

eBirding and the pandemic

Preliminary results

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16-11-2021

Introduction



Instagram [@birding_memes](#)

Introduction

- Lifestyle shift
- COVID-19 and birding



Instagram @birding_memes

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- Movement, travel



Instagram @birding_memes

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- Movement, travel
- Impact on eBird data



Instagram @birding_memes

Introduction

- Lifestyle shift
- COVID-19 and birding
- Movement, travel
- **Impact on eBird data**
- Broad predictions (birder behaviour)



Instagram @birding_memes

Questions

Changes and gaps in pandemic eBird data?

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- Overall birding activity

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- Group birding

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Changes and gaps in pandemic eBird data?

- Overall birding activity
- Group birding
- Birding effort

Questions

Changes and gaps in pandemic eBird data?

- Overall birding activity
- Group birding
- Birding effort
- Biases in birding activity
 - Spatial spread
 - Temporal spread

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Changes and gaps in pandemic eBird data?

- Overall birding activity
- Group birding
- Birding effort
- Biases in birding activity
 - Spatial spread
 - Temporal spread

Numerous metrics using the focal data point, **checklists**.

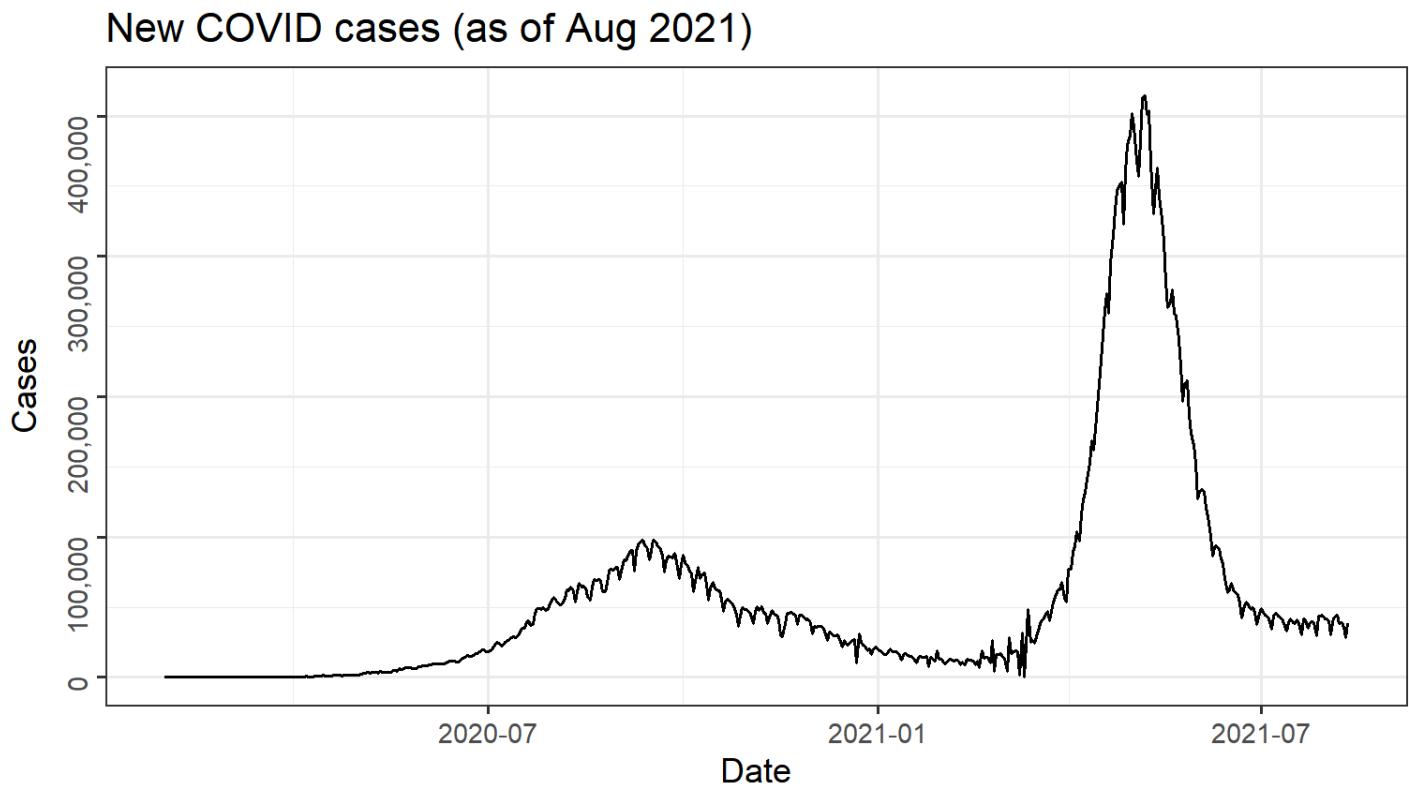
The COVID-19 timeline

The COVID-19 timeline

COVID-19 waves

The COVID-19 timeline

COVID-19 waves



The COVID-19 timeline

COVID-19 waves

Lockdowns

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y |
|----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | state | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 2 | AR | | | | x | x | | | | | | | | | | | | | | | | | | | |
| 3 | GJ | | | | x | x | | | | | | | | | | | | | | | | | | | |
| 4 | KA | | | | x | x | | | | | | | | | | | | | | | x | | x | x | x |
| 5 | KL | | | | x | x | | | | | | | | | | | | | | | x | x | | | |
| 6 | MH | | | | x | x | | | | | | | | | | | | | | | x | x | | | |
| 7 | SK | | | | x | x | | | | | | | | | | | | | | | | | | | |
| 8 | TN | | | | x | x | | | | | | | | | | | | | | | | | | | |
| 9 | UL | | | | x | x | | | | | | | | | | | | | | | | | | | |
| 10 | WB | | | | x | x | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | |

Timeline information scarce!

