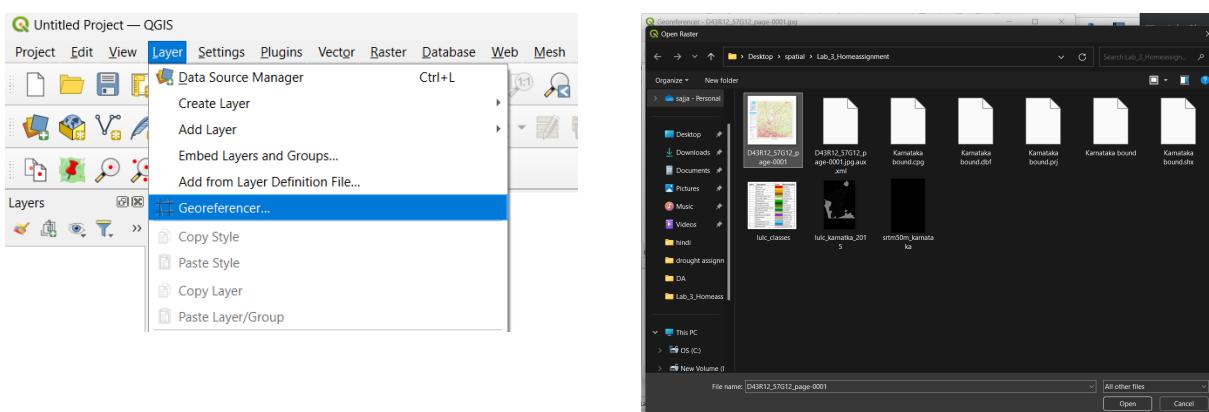


LAB-3

1. Georeferencing

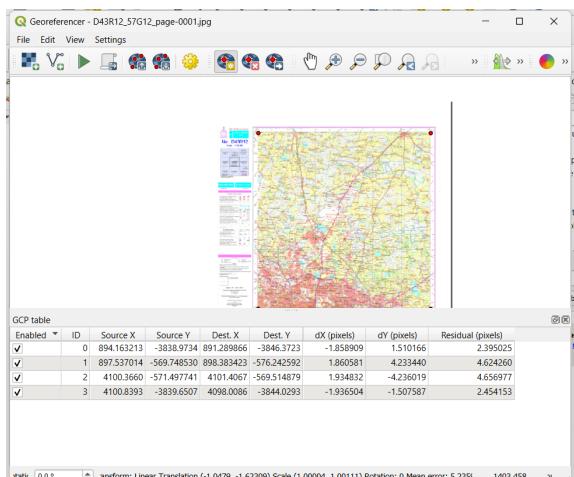
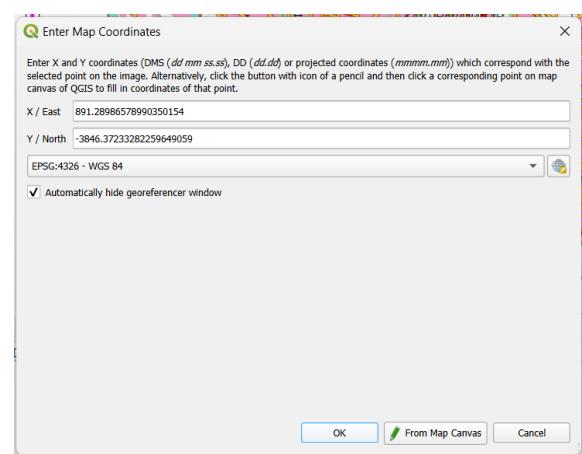
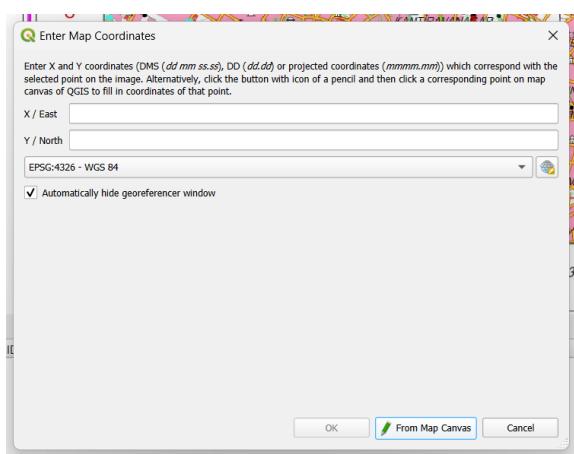
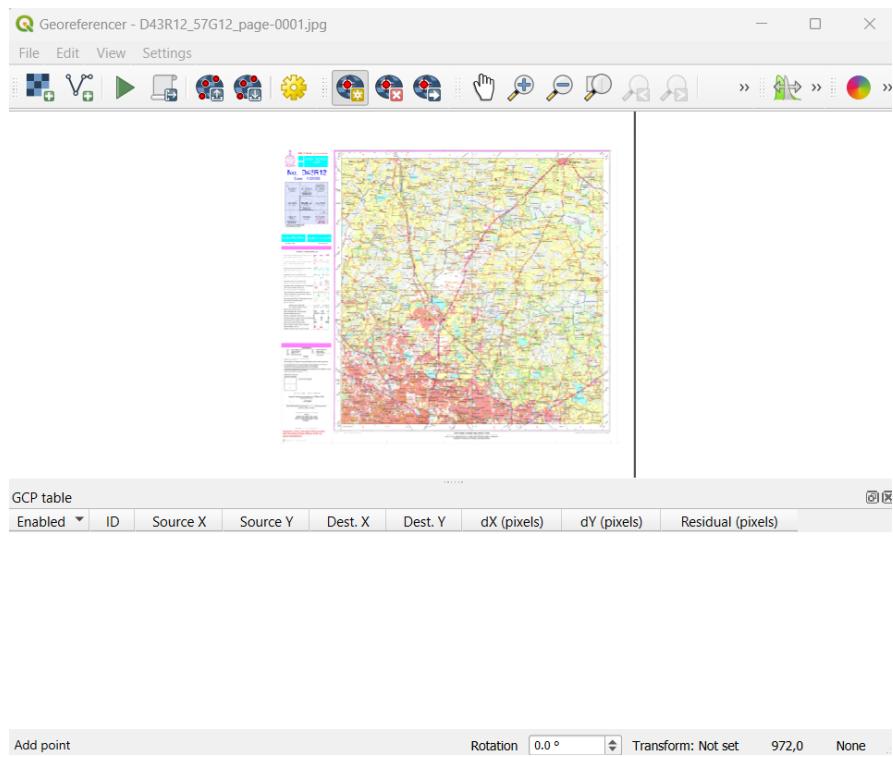
To begin, open a new file in QGIS by launching the application. Once open, navigate to the top menu and click on **Layer**. From the drop-down menu, select **Georeferencer**. After selecting Georeferencer, choose the specific map file provided to you for georeferencing.

