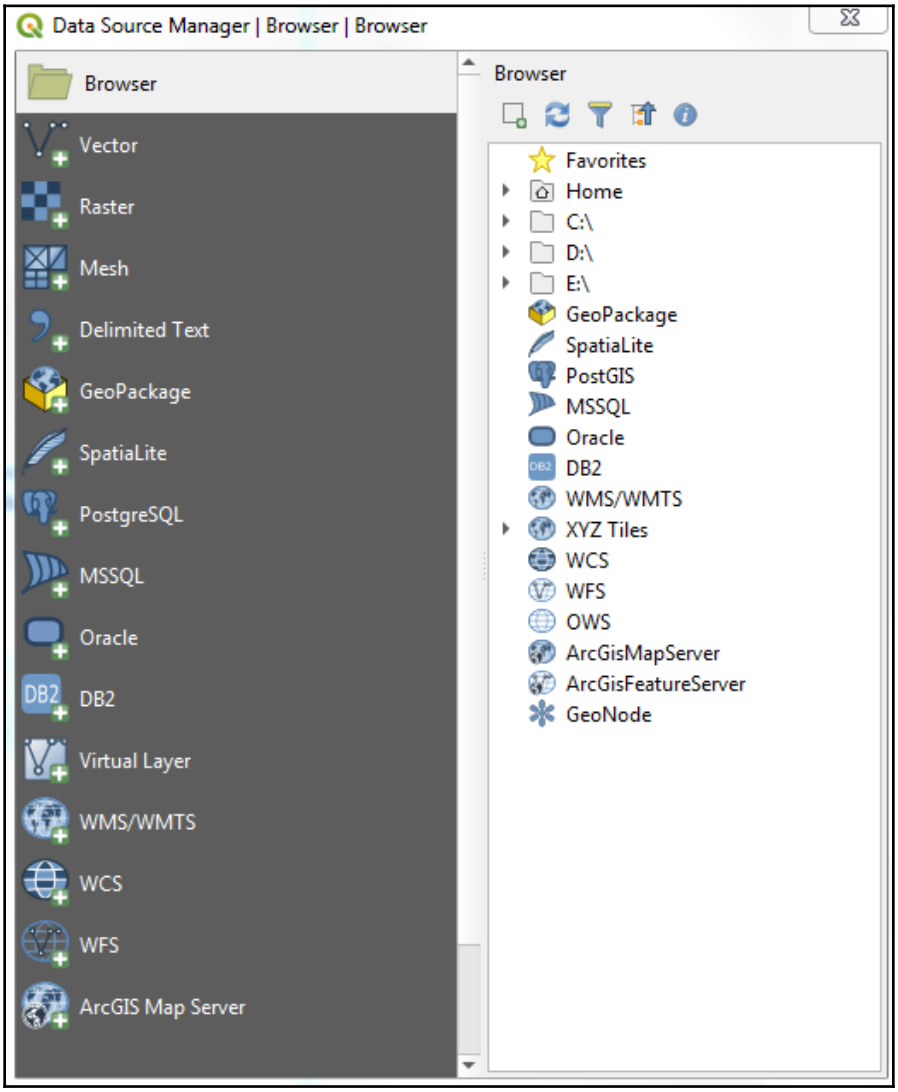
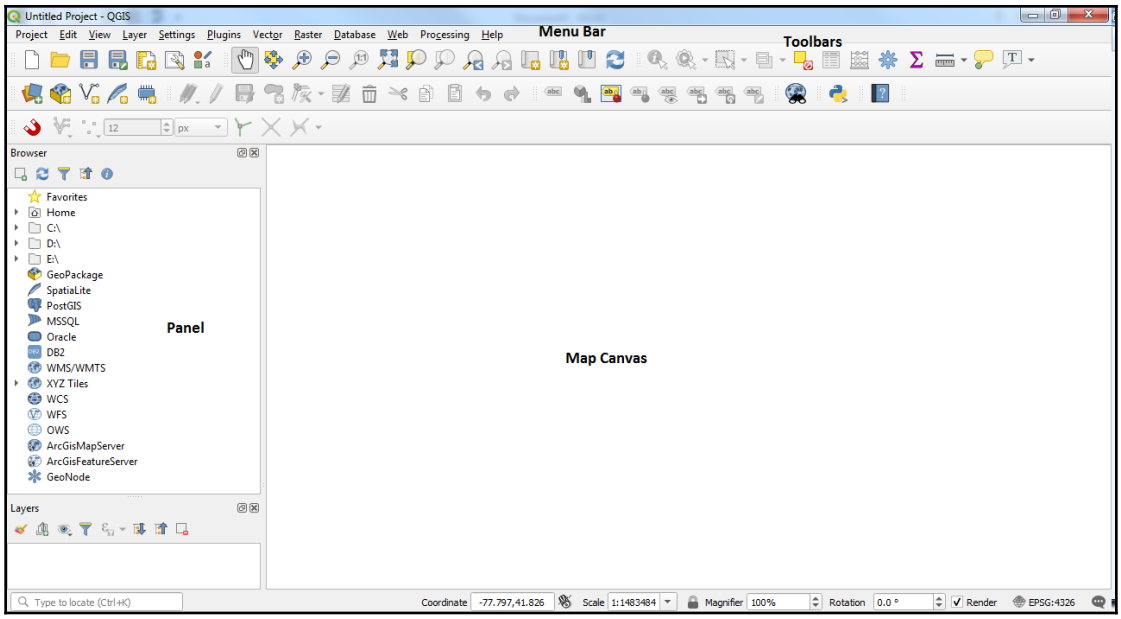
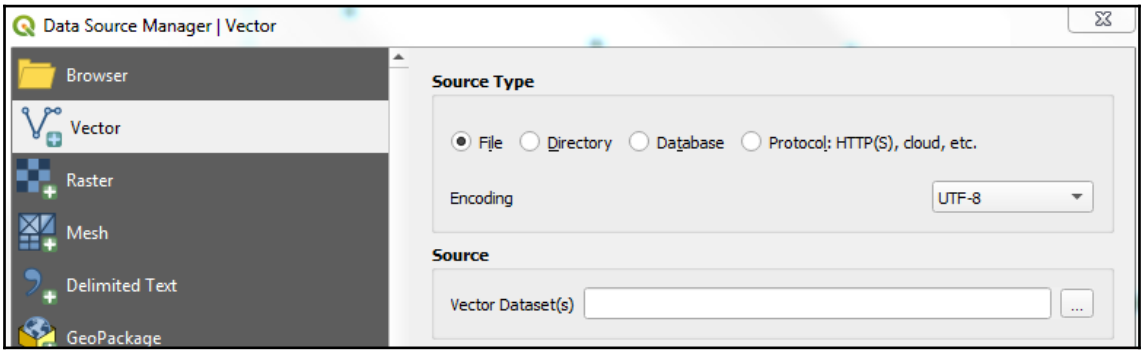
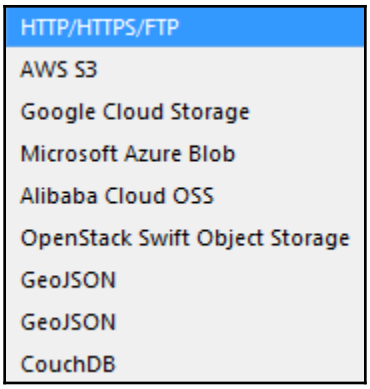
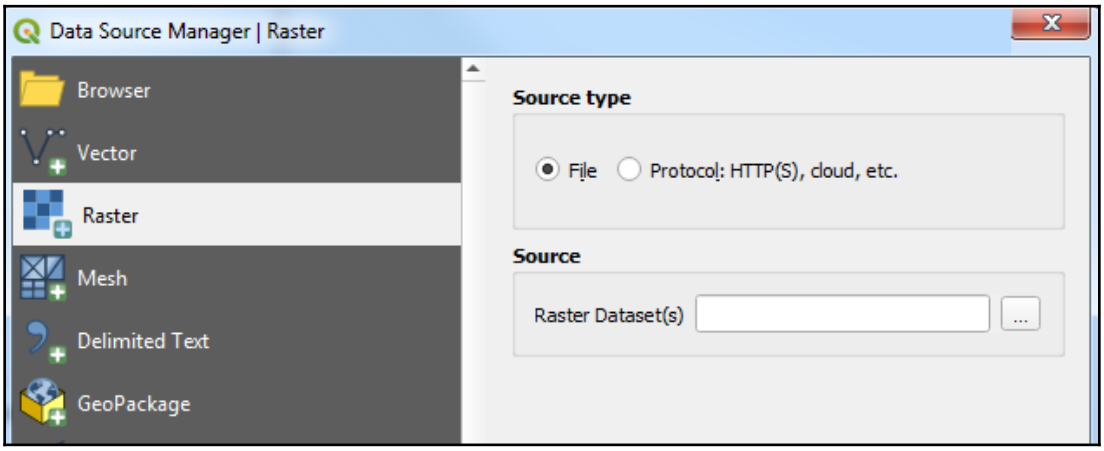
Chapter 1: A Refreshing Look at QGIS

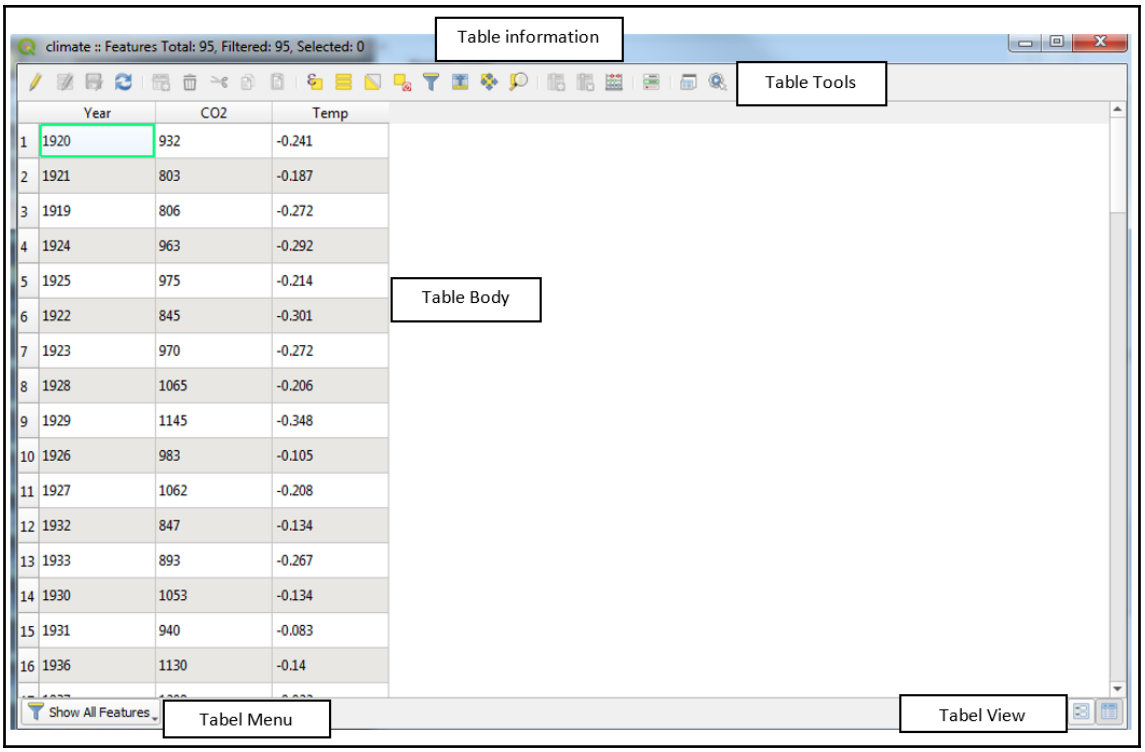



Untitled Project - QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help
Menu Bar
Toolbars
Browser
Favorites
Home
C:\
D:\
E:\
GeoPackage
SpatiaLite
PostGIS
MSSQL
Oracle
DB2
WMS/WMTS
XYZ Tiles
WCS
WFS
OWS
ArcGisMapServer
ArcGisFeatureServer
GeoNode
Panel
Map Canvas
Layers
Type to locate (Ctrl+K)
Coordinate -77.797,41.826
Scale 1:1483484
Magnifier 100%
Rotation 0.0 °
Render
EPSG:4326

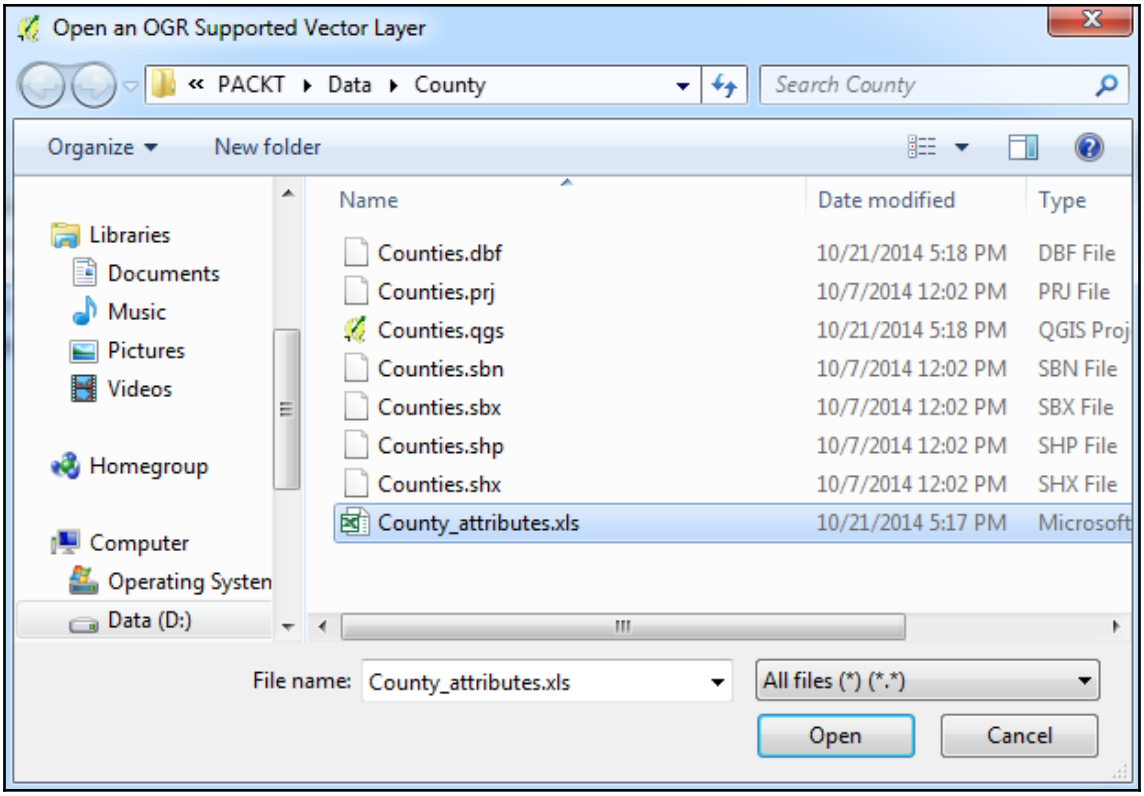

Data Source Manager | Vector
Browser
Vector
Raster
Mesh
Delimited Text
GeoPackage
Source Type
File
Directory
Database
Protocol: HTTP(S), cloud, etc.
Encoding
UTF-8
Source
Vector Dataset(s)
...

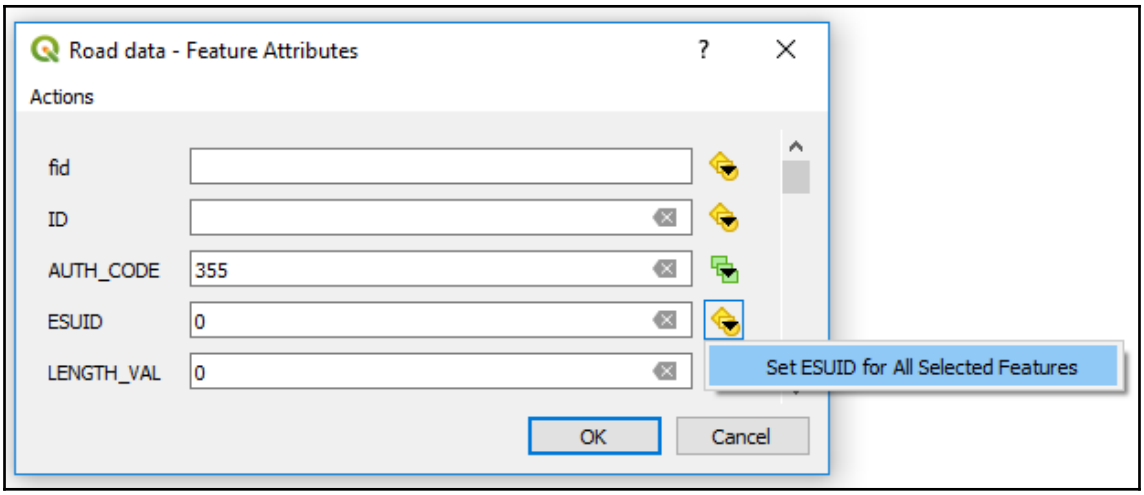

HTTP/HTTPS/FTP
AWS S3
Google Cloud Storage
Microsoft Azure Blob
Alibaba Cloud OSS
OpenStack Swift Object Storage
GeoJSON
GeoJSON
CouchDB

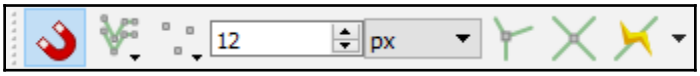

Data Source Manager | Raster
Browser
Vector
Raster
Mesh
Delimited Text
GeoPackage
Source type
File
Protocol: HTTP(S), cloud, etc.
Source
Raster Dataset(s)
...

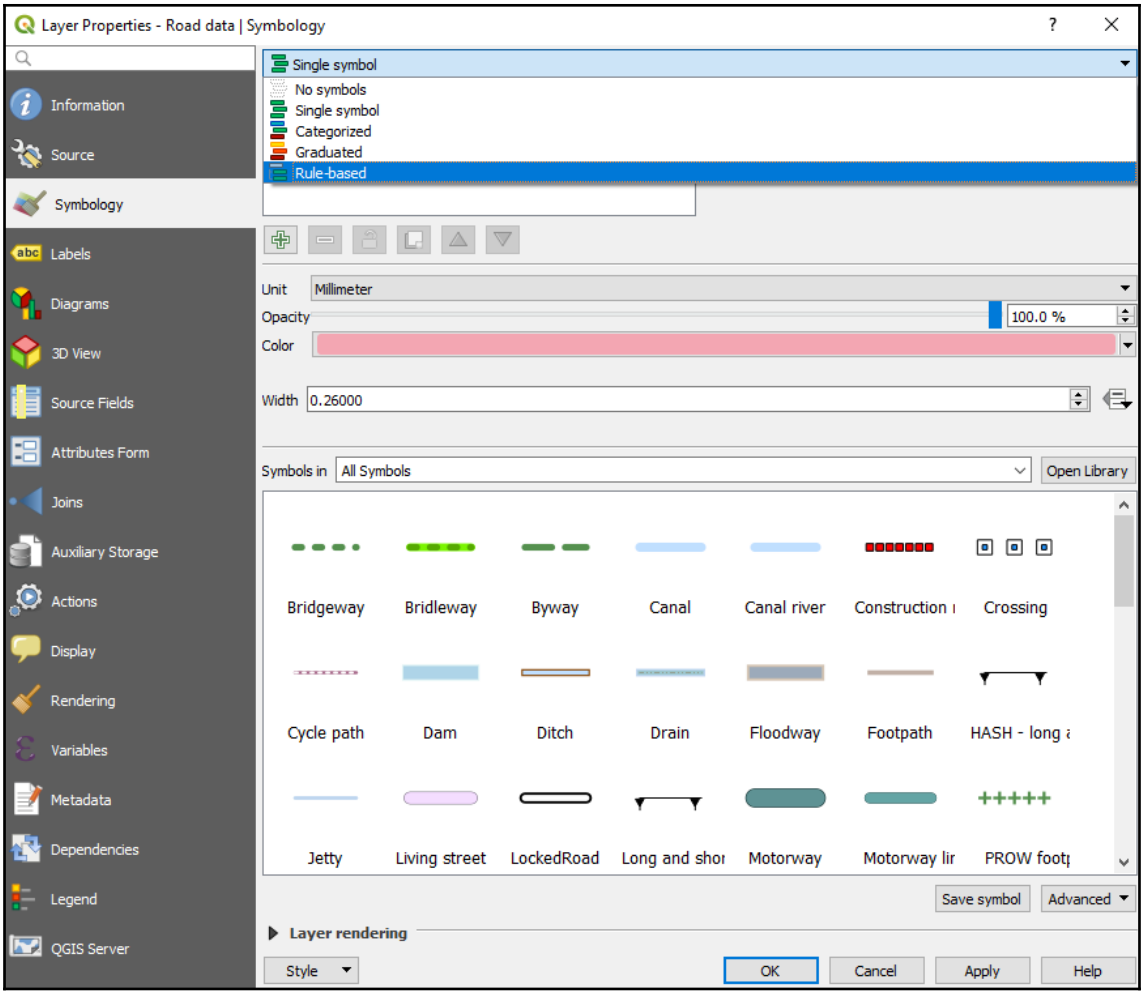


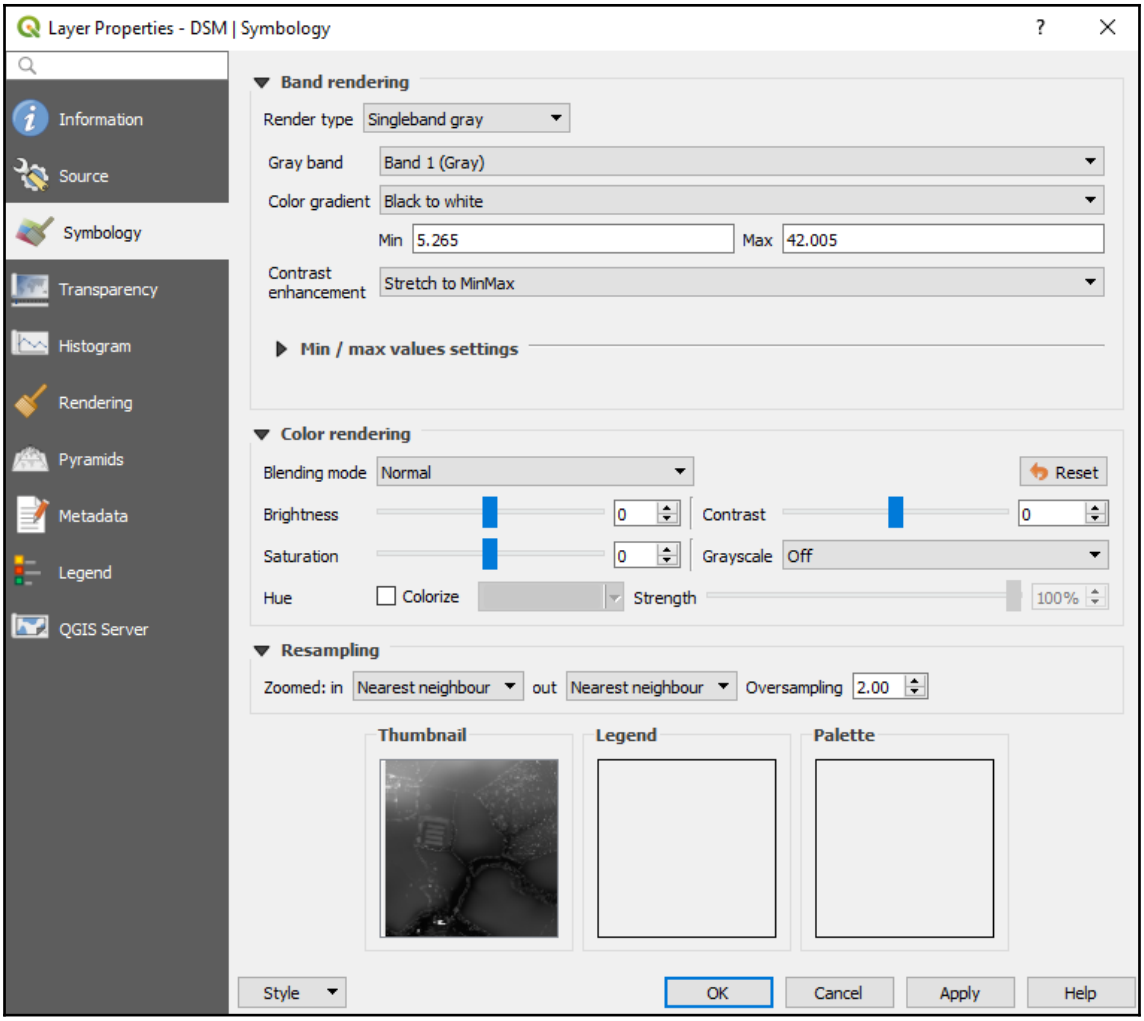
	Year	CO2	Temp
1	1920	932	-0.241
2	1921	803	-0.187
3	1919	806	-0.272
4	1924	963	-0.292
5	1925	975	-0.214
6	1922	845	-0.301
7	1923	970	-0.272
8	1928	1065	-0.206
9	1929	1145	-0.348
10	1926	983	-0.105
11	1927	1062	-0.208
12	1932	847	-0.134
13	1933	893	-0.267
14	1930	1053	-0.134
15	1931	940	-0.083
16	1936	1130	-0.14

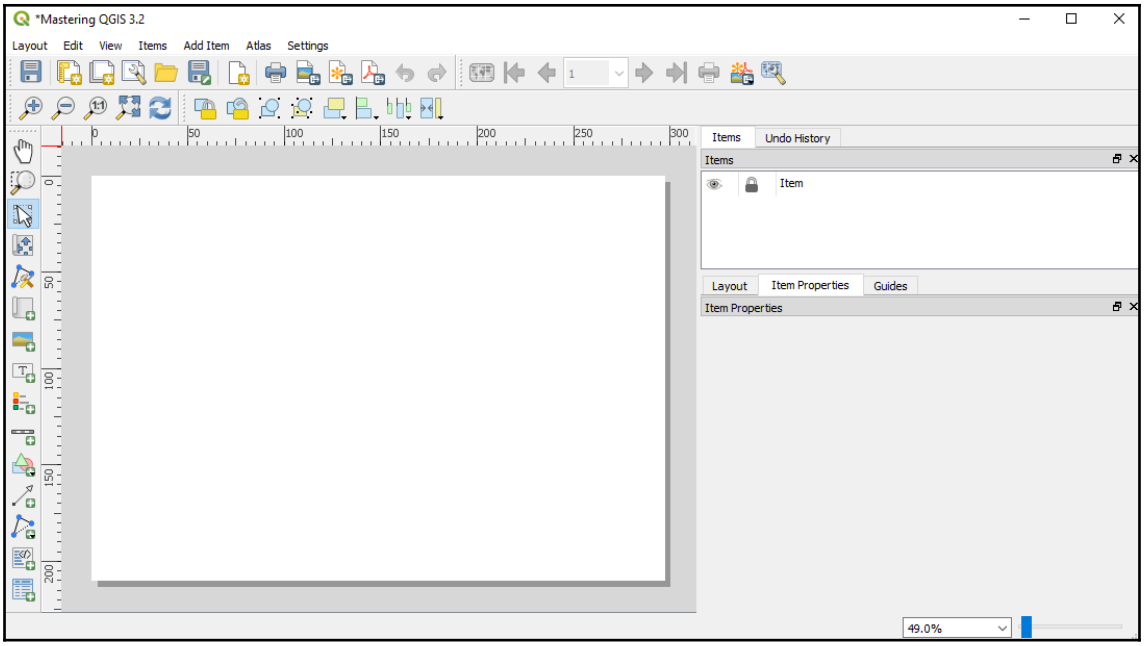

Open an OGR Supported Vector Layer
« PACKT ▸ Data ▸ County
Search County
Organize
New folder
Libraries
Documents
Music
Pictures
Videos
Homegroup
Computer
Operating Systen
Data (D:)
Name
Date modified
Type
Counties.dbf 10/21/2014 5:18 PM DBF File
Counties.prj 10/7/2014 12:02 PM PRJ File
Counties.qgs 10/21/2014 5:18 PM QGIS Proj
Counties.sbn 10/7/2014 12:02 PM SBN File
Counties.sbx 10/7/2014 12:02 PM SBX File
Counties.shp 10/7/2014 12:02 PM SHP File
Counties.shx 10/7/2014 12:02 PM SHX File
County_attributes.xls 10/21/2014 5:17 PM Microsoft
File name: County_attributes.xls
All files (*) (*.*)
Open
Cancel

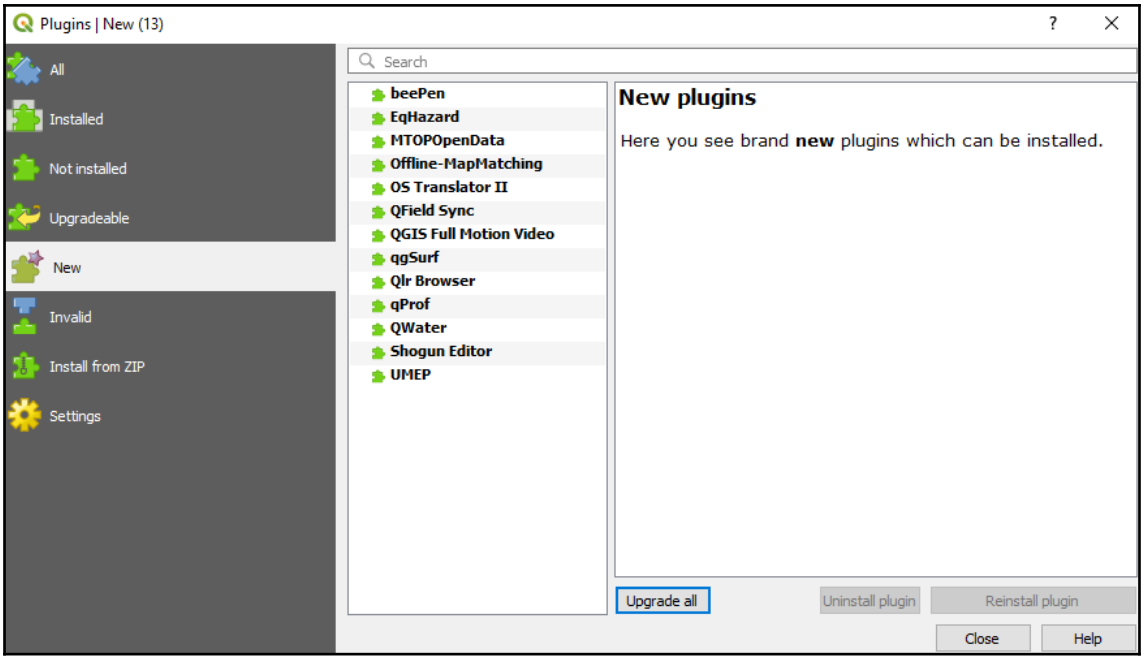

Road data - Feature Attributes
Actions
fid
ID
AUTH_CODE
355
ESUID
0
LENGTH_VAL
0
Set ESUID for All Selected Features
OK
Cancel


12
px

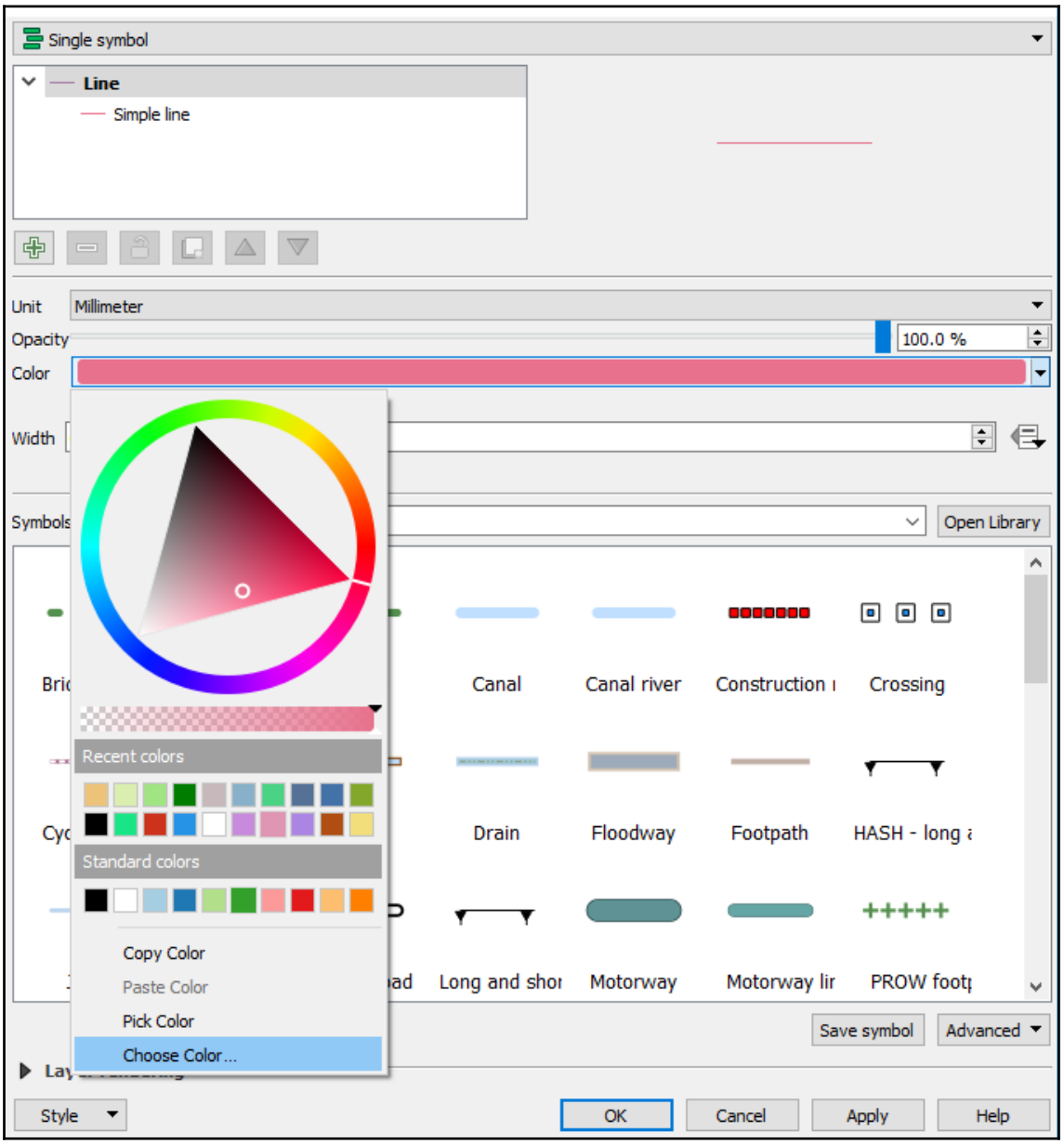

Layer Properties - Road data | Symbology
Information
Source
Symbology
Labels
Diagrams
3D View
Source Fields
Attributes Form
Joins
Auxiliary Storage
Actions
Display
Rendering
Variables
Metadata
Dependencies
Legend
QGIS Server
Single symbol
No symbols
Single symbol
Categorized
Graduated
Rule-based
Unit
Millimeter
Opacity
100.0 %
Color
Width
0.26000
Symbols in
All Symbols
Open Library
Bridgeway
Bridleway
Byway
Canal
Canal river
Construction
Crossing
Cycle path
Dam
Ditch
Drain
Floodway
Footpath
HASH - long
Jetty
Living street
LockedRoad
Long and shor
Motorway
Motorway lir
PROW foot
Save symbol
Advanced
Layer rendering
Style
OK
Cancel
Apply
Help

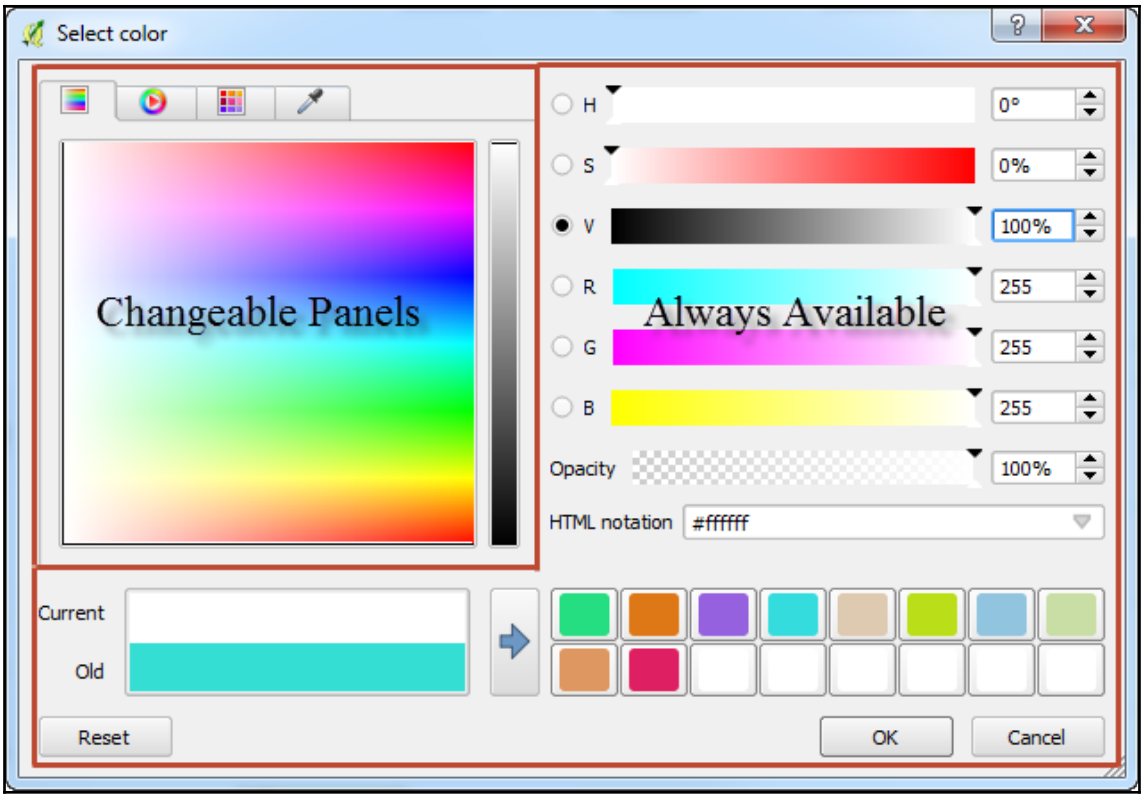

Layer Properties - DSM | Symbology
Information
Source
Symbology
Transparency
Histogram
Rendering
Pyramids
Metadata
Legend
QGIS Server
Band rendering
Render type
Singleband gray
Gray band
Band 1 (Gray)
Color gradient
Black to white
Min
5.265
Max
42.005
Contrast enhancement
Stretch to MinMax
Min / max values settings
Color rendering
Blending mode
Normal
Reset
Brightness
Contrast
Saturation
Grayscale
Off
Hue
Colorize
Strength
100%
Resampling
Zoomed: in
Nearest neighbour
out
Nearest neighbour
Oversampling
2.00
Thumbnail
Legend
Palette
Style
OK
Cancel
Apply
Help


*Mastering QGIS 3.2
Layout
Edit
View
Items
Add Item
Atlas
Settings
Items
Undo History
Item
Layout
Item Properties
Guides
Item Properties
49.0%

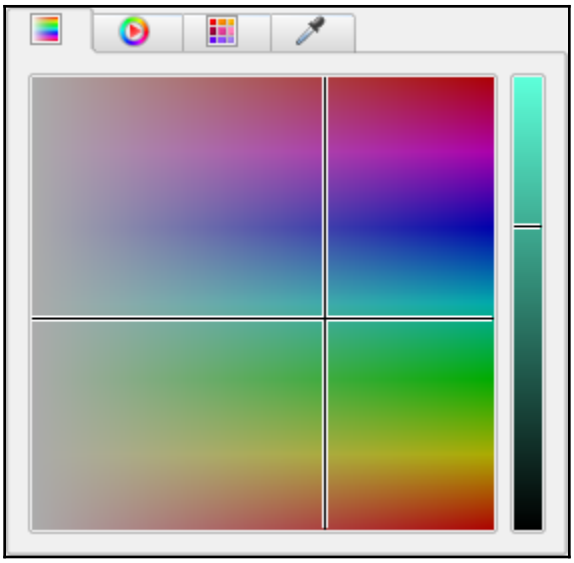

Plugins | New (13)
All
Installed
Not installed
Upgradeable
New
Invalid
Install from ZIP
Settings
Search
beePen
EqHazard
MTOPOpenData
Offline-MapMatching
OS Translator II
QField Sync
QGIS Full Motion Video
qgSurf
Qlr Browser
qProf
QWater
Shogun Editor
UMEP
New plugins
Here you see brand new plugins which can be installed.
Upgrade all
Uninstall plugin
Reinstall plugin
Close
Help

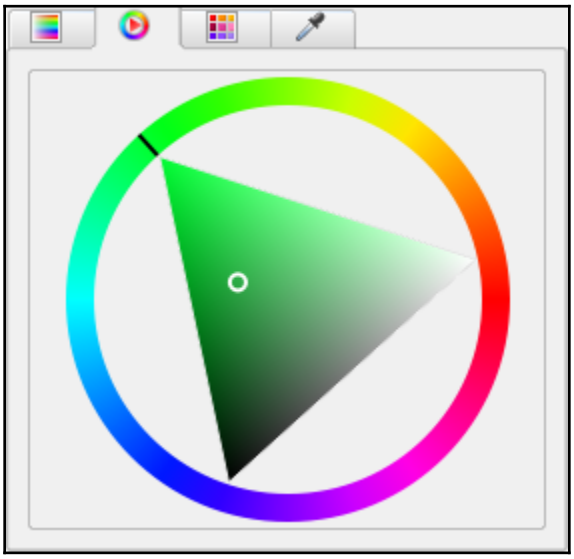
Chapter 2: Styling Raster and Vector Data

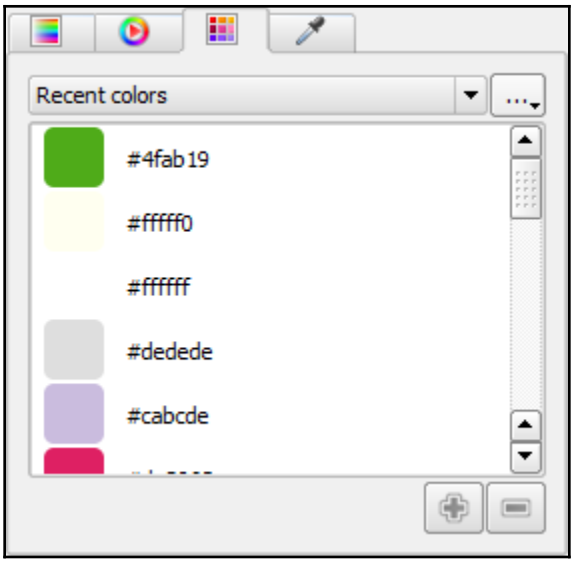


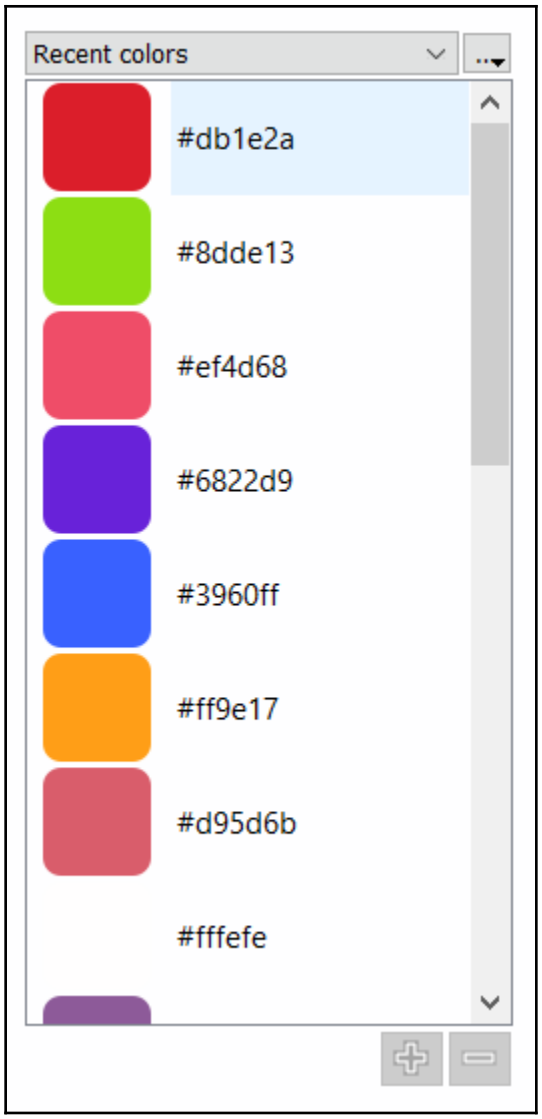

Select color
Changeable Panels
Always Available
H
S
V
R
G
B
Opacity
HTML notation
0°
0%
100%
255
255
255
100%
#ffffff
Current
Old
Reset
OK
Cancel

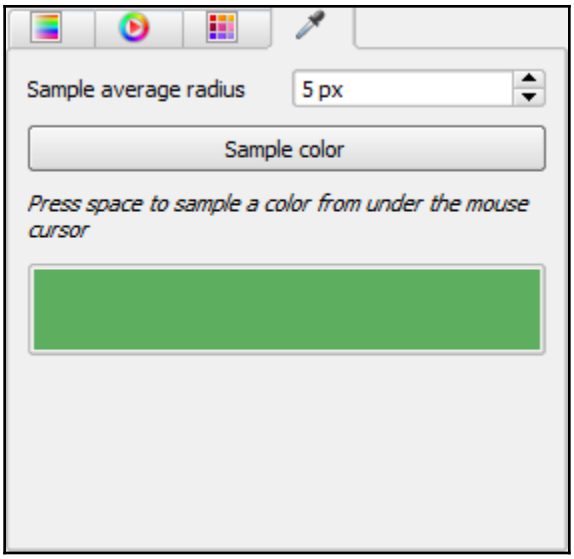

Current
Old

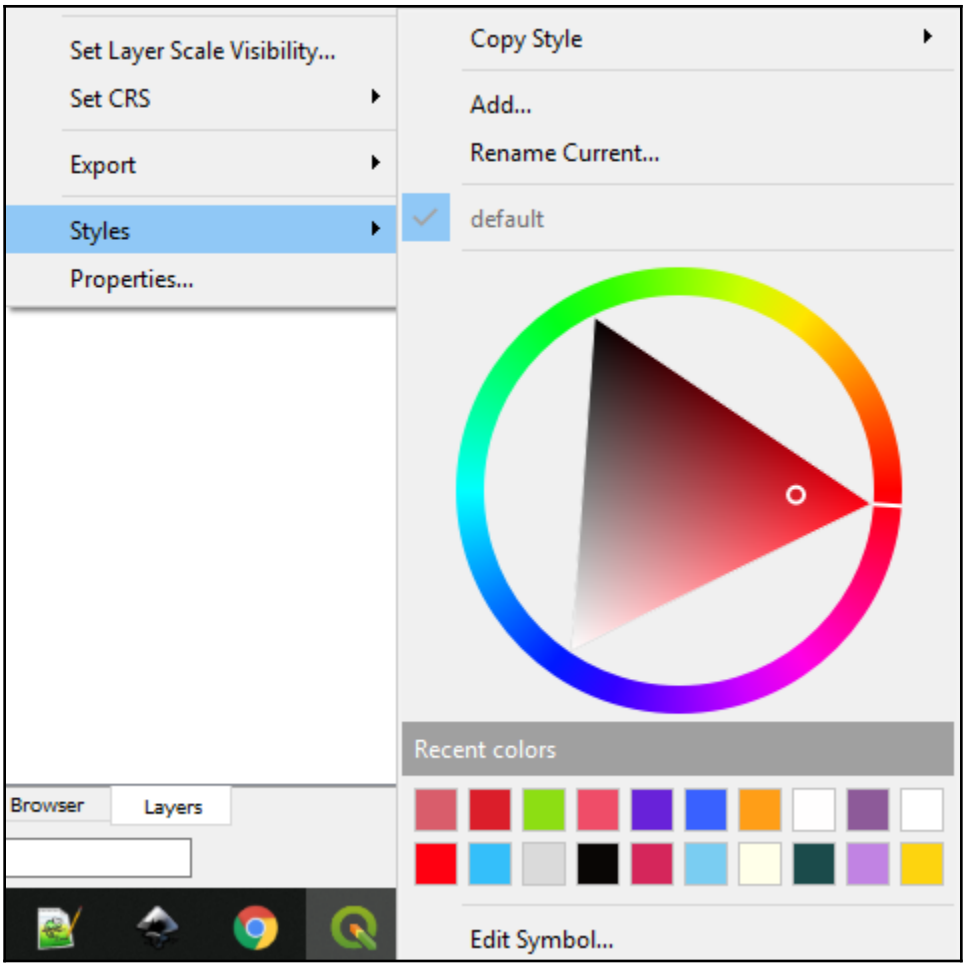


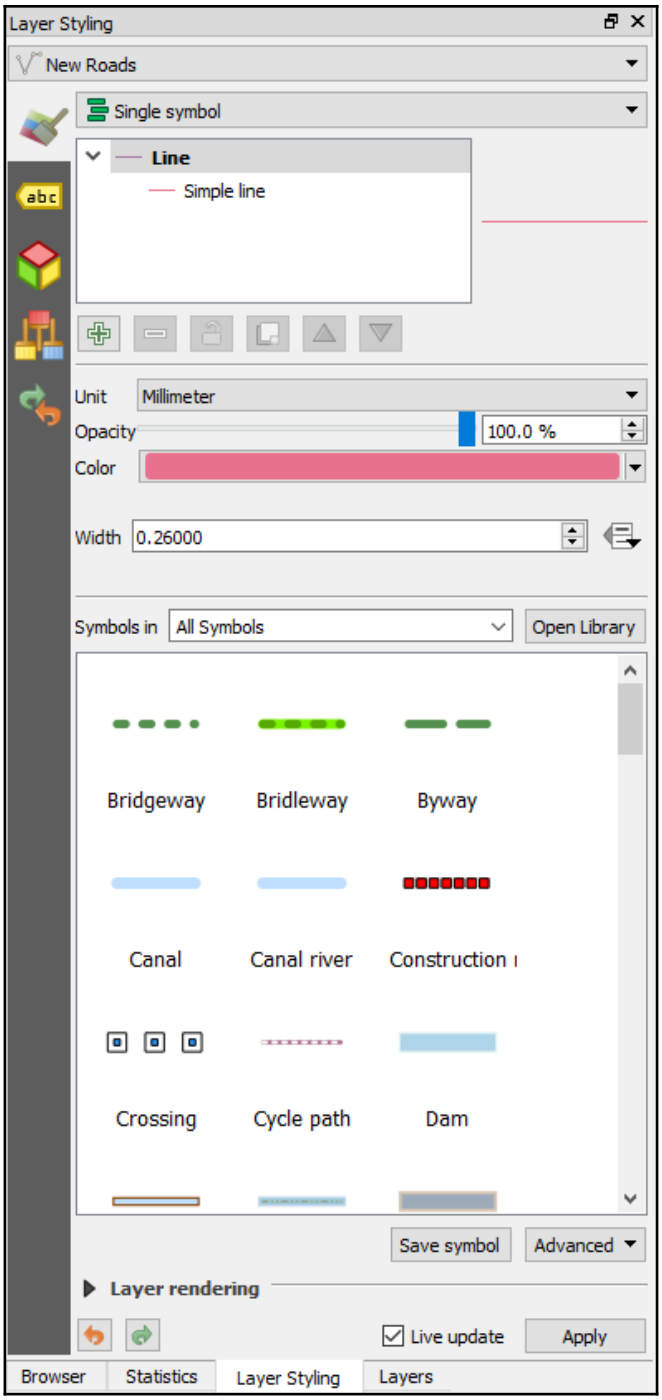


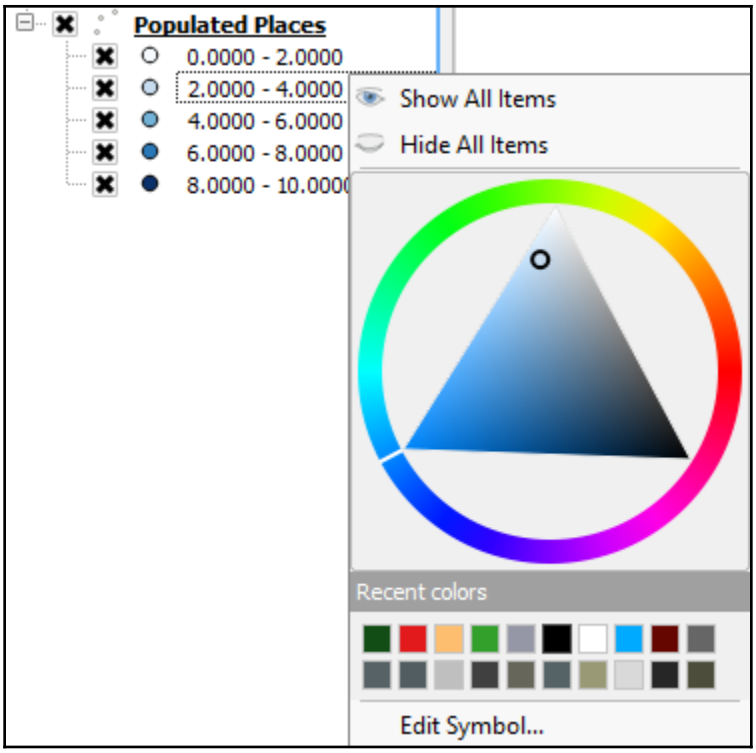

Recent colors
#4fab19
#ffffff0
#ffffff
#dedede
#cabcde

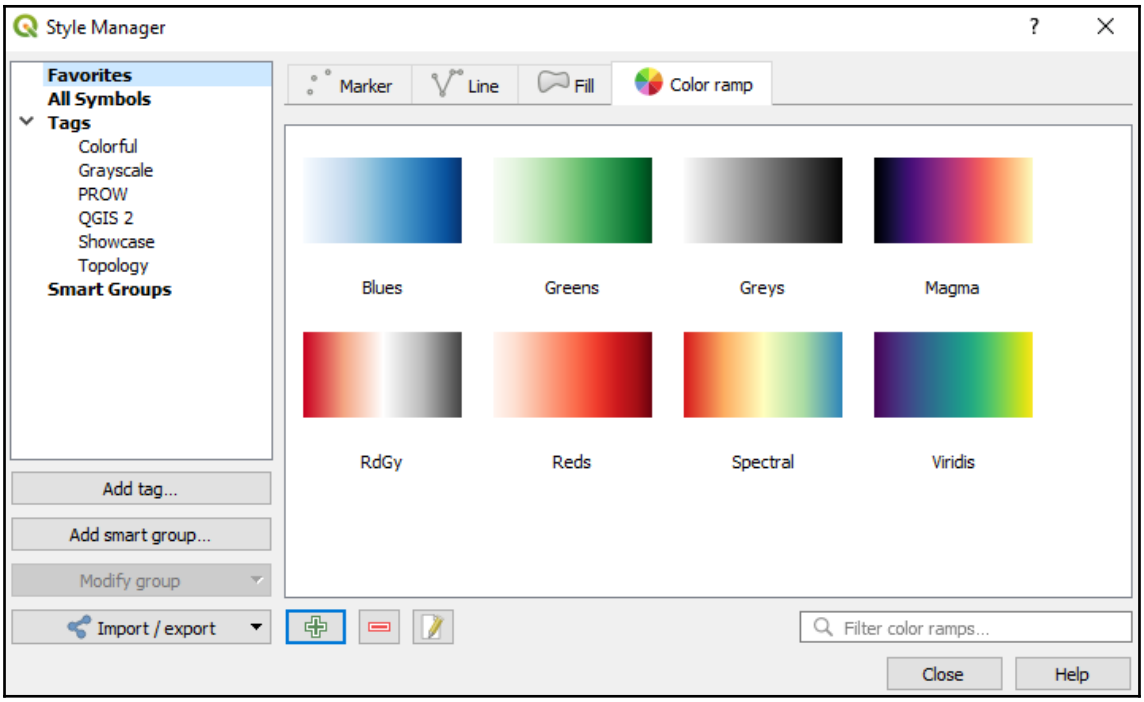

Recent colors
#db1e2a
#8dde13
#ef4d68
#6822d9
#3960ff
#ff9e17
#d95d6b
#fffefe

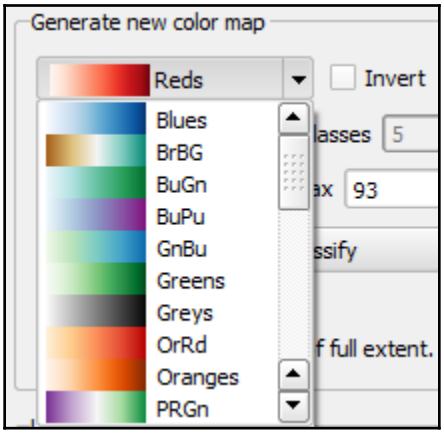

Sample average radius
5 px
Sample color
Press space to sample a color from under the mouse cursor


Set Layer Scale Visibility...
Set CRS
Export
Styles
Properties...
Copy Style
Add...
Rename Current...
default
Recent colors
Edit Symbol...
Browser
Layers


Layer Styling
New Roads
Single symbol
Line
Simple line
Unit
Millimeter
Opacity
100.0 %
Color
Width
0.26000
Symbols in
All Symbols
Open Library
Bridgeway
Bridleway
Byway
Canal
Canal river
Construction
Crossing
Cycle path
Dam
Save symbol
Advanced
Layer rendering
Live update
Apply
Browser
Statistics
Layer Styling
Layers


Populated Places
0.0000 - 2.0000
2.0000 - 4.0000
4.0000 - 6.0000
6.0000 - 8.0000
8.0000 - 10.0000
Show All Items
Hide All Items
Recent colors
Edit Symbol...


Style Manager
Favorites
All Symbols
Tags
Colorful
Grayscale
PROW
QGIS 2
Showcase
Topology
Smart Groups
Marker
Line
Fill
Color ramp
Blues
Greens
Greys
Magma
RdGy
Reds
Spectral
Viridis
Add tag...
Add smart group...
Modify group
Import / export
Filter color ramps...
Close
Help


Generate new color map
Reds
Invert
Blues
BrBG
BuGn
BuPu
GnBu
Greens
Greys
OrRd
Oranges
PRGn
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5
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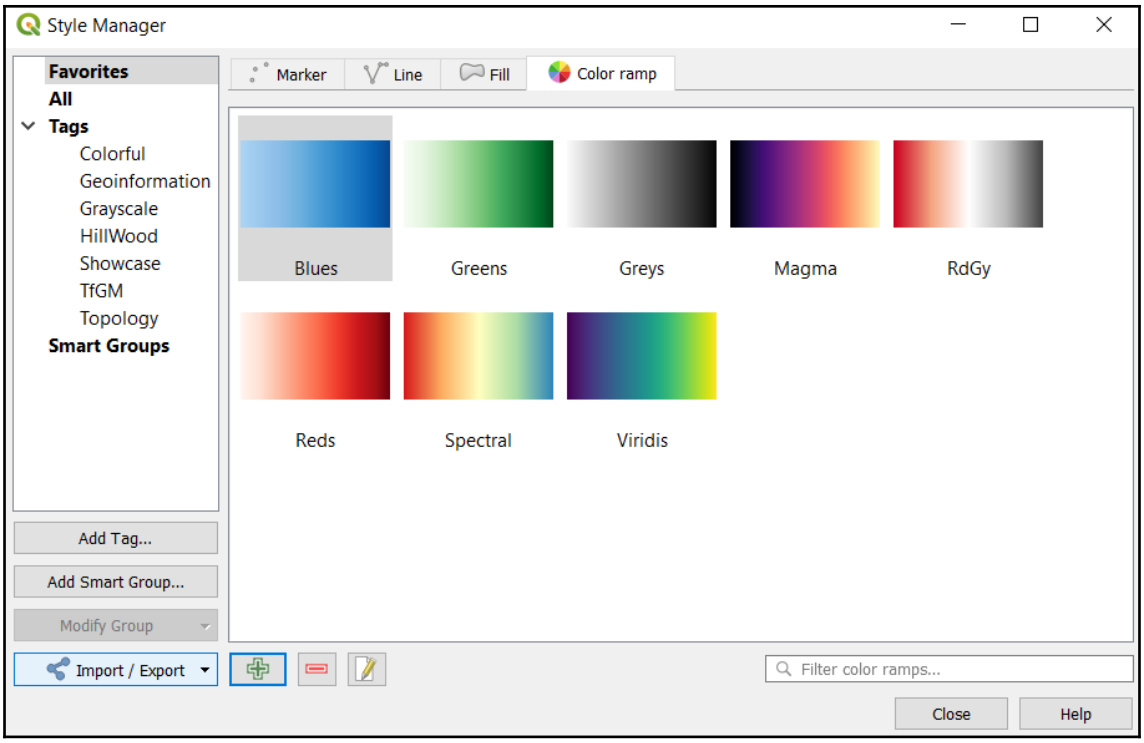
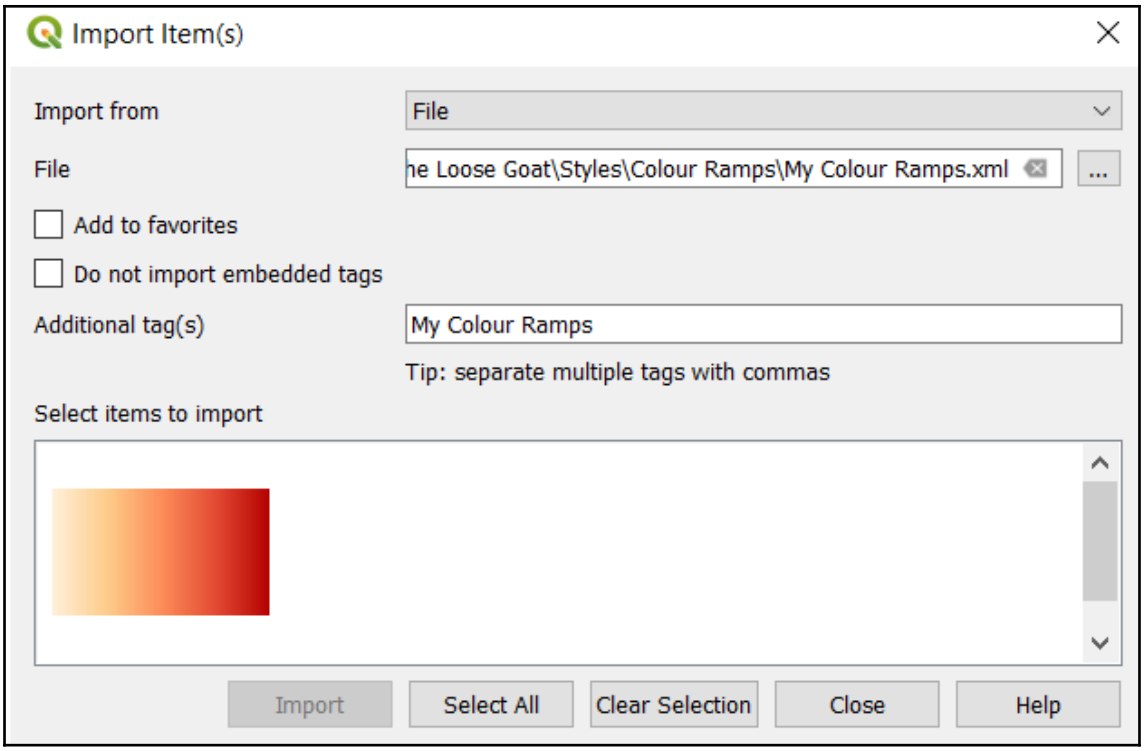
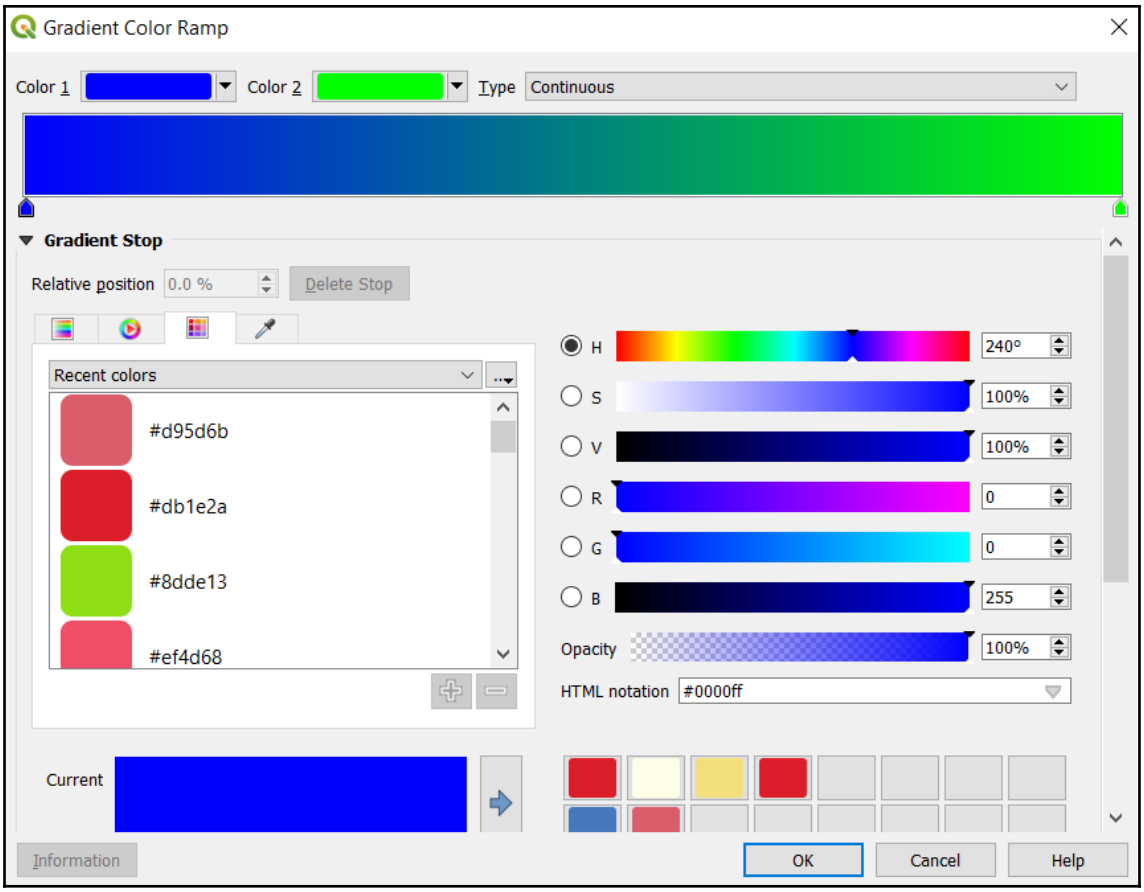
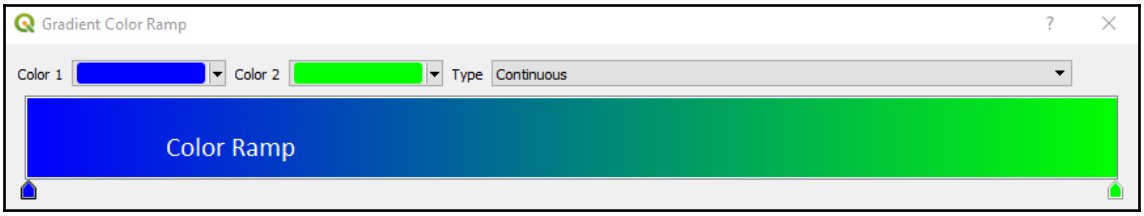
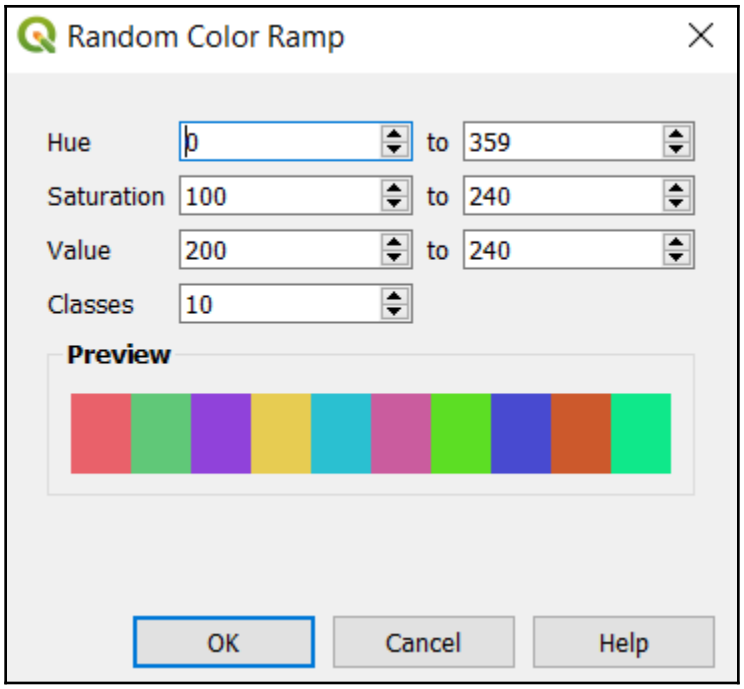
93
ssify
f full extent.

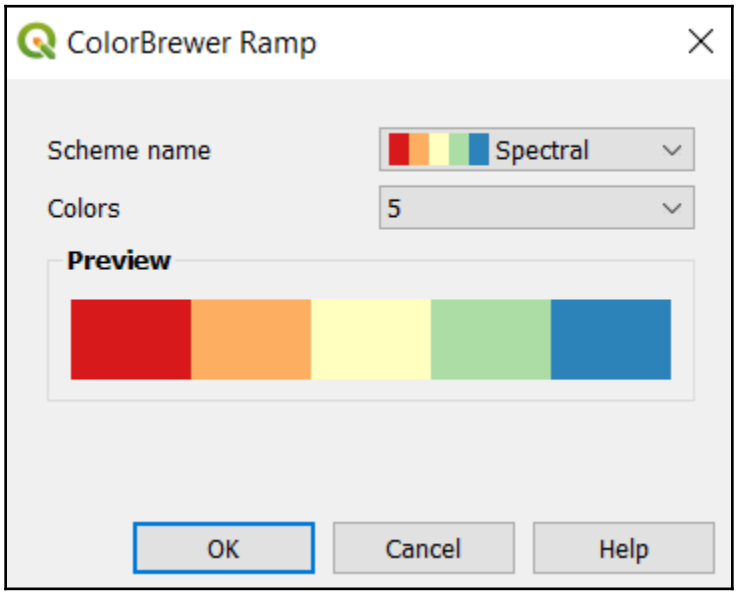

Style Manager
Favorites
All
Tags
Colorful
Geoinformation
Grayscale
HillWood
Showcase
TfGM
Topology
Smart Groups
Marker
Line
Fill
Color ramp
Blues
Greens
Greys
Magma
RdGy
Reds
Spectral
Viridis
Add Tag...
Add Smart Group...
Modify Group
Import / Export
Filter color ramps...
Close
Help

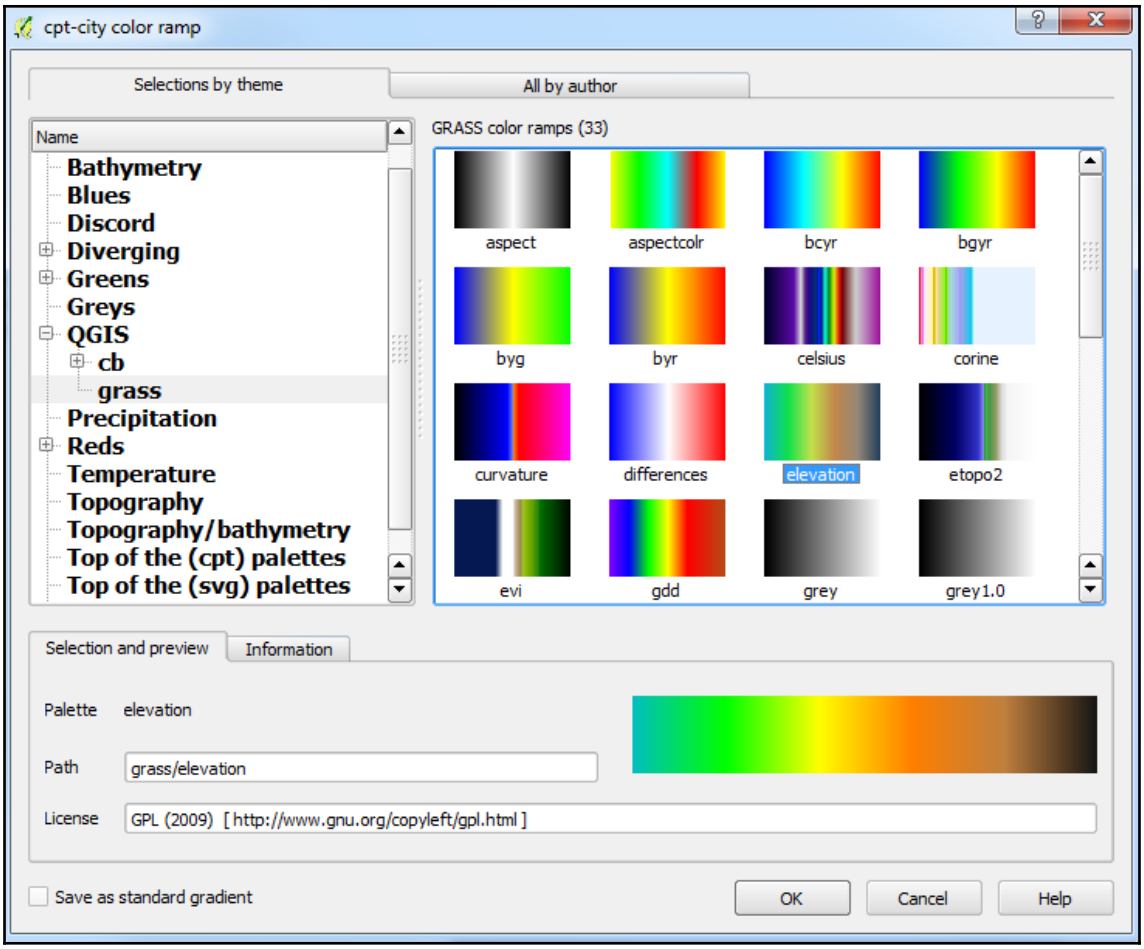

Import Item(s)
Import from
File
File
he Loose Goat\Styles\Colour Ramps\My Colour Ramps.xml
...
Add to favorites
Do not import embedded tags
Additional tag(s)
My Colour Ramps
Tip: separate multiple tags with commas
Select items to import
Import
Select All
Clear Selection
Close
Help

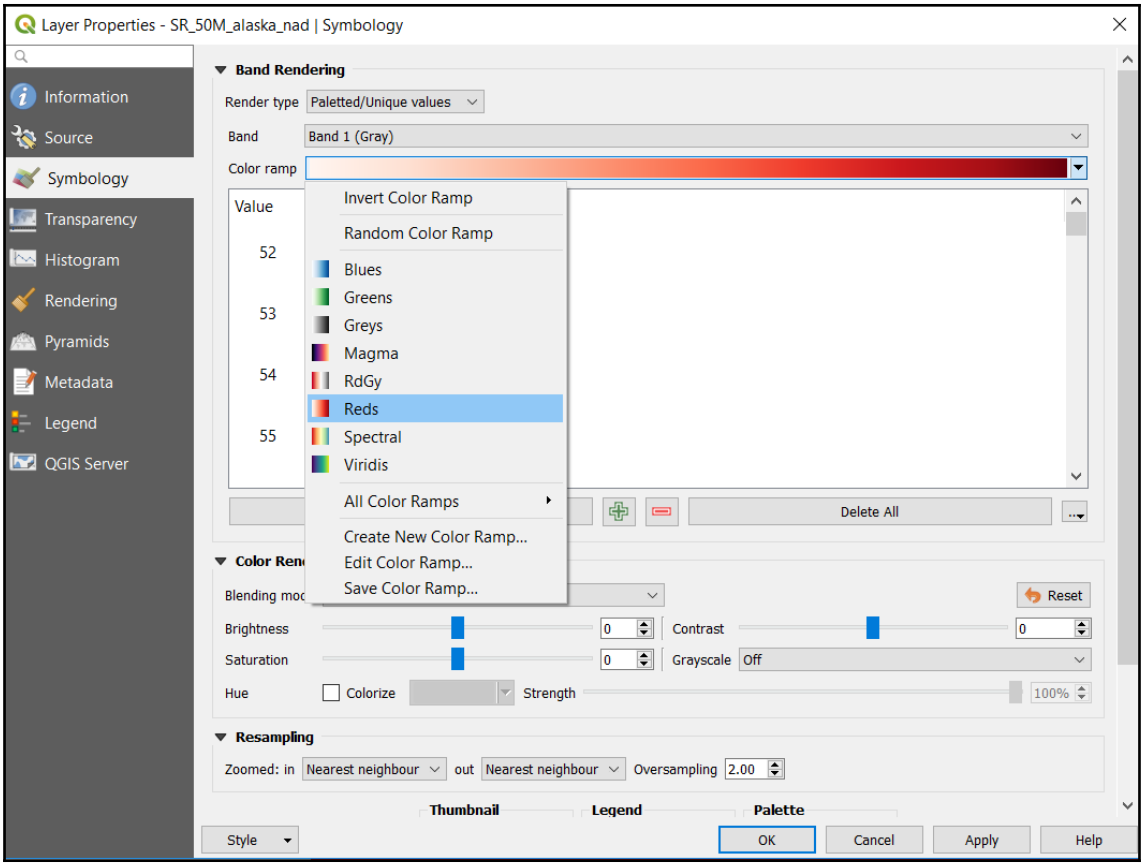

Gradient Color Ramp
Color 1
Color 2
Type
Continuous
Gradient Stop
Relative position
0.0 %
Delete Stop
Recent colors
#d95d6b
#db1e2a
#8dde13
#ef4d68
H
240°
S
100%
V
100%
R
0
G
0
B
255
Opacity
100%
HTML notation
#0000ff
Current
Information
OK
Cancel
Help

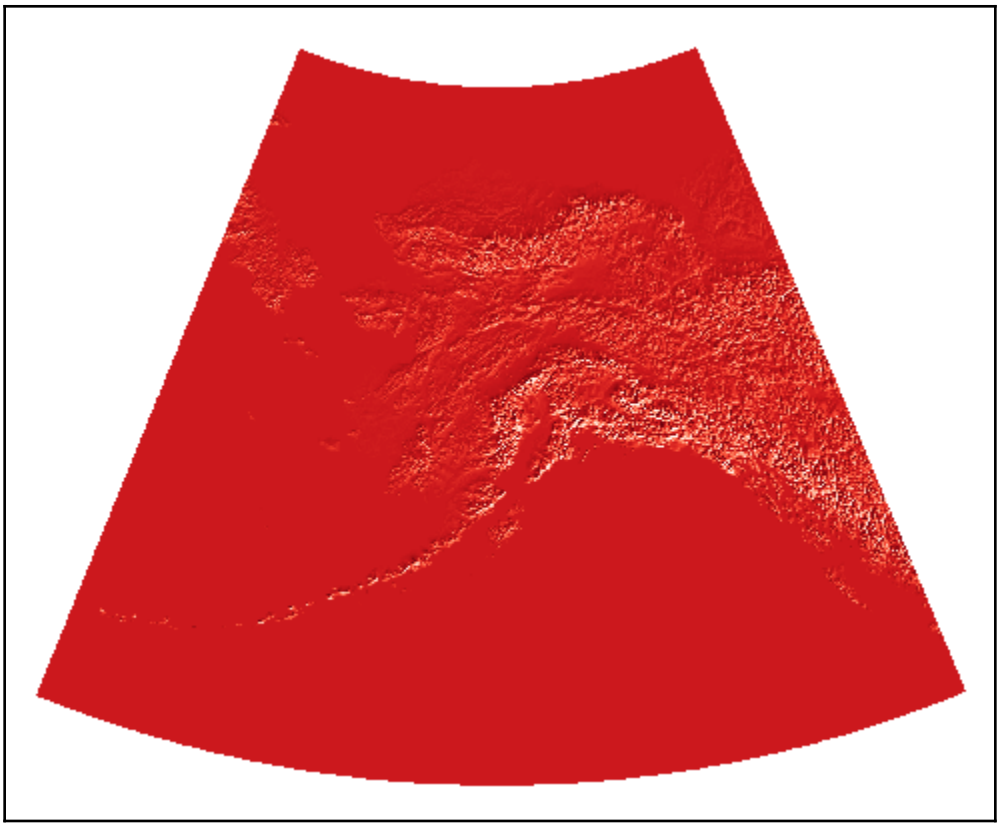

Gradient Color Ramp
Color 1
Color 2
Type
Continuous
Color Ramp

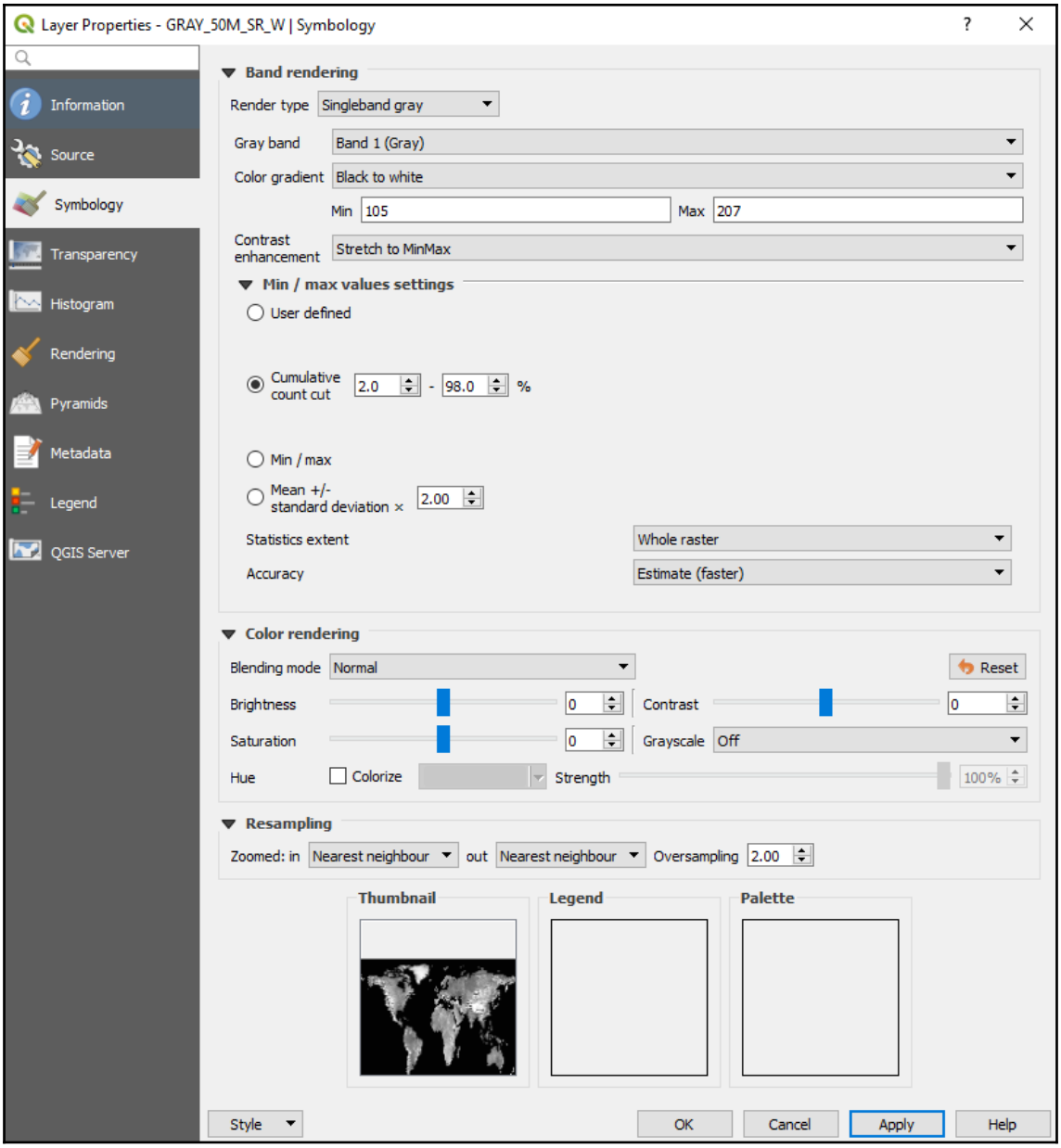

Random Color Ramp
Hue
0
to
359
Saturation
100
to
240
Value
200
to
240
Classes
10
Preview
OK
Cancel
Help

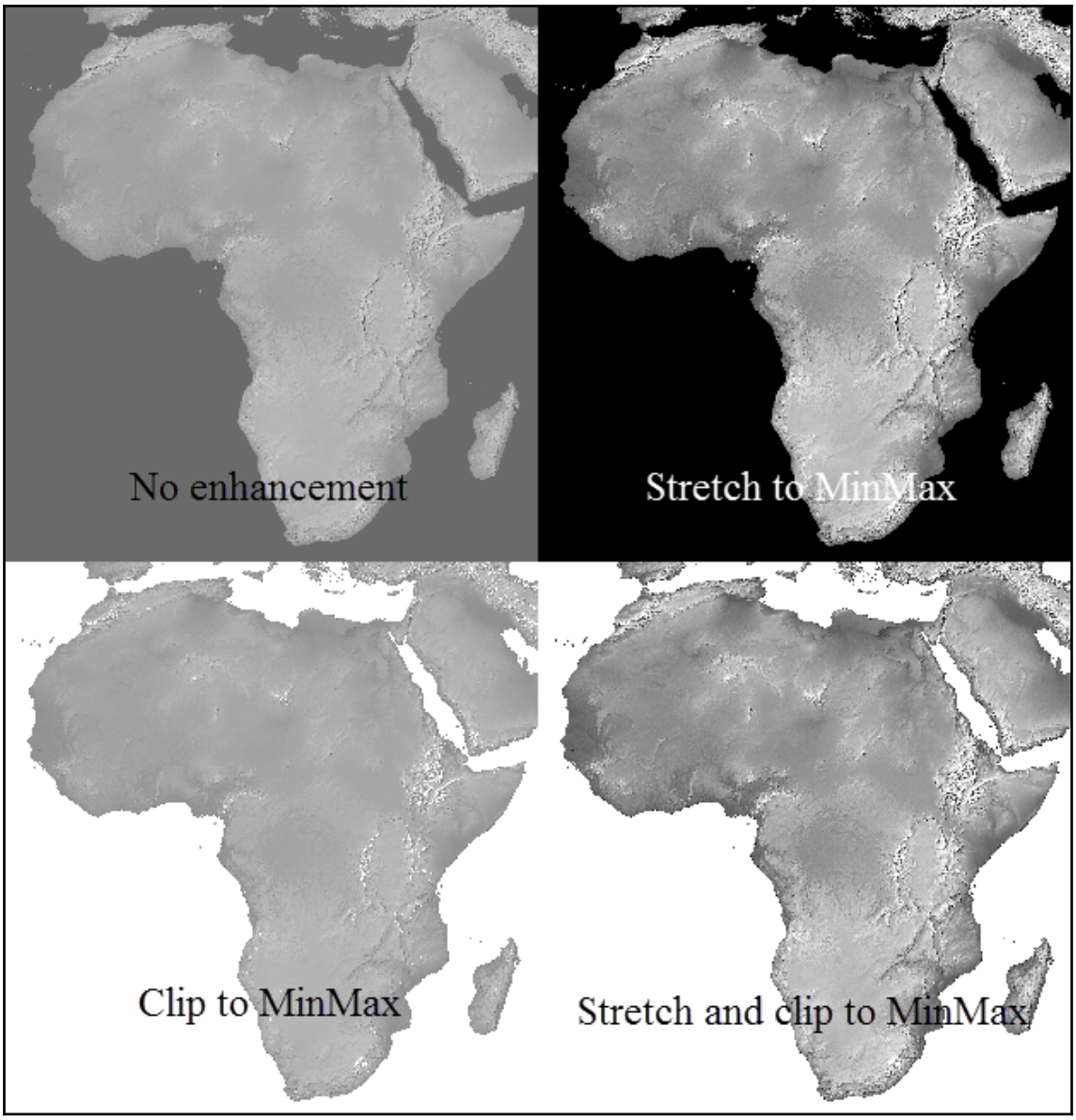

ColorBrewer Ramp
Scheme name
Spectral
Colors
5
Preview
OK
Cancel
Help

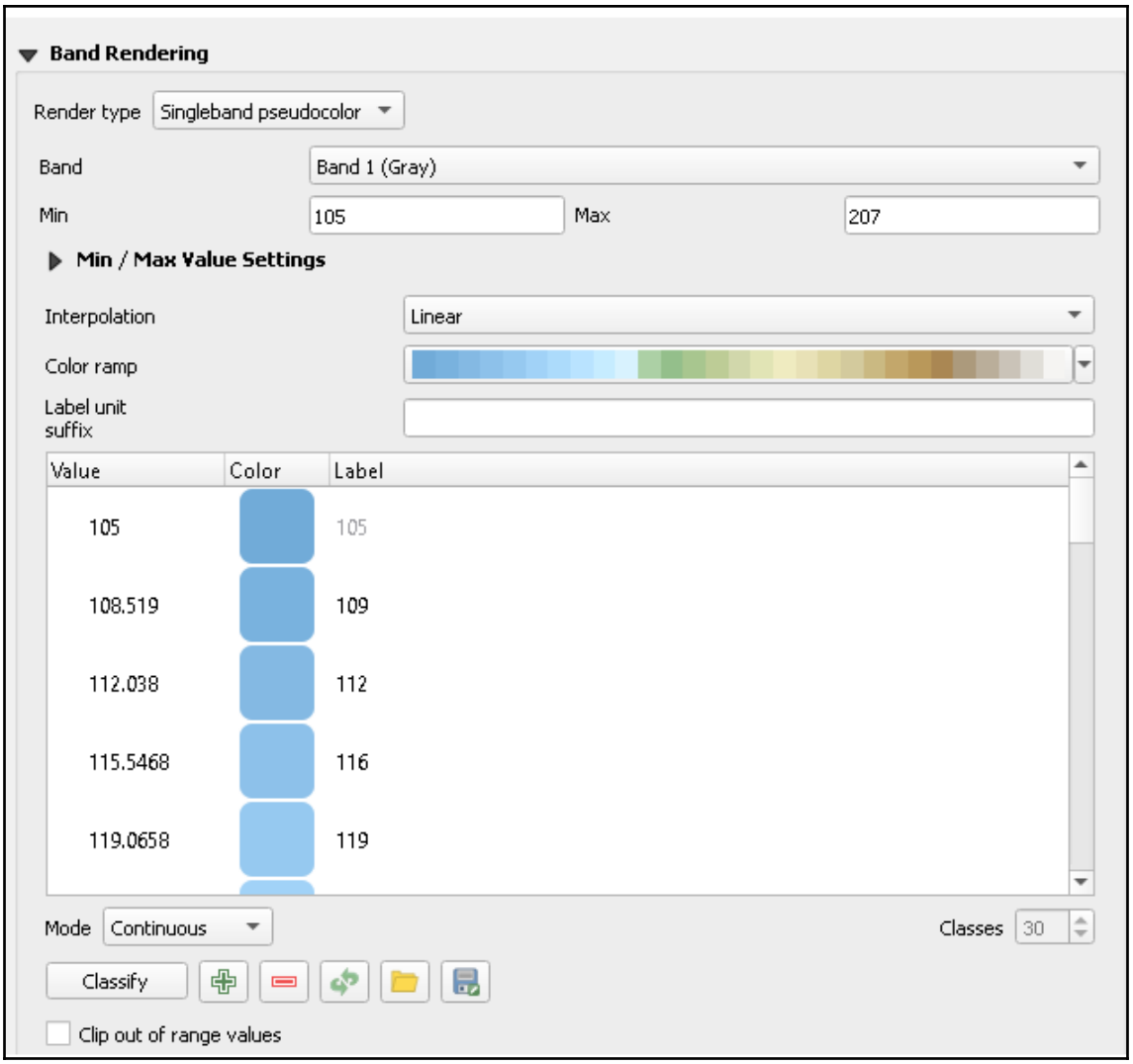

cpt-city color ramp
Selections by theme
All by author
Name
Bathymetry
Blues
Discord
Diverging
Greens
Greys
QGIS
cb
grass
Precipitation
Reds
Temperature
Topography
Topography/bathymetry
Top of the (cpt) palettes
Top of the (svg) palettes
GRASS color ramps (33)
aspect
aspectcolr
bcyr
bgyr
byg
byr
celsius
corine
curvature
differences
elevation
etopo2
evi
gdd
grey
grey1.0
Selection and preview
Information
Palette elevation
Path grass/elevation
License GPL (2009) [http://www.gnu.org/copyleft/gpl.html]
Save as standard gradient
OK
Cancel
Help

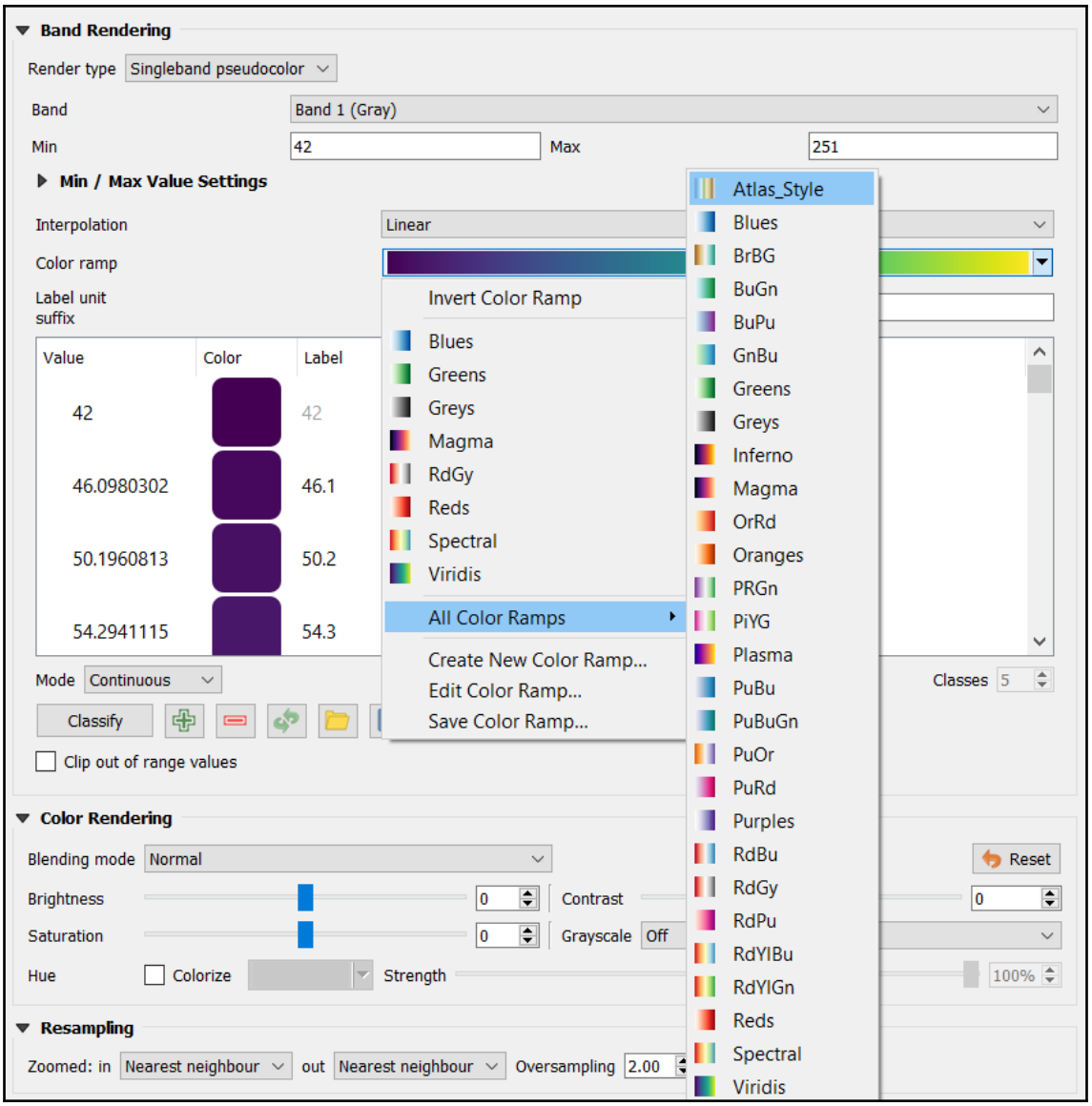

Layer Properties - SR_50M_alaska_nad | Symbology
Information
Source
Symbology
Transparency
Histogram
Rendering
Pyramids
Metadata
Legend
QGIS Server
Band Rendering
Render type
Paletted/Unique values
Band
Band 1 (Gray)
Color ramp
Value
52
53
54
55
Invert Color Ramp
Random Color Ramp
Blues
Greens
Greys
Magma
RdGy
Reds
Spectral
Viridis
All Color Ramps
Create New Color Ramp...
Edit Color Ramp...
Save Color Ramp...
Delete All
Color Ren
Blending mod
Reset
Brightness
Contrast
Saturation
Grayscale
Off
Hue
Colorize
Strength
100%
Resampling
Zoomed: in
Nearest neighbour
out
Nearest neighbour
Oversampling
2.00
Thumbnail
Legend
Palette
Style
OK
Cancel
Apply
Help

