

(Urban) form/function in Great Britain

<https://urbangrammarai.xyz>

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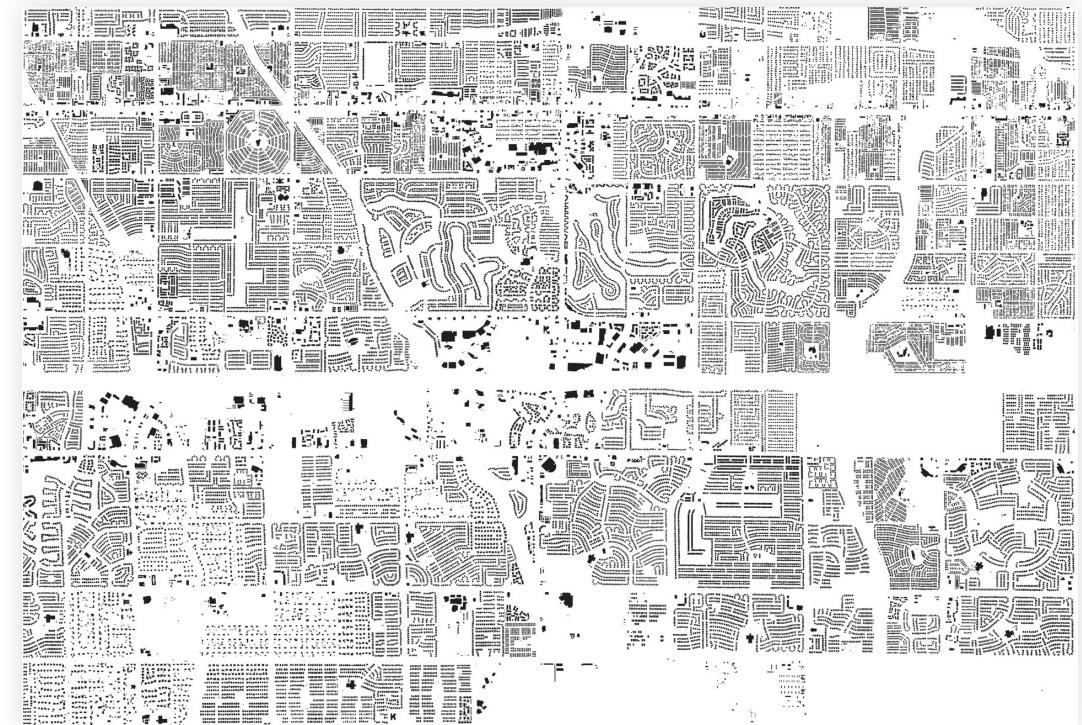
The
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Geographic
Data Science
Lab

“The point”

How we arrange “stuff” in cities matters...



Source: *A map of every building in America* ([New York Times](#))

... it matters *a lot*

Journal of Urban Economics 111 (2019) 93–107
Contents lists available at ScienceDirect
Journal of Urban Economics journal homepage: www.elsevier.com/locate/jue

The economic effects of density: A synthesis[☆]
Gabriel M. Ahlfeldt^{a,1,*}, Elisabetta Pietrostefani^b
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Cities in Bad Shape: Urban Geometry in India - American Economic Association — Mozilla Firefox

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Cities in Bad Shape: Urban Geometry in India

Mariaflavia Harari

AMERICAN ECONOMIC REVIEW
VOL. 110, NO. 8, AUGUST 2020
(pp. 2377-2421)

ARTICLE
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Environmental Science & Technology

Effects of Income and Urban Form on Urban NO₂: Global Evidence from Satellites
Matthew J. Bechle,[†] Dylan B. Millet,^{†,‡} and Julian D. Marshall^{*,†}
[†]Department of Civil Engineering, University of Minnesota, Minneapolis, Minnesota 55455, United States
[‡]Department of Soil, Water, and Climate, University of Minnesota, Minneapolis, Minnesota 55455, United States

Living with beauty: report of the Building Better, Building Beautiful Commission

Independent report on how to promote and increase the use of high-quality design for new build homes and neighbourhoods.

From: Ministry of Housing, Communities & Local Government
Published: 30 January 2020

Applies to: England

Related content
[Creating space for beauty: interim report of the Building Better, Building Beautiful Commission](#)

Rethinking Urban Sprawl MOVING TOWARDS SUSTAINABLE CITIES



OECD

NEW URBAN AGENDA

H | III | UN

Form & Function

Form

What does it look like?

“Physical structure and appearance of cities”

Function

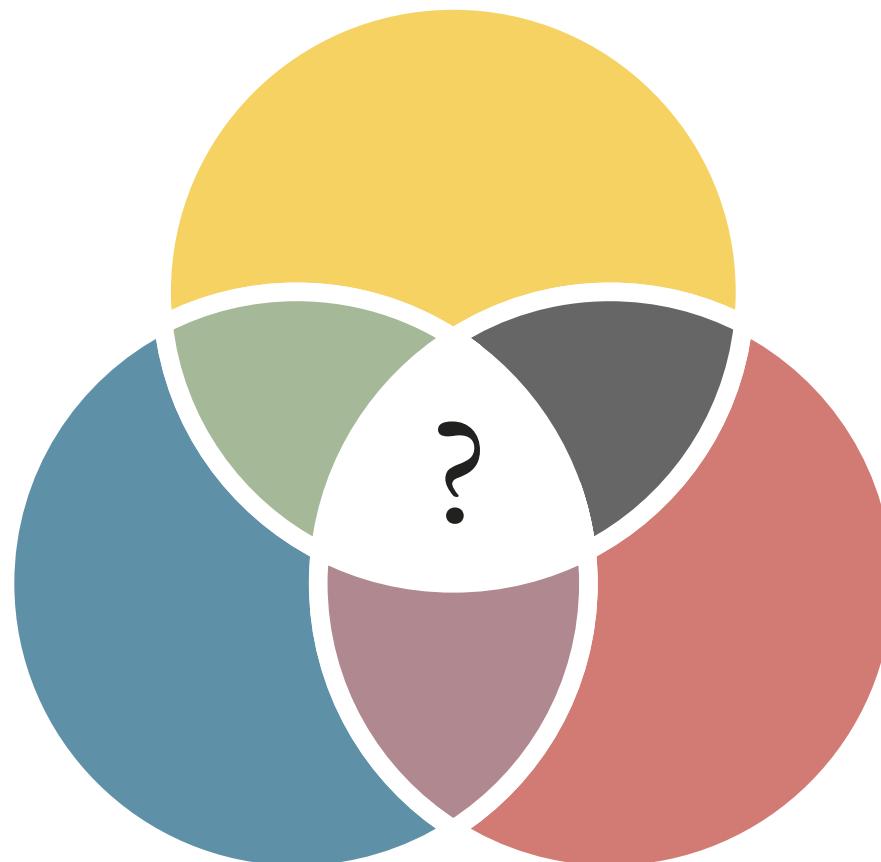
What is it used for?

