Seminar: Mapping Historical Identity using GIS. The example of Iberian manuscripts (SoSe 2025)

QGIS Mapping Project Report

Topic: Cartographic Analysis of the Medieval Territory of Íscar

Submitted by-

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Cartographic Analysis of the Medieval Territory of Íscar

Abstract

This report presents a comprehensive cartographic analysis of the medieval territory of Íscar, located in the Valladolid region of Spain. Using QGIS software, three detailed maps were created to visualize and analyze the territorial boundaries, settlements, and geographical features of this historically significant area as described in the dossair. The study combines historical documentation with modern Geographic Information Systems (GIS) technology to better understand the spatial organization of medieval territories in the Tierra de Pinares region.

1. Introduction

1.1 Background

The territory of Íscar represents a significant case study for understanding medieval territorial organization in the Iberian Peninsula. Located in what is now the province of Valladolid, this area was part of the broader Tierra de Pinares region, characterized by extensive pine forests that have defined the landscape since the Late Middle Ages. The strategic importance of Íscar is evidenced by its prominent castle, which was mentioned in Arab chronicles as early as 939 CE during Abd-al-Rahman III's campaign.

1.2 Project Objectives

The primary objectives of this mapping project were to:

- Visualize the territorial boundaries of medieval Íscar based on historical documentation.
- Compare different scholarly interpretations of the territory's extent.
- Analyse the relationship between geographical features and territorial organization.
- Demonstrate the application of modern GIS technology in historical research.

1.3 Methodology

In this project I used QGIS software to create three distinct maps, each highlighting different aspects of the Íscar territory. The maps were based on historical documentation and scholarly research, particularly the work of Gonzalo Martínez Díez, who attempted to reconstruct medieval territories south of the Duero River.

2. Different Layers of the map

Before starting with the project some basic settings were made such as setting the CRS that is Coordinate Reference System. I set CRS to EPSG:25832-ETR89/UTM Zone 32N.

2.1 Basic Layers: I imported some basic layers such as Google Satellite and OpenSTREETMap to make the final map look attractive and easy to understand. I used Google Satellite to show the area of interest in the top right corner of my final map, where I marked Valladolid on the map of world map, as shown below.

Map showing area of interest using Google Satellite Layer

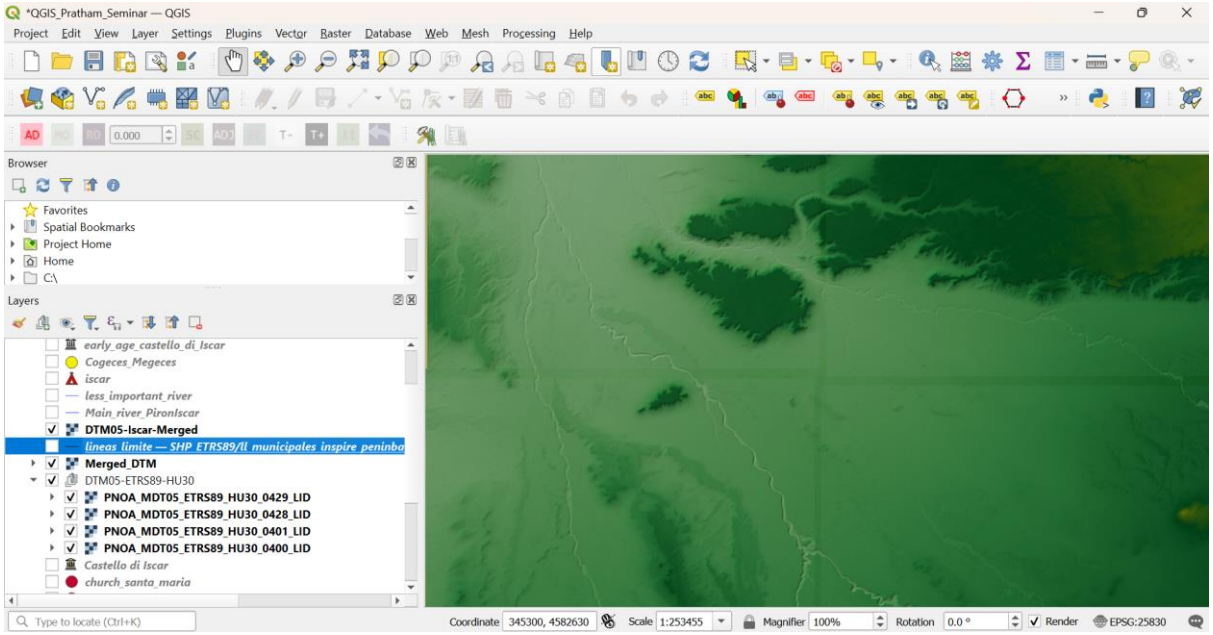
2.2 Digital Terrain Model: A Digital Terrain Model (DTM) is a digital representation of the Earth's bare ground surface, excluding objects like trees, buildings, and other surface features. It focuses only on the natural terrain (the relief of the land).

