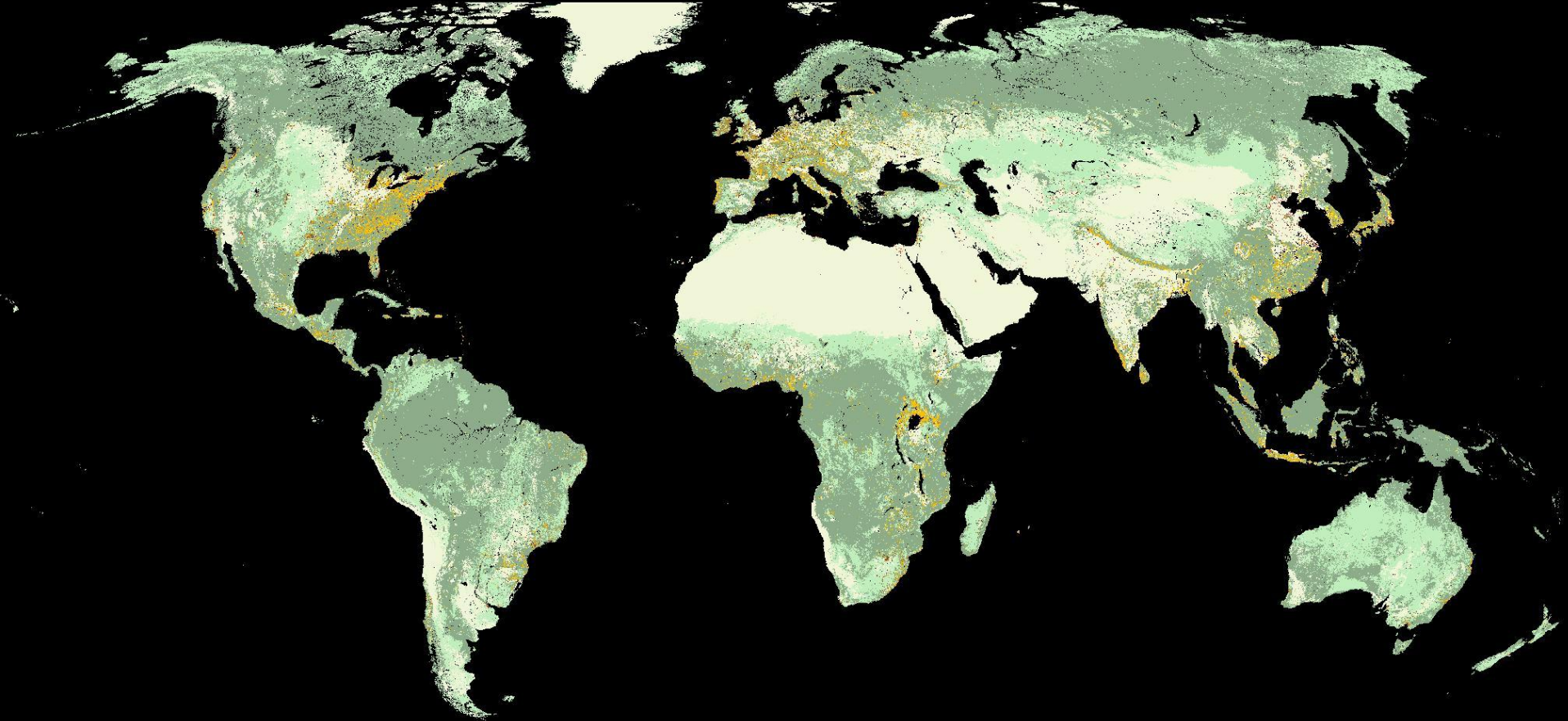


Global Hotspots of the Wildland-Urban Interface



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Introduction

The WUI is where houses and wildland vegetation meet or intermingle



“Interface WUI”



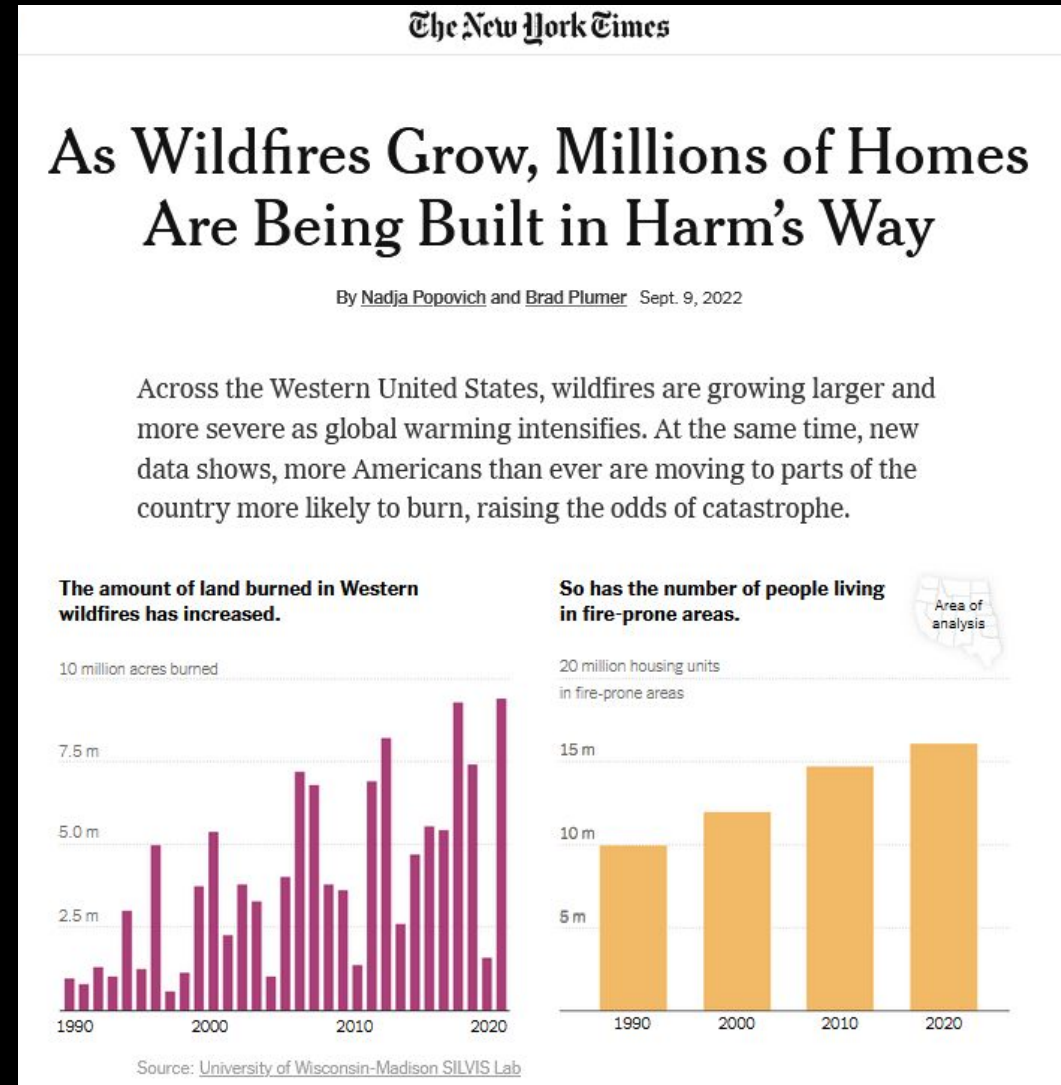
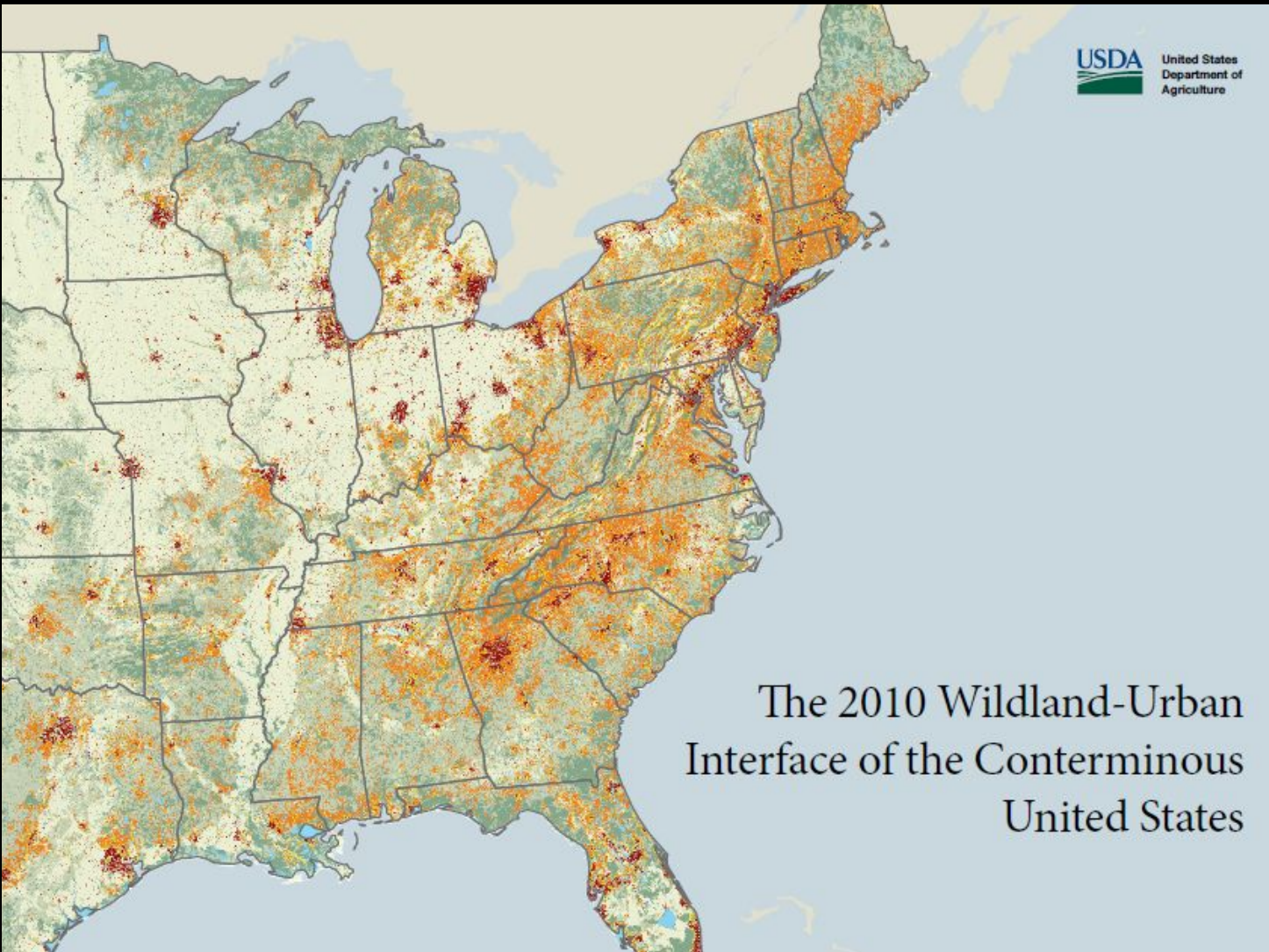
“Intermix WUI”