“Activities that take place within an environment”

detailed

scalable

consistent



Spatial Signatures

*A characterisation of space based on form and function
designed to understand urban environments*

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designed to understand urban environments*

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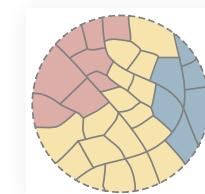
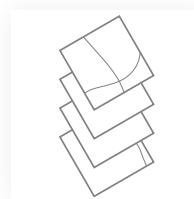
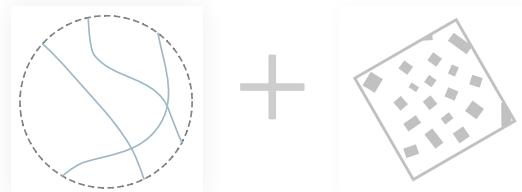
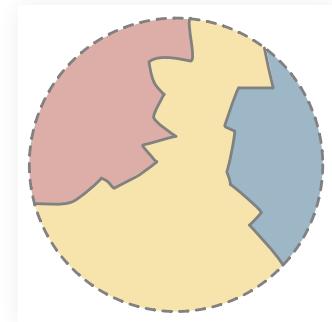
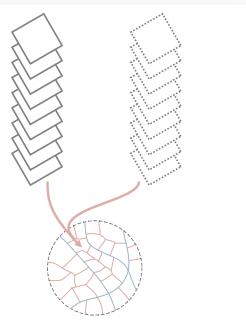
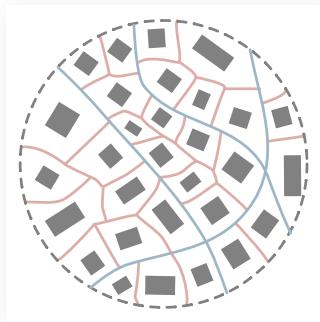
Building *Spatial Signatures*

[STAGE] Delimiters Enclosure Anchors Encl. Tess. Characters Clusters Signatures

Enclosed
Tessellation

Embedding
form & function

Spatial
Signatures



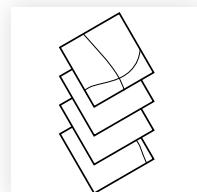
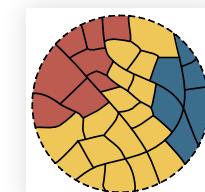
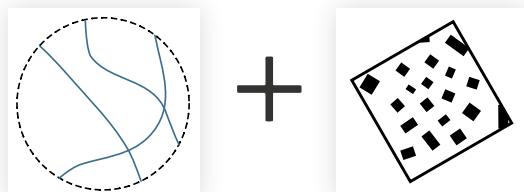
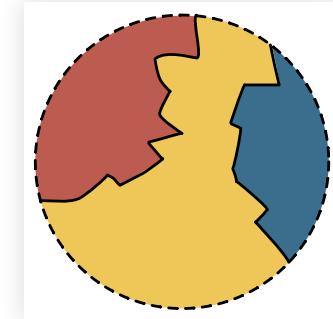
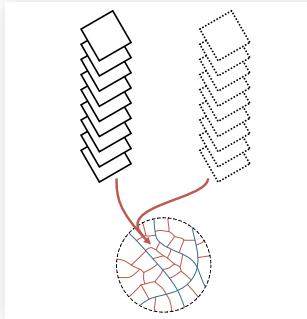
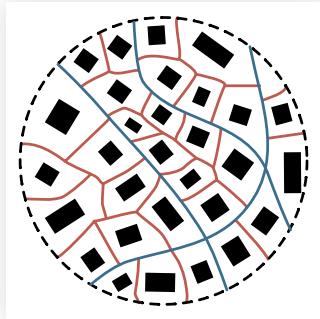
Building Spatial Signatures

