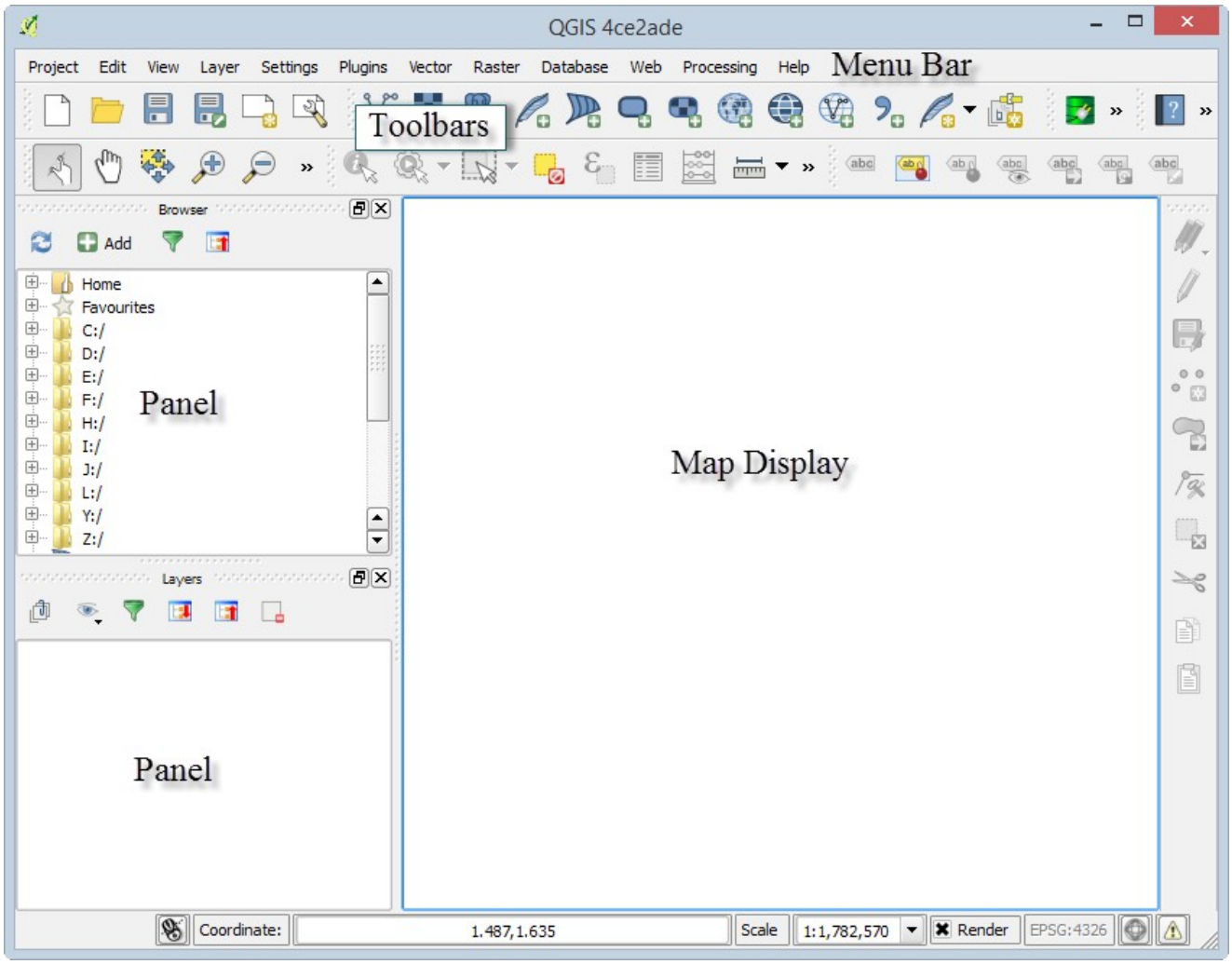
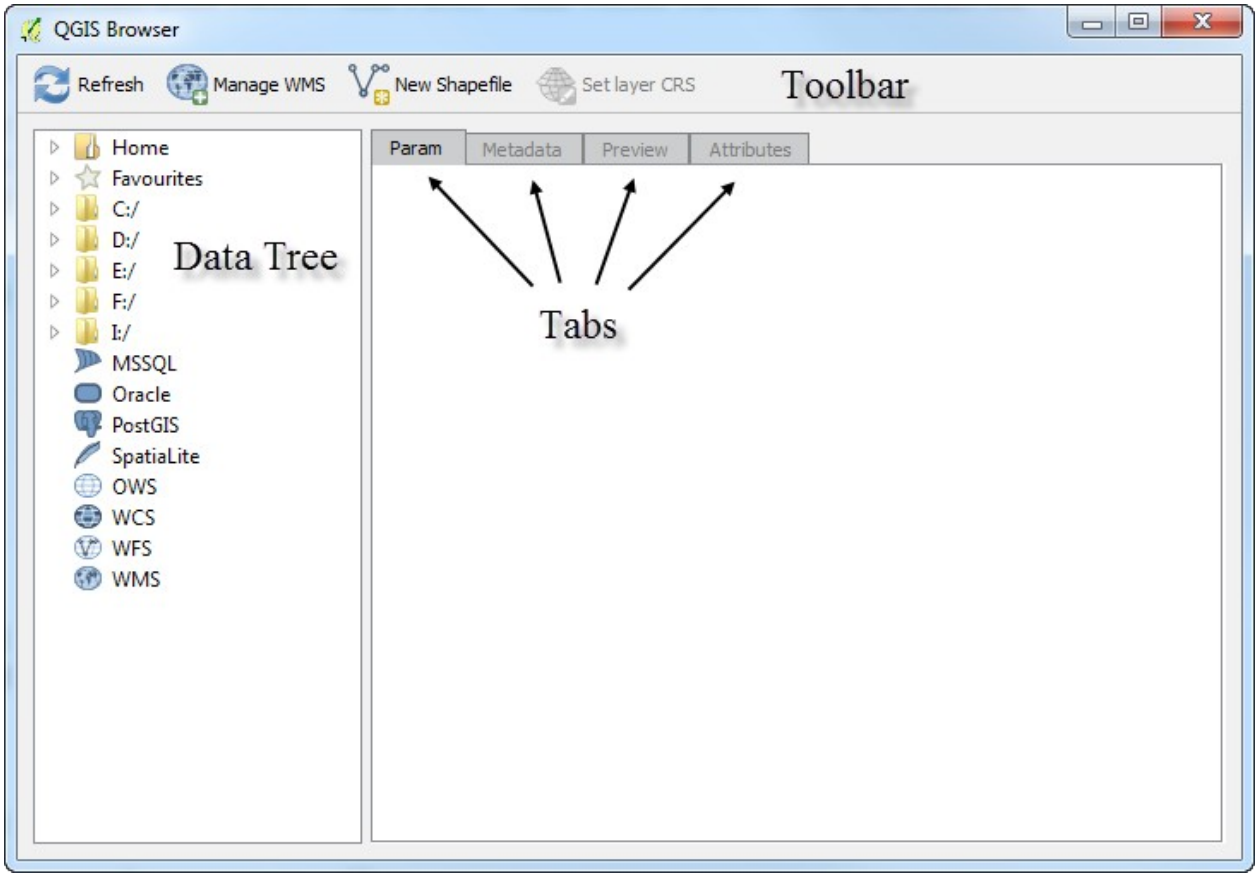
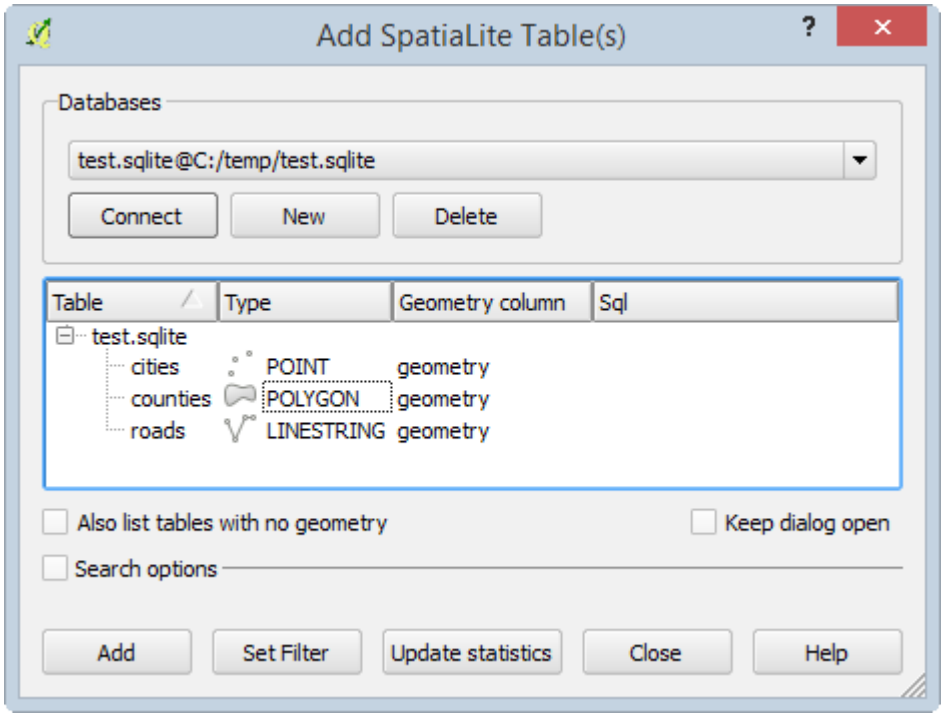
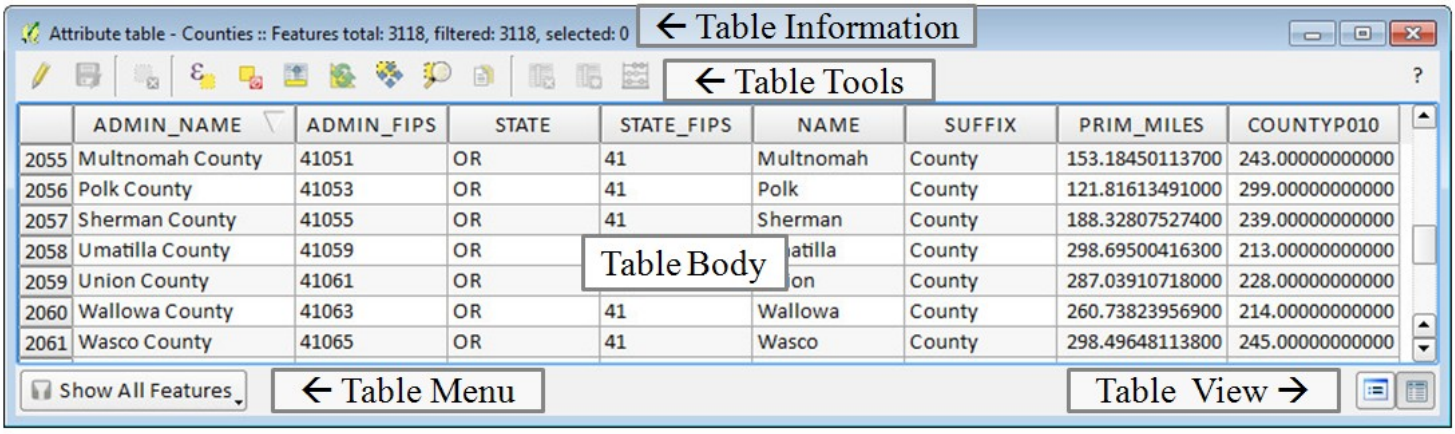
Chapter 1: A Refreshing Look at QGIS

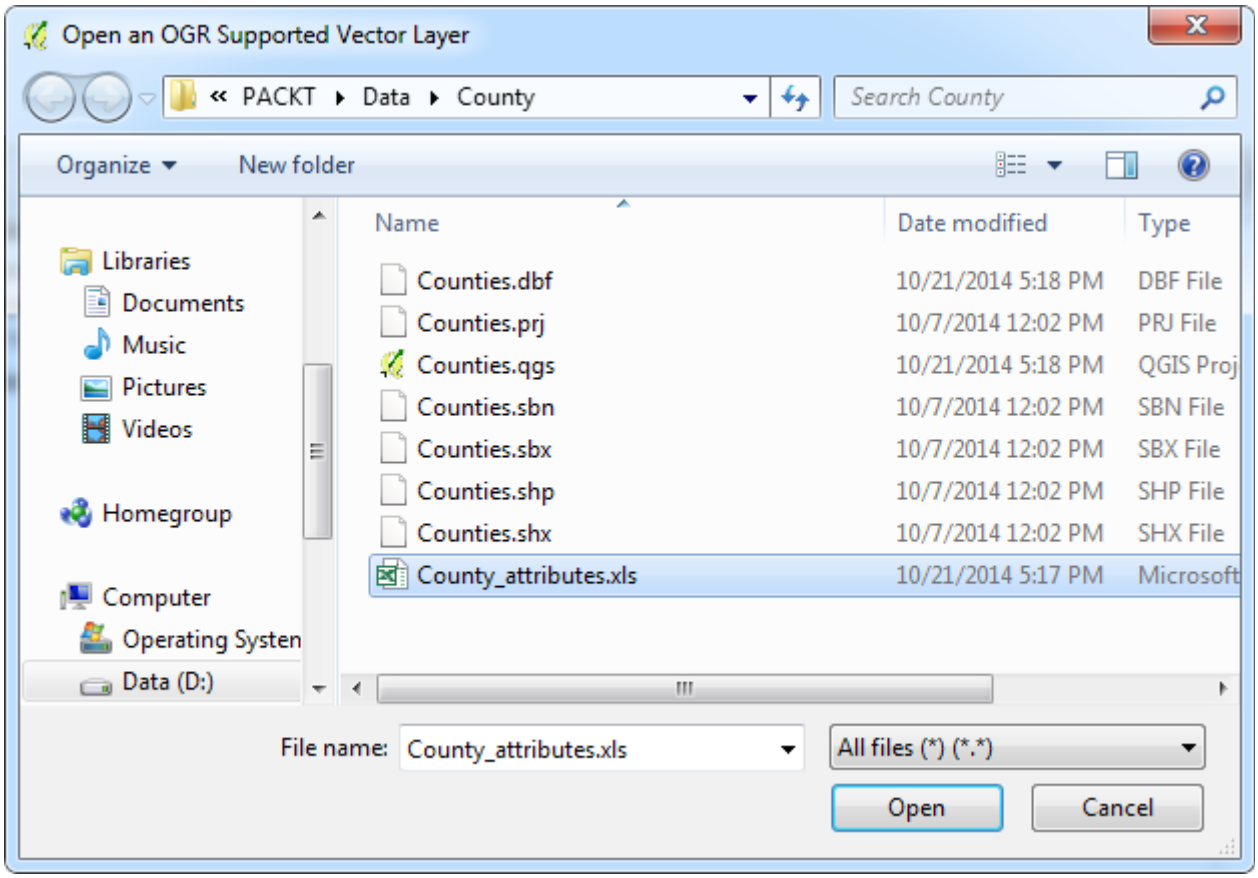


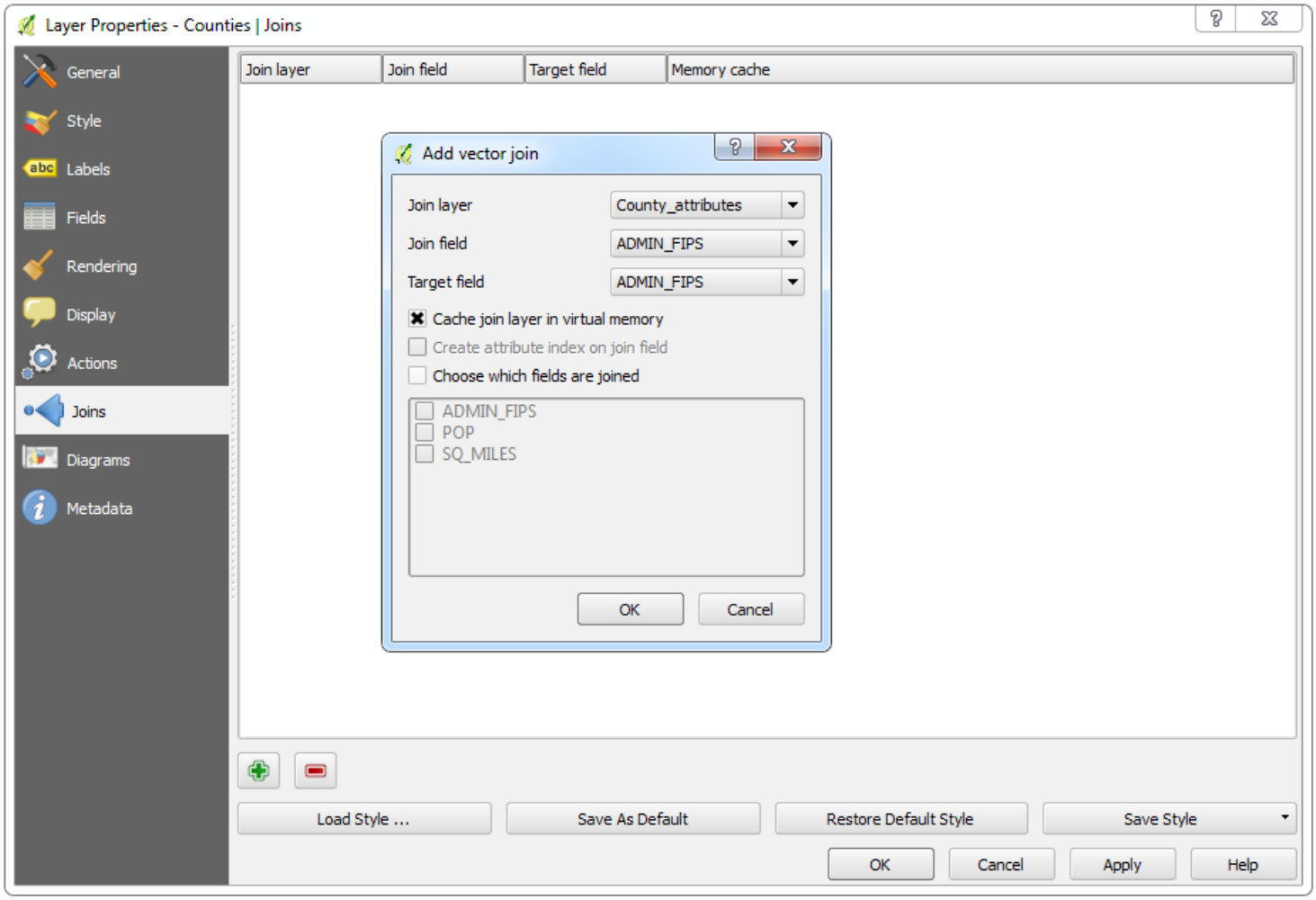

QGIS Browser
Refresh
Manage WMS
New Shapefile
Set layer CRS
Toolbar
Home
Favourites
C:/
D:/
E:/
F:/
I:/
MSSQL
Oracle
PostGIS
SpatiaLite
OWS
WCS
WFS
WMS
Data Tree
Param
Metadata
Preview
Attributes
Tabs

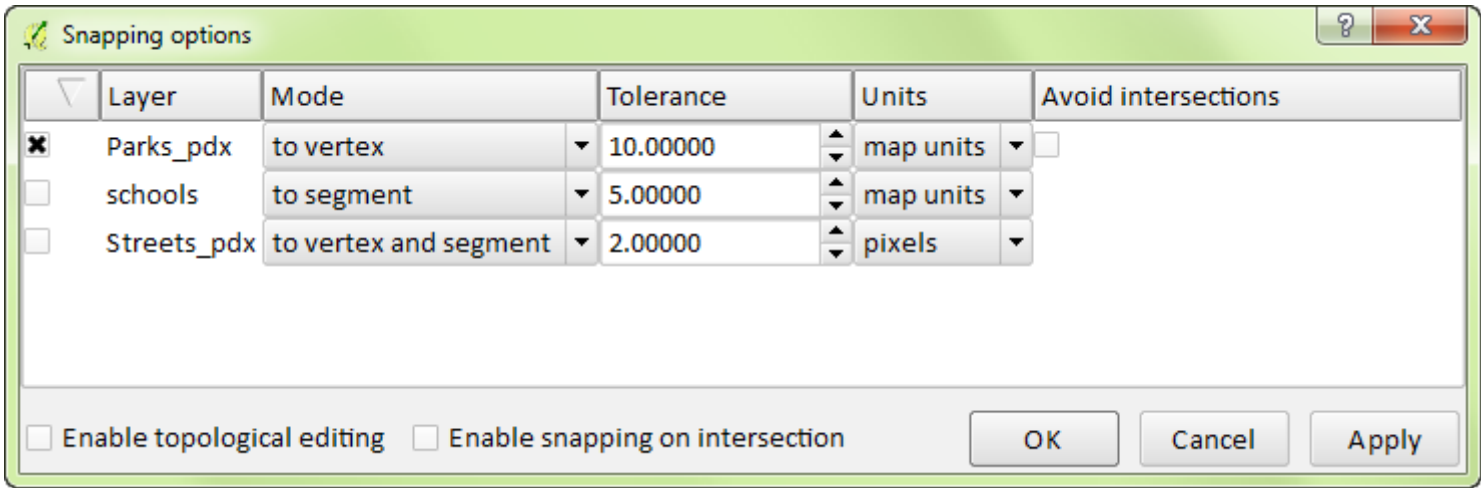

Add SpatiaLite Table(s)
Databases
test.sqlite@C:/temp/test.sqlite
Connect
New
Delete
Table
Type
Geometry column
Sql
test.sqlite
cities
POINT
geometry
counties
POLYGON
geometry
roads
LINESTRING
geometry
Also list tables with no geometry
Keep dialog open
Search options
Add
Set Filter
Update statistics
Close
Help

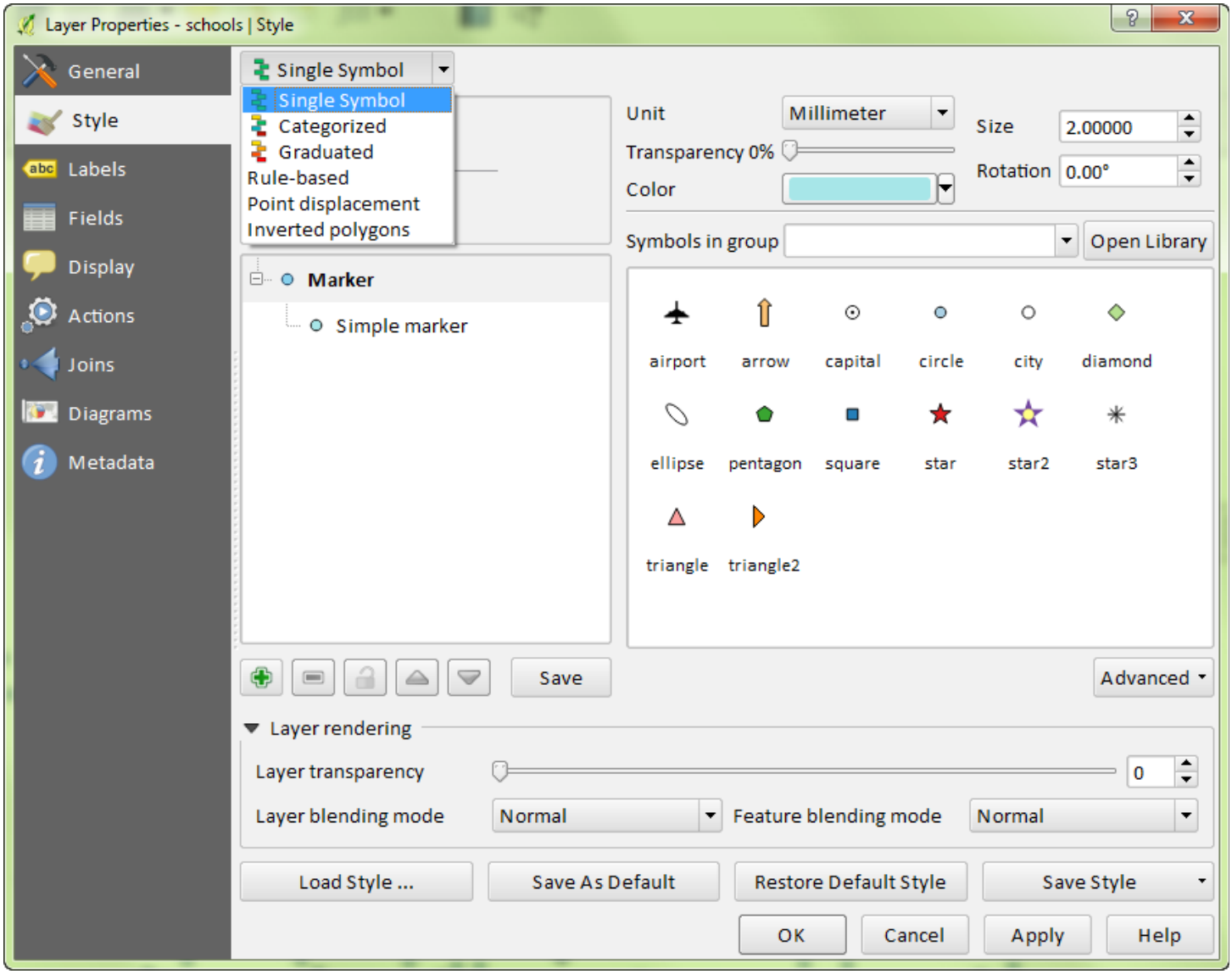


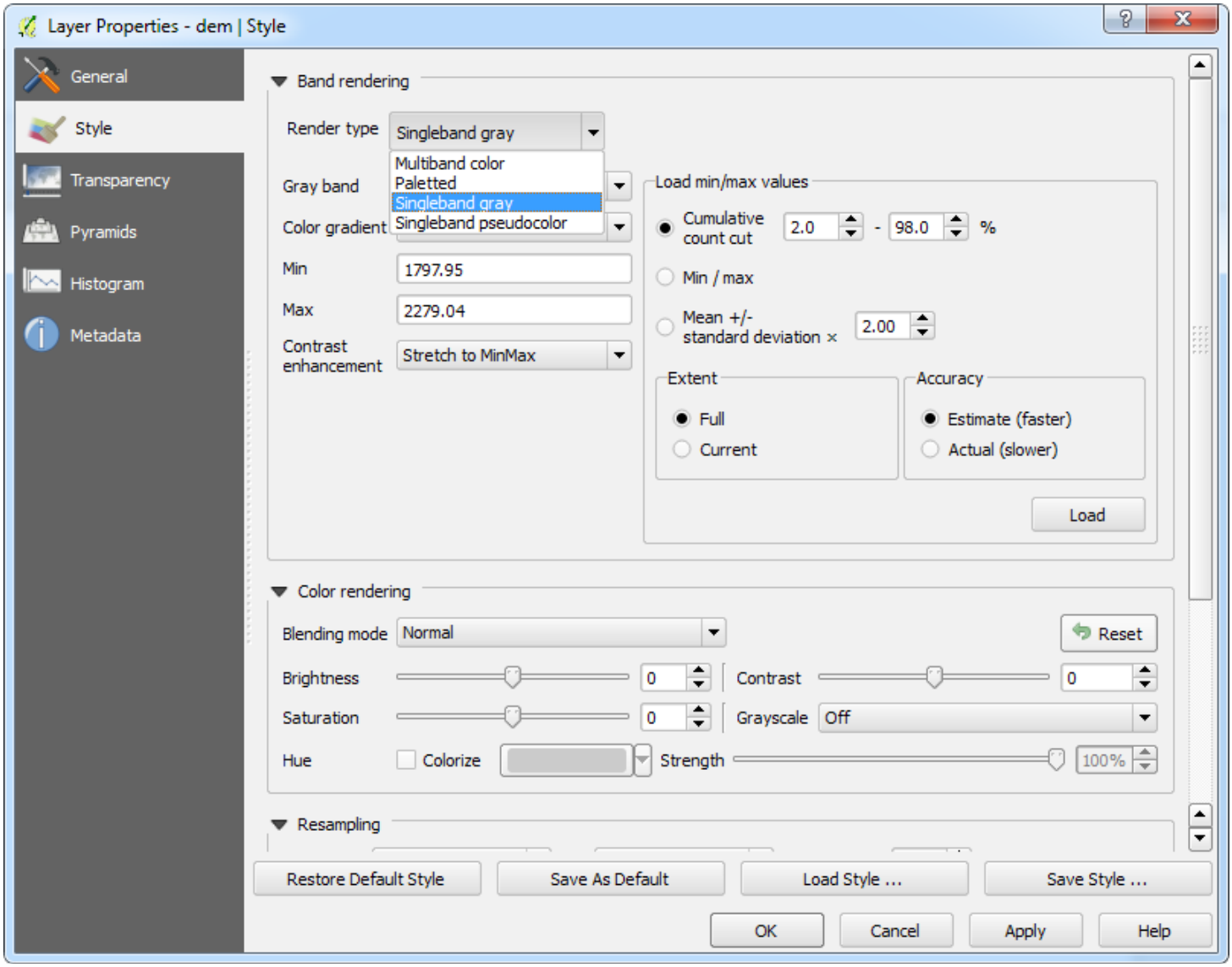
	ADMIN_NAME	ADMIN_FIPS	STATE	STATE_FIPS	NAME	SUFFIX	PRIM_MILES	COUNTYP010
2055	Multnomah County	41051	OR	41	Multnomah	County	153.18450113700	243.00000000000
2056	Polk County	41053	OR	41	Polk	County	121.81613491000	299.00000000000
2057	Sherman County	41055	OR	41	Sherman	County	188.32807527400	239.00000000000
2058	Umatilla County	41059	OR		atilla	County	298.69500416300	213.00000000000
2059	Union County	41061	OR		on	County	287.03910718000	228.00000000000
2060	Wallowa County	41063	OR	41	Wallowa	County	260.73823956900	214.00000000000
2061	Wasco County	41065	OR	41	Wasco	County	298.49648113800	245.00000000000

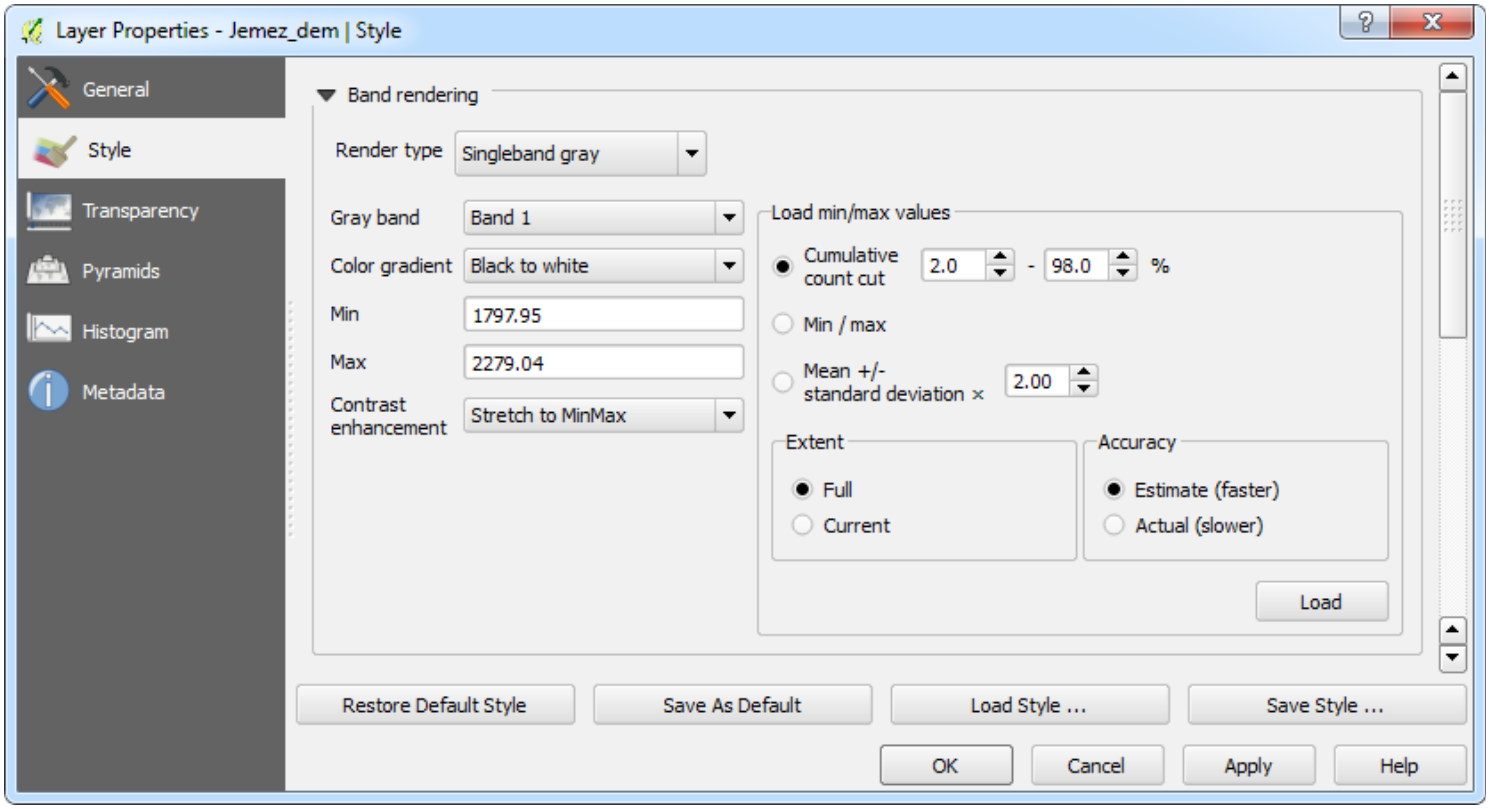


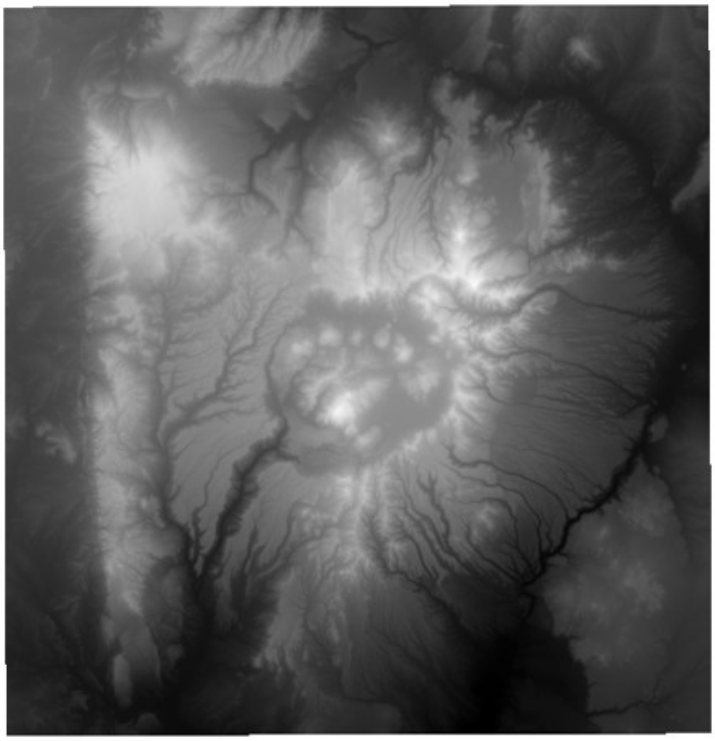

Layer Properties - Counties | Joins
General
Style
Labels
Fields
Rendering
Display
Actions
Joins
Diagrams
Metadata
Join layer
Join field
Target field
Memory cache
Add vector join
Join layer
County_attributes
Join field
ADMIN_FIPS
Target field
ADMIN_FIPS
Cache join layer in virtual memory
Create attribute index on join field
Choose which fields are joined
ADMIN_FIPS
POP
SQ_MILES
OK
Cancel
Load Style ...
Save As Default
Restore Default Style
Save Style
OK
Cancel
Apply
Help

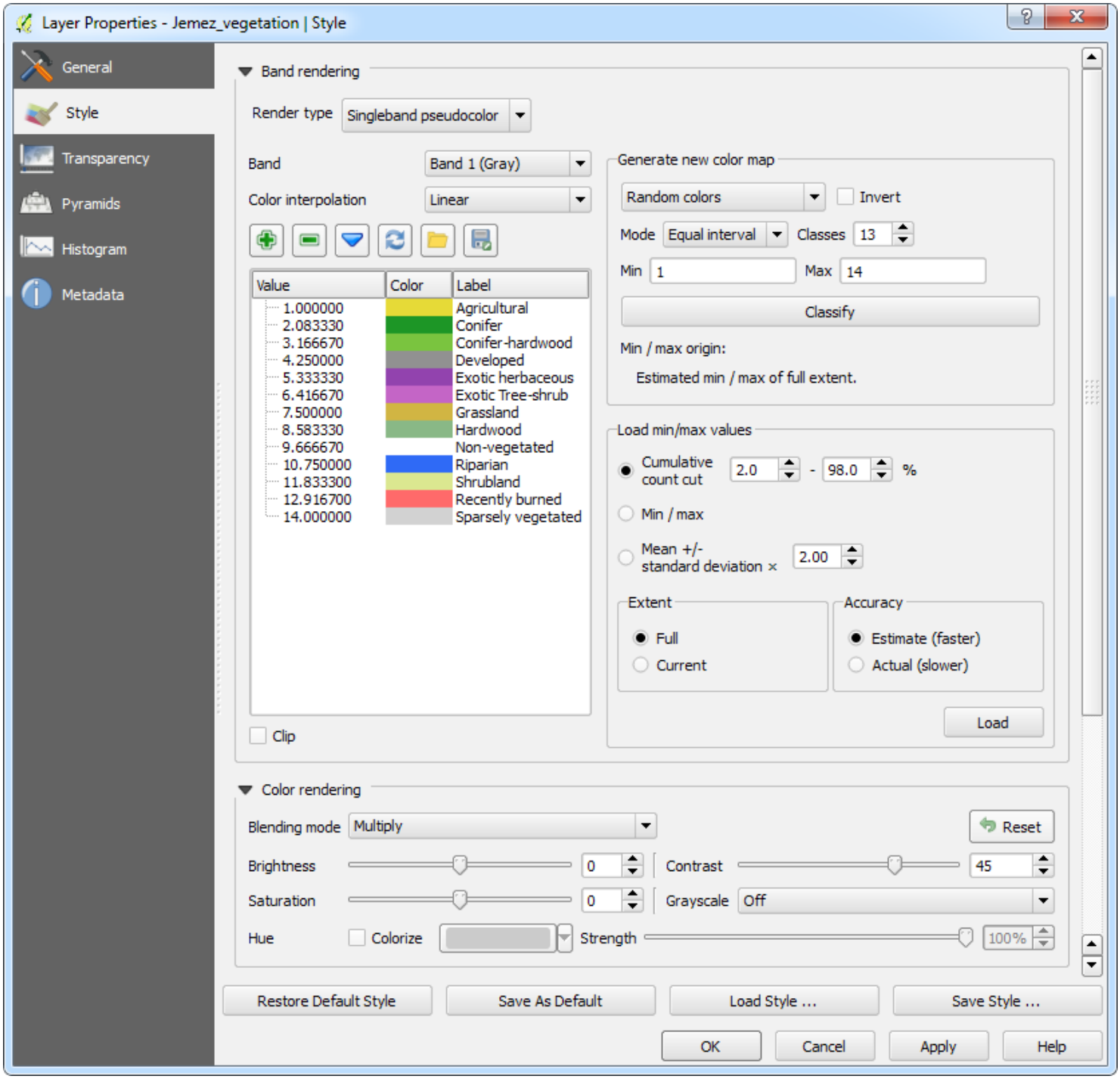

Snapping options
Layer
Mode
Tolerance
Units
Avoid intersections
Parks_pdx
to vertex
10.00000
map units
schools
to segment
5.00000
map units
Streets_pdx
to vertex and segment
2.00000
pixels
Enable topological editing
Enable snapping on intersection
OK
Cancel
Apply

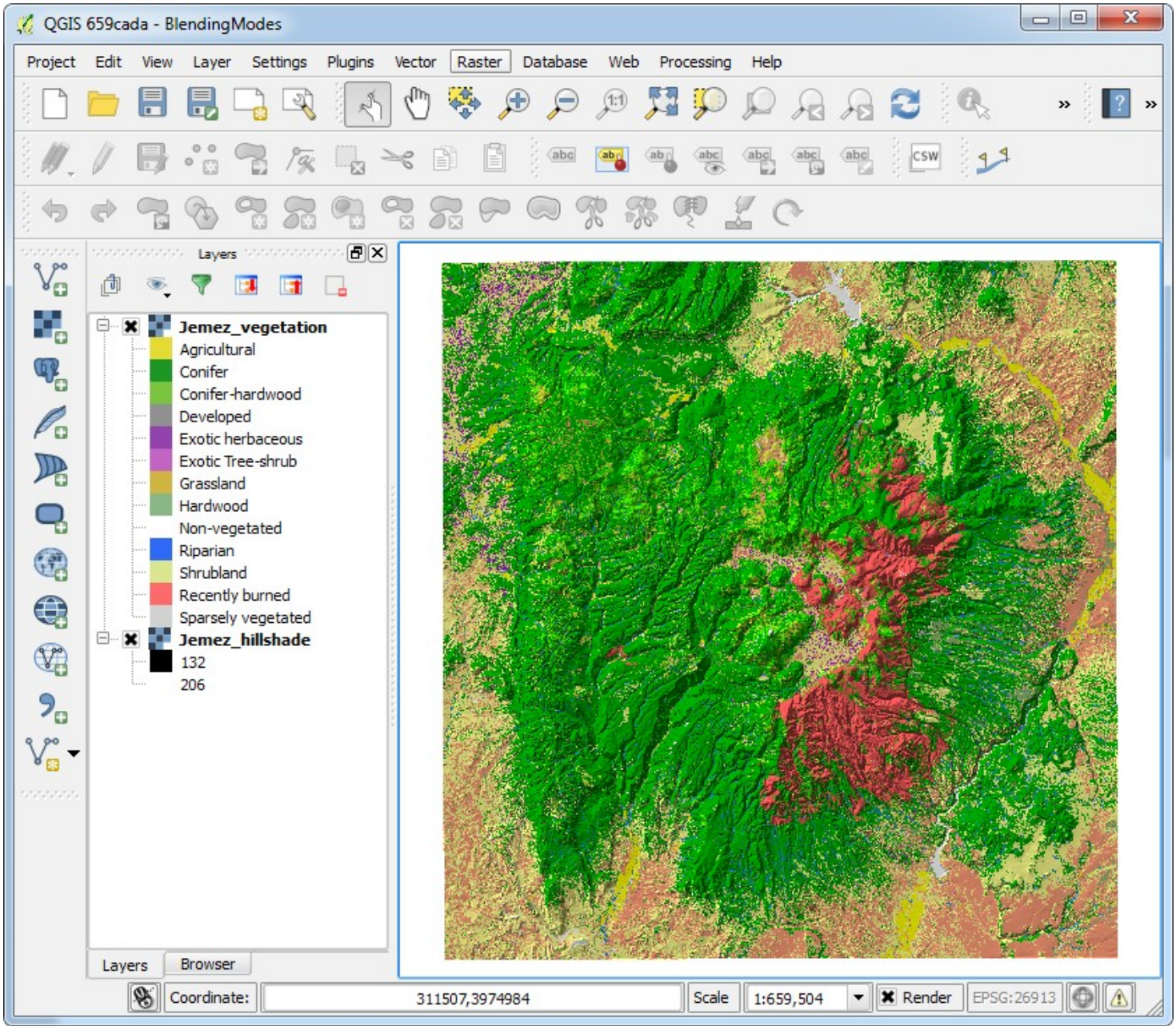

Layer Properties - schools | Style
General
Style
Labels
Fields
Display
Actions
Joins
Diagrams
Metadata
Single Symbol
Single Symbol
Categorized
Graduated
Rule-based
Point displacement
Inverted polygons
Unit
Millimeter
Size
2.00000
Transparency 0%
Rotation
0.00°
Color
Symbols in group
Open Library
Marker
Simple marker
airport
arrow
capital
circle
city
diamond
ellipse
pentagon
square
star
star2
star3
triangle
triangle2
Save
Advanced
Layer rendering
Layer transparency
0
Layer blending mode
Normal
Feature blending mode
Normal
Load Style ...
Save As Default
Restore Default Style
Save Style
OK
Cancel
Apply
Help

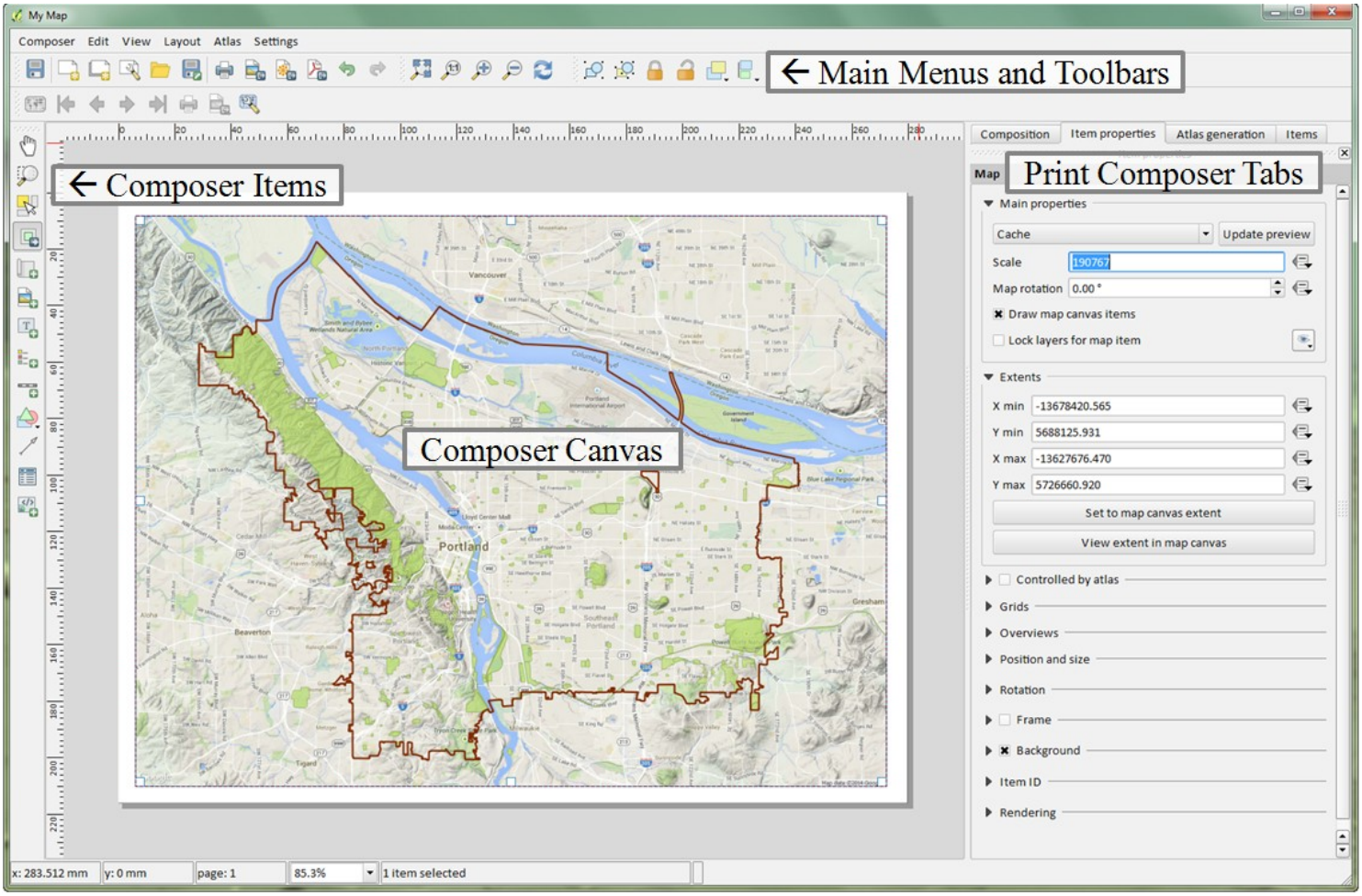

Layer Properties - dem | Style
General
Style
Transparency
Pyramids
Histogram
Metadata
Band rendering
Render type
Singleband gray
Multiband color
Paletted
Singleband gray
Singleband pseudocolor
Gray band
Color gradient
Min
1797.95
Max
2279.04
Contrast enhancement
Stretch to MinMax
Load min/max values
Cumulative count cut
2.0
98.0
%
Min / max
Mean +/- standard deviation ×
2.00
Extent
Full
Current
Accuracy
Estimate (faster)
Actual (slower)
Load
Color rendering
Blending mode
Normal
Reset
Brightness
0
Contrast
0
Saturation
0
Grayscale
Off
Hue
Colorize
Strength
100%
Resampling
Restore Default Style
Save As Default
Load Style ...
Save Style ...
OK
Cancel
Apply
Help

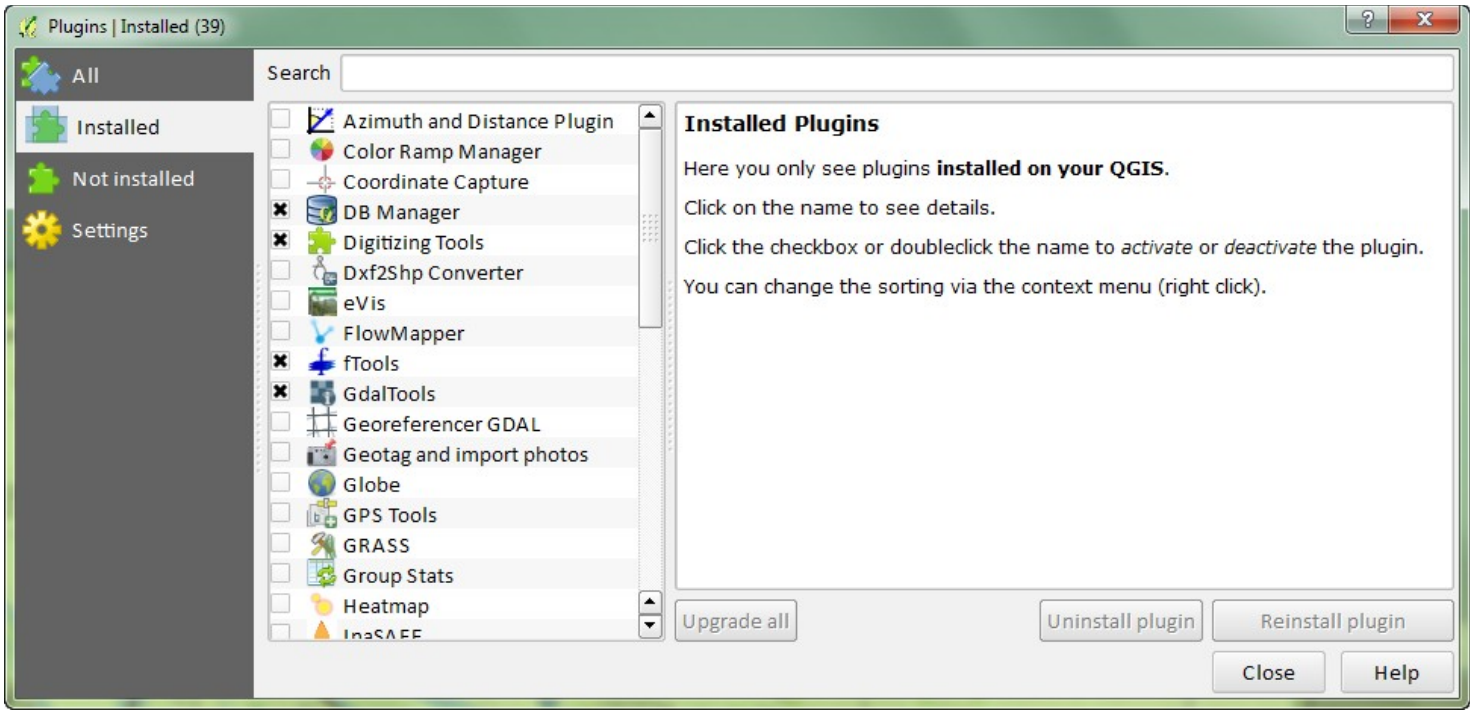

Layer Properties - Jemez_dem | Style
General
Style
Transparency
Pyramids
Histogram
Metadata
Band rendering
Render type
Singleband gray
Gray band
Band 1
Color gradient
Black to white
Min
1797.95
Max
2279.04
Contrast enhancement
Stretch to MinMax
Load min/max values
Cumulative count cut
2.0
98.0
%
Min / max
Mean +/- standard deviation ×
2.00
Extent
Full
Current
Accuracy
Estimate (faster)
Actual (slower)
Load
Restore Default Style
Save As Default
Load Style ...
Save Style ...
OK
Cancel
Apply
Help



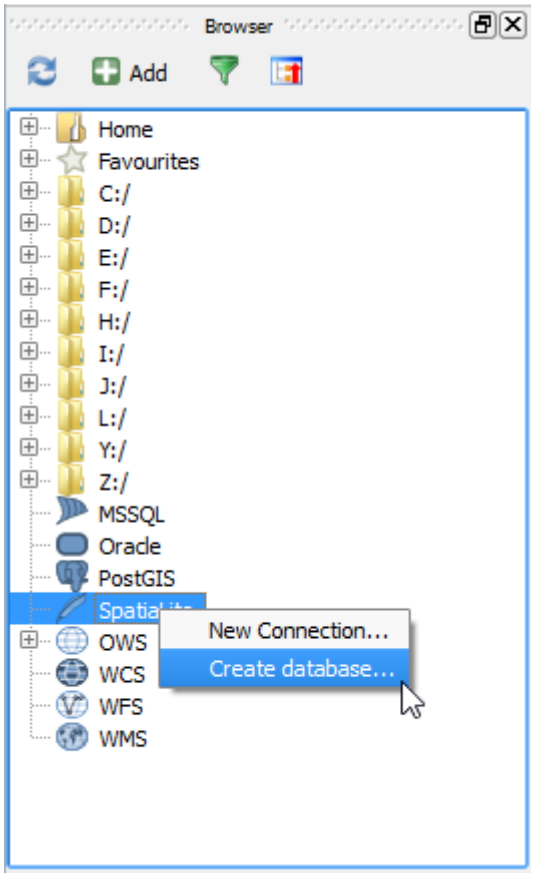

Layer Properties - Jemez_vegetation | Style
General
Style
Transparency
Pyramids
Histogram
Metadata
Band rendering
Render type
Singleband pseudocolor
Band
Band 1 (Gray)
Color interpolation
Linear
Value
Color
Label
1.000000 Agricultural
2.083330 Conifer
3.166670 Conifer-hardwood
4.250000 Developed
5.333330 Exotic herbaceous
6.416670 Exotic Tree-shrub
7.500000 Grassland
8.583330 Hardwood
9.666670 Non-vegetated
10.750000 Riparian
11.833300 Shrubland
12.916700 Recently burned
14.000000 Sparsely vegetated
Clip
Generate new color map
Random colors
Invert
Mode
Equal interval
Classes
13
Min
1
Max
14
Classify
Min / max origin:
Estimated min / max of full extent.
Load min/max values
Cumulative count cut
2.0
98.0
%
Min / max
Mean +/- standard deviation ×
2.00
Extent
Full
Current
Accuracy
Estimate (faster)
Actual (slower)
Load
Color rendering
Blending mode
Multiply
Reset
Brightness
0
Contrast
45
Saturation
0
Grayscale
Off
Hue
Colorize
Strength
100%
Restore Default Style
Save As Default
Load Style ...
Save Style ...
OK
Cancel
Apply
Help

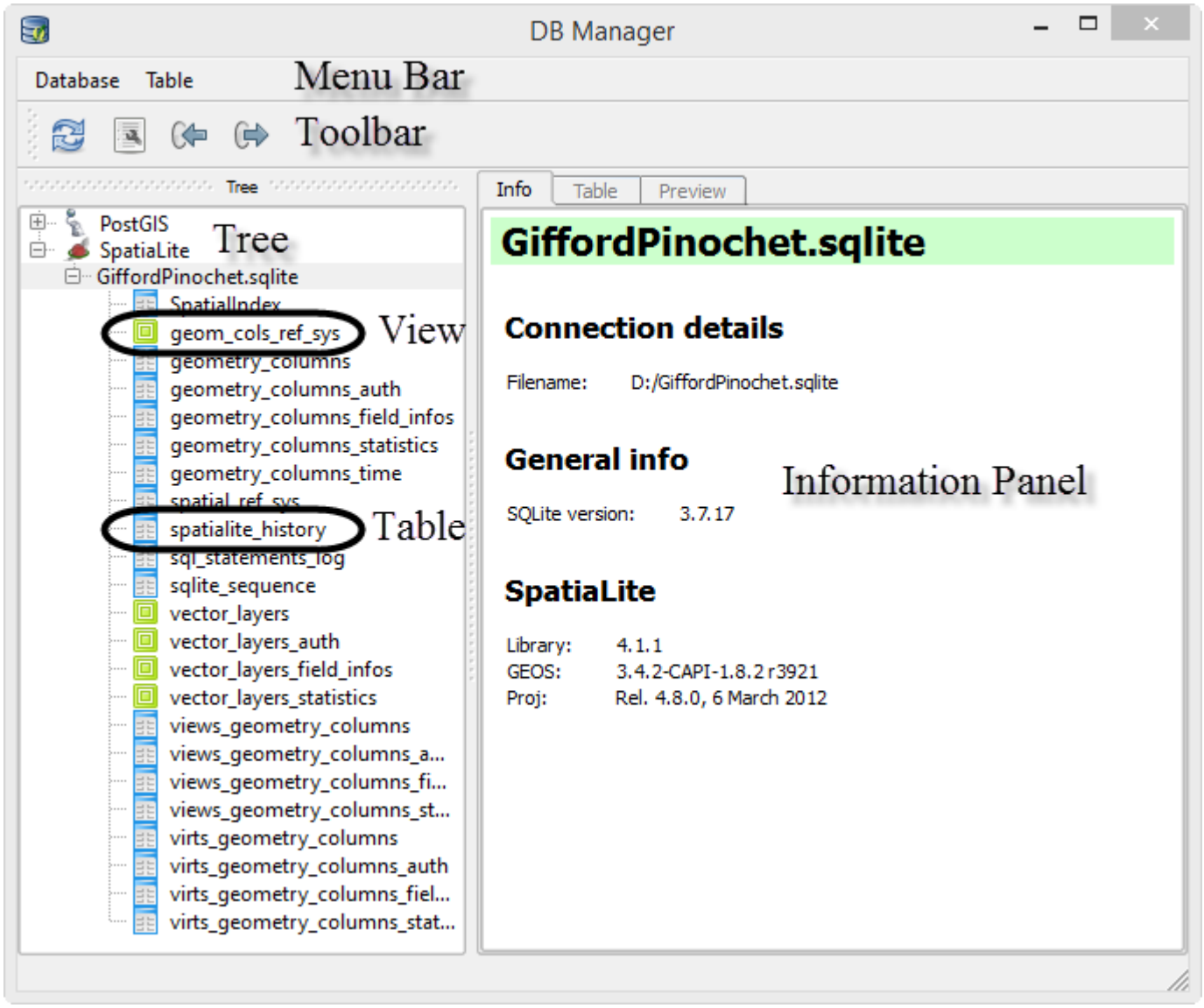

QGIS 659cada - BlendingModes
Project
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Web
Processing
Help
Layers
Jemez_vegetation
Agricultural
Conifer
Conifer-hardwood
Developed
Exotic herbaceous
Exotic Tree-shrub
Grassland
Hardwood
Non-vegetated
Riparian
Shrubland
Recently burned
Sparsely vegetated
Jemez_hillshade
132
206
Layers
Browser
Coordinate:
311507,3974984
Scale
1:659,504
Render
EPSG:26913

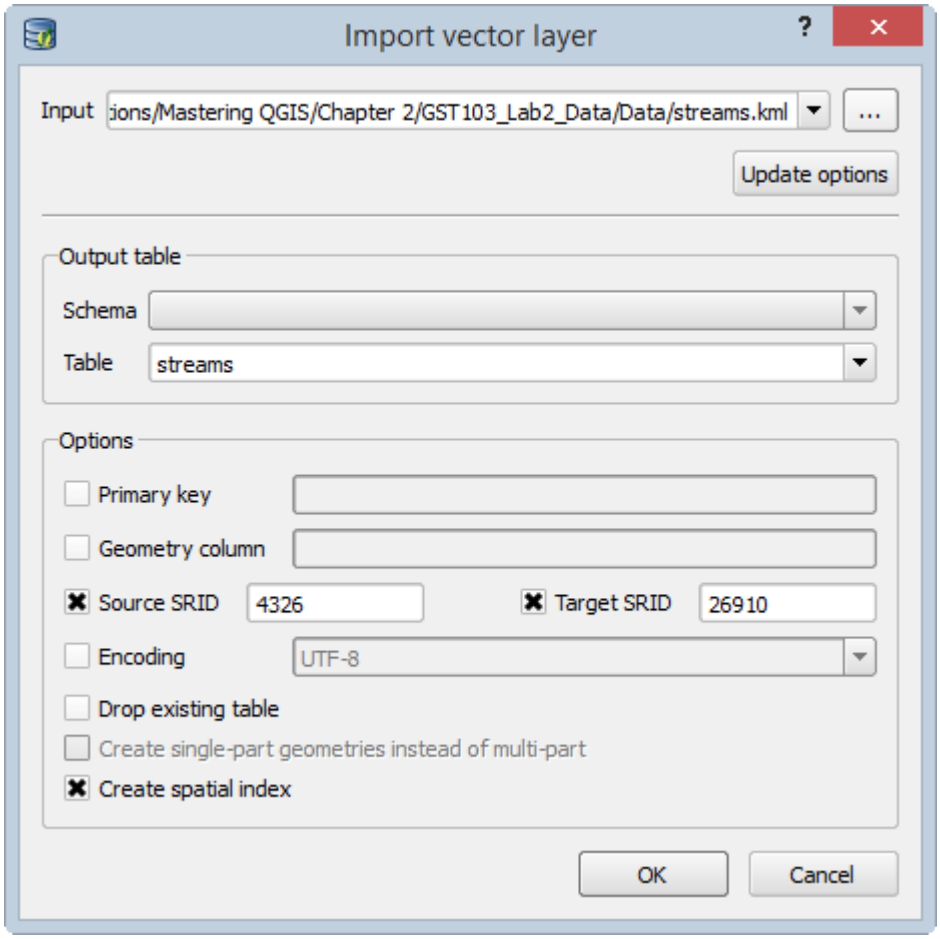

My Map
Composer Edit View Layout Atlas Settings
← Main Menus and Toolbars
← Composer Items
Composer Canvas
Composition
Item properties
Atlas generation
Items
Map
Print Composer Tabs
Main properties
Cache
Update preview
Scale
190767
Map rotation
0.00 °
Draw map canvas items
Lock layers for map item
Extents
X min
-13678420.565
Y min
5688125.931
X max
-13627676.470
Y max
5726660.920
Set to map canvas extent
View extent in map canvas
Controlled by atlas
Grids
Overviews
Position and size
Rotation
Frame
Background
Item ID
Rendering
x: 283.512 mm
y: 0 mm
page: 1
85.3%
1 item selected

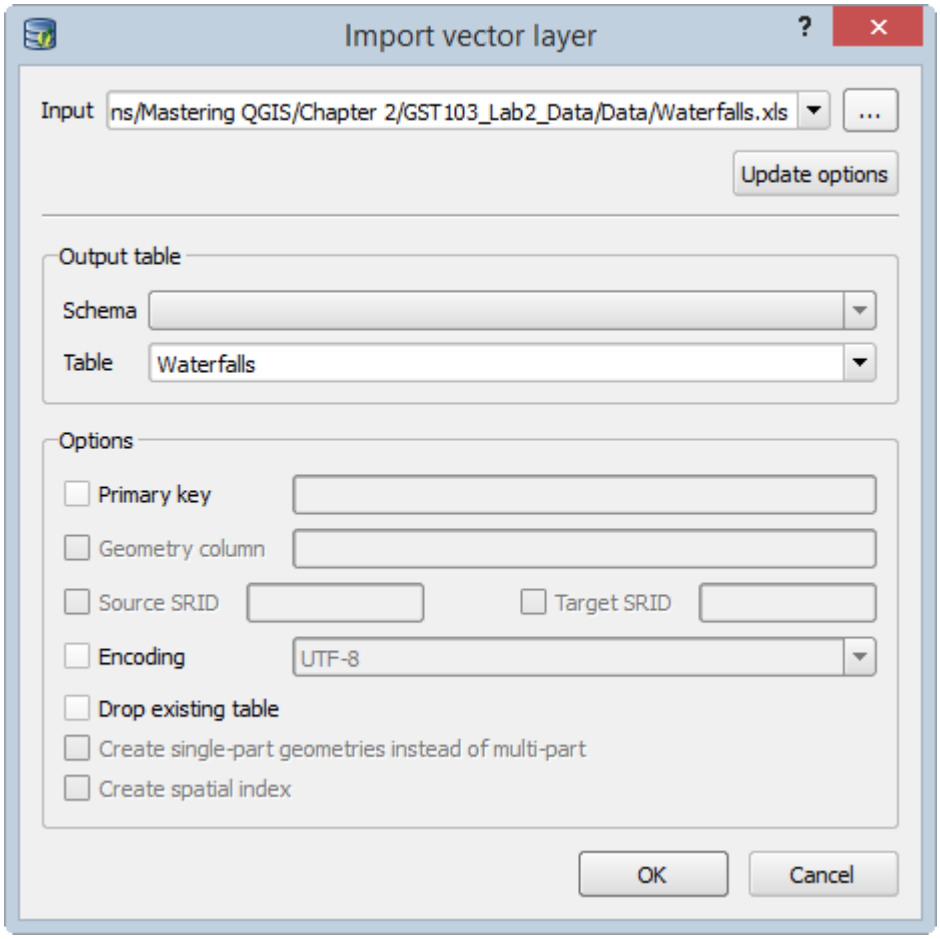

Plugins | Installed (39)
All
Installed
Not installed
Settings
Search
Azimuth and Distance Plugin
Color Ramp Manager
Coordinate Capture
DB Manager
Digitizing Tools
Dxf2Shp Converter
eVis
FlowMapper
fTools
GdalTools
Georeferencer GDAL
Geotag and import photos
Globe
GPS Tools
GRASS
Group Stats
Heatmap
Installed Plugins
Here you only see plugins installed on your QGIS.
Click on the name to see details.
Click the checkbox or doubleclick the name to activate or deactivate the plugin.
You can change the sorting via the context menu (right click).
Upgrade all
Uninstall plugin
Reinstall plugin
Close
Help

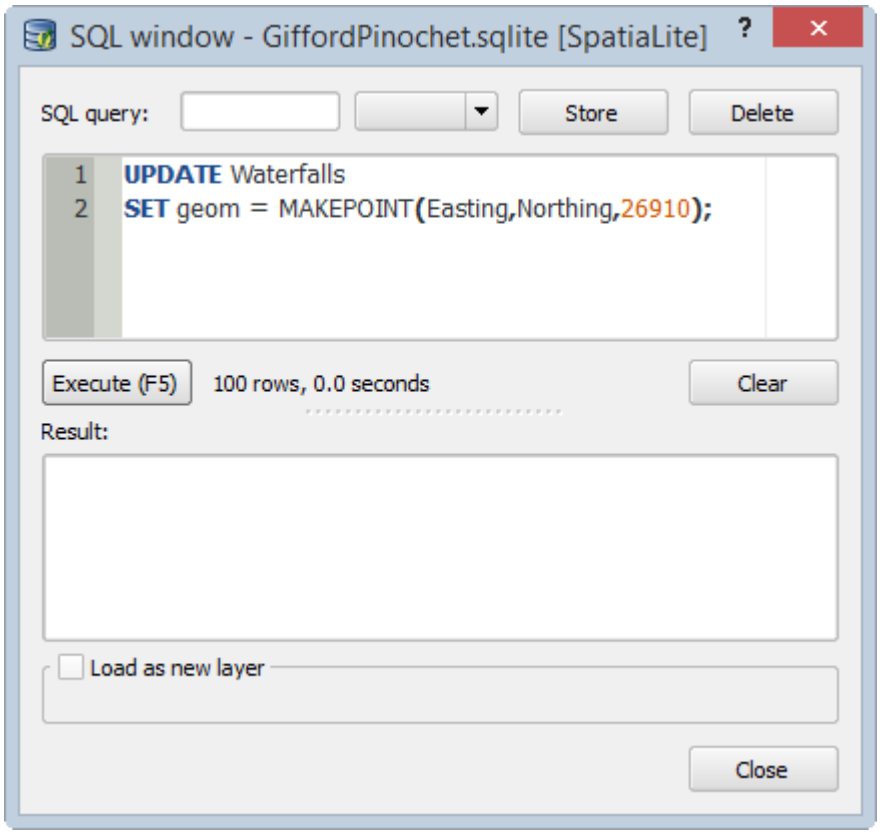
Chapter 2: Creating Spatial Databases

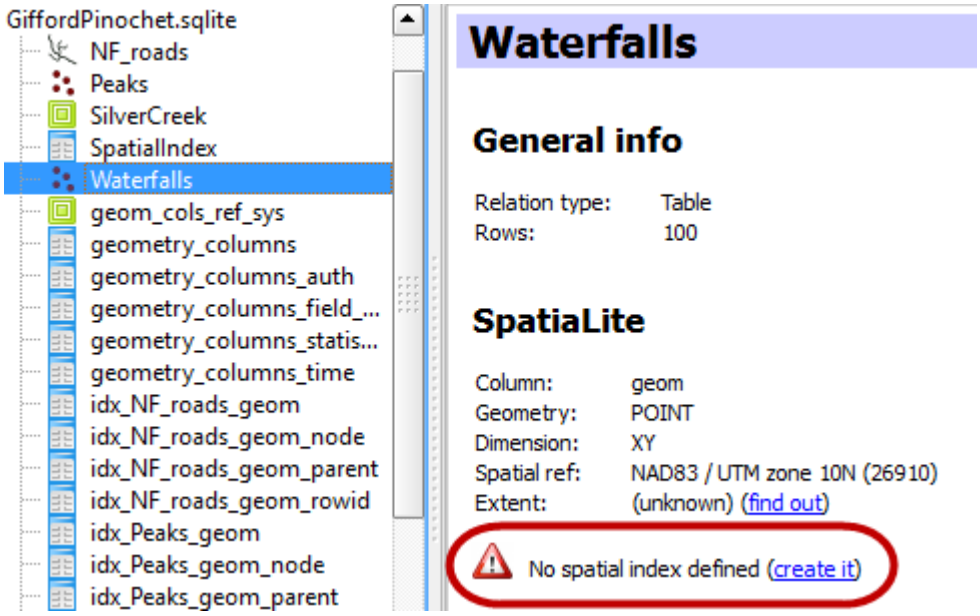


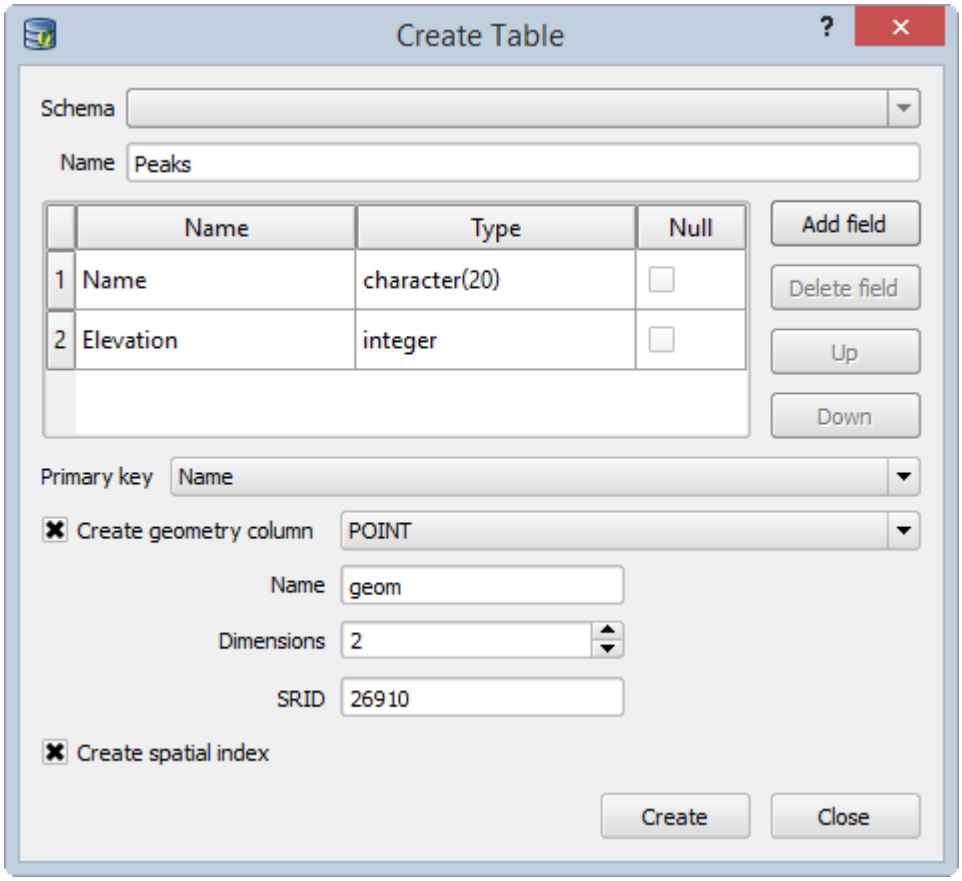

DB Manager
Database
Table
Menu Bar
Toolbar
Tree
PostGIS
SpatiaLite
GiffordPinochet.sqlite
Tree
SpatialIndex
geom_cols_ref_sys
View
geometry_columns
geometry_columns_auth
geometry_columns_field_infos
geometry_columns_statistics
geometry_columns_time
spatial_ref_sys
spatialite_history
Table
sql_statements_log
sqlite_sequence
vector_layers
vector_layers_auth
vector_layers_field_infos
vector_layers_statistics
views_geometry_columns
views_geometry_columns_a...
views_geometry_columns_fi...
views_geometry_columns_st...
virts_geometry_columns
virts_geometry_columns_auth
virts_geometry_columns_fiel...
virts_geometry_columns_stat...
Info
Table
Preview
GiffordPinochet.sqlite
Connection details
Filename: D:/GiffordPinochet.sqlite
General info
Information Panel
SQLite version: 3.7.17
SpatiaLite
Library: 4.1.1
GEOS: 3.4.2-CAPI-1.8.2 r3921
Proj: Rel. 4.8.0, 6 March 2012


Import vector layer
Input
ions/Mastering QGIS/Chapter 2/GST103_Lab2_Data/Data/streams.kml
...
Update options
Output table
Schema
Table
streams
Options
Primary key
Geometry column
Source SRID
4326
Target SRID
26910
Encoding
UTF-8
Drop existing table
Create single-part geometries instead of multi-part
Create spatial index
OK
Cancel


Import vector layer
Input
ns/Mastering QGIS/Chapter 2/GST103_Lab2_Data/Data/Waterfalls.xls
...
Update options
Output table
Schema
Table
Waterfalls
Options
Primary key
Geometry column
Source SRID
Target SRID
Encoding
UTF-8
Drop existing table
Create single-part geometries instead of multi-part
Create spatial index
OK
Cancel


SQL window - GiffordPinochet.sqlite [SpatiaLite]
SQL query:
Store
Delete
1 UPDATE Waterfalls
2 SET geom = MAKEPOINT(Easting,Northing,26910);
Execute (F5)
100 rows, 0.0 seconds
Clear
Result:
Load as new layer
Close


GiffordPinochet.sqlite
NF_roads
Peaks
SilverCreek
SpatialIndex
Waterfalls
geom_cols_ref_sys
geometry_columns
geometry_columns_auth
geometry_columns_field_...
geometry_columns_statis...
geometry_columns_time
idx_NF_roads_geom
idx_NF_roads_geom_node
idx_NF_roads_geom_parent
idx_NF_roads_geom_rowid
idx_Peaks_geom
idx_Peaks_geom_node
idx_Peaks_geom_parent
Waterfalls
General info
Relation type: Table
Rows: 100
SpatiaLite
Column: geom
Geometry: POINT
Dimension: XY
Spatial ref: NAD83 / UTM zone 10N (26910)
Extent: (unknown) (find out)
No spatial index defined (create it)


Create Table
Schema
Name Peaks
Name
Type
Null
1 Name character(20)
2 Elevation integer
Add field
Delete field
Up
Down
Primary key Name
Create geometry column POINT
Name geom
Dimensions 2
SRID 26910
Create spatial index
Create
Close

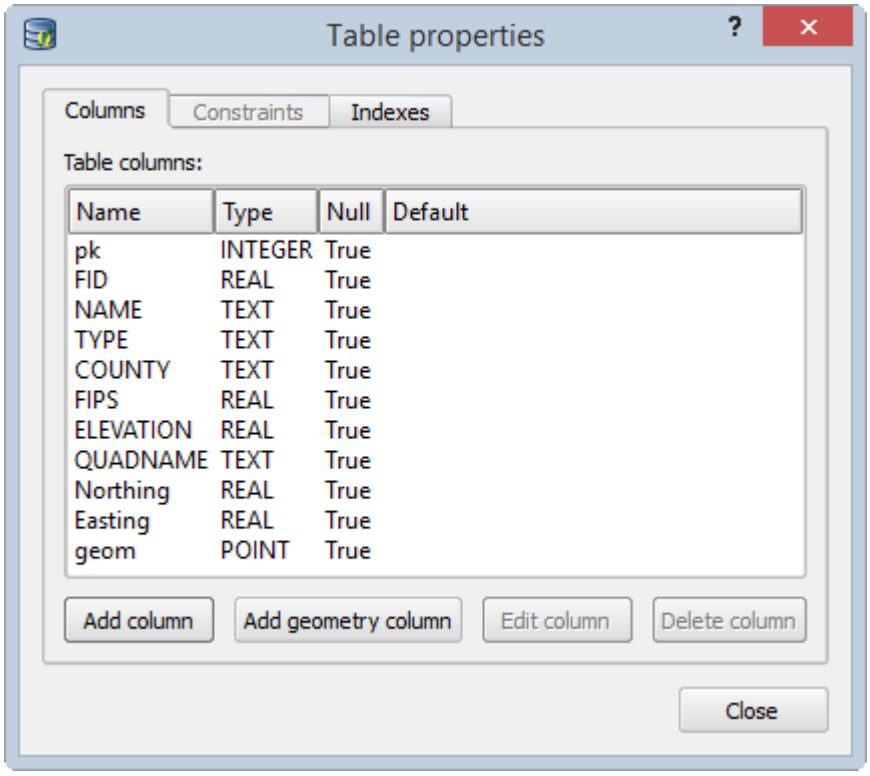
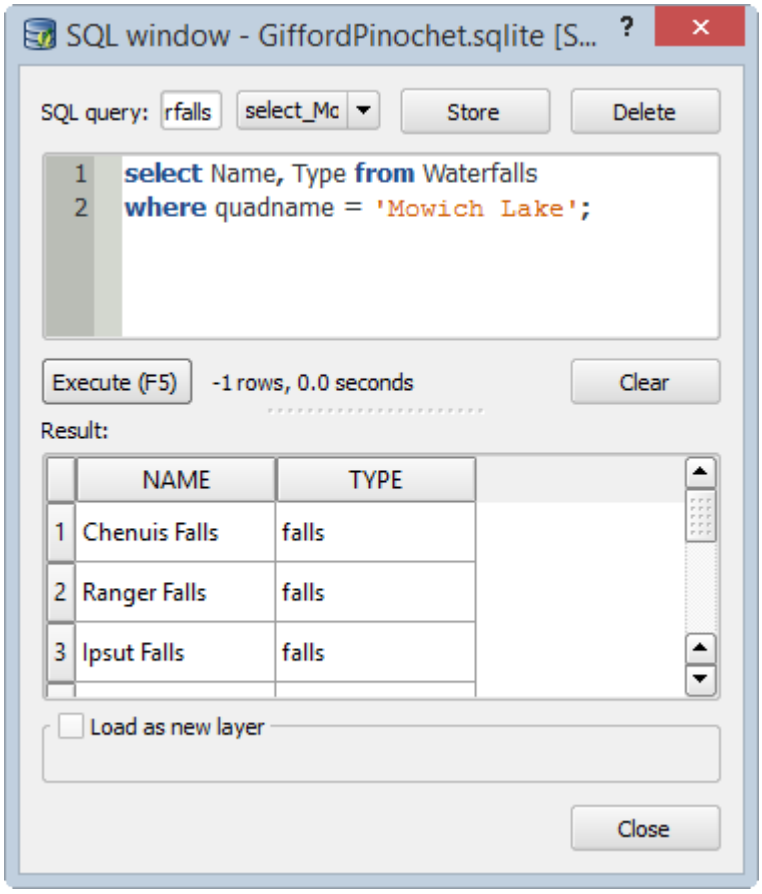
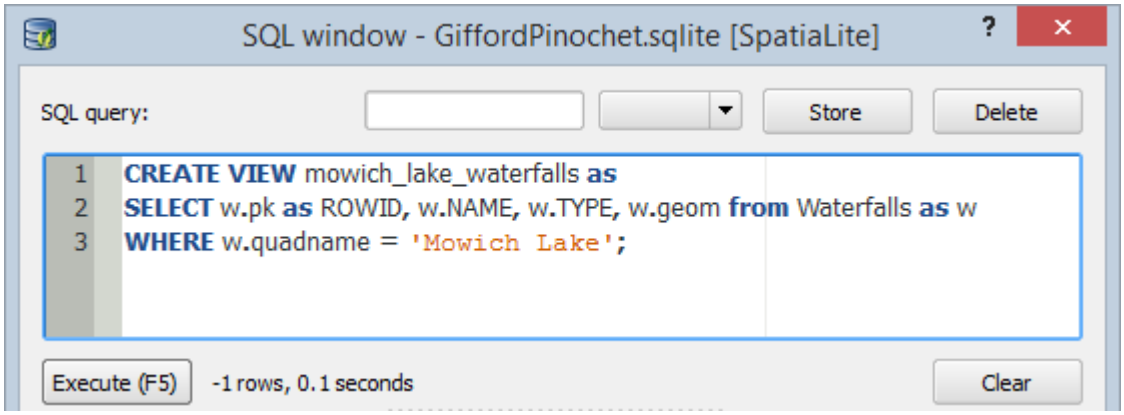
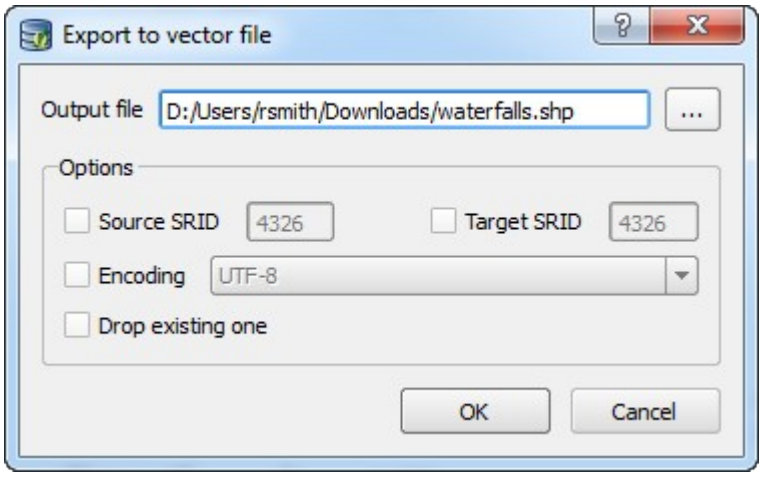


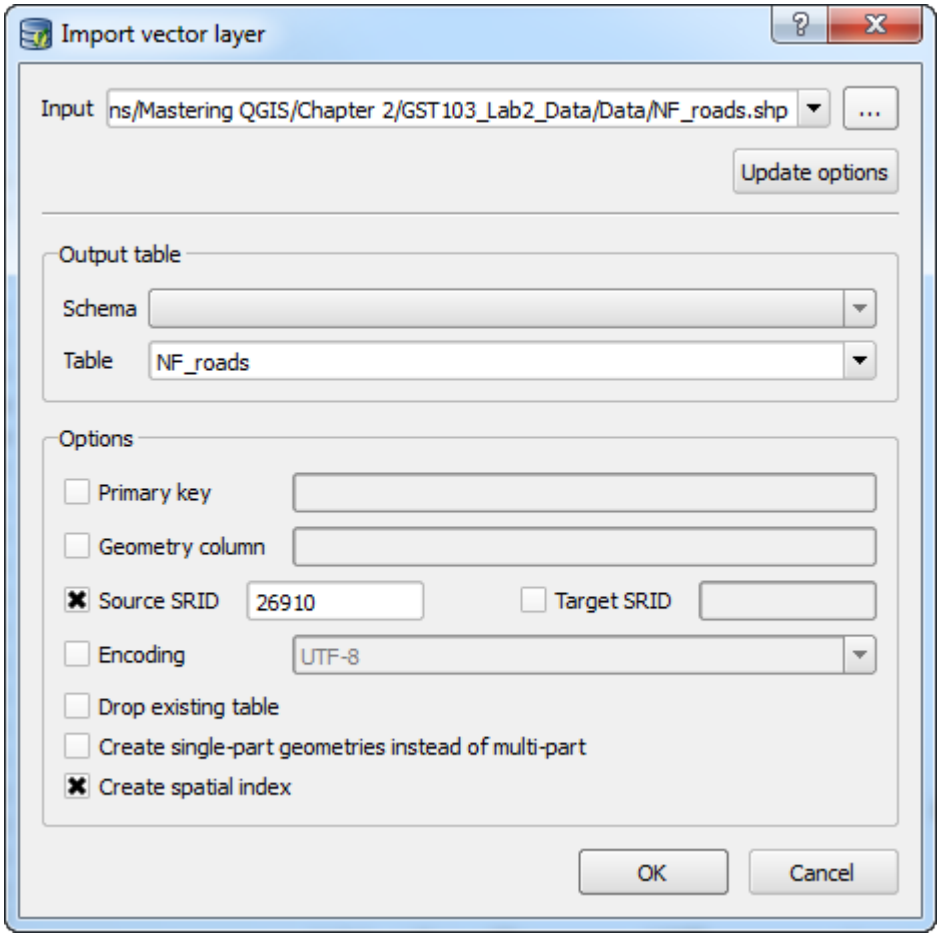
Table properties
Columns
Constraints
Indexes
Table columns:
Name Type Null Default
pk INTEGER True
FID REAL True
NAME TEXT True
TYPE TEXT True
COUNTY TEXT True
FIPS REAL True
ELEVATION REAL True
QUADNAME TEXT True
Northing REAL True
Easting REAL True
geom POINT True
Add column
Add geometry column
Edit column
Delete column
Close

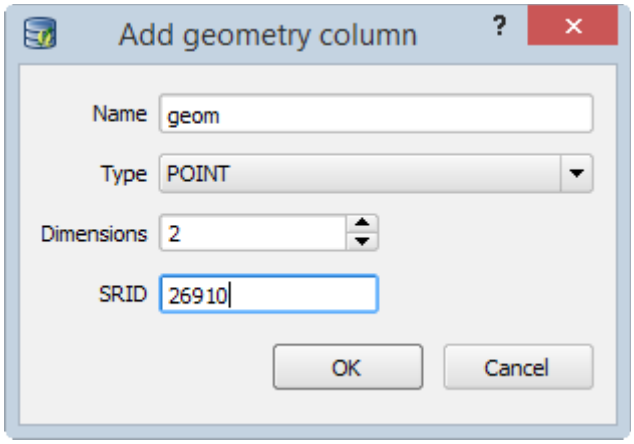

SQL window - GiffordPinochet.sqlite [S...
SQL query:
rfalls
select_Mc
Store
Delete
1 select Name, Type from Waterfalls
2 where quadname = 'Mowich Lake';
Execute (F5)
-1 rows, 0.0 seconds
Clear
Result:
NAME TYPE
1 Chenuis Falls falls
2 Ranger Falls falls
3 Ipsut Falls falls
Load as new layer
Close

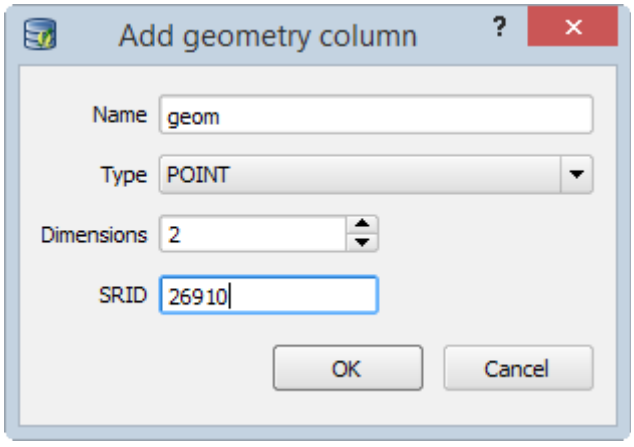

SQL window - GiffordPinochet.sqlite [SpatiaLite]
SQL query:
Store
Delete
1 CREATE VIEW mowich_lake_waterfalls as
2 SELECT w.pk as ROWID, w.NAME, w.TYPE, w.geom from Waterfalls as w
3 WHERE w.quadname = 'Mowich Lake';
Execute (F5)
-1 rows, 0.1 seconds
Clear

SQL window - GiffordPinochet.sqlite [SpatiaLite]
SQL query:
Store
Delete
1 INSERT INTO views_geometry_columns (view_name, view_geometry,
view_rowid, f_table_name, f_geometry_column, read_only)
2 VALUES ('mowich_lake_waterfalls', 'geom', 'rowid',
'waterfalls', 'geom', 1);
Execute (F5)
1 rows, 0.0 seconds
Clear

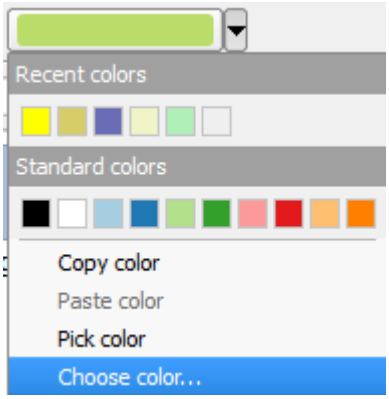

Export to vector file
Output file
D:/Users/rsmith/Downloads/waterfalls.shp
...
Options
Source SRID
4326
Target SRID
4326
Encoding
UTF-8
Drop existing one
OK
Cancel

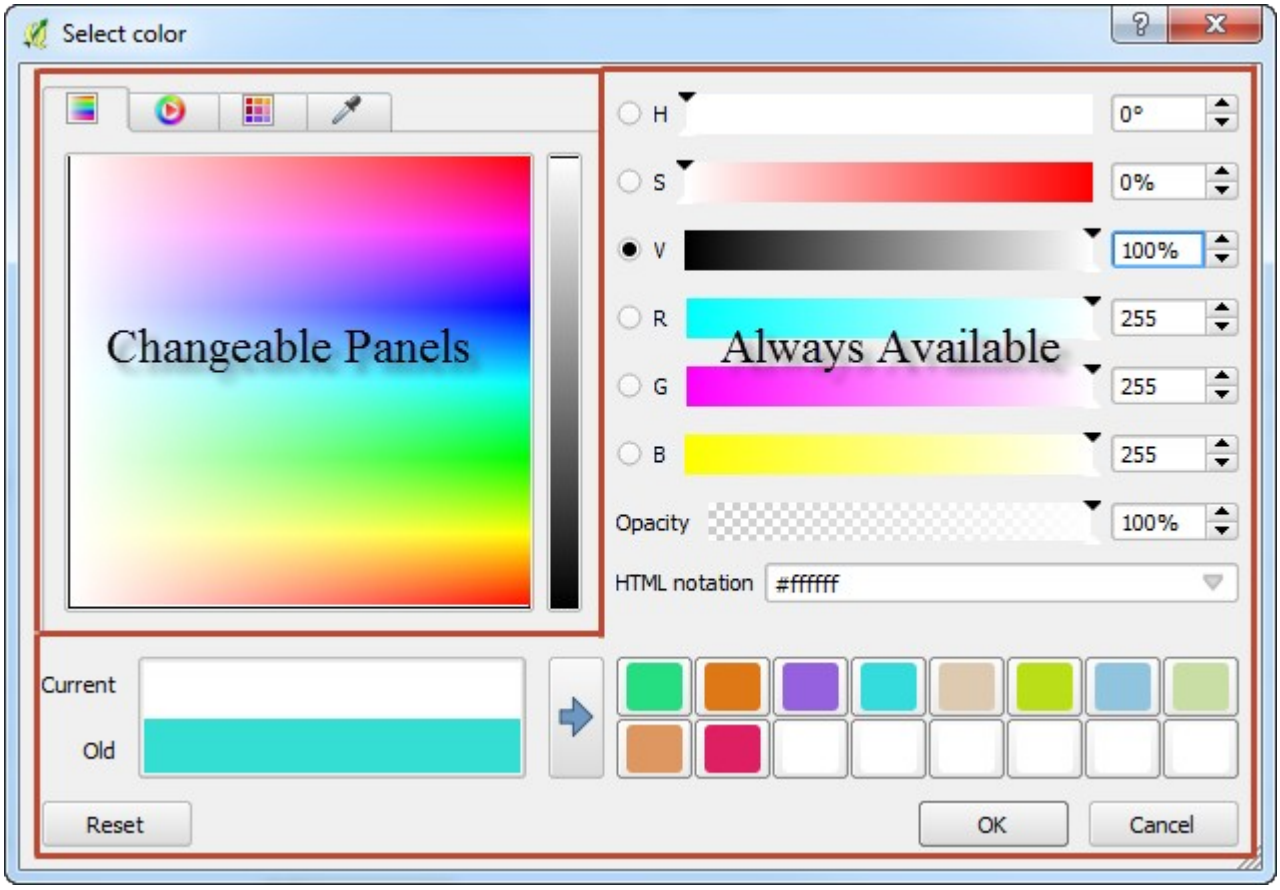

Import vector layer
Input
ns/Mastering QGIS/Chapter 2/GST103_Lab2_Data/Data/NF_roads.shp
...
Update options
Output table
Schema
Table
NF_roads
Options
Primary key
Geometry column
Source SRID
26910
Target SRID
Encoding
UTF-8
Drop existing table
Create single-part geometries instead of multi-part
Create spatial index
OK
Cancel