Introduction



Introduction

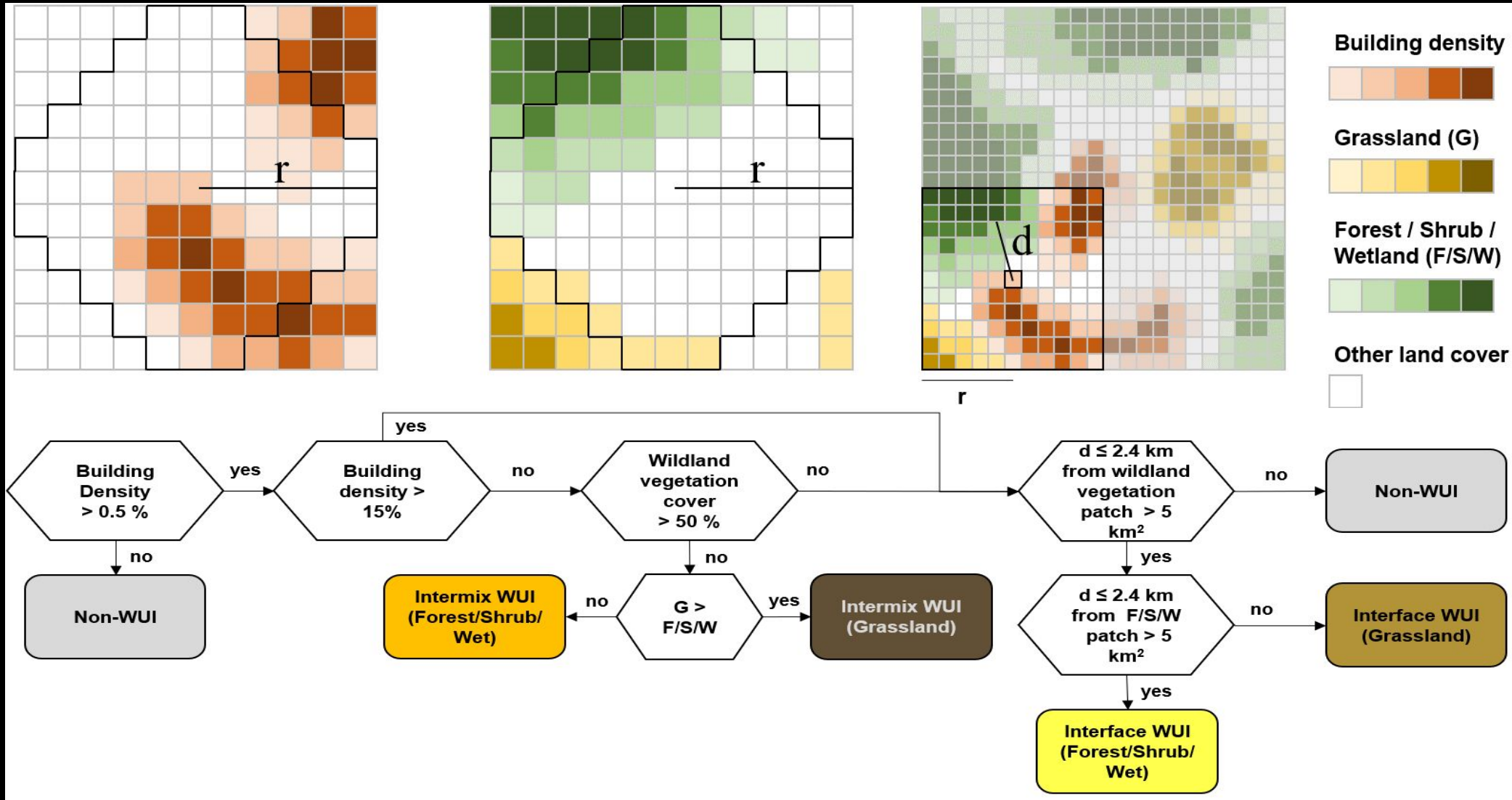


Goals

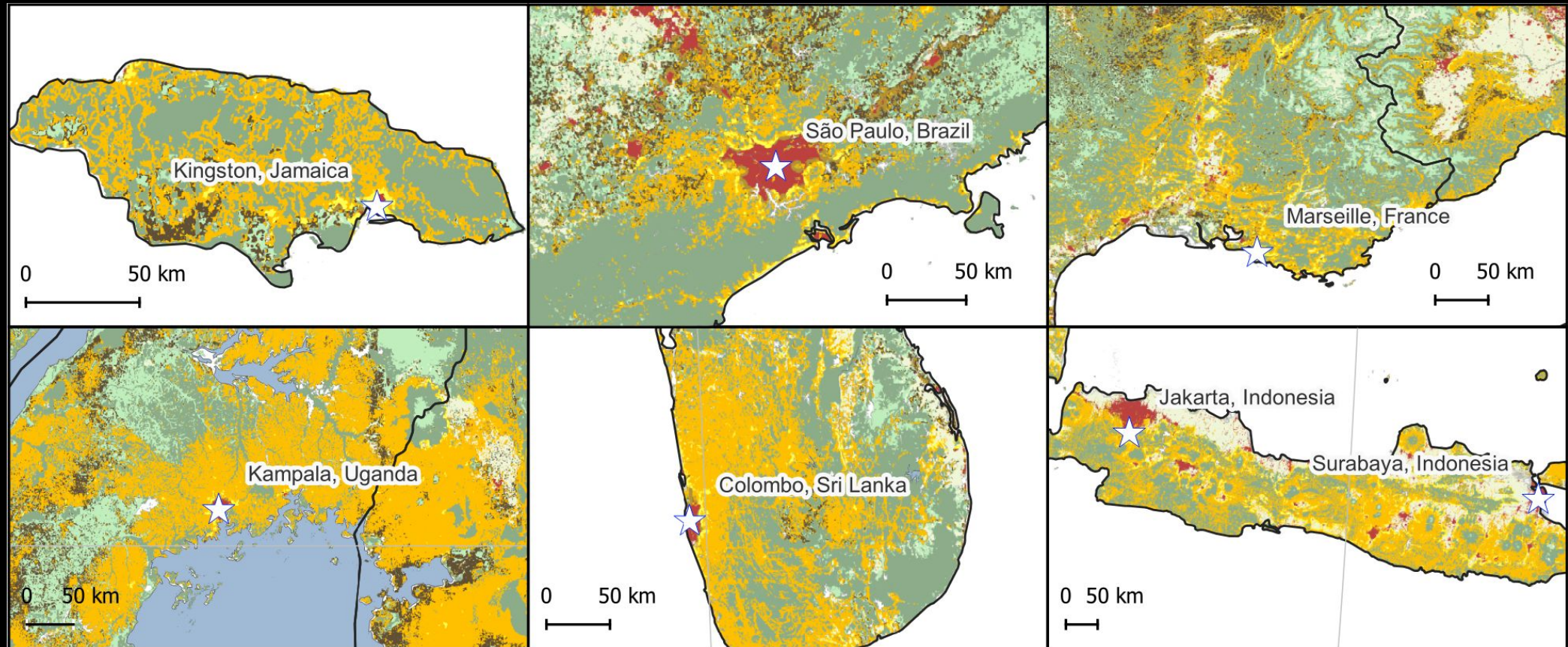
- Mapping the Global Wildland Urban Interface
 - Global WUI and fire
 - Global WUI and biodiversity
- Mapping buildings and WUI with CNNs
- Long-term change in global WUI hotspots with SMA



