Can Sainsbury's operational stores achieve positive biodiversity net gain?

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Background And Aims

- Environment Bill (2021) mandatory 10% biodiversity net gain in planning areas.
- Retailers motivated to undertake action to take responsibility that developing sustainably.
- Difficulties in biodiversity accounting and solutions formulating lead to insufficient actions developed by retailers.
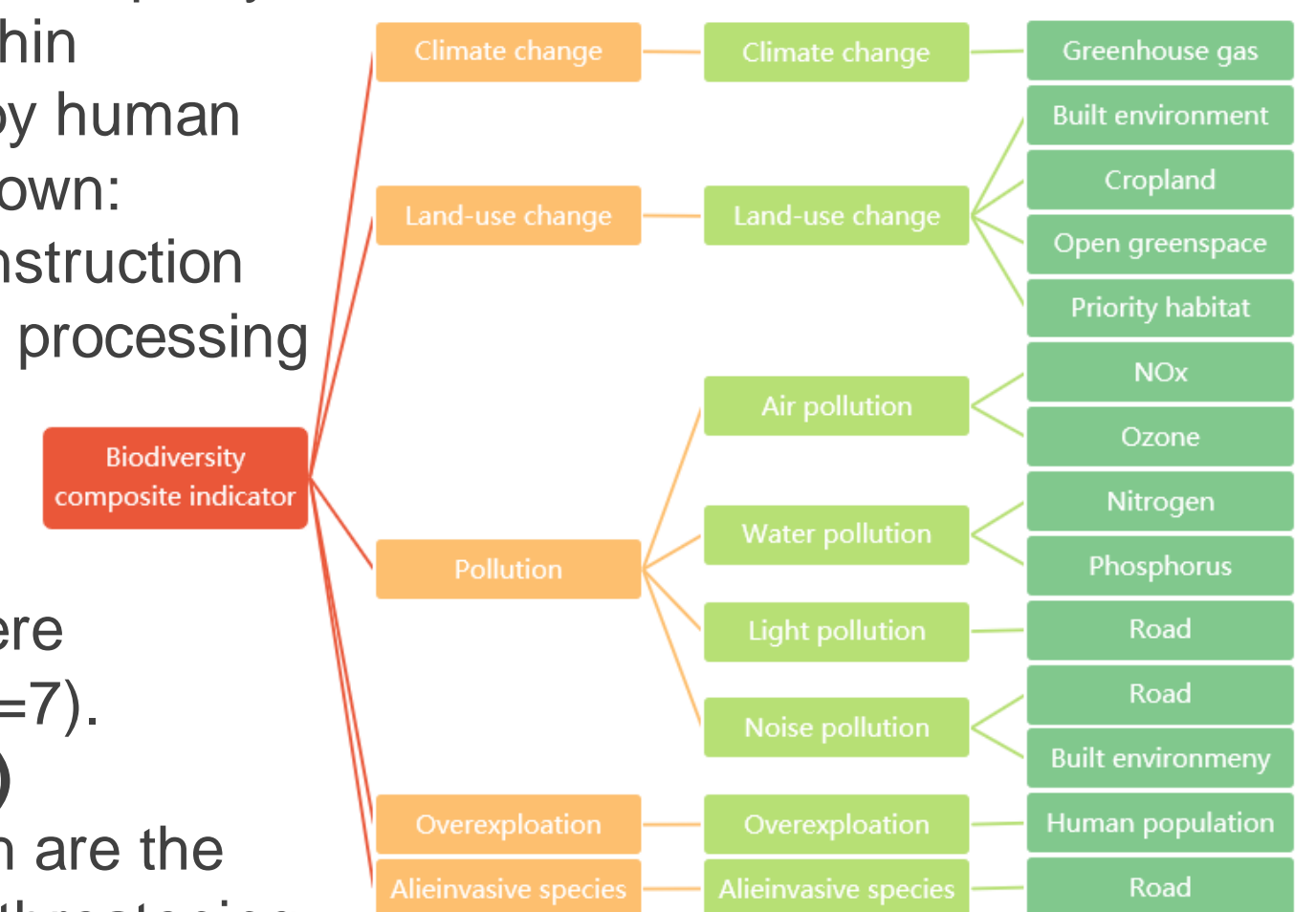
To propose feasible initiatives for Sainsbury's operational sites to improve the biodiversity status and achieve biodiversity net gain.
- ☐ Determining the biodiversity status around Sainsbury's operational sites;
- ☐ Identifying the priority area with higher biodiversity risks;
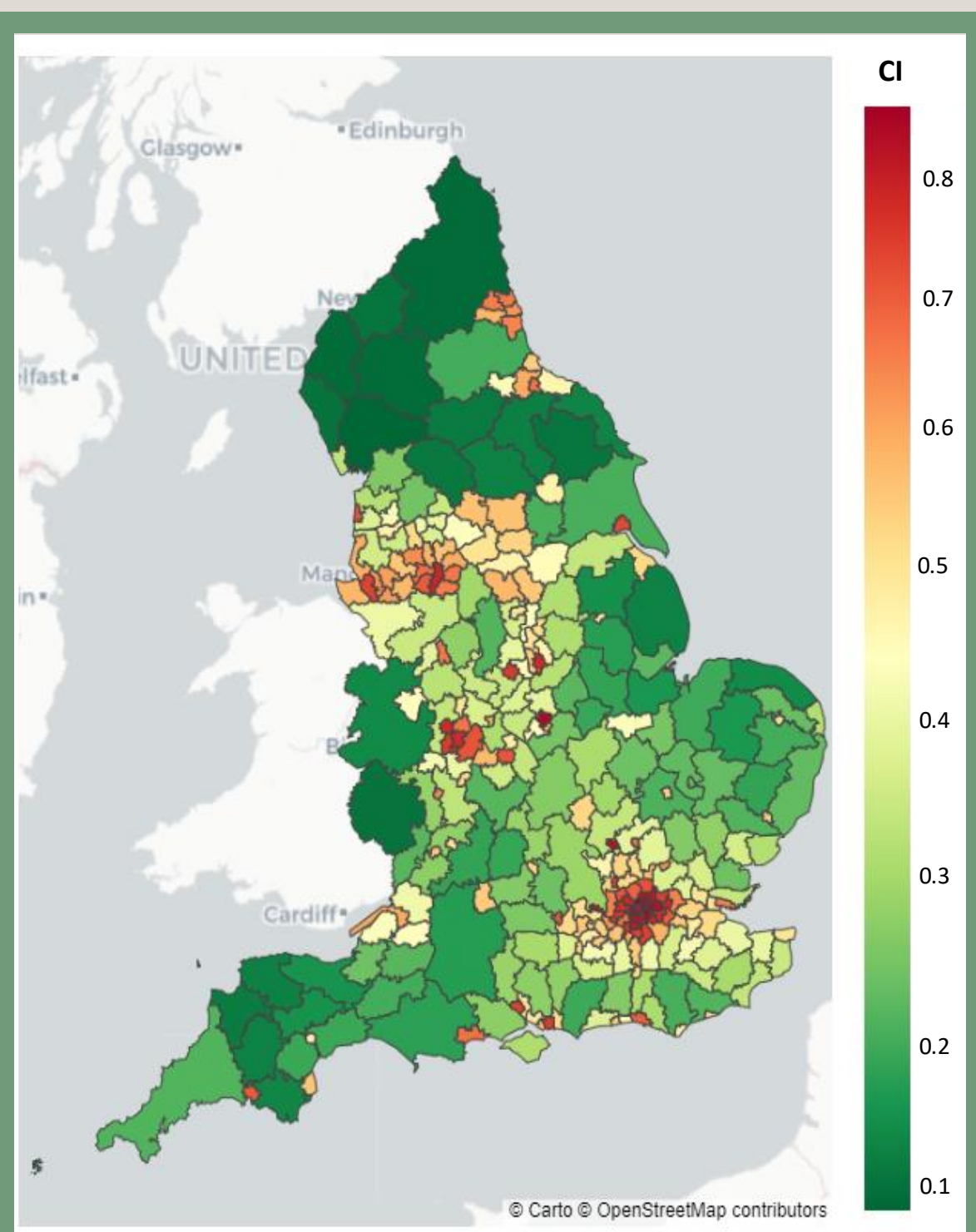- ☐ Solving the outstanding pressure source.

