

Preliminary Report

1/24/25

Proportion of the Structures Destroyed in the Eaton and Palisades Fires That Were Within the Designated Wildland Urban Interface (WUI)

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Introduction:

The recent Eaton and Palisades fires in the Los Angeles area have destroyed nearly 16,000 structures. Notably, almost all the structures that were destroyed fell within in the narrow bands of land considered “Wildland Urban Interface”, or WUI. These areas are where communities bump up against wildland in ways that may make them more susceptible to wildfire. As such, communities and homeowners in these areas should consider robust preparation and mitigation efforts to prevent losses in the case of wildland fire.

Because of the potential danger that these areas pose, there have been many efforts to map and designate WUIs. For example, the US Forest Service and University of Wisconsin-Madison both have nationwide maps that delineate WUI. In the case of both the Eaton and Palisades fires, we set out to determine what percent of destroyed structures were located in land designated as WUI. We found that nearly all the structures that were destroyed fell within these zones while the vast majority of the buildings in the LA area are not. These results indicate that we should consider the other WUI land in the region to be the highest priority for future mitigation and fire prevention efforts.

Methods:

After selecting these two specific fires and the damage levels that we wanted to use in this analysis, we used GIS techniques to determine what proportion of the structures destroyed were within the designated WUI.

Results:

The attached maps show structures destroyed by the recent Palisades and Eaton Fires, including whether they were located in areas designated as wildland urban interface (WUI). Of the 6,377 structures destroyed in the Palisades fire, only 104 of them were outside the area designated as WUI, meaning that 98.37% of destroyed structures fell within the wildland urban interface. Likewise, only 165 of the 9,418 structures destroyed by the Eaton Fire were outside the WUI, with 98.25% of destroyed structures being located within the WUI. Overall, this means that out of the 15,795 destroyed structures that we analyzed across both fires, 15,526 (98.30%) were within the WUI. This result is made even more significant considering when the very close proximity of many of these 269 structures to the zone designated as WUI. Additionally, the count of structures that lie outside the WUI zone includes those located in wildlands (such as communication antennas and other infrastructure) as well as those that fall on the urban side of the interface. We believe that

these results overwhelmingly suggest that in the ecosystem around the Los Angeles metropolitan area, communities with greater wildland urban interface are at a far greater risk of fire.

Raw Numbers:

Palisades Fire: 6,377 total structures destroyed, 104 outside WUI, and 6,273 (98.37) inside WUI.

Eaton Fire: 9,418 total structures destroyed, 165 outside WUI, and 9,253 (98.25%) inside WUI.

Both Fires Combined: 15,795 total structures destroyed, 269 outside WUI, and 15,526 (98.30%) inside WUI.

Data Sources:

Fire Perimeters:

WFIGS Current Interagency Fire Perimeters (polygons)

National Interagency Fire Center

https://services3.arcgis.com/T4QMspbflg3qTGWY/arcgis/rest/services/WFIGS_Interagency_Perimeters_Current/FeatureServer

Feature Service with a definition query to only select fires of interest (Palisades and Eaton fires respectively).

Structure Status Information:

DINS 2025 Palisades Public View (points)

California Department of Forestry and Fire Protection

https://services1.arcgis.com/jUJYIo9tSA7EHvfZ/arcgis/rest/services/DINS_2025_Palisades_Public_View/FeatureServer

Feature Layer from ArcGIS Online with definition query set to only include structures rated as destroyed (>50% damage) by the CAL FIRE Damage Inspection Program.

DINS 2025 Eaton Public View (points)

California Department of Forestry and Fire Protection

https://services1.arcgis.com/jUJYIo9tSA7EHvfZ/arcgis/rest/services/DINS_2025_Eaton_Public_View/FeatureServer

Feature Layer from ArcGIS Online with definition query set to only include structures rated as destroyed (>50% damage) by the CAL FIRE Damage Inspection Program.

WUI Boundary:

Wildland Urban Interface (polygons)

Mark Gilbert (Mark_Lndscp)

https://services1.arcgis.com/pf6KDbd8NVL1IUHa/arcgis/rest/services/Wildland_Urban_Interface_vector/FeatureServer

Feature Layer from ArcGIS Online containing areas of California designated as either Wildland Urban Intermix or Wildland Urban Interface, from the national dataset created by the Spatial Analysis for Conservation and Sustainability Lab at the University of Wisconsin-Madison.

