

Basic Vector Styling

QGIS Tutorials and Tips



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Geographic Information Systems (GIS) and Remote Sensing

Geographic Information Systems (GIS) and Remote Sensing are tools used to collect, store, analyze, and display spatial data. GIS is a computer-based system that allows users to create maps and analyze spatial data. Remote Sensing is the process of obtaining information about the Earth's surface from a distance, typically using satellite imagery. Both GIS and Remote Sensing are used in a variety of applications, including urban planning, environmental management, and disaster response. QGIS is a free and open-source GIS software package that provides a user interface for GIS data and analysis. It is a powerful tool for creating maps and analyzing spatial data. This document provides a step-by-step guide to using QGIS to create a map of life expectancy in the United States.

Getting Started with QGIS

The first step in using QGIS is to download and install the software. QGIS is available for Windows, Mac OS, and Linux. Once installed, you can open the software and create a new project. The next step is to add data to the project. This can be done by clicking on the 'Layer' menu and selecting 'Add New Layer'. You can then choose the type of data you want to add, such as a vector layer or a raster layer.

Adding Data to the Project

- The first step in adding data to the project is to choose the type of data you want to add. You can choose from a variety of data types, including vector data, raster data, and WMS data.

Adding Vector Data

Vector data is data that is represented by points, lines, and polygons. It is used to represent features such as roads, rivers, and buildings. To add vector data to the project, you can click on the 'Layer' menu and select 'Add New Layer'. You can then choose the type of data you want to add, such as a vector layer. Once you have chosen the data type, you can click on the 'Add' button to add the data to the project. The next step is to add the data to the project. This can be done by clicking on the 'Layer' menu and selecting 'Add New Layer'. You can then choose the type of data you want to add, such as a vector layer. Once you have chosen the data type, you can click on the 'Add' button to add the data to the project. The next step is to add the data to the project. This can be done by clicking on the 'Layer' menu and selecting 'Add New Layer'. You can then choose the type of data you want to add, such as a vector layer. Once you have chosen the data type, you can click on the 'Add' button to add the data to the project.

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lifeexpectancy.zip

lifeexpectancy.zip [SAGE]

