Research & Development
USDA Forest Service

Mapping The Wildland Urban Interface Across The United States

What Is The Issue?

The wildland urban interface (WUI) is the area where houses meet or intermingle with wildland vegetation. This makes the WUI a high-value environment for users, but also a focal area for human-environment conflicts such as wildland fires, habitat fragmentation, invasive species, and biodiversity decline.

The Healthy Forest Restoration Act (HFRA) calls for fuel reduction projects totaling up to 20 million acres with at least 50 percent of the work and resources directed to projects in the wildland urban interface. Although a definition for the WUI was provided in the Federal Register in January 2001, virtually no information about the size, extent, and changes in the WUI existed until recent efforts by the North Central Research Station (NCRS) and our collaborators at the University of Wisconsin – Madison.

What Does The Tool Do?

Over the last three years, NCRS and our collaborators mapped and characterized the WUI across the lower 48 states at high spatial resolution. The resulting maps:

- Focus on housing density since it is a more suitable measure of human presence and influence on the landscape than population density (an alternative definition of the WUI).
- Used the policy-specific definition from the Federal Register 66(3): 751-777 to define the WUI.
- Illustrate that 42 million homes or 37 percent of the nation's total are in the WUI. These lands comprise 273,000 square miles or nine percent of the lower 48 states.
- Are available on a new website (http://silvis.forest.wisc.edu/projects/WUI_Main.asp), together with data, supporting information, and GIS tools.
- Greatly improve our ability to locate the WUI and to determine which communities, how many homes, and how much land lies within the WUI.

How Could It Help?

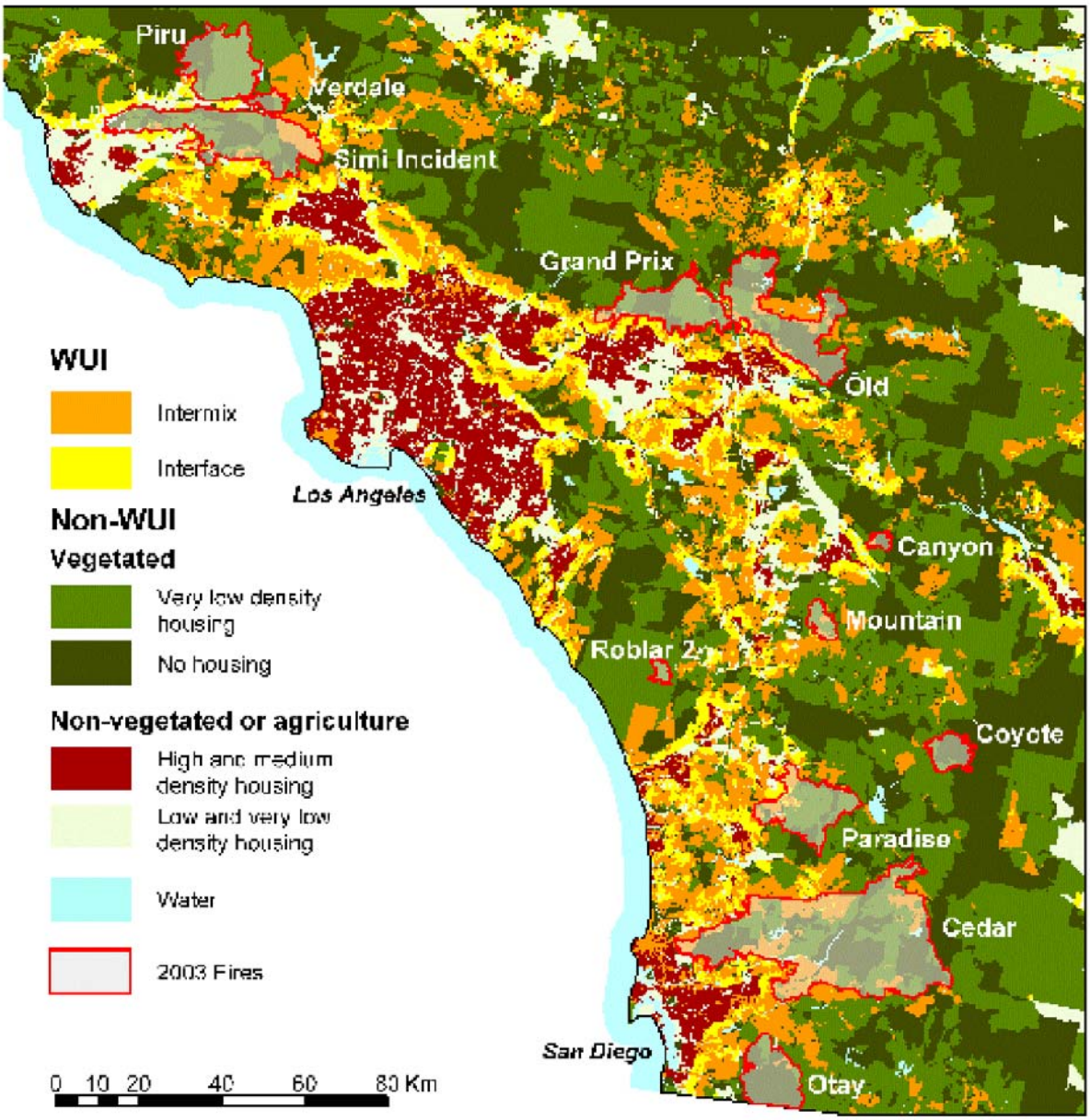
In the past, the absence of fine scale housing density maps severely limited land managers' ability to coordinate and prioritize hazard mitigation projects and to provide assistance to states and communities in their fire prevention and fire fighting efforts. Scientists are demonstrating to land stewards how to apply this tool.

The maps do not directly address fire risk. Some of the areas defined as WUI are prone to fire and others are not. When national-level, fine-scale, fire risk data become available, they could be overlaid with these data to produce a map identifying high fire risk WUI.

Work is underway to predict the location and character of the WUI through the year 2030.

This project provides essential data on shifting human settlement patterns and, when combined with wildland fuels data, forms a solid scientific basis for fire preparedness and targeted fuels management.

Southern California 2003 Fire Perimeters and the Wildland Urban Interface



The November 2003 fires in California covered 132,000 acres (533 km^2) of wildland urban interface area. Of the 30,750 homes inside the fire perimeters, 3,640 burned. Despite the extent of these fires, they affected only 5 percent of southern California's total interface area. Nearly the entire periphery of the Cedar Fire was along wildland urban interface.

For Further Information, Contact
Susan I. Stewart
USDA Forest Service, Research and Development, North Central Research Station
Phone 847-866-9311 x13 e-mail sistewart@fs.fed.us