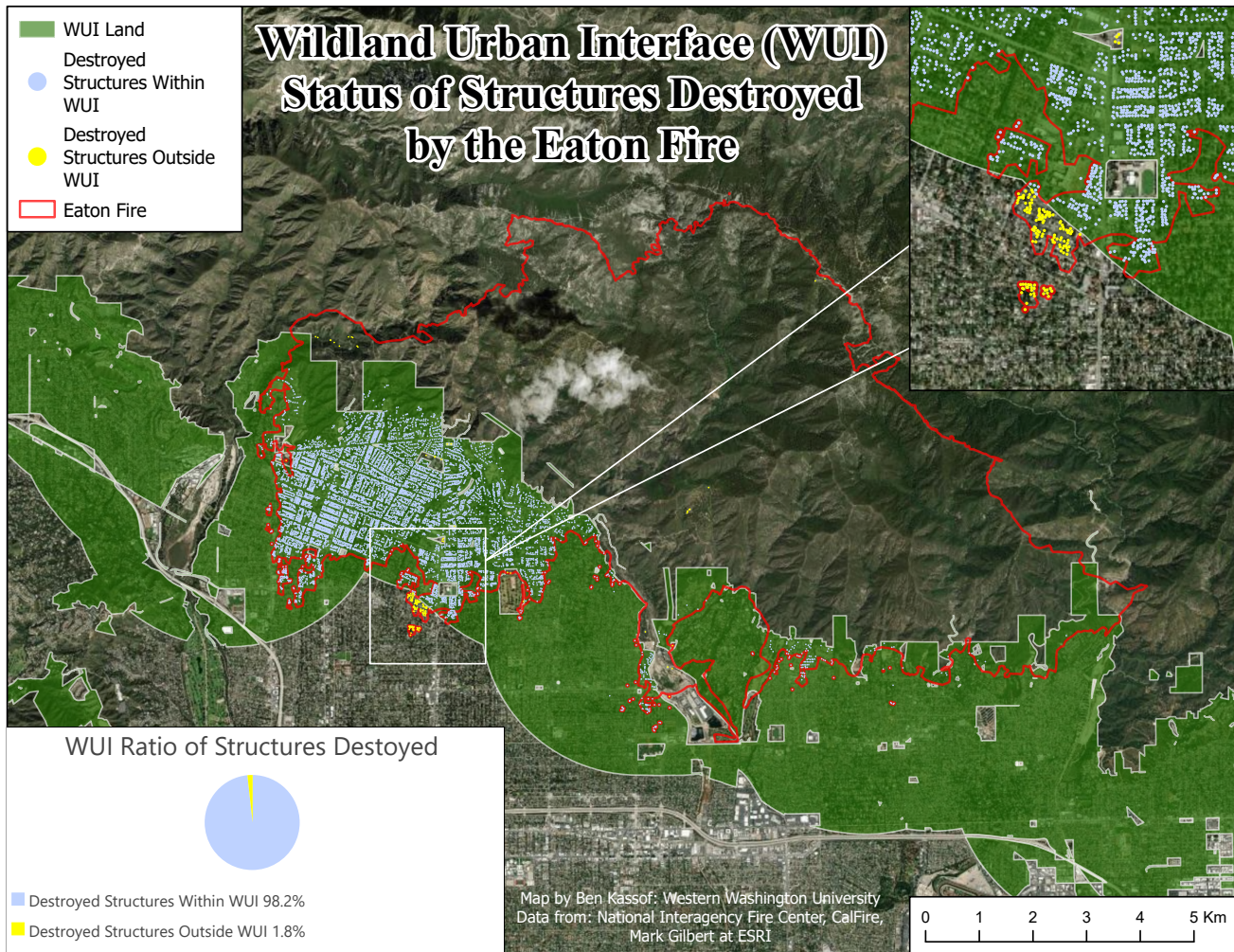
All data and conclusions reflect the most recent publicly available data as of January 21, 2025.

