

THE DIFFICULT PUZZLE OF QUANTIFYING AND MAPPING THE URBANIZATION PROCESS IN ANDALUSIA

OBJECTIVES

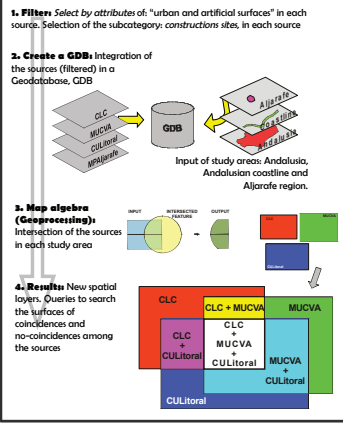
The urbanization process is a recurring topic in Social Sciences, especially in Geography. The dimensions that this phenomenon achieved over the so-called "Spanish economic miracle" and until the crisis in 2007 - ranks as one of the most representative indicators of the environmental costs of our national economic growth.

This paper focuses on analyzing the differences between the various sources that provide spatial data about this phenomenon: 1) The Corine Land Cover (CLC hereinafter); 2) the Land Use and Land Cover Types Map of Andalucía (Mapa de Usos y Coberturas Vegetales de Andalucía: MUCVA, hereinafter); 3-4) and own-data generated by the authors in their respective research.

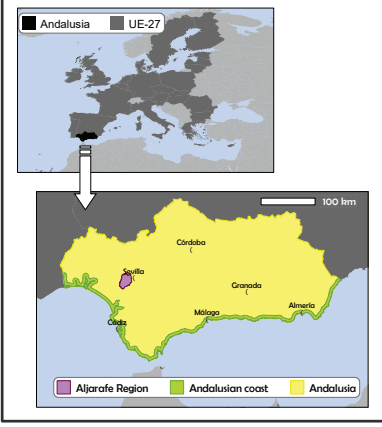
The essential question is: ARE SIGNIFICANT THE DIFFERENCES ON THE OCCUPATION AND EVOLUTION OF URBAN LAND DEPENDING ON THE SOURCES USED? How far? In addition, this methodology allows QUANTIFY AND CHART THE LEVEL OF COINCIDENCE AND DIVERGENCE between the sources. We have studied the behavior of each source in 3 study areas: the whole of Andalusia, the Andalusian Coast and the Aljarafe Region (Metropolitan Area of Sevilla).

To check, verify and assess the similarities between the sources studied, we finally have tested the methodology to some specific urban types. The AREAS UNDER CONSTRUCTION have focused our interest: first, by the controversy to define and delimit these areas, and secondly, by the interest in quantifying these unfinished landscapes in a context of real estate collapse.

