Point and polygon data

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```
library(tidyverse)
library(sp)
library(sf)
```

Including Plots

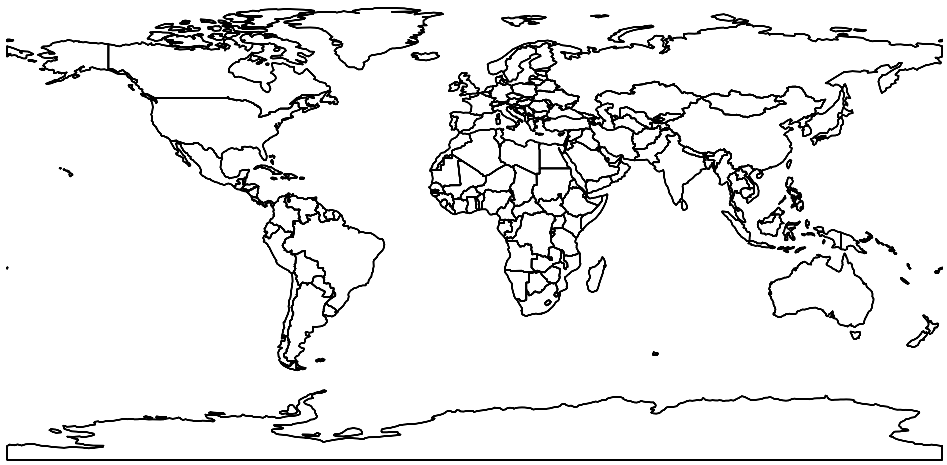
You can also embed plots, for example:

```
## Object of class SpatialPolygonsDataFrame
## Coordinates:
##         min       max
## x -180.0000 180.00000
## y  -89.9999  83.64513
## Is projected: FALSE
## proj4string :
## [+proj=longlat +datum=WGS84 +no_defs +ellps=WGS84 +towgs84=0,0,0]
## Data attributes:
##      name              iso_a3            population
##  Length:177         Length:177         Min.   :1.400e+02
##  Class :character   Class :character   1st Qu.:3.481e+06
##  Mode  :character   Mode  :character   Median :9.048e+06
##                                        Mean   :3.849e+07
##                                        3rd Qu.:2.616e+07
##                                        Max.   :1.339e+09
##                                        NA's   :1
##       gdp              region           subregion
##  Min.   :      16   Length:177         Length:177
##  1st Qu.:   13198   Class :character   Class :character
##  Median :   43450   Mode  :character   Mode  :character
##  Mean   :  395513
##  3rd Qu.:  235100
##  Max.   :15094000
##  NA's   :1
```

```
# Call str() with max.level = 2 on countries_spdf
str(countries_spdf, max.level = 2)
```

```
## Formal class 'SpatialPolygonsDataFrame' [package "sp"] with 5 slots
##   ..@ data       :'data.frame':  177 obs. of  6 variables:
##   ..@ polygons   :List of 177
##   ..@ plotOrder  : int [1:177] 7 136 28 169 31 23 9 66 84 5 ...
##   ..@ bbox       : num [1:2, 1:2] -180 -90 180 83.6
##   .. ..- attr(*, "dimnames")=List of 2
##   ..@ proj4string:Formal class 'CRS' [package "sp"] with 1 slot
```

```r
# Plot countries_spdf
plot(countries_spdf)
```



```r
one <- countries_spdf@polygons[[169]]
```

```r
# str() with max.level = 2, on the Polygons slot of one
str(one@Polygons, max.level = 2)
```

```
## List of 10
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
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##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
```

```r
str(one@Polygons[[6]], max.level = 2)
```

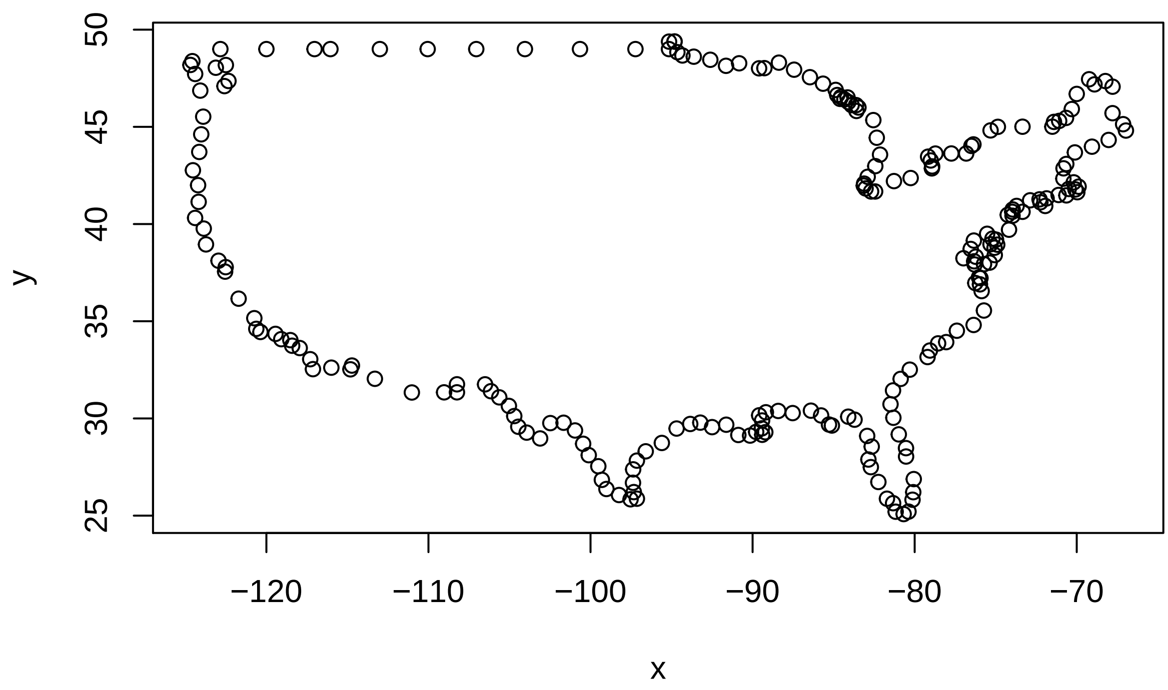
```
## Formal class 'Polygon' [package "sp"] with 5 slots
##   ..@ labpt  : num [1:2] -99.1 39.5
##   ..@ area   : num 840
##   ..@ hole   : logi FALSE
##   ..@ ringDir: int 1
```

