

# Impacts of land use changes (2001-2021) on wildfire risk in San Diego County, California

## INTRODUCTION

In recent years, severe wildfires have increased dramatically, driven by climate change and harmful land management practices. These fires pose significant risks to human health, infrastructure, and the environment. One of the most vulnerable areas are wildland-urban interfaces (WUIs) — zones where human development meets flammable wildlands.

In the western United States, the expansion of WUIs has led to a sharp rise in wildfire-related infrastructure losses, with a 246% increase since 2000. To effectively reduce wildfire risk, it is essential to integrate wildfire hazard assessments into regional land-use planning.

### Objectives:

Map the expansion of WUIs from 2001-2021 and assess their intersection with wildfire risk zones.

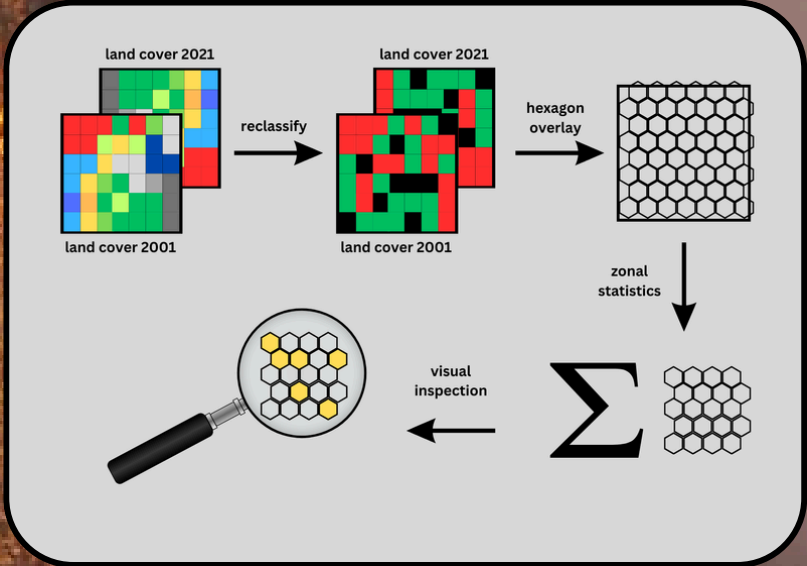
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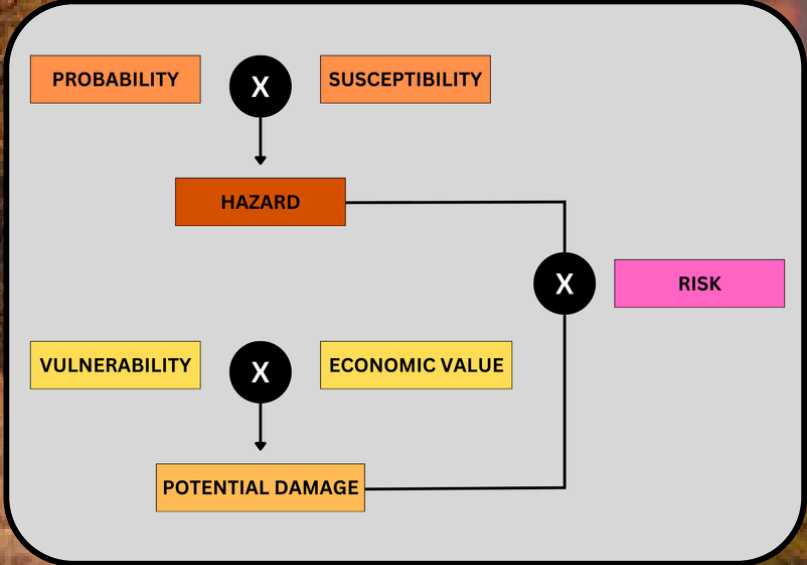
### Data sources and further information:

