

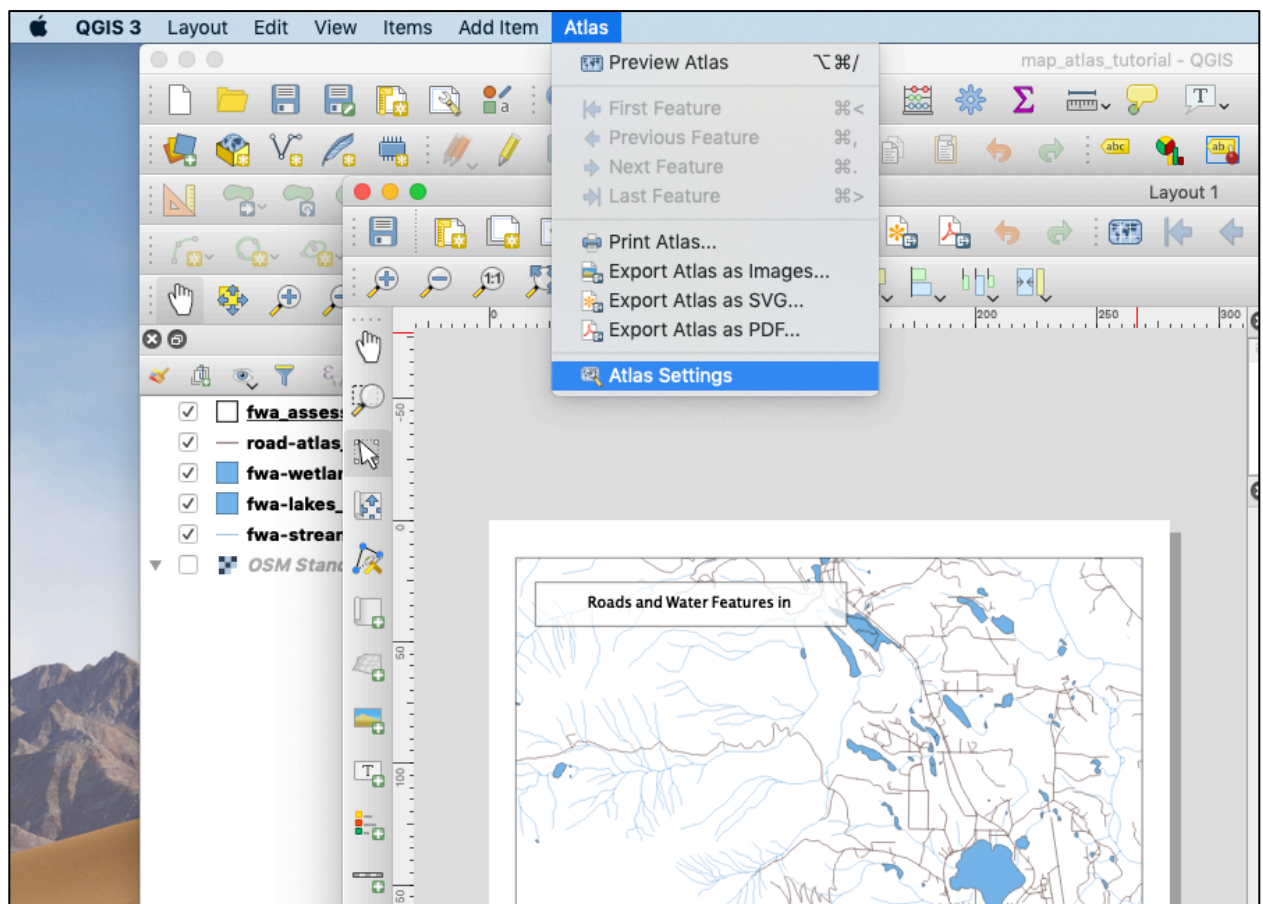
Using the QGIS Atlas feature to create a series of maps

Often projects require a series of similar maps to be created (for example, one map for each watershed, one map for each administrative unit, etc.). It can be very time consuming to individually create a large number of maps. QGIS has a tool called Atlas that allows you to create a map template and generate a large number of maps at once. The areas to be covered by each map need to be included in a polygon layer in the project called a 'coverage.'

