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Introduction to QGIS

Presentation · October 2017

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Ashish Kr. Jangid

IUCN-SSC Bear Specialist Group

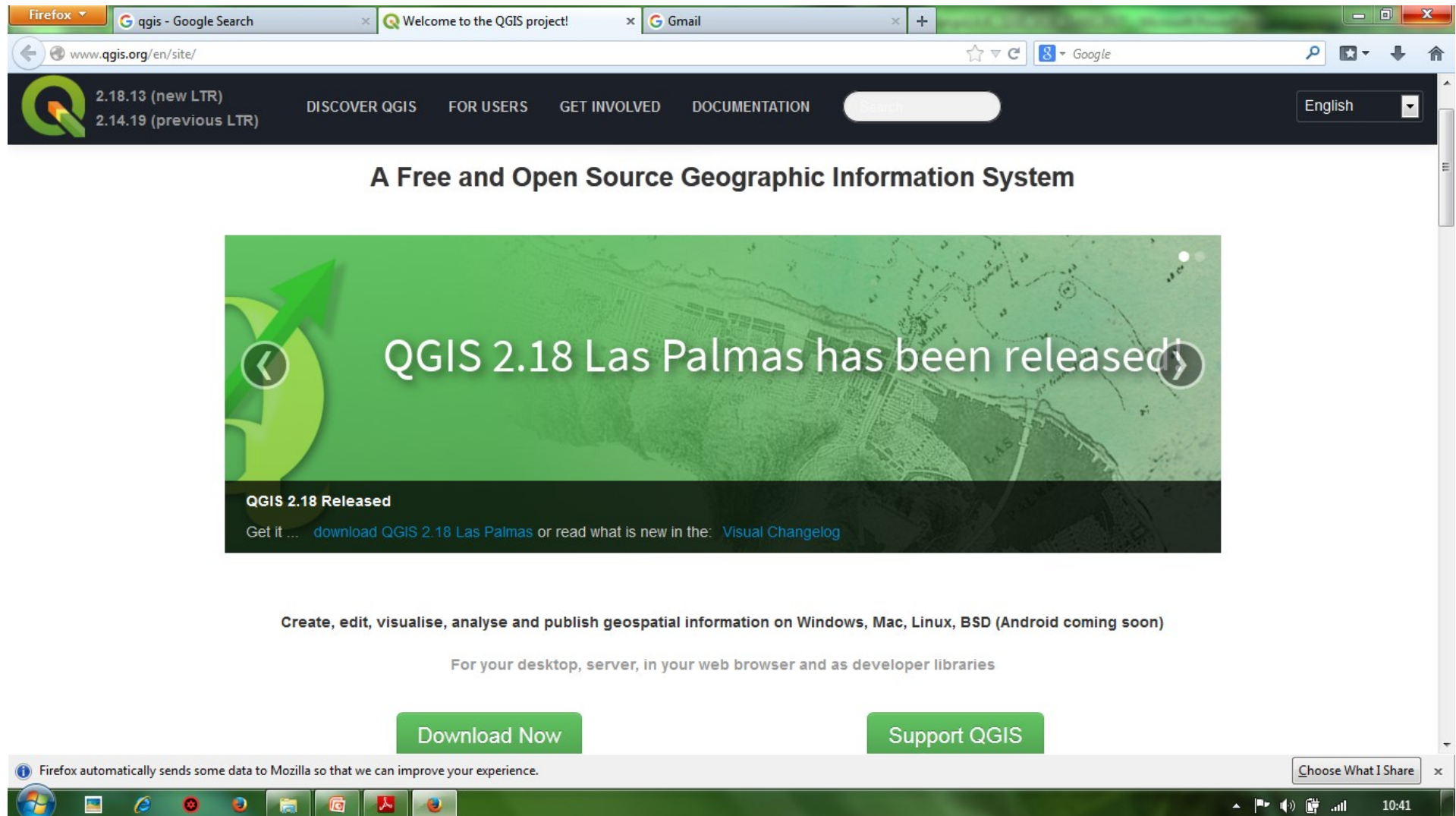
Date: October 11, 2017

At Department of Wildlife Science, University of Kota, Rajasthan

Outlines

- History and Introduction
- Installing Software
- Vector : Import & Styles
- Raster: Import and Styles
- Geo-referencing
- Working with Attributes (CSV Import)
- Raster Clipping
- Grid Designing
- Map Composing

Latest version QGIS 2.18 Las Palmas since October 21, 2016



The screenshot shows the QGIS website homepage in a Firefox browser window. The browser's address bar displays `www.qgis.org/en/site/`. The website's header features the QGIS logo, version information (2.18.13 (new LTR) and 2.14.19 (previous LTR)), and navigation links: DISCOVER QGIS, FOR USERS, GET INVOLVED, and DOCUMENTATION. A search bar and a language dropdown set to 'English' are also present.

The main content area has a green background with a map overlay. A large green arrow points upwards, and the text 'QGIS 2.18 Las Palmas has been released' is prominently displayed. Below this, a section titled 'QGIS 2.18 Released' provides links to 'download QGIS 2.18 Las Palmas' and 'Visual Changelog'.

Below the main banner, the text reads: 'Create, edit, visualise, analyse and publish geospatial information on Windows, Mac, Linux, BSD (Android coming soon)'. Further down, it states: 'For your desktop, server, in your web browser and as developer libraries'.

At the bottom of the main content area, there are two green buttons: 'Download Now' and 'Support QGIS'.

The browser's status bar at the bottom shows a notification: 'Firefox automatically sends some data to Mozilla so that we can improve your experience.' and a system clock indicating 10:41.

History

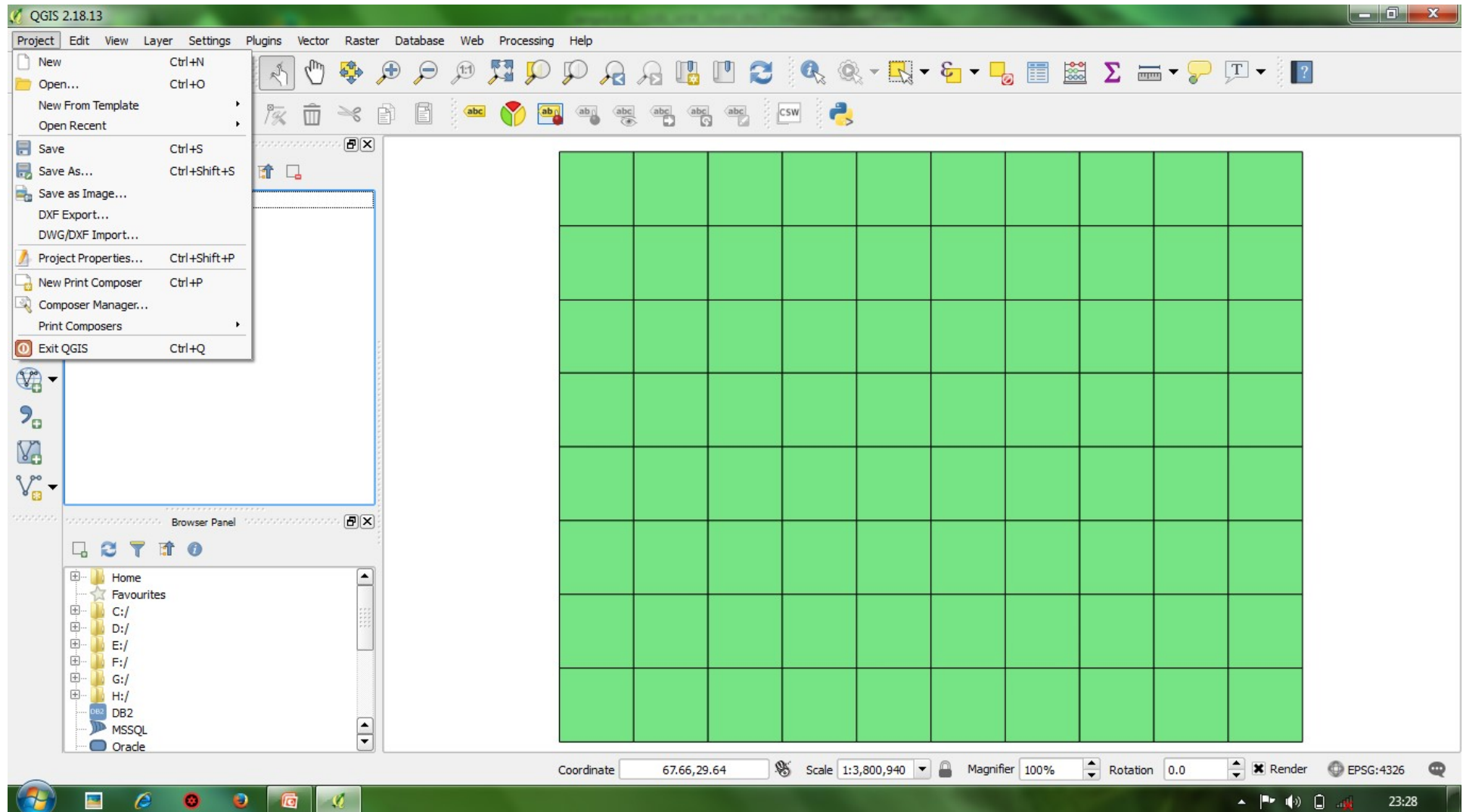
- Developer: QGIS Developer Team
- Project Initiation: July 2002 by Gary Sherman
- Known as Quantum GIS till 2012
- Open Source Software
- Written in C++ and Python language mostly
- Works with IOS, Windows, Linux and Android

- Helps in analyzing spatial data as well as map exporting
- Compatibly works on Vector and Raster
- Vector: Point, Line and Polygon
- Raster: Satellite Images
- Don't use Google earth or map images for publication purpose, to avoid legal actions, because these are not open source images.

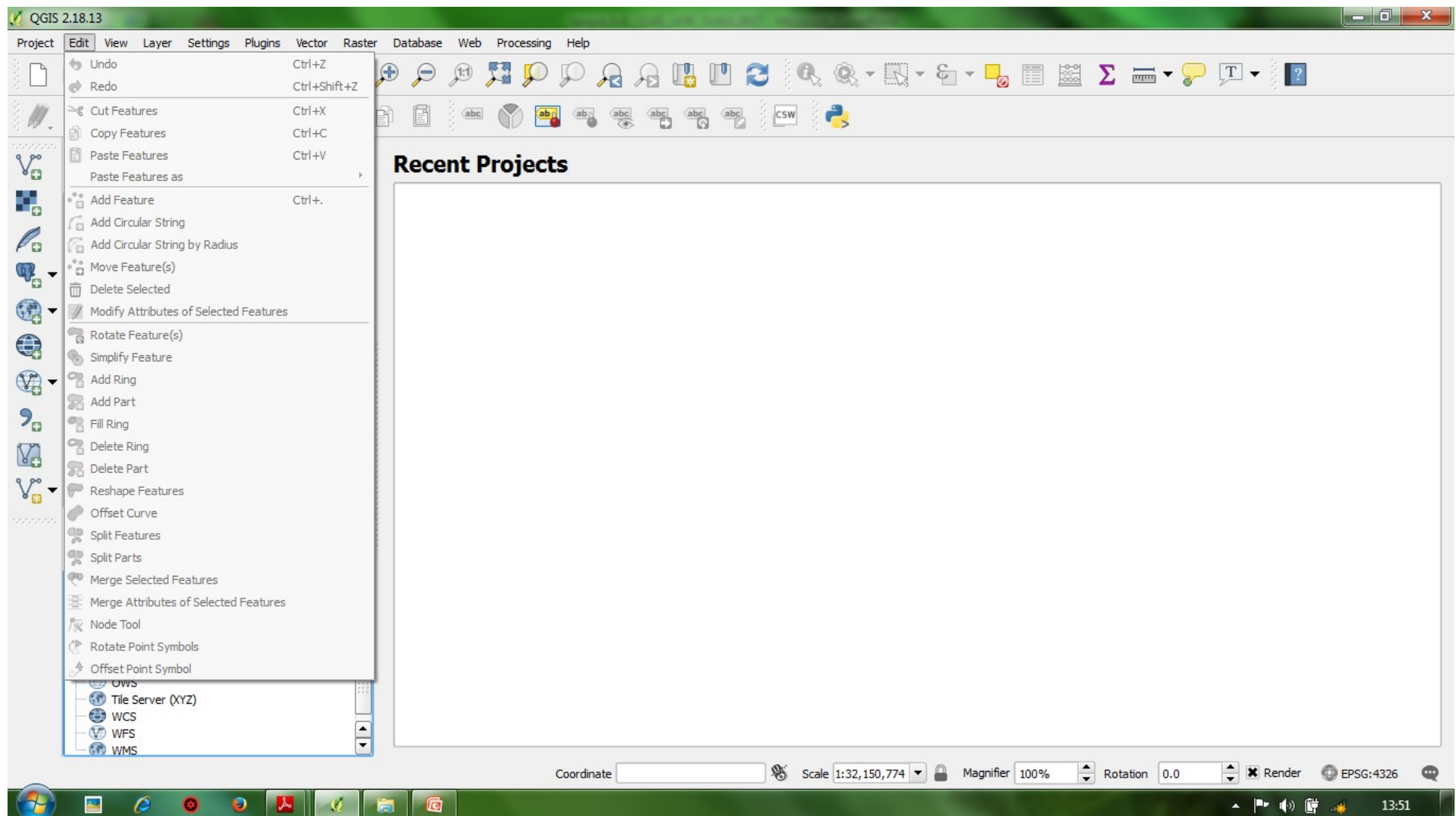
QGIS, after Installation, looks like this



