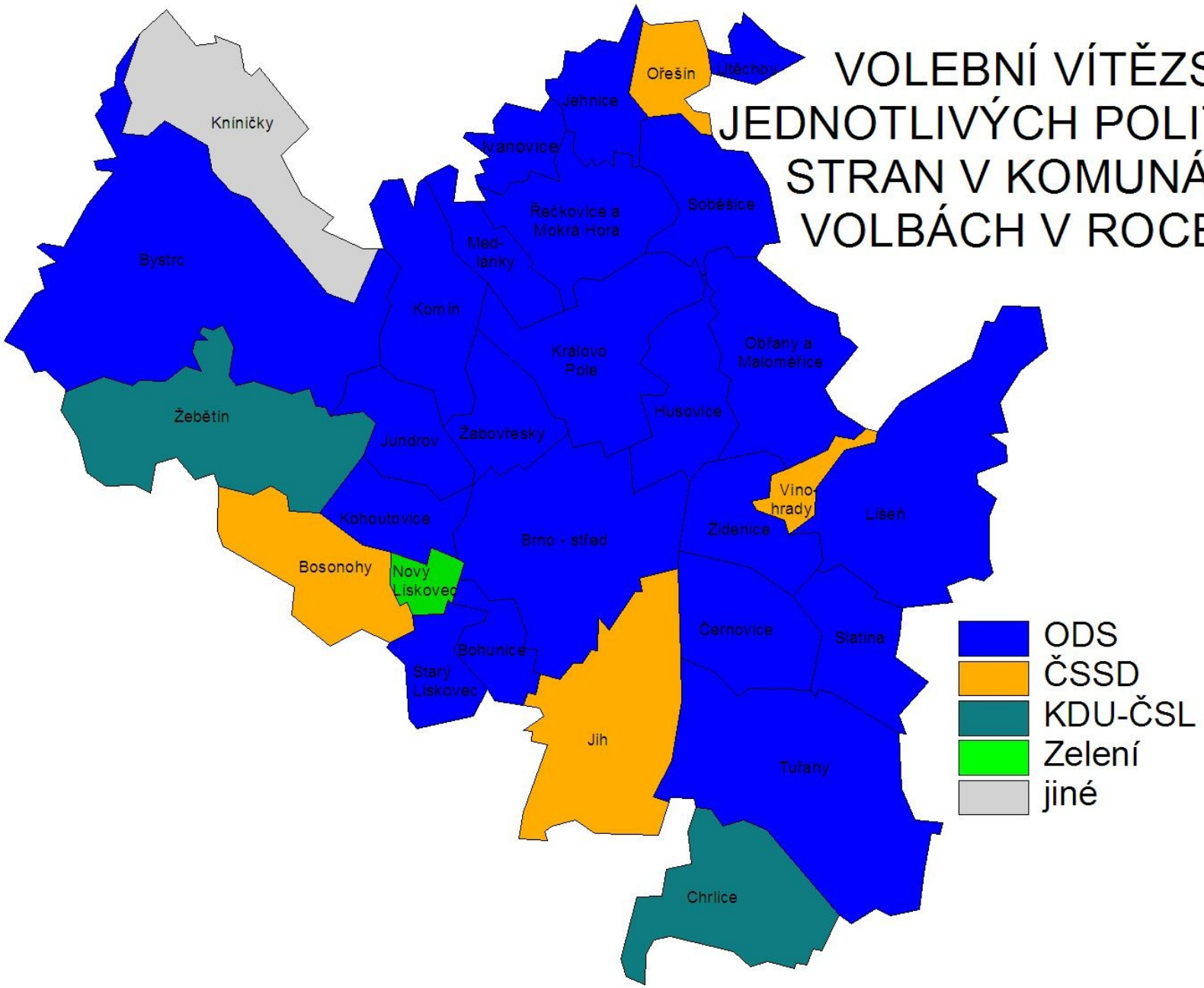
trust_3ma
Lineární (issue unemployment)
Polyg. (unemployment)

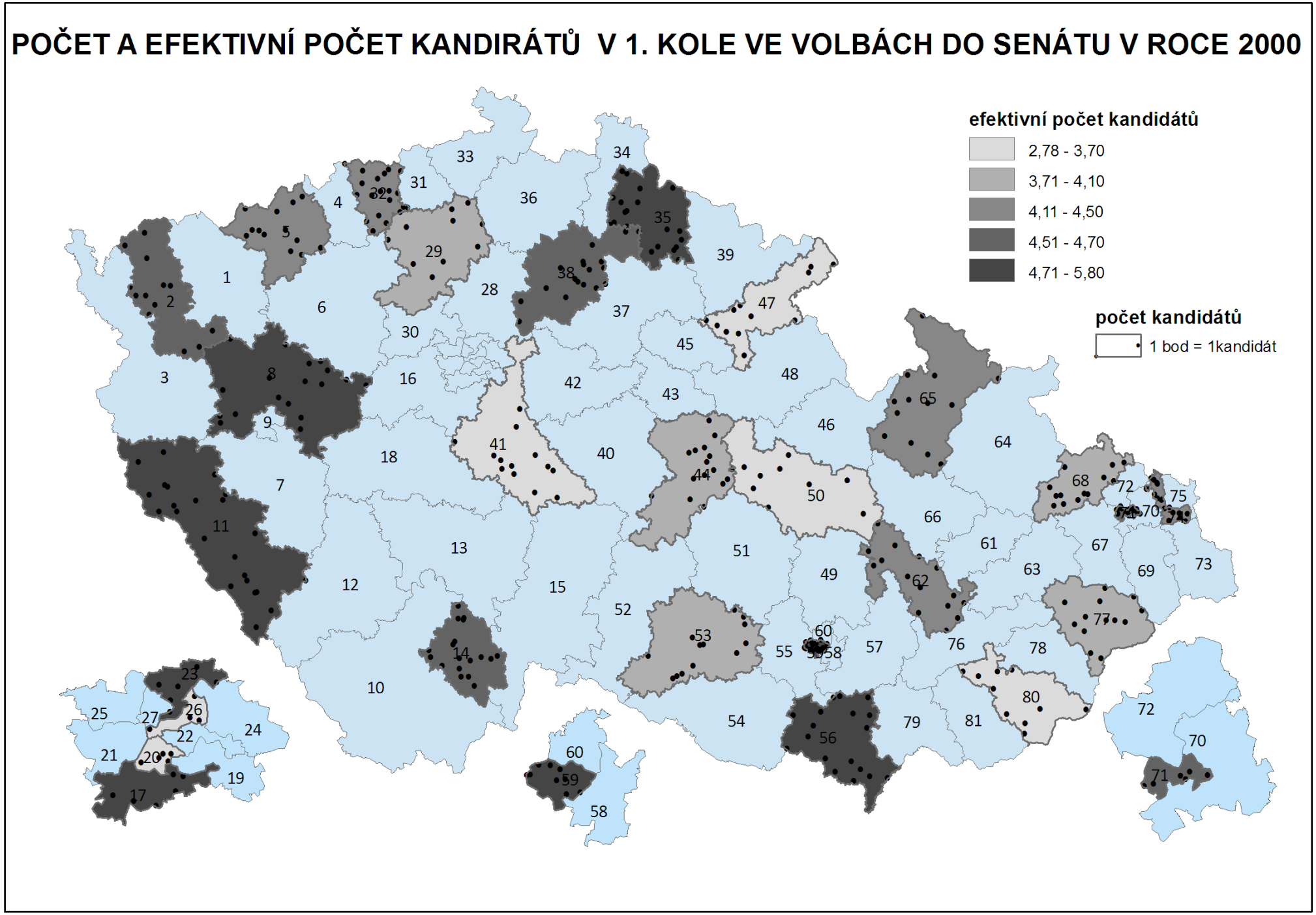
VOLEBNÍ ÚČAST V REFERENDU V ROCE 2004



VOLEBNÍ VÍTĚZSTVÍ JEDNOTLIVÝCH POLITICKÝCH STRAN V KOMUNÁLNÍCH VOLBÁCH V ROCE 2006



POČET A EFEKTIVNÍ POČET KANDIRÁTŮ V 1. KOLE VE VOLBÁCH DO SENÁTU V ROCE 2000



Two types of variables (spatially)

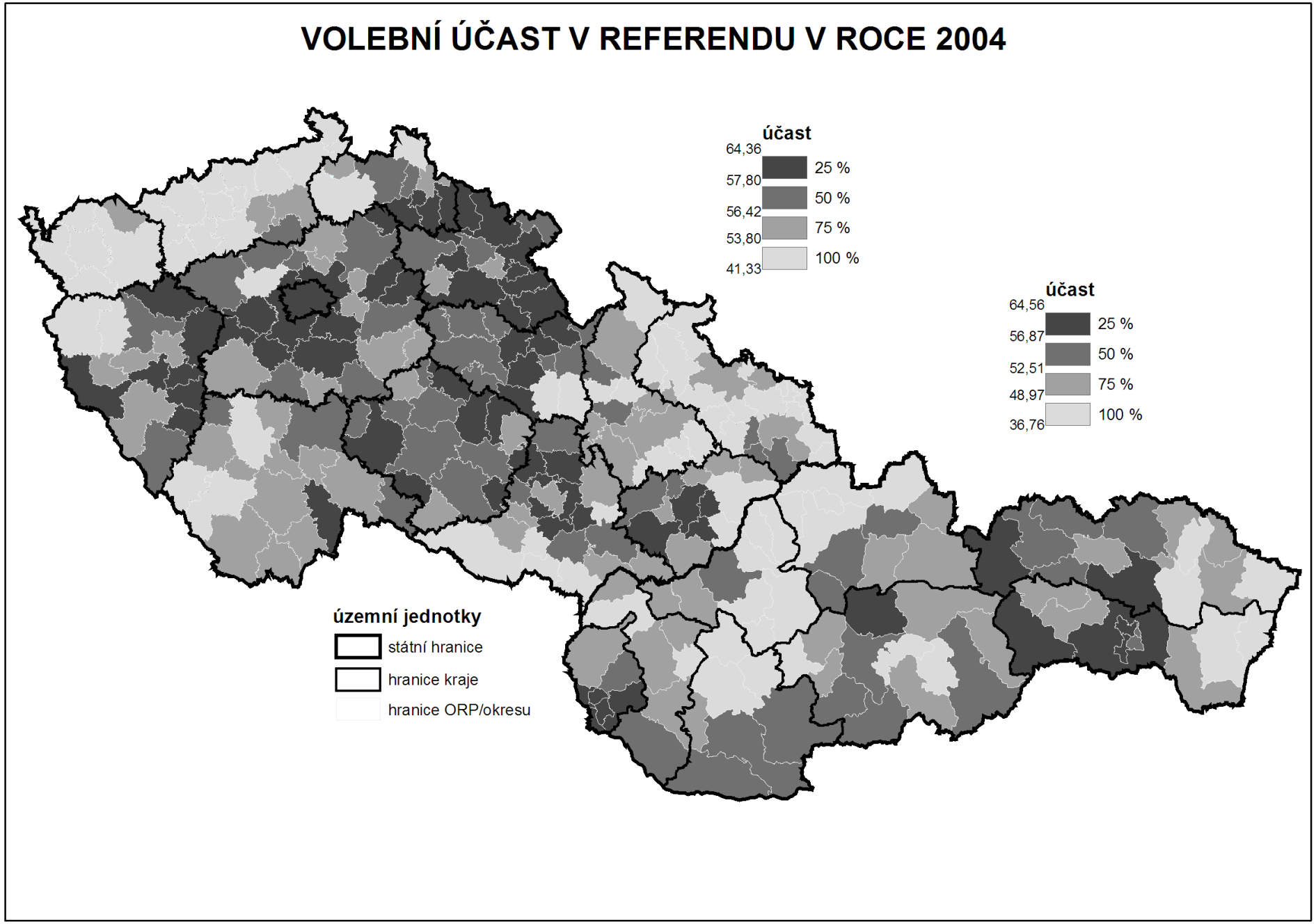
- Just related to some space
  - GDP by country - it is not equally produced on whole teritory
  - It is just related to teritory
  - Choropleth maps
- Truly spatial
  - The data are describing some exact location
  - Dot maps