```
##   ..@ coords : num [1:233, 1:2] -94.8 -94.6 -94.3 -93.6 -92.6 ...
##   .. ..- attr(*, "dimnames")=List of 2
```

```
# Call plot on the coords slot of 6th element of one@Polygons
```

```
# Call plot on the coords slot of 6th element of one@Polygons

plot(one@Polygons[[6]]@coords)
```




```
one <- countries_spdf@polygons[[169]]

# str() with max.level = 2, on the Polygons slot of one
str(one@Polygons, max.level = 2)
```

```
## List of 10
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
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##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
##  $ :Formal class 'Polygon' [package "sp"] with 5 slots
```
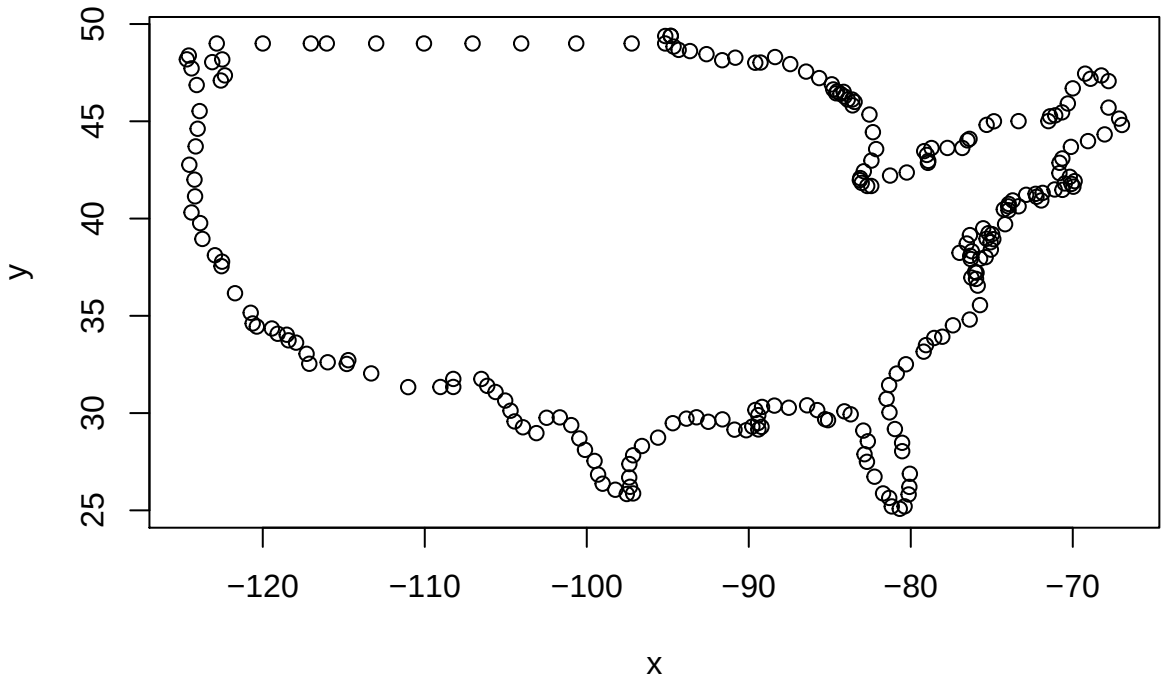

```
# str() with max.level = 2, on the 6th element of the one@Polygons
```

```
str(one@Polygons[[6]], max.level = 2)
```

```
## Formal class 'Polygon' [package "sp"] with 5 slots
##   ..@ labpt  : num [1:2] -99.1 39.5
##   ..@ area   : num 840
##   ..@ hole   : logi FALSE
##   ..@ ringDir: int 1
##   ..@ coords : num [1:233, 1:2] -94.8 -94.6 -94.3 -93.6 -92.6 ...
##   .. ..- attr(*, "dimnames")=List of 2
```

```
# Call plot on the coords slot of 6th element of one@Polygons
```

```
plot(one@Polygons[[6]]@coords)
```




```
# Subset the 169th object of countries_spdf: usa
usa <- countries_spdf[169,]

