

# What Results in Death?

Analysis of Social Conflict in Africa, 1990–2011

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# Data Sources

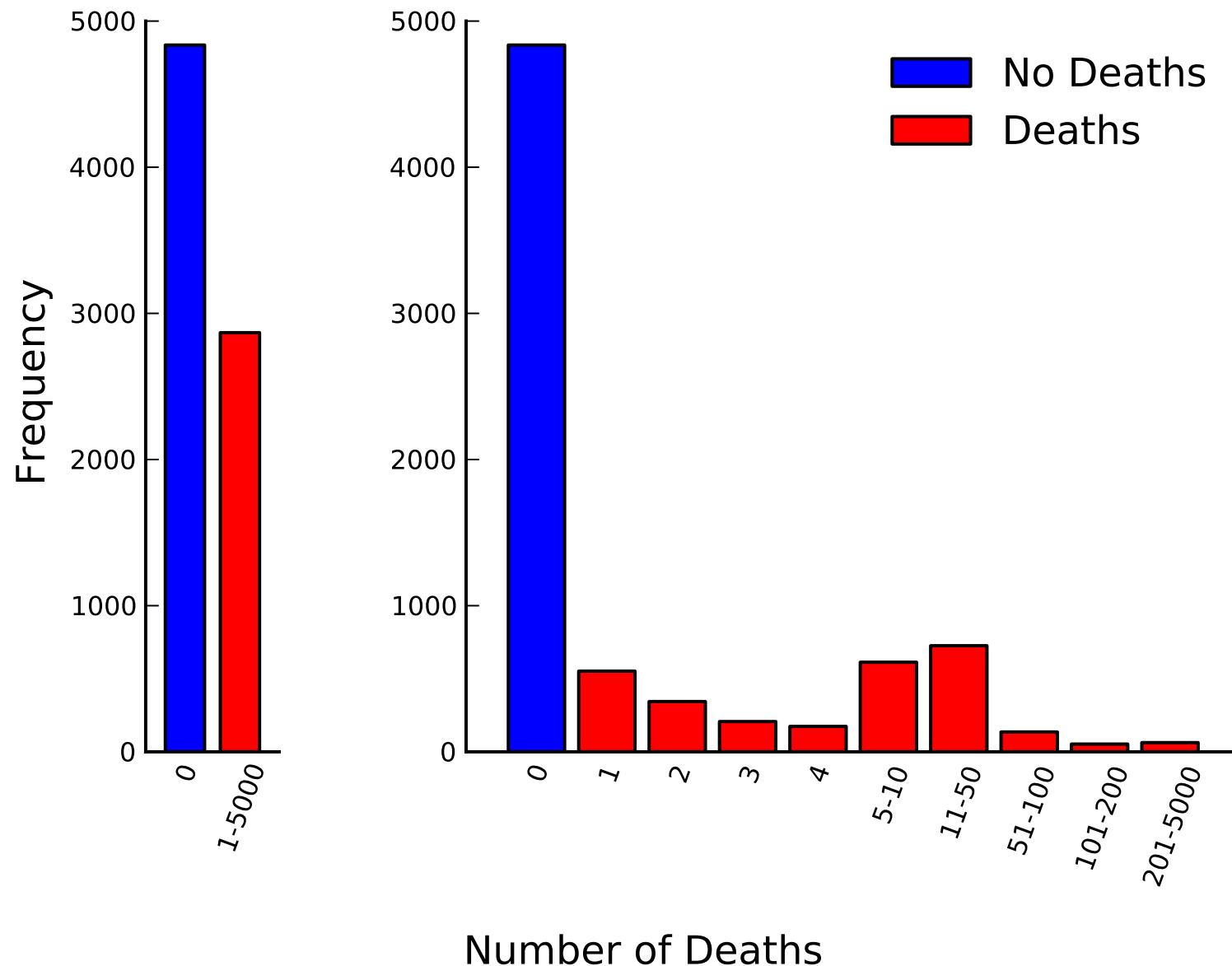
- Social Conflict in Africa Database (SCAD)
  - Cullen Hendrix and Idean Salehyan
  - Hosted by Climate Change and African Political Stability (CCAPS) at the Robert S. Strauss Center for International Security and Law at the University of Texas at Austin
- Correlates of War Project (COW)
  - National Material Capabilities
  - World Religions
- Polity IV Project
  - Measures democracy/autocracy for government regime type



# Research Questions

1. What differentiates an episode of social conflict that results in deaths from an episode of social conflict that does not result in deaths?
2. Is there a way to predict the number of deaths that will result from an episode of social conflict?