  - The difference between categorical and cardinal variables are also important

Rules of using colors

- Different categories (e.g. Winnig party)
  - Different colors (e.g. blue, red, green, etc.)
- Different quantity (e.g. Electoral turnout)
  - Different shades of the same color (e.g from light blue to dark blue)
  - The higher intensity of variable, the darker the color is

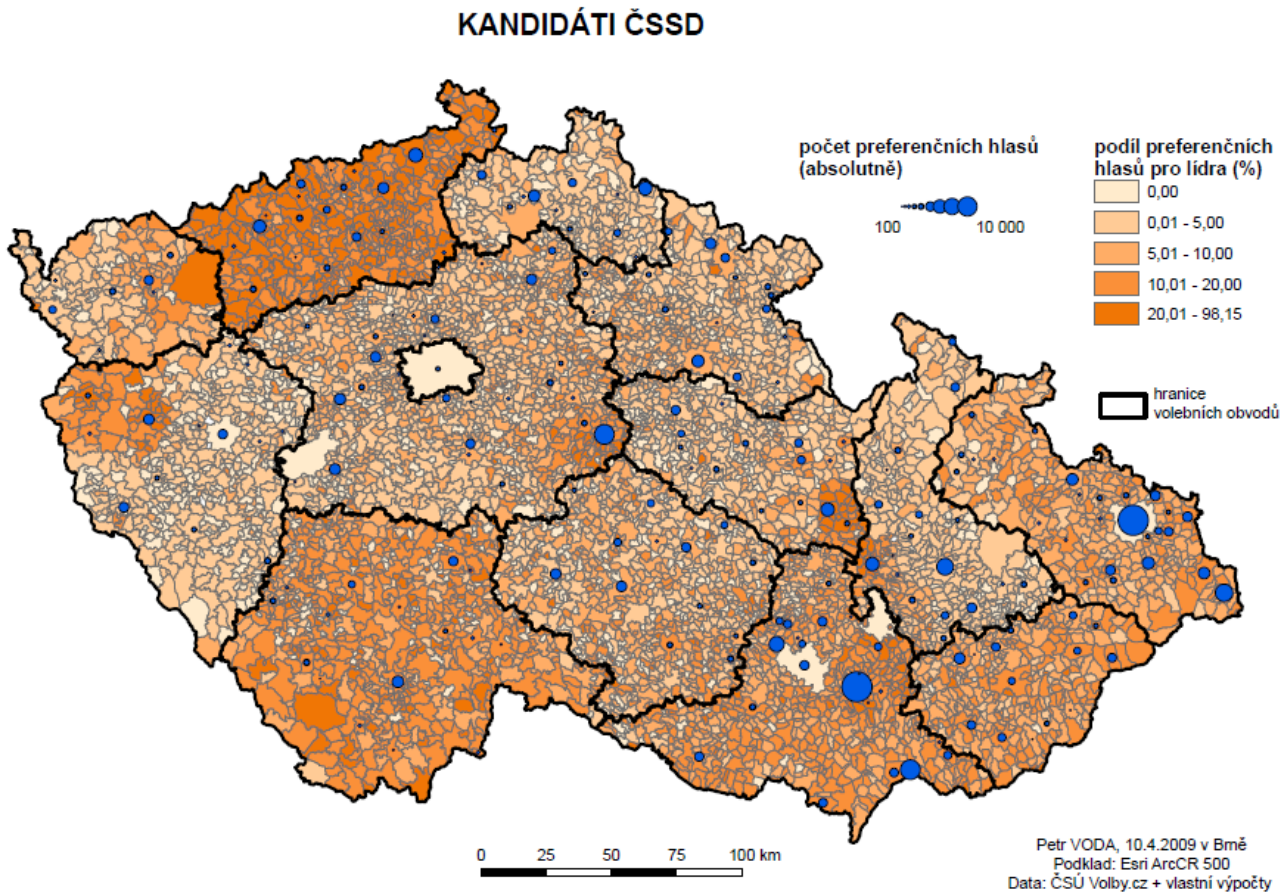
VOLEBNÍ ÚČAST V REFERENDU V ROCE 2004



Rules of creating intervals

- Equal interval (eg. 0-10,10-20, 20-30,…)
- Quantile – in all intervals, number of cases is the same
- Natural breaks – unclear meaning

It is possible to combine cartographic visualization with piechart or barchart



What is needed

- Data related to some spatial structure
  - Level of democracy in countries
  - Unemployment in municipalities
  - Number of parking places in streets
- Or to places itselfs
  - Location of candidates homes
  - Location of armed clashes during conflict
  - Location of powerplants
  - How tall trees growing on their exact places are?
  - …

An empty map

- The cartographic fature representig given spatial structure
- Shapefiles
- Contain information about coordinates
- Contain information related to coordinates
- Contain information about how the map should look

- Practically: it consists of about 6 different files, all of them must remain in the same folder

Where to find empty maps?

- https://www.diva-gis.org/Data
- https://geodata.lib.utexas.edu/
- https://datacatalog.worldbank.org/search/dataset/0039368

- Open street map

Important things about empty maps

- Geographic projection
- The same country looks very diferently in different projections
- The proper projection has to be selected
- It is possible to set it in software

A key between map and data

- Something which tells us that the data belongs to units drawn in map
- It has to be exactly the same in map and in data
- Full names are not best options (e.g. United Kingdom x Great Britain, Czech Republic x Czechia)
- Standardized Ids
- Usually available for any level of administrative units
- Municipalities, counties, regions, states
- Often available in official statistics

Spatial key

- The data can be connected by the location
- The coordinates of data has to be available
  - Or it must be data already in form of shapefile
- How many candidates live in certain area

- The map of mentions of places within book (check dubliners by james joyce)

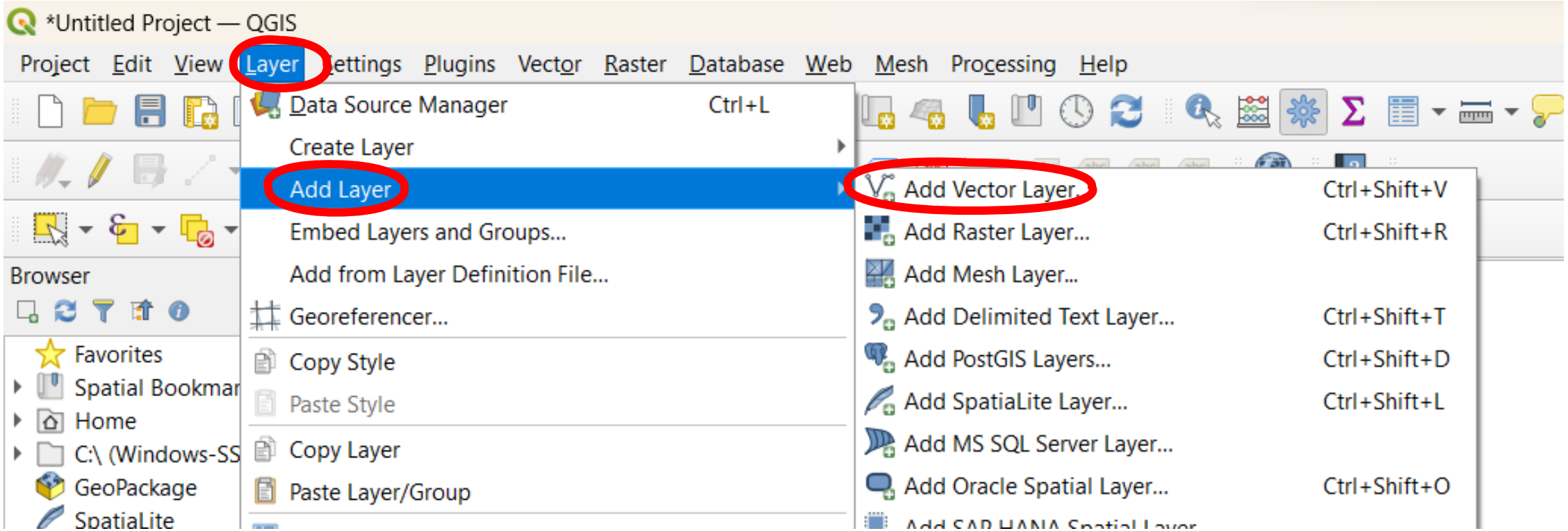
Example of pledges from local electoral manifesto

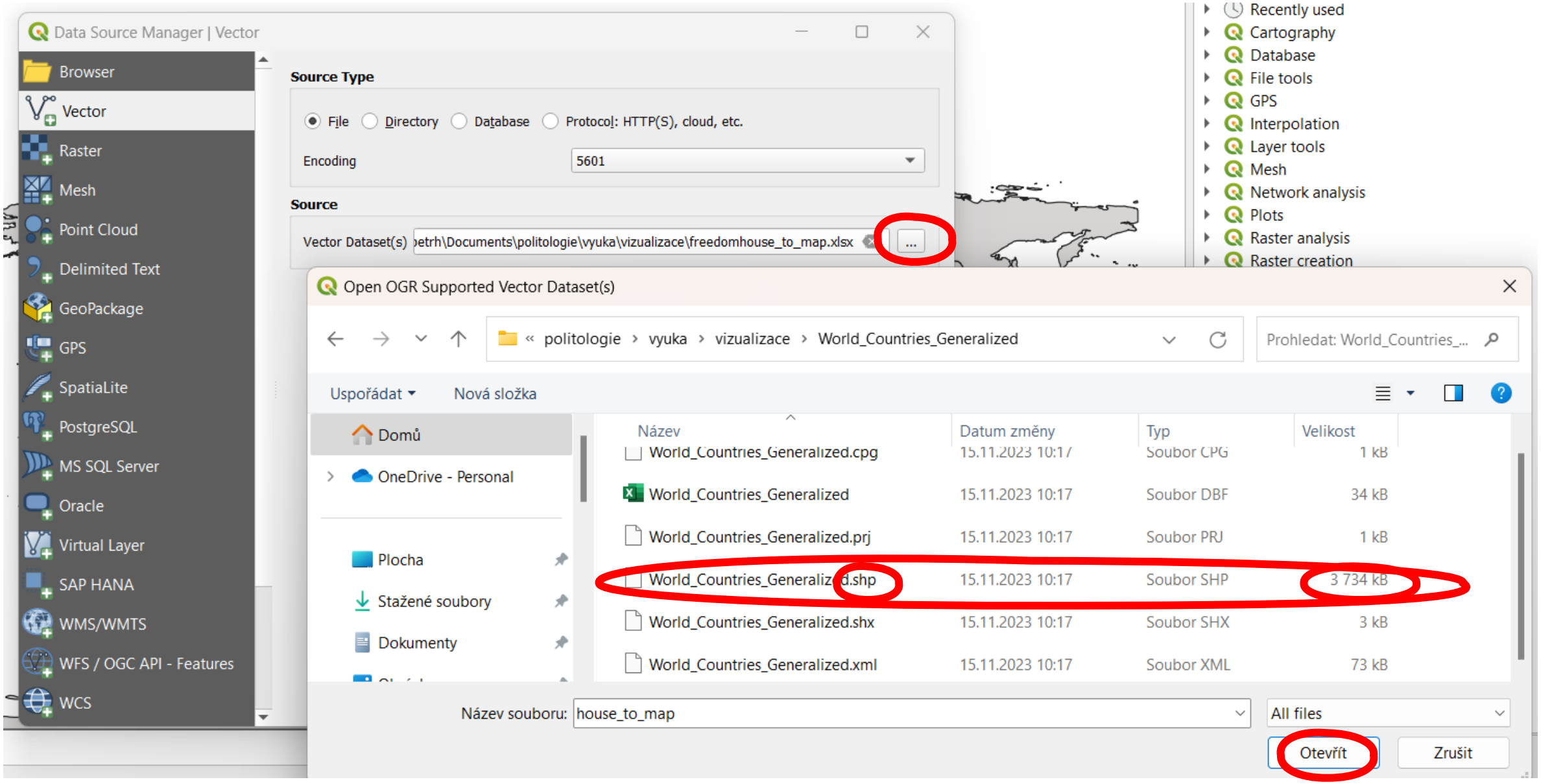
- Parties in local elections often promise the change of ceratain locations
- repair of streets or pawments
- Building of playgrounds
- Reconstructions of public buildings
- These locations can be drawn in map

