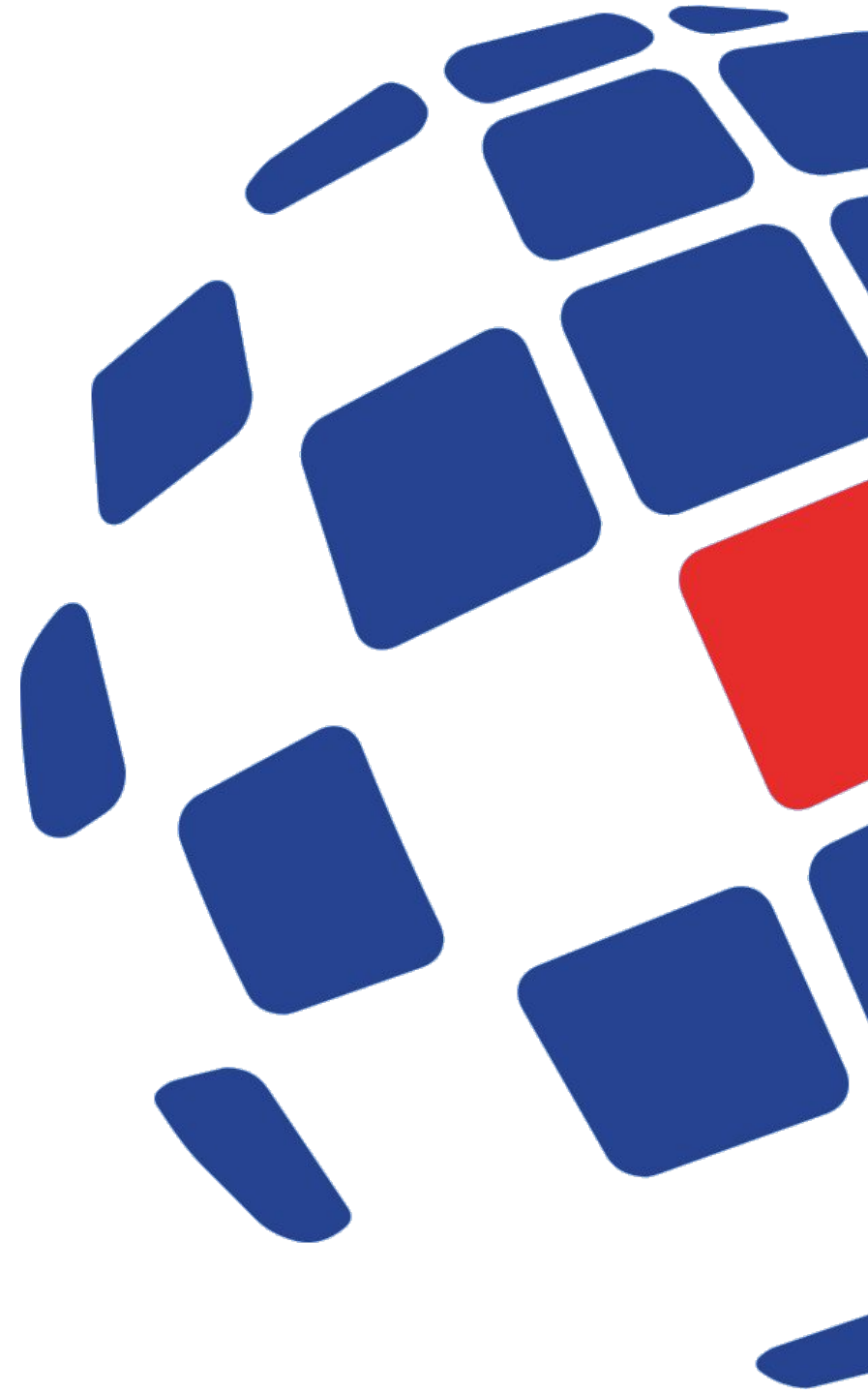




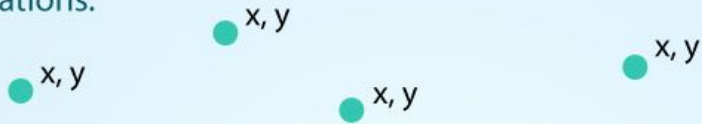
October 2023 - Saint Kitts and Nevis
GIS Data: Vectors