# Look at summary() of usa

summary(usa)
```

```
## Object of class SpatialPolygonsDataFrame
## Coordinates:
##          min       max
## x -171.79111 -66.96466
## y   18.91619  71.35776
## Is projected: FALSE
```

```
## proj4string :
## [+proj=longlat +datum=WGS84 +no_defs +ellps=WGS84 +towgs84=0,0,0]
## Data attributes:
##      name              iso_a3            population
##  Length:1           Length:1           Min.   :3.14e+08
##  Class :character   Class :character   1st Qu.:3.14e+08
##  Mode  :character   Mode  :character   Median :3.14e+08
##                                        Mean   :3.14e+08
##                                        3rd Qu.:3.14e+08
##                                        Max.   :3.14e+08
##       gdp              region           subregion
##  Min.   :15094000   Length:1           Length:1
##  1st Qu.:15094000   Class :character   Class :character
##  Median :15094000   Mode  :character   Mode  :character
##  Mean   :15094000
##  3rd Qu.:15094000
##  Max.   :15094000
```

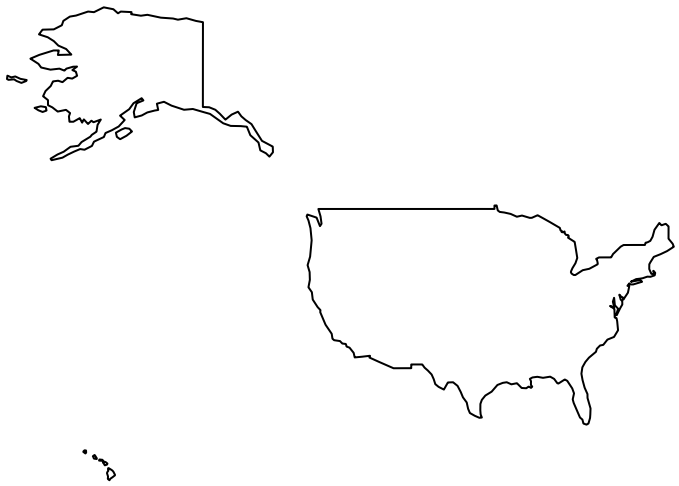
```
# Look at str() of usa

str(usa)
```

```
## Formal class 'SpatialPolygonsDataFrame' [package "sp"] with 5 slots
##   ..@ data       :'data.frame':  1 obs. of  6 variables:
##   .. ..$ name      : chr "United States"
##   .. ..$ iso_a3    : chr "USA"
##   .. ..$ population: num 3.14e+08
##   .. ..$ gdp       : num 15094000
##   .. ..$ region    : chr "Americas"
##   .. ..$ subregion : chr "Northern America"
##   ..@ polygons   :List of 1
##   .. ..$ :Formal class 'Polygons' [package "sp"] with 5 slots
##   .. .. .. ..@ Polygons :List of 10
##   .. .. .. .. ..$ :Formal class 'Polygon' [package "sp"] with 5 slots
##   .. .. .. .. .. .. ..@ labpt  : num [1:2] -155.5 19.6
##   .. .. .. .. .. .. ..@ area   : num 0.964
##   .. .. .. .. .. .. ..@ hole   : logi FALSE
##   .. .. .. .. .. .. ..@ ringDir: int 1
##   .. .. .. .. .. .. ..@ coords : num [1:17, 1:2] -156 -156 -156 -156 -156 ...
##   .. .. .. .. .. .. .. .. ..- attr(*, "dimnames")=List of 2
##   .. .. .. .. .. .. .. .. .. ..$ : NULL
##   .. .. .. .. .. .. .. .. .. ..$ : chr [1:2] "x" "y"
##   .. .. .. .. ..$ :Formal class 'Polygon' [package "sp"] with 5 slots
##   .. .. .. .. .. .. ..@ labpt  : num [1:2] -156.4 20.8
##   .. .. .. .. .. .. ..@ area   : num 0.176
##   .. .. .. .. .. .. ..@ hole   : logi FALSE
##   .. .. .. .. .. .. ..@ ringDir: int 1
##   .. .. .. .. .. .. ..@ coords : num [1:9, 1:2] -156 -156 -157 -157 -157 ...
##   .. .. .. .. .. .. .. .. ..- attr(*, "dimnames")=List of 2
##   .. .. .. .. .. .. .. .. .. ..$ : NULL
##   .. .. .. .. .. .. .. .. .. ..$ : chr [1:2] "x" "y"
##   .. .. .. .. ..$ :Formal class 'Polygon' [package "sp"] with 5 slots
##   .. .. .. .. .. .. ..@ labpt  : num [1:2] -157 21.1
##   .. .. .. .. .. .. ..@ area   : num 0.061
##   .. .. .. .. .. .. ..@ hole   : logi FALSE
```

