

Mapping the Conflict in Syria: Visualizing the impact on the civilian population

Overview

Since its beginnings in March 2011, the uprising-turned-civil war in Syria has taken on a drastic toll on the civilian population. In the meantime, governmental agencies, research centers and humanitarian agencies have been scrambling to find credible data on the conflict and vulnerable (affected) populations.

This project aims to localize broad geospatial patterns in the civil war in regards to conflict density. My goal behind this initiative was to investigate current geospatial data on the conflict, and analyze the changes in the levels of violence since the beginning of the uprising.

A disproportionate amount of analysis on the conflict focuses on sectarian divisions within Syria to argue that ethno-religious tensions are the crux of the armed struggle. Although, this initiative cannot verify this claim, it tries at the very least to identify which ethnic and sectarian groups have been most affected by the hostilities.

Methodology

1. To determine the hot spots of the conflict, the project undertook the following steps:

- Mapped conflict data (the number of civilian casualties by regime forces since March 2011) according to administrative boundaries.
- Conducted a hotspot analysis of the most dense areas of conflict for the first six months of the conflict and the last six (from September 2013 to February 2014).

2. To determine the change in conflict density in the last three years:

- Conducted a change detection analysis to visualize the difference in conflict density between the last six months of the data on casualties and the first six months using the raster calculator tool.

