

The impact of urban sprawl on forest landscapes in Southeast Michigan, 1985–2015*

Dimitris Gounaridis¹, Joshua Newell¹, Robert Goodspeed²

¹ UM School for Environment and Sustainability

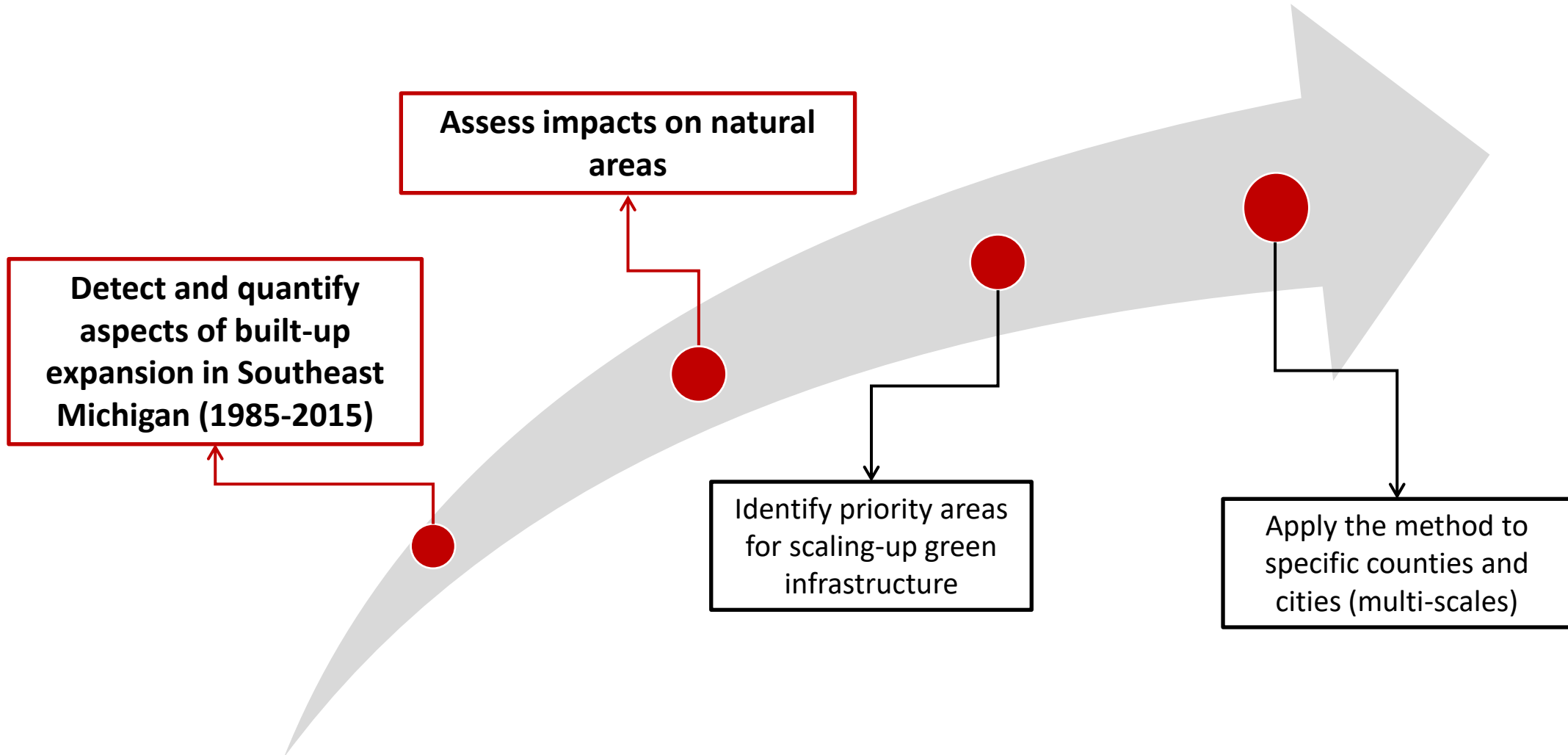
² UM Taubman College of Architecture and Urban Planning