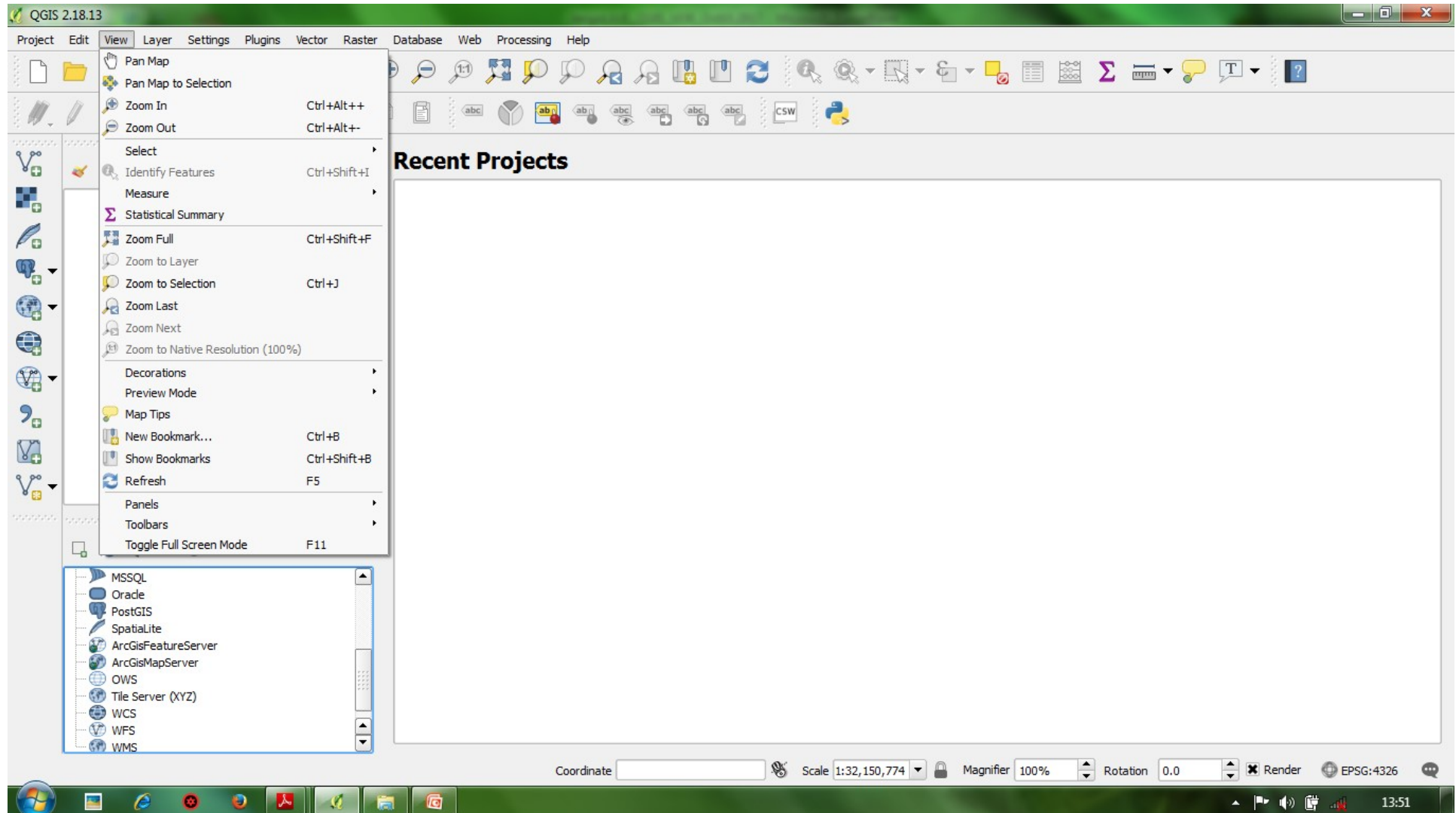
Menu bar: 1. “Project”



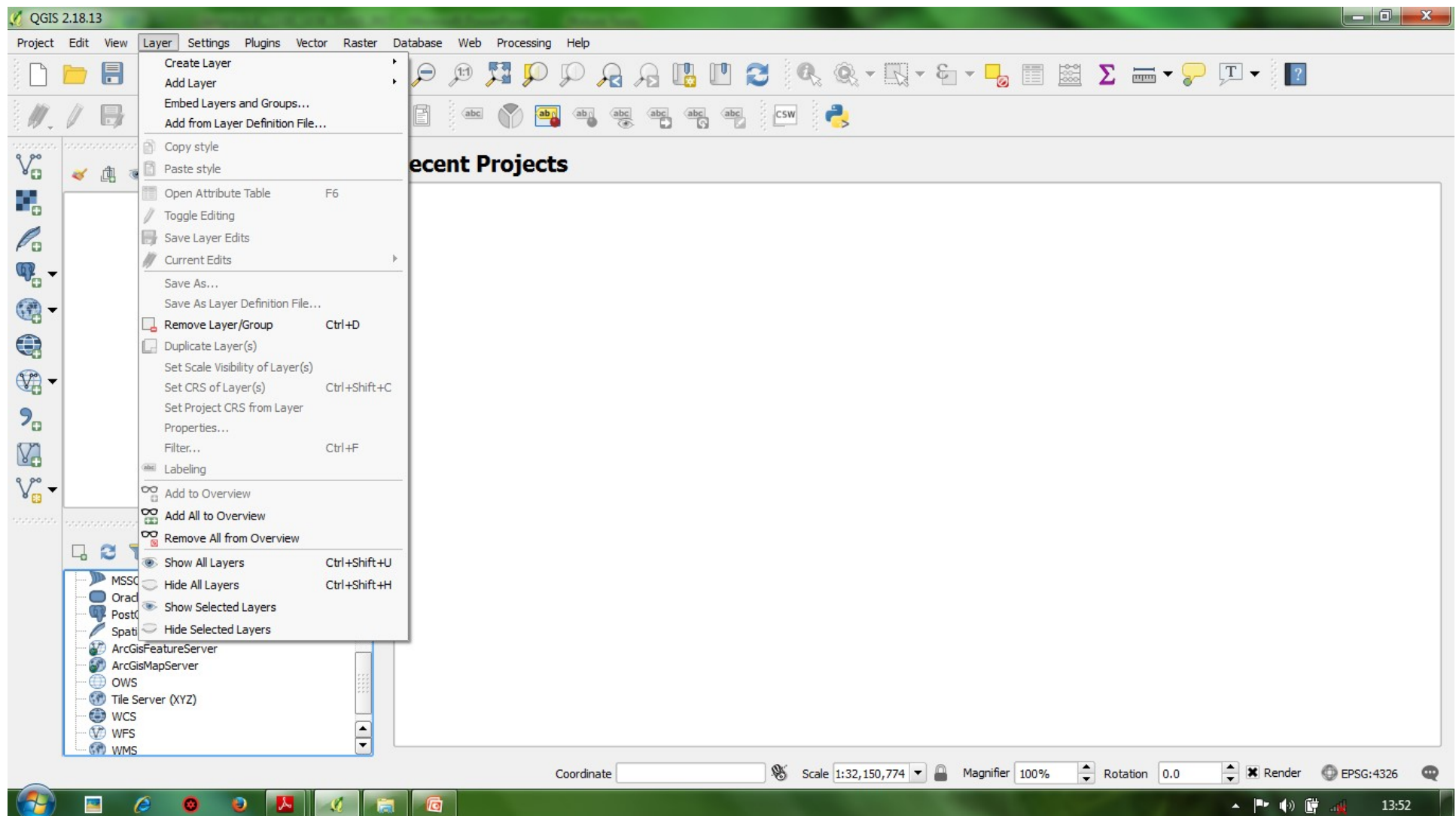
2. “Edit”



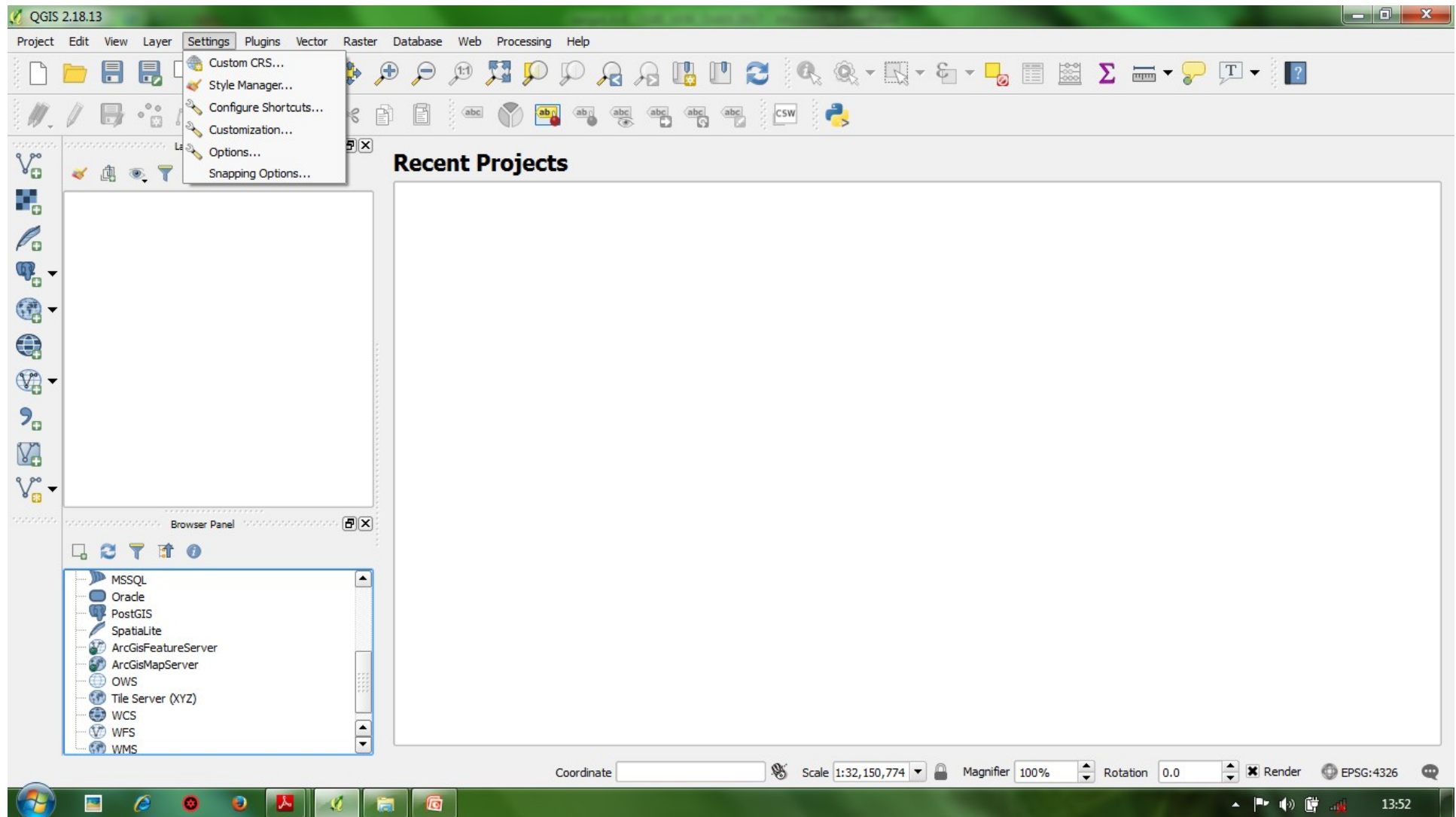
3. “View”



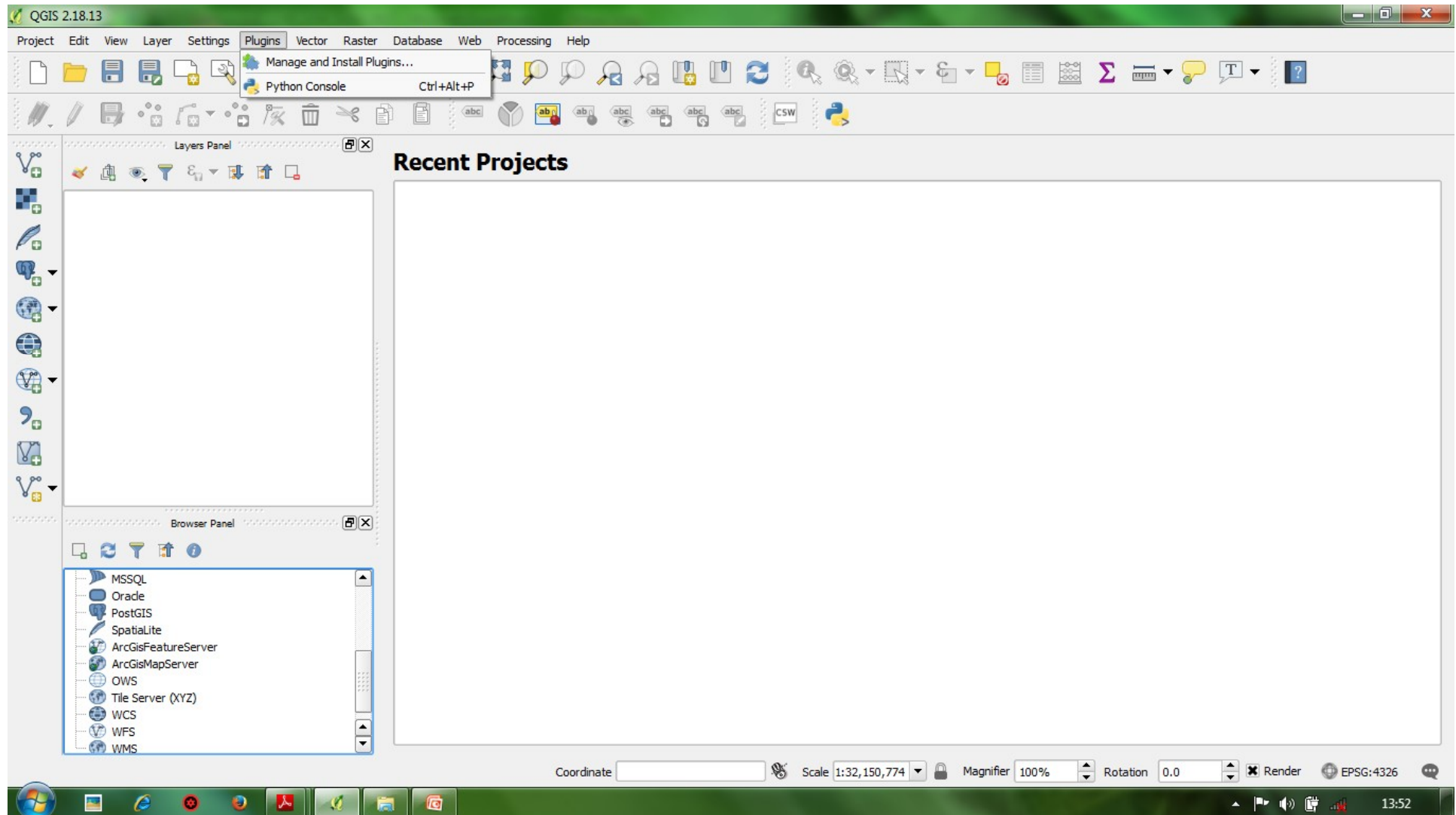
4. “Layer”



