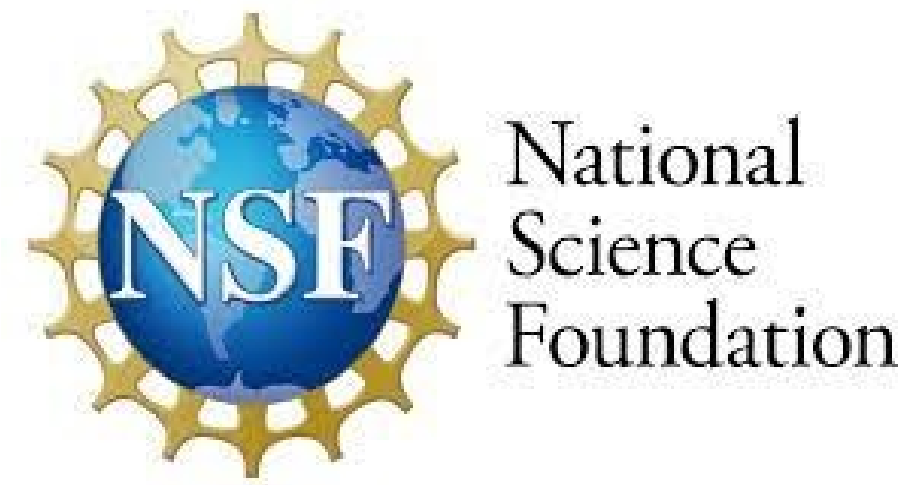


Toward A More Accurate Enumeration Of Migrant Mortality Along The United States-Mexico Border: A Definition And First Count



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Introduction

How do we develop a more representative account of migrant mortality along the southwestern U.S. border?

Over the last forty years, a currently indeterminate number of persons, ranging into the thousands, have died along the U.S. side of the border with Mexico. An accurate accounting of migrant deaths along the U.S.-Mexico border is a first step toward an understanding of the extent and the contributing factors of these deaths. While several governmental agencies and nongovernmental organizations (NGOs) report subsets of figures documenting these deaths, reliable data covering the full border is not currently available.

Our purpose is to describe our process for (1) defining the set of criteria that aids in the (2) determination of unidentified human remains as a probable migrant case for the Human Networks and Data Science (HNDS) - Migrant Mortality Mapping Project Portal (M3P2).

Our Group

The Migrant Mortality Mapping Project (M3P2) was awarded a *Human Networks and Data Science Program Infrastructure (HNDS-I)* grant by the National Science Foundation (NSF) to create an open-access web portal to document the phenomenon of migrant deaths at the U.S.-Mexico border.

Data

Sources

We built our four-border-state-wide Regional Demonstration Dataset (RDS) using five sources. Two sources already tagged probable migrant decedents, the **Pima County Office of the Medical Examiner (OME)/Human Border's Open Geographic Information Systems (OGIS)** and **Brooks County Sheriff's Office**. One source (**NamUs**) we read through the Unidentified Person report's Circumstances section for mentions of "migrant." Otherwise, we had informal conversations with case managers prior to submitting information requests (**San Diego County Medical Examiner's Office [SDMEO]**).

State	Unidentified human remains of probable migrants*	Source(s)
California	357	San Diego OME; and NamUs (Riverside and Imperial Counties)
Arizona	4,167	Pima County OME; and Humane Border's OGIS
Texas	945	Brooks County Sheriff's Office; Operation Identification; and NamUs
New Mexico	177	Office of the Medical Investigator