## Figure 2: Distribution of the Number of Deaths



# Question #1

*What differentiates an episode of social conflict that results in deaths from an episode of social conflict that does not result in deaths?*



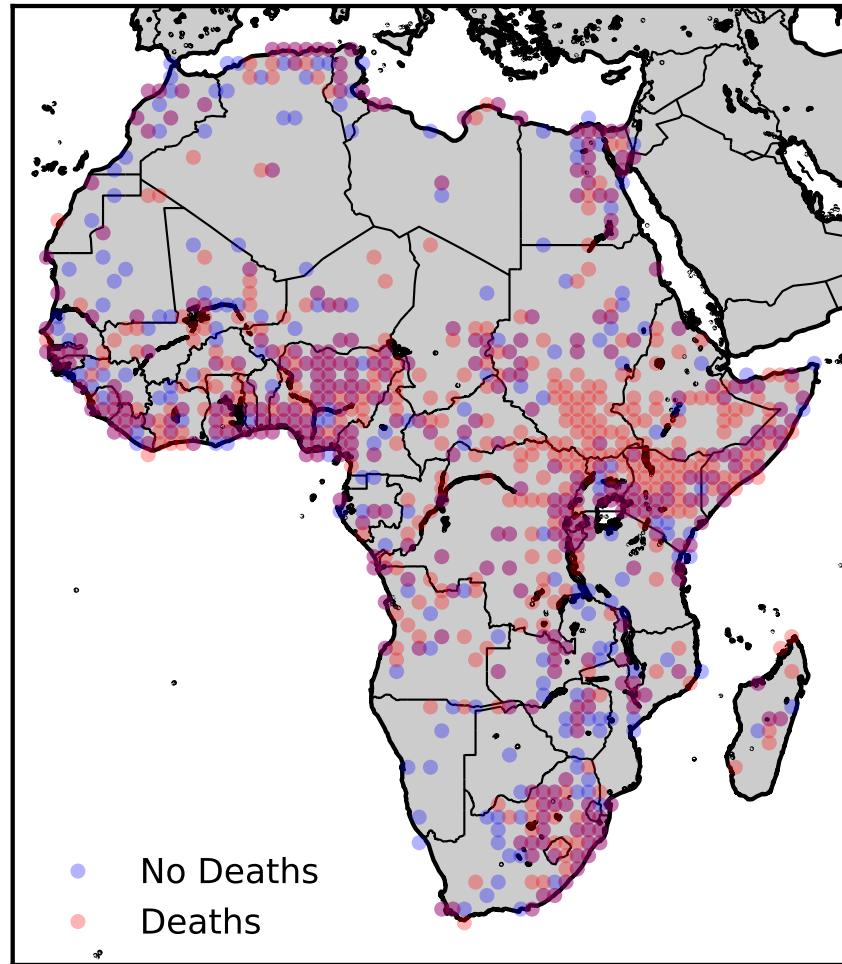
Table 2: Frequency of Deaths/No Deaths by Dominant Religion

	<b>Islam</b>	<b>Christianity</b>	<b>Animist</b>	<b>Hinduism</b>
<b>No Deaths</b>	2339	2333	159	5
<b>Deaths</b>	1447	1385	35	1

Table 3: Frequency of Deaths/No Deaths by Regime Type

	<b>Strong Autocracy</b>	<b>Weak Autocracy</b>	<b>Middle Ground</b>	<b>Weak Democracy</b>	<b>Strong Democracy</b>
<b>No Deaths</b>	798	1401	74	1010	928
<b>Deaths</b>	247	605	22	753	487

## Figure 6: Map of Superimposed Deaths and No Deaths



# Question #2

*Is there a way to predict the number of deaths that will result from an episode of social conflict?*