Vector Data - Structure

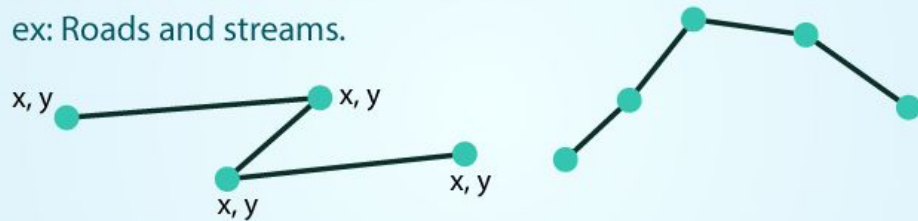
POINTS: Individual x, y locations.

ex: Center point of plot locations, tower locations, sampling locations.



LINES: Composed of many (at least 2) vertices, or points, that are connected.

ex: Roads and streams.



POLYGONS: 3 or more vertices that are connected and **closed**.

ex: Building boundaries and lakes.

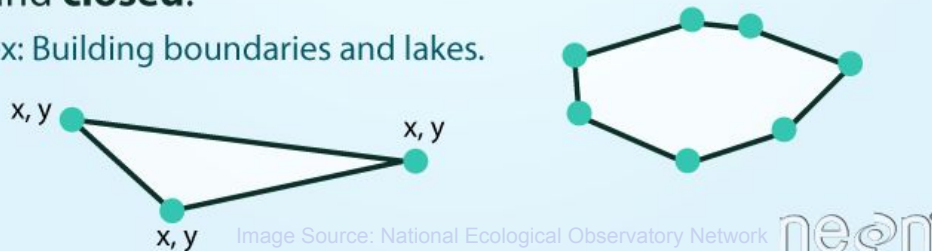



Image Source: National Ecological Observatory Network 

Vector data (point, line or polygon) are all made up of series of points or vertices

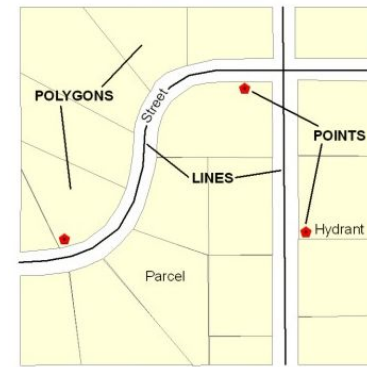
Each individual point, line or polygon has separate line in the attribute table where information about the object is stored

The most popular data format for vector data is the Shapefile (Shp)

<https://datacarpentry.org/organization-geospatial/02-intro-vector-data/>

Vector Data

- Features represented by series of coordinates
- Features have attribute information in tables
- Generic term is vector data



Example Attributes for Point Data

| ID | Plot Size | Type | VegClass |
|----|-----------|------------|-----------|
| 1 | 40 | Vegetation | Conifer |
| 2 | 20 | Vegetation | Deciduous |
| 3 | 40 | Vegetation | Conifer |

Example Attributes for Line Data

| ID | Type | Status | Maintenance |
|----|------------|--------|-------------|
| 1 | Road | Open | Year Round |
| 2 | Dirt Trail | Open | Summer |
| 3 | Road | Closed | Year Round |

Example Attributes for Polygon Data

| ID | Type | Class | Status |
|----|--------------------|-----------|-----------|
| 1 | Herbaceous | Grassland | Protected |
| 2 | Herbaceous | Pasture | Open |
| 3 | Herbaceous / Woody | Grassland | Protected |

Image Source: National Ecological Observatory Network (NEON)

Paths Browser

| Surface | Access | Cycling |
|---------|---------|---------|
| Earth | Public | Yes |
| Tarmac | Private | Yes |

Woodland Browser

| Name | Area_m2 | Nesting_birds |
|-------------|---------|---------------|
| Jesus Green | 12,652 | yes |

