



**ACCOLEDS 2014**

**Vancouver, BC**

## **Mapping Census of Agriculture data**

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# Why Census of Agriculture?

- haven't "played" with it at recent ACCOLEDS

- data has 9 digit codes for CCS (Consolidated Census Subdivisions) boundaries...

	A	
5	North Saanich(CCS590117005)	
6	Central Saanich(CCS590117015)	
7	Saanich(CCS590117021)	

...while

- CCS geospatial boundary files are 7 digits

Table

BcCCSDs

	FID	Shape *	CCSUID	CCSNAME	PRUID	
▶	0	Polygon	5919015	Cowichan Valley G	59	British Columbia /
	1	Polygon	5909016	Fraser Valley B	59	British Columbia /
	2	Polygon	5933012	Thompson-Nicola N	59	British Columbia /

- "confidentiality constraints" and amalgamations of CCSs

- "agricultural ecumene...where significant agricultural activity is concentrated in Canada..."

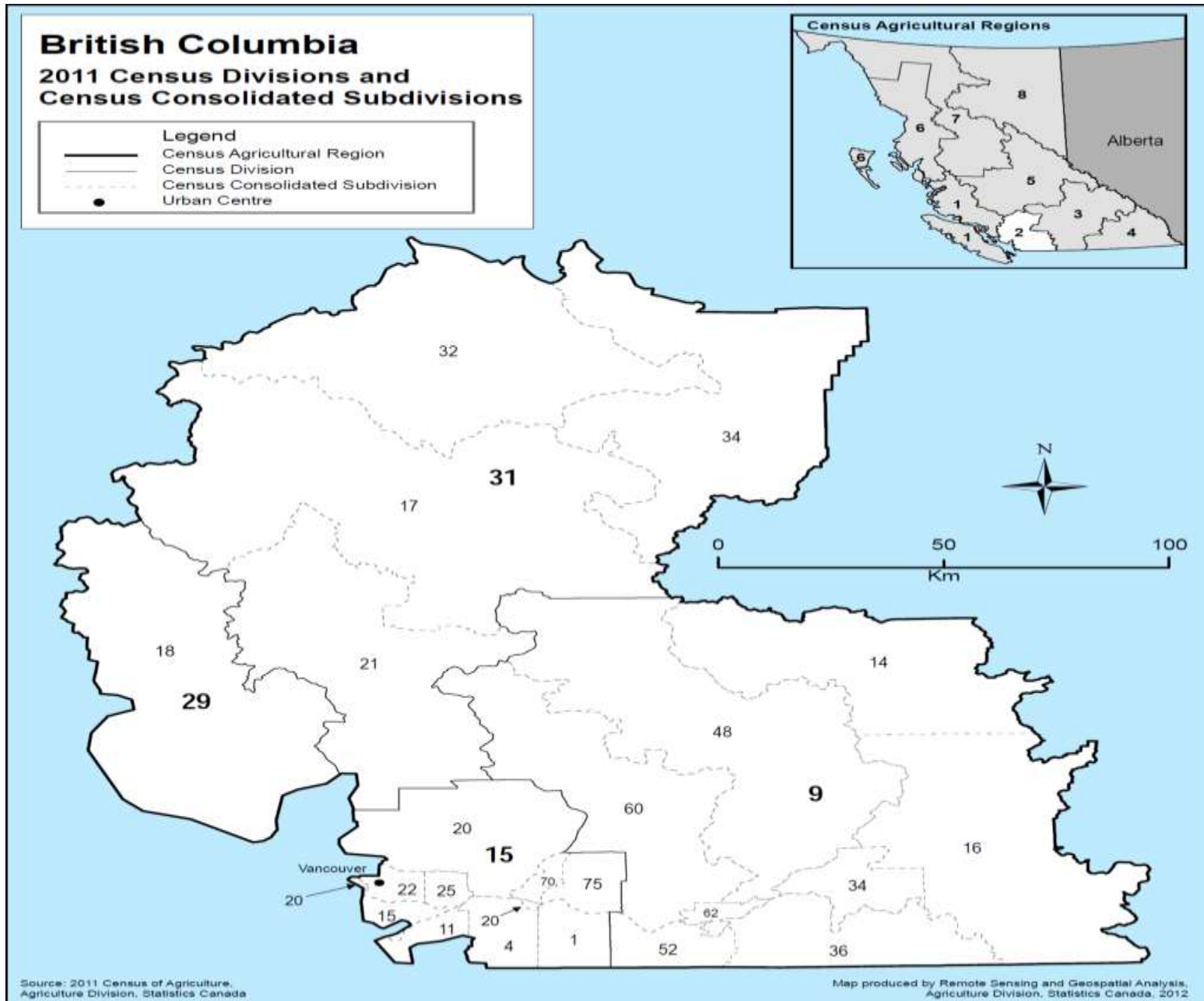
# Outline

**Part A: “massage” / prepare raw data from Census of Agriculture**

**Part B: manipulate / prepare the geospatial map layers**

**Part C: make map(s)**

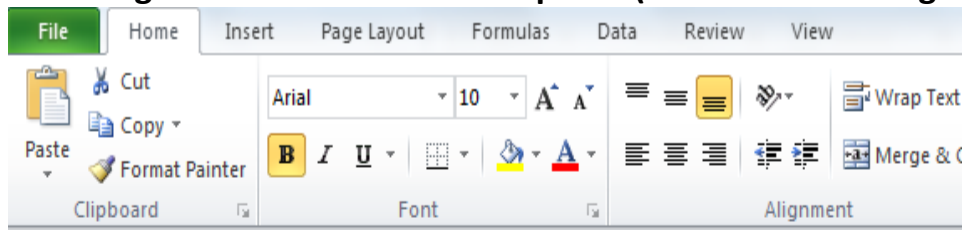
# Census of Agriculture Geography



**2011 Census of Agriculture**[About the Census of Agriculture](#)[Frequently asked questions](#)[Releases](#)[Reference maps](#)[Glossary](#)[Questionnaires](#)**Other links**[ARCHIVED - 2006 Census of Agriculture](#)[ARCHIVED - 2001 Census of Agriculture](#)[ARCHIVED - 1996 Census of Agriculture](#)[← Share this page](#)[About the artists](#)**November 17, 2014**All 2011 Farm and farm operator data are now available without charge in [CANSIM](#): Tables 004-0200 to 004-0242.**Farm and farm operator data**Available without charge in [CANSIM](#): Tables 004-0200 to 004-0242.[The Daily, May 10, 2012](#)[Highlights and analysis](#)**Selected historical farms and operator data**Available without charge in [CANSIM](#): tables 004-0001 to 004-0017.**Socioeconomic overview of the farm population data**The 2011 Census of Agriculture and the National Household Survey Linkage data are available without charge in [CANSIM](#): tables 004-0100 to 004-0129.[The Daily, November 27, 2013](#)[Highlights and analysis](#)[Data quality](#)**Canadian Agriculture at a Glance**[Canadian Agriculture at a Glance - Main page](#)[Demographic Changes in Canadian Agriculture](#)[Corn: Canada's third most valuable crop](#)[The changing face of the Canadian fruit and vegetable sector: 1941 to 2011](#)[Feeding the soil puts food on your plate](#)[The changing face of the Canadian hog industry](#)[Pulses in Canada](#)[Overview of livestock farm operating expenses](#)**Boundary files**[Census Agricultural Regions Boundary File](#)[Census Agricultural Regions Boundary File — Reference Guide](#)[Agricultural Ecoregions Boundary File](#)[Agricultural Ecoregions Boundary File — Reference Guide](#)**Maps**[Reference maps](#)[Thematic maps](#)

## Part A. Prepare the data

### 1. Navigate to RawData.xls and open it (note the intermingled text with CCS, CDs, Prov IDs)



	A	B
1		Organic products, 2011
2		Organic products for sale (104)
3		total number
4	British Columbia(PR590000000)	569
5	Vancouver Island-Coast(CAR590100000)	93
6	Capital(CD590117000)	52
7	North Saanich(CCS590117005)	5
8	Central Saanich(CCS590117015)	6
9	Saanich(CCS590117021)	10
10	Capital F(CCS590117027)	17

2. highlight and right-click to delete top rows and

3. add column headings: Geography & Organics

	A	B
1	<b>Geography</b>	<b>Organics</b>
2	British Columbia(PR590000000)	569
3	Vancouver Island-Coast(CAR590100000)	93
4	Capital(CD590117000)	52
5	North Saanich(CCS590117005)	5
6	Central Saanich(CCS590117015)	6
7	Saanich(CCS590117021)	10
8	Capital F(CCS590117027)	17
9	Capital G(CCS590117029)	7
10	Capital H (Part 2)(CCS590117056)	7

### 4. (Notice the “notes”: “confidentiality constraints”... “amalgamated...”)

Delete rows below Northern Rockies

	A	B	C	D	E	F	G	H	I	J
169	Northern Rockies(CD590859000)	0								
170	Northern Rockies(CCS590859007)	0								
171	Symbols:									
172	X	suppressed to meet the confidentiality requirements of the Statistics Act								
173	..	not available for a specific reference period								
174		0 true zero or a value rounded to zero								
175	General Notes									
176	The nine-digit geographic code at the end of the geographic names comprises two digits for the province, two for the Census Agricultural Region, and five for the Census Subdivision.									
177	There have been significant refinements in the geographic assignment of agricultural operations and changes in Census Consolidated Subdivisions.									
178	Due to confidentiality constraints, the data for one or more geographic areas having very few farms may be combined with the data from another area.									
179	Other boundary changes mean that caution should be taken when comparing the data for the following Census Agricultural Regions and Census Divisions.									
180	Also in British Columbia there was one boundary change where Census Division 590125000 was split into Census Division 590124000 and Census Division 590126000.									
181	Note(s):									
182		16 Due to confidentiality constraints the data for Census Division "590143000" were amalgamated with the data for Census Division "590144000".								
183		17 Due to confidentiality constraints the data for Census Division "590757000" were amalgamated with the data for Census Division "590758000".								
184		104 Organic products for sale. The total number of farms reporting does not equal the sum of the parts due to confidentiality constraints.								
185	Source:									
186	Statistics Canada, 2011 Census of Agriculture, Farm and Farm Operator Data, catalogue no. 95-640-XWE.									

**5. Insert a column between Geography and Organic and call it PRCDCCS**

B1		f <sub>x</sub> PRCDCCS	
	A	B	C
1	<b>Geography</b>	<b>PRCDCCS</b>	<b>Organics</b>
2	British Columbia(PR590000000)		569
3	Vancouver Island-Coast(CAR590100000)		93
4	Capital(CD590117000)		52
5	North Saanich(CCS590117005)		5
6	Central Saanich(CCS590117015)		6

**6. Insert the following formula into cell B2 and drag it down to the end of the column:**

**=CONCATENATE(59,MID(A2,FIND("CCS",A2)+7,5))**

**Formula: In column A, start with and grab 59(BCprovID); then from beginning of CCS, 7 spots forward and grab 5 digits**

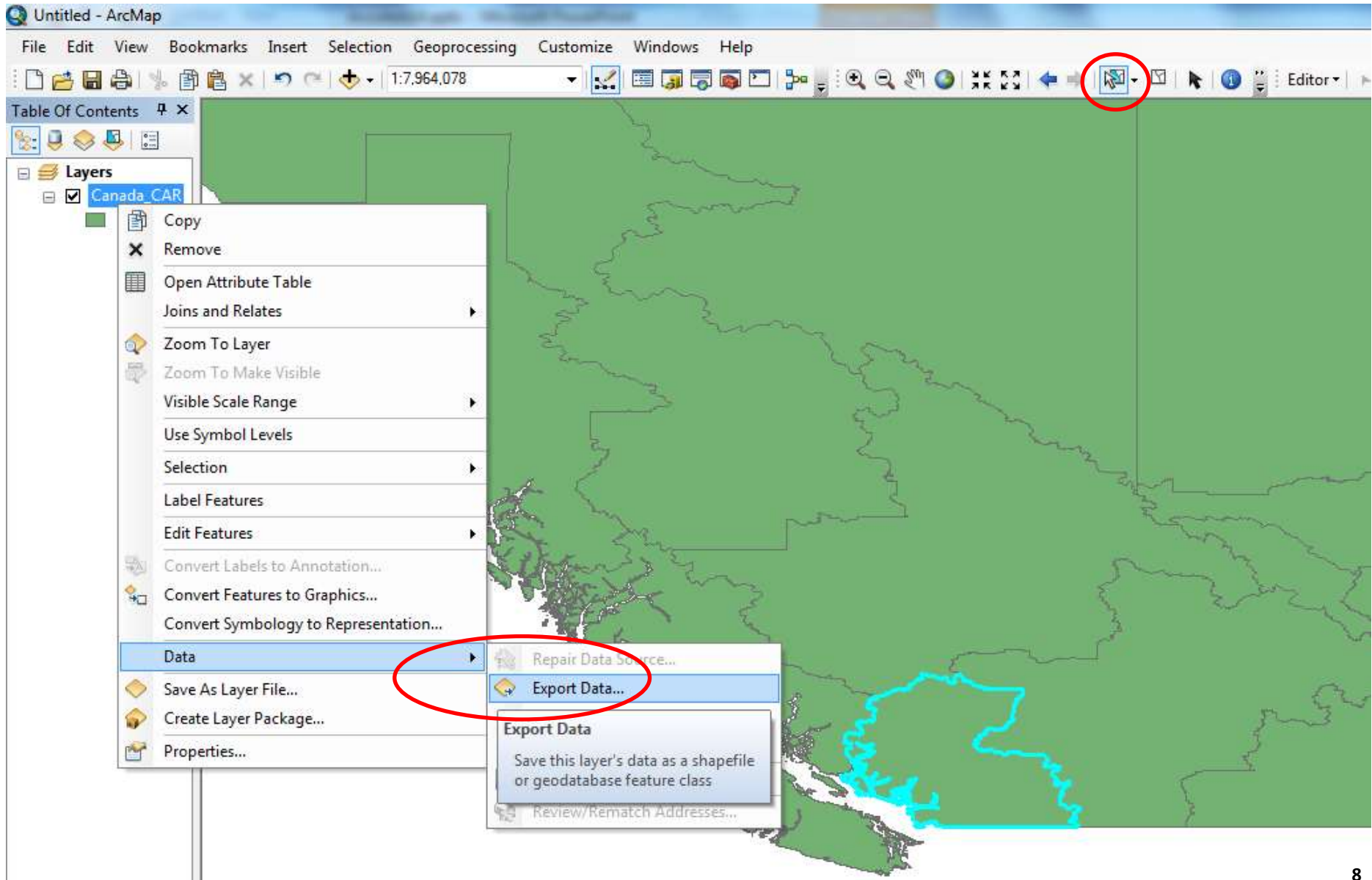
**7. We need 7 digits to match CCS boundary file. (Need to drop CAR part of CCS & don't need Prov or CARs or CDs)**

