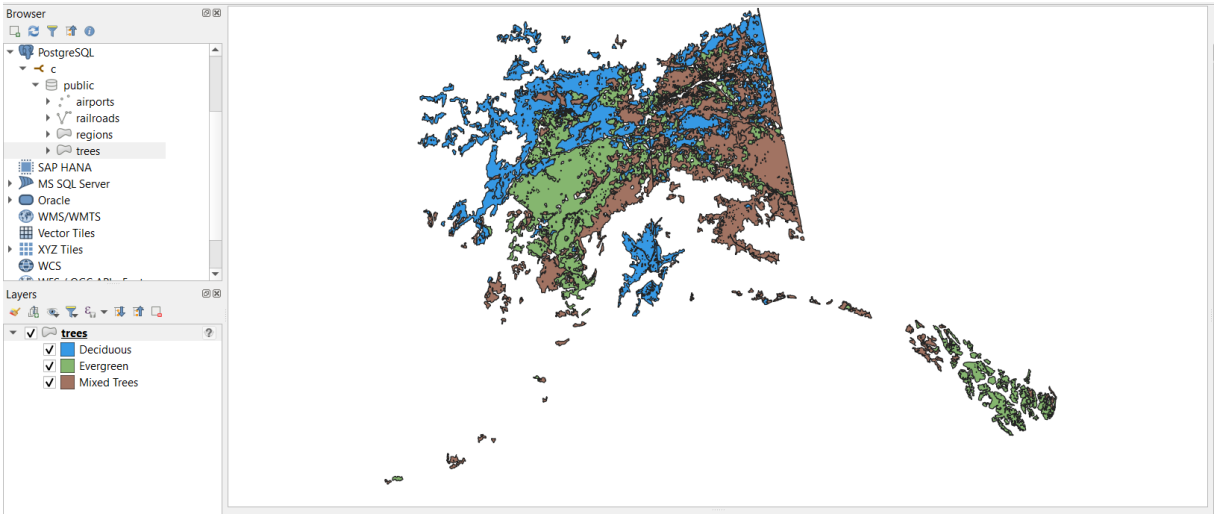
ZAD. 1



trees — Features Total: 444, Filtered: 444, Selected: 0

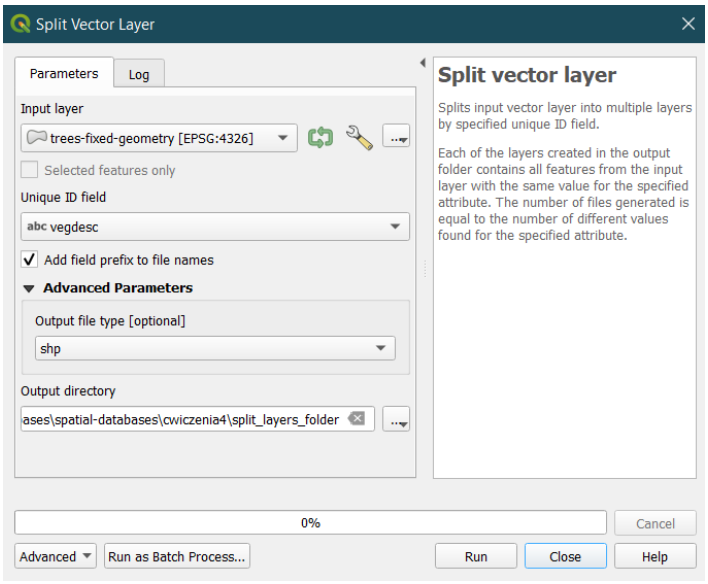
	gid	cat	vegdesc	veg_id	f_codedesc	f_code	area_km2
1	1	1	Deciduous	24	Trees	EC030	1354.405
2	5	5	Mixed Trees	50	Trees	EC030	325.063
3	61	59	Mixed Trees	50	Trees	EC030	118.349
4	2	2	Deciduous	24	Trees	EC030	1230.265
5	3	3	Deciduous	24	Trees	EC030	135.112
6	4	4	Deciduous	24	Trees	EC030	117.307
7	6	6	Deciduous	24	Trees	EC030	138.816
8	7	7	Deciduous	24	Trees	EC030	223.62
9	8	8	Deciduous	24	Trees	EC030	118.908
10	9	9	Deciduous	24	Trees	EC030	113.055
11	10	10	Deciduous	24	Trees	EC030	344.757
12	11	16	Deciduous	24	Trees	EC030	654.027
13	12	17	Deciduous	24	Trees	EC030	499.318

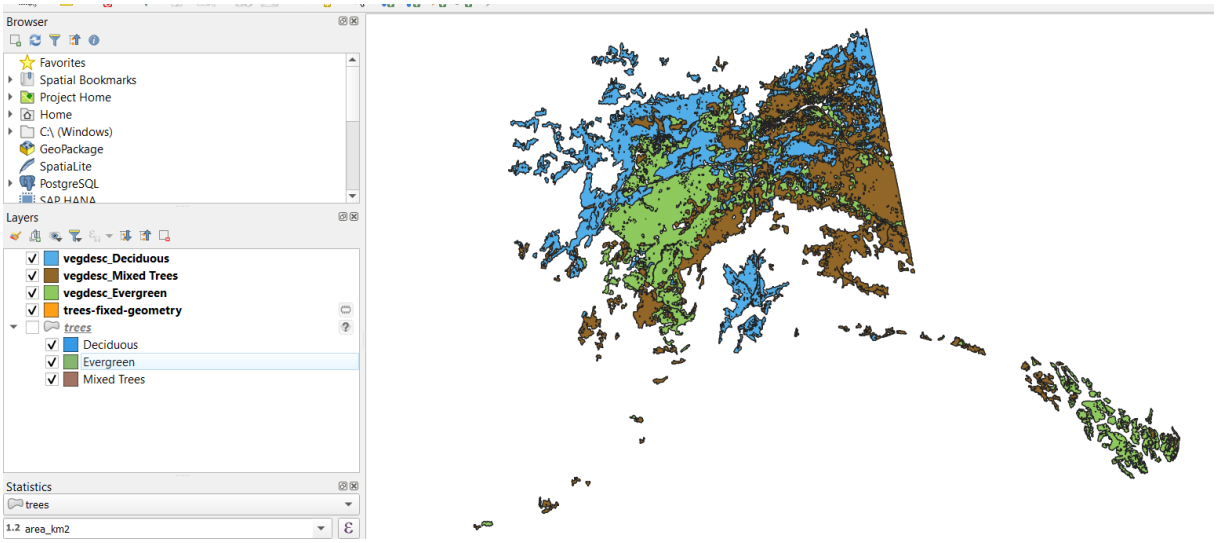
AreaOfMixedTrees

189273.326999...

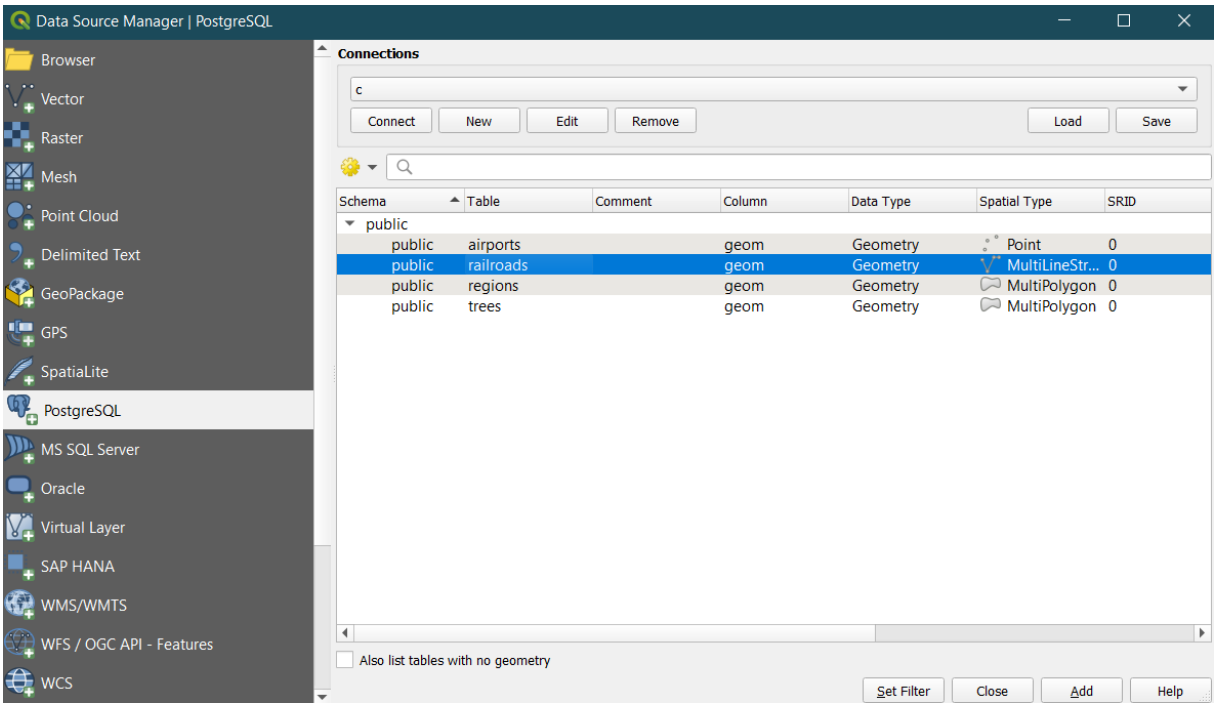
```
sum("area_km2", filter:=
"vegdesc"='Mixed Trees')
```

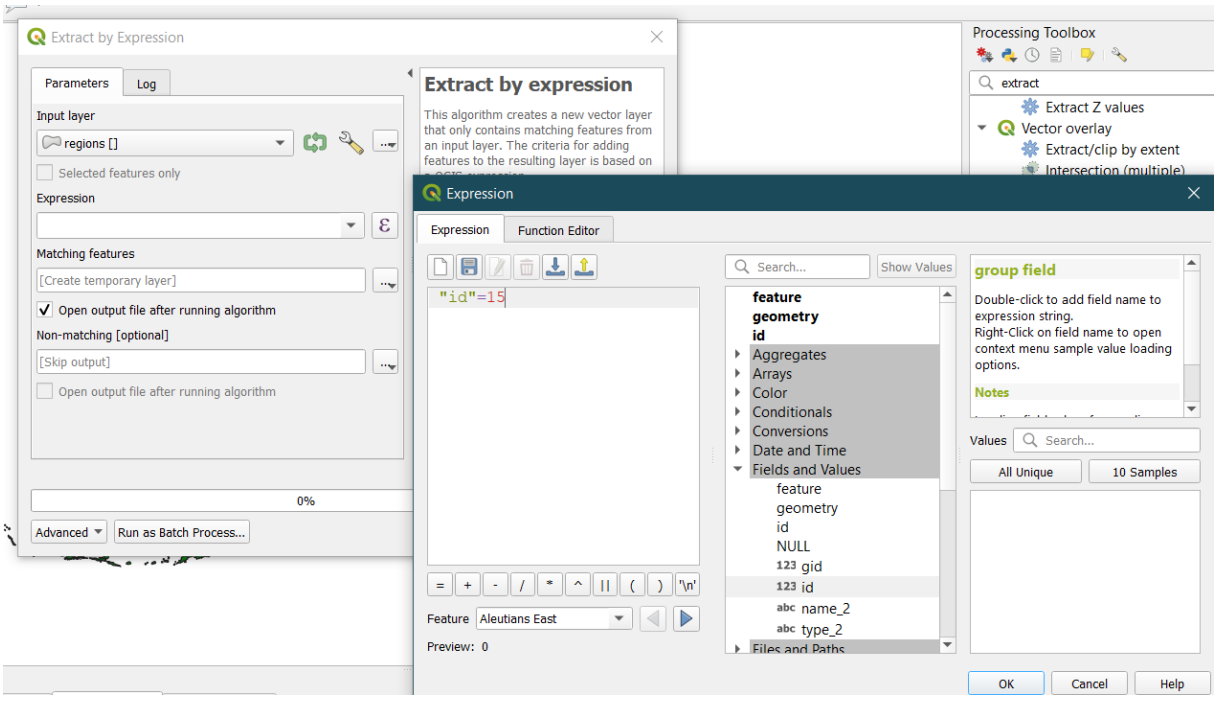
ZAD. 2

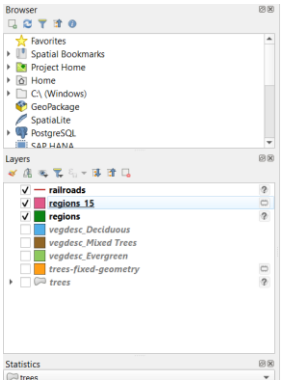

Split Vector Layer
Parameters
Log
Input layer
trees-fixed-geometry [EPSG:4326]
Selected features only
Unique ID field
abc vegdesc
Add field prefix to file names
Advanced Parameters
Output file type [optional]
shp
Output directory
ases\spatial-databases\cwiczenia4\split_layers_folder
Split vector layer
Splits input vector layer into multiple layers by specified unique ID field.
Each of the layers created in the output folder contains all features from the input layer with the same value for the specified attribute. The number of files generated is equal to the number of different values found for the specified attribute.
0%
Cancel
Advanced
Run as Batch Process...
Run
Close
Help

