

URBAN MORPHOLOGICAL ANALYSIS: CONTRIBUTIONS OF THE HISTORIC-GEOGRAPHIC APPROACH ASSOCIATED WITH THE CREATION OF A MULTILAYERS DATABASE

Introduction

The historical-geographical approach emerged from the works of German geographer M.R.G. Conzen and his studies centered on the transformation and permanence of the urban forms. The Conzenian thought structures its morphological analysis on two axioms: [1] the tripartite vision, understood as the systematic and hierarchized composition of the urban form; [2] a periodization of the forms in morphological periods, that is, a temporal organization of the historical and evolutionary periods. In this method, the association of the tripartite vision, in each morphological period, leads to the comprehension of the evolution of the urban landscape (PEREIRA, COSTA et al., 2013).

In recent studies regarding urban morphology, the relevance of the historical-geographical approach of the Conzenian School is observed, in the international debate and in the increasing influence of its concepts in the urban planning field (WHITEHAND, 2007). However, according to Whitehand (2007), the urban administration of a number of countries limits their historical approach to the architectural scale.

As a result, the urban historical process and its relation to the geographic insertion are little explored: "There is little sense of how these relate to one another and are part of a process of change: awareness of historical-geographical processes is poorly developed (WHITEHAND, 2007, p4). Taking this need into account, researchers have adopted the GIS technology (Geographic Information System) as an interdisciplinary analysis tool: The Historical GIS. According to historian-geographer Anne Kelly Knowles, Historical GIS provides the tools to combine history and geography to study patterns of change over space and time (KNOWLES, 2002).

In the presented framework, the objective is to contribute to the methodology of the historical-morphological analysis. Considering the increasing Conzenian influence in urban planning (WHITEHAND, 2007), a method for reading the landscape is proposed, which through the Historical GIS, allows the comprehension of the dynamics of the transformation of the territory from the formation period to its

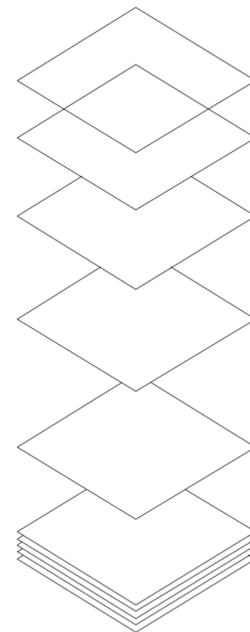
current configuration, being able, subsequently, to offer subsidies to the local urban administration. As an object of study, the work covered the district scale, in accordance with its period of one year, and prioritized the districts whose database was incomplete or non-existent. In this context, it chose Sousas, one of six districts of the municipality of Campinas, in the State of São Paulo, located in the east and at a distance of approximately 10km from the city center.

Methods

After the theoretical fundamentation, the methodological procedures were organized into 4 stages: [1] Comprehension of the formation and urban evolution the District of Sousas according to the concepts of the historical-geographical approach; [2] Development of the database: historical, geographical and current landscape through the QGIS software; [3] Integrated analysis of the data collection from the historical-geographical method and using QGIS software; [4] Elaboration of maps through QGIS.

Results

The Analysis Methodology



Historical analysis

Comprehension of morphological periods and tripartite vision

Geographical analysis

Comprehension of topographic elements and the urban landscape

Historic-geographic analysis

Analysis of the morphological periods associated to the topographic elements until the current urban landscape (Synthesis map on the side)

Current landscape analysis

Deepen the analysis of the present urban landscape (land use and occupation and figure ground)

Integrated analysis

Overlay all different data and analysis for more complex readings

Database

Integrate them in a database that could offer a potential subsidy for urban planning and management.

In order to provide full transparency, traceability and reproducibility of the materials produced and used to generate such results, the QR Code on the side allows access to other analysis maps



Discussion and Conclusion

In terms of the urban landscape of Sousas, it is observed that the topographic elements directed the formation of the initial nucleus and acted, along the economic activity, as fomenters of local transformation. The Institutional religious edifications and their public spaces defined the centrality and morphogenesis and contain, today, the historicity of the district. In this sense, the analysis of the morphological periods, associated to the current landscape reading, makes evident the cultural and historical landscape and elucidate directions for the preservation of historicity in face of the natural tendency of transformation of the urban landscape. Furthermore, the contributions go beyond the urban landscape of Sousas. Through the use of GIS, it is possible to overlap different readings in a single database, analyze them together and easily update them, offering potential subsidy to urban planning. It is understood, therefore, that by combining the historical-geographical approach to GIS, the research contributed both in terms of the morphological analysis and also in pointing out protection strategies and urban management.