```
##   .. .. .. .. .. .. .. ..@ ringDir: int 1
##   .. .. .. .. .. .. .. ..@ coords : num [1:5, 1:2] -157 -157 -157 -157 -157 ...
##   .. .. .. .. .. .. .. .. ..- attr(*, "dimnames")=List of 2
##   .. .. .. .. .. .. .. .. .. ..$ : NULL
##   .. .. .. .. .. .. .. .. .. ..$ : chr [1:2] "x" "y"
##   .. .. .. .. .. ..$ :Formal class 'Polygon' [package "sp"] with 5 slots
##   .. .. .. .. .. .. .. ..@ labpt  : num [1:2] -158 21.5
##   .. .. .. .. .. .. .. ..@ area   : num 0.158
##   .. .. .. .. .. .. .. ..@ hole   : logi FALSE
##   .. .. .. .. .. .. .. ..@ ringDir: int 1
##   .. .. .. .. .. .. .. ..@ coords : num [1:9, 1:2] -158 -158 -158 -158 -158 ...
##   .. .. .. .. .. .. .. .. ..- attr(*, "dimnames")=List of 2
##   .. .. .. .. .. .. .. .. .. ..$ : NULL
##   .. .. .. .. .. .. .. .. .. ..$ : chr [1:2] "x" "y"
##   .. .. .. .. .. ..$ :Formal class 'Polygon' [package "sp"] with 5 slots
##   .. .. .. .. .. .. .. ..@ labpt  : num [1:2] -159.5 22.1
##   .. .. .. .. .. .. .. ..@ area   : num 0.105
##   .. .. .. .. .. .. .. ..@ hole   : logi FALSE
##   .. .. .. .. .. .. .. ..@ ringDir: int 1
##   .. .. .. .. .. .. .. ..@ coords : num [1:7, 1:2] -159 -159 -160 -160 -160 ...
##   .. .. .. .. .. .. .. .. ..- attr(*, "dimnames")=List of 2
##   .. .. .. .. .. .. .. .. .. ..$ : NULL
##   .. .. .. .. .. .. .. .. .. ..$ : chr [1:2] "x" "y"
##   .. .. .. .. .. ..$ :Formal class 'Polygon' [package "sp"] with 5 slots
##   .. .. .. .. .. .. .. ..@ labpt  : num [1:2] -99.1 39.5
##   .. .. .. .. .. .. .. ..@ area   : num 840
##   .. .. .. .. .. .. .. ..@ hole   : logi FALSE
##   .. .. .. .. .. .. .. ..@ ringDir: int 1
##   .. .. .. .. .. .. .. ..@ coords : num [1:233, 1:2] -94.8 -94.6 -94.3 -93.6 -92.6 ...
##   .. .. .. .. .. .. .. .. ..- attr(*, "dimnames")=List of 2
##   .. .. .. .. .. .. .. .. .. ..$ : NULL
##   .. .. .. .. .. .. .. .. .. ..$ : chr [1:2] "x" "y"
##   .. .. .. .. .. ..$ :Formal class 'Polygon' [package "sp"] with 5 slots
##   .. .. .. .. .. .. .. ..@ labpt  : num [1:2] -153.5 57.4
##   .. .. .. .. .. .. .. ..@ area   : num 1.8
##   .. .. .. .. .. .. .. ..@ hole   : logi FALSE
##   .. .. .. .. .. .. .. ..@ ringDir: int 1
##   .. .. .. .. .. .. .. ..@ coords : num [1:9, 1:2] -153 -154 -155 -155 -154 ...
##   .. .. .. .. .. .. .. .. ..- attr(*, "dimnames")=List of 2
##   .. .. .. .. .. .. .. .. .. ..$ : NULL
##   .. .. .. .. .. .. .. .. .. ..$ : chr [1:2] "x" "y"
##   .. .. .. .. .. ..$ :Formal class 'Polygon' [package "sp"] with 5 slots
##   .. .. .. .. .. .. .. ..@ labpt  : num [1:2] -166.4 60.1
##   .. .. .. .. .. .. .. ..@ area   : num 0.729
##   .. .. .. .. .. .. .. ..@ hole   : logi FALSE
##   .. .. .. .. .. .. .. ..@ ringDir: int 1
##   .. .. .. .. .. .. .. ..@ coords : num [1:7, 1:2] -166 -166 -167 -167 -166 ...
##   .. .. .. .. .. .. .. .. ..- attr(*, "dimnames")=List of 2
##   .. .. .. .. .. .. .. .. .. ..$ : NULL
##   .. .. .. .. .. .. .. .. .. ..$ : chr [1:2] "x" "y"
##   .. .. .. .. .. ..$ :Formal class 'Polygon' [package "sp"] with 5 slots
##   .. .. .. .. .. .. .. ..@ labpt  : num [1:2] -170.3 63.4
##   .. .. .. .. .. .. .. ..@ area   : num 1.03
##   .. .. .. .. .. .. .. ..@ hole   : logi FALSE
```