Purpose of DTM: Used to analyse landforms, slope, elevation, watershed boundaries, flood risk, and many other geospatial applications.

To download the DTM I used Centro de Descargas website and searched for DTM for the area covering the area of interest. I downloaded and imported these 4 main DTM in QGIS.

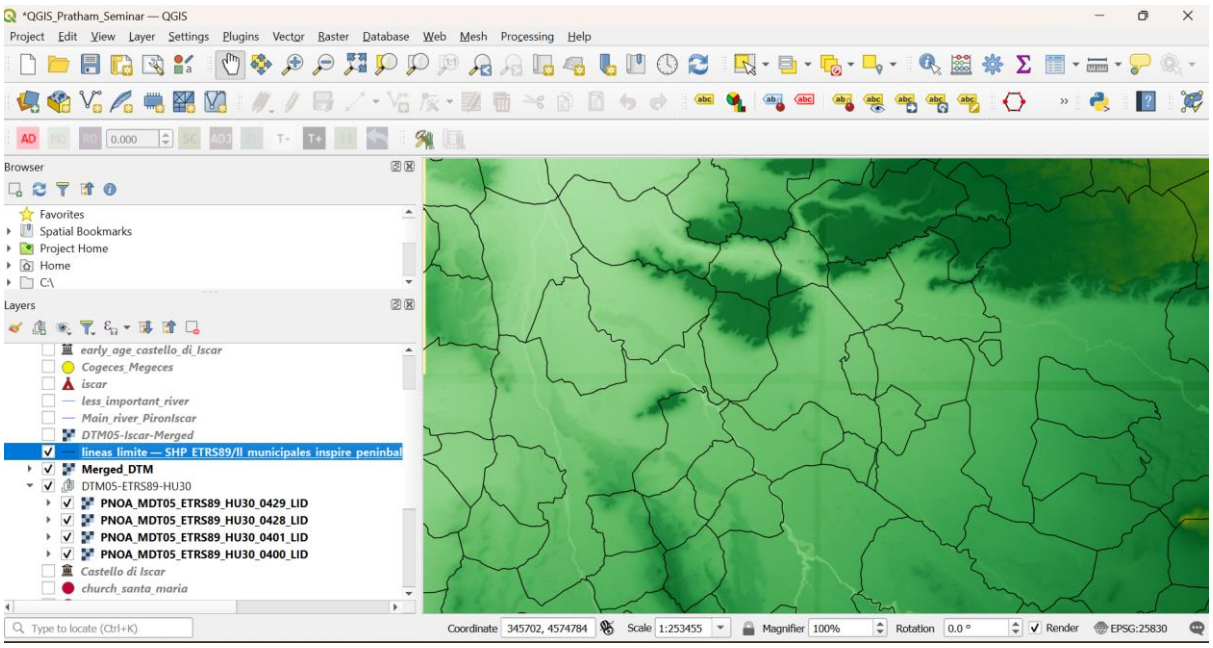
1. PNOA_MDT05_ETRS89_HU30_0428_LID
2. PNOA_MDT05_ETRS89_HU30_0429_LID
3. PNOA_MDT05_ETRS89_HU30_0400_LID
4. PNOA_MDT05_ETRS89_HU30_0401_LID

After importing they have been merged into a single file so that they can be handled together and easily. All the 4 DTM have been set to Single band pseudocolor and Linear Interpolation with a colour ramp of light green to dark green with Min elevation at 650 meters and Max elevation at 950 meters diving in 10 equal classes.



Here is the picture showing all 4 DTM in action.