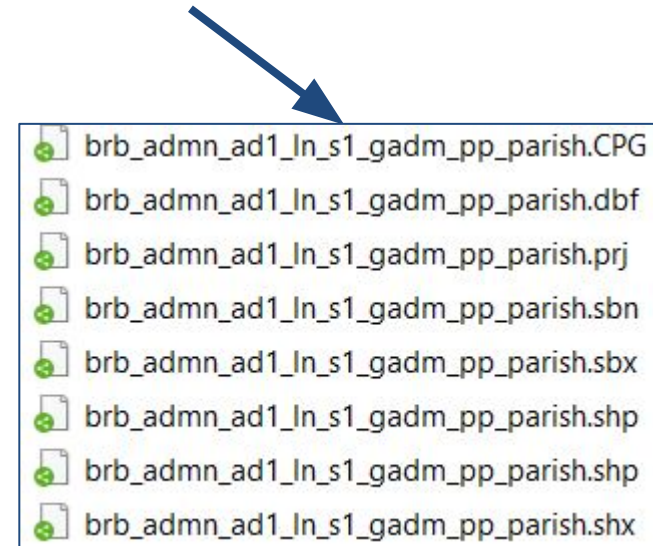
Trees Browser

| Common_name | Height_2003 | Trunk_diam_200 | Condition |
|-------------|-------------|----------------|-----------|
| Sycamore | 5 | 0 | Healthy |
| Beech | 0 | 0 | Diseased |