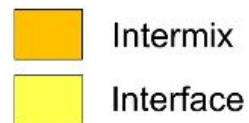
The global Wildland-Urban Interface



The global Wildland-Urban Interface



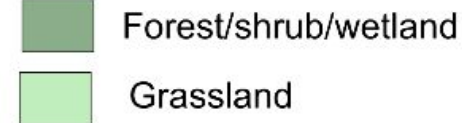
Forest/Shrub/Wetland-dominated WUI



Grassland-dominated WUI



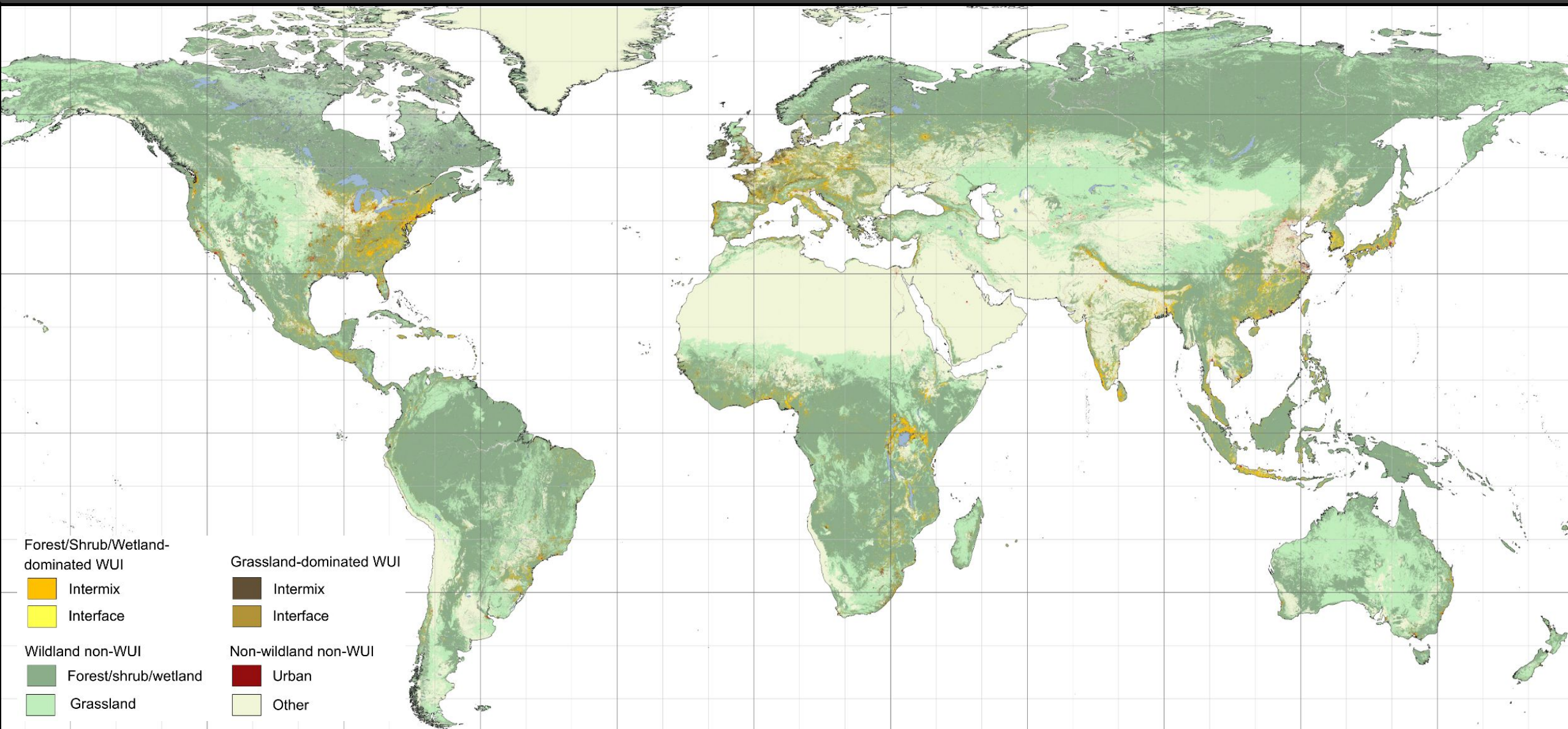
Wildland non-WUI



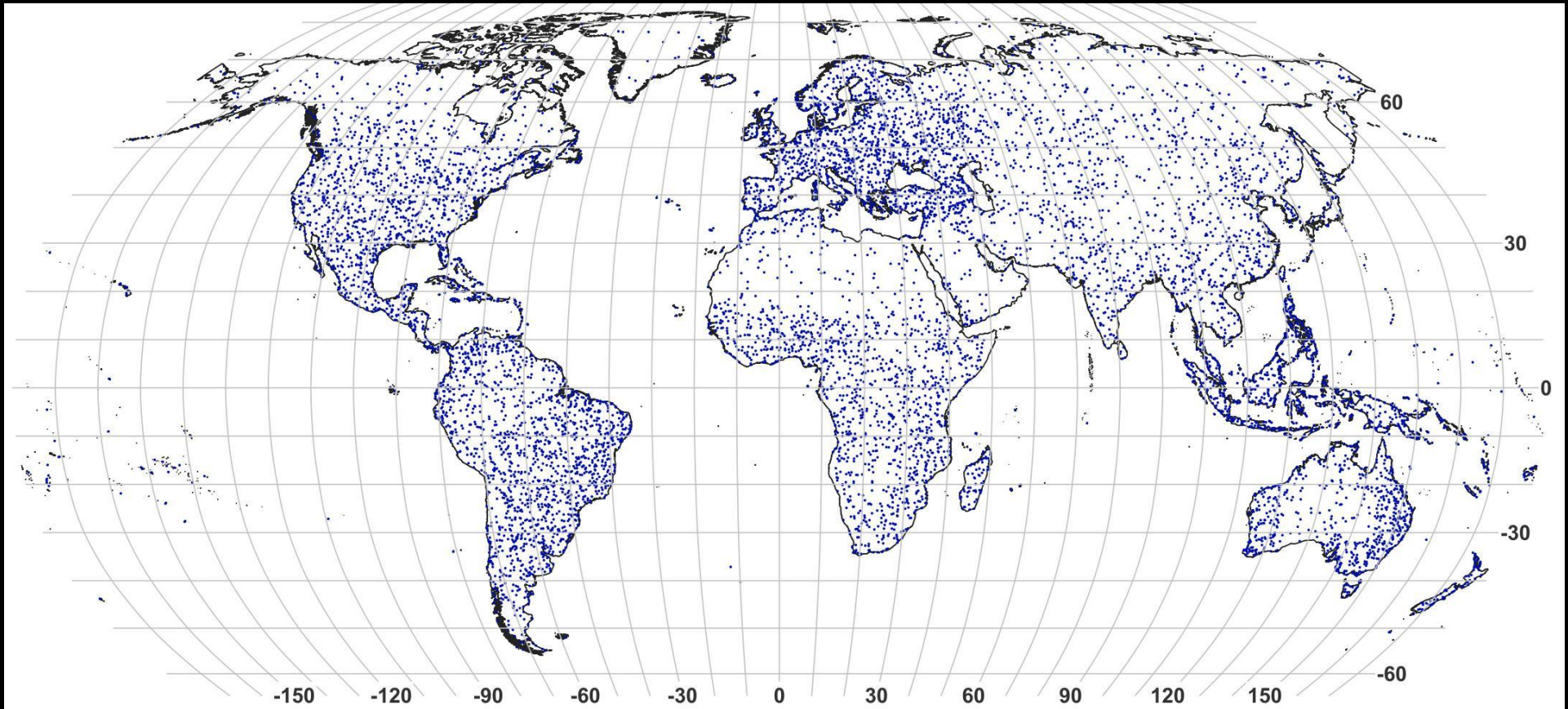
Non-wildland non-WUI



The global Wildland-Urban Interface



The global Wildland-Urban Interface

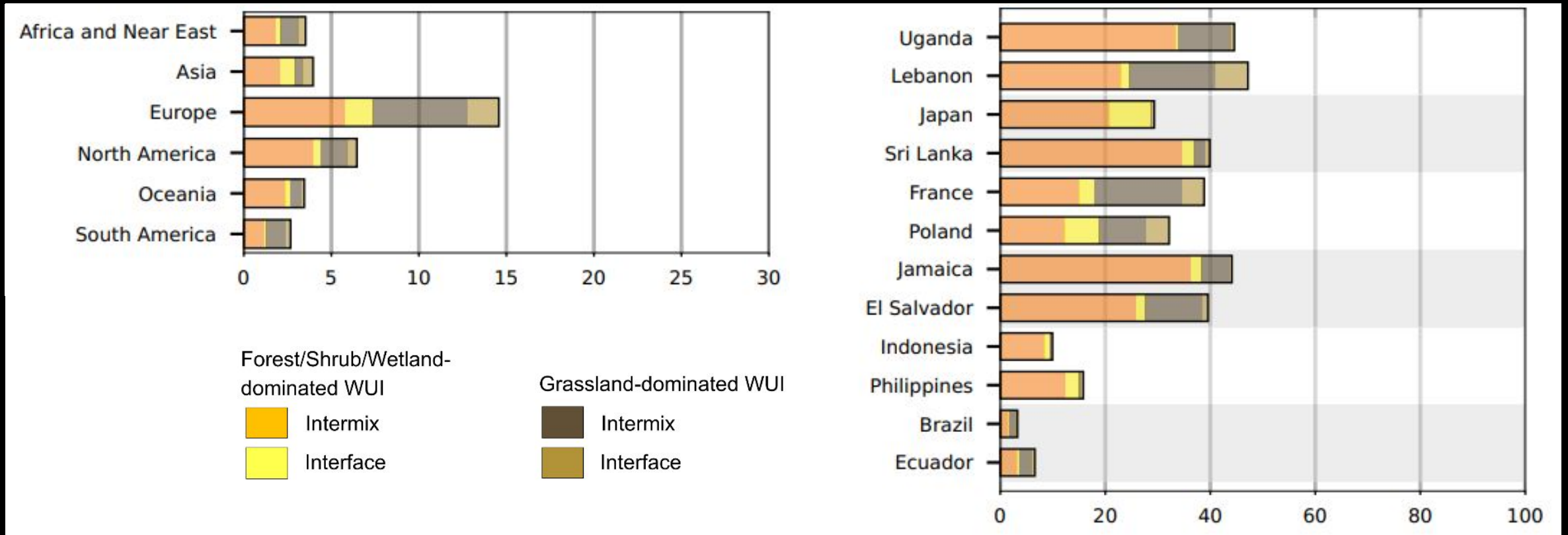


Overall accuracy: 82% for WUI vs. NonWUI
80% for Intermix vs. Interface WUI
10,000 validation points