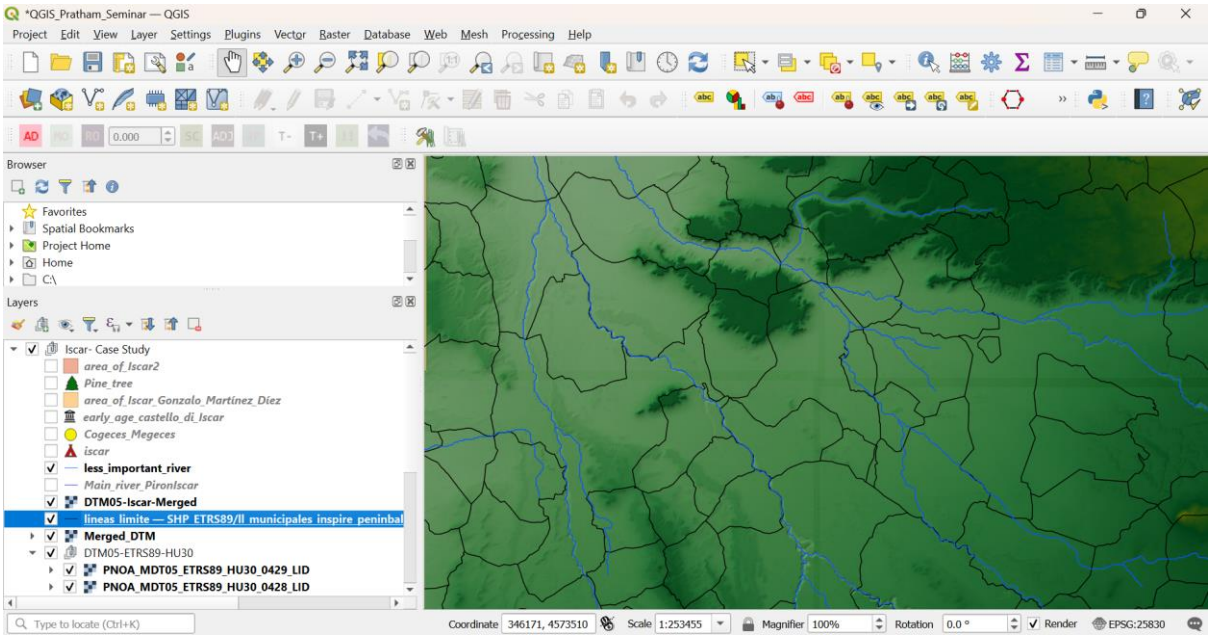
2.3 Municipality Layer: Next I imported the current municipality division layer from the website of Centro de Descargas. This layer is beneficial in understanding the current division of municipalities and help us to related and better understand the text and context of the text from the dossair. The layer is named lineas_limite — SHP_ETRS89/ll_municipales_inspire_peninbal_etrs89/ll_municipales_inspire_peninbal_etrs89.shp



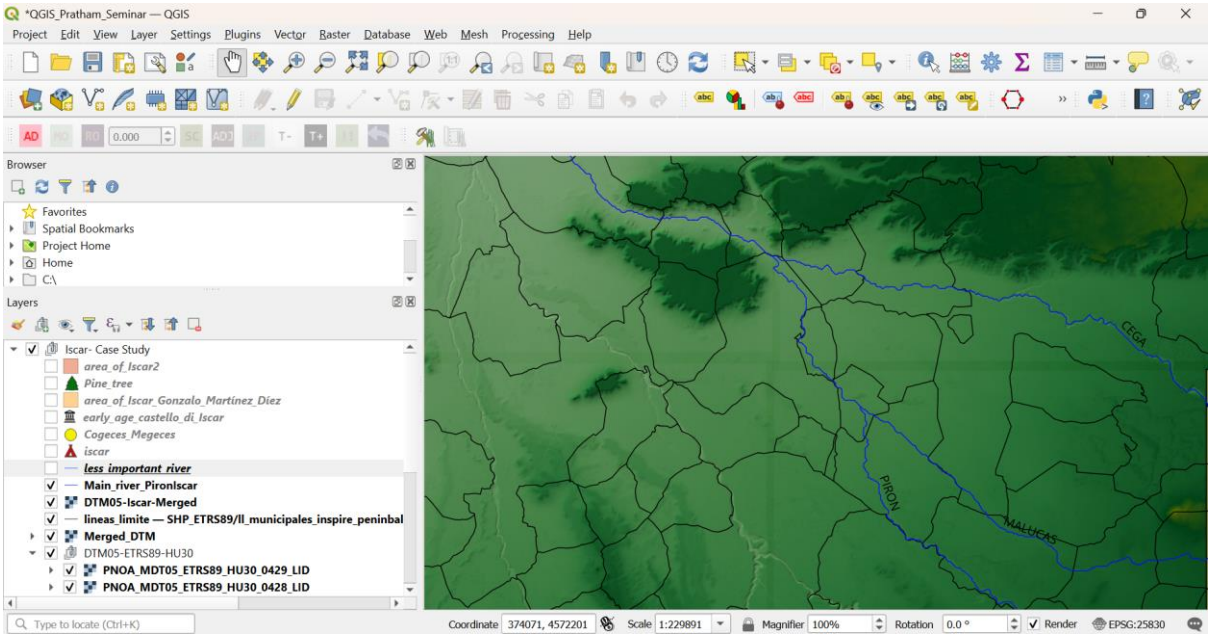
DTM along with Municipalities Division Layer

