

## In-class Tutorial for Mapping Census data

- 1) Open Qgis
- 2) Import the [federal electoral boundary shape file](#) from the Statistics Canada website
- 3) Download the Digital Boundary File, which is easier to upload into Qgis than the Cartographic Boundary File
- 4) Import the boundary file into Qgis
- 5) Log on to [Carleton Library's E-Resources](#) to gain access to the Canadian Census Analyser
- 6) Select "Federal Electoral District".
- 7) Select 2011 (cumulative) – FED's 2003 Representation Order".
- 8) Select the "by Province" tab and "check all"



Locate census geography (Federal Electoral Districts (2003 Representation Order)) in the data search.

What is GNR? - [see GNR definition](#) -

by Name  by Province

[-check all-](#) | [-uncheck all-](#)

<input checked="" type="checkbox"/> Alberta	<input checked="" type="checkbox"/> British Columbia	<input checked="" type="checkbox"/> Manitoba
<input checked="" type="checkbox"/> New Brunswick	<input checked="" type="checkbox"/> Newfoundland and Labrador	<input checked="" type="checkbox"/> Northwest Territories
<input checked="" type="checkbox"/> Nova Scotia	<input checked="" type="checkbox"/> Nunavut	<input checked="" type="checkbox"/> Ontario
<input checked="" type="checkbox"/> Prince Edward Island	<input checked="" type="checkbox"/> Quebec	<input checked="" type="checkbox"/> Saskatchewan
<input checked="" type="checkbox"/> Yukon		

9) Select the “Eth,Relig,Aborig” tab.

Step2: Specify NHS profile variables for retrieval

= NHS Profile: (0 selected)

Select the NHS Profile variables (-see definitions-) to include in your search.

Citiz, Imm	Imm, Gen	Eth,Relig, Aborig	Lang,Mobi, Edu	Wk,LFS, Occ	Ind, Wk	Trans	Hous	Inc			
Visible minority Total	Visible minority Males	Visible minority Females	Ethnic origin Total	Ethnic origin Males	Ethnic origin Females	Religion Total	Religion Males	Religion Females	Aboriginal population Total	Aboriginal population Males	Aboriginal population Females

[-remove all-](#)  
Selected items:

[-check all-](#) | [-uncheck all-](#)

Visible minority population - Both sexes

10) Select the “Ethnic origin Total” tab, and then “ Eastern European origins; Both sexes”; and Ukrainian; Both sexes”

- Swedish; Both sexes (v212)
- Northern European origins, n.i.e.; Both sexes (v213)
- Eastern European origins; Both sexes (v214)
- Bulgarian; Both sexes (v215)
- Byelorussian; Both sexes (v216)
- Czech; Both sexes (v217)
- Czechoslovakian, n.o.s.; Both sexes (v218)
- Estonian; Both sexes (v219)
- Hungarian; Both sexes (v220)
- Latvian; Both sexes (v221)
- Lithuanian; Both sexes (v222)
- Moldovan; Both sexes (v223)
- Polish; Both sexes (v224)
- Romanian; Both sexes (v225)
- Russian; Both sexes (v226)
- Slovak; Both sexes (v227)
- Ukrainian; Both sexes (v228)
- Eastern European origins, n.i.e.; Both sexes (v229)
- Southern European origins; Both sexes (v230)
- Albanian; Both sexes (v231)

- 11) Under Step 3, select the “Province code”; “FED code”; “Province name”; and “FED name”

**Step3: Specify the output details and submit query**

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**Output details:**

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Optionally include in the result:

Province code    Province name    Province GNR (%)  
 FED code    FED name    FED GNR (%)

NHS variables to be listed as: (apply only to Screen output format)

columns:  rows:

Optionally provide an email address for larger downloads notifications: (apply only to Download to a file output format)

- 12) Since we'll be uploading the file to Qgis, select the "CSV" format. Since this is a small file, there is no need to zip it.

**Step3: Specify the output details and submit query**

**- Output details:**

Optionally include in the result:

Province code    Province name    Province GNR (%)  
 FED code    FED name    FED GNR (%)

NHS variables to be listed as: (apply only to Screen output format)

columns:  rows:

Optionally provide an email address for larger downloads notifications: (apply)

Optionally enable zip file compression: (apply only to Download to a file output format)

none:  zip:

Select the output format:

Screen output

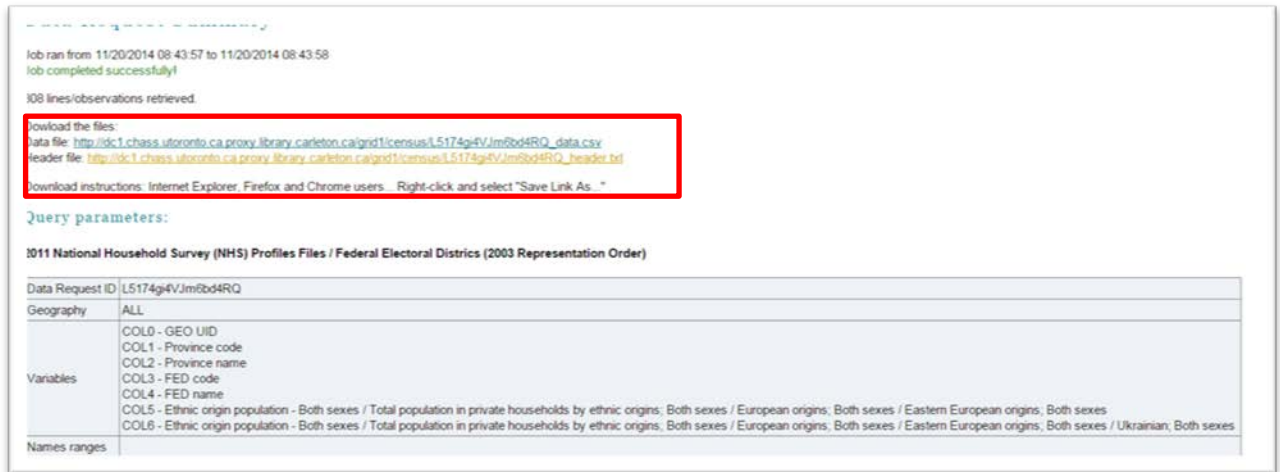
- Text
- HTML
- Comma-Separated Values (CSV) for spreadsheet
- MS Excel ready
- SAS
- SPSS

Download to a file

- Comma-Separated Values (CSV) file for spreadsheet**
- dBase (DBF) file

Submit Query. This will open a new tab or window in the browser.

13) Submit the query.



Job ran from 11/20/2014 08:43:57 to 11/20/2014 08:43:58  
Job completed successfully!  
109 lines/observations retrieved.

Download the files:  
Data file: [http://dc1.cbass.utoronto.ca/proxy.library.carleton.ca/gnd1/census/LS174g4VJm6b4RQ\\_data.csv](http://dc1.cbass.utoronto.ca/proxy.library.carleton.ca/gnd1/census/LS174g4VJm6b4RQ_data.csv)  
Header file: [http://dc1.cbass.utoronto.ca/proxy.library.carleton.ca/gnd1/census/LS174g4VJm6b4RQ\\_header.txt](http://dc1.cbass.utoronto.ca/proxy.library.carleton.ca/gnd1/census/LS174g4VJm6b4RQ_header.txt)

Download instructions: Internet Explorer, Firefox and Chrome users: Right-click and select "Save Link As."

Query parameters:

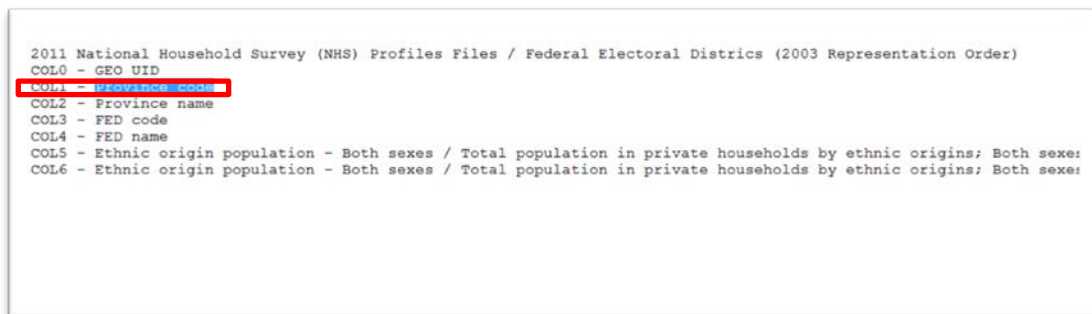
2011 National Household Survey (NHS) Profiles Files / Federal Electoral Districts (2003 Representation Order)

Data Request ID	LS174g4VJm6b4RQ
Geography	ALL
Variables	COL0 - GEO UID COL1 - Province code COL2 - Province name COL3 - FED code COL4 - FED name COL5 - Ethnic origin population - Both sexes / Total population in private households by ethnic origins; Both sexes / European origins; Both sexes / Eastern European origins; Both sexes COL6 - Ethnic origin population - Both sexes / Total population in private households by ethnic origins; Both sexes / European origins; Both sexes / Eastern European origins; Both sexes / Ukrainian; Both sexes
Names ranges	

14) Save the data file in the folder you'll be using for this exercise.

15) Right-click on the header file and save to the same folder.

16) Using the header file as our guide....



```
2011 National Household Survey (NHS) Profiles Files / Federal Electoral Districts (2003 Representation Order)
COL0 - GEO UID
COL1 - Province code
COL2 - Province name
COL3 - FED code
COL4 - FED name
COL5 - Ethnic origin population - Both sexes / Total population in private households by ethnic origins; Both sexes;
COL6 - Ethnic origin population - Both sexes / Total population in private households by ethnic origins; Both sexes;
```

17) Let's rename the boundary file to something that makes a bit more sense. We can call it "UkrainiansInRidings".

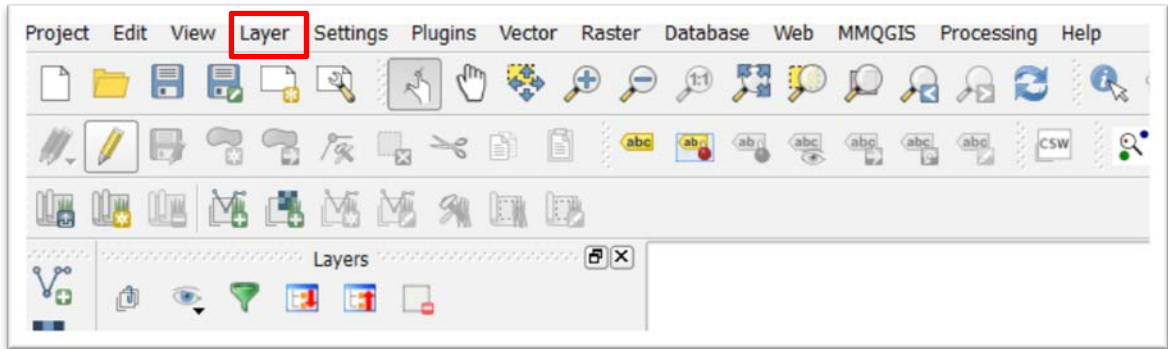
18) Open the csv file and change the column names to more recognizable labels. Unlike ArcMap, we don't have to limit the titles to 10 characters, though we should make them as short as possible. Or we can simply import the table to Qgis and use the "Alias" option in the "Fields" section of the Layer Properties dialogue box to change the names. Since we've used the alias option for re-naming fields in the [first ArcMap tutorial](#), let's repeat the process in Qgis once we import the files.

19) Pull the boundary file into Qgis by selecting the "Add Vector Layer"

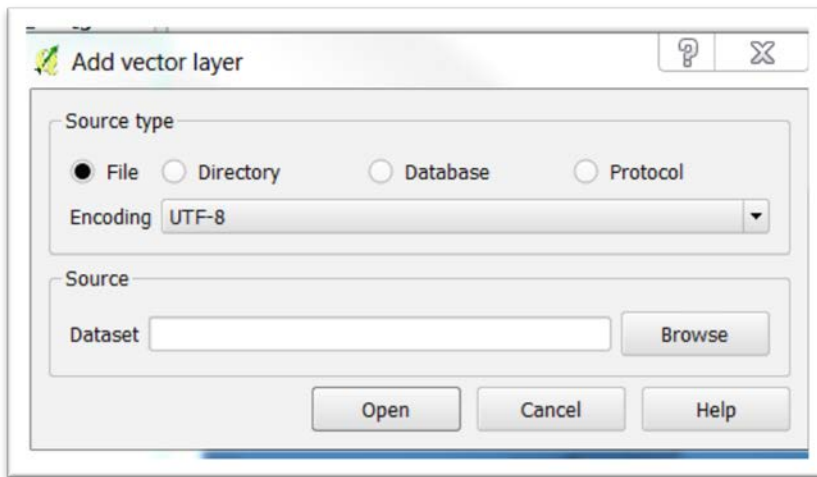


option from the "Layer" section of the menu across the top. If you

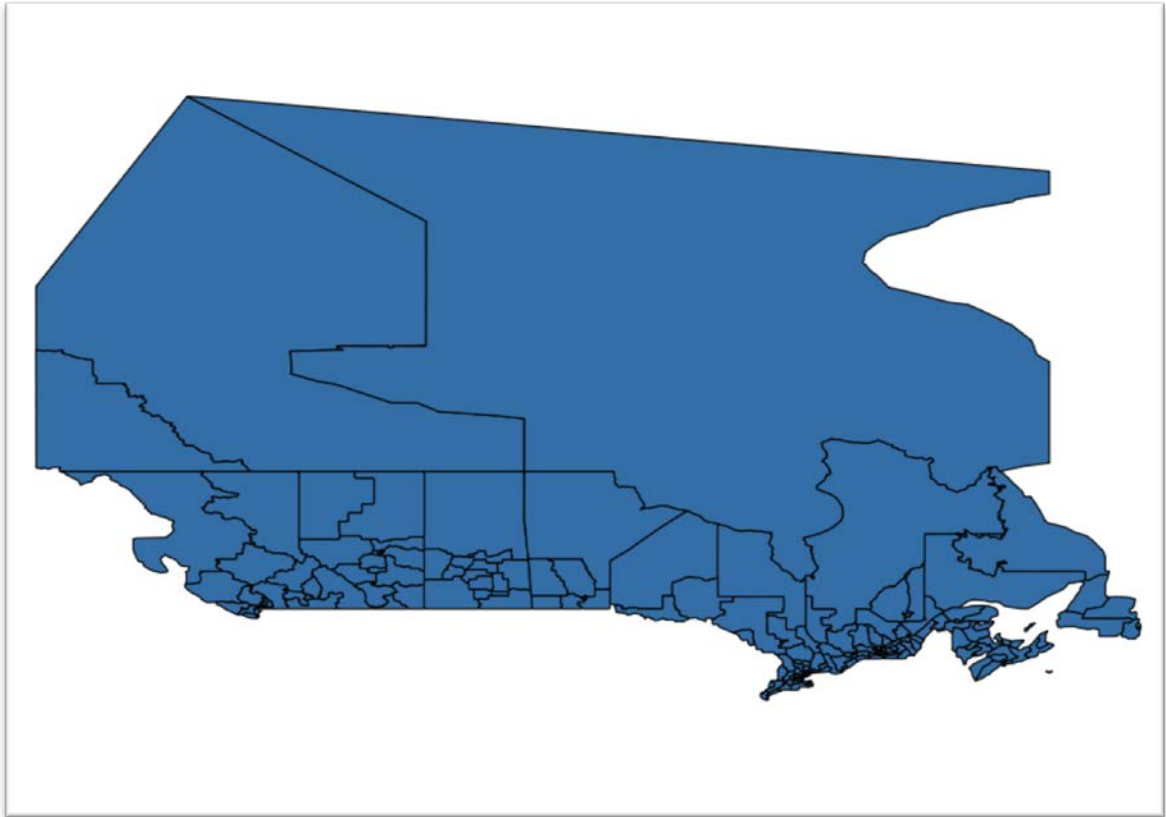
have one of the most recent versions of Qgis, the icon is also located in the vertical menu to the left of the table of contents



20) Selecting this icon will produce the same dialogue box we saw in the [first Qgis tutorial](#).