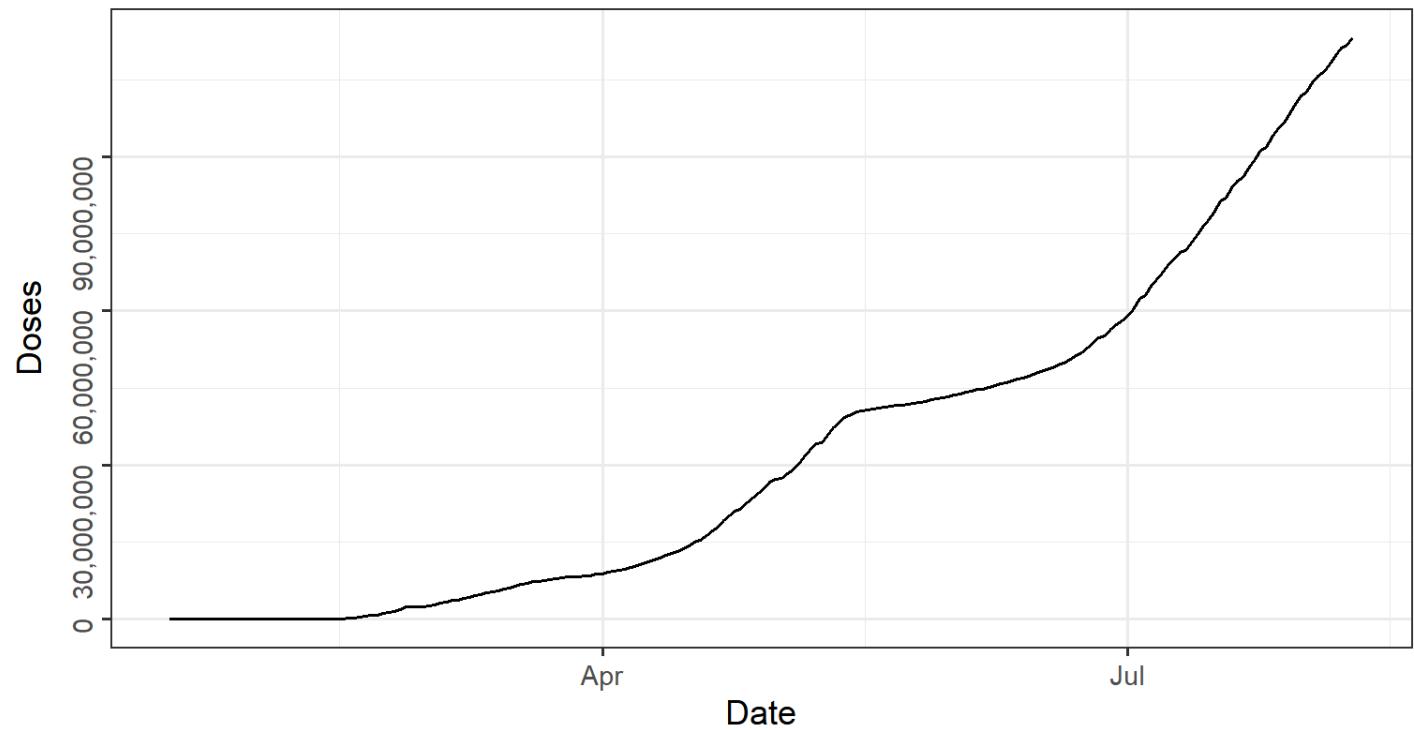
The COVID-19 timeline

COVID-19 waves

Lockdowns

Vaccination phases

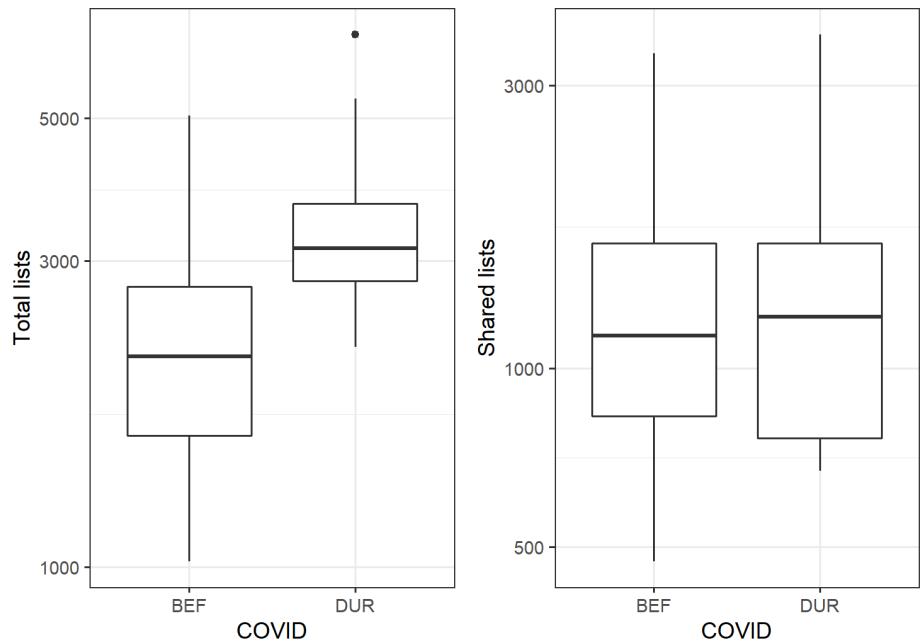
Second vaccine doses administered (as of Aug 2021)



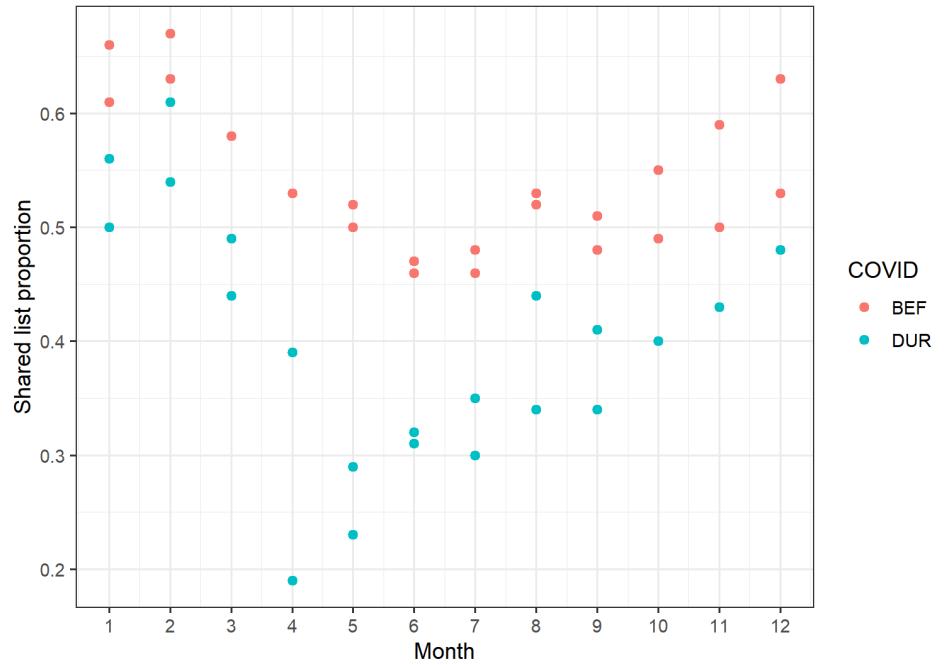
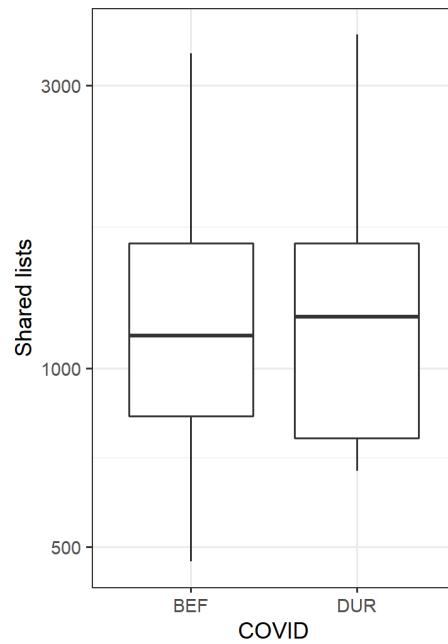
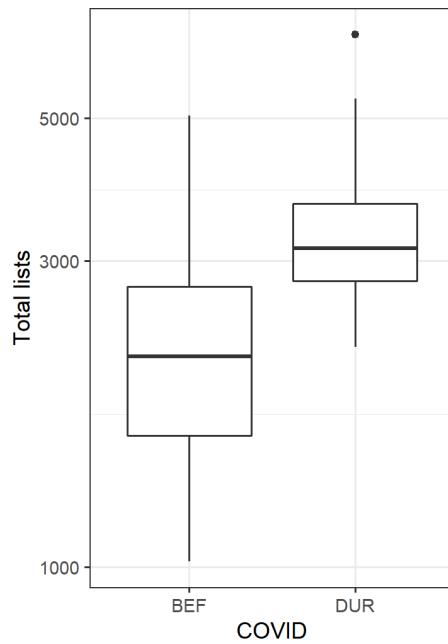
Exploratory results