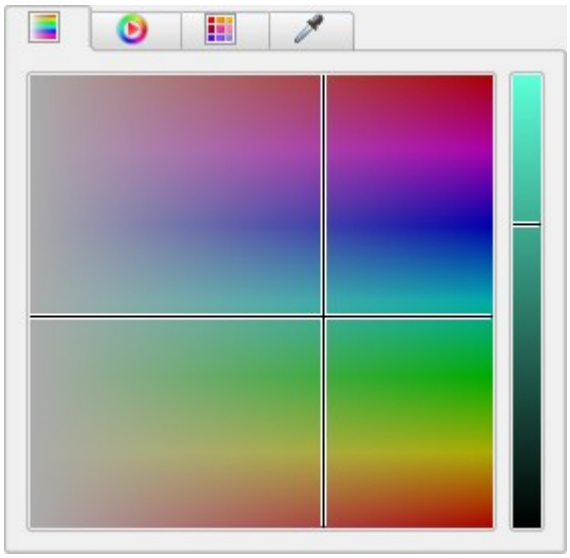

Add geometry column
Name
geom
Type
POINT
Dimensions
2
SRID
26910
OK
Cancel

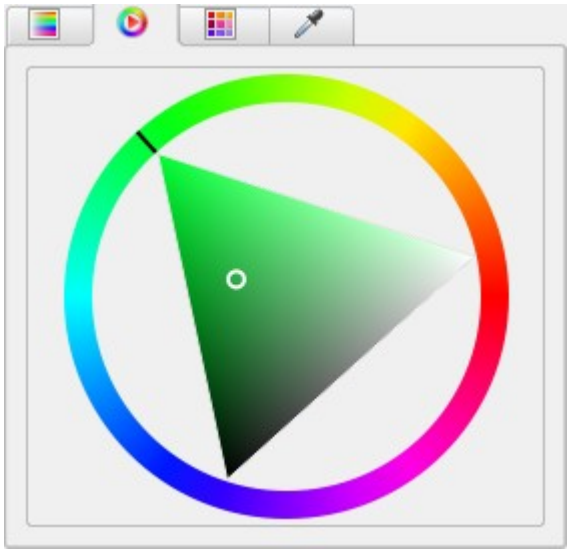

Add geometry column
Name
geom
Type
POINT
Dimensions
2
SRID
26910
OK
Cancel

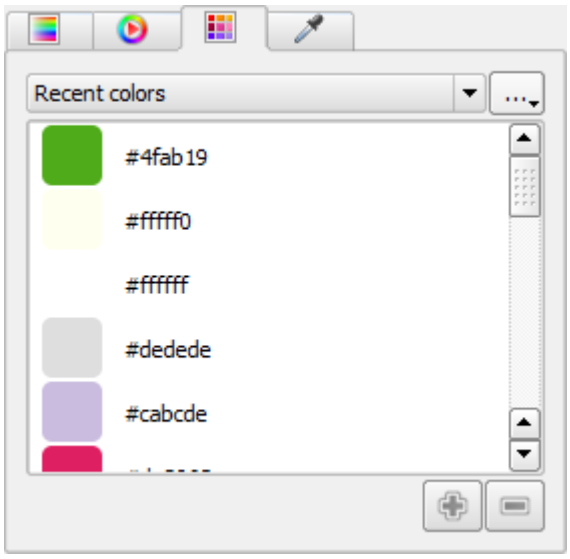
Chapter 3: Code Smells and Refactoring

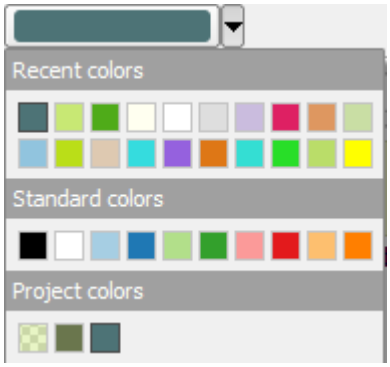


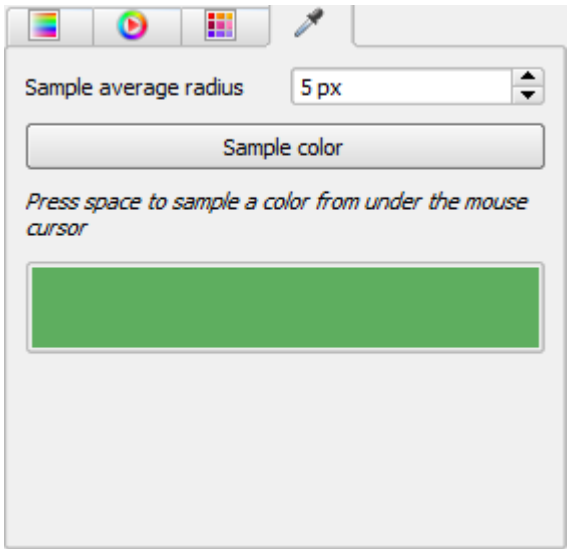


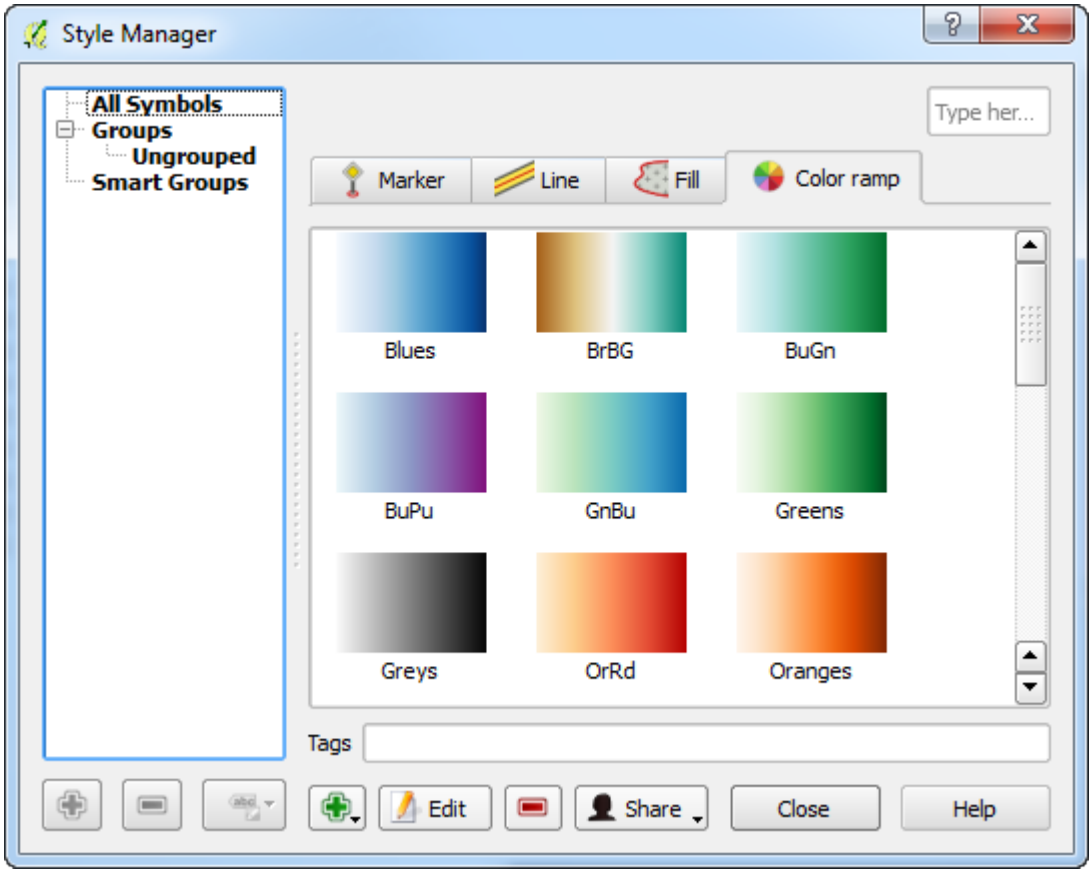


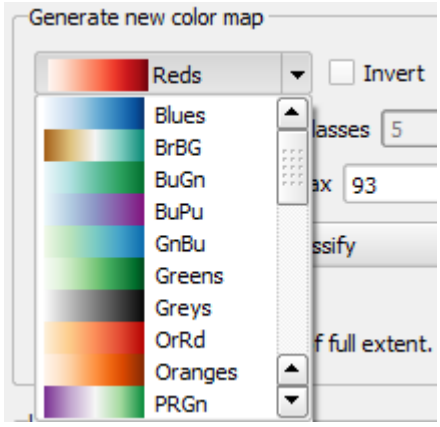


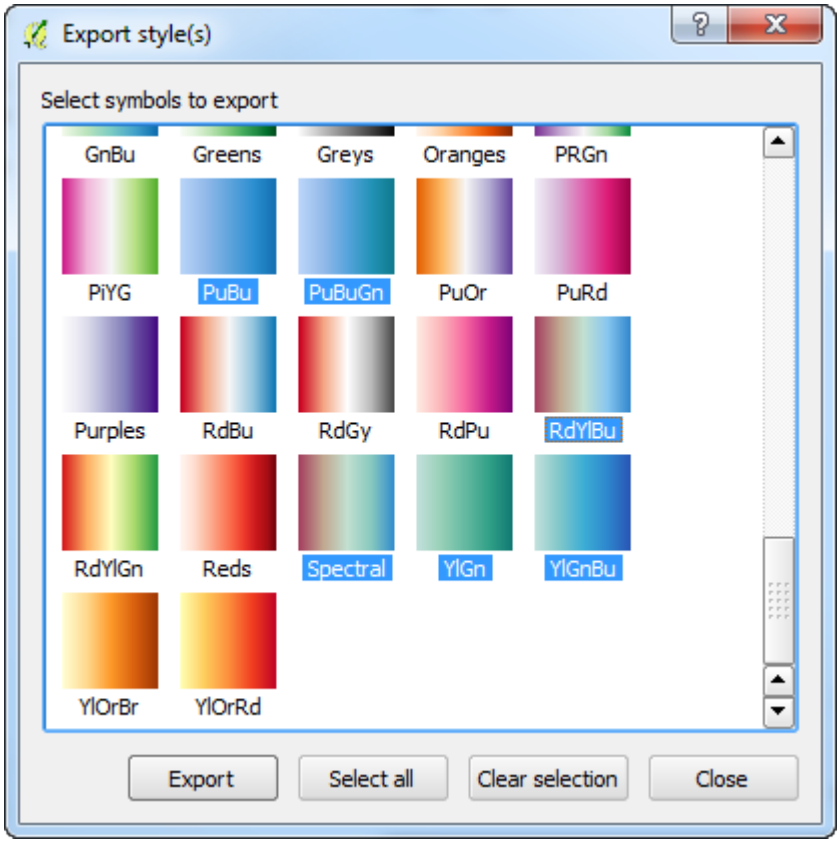

Recent colors
#4fab19
#fffff0
#ffffff
#dedede
#cabcde

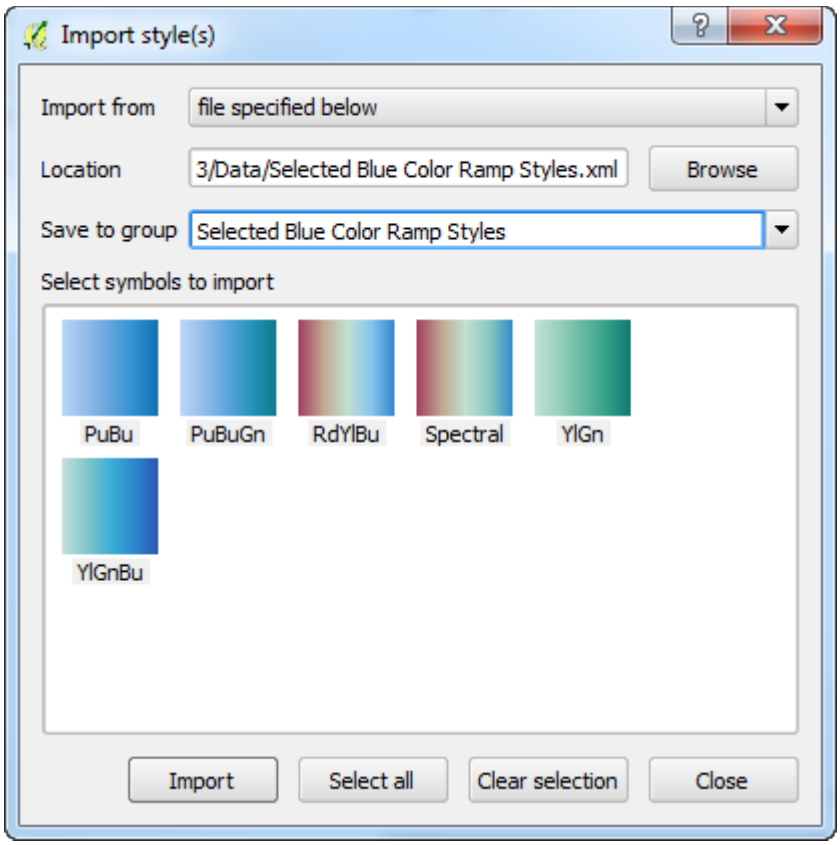

Recent colors
Standard colors
Project colors

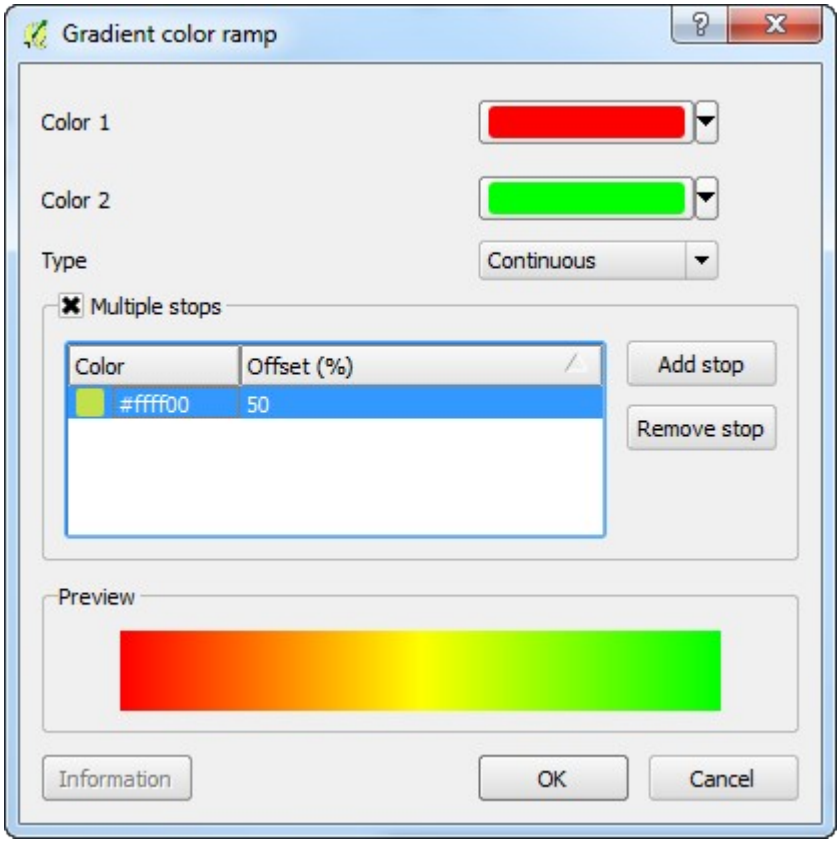

Sample average radius
5 px
Sample color
Press space to sample a color from under the mouse cursor

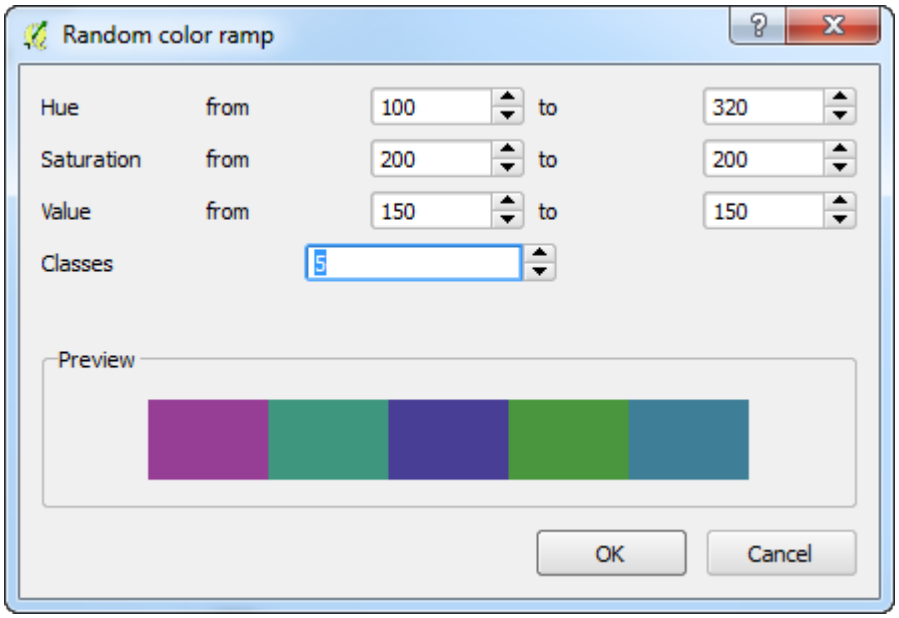

Style Manager
All Symbols
Groups
Ungrouped
Smart Groups
Type her...
Marker
Line
Fill
Color ramp
Blues
BrBG
BuGn
BuPu
GnBu
Greens
Greys
OrRd
Oranges
Tags
Edit
Share
Close
Help

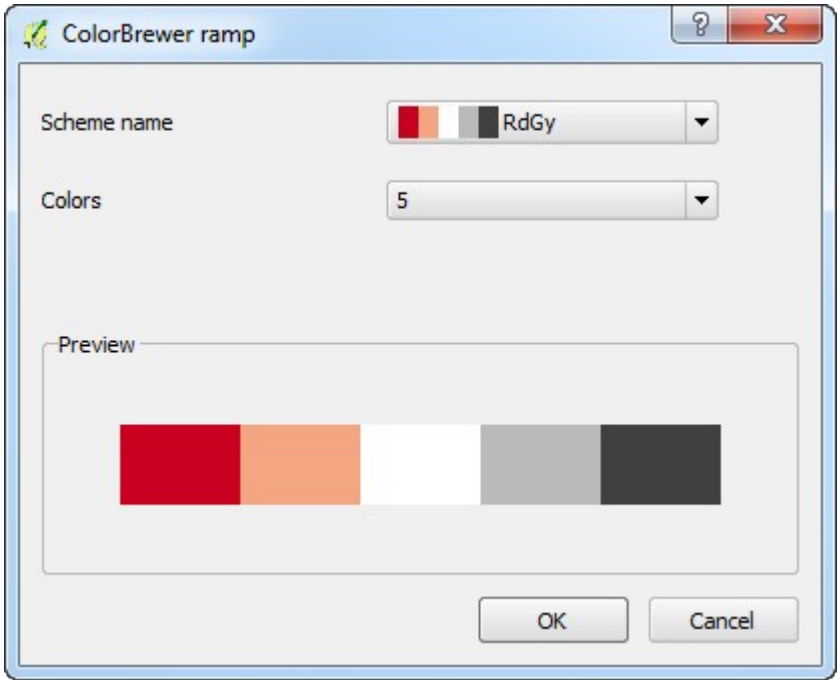

Generate new color map
Reds
Invert
Blues
BrBG
BuGn
BuPu
GnBu
Greens
Greys
OrRd
Oranges
PRGn
lasses
5
ax
93
ssify
f full extent.

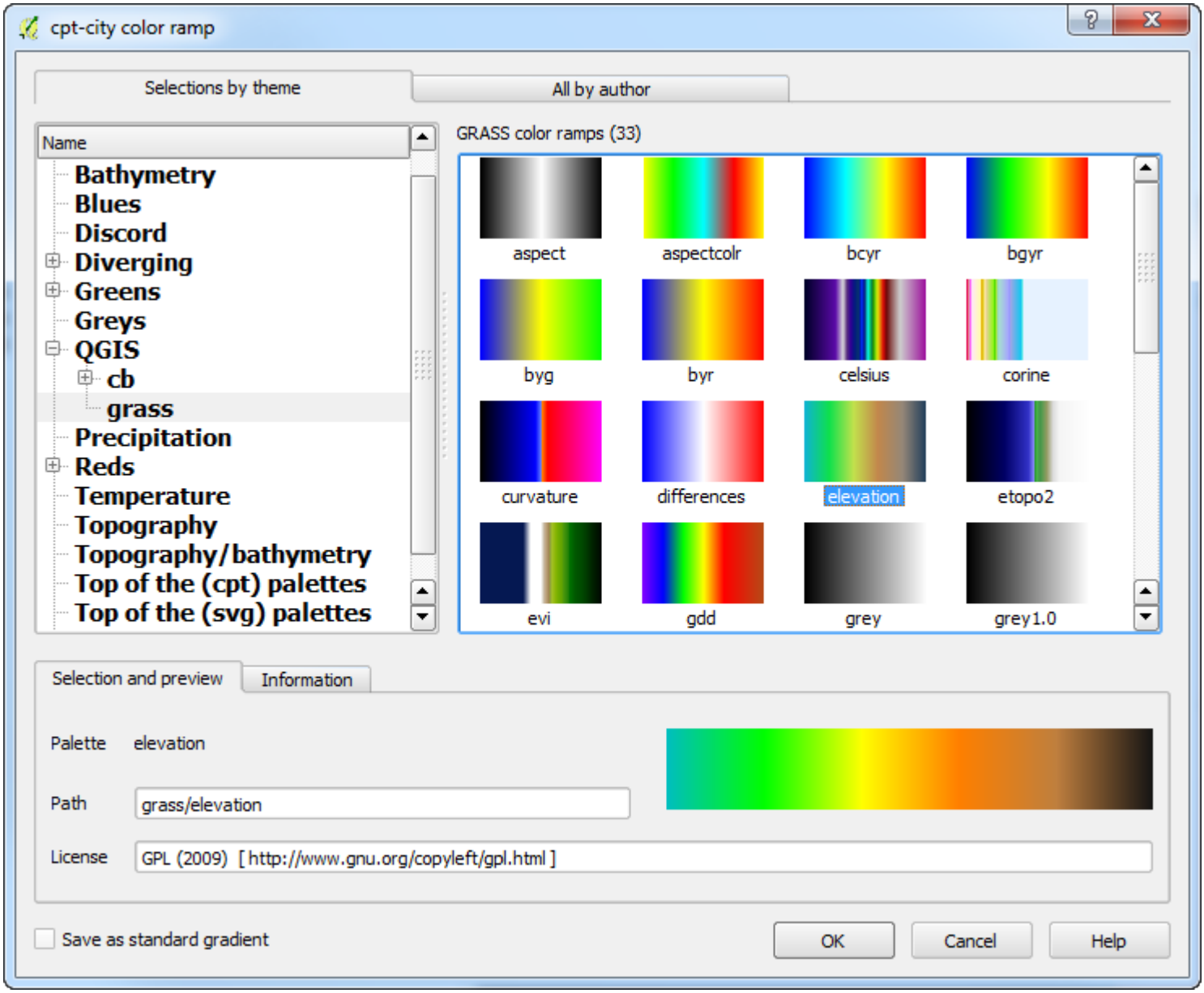

Export style(s)
Select symbols to export
GnBu
Greens
Greys
Oranges
PRGn
PiYG
PuBu
PuBuGn
PuOr
PuRd
Purples
RdBu
RdGy
RdPu
RdYlBu
RdYlGn
Reds
Spectral
YlGn
YlGnBu
YlOrBr
YlOrRd
Export
Select all
Clear selection
Close

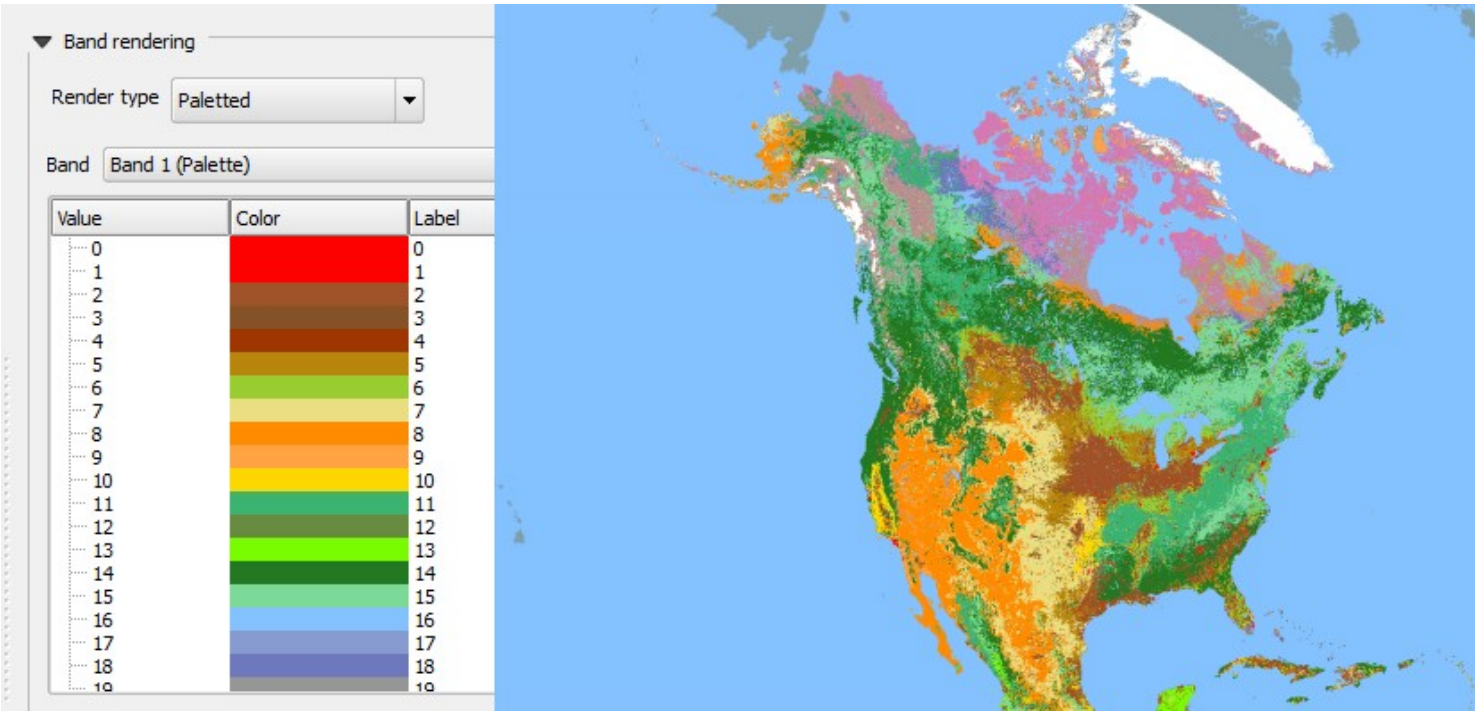

Import style(s)
Import from
file specified below
Location
3/Data/Selected Blue Color Ramp Styles.xml
Browse
Save to group
Selected Blue Color Ramp Styles
Select symbols to import
PuBu
PuBuGn
RdYlBu
Spectral
YlGn
YlGnBu
Import
Select all
Clear selection
Close

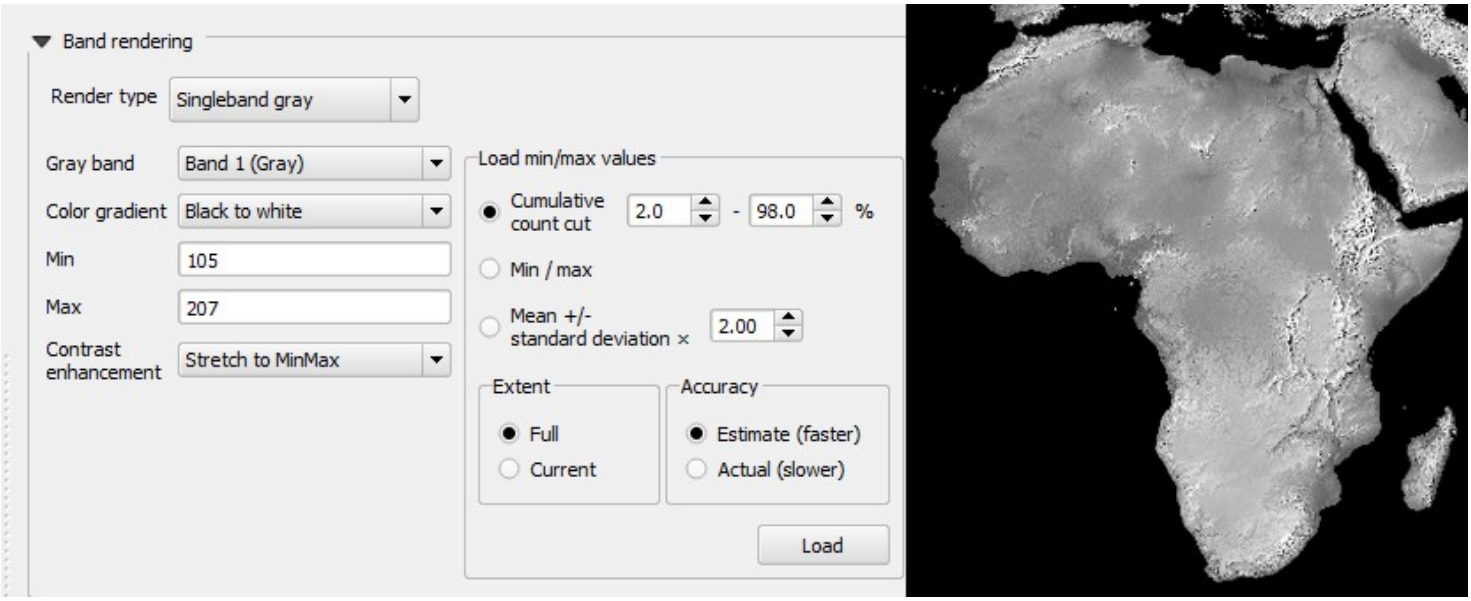

Gradient color ramp
Color 1
Color 2
Type
Continuous
Multiple stops
Color
Offset (%)
#ffff00
50
Add stop
Remove stop
Preview
Information
OK
Cancel

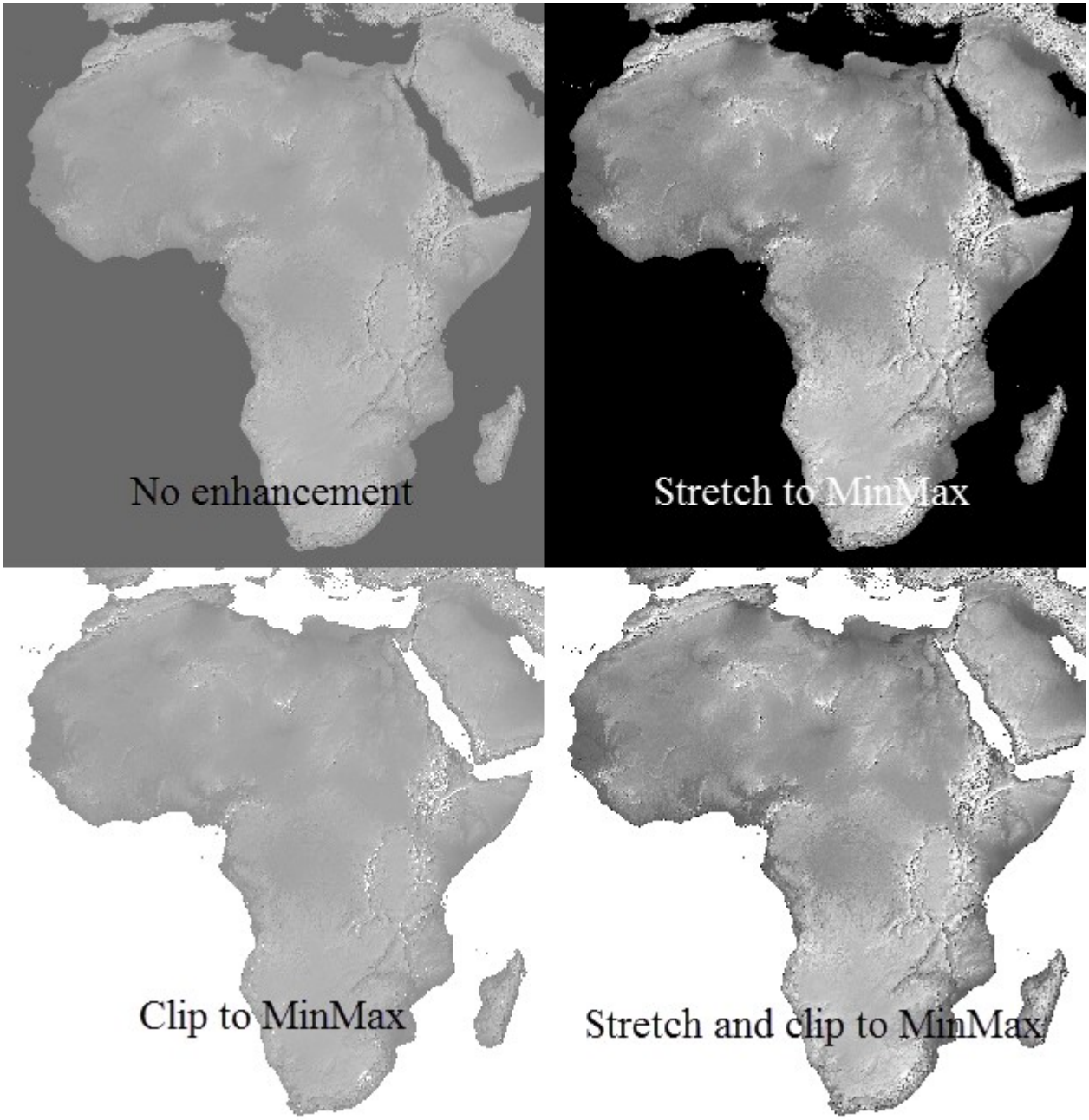

Random color ramp
Hue
from
100
to
320
Saturation
from
200
to
200
Value
from
150
to
150
Classes
5
Preview
OK
Cancel

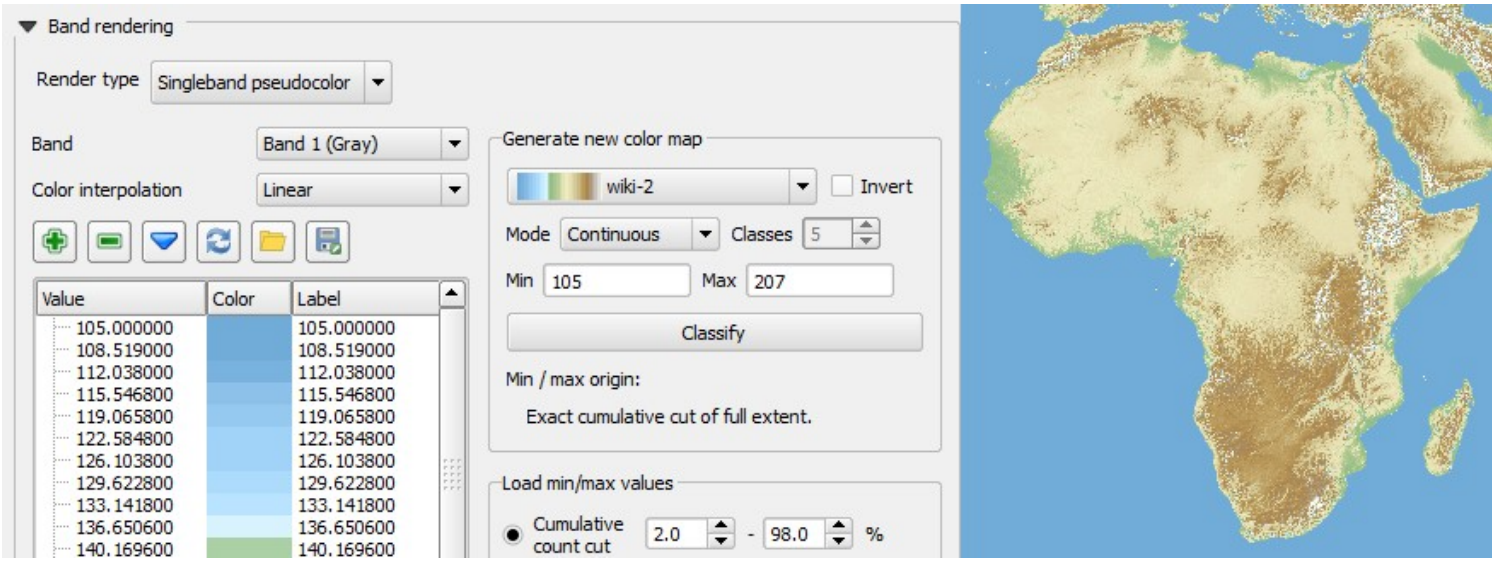

ColorBrewer ramp
Scheme name
RdGy
Colors
5
Preview
OK
Cancel

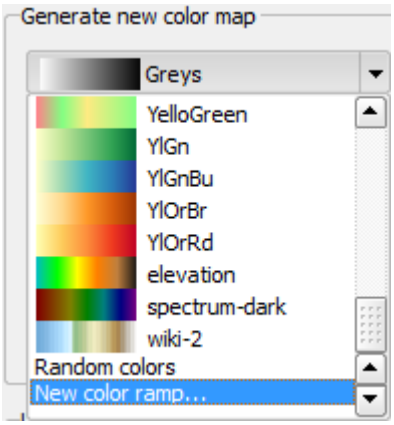

cpt-city color ramp
Selections by theme
All by author
Name
Bathymetry
Blues
Discord
Diverging
Greens
Greys
QGIS
cb
grass
Precipitation
Reds
Temperature
Topography
Topography/bathymetry
Top of the (cpt) palettes
Top of the (svg) palettes
GRASS color ramps (33)
aspect
aspectcolr
bcyr
bgyr
byg
byr
celsius
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


Band rendering
Render type
Paletted
Band
Band 1 (Palette)
Value
Color
Label
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

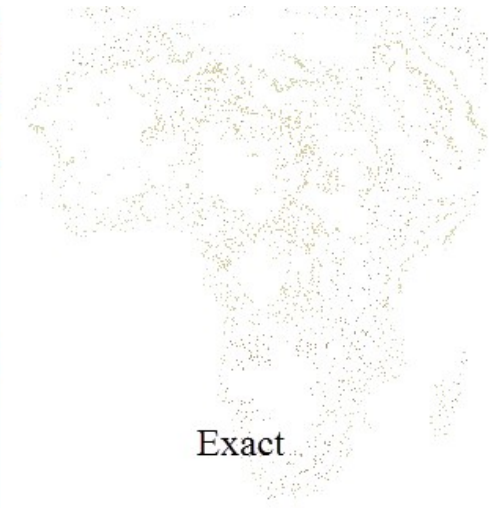

Band rendering
Render type
Singleband gray
Gray band
Band 1 (Gray)
Color gradient
Black to white
Min
105
Max
207
Contrast enhancement
Stretch to MinMax
Load min/max values
Cumulative count cut
2.0
98.0
%
Min / max
Mean +/- standard deviation ×
2.00
Extent
Full
Current
Accuracy
Estimate (faster)
Actual (slower)
Load

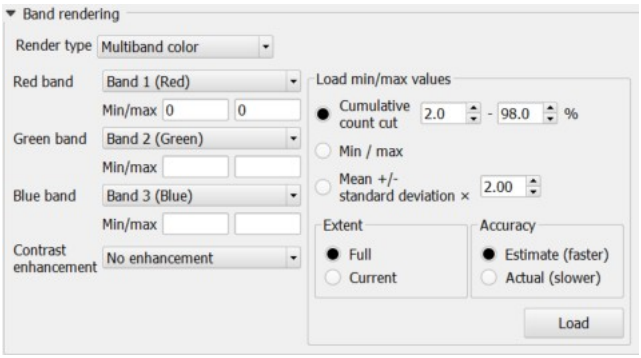

No enhancement
Stretch to MinMax
Clip to MinMax
Stretch and clip to MinMax


Band rendering
Render type
Singleband pseudocolor
Band
Band 1 (Gray)
Color interpolation
Linear
Value
Color
Label
105.000000
108.519000
112.038000
115.546800
119.065800
122.584800
126.103800
129.622800
133.141800
136.650600
140.169600
Generate new color map
wiki-2
Invert
Mode
Continuous
Classes
5
Min
105
Max
207
Classify
Min / max origin:
Exact cumulative cut of full extent.
Load min/max values
Cumulative count cut
2.0
98.0
%

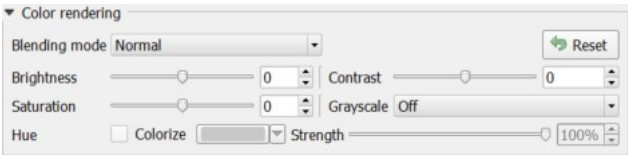

Generate new color map
Greys
YelloGreen
YlGn
YlGnBu
YlOrBr
YlOrRd
elevation
spectrum-dark
wiki-2
Random colors
New color ramp...

Discrete
Linear

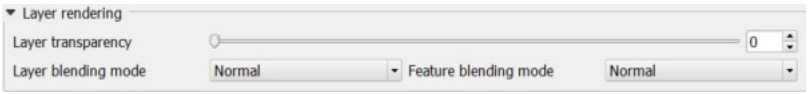

Exact

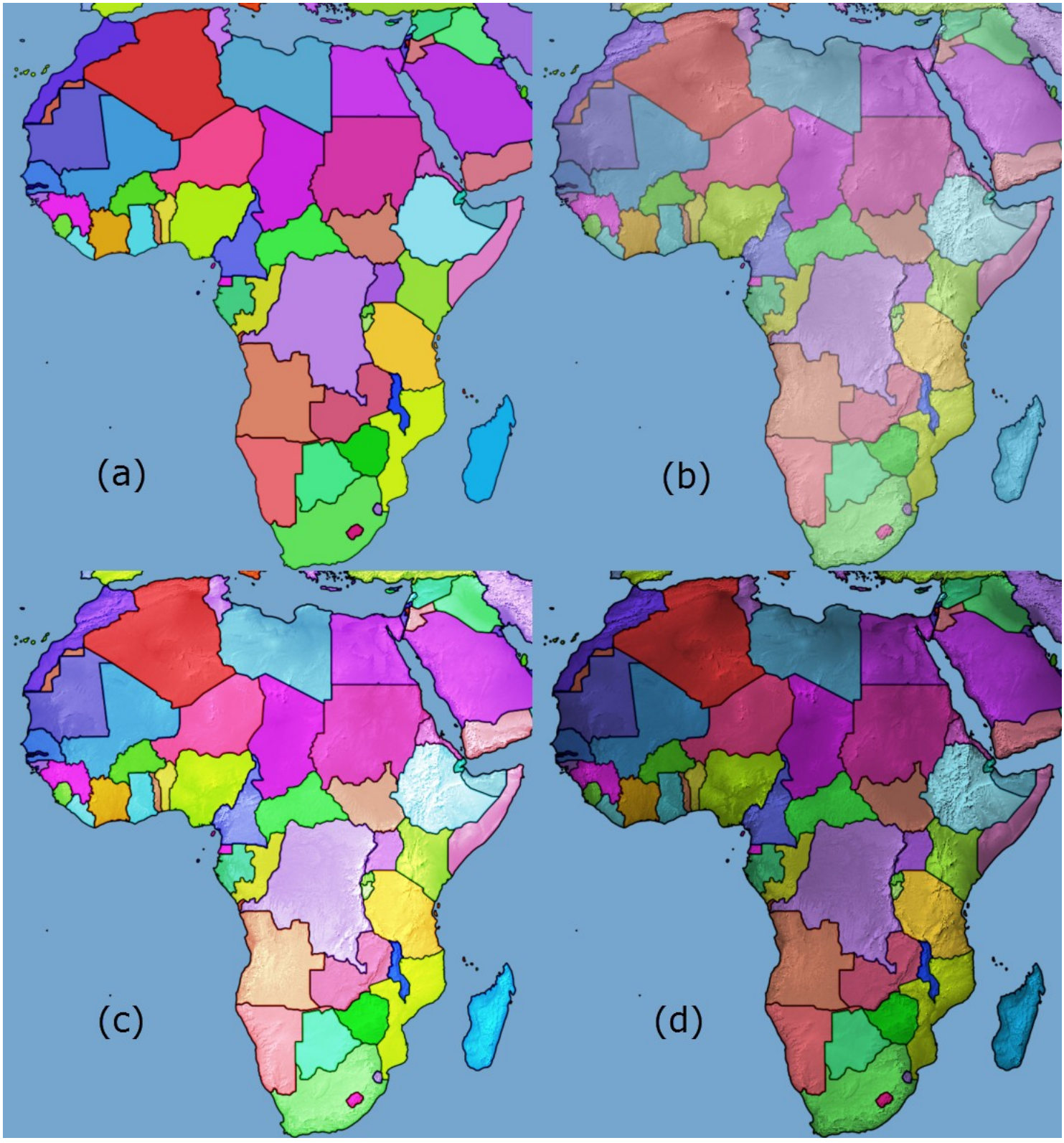

Band rendering
Render type
Multiband color
Red band
Band 1 (Red)
Min/max
0
0
Green band
Band 2 (Green)
Min/max
Blue band
Band 3 (Blue)
Min/max
Contrast enhancement
No enhancement
Load min/max values
Cumulative count cut
2.0
98.0
%
Min / max
Mean +/- standard deviation ×
2.00
Extent
Full
Current
Accuracy
Estimate (faster)
Actual (slower)
Load

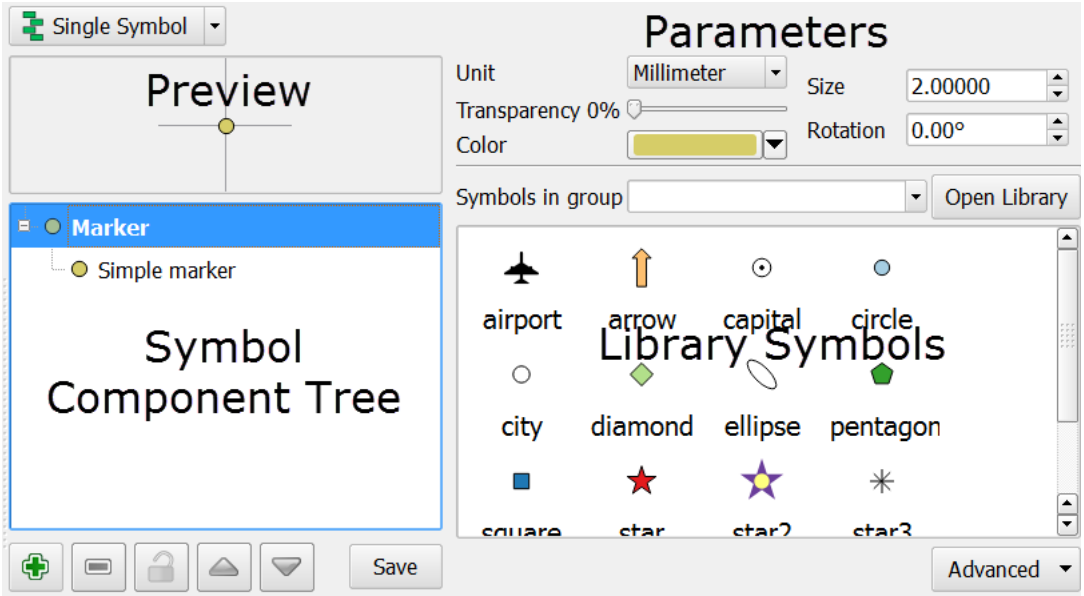
Red band
Band 1 (Red)
Not set
Band 1 (Red)
Band 2 (Green)
Band 3 (Blue)
Green band

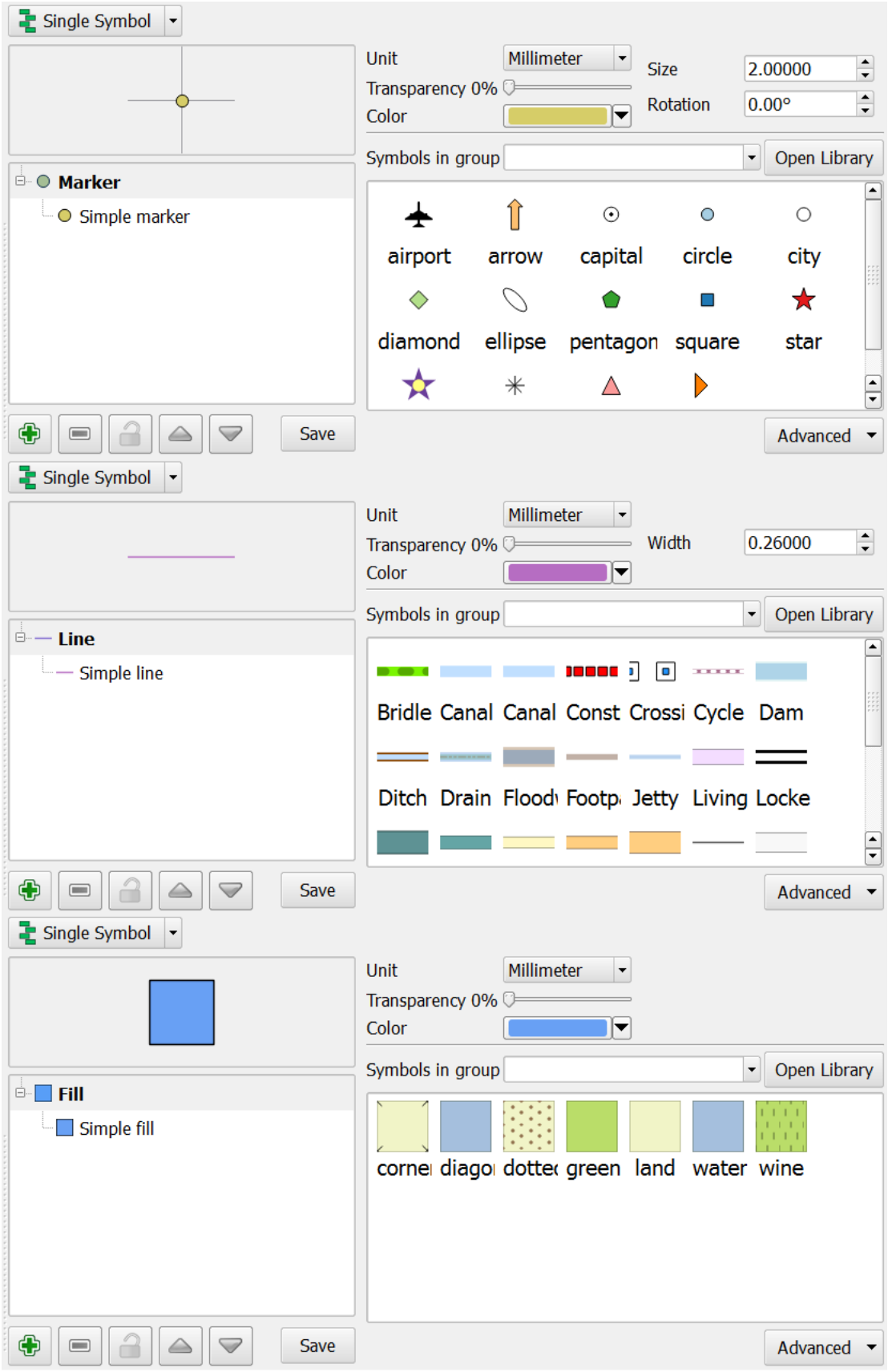

Color rendering
Blending mode
Normal
Reset
Brightness
0
Contrast
0
Saturation
0
Grayscale
Off
Hue
Colorize
Strength
100%

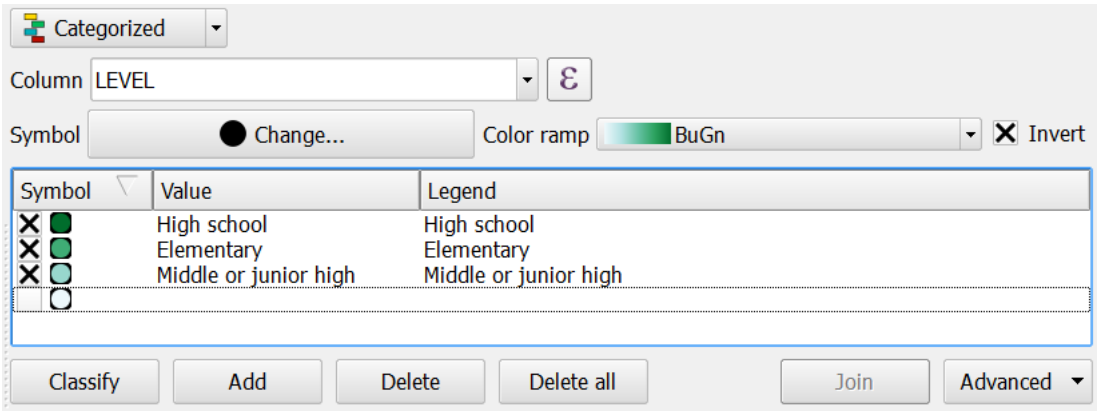
Resampling
Zoomed: in
Nearest neighbour
out
Nearest neighbour
Oversampling
2.00

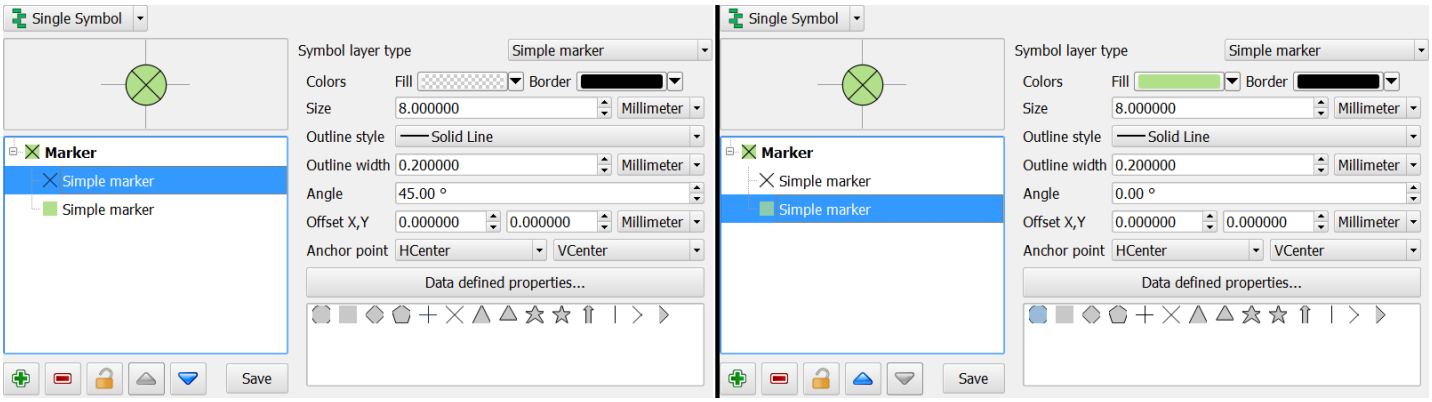

Layer rendering
Layer transparency
0
Layer blending mode
Normal
Feature blending mode
Normal

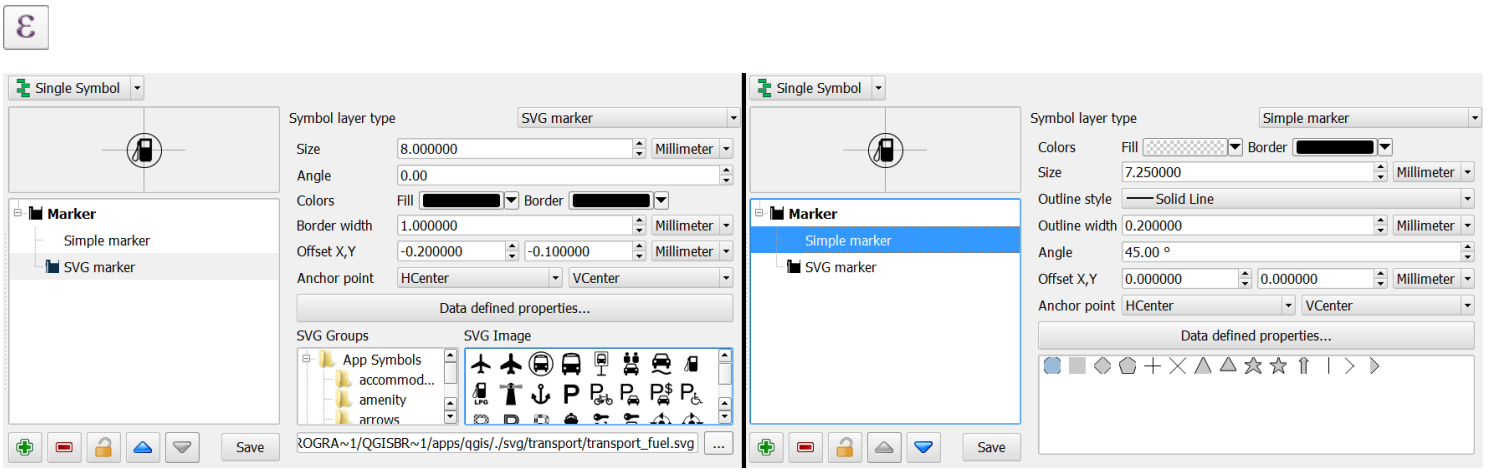

(a)
(b)
(c)
(d)

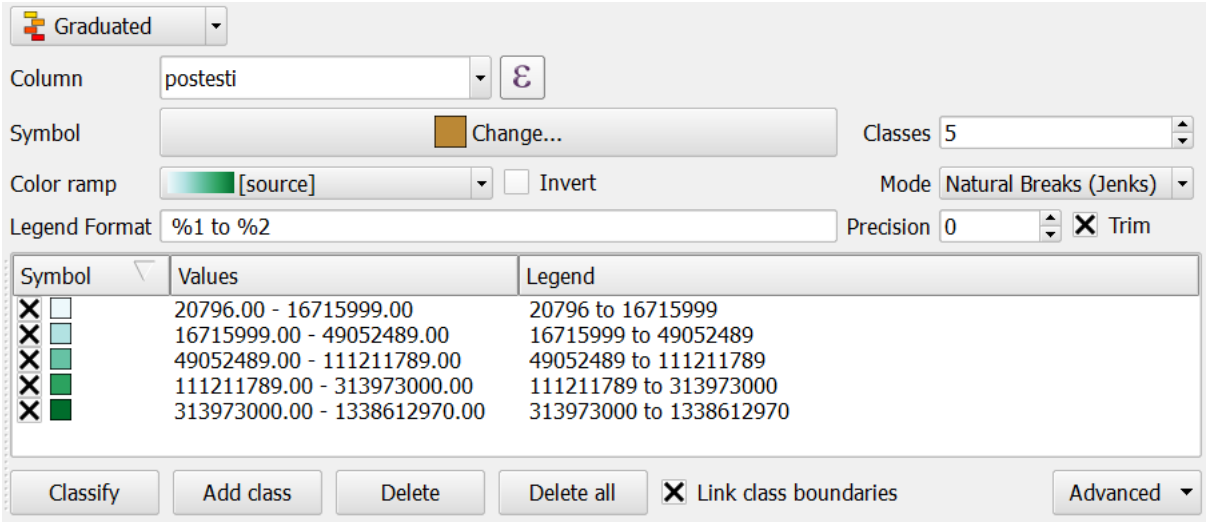

Single Symbol
Parameters
Preview
Unit
Millimeter
Size
2.00000
Transparency 0%
Color
Rotation
0.00°
Symbols in group
Open Library
Marker
Simple marker
Symbol
Component Tree
airport
arrow
capital
circle
Library Symbols
city
diamond
ellipse
pentagon
square
star
star2
star3
Save
Advanced

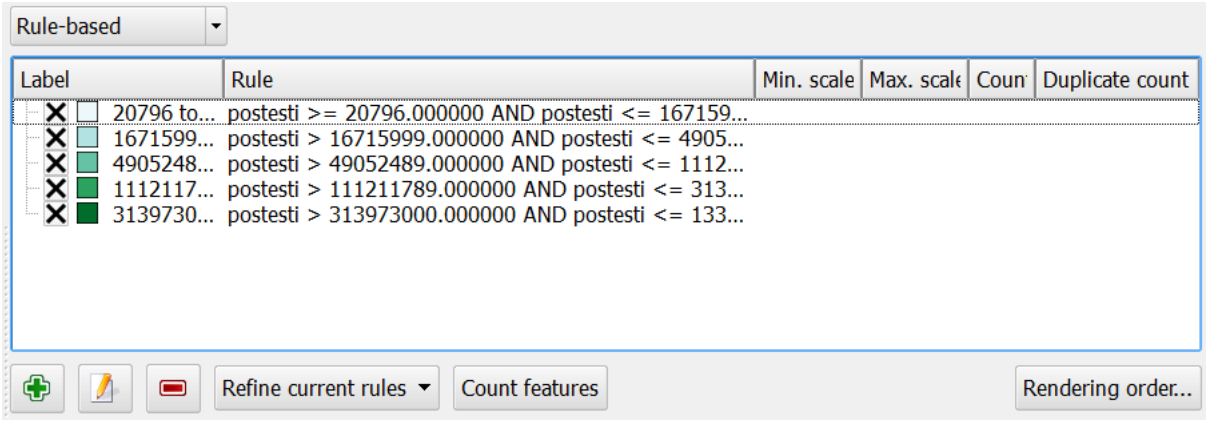

Single Symbol
Unit
Millimeter
Size
2.00000
Transparency 0%
Rotation
0.00°
Color
Symbols in group
Open Library
Marker
Simple marker
airport
arrow
capital
circle
city
diamond
ellipse
pentagon
square
star
Save
Advanced
Single Symbol
Unit
Millimeter
Transparency 0%
Width
0.26000
Color
Symbols in group
Open Library
Line
Simple line
Bridle
Canal
Canal
Const
Crossi
Cycle
Dam
Ditch
Drain
Flood
Footp
Jetty
Living
Locke
Save
Advanced
Single Symbol
Unit
Millimeter
Transparency 0%
Color
Symbols in group
Open Library
Fill
Simple fill
corne
diago
dotte
green
land
water
wine
Save
Advanced

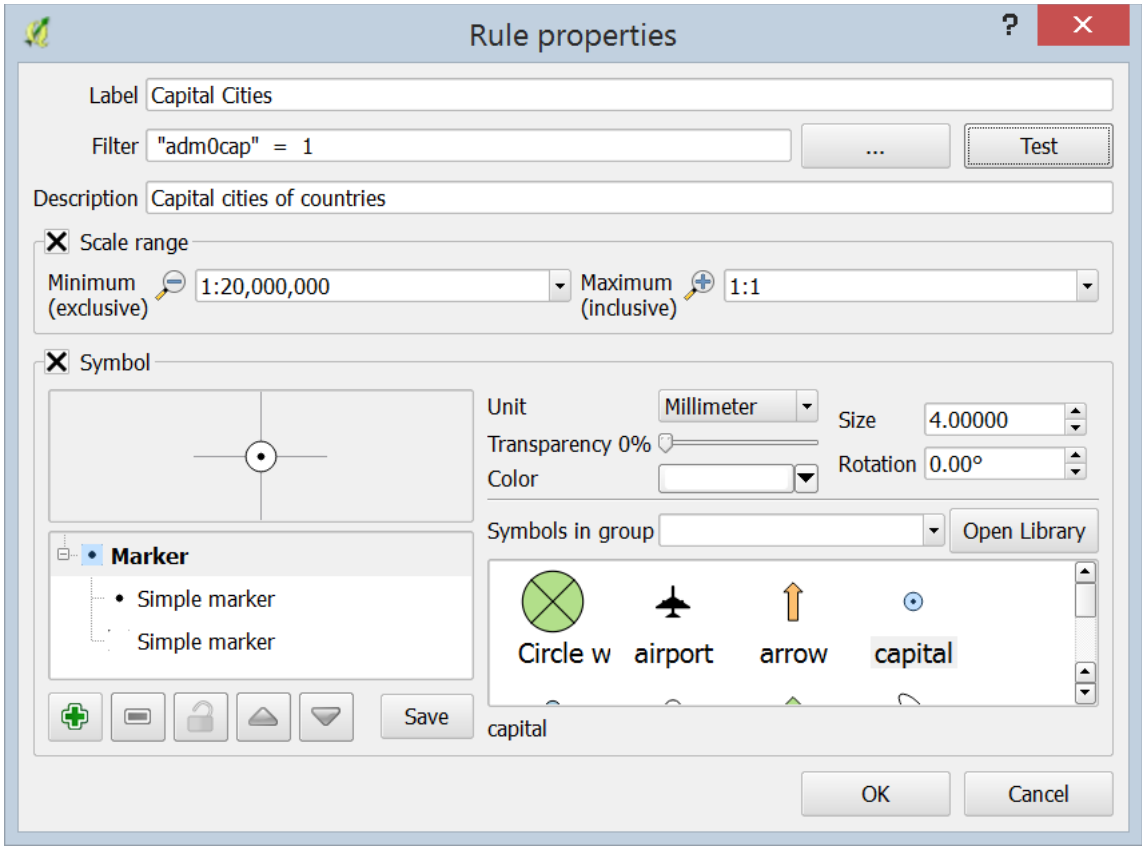

Categorized
Column LEVEL
Symbol Change...
Color ramp BuGn
Invert
Symbol
Value
Legend
High school
Elementary
Middle or junior high
Classify
Add
Delete
Delete all
Join
Advanced


Single Symbol
Symbol layer type
Simple marker
Colors
Fill
Border
Size
8.000000
Millimeter
Outline style
Solid Line
Outline width
0.200000
Angle
45.00 °
0.00 °
Offset X,Y
0.000000
Anchor point
HCenter
VCenter
Data defined properties...
Marker
Simple marker
Save


Single Symbol
Symbol layer type
SVG marker
Simple marker
Size
8.000000
Millimeter
Angle
0.00
Colors
Fill
Border
Border width
1.000000
Offset X,Y
-0.200000
-0.100000
Anchor point
HCenter
VCenter
Data defined properties...
SVG Groups
SVG Image
App Symbols
accommod...
amenity
arrows
Marker
Simple marker
SVG marker
Save
7.250000
Outline style
Solid Line
Outline width
0.200000
45.00 °
0.000000


Graduated
Column postesti
Symbol
Change...
Classes 5
Color ramp [source]
Invert
Mode Natural Breaks (Jenks)
Legend Format %1 to %2
Precision 0
Trim
Symbol
Values
Legend
20796.00 - 16715999.00
20796 to 16715999
16715999.00 - 49052489.00
16715999 to 49052489
49052489.00 - 111211789.00
49052489 to 111211789
111211789.00 - 313973000.00
111211789 to 313973000
313973000.00 - 1338612970.00
313973000 to 1338612970
Classify
Add class
Delete
Delete all
Link class boundaries
Advanced

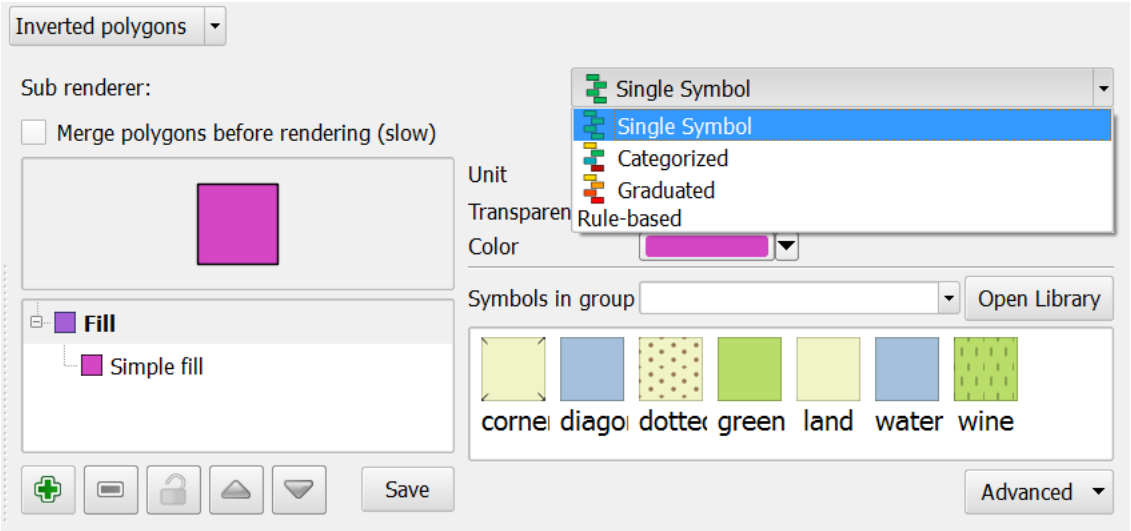

Rule-based
Label
Rule
Min. scale
Max. scale
Coun
Duplicate count
20796 to...
postesti >= 20796.000000 AND postesti <= 167159...
1671599...
postesti > 16715999.000000 AND postesti <= 4905...
4905248...
postesti > 49052489.000000 AND postesti <= 1112...
1112117...
postesti > 111211789.000000 AND postesti <= 313...
3139730...
postesti > 313973000.000000 AND postesti <= 133...
Refine current rules
Count features
Rendering order...


Rule properties
Label
Capital Cities
Filter
"adm0cap" = 1
...
Test
Description
Capital cities of countries
Scale range
Minimum (exclusive)
1:20,000,000
Maximum (inclusive)
1:1
Symbol
Unit
Millimeter
Size
4.00000
Transparency 0%
Color
Rotation
0.00°
Symbols in group
Open Library
Marker
Simple marker
Simple marker
Circle w
airport
arrow
capital
Save
capital
OK
Cancel

Rule-based

Label	Rule	Min. scale	Max. scale	Coun	Duplicate count
Not capitals	"adm0cap" = 0 AND "megacity" = 0	1:9,000,000	1:1	4	0
Admin 0 ...	"adm0cap" = 1	1:20,000,000	1:1	1	0
Megacity	"megacity" = 1 AND "adm0cap" = 0	1:15,000,000	1:1	8	0

Refine current rules | Count features | Rendering order...


Inverted polygons
Sub renderer:
Single Symbol
Merge polygons before rendering (slow)
Single Symbol
Categorized
Graduated
Rule-based
Unit
Transparen
Color
Fill
Simple fill
Symbols in group
Open Library
corne
diago
dotte
green
land
water
wine
Save
Advanced

Point displacement

Center symbol:

Renderer: Single Symbol

Renderer settings...

Displacement circles

Circle pen width: 0.40

Circle color:

Circle radius modification: 3.00

Point distance tolerance: 0.0000100

Labels

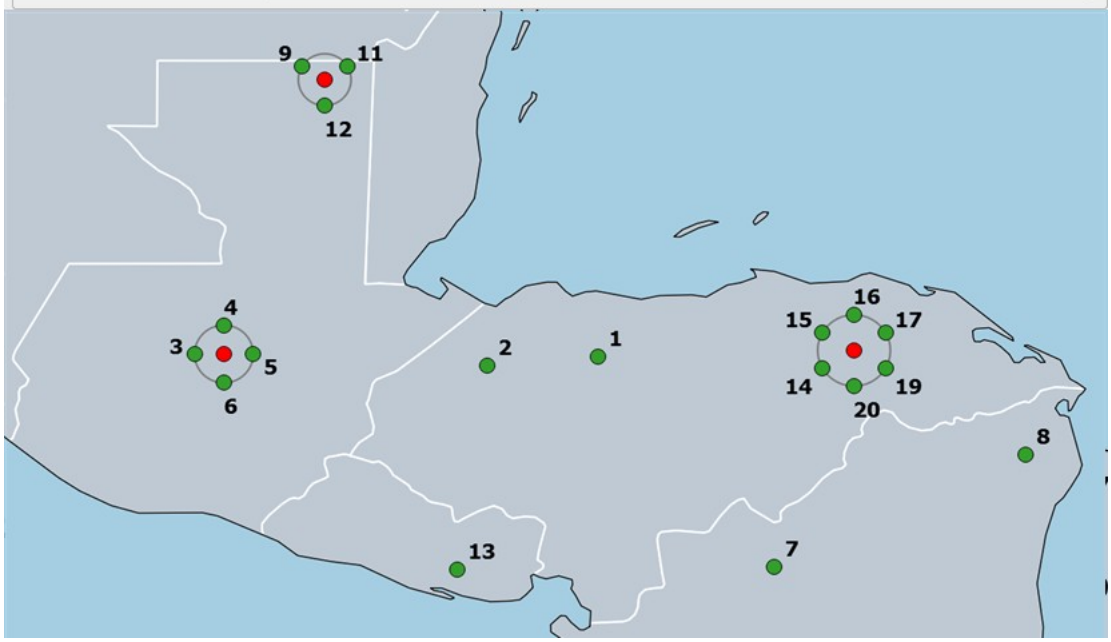
Label attribute: id

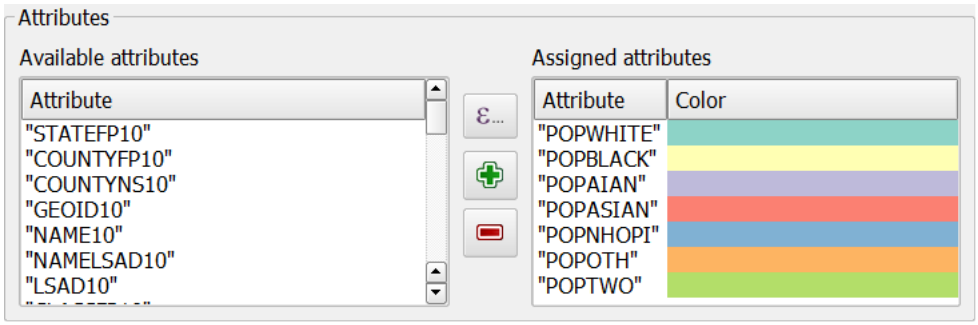
Label font: Font...

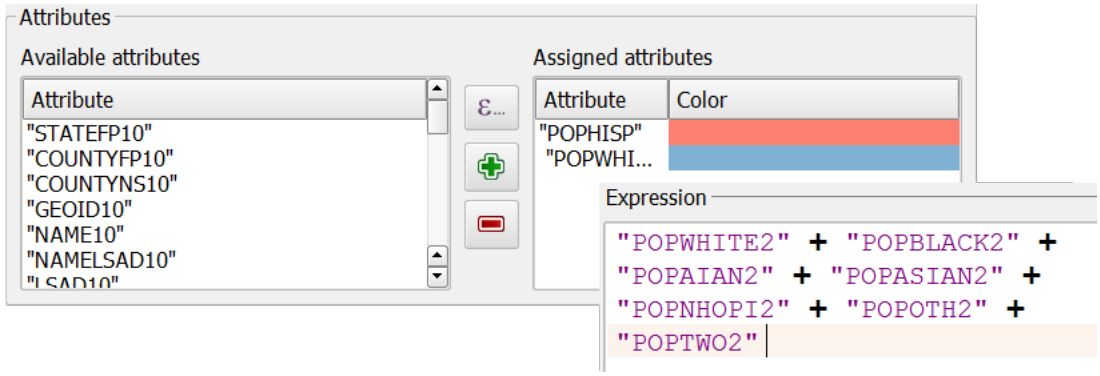
Label color:

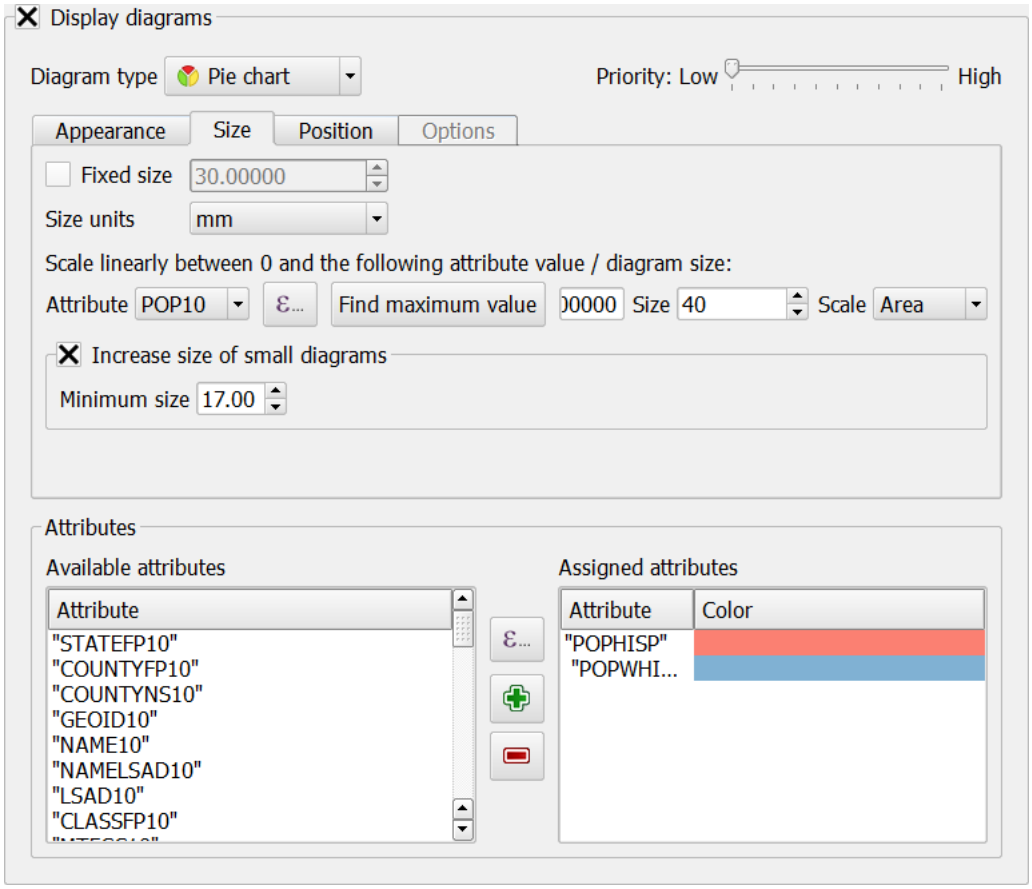
Use scale dependent labelling

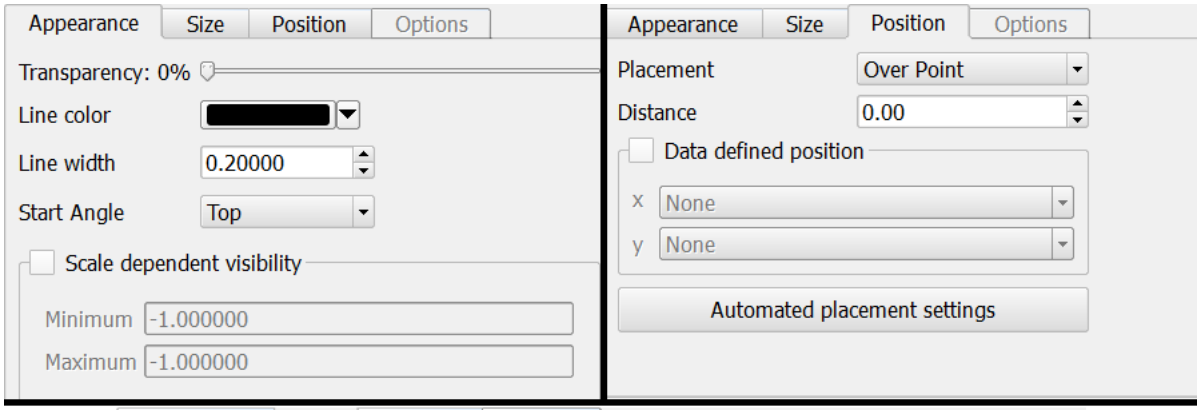
Max scale denominator: -1

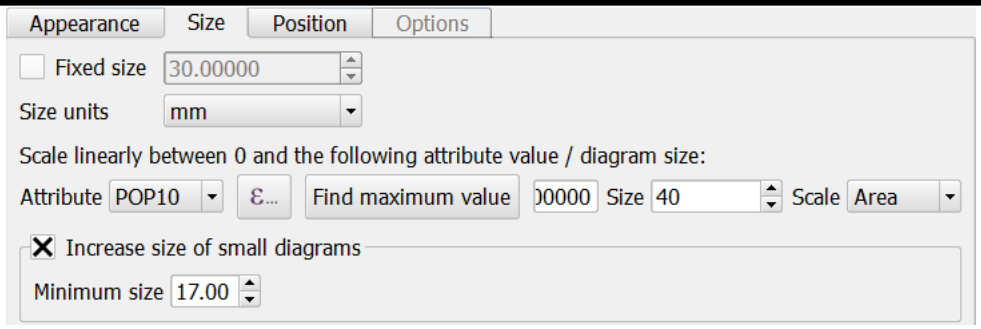


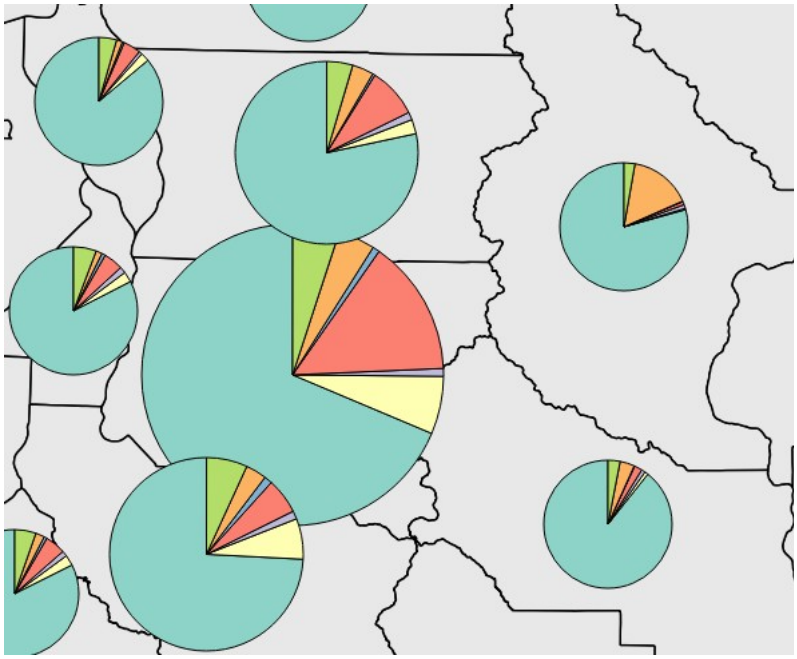

Attributes
Available attributes
Attribute
"STATEFP10"
"COUNTYFP10"
"COUNTYNS10"
"GEOID10"
"NAME10"
"NAMELSAD10"
"LSAD10"
Assigned attributes
Attribute
Color
"POPWHITE"
"POPBLACK"
"POPAIAN"
"POPASIAN"
"POPNHOPI"
"POPOTH"
"POPTWO"

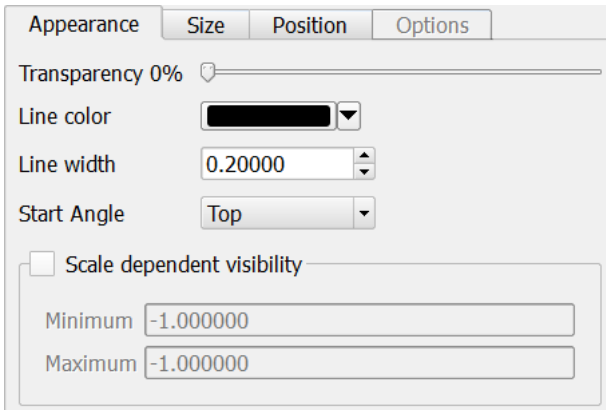

Attributes
Available attributes
Attribute
"STATEFP10"
"COUNTYFP10"
"COUNTYNS10"
"GEOID10"
"NAME10"
"NAMELSAD10"
Assigned attributes
Attribute
Color
"POPHISP"
"POPWHI...
Expression
"POPWHITE2" + "POPBLACK2" +
"POPAIAN2" + "POPASIAN2" +
"POPNHOPI2" + "POPOTH2" +
"POPTWO2"

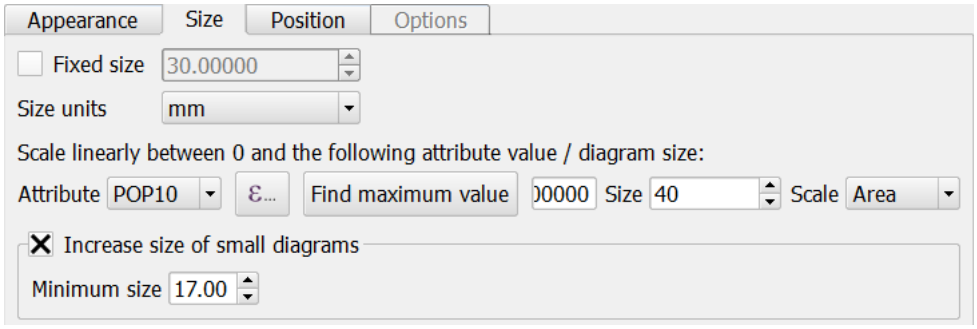

Display diagrams
Diagram type
Pie chart
Priority: Low
High
Appearance
Size
Position
Options
Fixed size
30.00000
Size units
mm
Scale linearly between 0 and the following attribute value / diagram size:
Attribute
POP10
Find maximum value
Size
40
Scale
Area
Increase size of small diagrams
Minimum size
17.00
Attributes
Available attributes
Attribute
"STATEFP10"
"COUNTYFP10"
"COUNTYNS10"
"GEOID10"
"NAME10"
"NAMELSAD10"
"LSAD10"
"CLASSFP10"
Assigned attributes
Attribute
Color
"POPHISP"
"POPWHI...

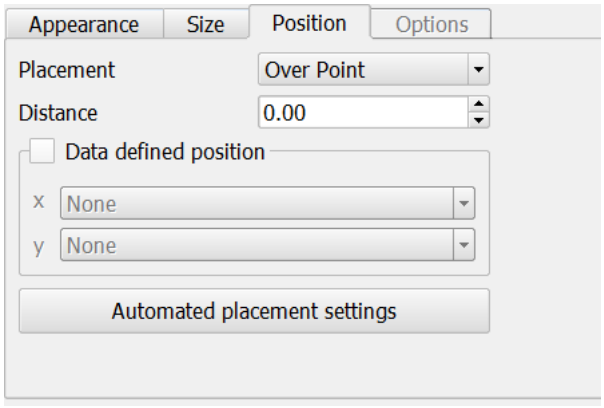

Appearance
Size
Position
Options
Transparency: 0%
Line color
Line width
0.20000
Start Angle
Top
Scale dependent visibility
Minimum
-1.000000
Maximum
-1.000000
Appearance
Size
Position
Options
Placement
Over Point
Distance
0.00
Data defined position
x
None
y
None
Automated placement settings


Appearance
Size
Position
Options
Fixed size
30.00000
Size units
mm
Scale linearly between 0 and the following attribute value / diagram size:
Attribute
POP10
Find maximum value
Size
40
Scale
Area
Increase size of small diagrams
Minimum size
17.00

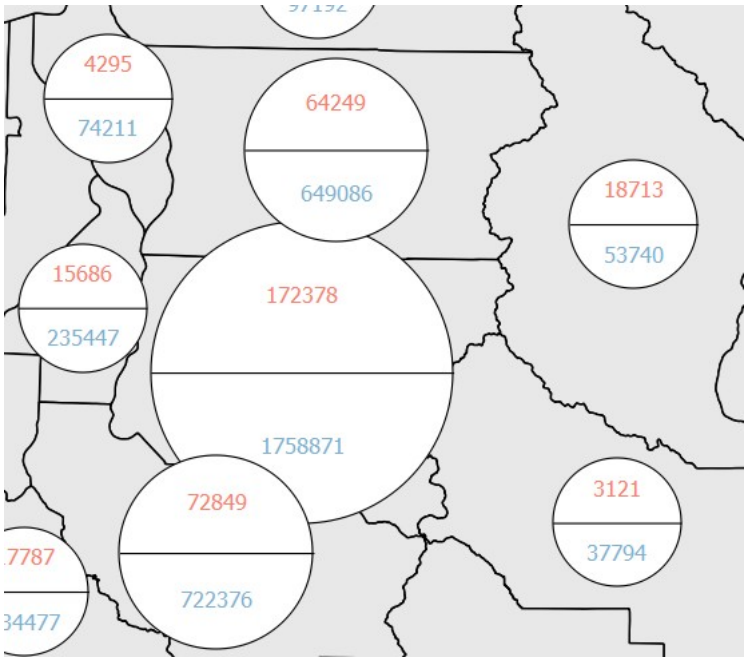


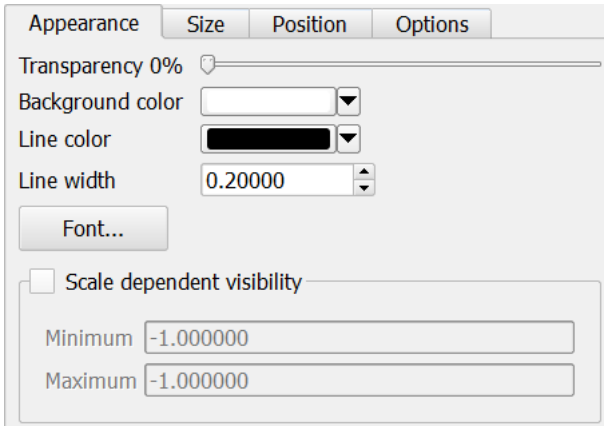

Appearance
Size
Position
Options
Transparency 0%
Line color
Line width
0.20000
Start Angle
Top
Scale dependent visibility
Minimum
-1.000000
Maximum
-1.000000

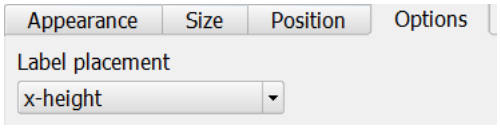

Appearance
Size
Position
Options
Fixed size
30.00000
Size units
mm
Scale linearly between 0 and the following attribute value / diagram size:
Attribute
POP10
ε...
Find maximum value
)0000
Size
40
Scale
Area
Increase size of small diagrams
Minimum size
17.00

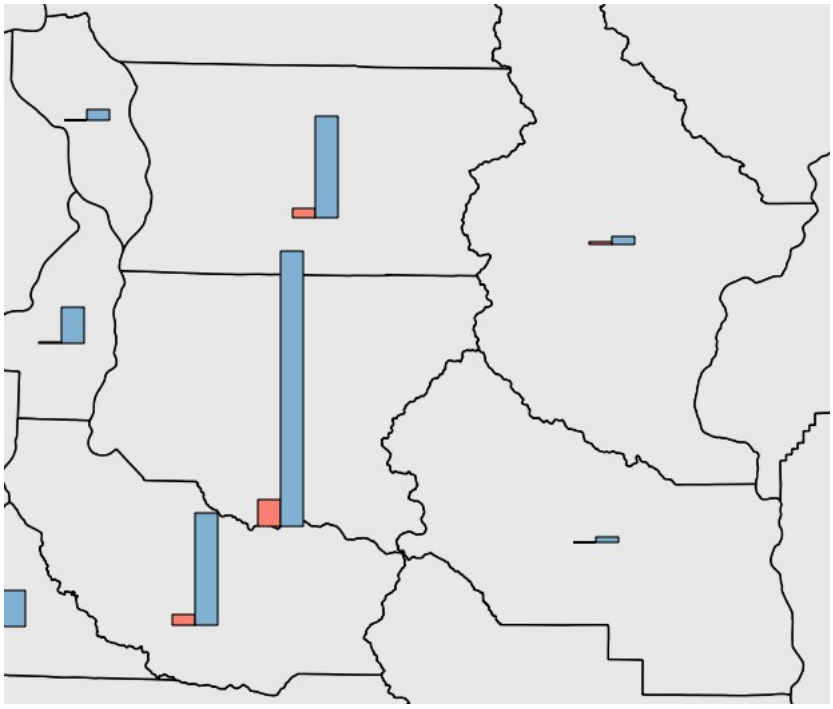

Appearance
Size
Position
Options
Placement
Over Point
Distance
0.00
Data defined position
x
None
y
None
Automated placement settings

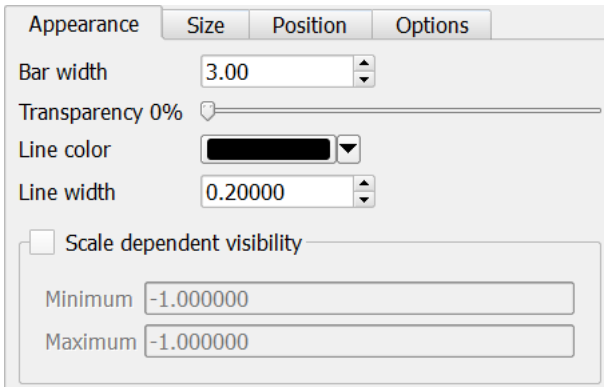
ε...

