log graphs for each county

Cheyenne Ehman

4/7/2021

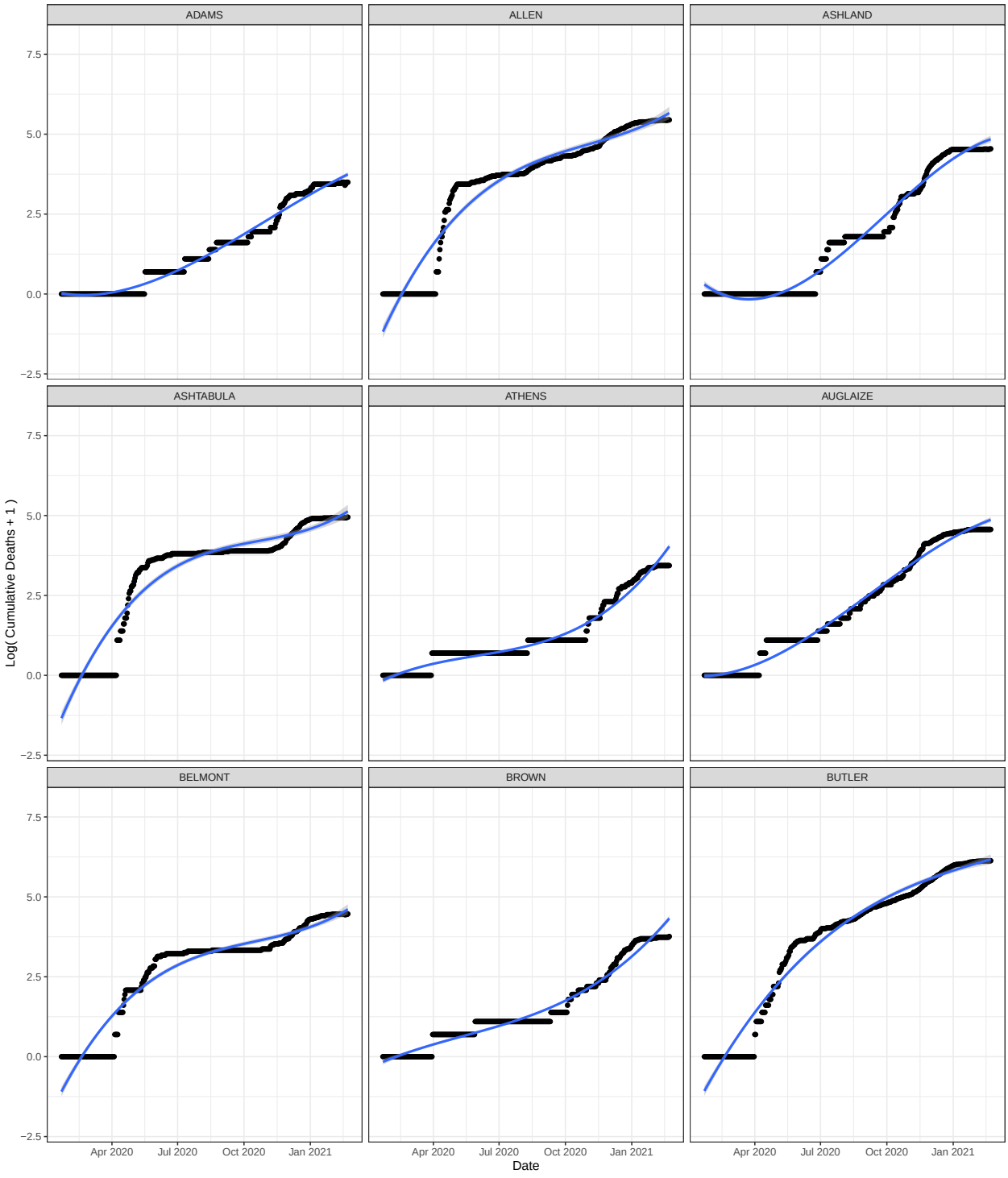
```
library(readxl)
library(tidyverse)
# read in OHIO_CASES_DATA
cases <- read_excel("COVID_CASES_OH_CNTY_20210223_pop.xlsx")
# convert dates
cases$DATE <- as.Date(cases$DATE, "%m/%d/%Y")
# remove UNASSIGNED and OUT OF OH data
cases <- cases%>%
  filter( (COUNTY != 'UNASSIGNED') & (COUNTY !='OUT OF OH'))%>%
