Crowd-Mapping and Human Security: The 2011-2012 Syrian Uprising

Introduction

For over a year, Syria has been the scene of what is perhaps the Arab Spring's most inscrutable uprising. What began as scattered demonstrations after young children were arrested for vandalism in the provincial city of Dara'a grew into a popular uprising led by a combination of furtive protester groups and shadowy insurgents. The lack of a robust media presence in the country has made information hard to come by, prompting various dissident groups both inside and outside the country to fill the void with SMS, Twitter and e-mail reports. From this crowd-sourced information, groups outside the country are not only analyzing the general human security situation but are increasingly able to geographically visualize the situation as well.

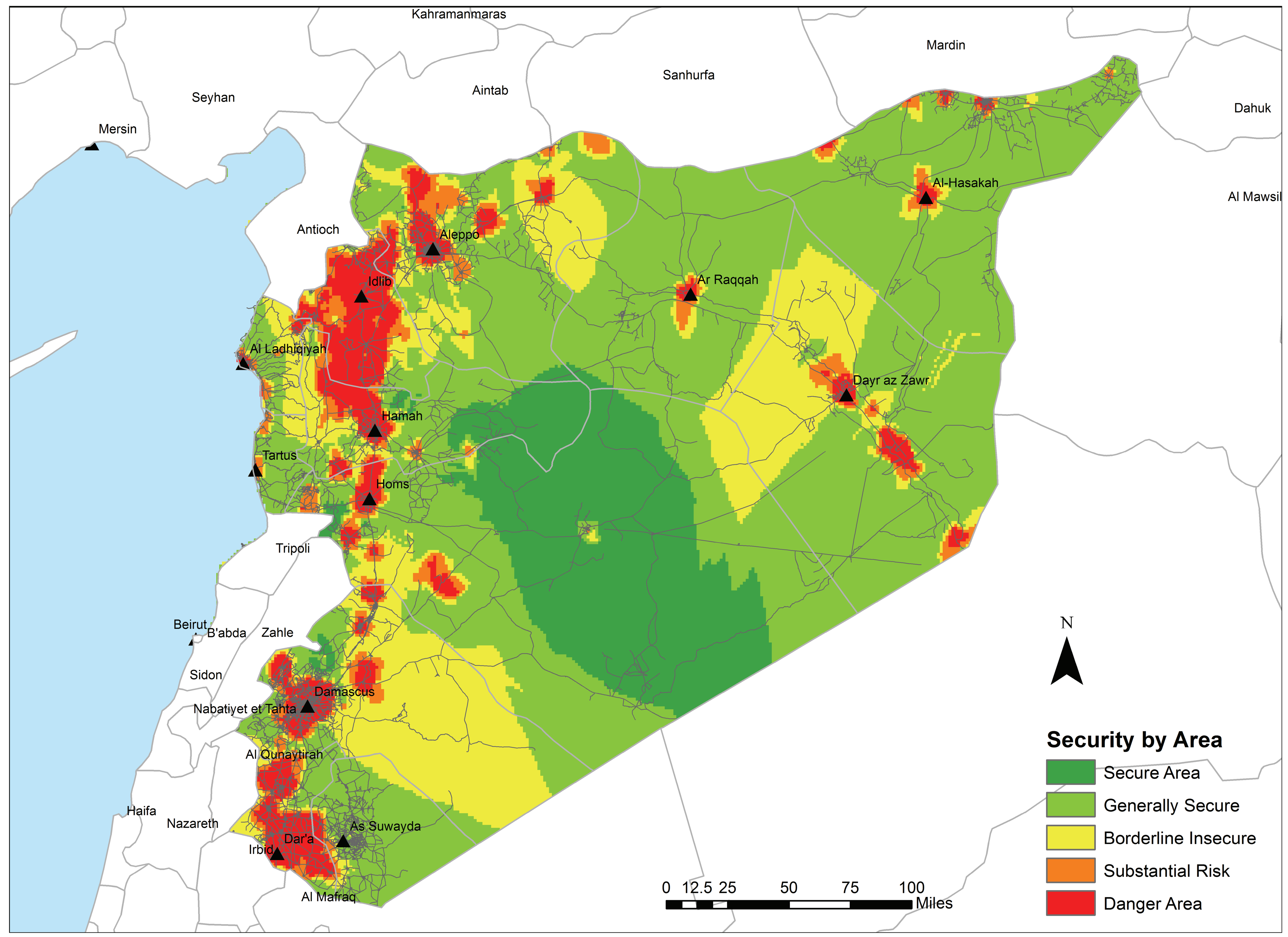
This project is an inquiry into the possibilities of crowd-sourced GIS data mapping out safe areas and routes for Syrians fleeing within and across their country's borders. By using crowd-sourced data and spatial analysis techniques, this project maps and analyzes current unrest and provides a regional and road-based analysis of safe areas and routes in the country.

