Mini Project 1 Static Maps

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Importing Data

```
library(tidyverse)
library(dplyr)
library(sf)
library(tmap)
library(maps)
library(viridis)
library(htmltools)
library(glue)
library(leaflet)

us_states <- map_data("state")

frogs <- read.csv("~/Desktop/15/SDS264/data/most_common_frog.csv") |>
  na.omit()

forests <- read.csv("~/Desktop/15/SDS264/data/forests.csv") |>
  mutate('forest_cover' = forest_area/land_area * 100)

states <- read_sf("https://rstudio.github.io/leaflet/json/us-states.geojson")
```

Data Source

Forest

For my numerical maps, I looked at the percentage of land covered in forest in the united states. I found this data in the USDA Forest Service FIA Annual Report, this report is a pdf where I extracted the values that I would need for this data set.

Frogs

I wanted to look frogs for my categorical data. I found observations of frogs on the website, inaturalist where you can export observations based on specific criteria. I wanted to look at something more interesting then just the most common frog in each state so i looked at the most commonly observed frog that is deemed threatened.

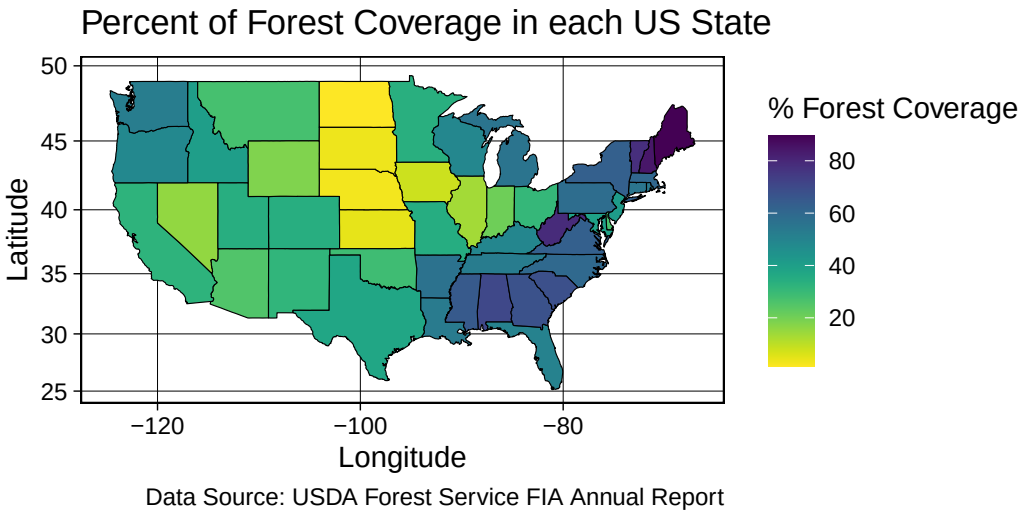
Joining with Polygons

```
forests_static <- forests |>
  mutate(state = str_to_lower(state)) |>
  right_join(us_states, by = c("state" = "region"))
```

```
frogs_static <- frogs |>
  mutate(state = str_to_lower(state)) |>
  right_join(us_states, by = c("state" = "region"))
```

Static Maps

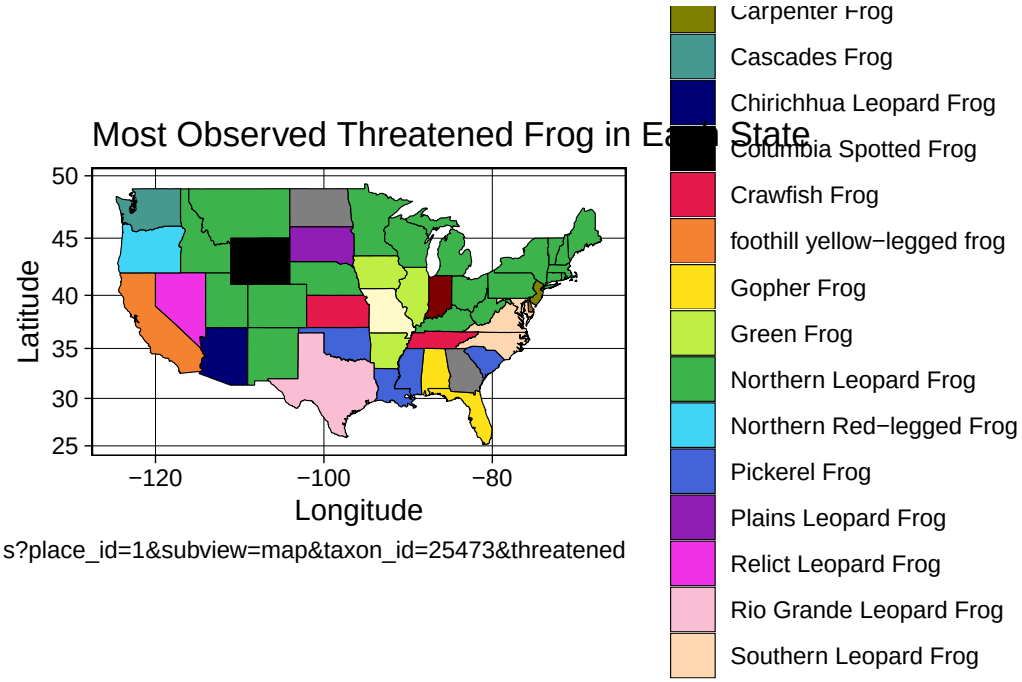
```
forests_static |>
  ggplot(mapping = aes(x = long, y = lat, group = group)) +
  geom_polygon(aes(fill = forest_cover), color = "black", linewidth = 0.2) +
  labs(fill = "% Forest Coverage", title = "Percent of Forest Coverage in each US State", x =
  coord_map() +
  scale_fill_viridis(option = "viridis", direction = -1) +
  theme_linedraw()
```



alt text: This is a choropleth map of the United States that is looking a the percentage of land area that is covered by forest in each state. The x-axis is the longitude values of the United States which contain values -120 - -80. The y-axis the latitude values of the United States which contain values 25-50. This map is colored by the percentage forest covereage with the most coverage being a dark purple while the least coverage is a bright yellow. From this map we can see that states in the East have a higher percentage of forest coverage while states in the middle have a much lower percent forest coverage, then the west coast has a medium amount of forest coverage.

```
frogs_static |>
  ggplot(mapping = aes(x = long, y = lat, group = group)) +
  geom_polygon(aes(fill = frog), color = "black", linewidth = 0.2) +
  labs(fill = "Frog Common Name", title = "Most Observed Threatened Frog in Each State", x =
  scale_fill_manual(values = c("#800000",
                               "#9A6324",
                               "#808000",
                               "#469990",
                               "#000075",
                               "#000000",
                               "#e6194B",
                               "#f58231",
                               "#ffe119",
                               "#bfef45",
```

```
                                "#3cb44b",
                                "#42d4f4",
                                "#4363d8",
                                "#911eb4",
                                "#f032e6",
                                "#fabed4",
                                "#ffd8b1",
                                "#fffac8",
                                "#aaffc3")) +
  coord_map() +
  theme_linedraw()
```



s?place_id=1&subview=map&taxon_id=25473&threatened