software

- ArcMap
- QGis

What to do in software – add empty map




Data Source Manager | Vector
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Vector
Raster
Mesh
Point Cloud
Delimited Text
GeoPackage
GPS
SpatiaLite
PostgreSQL
MS SQL Server
Oracle
Virtual Layer
SAP HANA
WMS/WMTS
WFS / OGC API - Features
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Protocol: HTTP(S), cloud, etc.
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File tools
GPS
Interpolation
Layer tools
Mesh
Network analysis
Plots
Raster analysis
Raster creation
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Název souboru:
house_to_map
All files
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Zrušit

- The same procedure to add excel table with data


Browser
Favorites
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Layers
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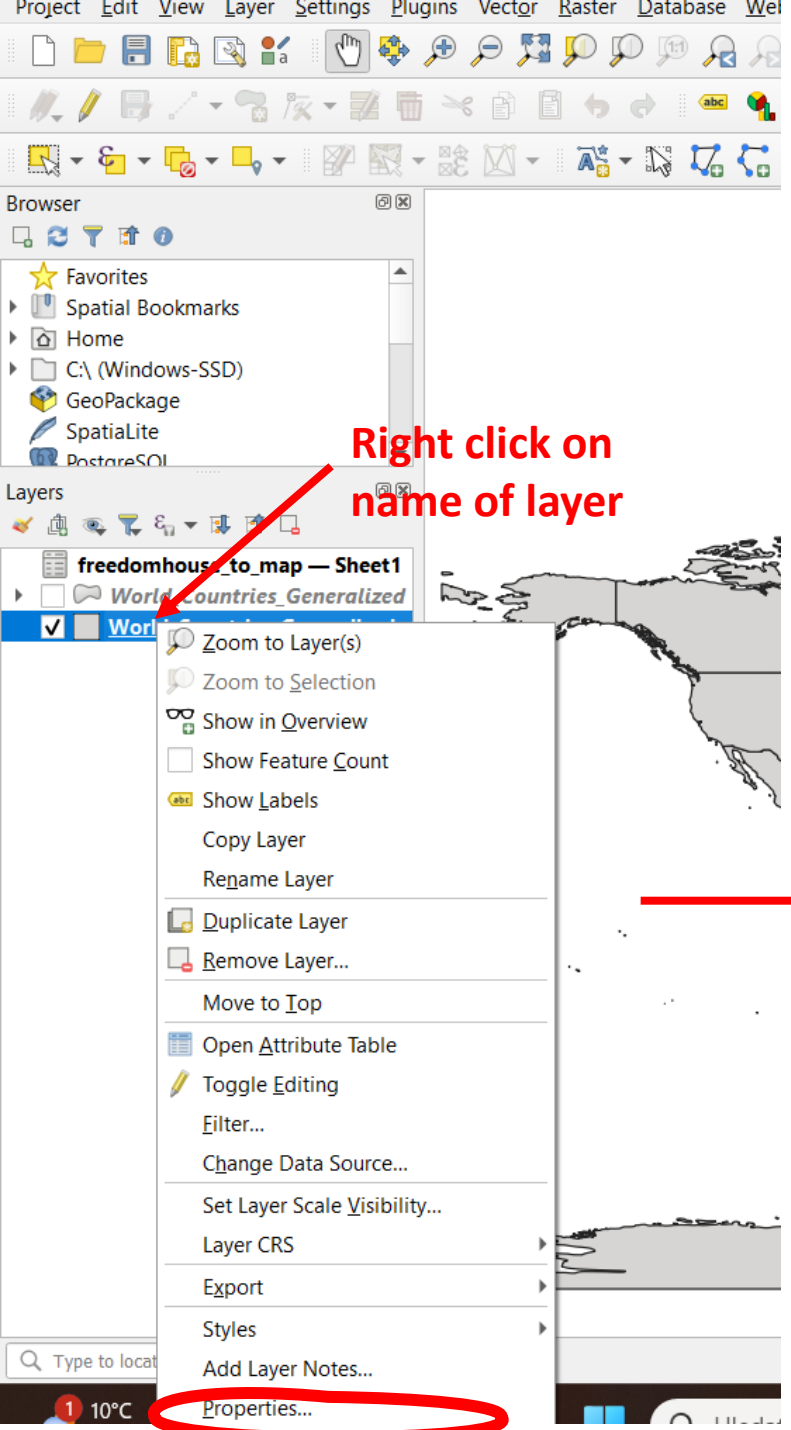
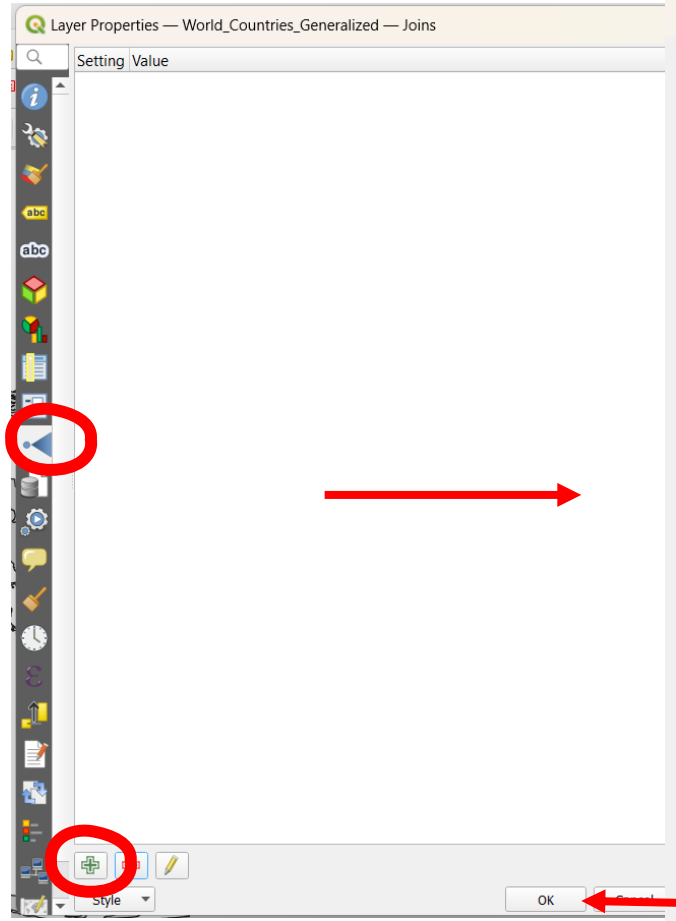
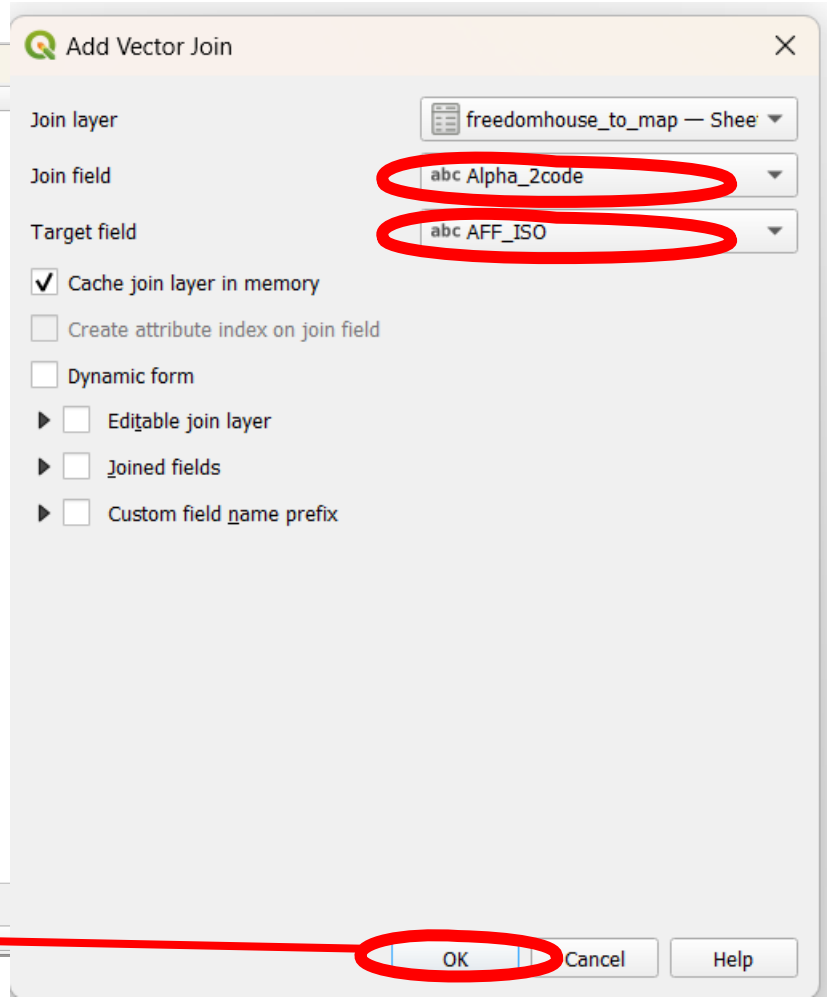
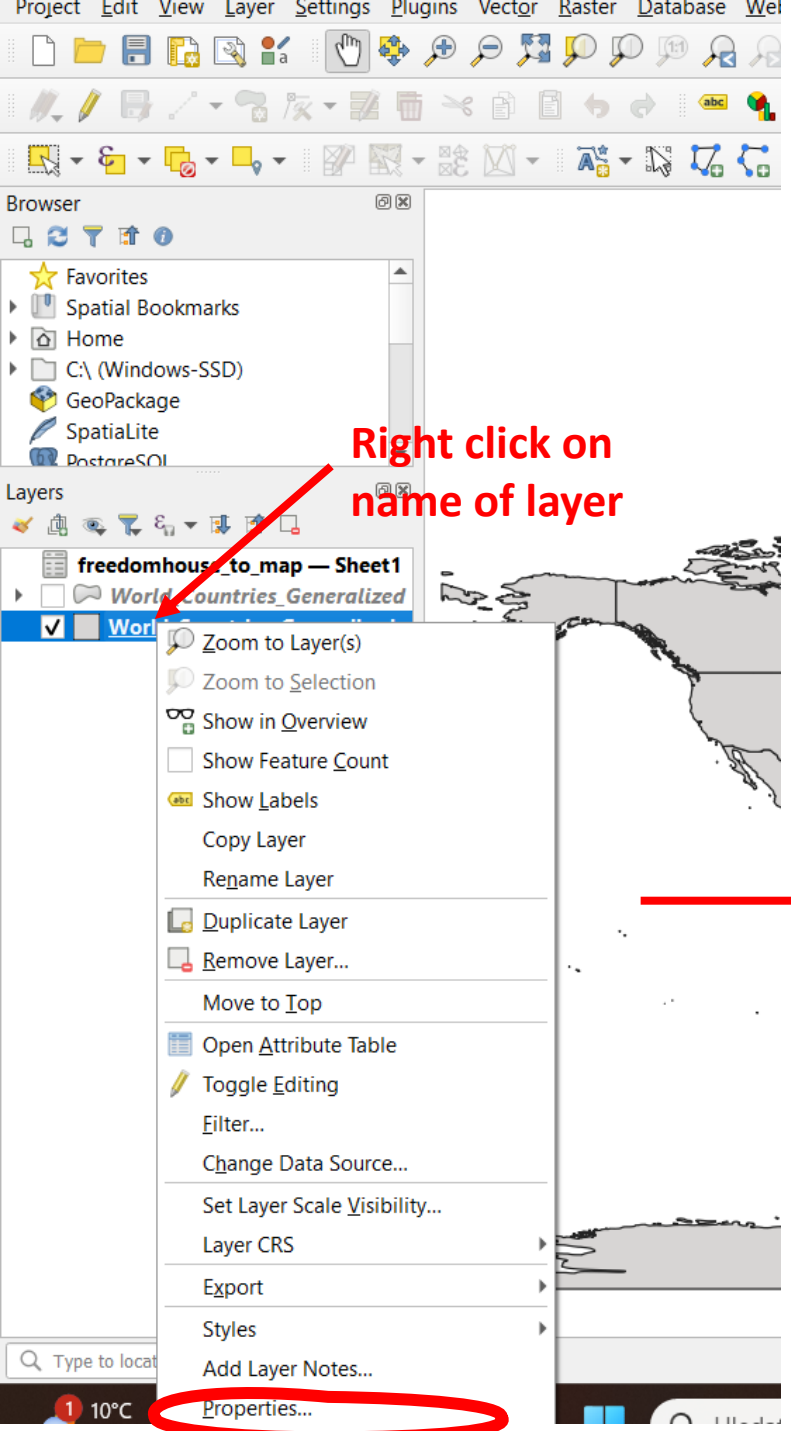
Join data from table to map