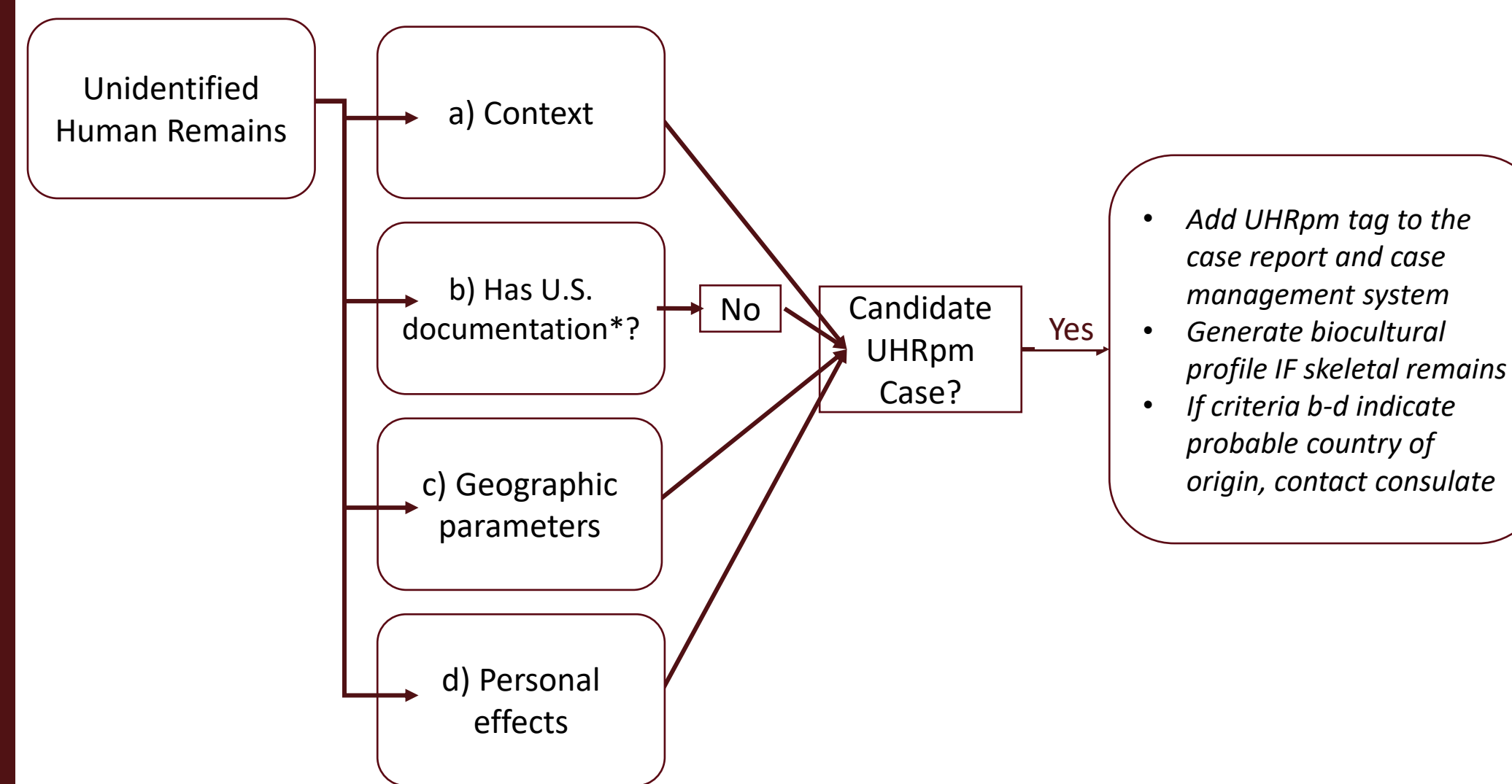
Total 5,646

*Of the 5,646 migrant decedent cases, 5,529 had coordinate locations we could use for GIS. Coordinates were used if their positional accuracy could be verified with case notes or informal conversations with case managers.

Determinations

Four Criteria to Determine Unidentified Human Remains as a Forensic Case on the M3P2

Though migration is part of a larger process, our investigations begin when a set of unidentified human remains is found on the U.S. side of the border.



