



Rectifying an image and digitizing feature data



Data Needed:

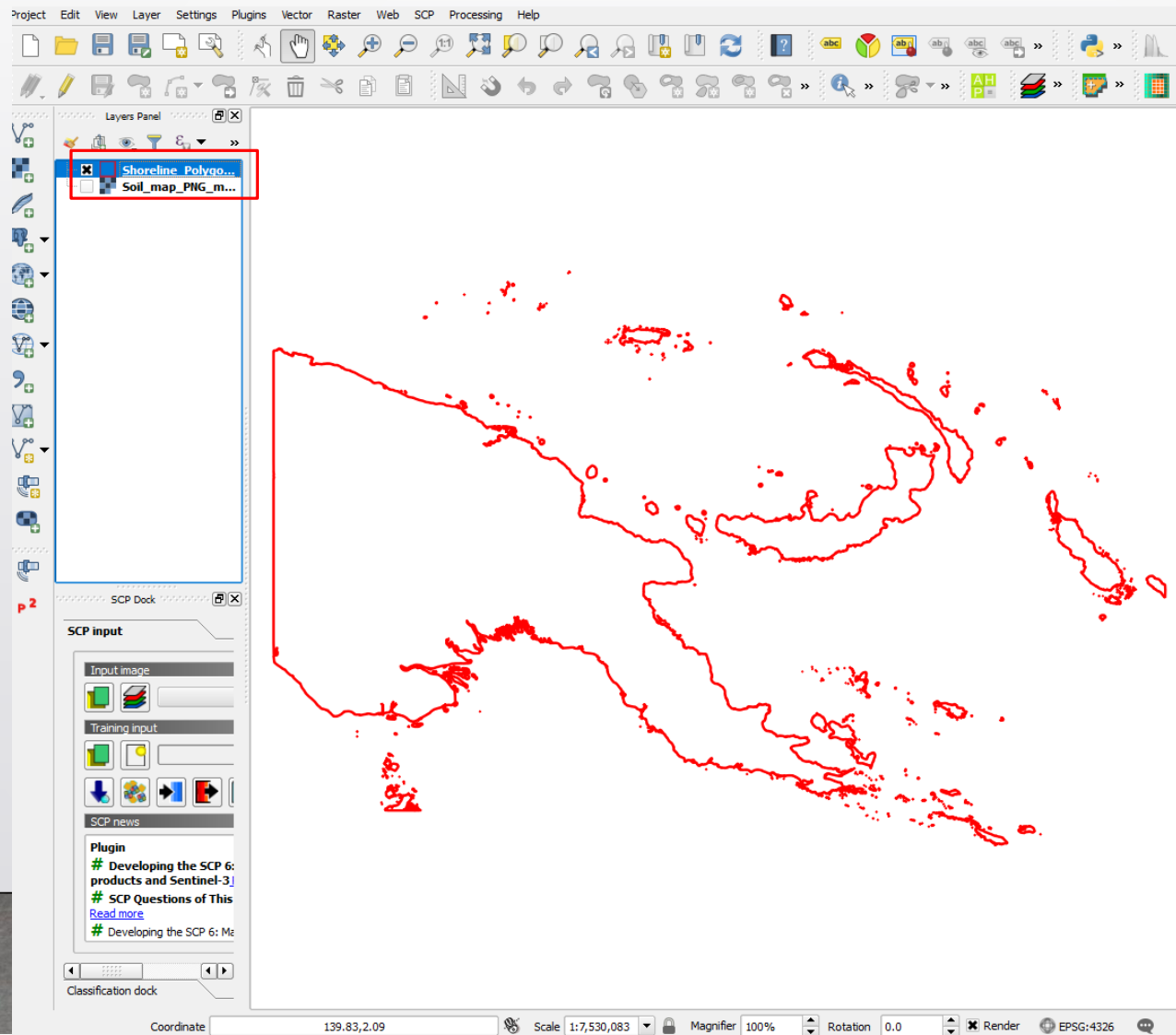
- Shoreline (Shoreline_Polygon_GCS.shp)
- Soil map (Soil_Map_PNG.tif)



Plugin Needed:

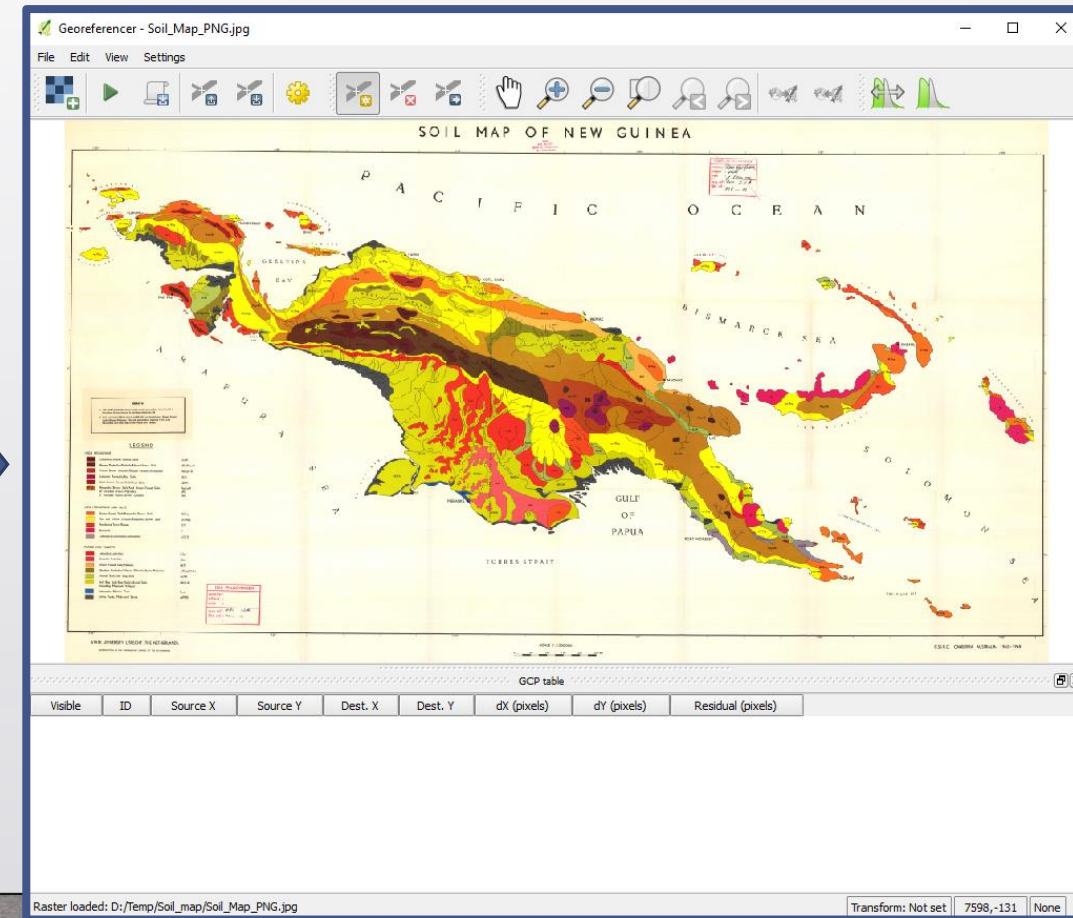
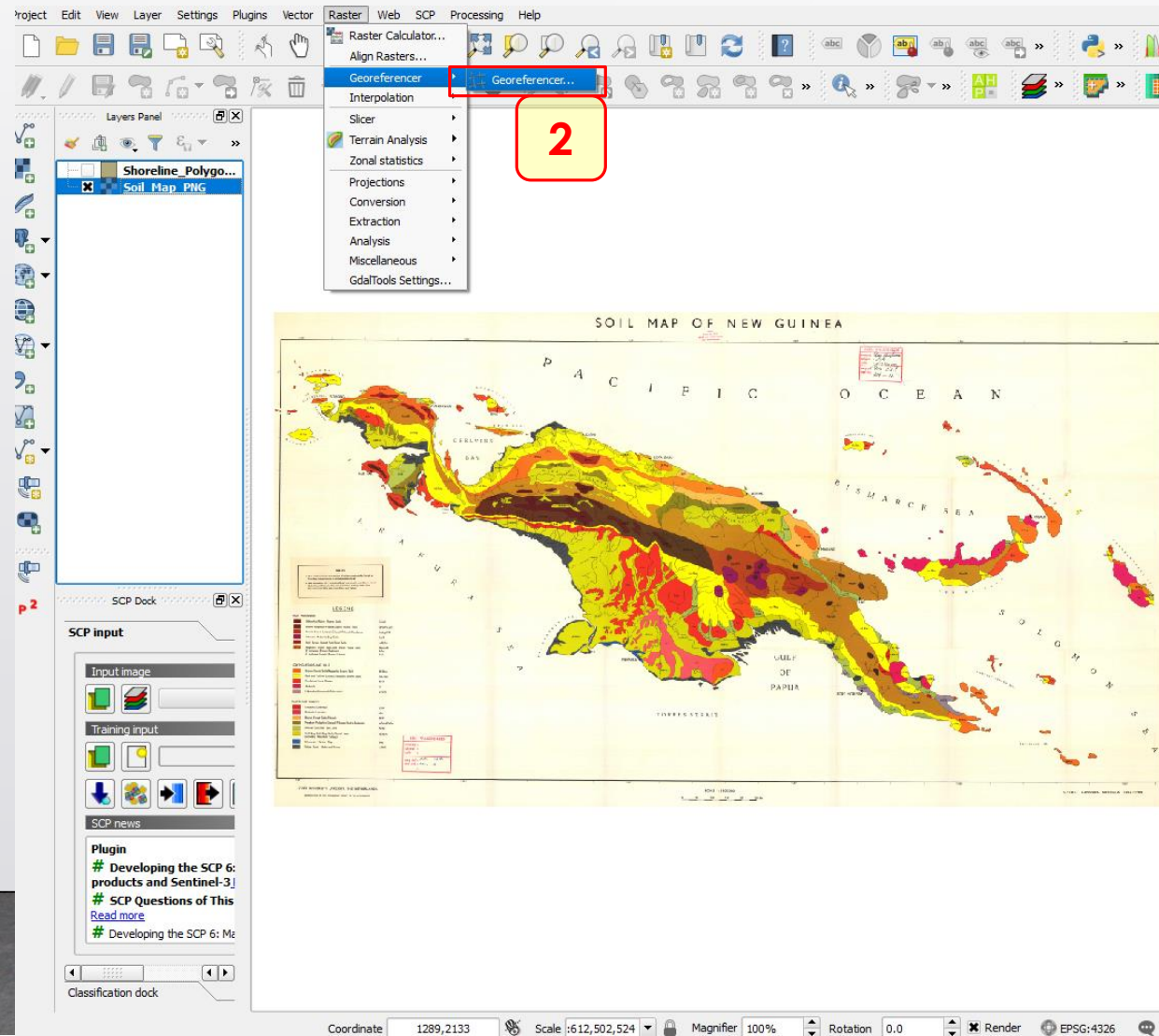
- Points2One
- Digitizing Tools