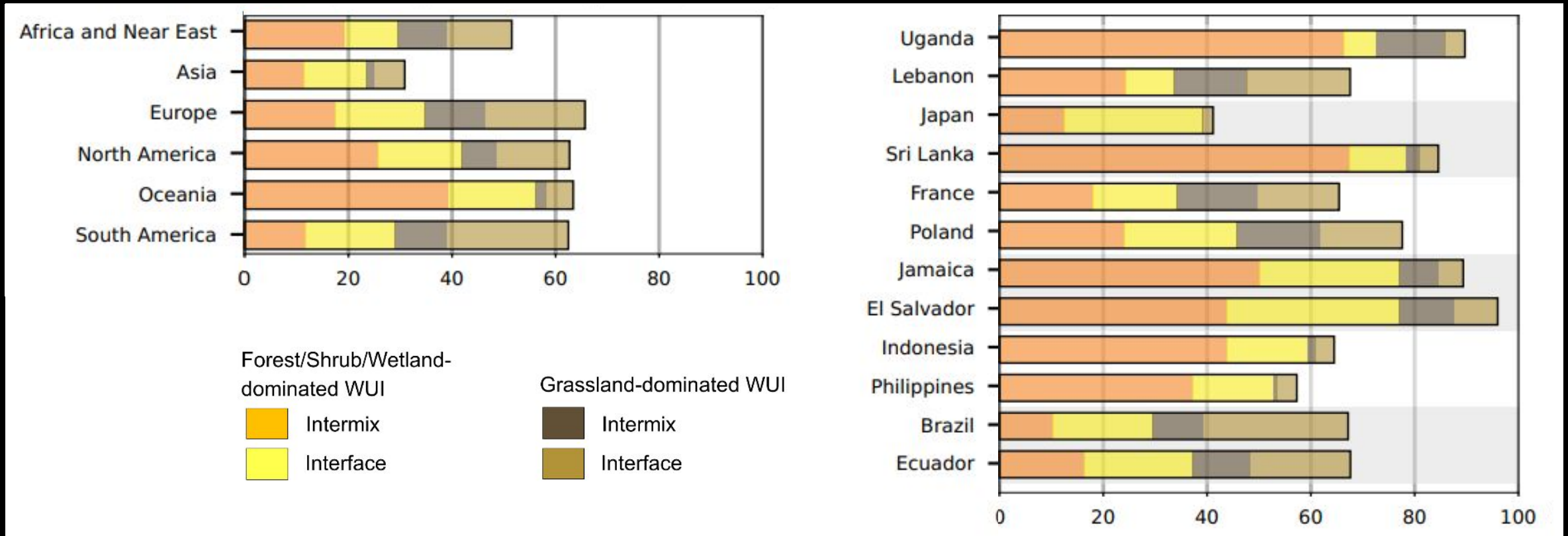
The global Wildland-Urban Interface

WUI Area



The global Wildland-Urban Interface

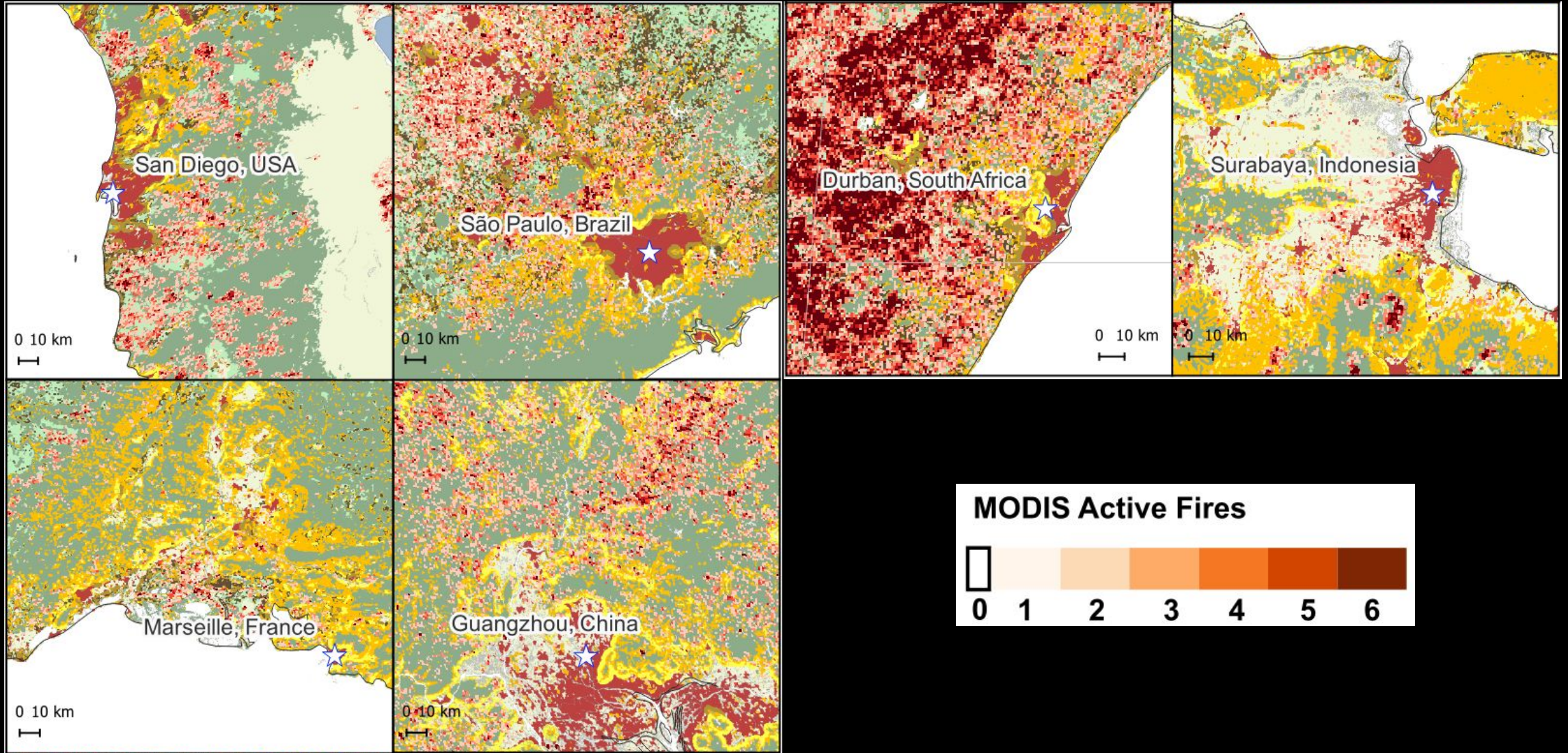
WUI Population



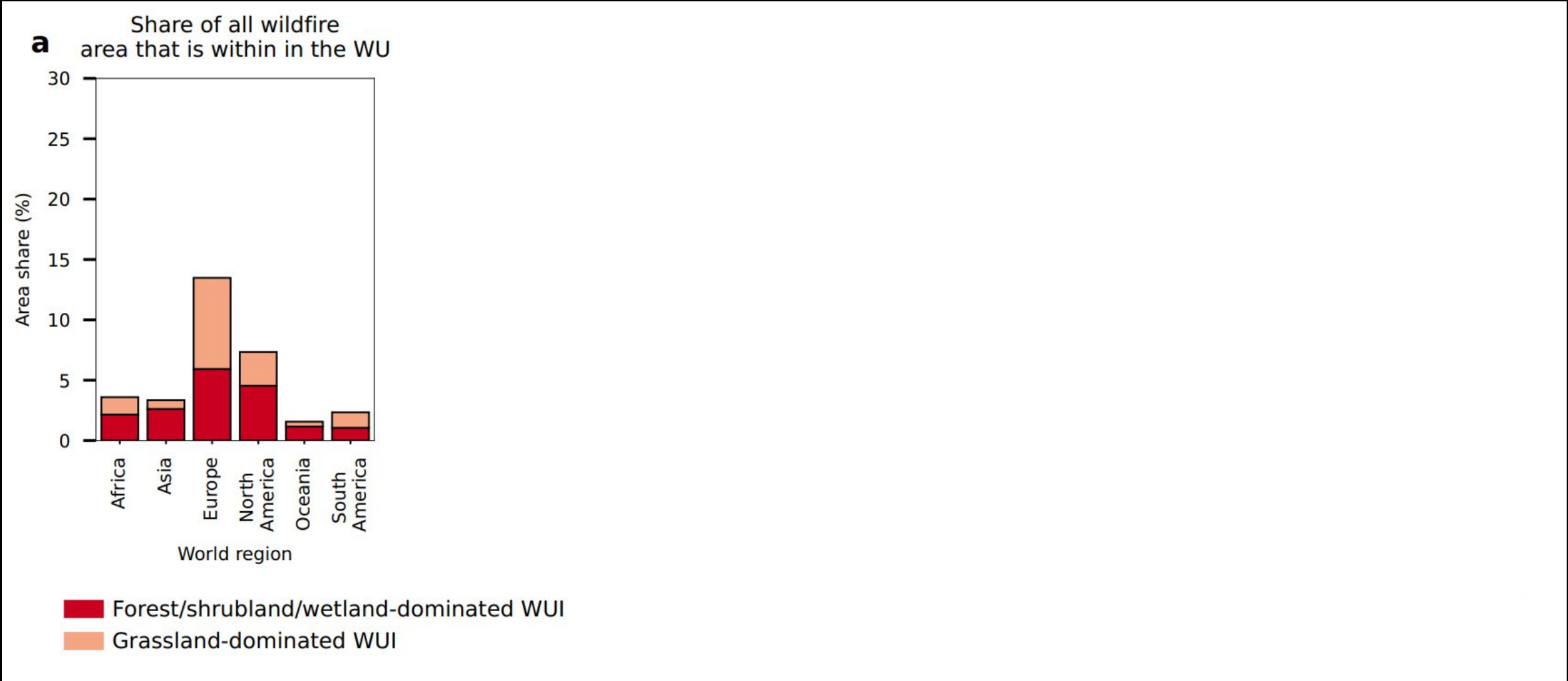
The global WUI and Fire



The global WUI and Fire

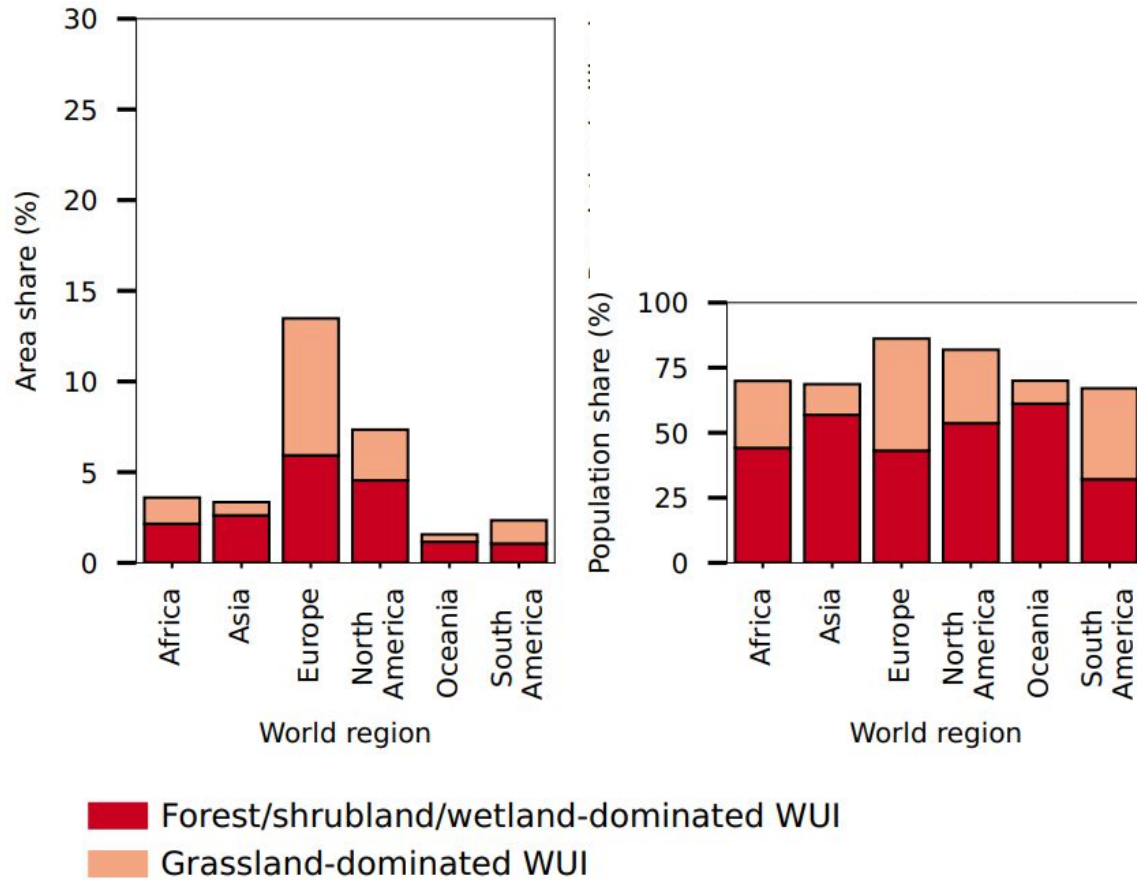


The global WUI and Fire

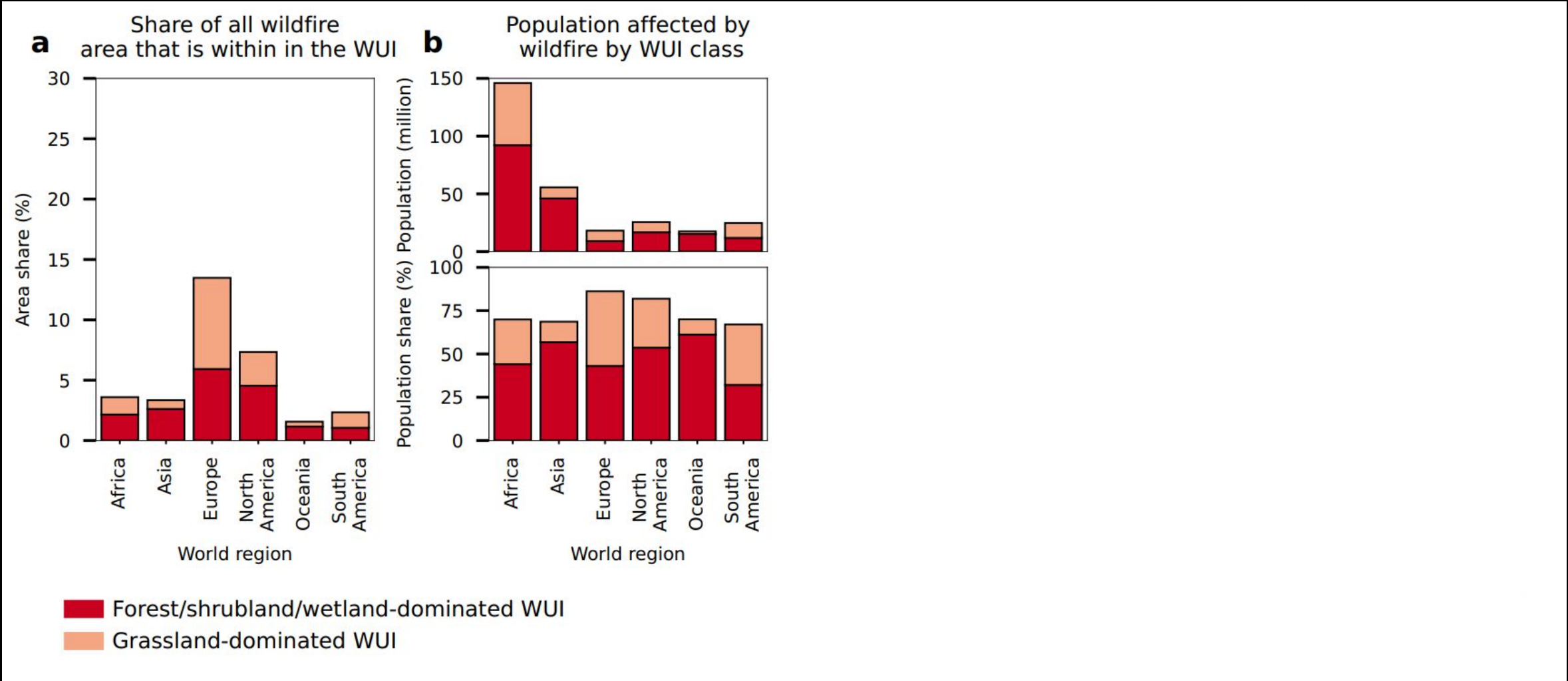