The Criteria

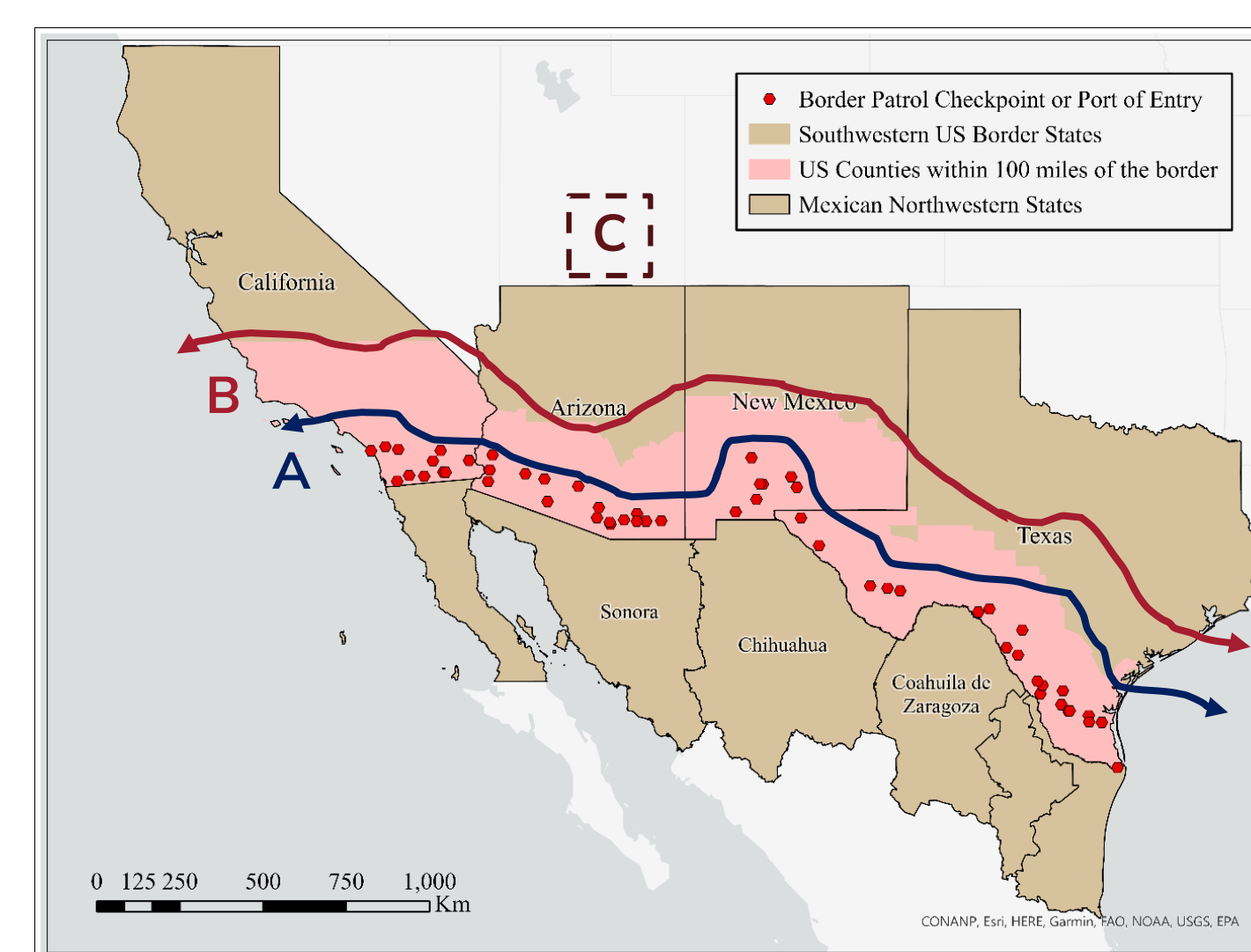
The criteria inform one another and are not hierarchical.

Context → Died in the process of migration; a regional focus that includes "known" migration route(s).

Documentation → Absence of U.S. documentation or multiple forms of identification.

Personal Effects → Items found on or in association with a set of human remains (e.g., foreign currency, religious items).

Geography → Zone A is a distance from an international boundary and Border Patrol checkpoints; Zone B covers areas between Border Patrol checkpoints and the Border Patrol 100-mile border zone, and; Zone C includes individual forensic cases or events.