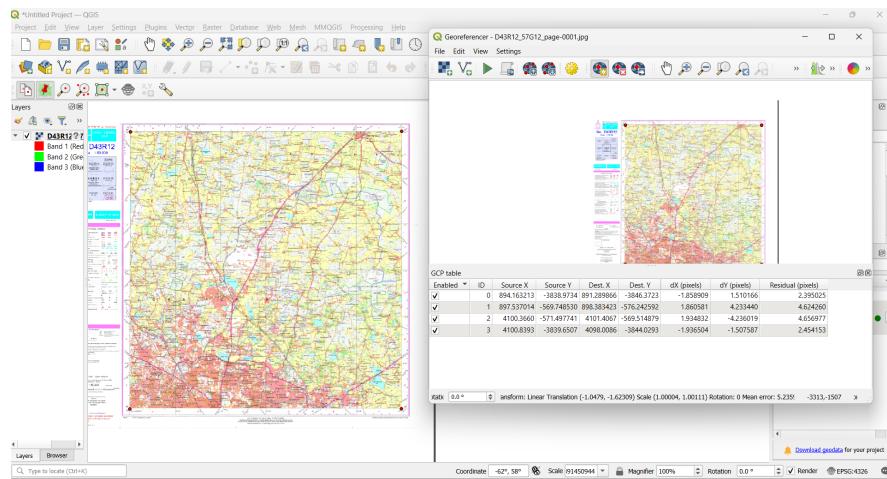


Now go to 'open raster' and select the add point feature.



Next, click on the four corners of the map one by one in the Georeferencer window. For each point, add the corresponding X, Y coordinates. To do this, select **From Map Canvas** and switch to the main window where the map is displayed (outside of Georeferencer). Click on the same point you selected in the Georeferencer map. This will provide the coordinates. Repeat the process for all four corners, generating a list of coordinates for each. Once completed, save the file.

