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`

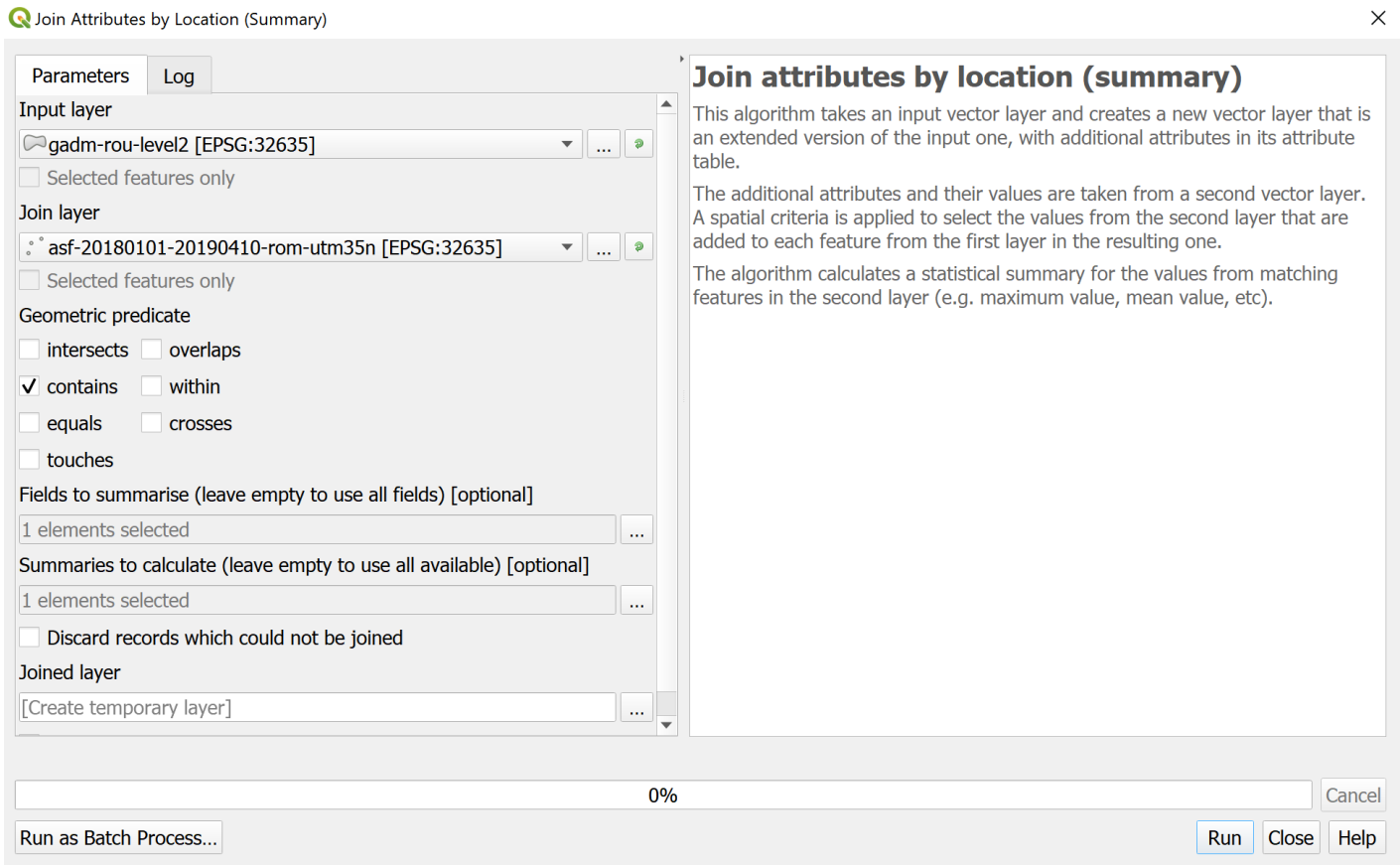
Exercise outline & memos

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
```