* Published in Landscape Ecology

PREPARING FOR CLIMATE CHANGE

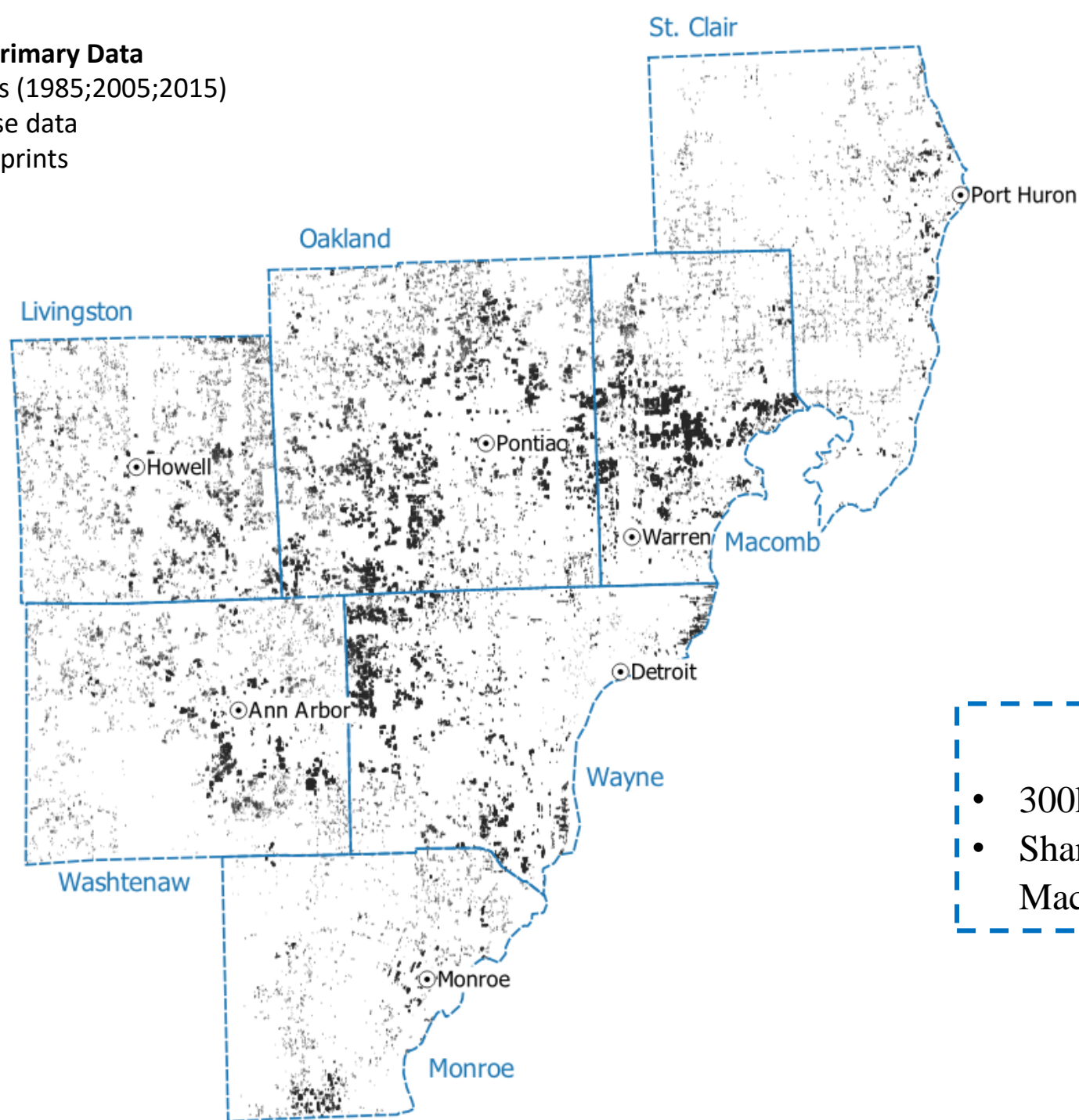
01/26/2021

Project title: Expanding green infrastructure as a response to environmental injustice and climate change



Primary Data

- ❖ Ortho-photos (1985;2005;2015)
- ❖ Zonal land use data
- ❖ Building footprints

