

Landslide mobilization rates in the Anthropocene

Insights from a 60-year observation period in the North-Tanganyika-Kivu Rift region, Africa

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May 24, 2022

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The North-Tanganyika-Kivu Rift Region

- Mountainous
- Tropical climate
- Deforestation, mining, roads...
- **Data-scarce**

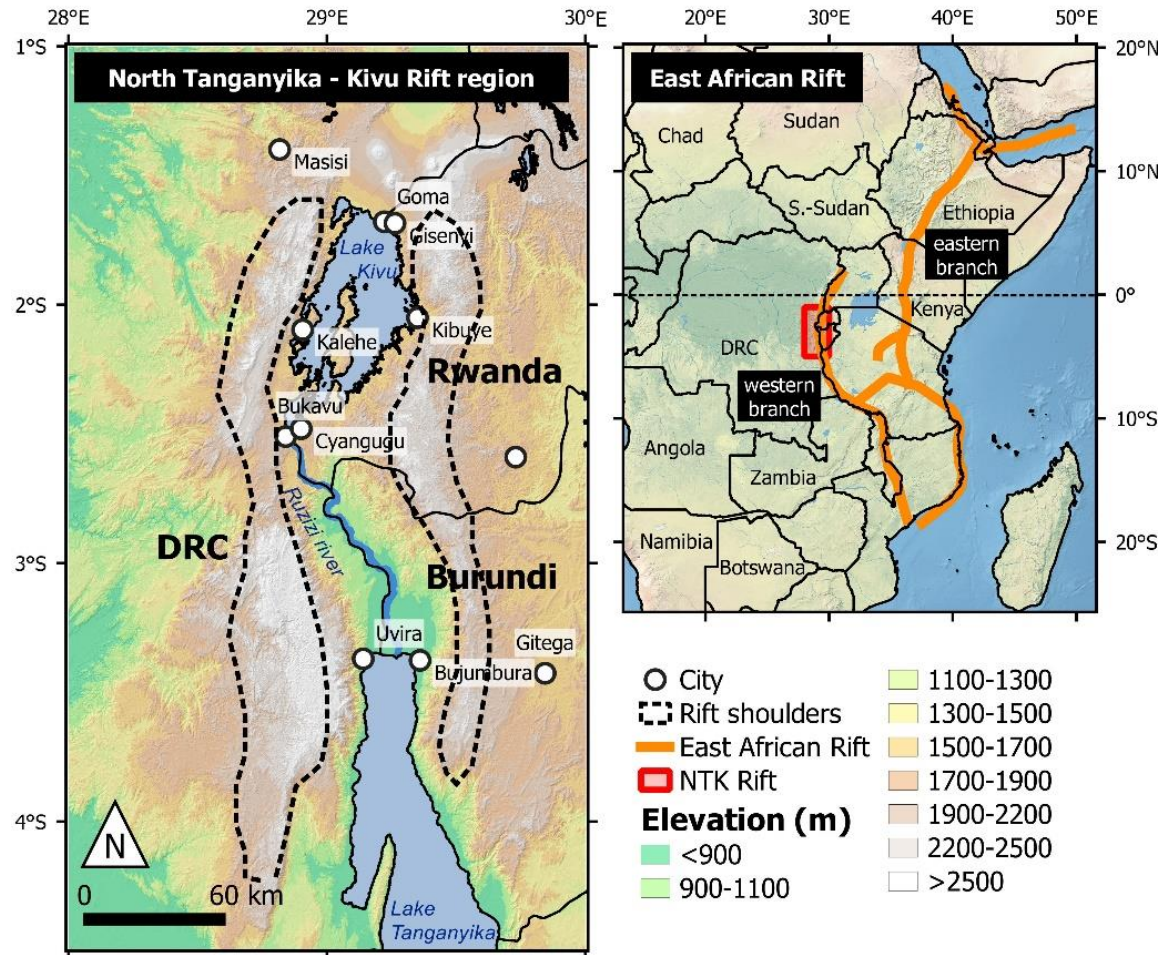


Figure 1 | DEM of the study area and its location within the East African Rift.