3. To determine the impact of violence on affected ethnic groups:

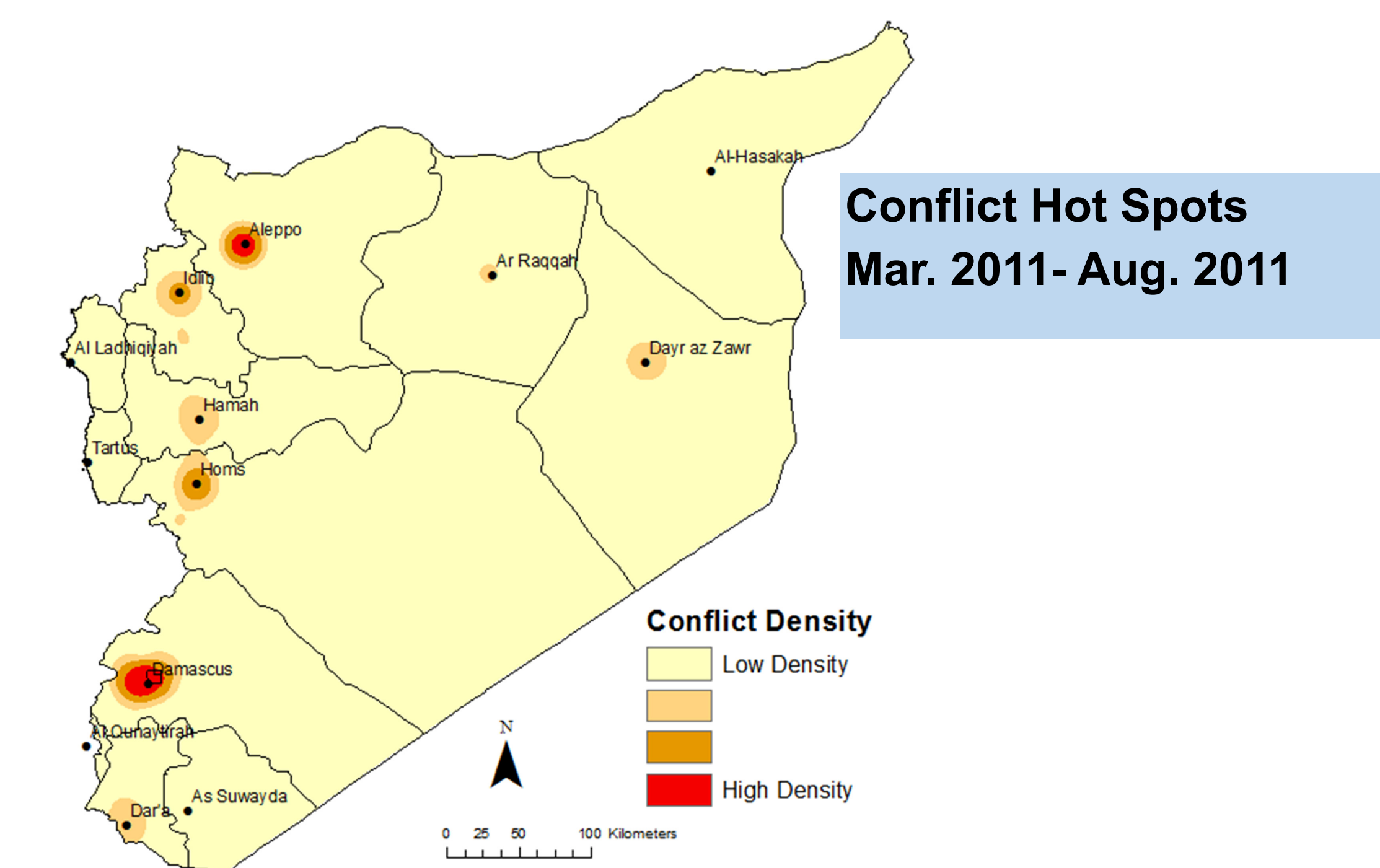
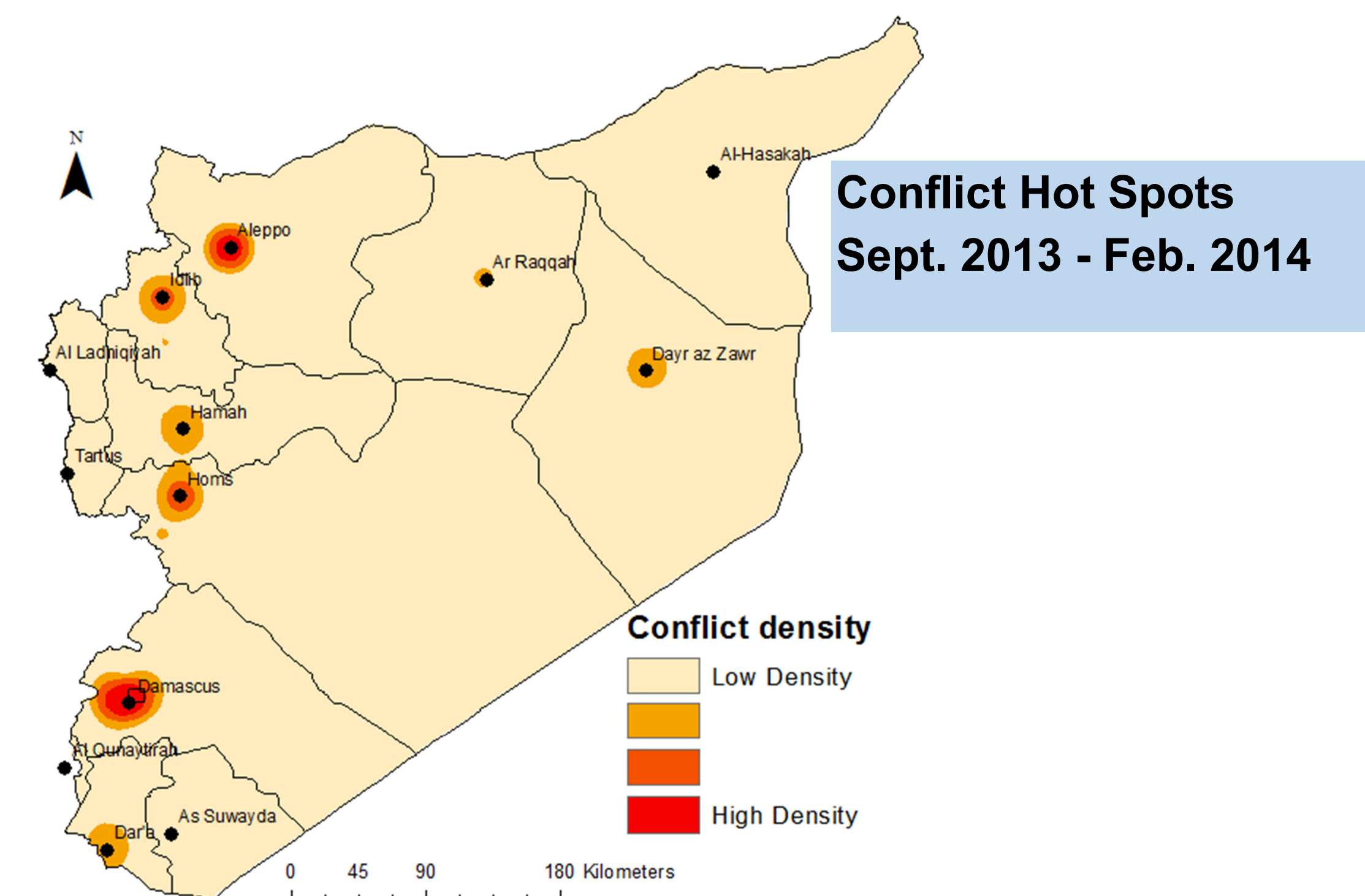