1. Load all layers



Georeferencing a raster layer

2. Select Georeferencer under Raster menu

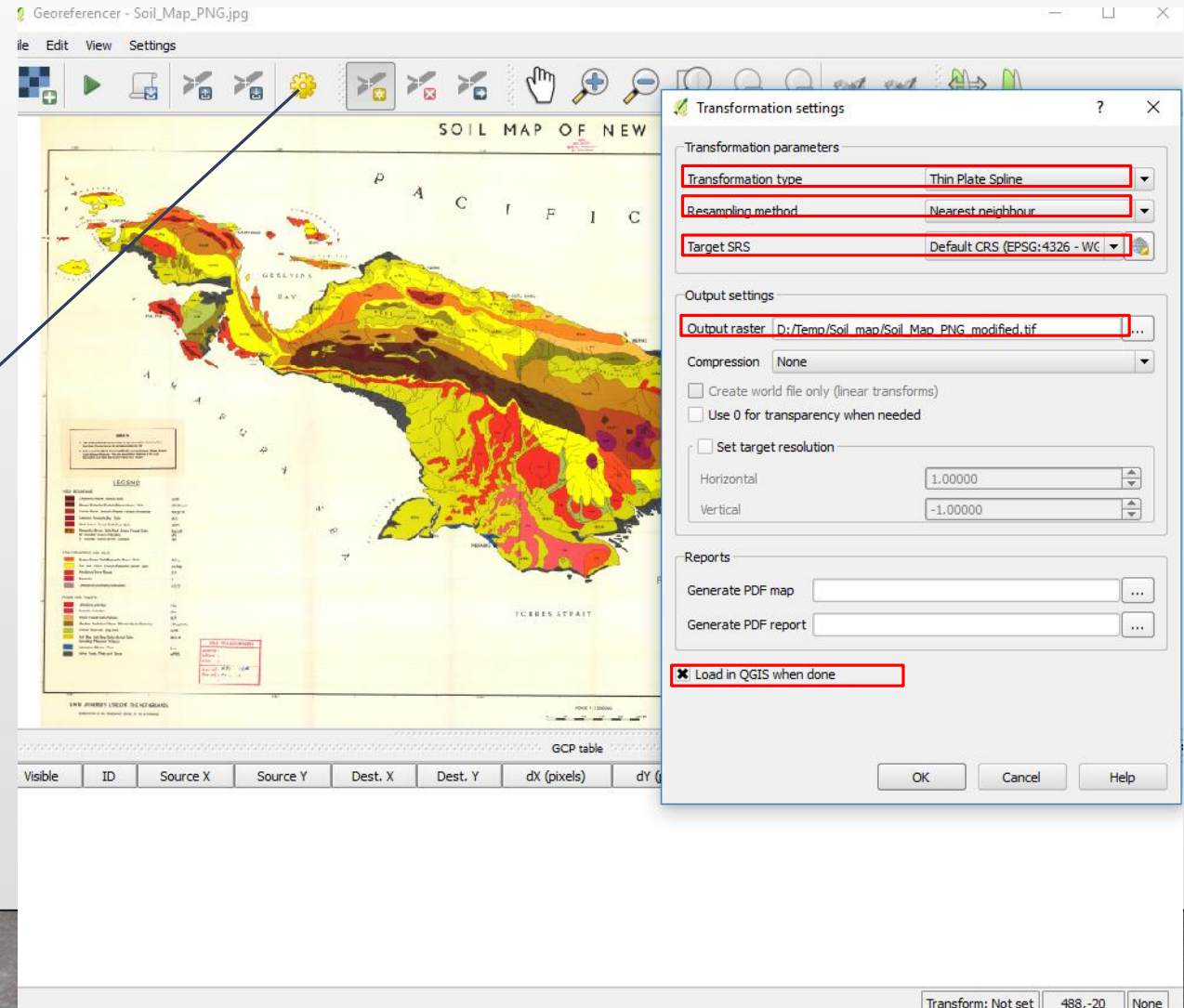


Georeferencing a raster layer

3. Select Georeferencer under Raster menu

Select Transformation Settings icon to setup parameters

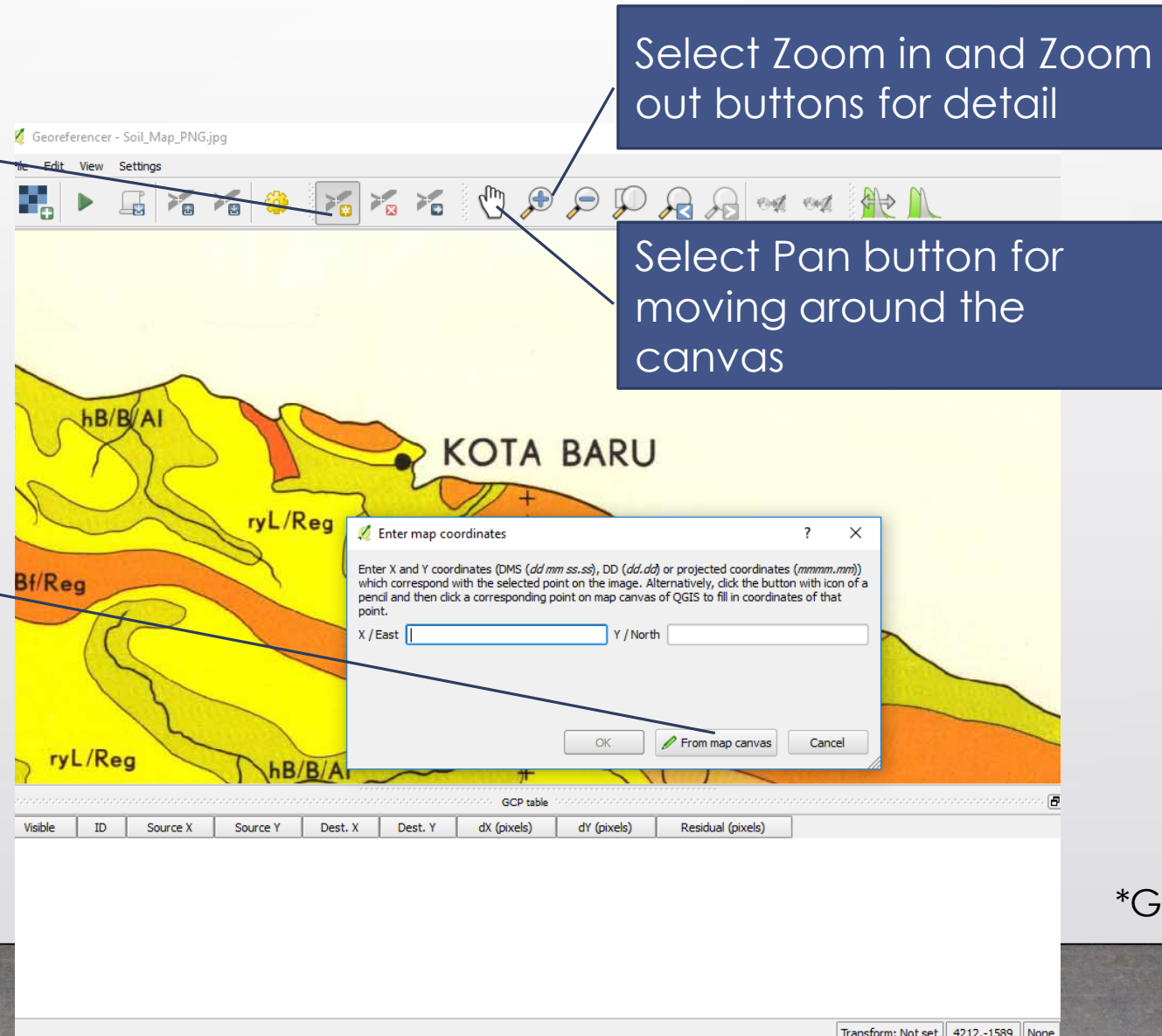
Note: Use coordinate system of the layer you are using to reference the raster image, in this case, the shoreline data, which is based on EPSG 4326



Georeferencing a raster layer

4. Select Add Point icon to start adding GCPs based on the coordinate system of the shoreline layer (EPSG 4326)

5. Select a GCP on the raster layer: If location is known, input coordinates in the x and y field; otherwise, select From map canvas to match location on the shoreline layer