Birding activity

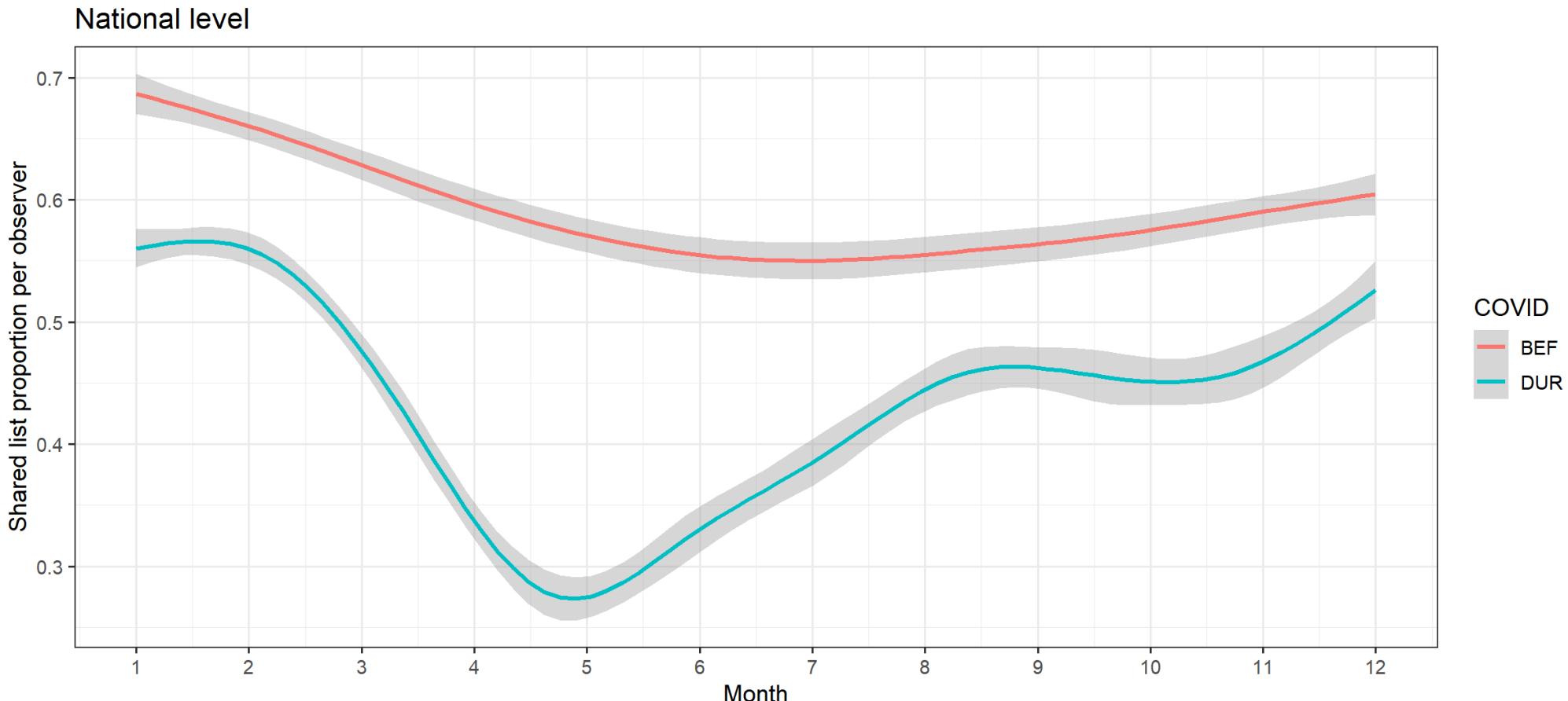
Total and shared lists



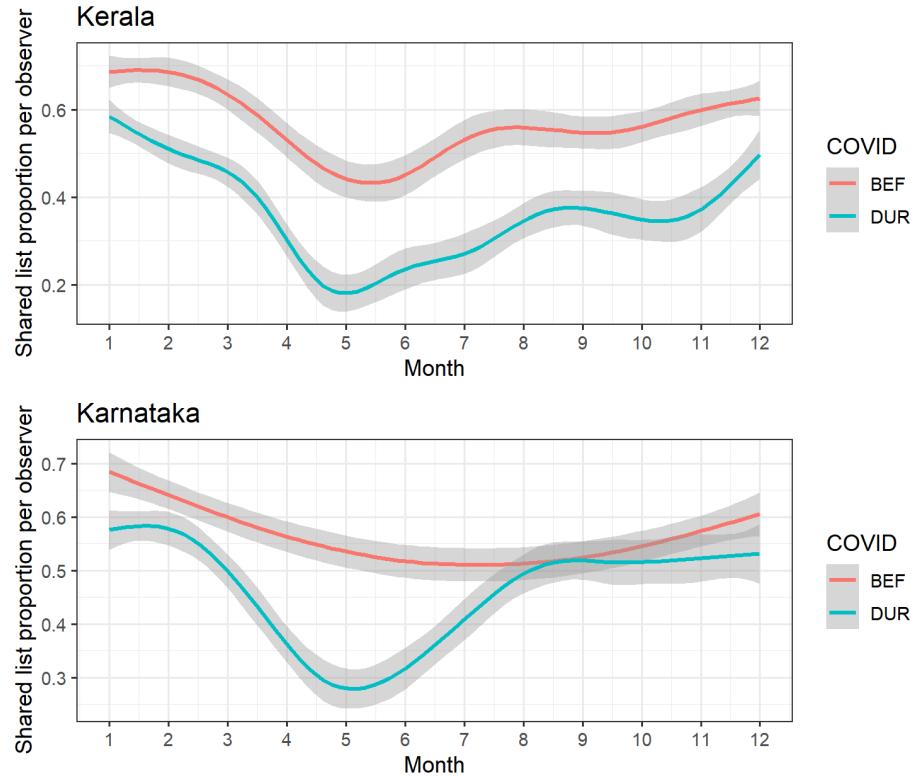
Total and shared lists



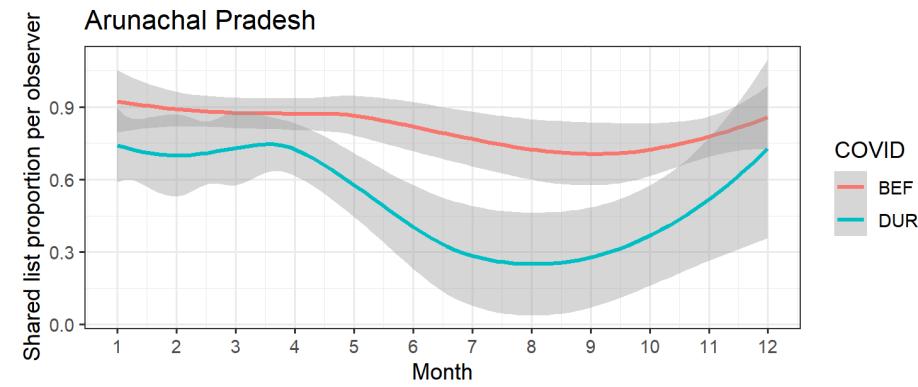
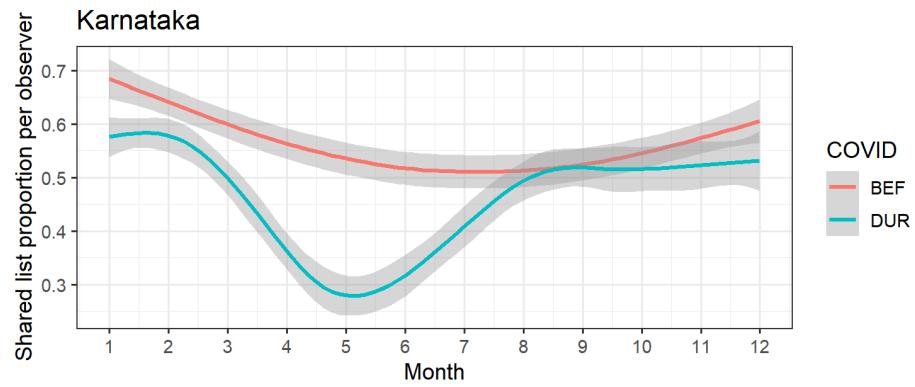
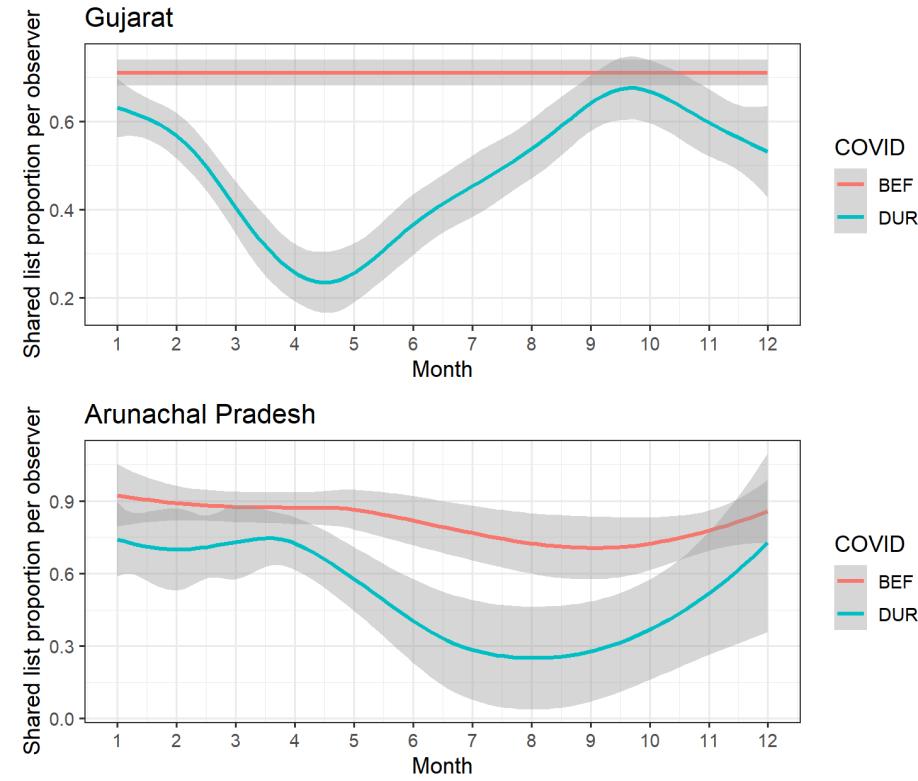
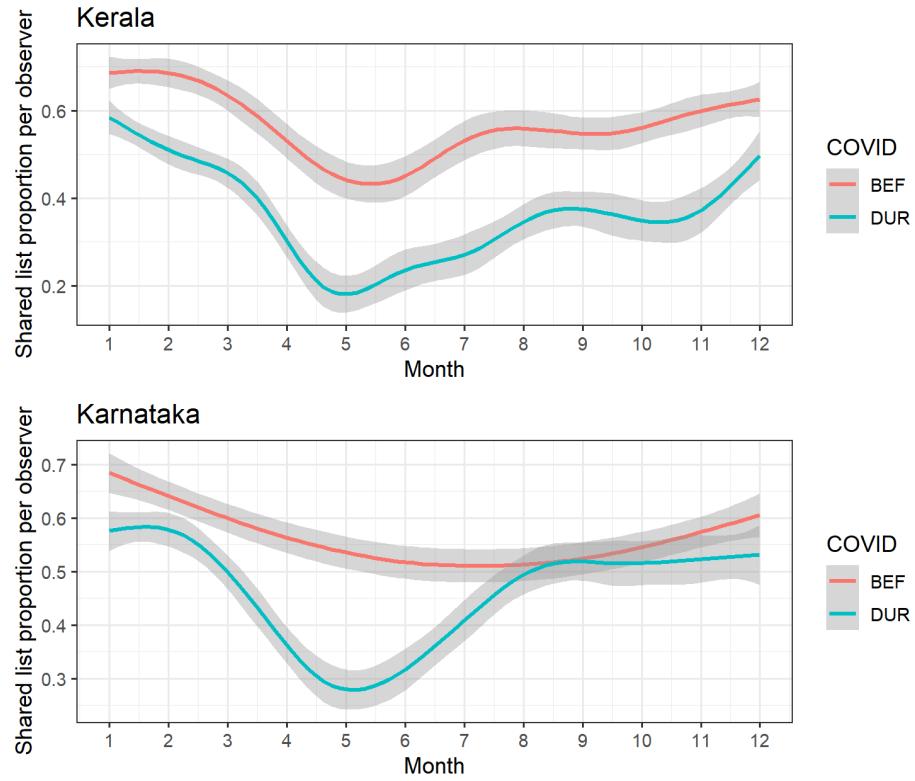
Lists per observer