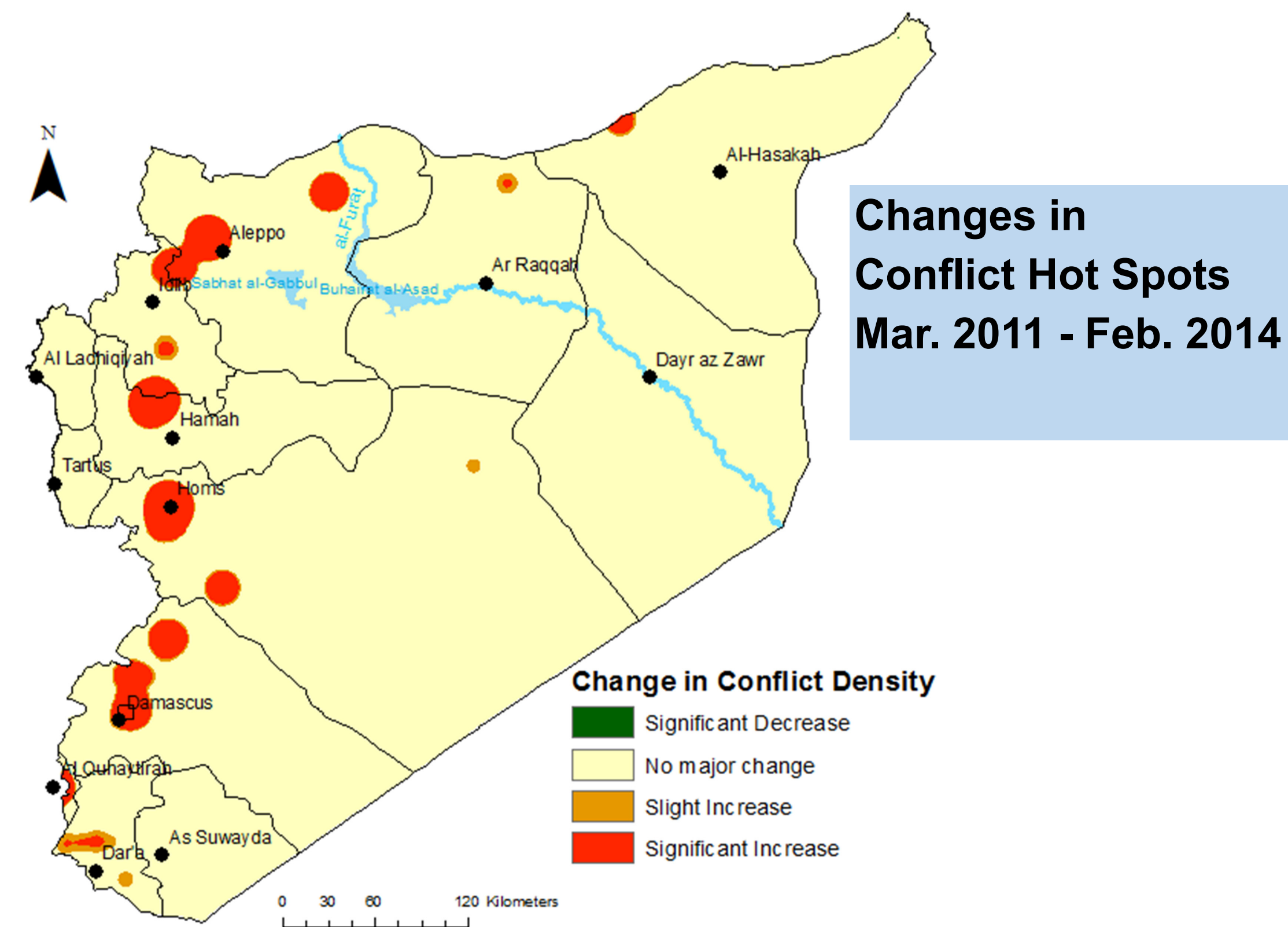
- Joined data-points of civilian casualties on top of polygons representing the major ethnic groups in Syria.

