

# Practice Exam for Intro GIS

Data and questions for you to use to practice for the midterm practical exam.

## Selection Tools

### Scenario: Roads and streams in Washington

Culverts are commonly used to allow water to flow under or through developed areas, particularly under roads. This exercise will ask you for information about culverts in a small section of Pierce County, Washington.



In the folder `part2_data`, you will find data corresponding to the following:

- Culverts
- Streams
- Roads
- Soils

In addition, there is a table (in `.dbf` format) of percent rock fragments in each soil name.

### Questions:

How many culverts are there in this area and how do you know?

How many culverts are made of metal and how do you know?

How many *metal* culverts are 24" wide and how do you know?

How many culverts are located within 100 ft of a stream, and what steps did you take to find the answer?

Of the culverts within 100 ft of a stream, how many are metal, and what steps did you take to find the answer?

What material is the culvert with the maximum diameter located on Barneston soil?

- What diameter is that culvert?
- What steps did you take to find the answer?

What are the names of the soils under the 1200 Road? What percentage of rock fragments do each of the soil names contain? What steps did you use to get your answer?

What is the total distance (in km) of gravel, light-duty roads in the study area and how did you find out?

## Geoprocessing:

### Scenario: Illegal logging in the Adirondacks

The Adirondack Park Agency is concerned about some cases of small-scale illegal logging within the park. Park managers think that local land owners have been cutting down trees for fire wood. The Adirondack Park Agency has asked for your help to identify locations within the town of Newcomb likely to be targeted this summer so that they can position law enforcement to prevent loss of trees. Here are the criteria that the park managers believe create elevated risk for illegal logging:

1. Locations must contain 'hardwood' land cover.
2. Locations must be inside the park boundaries and within the boundaries of the town of Newcomb.
3. Locations within 0-100 m of a road are **highest** concern.
1. Locations between 100-200 m of a road are **medium** concern.

The park has provided you with the following data:

- **landcover.shp** (a polygon shapefile of land cover classes)
- **landcover\_descriptions.xls** (a table of land cover descriptions)
- **NY\_towns.shp** (a polygon shapefile with NY state town borders)
- **roads.shp** (a line file of roads surrounding and within the park)
- **park\_boundaries.shp** (a polygon shapefile of the park boundaries)

## Questions

For each of the data files make sure you know:

- the data format: raster, vector, point, lines, polygons, other?
- The spatial reference info: GCS, PCS, datum, projection, etc.

What is the land area (in square km) at highest concern for illegal logging?

What is the land area (in square km) at medium concern for illegal logging?

Describe the steps you took to answer the two above questions.

## Projections

Look at the 'MA\_2016\_Towns' and MA\_Outline files. Someone has deleted the projection information from the outline file!

### Questions

What is the native projection of the towns file?

Is the outline file a PCS or a GCS? How do you know?