Maps

Los Angeles WUI



Eaton Fire

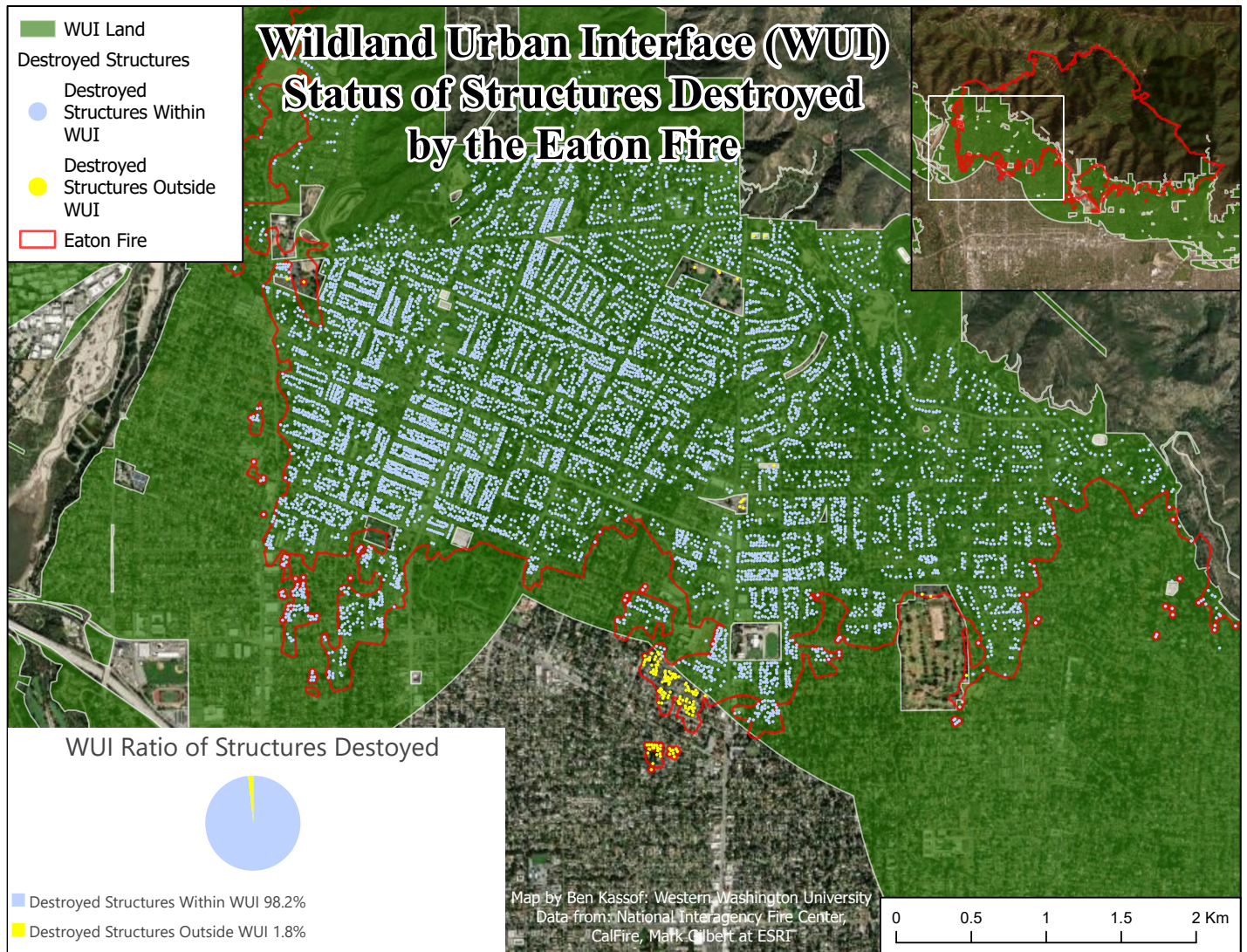


Caption

Eaton Fire WUI Structure Status:

This map provides an overview of the Eaton Fire. Each colored dot represents a structure destroyed by the fire, while the color identifies if the structure was located in an area designated as Wildland Urban Interface (WUI). The inset map provides greater detail on the Altadena, CA area. This is the most notable example of the Eaton Fire burning beyond the WUI boundary.