2.4 River Layer: Rivers are important natural features that often serve as boundaries between provinces and municipalities. Even today, many countries use natural elements such as rivers

and mountains to define their borders. Therefore, it is logical to include a layer that highlights all the major rivers flowing through the region.



I imported the river layer from the Centro de Descargas website, which displays all rivers in the region. From this dataset, I selected only the rivers mentioned in the dossier and removed the others, as they are less relevant and could cause confusion. Consequently, only the rivers flowing around Íscar and referenced in the dossier were retained—namely, the Cega, Pirón, and Malucas rivers. Properties were changed in this layer such as colour to Blue to easily understand that it's the river and the width of the river (line width) was also adjusted depending if it's a major river in the region or a tributary of a bigger river.

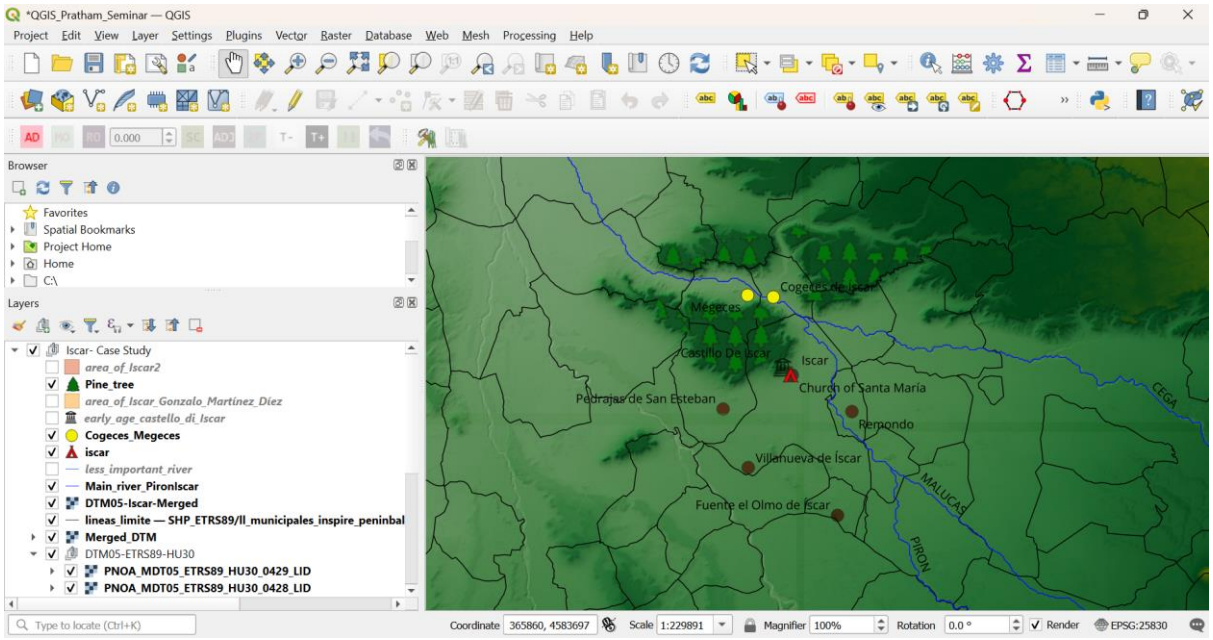


Showing Major River in the region: Cega, Piron and Malucas

2.5 Territory of Iscar: Once our project is ready with basic layers that we might need to plot and understand the dossair. I started with ploting the places mentioned in the dossair.