Lists per observer



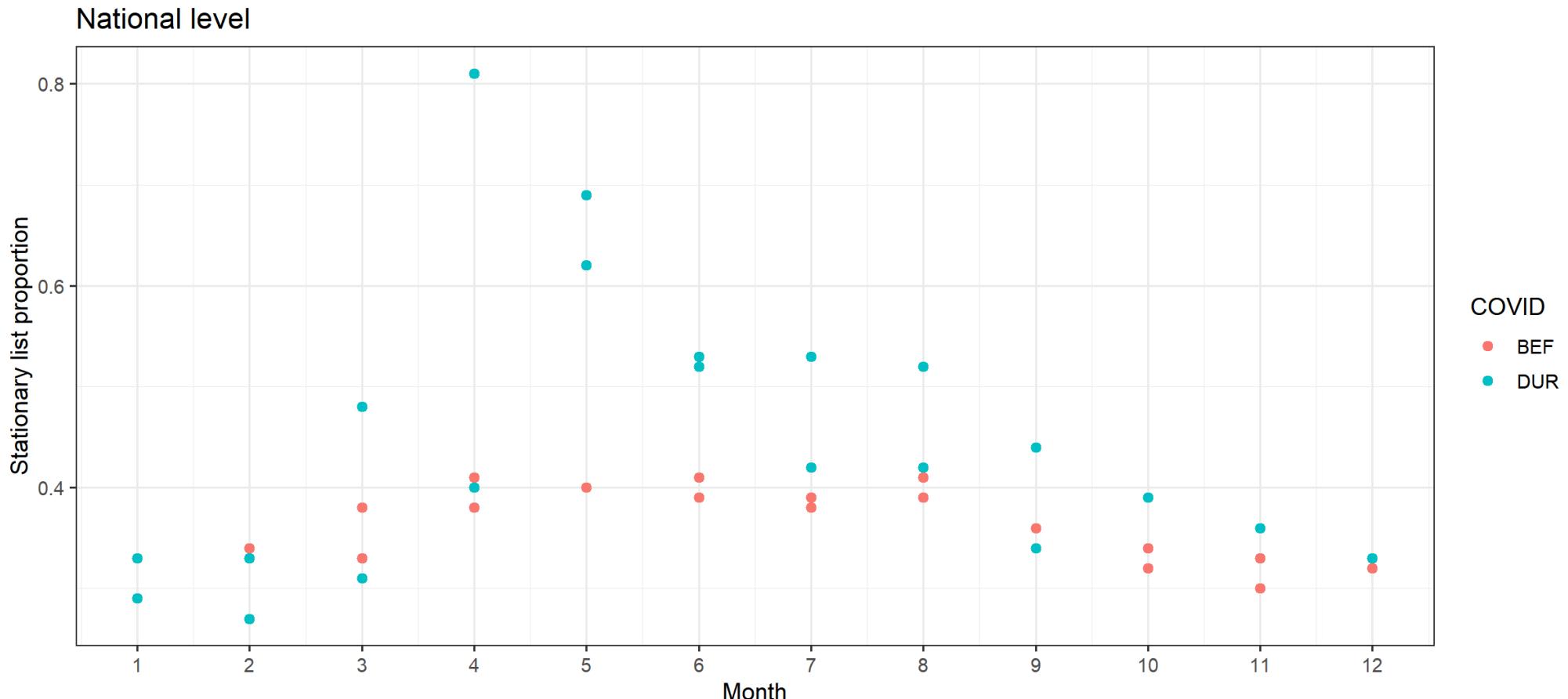
Lists per observer



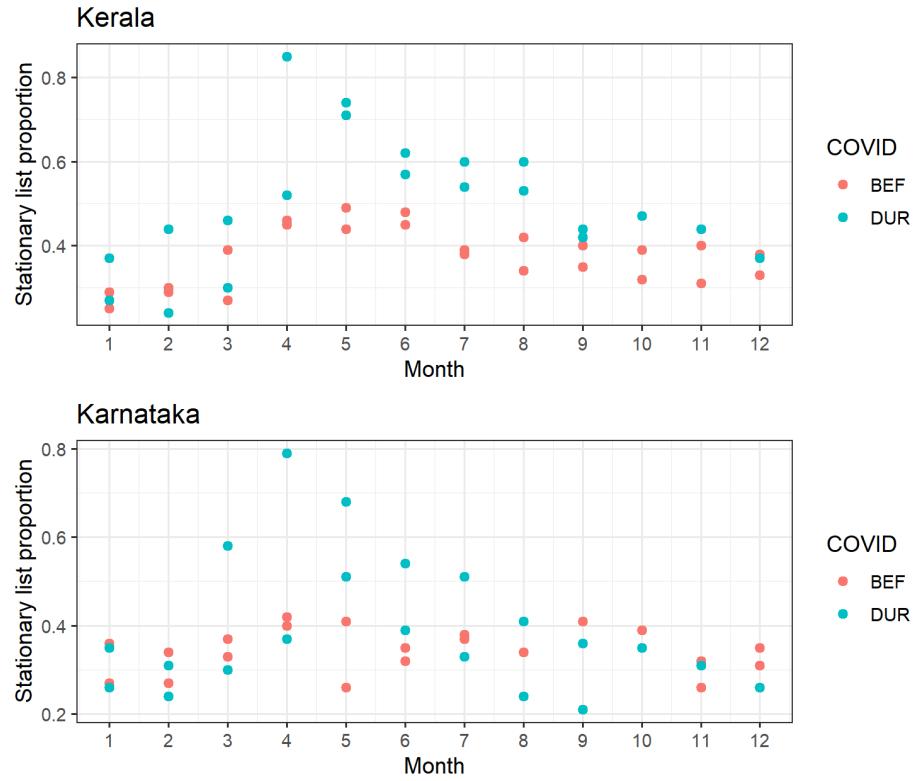
Birding effort

Birding protocol

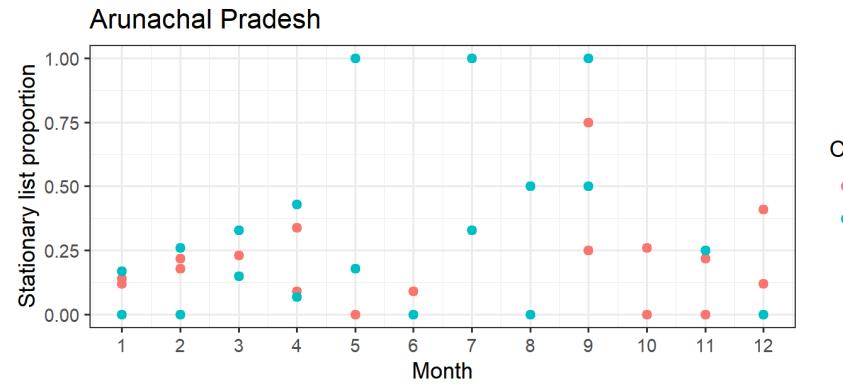
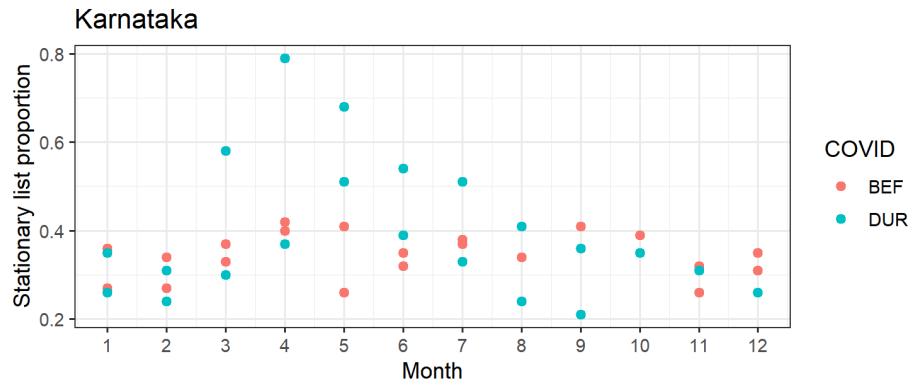