```
##   .. .. .. .. .. .. ..@ ringDir: int 1
##   .. .. .. .. .. .. ..@ coords : num [1:12, 1:2] -172 -171 -170 -170 -169 ...
##   .. .. .. .. .. .. .. ..- attr(*, "dimnames")=List of 2
##   .. .. .. .. .. .. .. .. ..$ : NULL
##   .. .. .. .. .. .. .. .. ..$ : chr [1:2] "x" "y"
##   .. .. .. .. ..$ :Formal class 'Polygon' [package "sp"] with 5 slots
##   .. .. .. .. .. .. ..@ labpt  : num [1:2] -152.7 64.4
##   .. .. .. .. .. .. ..@ area   : num 277
##   .. .. .. .. .. .. ..@ hole   : logi FALSE
##   .. .. .. .. .. .. ..@ ringDir: int 1
##   .. .. .. .. .. .. ..@ coords : num [1:136, 1:2] -155 -154 -154 -152 -152 ...
##   .. .. .. .. .. .. .. ..- attr(*, "dimnames")=List of 2
##   .. .. .. .. .. .. .. .. ..$ : NULL
##   .. .. .. .. .. .. .. .. ..$ : chr [1:2] "x" "y"
##   .. .. .. ..@ plotOrder: int [1:10] 6 10 7 9 1 8 2 4 5 3
##   .. .. .. ..@ labpt    : num [1:2] -99.1 39.5
##   .. .. .. ..@ ID       : chr "168"
##   .. .. .. ..@ area     : num 1122
##   ..@ plotOrder  : int 1
##   ..@ bbox       : num [1:2, 1:2] -171.8 18.9 -67 71.4
##   .. ..- attr(*, "dimnames")=List of 2
##   .. .. ..$ : chr [1:2] "x" "y"
##   .. .. ..$ : chr [1:2] "min" "max"
##   ..@ proj4string:Formal class 'CRS' [package "sp"] with 1 slot
##   .. .. ..@ projargs: chr "+proj=longlat +datum=WGS84 +no_defs +ellps=WGS84 +towgs84=0,0,0"
```

```r
# Call plot() on usa
plot(usa)
```



```
# Call head() and str() on the data slot of countries_spdf

head(countries_spdf@data)
```

```
##                   name iso_a3 population    gdp   region       subregion
## 0          Afghanistan    AFG   28400000  22270     Asia   Southern Asia
## 1               Angola    AGO   12799293 110300   Africa   Middle Africa
## 2              Albania    ALB    3639453  21810   Europe Southern Europe
## 3 United Arab Emirates    ARE    4798491 184300     Asia    Western Asia
## 4            Argentina    ARG   40913584 573900 Americas   South America
## 5              Armenia    ARM    2967004  18770     Asia    Western Asia
```

```
# Pull out the name column using $

str(countries_spdf@data)
```

```
## 'data.frame':    177 obs. of  6 variables:
##  $ name      : chr  "Afghanistan" "Angola" "Albania" "United Arab Emirates" ...
##  $ iso_a3    : chr  "AFG" "AGO" "ALB" "ARE" ...
##  $ population: num  28400000 12799293 3639453 4798491 40913584 ...
##  $ gdp       : num  22270 110300 21810 184300 573900 ...
##  $ region    : chr  "Asia" "Africa" "Europe" "Asia" ...
##  $ subregion : chr  "Southern Asia" "Middle Africa" "Southern Europe" "Western Asia" ...
```

```
countries_spdf$name
```

```
##   [1] "Afghanistan"            "Angola"
##   [3] "Albania"                "United Arab Emirates"
```

```
##   [5] "Argentina"              "Armenia"
##   [7] "Antarctica"             "Fr. S. Antarctic Lands"
##   [9] "Australia"              "Austria"
##  [11] "Azerbaijan"             "Burundi"
##  [13] "Belgium"                "Benin"
##  [15] "Burkina Faso"           "Bangladesh"
##  [17] "Bulgaria"               "Bahamas"
##  [19] "Bosnia and Herz."       "Belarus"
##  [21] "Belize"                 "Bolivia"
##  [23] "Brazil"                 "Brunei"
##  [25] "Bhutan"                 "Botswana"
##  [27] "Central African Rep."   "Canada"
##  [29] "Switzerland"            "Chile"
##  [31] "China"                  "Cte d'Ivoire"
##  [33] "Cameroon"               "Dem. Rep. Congo"
##  [35] "Congo"                  "Colombia"
##  [37] "Costa Rica"             "Cuba"
##  [39] "N. Cyprus"              "Cyprus"
##  [41] "Czech Rep."             "Germany"
##  [43] "Djibouti"               "Denmark"
##  [45] "Dominican Rep."         "Algeria"
##  [47] "Ecuador"                "Egypt"
##  [49] "Eritrea"                "Spain"
##  [51] "Estonia"                "Ethiopia"
##  [53] "Finland"                "Fiji"
##  [55] "Falkland Is."           "France"
##  [57] "Gabon"                  "United Kingdom"
##  [59] "Georgia"                "Ghana"
##  [61] "Guinea"                 "Gambia"
##  [63] "Guinea-Bissau"          "Eq. Guinea"
##  [65] "Greece"                 "Greenland"
##  [67] "Guatemala"              "Guyana"
##  [69] "Honduras"               "Croatia"
##  [71] "Haiti"                  "Hungary"
##  [73] "Indonesia"              "India"
##  [75] "Ireland"                "Iran"
##  [77] "Iraq"                   "Iceland"
##  [79] "Israel"                 "Italy"
##  [81] "Jamaica"                "Jordan"
##  [83] "Japan"                  "Kazakhstan"
##  [85] "Kenya"                  "Kyrgyzstan"
##  [87] "Cambodia"               "Korea"
##  [89] "Kosovo"                 "Kuwait"
##  [91] "Lao PDR"                "Lebanon"
##  [93] "Liberia"                "Libya"
##  [95] "Sri Lanka"              "Lesotho"
##  [97] "Lithuania"              "Luxembourg"
##  [99] "Latvia"                 "Morocco"
## [101] "Moldova"                "Madagascar"
## [103] "Mexico"                 "Macedonia"
## [105] "Mali"                   "Myanmar"
## [107] "Montenegro"             "Mongolia"
## [109] "Mozambique"             "Mauritania"
## [111] "Malawi"                 "Malaysia"
```