This includes:

1. Íscar – Main focus of study, in Tierra de Pinares, historically important with pine forests and medieval role.
2. Remondo, Villanueva, Fuente el Olmo, Pedrajas de San Esteban – Bordering towns historically linked to Íscar.
3. Church of Santa María – Medieval-origin church in Íscar, likely continuation of the old monastery.
4. Castle of Íscar – Key medieval fortress, later rebuilt, mentioned in Arab chronicles.
5. Megeces and Cogeces – Disputed territories, possibly part of Íscar from the mid-12th century onward.



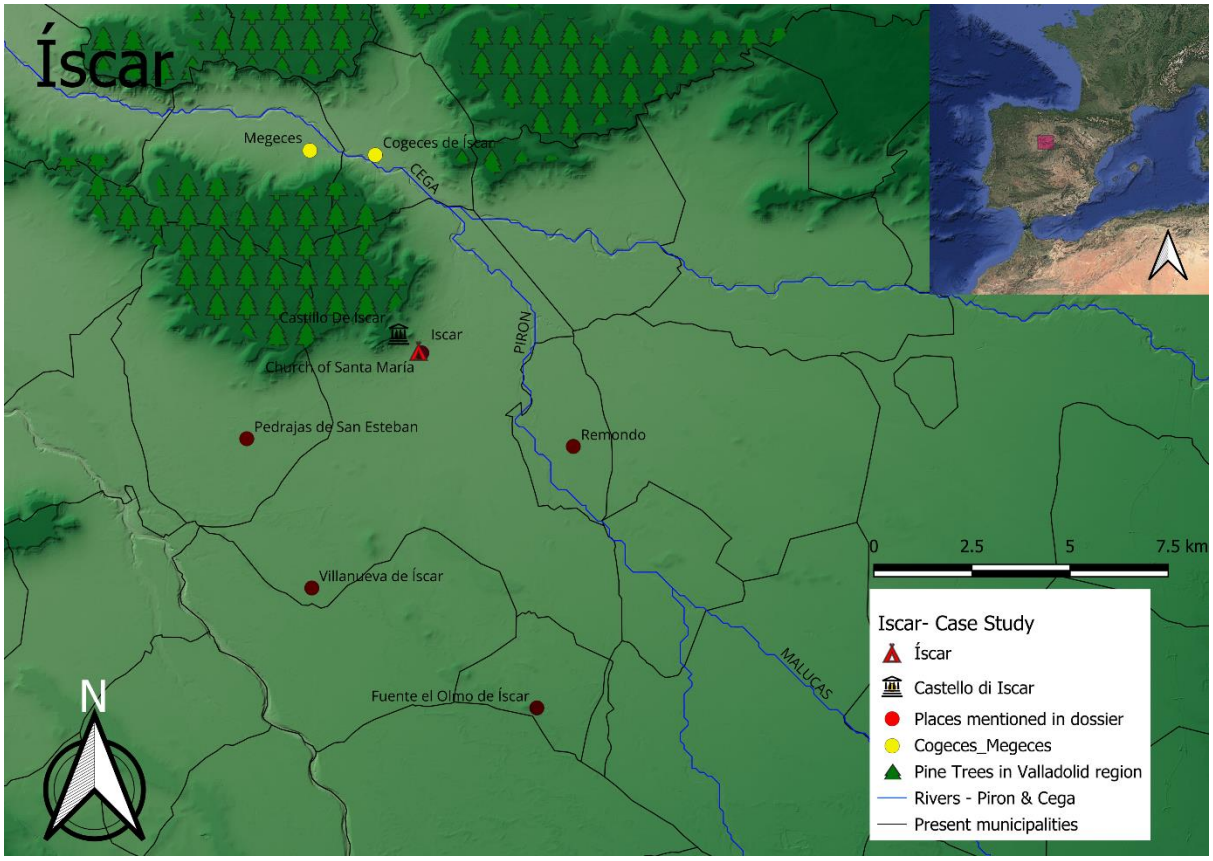
Íscar is highlighted with a unique SVG marker to emphasize it as the primary area of interest. The surrounding towns, except Megeces and Cogeces, are marked in red to indicate their relevance as secondary places of interest. Megeces and Cogeces, however, are shown in yellow to distinguish them, reflecting the historical uncertainty over whether they belonged to Íscar's territory. Castello di Íscar is represented with a castle marker. Pine trees were also added as they are an important topographical feature of the region.