- 21) Browse for the shape file – the same one we used for the previous Qgis tutorial.



- 22) Right-click on the “Add vector layer” dialogue box name to see the attribut table

Attribute table - gfed000a11a\_e :: Features total: 308, filtered: 308, selected: 0

	FEDUID	FEDNAME	FEDENAME	FEDFNAME	PRUID	PRNAME
	24038	Louis-Saint-La...	Louis-Saint-La...	Louis-Saint-La...	24	Quebec / Qu...
	35082	Scarborough ...	Scarborough ...	Scarborough ...	35	Ontario
	46005	Elmwood - Tr...	Elmwood - Tr...	Elmwood - Tr...	46	Manitoba
	35003	Ancaster - Du...	Ancaster - Du...	Ancaster - Du...	35	Ontario
	24068	Saint-Maurice...	Saint-Maurice...	Saint-Maurice...	24	Quebec / Qu...
	48025	Westlock - St...	Westlock - St...	Westlock - St...	48	Alberta
	35070	Perth - Wellin...	Perth - Wellin...	Perth - Wellin...	35	Ontario
	35042	London - Fans...	London - Fans...	London - Fans...	35	Ontario
	35098	Wellington - H...	Wellington - H...	Wellington - H...	35	Ontario
	35019	Eglinton - Law...	Eglinton - Law...	Eglinton - Law...	35	Ontario
0	1	Burnaby - Dou...	Burnaby - Dou...	Burnaby - Dou...	59	British Colum...

- 23) The labels are already there so we don't have to make any changes.



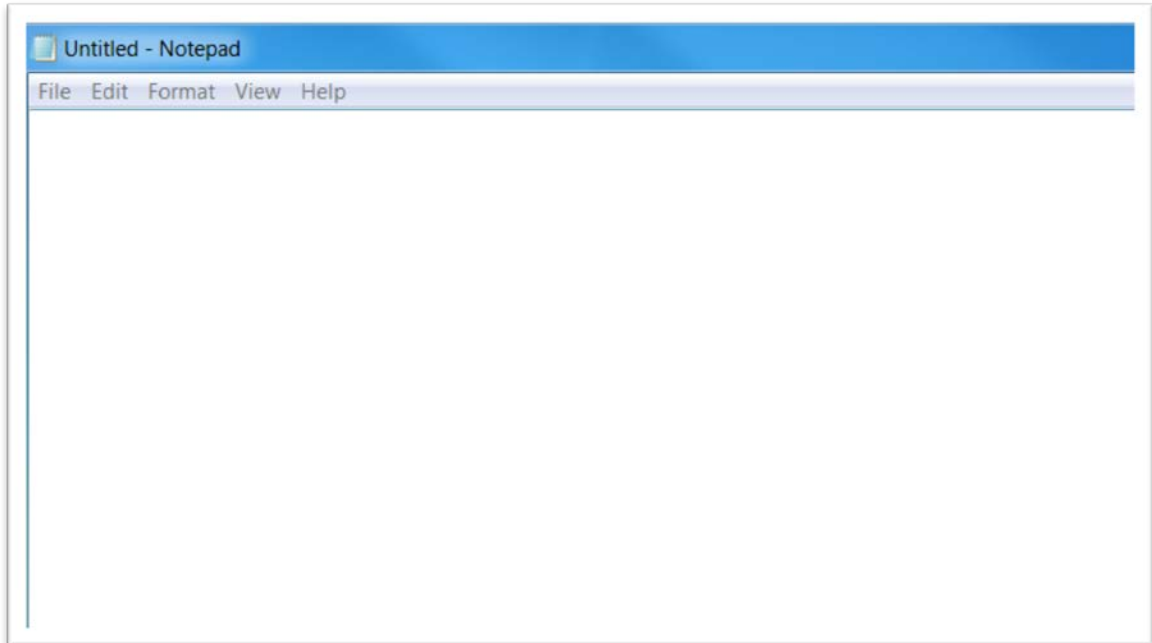
- 24) Unlike ArcMap which imported the French-language names cleanly, Qgis replaces the accented characters with black question marks. If these labels are important, or if you're exporting the file to use in another program, or to visualize using Fusion Tables or Tableau, then you can find a way to import a cleaner version in Qgis by choosing the proper encoding. However, don't worry about that for this tutorial. So let's continue.
- 25) Close the attribute table.
- 26) Now before we browse for the CSV file, we must create a companion CSVT file, which we will place in the same folder.
- 27) In order for QGIS to recognize the format type of each column in the CSV file, we have to create a ".CSVT" file, which contains the datatype specifications.
- 28) So let's rename the CSV "EthnicOrigin", and open it to see the generic column labels.

	A	B	C	D	E	F	G
1	COL0	COL1	COL2	COL3	COL4	COL5	COL6
2	10001	10	Newfoundland and Labrador	1	Avalon	400	165
3	10002	10	Newfoundland and Labrador	2	Bonavista - Gander - Grand Falls - Windsor	245	35
4	10003	10	Newfoundland and Labrador	3	Humber - St. Barbe - Baie Verte	285	45
5	10004	10	Newfoundland and Labrador	4	Labrador	60	15
6	10005	10	Newfoundland and Labrador	5	Random - Burin - St. George's	205	35
7	10006	10	Newfoundland and Labrador	6	St. John's East	1480	265
8	10007	10	Newfoundland and Labrador	7	St. John's South - Mount Pearl	900	315
9	11001	11	Prince Edward Island	1	Cardigan	850	160
10	11002	11	Prince Edward Island	2	Charlottetown	790	335
11	11003	11	Prince Edward Island	3	Egmont	355	135
12	11004	11	Prince Edward Island	4	Malpeque	655	225
13	12001	12	Nova Scotia	1	Cape Breton - Canso	2005	525
14	12002	12	Nova Scotia	2	Central Nova	1670	420
15	12003	12	Nova Scotia	3	Dartmouth - Cole Harbour	2995	1220
16	12004	12	Nova Scotia	4	Halifax	4690	1230
17	12005	12	Nova Scotia	5	Halifax West	3635	965
18	12006	12	Nova Scotia	6	Kings - Hants	1790	670
19	12007	12	Nova Scotia	7	Cumberland - Colchester - Musquodoboit Valley	1315	560
20	12008	12	Nova Scotia	8	Sackville - Eastern Shore	2365	770
21	12009	12	Nova Scotia	9	South Shore - St. Margaret's	1405	585
22	12010	12	Nova Scotia	10	Sidney - Victoria	2985	1000

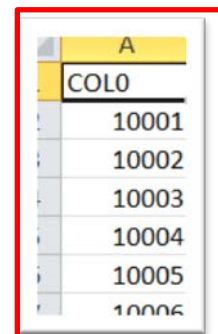
- 29) We can rename column labels here, but as we suggested earlier, let's wait to do that in Qgis. For now, take note of the generic file names. (NOTE: this is where it helps to have two monitors.)



- 30) To create a CSV file that assigns the format type to the values in each column: “Integer” for the numbers and “String” for the text. These labels are case sensitive.
- 31) To do this, open a Notepad.



- 32) And assign a data type for each column: “[String](#)” so that Qgis knows to import the columns with name as text; and “[Integer](#)” so that Qgis knows to import the columns with numbers as numeric values.



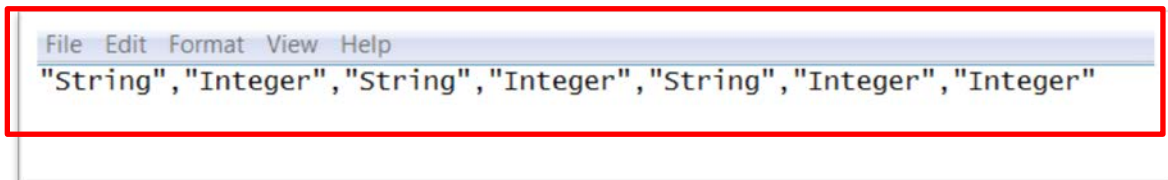
A
COLO
10001
10002
10003
10004
10005
10006


- 33) Now here’s the trick. The “COLO” field contains the ID values that we want to link to the “FEDUID” column in the

	FEDUID
0	24038
1	35082
2	46005
3	35003
4	24068
5	48025
6	35070
7	35042
8	35098

federal riding boundary file. You'll notice that the values "FEDUID" field are left-justified, meaning that Qgis is treating them as text. The values in the "COLO" column are right-justified, meaning that the CSV considers them to be numbers. In order to join these two columns in Qgis, they need to be the same format, in this case, text.

- 34) So we have to use the CSVT file to, in essence, trick Ggis into thinking that the "COLO" file is text. To do that, we must identify each column with text as a "String". Your CSVT file should look like this:



- 35) Notice that quotation marks bracket each label in the CSVT file, separated by a comma. To ensure that Qgis pulls in the "COLO" column as a text file, we have identified it as a "String."
- 36) Save this file, using the same name as the boundary file, "EthnicOrigin". Also be sure to save it in the same folder that contains the boundary file, allowing Qgis to use it as a reference point when determining how to read the information in the table. Now we're ready to import the "EthnicOrigin" CSV file.
- 37) Return to the "Layer" section of the menu, select the "Add Layer" option, and then "Add Delimited Text Layer" icon  to browse for the CSV file. As with the icon for importing the boundary file, you can also find

this icon on the vertical menu to the left of the Layer table of contents.



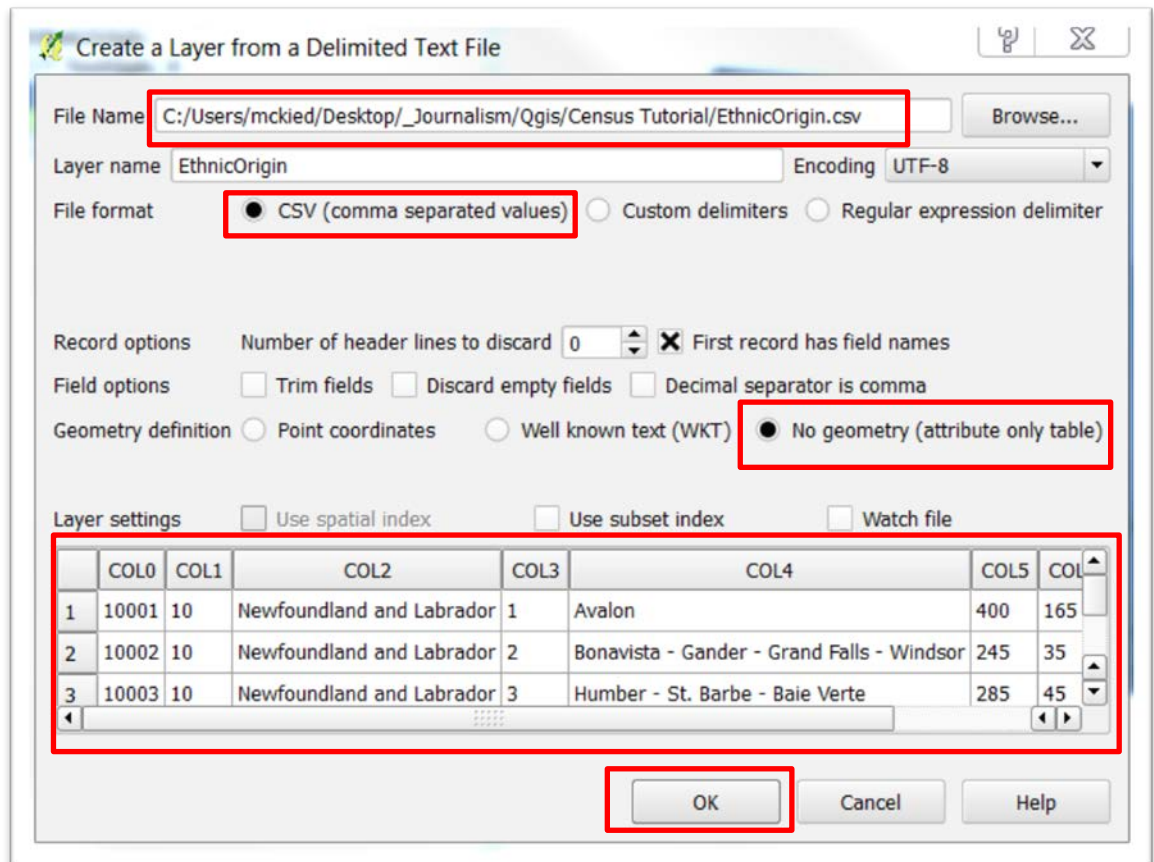
38) Choose either method to browse for your file.

The screenshot shows a dialog box titled "Create a Layer from a Delimited Text File". It contains the following fields and options:

- File Name:** A text input field with a "Browse..." button to its right.
- Layer name:** A text input field.
- Encoding:** A dropdown menu currently set to "UTF-8".
- File format:** Three radio buttons: "CSV (comma separated values)" (selected), "Custom delimiters", and "Regular expression delimiter".
- Record options:** "Number of header lines to discard" (input field with "0"), "First record has field names" (checked checkbox).
- Field options:** "Trim fields", "Discard empty fields", and "Decimal separator is comma" (all unchecked checkboxes).
- Geometry definition:** Three radio buttons: "Point coordinates", "Well known text (WKT)", and "No geometry (attribute only table)" (selected).
- Layer settings:** "Use spatial index", "Use subset index", and "Watch file" (all unchecked checkboxes).