B2		f <sub>x</sub> =CONCATENATE(59,MID(A2,FIND("CCS",A2)+7,5))	
	A	B	C
1	<b>Geography</b>	<b>PRCDCCS</b>	<b>Organics</b>
2	British Columbia(PR590000000)	#VALUE!	569
3	Vancouver Island-Coast(CAR590100000)	#VALUE!	93
4	Capital(CD590117000)	#VALUE!	52
5	North Saanich(CCS590117005)	5917005	5
6	Central Saanich(CCS590117015)	5917015	6
7	Saanich(CCS590117021)	5917021	10
8	Capital F(CCS590117027)	5917027	17
9	Capital G(CCS590117029)	5917029	7
10	Capital H (Part 2)(CCS590117056)	5917056	7
11	Cowichan Valley(CD590119000)	#VALUE!	19
12	North Cowichan(CCS590119008)	5919008	10
13	Cowichan Valley G(CCS590119015)	5919015	1

**8. Save the file as ProcessedData.xls**

## Part B. Prepare the Map Layers

1. Start ArcMap...
2. add Canada\_CAR
3. Zoom to SW BC
4. Use select  and highlight/select Lower Mainland-SW BC
5. right-click Canada\_CAR to export data





## 6. Save selected feature as SwBC\_CAR.shp and add to map

The screenshot displays the ArcGIS Desktop interface with two dialog boxes open over a map of a coastal region. The 'Export Data' dialog is in the foreground, with the 'Export' dropdown set to 'Selected features' and the 'Use the same coordinate system as' section set to 'this layer's source data'. The 'Output feature class' field contains the path 'E:\CnfPrstns\Accoleds\Accoleds14\BC\_Exercise\_Final\Export\_Outpu' and a folder icon. The 'Saving Data' dialog is open below it, showing a file list in the 'BC\_Exercise\_Final' folder. The 'Name' field is set to 'SwBC\_CAR.shp' and the 'Save as type' is 'Shapefile'. Both dialog boxes have red circles highlighting the 'Export' dropdown, the coordinate system options, the folder icon, and the 'Name' field.

**Export Data Dialog:**

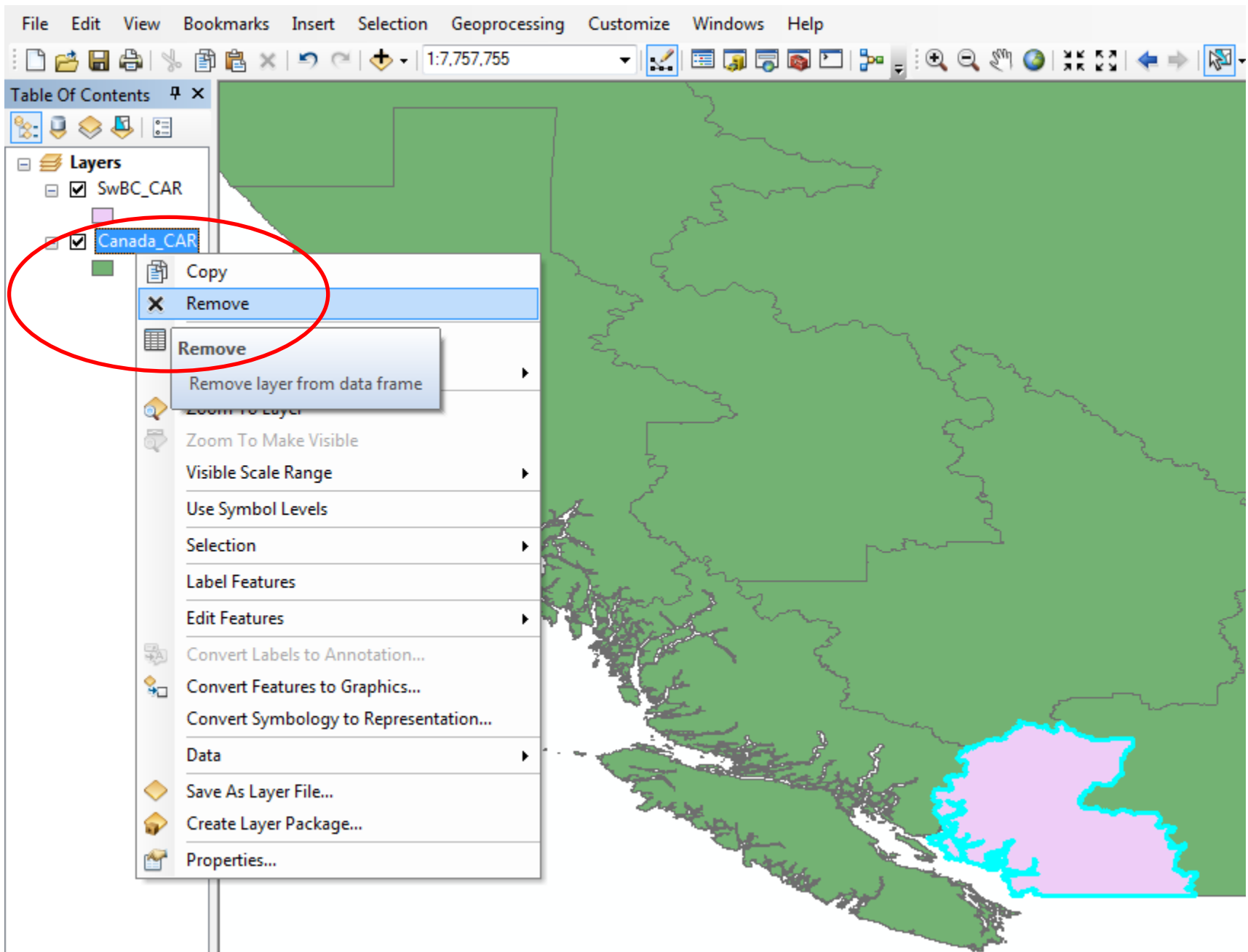
- Export: Selected features
- Use the same coordinate system as:
  - this layer's source data
  - the data frame
  - the feature dataset you export the data into (only applies if you export to a feature dataset in a geodatabase)
- Output feature class: E:\CnfPrstns\Accoleds\Accoleds14\BC\_Exercise\_Final\Export\_Outpu

**Saving Data Dialog:**

Name	Type
AgriEcumene.shp	Shapefile
BC_CAR.shp	Shapefile
BC_CAR2.shp	Shapefile
BC_CAR2_CCS.shp	Shapefile
BC_CAR2_CCS_Amalgamation....	Shapefile
BC_CAR2_CCS_Ecumene.shp	Shapefile
BC_CAR2_CCS_Organic.shp	Shapefile
Canada_CAR.shp	Shapefile
Canada_CCS.shp	Shapefile

Name: SwBC\_CAR.shp  
Save as type: Shapefile

## 7. Right-click Canada\_CAR to remove it.



## 8. Navigate to Canada\_CCS and add it.

The screenshot shows the ArcGIS Desktop interface. The 'Add Data' dialog box is open, displaying a list of files in the 'BC\_Exercise\_Final' folder. The file 'Canada\_CCS.shp' is selected and highlighted with a red circle. The 'Add' button at the bottom right of the dialog is also circled in red. The 'Layers' panel on the left shows 'SwBC\_CAR' is checked. The main map area shows a pink polygon with a cyan outline.

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

1:7,757,755

Table Of Contents

Layers

- SwBC\_CAR

Add Data

Look in: BC\_Exercise\_Final

Name	Type
BC_CAR.shp	Shapefile
BC_CAR2.shp	Shapefile
BC_CAR2_CCS.shp	Shapefile
BC_CAR2_CCS_Amalgamation....	Shapefile
BC_CAR2_CCS_Ecumene.shp	Shapefile
BC_CAR2_CCS_Organic.shp	Shapefile
Canada_CAR.shp	Shapefile
<b>Canada_CCS.shp</b>	Shapefile

Name: Canada\_CCS.shp

Show of type: Datasets, Layers and Results

Add Cancel

## 9. Clip Canada\_CCS using SwBC\_CAR...

The screenshot displays the ArcGIS Desktop interface. The 'Geoprocessing' menu is open, with the 'Clip' tool selected and highlighted by a red circle. A tooltip for the 'Clip' tool is visible, stating: 'Geoprocessing tool that extracts input features that overlay the clip features.'

The 'Layers' panel on the left shows two layers: 'SwBC\_CAR' (pink) and 'Canada\_CCS' (purple). The map background shows a geographic area with a pink region overlaid on a purple region.

The 'Clip' tool dialog box is open, showing the following configuration:

- Input Features:** Canada\_CCS (circled in red)
- Clip Features:** SwBC\_CAR (circled in red)
- Output Feature Class:** E:\CnfPrstns\Accoleds\Accoleds14\BC\_Exercise\_Final\Sw (circled in red)
- XY Tolerance (optional):** [Empty field] Decimal degrees

The 'Input Features' section on the right side of the dialog box contains the text: 'The features to be clipped.'

Buttons at the bottom of the dialog include 'OK', 'Cancel', 'Environments...', '<< Hide Help', and 'Tool Help'.

## 10. Clip Canada\_CCS using SwBC\_CAR... save as SwBC\_CAR\_CCS.shp

The screenshot displays the ArcGIS interface with two dialog boxes open over a map of British Columbia. The top dialog, 'Output Feature Class', is used to specify the output file name and type. The 'Name' field is set to 'SwBC\_CAR\_CCS.shp' and is circled in red. The 'Save as type' is set to 'Feature classes'. The bottom dialog, 'Clip', shows the tool's configuration. The 'Input Features' is 'Canada\_CCS', the 'Clip Features' is 'SwBC\_CAR', and the 'Output Feature Class' is 'E:\CnfPrstns\Accoleds\Accoleds14\BC\_Exercise\_Final\Sw...'. The 'OK' button is circled in red. A status bar at the bottom right shows the 'Clip' tool is active with a green checkmark, also circled in red.

**Output Feature Class**

Look in: BC\_Exercise\_Final

Name	Type
BC_CAR2_CCS_Organic.shp	Shapefile
Canada_CAR.shp	Shapefile
Canada_CCS.shp	Shapefile
ProcessedData.xls	Excel File
ProcessedData2.xls	Excel File
RawData.xls	Excel File
RawData2.xls	Excel File
SwBC_CAR.shp	Shapefile

Name: SwBC\_CAR\_CCS.shp

Save as type: Feature classes

**Clip**

Input Features: Canada\_CCS

Clip Features: SwBC\_CAR

Output Feature Class: E:\CnfPrstns\Accoleds\Accoleds14\BC\_Exercise\_Final\Sw...

XY Tolerance (optional): Decimal degrees

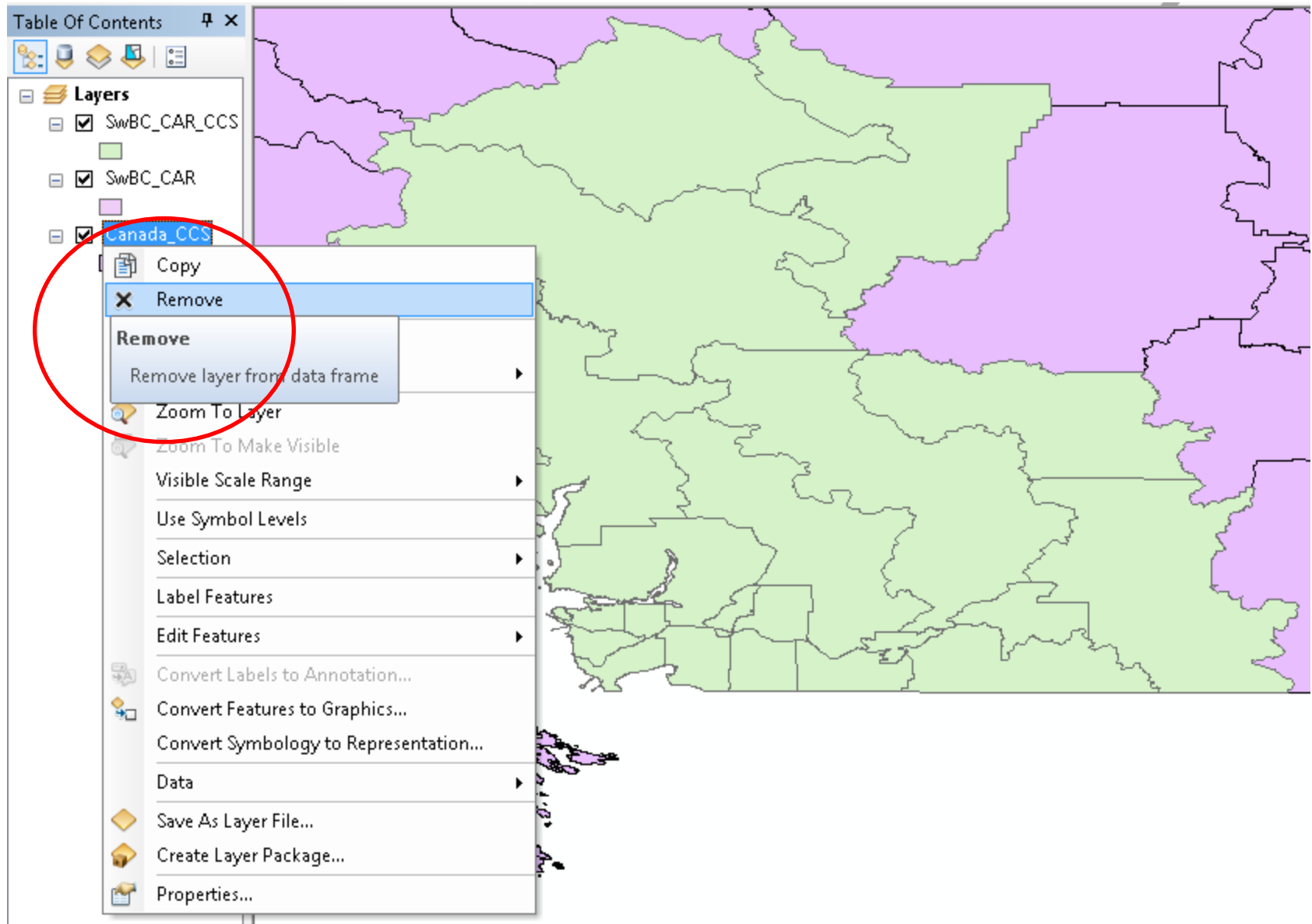
OK Cancel Environments... << Hide Help Tool Help

**Output Feature Class**

The feature class to be created.