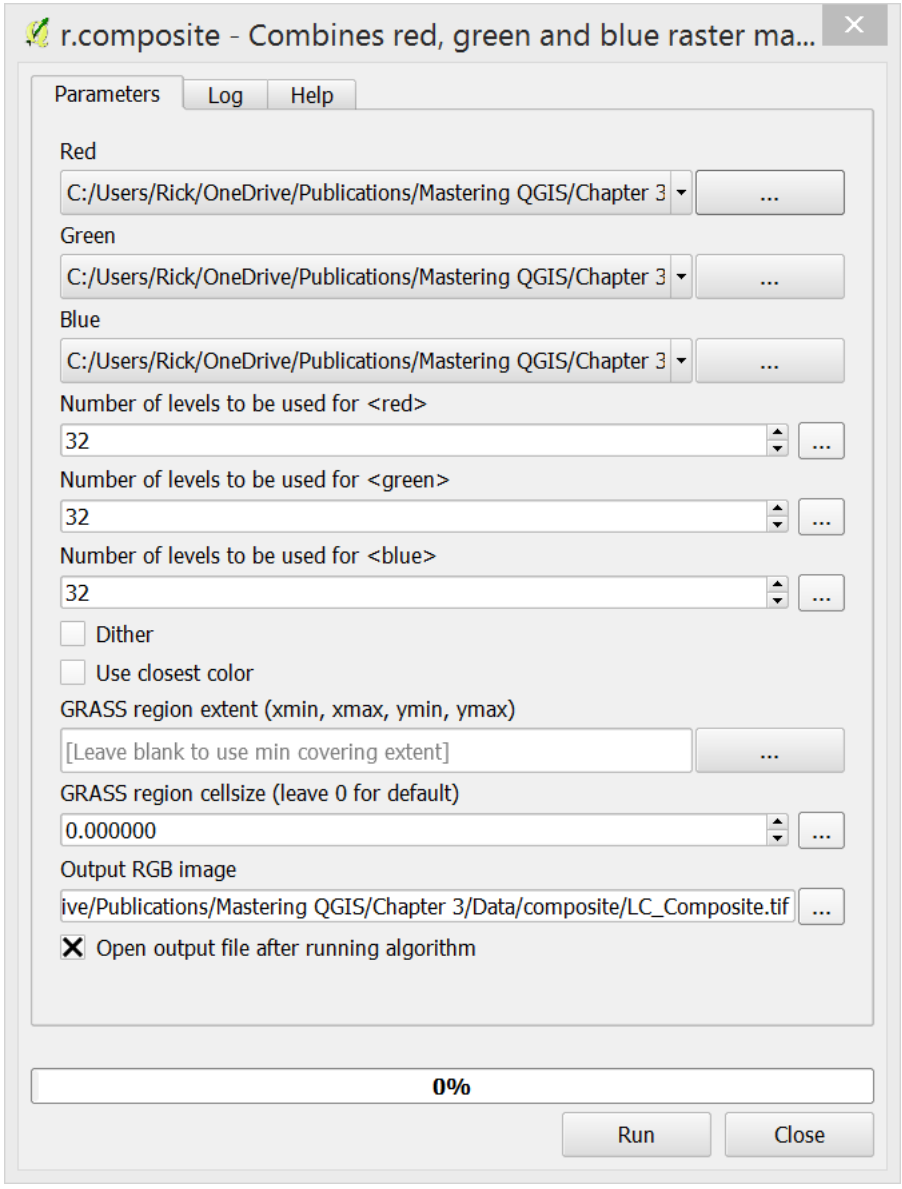

4295
74211
64249
649086
18713
53740
15686
235447
172378
1758871
72849
722376
3121
37794
7787
34477


Appearance
Size
Position
Options
Transparency 0%
Background color
Line color
Line width
0.20000
Font...
Scale dependent visibility
Minimum
-1.000000
Maximum
-1.000000

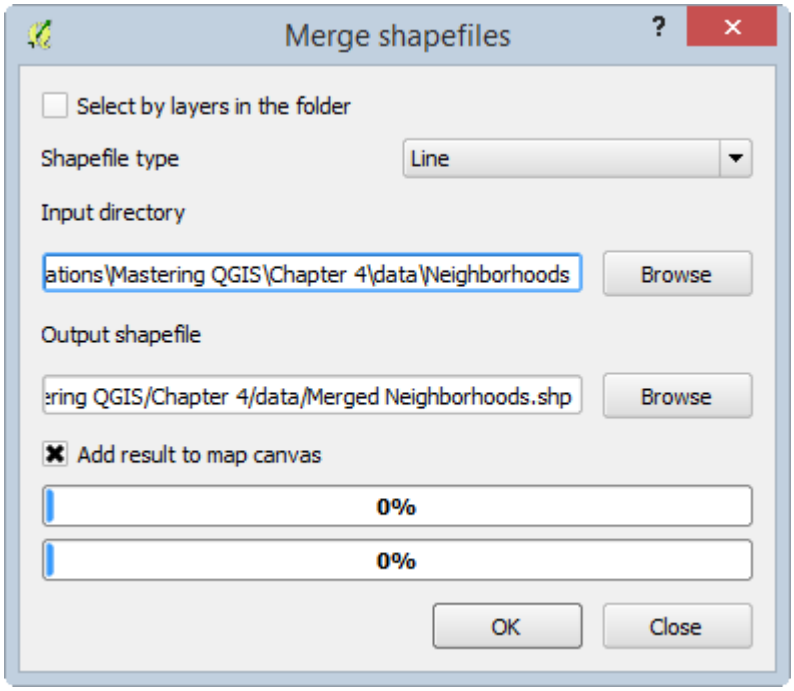

Appearance
Size
Position
Options
Label placement
x-height

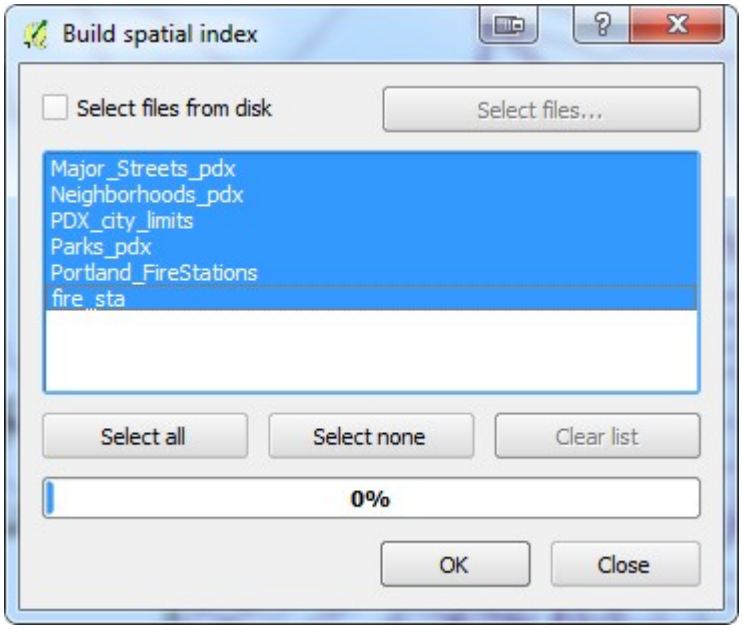


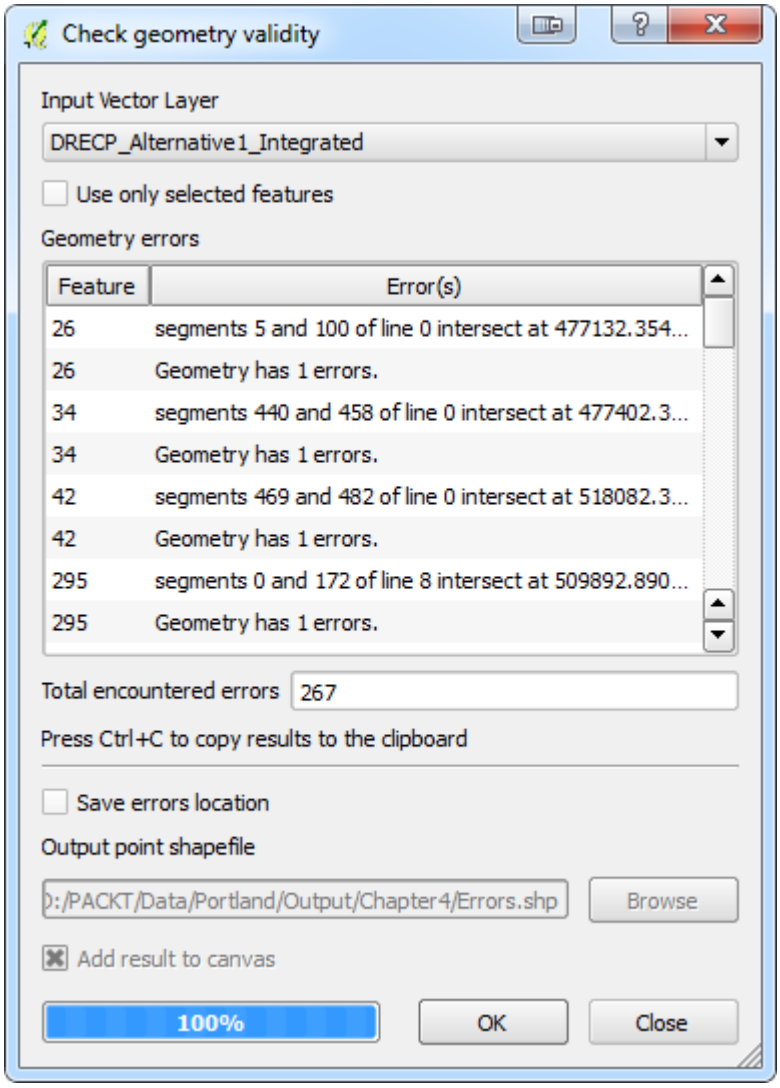

Appearance
Size
Position
Options
Bar width
3.00
Transparency 0%
Line color
Line width
0.20000
Scale dependent visibility
Minimum
-1.000000
Maximum
-1.000000

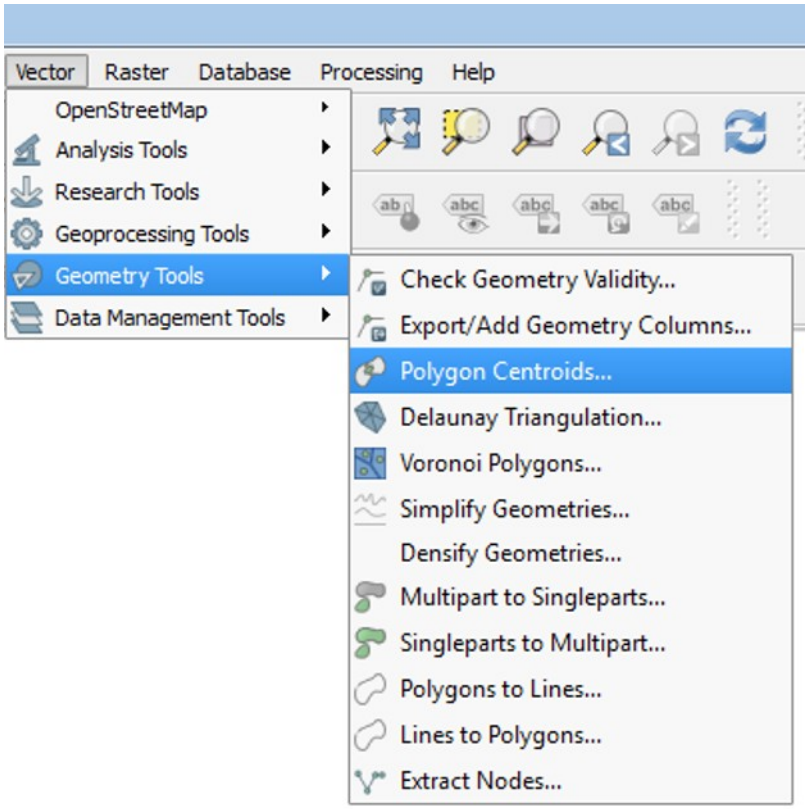


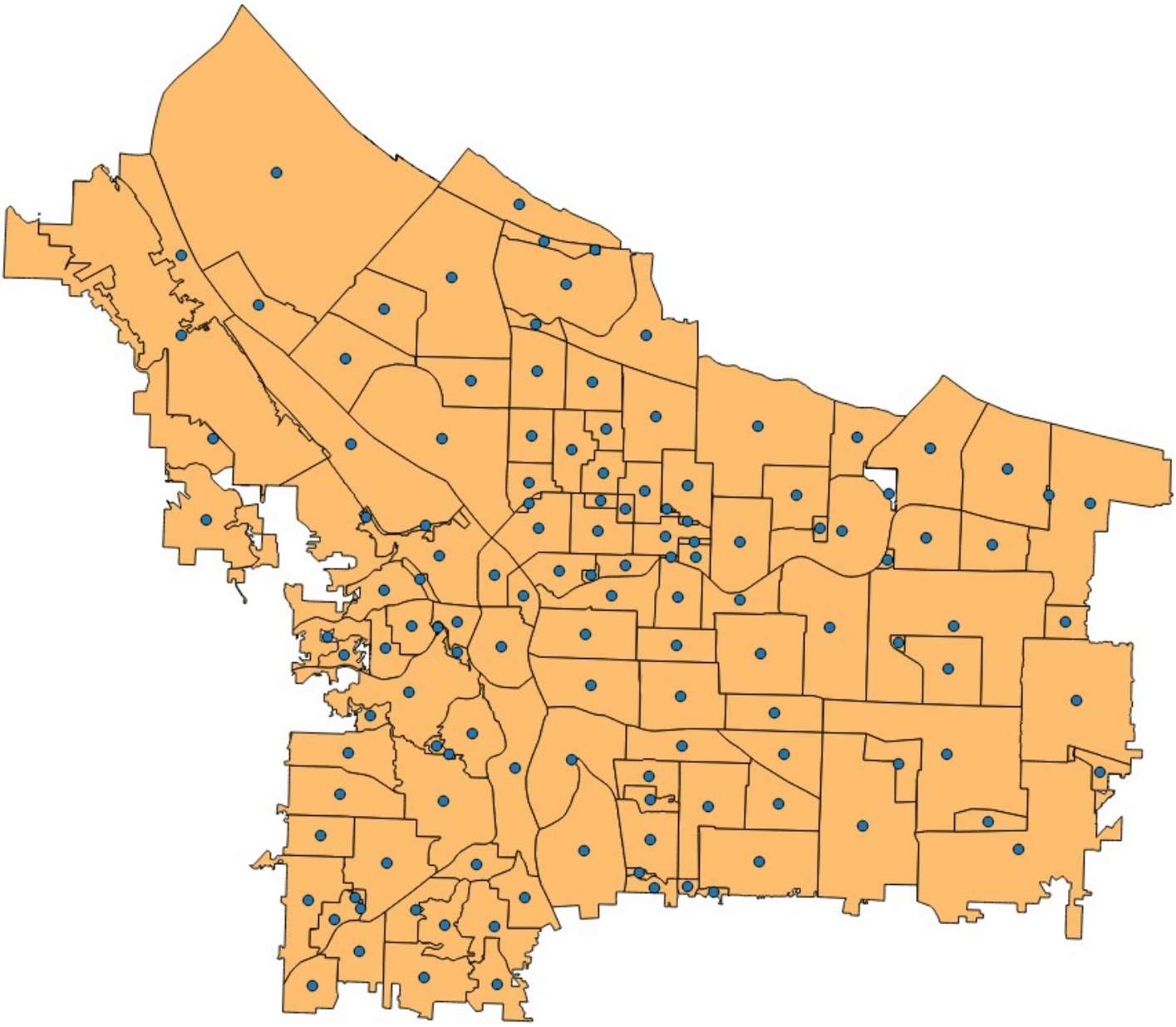
Chapter 4: Preparing Vector Data for Processing

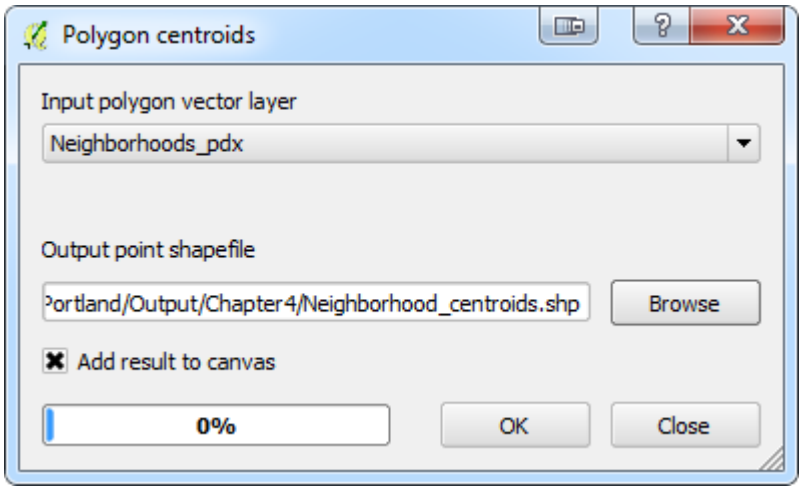

Merge shapefiles
Select by layers in the folder
Shapefile type
Line
Input directory
ations\Mastering QGIS\Chapter 4\data\Neighborhoods
Browse
Output shapefile
ering QGIS/Chapter 4/data/Merged Neighborhoods.shp
Browse
Add result to map canvas
0%
0%
OK
Close

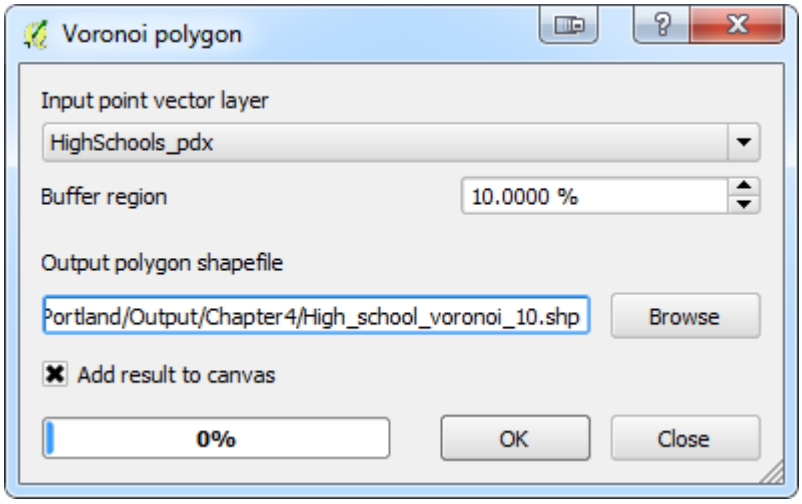

Build spatial index
Select files from disk
Select files...
Major_Streets_pdx
Neighborhoods_pdx
PDX_city_limits
Parks_pdx
Portland_FireStations
fire_sta
Select all
Select none
Clear list
0%
OK
Close

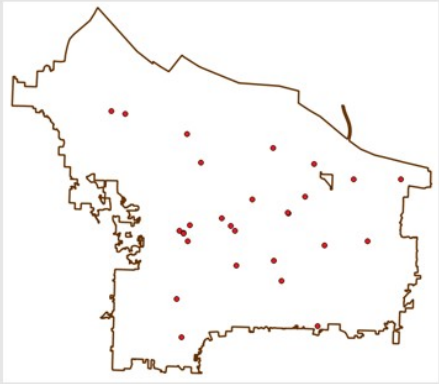
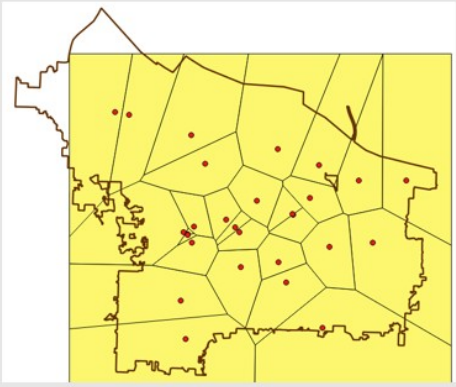
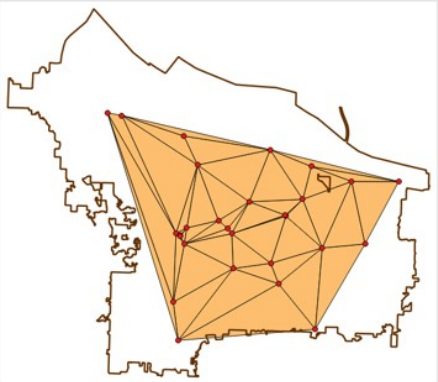

Check geometry validity
Input Vector Layer
DRECP_Alternative1_Integrated
Use only selected features
Geometry errors
Feature
Error(s)
26
segments 5 and 100 of line 0 intersect at 477132.354...
26
Geometry has 1 errors.
34
segments 440 and 458 of line 0 intersect at 477402.3...
34
Geometry has 1 errors.
42
segments 469 and 482 of line 0 intersect at 518082.3...
42
Geometry has 1 errors.
295
segments 0 and 172 of line 8 intersect at 509892.890...
295
Geometry has 1 errors.
Total encountered errors
267
Press Ctrl+C to copy results to the clipboard
Save errors location
Output point shapefile
D:/PACKT/Data/Portland/Output/Chapter4/Errors.shp
Browse
Add result to canvas
100%
OK
Close

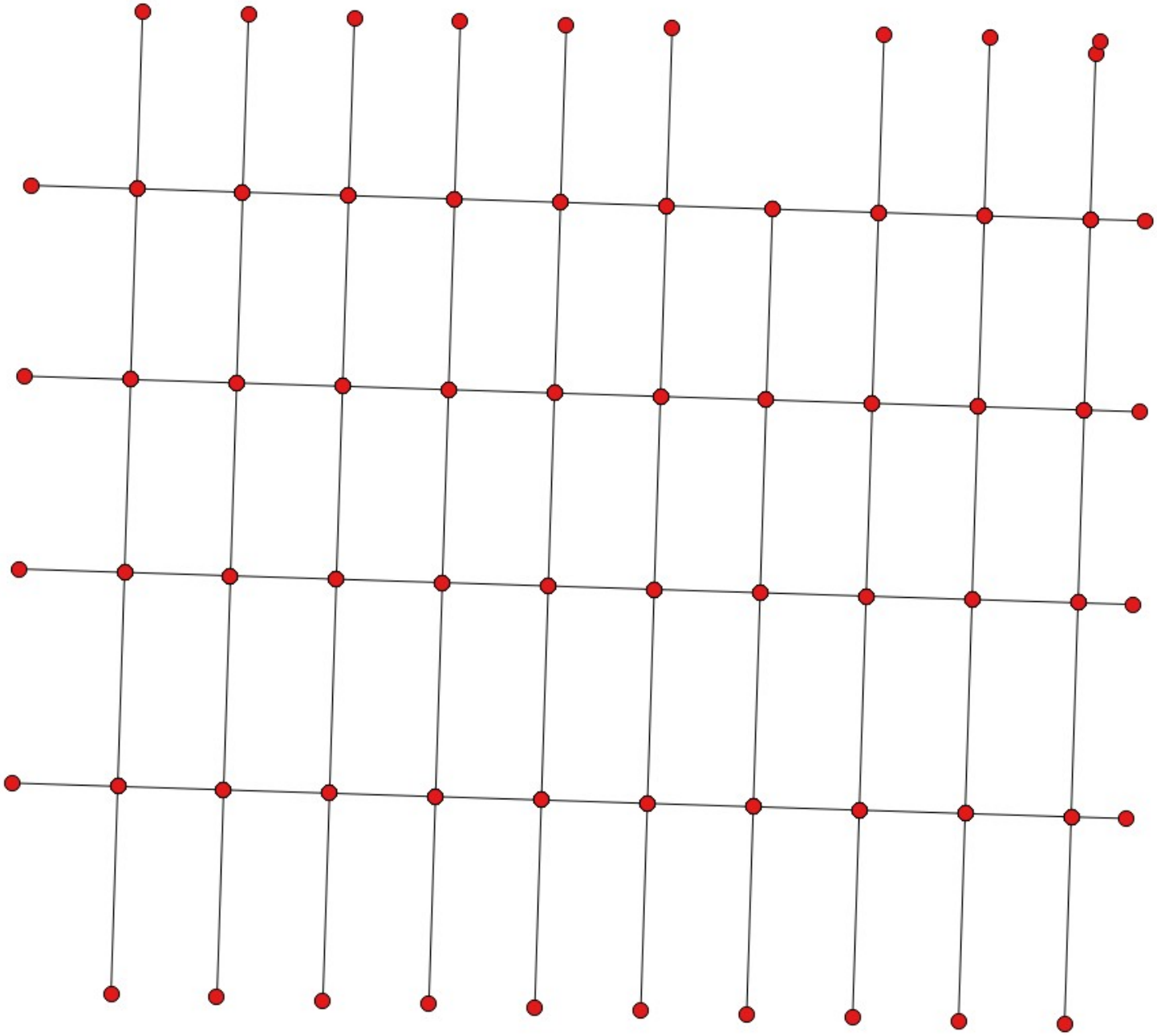

Vector
Raster
Database
Processing
Help
OpenStreetMap
Analysis Tools
Research Tools
Geoprocessing Tools
Geometry Tools
Data Management Tools
Check Geometry Validity...
Export/Add Geometry Columns...
Polygon Centroids...
Delaunay Triangulation...
Voronoi Polygons...
Simplify Geometries...
Densify Geometries...
Multipart to Singleparts...
Singleparts to Multipart...
Polygons to Lines...
Lines to Polygons...
Extract Nodes...

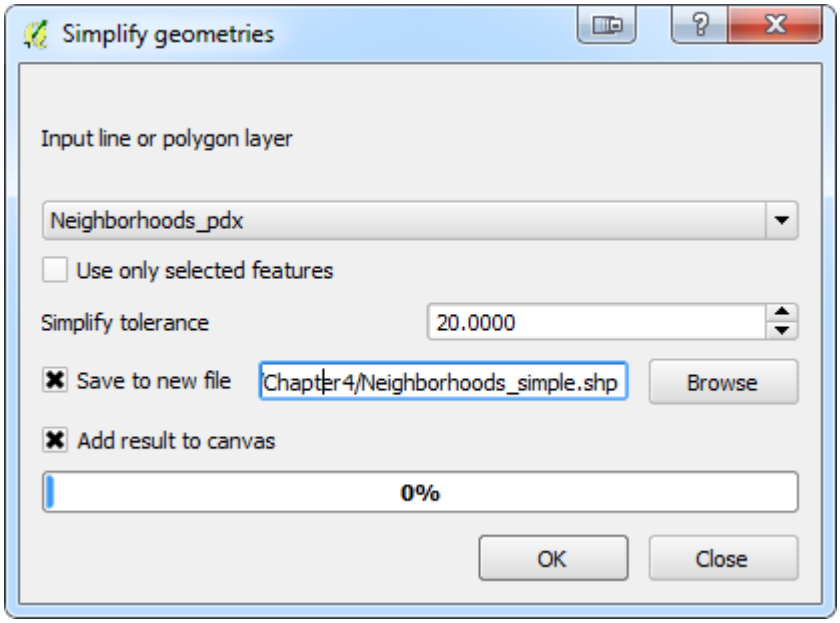


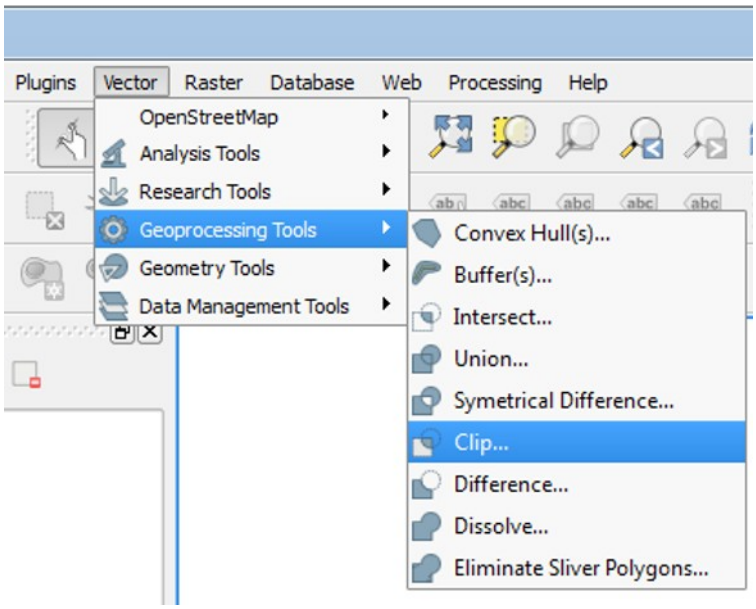

Polygon centroids
Input polygon vector layer
Neighborhoods_pdx
Output point shapefile
ortland/Output/Chapter4/Neighborhood_centroids.shp
Browse
Add result to canvas
0%
OK
Close

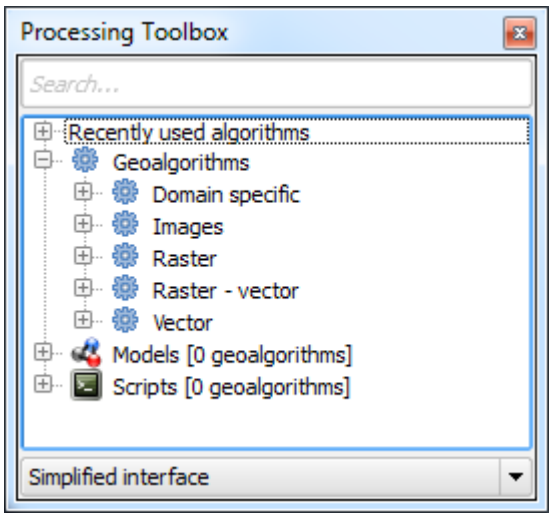


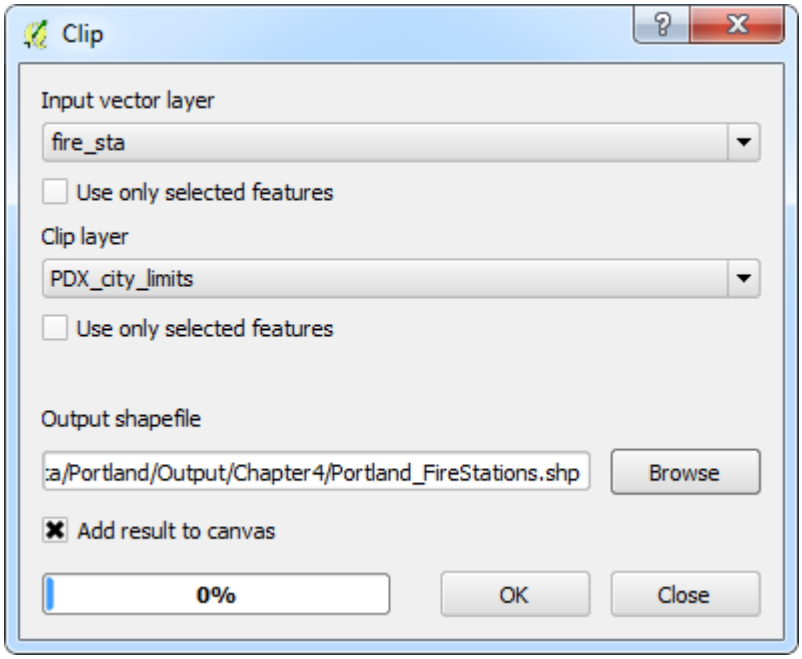
Input Points	Voronoi Polygons	Delaunay Triangulation
		

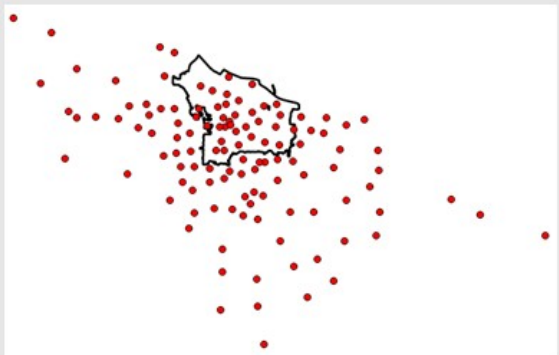
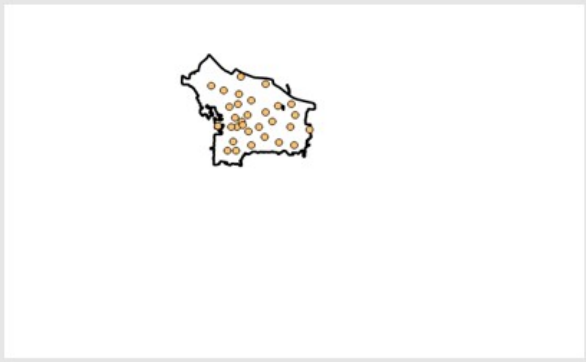
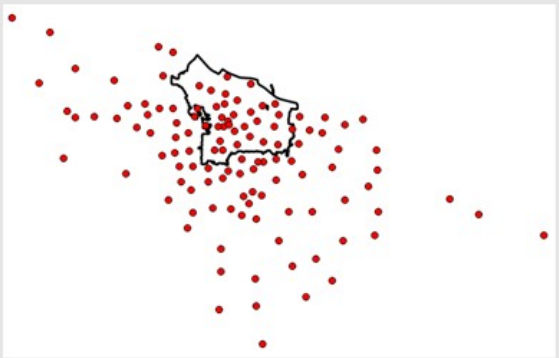
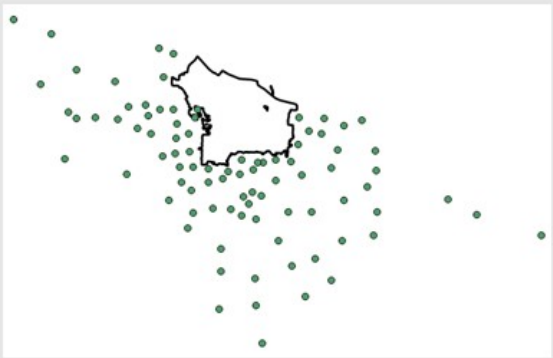


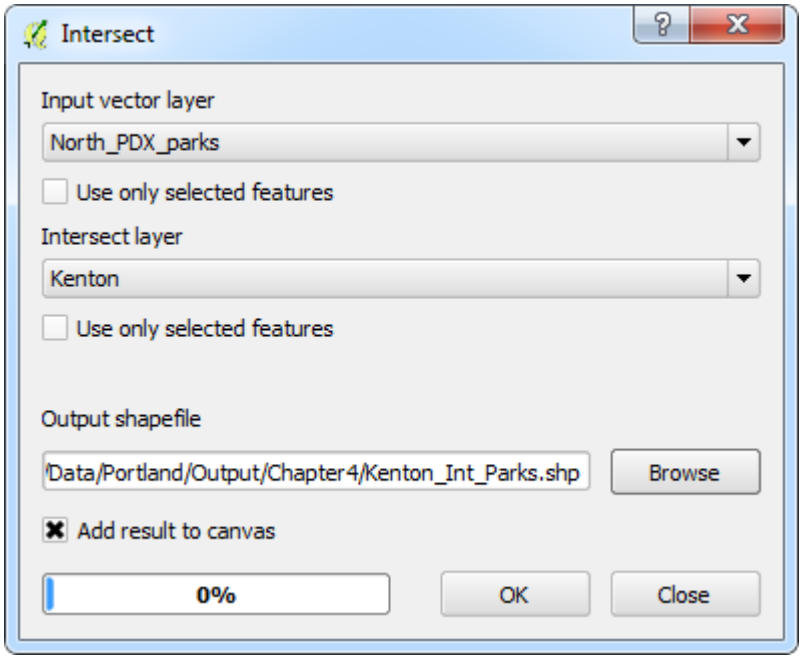

Simplify geometries
Input line or polygon layer
Neighborhoods_pdx
Use only selected features
Simplify tolerance
20.0000
Save to new file
Chapter4/Neighborhoods_simple.shp
Browse
Add result to canvas
0%
OK
Close

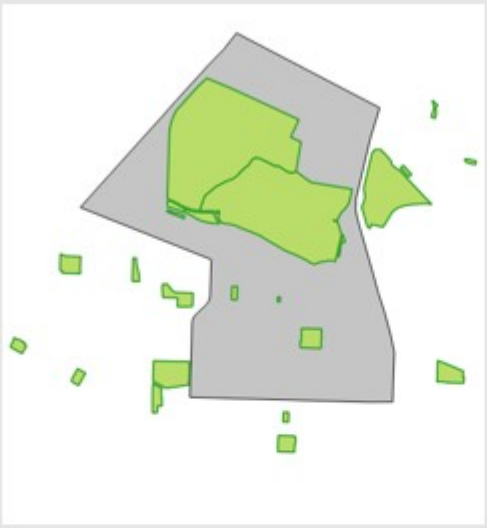
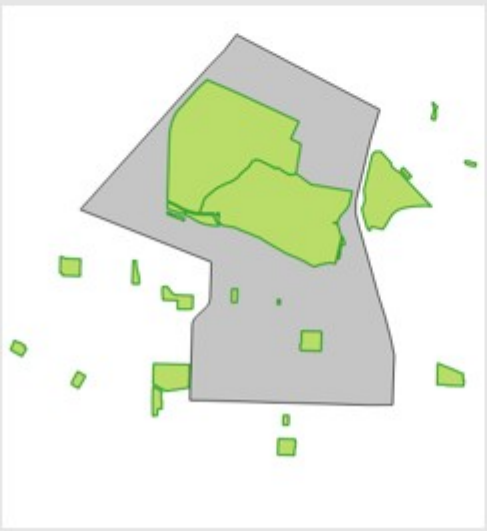

Plugins
Vector
Raster
Database
Web
Processing
Help
OpenStreetMap
Analysis Tools
Research Tools
Geoprocessing Tools
Geometry Tools
Data Management Tools
Convex Hull(s)...
Buffer(s)...
Intersect...
Union...
Symetrical Difference...
Clip...
Difference...
Dissolve...
Eliminate Sliver Polygons...

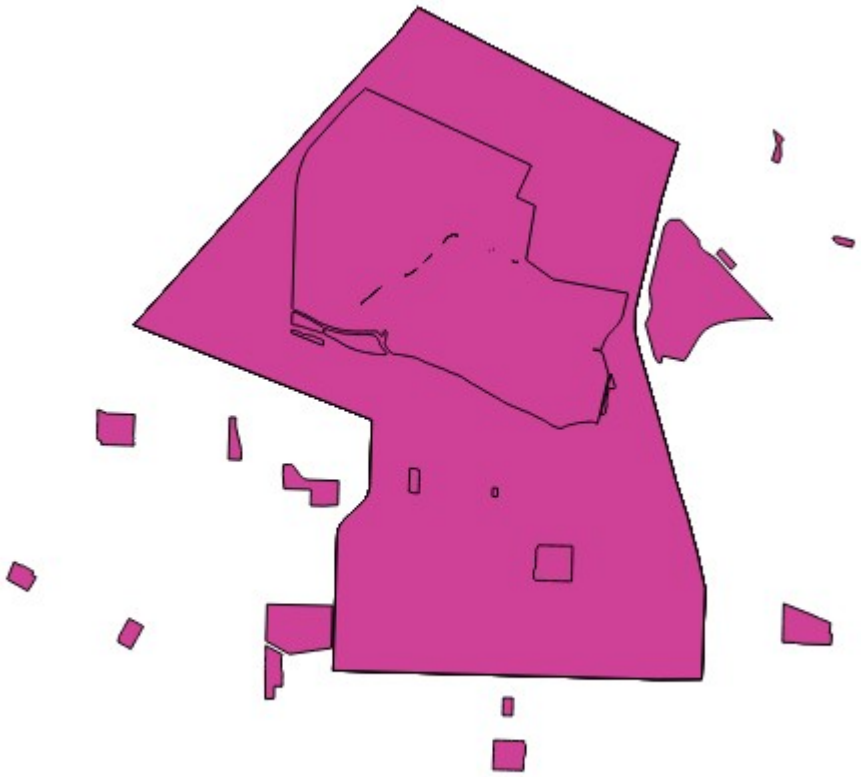

Processing Toolbox
Search...
Recently used algorithms
Geoalgorithms
Domain specific
Images
Raster
Raster - vector
Vector
Models [0 geoalgorithms]
Scripts [0 geoalgorithms]
Simplified interface

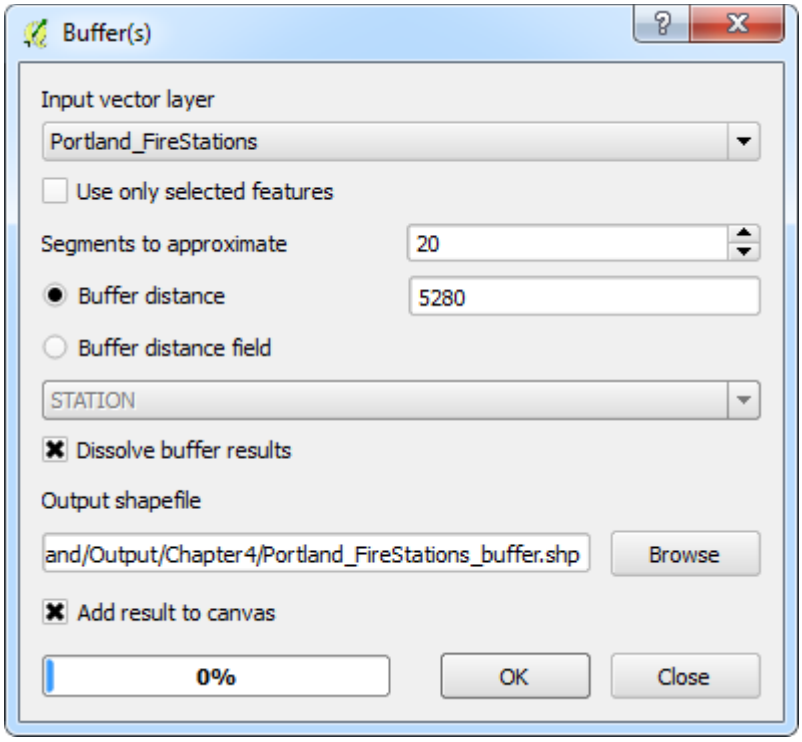


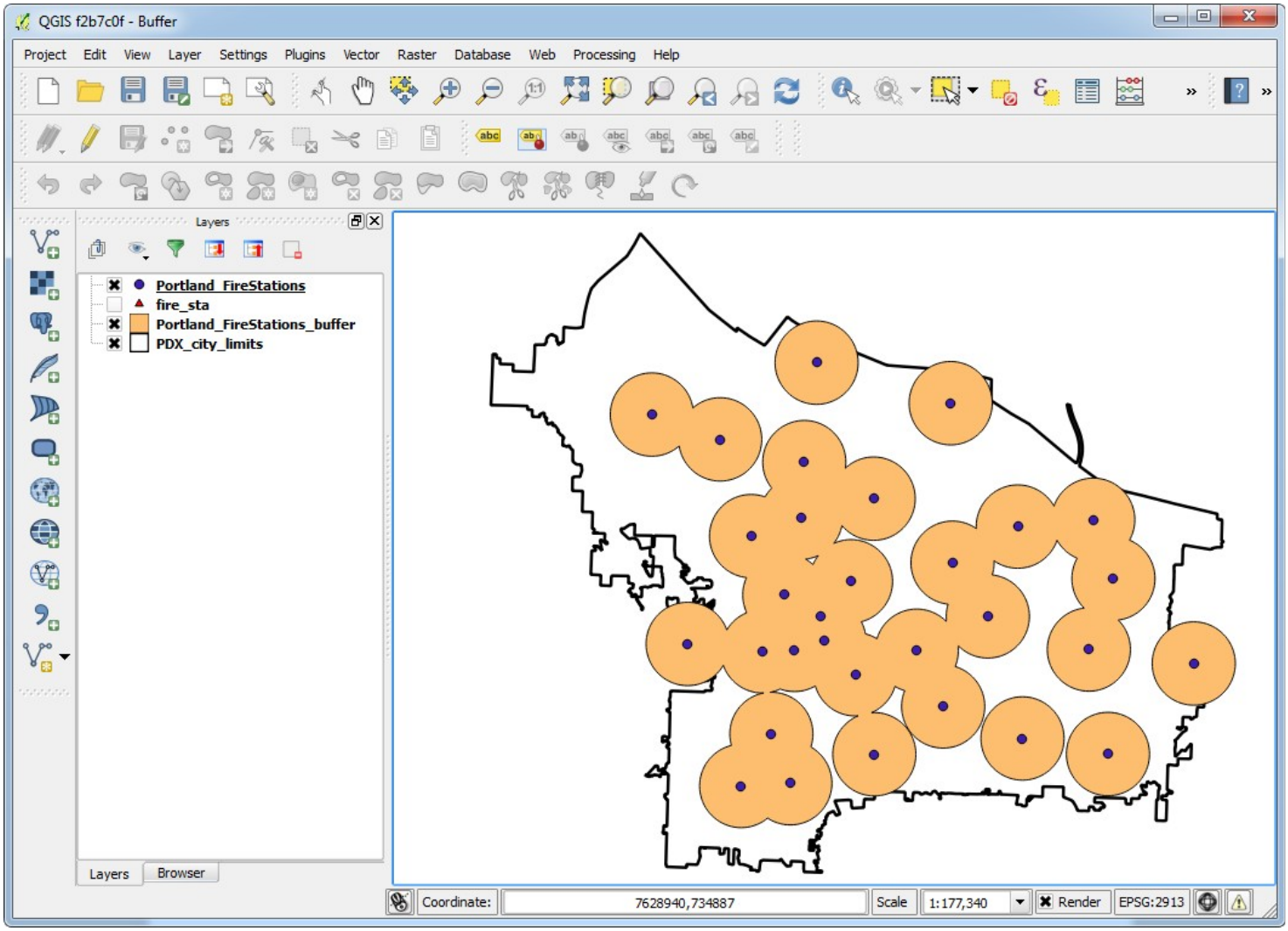
	Input	Output
Clip		
Difference		

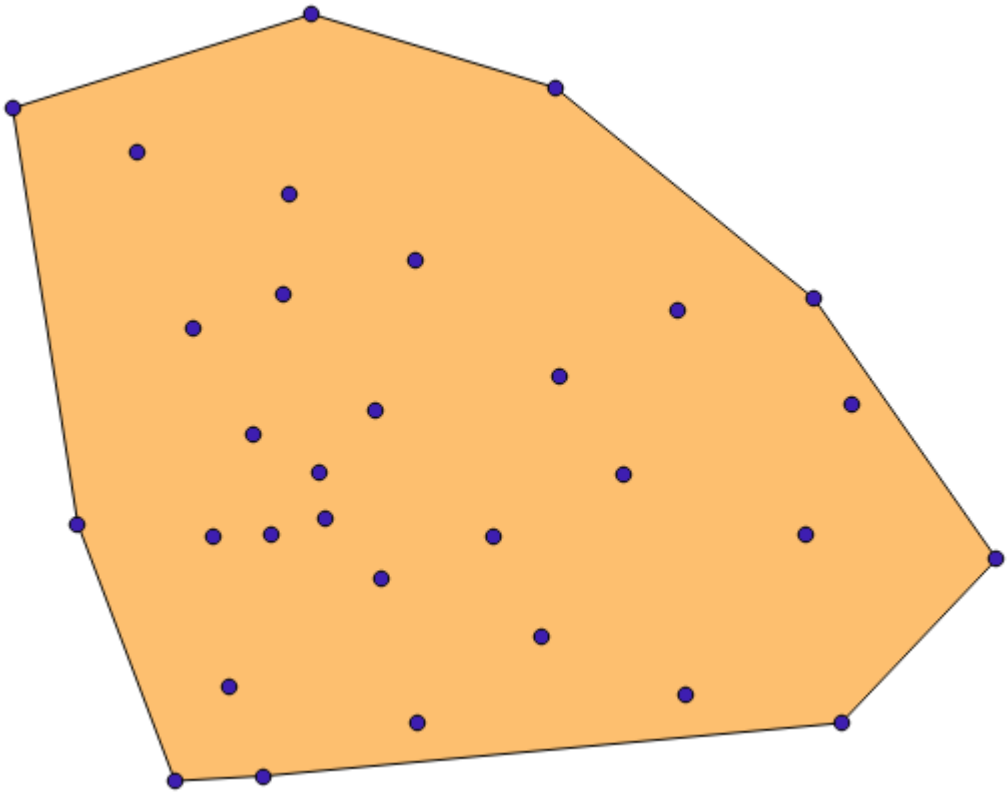

Intersect
Input vector layer
North_PDX_parks
Use only selected features
Intersect layer
Kenton
Use only selected features
Output shapefile
Data/Portland/Output/Chapter4/Kenton_Int_Parks.shp
Browse
Add result to canvas
0%
OK
Close

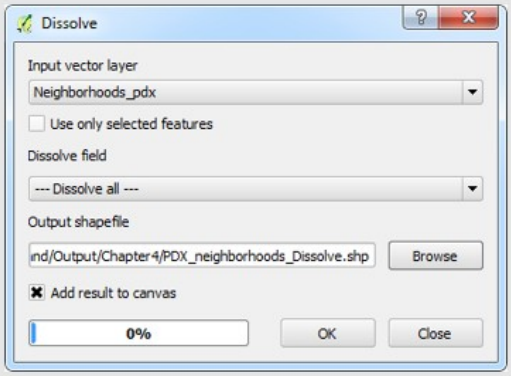
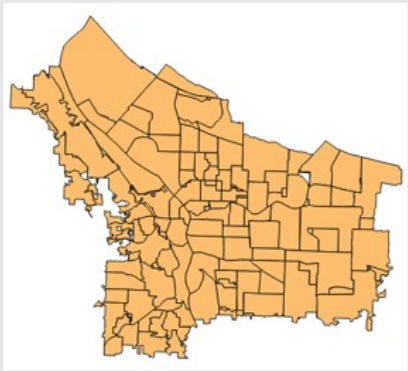
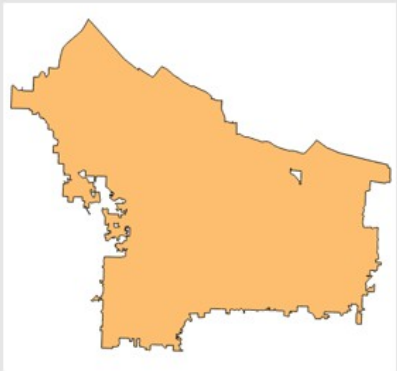
	Input	Output
Intersect		
Symmetrical Difference		




Buffer(s)
Input vector layer
Portland_FireStations
Use only selected features
Segments to approximate
20
Buffer distance
5280
Buffer distance field
STATION
Dissolve buffer results
Output shapefile
and/Output/Chapter4/Portland_FireStations_buffer.shp
Browse
Add result to canvas
0%
OK
Close

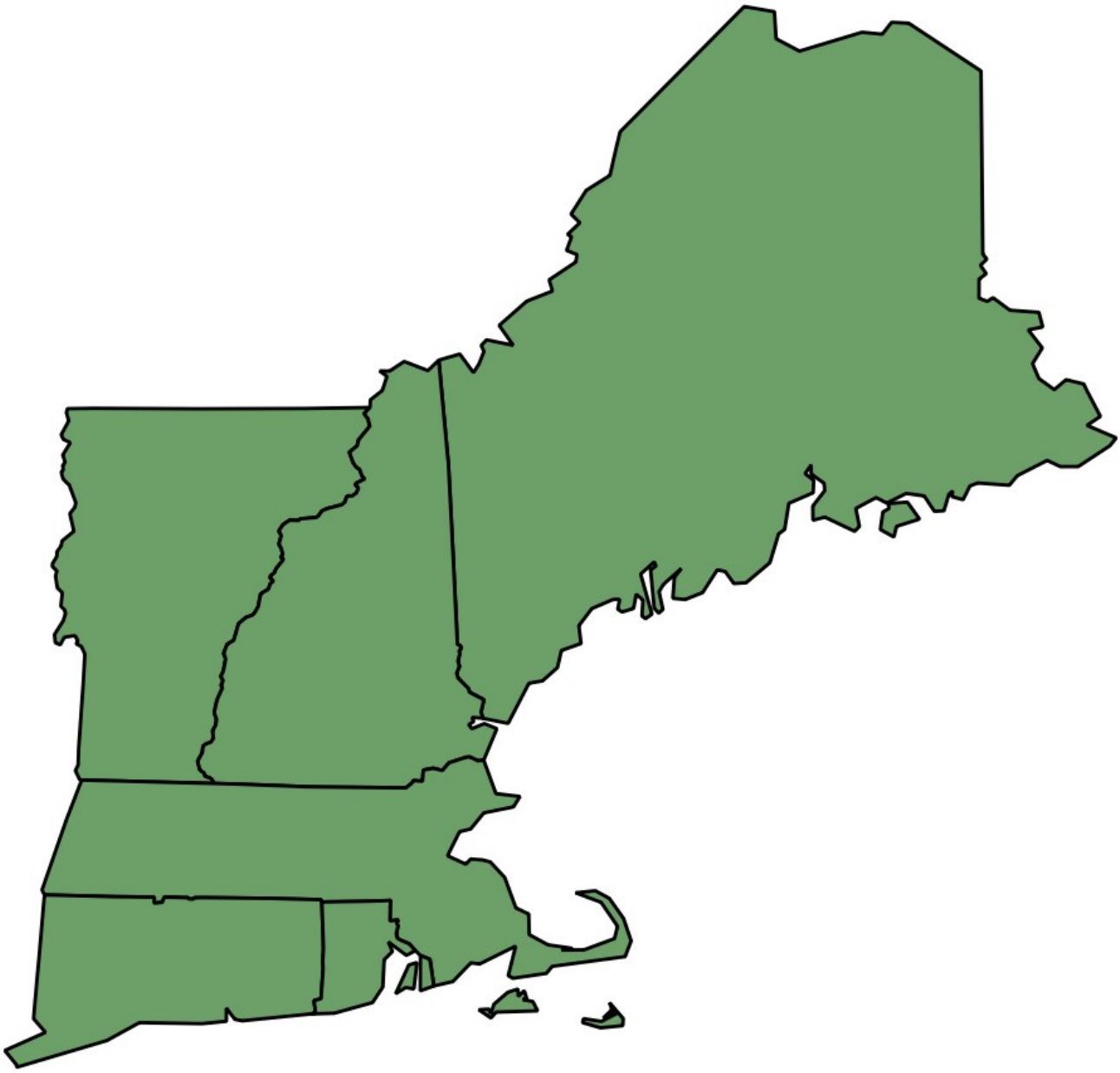

QGIS f2b7c0f - Buffer
Project
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Web
Processing
Help
Layers
Portland_FireStations
fire_sta
Portland_FireStations_buffer
PDX_city_limits
Layers
Browser
Coordinate:
7628940,734887
Scale
1:177,340
Render
EPSG:2913



Tool	Input	Output
		

USA_Eckert_IV

+proj=eck4 +lon_0=-96.0 +x_0=0 +y_0=0 +datum=WGS84 +units=m +no_defs



Add new CRS | Remove

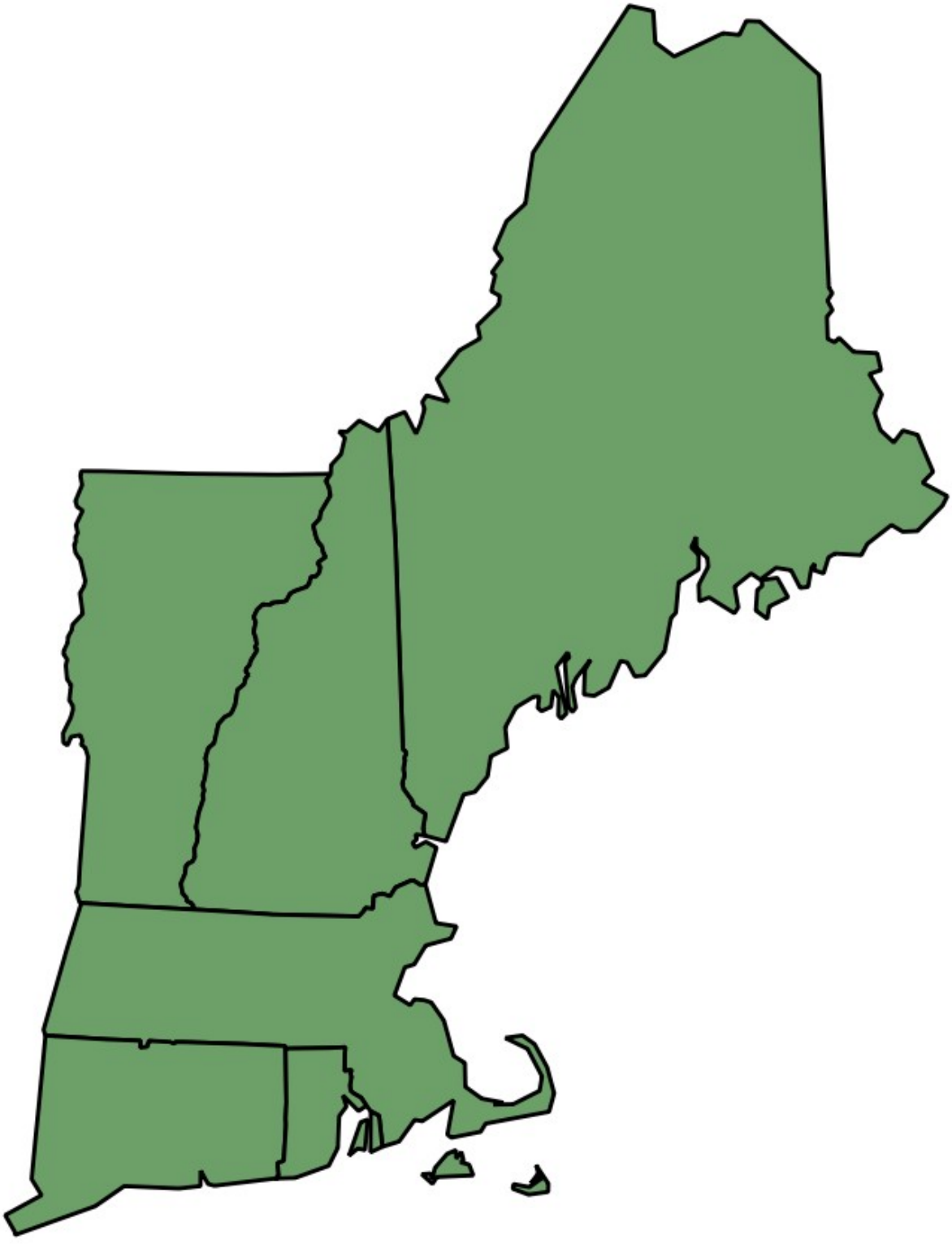
Name: New England Albers Equal Area Conic

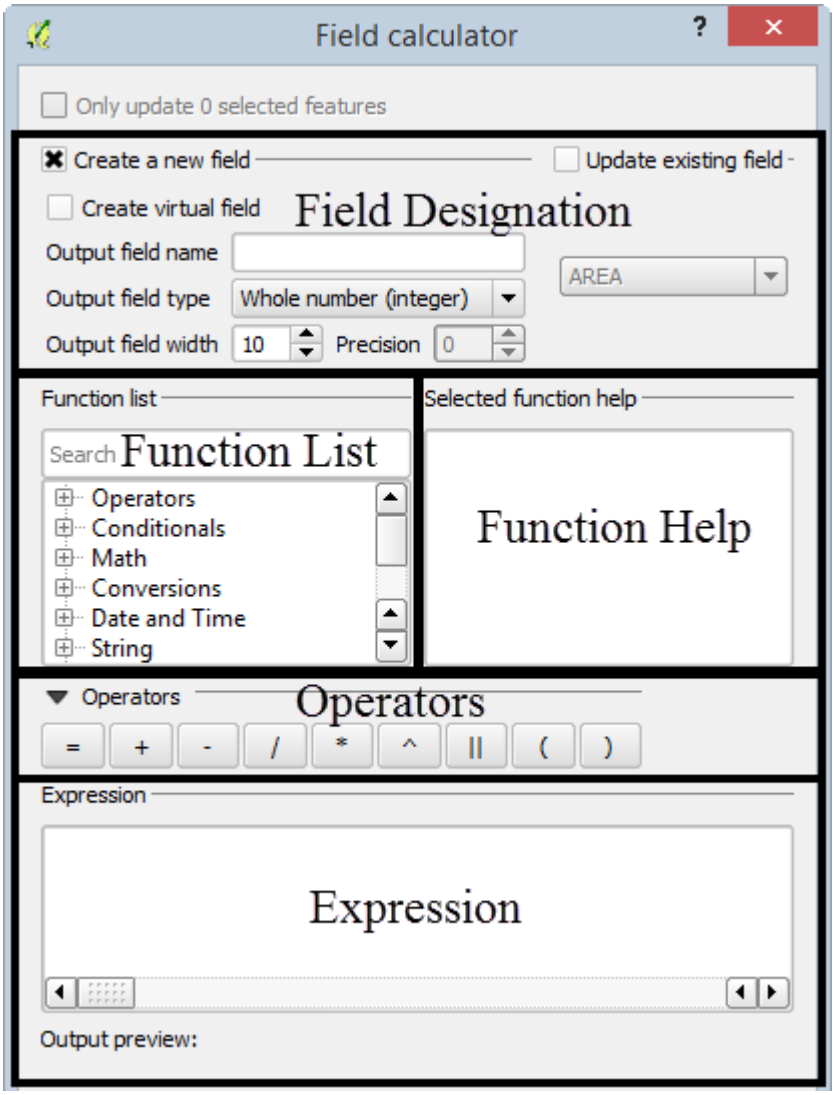
Parameters: +proj=aea +lat_1=42.5 +lat_2=45 +lat_0=43.75 +lon_0=-71 +x_0=0 +y_0=0 +datum=NAD83 +units=m +no_defs

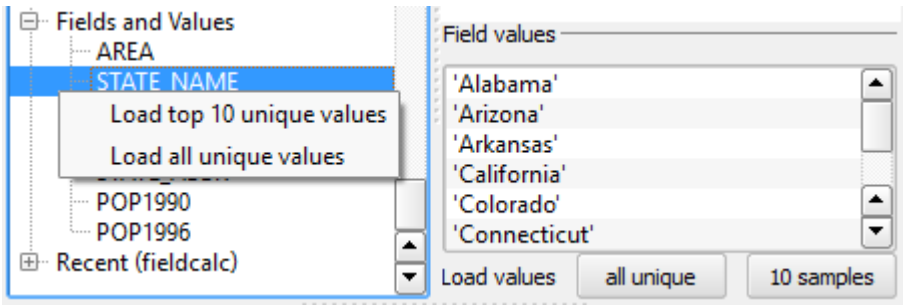
Copy existing CRS

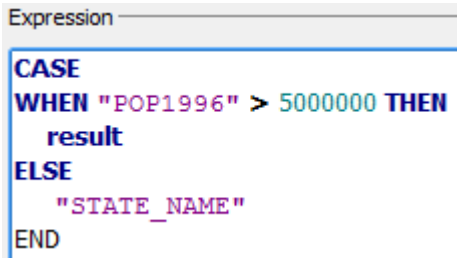
User Defined Coordinate Systems

New England Albers Equal Area Conic




Field calculator
Only update 0 selected features
Create a new field
Update existing field
Create virtual field
Field Designation
Output field name
AREA
Output field type
Whole number (integer)
Output field width
10
Precision
0
Function list
Selected function help
Search
Function List
Operators
Conditionals
Math
Conversions
Date and Time
String
Function Help
Operators
Operators
=
+
-
/
*
^
||
(
)
Expression
Expression
Output preview:

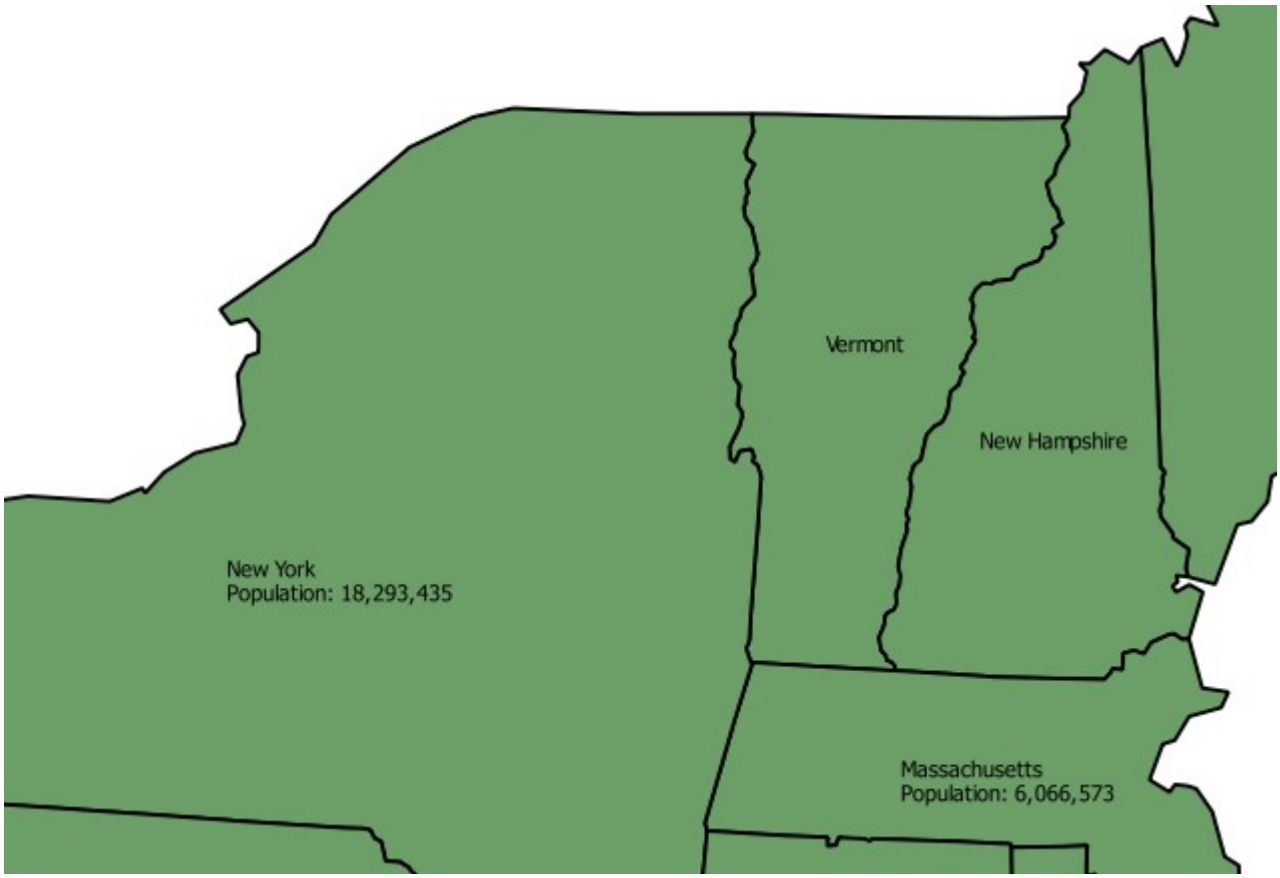

Fields and Values
AREA
STATE_NAME
Load top 10 unique values
Load all unique values
POP1990
POP1996
Recent (fieldcalc)
Field values
'Alabama'
'Arizona'
'Arkansas'
'California'
'Colorado'
'Connecticut'
Load values
all unique
10 samples


Expression
CASE
WHEN "POP1996" > 5000000 THEN
result
ELSE
"STATE_NAME"
END

Expression

```
CASE
WHEN "POP1996" > 5000000 THEN
   "STATE_NAME" || '\nPopulation: ' || format_number( "POP1996",0)
ELSE
   "STATE_NAME"
END
```

Output preview: *Washington*
Population: 5,629,613



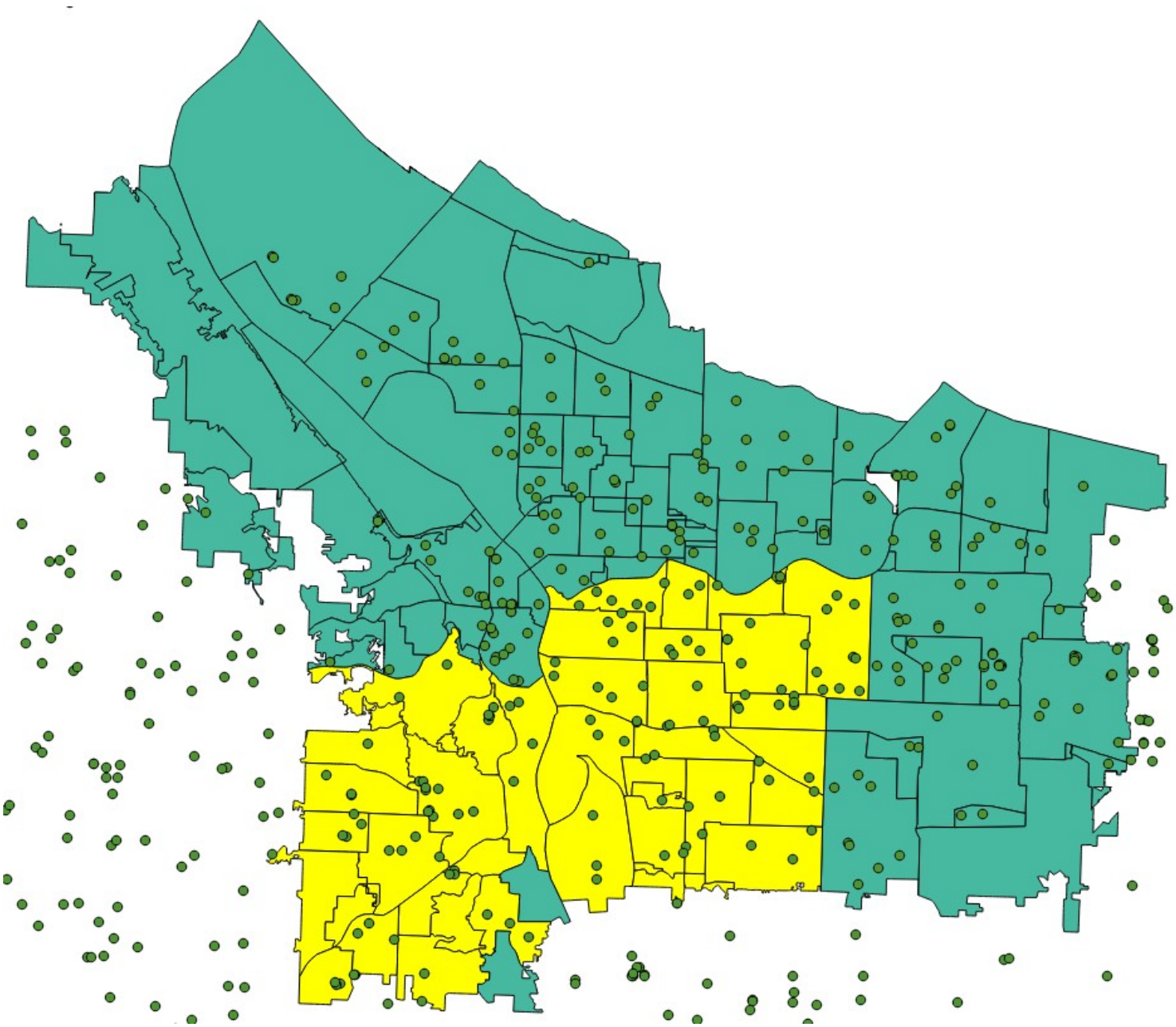
Expression

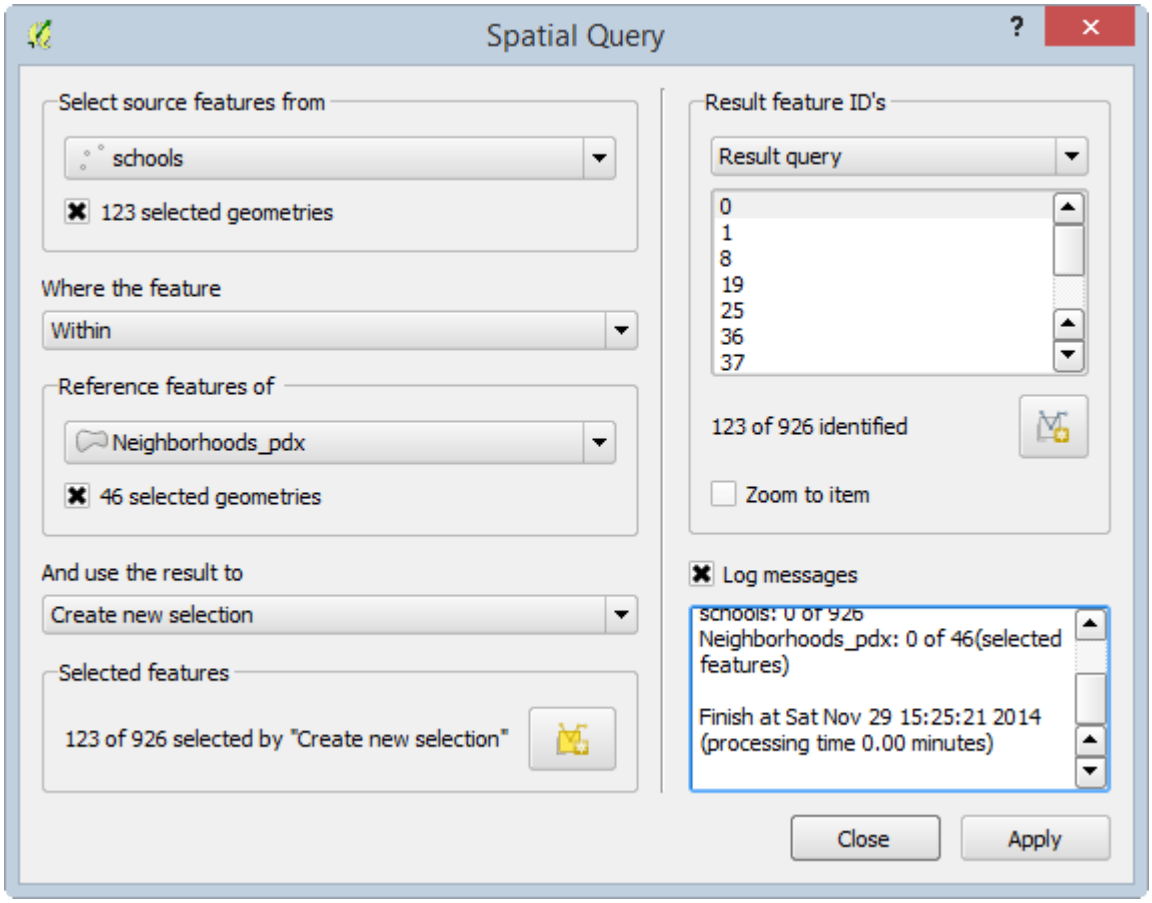
```
format_date( $now , 'dd/MM/yyyy' )
```

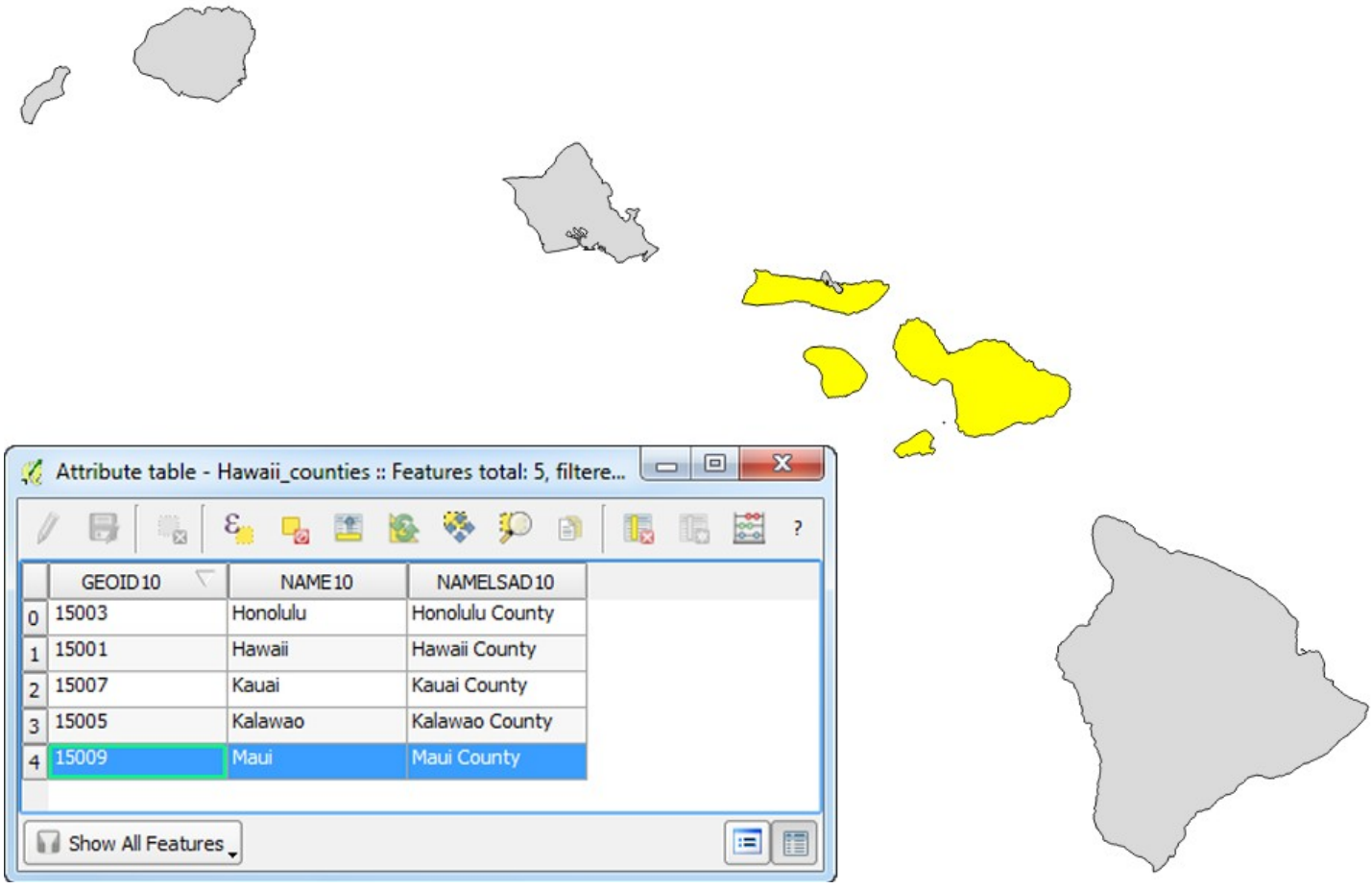
Updated
29/11/2014
29/11/2014

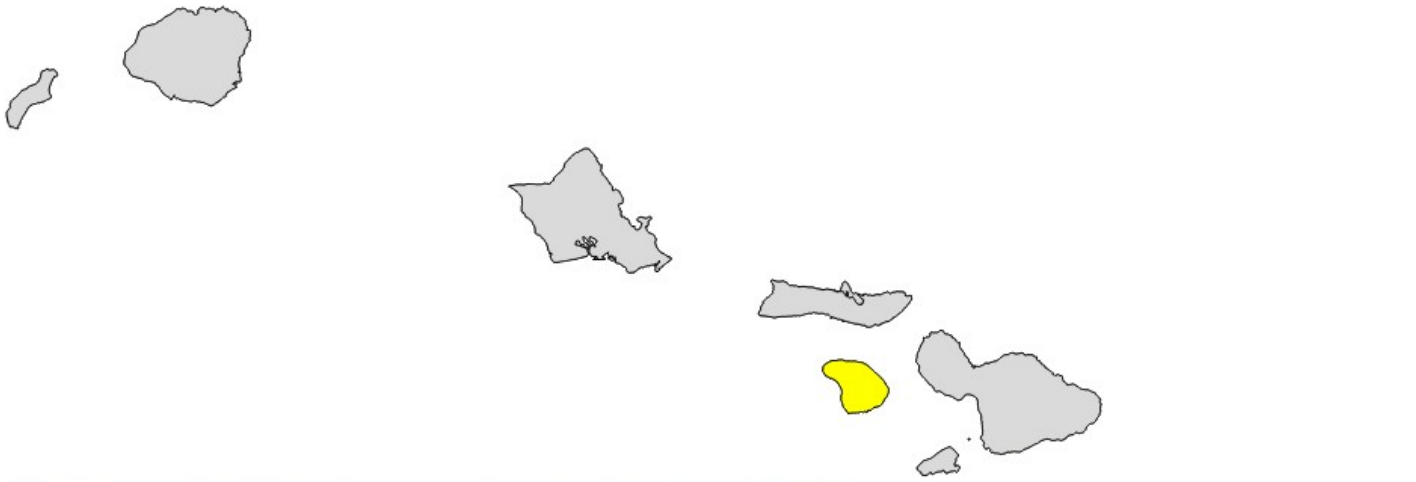
Expression

```
"COALIT" = 'SEUL' OR "COALIT" = 'SWNI'
```




Spatial Query
Select source features from
schools
123 selected geometries
Where the feature
Within
Reference features of
Neighborhoods_pdx
46 selected geometries
And use the result to
Create new selection
Selected features
123 of 926 selected by "Create new selection"
Result feature ID's
Result query
0
1
8
19
25
36
37
123 of 926 identified
Zoom to item
Log messages
schools: 0 of 926
Neighborhoods_pdx: 0 of 46(selected features)
Finish at Sat Nov 29 15:25:21 2014
(processing time 0.00 minutes)
Close
Apply


Attribute table - Hawaii_counties :: Features total: 5, filtere...
GEOID10
NAME10
NAMELSAD10
0 15003 Honolulu Honolulu County
1 15001 Hawaii Hawaii County
2 15007 Kauai Kauai County
3 15005 Kalawao Kalawao County
4 15009 Maui Maui County
Show All Features



Attribute table - hawaiimultipart :: Features total: 32, filtere...

	GEOID10	NAME10	NAMELSAD10
15	15009	Maui	Maui County
16	15009	Maui	Maui County
17	15009	Maui	Maui County
18	15009	Maui	Maui County
19	15009	Maui	Maui County

Show All Features

Singleparts to multipart

Input line or polygon vector layer

Hawaii_counties

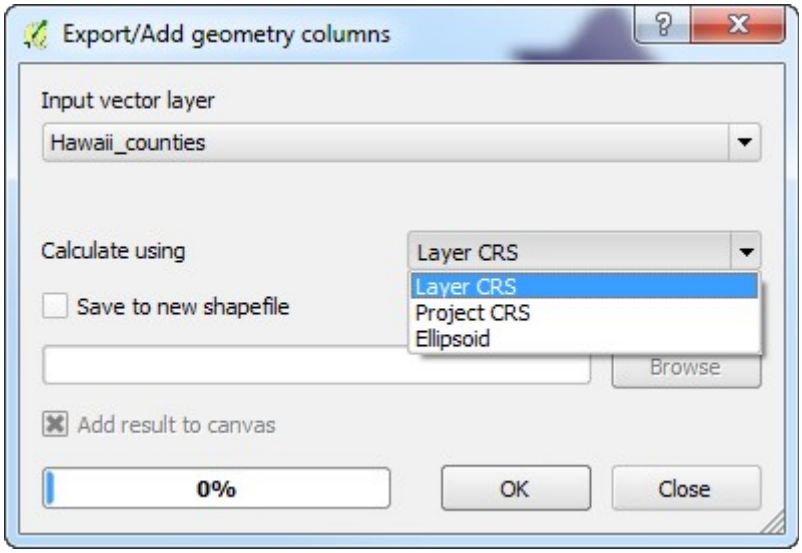
Unique ID field NAME10

Output shapefile

D:/Hawaii Counties.shp Browse

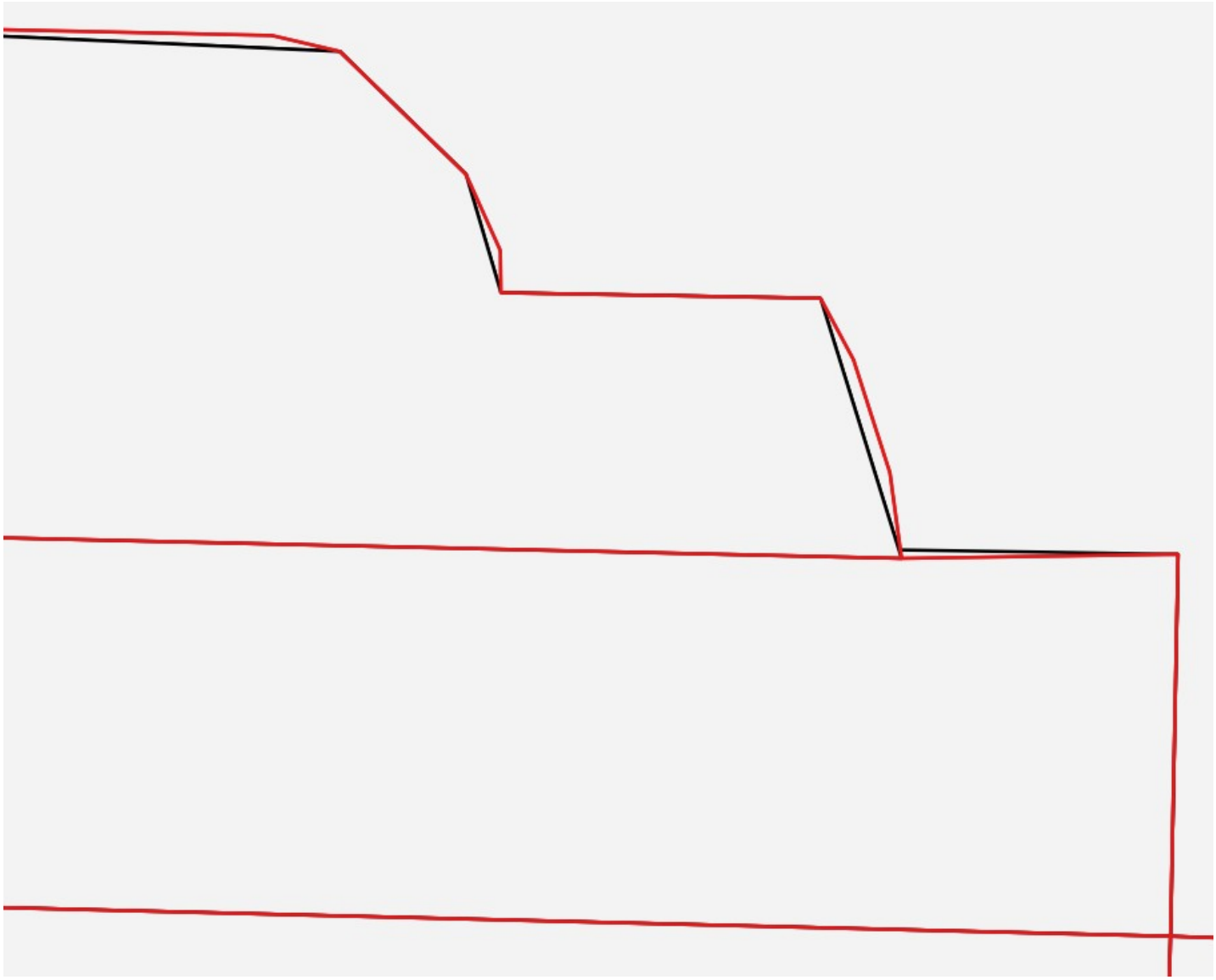
Add result to canvas

0% OK Close

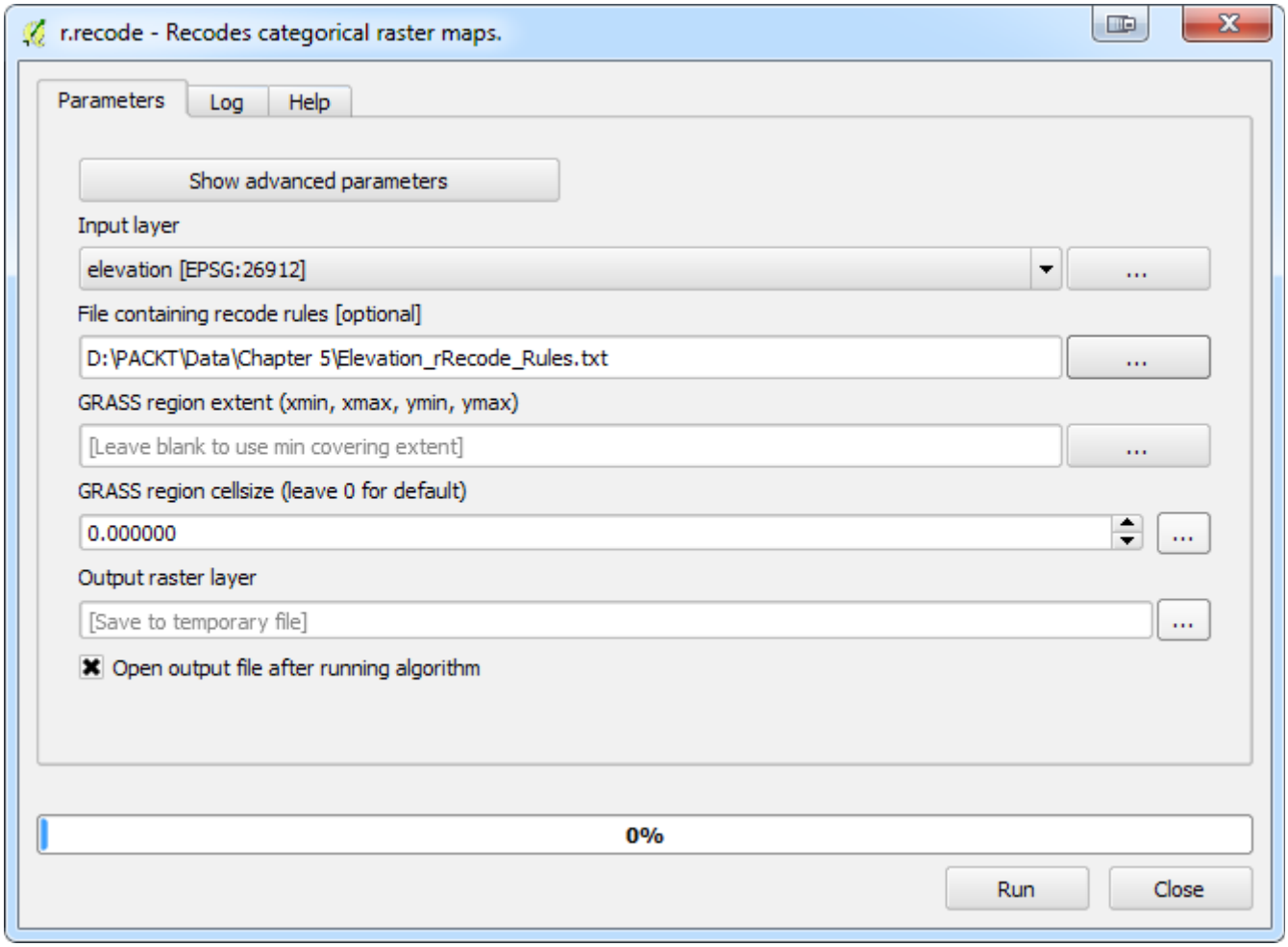


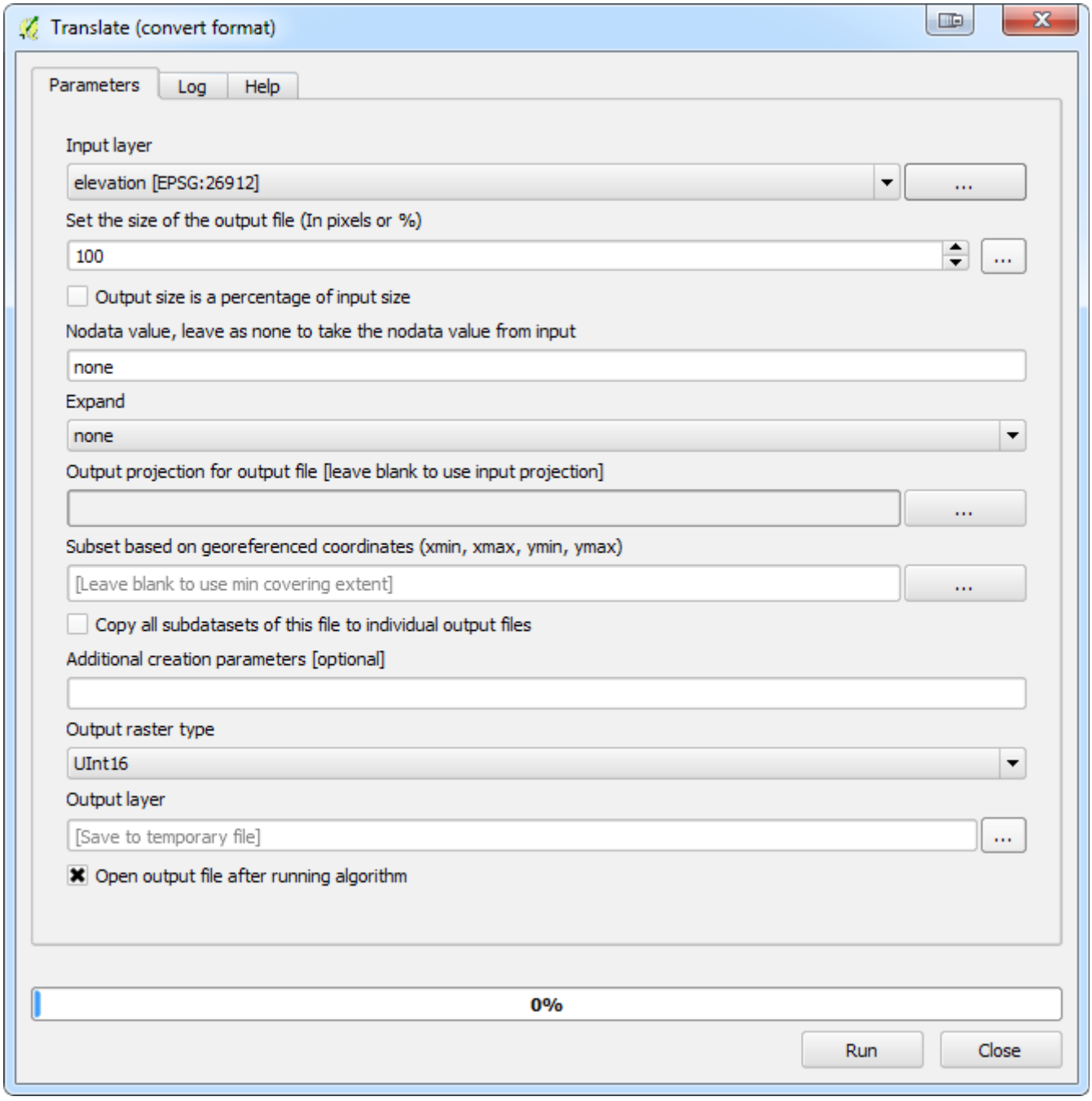
XCoord
7610162.7910105
7630980.8126640

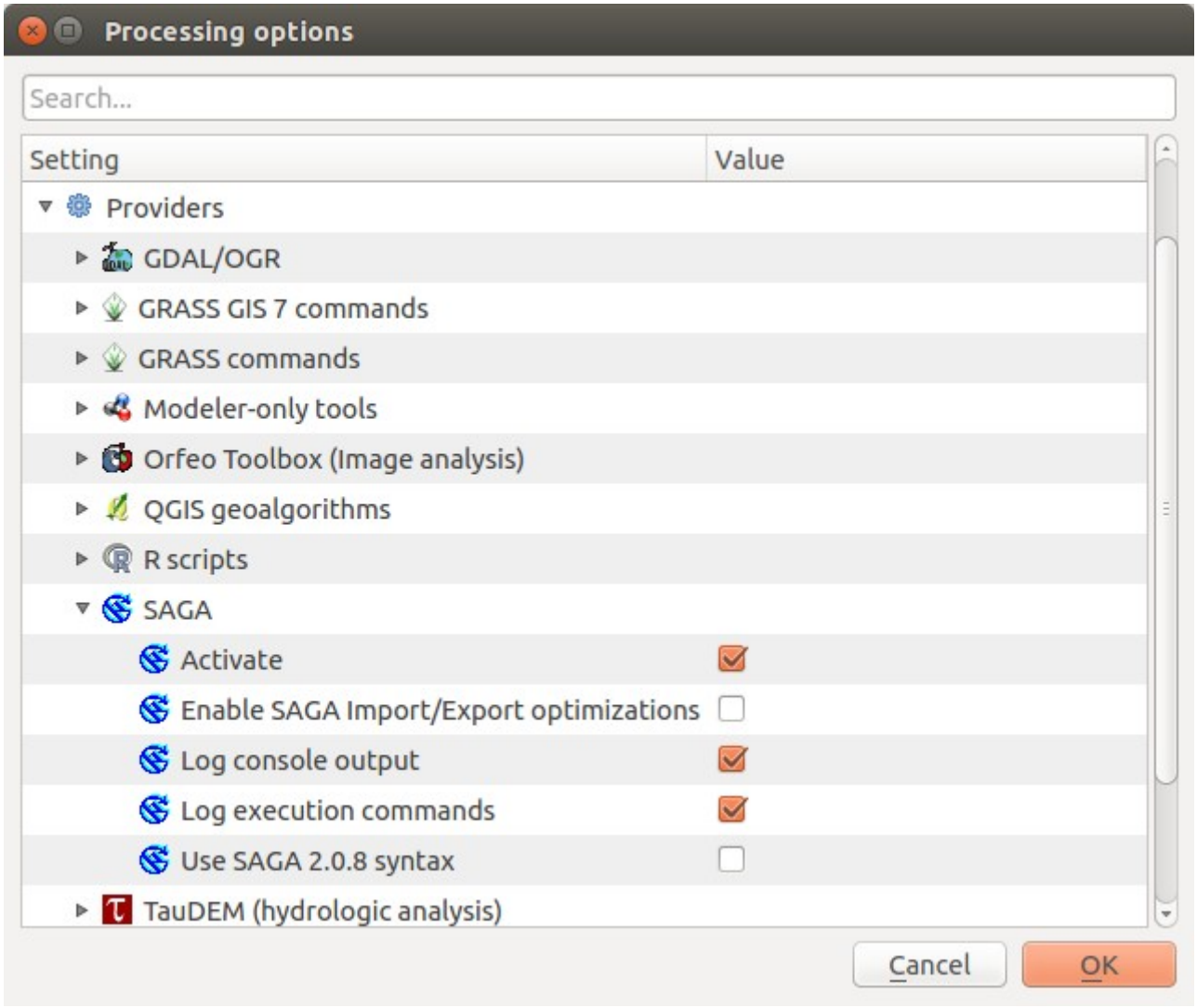
XCoord1	XCoord2
7644082.2869363	7644085.7078612
7626380.5004895	7626208.0759656