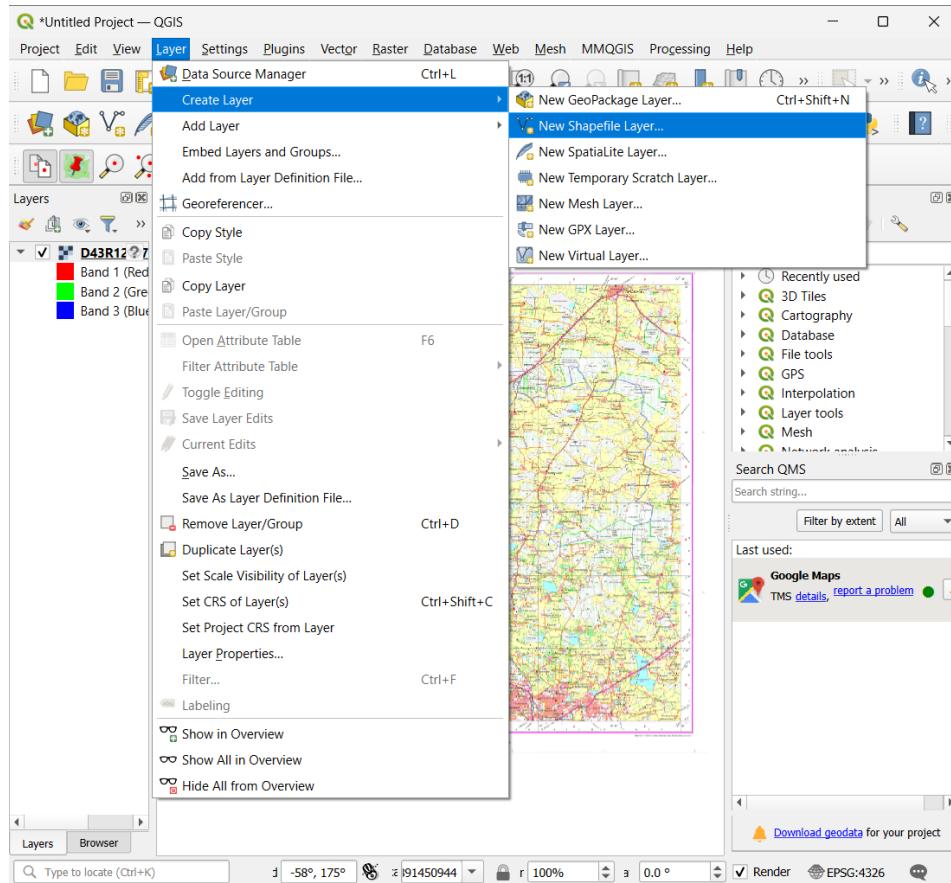


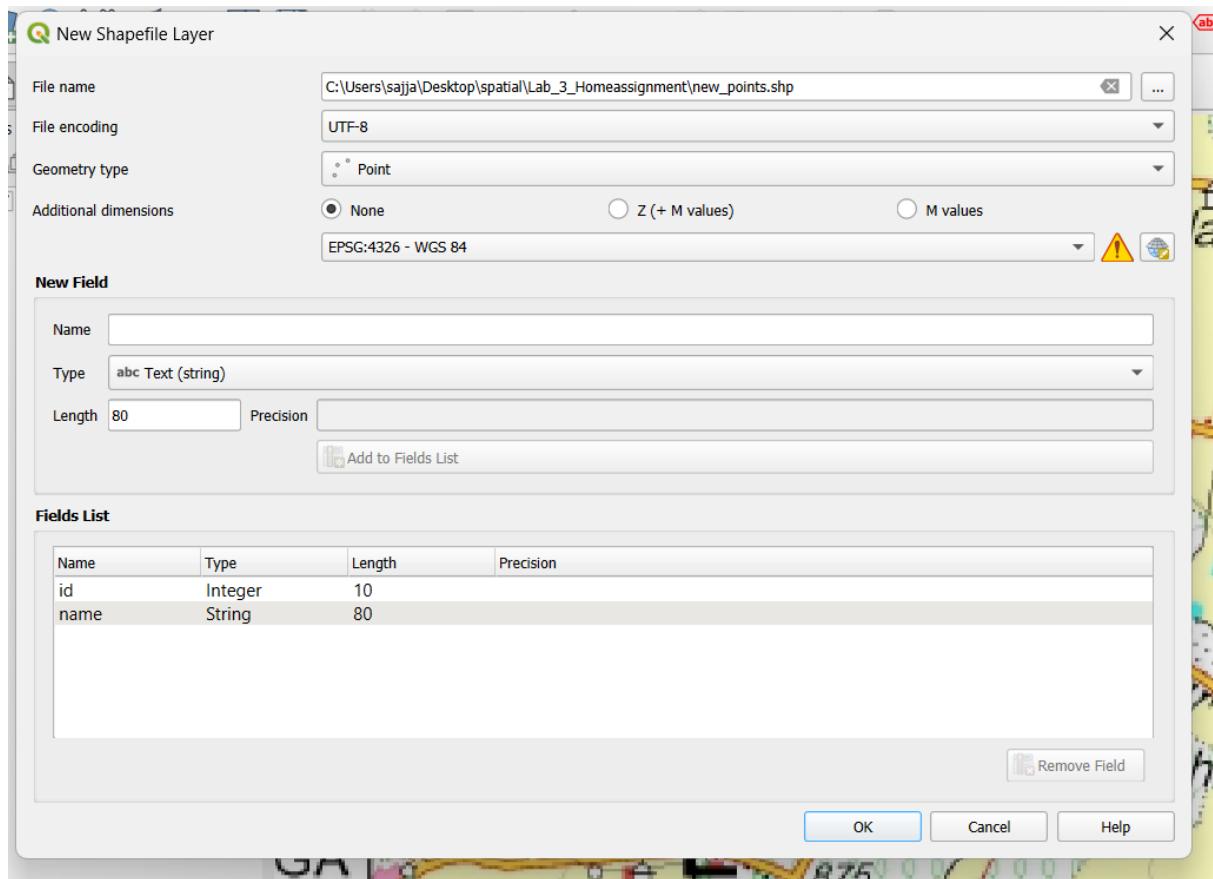


Digitization

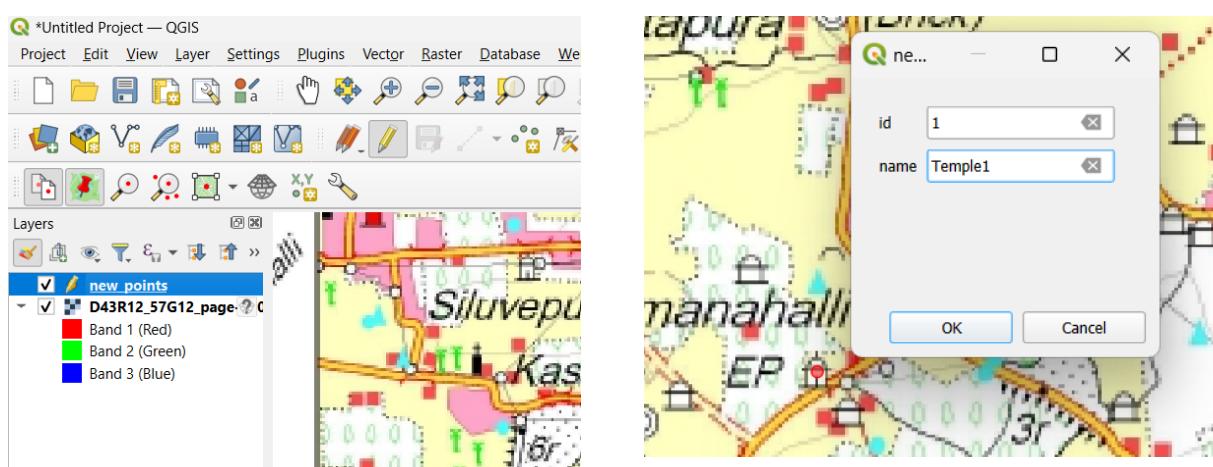
1. POINTS

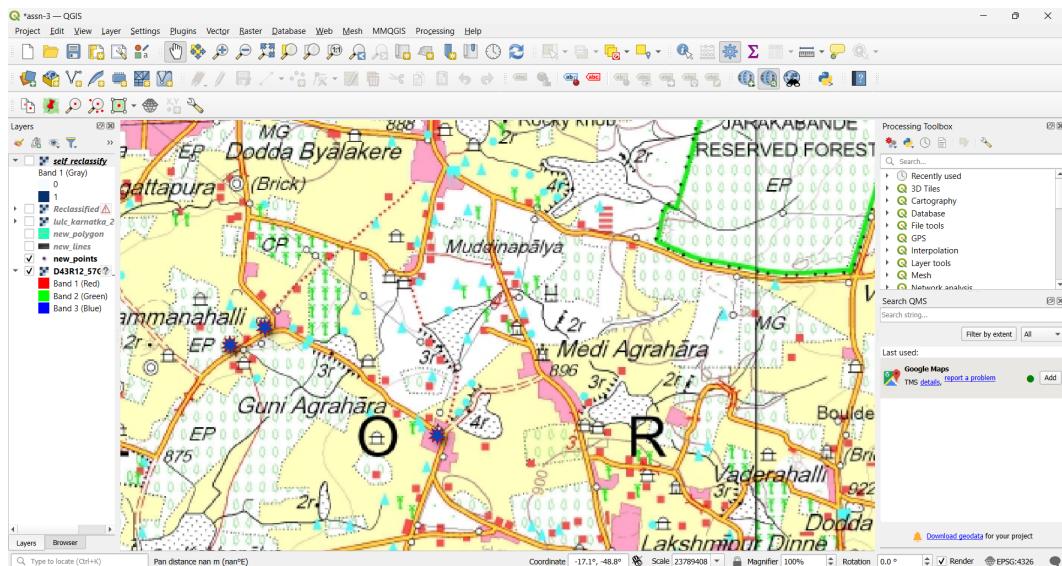
Go to **Layer**, then select **Create Layer**. Choose to create a new layer for points and set the geometry type as **Points**. Add a new field called '**name**', and click **OK** to create the layer.