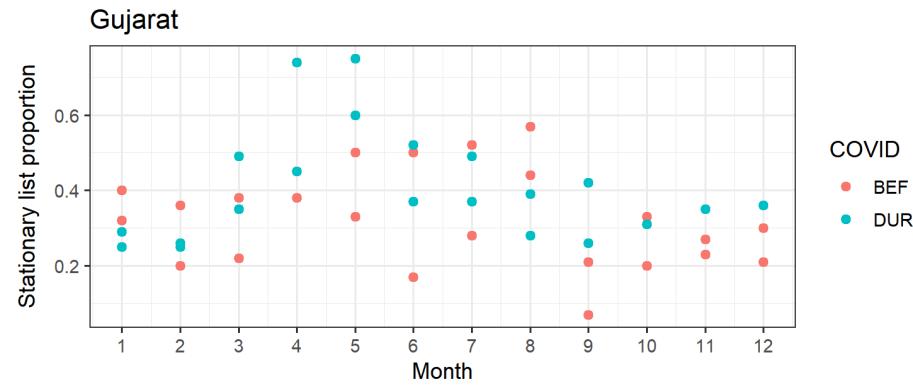
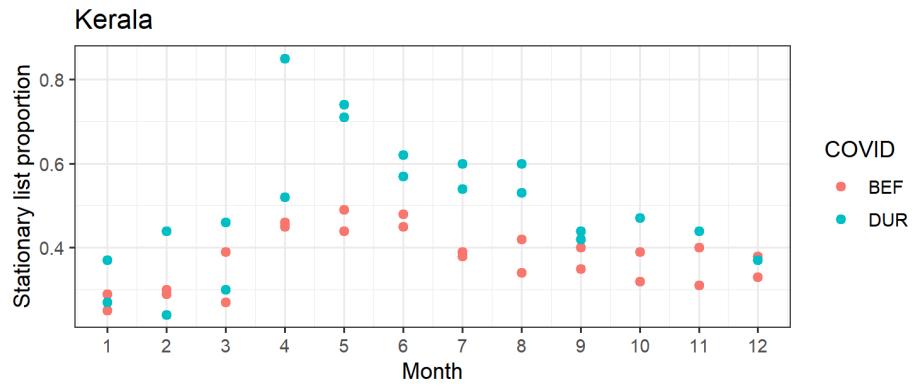
Birding protocol



Birding protocol

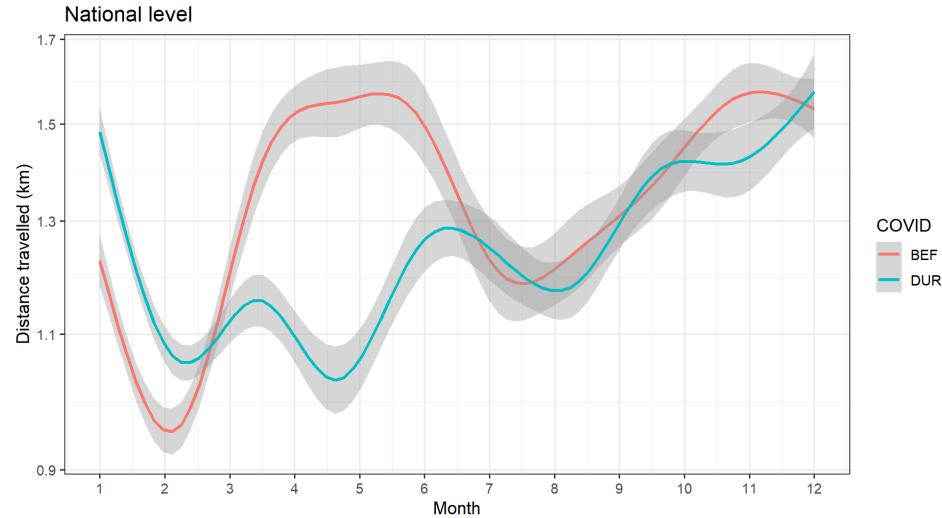


Birding protocol

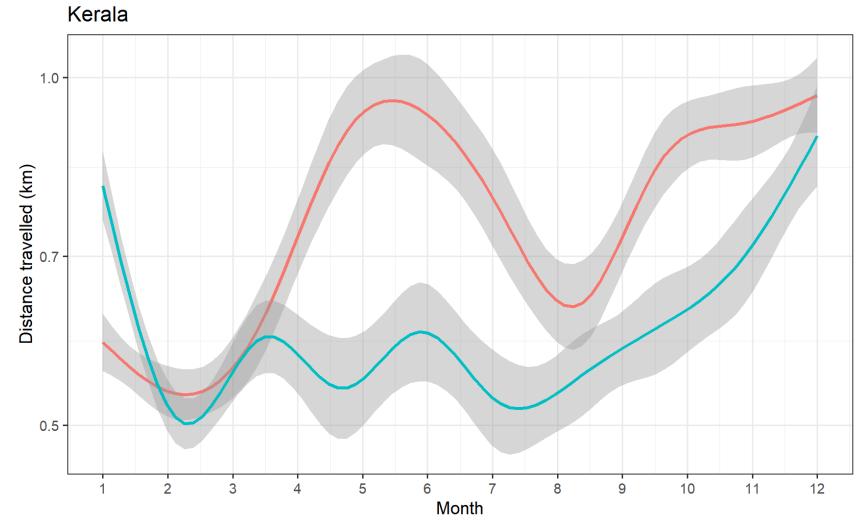
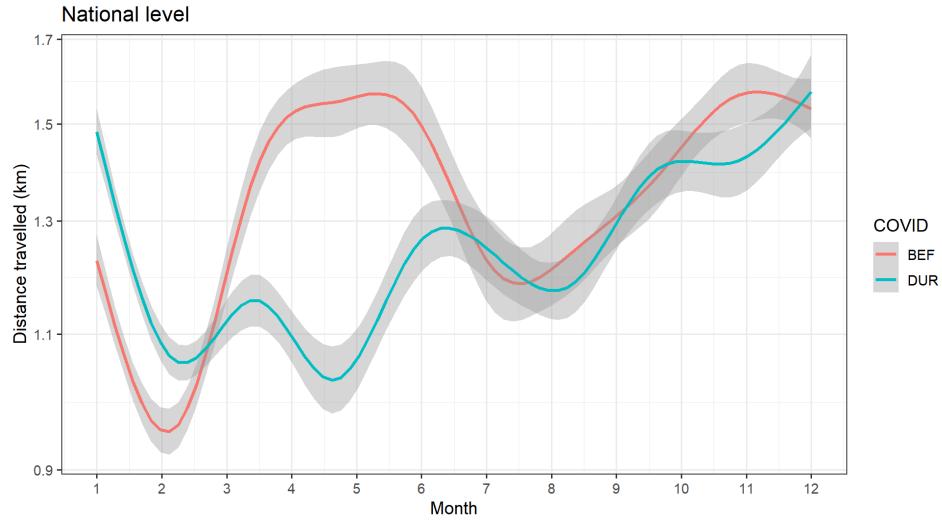