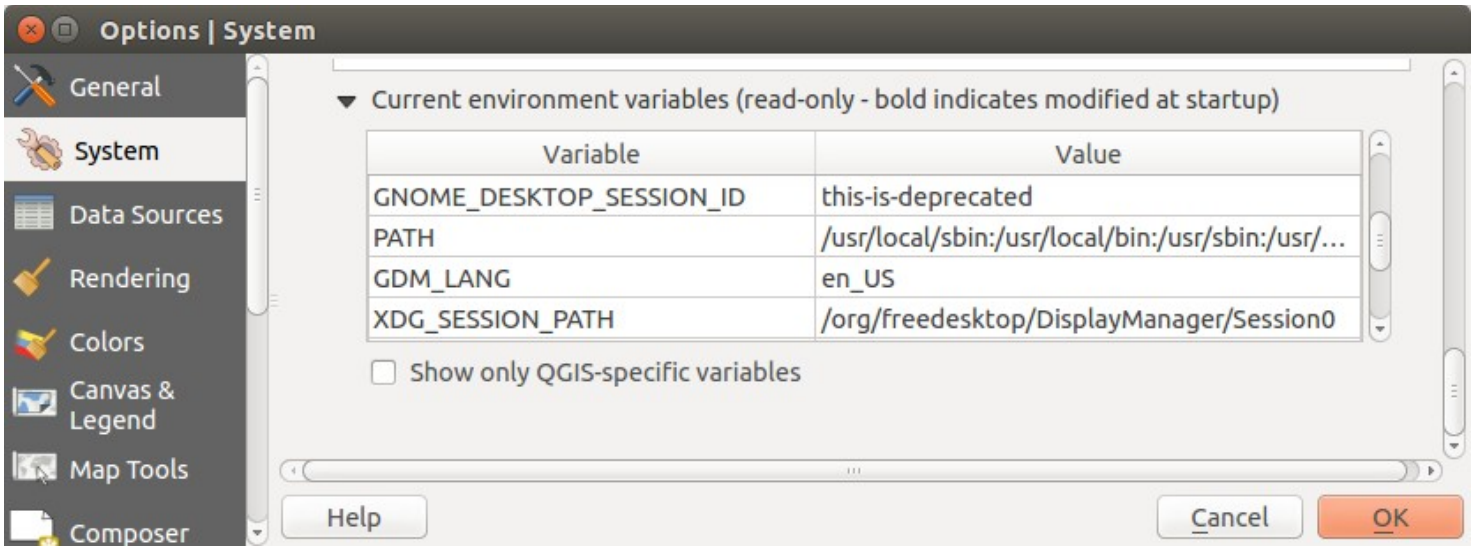


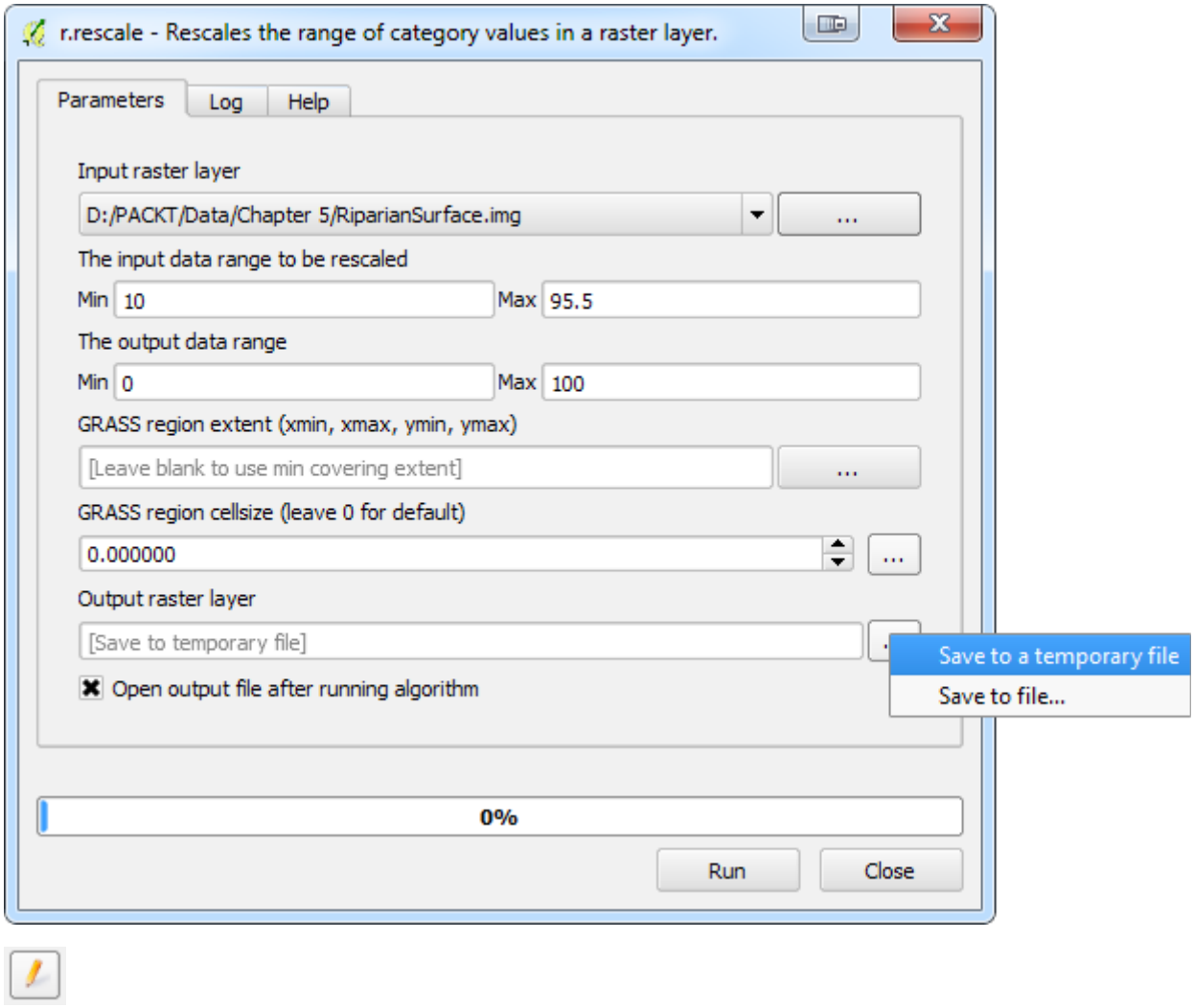
Chapter 5: Preparing Raster Data for Processing

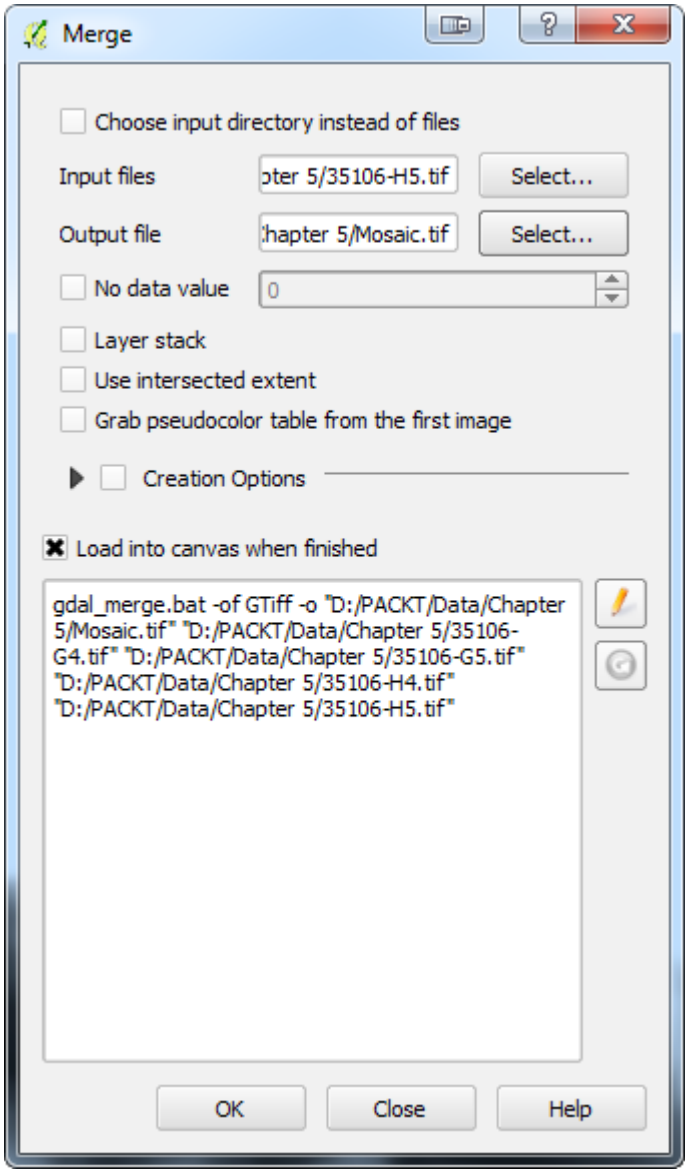

r.recode - Recodes categorical raster maps.
Parameters
Log
Help
Show advanced parameters
Input layer
elevation [EPSG:26912]
...
File containing recode rules [optional]
D:\PACKT\Data\Chapter 5\Elevation_rRecode_Rules.txt
...
GRASS region extent (xmin, xmax, ymin, ymax)
[Leave blank to use min covering extent]
...
GRASS region cellsize (leave 0 for default)
0.000000
...
Output raster layer
[Save to temporary file]
...
Open output file after running algorithm
0%
Run
Close

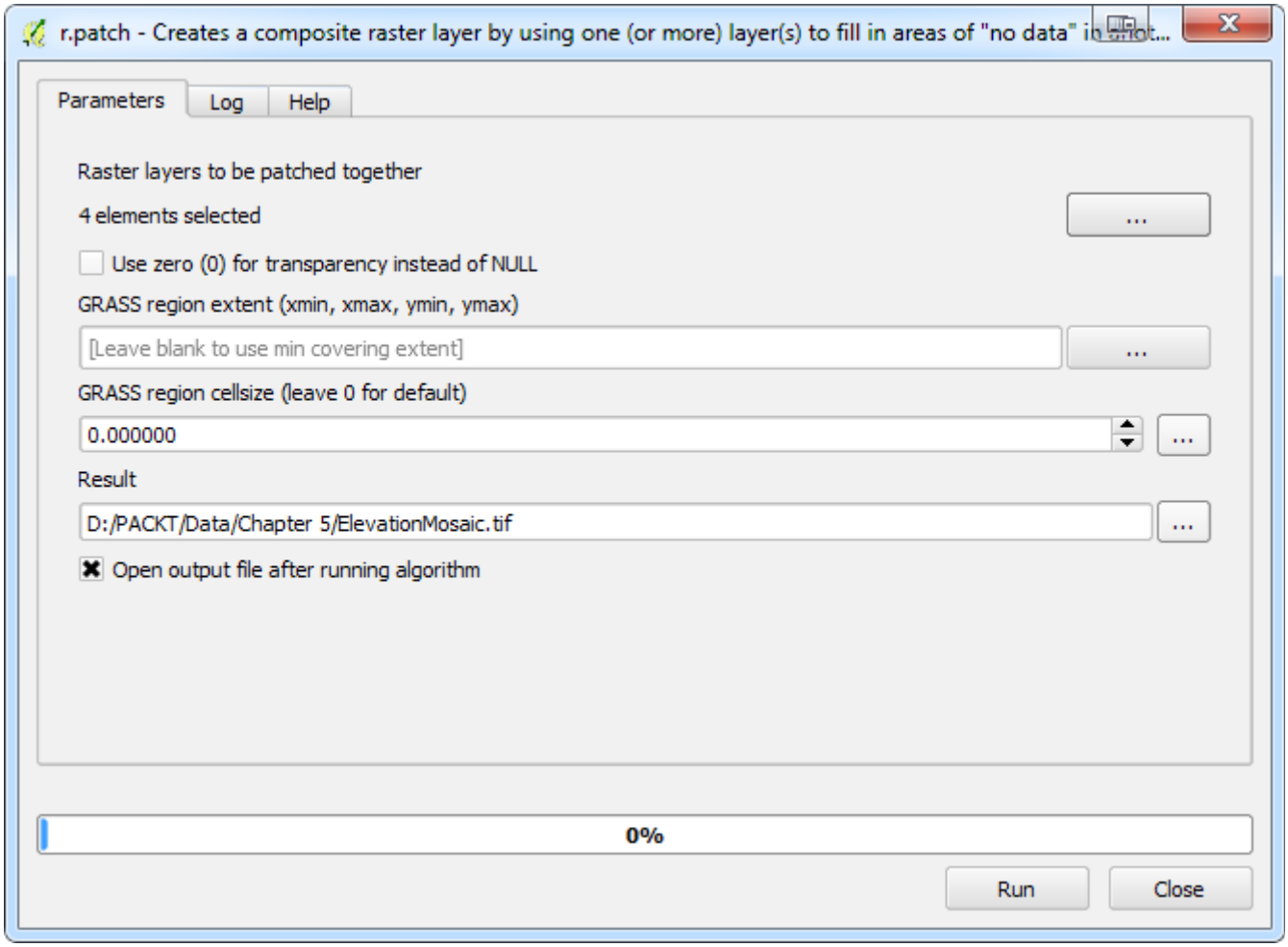

Translate (convert format)
Parameters
Log
Help
Input layer
elevation [EPSG:26912]
...
Set the size of the output file (In pixels or %)
100
...
Output size is a percentage of input size
Nodata value, leave as none to take the nodata value from input
none
Expand
none
Output projection for output file [leave blank to use input projection]
...
Subset based on georeferenced coordinates (xmin, xmax, ymin, ymax)
[Leave blank to use min covering extent]
...
Copy all subdatasets of this file to individual output files
Additional creation parameters [optional]
Output raster type
UInt16
Output layer
[Save to temporary file]
...
Open output file after running algorithm
0%
Run
Close

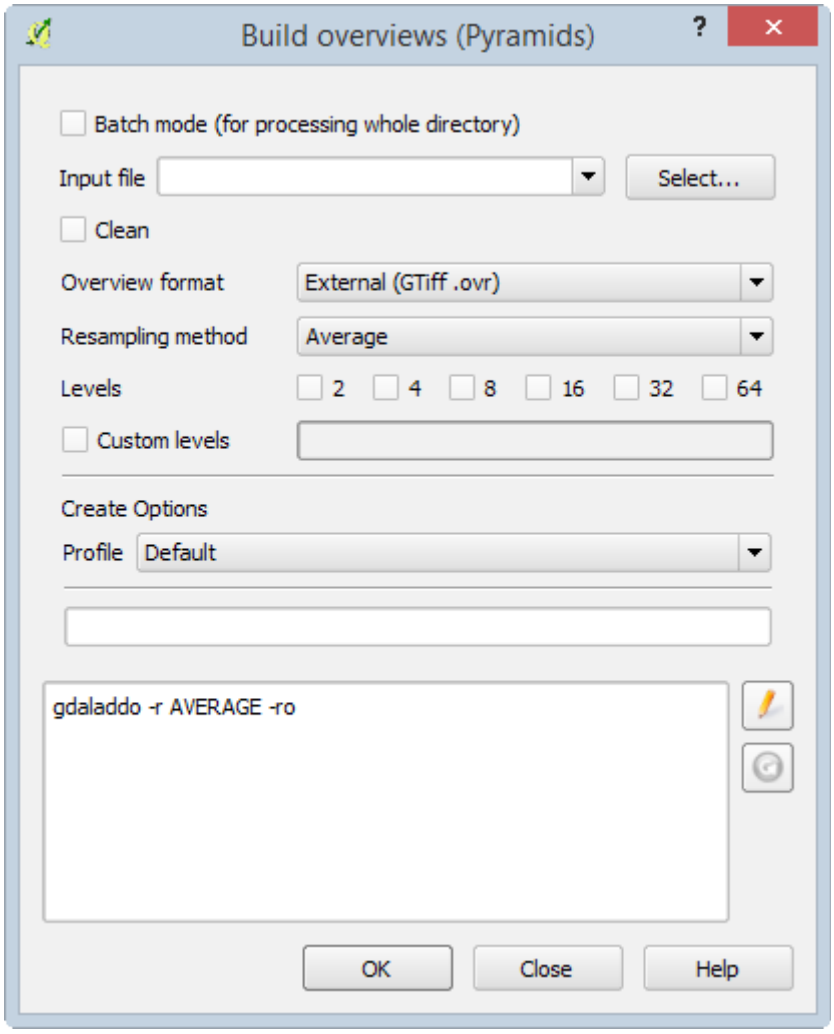

Processing options
Search...
Setting
Value
Providers
GDAL/OGR
GRASS GIS 7 commands
GRASS commands
Modeler-only tools
Orfeo Toolbox (Image analysis)
QGIS geoalgorithms
R scripts
SAGA
Activate
Enable SAGA Import/Export optimizations
Log console output
Log execution commands
Use SAGA 2.0.8 syntax
TauDEM (hydrologic analysis)
Cancel
OK

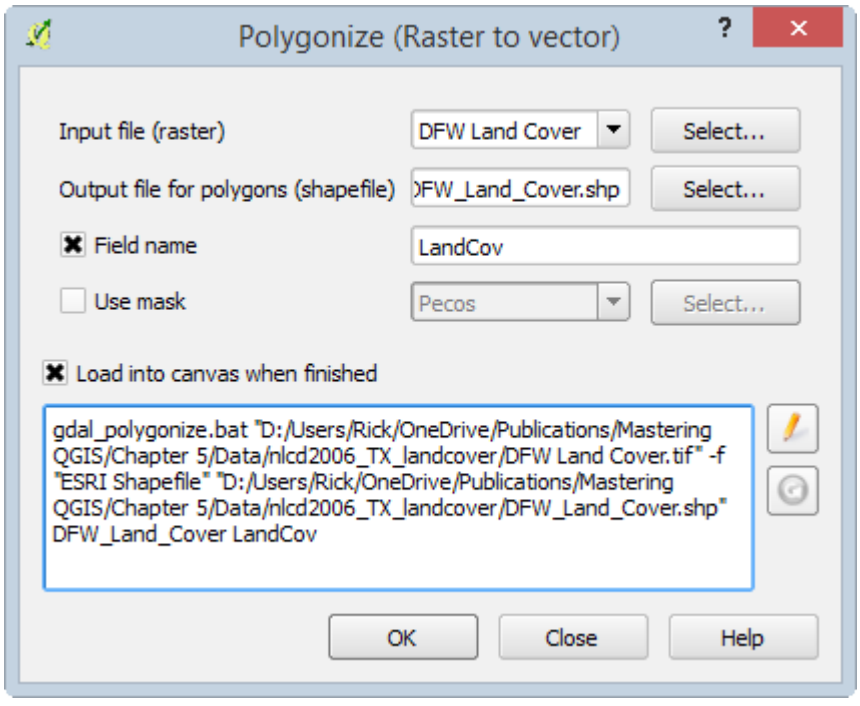

Options | System
General
System
Data Sources
Rendering
Colors
Canvas & Legend
Map Tools
Composer
Current environment variables (read-only - bold indicates modified at startup)
Variable
Value
GNOME_DESKTOP_SESSION_ID
this-is-deprecated
PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/...
GDM_LANG
en_US
XDG_SESSION_PATH
/org/freedesktop/DisplayManager/Session0
Show only QGIS-specific variables
Help
Cancel
OK

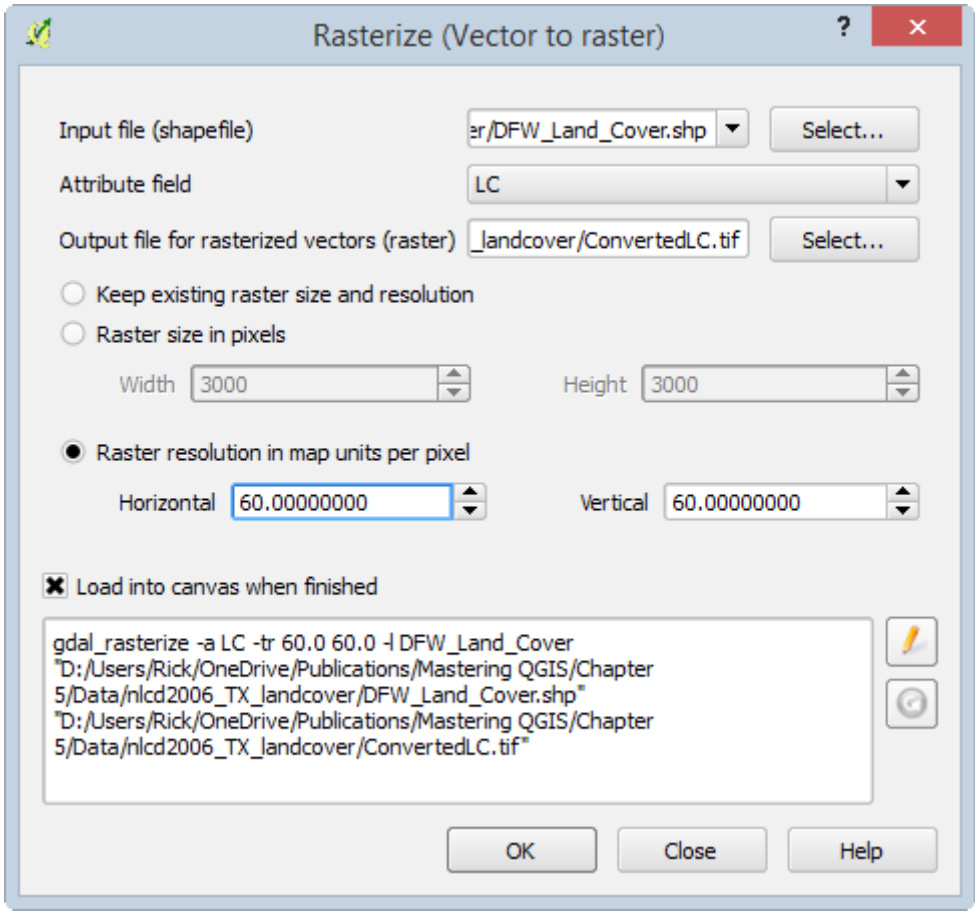

r.rescale - Rescales the range of category values in a raster layer.
Parameters
Log
Help
Input raster layer
D:/PACKT/Data/Chapter 5/RiparianSurface.img
...
The input data range to be rescaled
Min 10
Max 95.5
The output data range
Min 0
Max 100
GRASS region extent (xmin, xmax, ymin, ymax)
[Leave blank to use min covering extent]
...
GRASS region cellsize (leave 0 for default)
0.000000
...
Output raster layer
[Save to temporary file]
Open output file after running algorithm
Save to a temporary file
Save to file...
0%
Run
Close

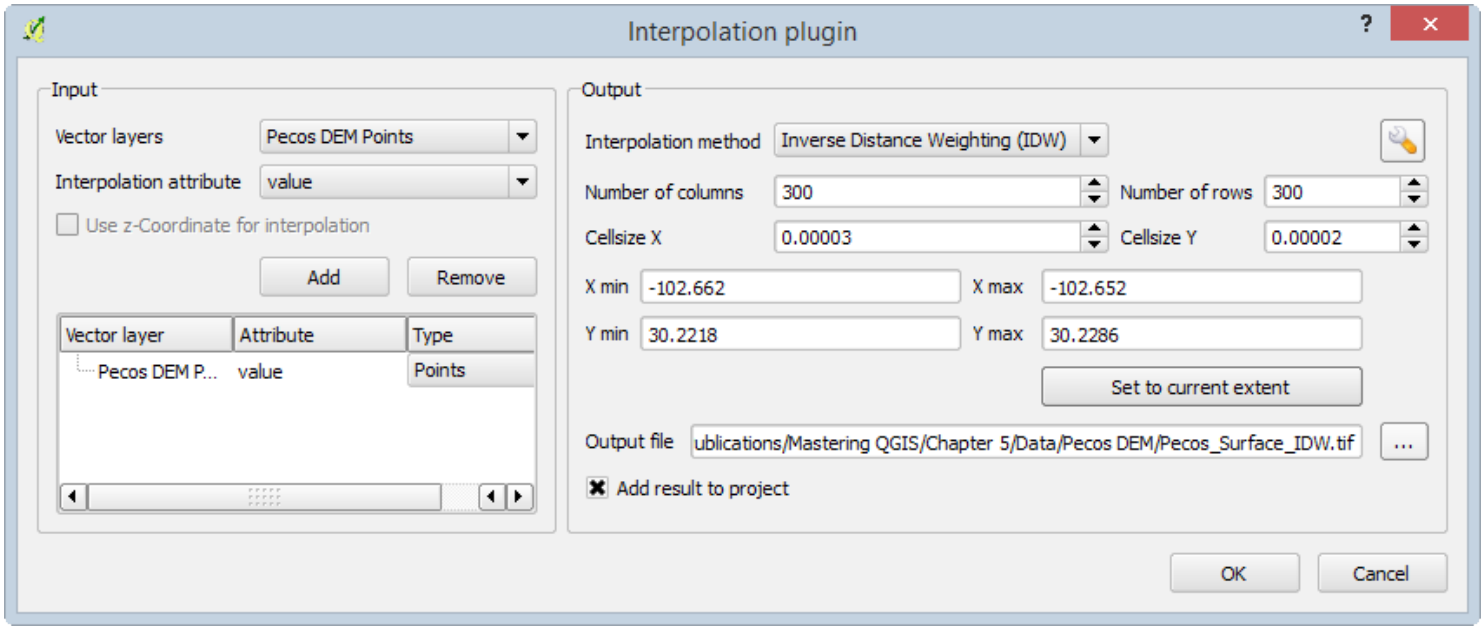

Merge
Choose input directory instead of files
Input files
oter 5/35106-H5.tif
Select...
Output file
:hapter 5/Mosaic.tif
Select...
No data value
0
Layer stack
Use intersected extent
Grab pseudocolor table from the first image
Creation Options
Load into canvas when finished
gdal_merge.bat -of GTiff -o "D:/PACKT/Data/Chapter 5/Mosaic.tif" "D:/PACKT/Data/Chapter 5/35106-G4.tif" "D:/PACKT/Data/Chapter 5/35106-G5.tif" "D:/PACKT/Data/Chapter 5/35106-H4.tif" "D:/PACKT/Data/Chapter 5/35106-H5.tif"
OK
Close
Help

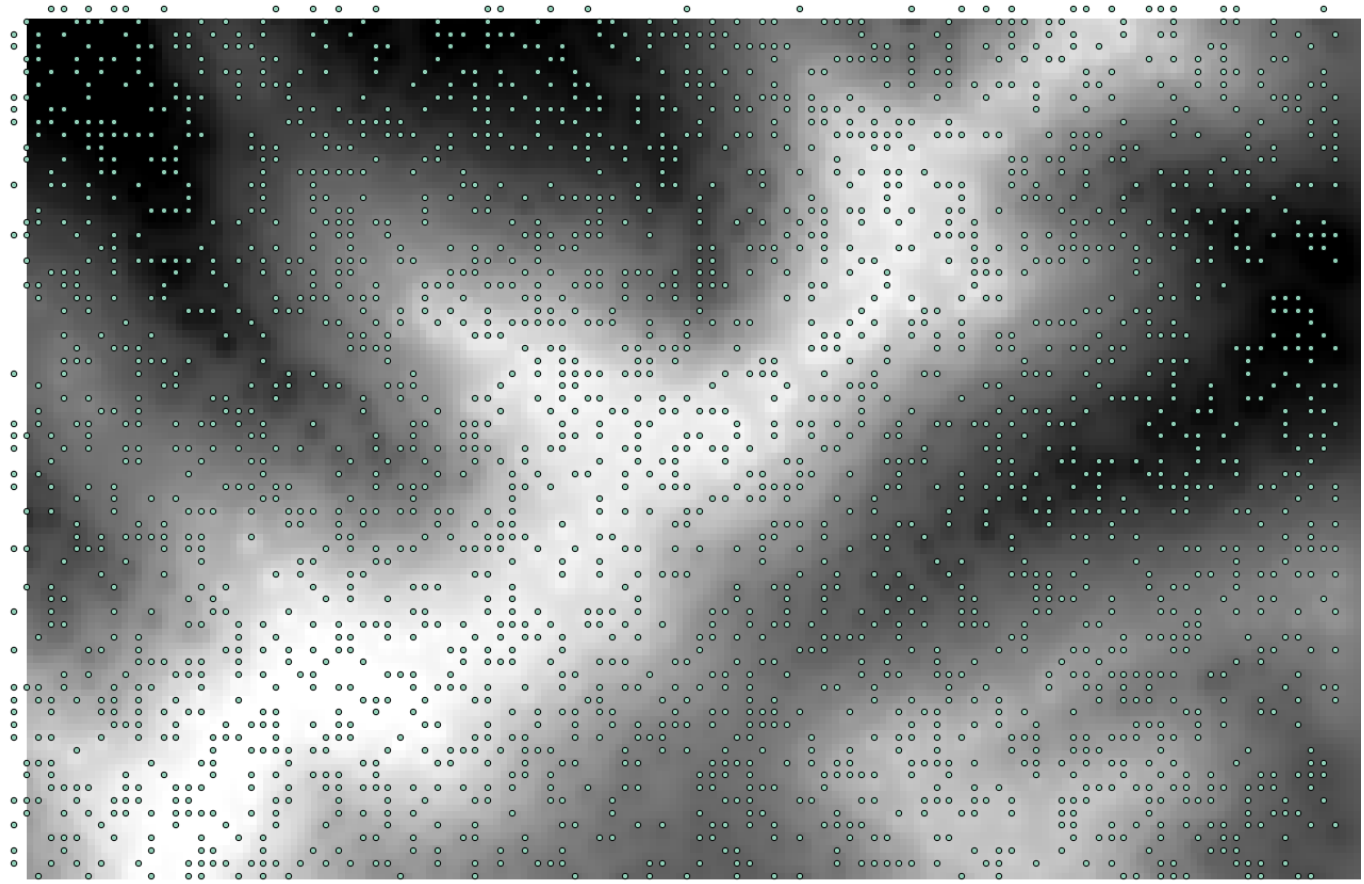

r.patch - Creates a composite raster layer by using one (or more) layer(s) to fill in areas of "no data" in anot...
Parameters
Log
Help
Raster layers to be patched together
4 elements selected
...
Use zero (0) for transparency instead of NULL
GRASS region extent (xmin, xmax, ymin, ymax)
[Leave blank to use min covering extent]
...
GRASS region cellsize (leave 0 for default)
0.000000
...
Result
D:/PACKT/Data/Chapter 5/ElevationMosaic.tif
...
Open output file after running algorithm
0%
Run
Close

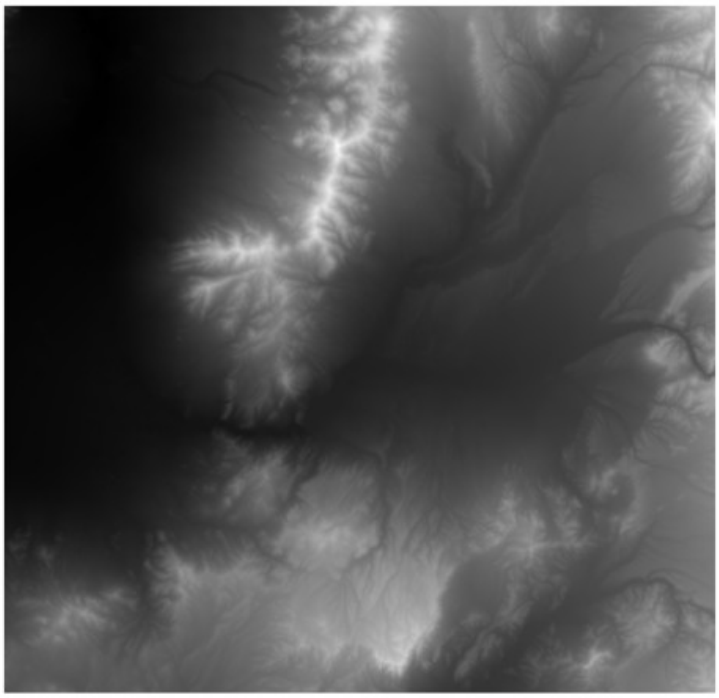

Build overviews (Pyramids)
Batch mode (for processing whole directory)
Input file
Select...
Clean
Overview format
External (GTiff .ovr)
Resampling method
Average
Levels
2
4
8
16
32
64
Custom levels
Create Options
Profile
Default
gdaladdo -r AVERAGE -ro
OK
Close
Help

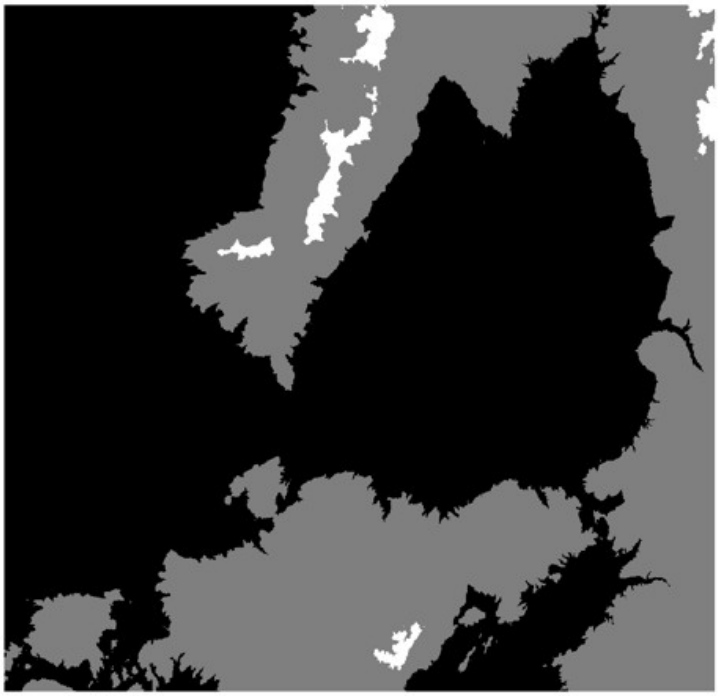

Polygonize (Raster to vector)
Input file (raster)
DFW Land Cover
Select...
Output file for polygons (shapefile)
)FW_Land_Cover.shp
Select...
Field name
LandCov
Use mask
Pecos
Select...
Load into canvas when finished
gdal_polygonize.bat "D:/Users/Rick/OneDrive/Publications/Mastering QGIS/Chapter 5/Data/nlcd2006_TX_landcover/DFW Land Cover.tif" -f "ESRI Shapefile" "D:/Users/Rick/OneDrive/Publications/Mastering QGIS/Chapter 5/Data/nlcd2006_TX_landcover/DFW_Land_Cover.shp" DFW_Land_Cover LandCov
OK
Close
Help

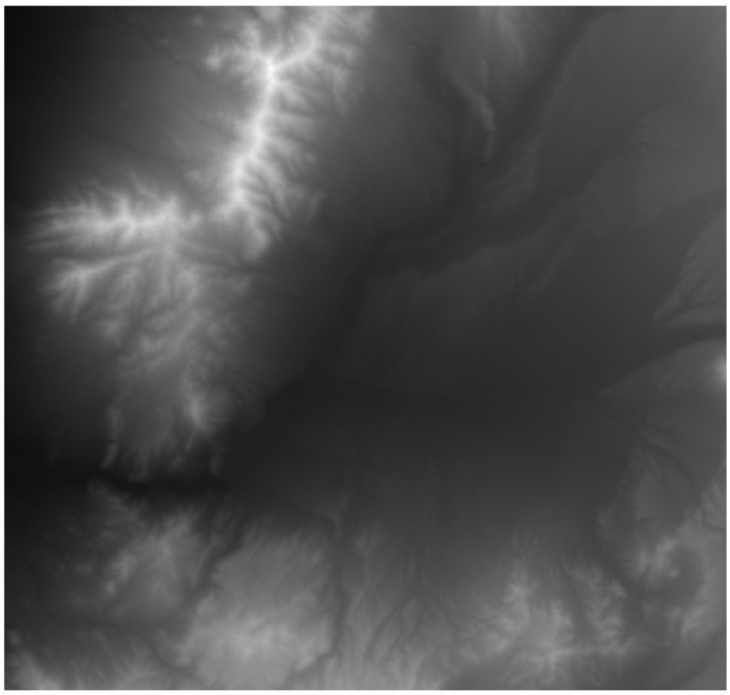

Rasterize (Vector to raster)
Input file (shapefile)
er/DFW_Land_Cover.shp
Select...
Attribute field
LC
Output file for rasterized vectors (raster)
_landcover/ConvertedLC.tif
Select...
Keep existing raster size and resolution
Raster size in pixels
Width
3000
Height
3000
Raster resolution in map units per pixel
Horizontal
60.00000000
Vertical
60.00000000
Load into canvas when finished
gdal_rasterize -a LC -tr 60.0 60.0 -l DFW_Land_Cover
"D:/Users/Rick/OneDrive/Publications/Mastering QGIS/Chapter 5/Data/nlcd2006_TX_landcover/DFW_Land_Cover.shp"
"D:/Users/Rick/OneDrive/Publications/Mastering QGIS/Chapter 5/Data/nlcd2006_TX_landcover/ConvertedLC.tif"
OK
Close
Help

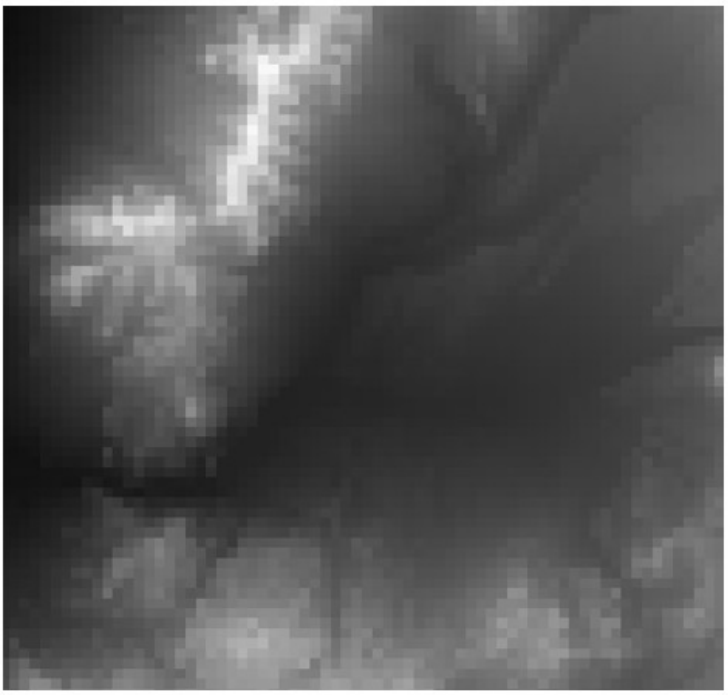

Interpolation plugin
Input
Vector layers
Pecos DEM Points
Interpolation attribute
value
Use z-Coordinate for interpolation
Add
Remove
Vector layer
Attribute
Type
Pecos DEM P...
value
Points
Output
Interpolation method
Inverse Distance Weighting (IDW)
Number of columns
300
Number of rows
300
Cellsize X
0.00003
Cellsize Y
0.00002
X min
-102.662
X max
-102.652
Y min
30.2218
Y max
30.2286
Set to current extent
Output file
ublications/Mastering QGIS/Chapter 5/Data/Pecos DEM/Pecos_Surface_IDW.tif
Add result to project
OK
Cancel

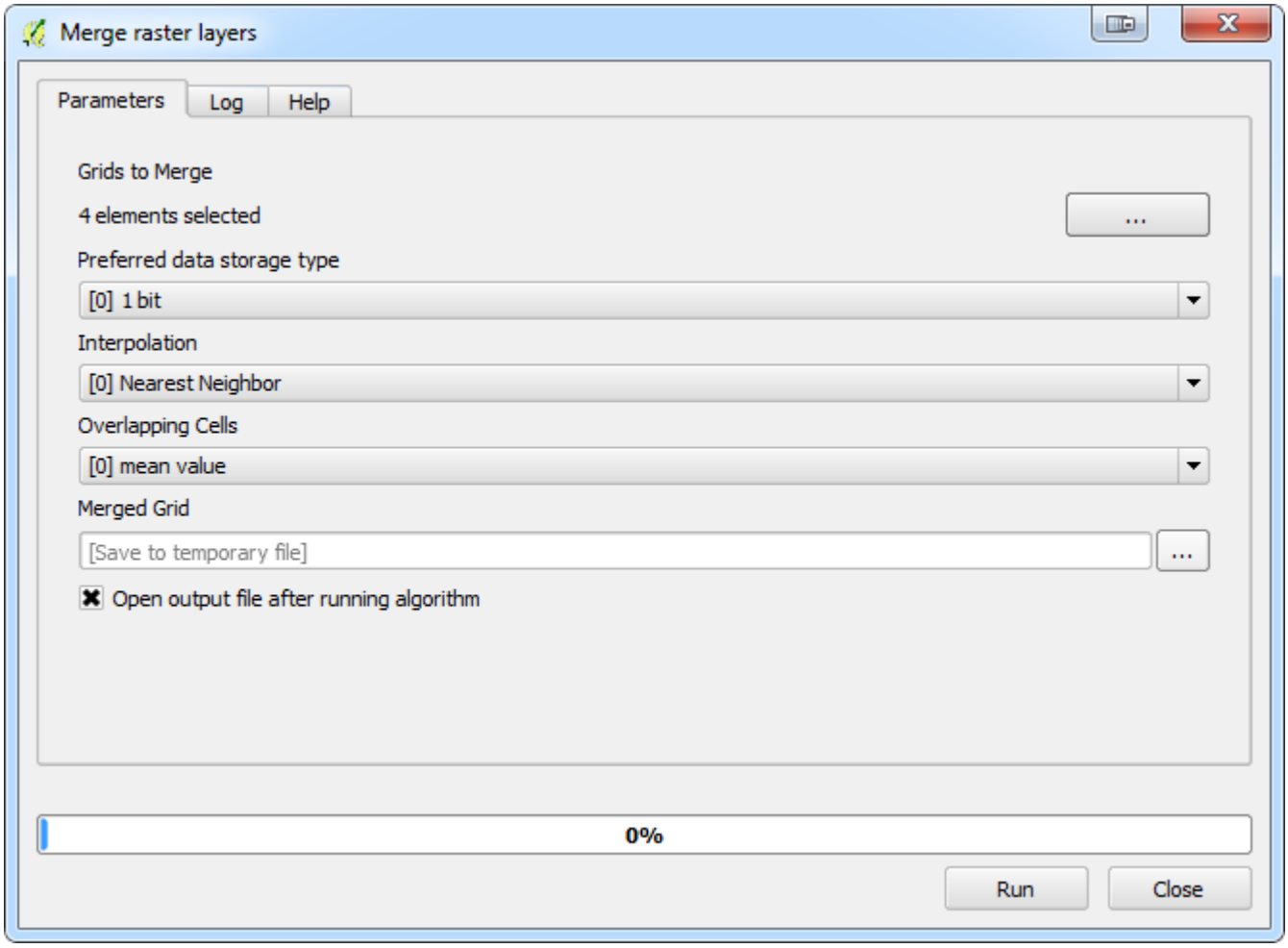






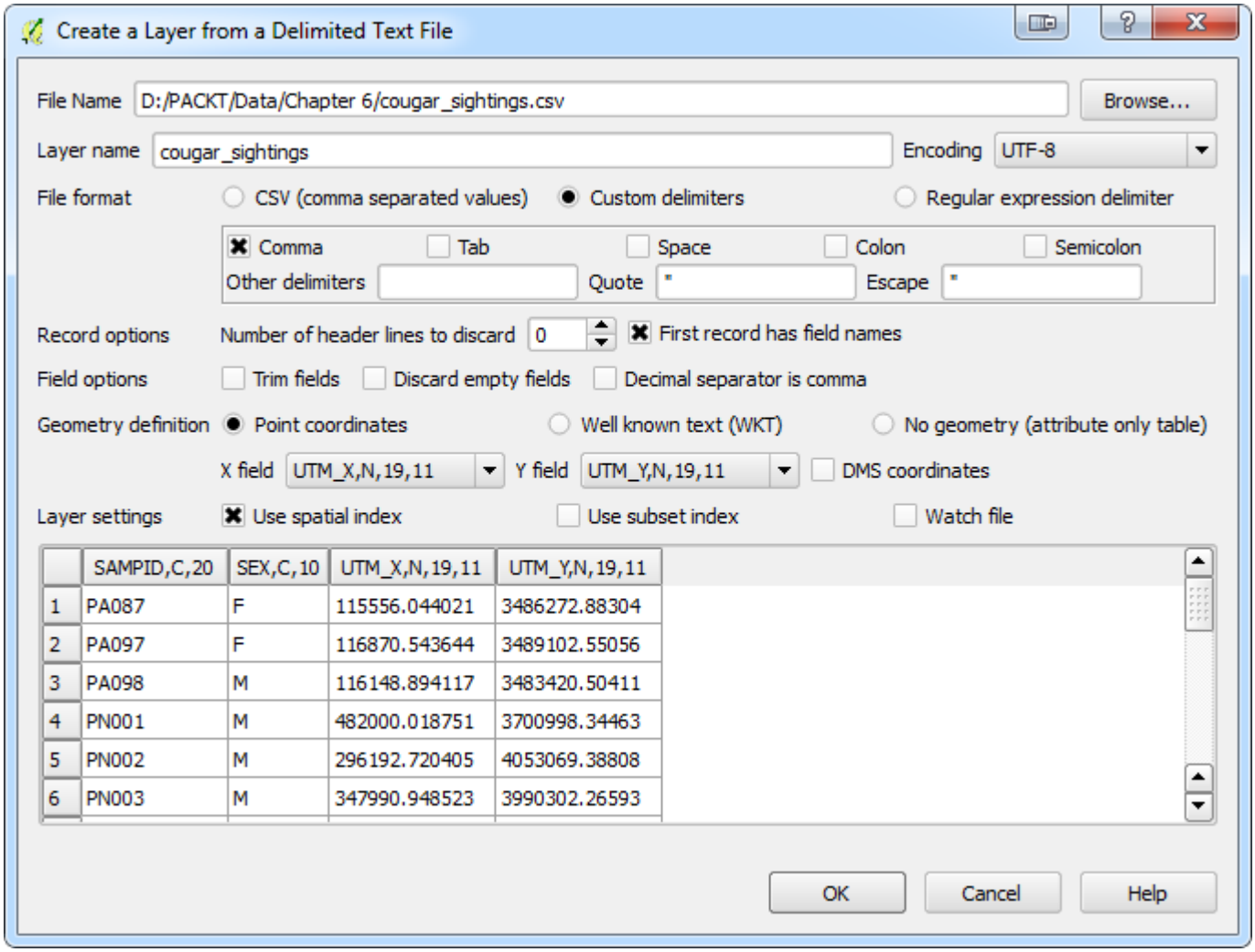


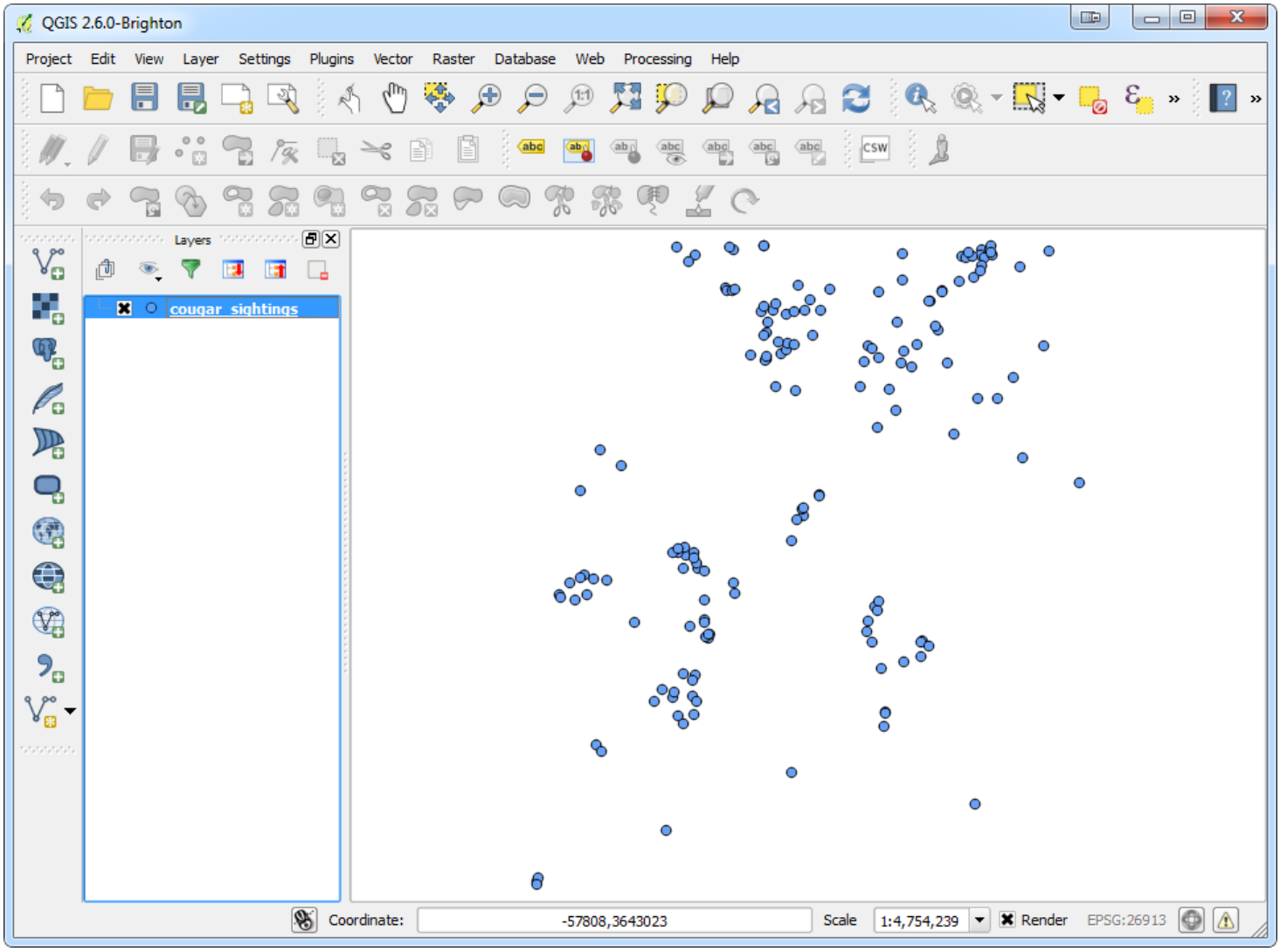


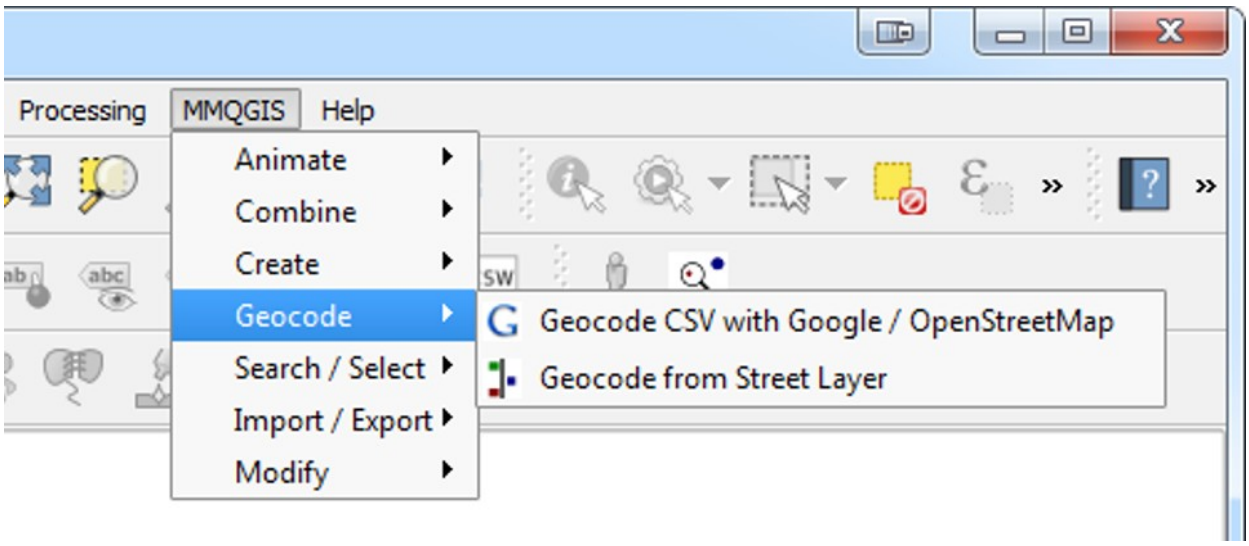

Merge raster layers
Parameters
Log
Help
Grids to Merge
4 elements selected
...
Preferred data storage type
[0] 1 bit
Interpolation
[0] Nearest Neighbor
Overlapping Cells
[0] mean value
Merged Grid
[Save to temporary file]
...
Open output file after running algorithm
0%
Run
Close

Chapter 6: Advanced Data Creation and Editing

```
"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
```

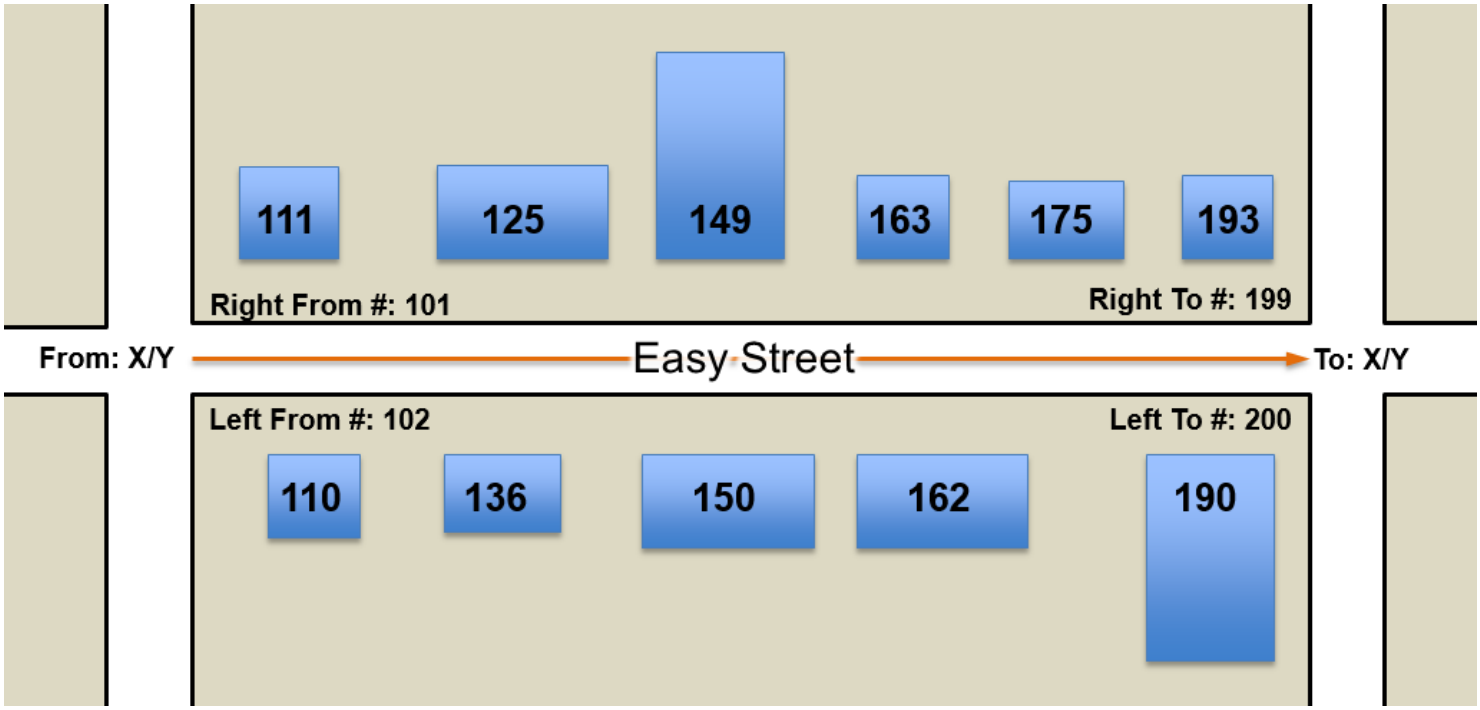


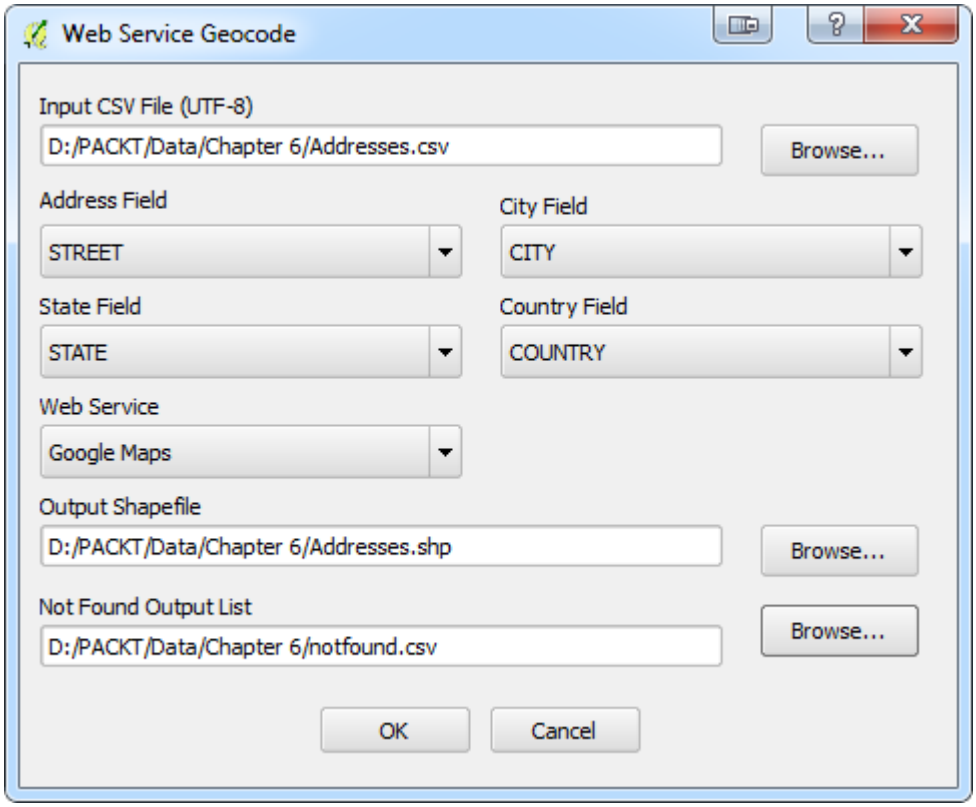

QGIS 2.6.0-Brighton
Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help
Layers
cougar_sightings
Coordinate: -57808,3643023
Scale 1:4,754,239
Render
EPSG:26913

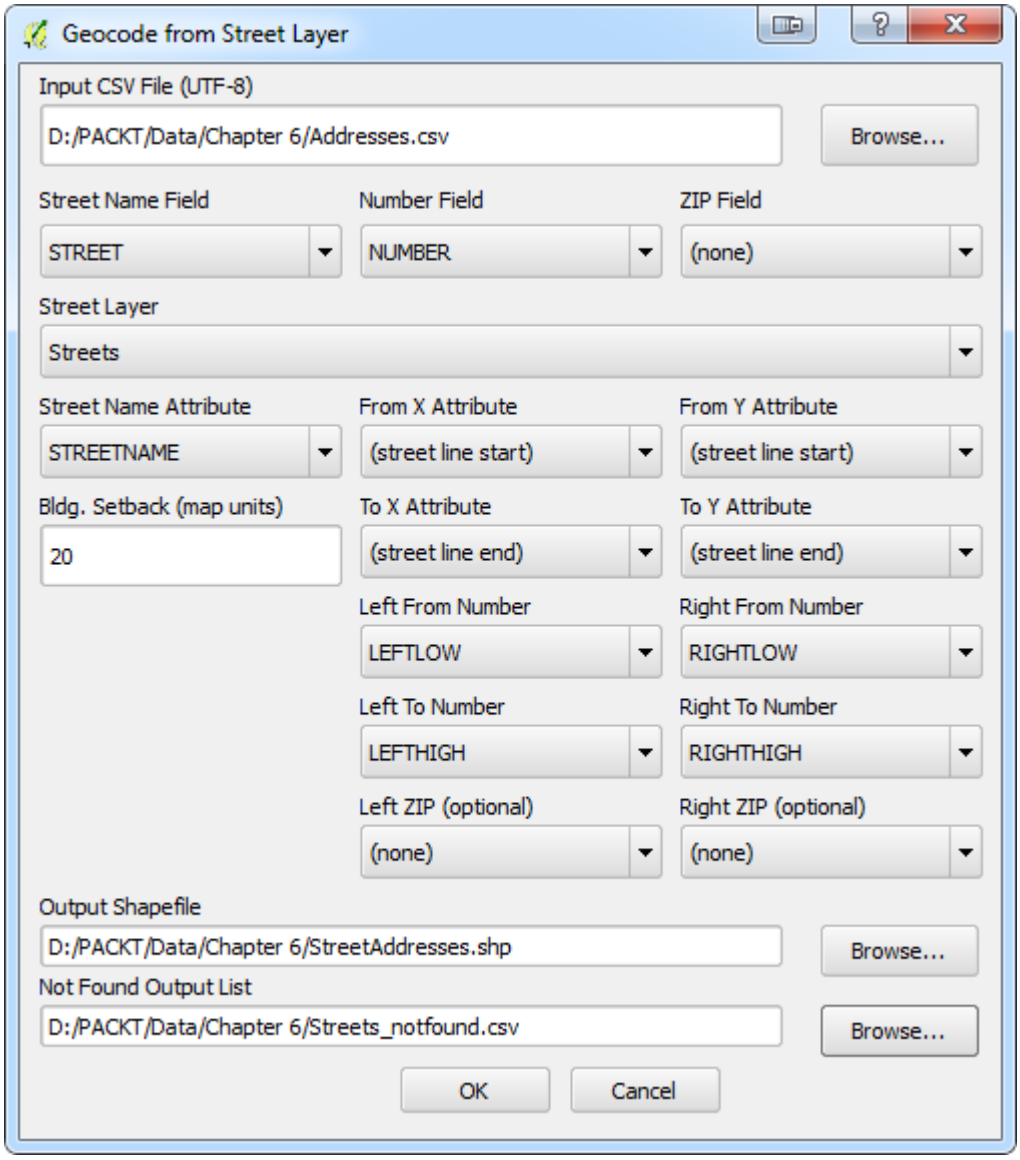

Processing
MMQGIS
Help
Animate
Combine
Create
Geocode
Search / Select
Import / Export
Modify
Geocode CSV with Google / OpenStreetMap
Geocode from Street Layer

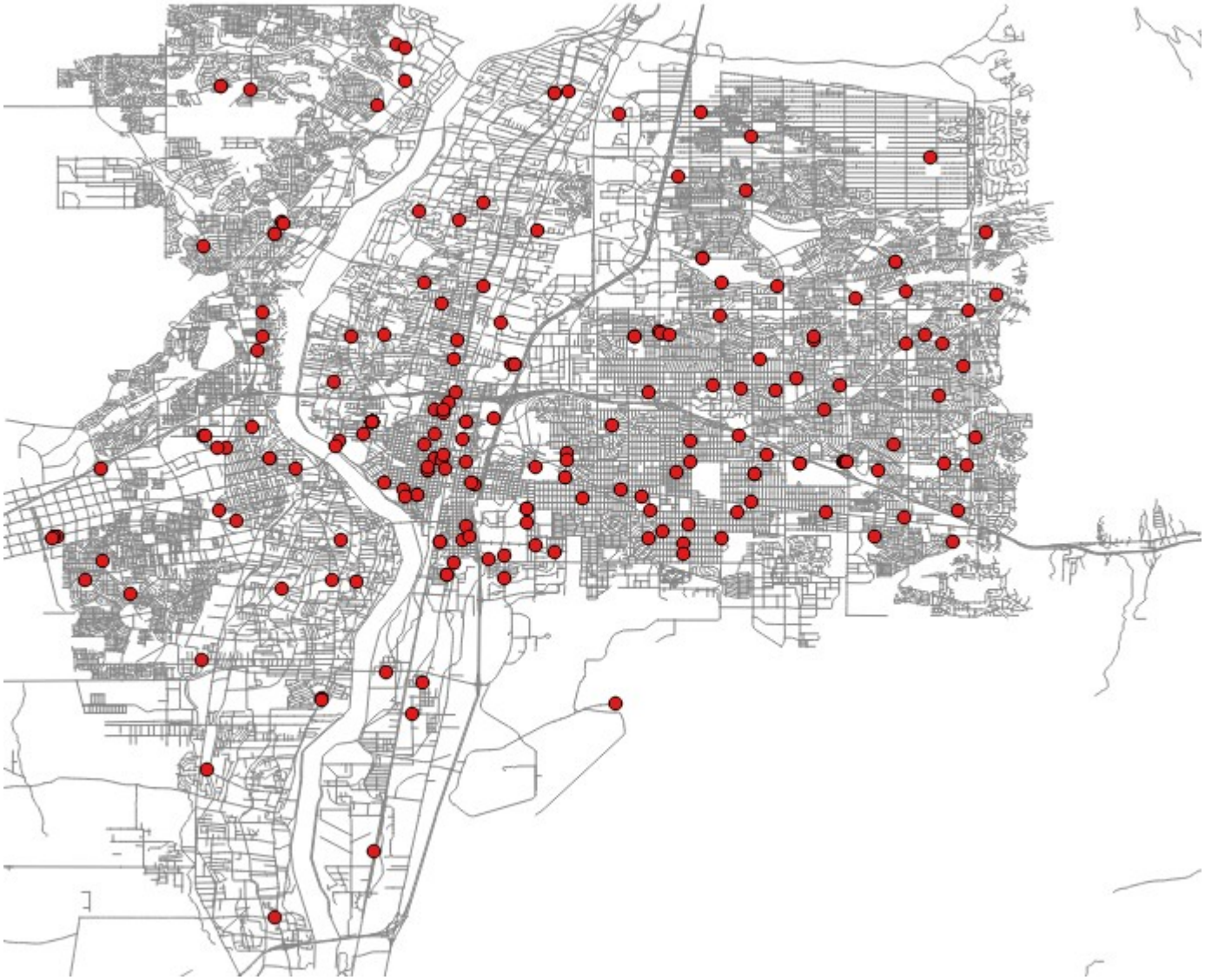
Attribute table - Streets :: Features total: 41825, filtered: 41825, selected: 0

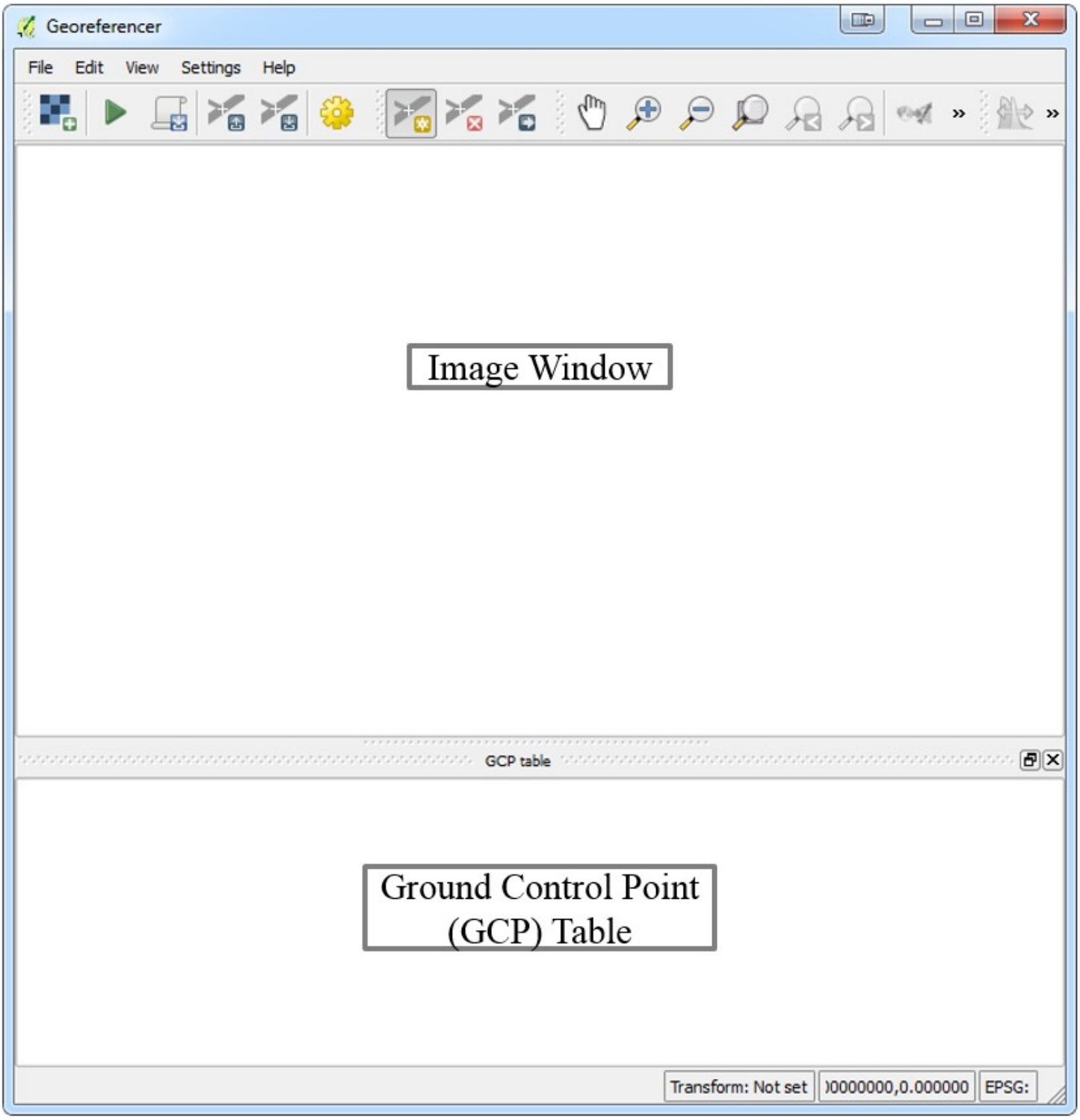
	LEFTLOW	LEFTHIGH	RIGHTLOW	RIGHTHIGH	STREETNAME	STREETDESI
13520	14301.00000000...	14305.00000000...	14300.00000000...	14302.00000000...	COPPER	AV
13581	14301.00000000...	14323.00000000...	14300.00000000...	14324.00000000...	STALGREN	CT
13805	14301.00000000...	14309.00000000...	14300.00000000...	14308.00000000...	MEL SMITH	DR
34181	14301.00000000...	14339.00000000...	14300.00000000...	14340.00000000...	BAUER	RD
34192	14301.00000000...	14321.00000000...	14300.00000000...	14320.00000000...	ENCANTADO	RD
34229	14301.00000000...	14321.00000000...	14300.00000000...	14320.00000000...	PIEDRAS	RD
34241	14301.00000000...	14335.00000000...	14300.00000000...	14334.00000000...	SKYLINE	RD
34255	14301.00000000...	14331.00000000...	14300.00000000...	14330.00000000...	OAKWOOD	PL
34293	14301.00000000...	14317.00000000...	14300.00000000...	14318.00000000...	ARCADIA	RD
34275	14297.00000000...	14331.00000000...	14296.00000000...	14314.00000000...	WINDSOR	PL
13153	14227.00000000...	14233.00000000...	14226.00000000...	14232.00000000...	GRAND	AV

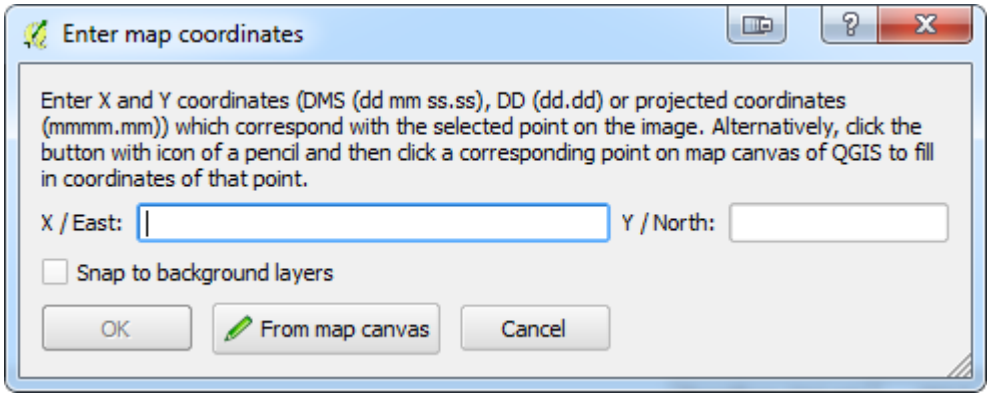


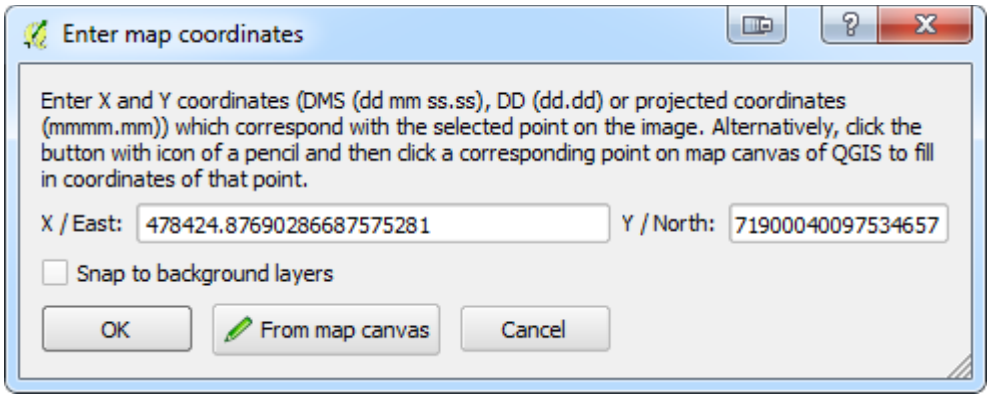

Web Service Geocode
Input CSV File (UTF-8)
D:/PACKT/Data/Chapter 6/Addresses.csv
Browse...
Address Field
STREET
City Field
CITY
State Field
STATE
Country Field
COUNTRY
Web Service
Google Maps
Output Shapefile
D:/PACKT/Data/Chapter 6/Addresses.shp
Browse...
Not Found Output List
D:/PACKT/Data/Chapter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

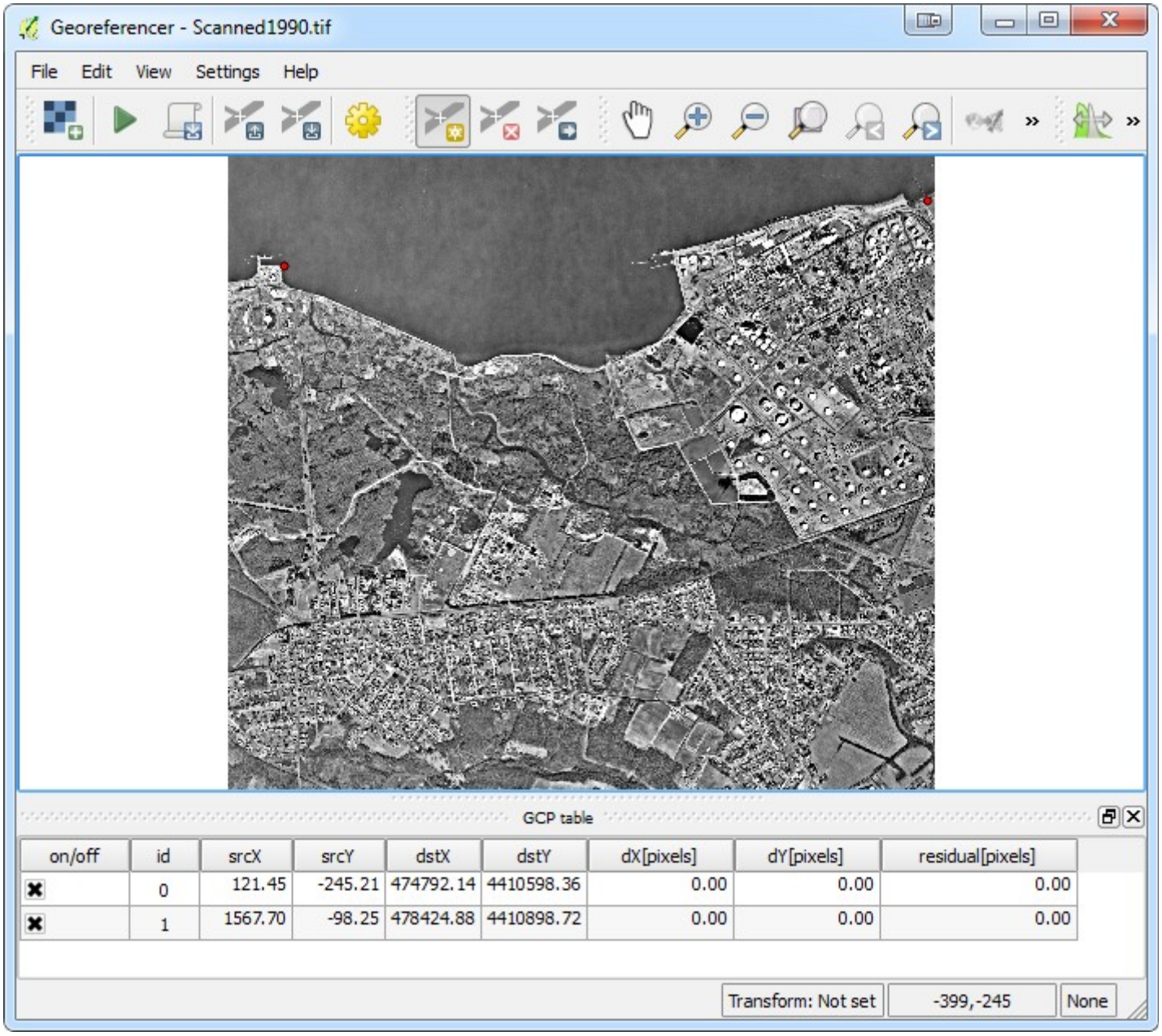

Geocode from Street Layer
Input CSV File (UTF-8)
D:/PACKT/Data/Chapter 6/Addresses.csv
Browse...
Street Name Field
STREET
Number Field
NUMBER
ZIP Field
(none)
Street Layer
Streets
Street Name Attribute
STREETNAME
From X Attribute
(street line start)
From Y Attribute
(street line start)
Bldg. Setback (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:/PACKT/Data/Chapter 6/StreetAddresses.shp
Browse...
Not Found Output List
D:/PACKT/Data/Chapter 6/Streets_notfound.csv
Browse...
OK
Cancel

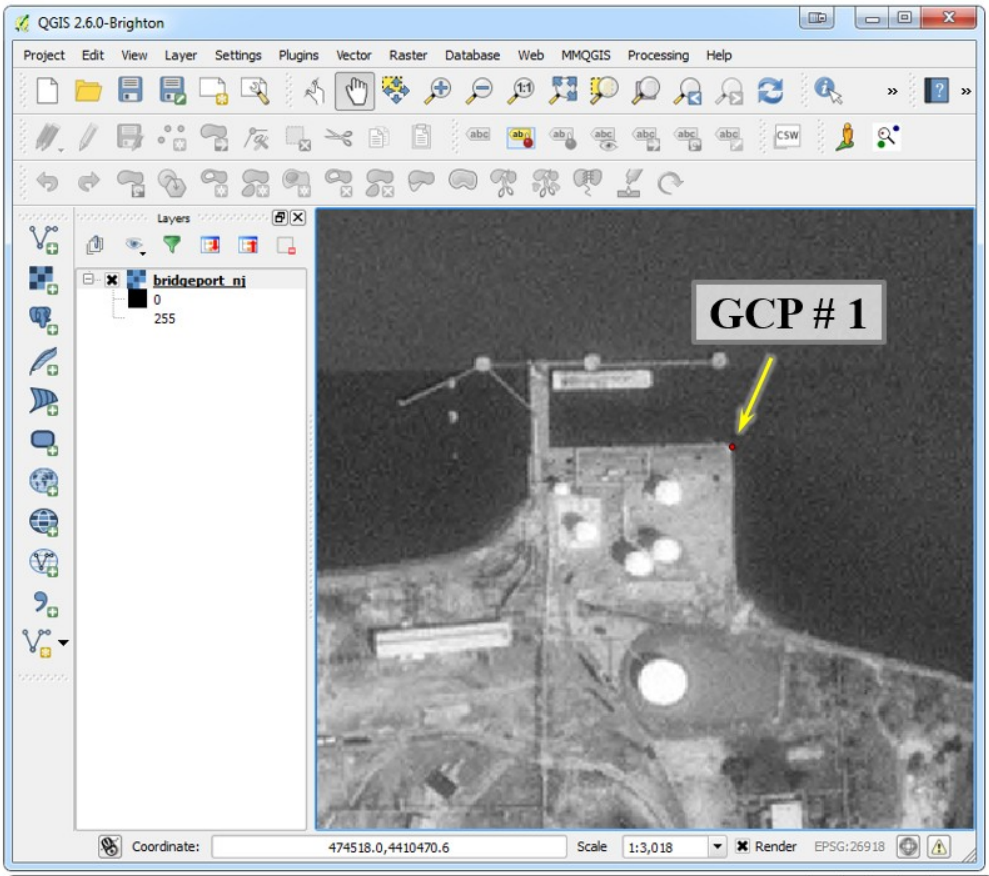


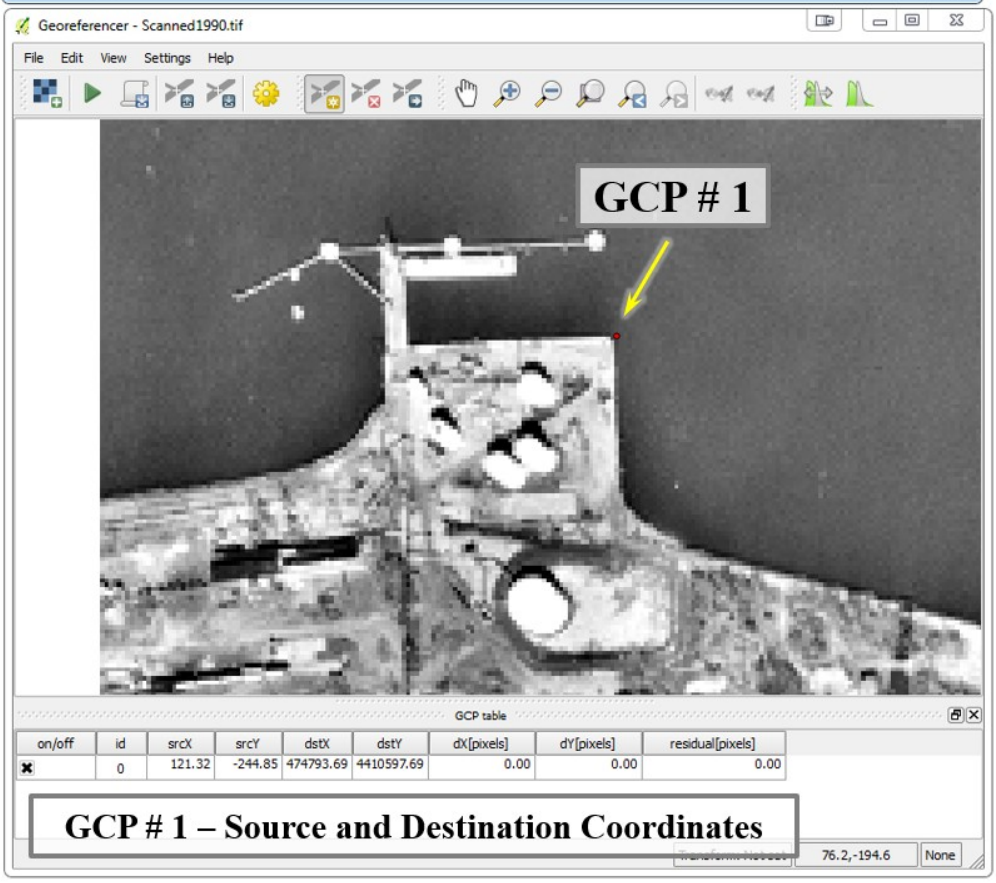

Georeferencer
File
Edit
View
Settings
Help
Image Window
GCP table
Ground Control Point (GCP) Table
Transform: Not set
)0000000,0.000000
EPSG:


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

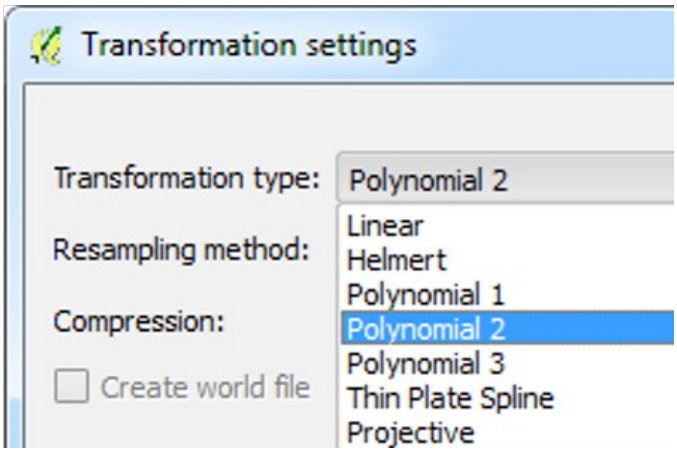

Enter map coordinates
Enter X and Y coordinates (DMS (dd mm ss.ss), DD (dd.dd) or projected coordinates (mmmm.mm)) which correspond with the selected point on the image. Alternatively, click the button with icon of a pencil and then click a corresponding point on map canvas of QGIS to fill in coordinates of that point.
X / East: 478424.87690286687575281
Y / North: 71900040097534657
Snap to background layers
OK
From map canvas
Cancel

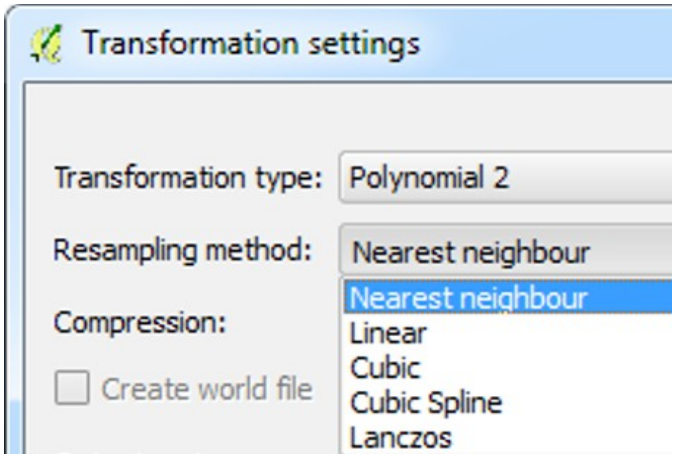

Georeferencer - Scanned1990.tif
File
Edit
View
Settings
Help
GCP table
on/off
id
srcX
srcY
dstX
dstY
dX[pixels]
dY[pixels]
residual[pixels]
0
121.45
-245.21
474792.14
4410598.36
0.00
0.00
0.00
1
1567.70
-98.25
478424.88
4410898.72
0.00
0.00
0.00
Transform: Not set
-399,-245
None

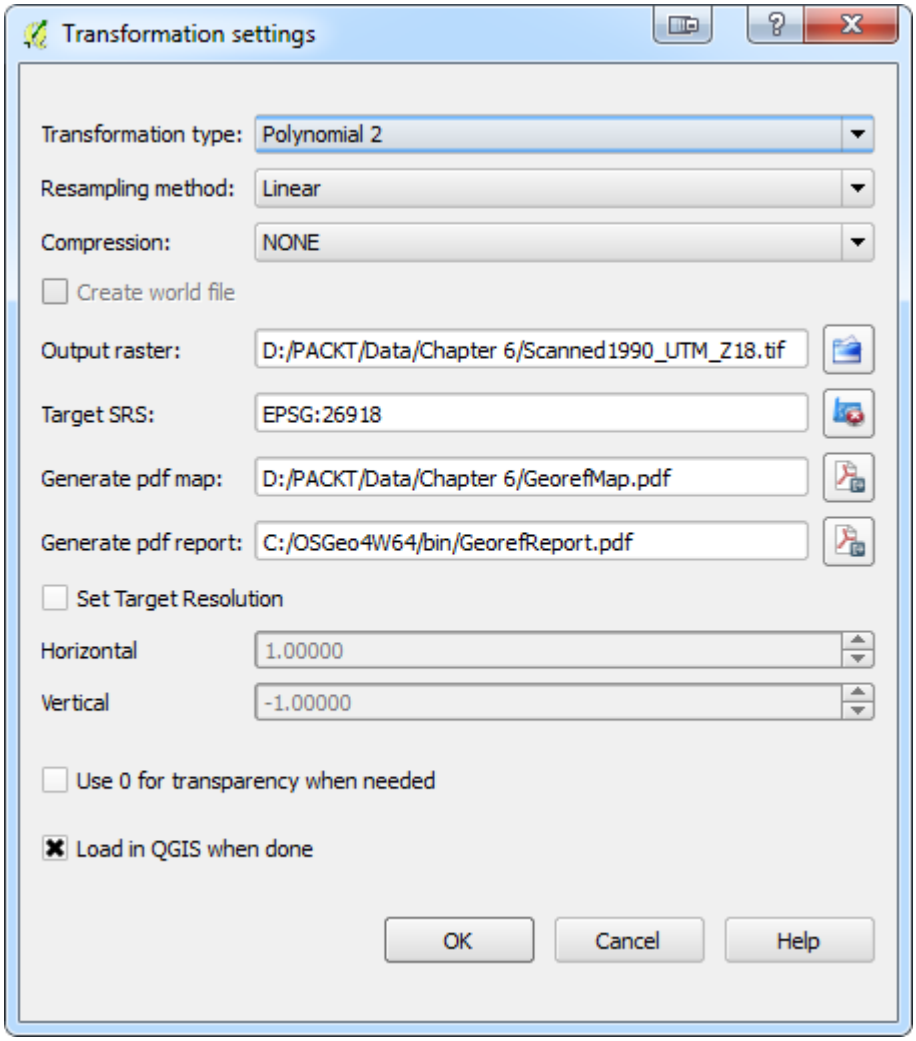


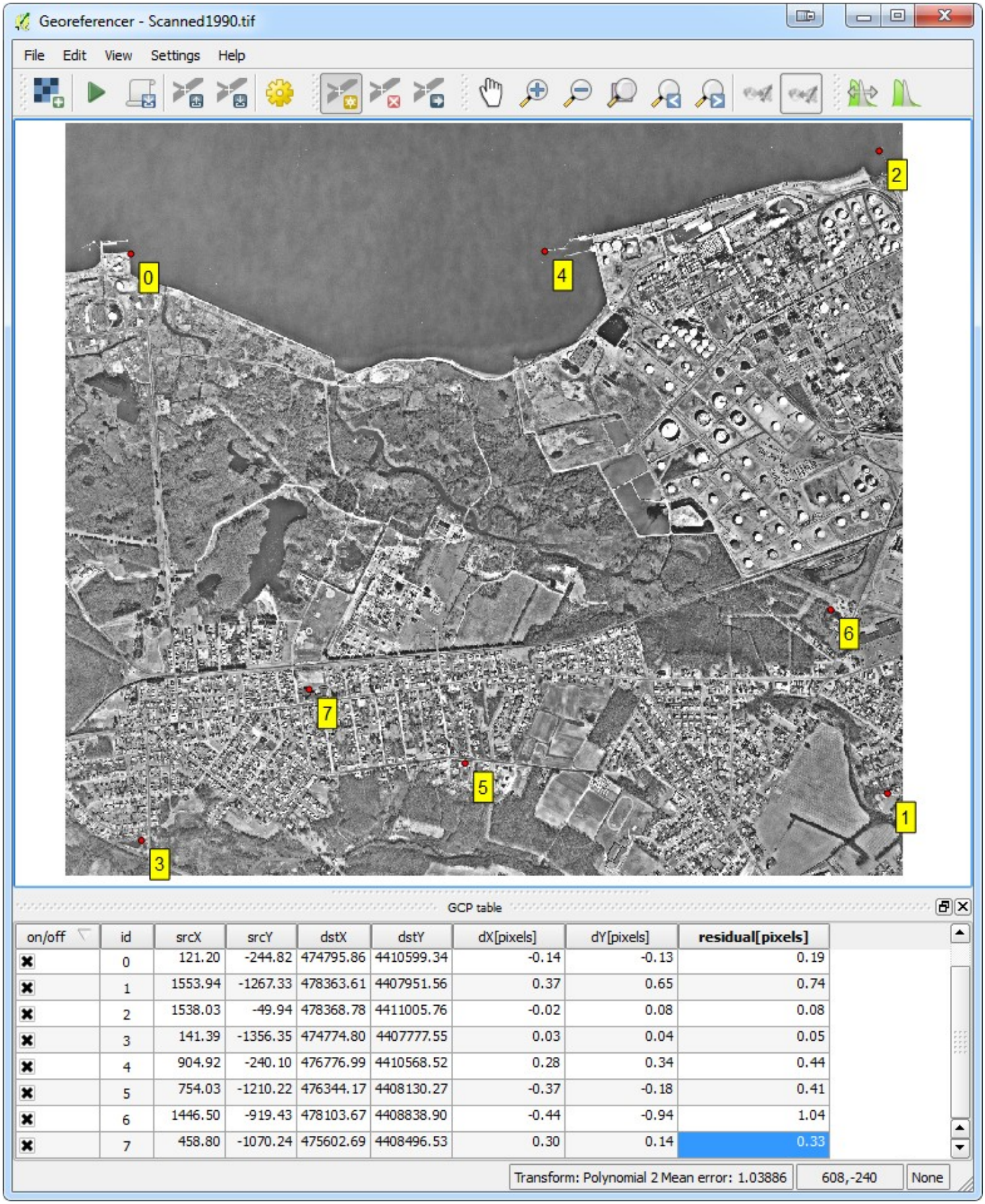


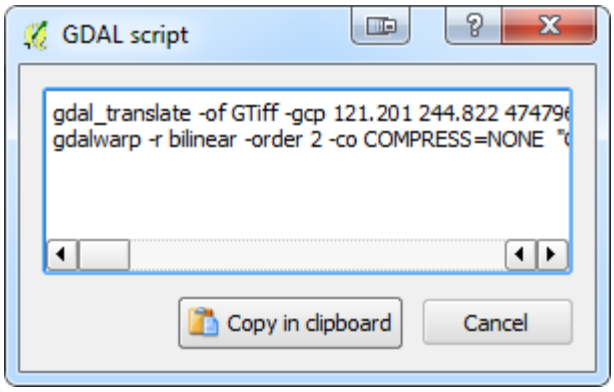
GCP # 1 – Source and Destination Coordinates