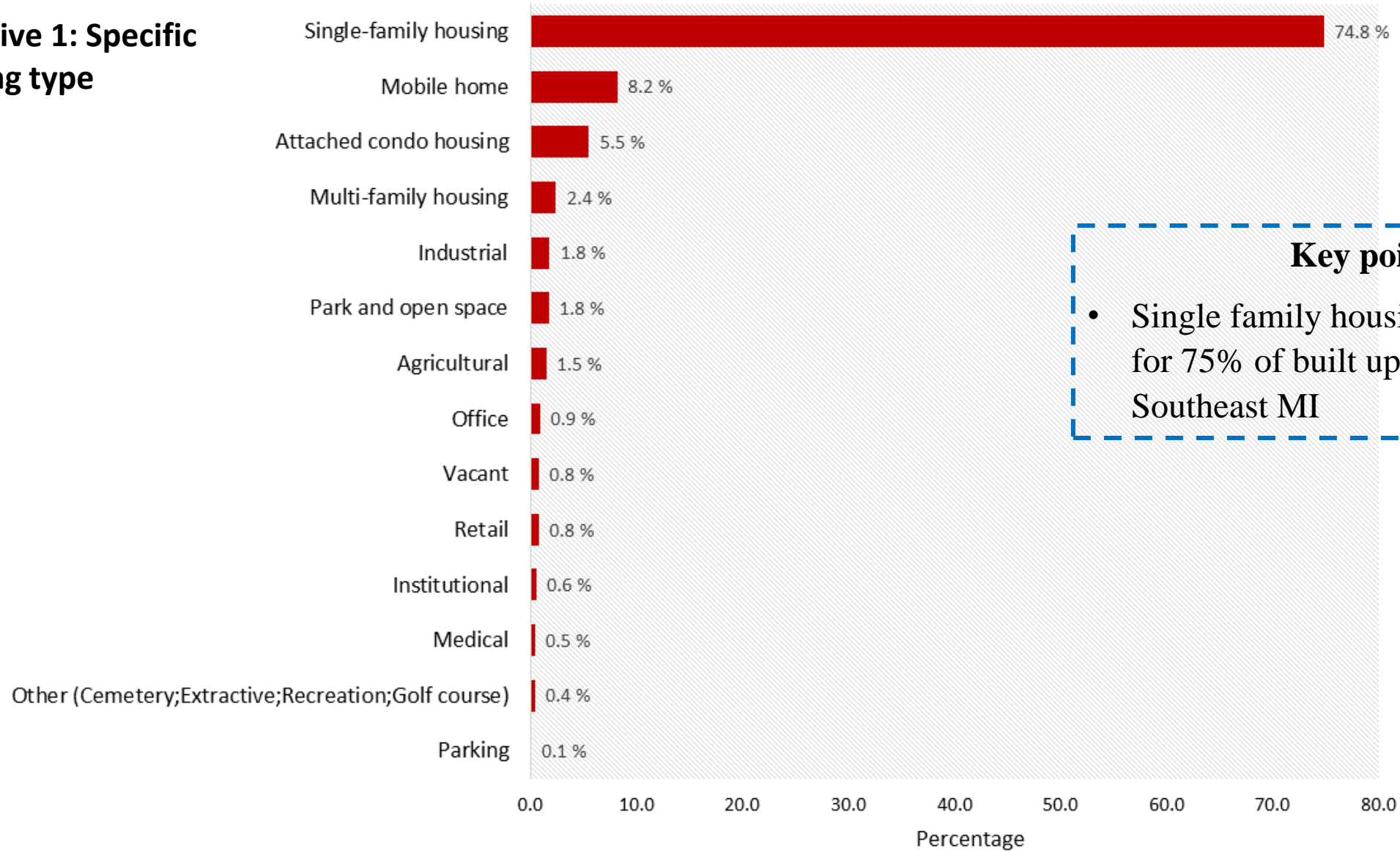


- ✓ Objective 1: map buildings expansion by building type and not just buildings
- ✓ Objective 2: classify expansion by density (characterize sprawl)
- ✓ Objective 3: assess urban-rural-natural interactions and impacts of sprawl

Key points

- 300k new buildings over 30 years
- Sharp increase of built-up in Wayne, Oakland, Macomb – urban periphery of Detroit