Average distance travelled

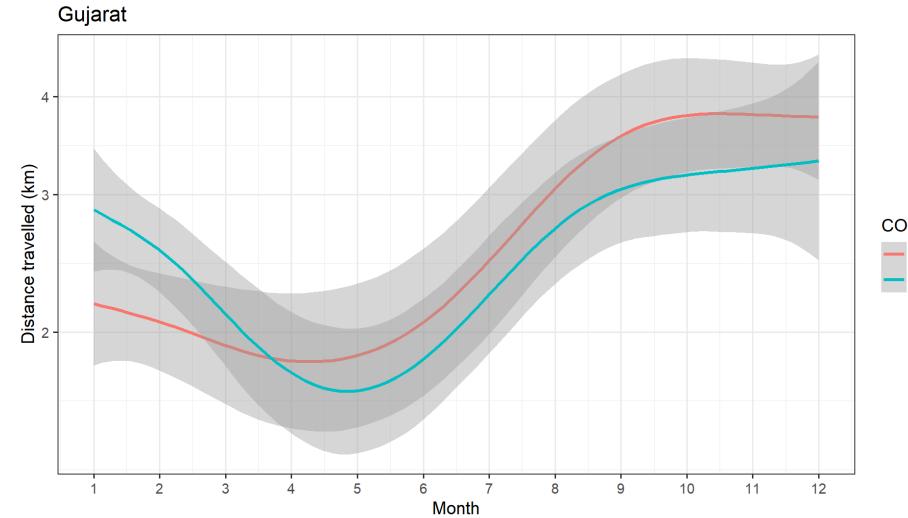
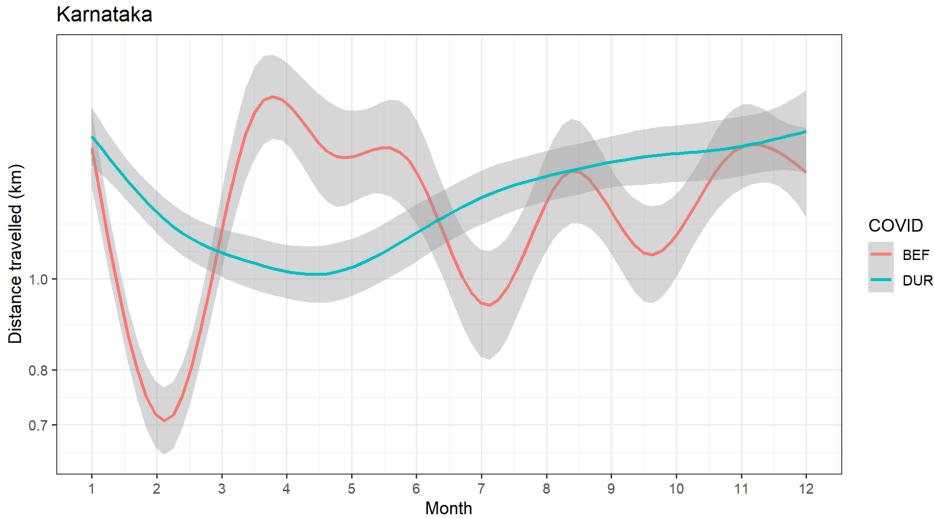
Average distance travelled



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Average distance travelled



Site fidelity (per observer)

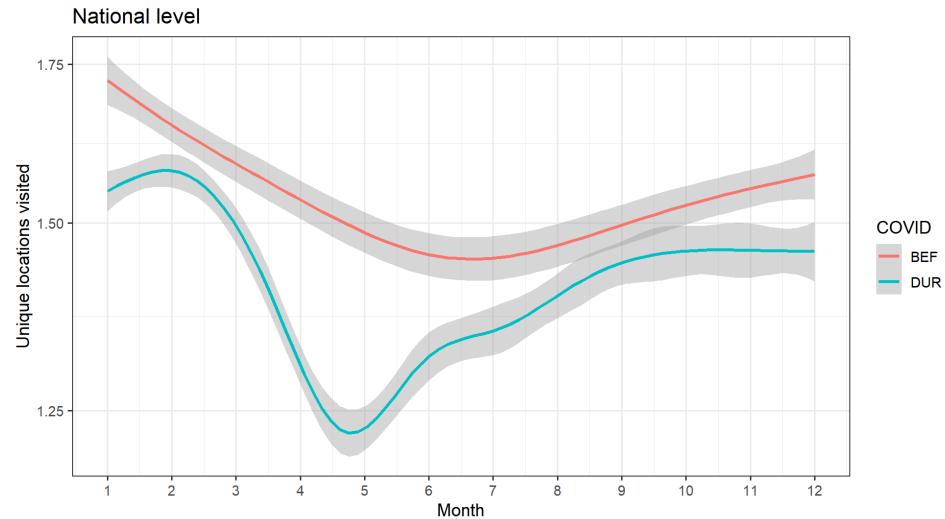
Site fidelity (per observer)

$$Site\ fidelity \propto \frac{1}{Unique^* locations\ visited}$$

*A $\approx 1\text{km} \times 1\text{km}$ area defined by degree coordinates.

Site fidelity (per observer)

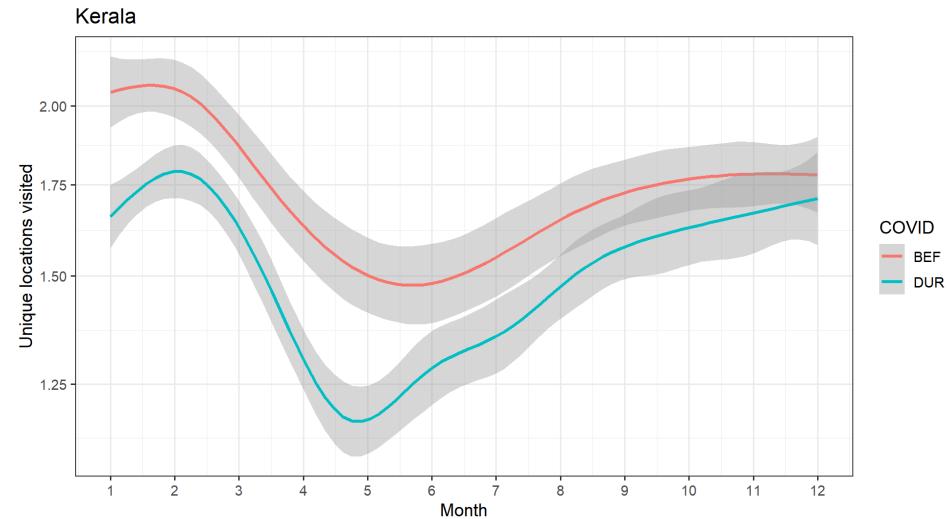
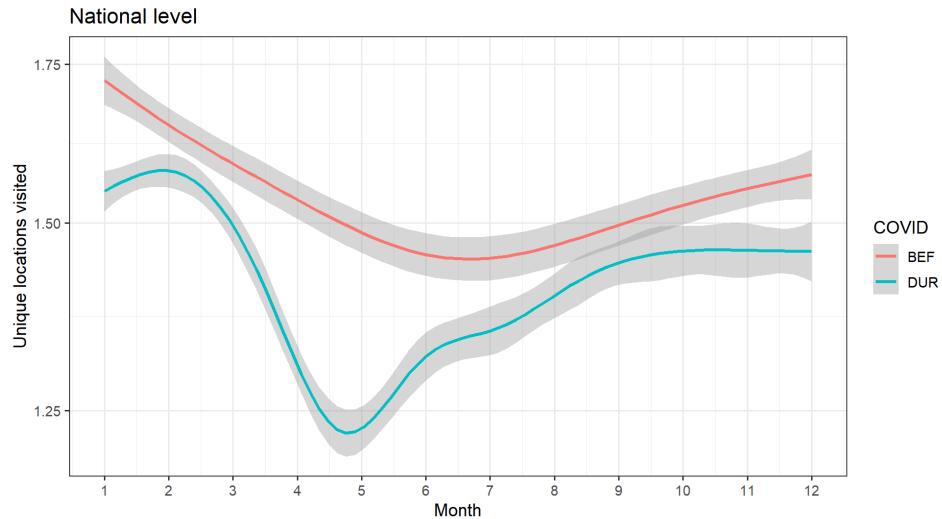
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Site fidelity (per observer)