Adding Raster Data

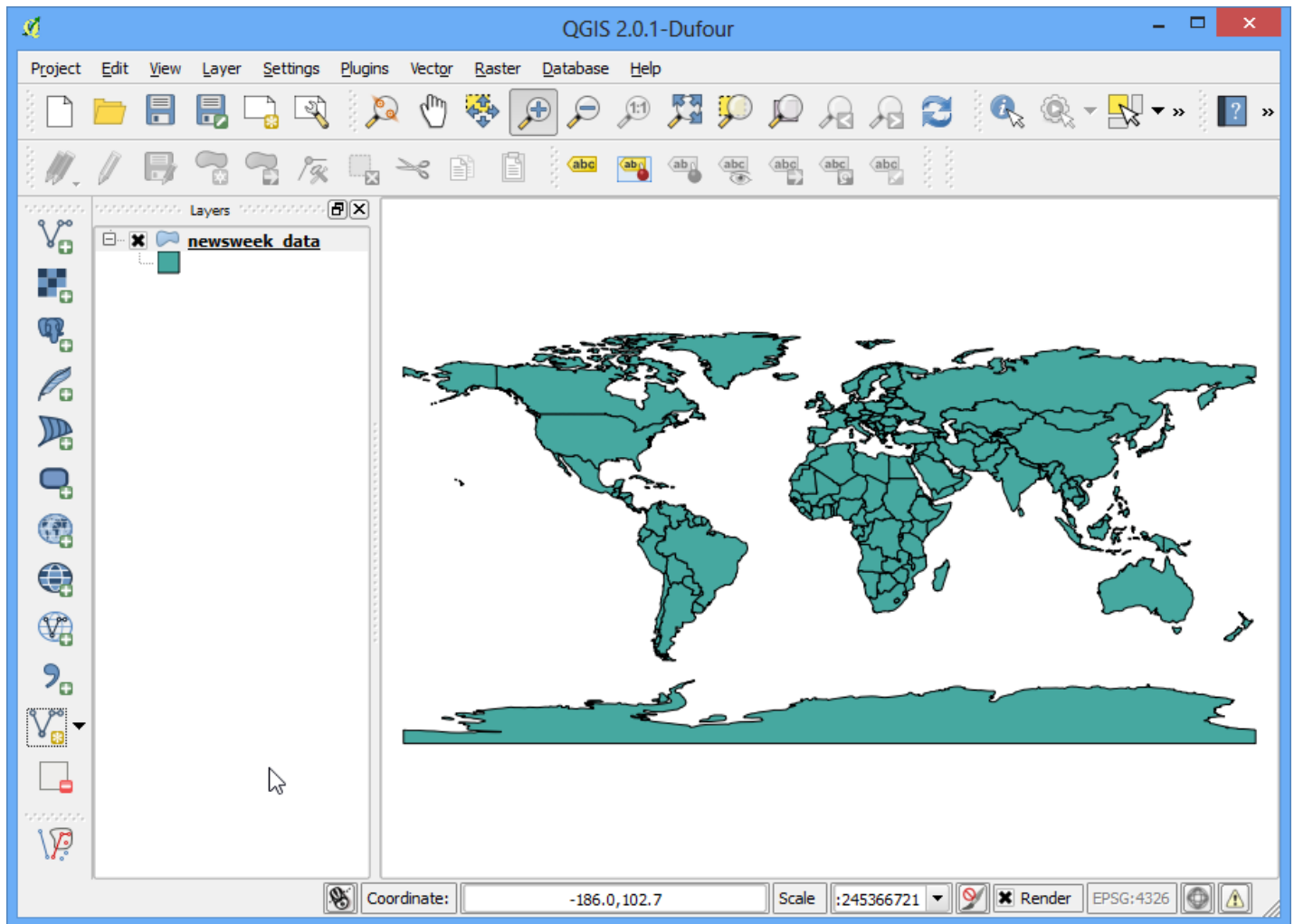
1. The first step in adding raster data to the project is to choose the type of data you want to add. You can choose from a variety of data types, including vector data, raster data, and WMS data.



2. lifeexpectancy.zip newsweek_data.shp WGS84 EPSG:4326 ().



3. **CRS Selection**, **Coordinate Reference System** **WGS 84**, **Authority ID** **EPSG:4326**, **Selected CRS:** **WGS 84**, **PROJ string** **+proj=longlat +datum=WGS84 +no_defs**.



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5. **newweek_data** is a vector layer. It contains a table with the following fields: **LIFEXPCT**, **Life Expectancy** - **newweek_data**.

Attribute table - newweek_data :: Features total: 165, filtered: 165, selected: 0