<https://git.sbg.ac.at/s1102917/flare>

## WUI extraction



## Wildfire Risk Mapping

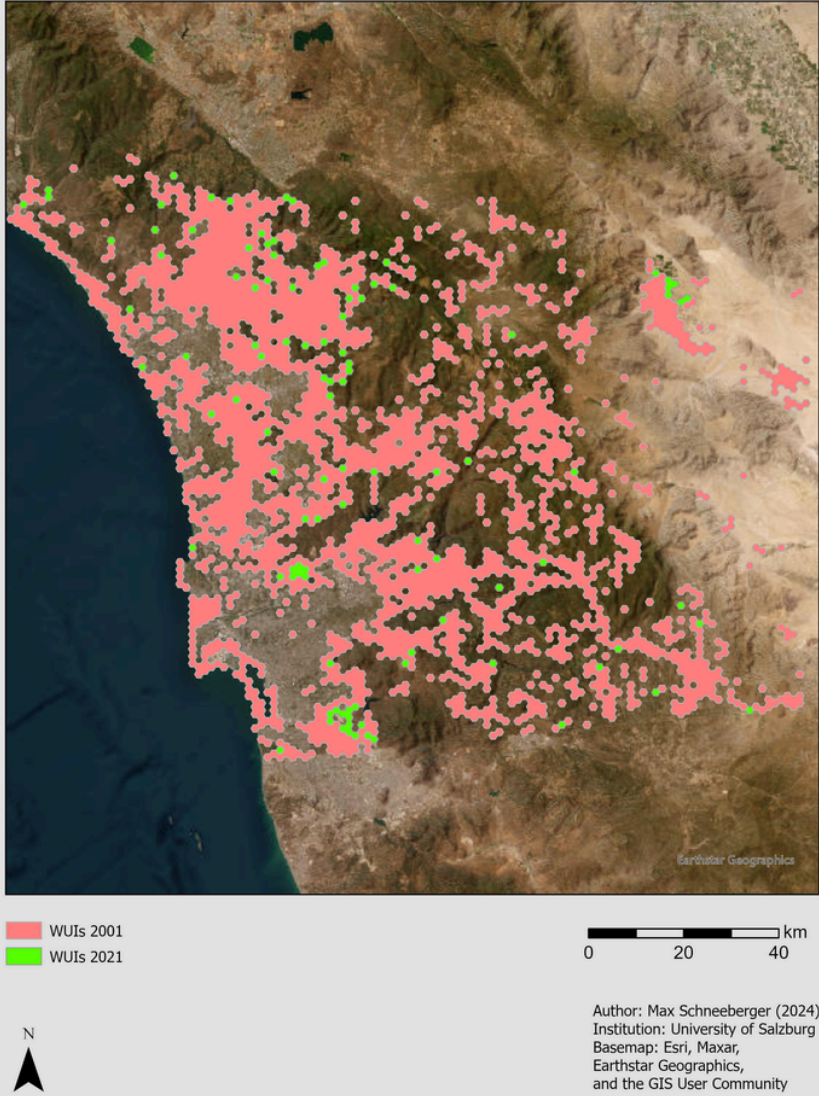


## STUDY AREA

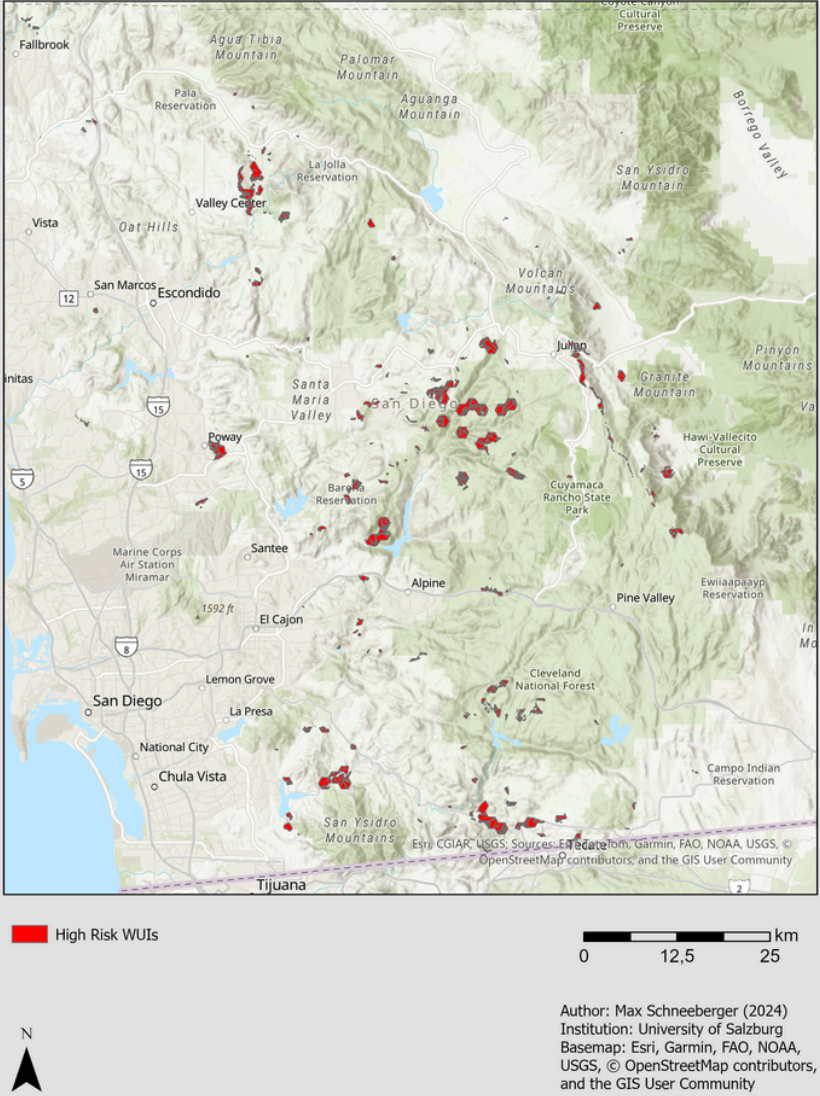
San Diego County, California, covers 10,900 km<sup>2</sup> with diverse geography and a Mediterranean climate including a rich history in wildfires.

## RESULTS

### WUI extension (2001-2021), San Diego County



### High Risk WUIs (2021), San Diego County



## DISCUSSION

This study successfully applied a wildfire risk mapping approach to San Diego County. A 100 km<sup>2</sup> WUI expansion (2001-2021) was detected, with 90 km<sup>2</sup> of current WUIs in high-risk wildfire zones. The workflow proved effective, with minor acceptable inaccuracies. Results highlight the need to integrate WUI and wildfire risk mapping into land use planning to reduce future wildfire impacts.