Objective 1: Specific building type



Objective 2: Density

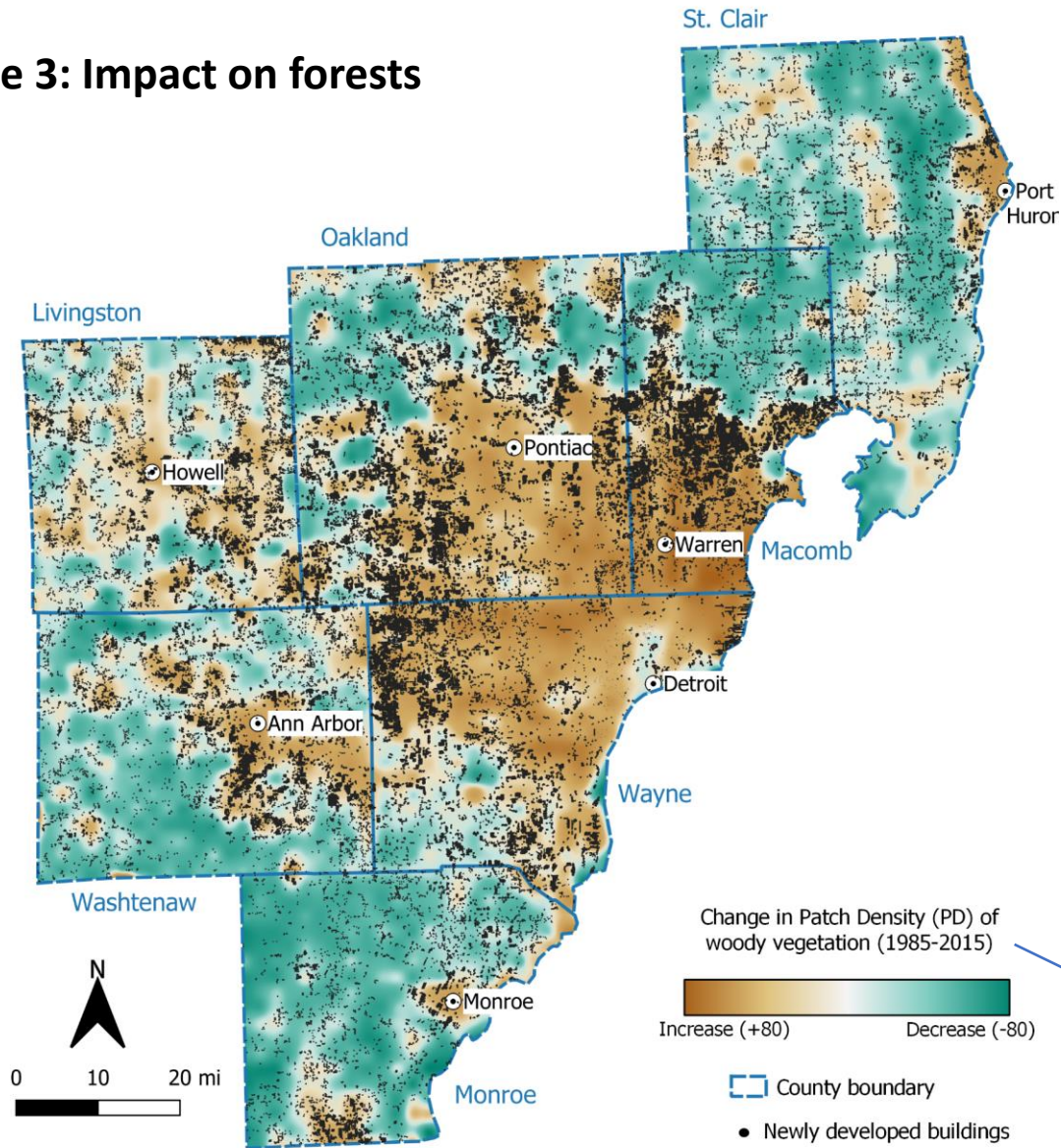


Key points

- 25% of single-family houses are very low density (1 house per acre)
- Almost 70% of single-family houses are low density (<5 houses per acre)



Objective 3: Impact on forests



Key point

- Forests (includes forest patches and urban canopy) remained relatively stable – no extensive deforestation
- Forests became more fragmented and less connected in areas with urban sprawl

Patch density is the number of forest patches per unit (3km). It indicates fragmentation

Thank you