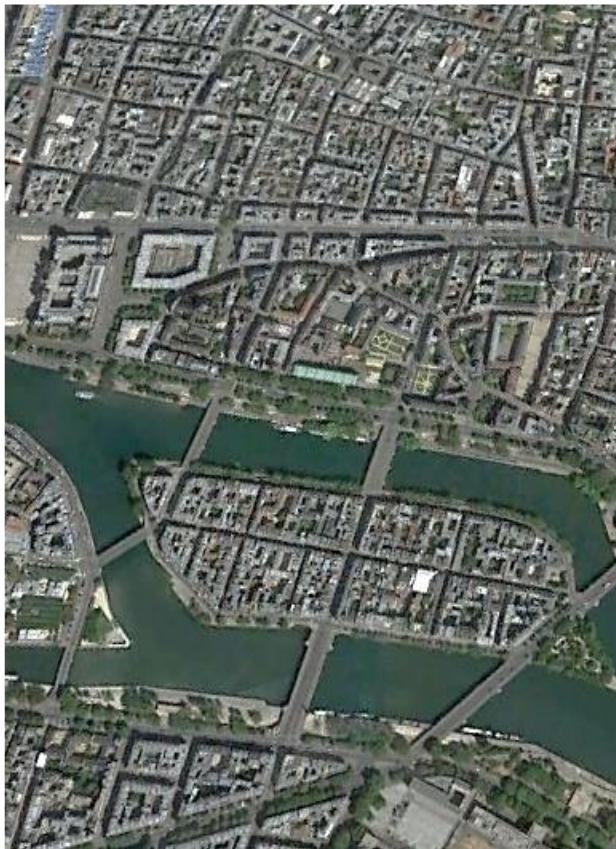
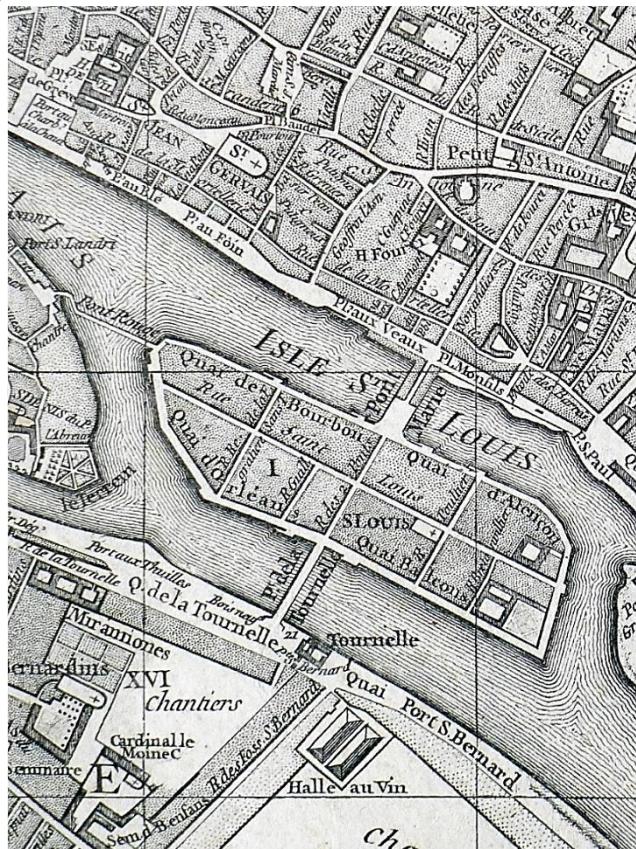


SPANISH GEOGRAPHY AT CONTEMPORARY TIMES. STATE OF THE QUESTION (1972-2022).



Spanish contribution to 35th IGC. París 2022. Time for Geographers.
Spanish Committee of the International Geographical Union



International Geographical Union Spanish Committee

Unión Geográfica Internacional
Comité español



**Societat
Catalana de
Geografia**



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Spanish contribution to 35th IGC. Paris 2022

Time for Geographers

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Editorial Board

Dr. Andrés Aristegui Cortijo
Instituto Geográfico Nacional
aaristegui@mitma.es

Dra. M.^a Asunción Martín-Lou
Real Sociedad Geográfica
realsociedadgeografica@gmail.com

Dr. Rubén C. Lois González
Asociación de Geografía Española
rubencamilo.lois@usc.es

Dr. Valerià Paül Carril
Societat Catalana de Geografia
v.paul.carril@usc.cat

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Asociación Española de Geografía
nieves.lopez@uam.es

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Real Sociedad Geográfica
mzarate@geo.uned.es

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realsociedadgeografica@gmail.com

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Asociación de Geografía Española
nieves.lopez@uam.es

Dra. M^a Asunción Marín-Lou
Real Sociedad Geográfica
realsociedadgeografica@gmail.com

Members

Real Sociedad Geográfica
Dr. Antonio Zárate Martín
mzarate@geo.uned.es
Dra. Concepción Camarero Bullón
concepcion.camarero@uam.es
Dr. Rafael de Miguel
rafaelmg@unizar.es

Centro Geográfico del Ejército
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Galisteo Cañas
acarrero@et.mde.es

Asociación de Geografía Española
Dr. Rubén C. Lois González
rubencamilo.lois@usc.es
Dra. M^a Jesús Perles Roselló
rsilva@us.es

Instituto de Economía y Geografía y
Demografía-CSIC
Dra. Gloria Fernández Mayoralas
gloria.fernandezmayoralas@csic.es

Instituto Geográfico Nacional
Dr. Andrés Aristegui Cortijo
aaristegui@mitma.es

Sociedad Catalana de Geografía
Dr. Josep Oliveras i Samitier
scg@iec.cat

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An overview of the evolution of Spanish geography (1992-2022)

Jorge Olcina Cantos
ORCID: 0000-0002-4846-8126
University of Alicante

Jesús M. González-Pérez
ORCID: 0000-0002-3751-174X
University of the Balearic Islands

Nieves López-Estébanez
ORCID: 0000-0002-4556-0314
Autonomous University of Madrid

Abstract: Spanish geography has registered significant changes in the last three decades that have affected teaching, research and social consideration of the discipline. New educational programs (bachelor's degrees, master's and doctorates) have been launched within the framework of the reforms developed (LRU, Bologna Declaration) on university education that have guided training, in most Spanish geography departments, towards the applied aspect (spatial planning). The master's studies have allowed a specialization of geographic studies in different topics (spatial planning, SIG, landscape analysis, the environment and sustainability, natural risks, economic changes, demographic processes). Doctoral works have also evolved from monographic theses with a classical structure towards memoirs compiled from research articles published in high-impact journals. In research, new lines of work have been developed in the heat of currents from the international sphere or have been promoted as their own themes animated from Spanish geography and that respond to demands for research or application of the discipline. The reports on Spanish geographic research developed within the Spanish Geography Association and the analysis of the content of publications and activities carried out by other geographical entities in our country (Royal Geographical Society, Catalan Society of Geography) provide an overview of the evolution of research in geography, which has become, in general terms, more collaborative (larger teams and multidisciplinary participation) and thematically more specialized. Finally, the discipline has gained in social consideration due to the development of applied work demanded by the administration or the company, the participation of geography in current social debates and its projection in the media. So that Spanish geography, in 2022, is a dynamic, modern discipline with international projection that works for a constant improvement of its participation in the educational system (non-university and university), of its consideration in state or regional research programs, and its prestige as a science of social utility.

1. Evolution of Spanish geography 1992-2022. Main milestones and outstanding changes

Spanish geography has undergone important changes in the last thirty years. Surely it has been the most important stage of transformations that the discipline has undergone since the moment of its academic consolidation in the second half of the twentieth century. These changes have affected the studies (new plans), the professional activity (creation of the College of Geographers), the functioning of the main academic association (AGE, Spanish Association of Geography), the dynamics developed by other geographical associations in our country (Royal Geographical Society, Catalan Geographical Society) and the social consideration of the discipline itself. These have been transformations developed in a period of important social, economic, cultural and environmental changes that have occurred in these three decades around the world and also in Spain, which have undoubtedly influenced the evolution of the discipline itself (Méndez, 2004; VV. AA, 2016; Leng et al., 2017; Olcina, Lois y Minguez, 2020; VV.AA., 2020; Alegre et al., 2021).

Geographic education is perhaps the aspect that has undergone the most significant changes between 1992 and 2022 (Burriel, 2004). There have been two major changes in university educational programs: the “new plans” adapted to the LRU, which began to be put into practice in Spanish universities at the beginning of the 1990s; and the “Bologna” plans, adapted to the principles of the European Higher Education Area, which will be designed and implemented during the first and second decades of the new century. In both cases there have been secondary reforms that have affected, in the former, the duration of studies (from 4 to 5 years, in some cases) or the distribution and content of subjects (revision processes in the “Bologna” plans). The first reform had as an effect the traditional separation in our country of geography and history studies, with the design of an exclusive geography degree that, with some nuances, is maintained to the present day. Since the mid-1990s, university geography teaching has been organized around basic subjects (core and/or compulsory) that form the theoretical, conceptual and methodological framework of the geographic discipline and which are usually located in the first years of the degree courses; and complementary subjects (electives) that complete the geographic training with instrumental subjects of an applied nature or with content from related disciplines (social sciences, natural sciences, mathematical sciences) that are of interest to geography. Thus, university geography, as an independent teaching subject, has been able to expand and diversify the teaching content to be taught in the classroom; and in relation to this, there has also been an increase in the number of teaching staff in the university departments to which the geographic areas of knowledge are attached. This is undoubtedly the most important change that the geographic discipline has undergone in the last thirty years and which has conditioned the development of new professional opportunities linked to the practical application of geographic knowledge in the labor market. In these three decades, and associated with this phenomenon, Spanish geography has also developed the publication of its own Geography manuals, moving away from the tradition of translation of manuals in foreign languages (French and English, mainly, in which a work of own reflection on geographical facts is carried out, allowing an update of information and a formal innovation of contents (Farinós and Olcina, 2017; Fernández, 2019; Gil and Mendoza, 2001; Romero, 2004; Romero, 2017). National and Latin American publishers such as Ariel, Síntesis, Alianza, Cátedra, and in recent years, Tirant lo Blanc, have made, in recent

years, a commitment to geography as a subject for the publication of geographic manuals and essays.

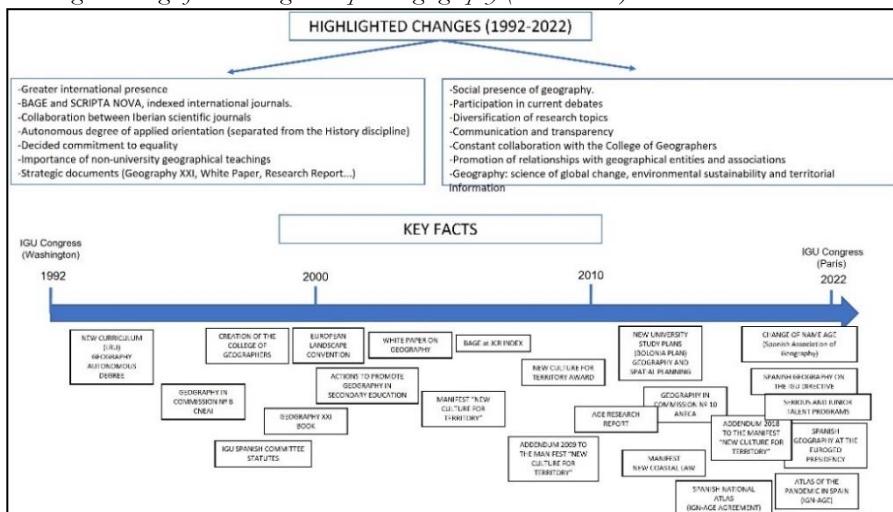
Indeed, the consolidation of geographic education, as independent degrees from History, was an important argument for the creation of the College of Geographers in 1999 (Law 16/1999, May 4). With the creation of the College of Geographers, in which academics and professional geographers participated, the aim was to make clear in the Spanish society the important scientific development of geography since the seventies and the growing professional demand by society for geography graduates in public administrations and private companies (Tarloja, 2004). Likewise, the College was the necessary instrument for the regulation and organization of the profession and for the defense of professional interests on an equal footing with other university graduates.