At the bottom, there is a large empty text area, the text "Please select an input file", and three buttons: "OK", "Cancel", and "Help".

39) As we noted above, you can change the “Encoding” to correspond with your file’s coding so that the French-Language names are imported cleanly. However, we won’t worry about that right now.



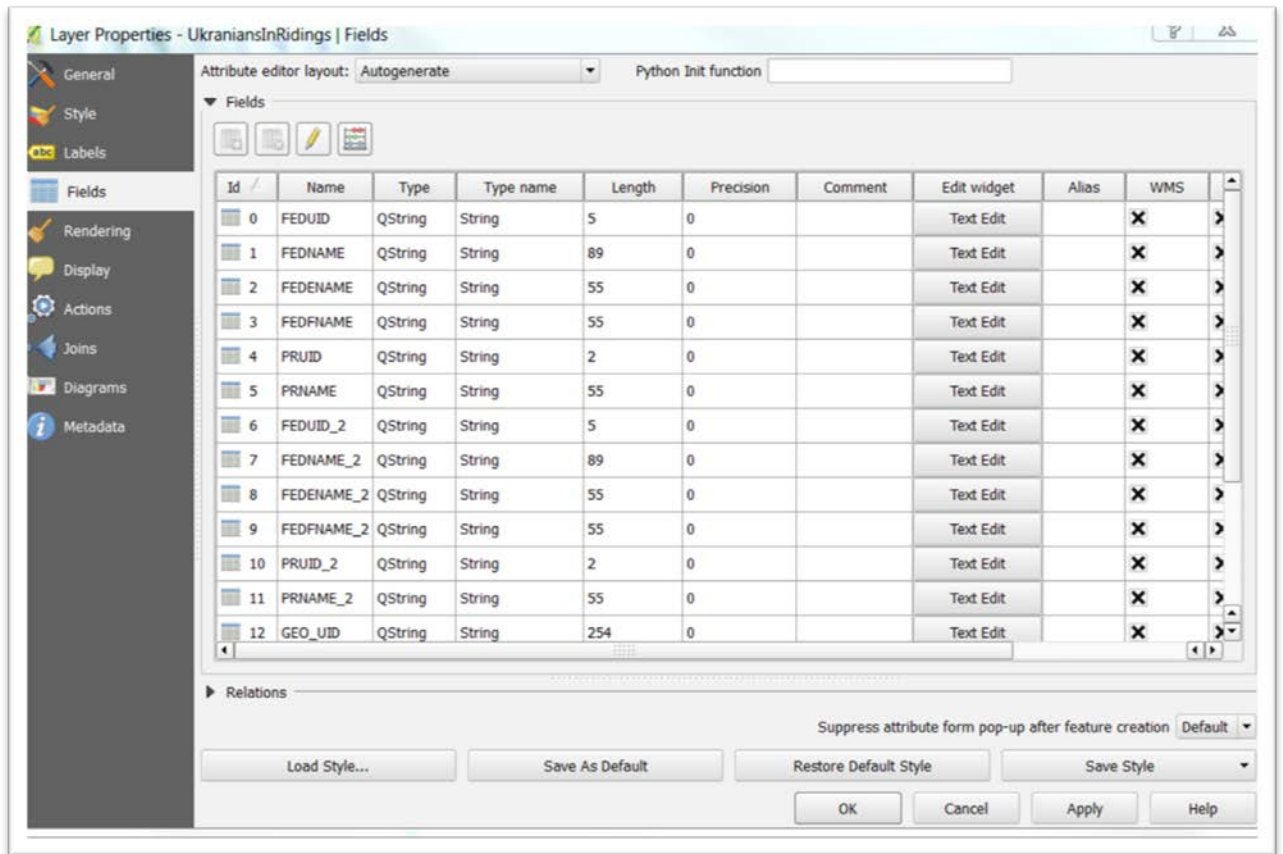
40) Qgis' import wizard defaults to csv.

Attribute table - EthnicOrigin : Features total: 308, filtered: 308, selected: 0

	COL0	COL1	COL2	COL3	COL4	COL5	COL6
0	10001	10	Newfoundland and Labrador	1	Avalon	400	165
1	10002	10	Newfoundland and Labrador	2	Bonavista - Gander - Grand Falls - Windsor	245	35
2	10003	10	Newfoundland and Labrador	3	Humber - St. Barbe - Baie Verte	285	45
3	10004	10	Newfoundland and Labrador	4	Labrador	60	15
4	10005	10	Newfoundland and Labrador	5	Random - Burin - St. George's	205	35
5	10006	10	Newfoundland and Labrador	6	St. John's East	1480	265
6	10007	10	Newfoundland and Labrador	7	St. John's South - Mount Pearl	900	315
7	11001	11	Prince Edward Island	1	Cardigan	850	160
8	11002	11	Prince Edward Island	2	Charlottetown	790	335
9	11003	11	Prince Edward Island	3	Egmont	355	135
10	11004	11	Prince Edward Island	4	Malpeque	655	225
11	12001	12	Nova Scotia	1	Cape Breton - Conso	2005	525
12	12002	12	Nova Scotia	2	Central Nova	1670	420
13	12003	12	Nova Scotia	3	Dartmouth - Cole Harbour	2995	1220
14	12004	12	Nova Scotia	4	Halifax	4690	1230
15	12005	12	Nova Scotia	5	Halifax West	3635	965
16	12006	12	Nova Scotia	6	Kings - Hants	1790	670
17	12007	12	Nova Scotia	7	Cumberland - Colchester - Musquodoboit Valley	1315	560
18	12008	12	Nova Scotia	8	Sackville - Eastern Shore	2365	770
19	12009	12	Nova Scotia	9	South Shore - St. Margaret's	1405	585
20	12010	12	Nova Scotia	10	Sydney - Victoria	2985	1000
21	12011	12	Nova Scotia	11	West Nova	1660	580
22	13001	13	New Brunswick	1	Acadie - Bathurst	225	35
23	13002	13	New Brunswick	2	Beauséjour	880	310

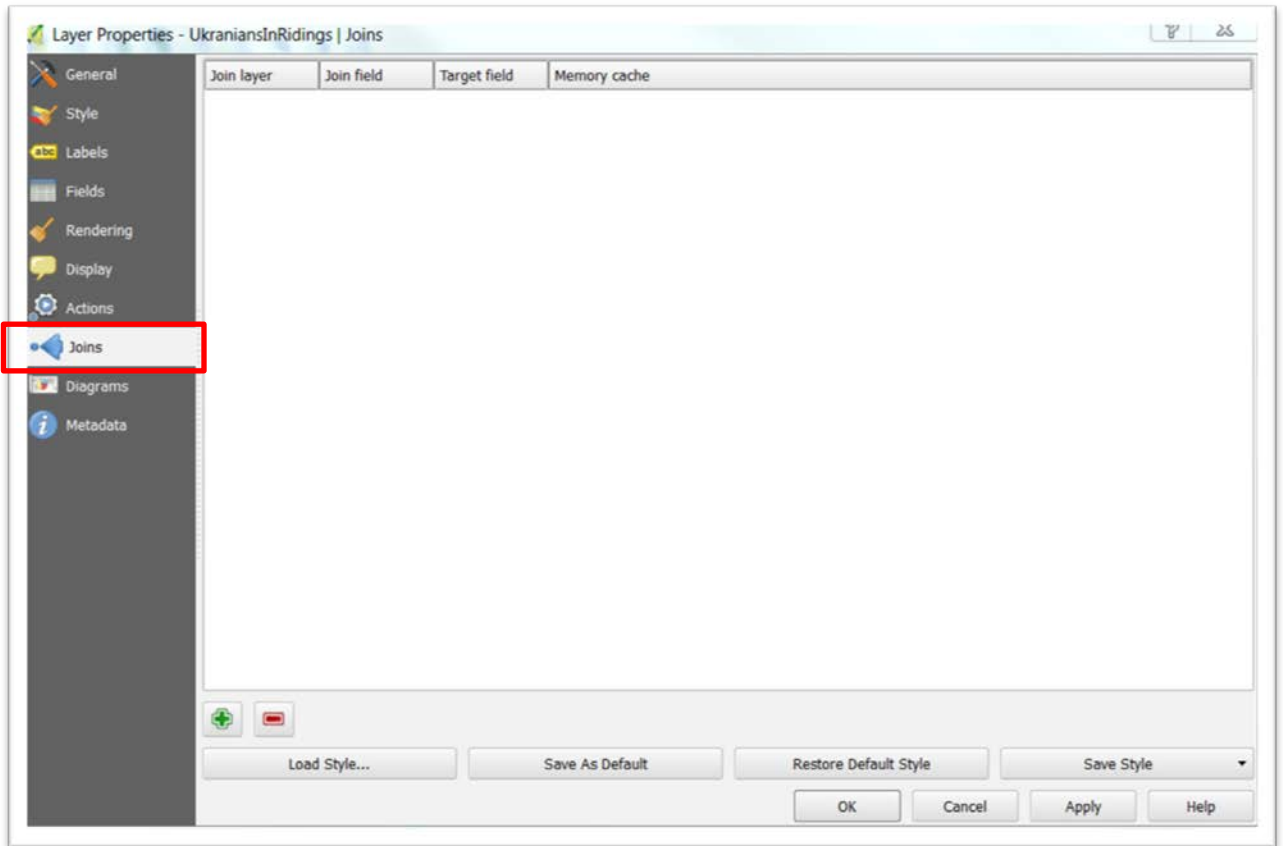
41) You'll notice that the values in the "COLO" column are left-justified; in other words, formatted as text.

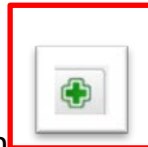
- 42) Now let's join the two files by right-clicking on the "UkrainiansInRidings" boundary layer and selecting the "Properties" option.



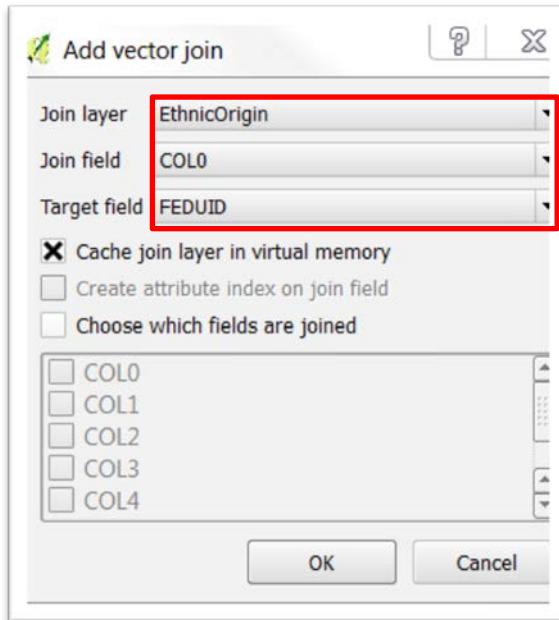


43) Select the “Joins” option from your vertical menu to the left.

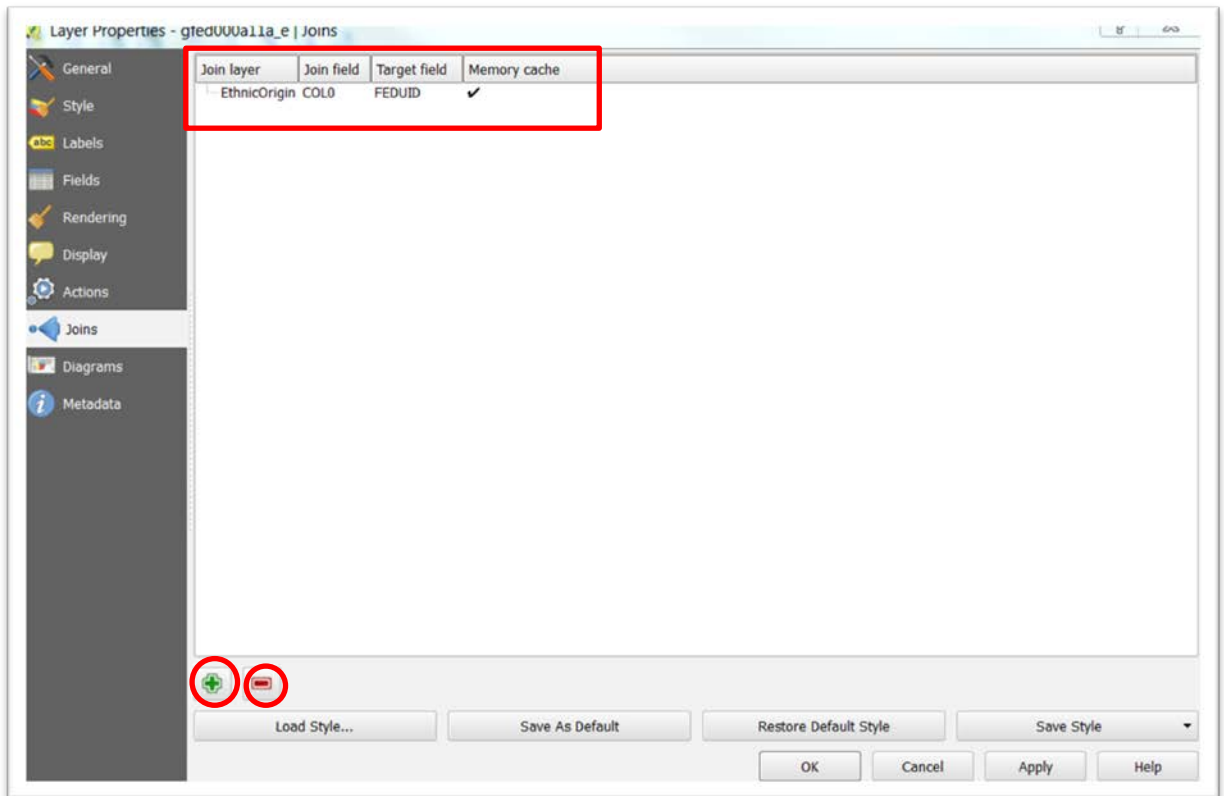




44) Select the green addition icon to produce an “Add vector join” dialog box.