  mutate(FIPS = str_sub(UID,start = 4,end = 8))%>%
  select(COUNTY,FIPS,DATE,CNTY_LAT,CNTY_LONG,POPULATION,CUMCONFIRMED,CUMDEATHS,NEWDEATHS,NEWCONFIRMED)
```

$Log(Death_t + 1)$ for each county

```
log_deaths_county_df <- cases %>%
  arrange(desc(POPULATION))%>%
  group_by(COUNTY) %>%
  mutate(log_deaths = log(CUMDEATHS + 1),
         log_new_deaths = log(NEWDEATHS + 1))
```

Cumulative Deaths

```
library(ggforce)
library(splines)
for(i in 1:10){
  p <- ggplot(log_deaths_county_df, aes(x = DATE, y = log_deaths)) +
      geom_point() +
      geom_smooth(method = "lm",formula = y ~ bs(x,3)) +
      facet_wrap_paginate(~COUNTY, ncol = 3, nrow = 3, page = i)+
      theme_bw() +
      labs(x = "Date", y = "Log( Cumulative Deaths + 1 )")
  print(p)
  cat("\n\n\\newpage\n")
}
```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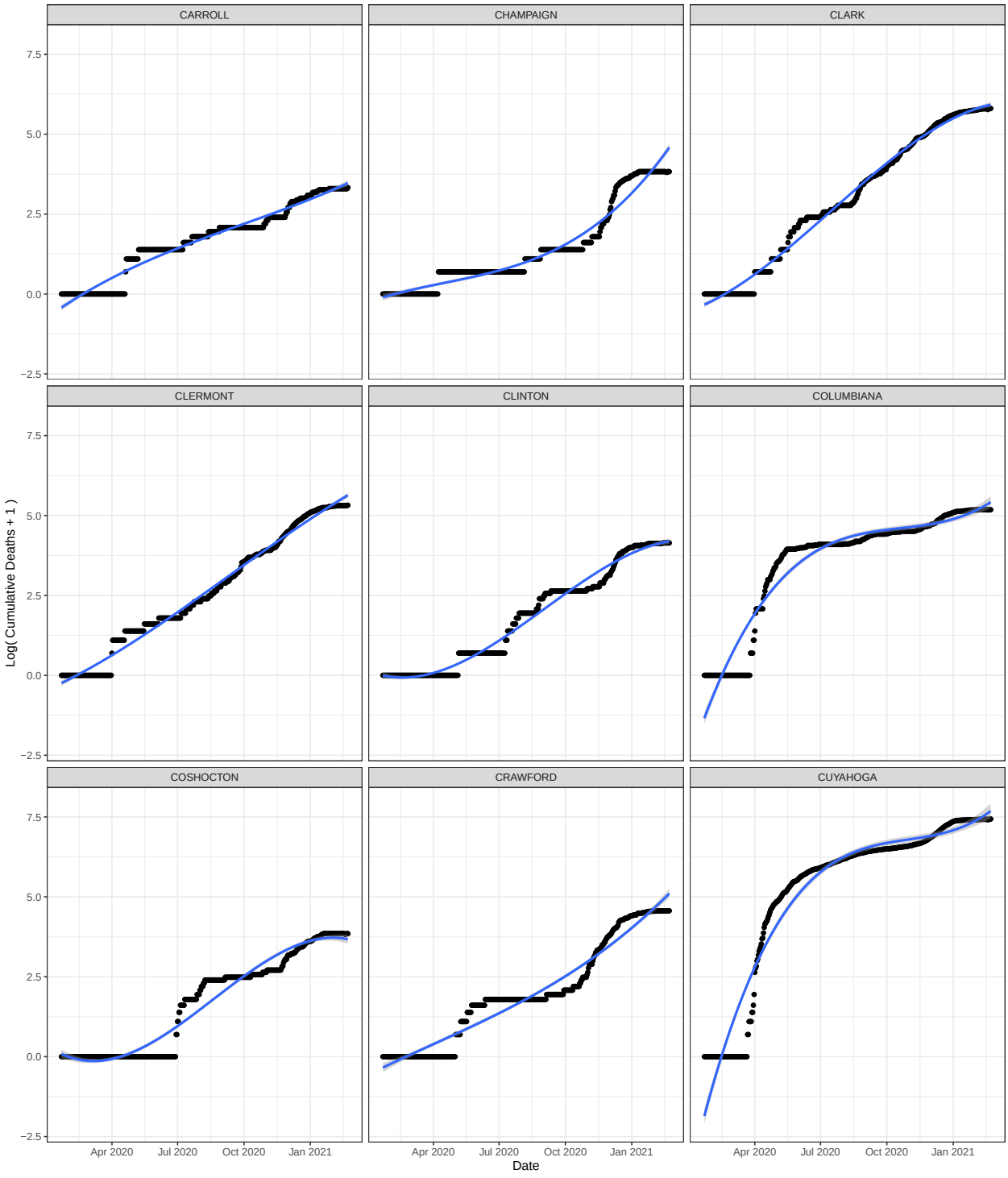