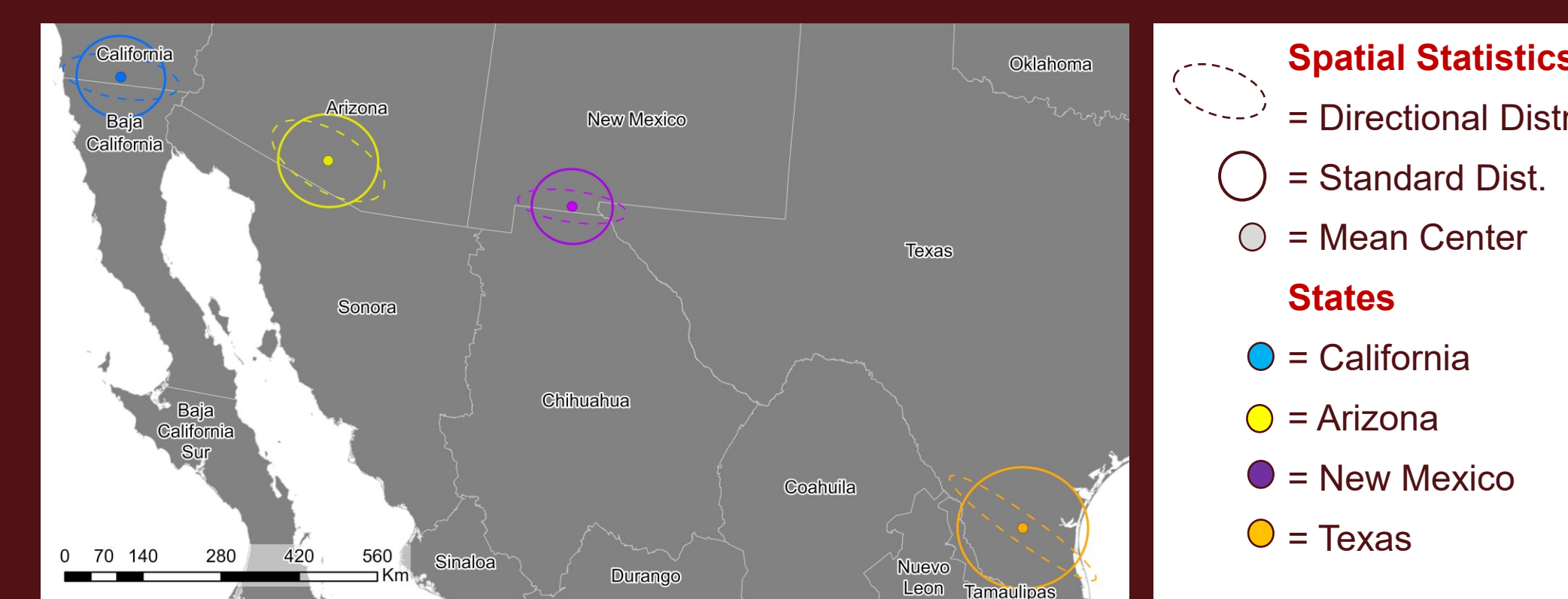
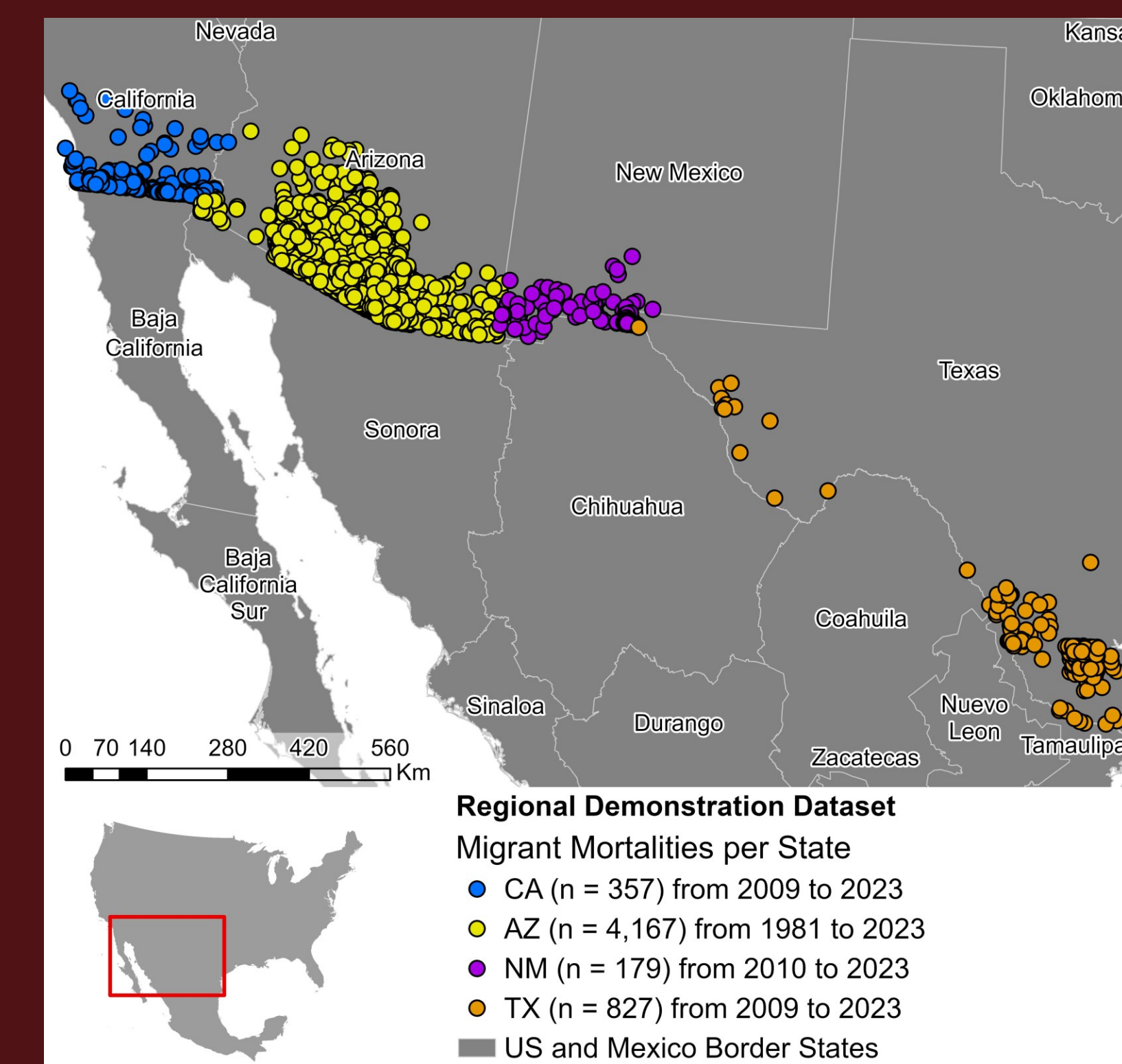
What the four criteria allow us to do