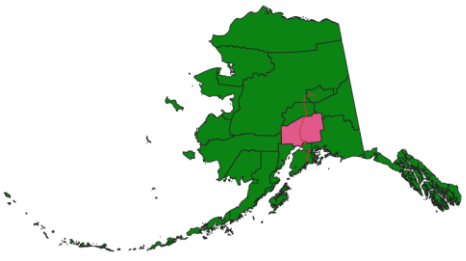

Browser
Favorites
Spatial Bookmarks
Project Home
Home
C:\ (Windows)
GeoPackage
SpatiaLite
PostgreSQL
Layers
vegdesc_Deciduous
vegdesc_Mixed Trees
vegdesc_Evergreen
trees-fixed-geometry
trees
Deciduous
Evergreen
Mixed Trees
Statistics
trees
area_km2

ZAD.3

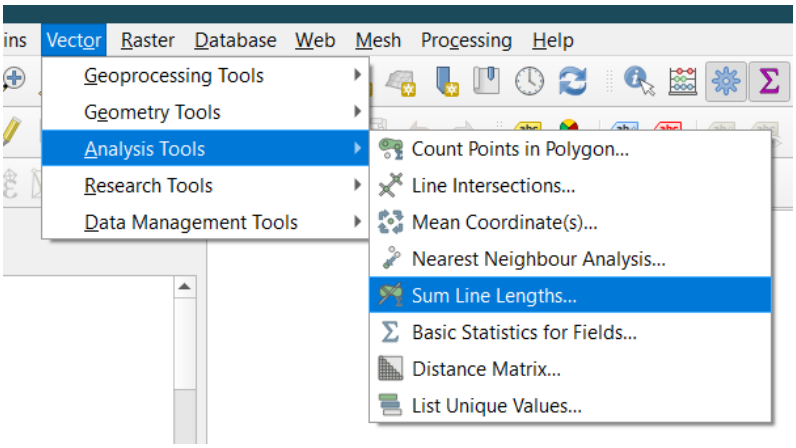

Data Source Manager | PostgreSQL
Browser
Vector
Raster
Mesh
Point Cloud
Delimited Text
GeoPackage
GPS
SpatiaLite
PostgreSQL
MS SQL Server
Oracle
Virtual Layer
SAP HANA
WMS/WMTS
WFS / OGC API - Features
WCS
Connections
Connect
New
Edit
Remove
Load
Save
Schema
Table
Comment
Column
Data Type
Spatial Type
SRID
public
public airports geom Geometry Point 0
public railroads geom Geometry MultiLineStr... 0
public regions geom Geometry MultiPolygon 0
public trees geom Geometry MultiPolygon 0
Also list tables with no geometry
Set Filter
Close
Add
Help

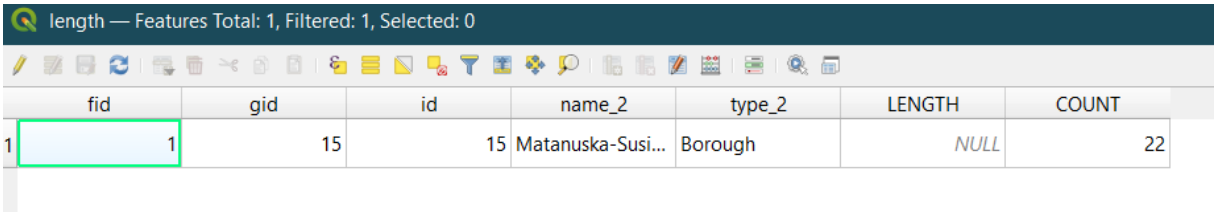

Extract by Expression
Parameters
Log
Input layer
regions []
Selected features only
Expression
Matching features
[Create temporary layer]
Open output file after running algorithm
Non-matching [optional]
[Skip output]
Open output file after running algorithm
0%
Advanced
Run as Batch Process...
Extract by expression
This algorithm creates a new vector layer that only contains matching features from an input layer. The criteria for adding features to the resulting layer is based on
Processing Toolbox
extract
Extract Z values
Vector overlay
Extract/clip by extent
Expression
Expression
Function Editor
"id"=15
Search...
Show Values
feature
geometry
id
Aggregates
Arrays
Color
Conditionals
Conversions
Date and Time
Fields and Values
feature
geometry
id
NULL
gid
id
name_2
type_2
Files and Paths
group field
Double-click to add field name to expression string.
Right-Click on field name to open context menu sample value loading options.
Notes
Values
Search...
All Unique
10 Samples
Feature
Aleutians East
Preview: 0
OK
Cancel
Help


Browser
Favorites
Spatial Bookmarks
Project Home
Home
C:\ (Windows)
GeoPackage
SpatiaLite
PostgreSQL
Layers
railroads
regions_15
regions
vegdesc_Deciduous
vegdesc_Mixed Trees
vegdesc_Evergreen
trees-fixed-geometry
trees
Statistics

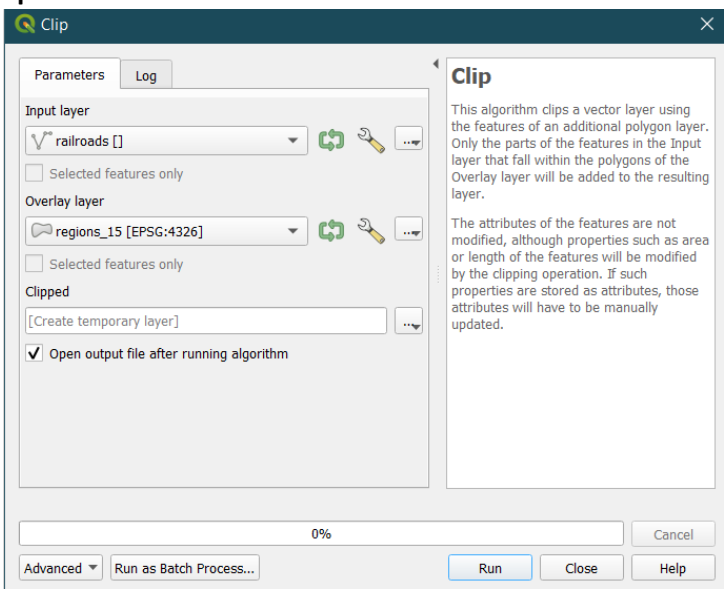


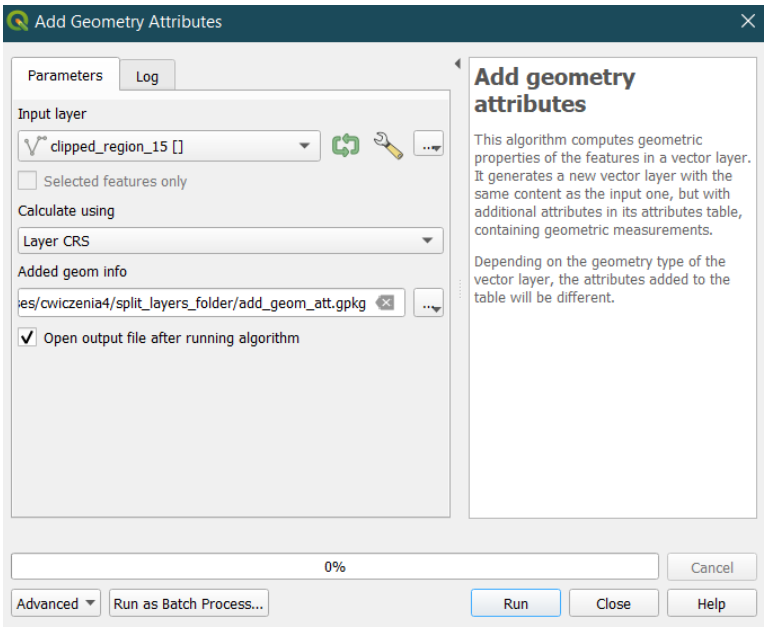
1. **Sposób – nie działa**

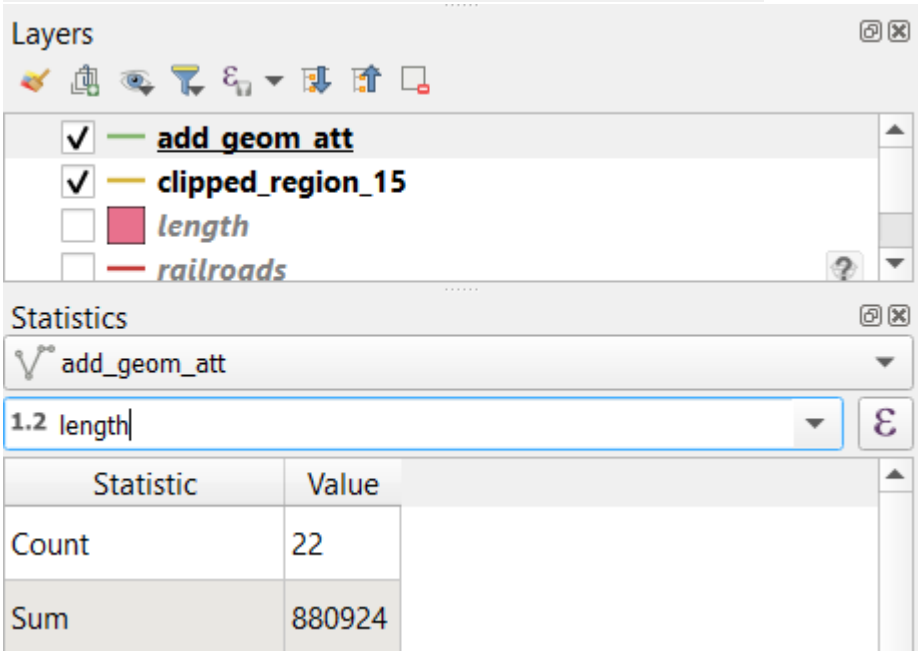




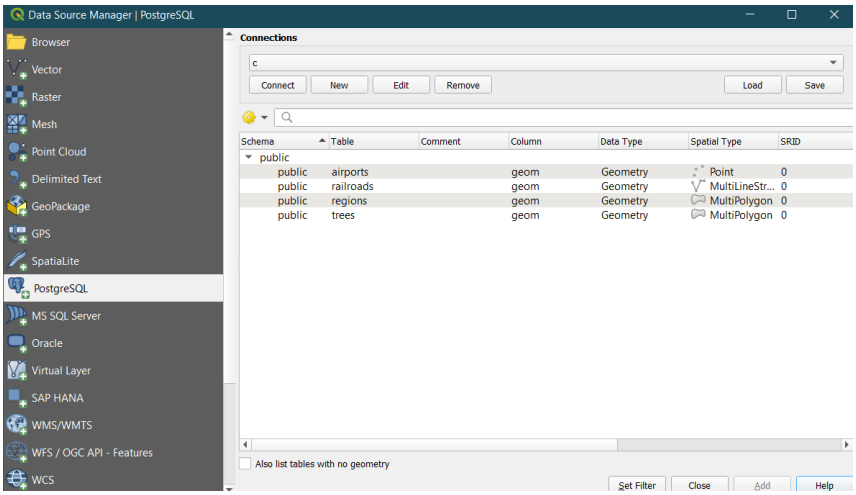
2. **Sposób**

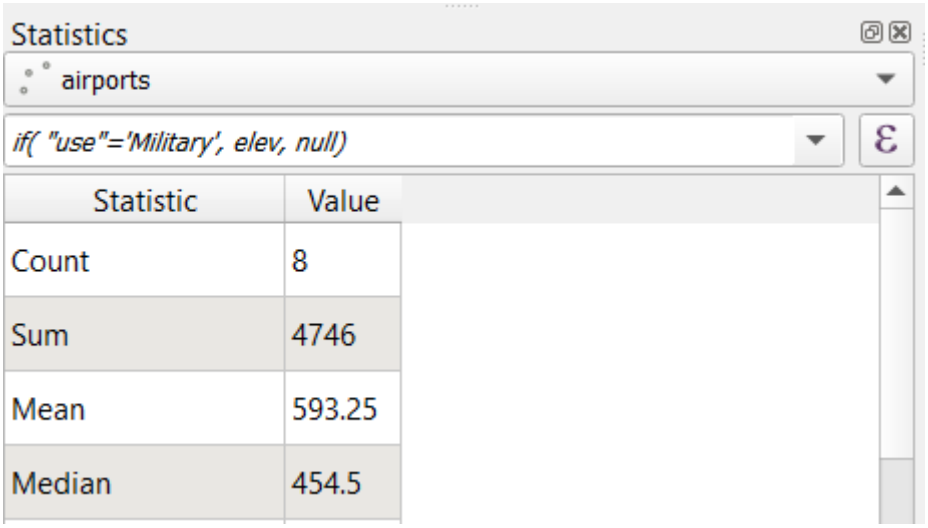



Add Geometry Attributes
Parameters
Log
Input layer
clipped_region_15 []
Selected features only
Calculate using
Layer CRS
Added geom info
es/cwiczenia4/split_layers_folder/add_geom_att.gpkg
Open output file after running algorithm
Add geometry attributes
This algorithm computes geometric properties of the features in a vector layer. It generates a new vector layer with the same content as the input one, but with additional attributes in its attributes table, containing geometric measurements.
Depending on the geometry type of the vector layer, the attributes added to the table will be different.
0%
Cancel
Advanced
Run as Batch Process...
Run
Close
Help

