

Creating Heatmaps

QGIS Tutorials and Tips



Author

Ujaval Gandhi

<http://google.com/+UjavalGandhi>

Translations by

SongHyun Choi



cluster analysis and hotspot analysis. cluster analysis and hotspot analysis are types of spatial analysis that can be used to identify areas of high crime concentration. cluster analysis is a statistical method that groups data points into clusters based on their proximity to each other. hotspot analysis is a spatial analysis technique that identifies areas of high crime concentration by comparing the density of crime events to the density of the underlying population or other spatial variables.



2011 Surrey Police crime data. The data is available in a CSV format and can be downloaded from the Police.uk crime mapping website.

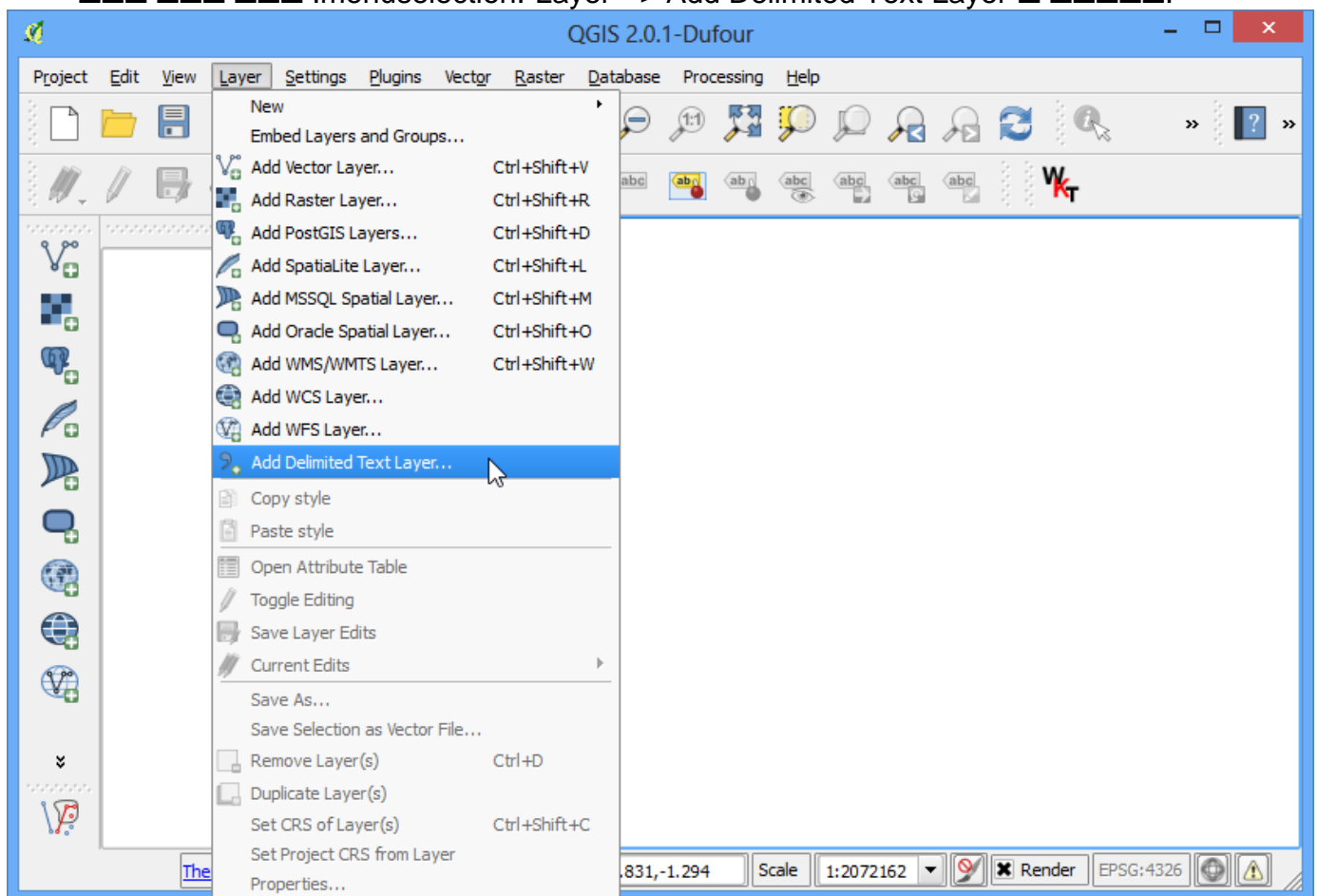


raw data from the Police.uk crime mapping website <<http://data.london.gov.uk/datastore/package/policeuk-crime-data>>.

Download the Surrey data.



1. Import the CSV file into QGIS. (File -> Import -> Delimited Text Layer). --> Layer -> Add Delimited Text Layer.



2. Import the file 'police-uk-crime-data-surrey.txt' into QGIS. (File -> Import -> Delimited Text Layer). *Easting* *Northing* X Y. Use spatial index. OK.

Create a Layer from a Delimited Text File

File Name:

Layer name: Encoding:

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

Record options: Number of header lines to discard: ☒ 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: Y field: ☐ DMS coordinates

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

	ID	Month	Reported by	Falls within	Easting	Northing	Location	Crime type	Conte
1	480097	2010-12	Surrey Police	Surrey Police	532773.00	156680.00	On or near Addison Road	Burglary	
2	480098	2010-12	Surrey Police	Surrey Police	498361.00	149806.00	On or near The Oval	Burglary	
3	480099	2010-12	Surrey Police	Surrey Police	498205.00	165251.00	On or near Albury Close	Burglary	
4	480100	2010-12	Surrey Police	Surrey Police	507437.00	174069.00	On or near Sanctuary Road	Burglary	
5	480101	2010-12	Surrey Police	Surrey Police	498205.00	165251.00	On or near Albury Close	Burglary	