Site fidelity \propto

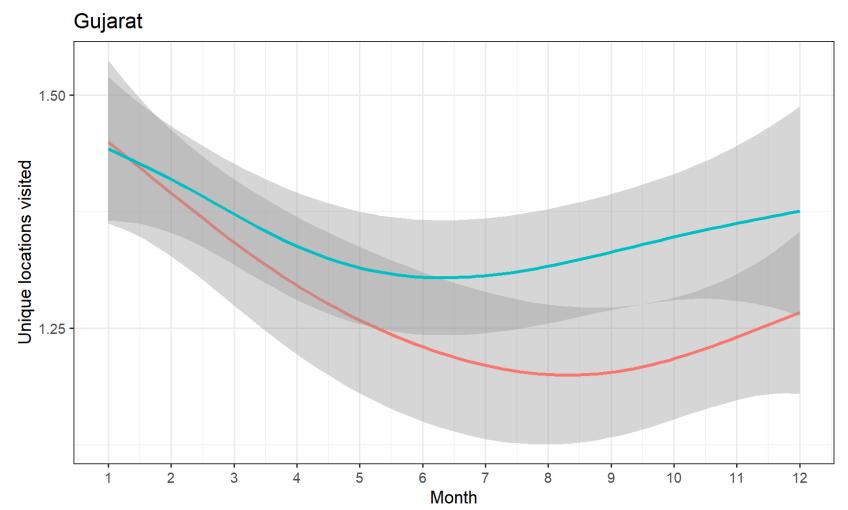
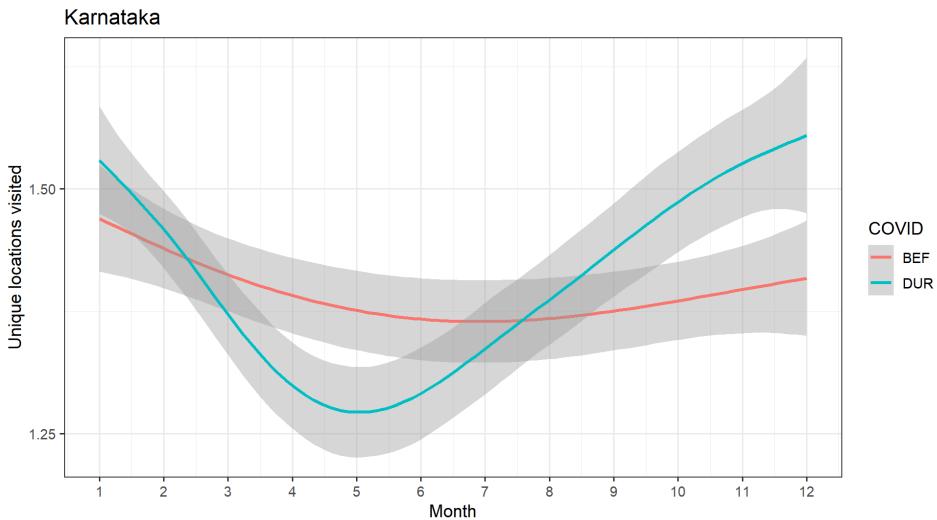
$\frac{1}{\text{Unique* locations visited}}$



Site fidelity (per observer)

