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Model Suggests Certain Housing Development Scenarios Result in Higher Wildfire Hazard Risk

Increasing numbers of homes are being destroyed by wildfire in the wildland-urban interface (WUI) in southern California. With climate change and housing growth potentially exacerbating the threat of wildfire to homes and property, effective fire-risk reduction alternatives are needed as part of a comprehensive fire management plan.

Land use planning — avoiding exposure to wildfire hazard risks through the informed placement of new residential structures — represents a shift in traditional thinking, different from efforts trying to eliminate wildfires or even increasing resilience to them. For land use planning to be effective, however, it needs to be based on solid understanding of where and how to locate and arrange new homes.

To test whether different development scenarios would take on different wildfire damage risks, researchers with the Conservation Biology Institute, USGS and other institutions simulated future housing development for San Diego County, and published the results in *PLOS ONE*.

The study modeled three scenarios of housing development for San Diego County lands through the year 2030, with varying emphasis on different growth types via subdivision decision-making. The results suggested that decision-making based on these growth types produced large, cumulative differences in housing extent and pattern, which in turn affected wildfire risk.

In particular, scenarios resulting in lower housing density and larger numbers of small, isolated clusters of homes — such as leapfrog development — had the largest square unit area and proportion of structures at risk from burning in wildfires.

On the other hand, homes built as part of infills, or as contiguous expansions of existing communities — where there is little or no buildout along the wildland edge — generally had the lowest risk.

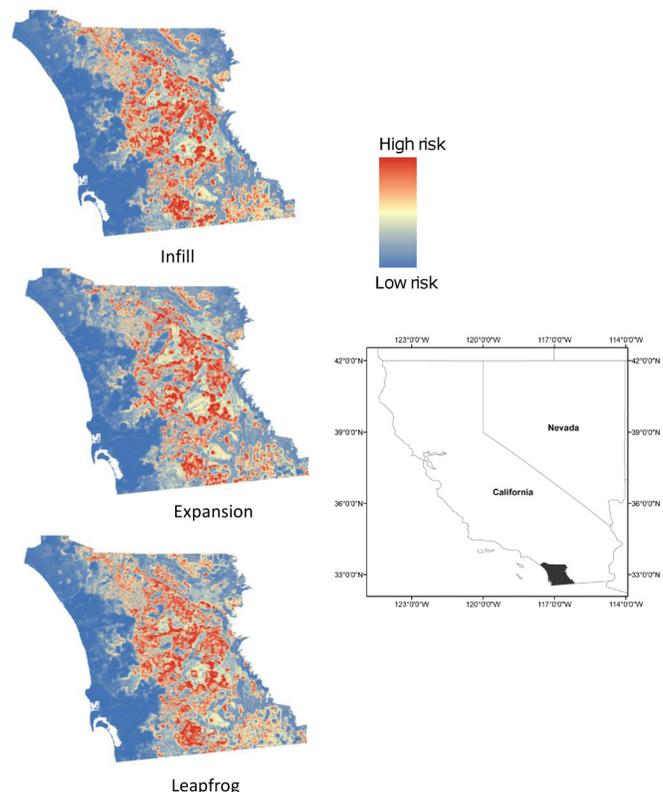
Management Implications

- Land use planning should be considered an important component to fire risk management in southern California. Consistently applied policies based on residential pattern may provide substantial benefits for future reduction of fire risk to homes.

THIS BRIEF REFERS TO:

Syphard, AD, A Bar Massada, V Butsic, JE Keeley. 2013. Land use planning and wildfire: development policies influence future probability of housing loss. *PLoS ONE* 8(8): e71708. doi:10.1371/journal.pone.0071708

<http://www.werc.usgs.gov/ProductDetails.aspx?ID=4939>
<http://www.werc.usgs.gov/socalfirerisk>



Project wildfire risk in 2030 under simulations of future housing build-out scenarios for San Diego County. See Figure 4 in study.