# The Brazillian Amazon & COVID-19

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## Background and Overview

This is a report on SARS-CoV-2 genetic data, as well as some COVID-19 prevalence data for Manaus and Sao Paulo. (Buss *et al.*, 2020).

## Methods

### Suggested Sources

- vcfR package website.
- https://kjhealy.github.io/covdata/
- https://github.com/como-ph/oxcovid19
- https://ropensci.org/blog/2020/10/20/searching-medrxivr-and-biorxiv-preprint-data/
- https://covidtracking.com/data/api
  - `readr::read_csv("https://api.covidtracking.com/v1/states/daily.csv")`
- https://rt.live/
  - `readr::read_csv("https://d14wlfuexuxgcm.cloudfront.net/covid/rt.csv")`

## Results and Discussion

## Figures

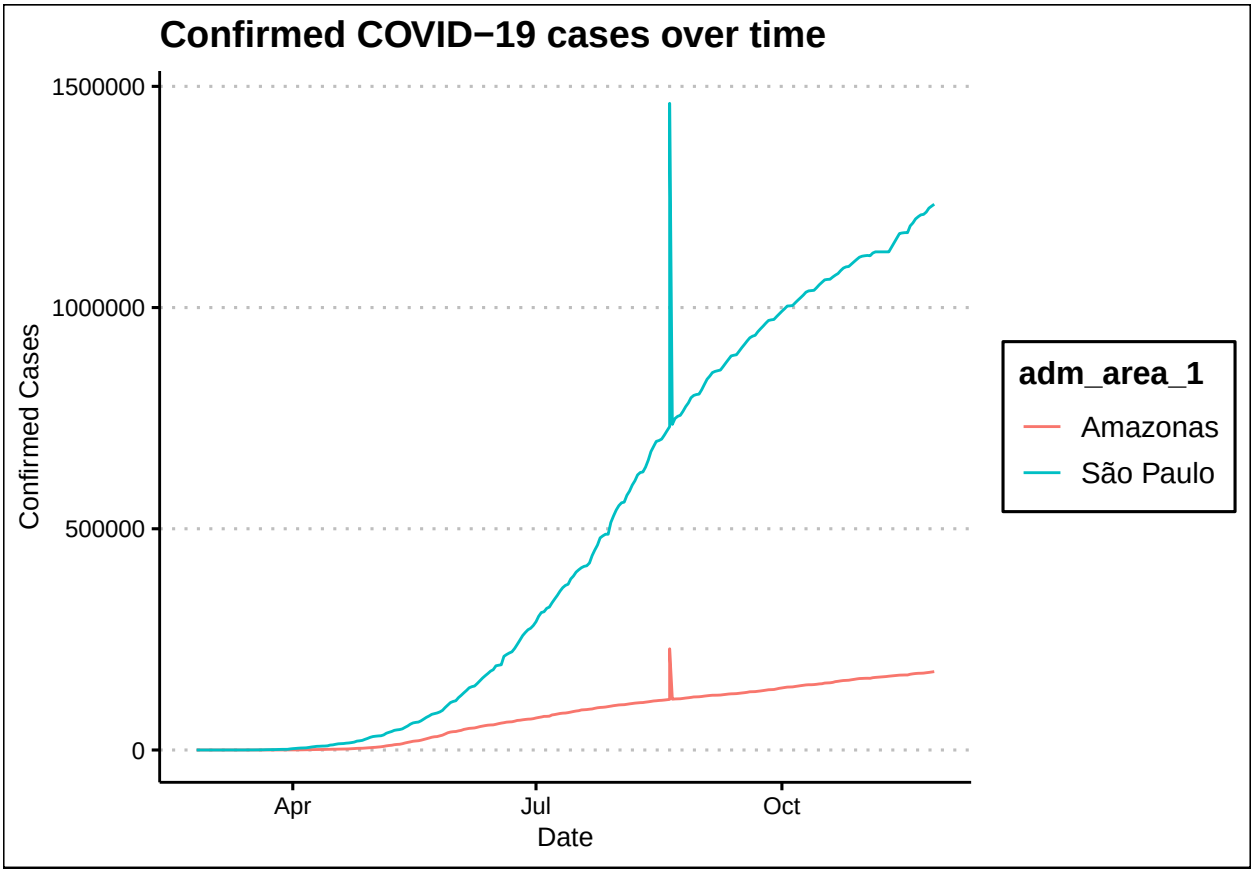
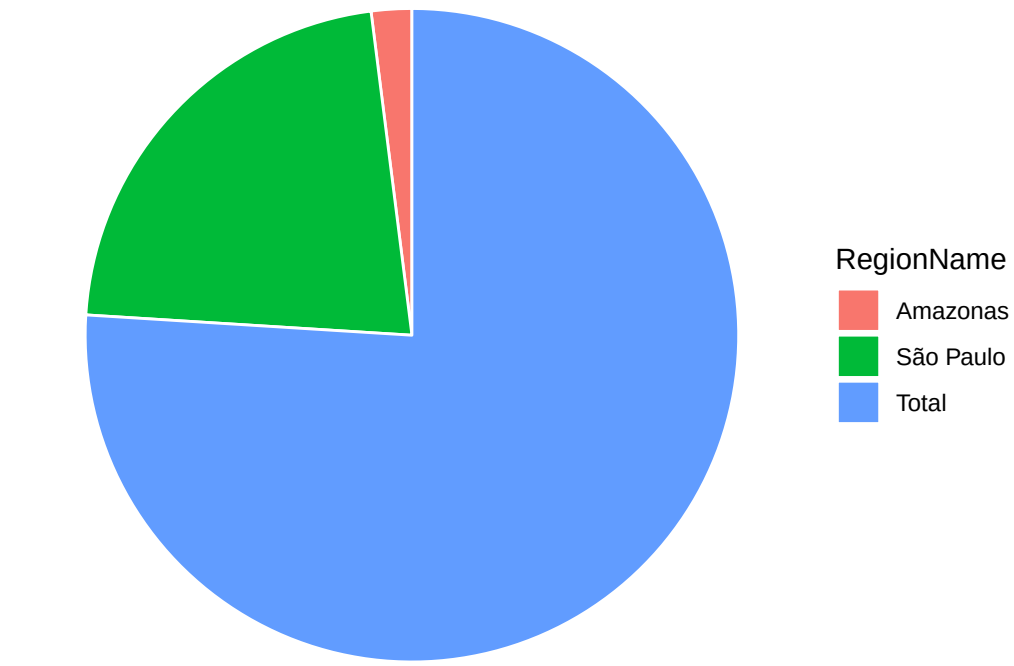