Methodology

Crowd-sourced KML files detailing the locations of protests, killings, strikes and other civil disturbances during the week of April 8th-15th, 2012, were obtained from the Syrian Uprising Information Centre. Road data was downloaded from OpenStreetMap (available through a Creative Commons license) via the Cloudmade download page, with major city data points and administrative boundaries taken from the Tufts GIS servers. Except for the last two categories, all data mapped was crowd-sourced.

Incidents were broken down by type: protests against the al-Assad regime, killings carried out by the regime, general strikes, and other incidents ranging from reports of arrests to documentation of tank fire. First, a density analysis based on incident data gave a rudimentary look at the security situation from a spatial lens. Then a density kernel analysis was done on the incident data, which was then combined with road infrastructure data, with the result analyzing the safety of routes based on their proximity to clusters of unrest, as well as the density of incidents. The same process was used to analyze the relative safety of individual major cities. Finally, numerical rankings were assigned to incident data based on the potential security threat. Killings received a ranking of three, protests and strikes received a ranking of two based on the potential for a violent response, and other incidents with sparse information received a ranking of one. Similar rankings were given to roads based on their proximity to unrest. These data layers were then interpolated into new visual representations and combined using the raster calculator to provide a color-coded human security landscape of the entire country, with green representing the safest regions and roads passing through those regions representing the safest routes. Despite the three ranking categories for incident data, the final analysis layer had five categories for ranking insecurity to reflect the complexity of the combined data.

Human Security Analysis of Syria: Week of April 8th - April 15th



Issues

The situation on the ground in Syria has been changing very quickly, and the data in this project will necessarily have a short shelf life. One must consider that the data does not represent all of the human rights violations that occur in a given timespan (e.g. sexual violence, disappearances, attacks by opposition groups) and that the sources aggregating the data are themselves highly partisan.

Due to logistical limitations, a complete breakdown of the types of roads and transportation options was not possible. Gaps in data also meant that important security considerations such as road blocks were not accounted for in this analysis. Evaluating the security risks by incident type and proximity was inevitably a subjective endeavor, and the rankings assigned must be considered in light of their rather fluid context. The decision to exclude or include certain data points was also subject to logistical and subjective considerations; for example, crowd-sourced data from other sources was excluded because it was too sparse, and data such as police station locations was excluded because it was seen as irrelevant (troop movements and secret police infiltration may present more of a threat than the physical presence of a police station).

Conclusions

This project represents some of the possibilities of using crowd-sourced human rights data to analyze human security and safe routes. Using limited and almost solely crowd-sourced data, it is possible to do a rudimentary human security analysis that can be used by civilians and asylum-seekers to reach safe havens inside or outside the country. The ranking system and proximity can give a general sense of the potential for violence and insecurity in a given area, and can allow for a cost-benefit analysis in seeking refuge in a certain region or taking a specific route. Additionally, crowd-sourced data can also highlight unrest and human rights violations in areas that have not received media attention.

However, there are limitations to such a project that should be considered. A steady stream of reliable crowd-sourced data can be elusive, and a project made by people outside the country may rely on guesswork and subjective analysis ill-grounded in reality. The limited of degree of technological penetration and dearth of impartial sources in many countries also hinders implementation.