[STAGE] Delimiters Enclosure Anchors Encl. Tess. Characters Clusters Signatures

Enclosed
Tessellation

Embedding
form & function

Spatial
Signatures



Great Britain

Characters

Form

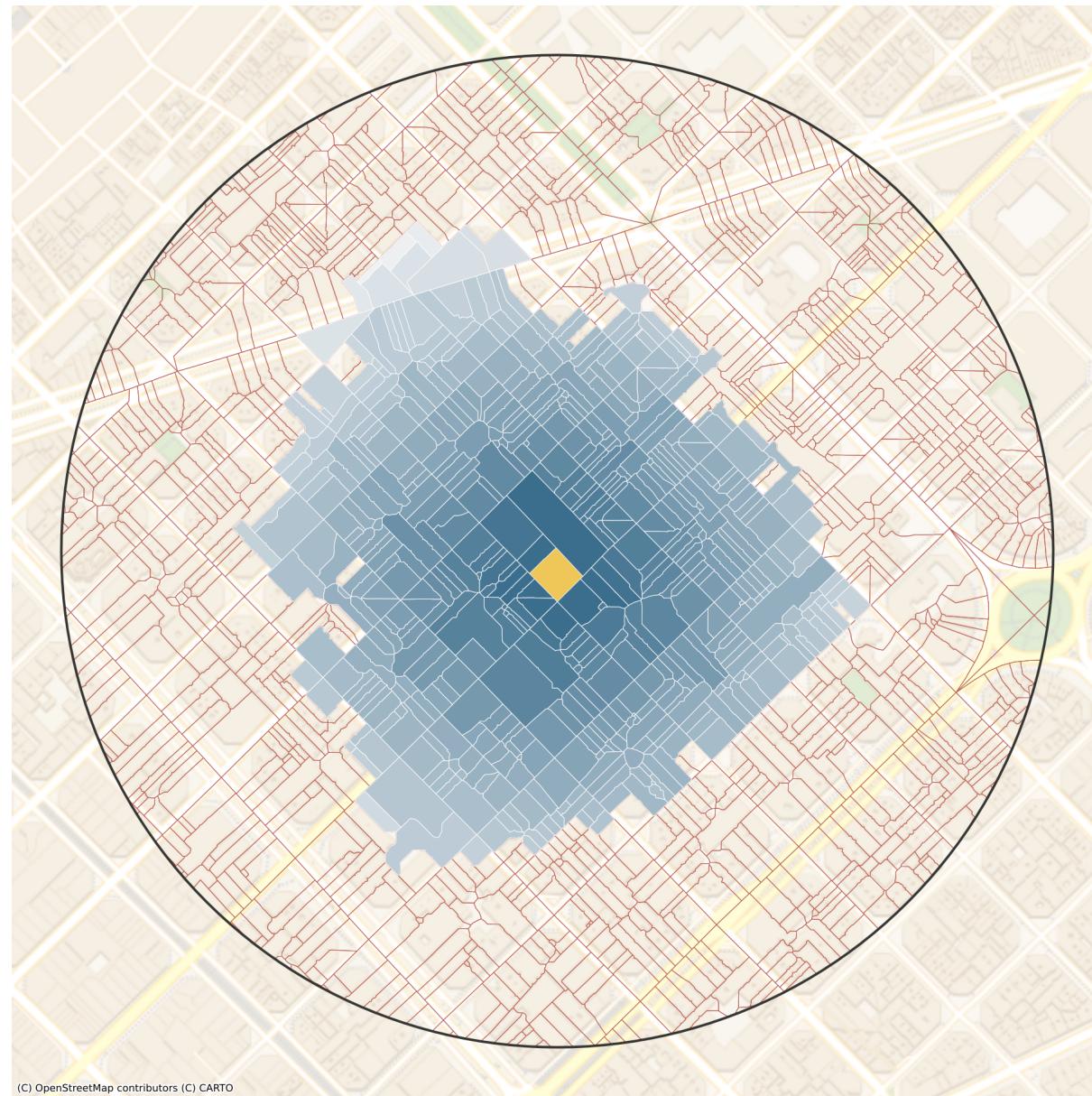
- Dimension
- Shape
- Intensity
- Connectivity
- Diversity

Function

- Population
- Employment
- Industry
- Land
use/cover
- Amenity access

$N \approx 300$

Context



Data

Form

- OS OpenMap
- OS OpenRoads

Function

- (Business) Census
- OpenStreetMap
- Geolytix
- Listed buildings
- CDRC
- CORINE /
Sentinel 2
- VIIRS

British Signatures

BRITISH SIGNATURES

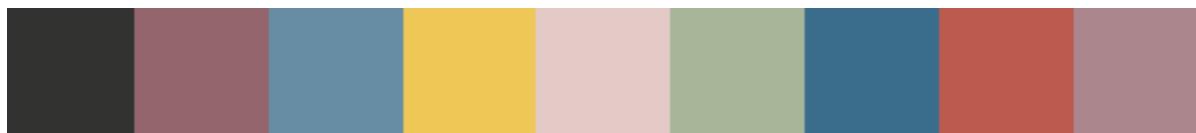
Countryside (3)