The global WUI and Fire

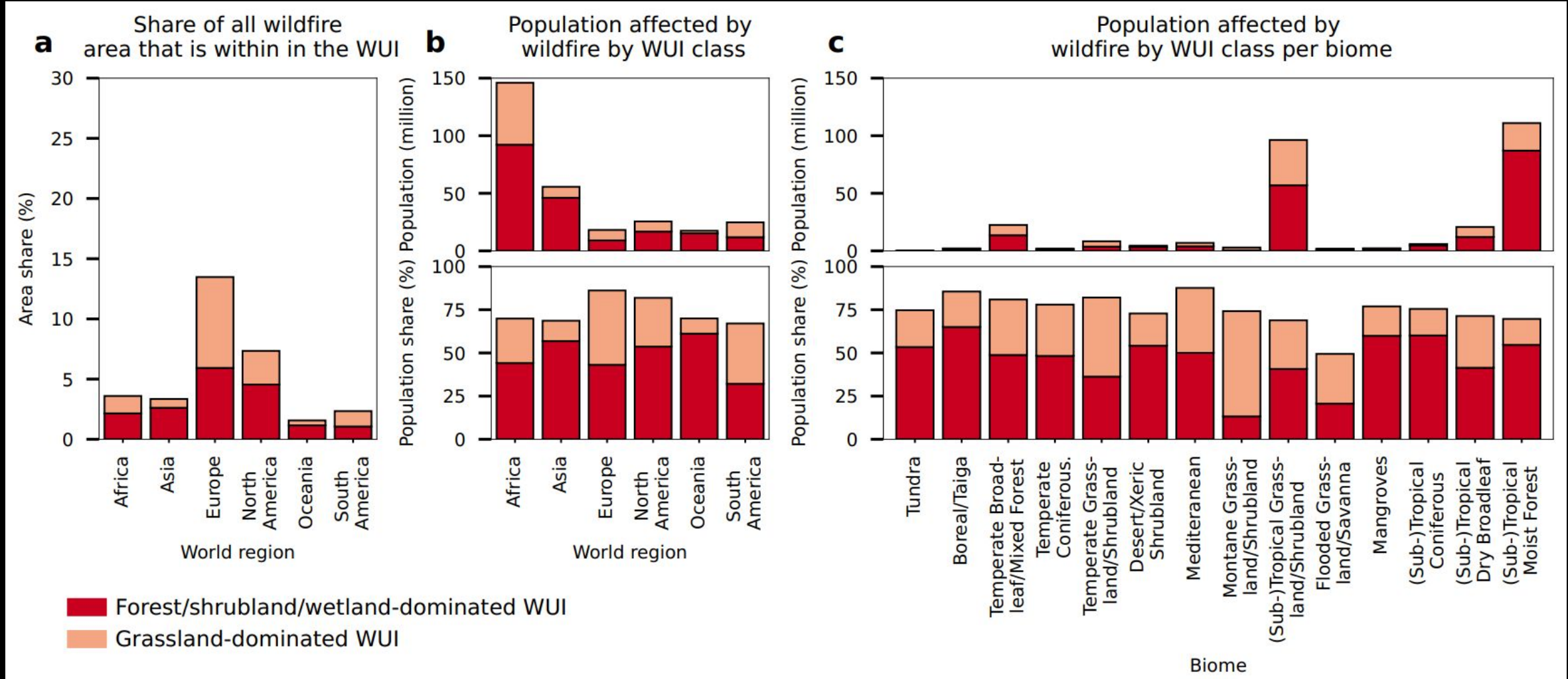
a Share of all wildfire area that is within the WUI



The global WUI and Fire



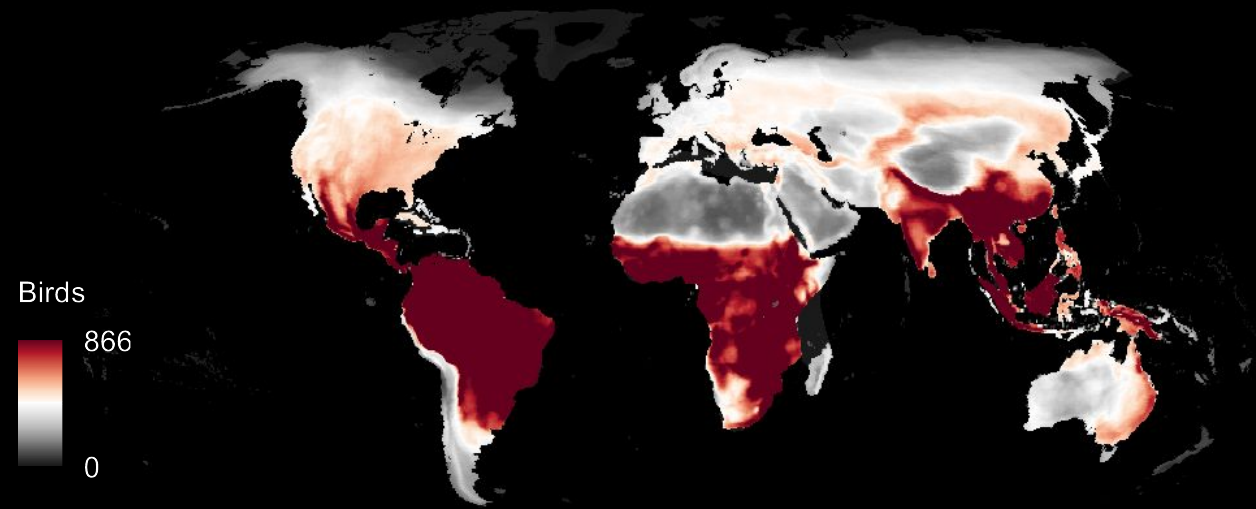
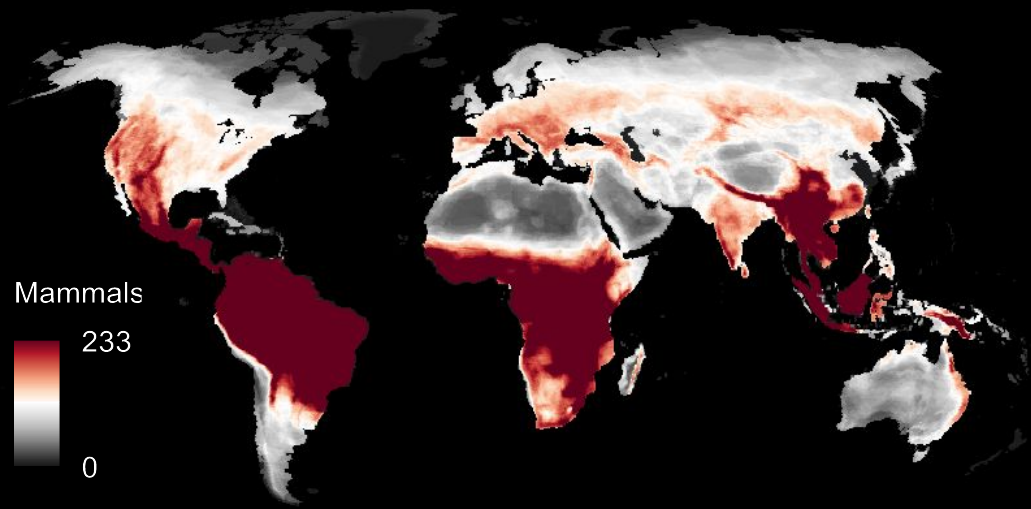
The global WUI and Fire



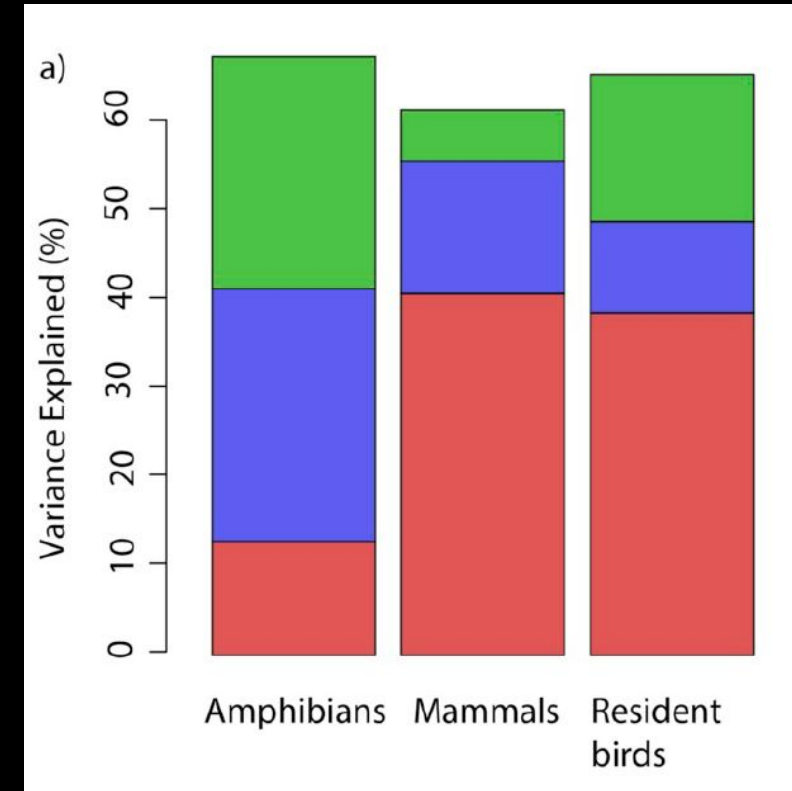
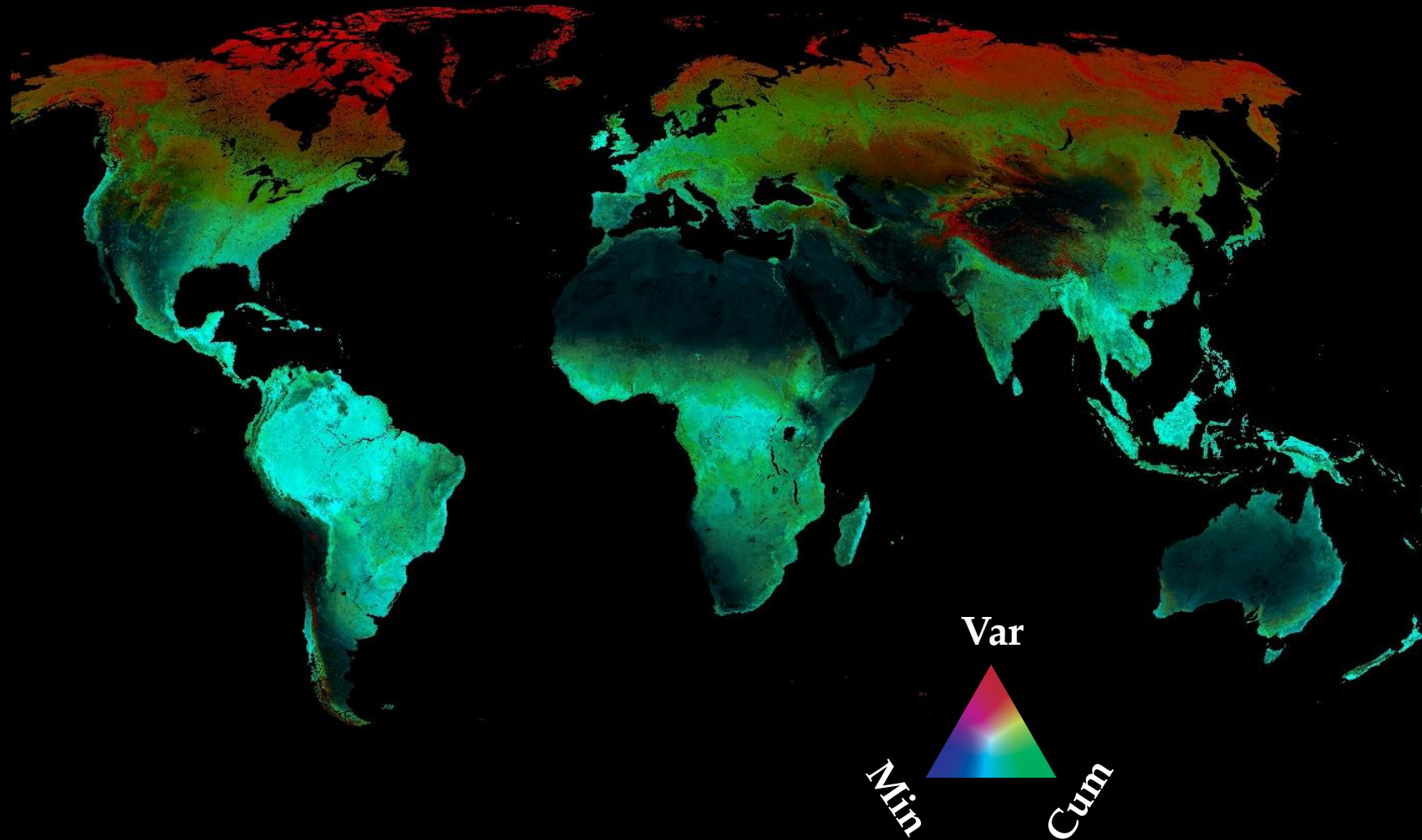
The global WUI and Biodiversity



