# Exercise 3: Introduction to Digitizing in QGIS

**(60 Points Total)**

**Data available under Resources>Digitizing.**

In this exercise you will learn how to digitize within QGIS. You will first load in a raster image file and then change its symbology to help better identify the features you will be digitizing. You will then create 5 layers (3 polygon, 1 line, and 1 point) within a GeoPackage. You will then digitize features into each layer. Lastly, this lab will serve as a refresher on map design.

Topics covered in this exercise include:

1. Load image data into a project and change its symbology
2. Create a geopackage and layer files
3. Digitize elements for point, line, and polygon layers
4. Create a map layout
5. Configuring a legend

## Data

**CentralParkImage.tif**

**Central Park Reference Map:** https://assets.centralparknyc.org/pdfs/maps/Central_Park_Access_Map.pdf

## Image Symbology

Add the **CentralParkImage.tif** file into QGIS. Using the options in Properties>Symbology, set:
- Red Channel = Band 4
- Green Channel = Band 3
- Blue Channel = Band 2

Using this band combination, the dark areas are water bodies, red areas are vegetation, and the blue/teal areas are buildings and roads.

## Digitization

1. Create a database as a GeoPackage called **centralpark.gpkg**.
2. Add a point layer to the **centralpark.gpkg** GeoPackage called **cpark_entrances** with a "Street" text field of 250 characters.
3. Add a polygon layer to the **centralpark.gpkg** GeoPackage called **cpark_landmarks** with a "Name" text field of 250 characters.
4. Add a polygon layer to the **centralpark.gpkg** GeoPackage called **cpark_ponds** with a "Name" text field of 250 characters.
5. Add a line layer to the **centralpark.gpk** GeoPackage called **cpark_roads** with a "Name" text field of 250 characters.
6. Add a polygon layer to the **centralpark.gpkg** GeoPackage called **cpark_boundary** with a "Name" text field of 250 characters
7. Digitize the boundary of the park.

8. Using the Accessibility Map of Central Park, digitize the following roads: 97 Street Transverse, 86 Street Transverse, 79 Street Transverse, Terrace Drive (connects 72 Street), and 65 Street Transverse.
9. Using the Accessibility Map of Central Park, digitize the following entrances: Columbus Circle (Southwest corner), Grand Army Plaza (Southeast Corner), Frederick Douglass Circle (Northwest corner), and Duke Ellington Circle (Northeast corner).
10. Using the Accessibility Map of Central Park, digitize the following landmarks: Metropolitan Museum of Art, Lasker Rink and Pool, Tennis Courts, Bethesda Terrace & Fountain, Wollman Rink, and North Meadow Recreation Center.
11. Using the Accessibility Map of Central Park, digitize the following ponds: The Pond, The Lake, Turtle Pond, Jackie Kennedy Onassis Reservoir, and Harlem Meer.

## Symbology (20 points)

1. **cpark_boundary**: Fill with HTML Color #33a2c2; 2-point solid line stroke with HTML color #585858. **(4 points)**
2. **cpark_ponds:** light blue fill; 1-point solid line stroke in dark blue. **(4 points)**
3. **cpark_landmarks:** fill with HTML Color #e014e3; 1 point black solid line stroke. **(4 points)**
4. **cpark_entrances**: displayed as diamonds with 3 millimeters fill of red and a stroke of black with a 0.5 millimeter solid line. **(4 points)**
5. **cpark_roads:** displayed as 2-point, topo road type with 100% opacity in HTML golden yellow. **(4 points)**

## Map Design (40 points)

1. Map uses UTM (Universal Transverse Mercator) Zone 18N projection. The projection information is provided as text on the map layout **(2 points)**
2. The map layout is in portrait orientation **(2 points)**
3. Rotate map (Found under Main Properties on right side) -27.5 degrees. **(2 points)**
4. A north arrow has been added. The north arrow should not be large or take up a lot of space on the layout **(2 points)**
5. A scale bar has been added. The units should be in miles with the highest unit at .5 miles and labeled 'mi'. **(2 points)**
6. A textbox is used to give credit: 'Digitized from PlanetScope Scene acquired on June 16, 2020'. **(2 points)**
7. The title 'Central Park, New York City' is provided in 28 point font at the top. **(2 points)**
8. A legend is added. Add a title of 'Legend' to the legend. Legend labels are changed from file names (e.g. **cpark_roads** to 'Roads'). Change by clicking on the legend and right clicking on Item Properties. Under Legend Items, uncheck Auto update. Click on each layer and change the label. When done click the blue arrow just above to return to Legend Item Properties. You can right click on **CentralParkImage** and select Hidden to remove this layer from the legend. **(4 points)**
9. Add your name in lower right corner. **(2 points)**
10. Correct digitization of park boundary. **(2 points)**
11. Correct digitization of park roads. **(4 points)**
12. Correct digitization of park landmarks. **(4 points)**
13. Correct digitization of park entrances. **(3 points)**
14. Correct digitization of park ponds. **(3 points)**
15. The map is overall very neat and well organized. Spaced is utilized well, and the data are well presented **(4 Points)**

## References:

CentralParkImage.tif = clipped from June 16, 2020 PlanetScope Scene(4 band, 3m resolution) (http://www.planet.com)

## Deliverables

- Map layout in PDF format.