Results

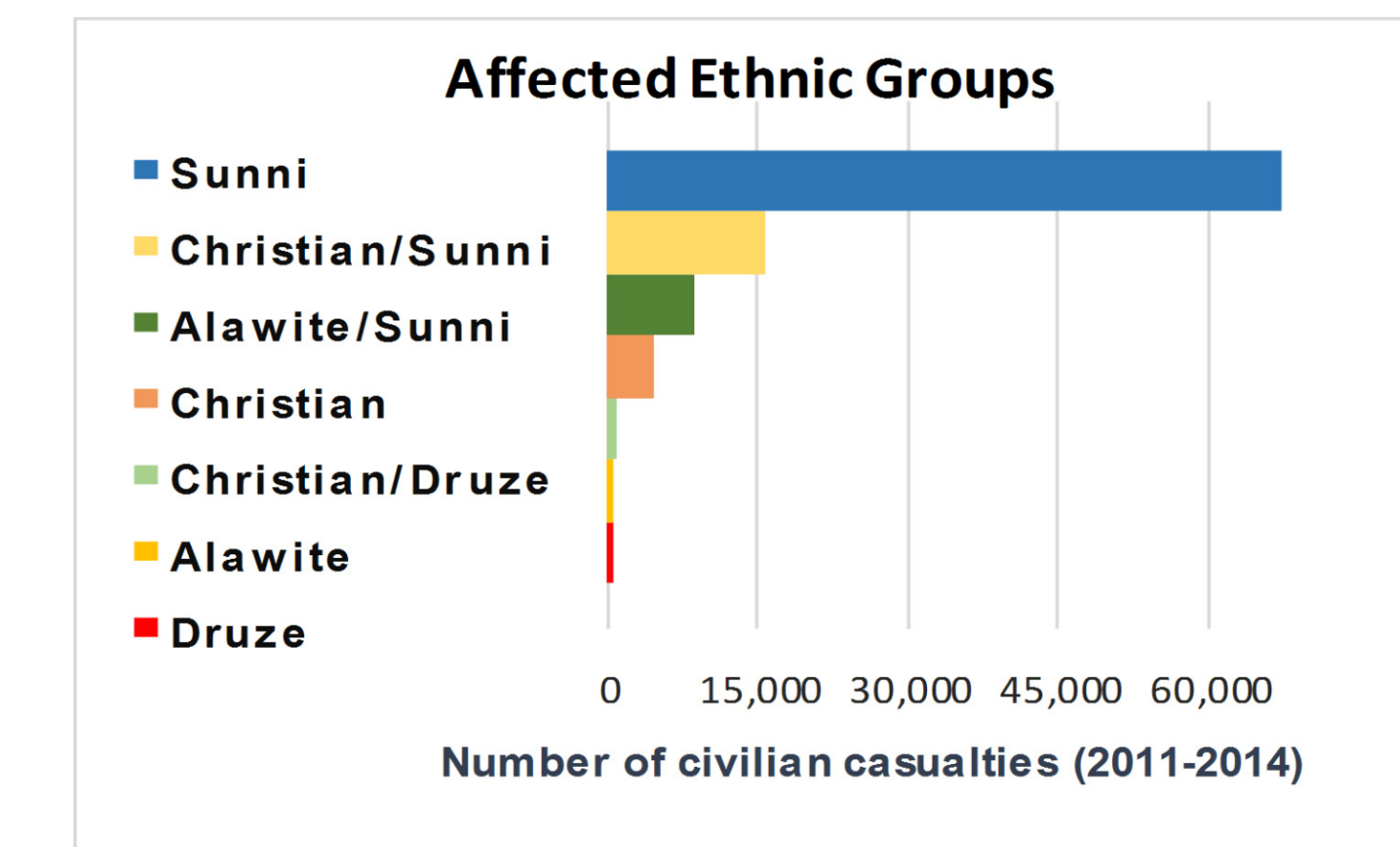
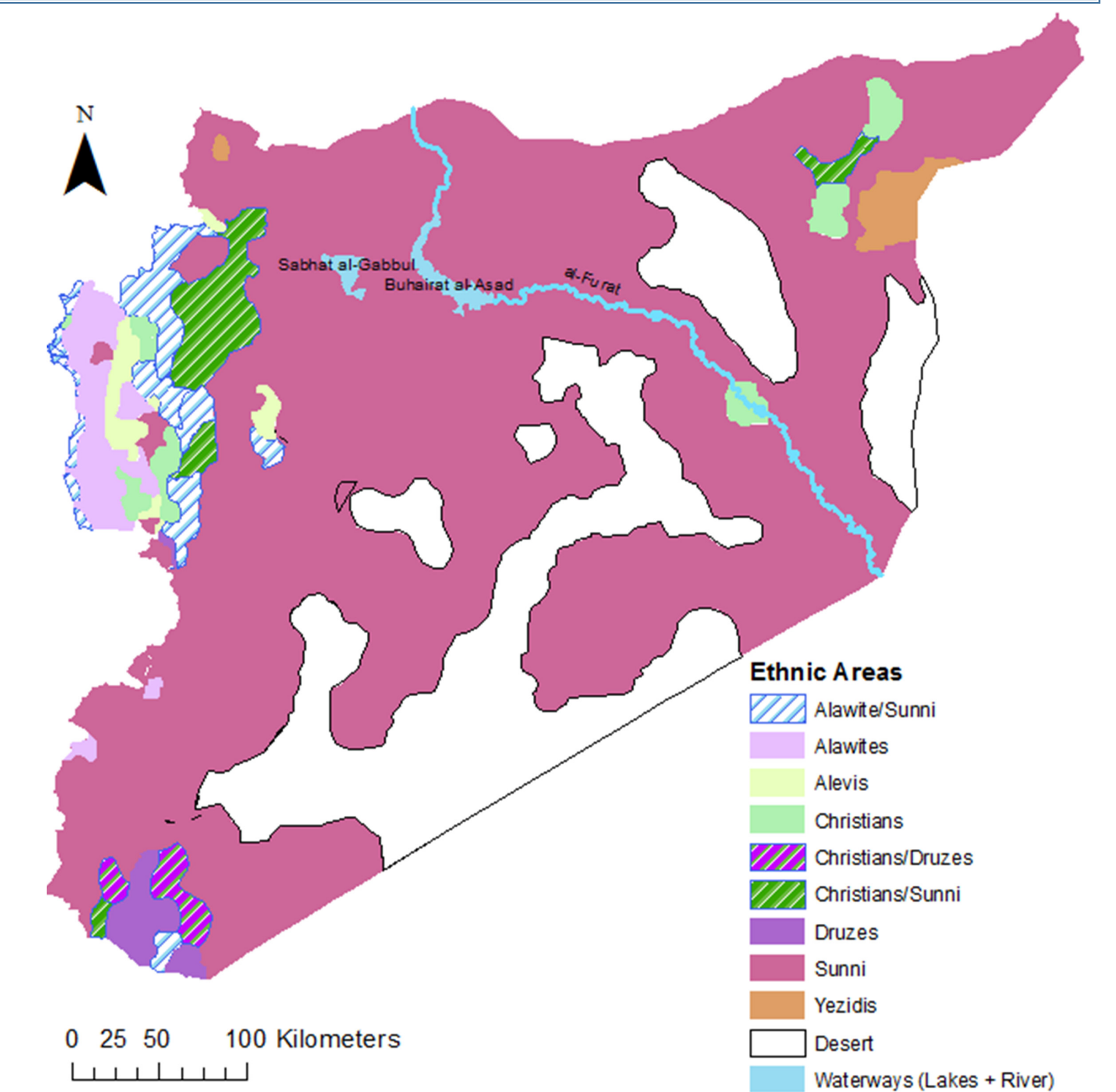
The hot spot analysis shows that the conflict began and quickly intensified in the capital Damascus and other major urban areas in Western Syria such as Aleppo, Homs and Idlib. These observations were in fact verified by news reports at the time. In the past few months, the violence continues to be concentrated in Damascus, Aleppo, Homs and their surrounding suburbs.