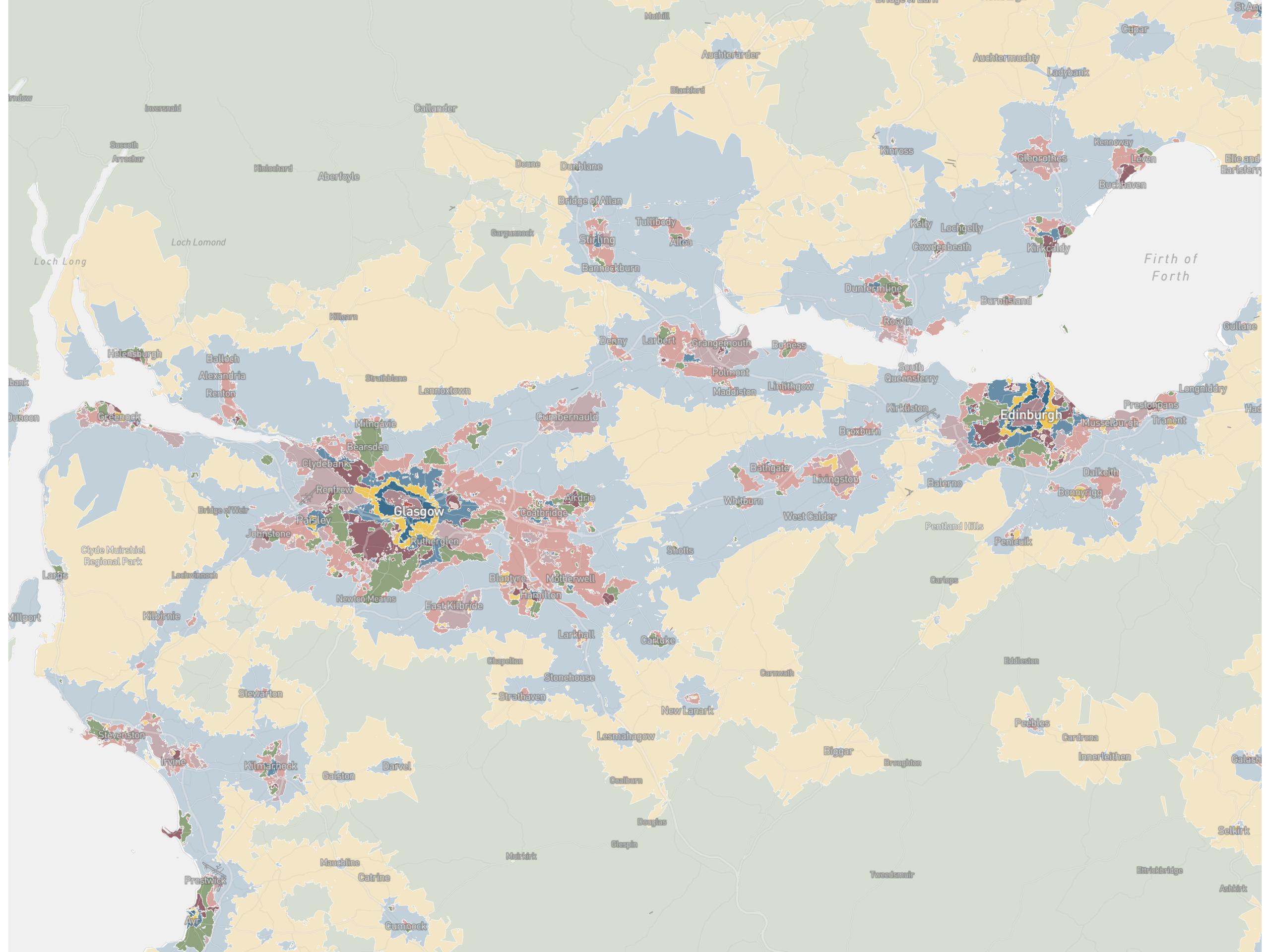


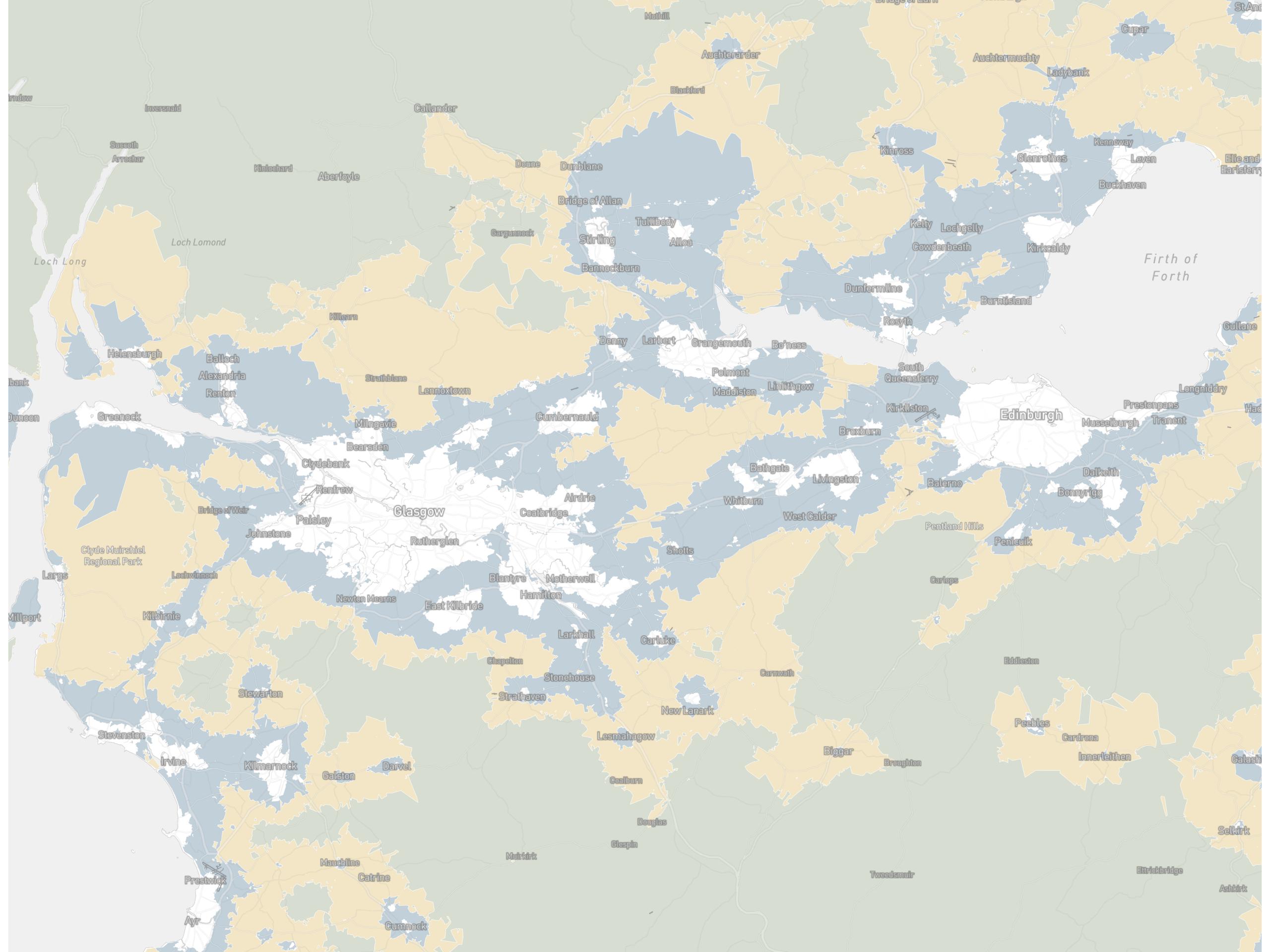
Periphery (4)