GIS Mapping Data Formats

VECTOR DATA

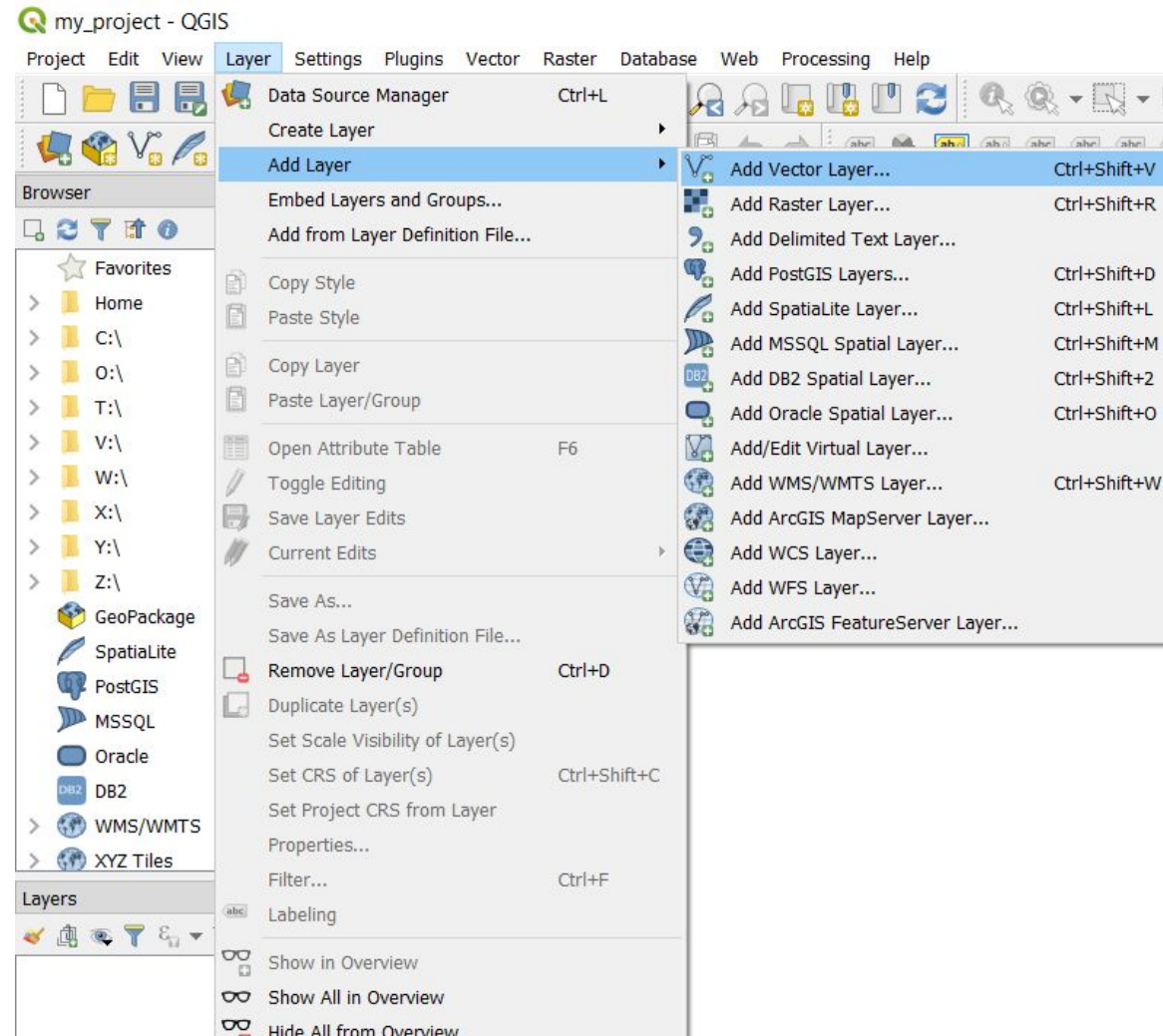
- GPX – GPS standard format
- KML/KMZ – Google Earth/Map
- ShapeFile SHP – ESRI – widely used – multiple files
- QGIS Geopackage ESRI Geodatabase
- Excel.xlsx, CSV, DBF