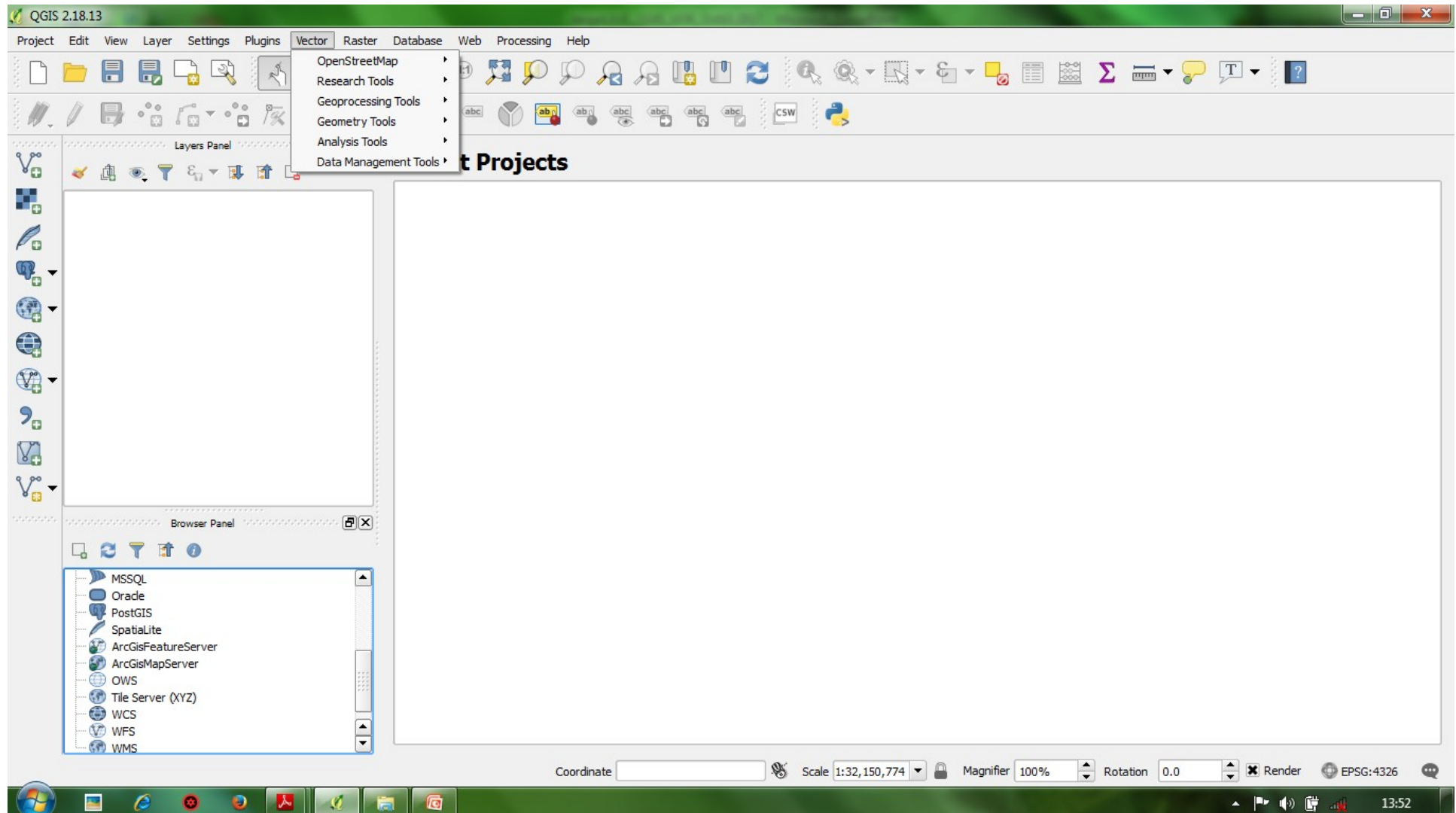
5. “Settings”



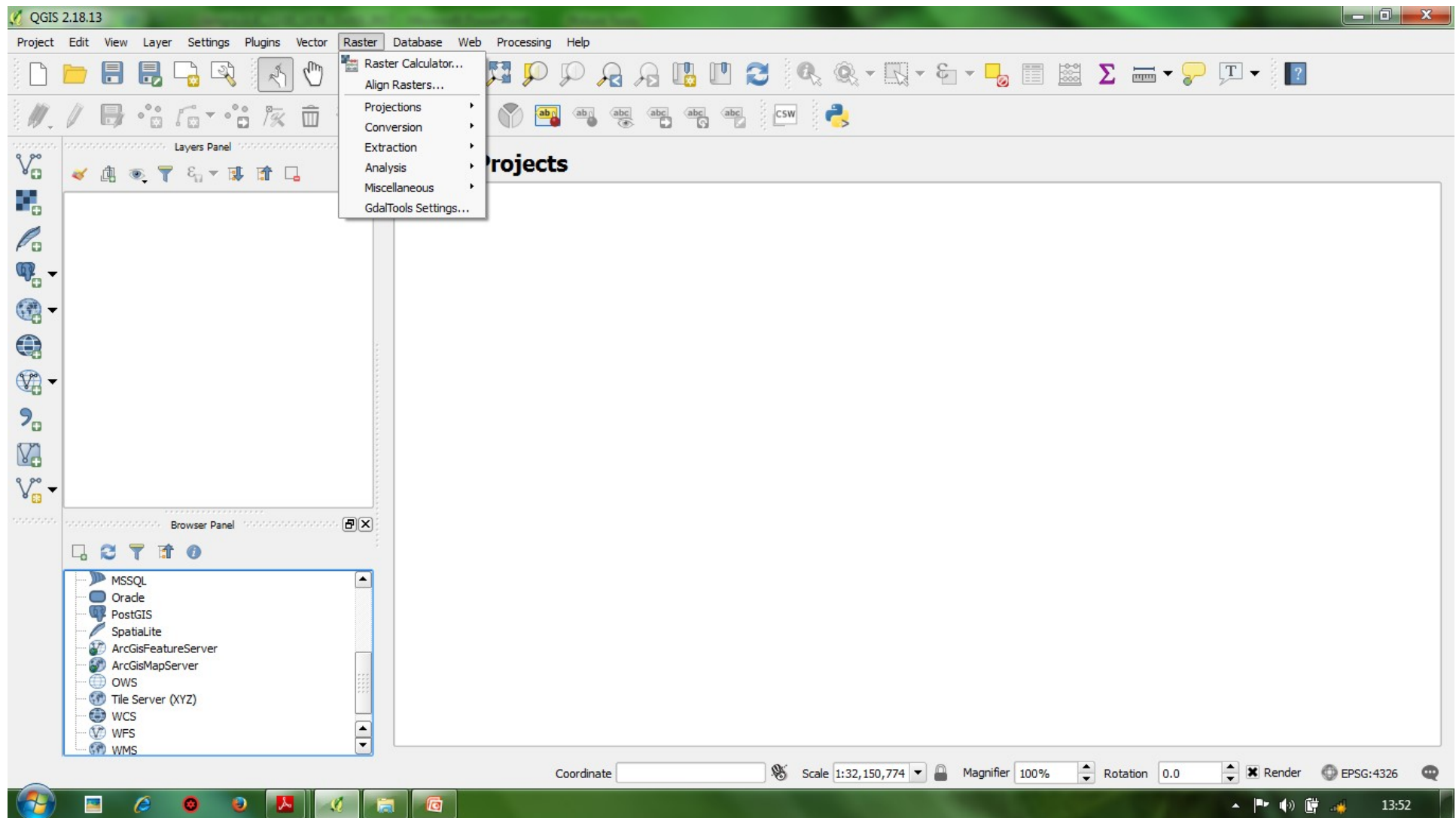
6. “Plug-ins”



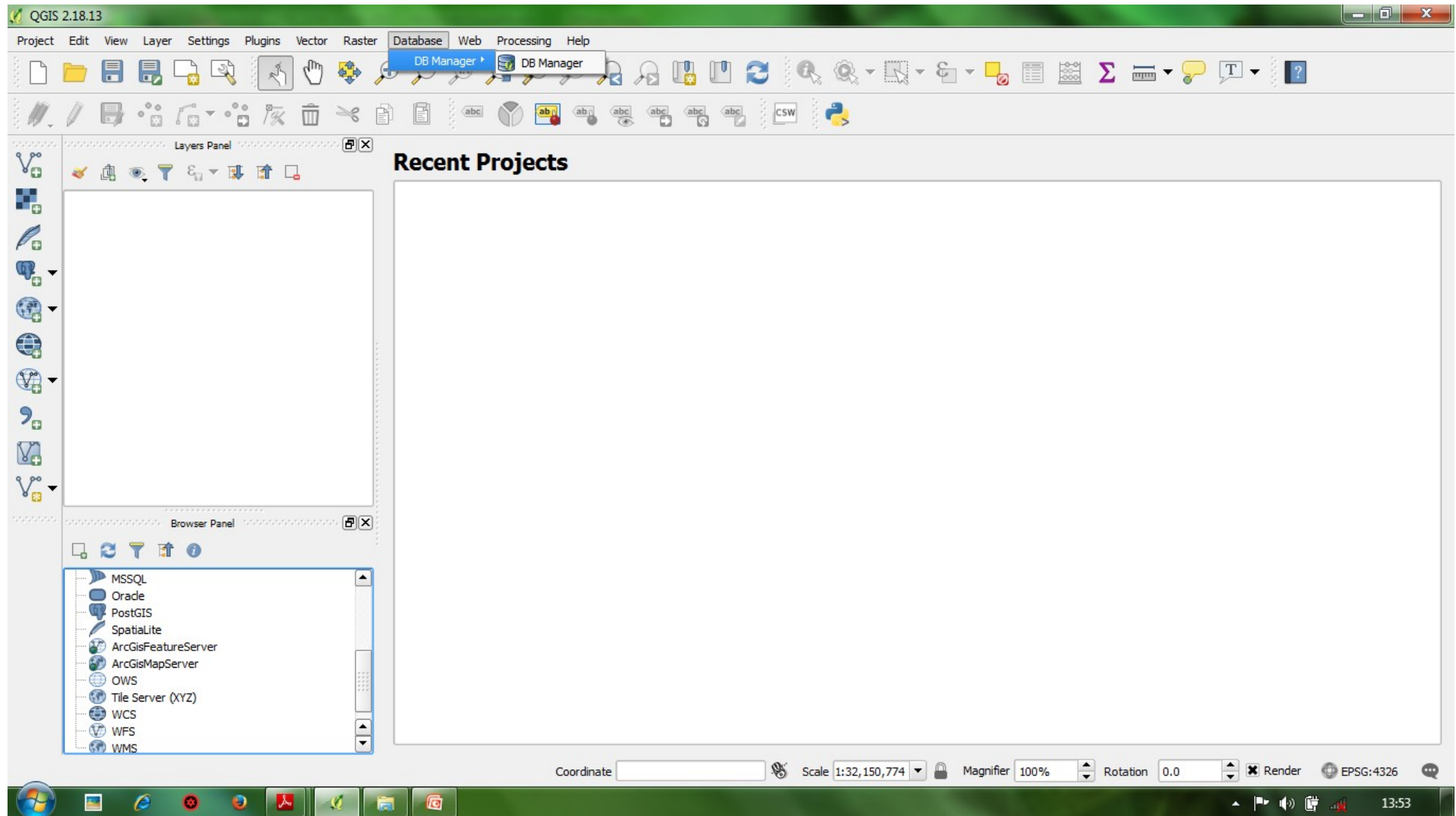
7. “Vector”



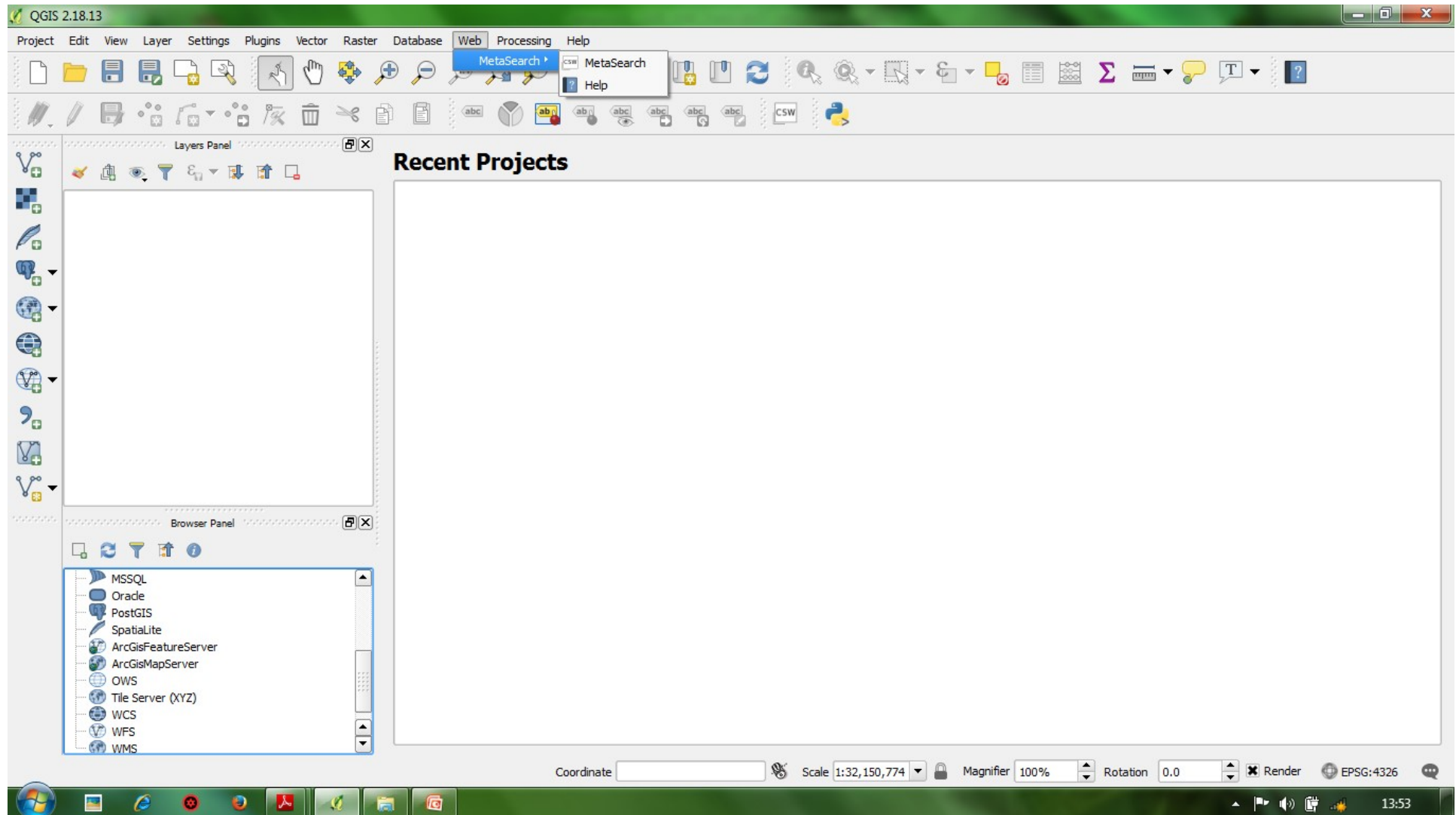
8. “Raster”