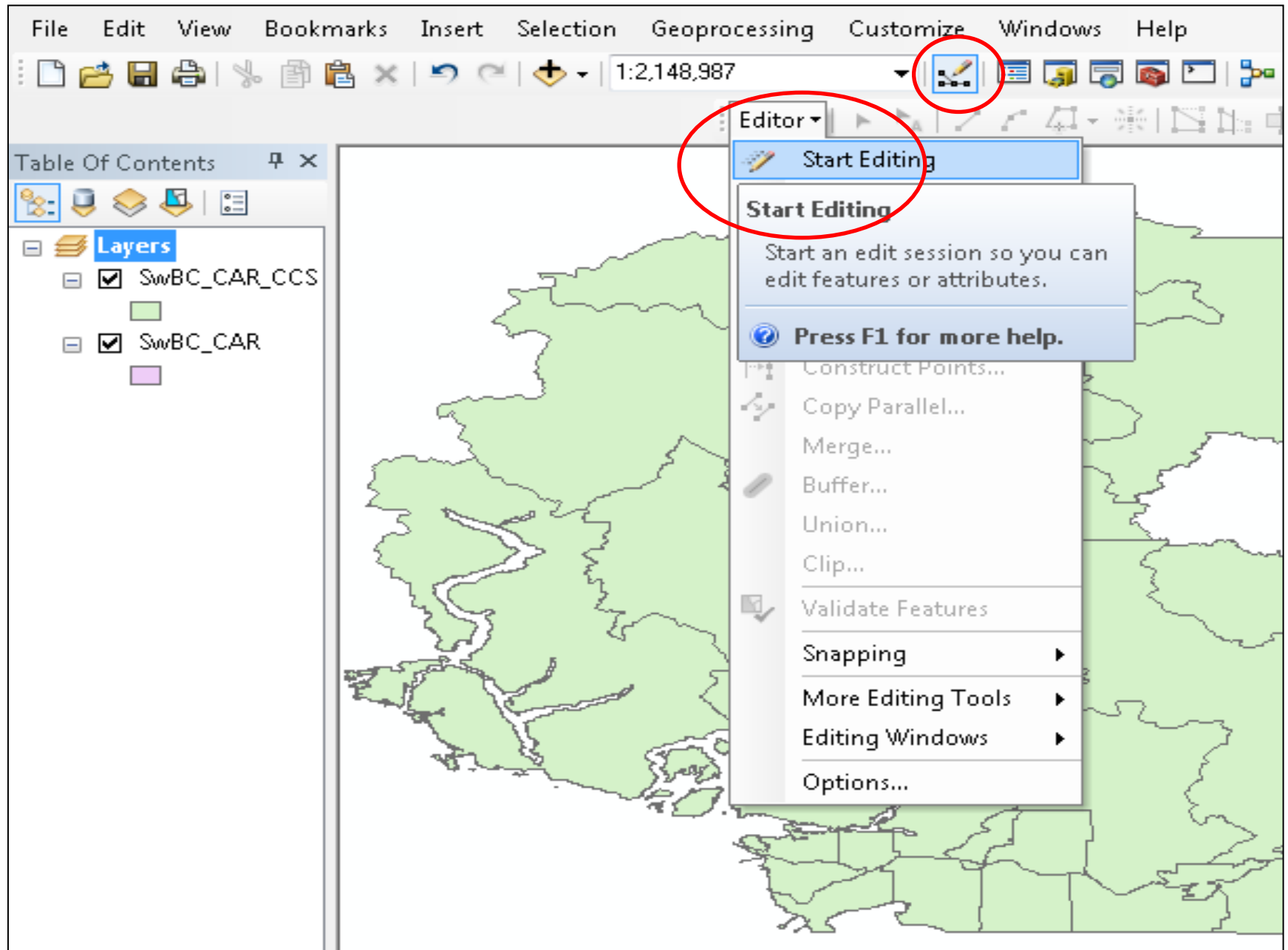
Clip

## 11. Right-click Canada\_CSS to remove it



(12. if not already activated, activate the Editor toolbar : Top menu: Customize - Toolbars - Editor).

13. Click on Editor to Start Editing.



#### 14. Right-click on SwBC\_CAR\_CCS to open its Attribute Table

The screenshot displays the ArcGIS interface. On the left, the 'Layers' panel shows the 'SwBC\_CAR\_CCS' layer selected. A context menu is open over this layer, with 'Open Attribute Table' highlighted and circled in red. A tooltip for 'Open Attribute Table' provides instructions: 'Open this layer's attribute table. Shortcut: CTRL + double-click layer name OR CTRL + T.' The background map shows a green polygon representing the Fraser Valley region in British Columbia. On the right, the 'Table' window is open, displaying the attribute table for 'SwBC\_CAR\_CCS'.

FID	Shape *	CCSUID	CCSNAME	PRUID	
0	Polygon	5909016	Fraser Valley B	59	British Columbia
7	Polygon	5909016	Fraser Valley A	59	British Columbia
8	Polygon	5909016	Fraser Valley C	59	British Columbia
9	Polygon	5909034	Fraser Valley D	59	British Columbia
18	Polygon	5909036	Fraser Valley E	59	British Columbia
14	Polygon	5909052	Abbotsford	59	British Columbia
2	Polygon	5909060	Fraser Valley F	59	British Columbia
12	Polygon	5909062	Fraser Valley G	59	British Columbia
20	Polygon	5915001	Langley	59	British Columbia
13	Polygon	5915004	Surrey	59	British Columbia
10	Polygon	5915011	Delta	59	British Columbia
5	Polygon	5915015	Richmond	59	British Columbia
6	Polygon	5915020	Greater Vancouver A	59	British Columbia
3	Polygon	5915022	Vancouver	59	British Columbia
4	Polygon	5915025	Burnaby	59	British Columbia
19	Polygon	5915070	Pitt Meadows	59	British Columbia
1	Polygon	5915075	Maple Ridge	59	British Columbia
16	Polygon	5929018	Sunshine Coast A	59	British Columbia
15	Polygon	5931021	Squamish-Lillooet C	59	British Columbia
17	Polygon	5931021	Squamish-Lillooet D	59	British Columbia
11	Polygon	5931034	Squamish-Lillooet B	59	British Columbia
21	Polygon	5931034	Squamish-Lillooet A	59	British Columbia



15. Sort Ascending CCSUID because we will change some CCSUIDs because some were amalgamated as per <http://www.statcan.gc.ca/ca-ra2011/201105/59-eng.htm>

The screenshot shows the ArcGIS interface. On the left, the 'Layers' panel displays two layers: 'SwvBC\_CAR\_CCS' (green) and 'SwvBC\_CAR' (purple). The main window shows a table titled 'SwvBC\_CAR\_CCS'. The 'CCSUID' column is selected, and a context menu is open with 'Sort Ascending' highlighted. A red circle highlights the 'Sort Ascending' option in the menu. The table contains 22 rows of data, including FID, Shape, CCSUID, CCSNAME, and PRUID.

FID	Shape *	CCSUID	CCSNAME	PRUID	
0	Polygon	5909016		British Columbia	
1	Polygon	5915075		British Columbia	
2	Polygon	5909060		British Columbia	
3	Polygon	5915022		British Columbia	
4	Polygon	5915025		British Columbia	
5	Polygon	5915015		British Columbia	
6	Polygon	5915020		British Columbia	
7	Polygon	5909016		British Columbia	
8	Polygon	5909016		British Columbia	
9	Polygon	5909034		British Columbia	
10	Polygon	5915011		British Columbia	
11	Polygon	5931034		British Columbia	
12	Polygon	5909062		British Columbia	
13	Polygon	5915004		British Columbia	
14	Polygon	5909052		British Columbia	
15	Polygon	5931021		British Columbia	
16	Polygon	5929018	Sunshine Coast A	59	British Columbia
17	Polygon	5931021	Squamish-Lillooet D	59	British Columbia
18	Polygon	5909036	Fraser Valley E	59	British Columbia
19	Polygon	5915070	Pitt Meadows	59	British Columbia
20	Polygon	5915001	Langley	59	British Columbia
21	Polygon	5931034	Squamish-Lillooet A	59	British Columbia

16. Change CCSUID numbers 5909014 & 5909048 to 5909016;  
 change CCSUID number 5931017 to 5931021;  
 change CCSUID number 5931032 to 5931034

Table Of Contents

Layers

- SwBC\_CAR\_CCS
- SwBC\_CAR

Table

SwBC\_CAR\_CCS

	FID	Shape *	CCSUID	CCSNAME	PRUID	
▶	0	Polygon	5909016	Fraser Valley B	59	British Columbia .
	7	Polygon	5909016	Fraser Valley A	59	British Columbia .
	8	Polygon	5909016	Fraser Valley C	59	British Columbia .
	9	Polygon	5909034	Fraser Valley D	59	British Columbia .
	18	Polygon	5909036	Fraser Valley E	59	British Columbia .
	14	Polygon	5909052	Abbotsford	59	British Columbia .
	2	Polygon	5909060	Fraser Valley F	59	British Columbia .
	12	Polygon	5909062	Fraser Valley G	59	British Columbia .
	20	Polygon	5915001	Langley	59	British Columbia .
	13	Polygon	5915004	Surrey	59	British Columbia .
	10	Polygon	5915011	Delta	59	British Columbia .
	5	Polygon	5915015	Richmond	59	British Columbia .
	6	Polygon	5915020	Greater Vancouver A	59	British Columbia .
	3	Polygon	5915022	vancouver	59	British Columbia .
	4	Polygon	5915025	Burnaby	59	British Columbia .
	19	Polygon	5915070	Pitt Meadows	59	British Columbia .
	1	Polygon	5915075	Maple Ridge	59	British Columbia .
	16	Polygon	5929018	Sunshine Coast A	59	British Columbia .
	15	Polygon	5931021	Squamish-Lillooet C	59	British Columbia .
	17	Polygon	5931021	Squamish-Lillooet D	59	British Columbia .
	11	Polygon	5931034	Squamish-Lillooet B	59	British Columbia .
	21	Polygon	5931034	Squamish-Lillooet A	59	British Columbia .

(0 out of 22 Selected)

SwBC\_CAR\_CCS

## 17. on Editor, Stop Editing and Save the Changes; (close the attribute table)

The screenshot shows the ArcGIS Editor interface. The 'Editor' menu is open, and the 'Stop Editing' option is highlighted with a red circle. A tooltip for 'Stop Editing' is displayed, containing the text: 'Stop the edit session. If you have any unsaved edits, you are prompted to save them.'

The 'Table Of Contents' shows the following layers:

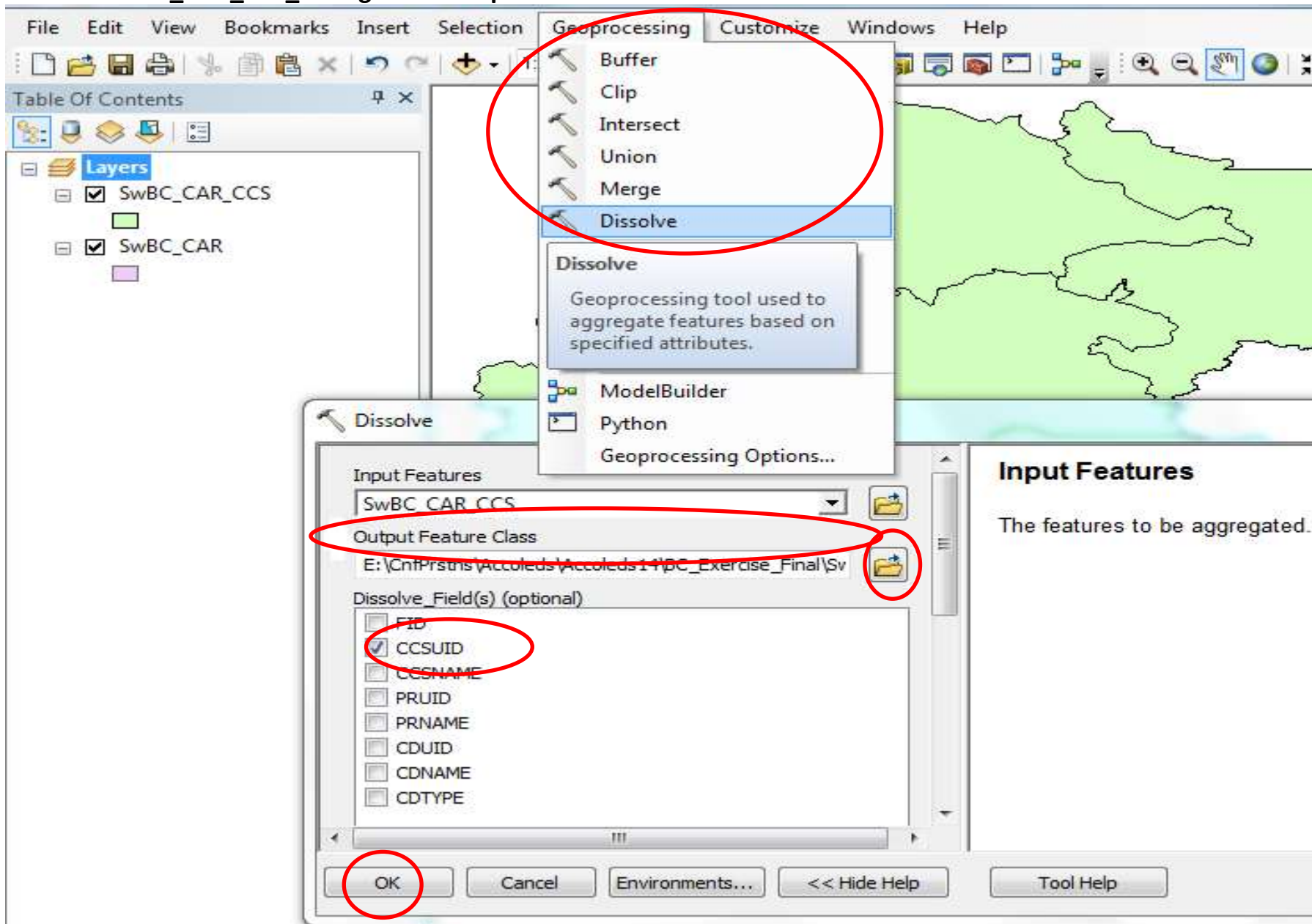
- SvwBC\_CAR\_CCS (Selected)
- SvwBC\_CAR

The attribute table for 'SvwBC\_CAR\_CCS' is displayed below the Editor toolbar. The table has the following columns: FID, Shape \*, CCSUID, and three unlabeled columns. The data is as follows:

FID	Shape *	CCSUID			
0	Polygon	5909016			British Columbia / Cold
7	Polygon	5909016			British Columbia / Cold
8	Polygon	5909016			British Columbia / Cold
9	Polygon	5909034			British Columbia / Cold
18	Polygon	5909036			British Columbia / Cold
14	Polygon	5909052			British Columbia / Cold
2	Polygon	5909060			British Columbia / Cold
12	Polygon	5909062			British Columbia / Cold
20	Polygon	5915001			British Columbia / Cold
13	Polygon	5915004			British Columbia / Cold
10	Polygon	5915011			British Columbia / Cold
5	Polygon	5915015			British Columbia / Cold
6	Polygon	5915020			British Columbia / Cold
3	Polygon	5915022			British Columbia / Cold
4	Polygon	5915025	Burnaby	59	British Columbia / Cold
19	Polygon	5915070	Pitt Meadows	59	British Columbia / Cold
1	Polygon	5915075	Maple Ridge	59	British Columbia / Cold
16	Polygon	5929018	Sunshine Coast A	59	British Columbia / Cold
15	Polygon	5931021	Squamish-Lillooet C	59	British Columbia / Cold
17	Polygon	5931021	Squamish-Lillooet D	59	British Columbia / Cold
11	Polygon	5931034	Squamish-Lillooet B	59	British Columbia / Cold
21	Polygon	5931034	Squamish-Lillooet A	59	British Columbia / Cold

The status bar at the bottom shows '(0 out of 22 Selected)'.

