

BOMBINGS AND THE HUMANITARIAN CRISIS IN SYRIA

PREDICTING HUMANITARIAN NEED

Introduction

Since 2011, Syria has experienced a brutal war causing one of the most severe humanitarian crises on the planet. What started as a civil war quickly evolved into a complex conflict, with thousands of different armed groups fighting each other in constantly evolving configurations of alliances, while states such as Russia, Turkey, and the United States use the fighting to advance their own interests.¹ New military campaigns and the shifting power dynamics between countries and armed groups constantly destabilize new regions of Syria, making it difficult to keep up with rising numbers of civilians in need of life-sustaining aid.² Targeted bombing and shelling campaigns by parties to the conflict have destroyed vital infrastructure and contributed to the mass displacement of Syrians from their homes. According to the United Nations Humanitarian Needs Overview for 2019, 11.7 million people are in need of humanitarian assistance, 5 million of whom are in acute need.³ This project aims to answer the question, does higher numbers of bombings in an area increase the humanitarian need?

Data

This analysis used the following data:

- Syrian Arab Republic Administrative Boundaries from the UN Cartographic Section and the UN Office for the Coordination of Humanitarian Affairs (OCHA). This is vector data. The analysis used the P-Code (the humanitarian community standard key for administrative districts, each area is assigned a unique identifying code) field at the district level.
- UN 2019 Humanitarian Needs Overview (HNO) data. This is a table of data, from which this project used the need scores for each district in Syria, (defined by P-Codes) for each category of humanitarian need, as defined by the UN. These data were collected from November 2017 to December 2018.
- The Armed Conflict Location & Event Data Project’s (ACLED) data on violent events in Syria, specifically bombings, airstrikes, and shelling. This is table data, and the analysis used the fields latitude and longitude for the violent events. The bombing data I downloaded here is from November 2017 to December 2018, which matches the time frame in which the HNO data was collected.

Methods

To visually represent severity of humanitarian need by district, I first created an aggregated humanitarian need score from the HNO data. This was done by adding the humanitarian need scores for each category of humanitarian need by district. I populated a new column of the HNO table with the new aggregated score for each district. I then joined the HNO table with the aggregated scores onto the Syria Administrative districts layer, using the P-codes.

To represent quantities of bombings in each district, I displayed XY data using latitude and longitude points from the ACLED table on the administrative boundaries map of Syria. I then performed a spatial join between the bombing points and the administrative boundaries to get the number of points per subdistrict. I reclassified levels of bombing severity into four custom ranges.

In order to examine the potential relationship between numbers of bombings and humanitarian need, the data is spatially represented by overlaying the point data for bombings over the joined administrative districts and humanitarian need scores (Figure 1). I also plotted the number of bombing points per district from the spatial join with the aggregated need score on a scatter plot (Figure 2).

Results

Based on this analysis, I found that there is a relationship between high levels of bombings and increased humanitarian need, but the relationship is not strong enough to show causation between bombings and need.