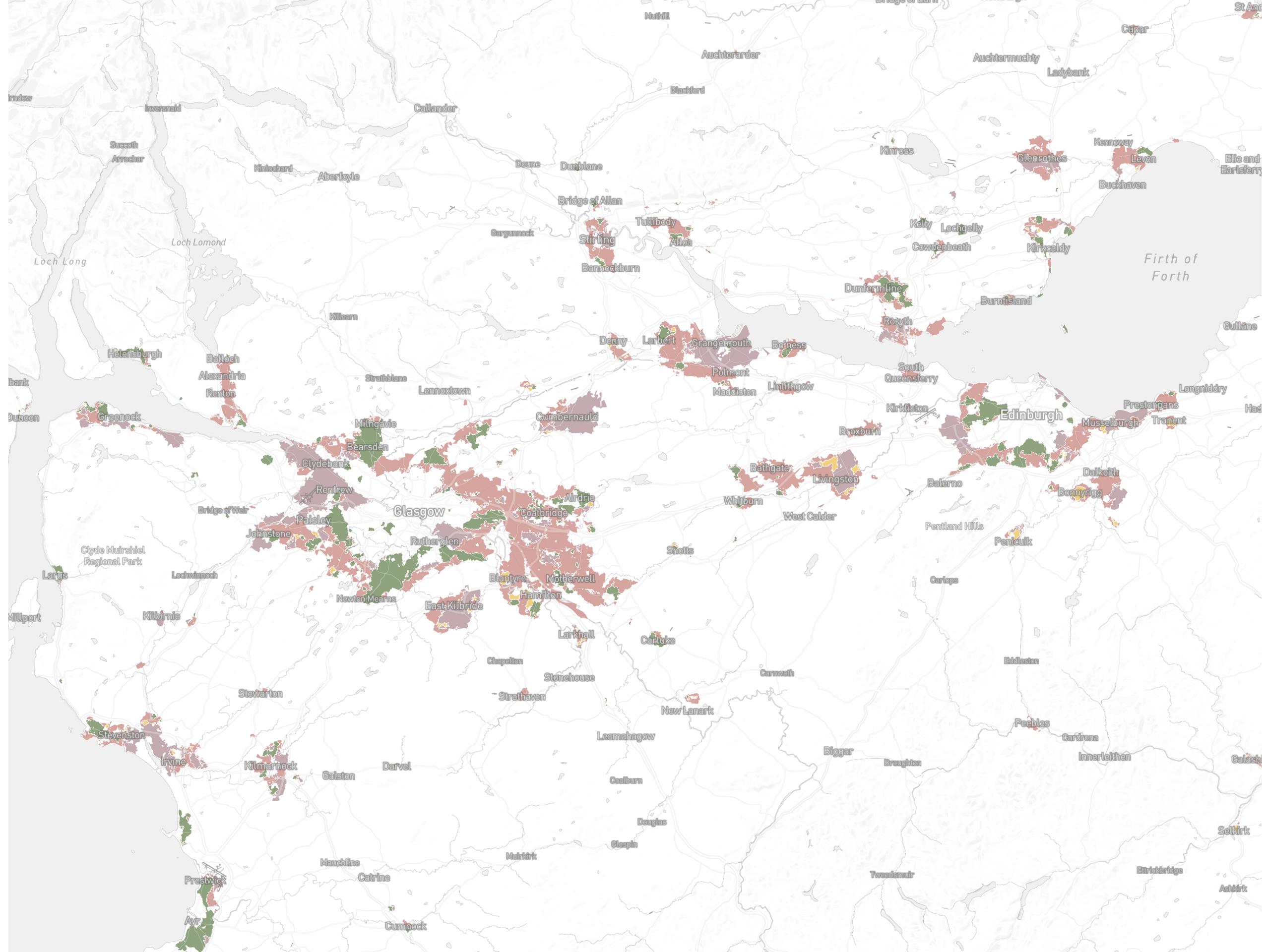


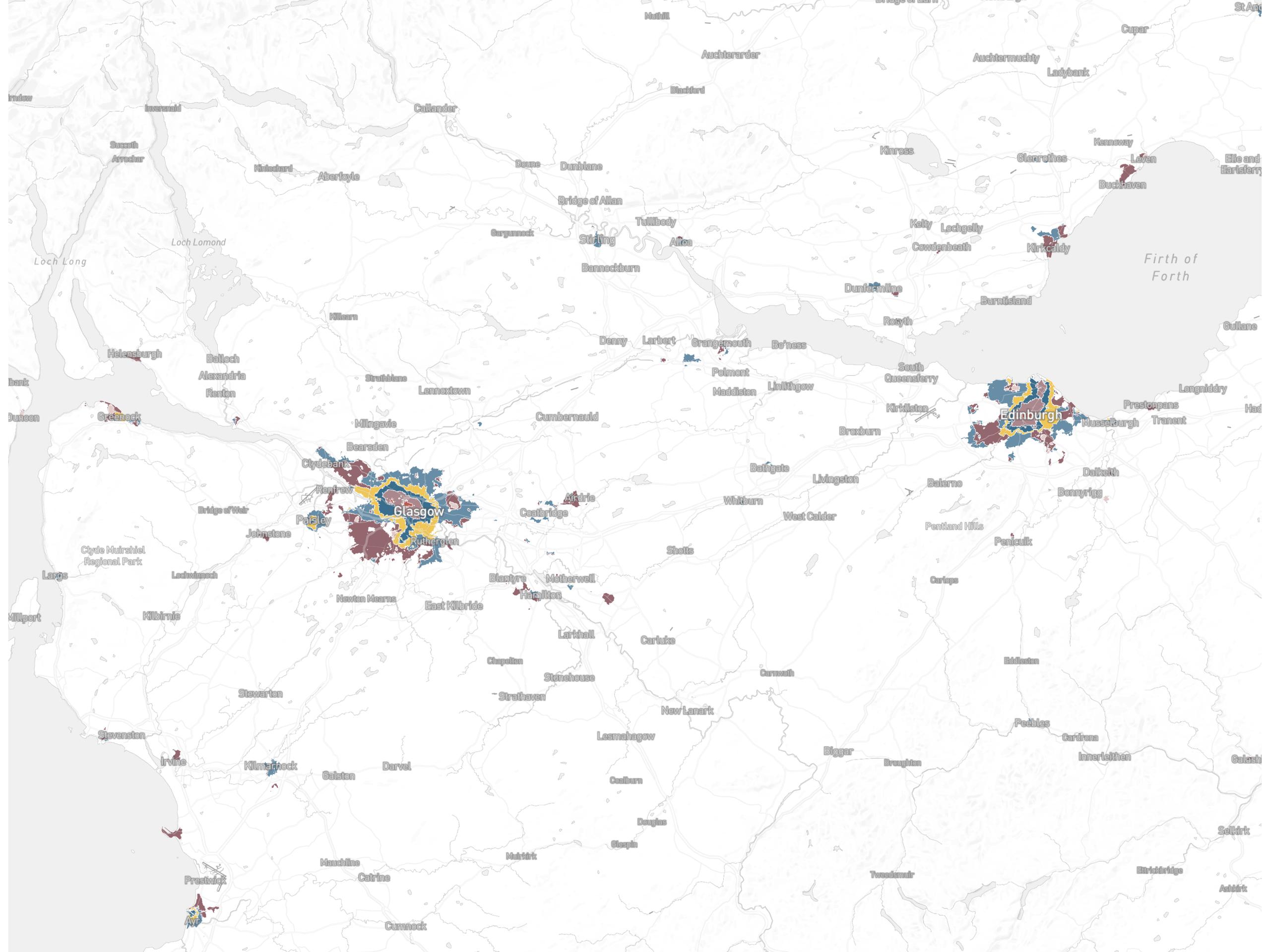
Urban (9)