```
## [113] "Namibia"                "New Caledonia"
## [115] "Niger"                  "Nigeria"
## [117] "Nicaragua"              "Netherlands"
## [119] "Norway"                 "Nepal"
## [121] "New Zealand"            "Oman"
## [123] "Pakistan"               "Panama"
## [125] "Peru"                   "Philippines"
## [127] "Papua New Guinea"       "Poland"
## [129] "Puerto Rico"            "Dem. Rep. Korea"
## [131] "Portugal"               "Paraguay"
## [133] "Palestine"              "Qatar"
## [135] "Romania"                "Russia"
## [137] "Rwanda"                 "W. Sahara"
## [139] "Saudi Arabia"           "Sudan"
## [141] "S. Sudan"               "Senegal"
## [143] "Solomon Is."            "Sierra Leone"
## [145] "El Salvador"            "Somaliland"
## [147] "Somalia"                "Serbia"
## [149] "Suriname"               "Slovakia"
## [151] "Slovenia"               "Sweden"
## [153] "Swaziland"              "Syria"
## [155] "Chad"                   "Togo"
## [157] "Thailand"               "Tajikistan"
## [159] "Turkmenistan"           "Timor-Leste"
## [161] "Trinidad and Tobago"    "Tunisia"
## [163] "Turkey"                 "Taiwan"
## [165] "Tanzania"               "Uganda"
## [167] "Ukraine"                "Uruguay"
## [169] "United States"          "Uzbekistan"
## [171] "Venezuela"              "Vietnam"
## [173] "Vanuatu"                "Yemen"
## [175] "South Africa"           "Zambia"
## [177] "Zimbabwe"
```

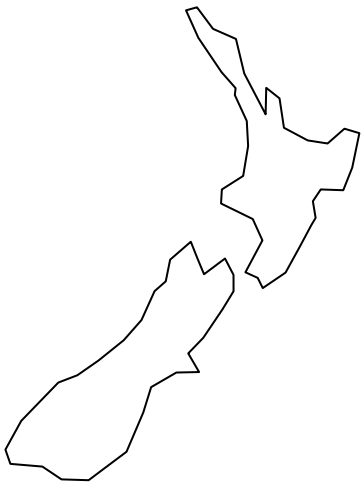
```
# Pull out the subregion column using [[
countries_spdf[['subregion']]
```