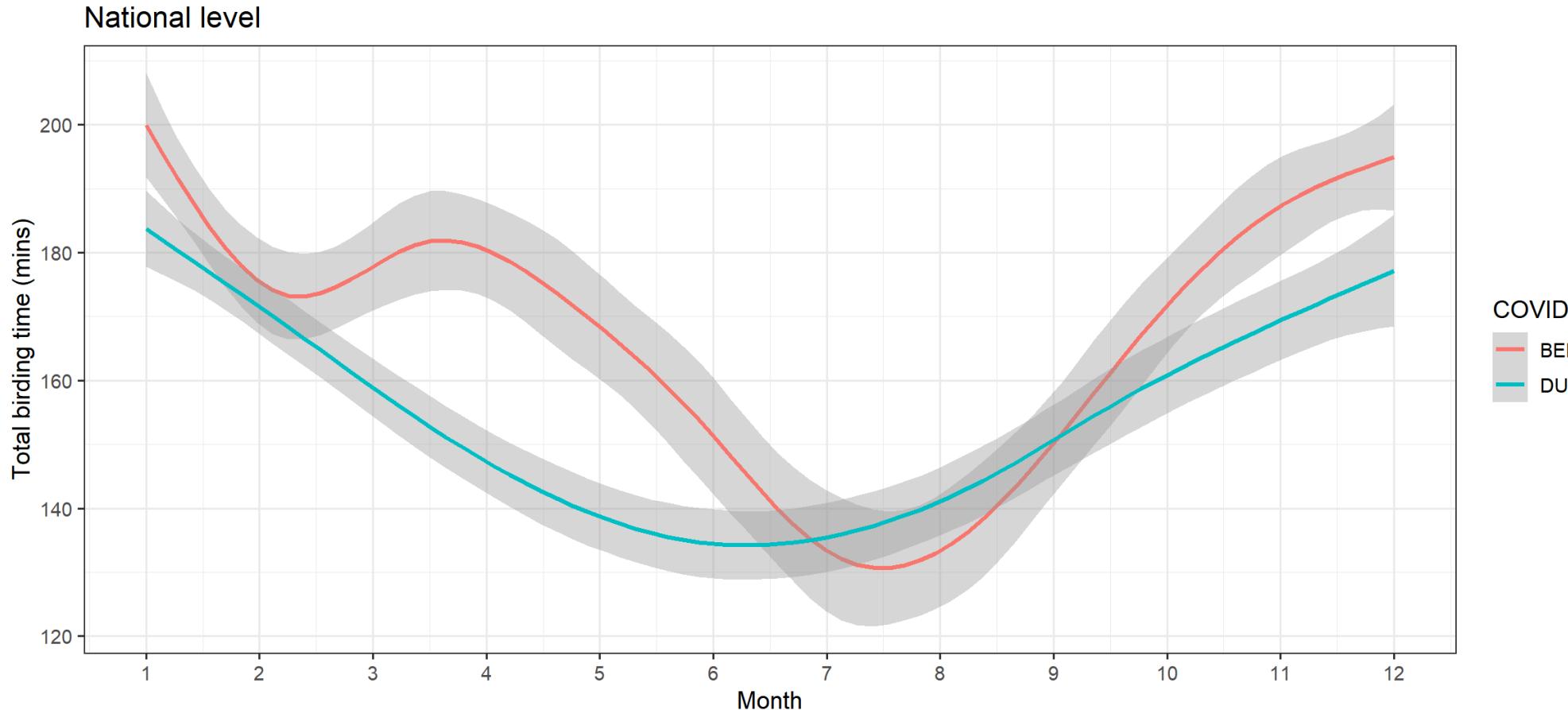
Site fidelity \propto

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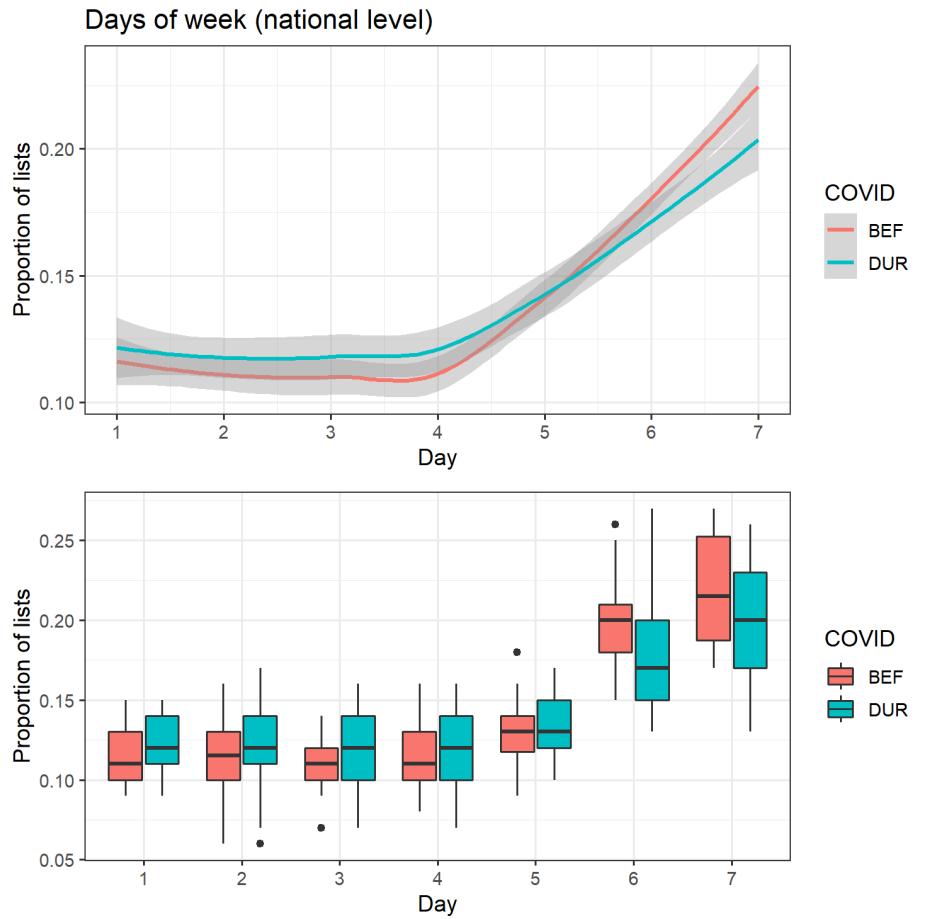


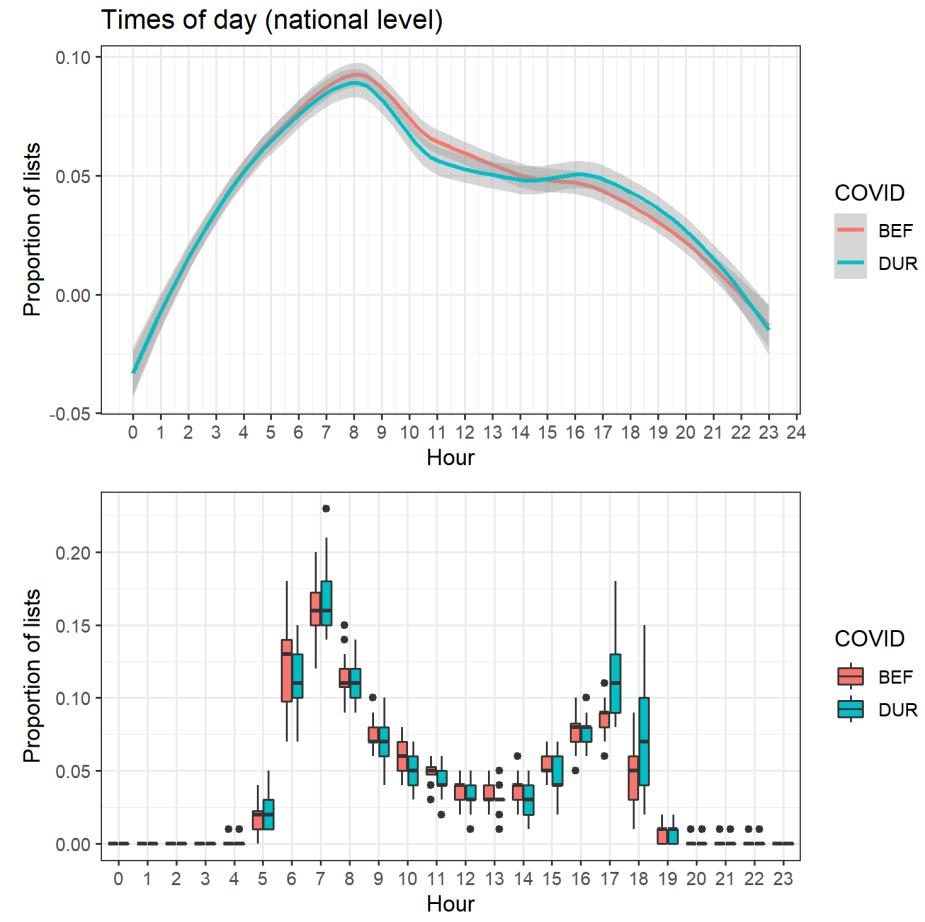
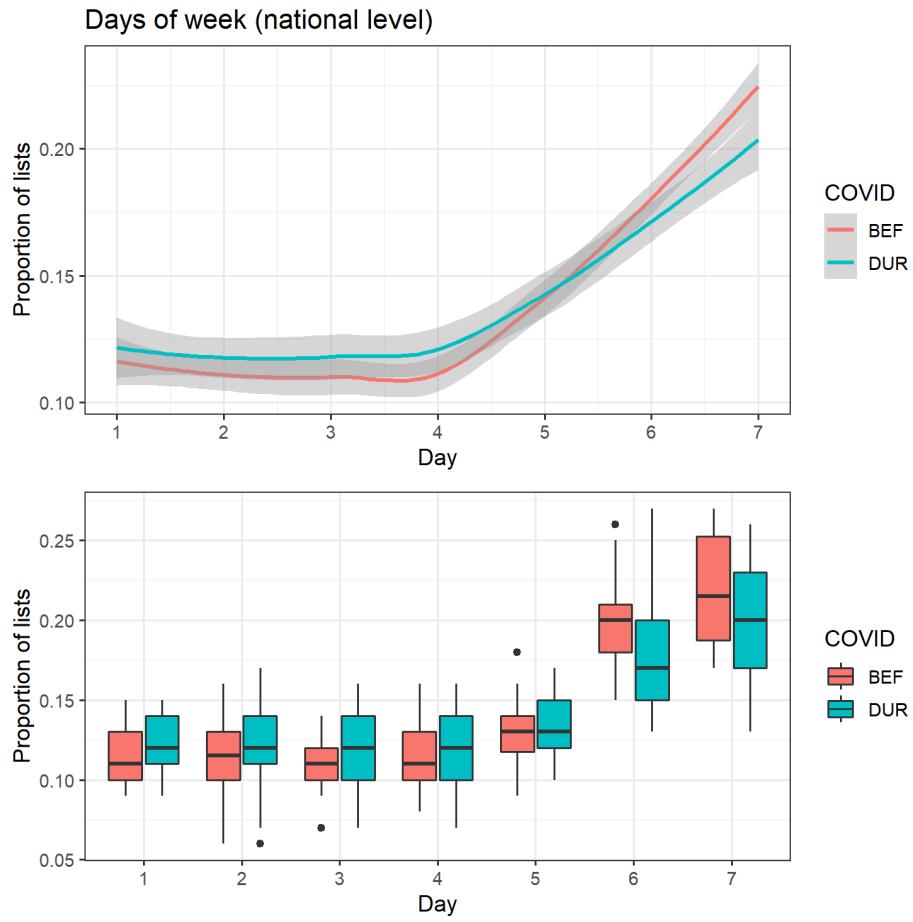
Total birding time

Total birding time



Temporal bias





Summary

Big national events had higher impact

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(Role of novelty vs regulations?)

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(Role of novelty vs regulations?)

National-state level mirroring

Big national events had higher impact

(Role of novelty vs regulations?)

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State-wise variation

Big national events had higher impact

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State-wise variation

Other *general* patterns

Thanks!