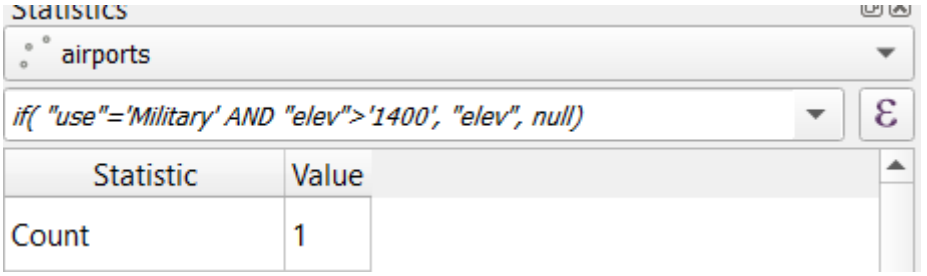

Layers
add_geom_att
clipped_region_15
length
railroads
Statistics
add_geom_att
1.2 length
Statistic
Value
Count
22
Sum
880924

ZAD. 4


Data Source Manager | PostgreSQL
Browser
Vector
Raster
Mesh
Point Cloud
Delimited Text
GeoPackage
GPS
SpatiaLite
PostgreSQL
MS SQL Server
Oracle
Virtual Layer
SAP HANA
WMS/WMTS
WFS / OGC API - Features
WCS
Connections
Connect
New
Edit
Remove
Load
Save
Schema
Table
Comment
Column
Data Type
Spatial Type
SRID
public
airports
railroads
regions
trees
geom
Geometry
Point
MultiLineStr...
MultiPolygon
Also list tables with no geometry
Set Filter
Close
Add
Help

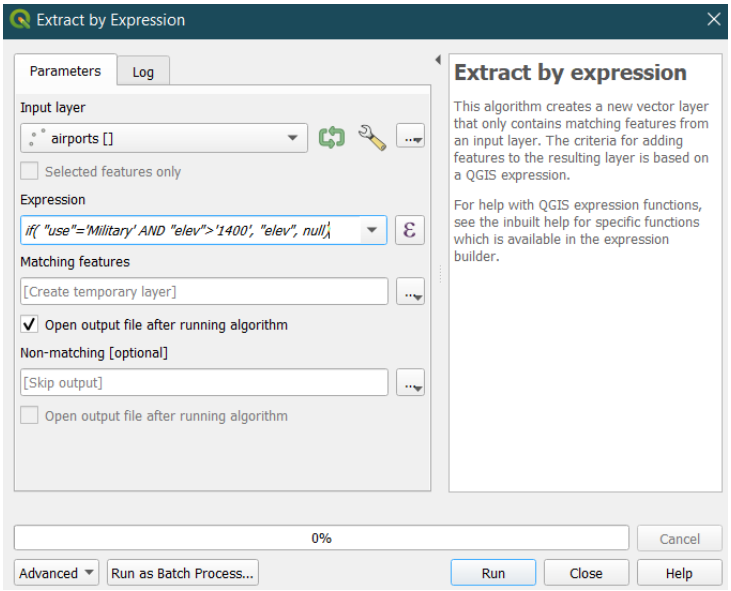


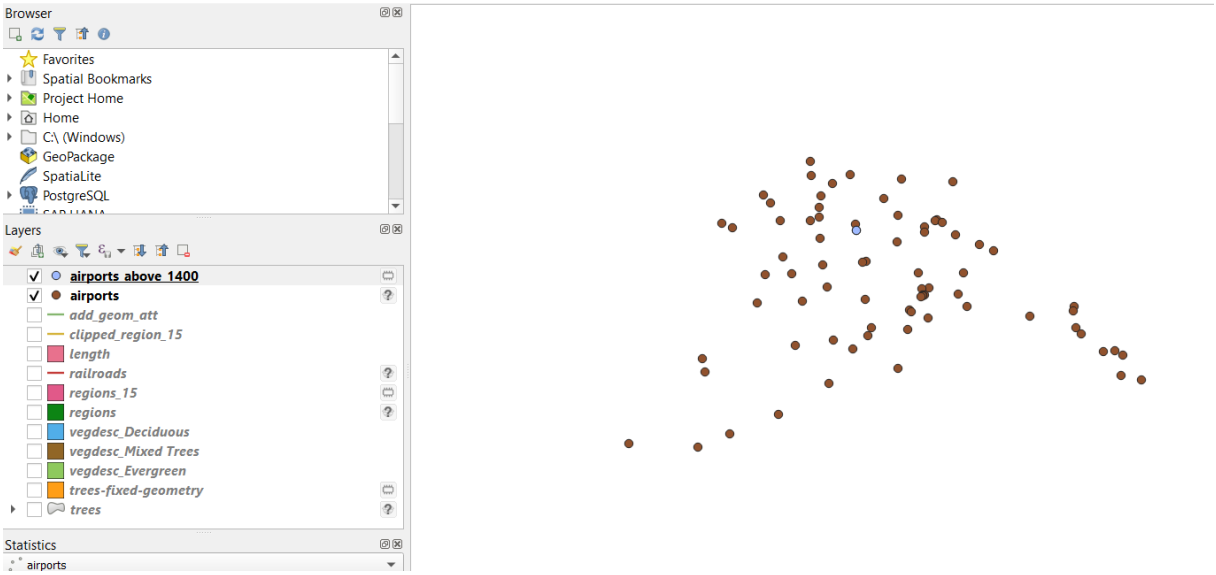
8 lotnisk o charakterze militarnym, średnia wysokość: 593.25 m npm



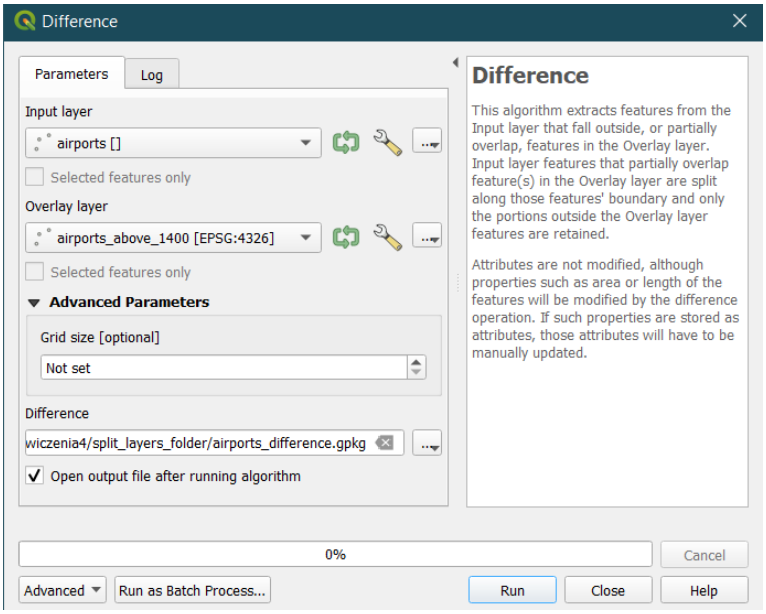
if("use"='Military' AND "elev">'1400', "elev", null)

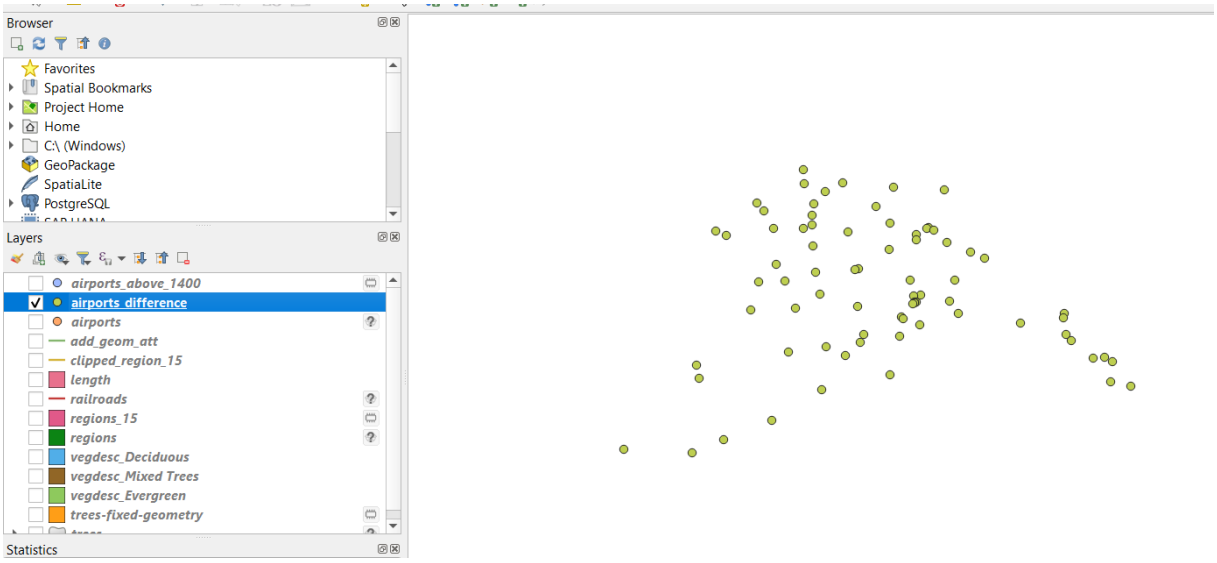
1 lotnisko położone powyżej 1400 m npm.



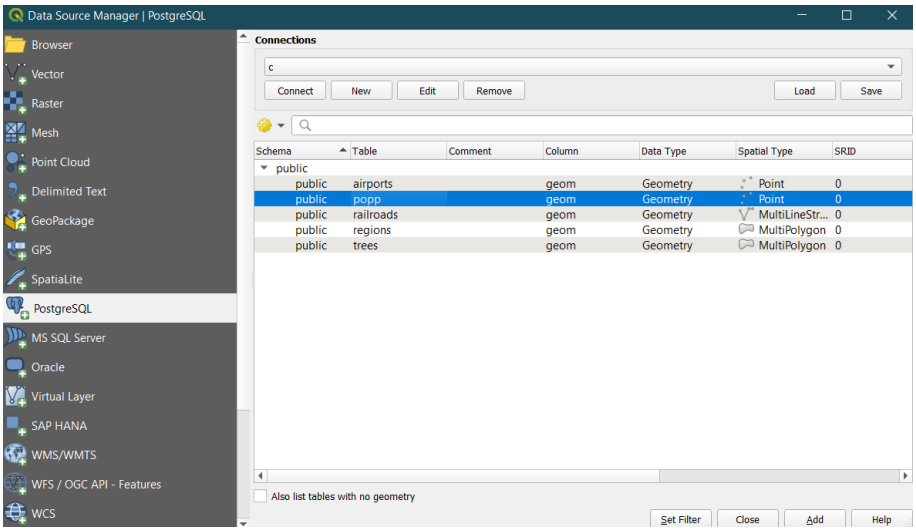


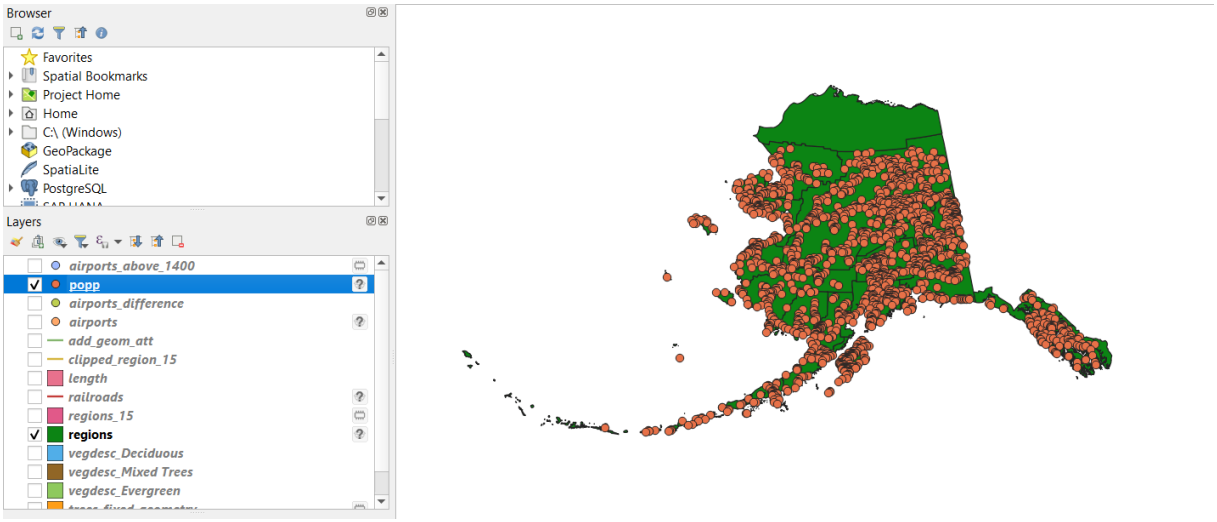
Niebieski punkt to szukane lotnisko.