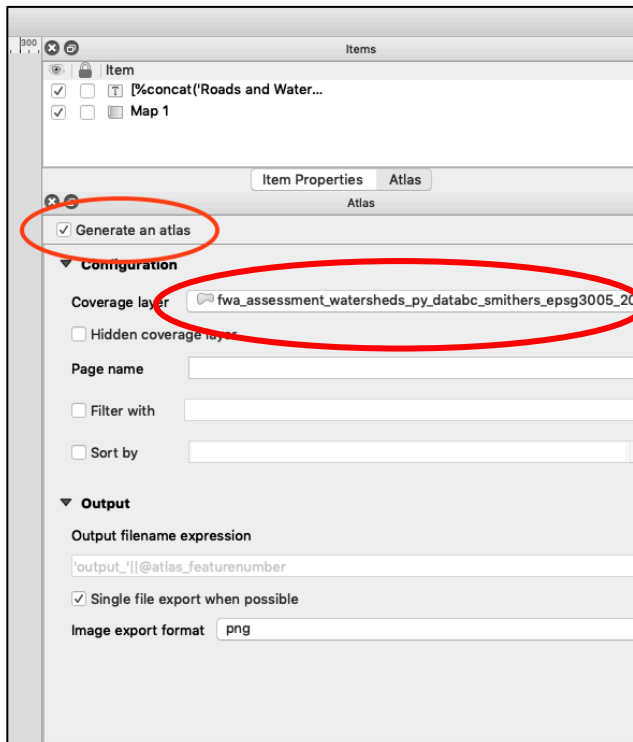
Tutorial:

General use of the Atlas tool

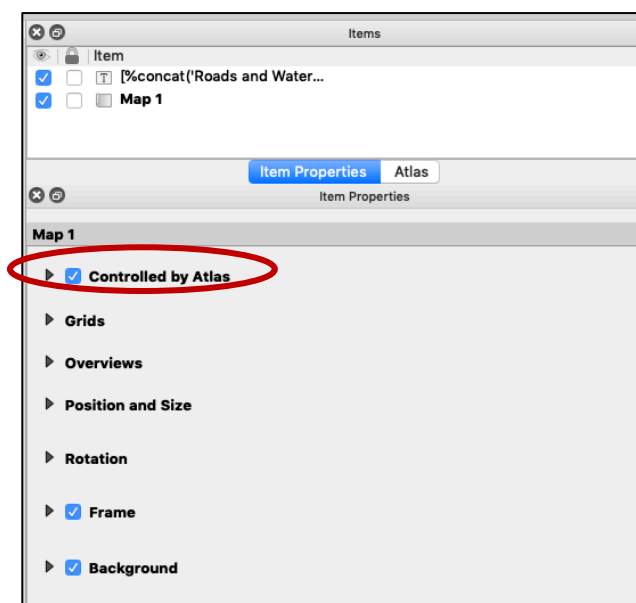
1. Create a print layout as normal
2. Open the print layout, and go to the Atlas menu in the top menu bar. Choose Atlas settings and a new window will open up in your map layout