Animation 1 | Landslide in Rwanda.

Recent landslides

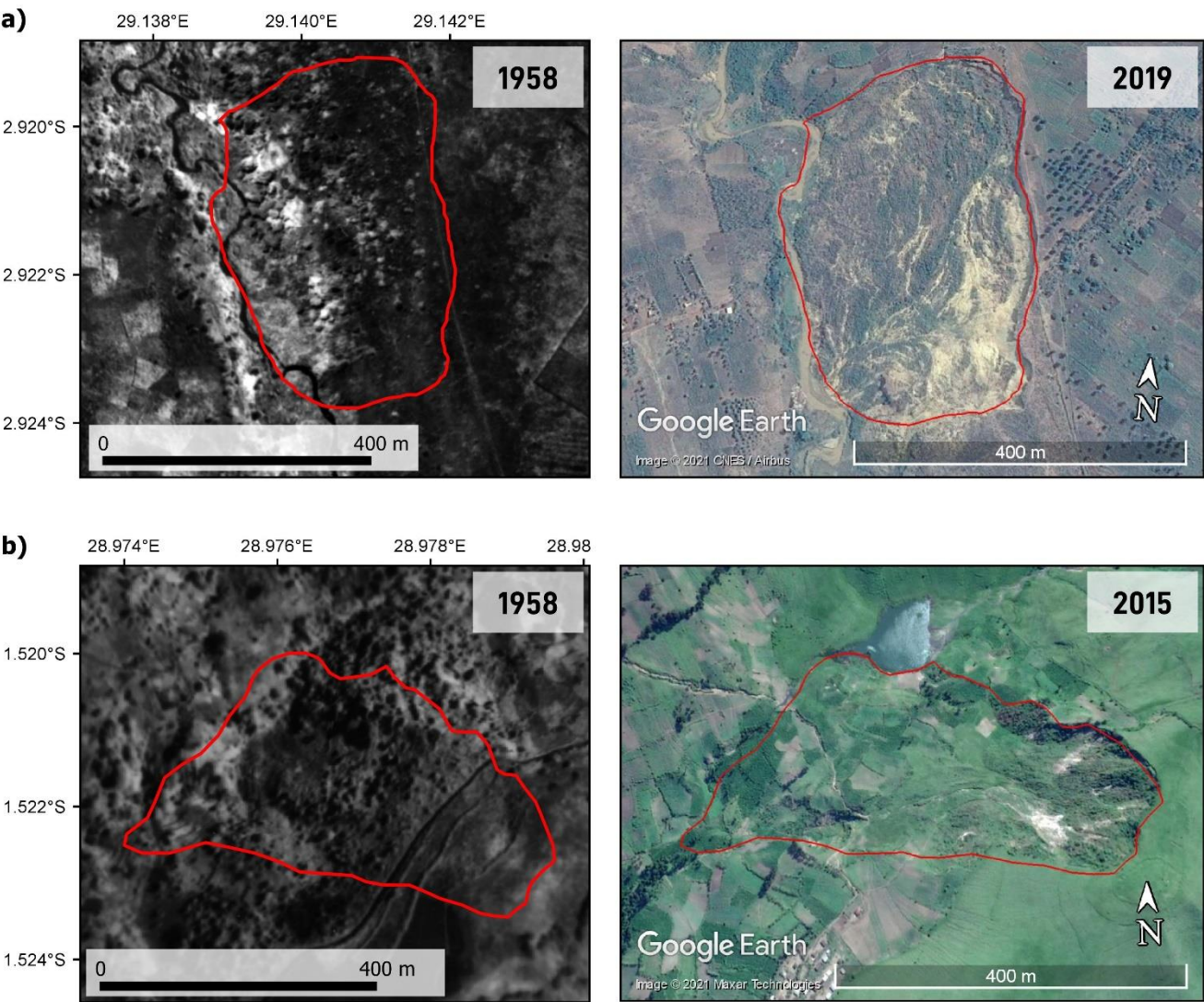


Figure 2 | We used historical aerial photos to assess landslide activity.