| | GRWRATE | URBPOP | MIG_RATE | POP_15 | POP65_ | LIFEXPCT | CONTRCEP |
|----|-------------|--------------|--------------|--------------|-------------|--------------|--------------|
| 0 | 2.620000000 | 47.000000000 | 0.000000000 | 45.200000000 | 3.800000000 | 47.000000000 | 7.000000000 |
| 1 | 2.660000000 | 33.000000000 | 0.000000000 | 44.900000000 | 3.100000000 | 42.000000000 | 4.000000000 |
| 2 | 1.900000000 | 53.000000000 | -0.400000000 | 33.200000000 | 5.100000000 | 76.000000000 | 58.000000000 |
| 3 | 0.940000000 | 35.000000000 | -9.900000000 | 32.300000000 | 4.000000000 | 65.000000000 | 31.000000000 |
| 4 | 3.320000000 | 46.000000000 | 2.200000000 | 46.000000000 | 3.700000000 | 55.000000000 | 6.000000000 |
| 5 | 3.170000000 | 44.000000000 | 0.500000000 | 48.100000000 | 2.800000000 | 52.000000000 | 1.000000000 |
| 6 | 3.360000000 | 32.000000000 | -0.100000000 | 48.000000000 | 2.500000000 | 50.000000000 | 8.000000000 |
| 7 | 3.400000000 | 5.000000000 | 0.700000000 | 49.800000000 | 2.300000000 | 46.000000000 | 10.000000000 |
| 8 | 2.880000000 | 8.000000000 | 0.000000000 | 46.300000000 | 2.900000000 | 48.000000000 | 9.000000000 |
| 9 | 3.720000000 | 29.000000000 | -0.200000000 | 47.100000000 | 2.900000000 | 46.000000000 | 1.000000000 |
| 10 | 2.840000000 | 49.000000000 | -0.100000000 | 48.500000000 | 2.200000000 | 49.000000000 | 1.000000000 |
| 11 | 3.310000000 | 15.000000000 | -7.700000000 | 49.200000000 | 2.600000000 | 45.000000000 | 7.000000000 |
| 12 | 2.370000000 | 51.000000000 | -0.100000000 | 39.700000000 | 3.900000000 | 59.000000000 | 30.000000000 |
| 13 | 2.830000000 | 27.000000000 | 32.000000000 | 44.900000000 | 3.300000000 | 47.000000000 | 4.000000000 |
| 14 | 2.970000000 | 25.000000000 | -0.300000000 | 44.600000000 | 2.800000000 | 60.000000000 | 43.000000000 |
| 15 | 3.180000000 | 33.000000000 | 0.000000000 | 45.000000000 | 3.400000000 | 58.000000000 | 26.000000000 |
| 16 | 1.550000000 | 84.000000000 | 0.000000000 | 30.500000000 | 6.400000000 | 72.000000000 | 43.000000000 |
| 17 | 2.920000000 | 25.000000000 | 0.000000000 | 44.900000000 | 3.300000000 | 68.000000000 | 33.000000000 |
| 18 | 2.690000000 | 46.000000000 | 0.000000000 | 39.600000000 | 3.600000000 | 67.000000000 | 48.000000000 |
| 19 | 2.370000000 | 60.000000000 | 0.200000000 | 37.500000000 | 4.000000000 | 62.000000000 | 48.000000000 |
| 20 | 2.680000000 | 30.000000000 | 0.000000000 | 42.500000000 | 3.100000000 | 57.000000000 | 20.000000000 |
| 21 | 2.470000000 | 9.000000000 | 0.000000000 | 40.700000000 | 3.900000000 | 56.000000000 | 5.000000000 |

Show All Features

6. **GRWRATE** **URBPOP** **MIG_RATE**. **POP_15** **POP65_** **LIFEXPCT** **CONTRCEP**
GRWRATE **URBPOP** **MIG_RATE** **POP_15** **POP65_** **LIFEXPCT** **CONTRCEP**.



7.

The screenshot shows the QGIS 2.0.1-Dufour interface. The main map area displays a world map with a teal color scheme. The Layers panel on the left shows a layer named 'newweek_data'. A context menu is open over this layer, listing various actions. The 'Properties' option is highlighted. The status bar at the bottom indicates the current coordinate is -187.8, 113.1, the scale is 1:245366721, and the projection is EPSG:4326.



8. The 'Layer Properties' dialog box is used to configure the appearance of a layer in a map. It allows users to set various properties such as layer transparency, layer blending mode, and the layer's symbol. The 'Style' tab is the primary interface for these settings. Within the 'Style' tab, the 'Layer rendering' section controls how the layer is rendered, including transparency and blending. The 'Symbol' section allows users to choose a symbol type (e.g., Single Symbol, Categorized, Graduated, Rule-based, Point displacement) and configure its properties. The 'Symbol layers' section shows the current symbol and its layers. The 'Saved styles' section provides a gallery of predefined symbols. At the bottom, there are buttons for 'Restore Default Style', 'Save As Default', 'Load Style ...', 'Save Style', 'OK', 'Cancel', 'Apply', and 'Help'.