The College of Geographers has been the great action developed as a group for the promotion and consolidation of the discipline in all aspects (academic, professional and social consideration). The educational (Bologna plan) and professional changes experienced by geography so far in the new century would not have been possible without the existence of the Professional Association. It can even be said that the maintenance of some Geography degrees currently taught in Spanish universities has been possible thanks to the role played by the Association, together with the AGE, vis-à-vis the competent academic administrations (state and regional). The existence of the College of Geographers implies the need to train professionals to develop this profession. Therefore, it should not be forgotten that any university educational reform (bachelor's and master's degrees) should incorporate contents, along with others, that prepare students for the professional practice of their degree. The joint action carried out in the last twenty years by the Spanish Association of Geography (AGE) and the College of Geographers has allowed decisive progress in the consolidation of the geographic discipline in Spain, without forgetting the work of historical entities for the promotion of geography in our country (Royal Geographical Society, Catalan Geographical Society) that have maintained and activated fundamental actions to promote the social presence of geography. Education and profession must continue to work together, from the autonomy of criteria of the main geographical entities of our country, but with the common goal of defending and promoting geographical science in our country (Figure 1).

The Spanish Geographical Association (AGE) itself, created in 1975 from the academy for the promotion and defense of the geographic discipline, begins the decade of the nineties with the presidency of a woman, Dr. Josefina Gómez Mendoza, which will establish an important milestone in the promotion of gender equality as a strategic action of the AGE. This is an outstanding fact in a general context, at the beginning of the last decade of the last century, where the leadership of professional associations and colleges was dominated by men. Although since the first board of directors of AGE there had always been the presence of a female geographer, it will be from this moment when its composition will increase the number of women seeking parity that will be achieved in the following board of directors. This is very relevant, considering the imbalance, still present, between male and female membership in the association, which is a reflection of the low presence of female students in university geography degrees. Despite the progress made in the last three decades, the presence of women in geography still needs to be encouraged, and this should be reflected in the management of the

discipline's institutional representative bodies. The change in the name of the Association (from Spanish Association of Geographers to Spanish Association of Geography), included in the reform of its Statutes approved in 2019, has been another link in this process of promoting equality in the discipline and also a commitment to the discipline itself that is placed at the center of the actions to be developed above its protagonists, both male and female geographers, who must work together from equality. Spanish geography should be a science by and for gender equality; even more, it should be a female science. Other geographic entities in our country, such as the Societat Catalana de Geografia, have also carried out important gender renovation in their governing bodies in the last two decades. Professor María Dolors García Ramón, assumed the presidency of this geographical entity in the early years of the new century, and the presence of women has been increasingly notable in its board of directors since then.

Figure 1. Significant changes in Spanish geography (1992-2022). Source: own elaboration.



The AGE has diversified its activities in relation to the new needs that have arisen from 1992 to the present. Concern for university geography studies has been a constant in the last three decades. To this end, it has fostered group work through the creation of commissions to prepare reports and documents that endorse the presence of autonomous geography studies and to monitor their state of implementation. This collaborative activity had already been developed with the reform of plans promoted by the University Reform Law, but found an important space of activity with the modification derived from the adaptation to the Bologna Plan. In the latter process, the work carried out culminated in the so-called White Paper on Geography (2004), a milestone of action that gave prestige to the discipline and helped to consolidate the academic presence of geography in public universities, based on the rigor of the analyses and proposals included in this document. The Geography degree was renamed, in most universities, as Geography and Territorial Planning, in a logical bet on the applied side

of the discipline as an adaptation to the social and labor demands existing in those years. Since 2010, the adoption of the number of students enrolled in the first year of the degrees as an illogical criterion established by the university administration, in the context of the economic crisis suffered in Spain as a result of the irrational real estate boom that took place between 1998 and 2008 in our country, has forced the AGE, in coordinated action with the College of Geographers, to defend the permanence of some Geography degrees in different universities in our country. In the coming years, a new process of reflection on the future of university teaching of Geography in Spain will have to be activated, in the heat of the processes of reaccreditation of degrees that will be developed in compliance with the determinations established by the National Agency for Quality Assessment and Accreditation and the regional agencies of the same function. The reunification of degrees in some university districts, the specialization in the offer of geography degrees and masters or the “return” to geography and history degrees, due to the ever-present importance of the professional teaching career of geography graduates, are some of the issues that will have to be considered in the coming years for the maintenance of university geography teaching. The AGE prepares a periodic report on the university teaching of the discipline whose diagnosis can be consulted on the website of the Association. Along with the promotion of university teaching, the AGE has increasingly promoted the relationship with the protagonists of the non-university teaching of geography. The numerous reforms of non-university education that have been developed in Spain in the last three decades have forced the Association to monitor the treatment of geography in these processes, with particular emphasis on the design of curricula at different educational stages. The structure of the board of directors has been enriched by the assignment of a secondary education committee, which has also been occupied by teachers from secondary schools and high schools. In addition, the collaboration with the working group of Didactics of Geography of the AGE has been very fruitful for the preparation of reports and design of strategies to be followed for the defense of claims before the educational authorities (Ministry and Departments of Education of the autonomous governments). Since 2019, the presence of Professor Rafael de Miguel, member of the Royal Geographical Society and the AGE, in the presidency of EUROGEO, has broadened the perspective of the work of defense and vindication of the presence of the discipline at different levels of Spanish education, by providing the experience of knowledge of the international situation of the teaching of the discipline.

Concern about the level of new student enrollment in university geography degrees has led, since the beginning of the new century, to actions coordinated by the AGE to monitor and improve the evaluation of the university entrance examination process (selectividad, PAU, EVAU). Materials have been prepared for the preparation of this test and an annual monitoring of results is carried out, with the aim of improving the evaluation proposals. The website itself gathers all this documentation that is part of the intense activity developed in this section by the board of directors between 1992 and 2022. The Societat Catalana de Geografia has also developed various activities related to the presence of the discipline at different educational levels, where there has been the participation of European and American geographers and geographers who have presented the reality of the discipline in their respective countries, as a basis for the

preparation of proposals to be submitted by this association to the regional and state administrations.

On the other hand, Spanish geography has been consolidating the necessarily prominent role of the Working Groups as its backbone of activities, which have grown in number (9 groups created before 1992 and 6 new groups formed since then) and have adapted their themes and modified their original names to the changes experienced in the discipline itself (Services, Geographic Information Technologies, Climate Change and Natural Hazards, Economic Geography), also taking into account the names and thematic actions of the existing Commissions of the International Geographical Union.

Likewise, the international presence of Spanish geography has been promoted not only through the growing participation of geographers in congresses and symposia of this rank (Congress of the Association of American Geographers, Congresses of the International Geographical Union, Congresses of European and Latin American geographic associations and entities), but also through the presence of members of the AGE on boards or executive councils (IGU). In this sense, the work of the Spanish Committee of the IGU has been outstanding in the last two decades, from the consolidation of the internal functioning of this body of international representation of the discipline, which periodically alternates its presidency between the two main institutions that compose it (Royal Geographical Society and AGE). Some Spanish geographers have also received international awards in recognition of their work in promoting Spanish geographic research on an international scale. The AGE has also had a special interest in fostering relations with Portuguese geography (Portuguese Association of Geography, APG), with which it shares research ties and joint actions to promote the geographic discipline in the peninsular and Latin American territory. The collaboration of the geographical associations of Spain and Portugal also extends to the work of representing the discipline in the International Geographical Union, with the development of shared actions to promote the presence of Ibero-American geography in the representative bodies of the international geographical entity. The cooperative work between existing geographic entities in Spain (Real Sociedad Geográfica, Societat Catalana de Geografia, Sociedad Geográfica Española) has been fostered in the last three decades, promoting the development of institutional actions or joint scientific and academic activities. The relationship with the National Geographic Institute has allowed the geographic academic community to participate in the elaboration of teaching materials and cartographic products of social interest (*National Atlas of Spain, Atlas of the Pandemic*).

Two aspects of importance for the future of the discipline and its associations have been developed in recent years as a strategic objective: the promotion of the integration of young people in promotion and research activities; and the promotion of senior talent, which aims to encourage the participation of geographers who have completed their working life in geography teaching, research and social action initiatives.

The promotion of geographic research, under the principles of quality and rigor, has been reflected in the promotion of the most important journal in Spanish geography at this time, the Boletín de la AGE (Bulletin of the Spanish Association of Geography). In 2022, the Boletín de la AGE is a journal of geographic research consolidated in the main international and national indexes of editorial impact. Since 1992, the journal has evolved from being a means of dissemination of activities of the Association itself to a scientific

journal of international impact. The incorporation in 2005 of BAGE into the Social Science Citation Index marks a new stage in the AGE journal, with the objective of focusing on quality. This has involved an enormous amount of work carried out selflessly by those responsible for the journal who have succeeded each other on the boards of directors of the Association over the last three decades, not to mention the work carried out by the Association's journals, dedicated to the promotion of research in geography didactics (Didáctica Geográfica) and geographic information technologies (Geofocus). The *Boletín de la Real Sociedad Geográfica*, published by the Real Sociedad Geográfica, has carried out a major renovation and updating of formats and contents to adapt the oldest journal of Spanish geography to current indexing requirements. For its part, the journal *Treballs* of the Societat Catalana de Geografia has continued to publish articles of great scientific interest, and in recent years has been included in the main Catalan, Spanish and international indexes of editorial quality.

In recent years, a necessary effort has been made to foster relations between the various Spanish geography journals, promoting the actions developed by them for their recognition in the editorial impact indicators. Likewise, a joint action has been developed to promote Iberian geography journals (Iberian Journal Portal), due to the importance of these publications as a vehicle for the dissemination of research carried out in the Ibero-American context. For the evaluation of research activity or participation in accreditation processes of university professors, the Spanish Association of Geography itself has played an advisory role, providing guidance, with open consultation documents on its website, which contain guidelines on how to approach a process of these characteristics. In the evaluation of research (CNEAI), geography has moved in these three decades from Field 8 (Economics, Social Sciences) of evaluation, as the main destination of applications to Field 10 together with History and Art History. The most noteworthy aspect in this regard is that the experience acquired by geographers who have participated in the evaluation committees since the mid-nineties of the last century, when this procedure was launched, has allowed the criteria for obtaining a research section to be refined and clarified, which has improved the percentage of positive assessment. In other words, the Spanish university geography community has understood the importance of these criteria for the scientific evaluation of our discipline and most of the applications submitted meet these requirements. However, in recent years there has been no shortage of meetings and appeals to the educational authorities to resolve conflicts arising in the evaluation of research grant applications due to the mechanical ascription of the discipline to branches of knowledge that are not strictly geographical, without taking into account the opinion of the geographic collective itself.

