Phylodynamic Analysis

# Location: Washington

# Most recent sample: 2020-03-21

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## Background information

#### This is analysis is based on :

* **152 whole genomes** sampled from **within Washington**
* **68 whole genomes** sampled from outside of **Washington**
* Samples within Washington were collected between **2019-12-30** and **2020-03-21**

##### To add: [optional plot of sample distribution through time]

## How many are infected in Washington?

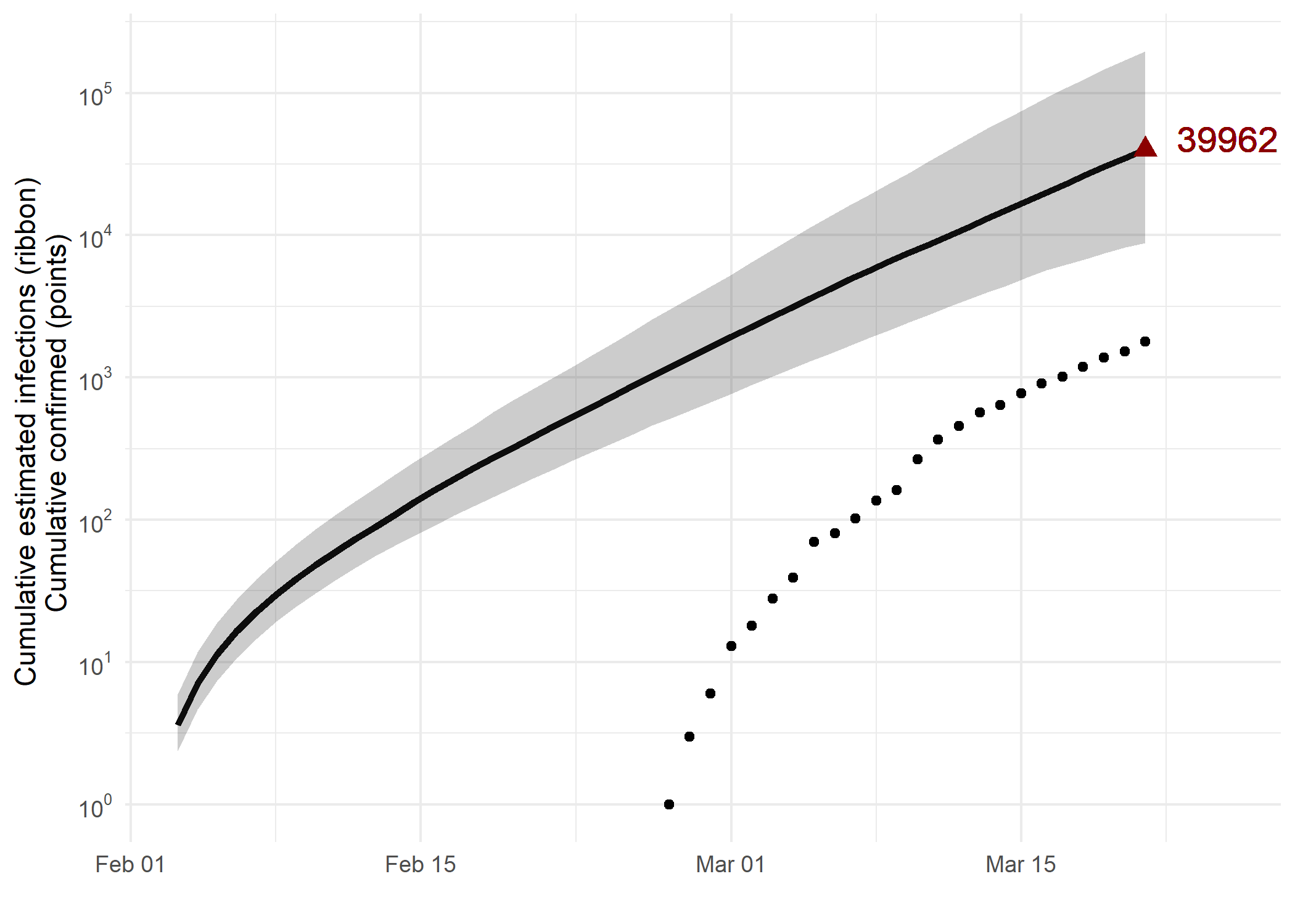


Figure 1: Cumulative estimated infections through time. Points represent reported cases in the region.