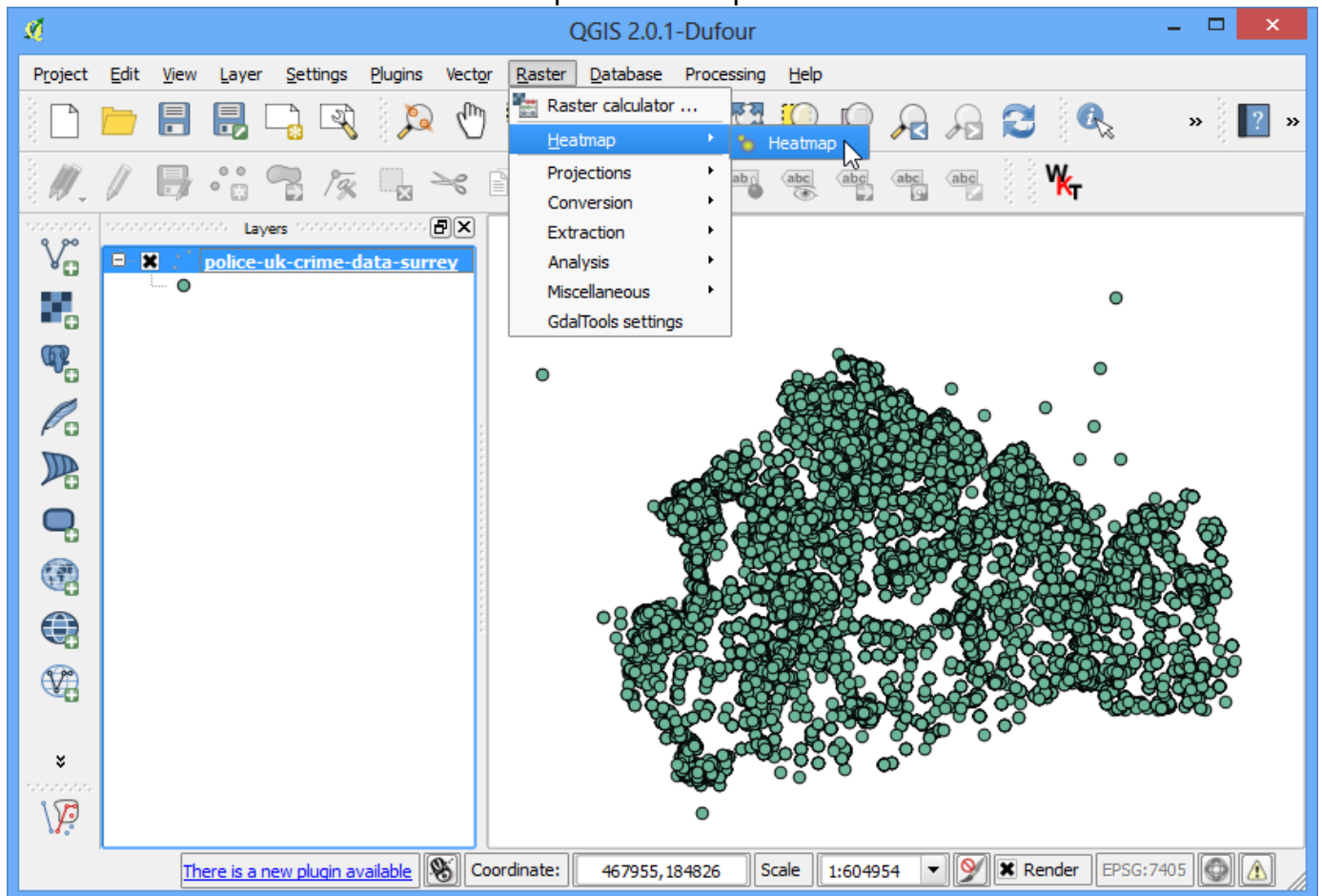
3. `delimited_text_file_errors = QMessageBox.warning(self, 'Delimited text file errors', 'Errors in file C:/Users/ujaaval/Downloads/police-uk-crime-data-surrey/police-uk-crime-data-surrey.txt
1969 records discarded due to missing geometry definitions', QMessageBox.Ok | QMessageBox.Cancel)`

Delimited text file errors

Errors in file C:/Users/ujaaval/Downloads/police-uk-crime-data-surrey/police-uk-crime-data-surrey.txt
1969 records discarded due to missing geometry definitions