18. Amalgamate the CCSUIDs with the Dissolve tool (to reflect the AgCensus amalgamations); save as SwBC\_CAR\_CCS\_Amalgamated.shp ...



## 19. navigate to and Add ProcessedData.xls (processedData\$ worksheet)

The screenshot shows a GIS application window with a 'Table Of Contents' on the left and a map of a coastal region. The 'Add Data' dialog box is open, showing the following details:

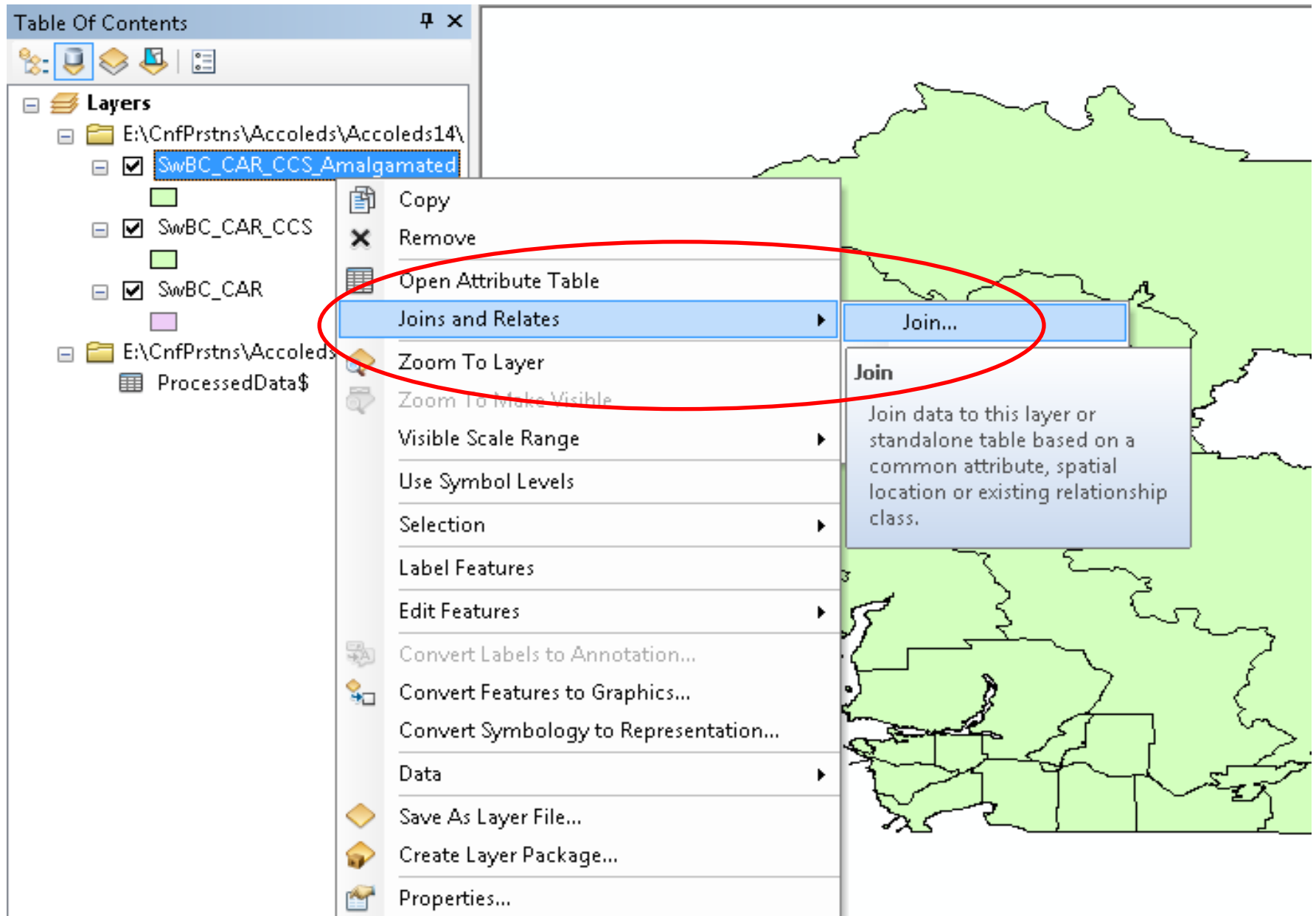
- Look in:** ProcessedData.xls
- Table:**

Name	Type
ProcessedData\$	Excel Table

- Name:** ProcessedData\$
- Show of type:** Datasets, Layers and Results

The 'Add' and 'Cancel' buttons are visible at the bottom right of the dialog box.

## 20. right-click on SwBC\_CAR\_CCS\_Amalgamated to join...attributes from a table...



## 21. Join field CCSUID and ProcessedData field PRCDCCS

Table Of Contents

- Layers
  - E:\CnfPrstns\Accoleds\Accoleds14\
    - SwBC\_CAR\_CCS\_Amalgamated
    - SwBC\_CAR\_CCS
    - SwBC\_CAR
  - E:\CnfPrstns\Accoleds\Accoleds14\
    - ProcessedData\$

**Join Data**

Join lets you append additional data to this layer's attribute table so you can, for example, symbolize the layer's features using this data.

What do you want to join to this layer?

Join attributes from a table

1. Choose the field in this layer that the join will be based on:  
CCSUID
2. Choose the table to join to this layer, or load the table from disk:  
ProcessedData\$  
 Show the attribute tables of layers in this list
3. Choose the field in the table to base the join on:  
PRCDCCS

**Join Options**

- Keep all records  
All records in the target table are shown in the resulting table. Unmatched records will contain null values for all fields being appended into the target table from the join table.
- Keep only matching records  
If a record in the target table doesn't have a match in the join table, that record is removed from the resulting target table.

Validate Join

[About joining data](#)

OK Cancel

## 22. ProcessedData has been added to SwBC\_CAR\_CCS\_Amalamated

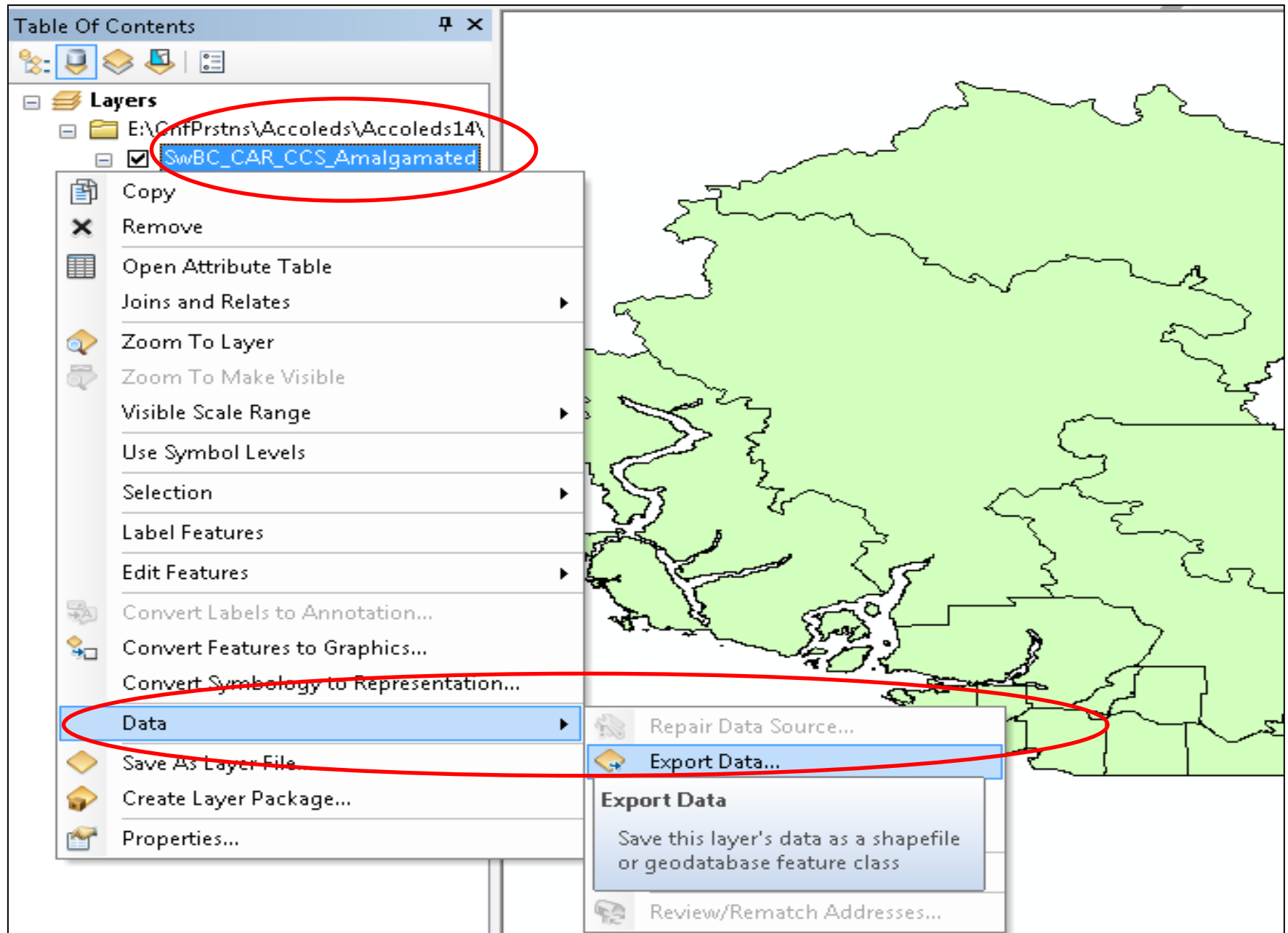
The screenshot shows the ArcGIS interface. On the left, the 'Layers' panel displays a folder 'E:\CnfPrstns\Accoleds\Accoleds14\' containing a layer named 'SwBC\_CAR\_CCS\_Amalqamated'. A context menu is open over this layer, with 'Open Attribute Table' selected. A tooltip for 'Open Attribute Table' is visible, stating: 'Open this layer's attribute table. Shortcut: CTRL + double-click layer name OR CTRL + T.' Below the menu, other options like 'Use Symbol Levels', 'Selection', 'Label Features', 'Edit Features', 'Convert Labels to Annotation...', 'Convert Features to Graphics...', 'Convert Symbology to Representation...', 'Data', 'Save As Layer File...', 'Create Layer Package...', and 'Properties...' are listed.

