Resource Unpredictability and Pastoral Violence in Northern Kenya

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❑Here we focus on unpredictable rainfall fluctuation:
- ❑Yearly fluctuation, including droughts
- ❑Particular months and years being abnormally wetter or drier than expected
- ❑We close with a question about whether the predictability or unpredictability of the resource base of "place" affects where violence occurs.

Why focus on unpredictability?

❑Worldwide cross-cultural research (Ember and Ember 1992) found that unpredictable natural disasters , in contrast to predictable scarcity, was a major predictor of warfare. **Pertains mostly to nonstate societies**

❑These findings replicated in an eastern African comparison of about 40 societies (Ember, Adem, Skoggard n.d.)

Does unpredictability explain variation in livestock violence in Turkanaland?

❑ There are a number of aspects of unpredictability we focus on here

    ❑ Yearly fluctuation, including droughts.

    ❑ Particular months and years being abnormally wetter or drier than expected.

    ❑ The predictability or unpredictability of the place where violence occurs.

Methods: Data Collection on Violence

❏ Source database for violence: Lexis/Nexis Academic http://www.lexisnexis.com/*hottopics*/*lnacademic*/? (newsletters, aggregate news sources, news transcripts, newswires, major newspapers)

❏ Time period: 1998-2009

❏ Search: All news reports involving "Tur*ana"

❏ Results: Initial search typically yielded about 500 reports per year

Methods: Violence continued

- ❑ Narrow reports to raids if <u>all</u> of the following were satisfied:
  - ❑ Socially-organized violence of some kind involving Turkana, either as attackers or attacked
  - ❑ Incident occurred in Turkana district or in border localities
  - ❑ Incident involved actual or attempted raid of livestock
- ❑ Our primary measure of livestock-related violence is the number of reported deaths during livestock-related raids rather than number of incidents. Why?
  - ❑ Media and news reports only reported violence involving more than one ethnic group, suggesting a bias in reporting towards inter-ethnic conflict and away from intra-ethnic conflict.
  - ❑ We know from ethnographic reports that the Turkana engage in some intra-ethnic livestock raiding. Since no intra-ethnic raids were reported during the 12 year period, we are concerned that a lack of an incident in a particular month and year does not necessarily mean that no livestock raid occurred during that time frame.
  - ❑ We suspect that the media will pick up only the more spectacular incidents and underreport the minor incidents.
  - ❑ Witsenburg and Adano did not find any results with the number of incidents reported, so we did not think that such a line of analysis would be productive.

Methods: Measuring Rainfall

❑All measures of rainfall are constructed from meteorological data on 0.25 square degree (approximately 30 square kilometers) quadrants by month and year from 1998-2009.

    ❑These were obtained from the Tropical Rainfall Measuring Mission (TRMM) 3B43. Data from NASA

    ❑After overlaying an administrative map of Turkana District on top of the rectangular parcel grid, we excluded all parcels outside Turkana District for the purposes of computing rainfall. There were a total of 108 quadrants.

    ❑The advantage of this weather data set is that it does not need to take one or a few weather stations as proxies for the whole district.

Yearly fluctuation

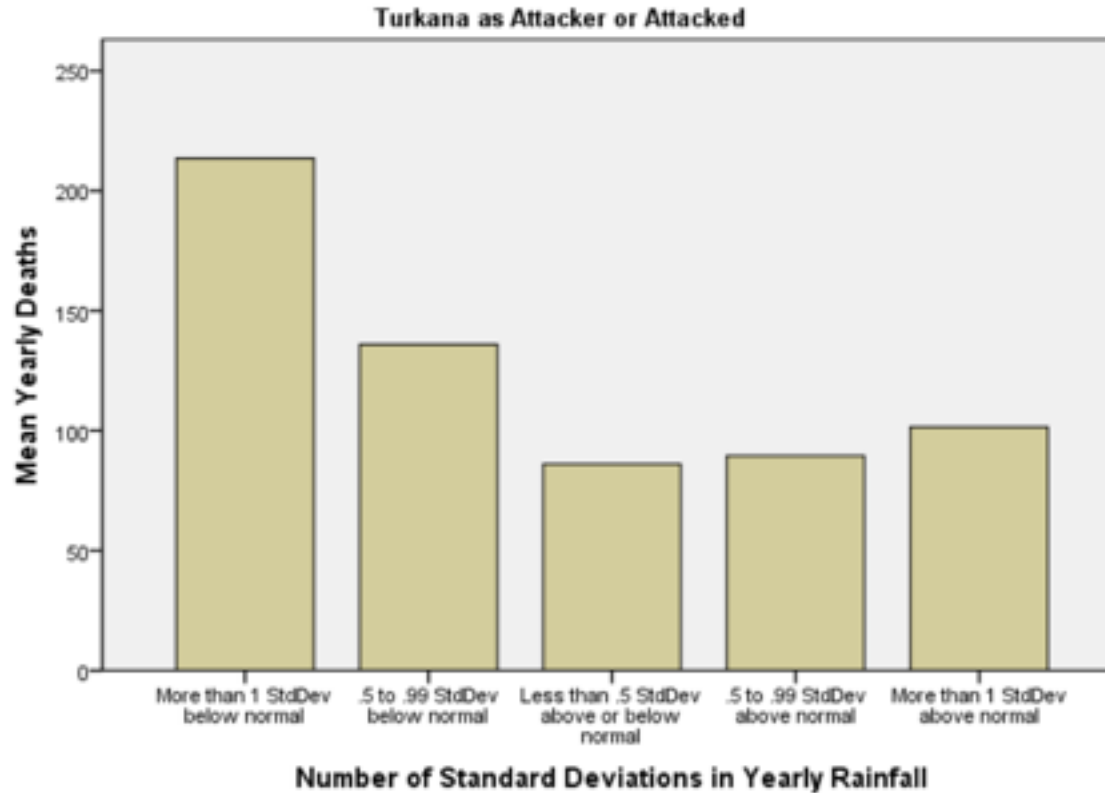Total Rainfall in Turkanaland by Year (1998-2009)