Make a map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freedomhouse_to_map — Sheet1
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Right click on name of layer
Zoom to Layer(s)
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Show Feature Count
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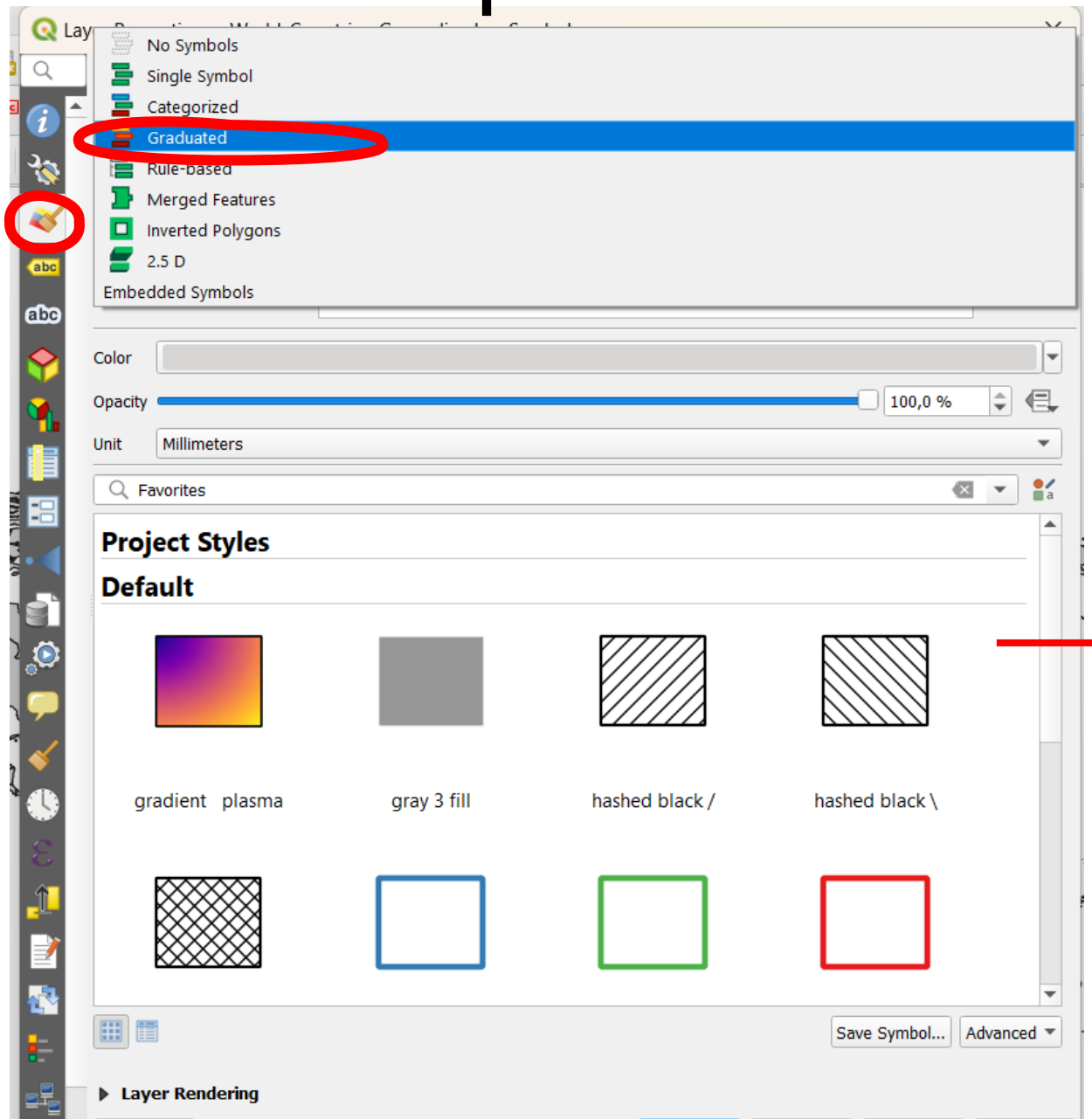
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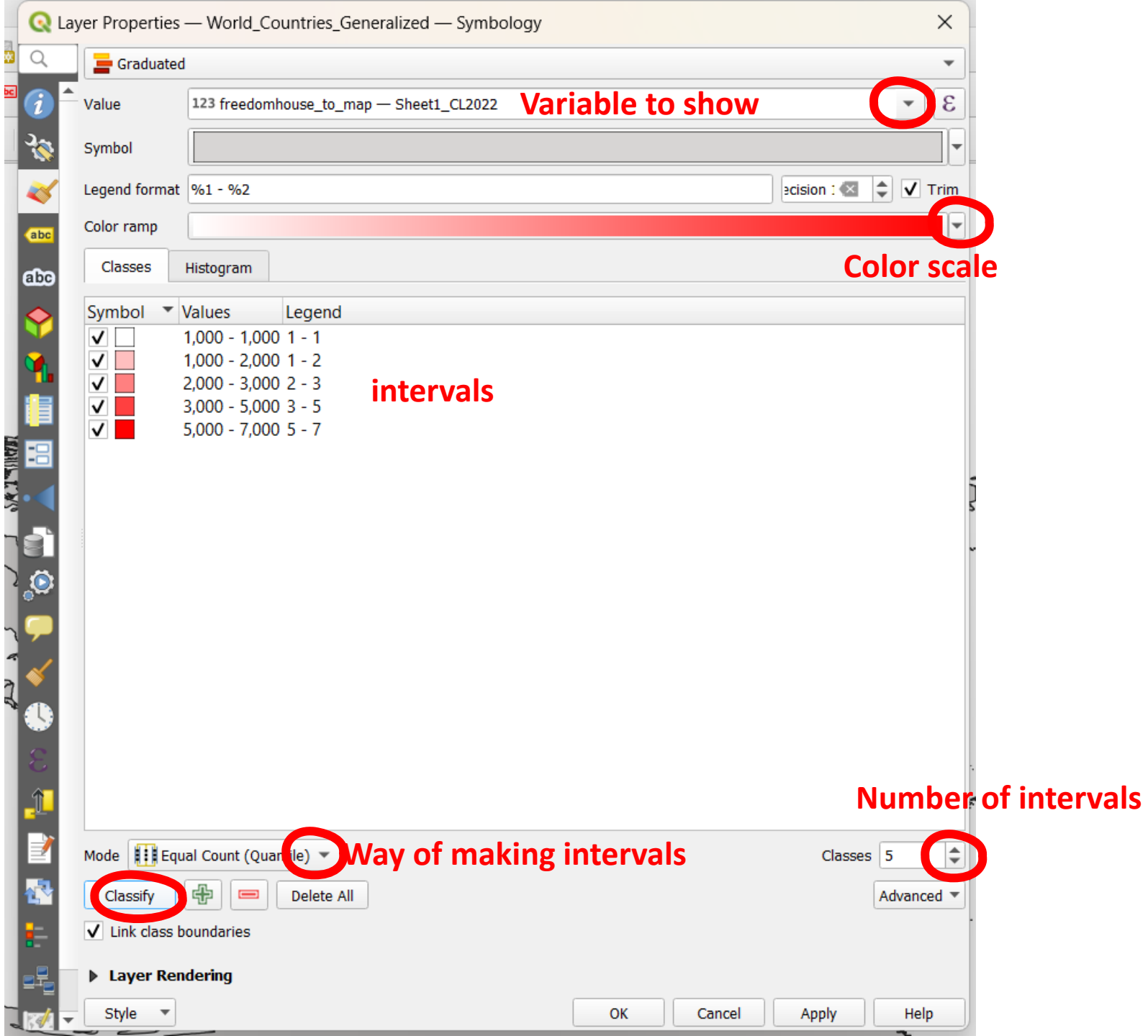
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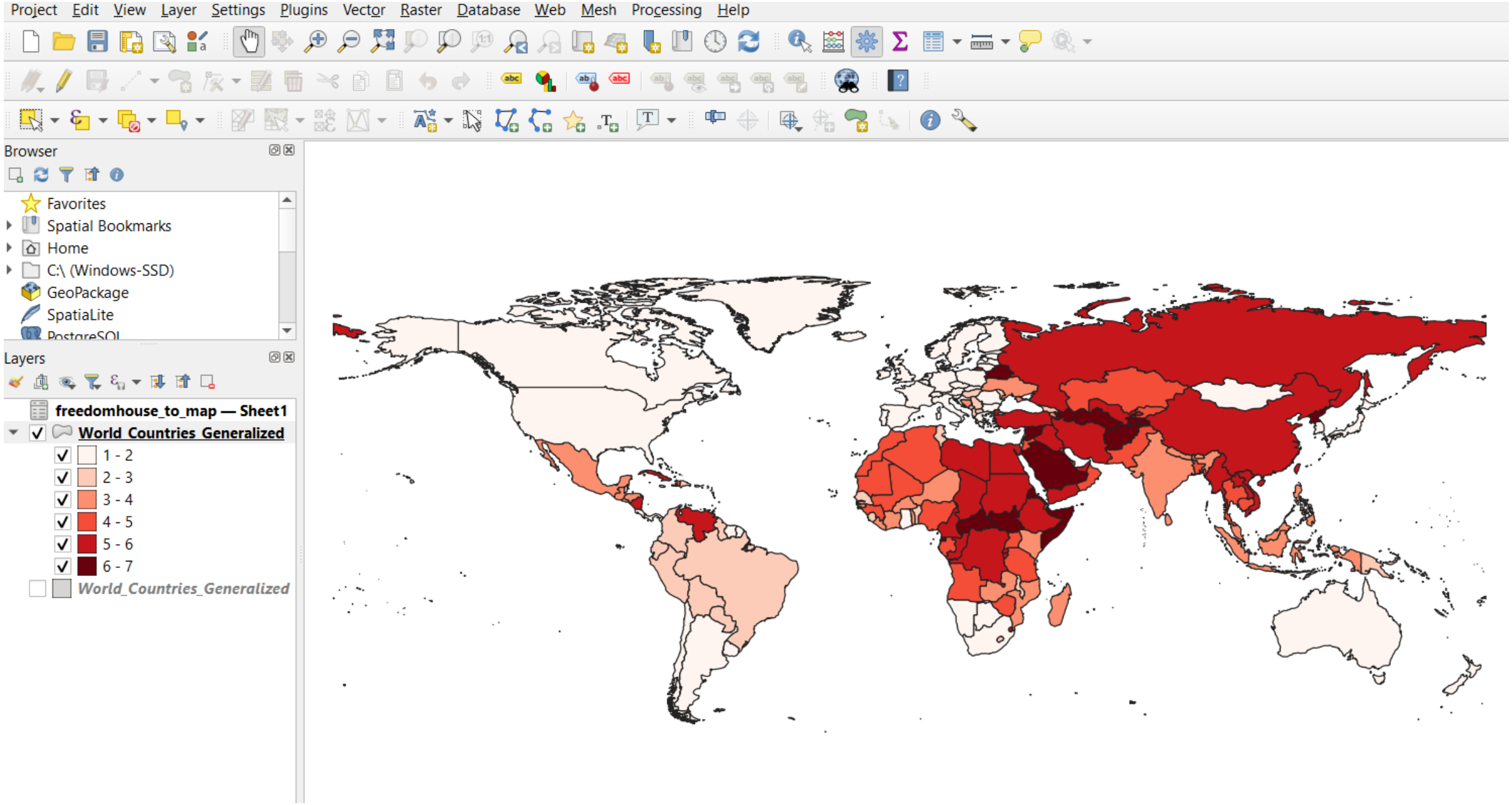
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freedomhouse_to_map — Sheet1
World_Countries_Generalized
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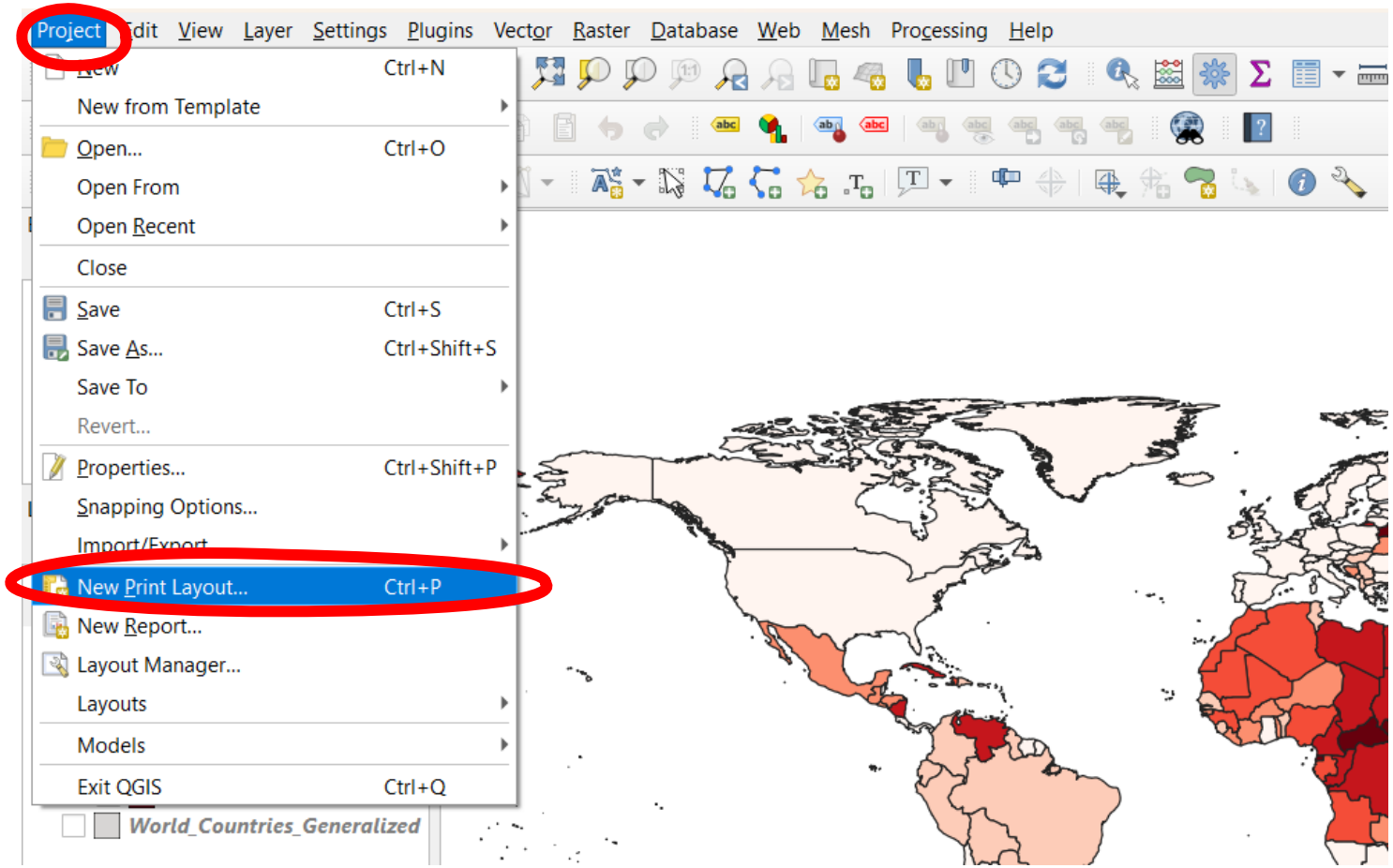
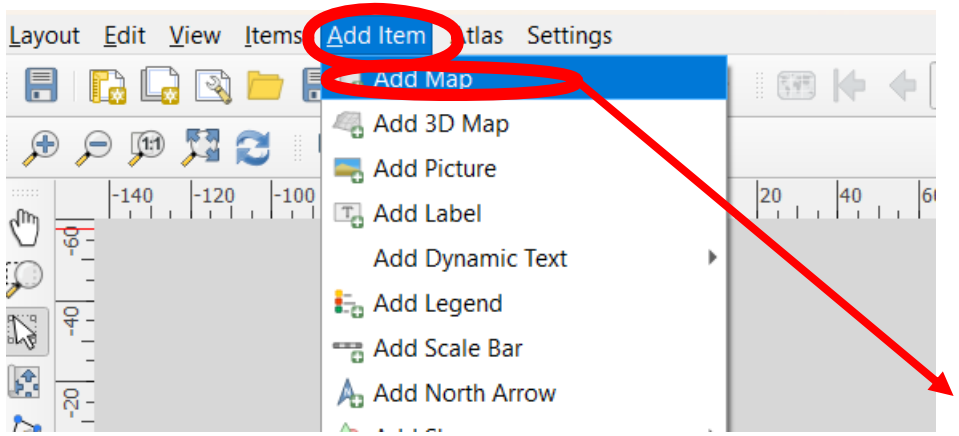
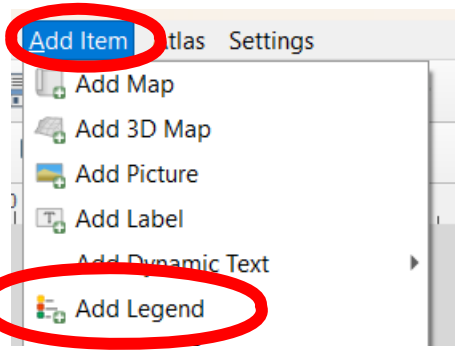
4 - 5
5 - 6
6 - 7
World_Countries_Generalized

