

The global wildland-urban interface and wildfires near people

Spatial Analysis for Conservation and Sustainability

F. Schug¹, A. Bar-Massada², A. Carlson³, H. Cox¹, T. Hawbaker³, D. Helmers¹, P. Hostert^{4,5}, D. Kaim⁶, N. Kasraee¹, S. Martinuzzi¹, M. Mockrin⁷, K. Pfoch¹, V. Radeloff¹

¹SILVIS Lab, Dpt. of Forest and Wildlife Ecology, University of Wisconsin-Madison, USA ²Dpt. Of Biology and Environment, University of Haifa at Oranim, Israel ³USGS, Gosciences and Env. Change Science Center, Lakewood, USA ⁴Geography Dpt., HU Berlin, Germany ⁵IRI THESys, HU Berlin, Germany ⁶Faculty of Geography and Geology, Jagiellonian University, Krakow, Poland, ⁷USDA Forest Service, Catonsville, USA

The global WUI

- The Wildland-Urban Interface (WUI) is where houses and wildland vegetation meet or intermingle
- Zone of environmental conflicts, including wildfire problems
- Global 10-m WUI map based on building density (GHSL) and vegetation (Worldcover)
- Threshold-based analysis to map intermix and interface WUI



Explore the interactive webmap! Explore the inter-

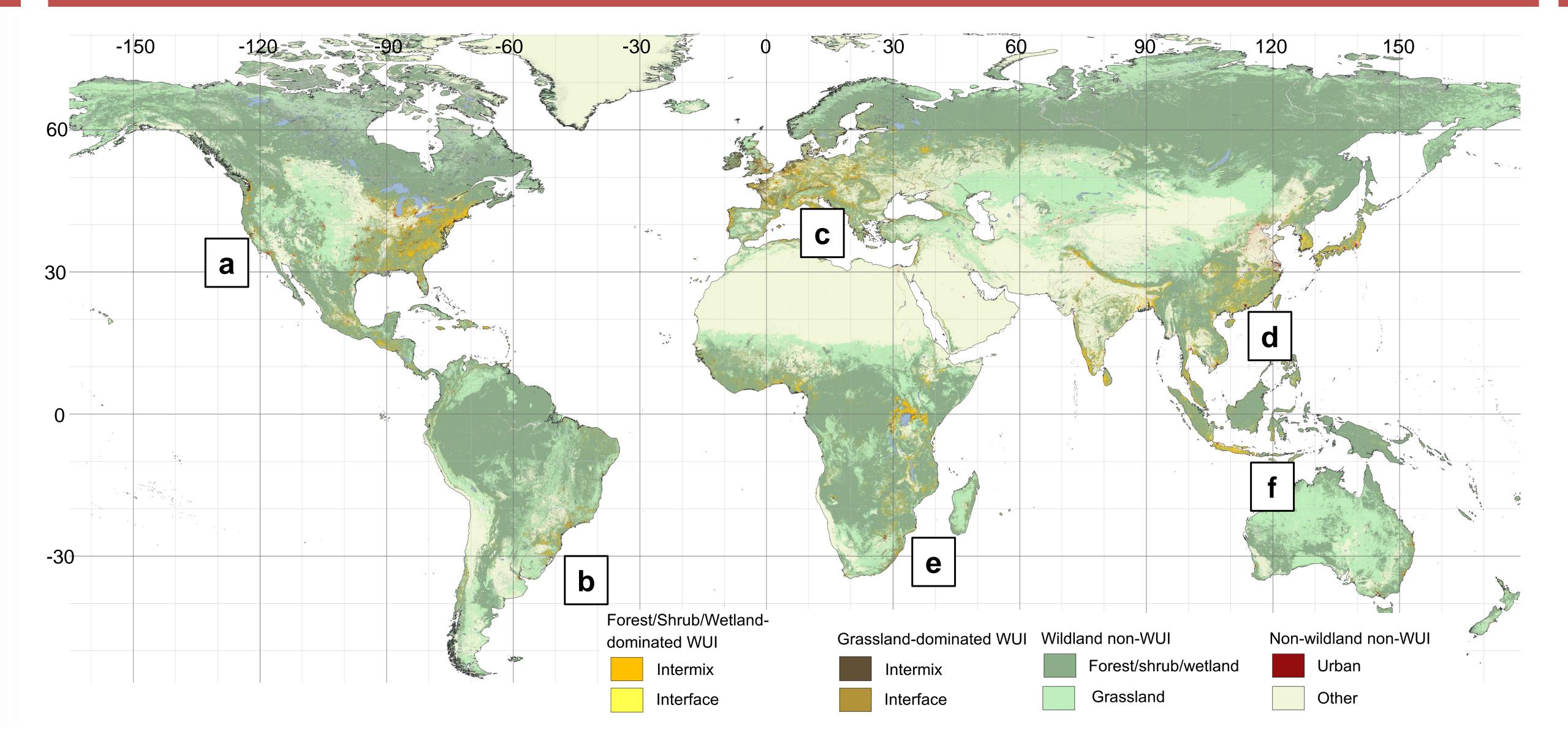


How good is the map (.xls)?