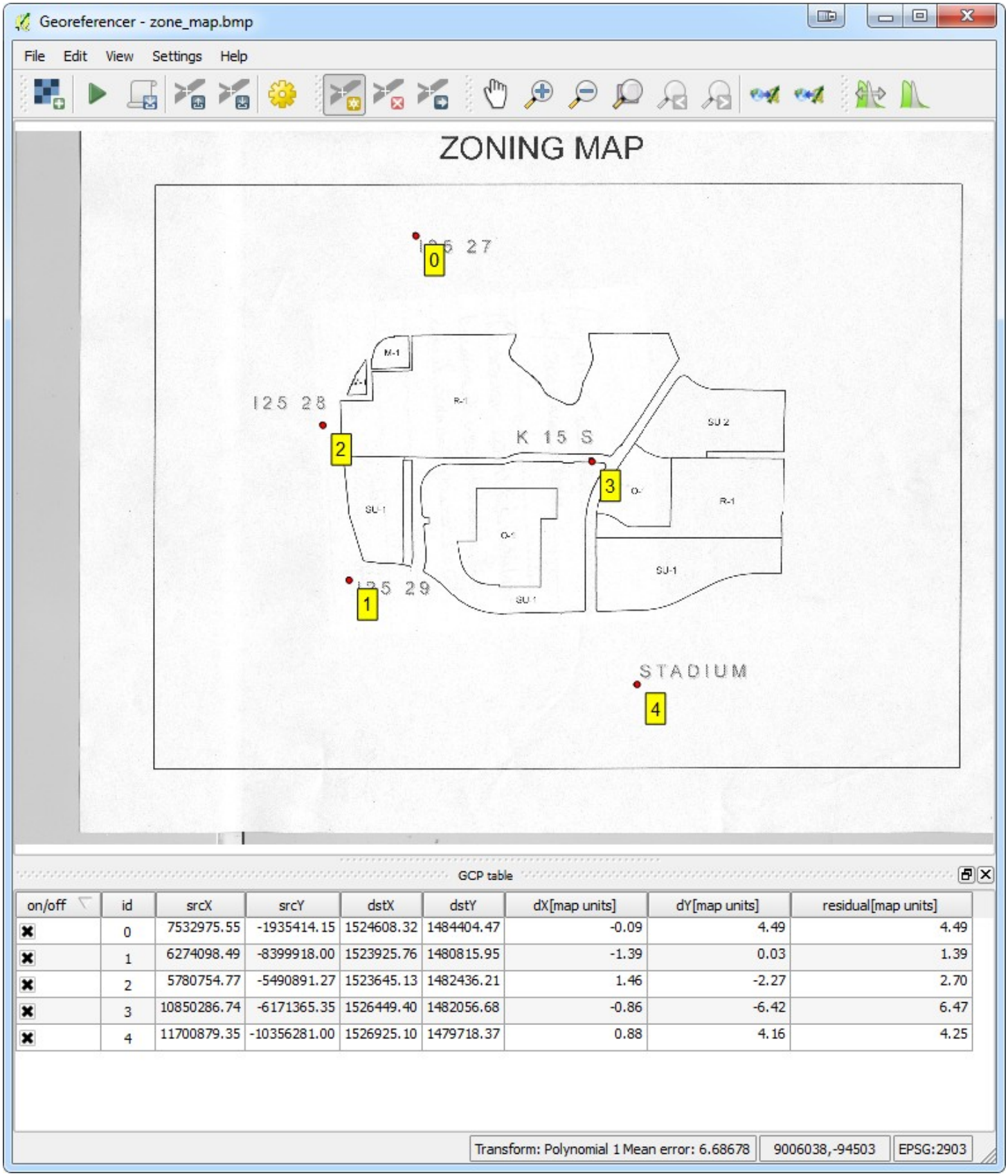

Transformation settings
Transformation type:
Polynomial 2
Resampling method:
Compression:
Create world file
Linear
Helmert
Polynomial 1
Polynomial 2
Polynomial 3
Thin Plate Spline
Projective

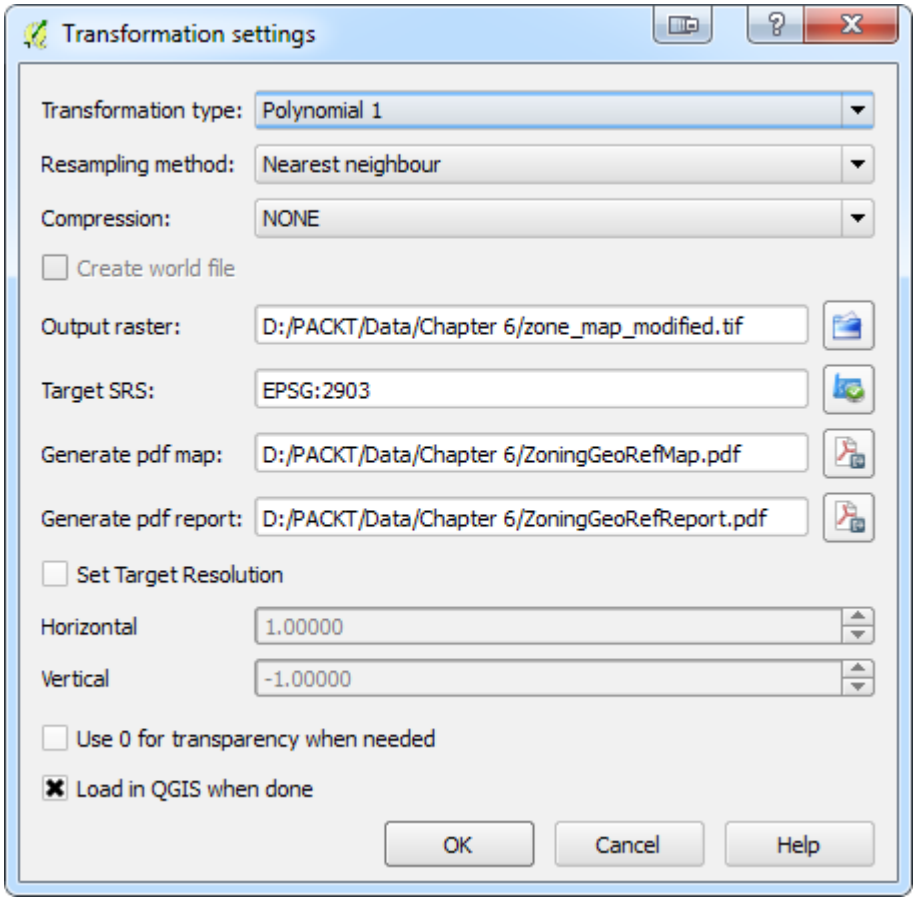

Transformation settings
Transformation type:
Polynomial 2
Resampling method:
Nearest neighbour
Compression:
Create world file
Nearest neighbour
Linear
Cubic
Cubic Spline
Lanczos

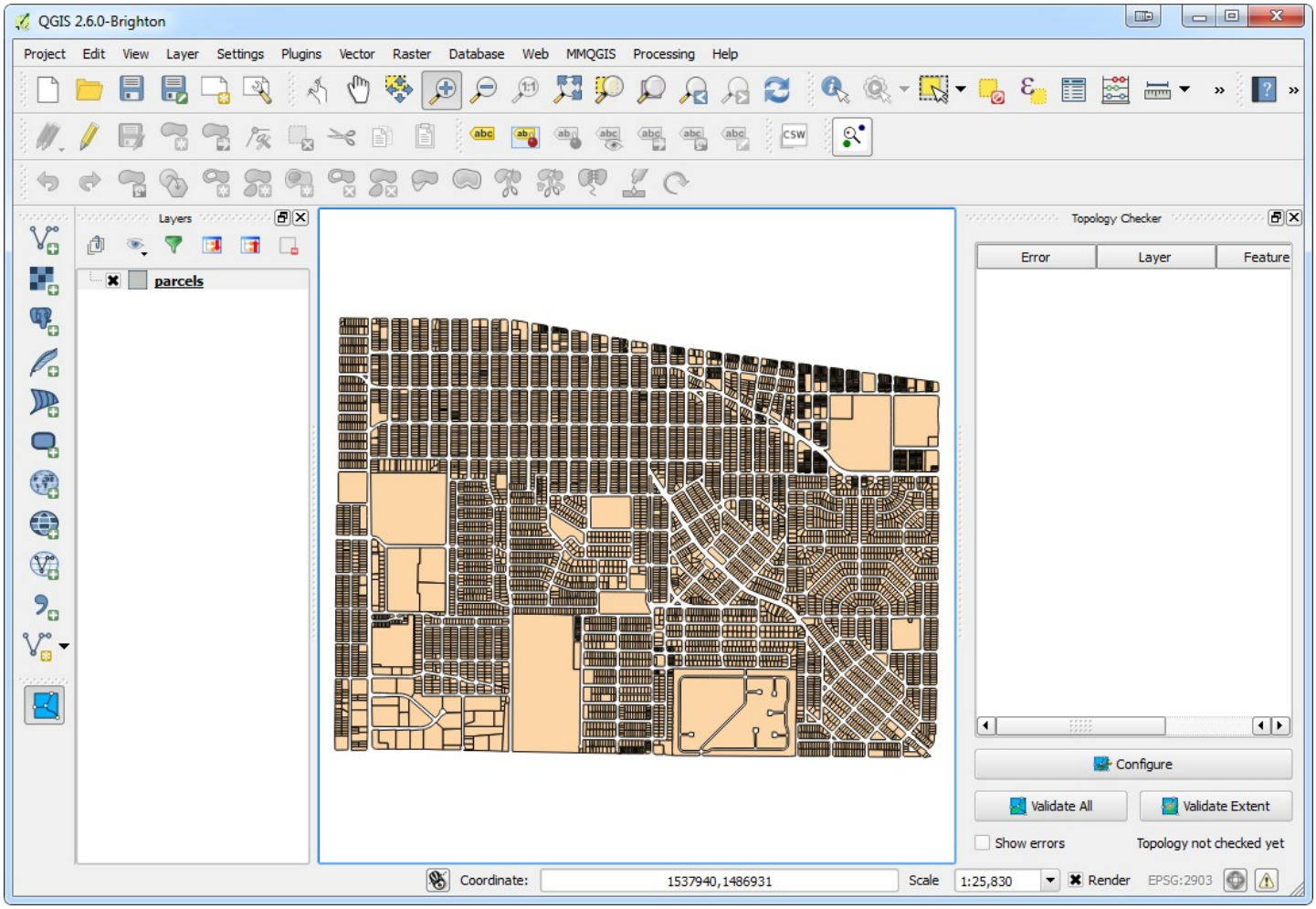

Transformation settings
Transformation type:
Polynomial 2
Resampling method:
Linear
Compression:
NONE
Create world file
Output raster:
D:/PACKT/Data/Chapter 6/Scanned1990_UTM_Z18.tif
Target SRS:
EPSG:26918
Generate pdf map:
D:/PACKT/Data/Chapter 6/GeorefMap.pdf
Generate pdf report:
C:/OSGeo4W64/bin/GeorefReport.pdf
Set Target Resolution
Horizontal
1.00000
Vertical
-1.00000
Use 0 for transparency when needed
Load in QGIS when done
OK
Cancel
Help

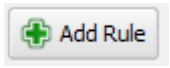

Georeferencer - Scanned1990.tif
File
Edit
View
Settings
Help
0
1
2
3
4
5
6
7
GCP table
on/off
id
srcX
srcY
dstX
dstY
dX[pixels]
dY[pixels]
residual[pixels]
0 121.20 -244.82 474795.86 4410599.34 -0.14 -0.13 0.19
1 1553.94 -1267.33 478363.61 4407951.56 0.37 0.65 0.74
2 1538.03 -49.94 478368.78 4411005.76 -0.02 0.08 0.08
3 141.39 -1356.35 474774.80 4407777.55 0.03 0.04 0.05
4 904.92 -240.10 476776.99 4410568.52 0.28 0.34 0.44
5 754.03 -1210.22 476344.17 4408130.27 -0.37 -0.18 0.41
6 1446.50 -919.43 478103.67 4408838.90 -0.44 -0.94 1.04
7 458.80 -1070.24 475602.69 4408496.53 0.30 0.14 0.33
Transform: Polynomial 2 Mean error: 1.03886
608,-240
None

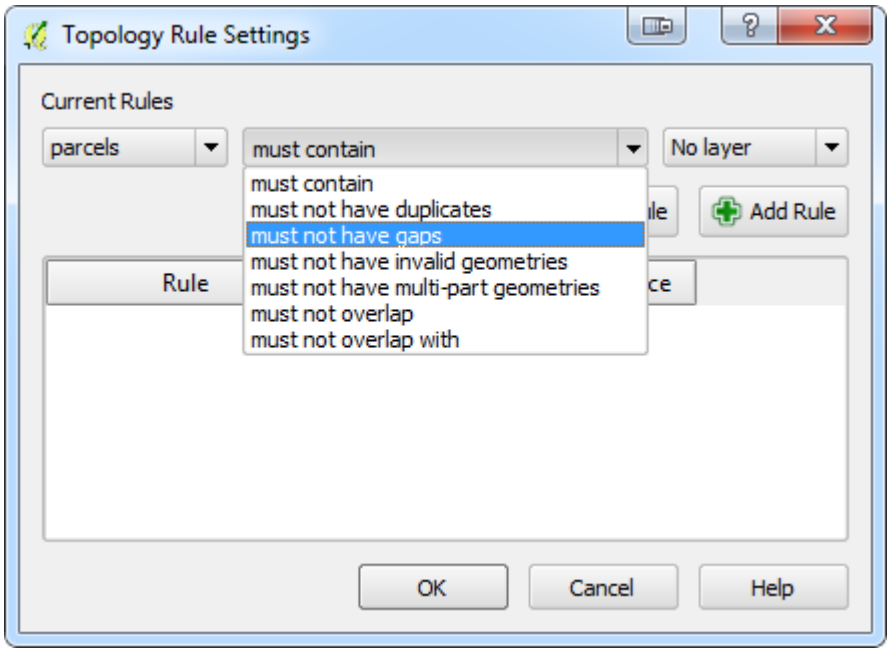

GDAL script
gdal_translate -of GTiff -gcp 121.201 244.822 47479
gdalwarp -r bilinear -order 2 -co COMPRESS=NONE "
Copy in clipboard
Cancel

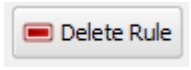

Georeferencer - zone_map.bmp
File
Edit
View
Settings
Help
ZONING MAP
I25 27
I25 28
K 15 S
I25 29
STADIUM
0
1
2
3
4
GCP table
on/off
id
srcX
srcY
dstX
dstY
dX[map units]
dY[map units]
residual[map units]
0 7532975.55 -1935414.15 1524608.32 1484404.47 -0.09 4.49 4.49
1 6274098.49 -8399918.00 1523925.76 1480815.95 -1.39 0.03 1.39
2 5780754.77 -5490891.27 1523645.13 1482436.21 1.46 -2.27 2.70
3 10850286.74 -6171365.35 1526449.40 1482056.68 -0.86 -6.42 6.47
4 11700879.35 -10356281.00 1526925.10 1479718.37 0.88 4.16 4.25
Transform: Polynomial 1 Mean error: 6.68678
9006038,-94503
EPSG:2903

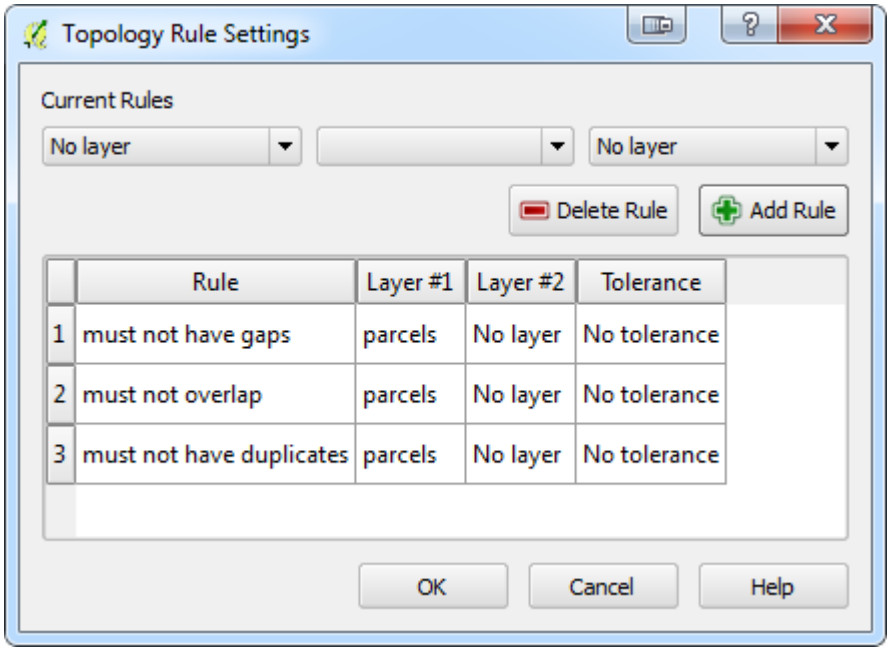

Transformation settings
Transformation type:
Polynomial 1
Resampling method:
Nearest neighbour
Compression:
NONE
Create world file
Output raster:
D:/PACKT/Data/Chapter 6/zone_map_modified.tif
Target SRS:
EPSG:2903
Generate pdf map:
D:/PACKT/Data/Chapter 6/ZoningGeoRefMap.pdf
Generate pdf report:
D:/PACKT/Data/Chapter 6/ZoningGeoRefReport.pdf
Set Target Resolution
Horizontal
1.00000
Vertical
-1.00000
Use 0 for transparency when needed
Load in QGIS when done
OK
Cancel
Help


QGIS 2.6.0-Brighton
Project Edit View Layer Settings Plugins Vector Raster Database Web MMQGIS Processing Help
Layers
parcels
Topology Checker
Error Layer Feature
Configure
Validate All
Validate Extent
Show errors
Topology not checked yet
Coordinate: 1537940,1486931
Scale 1:25,830
Render
EPSG:2903


Add Rule

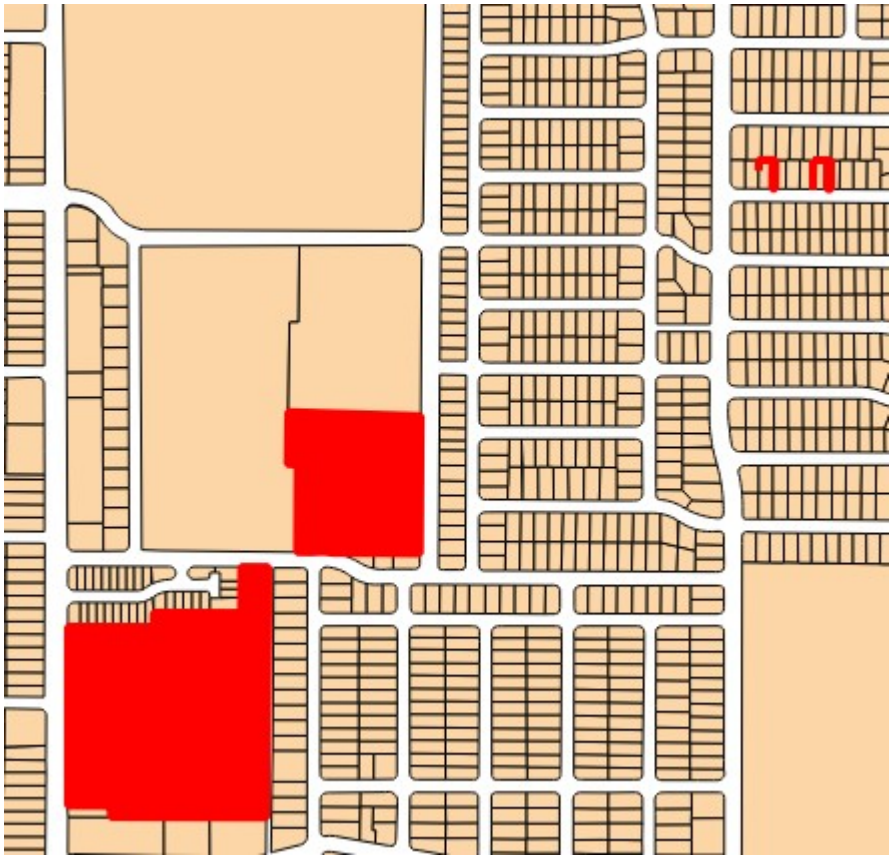

Topology Rule Settings
Current Rules
parcels
must contain
No layer
must contain
must not have duplicates
must not have gaps
must not have invalid geometries
must not have multi-part geometries
must not overlap
must not overlap with
Add Rule
Rule
OK
Cancel
Help


Delete Rule



Topology Checker

	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

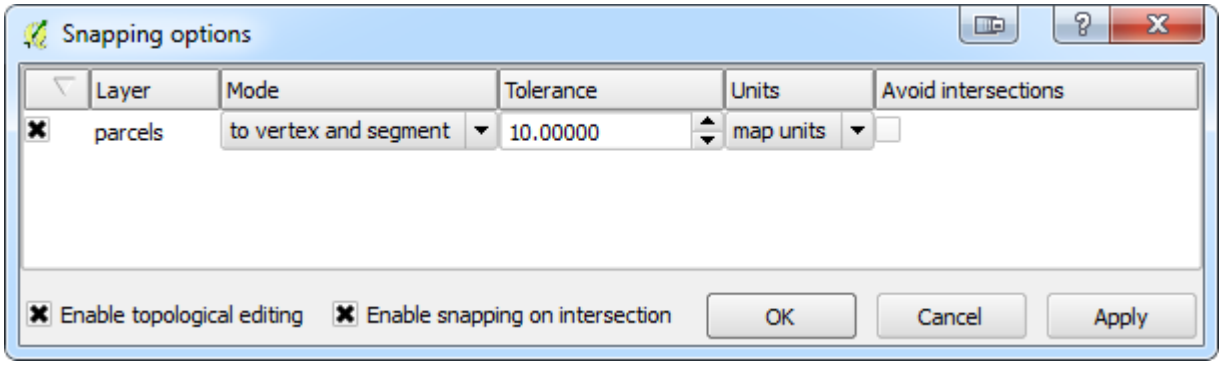


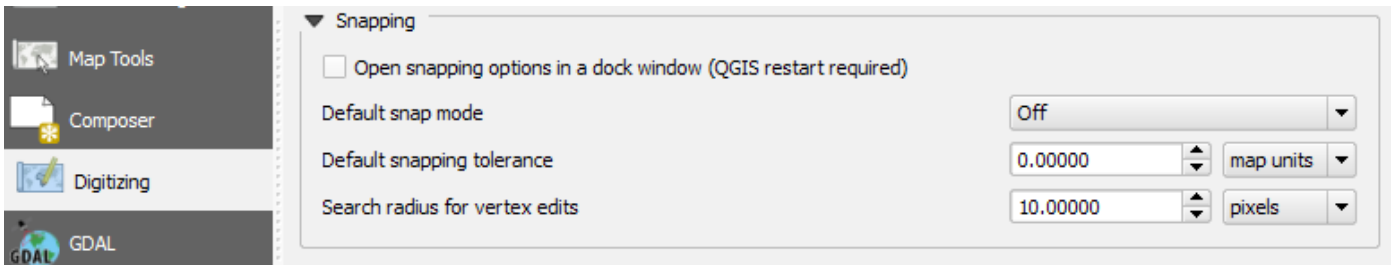
Attribute table - parcels :: Features total: 6970, filtered: 2, selected: 2

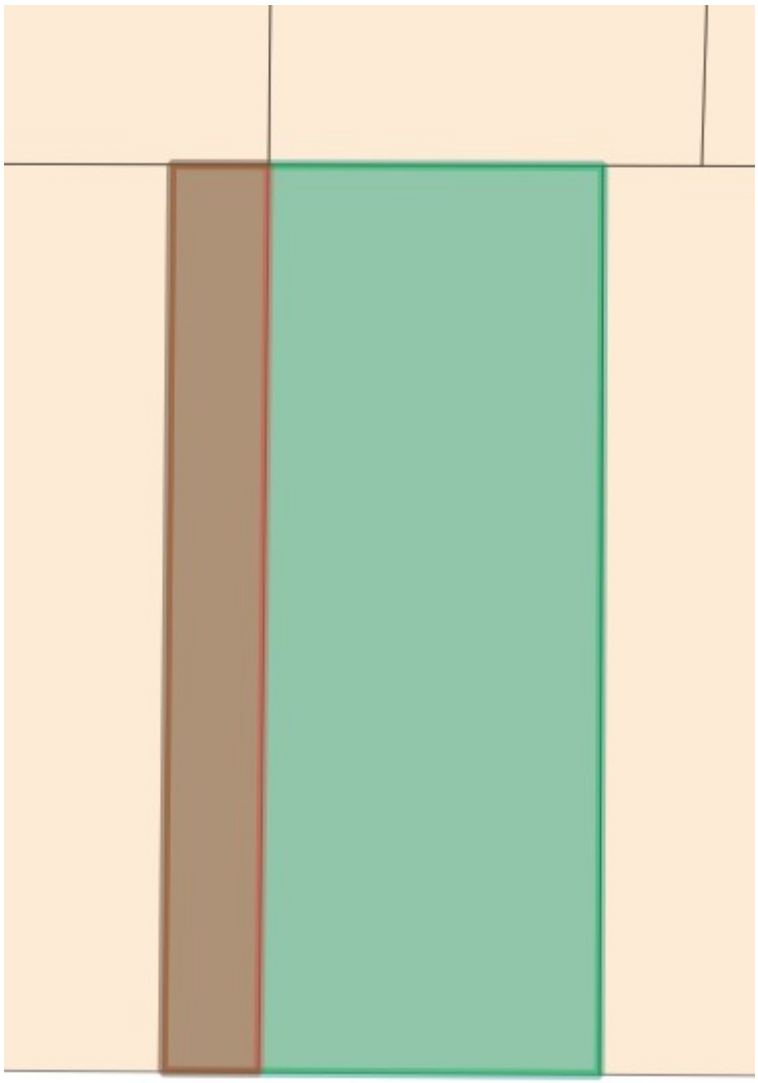
LOT = Update Filtered

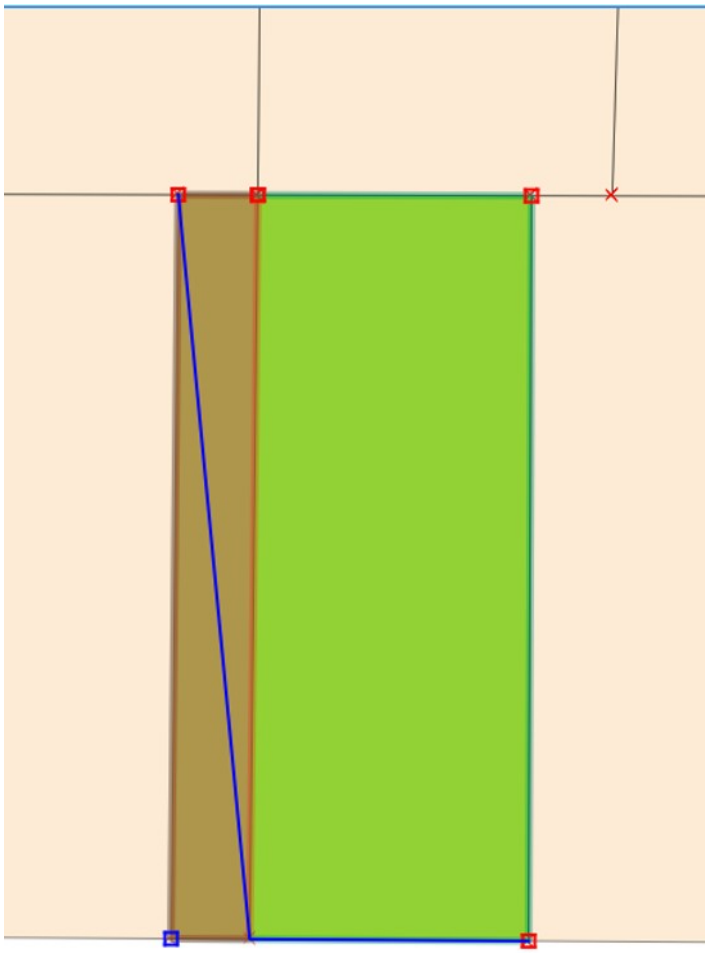
	LOT	BLOCK	SUBDIVISIO	STREETNUMB	STREETNAME	STREETDESI	STREETQUAD	AF
1154	2A1	0000	CACTUS/SHALIT PARCEL	1700	YALE	BLVD	SE	NULL
6968	2A1	0000	CACTUS/SHALIT PARCEL	1700	YALE	BLVD	SE	NULL

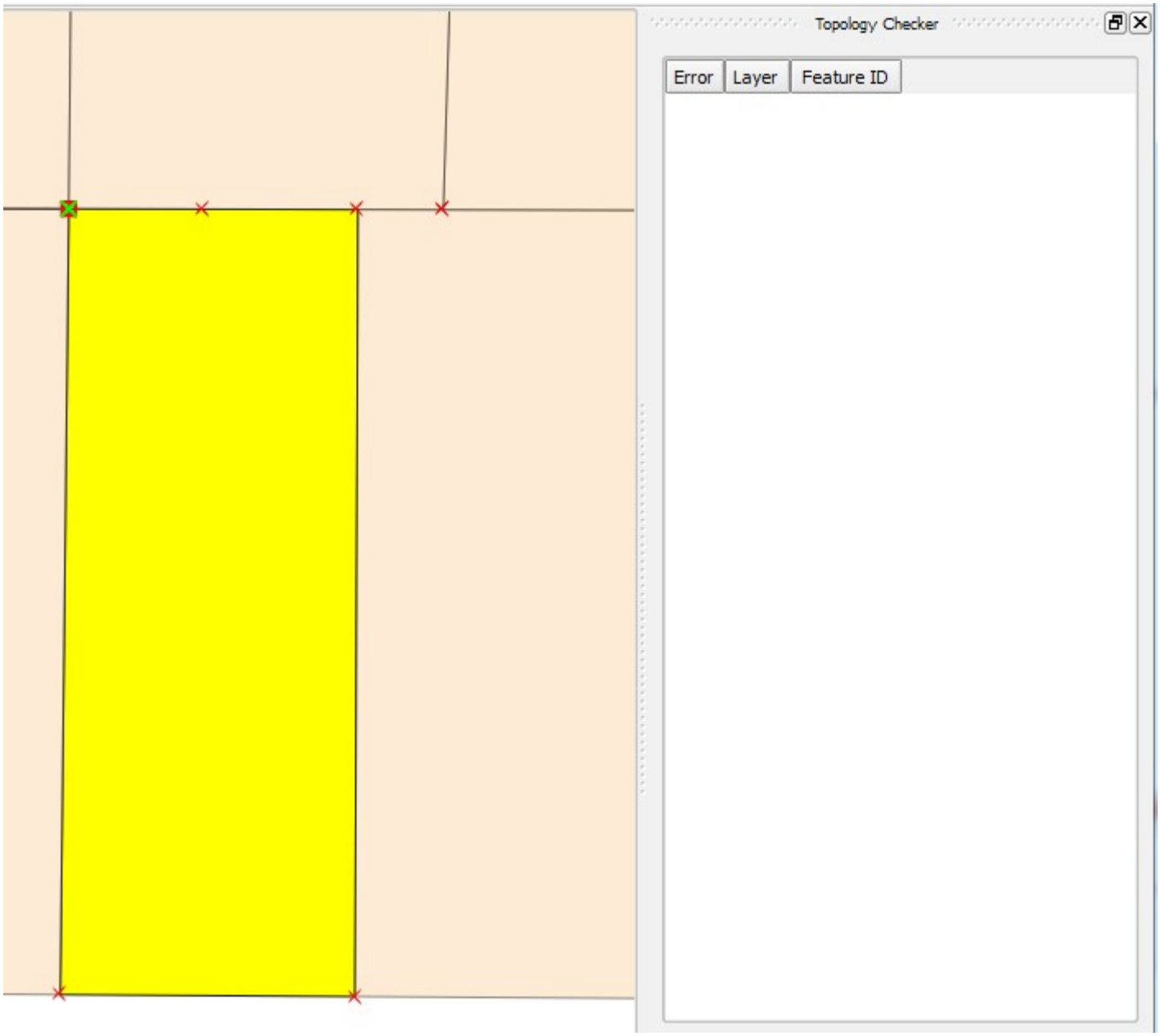
Show Selected Features

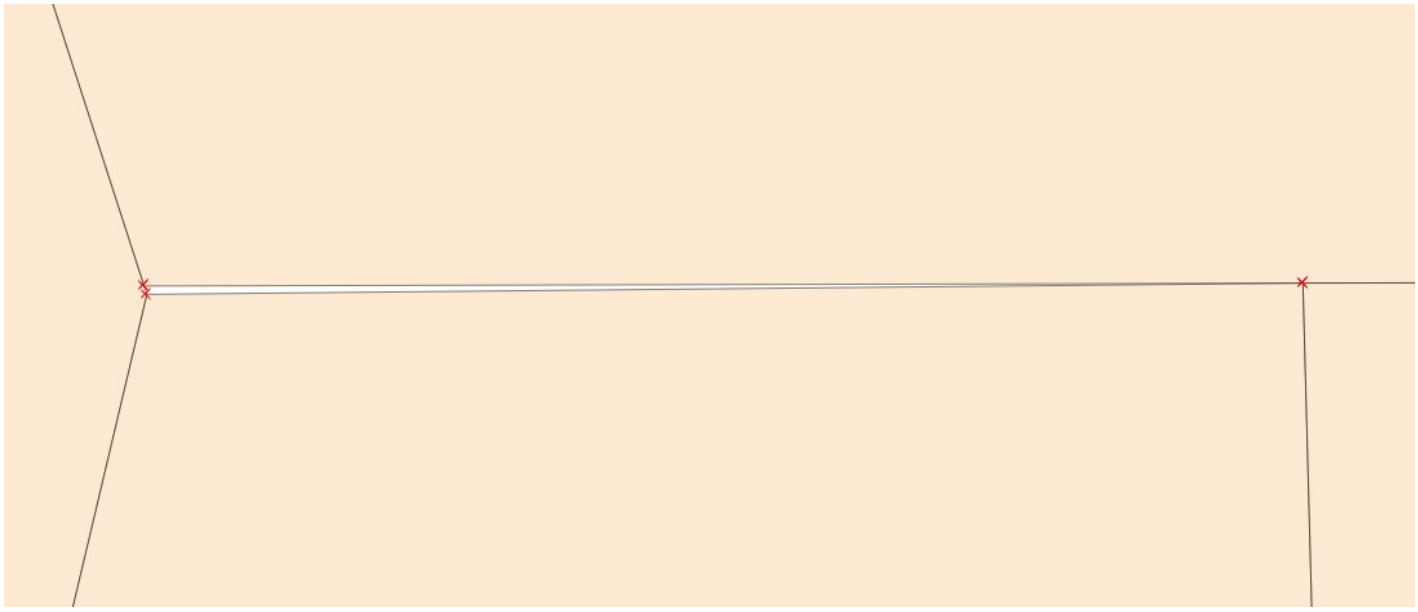

Snapping options
Layer
Mode
Tolerance
Units
Avoid intersections
parcels
to vertex and segment
10.00000
map units
Enable topological editing
Enable snapping on intersection
OK
Cancel
Apply

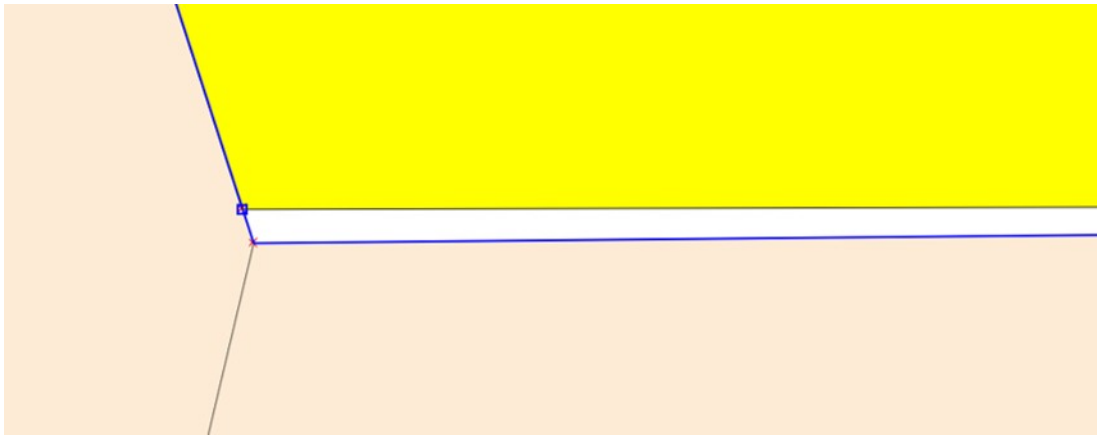

Map Tools
Composer
Digitizing
GDAL
Snapping
Open snapping options in a dock window (QGIS restart required)
Default snap mode
Off
Default snapping tolerance
0.00000
map units
Search radius for vertex edits
10.00000
pixels

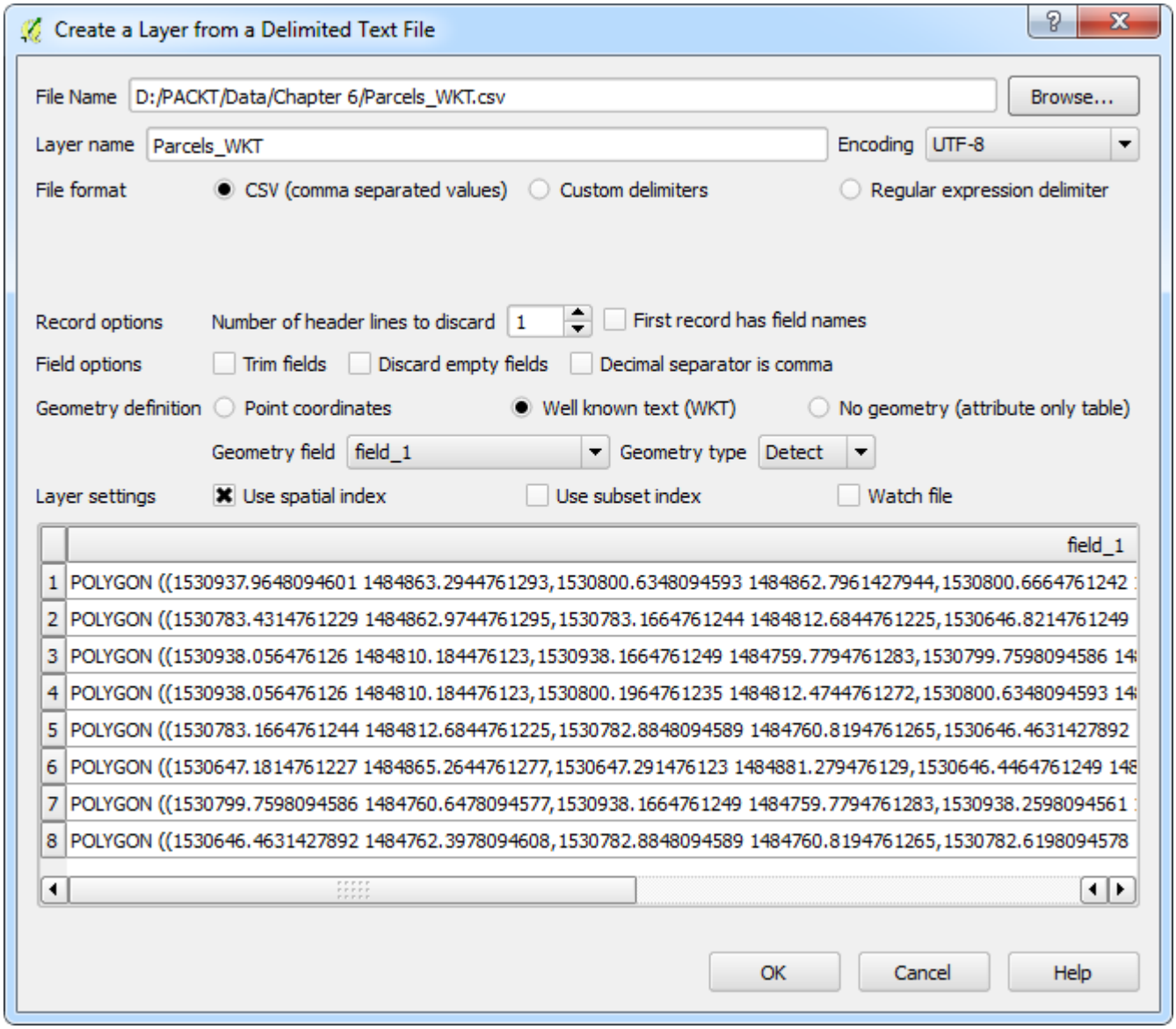


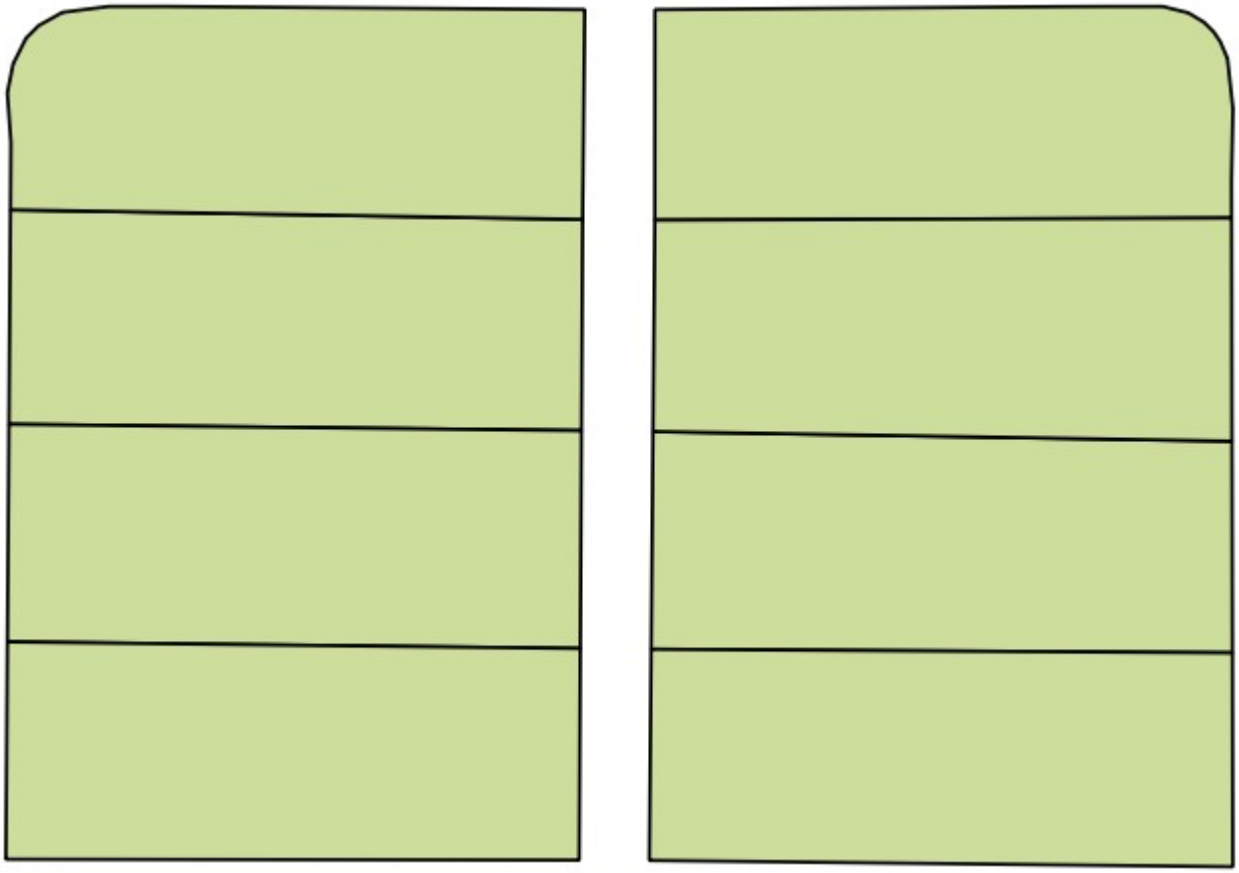


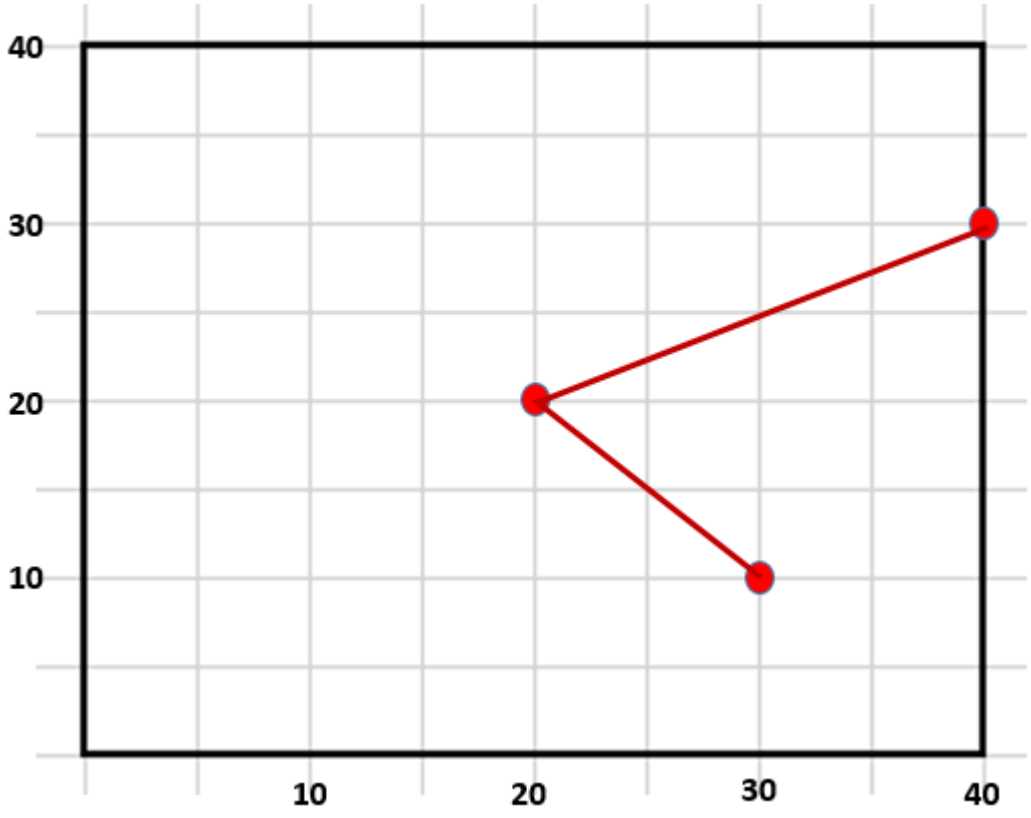

Topology Checker
Error
Layer
Feature ID



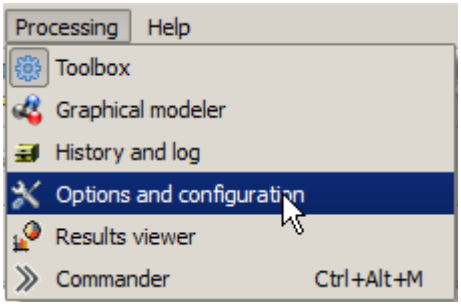


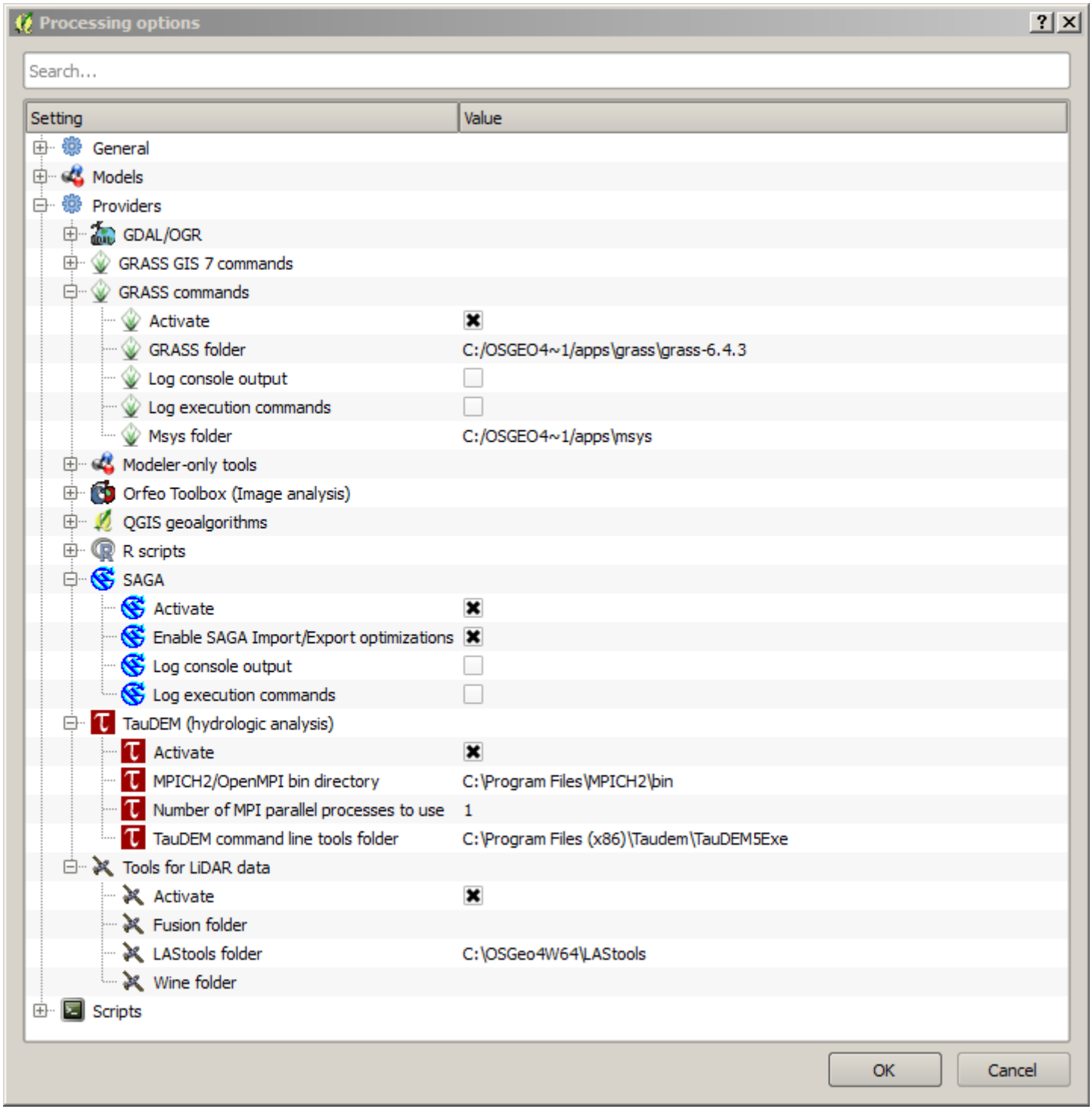

Create a Layer from a Delimited Text File
File Name
D:/PACKT/Data/Chapter 6/Parcels_WKT.csv
Browse...
Layer name
Parcels_WKT
Encoding
UTF-8
File format
CSV (comma separated values)
Custom delimiters
Regular expression delimiter
Record options
Number of header lines to discard
1
First record has field names
Field options
Trim fields
Discard empty fields
Decimal separator is comma
Geometry definition
Point coordinates
Well known text (WKT)
No geometry (attribute only table)
Geometry field
field_1
Geometry type
Detect
Layer settings
Use spatial index
Use subset index
Watch file
field_1
1 POLYGON ((1530937.9648094601 1484863.2944761293,1530800.6348094593 1484862.7961427944,1530800.6664761242
2 POLYGON ((1530783.4314761229 1484862.9744761295,1530783.1664761244 1484812.6844761225,1530646.8214761249
3 POLYGON ((1530938.056476126 1484810.184476123,1530938.1664761249 1484759.7794761283,1530799.7598094586 14
4 POLYGON ((1530938.056476126 1484810.184476123,1530800.1964761235 1484812.4744761272,1530800.6348094593 14
5 POLYGON ((1530783.1664761244 1484812.6844761225,1530782.8848094589 1484760.8194761265,1530646.4631427892
6 POLYGON ((1530647.1814761227 1484865.2644761277,1530647.291476123 1484881.279476129,1530646.4464761249 148
7 POLYGON ((1530799.7598094586 1484760.6478094577,1530938.1664761249 1484759.7794761283,1530938.2598094561
8 POLYGON ((1530646.4631427892 1484762.3978094608,1530782.8848094589 1484760.8194761265,1530782.6198094578
OK
Cancel
Help

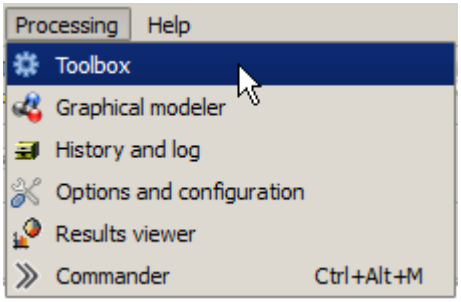



40
30
20
10
10
20
30
40

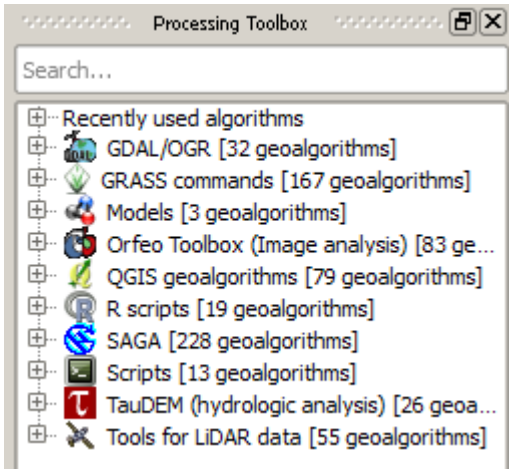
Chapter 7: The Processing Toolbox

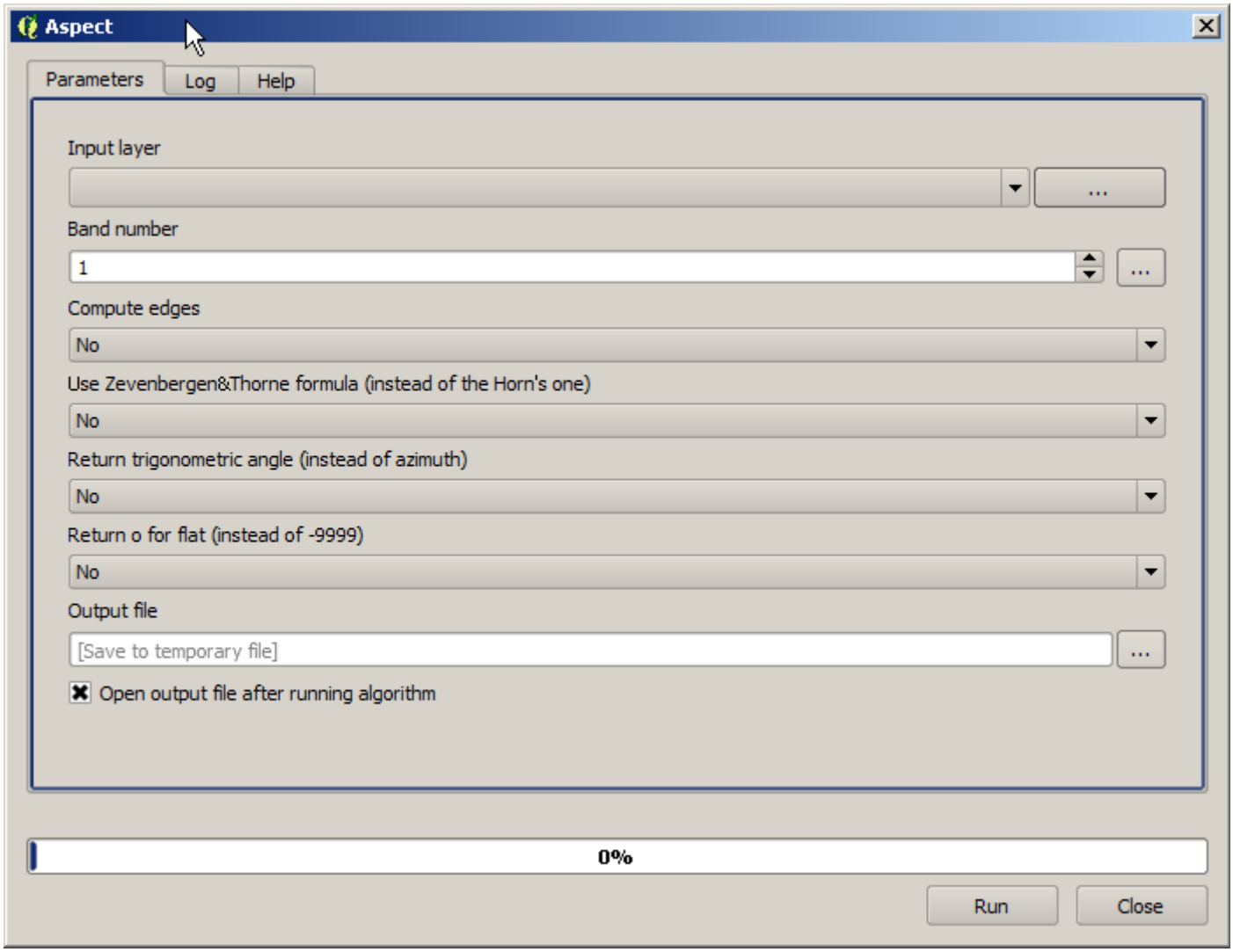


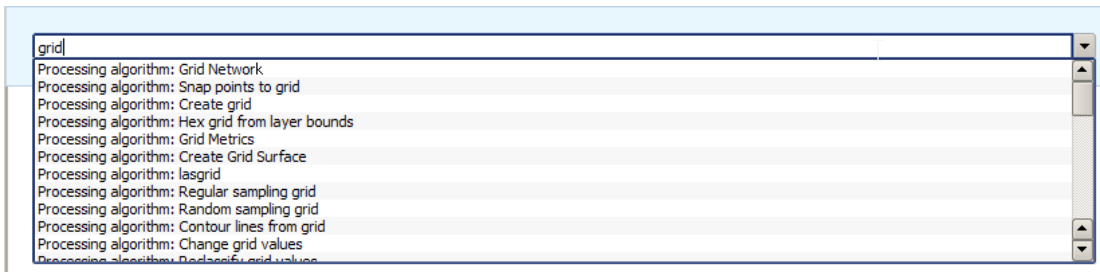

Processing options
Search...
Setting
Value
General
Models
Providers
GDAL/OGR
GRASS GIS 7 commands
GRASS commands
Activate
GRASS folder
C:/OSGEO4~1/apps\grass\grass-6.4.3
Log console output
Log execution commands
Msys folder
C:/OSGEO4~1/apps\msys
Modeler-only tools
Orfeo Toolbox (Image analysis)
QGIS geoalgorithms
R scripts
SAGA
Activate
Enable SAGA Import/Export optimizations
Log console output
Log execution commands
TauDEM (hydrologic analysis)
Activate
MPICH2/OpenMPI bin directory
C:\Program Files\MPICH2\bin
Number of MPI parallel processes to use
1
TauDEM command line tools folder
C:\Program Files (x86)\Taudem\TauDEM5Exe
Tools for LiDAR data
Activate
Fusion folder
LAStools folder
C:\OSGeo4W64\LAStools
Wine folder
Scripts
OK
Cancel

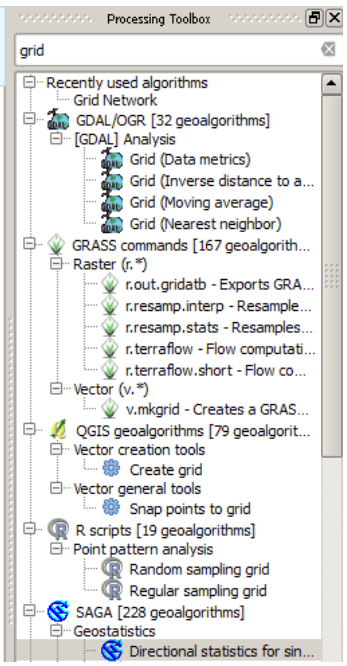

Processing
Help
Toolbox
Graphical modeler
History and log
Options and configuration
Results viewer
Commander
Ctrl+Alt+M

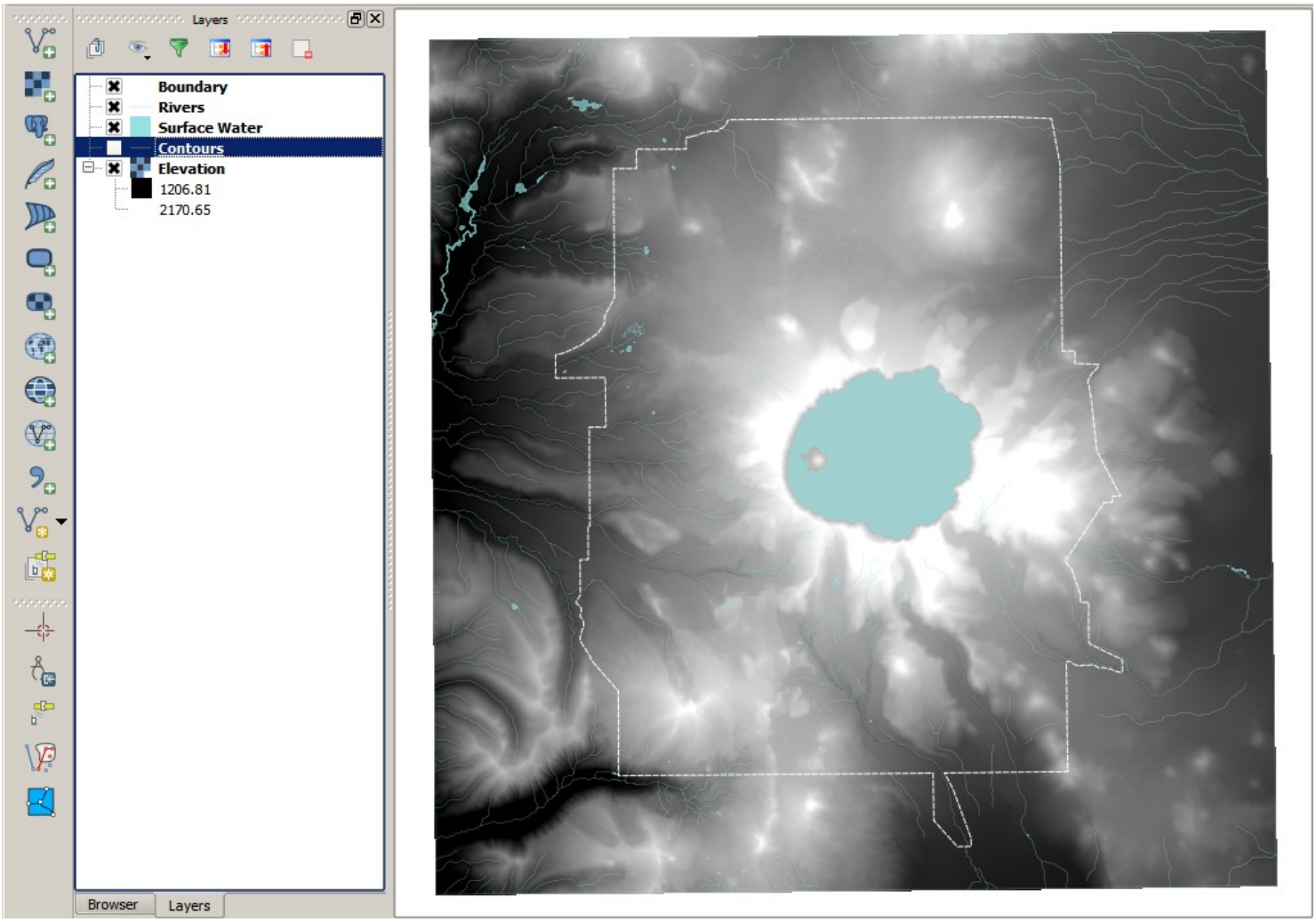
Processing Toolbox
Search...
Recently used algorithms
Models [3 geoalgorithms]
Scripts [13 geoalgorithms]
Simplified interface
Simplified interface
Advanced interface

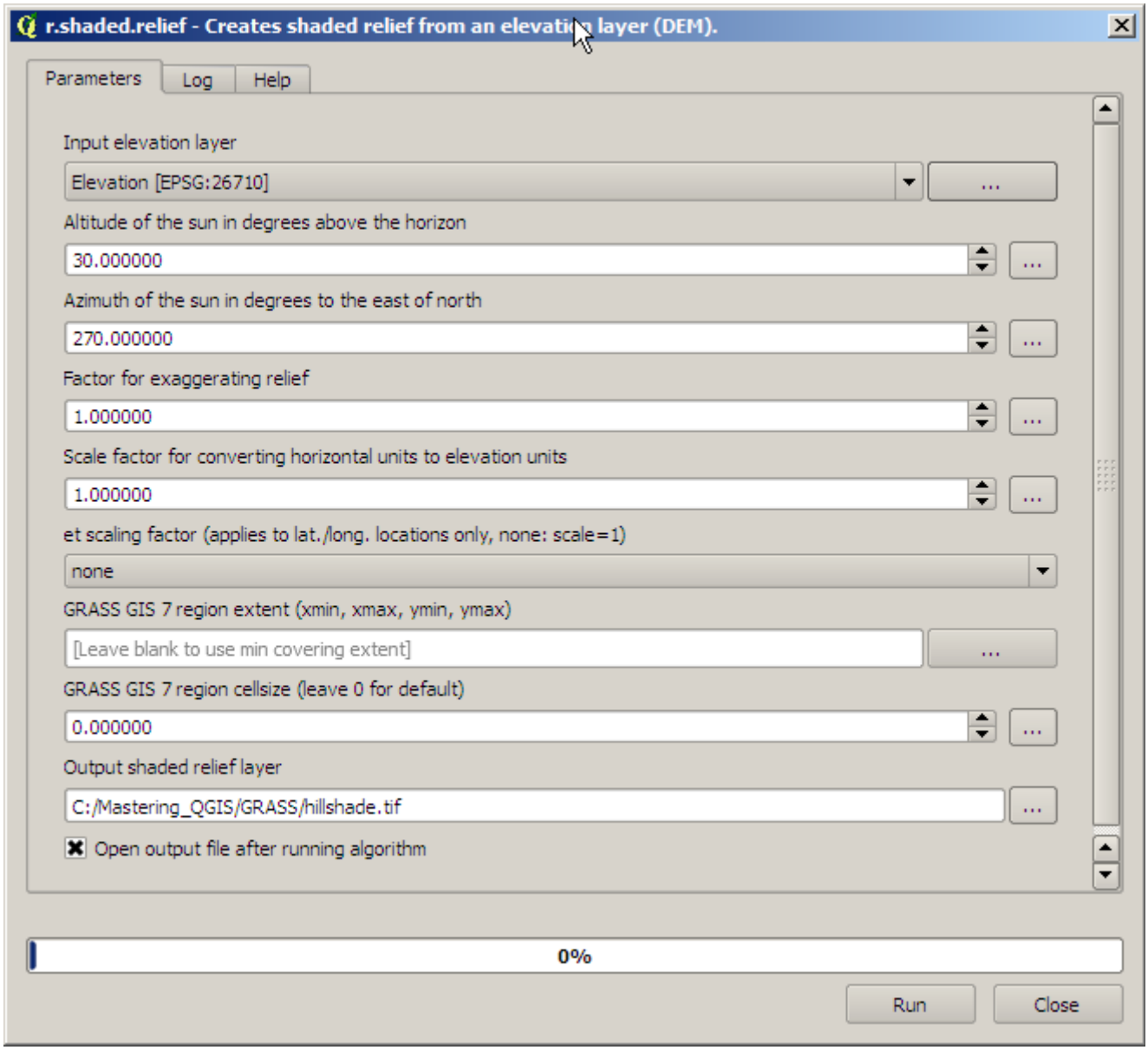

Processing Toolbox
Search...
Recently used algorithms
GDAL/OGR [32 geoalgorithms]
GRASS commands [167 geoalgorithms]
Models [3 geoalgorithms]
Orfeo Toolbox (Image analysis) [83 ge...
QGIS geoalgorithms [79 geoalgorithms]
R scripts [19 geoalgorithms]
SAGA [228 geoalgorithms]
Scripts [13 geoalgorithms]
TauDEM (hydrologic analysis) [26 geoa...
Tools for LiDAR data [55 geoalgorithms]

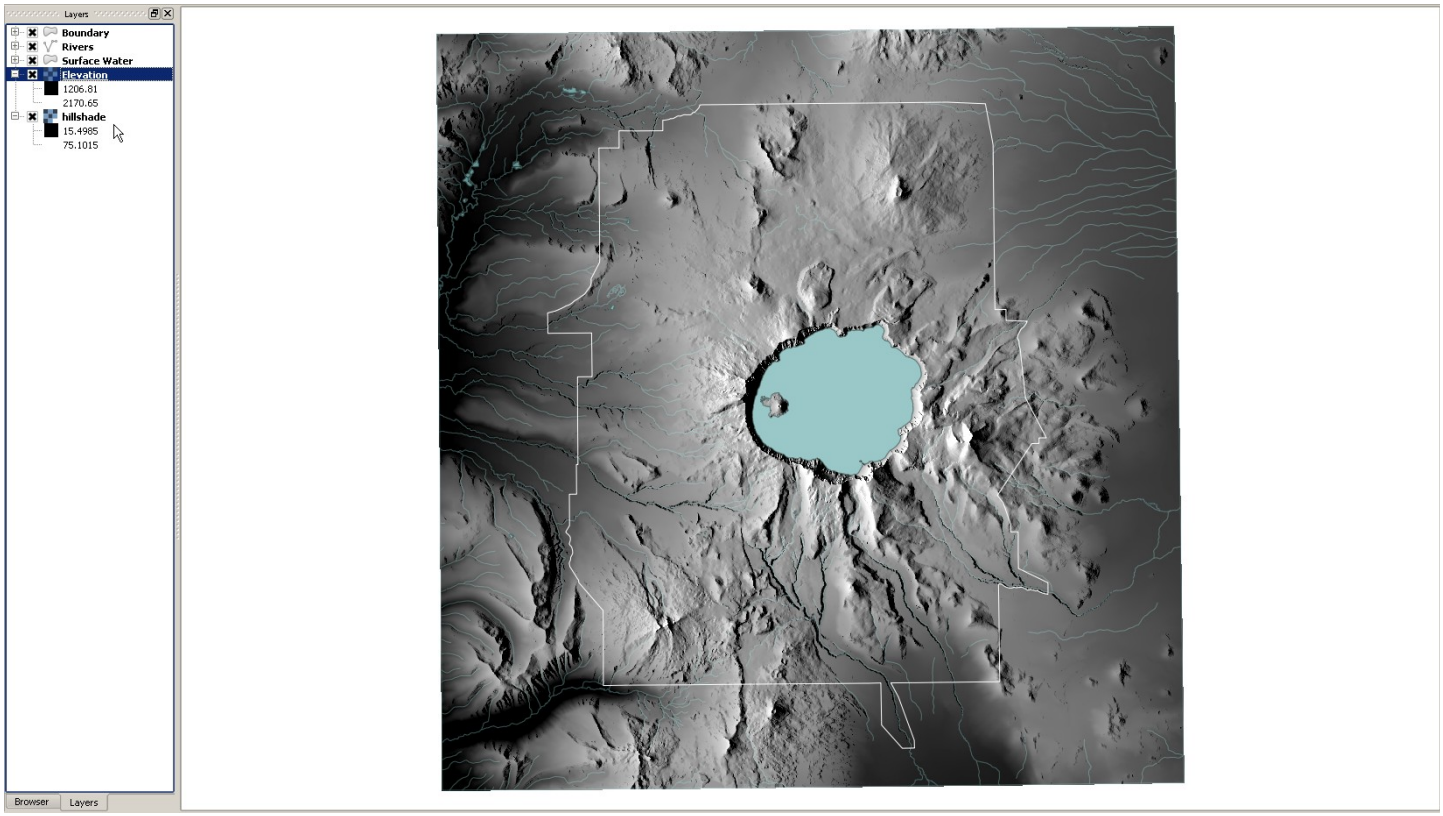

Aspect
Parameters
Log
Help
Input layer
...
Band number
1
...
Compute edges
No
Use Zevenbergen&Thorne formula (instead of the Horn's one)
No
Return trigonometric angle (instead of azimuth)
No
Return o for flat (instead of -9999)
No
Output file
[Save to temporary file]
...
Open output file after running algorithm
0%
Run
Close

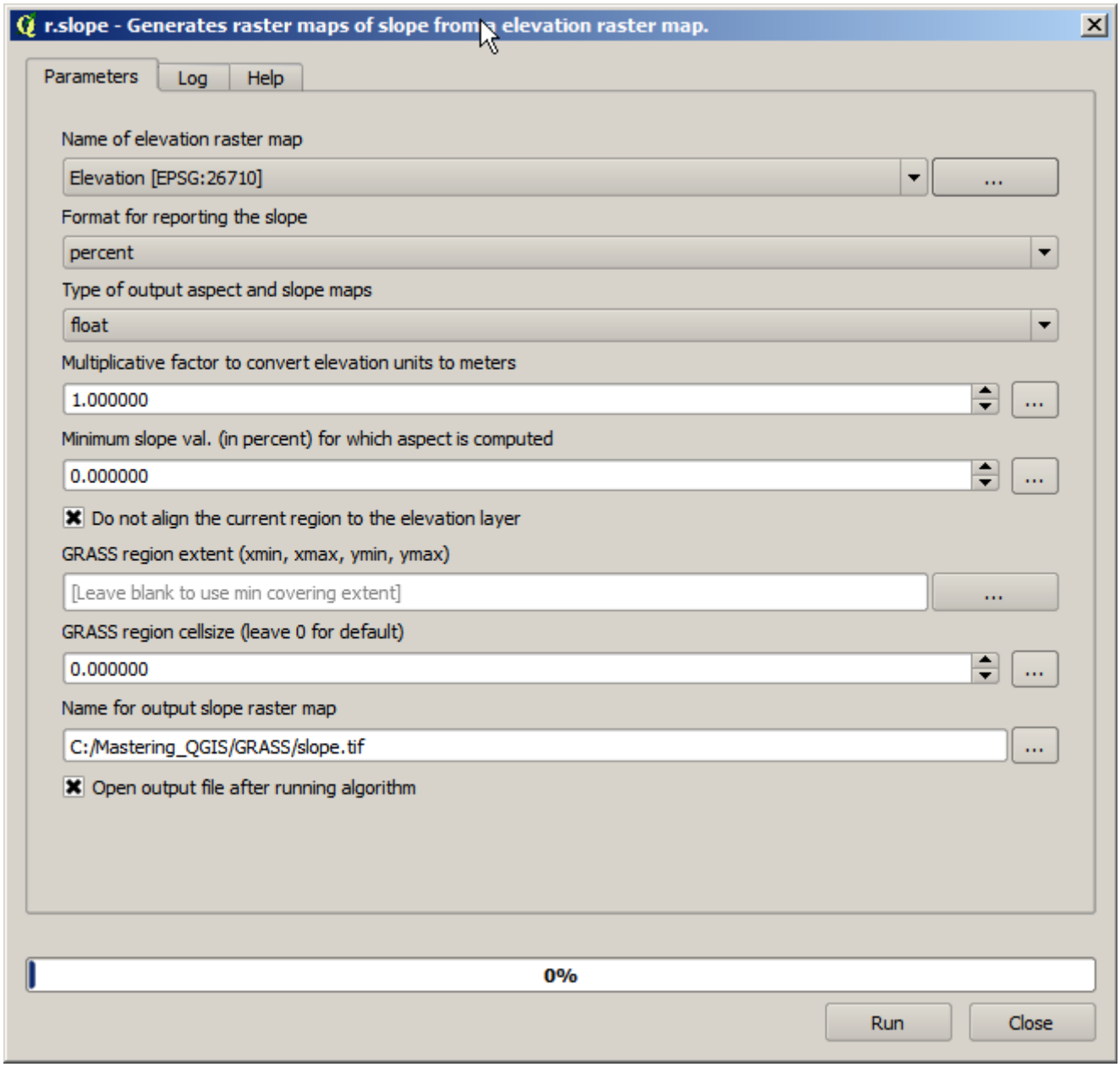

grid
Processing algorithm: Grid Network
Processing algorithm: Snap points to grid
Processing algorithm: Create grid
Processing algorithm: Hex grid from layer bounds
Processing algorithm: Grid Metrics
Processing algorithm: Create Grid Surface
Processing algorithm: lasgrid
Processing algorithm: Regular sampling grid
Processing algorithm: Random sampling grid
Processing algorithm: Contour lines from grid
Processing algorithm: Change grid values

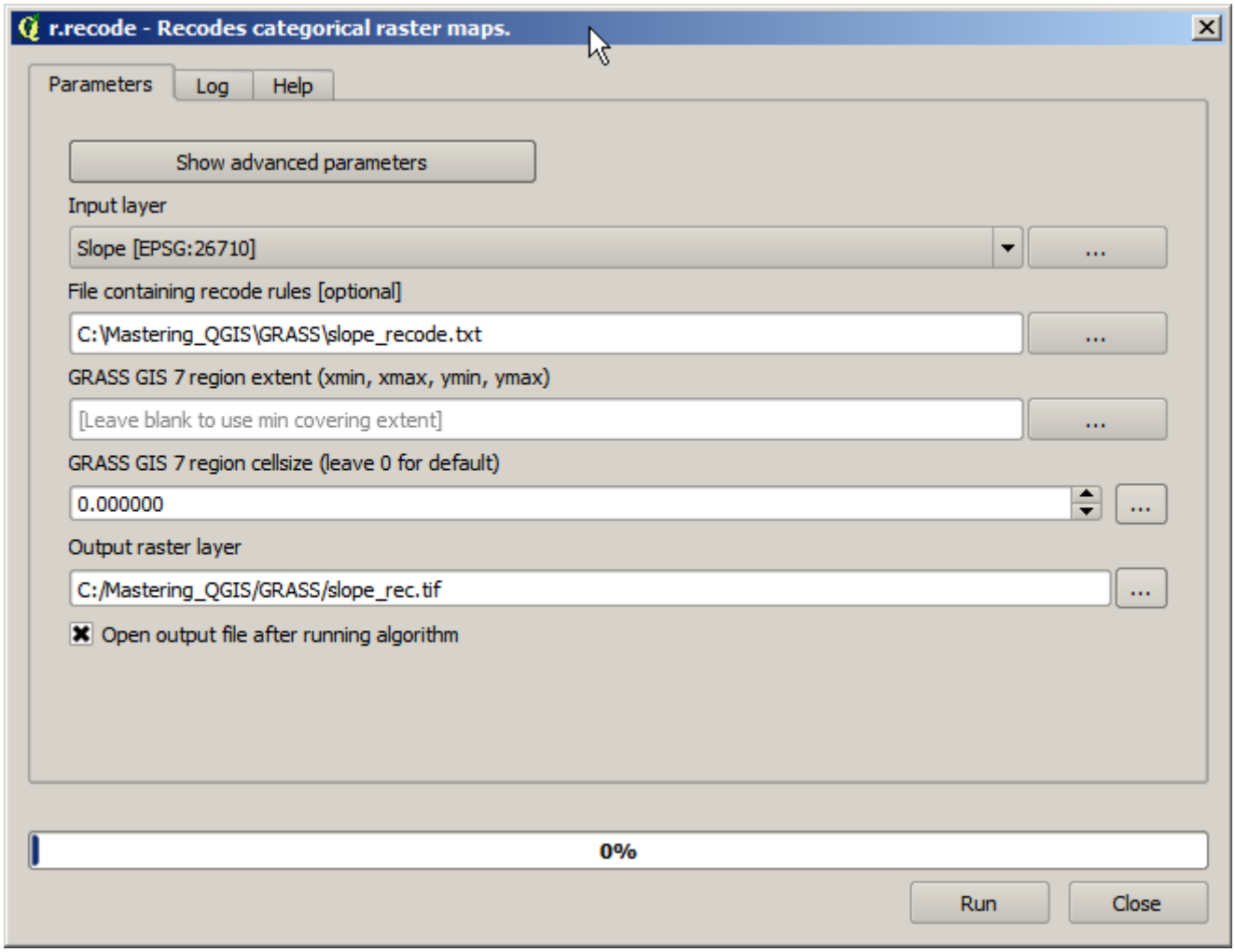

Processing Toolbox
grid
Recently used algorithms
Grid Network
GDAL/OGR [32 geoalgorithms]
[GDAL] Analysis
Grid (Data metrics)
Grid (Inverse distance to a...
Grid (Moving average)
Grid (Nearest neighbor)
GRASS commands [167 geoalgorith...
Raster (r.*)
r.out.gridatb - Exports GRA...
r.resamp.interp - Resample...
r.resamp.stats - Resamples...
r.terraflow - Flow computati...
r.terraflow.short - Flow co...
Vector (v.*)
v.mkgrid - Creates a GRAS...
QGIS geoalgorithms [79 geoalgorit...
Vector creation tools
Create grid
Vector general tools
Snap points to grid
R scripts [19 geoalgorithms]
Point pattern analysis
Random sampling grid
Regular sampling grid
SAGA [228 geoalgorithms]
Geostatistics
Directional statistics for sin...

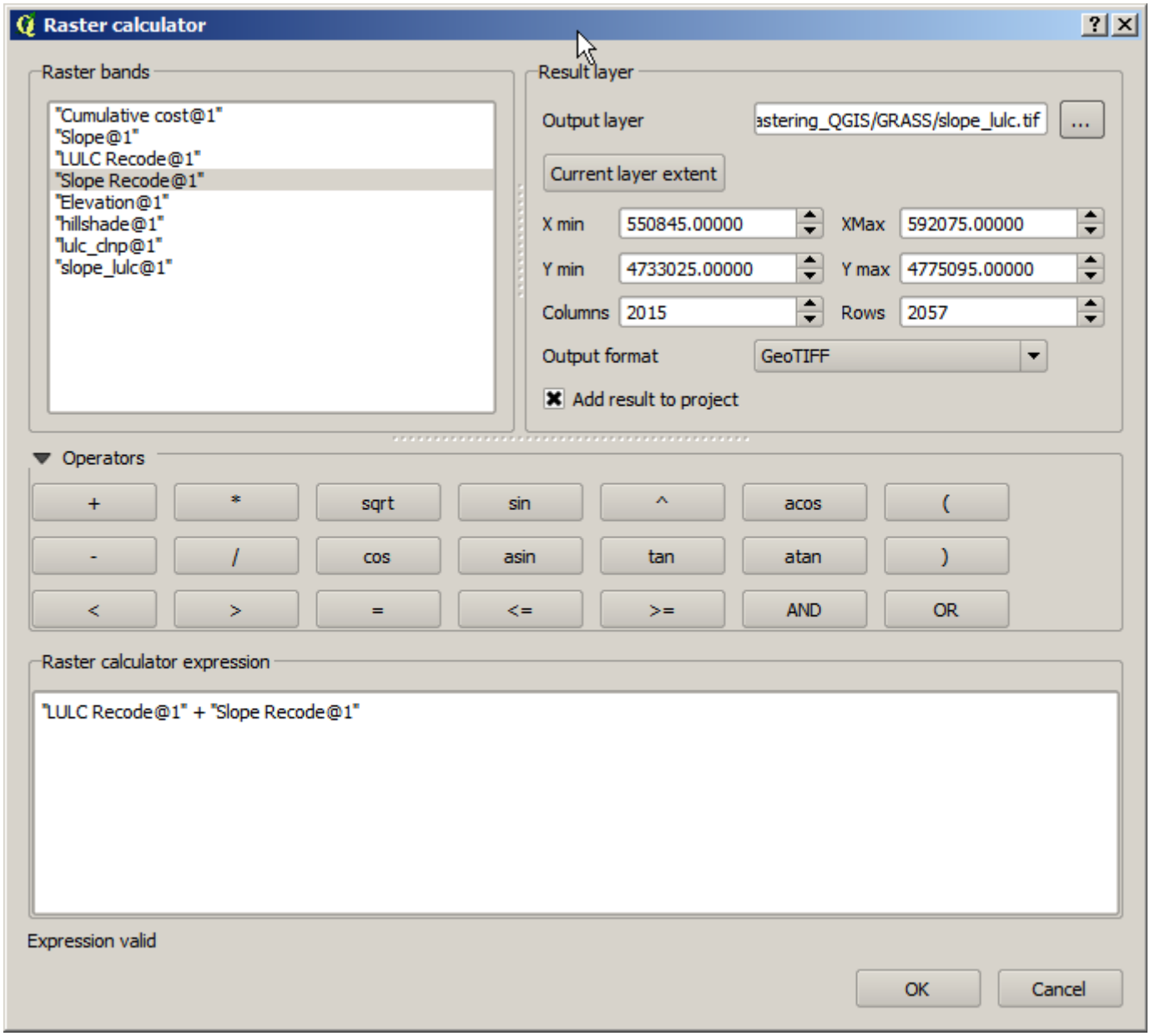

Layers
Boundary
Rivers
Surface Water
Contours
Elevation
1206.81
2170.65
Browser
Layers

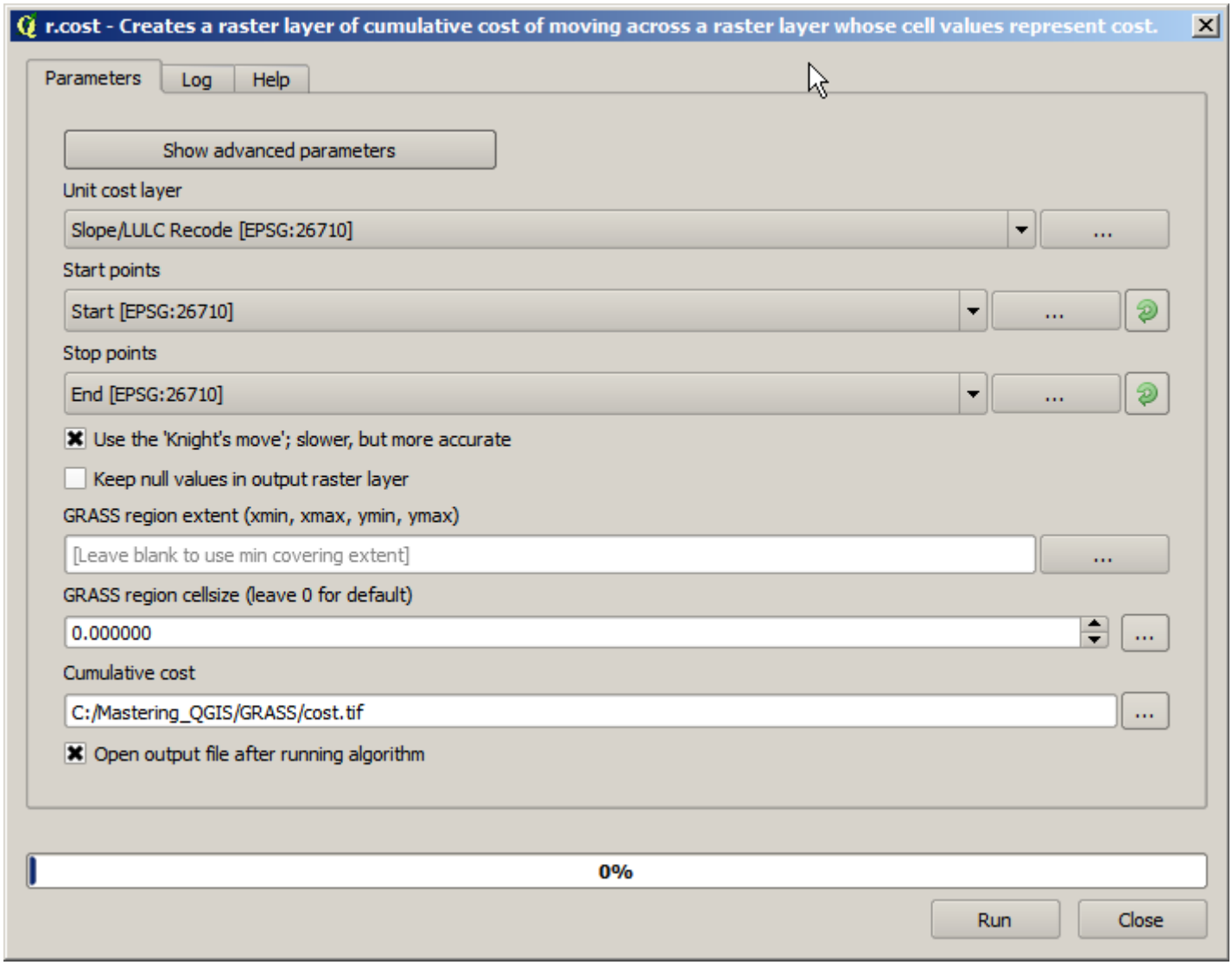

r.shaded.relief - Creates shaded relief from an elevation layer (DEM).
Parameters
Log
Help
Input elevation layer
Elevation [EPSG:26710]
...
Altitude of the sun in degrees above the horizon
30.000000
...
Azimuth of the sun in degrees to the east of north
270.000000
...
Factor for exaggerating relief
1.000000
...
Scale factor for converting horizontal units to elevation units
1.000000
...
et scaling factor (applies to lat./long. locations only, none: scale=1)
none
GRASS GIS 7 region extent (xmin, xmax, ymin, ymax)
[Leave blank to use min covering extent]
...
GRASS GIS 7 region cellsize (leave 0 for default)
0.000000
...
Output shaded relief layer
C:/Mastering_QGIS/GRASS/hillshade.tif
...
Open output file after running algorithm
0%
Run
Close

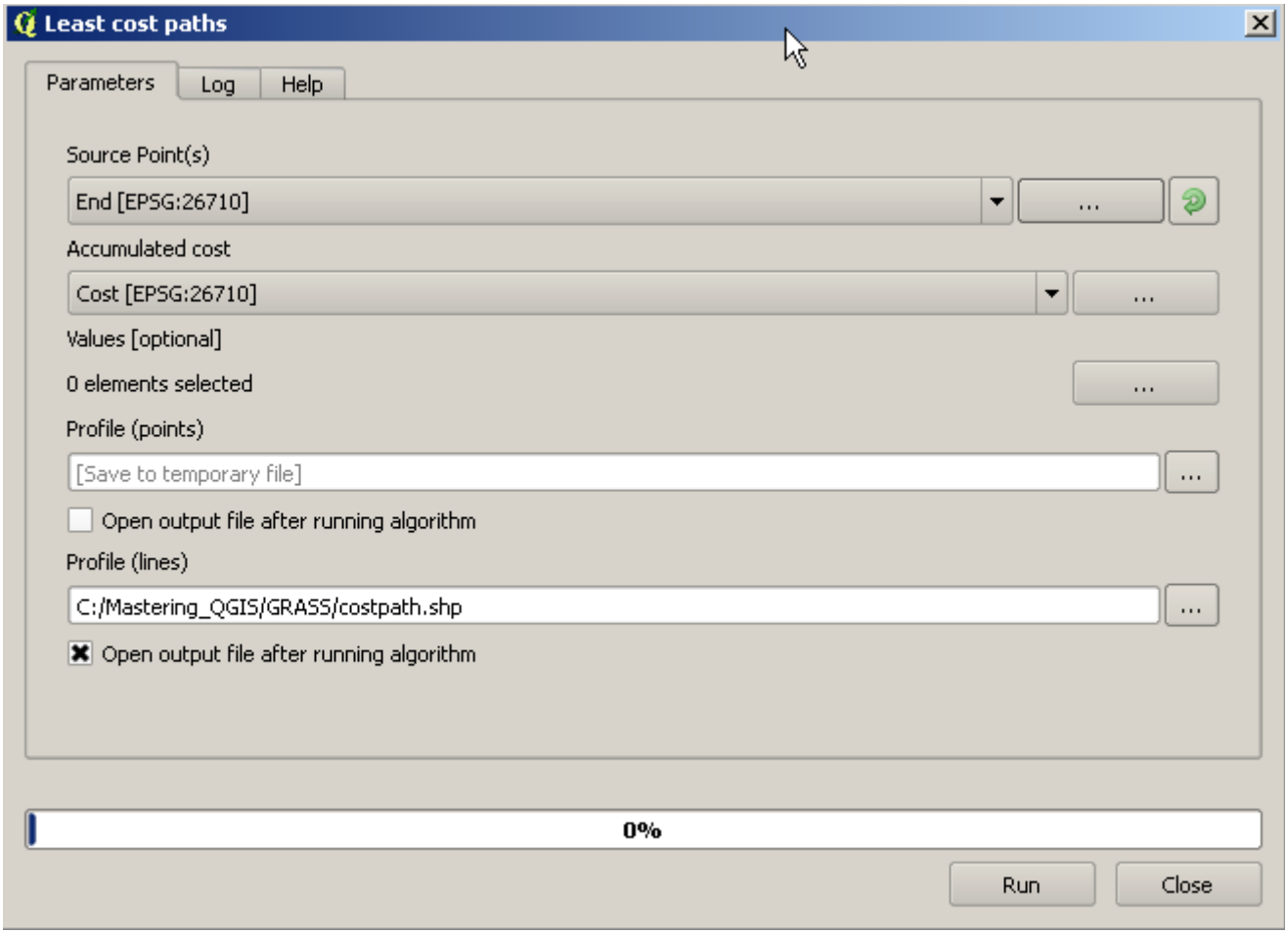

Layers
Boundary
Rivers
Surface Water
Elevation
1206.81
2170.65
hillshade
15.4985
75.1015
Browser
Layers

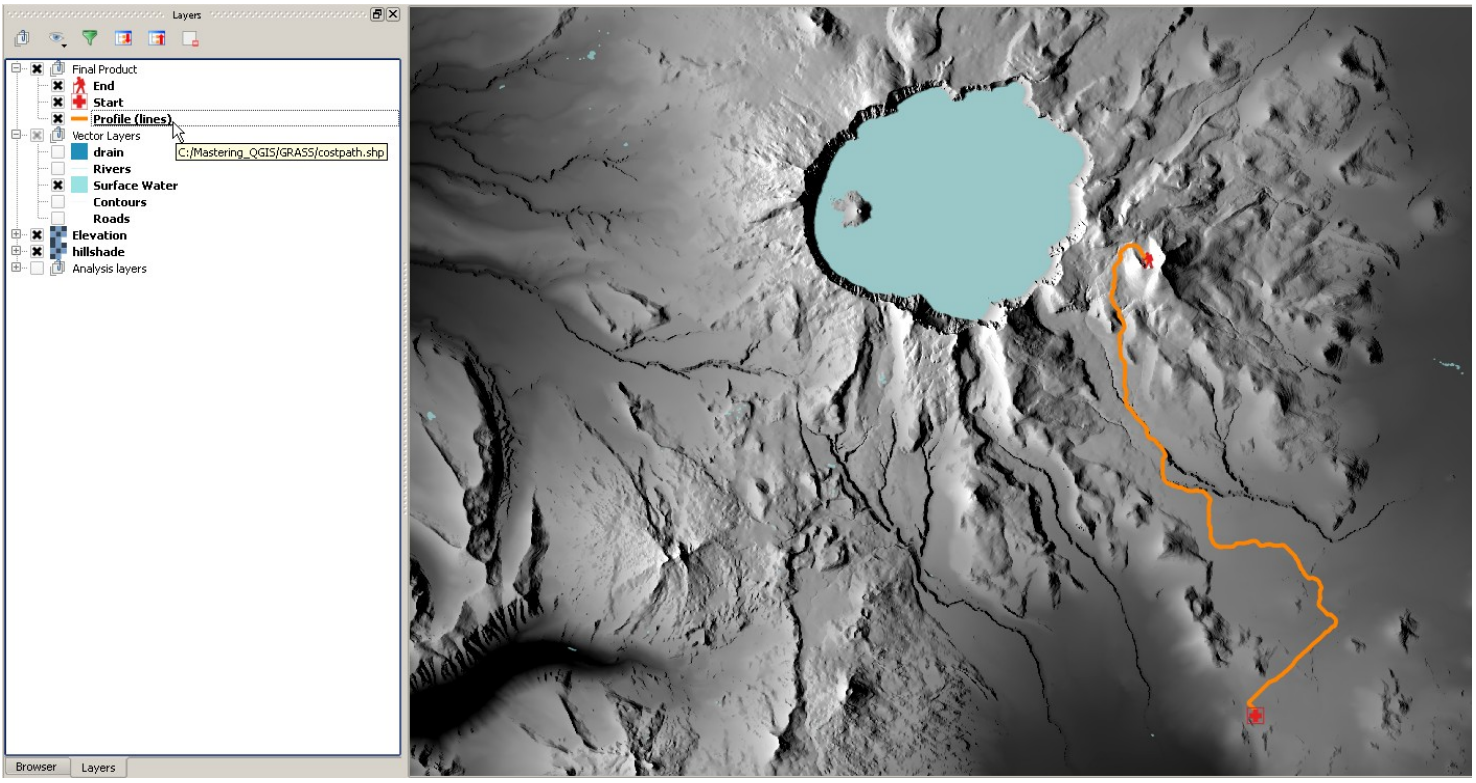

r.slope - Generates raster maps of slope from a elevation raster map.
Parameters
Log
Help
Name of elevation raster map
Elevation [EPSG:26710]
...
Format for reporting the slope
percent
Type of output aspect and slope maps
float
Multiplicative factor to convert elevation units to meters
1.000000
...
Minimum slope val. (in percent) for which aspect is computed
0.000000
...
Do not align the current region to the elevation layer
GRASS region extent (xmin, xmax, ymin, ymax)
[Leave blank to use min covering extent]
...
GRASS region cellsize (leave 0 for default)
0.000000
...
Name for output slope raster map
C:/Mastering_QGIS/GRASS/slope.tif
...
Open output file after running algorithm
0%
Run
Close