At this stage, we are ready to create our first map: an overview of Íscar's territory, displaying all the places mentioned in the dossier.

3. Cartographic Analysis

3.1 Map 1: Overview of the Íscar Territory

The first map provides a comprehensive overview of the study area, displaying all settlements mentioned in the historical documentation. This map serves as the foundation for understanding the spatial relationships between different locations within and around the proposed territory of Íscar.



Map of Íscar

Key Features:

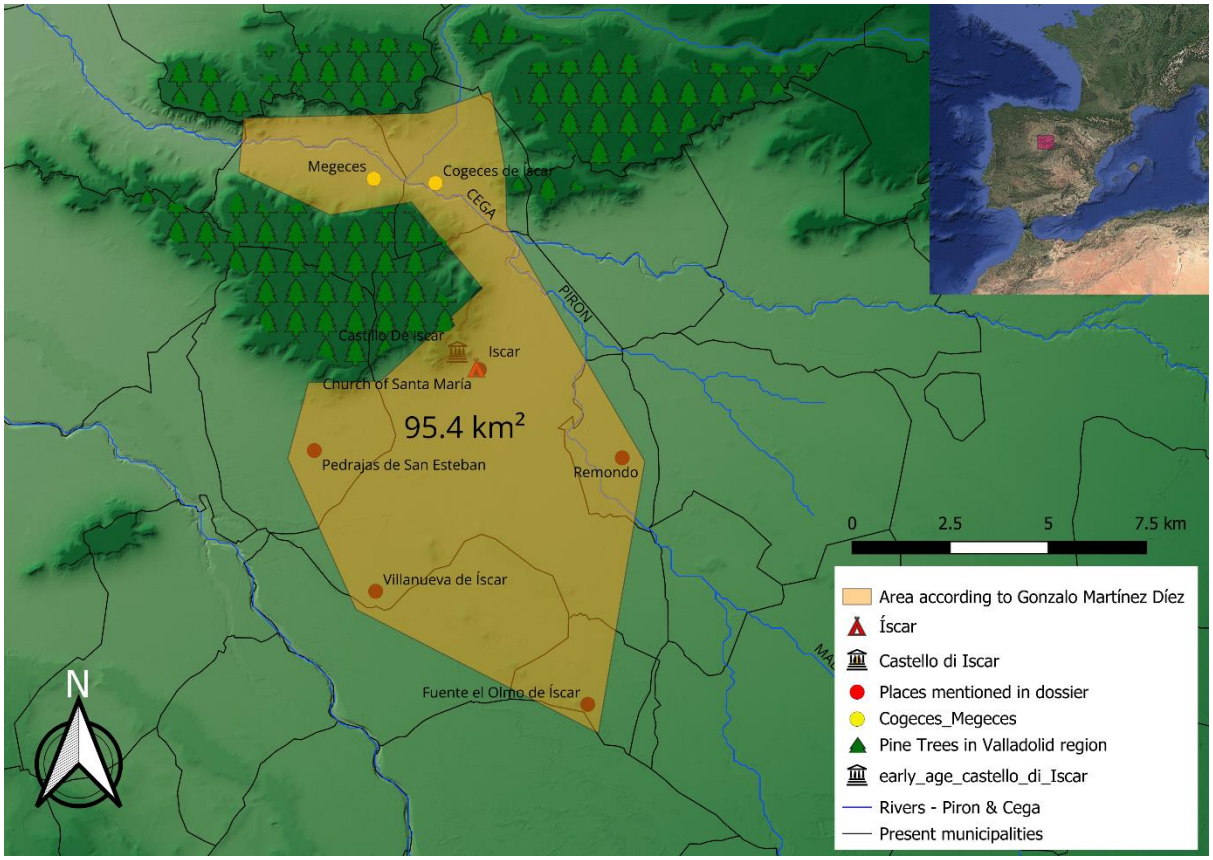
- **Central Settlement**: Íscar is positioned as the primary settlement, marked with a distinctive red triangle symbol
- **Castle Location**: The Castello di Íscar is represented with a building icon, indicating its strategic position
- **Associated Settlements**: All villages mentioned in dossiar are shown with red dots
- **Disputed Areas**: Cogeces and Megeces are highlighted in yellow to indicate their uncertain territorial affiliation
- **Topographical Context**: Pine forest coverage is shown to illustrate the Tierra de Pinares landscape
- **Hydrographical Features**: The Pirón and Cega rivers are clearly marked, showing the water systems that influenced territorial organization