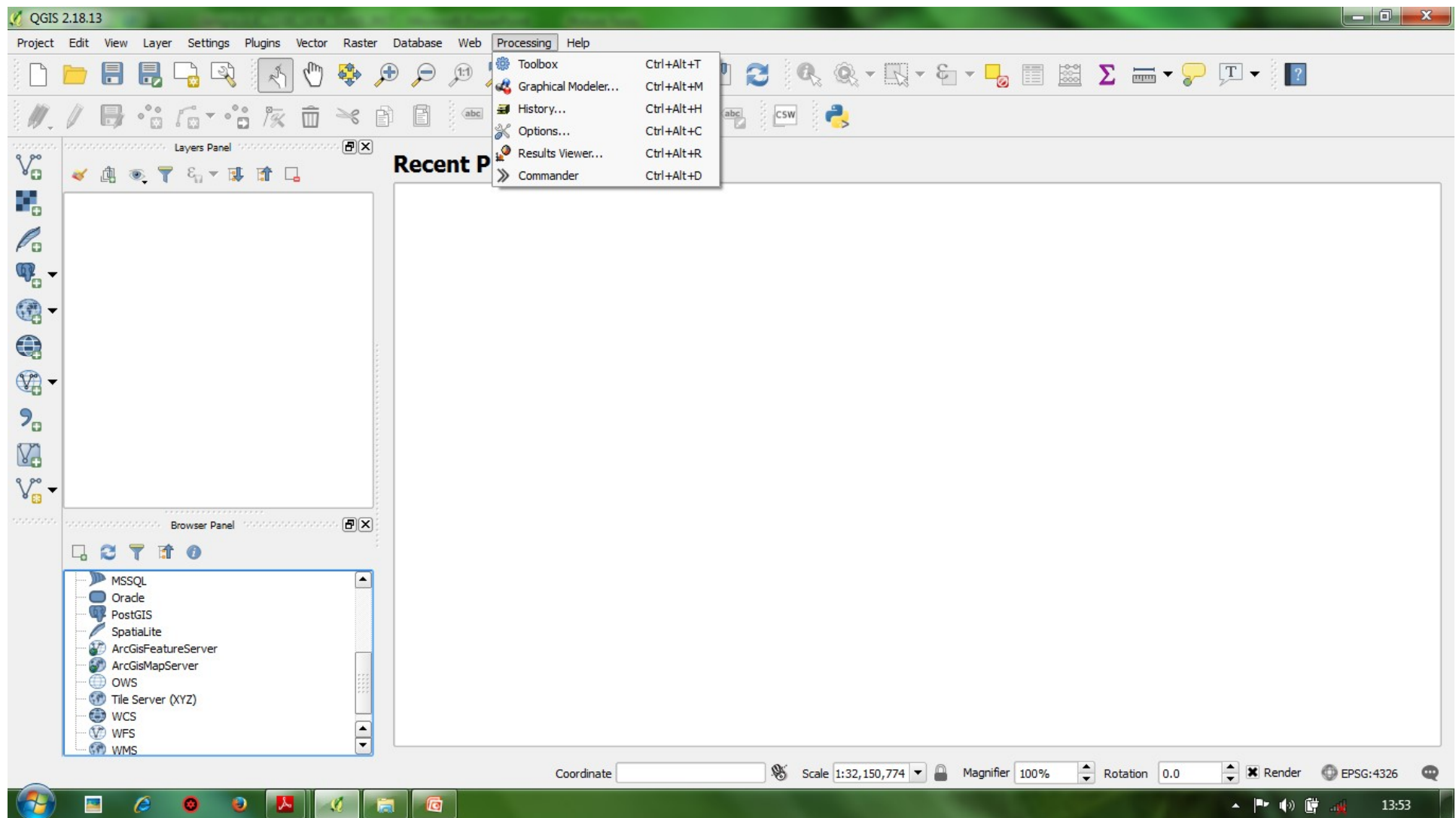
9. “Database”



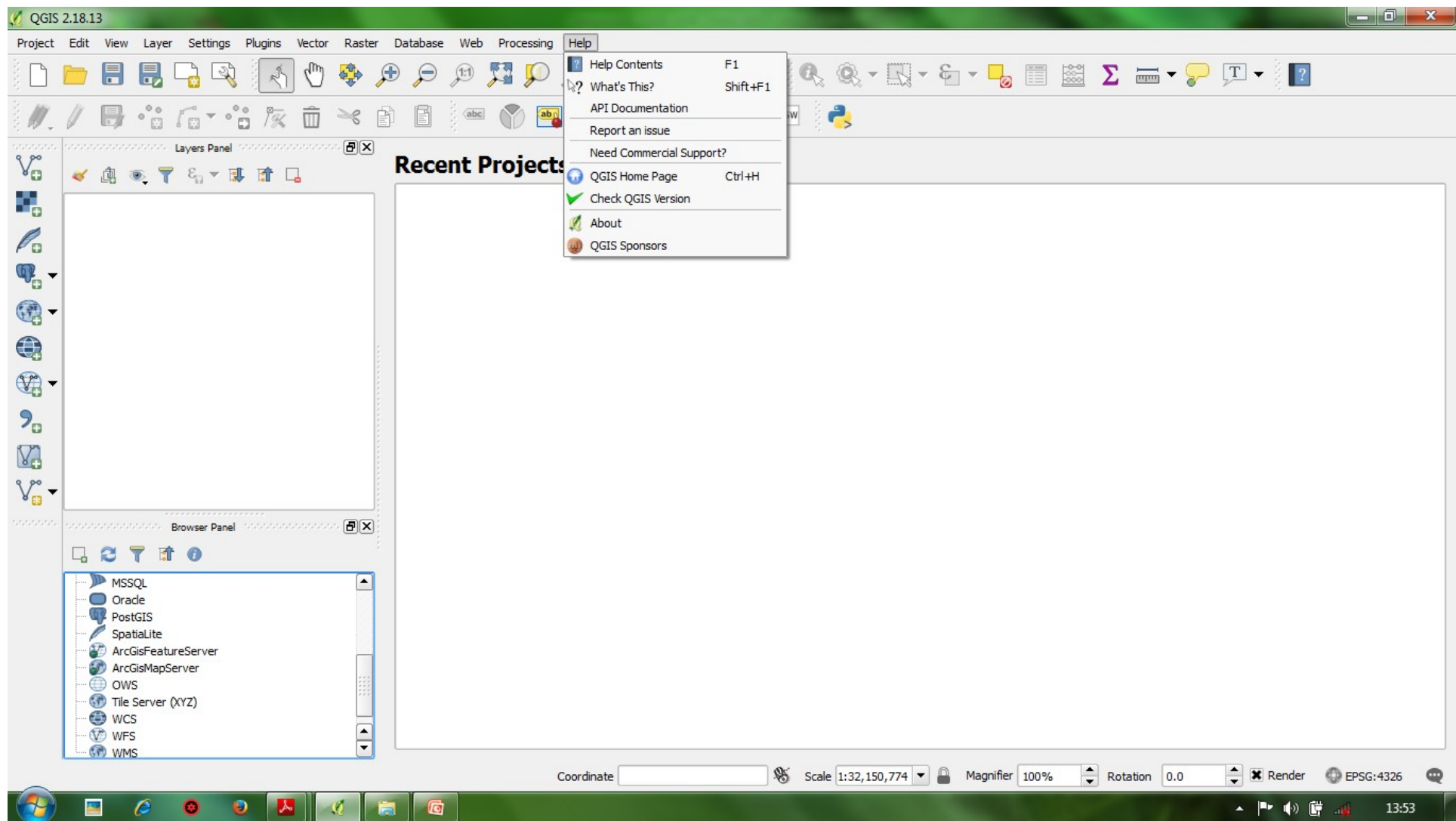
10. “Web”



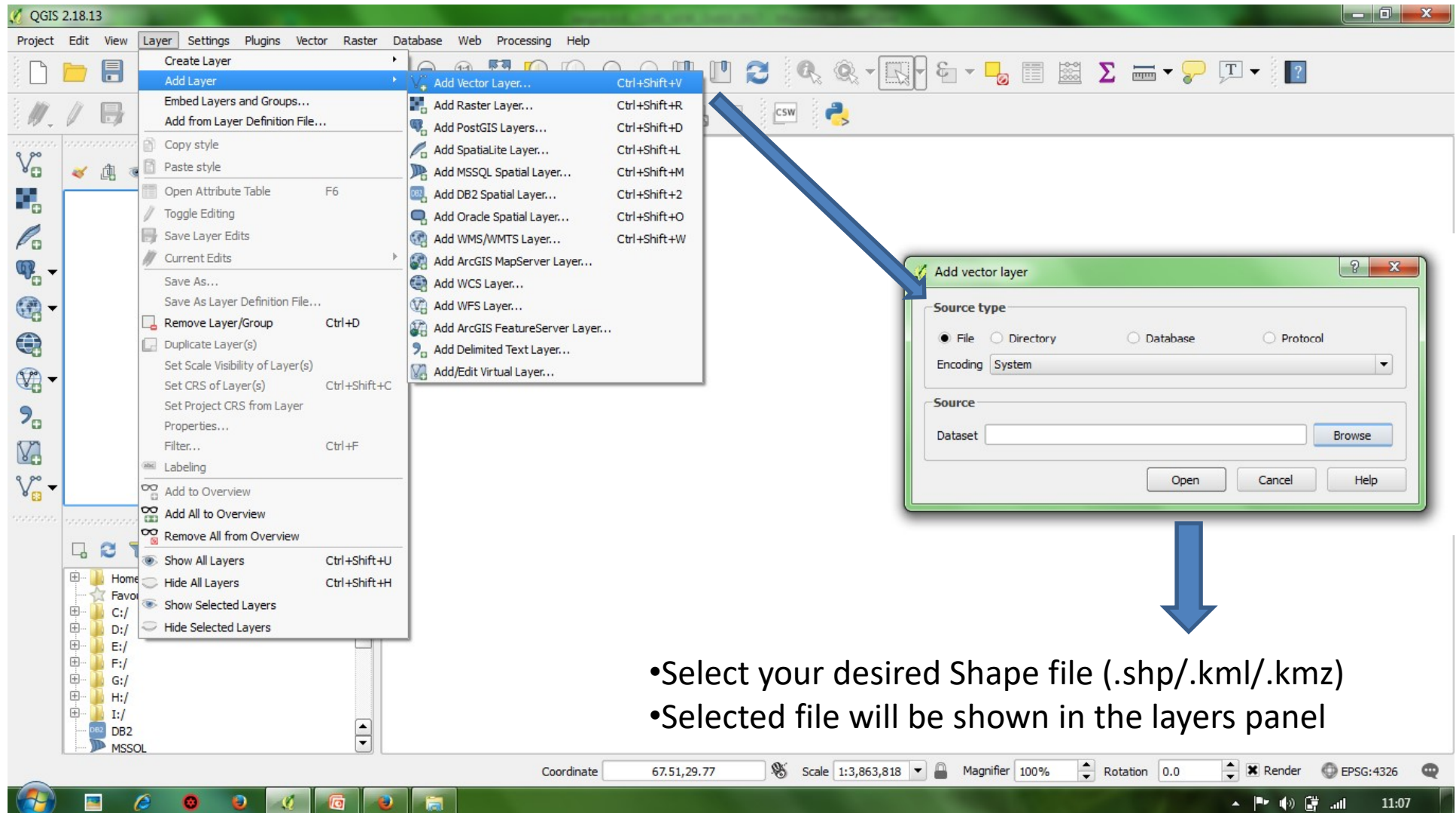
11. “Processing”



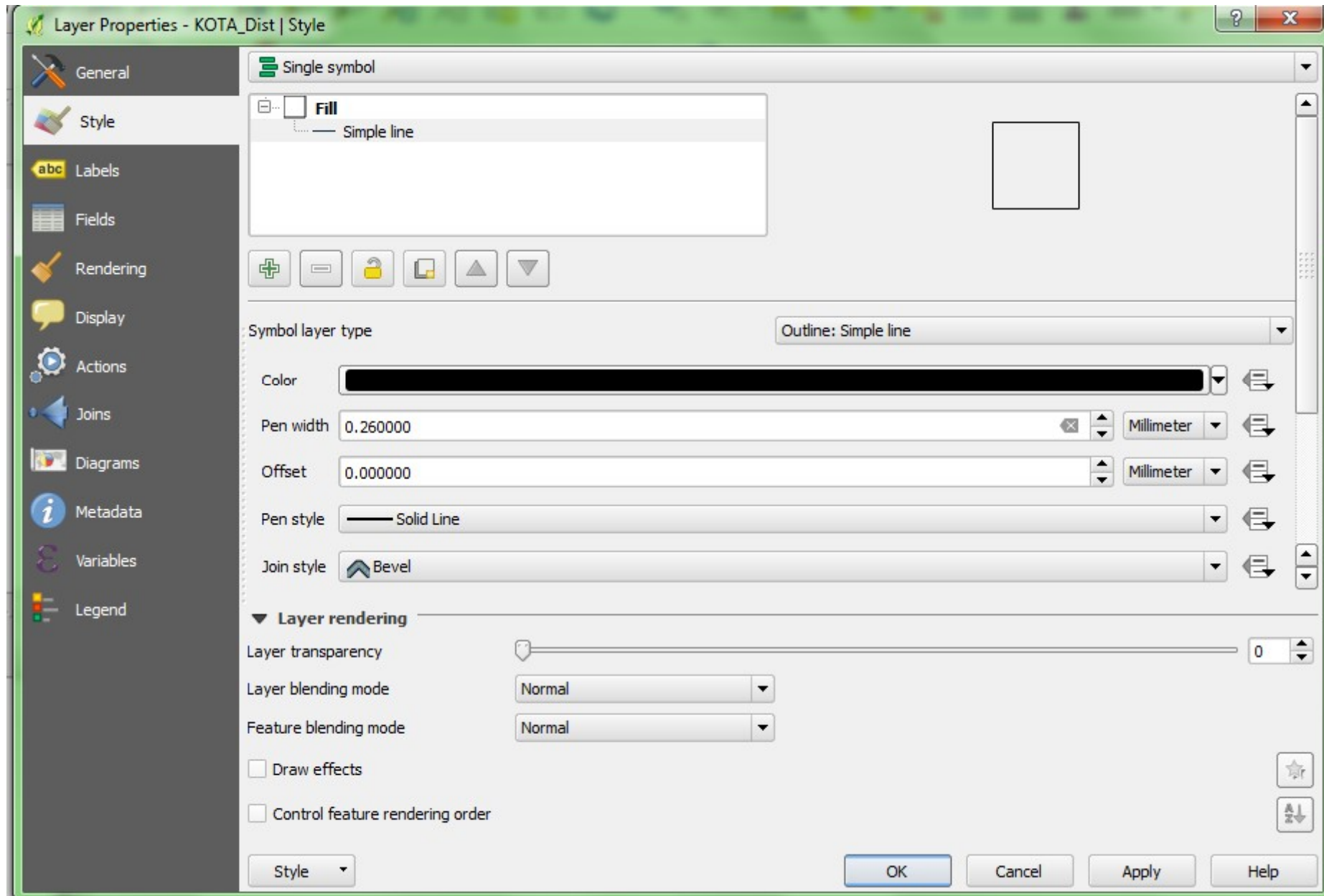
12. “Help”



Importing Vector



Vector games



Importing Raster

The screenshot shows the QGIS 2.18.13 interface. The 'Layer' menu is open, and 'Add Raster Layer...' is selected. The 'Coordinate Reference System Selector' dialog box is also open, showing the 'Coordinate reference systems of the world' list with 'WGS 84' selected. The status bar at the bottom indicates the CRS is EPSG:4326.