Eaton Fire Zoomed In

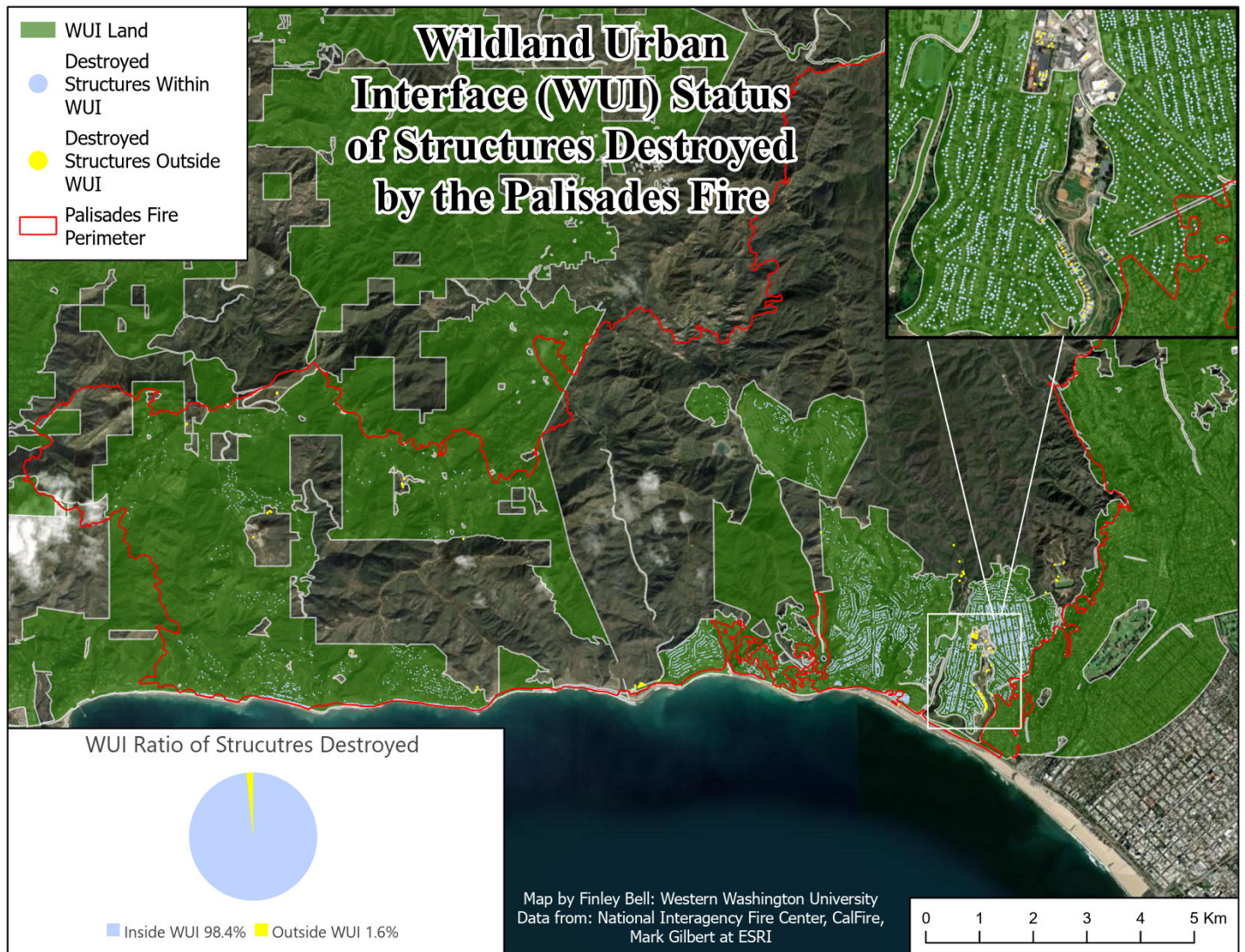


Caption

Eaton Fire Zoomed:

This map provides a closer look at the Eaton Fire's activity near Altadena and Pasadena. One notable feature of this fire are the smaller areas of destroyed structures just beyond the main fire perimeter. These demonstrate wind's ability to carry burning embers, which can spark smaller blazes beyond the main fire perimeter under the right conditions.