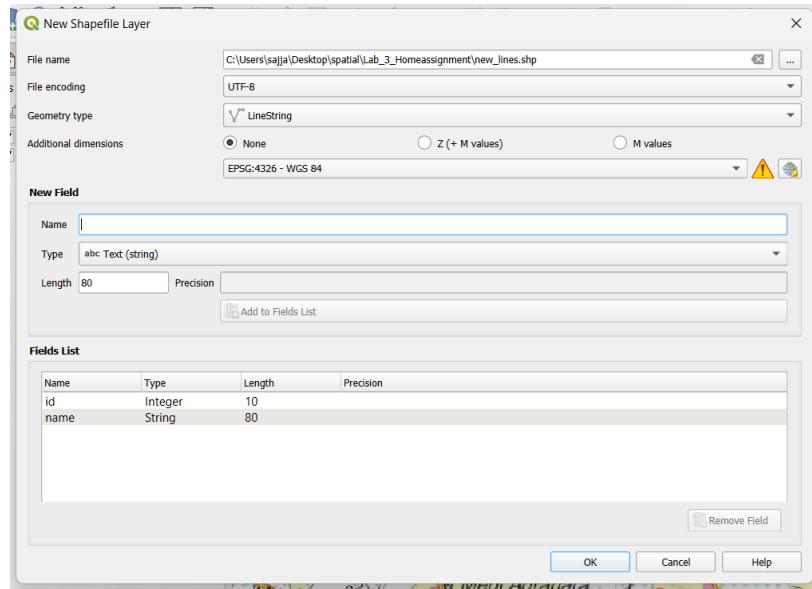
Now that we have our new layer for points, toggle editing mode and click on **Add Point Feature** to create points for specific items (for example, temples). I marked three temples, but by default, the points appeared as tiny orange dots, which were difficult to spot. To enhance visibility, I went to the layer properties and changed the appearance of the points to blue stars. The final image is shown below:



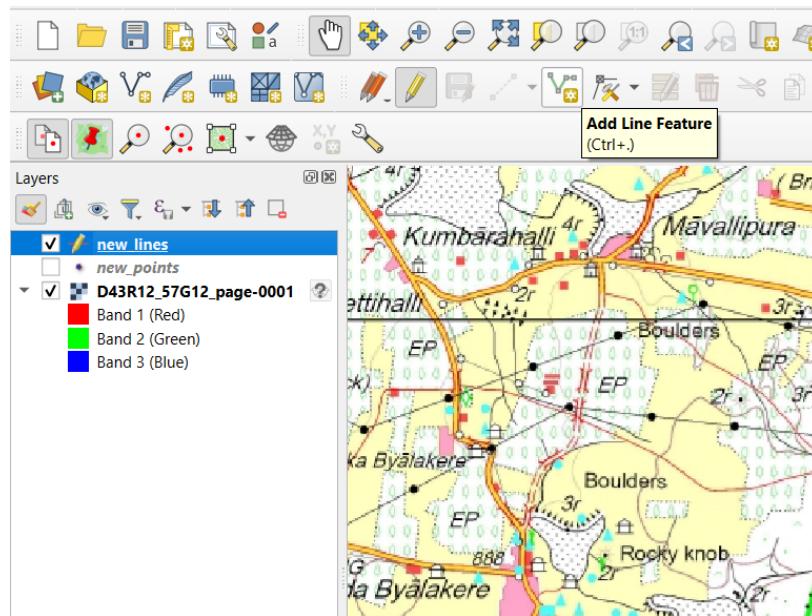


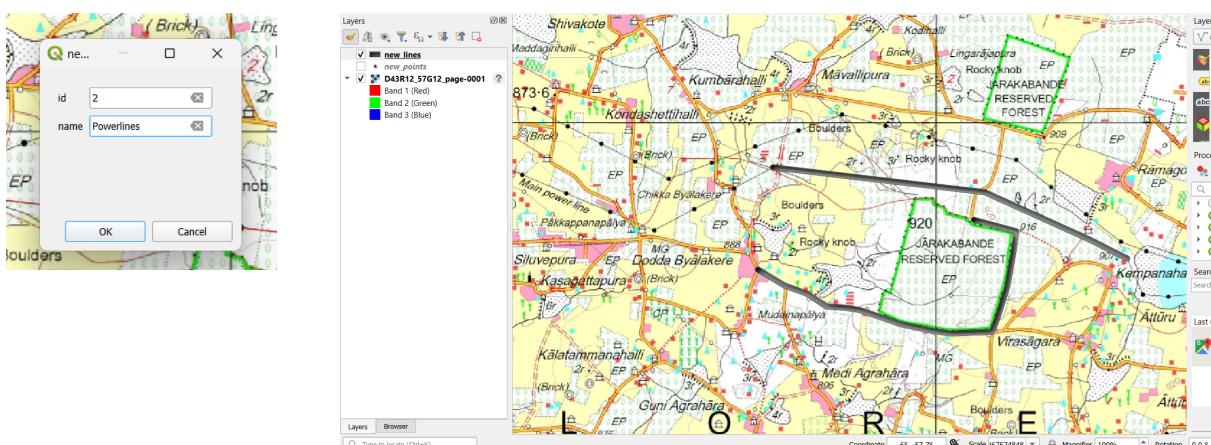
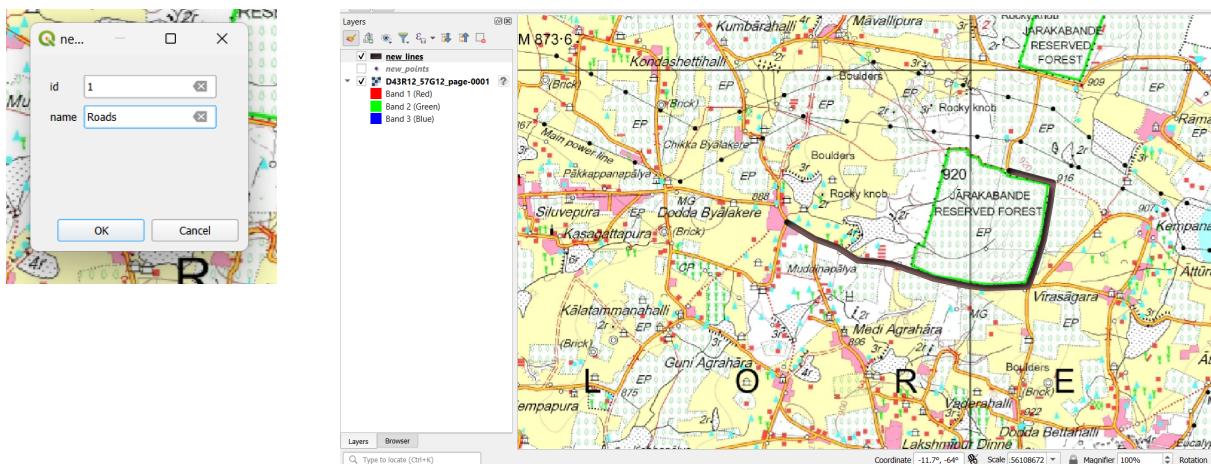
2. LINES

Go to **Layer**, then select **Create Layer**. Choose to create a new layer for lines and set the geometry type as **Lines**. Add a new field called '**name**', and click **OK** to create the layer.