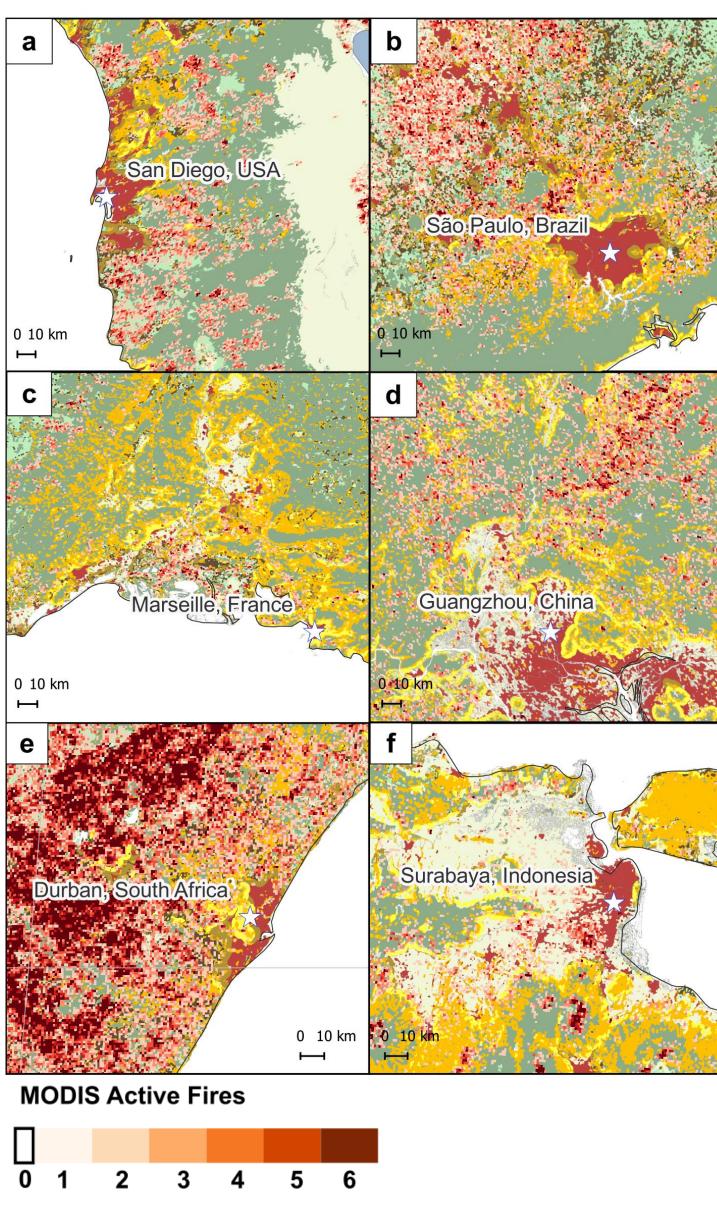


See the mapping

The global wildland-urban interface: 5% of Land Area, 50% of Population



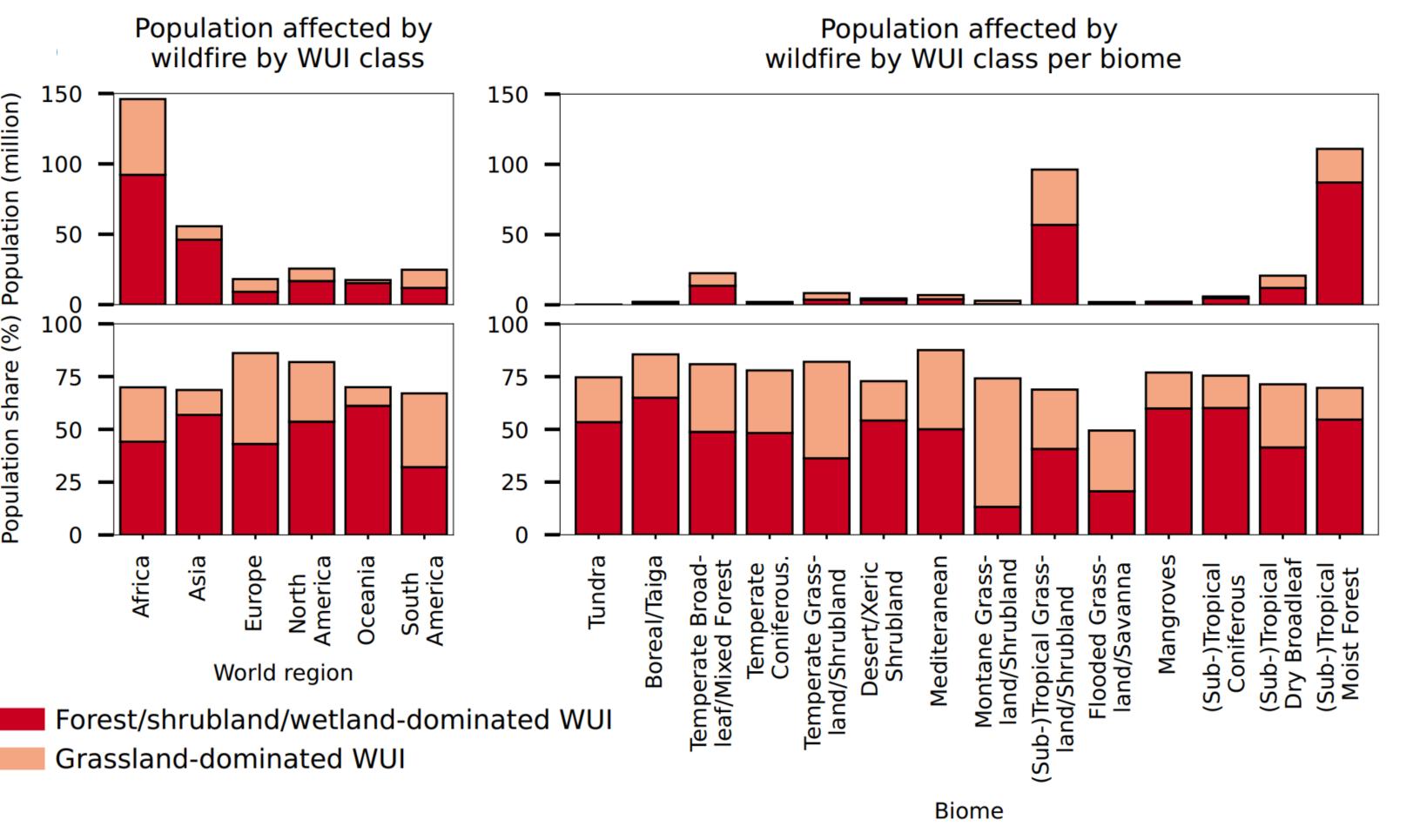
Intermix vs. Interface



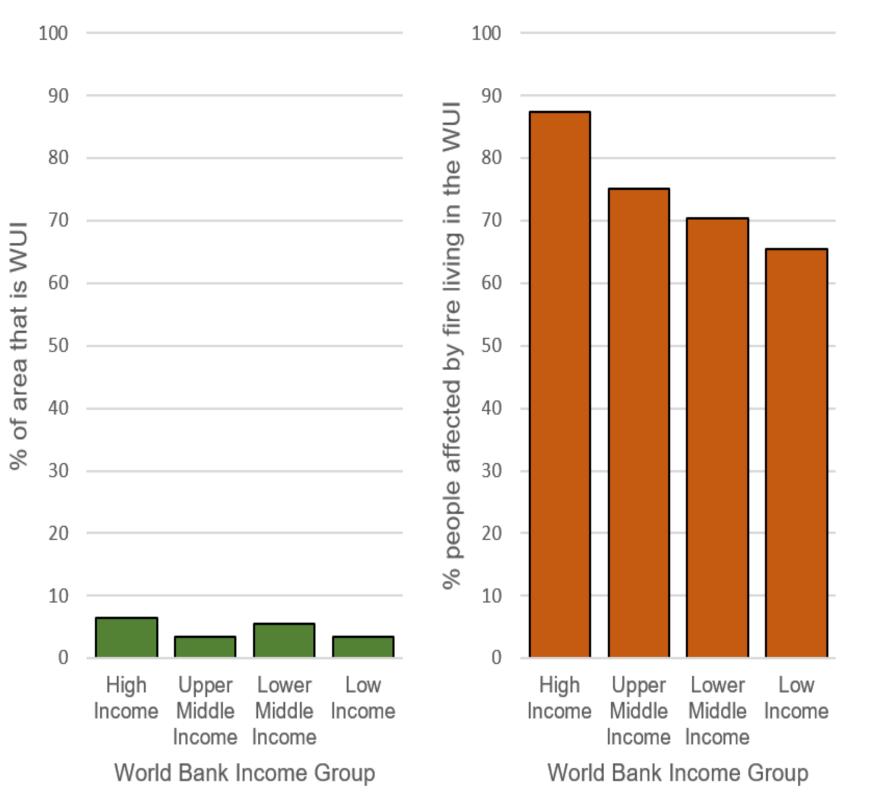
Wildfire

- MODIS (2003-'20) and VIIRS (2013-'20) Active Fires to assess area affected by fire
- Masked agricultural fires and other non-wildland fires (e.g., gas flares)
- 4% of global active fires (MODIS 2003-'20) in the WUI. In Europe, 14% of fires inWUI, USA: 11%, China: 10%, India: 7%, S. Africa: 14%, Portugal: 35%.

Most wildfires are outside of the WUI. Most people affected by wildfire live within the WUI. Some continents and biomes particularly affected.



WUI wildfire is common in both more and less wealthy countries.

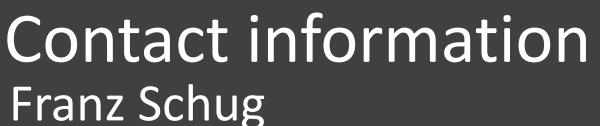


Between 3 and 7% of area is WUI in high- to low-income countries. Between 65 and 90% of people affected by fire live in the WUI there.

Conclusion

- The WUI occurs in all continents, but is regionally concentrated.
- Half the global population is potential affected by humanenvironmental conflict in WUI.
- Wildfire is a threat to buildings and lives in the WUI.
- WUI fire hazard affects all biomes, especially those dominated by grassland and forest.
- Many fires already where climate change may increase fire risk further in WUI areas.





Department of Forest and Wildlife Ecology University of Wisconsin-Madison Madison, WI 53706



E-mail: fschug@wisc.edu

http://silvis.forest.wisc.edu

NASA Carbon Cycle & Ecosystems Joint Science Workshop 8 - 12 May 2023 College Park, MD



We gratefully acknowledge support by NASA's LCLUC program.