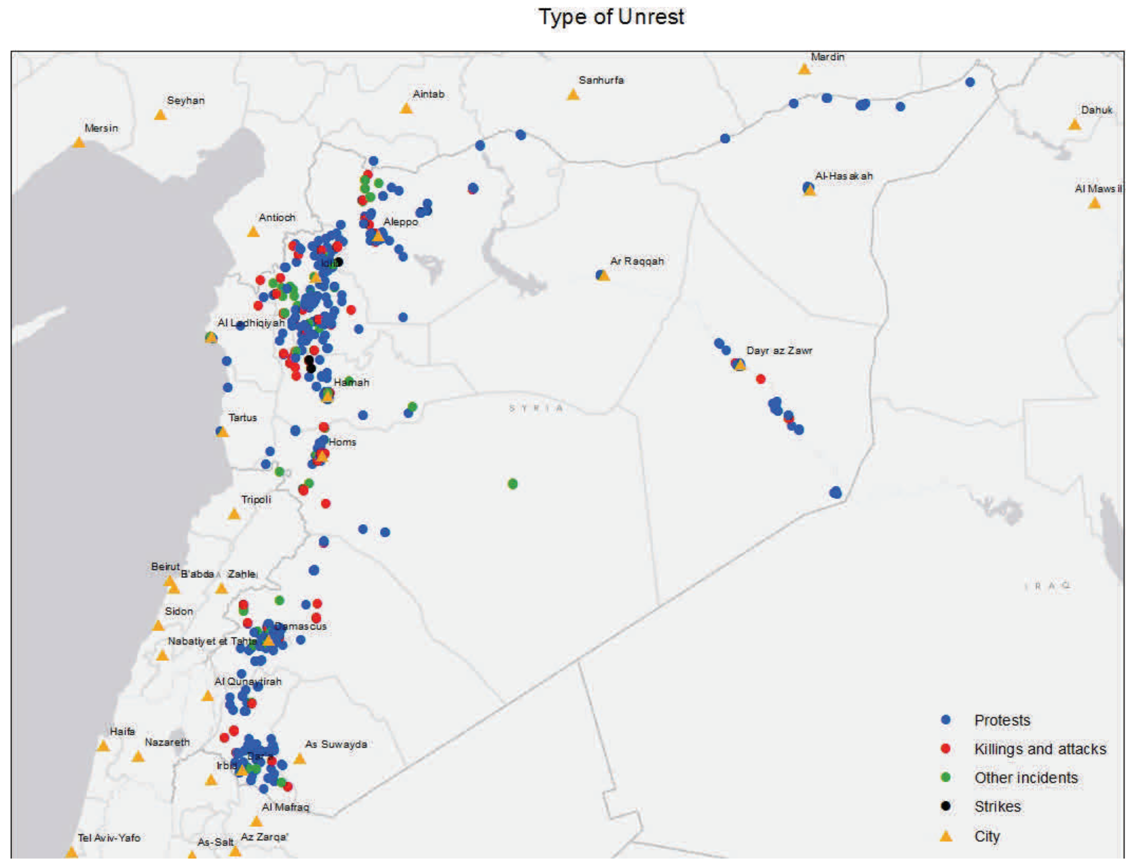
Created by: Justin Shilad

May 8th, 2012

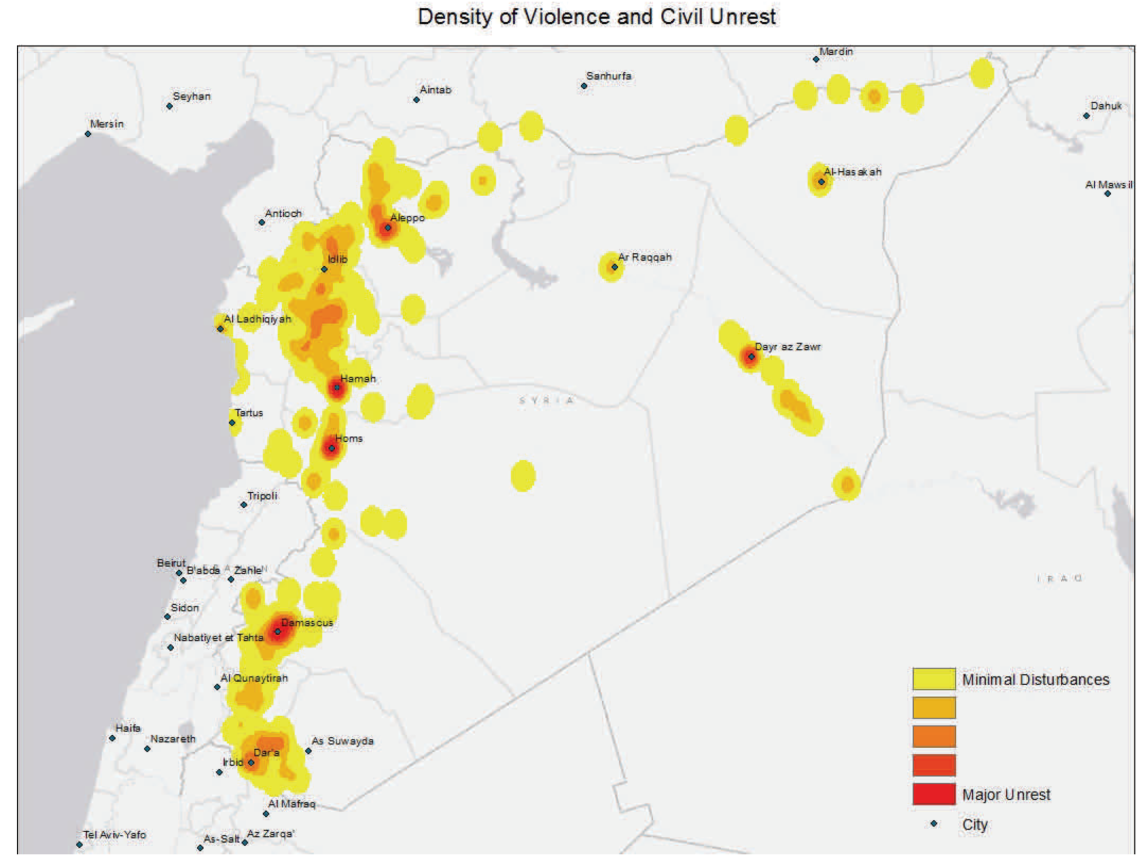
Projection: Lambert Conformal Conic

Data Sources: OpenStreetMap, Syrian Uprising Information