

MAPPING GEOPOINTS IN QGIS FROM THE CENSUS DATA

1. PURPOSE

This document describes the process to use census data to visualize the households surveyed during the baseline census using QGIS. These instructions will also apply to mapping the households of individuals sampled during the longitudinal and cross-sectional surveys.

2. INTENDED USER

The intended users of this SOP are the DeWorm3 site Data Managers.

3. RESPONSIBILITIES

DeWorm3 data managers should understand and follow this SOP during mapping of the geopoints collected using SurveyCTO surveys in the field. It is the responsibility of the site PI to ensure compliance with this SOP.

4. DEFINITIONS

- 3.1. **Geopoint:** a set of geographical coordinates collected by the GPS on the phone during the survey data collection. These can be mapped to visualize and analyse data in a spatial context.
- 3.2. **QGIS:** A free and open-source cross-platform desktop geographic information system application that supports viewing, editing, and analysis of geospatial data

5. REQUIRED MATERIALS

- 4.1. QGIS programme installed (free)
- 4.2. Laptop
- 4.3. Census survey data downloaded from SurveyCTO in a CSV.

6. PROCEDURE

6.1. Download QGIS

- a. Download QGIS from <http://www.qgis.org/en/site/>
- b. Install “QGIS standalone Installer Version 2.18”. This might take a while.

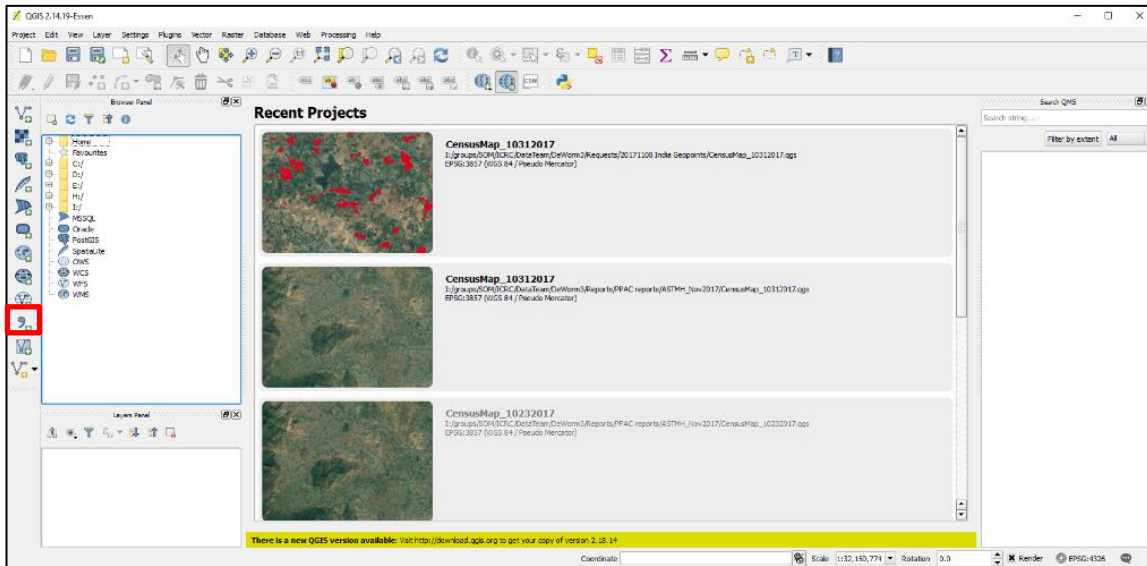
6.2. Exporting geopoints

- a. Create a folder to hold data and run programs
- b. Download the following data sources and place in the “FileIn” folder:
 - i. Country Baseline Census In Progress Dataset v2 - Rename file with the current date in the format: india_ce1_ip 20171121
 - ii. Country Baseline Census Household Grouping Form (as a long dataset and download BOTH datasets) – No need to rename just add date
- c. Open and run the STATA Do-file for creating final geopoints GeopointsExport_20171113.do. This is saved in the DeWorm3 Country Data Management – Geopoint Mapping Dropbox folder.

