

Characterizing Colorado's Surveillance Capacity Landscape for Mosquitoes and Mosquito-borne Diseases

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INTRODUCTION

- Surveillance of mosquito populations, species, and infection status is important in preventing spread of WNV, DENV, and other arboviruses of importance to humans.¹
- In 2023, Colorado had the highest number of WNV cases in the US (634) with 51 fatalities.²
- In 2025, Colorado has reported 212 WNV infections with 11 fatalities.³
- In 2024, the invasive mosquito, *Aedes aegypti*, was discovered in Grand Junction, CO.⁴
- Currently, no centralized system for tracking and reporting mosquito surveillance data exists in Colorado.

Research Question: What is the current landscape for mosquito surveillance in Colorado at the county level, and how does that compare with incidence of WNV?

METHODS

Information collection:
Each county department of public health website was searched sequentially for the terms:
1. "mosquito abatement"
2. "mosquito control"
3. "west nile virus"
Counties with unclear webpages were contacted via phone or email.

Interviews were conducted with experts at the Colorado Department of Public Health and Environment, integrated pest management groups like Vector Disease Control, International to better understand the funding and data management ecosystem.

Analysis:
We assigned scores from 0-5 to each county using the parameters in figure 1:

A bivariate choropleth map was constructed using 1) surveillance score and 2) county level WNV incidence.

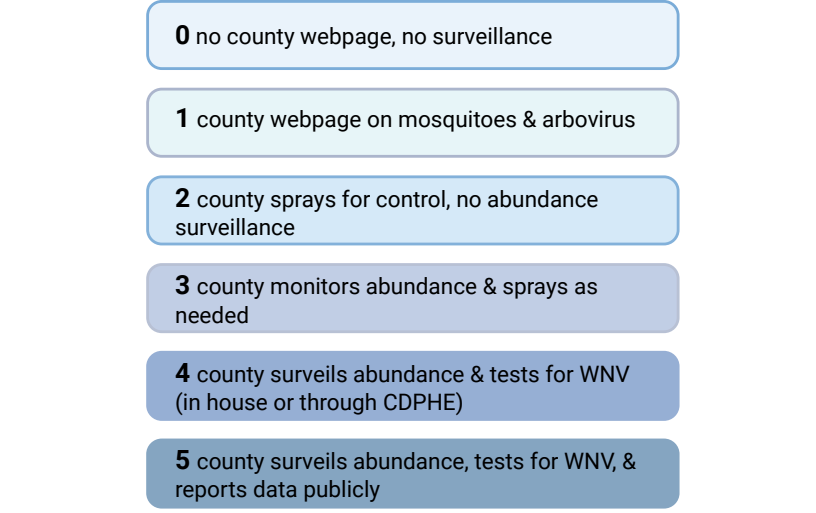


Fig 1. Scheme used to assign each county a score.

