

Targeted skills

By the end of this module, you will know how to:

- aggregate outbreaks statistics at “commune” level (sum, mean, ...)
- create a thematic map

Data

Data to be used in this module are:

- ASF (African Swine Fever) outbreaks reprojected and focused on Romania produced in previous modules
- data/gadm36_ROU_shp/gadm36_ROU_1.shp
- and data/gadm36_ROU_shp/gadm36_ROU_2.shp

Exercise outline & memos

1. Calculating zonal statistics

To report the outbreaks situation, it is often required to do so at various administrative levels. For instance, to report the number of cases in each “commune” in Romania (administrative level 2 of our dataset).

After having opened the three layers required, to perform this aggregation in QGIS:

[In QGIS Processing Toolbox]

1. In the search box, type: "join attributes by location"
2. Then reproduce the settings below with
 - * "SumCases" as "Fields to summarise " and
 - * "sum" as "Summaries to calculate..."
3. Save the generated layer with a meaningful name

ParametersLog

Input layer

gadm-rou-level2 [EPSG:32635]

☐ Selected features only

Join layer

asf-20180101-20190410-rom-utm35n [EPSG:32635]

☐ Selected features only

Geometric predicate

☐ intersects ☐ overlaps
☒ contains ☐ within
☐ equals ☐ crosses
☐ touches

Fields to summarise (leave empty to use all fields) [optional]

1 elements selected

Summaries to calculate (leave empty to use all available) [optional]

1 elements selected

☐ Discard records which could not be joined

Joined layer

[Create temporary layer]

Join attributes by location (summary)

This algorithm takes an input vector layer and creates a new vector layer that is an extended version of the input one, with additional attributes in its attribute table.

The additional attributes and their values are taken from a second vector layer. A spatial criteria is applied to select the values from the second layer that are added to each feature from the first layer in the resulting one.

The algorithm calculates a statistical summary for the values from matching features in the second layer (e.g. maximum value, mean value, etc).

0%

Cancel

Run as Batch Process...

RunCloseHelp

2. Creating a thematic map

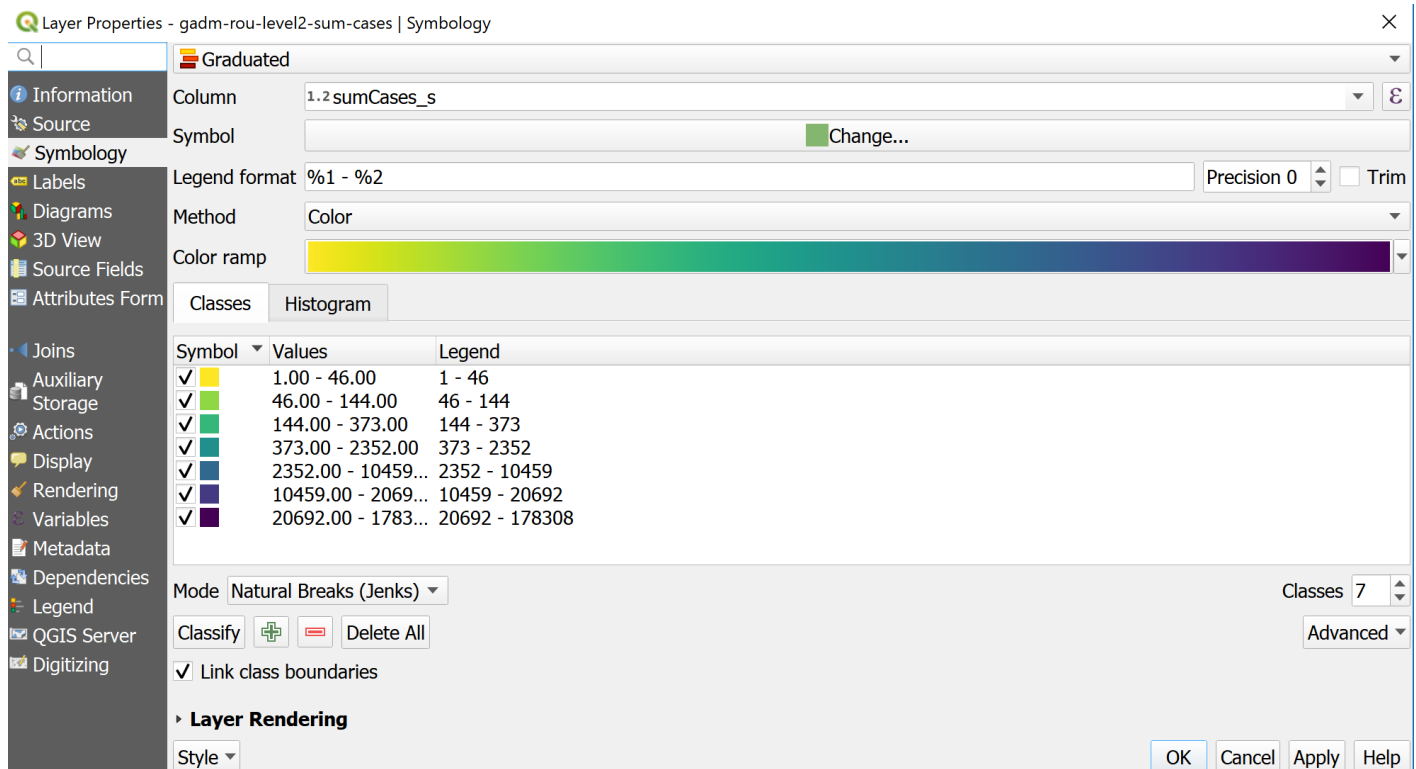
Note: To fully understand the rationale behind the following setting choices, you should attend the “Thematic Mapping” mini-lecture.