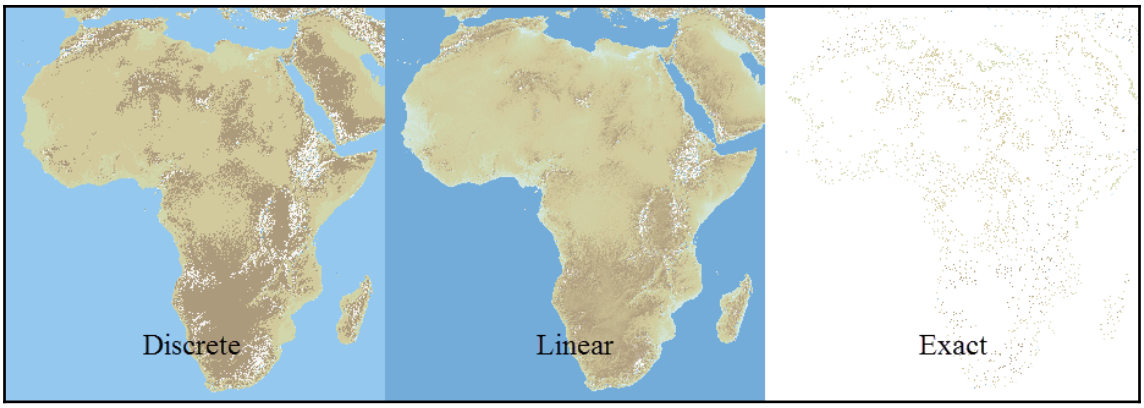


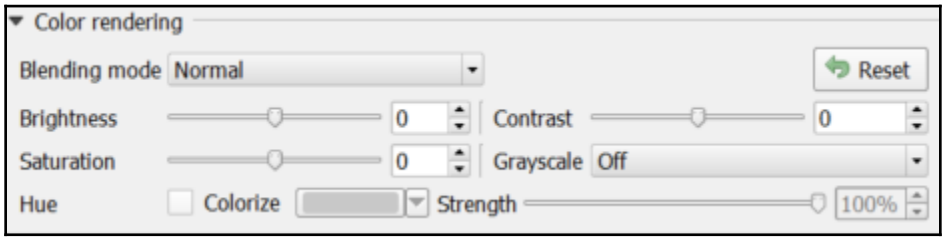

Layer Properties - GRAY_50M_SR_W | Symbology
Information
Source
Symbology
Transparency
Histogram
Rendering
Pyramids
Metadata
Legend
QGIS Server
Band rendering
Render type
Singleband gray
Gray band
Band 1 (Gray)
Color gradient
Black to white
Min
105
Max
207
Contrast enhancement
Stretch to MinMax
Min / max values settings
User defined
Cumulative count cut
2.0
98.0
%
Min / max
Mean +/- standard deviation ×
2.00
Statistics extent
Whole raster
Accuracy
Estimate (faster)
Color rendering
Blending mode
Normal
Reset
Brightness
Contrast
Saturation
Grayscale
Off
Hue
Colorize
Strength
100%
Resampling
Zoomed: in
Nearest neighbour
out
Nearest neighbour
Oversampling
2.00
Thumbnail
Legend
Palette
Style
OK
Cancel
Apply
Help

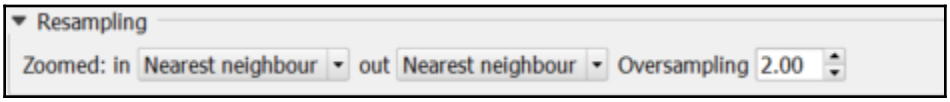

No enhancement
Stretch to MinMax
Clip to MinMax
Stretch and clip to MinMax

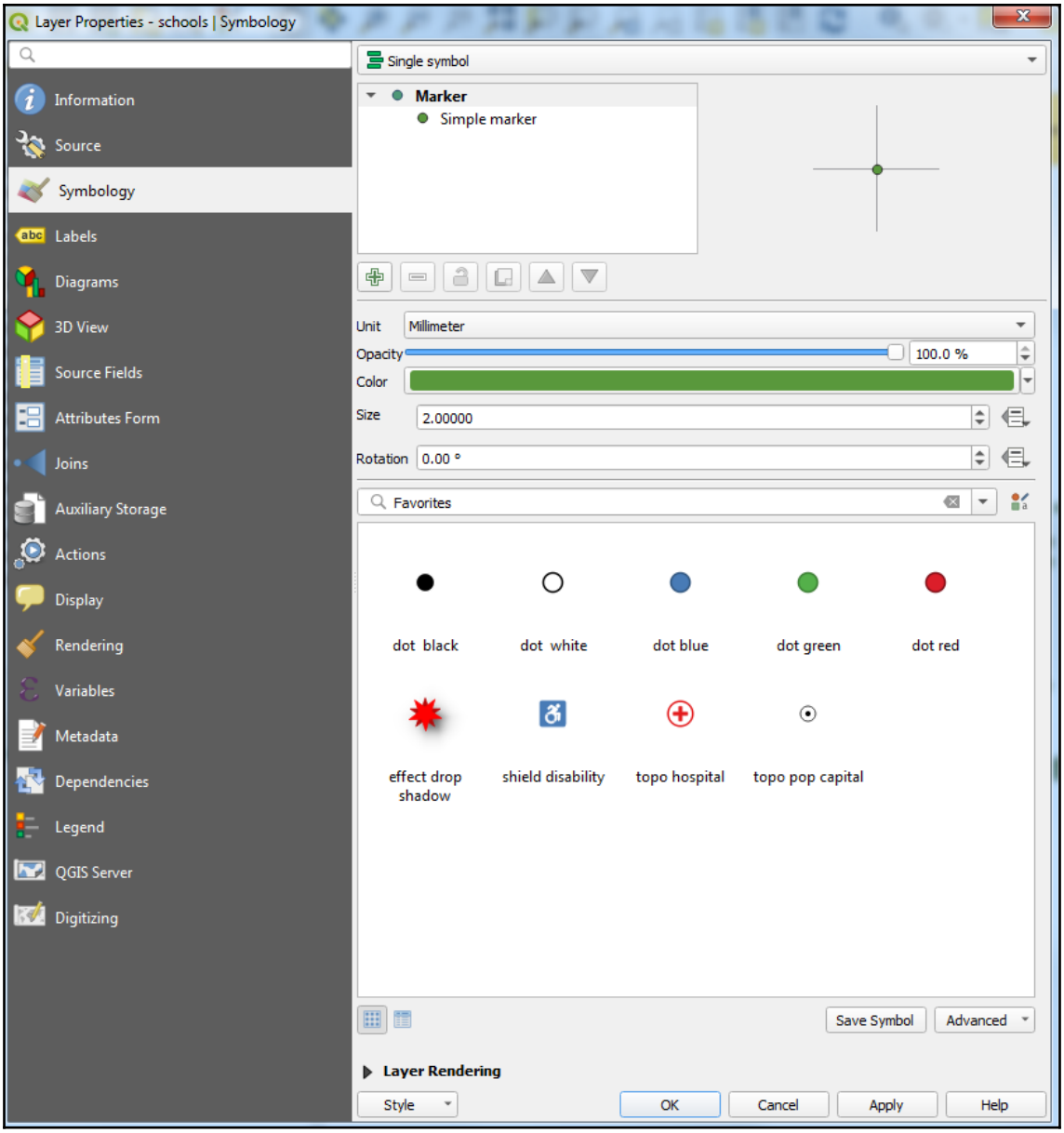

Band Rendering
Render type
Singleband pseudocolor
Band
Band 1 (Gray)
Min
105
Max
207
Min / Max Value Settings
Interpolation
Linear
Color ramp
Label unit suffix
Value
Color
Label
105
105
108.519
109
112.038
112
115.5468
116
119.0658
119
Mode
Continuous
Classes
30
Classify
Clip out of range values

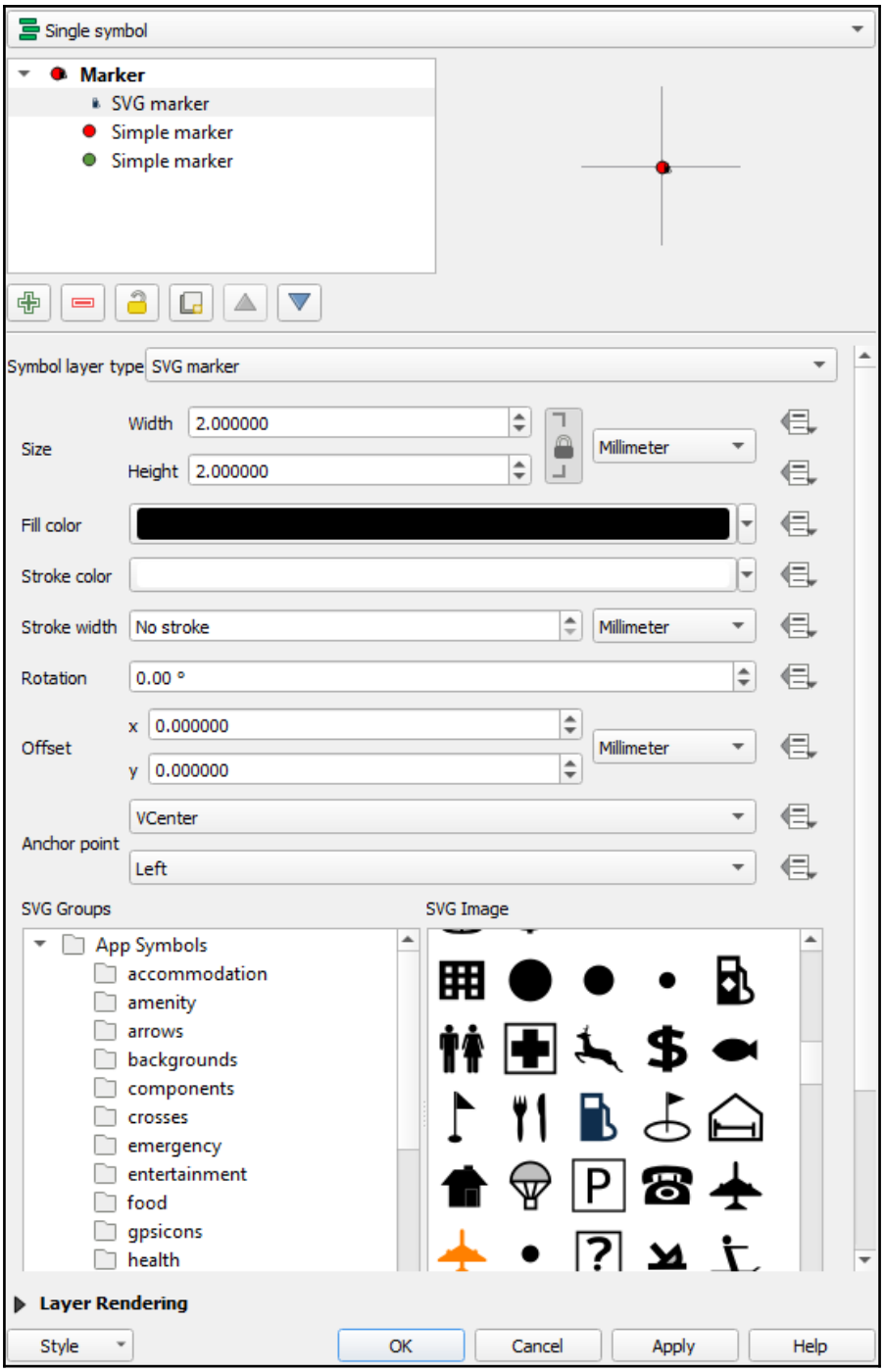

Band Rendering
Render type
Singleband pseudocolor
Band
Band 1 (Gray)
Min
42
Max
251
Min / Max Value Settings
Interpolation
Linear
Color ramp
Label unit suffix
Value
Color
Label
42
42
46.0980302
46.1
50.1960813
50.2
54.2941115
54.3
Mode
Continuous
Classify
Clip out of range values
Classes
5
Invert Color Ramp
Blues
Greens
Greys
Magma
RdGy
Reds
Spectral
Viridis
All Color Ramps
Create New Color Ramp...
Edit Color Ramp...
Save Color Ramp...
Atlas_Style
Blues
BrBG
BuGn
BuPu
GnBu
Greens
Greys
Inferno
Magma
OrRd
Oranges
PRGn
PiYG
Plasma
PuBu
PuBuGn
PuOr
PuRd
Purples
RdBu
RdGy
RdPu
RdYlBu
RdYlGn
Reds
Spectral
Viridis
Color Rendering
Blending mode
Normal
Reset
Brightness
0
Contrast
0
Saturation
0
Grayscale
Off
Hue
Colorize
Strength
100%
Resampling
Zoomed: in
Nearest neighbour
out
Nearest neighbour
Oversampling
2.00

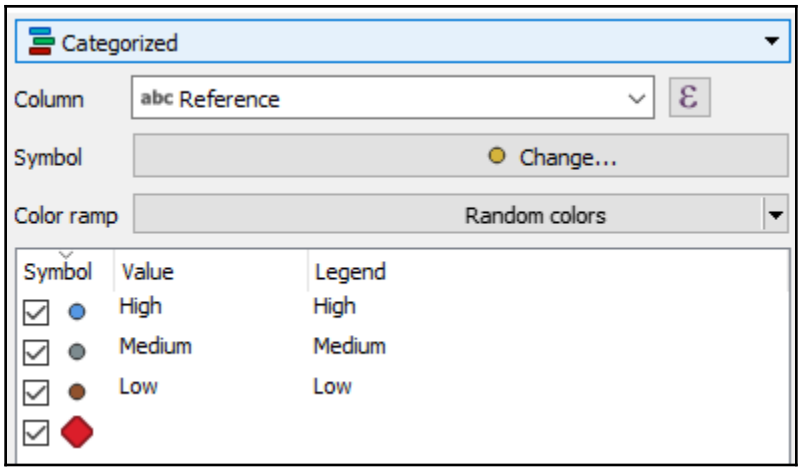

Discrete
Linear
Exact

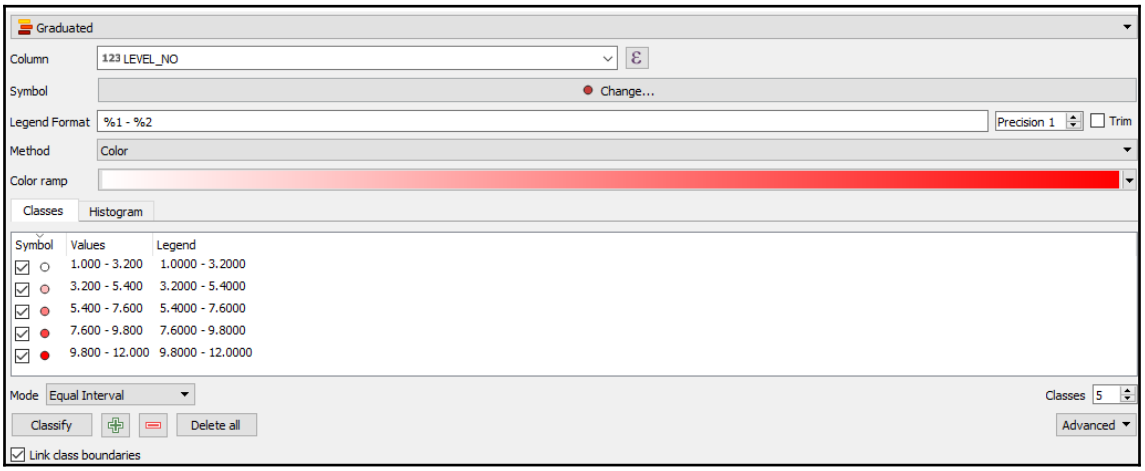

Color rendering
Blending mode
Normal
Reset
Brightness
0
Contrast
0
Saturation
0
Grayscale
Off
Hue
Colorize
Strength
100%

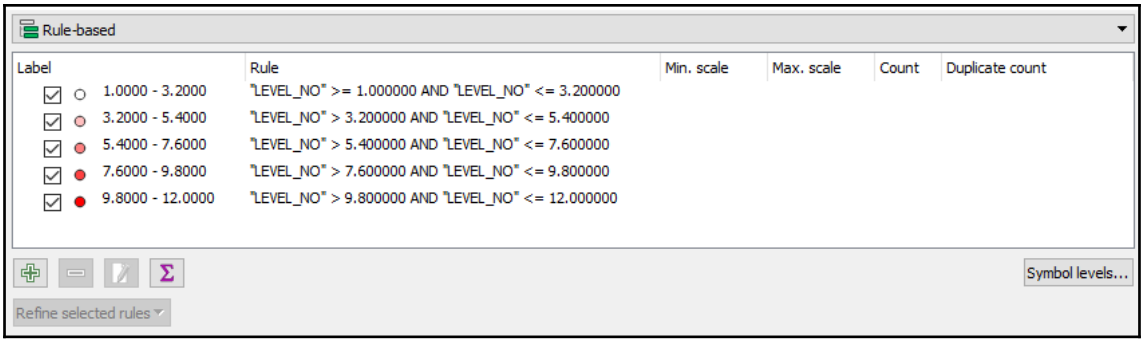

Resampling
Zoomed: in
Nearest neighbour
out
Nearest neighbour
Oversampling
2.00

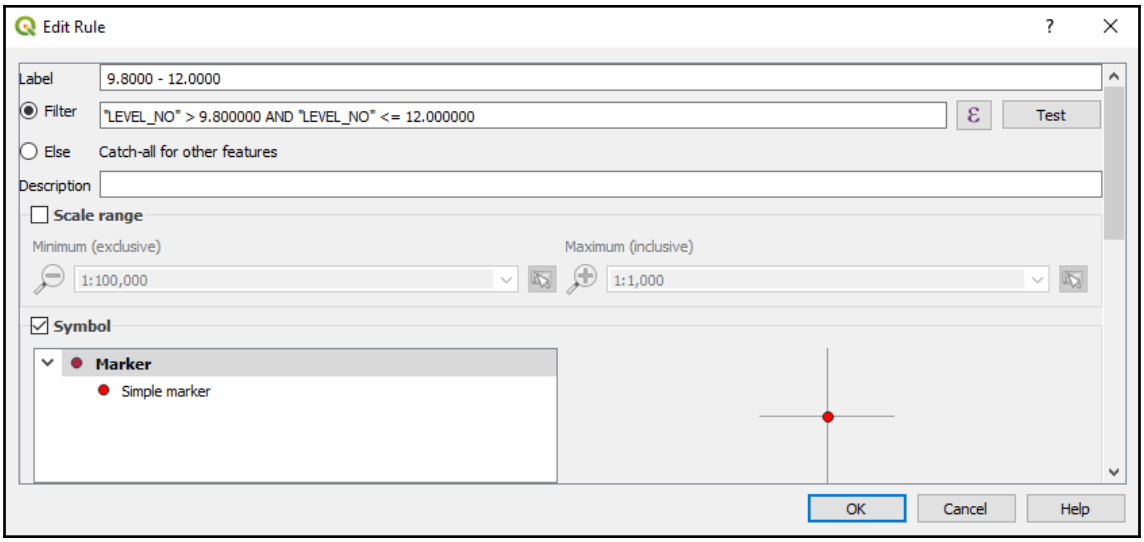

Layer Properties - schools | Symbology
Information
Source
Symbology
Labels
Diagrams
3D View
Source Fields
Attributes Form
Joins
Auxiliary Storage
Actions
Display
Rendering
Variables
Metadata
Dependencies
Legend
QGIS Server
Digitizing
Single symbol
Marker
Simple marker
Unit
Millimeter
Opacity
100.0 %
Color
Size
2.00000
Rotation
0.00 °
Favorites
dot black
dot white
dot blue
dot green
dot red
effect drop shadow
shield disability
topo hospital
topo pop capital
Save Symbol
Advanced
Layer Rendering
Style
OK
Cancel
Apply
Help

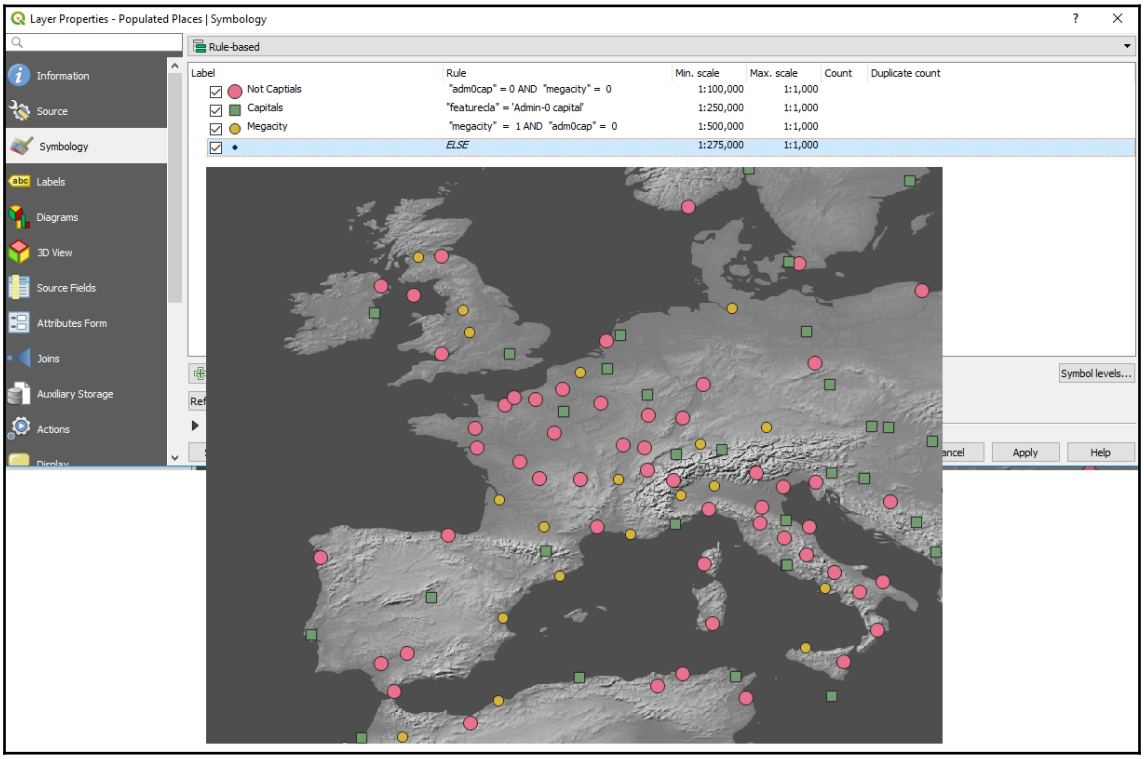

Single symbol
Marker
SVG marker
Simple marker
Simple marker
Symbol layer type
SVG marker
Size
Width
2.000000
Height
2.000000
Millimeter
Fill color
Stroke color
Stroke width
No stroke
Millimeter
Rotation
0.00 °
Offset
x
0.000000
y
0.000000
Millimeter
Anchor point
VCenter
Left
SVG Groups
SVG Image
App Symbols
accommodation
amenity
arrows
backgrounds
components
crosses
emergency
entertainment
food
gpsicons
health
Layer Rendering
Style
OK
Cancel
Apply
Help

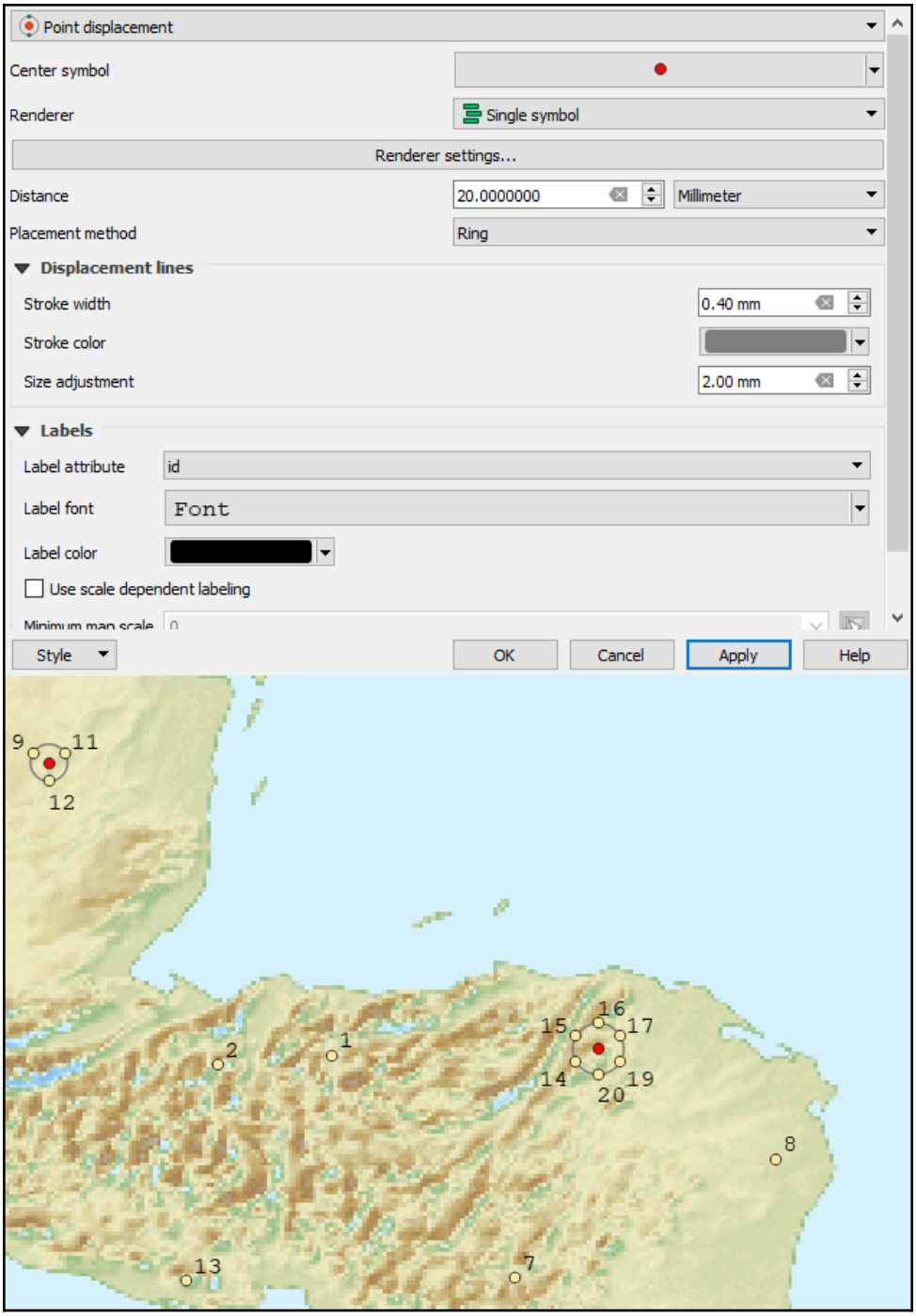

Categorized
Column
abc Reference
Symbol
Change...
Color ramp
Random colors
Symbol
Value
Legend
High
High
Medium
Medium
Low
Low

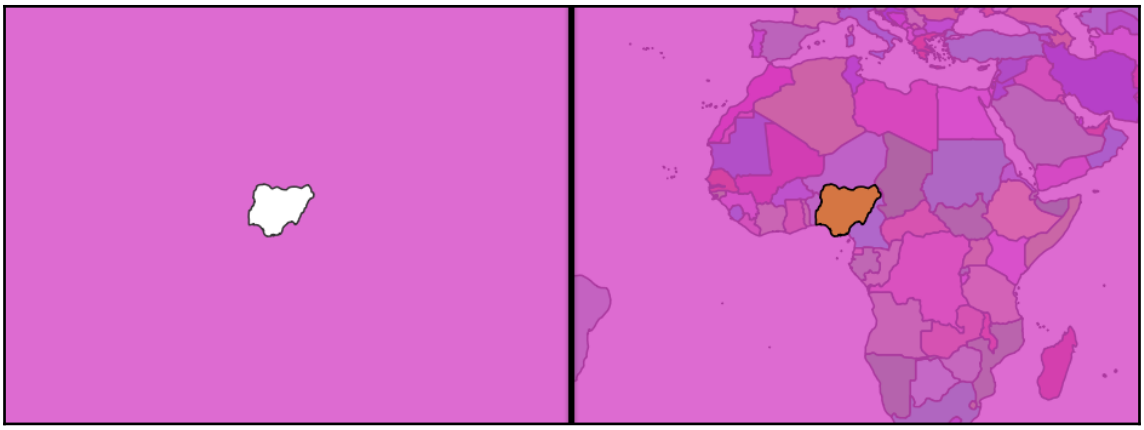

Graduated
Column
123 LEVEL_NO
Symbol
Change...
Legend Format
%1 - %2
Precision 1
Trim
Method
Color
Color ramp
Classes
Histogram
Symbol
Values
Legend
1.000 - 3.200
1.0000 - 3.2000
3.200 - 5.400
3.2000 - 5.4000
5.400 - 7.600
5.4000 - 7.6000
7.600 - 9.800
7.6000 - 9.8000
9.800 - 12.000
9.8000 - 12.0000
Mode
Equal Interval
Classes
5
Classify
Delete all
Advanced
Link class boundaries

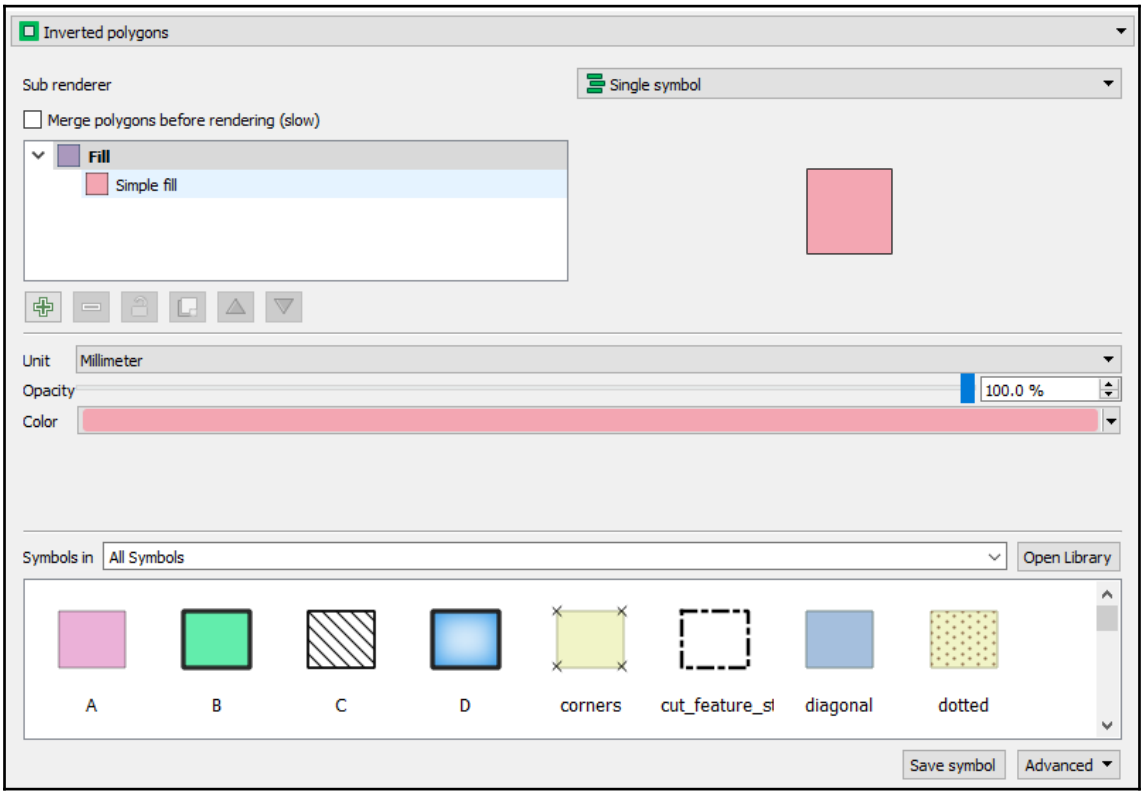

Rule-based
Label
Rule
Min. scale
Max. scale
Count
Duplicate count
1.0000 - 3.2000
"LEVEL_NO" >= 1.000000 AND "LEVEL_NO" <= 3.200000
3.2000 - 5.4000
"LEVEL_NO" > 3.200000 AND "LEVEL_NO" <= 5.400000
5.4000 - 7.6000
"LEVEL_NO" > 5.400000 AND "LEVEL_NO" <= 7.600000
7.6000 - 9.8000
"LEVEL_NO" > 7.600000 AND "LEVEL_NO" <= 9.800000
9.8000 - 12.0000
"LEVEL_NO" > 9.800000 AND "LEVEL_NO" <= 12.000000
Symbol levels...
Refine selected rules

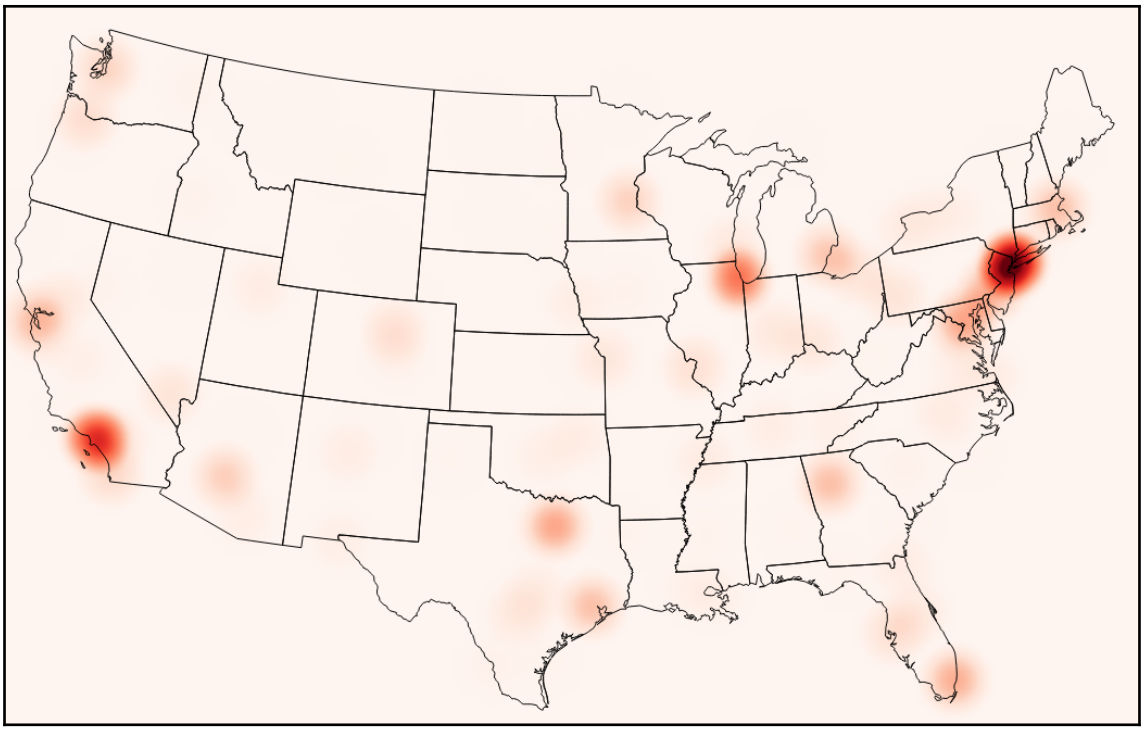

Edit Rule
Label
9.8000 - 12.0000
Filter
"LEVEL_NO" > 9.800000 AND "LEVEL_NO" <= 12.000000
Test
Else
Catch-all for other features
Description
Scale range
Minimum (exclusive)
1:100,000
Maximum (inclusive)
1:1,000
Symbol
Marker
Simple marker
OK
Cancel
Help

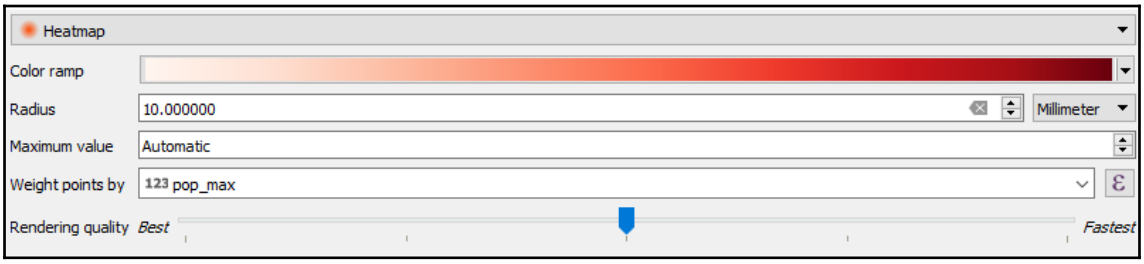

Layer Properties - Populated Places | Symbology
Rule-based
Information
Source
Symbology
Labels
Diagrams
3D View
Source Fields
Attributes Form
Joins
Auxiliary Storage
Actions
Label
Rule
Min. scale
Max. scale
Count
Duplicate count
Not Captials
"adm0cap" = 0 AND "megacity" = 0
1:100,000
1:1,000
Capitals
"featurecla" = 'Admin-0 capital'
1:250,000
1:1,000
Megacity
"megacity" = 1 AND "adm0cap" = 0
1:500,000
1:1,000
ELSE
1:275,000
1:1,000
Symbol levels...
Apply
Help

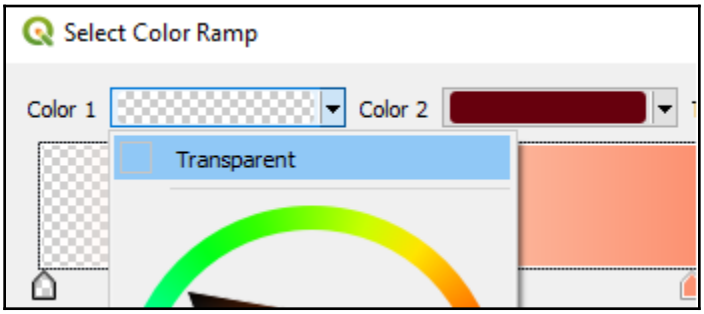

Point displacement
Center symbol
Renderer
Single symbol
Renderer settings...
Distance
20.0000000
Millimeter
Placement method
Ring
Displacement lines
Stroke width
0.40 mm
Stroke color
Size adjustment
2.00 mm
Labels
Label attribute
id
Label font
Font
Label color
Use scale dependent labeling
Minimum map scale
Style
OK
Cancel
Apply
Help
9
11
12
2
1
15
16
17
14
19
20
8
13
7

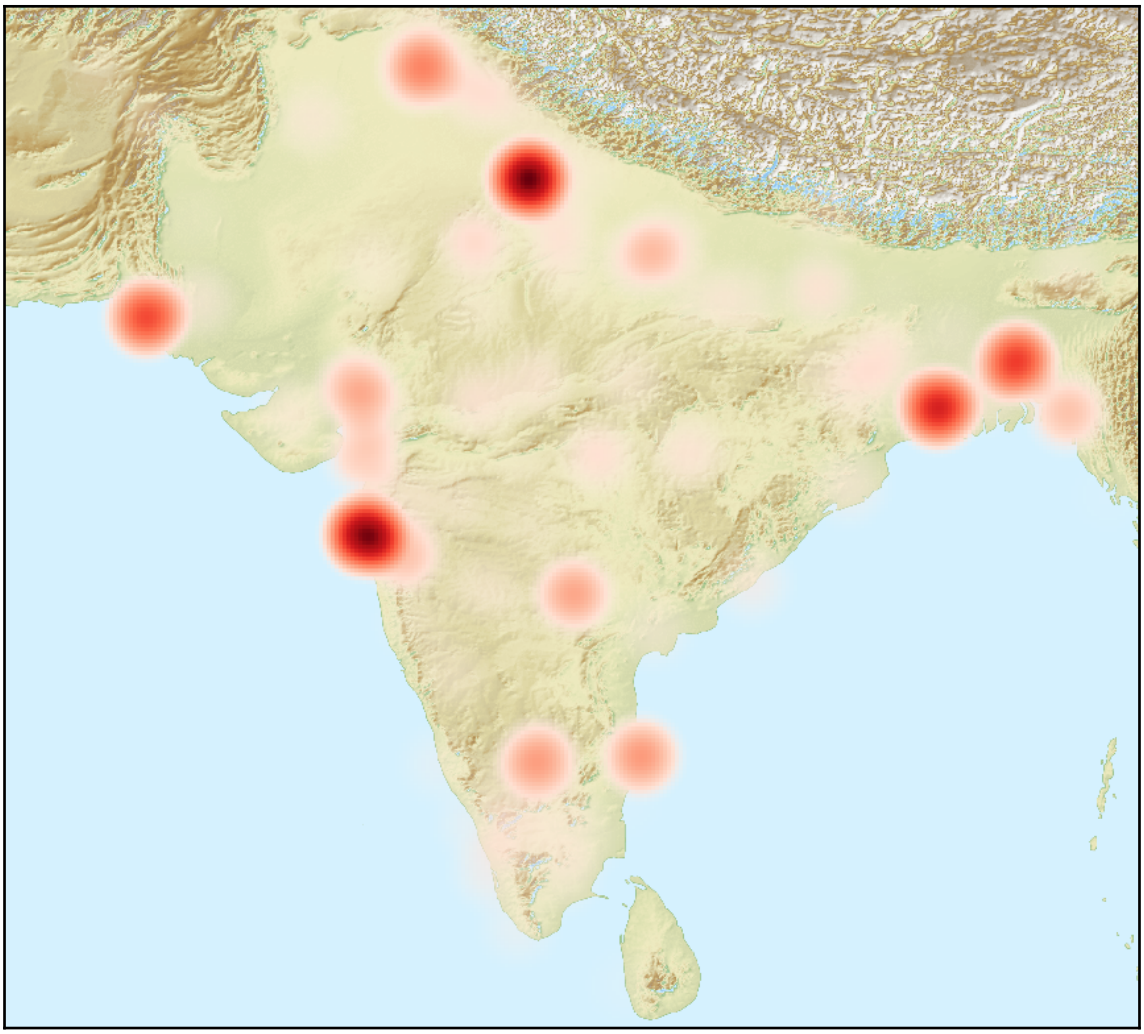


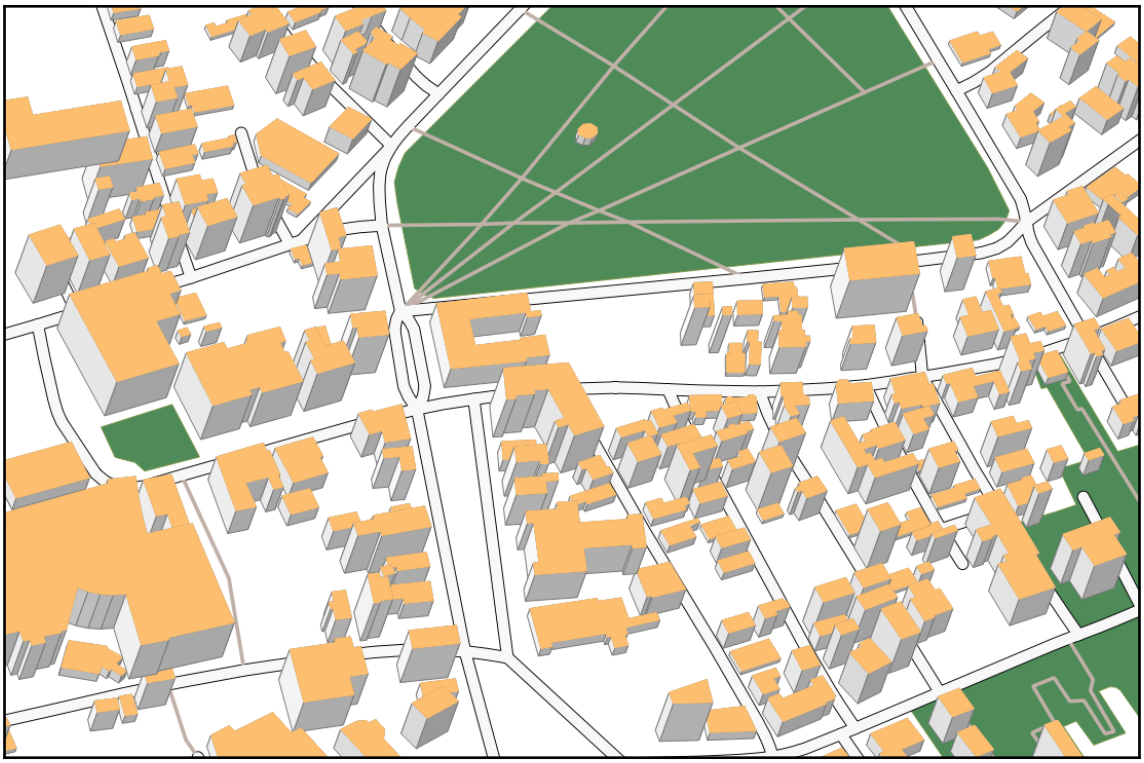

Inverted polygons
Sub renderer
Single symbol
Merge polygons before rendering (slow)
Fill
Simple fill
Unit
Millimeter
Opacity
100.0 %
Color
Symbols in
All Symbols
Open Library
A
B
C
D
corners
cut_feature_sl
diagonal
dotted
Save symbol
Advanced

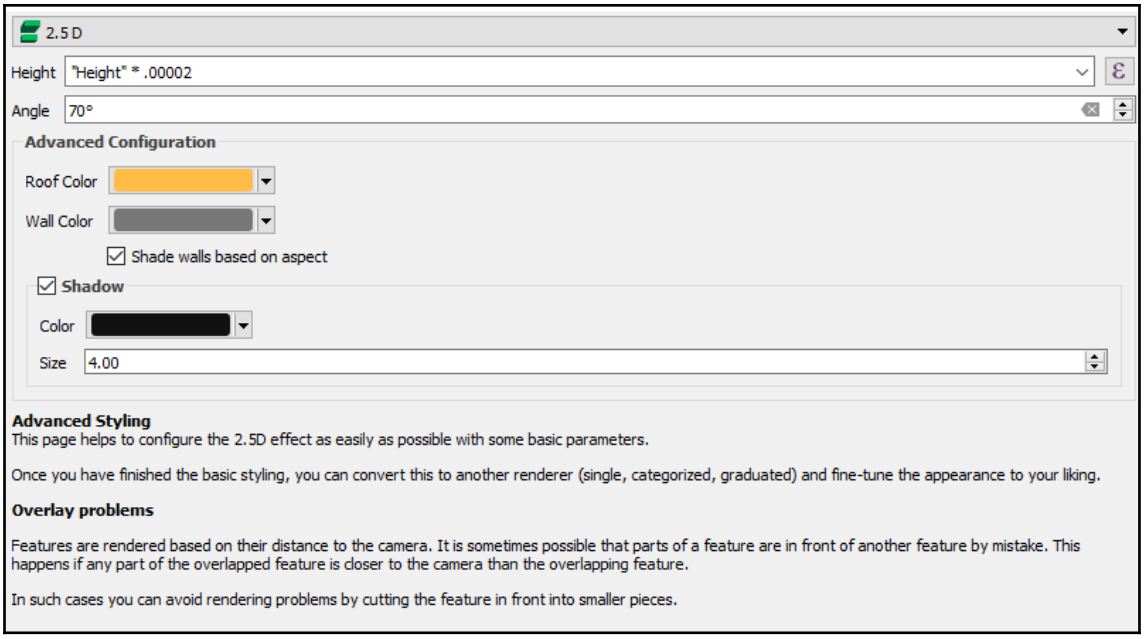


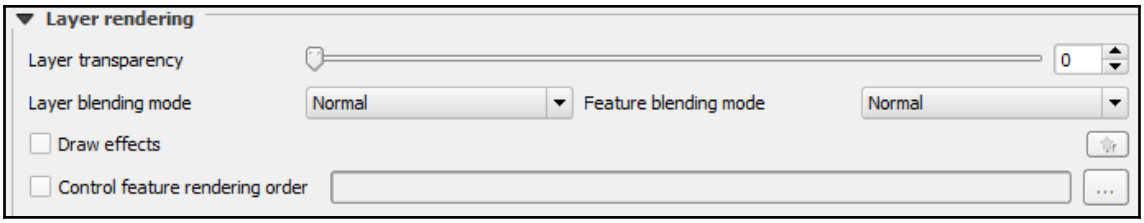

Heatmap
Color ramp
Radius
10.000000
Millimeter
Maximum value
Automatic
Weight points by
123 pop_max
Rendering quality
Best
Fastest

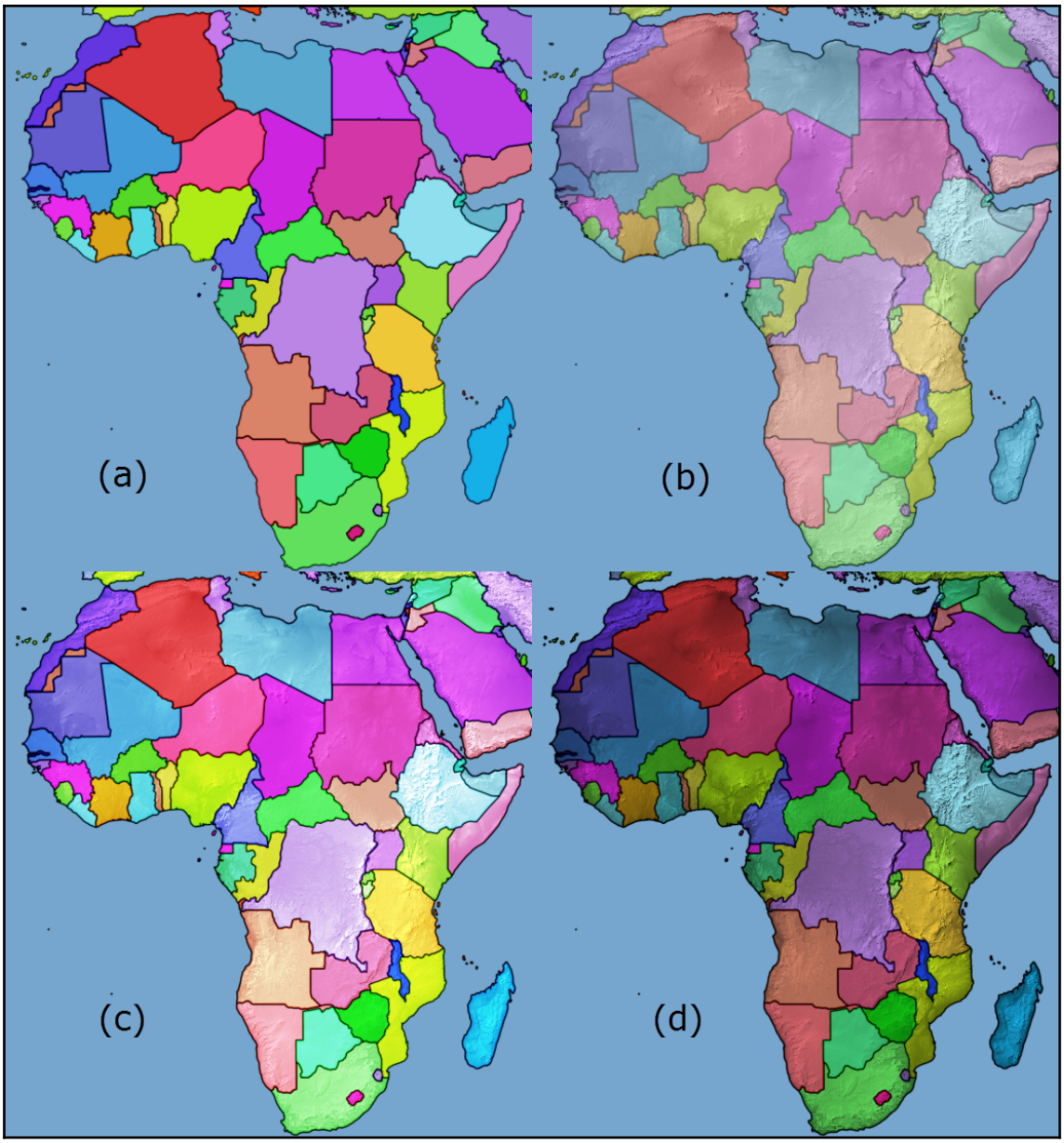

Select Color Ramp
Color 1
Color 2
Transparent

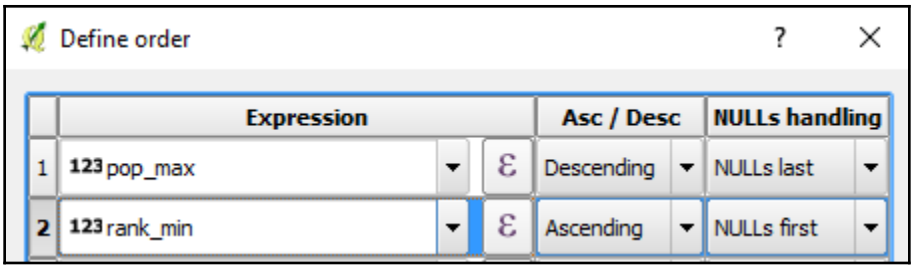


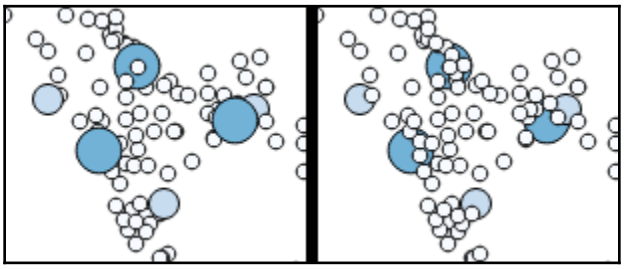


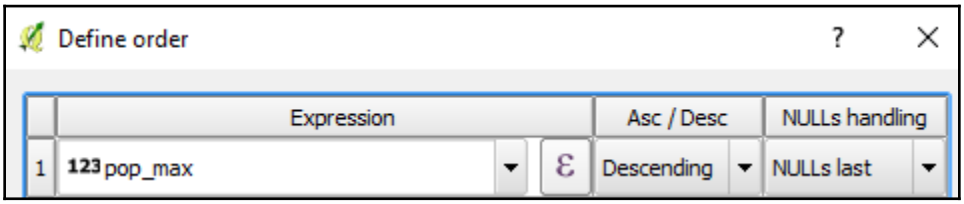

2.5 D
Height
"Height" * .00002
Angle
70°
Advanced Configuration
Roof Color
Wall Color
Shade walls based on aspect
Shadow
Color
Size
4.00
Advanced Styling
This page helps to configure the 2.5D effect as easily as possible with some basic parameters.
Once you have finished the basic styling, you can convert this to another renderer (single, categorized, graduated) and fine-tune the appearance to your liking.
Overlay problems
Features are rendered based on their distance to the camera. It is sometimes possible that parts of a feature are in front of another feature by mistake. This happens if any part of the overlapped feature is closer to the camera than the overlapping feature.
In such cases you can avoid rendering problems by cutting the feature in front into smaller pieces.

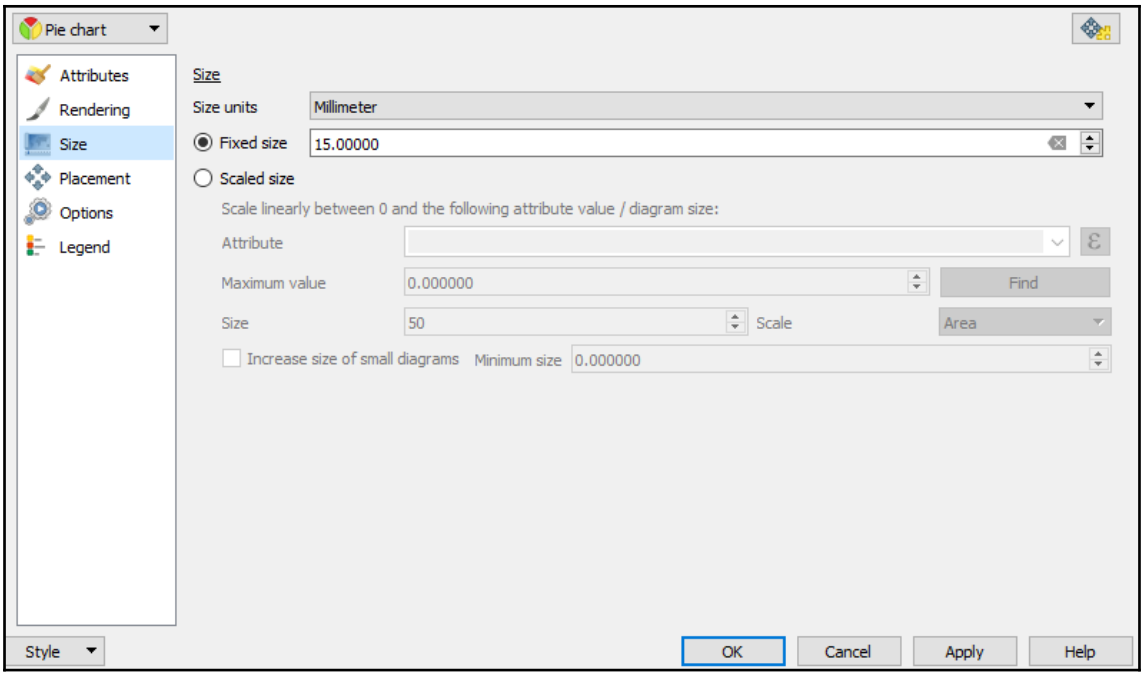

Layer rendering
Layer transparency
0
Layer blending mode
Normal
Feature blending mode
Normal
Draw effects
Control feature rendering order
...

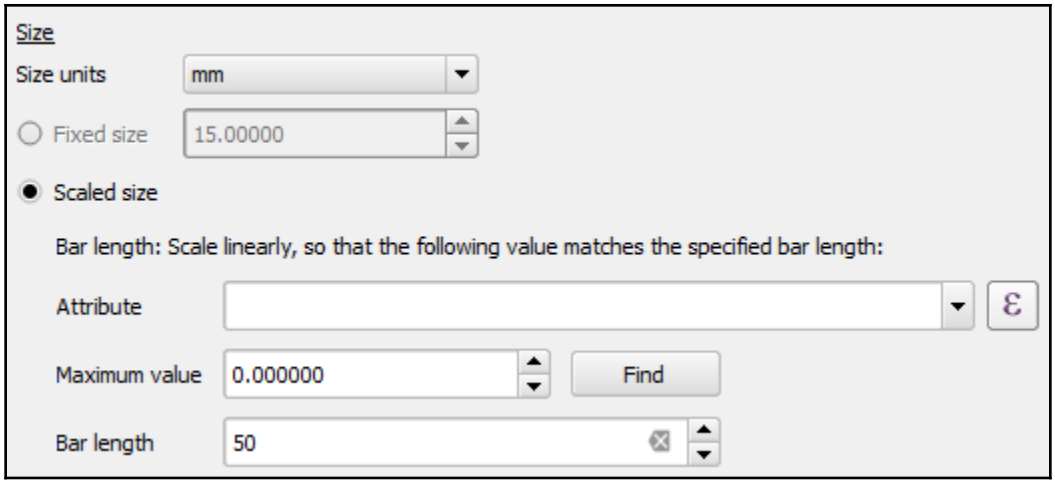

(a)
(b)
(c)
(d)

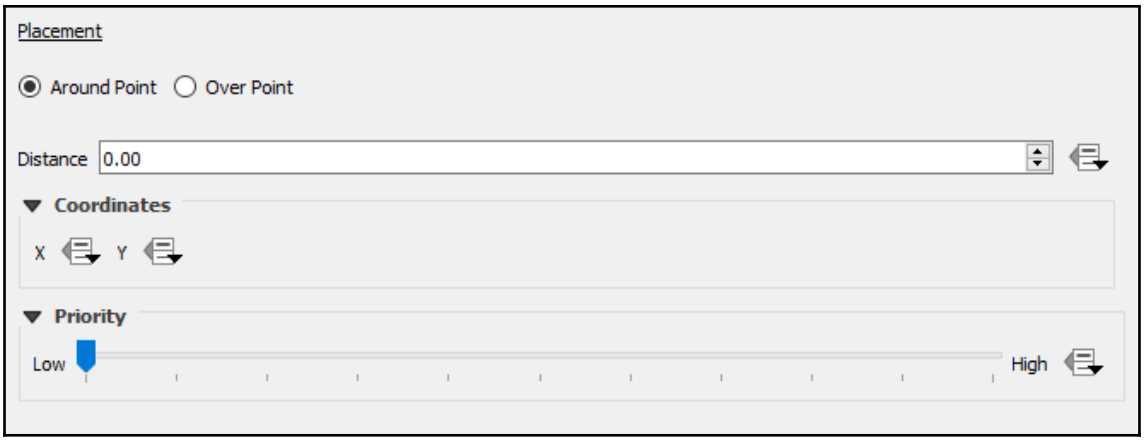

Define order
Expression
Asc / Desc
NULLs handling
1
123 pop_max
Descending
NULLs last
2
123 rank_min
Ascending
NULLs first

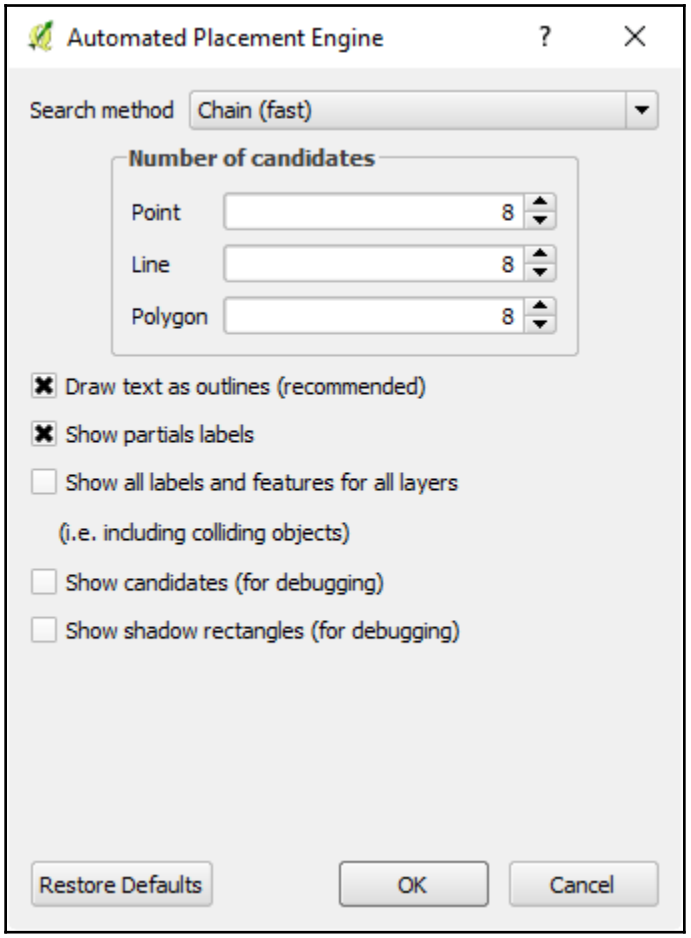



Define order
Expression
Asc / Desc
NULLs handling
1
123 pop_max
Descending
NULLs last


Pie chart
Attributes
Rendering
Size
Placement
Options
Legend
Size
Size units
Millimeter
Fixed size
15.00000
Scaled size
Scale linearly between 0 and the following attribute value / diagram size:
Attribute
Maximum value
0.000000
Find
Size
50
Scale
Area
Increase size of small diagrams
Minimum size
0.000000
Style
OK
Cancel
Apply
Help

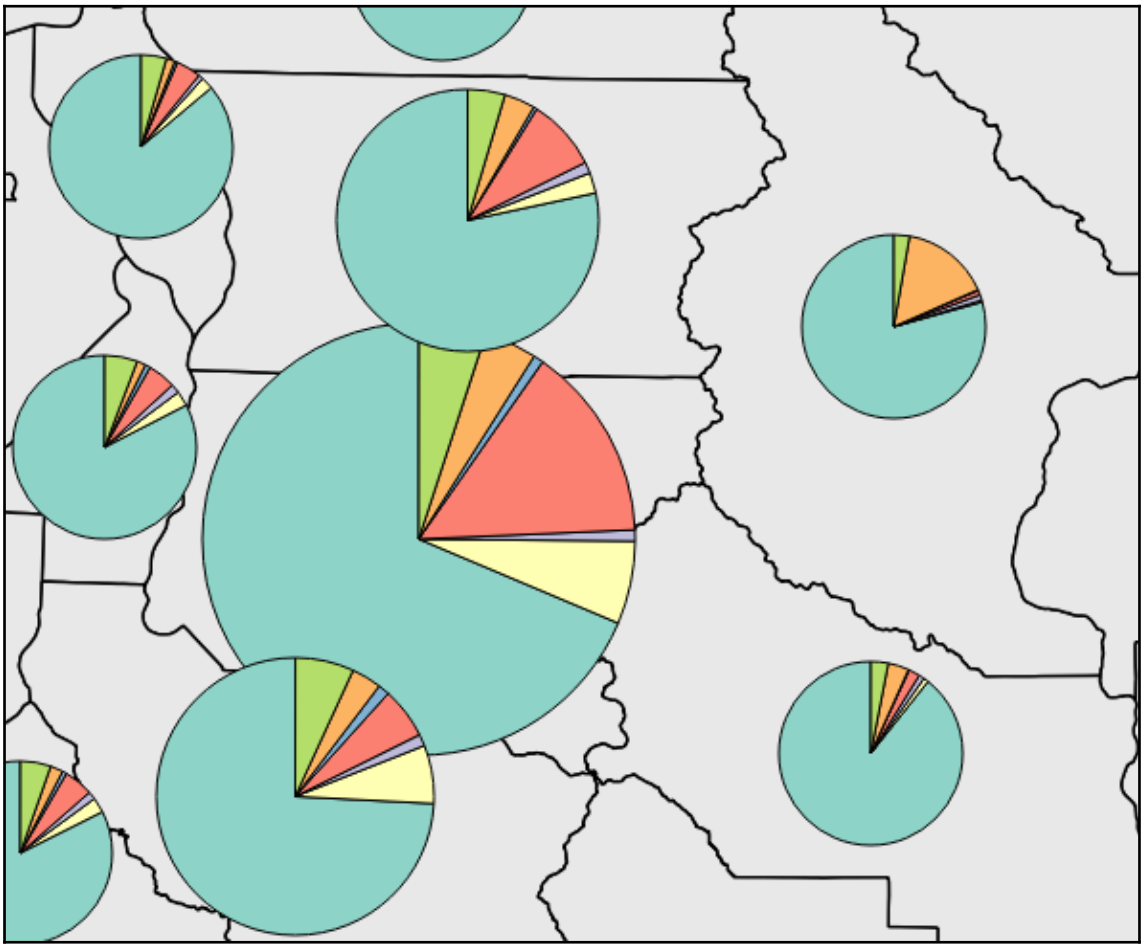

Size
Size units
mm
Fixed size
15.00000
Scaled size
Bar length: Scale linearly, so that the following value matches the specified bar length:
Attribute
Maximum value
0.000000
Find
Bar length
50

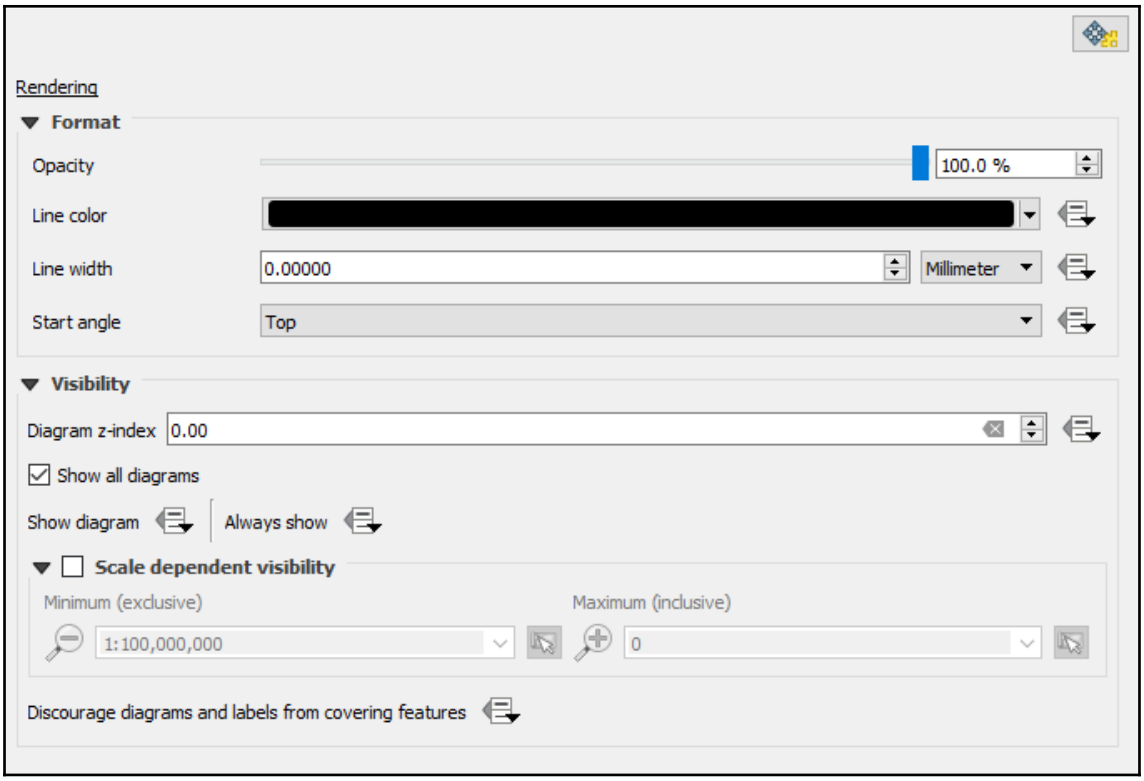

Placement
Around Point
Over Point
Distance
0.00
Coordinates
X
Y
Priority
Low
High

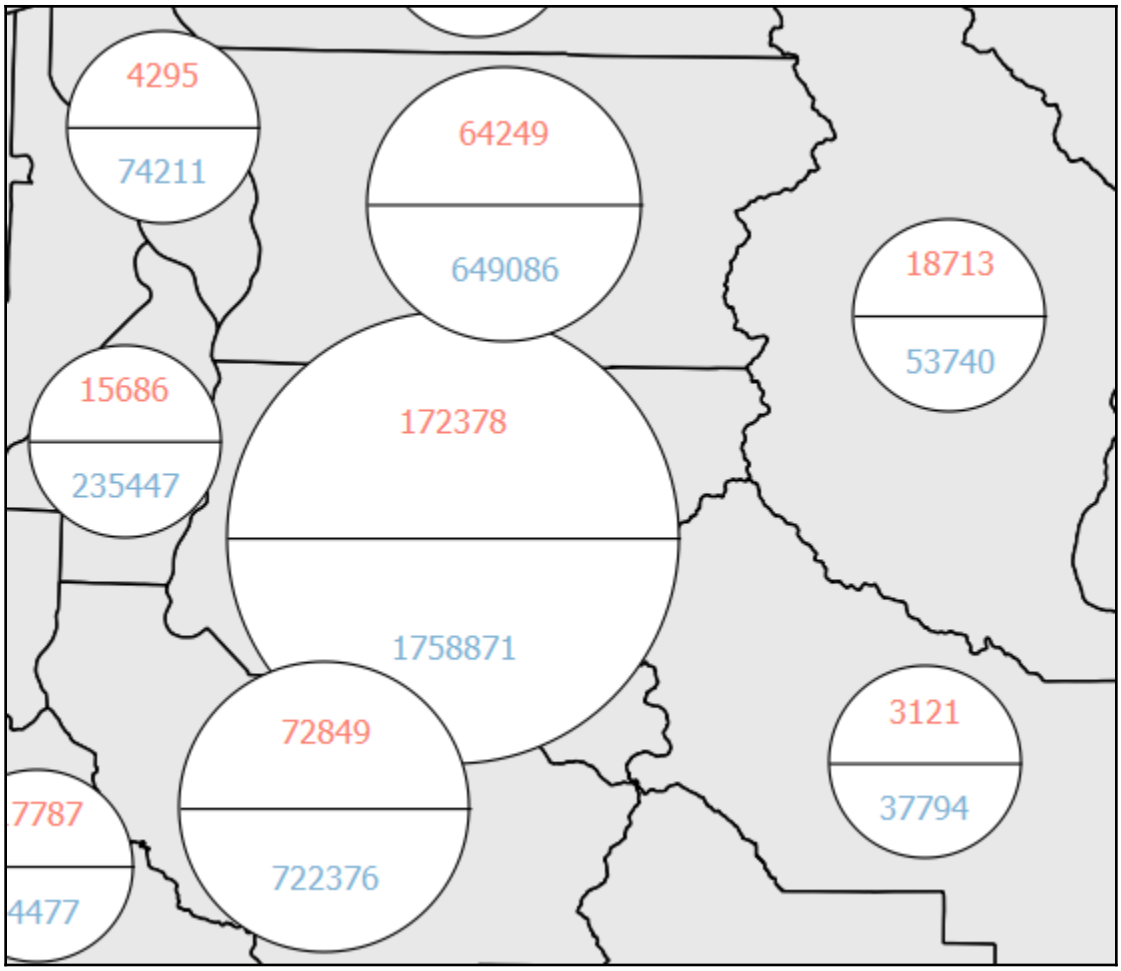

Automated Placement Engine
?
Search method
Chain (fast)
Number of candidates
Point
8
Line
8
Polygon
8
Draw text as outlines (recommended)
Show partials labels
Show all labels and features for all layers
(i.e. including colliding objects)
Show candidates (for debugging)
Show shadow rectangles (for debugging)
Restore Defaults
OK
Cancel

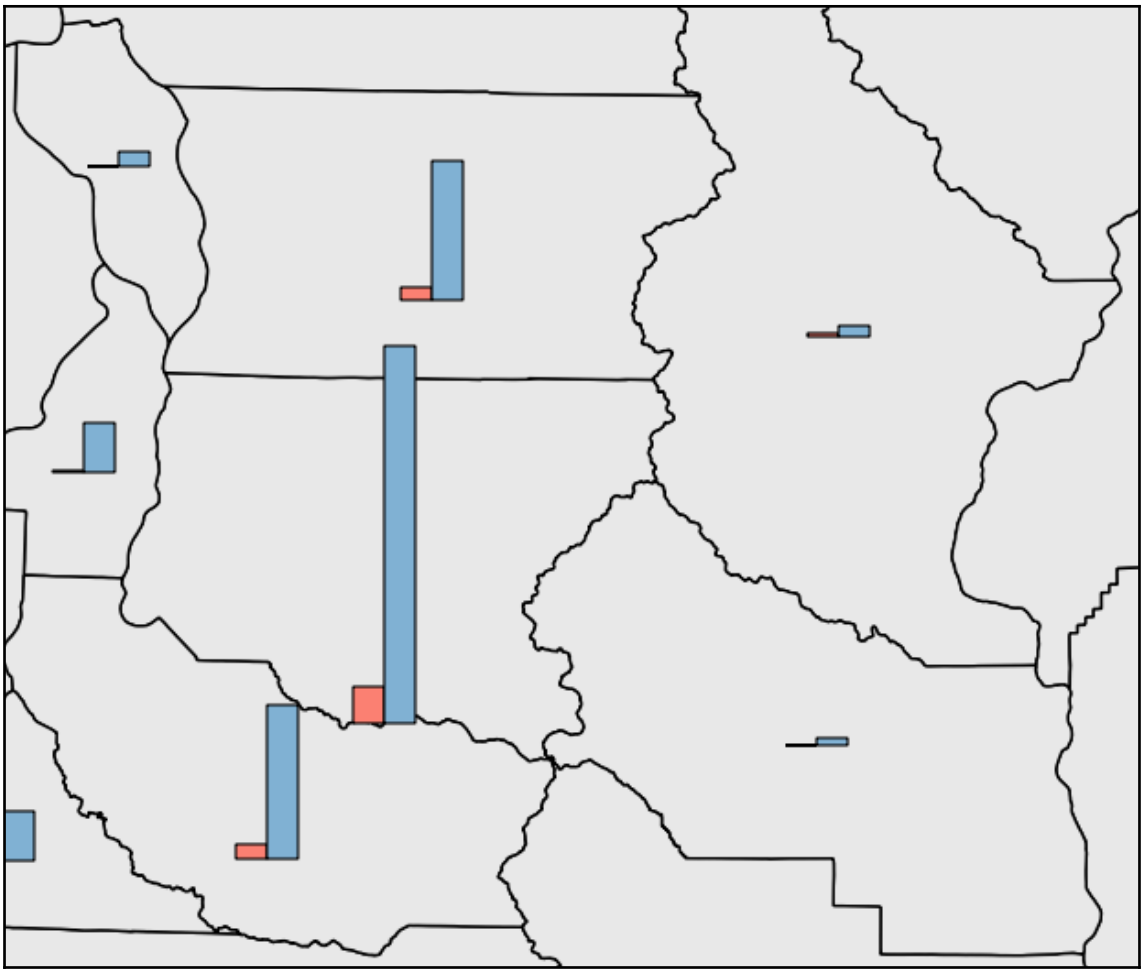
Assigned attributes

Attribute	Color	Legend
"White"		White
"Black"		Black
"NativeAm"		Native American
"NativeHI"		Native Hawaii
"Asian"		Asian
"Other"		Other




Rendering
Format
Opacity
100.0 %
Line color
Line width
0.00000
Millimeter
Start angle
Top
Visibility
Diagram z-index
0.00
Show all diagrams
Show diagram
Always show
Scale dependent visibility
Minimum (exclusive)
Maximum (inclusive)
1:100,000,000
0
Discourage diagrams and labels from covering features

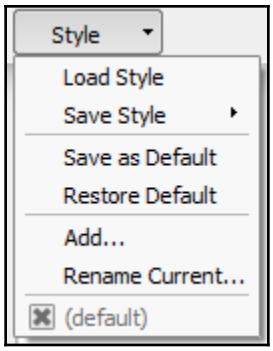

4295
74211
64249
649086
18713
53740
15686
235447
172378
1758871
72849
722376
3121
37794
7787
4477



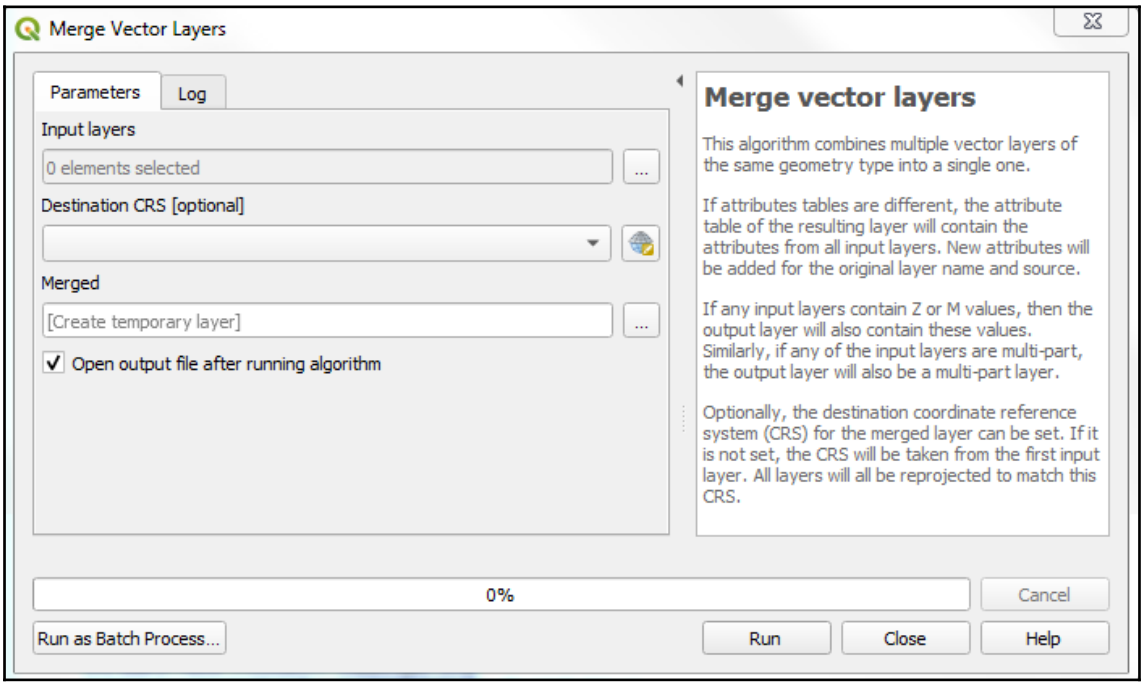
Options

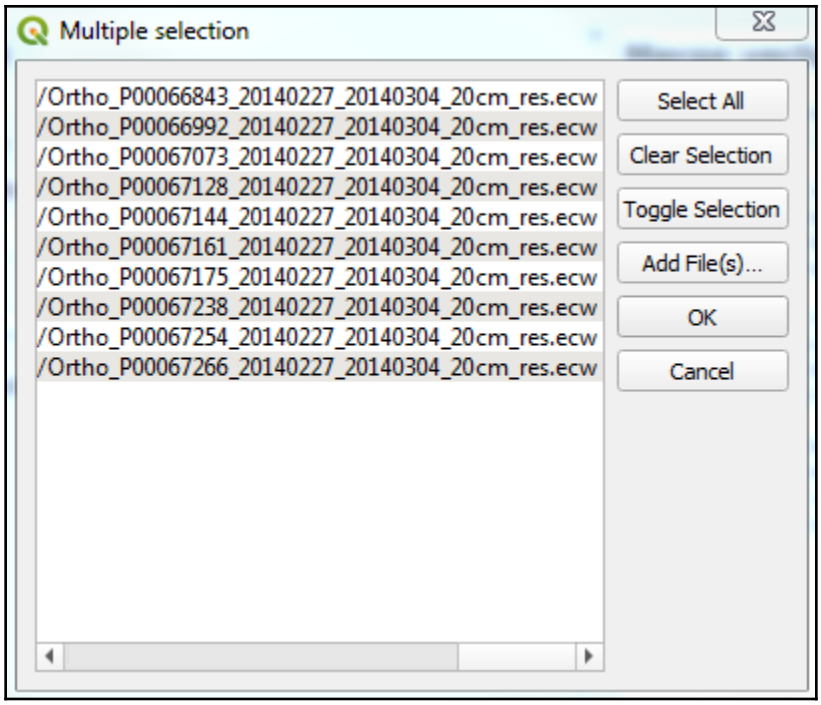
Bar Orientation

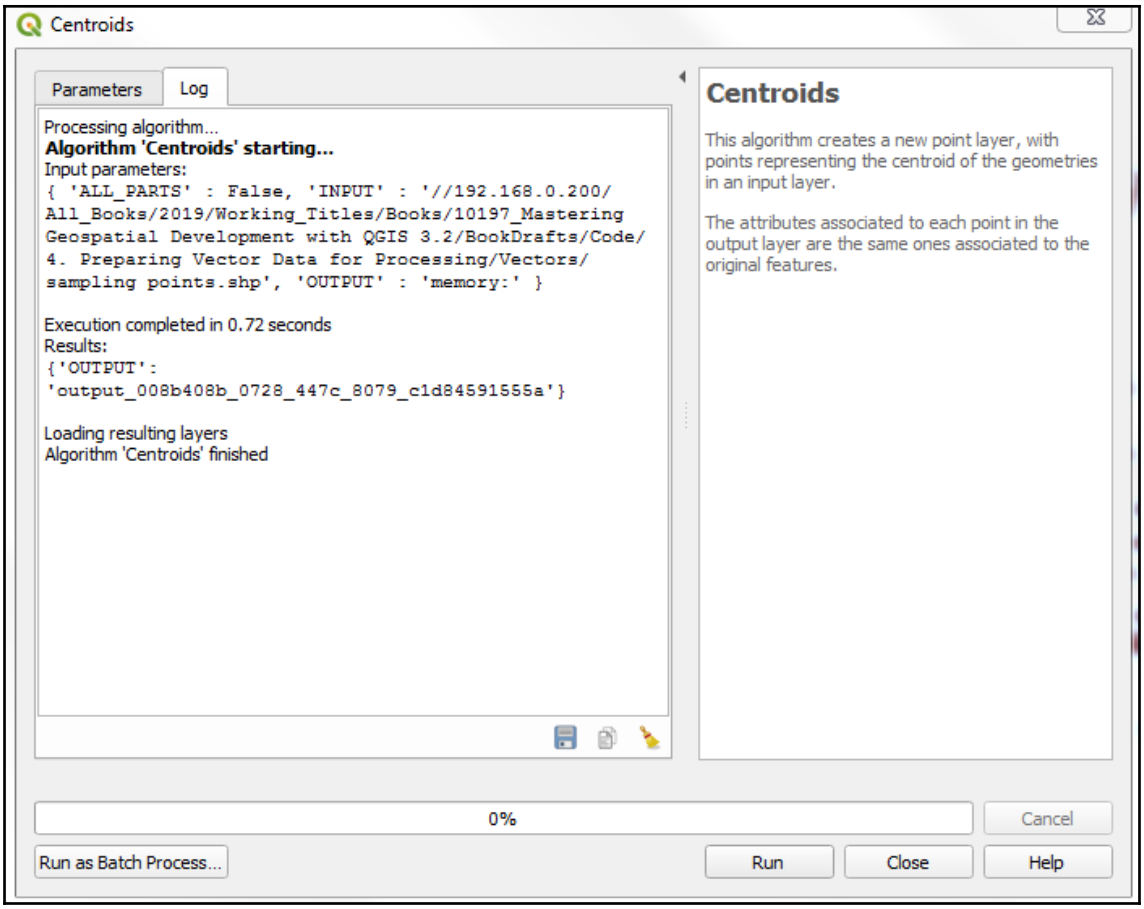
- (•) Up
- ( ) Down
- ( ) Right
- ( ) Left

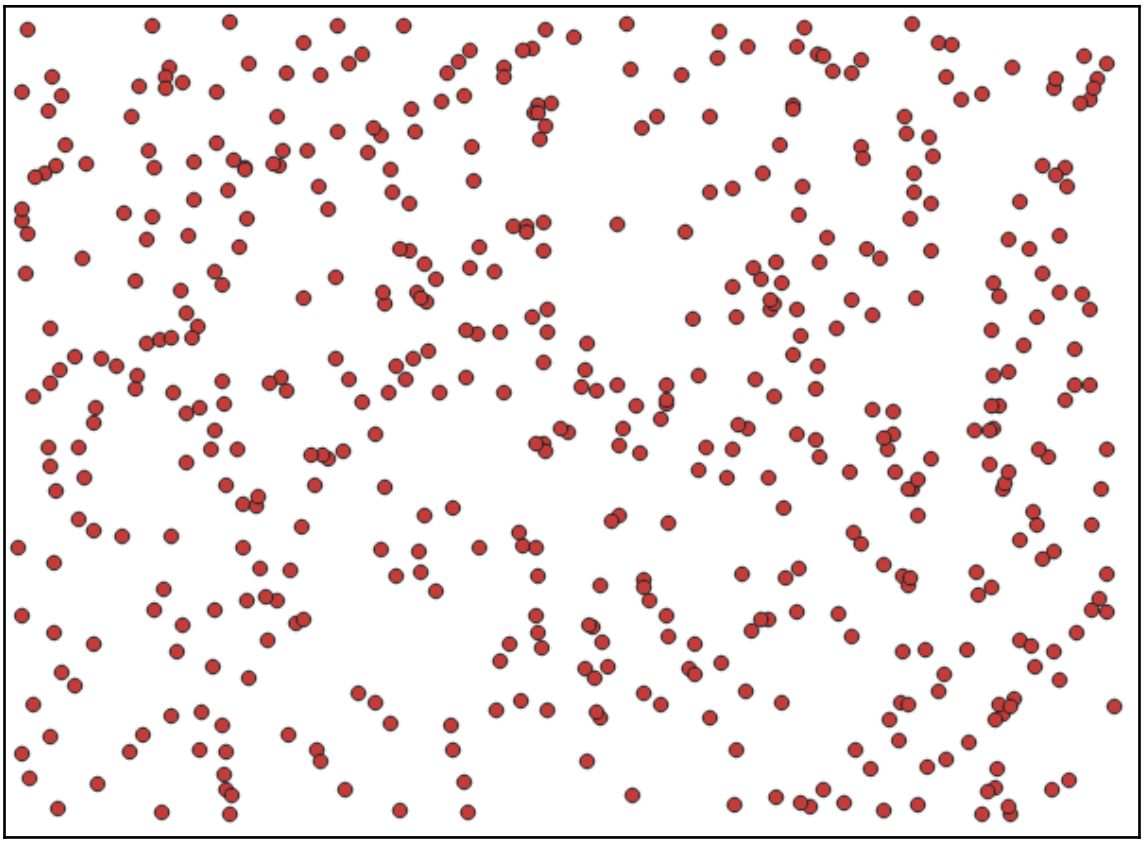

Style
Load Style
Save Style
Save as Default
Restore Default
Add...
Rename Current...
(default)

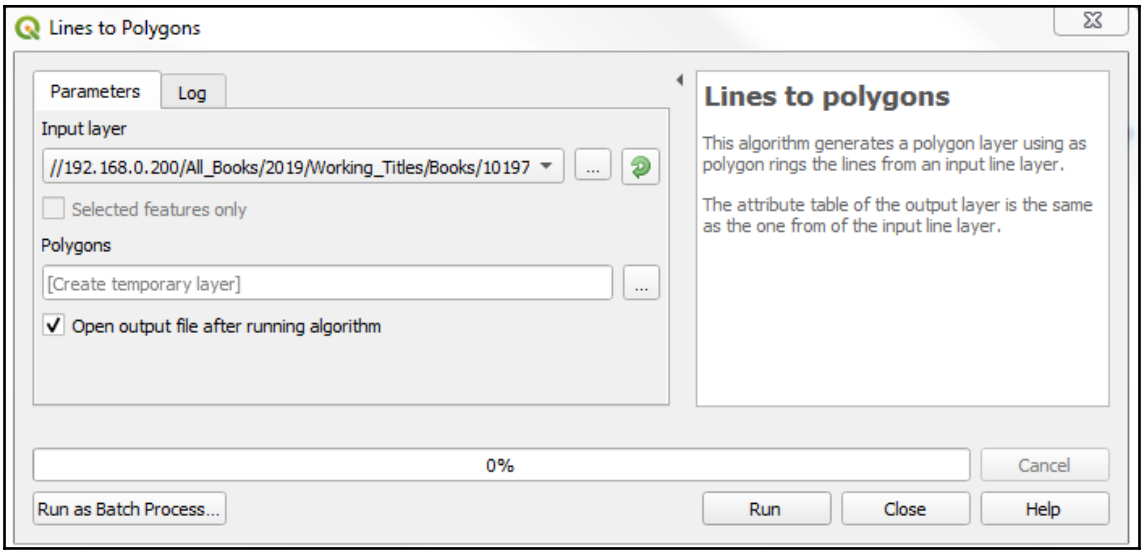
Chapter 4: Preparing Vector Data for Processing

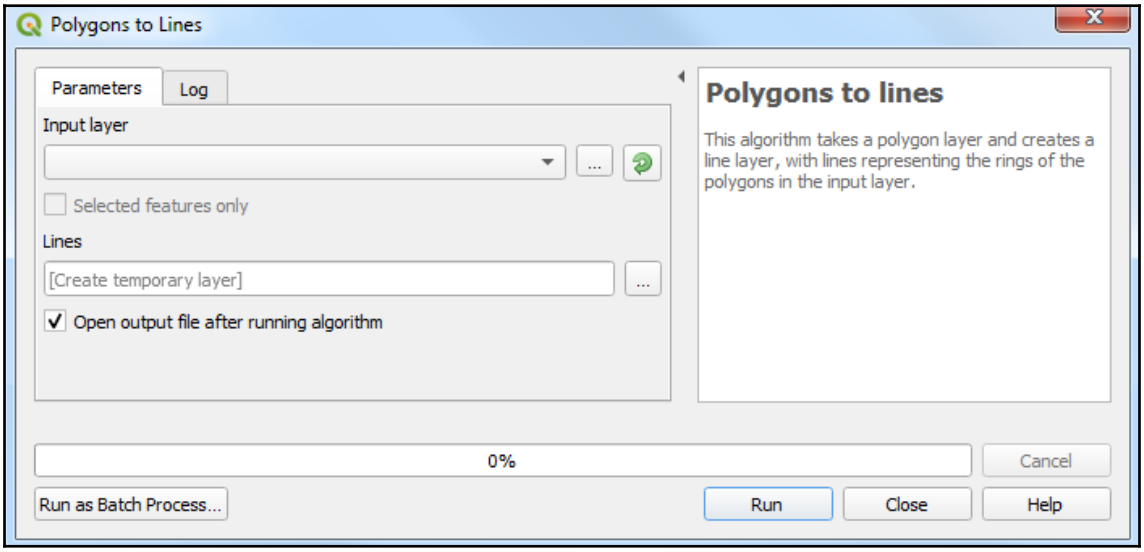


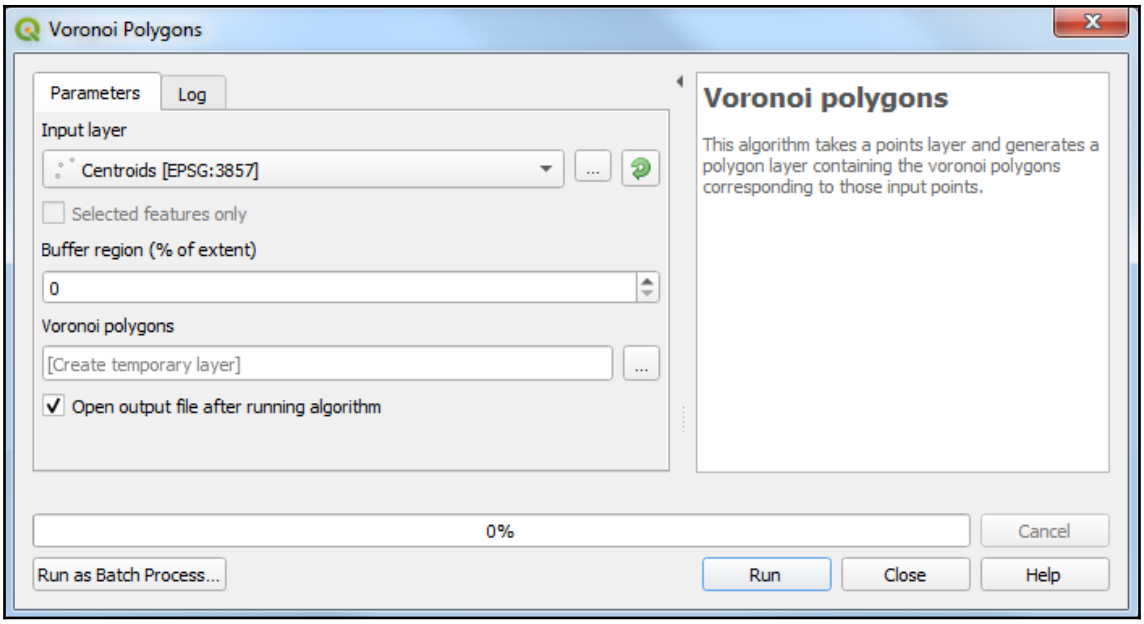

Multiple selection
/Ortho_P00066843_20140227_20140304_20cm_res.ecw
/Ortho_P00066992_20140227_20140304_20cm_res.ecw
/Ortho_P00067073_20140227_20140304_20cm_res.ecw
/Ortho_P00067128_20140227_20140304_20cm_res.ecw
/Ortho_P00067144_20140227_20140304_20cm_res.ecw
/Ortho_P00067161_20140227_20140304_20cm_res.ecw
/Ortho_P00067175_20140227_20140304_20cm_res.ecw
/Ortho_P00067238_20140227_20140304_20cm_res.ecw
/Ortho_P00067254_20140227_20140304_20cm_res.ecw
/Ortho_P00067266_20140227_20140304_20cm_res.ecw
Select All
Clear Selection
Toggle Selection
Add File(s)...
OK
Cancel

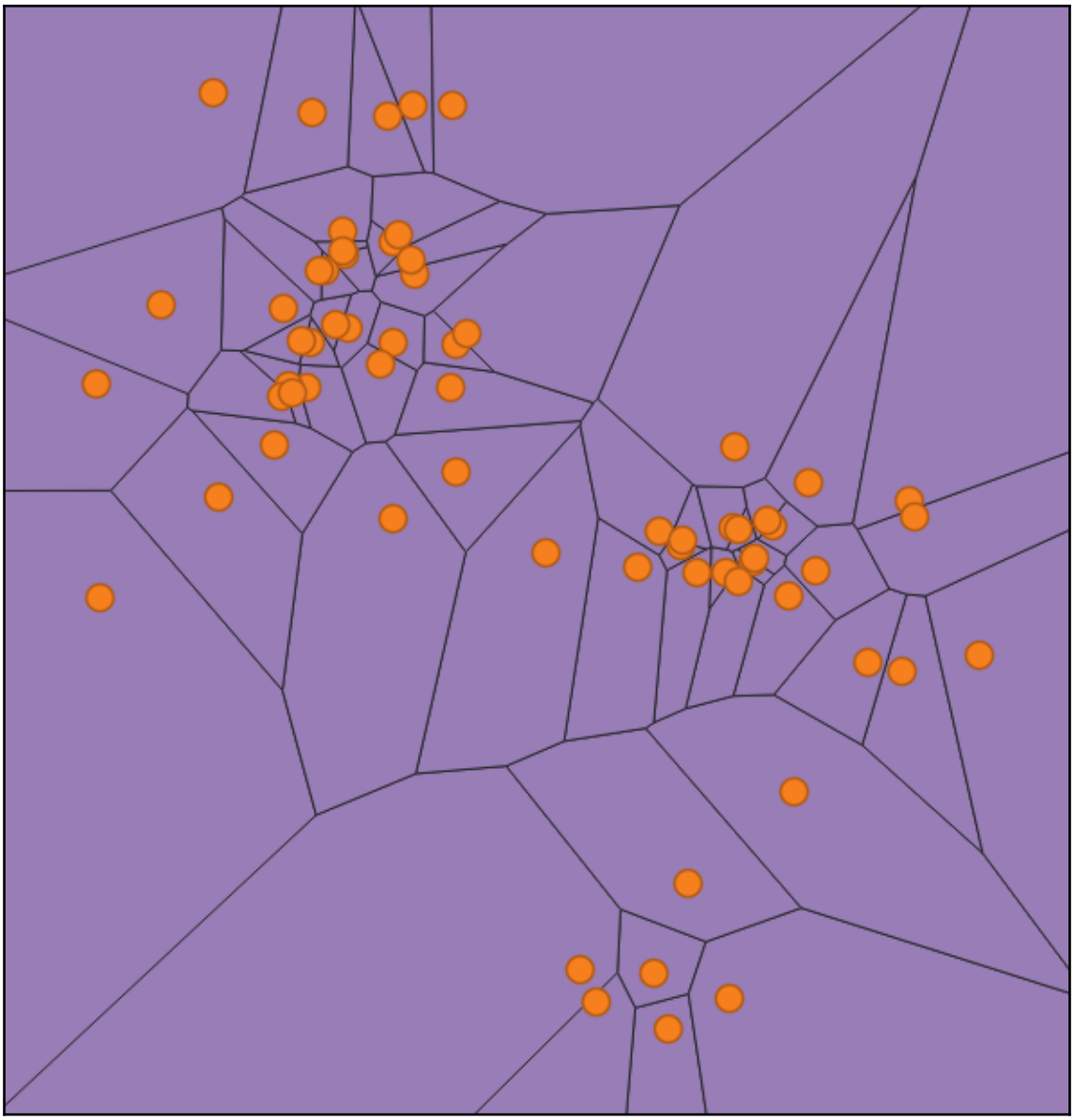

Centroids
Parameters
Log
Processing algorithm...
Algorithm 'Centroids' starting...
Input parameters:
{ 'ALL_PARTS' : False, 'INPUT' : '//192.168.0.200/
All_Books/2019/Working_Titles/Books/10197_Mastering
Geospatial Development with QGIS 3.2/BookDrafts/Code/
4. Preparing Vector Data for Processing/Vectors/
sampling points.shp', 'OUTPUT' : 'memory:' }
Execution completed in 0.72 seconds
Results:
{'OUTPUT':
'output_008b408b_0728_447c_8079_c1d84591555a'}
Loading resulting layers
Algorithm 'Centroids' finished
Centroids
This algorithm creates a new point layer, with points representing the centroid of the geometries in an input layer.
The attributes associated to each point in the output layer are the same ones associated to the original features.
0%
Cancel
Run as Batch Process...
Run
Close
Help