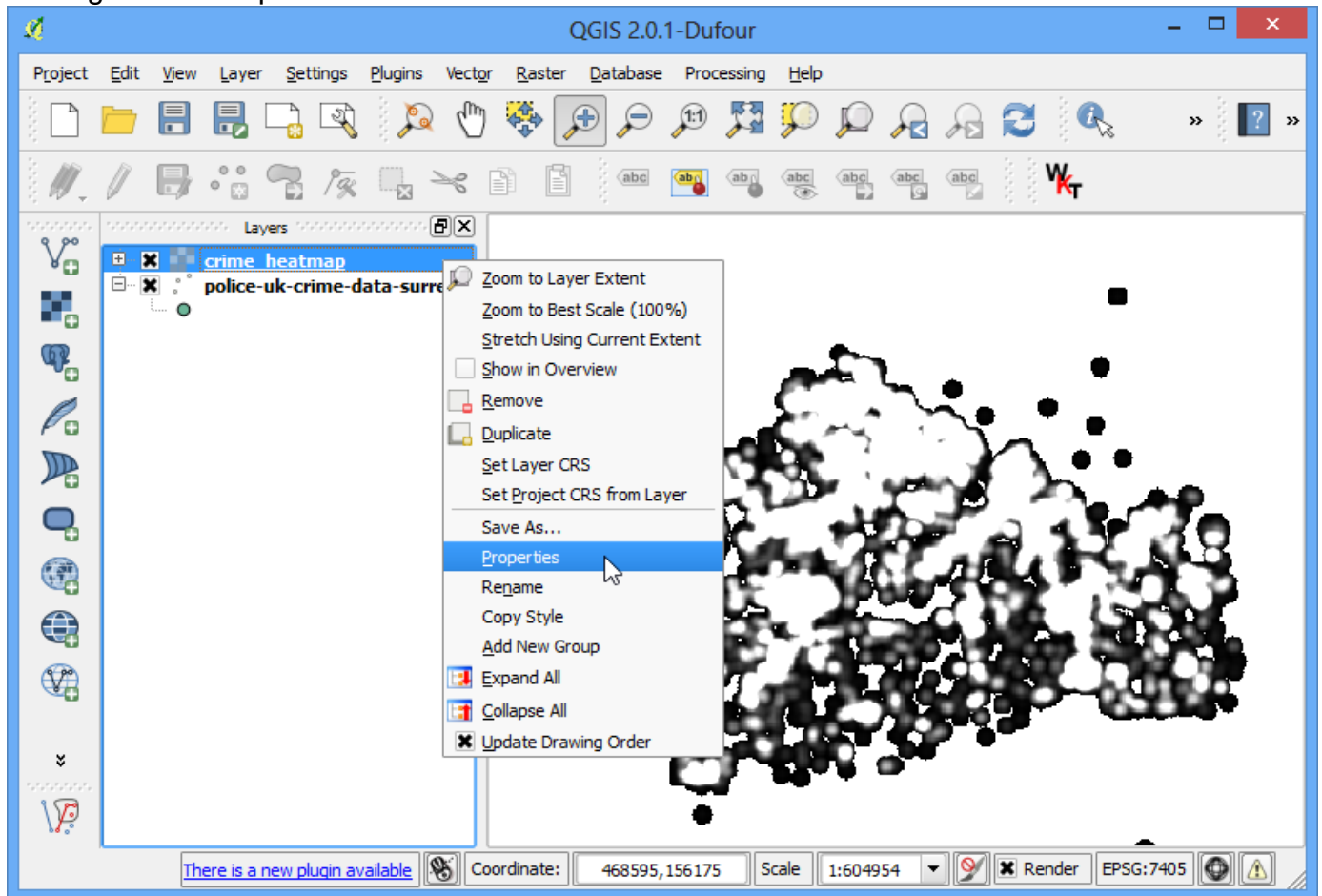
4. `crs = QgsCoordinateReferenceSystem('OSGB 1936 / British National Grid', QgsCoordinateReferenceSystem.EpsgCrsIdFromAuthorityName('OSGB 1936 / British National Grid'))`

7. `Heatmap`. `doc:using_plugins`. `menuselection: Raster --> Heatmap --> Heatmap`.



8. `Heatmap Plugin`. `Output raster` `crime_heatmap`. `Radius` `1000`. `Advanced` `Cell Size X` `Cell Size Y` `100`. `OK`.