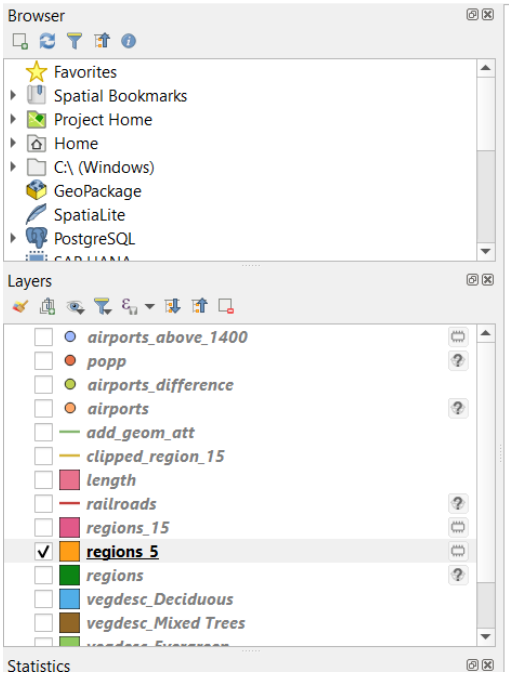


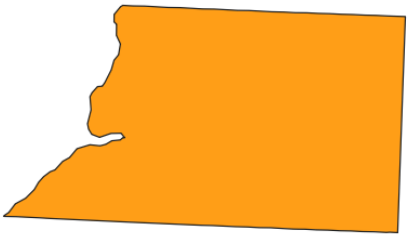
ZAD.5

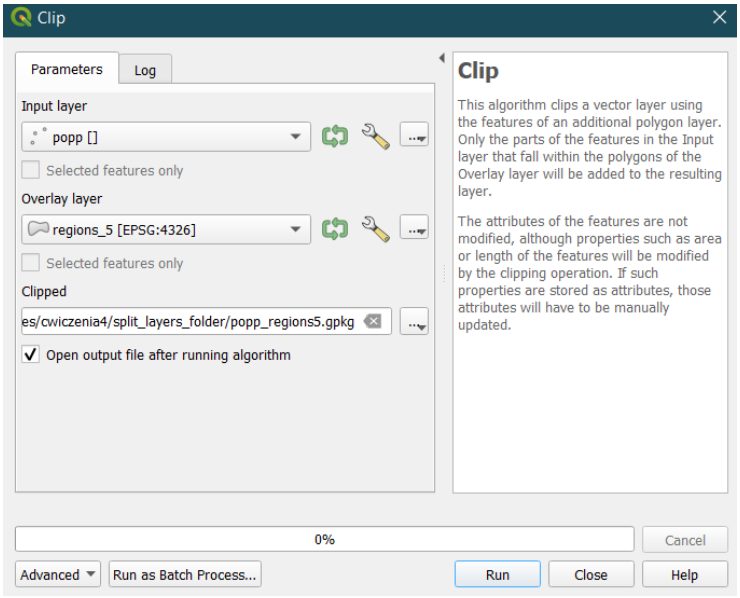


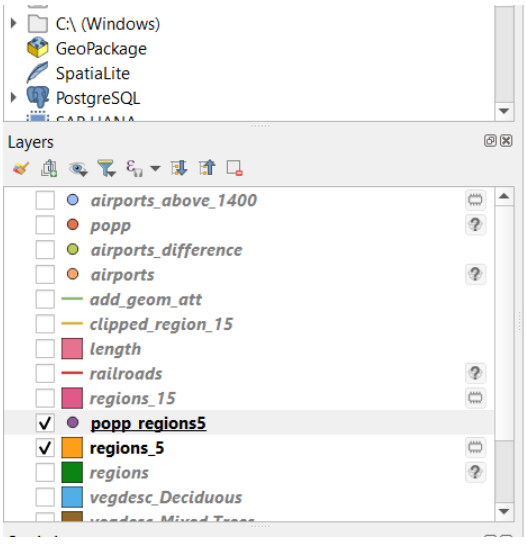


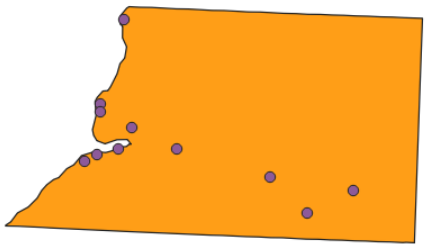
Funkcją extract by expression:

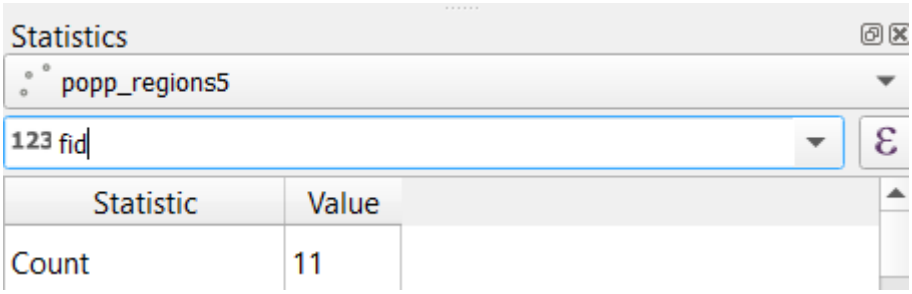

Browser
Favorites
Spatial Bookmarks
Project Home
Home
C:\ (Windows)
GeoPackage
SpatiaLite
PostgreSQL
Layers
airports_above_1400
popp
airports_difference
airports
add_geom_att
clipped_region_15
length
railroads
regions_15
regions_5
regions
vegdesc_Deciduous
vegdesc_Mixed Trees
Statistics




Clip
Parameters
Log
Input layer
popp []
Selected features only
Overlay layer
regions_5 [EPSG:4326]
Selected features only
Clipped
es/cwiczenia4/split_layers_folder/popp_regions5.gpkg
Open output file after running algorithm
Clip
This algorithm clips a vector layer using the features of an additional polygon layer. Only the parts of the features in the Input layer that fall within the polygons of the Overlay layer will be added to the resulting layer.
The attributes of the features are not modified, although properties such as area or length of the features will be modified by the clipping operation. If such properties are stored as attributes, those attributes will have to be manually updated.
0%
Cancel
Advanced
Run as Batch Process...
Run
Close
Help

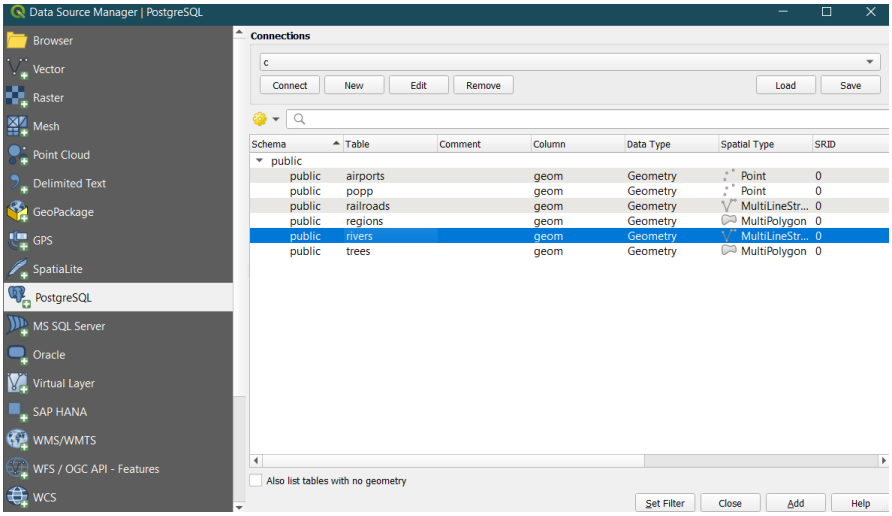

C:\ (Windows)
GeoPackage
SpatiaLite
PostgreSQL
Layers
airports_above_1400
popp
airports_difference
airports
add_geom_att
clipped_region_15
length
railroads
regions_15
popp_regions5
regions_5
regions
vegdesc_Deciduous



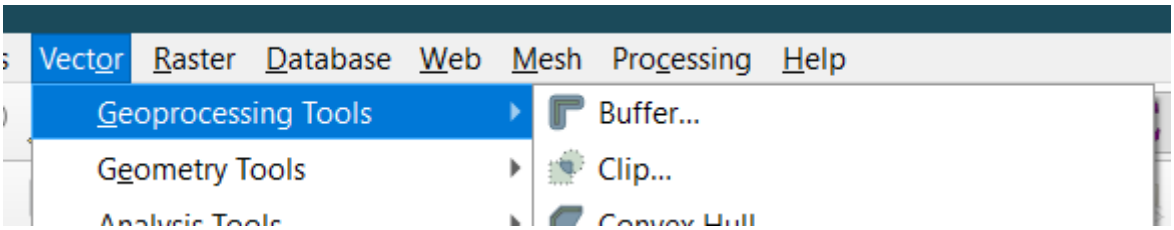


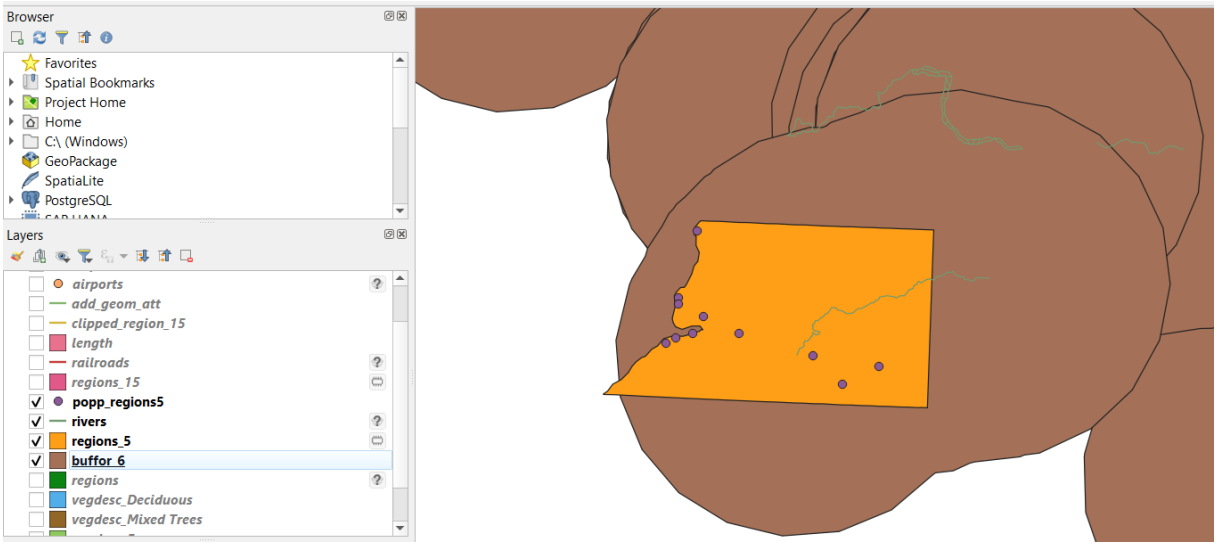
11 punktów w regionie.