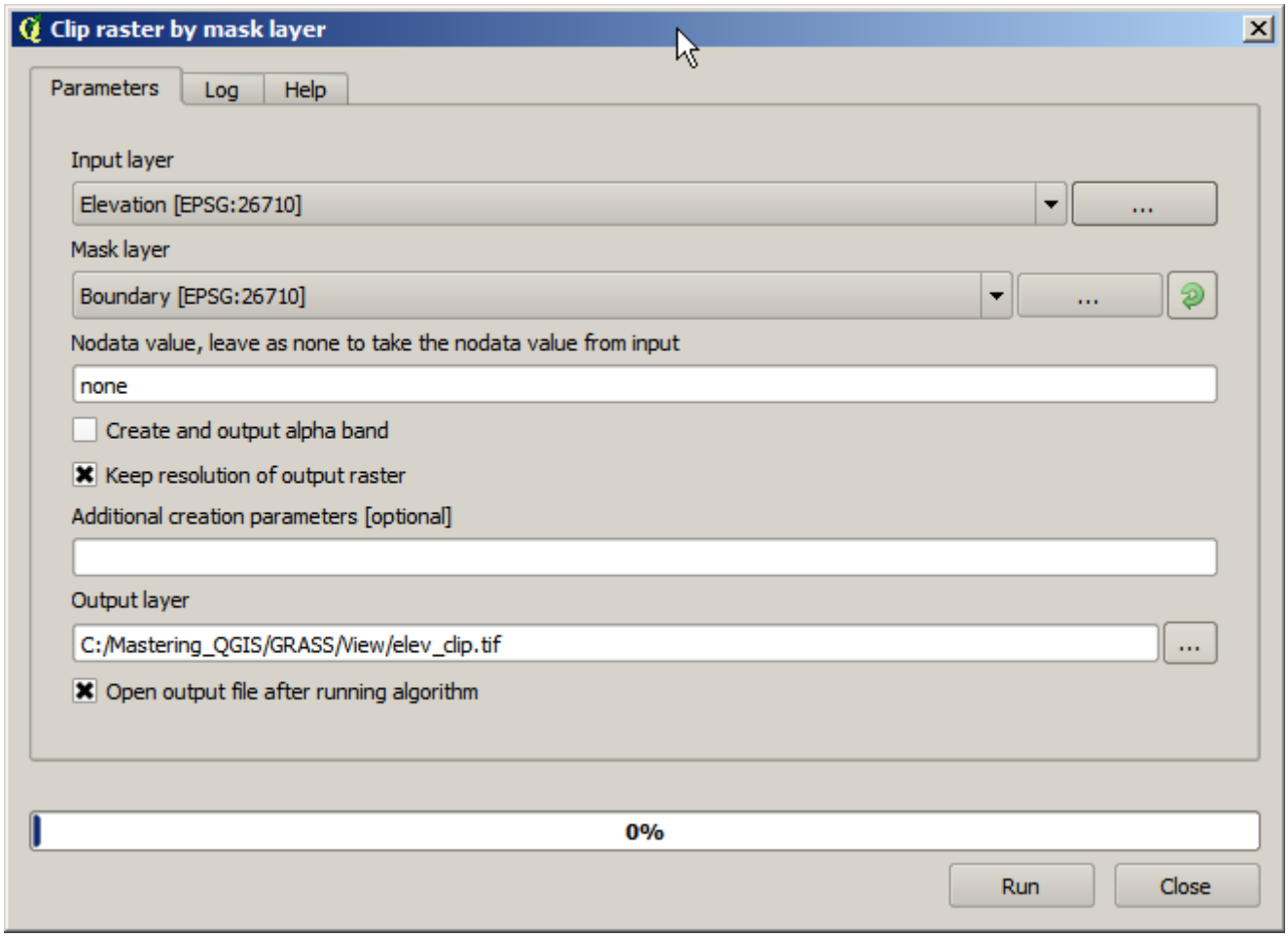

r.recode - Recodes categorical raster maps.
Parameters
Log
Help
Show advanced parameters
Input layer
Slope [EPSG:26710]
...
File containing recode rules [optional]
C:\Mastering_QGIS\GRASS\slope_recode.txt
...
GRASS GIS 7 region extent (xmin, xmax, ymin, ymax)
[Leave blank to use min covering extent]
...
GRASS GIS 7 region cellsize (leave 0 for default)
0.000000
...
Output raster layer
C:/Mastering_QGIS/GRASS/slope_rec.tif
...
Open output file after running algorithm
0%
Run
Close

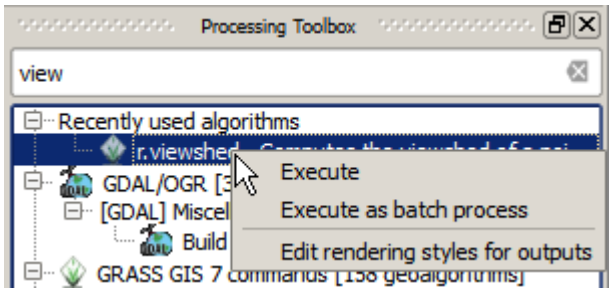

Raster calculator
Raster bands
"Cumulative cost@1"
"Slope@1"
"LULC Recode@1"
"Slope Recode@1"
"Elevation@1"
"hillshade@1"
"lulc_clnp@1"
"slope_lulc@1"
Result layer
Output layer
astering_QGIS/GRASS/slope_lulc.tif
...
Current layer extent
X min
550845.00000
XMax
592075.00000
Y min
4733025.00000
Y max
4775095.00000
Columns
2015
Rows
2057
Output format
GeoTIFF
Add result to project
Operators
+
*
sqrt
sin
^
acos
(
-
/
cos
asin
tan
atan
)
<
>
=
<=
>=
AND
OR
Raster calculator expression
"LULC Recode@1" + "Slope Recode@1"
Expression valid
OK
Cancel

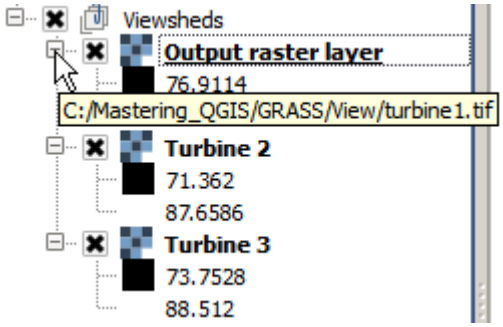

r.cost - Creates a raster layer of cumulative cost of moving across a raster layer whose cell values represent cost.
Parameters
Log
Help
Show advanced parameters
Unit cost layer
Slope/LULC Recode [EPSG:26710]
...
Start points
Start [EPSG:26710]
...
Stop points
End [EPSG:26710]
...
Use the 'Knight's move'; slower, but more accurate
Keep null values in output raster layer
GRASS region extent (xmin, xmax, ymin, ymax)
[Leave blank to use min covering extent]
...
GRASS region cellsize (leave 0 for default)
0.000000
...
Cumulative cost
C:/Mastering_QGIS/GRASS/cost.tif
...
Open output file after running algorithm
0%
Run
Close

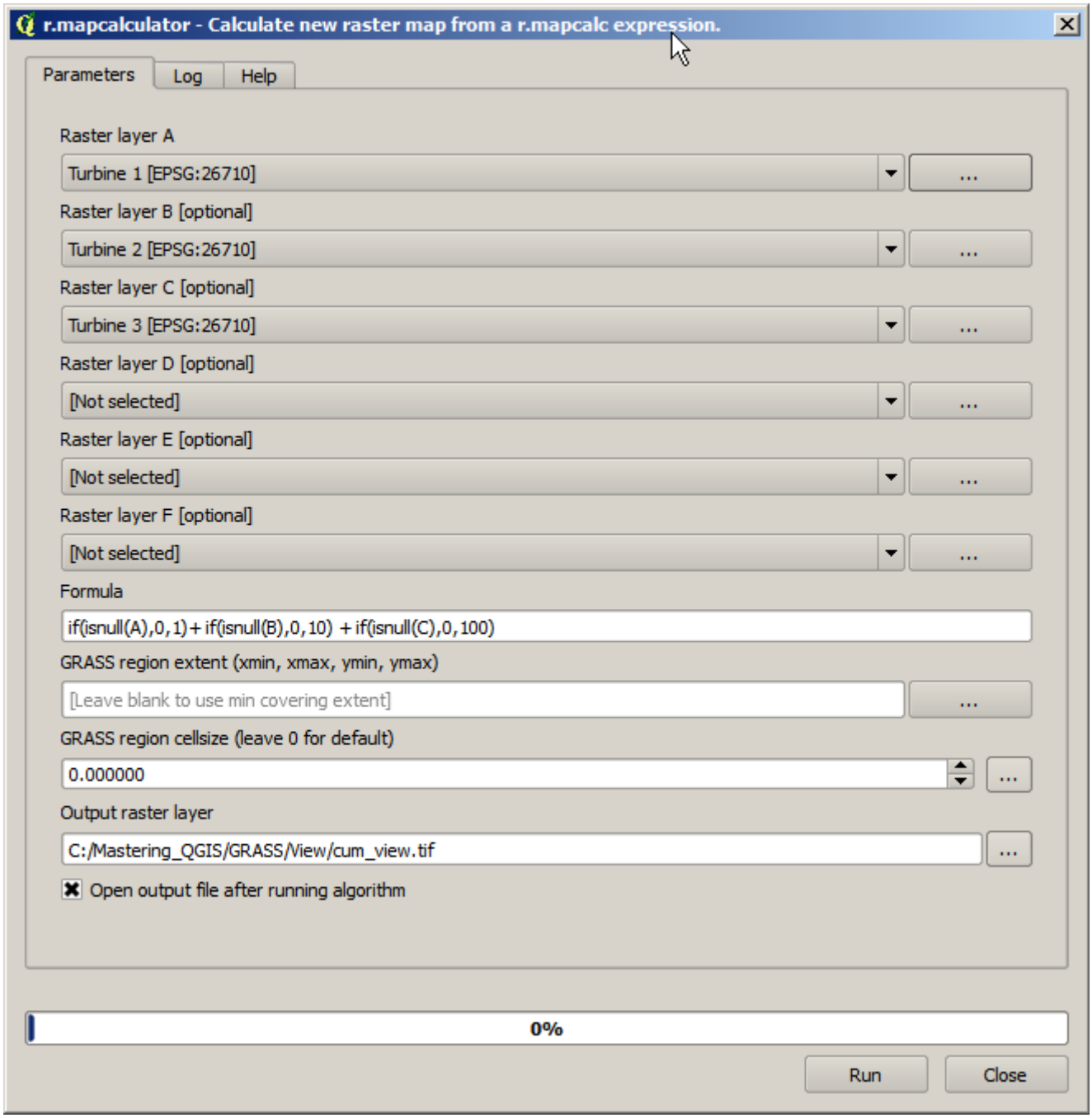

Least cost paths
Parameters
Log
Help
Source Point(s)
End [EPSG:26710]
...
Accumulated cost
Cost [EPSG:26710]
...
Values [optional]
0 elements selected
...
Profile (points)
[Save to temporary file]
...
Open output file after running algorithm
Profile (lines)
C:/Mastering_QGIS/GRASS/costpath.shp
...
Open output file after running algorithm
0%
Run
Close

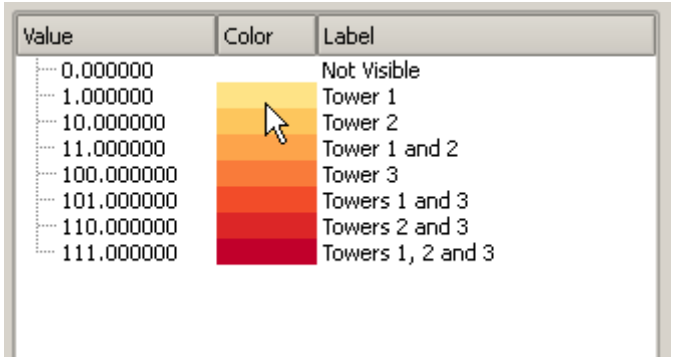

Layers
Final Product
End
Start
Profile (lines)
Vector Layers
drain
C:/Mastering_QGIS/GRASS/costpath.shp
Rivers
Surface Water
Contours
Roads
Elevation
hillshade
Analysis layers
Browser
Layers


Clip raster by mask layer
Parameters
Log
Help
Input layer
Elevation [EPSG:26710]
...
Mask layer
Boundary [EPSG:26710]
...
Nodata value, leave as none to take the nodata value from input
none
Create and output alpha band
Keep resolution of output raster
Additional creation parameters [optional]
Output layer
C:/Mastering_QGIS/GRASS/View/elev_clip.tif
...
Open output file after running algorithm
0%
Run
Close


Processing Toolbox
view
Recently used algorithms
r.viewshed
GDAL/OGR
[GDAL] Miscel
Build
GRASS GIS 7
Execute
Execute as batch process
Edit rendering styles for outputs

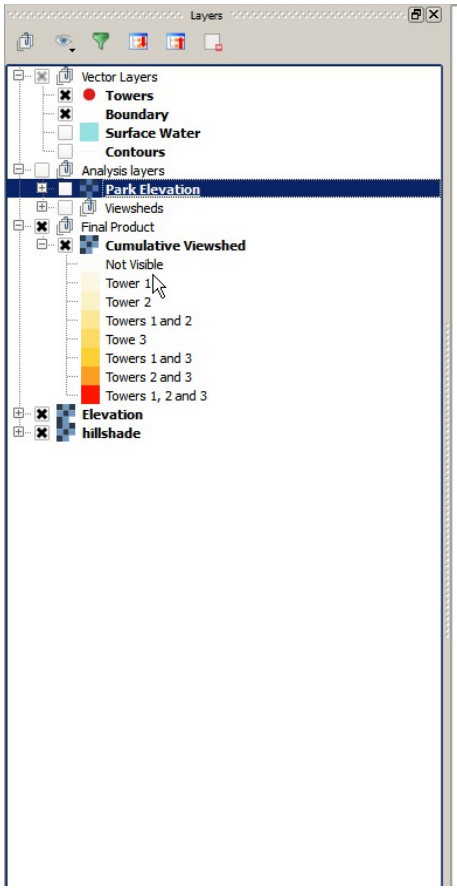

Viewsheds
Output raster layer
76.9114
C:/Mastering_QGIS/GRASS/View/turbine1.tif
Turbine 2
71.362
87.6586
Turbine 3
73.7528
88.512

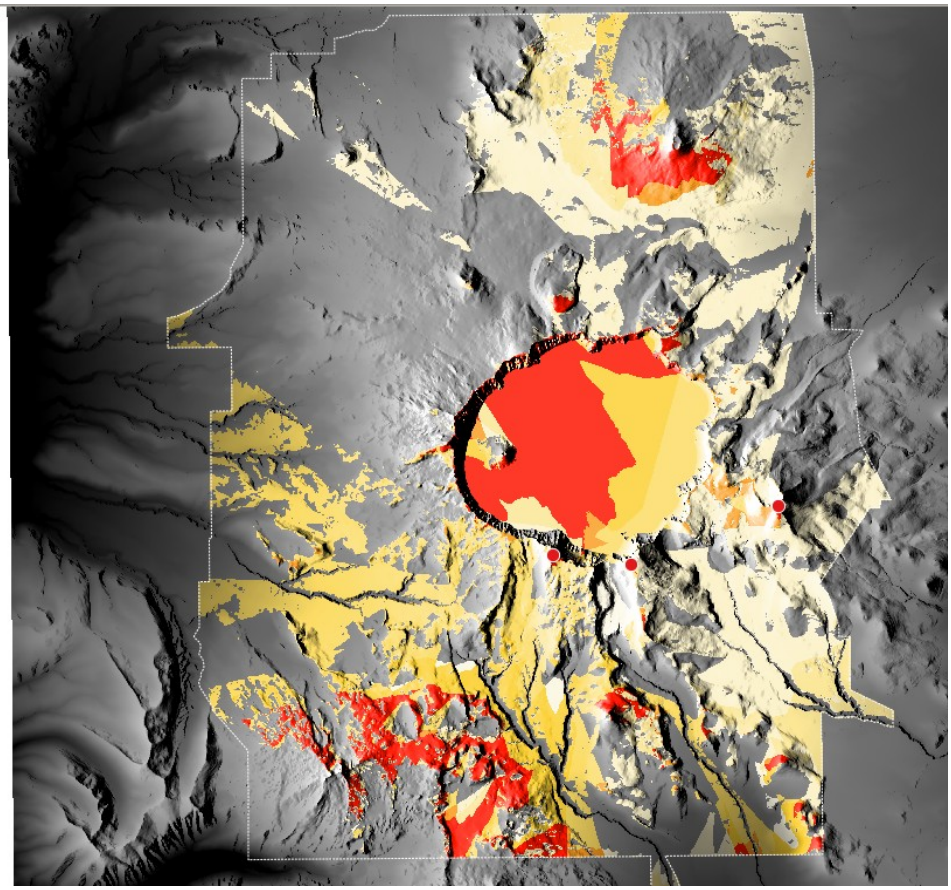

r.mapcalculator - Calculate new raster map from a r.mapcalc expression.
Parameters
Log
Help
Raster layer A
Turbine 1 [EPSG:26710]
Raster layer B [optional]
Turbine 2 [EPSG:26710]
Raster layer C [optional]
Turbine 3 [EPSG:26710]
Raster layer D [optional]
[Not selected]
Raster layer E [optional]
[Not selected]
Raster layer F [optional]
[Not selected]
Formula
if(isnull(A),0,1)+if(isnull(B),0,10) +if(isnull(C),0,100)
GRASS region extent (xmin, xmax, ymin, ymax)
[Leave blank to use min covering extent]
GRASS region cellsize (leave 0 for default)
0.000000
Output raster layer
C:/Mastering_QGIS/GRASS/View/cum_view.tif
Open output file after running algorithm
0%
Run
Close

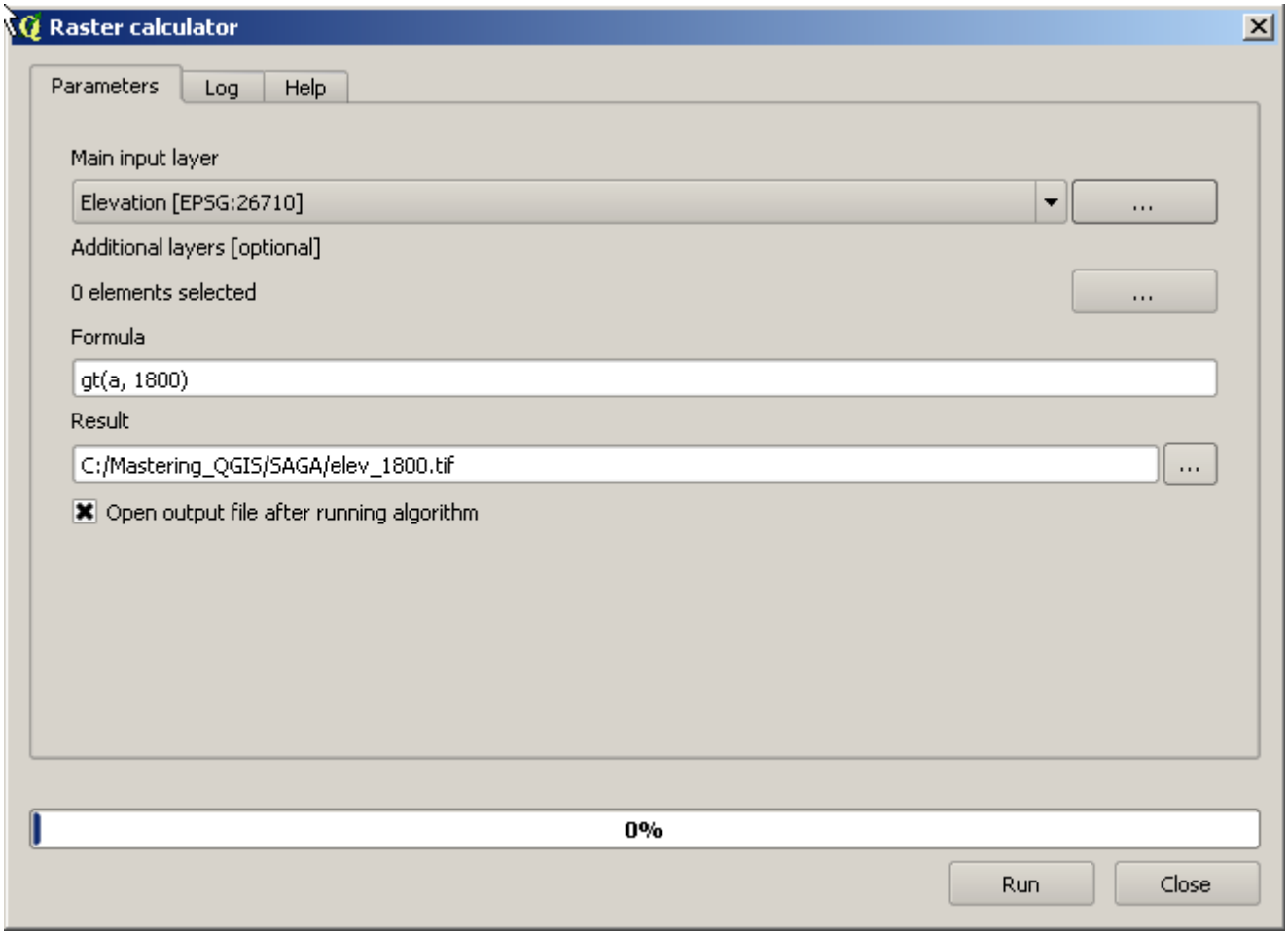

Value
Color
Label
0.000000
Not Visible
1.000000
Tower 1
10.000000
Tower 2
11.000000
Tower 1 and 2
100.000000
Tower 3
101.000000
Towers 1 and 3
110.000000
Towers 2 and 3
111.000000
Towers 1, 2 and 3

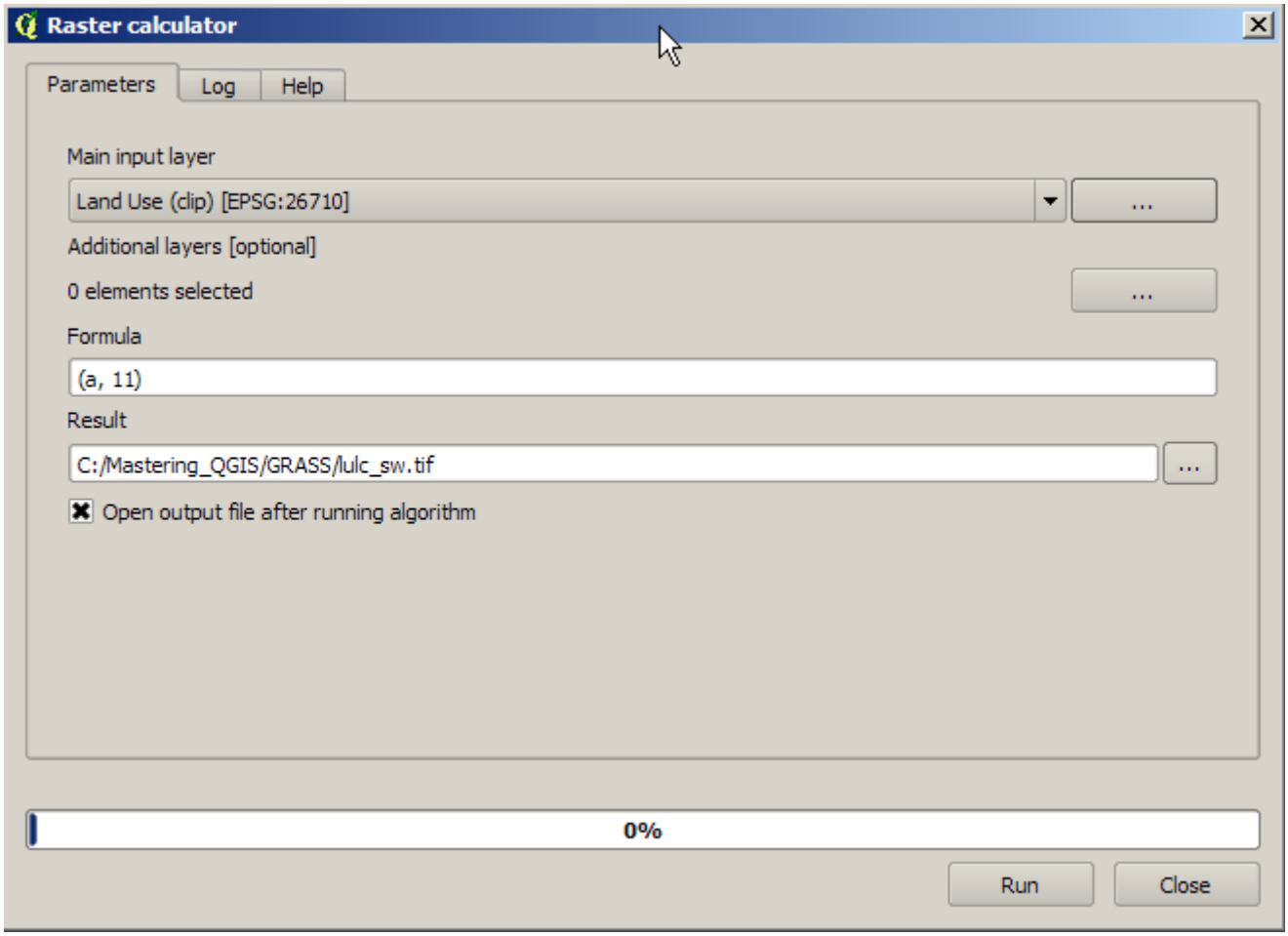
r.stats

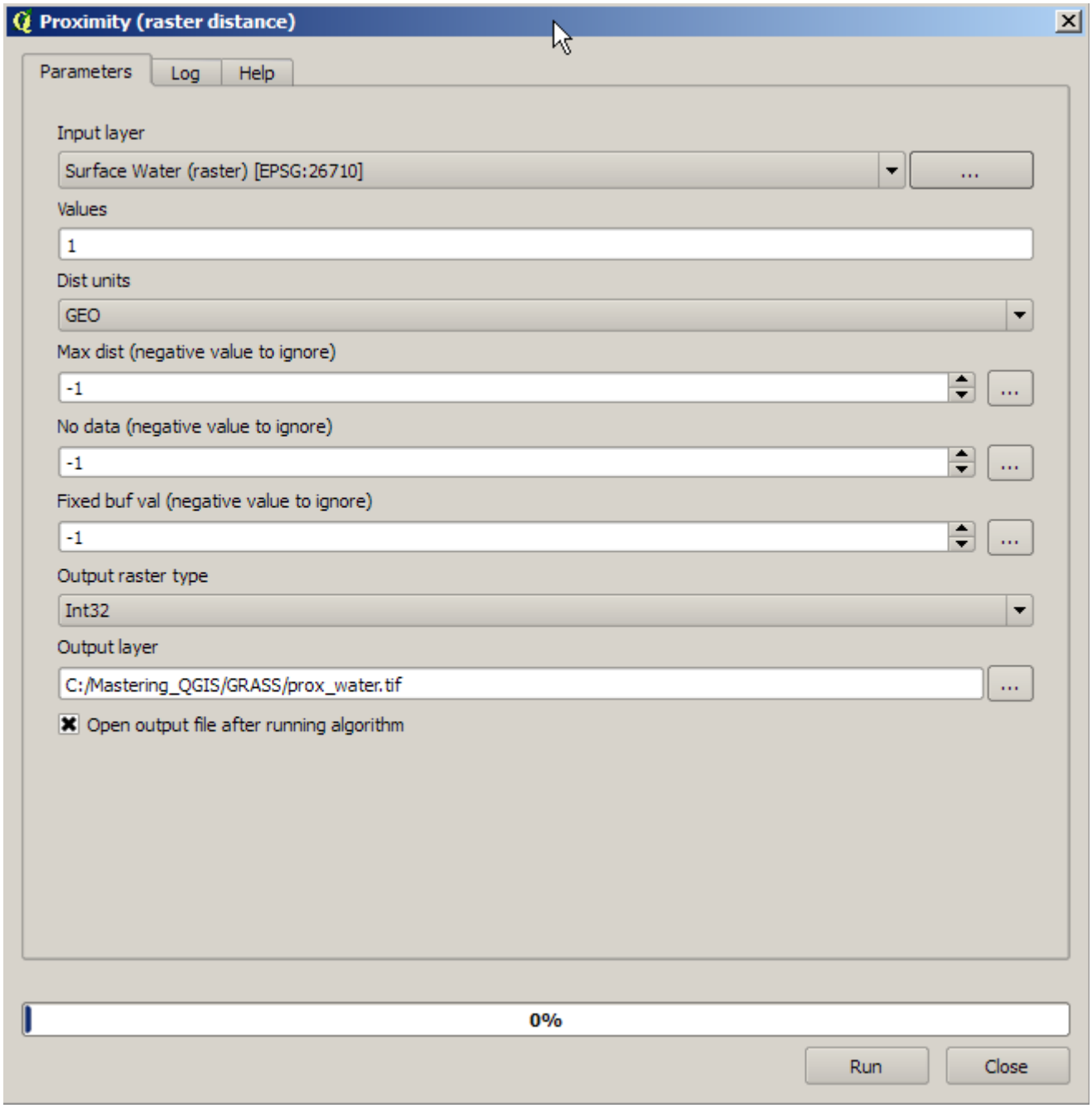
0 623402400.000000
1 7756000.000000
10 128996100.000000
11 31945300.000000
100 85009000.000000
101 33947700.000000
110 8058800.000000
111 63800700.000000

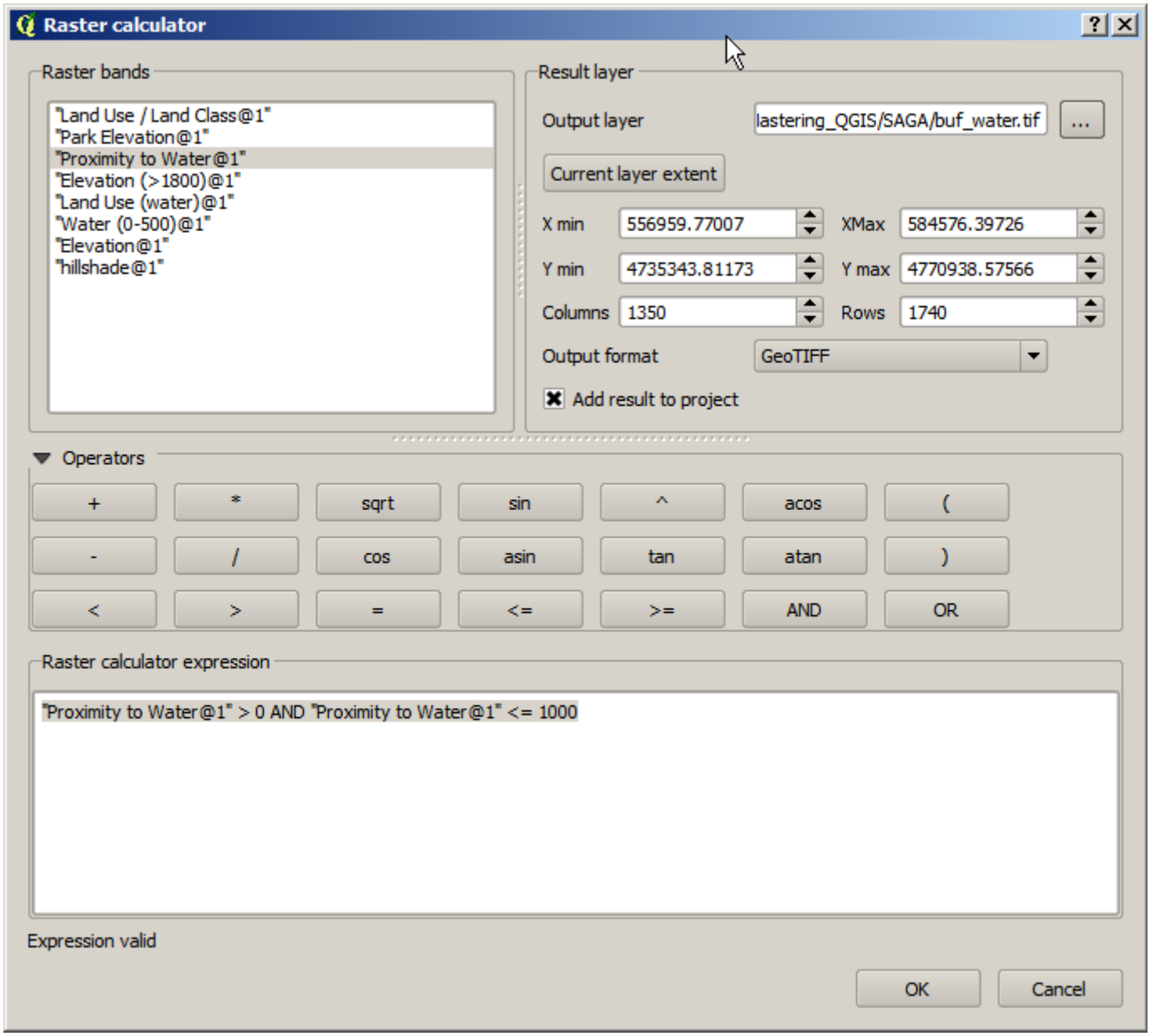


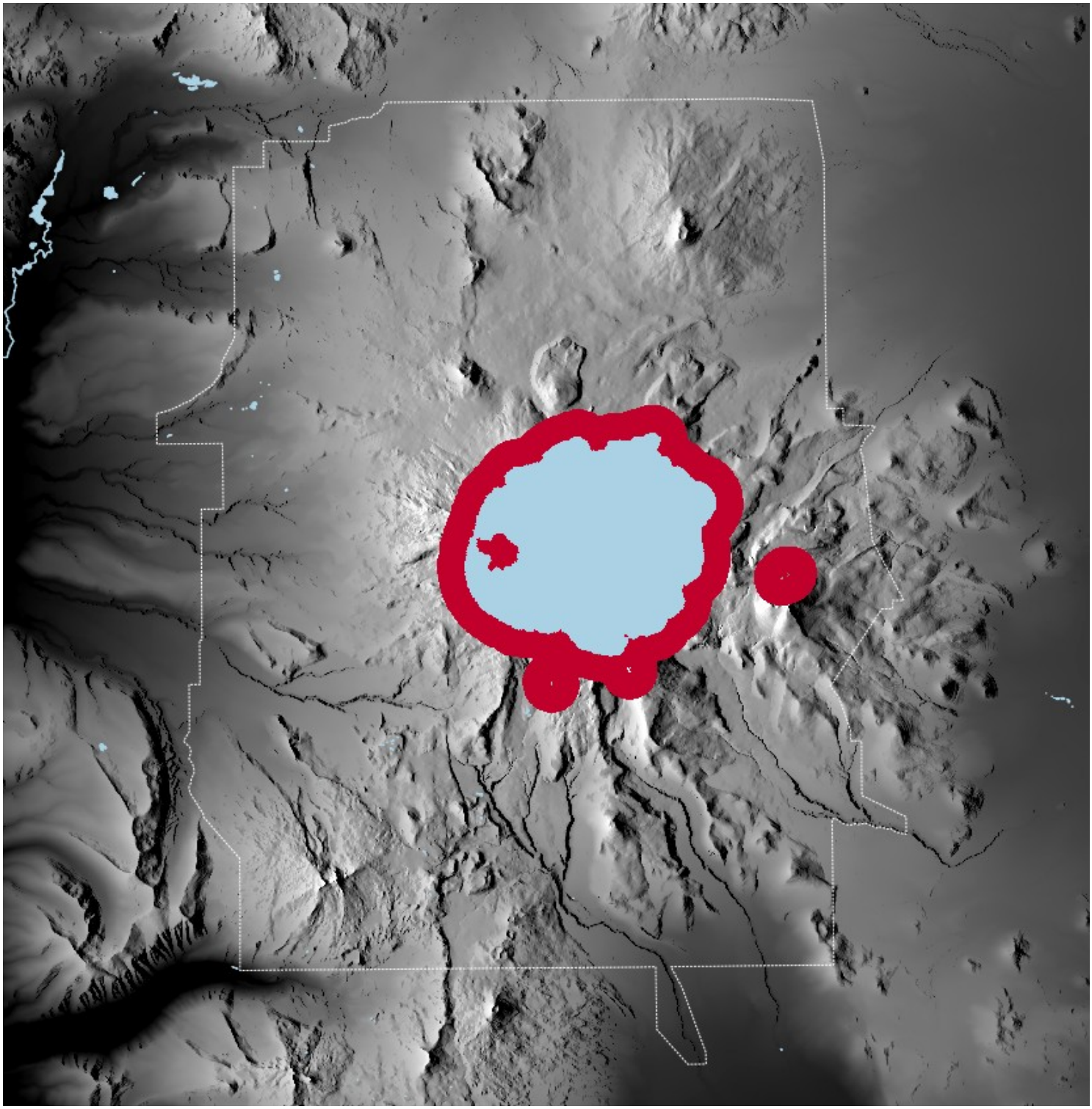


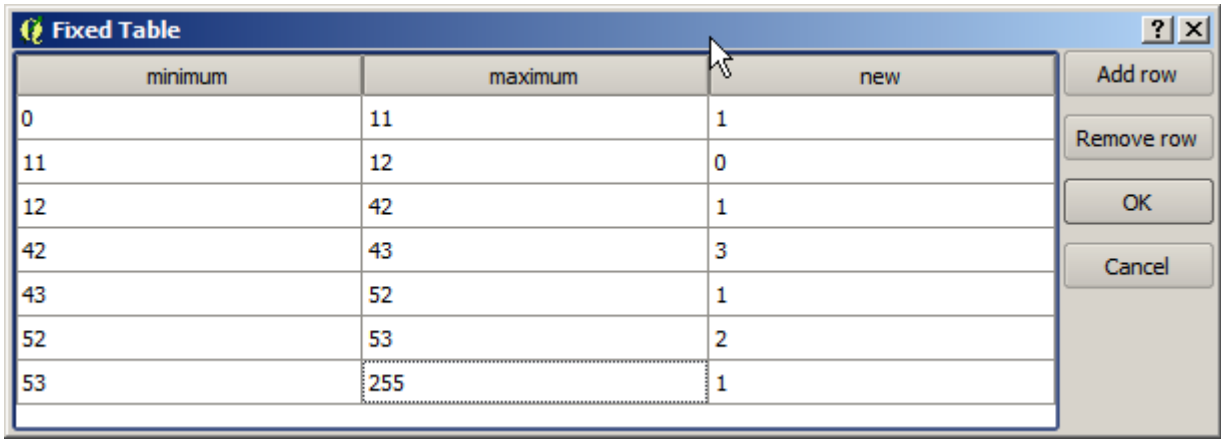

Raster calculator
Parameters
Log
Help
Main input layer
Elevation [EPSG:26710]
...
Additional layers [optional]
0 elements selected
...
Formula
gt(a, 1800)
Result
C:/Mastering_QGIS/SAGA/elev_1800.tif
...
Open output file after running algorithm
0%
Run
Close

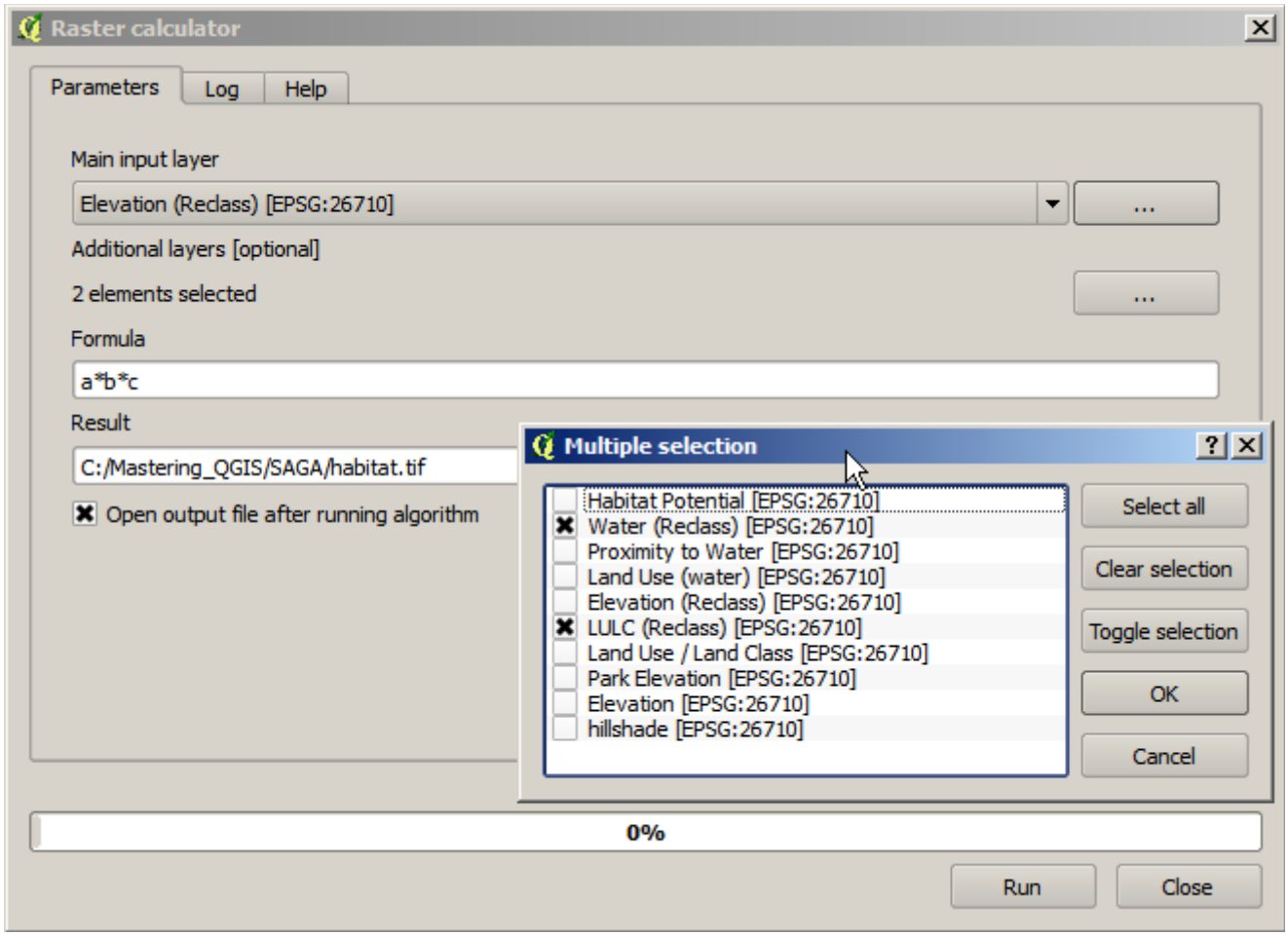

Raster calculator
Parameters
Log
Help
Main input layer
Land Use (clip) [EPSG:26710]
...
Additional layers [optional]
0 elements selected
...
Formula
(a, 11)
Result
C:/Mastering_QGIS/GRASS/lulc_sw.tif
...
Open output file after running algorithm
0%
Run
Close

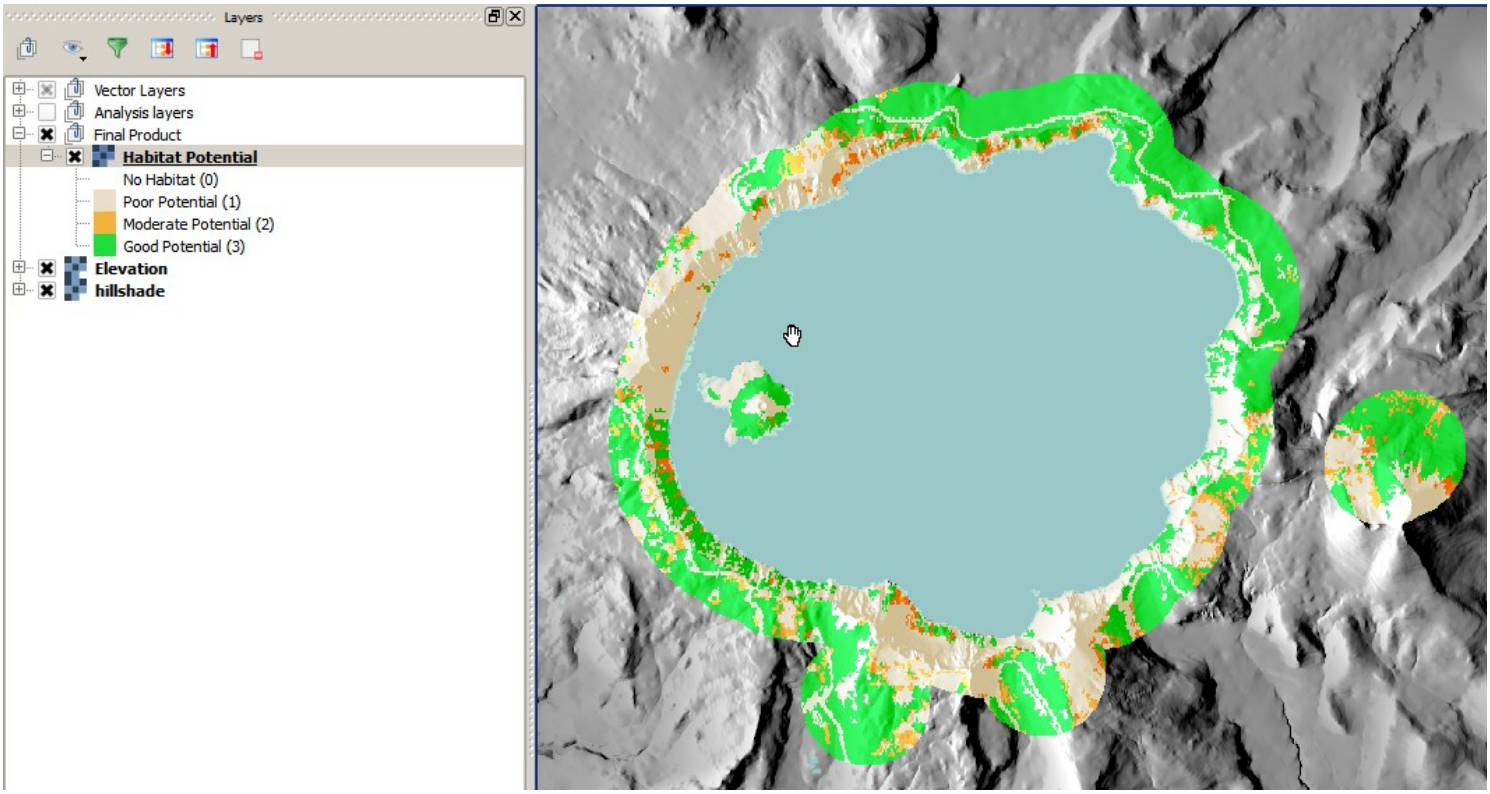

Proximity (raster distance)
Parameters
Log
Help
Input layer
Surface Water (raster) [EPSG:26710]
...
Values
1
Dist units
GEO
Max dist (negative value to ignore)
-1
...
No data (negative value to ignore)
-1
...
Fixed buf val (negative value to ignore)
-1
...
Output raster type
Int32
Output layer
C:/Mastering_QGIS/GRASS/prox_water.tif
...
Open output file after running algorithm
0%
Run
Close

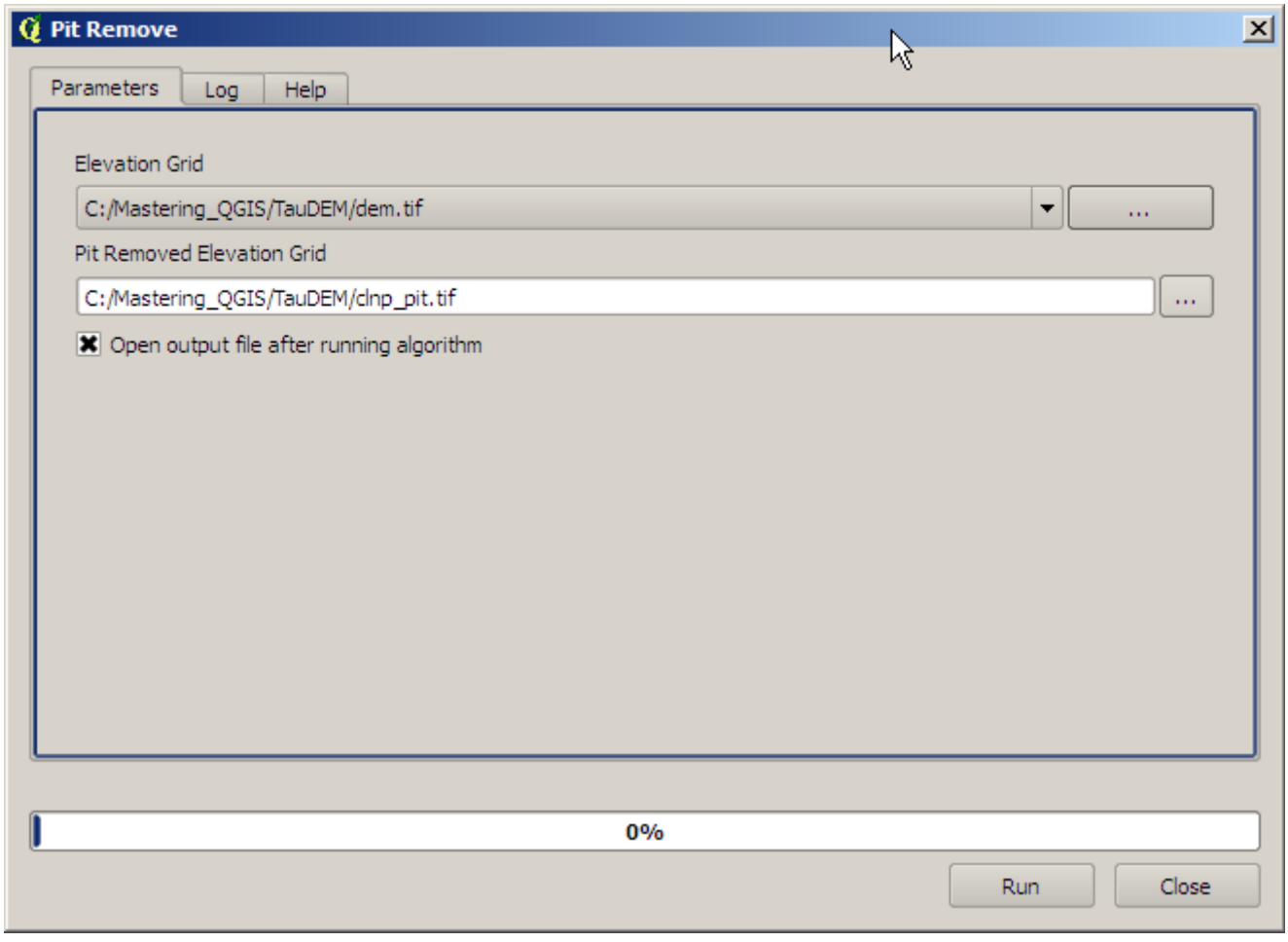

Raster calculator
Raster bands
"Land Use / Land Class@1"
"Park Elevation@1"
"Proximity to Water@1"
"Elevation (>1800)@1"
"Land Use (water)@1"
"Water (0-500)@1"
"Elevation@1"
"hillshade@1"
Result layer
Output layer
lastering_QGIS/SAGA/buf_water.tif
...
Current layer extent
X min
556959.77007
XMax
584576.39726
Y min
4735343.81173
Y max
4770938.57566
Columns
1350
Rows
1740
Output format
GeoTIFF
Add result to project
Operators
+
*
sqrt
sin
^
acos
(
-
/
cos
asin
tan
atan
)
<
>
=
<=
>=
AND
OR
Raster calculator expression
"Proximity to Water@1" > 0 AND "Proximity to Water@1" <= 1000
Expression valid
OK
Cancel

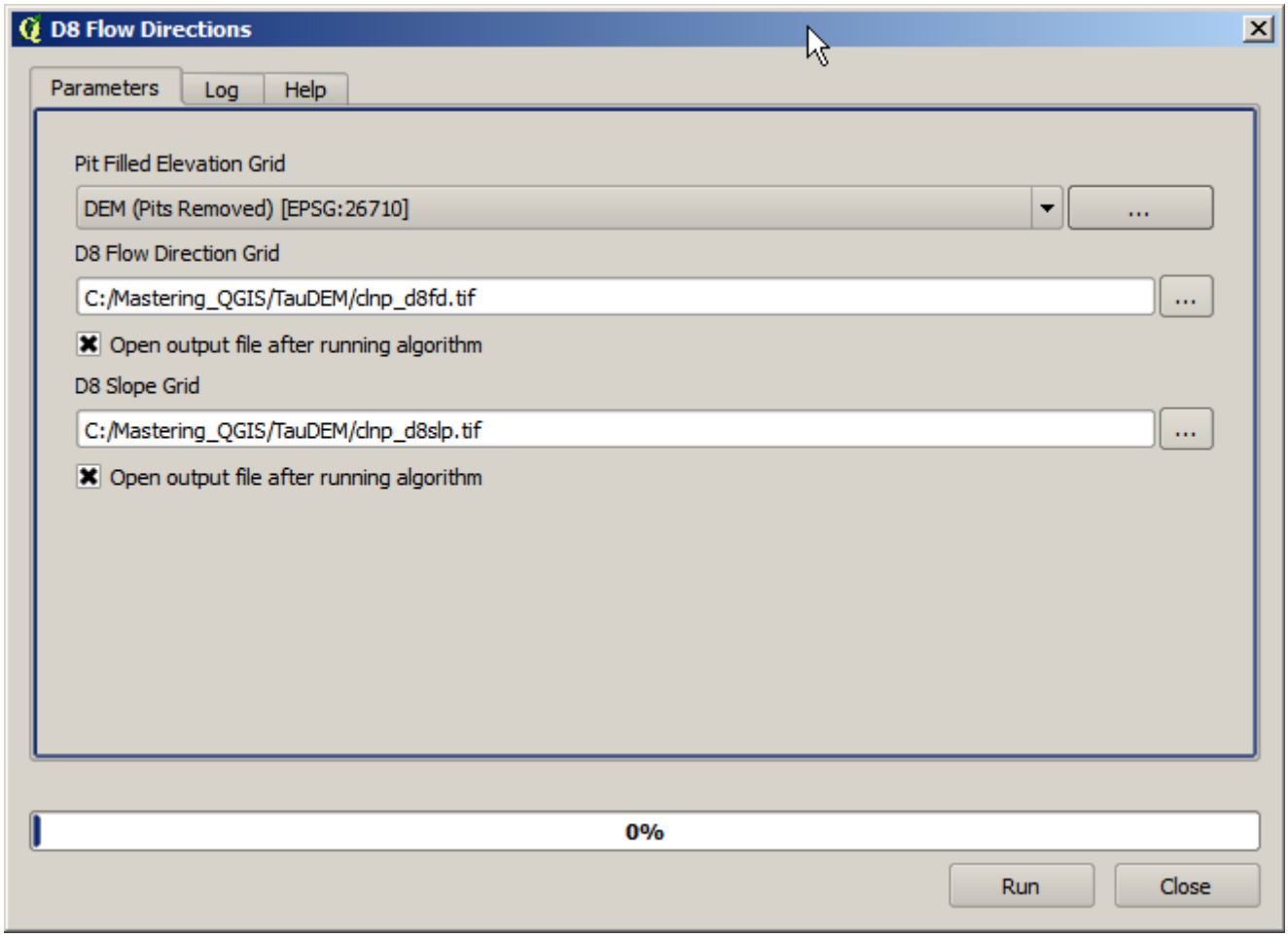


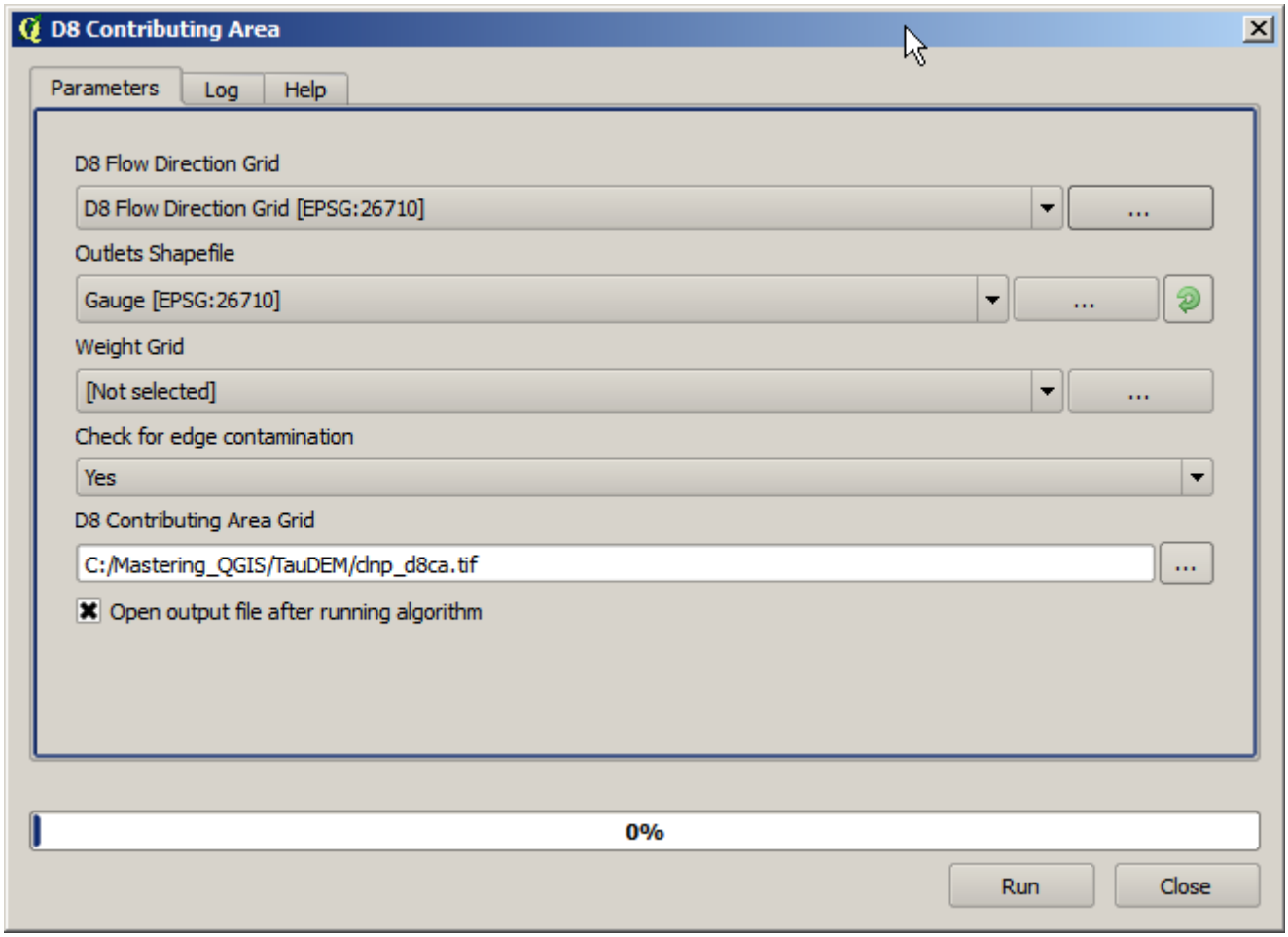

Fixed Table
minimum
maximum
new
0
11
1
11
12
0
12
42
1
42
43
3
43
52
1
52
53
2
53
255
1
Add row
Remove row
OK
Cancel

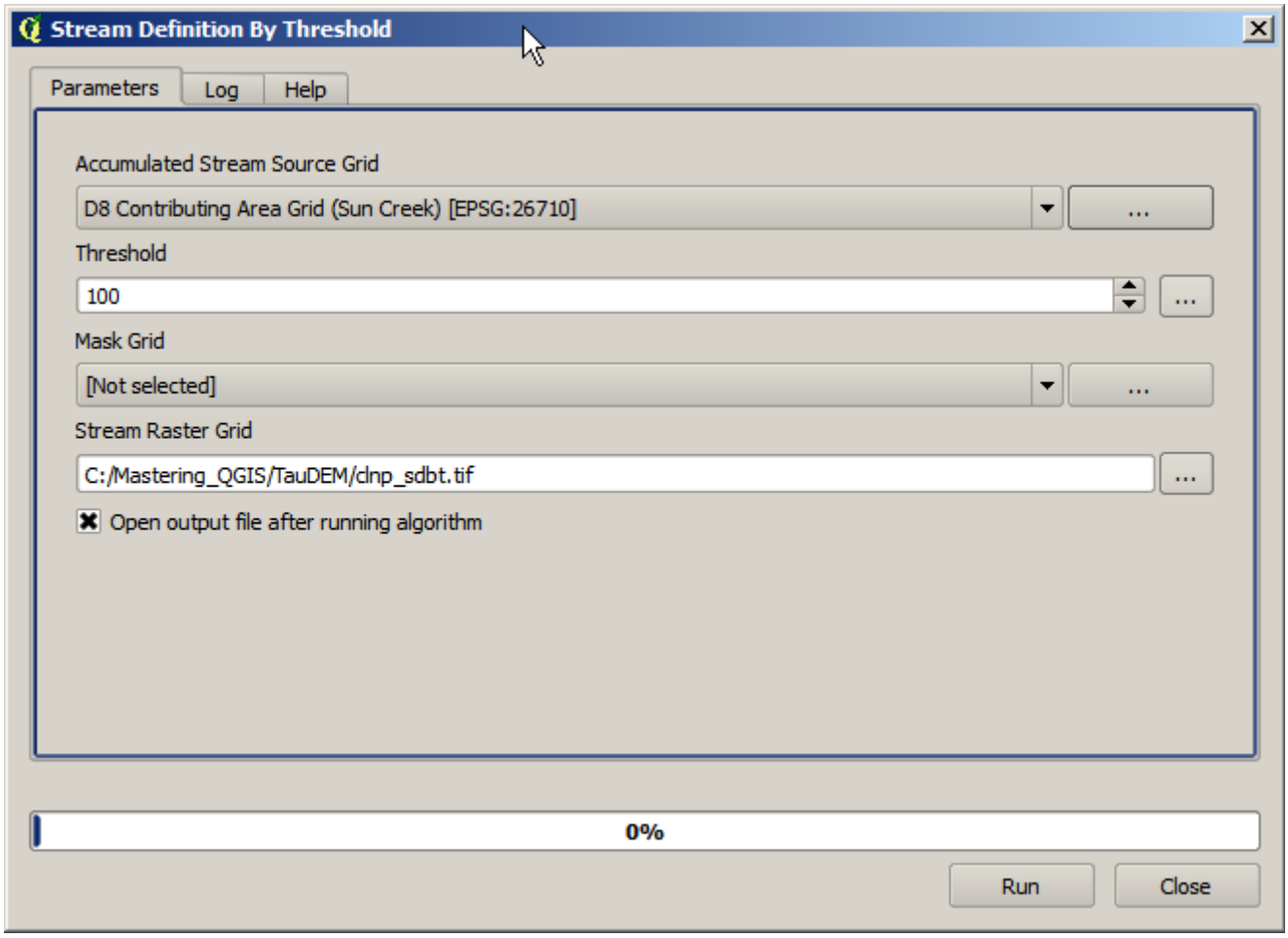

Raster calculator
Parameters
Log
Help
Main input layer
Elevation (Reclass) [EPSG:26710]
...
Additional layers [optional]
2 elements selected
...
Formula
a*b*c
Result
C:/Mastering_QGIS/SAGA/habitat.tif
Open output file after running algorithm
Multiple selection
Habitat Potential [EPSG:26710]
Water (Reclass) [EPSG:26710]
Proximity to Water [EPSG:26710]
Land Use (water) [EPSG:26710]
Elevation (Reclass) [EPSG:26710]
LULC (Reclass) [EPSG:26710]
Land Use / Land Class [EPSG:26710]
Park Elevation [EPSG:26710]
Elevation [EPSG:26710]
hillshade [EPSG:26710]
Select all
Clear selection
Toggle selection
OK
Cancel
0%
Run
Close

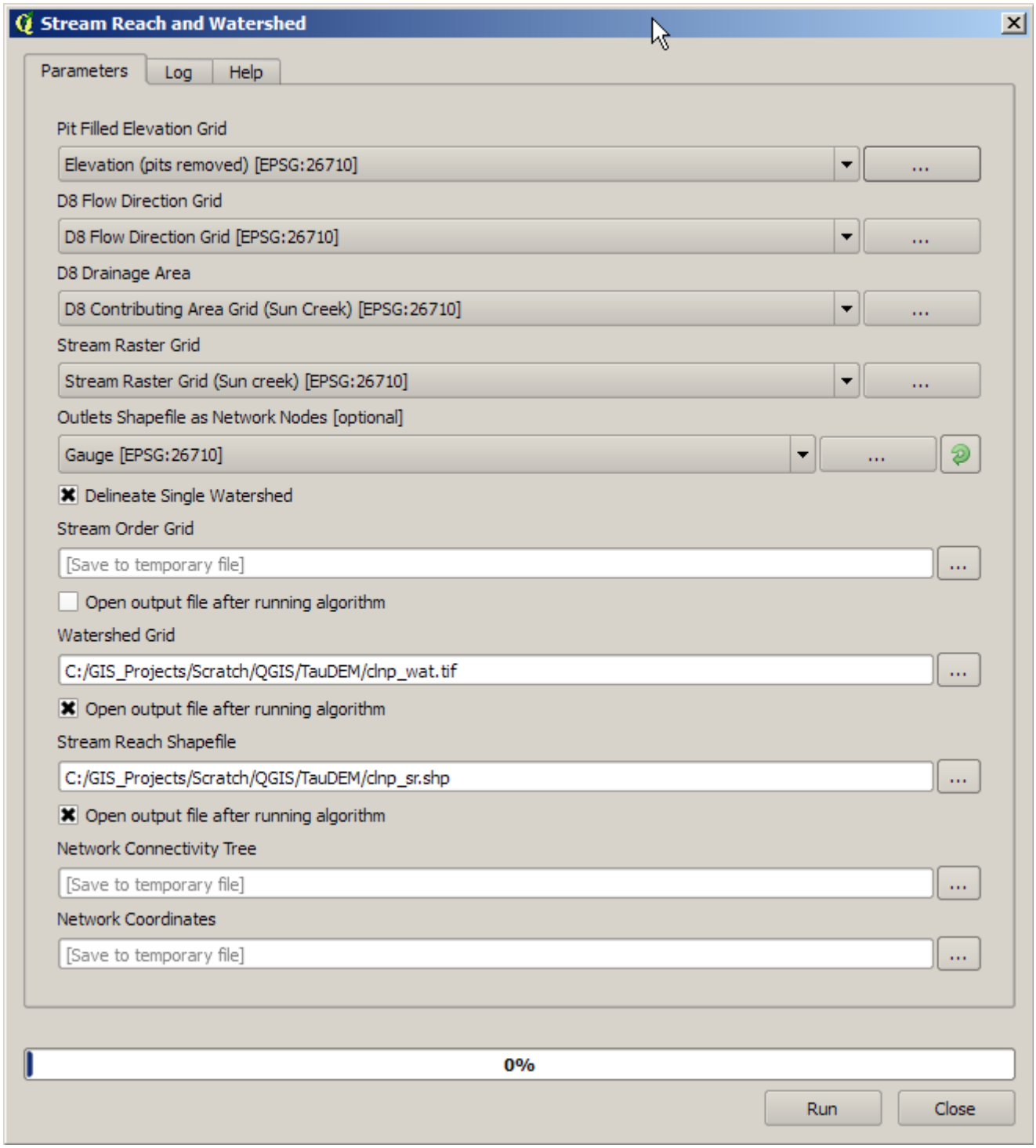

Layers
Vector Layers
Analysis layers
Final Product
Habitat Potential
No Habitat (0)
Poor Potential (1)
Moderate Potential (2)
Good Potential (3)
Elevation
hillshade

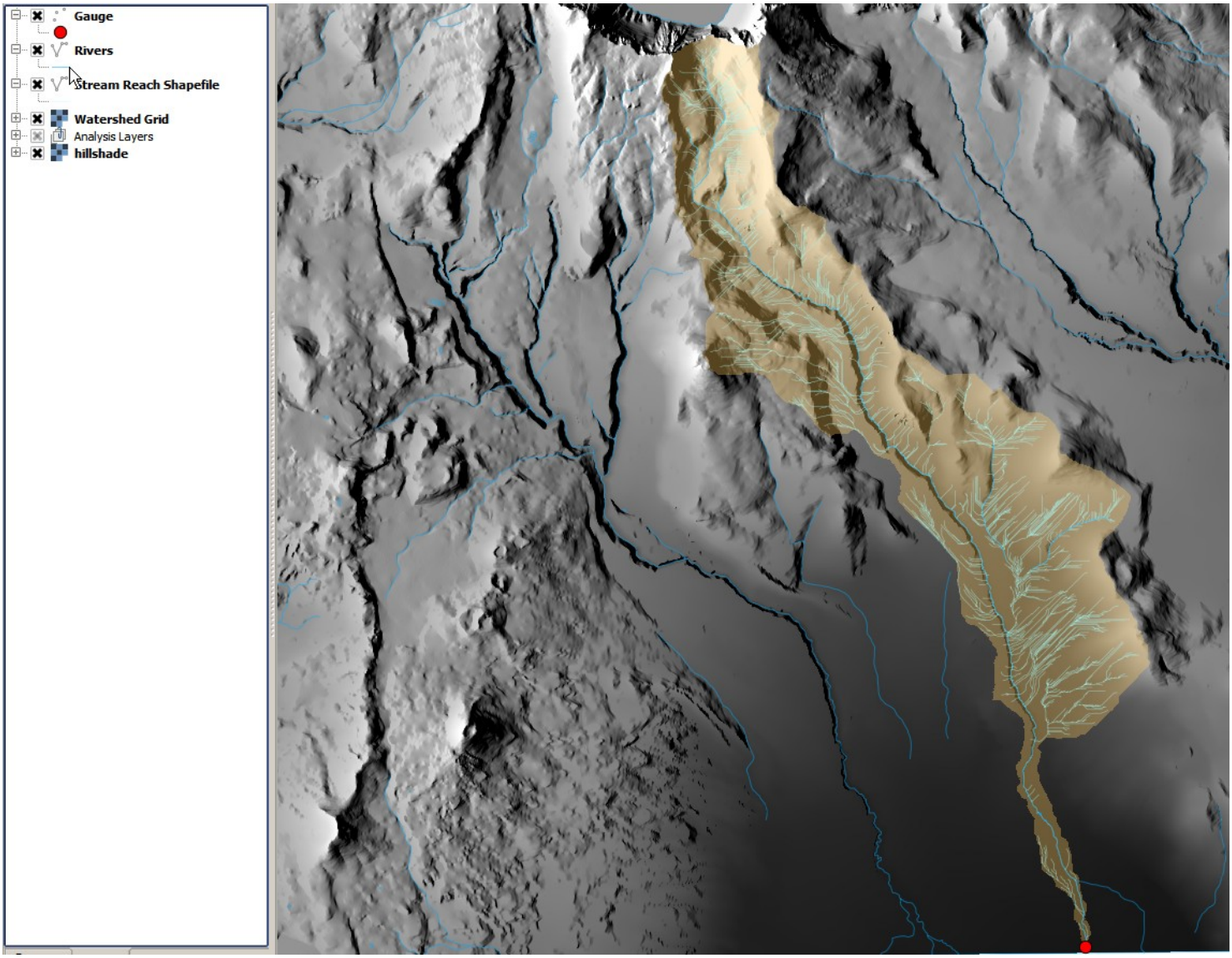

Pit Remove
Parameters
Log
Help
Elevation Grid
C:/Mastering_QGIS/TauDEM/dem.tif
...
Pit Removed Elevation Grid
C:/Mastering_QGIS/TauDEM/clnp_pit.tif
...
Open output file after running algorithm
0%
Run
Close

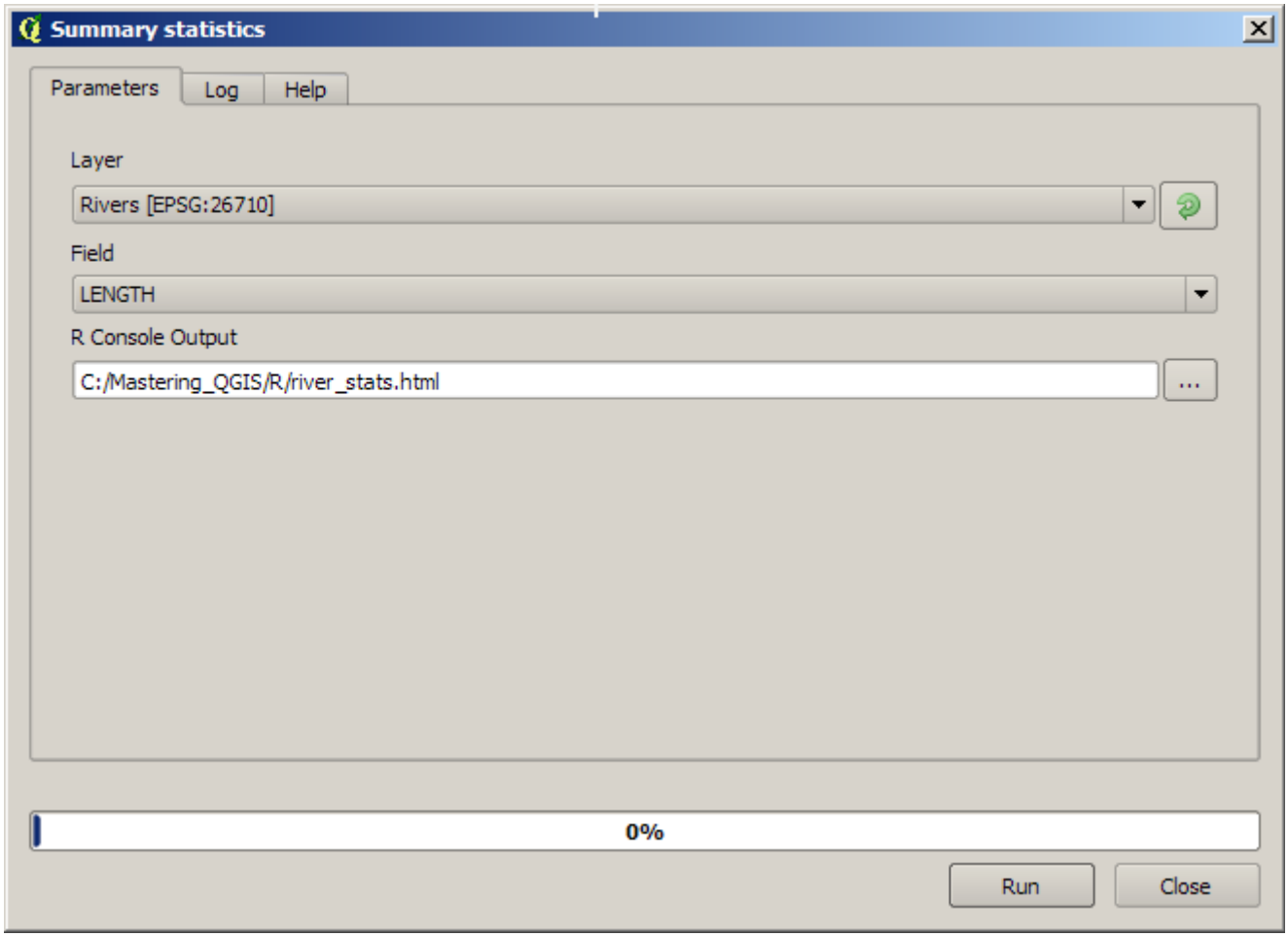

D8 Flow Directions
Parameters
Log
Help
Pit Filled Elevation Grid
DEM (Pits Removed) [EPSG:26710]
...
D8 Flow Direction Grid
C:/Mastering_QGIS/TauDEM/clnp_d8fd.tif
...
Open output file after running algorithm
D8 Slope Grid
C:/Mastering_QGIS/TauDEM/clnp_d8slp.tif
...
Open output file after running algorithm
0%
Run
Close


D8 Contributing Area
Parameters
Log
Help
D8 Flow Direction Grid
D8 Flow Direction Grid [EPSG:26710]
...
Outlets Shapefile
Gauge [EPSG:26710]
...
Weight Grid
[Not selected]
...
Check for edge contamination
Yes
D8 Contributing Area Grid
C:/Mastering_QGIS/TauDEM/clnp_d8ca.tif
...
Open output file after running algorithm
0%
Run
Close

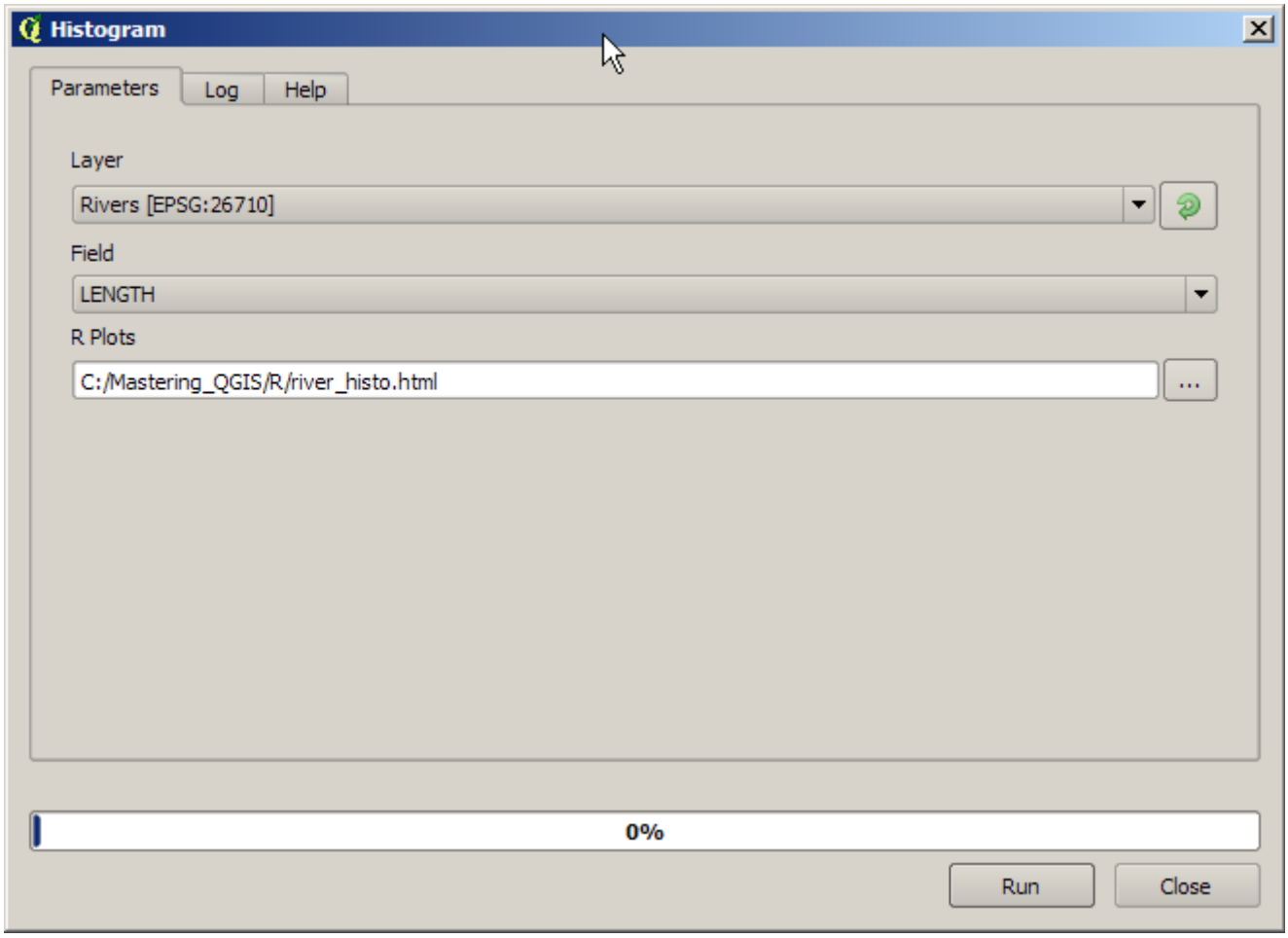

Stream Definition By Threshold
Parameters
Log
Help
Accumulated Stream Source Grid
D8 Contributing Area Grid (Sun Creek) [EPSG:26710]
...
Threshold
100
...
Mask Grid
[Not selected]
...
Stream Raster Grid
C:/Mastering_QGIS/TauDEM/clnp_sdbt.tif
...
Open output file after running algorithm
0%
Run
Close

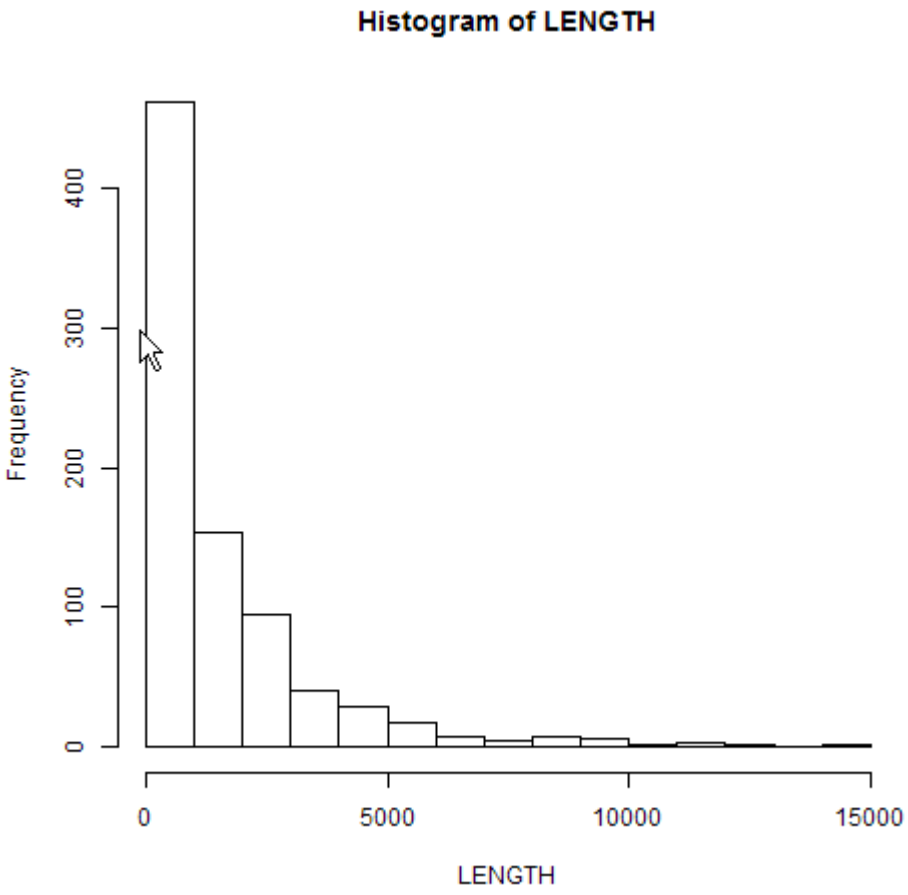

Stream Reach and Watershed
Parameters
Log
Help
Pit Filled Elevation Grid
Elevation (pits removed) [EPSG:26710]
D8 Flow Direction Grid
D8 Flow Direction Grid [EPSG:26710]
D8 Drainage Area
D8 Contributing Area Grid (Sun Creek) [EPSG:26710]
Stream Raster Grid
Stream Raster Grid (Sun creek) [EPSG:26710]
Outlets Shapefile as Network Nodes [optional]
Gauge [EPSG:26710]
Delineate Single Watershed
Stream Order Grid
[Save to temporary file]
Open output file after running algorithm
Watershed Grid
C:/GIS_Projects/Scratch/QGIS/TauDEM/clnp_wat.tif
Open output file after running algorithm
Stream Reach Shapefile
C:/GIS_Projects/Scratch/QGIS/TauDEM/clnp_sr.shp
Open output file after running algorithm
Network Connectivity Tree
[Save to temporary file]
Network Coordinates
[Save to temporary file]
0%
Run
Close

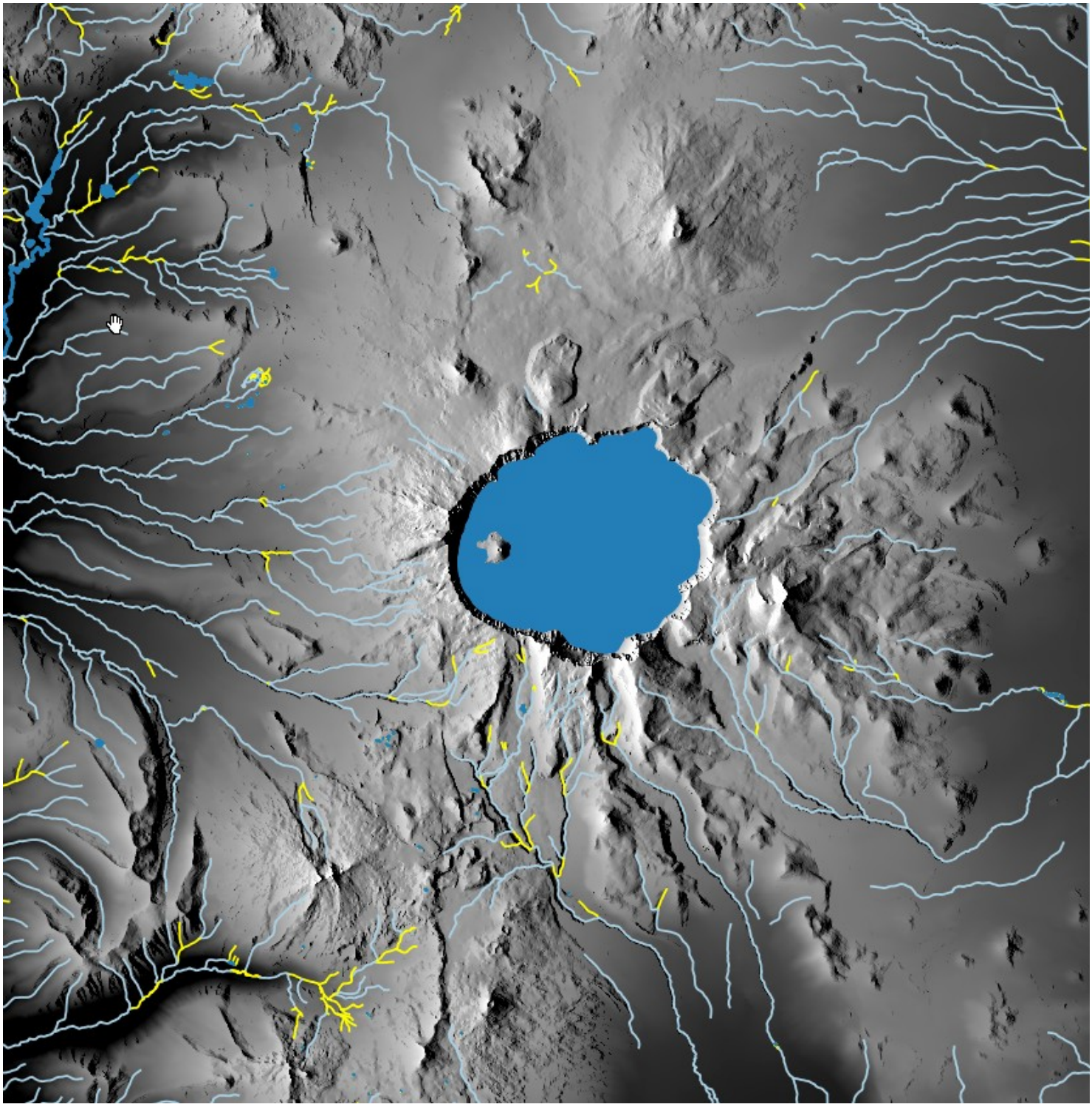

Gauge
Rivers
Stream Reach Shapefile
Watershed Grid
Analysis Layers
hillshade

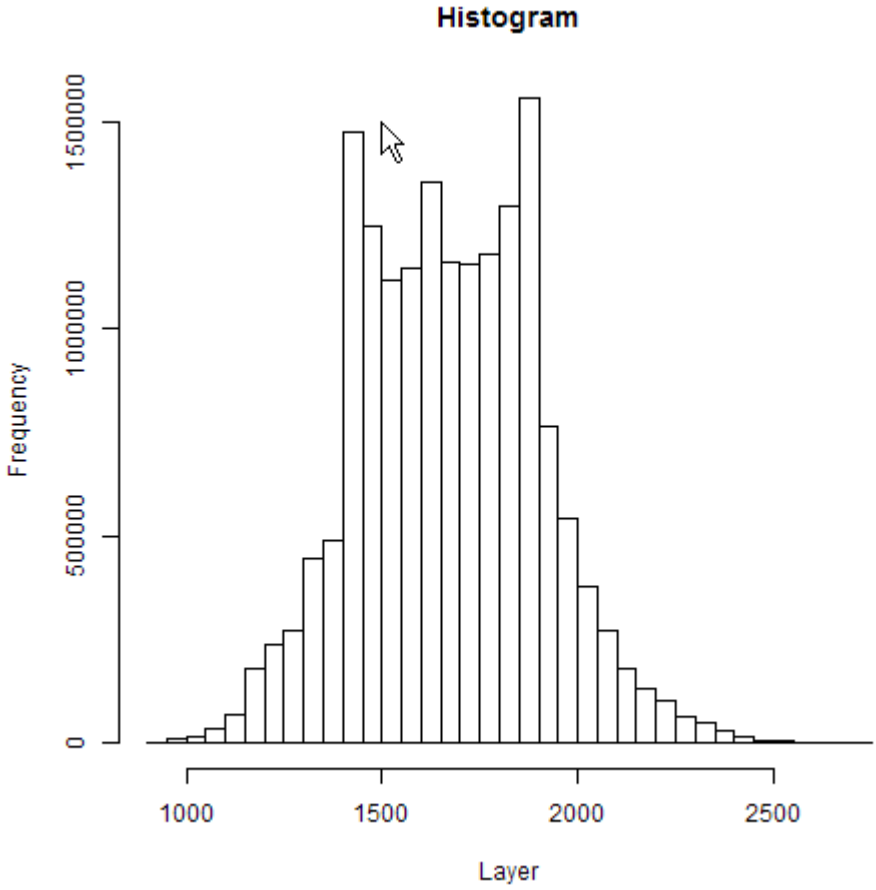


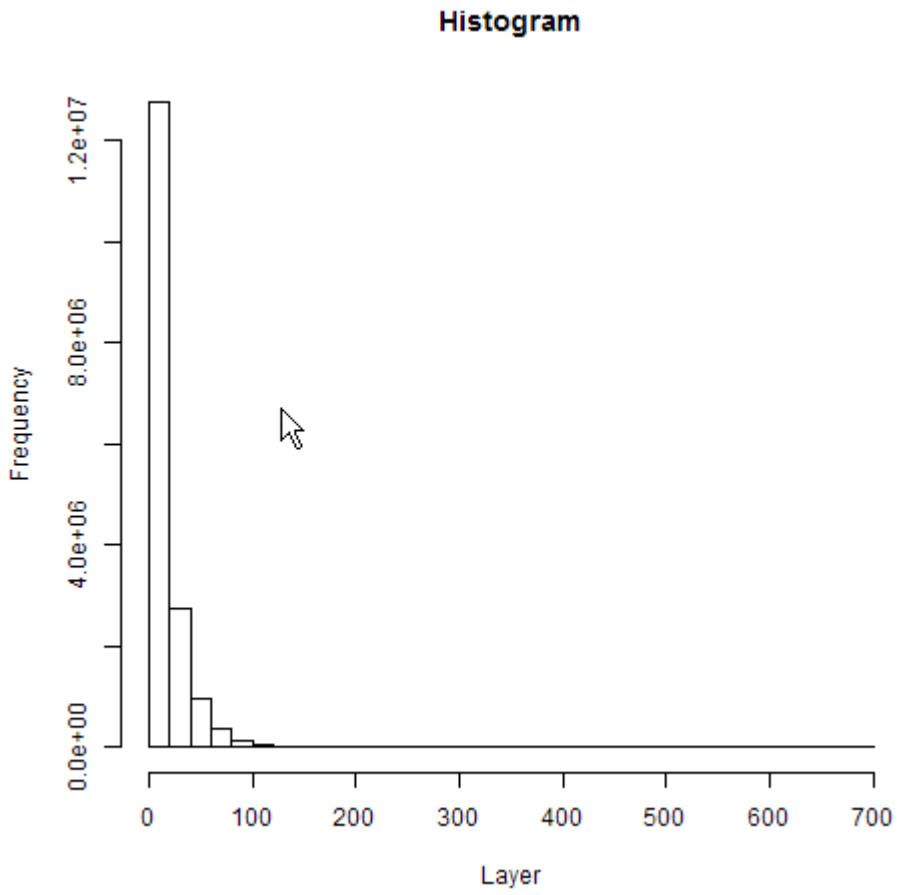

```
Summary_statistics
LENGTH
Sum: 1.269272e+06
Count: 8.280000e+02
Unique values: 8.280000e+02
Minimum value: 5.627340e+00
Maximum value: 1.412734e+04
Range: 1.412172e+04
Mean value: 1.532937e+03
Median value: 8.335031e+02
Standard deviation: 1.978282e+03
```


Histogram
Parameters
Log
Help
Layer
Rivers [EPSG:26710]
Field
LENGTH
R Plots
C:/Mastering_QGIS/R/river_histo.html
...
0%
Run
Close