* Estimated cumulative infections at last sample (2020-03-21): **39962 [8790-195314]** median [95%CI]
* Cumulative confirmed infections reported at 2020-03-21: **1793**
* Cumulative number of active infections at 2020-03-21:

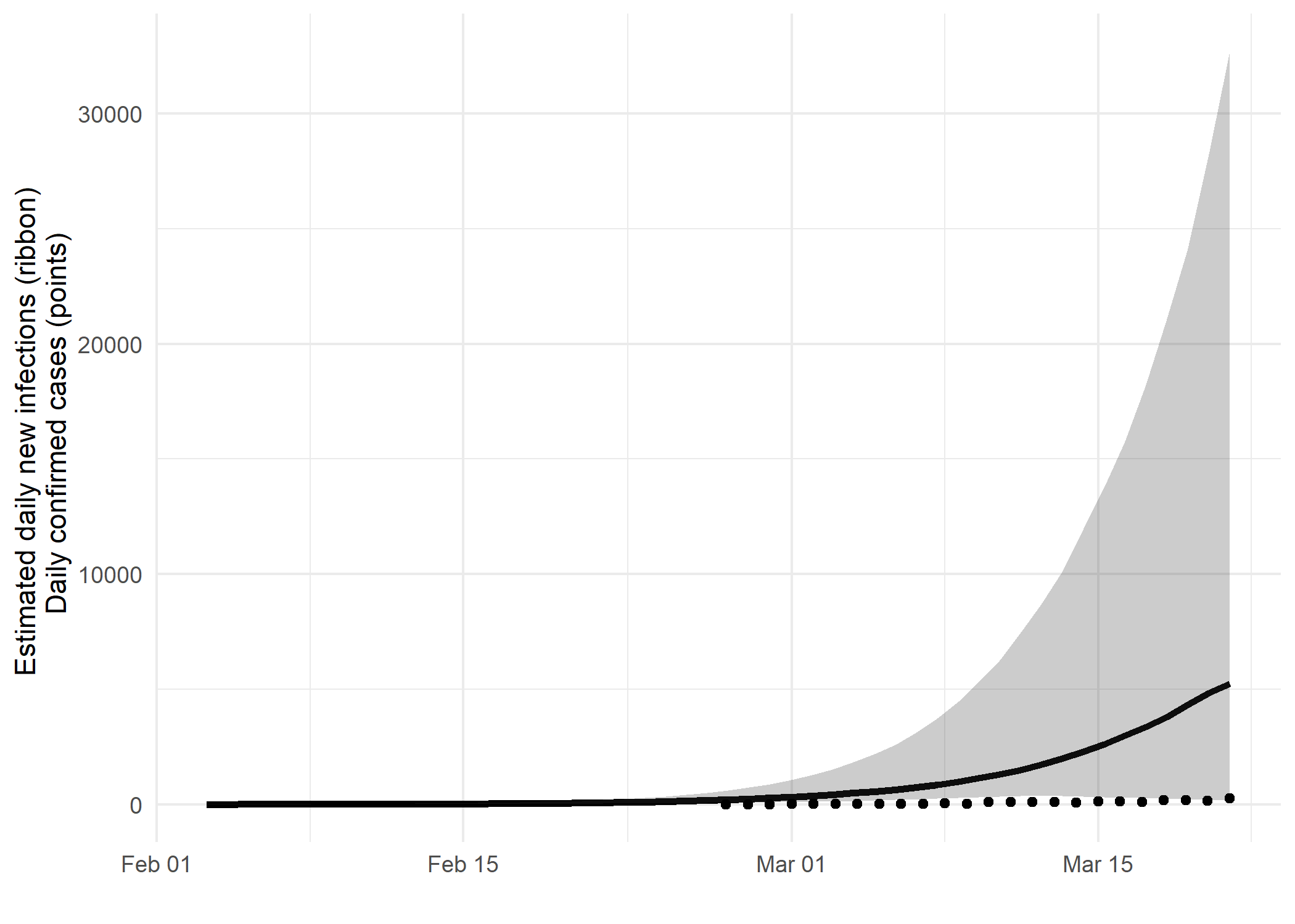


Figure 2: Daily estimated infections through time. Points represent reported cases in the region.