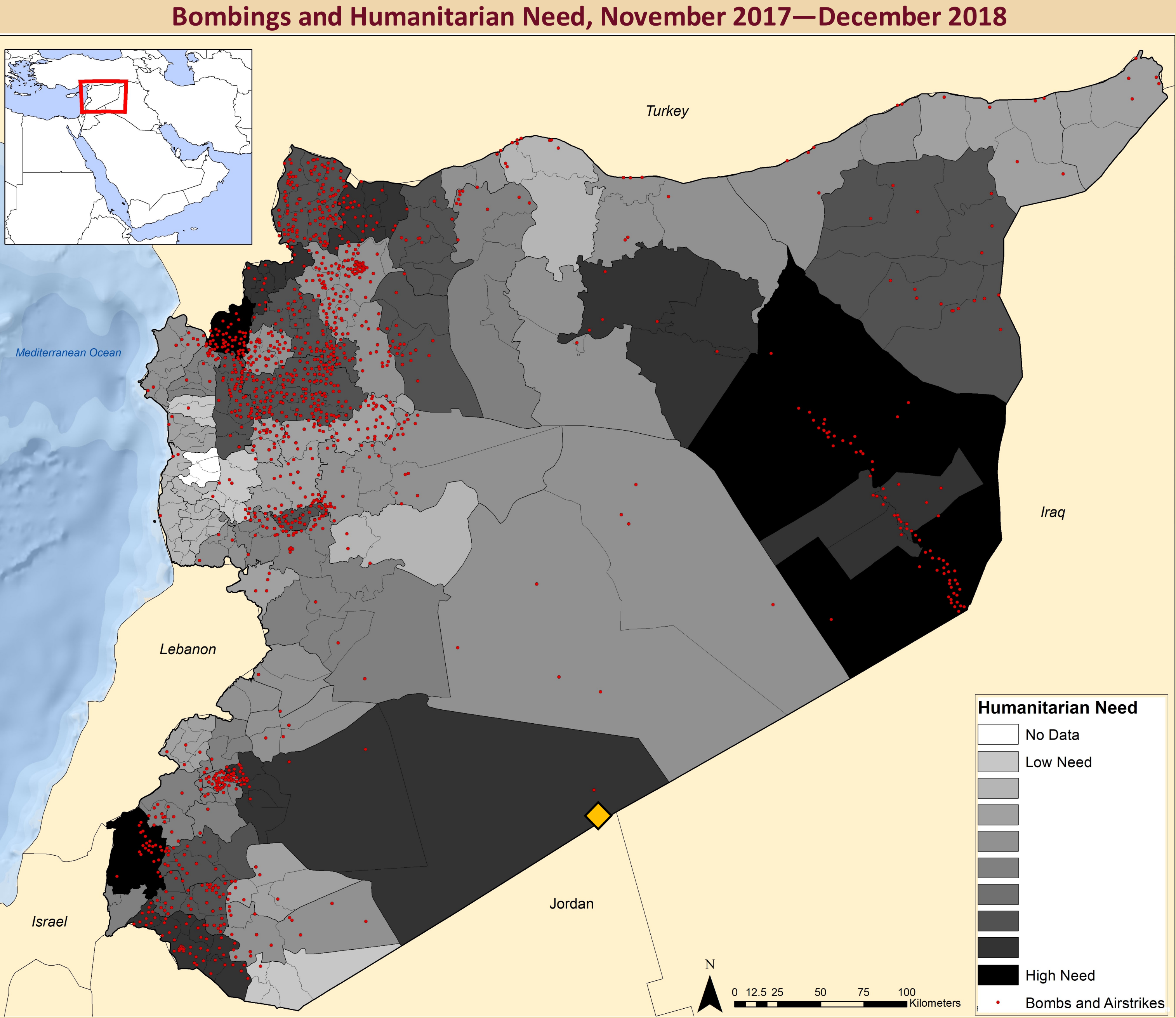


Figure 1. Bombings and Humanitarian Need, November 2017—December 2018