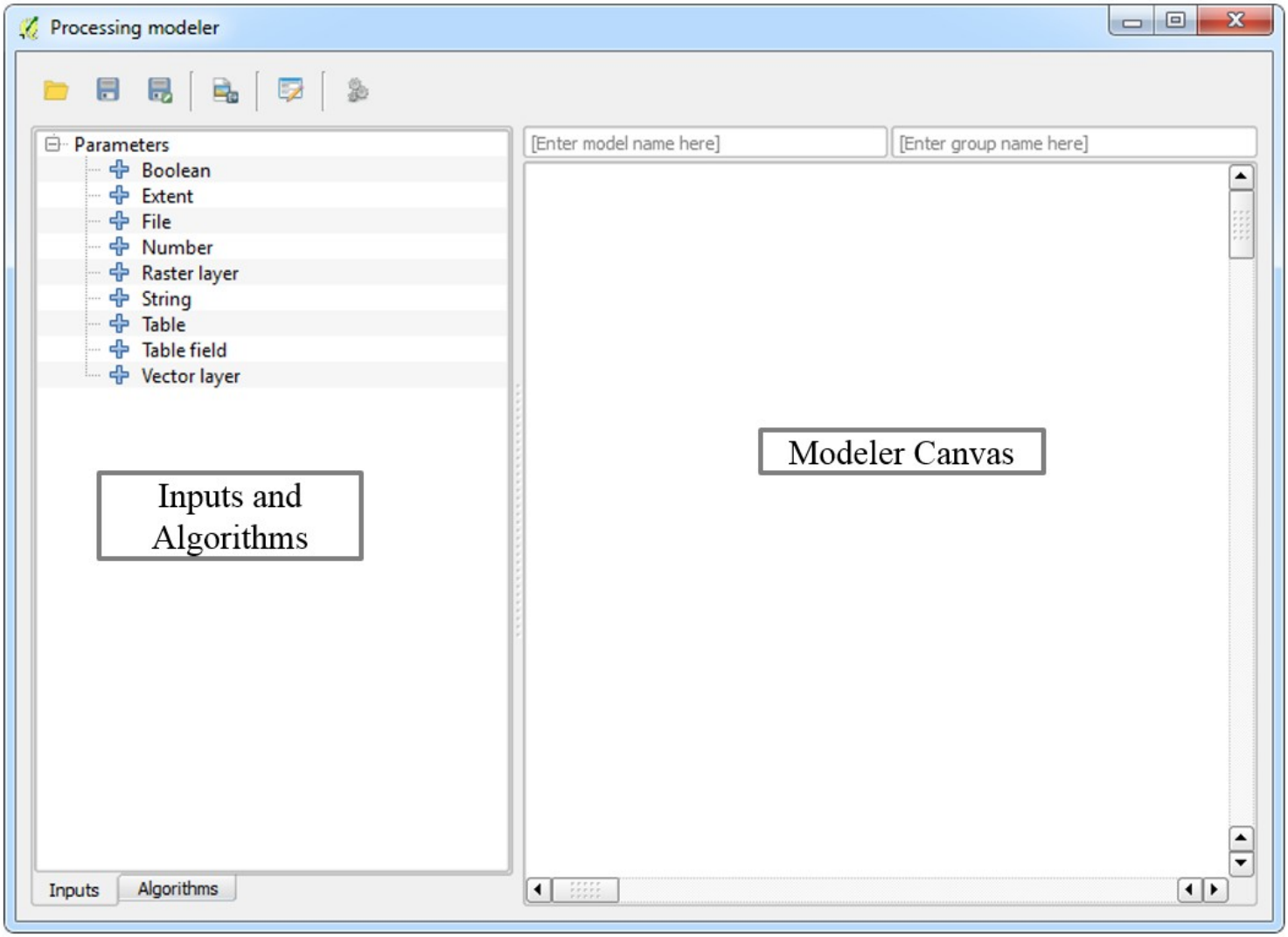

Histogram of LENGTH
Frequency
0
100
200
300
400
0
5000
10000
15000
LENGTH

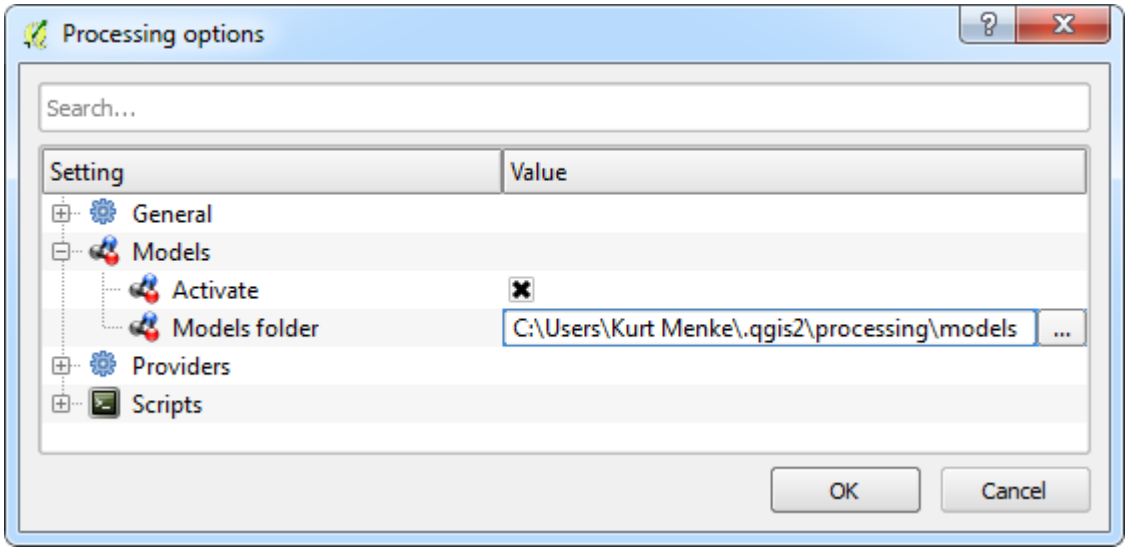


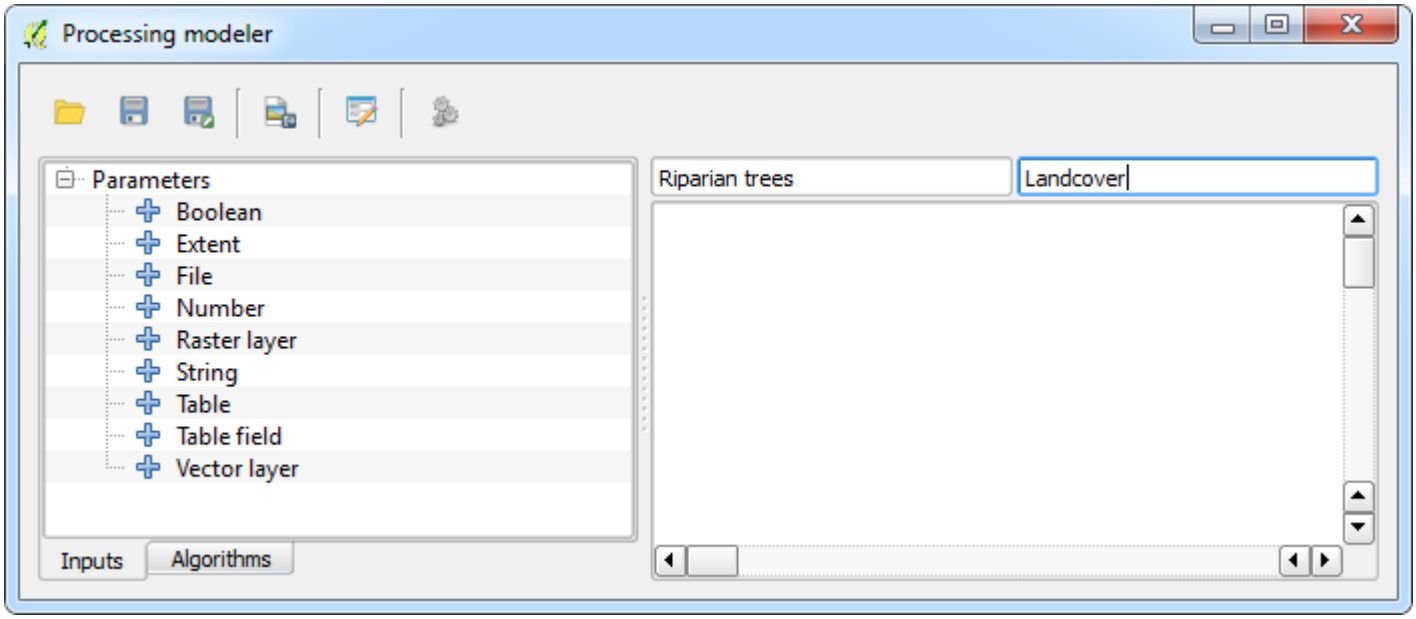

Histogram
Frequency
0
500000
1000000
1500000
1000
1500
2000
2500
Layer

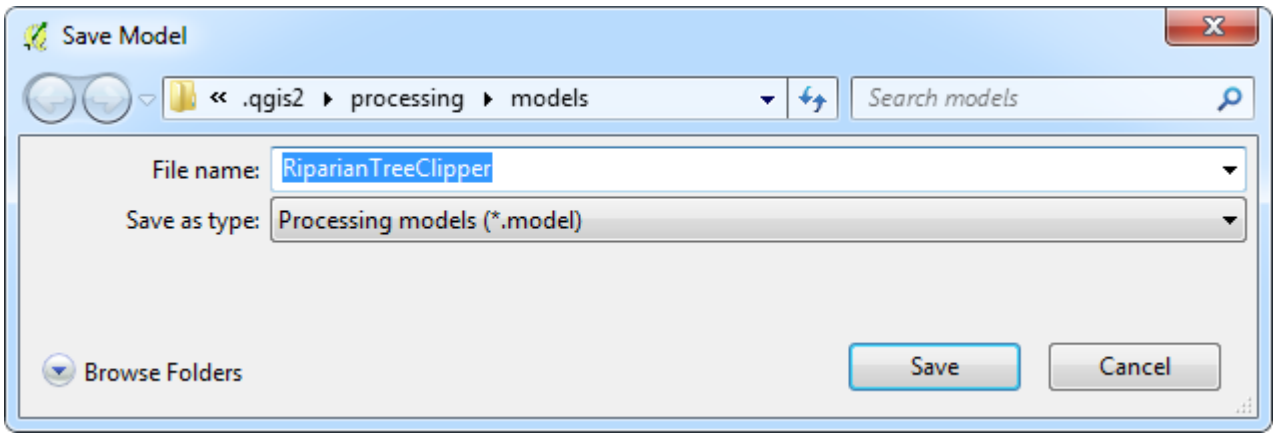


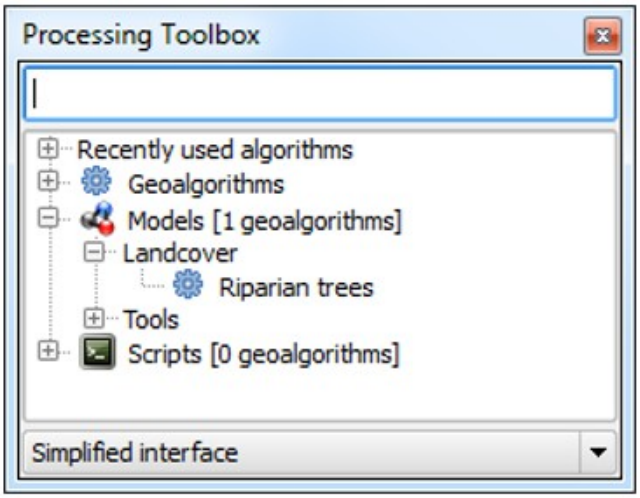
Chapter 8: Automating Workflows with the Graphical Modeler

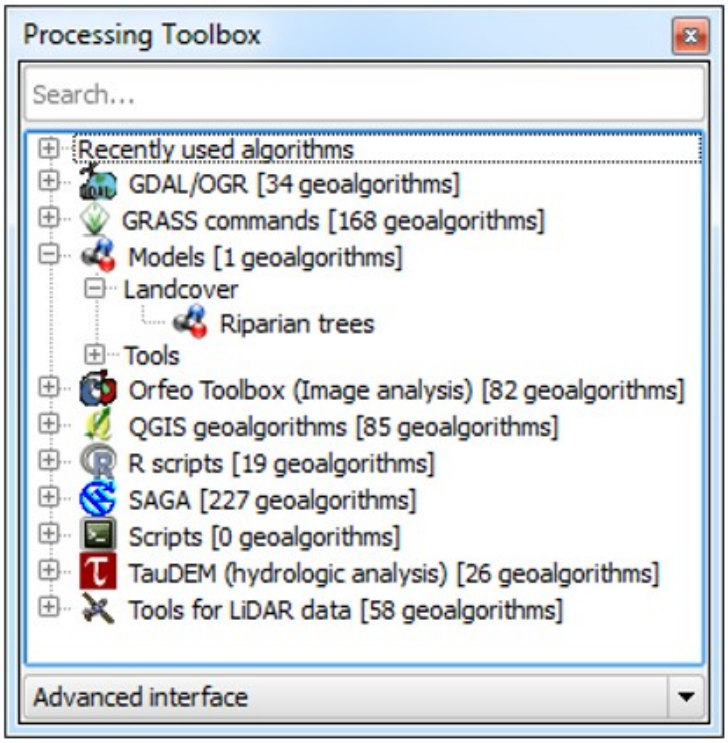

Processing modeler
Parameters
Boolean
Extent
File
Number
Raster layer
String
Table
Table field
Vector layer
[Enter model name here]
[Enter group name here]
Inputs and Algorithms
Modeler Canvas
Inputs
Algorithms

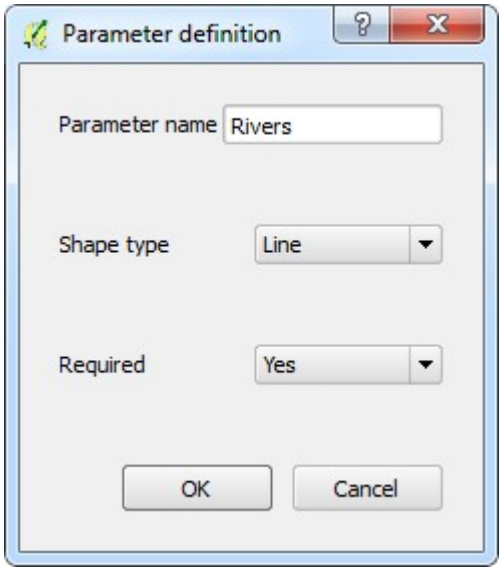

Processing options
Search...
Setting
Value
General
Models
Activate
Models folder
C:\Users\Kurt Menke\.qgis2\processing\models
...
Providers
Scripts
OK
Cancel

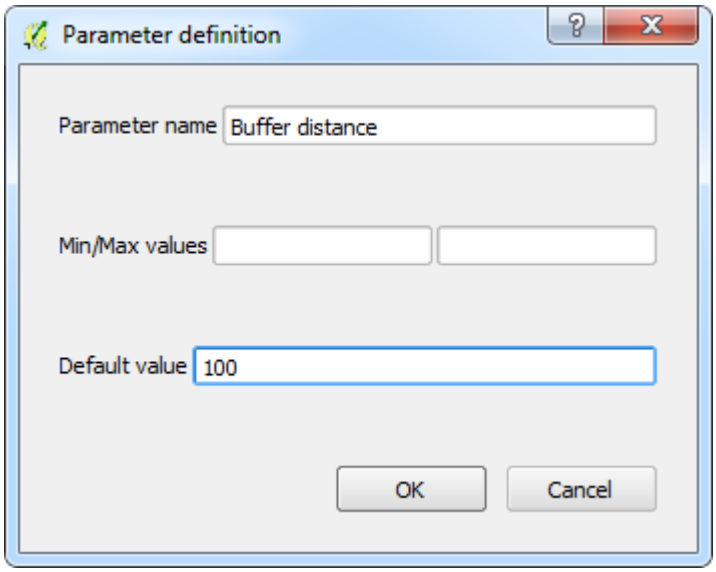

Processing modeler
Parameters
Boolean
Extent
File
Number
Raster layer
String
Table
Table field
Vector layer
Inputs
Algorithms
Riparian trees
Landcover

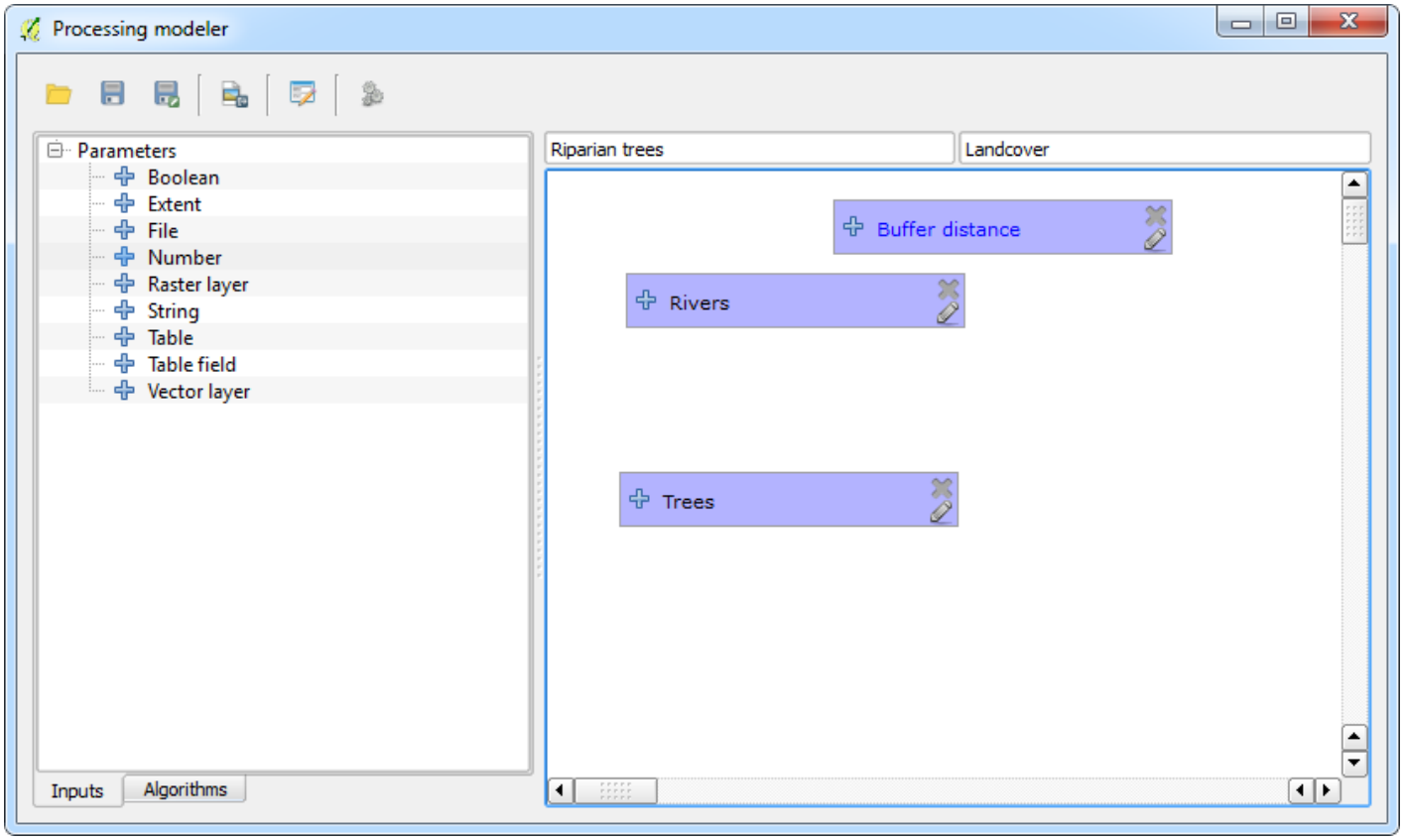

Save Model
« .qgis2 ▸ processing ▸ models
Search models
File name:
RiparianTreeClipper
Save as type:
Processing models (*.model)
Browse Folders
Save
Cancel

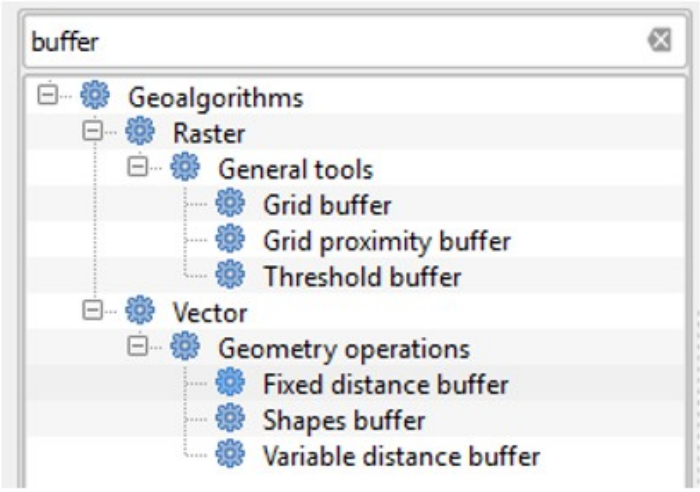

Processing Toolbox
Recently used algorithms
Geoalgorithms
Models [1 geoalgorithms]
Landcover
Riparian trees
Tools
Scripts [0 geoalgorithms]
Simplified interface

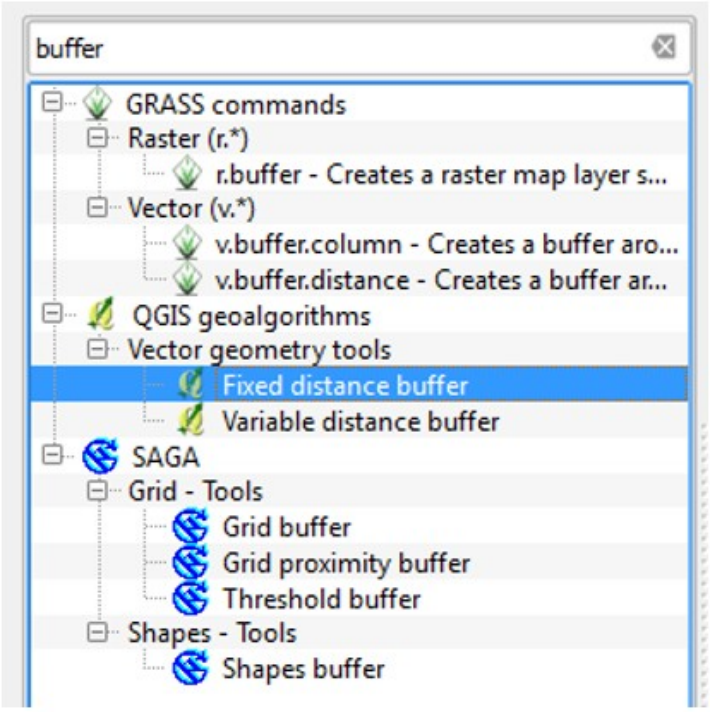

Processing Toolbox
Search...
Recently used algorithms
GDAL/OGR [34 geoalgorithms]
GRASS commands [168 geoalgorithms]
Models [1 geoalgorithms]
Landcover
Riparian trees
Tools
Orfeo Toolbox (Image analysis) [82 geoalgorithms]
QGIS geoalgorithms [85 geoalgorithms]
R scripts [19 geoalgorithms]
SAGA [227 geoalgorithms]
Scripts [0 geoalgorithms]
TauDEM (hydrologic analysis) [26 geoalgorithms]
Tools for LiDAR data [58 geoalgorithms]
Advanced interface

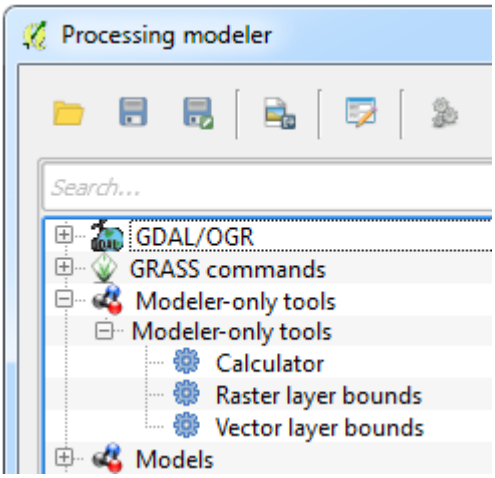

Parameter definition
Parameter name
Rivers
Shape type
Line
Required
Yes
OK
Cancel

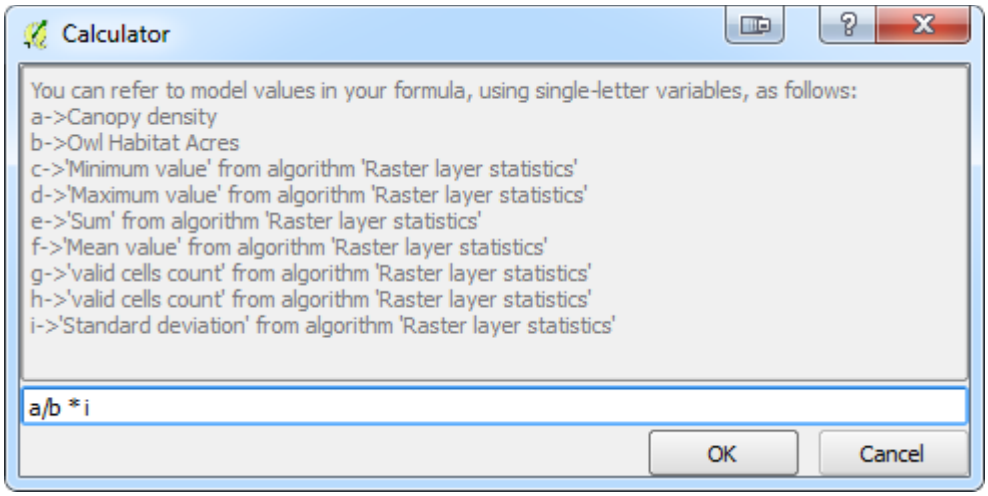

Parameter definition
Parameter name
Buffer distance
Min/Max values
Default value
100
OK
Cancel

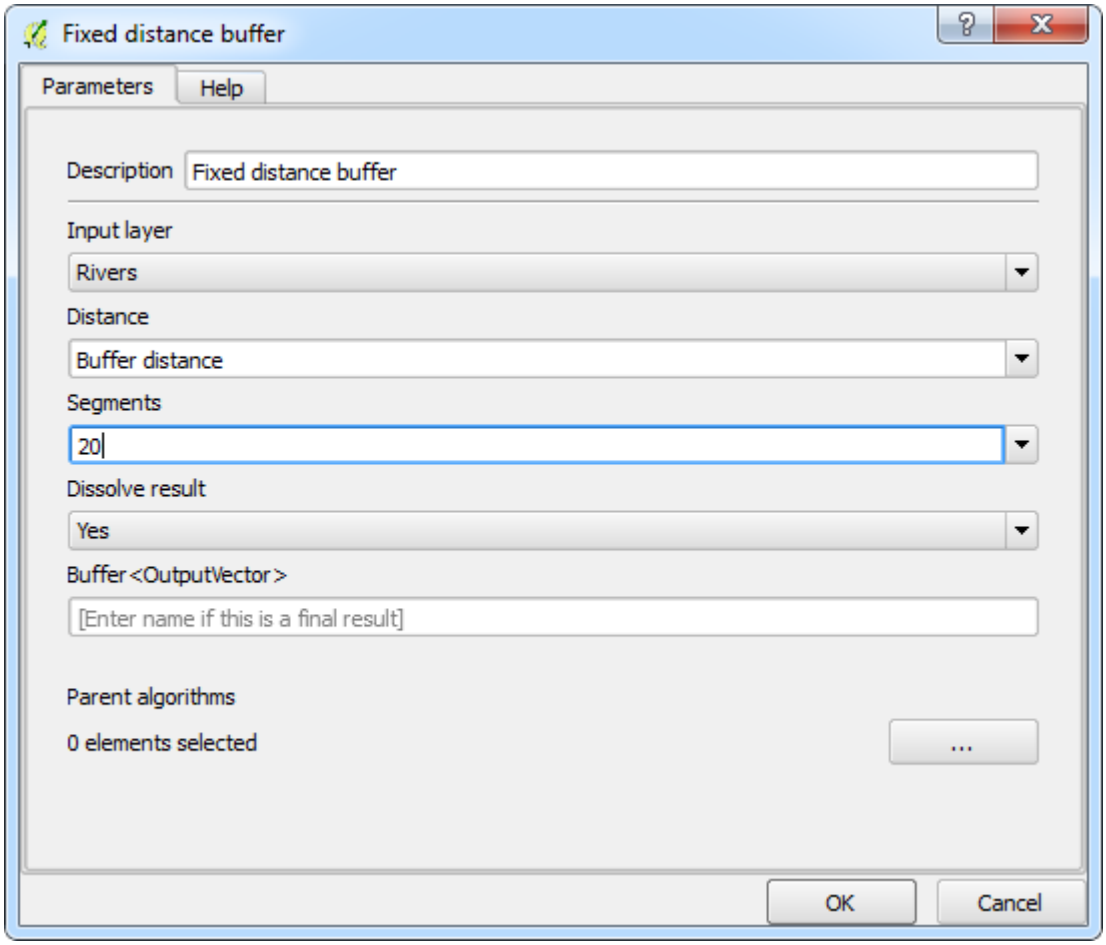

Processing modeler
Parameters
Boolean
Extent
File
Number
Raster layer
String
Table
Table field
Vector layer
Inputs
Algorithms
Riparian trees
Landcover
Buffer distance
Rivers
Trees

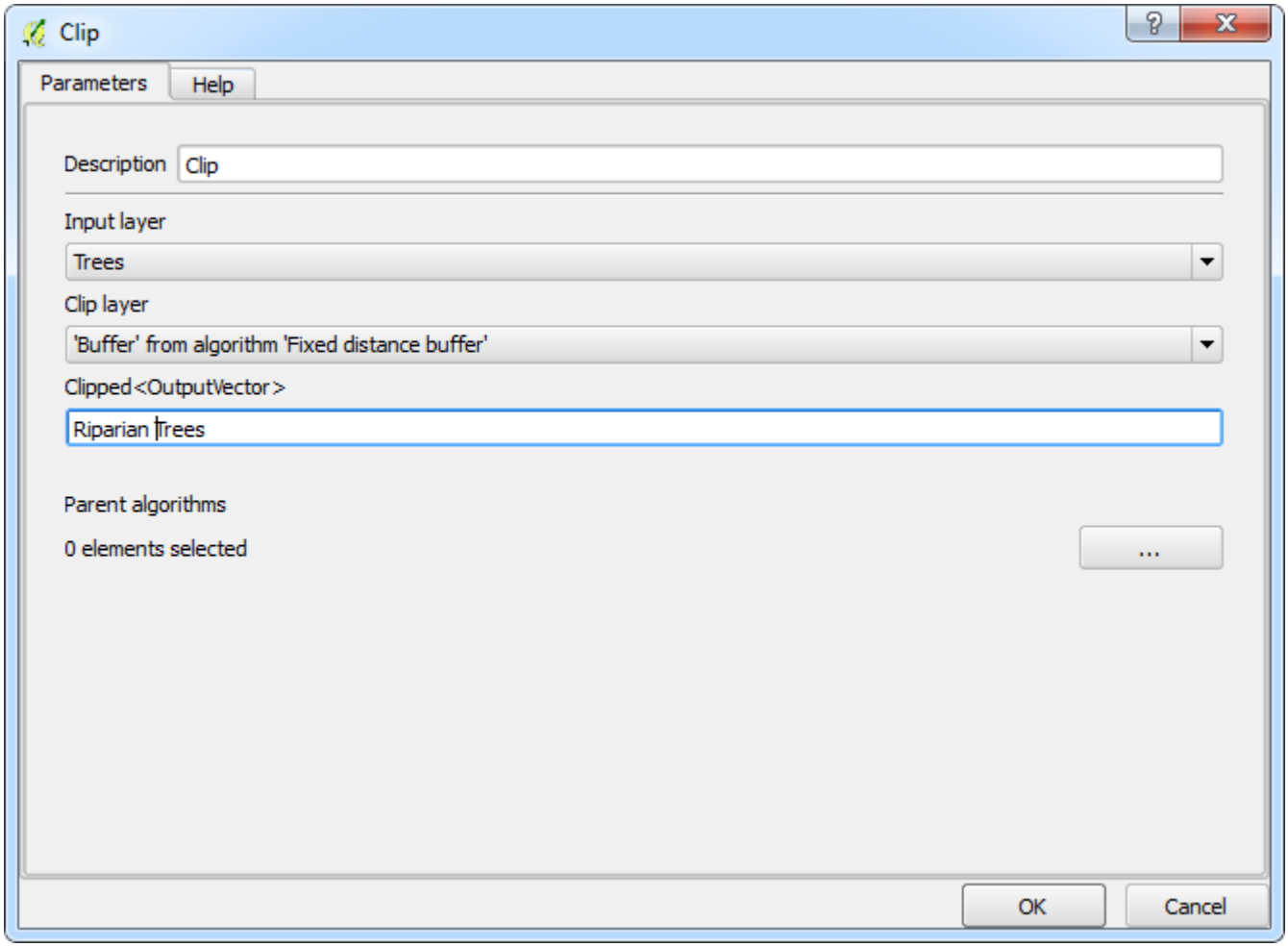

buffer
Geoalgorithms
Raster
General tools
Grid buffer
Grid proximity buffer
Threshold buffer
Vector
Geometry operations
Fixed distance buffer
Shapes buffer
Variable distance buffer

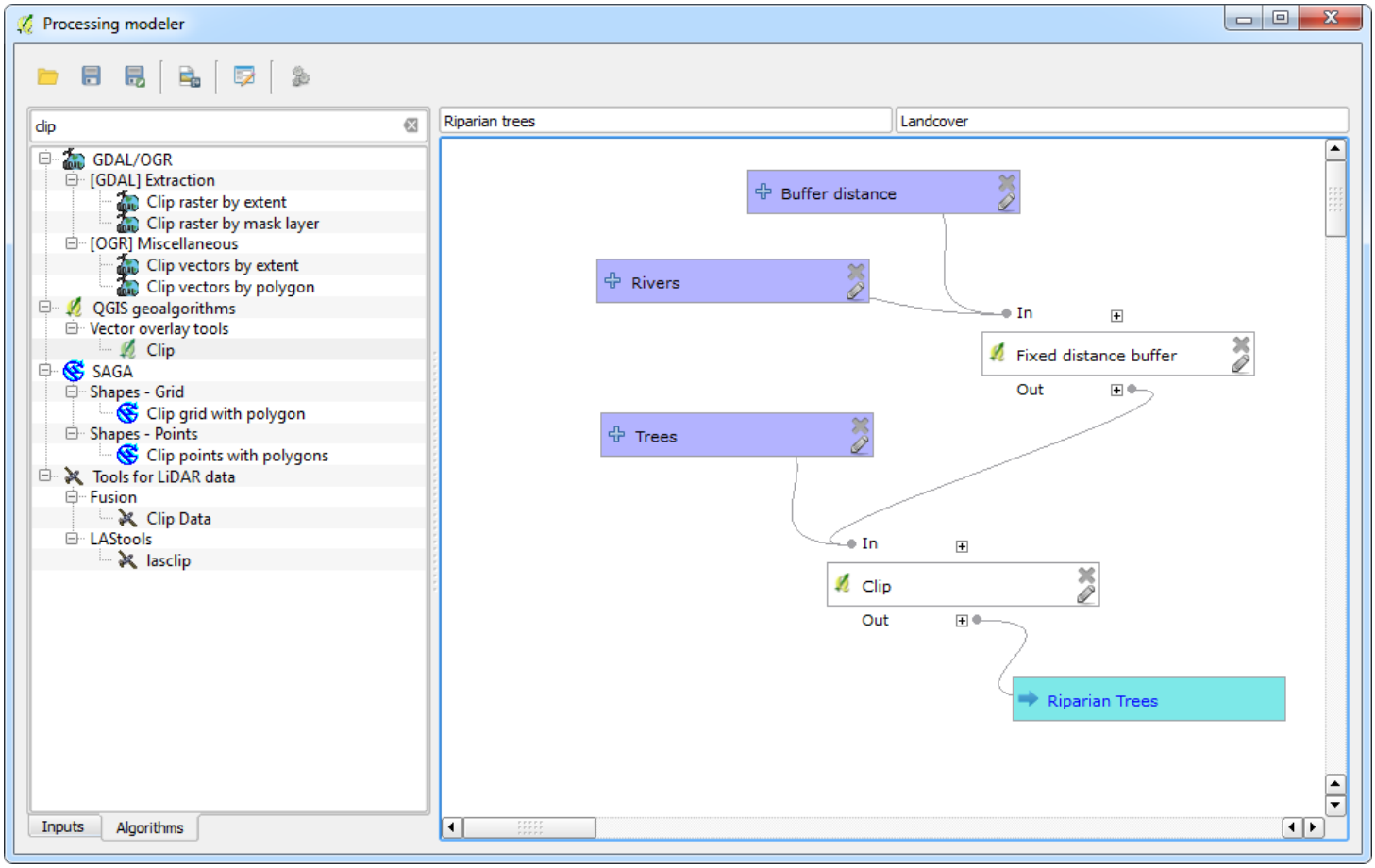

buffer
GRASS commands
Raster (r.*)
r.buffer - Creates a raster map layer s...
Vector (v.*)
v.buffer.column - Creates a buffer aro...
v.buffer.distance - Creates a buffer ar...
QGIS geoalgorithms
Vector geometry tools
Fixed distance buffer
Variable distance buffer
SAGA
Grid - Tools
Grid buffer
Grid proximity buffer
Threshold buffer
Shapes - Tools
Shapes buffer

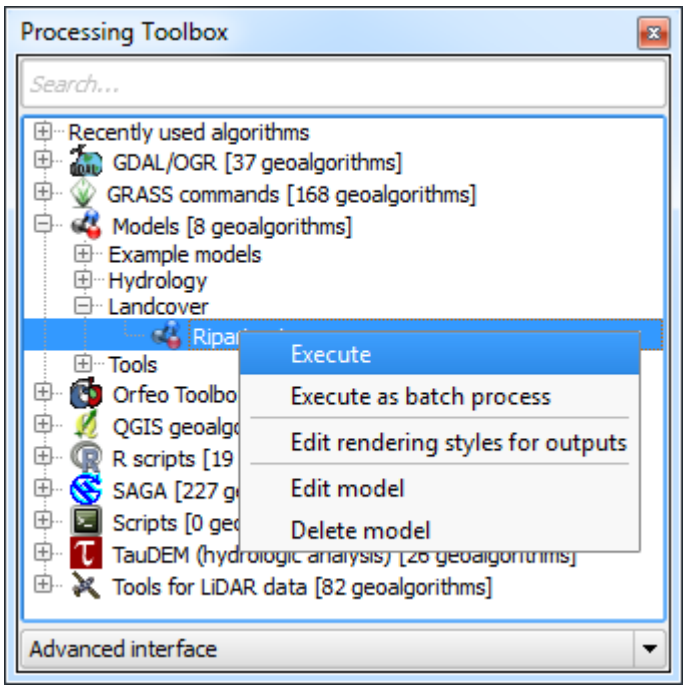

Processing modeler
Search...
GDAL/OGR
GRASS commands
Modeler-only tools
Modeler-only tools
Calculator
Raster layer bounds
Vector layer bounds
Models

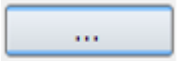

Calculator
You can refer to model values in your formula, using single-letter variables, as follows:
a->Canopy density
b->Owl Habitat Acres
c->'Minimum value' from algorithm 'Raster layer statistics'
d->'Maximum value' from algorithm 'Raster layer statistics'
e->'Sum' from algorithm 'Raster layer statistics'
f->'Mean value' from algorithm 'Raster layer statistics'
g->'valid cells count' from algorithm 'Raster layer statistics'
h->'valid cells count' from algorithm 'Raster layer statistics'
i->'Standard deviation' from algorithm 'Raster layer statistics'
a/b * i
OK
Cancel

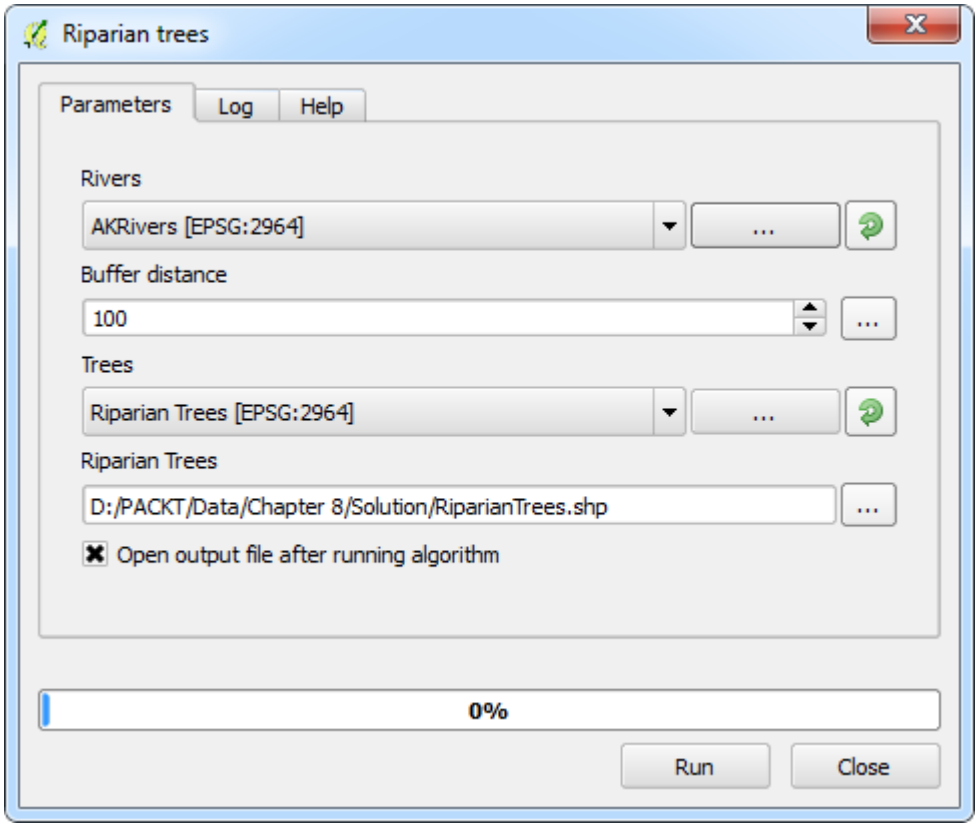

Fixed distance buffer
Parameters
Help
Description
Fixed distance buffer
Input layer
Rivers
Distance
Buffer distance
Segments
20
Dissolve result
Yes
Buffer <OutputVector>
[Enter name if this is a final result]
Parent algorithms
0 elements selected
...
OK
Cancel

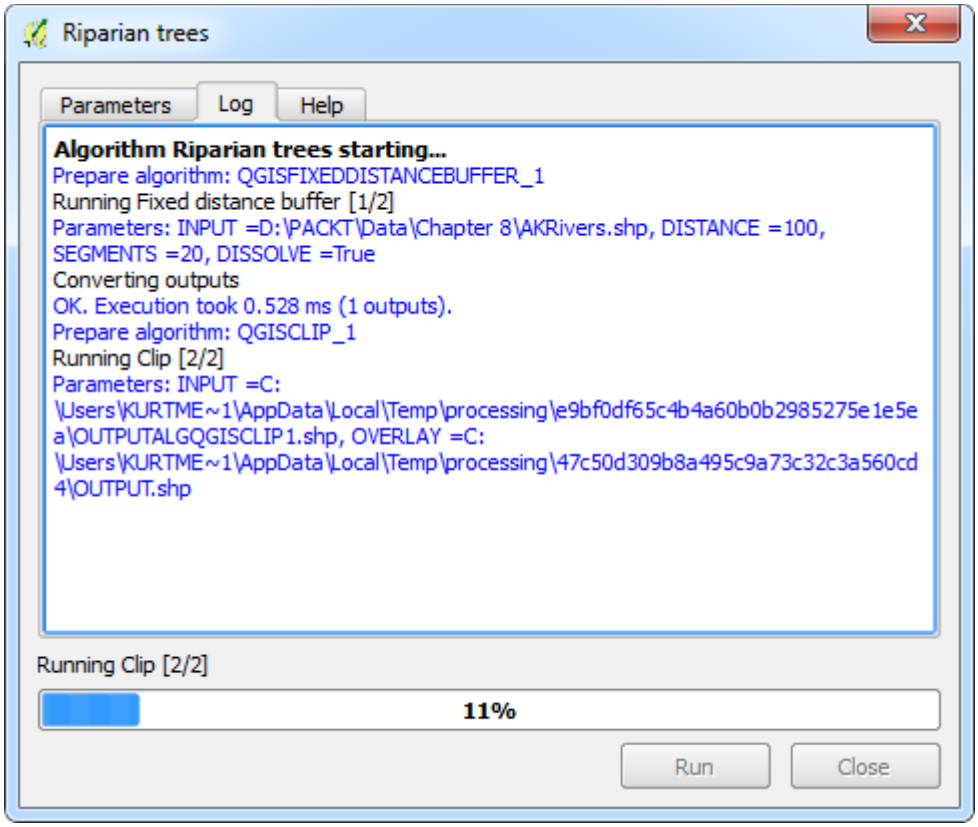

Clip
Parameters
Help
Description
Clip
Input layer
Trees
Clip layer
'Buffer' from algorithm 'Fixed distance buffer'
Clipped <OutputVector>
Riparian Trees
Parent algorithms
0 elements selected
...
OK
Cancel

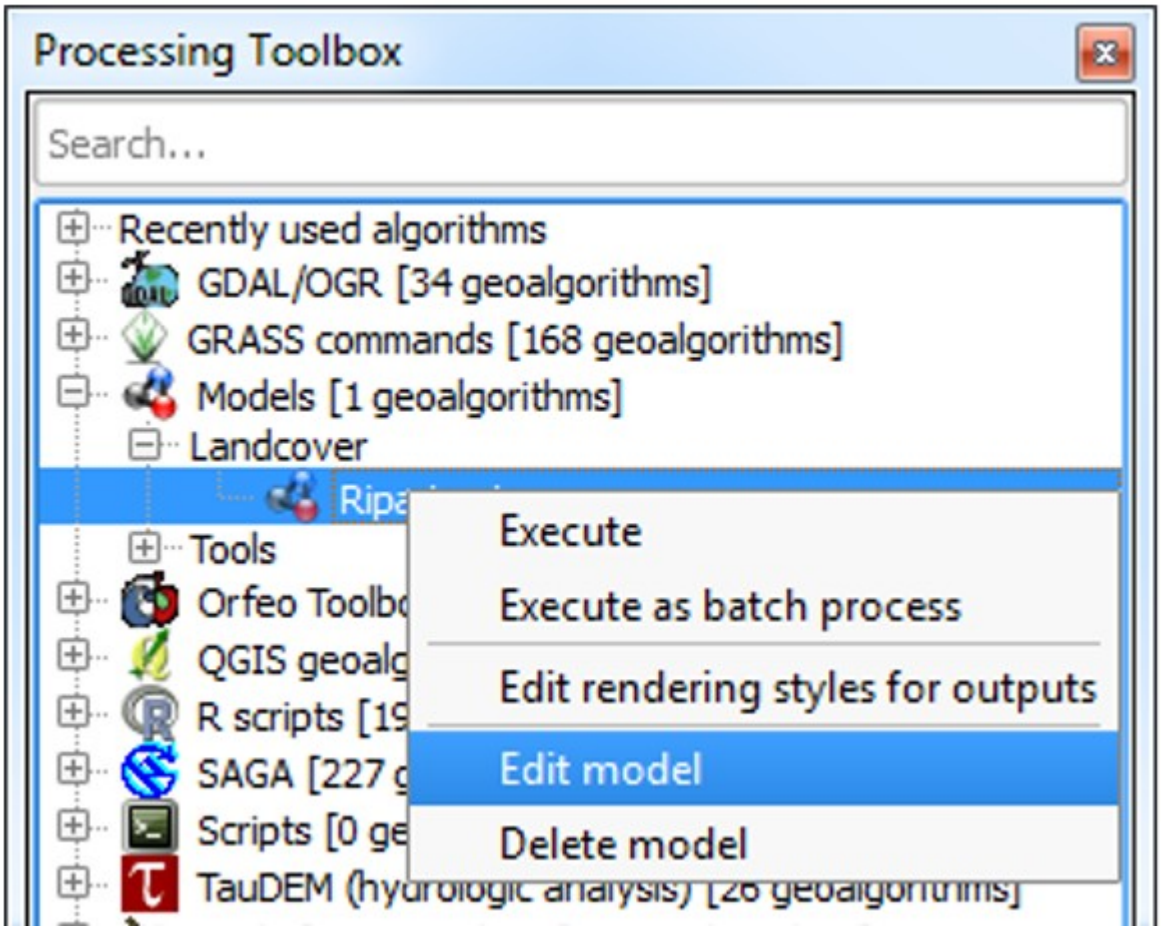

Processing modeler
clip
GDAL/OGR
[GDAL] Extraction
Clip raster by extent
Clip raster by mask layer
[OGR] Miscellaneous
Clip vectors by extent
Clip vectors by polygon
QGIS geoalgorithms
Vector overlay tools
Clip
SAGA
Shapes - Grid
Clip grid with polygon
Shapes - Points
Clip points with polygons
Tools for LiDAR data
Fusion
Clip Data
LAStools
lasclip
Inputs
Algorithms
Riparian trees
Landcover
Buffer distance
Rivers
In
Fixed distance buffer
Out
Trees
In
Clip
Out
Riparian Trees

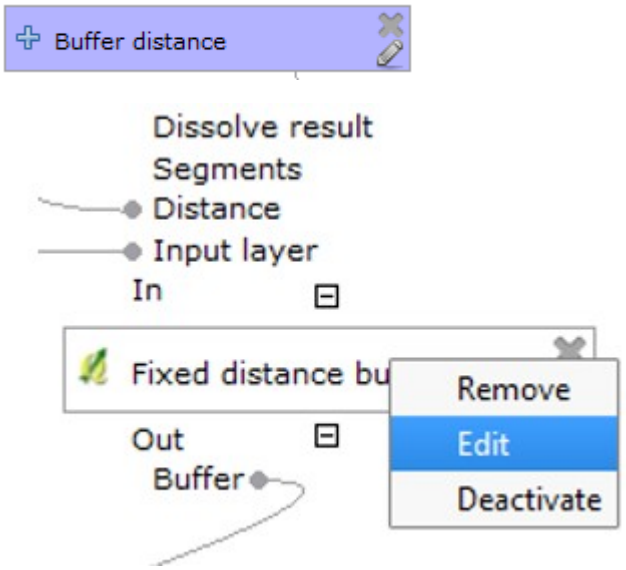

Processing Toolbox
Search...
Recently used algorithms
GDAL/OGR [37 geoalgorithms]
GRASS commands [168 geoalgorithms]
Models [8 geoalgorithms]
Example models
Hydrology
Landcover
Tools
Orfeo Toolbo
QGIS geoalgo
R scripts [19
SAGA [227 g
Scripts [0 geo
TauDEM (hydrologic analysis) [26 geoalgorithms]
Tools for LiDAR data [82 geoalgorithms]
Execute
Execute as batch process
Edit rendering styles for outputs
Edit model
Delete model
Advanced interface

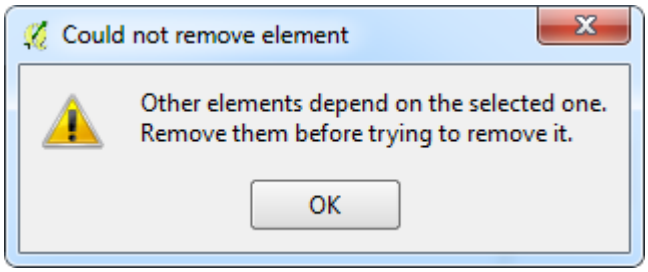

...

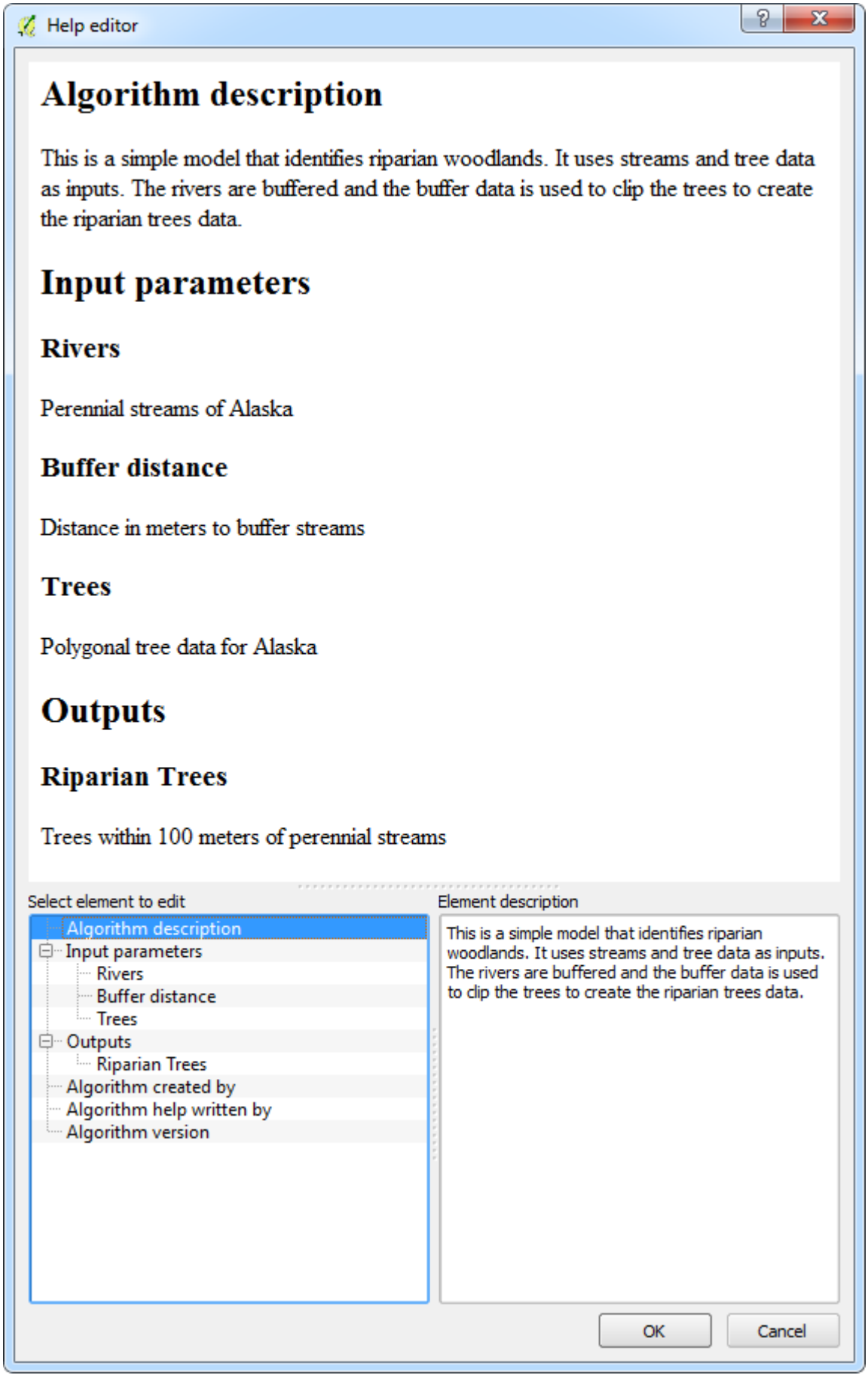

Riparian trees
Parameters
Log
Help
Rivers
AKRivers [EPSG:2964]
...
Buffer distance
100
...
Trees
Riparian Trees [EPSG:2964]
...
Riparian Trees
D:/PACKT/Data/Chapter 8/Solution/RiparianTrees.shp
...
Open output file after running algorithm
0%
Run
Close

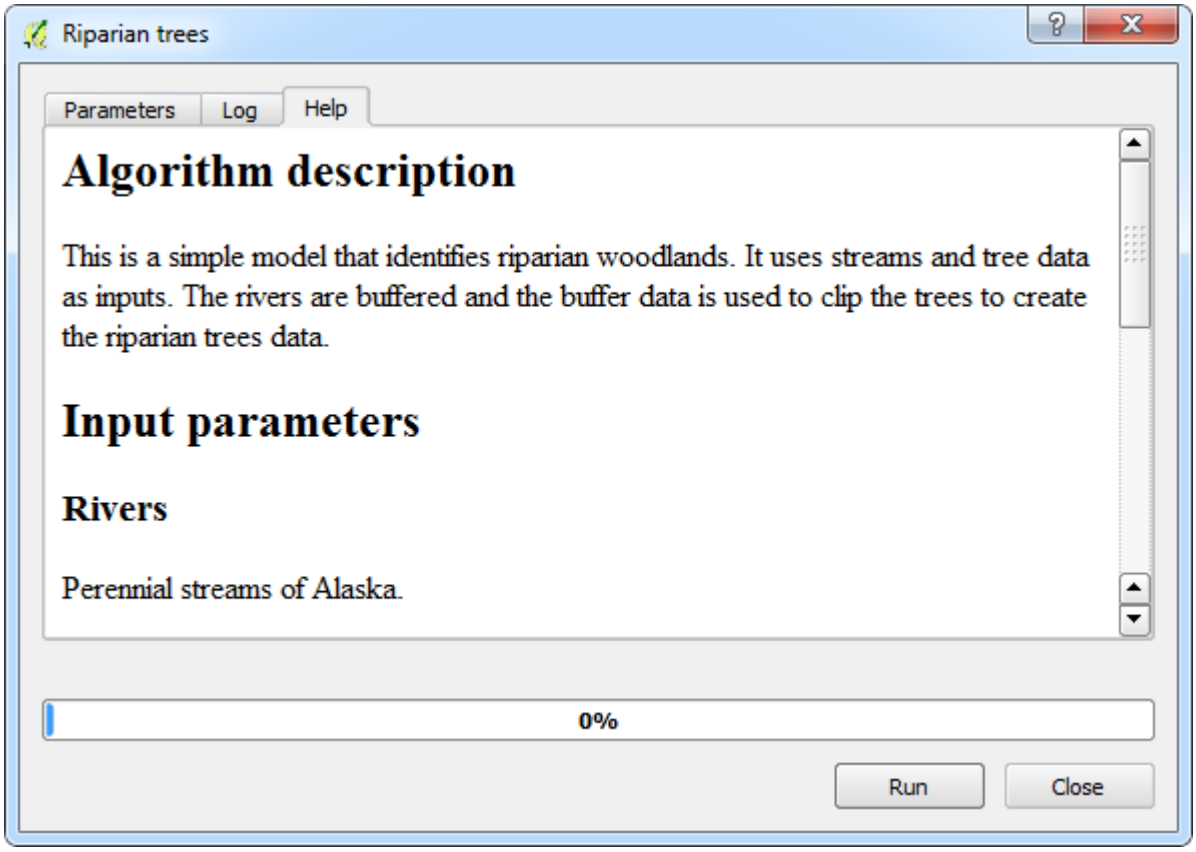

Riparian trees
Parameters
Log
Help
Algorithm Riparian trees starting...
Prepare algorithm: QGISFIXEDDISTANCEBUFFER_1
Running Fixed distance buffer [1/2]
Parameters: INPUT =D:\PACKT\Data\Chapter 8\AKRivers.shp, DISTANCE =100, SEGMENTS =20, DISSOLVE =True
Converting outputs
OK. Execution took 0.528 ms (1 outputs).
Prepare algorithm: QGISCLIP_1
Running Clip [2/2]
Parameters: INPUT =C:\Users\KURTME~1\AppData\Local\Temp\processing\e9bf0df65c4b4a60b0b2985275e1e5ea\OUTPUTALGQGISCLIP1.shp, OVERLAY =C:\Users\KURTME~1\AppData\Local\Temp\processing\47c50d309b8a495c9a73c32c3a560cd4\OUTPUT.shp
Running Clip [2/2]
11%
Run
Close

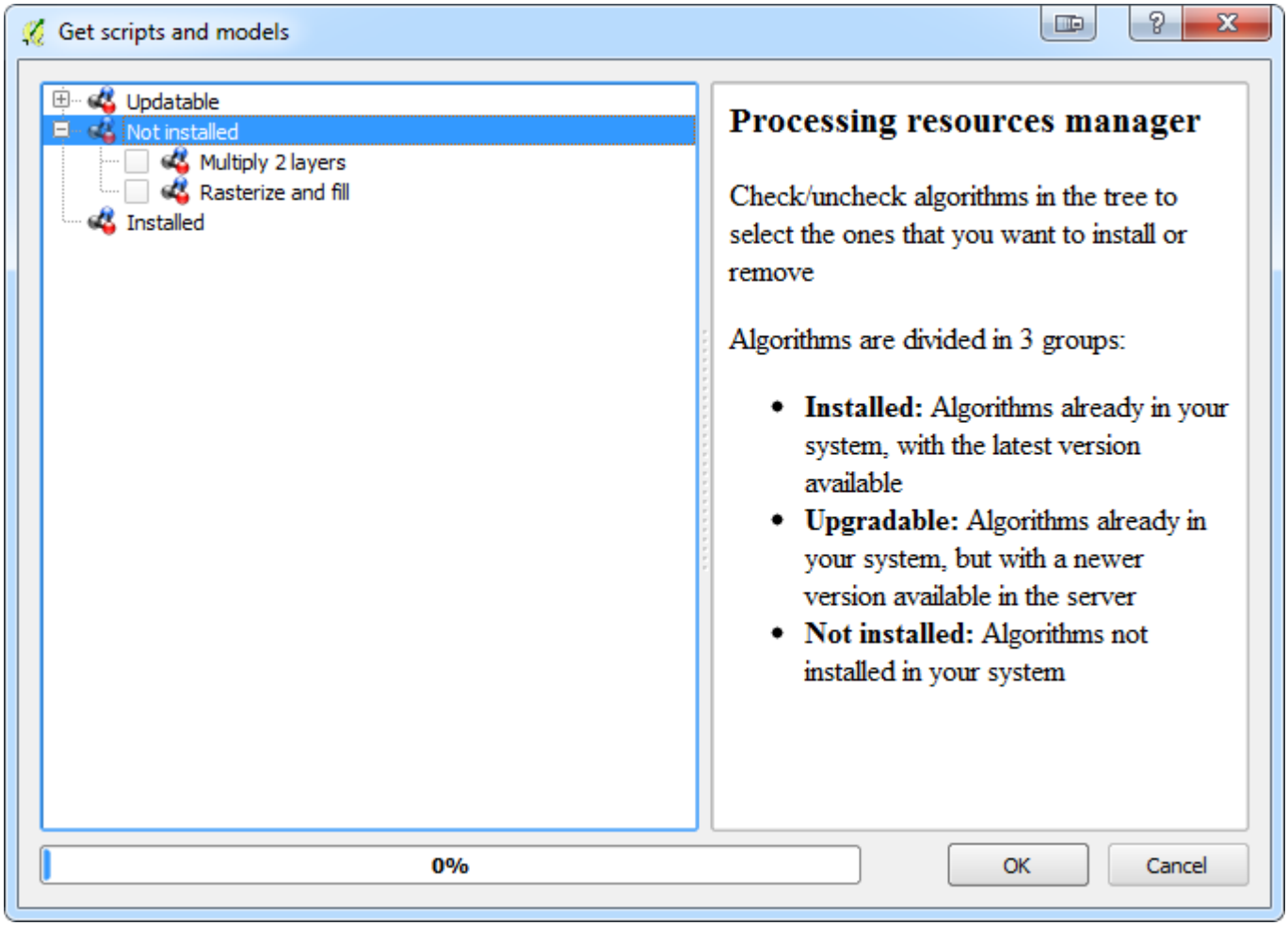

Processing Toolbox
Search...
Recently used algorithms
GDAL/OGR [34 geoalgorithms]
GRASS commands [168 geoalgorithms]
Models [1 geoalgorithms]
Landcover
Tools
Execute
Execute as batch process
Edit rendering styles for outputs
Edit model
Delete model

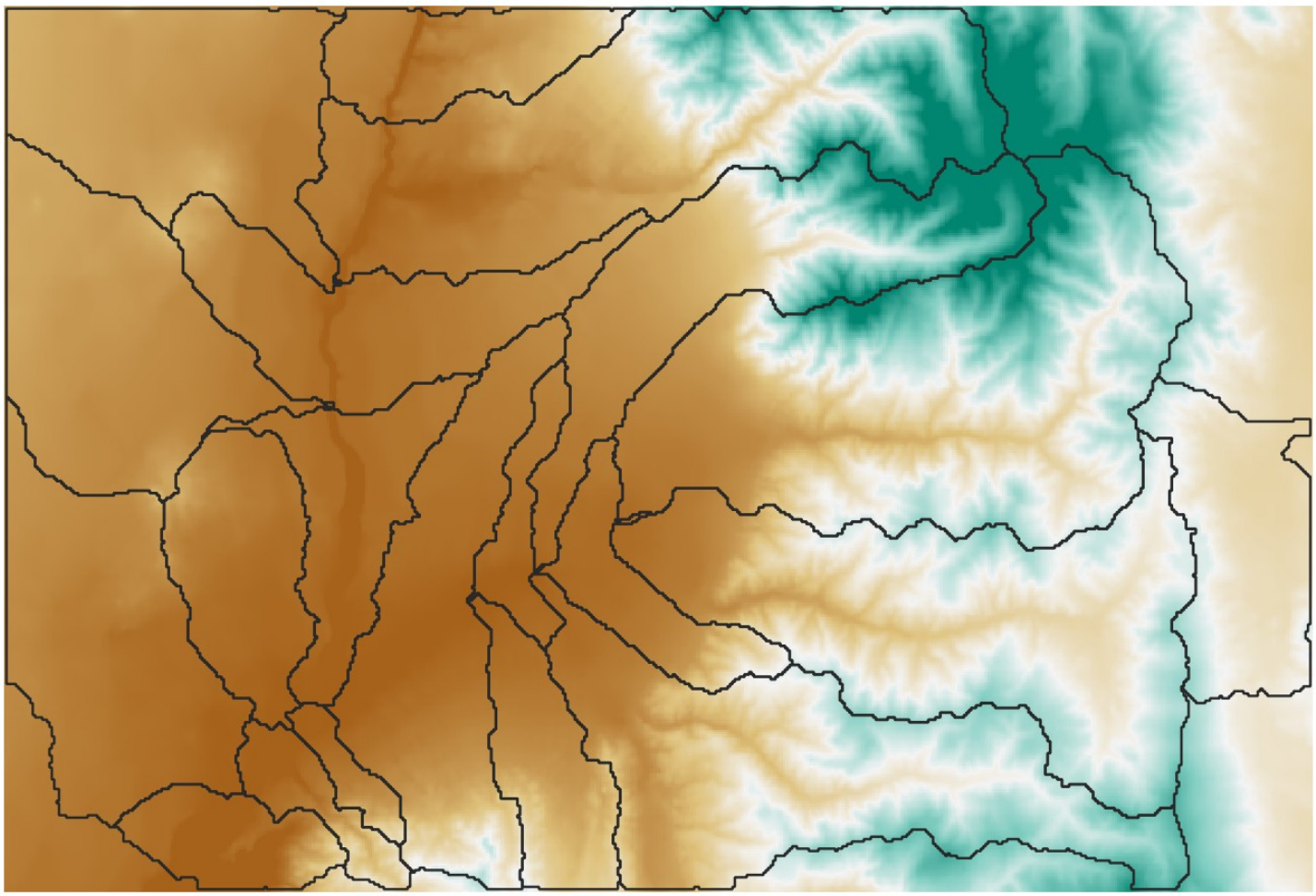

Buffer distance
Dissolve result
Segments
Distance
Input layer
In
Fixed distance bu
Remove
Edit
Deactivate
Out
Buffer

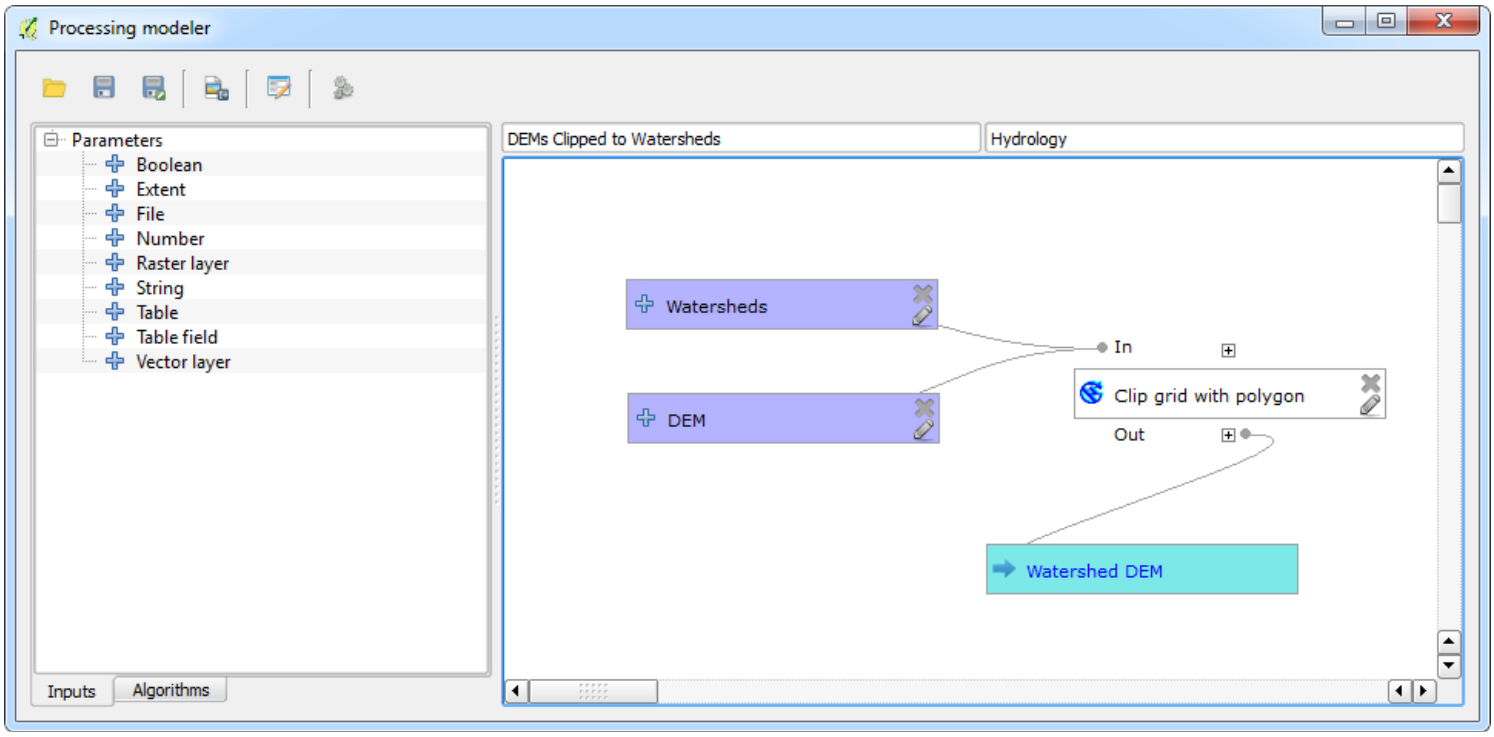

Could not remove element
Other elements depend on the selected one.
Remove them before trying to remove it.
OK

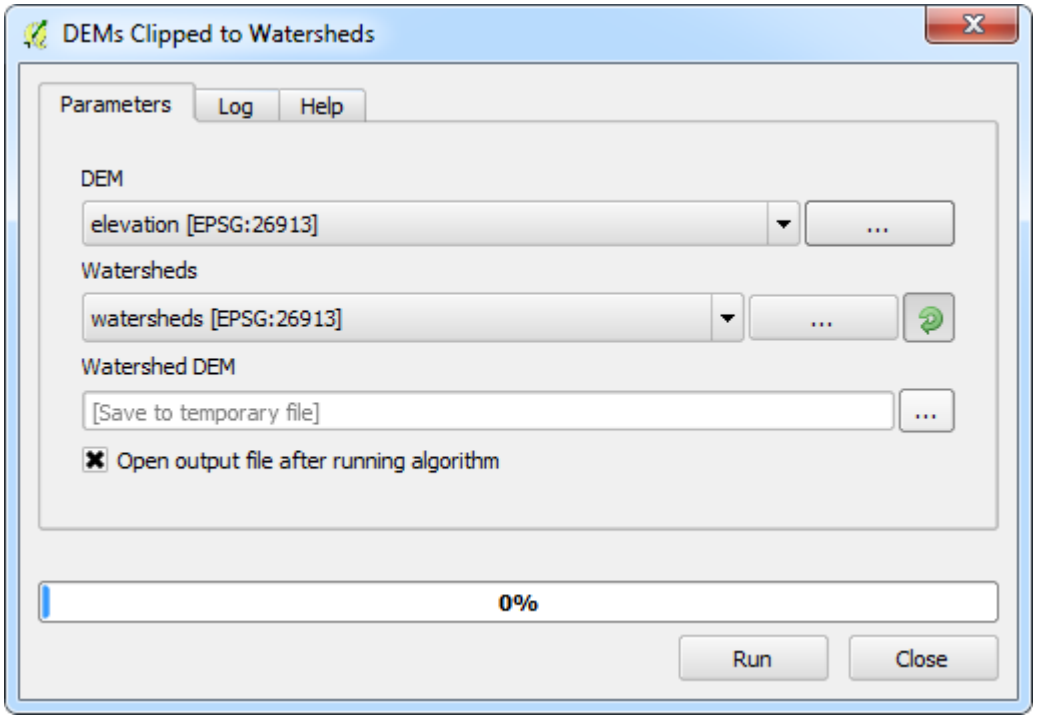

Help editor
Algorithm description
This is a simple model that identifies riparian woodlands. It uses streams and tree data as inputs. The rivers are buffered and the buffer data is used to clip the trees to create the riparian trees data.
Input parameters
Rivers
Perennial streams of Alaska
Buffer distance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

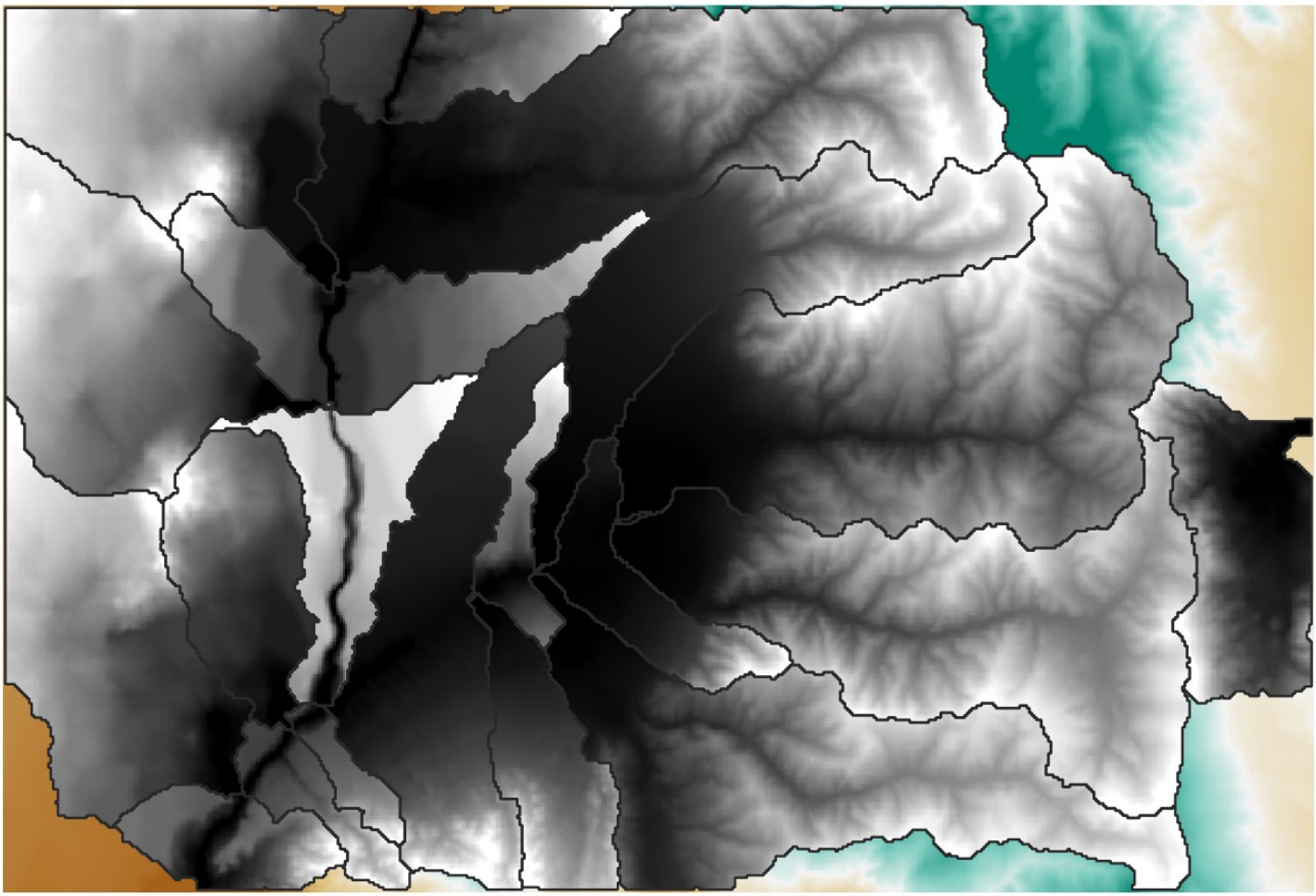

Riparian trees
Parameters
Log
Help
Algorithm description
This is a simple model that identifies riparian woodlands. It uses streams and tree data as inputs. The rivers are buffered and the buffer data is used to clip the trees to create the riparian trees data.
Input parameters
Rivers
Perennial streams of Alaska.
0%
Run
Close

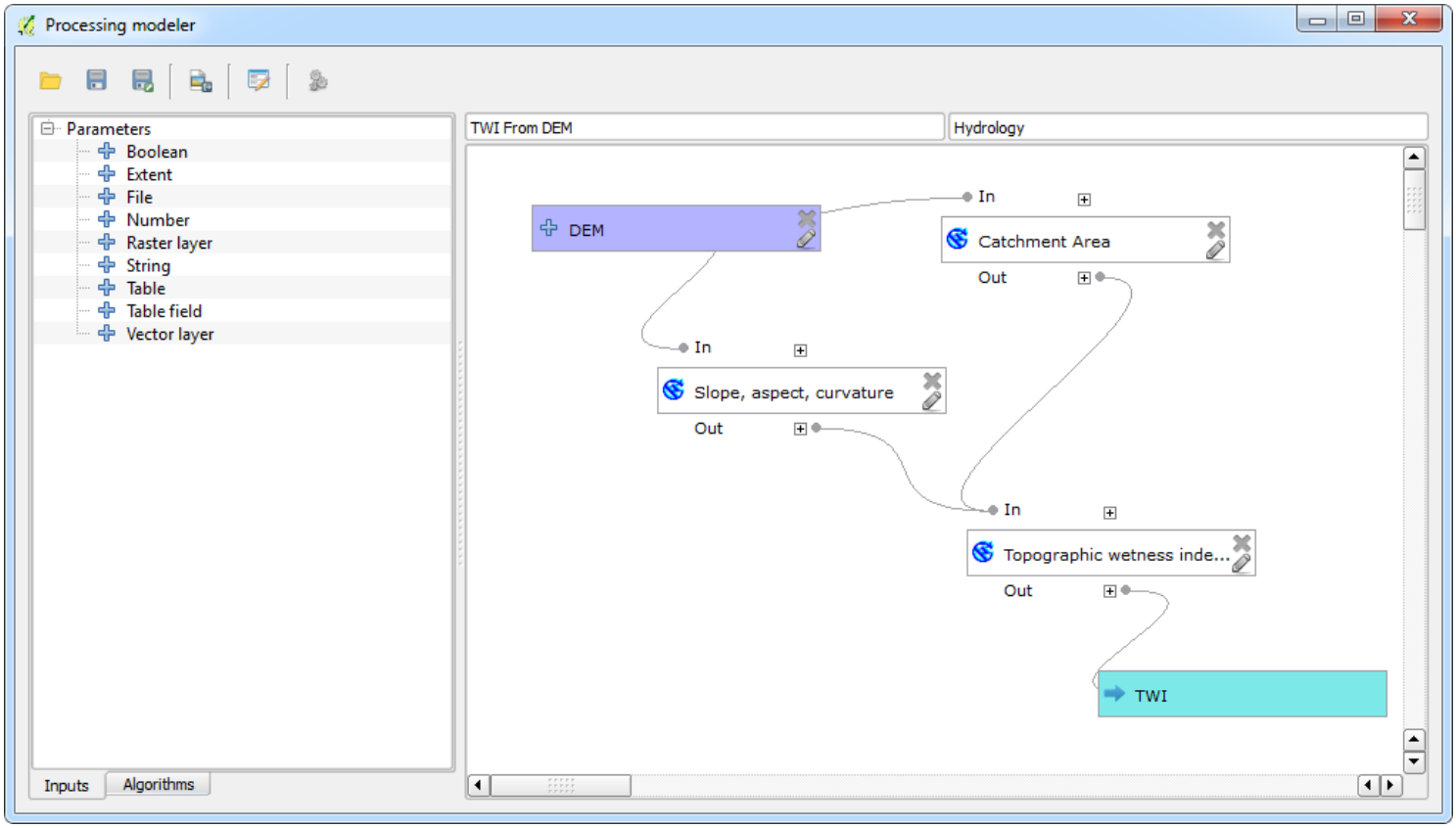

Get scripts and models
Updatable
Not installed
Multiply 2 layers
Rasterize and fill
Installed
Processing resources manager
Check/uncheck algorithms in the tree to select the ones that you want to install or remove
Algorithms are divided in 3 groups:
Installed: Algorithms already in your system, with the latest version available
Upgradable: Algorithms already in your system, but with a newer version available in the server
Not installed: Algorithms not installed in your system
0%
OK
Cancel

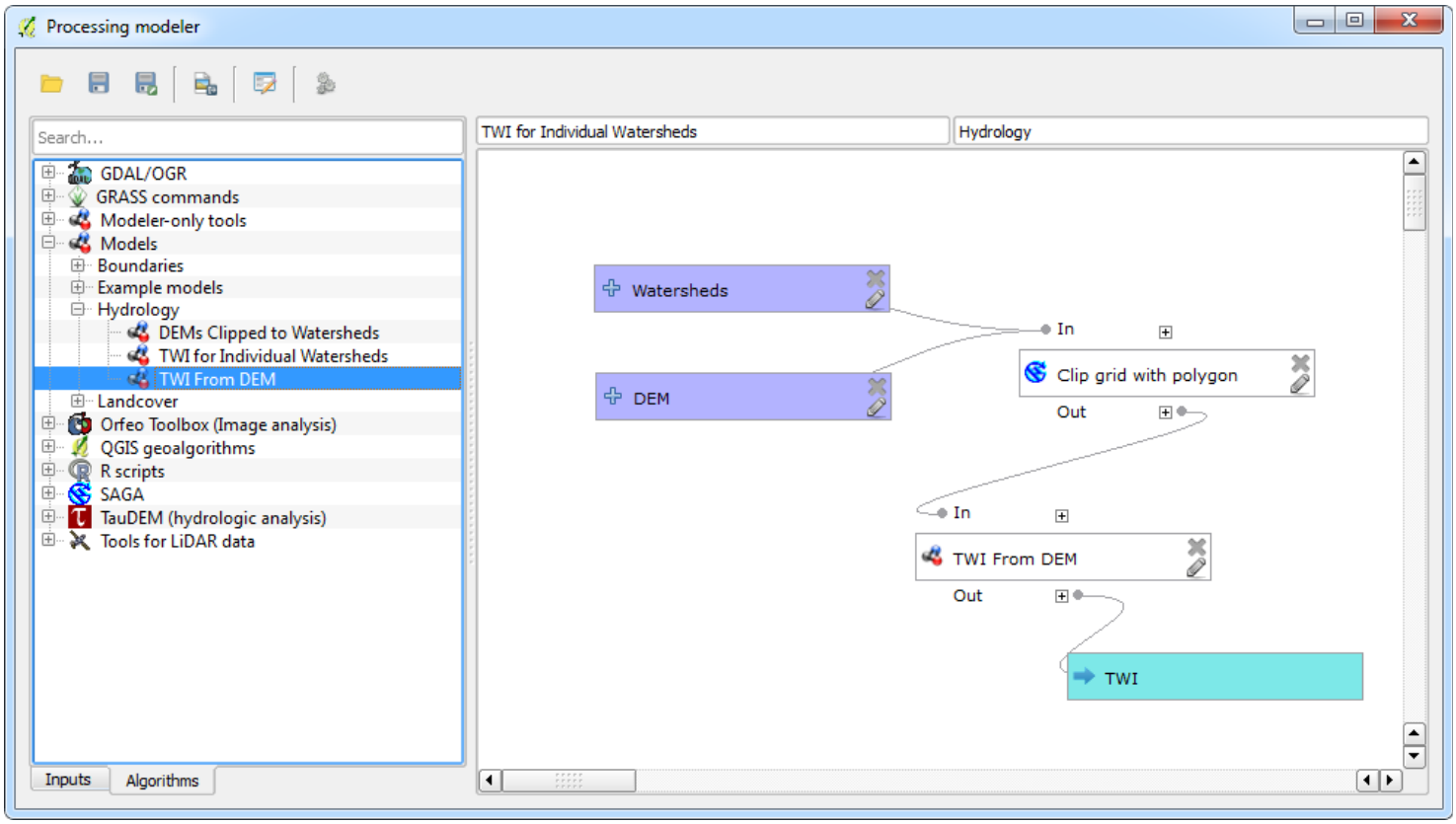


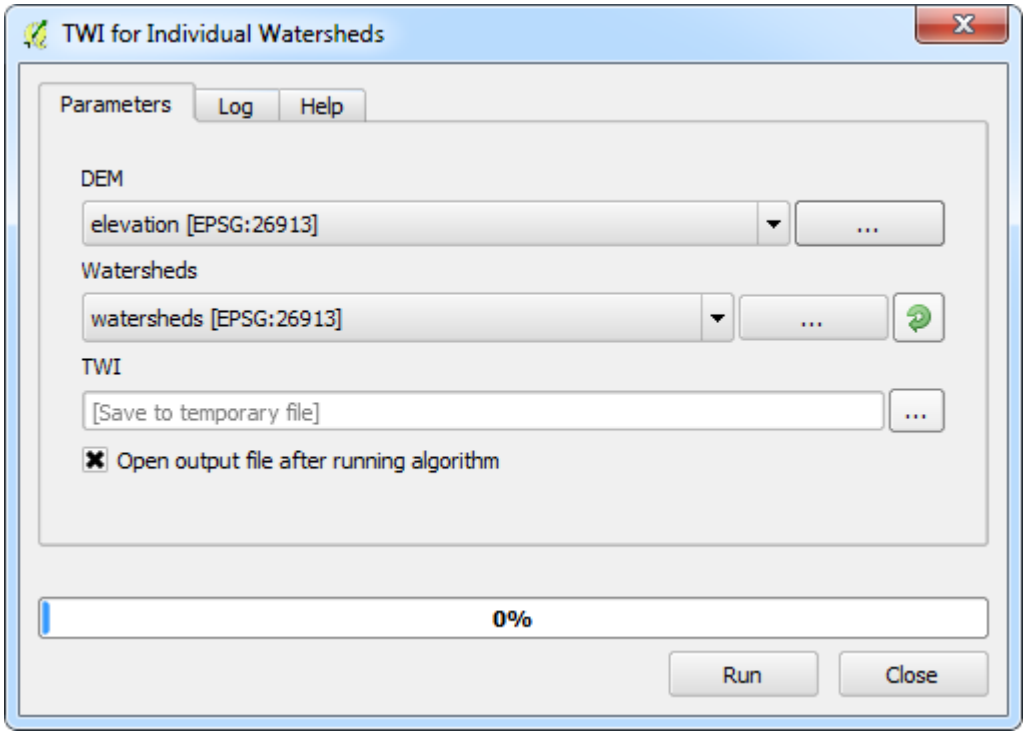

Processing modeler
Parameters
Boolean
Extent
File
Number
Raster layer
String
Table
Table field
Vector layer
Inputs
Algorithms
DEMs Clipped to Watersheds
Hydrology
Watersheds
DEM
In
Clip grid with polygon
Out
Watershed DEM

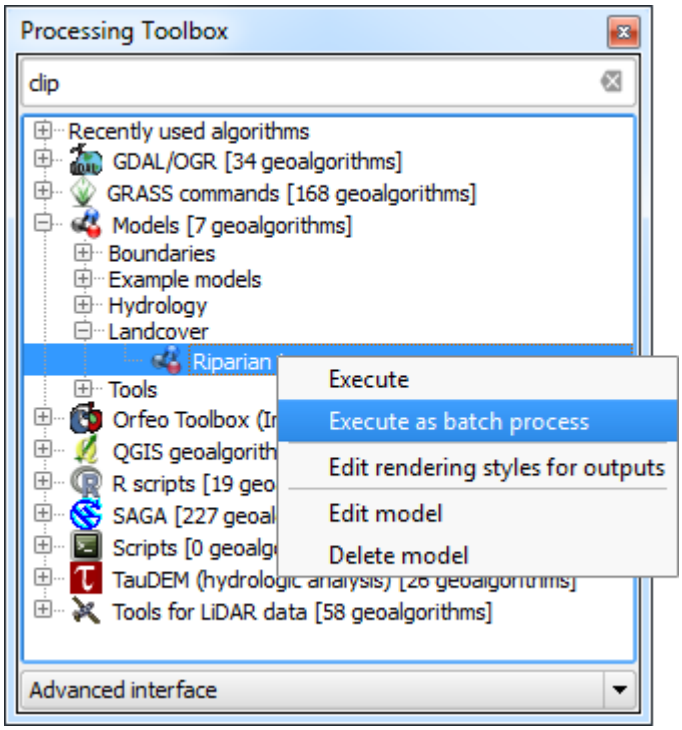

DEMs Clipped to Watersheds
Parameters
Log
Help
DEM
elevation [EPSG:26913]
...
Watersheds
watersheds [EPSG:26913]
...
Watershed DEM
[Save to temporary file]
...
Open output file after running algorithm
0%
Run
Close

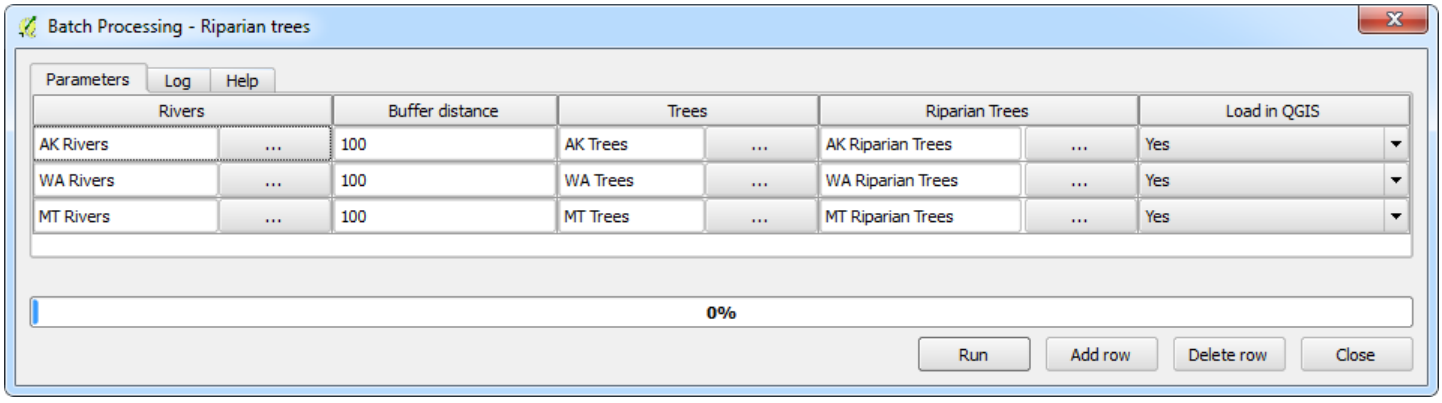


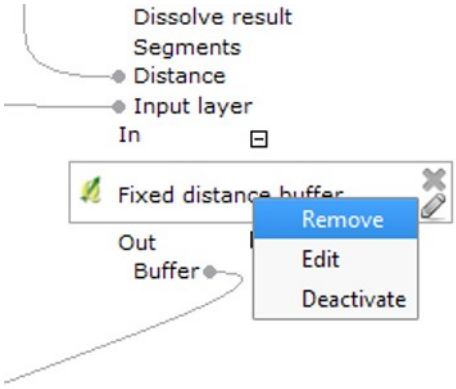

Processing modeler
Parameters
Boolean
Extent
File
Number
Raster layer
String
Table
Table field
Vector layer
TWI From DEM
Hydrology
DEM
In
Catchment Area
Out
In
Slope, aspect, curvature
Out
In
Topographic wetness inde...
Out
TWI
Inputs
Algorithms

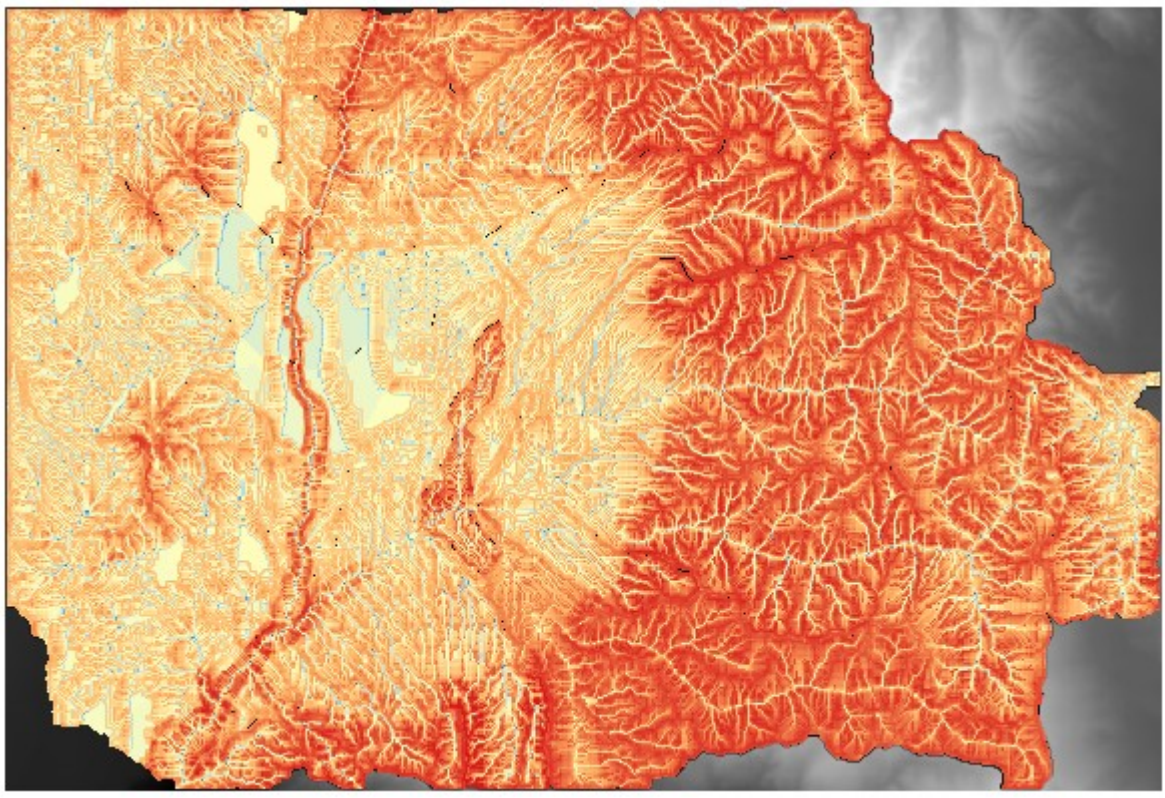

Processing modeler
Search...
GDAL/OGR
GRASS commands
Modeler-only tools
Models
Boundaries
Example models
Hydrology
DEMs Clipped to Watersheds
TWI for Individual Watersheds
TWI From DEM
Landcover
Orfeo Toolbox (Image analysis)
QGIS geoalgorithms
R scripts
SAGA
TauDEM (hydrologic analysis)
Tools for LiDAR data
TWI for Individual Watersheds
Hydrology
Watersheds
DEM
In
Clip grid with polygon
Out
In
TWI From DEM
Out
TWI
Inputs
Algorithms