Based on All Months
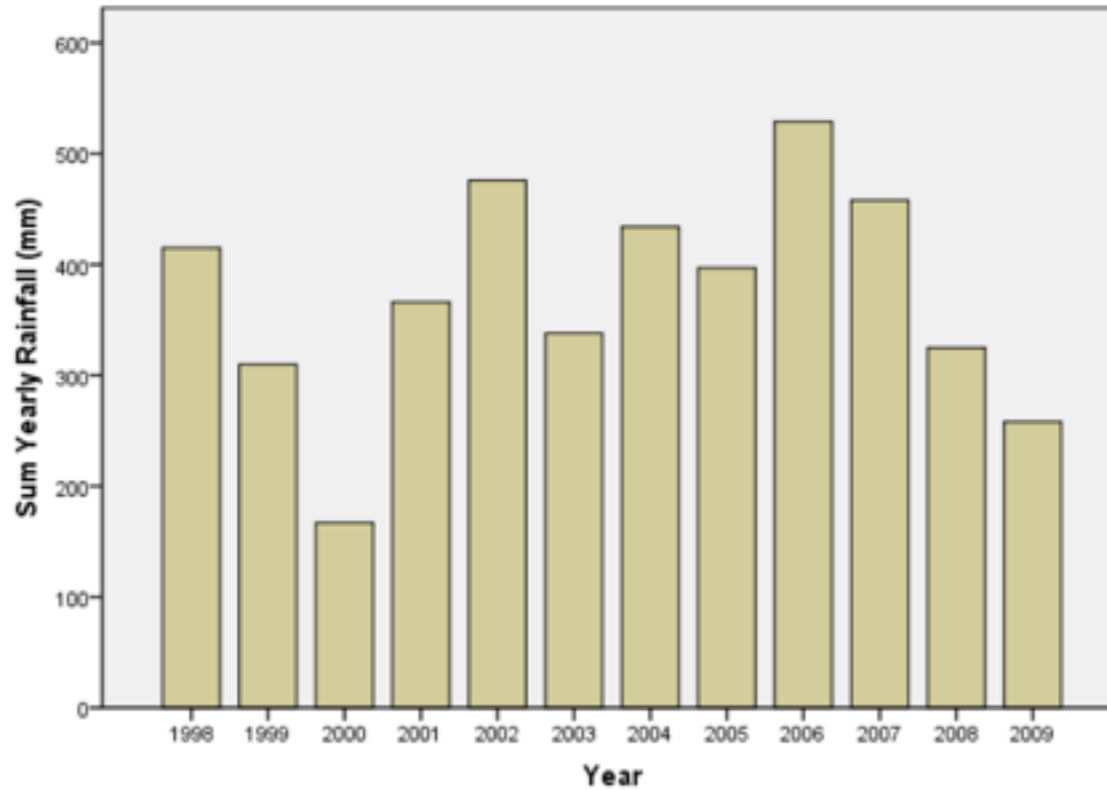
Total Yearly Deaths in Turkanaland Due to Livestock Raids (1998-2009)