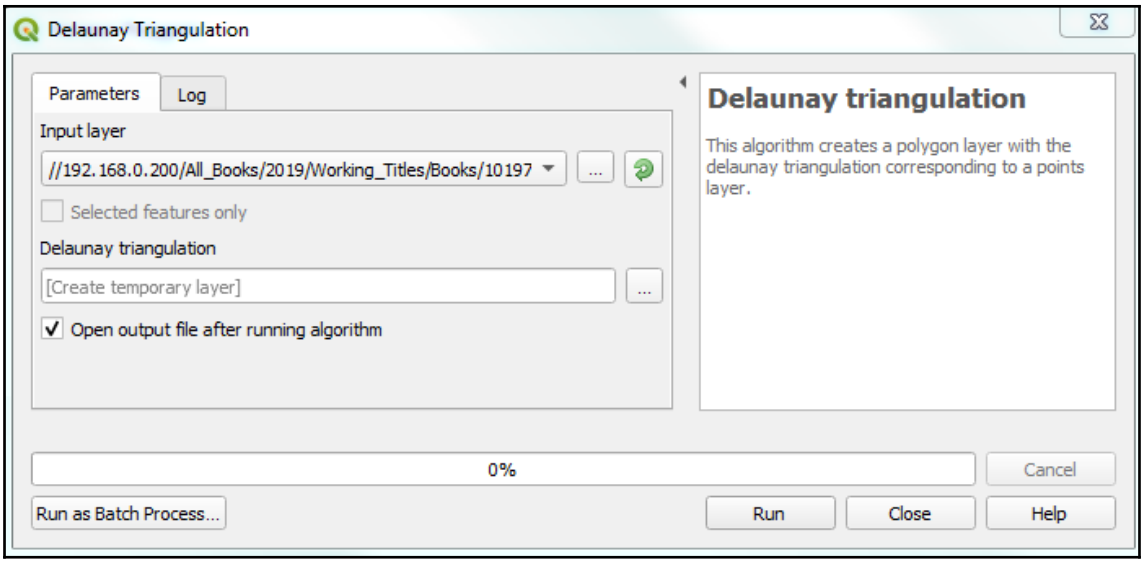


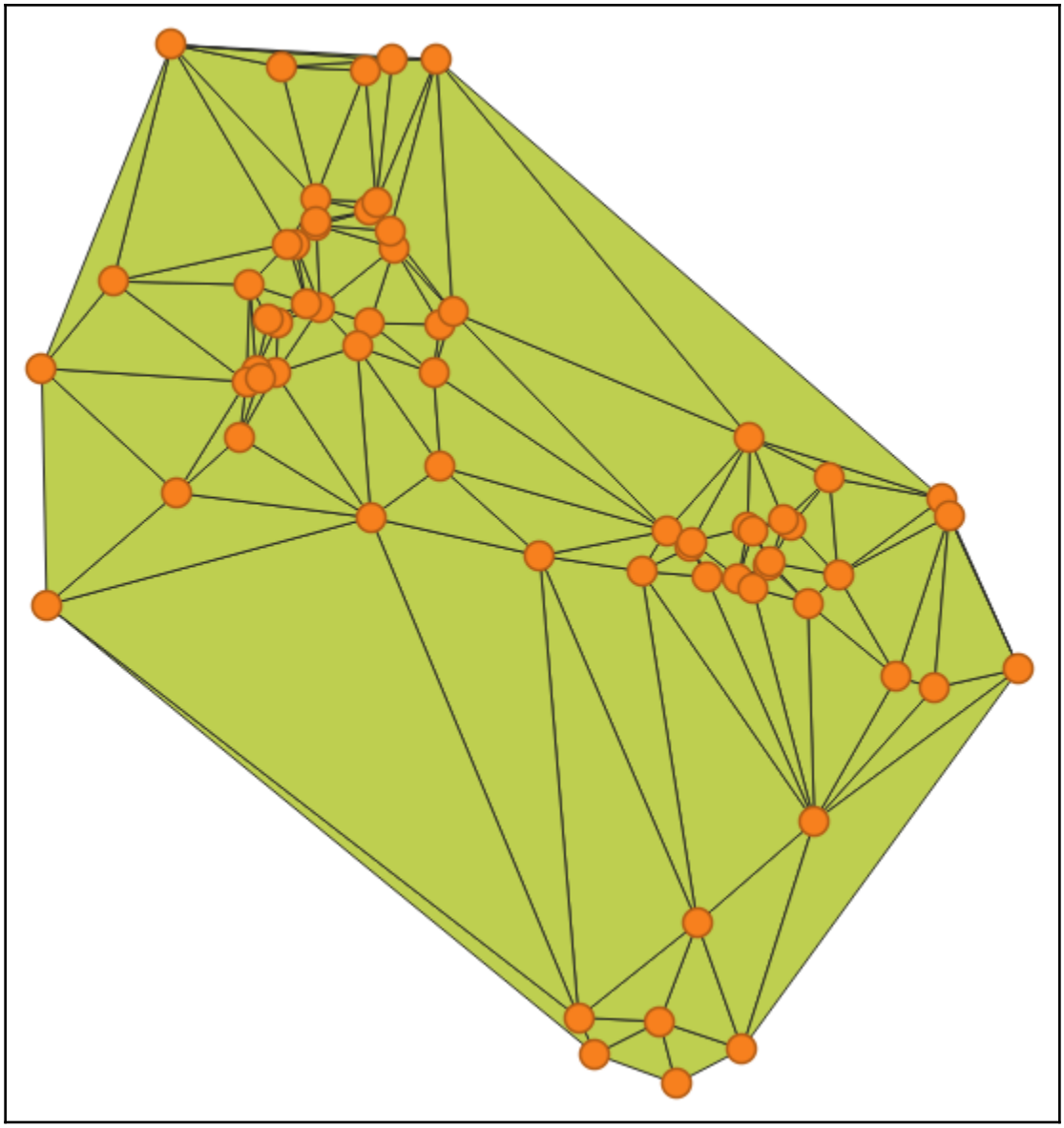

Lines to Polygons
Parameters
Log
Input layer
//192.168.0.200/All_Books/2019/Working_Titles/Books/10197
Selected features only
Polygons
[Create temporary layer]
Open output file after running algorithm
Lines to polygons
This algorithm generates a polygon layer using as polygon rings the lines from an input line layer.
The attribute table of the output layer is the same as the one from of the input line layer.
0%
Cancel
Run as Batch Process...
Run
Close
Help

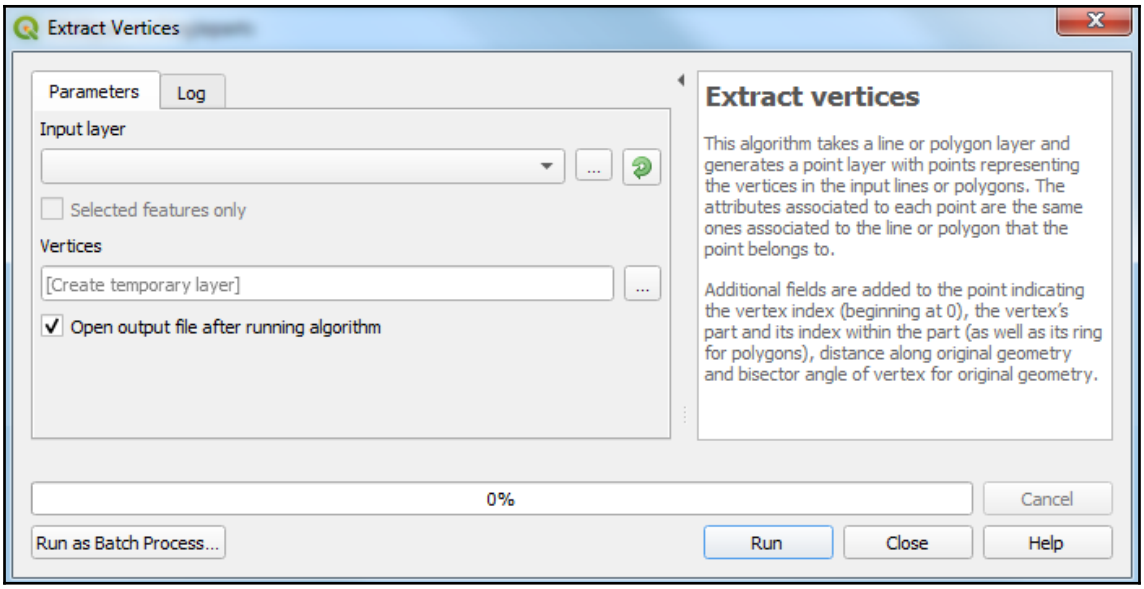

Polygons to Lines
Parameters
Log
Input layer
Selected features only
Lines
[Create temporary layer]
Open output file after running algorithm
Polygons to lines
This algorithm takes a polygon layer and creates a line layer, with lines representing the rings of the polygons in the input layer.
0%
Cancel
Run as Batch Process...
Run
Close
Help

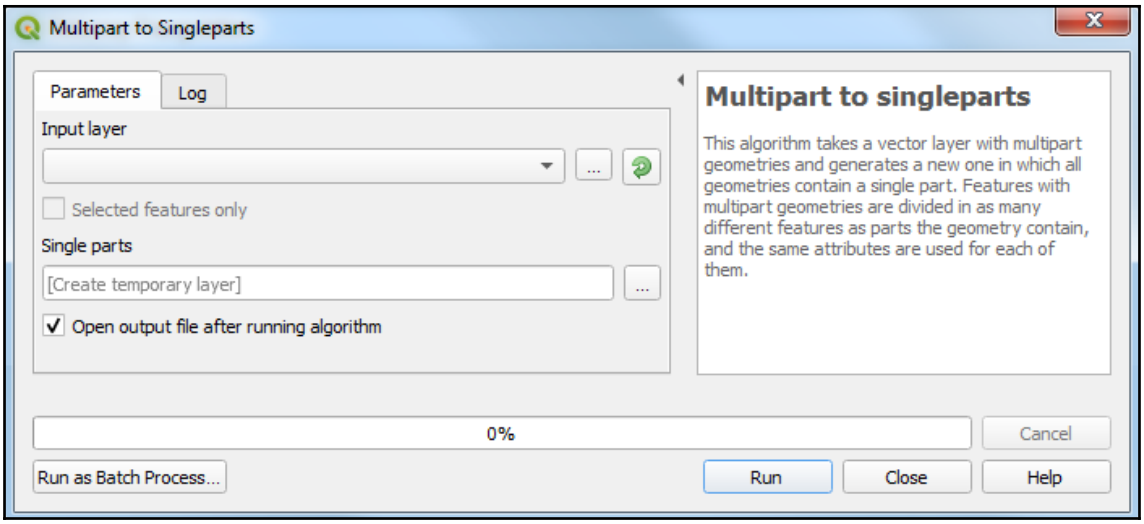

Voronoi Polygons
Parameters
Log
Input layer
Centroids [EPSG:3857]
Selected features only
Buffer region (% of extent)
0
Voronoi polygons
[Create temporary layer]
Open output file after running algorithm
Voronoi polygons
This algorithm takes a points layer and generates a polygon layer containing the voronoi polygons corresponding to those input points.
0%
Cancel
Run as Batch Process...
Run
Close
Help

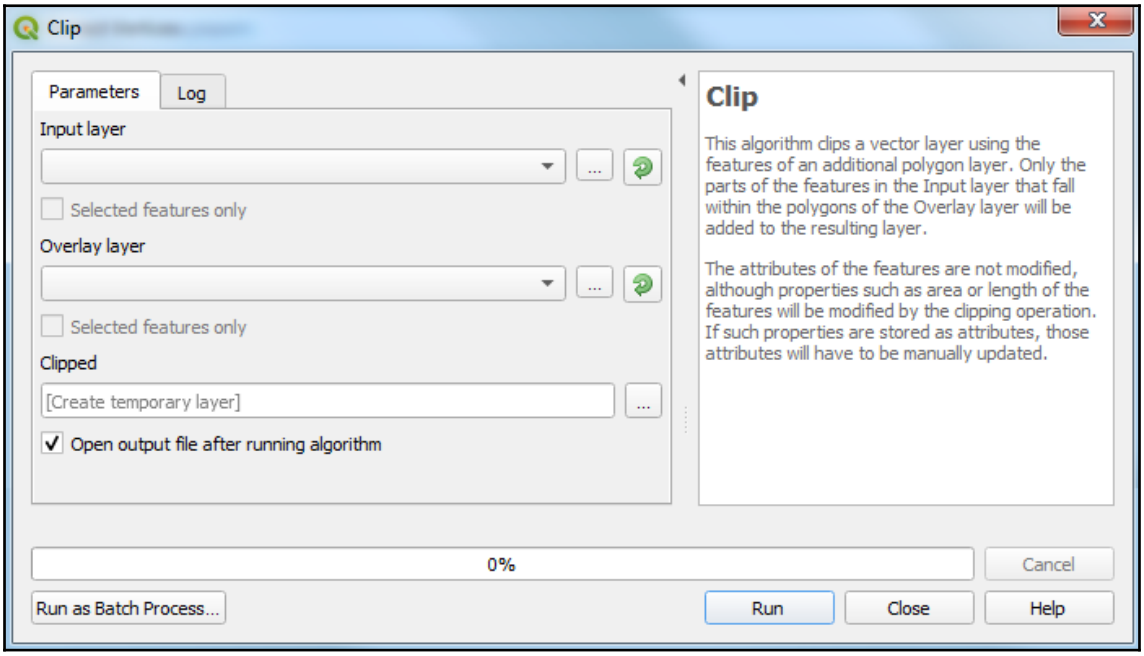


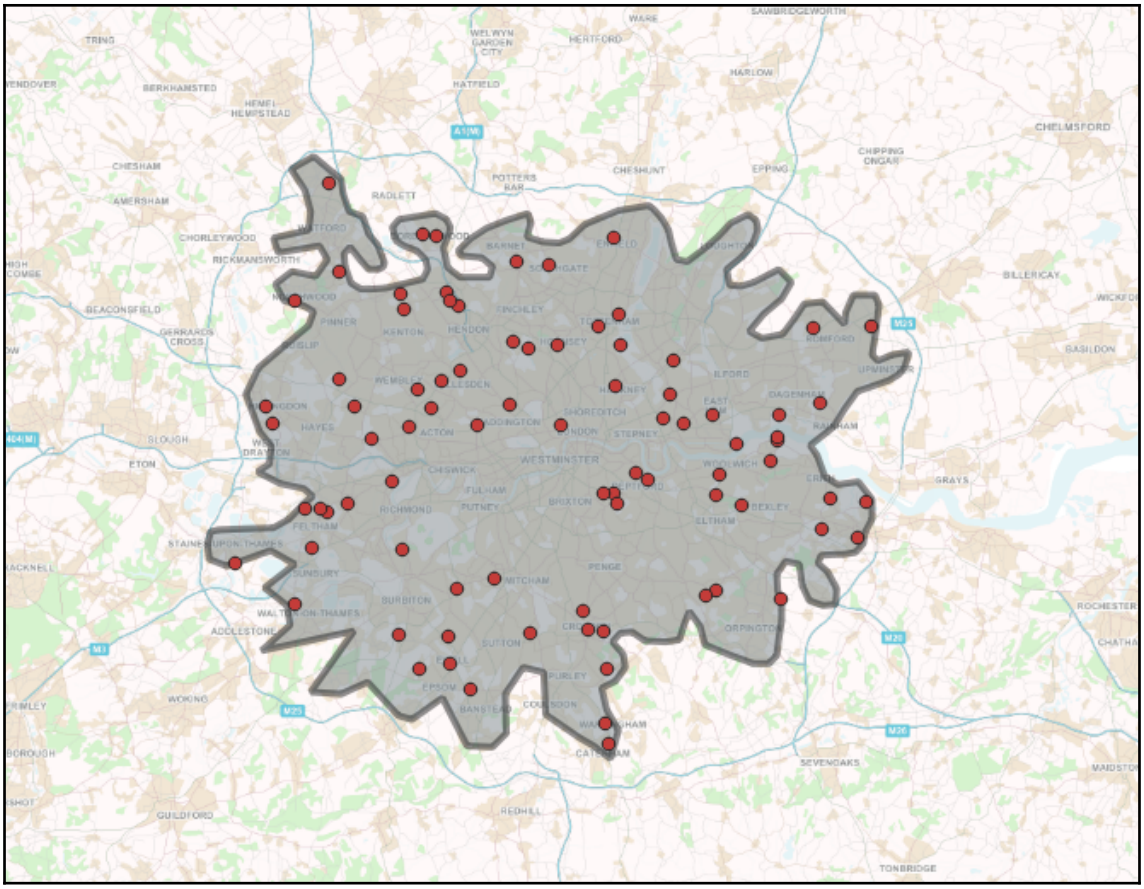

Delaunay Triangulation
Parameters
Log
Input layer
//192.168.0.200/All_Books/2019/Working_Titles/Books/10197
Selected features only
Delaunay triangulation
[Create temporary layer]
Open output file after running algorithm
Delaunay triangulation
This algorithm creates a polygon layer with the delaunay triangulation corresponding to a points layer.
0%
Cancel
Run as Batch Process...
Run
Close
Help

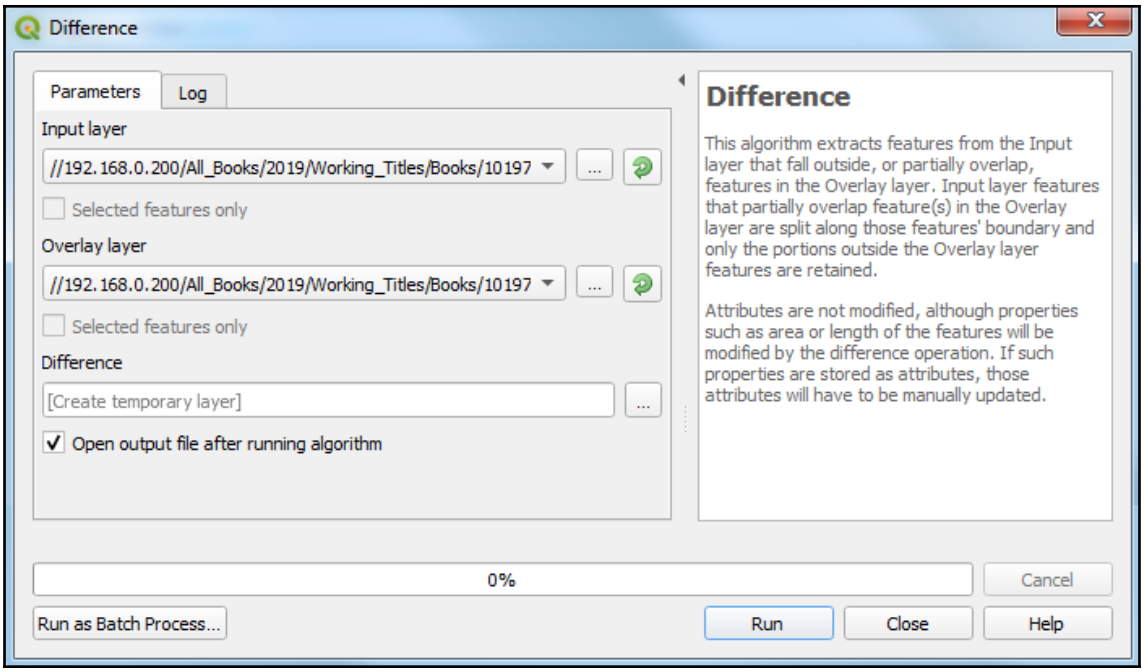


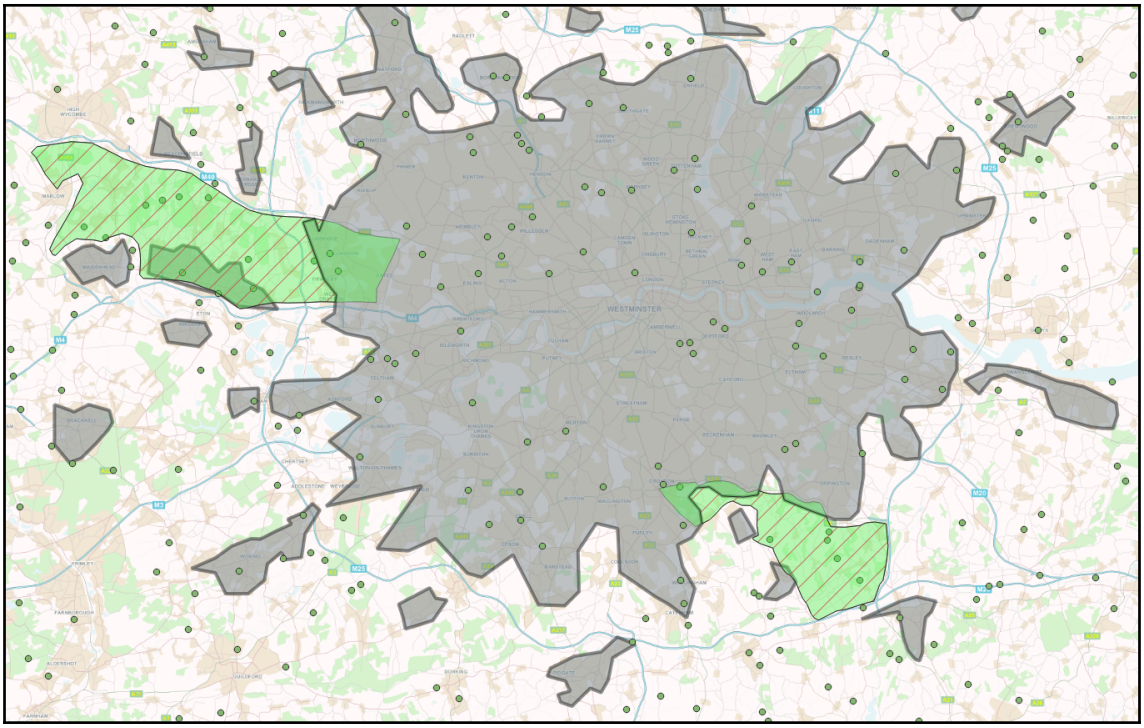

Extract Vertices
Parameters
Log
Input layer
Selected features only
Vertices
[Create temporary layer]
Open output file after running algorithm
Extract vertices
This algorithm takes a line or polygon layer and generates a point layer with points representing the vertices in the input lines or polygons. The attributes associated to each point are the same ones associated to the line or polygon that the point belongs to.
Additional fields are added to the point indicating the vertex index (beginning at 0), the vertex's part and its index within the part (as well as its ring for polygons), distance along original geometry and bisector angle of vertex for original geometry.
0%
Cancel
Run as Batch Process...
Run
Close
Help

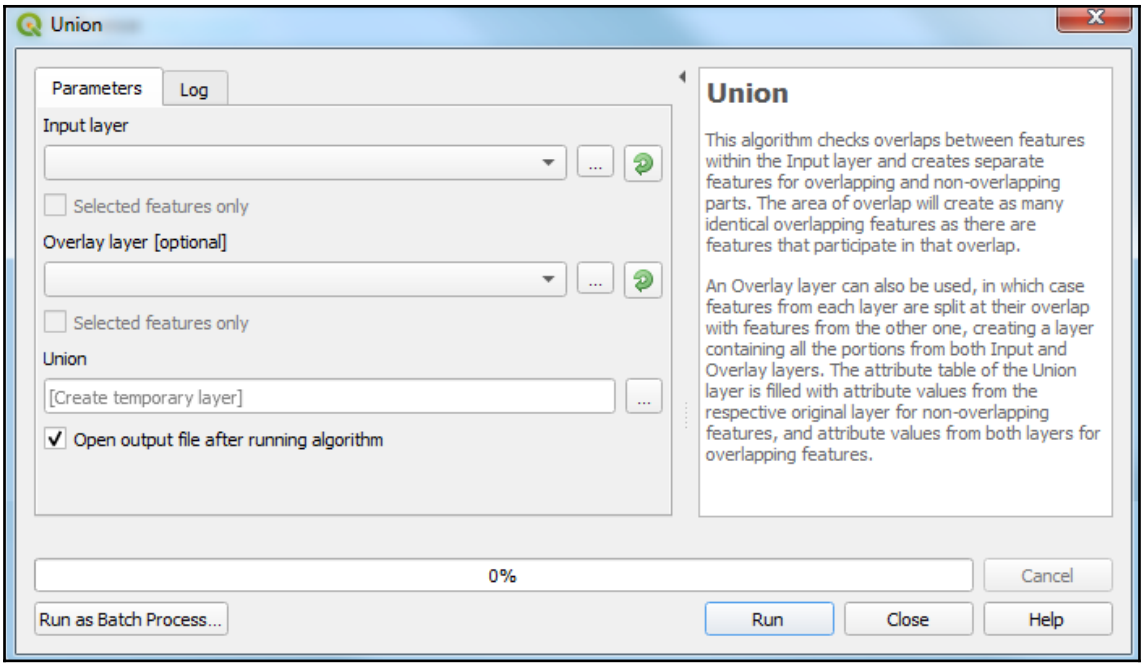

Multipart to Singleparts
Parameters
Log
Input layer
Selected features only
Single parts
[Create temporary layer]
Open output file after running algorithm
Multipart to singleparts
This algorithm takes a vector layer with multipart geometries and generates a new one in which all geometries contain a single part. Features with multipart geometries are divided in as many different features as parts the geometry contain, and the same attributes are used for each of them.
0%
Cancel
Run as Batch Process...
Run
Close
Help

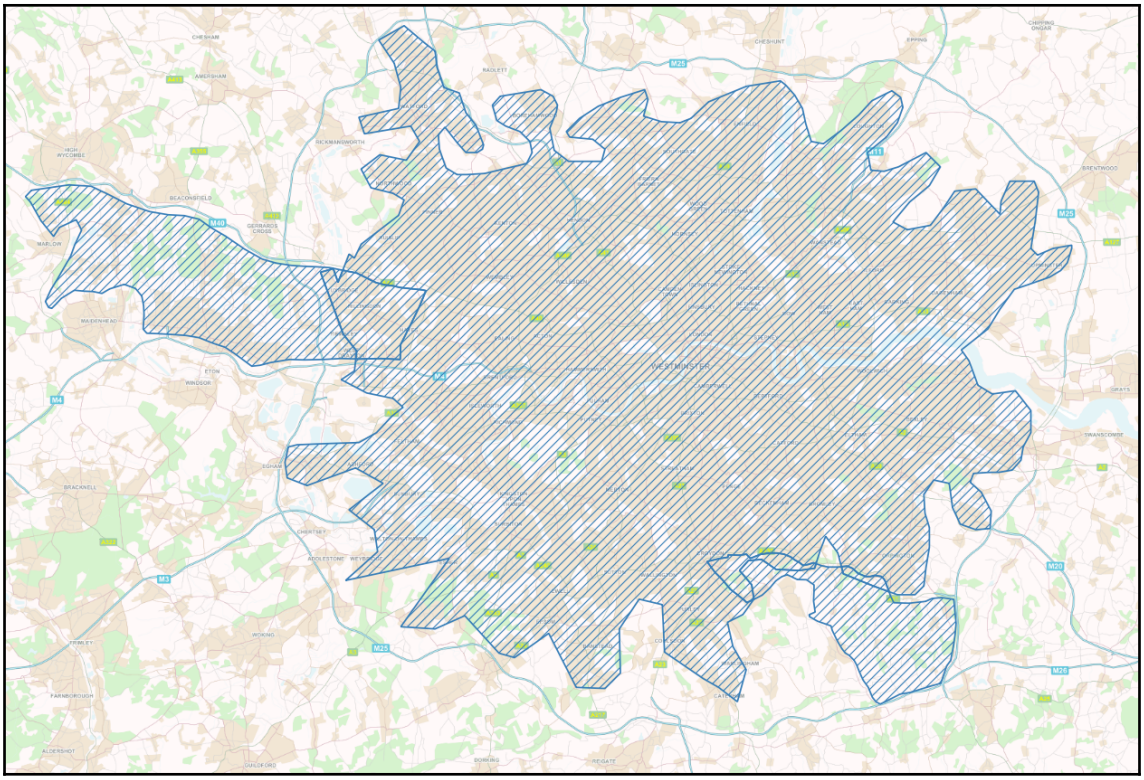

Clip
Parameters
Log
Input layer
Selected features only
Overlay layer
Selected features only
Clipped
[Create temporary layer]
Open output file after running algorithm
Clip
This algorithm clips a vector layer using the features of an additional polygon layer. Only the parts of the features in the Input layer that fall within the polygons of the Overlay layer will be added to the resulting layer.
The attributes of the features are not modified, although properties such as area or length of the features will be modified by the clipping operation. If such properties are stored as attributes, those attributes will have to be manually updated.
0%
Cancel
Run as Batch Process...
Run
Close
Help

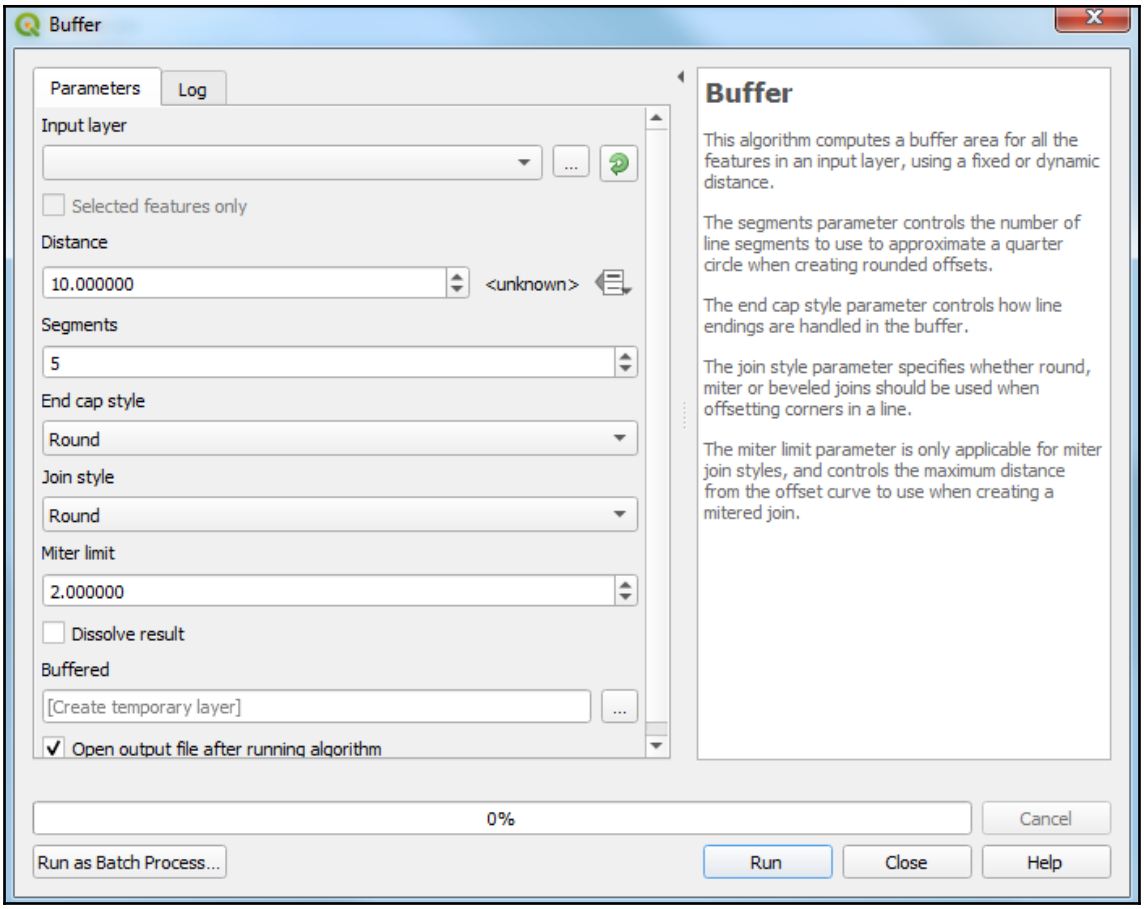

TRING
BERKHAMSTED
HEMEL HEMPSTEAD
CHESHAM
AMERSHAM
BEACONSFIELD
GERRARDS CROSS
CHORLEYWOOD
RICKMANSWORTH
WELWYN GARDEN CITY
HATFIELD
HERTFORD
WARE
SAWBRIDGEWORTH
HARLOW
CHELMSFORD
CHIPPING ONGAR
EPPING
CHESHUNT
POTTERS BAR
RADLETT
BILLERICAY
BASILDON
SLOUGH
ETON
HAYES
ACTON
HENDON
FINCHLEY
ROMFORD
ILFORD
DAGENHAM
RAINHAM
GRAYS
WESTMINSTER
CHISWICK
FULHAM
RICHMOND
PUTNEY
BRIXTON
WOOLWICH
BEXLEY
ELTHAM
PENGE
MITCHAM
SUTTON
PURLEY
ORPINGTON
ROCHESTER
CHATHAM
WOKING
EPSOM
BANSTEAD
CATERHAM
SEVENOAKS
GUILDFORD
REDHILL
TONBRIDGE
M25
M3
M20
A1(M)
M40

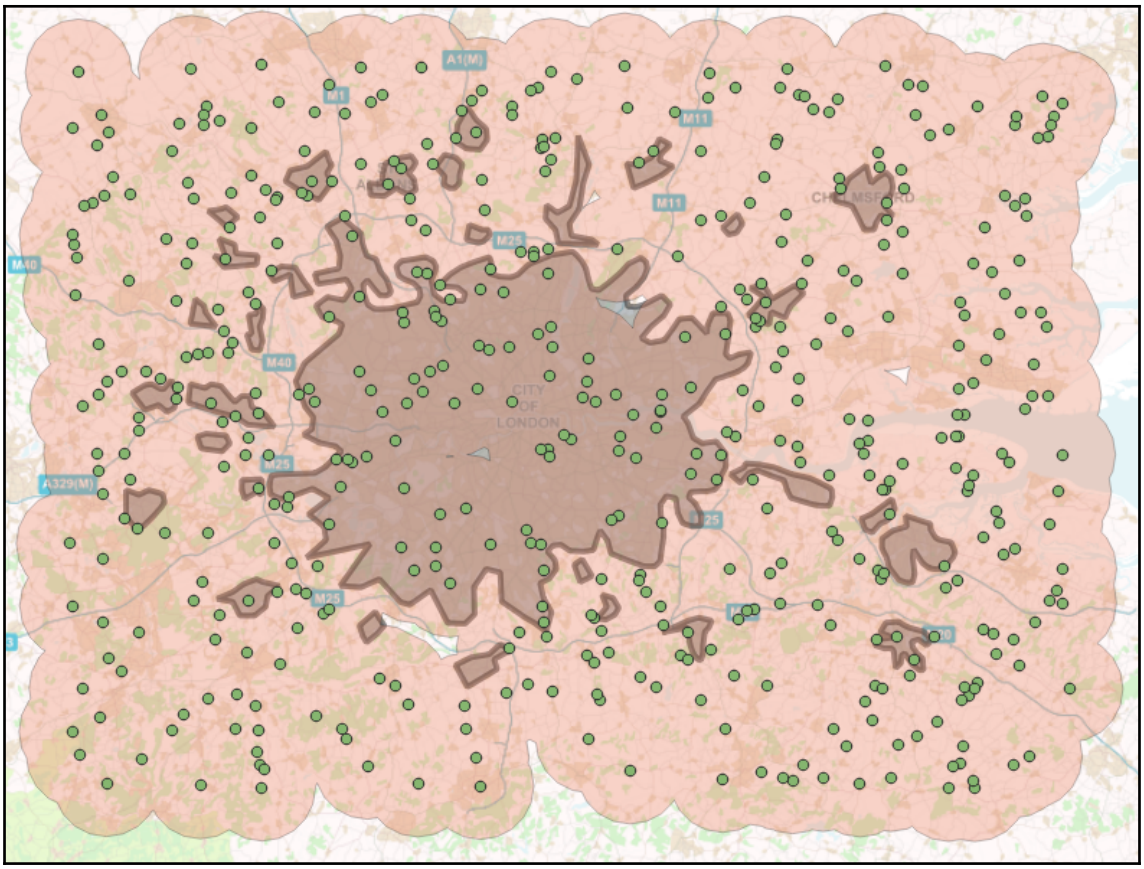

Difference
Parameters
Log
Input layer
//192.168.0.200/All_Books/2019/Working_Titles/Books/10197
Selected features only
Overlay layer
//192.168.0.200/All_Books/2019/Working_Titles/Books/10197
Selected features only
Difference
[Create temporary layer]
Open output file after running algorithm
Difference
This algorithm extracts features from the Input layer that fall outside, or partially overlap, features in the Overlay layer. Input layer features that partially overlap feature(s) in the Overlay layer are split along those features' boundary and only the portions outside the Overlay layer features are retained.
Attributes are not modified, although properties such as area or length of the features will be modified by the difference operation. If such properties are stored as attributes, those attributes will have to be manually updated.
0%
Cancel
Run as Batch Process...
Run
Close
Help

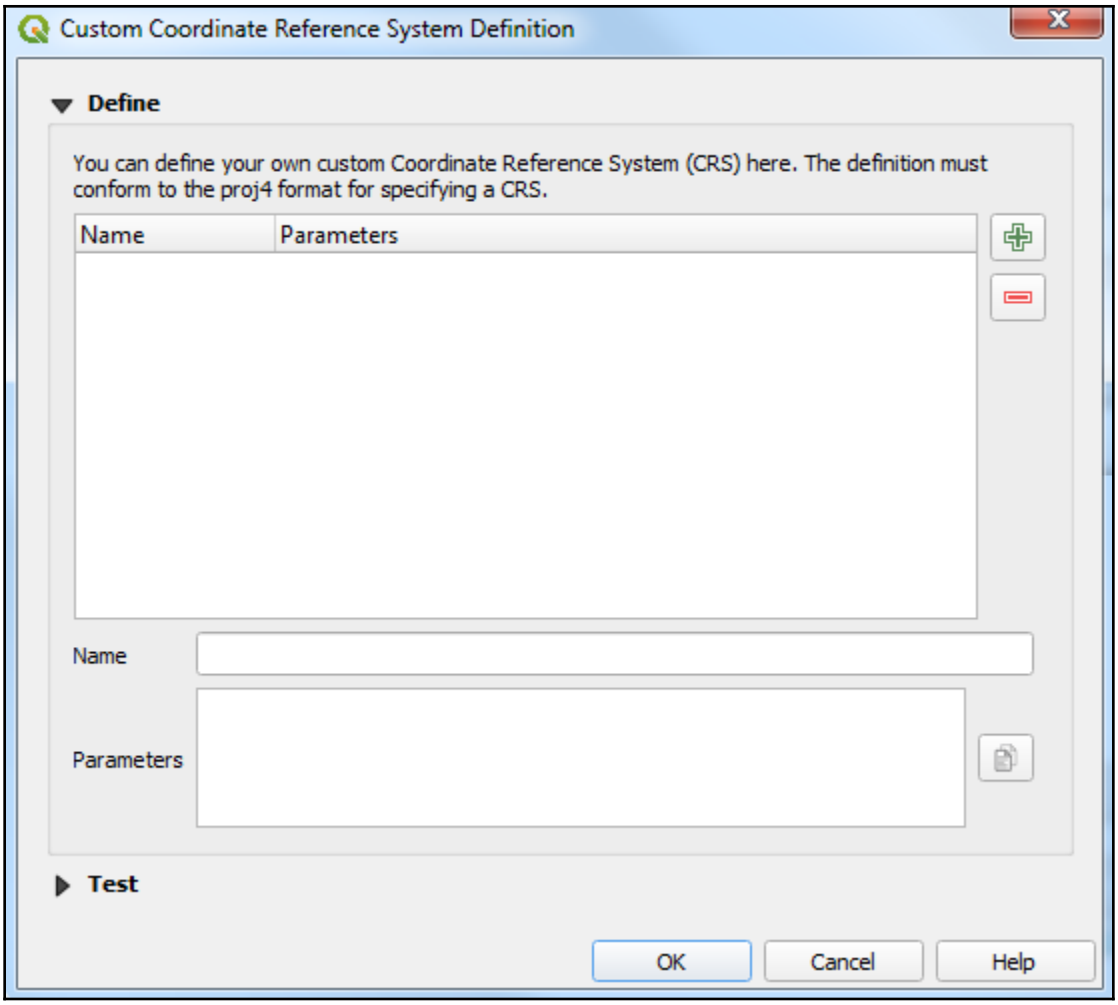

WESTMINSTER
M25
M4
M40
M3
M23
M20


Union
Parameters
Log
Input layer
Selected features only
Overlay layer [optional]
Selected features only
Union
[Create temporary layer]
Open output file after running algorithm
Union
This algorithm checks overlaps between features within the Input layer and creates separate features for overlapping and non-overlapping parts. The area of overlap will create as many identical overlapping features as there are features that participate in that overlap.
An Overlay layer can also be used, in which case features from each layer are split at their overlap with features from the other one, creating a layer containing all the portions from both Input and Overlay layers. The attribute table of the Union layer is filled with attribute values from the respective original layer for non-overlapping features, and attribute values from both layers for overlapping features.
0%
Cancel
Run as Batch Process...
Run
Close
Help

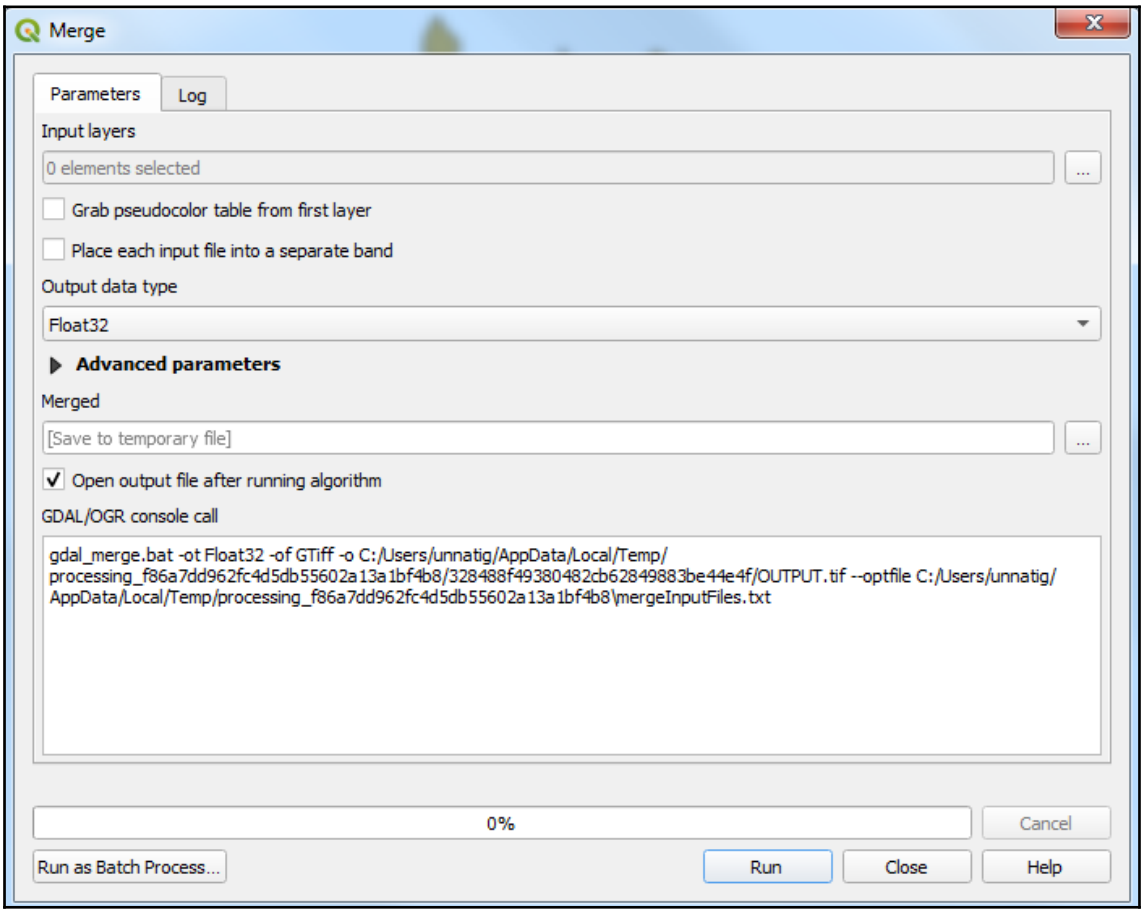

M26
M11
M25
M40
M4
M3
M20
WESTMINSTER

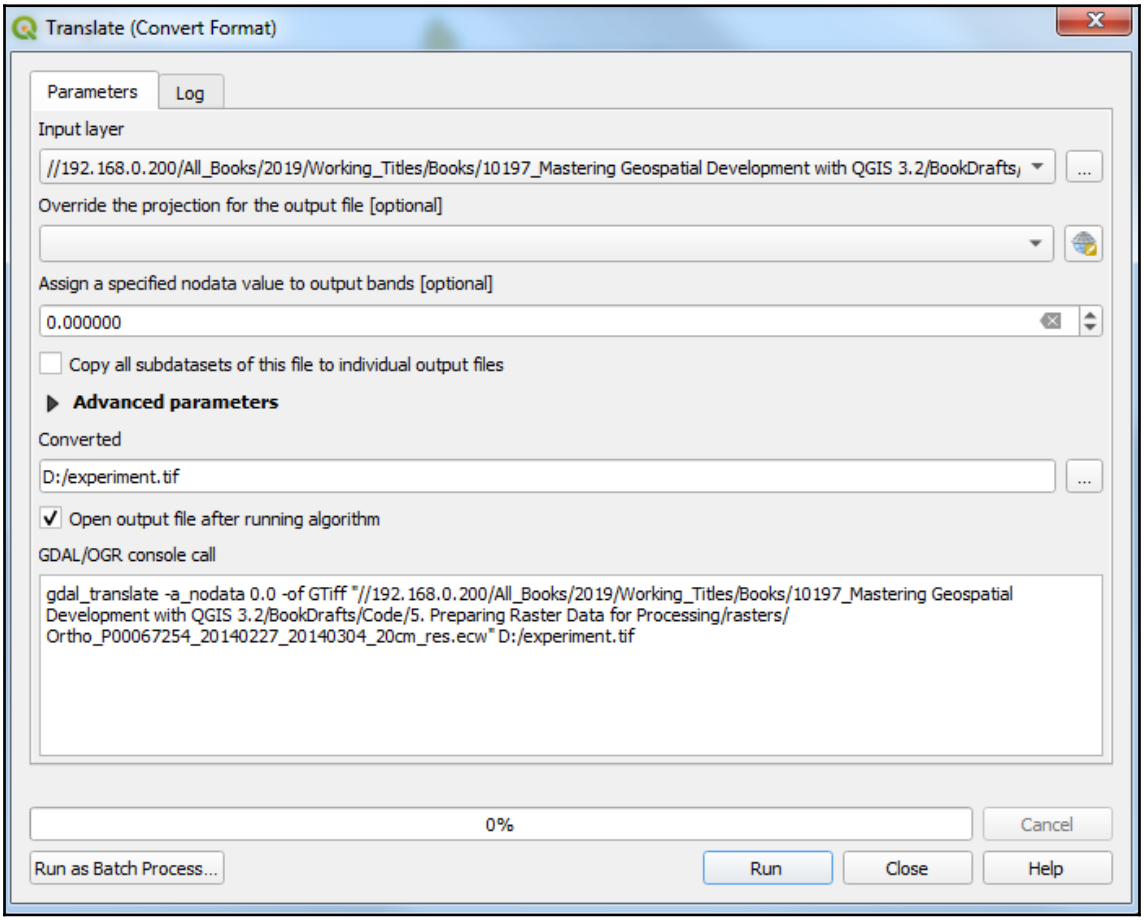

Buffer
Parameters
Log
Input layer
Selected features only
Distance
10.000000
<unknown>
Segments
5
End cap style
Round
Join style
Round
Miter limit
2.000000
Dissolve result
Buffered
[Create temporary layer]
Open output file after running algorithm
Buffer
This algorithm computes a buffer area for all the features in an input layer, using a fixed or dynamic distance.
The segments parameter controls the number of line segments to use to approximate a quarter circle when creating rounded offsets.
The end cap style parameter controls how line endings are handled in the buffer.
The join style parameter specifies whether round, miter or beveled joins should be used when offsetting corners in a line.
The miter limit parameter is only applicable for miter join styles, and controls the maximum distance from the offset curve to use when creating a mitered join.
0%
Cancel
Run as Batch Process...
Run
Close
Help

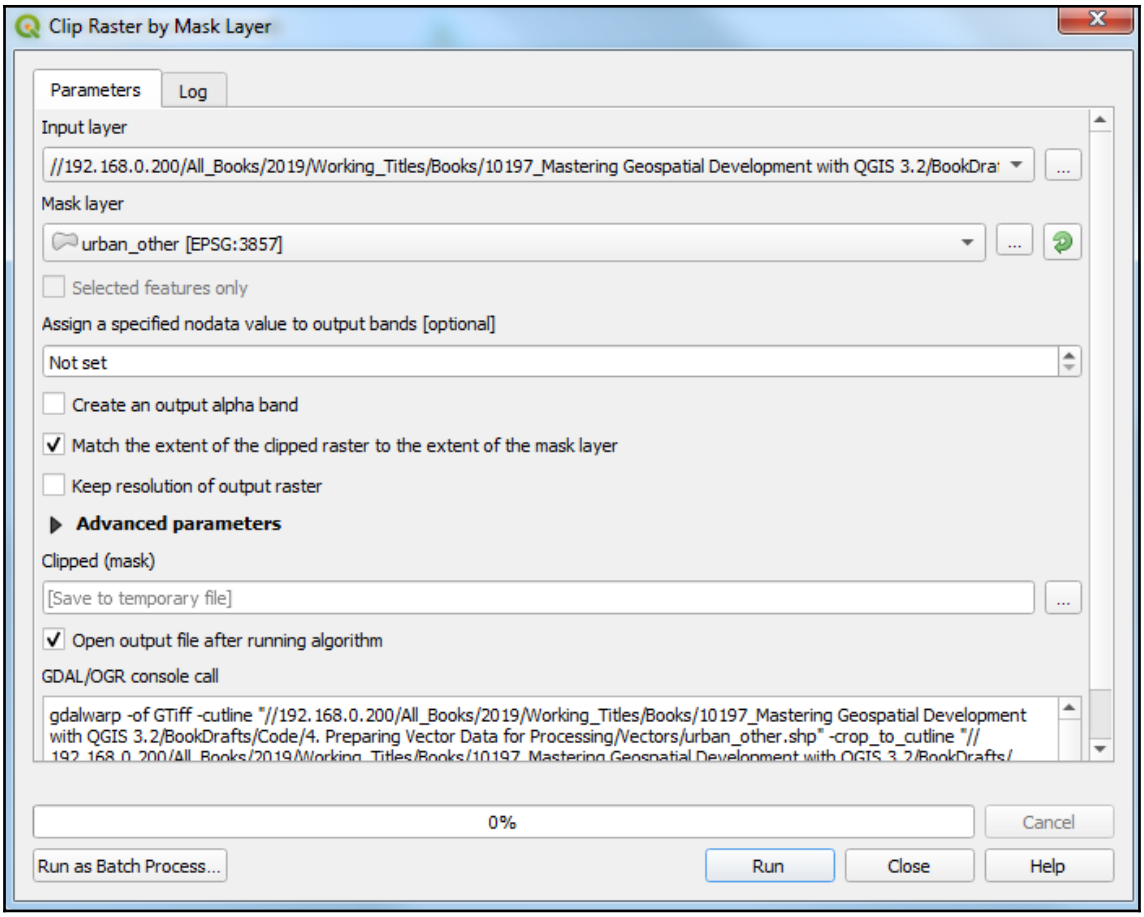

A1(M)
M1
M11
M11
M25
M40
M40
CITY OF LONDON
M25
A329(M)
M25
M25

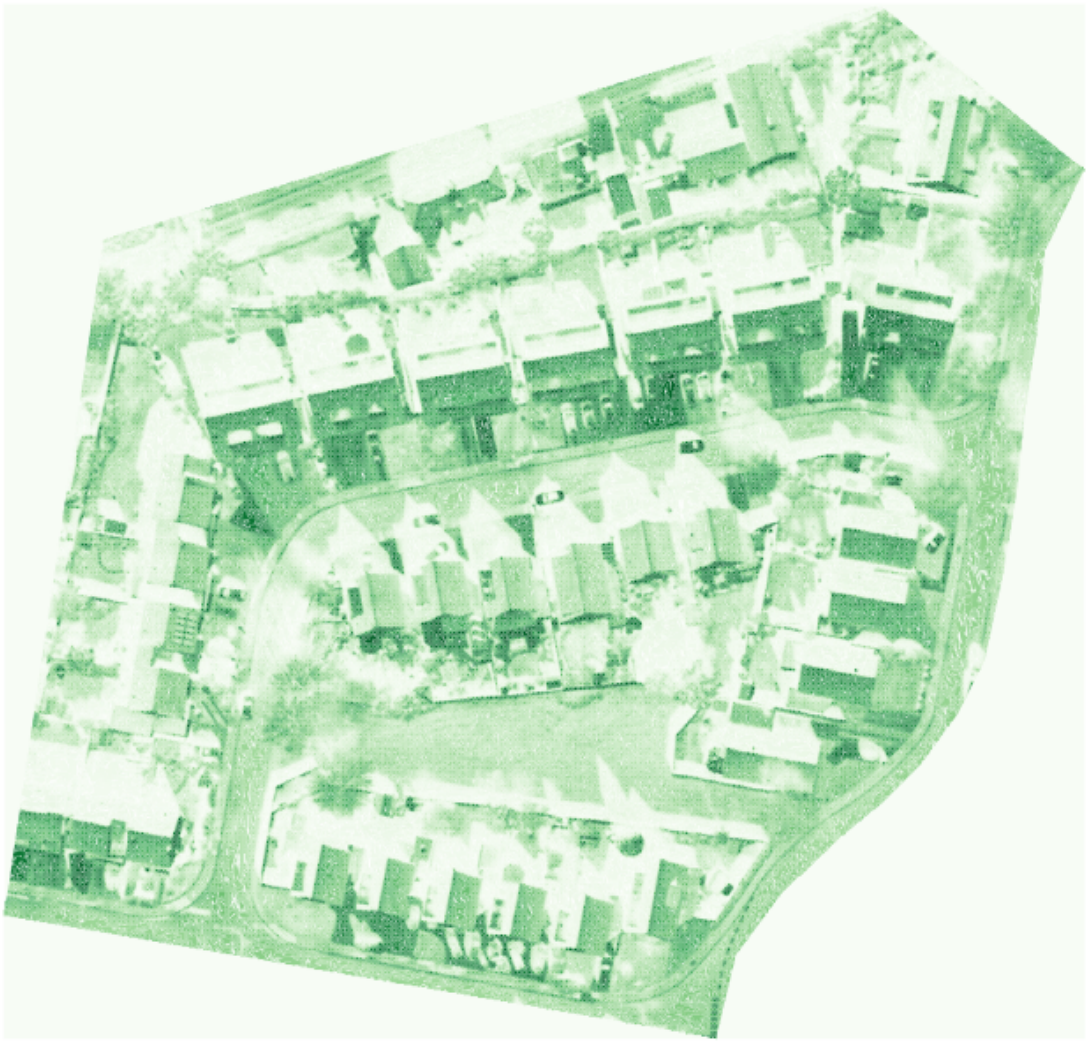

Custom Coordinate Reference System Definition
Define
You can define your own custom Coordinate Reference System (CRS) here. The definition must conform to the proj4 format for specifying a CRS.
Name
Parameters
Name
Parameters
Test
OK
Cancel
Help

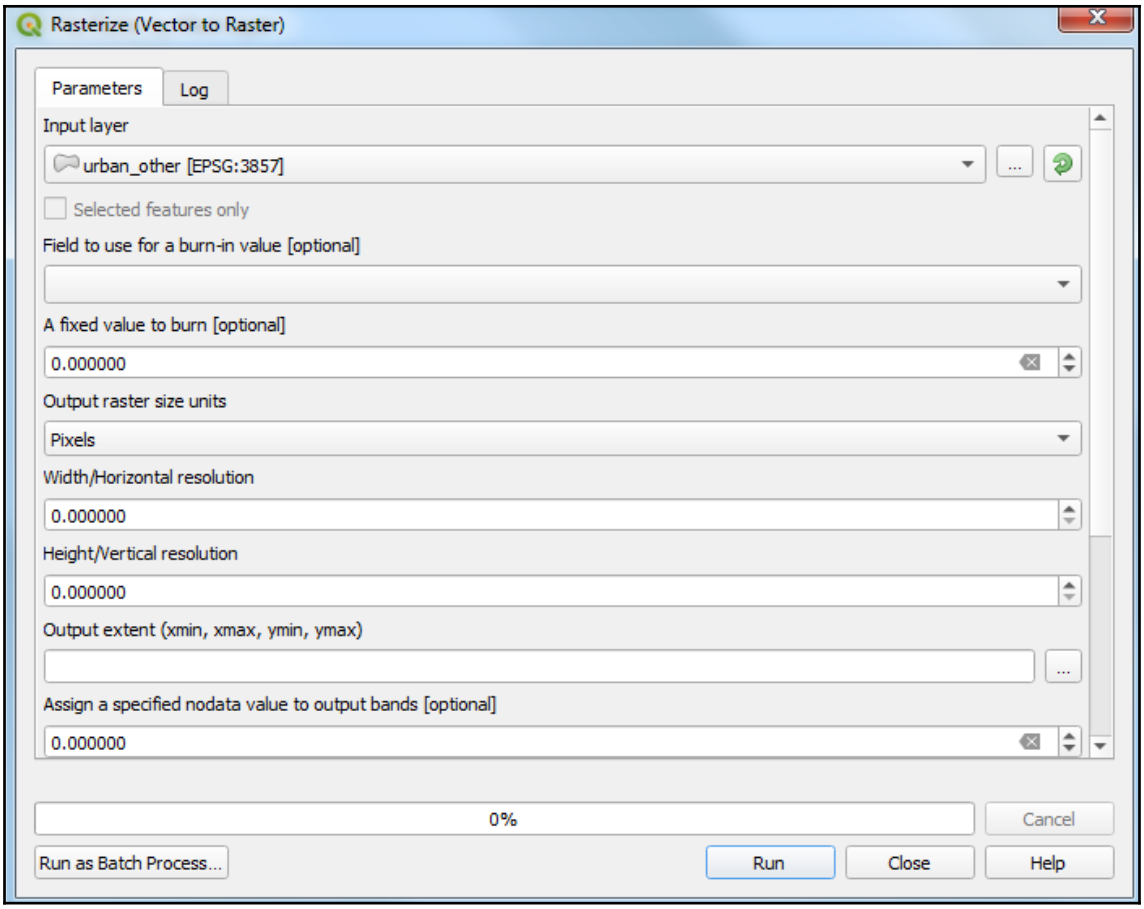
Chapter 5: Preparing Raster Data for Processing

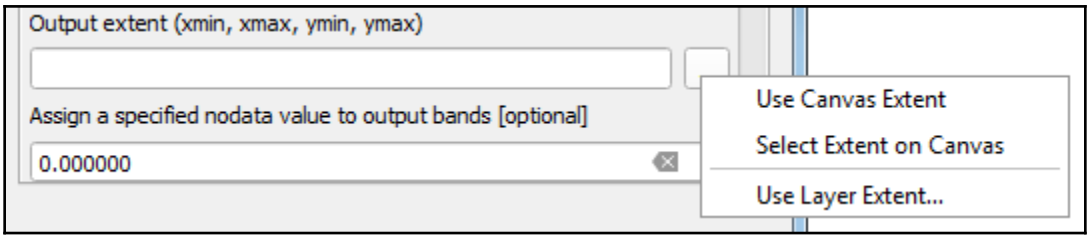


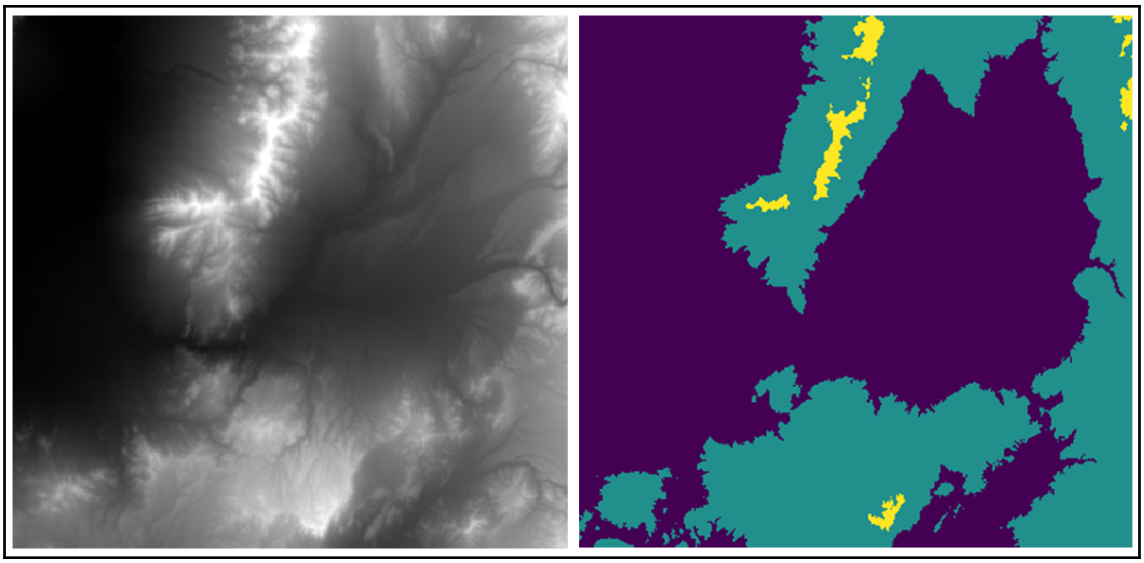

Translate (Convert Format)
Parameters
Log
Input layer
//192.168.0.200/All_Books/2019/Working_Titles/Books/10197_Mastering Geospatial Development with QGIS 3.2/BookDrafts/
Override the projection for the output file [optional]
Assign a specified nodata value to output bands [optional]
0.000000
Copy all subdatasets of this file to individual output files
Advanced parameters
Converted
D:/experiment.tif
Open output file after running algorithm
GDAL/OGR console call
gdal_translate -a_nodata 0.0 -of GTiff "//192.168.0.200/All_Books/2019/Working_Titles/Books/10197_Mastering Geospatial Development with QGIS 3.2/BookDrafts/Code/5. Preparing Raster Data for Processing/rasters/Ortho_P00067254_20140227_20140304_20cm_res.ecw" D:/experiment.tif
0%
Cancel
Run as Batch Process...
Run
Close
Help


Clip Raster by Mask Layer
Parameters
Log
Input layer
//192.168.0.200/All_Books/2019/Working_Titles/Books/10197_Mastering Geospatial Development with QGIS 3.2/BookDra
Mask layer
urban_other [EPSG:3857]
Selected features only
Assign a specified nodata value to output bands [optional]
Not set
Create an output alpha band
Match the extent of the clipped raster to the extent of the mask layer
Keep resolution of output raster
Advanced parameters
Clipped (mask)
[Save to temporary file]
Open output file after running algorithm
GDAL/OGR console call
gdalwarp -of GTiff -cutline "//192.168.0.200/All_Books/2019/Working_Titles/Books/10197_Mastering Geospatial Development with QGIS 3.2/BookDrafts/Code/4. Preparing Vector Data for Processing/Vectors/urban_other.shp" -crop_to_cutline "//
192.168.0.200/All_Books/2019/Working_Titles/Books/10197_Mastering Geospatial Development with QGIS 3.2/BookDrafts/
0%
Cancel
Run as Batch Process...
Run
Close
Help

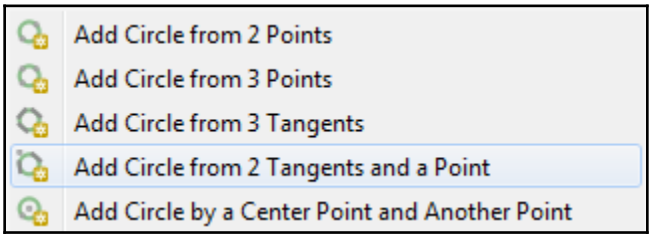


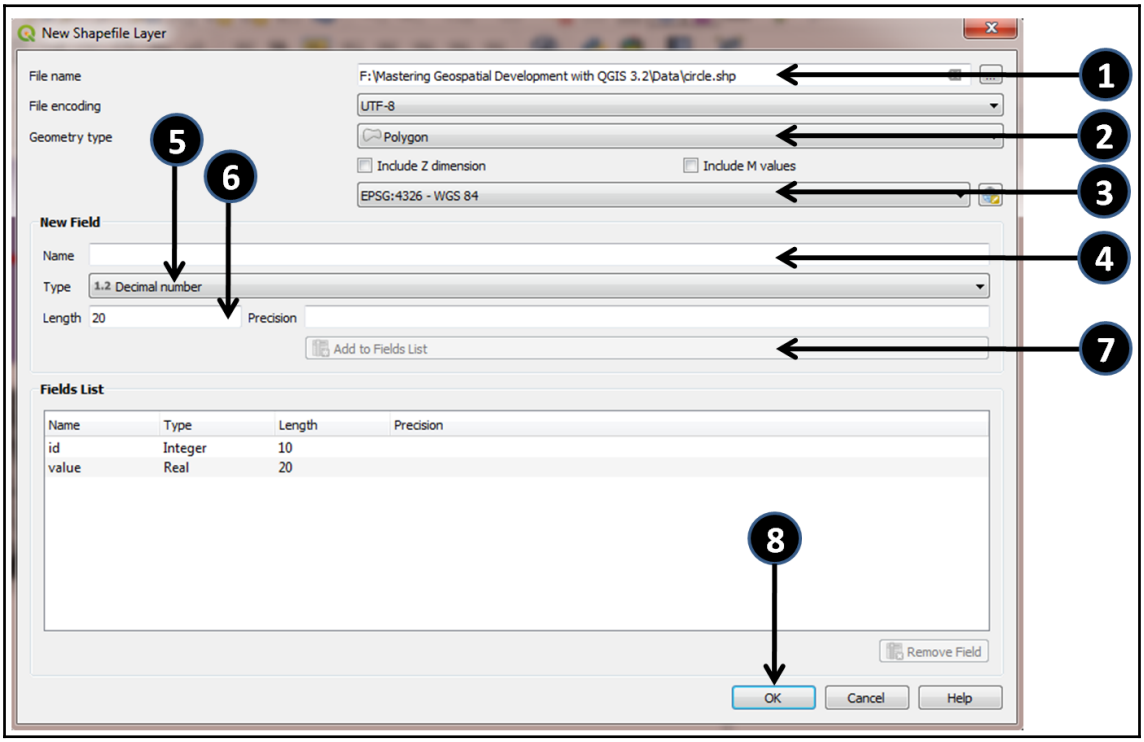

Rasterize (Vector to Raster)
Parameters
Log
Input layer
urban_other [EPSG:3857]
Selected features only
Field to use for a burn-in value [optional]
A fixed value to burn [optional]
0.000000
Output raster size units
Pixels
Width/Horizontal resolution
0.000000
Height/Vertical resolution
0.000000
Output extent (xmin, xmax, ymin, ymax)
Assign a specified nodata value to output bands [optional]
0.000000
0%
Cancel
Run as Batch Process...
Run
Close
Help

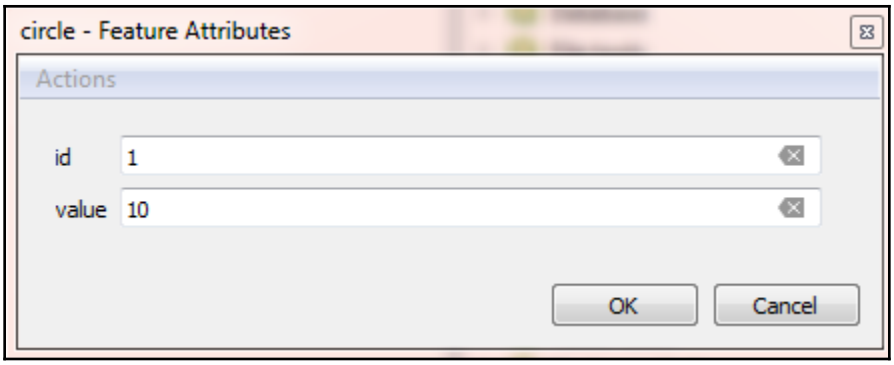

Output extent (xmin, xmax, ymin, ymax)
Assign a specified nodata value to output bands [optional]
0.000000
Use Canvas Extent
Select Extent on Canvas
Use Layer Extent...

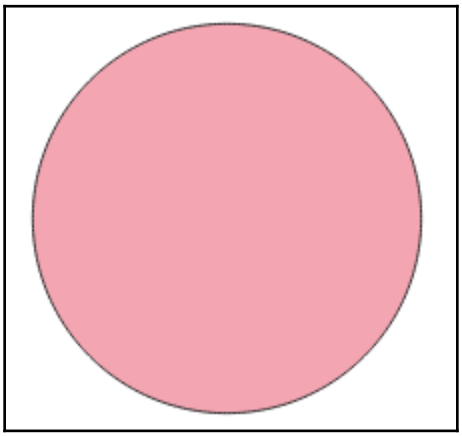


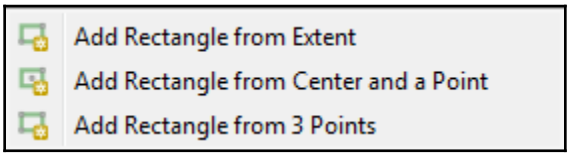
Chapter 6: Advanced Data Creation and Editing

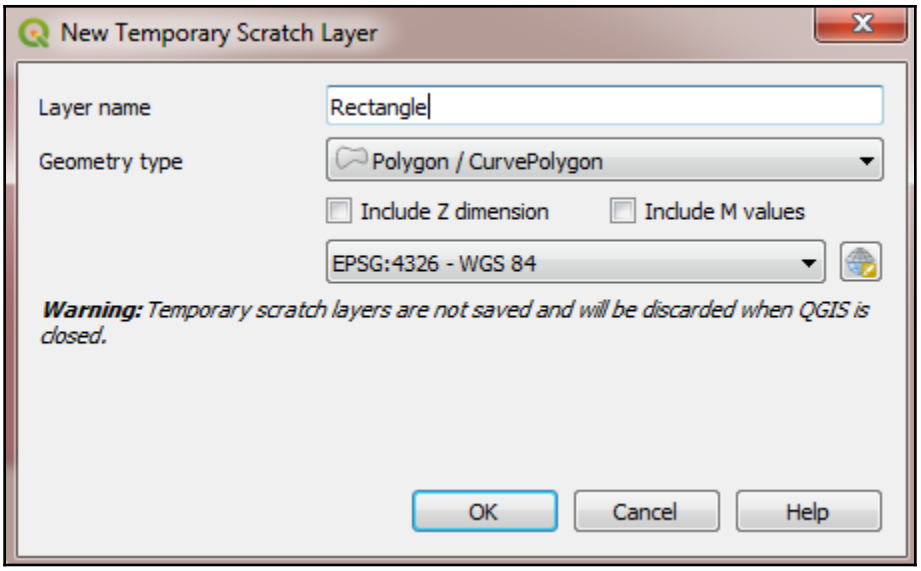


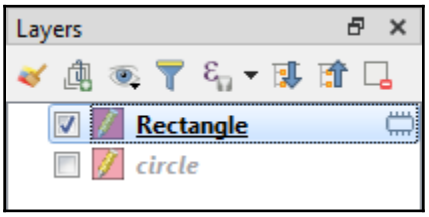


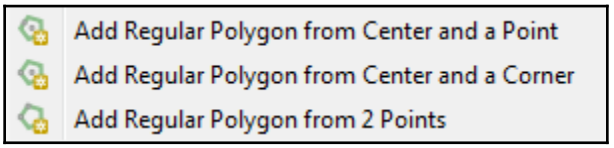

circle - Feature Attributes
Actions
id
1
value
10
OK
Cancel

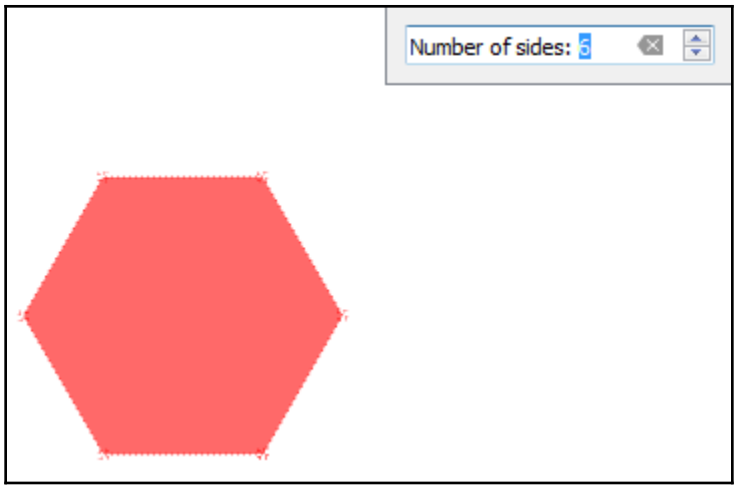


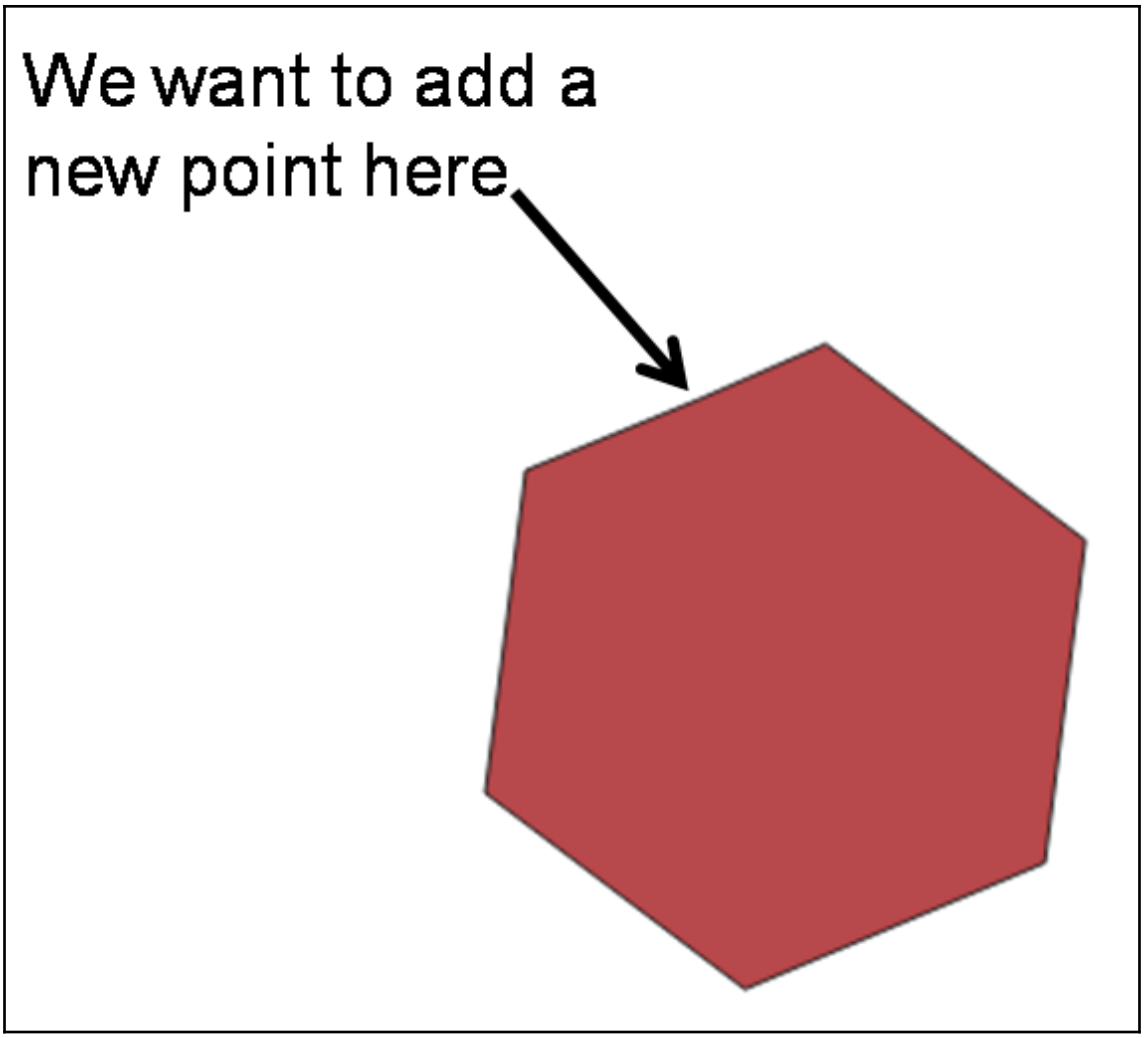

Add Rectangle from Extent
Add Rectangle from Center and a Point
Add Rectangle from 3 Points

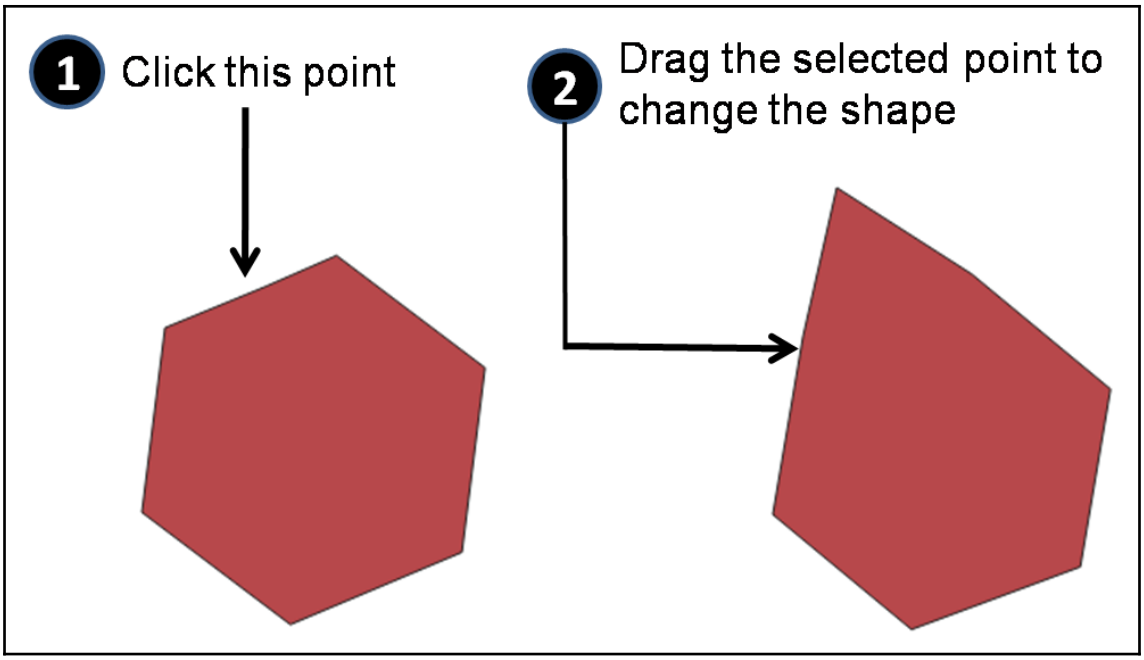

New Temporary Scratch Layer
Layer name
Rectangle
Geometry type
Polygon / CurvePolygon
Include Z dimension
Include M values
EPSG:4326 - WGS 84
Warning: Temporary scratch layers are not saved and will be discarded when QGIS is closed.
OK
Cancel
Help


Layers
Rectangle
circle

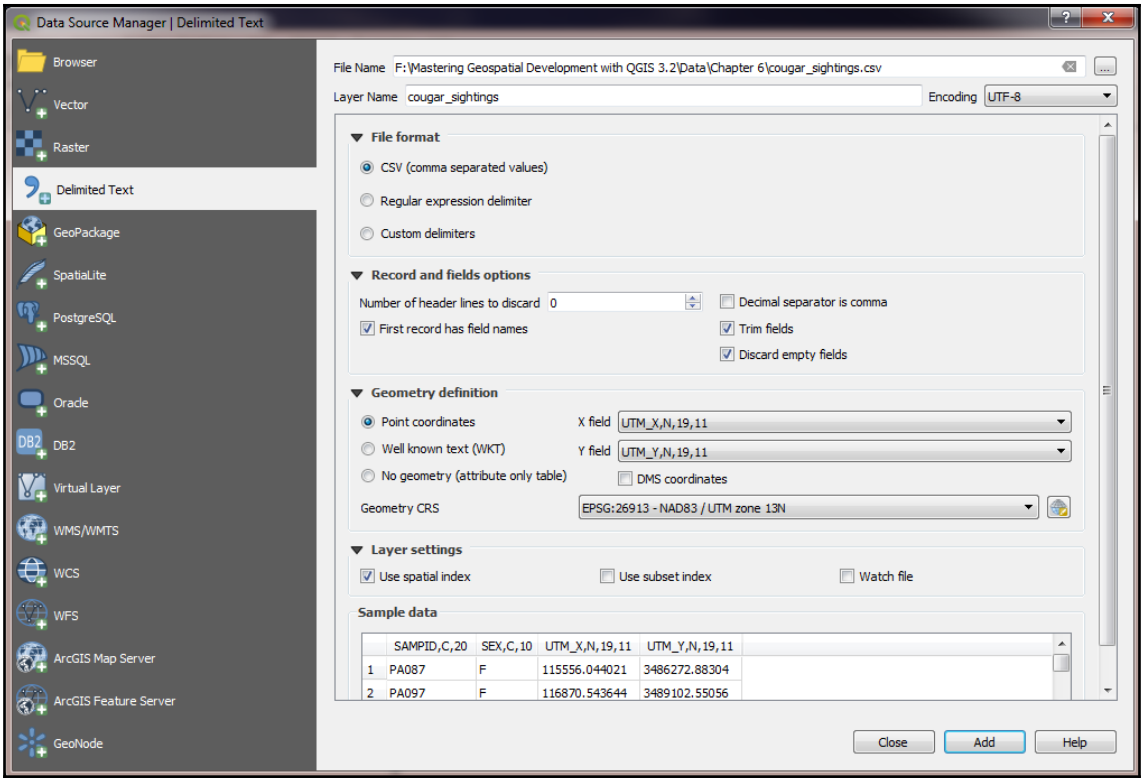

Add Regular Polygon from Center and a Point
Add Regular Polygon from Center and a Corner
Add Regular Polygon from 2 Points

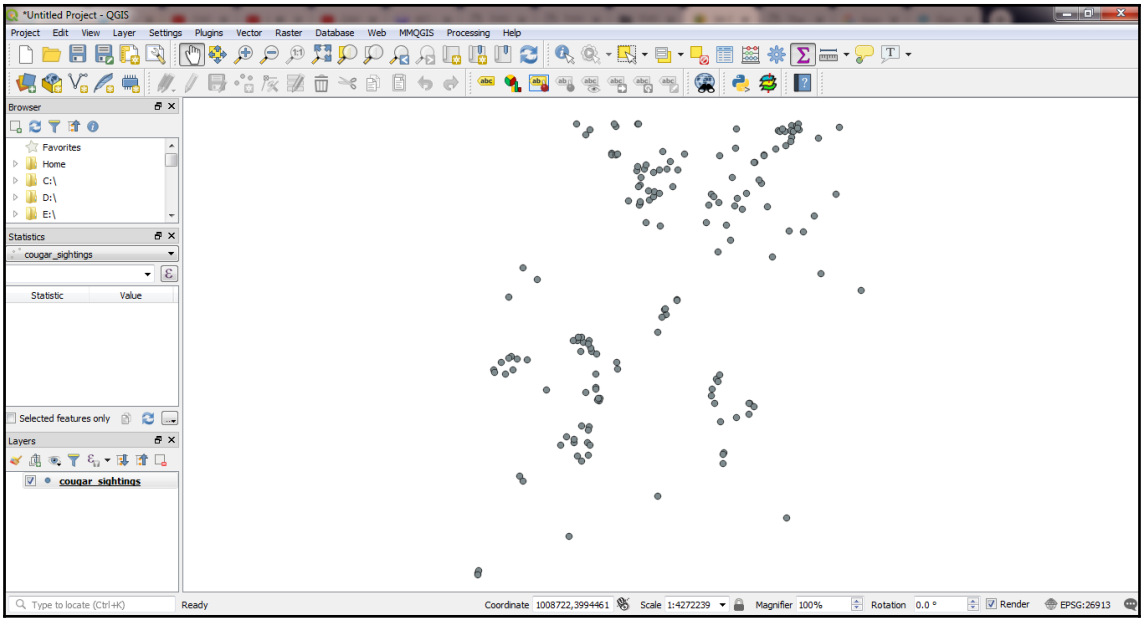

Number of sides: 6

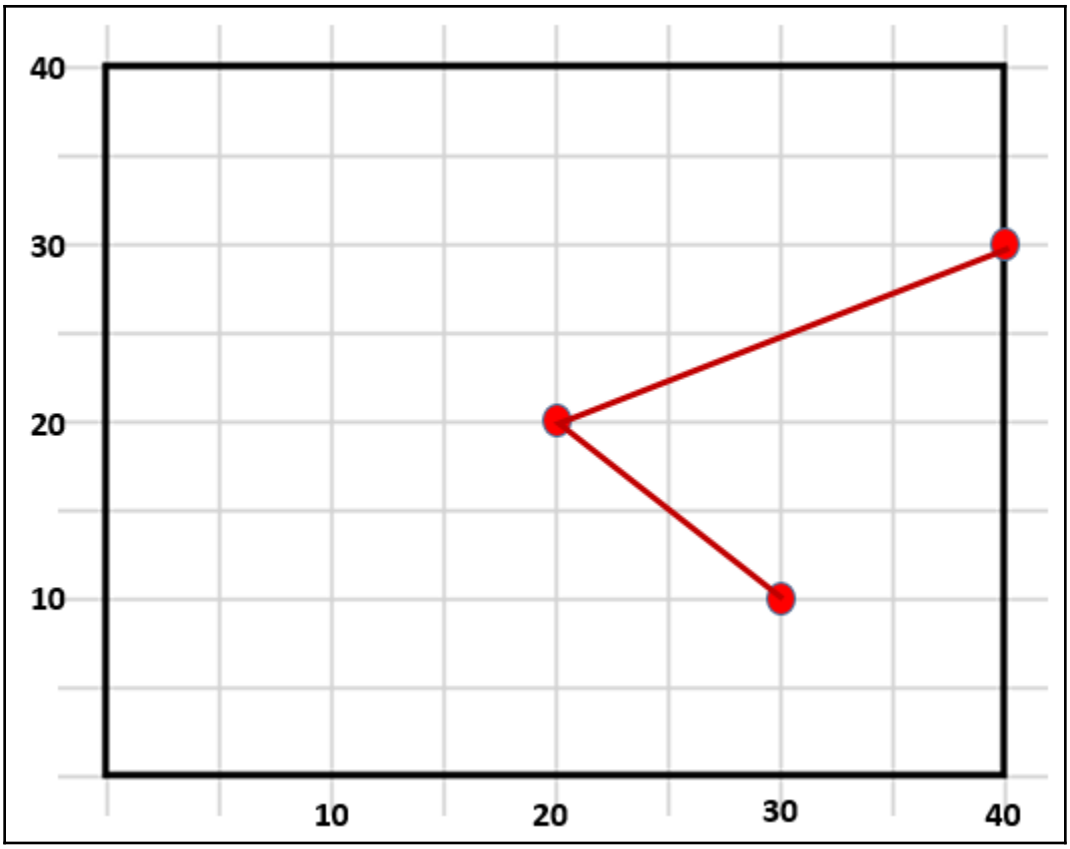

We want to add a
new point here

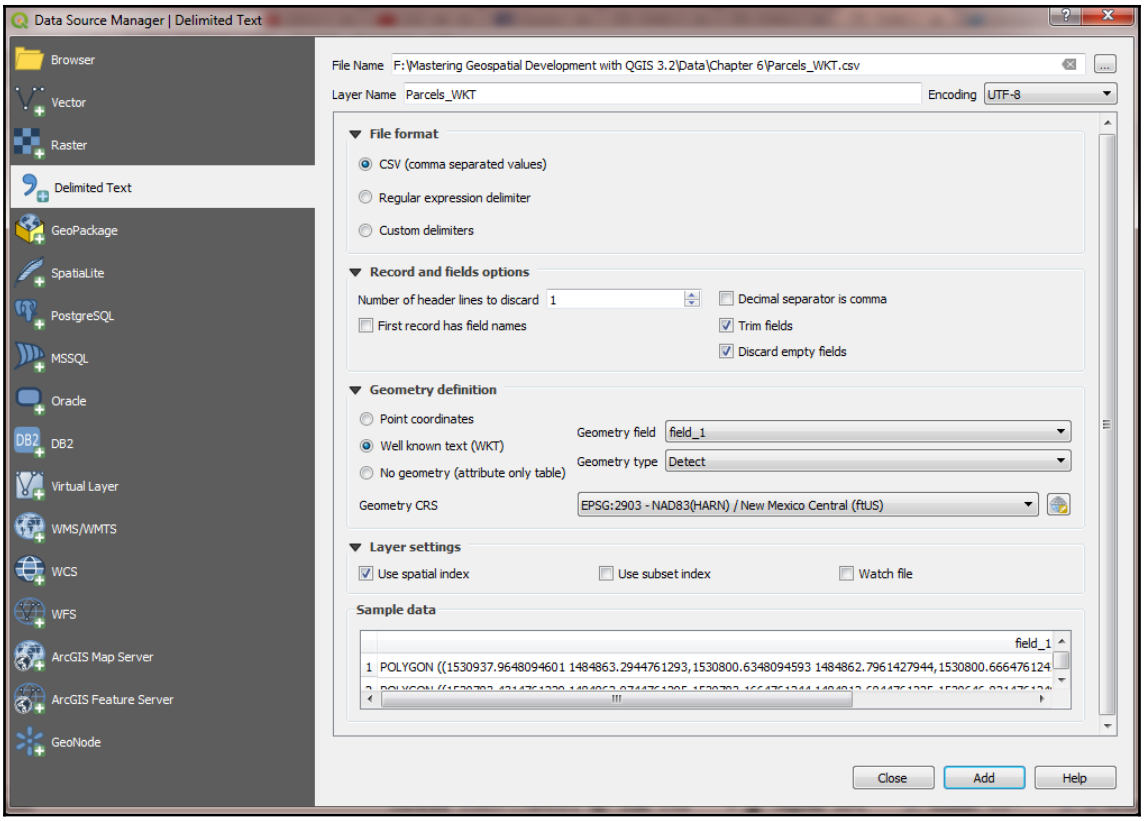


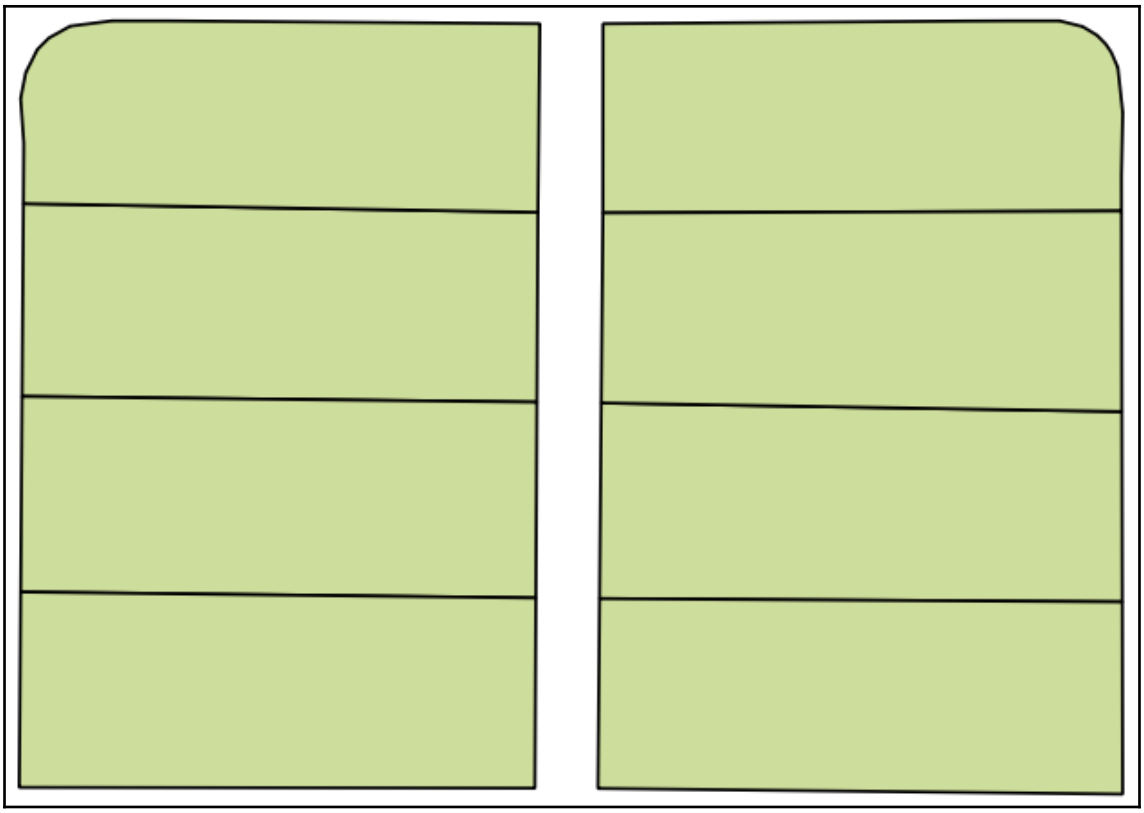

```
"SAMPID,C,20","SEX,C,10","UTM_X,N,19,11","UTM_Y,N,19,11"
PA087,F,115556.044021,3486272.88304
PA097,F,116870.543644,3489102.55056
PA098,M,116148.894117,3483420.50411
PN001,M,482000.018751,3700998.34463
PN002,M,296192.720405,4053069.38808
PN003,M,347990.948523,3990302.26593
PN004,F,431049.74714,3998099.74491
PN005,F,498461.953615,4013066.46126
PN006,F,319083.556347,3988585.77826
```

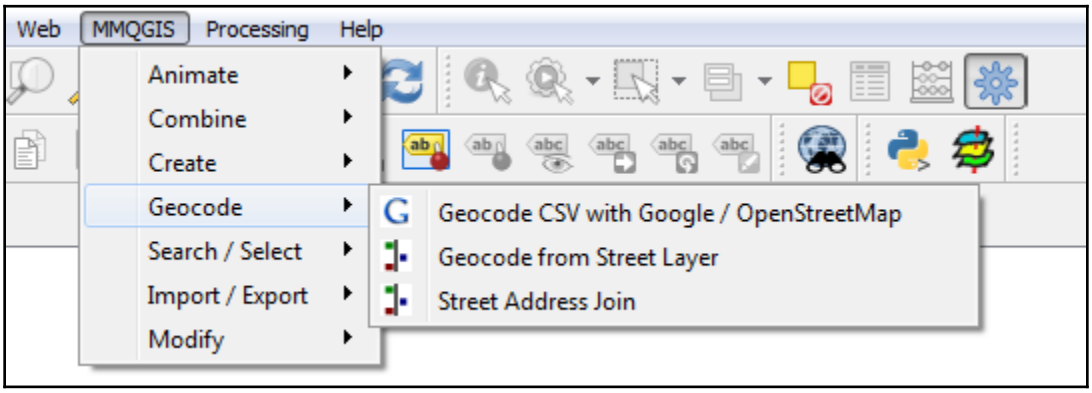

Data Source Manager | Delimited Text
Browser
Vector
Raster
Delimited Text
GeoPackage
SpatiaLite
PostgreSQL
MSSQL
Oracle
DB2
Virtual Layer
WMS/WMTS
WCS
WFS
ArcGIS Map Server
ArcGIS Feature Server
GeoNode
File Name
F:\Mastering Geospatial Development with QGIS 3.2\Data\Chapter 6\cougar_sightings.csv
Layer Name
cougar_sightings
Encoding
UTF-8
File format
CSV (comma separated values)
Regular expression delimiter
Custom delimiters
Record and fields options
Number of header lines to discard
0
Decimal separator is comma
First record has field names
Trim fields
Discard empty fields
Geometry definition
Point coordinates
X field
UTM_X,N,19,11
Well known text (WKT)
Y field
UTM_Y,N,19,11
No geometry (attribute only table)
DMS coordinates
Geometry CRS
EPSG:26913 - NAD83 / UTM zone 13N
Layer settings
Use spatial index
Use subset index
Watch file
Sample data
SAMPID,C,20
SEX,C,10
UTM_X,N,19,11
UTM_Y,N,19,11
1
PA087
F
115556.044021
3486272.88304
2
PA097
F
116870.543644
3489102.55056
Close
Add
Help