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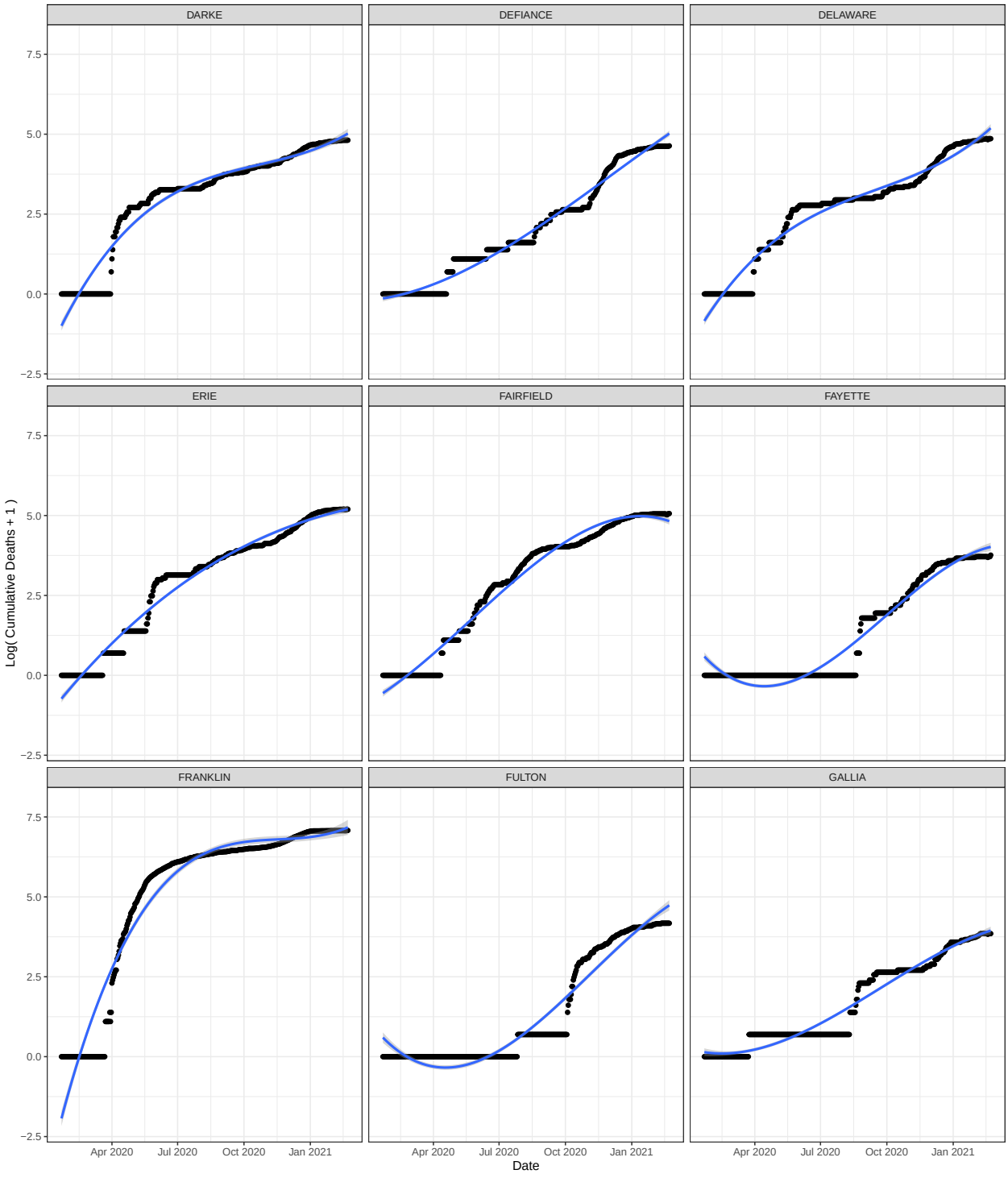
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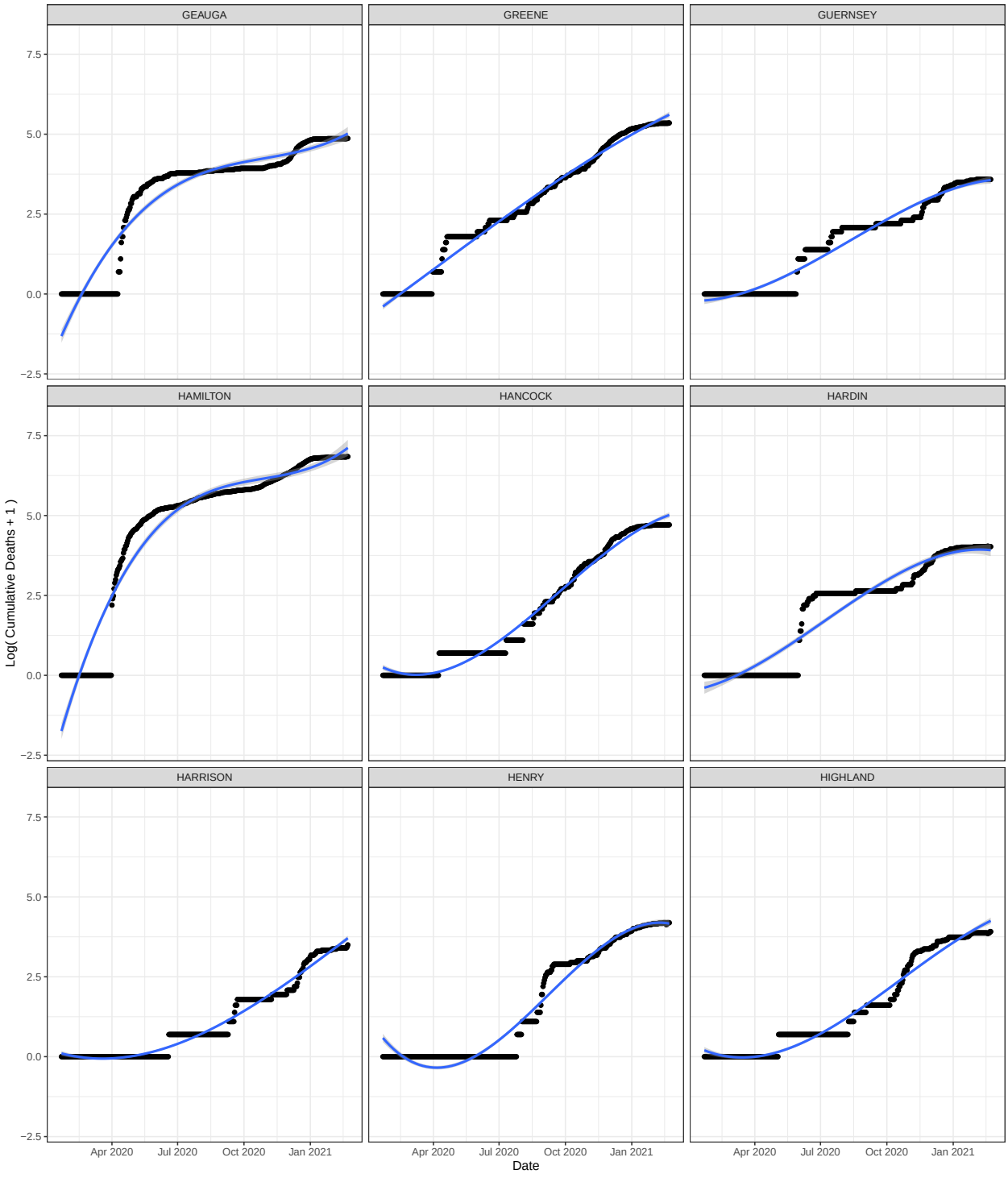
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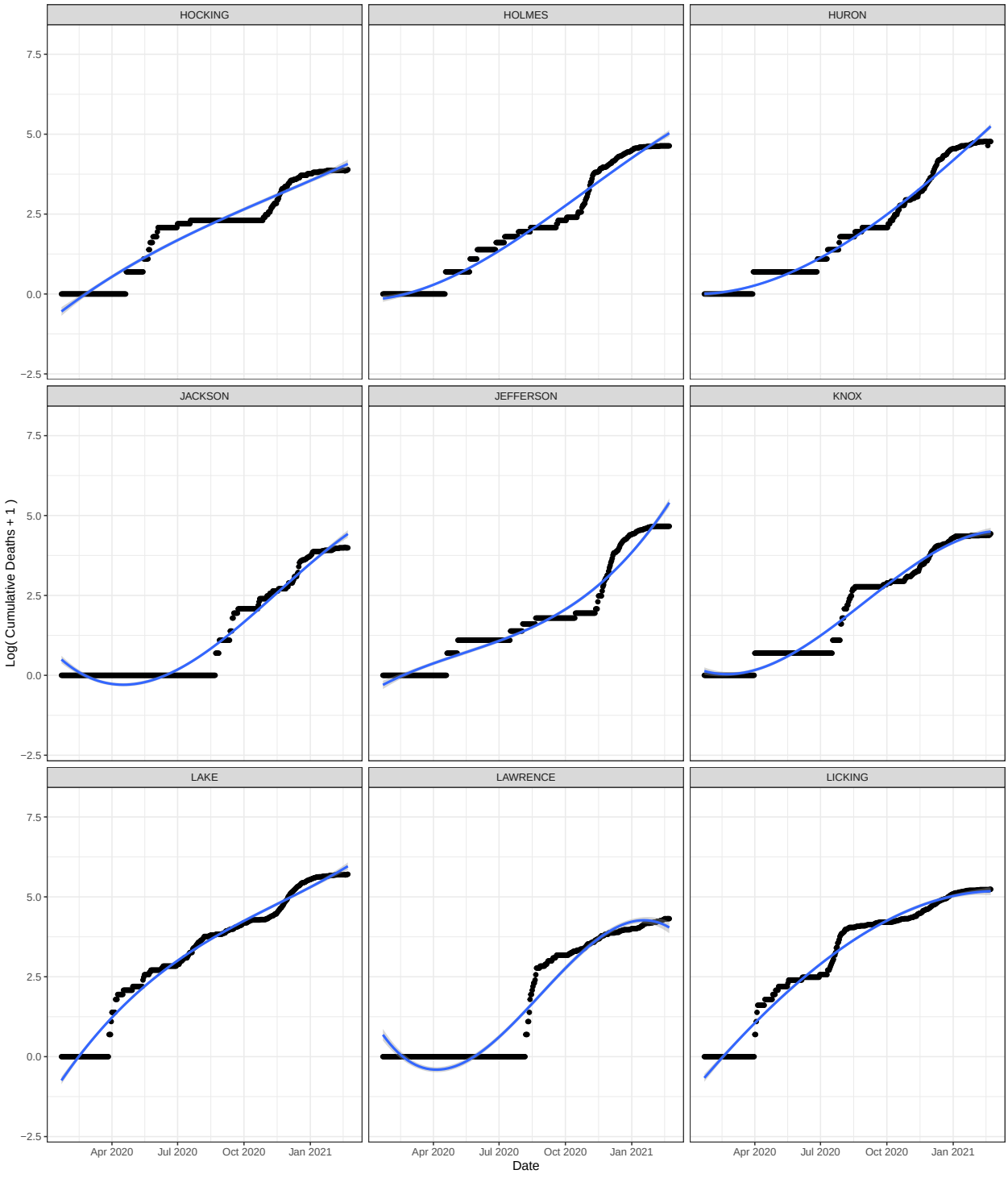
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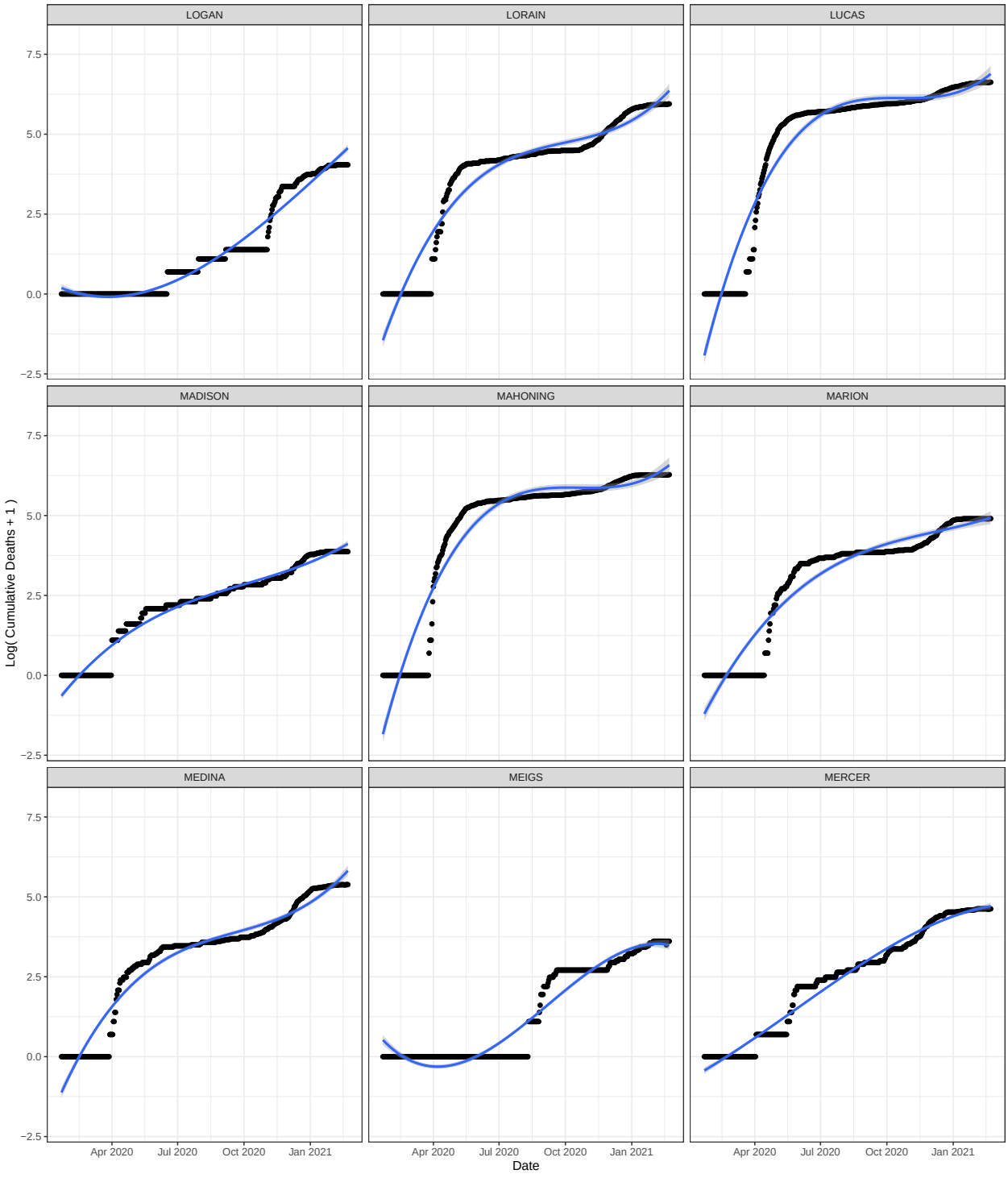
