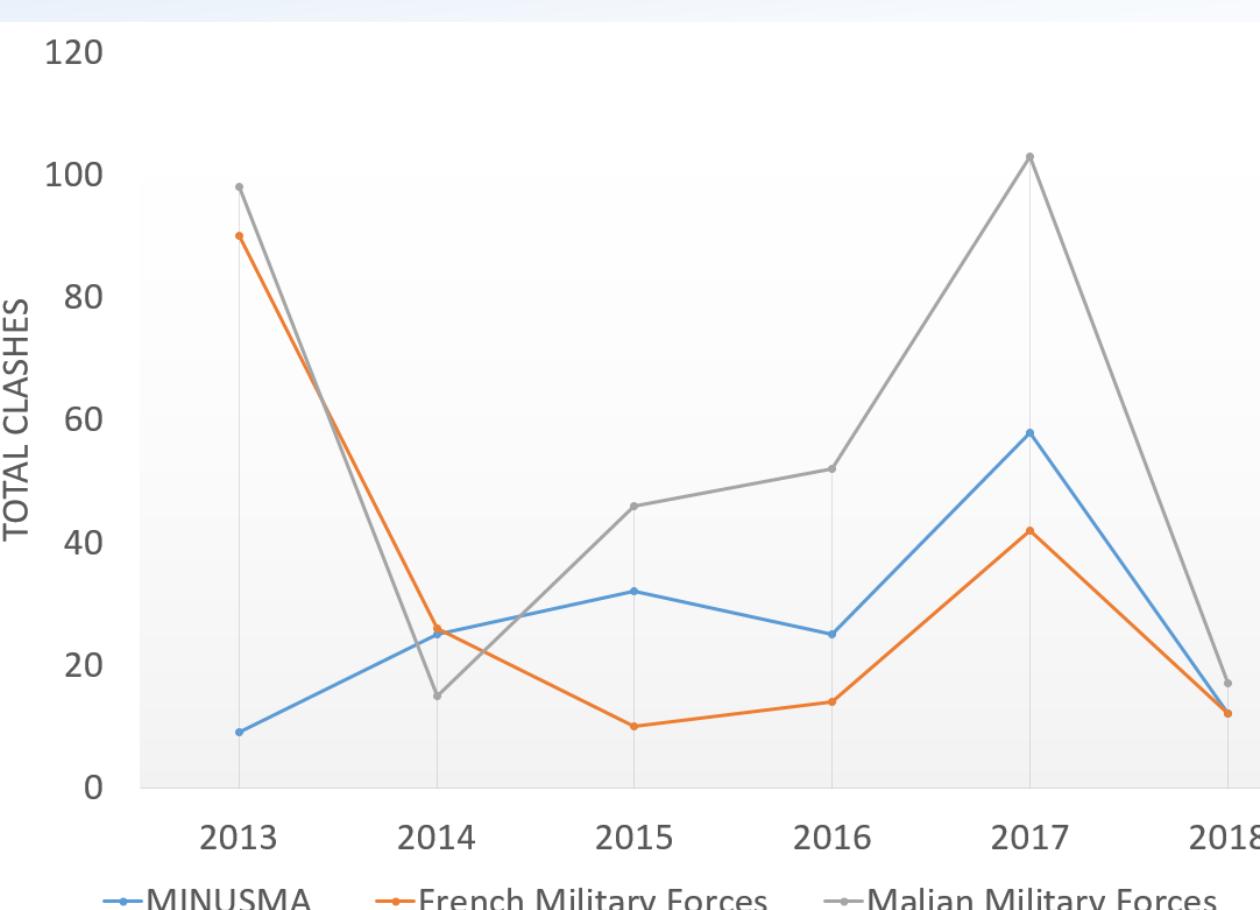


# Peace by Piece: Measuring Conflict in Mali, 2013-2018

## Background

Mali's crisis continues to challenge the international community as peacekeepers and counter-terrorist forces ambitiously attempt to combat terrorism and organized crime while implementing a peace agreement in an unpredictable environment. Threats of separatist insurgency and Islamic terrorism intersect with other destabilizing factors, such as corruption and trafficking to create a transnational aspect to the conflict – prompting international intervention, including the UN's urgent deployment of a complex international peace operation, the Mission Multidimensionnelle Intégrée des Nations Unies pour la Stabilisation au Mali (MINUSMA) in 2013. Replacing the African Union in the midst of ongoing conflict, the UN mission was tasked to support the Malian government in its fight against terrorist, extremist, and other armed groups, as well as stabilize population centers, especially in the north.

