

Spatial dynamics of the multi-criteria Landscape Environmental Sustainability Index (LESI) in the rural landscape of North-Benin using satellite data

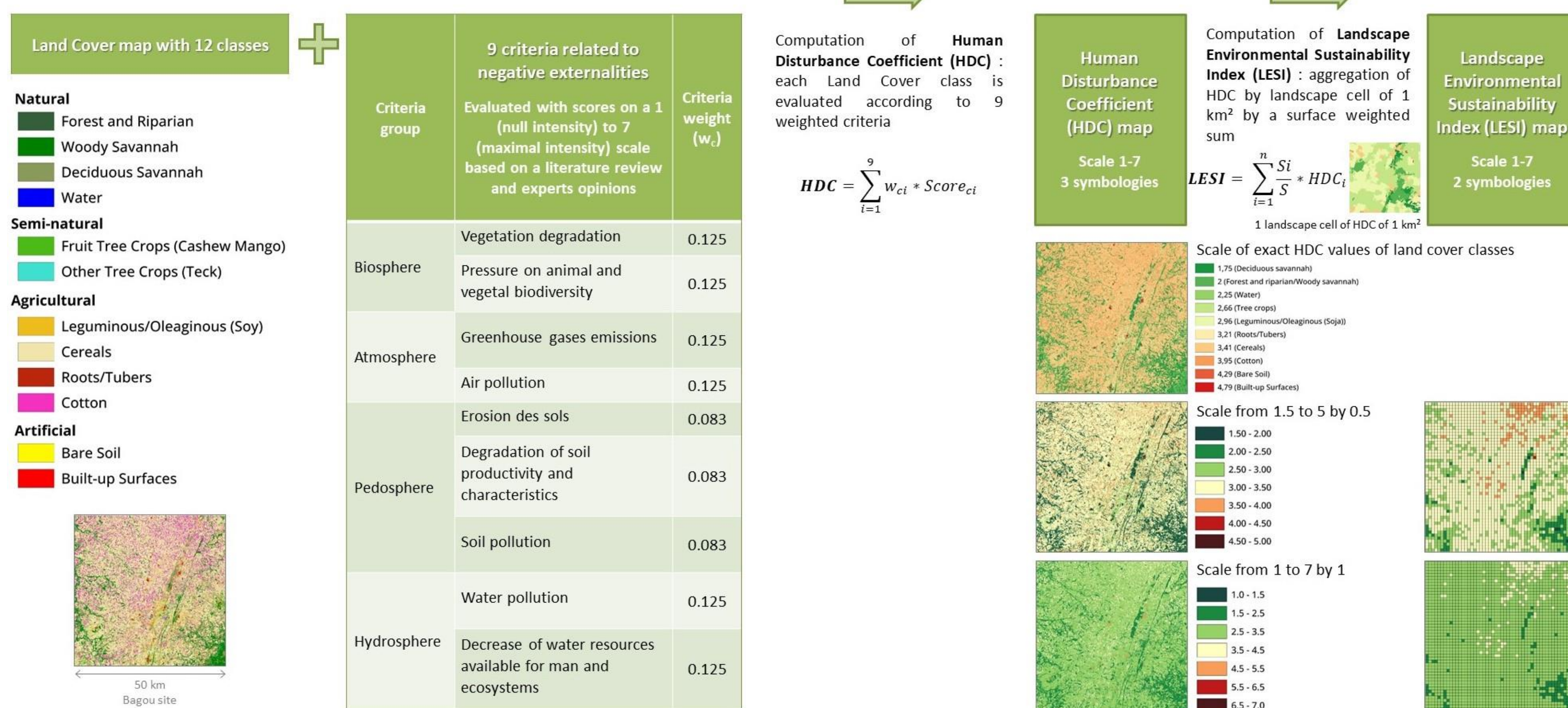
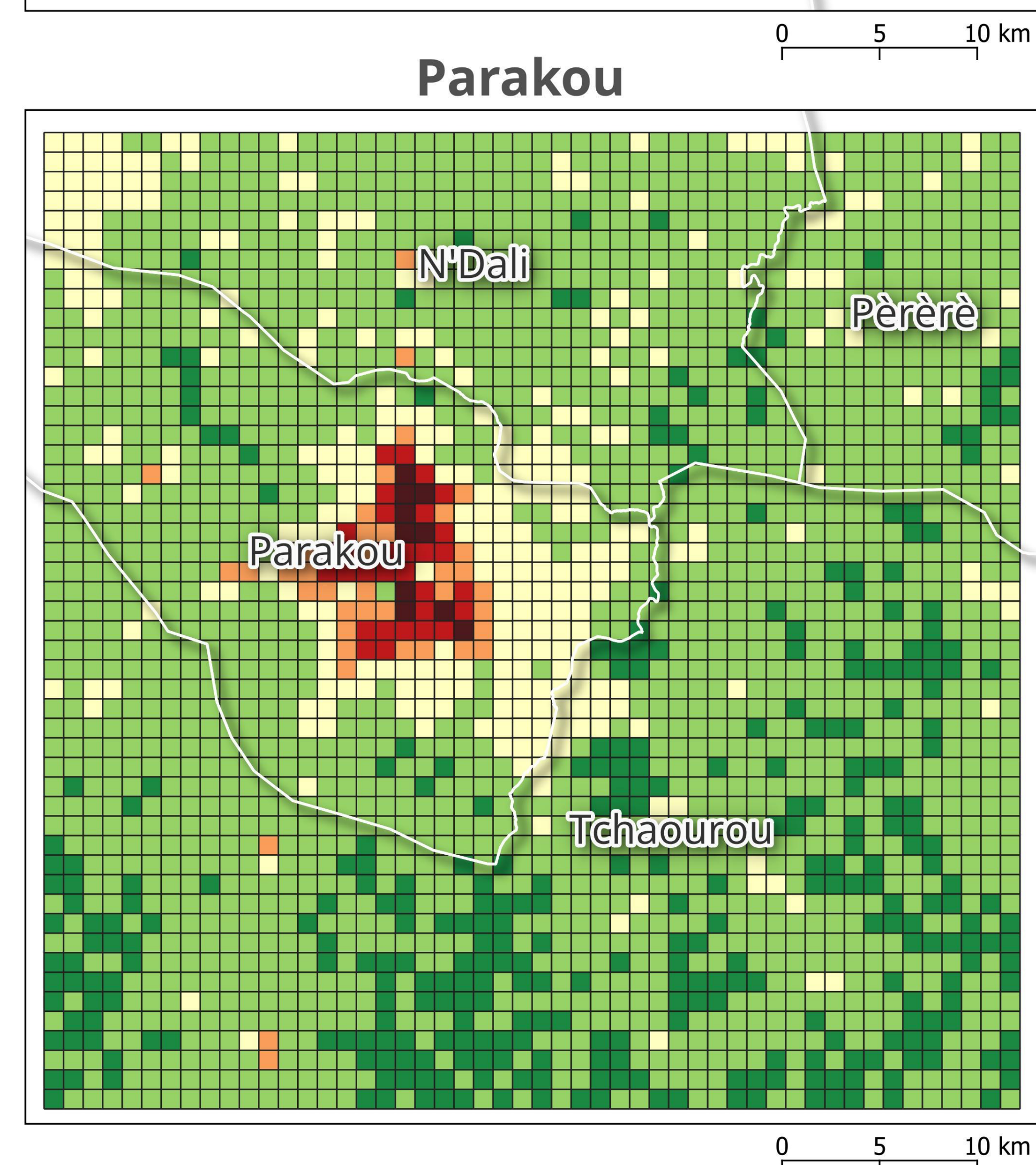
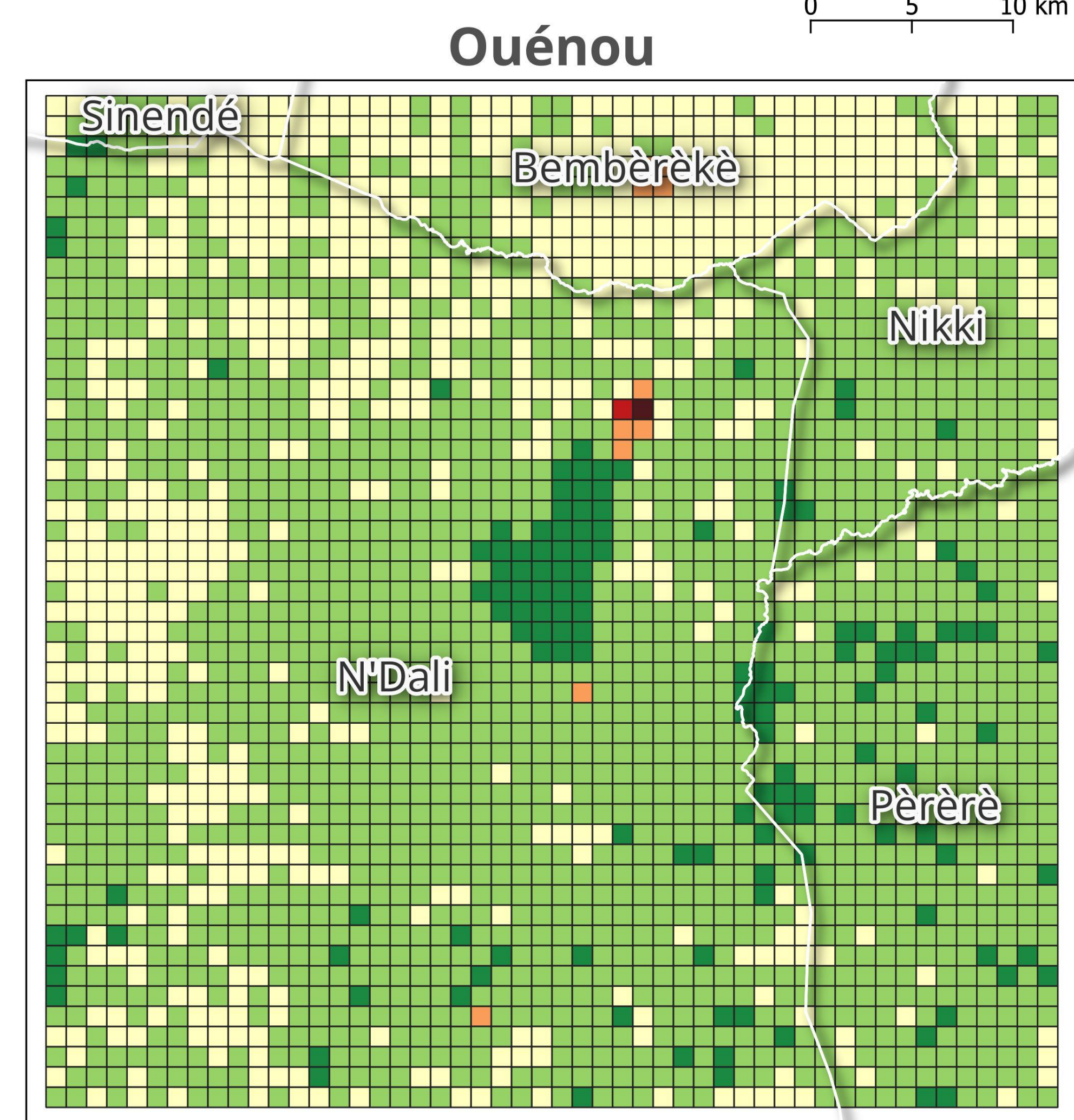
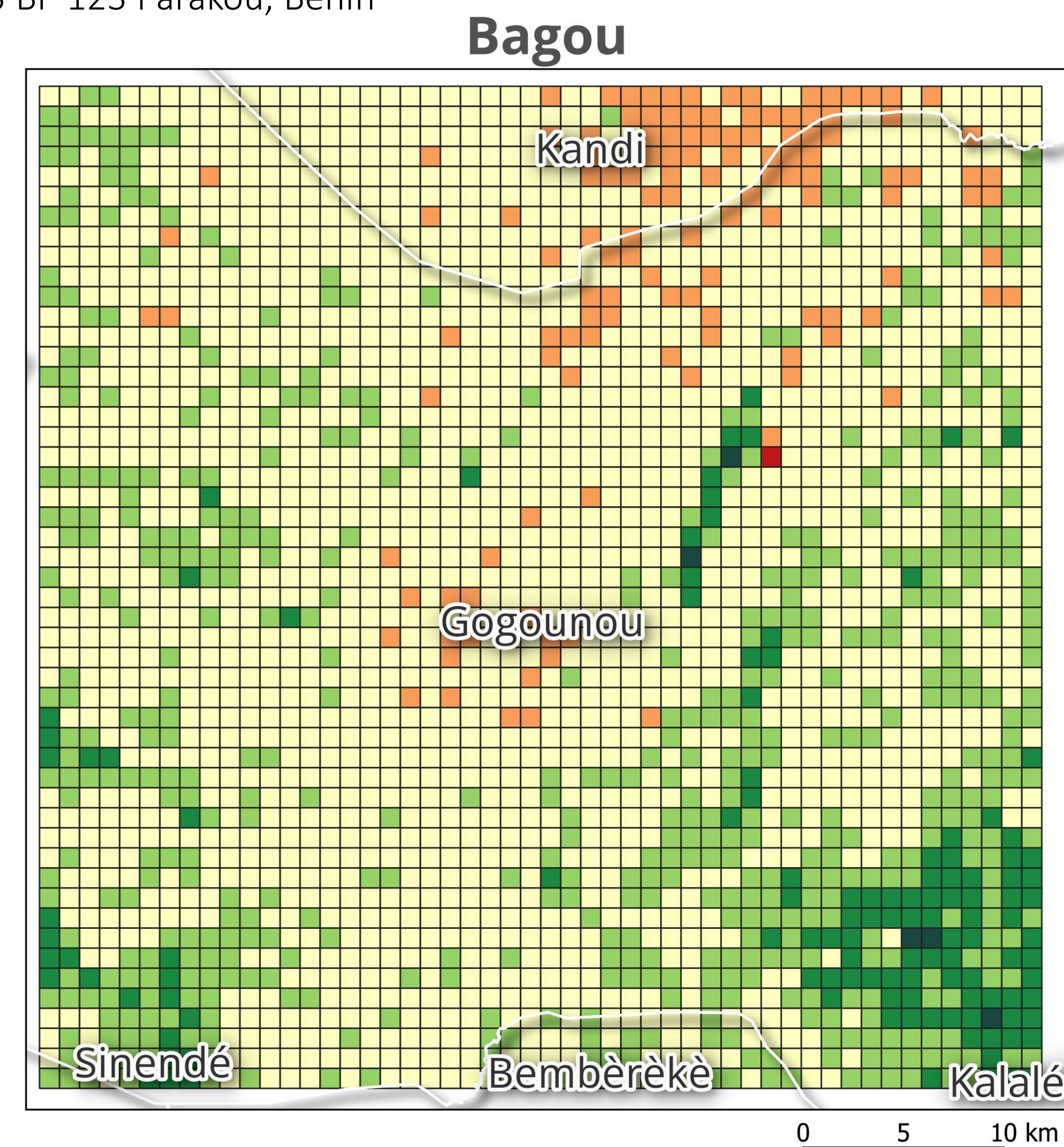