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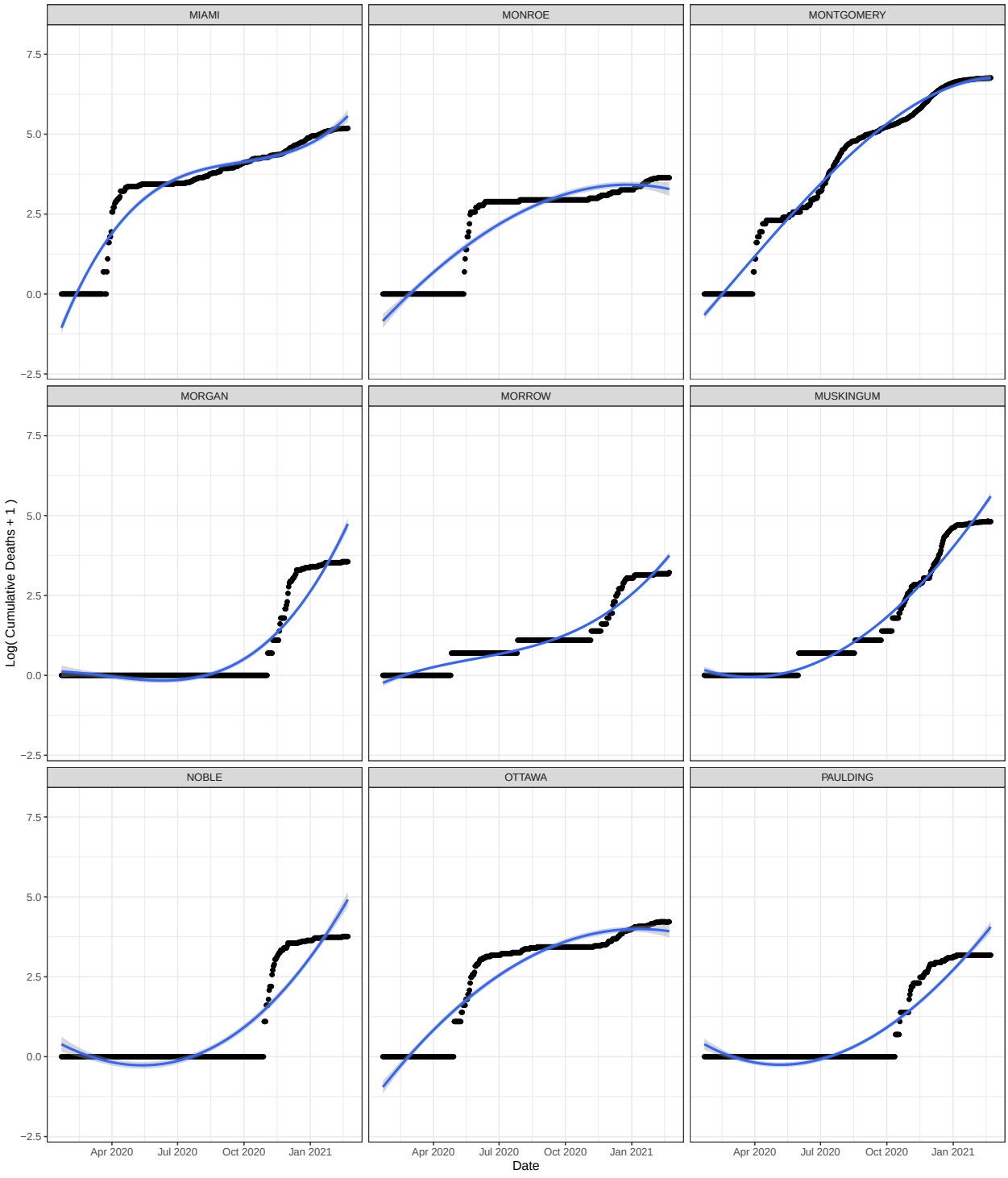
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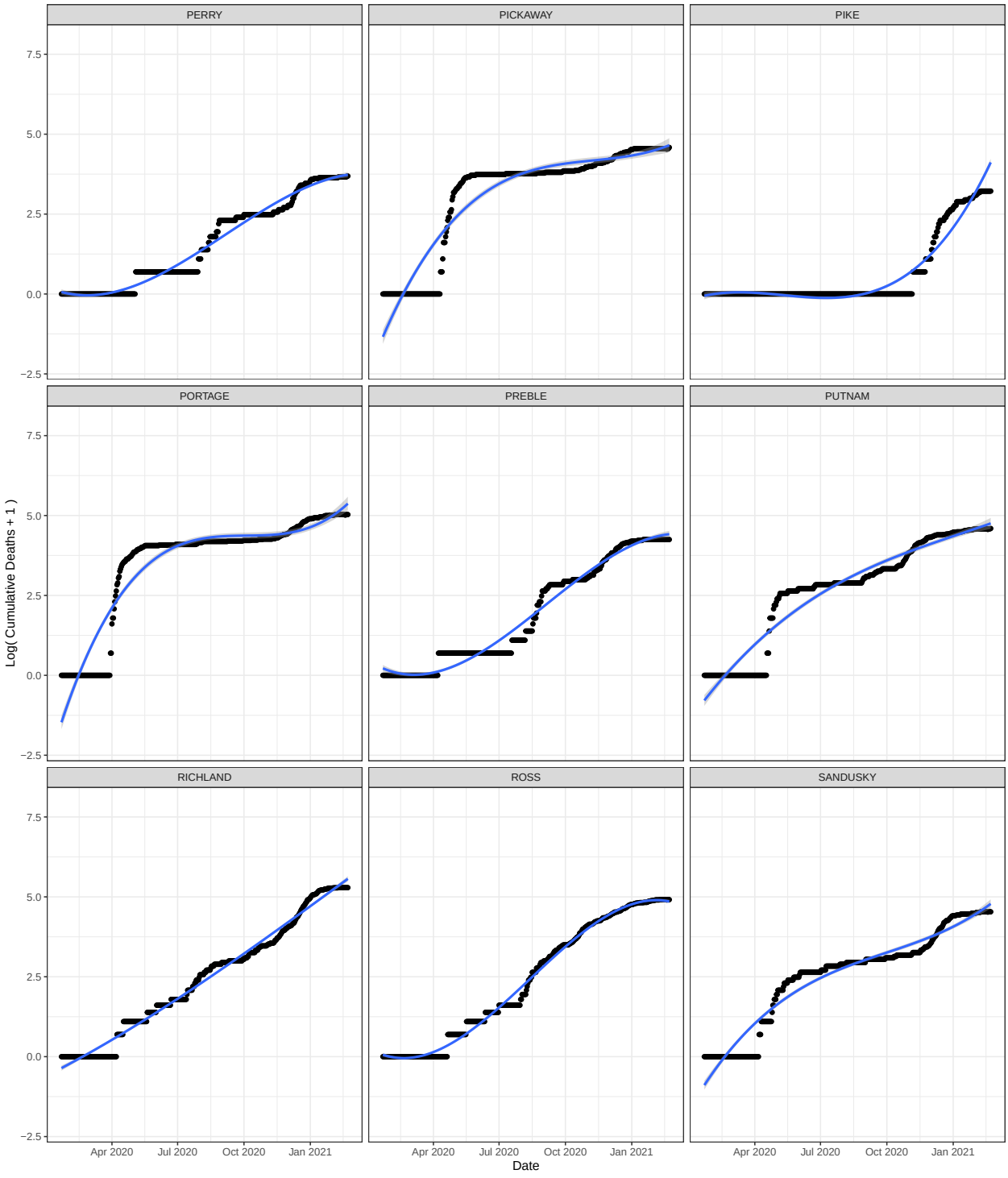
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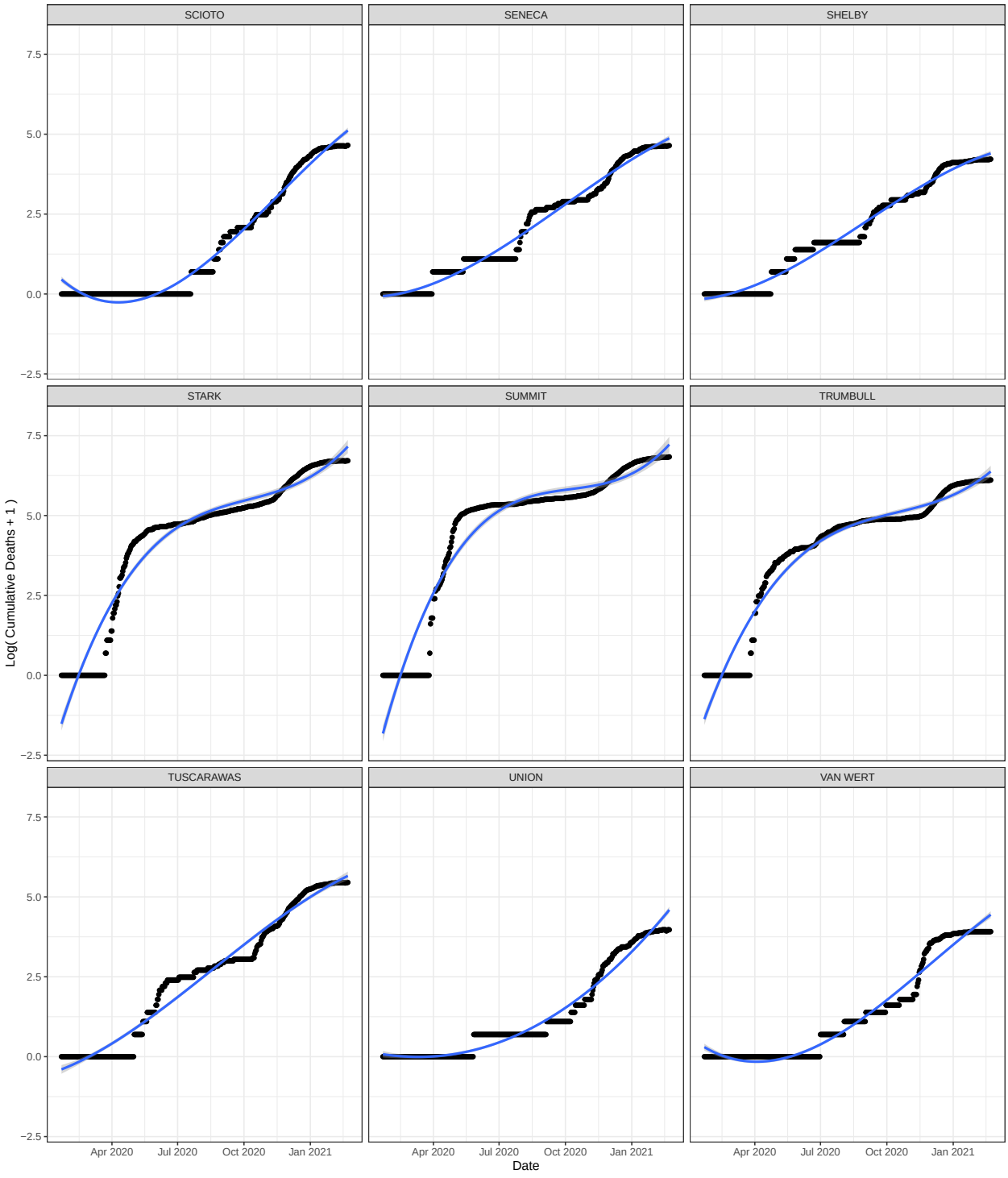
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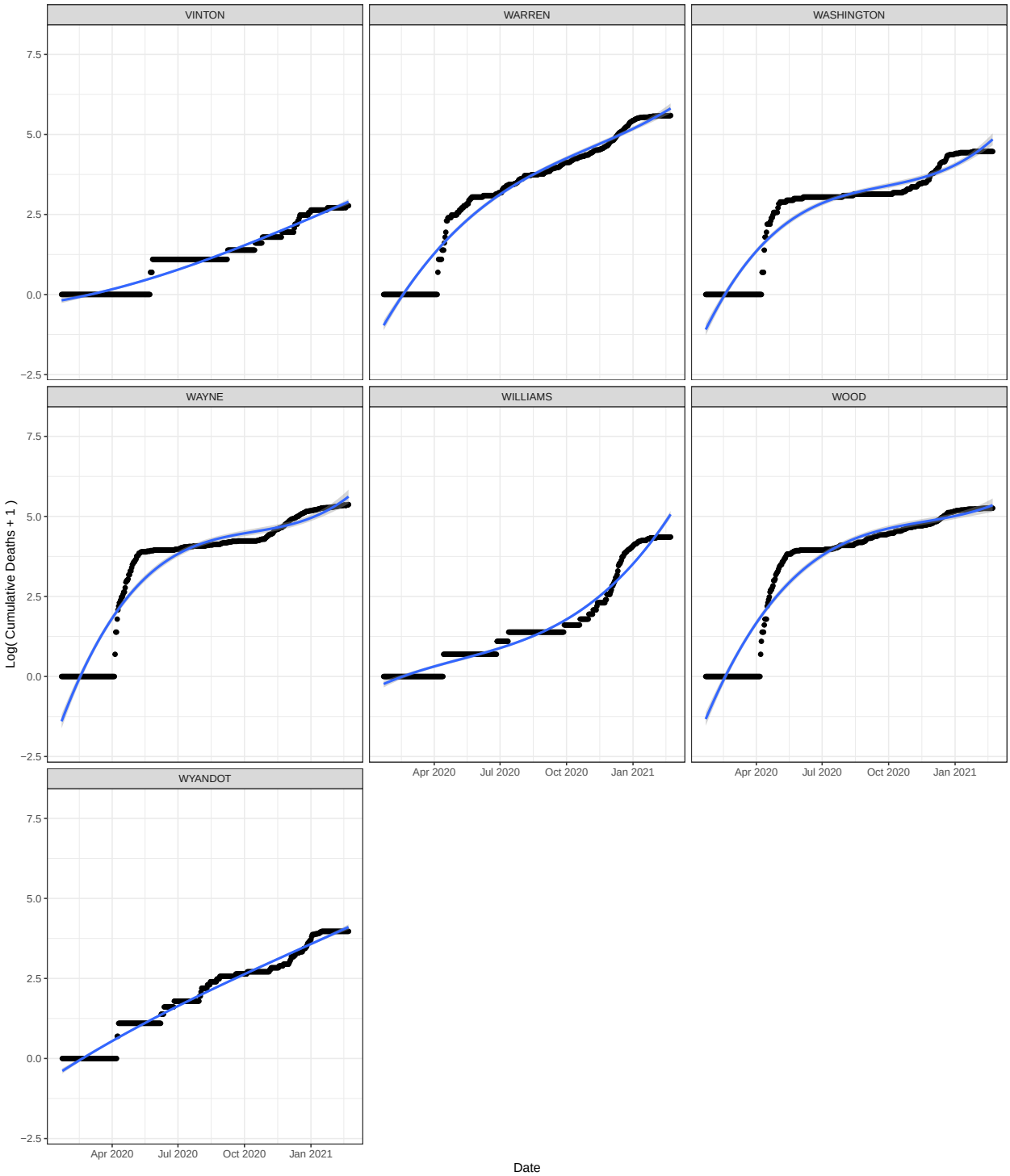
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New Deaths