# Binary Prediction

- Predict a binary, death/no-death indicator
- Separate dataset into train (70%) and test (30%)
- Logistic regression
  - Location
  - Event type
  - Central government target
  - Primary issue
  - National capability score
- Compare to KNN



# Prediction Accuracy

Table 4: Logistic Regression Prediction Accuracy

	<b>Predicted as No Deaths</b>	<b>Predicted as Deaths</b>
<b>No Deaths</b>	942	125
<b>Deaths</b>	177	382

Table 5: KNN Prediction Accuracy (K=10)

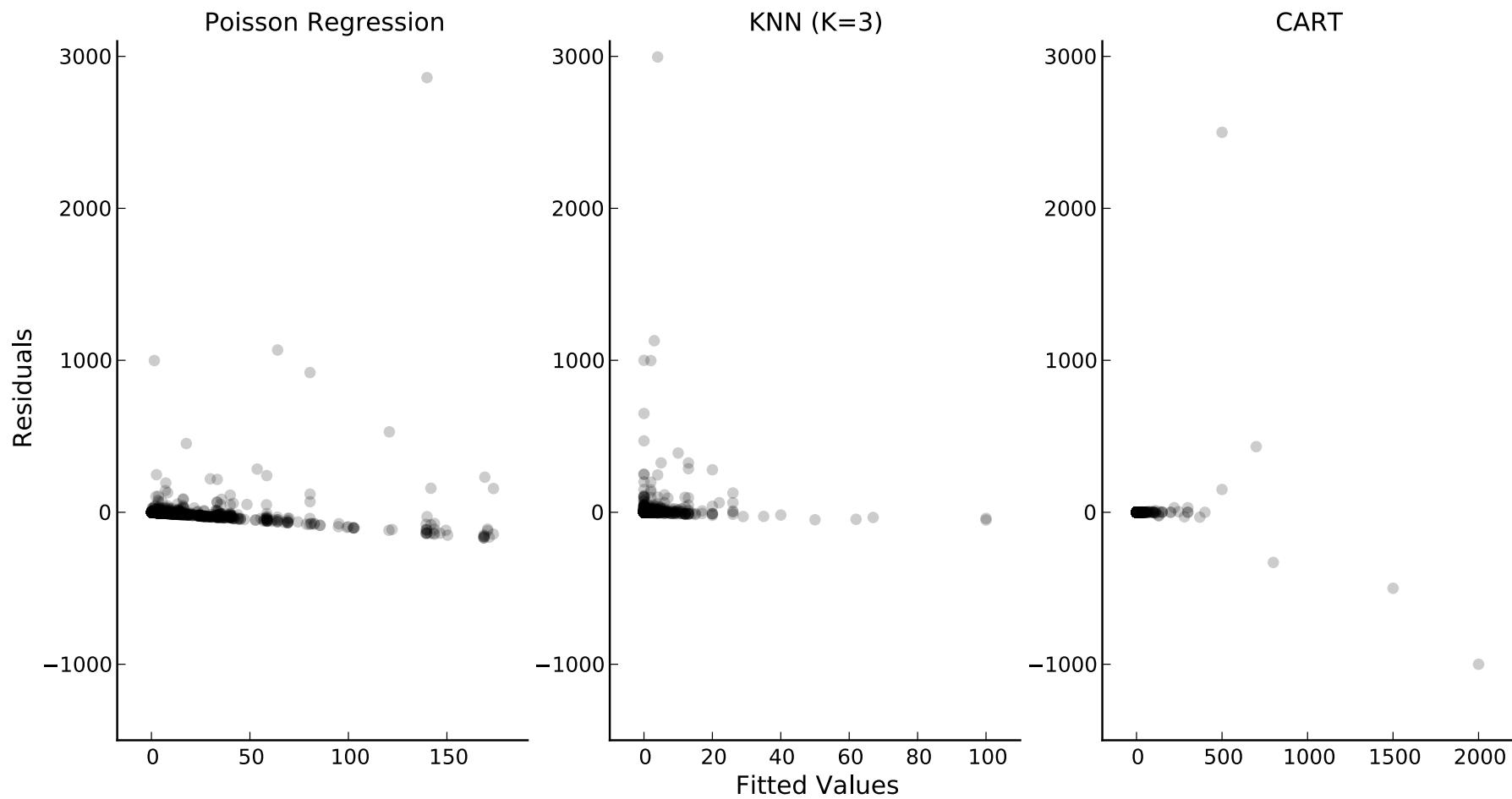
	<b>Predicted as No Deaths</b>	<b>Predicted as Deaths</b>
<b>No Deaths</b>	977	90
<b>Deaths</b>	231	328



