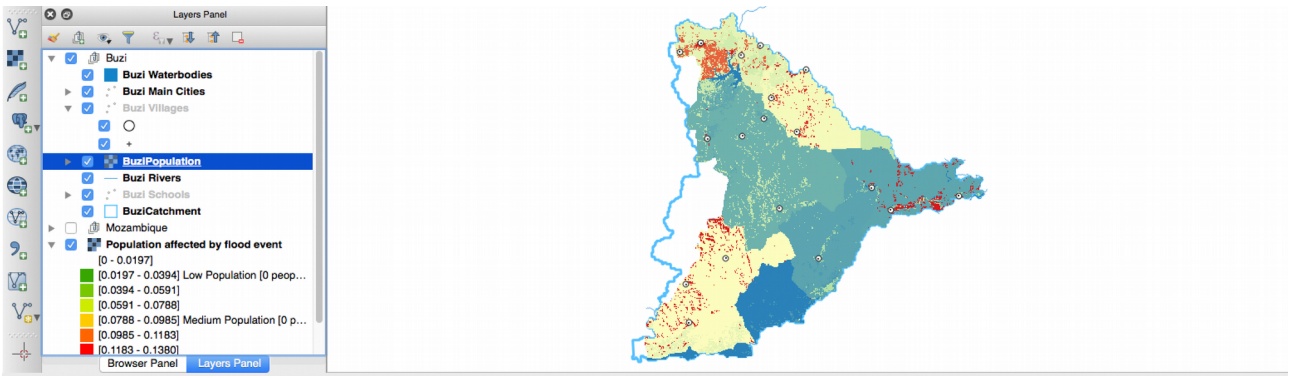
Clipping rasters with QGIS

"QGIS provides various ways to clip a raster layer. In this worksheet we will look at one approach."

If you have a raster that is larger than the area needed for your map or analysis, you can clip it to a smaller size using QGIS. In addition you can 'mask' the layer using a polygon in order to assign no data values to pixels outside of your target area.



You try:

Goal: *To determine the streams and catchment area for swellendam.*

NB: *You need the mentioned plugins*

Data:*appendix3-local-data/SRTM/*

* Load the raster from the data path
* Run the fill sinks algorithm (save the filled dem and flow direction only)
* Apply the flow style to flow direction layer
* Run the strahler alg and use the filled dem as input.
* Use raster calc to create a bolean raster (use rast calc expression and input raster is from strahler alg)
* Apply the bolean style on the bolean raster
* Add an aditional no-data value 0 on the bolean raster
* Run chanels alg with Filled Dem as the input. Set the threshold to 8. (save channels and drainage basins only)
* Activate plugins
* Search Swellendam using geocode plugin
* Zoom to a river near the point added by geocode plugin.
* Use co ord capture plugin to capture a point along the vector river.
* Use the slope alg. Substitute x,y for values in the coordinate capture. Use values representing correct CRS of the raw raster layer.
* Proceed to generate the catchment and streams as vector layer.

Name	Value
Fill sinks algorithm	Fill sinks (wang and liu)
Flow style	d8_flow_directions.qml
Strahler alg	Strahler order
Raster calc	"strahler@1" >= 7
Bolean style	strahler_bolean.qml
Channels alg	Channel network and drainage basins
plugins	Coordinate capture,geocoding
Slope alg	Upslope area

More about

Geoprocessing analysis is performed to recondition the digital elevation model and generate data on flow direction, flow accumulation, streams, stream segments, and watersheds. These data are then be used to develop a vector representation of catchments and drainage lines from selected points that can then be used in network analysis

Check your knowledge:

1. **DEM is an abbreviation for:**

a) Data emission problems.
b) Digital elevation Movie
c) Digital elevation model

2. **Which of these represents a derivative of a digital elevation model:**

a) A satellite image showing mountanous areas.
b) A slope curvature map that is used by surveyors to determine the direction at which the sun shines
c) A vector data that represents natural phenomen.

3. **Plugins are extensions in QGIS:**

- True
- False

Answers: 1c, 2b, 3t

Further reading:

http://docs.qgis.org/2.14/en/docs/user_manual/processing_algs/taudem/basic_grid_analysis_tools.html
http://docs.qgis.org/2.14/en/docs/user_manual/processing_algs/saga/terrain_analysis_channels.html
http://docs.qgis.org/2.14/en/docs/user_manual/processing_algs/saga/terrain_analysis_hydrology.html#upslope-area