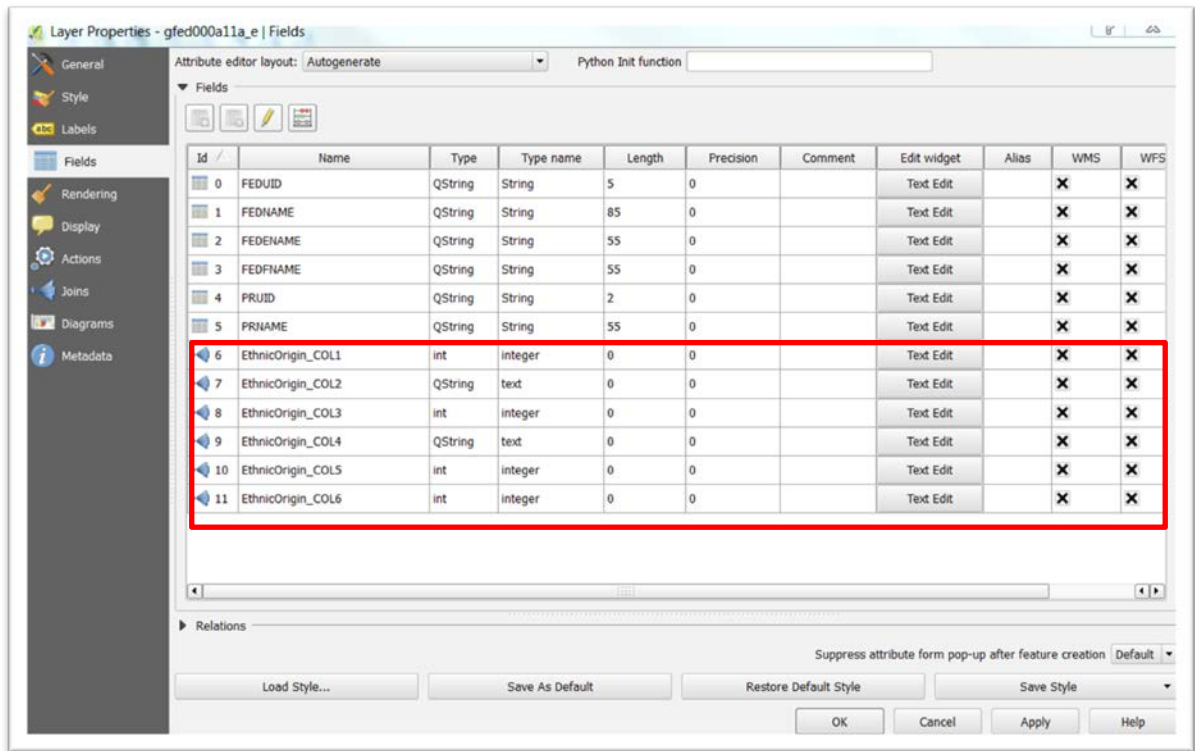


- 45) “EthnicOrigin” is your “Join layer. COLO and FEDUID are the two columns Qgis will now be able to join to create a new table.

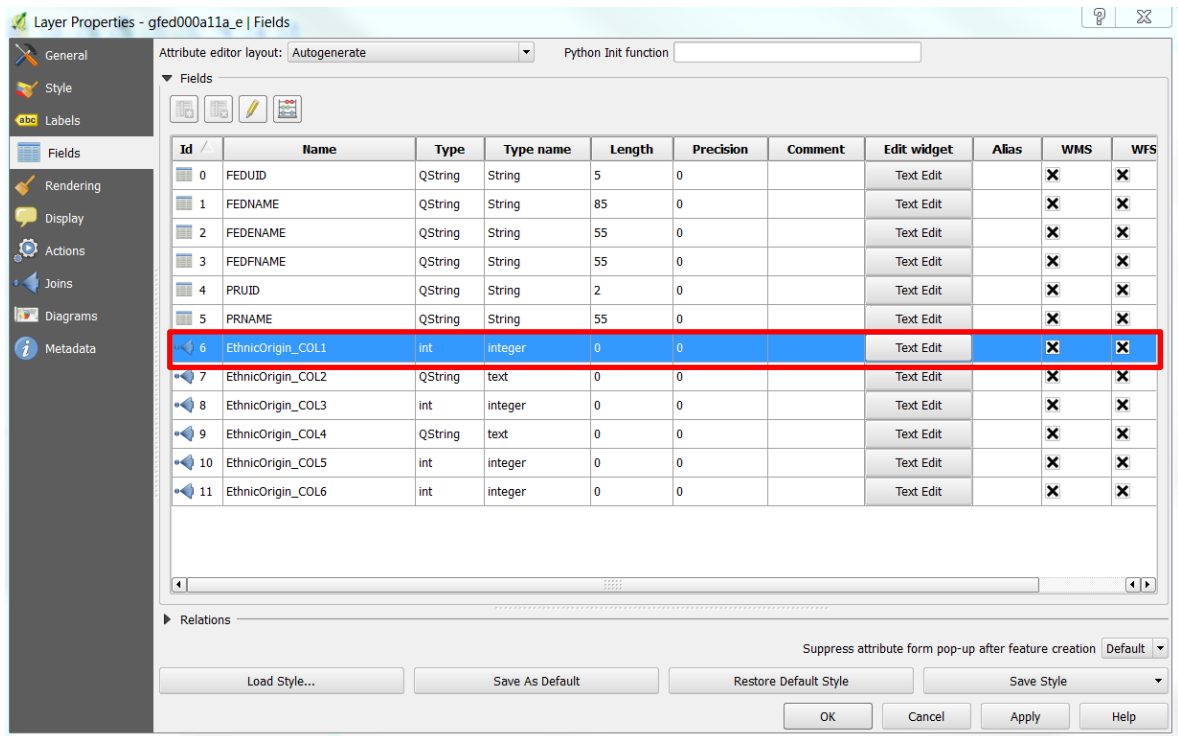


- 46) NOTE: If you join the incorrect layer, you can simply click on the minus icon to delete the layer, re-select the plus icon, and chose the correct layer. Before selecting OK, let’s change the labels in the EthnicOrigin file.

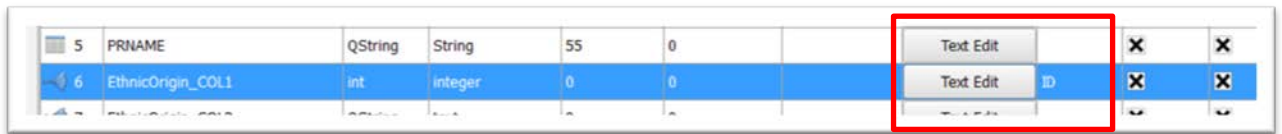
47) Select "Fields" from your menu.



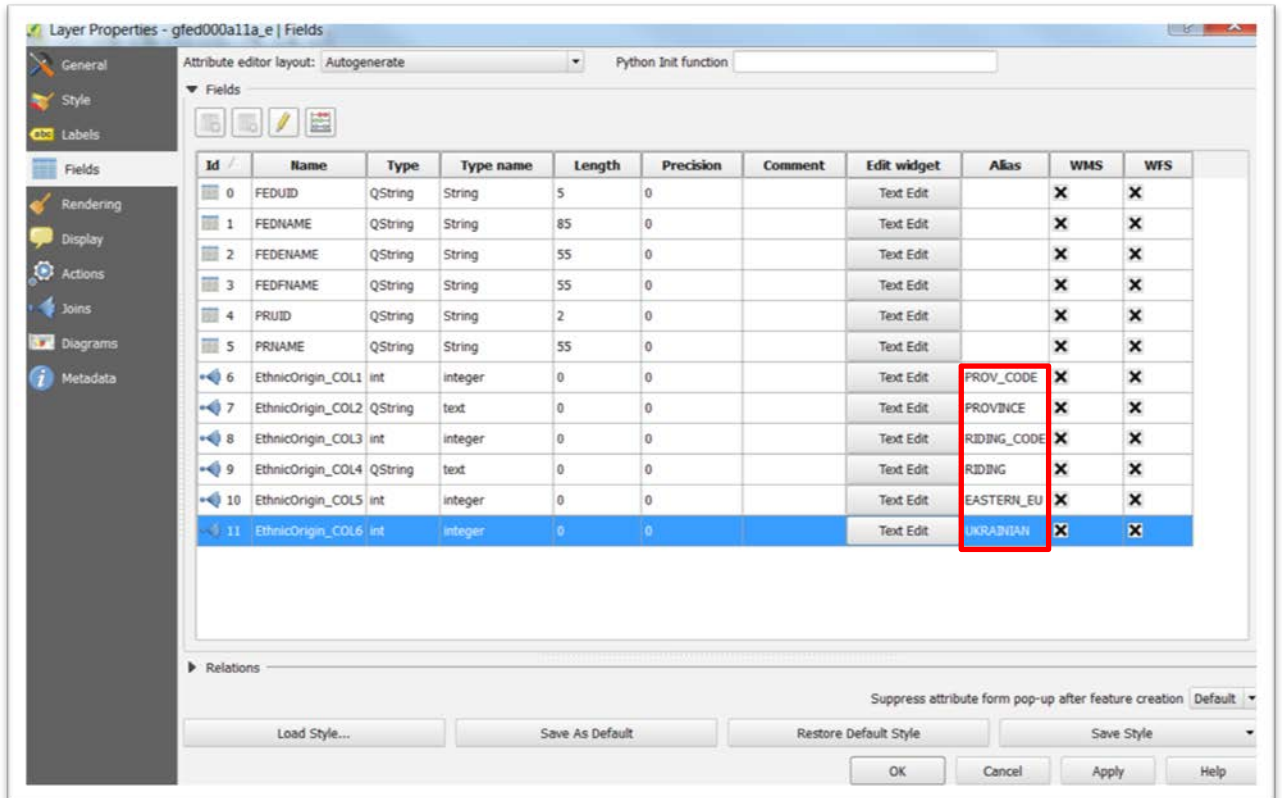
48) As we did in ArcMap, click on each of the column names in the 'EthnicOrigin' file,



49) .....and then double-click inside the “Alias” box to Type your new name.



50) Repeat the process for the rest of the column names.



51) You’ll notice that the COLO column wasn’t there. It was used to join the two fields. So not to worry. Select the “Apply” then “OK” tabs to return

to your enhanced layer.

FEDFNAME	PRUID	PRNAME	PROV_CODE	PROVINCE	RIDING_CODE	RIDING	EASTERN_EU	UKRAINIAN
Abbotsford	59	1	59	British Columbia	1	Abbotsford	18260	6650
Abitibi - Baie-James	24	0	24	Quebec	46	Abitibi - Baie-James - Nunavik - E...	895	135
Abitibi - Temiscamingue	24	0	24	Quebec	1	Abitibi - Temiscamingue	895	230
Acadie - Bathurst	13	0	13	New Brunswick	1	Acadie - Bathurst	225	35
Ahuntsic	24	0	24	Quebec	2	Ahuntsic	3120	335
Ajax - Pickering	35	0	35	Ontario	1	Ajax - Pickering	8200	2550
Alfred-Pellan	24	0	24	Quebec	3	Alfred-Pellan	2385	340
Algoma - Manitoulin - Kapuskasing	35	0	35	Ontario	2	Algoma - Manitoulin - Kapuskasing	4325	1800
Ancaster - Dundas - Flamborough	35	0	35	Ontario	3	Ancaster - Dundas - Flamborough	15015	4505
Argenteuil - Papineau - Mirabel	24	0	24	Quebec	4	Argenteuil - Papineau - Mirabel	1490	245
Avalon	10	0	10	Newfoundland...	1	Avalon	400	165
Barrie	35	0	35	Ontario	4	Barrie	12490	4155
Bas-Richelieu - Nicolet - Bouché	24	0	24	Quebec	54	Bas-Richelieu - Nicolet - Bouché	215	15
Battlefords - Lloydminster	47	0	47	Saskatchewan	1	Battlefords - Lloydminster	13630	7520
Beaches - East York	35	0	35	Ontario	5	Beaches - East York	10430	3150
Beauce	24	0	24	Quebec	5	Beauce	110	0
Beauharnois - Salaberry	24	0	24	Quebec	6	Beauharnois - Salaberry	1350	155
Beauport - Limoilou	24	0	24	Quebec	7	Beauport - Limoilou	670	135
Beauséjour	13	0	13	New Brunswick	2	Beauséjour	880	310
Berthier - Maskinongé	24	0	24	Quebec	8	Berthier - Maskinongé	325	120
Blackstrap	47	0	47	Saskatchewan	2	Blackstrap	21615	13325
Bonavista - Gander - Grand Falls	10	0	10	Newfoundland...	2	Bonavista - Gander - Grand Falls	245	35
Bourassa	24	0	24	Quebec	9	Bourassa	1410	240
Bramalea - Gore - Malton	35	0	35	Ontario	6	Bramalea - Gore - Malton	6110	1610
Brampton - Springdale	35	0	35	Ontario	7	Brampton - Springdale	5980	1620

- 52) Scrolling to the right, you can see that the EthnicOrigins table with the newly named columns has been added.
- 53) Now let's pull in the file that contains the MPs names and political parties to see which Conservative MPs have the ridings with the largest Ukrainian populations.
- 54) Right-click on the [RidingsandParties](#) CSV file and save it in your folder.

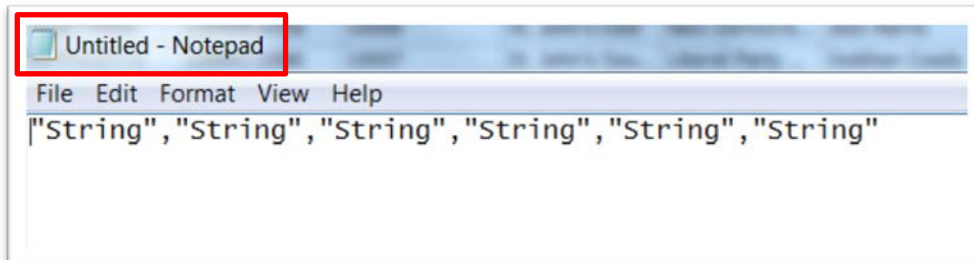
	A	B	C	D	E	F
1	AREA	PERIMETER	FED_NUM	ED_NAMEE	party__	mp
2	1397175077	566627.9435		10001 Avalon	Liberal Party of Canada	Scott Andrews
3	4263320539	999301.3347		10002 Bonavista--Gander--Grand Falls--Windsor	Liberal Party of Canada	Scott Simms
4	4925699979	1098272.143		10003 Humber--St. Barbe--Baie Verte	Liberal Party of Canada	Gerry Byrne
5	3.35E+1	5762462.46		10004 Labrador	Liberal Party of Canada	Todd Russell
6	5445961067	1319334.271		10005 Random--Burin--St. George's	Liberal Party of Canada	Judy Foote
7	102677908	150499.6768		10006 St. John's East	New Democratic Party	Jack Harris
8	527743577	109947.0586		10007 St. John's South--Mount Pearl	Liberal Party of Canada	Siobhan Coady
9	412916764	280646.8442		11001 Cardigan	Liberal Party of Canada	Lawrence MacAulay
10	54812559.4	39208.07613		11002 Charlottetown	Liberal Party of Canada	Shawn Murphy
11	214479306	256735.4577		11003 Egmont	Conservative Party of Canada	Gail Shea
12	261927583	258338.5484		11004 Malpeque	Liberal Party of Canada	Wayne Easter
13	1234172859	734049.0032		12001 Cape Breton--Canso	Liberal Party of Canada	Rodger Cuzner
14	1163806369	703160.638		12002 Central Nova	Conservative Party of Canada	Peter Gordon MacKay
15	1289609130	658634.4405		12007 Cumberland--Colchester--Musquodoboit Valley	Independent	Bill Casey
16	60900141	62666.16976		13002 Dartmouth--Cole Harbour	Liberal Party of Canada	Michael John Sasse

- 55) The column we'll join to the other two files in Qgis is the FED\_NUM column. As was the case in the other instances, it is in a number format,

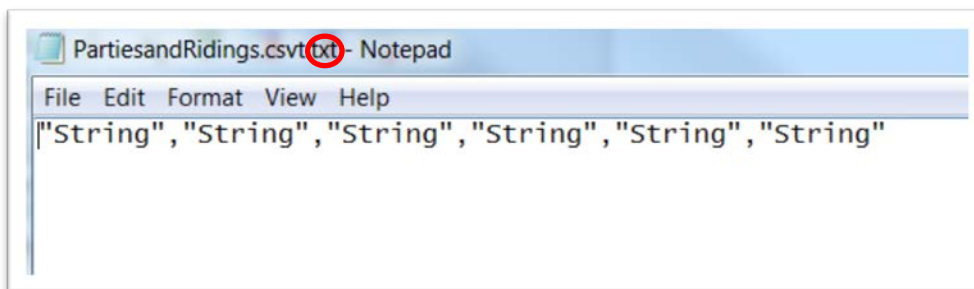


meaning that we'll have to use a CSV file to trick Qgis into thinking it's a text string.