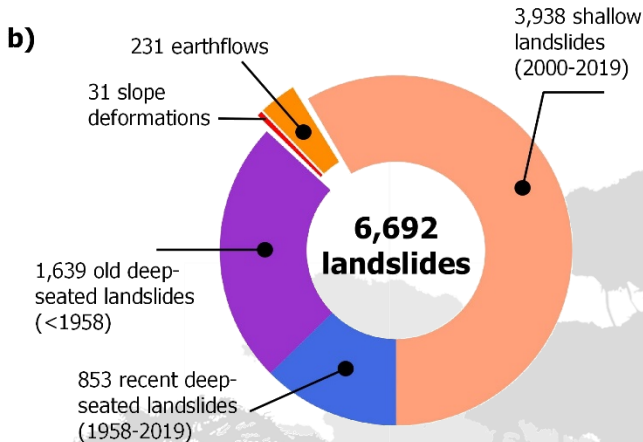
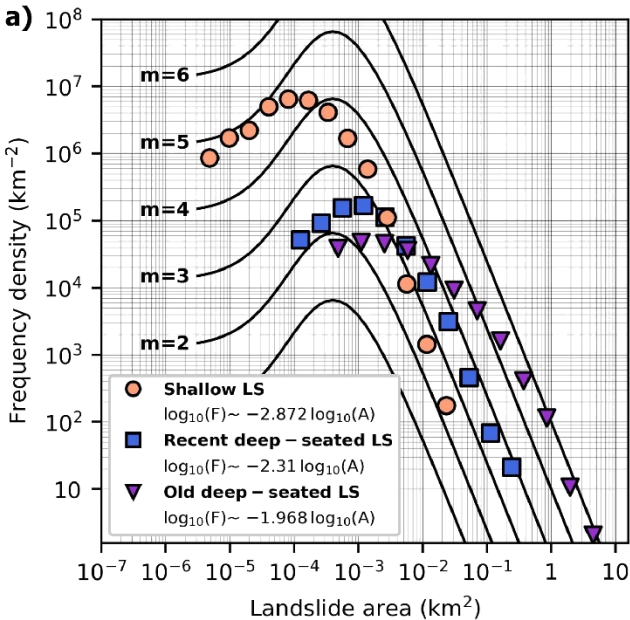
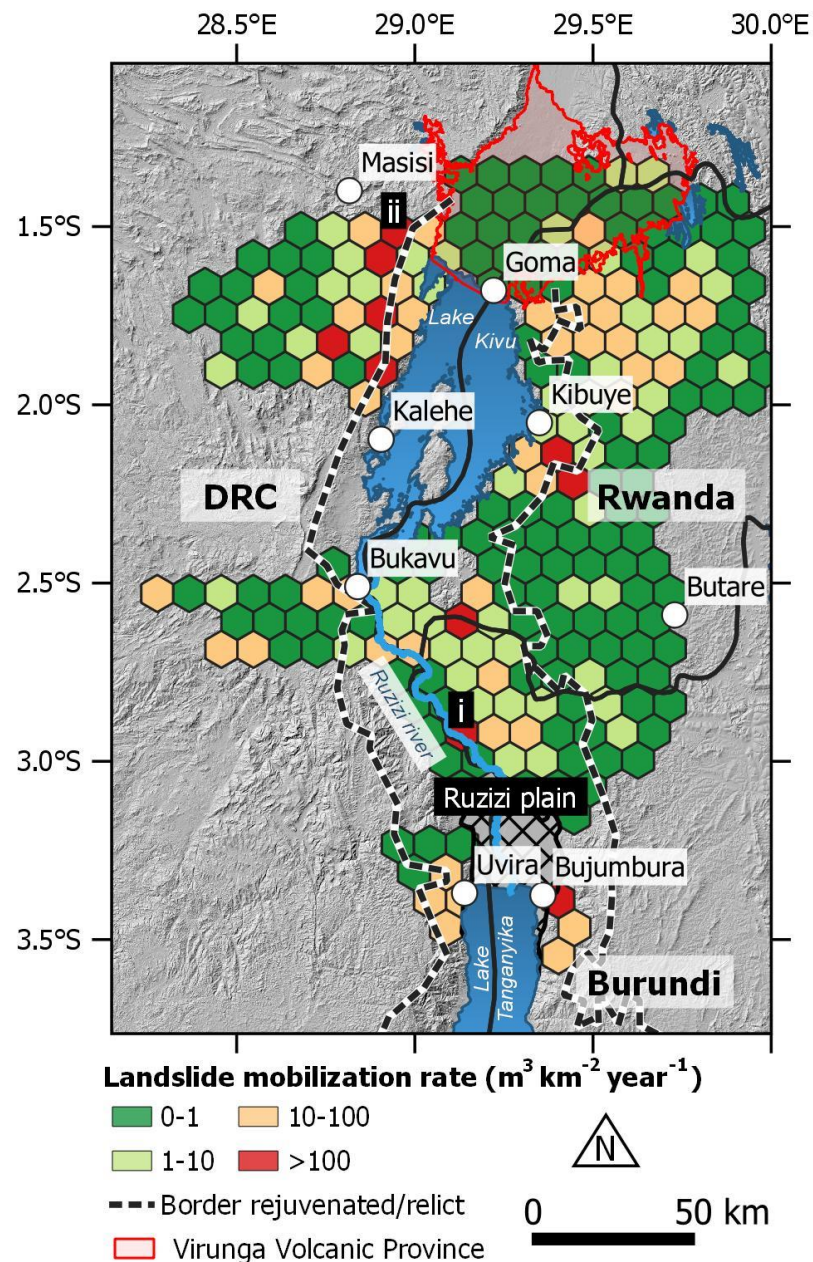