6.3. Displaying Points in QGIS directly from the data

- a. Open QGIS
- b. Select the ‘add delimited text layer’ on the left side of the screen (see red box below)

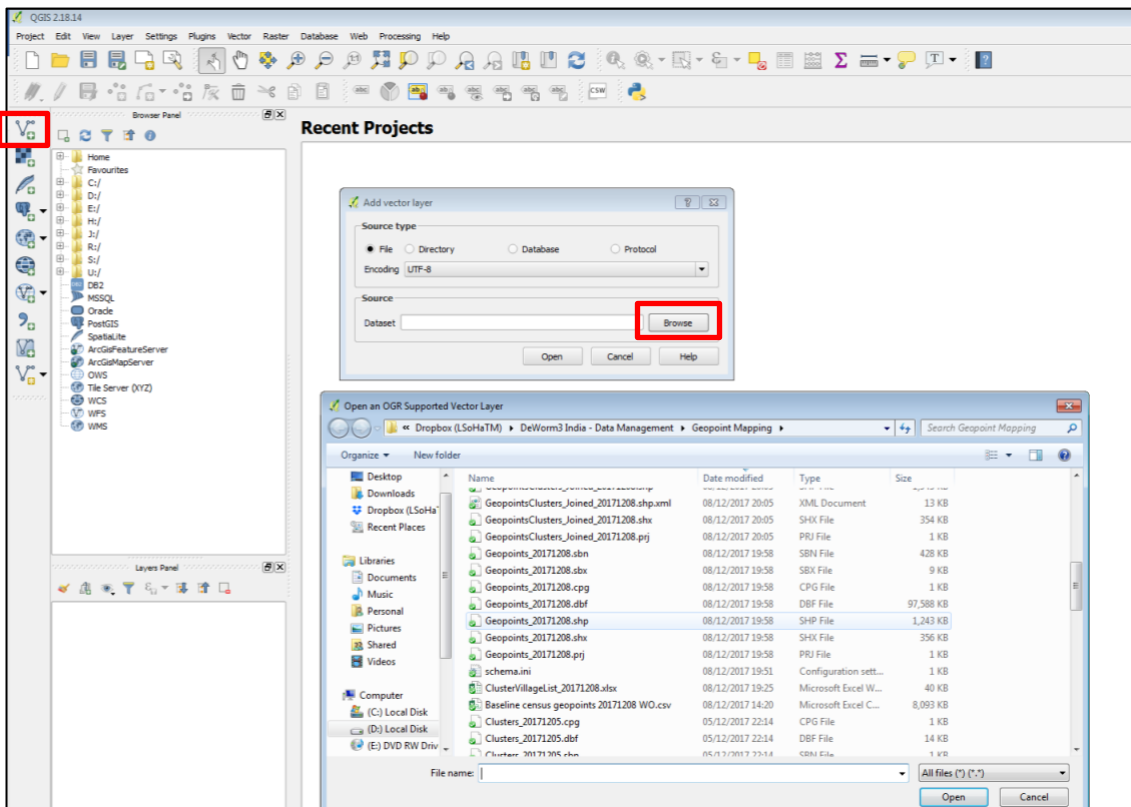
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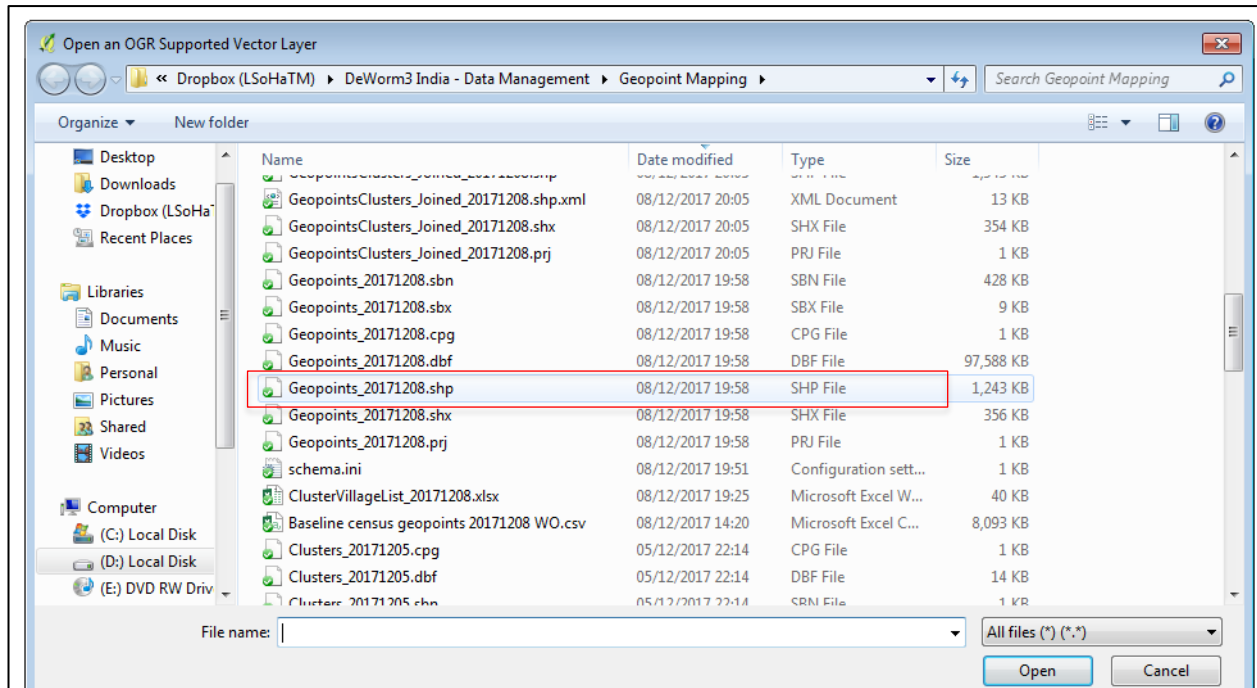
- c. Select 'Browse' and find the exported csv file on your computer
- d. Under the 'X field' dropdown select 'longitude_final' and under the 'Y field' dropdown select 'latitude_final'. Hit the 'Okay' button
- e. A 'Coordinate Reference System Selector' window will appear, select 'WGS 84'