10. `guiabel: Properties``



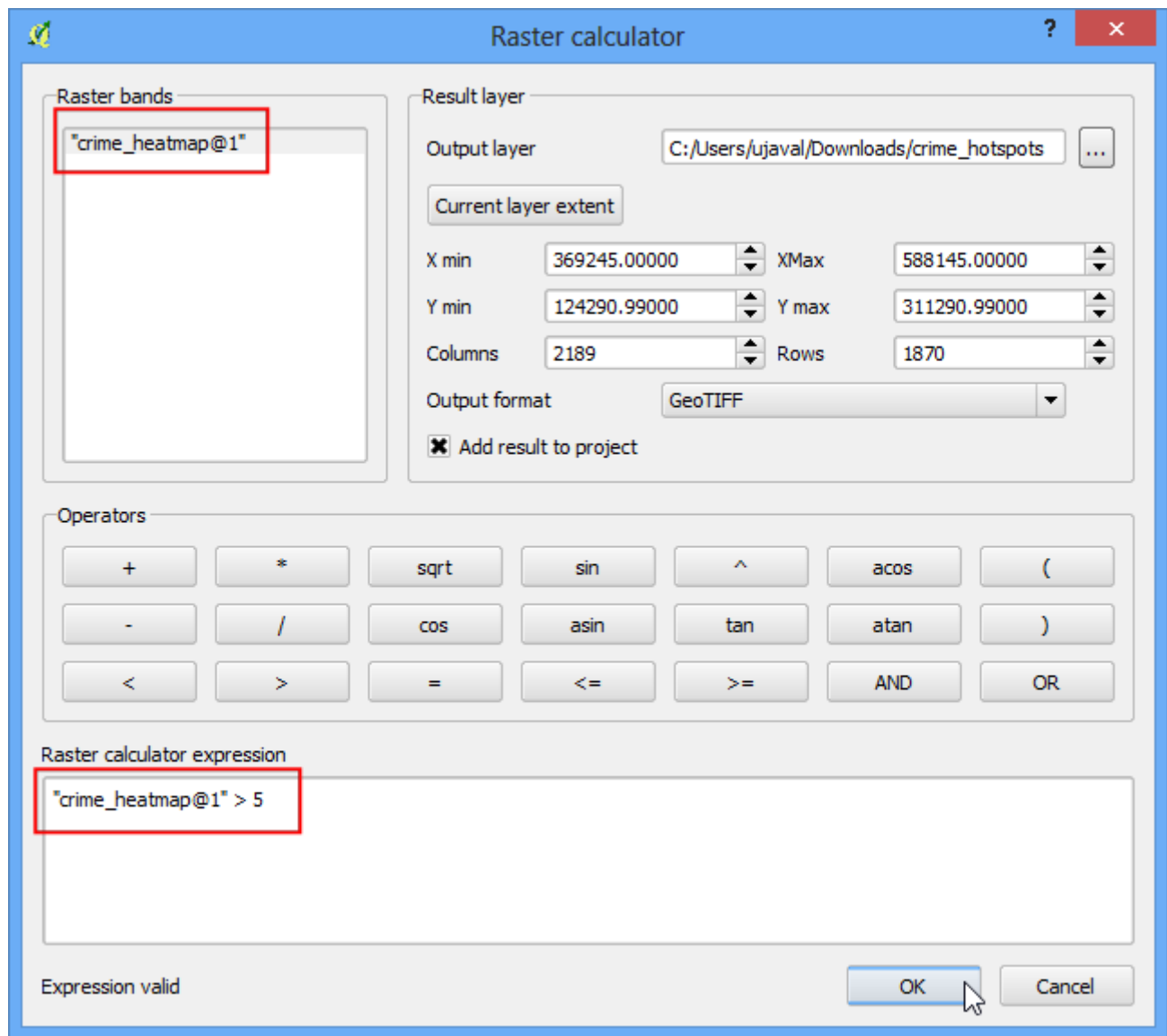
11. `Style`Render type`Singleband pseudocolor`Load min/max values`Accuracy`Actual (slower)`Load`Generate new color map`YlOrRd (Yellow-Orange-Red)`Classify`OK``



13. ■■■■ ■■■■■■■■. ■■■■ ■■■■ ■■■■ ■■■■■■. ■■■■ ■■■■ ■■■■ ■■■■■■ ■■■■
■■■■. ■■■■ ■■ ■■■■ ■■■■ *hotspots* ■■■■■■ ■■■■. ■■■■ ■■■■ *hotspots*
■■■■■■ ■■■■■■. ■■ ■■■■ --> ■■■■ ■■■■ :menuselection:`Raster --> Raster Calculator` ■
■■■■.



