

What it does

The plugin takes a sample of a point process, estimates its intensity function and simulates an inhomogeneous poisson process according to this intensity. The intensity is estimated via kernel density estimation and the bandwidth of the estimator is calculated via crossvalidated log-density maximization (see page in <http://www.mathematik.uni-ulm.de/stochastik/lehre/ss07/stochgeom/skript.pdf>)

Installation

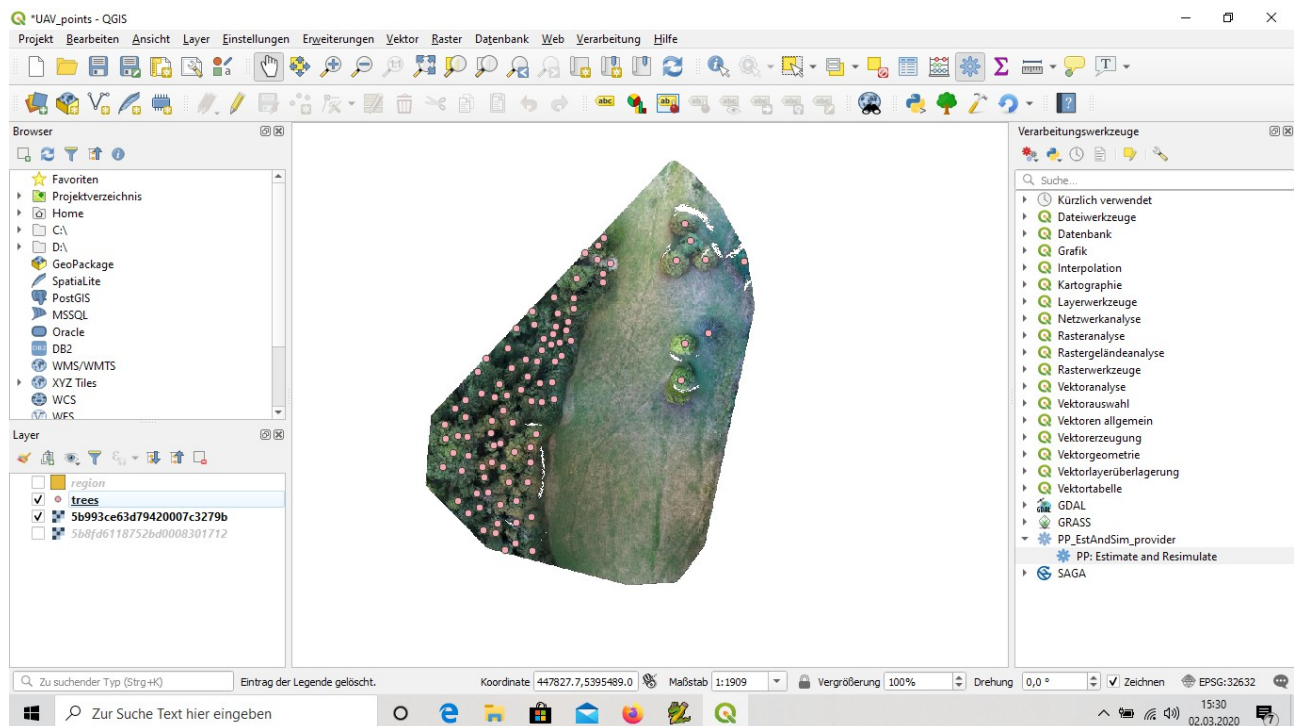
Simply copy the folder 'point_process_simulator' to the python\plugin folder of your qgis-installation. You might need to install scikit-learn.