**Figure** : The state of São Paulo saw more total confirmed cases than the state of Amazonas.




```
## # A tibble: 3 x 4
## # Groups:   population [3]
##   RegionName region population Source
##   <chr>      <chr>       <dbl> <chr>
## 1 Amazonas   AM        4207714 <NA>
## 2 São Paulo  SP       46289333 <NA>
## 3 Total      Total   159825805 <NA>
```

**Figure**: Sao Paulo is much larger than Amazonas by population.

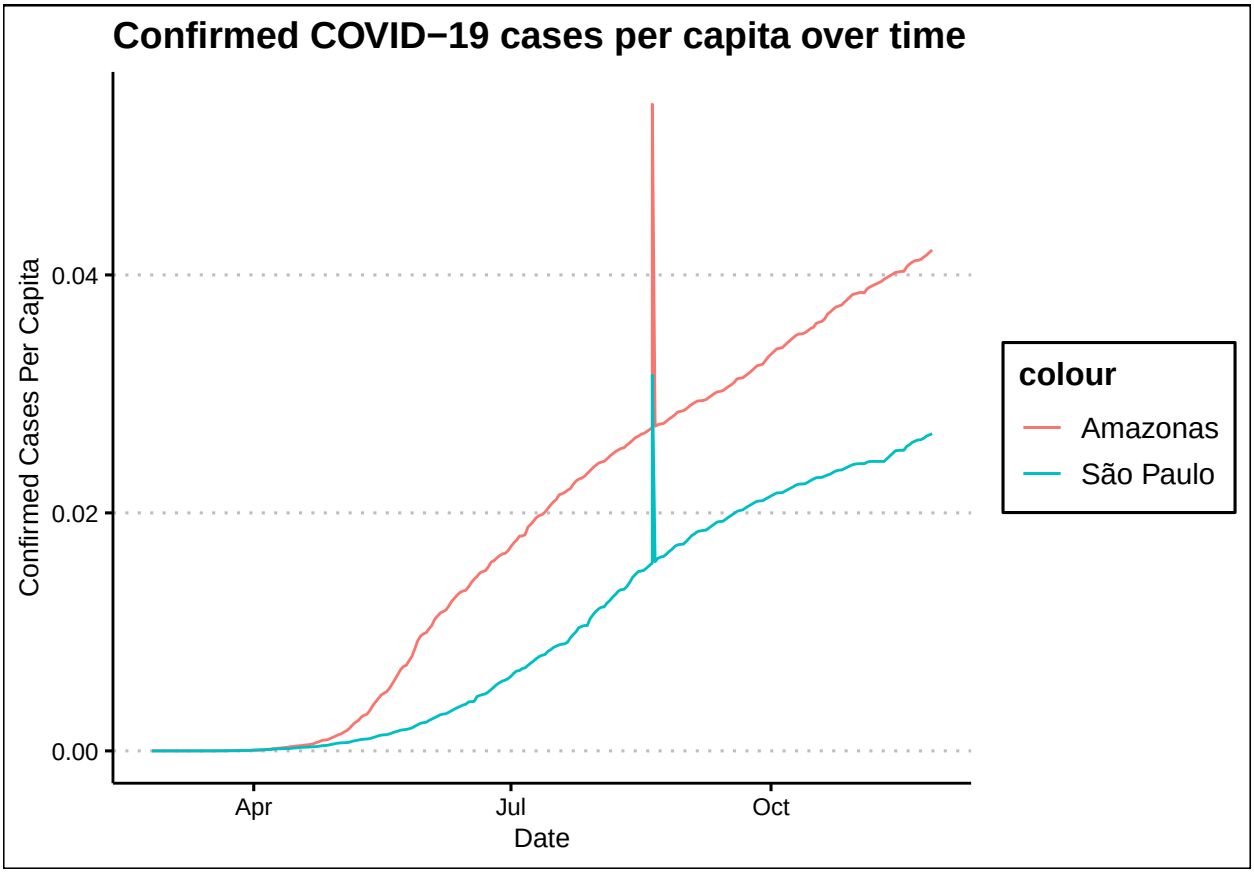



**Figure**: Amazonas saw greater confirmed cases per capita than São Paulo.

```
## Error in layer(data = data, mapping = mapping, stat = stat, geom = GeomLine, : object 'Manaus_prevale
```

```
## Error in grid.draw(plot): object 'prevalence_plot' not found
```

```
## Error in eval(expr, envir, enclos): object 'prevalence_plot' not found
```

**Figure**: Manaus saw more widespread prevalence of SARS-CoV-2 antibodies vs. São Paulo, up to 66% vs. 22% of the population respectively.

