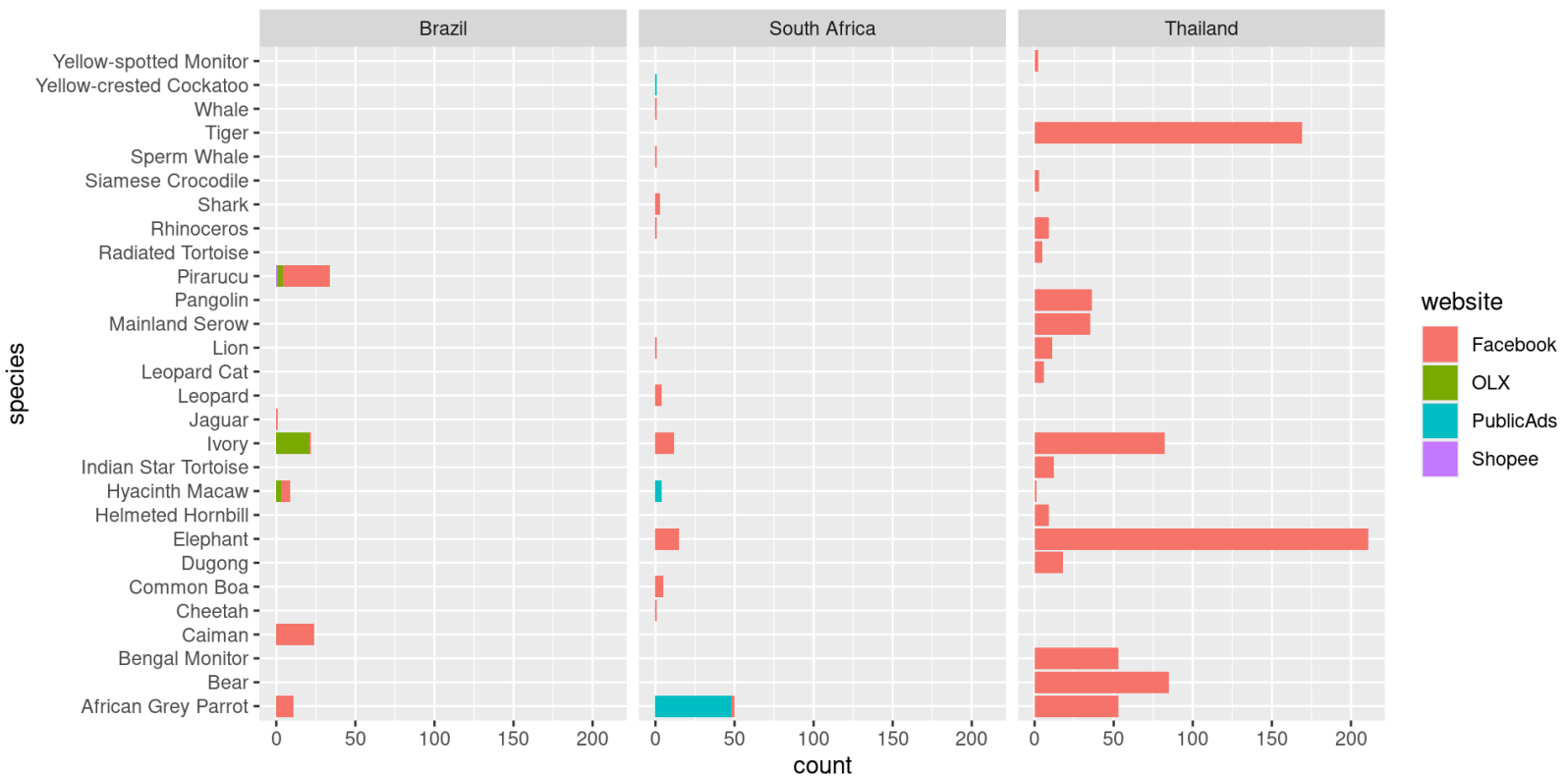
Exploratory Data Analyses

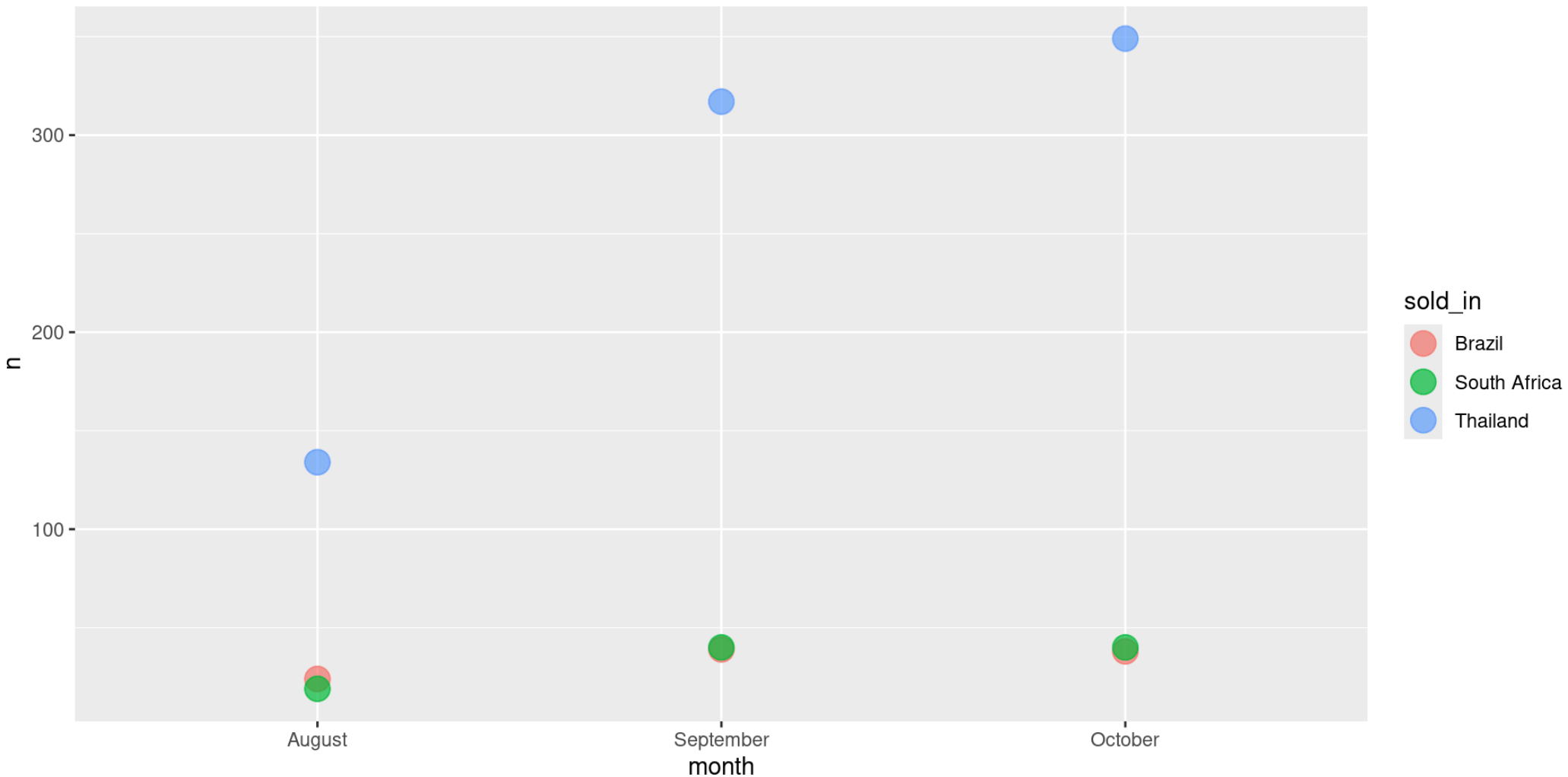
Gilles Guillot, PhD

Illegal wild trade ad data

- Products mostly advertised on Facebook
- Products mostly sold in Thailand
- Top species include Elephant, Tiger & Bear