On the right, the 'Table' window is open, displaying the attribute table for 'SwBC\_CAR\_CCS\_Amalqamated'. The table has the following columns: FID, Shape \*, CCSUID, Geography, PRCDCCS, and Organic. The data rows are as follows:

FID	Shape *	CCSUID	Geography	PRCDCCS	Organic
0	Polygon	5909016	Fraser Valley B(CCS590209016)	5909016	2
1	Polygon	5909034	Fraser Valley D(CCS590209034)	5909034	9
2	Polygon	5909036	Fraser Valley E(CCS590209036)	5909036	29
3	Polygon	5909052	Abbotsford(CCS590209052)	5909052	32
4	Polygon	5909060	Fraser Valley F(CCS590209060)	5909060	2
5	Polygon	5909062	Fraser Valley G(CCS590209062)	5909062	1
6	Polygon	5915001	Langley(CCS590215001)	5915001	18
7	Polygon	5915004	Surrey(CCS590215004)	5915004	8
8	Polygon	5915011	Delta(CCS590215011)	5915011	5
9	Polygon	5915015	Richmond(CCS590215015)	5915015	1
10	Polygon	5915020	Greater Vancouver A(CCS590215020)	5915020	1
11	Polygon	5915022	Vancouver(CCS590215022)	5915022	0
12	Polygon	5915025	Burnaby(CCS590215025)	5915025	1
13	Polygon	5915070	Pitt Meadows(CCS590215070)	5915070	4
14	Polygon	5915075	Maple Ridge(CCS590215075)	5915075	2
15	Polygon	5929018	Sunshine Coast A(CCS590229018)	5929018	3
16	Polygon	5931021	Squamish-Lillooet D(CCS590231021)	5931021	13
17	Polygon	5931034	Squamish-Lillooet B(CCS590231034)	5931034	3



### 23. right-click SwBC\_CAR\_CCS\_Amalamated to export data...



## 24. save as SwBC\_CAR\_CCS\_Organic.shp and add to map

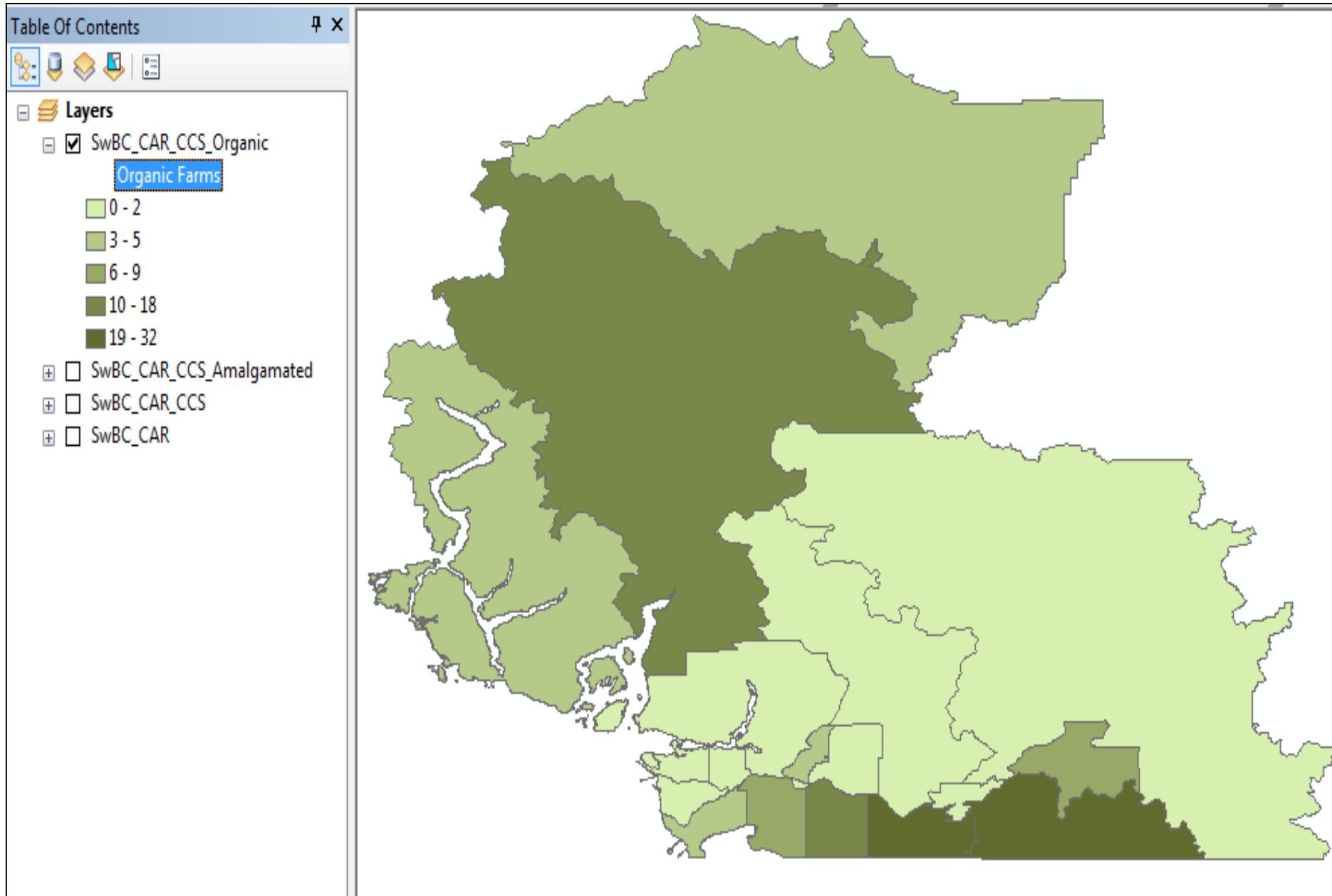
The screenshot displays the ArcGIS interface. On the left, the 'Table of Contents' panel shows a list of layers under the path 'E:\CnfPrstns\Accoleds\Accoleds14\'. The layers are: 'SwBC\_CAR\_CCS\_Amalgamated' (checked), 'SwBC\_CAR\_CCS' (checked), 'SwBC\_CAR' (checked), and 'ProcessedData\$' (unchecked). The 'SwBC\_CAR\_CCS\_Amalgamated' layer is currently selected.

The 'Saving Data' dialog box is open, showing the current location as 'BC\_Exercise\_Final'. The file list contains the following items:

Name	Type
Canada_CCS.shp	Shapefile
ProcessedData.xls	Excel File
ProcessedData2.xls	Excel File
RawData.xls	Excel File
RawData2.xls	Excel File
SwBC_CAR.shp	Shapefile
SwBC_CAR_CCS.shp	Shapefile
SwBC_CAR_CCS_Amalgamated...	Shapefile

The 'Name' field is set to 'SwBC\_CAR\_CCS\_Organic.shp' and the 'Save as type' is set to 'Shapefile'. A red circle highlights these two fields. The 'Save' button is visible next to the 'Name' field.

## SwBC\_CAR\_CCS\_Organic farms symbolized by choropleth map: "Organic Farms by CCSs" ...but...



...Choropleth maps are usually better for relative numbers (ratios, percentages, etc) rather than absolute numbers...so...27

## Part C: Create Map(s)

### 1. double or right-click SwBC\_CAR\_CCS\_Organic for Properties

The screenshot displays a GIS application window. On the left, a 'Table Of Contents' panel shows a 'Layers' list with 'SwBC\_CAR\_CCS\_Organic' selected. A context menu is open over this layer, listing various actions such as 'Copy', 'Remove', 'Open Attribute Table', 'Joins and Relates', 'Zoom To Layer', 'Zoom To Make Visible', 'Visible Scale Range', 'Use Symbol Levels', 'Selection', 'Label Features', 'Edit Features', 'Convert Labels to Annotation...', 'Convert Features to Graphics...', 'Convert Symbology to Representation...', 'Data', 'Save As Layer File...', 'Create Layer Package...', and 'Properties...'. The 'Properties...' option is highlighted with a blue background and circled in red. Below the context menu, a 'Layer Properties' dialog box is partially visible, with the text 'Display the properties of this layer'.

2. in SwBC\_CAR\_CCS\_Organic Layer Properties, click Symbology, Quantities, Dot Density, and move Organic...

The screenshot displays the ArcGIS Desktop interface. On the left, the Table of Contents shows the layer hierarchy with 'SwBC\_CAR\_CCS\_Organic' selected. The main window shows the Layer Properties dialog for this layer, with the 'Symbology' tab active. The 'Quantities' section is expanded to 'Dot density'. The 'Field Selection' list contains 'Organic'. The 'Dot Size' is set to 9, and the 'Dot Value' is set to 1. The 'Densities Calculated at' is 1:2000000. The background is set to a color gradient. The 'Maintain Density By' checkbox is checked, and the 'Dot Value' is set to 'Dot Value'. The 'OK', 'Cancel', and 'Apply' buttons are visible at the bottom.

Table Of Contents

- Layers
  - SwBC\_CAR\_CCS\_Organic
  - SwBC\_CAR\_CCS\_Amalgamated
  - SwBC\_CAR\_CCS
  - SwBC\_CAR

Layer Properties

General Source Selection Display **Symbology** Fields Definition Query Labels Joins & Relates Time HTML Popup

Show: Draw quantities using dots to show values. Import...

Field Selection

Symbol	Field
	Organic

Densities Calculated at 1:2000000

Dot Size: 9

Min	Mean	Max

Dot Value: 1

Background: [Color Gradient]

Maintain Density By: Dot Value

OK Cancel Apply

### 3. (in SwBC\_CAR\_CCS\_Organic Layer Properties) ...move Organic over to symbolize it

The screenshot shows the ArcGIS Layer Properties dialog for the 'SwBC\_CAR\_CCS\_Organic' layer. The 'Symbology' tab is active, and 'Dot density' is selected under the 'Quantities' section. The 'Field Selection' table shows the 'Organic' field moved to the 'Symbol' column. The 'Dot Size' is set to 9, and the 'Dot Value' is set to 1. The 'OK' button is highlighted.

**Table of Contents:**

- SwBC\_CAR\_CCS\_Organic
- SwBC\_CAR\_CCS\_Amalgamated
- SwBC\_CAR\_CCS
- SwBC\_CAR

**Layer Properties - SwBC\_CAR\_CCS\_Organic**

General | Source | Selection | Display | **Symbology** | Fields | Definition Query | Labels | Joins & Relates | Time | HTML Popup

Show: **Draw quantities using dots to show values.** Import...

Field Selection

Symbol	Field
	Organic

Densities Calculated at 1:2000000

Dot Size: 9

Dot Value: 1

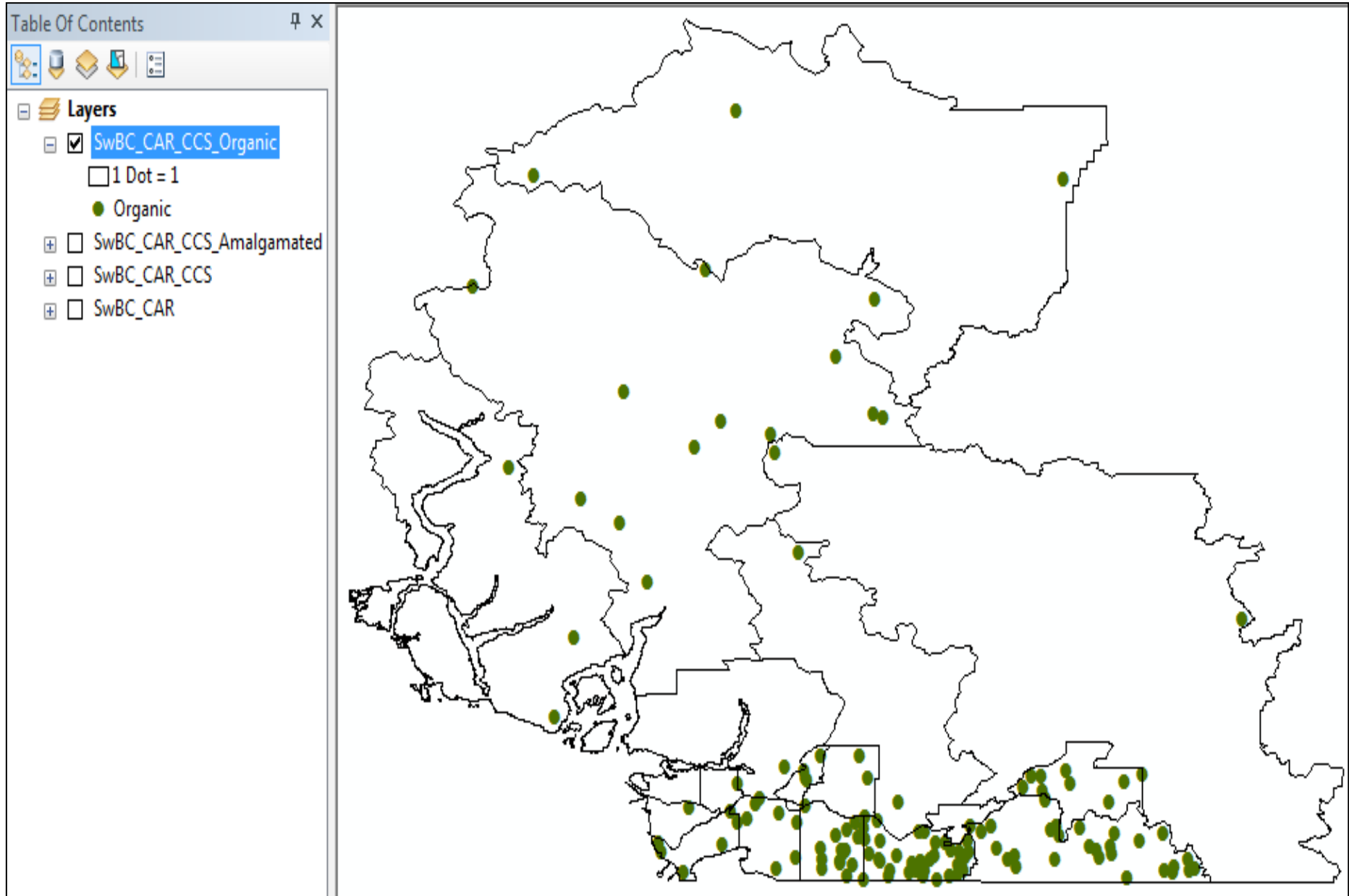
Background: Properties... Exclusion...