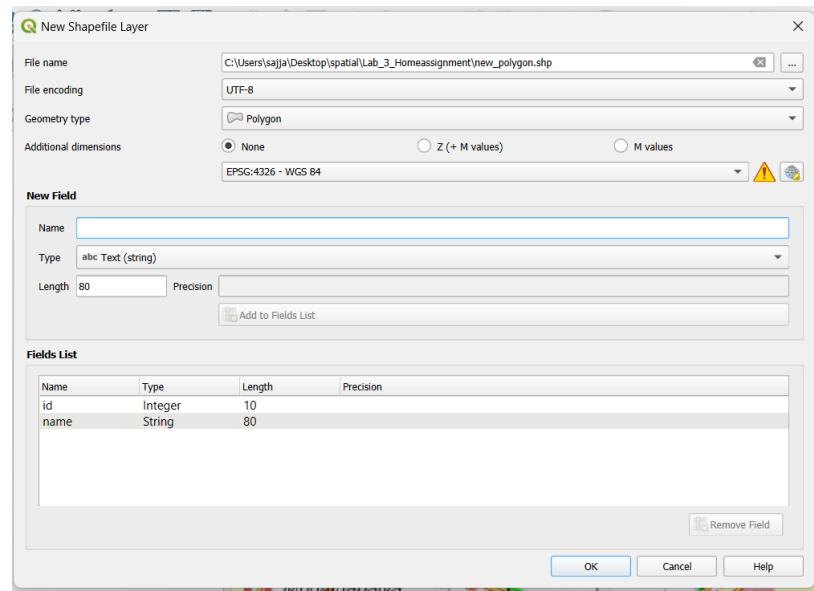
Now that we have our new layer for lines, toggle editing mode and click on **Add Line Feature** to draw lines for specific items (for example, roads and power lines). I marked one road and one power line here, but I was unable to differentiate the appearance for both items. The final image is shown below:



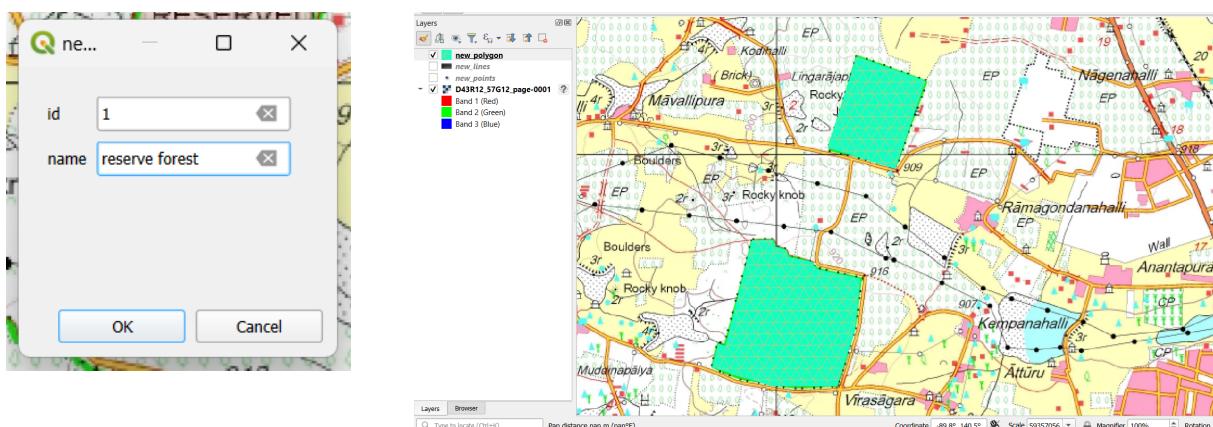


3. POLYGONS

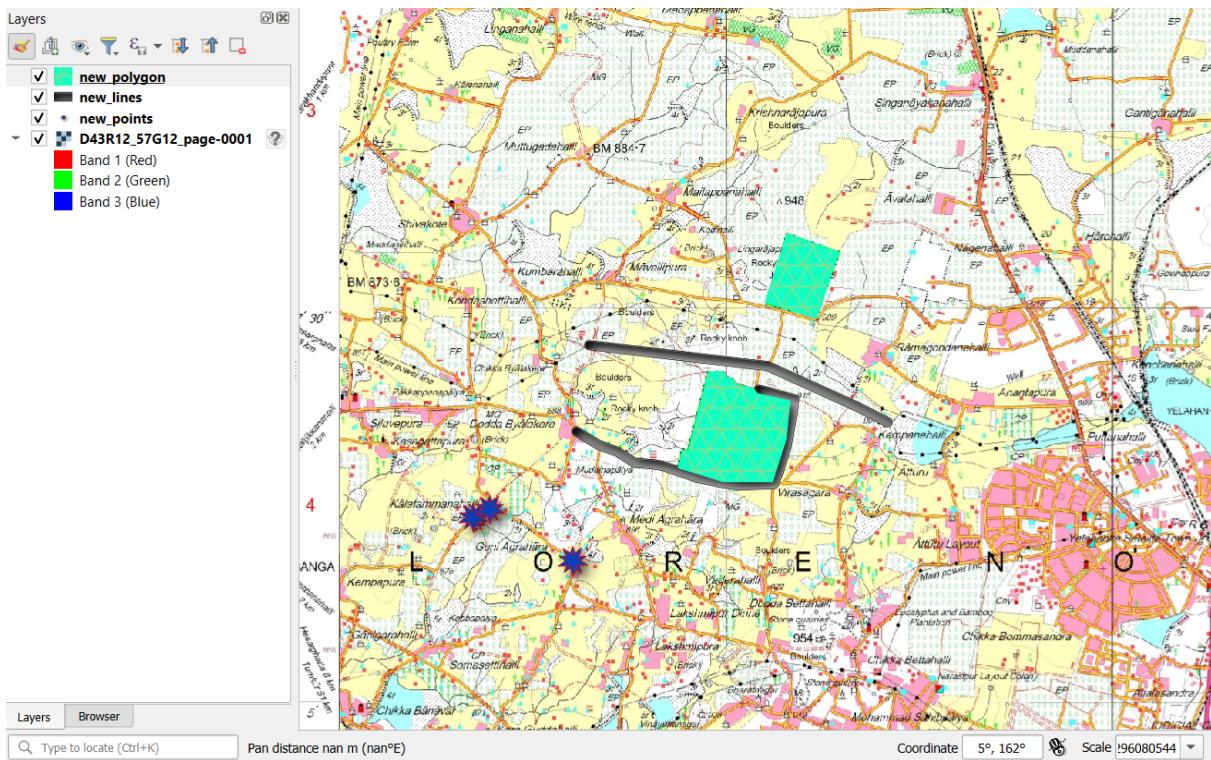
Go to **Layer**, then select **Create Layer**. Choose to create a new layer for polygons and set the geometry type as **Polygon**. Add a new field called '**name**', and click **OK** to create the layer.