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      geom_smooth(method = "lm",formula = y ~ bs(x,3)) +
      facet_wrap_paginate(~COUNTY, ncol = 3, nrow = 3, page = i)+
      theme_bw() +
      labs(x = "Date", y = "Log( New Deaths + 1 )")
  print(p)
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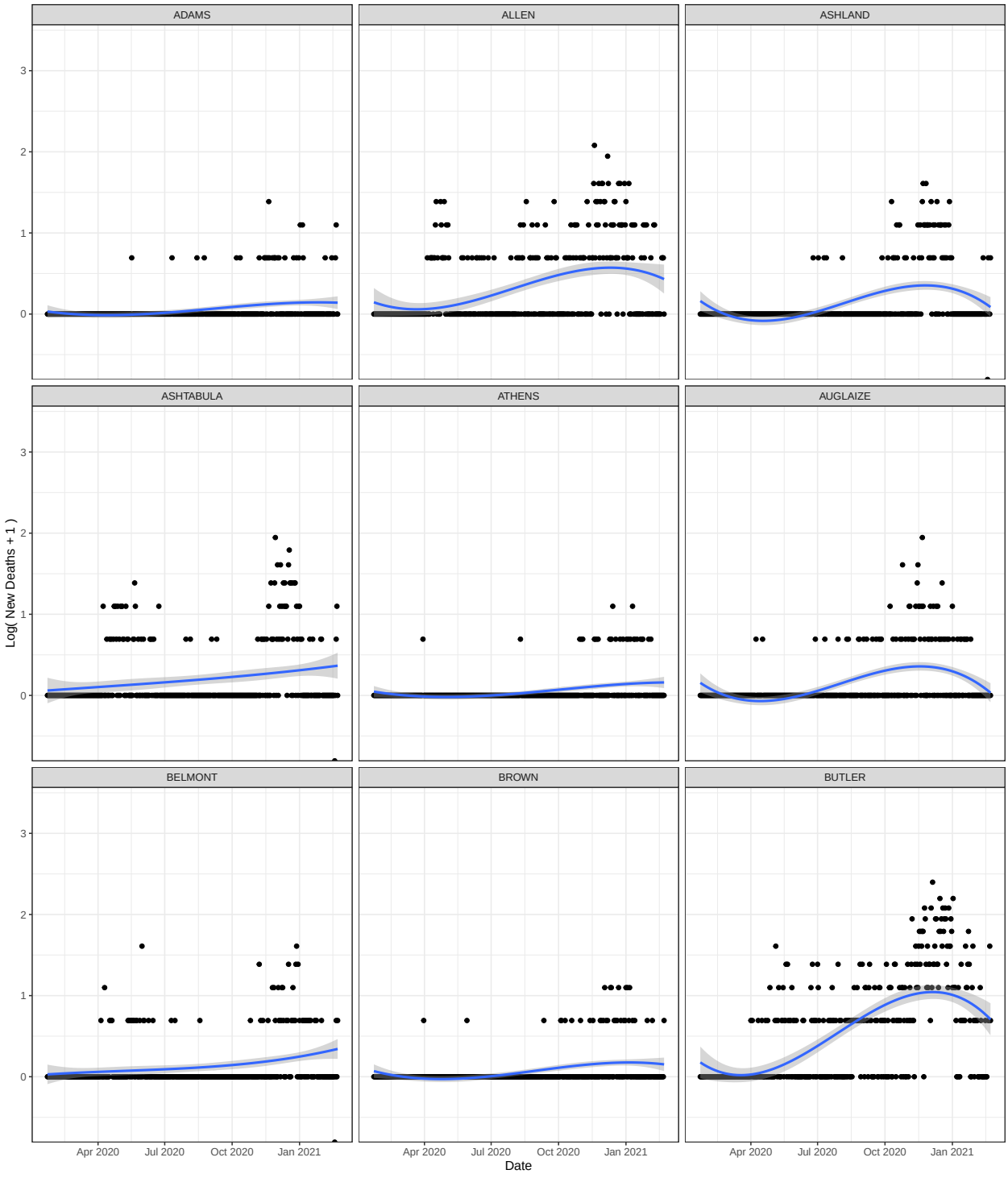
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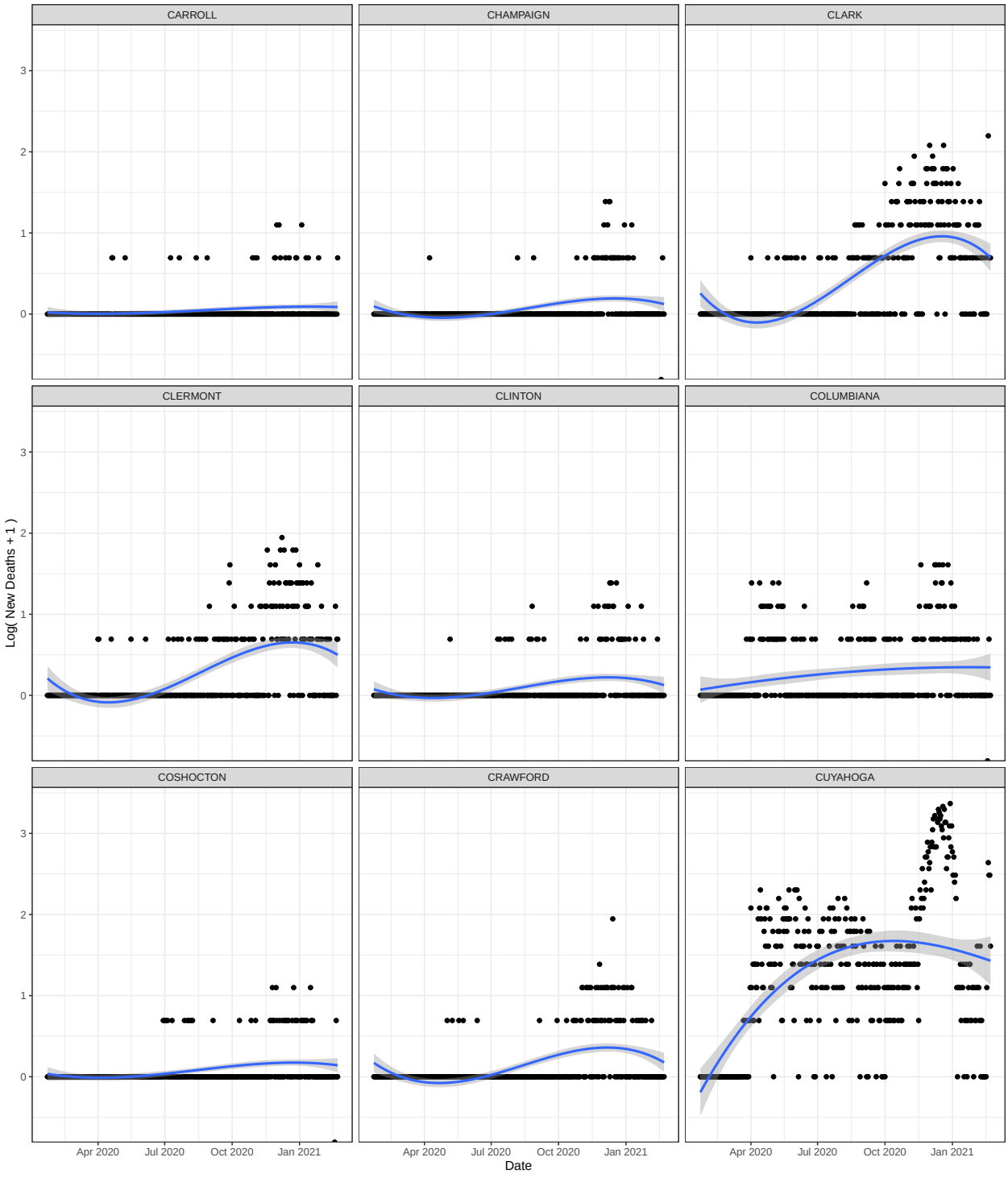