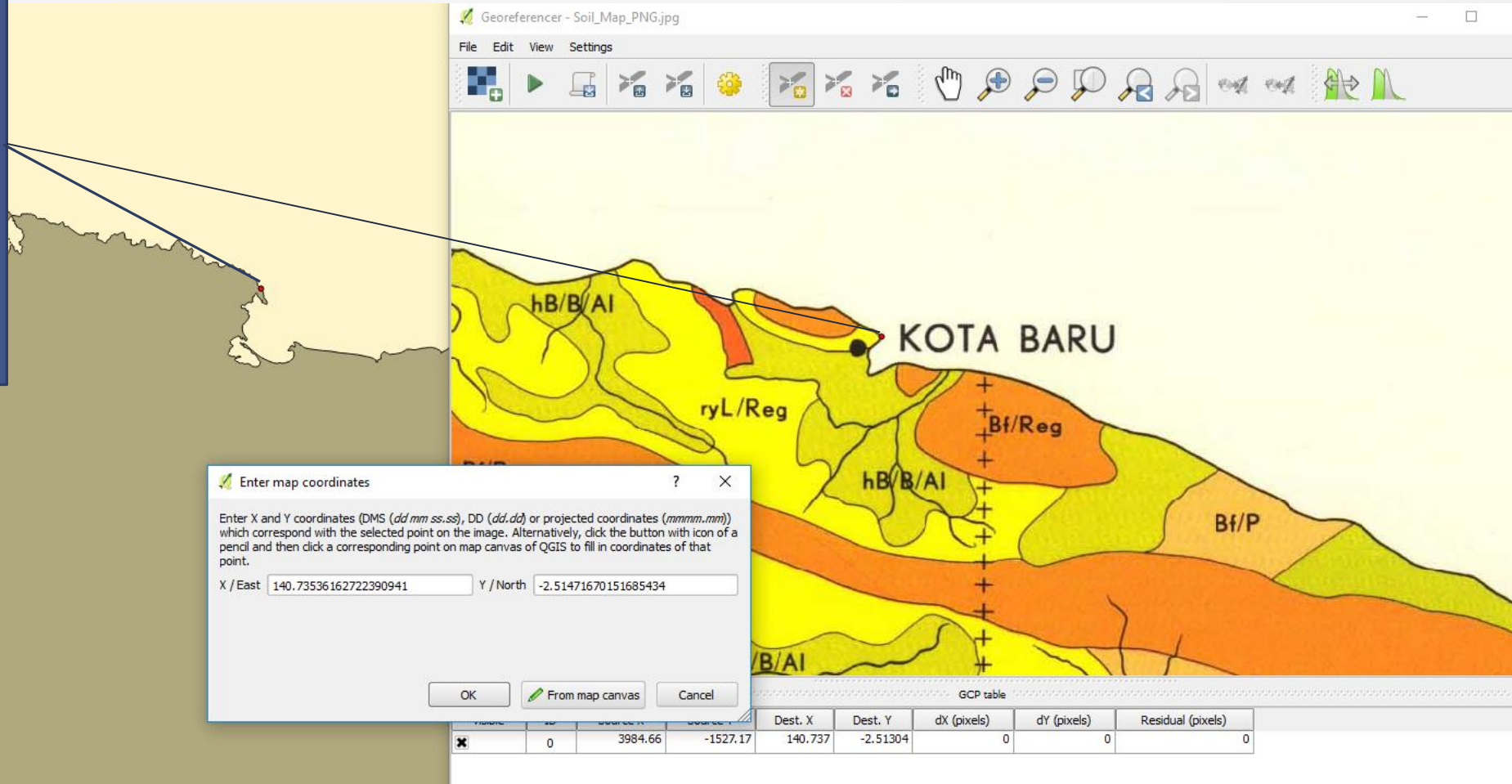


*GCP – ground control point

Georeferencing a raster layer

6. Match the location of the GCP identified in the the raster data to the same location on the shoreline data

Do for more GCPs, make sure to distribute along the area of interest



Georeferencing a raster layer

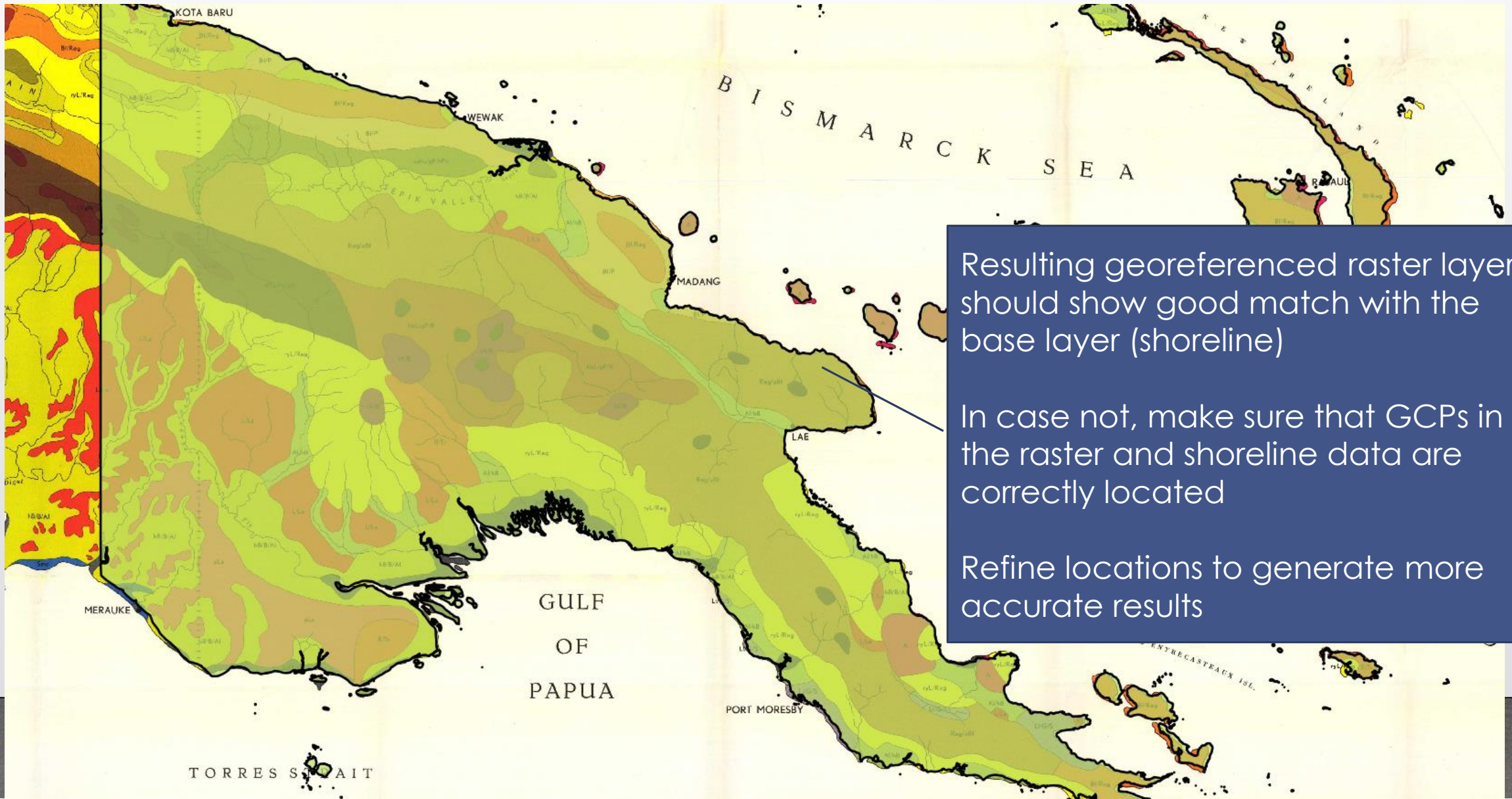
7. After identifying several GCPs along the area, select Start Georeferencing icon

The screenshot displays the QGIS interface during the georeferencing of a raster layer. The main map area shows a grayscale map of New Guinea with several red dots indicating Ground Control Points (GCPs). The Layers Panel on the left shows the 'Shoreline Polygo...' and 'Soil_Map_PNG' layers. The SCP Dock on the bottom left contains input and training options. The Georeferencer window is open, showing a color-coded soil map of New Guinea. The GCP table at the bottom right lists the coordinates for the identified points.

Visible	ID	Source X	Source Y	Dest. X	Dest. Y	dX (pixels)	dY (pixels)	Residual (pixels)
X	0	3985.14	-1529.75	140.741	-2.51457	0	0	0
X	1	5747.84	-2349.68	145.809	-4.85767	0	0	0
X	2	6468.85	-3002.63	147.869	-6.65251	0	0	0
X	3	6949.78	-3820.2	149.289	-9.01027	0	0	0
X	4	7090.62	-4101.89	149.71	-9.8185	0	0	0
X	5	4095.14	-3885.47	141.178	-9.24461	0	0	0
X	6	4912.71	-3816.77	143.397	-9.01505	0	0	0
X	7	6011.97	-3796.16	146.592	-9.01505	0	0	0