Cartographic Elements:

- **Scale**: Presented at 1:75,000 with a clear scale bar showing measurements in kilometers
- **Legend**: Comprehensive legend explaining all symbols and color coding
- **Orientation**: North arrow indicating map orientation
- **Coordinate System**: Positioned within the broader Iberian Peninsula context

3.2 Map 2: Territory of Iscar according to Martínez Díez (167 km²)

The second map shows an alternative reconstruction of Íscar's territory, incorporating the disputed settlements of Cogeces and Megeces, but with a different spatial arrangement. Interestingly, this version covers a smaller total area of approximately 95.4 km², despite including additional settlements, suggesting a more compact territorial organization.



Area of Territory of Íscar according to Gonzalo Martinez Diez

Extended Territorial Analysis:

- **Inclusion of Disputed Areas:** Cogeces and Megeces are now considered part of the territory.
- **Cega Valley Integration:** The territory extends into the Cega River valley, indicating potential expansion or different administrative arrangements.

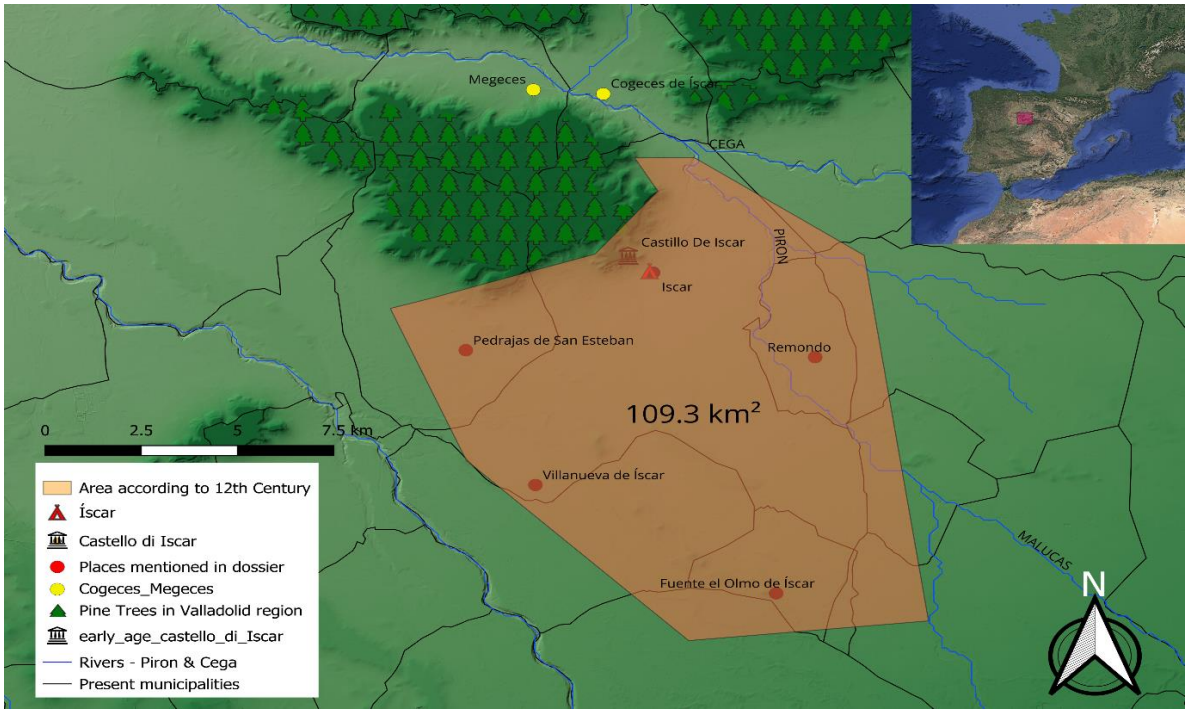
- **Compact Organization:** Even with more settlements, the territory appears geographically coherent.