Figure 3 | We observed mostly shallow landslides.



Mobilization rates

- Rejuvenated landscapes: $32 \text{ m}^3 \text{ km}^{-2} \text{ year}^{-1}$
- Relict landscapes : $13 \text{ m}^3 \text{ km}^{-2} \text{ year}^{-1}$
- Generally 60-80 % lower than expected
 - Observation period (60 years) too short?
 - Mountain range in extension area

Figure 4 | Spatial distribution of landslide mobilization rates.

Mobilization rates

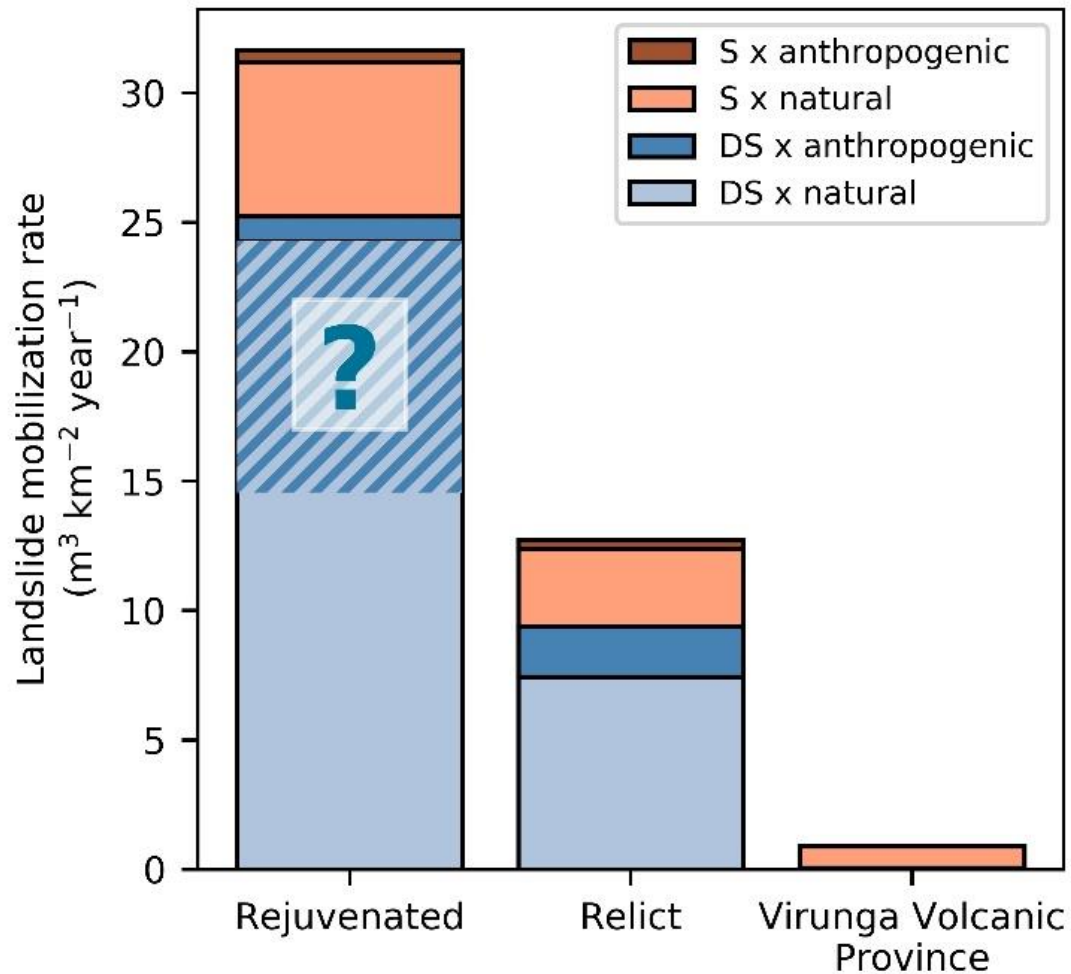