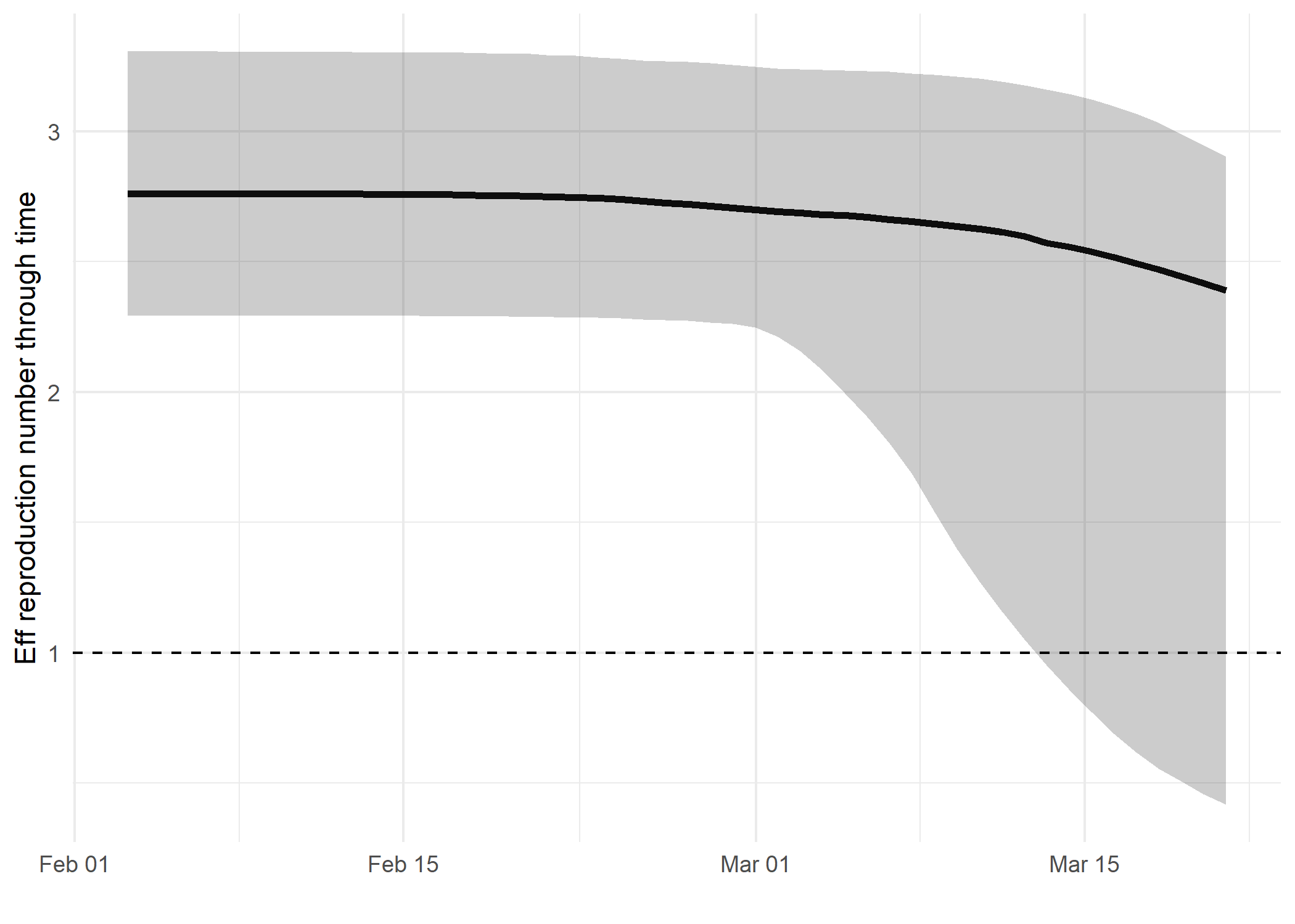


Figure 3: Reproduction number through time

Reproduction number at last sample (2020-03-21): **2.39 [0.419-2.9]** median [95% CrI]

## How quickly has the epidemic in Washington grown?

Table 1: Reproduction number, growth rate and doubling times

|  |  |  |  |
| --- | --- | --- | --- |
| Quantile | Reproduction number | Growth rate (per day) | Doubling time (days) |
| 50% | 2.76 | 0.167 | 4.15 |
| 2.5% | 2.29 | 0.130 | 3.37 |
| 97.5% | 3.28 | 0.206 | 5.33 |