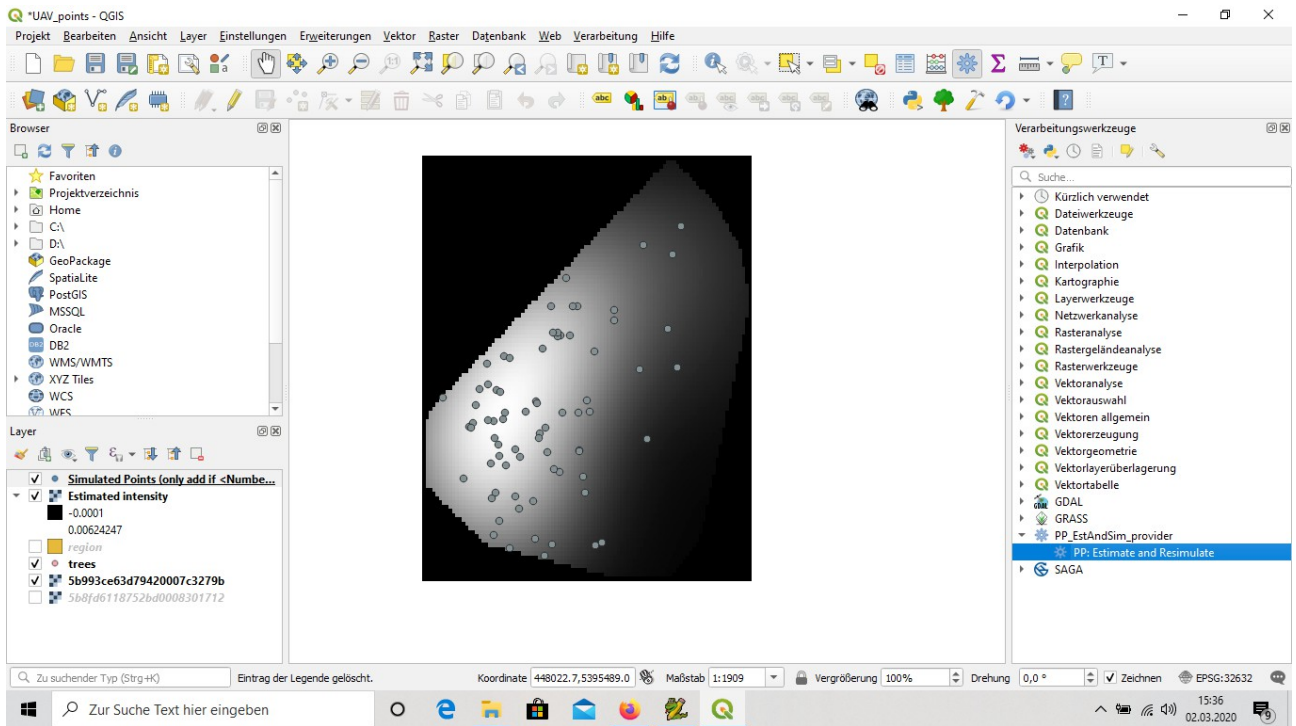
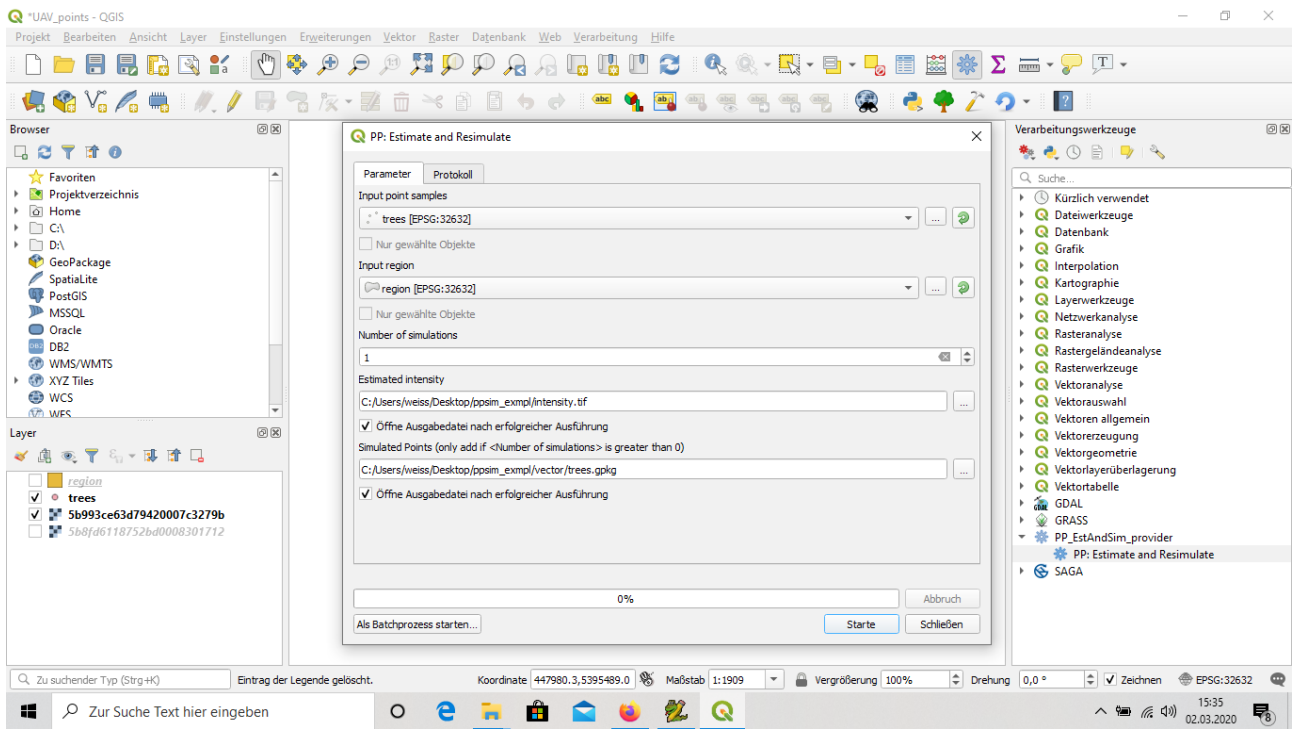
Usage