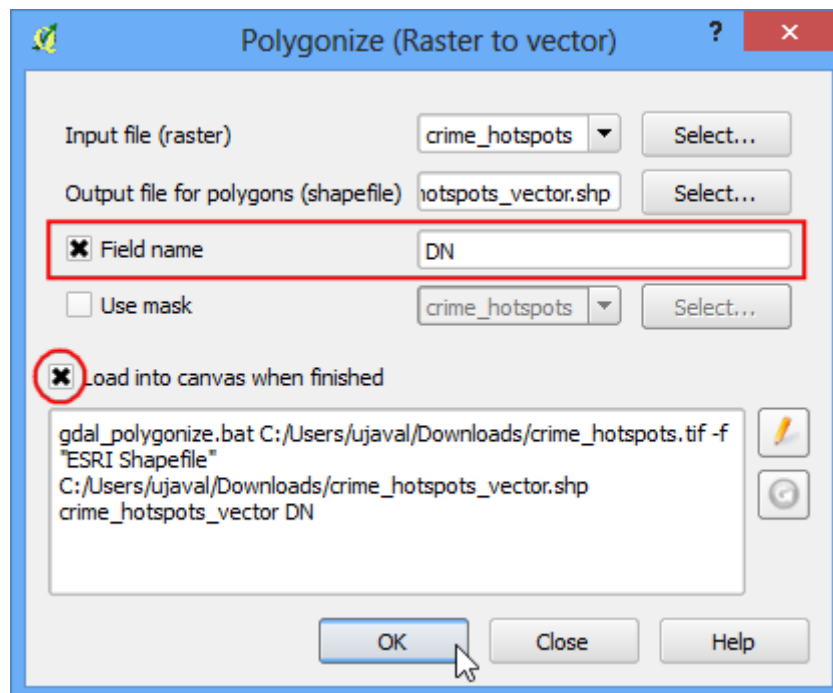
14. ■■■■■ ■■■■■ ■■■■■ ■■■■■. ■■■■■ ■■ ■■ ■■■■■ ■■■■■ ■■■■■ ■■■■■. ■ ■■■■■■■■ 5■
 ■■■■■ ■■■■■. ■■■■ ■■■■ `Raster calculator` ■■■■ ■■ ■■■■■ ``crime_hotspots`` ■■■■■■
 ■■■■■■. ■■■■■■ `:guilabel:`Raster bands`` ■■■■■ `:guilabel:`crime_heatmap@1`` ■
 ■■■■■■■■ ■■■■ ■■ ■■■■ `Raster calculator expression` ■■■■ ■■■■ ■■■■ ■■■■■.
`"crime_heatmap@1" > 5` ■■■■■ ■■■■■■. ■■■■ ■■■■■■ ■■ `:guilabel:`Add result to`
`project` ■■■■ ■■■■■ `:guilabel:`OK`` ■■■■■■.