## How has SARS-CoV 2 evolved in Washington?

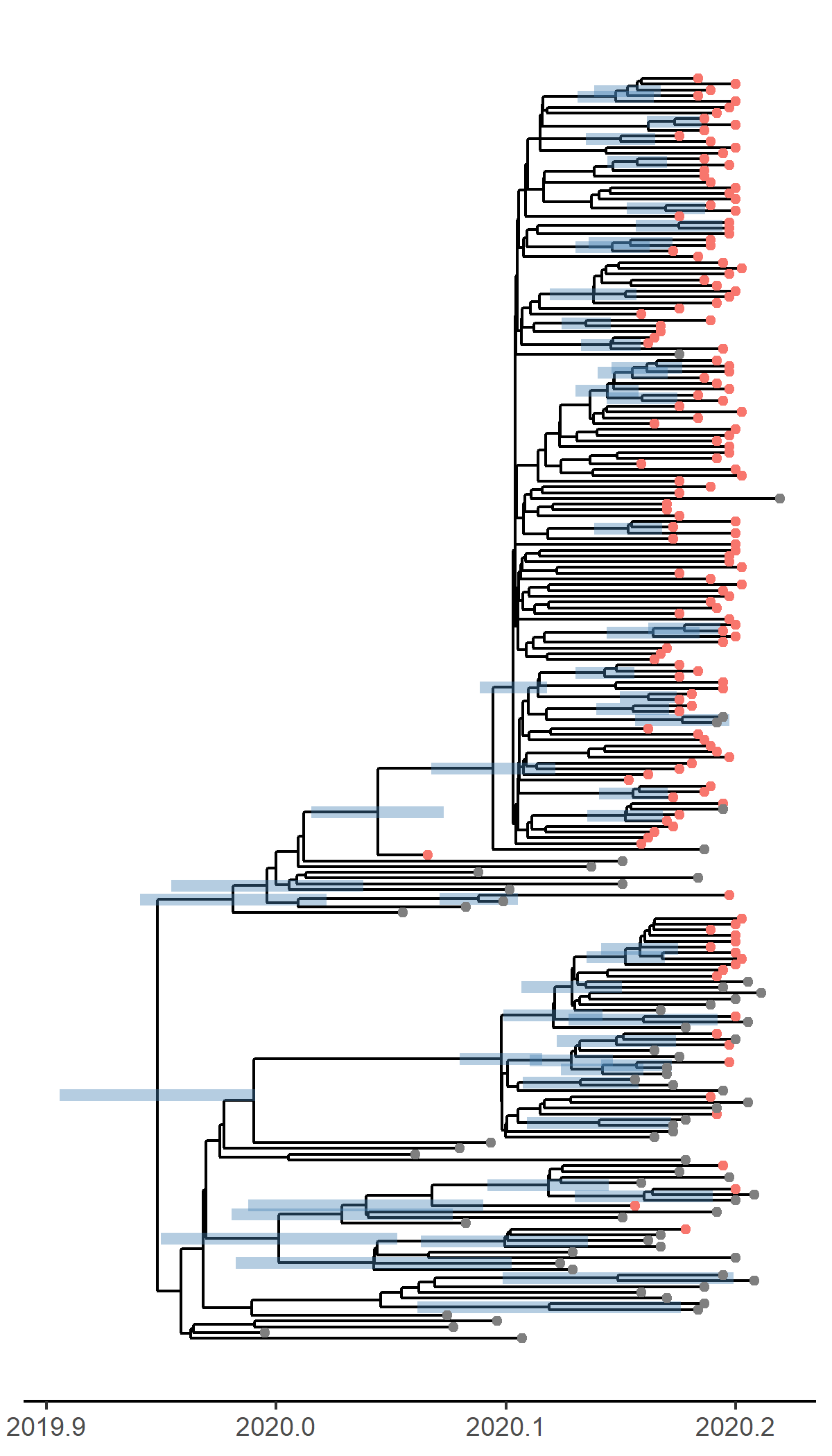


Figure 4: Time scaled phylogeny co-estimated with epidemiological parameters. The colour of the tips corresponds to location sampling; red tips were sampled from within the region, blue tips from outside