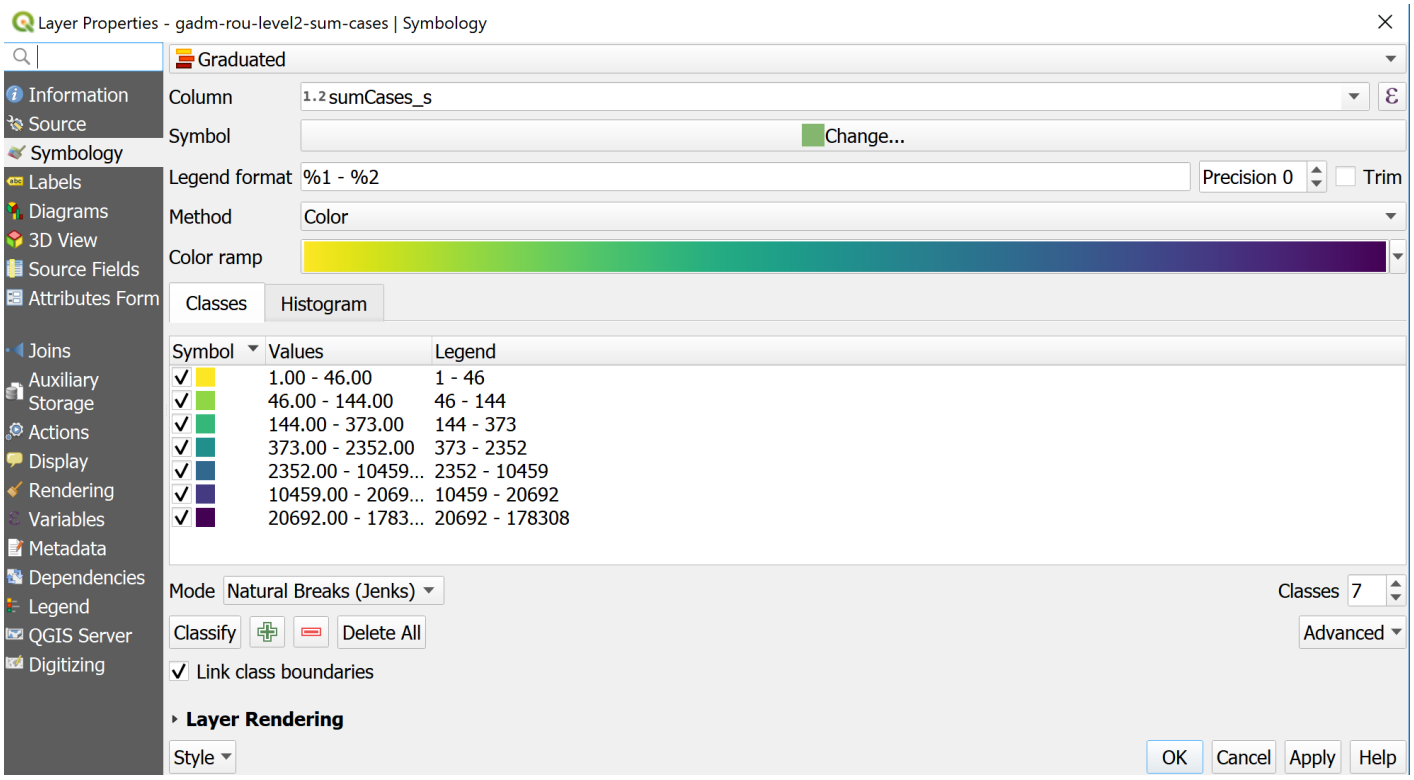
2. Creating a thematic map

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 "Symbology tab"
```



Save your work as a QGIS project.