### Conflict with MINUSMA and Military Forces

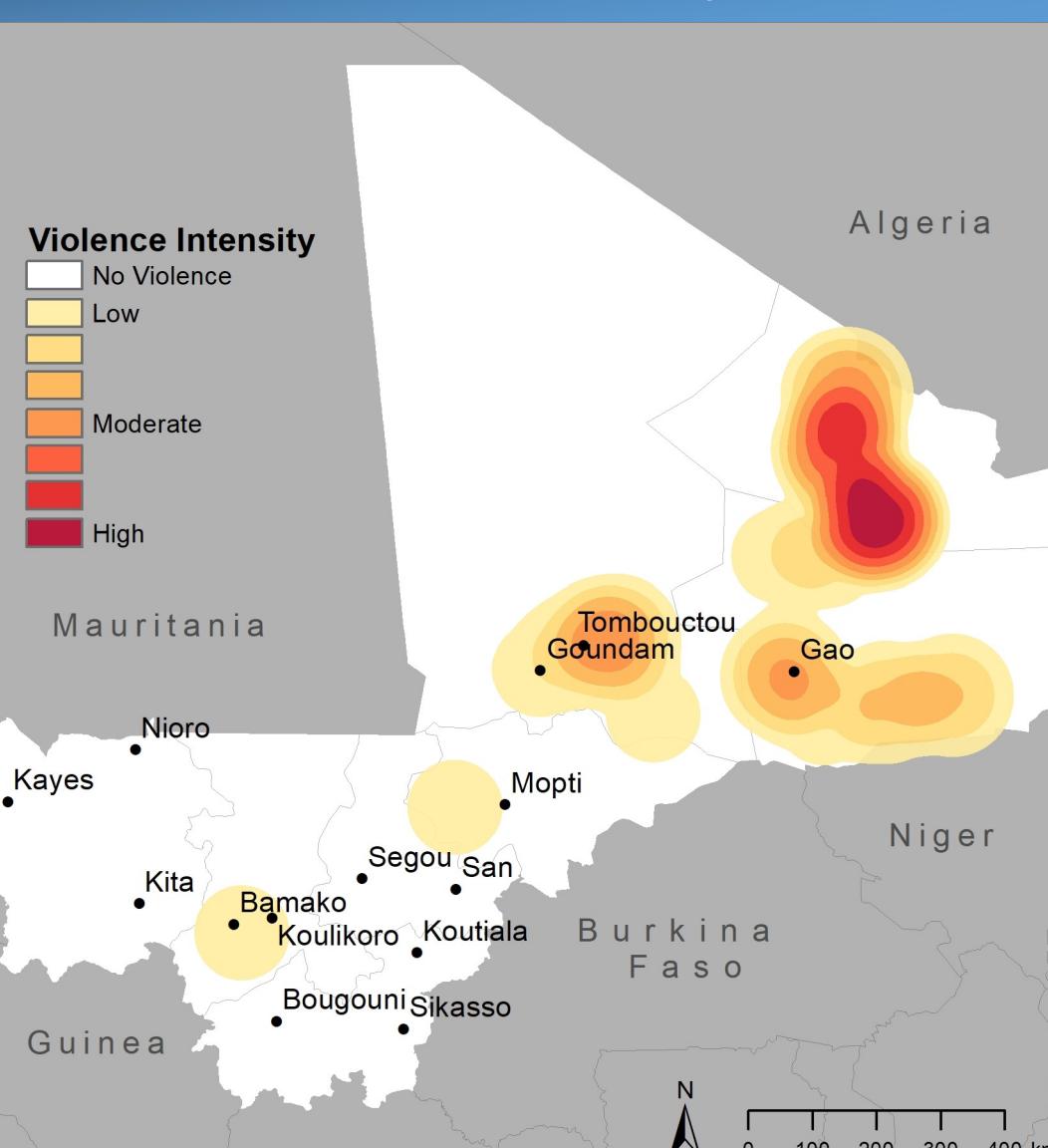


To date, MINUSMA has become the first multi-dimensional UN mission to operate in a theatre of on-going counter-terrorism operations, namely in

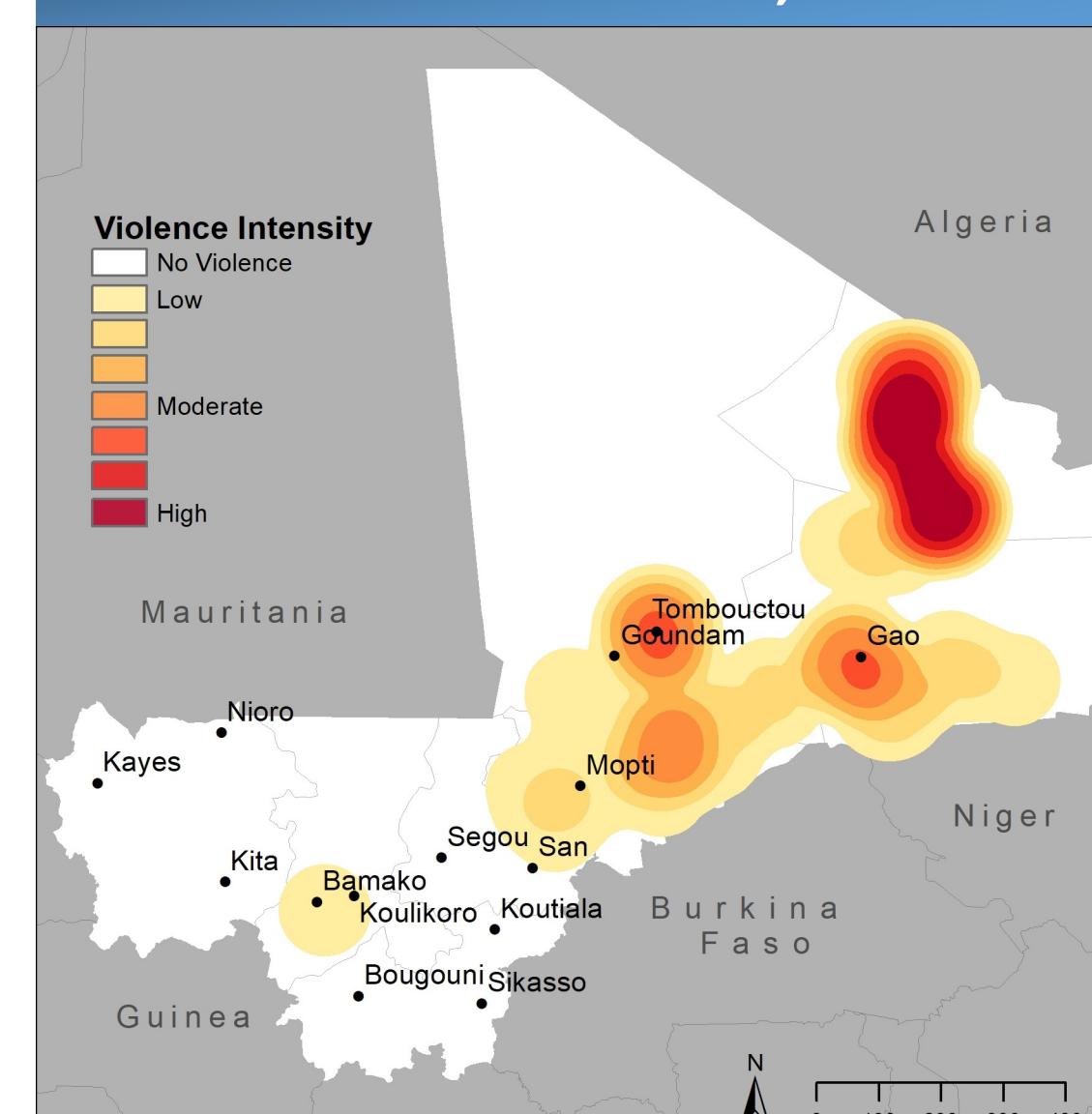
parallel with operations led by French military forces, as well as operations led by the G5 Sahel Joint Force. Consequently, MINUSMA regularly suffers attacks from various armed groups, and has become one of the deadliest peace operations in UN history. While prospects for peace have improved, armed groups excluded from the peace agreement have continued to use violence to bargain for inclusion in negotiations.