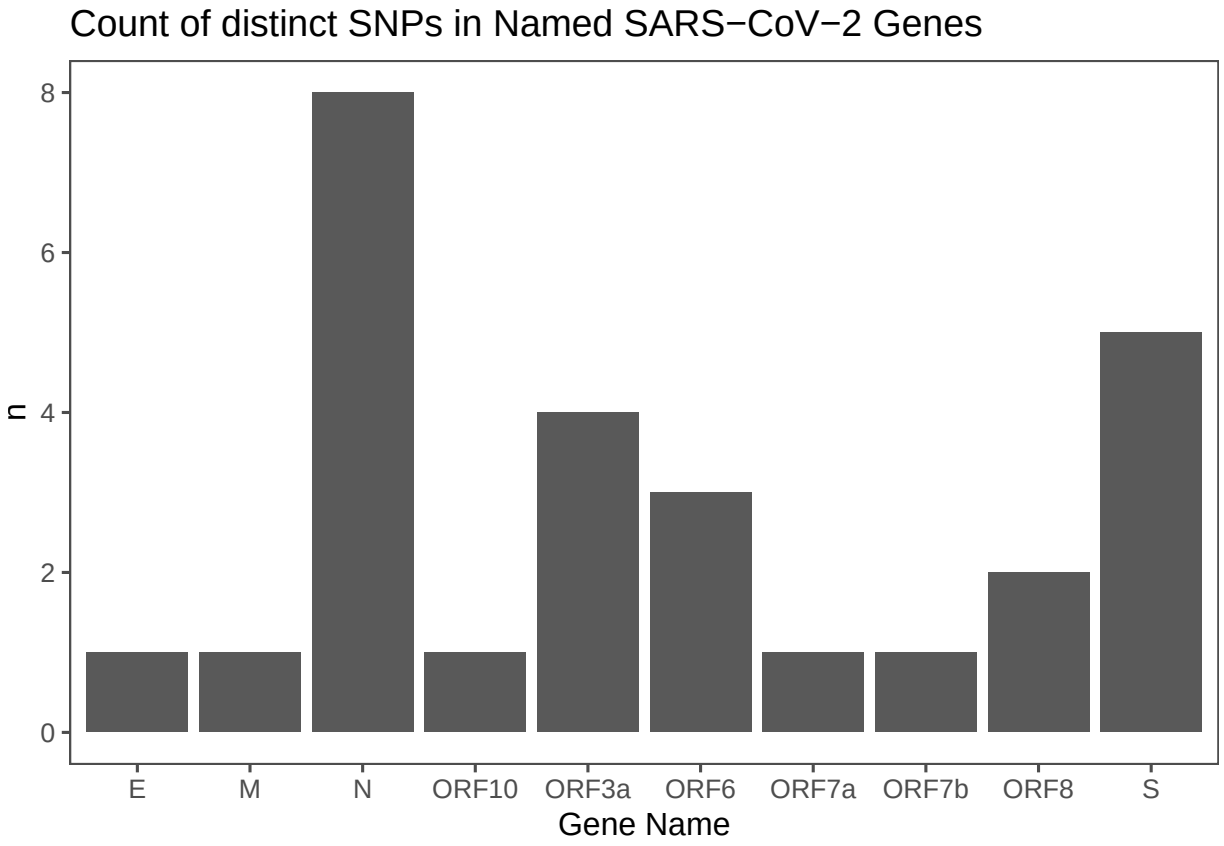



**Figure**: N and S genes have more unique SNPs in the set of samples analyzed.

## Tables

| Gene Name | Start | End | Length |
|---|---|---|---|
| S | 21563 | 25384 | 3821 |
| ORF3a | 25393 | 26220 | 827 |
| E | 26245 | 26472 | 227 |
| M | 26523 | 27191 | 668 |
| ORF6 | 27202 | 27387 | 185 |
| ORF7a | 27394 | 27759 | 365 |
| ORF7b | 27756 | 27887 | 131 |
| ORF8 | 27894 | 28259 | 365 |
| N | 28274 | 29533 | 1259 |
| ORF10 | 29558 | 29674 | 116 |

**Table 1**: Gene names, locations, and lengths in the SARS-CoV-2 genome. Higher SNP counts in the S and N genes may be related to the larger size of these genes.

## Sources Cited

Buss,L.F. *et al.* (2020) COVID-19 herd immunity in the brazilian amazon. *medRxiv*.