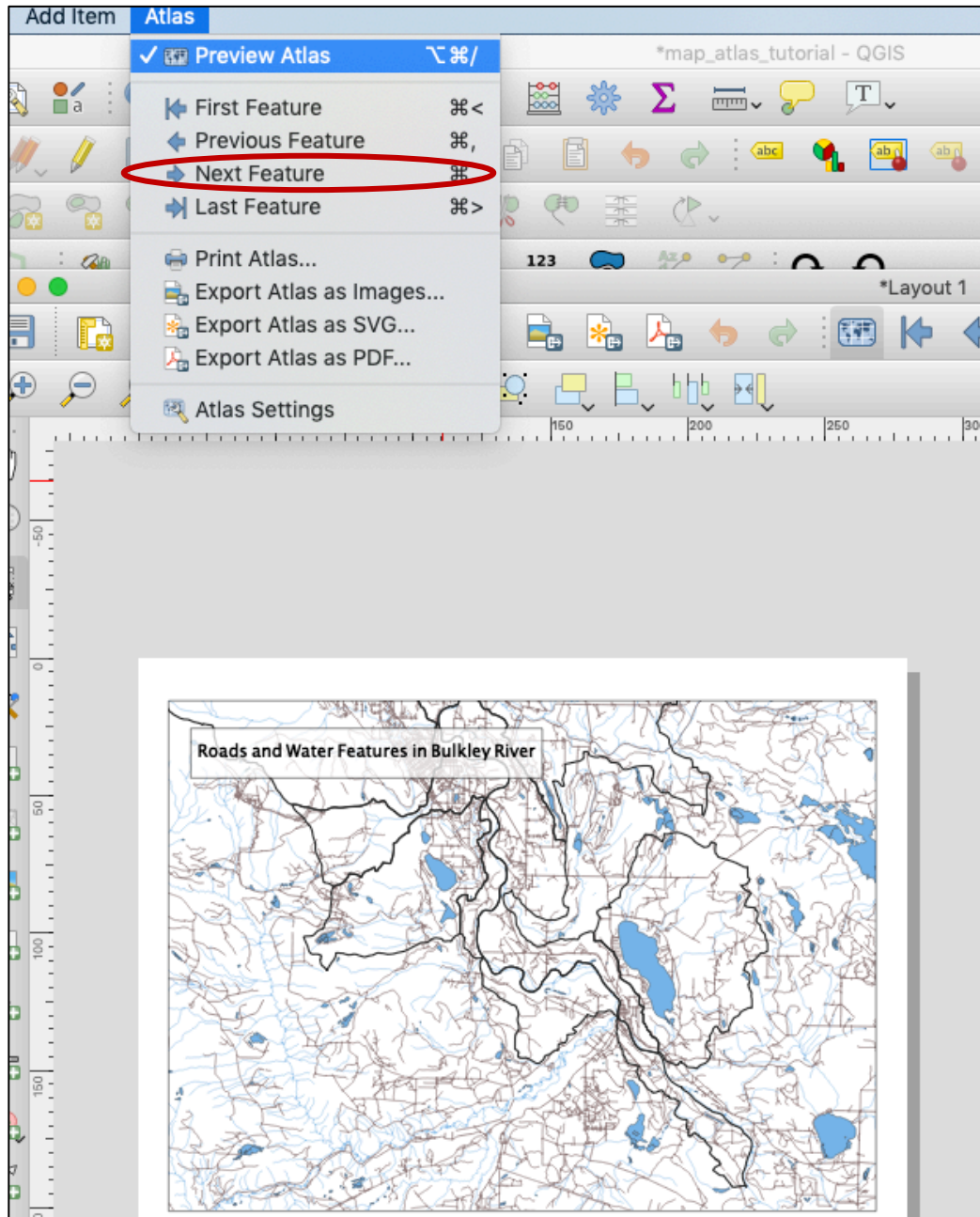
3. In the Atlas Properties window that appears on the right of the print layout, check the 'generate an atlas' box, then choose your coverage layer – this is the layer containing the polygons that will be the areas for each map. Here I am using a subset of the FWA Assessment Watersheds layer.



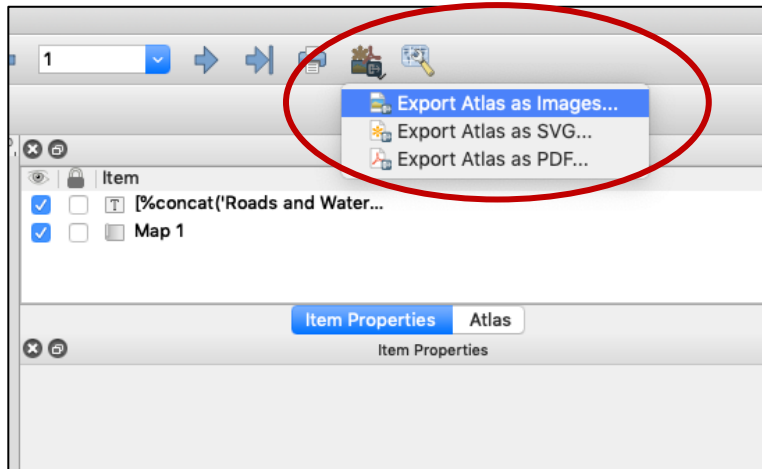
4. Under Item Properties for the map object, scroll down and check Controlled by Atlas



5. You can use the Preview Atlas option under the Atlas menu to see what each map will look like. Move through the maps using 'Next Feature'. Each map should be centered on one polygon from the coverage layer.