PRELIMINARY RESULTS

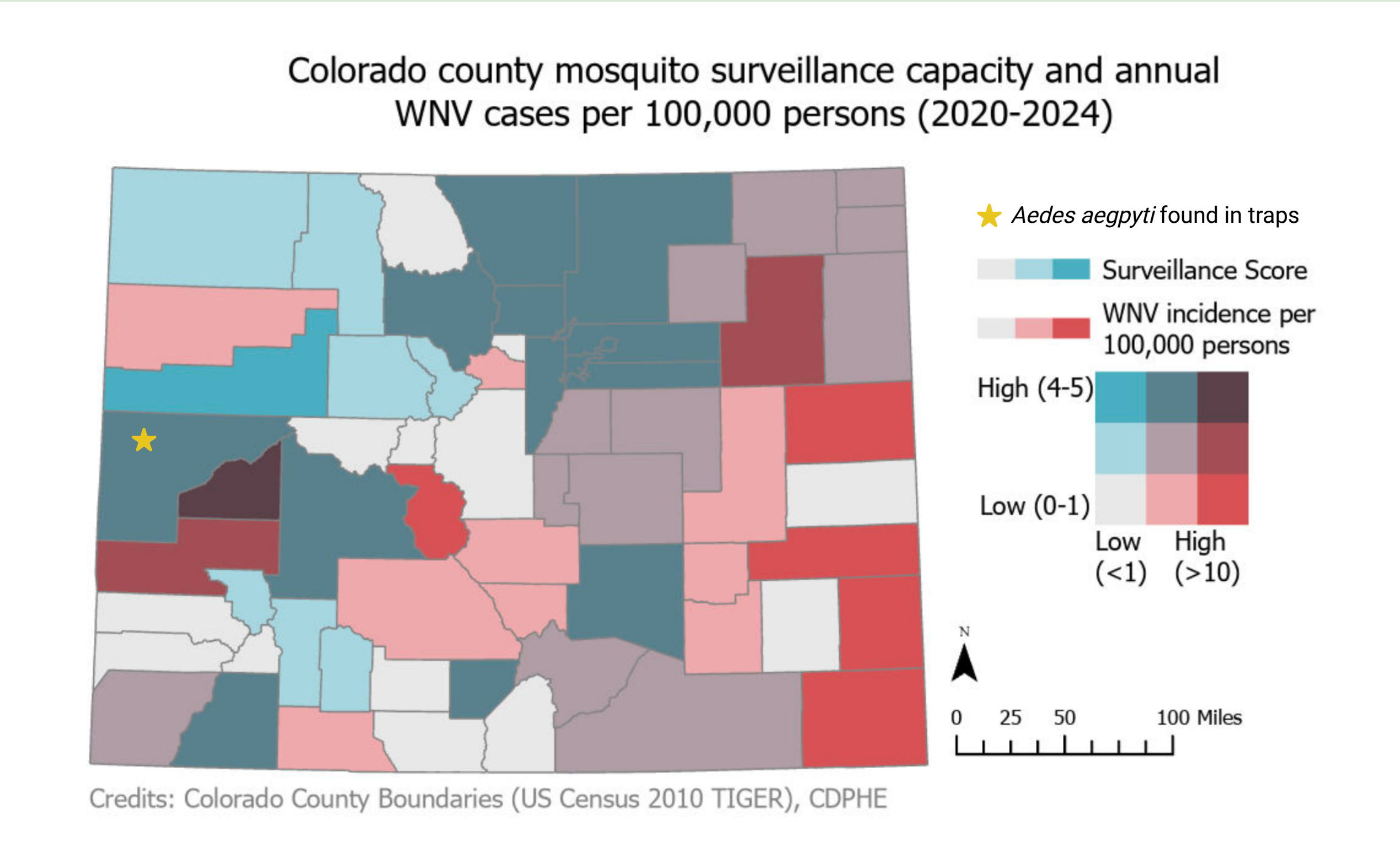


Fig 2. Bivariate choropleth map indicating counties with high and low surveillance scores relative to the average incidence of WNV cases per person per year in the past 5 years.

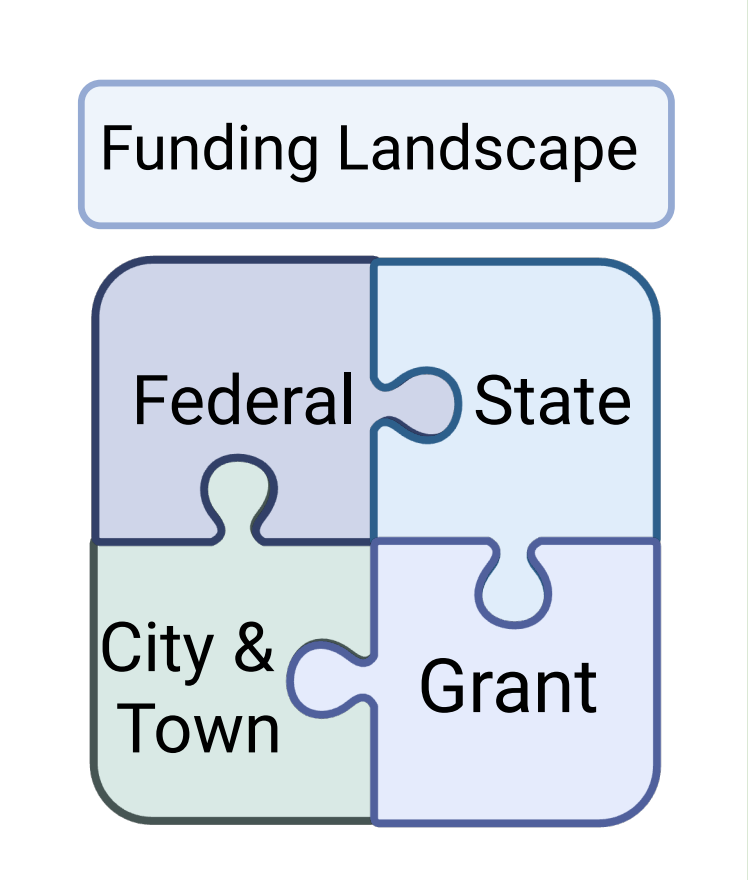


Fig 3. Funding sources vary widely by county, city, municipality, and mosquito abatement district.