# Number of Deaths Prediction

- Predict the actual number of deaths
- Use same train/test sets from before
- Poisson regression
  - Similar model selection process as logistic
  - Same set of variables minimizes prediction error
- Compare to KNN and CART Decision Tree

Figure 7: Fitted Values vs. Residuals





# Acknowledgements & Questions

- Victoria Stodden
- Christine Ho
- Ryan Lovett

# Figure 1: Number of Death and No Death Conflicts by Year

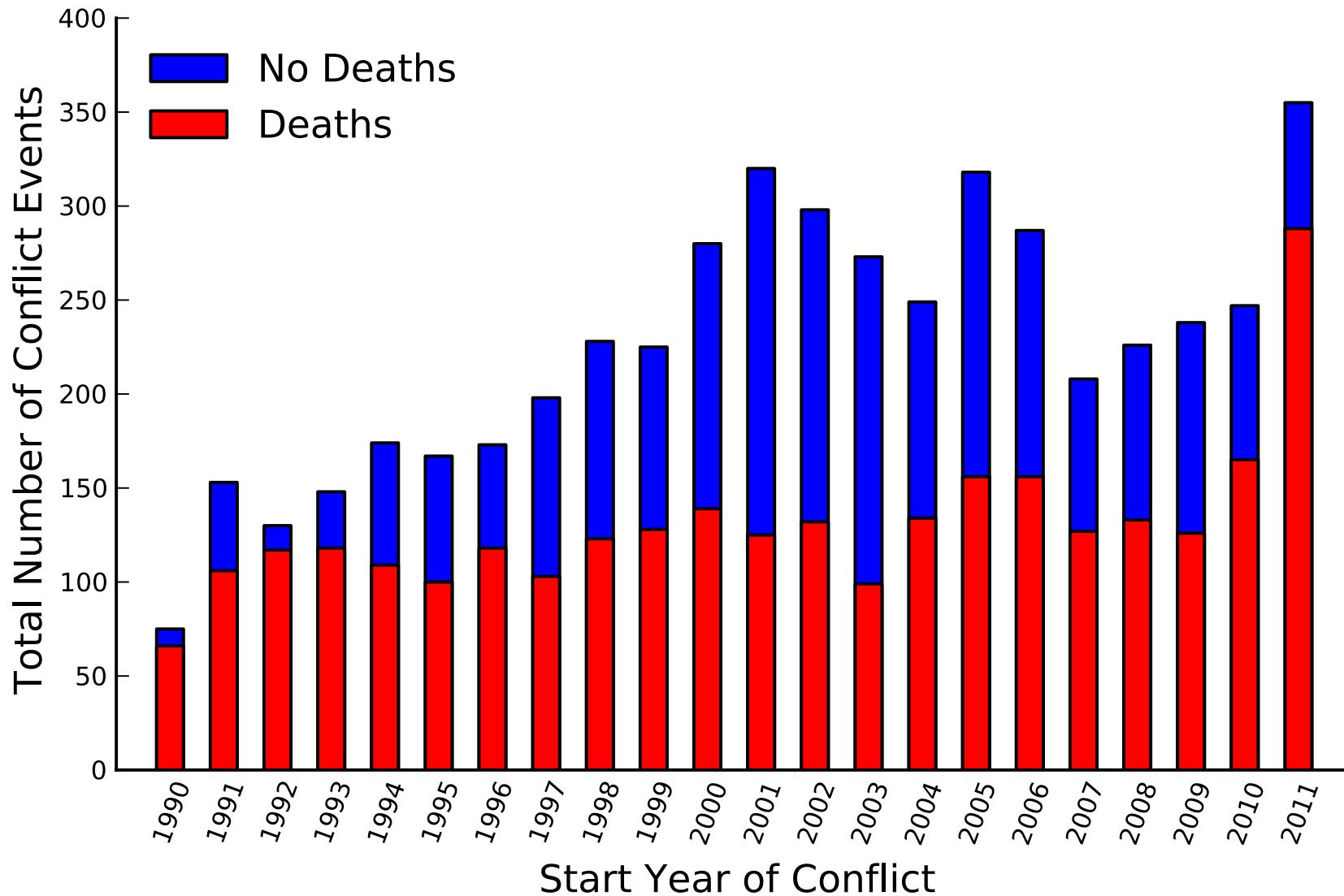
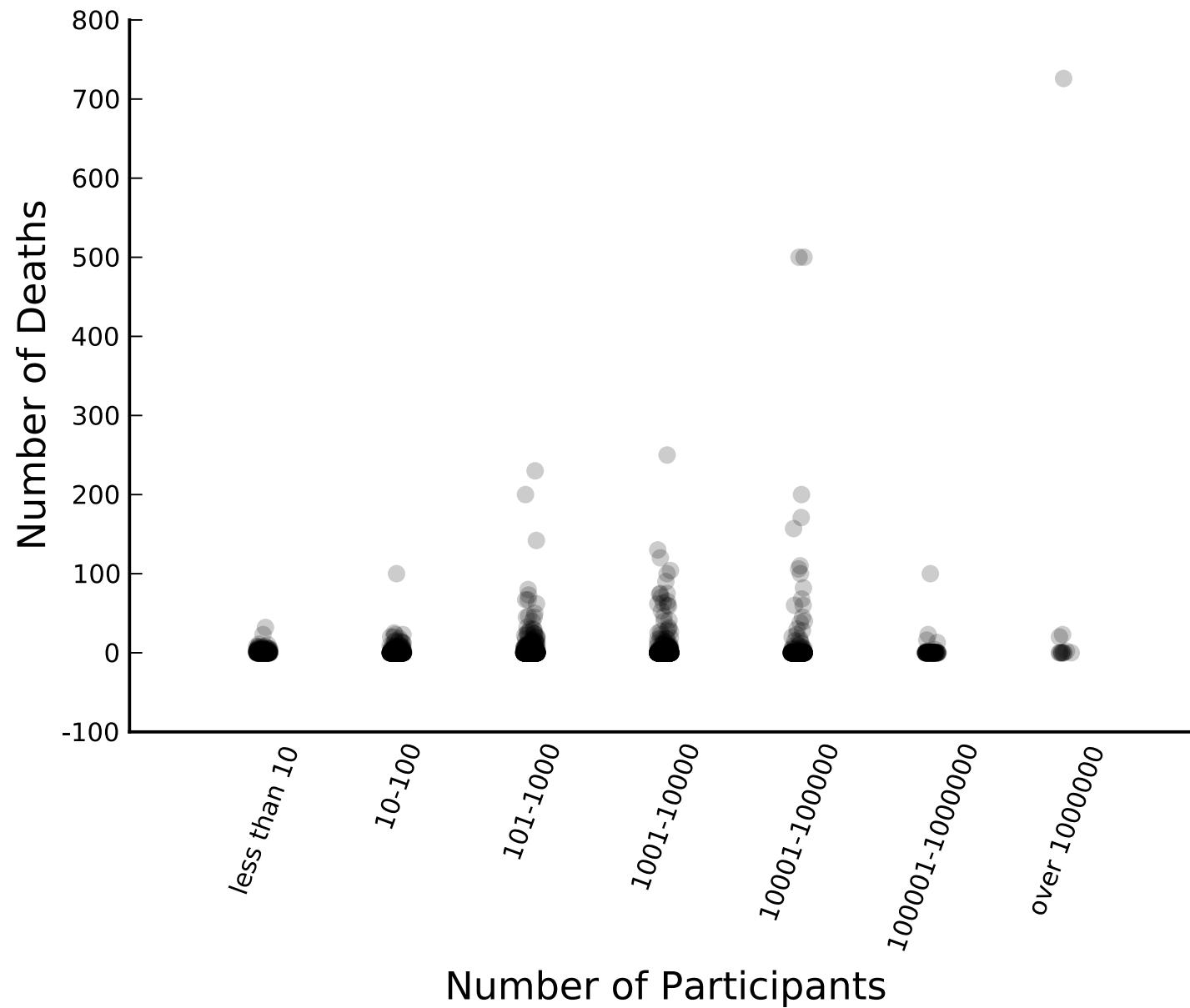