Figure 6 | A few large landslides make up most of the mobilization rates.

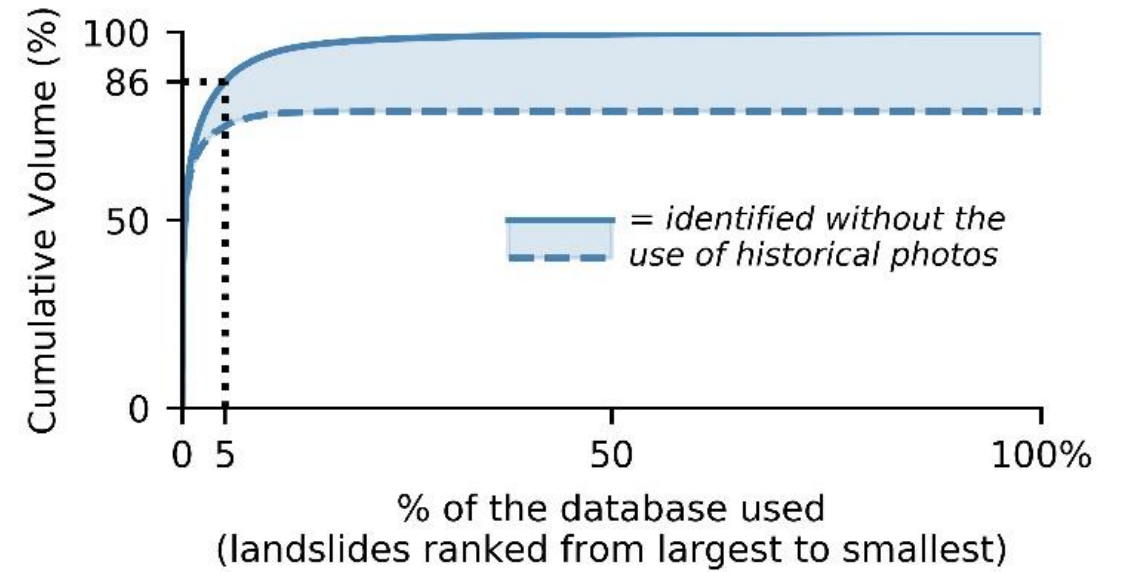


Figure 5 | Impact of humans on mobilization rates is limited (5-18 %),

Conclusion



- Landslide mobilization rates are rather low in the NTK Rift
- Impact of humans is limited (5-18 %)
 - Mostly through mining and road construction
- Overall, we bring new data for an under-researched environment



Questions?