Most urban areas, with the exception of rural areas alongside the Turkish border and in between the cities of Hama and Idlib, have reported significant increase in violence since the beginning of the armed conflict. Almost no area has experienced a decrease in violence. This finding is not surprising as the conflict has been increasingly ruthless and indiscriminate.

In regards to vulnerabilities to Syria's main ethnic groups, majority-Sunni areas have been the most affected by the conflict. This observation is unsurprising as Sunnis represent more than 70% of Syria's ethnic composition. Mixed Christian/Sunni and Alawite/Sunni areas have also experienced significant civilian loss.



Syria's Ethnic Composition



This project found that the Syrian-Christian communities, which form approximately 10% of the population are the second most vulnerable population. The Druze and Alawite ethnicities, both offshoots of Shi'ism, appear to be the least affected by the conflict.

Limitations

The main obstacle to conducting research on Syria is the lack of accessible data on the country, and even more so, on the conflict. I had to rely on crowd-sourced maps for the numbers of civilian deaths across the country. This data was severely biased in favor of opposition forces. The data gives an overview of civilian deaths reported by local volunteers, but only those committed by regime forces and their affiliated militias. Therefore, this analysis does not give a full understanding of the crimes committed by the various rebel groups, which are increasing in number daily.

Similarly, as the last official population census dates back from 2004, the data on ethnic groups within Syria presents many inaccuracies. This present data on ethnicities, found and digitized by former Tufts students, fails to take into account Kurdish populations as well as the massive internal displacement and exodus outside of the country. Nevertheless, this project attempts to give an overview of the populations most affected by the conflict in Syria within the past three years.

Sources: Humanitarian Tracker Project: Syria, Humanitarian Response, United Nations Cartographic Section (UNCS) and United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA): Syrian Arab Republic, Esri World Maps 2010.

Projection: WGS 1984 UTM Zone36N

Cartographer: Elissar Harati, May 2014.