## Violence Against Peacekeepers

### Conflict with MINUSMA, 2013-2015



### Conflict with MINUSMA, 2016-2018



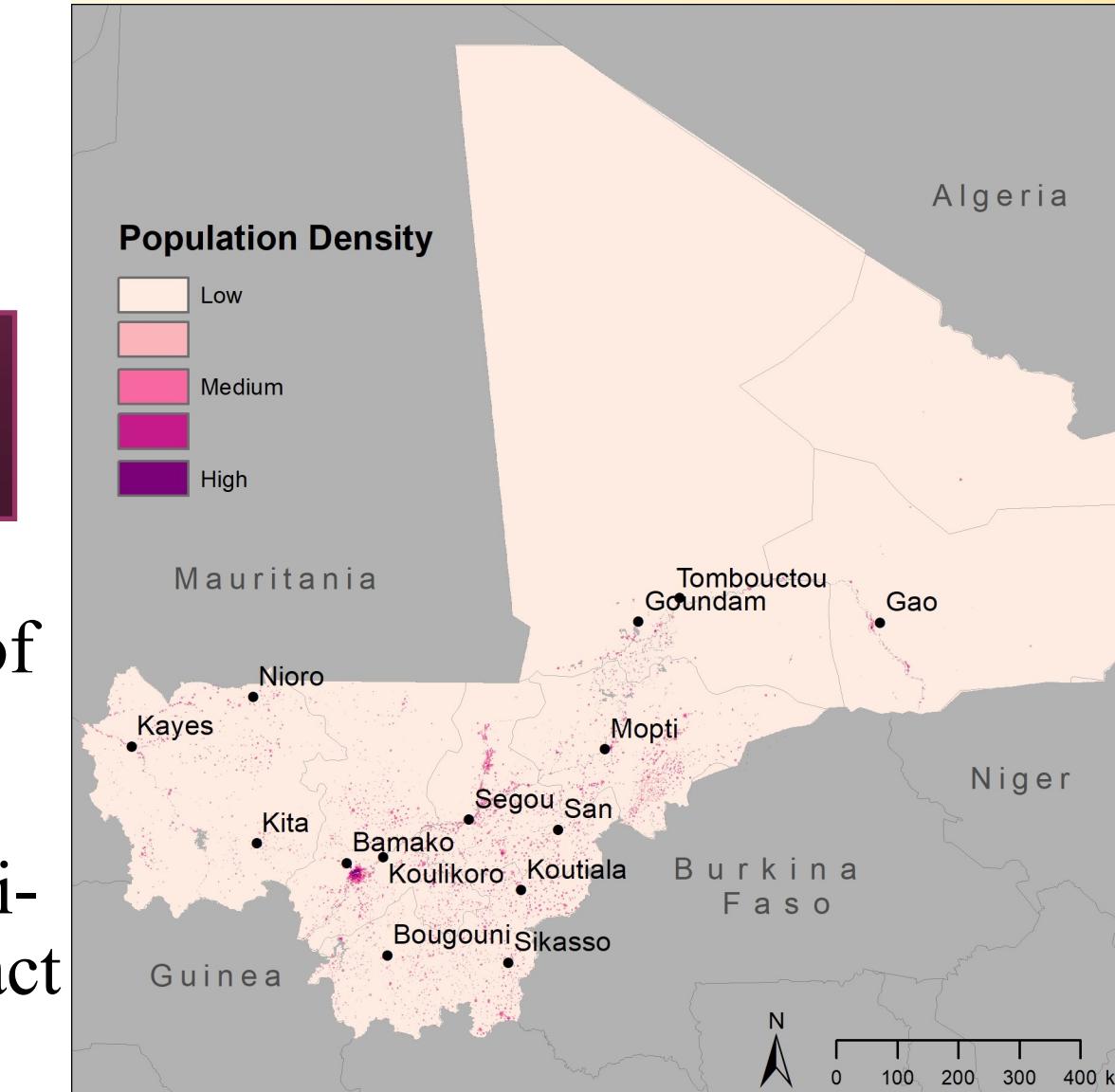
## Spatial Questions

- ♦ Where did violence involving UN peacekeepers in Mali (MINUSMA) increase or decrease between 2013 and 2018?
- ♦ Where is the estimated impact of violence on civilian populations, and how many civilians are potentially impacted?

