

## Project 8: Arcade for Pop-Up and Label Customization

**Task:** Write Arcade expressions to generate the following text. This exercise can be accomplished using the provided `counties_with_table.shp` file. The `us_county_data_description.pdf` file explains the available attributes. We recommend building and validating the syntax using ArcGIS Pro.

### Tasks:

- ❖ **Task 1:** Write an expression to calculate population density in people per square mile units. Calculate the population density using the "POPULAT" and "SQMI" columns. Round off the value to 2 decimal places and include "people per sq. mi." at the end of the statement.
- ❖ **Task 2:** Edit the expression from Task 1 so that the units are people per square kilometer. Calculate the population density using the "POPULAT" and "SQMI" columns. Round off the value to 2 decimal places and include "people per sq. km." at the end of the statement.
- ❖ **Task 3:** Change the text in Task 1 to read as "people/mi<sup>2</sup>. You must use a superscript.
- ❖ **Task 4:** Calculate the density of streams in kilometers of streams per hectare. Use the "strm\_length" and "SQMI" fields. You will need to perform unit conversions.
- ❖ **Task 5:** Write an expression to generate the following text: 'The land area of "NAME", "STATE\_N" is "SQMI" square miles. "per\_for"% of its land area is forested.' Words in quotes indicate field names. Round off the "per\_for" field to 2 decimal places and add a percentage sign.
- ❖ **Task 6:** Recreate Task 5 using a template literal as opposed to traditional string concatenation.
- ❖ **Task 7:** Write an expression that will return the following text based on the percent forest cover "per\_for":  
  
     $\geq 75\%$  = "Dominated by Forest"  
  
     $\geq 40$  AND  $< 75$  = "Highly Forested"  
  
     $\geq 20$  AND  $< 40$  = "Moderately Forested"  
  
     $\geq 0$  AND  $< 20$  = "Sparsely Forested"
- ❖ **Task 8:** Write an expression that will return the mean elevation ("dem") with the thousand separator included, rounded off to 1 decimal place, and the units stated (meters).
- ❖ **Task 9:** Write an expression that will return the total annual precipitation ("precip") with the thousand separator included, rounded off to 2 decimal place, and the units stated (millimeters).
- ❖ **Task 10:** Write syntax that will return "Karst Present" if the "pr\_krst" column has a value not equal to 0 and "No Karst Present" if the value is equal to zero in this column.

### Deliverables:

- ❖ Plain text file containing all expressions. Each task should be differentiated using comments.