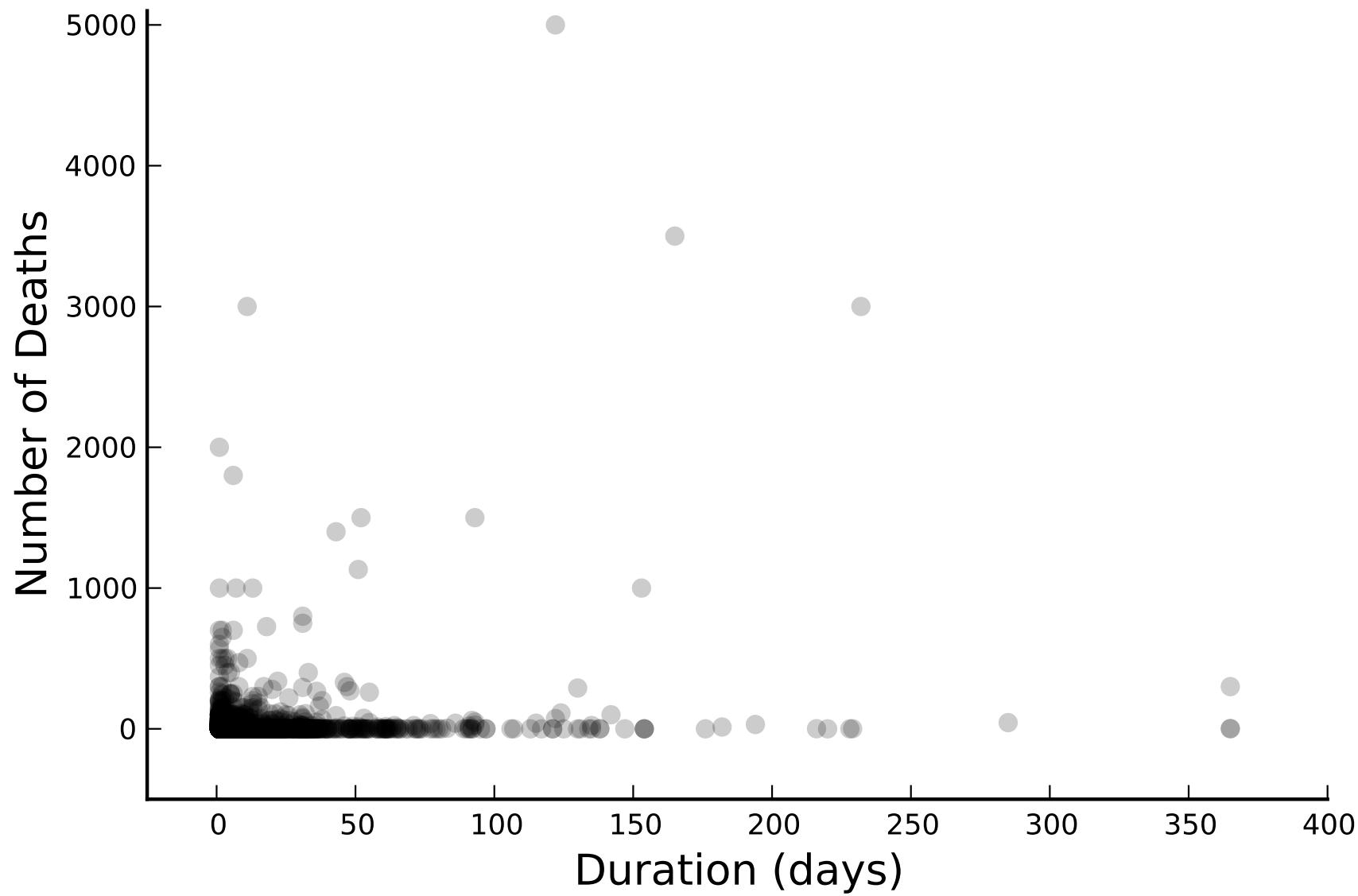
Table 1: Top 10 Most Violent Conflicts

	<b>Deaths</b>	<b>Country</b>	<b>Start</b>	<b>End</b>	<b>Duration (days)</b>
<b>1</b>	5000	Democratic Republic of the Congo	1999-09-01 00:00:00	1999-12-31 00:00:00	122
<b>2</b>	3500	Democratic Republic of the Congo	1993-03-20 00:00:00	1993-08-31 00:00:00	165
<b>3</b>	3000	Ghana	1994-02-04 00:00:00	1994-02-14 00:00:00	11
<b>4</b>	3000	Nigeria	1998-01-27 00:00:00	1998-09-15 00:00:00	232
<b>5</b>	2000	Rwanda	1995-04-24 00:00:00	1995-04-24 00:00:00	1