The global WUI and Biodiversity



The global WUI and Biodiversity

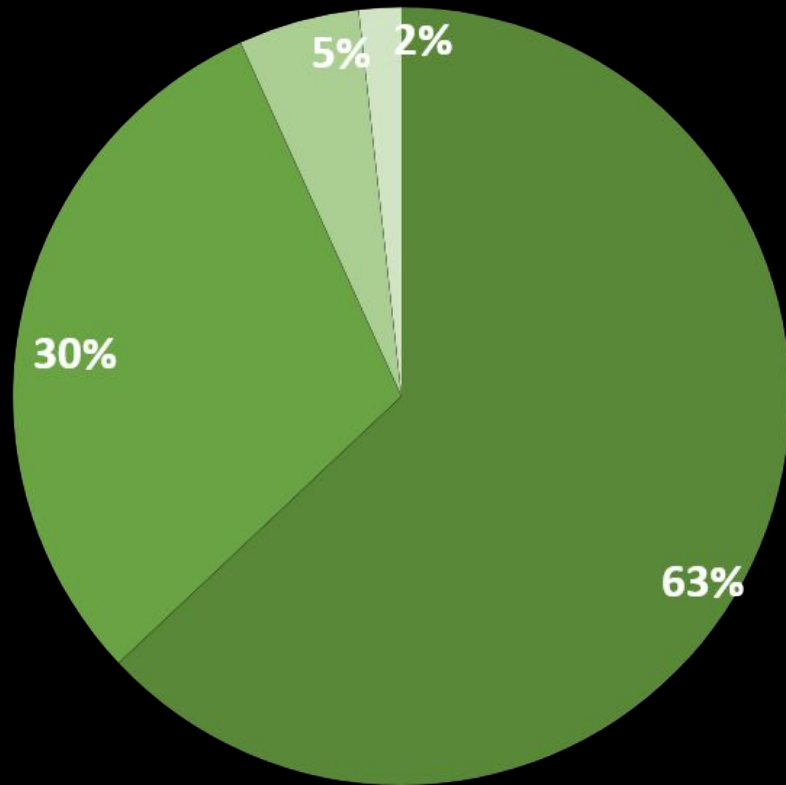


Radeloff, et al., 2019, RSE



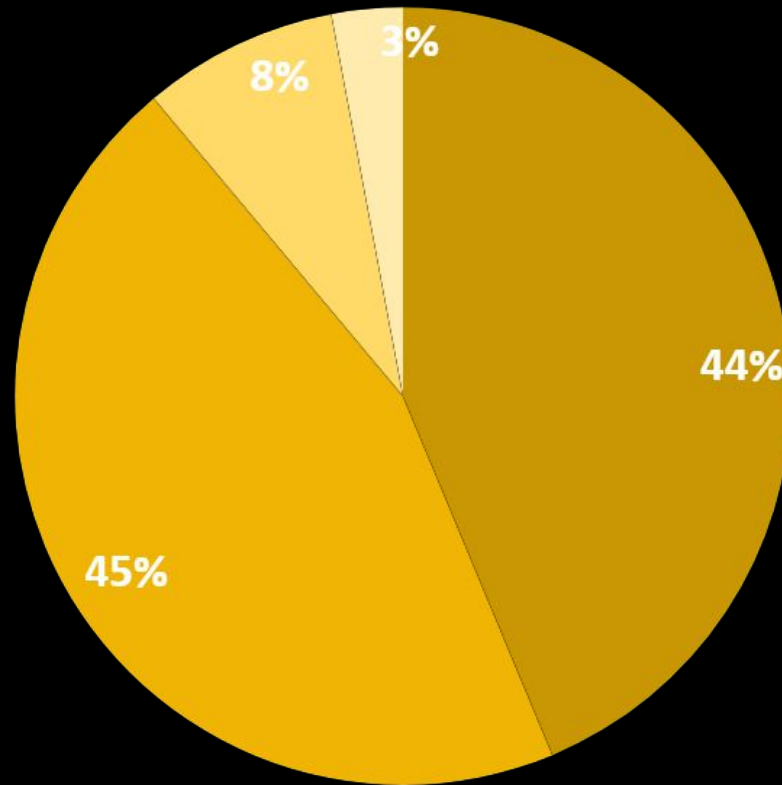
The global WUI and Biodiversity

Cumulative DHI



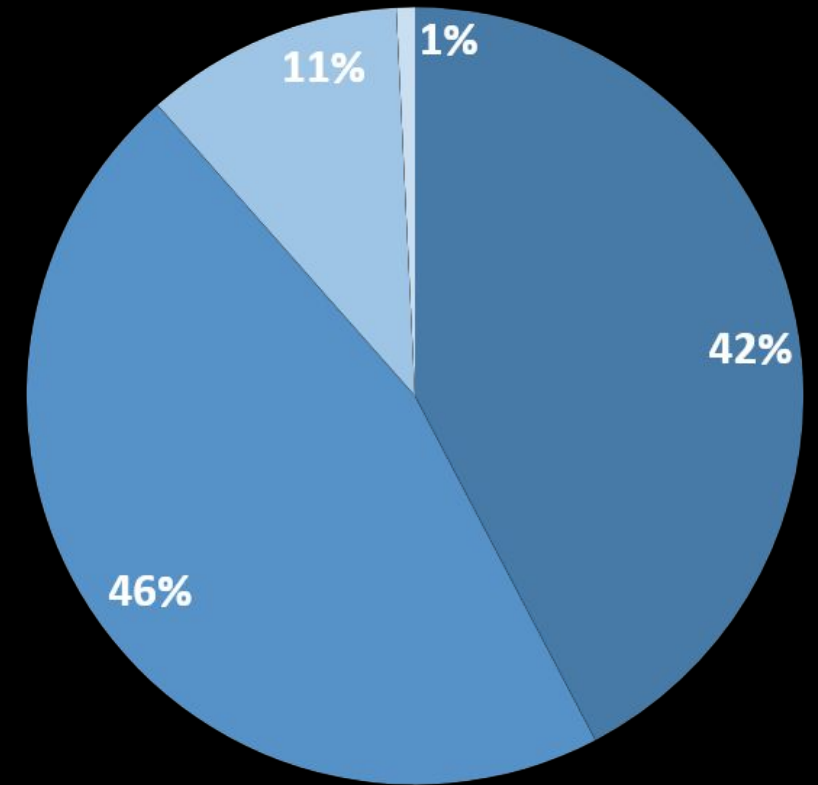
■ High ■ Medium high ■ Medium low ■ Low

Mammal Richness



■ High ■ Medium high ■ Medium low ■ Low

Bird Richness



■ High ■ Medium high ■ Medium low ■ Low

Goals

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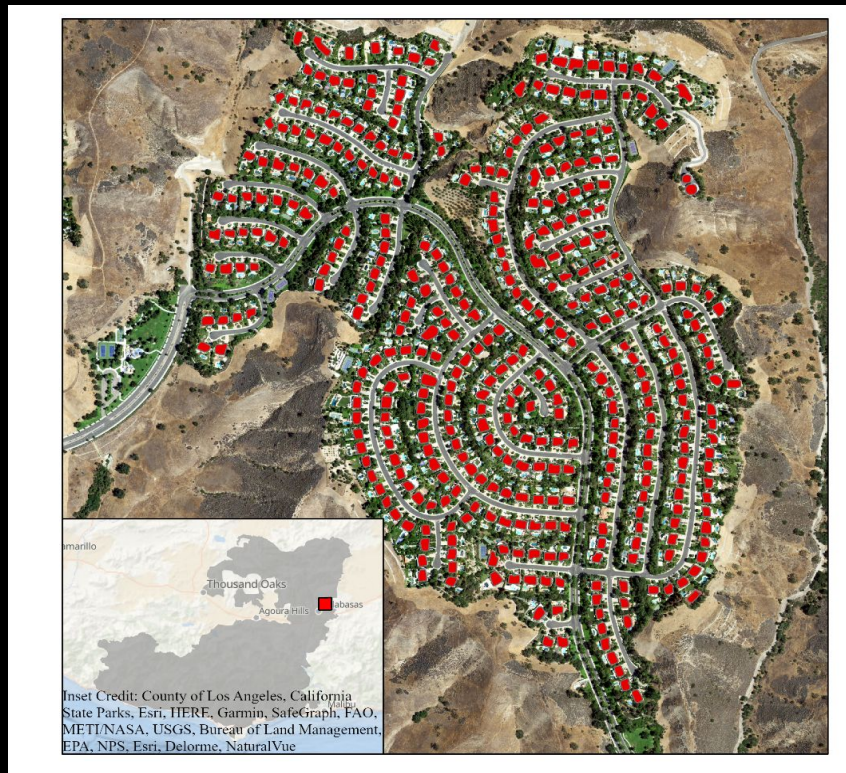
Mapping the WUI with CNNs