Now that we have our new layer for polygons, toggle editing mode and click on **Add Polygon Feature** to create polygons for specific items (for example, forest reserves). I have marked two forest reserves here. The final image is shown below:

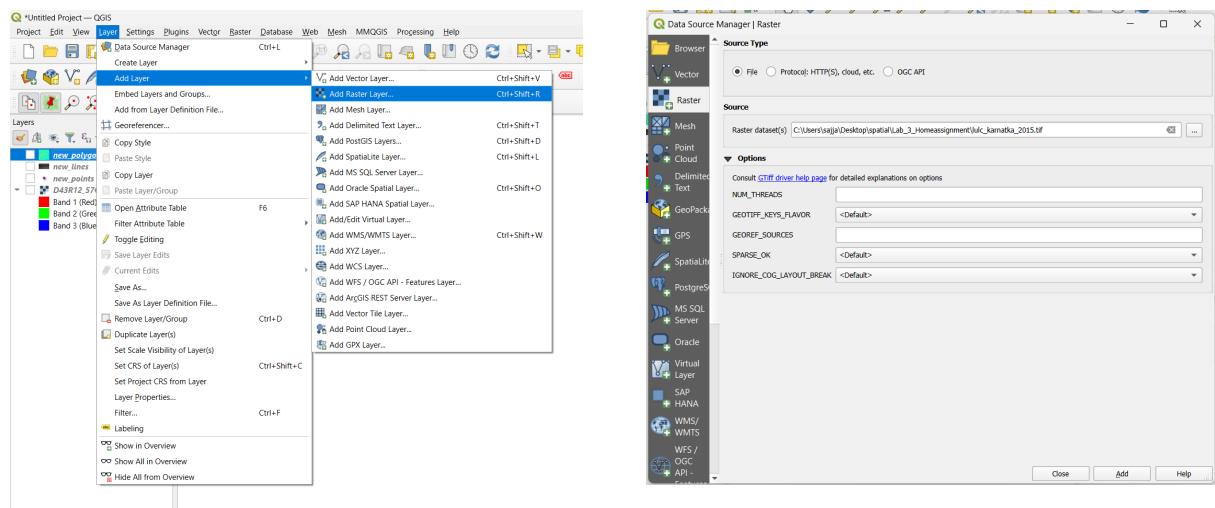


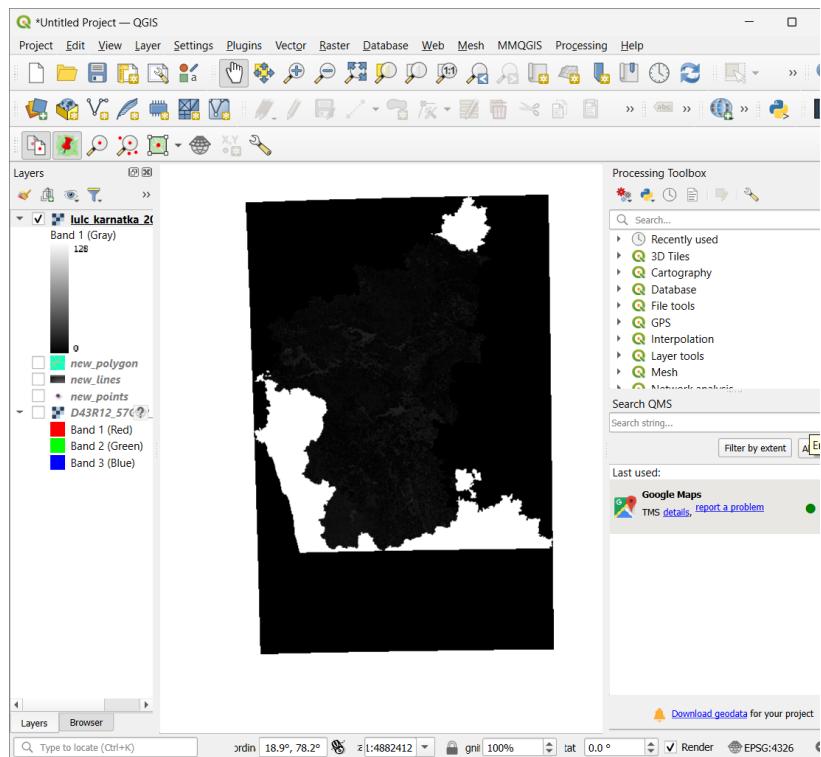
I have selected all three new layers, and we can now see all the new points, lines, and polygons simultaneously on the map.