One of the aspects in which the Spanish geographic collective has worked with greater interest in these three decades, has been to improve the consideration and social presence of geography. It is a demand that has always been claimed, with good judgment, by Spanish geographers; so that, from the AGE, the College of Geographers, the Catalan Society of Geography and the Spanish Committee of the IGU itself, actions aimed at promoting geographic work in the media, social networks, etc. have been enhanced. Sometimes this social presence has come from taking a position of the collective in public actions on issues of obvious territorial component. This is the case of the signing of the Landscape Convention (2000), the Manifesto on a New Culture of the Territory (2006), which has been updated twice (2009 and 2018), and the position taken on the

new Coastal Law of 2013. In recent years, several manifestos and communiqués have been presented on key social, political, economic and environmental issues (depopulation, housing, climate change, deforestation of the Amazon). In this case, the participation of the Working Groups has been fundamental in contributing ideas and data in the preparation of the texts presented to the media. Indeed, the media are increasingly interested in geography's opinion on current territorial and environmental issues. Geography has also organized meetings for the creation of discourse and elaboration of materials on key issues for the functioning of the territorial organization of our country, such as the so-called Toledo Group (Gómez, Lois and Nel-lo, 2013) and other reflections on the role of the territory for the functioning of today's society (Lois, 2009). In the last two decades, and in joint action of the main geographical associations and entities of our country (Real Sociedad Geográfica, Colegio de Geógrafos, Societat Catalana de Geografia), documents and writings have been prepared on issues of importance for the future of geography (educational reforms, regulatory texts on environmental and territorial issues), which have been submitted to the competent authorities to show the presence of the discipline and its usefulness in today's world.

The web pages of the main geographic institutions in our country have sections with reflections on current issues. And, likewise, debates on ideas and proposals for the future of the discipline have been encouraged, because reflection on a science is essential to ensure its vitality as such. In 2019, in the framework of the Congress of the AGE, held in Valencia, a slogan was chosen that summarizes well the main purpose and dedication of Spanish geography, in teaching, research and application of the discipline: "Geography is the science of global change, environmental sustainability and territorial information" (VV. AA., 2019). This is a challenge, as a guiding principle, of geography for the present and near future. A science of social utility that develops under the principles of equality, ethics, rationality and social justice.

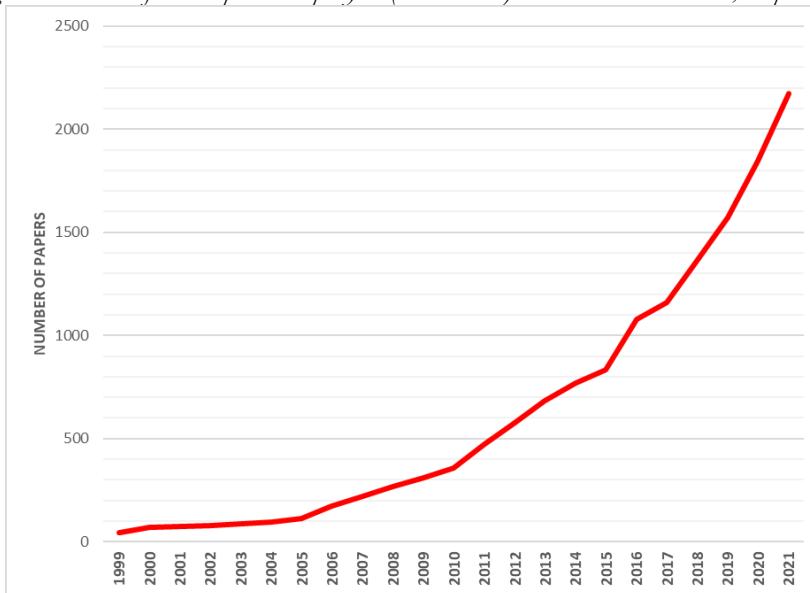
2. Research developments

Throughout these 30 years, geographic research in Spain has undergone an important mutation driven by the profound socio-environmental and economic changes taking place both in our country and at the planetary level (IPCC, 2022; United Nations, 2021; IPBES, 2019), which also affect the institutional and scientific context (Gómez, 2013). The diverse set of geographic schools, in which new approaches are developed, incorporating original sources and methods for the development of research, consolidate the progression of geographic scientific production in Spain. During this stage, the Spanish Association of Geography (AGE) promoted and supported the development of research reports and other publications (Lasanta & Martín Vide, 2013; Mata Olmo, 2013; Canosa et al., 2004; Spanish Association of Geography, Fernández-Mayoralas, 2020 and 2021) that totally or partially cover the time period between 1990 and 2022. The increase in the number of geographers, the possibility of training in the universities themselves and the creation of the first degrees in geography are the main features that characterize geography between the nineties of the last century and the first decade of the twenty-first century (Muñoz, 2001; Gómez, 2013). The dynamics initiated in these years are today strengthened and settled, confirming the increase in the number of geographers (Sánchez, 2013), the presence of departments and research centers throughout the Spanish geography, the consolidation of internationalization in the formative stage and

of networks and research groups between different universities and disciplines (Olcina and Lois, 2013), as well as the massive presence and visibility of research results through the virtual space. On the other hand, the weaknesses identified up to the first decade of the present century are in a current phase of change. For example, the scarce presence still detected of geography in public forums, or the fragmentation and dispersion that generated a clear lack of unity.

Research production and its dissemination reflect all the changes mentioned above. In relation to this issue, the Scopus database identifies 13,837 articles published between 1999 and 2021, showing a significant progression in the number of scientific publications over the last 10 years (Figure 2): 12,523 articles, i.e. 88.89% of the production analyzed, are published in this time interval.

Figure 2. Number of articles published per year (1999-2021). Source: own elaboration, Scopus data.



A more detailed analysis of this production shows that some journals have been particularly attractive to Spanish geographers (Figure 3). If we analyze the 40 journals with more than 50 published articles with a first author of Spanish affiliation, we find 5,209 articles between 1999 and 2021. Of these 40 journals, 11 are Spanish and present a total of 1,876 articles¹. Also within the group of geographic journals that have published the most articles since 1999, it can be observed that in the first decade of the 2000s new journals were incorporated into Scopus coverage (Boletín de la AGE, Scripta Nova, Investigaciones Regionales or Geographical Research Letters) and in the second decade this list was completed with two more journals (Anales de la Universidad Complutense de Madrid and Investigaciones Geográficas). Likewise, in the 40 journals selected and between 2012 and 2021, 1,372 articles were identified in Spanish journals

¹ Articles published in the years under Scopus coverage are counted.

and 4,296 in foreign journals, thus confirming the trend towards internationalization in the dissemination of scientific results, one of the major challenges already raised in the 2013 research report (Lasanta and Martín, 2013).

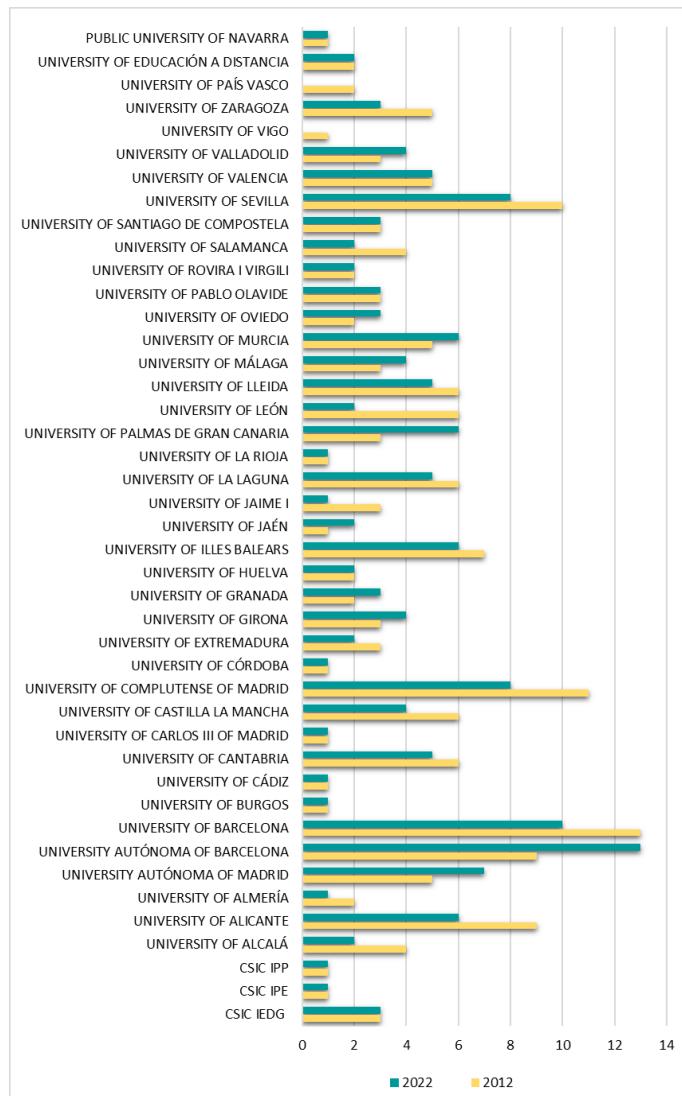
Figure 3. Distribution of articles published in journals with more than 50 articles between 1999-2021 (blank: years without Scopus coverage). Source: Own elaboration, Scopus data