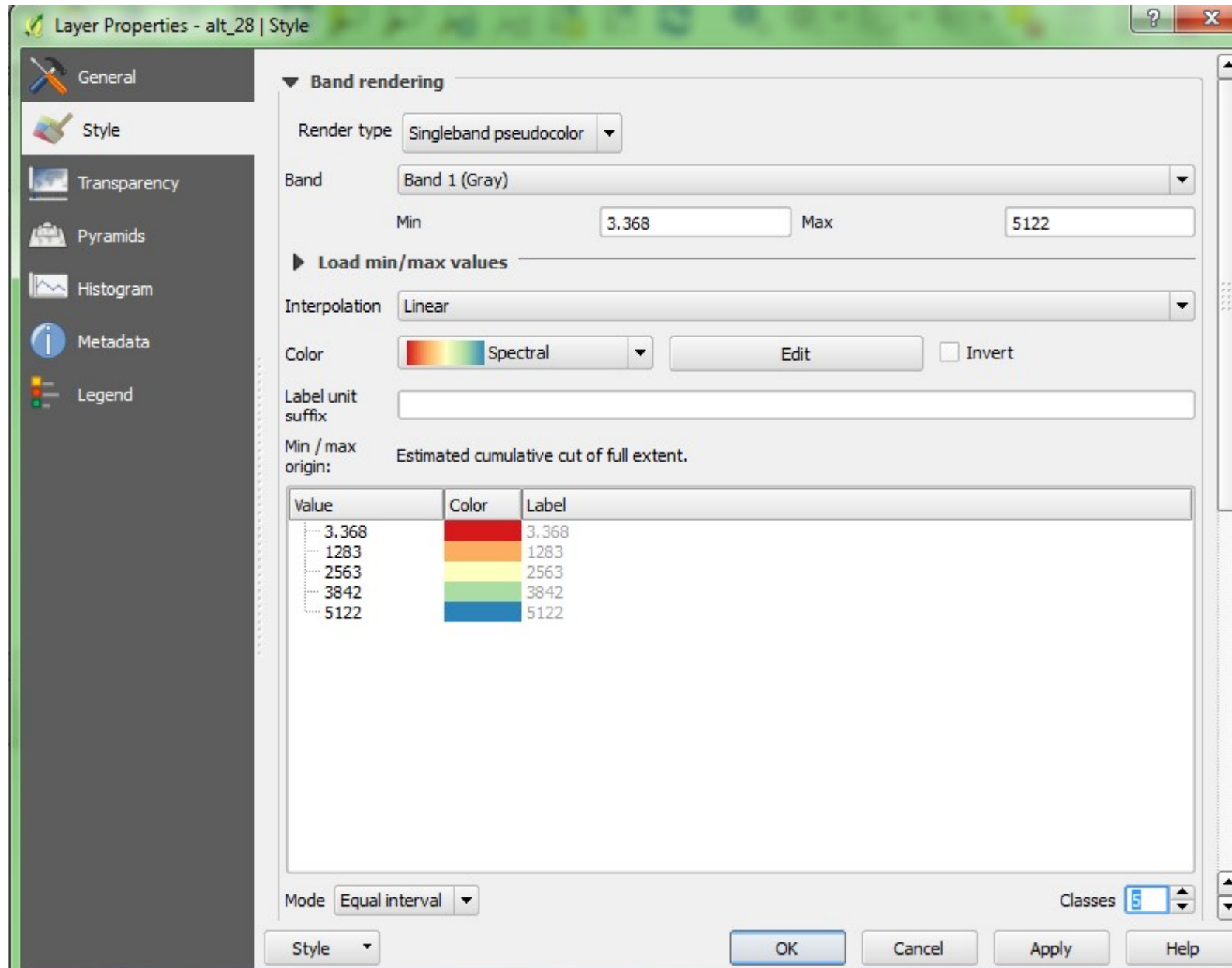
•Select Raster file from your PC (.img)

•Coordinate Reference System Selector should be WGS84: EPSG 4326

Coordinate Reference System	Authority ID
Voirol 1879 (Paris)	EPSG:4821
WGS 66	EPSG:4760
WGS 72	EPSG:4322
WGS 72BE	EPSG:4324
WGS 84	EPSG:4326
WGS72	IGNF:WGS72G

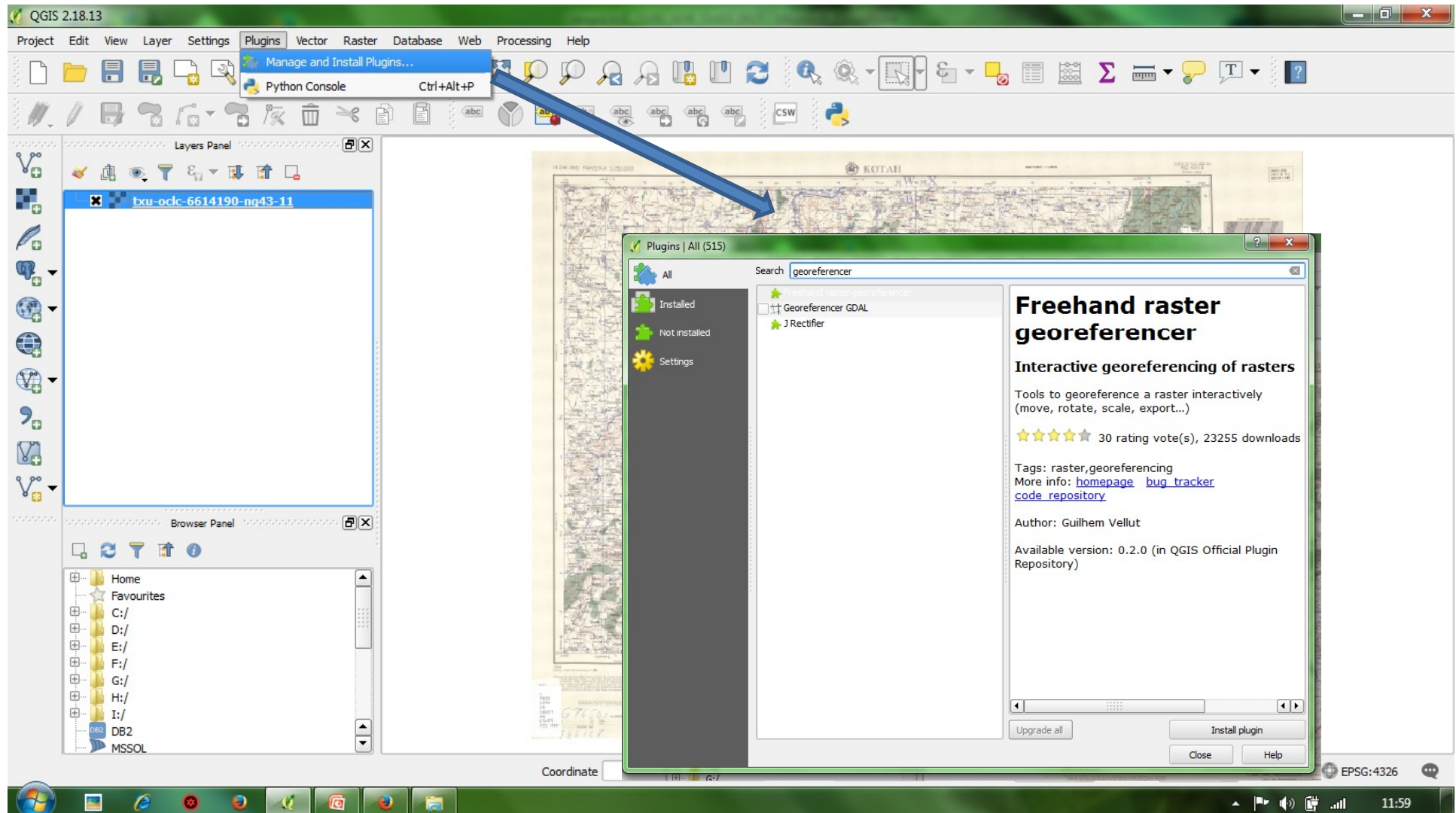
Selected CRS: WGS 84
+proj=longlat +datum=WGS84 +no_defs

Raster games

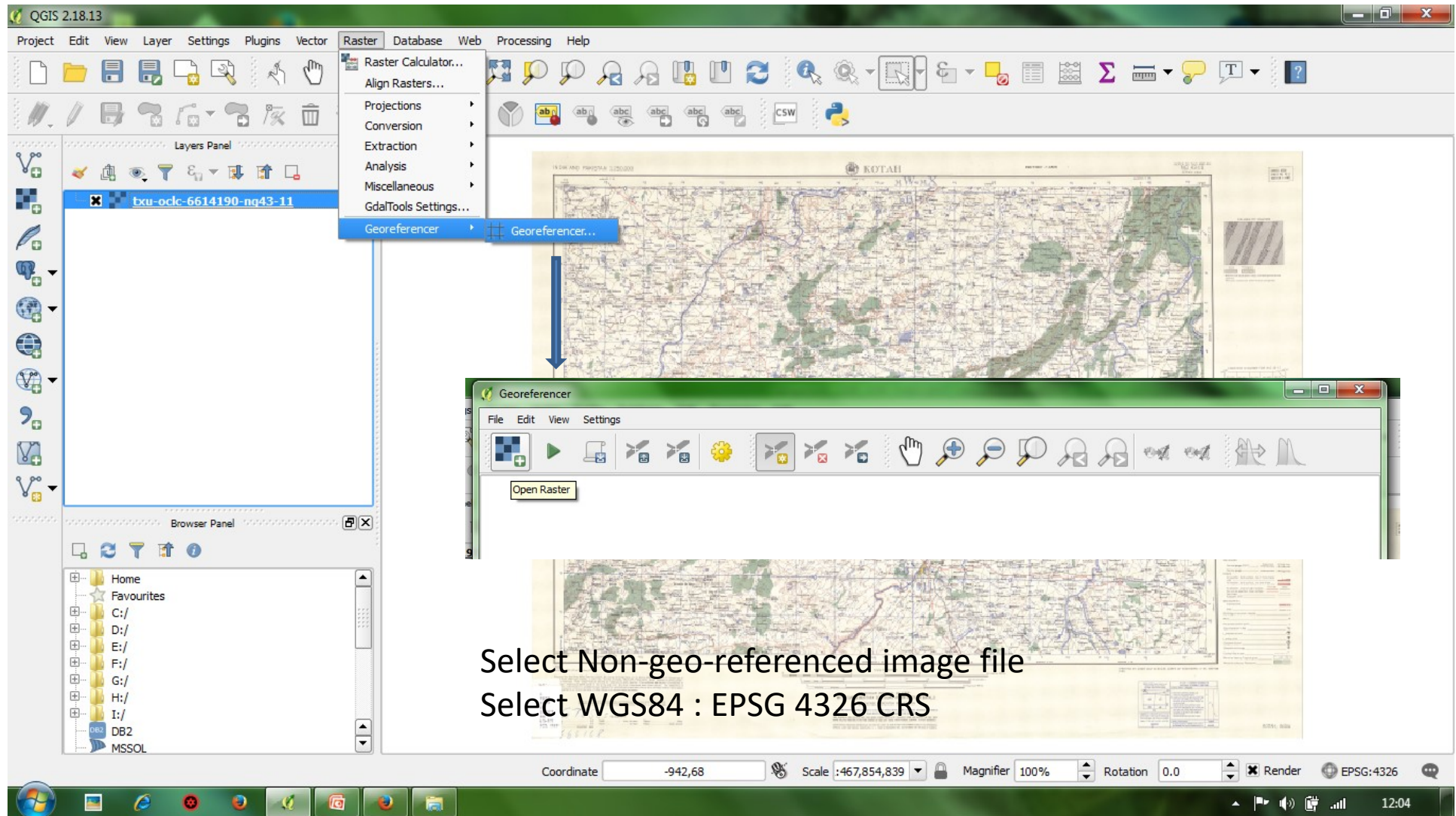


Geo-referencing

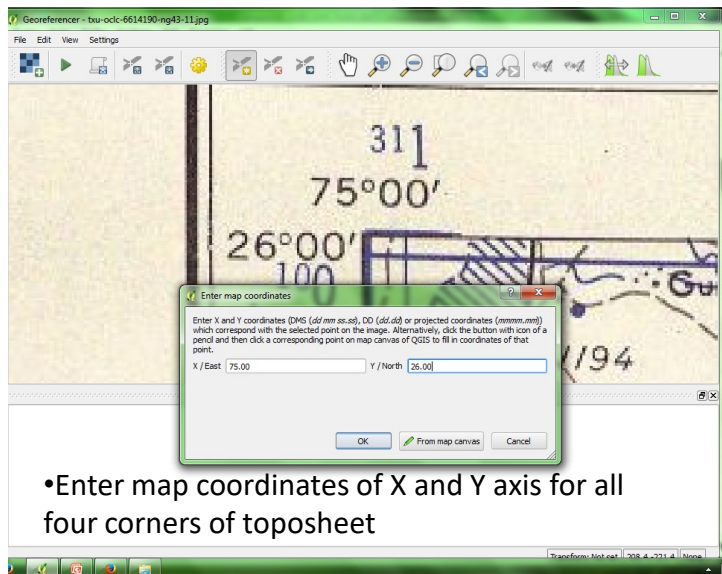
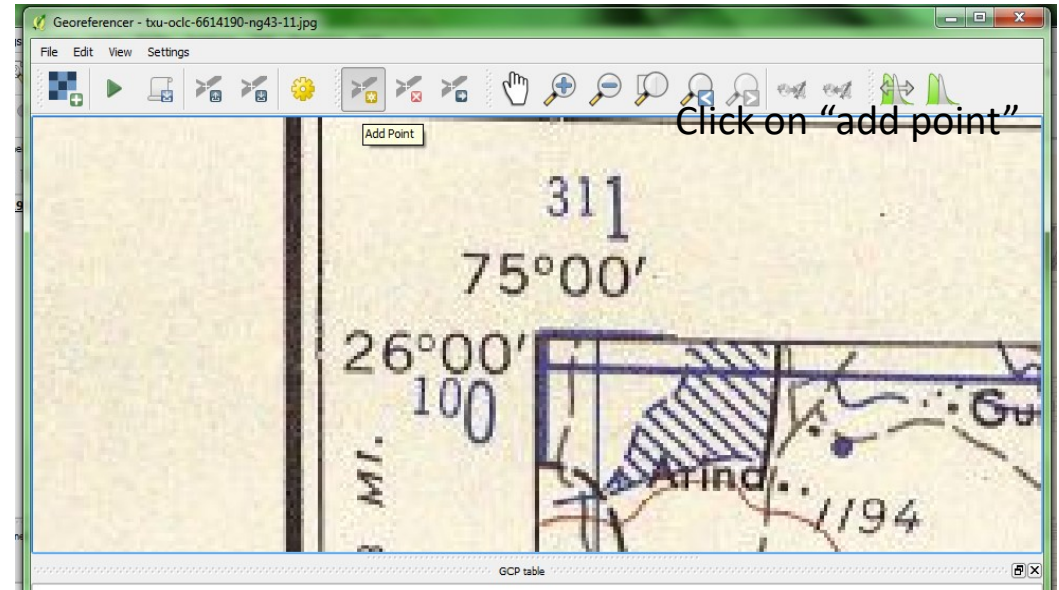
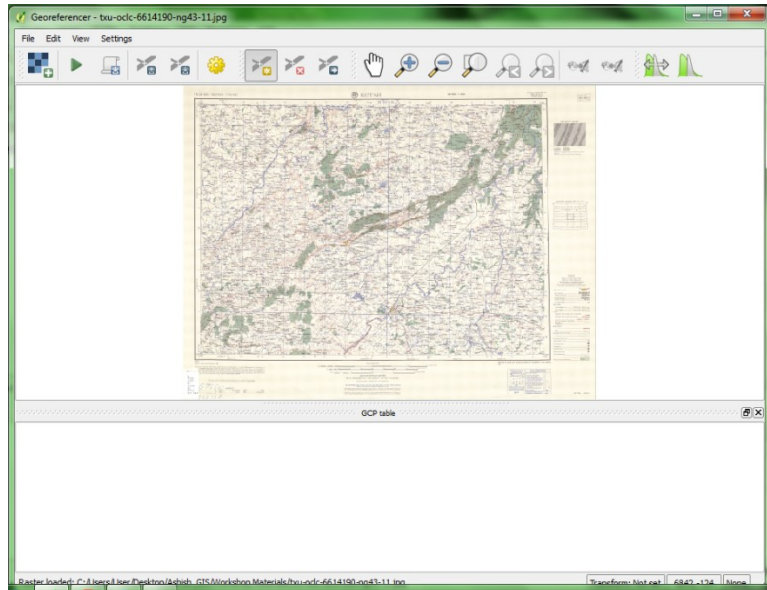
(to provide referenced geo-coordinates)