10. The first step in the process of creating a map is to define the data. This is done by specifying the data source and the data format. The data source can be a file, a database, or a web service. The data format can be a vector format (e.g., Shapefile) or a raster format (e.g., GeoTIFF). The next step is to load the data into the map. This is done by clicking on the 'Load Data into Map' button in the 'Layers' panel. The data will then be displayed on the map. The final step is to save the map. This is done by clicking on the 'Save Map' button in the 'Layers' panel. The map will then be saved as a file.



11.

1. The first step is to open the 'Layer Properties' dialog for the layer you want to style. In this case, it's 'newswk_data'.

2. The 'Style' tab is selected. Under 'Layer rendering', the 'Categorized' method is chosen. The 'Column' dropdown is set to 'LIFEXPCT'.

3. The 'Symbol' dropdown is set to 'Change...' and the 'Color ramp' is set to 'Blues'.

4. A table of values and labels is displayed. The values range from -99 to 56, and the labels are the same as the values.

5. The 'Classify' button is highlighted with a red box.

6. The 'OK' button is highlighted with a red box and a mouse cursor.

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-: R's pretty algorithm.
-: R's pretty algorithm.

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Note

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Layer Properties - newweek_data

General Style Labels Fields Display Actions Joins Diagrams Metadata

Style

Layer rendering

Layer transparency 0

Layer blending mode Normal Feature blending mode Normal

Graduated

Column LIFEXPCT

Symbol Change...

Color ramp [source]

Classes 3

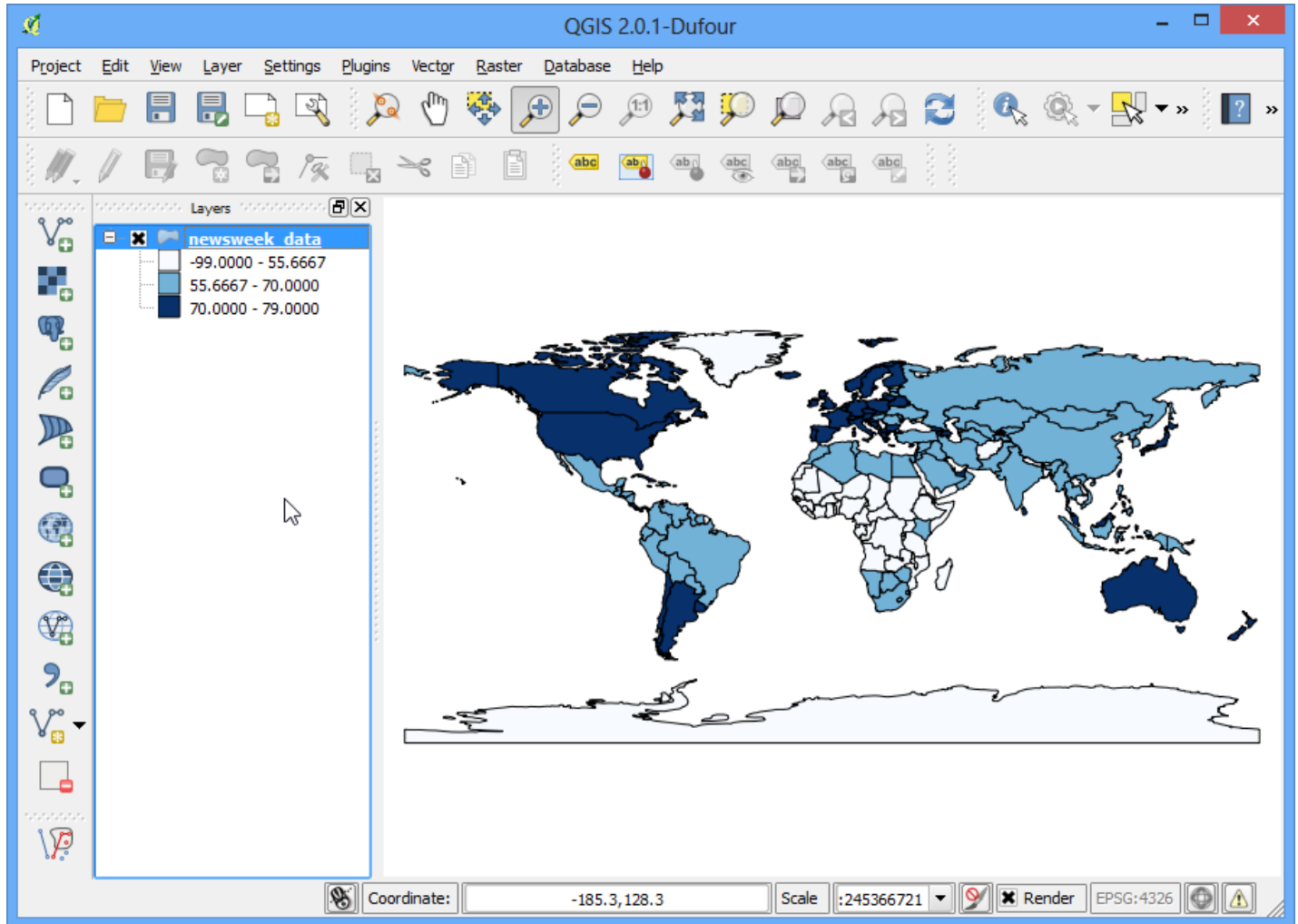
Mode Quantile (Equal Count)