- 56) Close the file and open a blank Notepad page.
- 57) Create a CSV file that looks like this:











- 58) You'll notice that although the first two columns in the csv file are actually numbers, they have decimal points that Qgis will interpret as text, meaning that it will create "NULL" values for those cells. To avoid that, we'll just format them as text "Strings" because we don't really need to perform math on them or use them as geographic locators.
- 59) You'll also notice that the CSV file is untitled. Be sure to give it the SAME title as the CSV file and save it in the same folder so Qgis knows where to find it.



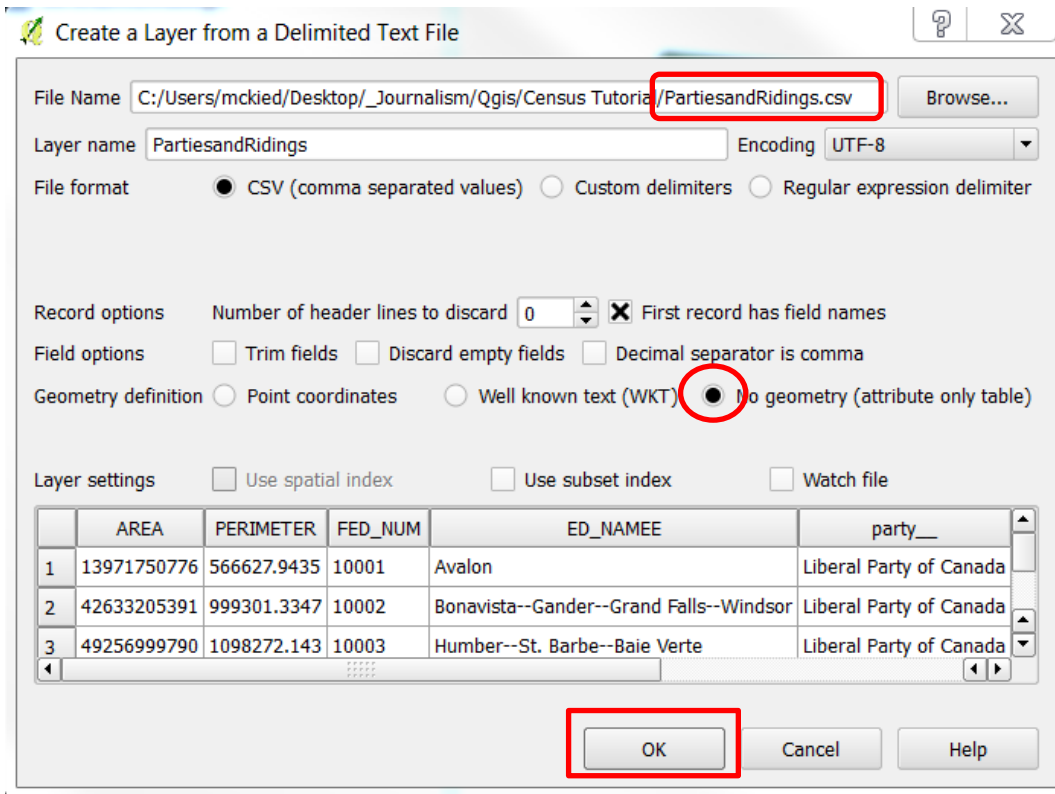
- 60) The saved file has an extra "txt" extension that we must delete.

- 61) Go into the folder, and delete the extension so only the CSVT remains.

Name	Date modified	Type	Size
 EthnicOrigin.csv	20/11/2014 8:59 A...	Microsoft Excel Co...	16 KB
 EthnicOrigin.csvt	20/11/2014 9:26 A...	CSV File	1 KB
 EthnicOrigin.txt	20/11/2014 9:26 A...	Text Document	1 KB
 EthnicOrigin.xlsx	20/11/2014 9:18 A...	Microsoft Excel W...	28 KB
 MPS_RIDINGS_CENSUS.qgs	20/11/2014 11:16 ...	QGIS Project	52 KB
 MPS_RIDINGS_CENSUS.qgs~	20/11/2014 11:16 ...	QGS~ File	84 KB
 PartiesandRidings.csv	21/11/2014 7:35 A...	Microsoft Excel Co...	28 KB
 PartiesandRidings.csvt	21/11/2014 7:48 A...	CSV File	1 KB

- 62) NOTE: You could not have to use this extra step if you created the csvt file in a text editing program such as [Notepad++](#) for PCs or [TextWrangler](#) for Macs. Text editors are handy for many reasons. So it's worthwhile downloading a version. For instance, they are great for opening files that Excel has trouble opening such as DBF files.

- 63) Use the “Add Delimited Text Layer” option to browse for the PartiesandRidings CSV file.



- 64) Once you've selected the OK tab, open the new layer's attribute table.

Attribute table - PartiesandRidings :: Features total: 314, filtered: 314, selected: 0

	AREA	PERIMETER	FED_NUM	ED_NAMEE	party__	mp
0	13971750776	566627.9435	10001	Avalon	Liberal Party ...	Scott Andrews
1	42633205391	999301.3347	10002	Bonavista--Ga...	Liberal Party ...	Scott Simms
2	49256999790	1098272.143	10003	Humber--St. ...	Liberal Party ...	Gerry Byrne
3	3.34545E+11	5762462.46	10004	Labrador	Liberal Party ...	Todd Russell
4	54459610673	1319334.271	10005	Random--Buri...	Liberal Party ...	Judy Foote
5	1026779080	150499.6768	10006	St. John's East	New Democra...	Jack Harris
6	527743577.5	109947.0586	10007	St. John's Sou...	Liberal Party ...	Siobhan Coady
7	4129167647	280646.8442	11001	Cardigan	Liberal Party ...	Lawrence Ma...
8	54812559.41	39208.07613	11002	Charlottetown	Liberal Party ...	Shawn Murphy
9	2144793060	256735.4577	11003	Egmont	Conservative ...	Gail Shea
10	2619275835	258338.5484	11004	Malpeque	Liberal Party ...	Wayne Easter
11	12341728593	734049.0032	12001	Cape Breton--...	Liberal Party ...	Rodger Cuzner
12	11638063692	703160.638	12002	Central Nova	Conservative ...	Peter Gordon ...
13	12896091302	658634.4405	12007	Cumberland--...	Independent	Bill Casey
14	98090141.88	53556.15825	12003	Dartmouth--C...	Liberal Party ...	Michael John ...
15	336766289	116479.8852	12004	Halifax	New Democra...	Megan Leslie
16	315584265.6	90680.39723	12004	Halifax	New Democra...	Megan Leslie
17	612960807.3	137709.0501	12005	Halifax West	Liberal Party ...	Geoff Regan
18	5372035755	329771.3661	12006	Kings--Hants	Liberal Party ...	Scott Brisson
19	1607926274	257373.4672	12008	Sackville--Eas...	New Democra...	Peter Stoffer
20	11973900489	573036.8507	12009	South Shore--...	Conservative ...	Gerald Keddy

65)

66) Right-click on the federal electoral boundaries “UkrainiansInRidings” layer to obtain the Properties option.

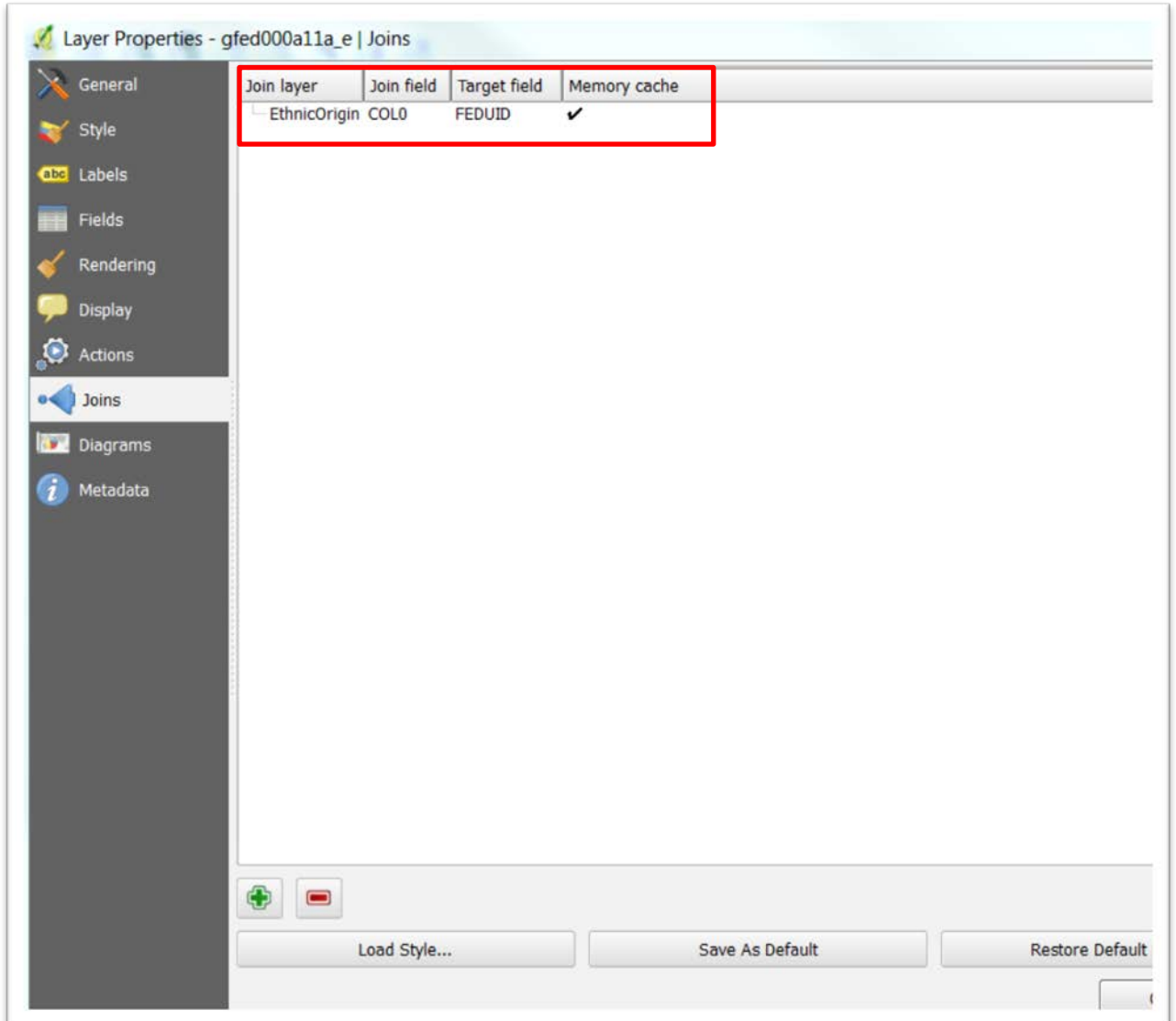
Layer Properties - gredUUUa11a\_e | Fields

Attribute editor layout: Autogenerate Python Init function

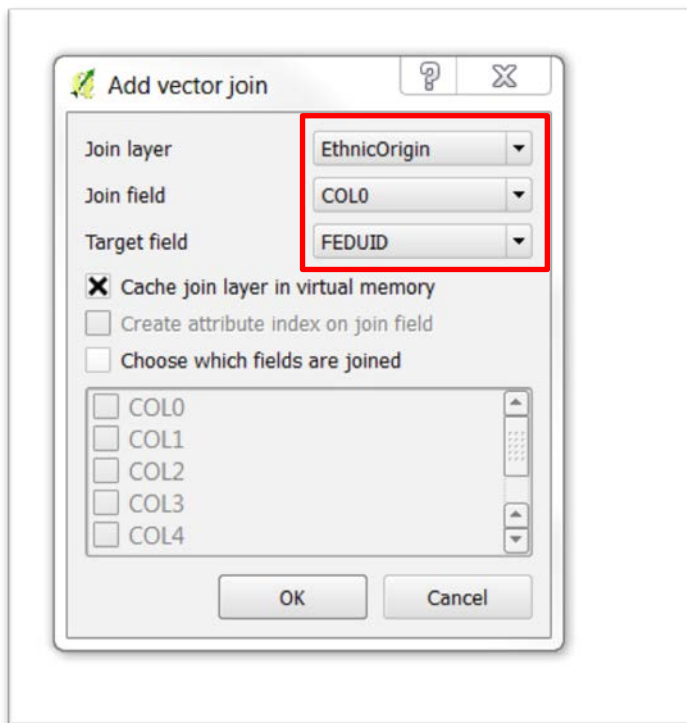
Fields

Id	Name	Type	Type name	Length	Precision	Comment	Edit widget	Alias	WMS	WFS
0	FEDUID	QString	String	5	0		Text Edit		X	X
1	FEDNAME	QString	String	85	0		Text Edit		X	X
2	FEDENAME	QString	String	55	0		Text Edit		X	X
3	FEDFNAME	QString	String	55	0		Text Edit		X	X
4	PRUID	QString	String	2	0		Text Edit		X	X
5	PRNAME	QString	String	55	0		Text Edit		X	X
6	EthnicOrigin_COL1	int	integer	0	0		Text Edit	PROV_CODE	X	X
7	EthnicOrigin_COL2	QString	text	0	0		Text Edit	PROVINCE	X	X
8	EthnicOrigin_COL3	int	integer	0	0		Text Edit	RIDING_CODE	X	X
9	EthnicOrigin_COL4	QString	text	0	0		Text Edit	RIDING	X	X
10	EthnicOrigin_COL5	int	integer	0	0		Text Edit	EASTERN_EU	X	X
11	EthnicOrigin_COL6	int	integer	0	0		Text Edit	UKRAINIAN	X	X

67) Select Joins.