Adding Vector Data

Adding SHAPE file

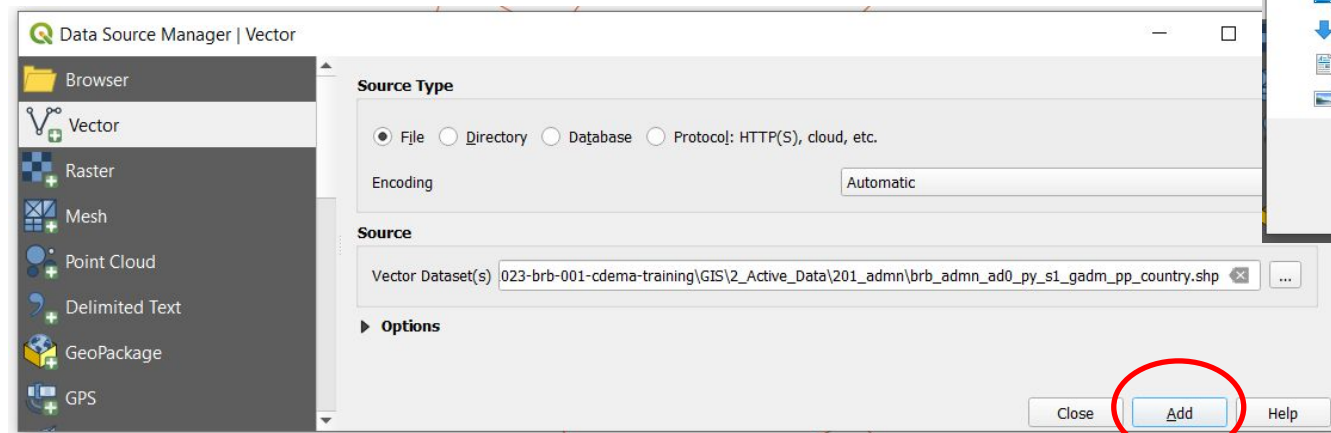
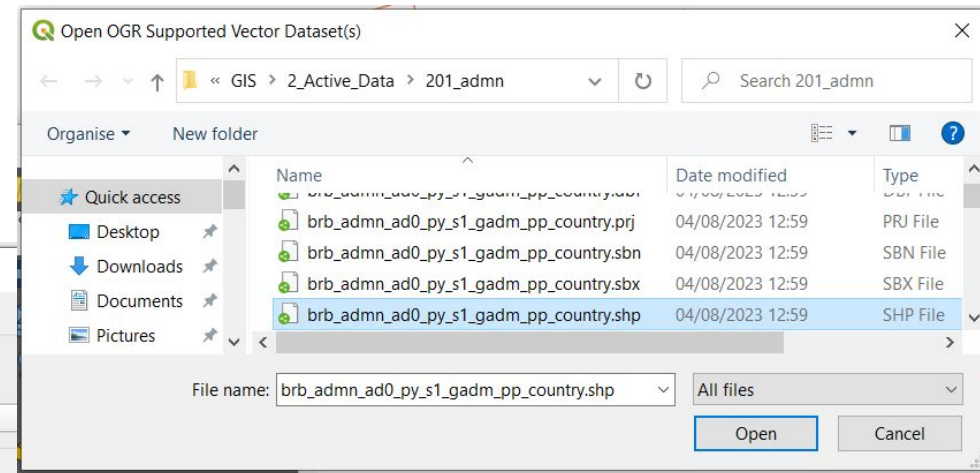
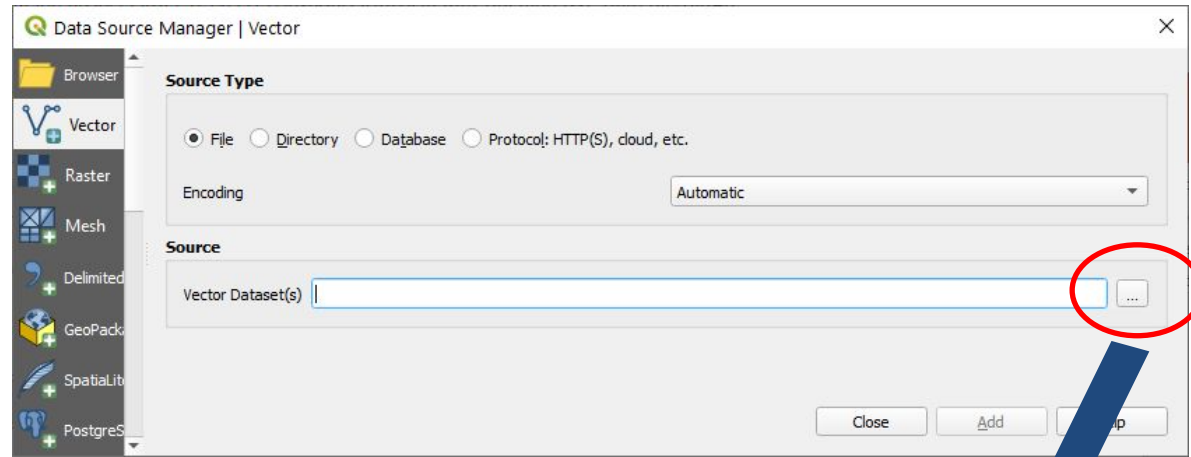
- Add Layer
- Add Vector Layer