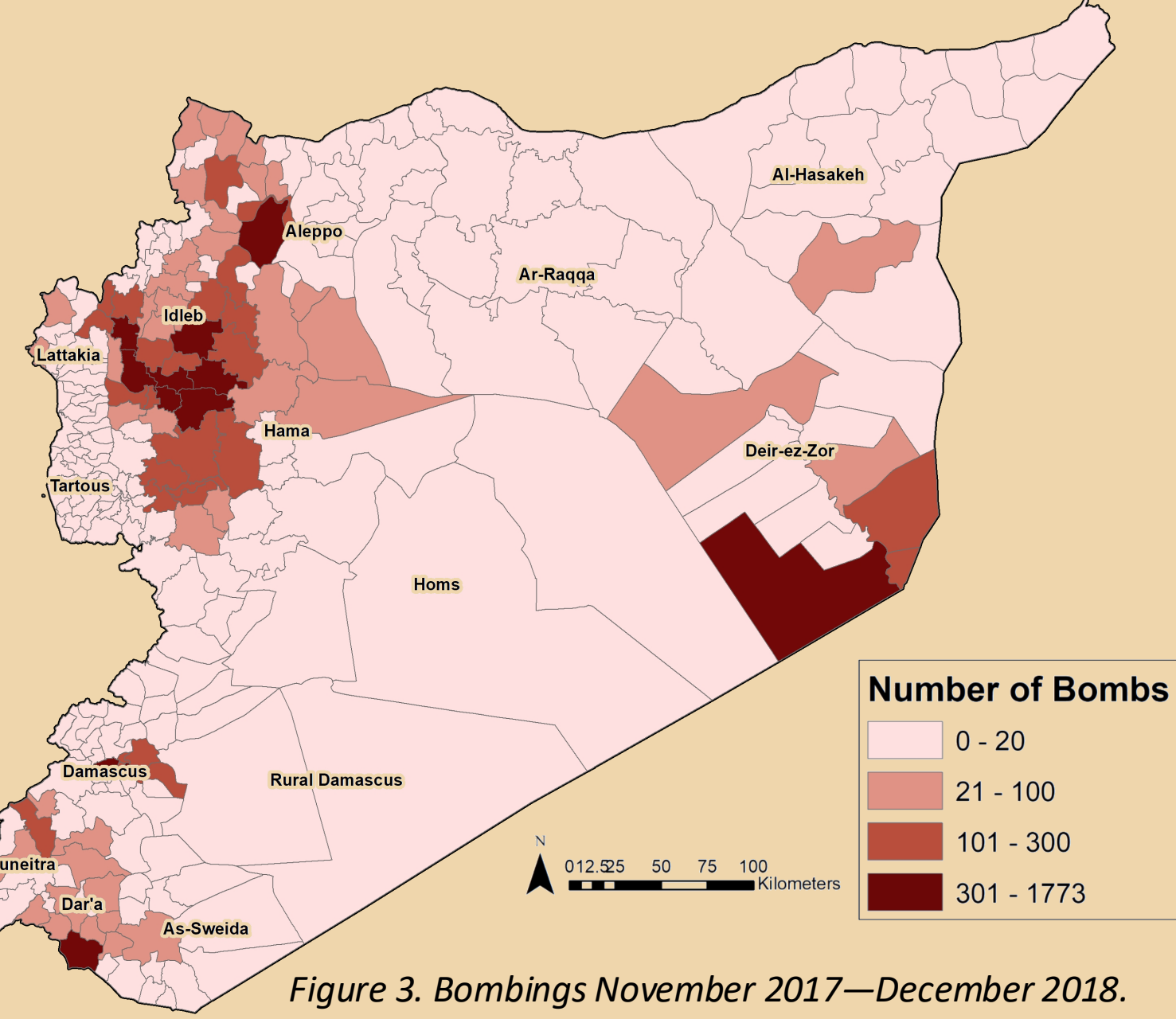


Figure 3. Bombings November 2017—December 2018.