6.4. Displaying Points in QGIS from a shapefile

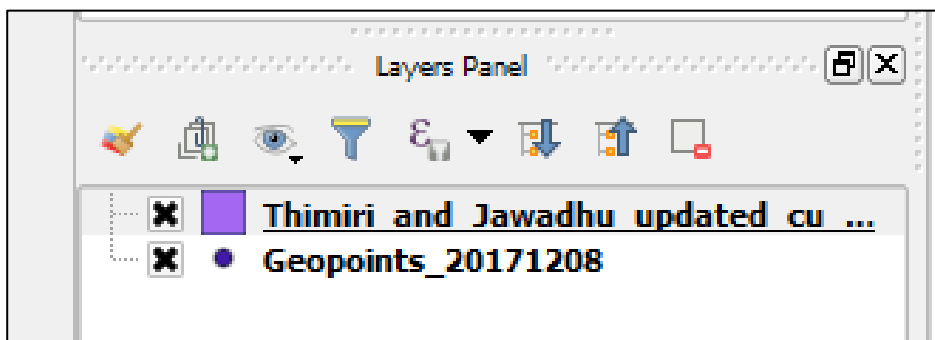
- a. Open QGIS and select the 'add vector layer' at the top of the menu on the left side of the screen (see red box below). A box will appear, click browse to find the file



- b. To visualize the households go to the folder “DeWorm3 India – Data Management – Geopoint Mapping, click on the geopoints shape file with the most recent date, for example: “Geopoints_20171208.shp” as is highlighted below.