The atlas is now working, and the maps can be exported using the Export Atlas button on the top bar of the layout.



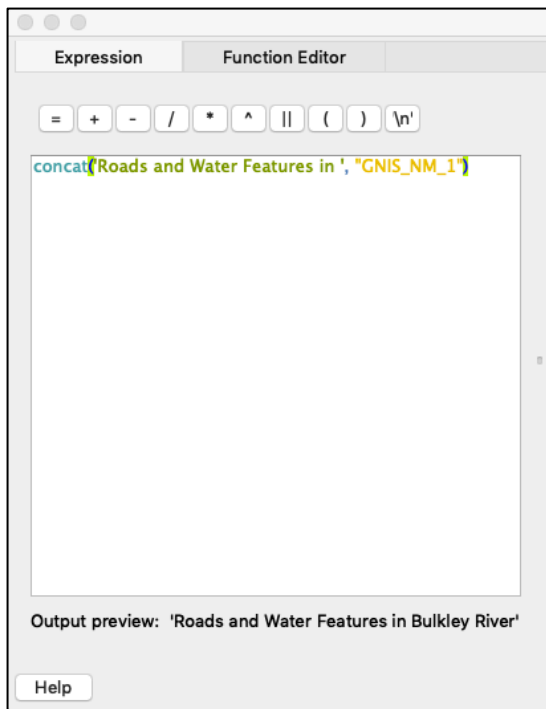
However, there are several things we can do to improve the appearance of the map set:

Using an expression to make labels that title each map using an attribute value:

I would like each map to be labeled with the name of the watershed, which is stored in the attribute table under the column GNIS_NM_1.

To do this:

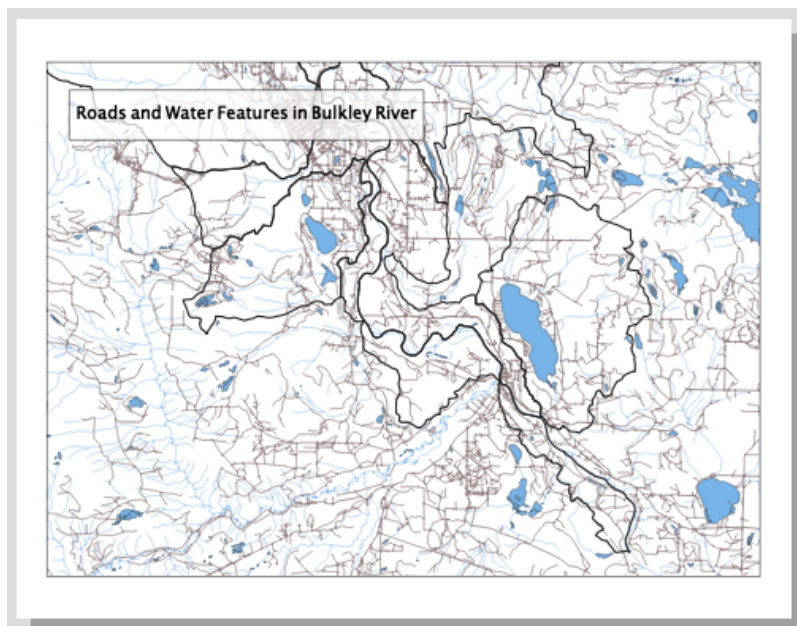
1. Add a new label to the map as normal
2. Under the Item Properties of the label, choose 'Insert an Expression'. This will bring up the Expression editor.
3. Now you can write an expression that will create a label for your attribute of interest on the coverage layer. I want my label to read 'Roads and Water Features in [name of watershed]', with the text in brackets changing for each watershed. To do this, write "concat('Roads and Water Features in ', "GNIS_NM_1")". The function concat() links together different pieces of text or attribute values. This expression can be edited to create the desired results.