```
##   [1] "Southern Asia"             "Middle Africa"
##   [3] "Southern Europe"           "Western Asia"
##   [5] "South America"             "Western Asia"
##   [7] "Antarctica"                "Seven seas (open ocean)"
##   [9] "Australia and New Zealand" "Western Europe"
##  [11] "Western Asia"              "Eastern Africa"
##  [13] "Western Europe"            "Western Africa"
##  [15] "Western Africa"            "Southern Asia"
##  [17] "Eastern Europe"            "Caribbean"
##  [19] "Southern Europe"           "Eastern Europe"
##  [21] "Central America"           "South America"
##  [23] "South America"             "South-Eastern Asia"
##  [25] "Southern Asia"             "Southern Africa"
##  [27] "Middle Africa"             "Northern America"
##  [29] "Western Europe"            "South America"
##  [31] "Eastern Asia"              "Western Africa"
##  [33] "Middle Africa"             "Middle Africa"
##  [35] "Middle Africa"             "South America"
```

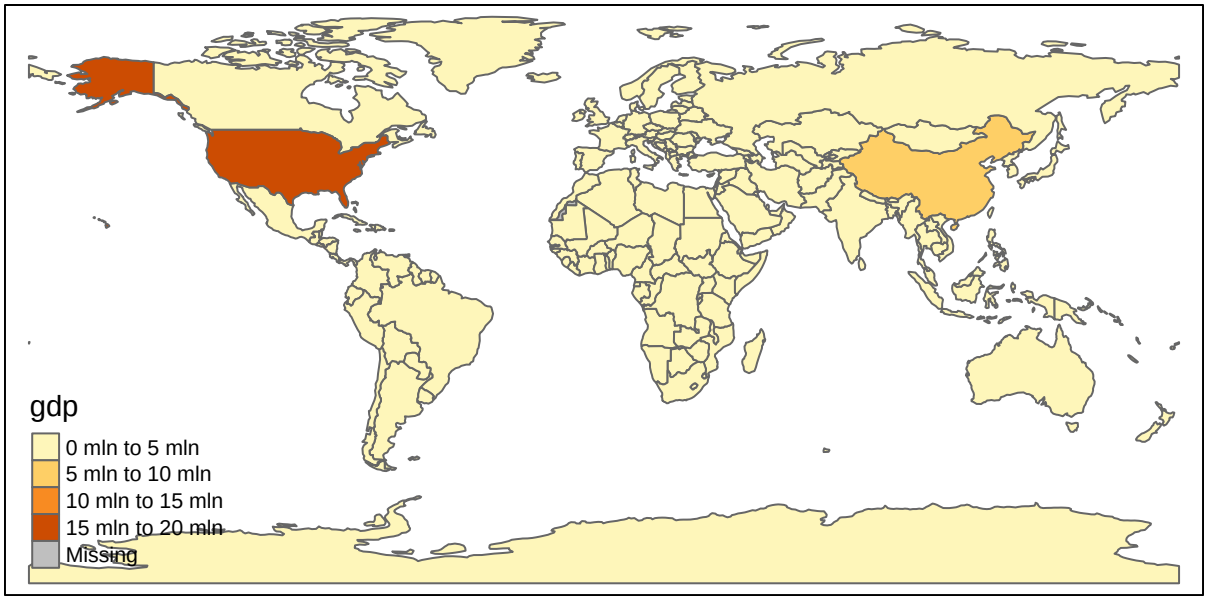
```
##  [37] "Central America"           "Caribbean"
##  [39] "Western Asia"              "Western Asia"
##  [41] "Eastern Europe"            "Western Europe"
##  [43] "Eastern Africa"            "Northern Europe"
##  [45] "Caribbean"                 "Northern Africa"
##  [47] "South America"             "Northern Africa"
##  [49] "Eastern Africa"            "Southern Europe"
##  [51] "Northern Europe"           "Eastern Africa"
##  [53] "Northern Europe"           "Melanesia"
##  [55] "South America"             "Western Europe"
##  [57] "Middle Africa"             "Northern Europe"
##  [59] "Western Asia"              "Western Africa"
##  [61] "Western Africa"            "Western Africa"
##  [63] "Western Africa"            "Middle Africa"
##  [65] "Southern Europe"           "Northern America"
##  [67] "Central America"           "South America"
##  [69] "Central America"           "Southern Europe"
##  [71] "Caribbean"                 "Eastern Europe"
##  [73] "South-Eastern Asia"        "Southern Asia"
##  [75] "Northern Europe"           "Southern Asia"
##  [77] "Western Asia"              "Northern Europe"
##  [79] "Western Asia"              "Southern Europe"
##  [81] "Caribbean"                 "Western Asia"
##  [83] "Eastern Asia"              "Central Asia"
##  [85] "Eastern Africa"            "Central Asia"
##  [87] "South-Eastern Asia"        "Eastern Asia"
##  [89] "Southern Europe"           "Western Asia"
##  [91] "South-Eastern Asia"        "Western Asia"
##  [93] "Western Africa"            "Northern Africa"
##  [95] "Southern Asia"             "Southern Africa"
##  [97] "Northern Europe"           "Western Europe"
##  [99] "Northern Europe"           "Northern Africa"
## [101] "Eastern Europe"            "Eastern Africa"
## [103] "Central America"           "Southern Europe"
## [105] "Western Africa"            "South-Eastern Asia"
## [107] "Southern Europe"           "Eastern Asia"
## [109] "Eastern Africa"            "Western Africa"
## [111] "Eastern Africa"            "South-Eastern Asia"
## [113] "Southern Africa"           "Melanesia"
## [115] "Western Africa"            "Western Africa"
## [117] "Central America"           "Western Europe"
## [119] "Northern Europe"           "Southern Asia"
## [121] "Australia and New Zealand" "Western Asia"
## [123] "Southern Asia"             "Central America"
## [125] "South America"             "South-Eastern Asia"
## [127] "Melanesia"                 "Eastern Europe"
## [129] "Caribbean"                 "Eastern Asia"
## [131] "Southern Europe"           "South America"
## [133] "Western Asia"              "Western Asia"
## [135] "Eastern Europe"            "Eastern Europe"
## [137] "Eastern Africa"            "Northern Africa"
## [139] "Western Asia"              "Northern Africa"
## [141] "Eastern Africa"            "Western Africa"
## [143] "Melanesia"                 "Western Africa"
```