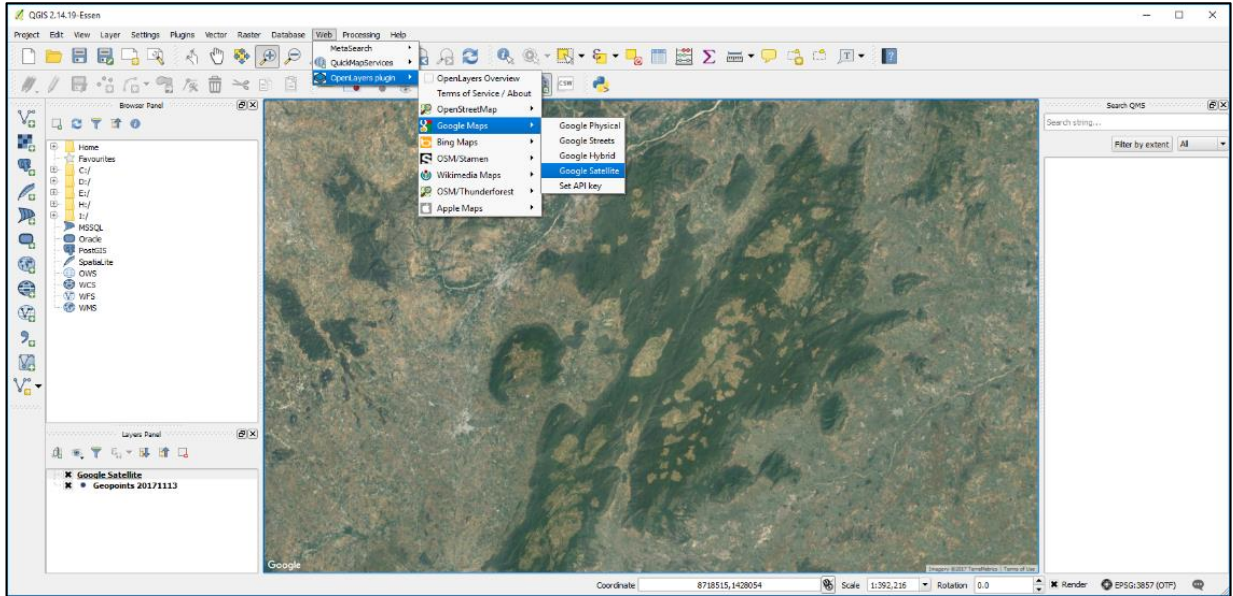
- c. To visualize the cluster boundaries go to the folder “DeWorm3 India – Data Management – Geopoint Mapping, click on the cluster/cu shape file with the most recent date for example: “Thimiri_and_Jawadhu_updated_cu_20171210”.
- d. To overlay the geopoints on the clusters, click on the file name and physically drag it above or below the other layer as shown below.
- e. To hide a layer from displaying, click on the cross on left of the layer name. to display it again, click on the box.