Palisade Fire

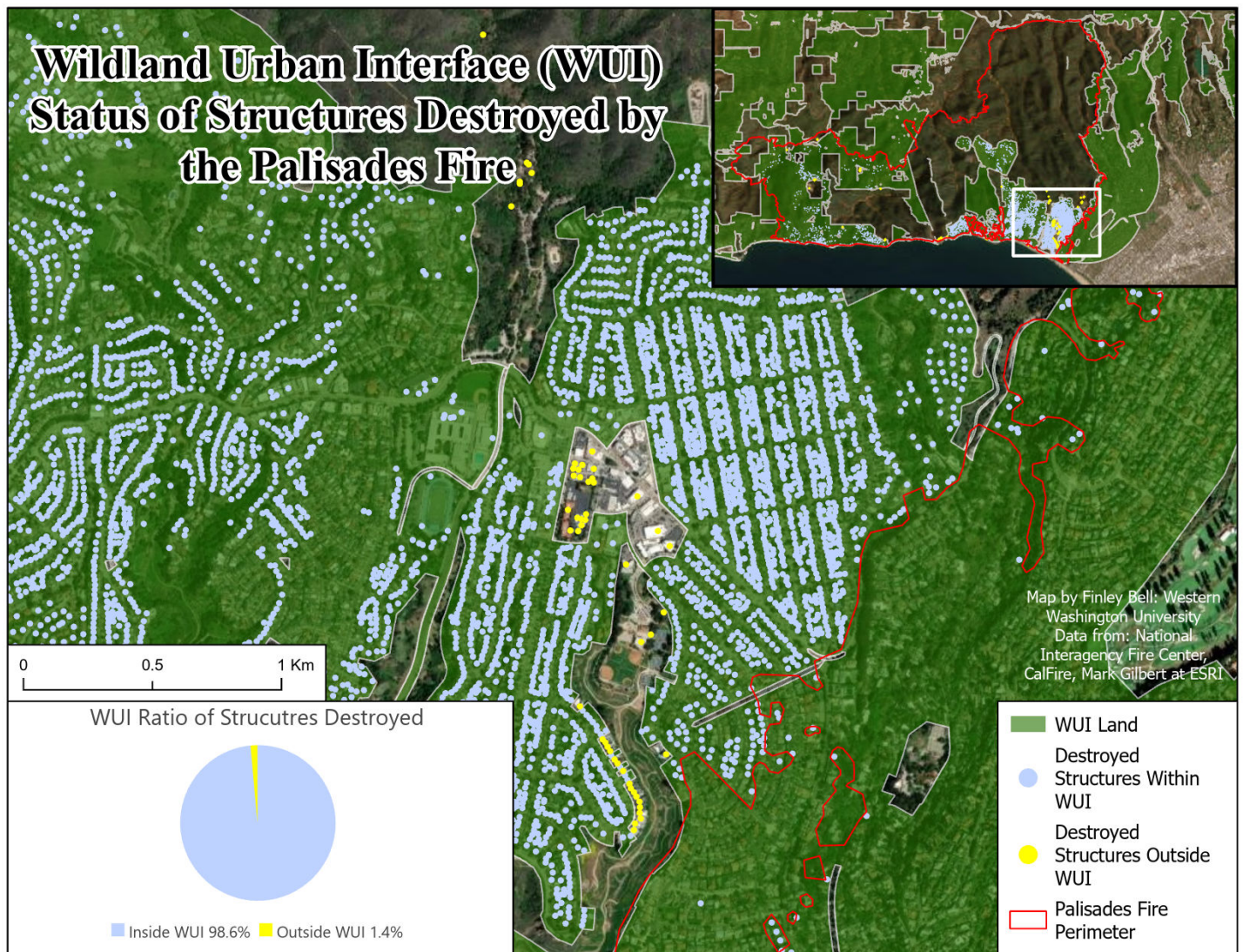


Caption

Palisade Fire WUI Structure Status:

This map provides an overview of the Palisade Fire. Each colored dot represents a structure destroyed by the fire, while the color identifies if the structure was located in an area designated as Wildland Urban Interface (WUI). The inset map provides greater detail of the most impacted area.

Palisade Fire Zoomed In



Caption

Palisade Fire WUI Structure Status Zoomed:

This map provides an overview of the Palisade Fire. Each colored dot represents a structure destroyed by the fire, while the color identifies if the structure was located in an area designated as Wildland Urban Interface (WUI). The inset map provides greater detail of the most impacted area.