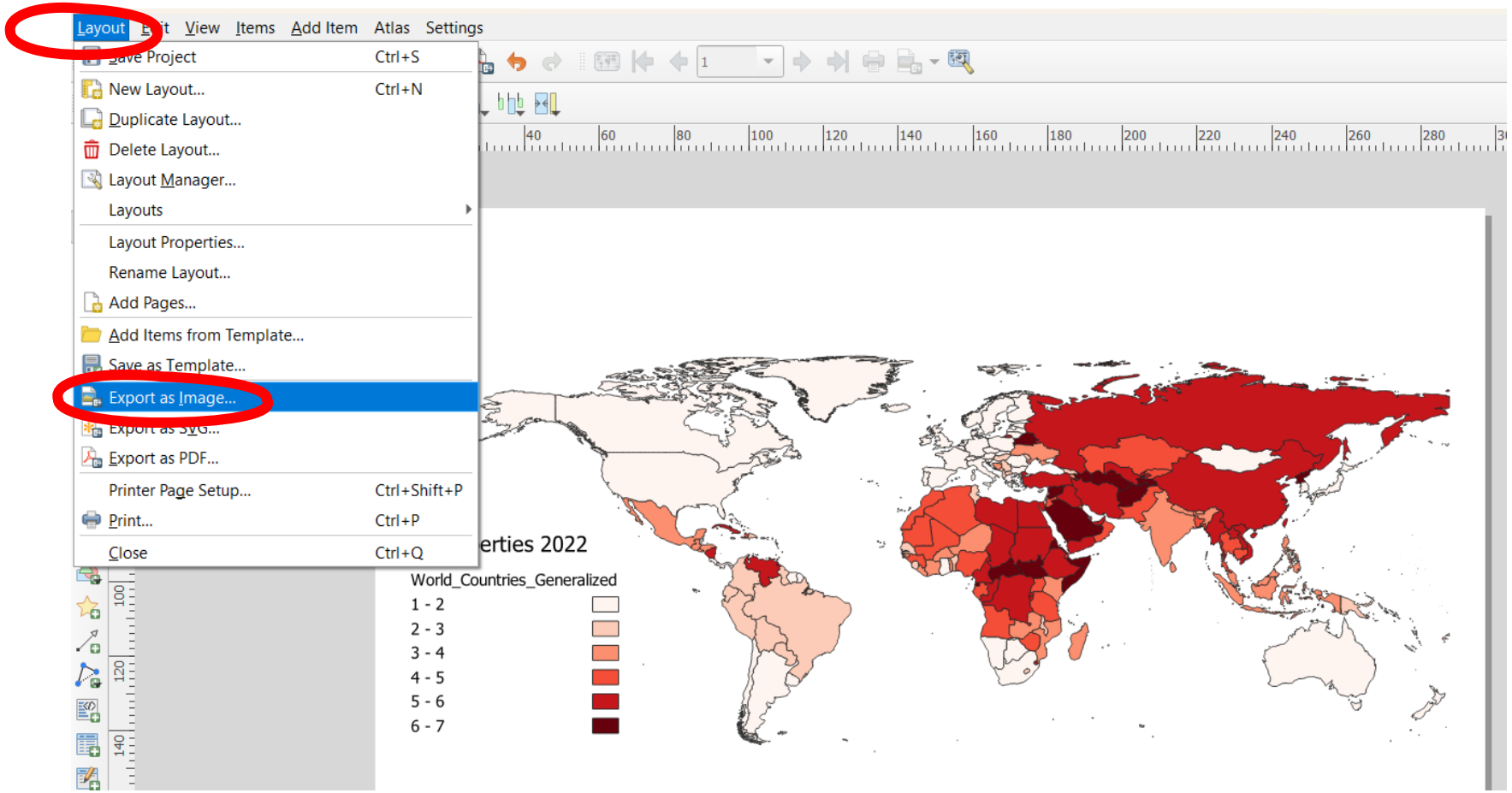
Add map elements (legend, scale, title, etc)