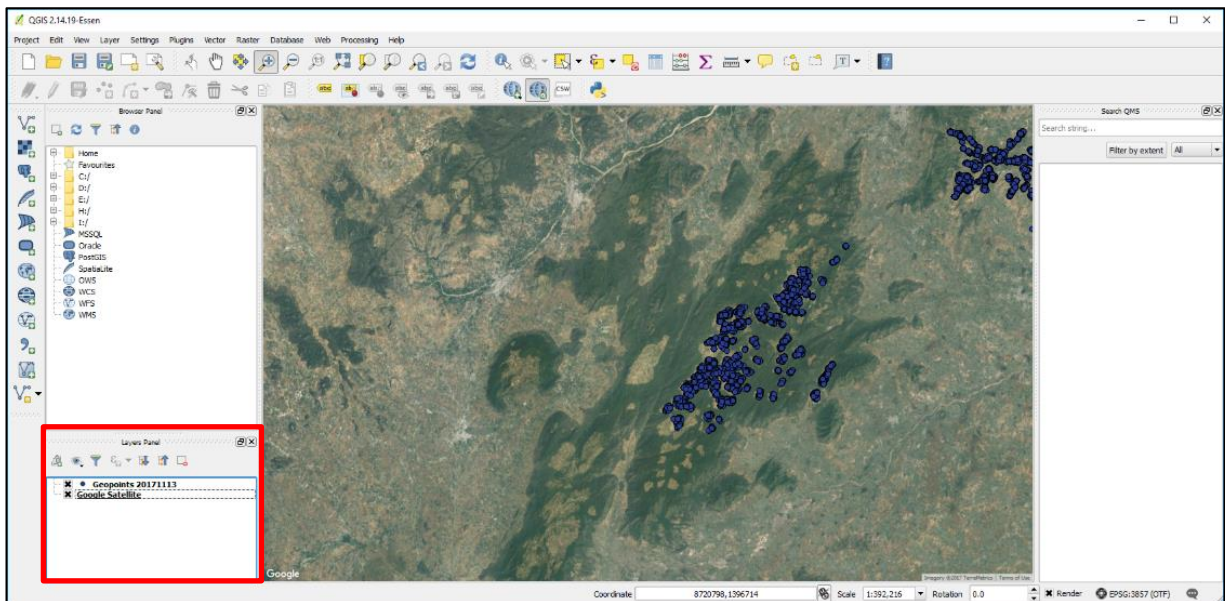
6.5. Adding a satellite image layer

- f. Open the ‘Plugins’ menu at the top of the screen and select ‘Manage and Install Plugins’
- g. In the search bar, type in ‘OpenLayers’ and highlight it.
- h. Select the ‘Install plugin’ button in the bottom right corner of the window
- i. Now, open the ‘Web’ menu at the top of the screen, select ‘OpenLayers’, then ‘Google Maps’, then ‘Google Satellite

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- j. To see the points on top of the satellite image you will need to drag the geopoints layer on top of the 'Google Satellite' layer in the 'Layers Panel' in the bottom left corner of the screen (see red box below)