Turkana as Attacker or Attacked
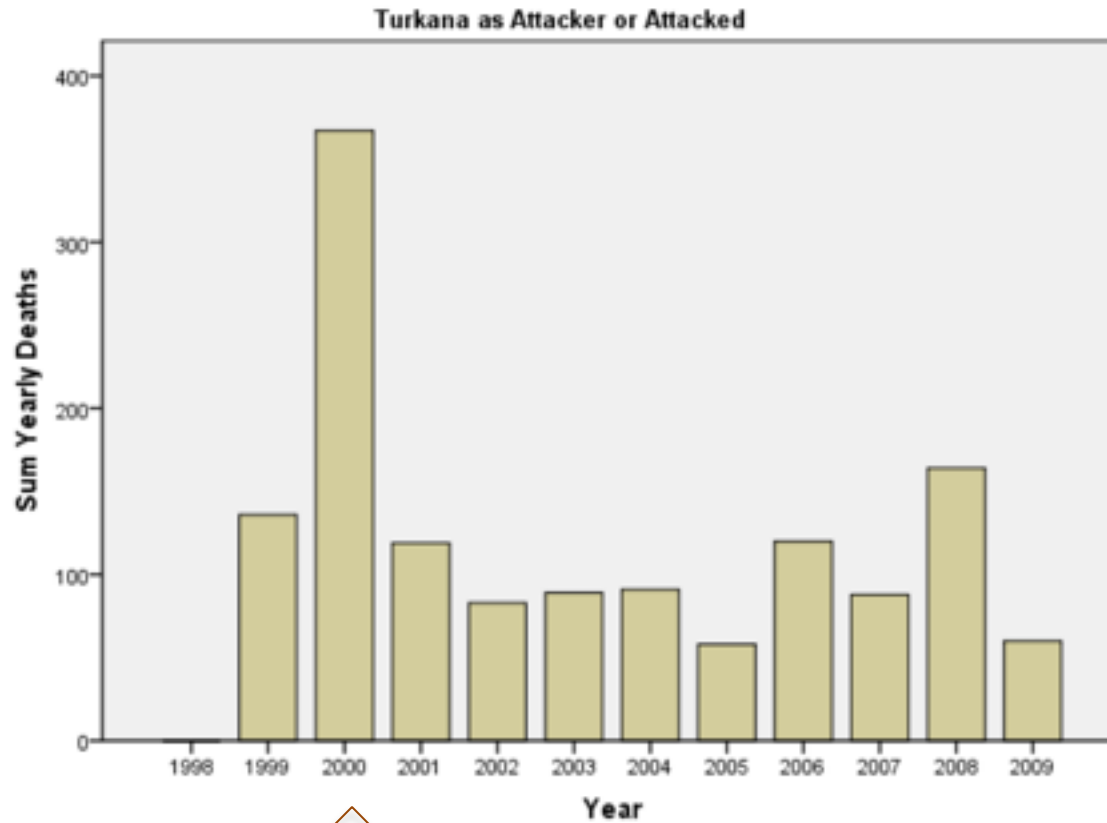
Driest year--by far the highest deaths

Association of Average Yearly Deaths (Livestock Related) with Standard Deviation in Yearly Rainfall (1998-2009)

Statistical Relationship between Yearly Rainfall and Reported Livestock Deaths

The correlation between total rainfall per year and the number of livestock-related deaths is moderately strong (r = -.61, n=12, p <.035, two tails)