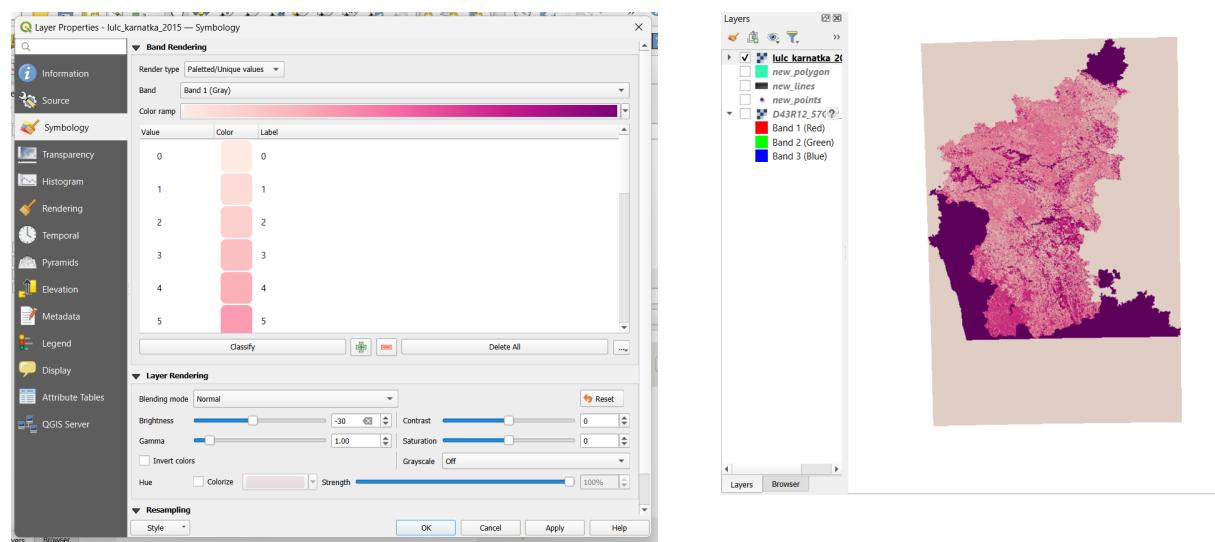
Reclassification

Unselect all previous layers or create a new project. Then, go to **Layer** and select **Add Raster Layer**. Choose the provided TIFF file to add it to the project.



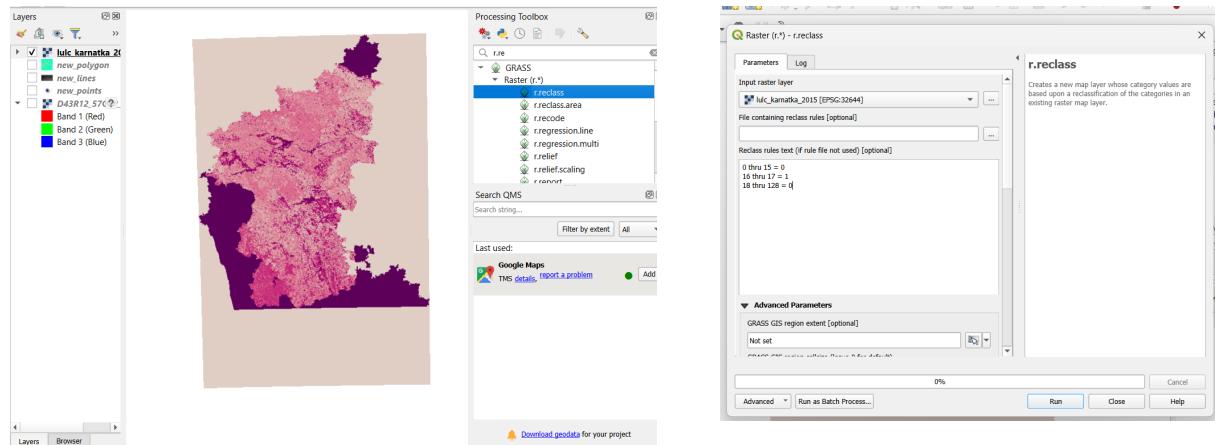


Next, go to the properties of this layer and select **Symbology**. Set the render type to **Paletted/Unique Values**. Choose a color ramp, then click **Classify**. After classifying the values, click **Apply** and then **OK** to save the changes.