Taken together, the four criteria will facilitate the determination of the **likelihood** that **human remains** found along the border may be from a **migrating person**. The criteria highlight jurisdictional observations of migrant deaths along the U.S.-side of border. We are working towards a **regional view** and **systematic approach**. Ultimately, our tag of UHRpm supports the **identification process** and **humanitarian interventions** (e.g., recognize when transnational collaboration is needed for case resolution).

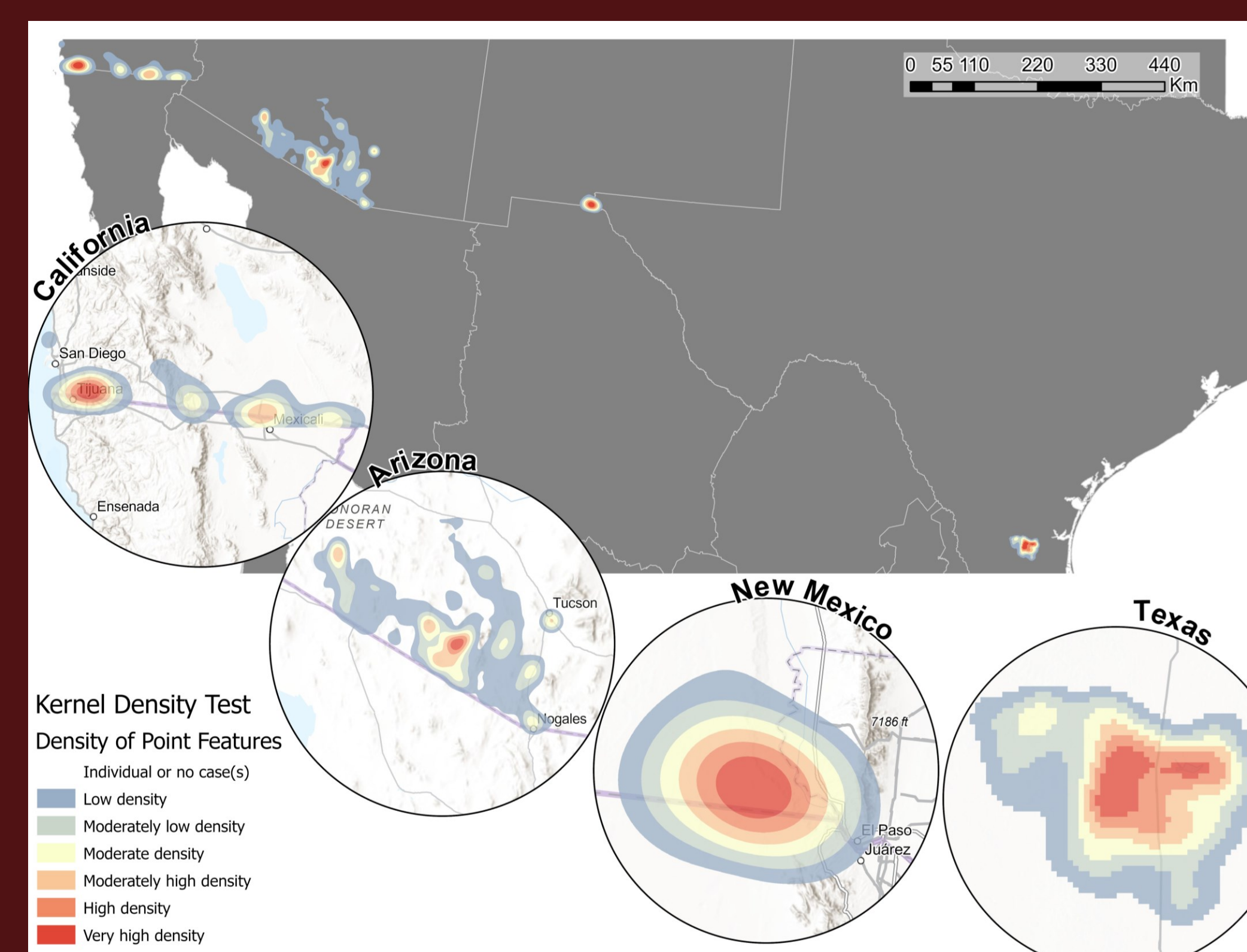
Preliminary Results

Map Visualizations

- (1) The *Point Map* demonstrates coverage of all migrant deaths with usable coordinate data in the RDS (n = 5,529 cases of 5,646).
- (2) *Spatial Statistics*, similar to mean, median and mode, these tests analyzed the spatial distributions of decedents per state.
- (3) *Kernel density* calculates the density of features in a neighborhood around those features. In our case, identifying from where most decedents have been recovered per state.



All four state's directional distribution ellipses were oriented northwesterly with Arizona at ~123°, Texas ~127°, and California and New Mexico both at ~98°. Arizona and Texas' larger distributions may reflect successive border enforcement infrastructure construction. Most migrant deaths for Arizona fell within a ~86 square kilometers (sqkm) circle centered in Tohono O'odham Nation's lands, Texas' cases centered in the northwestern ranchlands of Brooks County (~113 sqkm), California's reported migrant deaths concentrated within an area ~764 sqkm near the city of Ocotillo and the Jacumba Wilderness, and most of New Mexico's cases were in a ~70 sqkm area near the West Potrillo Mountain range.



Findings

Both the spatial statistics and kernel density analyses likely reflect reporting behavior rather than indicate the more "deathly areas" or more "popular" migration routes. Notably, the kernel density hotspots (red) correspond to a centralizing agency, all Medical Examiner's except for the Brooks County Sheriff's Office. The low density or "empty" areas between centralizing institutions merits further exploration as recommended by Miranker and Giordano (2023).