METHODOLOGY



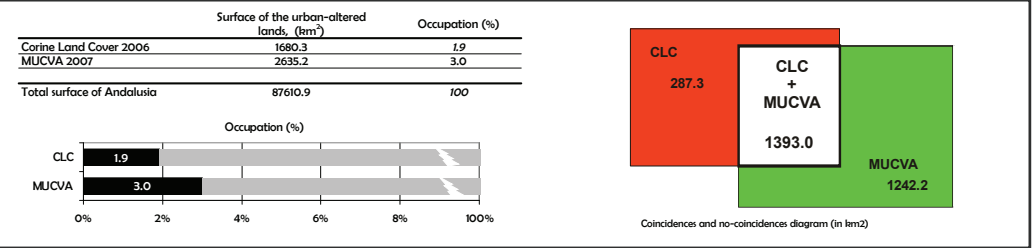
STUDY AREAS



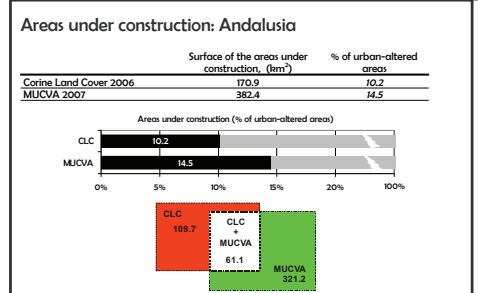
SOURCES

SOURCE OF INFORMATION	SPATIAL FRAME	YEAR	SCALE OF DATA COLLECTION	ORIGIN OF THE SOURCE	RESPONSIBLE ORGANIZATION OF THE DATA
1. Corine Land Cover (CLC)	European (last edition 38 countries)	2006	1:100 000	Landsat TM, Landsat7, SPOT4 and IRS P6 images	Coordination: European Environmental Agency (European level), Instituto Geográfico Nacional (national level), Regional authorities groups
2. Map of land use and vegetation (Mapa de Usos y Coberturas Vegetales de Andalucía: MUCVA)	Andalusia	2007	1:25 000	Orthophotos (0.5 - 1m of resolution). With the assistance of Landsat TM and SPOT images	Andalusian Environmental Department (European level), Instituto Geográfico Nacional (national level), Regional authorities groups
3. Urban land cover in the Andalusian coastline (CULitoral)	Andalusian coastline (5 km inland from the shore)	2007	1:5 000	Orthophotos (0.5 - 1m of resolution)	PhD research (Asierio Villar Lama) and the Project Desarrollo del Subistema de Información del Litoral y Medio Marino
4. Aljarafe region's map of the landscape types and areas (MPAljarafe)	Aljarafe region	2007	1:5 000	2007 orthophotos (0.5 m of resolution). With the assistance of 1956 and 2006 orthophoto (1 m of resolution)	PhD research (Miguel García Martín)