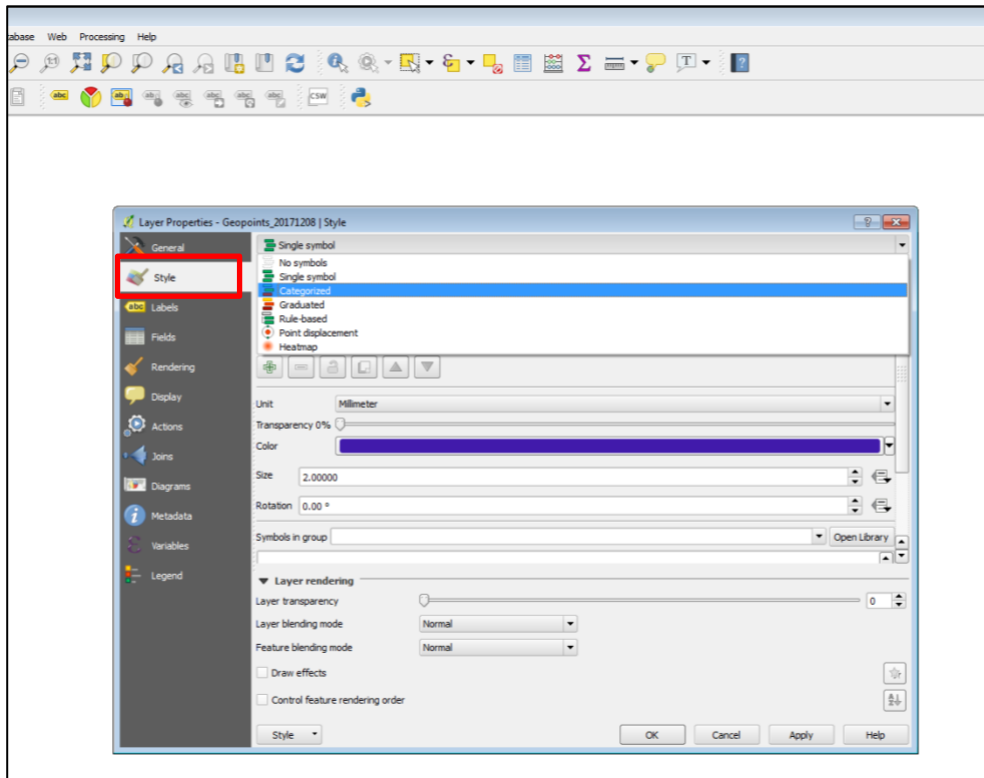


6.6. Displaying the geopoints by village or HSC.

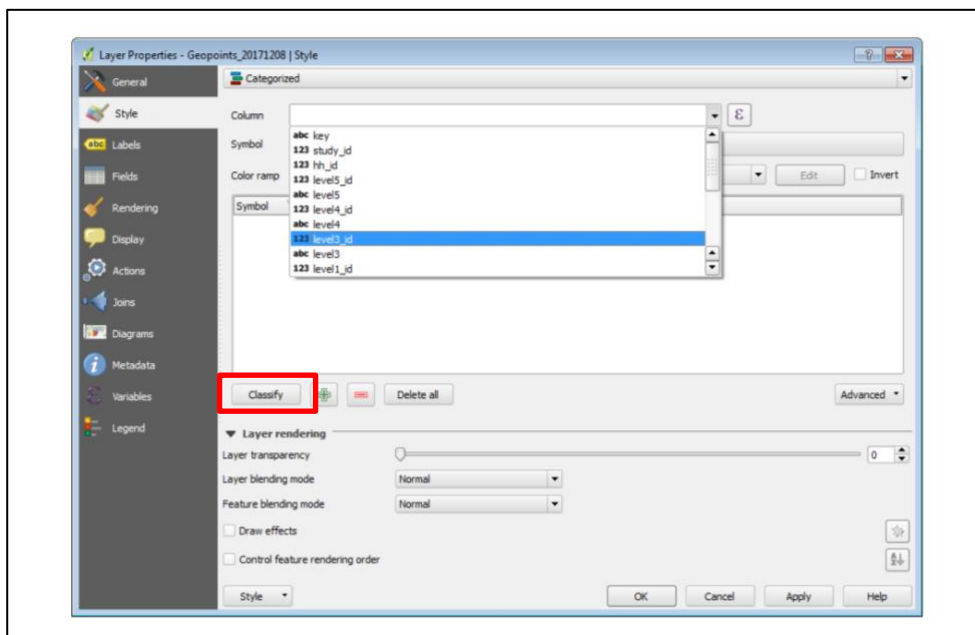
- a. Right click on the geopoints layer in the layers list then select "Open Attribute Table" and click on the "level3_id" column heading to visualize by HSC so that you see a / appear in the box, as shown in the image below (if you want to visualize by village click on "level1_id" instead). Then close the table by clicking the cross.

| | key | study_id | hh_id | level5_id | level5 | level4_id | level4 | level3_id / | level3 | level1_id |
|---|--------------------|----------|---------|-----------|--------|-----------|-----------|-------------|-----------------|-----------|
| 1 | uuid:13988642-8... | 3029704 | 3029704 | 3 | TIMIRI | 31 | MAMPAKKAM | 311 | CHANNASAMUTH... | 3110 |
| 2 | uuid:d1277b4-d... | 3024470 | 3024470 | 3 | TIMIRI | 31 | MAMPAKKAM | 311 | CHANNASAMUTH... | 3110 |
| 3 | uuid:f2f38625-3... | 3061788 | 3061788 | 3 | TIMIRI | 31 | MAMPAKKAM | 311 | CHANNASAMUTH... | 3110 |

- b. Then right click on the geopoints layer in the layers list then select “Properties” and a box as below should appear. Under “Style” change the drop down from single symbol to categorized.



- c. In the column box, select “level3_id” from the dropdown menu. Then click on “classify” (highlighted in red box). Make sure the color ramp box is set to “random colors” which it should do automatically. Then click OK in the bottom right corner of the box.



6.7. Displaying points in Google Earth

- a. In QGIS, right click on the geopoints layer and select 'Save as'. Under the 'Format' dropdown select 'Keyhole Markup Language [KML]' and select 'Browse' to assign the path and name of the file. No other options need to be specified.
- b. Download Google Earth (<https://www.google.com/earth/>)
- c. Open kml file to view geopoints in google earth (it may take a while)

| Current Document | | | |
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| Developed by: | Sean Galagan | Date: | 16 November 2017 |
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| Approvals | | | |
| <i>Example: I have reviewed and approve this SOP for implementation.</i> | | | |
| Principal Investigator | Signature | Date | |
| | | | |
| Site Principal Investigator | Signature | Date | |
| | | | |

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