68) Select the Add icon to get your “Add vector join” wizard.



69) Your “Join layer” will be the “PartiesandRidings” layer from the drop-down menu on the right; the “Join field” is the “FED\_NUM” and the “Target field” is the “FEDUID”.



  Add vector join

Join layer: PartiesandRidings

Join field: FED\_NUM

Target field: FEDUID

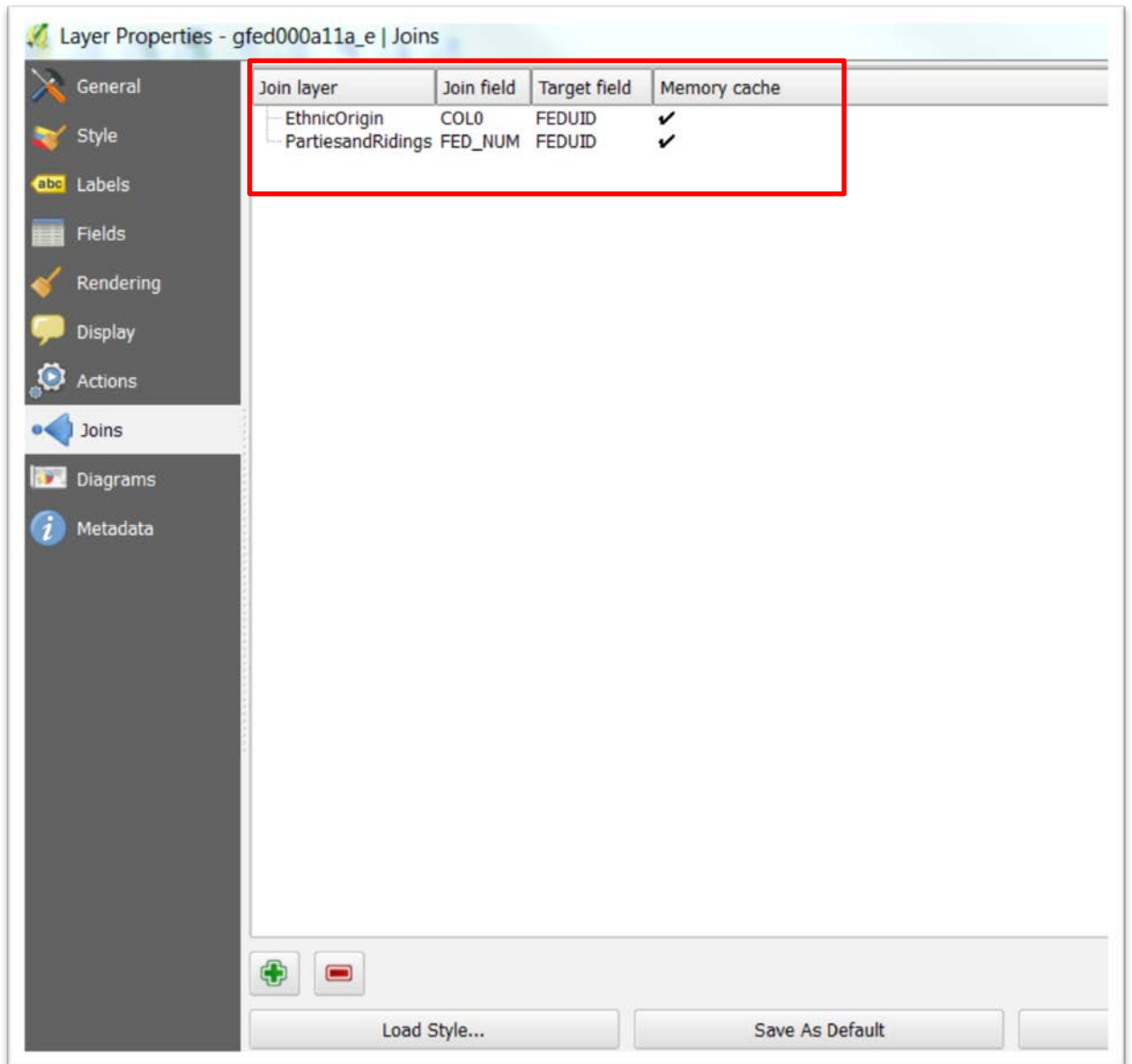
Cache join layer in virtual memory

Create attribute index on join field

Choose which fields are joined

- AREA
- PERIMETER
- FED\_NUM
- ED\_NAMEE
- party\_

OK Cancel



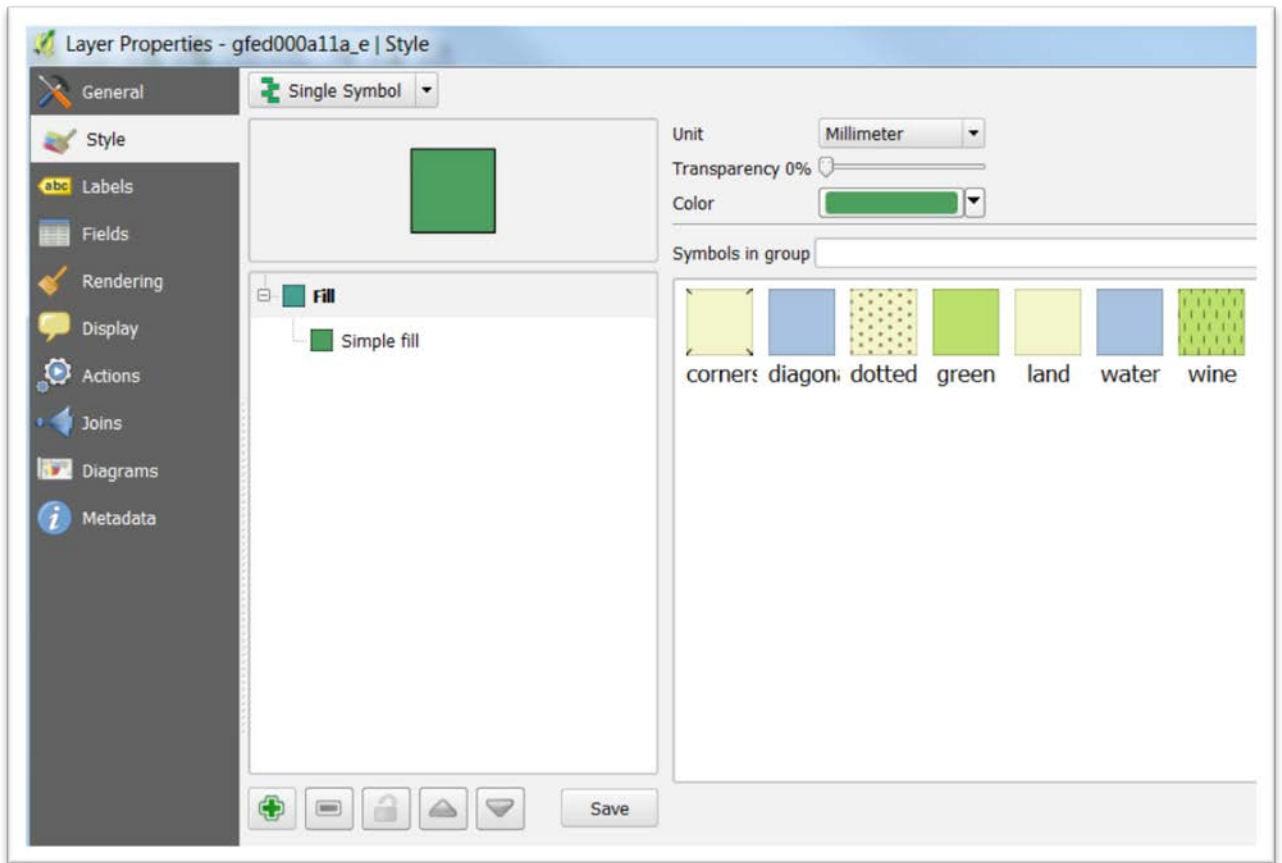
70) There is no need to change the labels. So just select the Apply and OK tabs to return to your enhanced layer.

71) Open the attribute table to ensure that the PartiesandRidings table has been added.

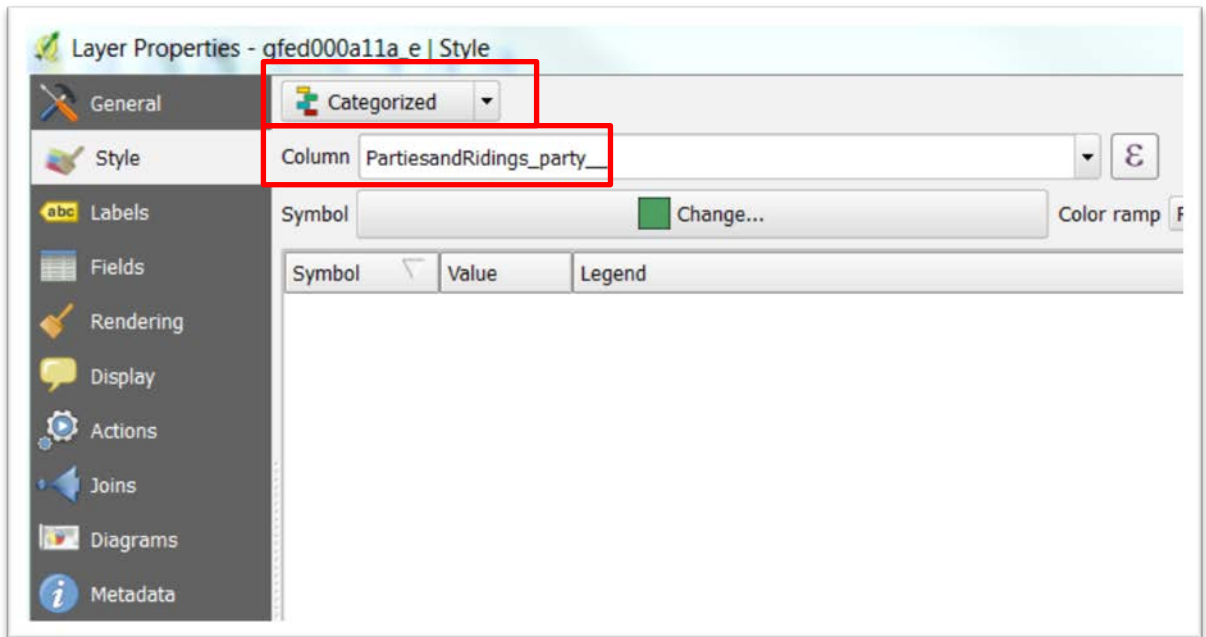
PROV_CODE	PROVINCE	RIDING_CODE	RIDING	EASTERN_EU	UKRAINIAN	esandRidings_A	andRidings_PER	andRidings_ED	isandRidings_pa	tiesandRidings_
24	Quebec	38	Louis-Saint-La...	500	100	144146900.8	76103.2526	Louis-Saint-La...	Conservative ...	Josée Verner
35	Ontario	82	Scarborough ...	5765	1490	34405620.27	27050.20827	Scarborough...	Liberal Party ...	John McKay
46	Manitoba	5	Elmwood - Tr...	24335	16935	46389140.79	35511.06763	Elmwood--Tra...	New Democra...	Jim Maloway
35	Ontario	3	Ancaster - Du...	15015	4505	745441759.7	121980.4259	Ancaster--Du...	Conservative ...	David Sweet
24	Quebec	68	Saint-Maurice...	365	50	37352171538	1172271.544	Saint-Maurice...	Bloc Québécois	Jean-Yves Laf...
48	Alberta	25	Westlock - St...	25400	18370	22920459971	987649.0668	Westlock-St ...	Conservative ...	Brian Storseth
35	Ontario	70	Perth - Wellin...	4975	1215	3781747535	358281.7327	Perth--Welling...	Conservative ...	Gary Ralph Sc...
35	Ontario	42	London - Fans...	10415	2190	109477069.8	64763.50279	London--Fans...	New Democra...	Irene Mathyss...
35	Ontario	98	Wellington - H...	11015	3130	1584394604	282593.6411	Wellington--H...	Conservative ...	Michael Chong
35	Ontario	19	Eglinton - Law...	20975	2580	23692969.33	21276.28056	Eglinton--Law...	Liberal Party ...	Joseph Volpe
59	British Columbia	2	Burnaby - Dou...	10255	3810	61522818.58	34422.39498	Burnaby--Dou...	New Democra...	Bill Siksay
24	Quebec	57	Rivière-des-...	2240	320	125855170.3	68641.49634	Rivièrre-des-...	Bloc Québécois	Luc Desnoyers
13	New Brunswick	5	Madawaska - ...	345	85	10851112430	703409.086	Madawaska--...	Liberal Party ...	Jean-Claude J...
46	Manitoba	7	Portage - Lisgar	20255	7335	14419497185	648611.4761	Portage--Lisgar	Conservative ...	Candice Hoep...
48	Alberta	13	Edmonton East	25925	17570	49687590.42	38972.71341	Edmonton East	Conservative ...	Peter Goldring
35	Ontario	49	Mississauga - ...	15370	2950	49179313.76	34509.88713	Mississauga--...	Conservative ...	Bob Dechert
59	British Columbia	10	Kamloops - T...	18295	8610	44345061098	1459996.007	Kamloops--Th...	Conservative ...	Cathy McLeod
60	Yukon	1	Yukon	4020	1810	456671000000	4127816.661	Yukon	Liberal Party ...	Larry Bagnell
35	Ontario	81	Scarborough ...	4060	980	78817079.78	24209.59703	Scarboroughh ...	Liberal Partv ...	John Cannic

72) Now we'll colour-code the map to identify the ridings according to political party. Right-click on the boundary file to obtain the Layer Properties dialog box.