Draw with mouse over white board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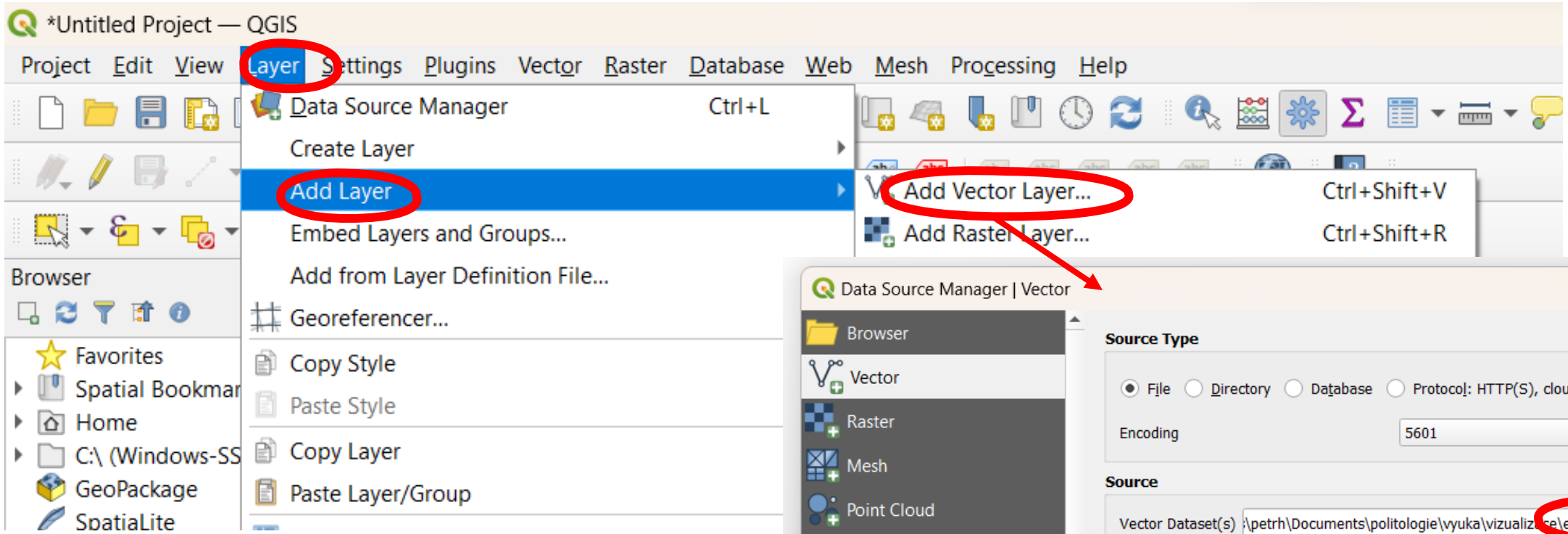
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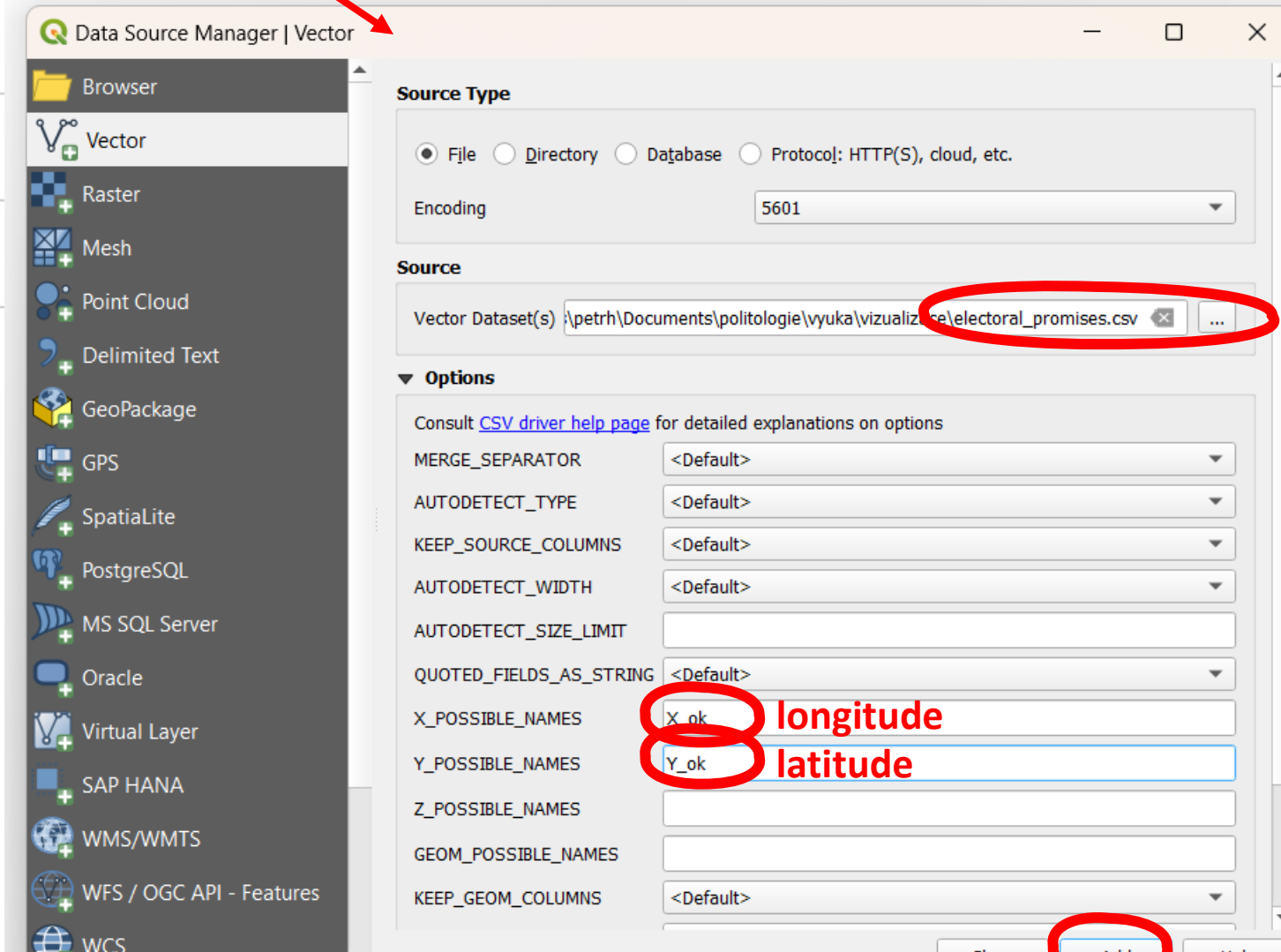
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WFS / OGC API - Features
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Consult CSV driver help page for detailed explanations on options
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AUTODETECT_TYPE <Default>
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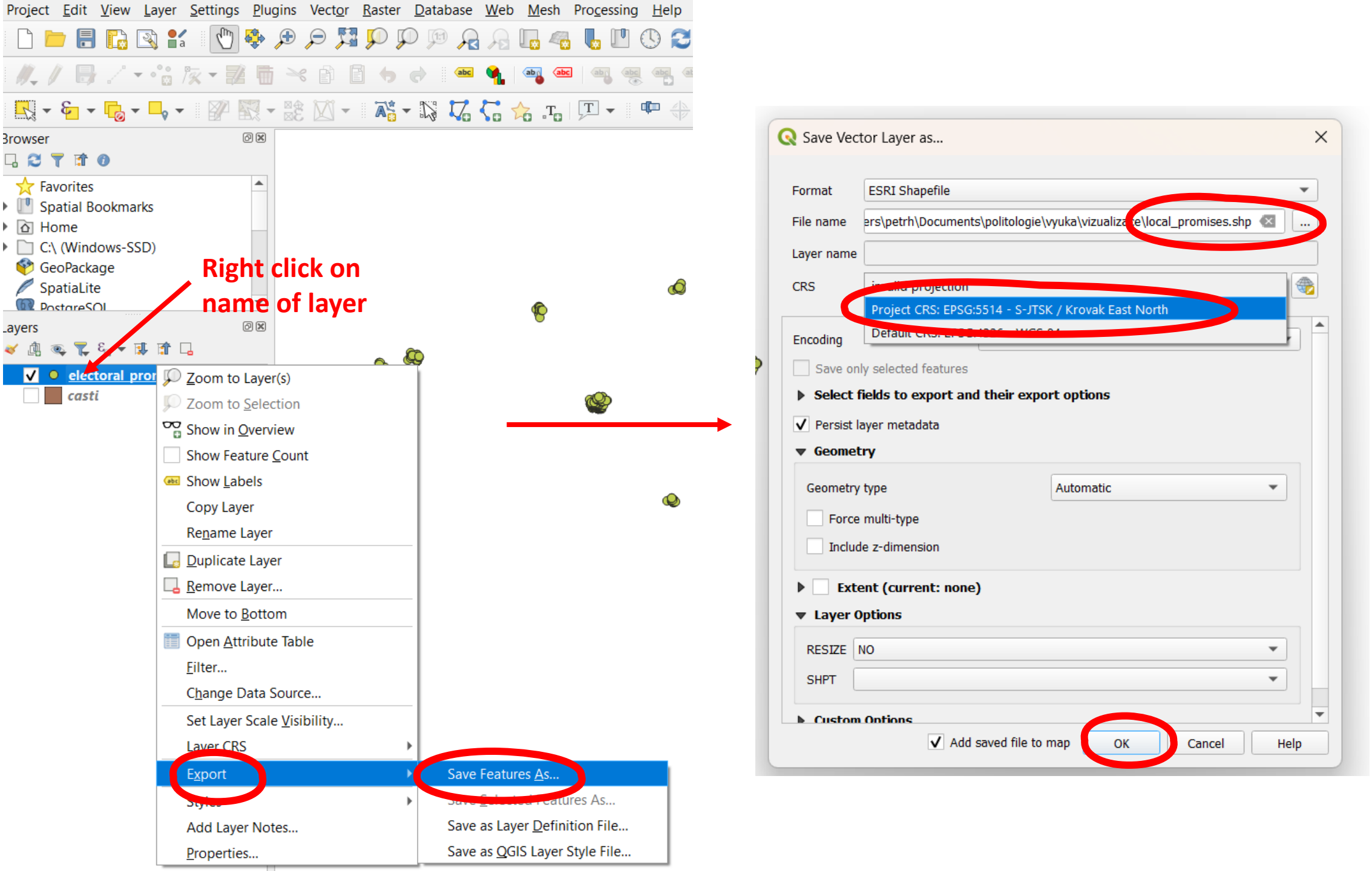
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File name
local_promises.shp
Layer name
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Encoding
Save only selected features
Select fields to export and their export options
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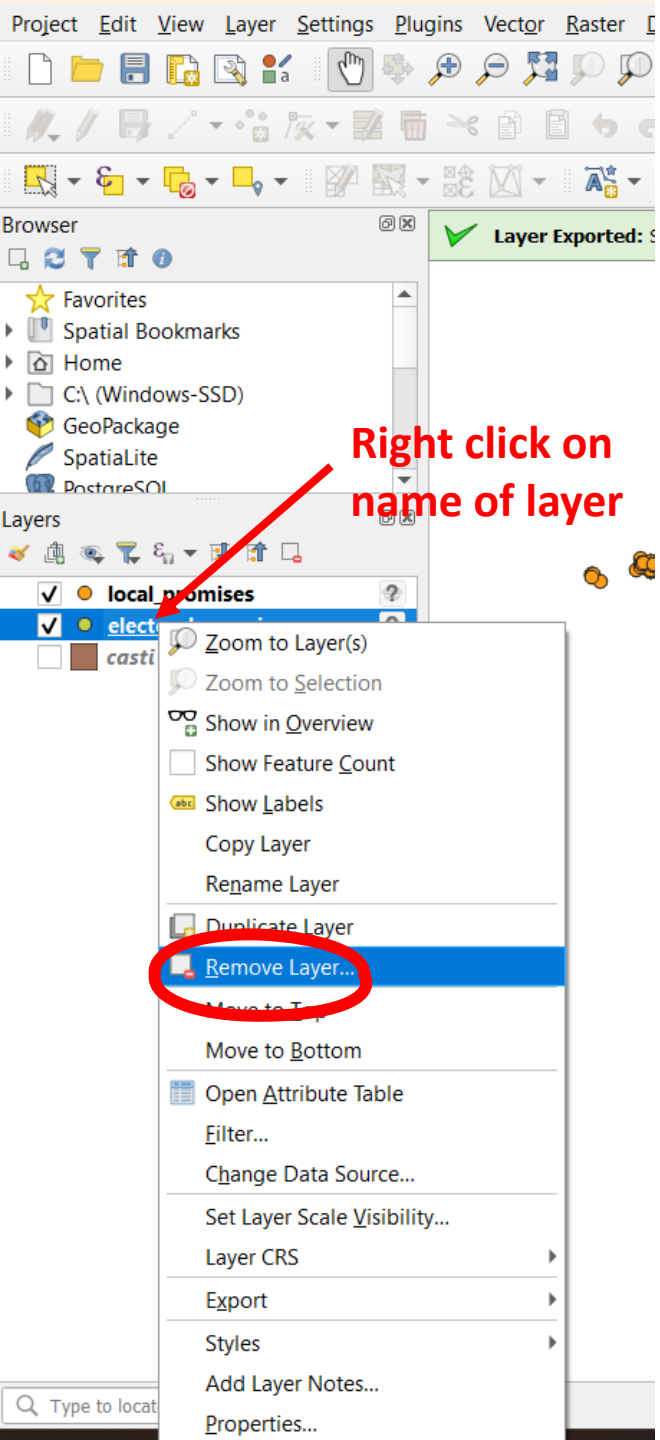