4. Adjust formatting for the label according to needs

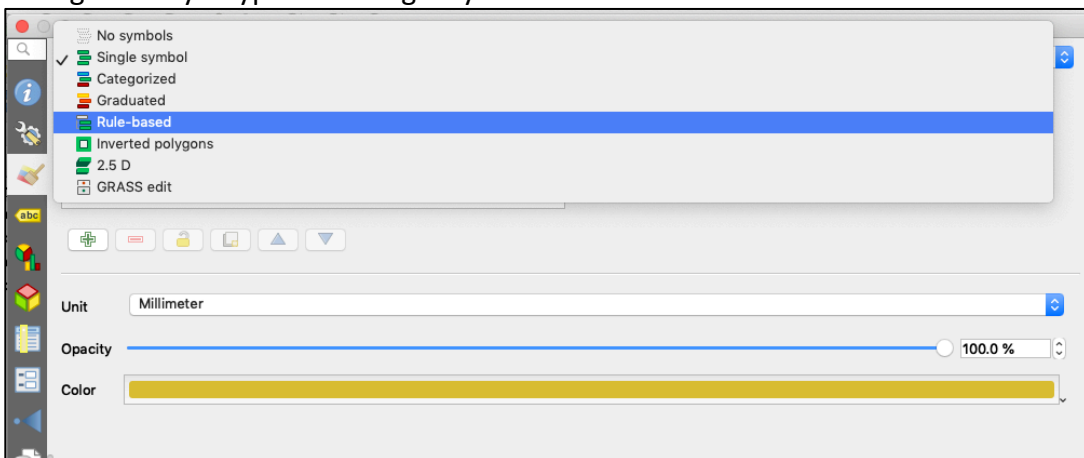
Restricting the coverage layer so only the active polygon is visible

Currently, all the polygons in the coverage layer are visible in each map. This makes it hard to determine which polygon is the active one:

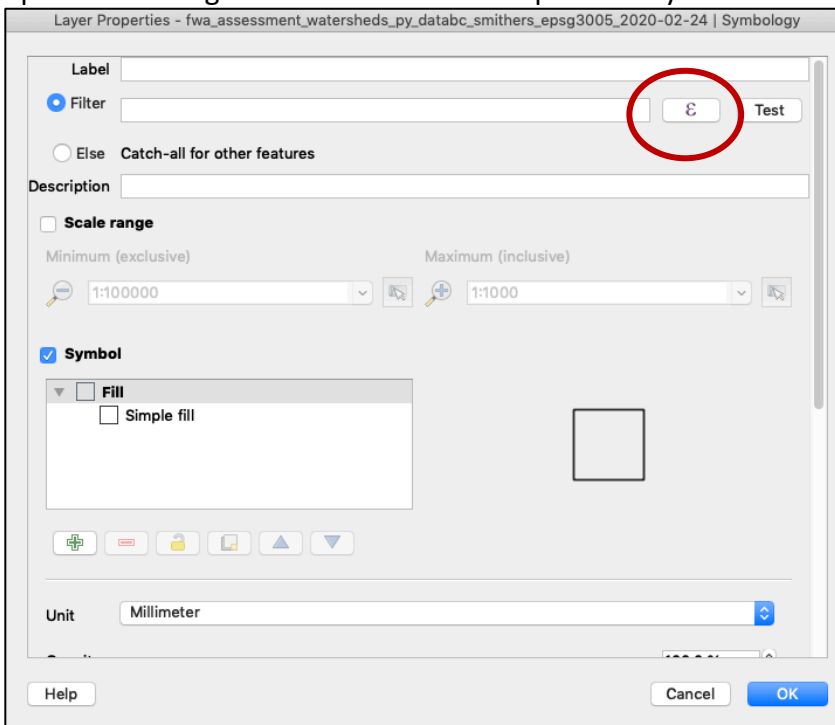


To do this:

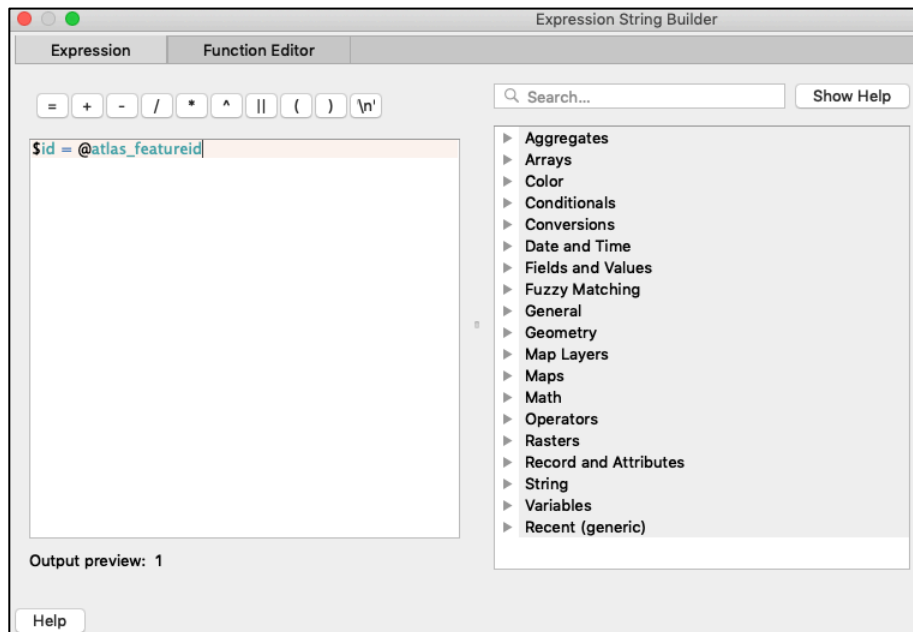
1. In the main QGIS window, open the properties for the coverage layer and go to Symbology
2. Change the style type from Single Symbol to Rule Based



3. One rule will be created by default. To edit the rule, double click on it, which will bring up a new editing window. Click on the expression symbol:



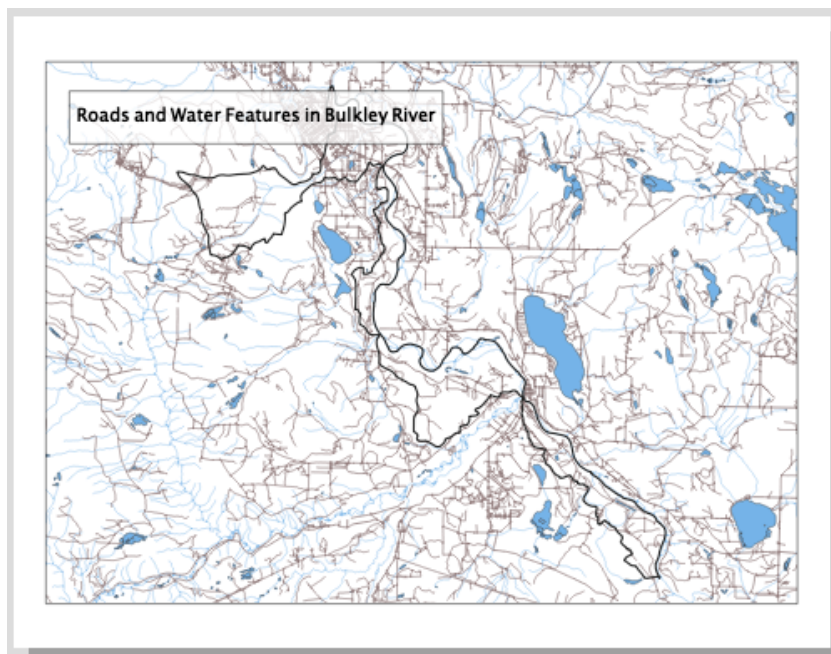
4. This will bring up the expression editor. Enter '`$id = @atlas_featureid`' (without the quotation marks).



5. Click OK for all windows, then return to the print layout and refresh. Only the active coverage polygon should be visible for each map.