Add Data

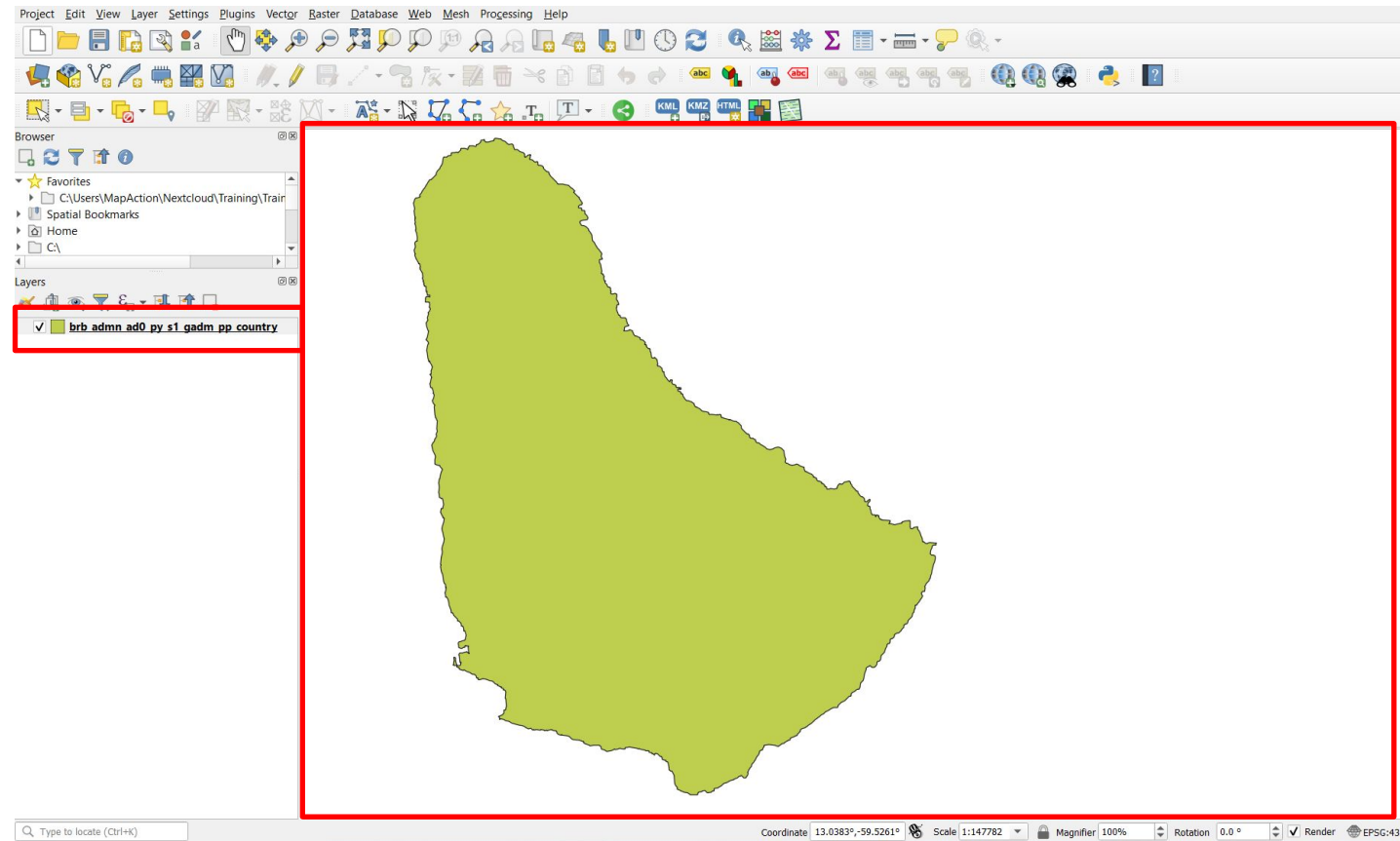
Add Vector Layer

- Source Type: File
- Navigate to file
- Open SHP file > Add data



Add Data

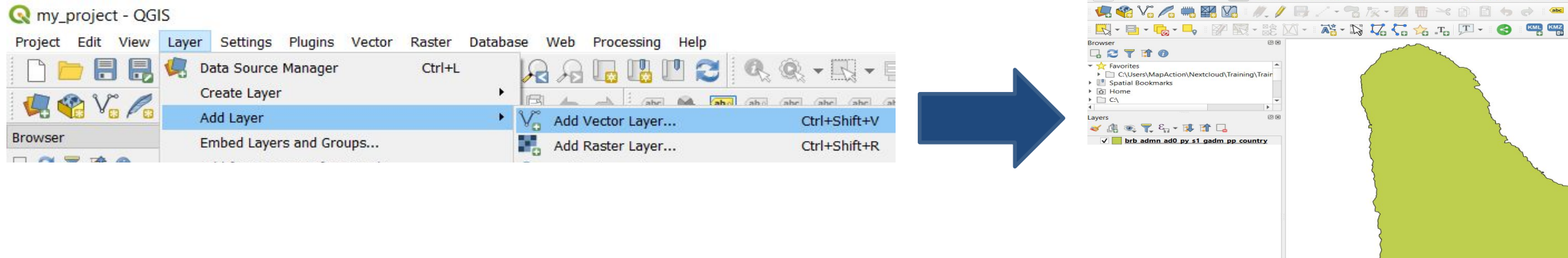
- The layer had been added to the map window
- The name is also shown in the layer list panel



Conclusion

We have now looked at the following features:

- Vector data
- How to add a vector shape file to the project



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MAP ACTION

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