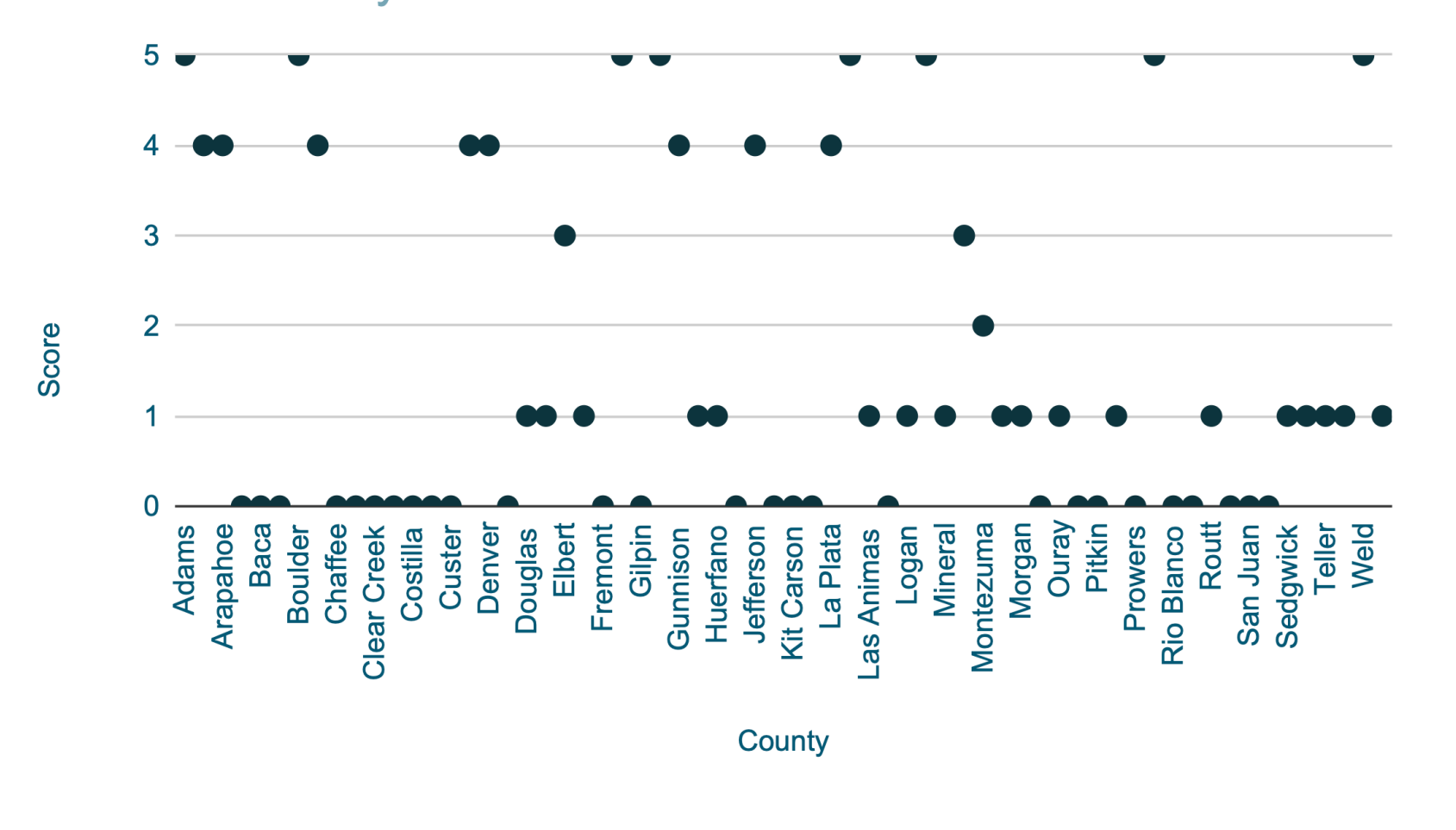


Fig 4. Surveillance scores for each county in Colorado.

CONCLUSION & NEXT STEPS

Counties in Colorado with high population densities and higher incidence rates of WNV tend to have stronger surveillance and reporting systems. With the complexity of the funding landscape and the lack of central data reporting, programs like VectorSurv and RaHP VEC will play important roles in improving surveillance across the state.

- Next steps include:
- characterize surveillance in the mountain west to better prepare for invasive species
 - evaluate surveillance in Colorado at the municipal and mosquito abatement district level
 - continue supporting RaHP VEC and other programs that support surveillance efforts in Colorado

REFERENCES

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ACKNOWLEDGEMENTS