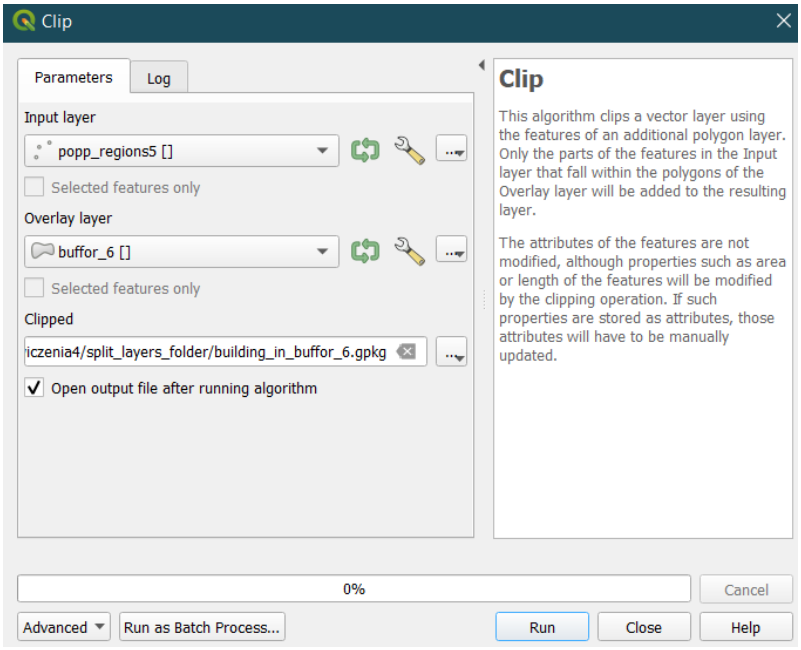
ZAD. 6

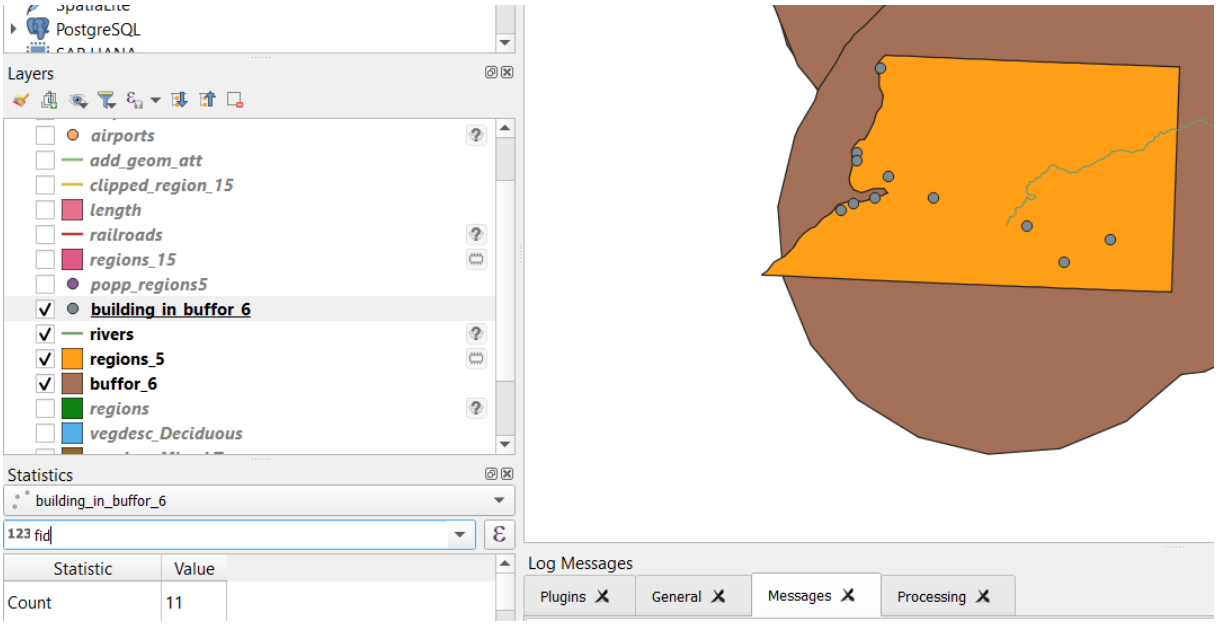


Funkcją buffer – 100000m



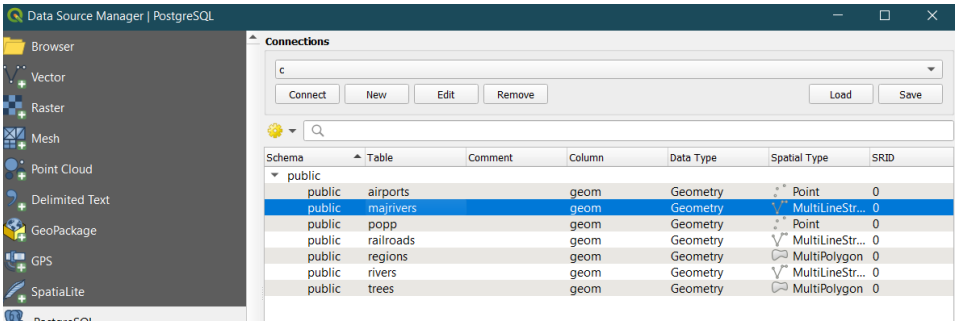

Browser
Favorites
Spatial Bookmarks
Project Home
Home
C:\ (Windows)
GeoPackage
SpatiaLite
PostgreSQL
Layers
airports
add_geom_att
clipped_region_15
length
railroads
regions_15
popp_regions5
rivers
regions_5
buffor_6
regions
vegdesc_Deciduous
vegdesc_Mixed Trees

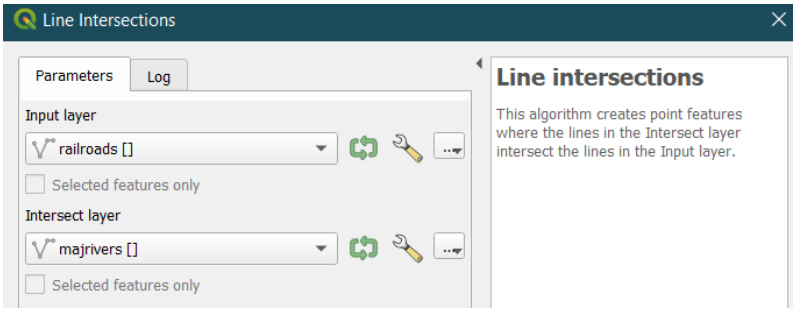

Clip
Parameters
Log
Input layer
popp_regions5 []
Selected features only
Overlay layer
buffor_6 []
Selected features only
Clipped
iczenia4/split_layers_folder/building_in_buffor_6.gpkg
Open output file after running algorithm
Clip
This algorithm clips a vector layer using the features of an additional polygon layer. Only the parts of the features in the Input layer that fall within the polygons of the Overlay layer will be added to the resulting layer.
The attributes of the features are not modified, although properties such as area or length of the features will be modified by the clipping operation. If such properties are stored as attributes, those attributes will have to be manually updated.
0%
Cancel
Advanced
Run as Batch Process...
Run
Close
Help

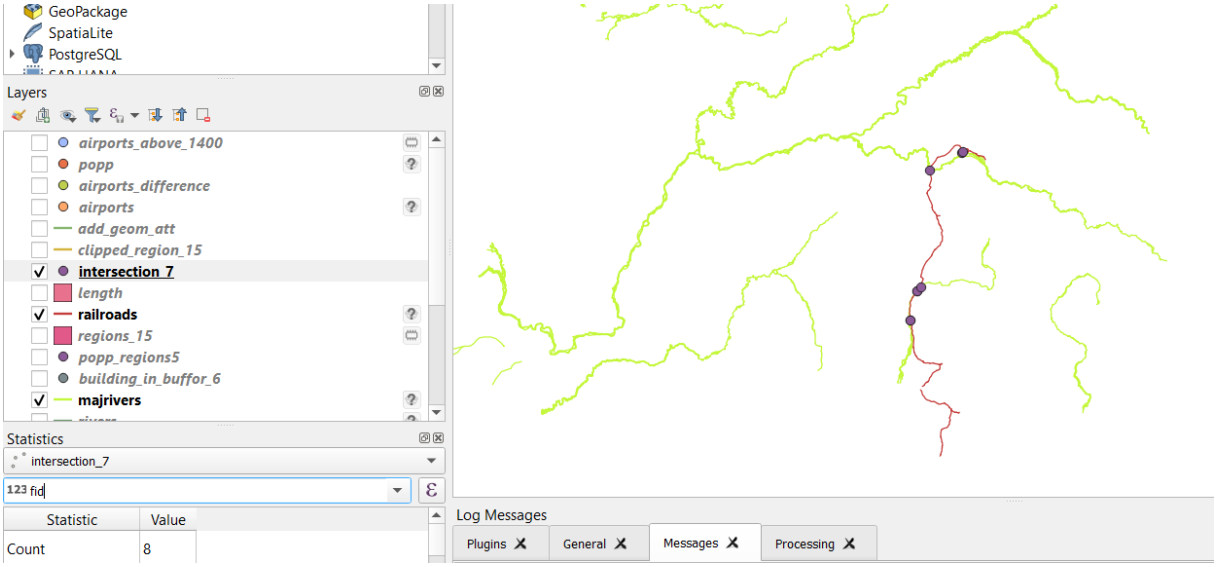

PostgreSQL
Layers
airports
add_geom_att
clipped_region_15
length
railroads
regions_15
popp_regions5
building_in_buffor_6
rivers
regions_5
buffor_6
regions
vegdesc_Deciduous
Statistics
building_in_buffor_6
123 fid
Statistic
Value
Count
11
Log Messages
Plugins
General
Messages
Processing

11 budynków.

ZAD. 7

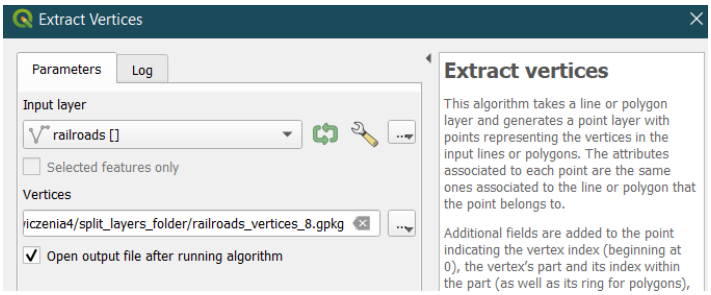


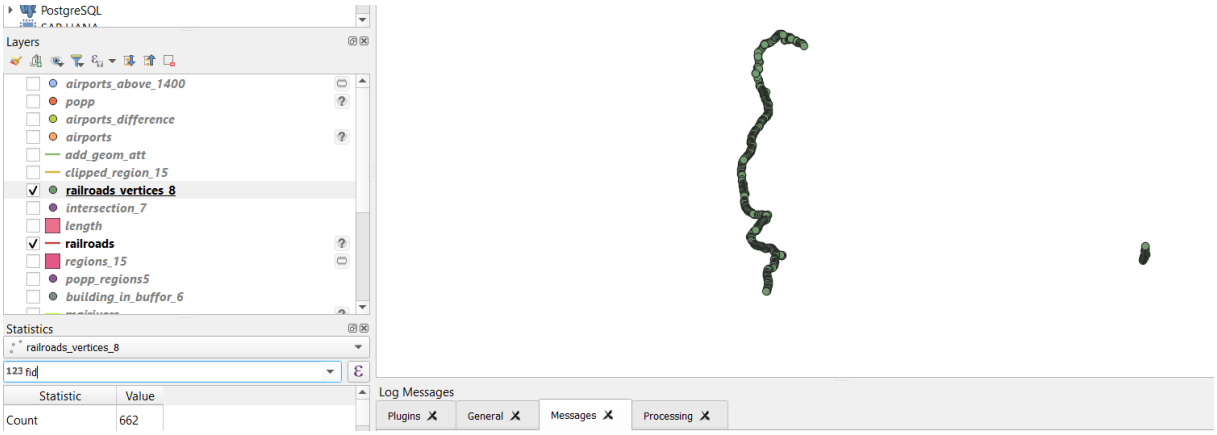




Przecinają się w 8 miejscach.