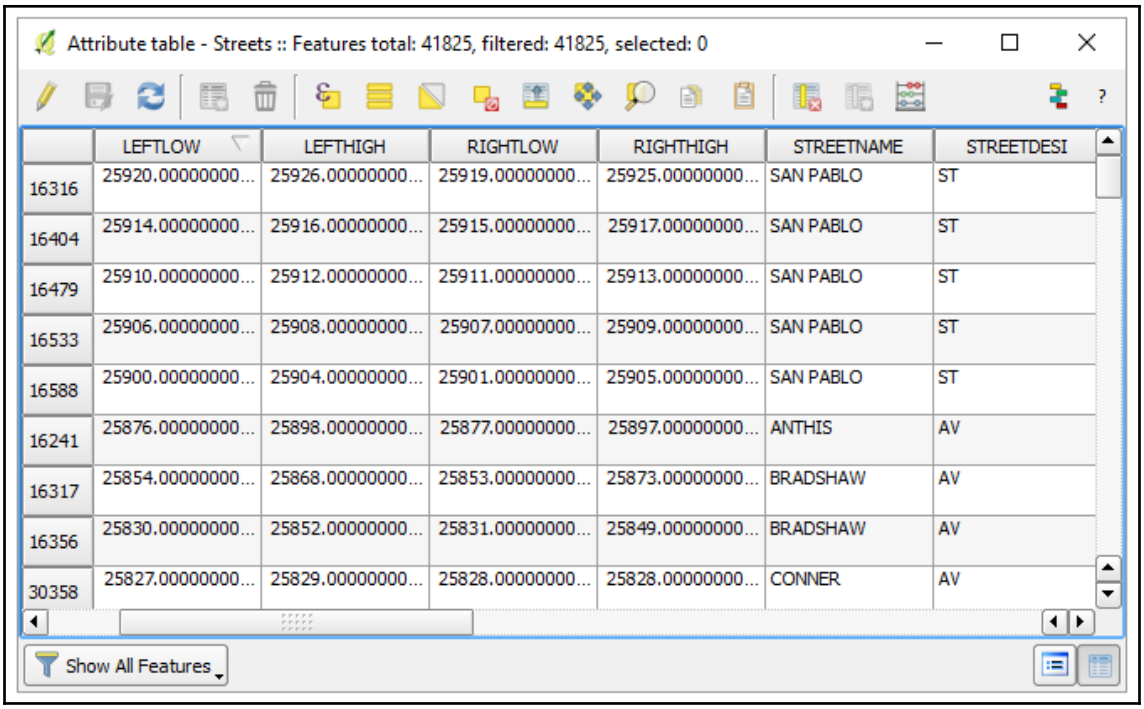

*Untitled Project - QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web MMQGIS Processing Help
Browser
Favorites
Home
C:\
D:\
E:\
Statistics
cougar_sightings
Statistic
Value
Selected features only
Layers
cougar_sightings
Type to locate (Ctrl+K)
Ready
Coordinate 1008722,3994461
Scale 1:4272239
Magnifier 100%
Rotation 0.0 °
Render
EPSG:26913


40
30
20
10
10
20
30
40

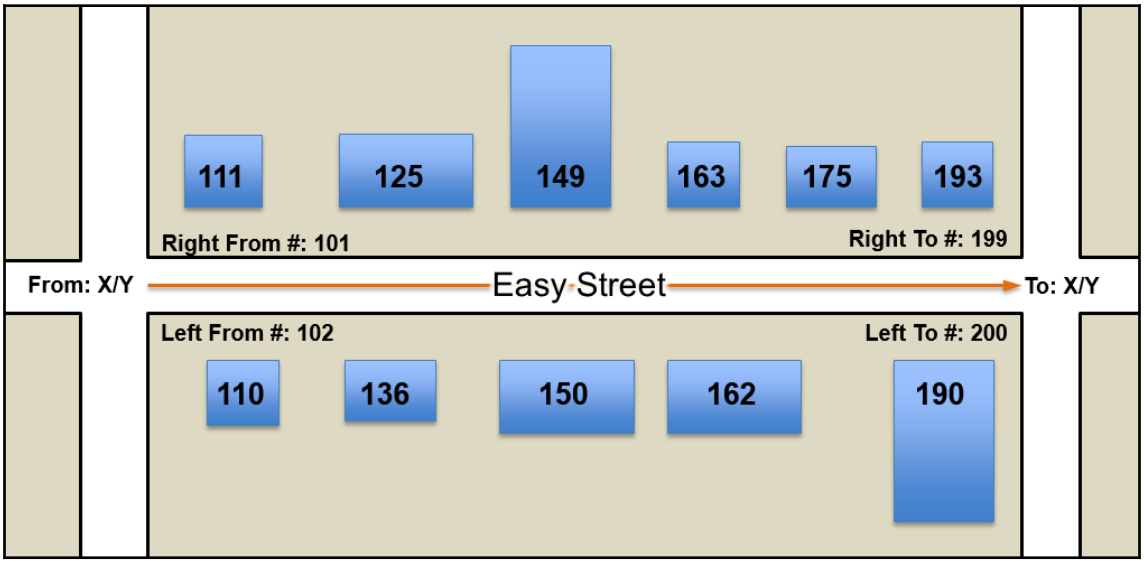

Data Source Manager | Delimited Text
Browser
Vector
Raster
Delimited Text
GeoPackage
SpatiaLite
PostgreSQL
MSSQL
Oracle
DB2
Virtual Layer
WMS/WMTS
WCS
WFS
ArcGIS Map Server
ArcGIS Feature Server
GeoNode
File Name
F:\Mastering Geospatial Development with QGIS 3.2\Data\Chapter 6\Parcels_WKT.csv
Layer Name
Parcels_WKT
Encoding
UTF-8
File format
CSV (comma separated values)
Regular expression delimiter
Custom delimiters
Record and fields options
Number of header lines to discard
1
First record has field names
Decimal separator is comma
Trim fields
Discard empty fields
Geometry definition
Point coordinates
Well known text (WKT)
No geometry (attribute only table)
Geometry field
field_1
Geometry type
Detect
Geometry CRS
EPSG:2903 - NAD83(HARN) / New Mexico Central (ftUS)
Layer settings
Use spatial index
Use subset index
Watch file
Sample data
field_1
1
POLYGON ((1530937.9648094601 1484863.2944761293,1530800.6348094593 1484862.7961427944,1530800.666476124
Close
Add
Help

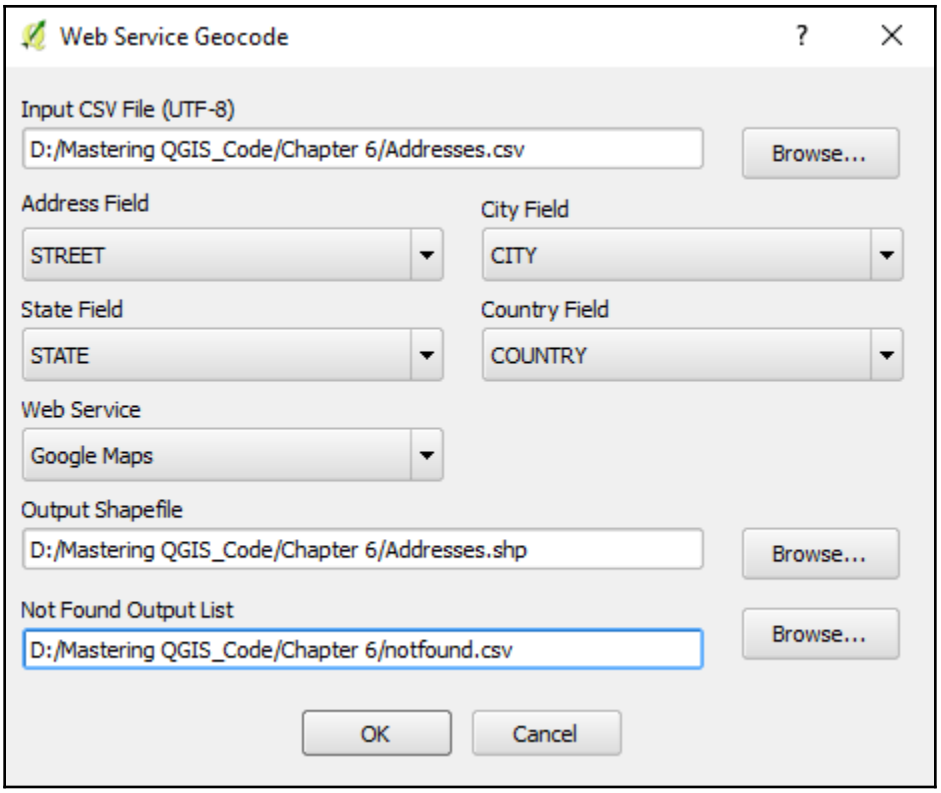


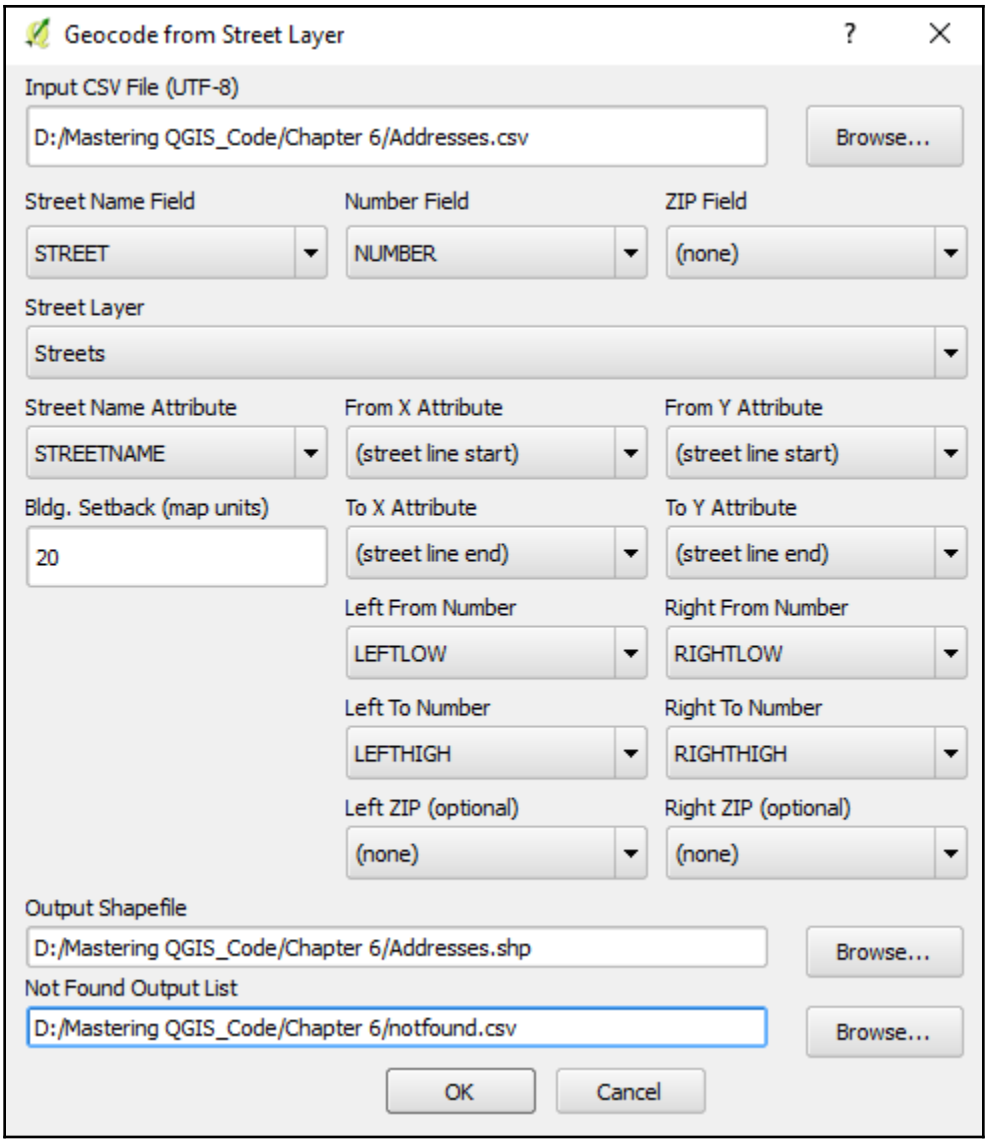

Web
MMQGIS
Processing
Help
Animate
Combine
Create
Geocode
Search / Select
Import / Export
Modify
Geocode CSV with Google / OpenStreetMap
Geocode from Street Layer
Street Address Join

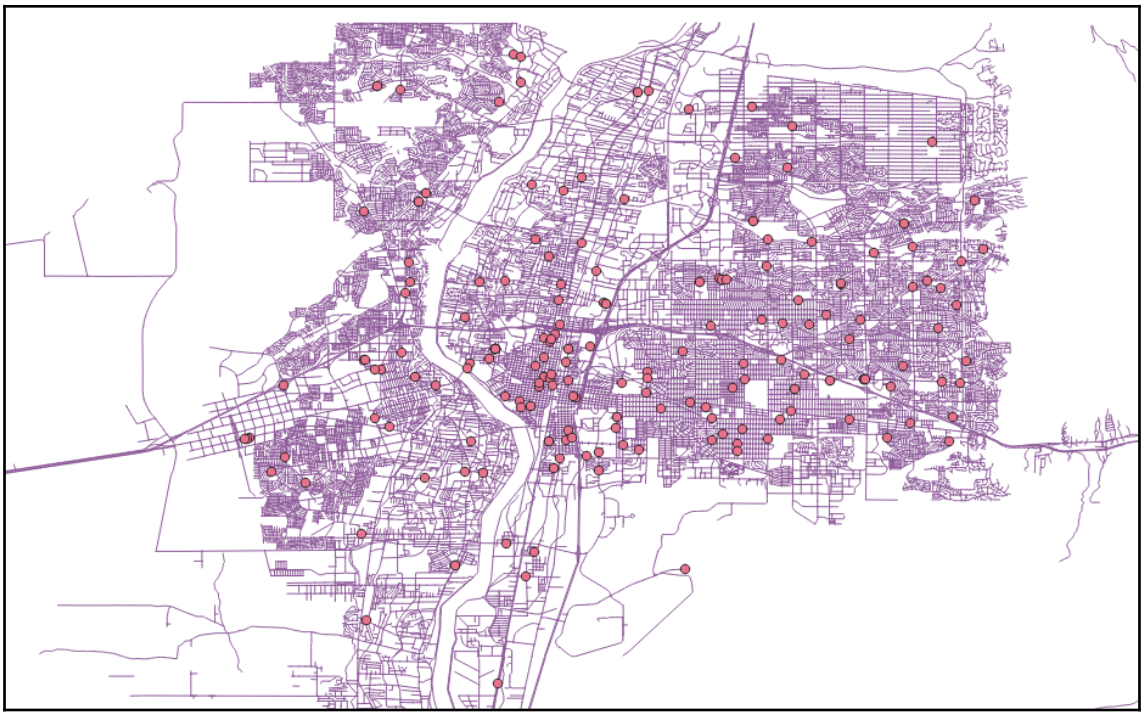


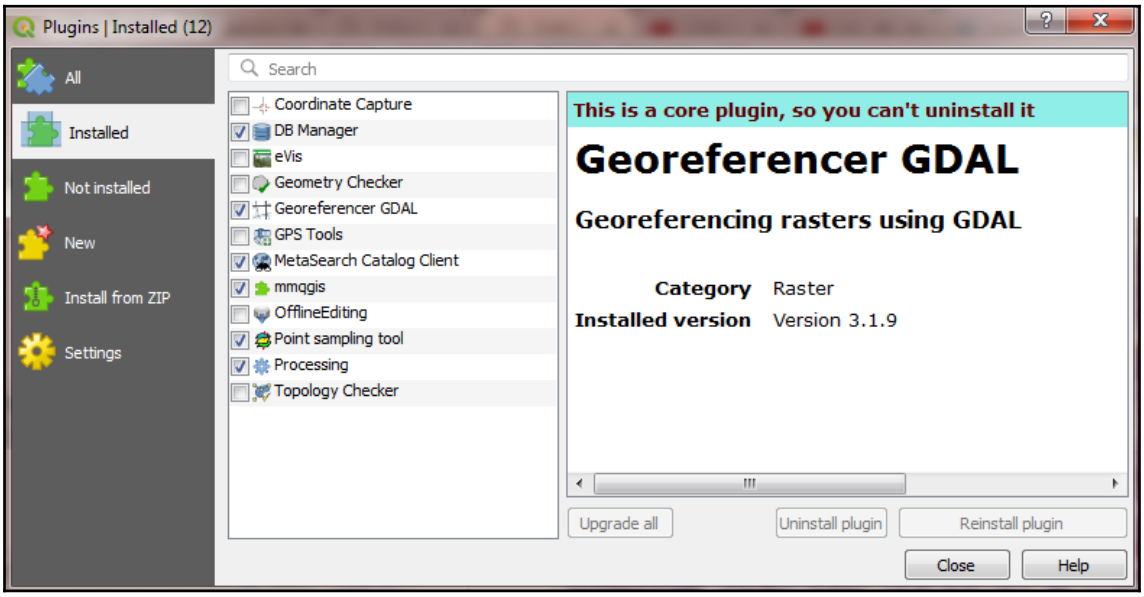
	LEFTLOW	LEFTHIGH	RIGHTLOW	RIGHTHIGH	STREETNAME	STREETDESI
16316	25920.00000000...	25926.00000000...	25919.00000000...	25925.00000000...	SAN PABLO	ST
16404	25914.00000000...	25916.00000000...	25915.00000000...	25917.00000000...	SAN PABLO	ST
16479	25910.00000000...	25912.00000000...	25911.00000000...	25913.00000000...	SAN PABLO	ST
16533	25906.00000000...	25908.00000000...	25907.00000000...	25909.00000000...	SAN PABLO	ST
16588	25900.00000000...	25904.00000000...	25901.00000000...	25905.00000000...	SAN PABLO	ST
16241	25876.00000000...	25898.00000000...	25877.00000000...	25897.00000000...	ANTHIS	AV
16317	25854.00000000...	25868.00000000...	25853.00000000...	25873.00000000...	BRADSHAW	AV
16356	25830.00000000...	25852.00000000...	25831.00000000...	25849.00000000...	BRADSHAW	AV
30358	25827.00000000...	25829.00000000...	25828.00000000...	25828.00000000...	CONNER	AV

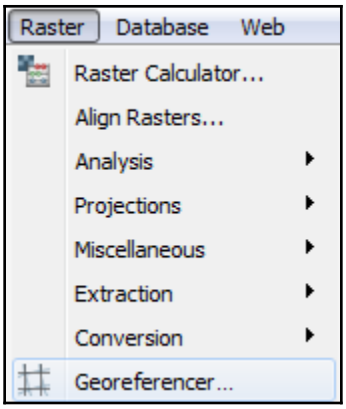


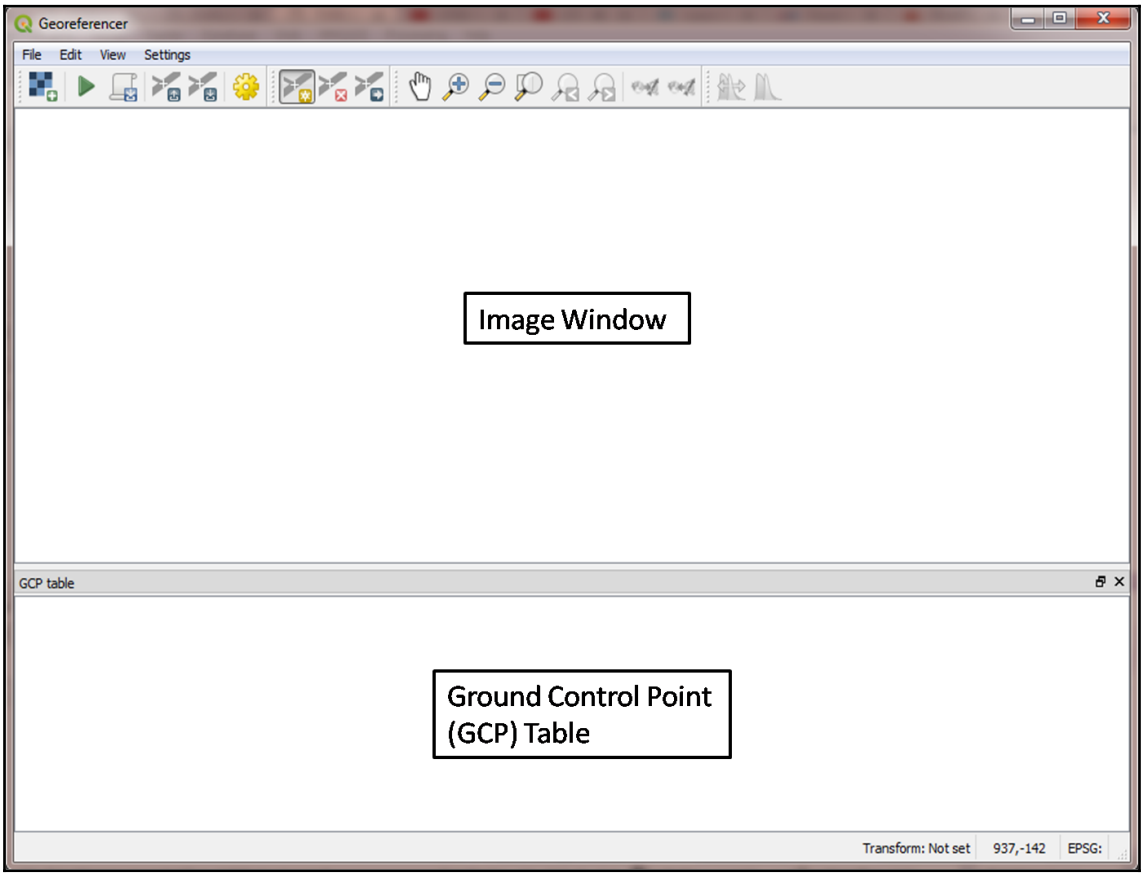

Web Service Geocode
Input CSV File (UTF-8)
D:/Mastering QGIS_Code/Chapter 6/Addresses.csv
Browse...
Address Field
STREET
City Field
CITY
State Field
STATE
Country Field
COUNTRY
Web Service
Google Maps
Output Shapefile
D:/Mastering QGIS_Code/Chapter 6/Addresses.shp
Browse...
Not Found Output List
D:/Mastering QGIS_Code/Chapter 6/notfound.csv
Browse...
OK
Cancel

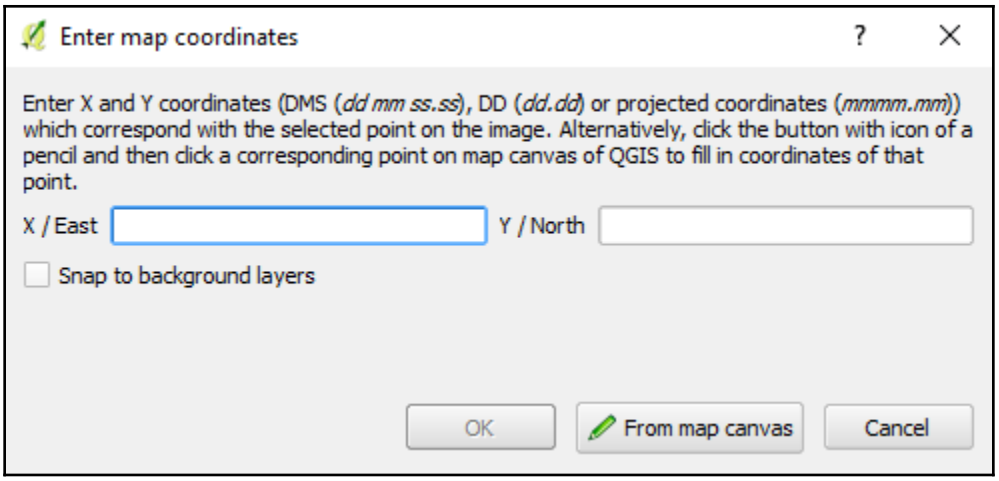

Geocode from Street Layer
Input CSV File (UTF-8)
D:/Mastering QGIS_Code/Chapter 6/Addresses.csv
Browse...
Street Name Field
STREET
Number Field
NUMBER
ZIP Field
(none)
Street Layer
Streets
Street Name Attribute
STREETNAME
From X Attribute
(street line start)
From Y Attribute
(street line start)
Bldg. Setback (map units)
20
To X Attribute
(street line end)
To Y Attribute
(street line end)
Left From Number
LEFTLOW
Right From Number
RIGHTLOW
Left To Number
LEFTHIGH
Right To Number
RIGHTHIGH
Left ZIP (optional)
(none)
Right ZIP (optional)
(none)
Output Shapefile
D:/Mastering QGIS_Code/Chapter 6/Addresses.shp
Browse...
Not Found Output List
D:/Mastering QGIS_Code/Chapter 6/notfound.csv
Browse...
OK
Cancel

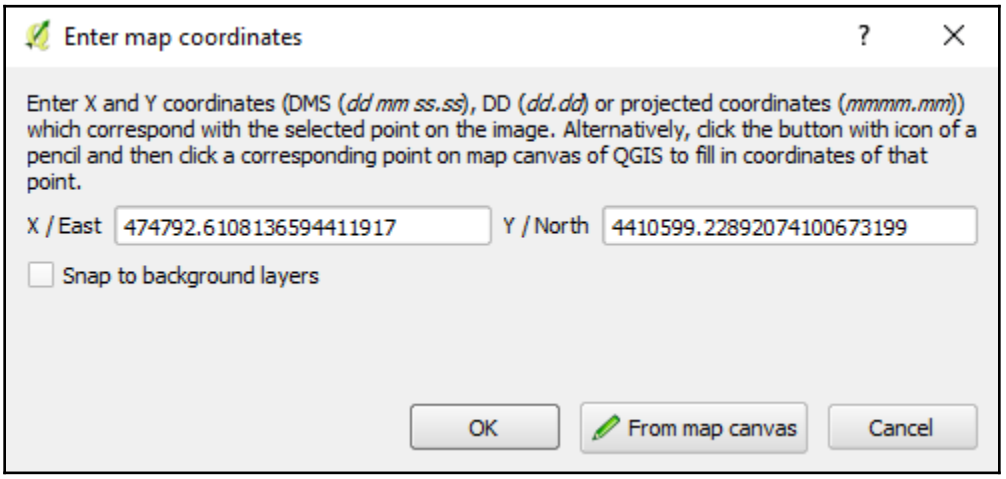


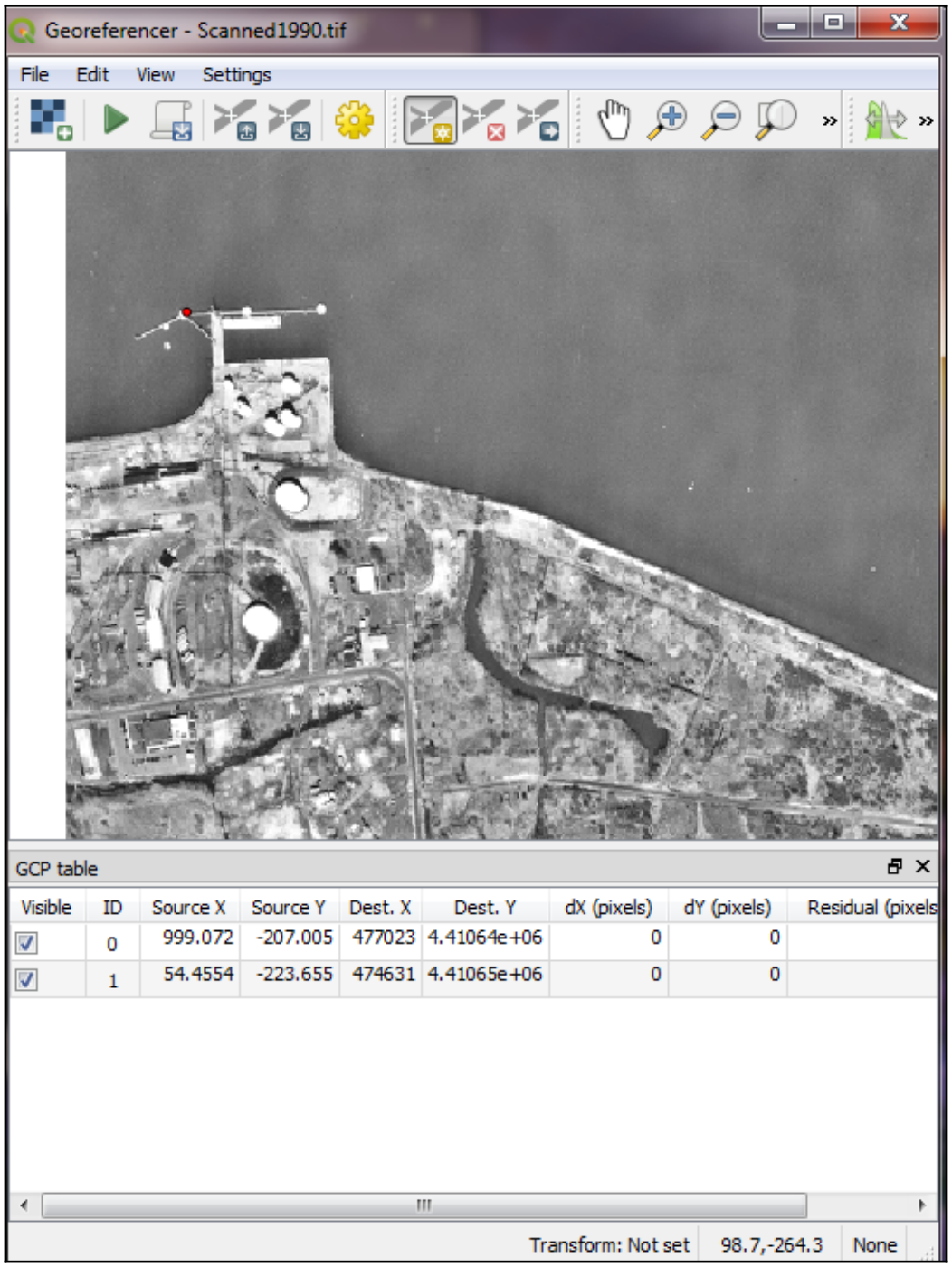

Plugins | Installed (12)
All
Installed
Not installed
New
Install from ZIP
Settings
Search
Coordinate Capture
DB Manager
eVis
Geometry Checker
Georeferencer GDAL
GPS Tools
MetaSearch Catalog Client
mmqgis
OfflineEditing
Point sampling tool
Processing
Topology Checker
This is a core plugin, so you can't uninstall it
Georeferencer GDAL
Georeferencing rasters using GDAL
Category Raster
Installed version Version 3.1.9
Upgrade all
Uninstall plugin
Reinstall plugin
Close
Help

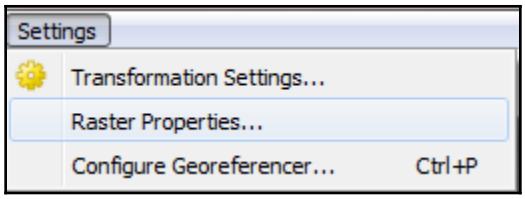

Raster
Database
Web
Raster Calculator...
Align Rasters...
Analysis
Projections
Miscellaneous
Extraction
Conversion
Georeferencer...

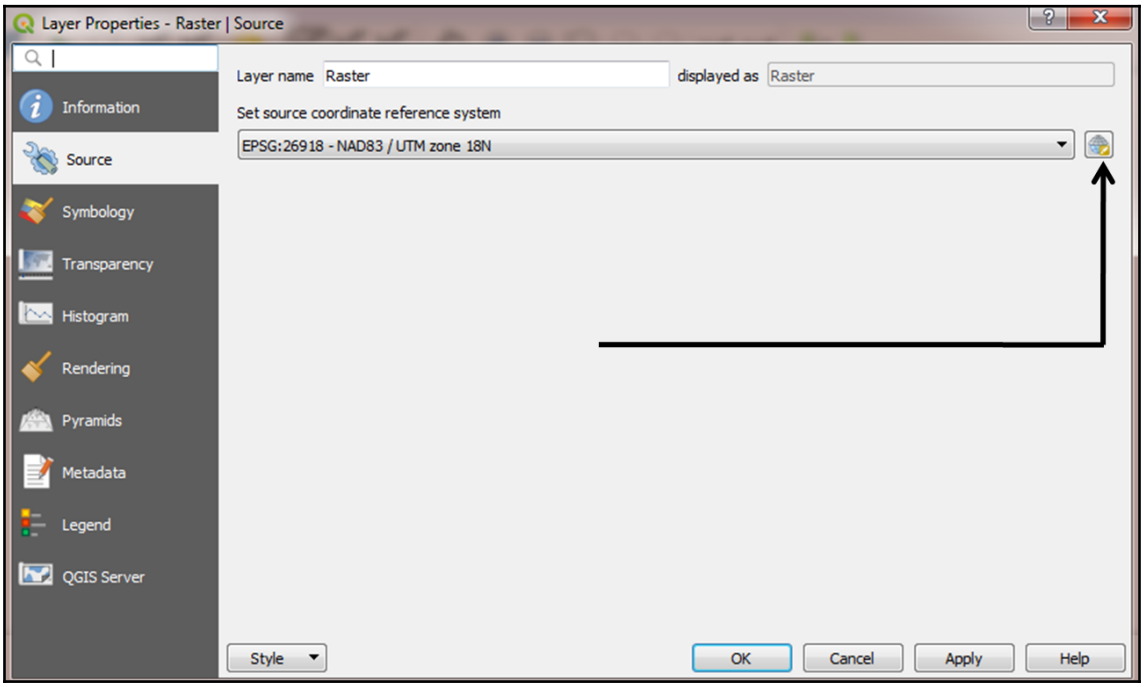

Georeferencer
File
Edit
View
Settings
Image Window
GCP table
Ground Control Point (GCP) Table
Transform: Not set
937,-142
EPSG:

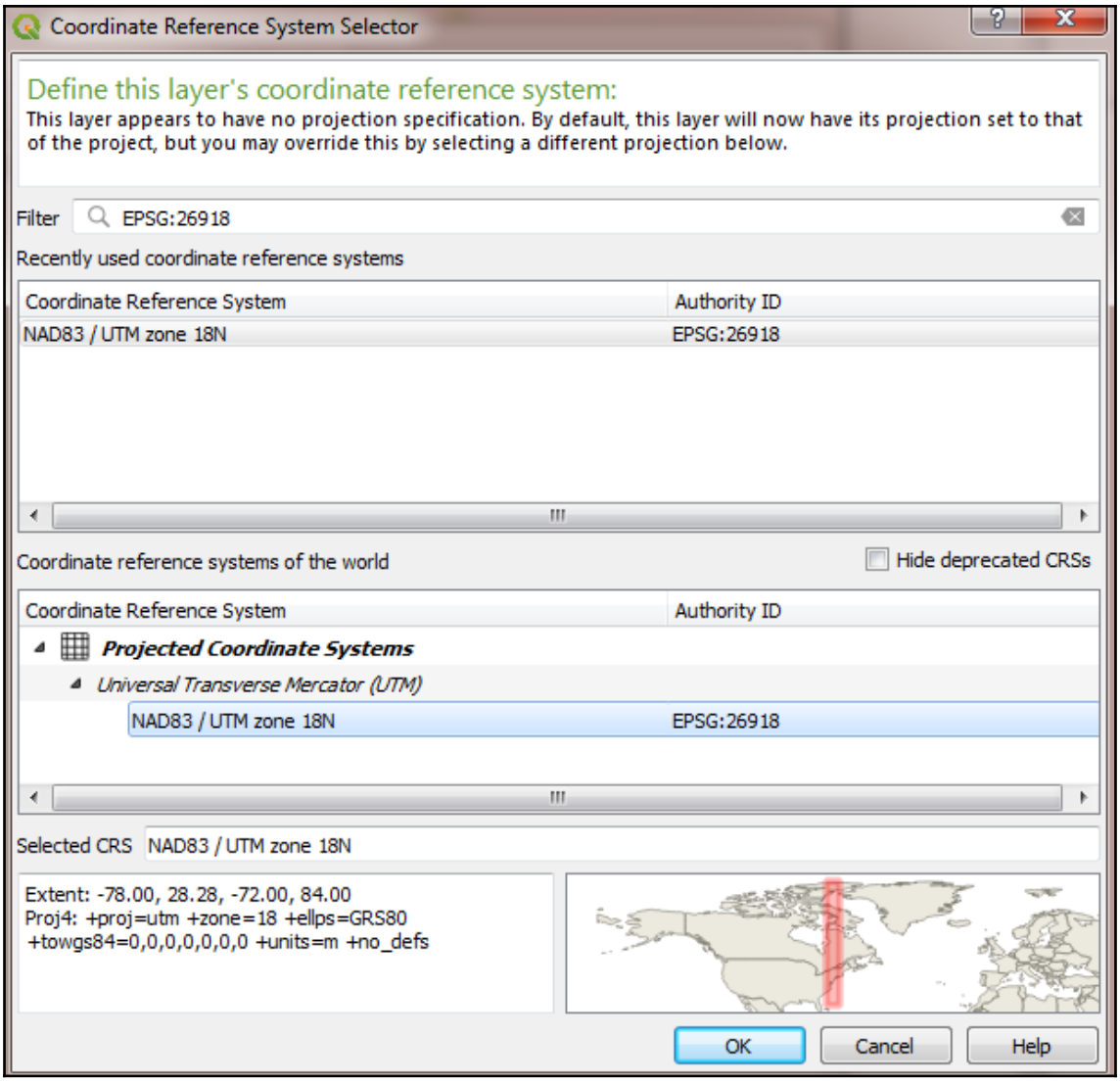

Enter map coordinates
Enter X and Y coordinates (DMS (dd mm ss.ss), DD (dd.dd) or projected coordinates (mmmm.mm)) which correspond with the selected point on the image. Alternatively, click the button with icon of a pencil and then click a corresponding point on map canvas of QGIS to fill in coordinates of that point.
X / East
Y / North
Snap to background layers
OK
From map canvas
Cancel

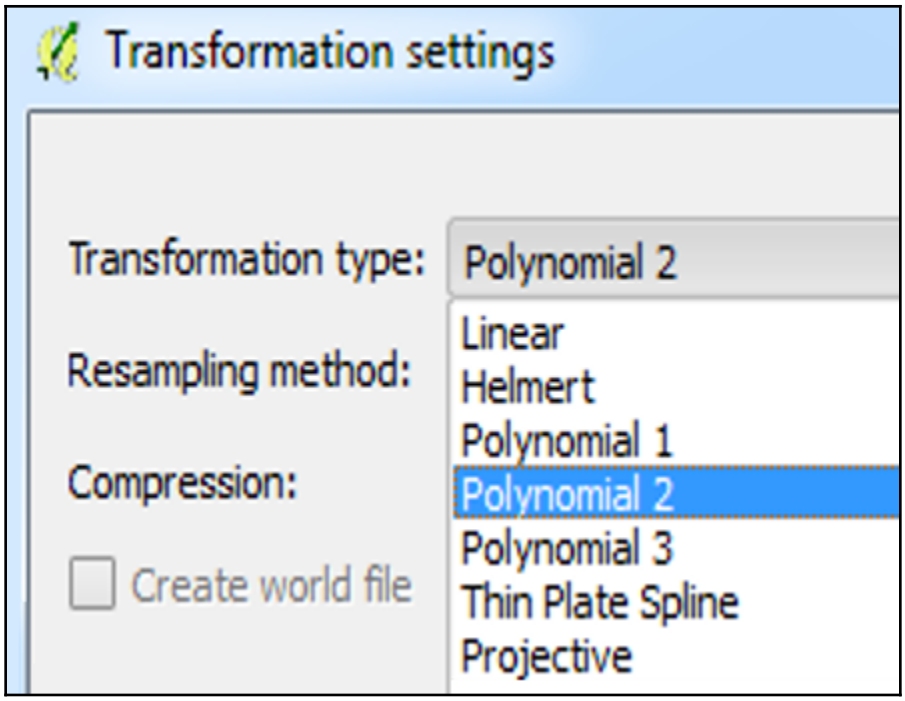

Enter map coordinates
Enter X and Y coordinates (DMS (dd mm ss.ss), DD (dd.dd) or projected coordinates (mmmm.mm)) which correspond with the selected point on the image. Alternatively, click the button with icon of a pencil and then click a corresponding point on map canvas of QGIS to fill in coordinates of that point.
X / East
474792.6108136594411917
Y / North
4410599.22892074100673199
Snap to background layers
OK
From map canvas
Cancel

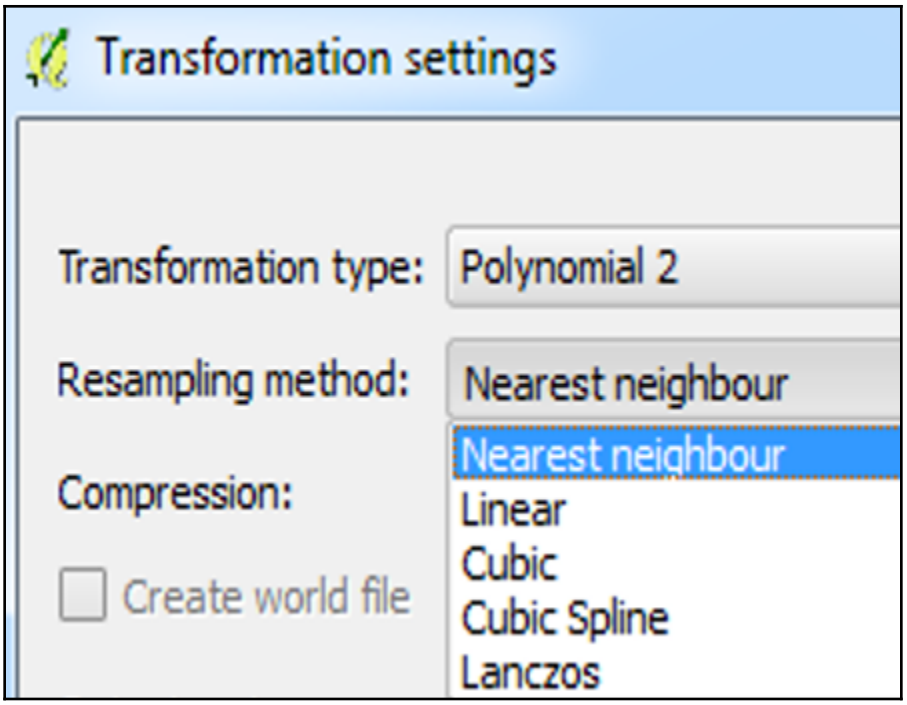

Georeferencer - Scanned1990.tif
File
Edit
View
Settings
GCP table
Visible ID Source X Source Y Dest. X Dest. Y dX (pixels) dY (pixels) Residual (pixels
0 999.072 -207.005 477023 4.41064e+06 0 0
1 54.4554 -223.655 474631 4.41065e+06 0 0
Transform: Not set
98.7,-264.3
None

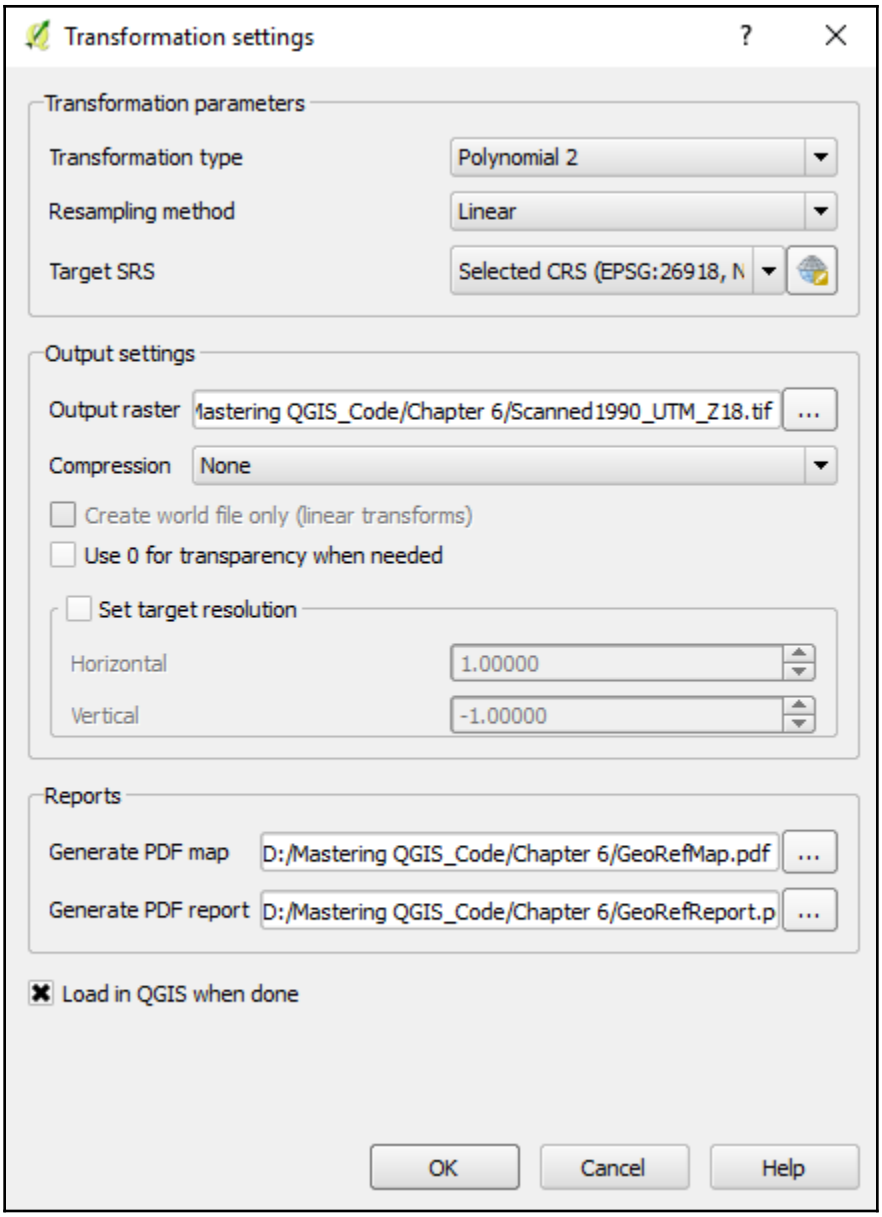

Settings
Transformation Settings...
Raster Properties...
Configure Georeferencer... Ctrl+P

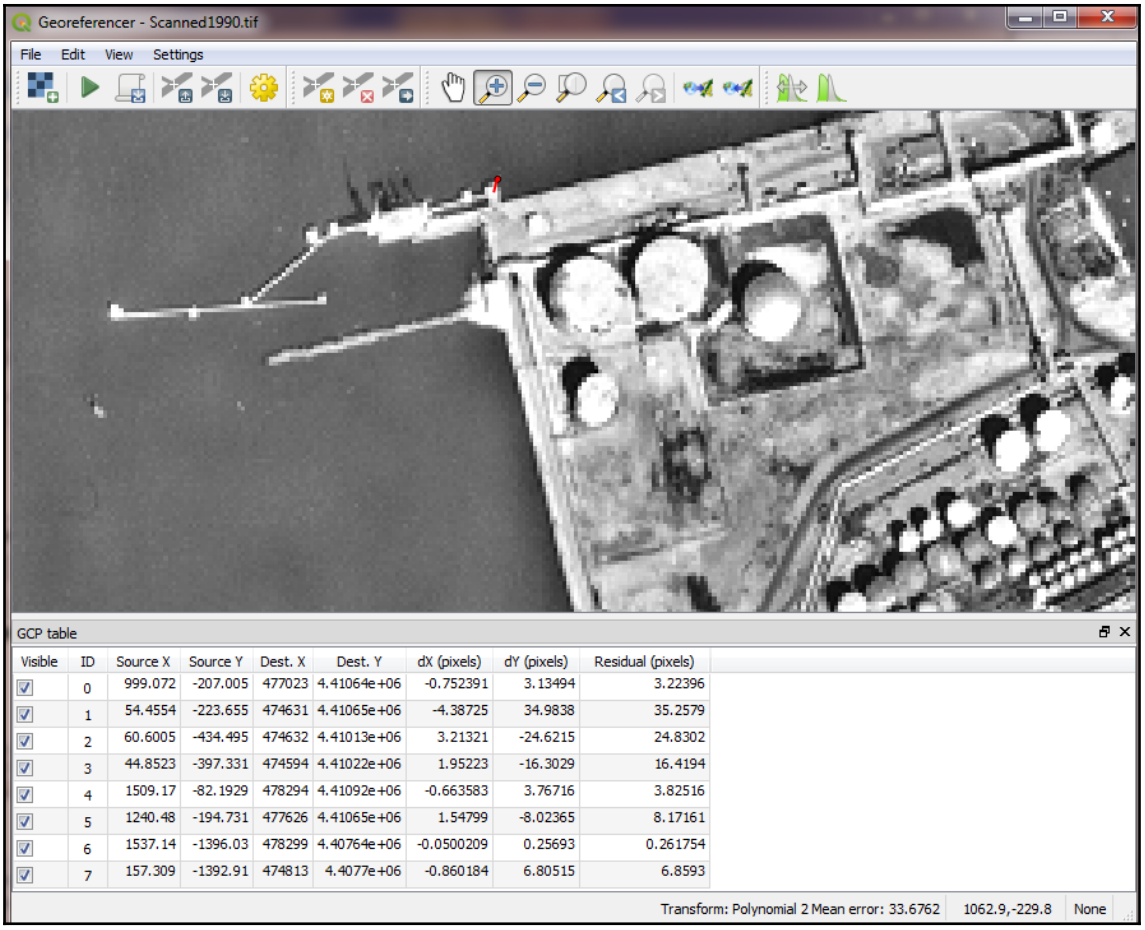

Layer Properties - Raster | Source
Information
Source
Symbology
Transparency
Histogram
Rendering
Pyramids
Metadata
Legend
QGIS Server
Layer name Raster
displayed as Raster
Set source coordinate reference system
EPSG:26918 - NAD83 / UTM zone 18N
Style
OK
Cancel
Apply
Help

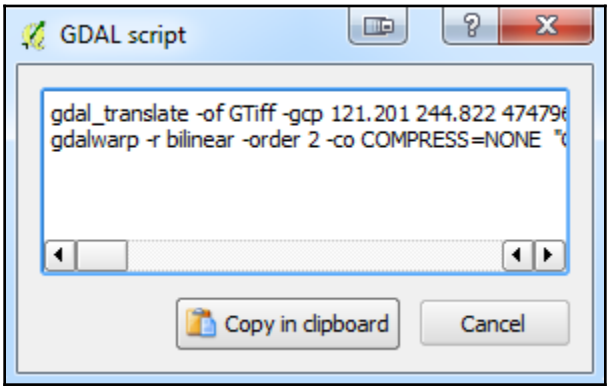

Coordinate Reference System Selector
Define this layer's coordinate reference system:
This layer appears to have no projection specification. By default, this layer will now have its projection set to that of the project, but you may override this by selecting a different projection below.
Filter
EPSG:26918
Recently used coordinate reference systems
Coordinate Reference System
Authority ID
NAD83 / UTM zone 18N
EPSG:26918
Coordinate reference systems of the world
Hide deprecated CRSs
Coordinate Reference System
Authority ID
Projected Coordinate Systems
Universal Transverse Mercator (UTM)
NAD83 / UTM zone 18N
EPSG:26918
Selected CRS
NAD83 / UTM zone 18N
Extent: -78.00, 28.28, -72.00, 84.00
Proj4: +proj=utm +zone=18 +ellps=GRS80
+towgs84=0,0,0,0,0,0,0 +units=m +no_defs
OK
Cancel
Help

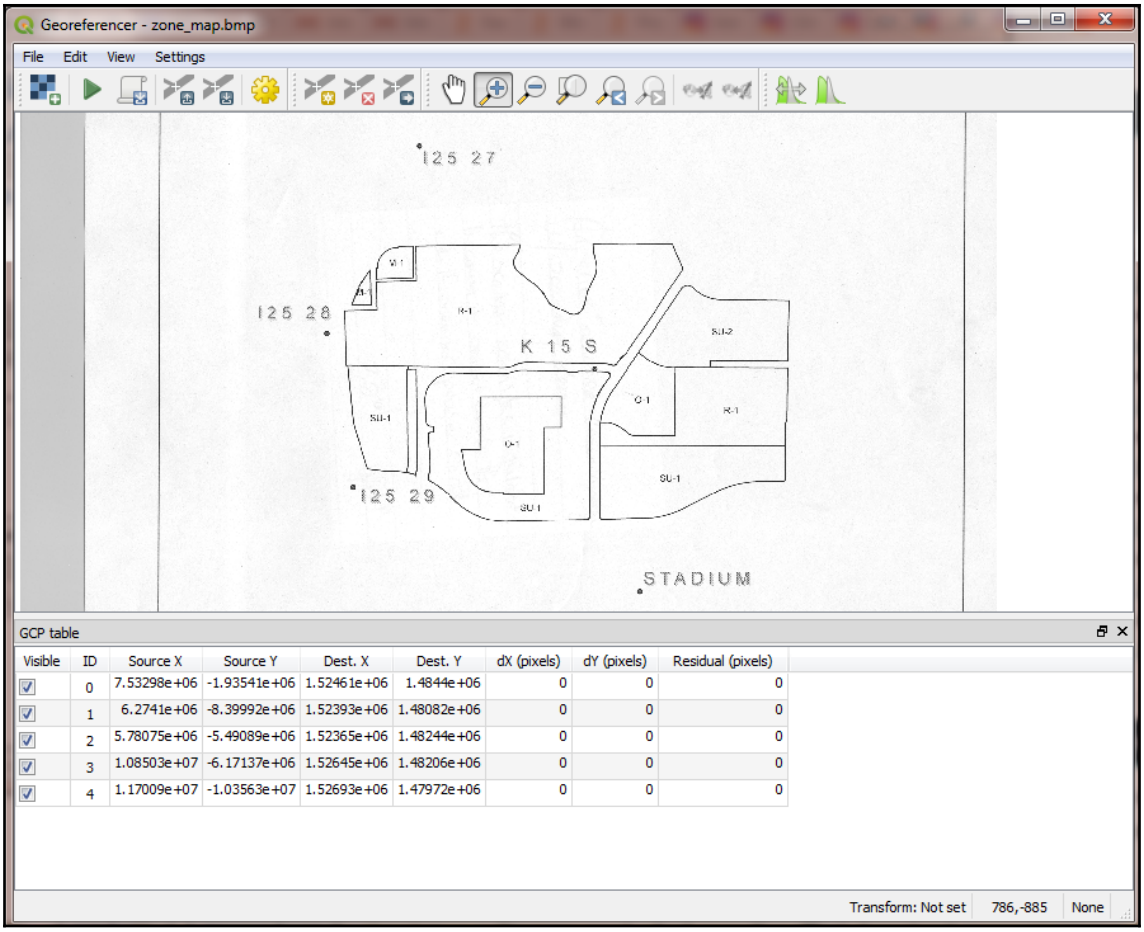

Transformation settings
Transformation type:
Polynomial 2
Resampling method:
Compression:
Create world file
Linear
Helmert
Polynomial 1
Polynomial 2
Polynomial 3
Thin Plate Spline
Projective

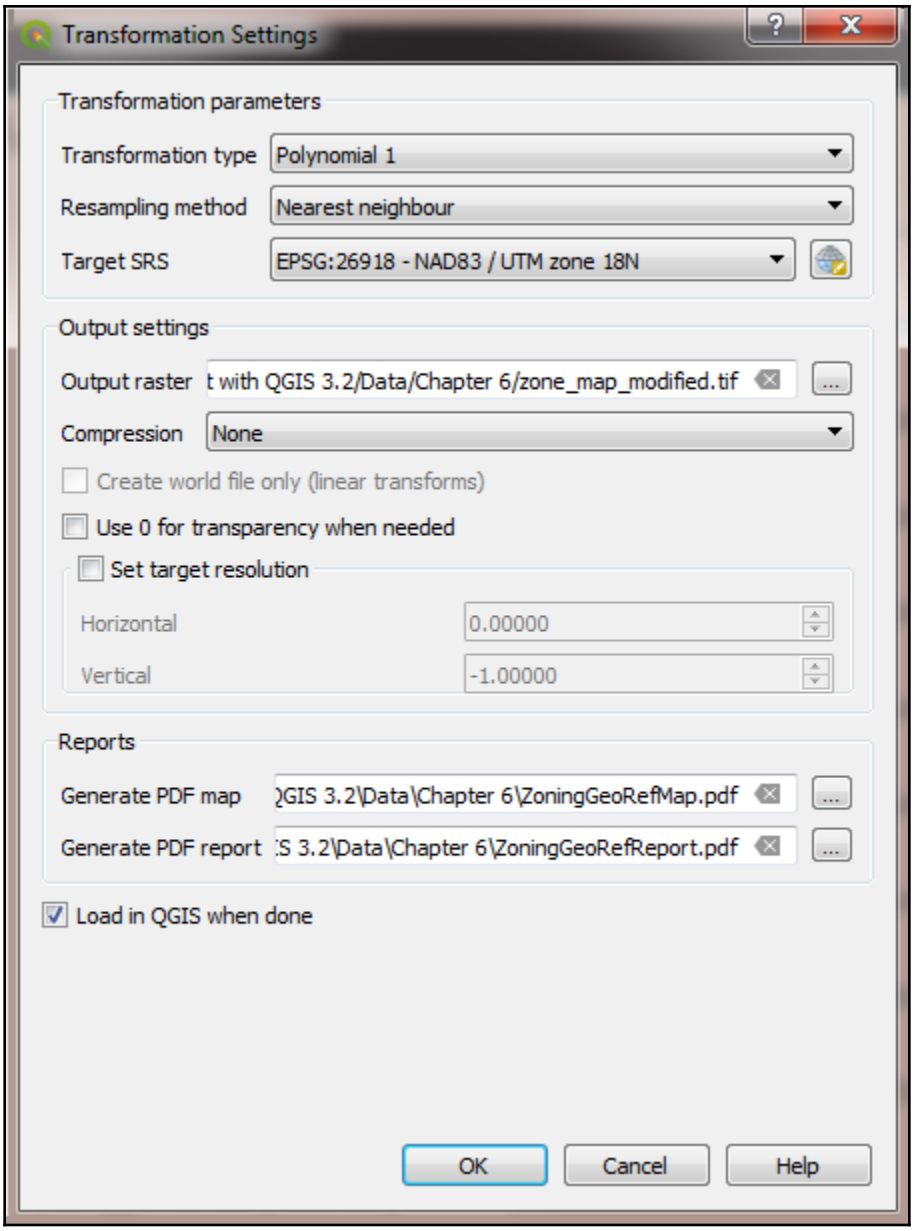

Transformation settings
Transformation type:
Polynomial 2
Resampling method:
Nearest neighbour
Compression:
Create world file
Nearest neighbour
Linear
Cubic
Cubic Spline
Lanczos

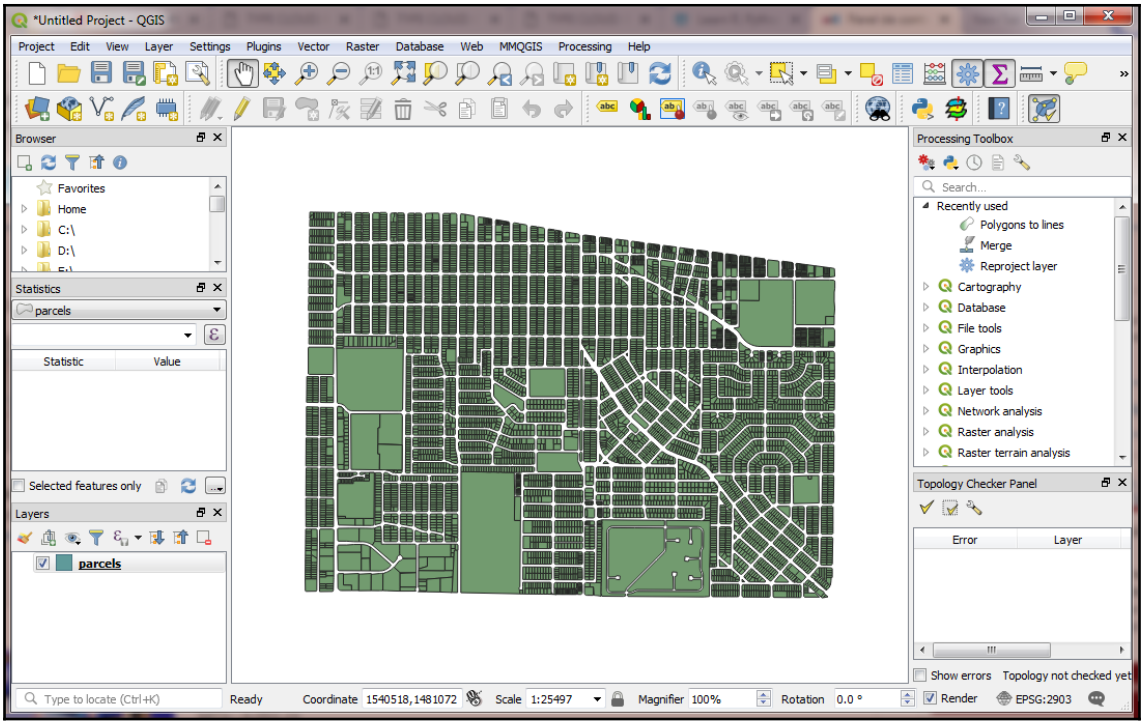

Transformation settings
Transformation parameters
Transformation type
Polynomial 2
Resampling method
Linear
Target SRS
Selected CRS (EPSG:26918, N
Output settings
Output raster
lastering QGIS_Code/Chapter 6/Scanned1990_UTM_Z18.tif
Compression
None
Create world file only (linear transforms)
Use 0 for transparency when needed
Set target resolution
Horizontal
1.00000
Vertical
-1.00000
Reports
Generate PDF map
D:/Mastering QGIS_Code/Chapter 6/GeoRefMap.pdf
Generate PDF report
D:/Mastering QGIS_Code/Chapter 6/GeoRefReport.p
Load in QGIS when done
OK
Cancel
Help

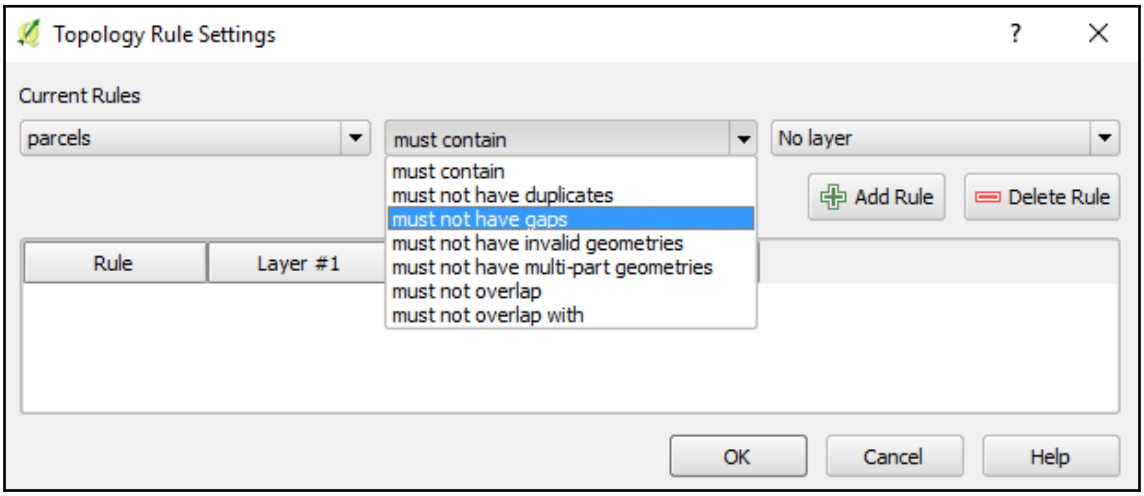

Georeferencer - Scanned1990.tif
File
Edit
View
Settings
GCP table
Visible ID Source X Source Y Dest. X Dest. Y dX (pixels) dY (pixels) Residual (pixels)
0 999.072 -207.005 477023 4.41064e+06 -0.752391 3.13494 3.22396
1 54.4554 -223.655 474631 4.41065e+06 -4.38725 34.9838 35.2579
2 60.6005 -434.495 474632 4.41013e+06 3.21321 -24.6215 24.8302
3 44.8523 -397.331 474594 4.41022e+06 1.95223 -16.3029 16.4194
4 1509.17 -82.1929 478294 4.41092e+06 -0.663583 3.76716 3.82516
5 1240.48 -194.731 477626 4.41065e+06 1.54799 -8.02365 8.17161
6 1537.14 -1396.03 478299 4.40764e+06 -0.0500209 0.25693 0.261754
7 157.309 -1392.91 474813 4.4077e+06 -0.860184 6.80515 6.8593
Transform: Polynomial 2 Mean error: 33.6762
1062.9,-229.8
None

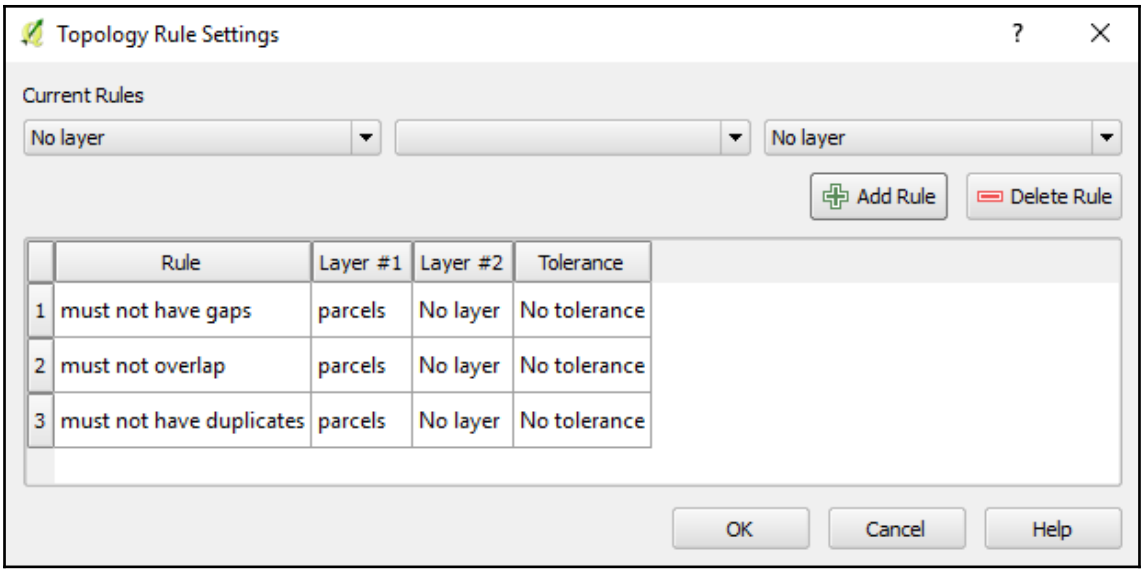

GDAL script
gdal_translate -of GTiff -gcp 121.201 244.822 474796
gdalwarp -r bilinear -order 2 -co COMPRESS=NONE
Copy in clipboard
Cancel

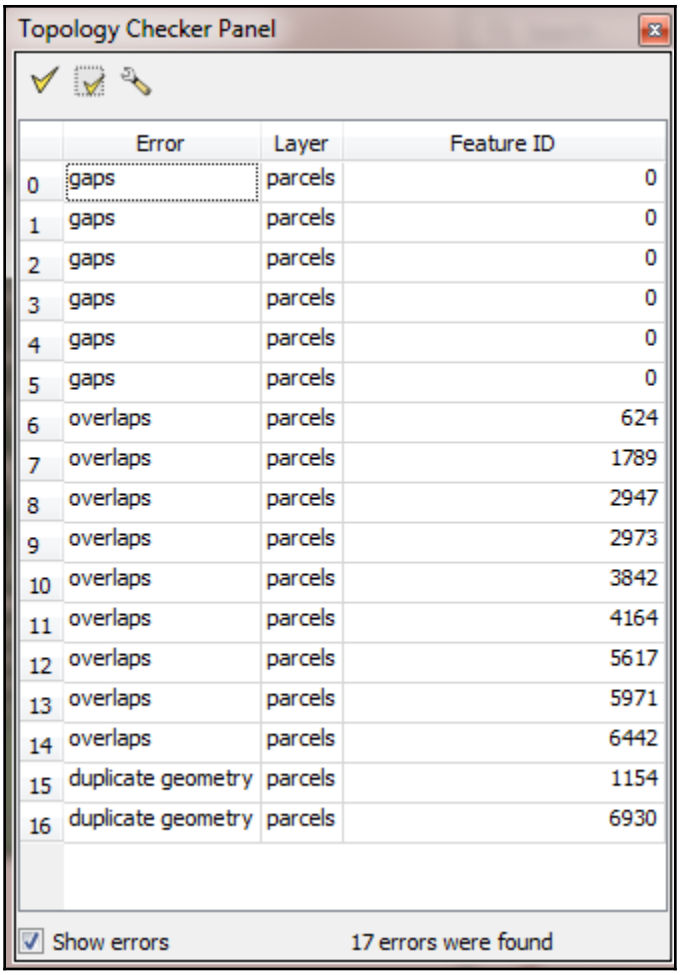

Georeferencer - zone_map.bmp
File
Edit
View
Settings
125 27
125 28
K 15 S
125 29
STADIUM
GCP table
Visible
ID
Source X
Source Y
Dest. X
Dest. Y
dX (pixels)
dY (pixels)
Residual (pixels)
0 7.53298e+06 -1.93541e+06 1.52461e+06 1.4844e+06 0 0 0
1 6.2741e+06 -8.39992e+06 1.52393e+06 1.48082e+06 0 0 0
2 5.78075e+06 -5.49089e+06 1.52365e+06 1.48244e+06 0 0 0
3 1.08503e+07 -6.17137e+06 1.52645e+06 1.48206e+06 0 0 0
4 1.17009e+07 -1.03563e+07 1.52693e+06 1.47972e+06 0 0 0
Transform: Not set
786,-885
None

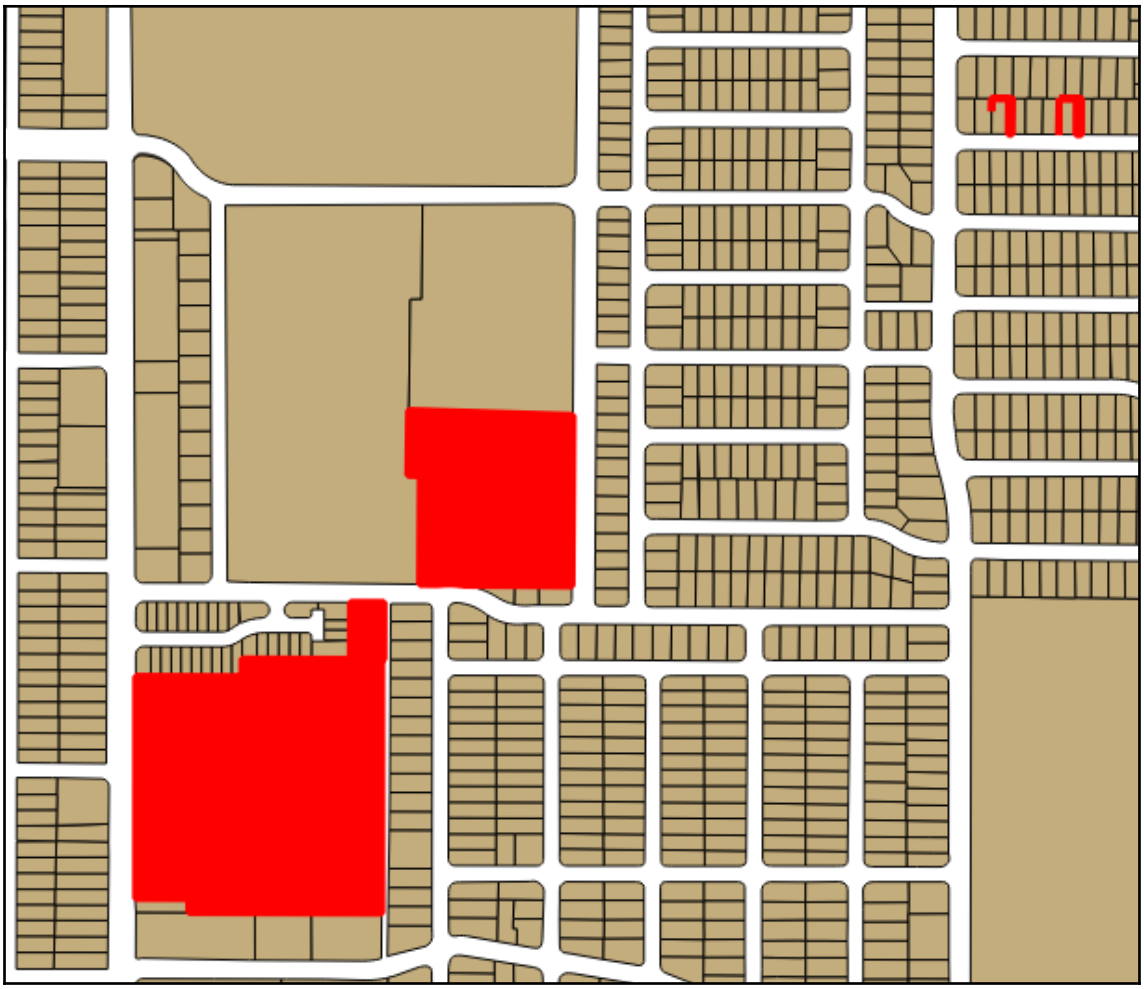

Transformation Settings
Transformation parameters
Transformation type
Polynomial 1
Resampling method
Nearest neighbour
Target SRS
EPSG:26918 - NAD83 / UTM zone 18N
Output settings
Output raster
t with QGIS 3.2/Data/Chapter 6/zone_map_modified.tif
Compression
None
Create world file only (linear transforms)
Use 0 for transparency when needed
Set target resolution
Horizontal
0.00000
Vertical
-1.00000
Reports
Generate PDF map
QGIS 3.2\Data\Chapter 6\ZoningGeoRefMap.pdf
Generate PDF report
S 3.2\Data\Chapter 6\ZoningGeoRefReport.pdf
Load in QGIS when done
OK
Cancel
Help


*Untitled Project - QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web MMQGIS Processing Help
Browser
Favorites
Home
C:\
D:\
Statistics
parcels
Statistic
Value
Selected features only
Layers
parcels
Processing Toolbox
Search...
Recently used
Polygons to lines
Merge
Reproject layer
Cartography
Database
File tools
Graphics
Interpolation
Layer tools
Network analysis
Raster analysis
Raster terrain analysis
Topology Checker Panel
Error
Layer
Show errors
Topology not checked yet
Type to locate (Ctrl+K)
Ready
Coordinate 1540518,1481072
Scale 1:25497
Magnifier 100%
Rotation 0.0 °
Render
EPSG:2903


Topology Rule Settings
Current Rules
parcels
must contain
No layer
must contain
must not have duplicates
must not have gaps
must not have invalid geometries
must not have multi-part geometries
must not overlap
must not overlap with
Add Rule
Delete Rule
Rule
Layer #1
OK
Cancel
Help


Topology Rule Settings
Current Rules
No layer
No layer
Add Rule
Delete Rule
Rule
Layer #1
Layer #2
Tolerance
1
must not have gaps
parcels
No layer
No tolerance
2
must not overlap
parcels
No layer
No tolerance
3
must not have duplicates
parcels
No layer
No tolerance
OK
Cancel
Help


Topology Checker Panel
Error
Layer
Feature ID
0 gaps parcels 0
1 gaps parcels 0
2 gaps parcels 0
3 gaps parcels 0
4 gaps parcels 0
5 gaps parcels 0
6 overlaps parcels 624
7 overlaps parcels 1789
8 overlaps parcels 2947
9 overlaps parcels 2973
10 overlaps parcels 3842
11 overlaps parcels 4164
12 overlaps parcels 5617
13 overlaps parcels 5971
14 overlaps parcels 6442
15 duplicate geometry parcels 1154
16 duplicate geometry parcels 6930
Show errors
17 errors were found



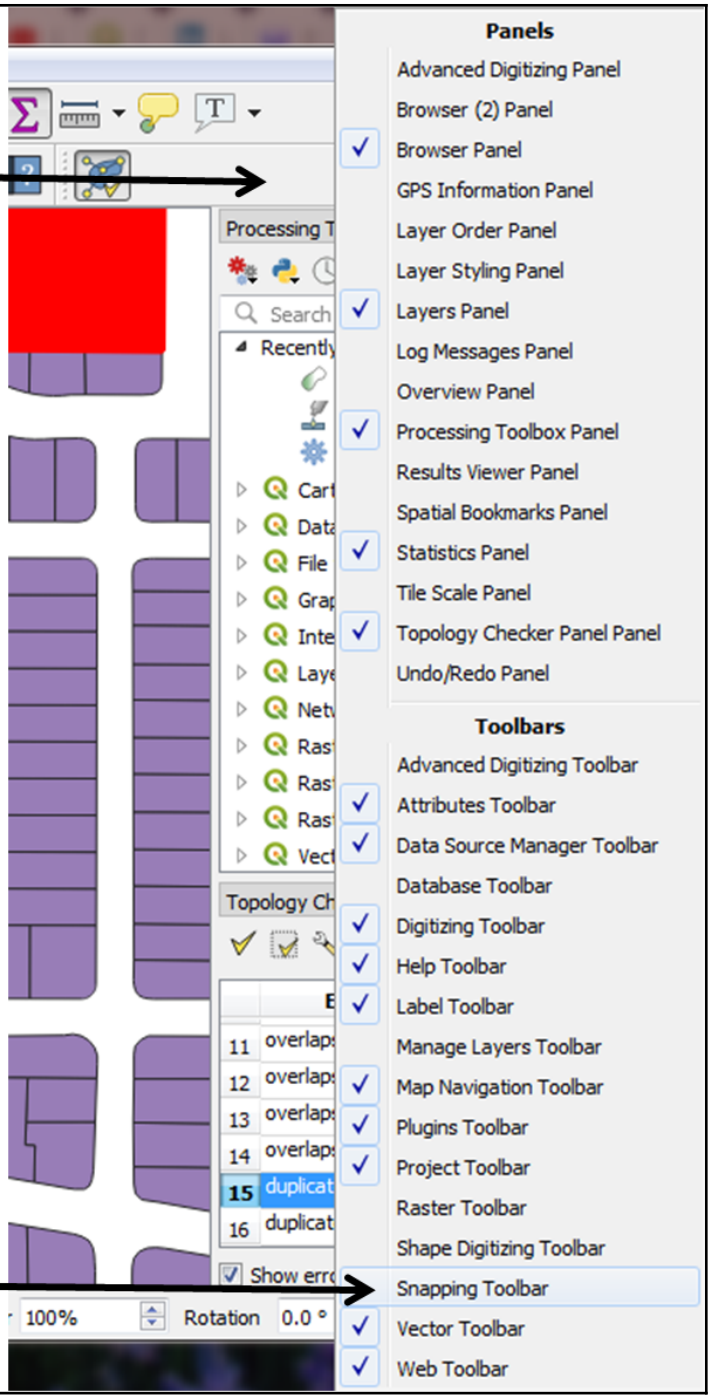
parcels :: Features Total: 6969, Filtered: 1, Selected: 1

abc LOT = Update Filtered Update Selected

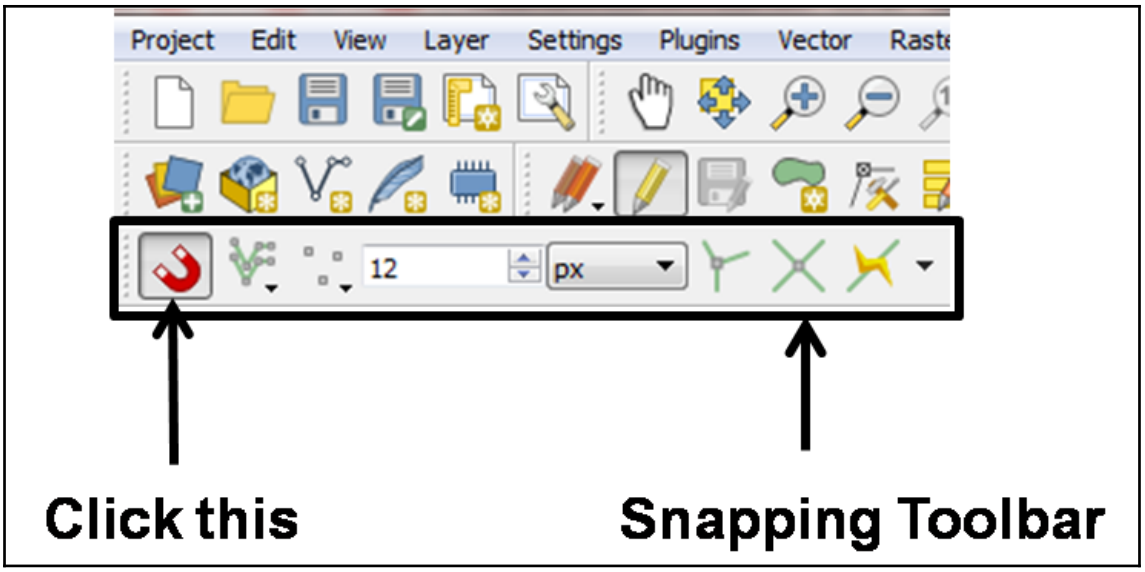
	LOT	BLOCK	SUBDIVISIO	STREETNUMB	STREETNAME	STREETDESI	STREETQUAD	APARTMENT	PIN	created_us	cre
1	2A1	0000	CACTUS/SHALIT PARCEL	1700	YALE	BLVD	SE		ABQ173522		

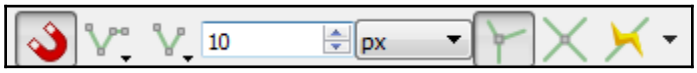
Show Selected Features

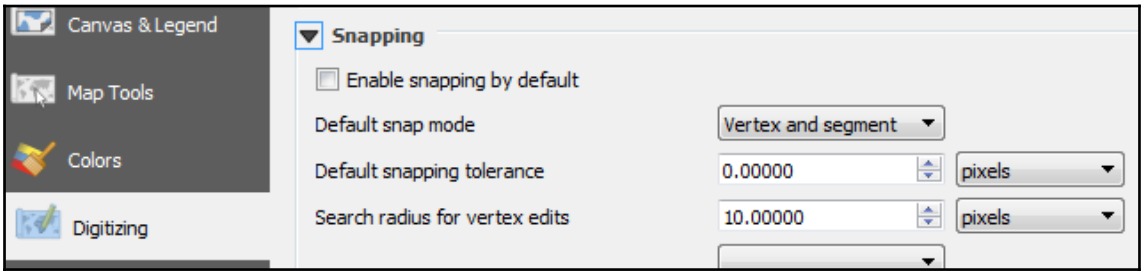
Right click in any place in the empty space in the Toolbar area

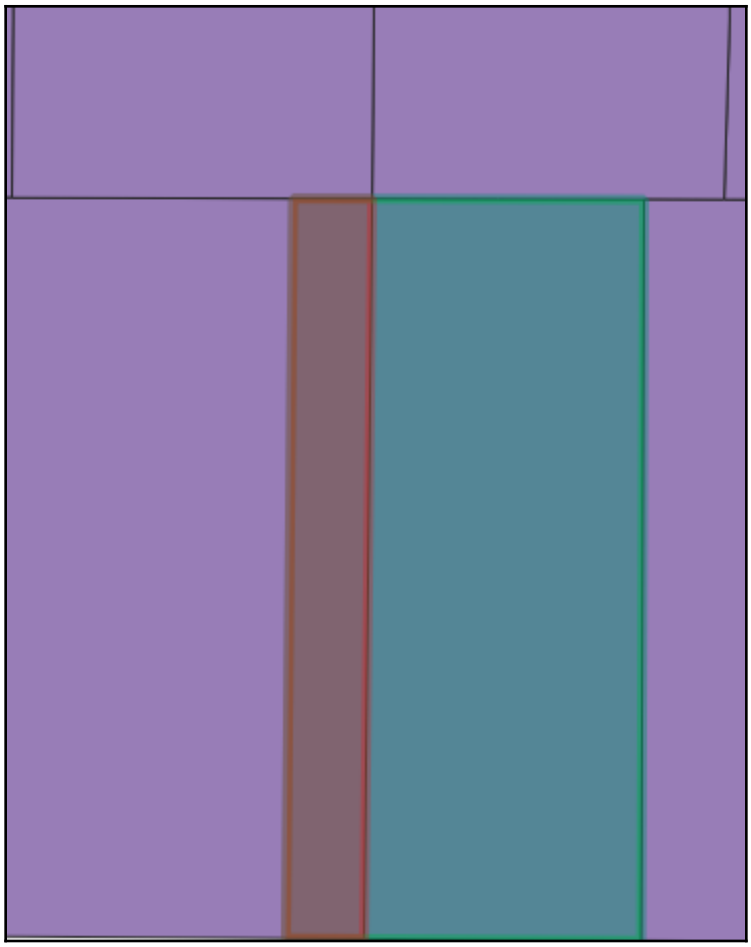


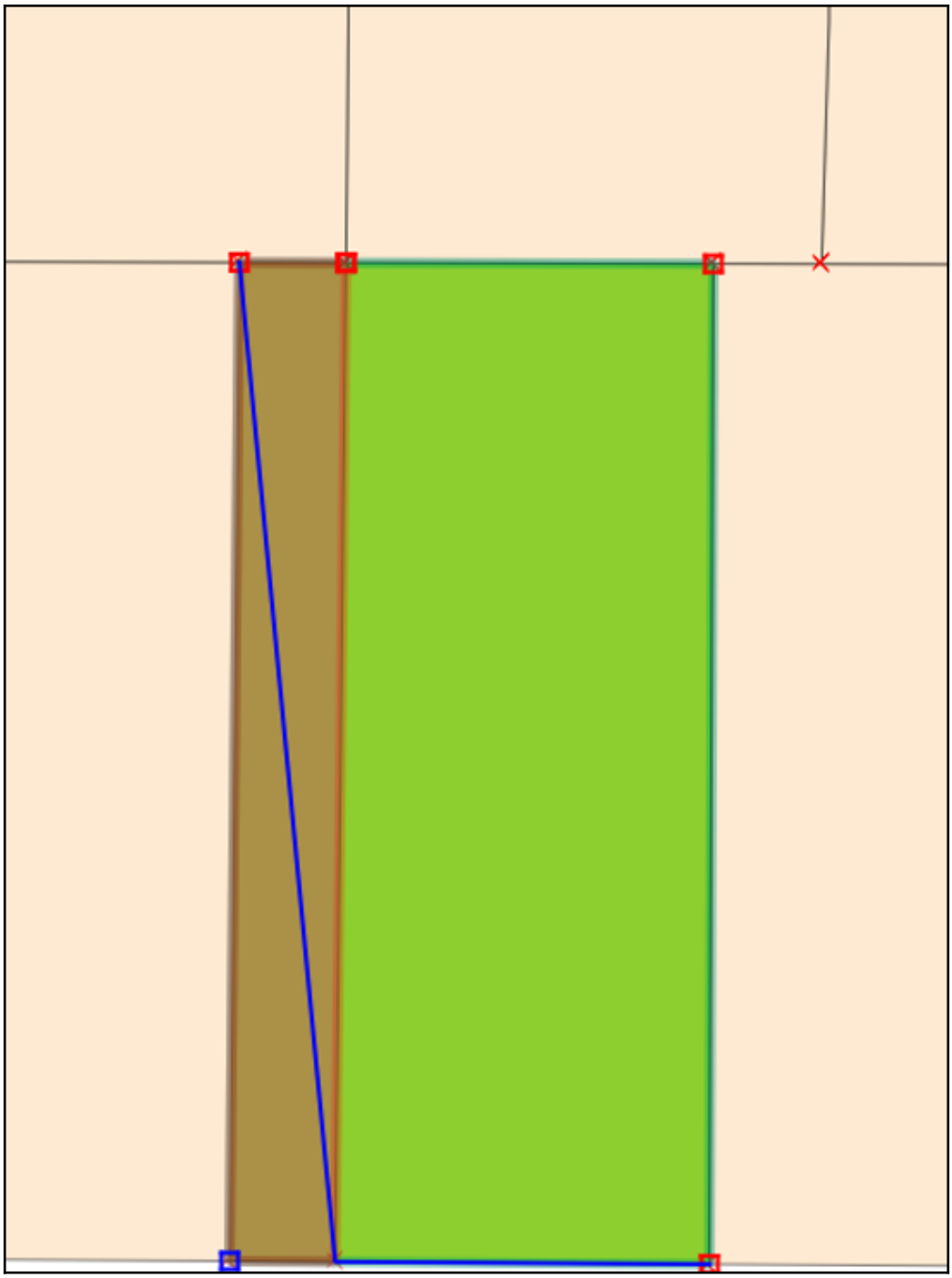
Click this

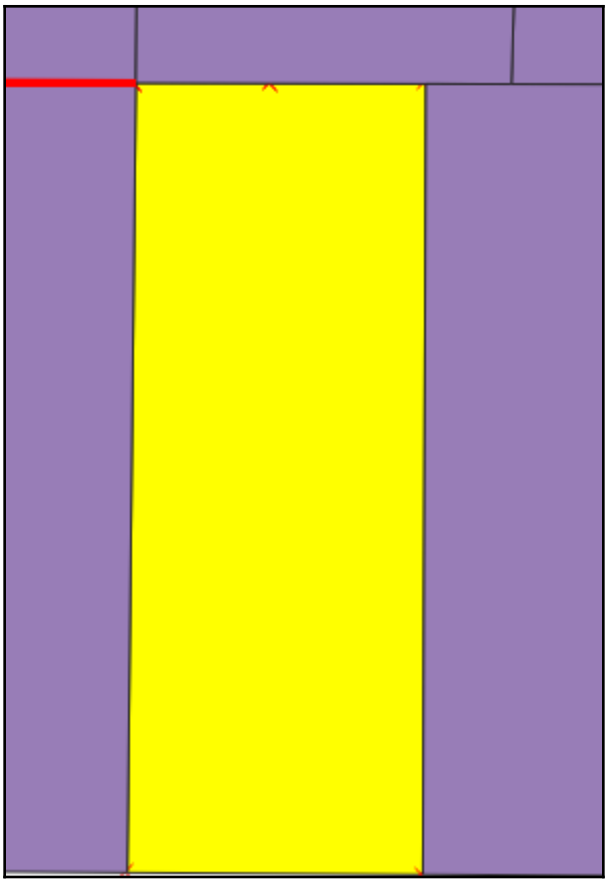

Project
Edit
View
Layer
Settings
Plugins
Vector
12
px
Click this
Snapping Toolbar

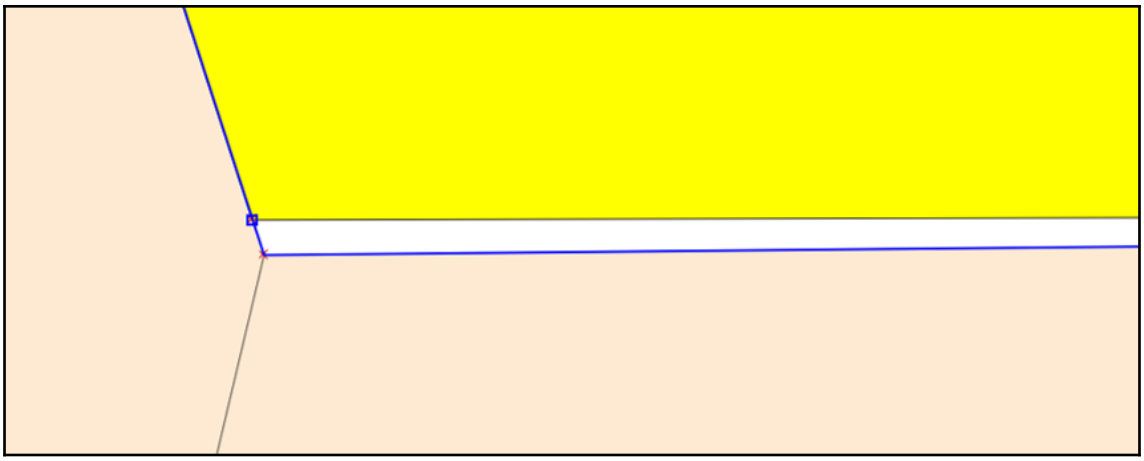

10
px


Canvas & Legend
Map Tools
Colors
Digitizing
Snapping
Enable snapping by default
Default snap mode
Vertex and segment
Default snapping tolerance
0.00000
pixels
Search radius for vertex edits
10.00000
pixels