Transform: Not set 4415,-40 None

Georeferencing a raster layer



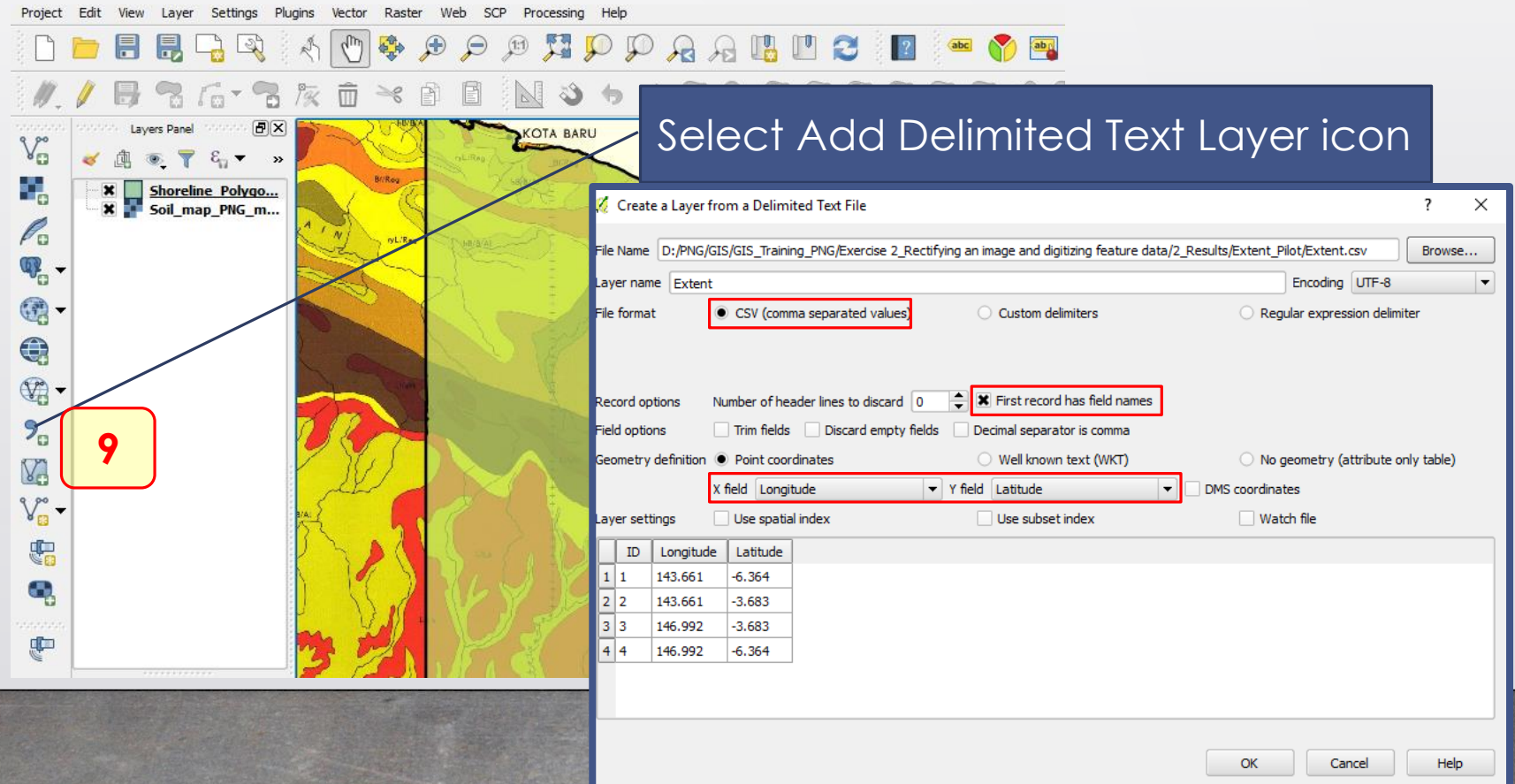
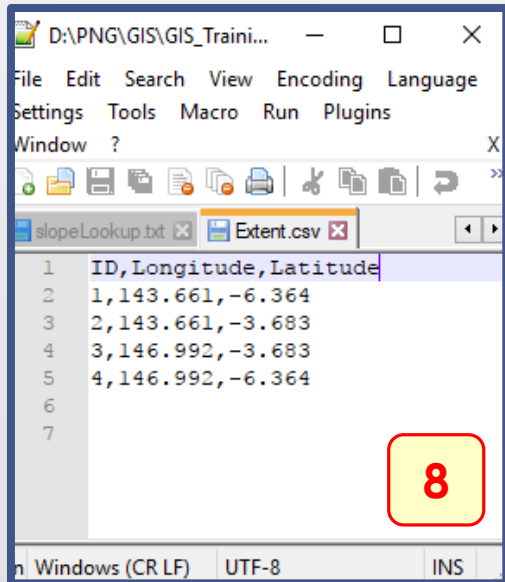
Resulting georeferenced raster layer should show good match with the base layer (shoreline)

In case not, make sure that GCPs in the raster and shoreline data are correctly located

Refine locations to generate more accurate results

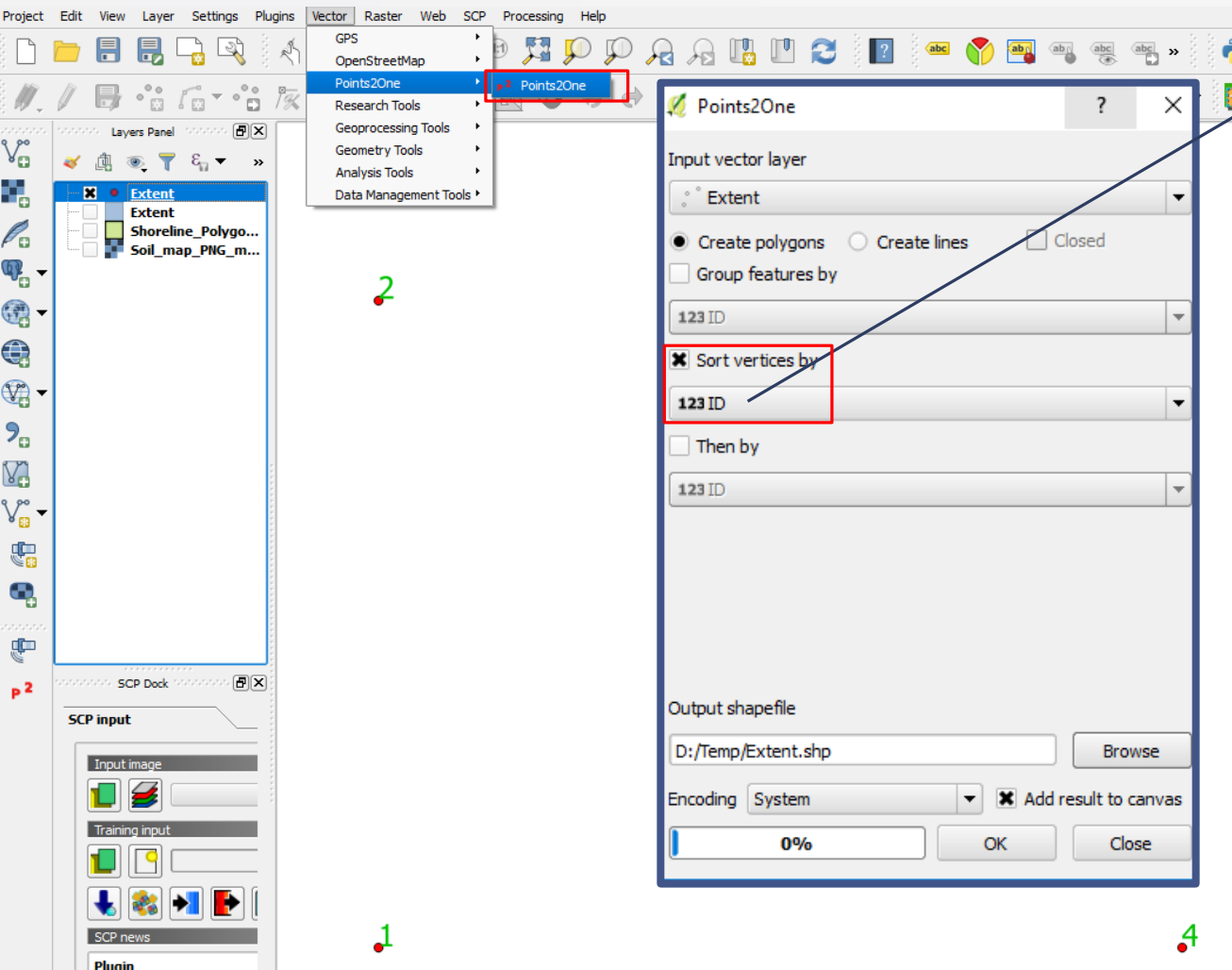
Importing a table data

8. Prepare extent in notepad
9. Import table (csv) data



Converting point data to polygon data

10. Select Points2One under the Vector menu and set parameters

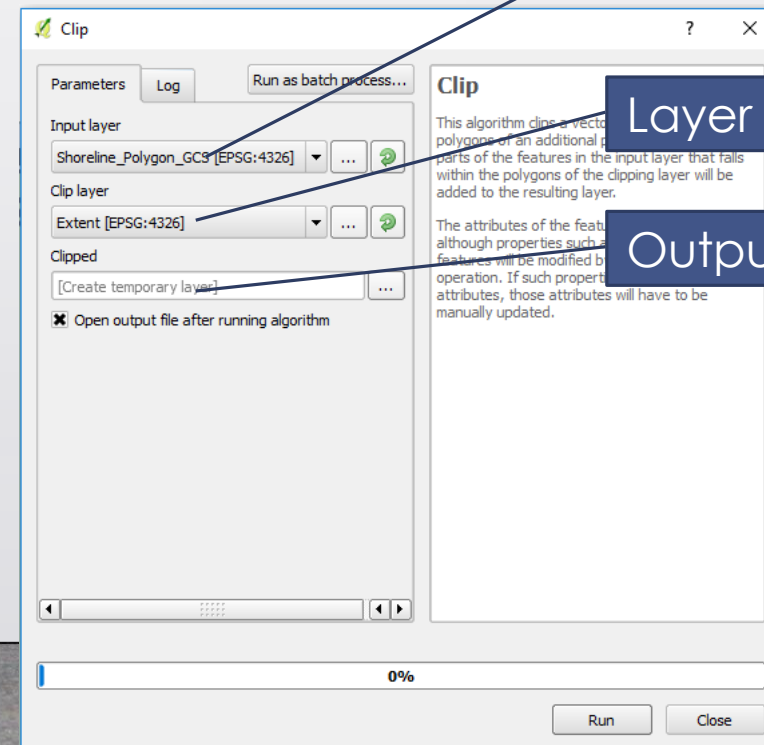
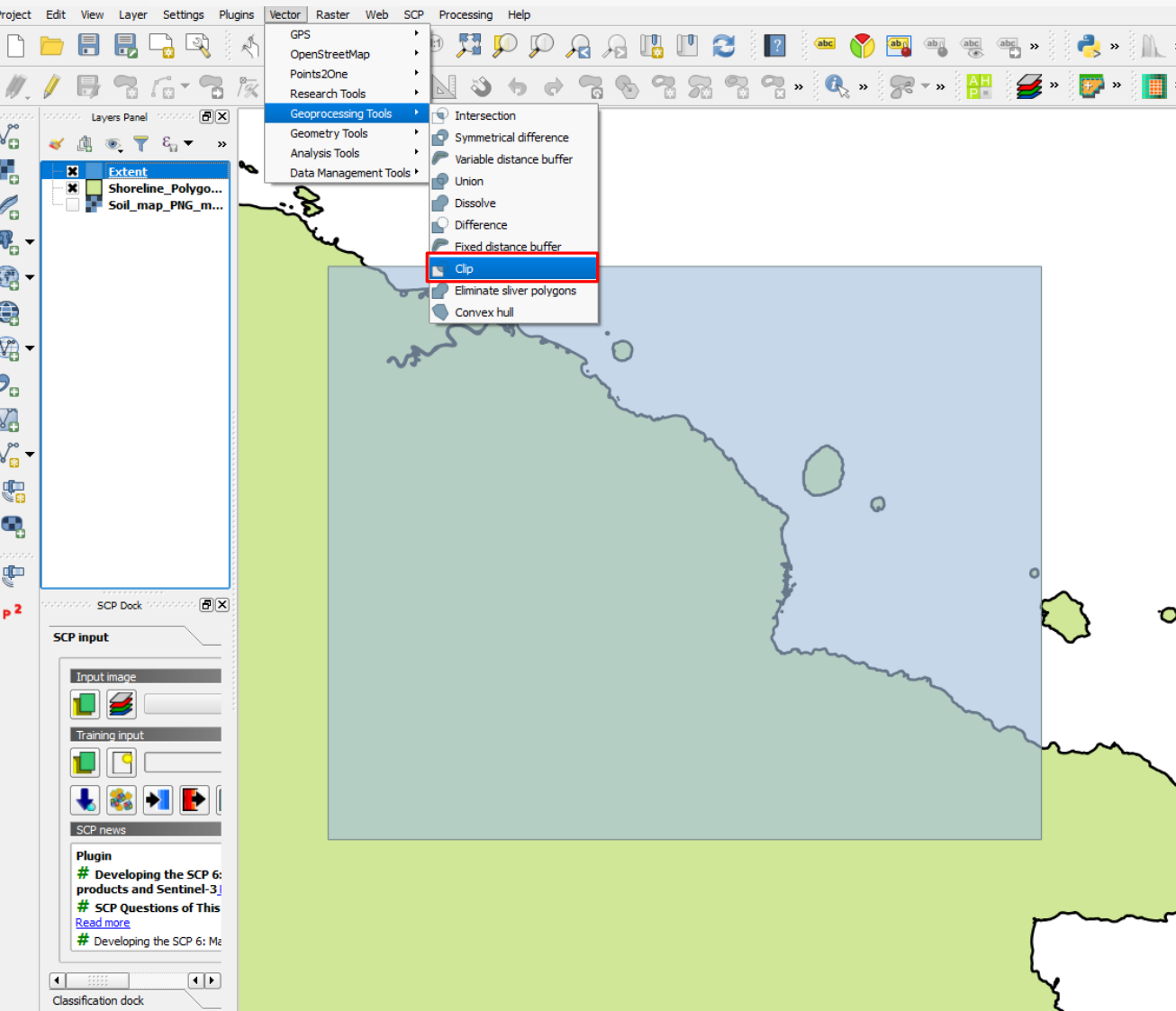