JOURNAL	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total						
Boletín de la Asociación de Geógrafos Españoles									33	48	48	31	48	34	37	54	59	58	68	63	77	60	62	51	829					
Sustainability	8	9	8	13	3	7	7	8	7	2	7	10	11	15	12	14	13	16	12	14	11	15	19	241						
Documents d'Anàlisi Geogràfica	0	0	0	0	1	5	1	5	3	6	5	5	4	8	12	8	16	12	14	24	27	21	178							
Quaternary Science Reviews	0	0	0	0	1	5	1	5	3	6	5	5	4	8	12	8	16	12	14	24	27	21	178							
Water	0	2	1	1	5	1	2	4	5	4	7	4	5	5	9	9	11	13	5	13	13	18	19	156						
Regional Studies	0	7	1	1	1	0	10	3	1	2	4	2	7	6	7	10	7	15	20	14	15	13	148							
Cuadernos Geográficos	1	3	0	1	2	1	1	4	3	8	6	4	9	7	7	7	10	7	13	10	15	9	17	145						
European Planning Studies														1	1	0	0	1	0	6	3	8	47	39	35					
Archaeological and Anthropological Sciences																								141						
Estudios Geográficos	1	4	6	8	5	6	5	5	1	5	2	6	5	7	7	3	11	11	11	6	9	5	6	137						
Land Use Policy	0	1	0	0	1	0	0	0	0	2	1	0	2	1	13	8	11	11	18	17	15	16	11	128						
Geographical Research Letters														5	9	8	1	5	8	7	11	11	14	16	122					
Journal of Archaeological Science: Reports	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	9	8	13	25	34	28	120						
Geography	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	9	8	4	5	11	119						
Earth Surface Processes and Landforms	2	1	0	1	0	0	1	4	6	2	14	4	5	3	7	4	8	10	15	12	9	10	110							
Journal of Transport Geography	2	0	1	1	1	1	0	0	1	0	1	2	0	0	9	6	5	9	11	13	9	0	10	110						
Land Degradation and Development	1	0	0	2	1	1	1	2	1	0	3	9	1	0	3	2	5	19	16	22	7	8	109							
Applied Geography	0	1	1	0	0	0	1	0	0	2	1	5	7	13	11	6	6	9	7	7	8	4	100							
Papers in Regional Science	0	0	2	2	0	0	0	1	1	1	5	5	2	4	6	8	10	8	5	8	15	11	14	100						
Journal of Archaeological Science	0	1	2	0	1	0	0	2	0	2	1	1	0	5	13	10	10	7	1	7	8	11	12	94						
Investigaciones Regionales														3	8	4	8	7	7	9	6	9	11	3	2	5	4	90		
ISPRS International Journal of Geo-Information															0	0	0	0	2	11	9	9	23	22	27	166				
Eure	2	1	1	1	1	1	2	2	4	3	2	0	3	3	4	5	5	5	3	9	5	9	4	73						
Tourism Management	0	0	0	0	0	0	0	2	1	2	0	0	3	6	2	4	3	9	7	13	4	7	4	5	72					
Cities	0	0	0	0	3	1	0	0	0	0	2	0	0	2	5	1	3	5	8	5	13	14	11	71						
Investigaciones Geográficas (España)																								14	17	17	20	68		
Historia Agraria	2	7	4	0	0	0	5	3	7	5	4	5	1	2	2	1	6	2	2	2	2	1	2	65						
Journal of Maps														0	0	1	0	2	1	4	6	3	2	14	10	6	2	5	8	65
Anales de Geografía de la Universidad Complutense														3	2	7	9	7	2	8	10	4	8	6	64					
Annals of Regional Science	1	0	1	1	2	0	2	1	3	4	2	2	4	1	3	5	3	5	4	5	1	7	7	64						
Current Issues in Tourism	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2	3	7	6	2	7	15	19	64						
Transportation Research Part A: Policy and Practice	0	0	0	0	1	0	0	0	0	1	3	0	2	2	1	9	5	11	6	5	9	5	1	61						
Geoforum	0	0	1	0	0	2	0	0	2	0	1	2	1	1	3	4	5	2	15	3	5	8	4	57						
Journal of Rural Studies	0	0	3	0	0	0	1	0	0	0	1	0	1	0	2	4	2	3	5	6	3	11	14	56						
Transportation Research Procedia																4	0	15	7	9	2	2	16	55						
Environmental Science and Policy	0	0	0	3	0	0	1	0	0	2	1	0	2	3	1	8	6	2	2	3	9	8	54							
Journal of Sustainable Tourism	0	0	0	0	1	0	0	0	1	0	0	2	1	1	3	0	2	4	3	4	8	9	15							
Cuadernos de Turismo															2	9	7	8	10	8	6	1	52							
Transport Policy	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	3	2	4	3	13	6	7	8	52						
Total	19	36	32	35	29	26	42	74	105	103	119	145	149	169	220	251	288	368	388	481	601	755	765	5209						

In relation to research groups (Figure 4), already in 2012 the report developed by Olcina and Lois (2012) highlighted the capacity of organization in networks, identifying up to 168 groups, present in 40 universities and 3 research centers. At present, the analysis of research groups offers a somewhat different situation. The total number of groups is 150, and this reduction can be interpreted on the basis of two processes: either the merger of groups or the disappearance of others. The process of merging groups would lead to the strengthening of a generalized trend in almost all disciplines: the increase in the number of components and their internationalization. On the other hand, the occasional disappearance of some research groups can be associated with the retirement of the principal researcher and the integration of some of the people who were part of them into other groups.

Among the main challenges facing geography research groups today and in the coming decades, we could highlight the following: the scarce and intermittent funding; the need to promote a diverse internal composition, with the presence of senior researchers together with others in training; the challenge of maintaining/achieving a local focus and a global commitment in the research carried out from our discipline; the strengthening of knowledge transfer to society and increased dissemination of research results; the opportunity to continue increasing the number of international projects, especially European ones; the need to obtain new sources of funding and, finally, the challenge of making these groups and their scientific and technological results visible in social networks.

Figure 4. Number of research groups in 2012 and 2022 in Spanish universities and research centers.
Source: own elaboration. Data: Olcina and Lois, 2012 and websites of universities and research centers in Spain.



On the other hand, the topics that are perceived as nodes of interest for the next ten years are the maintenance of the territory as a major thematic axis, the link with sustainability, the global and social dimension, and the transversality of climate change to all the aforementioned topics. In addition, other thematic aspects of interest are identified, such as: mobility and migration, health, economy, rural, urban, big data, new technologies, landscape, population, risks, tourism, spaces, the environment and cities.

Figure 5. Main research and transfer topics to be developed in the coming years in Spain. Source: modified from AGE, Fernández-Mayoralas, 2021.



Finally, the niches of opportunity include change, territory, space, development, social and climate issues, in addition to risks, processes, planning, management and tools for cartography and new technologies (Asociación Española de Geografía, Fernández-Mayoralas, 2021). In addition, many of these topics have been identified as novel also in the international sphere (Leng et al., 2017).

Figure 6.- Main niches of opportunity to be developed in the coming years in Spain. Source: modified from AGE, Fernández-Mayoralas, 2021.



3. Future agenda

From what was analyzed above, Spanish Geography has undergone a transcendental advance in the last two decades: more modern, more international, closer to other scientific disciplines and closer to social debates. Environmental, social and territorial challenges, and its capacity not only for analysis and interpretation but also for proposals and applications, will mark the future agenda of Geography. These actions are projected at different levels, incorporating new interlocutors and new actions, with the aim of achieving greater scientific recognition and social visibility.

Spanish geography will need to adapt to emerging issues in the coming years. Spatial planning, urban planning, the environment and geographic information systems were the main protagonists of the last two decades. The curricula have adopted them as priority lines and many of our graduates have focused their professional opportunities on them. However, under these or other lines, emerging topics can be made out.

Firstly, geopolitical studies have had an uneven development in Spain. Possibly because it was not associated with an applied character and because it does not have a clear employability, neither study plans nor geographers have paid the necessary attention to this geographical branch. Among the numerous global conflicts, the analysis of the Russian invasion of Ukraine stands out due to its proximity and consequences for the new world order. The complex interplay of strategies, interests, alliances and actors (economic powers, military powers, international organizations -European Union, UN, NATO, World Bank...) in a global scenario requires a clear geographical interpretation. Secondly, cartography and geographic information technologies. The geographic resource most used by geographers and that best identifies us in society has undoubtedly passed the limits of Geography, and has become a regular resource of other social and human sciences, of public and private institutions, and of the media, especially the written press. Non-geographers have discovered its strengths, its capacity to describe processes, and even its attractiveness as a source of graphic information. This is good news, but we have to work to make it clear that it is a geographic discipline, and geographers are the main experts in this field. Thirdly, we highlight environmental risks, especially those related to the climate crisis and global warming. Many other sciences participate in this line, but Spanish Geography has not only demonstrated a capacity for analysis and responses to many of these phenomena, but also a notable interest in integration in multidisciplinary teams. Finally, we would highlight studies on inequality at different scales. This is a subject with a long geographical trajectory, but, in view of capitalist logics and the current model of globalization, it seems that it will continue to be a subject of geographical interest. The demographic emptying of the peninsular interior versus the high coastal and insular densities, or the alarming inequalities in the interior of the city (impoverishment versus gentrification, ethnization versus touristization...) are just some of the many examples that open up possibilities for research and work.

Spanish Geography will seek to intensify relations with other Spanish and international scientific and/or professional associations. In recent years, the Spanish Association of Geography has made an extraordinary effort to open up and collaborate at different levels. At the international level, the relations with the International Geographical Union (IGU) stand out, where there has never been such an important Spanish representation, with the presence of a vice-president in the executive committee

(Rubén C. Lois, USC) and three presidents of three other commissions: Geography of Tourism, Leisure, and Global Change (Julie Wilson, UOC), Global Change and Human Mobility (Josefina Domínguez, ULPGC) and Urban Commission: Re-Thinking cities and the urban: from the global to the local (María J. Piñeira, USC). Likewise, academic and scientific relations with France and Portugal are assured, since there are fluid relations and permanent collaboration. In the case of France, this is exemplified by the agreement signed with the Comité National Français de Géographie (CNFG) which, among other actions, involves holding a Spanish-French congress every two years (alternating a Spanish and a French city as the venue). The III Spanish-French Geography Conference held in Seville in 2019 will be followed by a new event in France. In the case of Portugal, the main collaboration is exemplified by the Iberian Geography colloquia (intercalating as venue a Portuguese and a Spanish city). Salamanca will host the XVII Colloquium in 2022. Finally, on an international level, we have established relations with LASA (Latin American Studies Association), which, with more than 13,000 members, is the largest professional association in the world dedicated to the study of Latin America.

The AGE has signed a dozen agreements with Spanish entities, with which it carries out various activities: the Center for Social and Human Sciences of CSIC, the Spanish Geographic Society, the College of Geographers, ESRI Spain, FUNDICOT, the Geoinnova Association, the Spanish National Geographic Institute (IGN), the Royal Spanish Academy (RAE), etc. The board of directors of the AGE is reviewing all of them with the intention of updating them, renewing them and, as far as possible, providing them with more content. In this regard, we highlight three: ESRI Spain, where, among others, commitments have been made to increase Spanish geographic participation in its congresses; IGN, with whom we are working on an ambitious agreement to enable Spanish Geography to play a key role in the new atlases resulting from the ANEXXI Network; and the RAE, with whom we are resuming negotiations to update and activate an agreement that seeks to review and amend, where necessary, geographic terms contained in the Dictionary of the Spanish Language.

Spanish geography will seek new institutional relationships. The board of directors of the AGE understands that it is necessary to create new scenarios of collaboration and open spaces for negotiation with public administrations, as a means to influence and promote Geography at different levels. In this sense, we assume the challenge of meeting at the highest level with all those ministries of the Spanish Government that, to a greater or lesser extent, may have links with Geography. This is the case with the Ministries of Universities; Education and Vocational Training; Ecological Transition and Demographic Challenge; and Transport, Mobility and Urban Agenda, among others. Although we understand that this is not an easy task, our goal is to have the first results and commitments by the end of 2022.

Spanish geography will seek to improve its visibility and increase its social recognition. The academic and scientific recognition of Geography does not correspond to a similar social presence. The mistaken identification of Geography with the description of geographical features, with only memoristic contents and with an exclusive descriptive character contributes to its social invisibility and to creating a wrong image that, in the end, influences the academic (low number of students enrolled in the degrees) and professional (low level of employability) levels. With the intention of

alleviating this situation, the AGE is working on an ambitious media relations program. Interviews with renowned journalists and communicators, creation of expert databases to deliver to the media and press associations, high activity on the website and social networks, are some of the actions we are working on.

Spanish geography has a future. The candidacy of the IGU Spanish Committee for Spain to host the 37th IGU Congress in 2032 may mark a before and after in the international recognition of Spanish Geography. An event that has never been held in Spain and that implies not only extraordinary organizational work by the Geography department of the university where the congress will be held and the IGU Spanish Committee itself, but also the mobilization of practically all the Geography departments of the Spanish universities, since they will have to take on the tasks of organizing regional congresses.

A total of 19 geographic journals indexed in JCR or Scopus are published in Spain. This is undoubtedly an indicator of the good health of our geography and its international weight. Of the four journals published in Ibero-America indexed in JCR, two are Spanish (BAGE and Scripta Nova). And of the 36 journals included in Scopus, 19 are also published in Spain. A good example of this positive trend is the case of BAGE which, in recent years, has constantly improved its quality indicators and has become an international reference.

In short, the expectations for the future of Spanish Geography are positive. The uncertainties related especially to the crisis of enrollment in the degrees, the costly labor insertion of our graduates or the low social visibility, we seek to correct with actions at different levels, from the academic to the media and institutional.