<b>6</b>	1800	Nigeria	1992-05-15 00:00:00	1992-05-20 00:00:00	6
<b>7</b>	1500	Democratic Republic of the Congo	2009-03-30 00:00:00	2009-06-30 00:00:00	93
<b>8</b>	1500	Liberia	1996-04-06 00:00:00	1996-05-27 00:00:00	52
<b>9</b>	1400	Democratic Republic of the Congo	2002-04-30 00:00:00	2002-06-11 00:00:00	43
<b>10</b>	1132	South Africa	1990-08-12 00:00:00	1990-10-01 00:00:00	51

### Figure 3: Deaths by Conflict Size

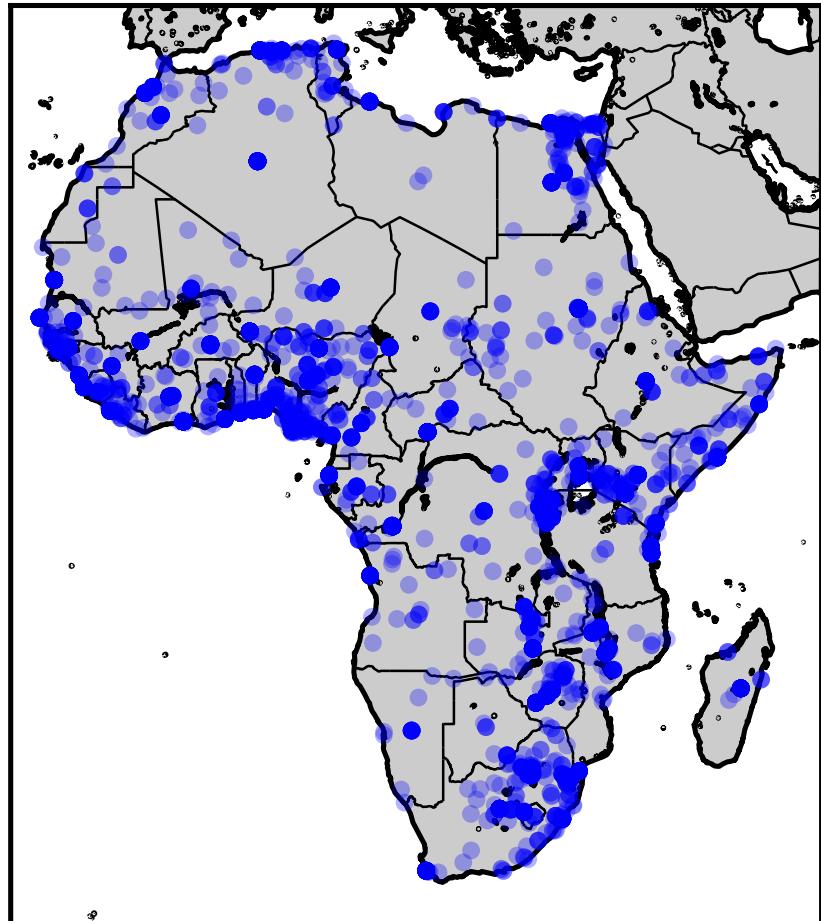


# Figure 4: Deaths by Conflict Duration



# Figure 5: Map of Conflict Events

No Deaths



Deaths