Centre, Tufts GIS Data Server (World Folder)

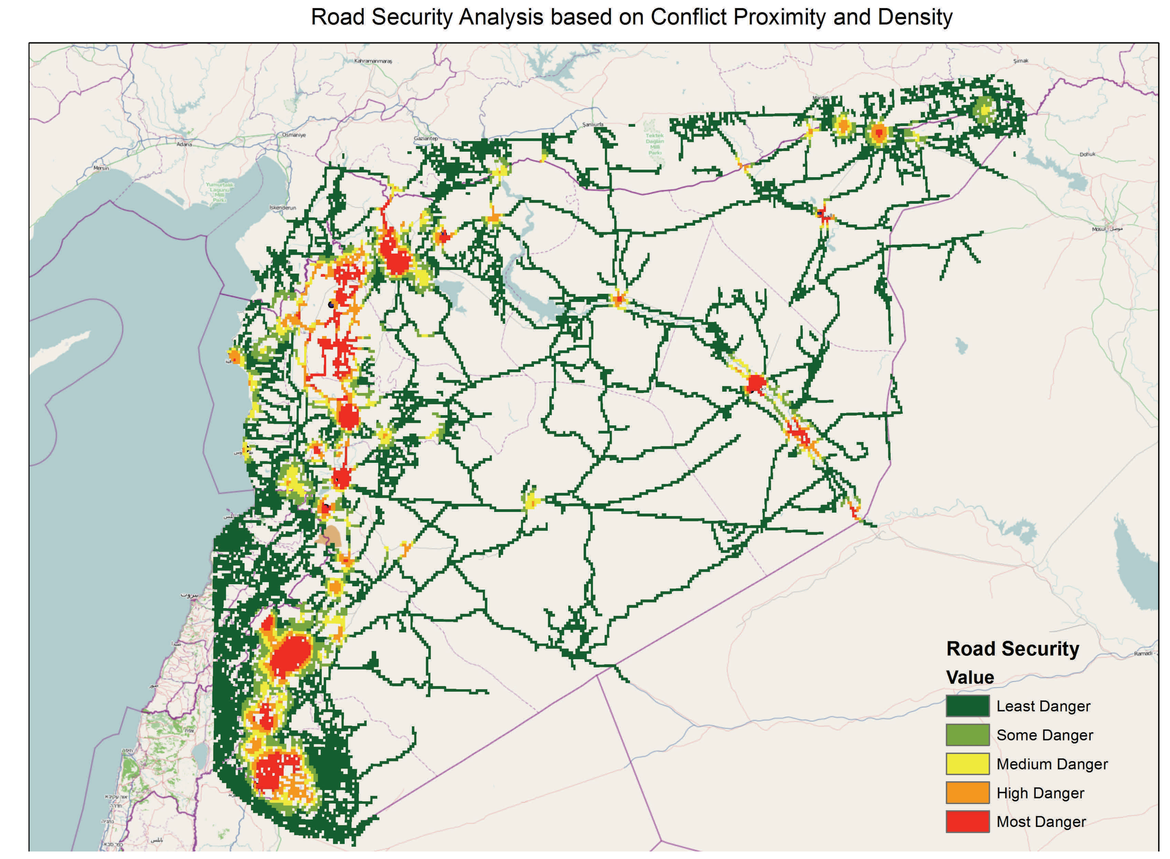
Type of Unrest



Density of Violence and Civil Unrest



Road Security Analysis based on Conflict Proximity and Density



City Security Levels