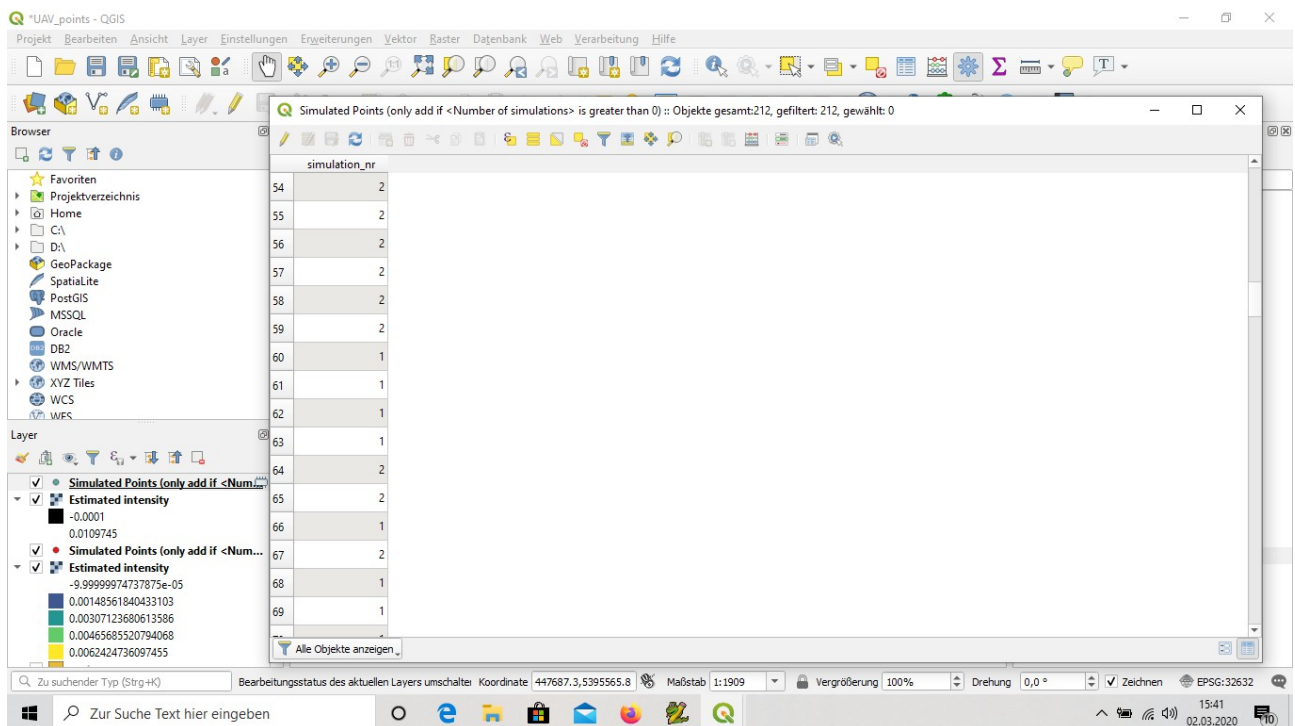
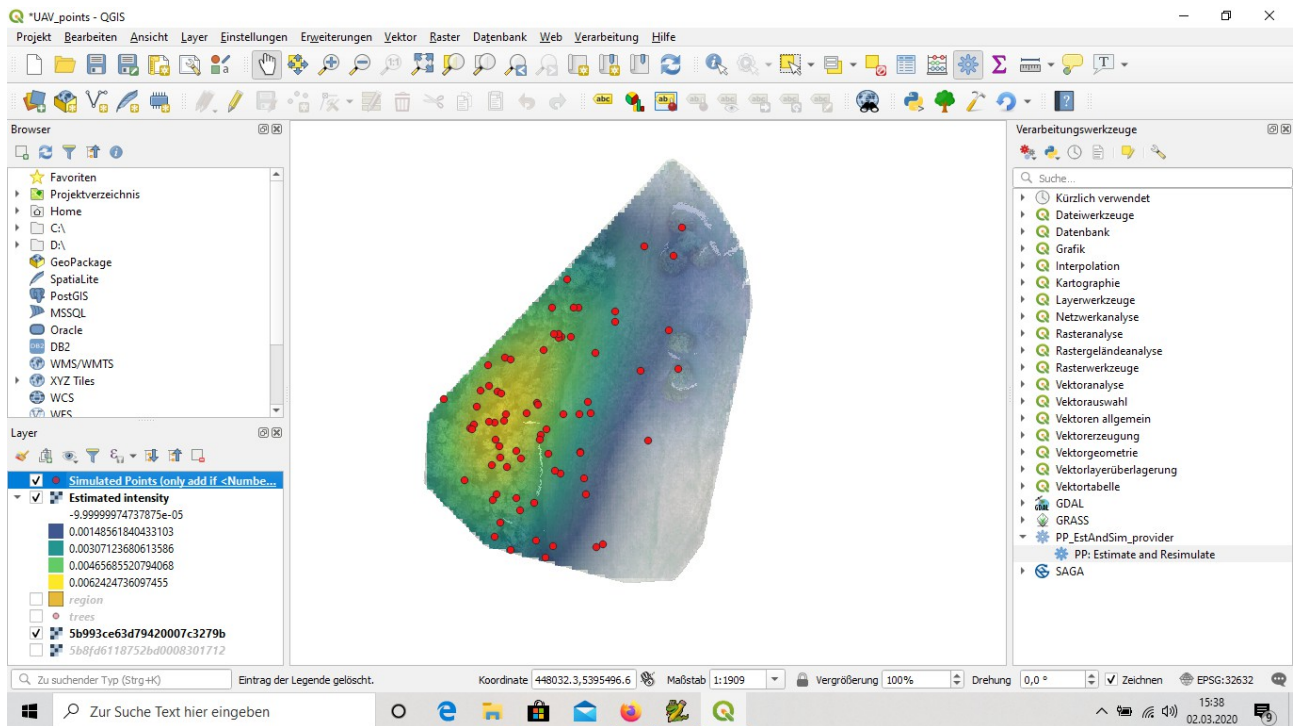
- Start the plugin.
- Choose the vector layer containing the sample points of the point process, the vector layer containing the bounding region (polygon) and the number of simulations you want as input.
- Set the path for the output (raster layer, visualising the estimated intensity and vector layer with the simulated points).
- You might want to edit the symbology of the output.

If more than one simulation is run, then the results are stored in the same layer anyway, but distinguished by the field 'simulation_nr' in the attribute table.

The steps are illustrated in the screenshots below. The example is an UAV-image, points represent tree positions.







Source of the UAV-image:

https://map.openaerialmap.org/#/7.03125,47.989921667414194,5/square/1202210/5b993d9e3d79420007c3279e?resolution=high&_k=b0p4vq