Looking at Deaths in Livestock Raids and Deviation of Each Month from Normal Across Years (1998-2009)
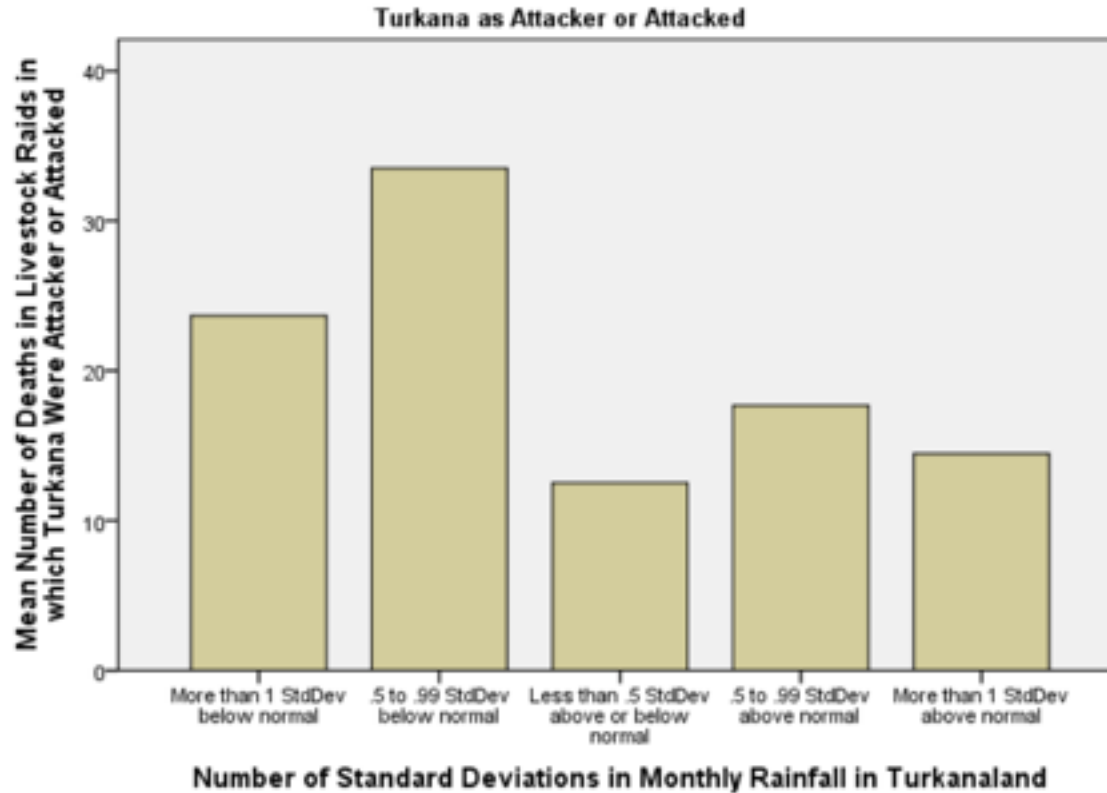
Looking at Deaths in Livestock Raids and Deviation of Each Month from Normal Across Years (1998-2009)
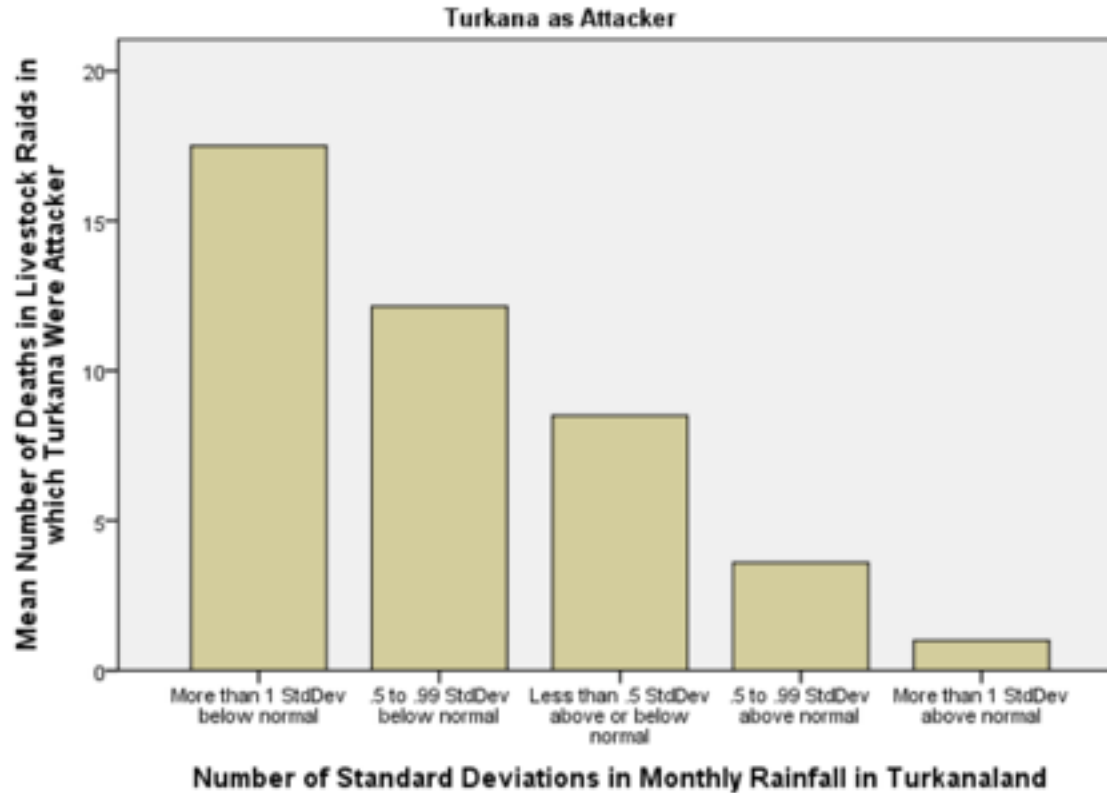
Turkana Livestock Related Violence 1998-2009
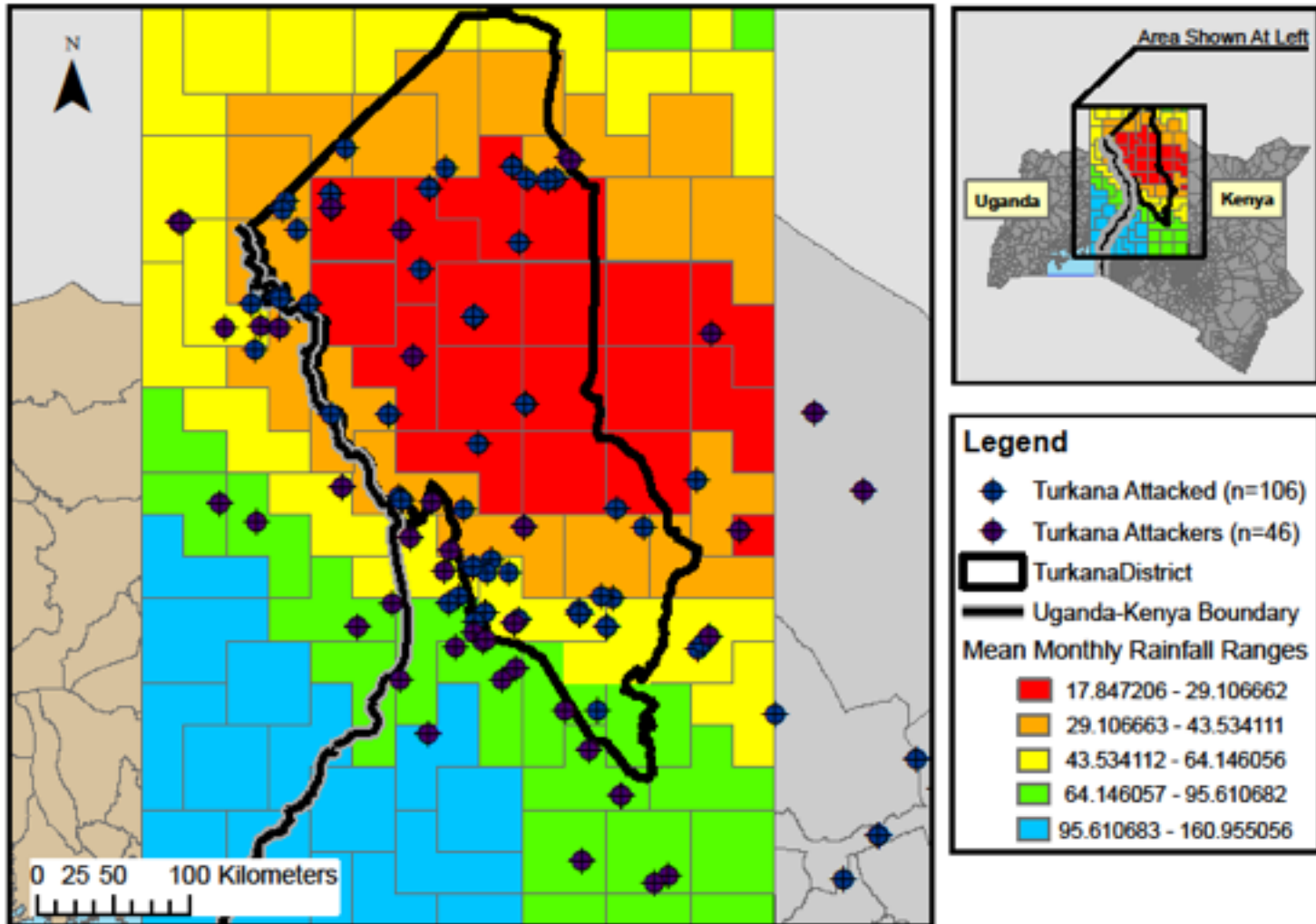
Conclusions

❑ Across all the analyses of rainfall and livestock-related violence, the results for Turkana District show a clear and consistent pattern—the most intense livestock violence occurs when rain is less than normal for a typical month, a typical year, and a particular month/year combination.

❑ Unpredictability matters, but it is hard to know whether it is because it is unpredictable or because it is simply drier. A more parsimonious explanation for the Turkana is that extremely dry conditions make food supply more precarious for livestock and livestock raids become more likely.

In the future, we will be exploring other cultural regions to see if pastoralism in other areas of Kenya follow the same or different patterns.

Acknowledgements