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Working Groups of the Spanish Association of Geography, a Portrait of Spanish Academic Geography

Macià Blázquez-Salom
ORCID: 0000-0002-5522-6539
Universitat de les Illes Balears

Abstract: The characteristics of the Working Groups of the Spanish Association of Geography are analysed, in terms of their areas of research and taking them as a representation of the Spanish academy of this discipline and in terms of its organization. A comparison is established with the Commissions of the International Geographical Union, in view of their projects to change their name and in light of the completed and ongoing processes, as well as the approach to their reorganization. In conclusion, vacant areas appear that could be assumed by the existing Working Groups or give rise to the appearance of new ones, such as: Geography of regional areas (the Mediterranean basin, coast, mountains, Africa or islands), Cultural Geography, GeoHumanities, Gender Geography, Sustainability, Political Geography, Geomorphology, Globalization, Toponymy or Transport Geography.

1. Introduction

The Spanish Association of Geography (AGE) is structured as an organisation with particular emphasis on the participation of all the territories in the Spanish state, as well as promoting the representation of current areas of knowledge. At the same time, the AGE broadens its scope by organising a large part of its activity in Working Groups (hereinafter WGs), which define their areas of research by subject matter (Olcina, Lois & Mínguez, 2020). In accordance with the AGE Statutes, the aim is to bring them into line with the Commissions established by the International Geographical Union (IGU). Currently, AGE has 15 WGs.

This contribution analyses their recent trajectory, especially regarding their adaptation to the new scenario brought about by the COVID-19 pandemic. This analysis is based on the annual reports of the WGs published on the AGE website (AGE, 2022a), available between 2015 and 2021 and other reports available on their websites (AGE, 2022b). The AGE Board of Directors coordinates the organisation and activity of the WGs. This contribution stems from this coordination, which enables an analysis of their subject matters and internal organisation, and their activities, publications, and dissemination channels. This overview determines the scope of this text, in which we refer to the recently appeared publications, particularly those published by AGE. We take the short time frame imposed by the COVID-19 pandemic as the starting point of this paper to limit the analysis to the most recent period, since this has brought about organisational changes with the advance of the digitalisation of academic activities, for instance through the use of on-line conferences or the imposition of digital voting

systems. We conclude with a prospective balance of their research topics and, in the light of the topics undertaken by the IGU Commissions, open the debate regarding future mutations of the AGE WGs. This methodology illustrates, on the one hand, an overview of the fields of work of the AGE associates, as a representation of the Spanish academic community; and, on the other hand, the organisational characteristics of the WGs, by assessing and promoting the dissemination of their initiatives.

2. Organisation of topics

The choice of research topics in the creation and development of the AGE WGs roughly illustrates the current interests and academic activity of Geography in Spain. The portrait of Spanish Academic Geography is completed by paying attention to the pathway of other associations that also deserve to be mentioned and dealt with separately, especially the *Societat Catalana de Geografia* [Catalan Geographical Society] (with ties to EUGEO, the Association of Geographical Societies in Europe), the Spanish Society of Geomorphology, the Royal Geographical Society of Spain, etc.

The portrayal of the AGE WGs is linked to the historical context in which they were created, revealing changes throughout their history and the reflection of the structuring of geographic thinking within our cultural context. We develop this portrayal below, accompanied by the data provided in Table 1 along with information on their main activities (congresses, colloquia, conferences, seminars, courses, etc.) from their aforementioned annual reports. The meetings organised by the WGs are biennial, alternating with the years when the General Congresses of AGE are held; such that the WGs also contribute to the organisation of the latter, by arranging activities, making up the scientific committees and panels of participants, or convening their own assemblies. The closeness or complementary nature of topics have led to collaboration between WGs on numerous occasions, especially in the organisation of activities, publications (AGE, 2022a), launching of manifestos (AGE, 2022c) and debates on current affairs, such as those arising as a result of the pandemic (AGE, 2022d) or the war in Ukraine (AGE, 2022e).

Table 1. Spanish Association of Geography Working Groups. Source: own elaboration

Year of creation	Name	Presidency and Members of the Permanent Commission	Web portals and Social Networks	Awards and Manifestos	Internationalisation
1985	Geographic Information Technologies	Ana Nieto Masot (President), María José López García, Ismael Vallejo Villalta, Alfredo Ramón Morote, Federico Benjamín Galacho	https://tig.age-geografia.es		Ibero-American Network of Geographic Information Systems (REDISIG). Ibero-American GIS Conference.
1986	Population Geography	Joaquín Recaño Valverde (President), Raúl Lardiés Bosque, Carolina Montoro Gurich	https://poblacion.age-geografia.es/		IGU Commissions on Global Change and Human Mobility, and Population Geography.

Year of creation	Name	Presidency and Members of the Permanent Commission	Web portals and Social Networks	Awards and Manifestos	Internationalisation
1987	Didactics of Geography	José Jesús Delgado Peña (President), Oscar Jerez García, Matilde Peinado Rodríguez, Carmen Moreno Martín, Rafael de Miguel González	@didacgeografia	IGU Commission on Geographic Education. International congress. Iberian Congress on the Didactics of Geography. EUROGEO.	
1987	Regional Studies	Francisca Ruiz Rodríguez (President) Reyes González Relaño, José Castro Serrano, José Manuel Jurado Almonte, Julio Plaza Tábasco	https://regionales.age-geografia.es/		
1987	Economic Geography	Pilar Alonso Logroño (President), David Ramos Pérez, Ana Vera Martín	https://geoeconomica.age-geografia.es		
1989	Physical Geography	María Cristina Díaz Sanz, Raoul Servert Martín, Rakel Varela Ona	https://fisica.age-geografia.es/	José María Rubio Recio Research Award (2018). Manifesto for the Amazon (2019)	Field Conferences and International Symposia on Biogeography.
1989	Rural Geography	Eugenio Cejudo García (President), Francisco A. Navarro Valverde, Ana Nieto Masot	https://geografiarural.age-geografia.es/	TFM 2021	Organisation of a session at the IGU Congress, Paris 2022. International Conference on Rural Geography.
1989	Geography of Tourism	Josep A. Ivars Baidal (President), Anna Torres Delgado, Francisco Femenia Serra, Carmen Hidalgo Giralt	@Grupo10A	Bachelor's Dissertation and Master's Dissertation 2019 Manifesto for the Right to Housing (2019)	IGU Commission on the Geography of Tourism, Leisure, and Global Change. Organisation of a session at the IGU Congress in Paris 2022. International organisation of 2020 and 2022 Colloquia. CYTED, the Ibero-American Programme on Science and Technology for Development.

Year of creation	Name	Presidency and Members of the Permanent Commission	Web portals and Social Networks	Awards and Manifestos	Internationalisation
1990	Geography of Latin America	Francisco Cebrián Abellán (President), Rubén Camilo Lois González, Carmen Bellet Sanfeliu, Vicente Rodríguez, Fernando Díaz del Olmo	https://americanalatina.age-geografia.es	Manifesto for the Amazon (2019)	International Congress of Latin America. International Congress of Americanists. Meetings of Latin America Geographers.
1993	Urban Geography	Juan Manuel Parreño Castellano (President), Mª Carmen Cañizares Ruiz, Carme Bellet Sanfeliu, Víctor Jiménez Barrado	@geourban.a">https://geourban.a	Dissertation 2019, 2022 Manifesto for the Right to Housing (2019)	
1994	Climate Change and Natural Hazards	Roberto Serrano Notivoli (President), Mónica Aguilar Alba, Pablo Fernández de Arroyabe, Carmen Moreno García, Pedro Dorta Antequera	https://climatologia.age-geografia.es/		
1994	Geography of Services	Jesús Ventura Fernández (President), Antonio Gavira Narváez, María Dolores Pitarch Garrido, Jesús Gabriel Moreno Navarro, Cándida Gago García	https://geoservicios.age-geografia.es		
2001	Local Development	Antonio Martínez Puche (President), María Hernández Hernández, Francisco Javier García Delgado, Luis Alfonso Hortelano Mínguez, Vicente M. Zapata Hernández	https://desarrollolocal.age-geografia.es/		IGU Commission on Local and Regional Development. International Congress on Local Development. Eastern Mediterranean University Consortium.
2001	History of Geographical Thinking	Juan Manuel Trillo (President), Rosa Cerarols, Valerià Paül, Ángela García, Joaquín Farinós	https://pensamiento.age-geografia.es/		IGU Commissions on the History of Geography, Cultural Geography, and Political Geography. International Meeting on Social and Franco-Italian-Iberian Geography.
2014	Landscape	Gabriel Alomar Garau (President), José Gómez Zotano, Matías F. Mérida Rodríguez	https://paisaje.age-geografia.es	Serrano Landscape 2019	Participation in Council of Europe meetings.

Year of creation	Name	Presidency and Members of the Permanent Commission	Web portals and Social Networks	Awards and Manifestos	Internationalisation
		M ^a Cruz Porcal Gonzalo. Rocío Silva Pérez			

2.1. Geographic Information Technologies (GIT)

The Geographic Information Technologies Working Group (*TIG*) was the first one to be created, in 1985, but as the Quantitative Geography Working Group. In 1996 the reference to Geographic Information Systems (GIS) and Teledetection was added to the name, to finally become known as *TIG* in 2008. Their congresses focus on the application of GIT to a wide range of topics. Their 19th Congress, which was cancelled due to the pandemic in 2020 and is now due to be held in September 2022, will be devoted to “GIT at the service of Sustainable Development Goals (SDGs)”, by articulating it around three main thematic lines: 1) Big data and modelling; 2) GIT and Participatory Geography; and 3) Applications and developments based on GIT (GIS, teledetection, cartography, and other geotechnologies). The period of time lapsed due to the postponement was used to carry out pre-congress courses on “Creation and management of geographic metadata”, “Digital classification of teledetection images”, “Development and dissemination of spatial analysis tools”, and “Uncertainty assessment in GIT modelling”. The *TIG* Group publishes the biannual journal *Geofocus*. They collaborate with the *Red Iberoamericana de Sistemas de Información Geográfica* [Ibero-American Network of Geographic Information Systems] (REDISIG), for instance, by organising the Ibero-American GIS Conference, planned for 2023.

2.2. Population Geography

The Population Geography Working Group define their goal as to promote research into population, by encouraging contact and collaboration between their members, as well as disseminating the papers and results that are the fruit of the professional activities of those making up the group. They have organised 17 biennial Population congresses, since 1987, the last one of which was held on-line in 2021. They publish an Information Bulletin among their members, through the Mailchimp platform – making it possible to reduce the volume of information and provide a more readable format – on their activities and those of other organisations, as well as publications and events of interest. Their 16th Congress on the Spanish Population, held in Alicante in 2018, led to the publication of a monograph (Sempere, et al. 2020). A selection of the papers presented at their 17th Congress on the Spanish Population are under consideration for publication in the journals *Age*, *Estudios Geográficos* [Geographic Studies], and *Revista Internacional de Estudios Migratorios* [International Journal of Migration Studies]. The 26th General Congress of AGE, held in Valencia in 2019 included the contribution of the Population Geography Working Group through their organisation of the session entitled “Towards a new demographic cycle? The reactivation of international migrations in Spain”. They network with the IGU commissions on Global Change and Human Mobility and Population Geography.