```
## [145] "Central America"          "Eastern Africa"
## [147] "Eastern Africa"           "Southern Europe"
## [149] "South America"            "Eastern Europe"
## [151] "Southern Europe"          "Northern Europe"
## [153] "Southern Africa"          "Western Asia"
## [155] "Middle Africa"            "Western Africa"
## [157] "South-Eastern Asia"       "Central Asia"
## [159] "Central Asia"             "South-Eastern Asia"
## [161] "Caribbean"                "Northern Africa"
## [163] "Western Asia"             "Eastern Asia"
## [165] "Eastern Africa"           "Eastern Africa"
## [167] "Eastern Europe"           "South America"
## [169] "Northern America"         "Central Asia"
## [171] "South America"            "South-Eastern Asia"
## [173] "Melanesia"                "Western Asia"
## [175] "Southern Africa"          "Eastern Africa"
## [177] "Eastern Africa"
```

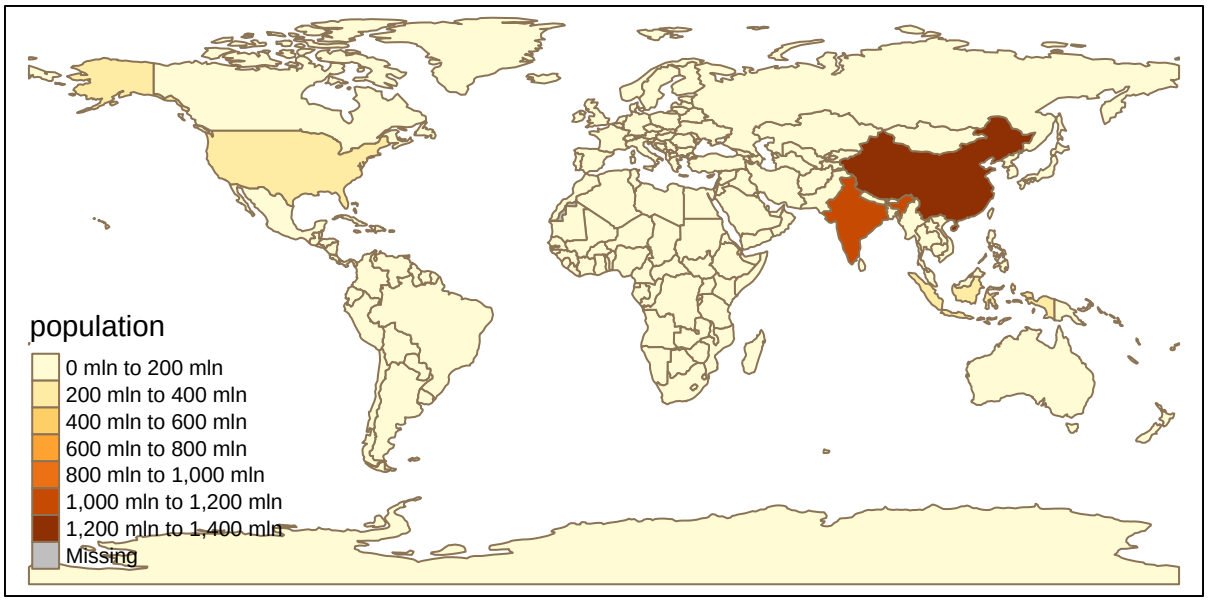
```r
# Create logical vector: is_nz

is_nz <- countries_spdf$name == "New Zealand"
# Subset countries_spdf using is_nz: nz
nz <- countries_spdf[is_nz, ]

# Plot nz
plot(nz)
```



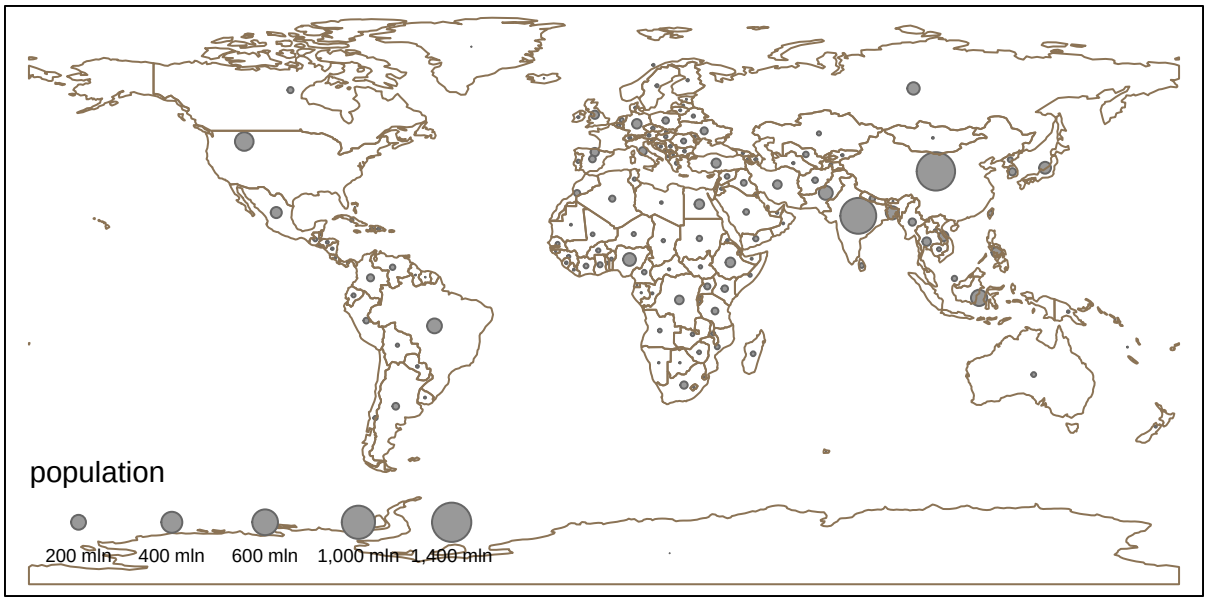
```r
library(tmap)

# Use qtm() to create a choropleth map of gdp

qtm(shp = countries_spdf, fill = "gdp")
```




```r
# Add style argument to the tm_fill() call
# Add a tm_borders() layer
tm_shape(countries_spdf) +
  tm_fill(col = "population") +
  tm_borders(col = "burlywood4")
```




```
# New plot, with tm_bubbles() instead of tm_fill()

tm_shape(countries_spdf) +
  tm_bubbles(size = "population") +
  tm_borders(col = "burlywood4")
```


population
200 mln
400 mln
600 mln
1,000 mln
1,400 mln