Make sure that points are arranged in chronological order in notepad



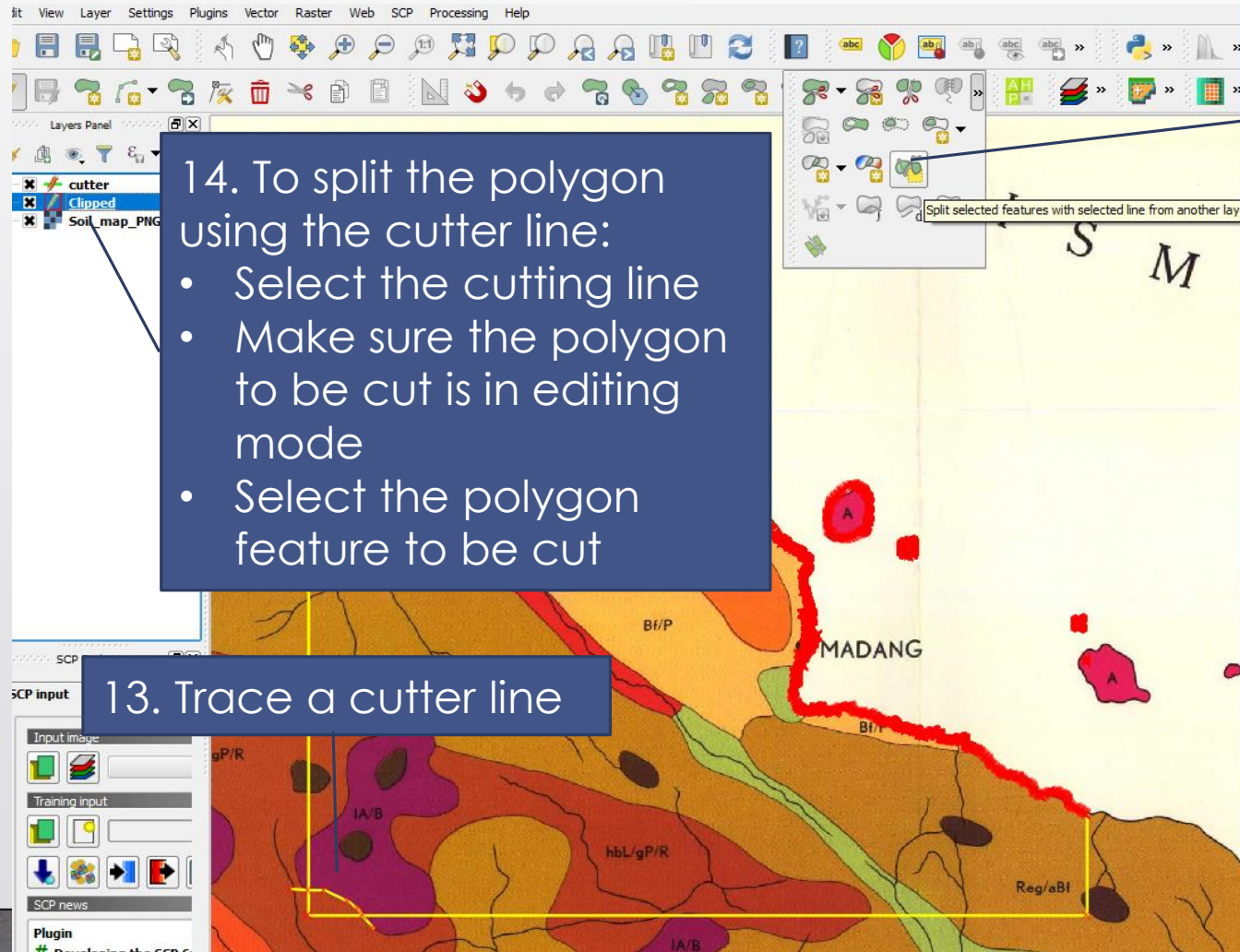
Clipping vector data

11. Select Clip under the Vector menu/Geoprocessing tools



Splitting polygon layer with line layer

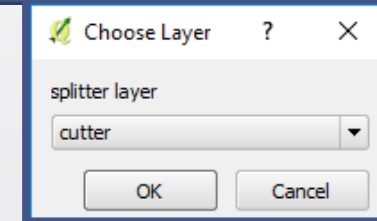
12. Create a cutter shapefile to split the polygon



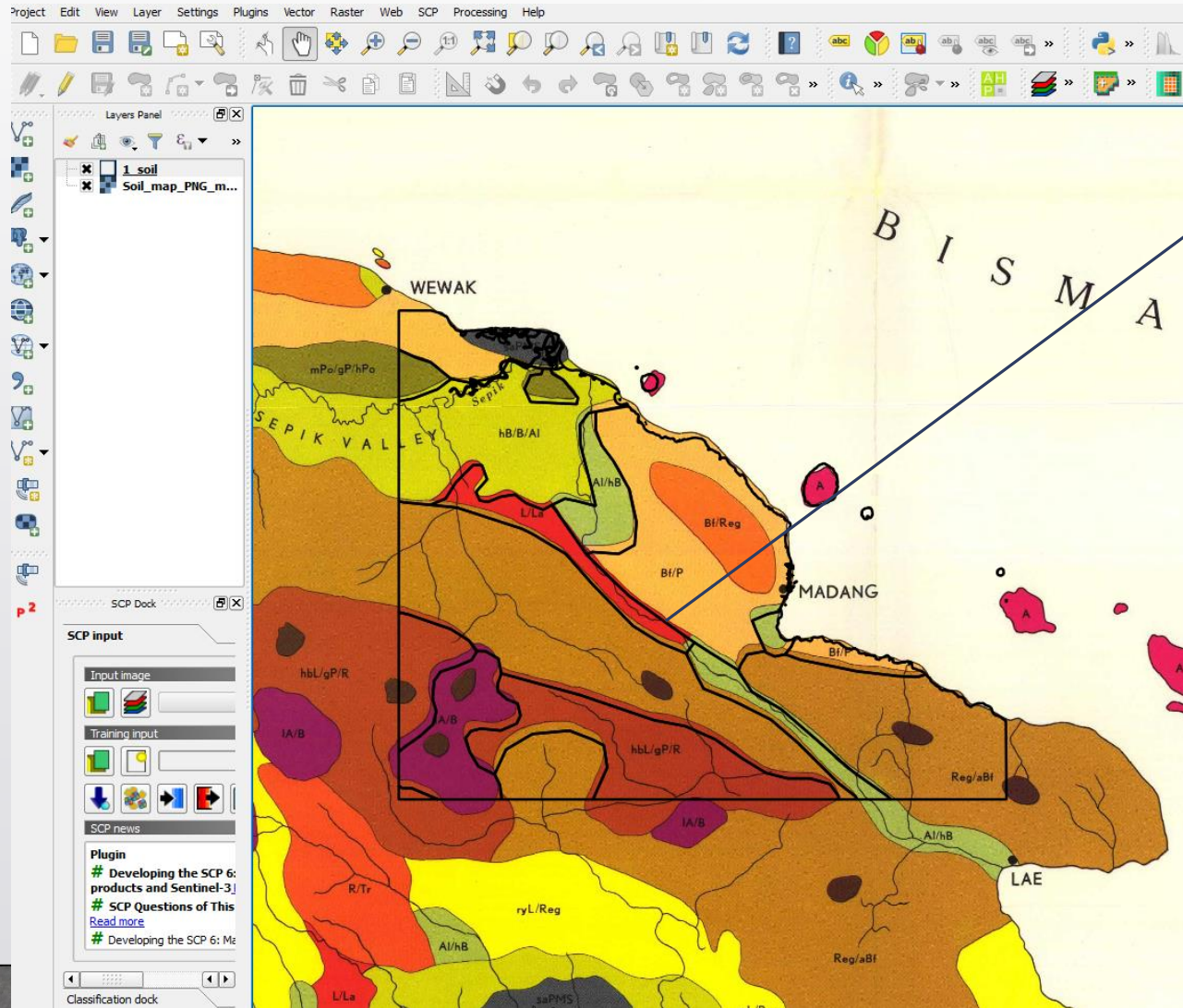
14. To split the polygon using the cutter line:
- Select the cutting line
 - Make sure the polygon to be cut is in editing mode
 - Select the polygon feature to be cut