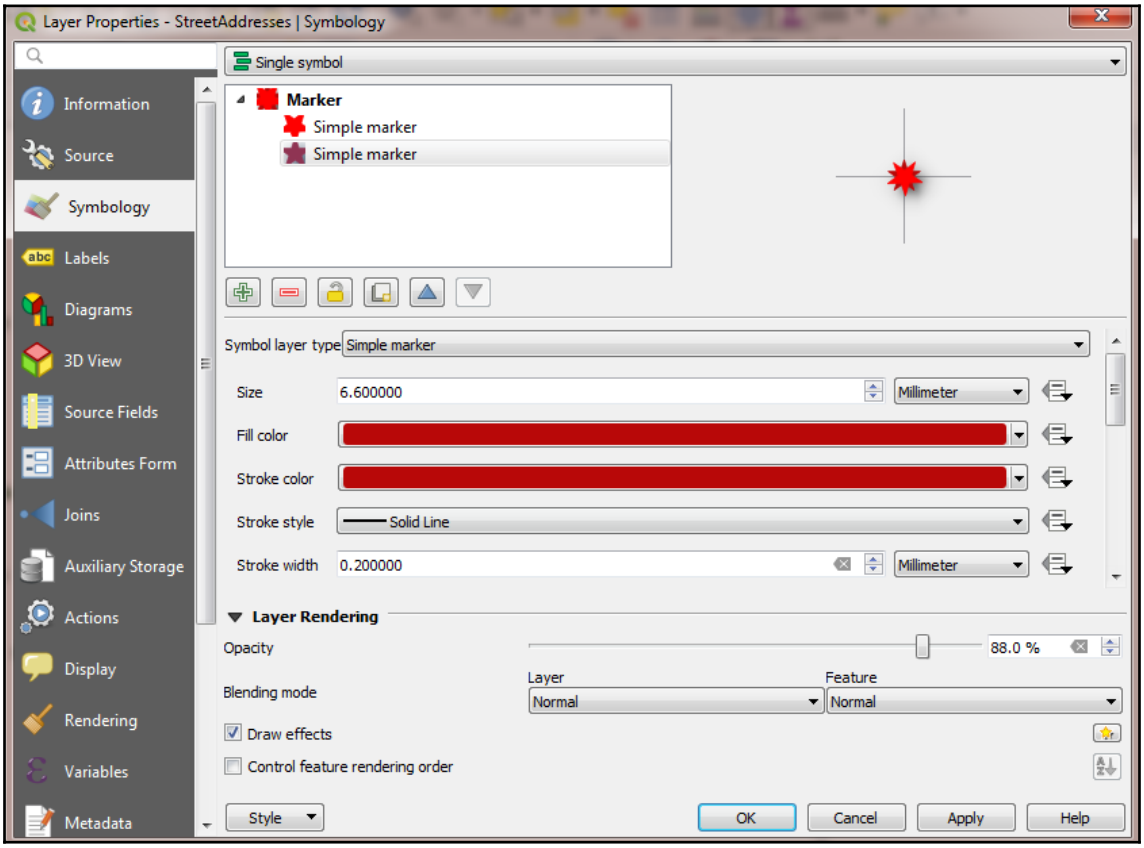


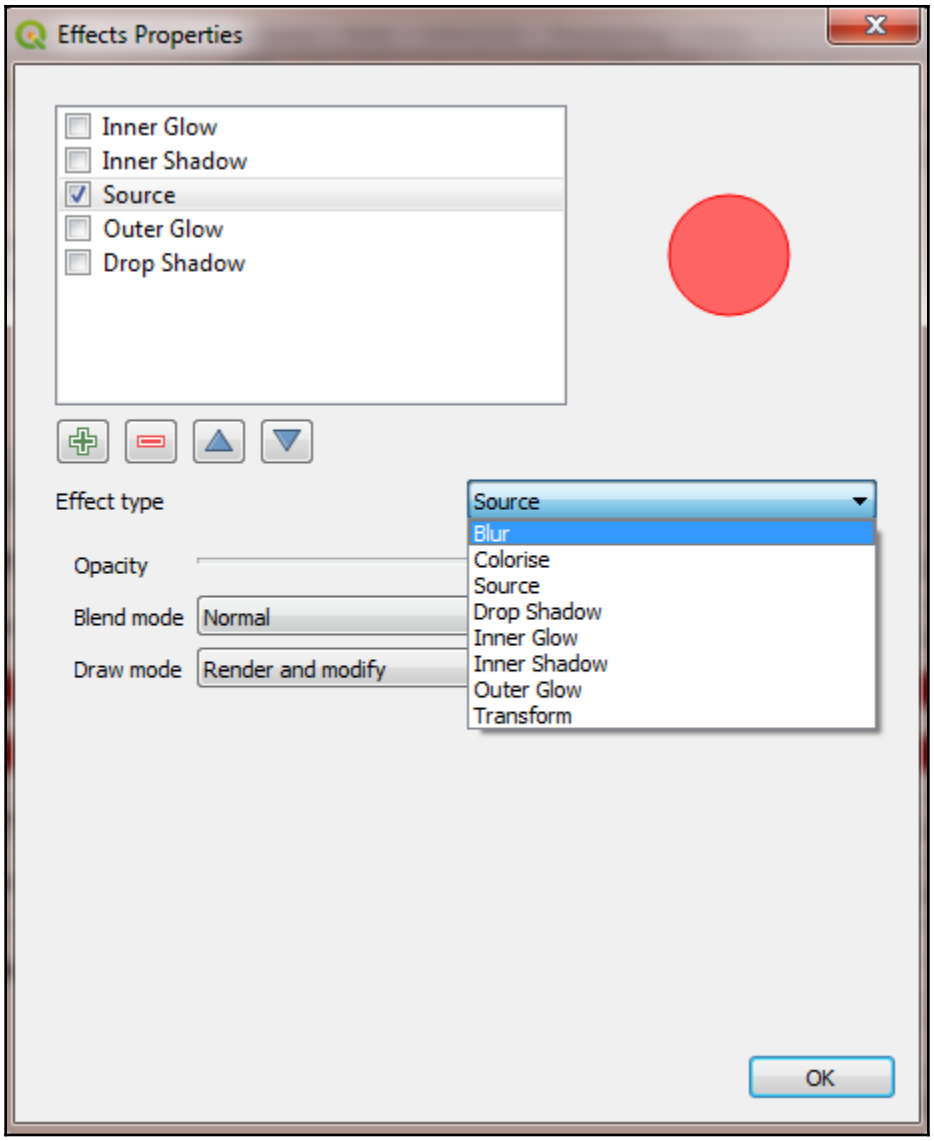


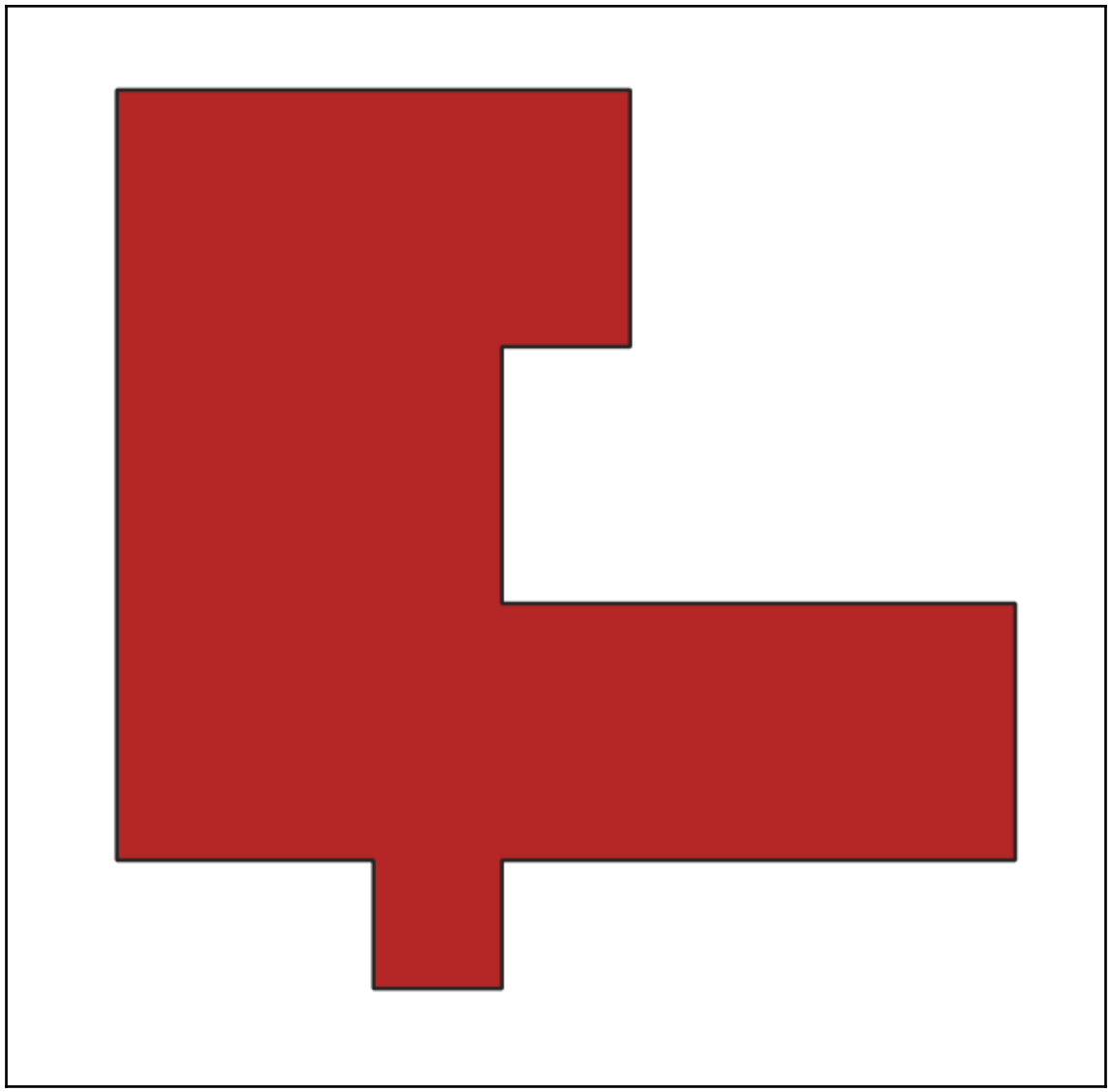


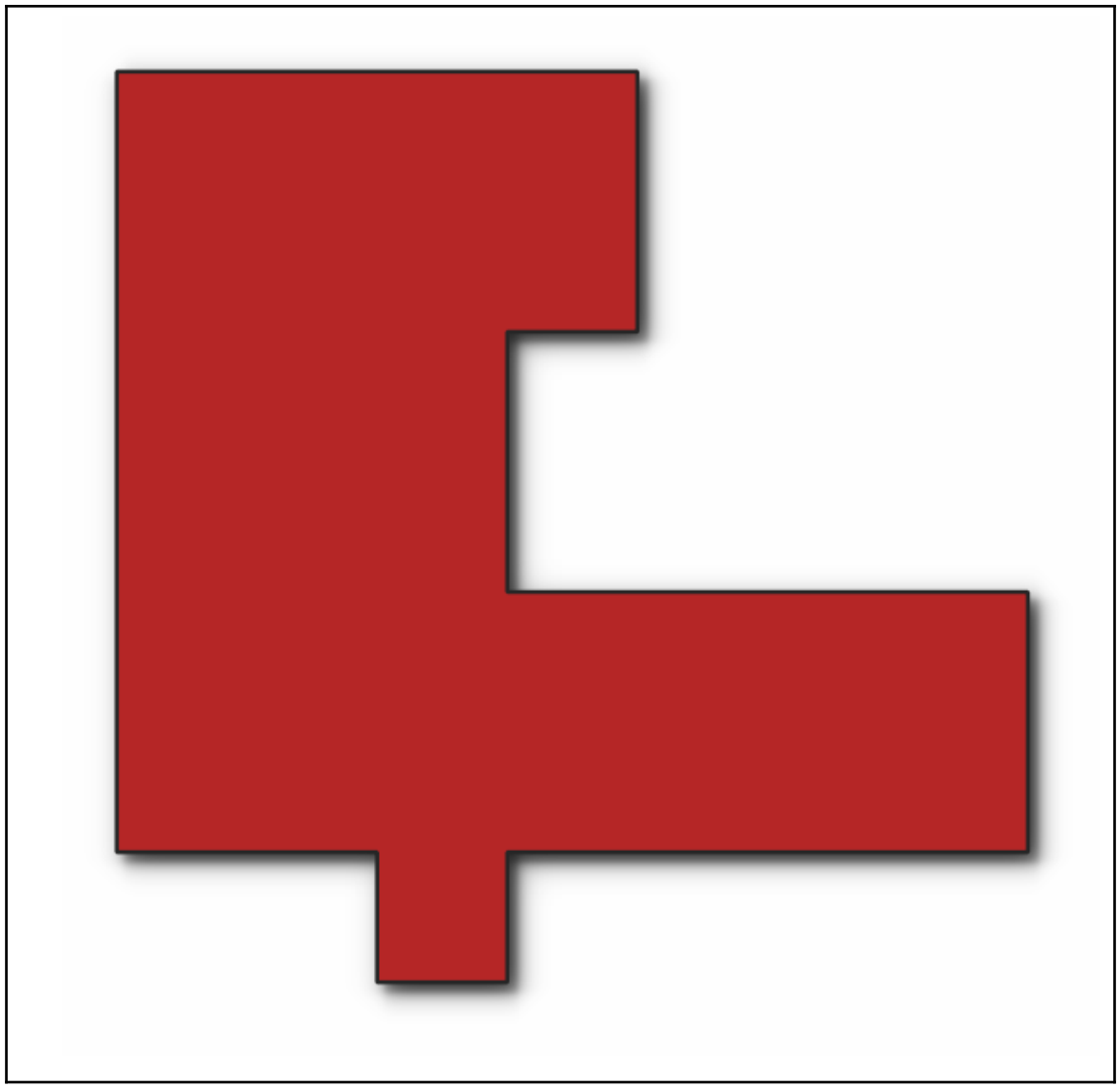


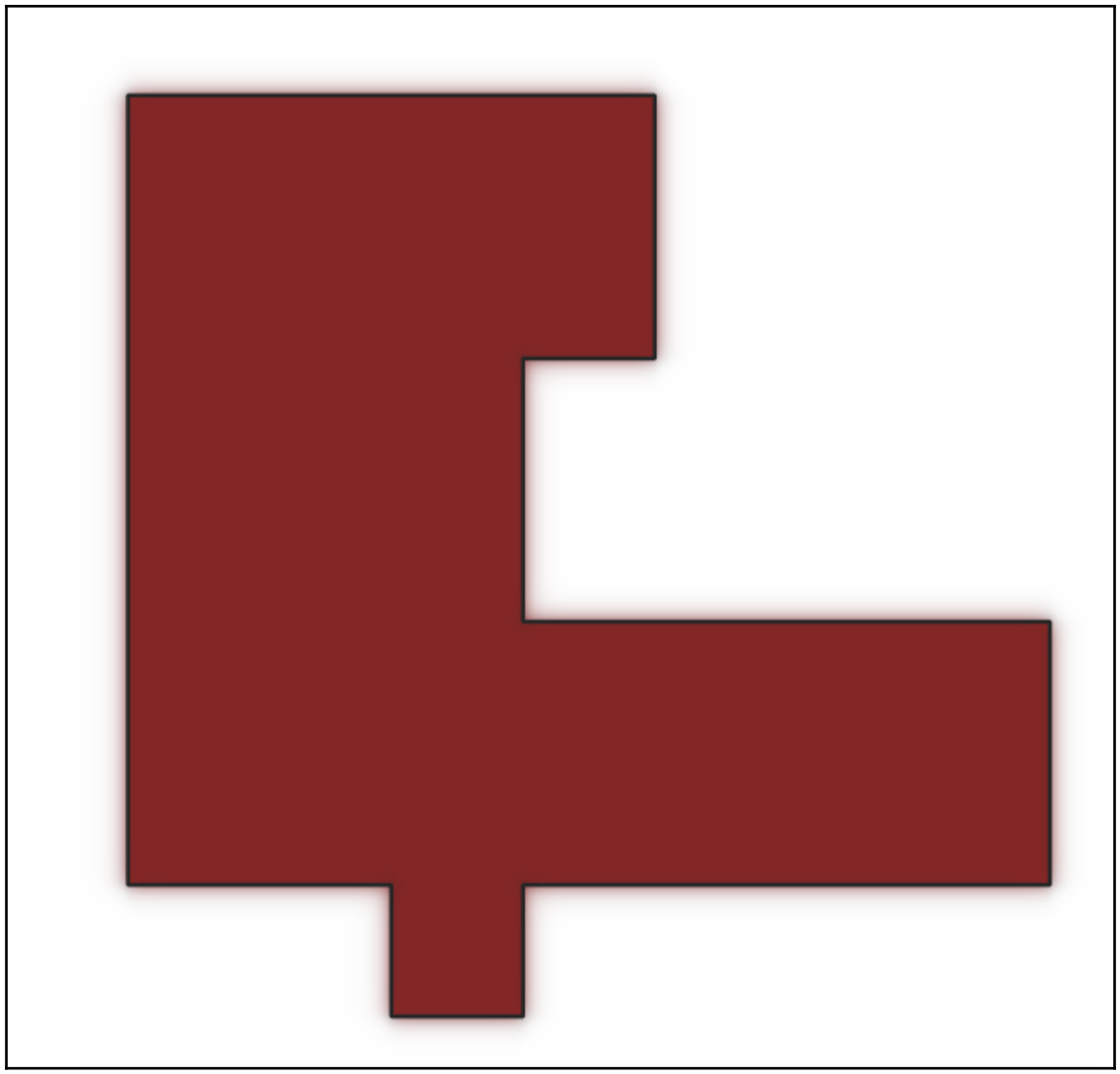
Chapter 7: Advanced Data Visualization

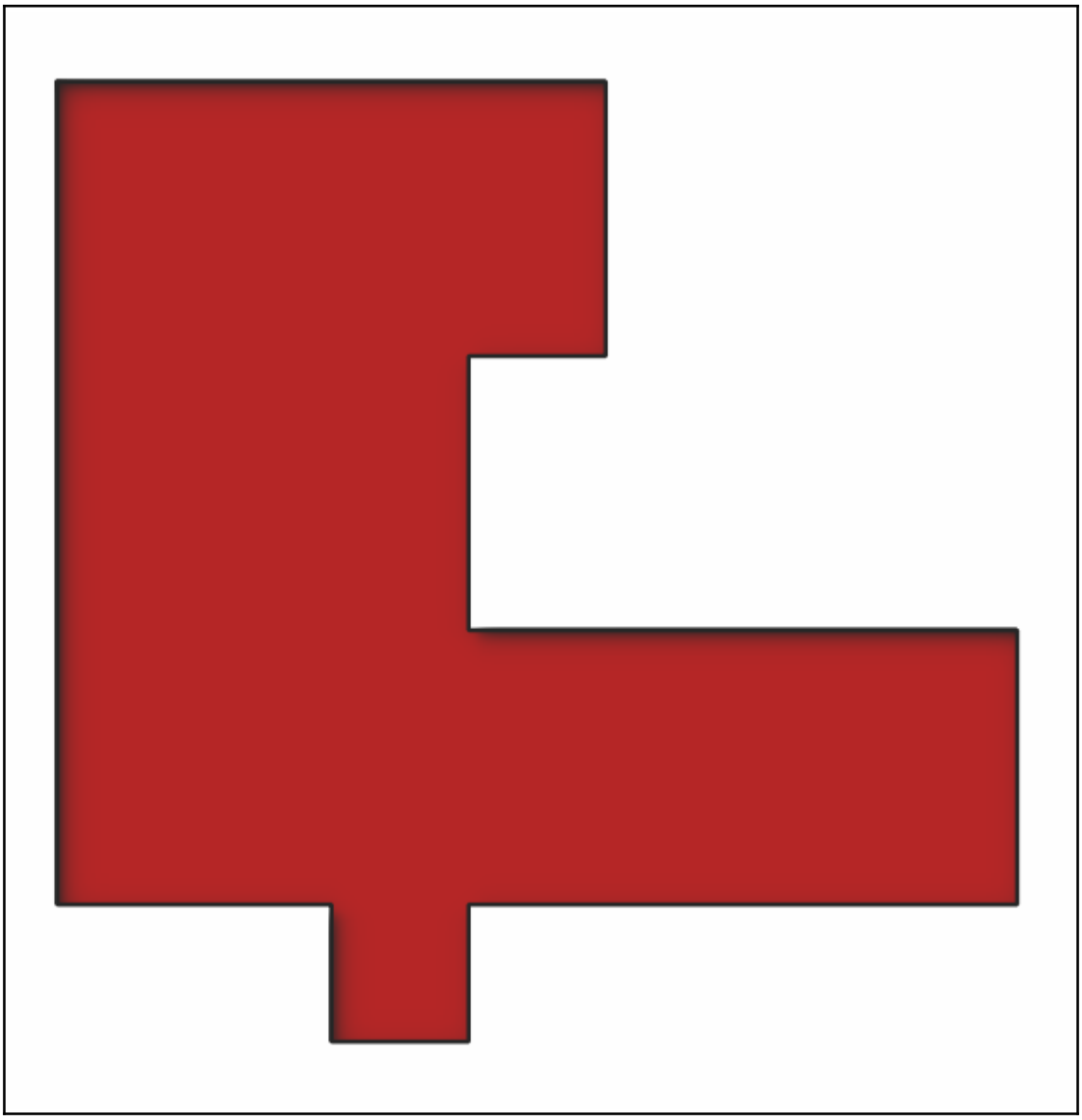


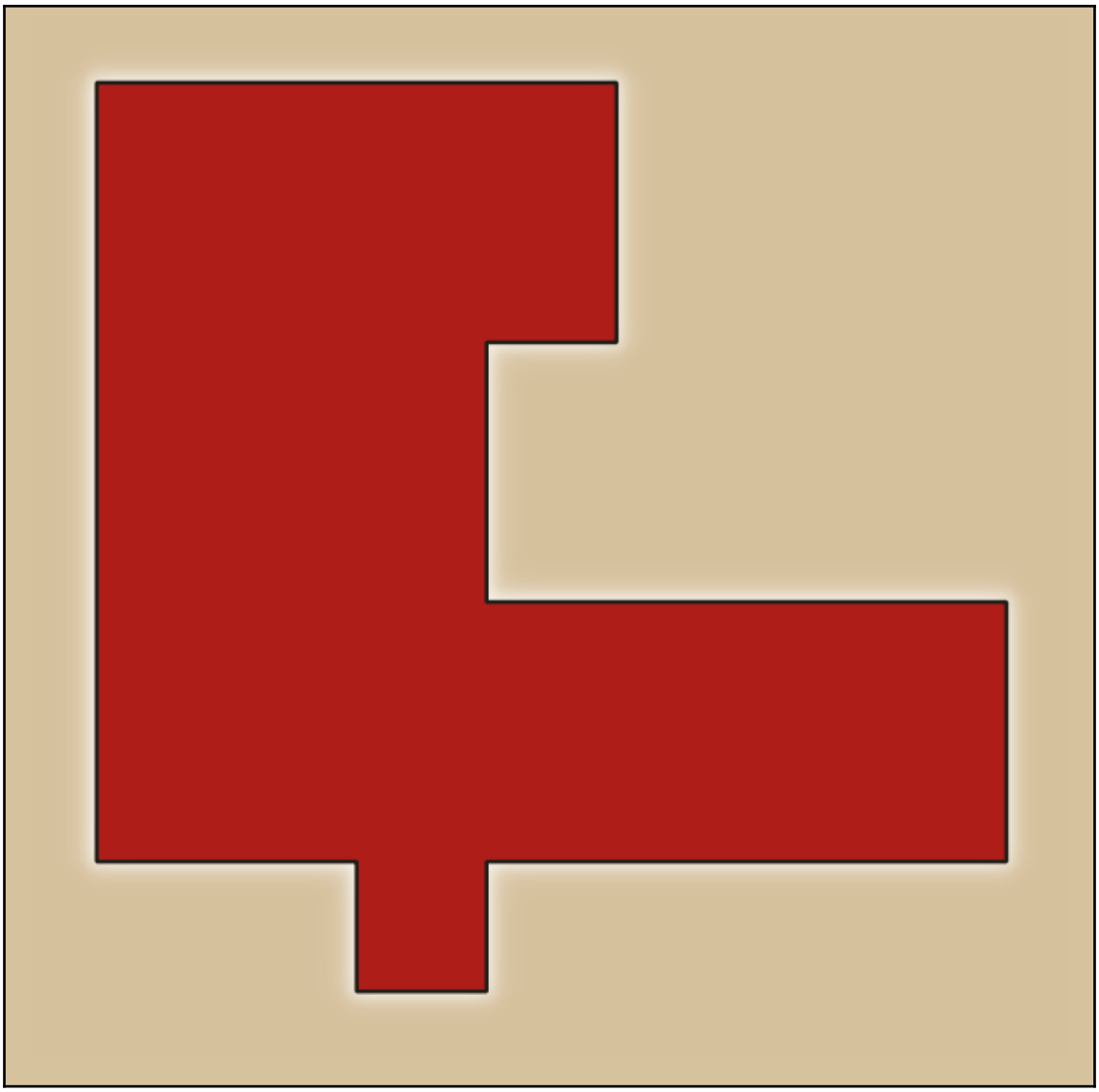

Effects Properties
Inner Glow
Inner Shadow
Source
Outer Glow
Drop Shadow
Effect type
Source
Blur
Colorise
Source
Drop Shadow
Inner Glow
Inner Shadow
Outer Glow
Transform
Opacity
Blend mode
Normal
Draw mode
Render and modify
OK

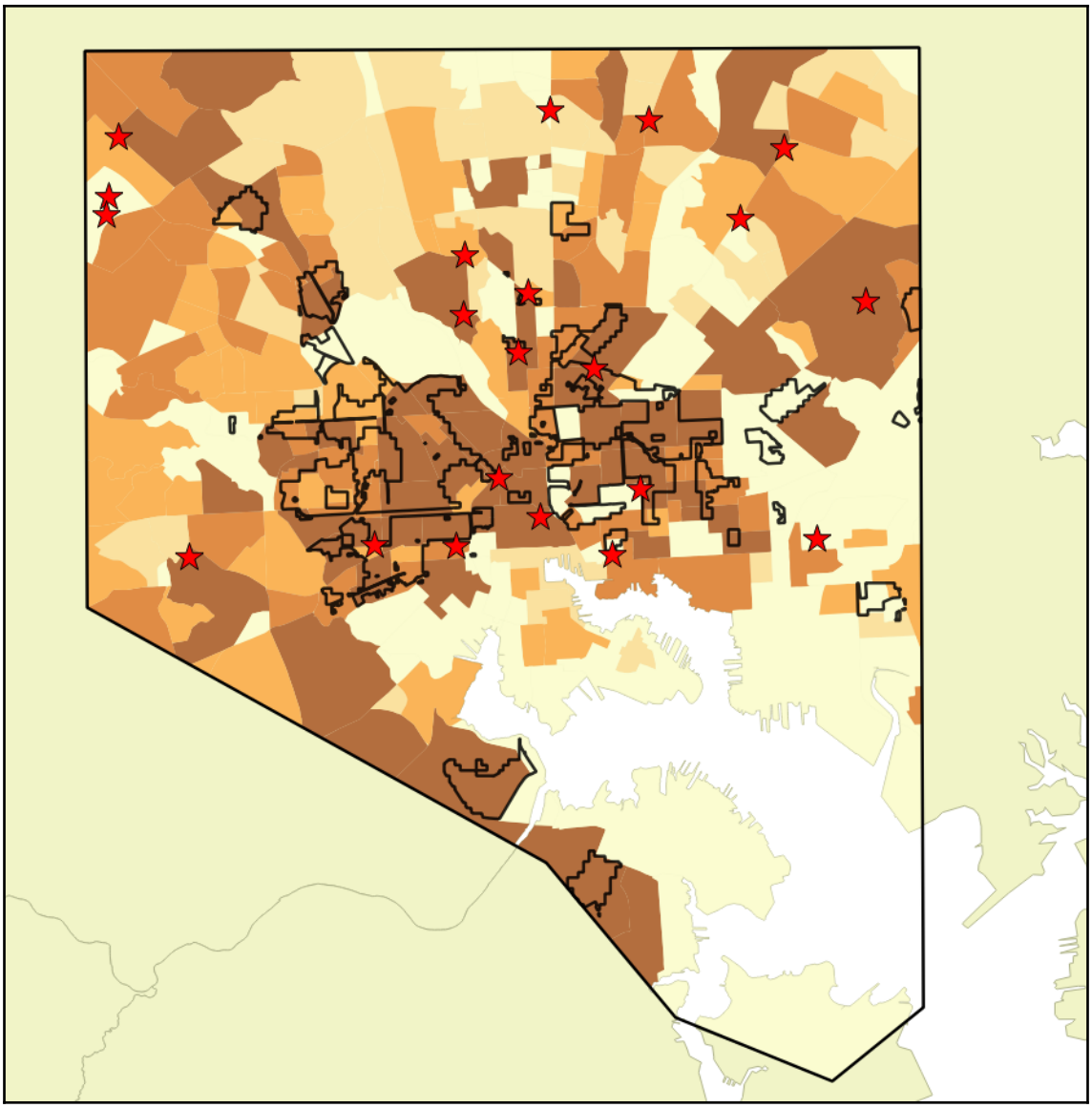


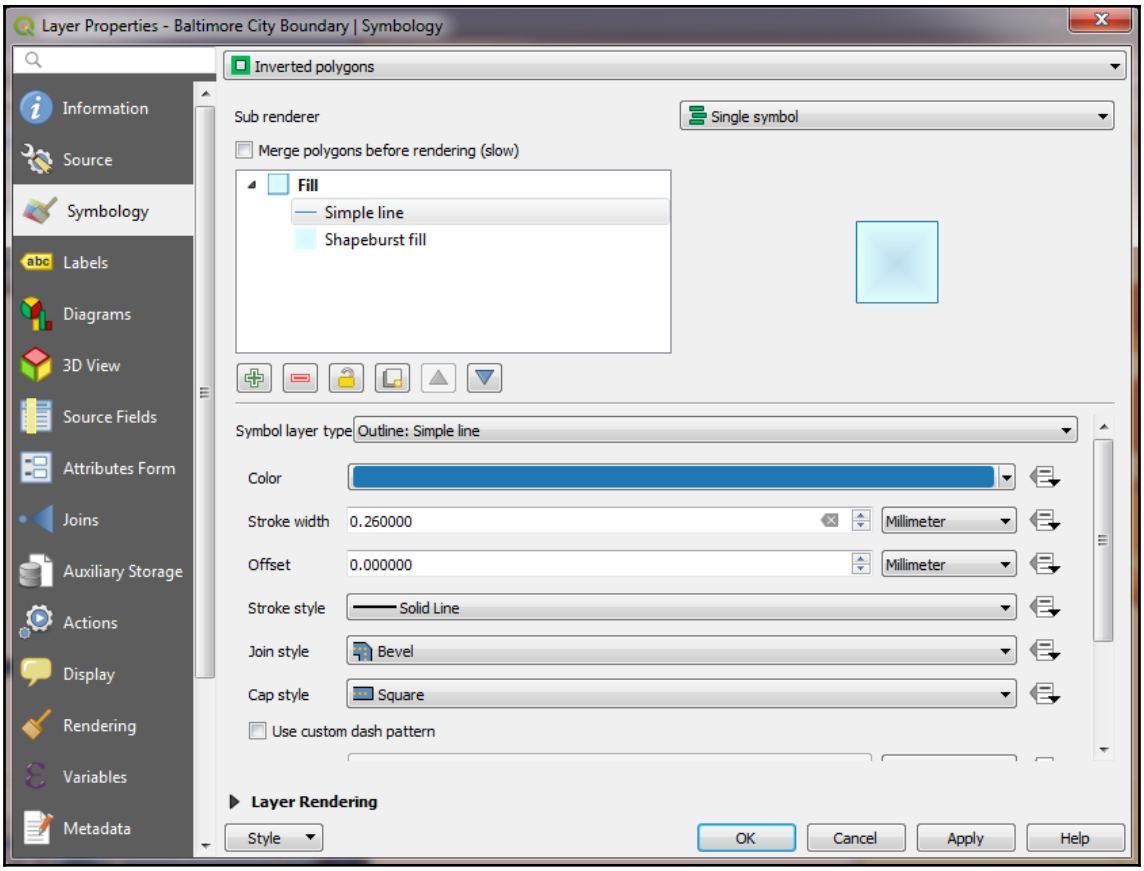


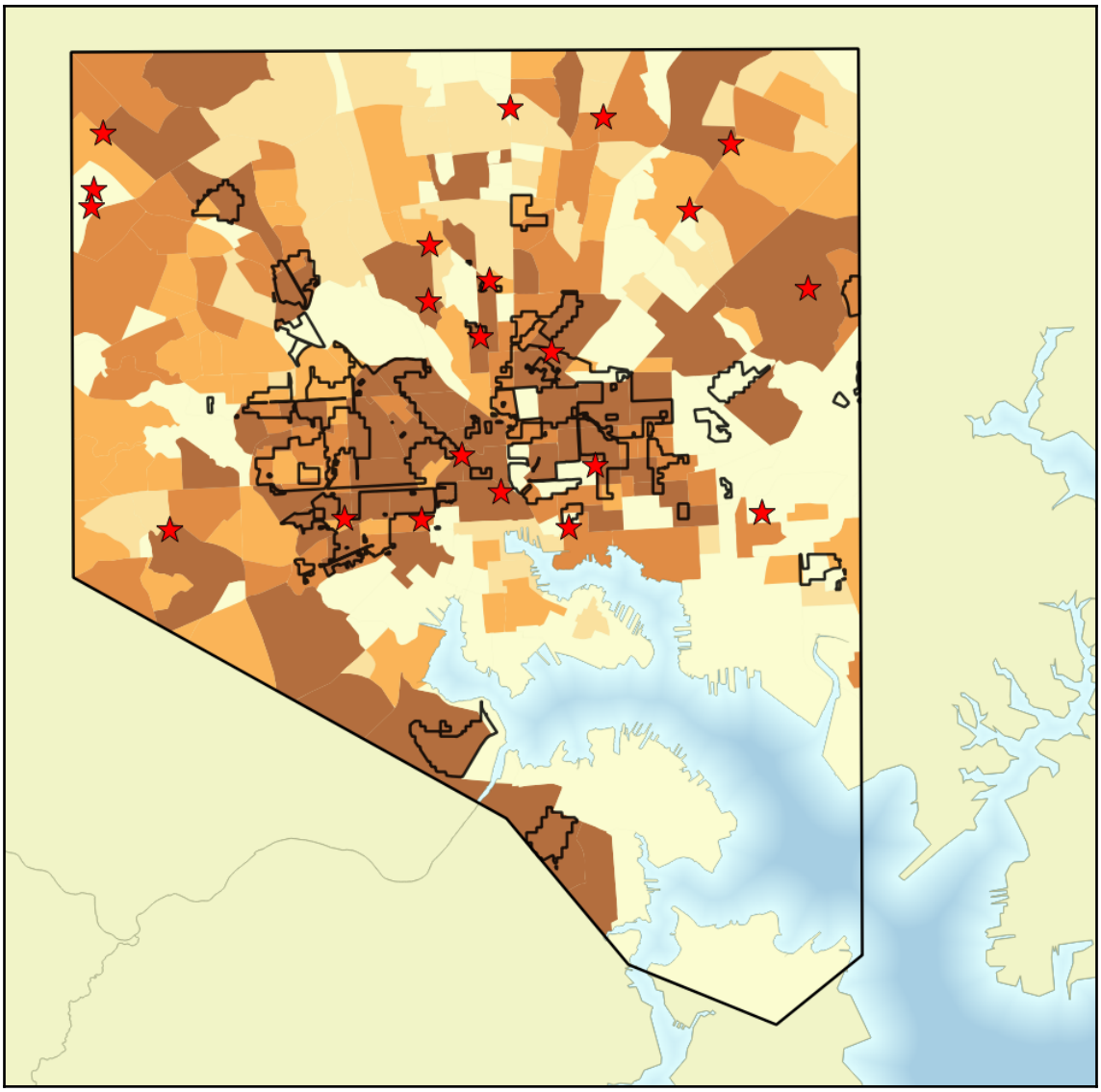


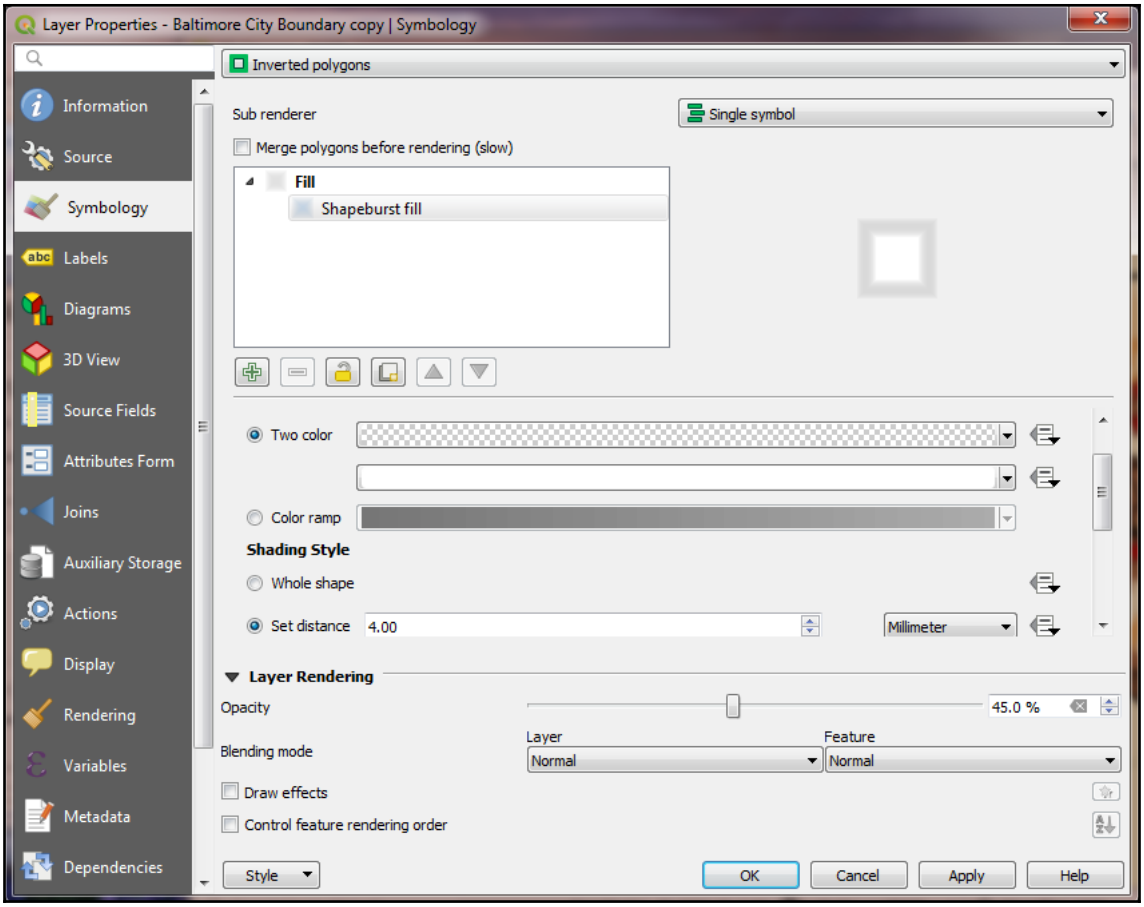


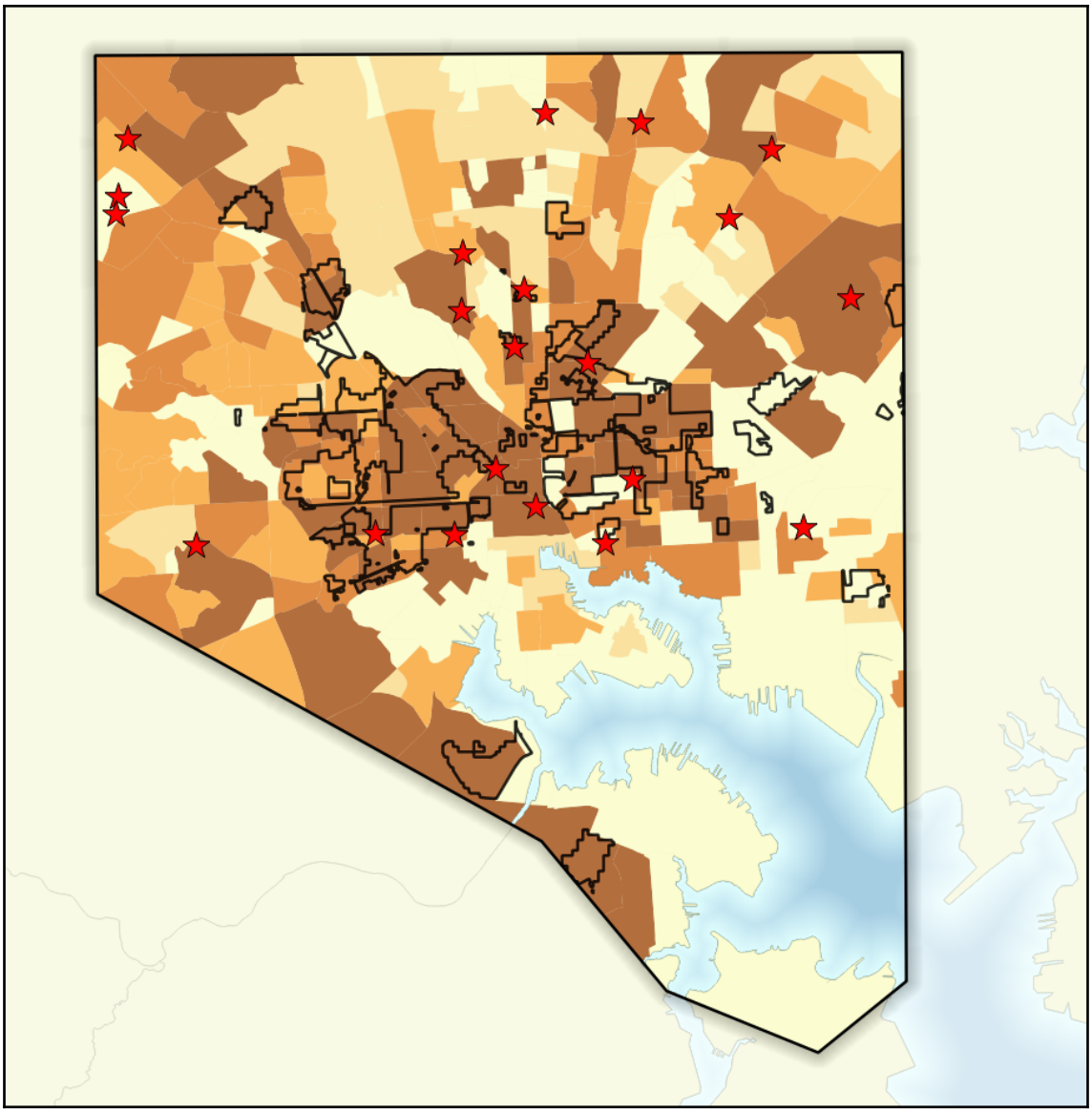


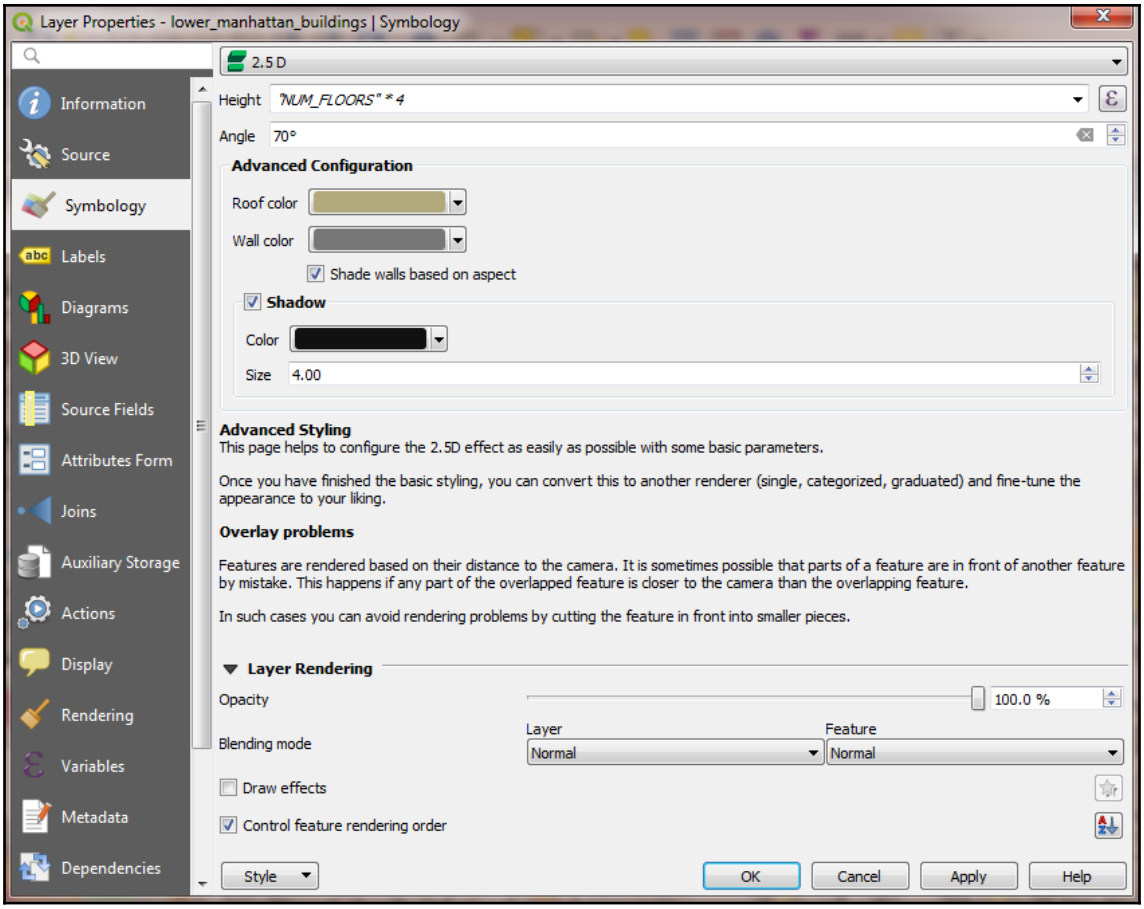



Layer Properties - Baltimore City Boundary | Symbology
Information
Source
Symbology
Labels
Diagrams
3D View
Source Fields
Attributes Form
Joins
Auxiliary Storage
Actions
Display
Rendering
Variables
Metadata
Inverted polygons
Sub renderer
Single symbol
Merge polygons before rendering (slow)
Fill
Simple line
Shapeburst fill
Symbol layer type
Outline: Simple line
Color
Stroke width
0.260000
Millimeter
Offset
0.000000
Millimeter
Stroke style
Solid Line
Join style
Bevel
Cap style
Square
Use custom dash pattern
Layer Rendering
Style
OK
Cancel
Apply
Help

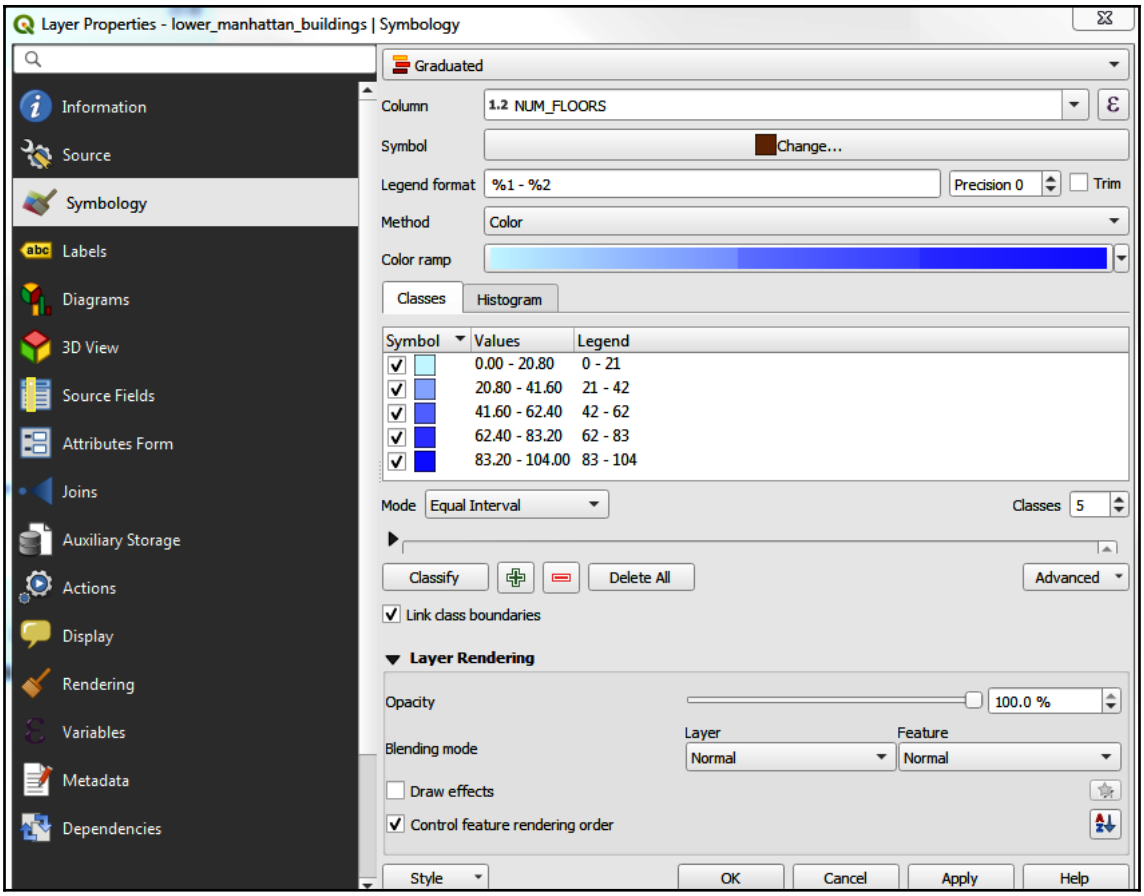



Layer Properties - Baltimore City Boundary copy | Symbology
Information
Source
Symbology
Labels
Diagrams
3D View
Source Fields
Attributes Form
Joins
Auxiliary Storage
Actions
Display
Rendering
Variables
Metadata
Dependencies
Inverted polygons
Sub renderer
Single symbol
Merge polygons before rendering (slow)
Fill
Shapeburst fill
Two color
Color ramp
Shading Style
Whole shape
Set distance
4.00
Millimeter
Layer Rendering
Opacity
45.0 %
Blending mode
Layer
Feature
Normal
Normal
Draw effects
Control feature rendering order
Style
OK
Cancel
Apply
Help




Layer Properties - lower_manhattan_buildings | Symbology
Information
Source
Symbology
Labels
Diagrams
3D View
Source Fields
Attributes Form
Joins
Auxiliary Storage
Actions
Display
Rendering
Variables
Metadata
Dependencies
2.5 D
Height
"NUM_FLOORS" * 4
Angle
70°
Advanced Configuration
Roof color
Wall color
Shade walls based on aspect
Shadow
Color
Size
4.00
Advanced Styling
This page helps to configure the 2.5D effect as easily as possible with some basic parameters.
Once you have finished the basic styling, you can convert this to another renderer (single, categorized, graduated) and fine-tune the appearance to your liking.
Overlay problems
Features are rendered based on their distance to the camera. It is sometimes possible that parts of a feature are in front of another feature by mistake. This happens if any part of the overlapped feature is closer to the camera than the overlapping feature.
In such cases you can avoid rendering problems by cutting the feature in front into smaller pieces.
Layer Rendering
Opacity
100.0 %
Blending mode
Layer
Feature
Normal
Normal
Draw effects
Control feature rendering order
Style
OK
Cancel
Apply
Help

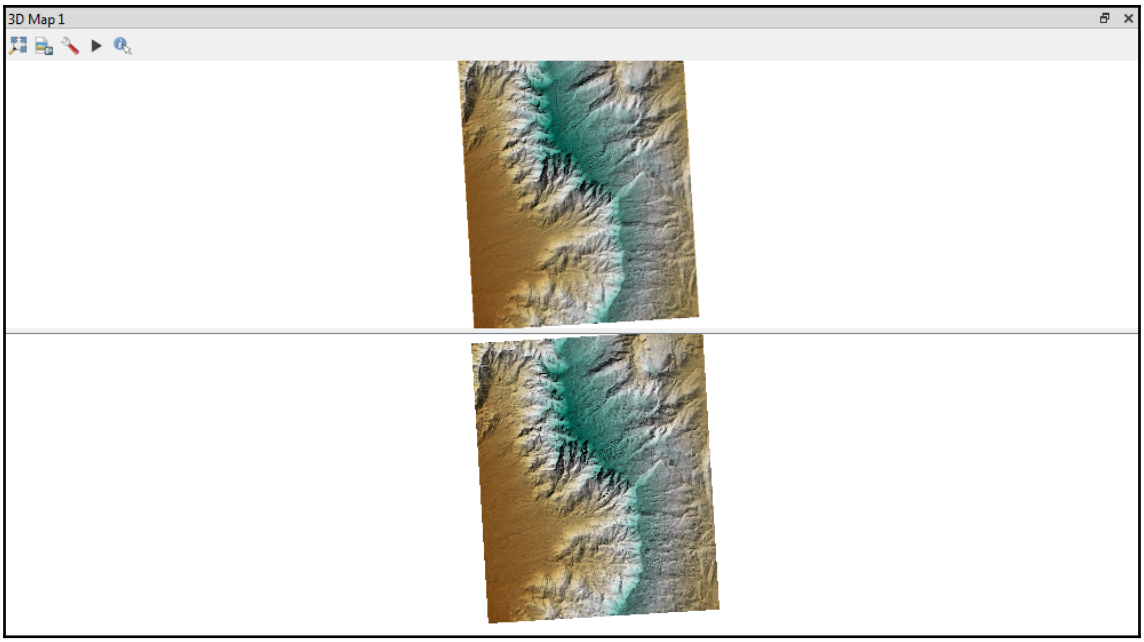

Bleecker Street
Bleecker Street
Bleecker Street
Bowery
Bowery
Bowery
Bowery & Bond Street
Bowery & E2nd St
New York Marble Cemetery
Albert's Corner
Mott Street
Elizabeth Street
East Houston Street
Extra Place
Nolita

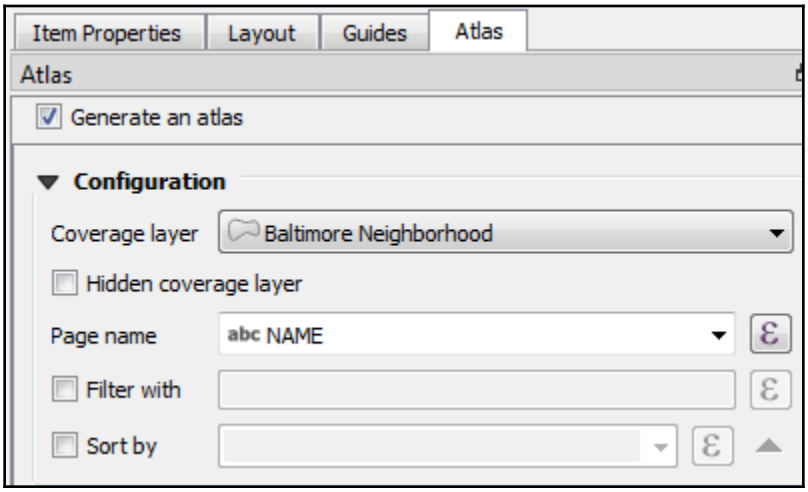

Layer Properties - lower_manhattan_buildings | Symbology
Information
Source
Symbology
Labels
Diagrams
3D View
Source Fields
Attributes Form
Joins
Auxiliary Storage
Actions
Display
Rendering
Variables
Metadata
Dependencies
Graduated
Column
1.2 NUM_FLOORS
Symbol
Change...
Legend format
%1 - %2
Precision 0
Trim
Method
Color
Color ramp
Classes
Histogram
Symbol
Values
Legend
0.00 - 20.80
0 - 21
20.80 - 41.60
21 - 42
41.60 - 62.40
42 - 62
62.40 - 83.20
62 - 83
83.20 - 104.00
83 - 104
Mode
Equal Interval
Classes
5
Classify
Delete All
Advanced
Link class boundaries
Layer Rendering
Opacity
100.0 %
Blending mode
Layer
Feature
Normal
Normal
Draw effects
Control feature rendering order
Style
OK
Cancel
Apply
Help

Define order

	Expression	Asc / Desc	NULLs handling
1	_25d_angle + 180)), 1000 * @map_extent_width * sin(radians(@qgis_25d_angle + 180))))	Descending	NULLs first
2		Ascending	NULLs last

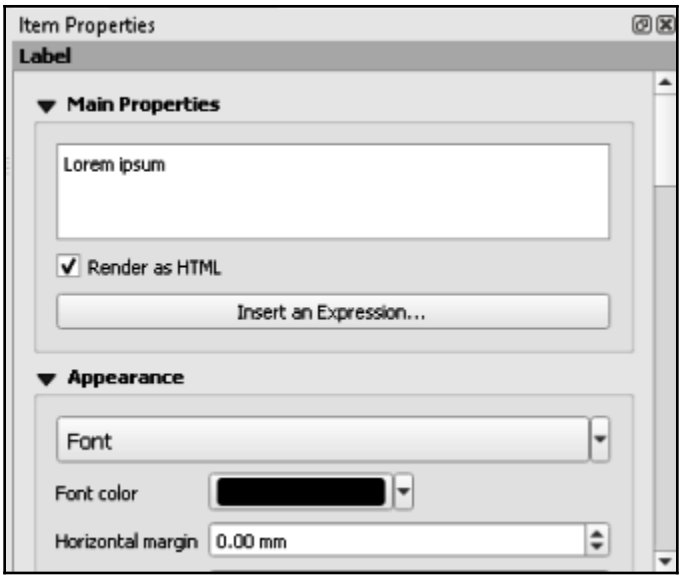
OK Cancel


3D Map 1

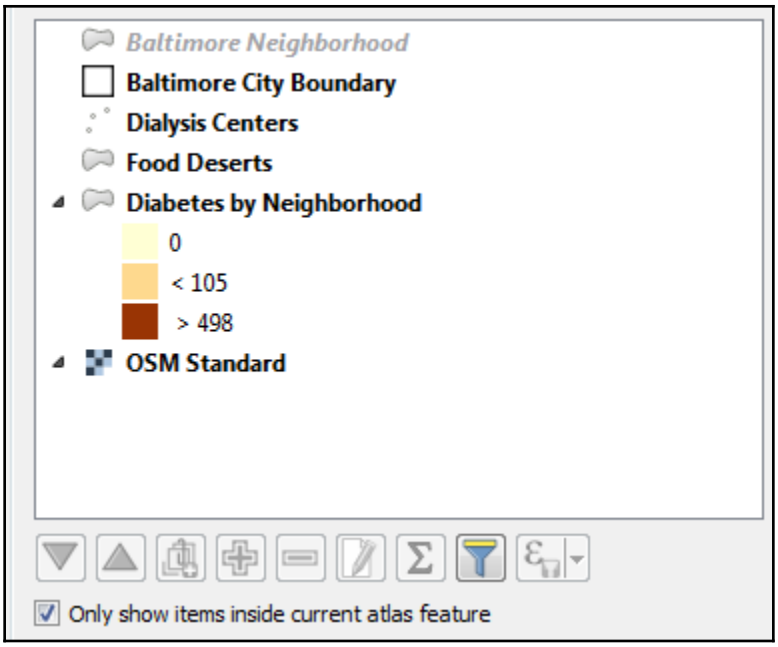

Item Properties
Layout
Guides
Atlas
Atlas
Generate an atlas
Configuration
Coverage layer
Baltimore Neighborhood
Hidden coverage layer
Page name
abc NAME
Filter with
Sort by


2

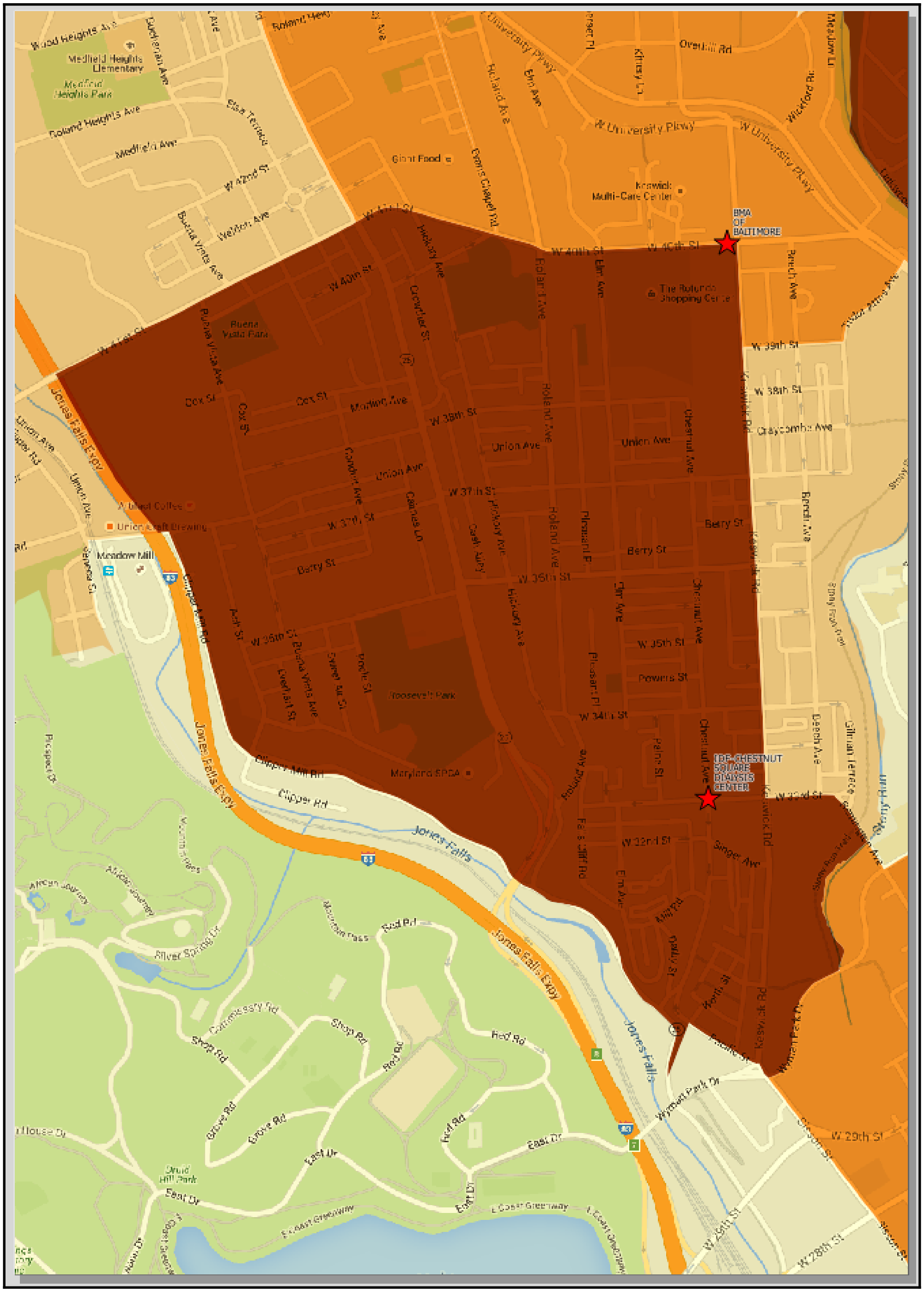
Variable	Value
Layout	
Atlas	
atlas_feature	*<feature: 0>*
atlas_featur...	*0*
atlas_featur...	*0*
atlas_filena...	*'output_0'*
atlas_geom...	*<empty geometry>*


Item Properties
Label
Main Properties
Lorem ipsum
Render as HTML
Insert an Expression...
Appearance
Font
Font color
Horizontal margin
0.00 mm

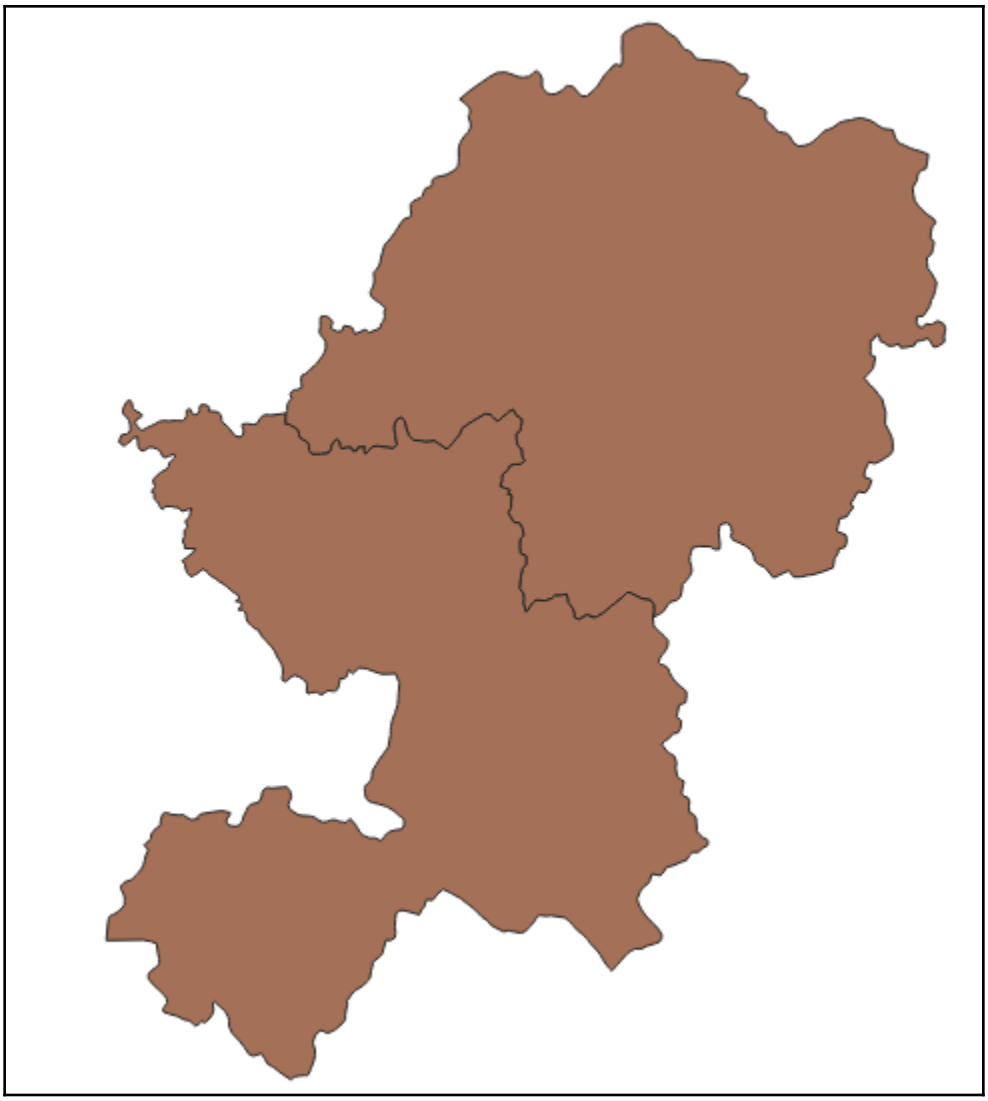

Allendale
West Franklin Street
West Mulberry Street
Allendale Street
Edmondson-Westside High School
Cathedral Cemetery
North Athol Avenue
Hilton Parkway
Gwynn Avenue
Edgewood Street
Denison Street
North Monastery Avenue
North Culver Street
North Hilton Street
West Caton Avenue
South Monastery Avenue
South Culver Street
South Kossuth Street
South Morley Street
South Hilton

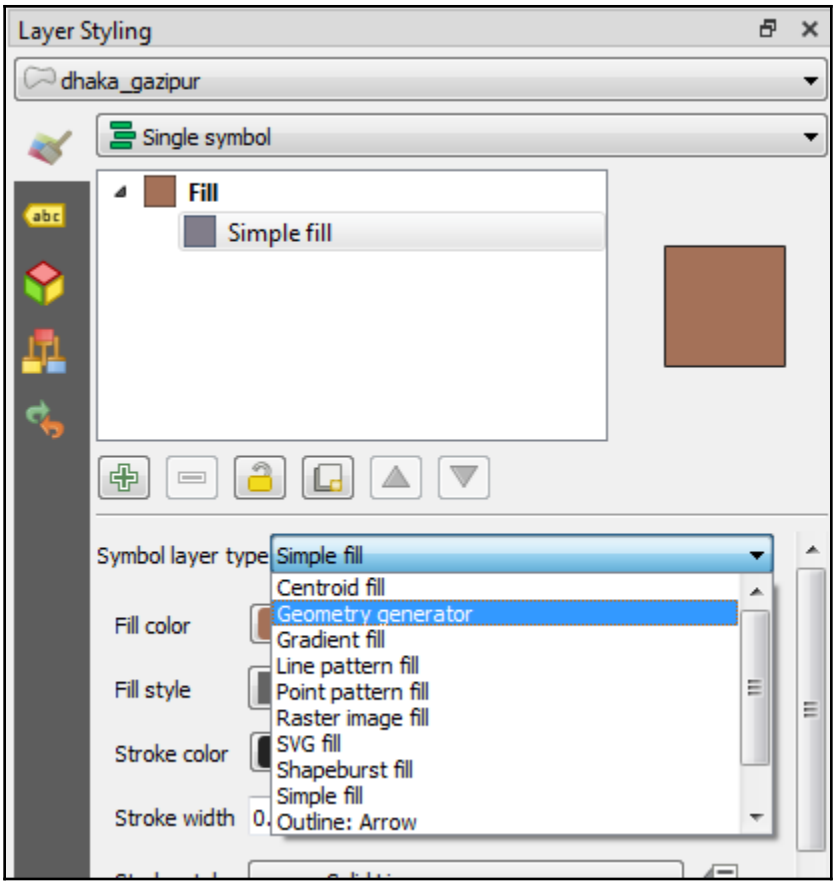

Baltimore Neighborhood
Baltimore City Boundary
Dialysis Centers
Food Deserts
Diabetes by Neighborhood
0
< 105
> 498
OSM Standard
Only show items inside current atlas feature

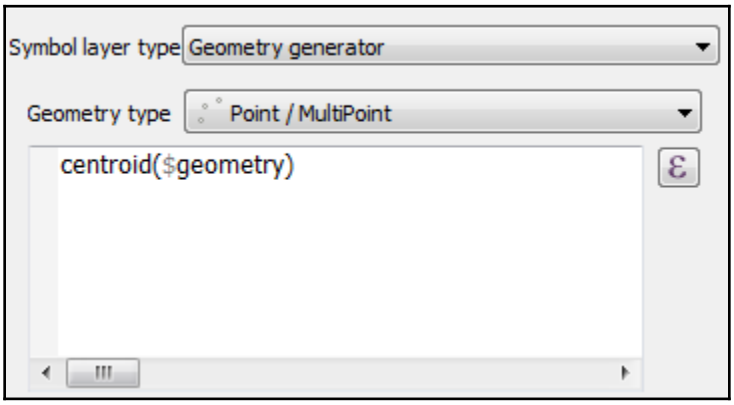

2

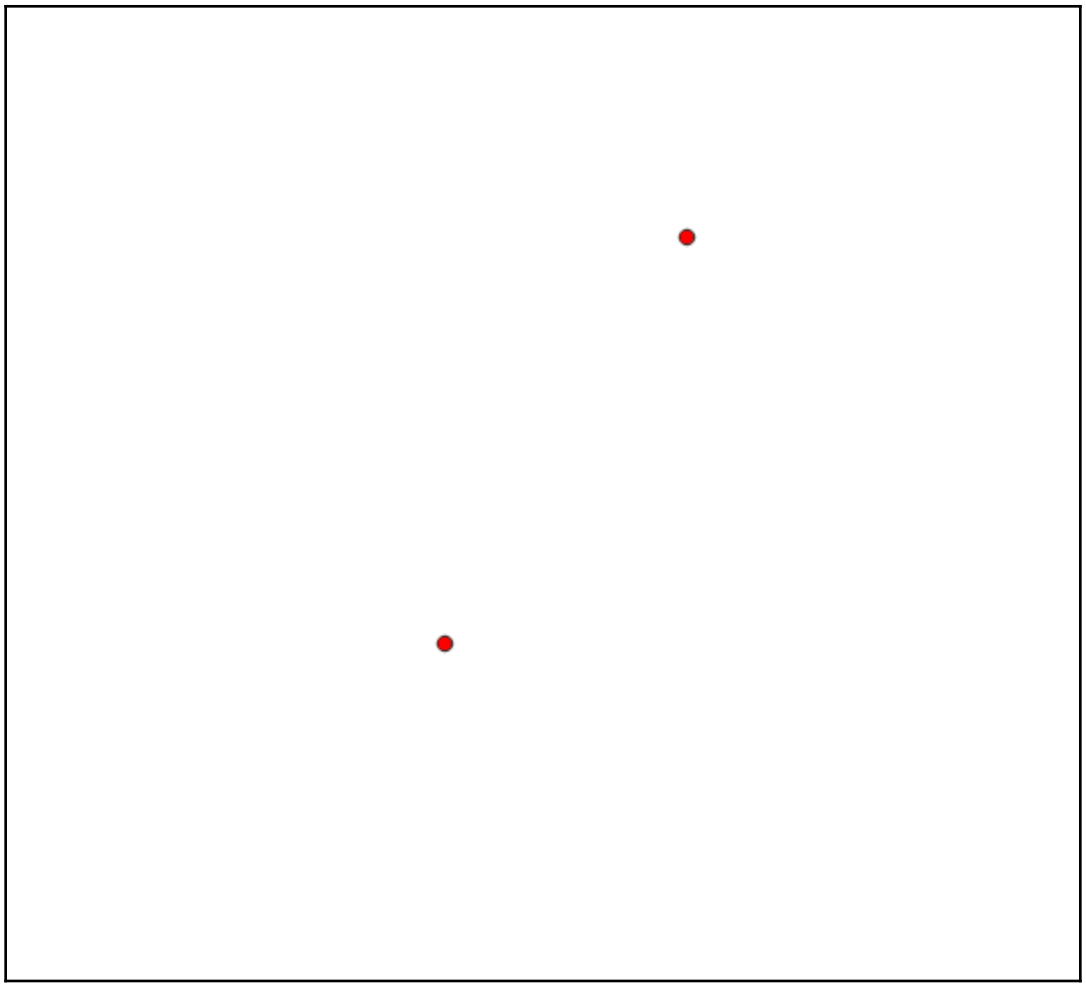


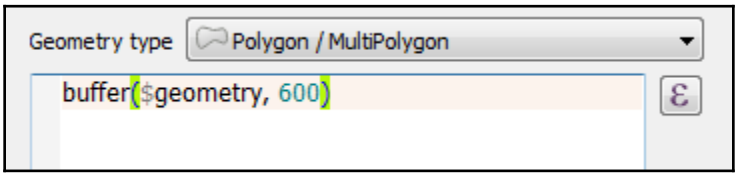
BMA
OF
BALTIMORE
IDF-CHESTNUT
SQUARE
DIALYSIS
CENTER
Wood Heights Ave
Medfield Heights Elementary
Medfield Heights Park
Roland Heights Ave
Medfield Ave
Elsa Terrace
W 42nd St
Weldon Ave
Buena Vista Ave
W University Pkwy
Overhill Rd
Wickford Rd
Giant Food
Keswick Multi-Care Center
W 41st St
W 40th St
The Rotunda Shopping Center
Beech Ave
W 39th St
W 38th St
Craycombe Ave
Buena Vista Park
Cox St
Roland Ave
Hickory Ave
Chestnut Ave
Union Ave
W 37th St
Berry St
W 36th St
W 35th St
Powers St
W 34th St
Roosevelt Park
Maryland SPCA
Clipper Mill Rd
Clipper Rd
Jones Falls
Jones Falls Expy
W 33rd St
Singer Ave
Keswick Rd
Union Craft Brewing
Meadow Mill
Silver Spring Dr
Druid Hill Park
East Dr
Grove Rd
Red Rd
Shop Rd
Wyman Park Dr
W 29th St
W 28th St
W 25th St

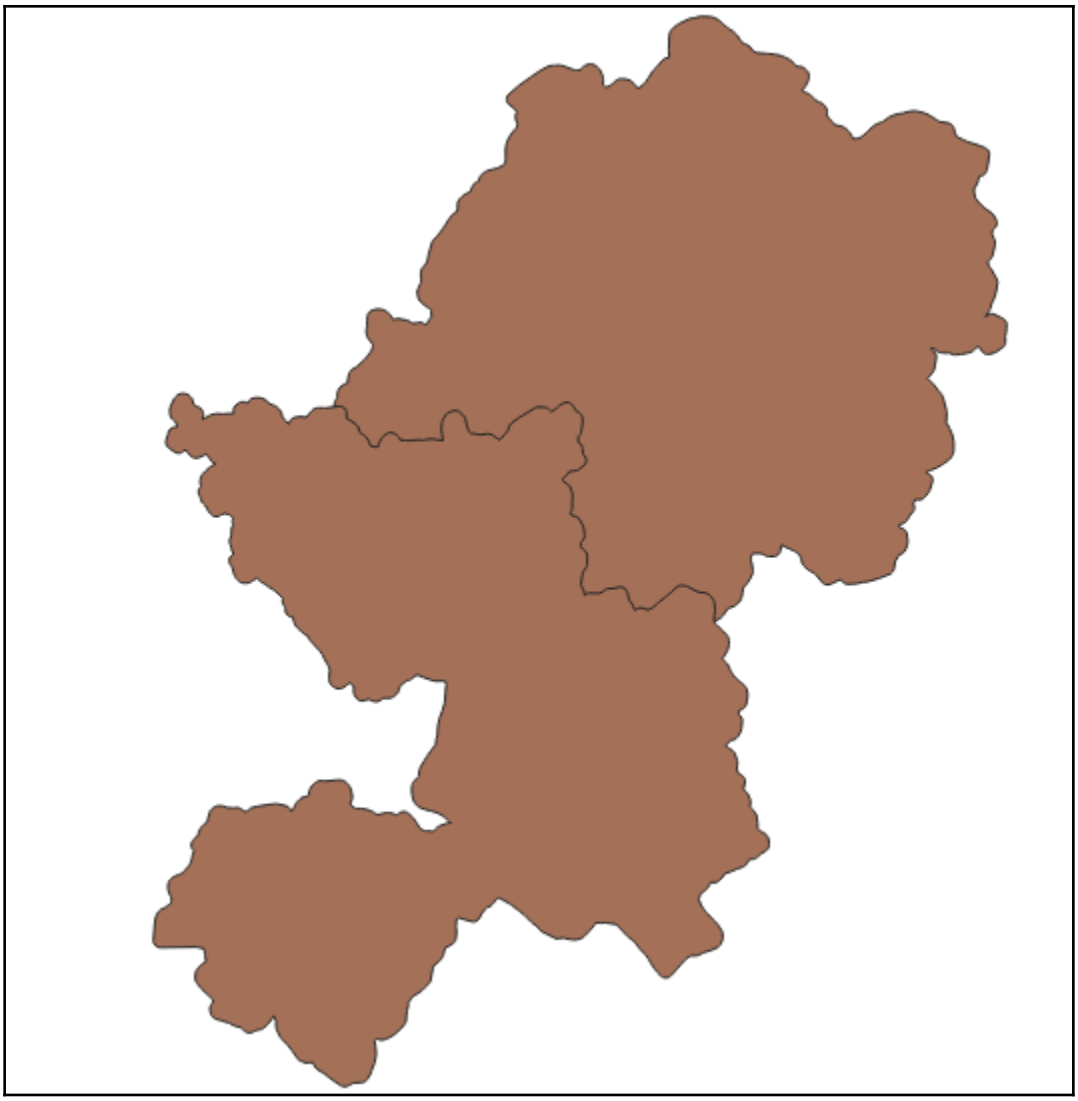


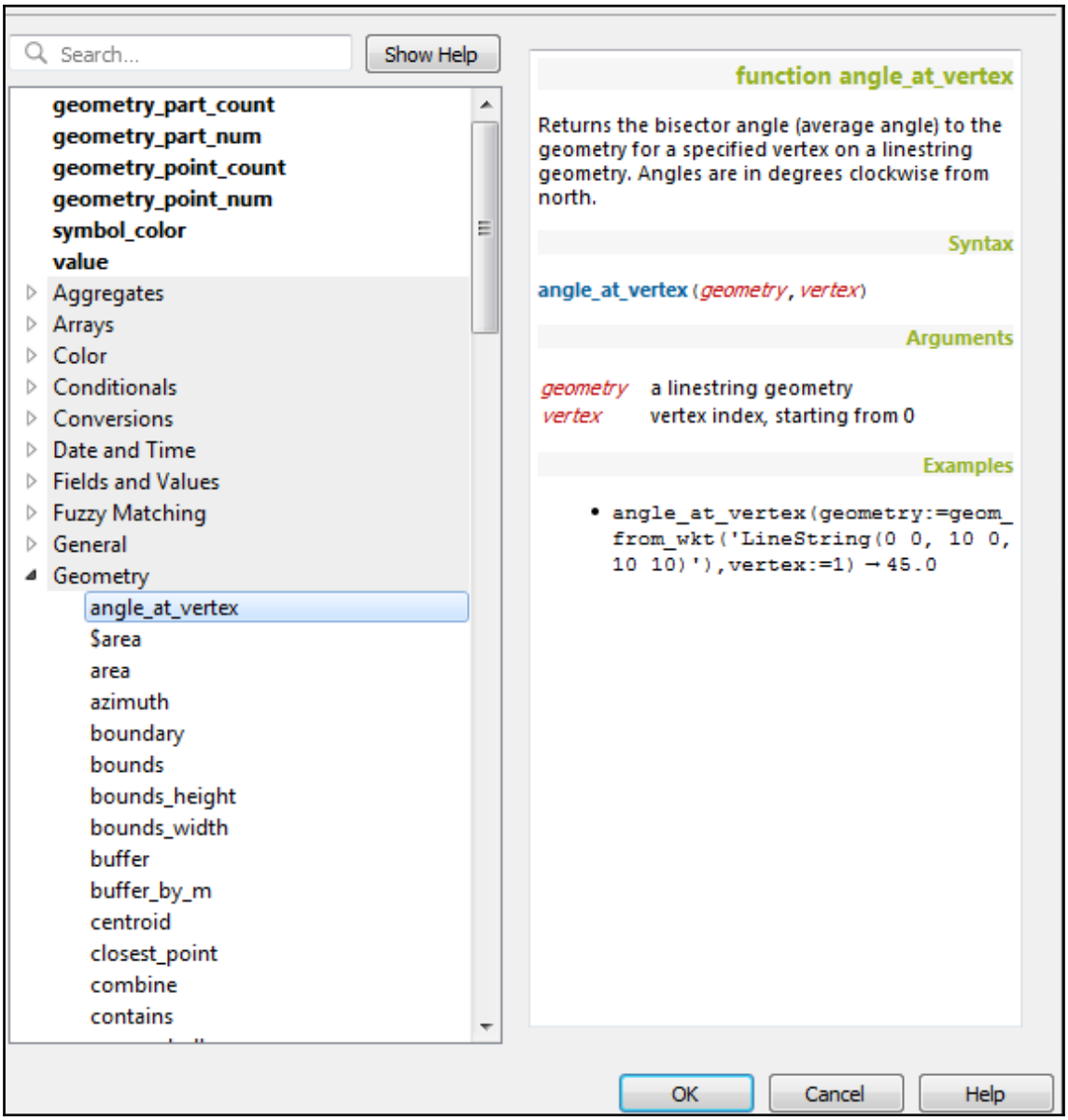

Layer Styling
dhaka_gazipur
Single symbol
Fill
Simple fill
Symbol layer type
Simple fill
Centroid fill
Geometry generator
Gradient fill
Line pattern fill
Point pattern fill
Raster image fill
SVG fill
Shapeburst fill
Simple fill
Outline: Arrow
Fill color
Fill style
Stroke color
Stroke width

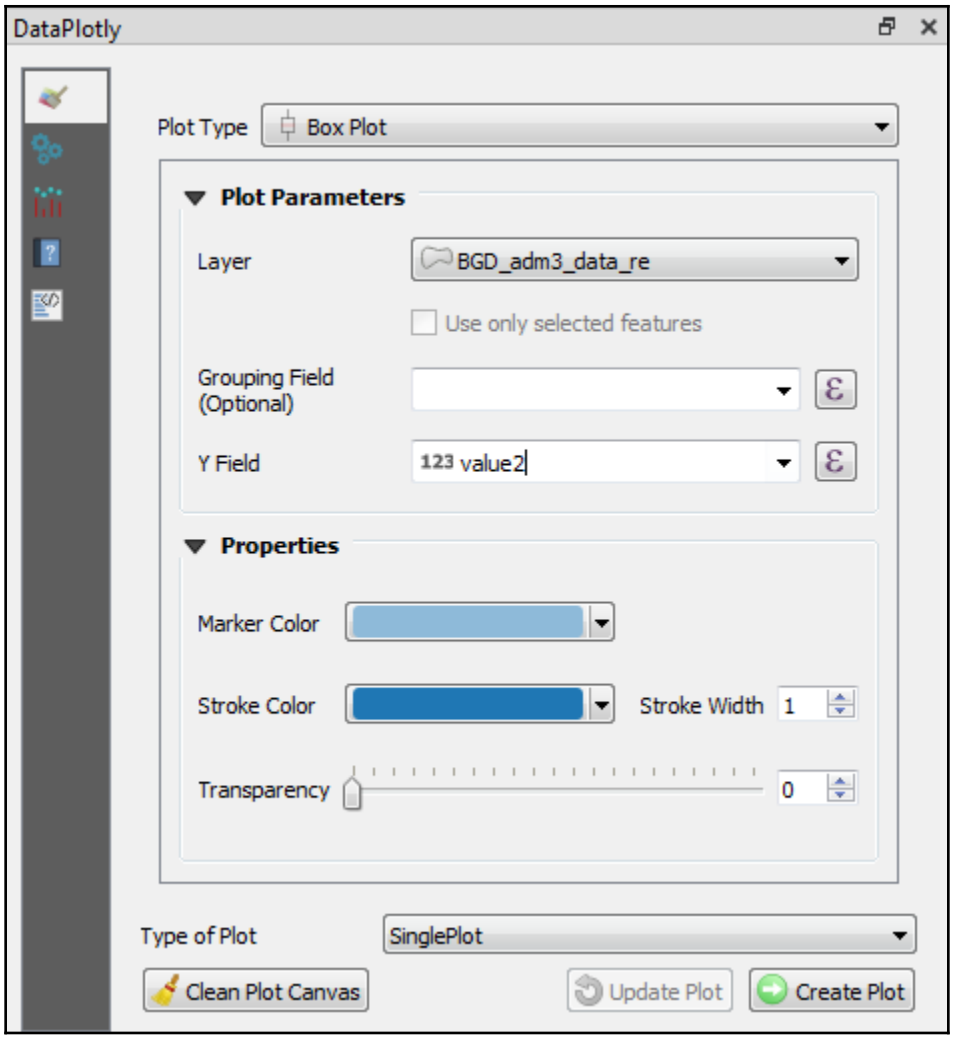

Symbol layer type
Geometry generator
Geometry type
Point / MultiPoint
centroid($geometry)

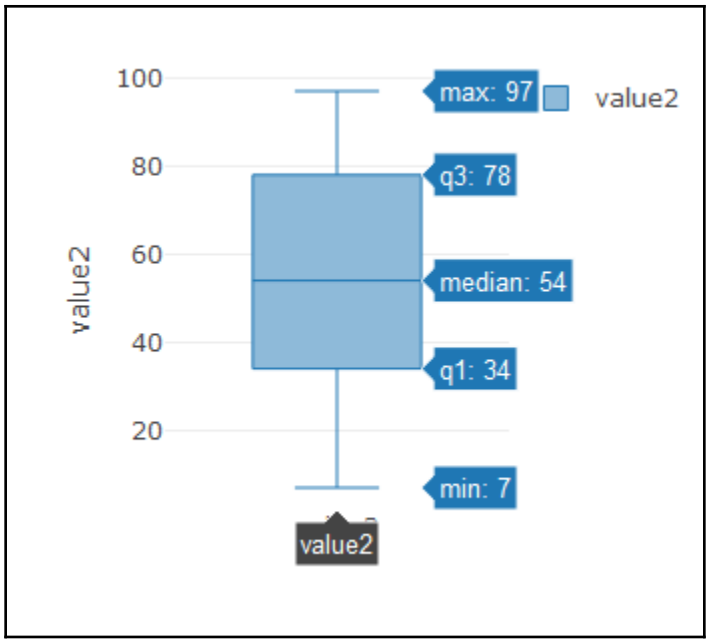


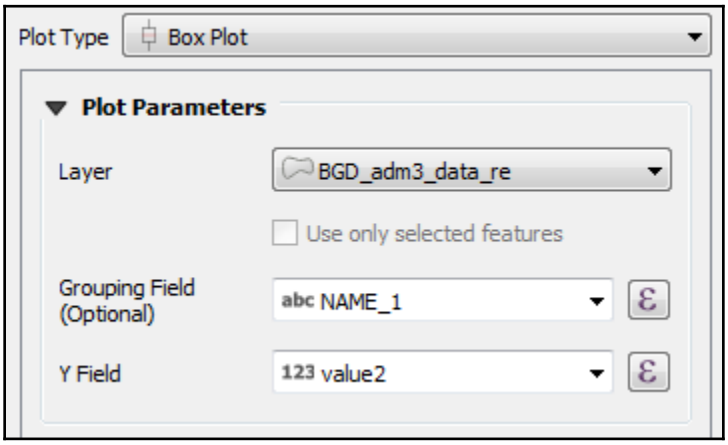

Geometry type
Polygon / MultiPolygon
buffer($geometry, 600)

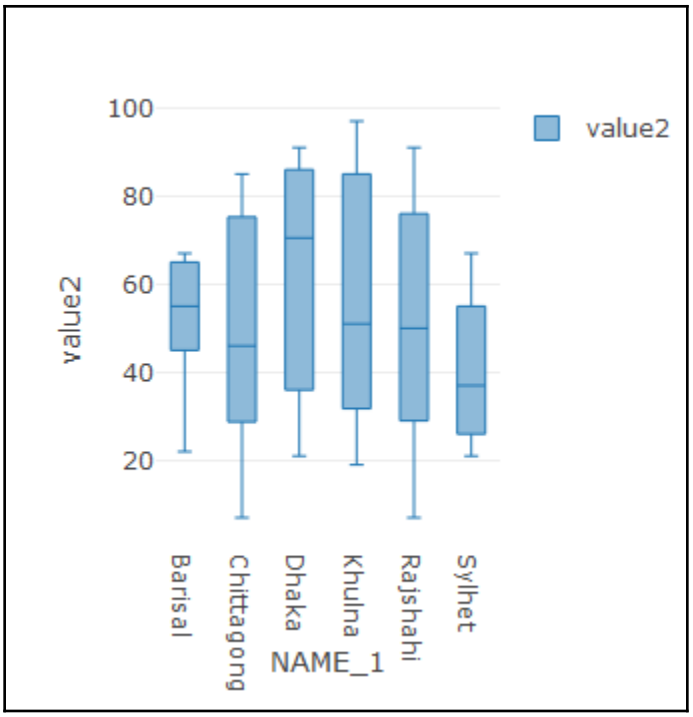


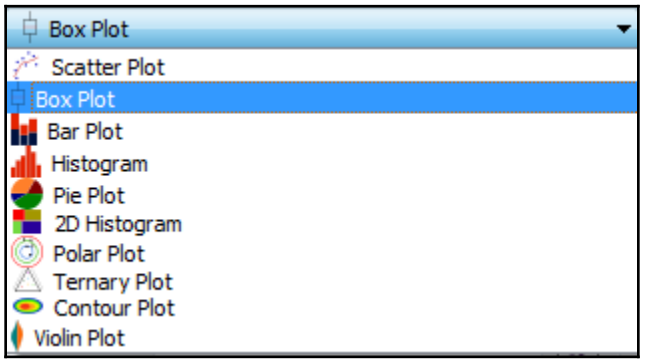

Search...
Show Help
geometry_part_count
geometry_part_num
geometry_point_count
geometry_point_num
symbol_color
value
Aggregates
Arrays
Color
Conditionals
Conversions
Date and Time
Fields and Values
Fuzzy Matching
General
Geometry
angle_at_vertex
$area
area
azimuth
boundary
bounds
bounds_height
bounds_width
buffer
buffer_by_m
centroid
closest_point
combine
contains
function angle_at_vertex
Returns the bisector angle (average angle) to the geometry for a specified vertex on a linestring geometry. Angles are in degrees clockwise from north.
Syntax
angle_at_vertex(geometry, vertex)
Arguments
geometry a linestring geometry
vertex vertex index, starting from 0
Examples
angle_at_vertex(geometry:=geom_from_wkt('LineString(0 0, 10 0, 10 10)'),vertex:=1) → 45.0
OK
Cancel
Help


DataPlotly
Plot Type
Box Plot
Plot Parameters
Layer
BGD_adm3_data_re
Use only selected features
Grouping Field (Optional)
Y Field
123 value2
Properties
Marker Color
Stroke Color
Stroke Width
1
Transparency
0
Type of Plot
SinglePlot
Clean Plot Canvas
Update Plot
Create Plot

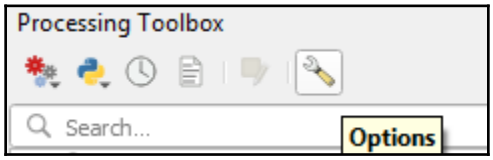

100
80
60
40
20
value2
max: 97
value2
q3: 78
median: 54
q1: 34
min: 7
value2

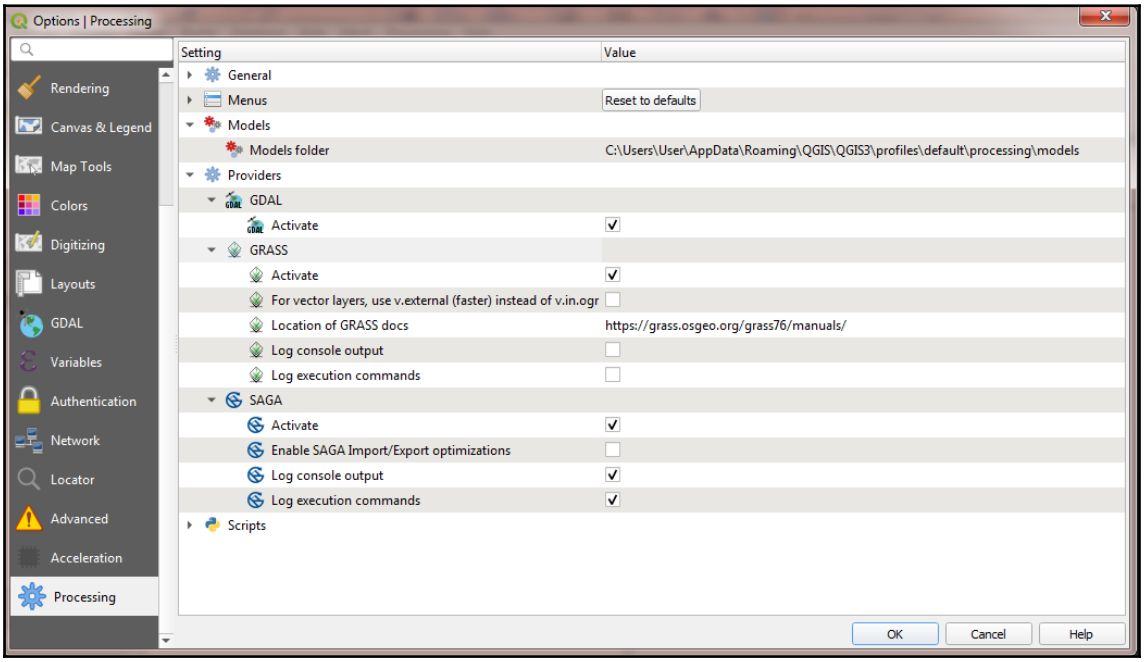

Plot Type
Box Plot
Plot Parameters
Layer
BGD_adm3_data_re
Use only selected features
Grouping Field (Optional)
abc NAME_1
Y Field
123 value2

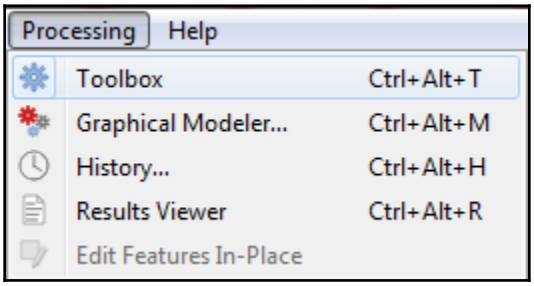

100
80
60
40
20
value2
value2
Barisal
Chittagong
Dhaka
Khulna
Rajshahi
Sylhet
NAME_1

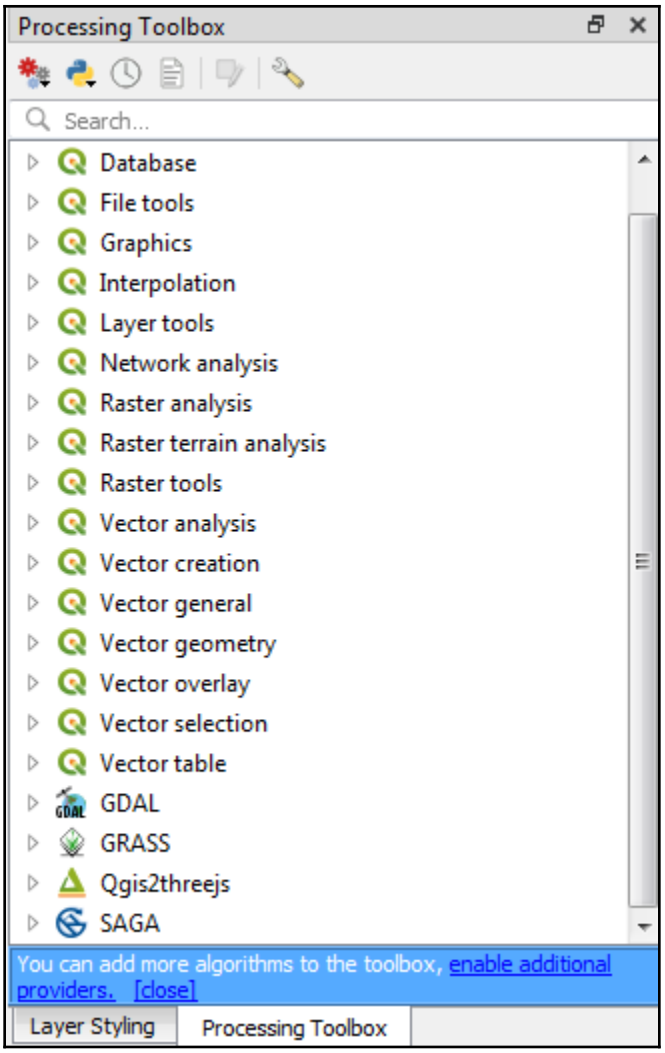

Box Plot
Scatter Plot
Box Plot
Bar Plot
Histogram
Pie Plot
2D Histogram
Polar Plot
Ternary Plot
Contour Plot
Violin Plot