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

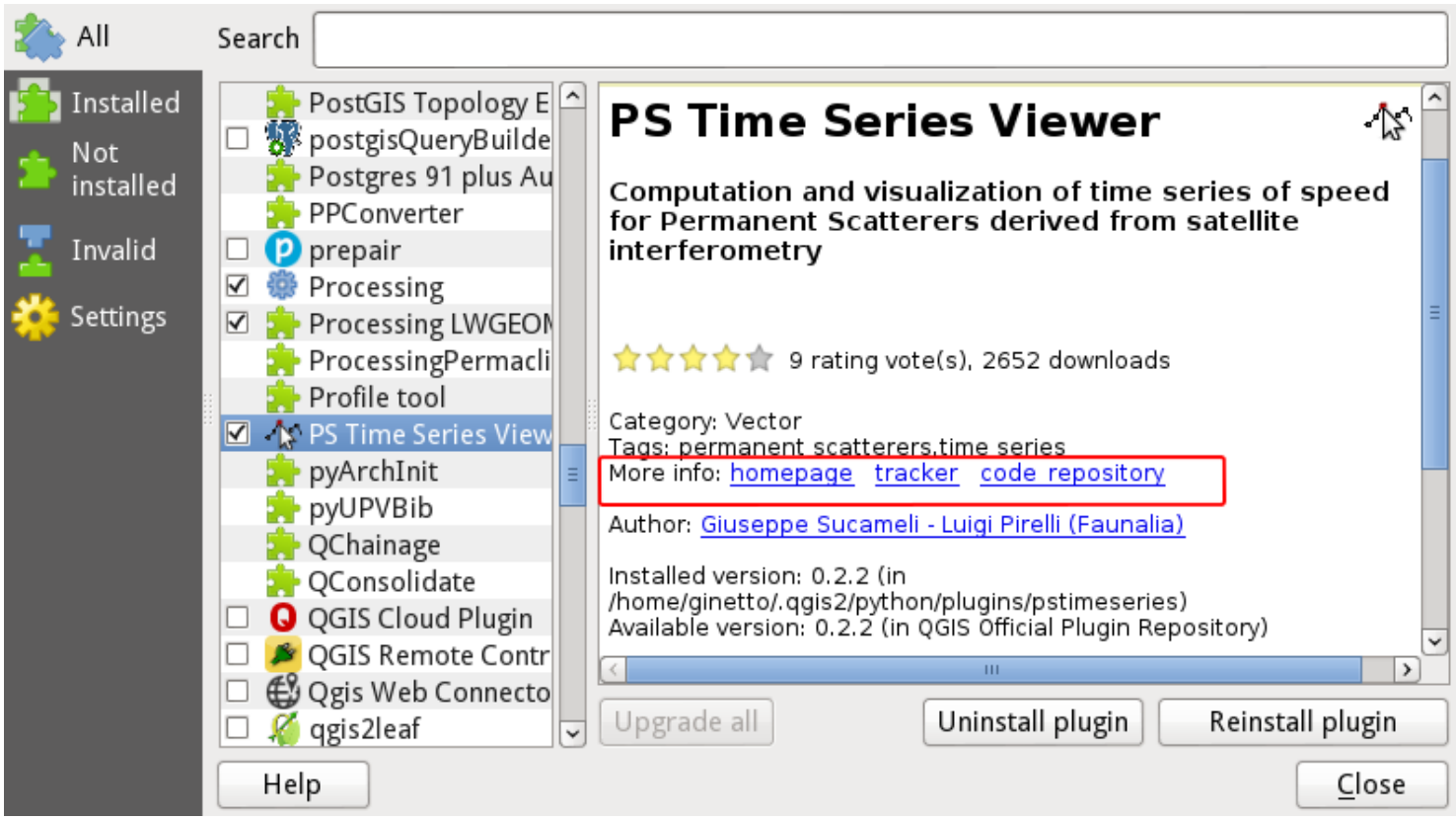

Processing Toolbox
clip
Recently used algorithms
GDAL/OGR [34 geoalgorithms]
GRASS commands [168 geoalgorithms]
Models [7 geoalgorithms]
Boundaries
Example models
Hydrology
Landcover
Riparian
Tools
Orfeo Toolbox (I
QGIS geoalgorith
R scripts [19 geo
SAGA [227 geoal
Scripts [0 geoalg
TauDEM (hydrologic analysis) [26 geoalgorithms]
Tools for LiDAR data [58 geoalgorithms]
Execute
Execute as batch process
Edit rendering styles for outputs
Edit model
Delete model
Advanced interface

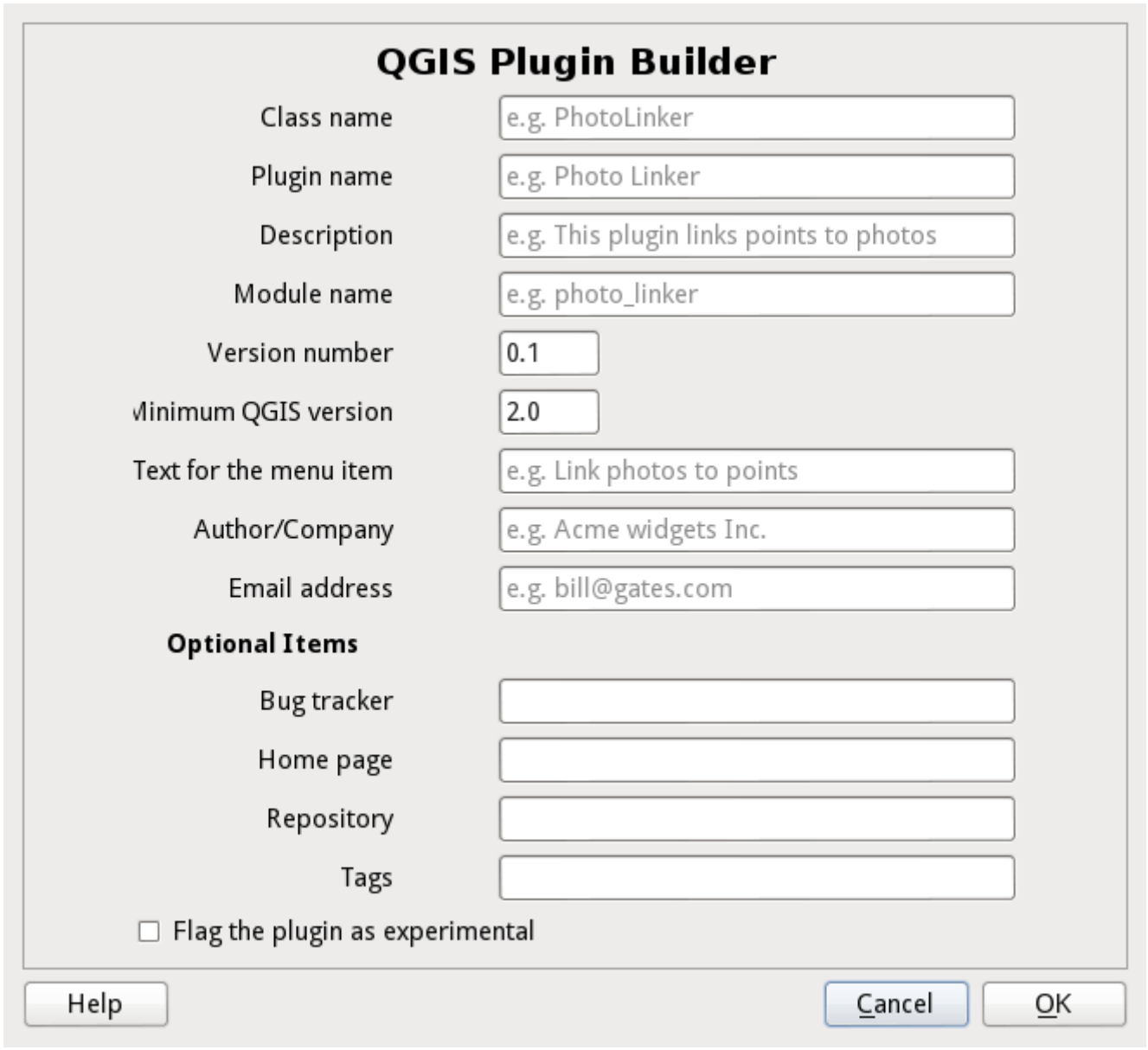


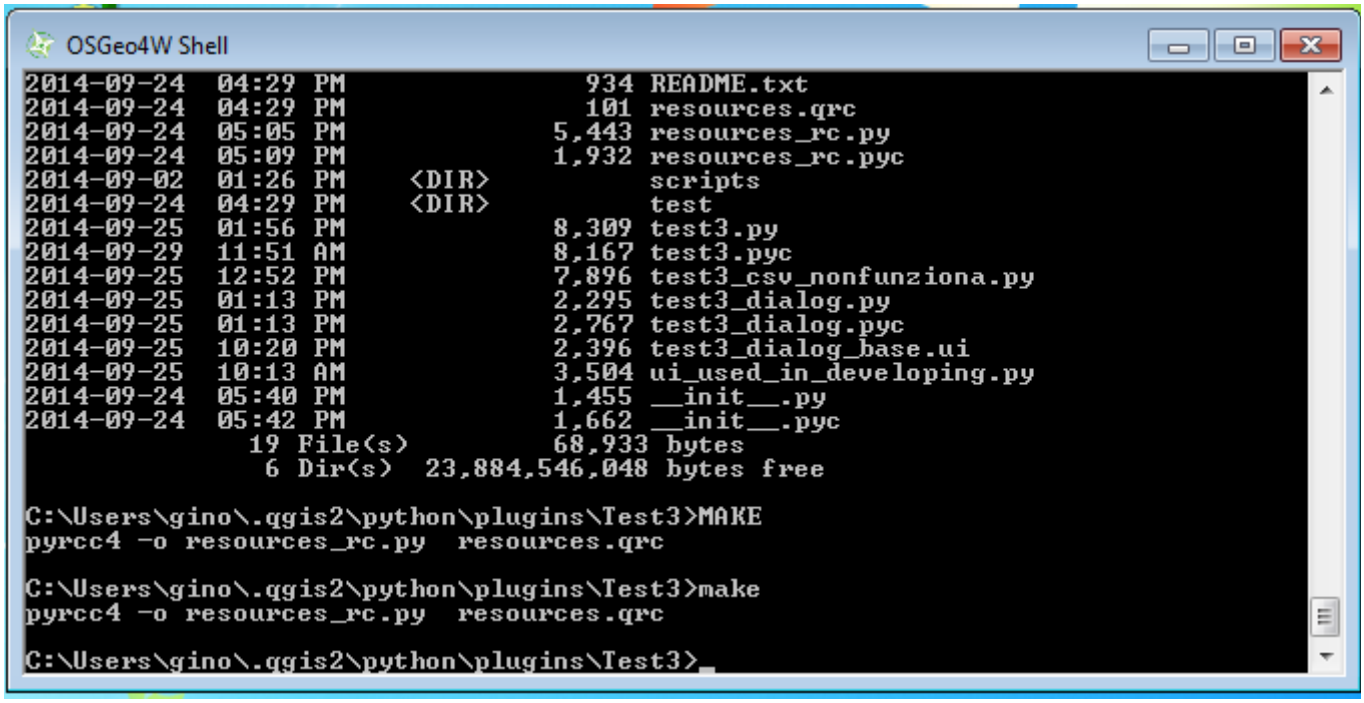


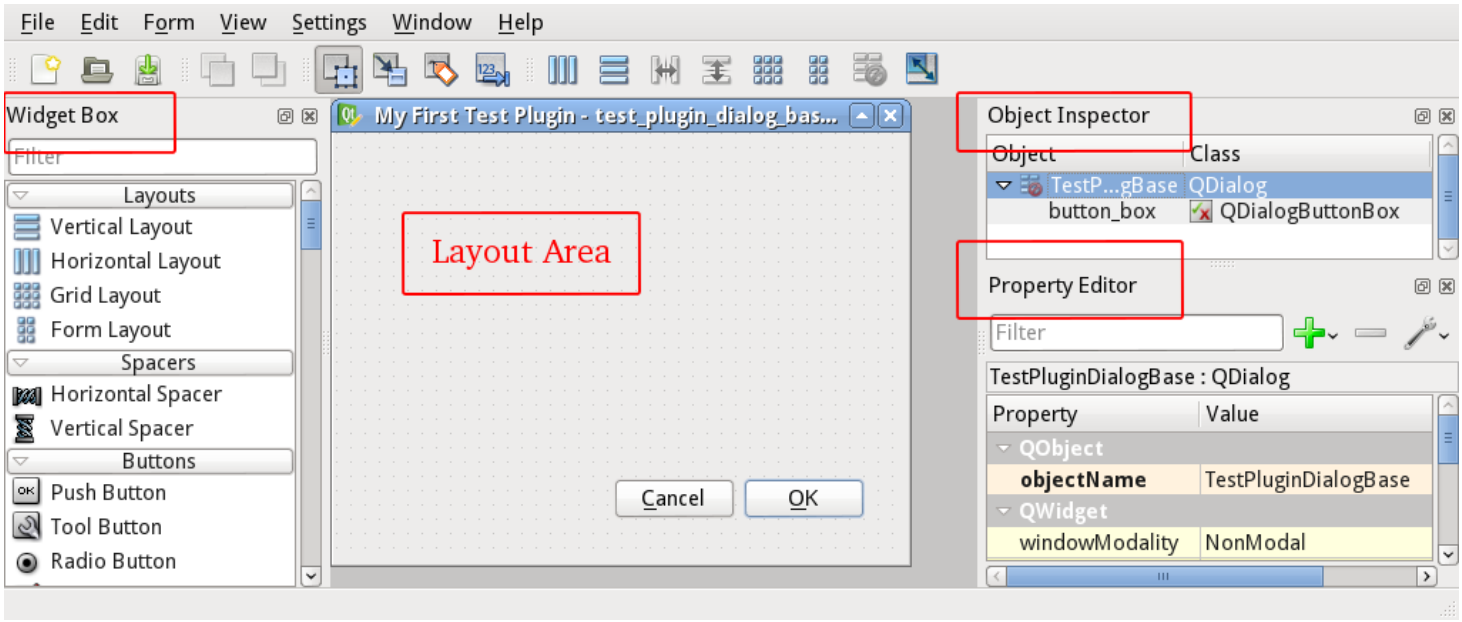


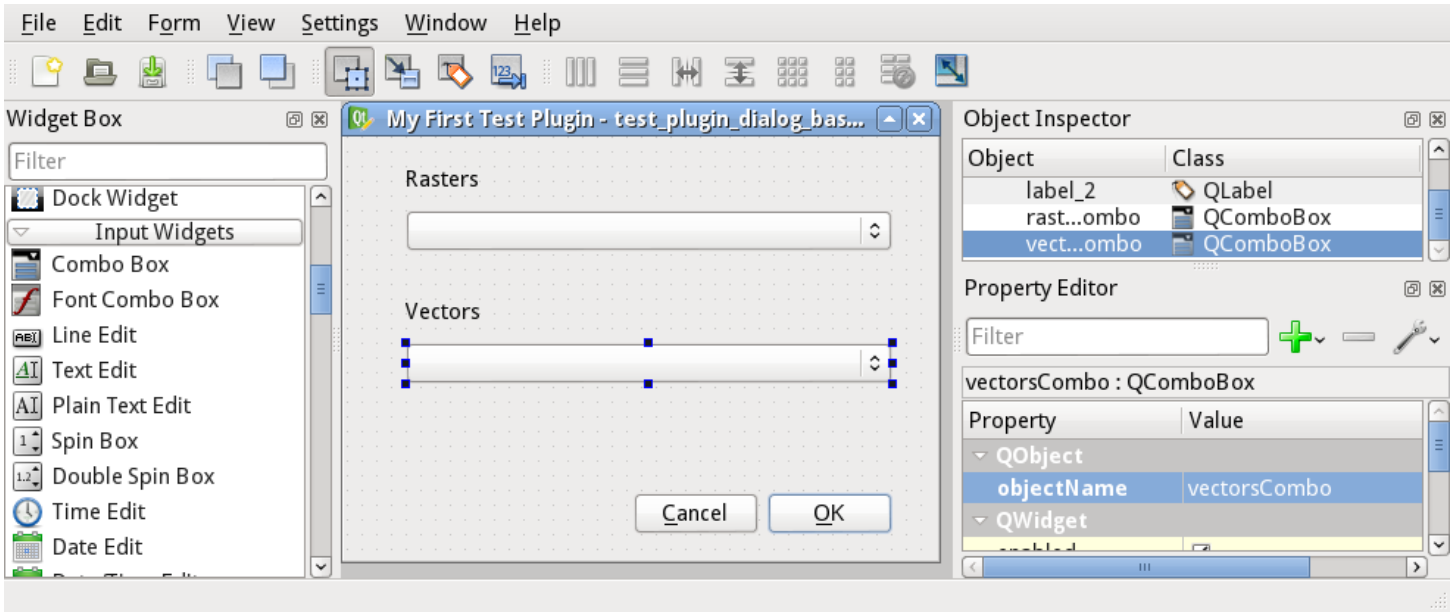
Chapter 9: Creating QGIS Plugins with PyQGIS and Problem Solving

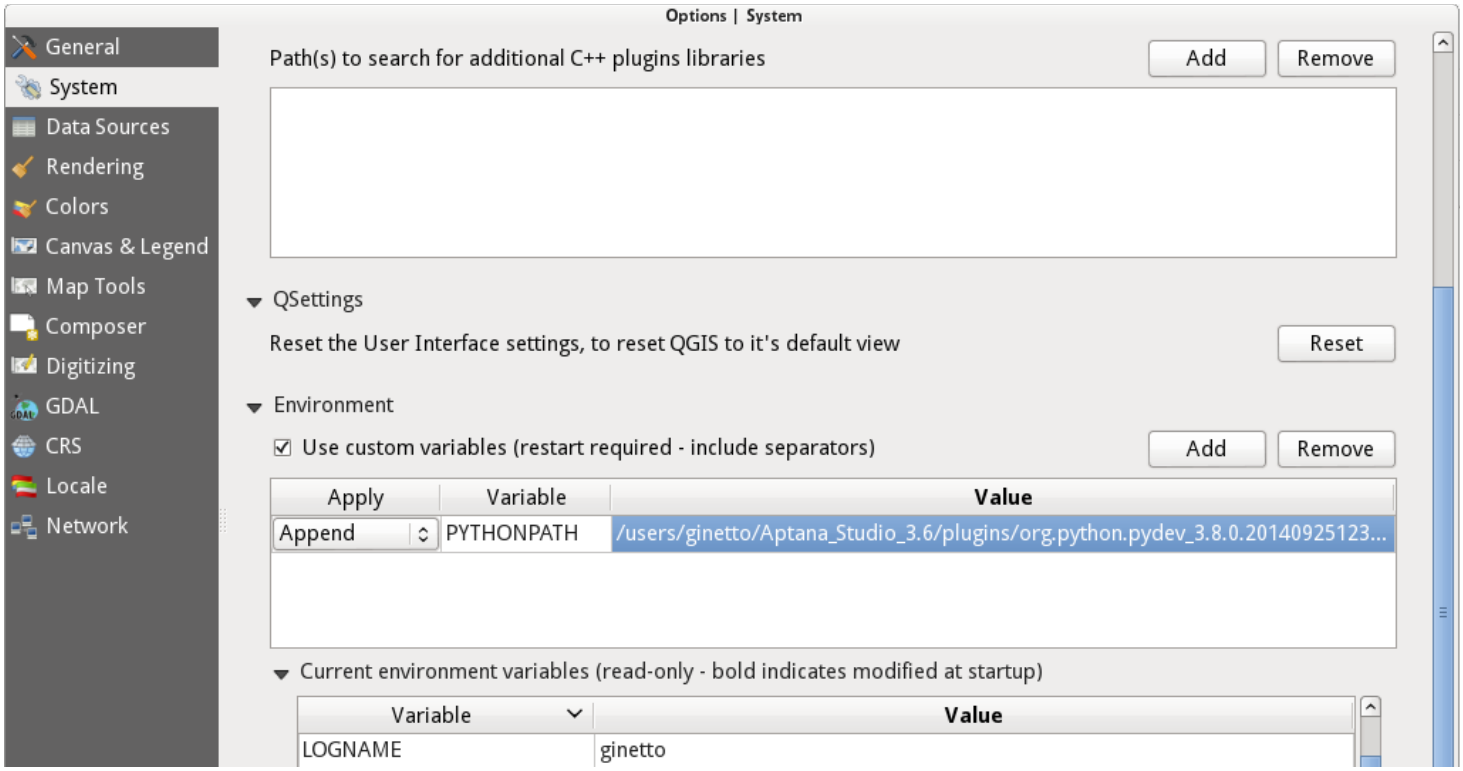

All
Search
Installed
Not installed
Invalid
Settings
PostGIS Topology E
postgisQueryBuilde
Postgres 91 plus Au
PPConverter
prepair
Processing
Processing LWGEOM
ProcessingPermacli
Profile tool
PS Time Series View
pyArchInit
pyUPVBib
QChainage
QConsolidate
QGIS Cloud Plugin
QGIS Remote Contr
Qgis Web Connecto
qgis2leaf
PS Time Series Viewer
Computation and visualization of time series of speed for Permanent Scatterers derived from satellite interferometry
9 rating vote(s), 2652 downloads
Category: Vector
Tags: permanent scatterers,time series
More info: homepage tracker code repository
Author: Giuseppe Sucameli - Luigi Pirelli (Faunalia)
Installed version: 0.2.2 (in /home/ginetto/.qgis2/python/plugins/pstimeseries)
Available version: 0.2.2 (in QGIS Official Plugin Repository)
Upgrade all
Uninstall plugin
Reinstall plugin
Help
Close

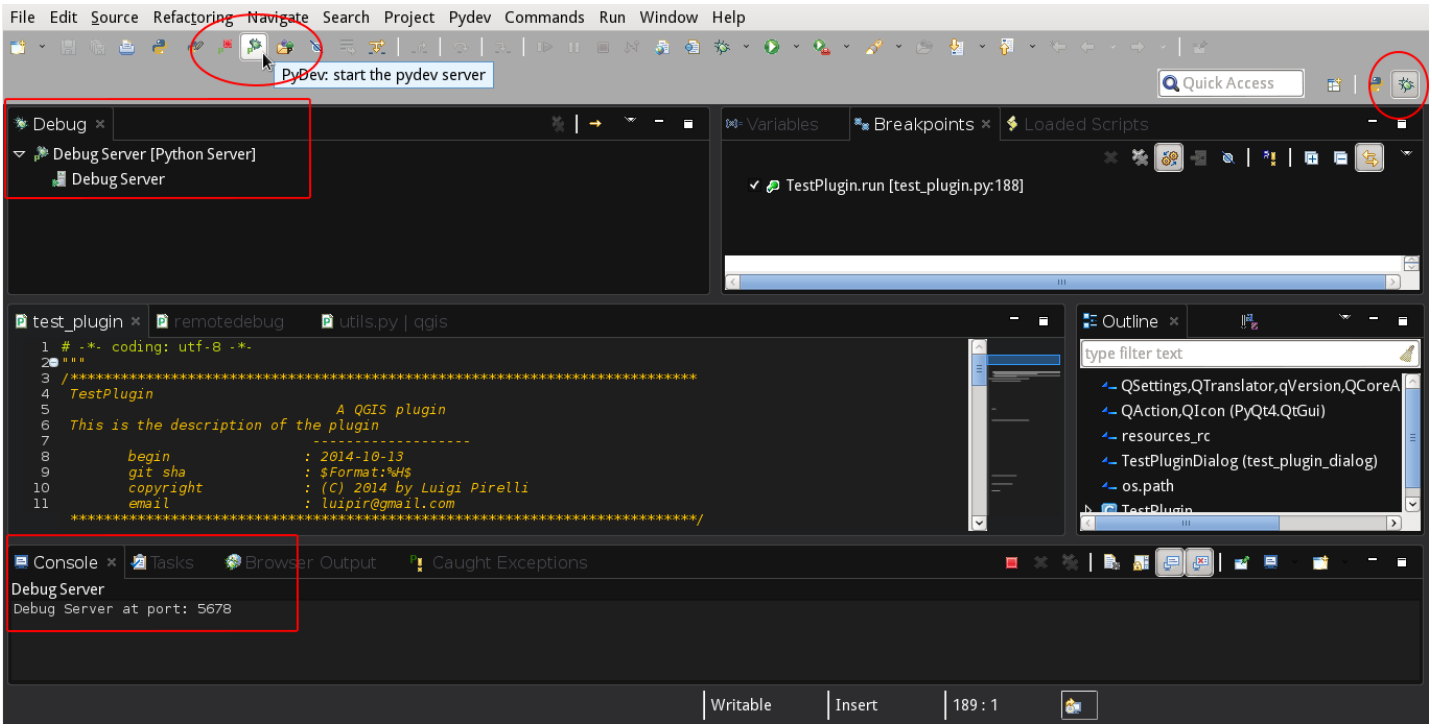

QGIS Plugin Builder
Class name
e.g. PhotoLinker
Plugin name
e.g. Photo Linker
Description
e.g. This plugin links points to photos
Module name
e.g. photo_linker
Version number
0.1
Minimum QGIS version
2.0
Text for the menu item
e.g. Link photos to points
Author/Company
e.g. Acme widgets Inc.
Email address
e.g. bill@gates.com
Optional Items
Bug tracker
Home page
Repository
Tags
Flag the plugin as experimental
Help
Cancel
OK

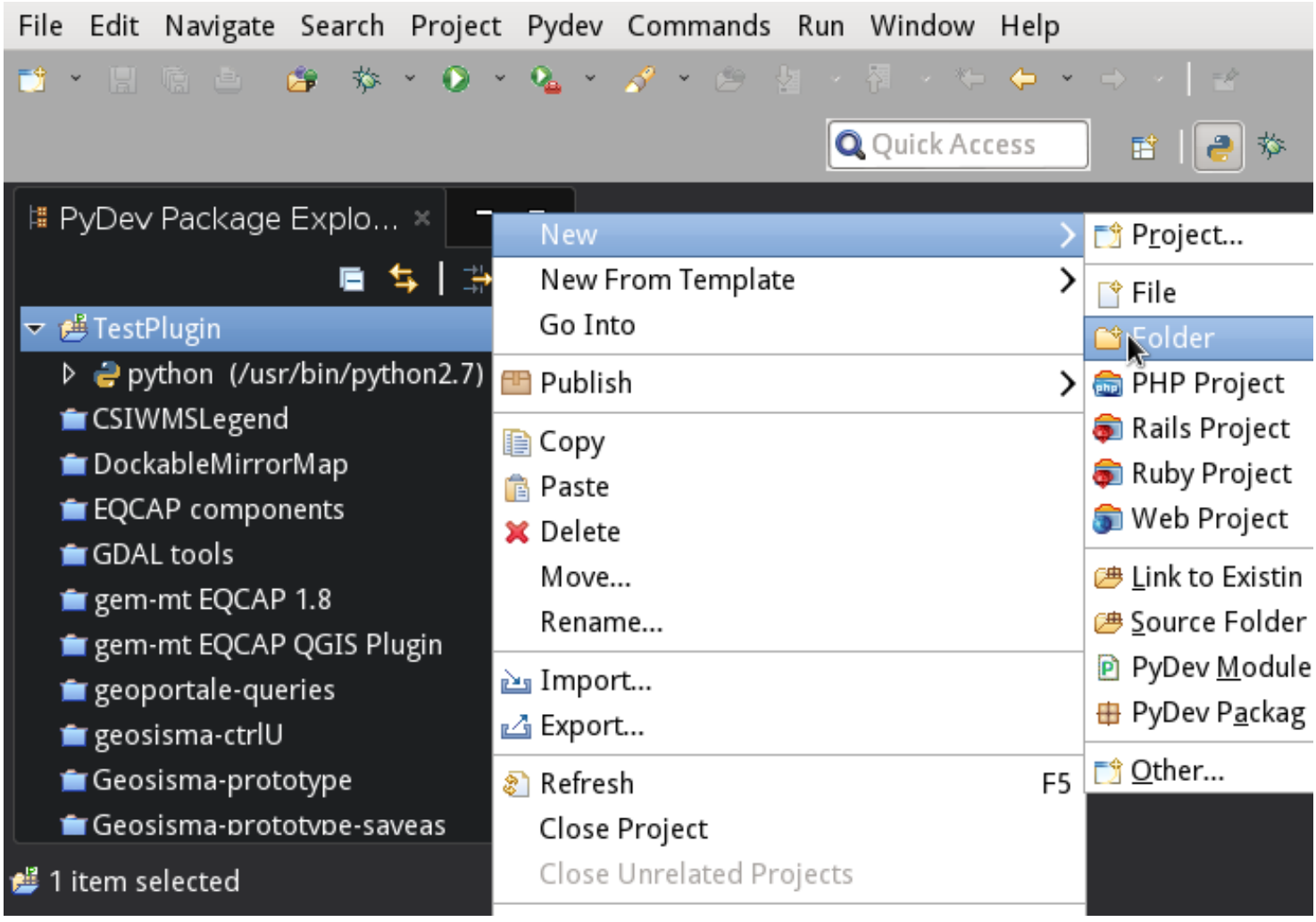

OSGeo4W Shell
2014-09-24 04:29 PM 934 README.txt
2014-09-24 04:29 PM 101 resources.qrc
2014-09-24 05:05 PM 5,443 resources_rc.py
2014-09-24 05:09 PM 1,932 resources_rc.pyc
2014-09-02 01:26 PM <DIR> scripts
2014-09-24 04:29 PM <DIR> test
2014-09-25 01:56 PM 8,309 test3.py
2014-09-29 11:51 AM 8,167 test3.pyc
2014-09-25 12:52 PM 7,896 test3_csv_nonfunziona.py
2014-09-25 01:13 PM 2,295 test3_dialog.py
2014-09-25 01:13 PM 2,767 test3_dialog.pyc
2014-09-25 10:20 PM 2,396 test3_dialog_base.ui
2014-09-25 10:13 AM 3,504 ui_used_in_developing.py
2014-09-24 05:40 PM 1,455 __init__.py
2014-09-24 05:42 PM 1,662 __init__.pyc
19 File(s) 68,933 bytes
6 Dir(s) 23,884,546,048 bytes free
C:\Users\gino\.qgis2\python\plugins\Test3>MAKE
pyrcc4 -o resources_rc.py resources.qrc
C:\Users\gino\.qgis2\python\plugins\Test3>make
pyrcc4 -o resources_rc.py resources.qrc
C:\Users\gino\.qgis2\python\plugins\Test3>

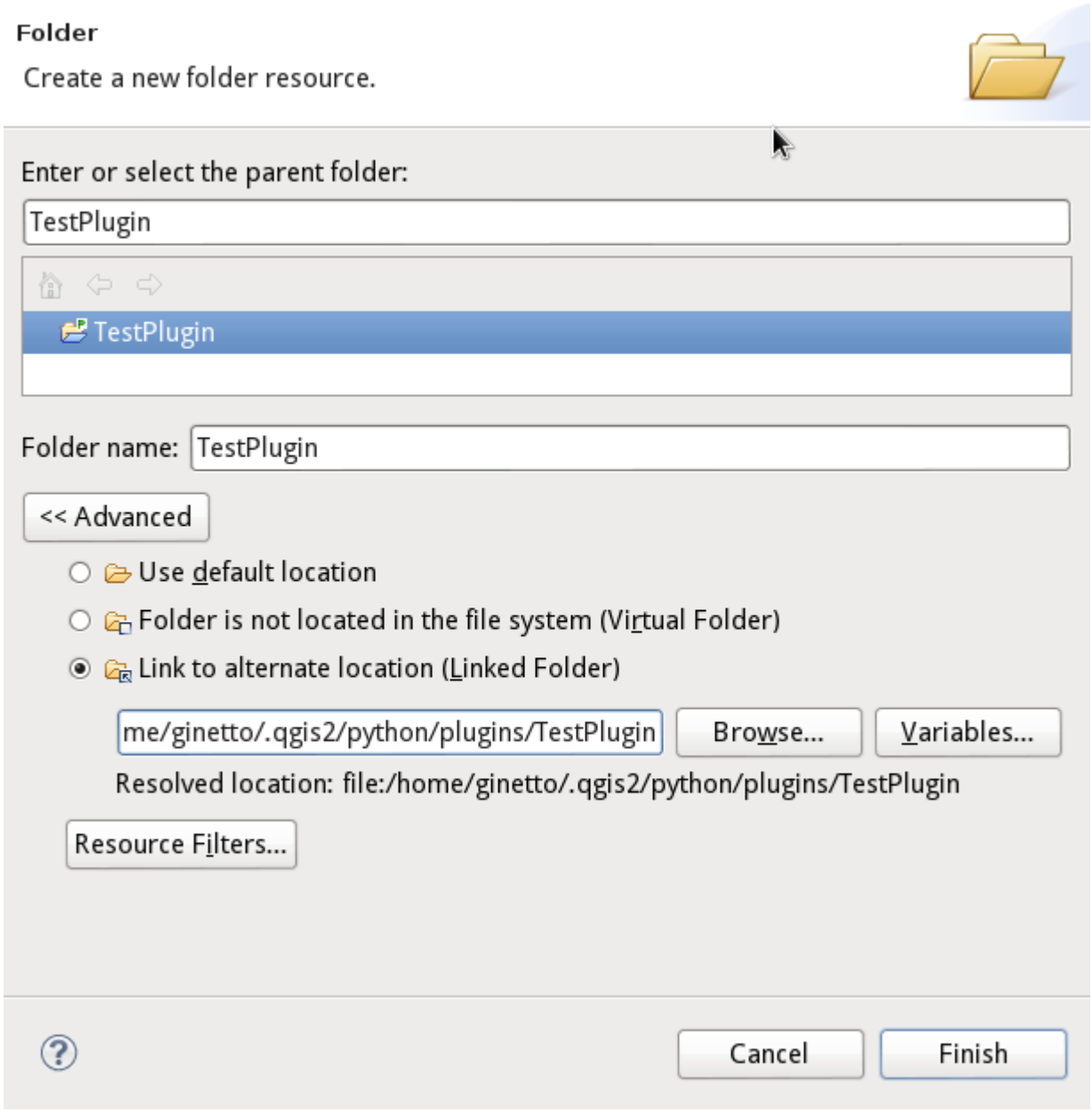

File Edit Form View Settings Window Help
Widget Box
Filter
Layouts
Vertical Layout
Horizontal Layout
Grid Layout
Form Layout
Spacers
Horizontal Spacer
Vertical Spacer
Buttons
Push Button
Tool Button
Radio Button
My First Test Plugin - test_plugin_dialog_bas...
Layout Area
Cancel
OK
Object Inspector
Object
Class
TestP...gBase
QDialog
button_box
QDialogButtonBox
Property Editor
Filter
TestPluginDialogBase : QDialog
Property
Value
QObject
objectName
TestPluginDialogBase
QWidget
windowModality
NonModal

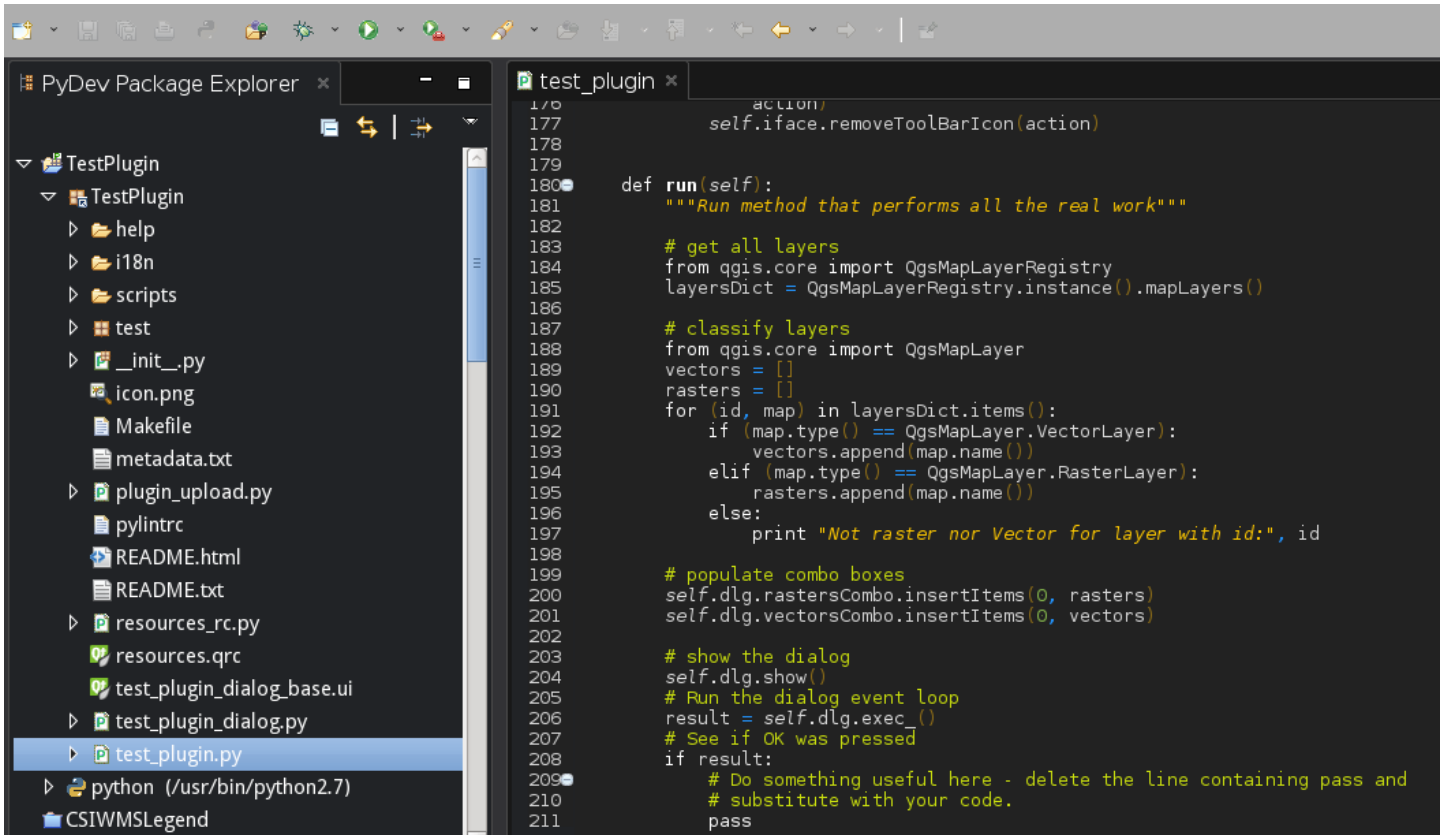

File Edit Form View Settings Window Help
Widget Box
Filter
Dock Widget
Input Widgets
Combo Box
Font Combo Box
Line Edit
Text Edit
Plain Text Edit
Spin Box
Double Spin Box
Time Edit
Date Edit
My First Test Plugin - test_plugin_dialog_bas...
Rasters
Vectors
Cancel
OK
Object Inspector
Object
Class
label_2
QLabel
rast...ombo
QComboBox
vect...ombo
QComboBox
Property Editor
Filter
vectorsCombo : QComboBox
Property
Value
QObject
objectName
vectorsCombo
QWidget

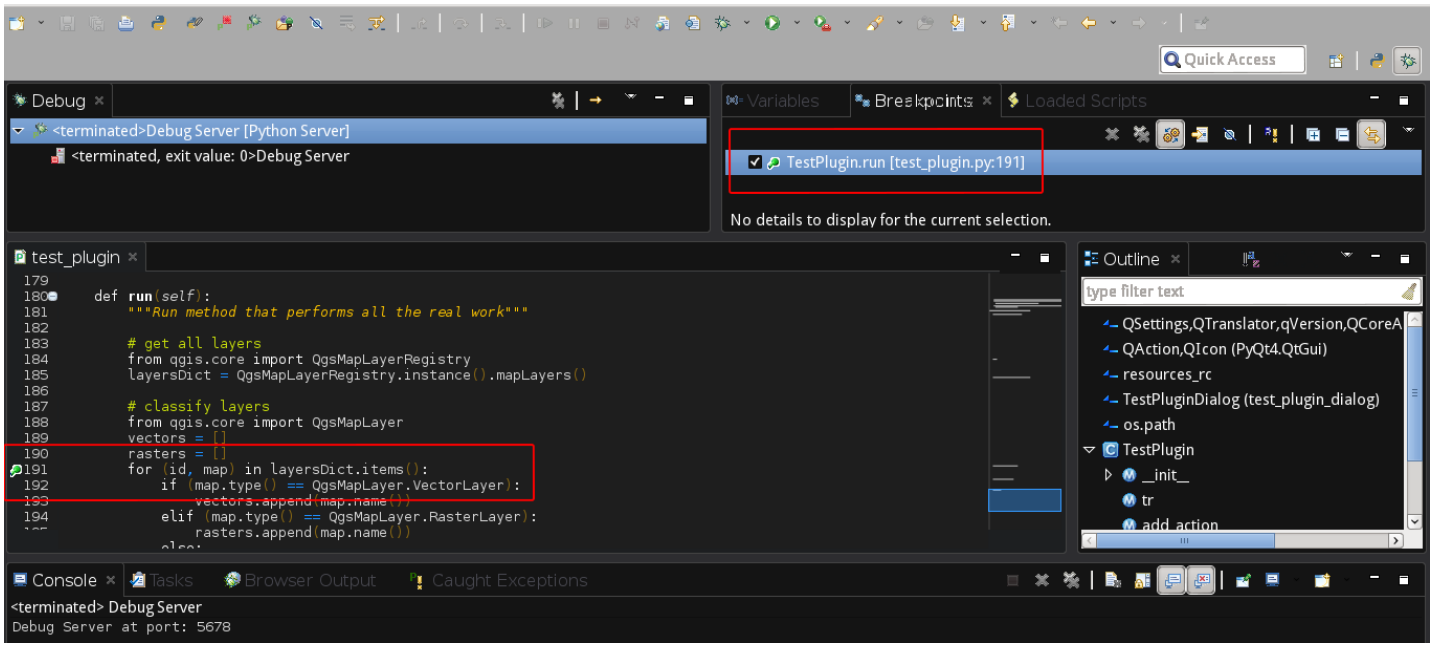

Options | System
General
System
Data Sources
Rendering
Colors
Canvas & Legend
Map Tools
Composer
Digitizing
GDAL
CRS
Locale
Network
Path(s) to search for additional C++ plugins libraries
Add
Remove
QSettings
Reset the User Interface settings, to reset QGIS to it's default view
Reset
Environment
Use custom variables (restart required - include separators)
Add
Remove
Apply
Variable
Value
Append
PYTHONPATH
/users/ginetto/Aptana_Studio_3.6/plugins/org.python.pydev_3.8.0.20140925123...
Current environment variables (read-only - bold indicates modified at startup)
Variable
Value
LOGNAME
ginetto

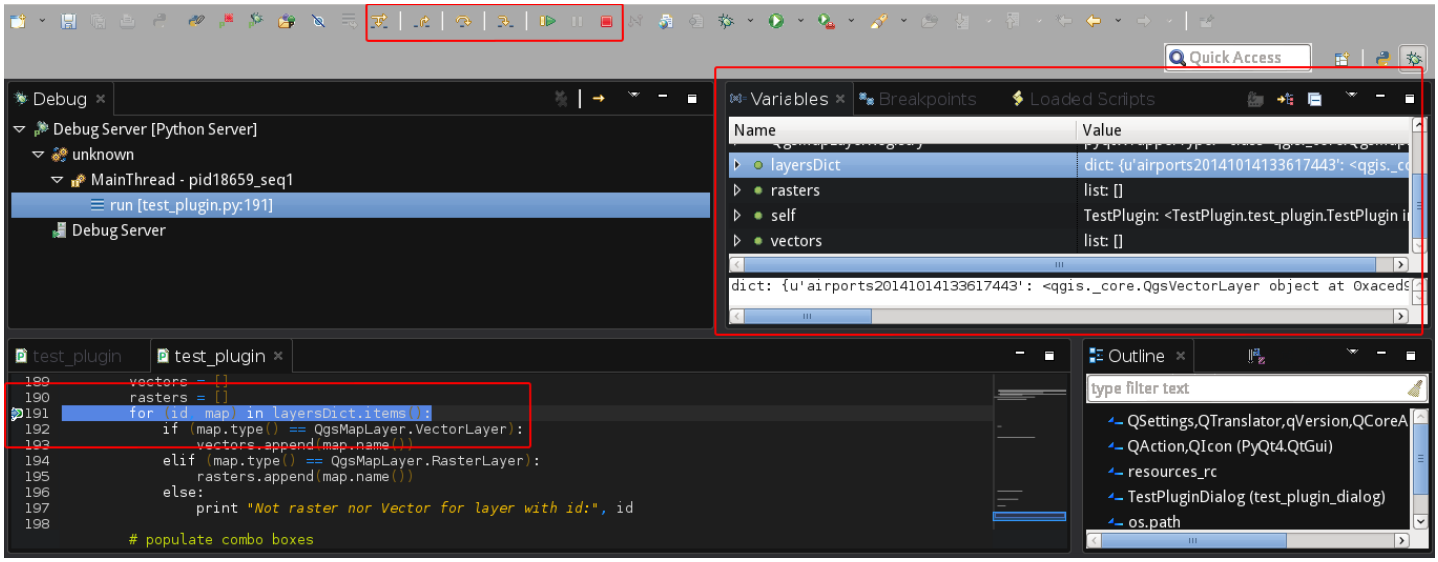

File Edit Source Refactoring Navigate Search Project Pydev Commands Run Window Help
PyDev: start the pydev server
Quick Access
Debug
Debug Server [Python Server]
Debug Server
Variables
Breakpoints
Loaded Scripts
TestPlugin.run [test_plugin.py:188]
test_plugin
remotedebug
utils.py | qgis
Outline
type filter text
QSettings,QTranslator,qVersion,QCoreA
QAction,QIcon (PyQt4.QtGui)
resources_rc
TestPluginDialog (test_plugin_dialog)
os.path
Console
Tasks
Browser Output
Caught Exceptions
Debug Server
Debug Server at port: 5678
Writable
Insert
189 : 1

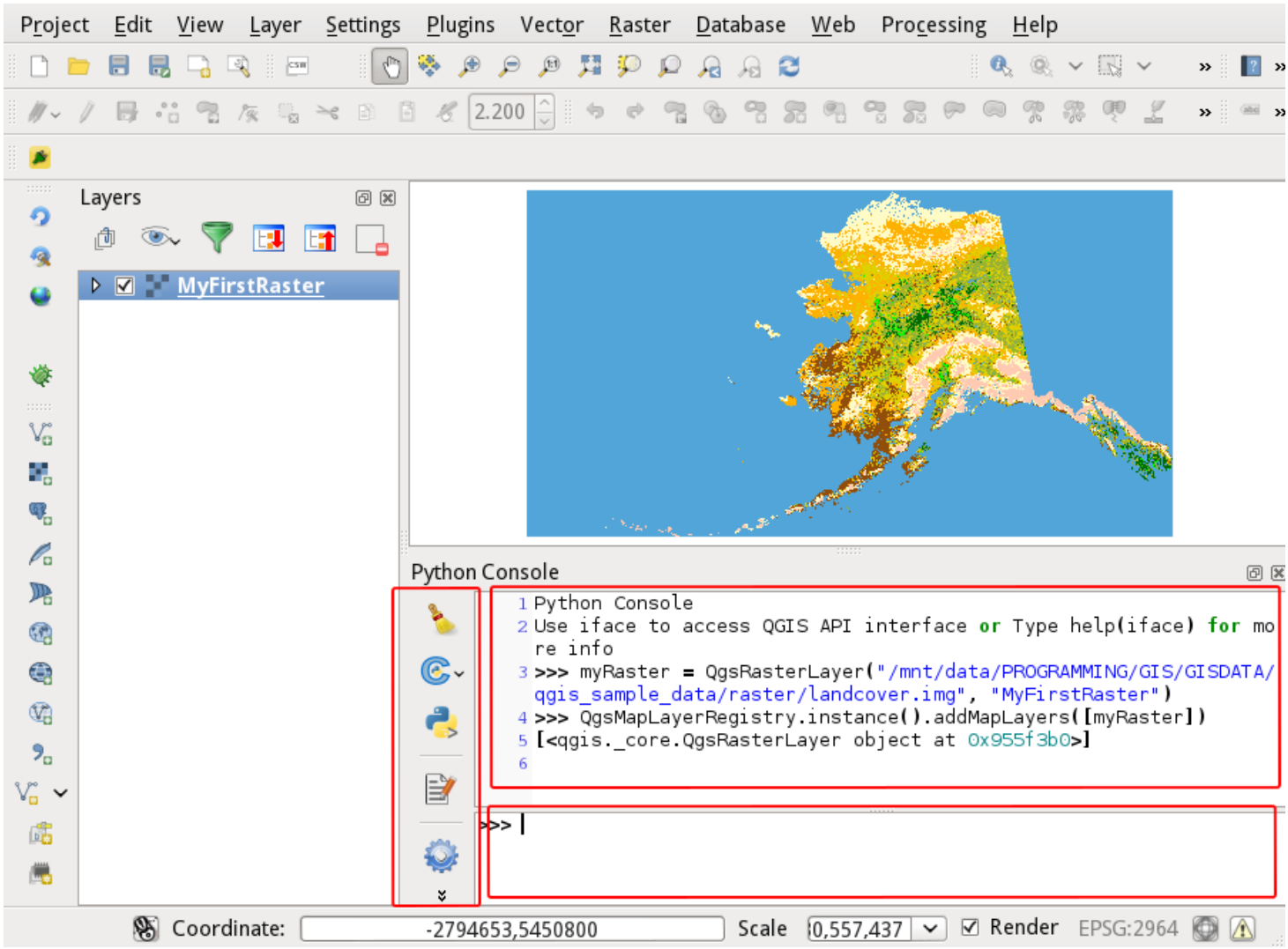

File Edit Navigate Search Project Pydev Commands Run Window Help
Quick Access
PyDev Package Explo...
TestPlugin
python (/usr/bin/python2.7)
CSIWMSLegend
DockableMirrorMap
EQCAP components
GDAL tools
gem-mt EQCAP 1.8
gem-mt EQCAP QGIS Plugin
geoportale-queries
geosisma-ctrlU
Geosisma-prototype
Geosisma-prototype-saveas
1 item selected
New
New From Template
Go Into
Publish
Copy
Paste
Delete
Move...
Rename...
Import...
Export...
Refresh F5
Close Project
Close Unrelated Projects
Project...
File
Folder
PHP Project
Rails Project
Ruby Project
Web Project
Link to Existin
Source Folder
PyDev Module
PyDev Packag
Other...

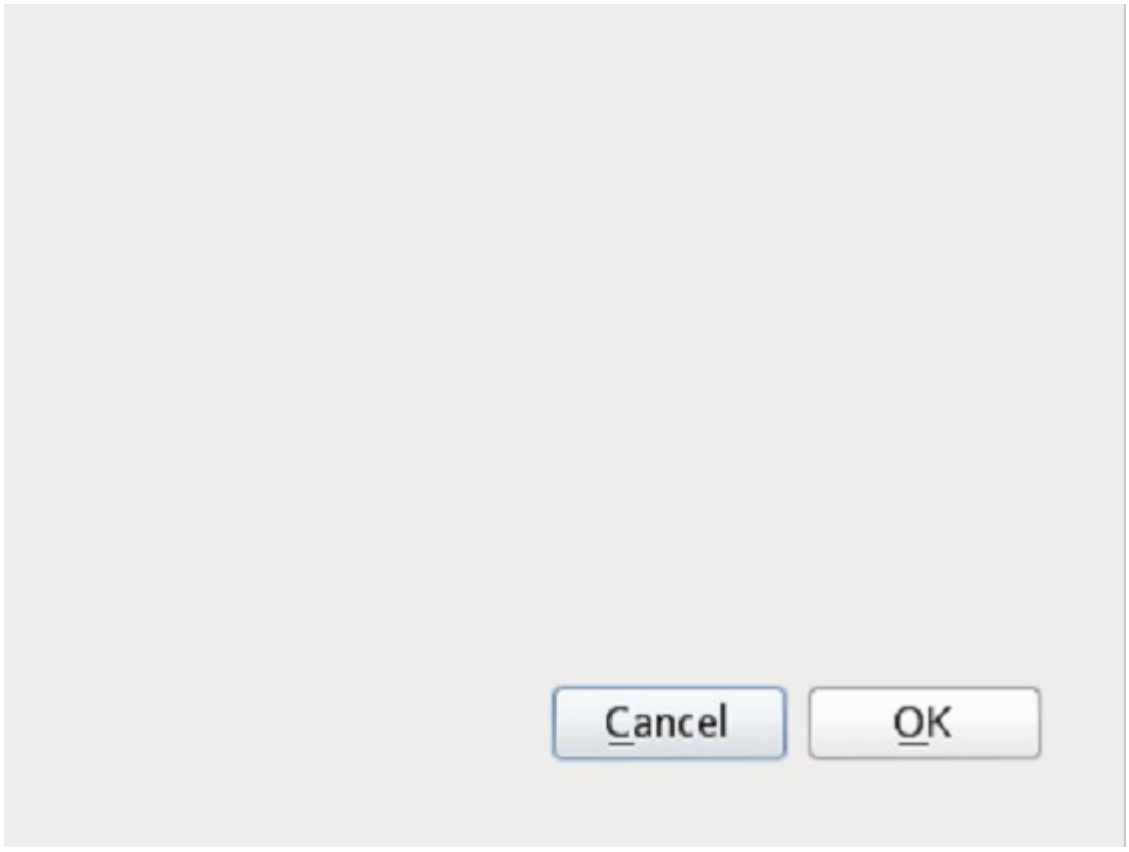

Folder
Create a new folder resource.
Enter or select the parent folder:
TestPlugin
TestPlugin
Folder name: TestPlugin
<< Advanced
Use default location
Folder is not located in the file system (Virtual Folder)
Link to alternate location (Linked Folder)
me/ginetto/.qgis2/python/plugins/TestPlugin
Browse...
Variables...
Resolved location: file:/home/ginetto/.qgis2/python/plugins/TestPlugin
Resource Filters...
Cancel
Finish


PyDev Package Explorer
TestPlugin
TestPlugin
help
i18n
scripts
test
__init__.py
icon.png
Makefile
metadata.txt
plugin_upload.py
pylintrc
README.html
README.txt
resources_rc.py
resources.qrc
test_plugin_dialog_base.ui
test_plugin_dialog.py
test_plugin.py
python (/usr/bin/python2.7)
CSIWMSLegend
test_plugin
177 self.iface.removeToolBarIcon(action)
180 def run(self):
181 """Run method that performs all the real work"""
183 # get all layers
184 from qgis.core import QgsMapLayerRegistry
185 layersDict = QgsMapLayerRegistry.instance().mapLayers()
187 # classify layers
188 from qgis.core import QgsMapLayer
189 vectors = []
190 rasters = []
191 for (id, map) in layersDict.items():
192 if (map.type() == QgsMapLayer.VectorLayer):
193 vectors.append(map.name())
194 elif (map.type() == QgsMapLayer.RasterLayer):
195 rasters.append(map.name())
196 else:
197 print "Not raster nor Vector for layer with id:", id
199 # populate combo boxes
200 self.dlg.rastersCombo.insertItems(0, rasters)
201 self.dlg.vectorsCombo.insertItems(0, vectors)
203 # show the dialog
204 self.dlg.show()
205 # Run the dialog event loop
206 result = self.dlg.exec_()
207 # See if OK was pressed
208 if result:
209 # Do something useful here - delete the line containing pass and
210 # substitute with your code.
211 pass

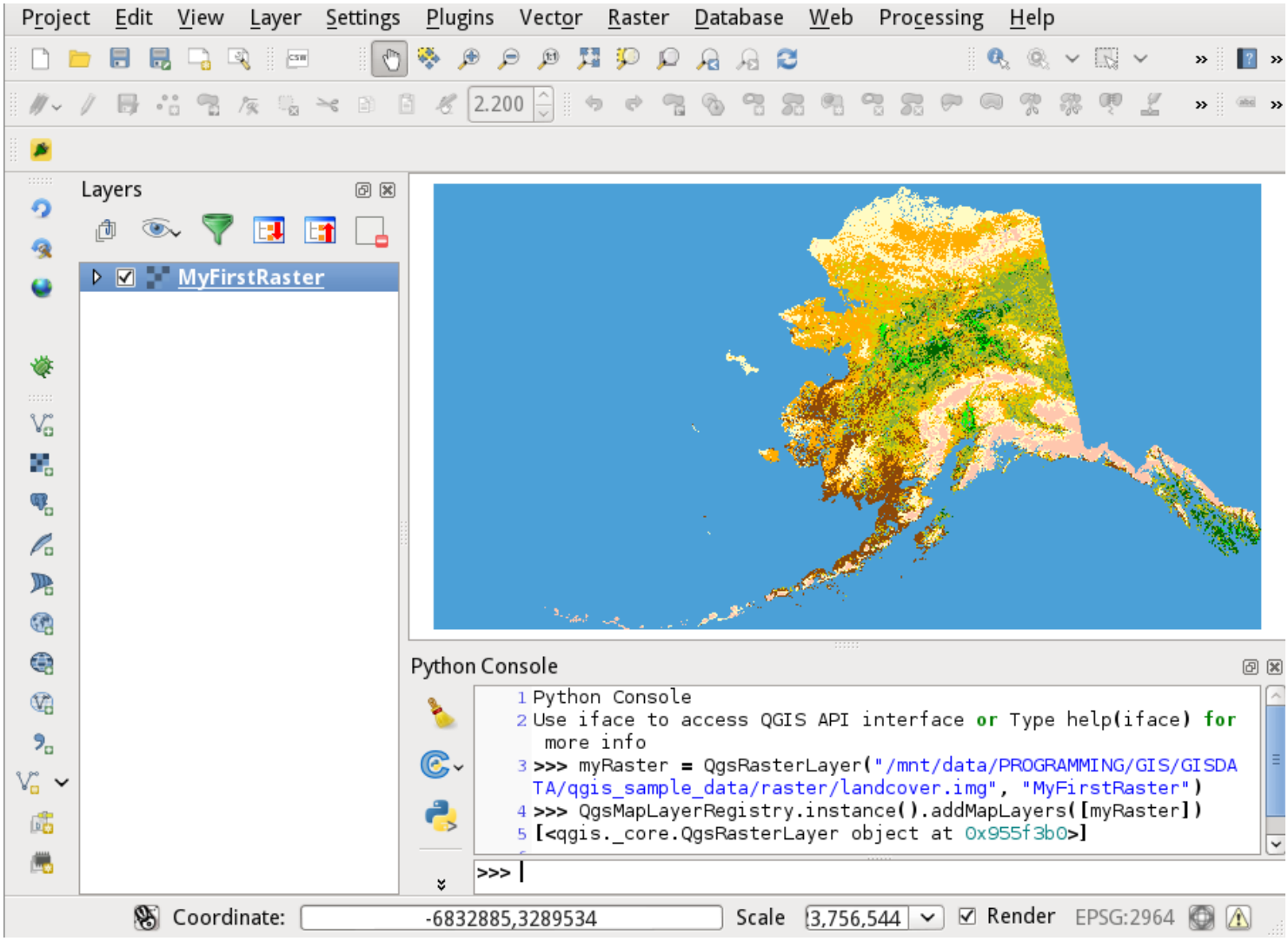

Quick Access
Debug
<terminated>Debug Server [Python Server]
<terminated, exit value: 0>Debug Server
Variables
Breakpoints
Loaded Scripts
TestPlugin.run [test_plugin.py:191]
No details to display for the current selection.
test_plugin
Outline
type filter text
QSettings,QTranslator,qVersion,QCoreA
QAction,QIcon (PyQt4.QtGui)
resources_rc
TestPluginDialog (test_plugin_dialog)
os.path
TestPlugin
__init__
tr
add_action
Console
Tasks
Browser Output
Caught Exceptions
<terminated> Debug Server
Debug Server at port: 5678


Debug
Debug Server [Python Server]
unknown
MainThread - pid18659_seq1
run [test_plugin.py:191]
Debug Server
Variables
Breakpoints
Loaded Scripts
Name
Value
layersDict
dict: {u'airports20141014133617443': <qgis._c
rasters
list: []
self
TestPlugin: <TestPlugin.test_plugin.TestPlugin i
vectors
list: []
dict: {u'airports20141014133617443': <qgis._core.QgsVectorLayer object at 0xaced
test_plugin
test_plugin
Outline
type filter text
QSettings,QTranslator,qVersion,QCoreA
QAction,QIcon (PyQt4.QtGui)
resources_rc
TestPluginDialog (test_plugin_dialog)
os.path
vectors = []
rasters = []
for id, map in layersDict.items():
if (map.type() == QgsMapLayer.VectorLayer):
vectors.append(map.name())
elif (map.type() == QgsMapLayer.RasterLayer):
rasters.append(map.name())
else:
print "Not raster nor Vector for layer with id:", id
populate combo boxes

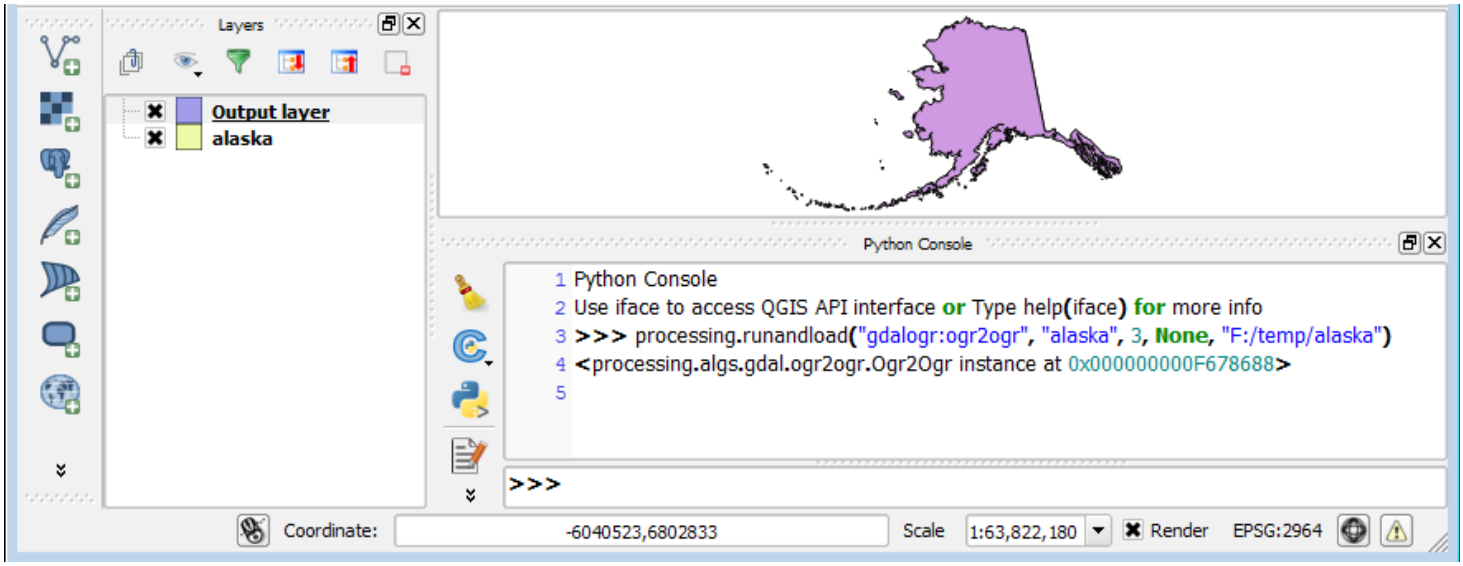

Project
Edit
View
Layer
Settings
Plugins
Vector
Raster
Database
Web
Processing
Help
2.200
Layers
MyFirstRaster
Python Console
Python Console
Use iface to access QGIS API interface or Type help(iface) for mo
re info
>>> myRaster = QgsRasterLayer("/mnt/data/PROGRAMMING/GIS/GISDATA/
qgis_sample_data/raster/landcover.img", "MyFirstRaster")
>>> QgsMapLayerRegistry.instance().addMapLayers([myRaster])
[<qgis._core.QgsRasterLayer object at 0x955f3b0>]
>>>
Coordinate:
-2794653,5450800
Scale
0,557,437
Render
EPSG:2964

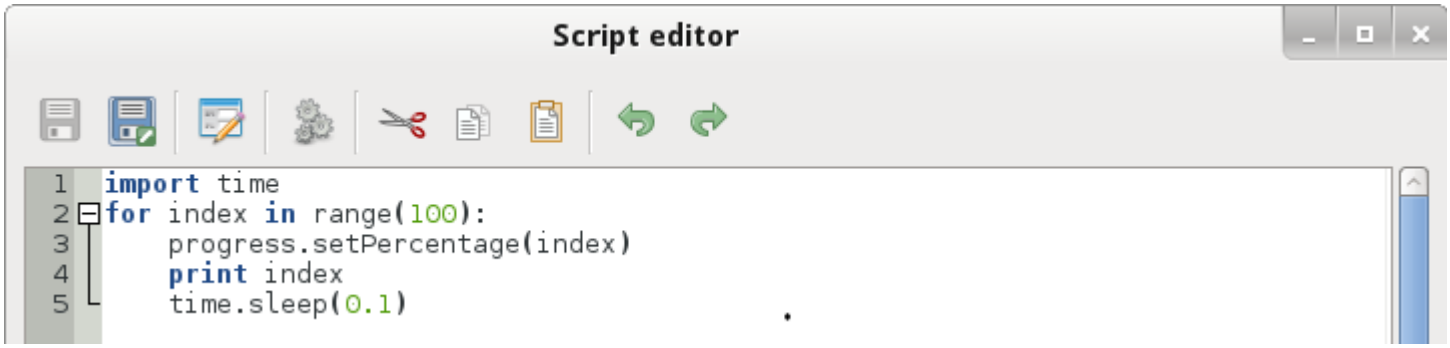


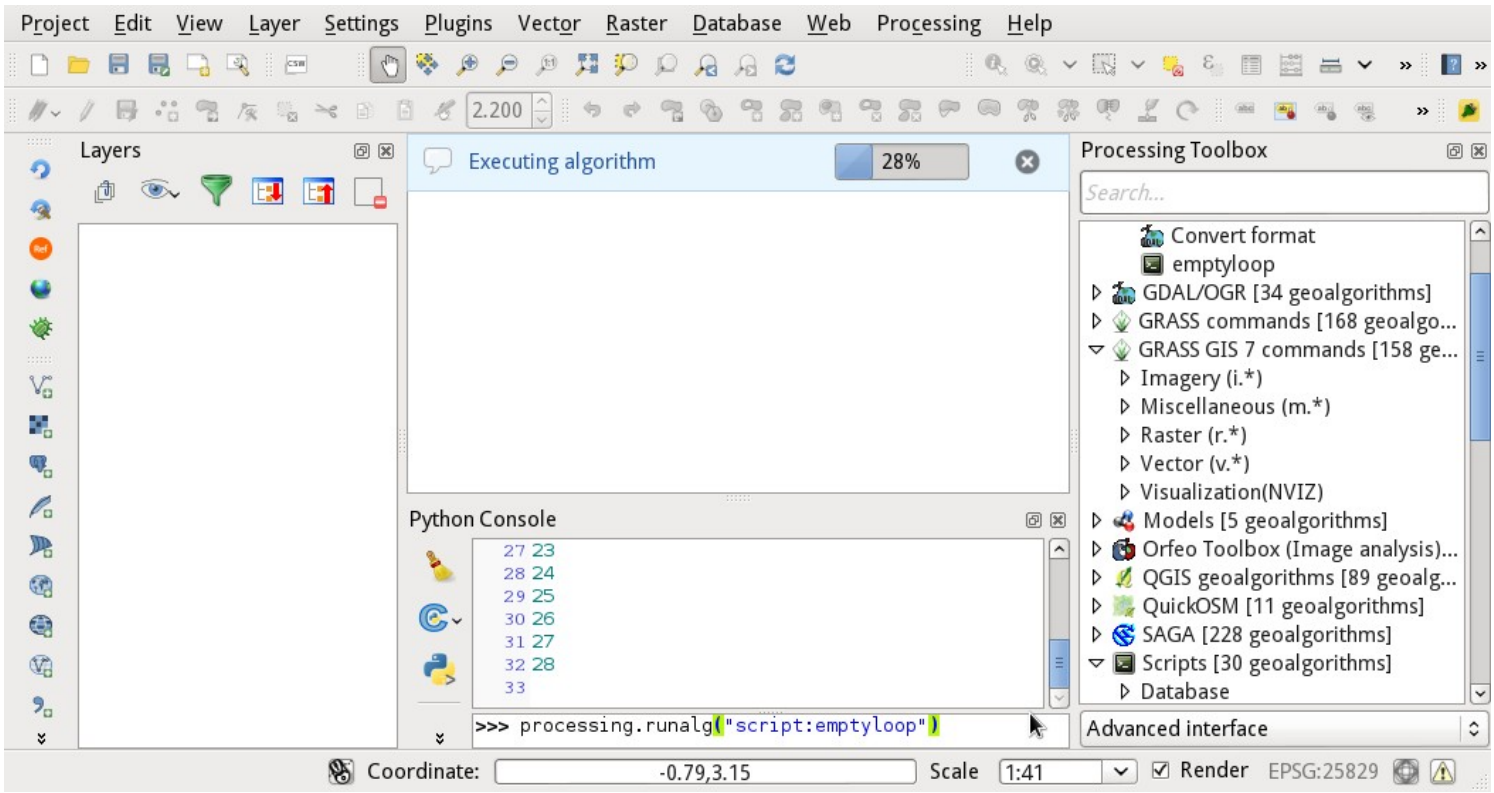
Chapter 10: PyQGIS Scripting

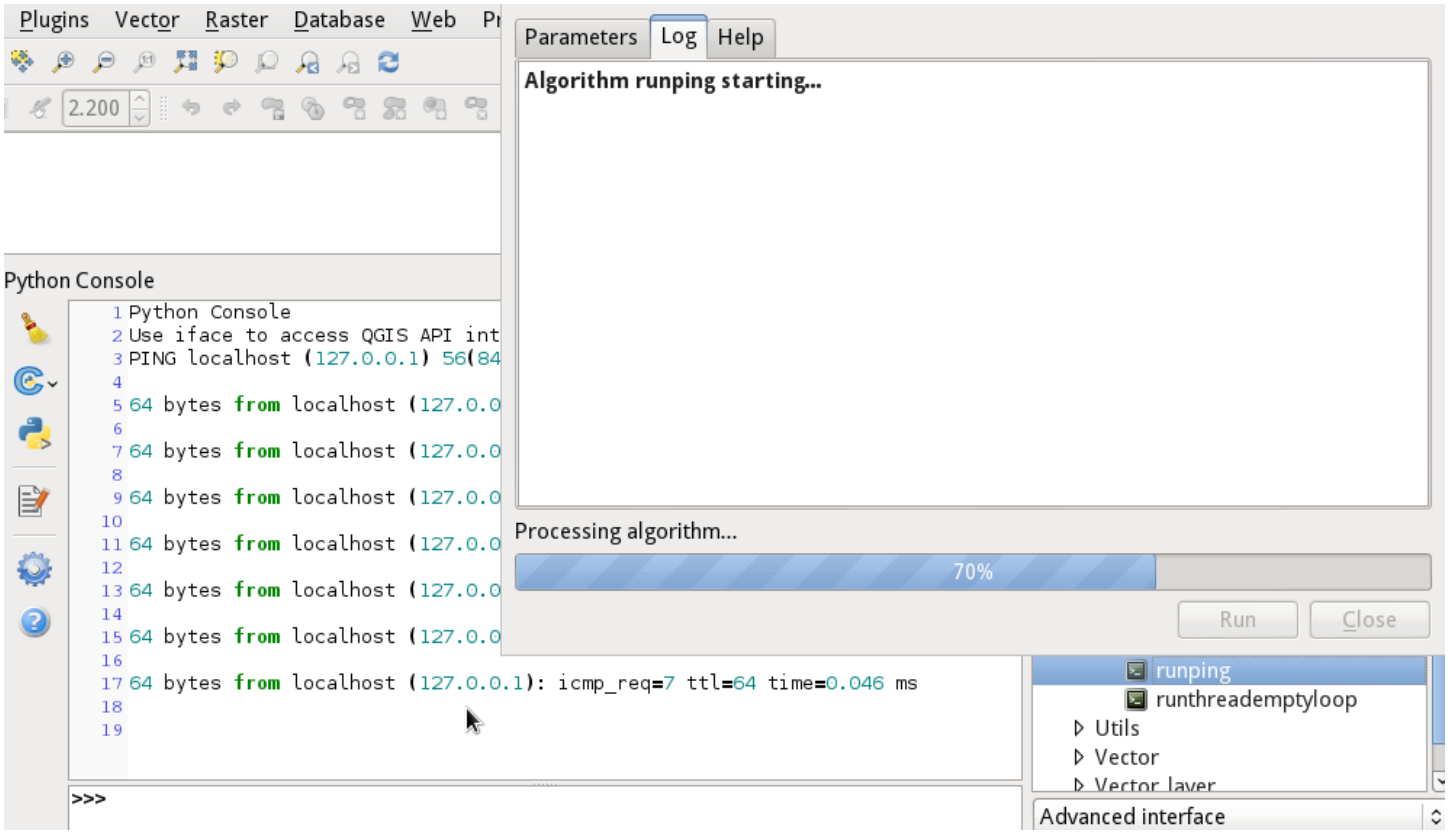


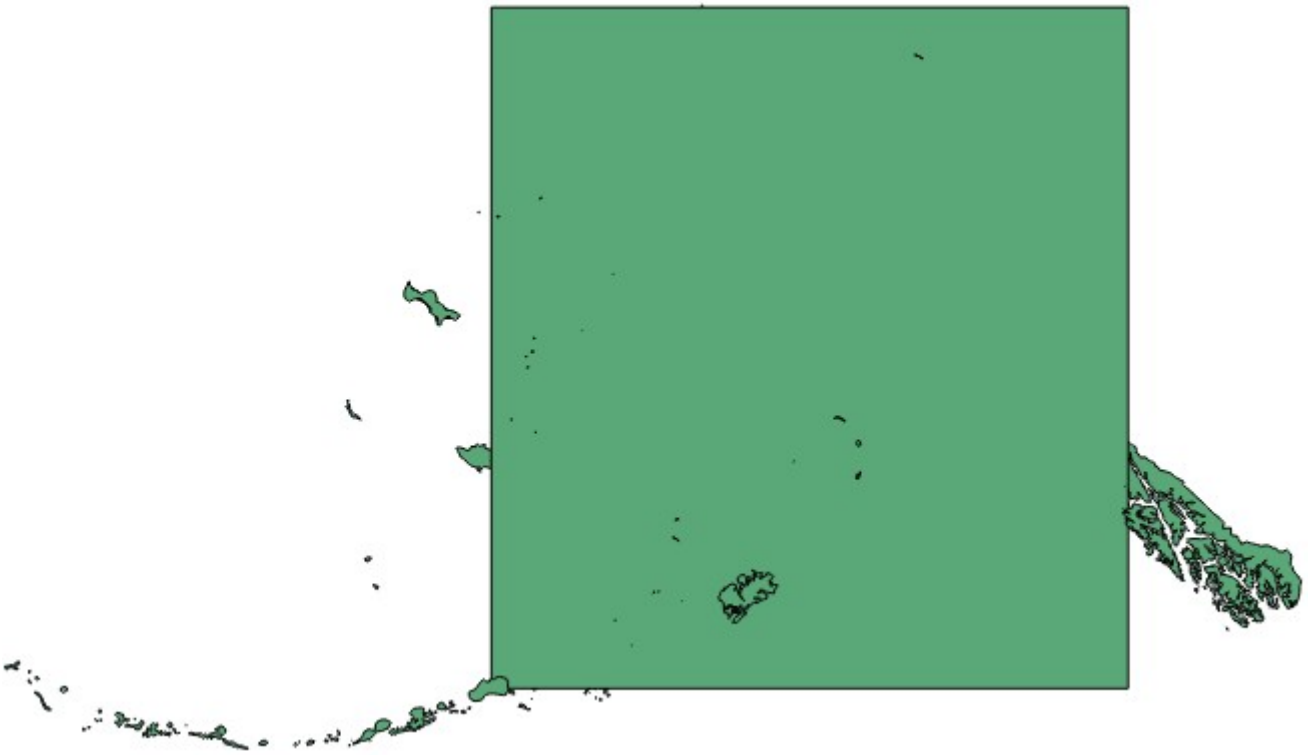
Header	QgsFields		
	QgsField	…	QgsField
Row 0	QgsFeature		
	QgsAttributes[0]	…	QgsAttributes[n]	QgsGeometry
	.		
	.		
	.		
Row featureCount()-1	QgsFeature		
	QgsAttributes[0]	…	QgsAttributes[n]	QgsGeometry


Layers
Output layer
alaska
Python Console
1 Python Console
2 Use iface to access QGIS API interface or Type help(iface) for more info
3 >>> processing.runandload("gdalogr:ogr2ogr", "alaska", 3, None, "F:/temp/alaska")
4 <processing.algs.gdal.ogr2ogr.Ogr2Ogr instance at 0x000000000F678688>
5
>>>
Coordinate:
-6040523,6802833
Scale
1:63,822,180
Render
EPSG:2964


Script editor
1 import time
2 for index in range(100):
3 progress.setPercentage(index)
4 print index
5 time.sleep(0.1)


Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help
Layers
Executing algorithm
28%
Processing Toolbox
Search...
Convert format
emptyloop
GDAL/OGR [34 geoalgorithms]
GRASS commands [168 geoalgo...
GRASS GIS 7 commands [158 ge...
Imagery (i.*)
Miscellaneous (m.*)
Raster (r.*)
Vector (v.*)
Visualization(NVIZ)
Models [5 geoalgorithms]
Orfeo Toolbox (Image analysis)...
QGIS geoalgorithms [89 geoalg...
QuickOSM [11 geoalgorithms]
SAGA [228 geoalgorithms]
Scripts [30 geoalgorithms]
Database
Python Console
>>> processing.runalg("script:emptyloop")
Advanced interface
Coordinate:
-0.79,3.15
Scale
1:41
Render
EPSG:25829

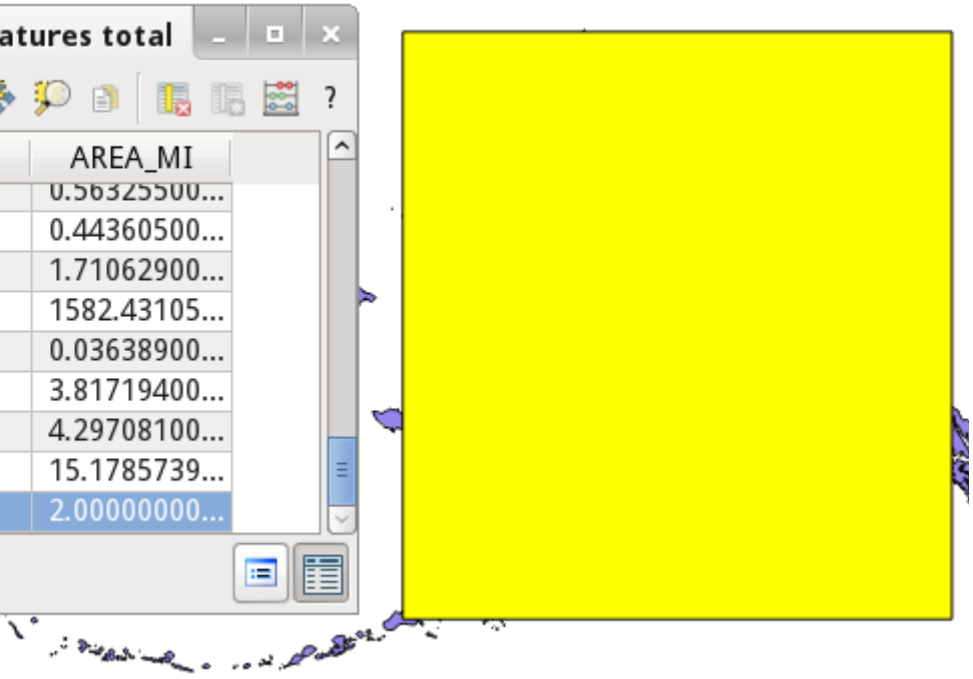

Plugins
Vector
Raster
Database
Web
Parameters
Log
Help
Algorithm runping starting...
Processing algorithm...
70%
Run
Close
Python Console
Python Console
Use iface to access QGIS API int
PING localhost (127.0.0.1) 56(84
64 bytes from localhost (127.0.0
64 bytes from localhost (127.0.0
64 bytes from localhost (127.0.0
64 bytes from localhost (127.0.0
64 bytes from localhost (127.0.0
64 bytes from localhost (127.0.0
64 bytes from localhost (127.0.0.1): icmp_req=7 ttl=64 time=0.046 ms
>>>
runping
runthreademptyloop
Utils
Vector
Advanced interface

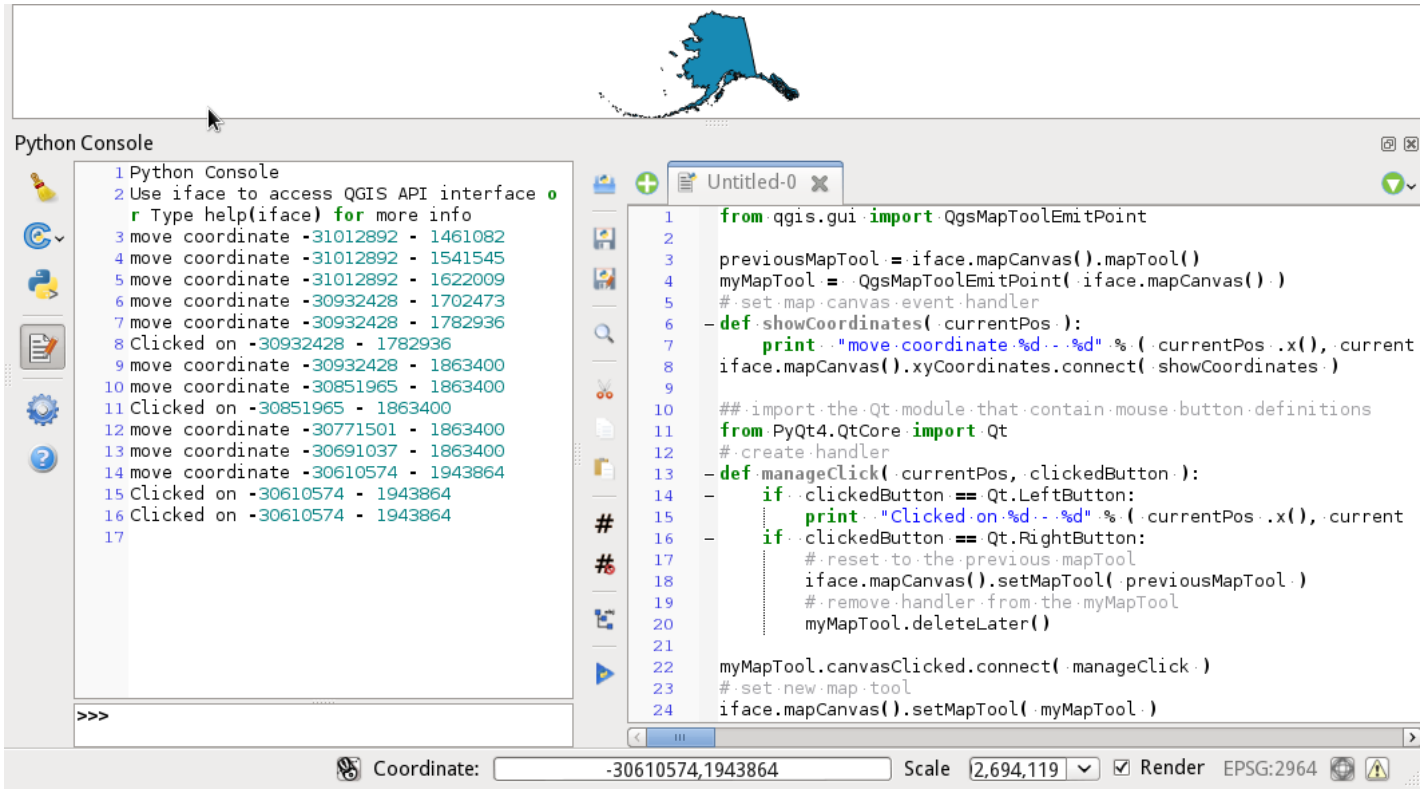


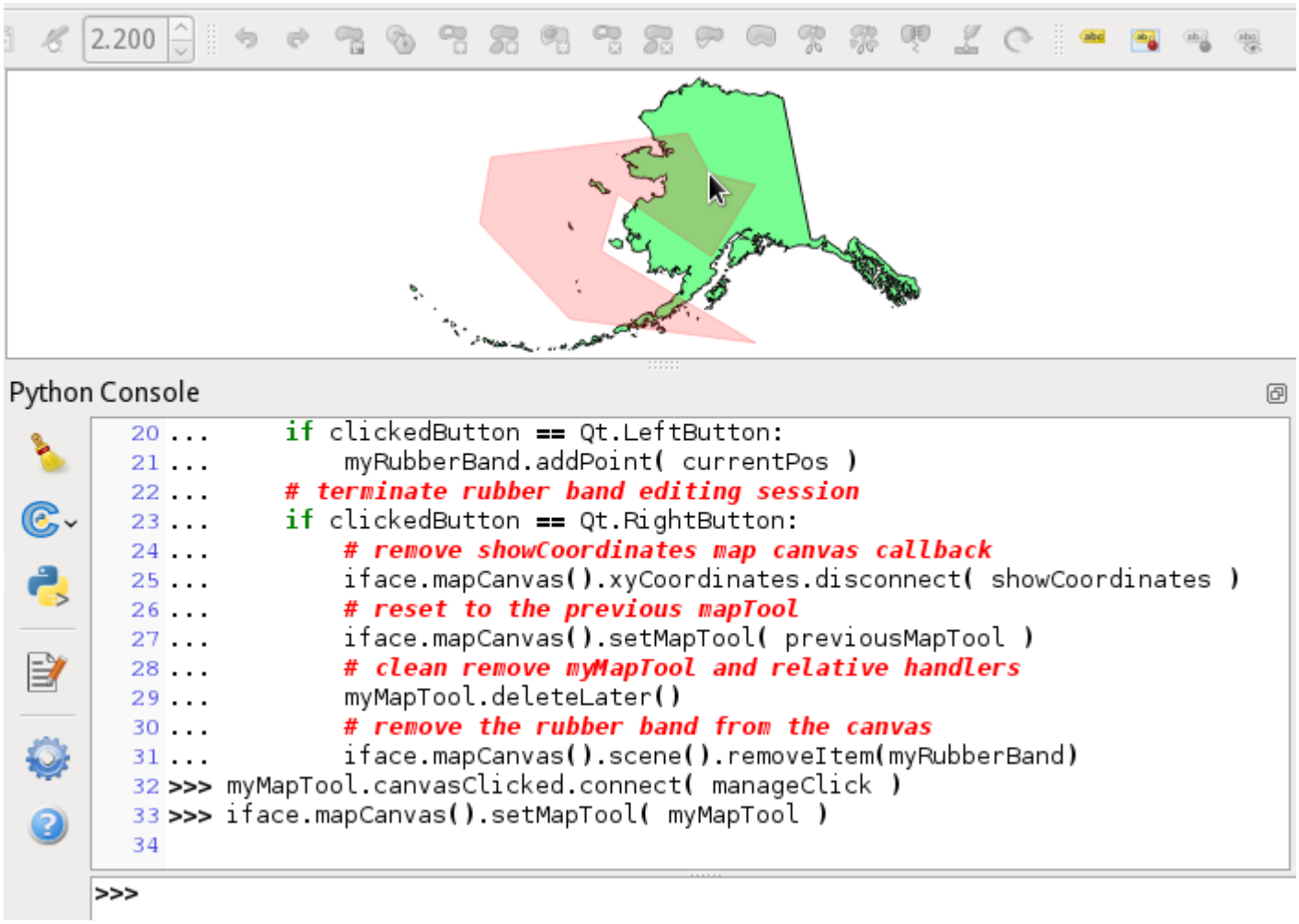
Attribute table - alaska :: Features total

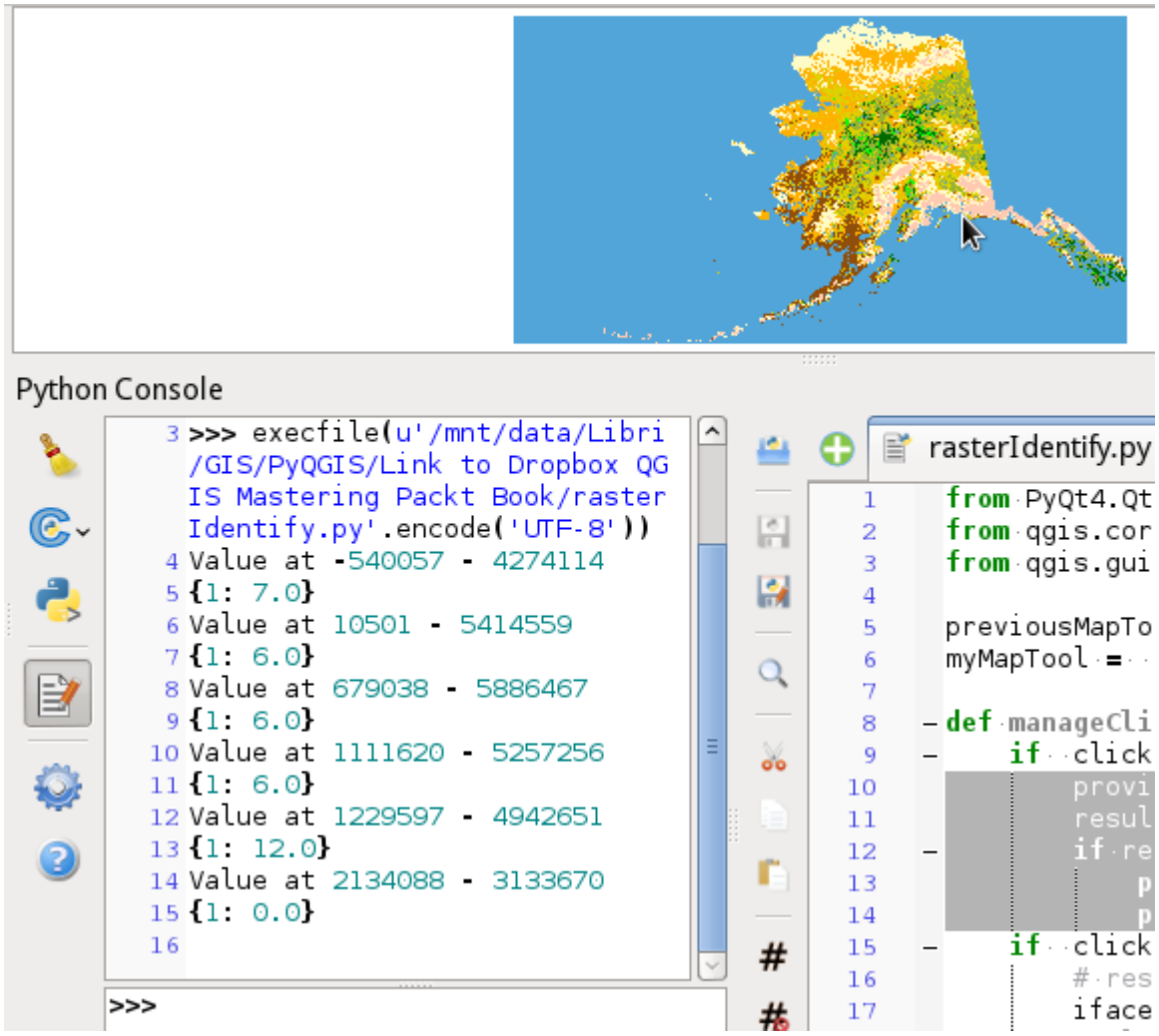
	cat	NAME	AREA_MI
645	650	Alaska	0.56325500...
646	651	Alaska	0.44360500...
647	652	Alaska	1.71062900...
648	653	Alaska	1582.43105...
649	655	Alaska	0.03638900...
650	657	Alaska	3.81719400...
651	658	Alaska	4.29708100...
652	665	Alaska	15.1785739...
653	1000	Alaska	2.00000000...

Show All Features




Python Console
Python Console
Use iface to access QGIS API interface or Type help(iface) for more info
move coordinate -31012892 - 1461082
move coordinate -31012892 - 1541545
move coordinate -31012892 - 1622009
move coordinate -30932428 - 1702473
move coordinate -30932428 - 1782936
Clicked on -30932428 - 1782936
move coordinate -30932428 - 1863400
move coordinate -30851965 - 1863400
Clicked on -30851965 - 1863400
move coordinate -30771501 - 1863400
move coordinate -30691037 - 1863400
move coordinate -30610574 - 1943864
Clicked on -30610574 - 1943864
Clicked on -30610574 - 1943864
>>>
Untitled-0
from qgis.gui import QgsMapToolEmitPoint
previousMapTool = iface.mapCanvas().mapTool()
myMapTool = QgsMapToolEmitPoint(iface.mapCanvas())
# set map canvas event handler
def showCoordinates(currentPos):
print "move coordinate %d - %d" % (currentPos .x(), current
iface.mapCanvas().xyCoordinates.connect(showCoordinates)
import the Qt module that contain mouse button definitions
from PyQt4.QtCore import Qt
# create handler
def manageClick(currentPos, clickedButton):
if clickedButton == Qt.LeftButton:
print "Clicked on %d - %d" % (currentPos .x(), current
if clickedButton == Qt.RightButton:
# reset to the previous mapTool
iface.mapCanvas().setMapTool(previousMapTool)
# remove handler from the myMapTool
myMapTool.deleteLater()
myMapTool.canvasClicked.connect(manageClick)
# set new map tool
iface.mapCanvas().setMapTool(myMapTool)
Coordinate:
-30610574,1943864
Scale
2,694,119
Render
EPSG:2964


2.200
Python Console
... if clickedButton == Qt.LeftButton:
... myRubberBand.addPoint(currentPos)
... # terminate rubber band editing session
... if clickedButton == Qt.RightButton:
... # remove showCoordinates map canvas callback
... iface.mapCanvas().xyCoordinates.disconnect(showCoordinates)
... # reset to the previous mapTool
... iface.mapCanvas().setMapTool(previousMapTool)
... # clean remove myMapTool and relative handlers
... myMapTool.deleteLater()
... # remove the rubber band from the canvas
... iface.mapCanvas().scene().removeItem(myRubberBand)
>>> myMapTool.canvasClicked.connect(manageClick)
>>> iface.mapCanvas().setMapTool(myMapTool)
>>>


Python Console
3 >>> execfile(u'/mnt/data/Libri
/GIS/PyQGIS/Link to Dropbox QG
IS Mastering Packt Book/raster
Identify.py'.encode('UTF-8'))
4 Value at -540057 - 4274114
5 {1: 7.0}
6 Value at 10501 - 5414559
7 {1: 6.0}
8 Value at 679038 - 5886467
9 {1: 6.0}
10 Value at 1111620 - 5257256
11 {1: 6.0}
12 Value at 1229597 - 4942651
13 {1: 12.0}
14 Value at 2134088 - 3133670
15 {1: 0.0}
16
>>>
rasterIdentify.py
1 from PyQt4.Qt
2 from qgis.cor
3 from qgis.gui
4
5 previousMapTo
6 myMapTool =
7
8 def manageCli
9 if click
10 provi
11 resul
12 if re
13 p
14 p
15 if click
16 #res
17 iface