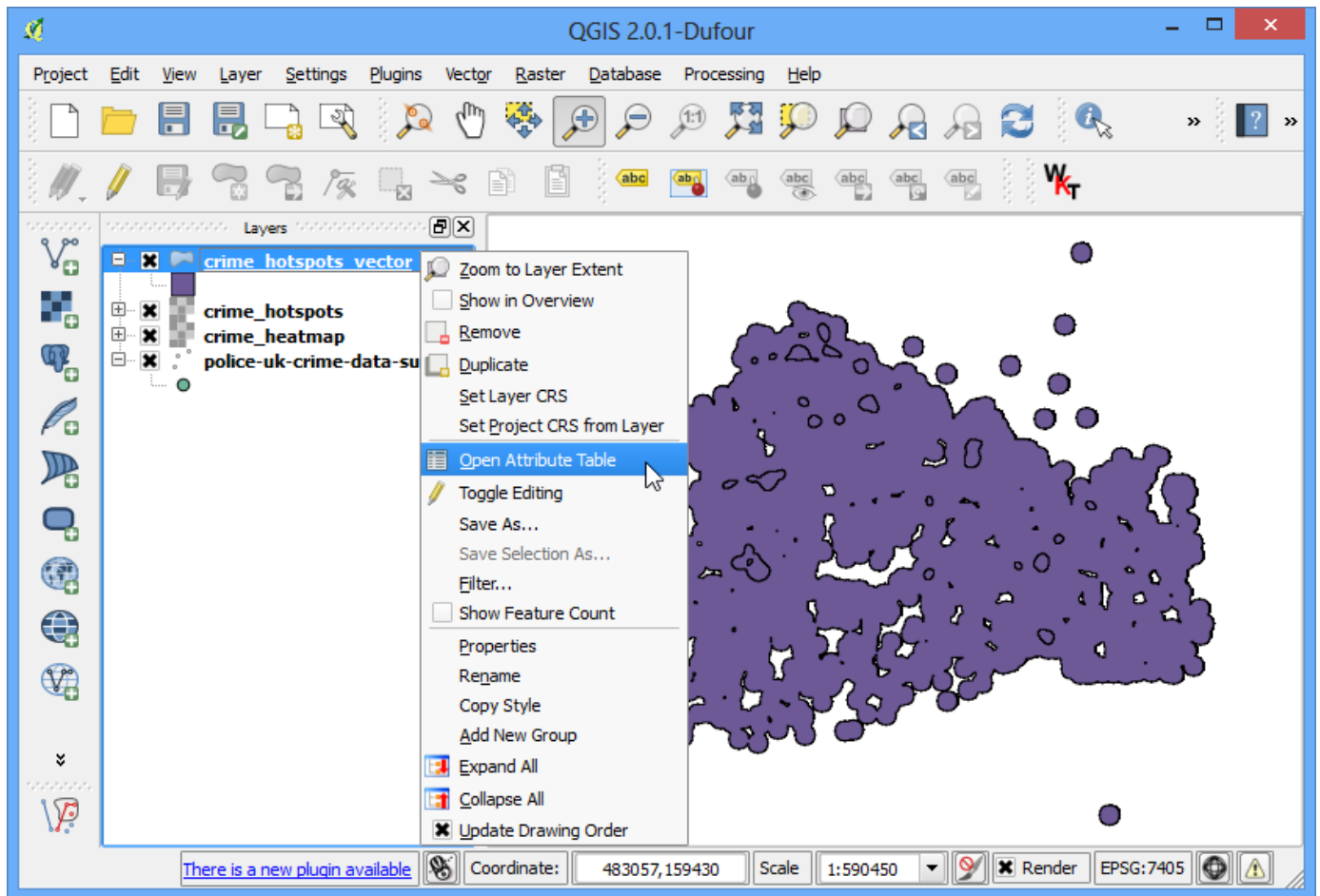
15. QGIS ■■■■ ■■■■ ■■■■ ■■■■. ■ ■■■■ ■■■■ 0 ■■ 1■ ■■ ■■■■. ■■■■ 5■■■ ■■■■■■■■ ■■ ■■■■ 1■ ■■ ■■ ■■■■ ■■■■ 0■ ■■■■. ■■ ■■■■ --> ■■ --> ■■■■ /■■■■■ ■■■■ :menuselection: Raster --> Conversion --> Polygonize (Raster to Vector) ■■■■.



16. `crime_hotspots_vector` `:` `Field name` `:` `Load into canvas when finished` `:` `OK`