2.3. Didactics of Geography

The Didactics of Geography Working Group promotes the stimulation of methodological innovation, by providing didactical guidance to teachers of Geography. The Group organises regular meetings and extends its scope to the national, Iberian, European, and international level. Their last congress, the 13th national and 1st international one, in 2021, bore the slogan, “Teaching and learning geography for a sustainable world”, the minutes of which were published that same year (AGE, Didactics of Geography Group, 2021). Their biennial Iberian congresses are based on collaboration with the *Associação de Professores de Geografia* [Association of Geography Teachers] in Portugal. The 9th Iberian Congress on the Didactics of Geography was devoted to analysing the reconfiguration of the rural environment, democratic memory, and the creation of contents for primary and secondary education.

This Working Group is also involved in the organisation of an annual course on teaching Geography in secondary education, supporting the secondary education committee of the Board of Directors. They participate in the Secondary Commission of AGE, with the aim of promoting non-university education and contributing to the modification of the Geography curriculum in compulsory secondary education (CSE) and Baccalaureate. In this sense, they contributed to the elaboration of allegations for the modification of the organic law on education (LOMLOE), in collaboration with the committees of the Board of Directors, the College of Geographers, and the Spanish Royal Geographical Society. This Working Group contributed to the development of the 26th General Congress of AGE with the session entitled “Geography and Democratic Memory. Use of new technologies for the improvement of teaching-learning processes and the dissemination of democratic memory”. They publish the annual digital journal “*Didáctica Geográfica*” [Geographical Didactics] and have their own Twitter account. They launched, in 2020, and then again in 2021, the Awards for Educational Innovation in Geography (*PIE*), with categories for secondary education, baccalaureate, and university. They work in close collaboration with EUROGEO, which organised their congress in 2021 entitled “Development goals for everyone: a geographical approach” and either directly or through them, they also collaborate with the IGU Commission on Geographical Education, for instance, in their Congress held in Prague in 2021 or in the General IGU Congress in Istanbul, through the coordination of a session. In 2020, the agreement between AGE and the *Centro Nacional de Investigaciones Geográficas* [National Centre for Geographical Research] (of the Spanish National Geographic Institute) was formalised for the design of activities adapted to the official thematic structure of the Geography curriculum at the levels of Compulsory Secondary Education and Baccalaureate, through the project, “Elaboration of the design specifications and preparation of geographical information contents for the website on cartography teaching resources of the National Geographic Institute”. Their good use of educational tools has led them to collaborate with initiatives such as blogs (like <https://edgeografia.com>), studies (e.g., GEODIDAC), and projects (HERIGEOCARITO, DIDGEOTIG-II, etc.)

2.4. Regional Studies

The Regional Studies Working Group foments the debate on Development and Regional Planning, from the point of view of theory, research, and territorial

management. In keeping with this trend in our discipline, interdisciplinary study is thereby promoted on different scales. In this line, congresses were organised in 2018, together with the Geography of Services Working Group, with the title, “Transport, Mobility, and New Regional Strategies in a Postcrisis World” and in 2021 (after it having to be postponed due to the lockdown in the COVID-19 pandemic) with the Geography of Services and Economic Geography Working Groups, devoted to providing, “An integrated perspective: contributions from Economic and Regional geographies, and the Geography of Services for territorial cohesion and competitiveness”. AGE published their minutes that very year, with the same title (Gago, et al. 2021). The Group maintains a close relationship with the *Revista de Estudios Andaluces (REA)* [Journal of Andalusian Studies], by selecting contributions to their congresses for their assessment in this journal; for instance, issues 43 and 44 of the REA contain contributions from their latest 8th Congress on Regional Studies, 9th Conference on Economic Geography, and 9th Congress on the Geography of Services, in 2021. They also collaborate, through a selection of contributions from the same group of three Congresses, in the publication of a monograph for the Papers collection of the *Publicacions de la Universitat de València* [Publications of the University of Valencia] Publishing House.

2.5. Economic Geography

The Economic Geography Working Group was known as Industrial Geography until 2002. They define their aim as that of promoting research, teaching, and the dissemination of economic geography from the organisation of scientific meetings, field days, collaboration and cooperation between the different members, and the promotion of the publication of their research. To date, nine Economic Geography Scientific Conferences have been held, the last of which, together with the Regional Studies and Geography of Services WGs in 2021, dealt with territorial cohesion and competitiveness, the minutes of which were published by AGE (Gago et al. 2021). They have organised 20 Research Seminars in Economic Geography, the most recent of which were devoted to: Evolutionary Economic Geography and the study of metropolitan mobility; territorial innovation systems to improve the scalability of short-circuit flows in large cities and the reconfiguration of the Spanish road network (both in 2019); the pandemic and economic geography (2020); vulnerability and resilience in deindustrialised spaces, the evolution of urban clusters and the sanitary textile cluster in Ontinyent (all three in 2021); and hydrocarbons, magnitudes, spaces, and alternatives (in 2022). They also uphold the tradition of the Field Days in Economic Geography, launched in Vitoria in 2005, the latest experience of which took place in Alicante in 2019, dedicated to the study of local productive systems, especially industrial ones. The Group coordinated a monographic issue of the journal *Documents d'Anàlisi Geogràfica* [Documents on Geographic Analysis] about the “Repositioning and reconfiguration of economic activities in Spanish cities after the recession (2010-2020)” (Alonso, Pallarés-Barberà & Vera, 2021). Their 8th Conference in Economic Geography, held in Oporto in 2018, resulted in a publication by AGE together with the Faculty of Arts of the *Universidade do Porto* (Alonso, Marqués & Santos, 2020).

2.6. Physical Geography

The Physical Geography Working Group develops purposes related to social and scientific dissemination. They have been holding Field Days in Physical Geography

since 1985, having currently reached 35, the last of which was convened in Alicante in May 2022. The minutes and reports of their field trips, even those called off due to the COVID-19 pandemic, are available on their website (AGE, 2022b). Meanwhile, the Working Group also promotes the Biogeography Field Days and International Symposia, the last one of which was held in Valparaíso, Chile (2019). The General Congresses of AGE have also benefitted from the organisation of seminar-workshops by this Working Group; for instance, at the 26th Congress held in Valencia in 2019, entitled “Spanish Physical Geography facing the challenges of global change in the Anthropocene”. This Working Group has launched manifestos on the analysis of the context, diagnosis, and demands “For Physical Geography”, and in 2019 the manifesto “No more environmental aggressions in the Amazon”, alongside the Latin America Working Group. They started a collection of Technical Notebooks on Physical Geography, published by AGE (Lozano et al., 2022). Their initiative to publish the “Contribution of women relevant to the development of Physical Geography in Spain” through the dissemination of a repertoire with their curricular pathways is also noteworthy. Their José Manuel Rubio Recio Award, given for the first time in 2018, was relaunched in 2022.

2.7. Rural Geography

The Rural Geography Working Group has its roots in the studies of Agrarian Geography which was the main topic of research in Spanish geographic academia (Cejudo & Navarro, 2019). Since becoming integrated into AGE, this Working Group has already held twenty Colloquies (ColoRural), combined in recent times with the International Conference in Rural Geography, as well as promoting special sessions at IGU Congresses; for instance, in the one held in Istanbul under the title, “Global countryside and local development. Facing rural problematics. Complexity and hybridisation of rural areas” or in the Centenary one being held in Paris with the title, “The COVID-19 pandemic. An opportunity for the rural world?”. AGE and the University of Valladolid published the papers from their ColoRural 2020, with the title, “Rural spaces and demographic challenges, a view from depopulation territories” (Spanish Association of Geography, Didactics of Geography Group, 2021). They plan to hold their ColoRural 2022 by addressing the theme of “Rural renaissance? Rural spaces in post-pandemic times”. Their Permanent Commission produces a monthly bulletin informing of activities, publications, and other news of interest. In 2021, they put out their first call for applications for Master’s dissertations awards.

2.8. Geography of Tourism

The Geography of Tourism Working Group develop their work around four priority goals: communication and dissemination of research; creation of tools or resources; internationalisation of their activities; and implementation of activities related to job insertion. The context of their emergence has been analysed in relation to the expansion of these studies for the introduction in the 1990s of a new degree independent from that of History and linked to Land Use Planning (López, 2008). They have already organised 17 biennial colloquia, collaborating in their most recent ones (2020 and 2022) with the Tourism Commission of the International Geographic Union, entitled, “Tourism Sustainability: overtourism vs undertourism” (Pons et al, 2020) and “Between recovery and transformation of tourism in a post-COVID world: insights from Geography” in

2022. The minutes from all of these are available on the group's website. Some of them have been published by prestigious publishing houses: Tirant lo Blanch, SHNB, and Springer. The celebration of their 18th Colloquium in 2020 opened the way for the establishment of the dual modality, after the lockdown due to the COVID-19 pandemic. They have diversified the modalities of their activities with on-line seminars (such as the presentation of the book "Tourism Post-COVID-19 in 2021), the organisation of a specific session at the Centenary Congress of the IGU (under the title, "Tourism Transitions"), and the second edition in 2022 of their Young Research Awards for Bachelor's and Master's Dissertations. This Working Group has actively participated in the General Congresses of AGE, through the organisation of a round table at the 25th Congress in 2017, and a docuforum, round table, and debate through the screening of the documentary, "Overbooking" at the 26th General Congress of AGE held in Valencia in 2019. That same year they presented a manifesto, "For the right to housing" in collaboration with the Urban Geography Working Group, focused on putting forward countermeasures against its scarcity, commodification, financial speculation, etc. They are active on Twitter and LinkedIn.

2.9. Geography of Latin America

The Geography of Latin America (*AGEAL*) Working Group addresses this field of regional study with thematic transversality, in order to foment lines of work and research on Latin America and boost collaboration between colleagues from universities on both sides of the Atlantic. They have a long history of organising meetings and publishing reports, books of minutes, and journal articles promoting Latin-American exchange. The COVID-19 pandemic has hit this Group's plans for intercontinental exchange particularly hard, leading to the suspension or postponement of their in-person meetings, which have been replaced by virtual ones on raising awareness, cooperation, and public management (for instance, between the Secretary of Mercosur and the European Parliament). AGE published the book of minutes of their 10th International Latin America Congress, due to be held in 2020, with the title, "Latin America: Spatial repercussions of the political crisis" (Tapia, Pérez & Jover, 2021), despite it having to be put off until September 2022. The Group has participated in editions of the International Congress of Americanists and the Meetings of Latin American Geographers (*EGAL*). AGEAL launched, in 2020 together with the Physical Geography Working Group, the manifesto, "No more environmental aggressions in the Amazon".

2.10. Urban Geography

The Urban Geography Working Group develops their purposes of driving fields of study and analysis of urban spaces in any of their forms. They have organised 16 colloquia, the most recent minutes of which have been published by prestigious international publishers (MDPI and Springer). Thus, for instance, eleven of the contributions to their 15th Colloquium on Urban Geography were published in the journal *Urban Science*; in book form entitled, "Fragmented City: International Mobility and Housing in Spain" (Parreño Castellano; Piñeira-Mantíñan & González Pérez, 2022); in the journal *Vegueta* as a dossier entitled, "Cultural landscapes built to cultivate and inhabit" (Romero, Parreño & Salas, 2021); and their minutes were co-published by AGE and the Publications and Scientific Dissemination Services of the University of Las Palmas de Gran Canaria with the title, "The capitalist reconfiguration of urban spaces:

transformations and inequalities” (Parreño & Moreno, 2021). This Group has a long tradition of field work campo during their colloquia, making them itinerant, with the publication of guides, such as the one in 2020 entitled “Urban Geographies of Gran Canaria and Fuerteventura”, available on their AGE portal (2022b). In 2019 they promoted the manifesto “For the right to housing” in collaboration with the Geography of Tourism Working Group. They give a biannual award to the Best Doctoral Dissertation in Urban Geography, which began in 2019. They have active accounts on Twitter and Instagram.