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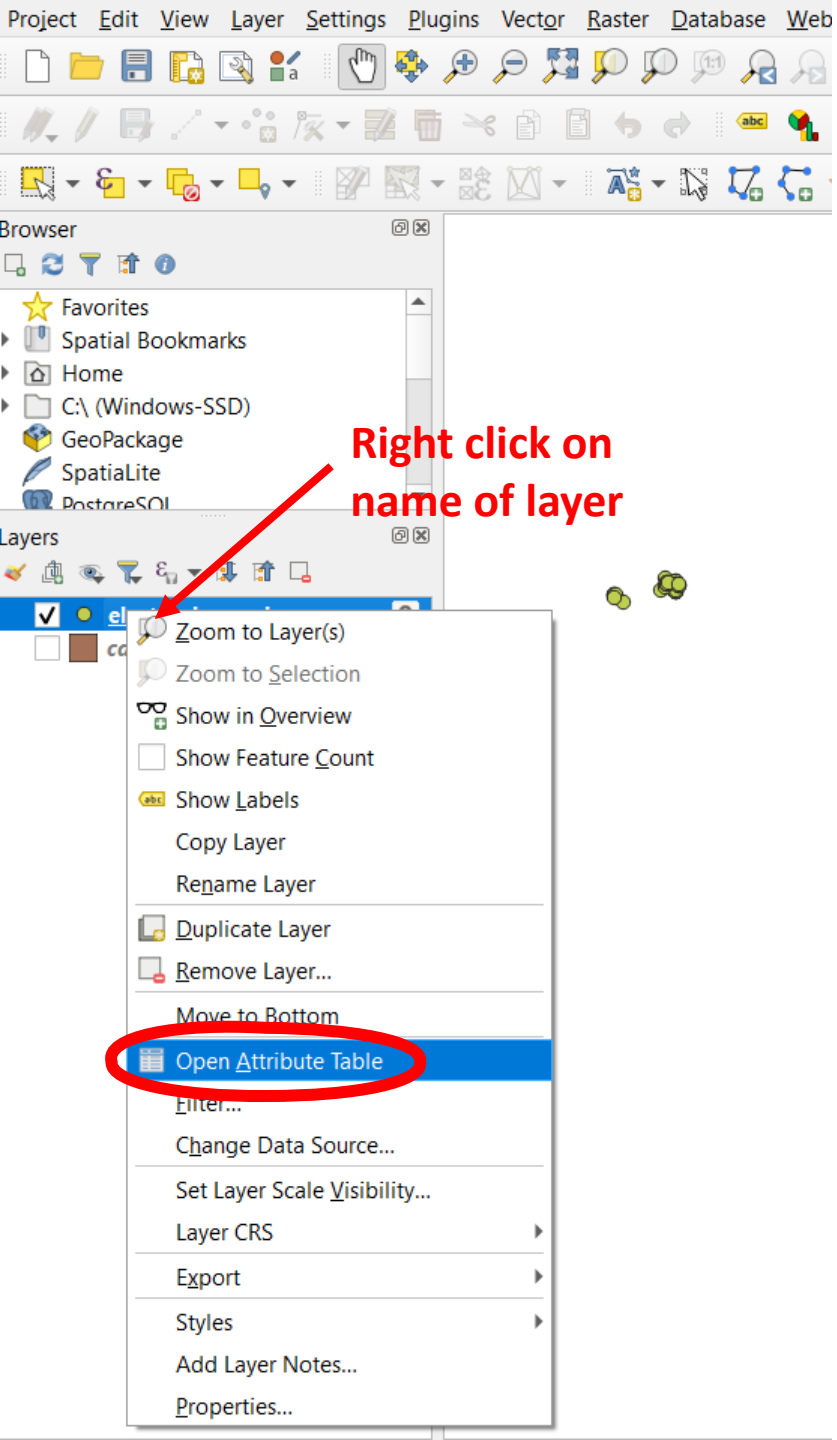
Right click on name of layer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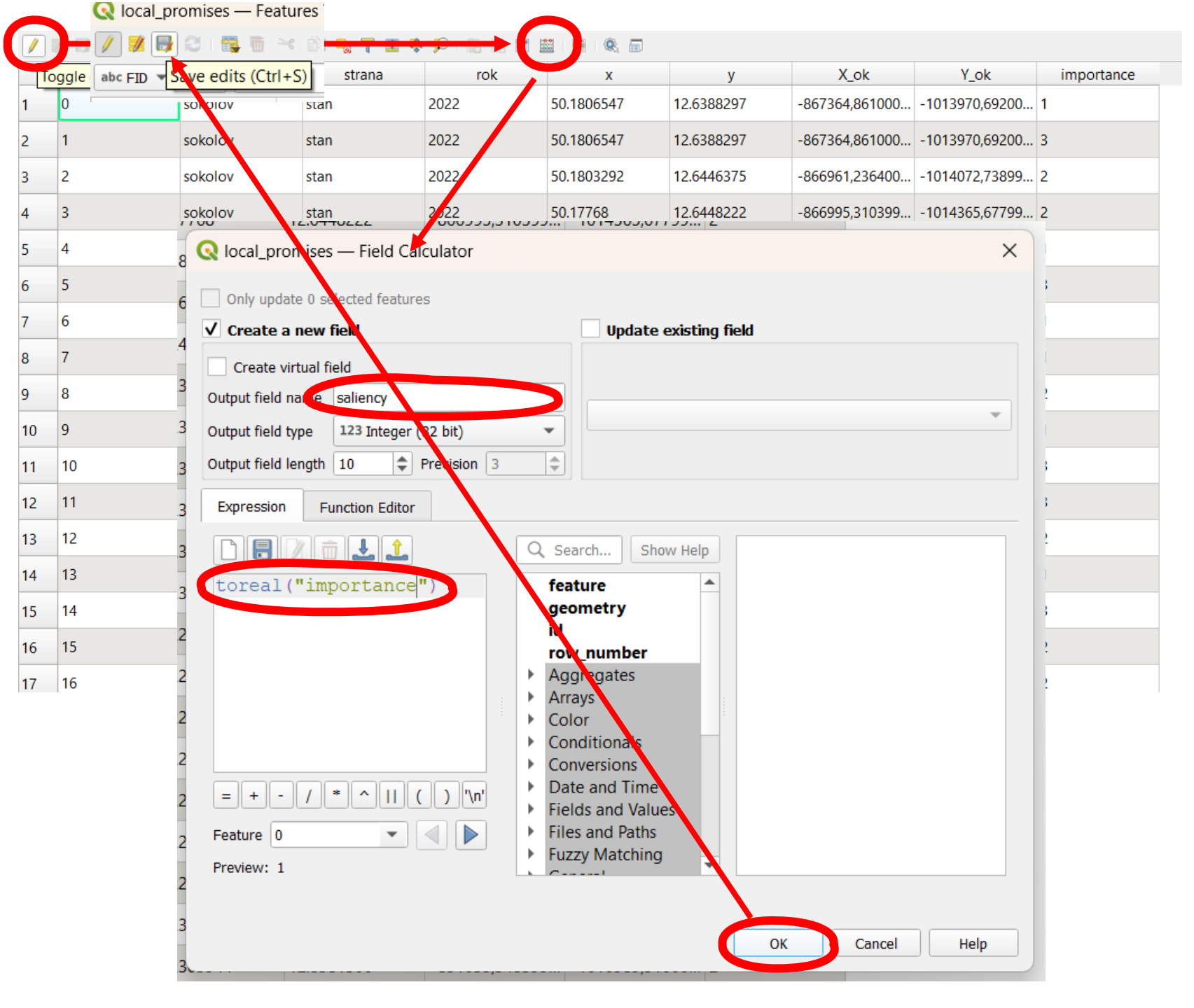
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4 3 sokolov stan 2022 50.17768 12.6448222 -866995,310399... -1014365,67799... 2
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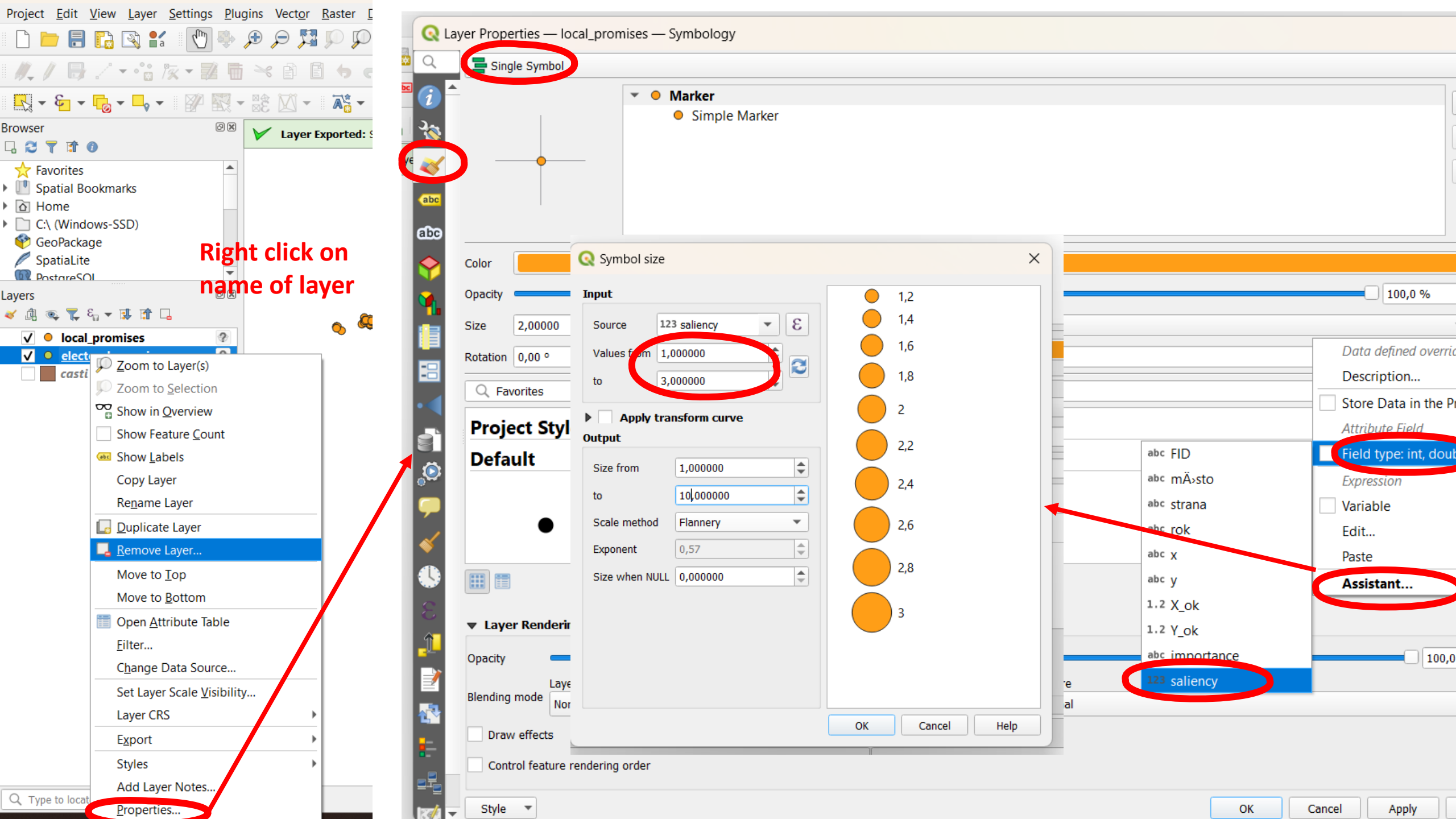
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local_promises
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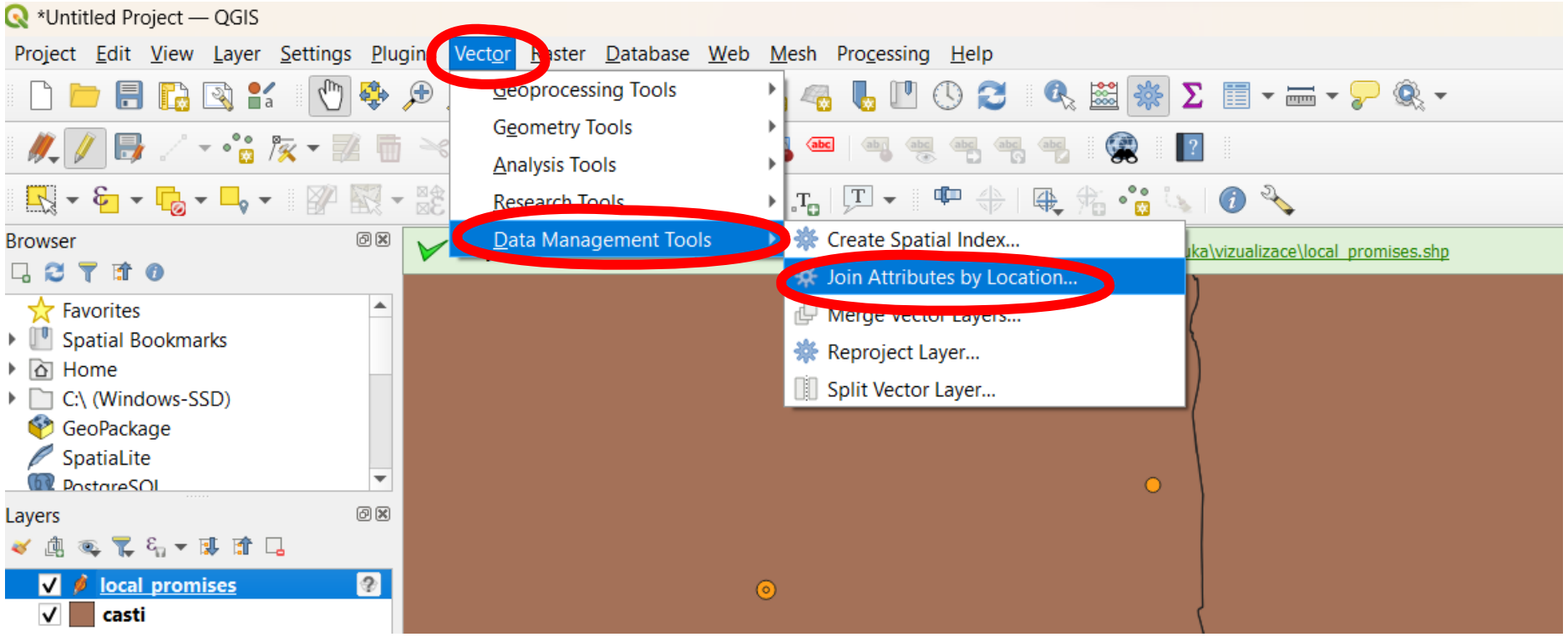
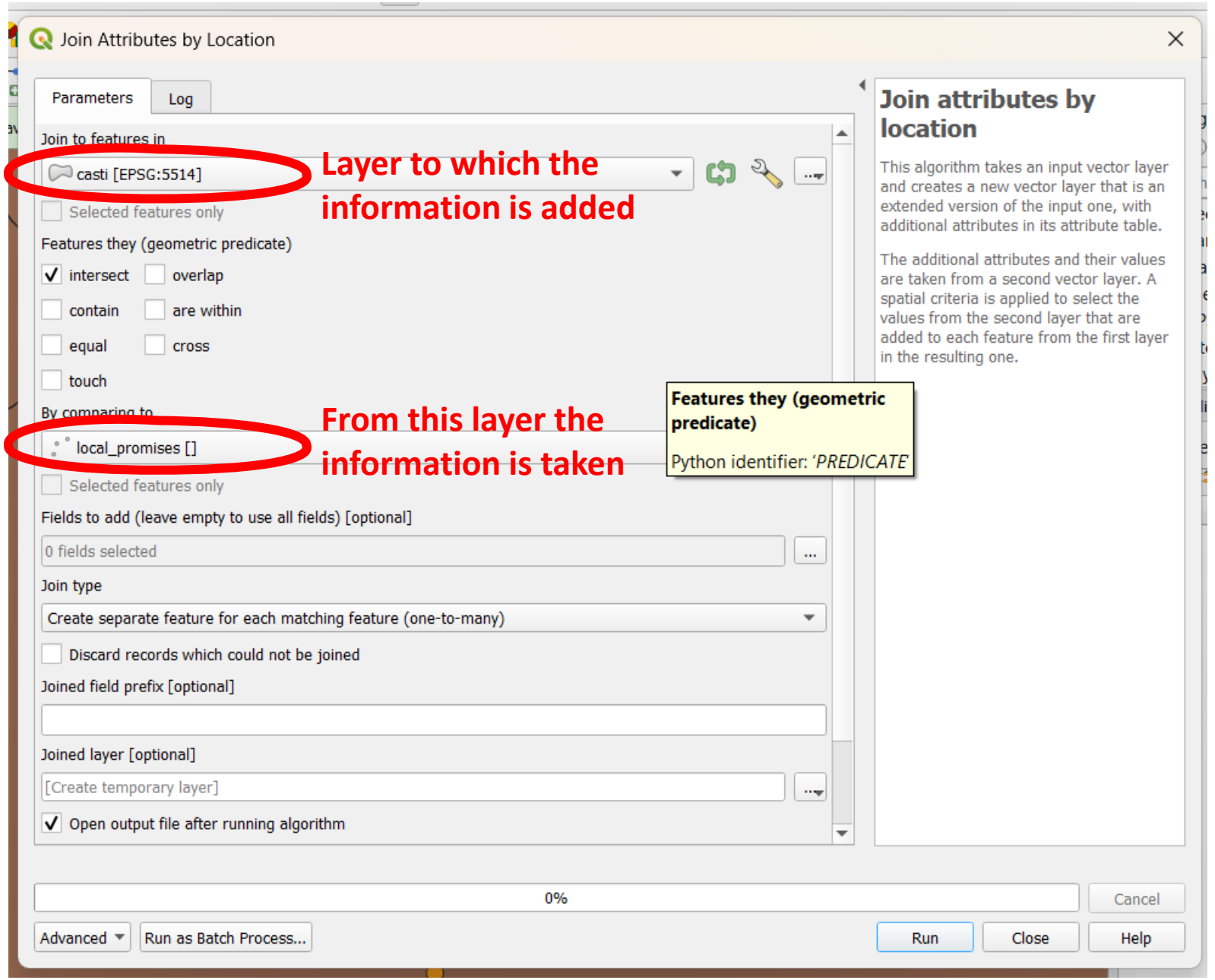
Spatial join

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are within
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local_promises []
From this layer the information is taken
Selected features only
Fields to add (leave empty to use all fields) [optional]
0 fields selected
Join type
Create separate feature for each matching feature (one-to-many)
Discard records which could not be joined
Joined field prefix [optional]
Joined layer [optional]
[Create temporary layer]
Open output file after running algorithm
Join attributes by location
This algorithm takes an input vector layer and creates a new vector layer that is an extended version of the input one, with additional attributes in its attribute table.
The additional attributes and their values are taken from a second vector layer. A spatial criteria is applied to select the values from the second layer that are added to each feature from the first layer in the resulting one.
Features they (geometric predicate)
Python identifier: 'PREDICATE'
0%
Cancel
Advanced
Run as Batch Process...
Run
Close
Help