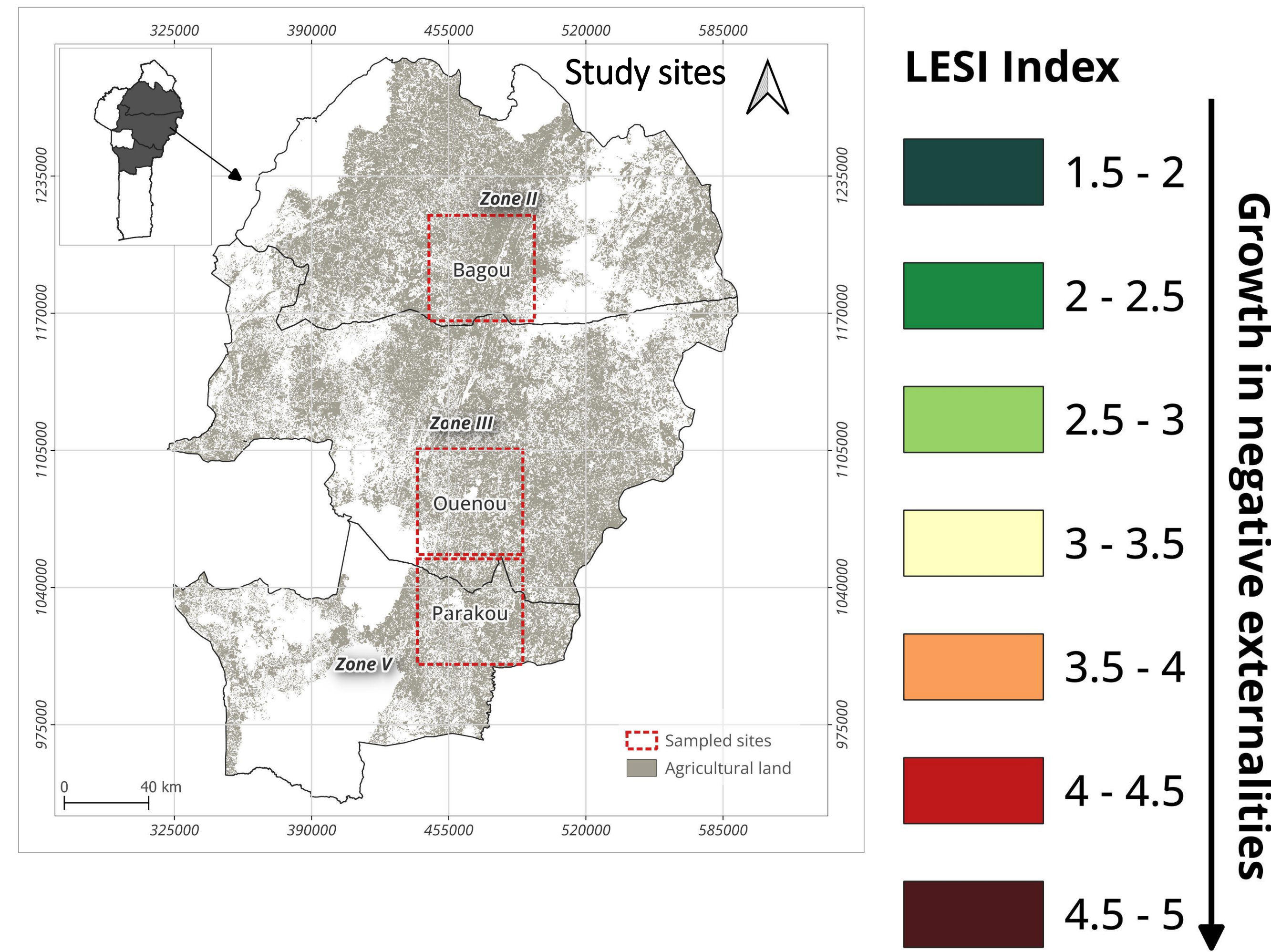
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- The LESI is an integrated multi-criteria analysis of the negative externalities of human activities on landscapes in general and rural landscapes in particular.
- It is based on land cover maps derived from satellite images.



Methodological scheme for computing Human Disturbance Coefficient (HDC) and Landscape Environmental Sustainability Index (LESI) maps

Main results

- Landscape units with low negative externalities ($1.5 \leq LESI < 2.5$) are located either in protected areas (classified forests in Ouénou) or in land that is not currently suitable for farming (rocky outcrops and riparian forests).
- Landscape units with moderate negative externalities ($2.5 \leq LESI < 3.5$) are dominated by agroecosystems.
- Landscape units with higher negative externalities ($LESI \geq 3.5$) are concentrated in agglomerations.

Conclusion

LESI is based on a multi-criteria analysis and offers an interesting alternative for assessing the negative externalities of human activities on rural landscapes. It is based on land cover data, which are becoming increasingly accurate thanks to the development of very high-resolution satellite imagery and classification based on deep learning.