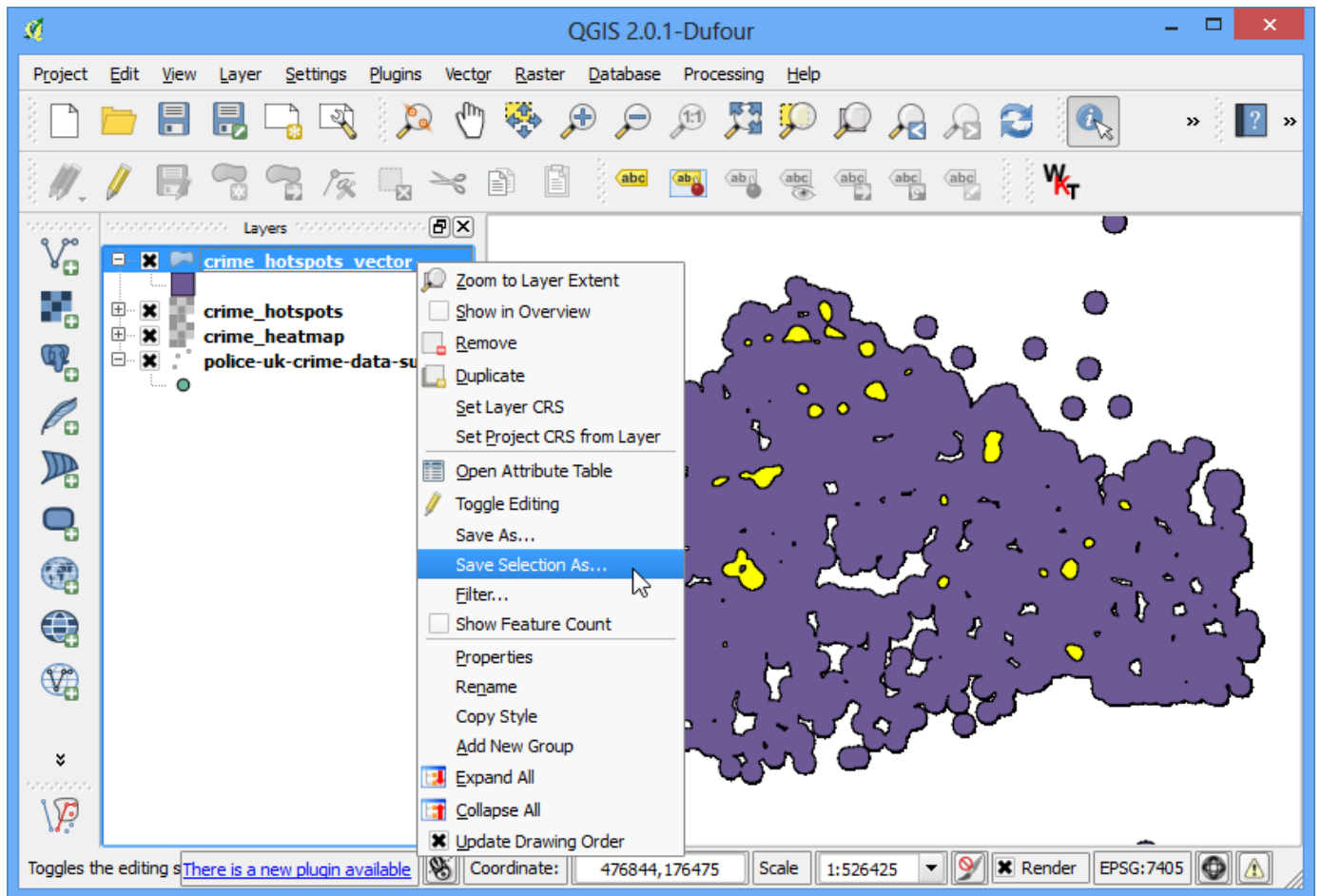
17. `QGIS` `:` `Open Attribute Table`



18. ■■■ ■■■■ :guilabel:`Attribute table` ■■■ ■■■■ ■■■ ■■■ ■■■ :guilabel:`Select feature using an expression` ■■■■■■.



20. QGIS 是一个开源的地理信息系统。它允许用户加载、查看、编辑和输出地理数据。用户可以通过表达式选择器来筛选数据。例如，在“选择按表达式”对话框中，用户可以输入表达式如“DN” = 1 来筛选具有特定值的记录。完成选择后，用户可以点击“选择”按钮来应用表达式，或者点击“关闭”按钮来取消操作。



21. `crime_clusters` :guilabel:`Add saved file to map` :guilabel:`OK`.



22. ■■■■■■■■■■. ■■ ■■■■■ ■■■■■ ■■■■ `hotspots` ■ ■■■■■ ■■■■■. ■ ■■■■■ ■■■■■■■■■■
 ■■■■ *intelligence* ■■ ■■■ ■■■ ■■■ ■■ ■■■ ■■ ■■■ ■■ ■■■■■■■■■■ ■■■ ■
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