Marked seasonal trend in Thailand



Caveat / other potentially informative data

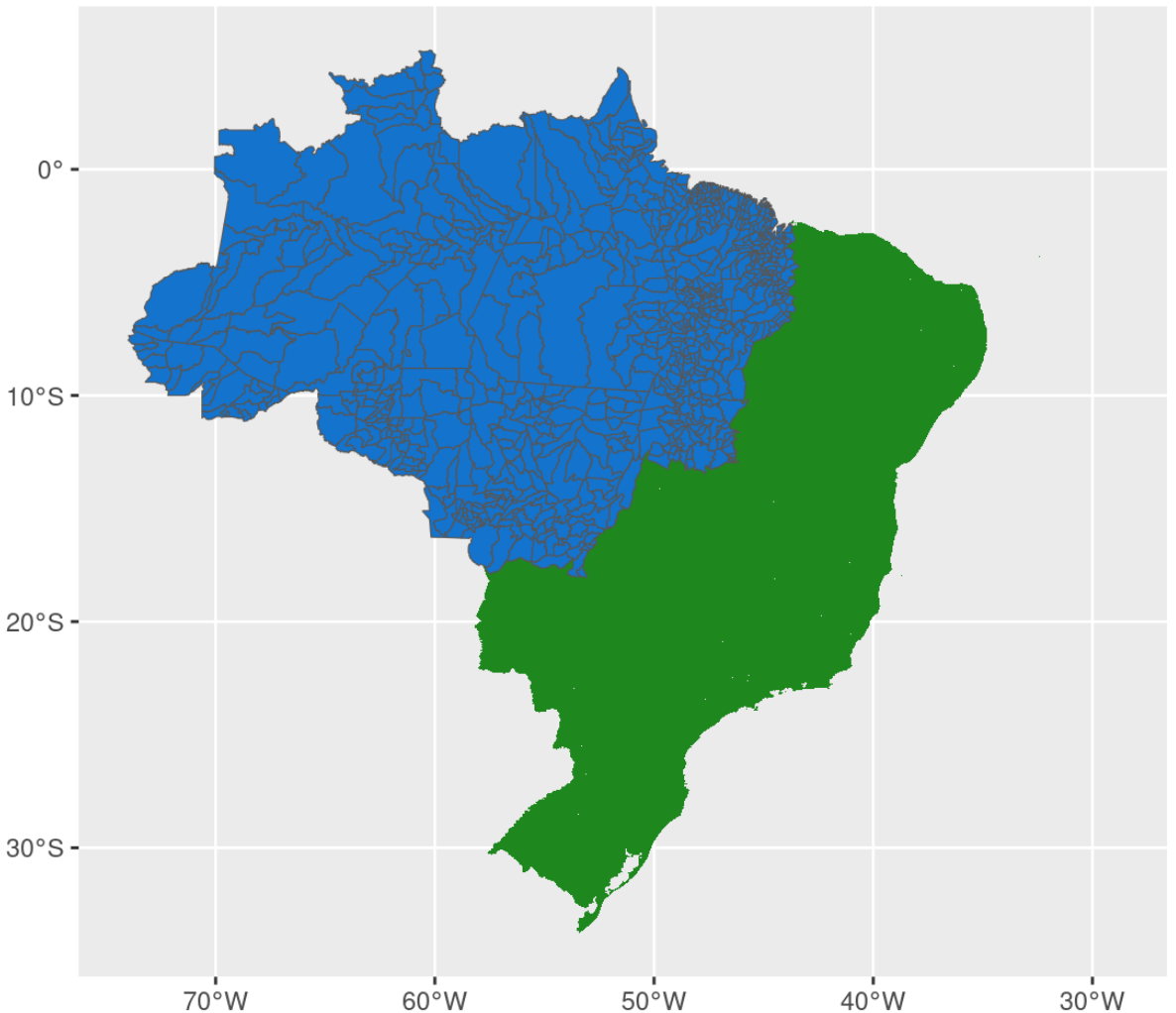
- Weight, size, volume, # animals involved
- Website sampling/census strategy
- Price
- Clue that transaction took place

Conclusions:

- Policy implications: target effort on Thailand in October
- Data visualization plan:
  - Elicit research question
  - Translate research question into statistical questions
  - Play with ggplot() *ad libitum*