3. Avoiding perception bias

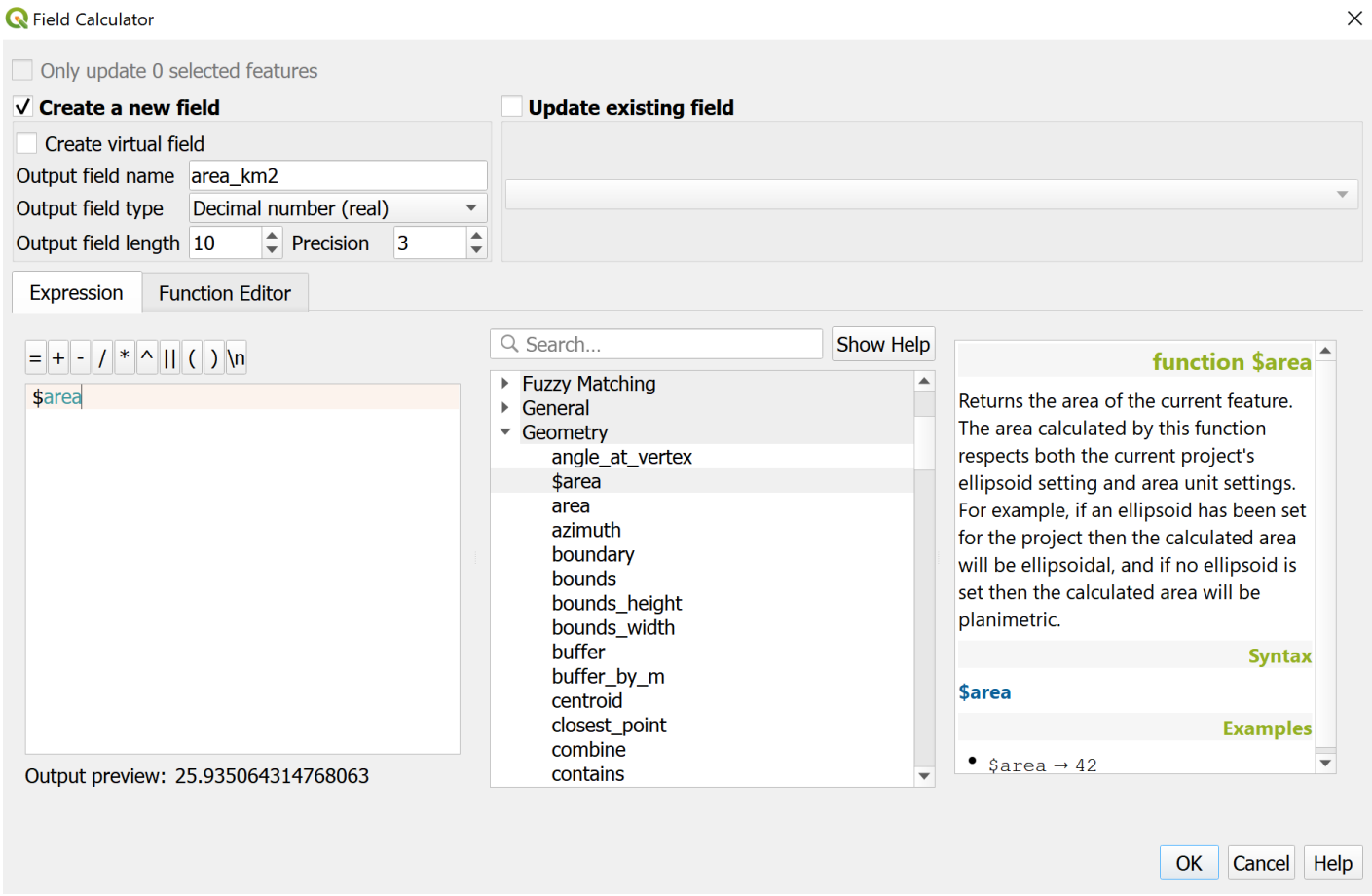
There is one issue with the thematic map produced previously: it might visually over emphasize the largest commune whatever the quantitative value to map. It is usually considered a bad practice to produce "Choropleth" maps for absolute quantitative data (though very common). Instead, we prefer to "normalize" 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 km<sup>2</sup> 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:
```



Finally, again in:

```
[Open Field calculator in QGIS Top Toolbox]
Create a new field/attribue named "cases_km2" with the total number of cases / area
Then perform a new thematic analysis with the newly created field
```