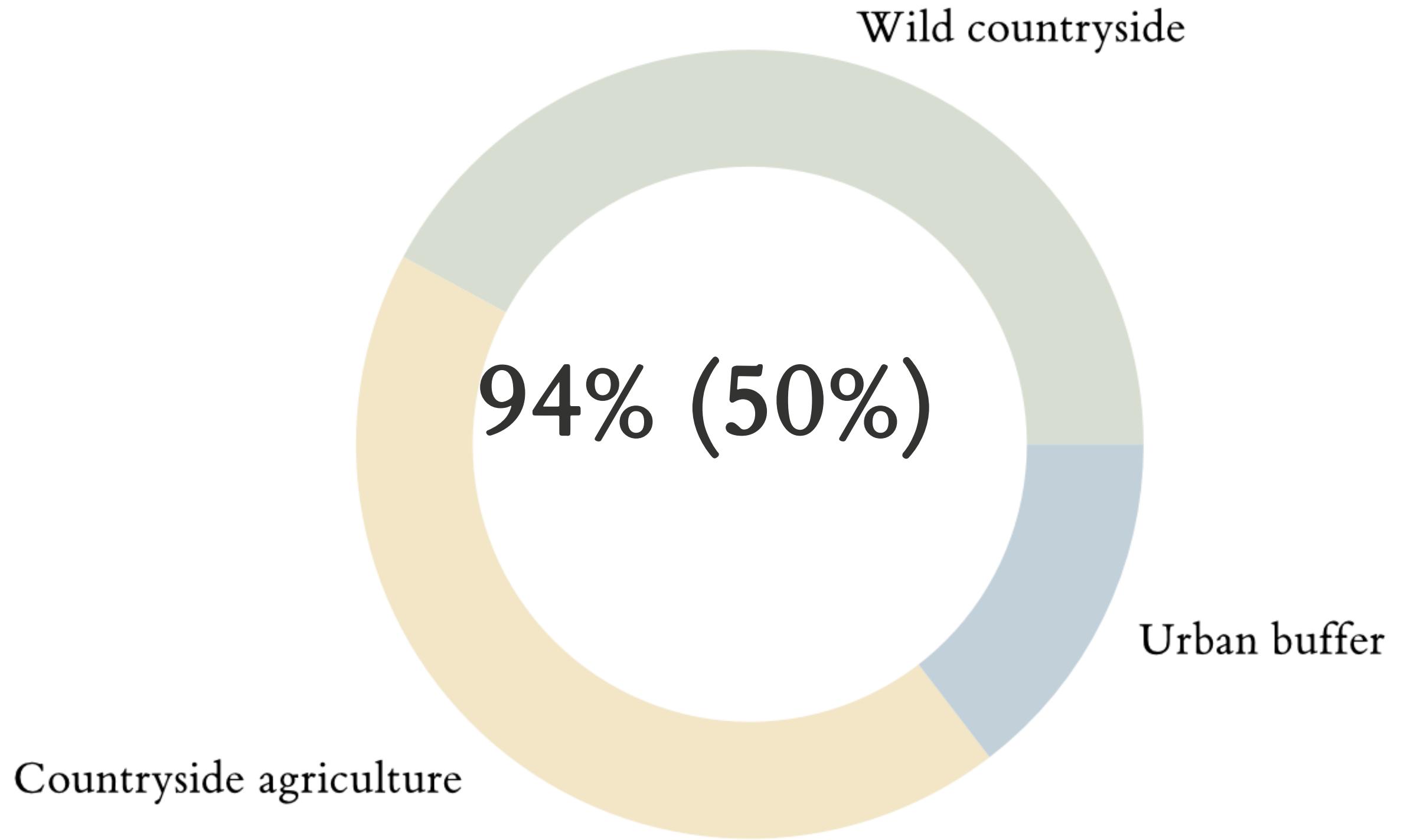


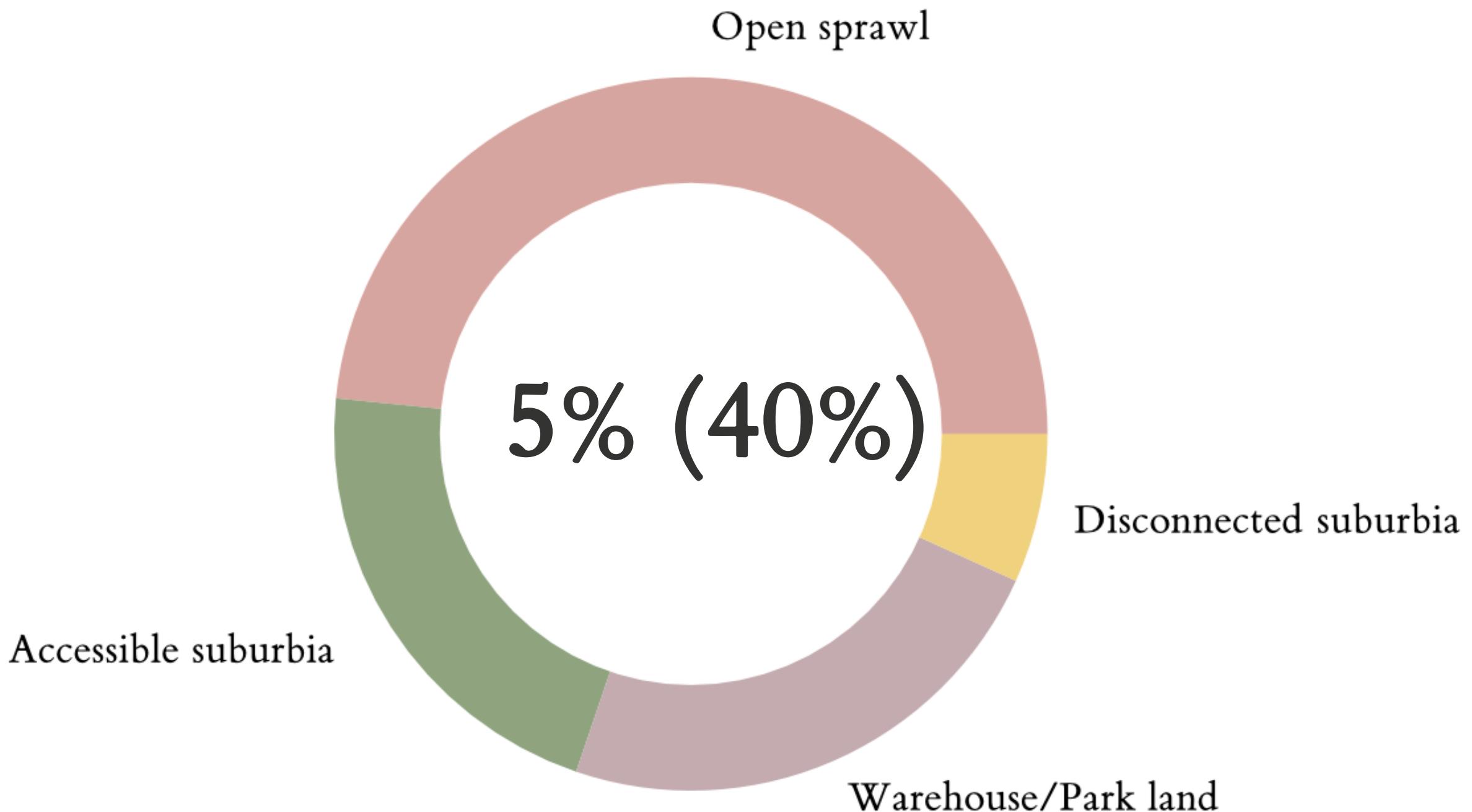


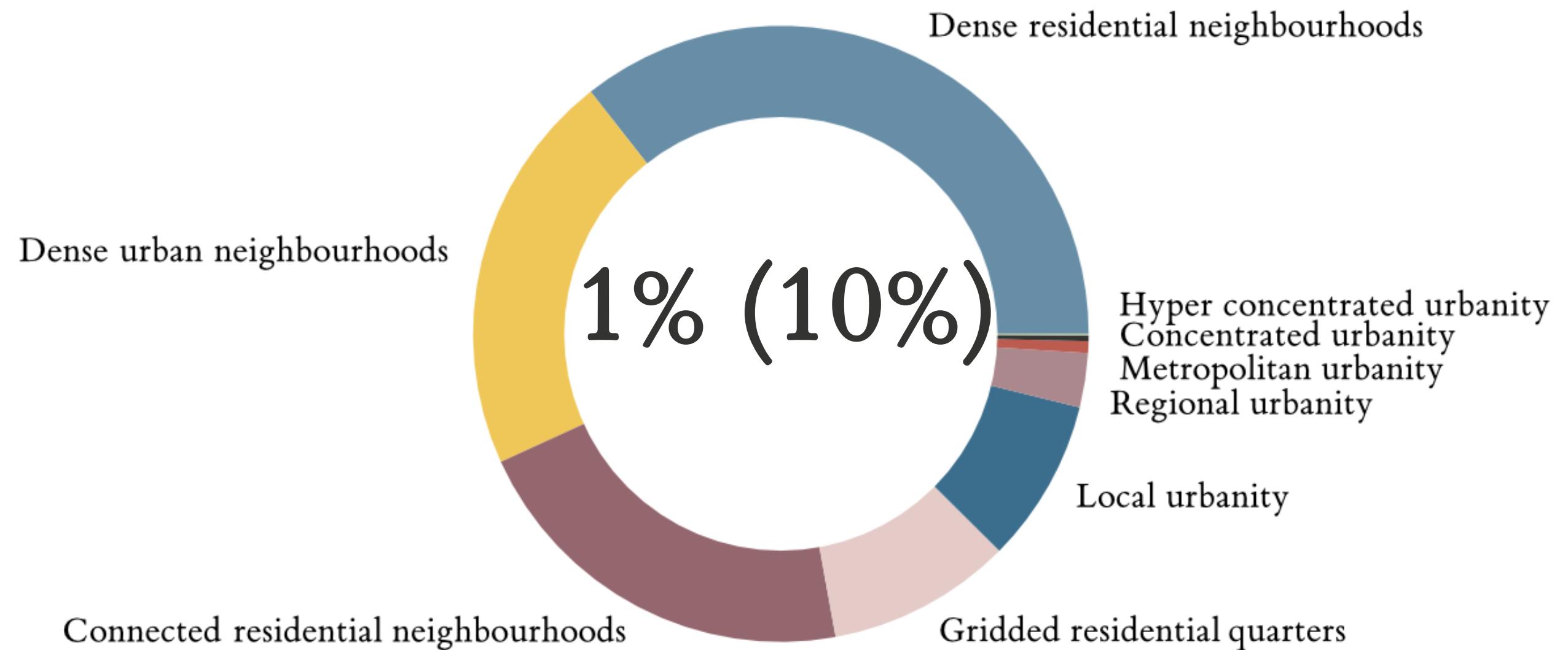




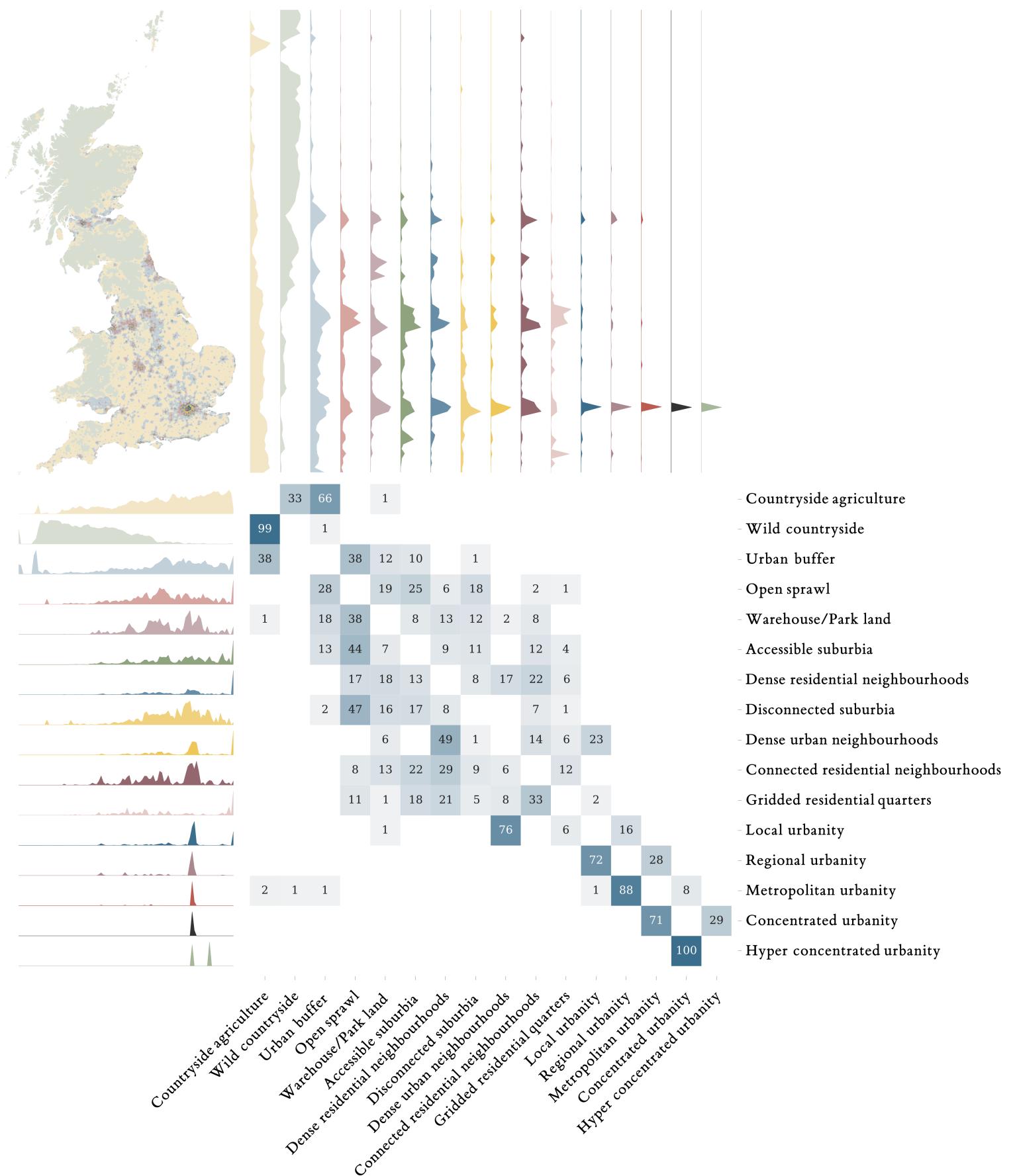
(Geographical) Coverage