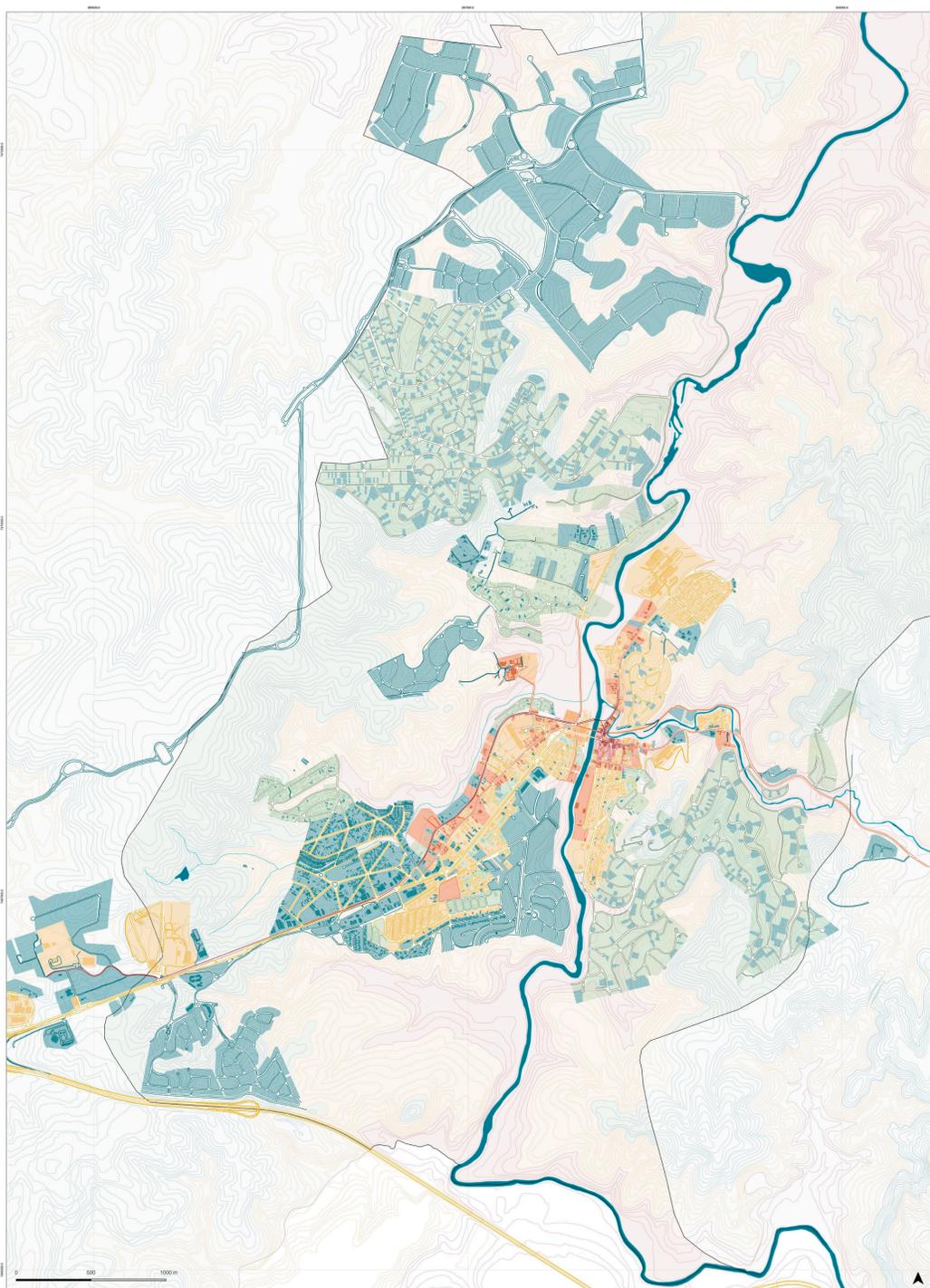
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SYNTHESIS MAP HISTORIC-GEOGRAPHIC ANALYSIS



State of São Paulo



City of Campinas and Sousas



City of Campinas
District of Sousas

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Source: Database developed during the research using QGIS Software (2020).

Geographical Coordinate Systems UTM Projection / Datum SIRGAS 2000, 23S Zone

LEGEND

Morphological periods

- **First period 1A:** The Morphogenesis (1830 - 1889) Thorp D'Atibaia the church São Sebastião square and sugar economy cycle
- **First period 1B:** The Morphogenesis (1889 - 1896) Arraial of Sousas: the church Santana square and the coffee economy cycle
- **Second period:** Creation of the District (1896 - 1929) Peak of the coffee economy cycle
- **Third period:** Stagnation (1929 - 1946) Crisis in the coffee economy and urban and rural exodus

- **Fourth period:** Industrialization (1946 - 1977) First urban subdivisions and industries
- **Fifth period:** Urban expansion (1977 - 1990) Emergence of peripheral residential condominiums
- **Sixth period:** Urbanization (1990 - present) Intense urbanization and transformation into urban form

Level curves and Morphological Periods

- 635m-660m: First, Second and Third period (1830 - 1946)
- 665m - 695m: Fourth and Fifth period (1946 - 1990)
- 700m - 800m: Large condominiums - Sixth period (1990 - present)

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