## Methods

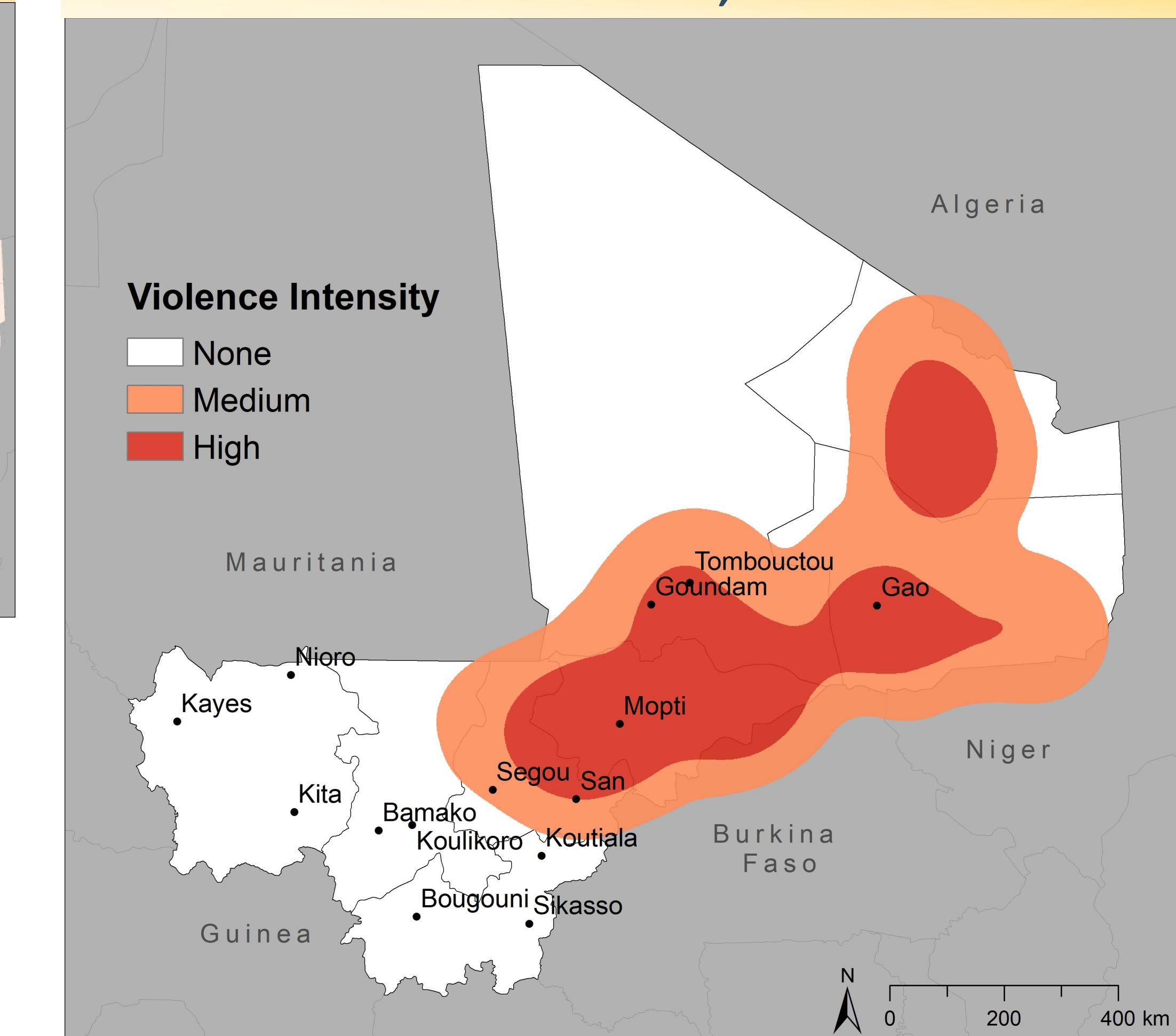
- ◊ Excluded from data, all non-violent incidents, and all violent incidents that did not involve MINUSMA, followed by importing only aggregated violent incidents of conflict against peacekeepers in Mali from January 2013 to March 2018 as points by their longitude and latitude coordinates.
- ◊ Imported data of all incidents of violent conflict in Mali from January 2013 to March 2018, excluding only non-violent incidents to begin calculating impact on civilians.
- ◊ Divided all of the conflict data into the same two time periods as the previous section, and selected the most recent time period (2016-2018) to conduct analysis.
- ◊ Conducted another hot spot analysis to measure all incidents of violence in Mali during this time, using a radius of 120 km.
- ◊ Used the Raster Re-classify tool to divide the hot spot zones into 3 categories: no conflict, medium, and high intensities.
- ◊ Calculated the total civilian population impacted within each conflict zone by running the Zonal Statistics as a Table tool with raster population file of Mali, which provided the necessary statistics to determine where and how many civilians were potentially impacted by armed conflict between 2016 and 2018.
- ◊ The raster population data is limited by an estimation provided by the UN in 2015. Conflict data is limited to March 2018, meaning that statistics for that year are incomplete.

### Population Density in Mali, 2015



## Impact on Civilians

### Total Conflict in Mali, 2016-2018



### Total Civilian Population Impacted by Conflict

Conflict Zone	Area Sq Km	Total Population
No Conflict	760,403,630	10,180,346
Medium	251,846,510	1,970,339
High	211,939,090	3,748,638

## Results

Overall, violence involving MINUSMA forces increased from 2013 to 2018. Concentrations of violence involving peacekeepers have also shown increased intensity in some areas, and decreased intensity in others – demonstrating how the conflict has shifted, geographically. MINUSMA forces as a whole experience less conflict with non-state armed groups than their counter-terrorism counterparts in the Malian and French militaries.

Overall, levels of violence have increased in or near civilian populated areas stretching from the middle of the country to the sparsely populated northern regions. As has been observed in other conflicts in the Sahel, conflict in Mali often spills across porous borders to neighboring states.



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May 2019

**Projection:** Lambert Conformal Conic, Central Meridian: -5W, 8N, 25N

**Data Sources:** ACLED, OCHA, DNP, DNCT, WorldPop, GfK, UN Security Council



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