Maintain Density By: Dot Value

OK Cancel Apply

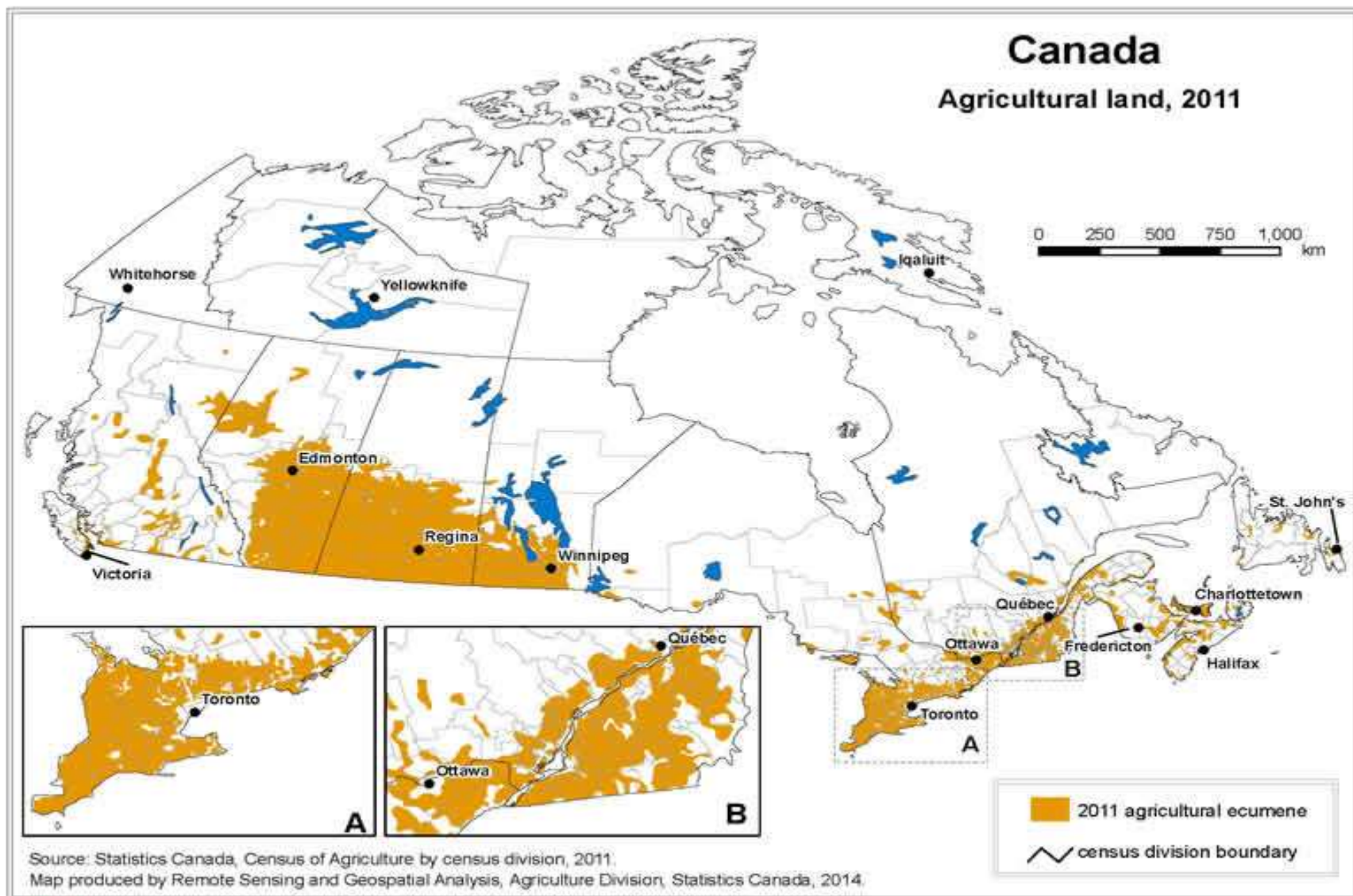
for display purposes, Dot size = 9 and Dot Value: 1 (1 dot = 1 farm); colour can be changed

## Organic farms by CCS (by Dot Density within CCSs; dots do not indicate exact geographic location)...



...but this visualization assumes farms are randomly distributed throughout their CCS areas which is not the case... so Agricultural Ecumene Boundary File is useful...

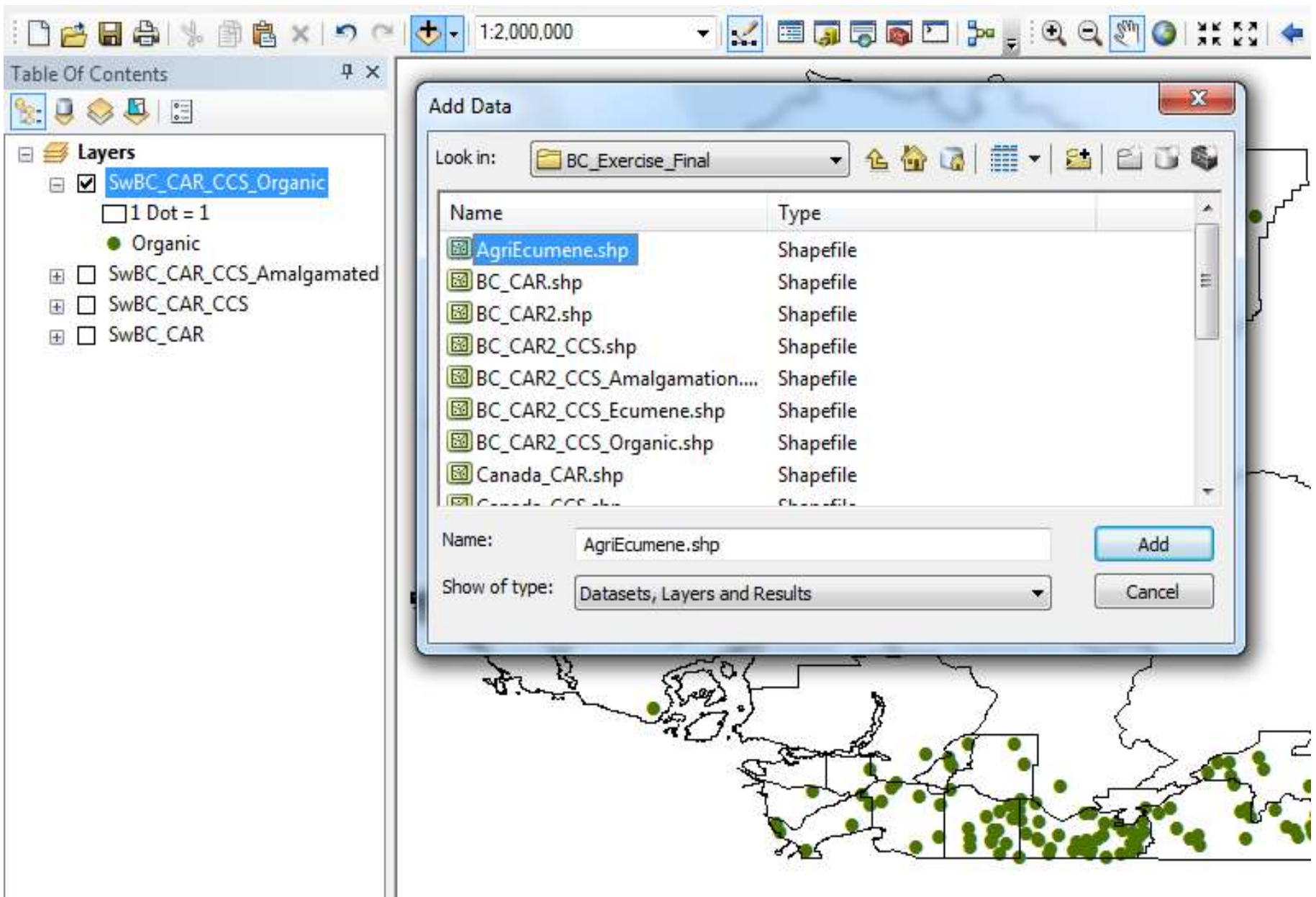
# AgricEcumene delineates areas of significant agricultural activity in Canada as indicated by the 2011 CensusAg



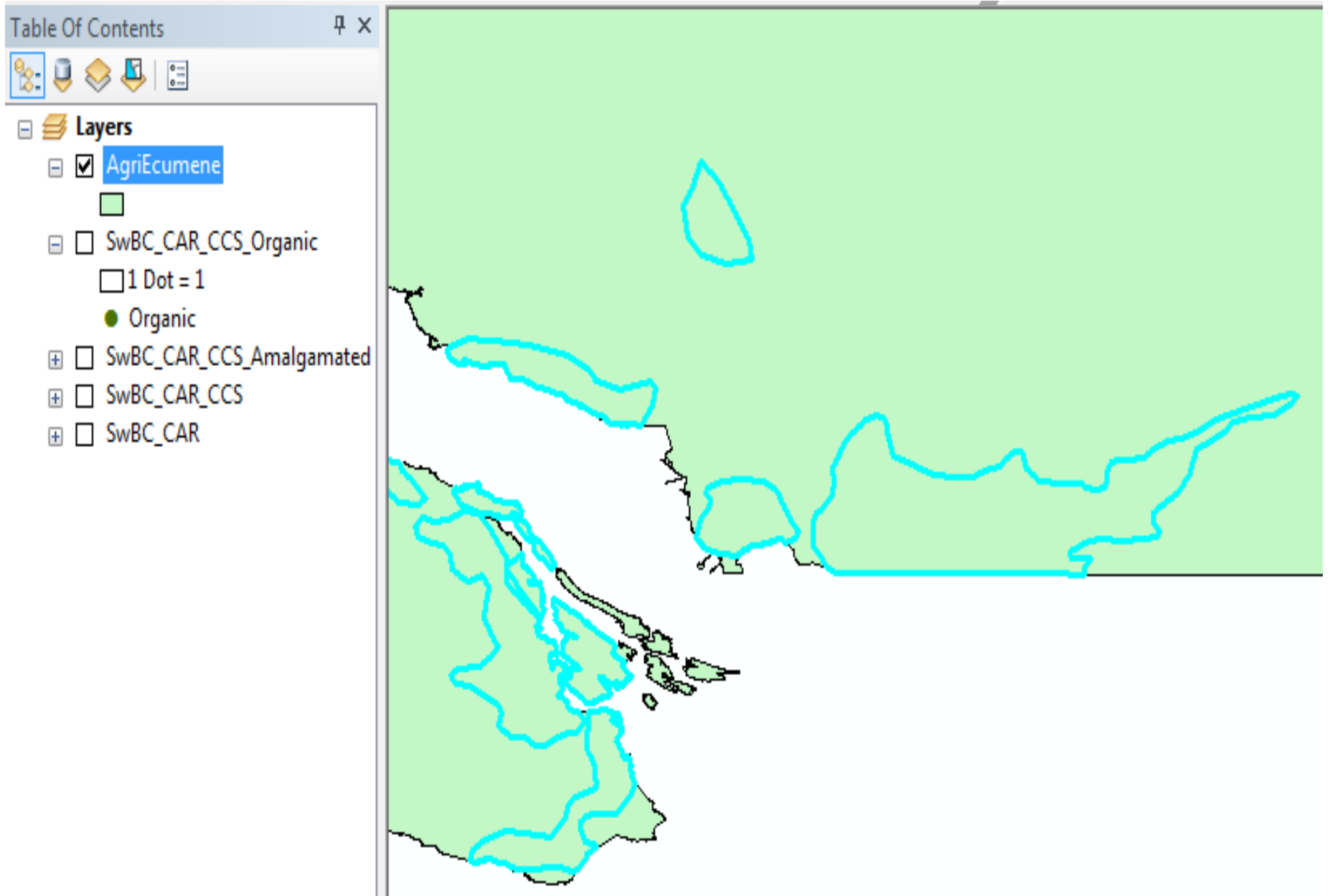
Most/much of Canada, and BC, does not have significant agricultural activity...



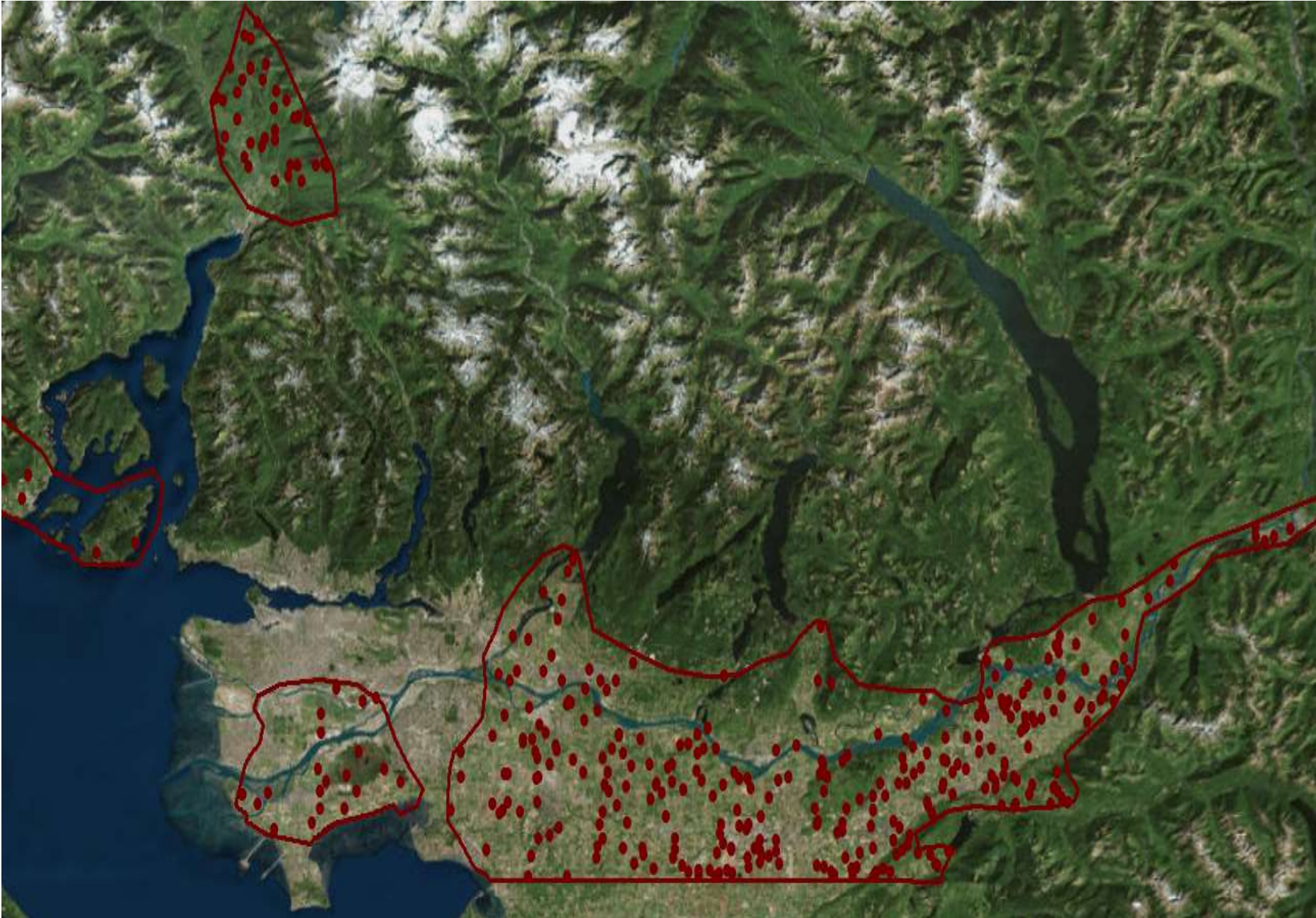
#### 4. navigate to and Add AgEcumene file



Note the limited areas of significant agricultural activity in Sw BC...(only highlighted here for visualization)



Note the limited areas of significant agricultural activity in Sw BC...(mountainous terrain...)



## 5. Need to elect by Attributes (...“ECUMENE” = ‘1’...next slide...)

The screenshot displays the ArcGIS Desktop interface. The 'Selection' menu is open, with 'Select By Attributes...' highlighted. The 'Layers' panel on the left shows a list of layers, with 'AgriEcumene' selected and checked. The main map area shows a green background with a white outline of a landmass.