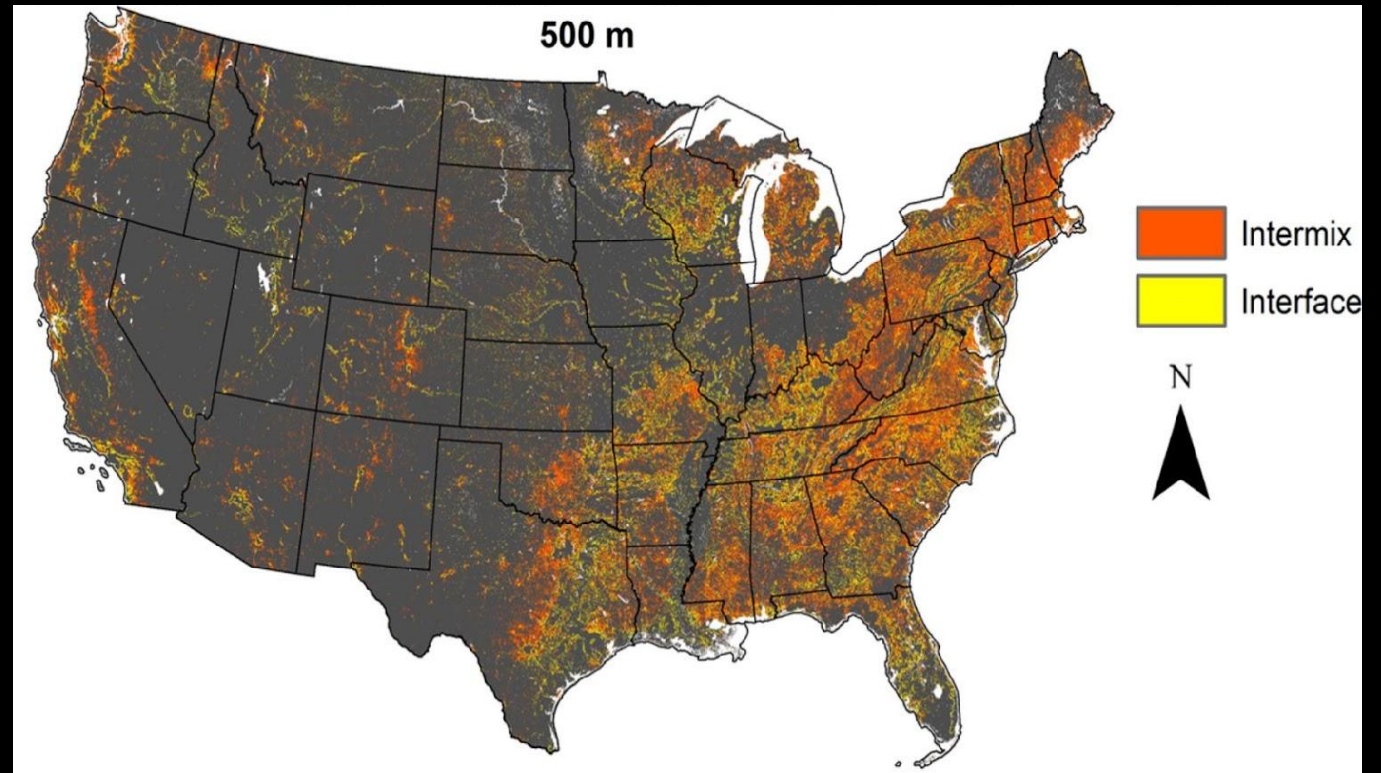
Kasraee, N. K., T. J. Hawbaker, and V. C. Radeloff. 2023. Identifying building locations in the wildland-urban interface before and after fires with convolutional neural networks. *International Journal of Wildland Fire*, in press.



Mapping the WUI with CNNs



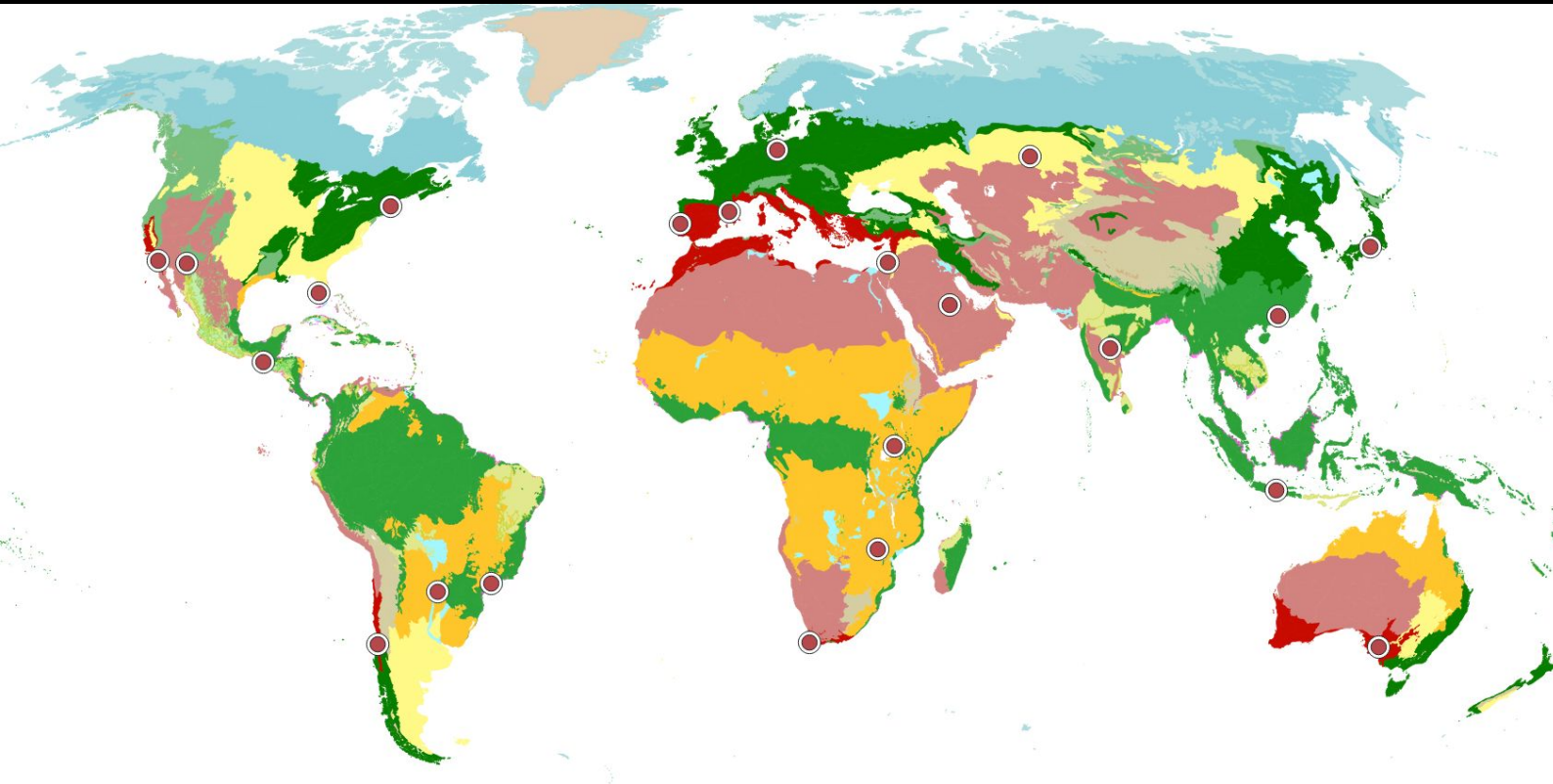
Kasraee, N. K., T. J. Hawbaker, and V. C. Radeloff. 2023. Identifying building locations in the wildland-urban interface before and after fires with convolutional neural networks. *International Journal of Wildland Fire*, in press.



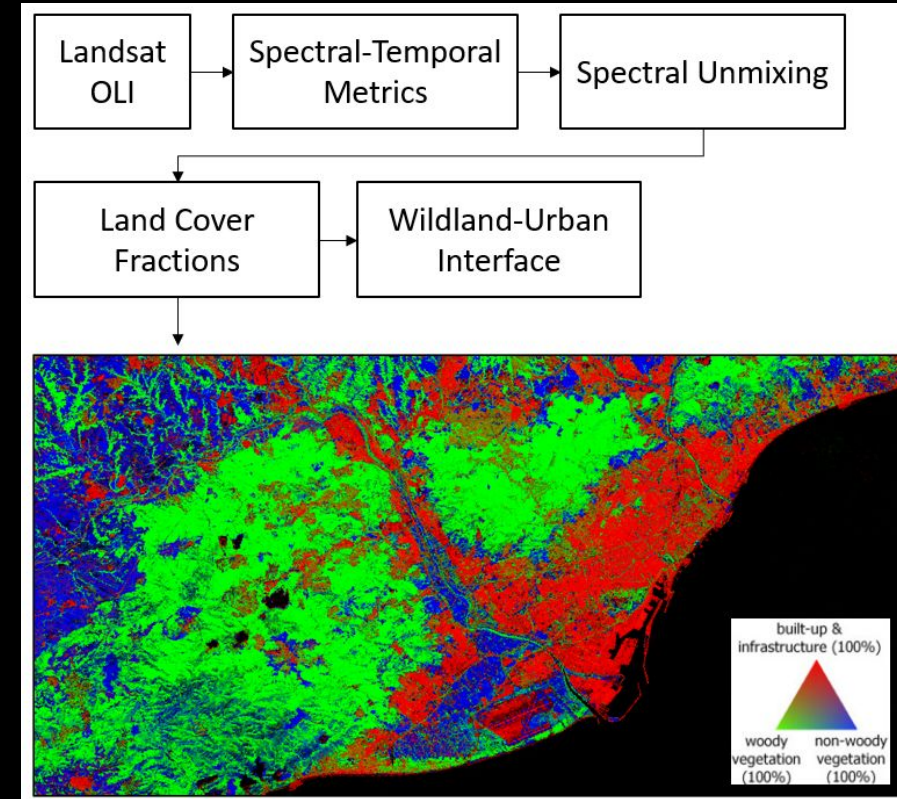
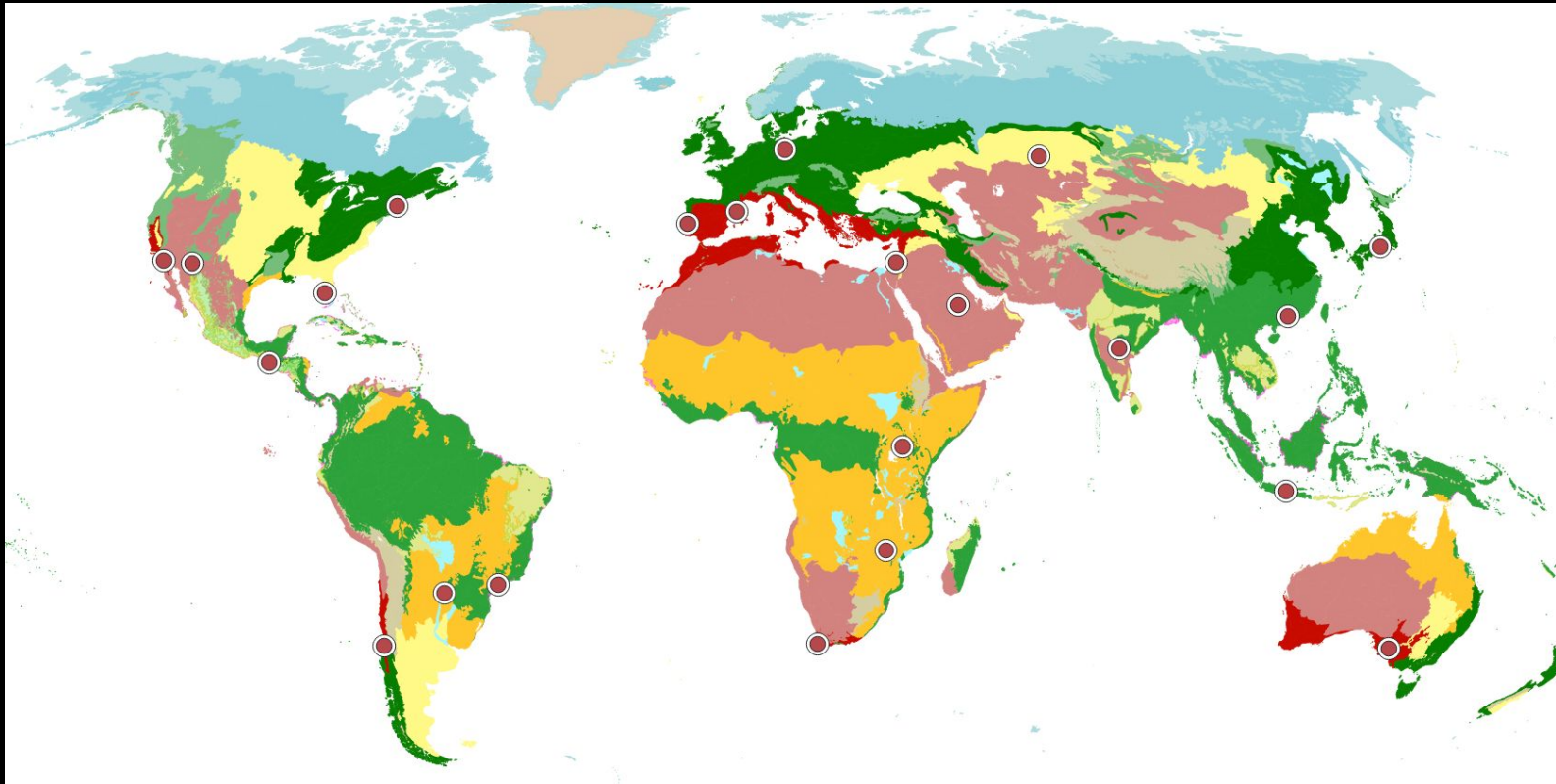
Carlson, A., D. H. Helmers, T. J. Hawbaker, M. H. Mockrin, and V. C. Radeloff. 2022. The wildland-urban interface in the United States based on 125 million building locations. *Ecological Applications*, 2022: e2597.