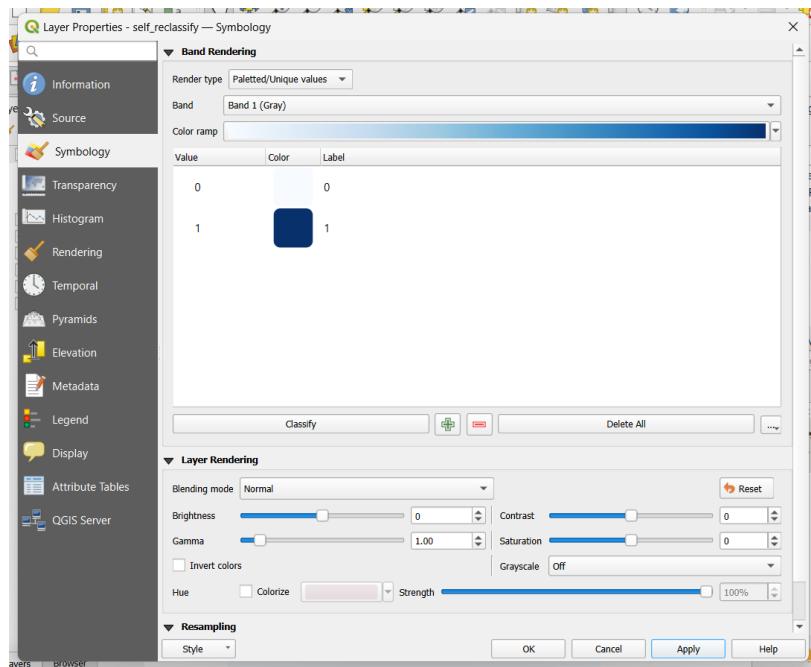


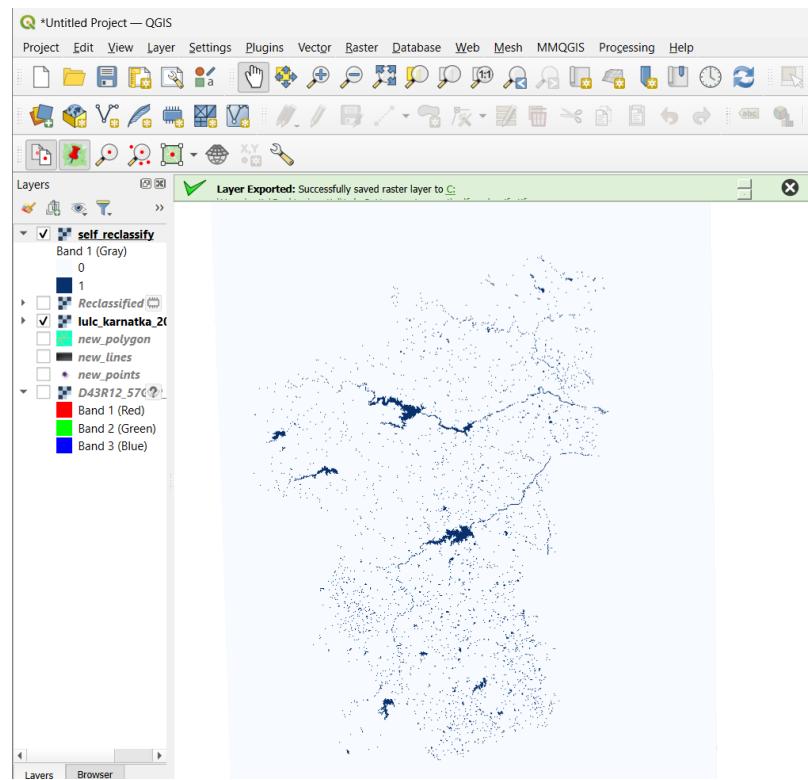
Go to the **Processing Toolbox** and search for **r.reclass** to perform reclassification. Refer to the provided reclassification rules table. For this task, we will reclassify the water bodies corresponding to numbers 16 and 17. Set the values from 0 to 15 as 0, values from 18 to 128 as 0, and values 16 to 17 as 1.

Once you've entered these parameters, run the algorithm to apply the reclassification.



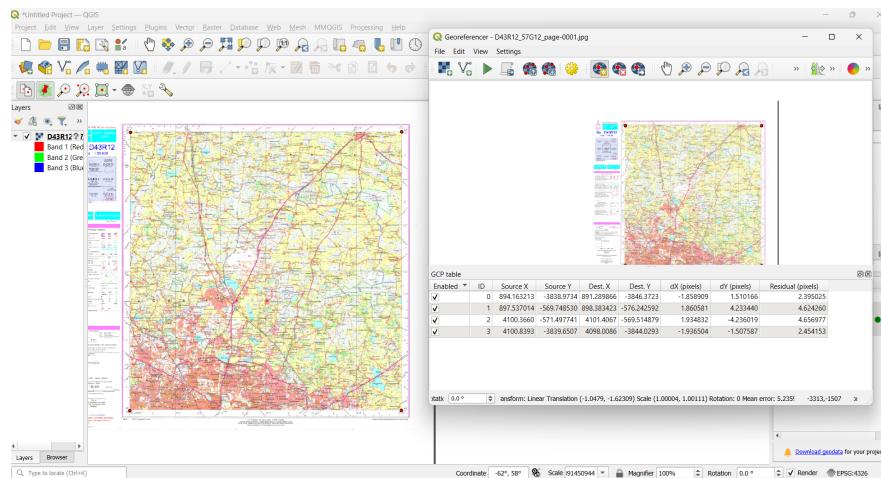
Save the new reclassified layer to make it permanent. Then, go to the properties of this layer, select **Symbology**, and set the render type to **Palettes/Unique Values**. Choose a color ramp, click **Classify**, then **Apply**, and finally **OK** to save the changes.



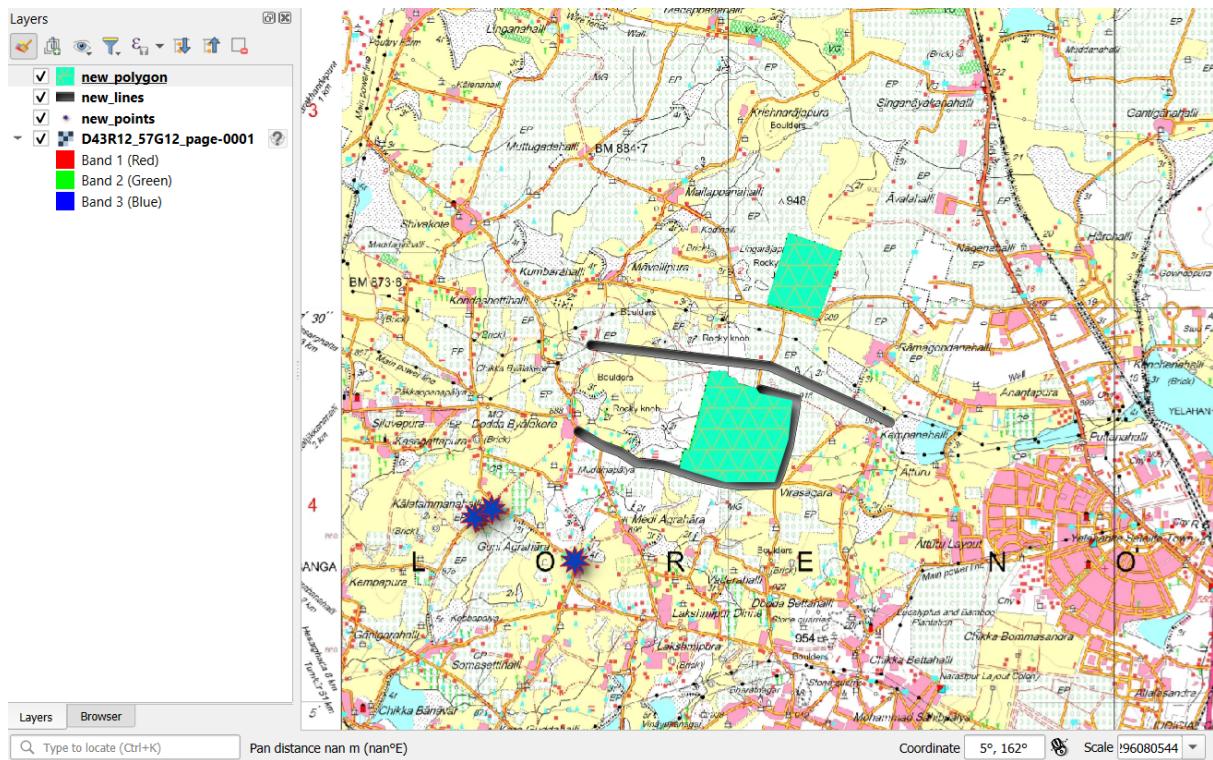


Final outputs

1. Georeferencing



2. Digitization



3. Reclassification of lulc