Now that we have calculated the sum of “SumCases” at commune level, we would like to spatialize this quantitative data at country scale.

To produce a thematic map of the newly generated layer:

[In QGIS Layer Panel]

1. Click right on the Layer Properties... or simply double-click on the layer
2. Then reproduce the settings below for the "Symbolization tab"



Save your work as a QGIS project.

3. Avoiding perception bias

There is one issue with the thematic map produced previously: it might visually over emphasize the largest commune whatever the quantitative value to map. It is usually considered a bad practice to produce “Choropleth” maps for absolute quantitative data (though very common). Instead, we prefer to “normalize” by calculating for instance in our case a density: **the number of cases by km²**.

Hence, the first thing to do is to calculate the area (in km²) for each commune:

First, ensure to specify the proper unit for surface calculation

[In QGIS Top Menu]

Project Properties... General (tab)

Specify km² as "Unit for area measurement"

Now, let's compute the area of each features (polygons of administrative level 2, i.e communes):

[Layer's attribute table field calculator]

Reproduce the settings below:

☐ Only update 0 selected features

☒ **Create a new field** ☐ **Update existing field**

☐ Create virtual field

Output field name:

Output field type:

Output field length: Precision:

Expression **Function Editor**

Output preview: 25.935064314768063

Search...

- Fuzzy Matching
- General
- ▼ Geometry
 - angle_at_vertex
 - \$area**
 - area
 - azimuth
 - boundary
 - bounds
 - bounds_height
 - bounds_width
 - buffer
 - buffer_by_m
 - centroid
 - closest_point
 - combine
 - contains

function \$area

Returns the area of the current feature. The area calculated by this function respects both the current project's ellipsoid setting and area unit settings. For example, if an ellipsoid has been set for the project then the calculated area will be ellipsoidal, and if no ellipsoid is set then the calculated area will be planimetric.

Syntax

\$area

Examples

- \$area → 42

Finally, again in:

[Open Field calculator in QGIS Top Toolbox]

Create a new field/attribute named "cases_km2" with the total number of cases / area

Then perform a new thematic analysis with the newly created field