Change in global WUI Hotspots

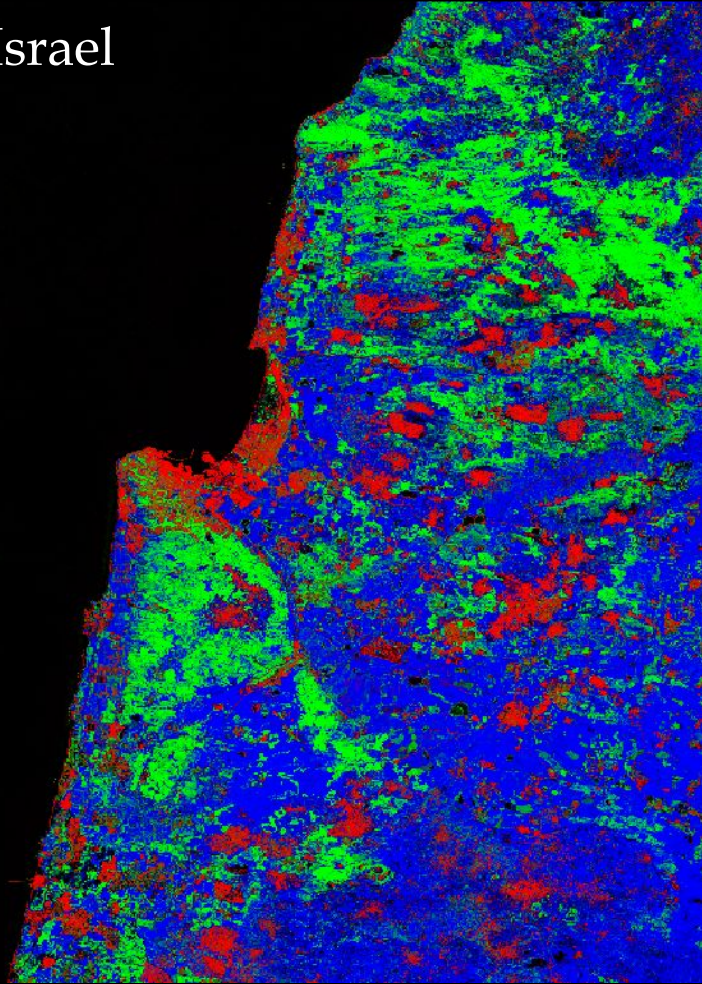


Change in global WUI Hotspots

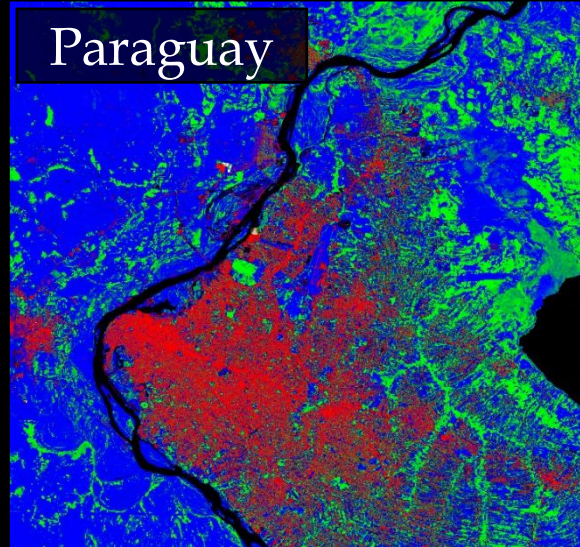


Change in global WUI Hotspots

Israel



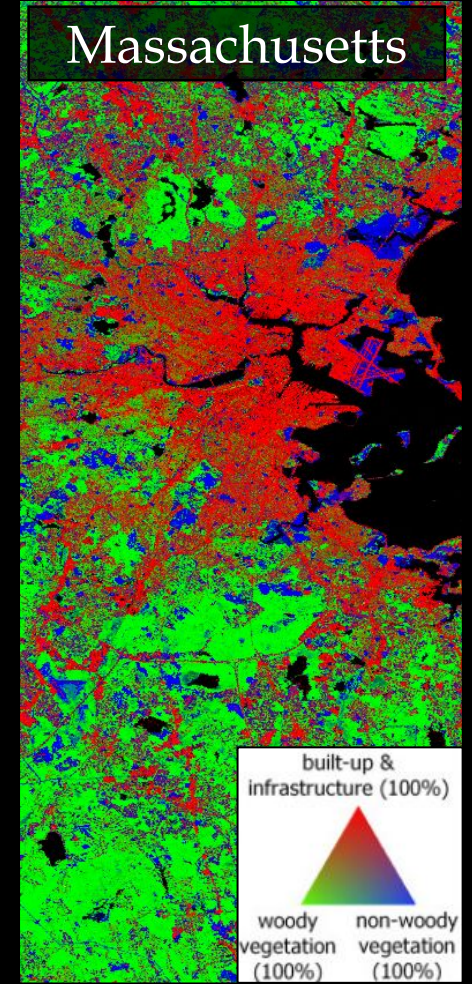
Paraguay



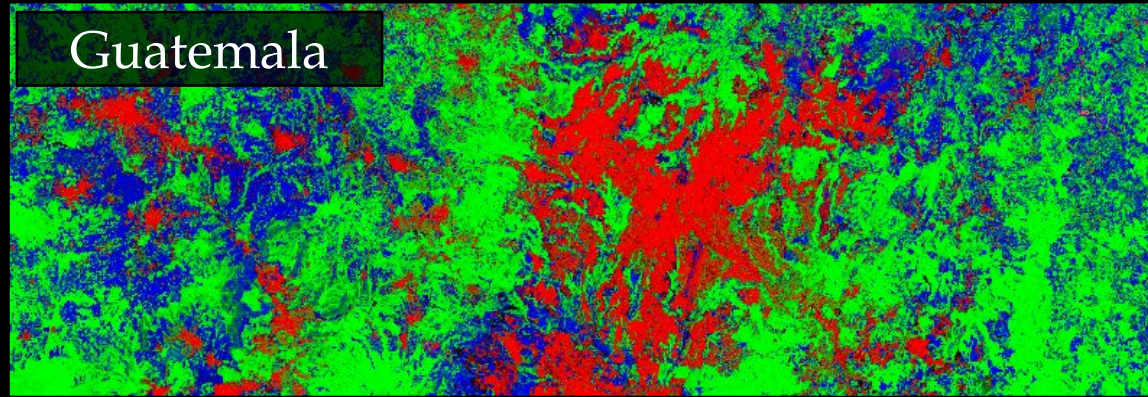
Arizona



Massachusetts



Guatemala



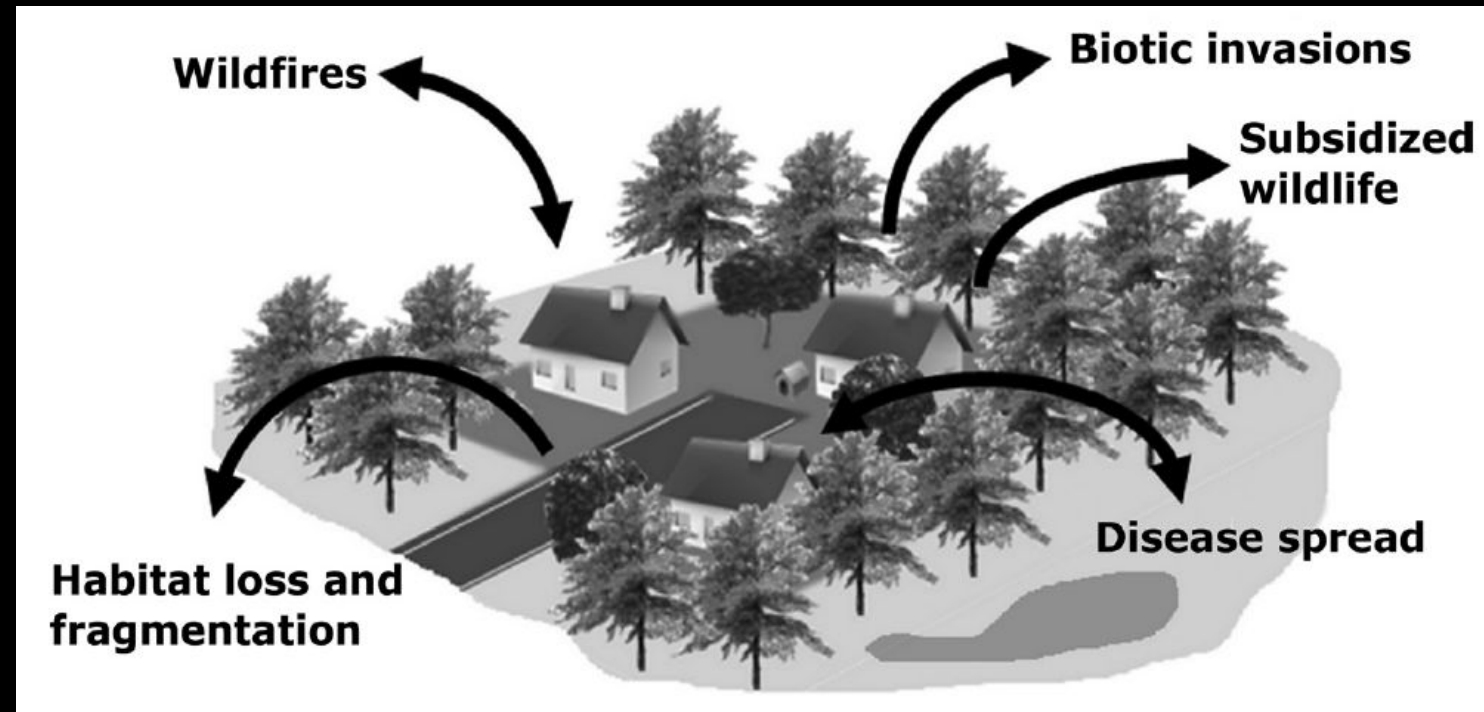
Conclusions

- Global WUI: 5% of land area, 50% of the population
- People near fires: 2/3s live in the WUI
- WUI concentrated in biodiversity hotspots



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Bar-Massada, Radeloff, and Stewart. 2014. BioScience



Thank you!!!