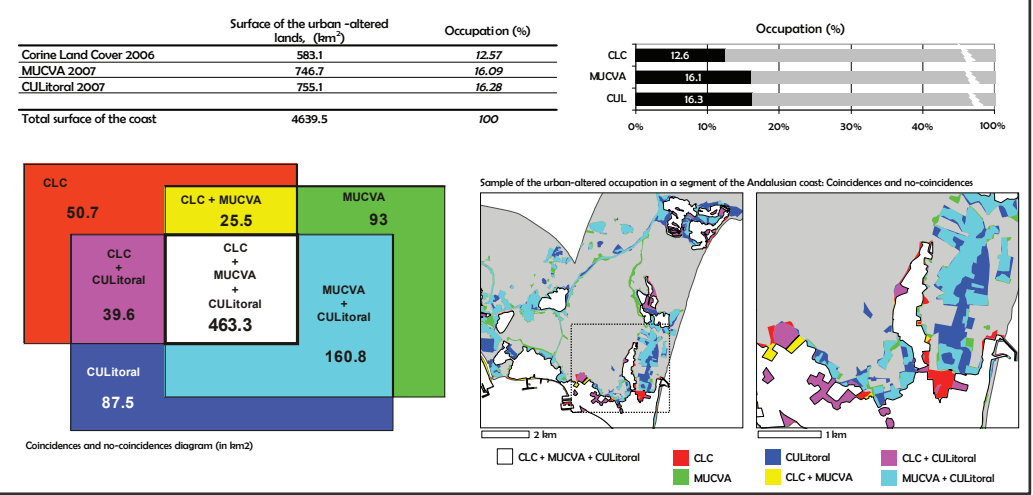
RESULTS: URBAN AREAS IN ANDALUSIA



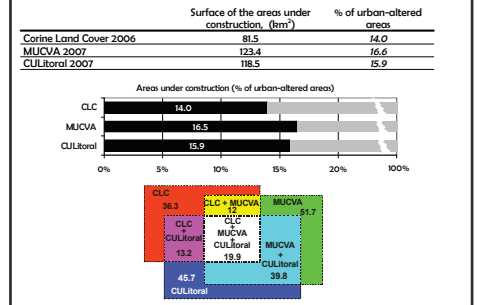
RESULTS: AREAS UNDER CONSTRUCTION



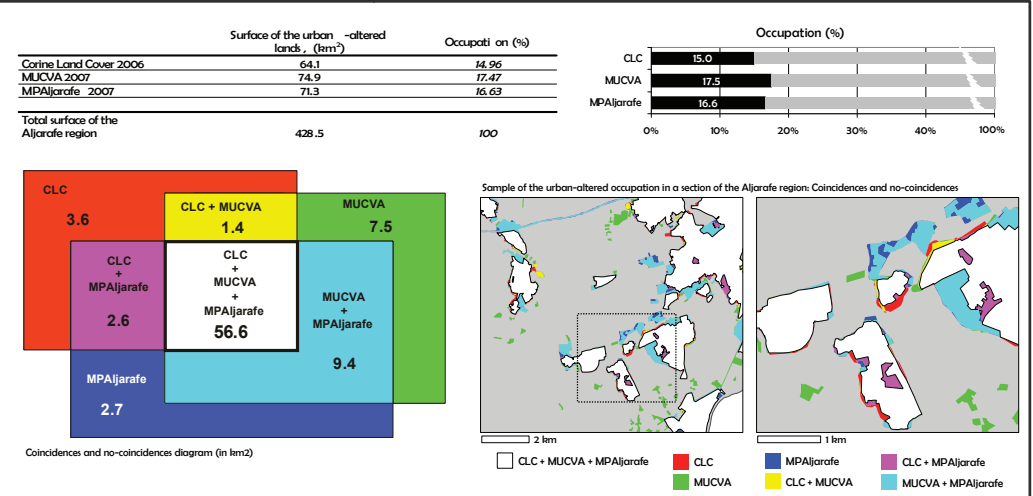
RESULTS: URBAN AREAS IN THE COAST



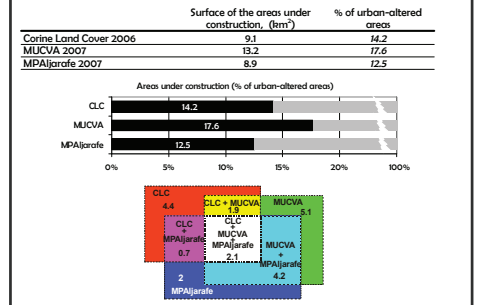
RESULTS: AREAS UNDER CONSTRUCTION: ANDALUSIAN COAST



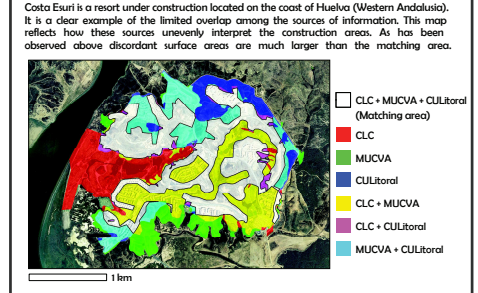
RESULTS: URBAN AREAS IN THE ALJARAFE REGION



RESULTS: AREAS UNDER CONSTRUCTION: ALJARAFE REGION



RESULTS: AREAS UNDER CONSTRUCTION: A PARADIGMATIC EXAMPLE



CONCLUSIONS

The analysis for the whole of Andalusia showed a moderate convergence between information sources. Although the matching area is estimated at 1393 km², the difference amounts to 1530 km². This divergence responds to urban areas in MUCVA not covered by CLC, mostly for reasons of scale (isolated urban elements, highways...). This fact explains why urban occupation in Andalusia range between 1.9% and 3% according to the source, a sizeable gap taking into account the dimension of this region.

The earlier general pattern is verified on the coast and Aljarafe region with some peculiarities. Thus, MUCVA overstate the CLC data with less intensity. The reduced presence of isolated urban elements (here conurbation is the dominant trend) explains that the gap between the sources is lower in the quantification of the phenomenon.

The application of the method to the areas under construction shows that the controversy defining the urban phenomenon is even greater for some cover types. The degree of coincidence is very low in all three study areas, especially at the regional level. CLC matches MUCVA in only 12% of the total land under construction represented by both sources.

The convergence among authors' maps (generated at 1:5000) and MUCVA (1:25000) suggest that the latter scale is sufficient to distinguish the urban reality. Internal differentiation between uses and morphologies requires higher photointerpretation scale. The clearest examples are the areas under

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