2.11. Climate Change and Natural Hazards

The Climate Change and Natural Hazards Working Group define their vocation as being active, being moved by and for their members. The Group organise scientific meetings, compile teaching materials, and disseminate climate science from the perspective of Geography. They define the formats in which they channel their activity in the organisation of seminars, whether they be scientific, informative, or of interest for teaching; training courses, on analysis techniques, or on more theoretical or conceptual contents; and collaborations and presentations in different forums and with other working groups, either within the Spanish Association of Geography, or in any other organisation. They are the heir to the Climatology Working Group, which changed their name to the current one in 2021. Their activities have adapted to the new pandemic environment with the implementation of on-line seminars: in 2021, on “Climate Change and Natural Hazards” and in 2022 on “Climate, human health, and emerging hazards”. This modality has achieved great international attendance, especially Latin American. The Group has completely renovated their website, with the dissemination of other activities, meetings, manifestos, etc.

2.12. Geography of Services

The Geography of Services Working Group define their specialisation as the study of Trade, Transport, and Mobility, in close collaboration with the Regional Studies and Economic Geography Working Groups; for instance, in terms of their two last Congresses: in 2019 on “Transport, mobility, and new regional strategies in a postcrisis world” and in 2021, on “An integrated perspective: contributions from Economic and Regional Geographies, and the Geography of Services for territorial cohesion and competitiveness” (Gago et al. 2021). In 2021, they channelled an invitation to participate in a monographic issue of the journal Geotransports, devoted to “Research on mobility and transport in Spain from the perspective of Geography”.

2.13. Local Development

The Local Development Working Group aims to connect academia, research, and work, due to their links with the implementation of Local Development policies, which are deeply rooted in Spanish municipalities. They have organised courses on sustainable development goals by promoting the collaboration of companies, governments, civil society, and universities (2019); seminars on depopulation and local development, territorial innovation, and entrepreneurship (2019); Smart Cities, depopulation, or innovation in the rural environment (2020); and on topics, methodologies, and experiences of the theory and practice of local development, from the geographical perspective (on-line in 2021). They carry out Field Days, this year (2022) in Béjar,

Guijuelo, and Alto Tormes (Salamanca), defined by the study purposes of the guidelines on territorial development, through the collaboration of technicians, municipal authorities, and the business community. They have collaborated in the development of research projects, such as SmartRural in 2021. They collaborate with the IGU Commission on Local and Regional Development and with the Eastern Mediterranean University Consortium, made up of municipalities and universities. Their Permanent Commission publishes a specific informative bulletin.

2.14. Geographic Thinking

The Geographic Thinking Working Group have established their main lines of work as: sources of the history of Spanish geography and cartography; cultural representations of the landscape and territory; postmodern and postcolonial geographies; history of Spanish geography in the period comprising 1940-1970; society/environment relations; trips and excursions, or the horizons opened up by postmodern optics. The Group have extended their scope to the study of Geohumanities; Geopolitics on the territorial organisation of Spain; Cultural and Social Geography; the debate on the ontology and epistemology of Geography; amongst others. In 2019, they published the book entitled, “Spain: Geographies for a Postmodern State” (Farinós, Ojeda-Rivera & Trillo, 2019), fruit of the 9th History Colloquium on Geographic Thinking, held in Cocentaina (Valencian Community) in June 2018. They supported the organisation of the 13th International Meeting on Social Geography and the 1st Franco-Italian-Iberian one in 2021. Their 10th History Colloquium on Geographic Thinking will take place in 2022, under the title, “The future of Geographies in a time of conflicts”, after calling off their proposal to be held in 2020 because of the pandemic which was entitled, “Territorial boundaries: geopolitics, organisation, and planning”.

2.15. Landscape

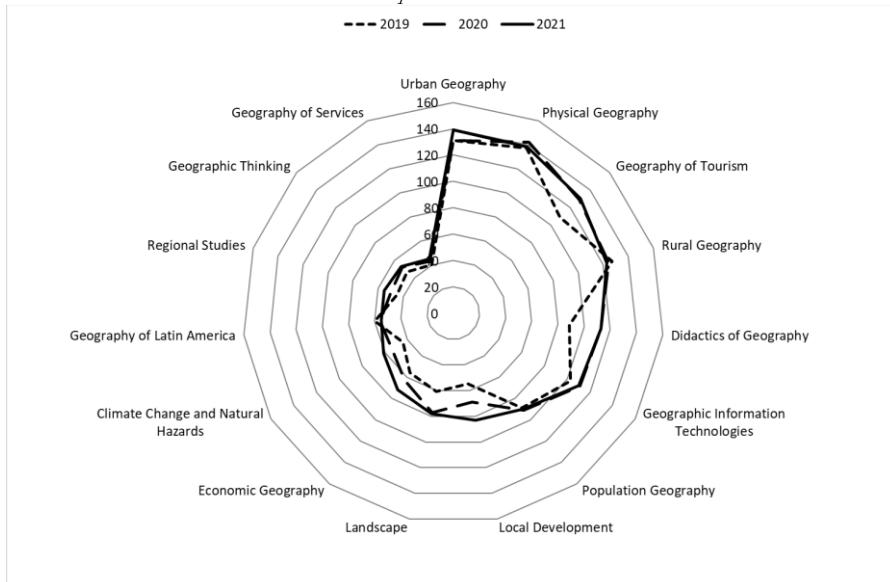
The Landscape Working Group was the last to be created (in 2014) in response to the attention being paid to this subject in Land Use Planning. They have developed their activities, particularly, in the format of Annual Fieldwork Conferences, the latest of which were held in Serranía de Ronda in 2019, entitled, “Landscape and identity”; and the ones held in the Villuercas Ibores Jara UNESCO Global Geopark (Cáceres) in 2022, with the title, “Construction, dynamics, and the heritage value of landscape”. Their “Serrano Landscape” Award was instituted with their 3rd Landscape Working Conference, which took place in Serranía de Ronda in June 2019. The Group is represented in the Mallorca Landscape Observatory and was involved in the meeting of the Council of Europe, held in Palma (Mallorca) in 2021, with the title, “Landscape policies. Landscape strategies, action plans, and policy documents for landscape quality”.

3. Internal organisation

The Statutes of AGE establish the organisation of the Working Groups through their own Assemblies and Permanent Commissions, headed by their respective Presidencies. Managerial positions, as with the Board of Directors of AGE, have a four-year term and can be renewed only once. AGE regulations impose criteria of gender parity in the composition of their governing bodies and in the design of the panels in their activities. These regulations make special reference to territorial representation and to the three current knowledge areas in Spanish academia (Physical Geography, Human Geography,

and Regional Geographic Analysis), indications that are routinely respected. Figure 1 illustrates the participation of members in the AGE WGs, with a mean number of 90 members (2021) and significant peaks, above average, in half of the topics: Urban, Physical, Tourism, Rural, Didactics, GIT, and Population.

Figure 1. Evolution 2019-2021 of the number of members in the Spanish Association of Geography Working Groups. Source: AGE.



4. Publications

AGE publishes three journals: the *Boletín de la Asociación Española de Geography* (BAGE) [Bulletin of the Spanish Association of Geography], *Didáctica Geográfica* [Didactics of Geography], and Geofocus. The two latter ones are linked to the Didactics of Geography and GIT WGs, respectively, both with a long history (Geofocus since 2001 electronically; and *Didáctica Geográfica* since 1997 in their second stage, within AGE), indexing, and impact. The Regional Studies Working Group have a close tie with the Journal of Andalusian Studies; while other WGs have promoted numerous special issues of prestigious journals, for instance: Economic Geography in *Documents d'Anàlisi Geogràfica* [Documents of Geographical Analysis]; Urban Geography in Urban Science and *Vegueta*; Geography of Latin America in *Confins* [Confines]; Rural Geography in *Cuadernos Geográficos* [Geographical Notebooks]; Geography of Services in *Géotransports* [Geotransport]; Population Geography in Age, *Estudios Geográficos* [Geographical Studies], and *Revista Internacional de Estudios Migratorios* [International Journal on Migratory Studies], etc.

The books published by AGE (2022a) are mainly arranged with regard to the Minutes of the General Congresses, contributions by the Spanish Committee of the IGU and from the activities organised by the WGs, adding to their Minutes, Reports, Technical Notebooks, and Field Journals. The positive view of AGE as a publisher in the SPI

ranking (Q1) has improved their interest and their dynamism over the last few years. The WGs have also opted to publish in other publishing houses at their convenience, especially due to their ties with collection directors or their indexing in SPI, Scopus, WoS, etc.: Publications by the University of Valencia (*PULV*), Tirant lo Blanch, University of Valladolid, MDPI, Comares, Octaedro, SHNB, etc.

The digitisation of information is lending prominence to web portals, information bulletins, electronic messaging, blogs, on-line conferences (or webinars), and social networks (Twitter, Instagram, LinkedIn, Facebook, etc.), which are also increasingly being taken advantage of by the WGs.

5. Internationalisation

The reference taken by AGE in the IGU is translated into practice, amongst other many things, to the collaboration of the WGs with the latter's Commissions: Local and Regional Development with the Local Development Working Group; Global Change and Human Mobility and Population Geography with the Population Geography Working Group; Geography of Tourism, Leisure, and Global Change with the Tourism Working Group; and History of Geography, Cultural Geography, and Political Geography by the Geographic Thinking Working Group, for instance. The initiative of organising sessions at IGU Congresses often also stems from the AGE WGs, as happens with the Geography of Tourism or Rural Geography Groups, for the Centenary Congress in 2022.

The Iberian ties of AGE take the form of General Congresses, collaborating closely with the Portuguese Association of Geographers. They are also held biennially and are reflected in the organisation of the activities of the WGs in this field, as happens with the Iberian Congress on the Didactics of Geography. Beyond the Iberian Peninsula, international meetings have been organised, such as the Franco-Italian-Iberian (2021) one by the History of Geographic Thinking Working Group, and the Hispano-French Conferences, the third ones to be organised, in Seville in 2019. The Local Development Working Group collaborate with the Eastern Mediterranean University Consortium, made up of universities and municipalities and other Italian and Spanish organisations. EUROGEO, the European Association of Geographers, have a close working relationship with the Didactics of Geography Working Group.

Collaboration with sister organisations in Latin America is expressed in the carrying out of activities by the WGs, as is the case of: the Meetings of Latin American Geographers (*EGAL*); Ibero-American Congresses on Biogeography; the Ibero-American Network of Geographic Information Systems (*REDISIG*); the Tourism network of the Ibero-American Programme on Science and Technology for Development (*CyTED*); International Congresses on Local Development; and the Erasmus+ projects of the Rural Geography Group with Latin American universities (Education, Agriculture, and Resources for Territories and Heritage, *EARTH*, and Training and Orientation for Multifunctional Agriculture, *enTrepeneurial Opportunities, eTOMATO*). The signing of institutional agreements corresponds to the AGE Board of Directors, but the WGs promote prior exchanges in favour of their development.

6. Looking forward

The debates promoted within AGE and in collaboration with other sister organisations detect the need to address matters such as geopolitics and sustainability within the official Spanish academic framework (Oliveras, Olcina & Blázquez-Salom, 2018). As a sign of their continuous evolution, the AGE WGs are adapting to the new challenges with some changes in their fields of study, as has happened with the evolution of the Climatology Group towards the study of Climate change and Natural Hazards. Debates are also taking place regarding redefinitions that manifest the approach of Political, Social, and Cultural Geography, GeoHumanities, and Transport Geography.