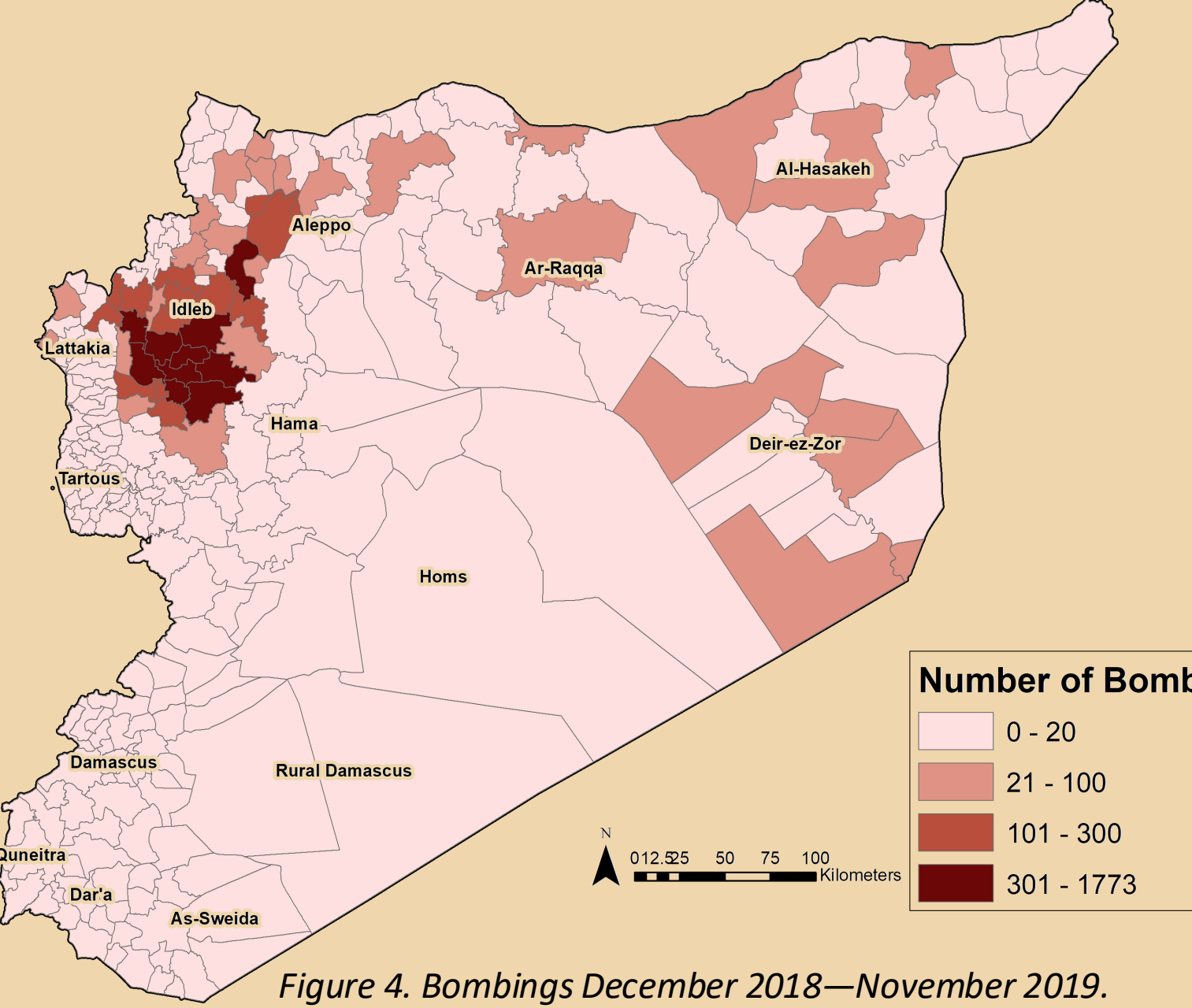


Figure 4. Bombings December 2018—November 2019.

Sources

¹ Van Dam, N. (2017). *Destroying a Nation: The Civil War in Syria*. London: I.B. Tauris.

² Ferris, E., & Kirisci, K. (2016). *The Consequences of Chaos: Syria’s Humanitarian Crisis and the Failure to Protect*. Washington, D.C.: Brookings Institution Press.

³ United Nations (March 2019). 2019 Humanitarian Needs Overview, Syrian Arab Republic. Retrieved from <https://hno-syria.org/#resources>

⁴ Lund, A. (18 June 2018). Blame Game over Syrians Stranded in the Desert. *The Century Foundation*. Retrieved from <https://tcf.org/content/report/blame-game-syrians-stranded-desert/?session=1>

United Nations Office for the Coordination of Humanitarian Affairs. (2019). *Syrian Arab Republic: Administrative Boundaries* [Data file]. Retrieved from <https://data.humdata.org/dataset/syrian-arab-republic-administrative-boundaries-populated-places>

United Nations Office for the Coordination of Humanitarian Affairs. (2019). *Syrian Arab Republic: Humanitarian Needs Overview* [Data file]. Retrieved from <https://data.humdata.org/dataset/syrian-arab-republic-humanitarian-needs-overview>

Armed Conflict Location & Event Data Project (ACLED). (n.d.). Explosions/Remove Violence, Syrian Arab Republic, November 2017-December 2018 [Data file]. Retrieved from <https://www.acleddata.com/data/>