13. Trace a cutter line

15. Select Split polygon layer with line layer icon, choose the Cutter layer as splitter layer

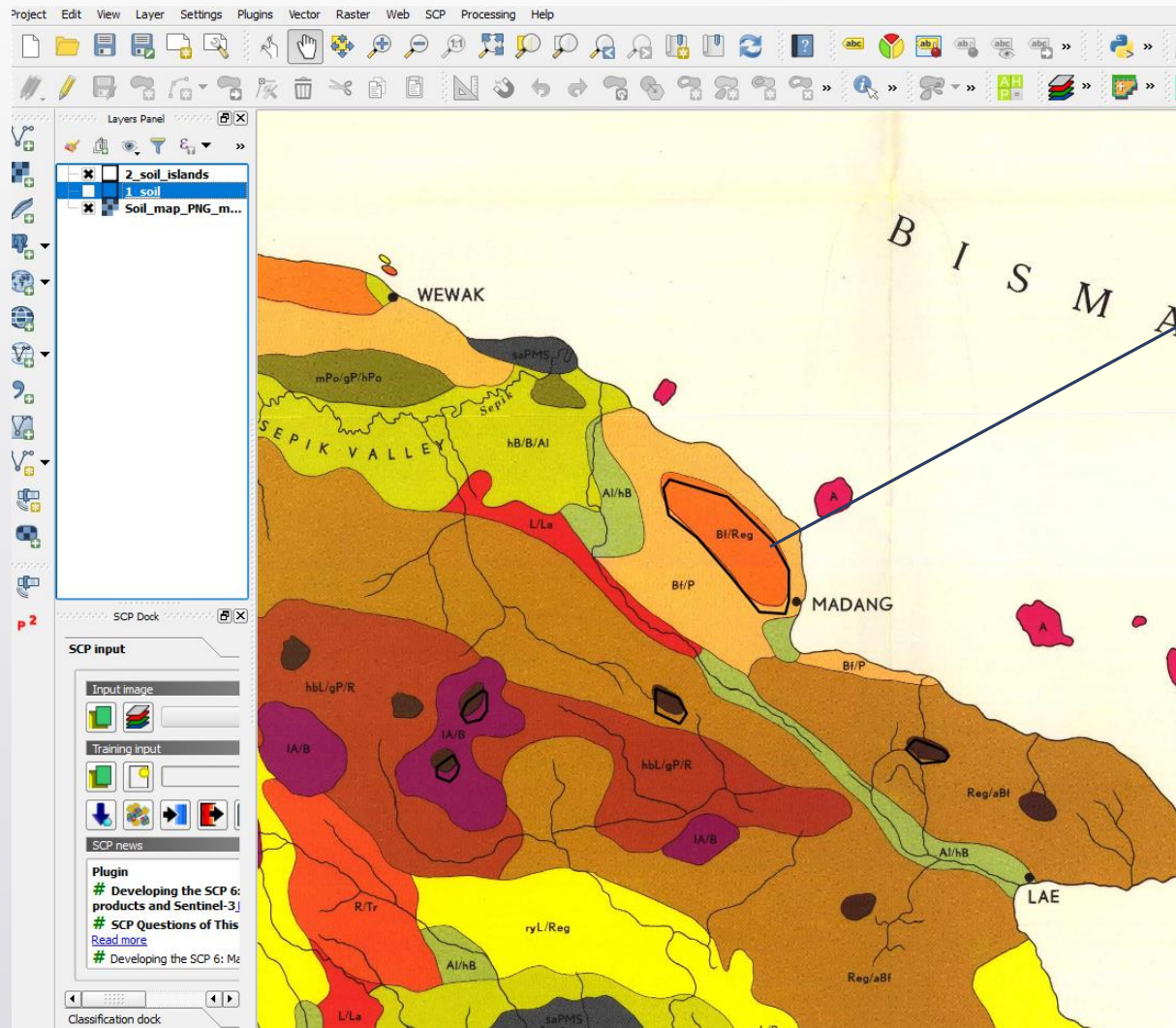


Splitting polygon layer with line layer



16. Do for all boundaries;
final layer should look like
this

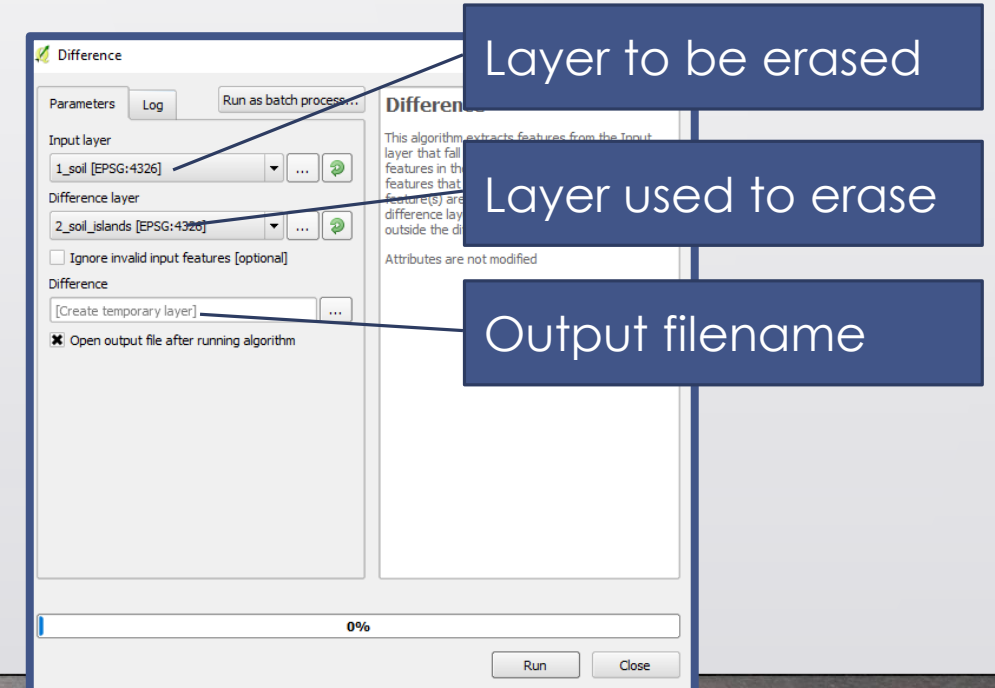
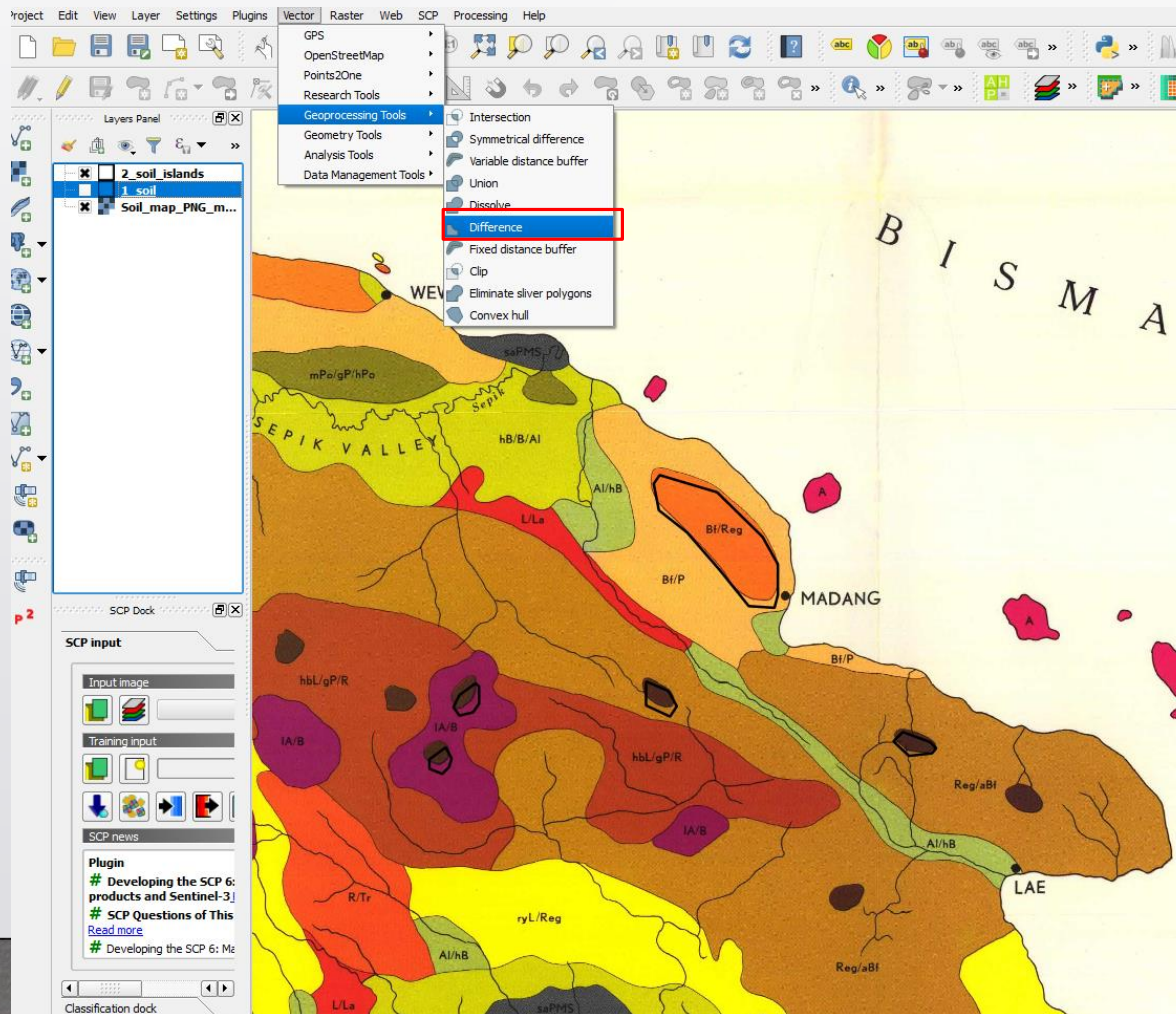
Digitizing island features