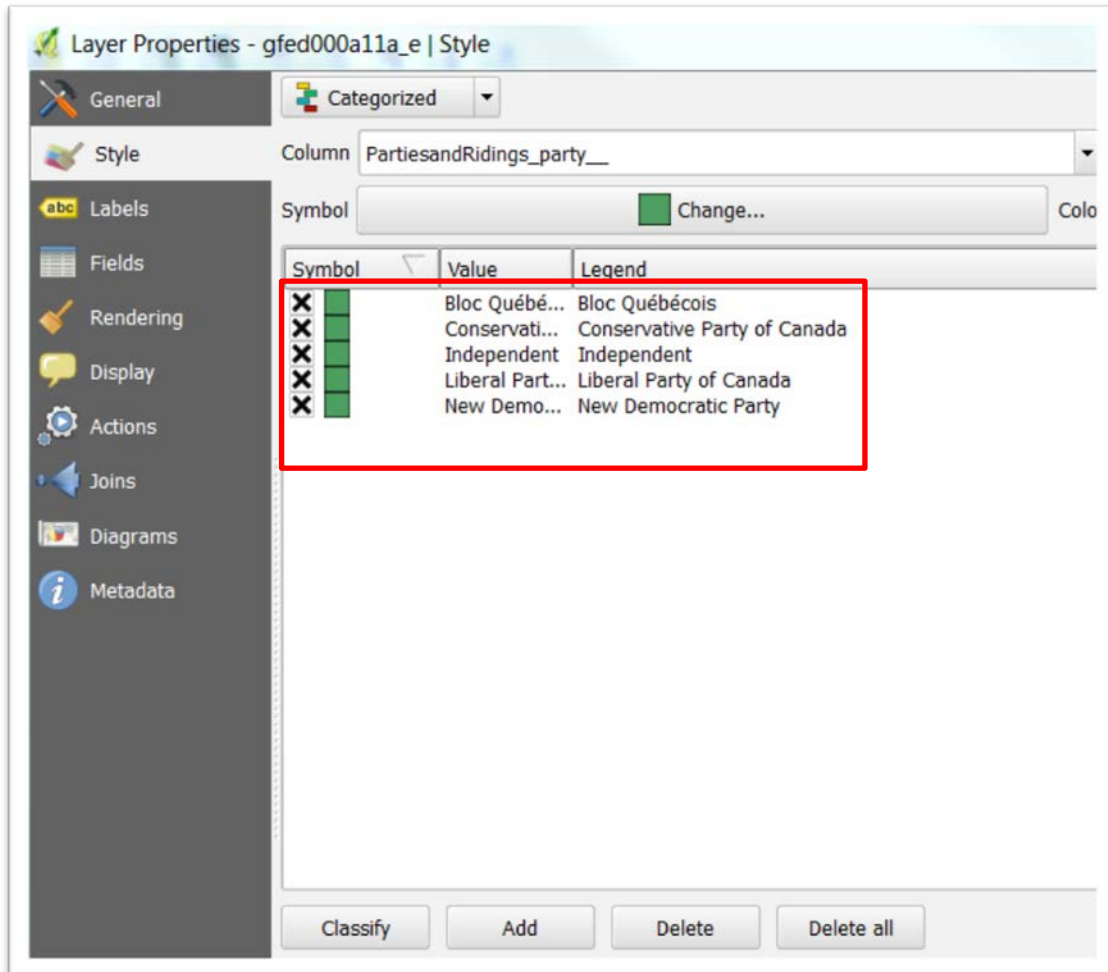
73) Choose the “Style” tab (it’s “Symbology” in ArcMap) from the menu on the left.



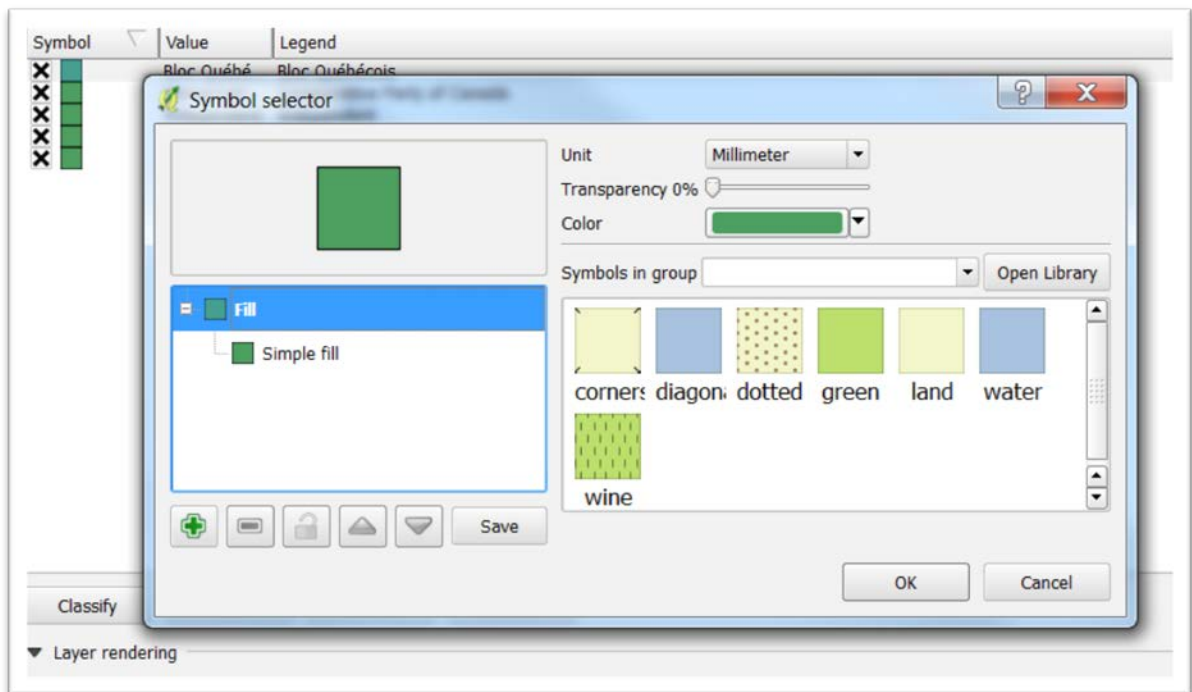
- 74) Choose “Categorized” from the drop-down menu. And then the column we’ll use as our category, which in this case is “party\_”.



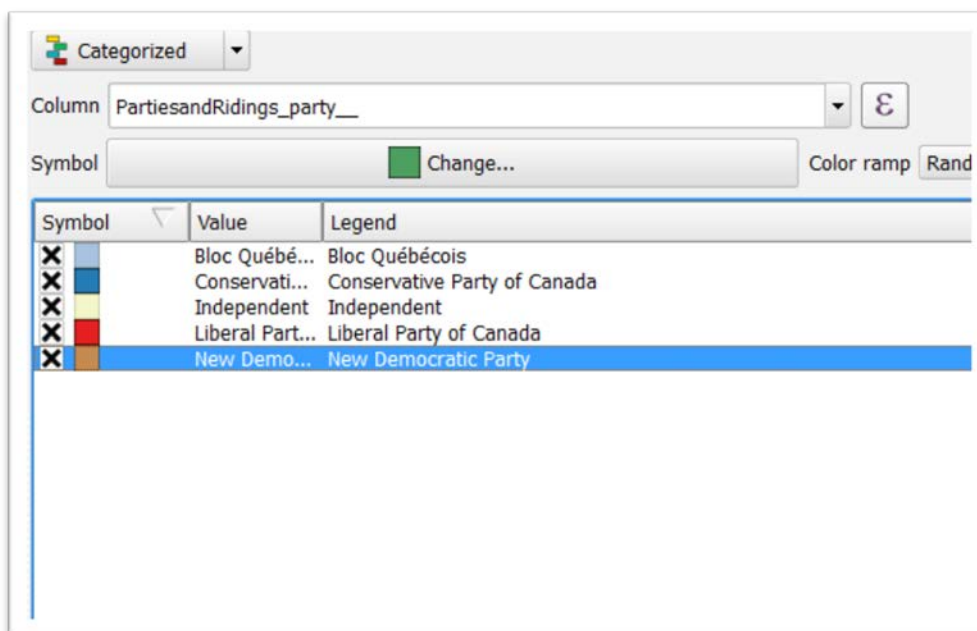
75) Select the "Classify" tab to add categories.



- 76) Click on the colours under “Symbol” to hues for each party, just like we did in the [ArcMap tutorial](#).

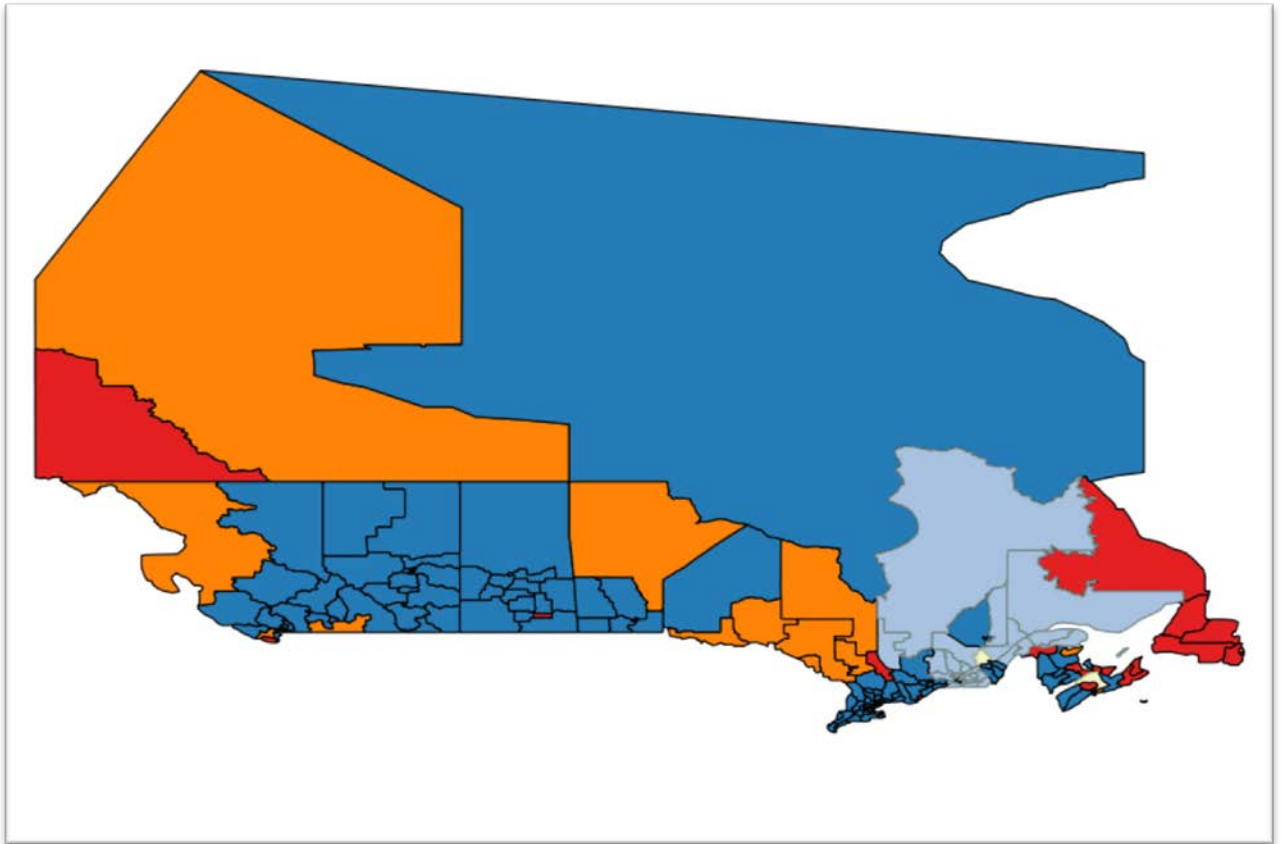


- 77) Select the colour for each party that best resembles the [party's official colours](#).





78) Select the Apply and OK tabs.

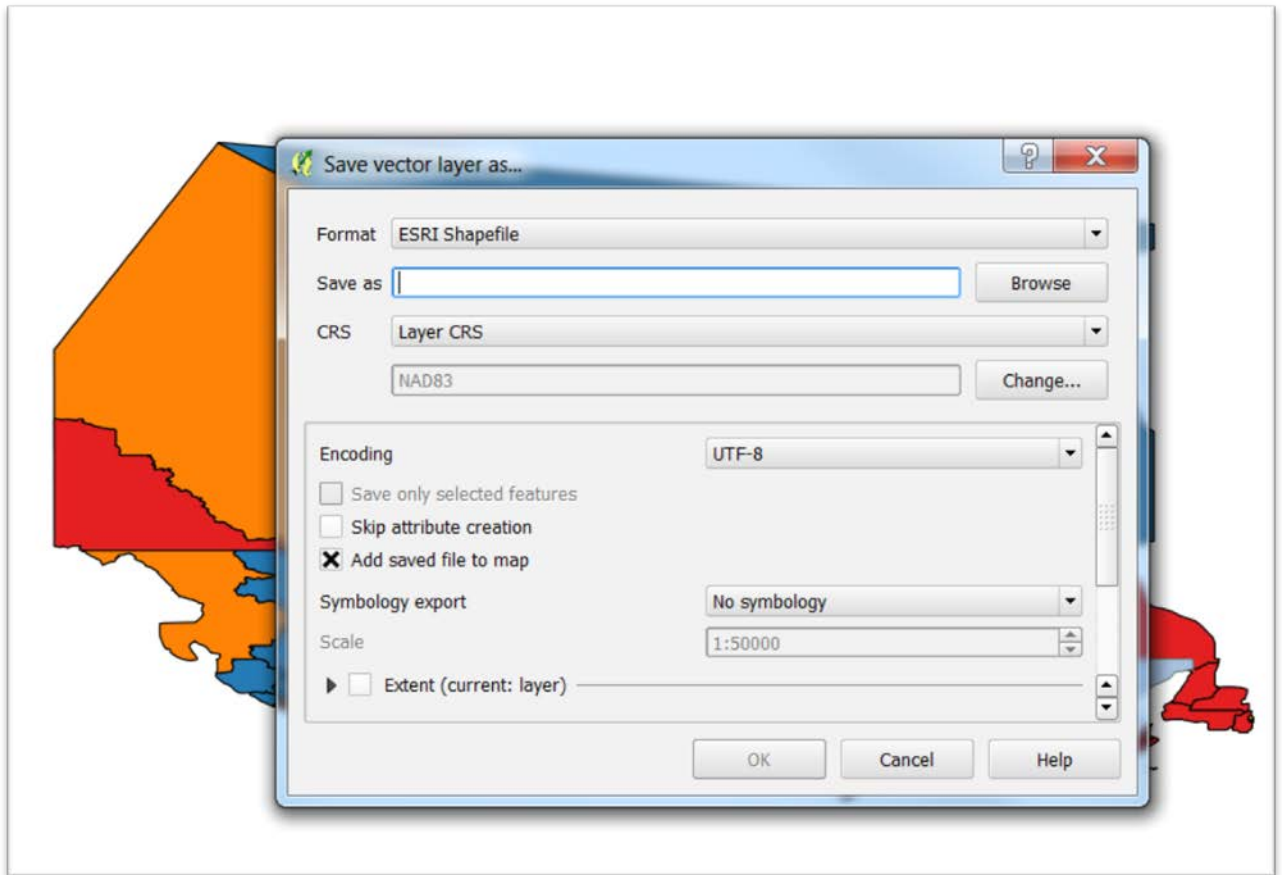


79) We can see that the Conservatives seem to represent the greatest number of ridings with voters of Ukrainian origin.