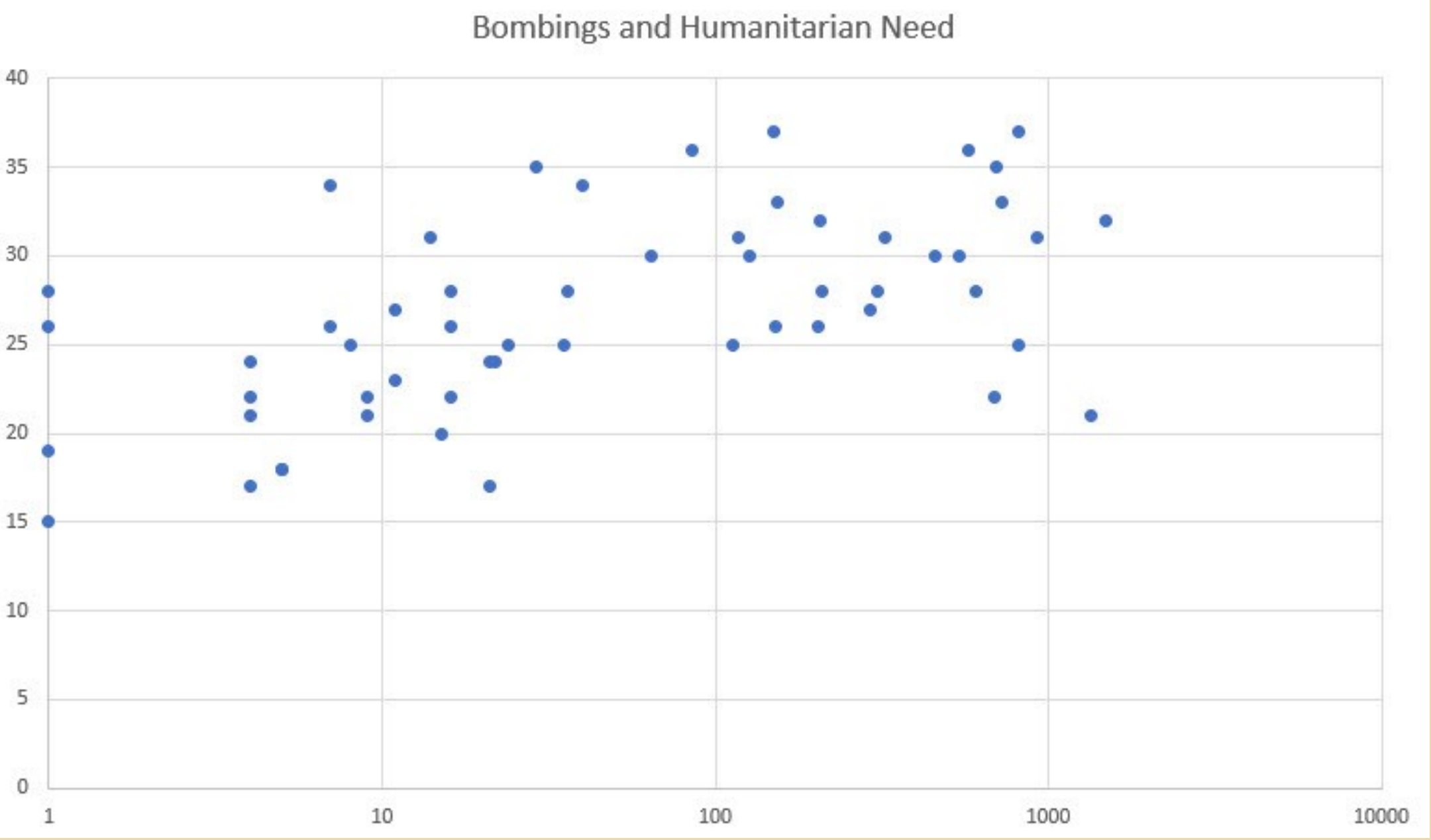


Figure 2. Scatterplot of numbers of bombings per district (x-axis) and aggregated humanitarian need score (y-axis).

Discussion

While this analysis does not show a clear causation between high numbers of bombings and increased humanitarian need, when examined visually on a map, an interesting trend appears. In the areas of northwest Syria with highest numbers of bombings (Figure 3), the areas with the highest levels of humanitarian need are directly north (Figure 1). This follows the trend that as an area becomes unsafe and the fighting destroys critical infrastructure such as roads and hospitals, civilians flee their homes away from the violence. In northwest Syria, civilians travel north towards Turkey. These districts on the Turkish border have some of the highest levels of humanitarian need in Syria.

Not all areas with high humanitarian need can be explained by bombing. In the south of the country near the Syrian-Iraqi-Jordanian border sits a large refugee camp (indicated by the yellow diamond in Figure 1), where, at the time of the data collection, was a refugee camp where as many as 50,000 people had fled.⁴ This area experiences practically no bombings, as it is located near a U.S. military base and is within the geographic sphere of protection negotiated by Russian and U.S. forces. However, this same geographic buffer has cut the camp off from supplies, leading to a desperate humanitarian situation. Another area that does not conform to my analysis’ predictions is in the east of Syria, in Deir-ez-Zor. The geographic boundary between territory controlled by Syrian government and Kurdish forces runs down the center of this district, following the path of the road to Baghdad, Iraq. While there are many bombings along the road, the critical humanitarian situation has been caused by the near-constant ground battle in this district.

This analysis contributes to the body of knowledge demonstrating the link between violence, especially bombings and shellings, and increased levels of humanitarian need. While not the only indicator of need, tracking where the highest numbers of bombs fall can help humanitarian professionals predict where future levels of need may be. These future areas could be where the bombs themselves are dropped, or in the areas surrounding the conflict zone where civilians will flee. Figure 4 shows numbers of bombs dropped across Syria from December 2018 (after the HNO data collection ended) to November 2019. The changes in locations with highest numbers of bombs reflect the changing conflict, as the Syrian government retook territory in Dar’a in the south, the fighting intensified in Idlib in the northwest, and Turkish forces attacked the Kurds along the Syrian-Turkish border. In a future analysis, looking at new conflict areas and combining this analysis with flows of internally displaced persons could help predict future areas of critical humanitarian need in Syria.

Cartographer: Sara Miller
Projection: IGRS UTM Zone 37N
December 2019