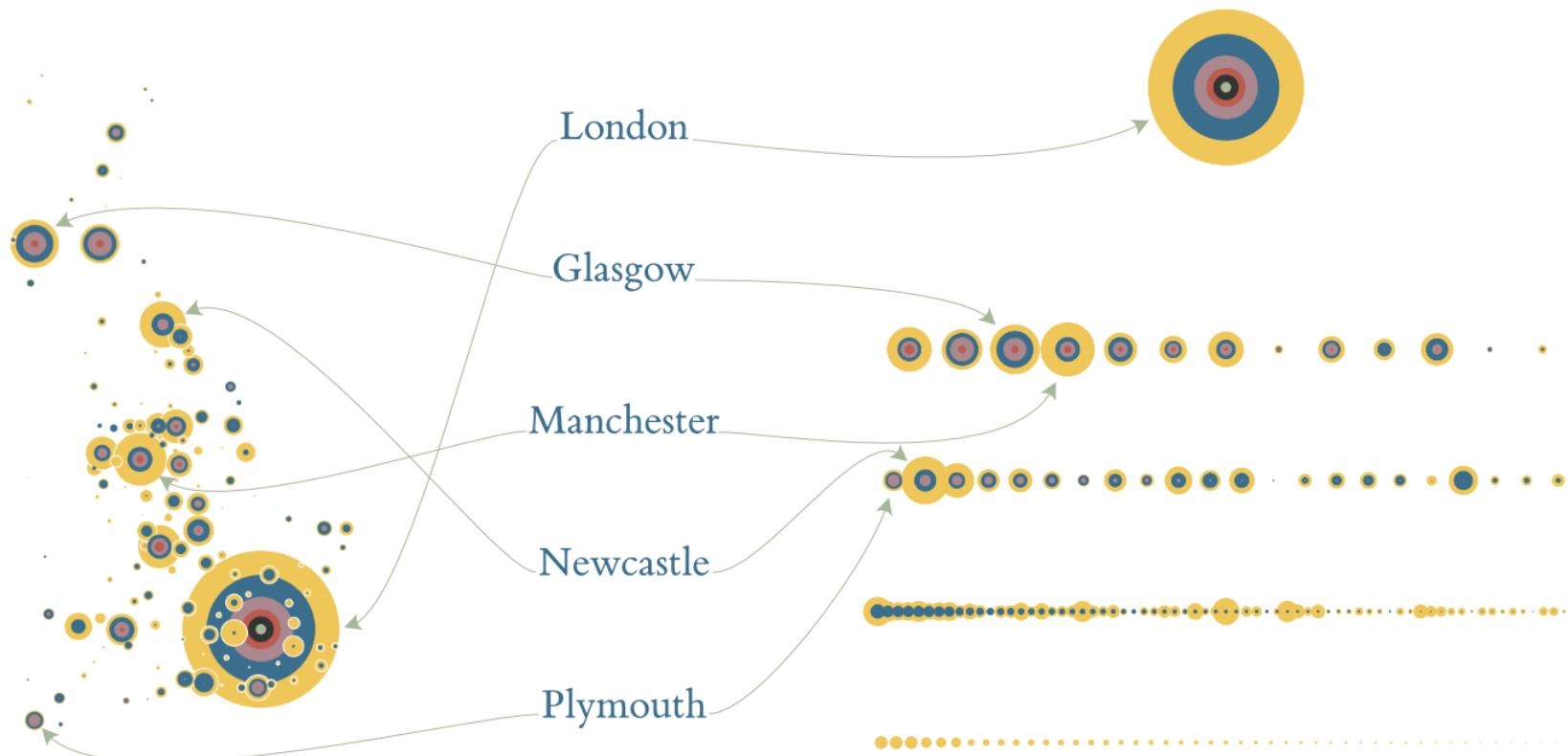




Distribution/co-occurrence



Urban hierarchy



(Hyper) Concentrated urbanity

Metropolitan urbanity

Regional urbanity

Local urbanity

Dense urban neighbourhoods

Signature drivers

Conclusions

1. Urban *form* and *function* matters
2. Spatial Signatures: F&F for cities, in detail, at scale
3. Good measurement → better understanding

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