**File** **Edit** **View** **Bookmarks** **Insert** **Selection** **Geoprocessing** **Customize** **Windows** **Help**

Table Of Contents

**Layers**

- AgriEcumene**
- SwBC\_CAR\_CCS\_Organic
- SwBC\_CAR\_CCS\_Amalgamated
- SwBC\_CAR\_CCS
- SwBC\_CAR

**Select By Attributes**

Selects features by their attribute values

Pan To Selected Features

Statistics...

Clear Selected Features

Interactive Selection Method ▶

Selection Options...

## 6. Select by Attributes: "ECUMENE" = '1'.

The screenshot shows the 'Select By Attributes' dialog box in a GIS application. The dialog is open for the 'AgriEcumene' layer. The 'Method' is set to 'Create a new selection'. The attribute list shows 'ECUMENE' selected. The expression builder shows the expression '<code>'ECUMENE' = '1'' and the 'OK' button is highlighted. A map in the background shows a green area with a black outline.

Table Of Contents

Layers

- AgriEcumene
- SwBC\_CAR\_CCS\_Organic
  - 1 Dot = 1
  - Organic
- SwBC\_CAR\_CCS\_Amalgamated
- SwBC\_CAR\_CCS
- SwBC\_CAR

Select By Attributes

Layer: AgriEcumene

Method: Create a new selection

FID  
ECUMENE  
AGECUID

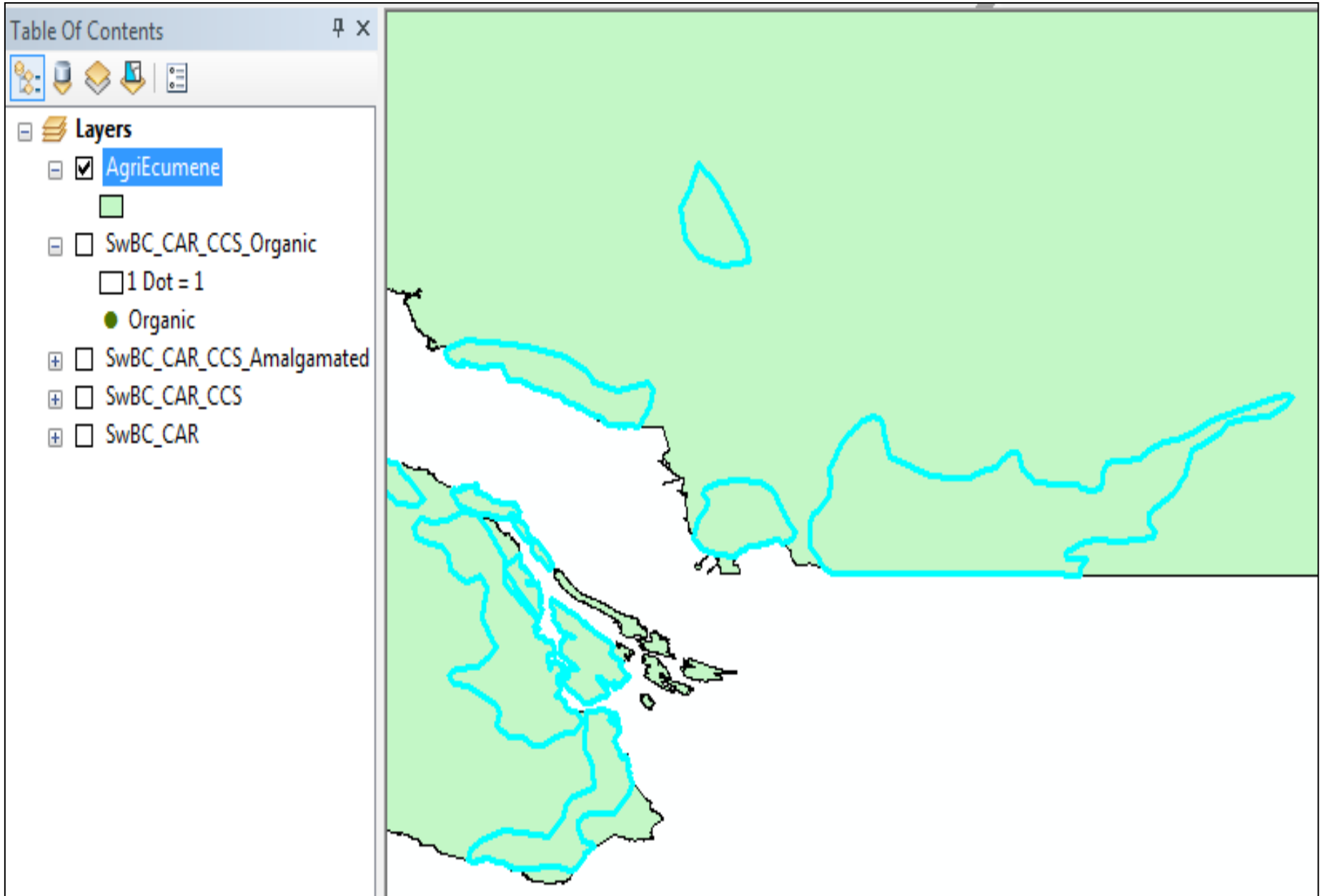
= <> Like &#x2191  
> >= And &#x2191  
< <= Or &#x2191  
\_ % ( ) Not &#x2191  
Is Get Unique Values Go To: <input type="text" value=""/>

SELECT \* FROM AgriEcumene WHERE:  
'ECUMENE' = '1'

Clear Verify Help Load... Save...  
OK Apply Close

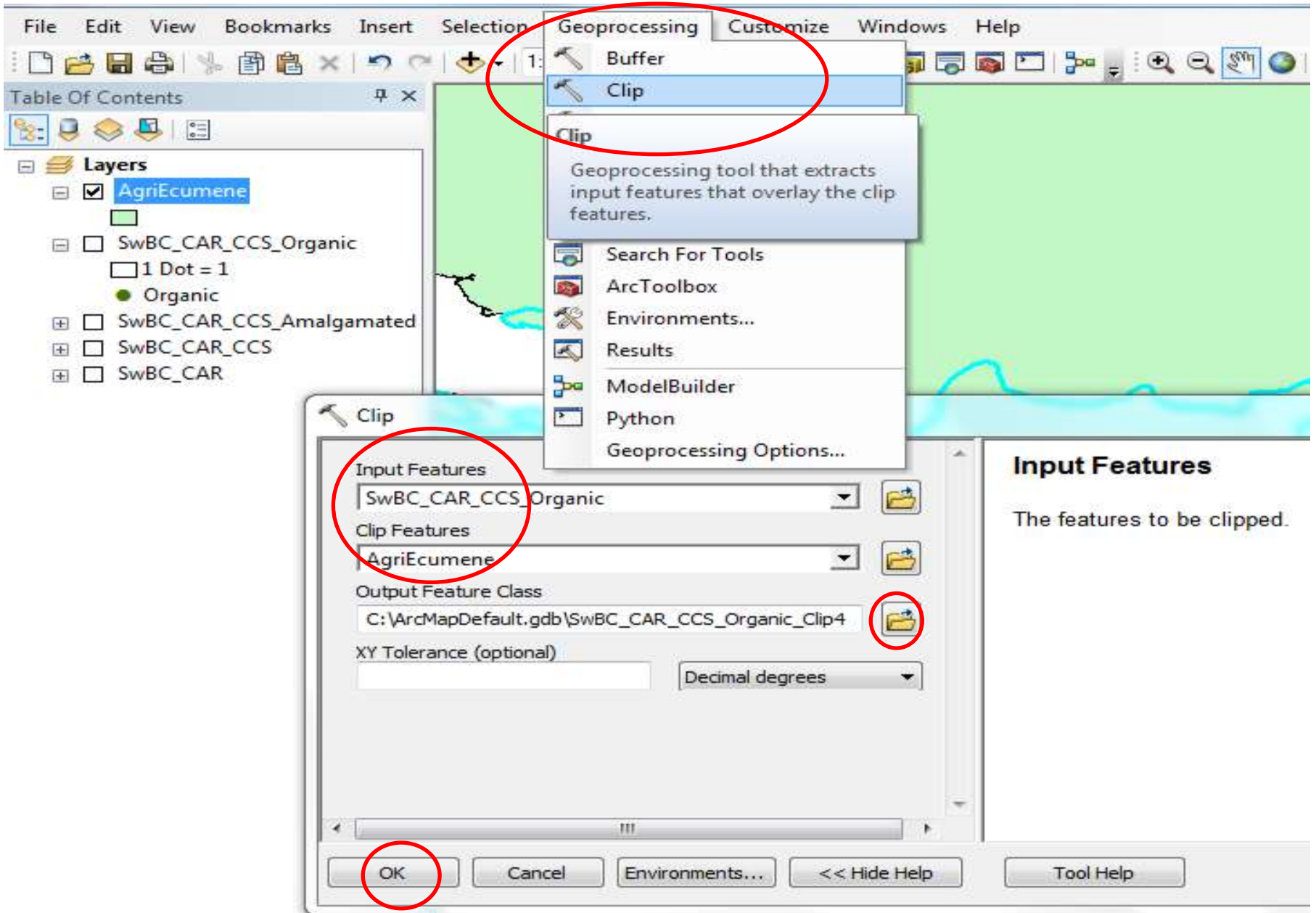
This selects areas where there is significant agricultural activity to meet criteria of minimum agricultural land area or agricultural receipts.

"ECUMENE" = '1' selected...



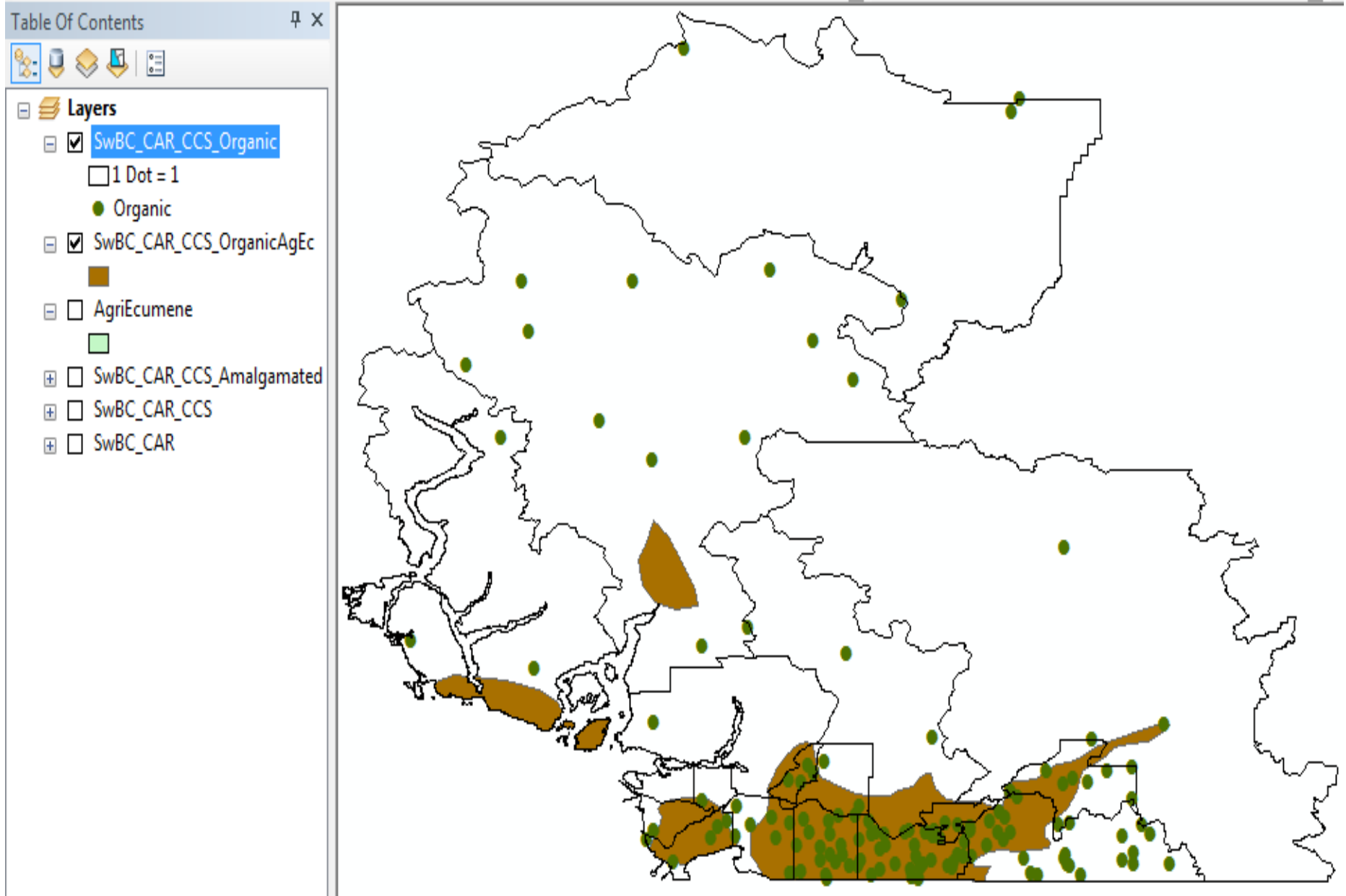
...now with above we will clip...

## 7. (under Geoprocessing use) Clip SwBC\_CAR\_CCS\_Organic using AgriEcumene...



...save file as SwBC\_CAR\_CCS\_OrganicAgEc...