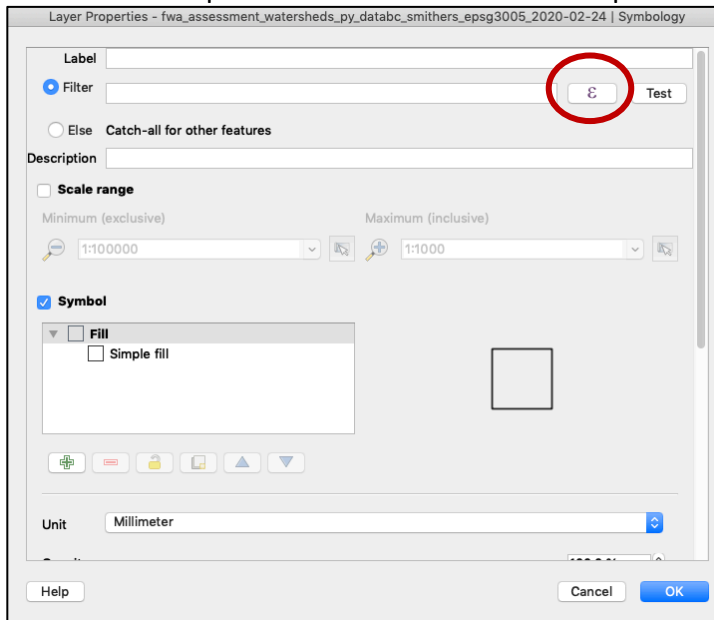
Restricting other layers so that only portions within the active coverage polygon are visible

Now, only the active coverage polygon is visible in the map. However, portions of other layers are visible outside of the coverage polygon. You may want to make these layers invisible outside the coverage polygon as well.

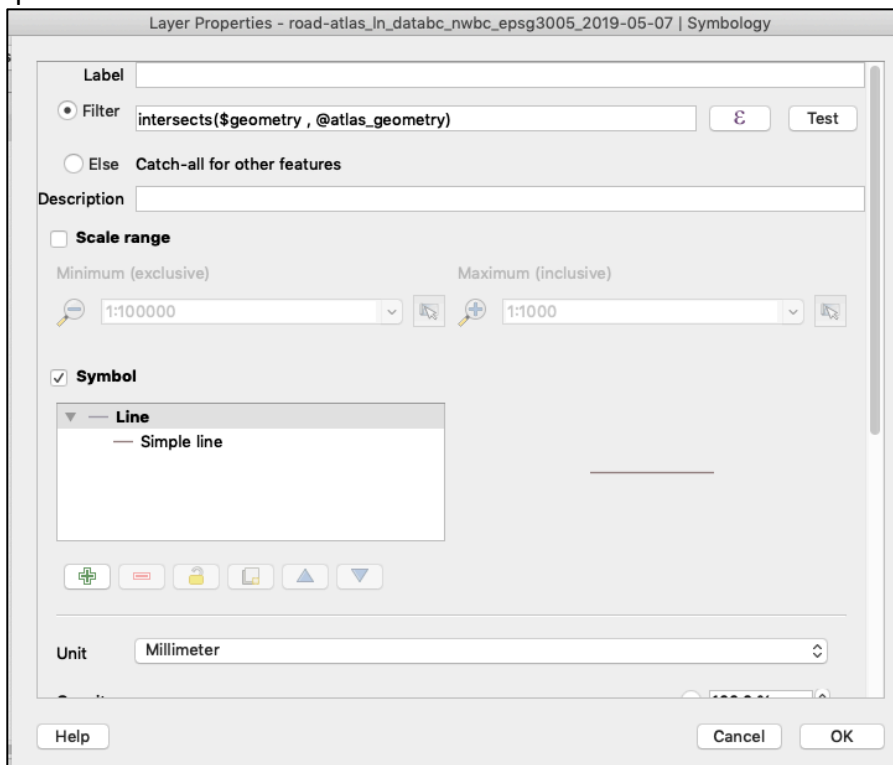


To do this:

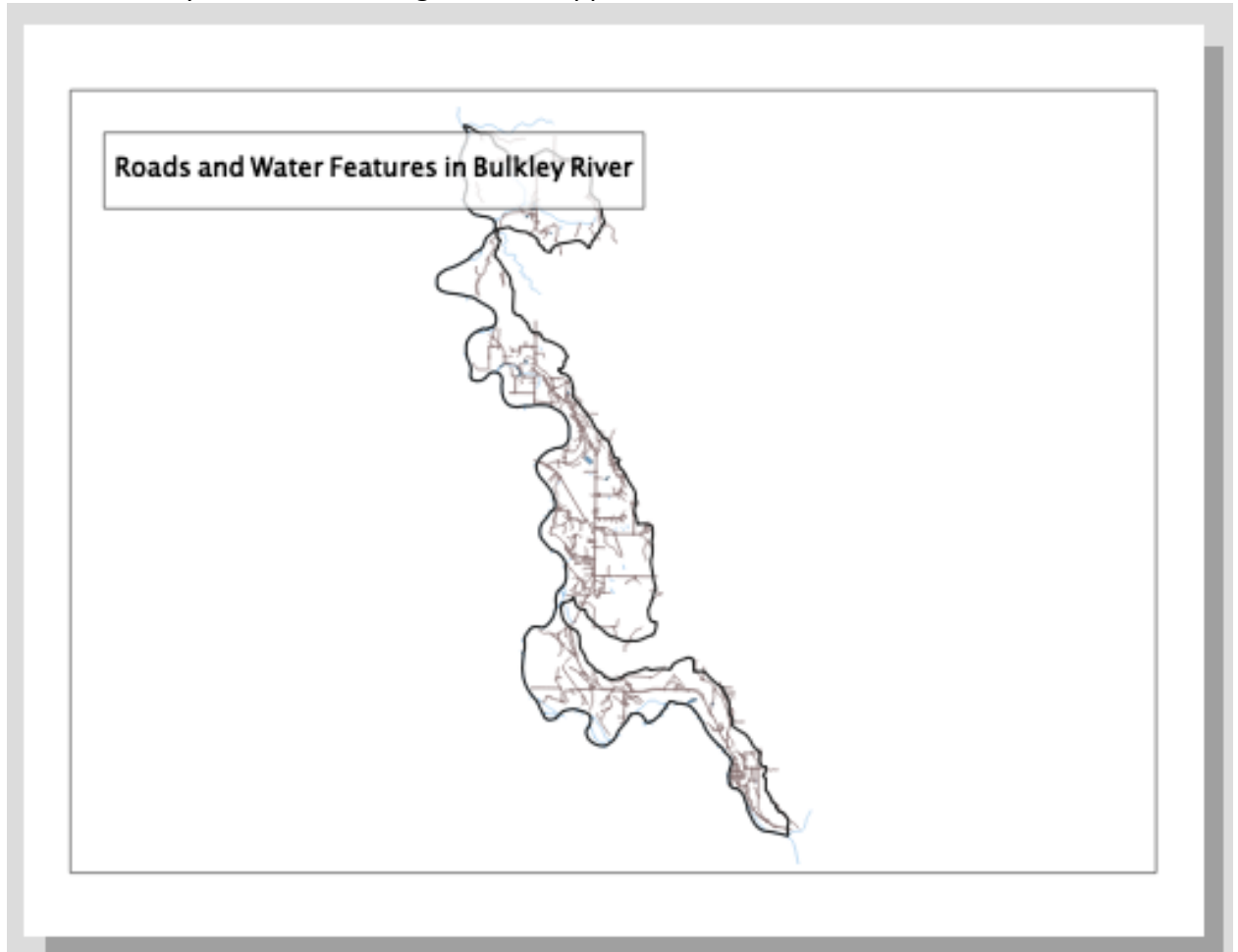
1. Go to the main QGIS window and open the Properties of the layer you want to restrict – I am using the roads layer. Go to Symbology, and change symbology type from Single Symbol to Rule-based. A default rule will be generated. Double click on the rule to edit it and click the expression button to enter the expression editor.



2. In the expression editor, enter 'intersects(\$geometry, @atlas_geometry)' (without the quotation marks)



3. Click OK to all windows and repeat this step for other layers as desired
4. Refresh the layout and the changes should appear



Export Atlas maps in desired format

1. Maps can be exported as image, PDF, or SVG files. Each map in the atlas will be exported as a single file and saved in the project directory