Methods

Composite Indicator (CI)
Construct composite pressure indicators to proxy the comprehensive biodiversity risk within Sainsbury's operational sites brought by human activities, theoretical framework are shown:
The biodiversity pressure CI model construction guided by OECD (2008) including data processing and weighting.
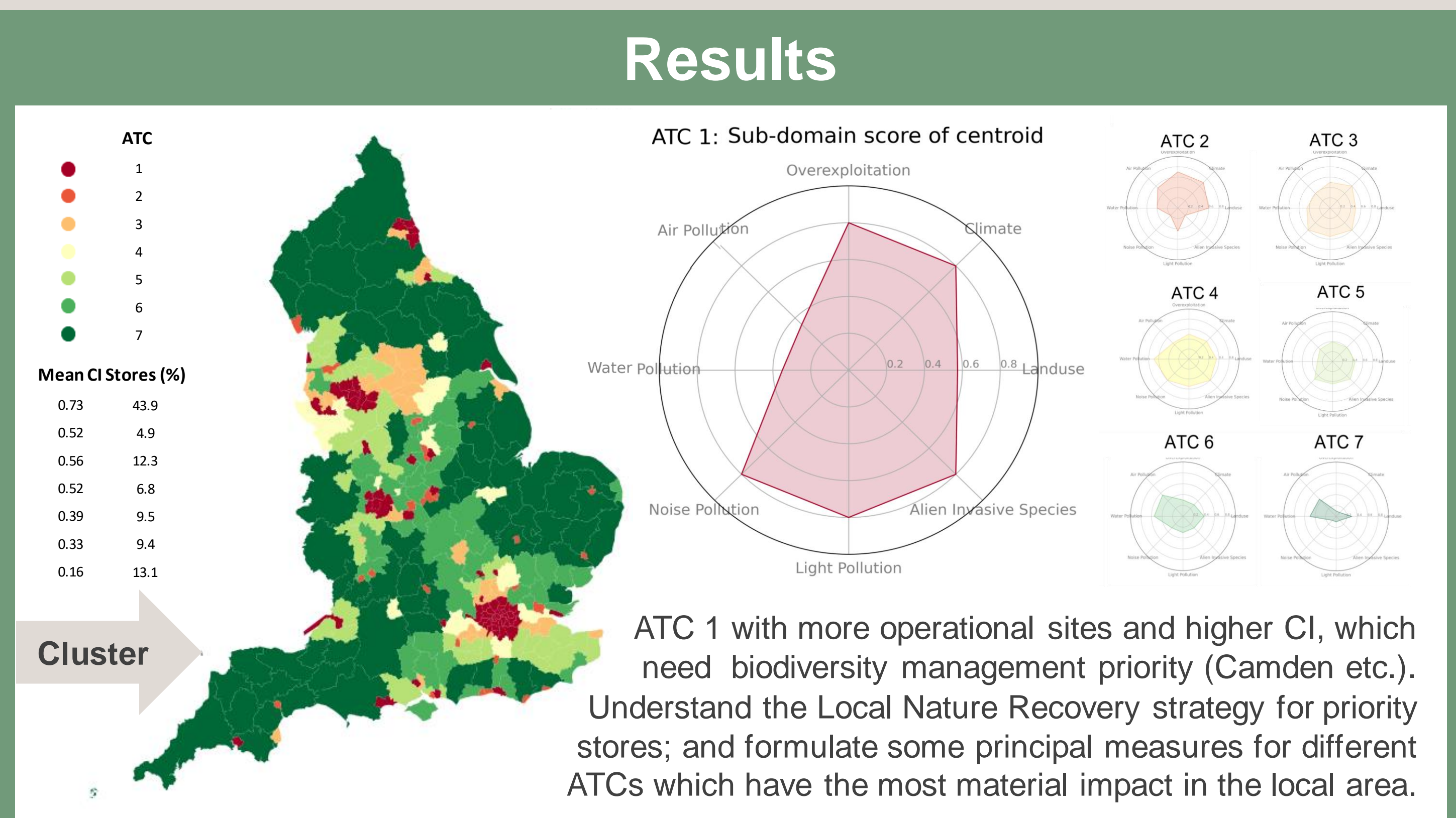
Cluster: K-medoid
Elbow method and Silhouette score were applied to choose number of cluster (k=7). Anthropogenic threat complexes **(ATC)** described the exposure patterns, which are the typical combinations of human activity threatening biodiversity.
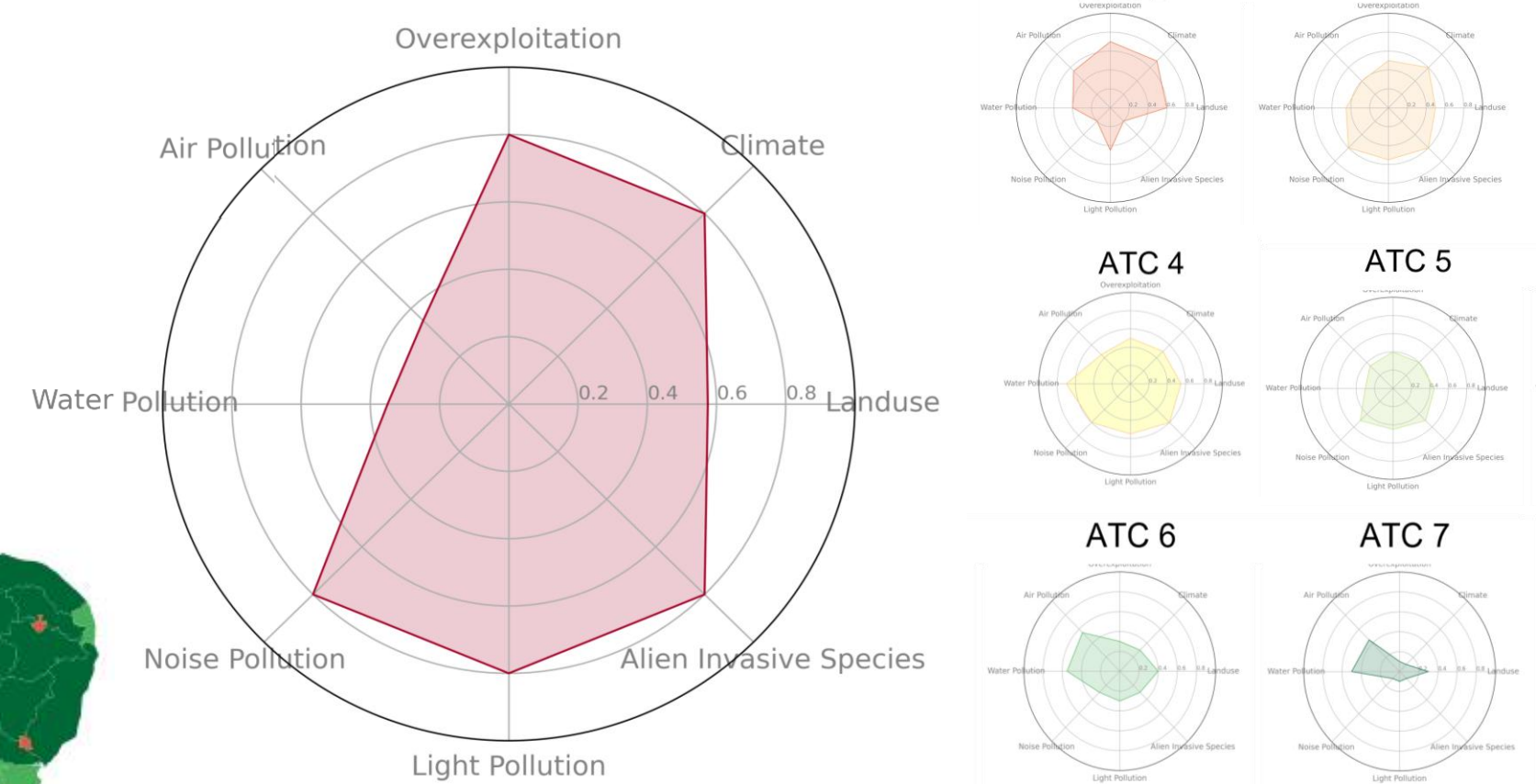

Results

Unevenly Biodiversity CI score distribution in England

Cluster →

Mean CI	Stores (%)
0.73	43.9
0.52	4.9
0.56	12.3
0.52	6.8
0.39	9.5
0.33	9.4
0.16	13.1

ATC 1: Sub-domain score of centroid

ATC 1 with more operational sites and higher CI, which need biodiversity management priority (Camden etc.). Understand the Local Nature Recovery strategy for priority stores; and formulate some principal measures for different ATCs which have the most material impact in the local area.

Discussion And Conclusion

Finding a balance between environmental and economic benefits is crucial for companies!!

Onsite improvement
Green wall and roof Sustainable Drainage System
Offsite measures
Biodiversity credits system

This research provides comprehensive initiatives for decision-makers, more evaluation about profitability should be considered along with enhanced biodiversity.

The approach including composite indicator model construction and cluster analysis can be applied to a range of UK retailers by using open data.

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