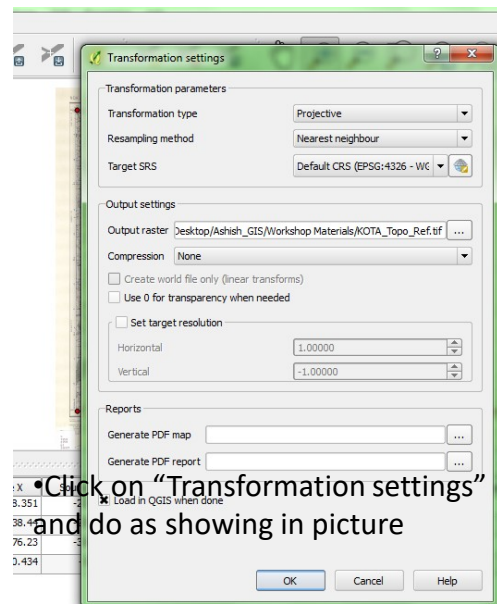
Geo-referencing



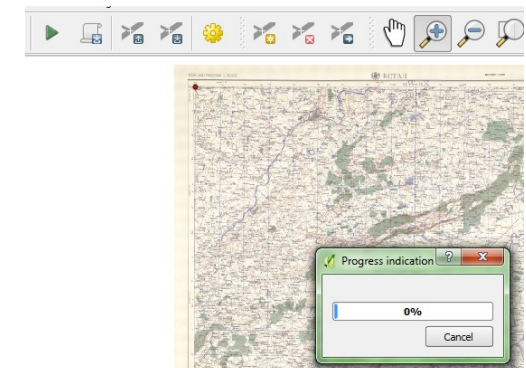
Geo-referencing



- Enter map coordinates of X and Y axis for all four corners of toposheet

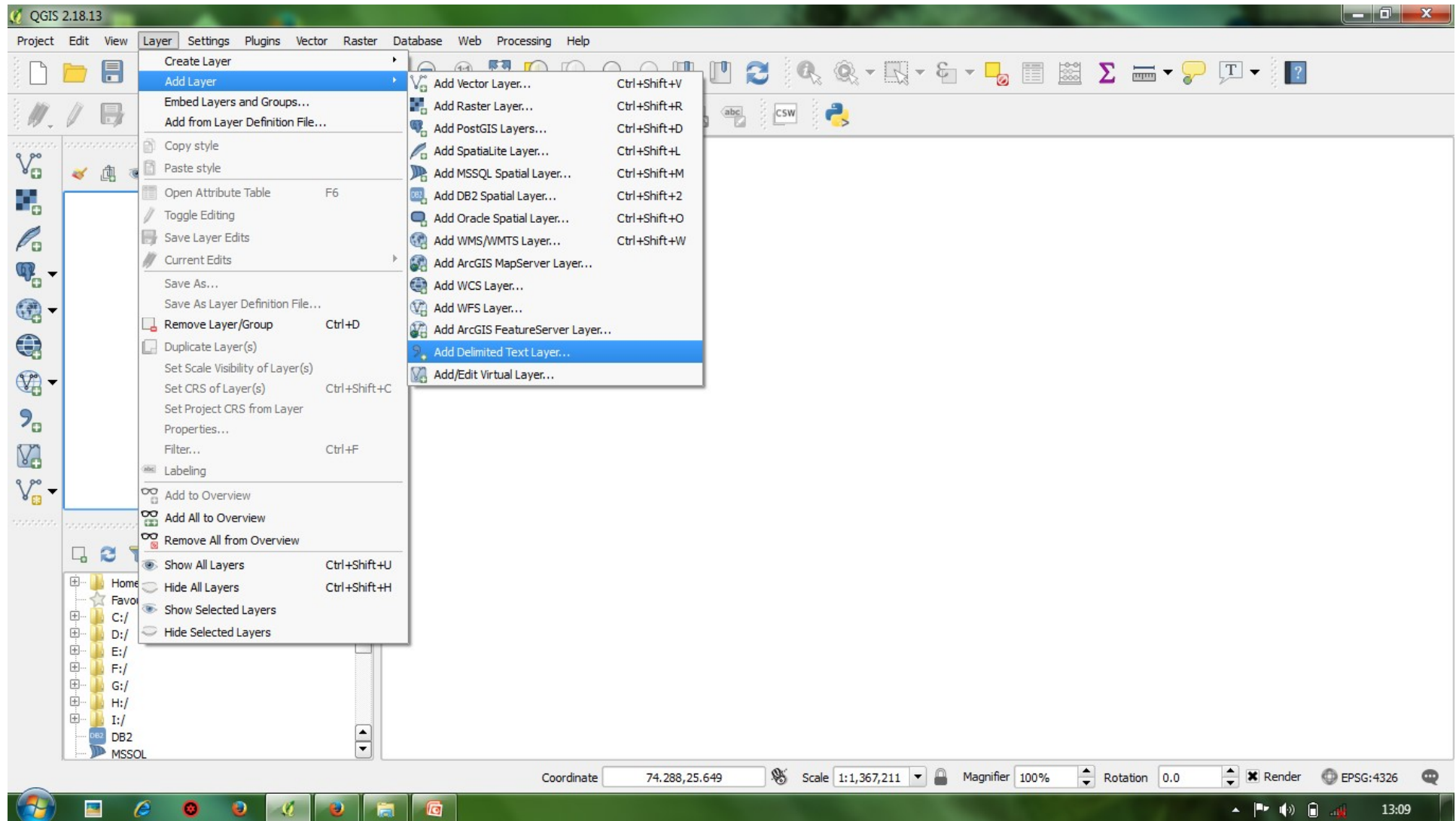


- Click on "Transformation settings" and do as showing in picture

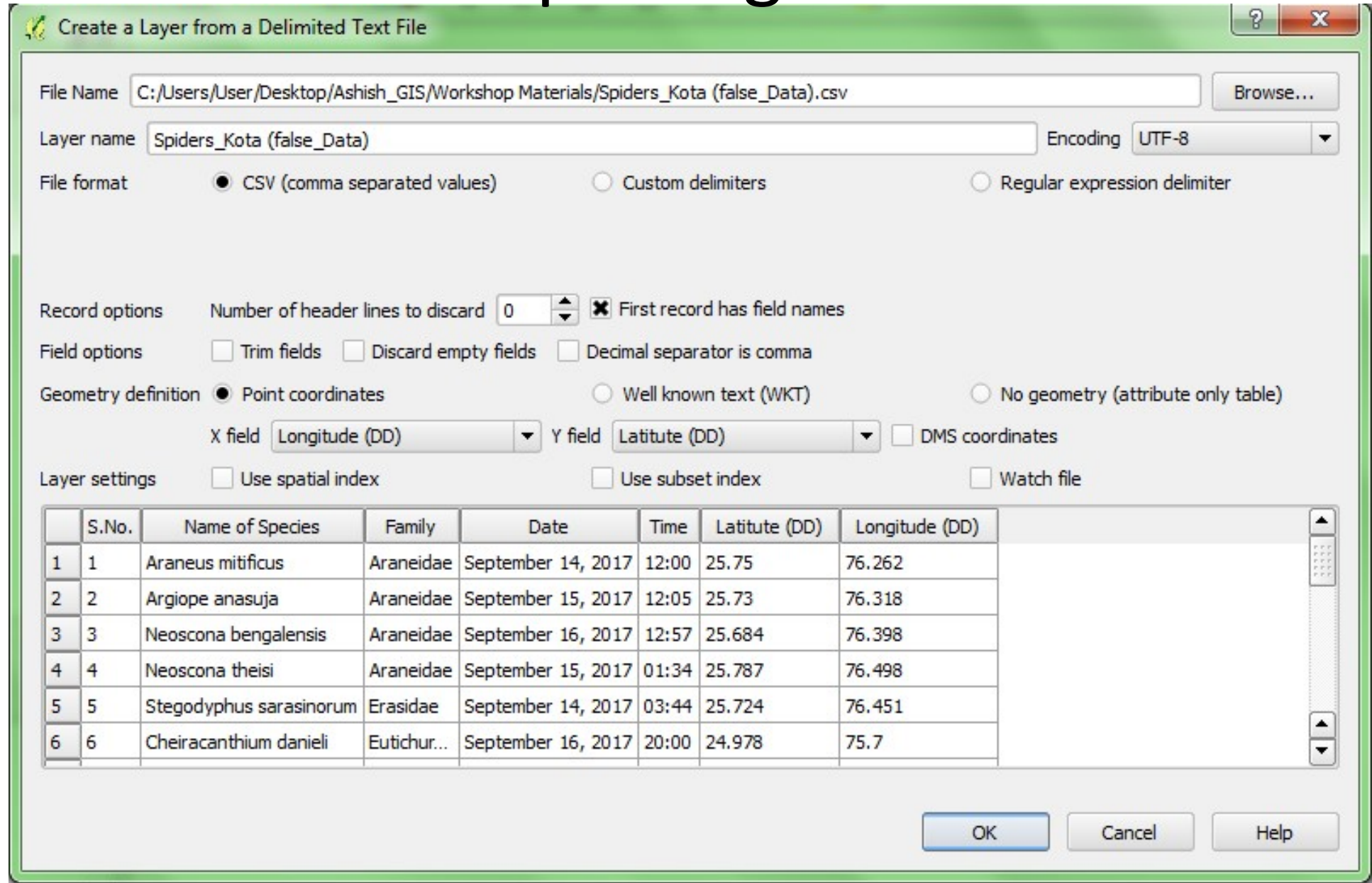


- After pressing "OK", Press "Start Georeferencing".
- After finishing, the geo-referenced toposheet will be shown on QGIS main window

Working with Attributes (Importing CSV)



Importing CSV



Create a Layer from a Delimited Text File

File Name: C:/Users/User/Desktop/Ashish_GIS/Workshop Materials/Spiders_Kota (false_Data).csv Browse...

Layer name: Spiders_Kota (false_Data) Encoding: UTF-8

File format: ☒ CSV (comma separated values) ☐ Custom delimiters ☐ Regular expression delimiter

Record options: Number of header lines to discard: 0 ☒ First record has field names

Field options: ☐ Trim fields ☐ Discard empty fields ☐ Decimal separator is comma

Geometry definition: ☒ Point coordinates ☐ Well known text (WKT) ☐ No geometry (attribute only table)

X field: Longitude (DD) Y field: Latitude (DD) ☐ DMS coordinates

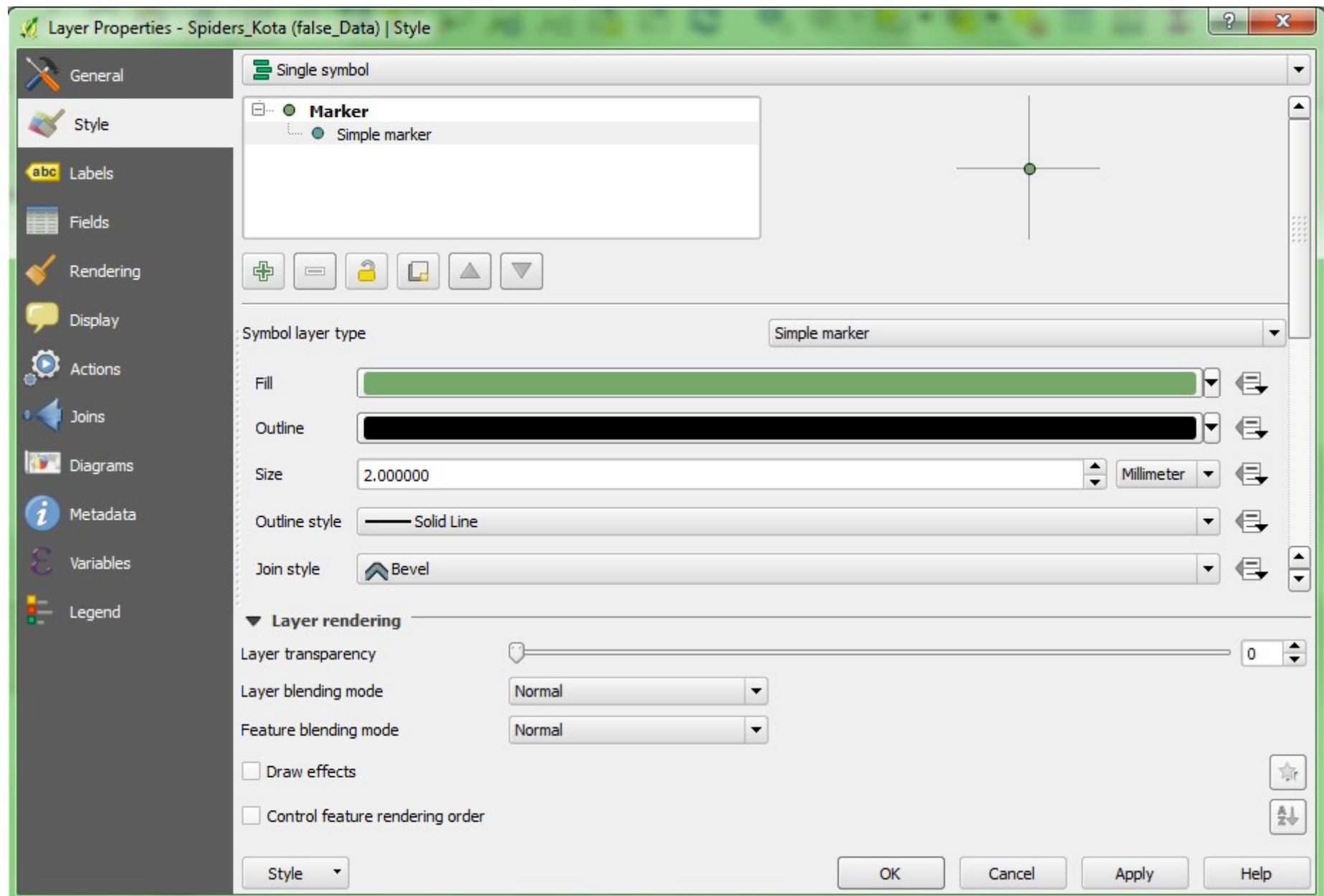
Layer settings: ☐ Use spatial index ☐ Use subset index ☐ Watch file

	S.No.	Name of Species	Family	Date	Time	Latitude (DD)	Longitude (DD)
1	1	Araneus mitificus	Araneidae	September 14, 2017	12:00	25.75	76.262
2	2	Argiope anasuja	Araneidae	September 15, 2017	12:05	25.73	76.318
3	3	Neoscona bengalensis	Araneidae	September 16, 2017	12:57	25.684	76.398
4	4	Neoscona theisi	Araneidae	September 15, 2017	01:34	25.787	76.498
5	5	Stegodyphus sarasinorum	Erasidae	September 14, 2017	03:44	25.724	76.451
6	6	Cheiracanthium danieli	Eutichur...	September 16, 2017	20:00	24.978	75.7