| Symbol | Value | Label |
|--------|--------------------|--------------------|
| | -99.0000 - 55.6667 | -99.0000 - 55.6667 |
| | 55.6667 - 70.0000 | 55.6667 - 70.0000 |
| | 70.0000 - 79.0000 | 70.0000 - 79.0000 |

Classify Add class Delete Delete all Advanced

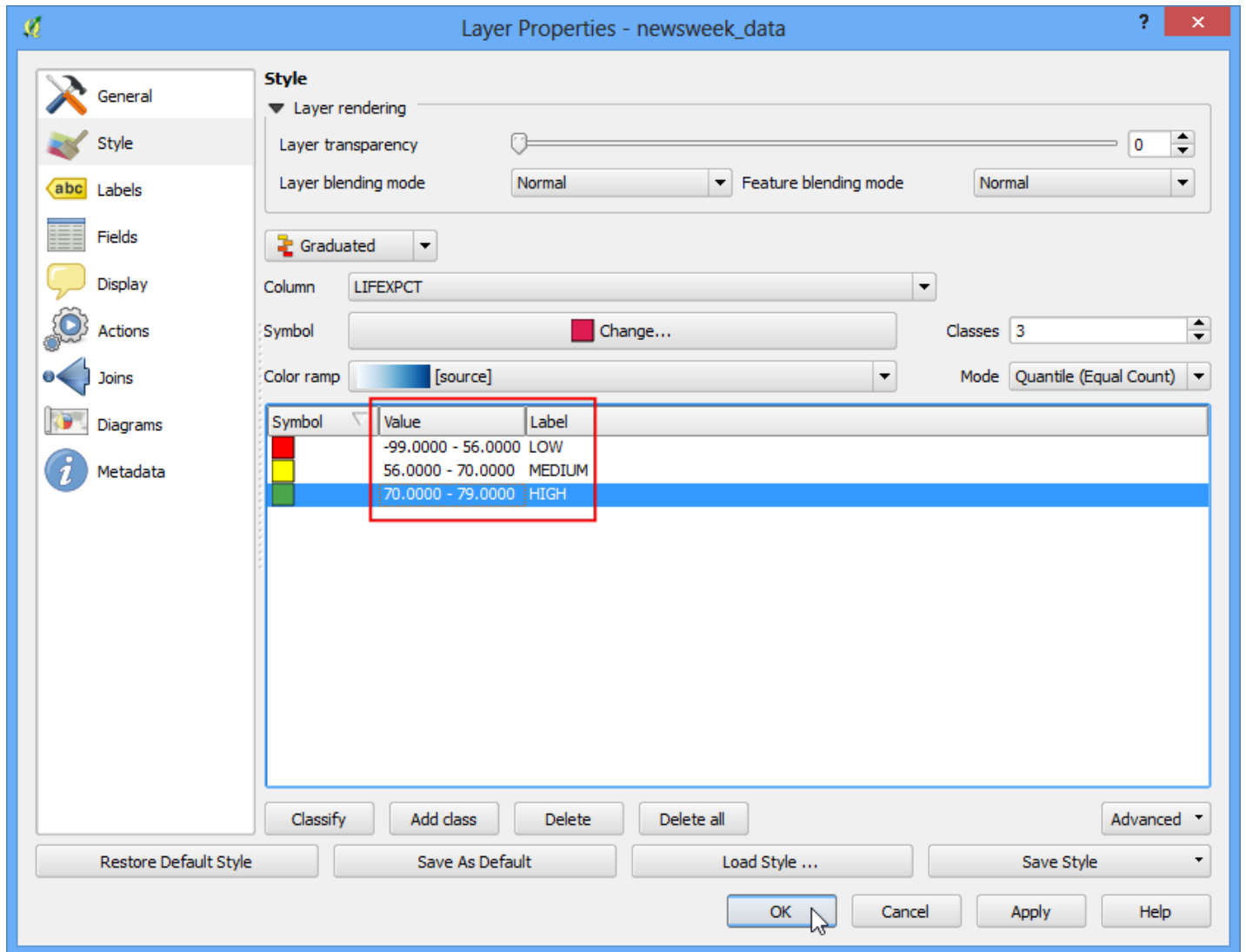
Restore Default Style Save As Default Load Style ... Save Style

OK Cancel Apply Help

[illegible]

14. [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED], [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED]. [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]. [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]. [REDACTED]
[REDACTED] [REDACTED] [REDACTED], [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED], [REDACTED]
[REDACTED] [REDACTED], [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED].

17. The following steps describe how to create a graduated color style for the newsweek_data layer. The first step is to click the Style button in the Layer Properties dialog box. The second step is to click the Graduated button in the Style section. The third step is to click the Column button and select LIFEXPCT. The fourth step is to click the Color ramp button and select [source]. The fifth step is to click the Classes button and select 3. The sixth step is to click the Mode button and select Quantile (Equal Count). The seventh step is to click the Symbol button and select Change... The eighth step is to click the Value button and select -99.0000 - 56.0000. The ninth step is to click the Label button and select LOW. The tenth step is to click the Value button and select 56.0000 - 70.0000. The eleventh step is to click the Label button and select MEDIUM. The twelfth step is to click the Value button and select 70.0000 - 79.0000. The thirteenth step is to click the Label button and select HIGH. The fourteenth step is to click the OK button.



18. The following steps describe how to create a graduated color style for the newsweek_data layer. The first step is to click the Style button in the Layer Properties dialog box. The second step is to click the Graduated button in the Style section. The third step is to click the Column button and select LIFEXPCT. The fourth step is to click the Color ramp button and select [source]. The fifth step is to click the Classes button and select 3. The sixth step is to click the Mode button and select Quantile (Equal Count). The seventh step is to click the Symbol button and select Change... The eighth step is to click the Value button and select -99.0000 - 56.0000. The ninth step is to click the Label button and select LOW. The tenth step is to click the Value button and select 56.0000 - 70.0000. The eleventh step is to click the Label button and select MEDIUM. The twelfth step is to click the Value button and select 70.0000 - 79.0000. The thirteenth step is to click the Label button and select HIGH. The fourteenth step is to click the OK button.