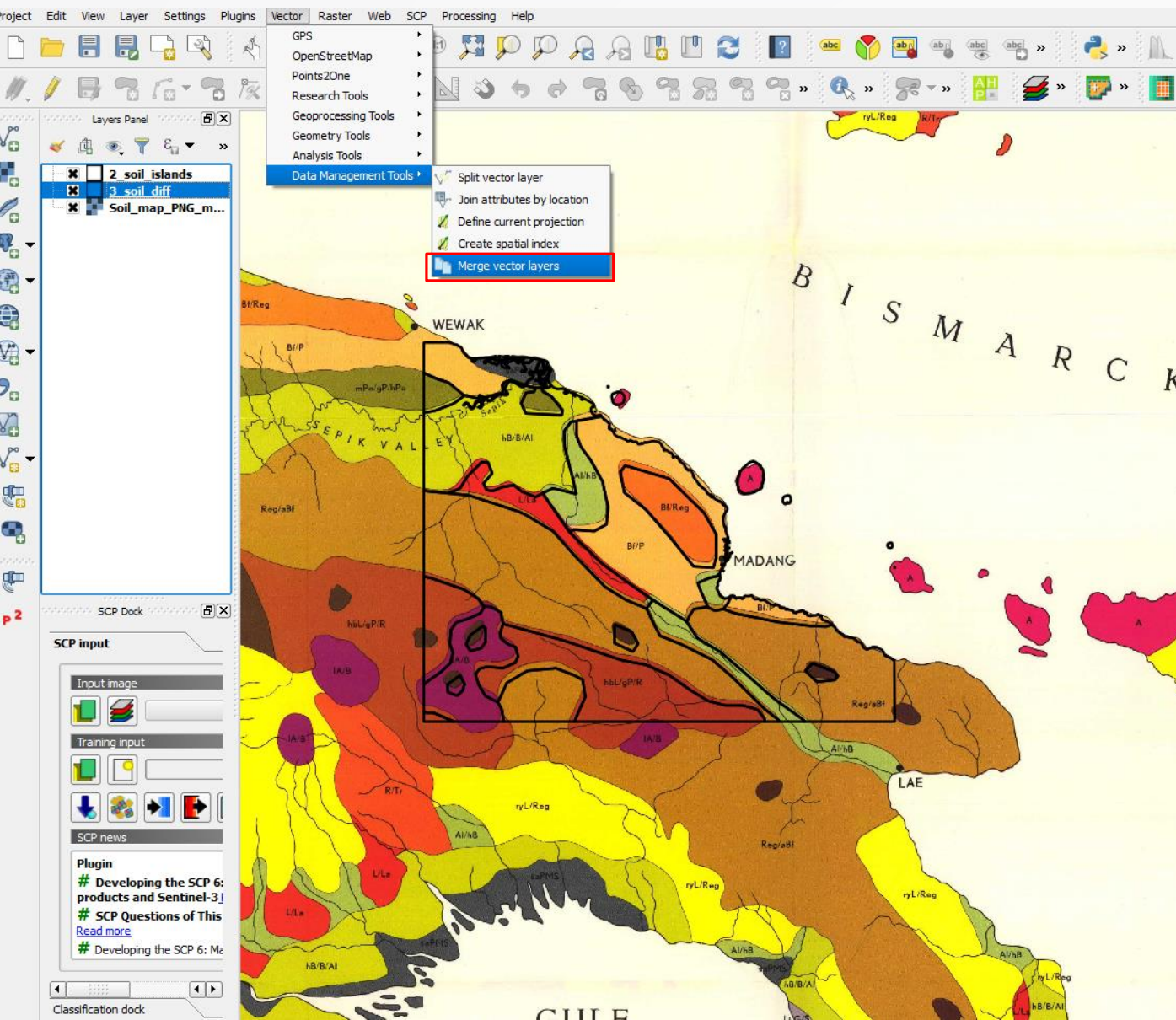
17. Create a new polygon shapefile and trace all island features

Erasing island features in the main polygon layer

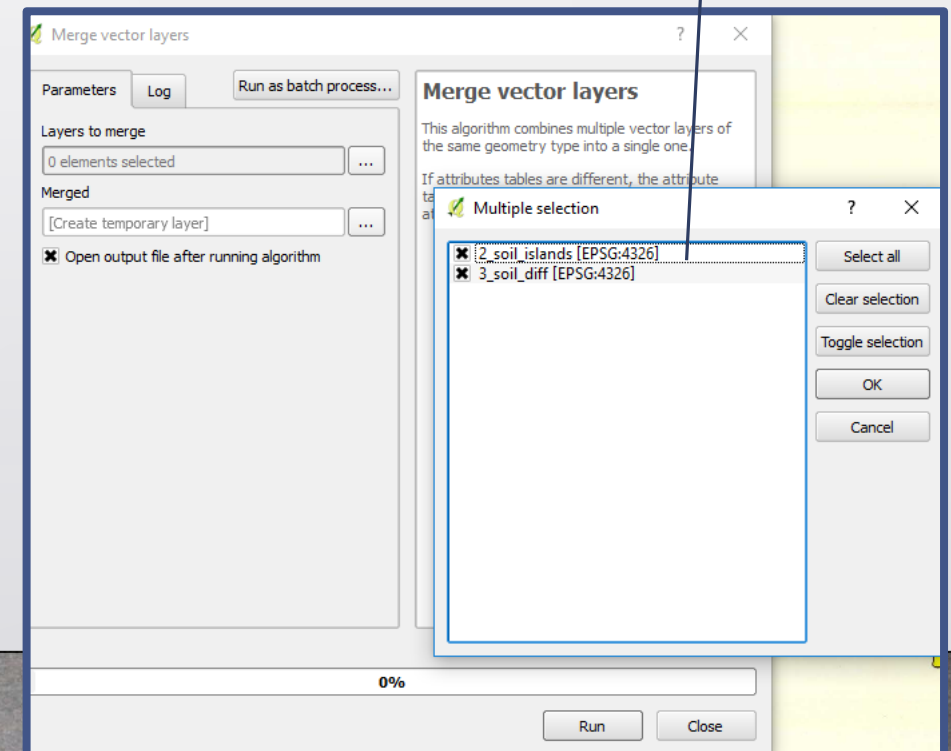
18. Select Difference under Vector menu/Geoprocessing tools



Merging island features with the main polygon layer

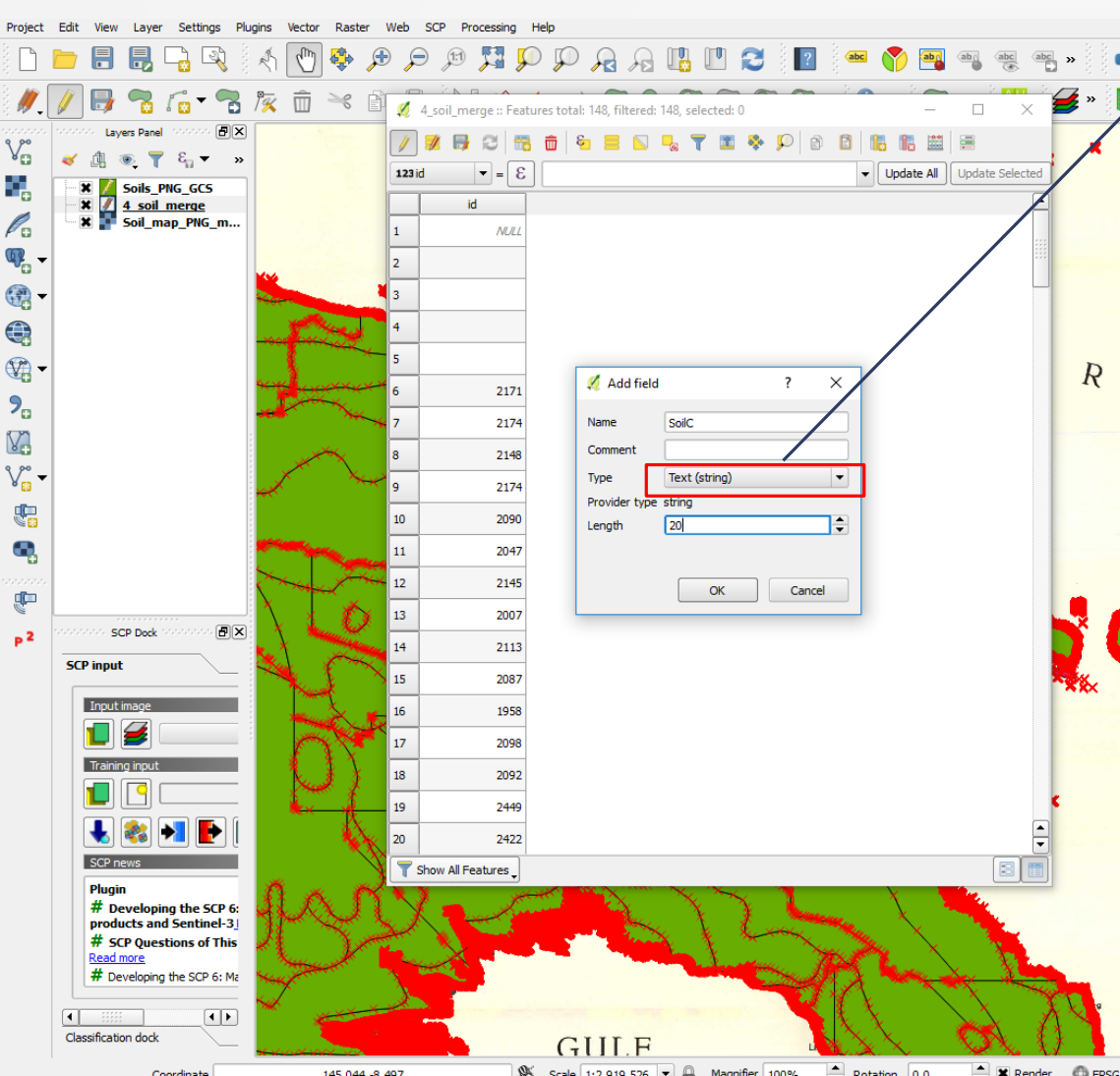


Select all layers to merge



Updating soil attributes

19. Select New Field to create a new attribute column



When adding/creating attribute column, depending on the content, the user can choose either string (text) or integer (number)



Soils_PNG_GCS :: Features total: 242, filtered: 242, selected: 0

id	ID_1	NAME_1	SoilC	SoilDesc
1		9 Hela	IA/B	Litosolic Andosol...
2		9 Hela	bPo/Po/aH	Brown Podzolics/...
3		9 Hela	bPo/Po/aH	Brown Podzolics/...
4		9 Hela	bPo/Po/aH	Brown Podzolics/...
5		9 Hela	bPo/Po/aH	Brown Podzolics/...
6		9 Hela	bPo/Po/aH	Brown Podzolics/...
7		9 Hela	bPo/Po/aH	Brown Podzolics/...
8		9 Hela	bPo/Po/aH	Brown Podzolics/...
9		9 Hela	bPo/Po/aH	Brown Podzolics/...
10		9 Hela	bPo/Po/aH	Brown Podzolics/...
11		9 Hela	bPo/Po/aH	Brown Podzolics/...
12	0	1 Bougainville	R/Tr	Rendzinas/Terra ...
13	0	2 Central	Li/G/S	Lithosolics/Grumo...
14	0	3 Chimbu	hbl/gP/R	Humic Brown Lat...
15	0	4 East New Britain	ryL/Reg	Red and Yellow L...
16	0	5 East Sepik	Reg/aBf	Regosolic Brown ...
17	0	6 Eastern Highlands	hbl/gP/R	Humic Brown Lat...
18	0	7 Enga	hbl/gP/R	Humic Brown Lat...
19	0	8 Gulf	saPMS	Saline Peats, Mu...
20	0	9 Hela	R/Tr	Rendzinas/Terra ...