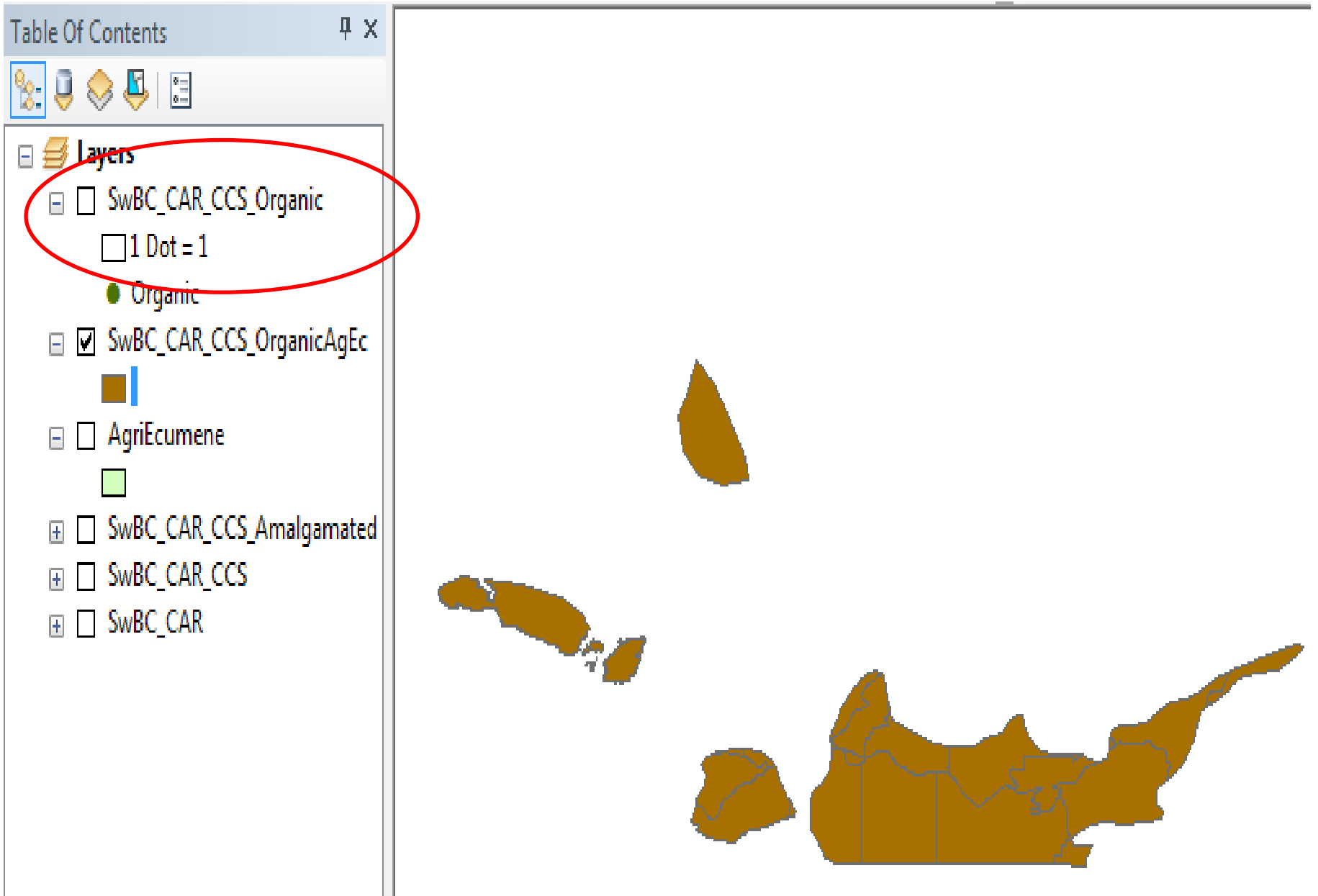
8. un-click AgriEcumene and move SwBC\_CAR\_CCS\_Organic to top of Table of Contents  
“Organic Farms in SwBC by CCS (by Dot Density within CCSs over AgriEcumene)”



Note how many/some of the organic farms in SwBC\_CAR\_CCS\_Organic are outside the AgriEcumene areas...



9. un-click SwBC\_CAR\_CCS\_Organic b/c we will now symbolize SwBC\_CAR\_CCS\_OrganicAgEc...next slide...



## 10. symbolize SWBC\_CAR\_CCS\_OrganicAgEc with dot density: Layer Properties–Symbology–Quantities–Dot Density, and move Organic to symbolize it by Dot Density

The screenshot displays the ArcGIS Layer Properties dialog box for the layer **SWBC\_CAR\_CCS\_OrganicAgEc**. The **Symbology** tab is active, and the **Quantities** section is selected. The **Dot density** option is chosen under Quantities. The **Field Selection** table shows the **Organic** field selected. The **Dot Size** is set to 9 and the **Dot Value** is set to 1. A small map preview shows the resulting dot density symbolization. The **Dot Value** is set to 1, and the **Dot Size** is set to 9. The **Dot Value** is set to 1, and the **Dot Size** is set to 9.

Table of Contents:

- Layers
  - SwBC\_CAR\_CCS\_Organic
    - 1 Dot = 1
    - Organic
  - SwBC\_CAR\_CCS\_OrganicAgEc
  - AgriEcumene
  - SwBC\_CAR\_CCS\_Amalgamated
  - SwBC\_CAR\_CCS
  - SwBC\_CAR

Layer Properties: Symbology

Draw quantities using dots to show values.

Field Selection:

Symbol	Field
●	Organic

Densities Calculated at 1:2000000

Dot Size: 9

Dot Value: 1

Background: [Color swatch]

Maintain Density By: Dot Value

for display purposes, Dot size = 9 and Dot Value: 1 (1 dot = 1 farm); colour can be changed and...see next page...

## 11. ...set Background to No Colour; OK

The screenshot displays the ArcGIS interface with several windows open. The **Table Of Contents** window on the left shows a list of layers, with **SwBC\_CAR\_CCS\_OrganicAgEc** selected. The **Layer Properties** window is open for this layer, showing the **Symbology** tab. The **Quantities** section is active, and the **Field Selection** table shows a dot symbol for the **Organic** field. The **Symbol Selector** window is open, showing a search for **ESRI** styles. The **Color** dropdown is set to **No Color**, and the **Background** dropdown is also set to **No Color**. The **OK** button is highlighted.

**Table Of Contents**

- SwBC\_CAR\_CCS\_Organic
  - 1 Dot = 1
  - Organic
- SwBC\_CAR\_CCS\_OrganicAgEc**
  - 1 Dot = 1
  - Organic
- AgriEcumene

**Layer Properties**

General | Source | Selection | Display | **Symbology** | Fields | Definition Query | Labels | Joins & Relates | Time | HTML Popup

Show:

**Features**

**Categories**

**Quantities**

- Graduated colors
- Graduated symbols
- Proportional symbols
- Dot density

Draw quantities using dots to show values. Import...

Field Selection

Symbol	Field
●	Organic

**Symbol Selector**

Type here to search

Search:  All Styles  Referenced Styles

ESRI

Highway	Highway Ramp	Expressway
Expressway Ramp	Major Road	Arterial Street
Collector Street	Residential Street	Railroad

Current Symbol

Color: No Color

Width: No Color

Background: No Color

Properties... Exclusion...

Maintain Density By

Dot Value

OK Cancel Apply

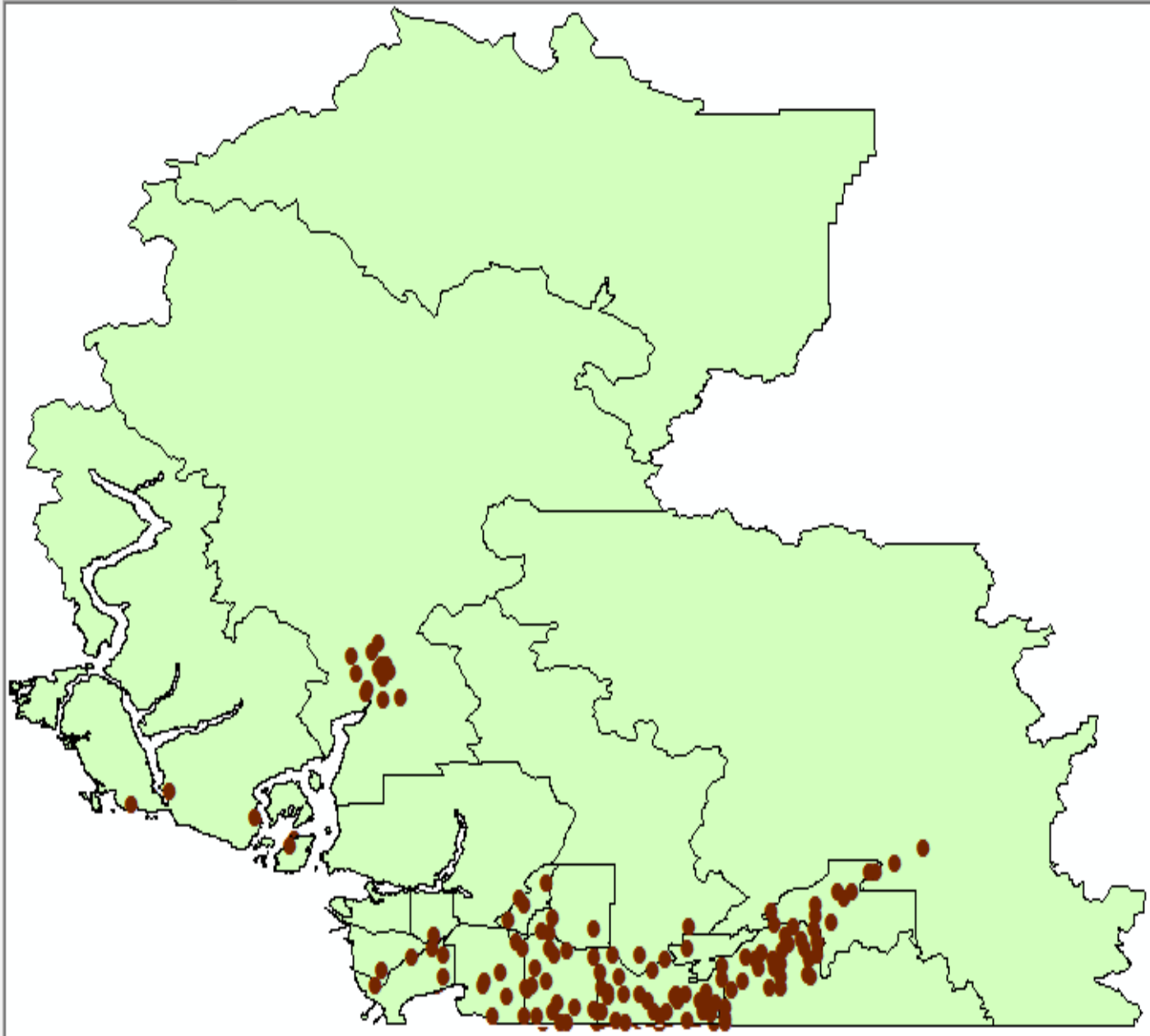
## Organic Farms in SwBC by Agricultural Ecumene (by Dot Density)

Table Of Contents



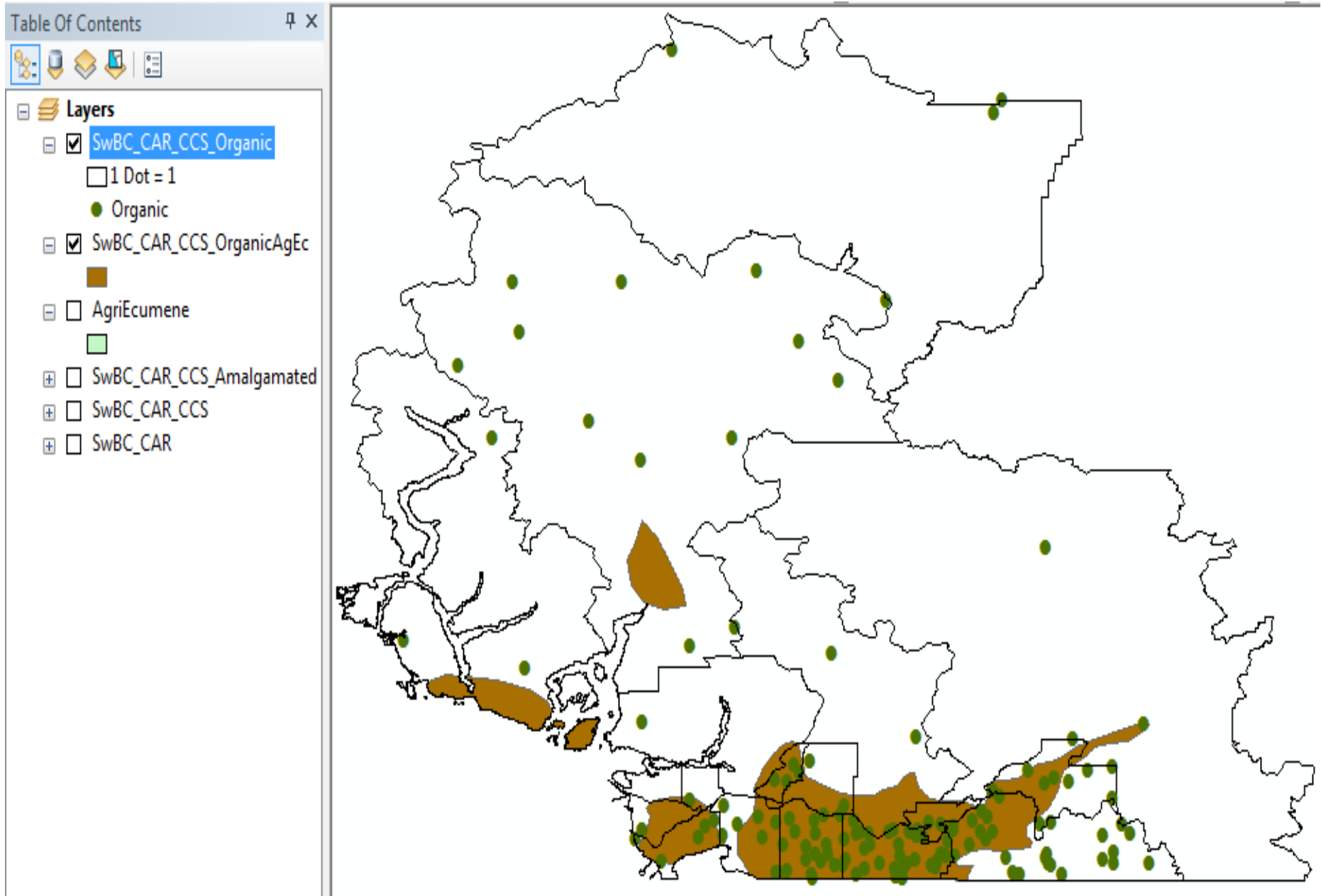
### Layers

- SwBC\_CAR\_CCS\_Organic
- SwBC\_CAR\_CCS\_OrganicAgEc
  - 1 Dot = 1
  - Organic
- AgriEcumene
  -
- SwBC\_CAR\_CCS\_Amalgamated
- SwBC\_CAR\_CCS
- SwBC\_CAR



Compare to map on next slide 45

## Organic Farms in SwBC by CCS (by Dot Density within CCSs over AgriEcumene)



Note: This is slide 40 with organic farms within CCSs