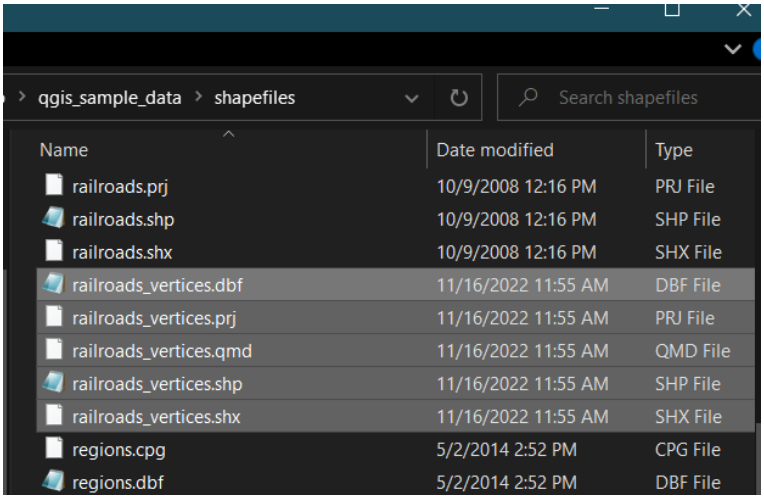
ZAD. 8





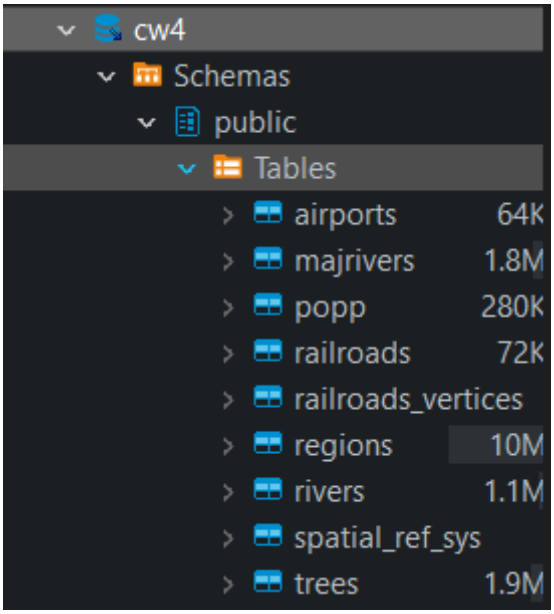
662 węzły.

Zapisałam plik do tego folderu:

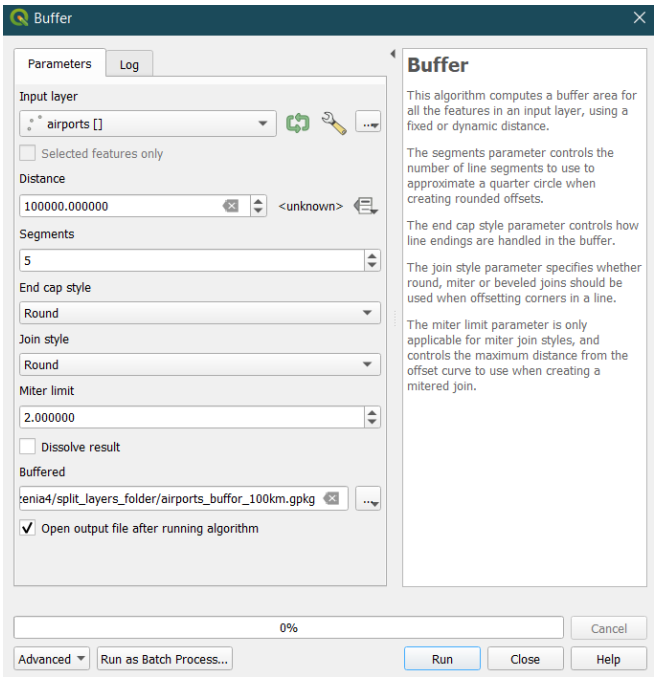


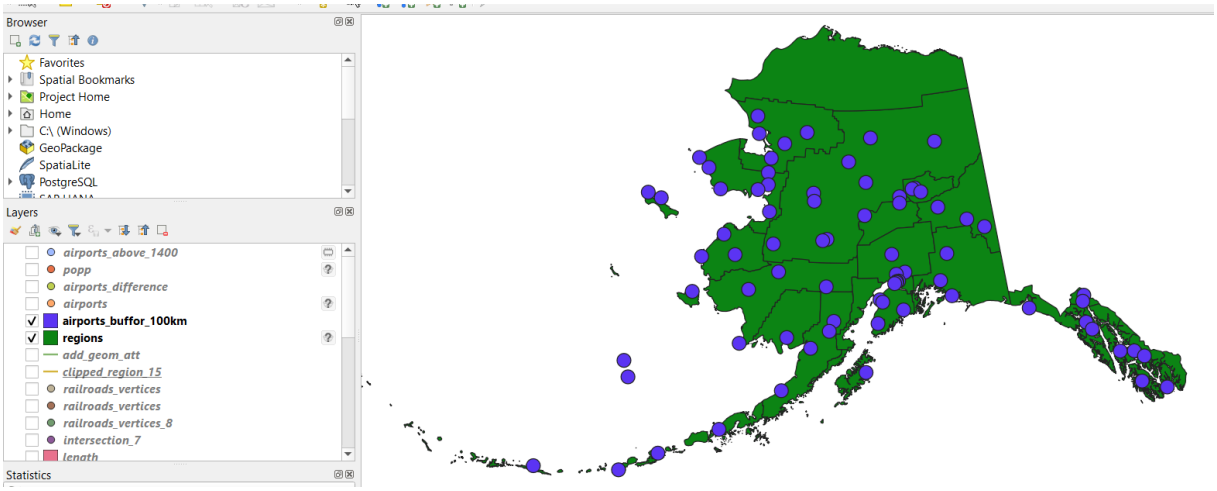
I wrzuciłam do bazy danych:

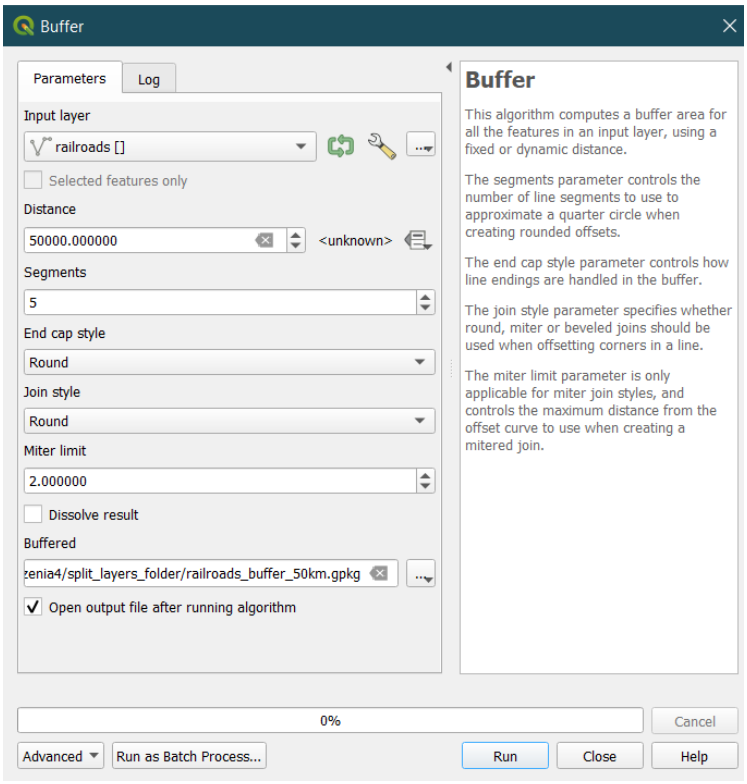
```
C:\Program Files\PostgreSQL\14\bin>shp2pgsql C:\Users\Home\Desktop\qgis_sample_data\shapefiles\railroads_vertices.shp ra
ilroads_vertices | psql -U postgres -h localhost -p 5433 -d cw4
```