LEGEND

HIGH MOUNTAINS

- Lithosolics/Alpine Humus Soils Li/aH
- Brown Podzolics/Podzols/Alpine Humus Soils bPo/Po/aH
- Humic Brown Latosols/Gleyed Pelosols/Rendzinas hbl/gP/R
- Acid Brown Forest Soils/Peat Soils aBl/Pe
- Regosolic Brown Soils/Acid Brown Forest Soils Reg/aBf
- W included Brown Podzolics bPo
- E included Humic Brown Latosols hbl

LOW MOUNTAINS AND HILLS

- Brown Forest Soils/Regosolic Brown Soils Bl/Reg
- Red and Yellow Latosols/Regosolic Brown Soils ryL/Reg
- Rendzinas/Terra Rossas R/Tr
- Andosols A
- Lithosolics/Grumosols/Solonetzics Li/G/S

PLAINS AND VALLEYS

- Latosolics/Lateritics L/La
- Podzolic Lateritics pLa
- Brown Forest Soils/Pelosols Bl/P
- Meadow Podzolics/Gleyed Pelosols/Hydro-Podzolics mPo/gP/hPo
- Alluvial Soils/Half Bog Soils Al/hB
- Half Bog Soils/Bog Soils/Alluvial Soils (including Mountain Valleys) hB/B/Al
- Solonchic Marine Clays Smc
- Saline Peats, Muds and Sands saPMS

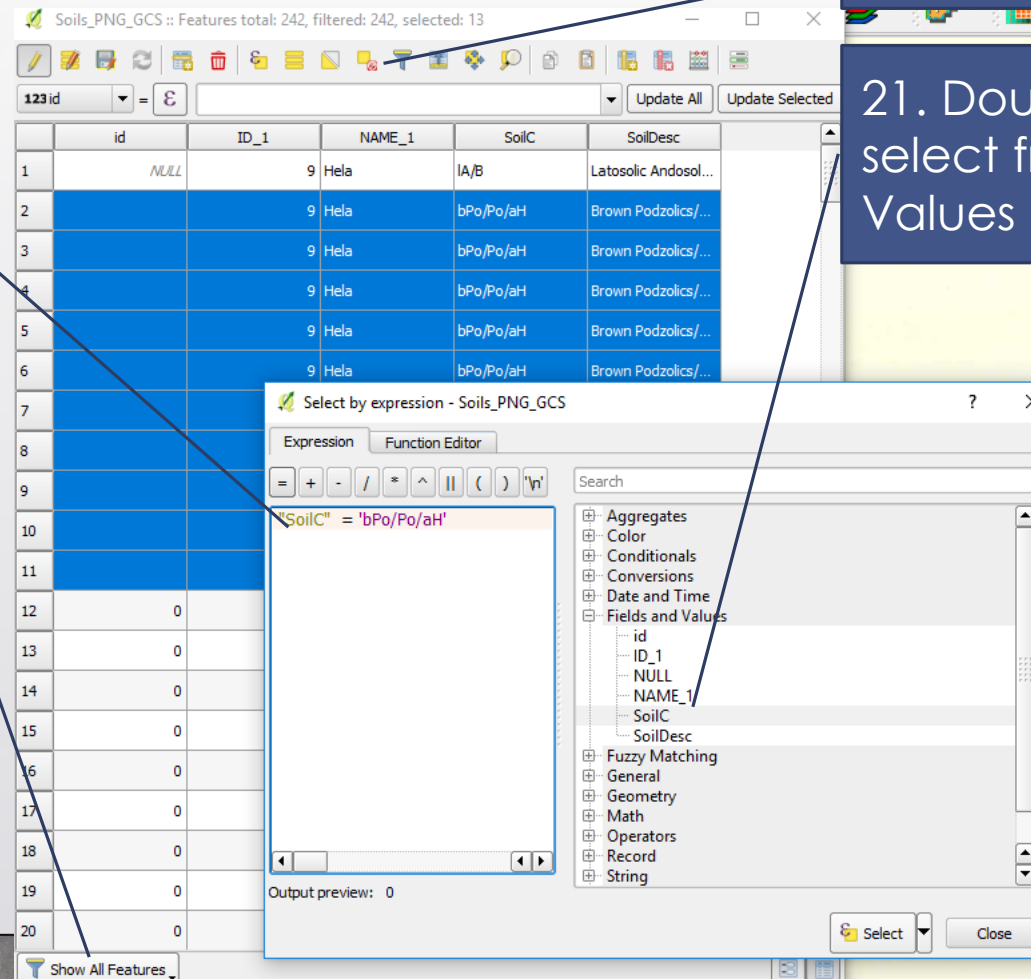
Batch selecting features

22. Input equation in the box
→ particular attribute to be
selected should be enclosed
in quotes (to signify a text
attribute)

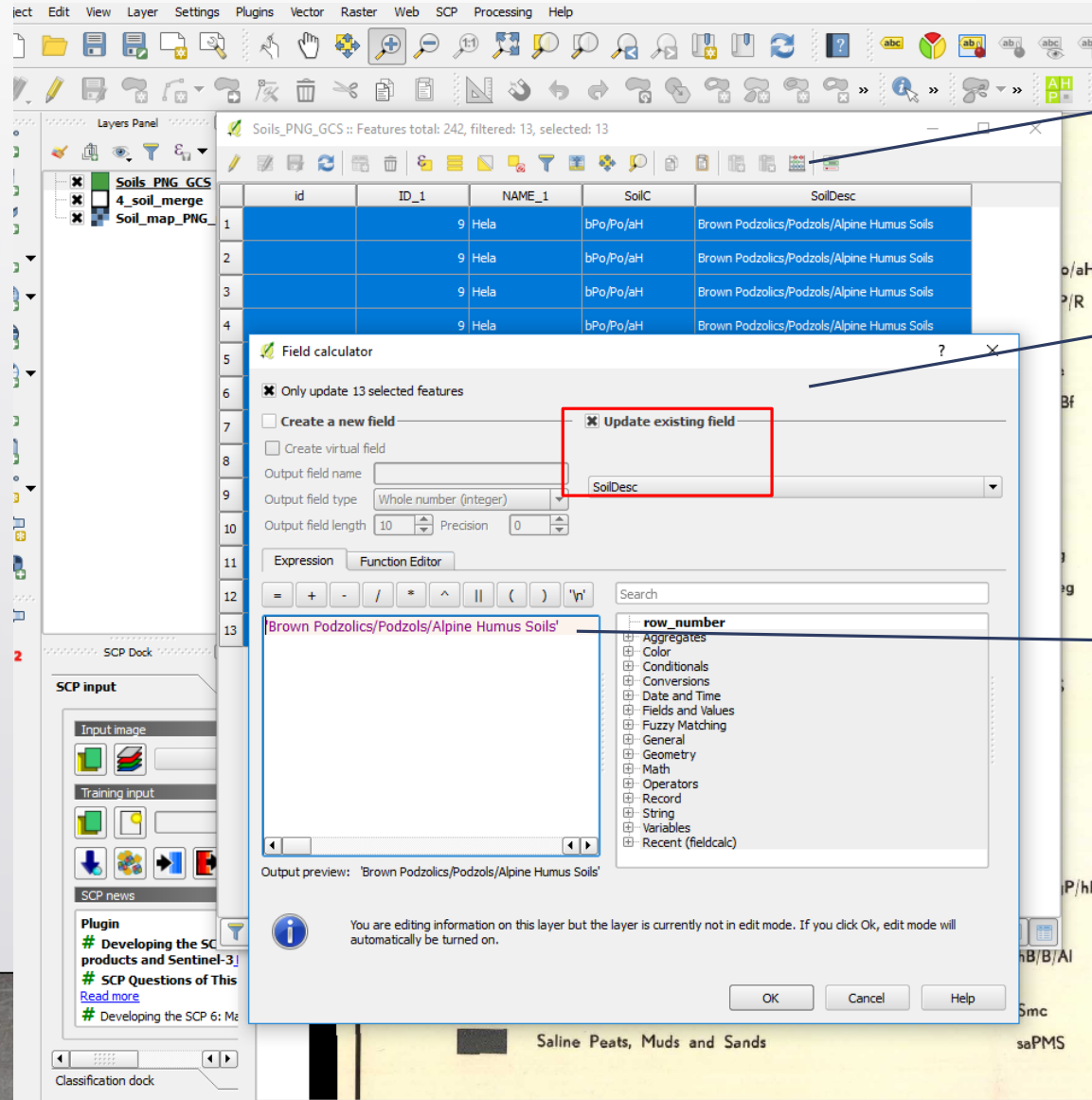
22. Select Selected Features
to display only selected
features

20. Select Select by expression icon

21. Double click on attribute to
select from – under Fields and
Values



Batch updating features



23. After selecting features to be updated, select Open field calculator

24. Tick Update existing field, choose field below

25. Input text to input to the column of all selected features



Thank you