##### Molecular clock rate of evolution: **0.00161 [0.00121-0.0022]** median [95% CrI]

## Predicted cumulative infections over next 14 days (assuming exponential growth):

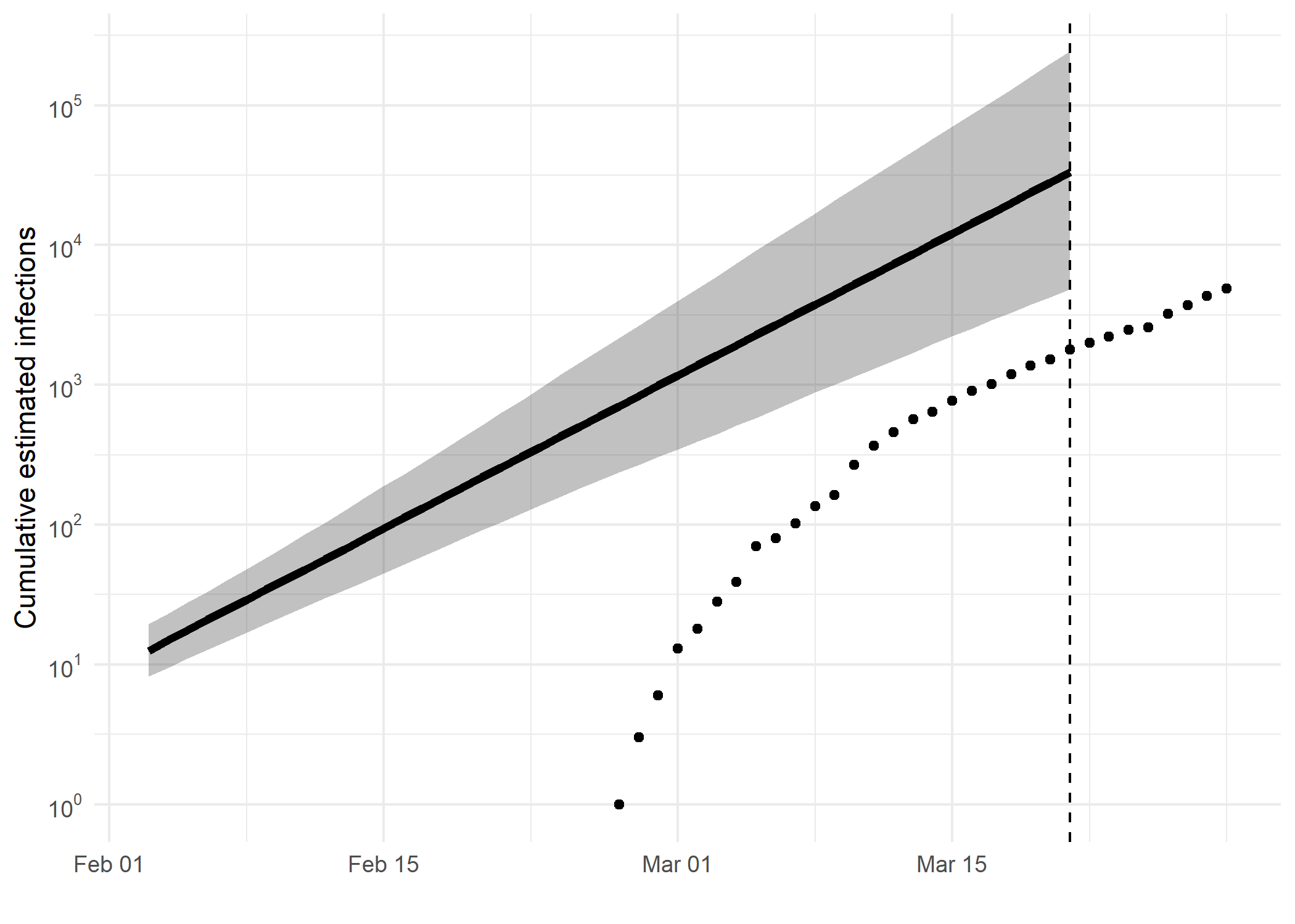


Figure 5: Cumulative estimated infections. The dashed line indicates the date of last sample in analysis. The points represent reported cases in the region.

Based on an estimated growth rate of 0.167 [0.130 - 0.206] median [95% CrI]:

We estimate cumulative number of infections at last sample (2020-03-21) as: 33250 [4810 - 242114]

We estimate number of infections at 2020-03-21 (0 days after last sample) as: 33250 [4810 - 242114]

## Methods summary

Details on methods and priors can be [found here](http://whoinfectedwhom.org/seijr0.1.0_methods.pdf).

Model version: seijr0.0.0

Report version: 20200407-113822-5be4eb62

## Acknowledgements

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Sequence data were provided by [GISAID](http://www.epicov.org) and [these laboratories](http://whoinfectedwhom.org/gisaid_cov2020_acknowledgement_table.xls).