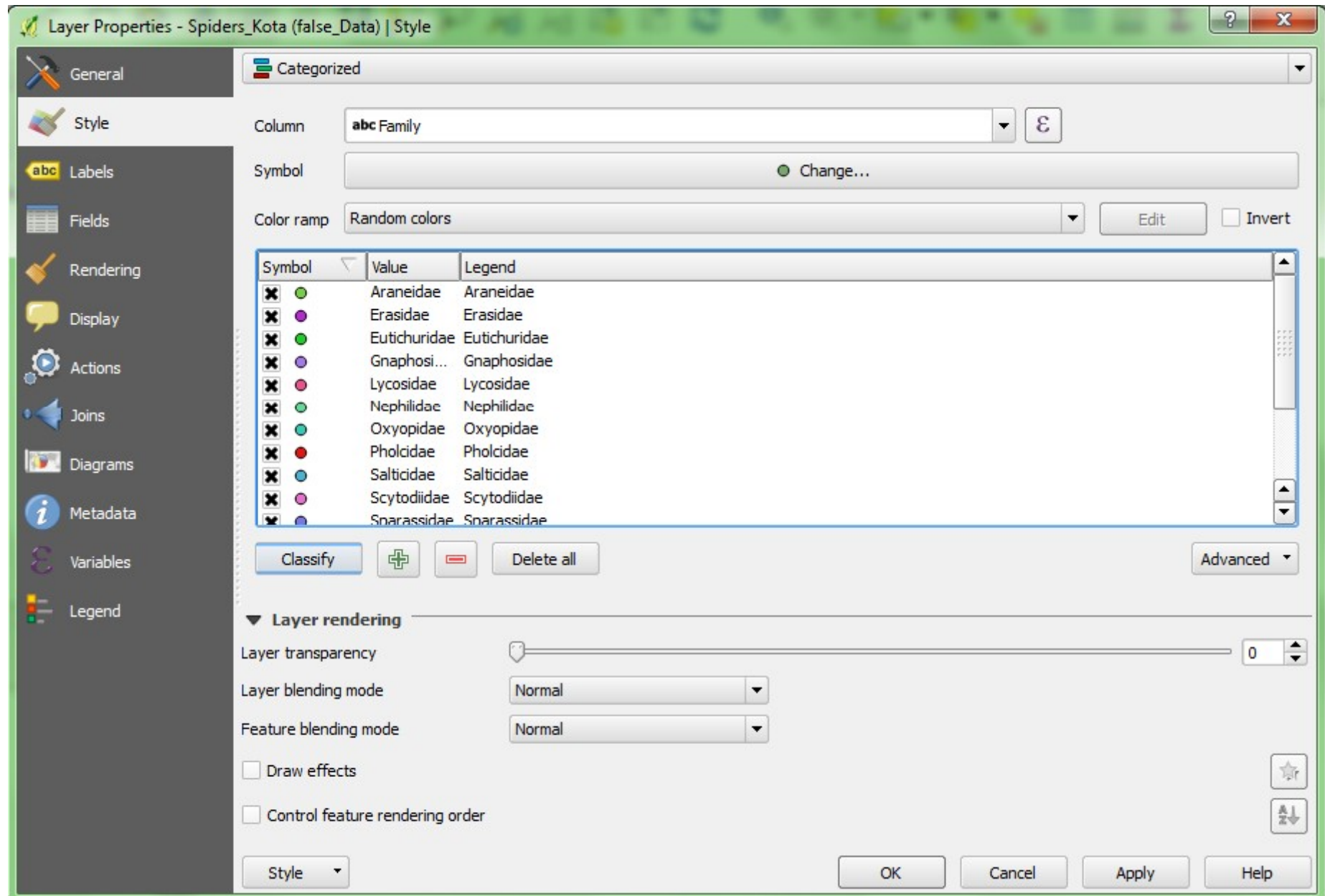
OK Cancel Help

- After clicking “OK”, Select WGS84 : EPSG4326 CRS.