80) If you want to see the labels for each riding, or MP who represents each of the ridings, return to the Properties, then labels, and then choose the column that contains the values you want to display. If you're happy with this result, you can always export the map as a PDF or bitmap, using the steps that we learned in the first [Qgis tutorial](#).

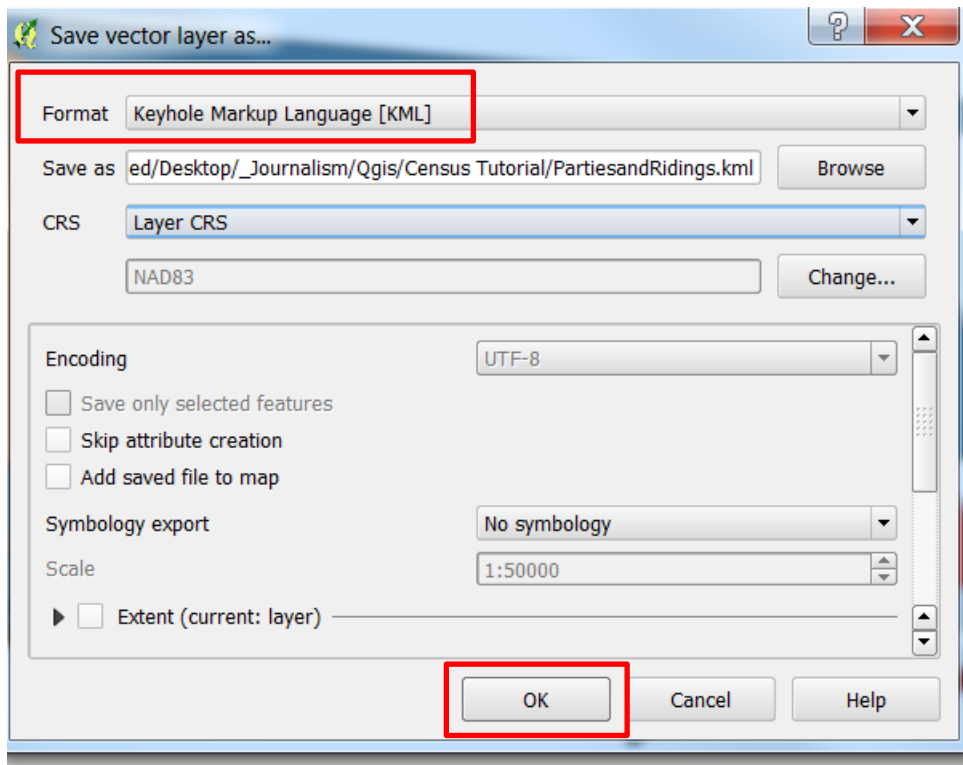
81) We can also export our new table as a KML file which we can then upload to Fusion Tables. To do this, right-click on the boundary layer and

choose the “Save As” option.



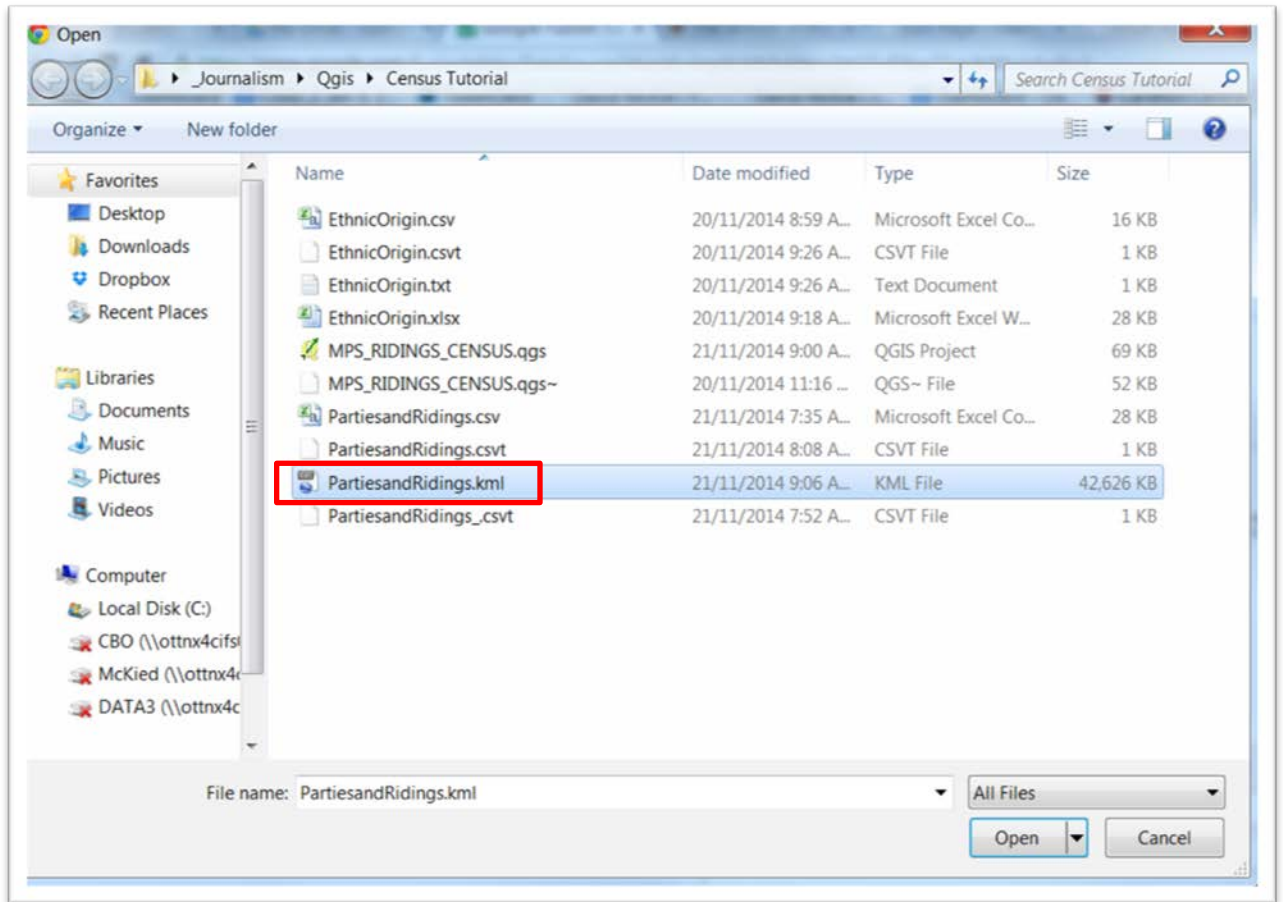
82) If we wanted to export the table as a CSV to pull into Excel or Tableau, we'd choose the "CSV" option from the drop-down menu. But let's go with the KML file. (NOTE: We can also do this in ArcMap, though the process is circuitous. So even if you're using ArcMap, it's better to bring the shape file into Qgis and use its simpler export function.)

83) Give the file the same name, “PartiesandRidings”, and then save it.



84) We do not want to add the KML file to the map, so de-select the “Add saved file to map” option. Select the OK tab.

85) Upload your KML file to Google's Fusion Tables.




## Import new table



 From this computer

 Google Spreadsheets

 Create empty table

PartiesandRidings.kml

You can upload spreadsheets, delimited text files (.csv, .tsv, or .txt), and Keyhole Markup Language files (.kml) [Learn more](#)

Or search public data tables



### New to Fusion Tables?

Take a peek! [Play with a data set](#) or [try a tutorial](#).

86) This step could take a few minutes. So please be patient!

Import new table ✕

Column names are in row 1

1	descr...	name	FEDUID	FEDN...	FEDE...	FEDF...	PRUID	PRNA...
2			24038	Louis-Saint-Laurent	Louis-Saint-Laurent	Louis-Saint-Laurent	24	0
3			35082	Scarb... - Guild...	Scarb... - Guild...	Scarb... - Guild...	35	0
4			46005	Elmw... - Trans...	Elmw... - Trans...	Elmw... - Trans...	46	0
5			35003	Anca... - -	Anca... - -	Anca... - -	35	0

Rows before the header row will be ignored.

**New to Fusion Tables?** Cancel « Back Next »

Take a peek! [Play with a data set](#) or [try a tutorial](#).

## Import new table



Table name

Allow export  [?](#)

Attribute data to  [?](#)

Attribution page link

Description

For example, what would you like to remember about this table in a year?

### New to Fusion Tables?

Take a peek! [Play with a data set](#) or [try a tutorial](#).

Cancel

« Back

Finish

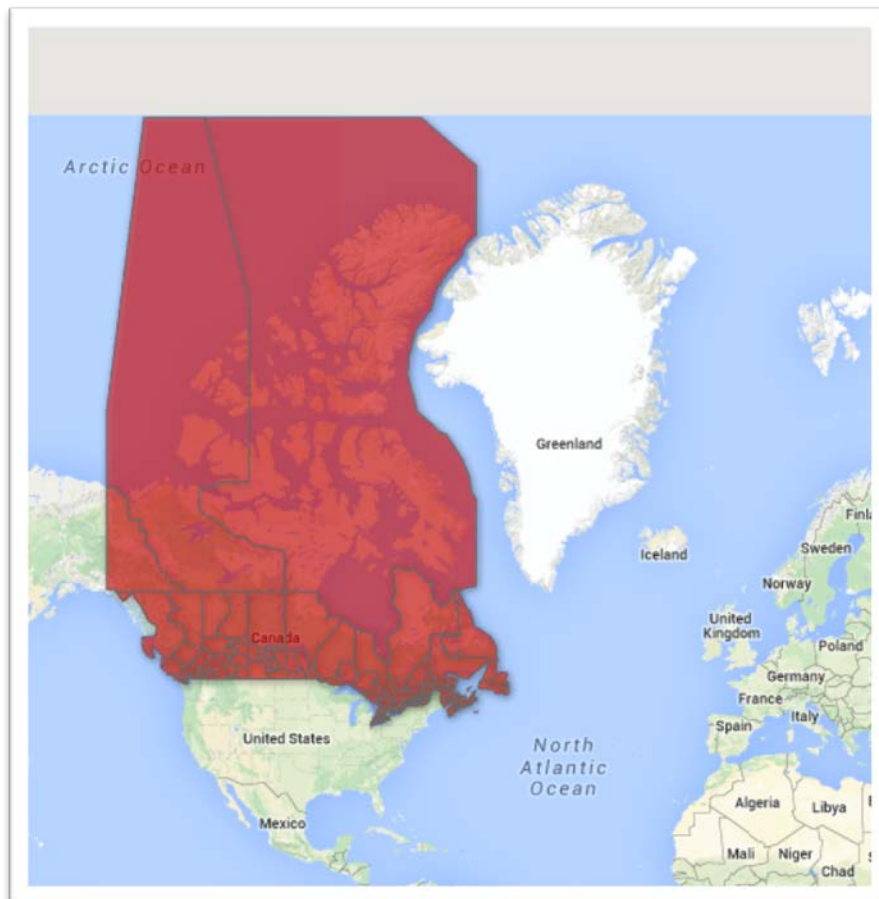


ario	82	Scarborough - Guildwood	5765	1490
nitoba	5	Elmwood - Transcona	24335	16935
ario				4505
ebec				50
erta				18370
ario	70	Perth - Wellington	4975	1215
ario	42	London - Fanshawe	10415	2190

**Importing**

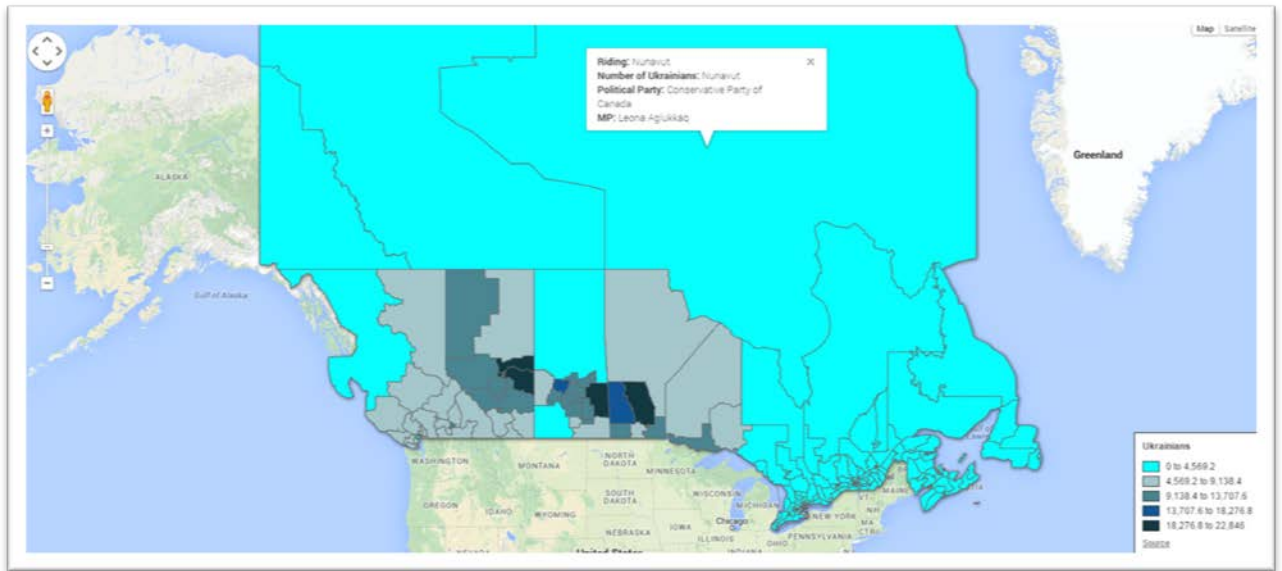
Your rows are being imported

0%



87) Colour code the map according to the number of Ukrainians, and use the “Custom” tab in the “Change info window layout” to change the names,

and extend the bottom of the pop-up box.



88) Now you can embed this map in your blog post, in addition to a PDF of the map in Qgis that's colour-coded according to political party.