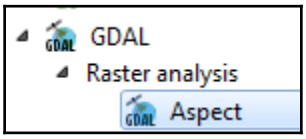
Chapter 8: The Processing Toolbox

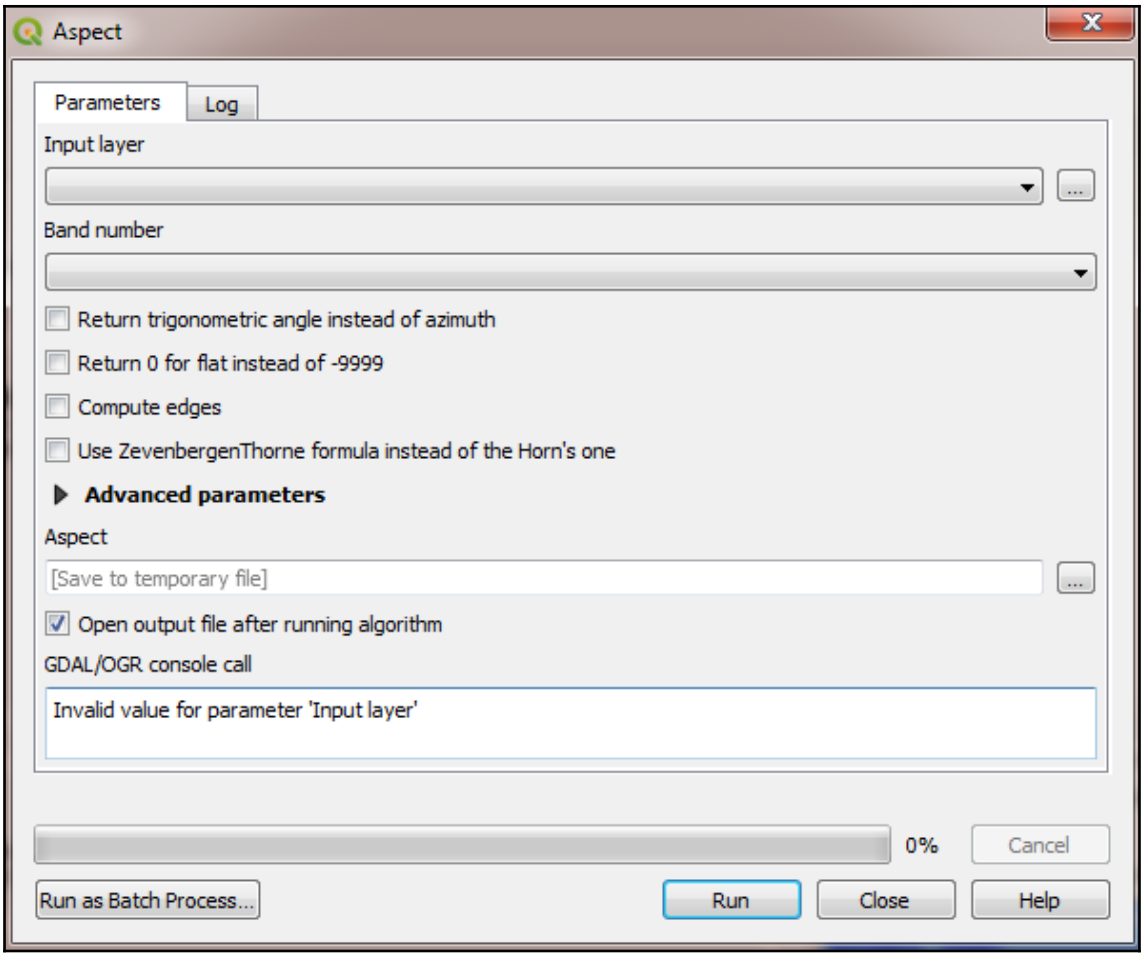


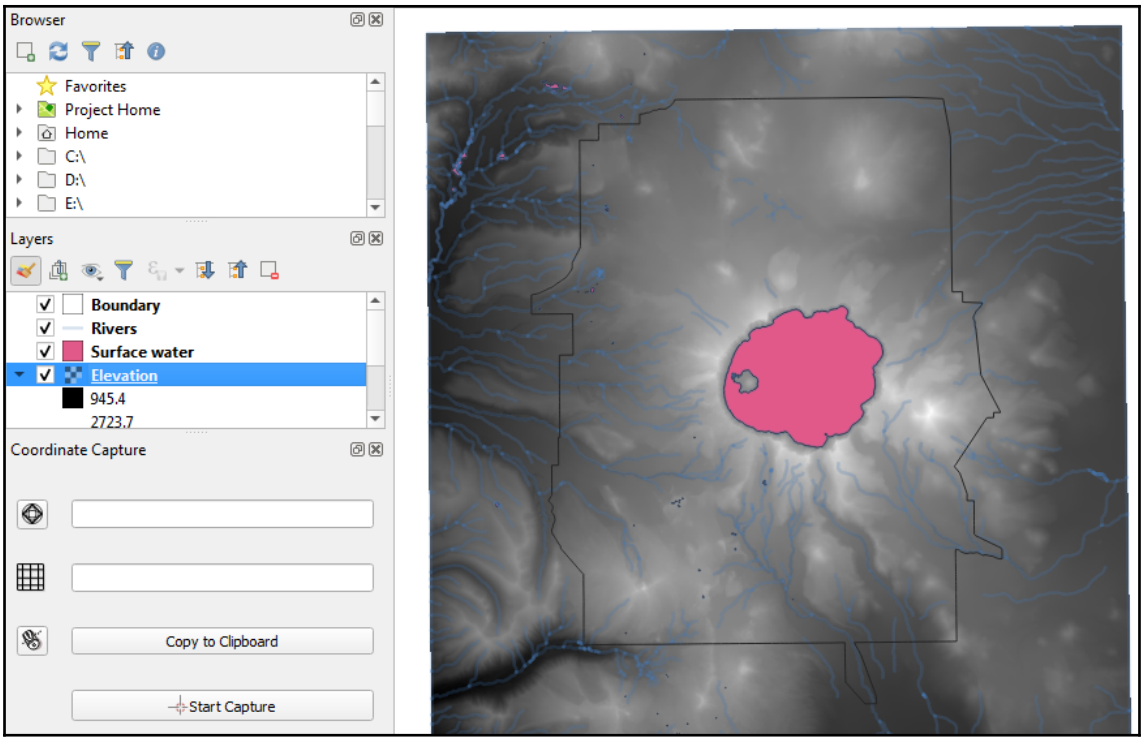


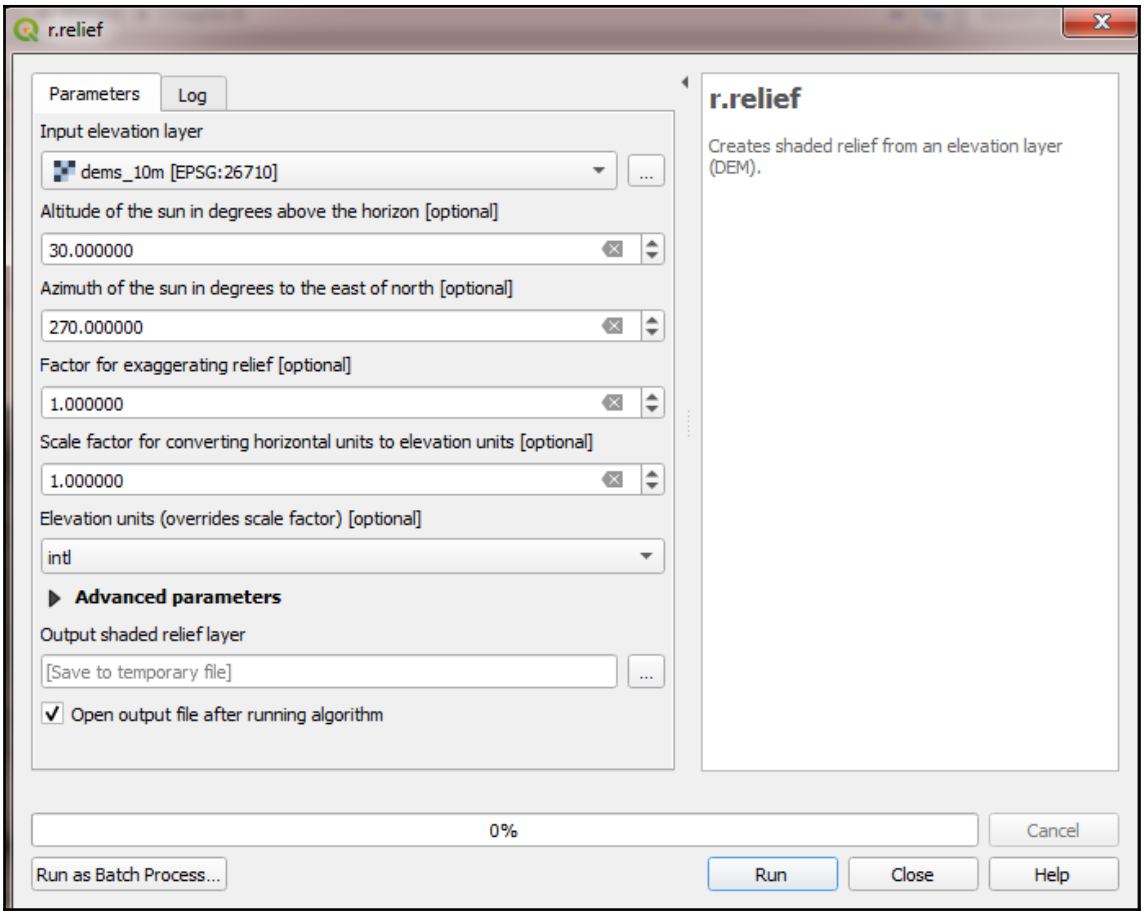


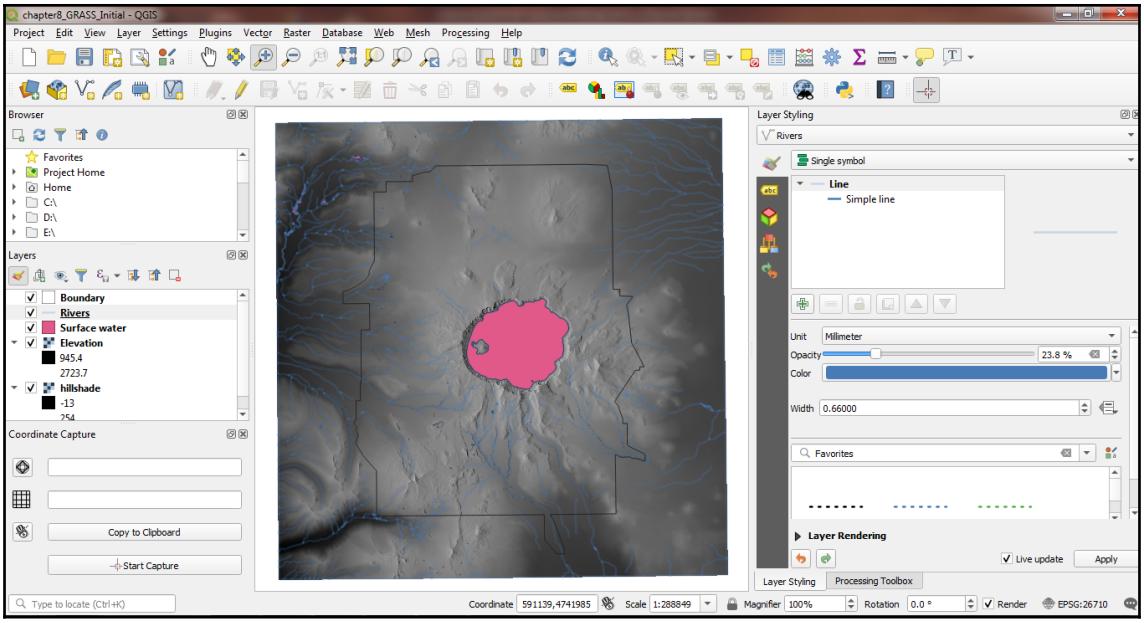

Processing Toolbox
Search...
Database
File tools
Graphics
Interpolation
Layer tools
Network analysis
Raster analysis
Raster terrain analysis
Raster tools
Vector analysis
Vector creation
Vector general
Vector geometry
Vector overlay
Vector selection
Vector table
GDAL
GRASS
Qgis2threejs
SAGA
You can add more algorithms to the toolbox, enable additional providers. [close]
Layer Styling
Processing Toolbox

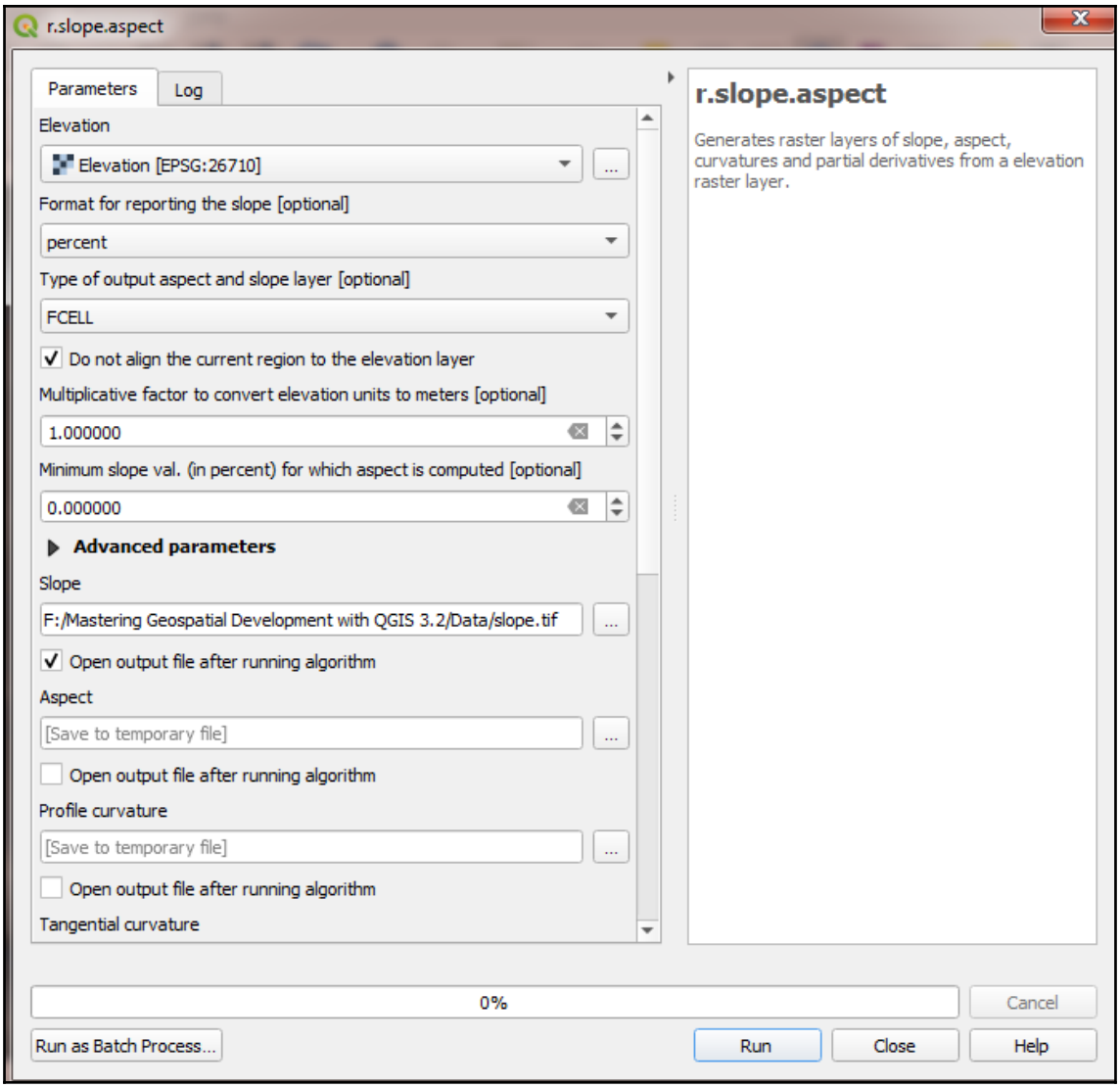

GDAL
Raster analysis
Aspect

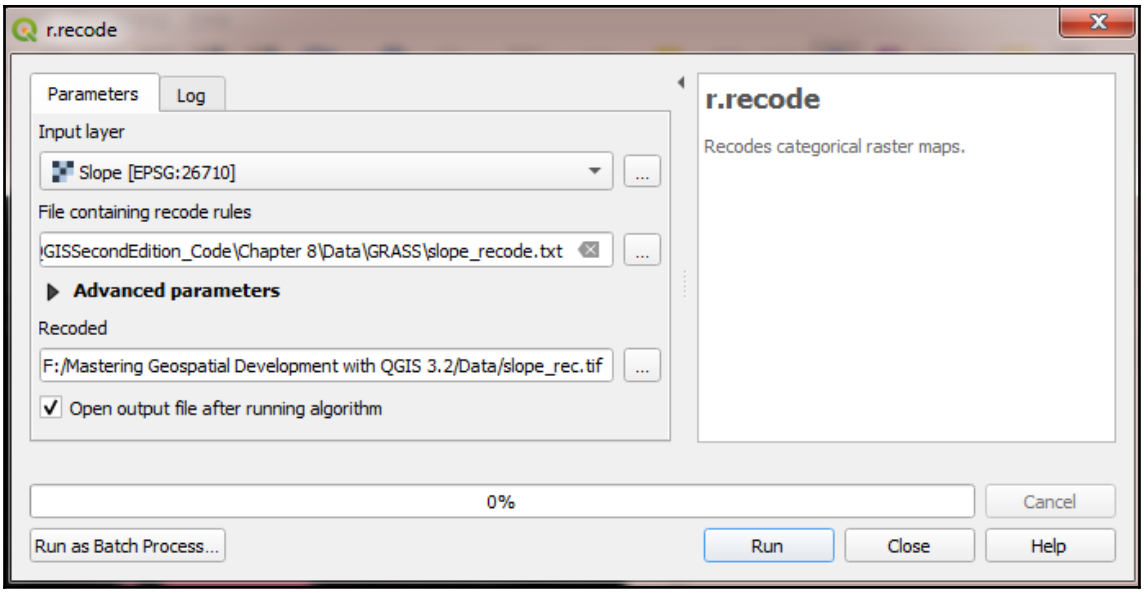

Aspect
Parameters
Log
Input layer
Band number
Return trigonometric angle instead of azimuth
Return 0 for flat instead of -9999
Compute edges
Use ZevenbergenThorne formula instead of the Horn's one
Advanced parameters
Aspect
[Save to temporary file]
Open output file after running algorithm
GDAL/OGR console call
Invalid value for parameter 'Input layer'
0%
Cancel
Run as Batch Process...
Run
Close
Help

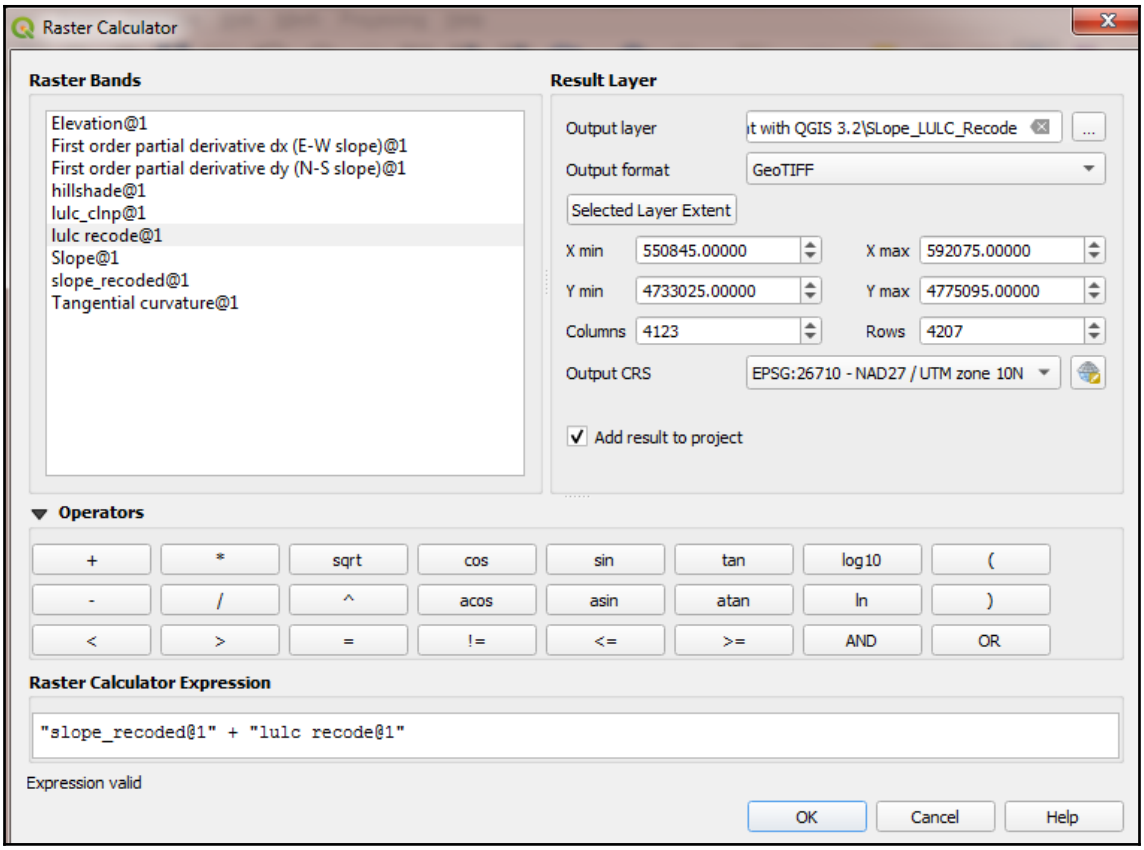

Browser
Favorites
Project Home
Home
C:\
D:\
E:\
Layers
Boundary
Rivers
Surface water
Elevation
945.4
2723.7
Coordinate Capture
Copy to Clipboard
Start Capture

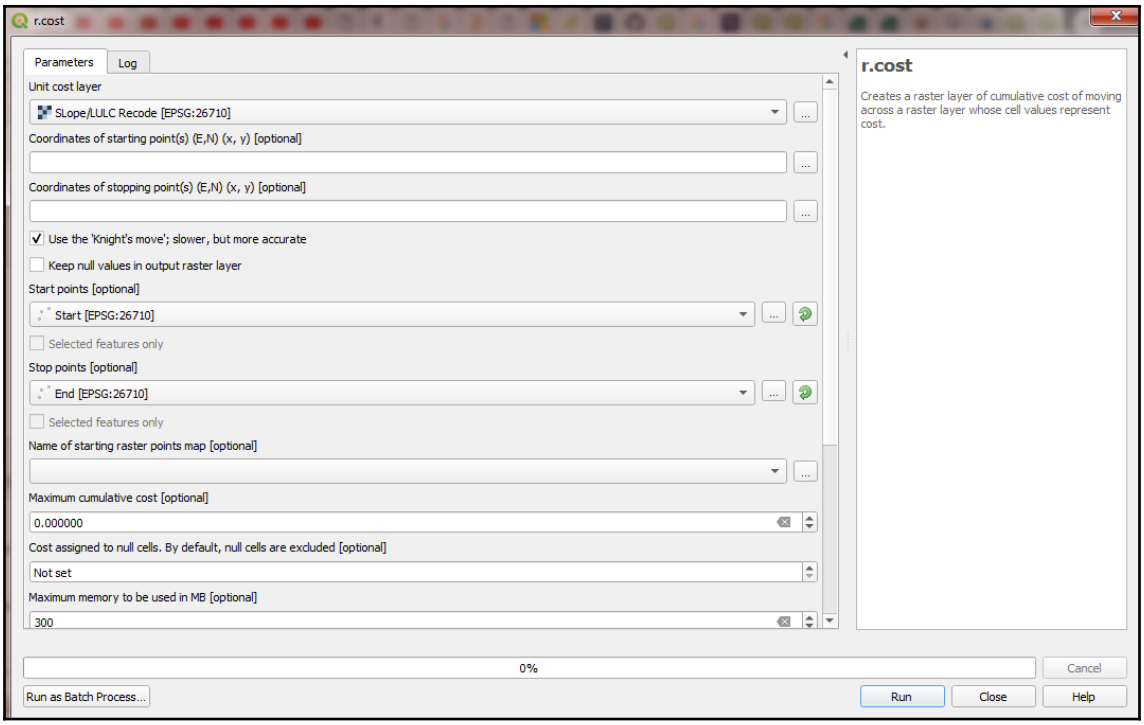

r.relief
Parameters
Log
Input elevation layer
dems_10m [EPSG:26710]
Altitude of the sun in degrees above the horizon [optional]
30.000000
Azimuth of the sun in degrees to the east of north [optional]
270.000000
Factor for exaggerating relief [optional]
1.000000
Scale factor for converting horizontal units to elevation units [optional]
1.000000
Elevation units (overrides scale factor) [optional]
intl
Advanced parameters
Output shaded relief layer
[Save to temporary file]
Open output file after running algorithm
r.relief
Creates shaded relief from an elevation layer (DEM).
0%
Cancel
Run as Batch Process...
Run
Close
Help

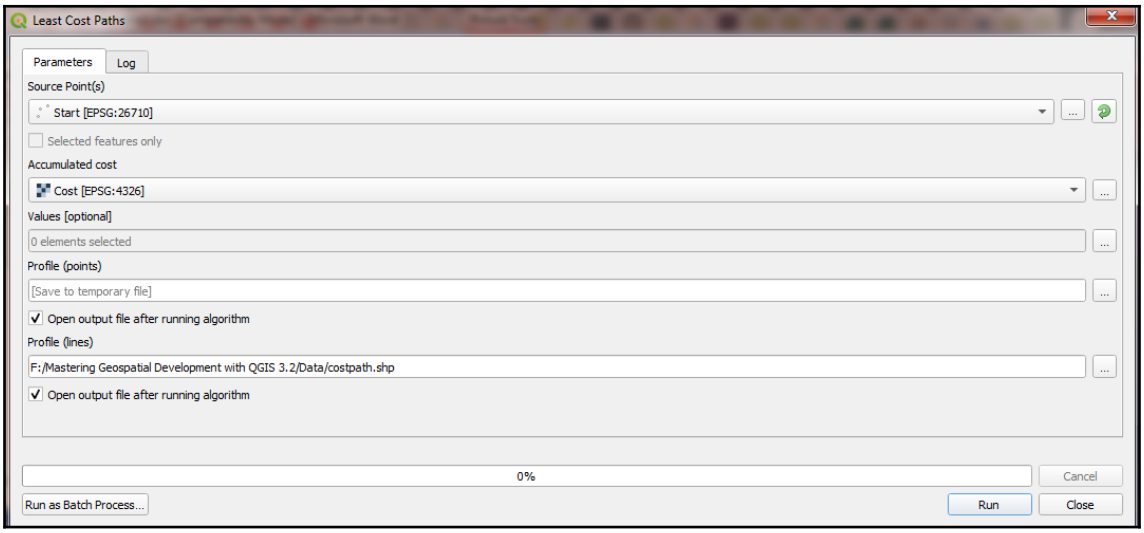

chapter8_GRASS_Initial - QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help
Browser
Favorites
Project Home
Home
C:\
D:\
E:\
Layers
Boundary
Rivers
Surface water
Elevation
945.4
2723.7
hillshade
-13
Coordinate Capture
Copy to Clipboard
Start Capture
Type to locate (Ctrl+K)
Layer Styling
Rivers
Single symbol
Line
Simple line
Unit
Millimeter
Opacity
23.8 %
Color
Width
0.66000
Favorites
Layer Rendering
Live update
Apply
Layer Styling
Processing Toolbox
Coordinate
591139,4741985
Scale
1:288849
Magnifier
100%
Rotation
0.0 °
Render
EPSG:26710

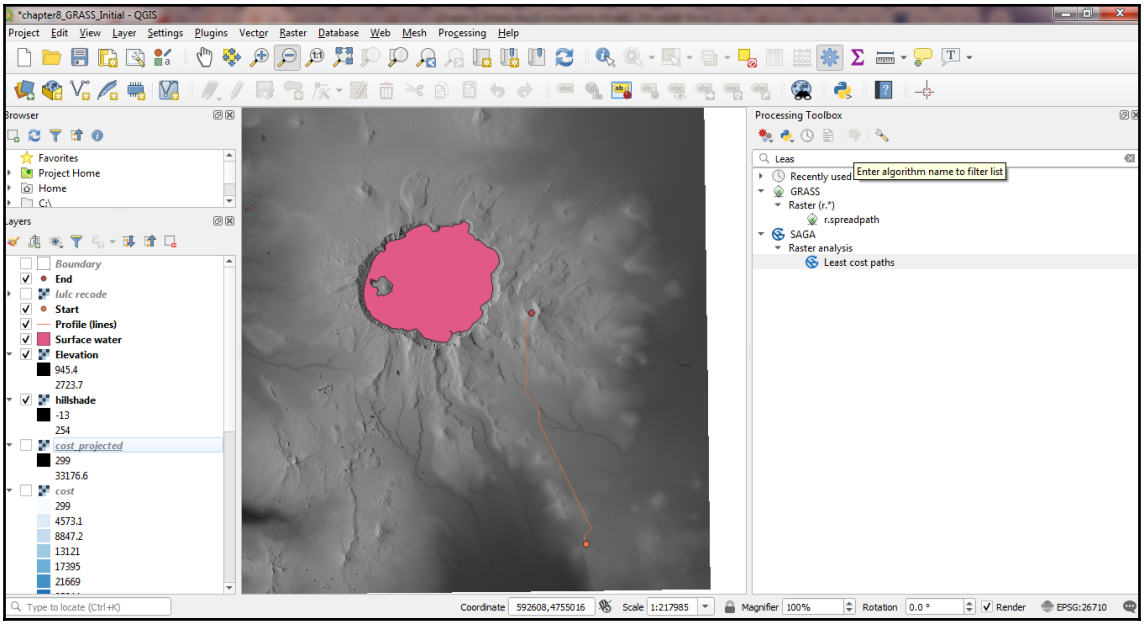

r.slope.aspect
Parameters
Log
Elevation
Elevation [EPSG:26710]
Format for reporting the slope [optional]
percent
Type of output aspect and slope layer [optional]
FCELL
Do not align the current region to the elevation layer
Multiplicative factor to convert elevation units to meters [optional]
1.000000
Minimum slope val. (in percent) for which aspect is computed [optional]
0.000000
Advanced parameters
Slope
F:/Mastering Geospatial Development with QGIS 3.2/Data/slope.tif
Open output file after running algorithm
Aspect
[Save to temporary file]
Open output file after running algorithm
Profile curvature
[Save to temporary file]
Open output file after running algorithm
Tangential curvature
r.slope.aspect
Generates raster layers of slope, aspect, curvatures and partial derivatives from a elevation raster layer.
0%
Cancel
Run as Batch Process...
Run
Close
Help

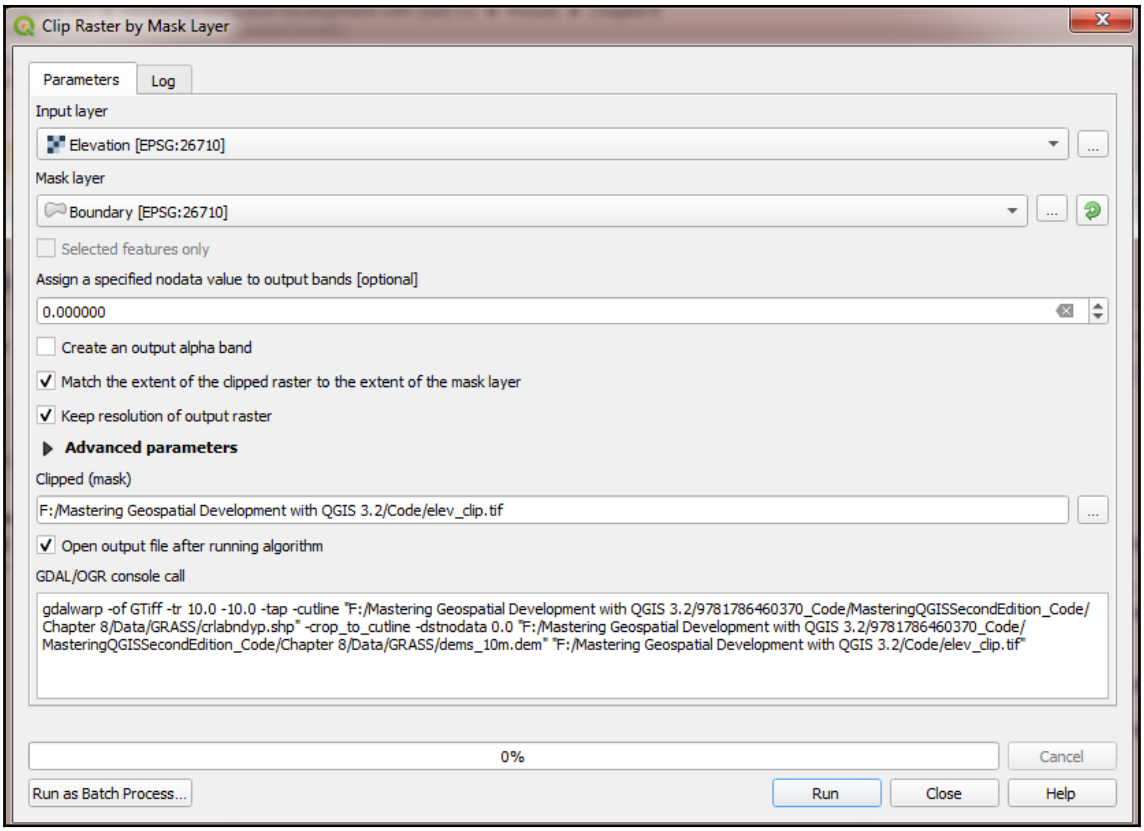

r.recode
Parameters
Log
Input layer
Slope [EPSG:26710]
File containing recode rules
\GISSecondEdition_Code\Chapter 8\Data\GRASS\slope_recode.txt
Advanced parameters
Recoded
F:/Mastering Geospatial Development with QGIS 3.2/Data/slope_rec.tif
Open output file after running algorithm
r.recode
Recodes categorical raster maps.
0%
Cancel
Run as Batch Process...
Run
Close
Help

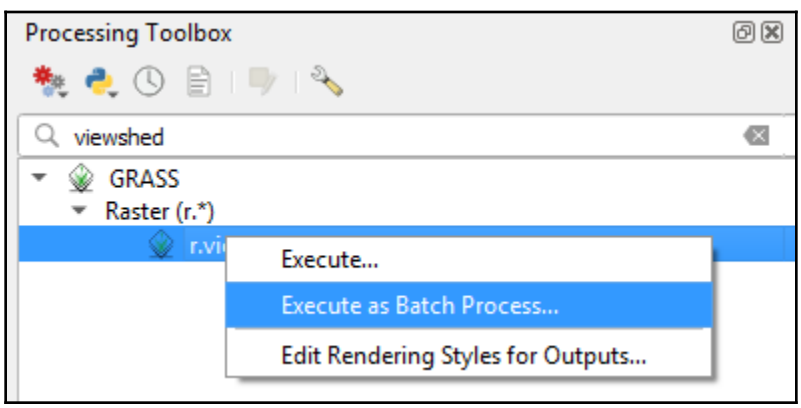

Raster Calculator
Raster Bands
Elevation@1
First order partial derivative dx (E-W slope)@1
First order partial derivative dy (N-S slope)@1
hillshade@1
lulc_clnp@1
lulc recode@1
Slope@1
slope_recoded@1
Tangential curvature@1
Result Layer
Output layer
t with QGIS 3.2\SLope_LULC_Recode
Output format
GeoTIFF
Selected Layer Extent
X min
550845.00000
X max
592075.00000
Y min
4733025.00000
Y max
4775095.00000
Columns
4123
Rows
4207
Output CRS
EPSG:26710 - NAD27 / UTM zone 10N
Add result to project
Operators
+
*
sqrt
cos
sin
tan
log10
(
-
/
^
acos
asin
atan
ln
)
<
>
=
!=
<=
>=
AND
OR
Raster Calculator Expression
"slope_recoded@1" + "lulc recode@1"
Expression valid
OK
Cancel
Help

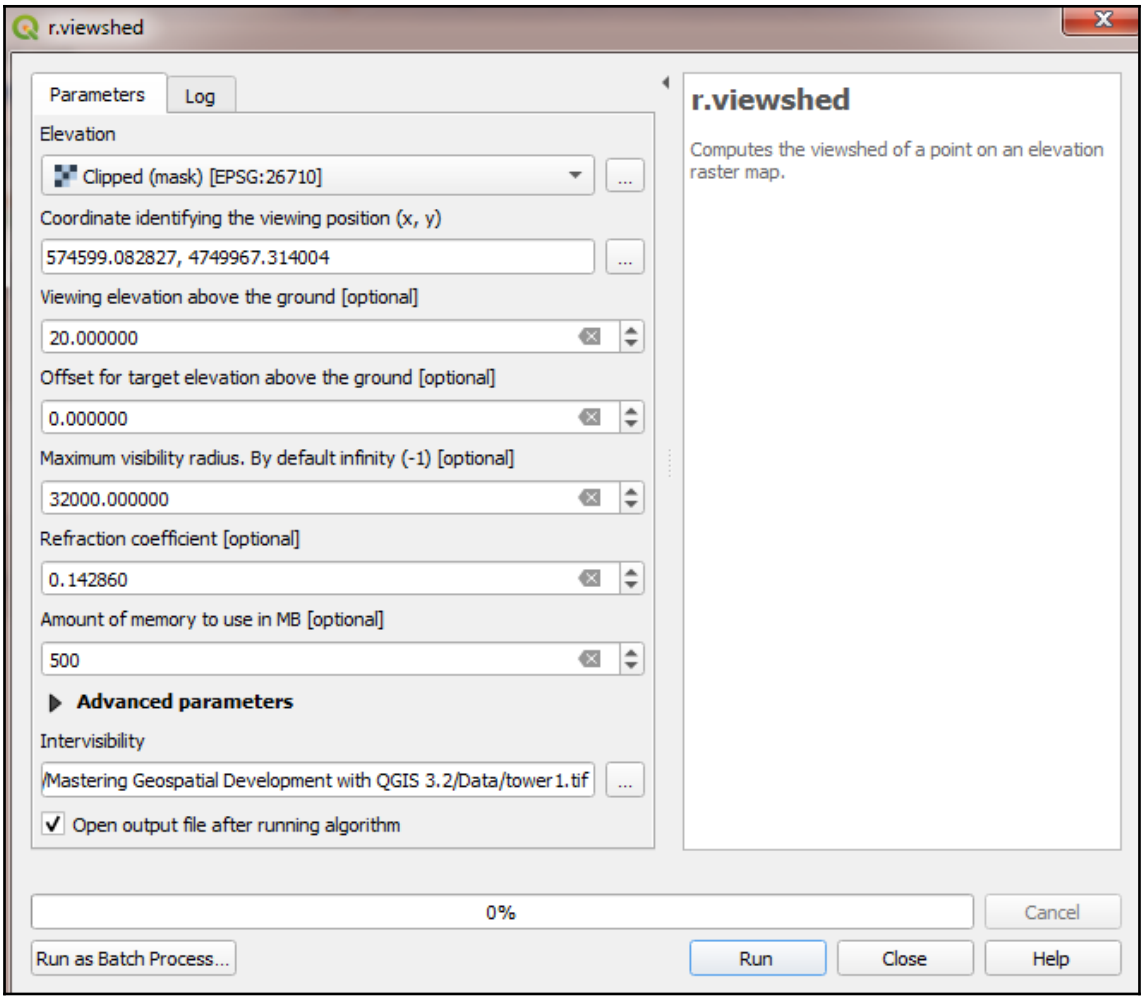

r.cost
Parameters
Log
Unit cost layer
SLope/LULC Recode [EPSG:26710]
Coordinates of starting point(s) (E,N) (x, y) [optional]
Coordinates of stopping point(s) (E,N) (x, y) [optional]
Use the 'Knight's move'; slower, but more accurate
Keep null values in output raster layer
Start points [optional]
Start [EPSG:26710]
Selected features only
Stop points [optional]
End [EPSG:26710]
Selected features only
Name of starting raster points map [optional]
Maximum cumulative cost [optional]
0.000000
Cost assigned to null cells. By default, null cells are excluded [optional]
Not set
Maximum memory to be used in MB [optional]
300
r.cost
Creates a raster layer of cumulative cost of moving across a raster layer whose cell values represent cost.
0%
Cancel
Run as Batch Process...
Run
Close
Help

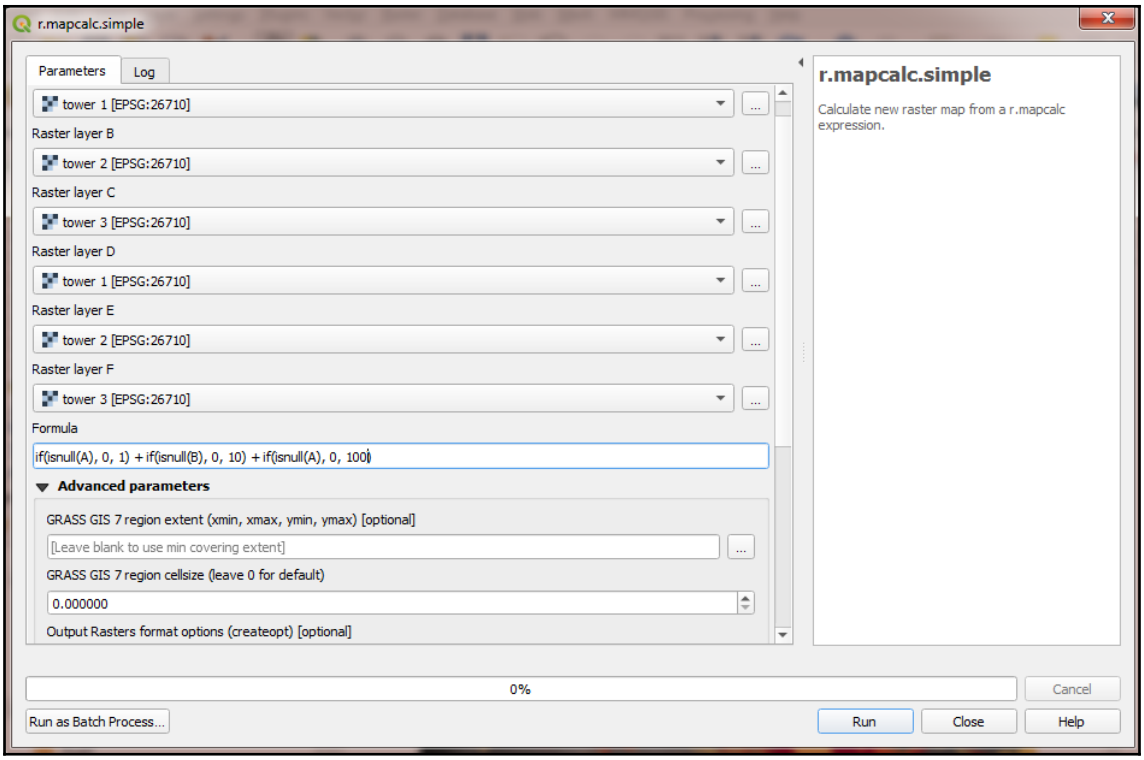

Least Cost Paths
Parameters
Log
Source Point(s)
Start [EPSG:26710]
Selected features only
Accumulated cost
Cost [EPSG:4326]
Values [optional]
0 elements selected
Profile (points)
[Save to temporary file]
Open output file after running algorithm
Profile (lines)
F:/Mastering Geospatial Development with QGIS 3.2/Data/costpath.shp
Open output file after running algorithm
0%
Cancel
Run as Batch Process...
Run
Close

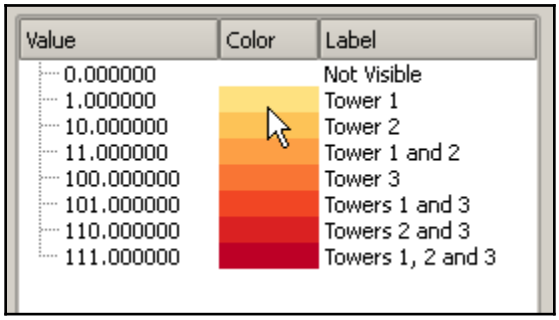

*chapter8_GRASS_Initial - QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help
Browser
Favorites
Project Home
Home
C:\
Layers
Boundary
End
lulc recode
Start
Profile (lines)
Surface water
Elevation
945.4
2723.7
hillshade
-13
254
cost_projected
299
33176.6
cost
299
4573.1
8847.2
13121
17395
21669
Processing Toolbox
Leas
Enter algorithm name to filter list
Recently used
GRASS
Raster (r.*)
r.spreadpath
SAGA
Raster analysis
Least cost paths
Type to locate (Ctrl+K)
Coordinate 592608,4755016
Scale 1:217985
Magnifier 100%
Rotation 0.0 °
Render
EPSG:26710

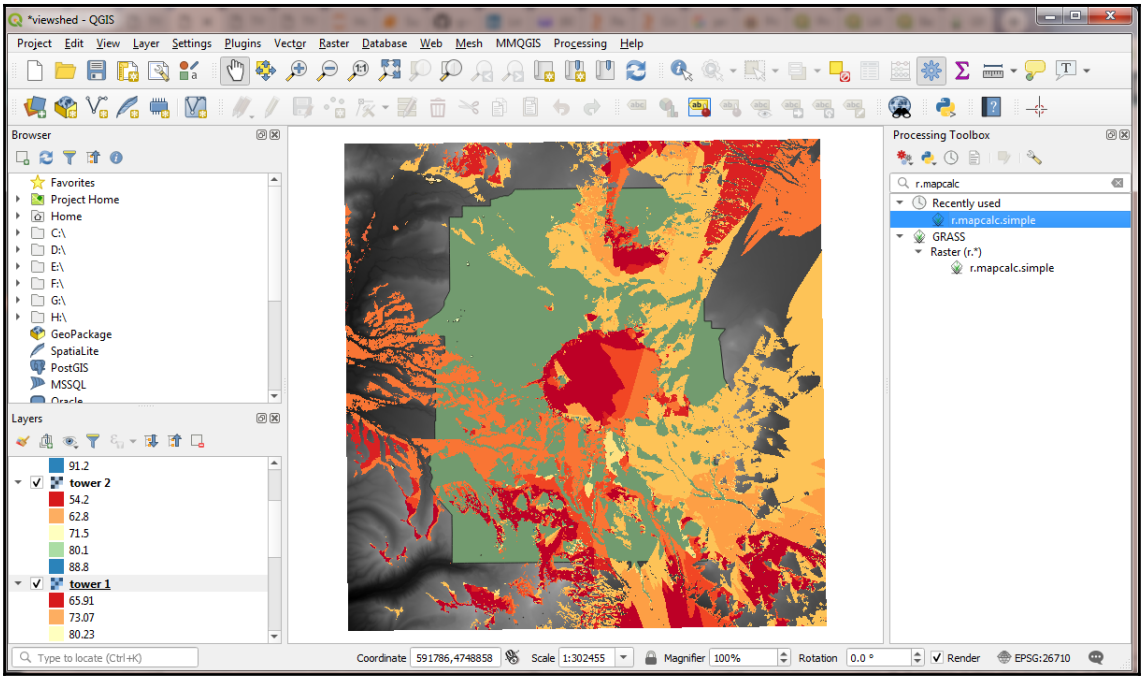

Clip Raster by Mask Layer
Parameters
Log
Input layer
Elevation [EPSG:26710]
Mask layer
Boundary [EPSG:26710]
Selected features only
Assign a specified nodata value to output bands [optional]
0.000000
Create an output alpha band
Match the extent of the clipped raster to the extent of the mask layer
Keep resolution of output raster
Advanced parameters
Clipped (mask)
F:/Mastering Geospatial Development with QGIS 3.2/Code/elev_clip.tif
Open output file after running algorithm
GDAL/OGR console call
gdalwarp -of GTiff -tr 10.0 -10.0 -tap -cutline "F:/Mastering Geospatial Development with QGIS 3.2/9781786460370_Code/MasteringQGISSecondEdition_Code/Chapter 8/Data/GRASS/crlabndyp.shp" -crop_to_cutline -dstnodata 0.0 "F:/Mastering Geospatial Development with QGIS 3.2/9781786460370_Code/MasteringQGISSecondEdition_Code/Chapter 8/Data/GRASS/dems_10m.dem" "F:/Mastering Geospatial Development with QGIS 3.2/Code/elev_clip.tif"
0%
Cancel
Run as Batch Process...
Run
Close
Help

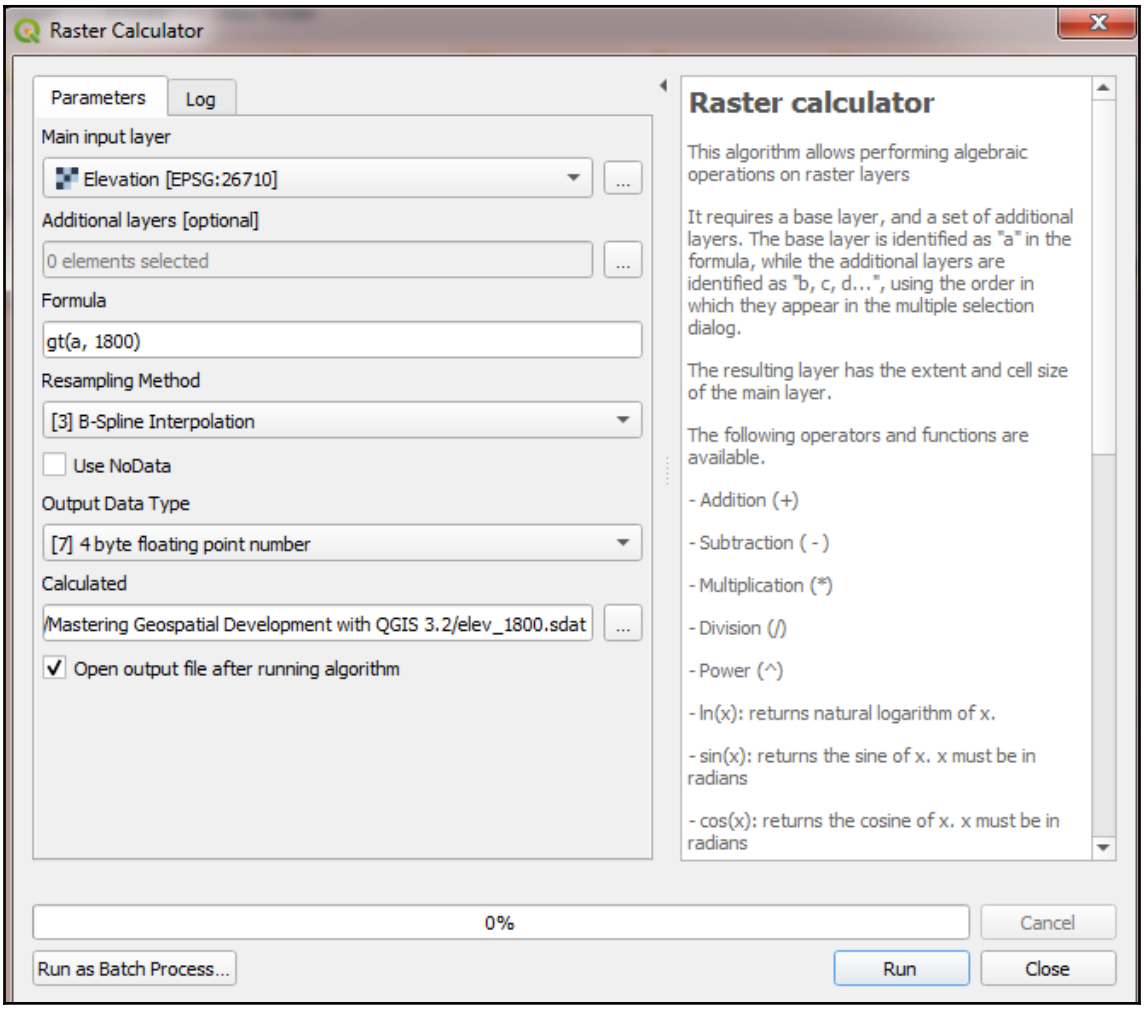

Processing Toolbox
viewshed
GRASS
Raster (r.*)
r.vi
Execute...
Execute as Batch Process...
Edit Rendering Styles for Outputs...

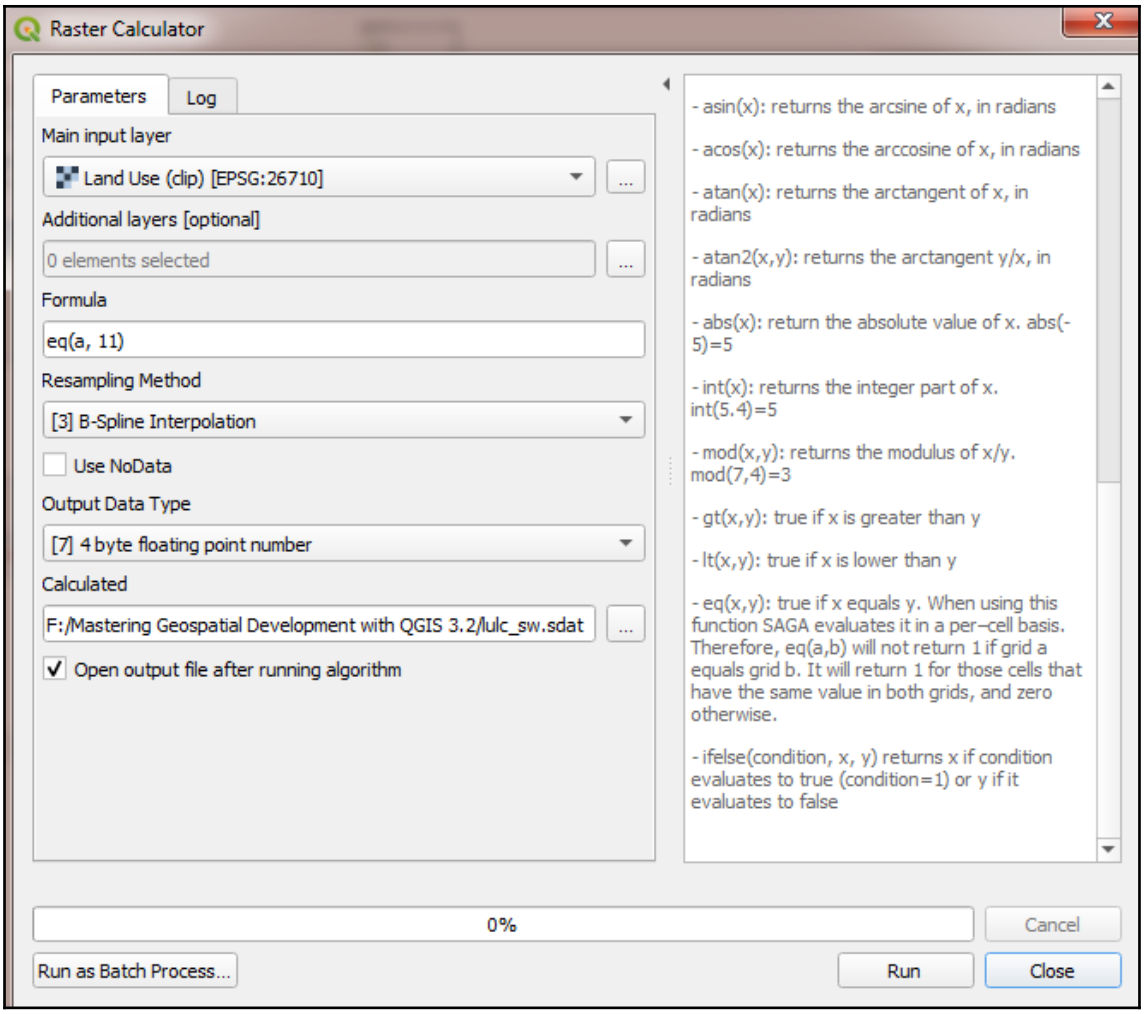

r.viewshed
Parameters
Log
Elevation
Clipped (mask) [EPSG:26710]
Coordinate identifying the viewing position (x, y)
574599.082827, 4749967.314004
Viewing elevation above the ground [optional]
20.000000
Offset for target elevation above the ground [optional]
0.000000
Maximum visibility radius. By default infinity (-1) [optional]
32000.000000
Refraction coefficient [optional]
0.142860
Amount of memory to use in MB [optional]
500
Advanced parameters
Intervisibility
/Mastering Geospatial Development with QGIS 3.2/Data/tower1.tif
Open output file after running algorithm
r.viewshed
Computes the viewshed of a point on an elevation raster map.
0%
Cancel
Run as Batch Process...
Run
Close
Help

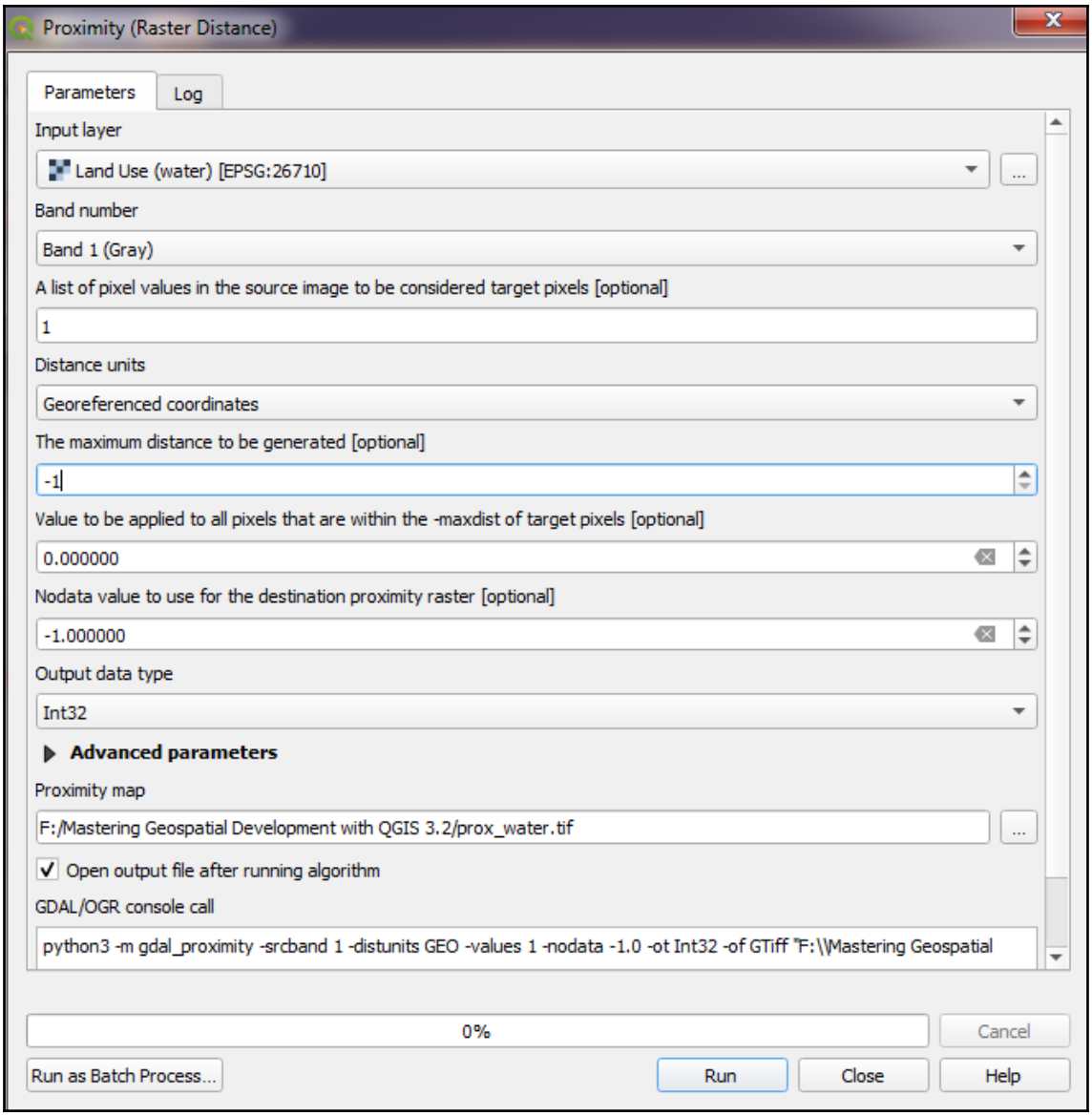

r.mapcalc.simple
Parameters
Log
tower 1 [EPSG:26710]
Raster layer B
tower 2 [EPSG:26710]
Raster layer C
tower 3 [EPSG:26710]
Raster layer D
tower 1 [EPSG:26710]
Raster layer E
tower 2 [EPSG:26710]
Raster layer F
tower 3 [EPSG:26710]
Formula
if(isnull(A), 0, 1) + if(isnull(B), 0, 10) + if(isnull(A), 0, 100)
Advanced parameters
GRASS GIS 7 region extent (xmin, xmax, ymin, ymax) [optional]
[Leave blank to use min covering extent]
GRASS GIS 7 region cellsize (leave 0 for default)
0.000000
Output Rasters format options (createopt) [optional]
r.mapcalc.simple
Calculate new raster map from a r.mapcalc expression.
0%
Cancel
Run as Batch Process...
Run
Close
Help

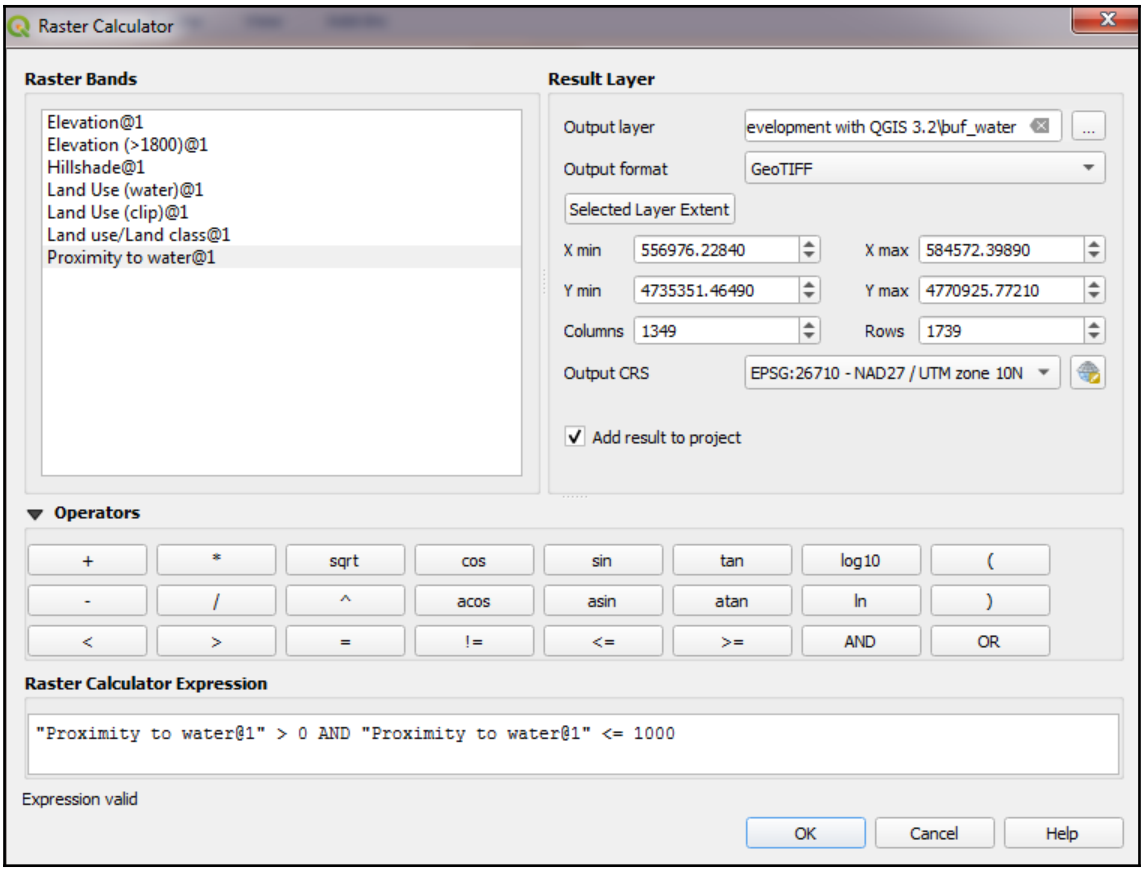

Value
Color
Label
0.000000
Not Visible
1.000000
Tower 1
10.000000
Tower 2
11.000000
Tower 1 and 2
100.000000
Tower 3
101.000000
Towers 1 and 3
110.000000
Towers 2 and 3
111.000000
Towers 1, 2 and 3

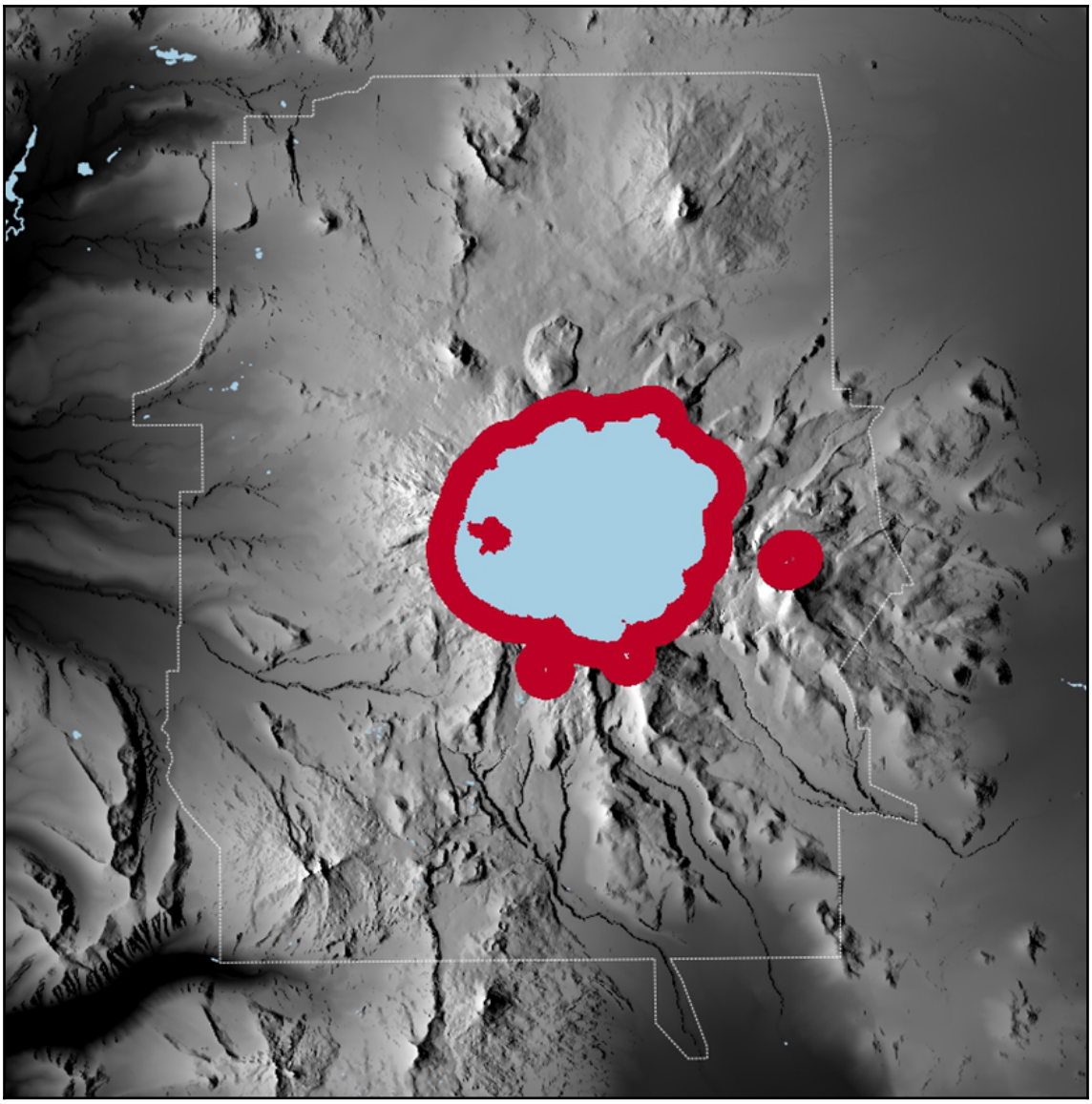

*viewshed - QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh MMQGIS Processing Help
Browser
Favorites
Project Home
Home
C:\
D:\
E:\
F:\
G:\
H:\
GeoPackage
SpatiaLite
PostGIS
MSSQL
Layers
91.2
tower 2
54.2
62.8
71.5
80.1
88.8
tower 1
65.91
73.07
80.23
Processing Toolbox
r.mapcalc
Recently used
r.mapcalc.simple
GRASS
Raster (r.*)
r.mapcalc.simple
Type to locate (Ctrl+K)
Coordinate 591786,4748858
Scale 1:302455
Magnifier 100%
Rotation 0.0 °
Render
EPSG:26710

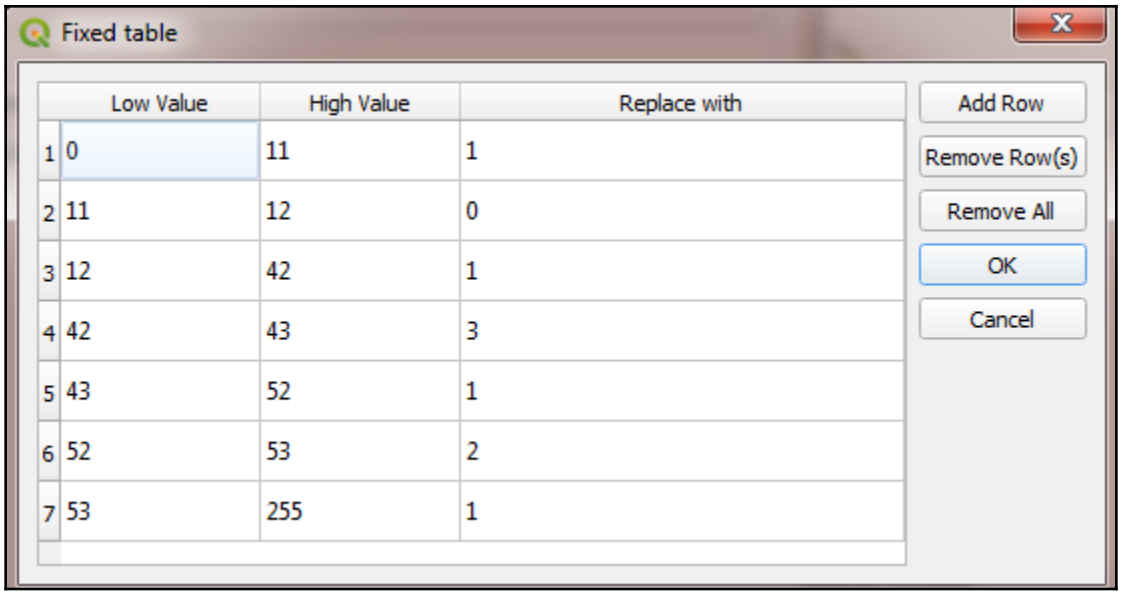

Raster Calculator
Parameters
Log
Main input layer
Elevation [EPSG:26710]
Additional layers [optional]
0 elements selected
Formula
gt(a, 1800)
Resampling Method
[3] B-Spline Interpolation
Use NoData
Output Data Type
[7] 4 byte floating point number
Calculated
/Mastering Geospatial Development with QGIS 3.2/elev_1800.sdat
Open output file after running algorithm
Raster calculator
This algorithm allows performing algebraic operations on raster layers
It requires a base layer, and a set of additional layers. The base layer is identified as "a" in the formula, while the additional layers are identified as "b, c, d...", using the order in which they appear in the multiple selection dialog.
The resulting layer has the extent and cell size of the main layer.
The following operators and functions are available.
- Addition (+)
- Subtraction (-)
- Multiplication (*)
- Division (/)
- Power (^)
- ln(x): returns natural logarithm of x.
- sin(x): returns the sine of x. x must be in radians
- cos(x): returns the cosine of x. x must be in radians
0%
Cancel
Run as Batch Process...
Run
Close

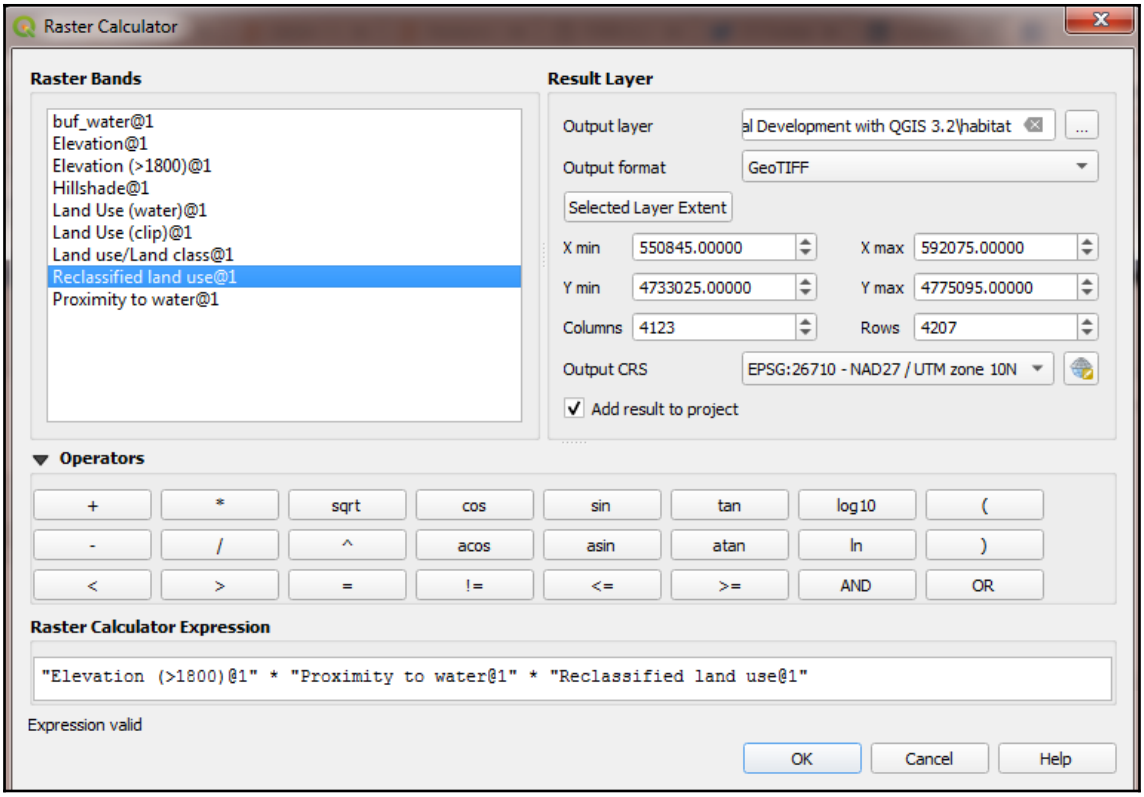

Raster Calculator
Parameters
Log
Main input layer
Land Use (clip) [EPSG:26710]
Additional layers [optional]
0 elements selected
Formula
eq(a, 11)
Resampling Method
[3] B-Spline Interpolation
Use NoData
Output Data Type
[7] 4 byte floating point number
Calculated
F:/Mastering Geospatial Development with QGIS 3.2/lulc_sw.sdat
Open output file after running algorithm
- asin(x): returns the arcsine of x, in radians
- acos(x): returns the arccosine of x, in radians
- atan(x): returns the arctangent of x, in radians
- atan2(x,y): returns the arctangent y/x, in radians
- abs(x): return the absolute value of x. abs(-5)=5
- int(x): returns the integer part of x. int(5.4)=5
- mod(x,y): returns the modulus of x/y. mod(7,4)=3
- gt(x,y): true if x is greater than y
- lt(x,y): true if x is lower than y
- eq(x,y): true if x equals y. When using this function SAGA evaluates it in a per-cell basis. Therefore, eq(a,b) will not return 1 if grid a equals grid b. It will return 1 for those cells that have the same value in both grids, and zero otherwise.
- ifelse(condition, x, y) returns x if condition evaluates to true (condition=1) or y if it evaluates to false
0%
Cancel
Run as Batch Process...
Run
Close

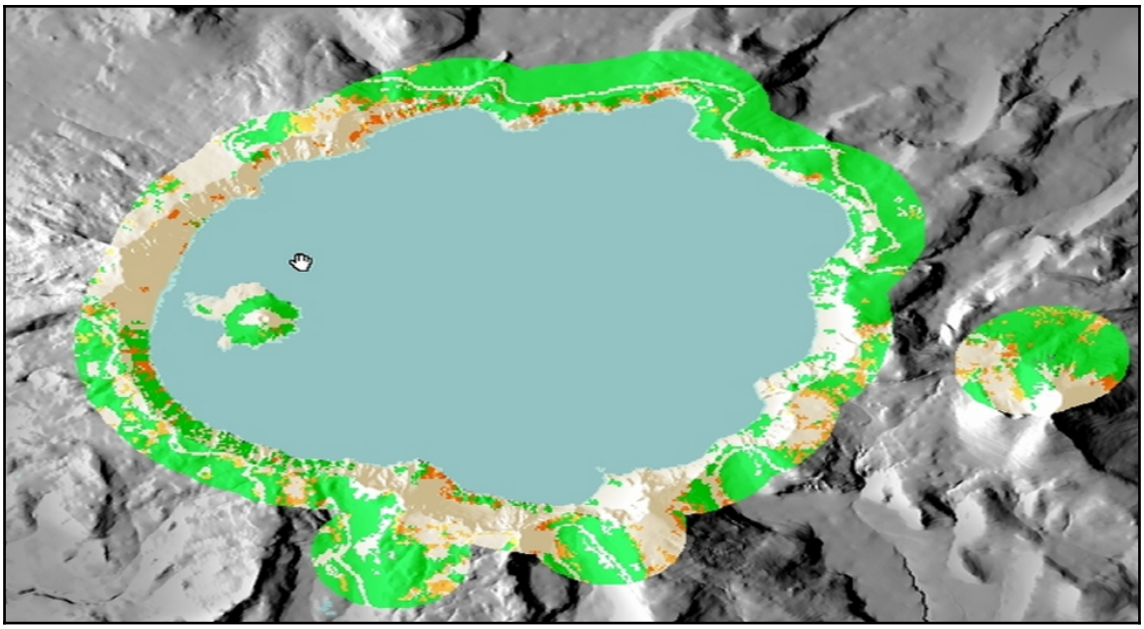

Proximity (Raster Distance)
Parameters
Log
Input layer
Land Use (water) [EPSG:26710]
Band number
Band 1 (Gray)
A list of pixel values in the source image to be considered target pixels [optional]
1
Distance units
Georeferenced coordinates
The maximum distance to be generated [optional]
-1
Value to be applied to all pixels that are within the -maxdist of target pixels [optional]
0.000000
Nodata value to use for the destination proximity raster [optional]
-1.000000
Output data type
Int32
Advanced parameters
Proximity map
F:/Mastering Geospatial Development with QGIS 3.2/prox_water.tif
Open output file after running algorithm
GDAL/OGR console call
python3 -m gdal_proximity -srcband 1 -distunits GEO -values 1 -nodata -1.0 -ot Int32 -of GTiff "F:\\Mastering Geospatial
0%
Cancel
Run as Batch Process...
Run
Close
Help

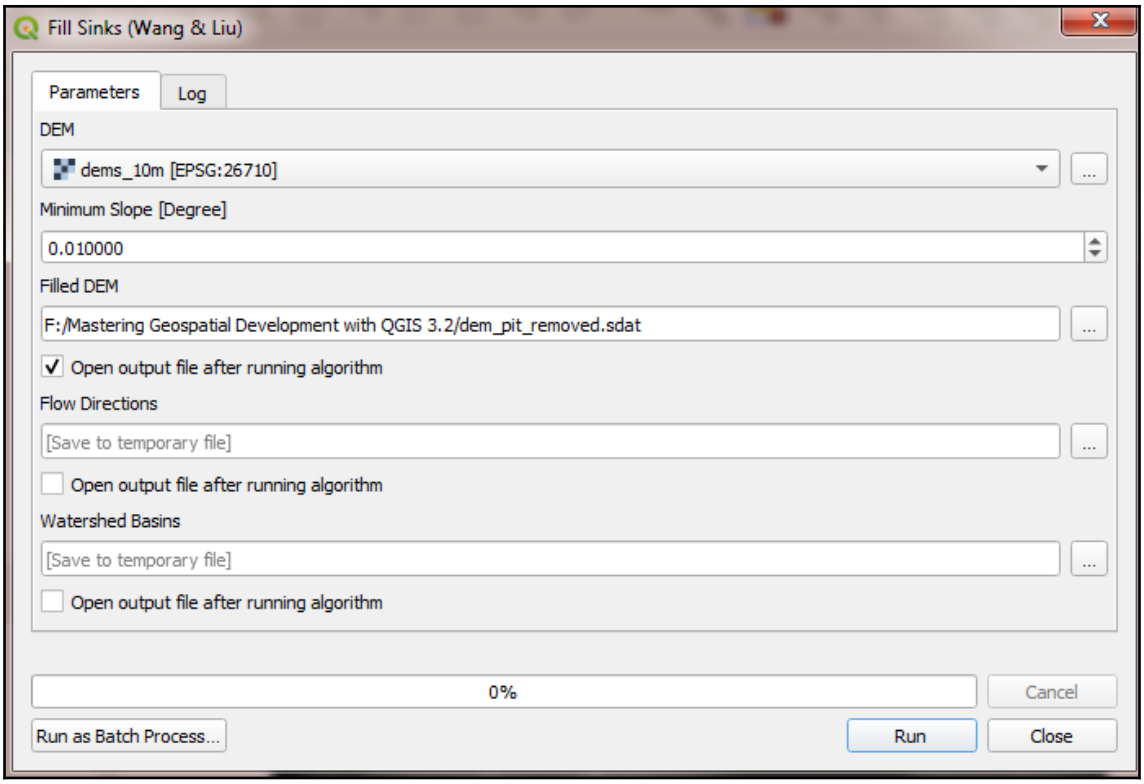

Raster Calculator
Raster Bands
Elevation@1
Elevation (>1800)@1
Hillshade@1
Land Use (water)@1
Land Use (clip)@1
Land use/Land class@1
Proximity to water@1
Result Layer
Output layer
evelopment with QGIS 3.2\buf_water
Output format
GeoTIFF
Selected Layer Extent
X min
556976.22840
X max
584572.39890
Y min
4735351.46490
Y max
4770925.77210
Columns
1349
Rows
1739
Output CRS
EPSG:26710 - NAD27 / UTM zone 10N
Add result to project
Operators
+
*
sqrt
cos
sin
tan
log10
(
-
/
^
acos
asin
atan
ln
)
<
>
=
!=
<=
>=
AND
OR
Raster Calculator Expression
"Proximity to water@1" > 0 AND "Proximity to water@1" <= 1000
Expression valid
OK
Cancel
Help

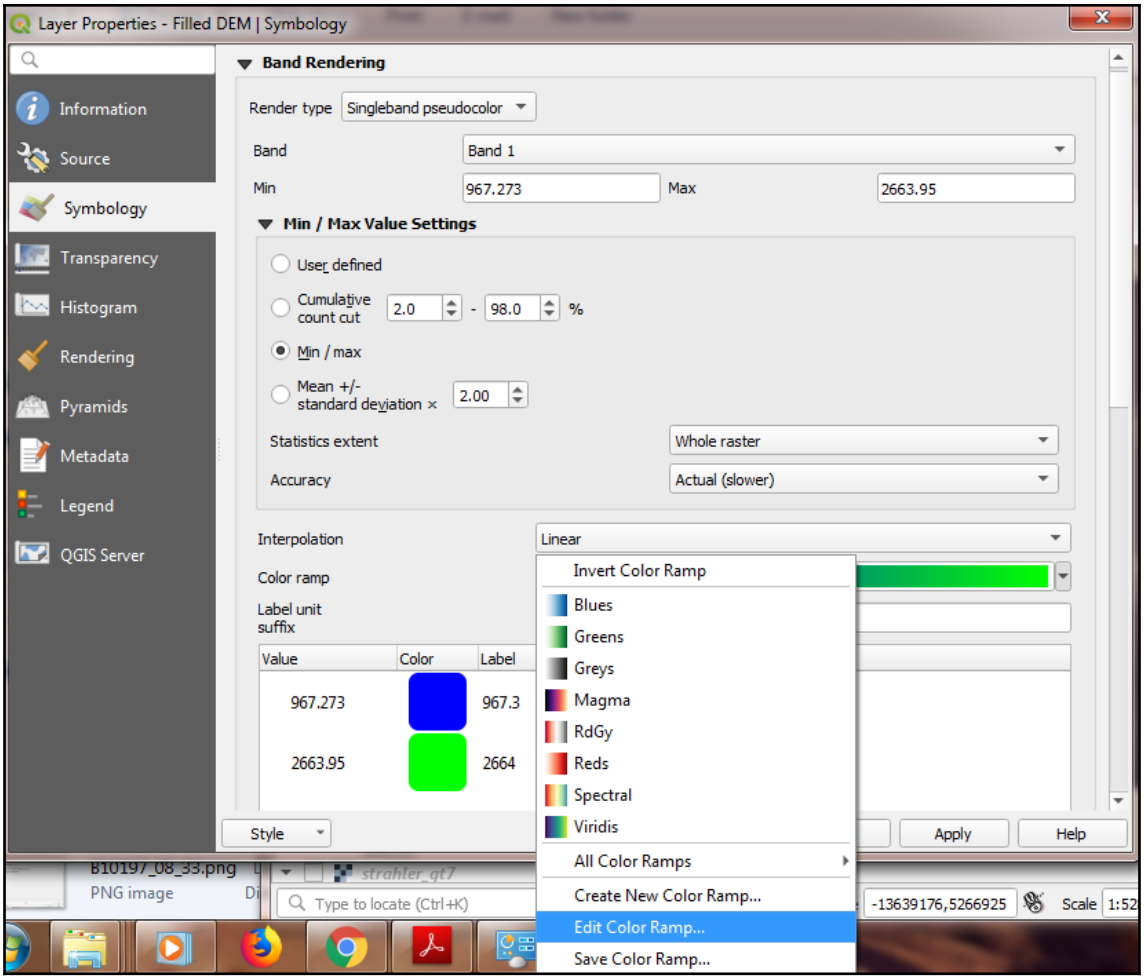


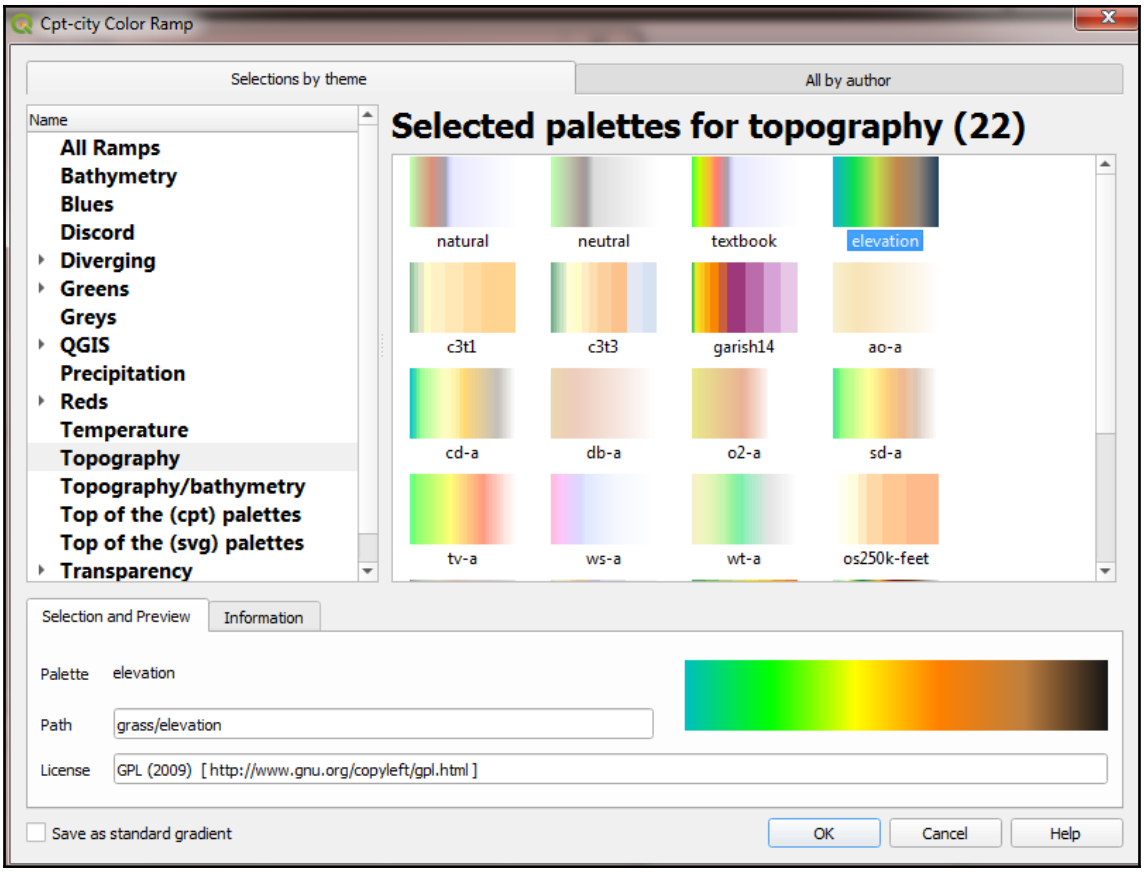

Fixed table
Low Value
High Value
Replace with
1 0 11 1
2 11 12 0
3 12 42 1
4 42 43 3
5 43 52 1
6 52 53 2
7 53 255 1
Add Row
Remove Row(s)
Remove All
OK
Cancel

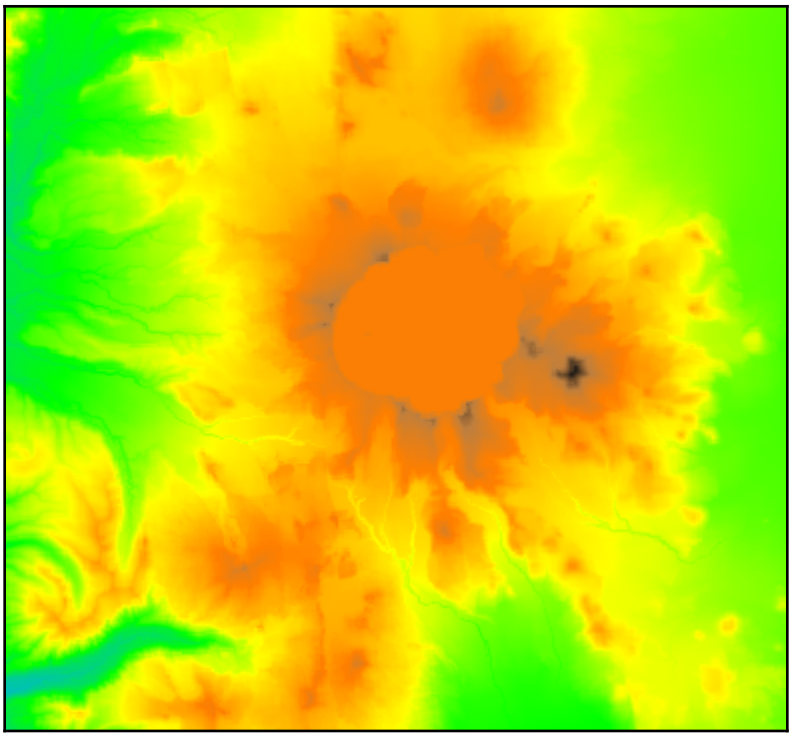

Raster Calculator
Raster Bands
buf_water@1
Elevation@1
Elevation (>1800)@1
Hillshade@1
Land Use (water)@1
Land Use (clip)@1
Land use/Land class@1
Reclassified land use@1
Proximity to water@1
Result Layer
Output layer
al Development with QGIS 3.2\habitat
Output format
GeoTIFF
Selected Layer Extent
X min
550845.00000
X max
592075.00000
Y min
4733025.00000
Y max
4775095.00000
Columns
4123
Rows
4207
Output CRS
EPSG:26710 - NAD27 / UTM zone 10N
Add result to project
Operators
+
*
sqrt
cos
sin
tan
log10
(
-
/
^
acos
asin
atan
ln
)
<
>
=
!=
<=
>=
AND
OR
Raster Calculator Expression
"Elevation (>1800)@1" * "Proximity to water@1" * "Reclassified land use@1"
Expression valid
OK
Cancel
Help

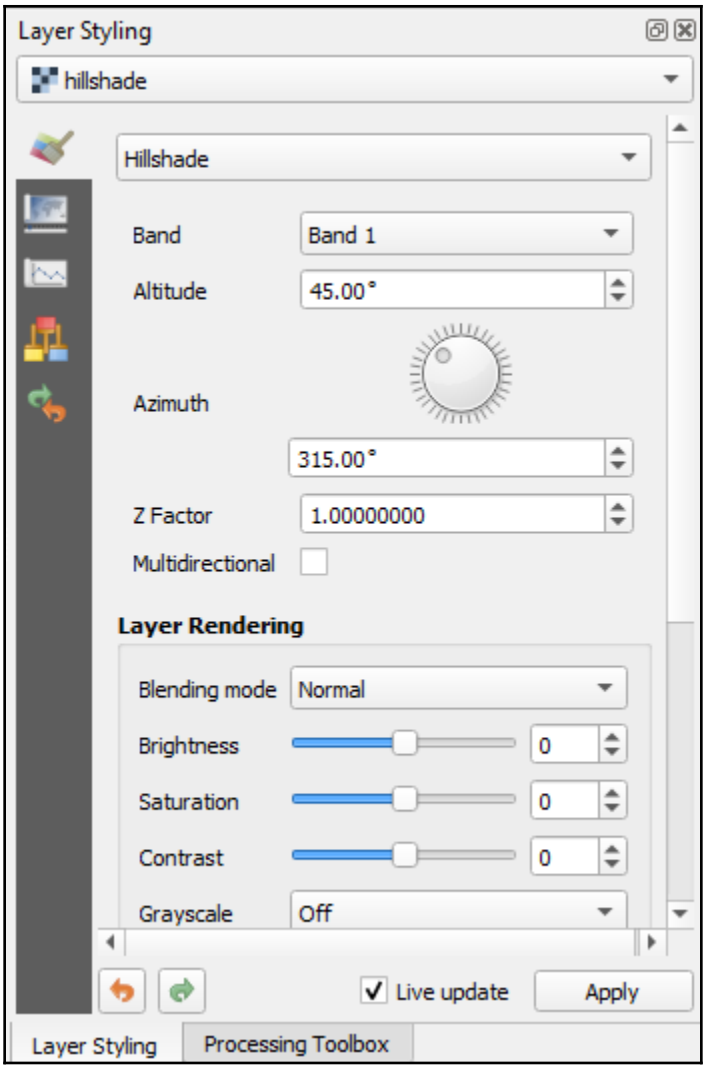


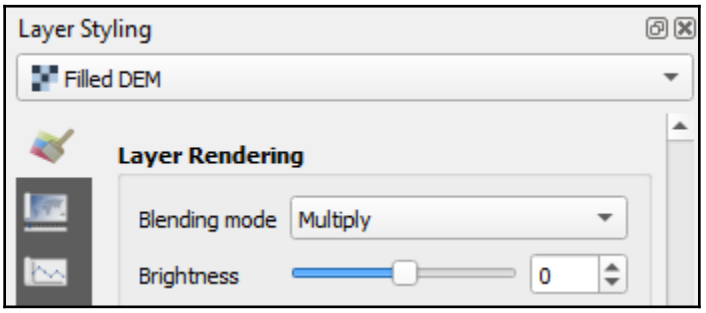

Fill Sinks (Wang & Liu)
Parameters
Log
DEM
dems_10m [EPSG:26710]
Minimum Slope [Degree]
0.010000
Filled DEM
F:/Mastering Geospatial Development with QGIS 3.2/dem_pit_removed.sdat
Open output file after running algorithm
Flow Directions
[Save to temporary file]
Open output file after running algorithm
Watershed Basins
[Save to temporary file]
Open output file after running algorithm
0%
Cancel
Run as Batch Process...
Run
Close

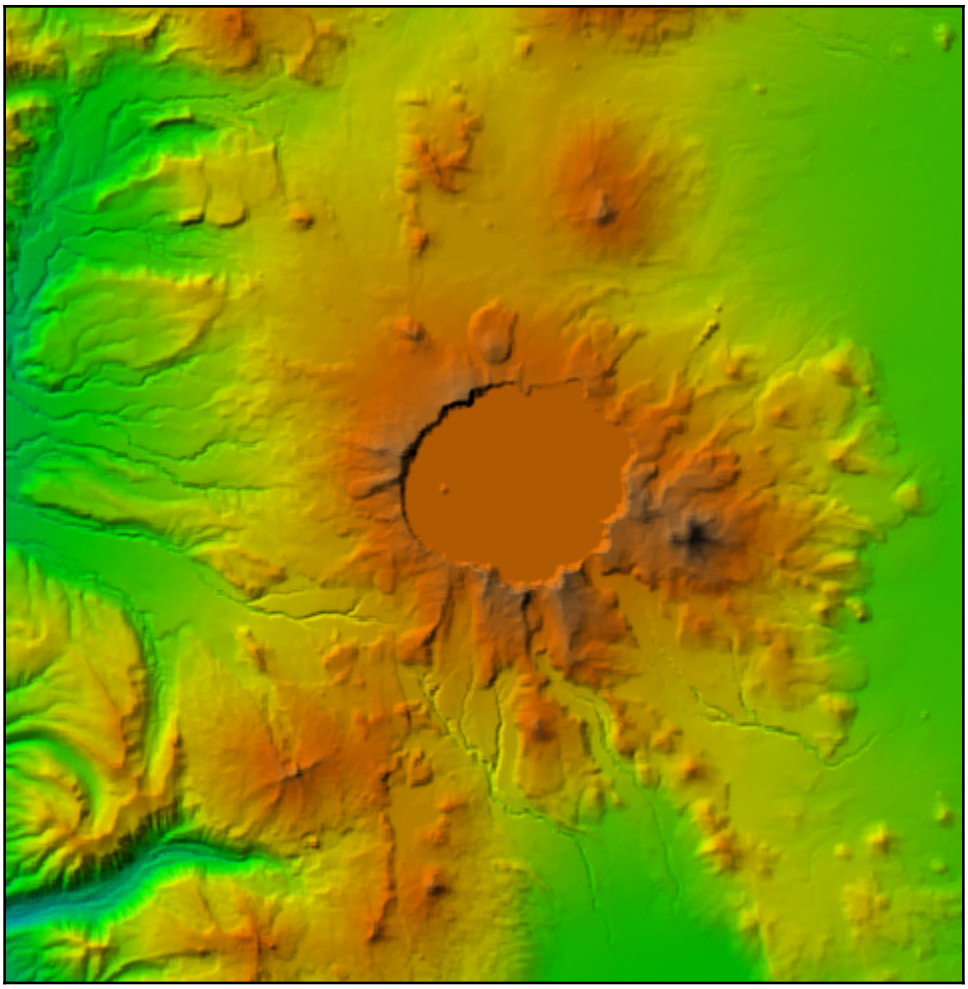

Layer Properties - Filled DEM | Symbology
Information
Source
Symbology
Transparency
Histogram
Rendering
Pyramids
Metadata
Legend
QGIS Server
Band Rendering
Render type
Singleband pseudocolor
Band
Band 1
Min
967.273
Max
2663.95
Min / Max Value Settings
User defined
Cumulative count cut
2.0
98.0
%
Min / max
Mean +/- standard deviation ×
2.00
Statistics extent
Whole raster
Accuracy
Actual (slower)
Interpolation
Linear
Color ramp
Label unit suffix
Value
Color
Label
967.273
967.3
2663.95
2664
Invert Color Ramp
Blues
Greens
Greys
Magma
RdGy
Reds
Spectral
Viridis
All Color Ramps
Create New Color Ramp...
Edit Color Ramp...
Save Color Ramp...
Style
Apply
Help
B10197_08_33.png
PNG image
strahler_gt7
Type to locate (Ctrl+K)
-13639176,5266925
Scale
1:52