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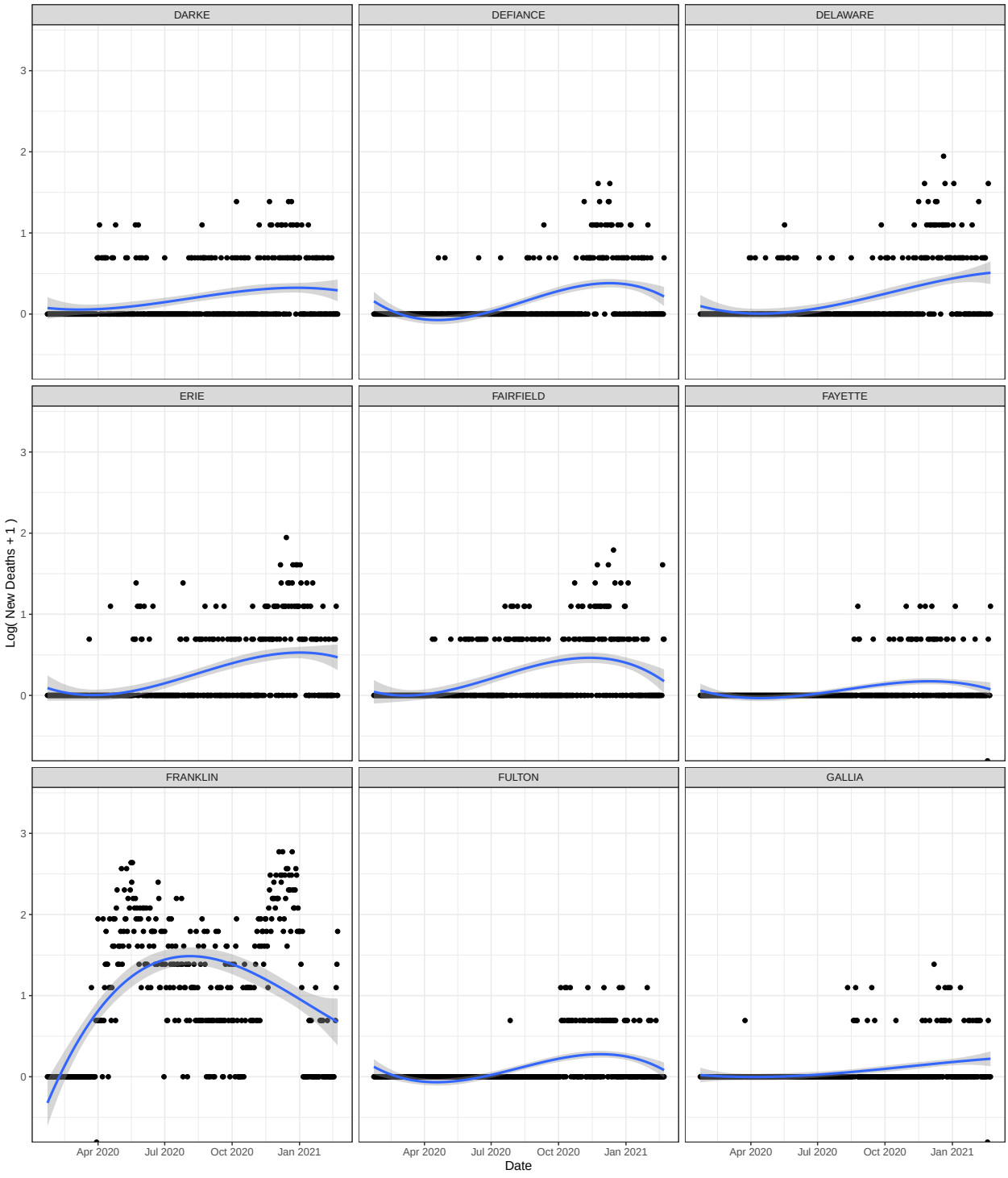
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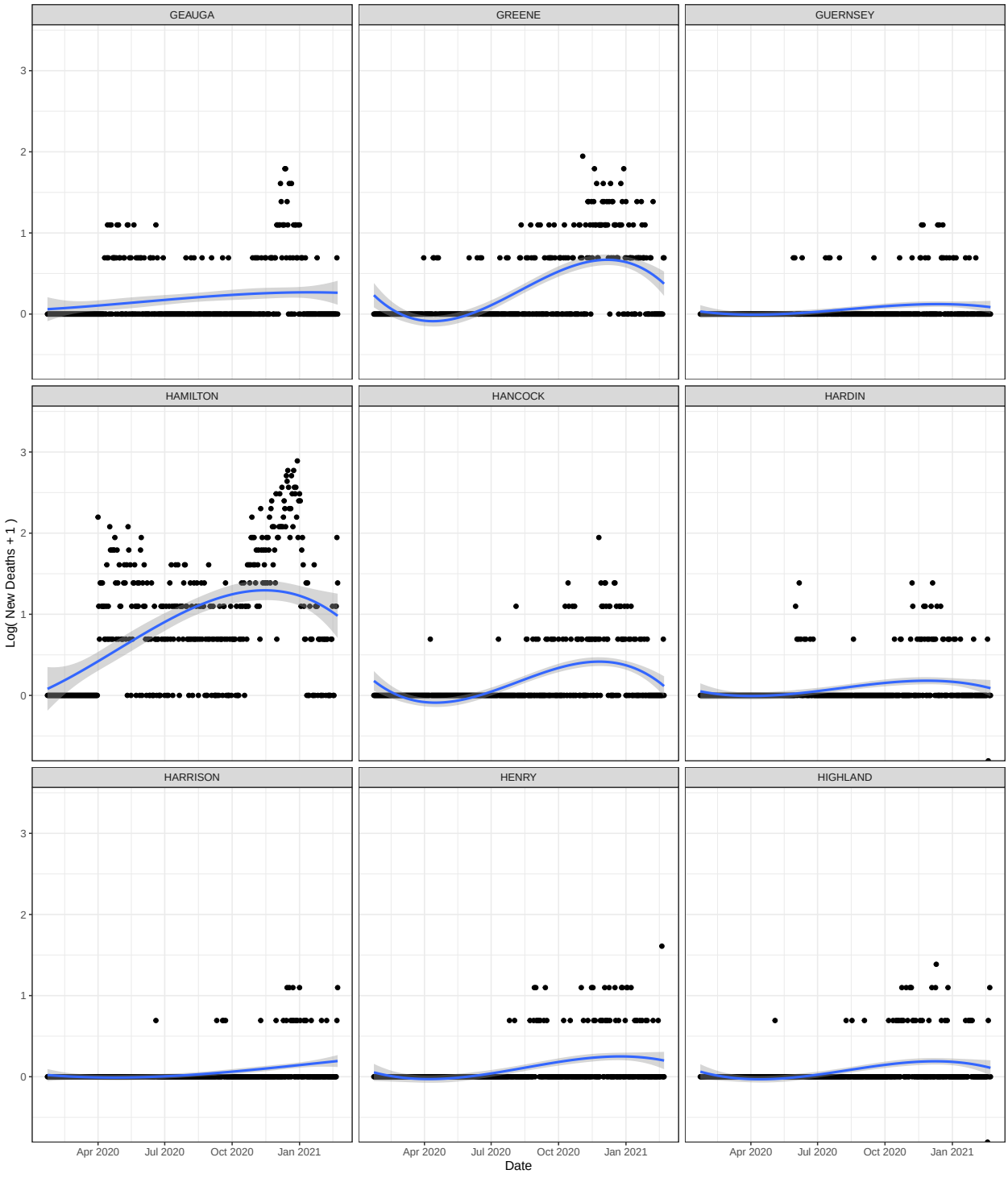
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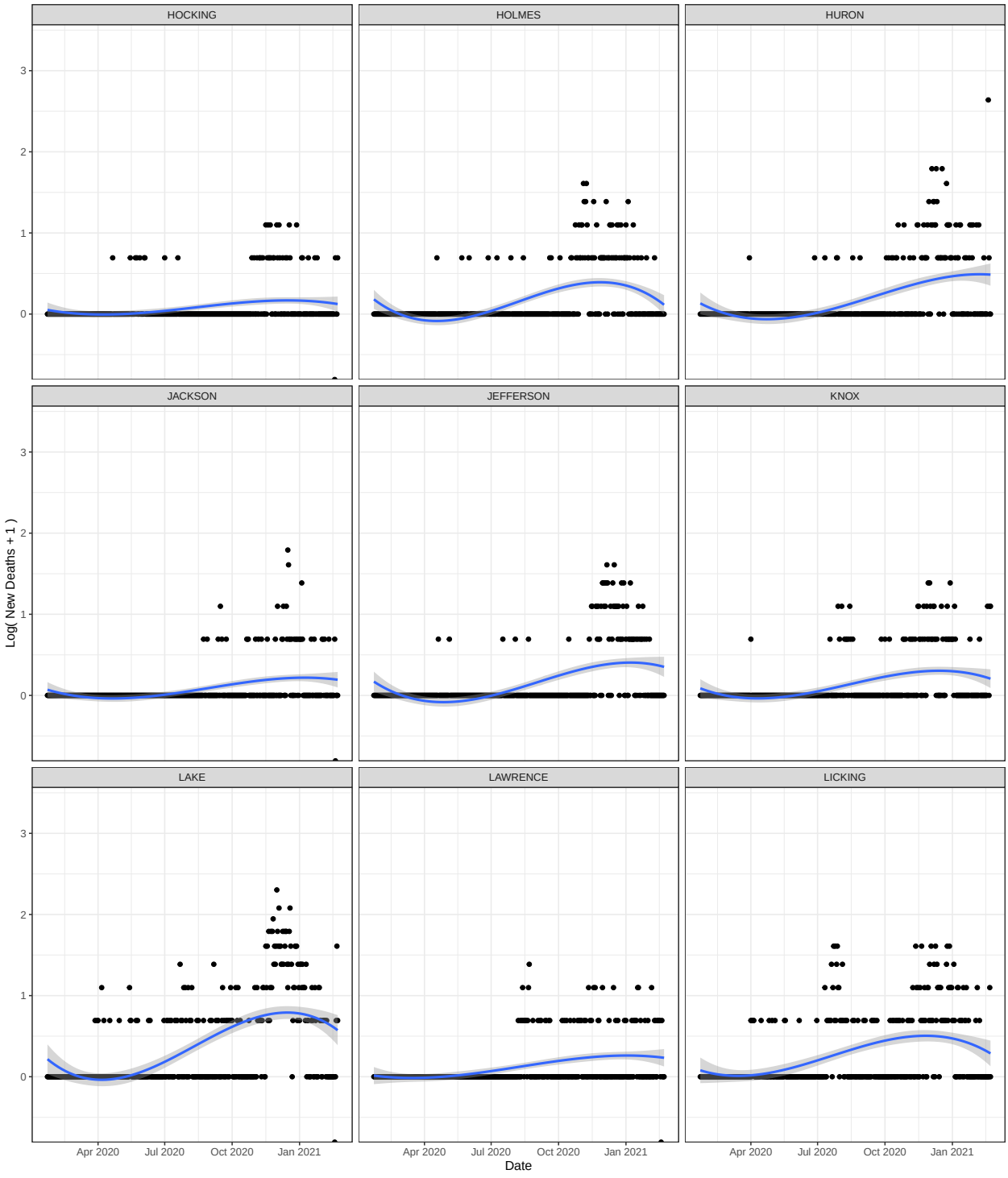
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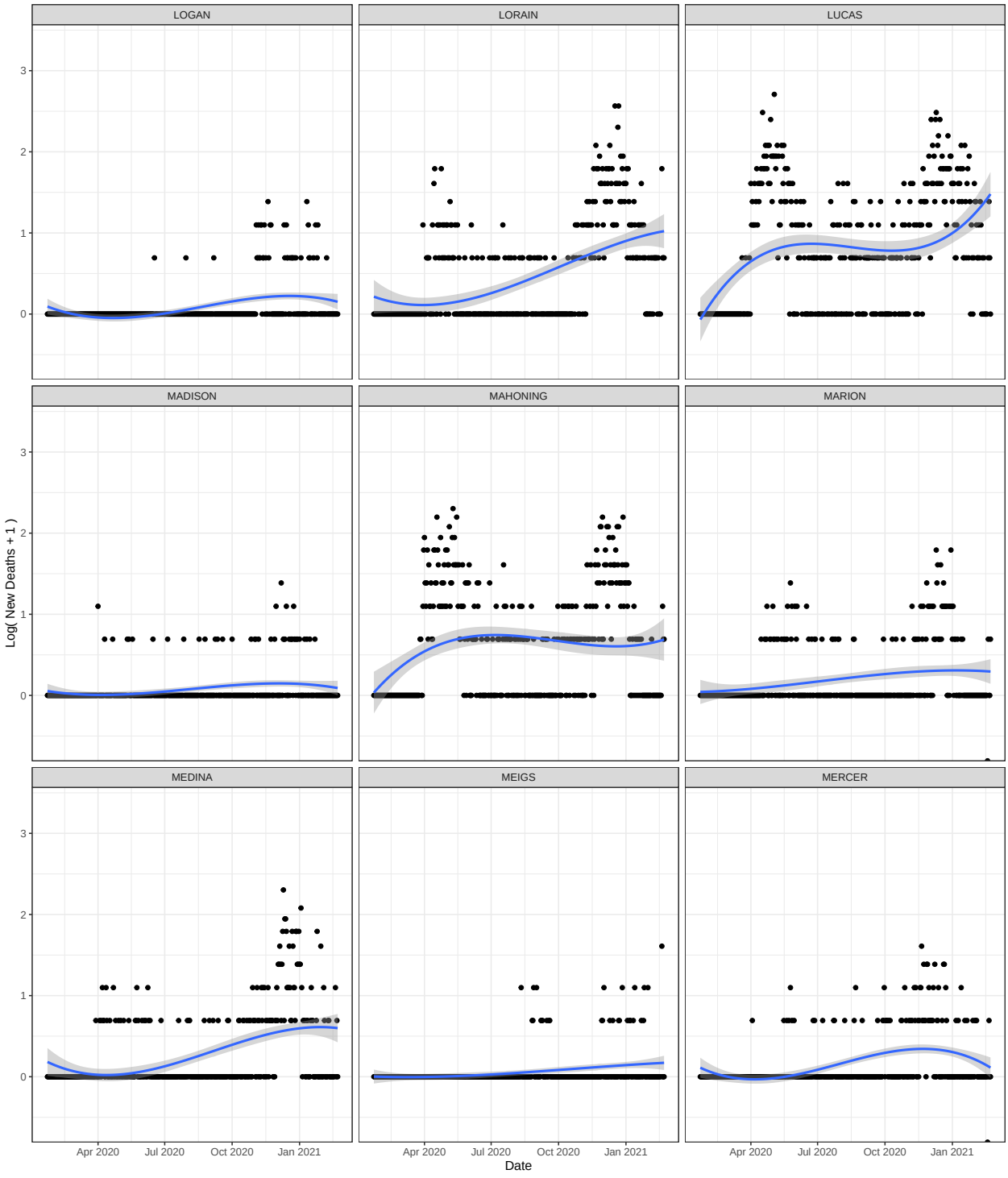