Historical Implications: This reconstruction may reflect the territorial organization from the second third of the 12th century onward, when political consolidation could have incorporated previously independent or differently affiliated settlements under Íscar's control.

However, according to Martínez Díez, the estimated area including Cogeces and Megeces should be **167 km²**. Using a rough border around the settlements mentioned in the dossier, the reconstructed area amounts to only **95.4 km²**, which remains considerably smaller than the dossier's estimate, even when allowing for potential margin of error. And hence in my opinion this is not the correct information.

3.3 Map 3: Proposed 12th Century Territory (110 km²)

In the third map, I estimated a territory that excludes Cogeces and Megeces, focusing instead on the plains surrounding the Pirón and Cega rivers. This reconstruction yields an area of approximately **109.3 km²**, which closely aligns with the dossier's estimate of **110 km²**. This suggests that Íscar's core territory during the Early and High Middle Ages was likely centered on these river valleys, rather than extending to the disputed settlements. While Martínez Díez estimated Íscar's territory at 167 km²—including Cogeces, Megeces, and other surrounding towns—it is unclear whether all these areas were truly under Íscar's control at the time. Ecclesiastical records indicate that Cogeces and Megeces were associated with the diocese of Palencia, implying they may not have been part of Íscar's original political space. Therefore, the more compact reconstruction around the Pirón and Cega rivers appears to better reflect the territory described in early sources.



Area of Territory of Íscar according to 12th Centaury

Territorial Characteristics:

- **Core Area:** The shaded region highlights the settlements most directly associated with Íscar around the plains of river Piron.
- **River-Centered Organization:** The territory aligns with the course of the Pirón River.
- **Complementary Landscapes:** The area combines lowland plains along the Pirón with moorland zones to the north.

4. Spatial Analysis and Interpretation

River-Based Territories:

Both territorial reconstructions emphasize the importance of river systems in defining boundaries. The Pirón River serves as a central axis around which settlements and territorial limits are organized. This pattern reflects the crucial role of water access in medieval agricultural and settlement systems.

Complementary Landscapes:

The territories incorporate both lowland agricultural areas along the rivers and upland moorland zones. This combination provided medieval communities with diverse economic opportunities, including arable farming in the valleys and pastoral activities in the moorlands.

Strategic Positioning:

The location of Íscar's castle on elevated terrain overlooking the river valleys demonstrates the strategic thinking behind medieval fortification placement. The castle could control movement along the river corridors while maintaining visual surveillance over the surrounding territory.

5. Research Implications and Historical Insights

The mapping project provides valuable insights into medieval territorial administration in the Iberian Peninsula. The organization of territories around river systems and the integration of diverse landscapes suggest sophisticated understanding of economic and strategic principles in medieval governance.

By visualizing different scholarly interpretations of territorial boundaries, the maps contribute to ongoing academic discussions about medieval territorial organization. The spatial representation makes abstract textual descriptions more concrete and analyzable.

This project demonstrates the value of GIS technology in historical research, showing how modern analytical tools can enhance understanding of past spatial relationships and territorial dynamics.

6. Limitations and Future Research

The reconstruction of medieval territories faces inherent limitations due to:

- Incomplete historical documentation
- Potential bias in surviving documents

GIS reconstruction of historical territories involves certain technical challenges:

- Uncertainty in precise coordinates for historical settlements
- Interpolation required for areas lacking specific documentation

Potential areas for future investigation include:

- Comparative analysis with other medieval territories in the region
- Integration of additional historical sources as they become available
- Development of temporal GIS models to show territorial evolution over time

7. Conclusions

This QGIS mapping project successfully visualizes the medieval territory of Íscar, providing new insights into the spatial organization of this historically significant area. The three maps created offer different perspectives on territorial extent and organization, reflecting the complexity of medieval administrative systems and the challenges of historical reconstruction.

Key findings include:

- The strategic positioning of settlements and fortifications
- The dynamic nature of territorial boundaries over time
- The value of GIS technology in historical spatial analysis

The project demonstrates how modern cartographic techniques can enhance understanding of historical territories, making abstract concepts more accessible and analyzable. While limitations exist in source availability and precision, the maps provide a solid foundation for further research into medieval territorial organization in the Iberian Peninsula.