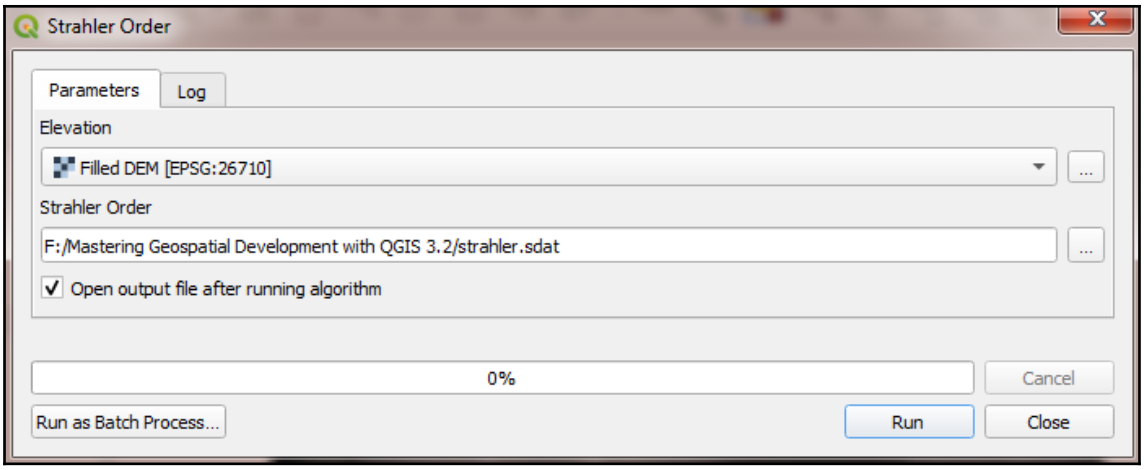

Cpt-city Color Ramp
Selections by theme
All by author
Name
All Ramps
Bathymetry
Blues
Discord
Diverging
Greens
Greys
QGIS
Precipitation
Reds
Temperature
Topography
Topography/bathymetry
Top of the (cpt) palettes
Top of the (svg) palettes
Transparency
Selected palettes for topography (22)
natural
neutral
textbook
elevation
c3t1
c3t3
garish14
ao-a
cd-a
db-a
o2-a
sd-a
tv-a
ws-a
wt-a
os250k-feet
Selection and Preview
Information
Palette
elevation
Path
grass/elevation
License
GPL (2009) [http://www.gnu.org/copyleft/gpl.html]
Save as standard gradient
OK
Cancel
Help

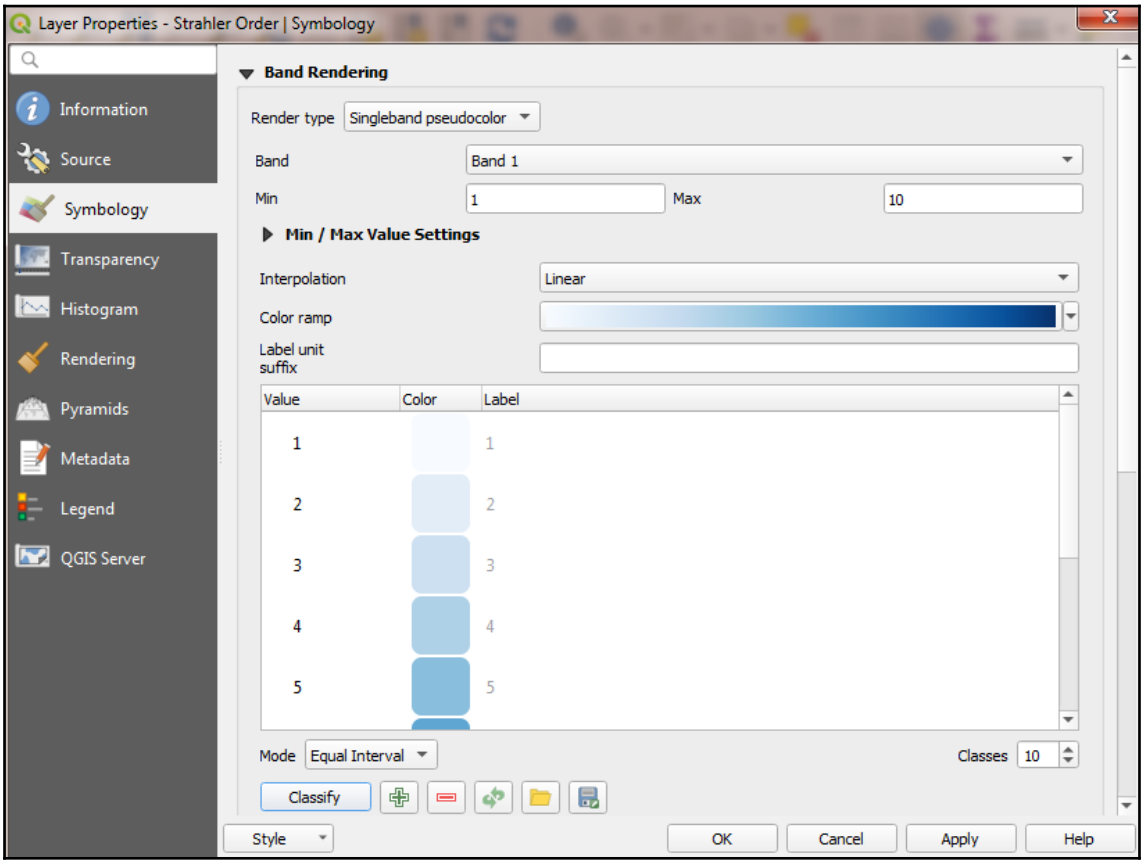


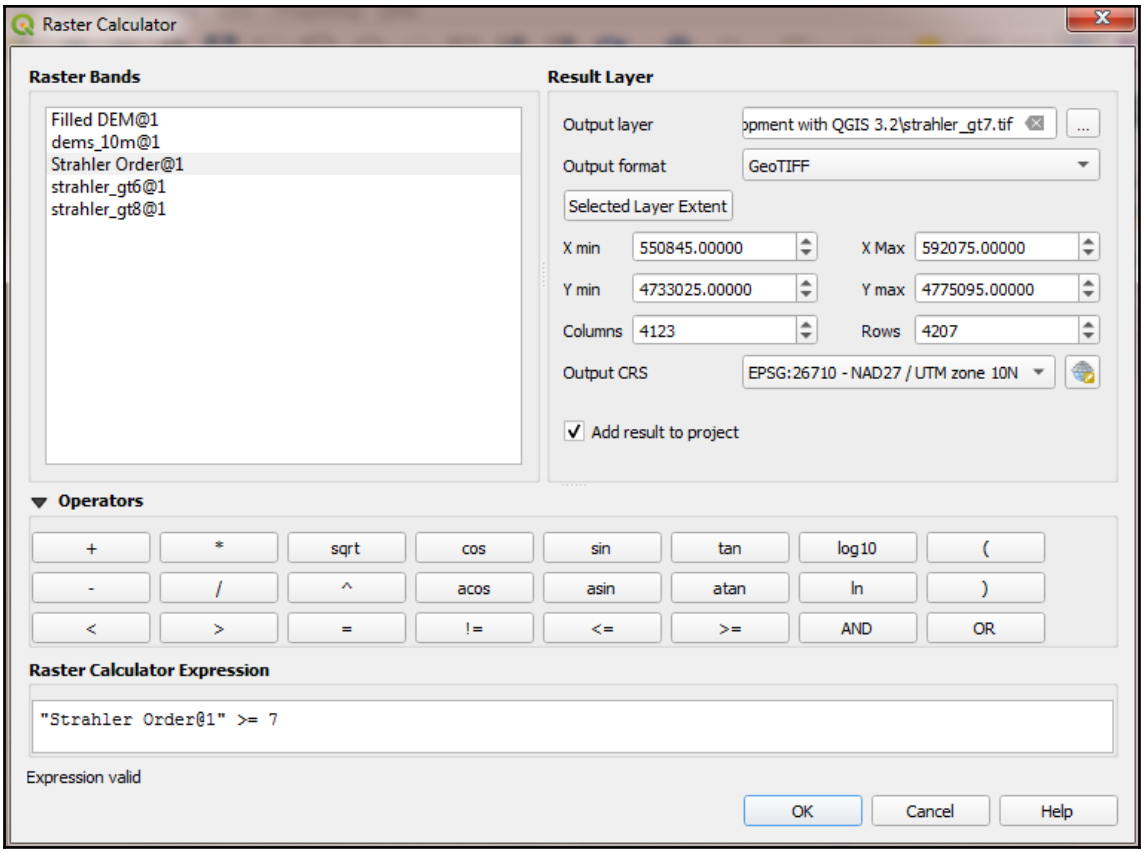

Layer Styling
hillshade
Hillshade
Band
Band 1
Altitude
45.00°
Azimuth
315.00°
Z Factor
1.00000000
Multidirectional
Layer Rendering
Blending mode
Normal
Brightness
0
Saturation
0
Contrast
0
Grayscale
Off
Live update
Apply
Layer Styling
Processing Toolbox

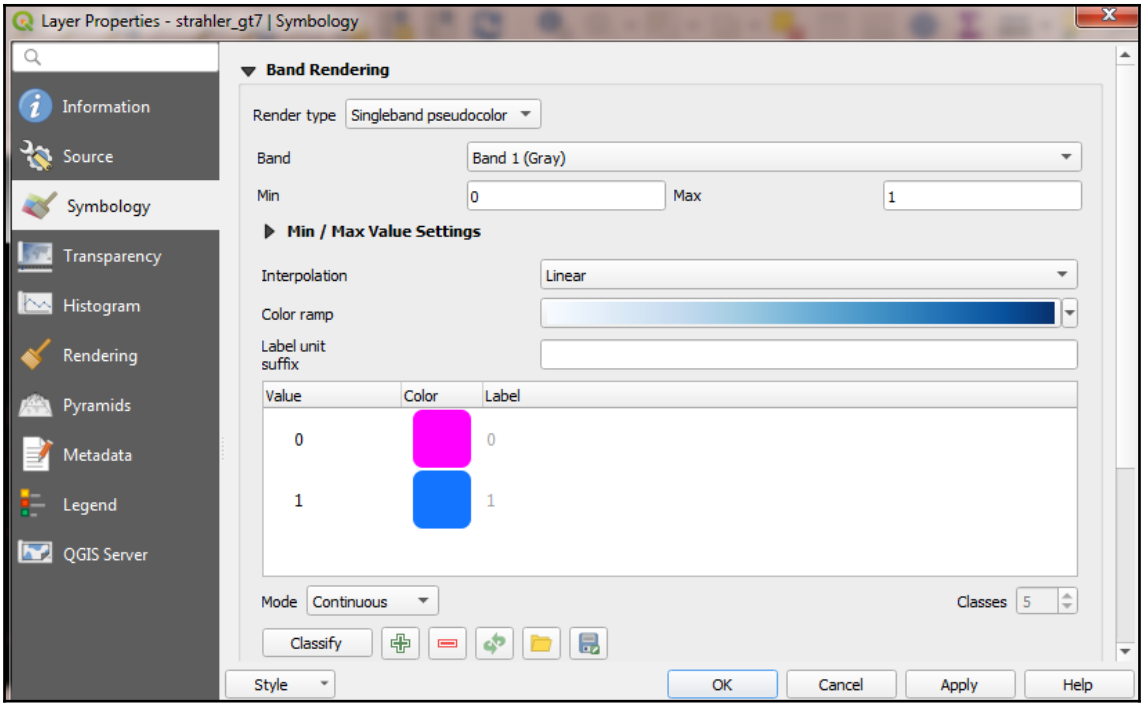

Layer Styling
Filled DEM
Layer Rendering
Blending mode
Multiply
Brightness
0

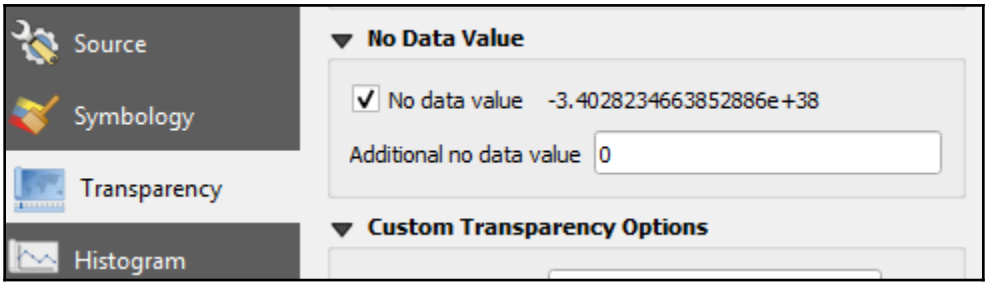


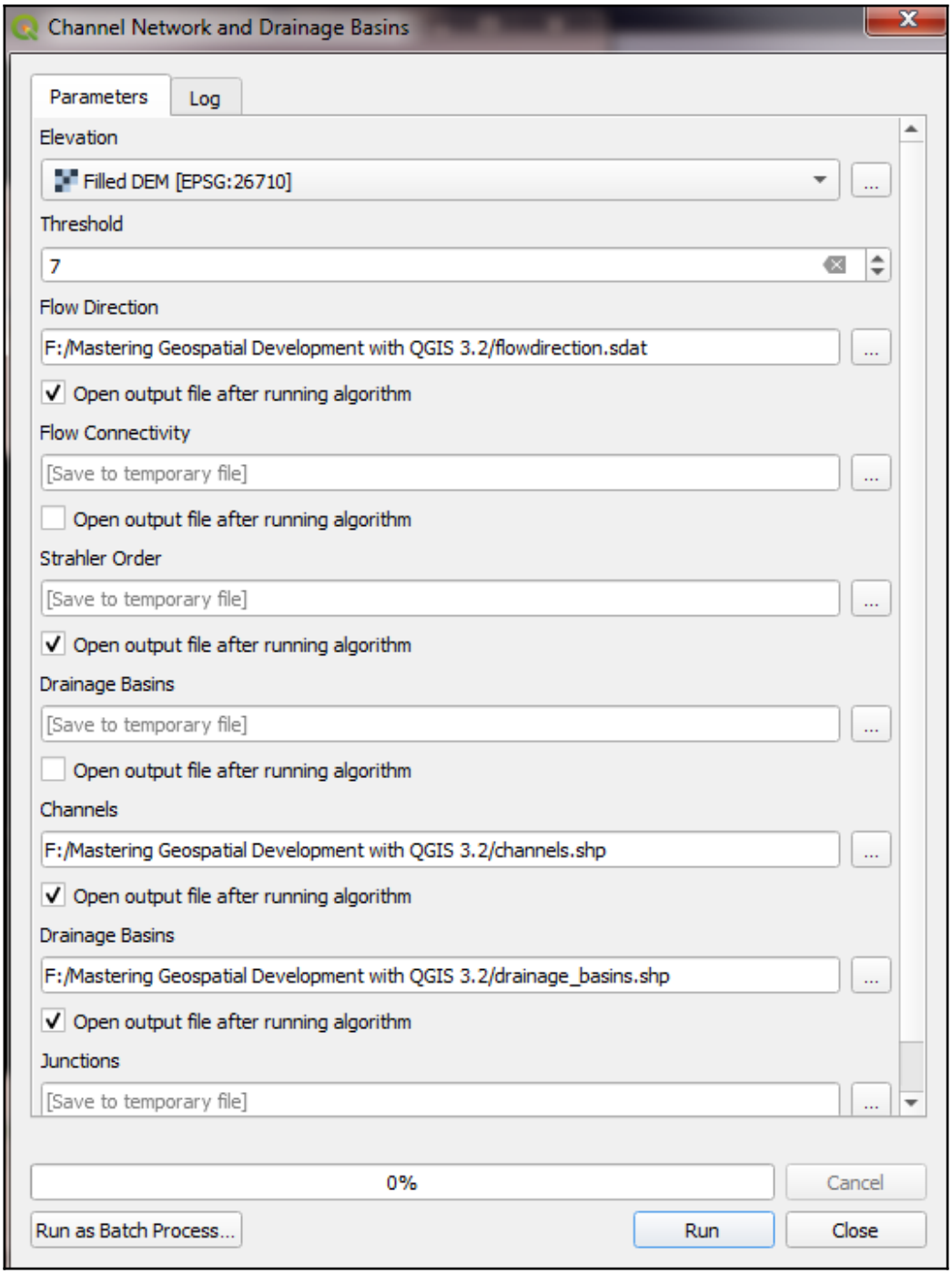

Strahler Order
Parameters
Log
Elevation
Filled DEM [EPSG:26710]
Strahler Order
F:/Mastering Geospatial Development with QGIS 3.2/strahler.sdat
Open output file after running algorithm
0%
Cancel
Run as Batch Process...
Run
Close

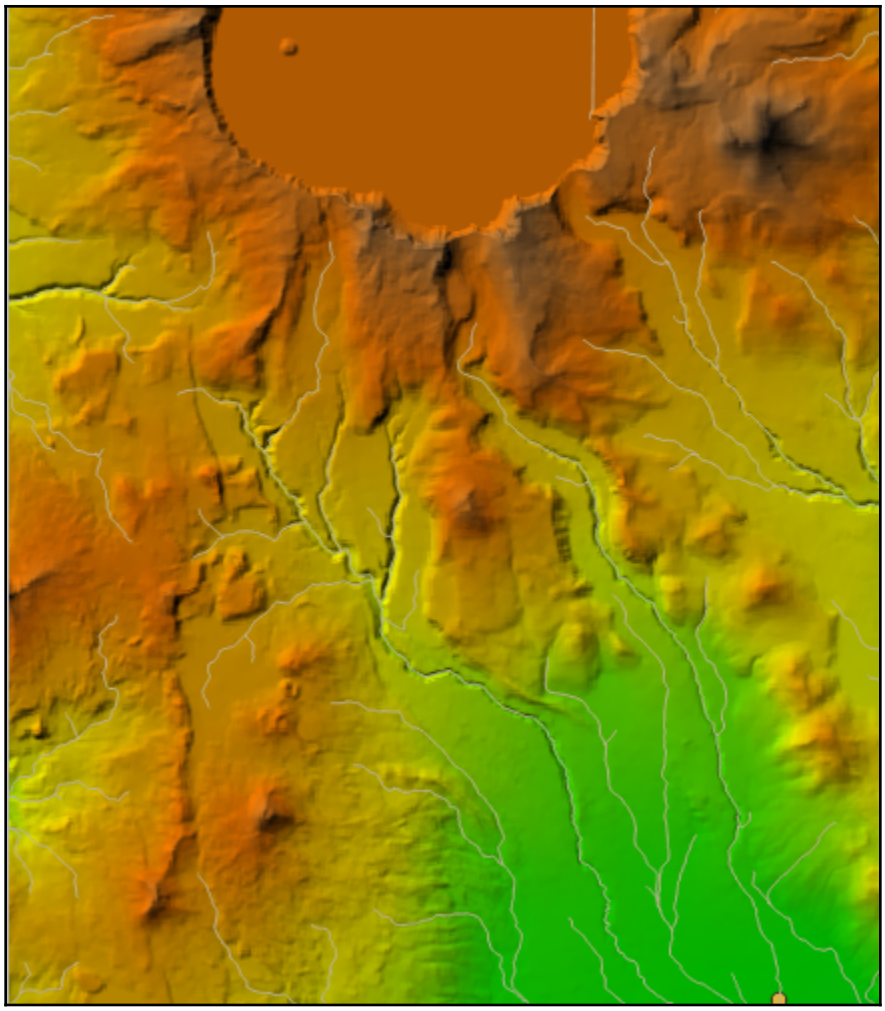

Layer Properties - Strahler Order | Symbology
Information
Source
Symbology
Transparency
Histogram
Rendering
Pyramids
Metadata
Legend
QGIS Server
Band Rendering
Render type
Singleband pseudocolor
Band
Band 1
Min
1
Max
10
Min / Max Value Settings
Interpolation
Linear
Color ramp
Label unit suffix
Value
Color
Label
1
2
3
4
5
Mode
Equal Interval
Classes
10
Classify
Style
OK
Cancel
Apply
Help

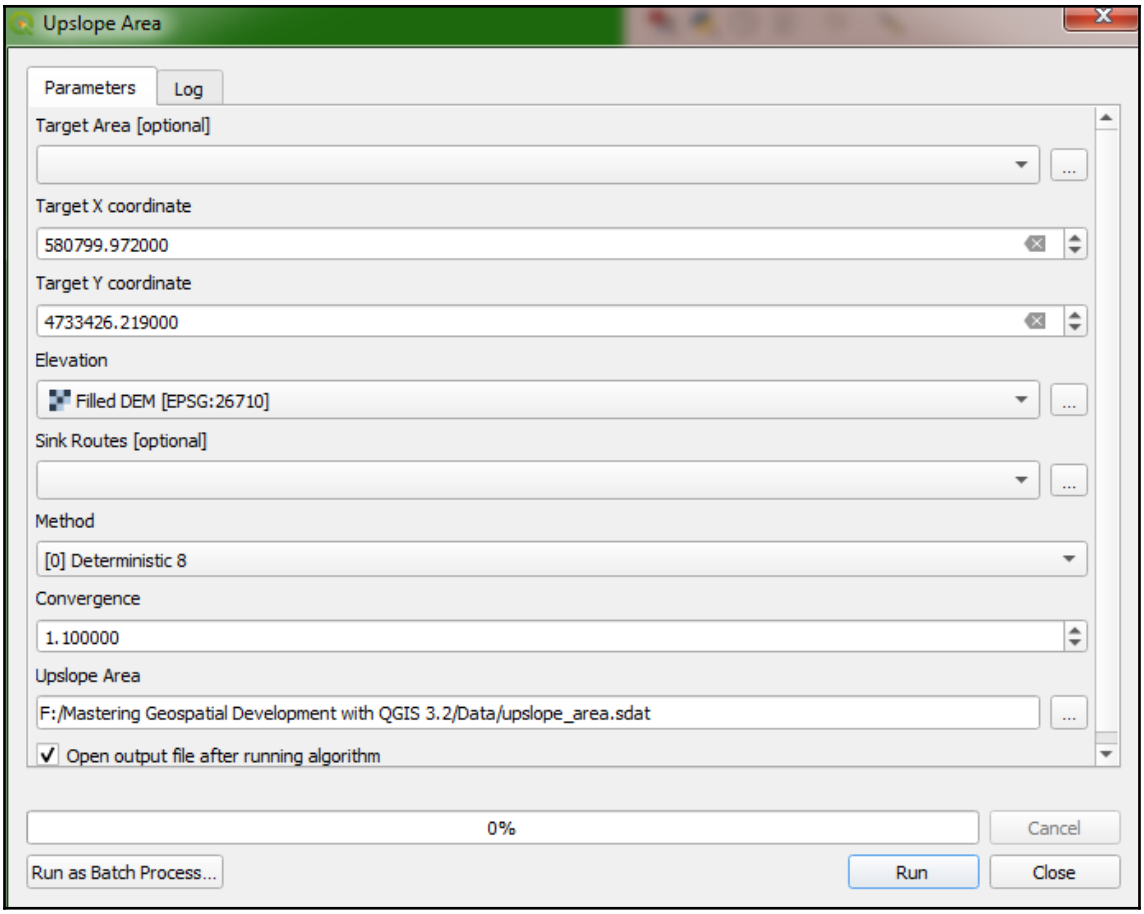

Raster Calculator
Raster Bands
Filled DEM@1
dems_10m@1
Strahler Order@1
strahler_gt6@1
strahler_gt8@1
Result Layer
Output layer
opment with QGIS 3.2\strahler_gt7.tif
Output format
GeoTIFF
Selected Layer Extent
X min
550845.00000
X Max
592075.00000
Y min
4733025.00000
Y max
4775095.00000
Columns
4123
Rows
4207
Output CRS
EPSG:26710 - NAD27 / UTM zone 10N
Add result to project
Operators
+
*
sqrt
cos
sin
tan
log10
(
-
/
^
acos
asin
atan
ln
)
<
>
=
!=
<=
>=
AND
OR
Raster Calculator Expression
"Strahler Order@1" >= 7
Expression valid
OK
Cancel
Help

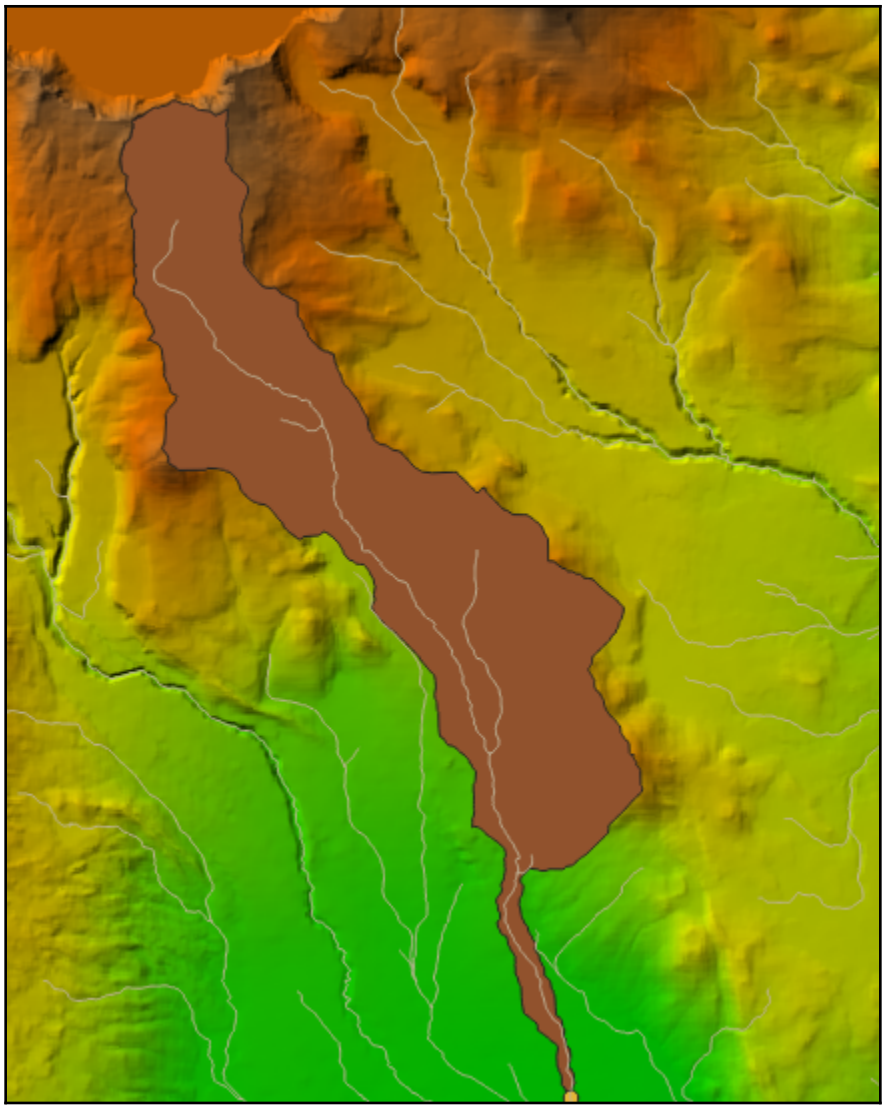

Layer Properties - strahler_gt7 | Symbology
Information
Source
Symbology
Transparency
Histogram
Rendering
Pyramids
Metadata
Legend
QGIS Server
Band Rendering
Render type
Singleband pseudocolor
Band
Band 1 (Gray)
Min
0
Max
1
Min / Max Value Settings
Interpolation
Linear
Color ramp
Label unit suffix
Value
Color
Label
0
0
1
1
Mode
Continuous
Classes
5
Classify
Style
OK
Cancel
Apply
Help

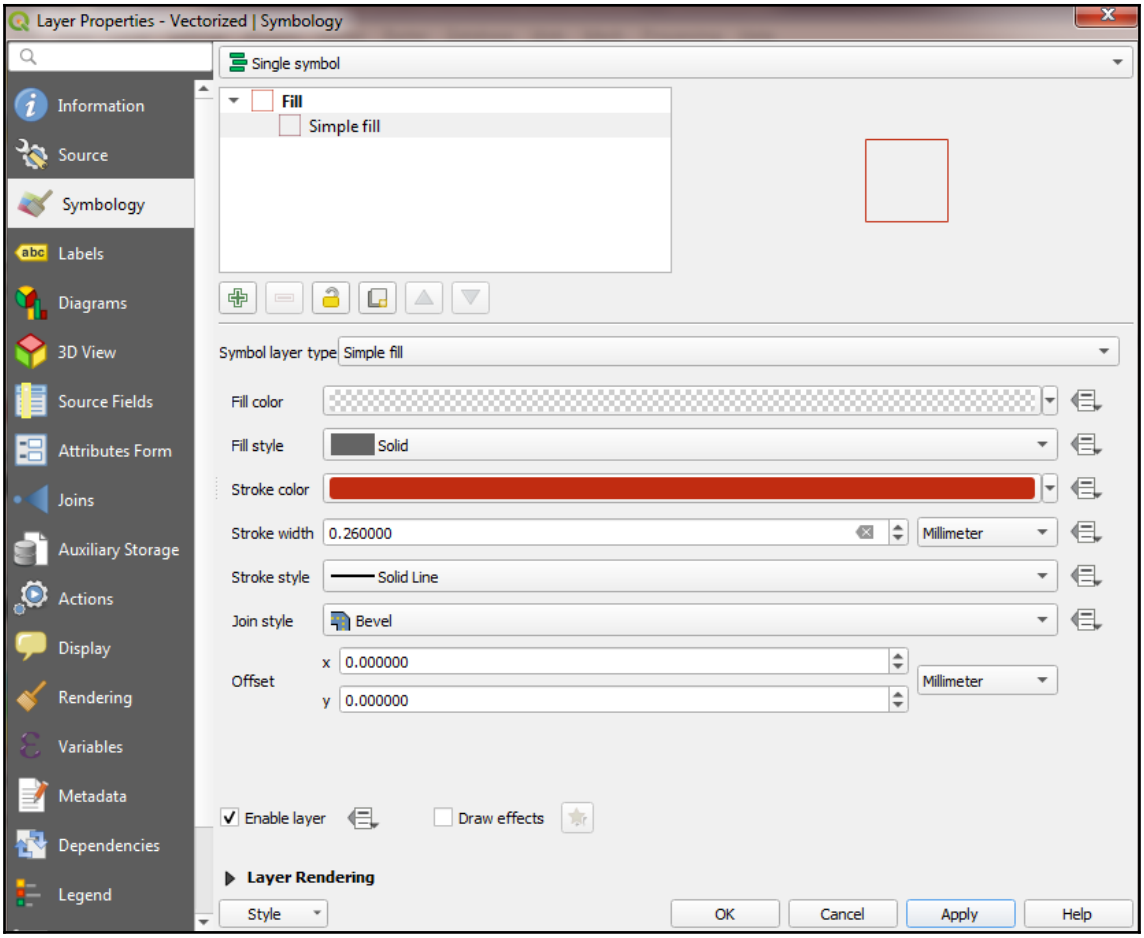

Source
Symbology
Transparency
Histogram
No Data Value
No data value
-3.4028234663852886e+38
Additional no data value
0
Custom Transparency Options

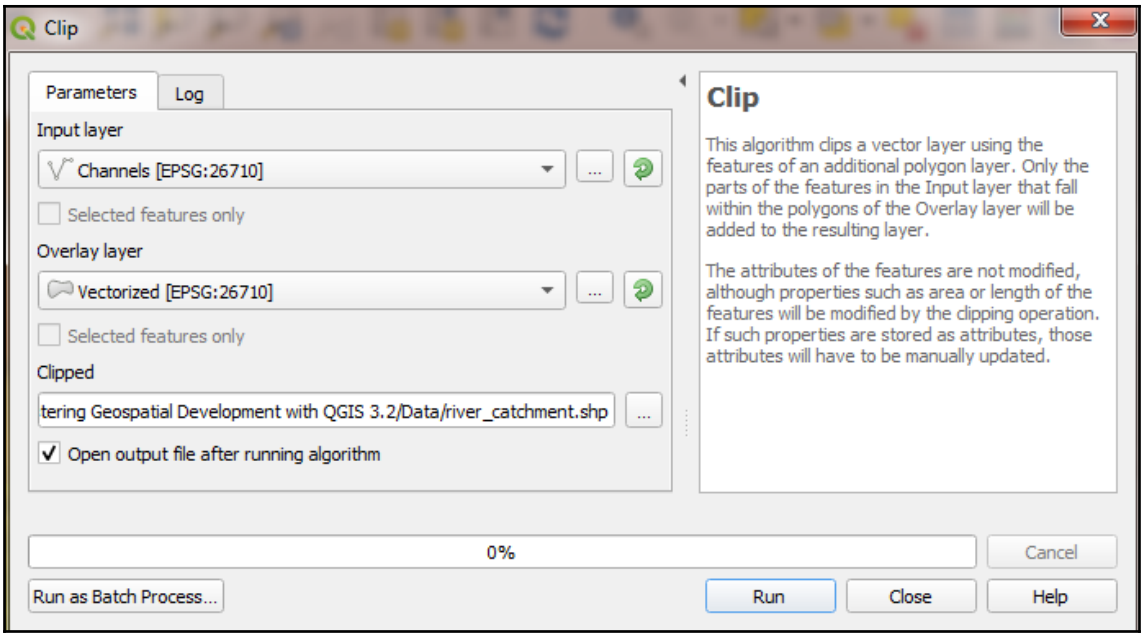

Channel Network and Drainage Basins
Parameters
Log
Elevation
Filled DEM [EPSG:26710]
Threshold
7
Flow Direction
F:/Mastering Geospatial Development with QGIS 3.2/flowdirection.sdat
Open output file after running algorithm
Flow Connectivity
[Save to temporary file]
Open output file after running algorithm
Strahler Order
[Save to temporary file]
Open output file after running algorithm
Drainage Basins
[Save to temporary file]
Open output file after running algorithm
Channels
F:/Mastering Geospatial Development with QGIS 3.2/channels.shp
Open output file after running algorithm
Drainage Basins
F:/Mastering Geospatial Development with QGIS 3.2/drainage_basins.shp
Open output file after running algorithm
Junctions
[Save to temporary file]
0%
Cancel
Run as Batch Process...
Run
Close

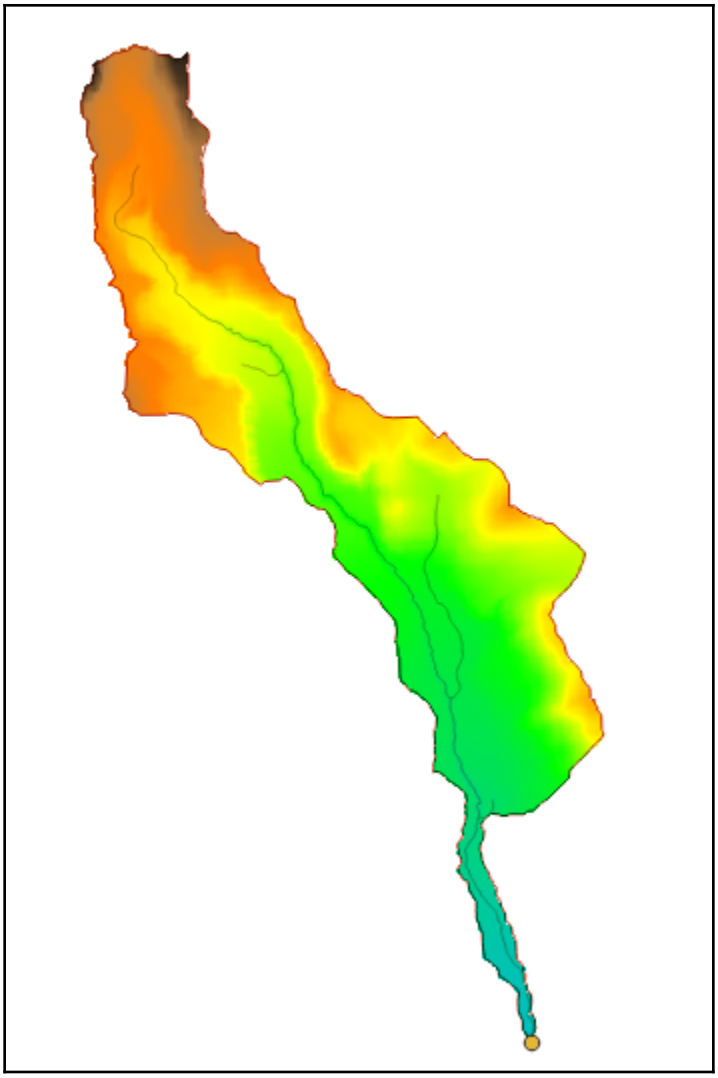



Upslope Area
Parameters
Log
Target Area [optional]
Target X coordinate
580799.972000
Target Y coordinate
4733426.219000
Elevation
Filled DEM [EPSG:26710]
Sink Routes [optional]
Method
[0] Deterministic 8
Convergence
1.100000
Upslope Area
F:/Mastering Geospatial Development with QGIS 3.2/Data/upslope_area.sdat
Open output file after running algorithm
0%
Cancel
Run as Batch Process...
Run
Close

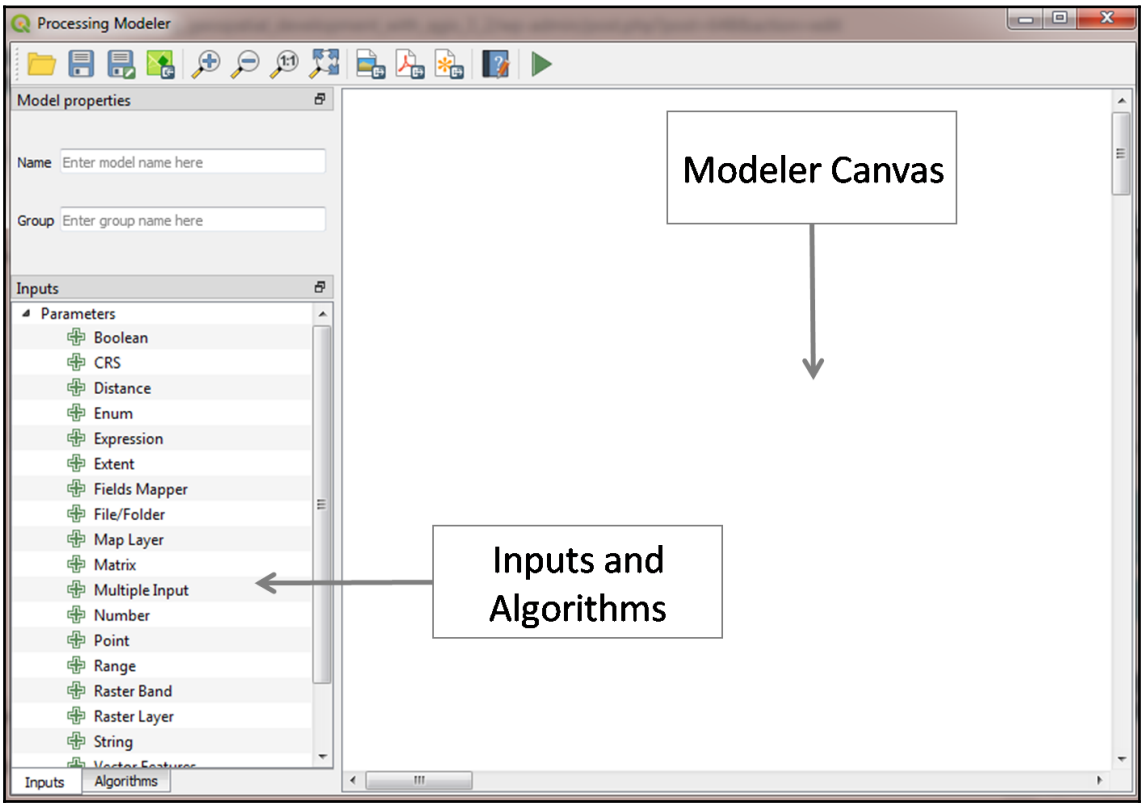


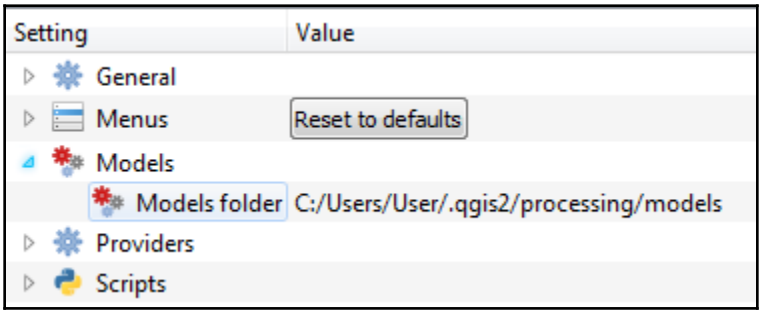

Layer Properties - Vectorized | Symbology
Information
Source
Symbology
Labels
Diagrams
3D View
Source Fields
Attributes Form
Joins
Auxiliary Storage
Actions
Display
Rendering
Variables
Metadata
Dependencies
Legend
Single symbol
Fill
Simple fill
Symbol layer type
Simple fill
Fill color
Fill style
Solid
Stroke color
Stroke width
0.260000
Millimeter
Stroke style
Solid Line
Join style
Bevel
Offset
x
0.000000
y
0.000000
Millimeter
Enable layer
Draw effects
Layer Rendering
Style
OK
Cancel
Apply
Help

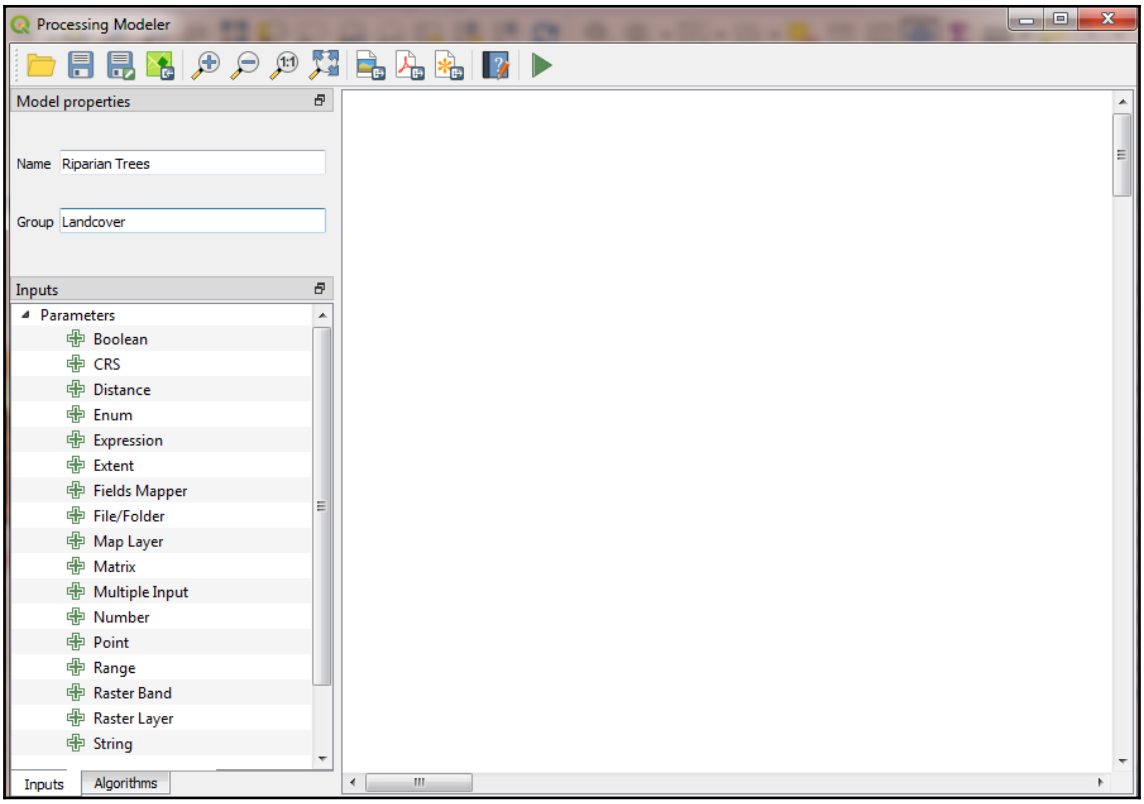

Clip
Parameters
Log
Input layer
Channels [EPSG:26710]
Selected features only
Overlay layer
Vectorized [EPSG:26710]
Selected features only
Clipped
tering Geospatial Development with QGIS 3.2/Data/river_catchment.shp
Open output file after running algorithm
Clip
This algorithm clips a vector layer using the features of an additional polygon layer. Only the parts of the features in the Input layer that fall within the polygons of the Overlay layer will be added to the resulting layer.
The attributes of the features are not modified, although properties such as area or length of the features will be modified by the clipping operation. If such properties are stored as attributes, those attributes will have to be manually updated.
0%
Cancel
Run as Batch Process...
Run
Close
Help

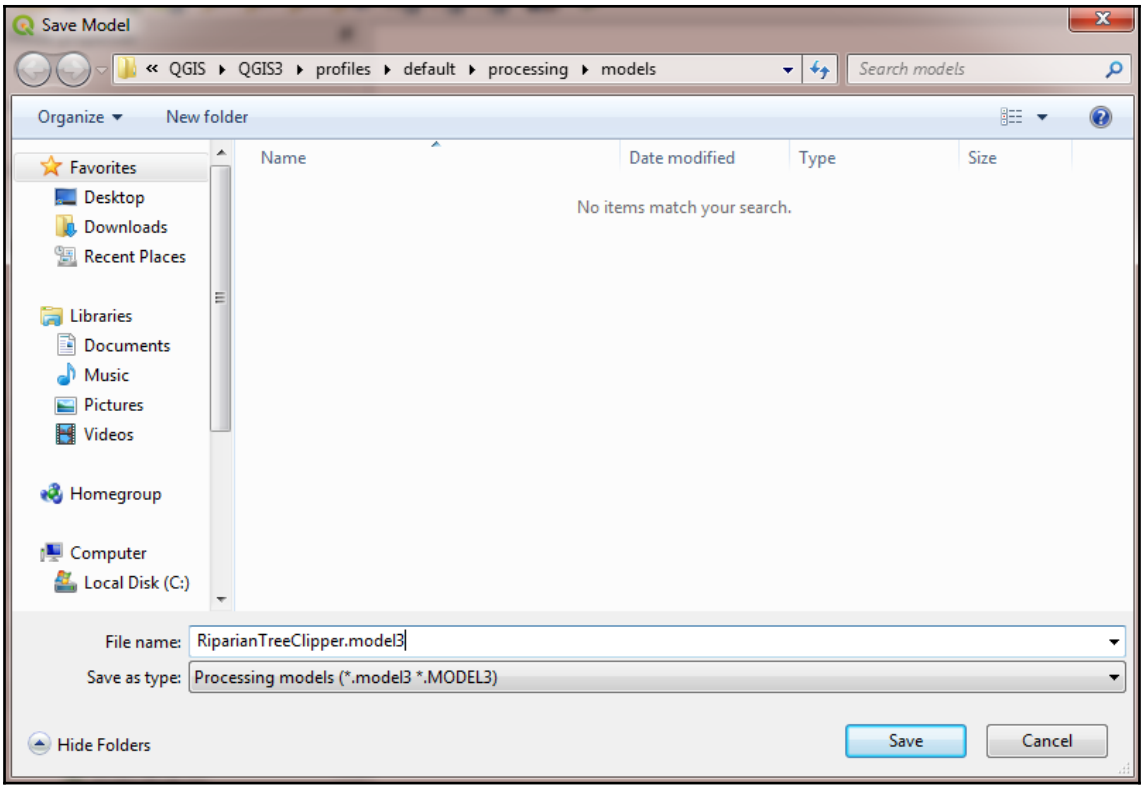


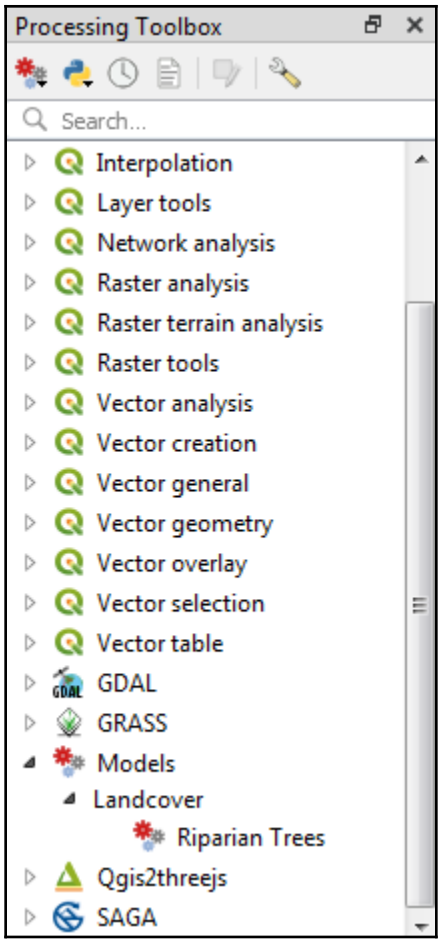
Chapter 9: Automating Workflows with the Graphical Modeler

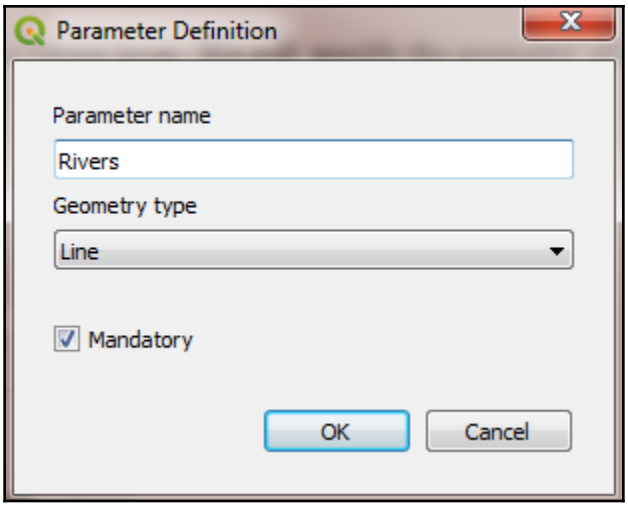


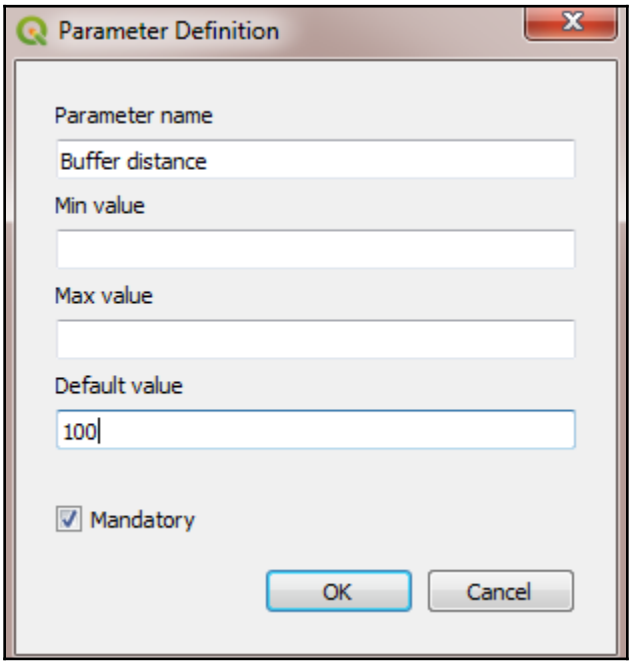


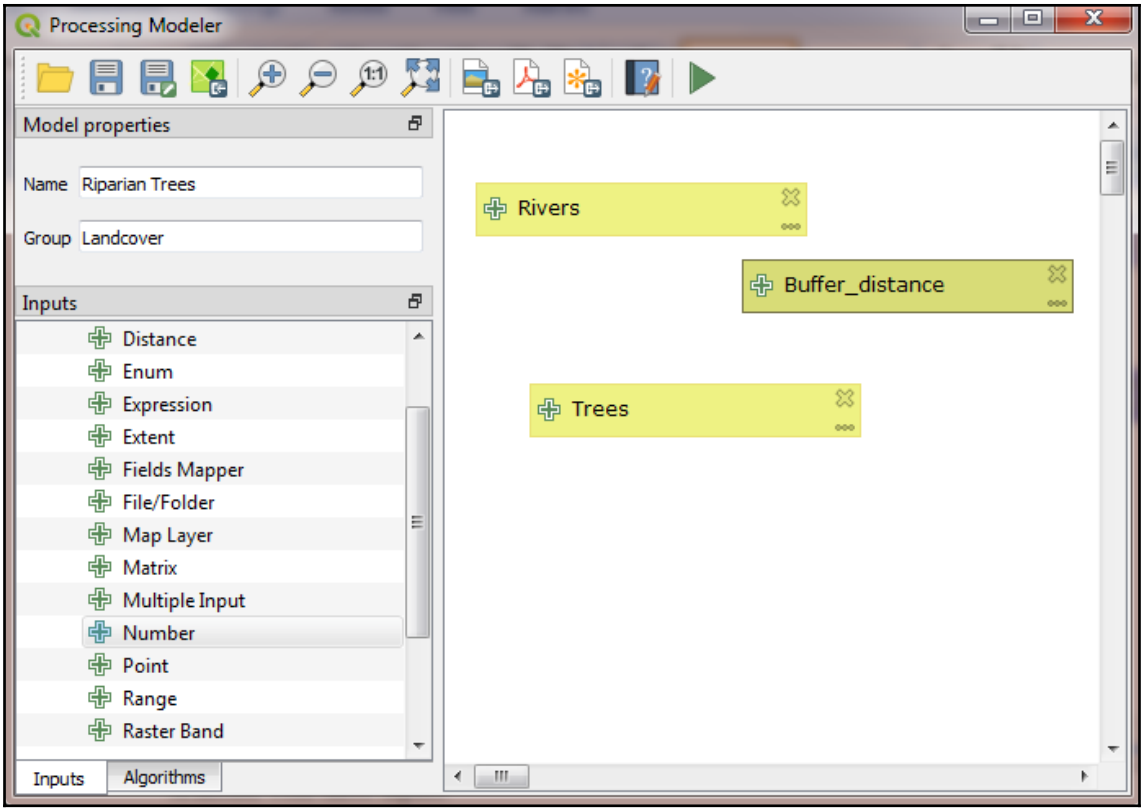

Processing Modeler
Model properties
Name Riparian Trees
Group Landcover
Inputs
Parameters
Boolean
CRS
Distance
Enum
Expression
Extent
Fields Mapper
File/Folder
Map Layer
Matrix
Multiple Input
Number
Point
Range
Raster Band
Raster Layer
String
Inputs
Algorithms

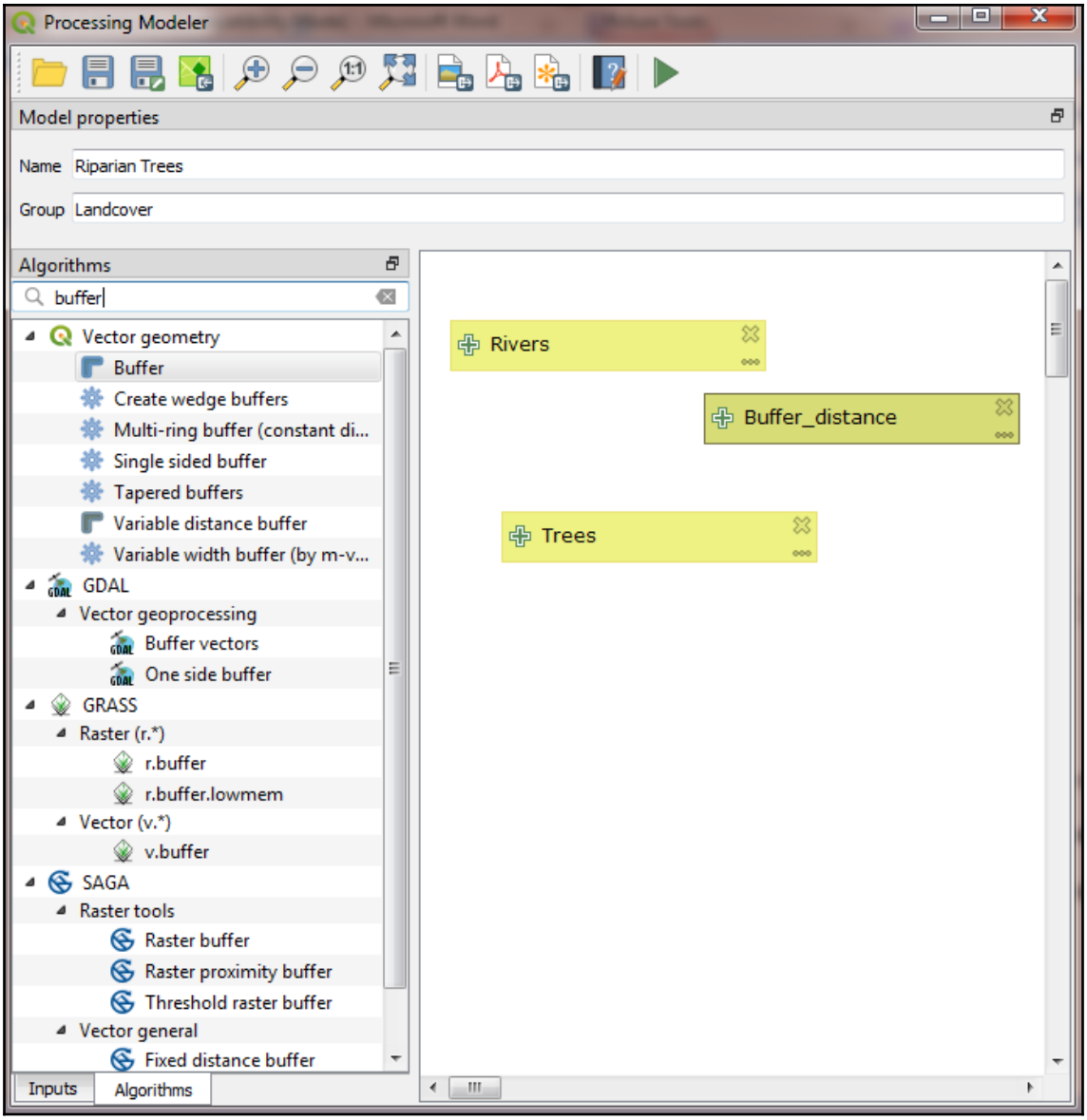

Save Model
« QGIS ▸ QGIS3 ▸ profiles ▸ default ▸ processing ▸ models
Search models
Organize
New folder
Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Homegroup
Computer
Local Disk (C:)
Name
Date modified
Type
Size
No items match your search.
File name: RiparianTreeClipper.model3
Save as type: Processing models (*.model3 *.MODEL3)
Hide Folders
Save
Cancel

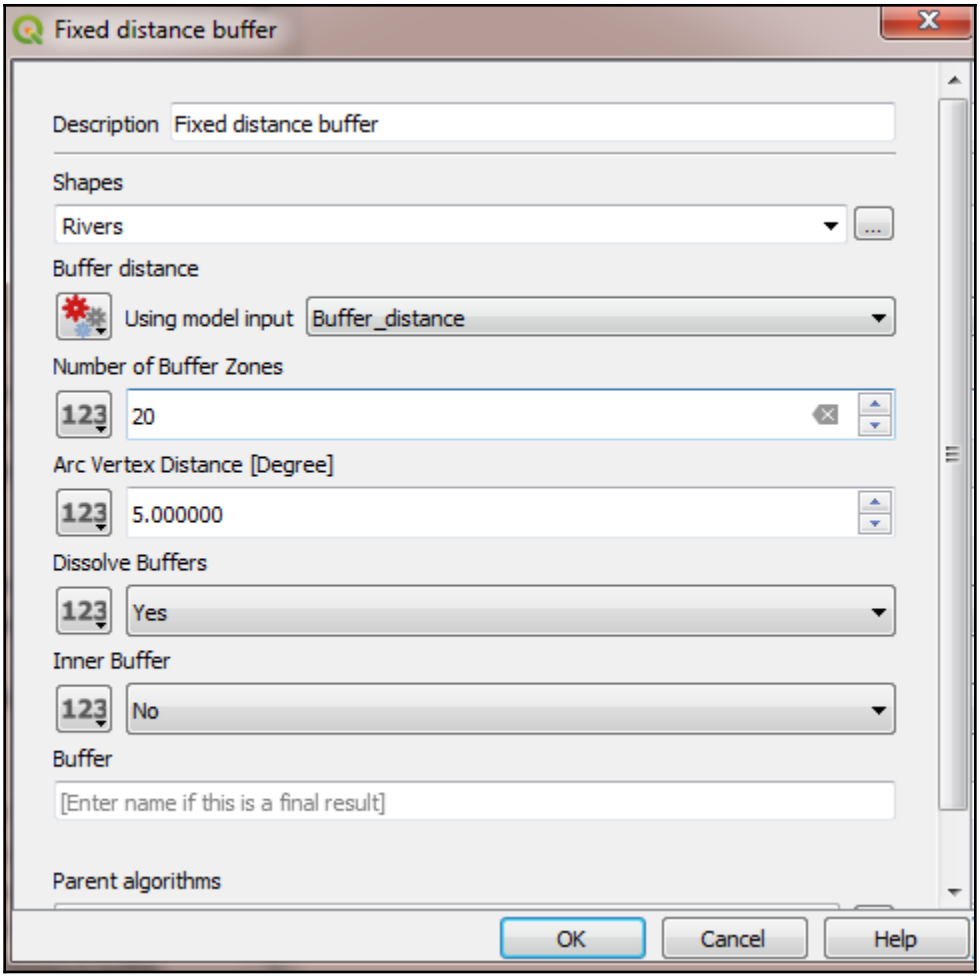

Processing Toolbox
Search...
Interpolation
Layer tools
Network analysis
Raster analysis
Raster terrain analysis
Raster tools
Vector analysis
Vector creation
Vector general
Vector geometry
Vector overlay
Vector selection
Vector table
GDAL
GRASS
Models
Landcover
Riparian Trees
Qgis2threejs
SAGA

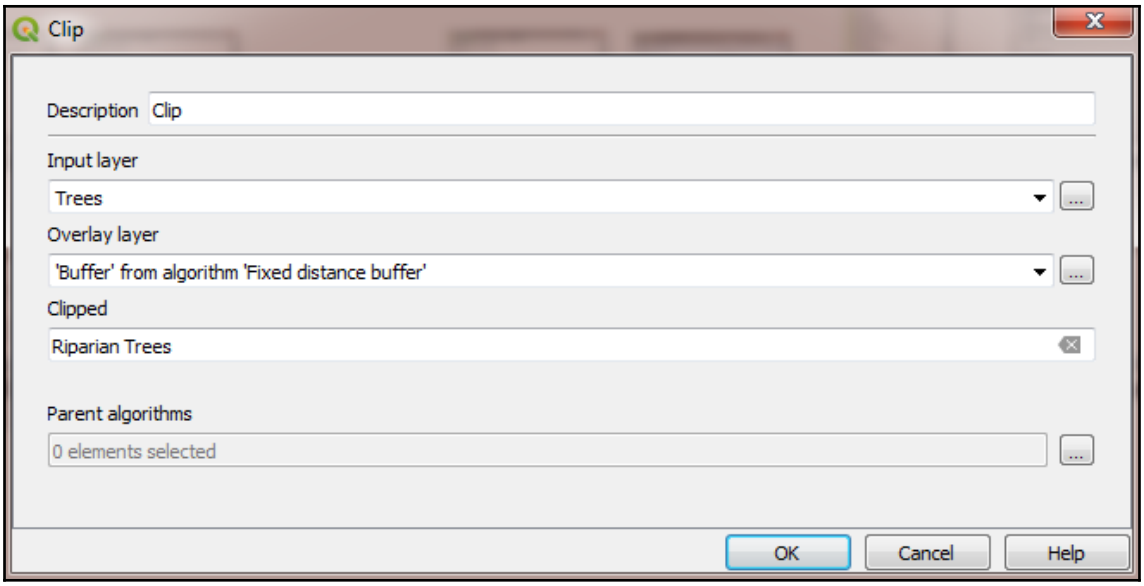

Parameter Definition
Parameter name
Rivers
Geometry type
Line
Mandatory
OK
Cancel

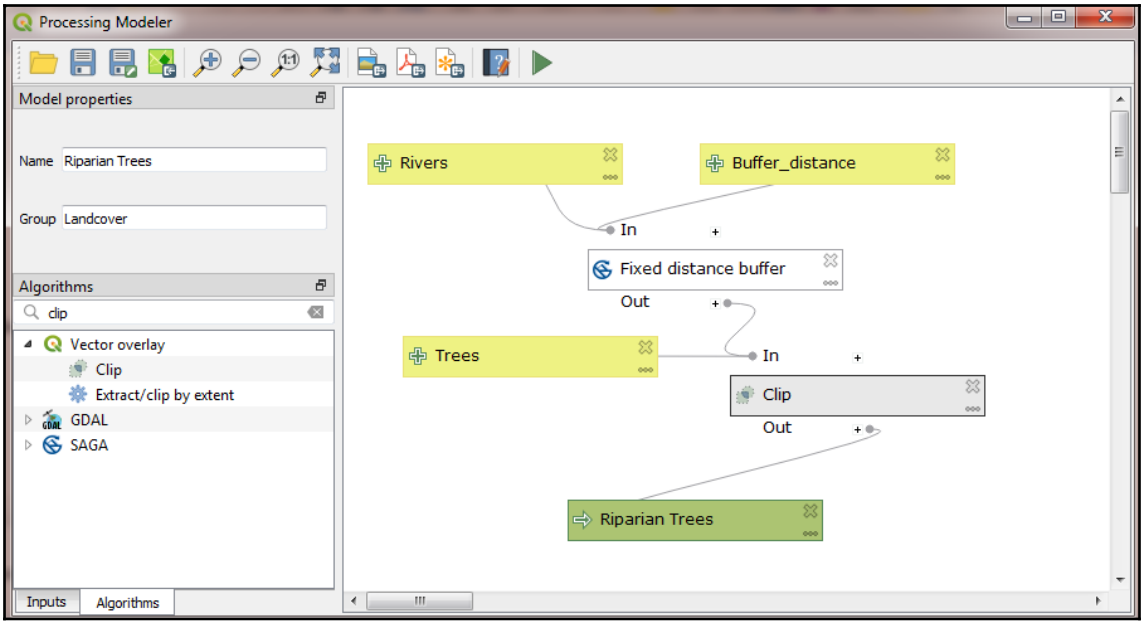

Parameter Definition
Parameter name
Buffer distance
Min value
Max value
Default value
100
Mandatory
OK
Cancel

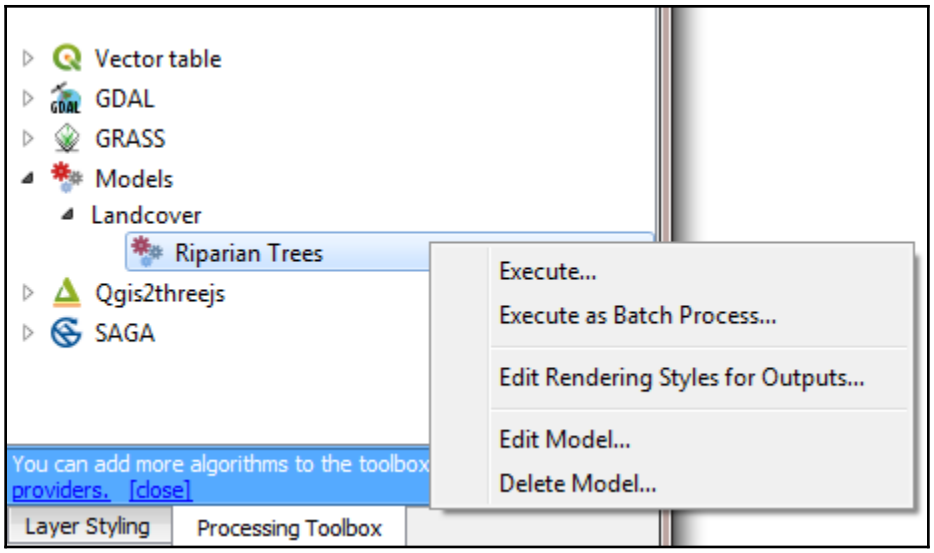

Processing Modeler
Model properties
Name Riparian Trees
Group Landcover
Inputs
Distance
Enum
Expression
Extent
Fields Mapper
File/Folder
Map Layer
Matrix
Multiple Input
Number
Point
Range
Raster Band
Inputs
Algorithms
Rivers
Buffer_distance
Trees

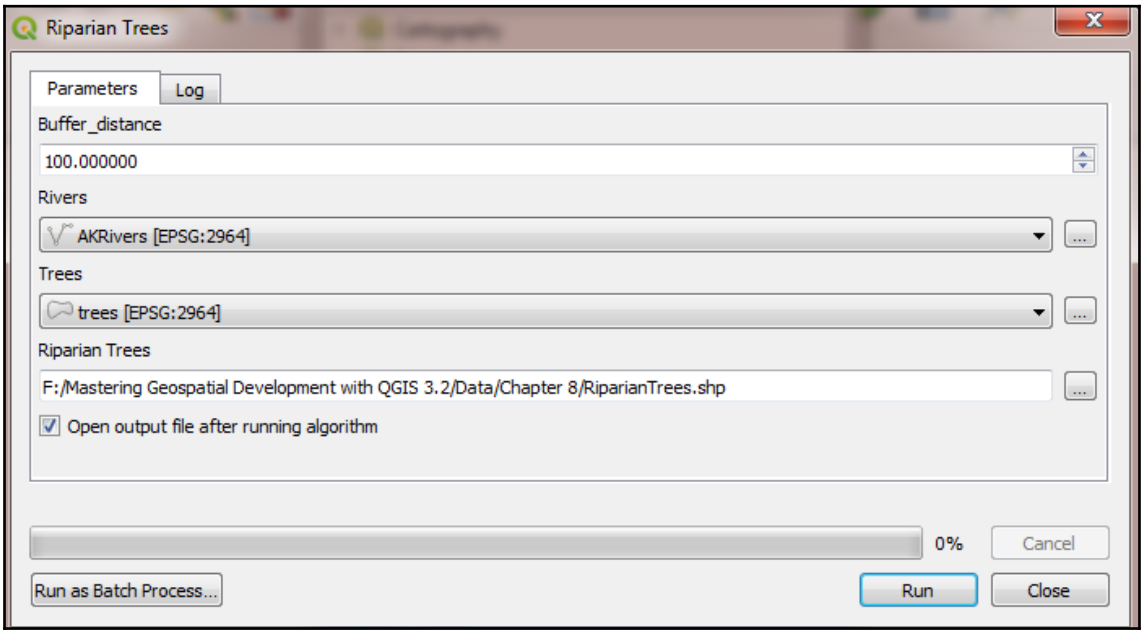

Processing Modeler
Model properties
Name Riparian Trees
Group Landcover
Algorithms
buffer
Vector geometry
Buffer
Create wedge buffers
Multi-ring buffer (constant di...
Single sided buffer
Tapered buffers
Variable distance buffer
Variable width buffer (by m-v...
GDAL
Vector geoprocessing
Buffer vectors
One side buffer
GRASS
Raster (r.*)
r.buffer
r.buffer.lowmem
Vector (v.*)
v.buffer
SAGA
Raster tools
Raster buffer
Raster proximity buffer
Threshold raster buffer
Vector general
Fixed distance buffer
Inputs
Algorithms
Rivers
Buffer_distance
Trees

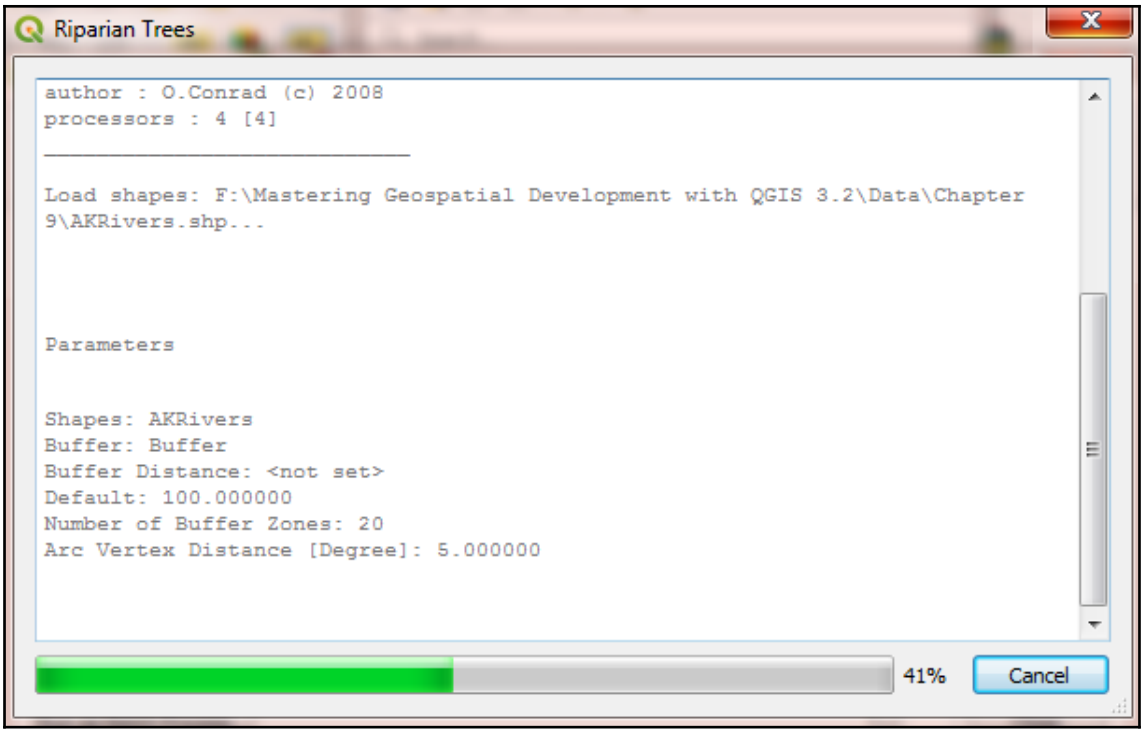

Fixed distance buffer
Description
Fixed distance buffer
Shapes
Rivers
Buffer distance
Using model input
Buffer_distance
Number of Buffer Zones
20
Arc Vertex Distance [Degree]
5.000000
Dissolve Buffers
Yes
Inner Buffer
No
Buffer
[Enter name if this is a final result]
Parent algorithms
OK
Cancel
Help

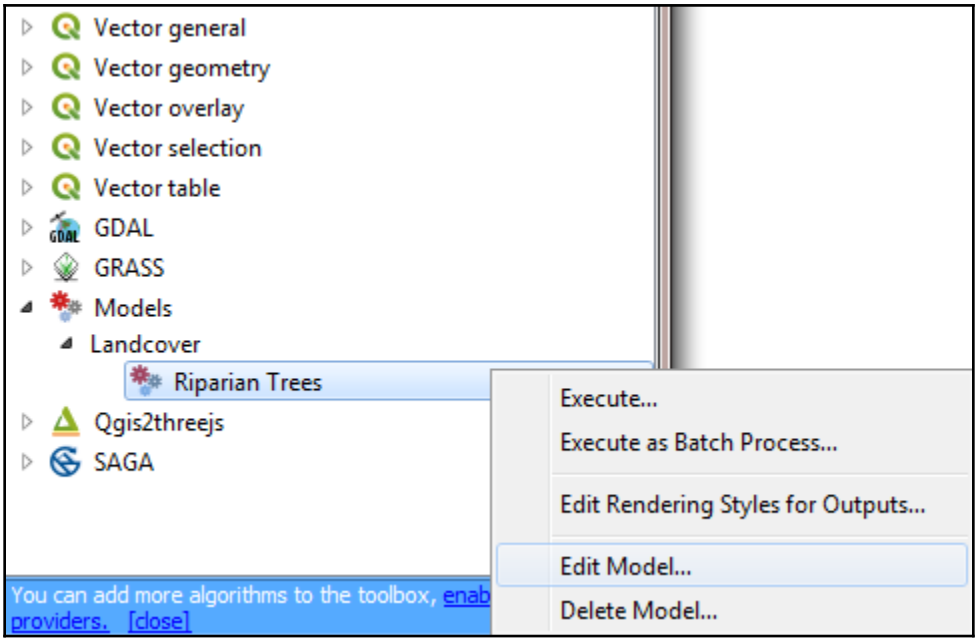

Clip
Description
Clip
Input layer
Trees
Overlay layer
'Buffer' from algorithm 'Fixed distance buffer'
Clipped
Riparian Trees
Parent algorithms
0 elements selected
OK
Cancel
Help

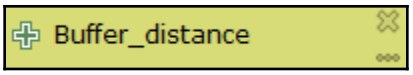

Processing Modeler
Model properties
Name
Riparian Trees
Group
Landcover
Algorithms
clip
Vector overlay
Clip
Extract/clip by extent
GDAL
SAGA
Inputs
Algorithms
Rivers
Buffer_distance
In
Fixed distance buffer
Out
Trees
In
Clip
Out
Riparian Trees

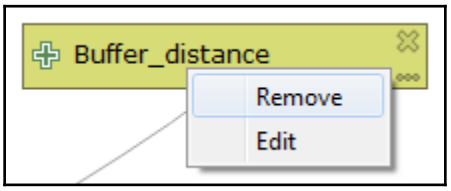

Vector table
GDAL
GRASS
Models
Landcover
Riparian Trees
Qgis2threejs
SAGA
Execute...
Execute as Batch Process...
Edit Rendering Styles for Outputs...
Edit Model...
Delete Model...
You can add more algorithms to the toolbox
providers. [close]
Layer Styling
Processing Toolbox

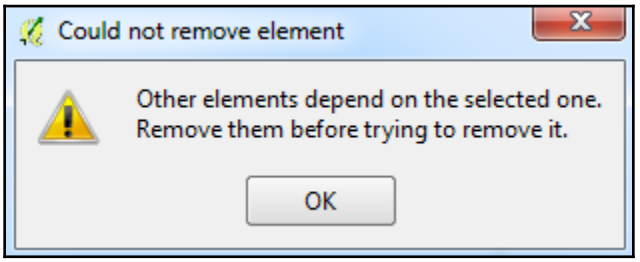

Riparian Trees
Parameters
Log
Buffer_distance
100.000000
Rivers
AKRivers [EPSG:2964]
Trees
trees [EPSG:2964]
Riparian Trees
F:/Mastering Geospatial Development with QGIS 3.2/Data/Chapter 8/RiparianTrees.shp
Open output file after running algorithm
0%
Cancel
Run as Batch Process...
Run
Close

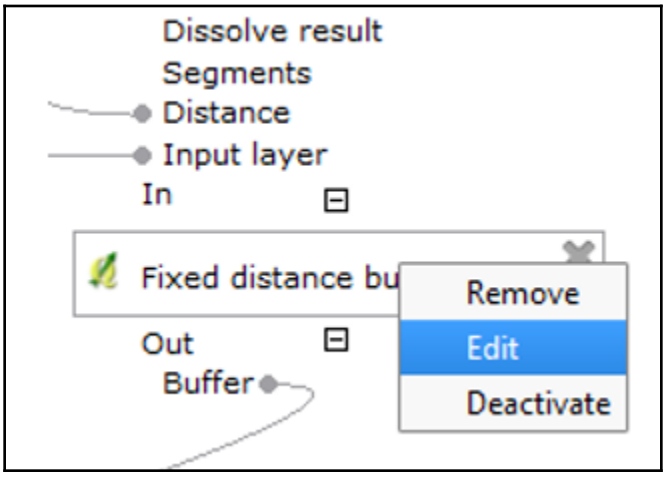

Riparian Trees
author : O.Conrad (c) 2008
processors : 4 [4]
Load shapes: F:\Mastering Geospatial Development with QGIS 3.2\Data\Chapter 9\AKRivers.shp...
Parameters
Shapes: AKRivers
Buffer: Buffer
Buffer Distance: <not set>
Default: 100.000000
Number of Buffer Zones: 20
Arc Vertex Distance [Degree]: 5.000000
41%
Cancel

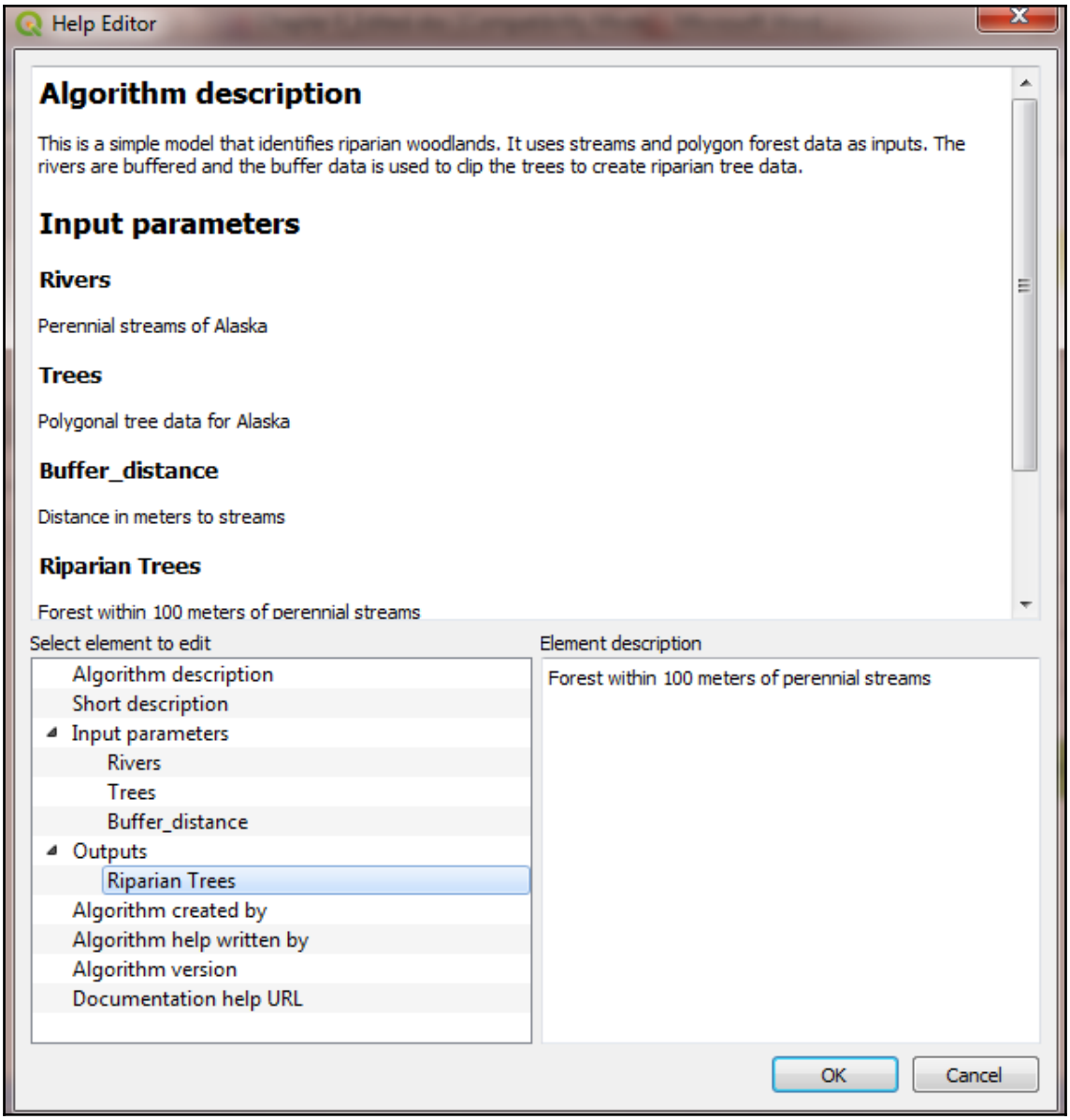

Vector general
Vector geometry
Vector overlay
Vector selection
Vector table
GDAL
GRASS
Models
Landcover
Riparian Trees
Qgis2threejs
SAGA
Execute...
Execute as Batch Process...
Edit Rendering Styles for Outputs...
Edit Model...
Delete Model...
You can add more algorithms to the toolbox, enab
providers. [close]

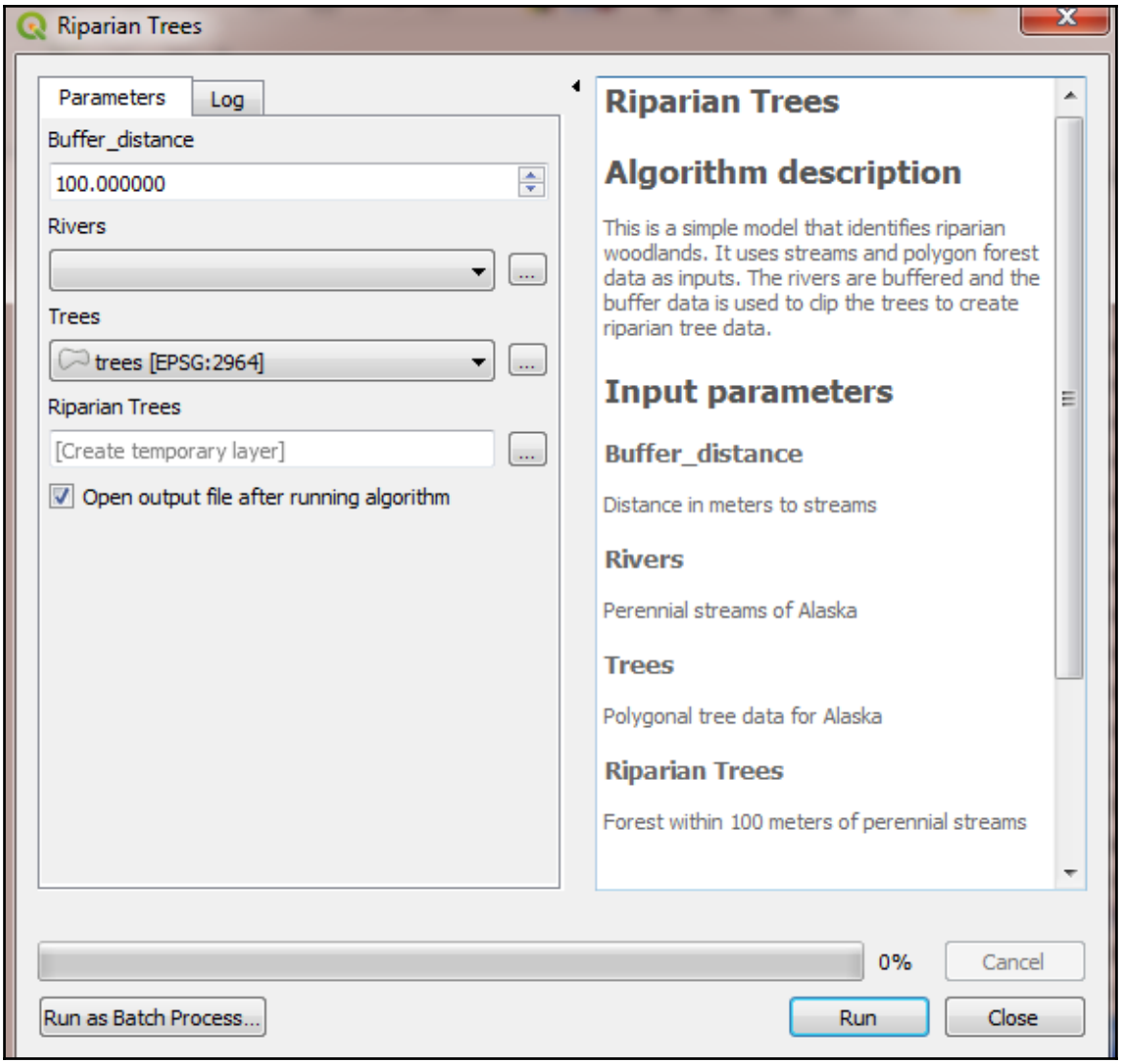

Buffer_distance

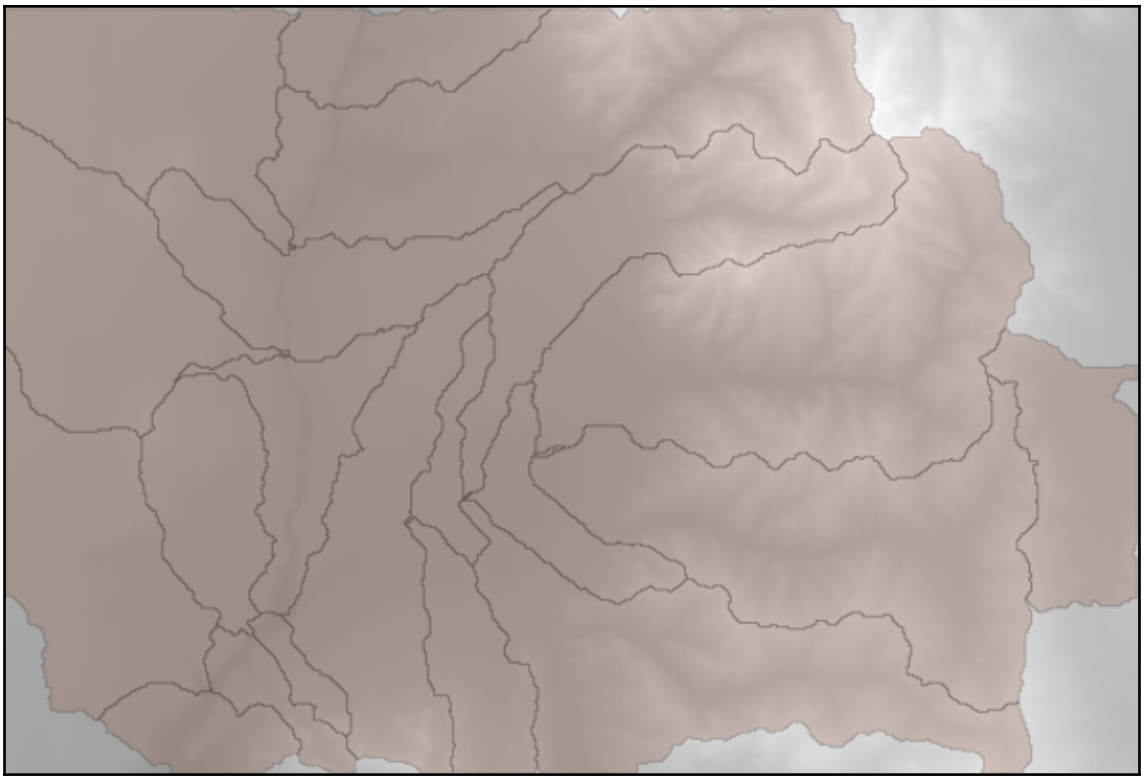

Buffer_distance
Remove
Edit

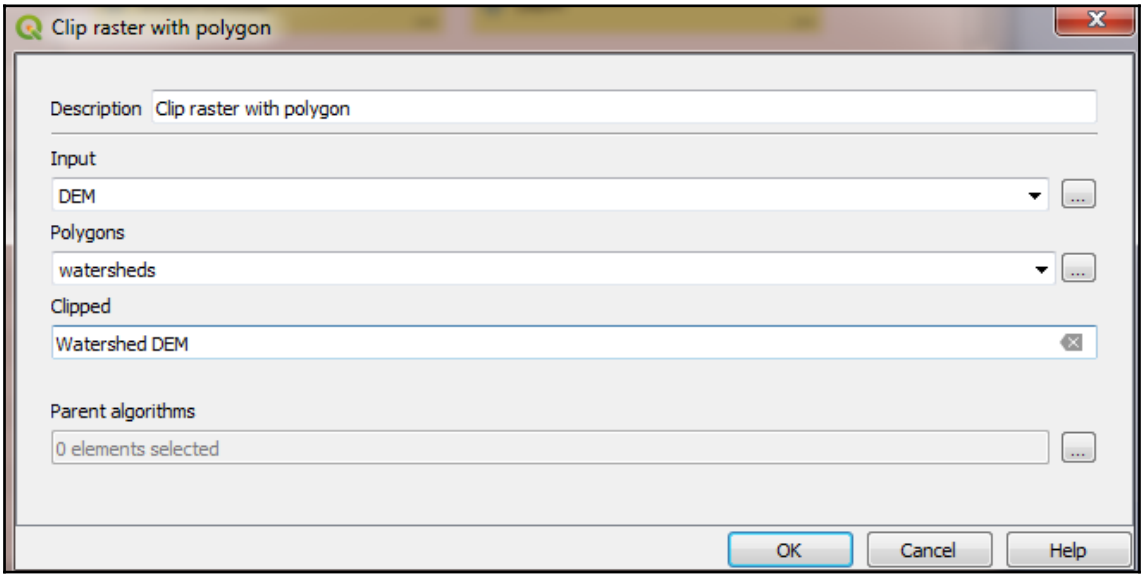

Could not remove element
Other elements depend on the selected one.
Remove them before trying to remove it.
OK

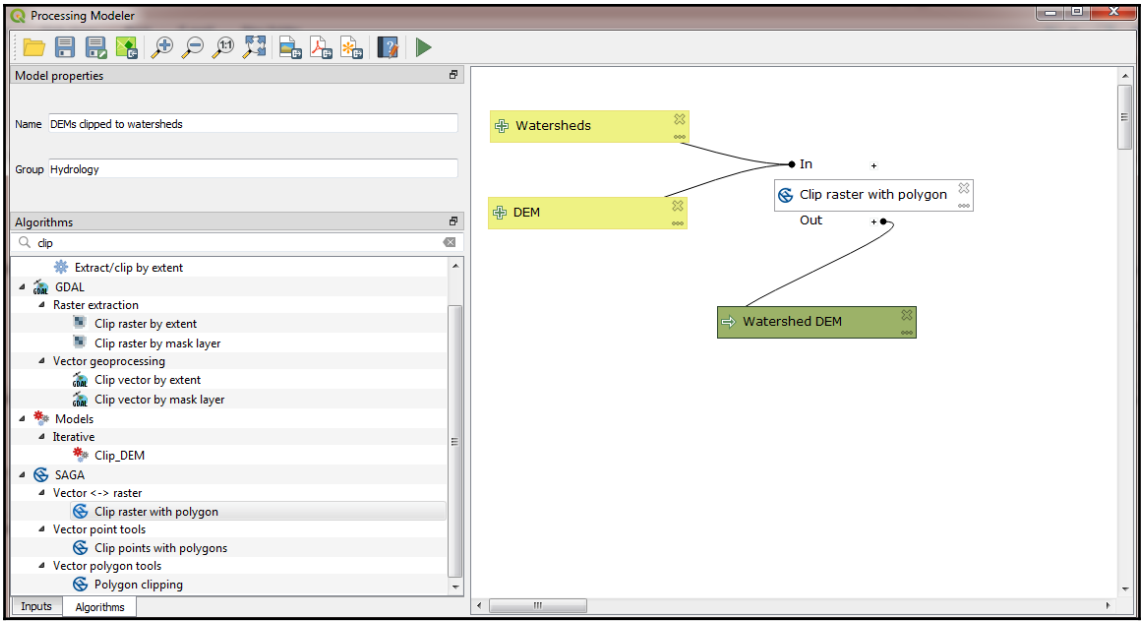

Dissolve result
Segments
Distance
Input layer
In
Fixed distance bu
Remove
Edit
Deactivate
Out
Buffer

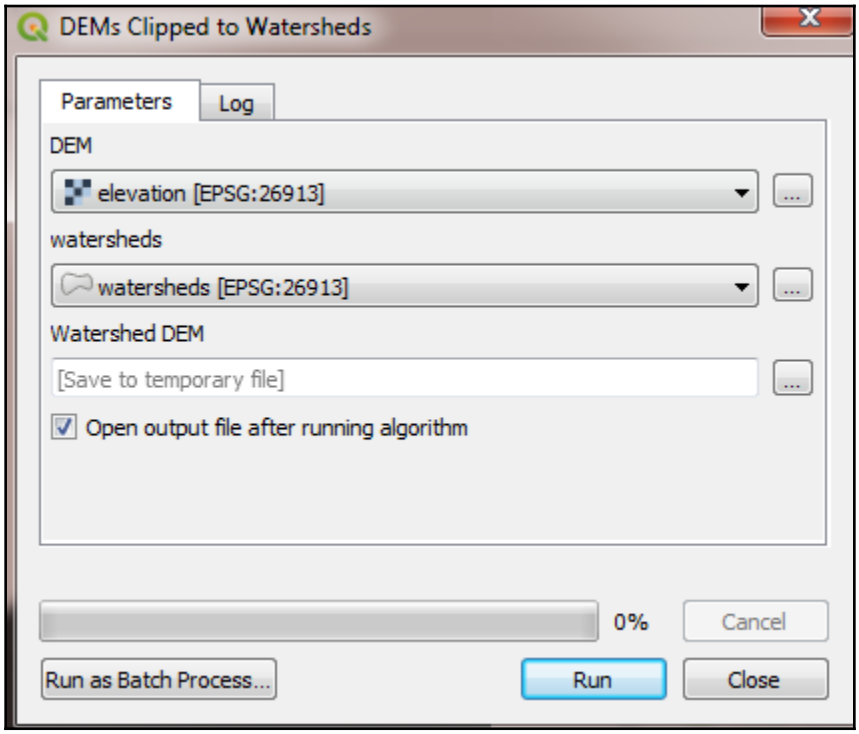

Help Editor
Algorithm description
This is a simple model that identifies riparian woodlands. It uses streams and polygon forest data as inputs. The rivers are buffered and the buffer data is used to clip the trees to create riparian tree data.
Input parameters
Rivers
Perennial streams of Alaska
Trees
Polygonal tree data for Alaska
Buffer_distance
Distance in meters to streams
Riparian Trees
Forest within 100 meters of perennial streams
Select element to edit
Algorithm description
Short description
Input parameters
Rivers
Trees
Buffer_distance
Outputs
Riparian Trees
Algorithm created by
Algorithm help written by
Algorithm version
Documentation help URL
Element description
Forest within 100 meters of perennial streams
OK
Cancel