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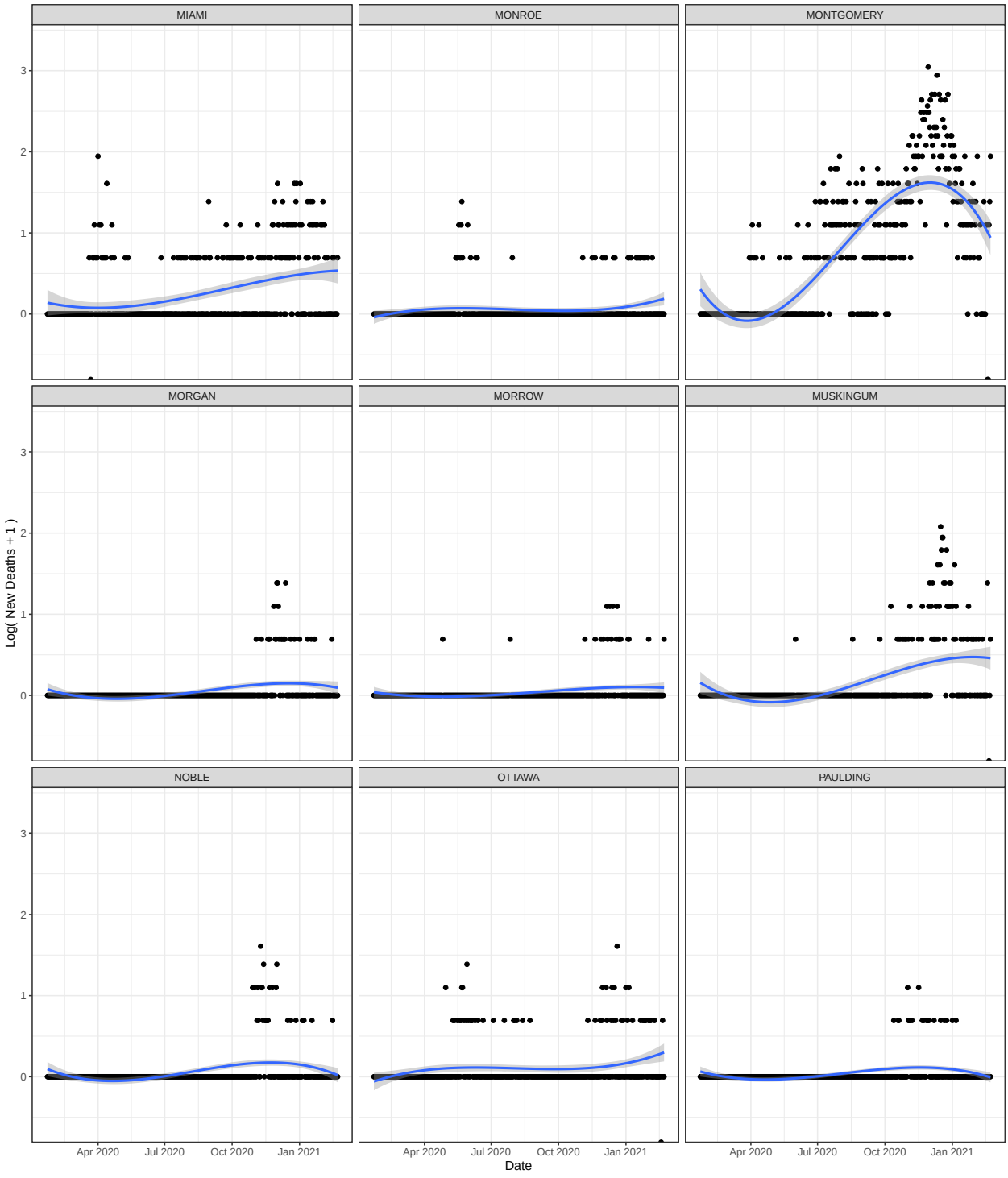
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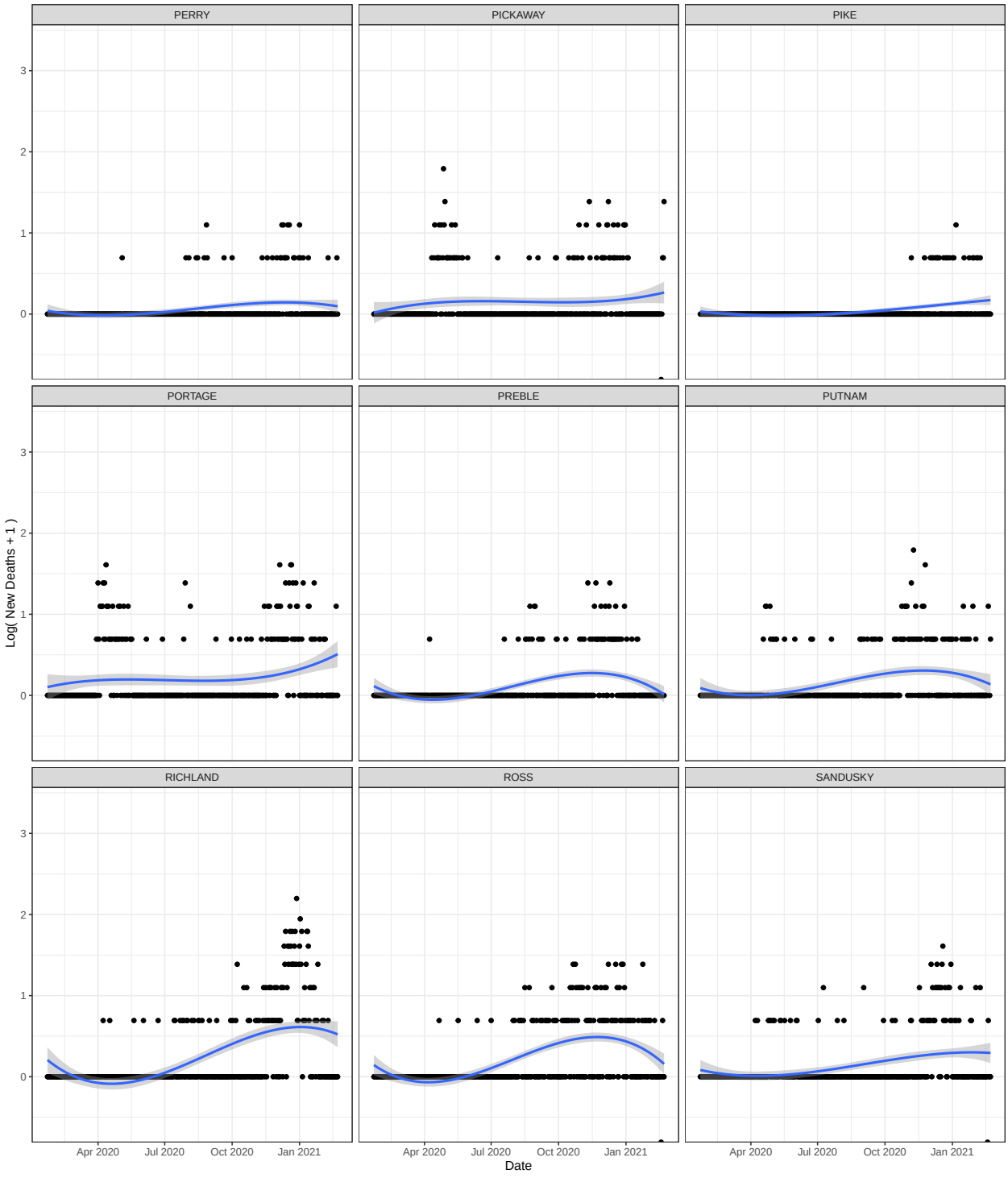
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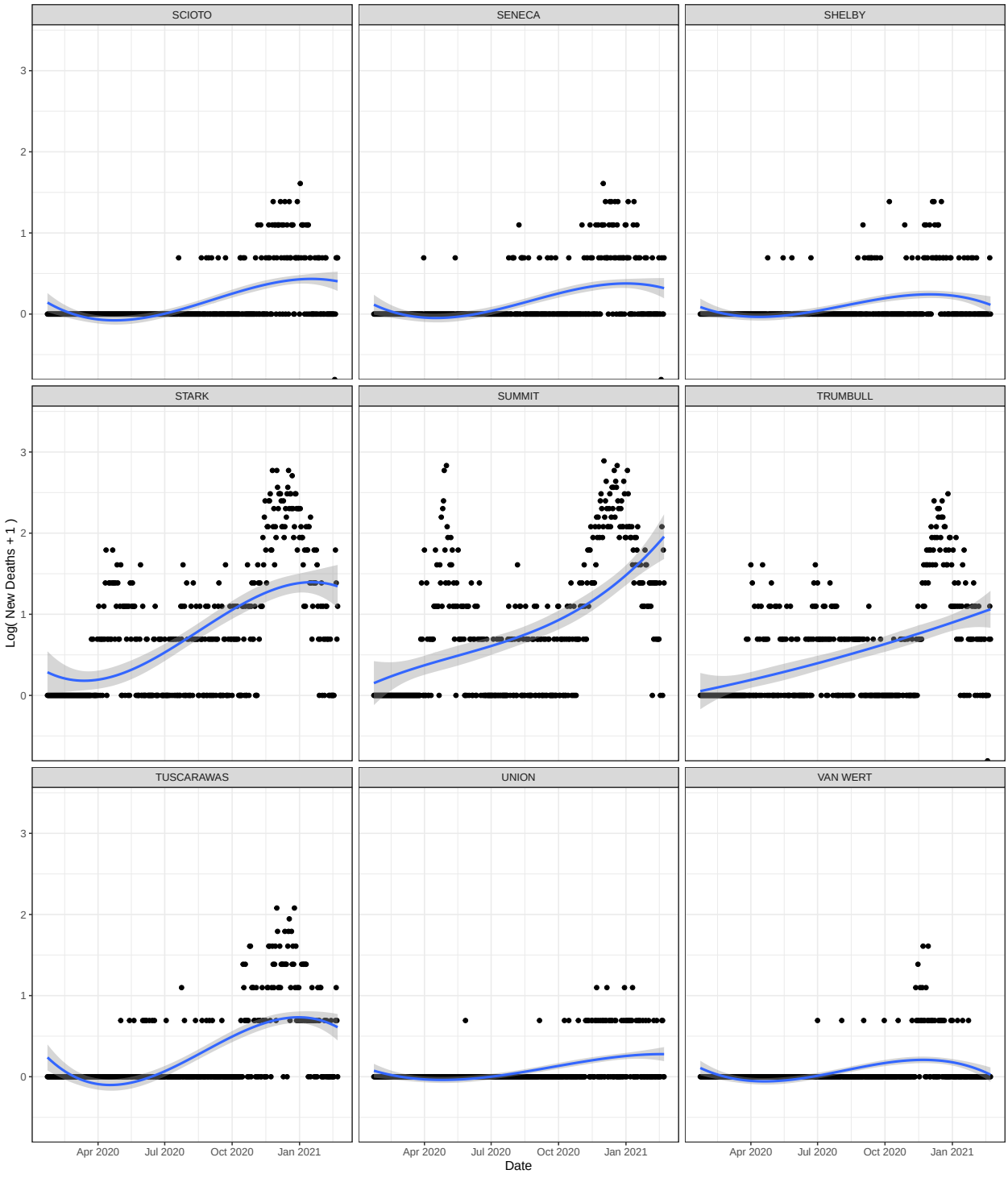
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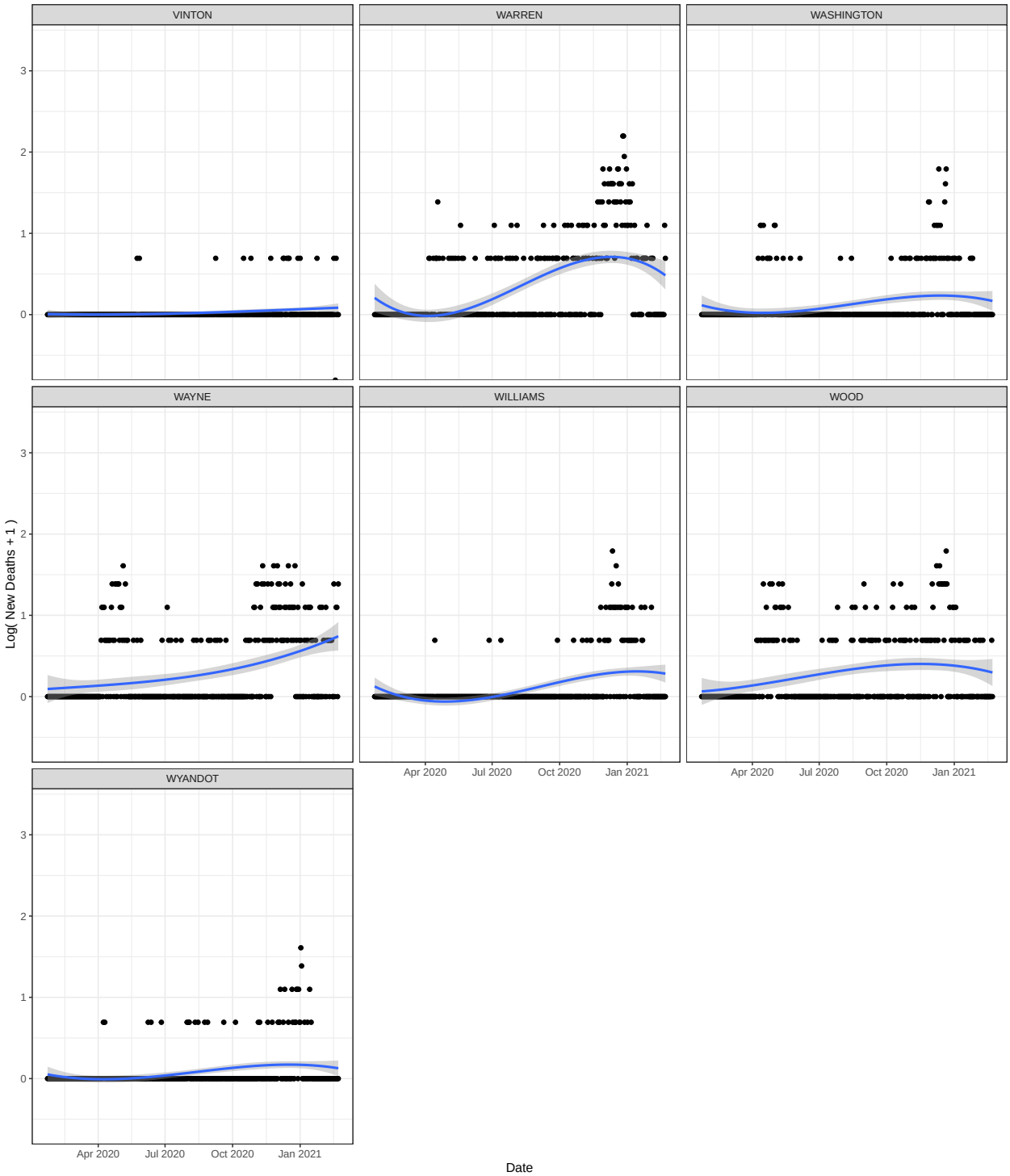
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