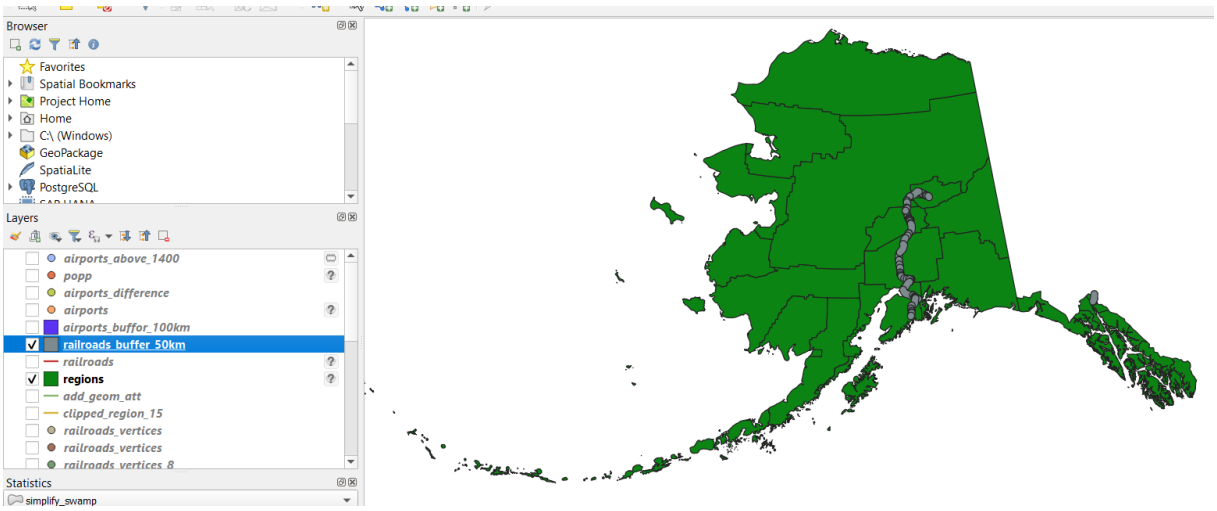


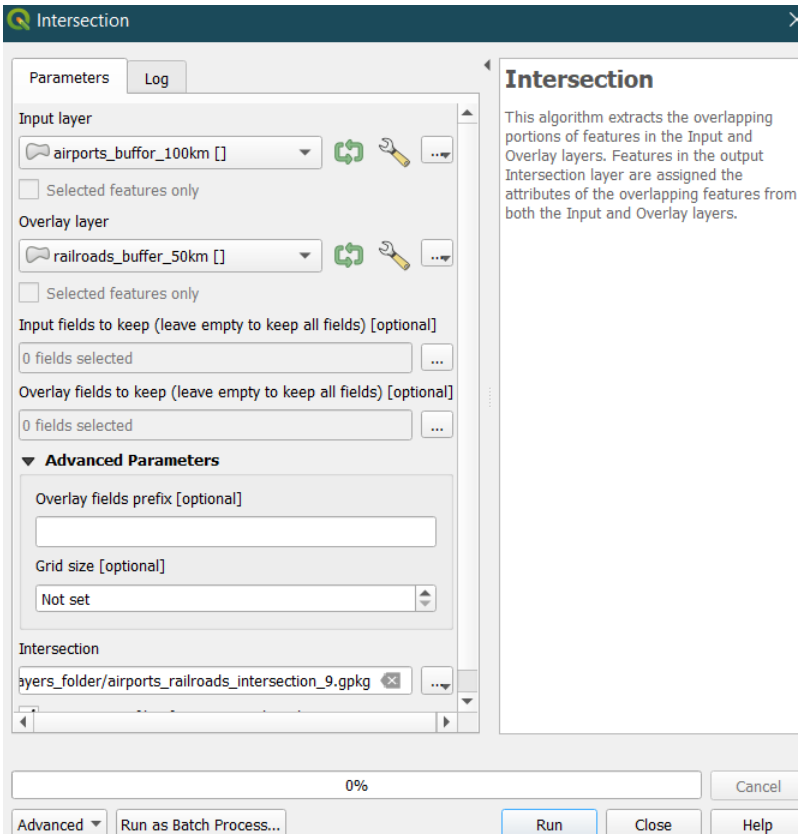
ZAD. 9

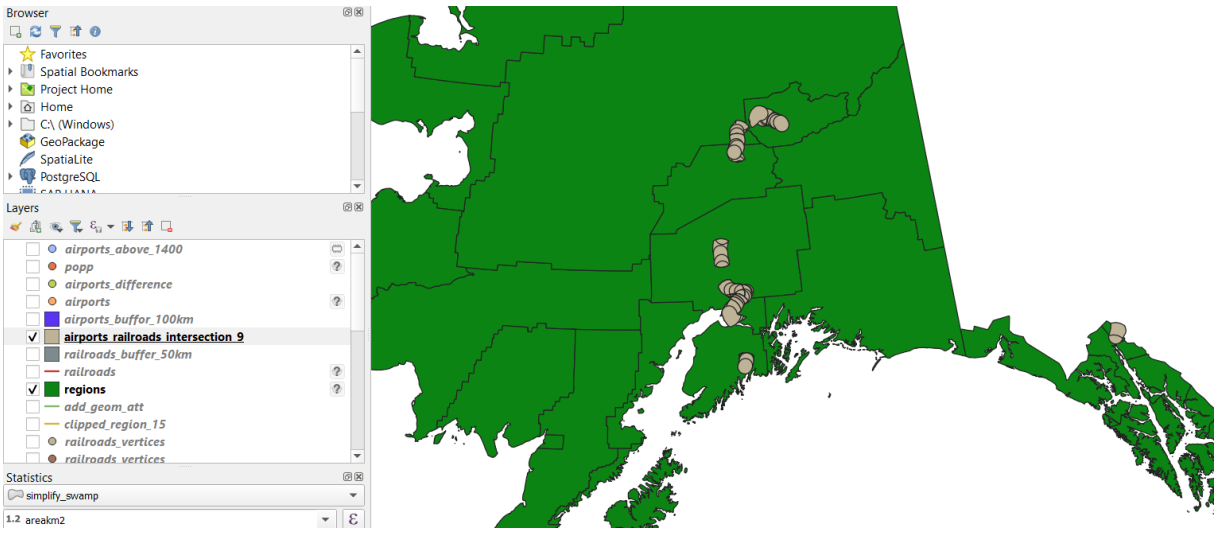

Buffer
Parameters
Log
Input layer
airports []
Selected features only
Distance
100000.000000
<unknown>
Segments
5
End cap style
Round
Join style
Round
Miter limit
2.000000
Dissolve result
Buffered
enia4/split_layers_folder/airports_buffor_100km.gpkg
Open output file after running algorithm
Buffer
This algorithm computes a buffer area for all the features in an input layer, using a fixed or dynamic distance.
The segments parameter controls the number of line segments to use to approximate a quarter circle when creating rounded offsets.
The end cap style parameter controls how line endings are handled in the buffer.
The join style parameter specifies whether round, miter or beveled joins should be used when offsetting corners in a line.
The miter limit parameter is only applicable for miter join styles, and controls the maximum distance from the offset curve to use when creating a mitered join.
0%
Cancel
Advanced
Run as Batch Process...
Run
Close
Help

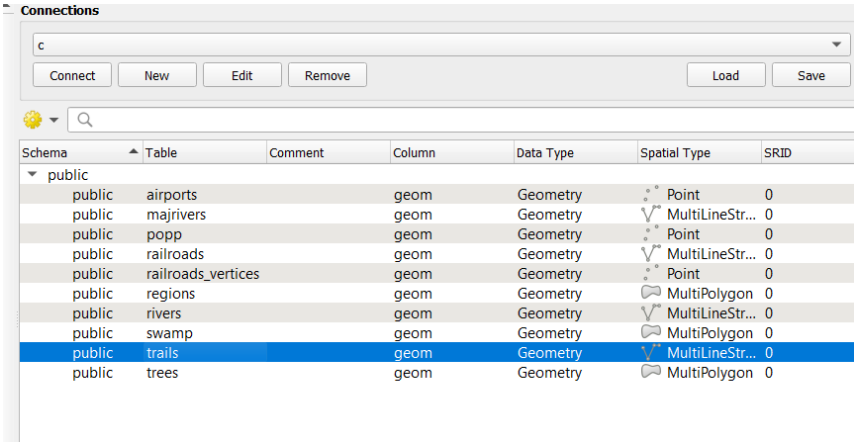

Browser
Favorites
Spatial Bookmarks
Project Home
Home
C:\ (Windows)
GeoPackage
SpatiaLite
PostgreSQL
Layers
airports_above_1400
popp
airports_difference
airports
airports_buffor_100km
regions
add_geom_att
clipped_region_15
railroads_vertices
railroads_vertices
railroads_vertices_8
intersection_7
Statistics


Buffer
Parameters
Log
Input layer
railroads []
Selected features only
Distance
50000.000000
<unknown>
Segments
5
End cap style
Round
Join style
Round
Miter limit
2.000000
Dissolve result
Buffered
zenia4/split_layers_folder/railroads_buffer_50km.gpkg
Open output file after running algorithm
Buffer
This algorithm computes a buffer area for all the features in an input layer, using a fixed or dynamic distance.
The segments parameter controls the number of line segments to use to approximate a quarter circle when creating rounded offsets.
The end cap style parameter controls how line endings are handled in the buffer.
The join style parameter specifies whether round, miter or beveled joins should be used when offsetting corners in a line.
The miter limit parameter is only applicable for miter join styles, and controls the maximum distance from the offset curve to use when creating a mitered join.
0%
Cancel
Advanced
Run as Batch Process...
Run
Close
Help

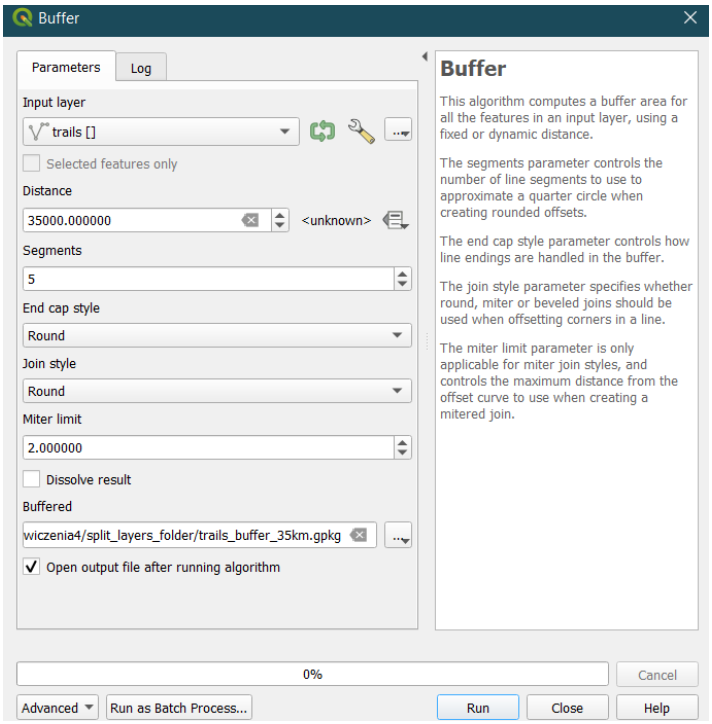

Browser
Favorites
Spatial Bookmarks
Project Home
Home
C:\ (Windows)
GeoPackage
SpatiaLite
PostgreSQL
Layers
airports_above_1400
popp
airports_difference
airports
airports_buffor_100km
railroads_buffer_50km
railroads
regions
add_geom_att
clipped_region_15
railroads_vertices
railroads_vertices
railroads_vertices_8
Statistics
simplify_swamp



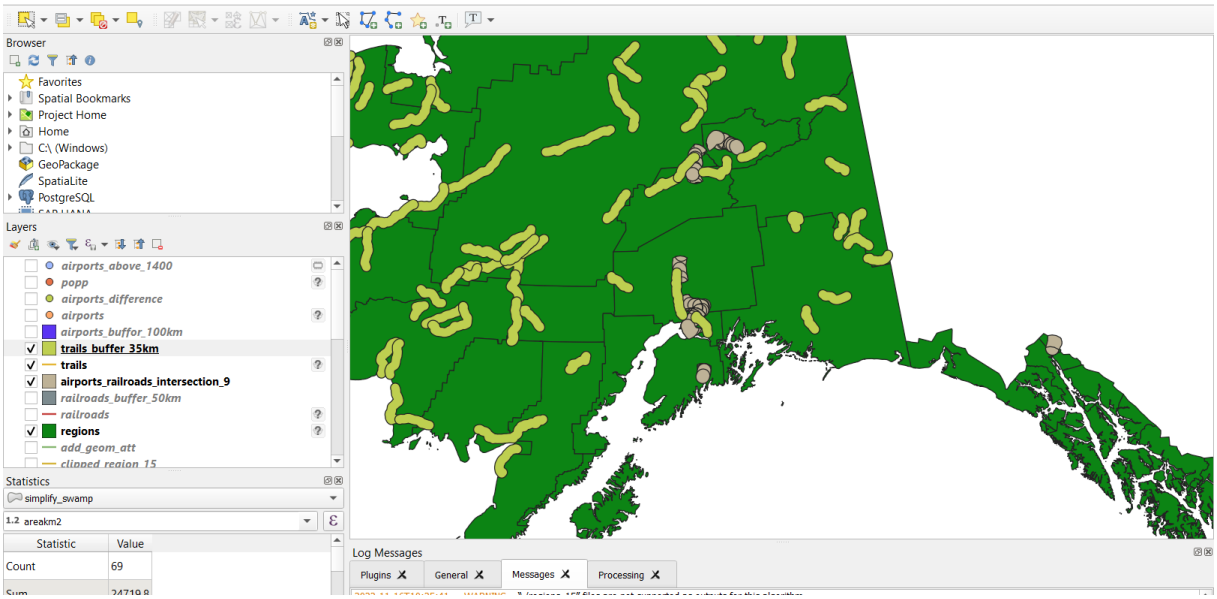


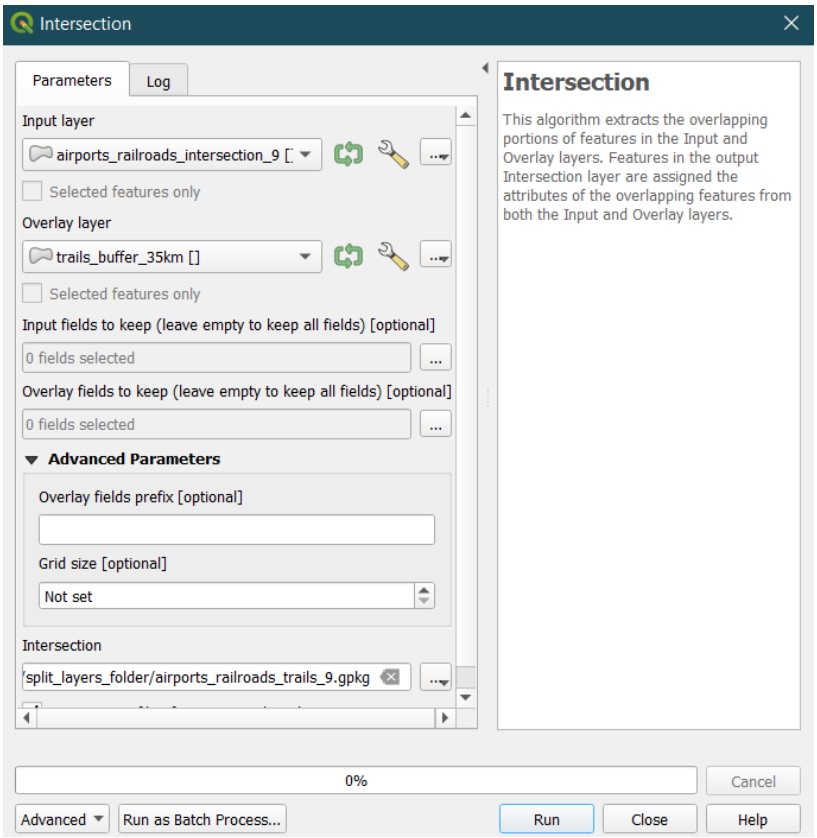


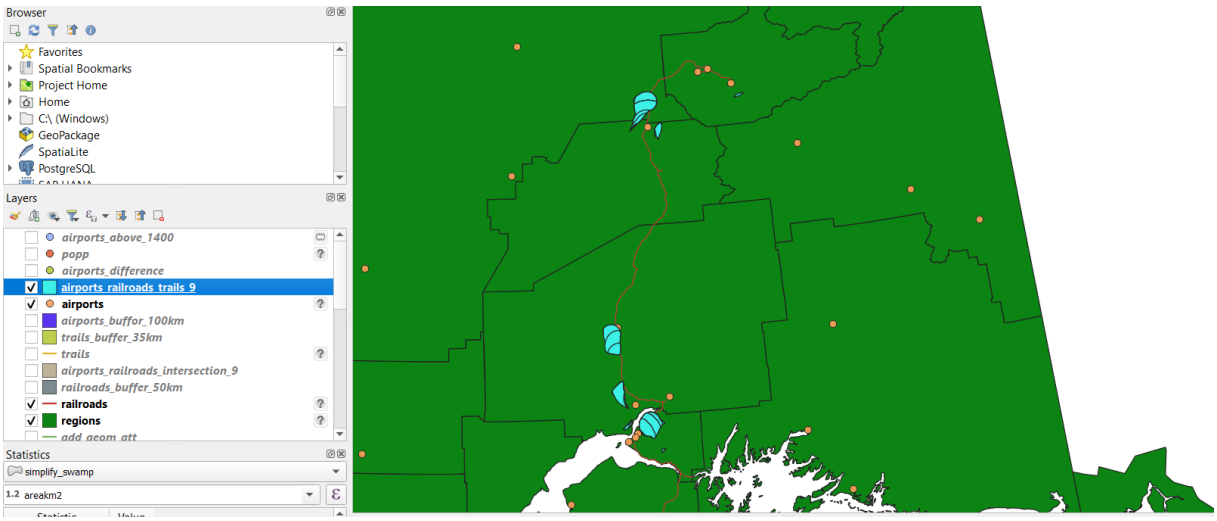
Schema	Table	Comment	Column	Data Type	Spatial Type	SRID
public						
public	airports		geom	Geometry	Point	0
public	majrivers		geom	Geometry	MultiLineStr...	0
public	popp		geom	Geometry	Point	0
public	railroads		geom	Geometry	MultiLineStr...	0
public	railroads_vertices		geom	Geometry	Point	0
public	regions		geom	Geometry	MultiPolygon	0
public	rivers		geom	Geometry	MultiLineStr...	0
public	swamp		geom	Geometry	MultiPolygon	0
public	trails		geom	Geometry	MultiLineStr...	0
public	trees		geom	Geometry	MultiPolygon	0



Sieć drogowa: max 35km.