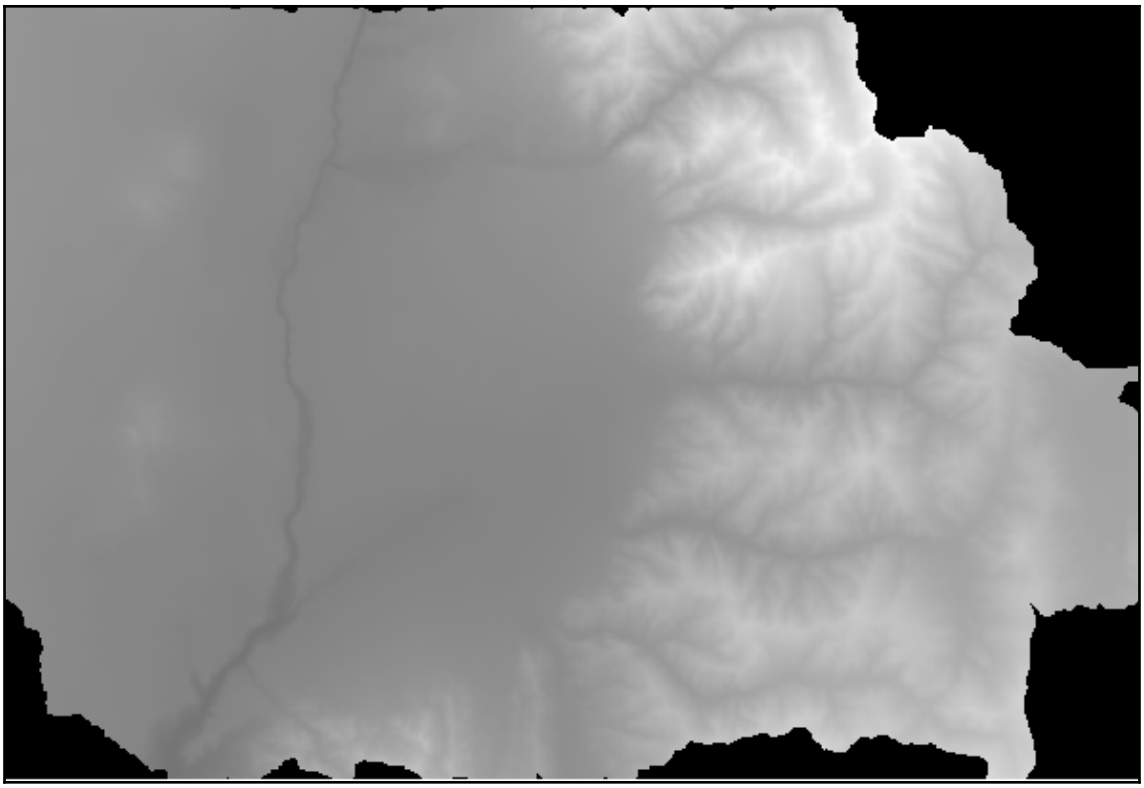

Riparian Trees
Parameters
Log
Buffer_distance
100.000000
Rivers
Trees
trees [EPSG:2964]
Riparian Trees
[Create temporary layer]
Open output file after running algorithm
Riparian Trees
Algorithm description
This is a simple model that identifies riparian woodlands. It uses streams and polygon forest data as inputs. The rivers are buffered and the buffer data is used to clip the trees to create riparian tree data.
Input parameters
Buffer_distance
Distance in meters to streams
Rivers
Perennial streams of Alaska
Trees
Polygonal tree data for Alaska
Riparian Trees
Forest within 100 meters of perennial streams
0%
Cancel
Run as Batch Process...
Run
Close

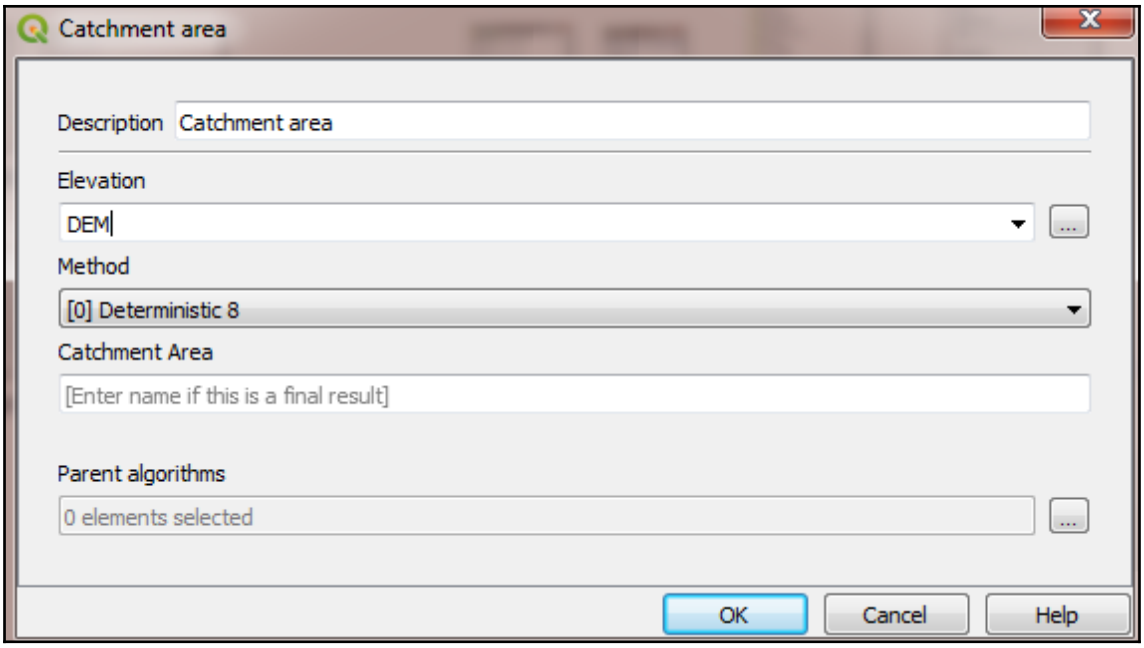


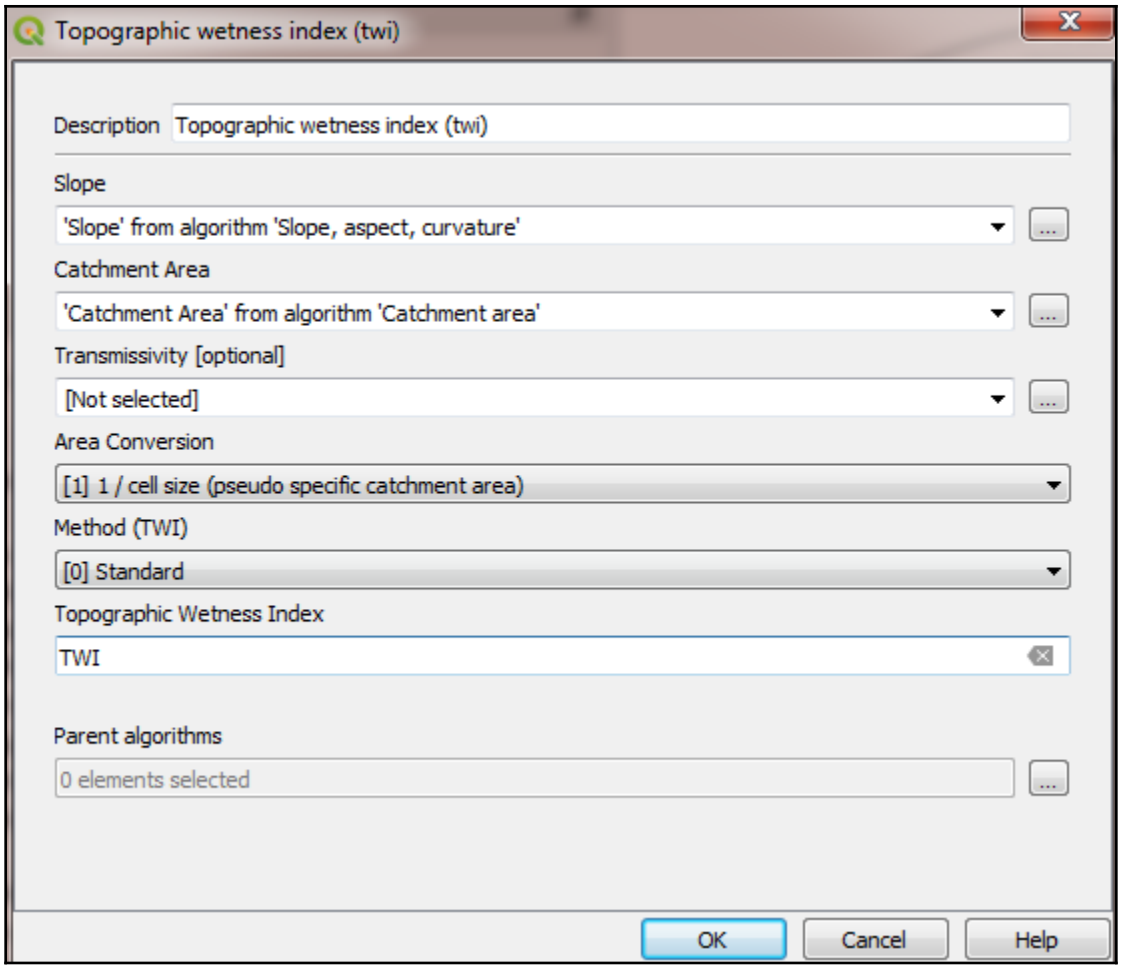

Clip raster with polygon
Description
Clip raster with polygon
Input
DEM
Polygons
watersheds
Clipped
Watershed DEM
Parent algorithms
0 elements selected
OK
Cancel
Help

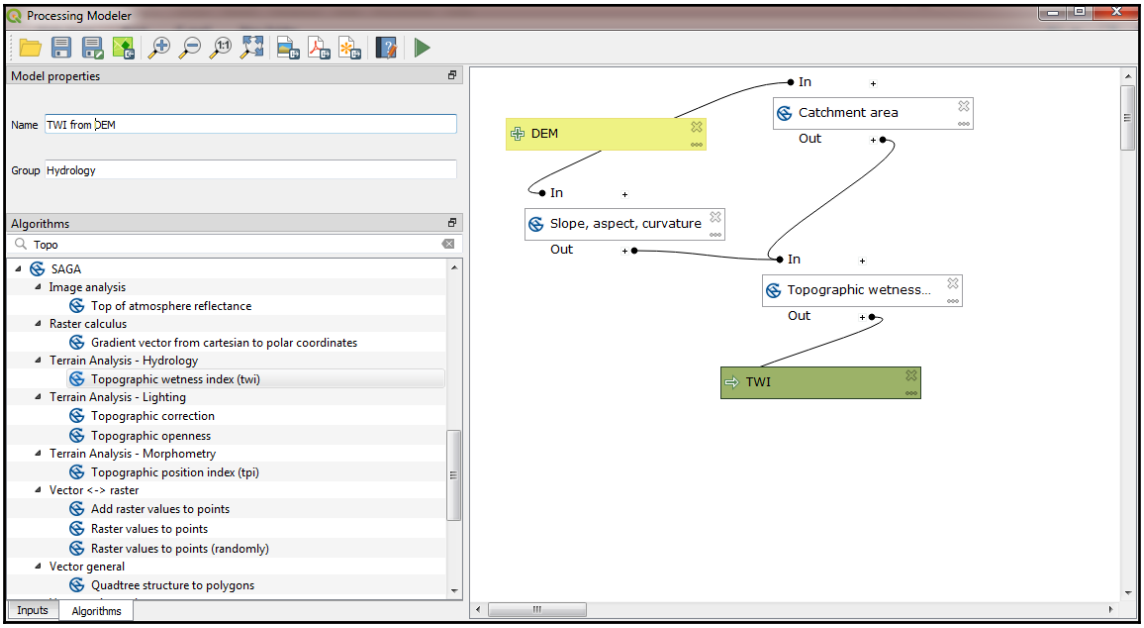

Processing Modeler
Model properties
Name DEMs clipped to watersheds
Group Hydrology
Algorithms
clip
Extract/clip by extent
GDAL
Raster extraction
Clip raster by extent
Clip raster by mask layer
Vector geoprocessing
Clip vector by extent
Clip vector by mask layer
Models
Iterative
Clip_DEM
SAGA
Vector <-> raster
Clip raster with polygon
Vector point tools
Clip points with polygons
Vector polygon tools
Polygon clipping
Inputs
Algorithms
Watersheds
DEM
In
Clip raster with polygon
Out
Watershed DEM

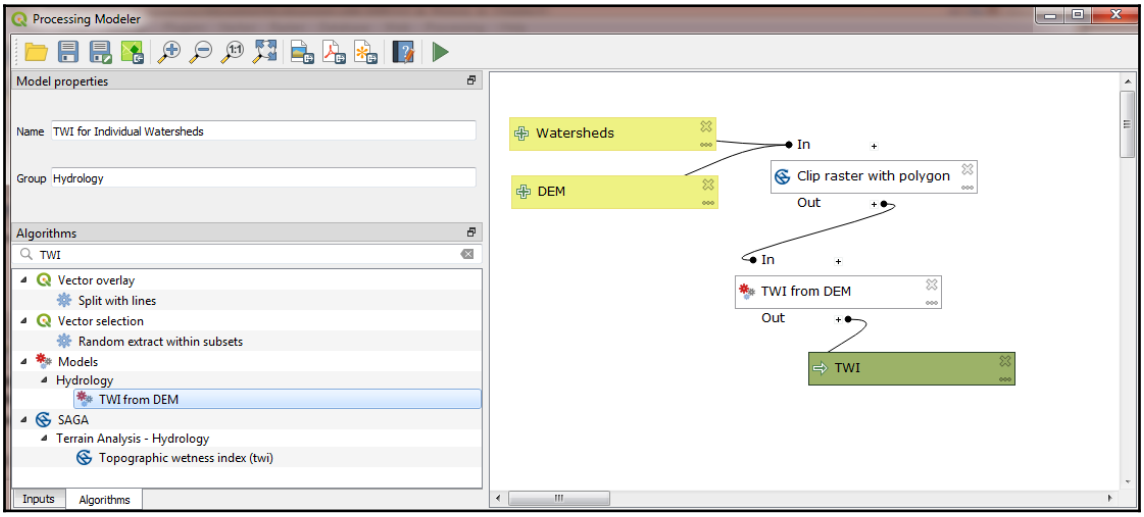

DEMs Clipped to Watersheds
Parameters
Log
DEM
elevation [EPSG:26913]
watersheds
watersheds [EPSG:26913]
Watershed DEM
[Save to temporary file]
Open output file after running algorithm
0%
Cancel
Run as Batch Process...
Run
Close

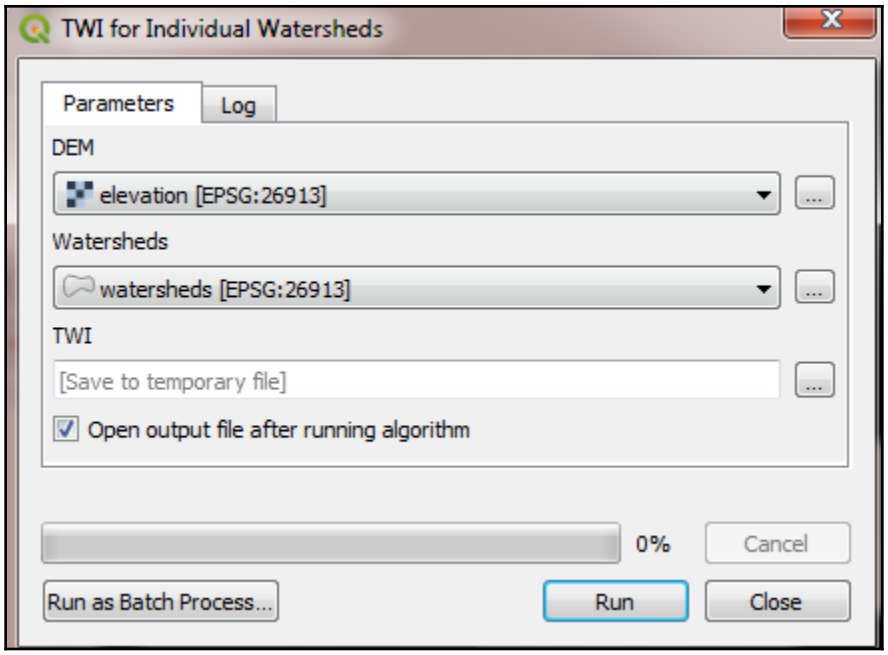


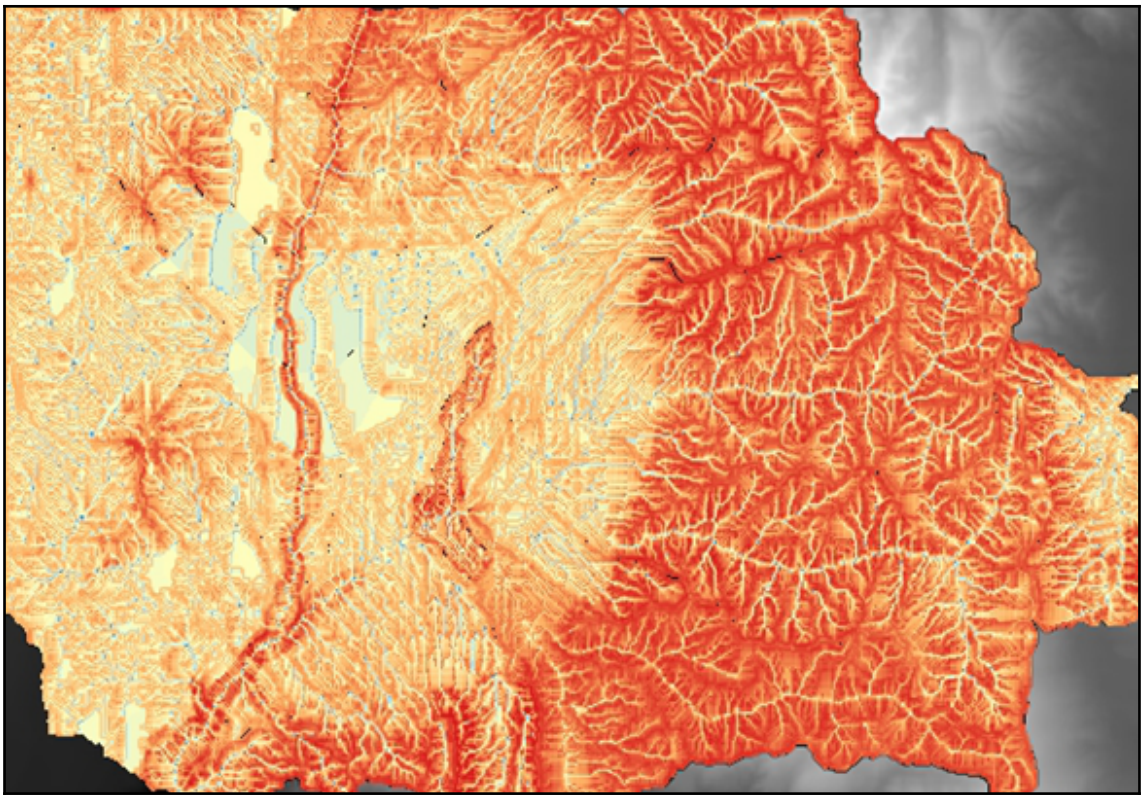

Catchment area
Description
Catchment area
Elevation
DEM
...
Method
[0] Deterministic 8
Catchment Area
[Enter name if this is a final result]
Parent algorithms
0 elements selected
...
OK
Cancel
Help

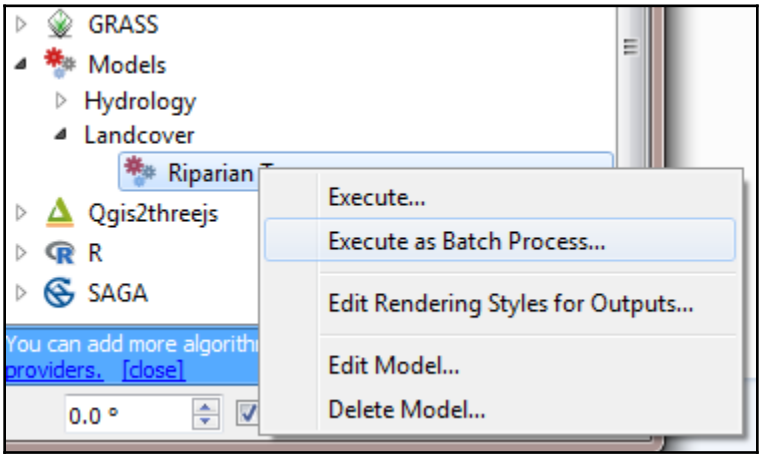

Topographic wetness index (twi)
Description
Topographic wetness index (twi)
Slope
'Slope' from algorithm 'Slope, aspect, curvature'
Catchment Area
'Catchment Area' from algorithm 'Catchment area'
Transmissivity [optional]
[Not selected]
Area Conversion
[1] 1 / cell size (pseudo specific catchment area)
Method (TWI)
[0] Standard
Topographic Wetness Index
TWI
Parent algorithms
0 elements selected
OK
Cancel
Help

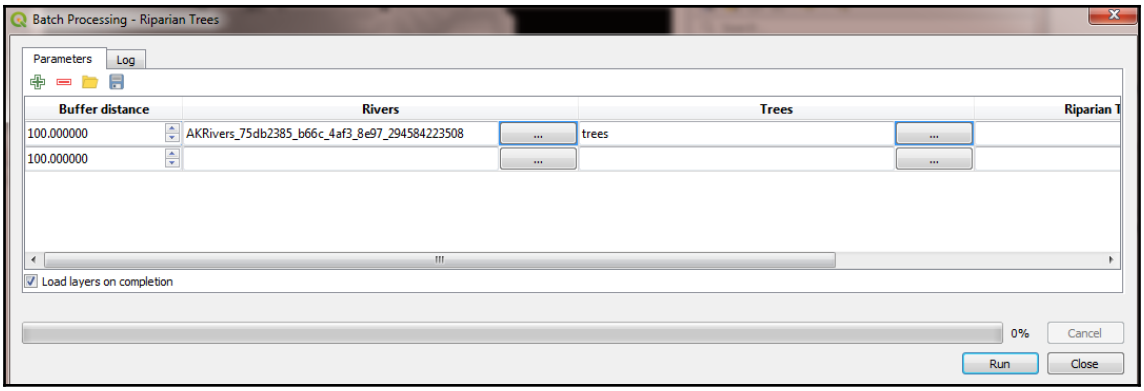

Processing Modeler
Model properties
Name TWI from DEM
Group Hydrology
Algorithms
Topo
SAGA
Image analysis
Top of atmosphere reflectance
Raster calculus
Gradient vector from cartesian to polar coordinates
Terrain Analysis - Hydrology
Topographic wetness index (twi)
Terrain Analysis - Lighting
Topographic correction
Topographic openness
Terrain Analysis - Morphometry
Topographic position index (tpi)
Vector <-> raster
Add raster values to points
Raster values to points
Raster values to points (randomly)
Vector general
Quadtree structure to polygons
Inputs
Algorithms
DEM
In
Catchment area
Out
In
Slope, aspect, curvature
Out
In
Topographic wetness...
Out
TWI


Processing Modeler
Model properties
Name TWI for Individual Watersheds
Group Hydrology
Algorithms
TWI
Vector overlay
Split with lines
Vector selection
Random extract within subsets
Models
Hydrology
TWI from DEM
SAGA
Terrain Analysis - Hydrology
Topographic wetness index (twi)
Inputs
Algorithms
Watersheds
DEM
In
Clip raster with polygon
Out
In
TWI from DEM
Out
TWI

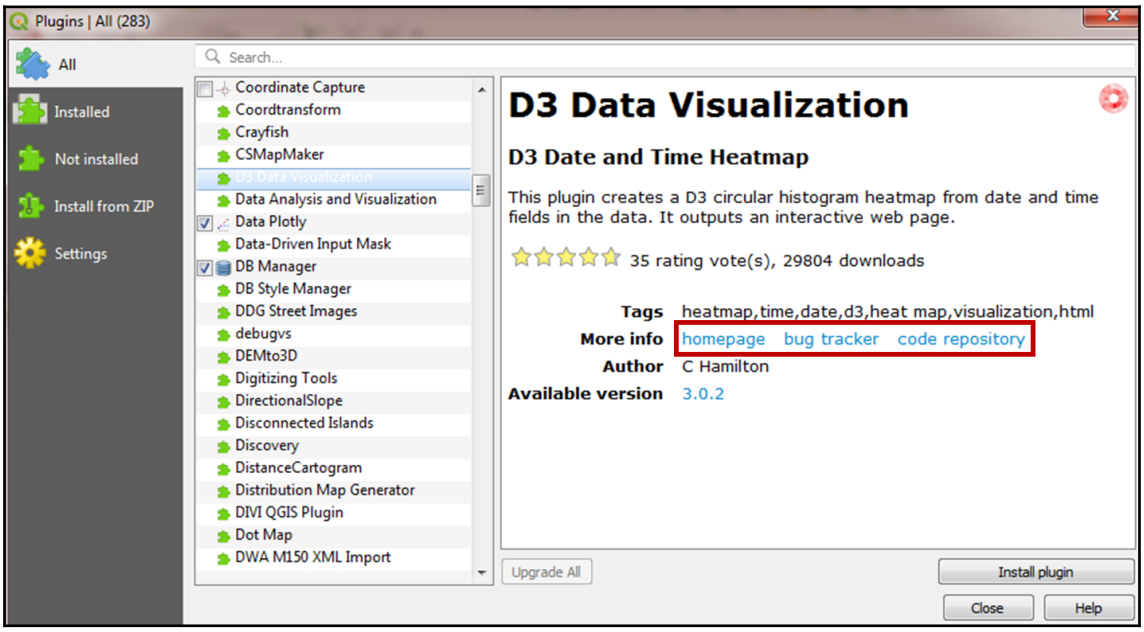

TWI for Individual Watersheds
Parameters
Log
DEM
elevation [EPSG:26913]
Watersheds
watersheds [EPSG:26913]
TWI
[Save to temporary file]
Open output file after running algorithm
0%
Cancel
Run as Batch Process...
Run
Close

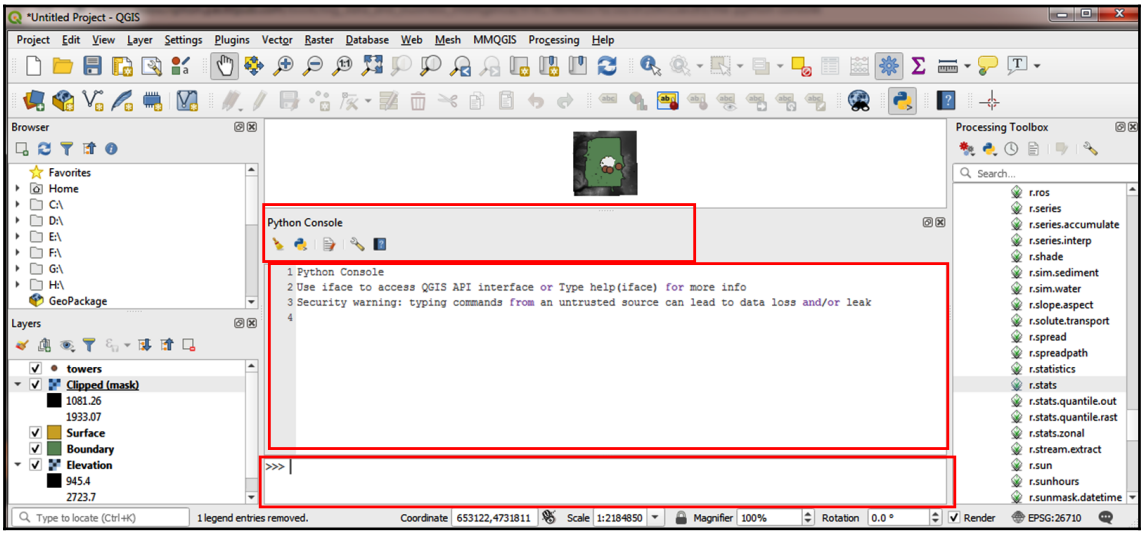



GRASS
Models
Hydrology
Landcover
Riparian
Qgis2threejs
R
SAGA
You can add more algorithi
providers. [close]
0.0 °
Execute...
Execute as Batch Process...
Edit Rendering Styles for Outputs...
Edit Model...
Delete Model...

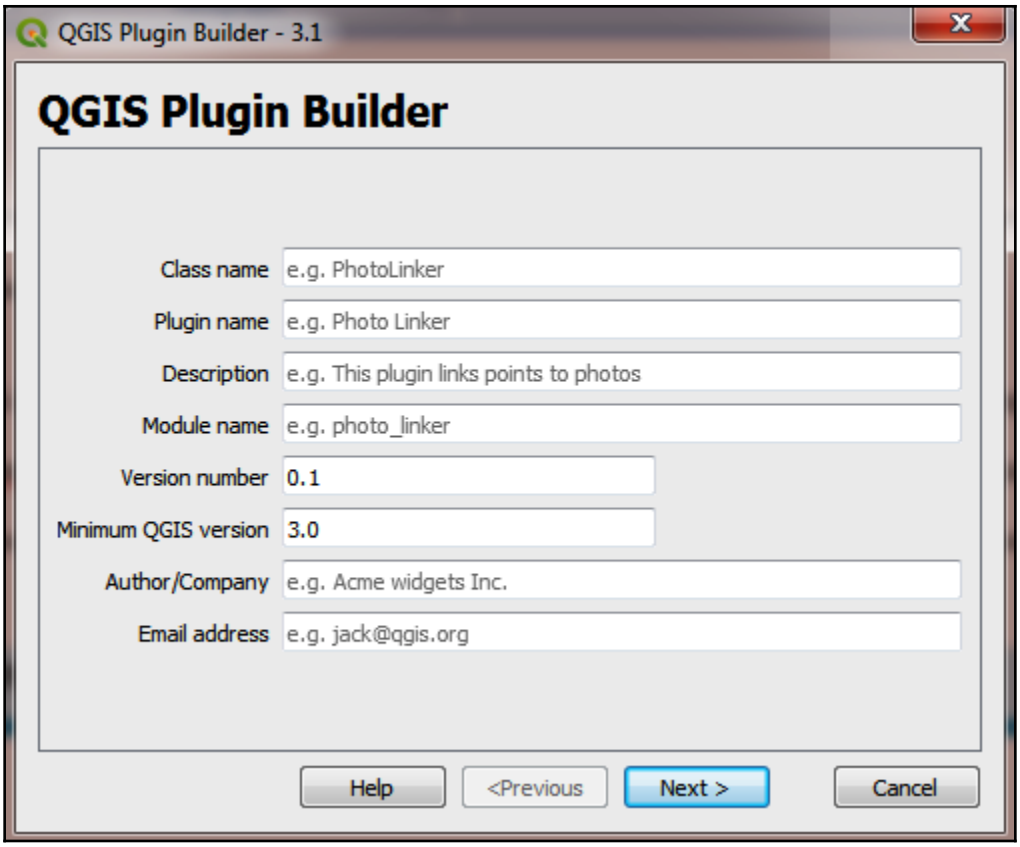

Batch Processing - Riparian Trees
Parameters
Log
Buffer distance
Rivers
Trees
Riparian T
100.000000
AKRivers_75db2385_b66c_4af3_8e97_294584223508
...
trees
...
100.000000
...
...
Load layers on completion
0%
Cancel
Run
Close

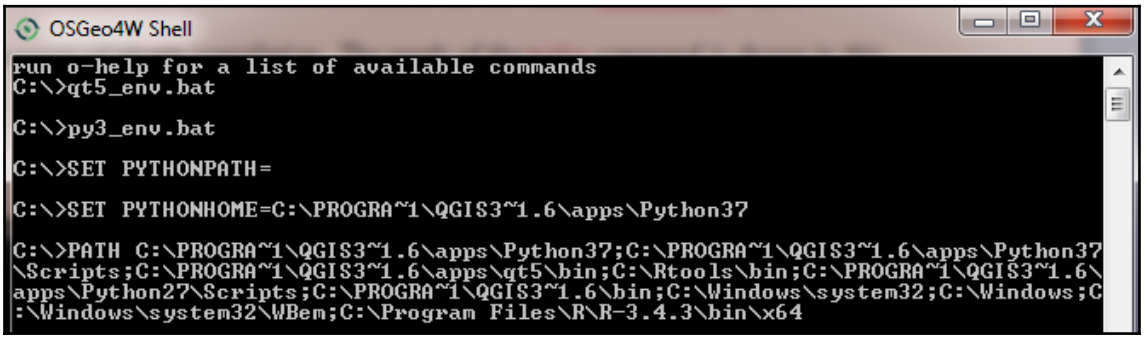
Chapter 10: Creating QGIS Plugins with PyQGIS and Problem Solving





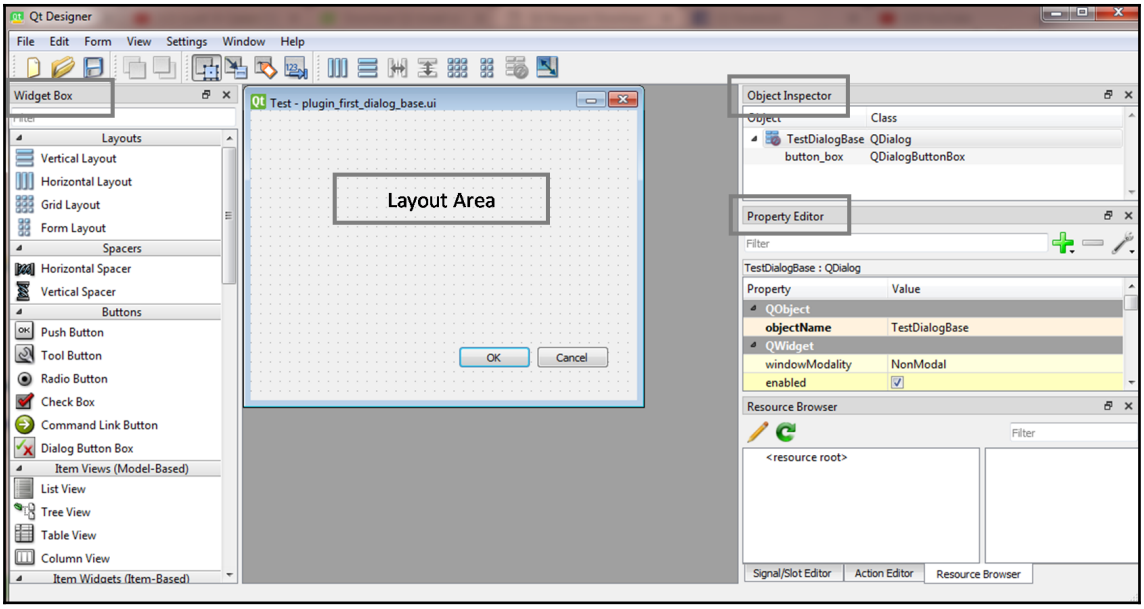

Cancel
OK

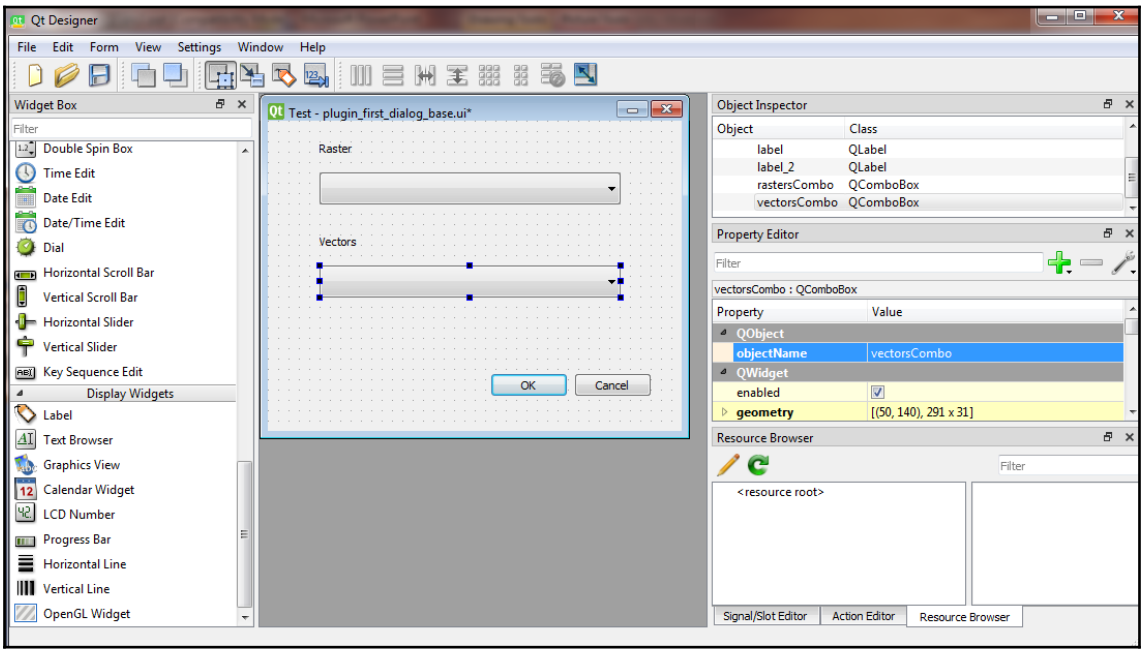

QGIS Plugin Builder - 3.1
QGIS Plugin Builder
Class name
e.g. PhotoLinker
Plugin name
e.g. Photo Linker
Description
e.g. This plugin links points to photos
Module name
e.g. photo_linker
Version number
0.1
Minimum QGIS version
3.0
Author/Company
e.g. Acme widgets Inc.
Email address
e.g. jack@qgis.org
Help
<Previous
Next >
Cancel


OSGeo4W Shell
run o-help for a list of available commands
C:\>qt5_env.bat
C:\>py3_env.bat
C:\>SET PYTHONPATH=
C:\>SET PYTHONHOME=C:\PROGRA~1\QGIS3~1.6\apps\Python37
C:\>PATH C:\PROGRA~1\QGIS3~1.6\apps\Python37;C:\PROGRA~1\QGIS3~1.6\apps\Python37
\Scripts;C:\PROGRA~1\QGIS3~1.6\apps\qt5\bin;C:\Rtools\bin;C:\PROGRA~1\QGIS3~1.6\
apps\Python27\Scripts;C:\PROGRA~1\QGIS3~1.6\bin;C:\Windows\system32;C:\Windows;C
:\Windows\system32\WBem;C:\Program Files\R\R-3.4.3\bin\x64

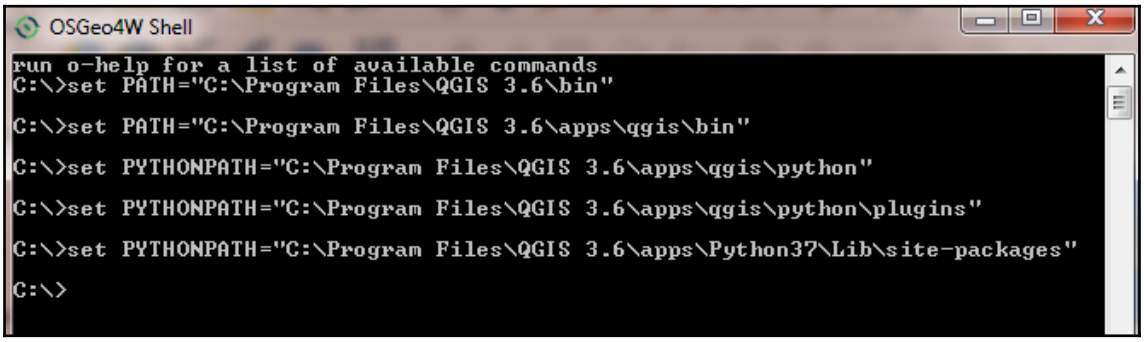

C:\Users\User>cd C:\Users\User\AppData\Roaming\QGIS\QGIS3\profiles\default\pytho
n\plugins\plugin_first
C:\Users\User\AppData\Roaming\QGIS\QGIS3\profiles\default\python\plugins\plugin_
first>

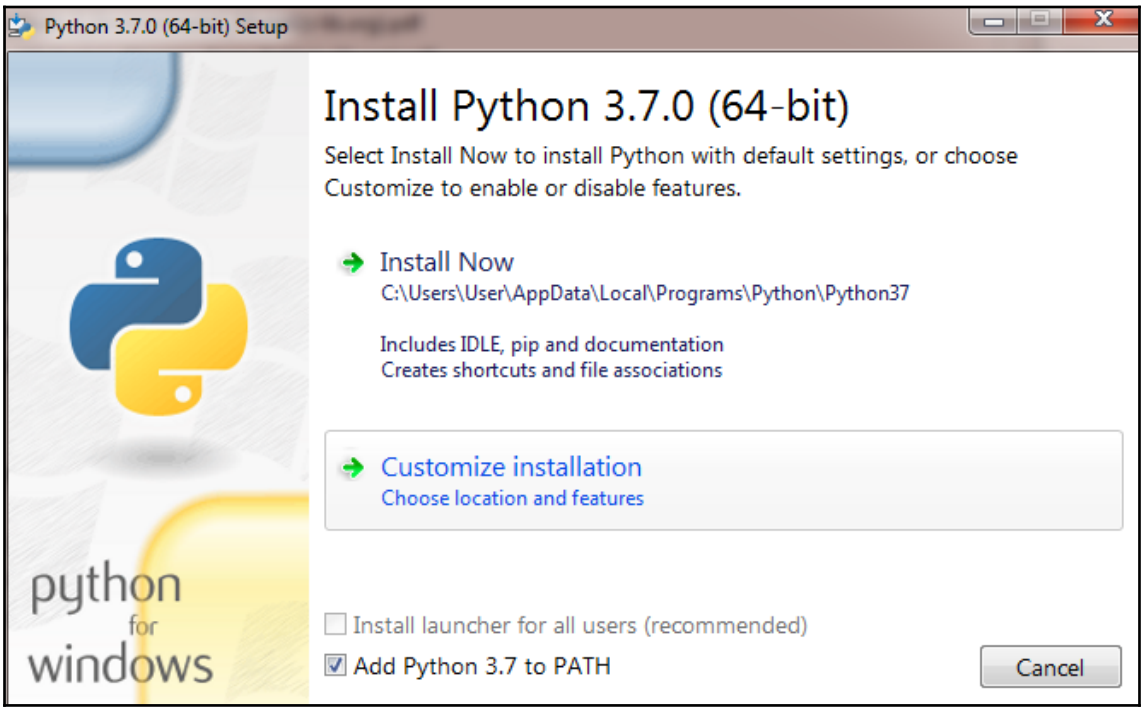
```
C:\Users\User\AppData\Roaming\QGIS\QGIS3\profiles\default\python\plugins\plugin_
first>pyrcc5 -o resources.py resources.qrc
```

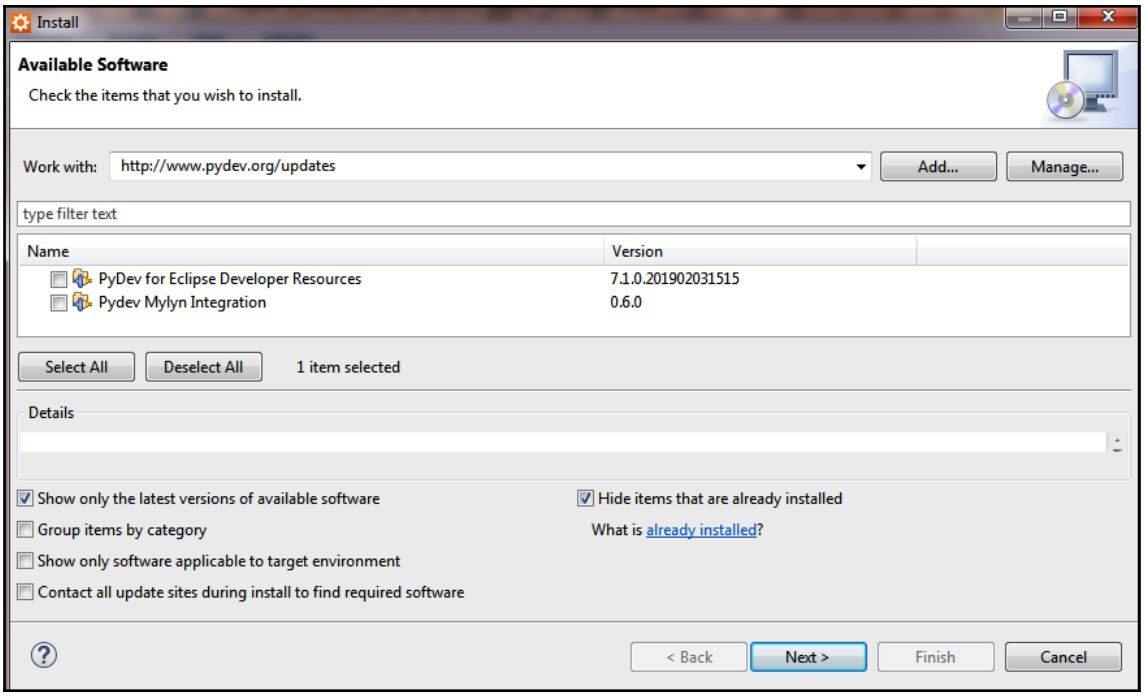


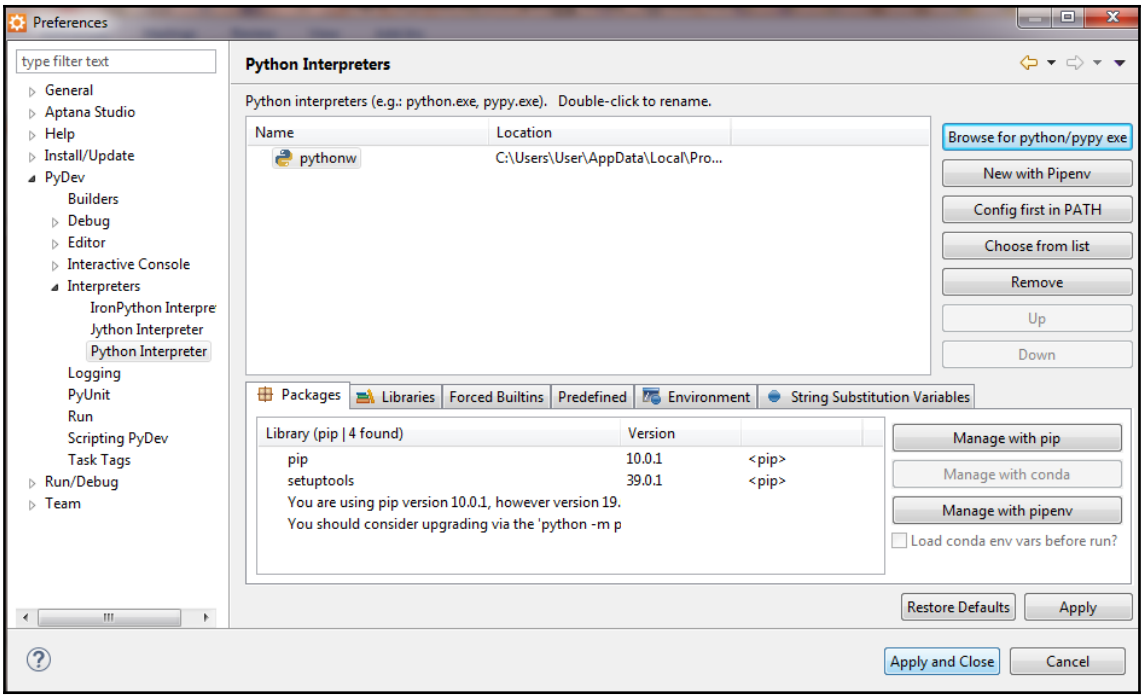


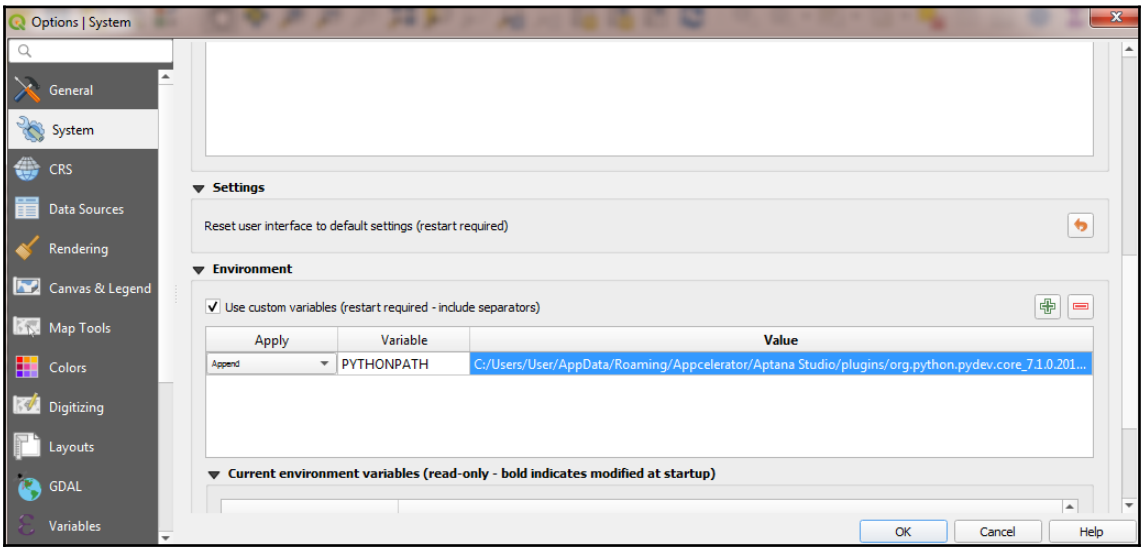
```
C:\Users\User>cd\

C:\>Aptana_Studio_3_Setup.exe /passive /norestart_
```

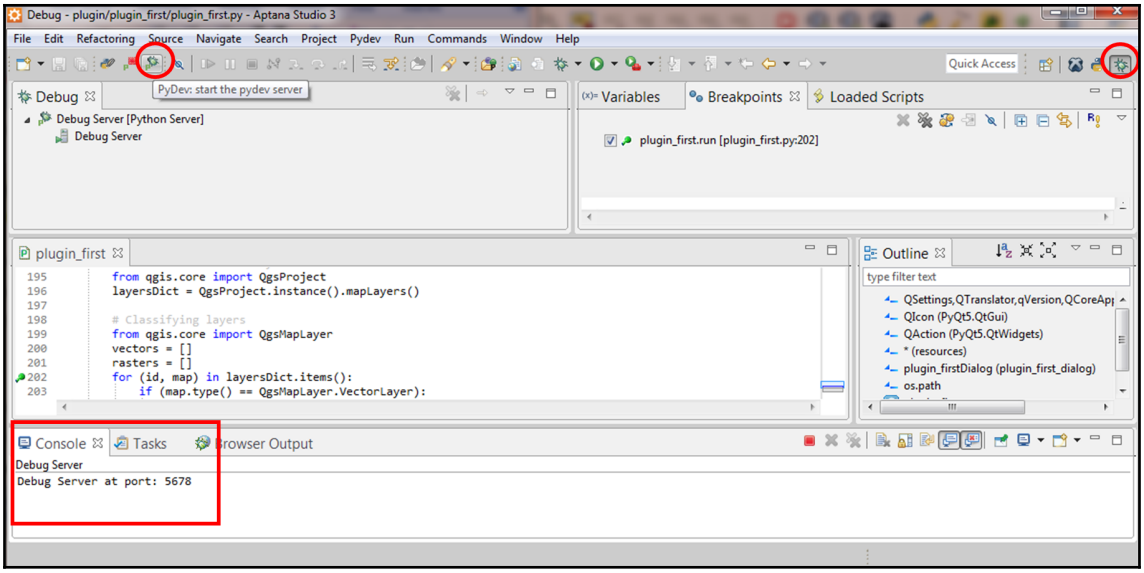


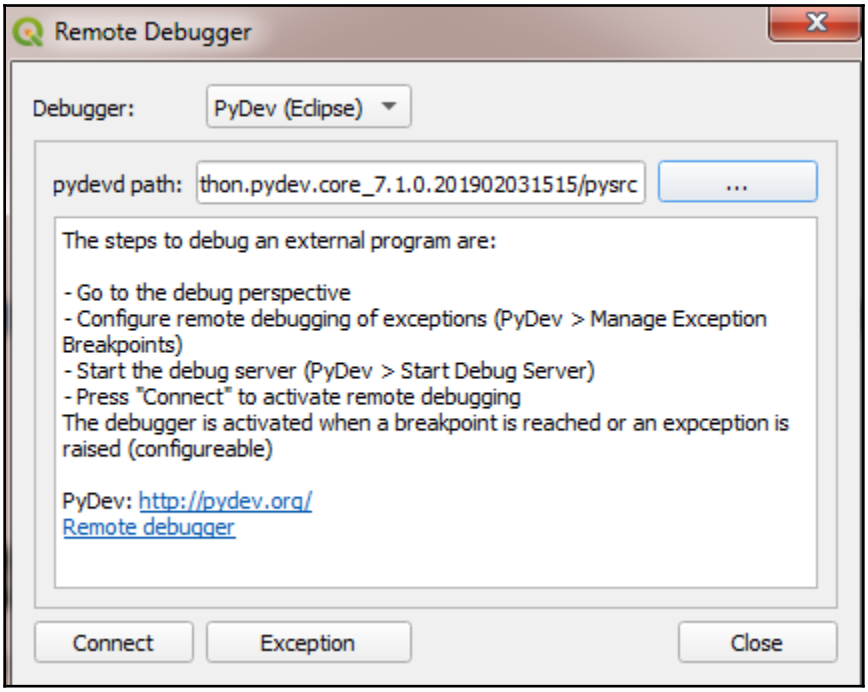


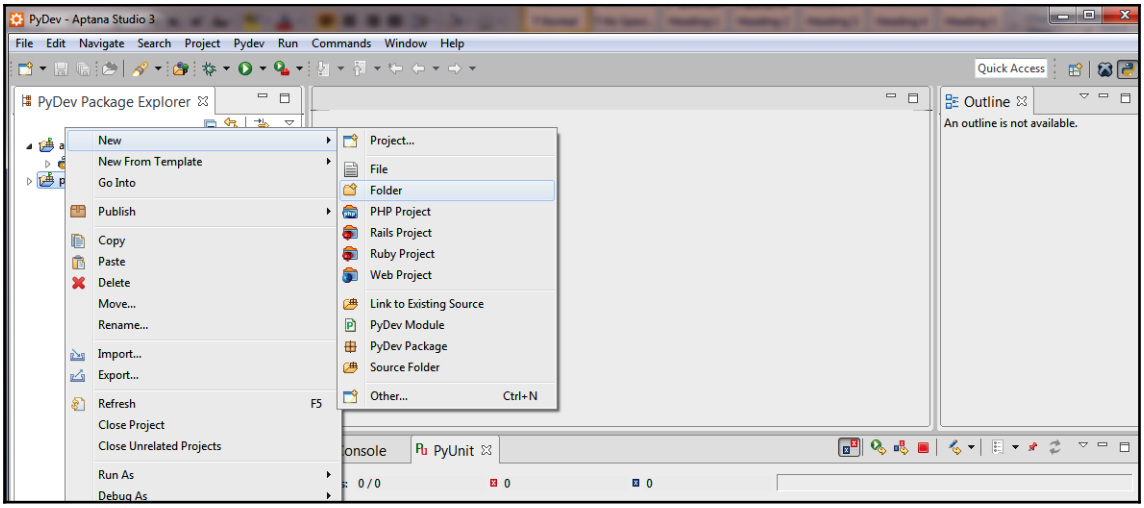

Install
Available Software
Check the items that you wish to install.
Work with:
http://www.pydev.org/updates
Add...
Manage...
type filter text
Name
Version
PyDev for Eclipse Developer Resources
7.1.0.201902031515
Pydev Mylyn Integration
0.6.0
Select All
Deselect All
1 item selected
Details
Show only the latest versions of available software
Hide items that are already installed
Group items by category
What is already installed?
Show only software applicable to target environment
Contact all update sites during install to find required software
< Back
Next >
Finish
Cancel

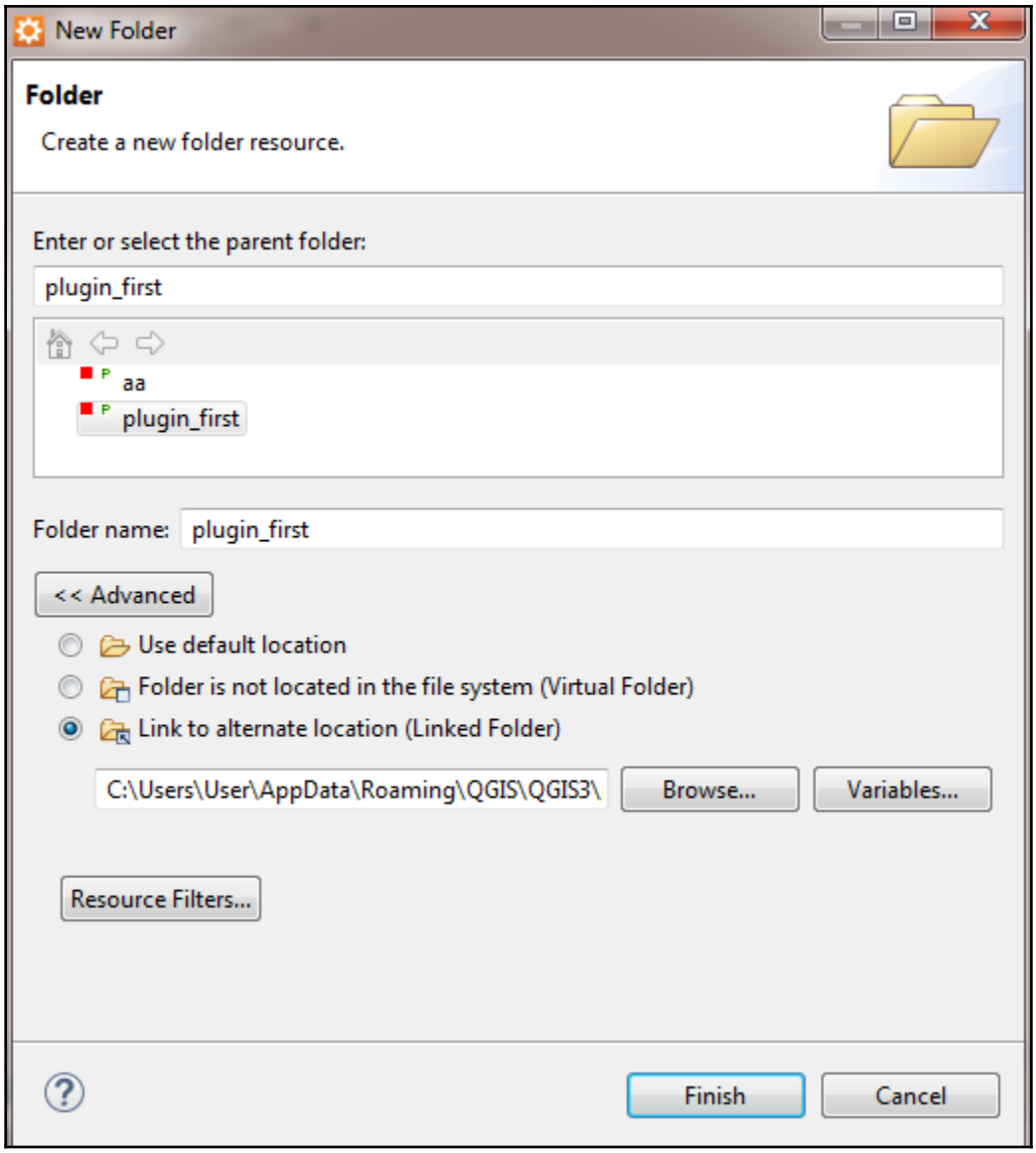

Preferences
type filter text
General
Aptana Studio
Help
Install/Update
PyDev
Builders
Debug
Editor
Interactive Console
Interpreters
IronPython Interpre
Jython Interpreter
Python Interpreter
Logging
PyUnit
Run
Scripting PyDev
Task Tags
Run/Debug
Team
Python Interpreters
Python interpreters (e.g.: python.exe, pypy.exe). Double-click to rename.
Name
Location
pythonw
C:\Users\User\AppData\Local\Pro...
Browse for python/pypy exe
New with Pipenv
Config first in PATH
Choose from list
Remove
Up
Down
Packages
Libraries
Forced Builtins
Predefined
Environment
String Substitution Variables
Library (pip | 4 found)
Version
pip
10.0.1
<pip>
setuptools
39.0.1
<pip>
You are using pip version 10.0.1, however version 19.
You should consider upgrading via the 'python -m p
Manage with pip
Manage with conda
Manage with pipenv
Load conda env vars before run?
Restore Defaults
Apply
Apply and Close
Cancel

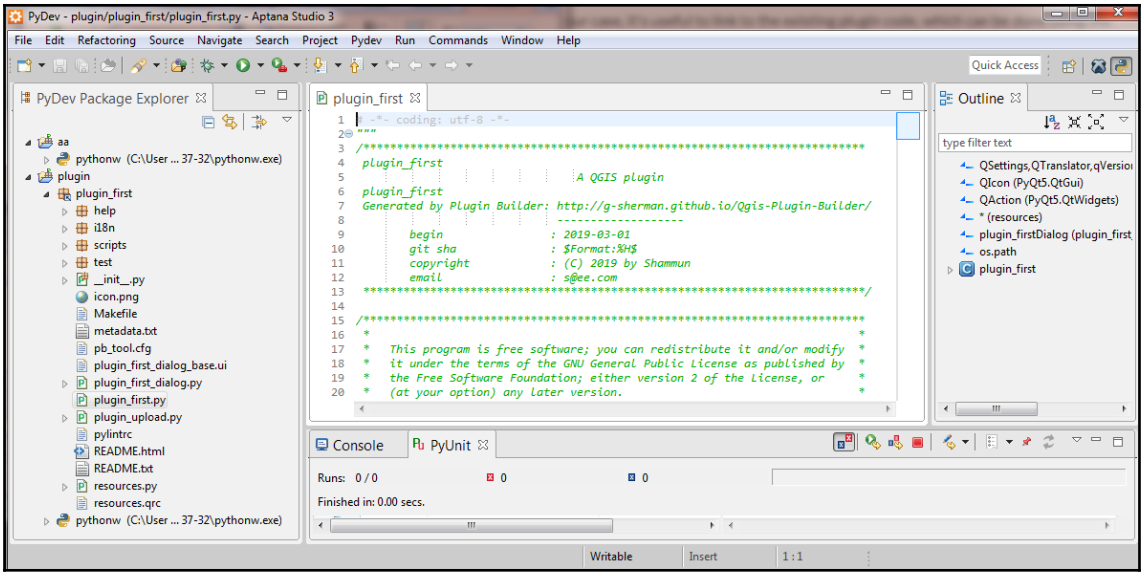

Options | System
General
System
CRS
Data Sources
Rendering
Canvas & Legend
Map Tools
Colors
Digitizing
Layouts
GDAL
Variables
Settings
Reset user interface to default settings (restart required)
Environment
Use custom variables (restart required - include separators)
Apply
Variable
Value
Append
PYTHONPATH
C:/Users/User/AppData/Roaming/Appcelerator/Aptana Studio/plugins/org.python.pydev.core_7.1.0.201...
Current environment variables (read-only - bold indicates modified at startup)
OK
Cancel
Help

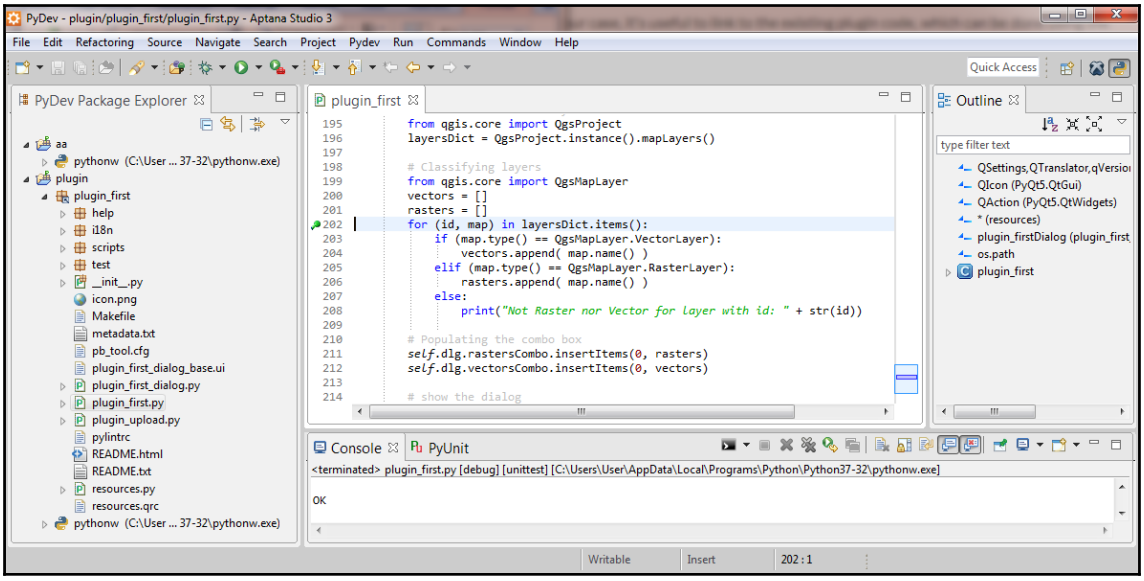

Debug - plugin/plugin_first/plugin_first.py - Aptana Studio 3
File Edit Refactoring Source Navigate Search Project Pydev Run Commands Window Help
PyDev: start the pydev server
Quick Access
Debug
Debug Server [Python Server]
Debug Server
Variables
Breakpoints
Loaded Scripts
plugin_first.run [plugin_first.py:202]
plugin_first
195 from qgis.core import QgsProject
196 layersDict = QgsProject.instance().mapLayers()
197
198 # Classifying layers
199 from qgis.core import QgsMapLayer
200 vectors = []
201 rasters = []
202 for (id, map) in layersDict.items():
203 if (map.type() == QgsMapLayer.VectorLayer):
Outline
type filter text
QSettings, QTranslator, qVersion, QCoreApp
QIcon (PyQt5.QtGui)
QAction (PyQt5.QtWidgets)
* (resources)
plugin_firstDialog (plugin_first_dialog)
os.path
Console
Tasks
Browser Output
Debug Server
Debug Server at port: 5678


Remote Debugger
Debugger:
PyDev (Eclipse)
pydevd path:
thon.pydev.core_7.1.0.201902031515/pysrc
...
The steps to debug an external program are:
- Go to the debug perspective
- Configure remote debugging of exceptions (PyDev > Manage Exception Breakpoints)
- Start the debug server (PyDev > Start Debug Server)
- Press "Connect" to activate remote debugging
The debugger is activated when a breakpoint is reached or an expception is raised (configureable)
PyDev: http://pydev.org/
Remote debugger
Connect
Exception
Close

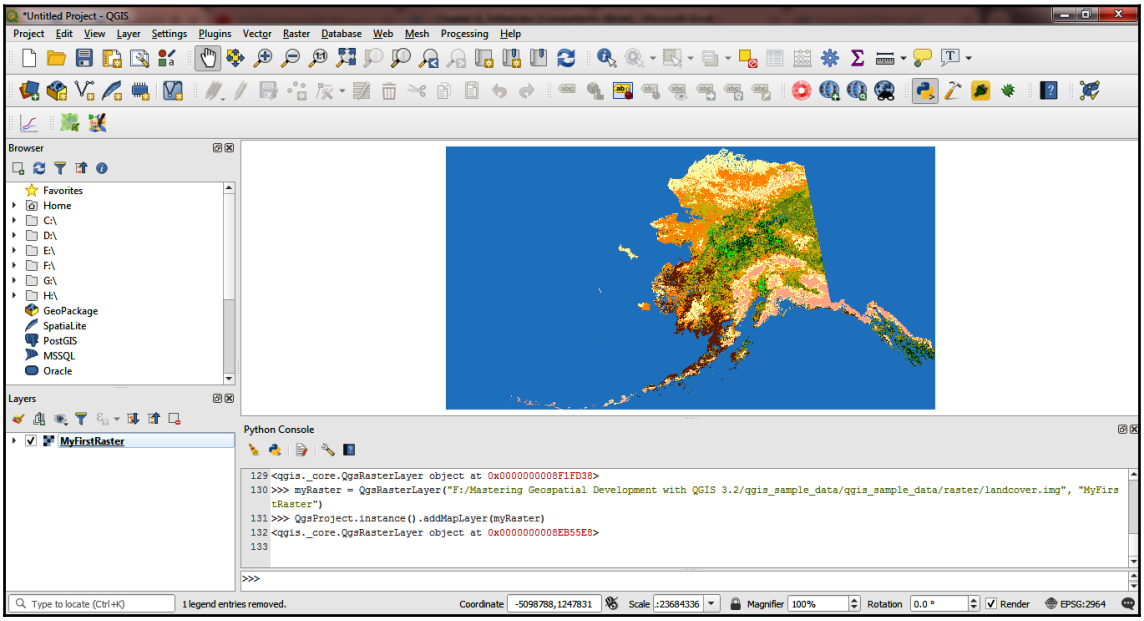

PyDev - Aptana Studio 3
File Edit Navigate Search Project Pydev Run Commands Window Help
Quick Access
PyDev Package Explorer
Outline
An outline is not available.
New
New From Template
Go Into
Publish
Copy
Paste
Delete
Move...
Rename...
Import...
Export...
Refresh F5
Close Project
Close Unrelated Projects
Run As
Debug As
Project...
File
Folder
PHP Project
Rails Project
Ruby Project
Web Project
Link to Existing Source
PyDev Module
PyDev Package
Source Folder
Other... Ctrl+N
PyUnit
0 / 0
0
0

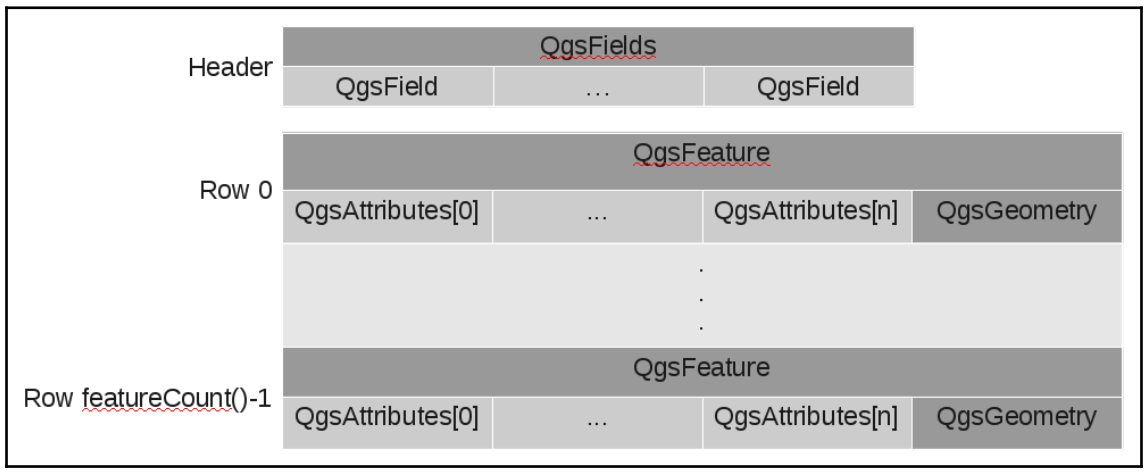

New Folder
Folder
Create a new folder resource.
Enter or select the parent folder:
plugin_first
aa
plugin_first
Folder name:
plugin_first
<< Advanced
Use default location
Folder is not located in the file system (Virtual Folder)
Link to alternate location (Linked Folder)
C:\Users\User\AppData\Roaming\QGIS\QGIS3\
Browse...
Variables...
Resource Filters...
Finish
Cancel

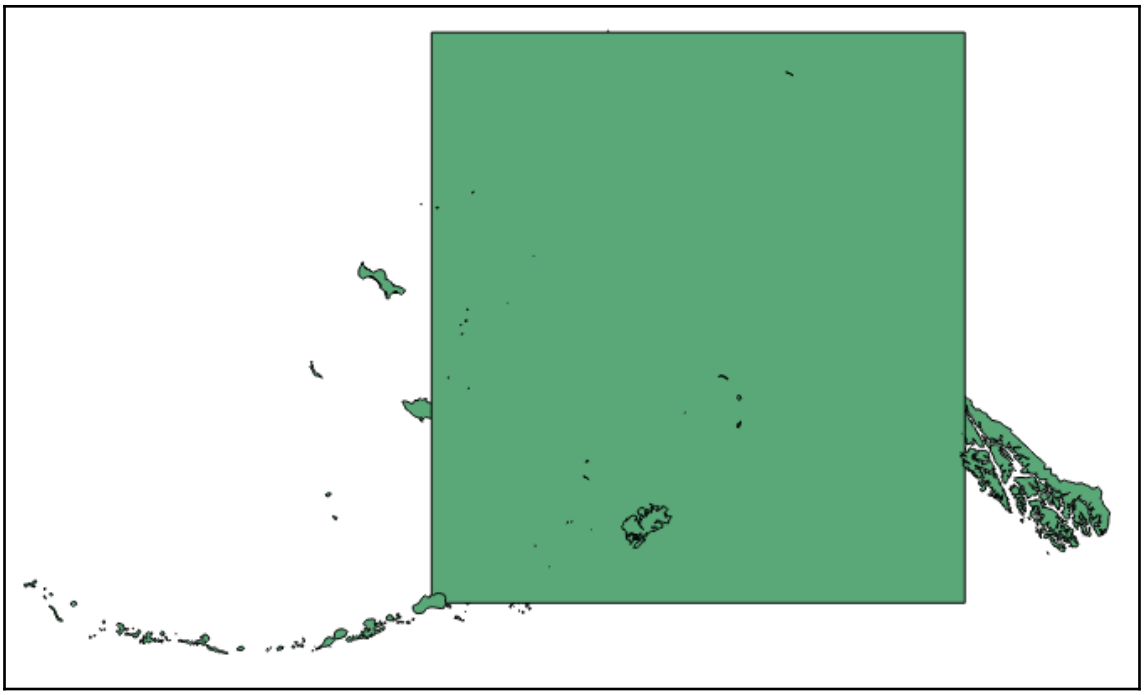

PyDev - plugin/plugin_first/plugin_first.py - Aptana Studio 3
File Edit Refactoring Source Navigate Search Project Pydev Run Commands Window Help
Quick Access
PyDev Package Explorer
aa
pythonw (C:\User ... 37-32\pythonw.exe)
plugin
plugin_first
help
i18n
scripts
test
__init__.py
icon.png
Makefile
metadata.txt
pb_tool.cfg
plugin_first_dialog_base.ui
plugin_first_dialog.py
plugin_first.py
plugin_upload.py
pylintrc
README.html
README.txt
resources.py
resources.qrc
pythonw (C:\User ... 37-32\pythonw.exe)
plugin_first
1 # -*- coding: utf-8 -*-
2 """
3 /***
4 plugin_first
5 A QGIS plugin
6 plugin_first
7 Generated by Plugin Builder: http://g-sherman.github.io/Qgis-Plugin-Builder/
8 -------------------
9 begin : 2019-03-01
10 git sha : $Format:%H$
11 copyright : (C) 2019 by Shammun
12 email : s@ee.com
13 ***/
14
15 /***
16 *
17 * This program is free software; you can redistribute it and/or modify *
18 * it under the terms of the GNU General Public License as published by *
19 * the Free Software Foundation; either version 2 of the License, or *
20 * (at your option) any later version. *
Outline
type filter text
QSettings, QTranslator, qVersio
QIcon (PyQt5.QtGui)
QAction (PyQt5.QtWidgets)
* (resources)
plugin_firstDialog (plugin_first
os.path
plugin_first
Console
PyUnit
Runs: 0 / 0
0
0
Finished in: 0.00 secs.
Writable
Insert
1 : 1

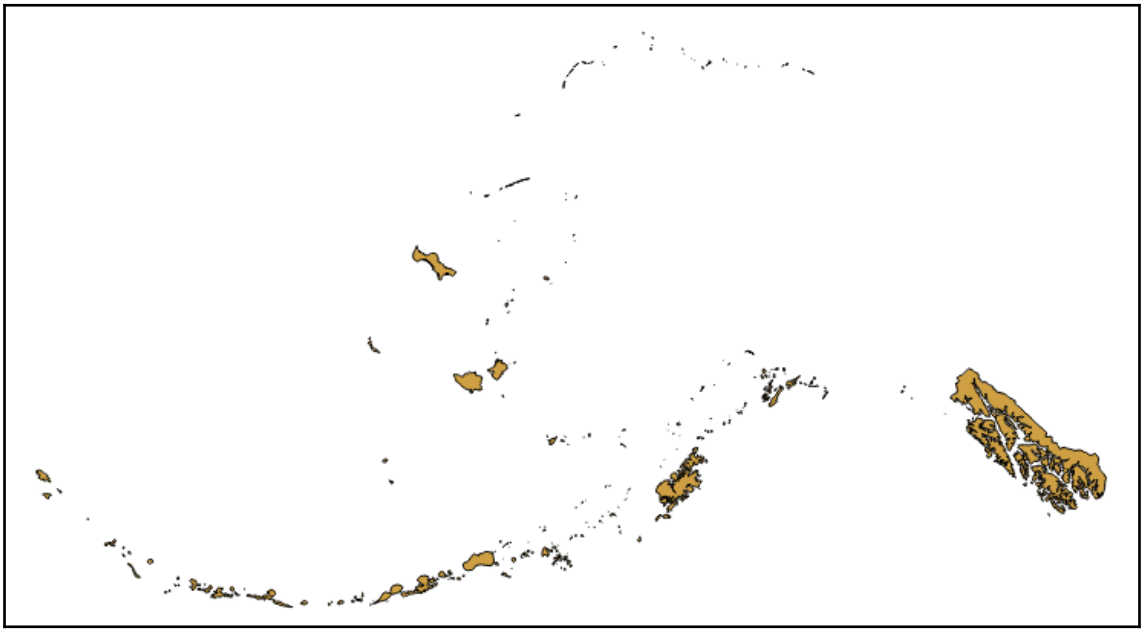

PyDev - plugin/plugin_first/plugin_first.py - Aptana Studio 3
File Edit Refactoring Source Navigate Search Project Pydev Run Commands Window Help
Quick Access
PyDev Package Explorer
aa
pythonw (C:\User ... 37-32\pythonw.exe)
plugin
plugin_first
help
i18n
scripts
test
__init__.py
icon.png
Makefile
metadata.txt
pb_tool.cfg
plugin_first_dialog_base.ui
plugin_first_dialog.py
plugin_first.py
plugin_upload.py
pylintrc
README.html
README.txt
resources.py
resources.qrc
pythonw (C:\User ... 37-32\pythonw.exe)
plugin_first
195 from qgis.core import QgsProject
196 layersDict = QgsProject.instance().mapLayers()
197
198 # Classifying layers
199 from qgis.core import QgsMapLayer
200 vectors = []
201 rasters = []
202 for (id, map) in layersDict.items():
203 if (map.type() == QgsMapLayer.VectorLayer):
204 vectors.append(map.name())
205 elif (map.type() == QgsMapLayer.RasterLayer):
206 rasters.append(map.name())
207 else:
208 print("Not Raster nor Vector for layer with id: " + str(id))
209
210 # Populating the combo box
211 self.dlg.rastersCombo.insertItems(0, rasters)
212 self.dlg.vectorsCombo.insertItems(0, vectors)
213
214 # show the dialog
Outline
type filter text
QSettings, QTranslator, qVersio
QIcon (PyQt5.QtGui)
QAction (PyQt5.QtWidgets)
* (resources)
plugin_firstDialog (plugin_first
os.path
plugin_first
Console
PyUnit
<terminated> plugin_first.py [debug] [unittest] [C:\Users\User\AppData\Local\Programs\Python\Python37-32\pythonw.exe]
OK
Writable
Insert
202 : 1

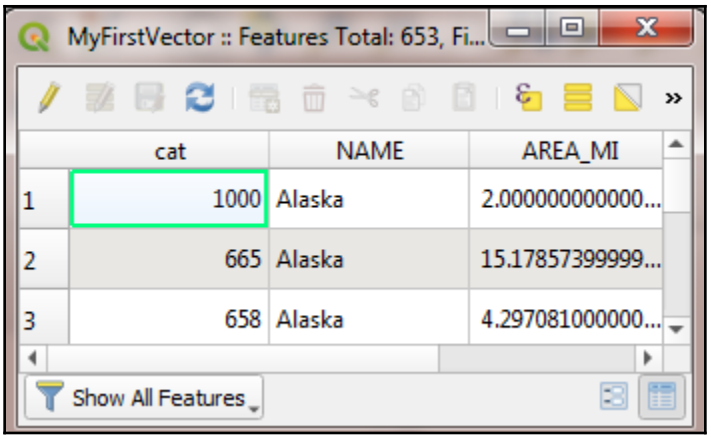
Chapter 11: PyQGIS Scripting



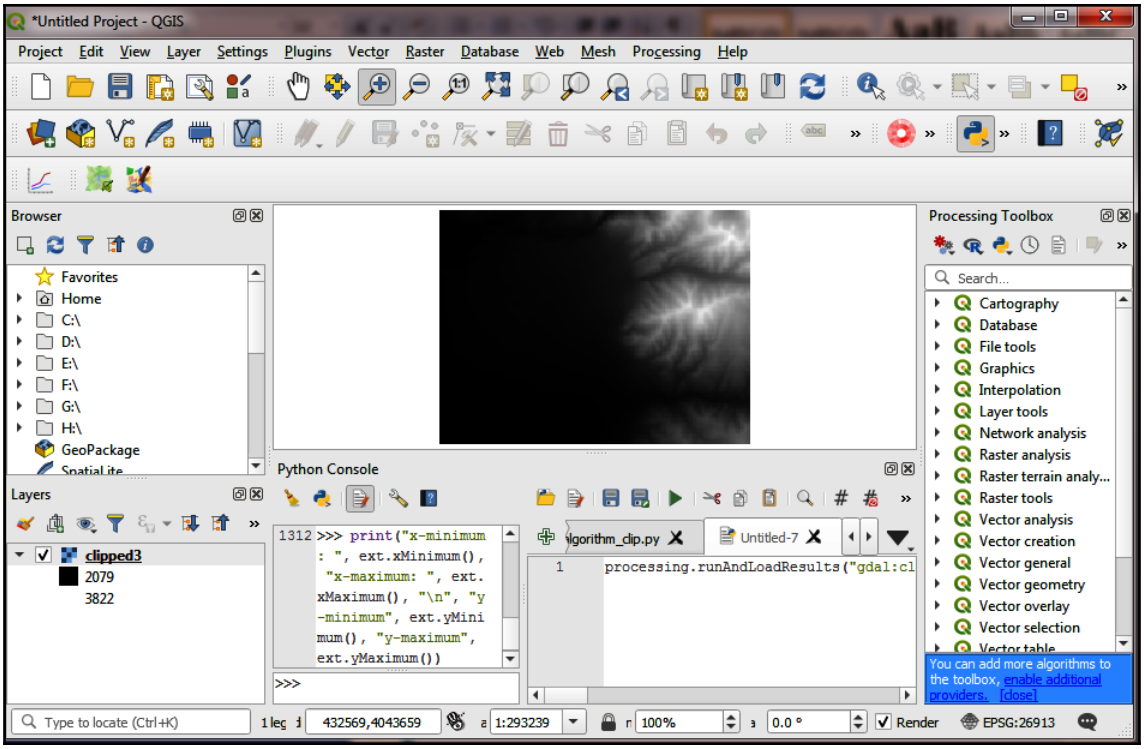


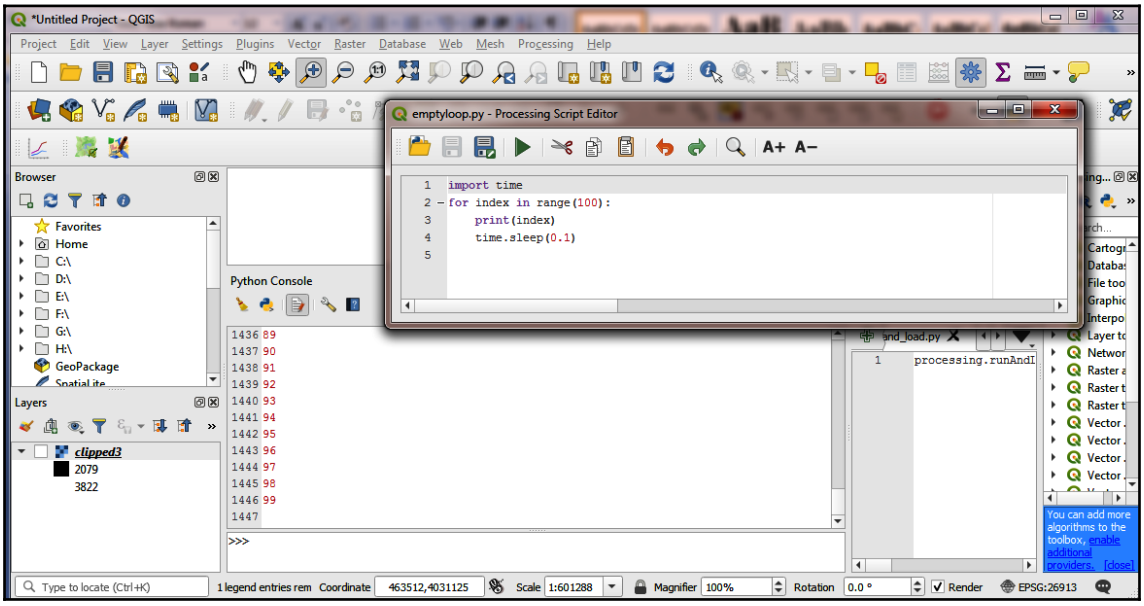


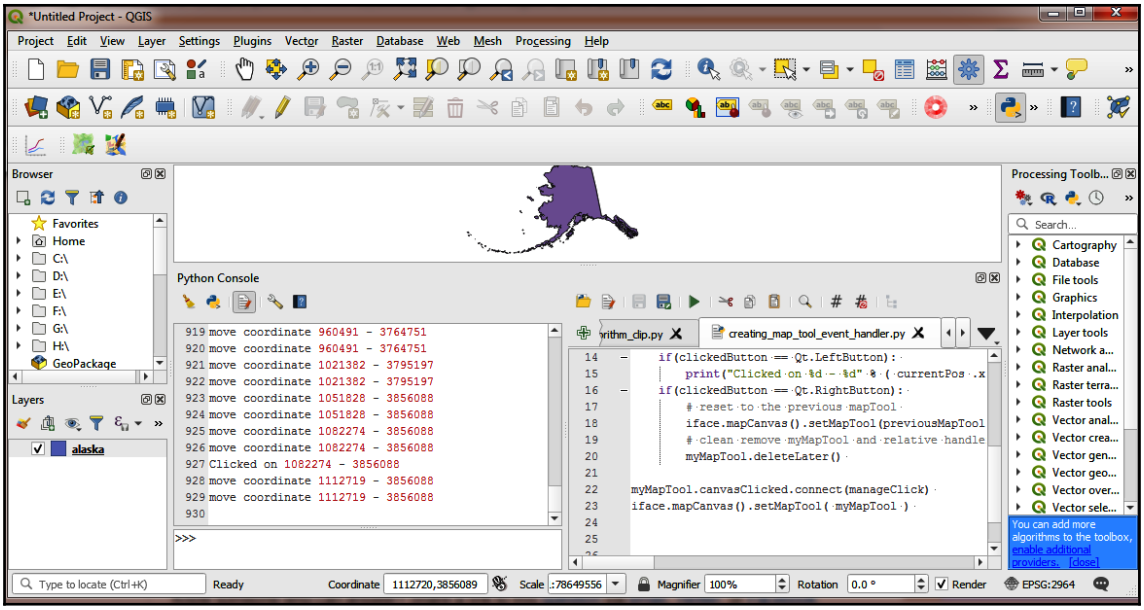


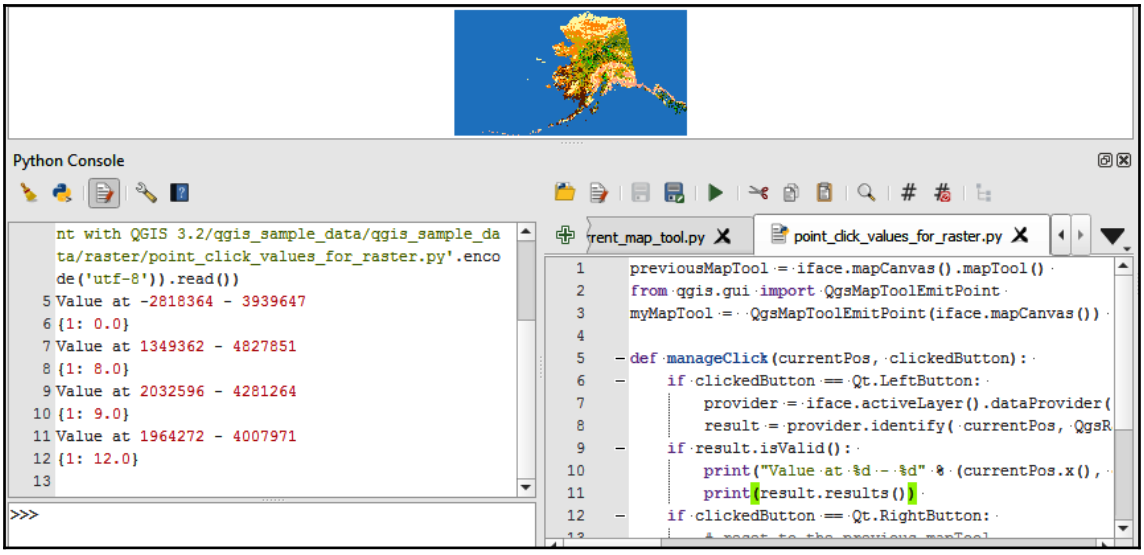


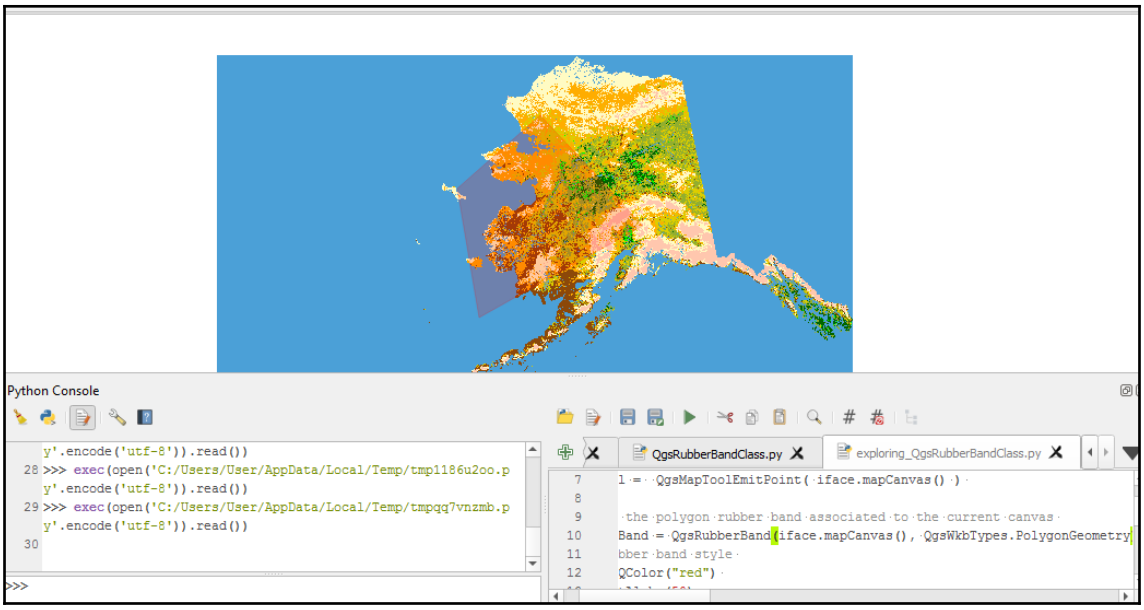

```
3d:tessellate ------ Tessellate
gdal:aspect ------ Aspect
gdal:assignprojection ------ Assign projection
gdal:buffervectors ------ Buffer vectors
gdal:buildvirtualraster ------ Build virtual raster
gdal:cliprasterbyextent ------ Clip raster by extent
gdal:cliprasterbymasklayer ------ Clip raster by mask layer
gdal:clipvectorbyextent ------ Clip vector by extent
gdal:clipvectorbypolygon ------ Clip vector by mask layer
gdal:colorrelief ------ Color relief
gdal:contour ------ Contour
gdal:convertformat ------ Convert format
gdal:dissolve ------ Dissolve
```

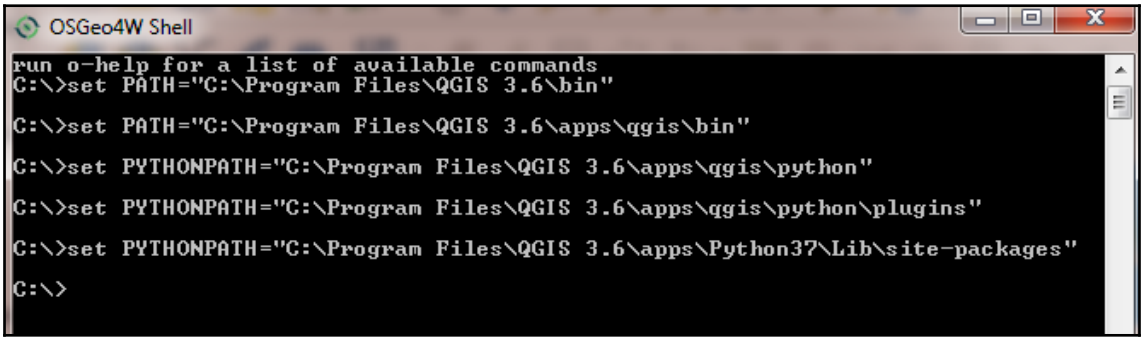

*Untitled Project - QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help
Browser
Favorites
Home
C:\
D:\
E:\
F:\
G:\
H:\
GeoPackage
Layers
clipped3
2079
3822
Python Console
1312 >>> print("x-minimum : ", ext.xMinimum(), "x-maximum: ", ext.xMaximum(), "\n", "y-minimum", ext.yMinimum(), "y-maximum", ext.yMaximum())
>>>
Untitled-7
1 processing.runAndLoadResults("gdal:cl
Processing Toolbox
Search...
Cartography
Database
File tools
Graphics
Interpolation
Layer tools
Network analysis
Raster analysis
Raster terrain analy...
Raster tools
Vector analysis
Vector creation
Vector general
Vector geometry
Vector overlay
Vector selection
You can add more algorithms to the toolbox, enable additional providers. [close]
Type to locate (Ctrl+K)
1 leg
432569,4043659
1:293239
100%
0.0 °
Render
EPSG:26913


*Untitled Project - QGIS
emptyloop.py - Processing Script Editor
1 import time
2 for index in range(100):
3 print(index)
4 time.sleep(0.1)
5
Python Console
1436 89
1437 90
1438 91
1439 92
1440 93
1441 94
1442 95
1443 96
1444 97
1445 98
1446 99
1447
>>>
processing.runAndI
Coordinate
463512,4031125
Scale
1:601288
Magnifier
100%
Rotation
0.0 °
Render
EPSG:26913


*Untitled Project - QGIS
Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help
Browser
Favorites
Home
C:\
D:\
E:\
F:\
G:\
H:\
GeoPackage
Layers
alaska
Python Console
919 move coordinate 960491 - 3764751
920 move coordinate 960491 - 3764751
921 move coordinate 1021382 - 3795197
922 move coordinate 1021382 - 3795197
923 move coordinate 1051828 - 3856088
924 move coordinate 1051828 - 3856088
925 move coordinate 1082274 - 3856088
926 move coordinate 1082274 - 3856088
927 Clicked on 1082274 - 3856088
928 move coordinate 1112719 - 3856088
929 move coordinate 1112719 - 3856088
930
>>>
rithm_clip.py
creating_map_tool_event_handler.py
14 if(clickedButton == Qt.LeftButton):
15 print("Clicked on %d - %d" % (currentPos.x
16 if(clickedButton == Qt.RightButton):
17 # reset to the previous mapTool
18 iface.mapCanvas().setMapTool(previousMapTool
19 # clean remove myMapTool and relative handle
20 myMapTool.deleteLater()
21
22 myMapTool.canvasClicked.connect(manageClick)
23 iface.mapCanvas().setMapTool(myMapTool)
24
25
Processing Toolb...
Search...
Cartography
Database
File tools
Graphics
Interpolation
Layer tools
Network a...
Raster anal...
Raster terra...
Raster tools
Vector anal...
Vector crea...
Vector gen...
Vector geo...
Vector over...
Vector sele...
You can add more algorithms to the toolbox, enable additional providers. [close]
Type to locate (Ctrl+K)
Ready
Coordinate 1112720,3856089
Scale :78649556
Magnifier 100%
Rotation 0.0 °
Render
EPSG:2964


Python Console
nt with QGIS 3.2/qgis_sample_data/qgis_sample_da
ta/raster/point_click_values_for_raster.py'.enco
de('utf-8')).read())
5 Value at -2818364 - 3939647
6 {1: 0.0}
7 Value at 1349362 - 4827851
8 {1: 8.0}
9 Value at 2032596 - 4281264
10 {1: 9.0}
11 Value at 1964272 - 4007971
12 {1: 12.0}
13
>>>
rent_map_tool.py
point_click_values_for_raster.py
1 previousMapTool = iface.mapCanvas().mapTool()
2 from qgis.gui import QgsMapToolEmitPoint
3 myMapTool = QgsMapToolEmitPoint(iface.mapCanvas())
4
5 def manageClick(currentPos, clickedButton):
6 if clickedButton == Qt.LeftButton:
7 provider = iface.activeLayer().dataProvider(
8 result = provider.identify(currentPos, QgsR
9 if result.isValid():
10 print("Value at %d - %d" % (currentPos.x(),
11 print(result.results())
12 if clickedButton == Qt.RightButton:


Python Console
y'.encode('utf-8')).read())
28 >>> exec(open('C:/Users/User/AppData/Local/Temp/tmp1186u2oo.p
y'.encode('utf-8')).read())
29 >>> exec(open('C:/Users/User/AppData/Local/Temp/tmpqq7vnzmb.p
y'.encode('utf-8')).read())
30
>>>
QgsRubberBandClass.py
exploring_QgsRubberBandClass.py
7 l = QgsMapToolEmitPoint(iface.mapCanvas())
8
9 the polygon rubber band associated to the current canvas
10 Band = QgsRubberBand(iface.mapCanvas(), QgsWkbTypes.PolygonGeometry
11 bber band style
12 QColor("red")


OSGeo4W Shell
run o-help for a list of available commands
C:\>set PATH="C:\Program Files\QGIS 3.6\bin"
C:\>set PATH="C:\Program Files\QGIS 3.6\apps\qgis\bin"
C:\>set PYTHONPATH="C:\Program Files\QGIS 3.6\apps\qgis\python"
C:\>set PYTHONPATH="C:\Program Files\QGIS 3.6\apps\qgis\python\plugins"
C:\>set PYTHONPATH="C:\Program Files\QGIS 3.6\apps\Python37\Lib\site-packages"
C:\>