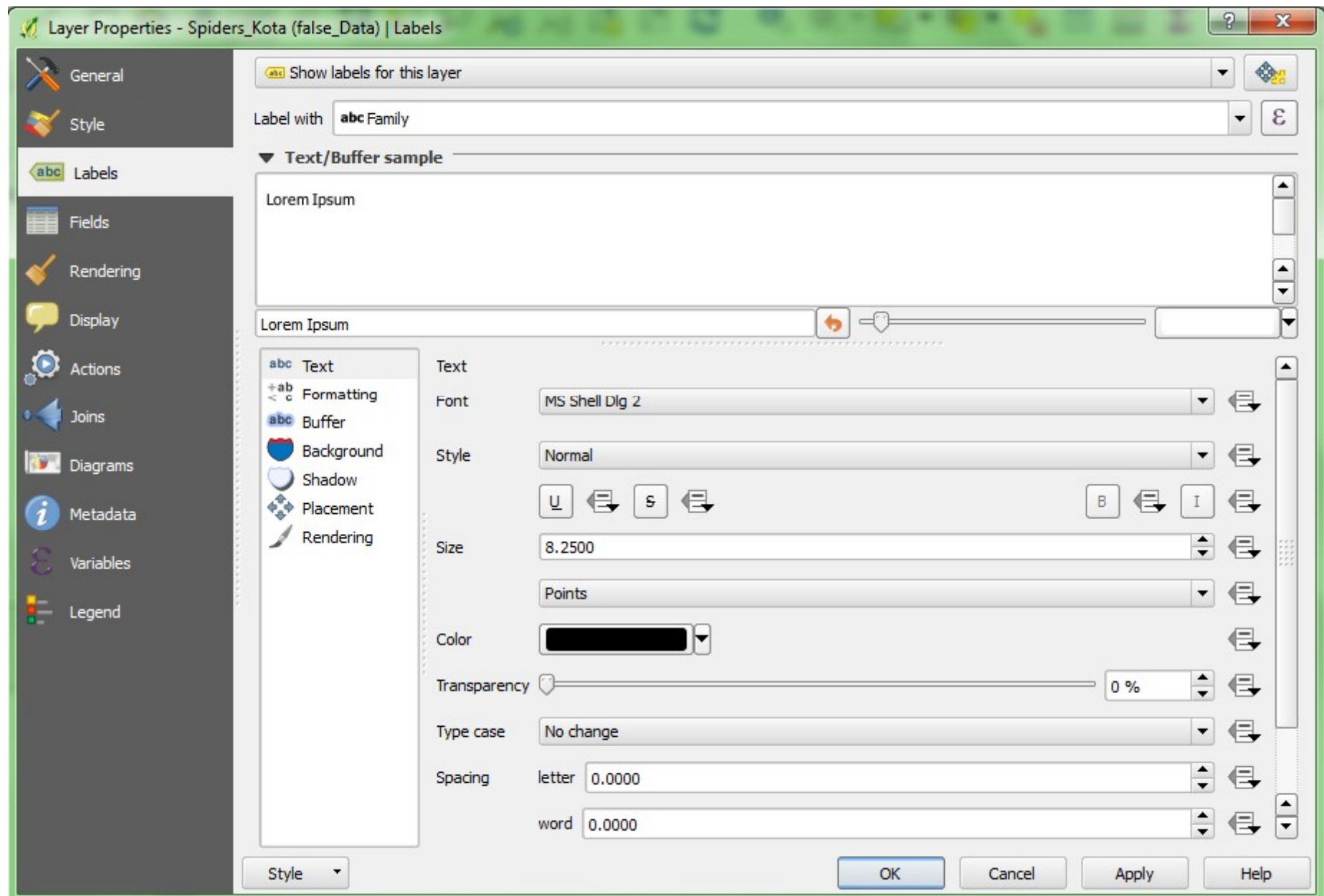
Attributes games



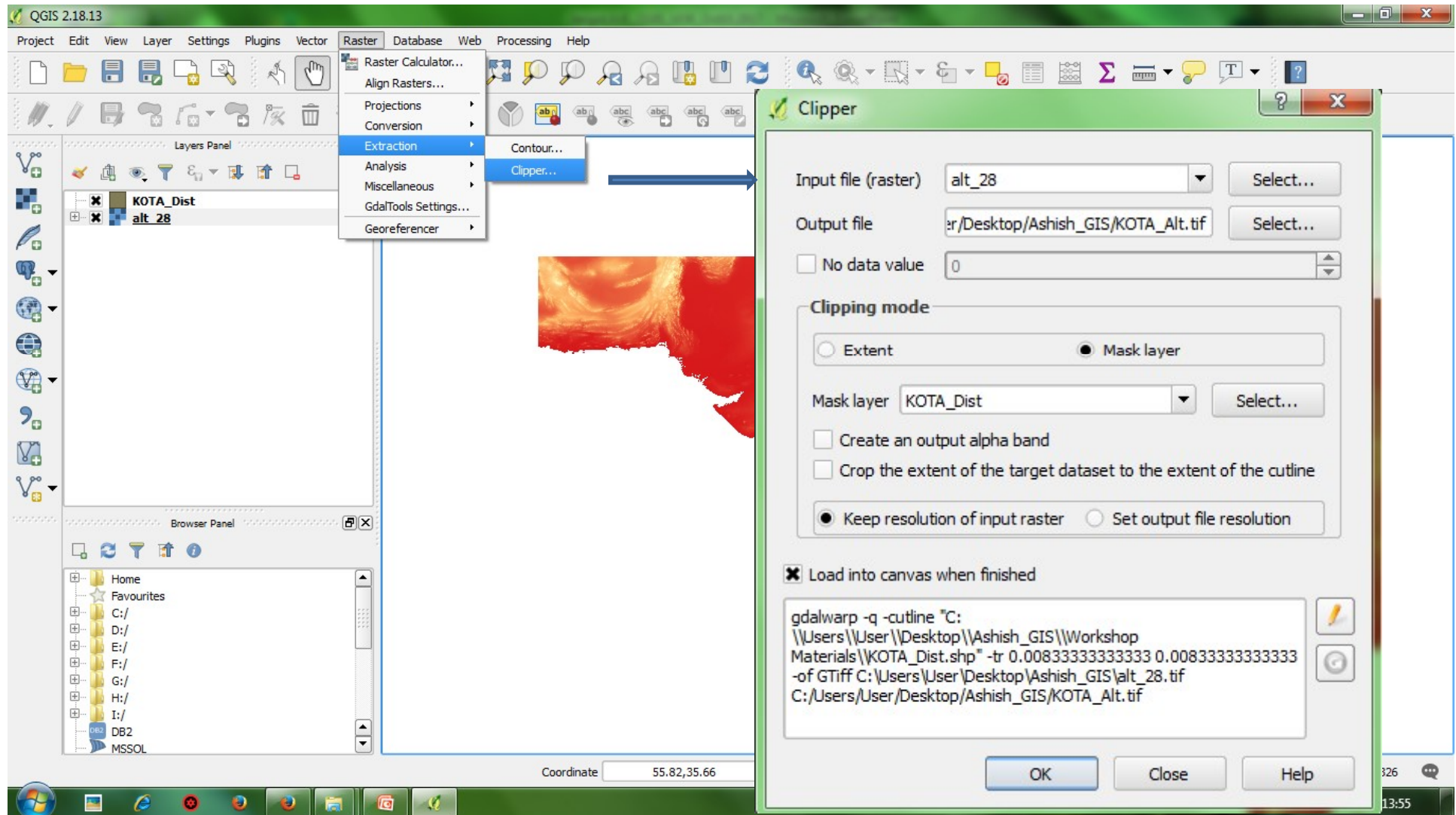
Attributes games



Attributes games

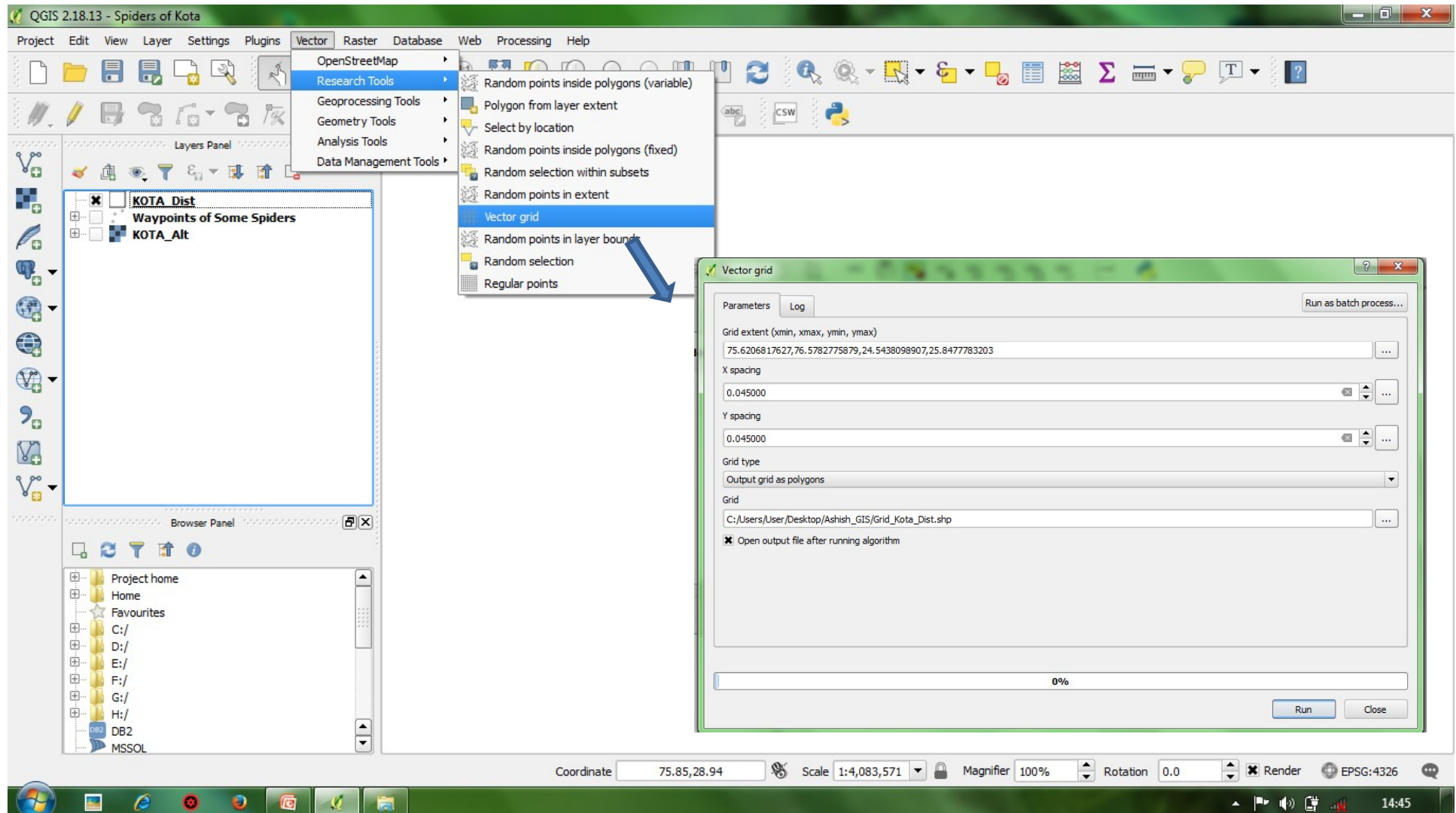


Raster Cropping

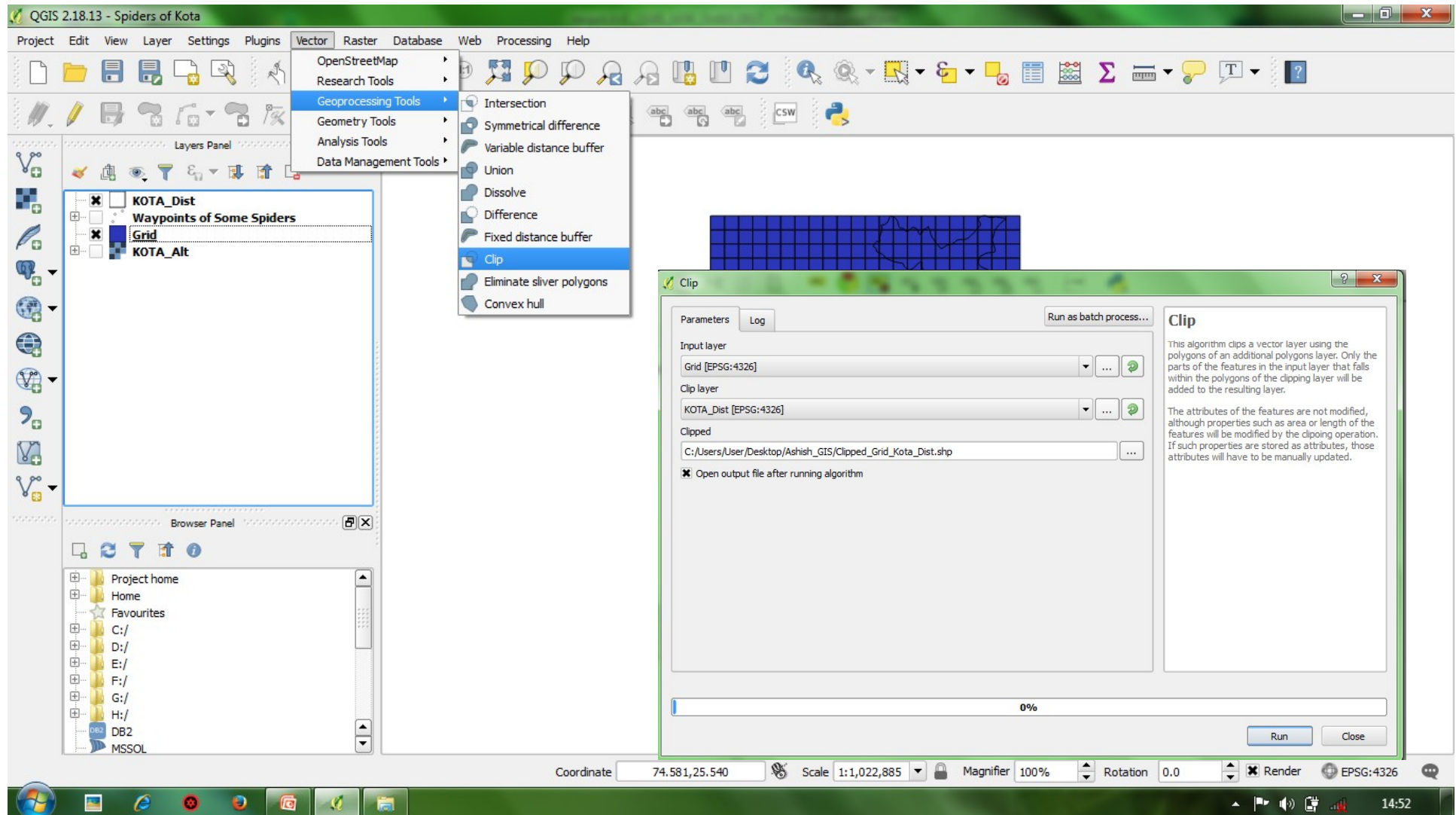


Grids Composing

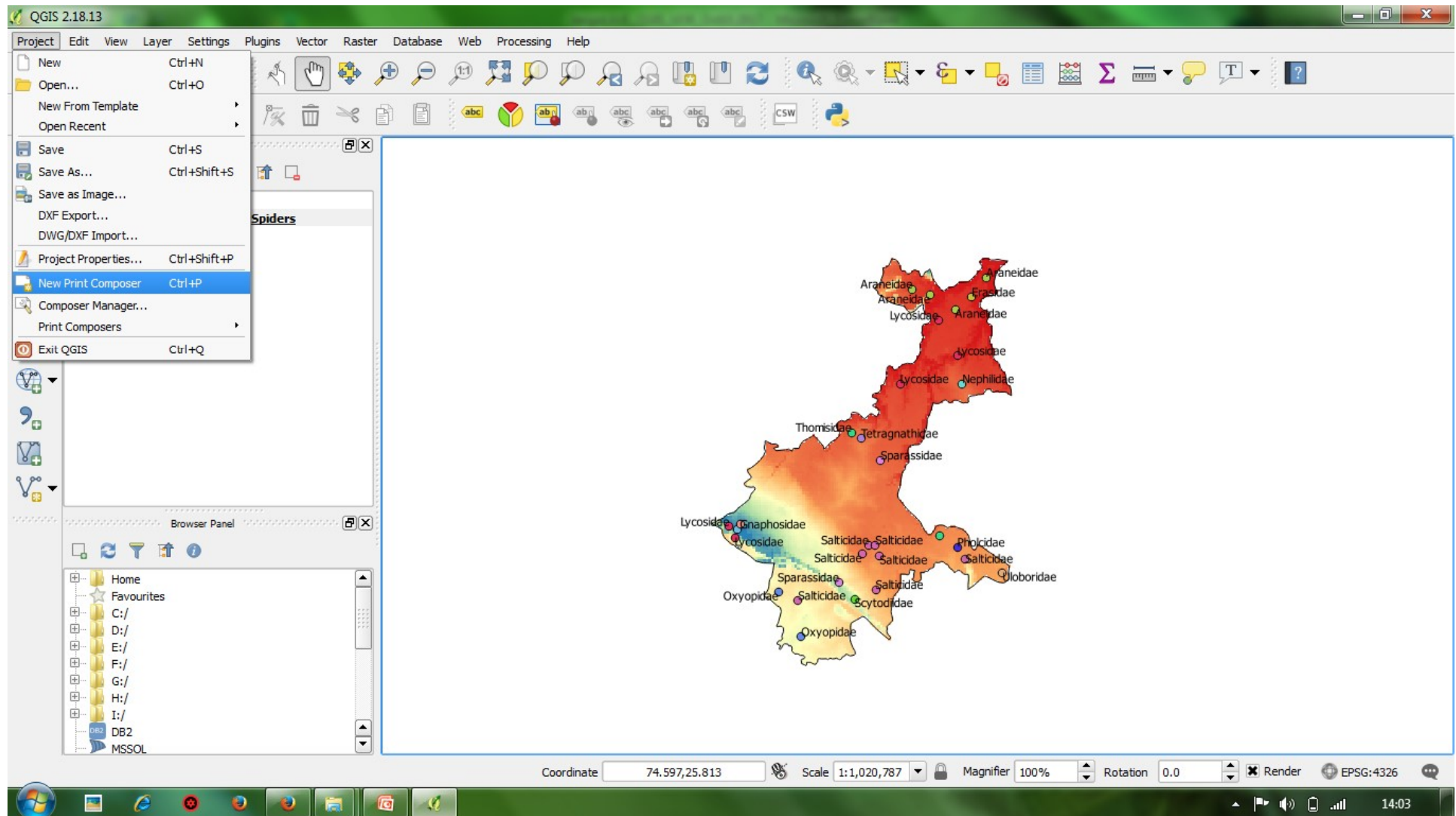
(around $0.009^\circ = 1 \text{ km}$; according to WGS84 EPSG 4326)



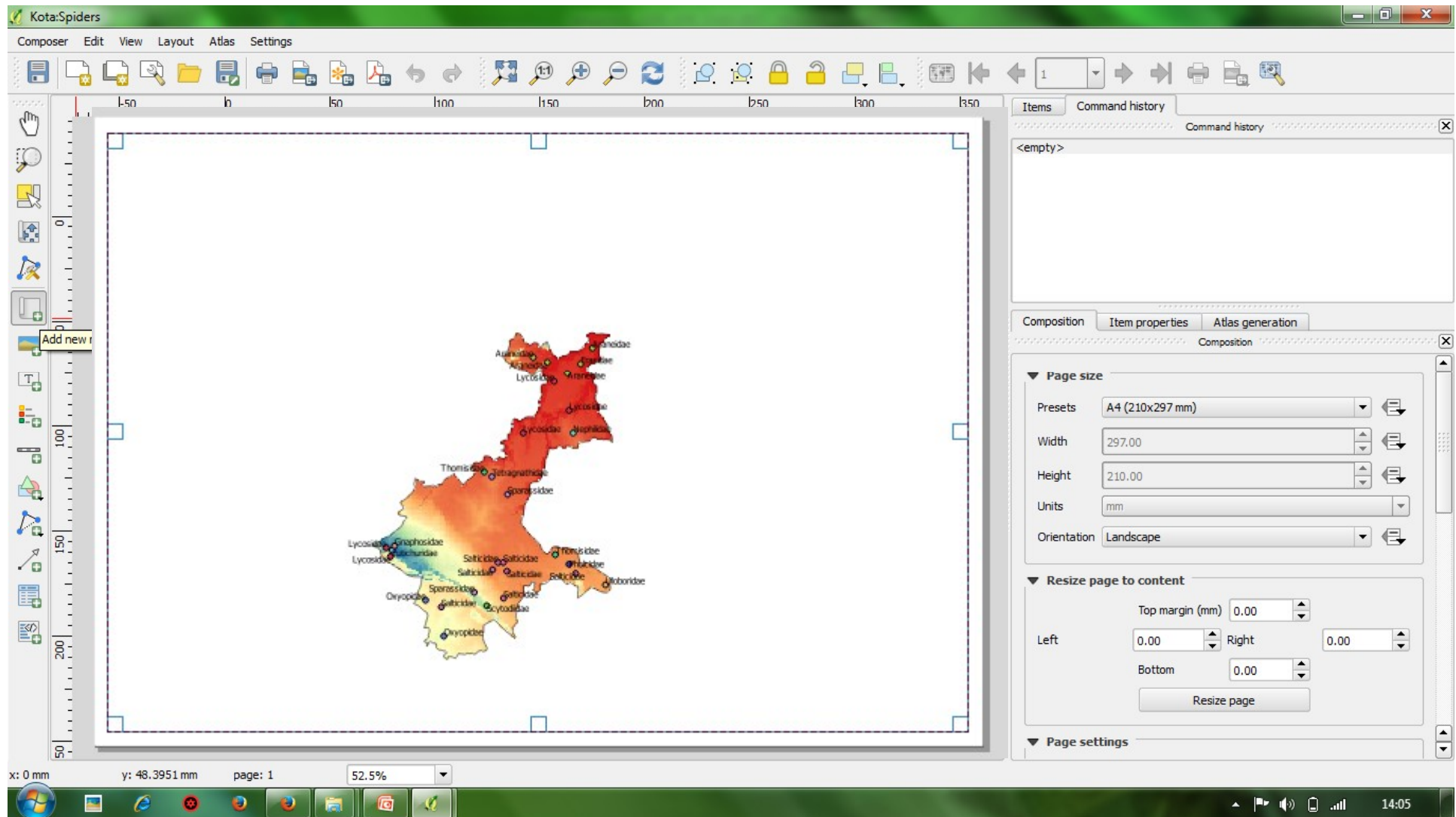
Grid Clipping



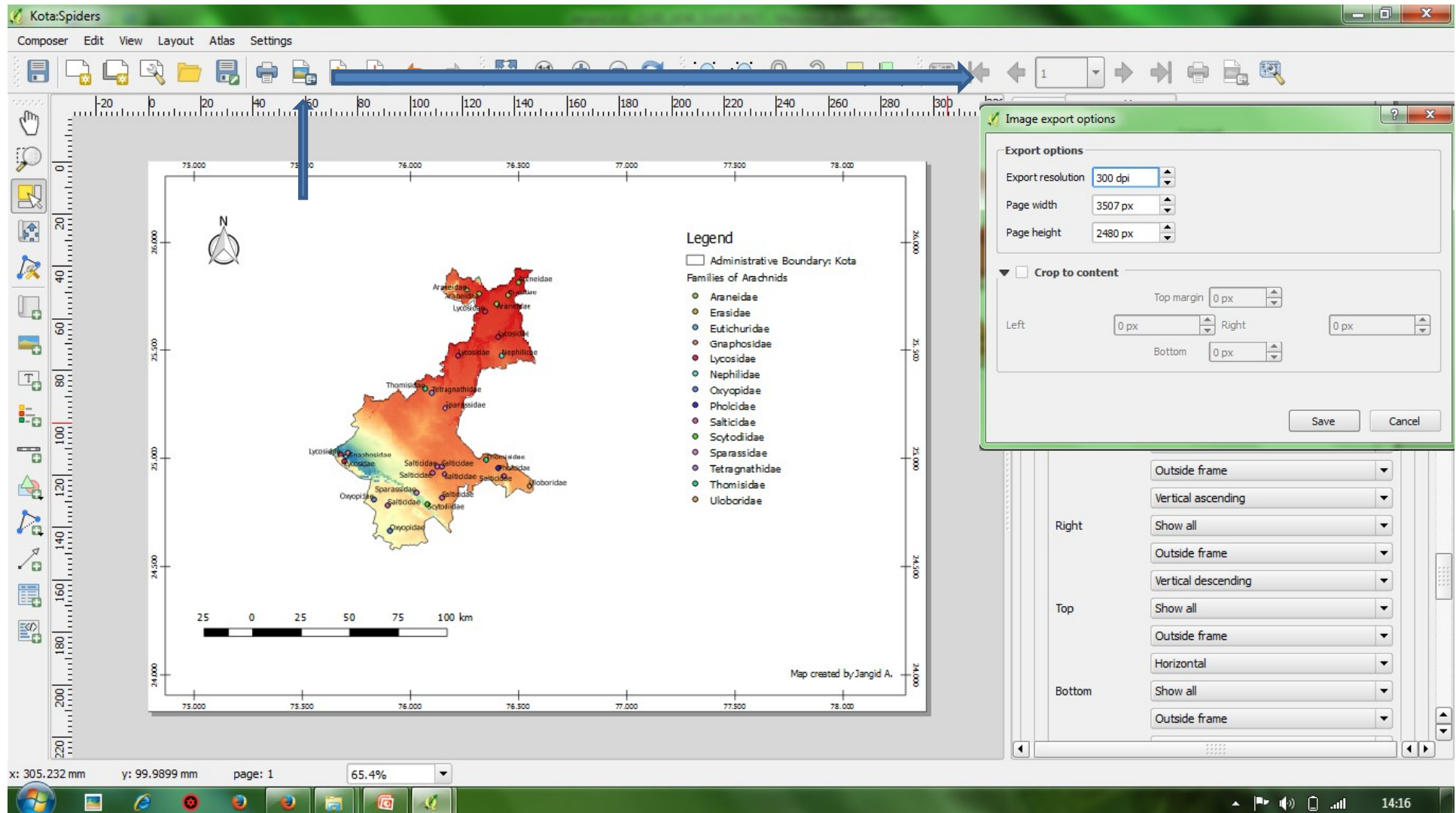
Map Extraction



Map Extraction



Exporting Map



Some Useful Sites

- www.worldclim.org (Allow to download bioclimatic data of the world)
- www.diva-gis.org (Provides many shape files of different countries)
- www.earthexplorer.usgs.gov (Offers various kind of satellite images, may be free or paid)
- www.qgis.org (Download QGIS software and its tutorial PDFs)
- www.lib.utexas.edu/maps/ams/india (Provides non-referenced toposheets of some selected places)

Thank you 😊

Approach me for any questions
at
["ashishjangid22@gmail.com"](mailto:ashishjangid22@gmail.com)