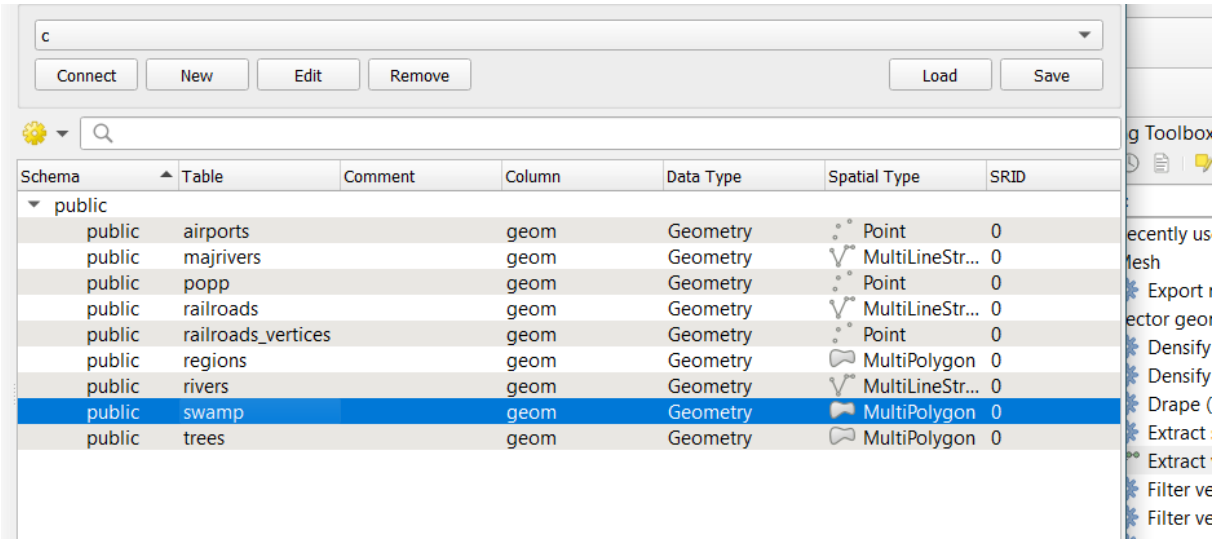




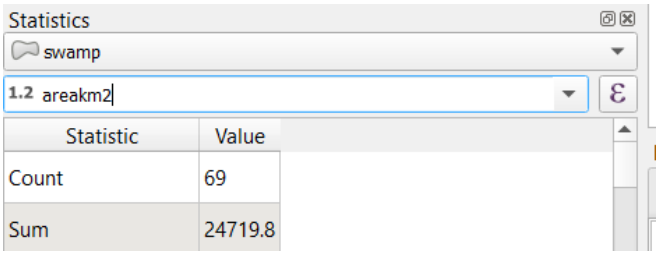


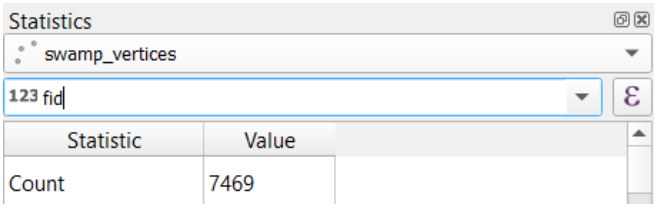
Na błękitno obszary, gdzie najlepiej wybudować hotele.

ZAD. 10

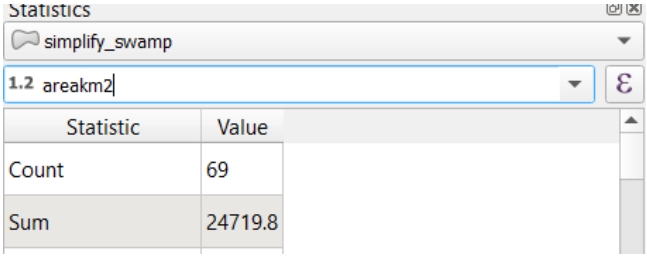


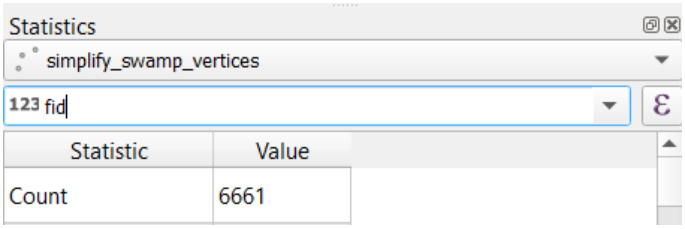
Przed:



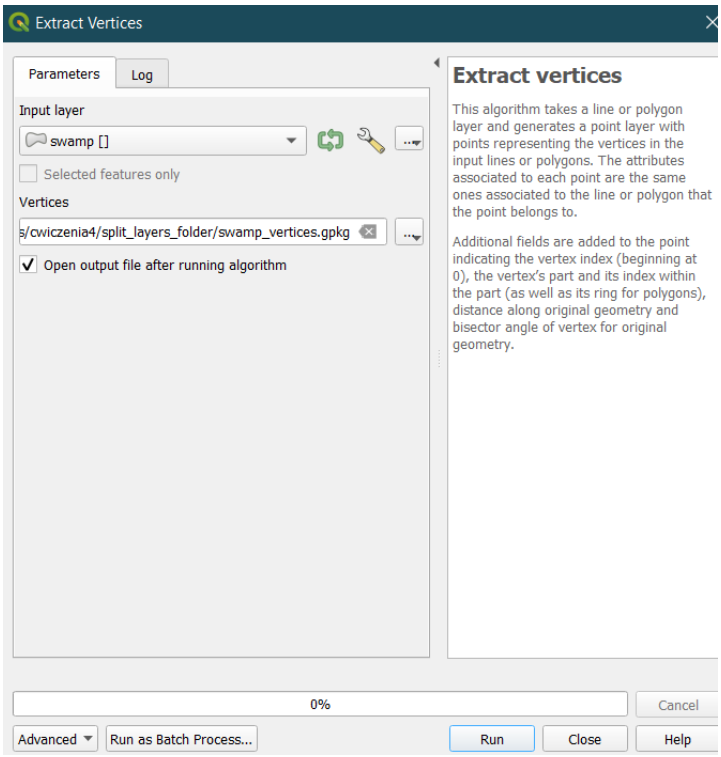


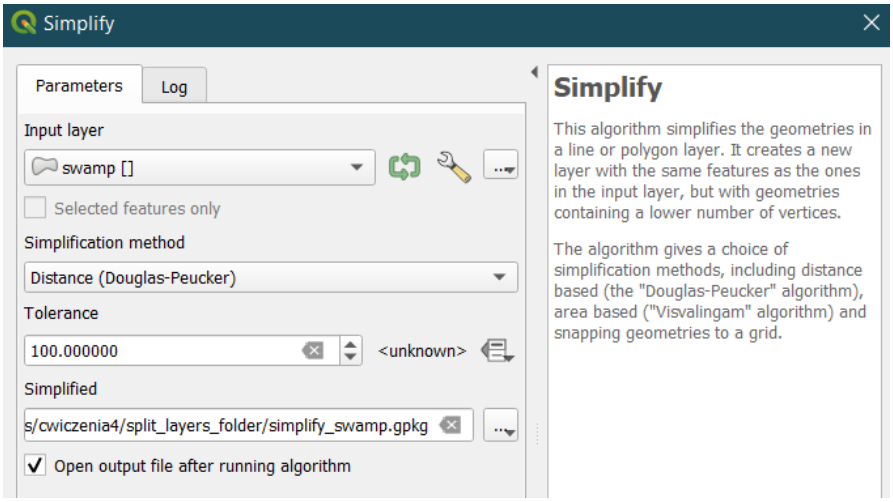
Po:

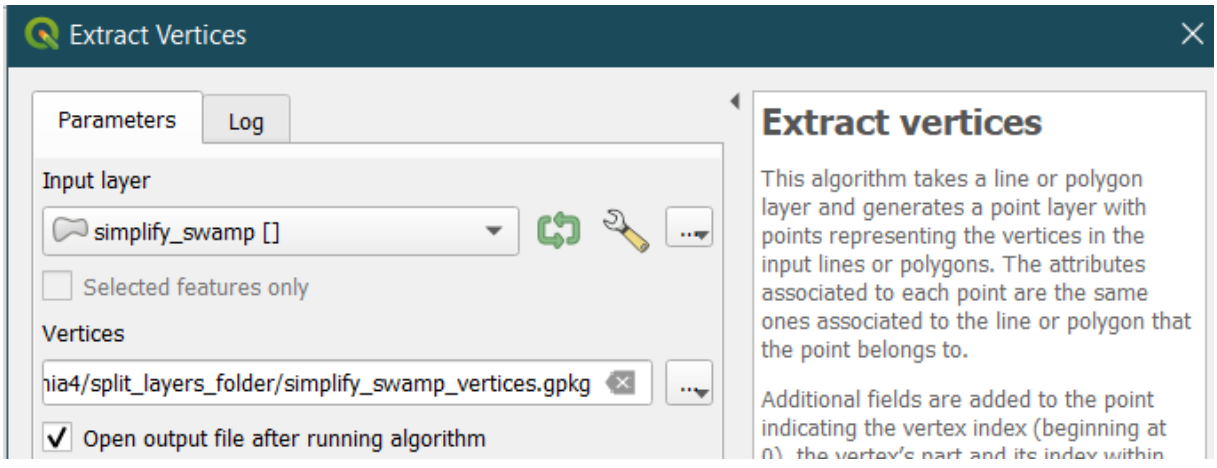




Zredukowano 808 wierzchołków. Pola nie uległy zmianie.


Extract Vertices
Parameters
Log
Input layer
swamp []
Selected features only
Vertices
s/cwiczenia4/split_layers_folder/swamp_vertices.gpkg
Open output file after running algorithm
Extract vertices
This algorithm takes a line or polygon layer and generates a point layer with points representing the vertices in the input lines or polygons. The attributes associated to each point are the same ones associated to the line or polygon that the point belongs to.
Additional fields are added to the point indicating the vertex index (beginning at 0), the vertex's part and its index within the part (as well as its ring for polygons), distance along original geometry and bisector angle of vertex for original geometry.
0%
Cancel
Advanced
Run as Batch Process...
Run
Close
Help


Simplify
Parameters
Log
Input layer
swamp []
Selected features only
Simplification method
Distance (Douglas-Peucker)
Tolerance
100.000000
<unknown>
Simplified
s/cwiczenia4/split_layers_folder/simplify_swamp.gpkg
Open output file after running algorithm
Simplify
This algorithm simplifies the geometries in a line or polygon layer. It creates a new layer with the same features as the ones in the input layer, but with geometries containing a lower number of vertices.
The algorithm gives a choice of simplification methods, including distance based (the "Douglas-Peucker" algorithm), area based ("Visvalingam" algorithm) and snapping geometries to a grid.


Extract Vertices
Parameters
Log
Input layer
simplify_swamp []
Selected features only
Vertices
hia4/split_layers_folder/simplify_swamp_vertices.gpkg
Open output file after running algorithm
Extract vertices
This algorithm takes a line or polygon layer and generates a point layer with points representing the vertices in the input lines or polygons. The attributes associated to each point are the same ones associated to the line or polygon that the point belongs to.
Additional fields are added to the point indicating the vertex index (beginning at