This process of identifying (and geospatially analyzing) migrant mortalities needs to be inclusive of Mexican and Central American cases. This expansion requires collaborative and sustained research relationships.

Conclusion

One challenge in aggregating statistics on migrant deaths (a la U.S. Border Patrol) is bringing together data from different local and regional systems that may or may not track the context of migration as a forensic case attribute. However, a fuller understanding of the humanitarian crisis of deaths in migration can benefit from a set of criteria to overcome this obstacle.

We proposed four criteria to contribute to case management practices (e.g., activating a network of collaborators that includes consulates and NGOs).

By compiling a regional dataset, we are ushering conversations and collaborations that recognize this humanitarian disaster as a phenomenon experienced beyond the border (delineated by enforcement infrastructure) itself.

Acknowledgements

We would like to acknowledge the efforts and advocacy by families who seek answers about the fate of their missing migrant relative(s). Their tenacity propels and supports forensic and humanitarian interventions. We would also like to thank the Regional Working Group for Migrant Mortality Accounting on the U.S.-Mexico Border, a larger coalition of researchers and organizations with whom we work dedicated to producing a more accurate enumeration of migrant death in the U.S.-Mexico-Central American migration corridor and the disaster taking place along the U.S.-Mexico border. Additionally, we would like to thank Texas' Operation Identification, Brooks County Sheriff's Office, New Mexico's Office of the Medical Investigator, Arizona's Pima County Office of the Medical Examiner, Humane Borders, and California's San Diego Office of the Medical Examiner. Finally, a special thanks to Dr. Cate Bird, the International Committee of the Red Cross' Missing Persons & Forensic Manager for the Regional Delegation for the United States and Canada.

Selected References

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