Brazil deforestation data

Study area: Amazon basin



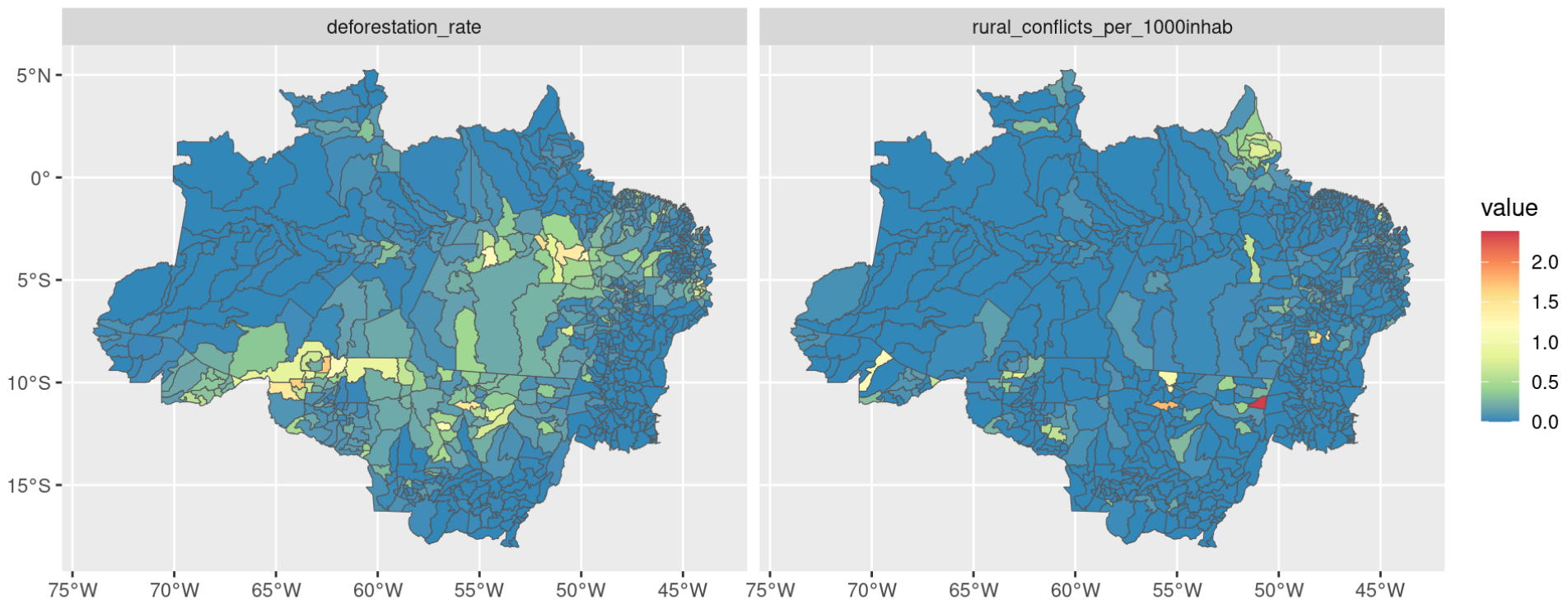
Choosing the right denominator

- Municipality surfaces are highly variable
- Deforestation surface has to be scaled to municipality surface:

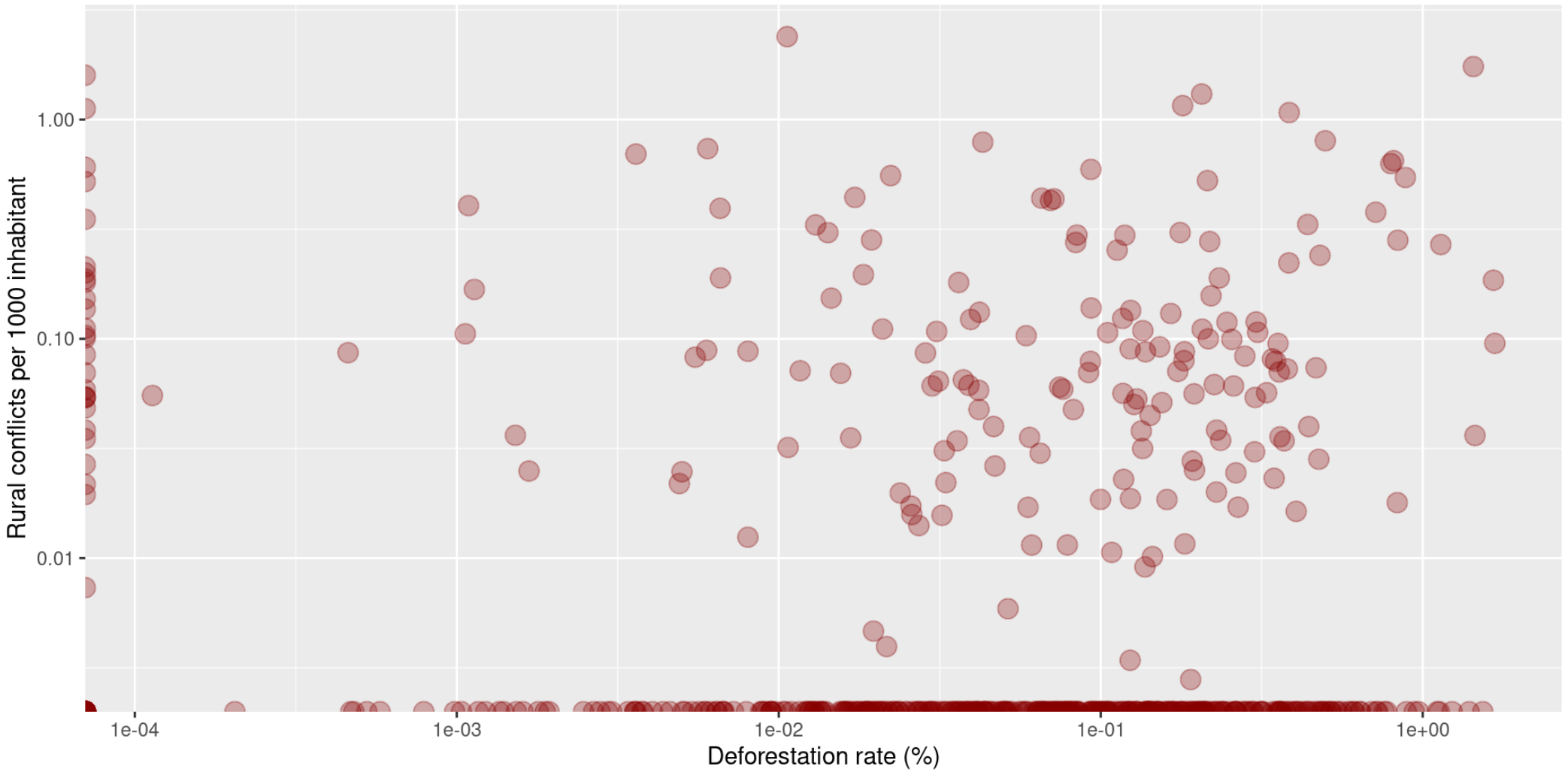
$$\text{Deforestation rate} = \frac{\text{Deforested surface}}{\text{Municipality surface}} \times 100$$

- What is the right denominator to scale rural conflicts?

Spatial variation of deforestation and rural conflict rates



Deforestation vs. rural conflict rates



Auxiliary analyses

- Deforestation is “easy” to detect and monitor from remote sensing data
- Is there an association between deforestation and (other) criminal activities, e.g.
  - deforestation ~ count_homicide
  - deforestation ~ count_seizures_CITES

Selected publications

- Population dynamics of species-rich ecosystems: the mixture of matrix population models approach. In: Methods in Ecology and Evolution 4.4 (2013), pp. 316–326.
- Les éléphants en danger. In: Brèves de maths: Mathématiques pour la planète terre. Nouveau Monde éditions, 2014.
- Statistical methods in spatial genetics. In: Molecular Ecology 18 (2009), pp. 4734–4756.

Selected publications (cont')

- Accurate continuous geographic assignment from low-to high-density SNP data. In: Bioinformatics 32.7 (2016), pp. 1106–1108.
- Enhancing and comparing methods for the detection of fishing activity from Vessel Monitoring System data. In: arXiv preprint arXiv:1708.09663 (2017).

Thank you for your attention!

All data material available from my github repository
github.com/gilles-guillot/GI-TOC