A comparative analysis between the topics that define the AGE WGs and the task forces in the IGU Commissions can provide ideas to enrich this assessment. The IGU defines its Commissions as their way of addressing geographic-specific issues or topics, by fomenting the international exchange of ideas and organising conferences, meetings, or, where appropriate, field work (IGU). Their Task Forces have purposes more related to management, such as the organisation of their Centenary, the Geography Olympiad, and career opportunities for graduates. The analysis of their current composition, in comparison to the existing fields of work in the AGE WGs (Table 2) can help us understand, firstly, what the real or potential links could be like, that is, lead us to understand what issues of the IGU Commissions could have a place in the existing WGs; and, secondly, the gaps that are worth studying for future mutations or the creation of new AGE WGs, such as those already proposed or other new ones. These are, as reflected in Table 2: Geographies of regional areas (Mediterranean, coastal, mountain, Africa, or islands), Cultural Geography, GeoHumanities, Geography of Gender, Sustainability, Political Geography, Geomorphology, Globalisation, Toponymy, and Transport Geography.

Table 2. Areas to be considered in future modifications of the AGE WGs, based on their comparison with the IGU Commissions. Source: own elaboration.

IGU Commission or Task Force	Correspondence with AGE Working Group	Areas in which the scope of the AGE WGs can be broadened
African Studies		Geography of Africa
Agricultural Geography and Rural Geography Territorial Engineering		
Applied Geography	Geographic Information Technologies and Regional Studies	
Biogeography and Biodiversity	Physical Geography	
Climatology	Climate Change and Natural Hazards	
Coastal Systems		Coastal Geography
Cold and high-altitude regions	Physical Geography	
Cultural Focus in Geography	Geographic Thinking	Cultural Geography
Dynamics of economic spaces	Economic Geography	

IGU Commission or Task Force	Correspondence with AGE Working Group	Areas in which the scope of the AGE WGs can be broadened
Evolution of the surroundings	Physical Geography, Climate Change, and Natural Hazards	GeoHumanities
Gender and Geography: Care, Connection, and Change		Geography of Gender
Geographic Education	Didactics of Geography	
Geographic Information Science	Geographic Information Technologies	
Geography for the Earth of the Future: Human-Earth Systems harnessed together for Sustainability		Sustainability
Geography of Governance		Political Geography
Geography of Information, Innovation, and Technology	Geographic Information Technologies	
Geography of Tourism, Leisure, and Global Change	Geography of Tourism	
Geoheritage	Physical Geography	Geomorphology
Geomorphology and Society: Past, Present, and Future	Physical Geography	Geomorphology
Global Change and Human Mobility	Population Geography	
Global Understanding		Political Geography
Danger and hazard	Climate Change and Natural Hazards	
Health and Environment	Climate Change and Natural Hazards	Sustainability
History of Geography	Geographic Thinking	
Islands		Island Geography
Land degradation and desertification	Climate Change and Natural Hazards	
Landscape Analysis and Landscape Planning	Landscape	
Change in Land Use and Land Cover		Sustainability
Latin America and Caribbean Studies	Latin America	
Local and Regional Development	Local Development	
Marginalisation, globalisation, and regional and local responses		Globalisation, Political Geography

IGU Commission or Task Force	Correspondence with AGE Working Group	Areas in which the scope of the AGE WGs can be broadened
The Mediterranean Basin		Geography of the Mediterranean
Modelling of Geographic Systems	Geographic Technologies	Information
Mountain studies		Mountain Geography
Political Geography	Geographic Thinking	Political Geography
Population Geography	Population Geography	
Research methods in Geography	History of Geographic Thinking	
Sustainability of Rural Systems		Sustainability
Toponymy		Toponymy
Geography and Transport	Geography of Services	Transport Geography
Urban Commission: Rethinking cities and urban areas: from the global to the local	Urban Geography	
Sustainability of water	Climate Change and Natural Hazards	Sustainability
Informality, social change, and development		Political Geography

Organisationaly, the IGU sets the line to be followed with a greater involvement of their Commissions in their General Congresses, as does the American Association of Geography. It is also worth mentioning the promotion of even greater involvement of the WGs in the dissemination of the knowledge of Geography. For instance, through the establishment of direct lines of communication with journalists; the drawing up of more manifestos; celebrations of the book days AGE have been organising since 2018 (AGE, 2022f), of museums also since 2018 (AGE, 2022g), and other international and world days; the AGE channel on YouTube (AGE, 2022h); calls for applications for awards for doctoral dissertations, Master's and Bachelor's dissertations; and examples of good practice, etc.

We trust this reflection will serve to contribute to a debate that will drive greater dynamism, if possible, of the WGs within the heart of AGE, based on self-criticism and acceptance of the need for improvement.

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Relations between Geography and Spatial Planning: About doubts, suspicions and spaces of opportunity

Joaquín Farinós Dasí
ORCID: 0000-0002-1872-8556
Universitat de València

Abstract: This chapter addresses issues such as the unity of Geography and how this affects its role in Spatial Planning. Both from the internal point of view of the discipline, which had its influence on the denomination of the current degrees in Spanish universities, and on the way in which the job of geographers is conceived in practice in several phases and techniques of the planning process in which they participate. As well as externally, in relation with other disciplines, stakeholders and decision makers, influencing the projection and visibility of the discipline. This paper concludes with a series of considerations and proposals on the way in which this relationship between Geography and a new Comprehensive Spatial Planning can be considered, trying to take advantage of the discipline 'acquis' and proposing options for the future.

1. On the unit and object of the geographical discipline and its consideration

There have been many discussions about the unity of geography, sometimes questioned (Reynard, 1976), but little evidence of a better articulation in the face of the diversity of works and approaches followed, and the plurality of paths chosen to seek that intended unity. The integral and the capacity for synthesis proper to (regional) geography have succumbed to the sectoral and growing hyper-specialization, which undoes the idea of the global nature of geography (a holistic vision that, for example, the French geographical education claims). A process typical of nomothetic-positivist approaches and "salvation sciences", to which geography has tried to approach, sometimes in a subordinate way, moving away of its main object, be it the environment or the territory.

Both are complex topics and problems unstructured type, which require integrated and transdisciplinary approaches, and not so much partial or sectoral, which, in any case, must converge on them; which would make geography a more social and phronetic science than purely theoretical or simply practical (technical). However, this last option has prevailed, more common to deal with problems structured type (with one only right solution), capable of being solved in a more or less simple and manageable way through a series of routines that can be established a priori and followed mechanically. In the case of social problems, and for the territory, this does not apply if it is not at the cost of apriorities and a reductionism that ends up distorting the problem definition making the planned solution useless.

Getting back to the issue of the unity of geography, the regional and the territorial (see Hartshorne, 1939) serve more as an amalgam in the face of the duality between physical and human geography (internally) than as a differential fact with respect to other disciplines, which also deal with the region and the territory, although in a much more partial way. In line with what was expressed by Hettner (1927), it is not about seeing it as a bridging discipline between the natural and the social and human sciences, which would mean assuming that it deals with different questions, but rather a discipline that is precisely differentiated from the others and makes them unique by considering them interrelated and inseparable parts of the same whole. In the sense pointed out by Luhmann (1991) of a single system that presents its own and differentiated entity as a consequence of the interaction and mutual conditioning between these two fields, the social and natural sciences, each with its respective subsystems (such as economics or geomorphology, respectively, among others). Thus, geography can be understood as a science-domain, defined by objectives: the study of man-environment relations (the geographical environment) that can be contextualized on a regional level (Castillo Requena 1993: 55-66, cited in Farinós and Fernandez (2017).

As we pointed out in Farinós (2014), during the first third of the 20th century, these relationships between the physical environment and society were the object of geographical research and teaching. However, something went wrong in the 1960s, in which this would change radically until today. In that "horribilis" decade for geography, it was progressively replaced by other disciplines, which would end up becoming hegemonic (not so much in terms of content, methods and approaches but in terms of recognition and social acceptance). Getting to become exclusive, occupying the traditional space of other disciplines, such as geography itself. This is the case of ecology in matters related to the natural environment, now back to its more transversal origin, taking advantage of the old approaches of geography and geographic region, with new concepts such as "socio-ecological system", "ecosystem-based approaches" or the more recent "green infrastructure"². Also of the economy (and an allegedly transversal proposal that ended up not being so, such as the Regional Science) regarding the regional issue. This same apprehension/capture/assimilation would occur in the field of planning instruments (spatial, urban and environmental), where it will go from "spatial planning" (physical or territorial, land use) to "regional planning" (with a clear economic development approach).

In this new context, although its well-intentioned initial approach can be shared, it is convenient to review the affirmation made at the beginning of this century by Bertrand and Bertrand (2002) that the environment is the most defining theme of geography, the integrated subject that allowed it to recover from its own crisis. They propose a "common system, of an epistemological order, founded on three space-time concepts": the geosystem, the territory and the landscape (Frolova, 2003, cited in Farinós, 2014). The geosystem would be a naturalistic concept (notion and method) that treats the environment (geographical space as it currently runs, including its degree of anthropization) as a source ('source'). With this, they responded to the expectations of physical geography, which feels threatened (Ortega Valcárcel, 2000) and reacts to the

² Unwin (1995: 23) spoke about the reasons why geography lost its leadership in the field of the environment (as a half vision of the environment).

progressive consolidation and progress of social geography, which, contextualized and rooted in each space or territory, returns us to regional geography. Which, in turn, provokes the reaction and self-affirmation of human geography in the face of this new regional geography.

The concept of territory would treat the geographical space as a resource ('ressource'), based on the processes of artificialization of the environment (repercussions of the organization and of the social and economic functioning on each space). But it does so with criteria that maintain this environment as a whole (and that is why it does not renounce the first), within the limits of impact, footprint, regeneration and resilience (which is directly linked to adequate spatial planning). It is the very fact of wanting to segregate, or at least not place both subsystems (physical as well as anthropic), on a level of equality, and of trying to ignore the most favorable space for their meeting, the origin of the permanent crisis of geographic discipline³.

For its part, the landscape would be the entry of the socio-cultural into the environmental system, turning the environment back into a resource, but for the act of perception or direct use of the individual ('ressourcement'). This interest in landscape and nature, with its resources to be appropriated and exploited (generating from these (uneven) appropriation processes a certain social and spatial order), distances itself from physical geographers. As pointed out (Unwin, 1995: 265), they rarely participate in decision-making in spatial and even environmental management, nor can they go into detail about how said management will benefit society. However, it should not be forgotten that the physical environment is of interest as an object of investigation, as an initial basis and resource for land use planning policies; both with the aim of being able to make the most of their aptitude or potential, and to minimize natural risks and the negative impacts of their exploitation. Which brings us to the issue of Strategic Environmental Assessment as a process inherent in the very formulation of plans and an essential requirement (since the first Directive 2001/42/EC) for the approval of any plan and program with environment impacts.

Despite everything, it will end up opting, following the general pattern that is not unique to our discipline, for the option of sustainability (an increasingly banal concept) to the detriment of the territorial or territoriality. Which in turn will cause the progressive de-territorialization of processes (as the economy did) as well as even of people, as authors such as Soja (1980 and 2011) and Gregory (1981) denounced. Authors who claim the necessary consideration of space, geography, along with time and history (which has also aspired to general laws and scientificity through historical materialism).

Geography will be debated between this predominant generalist positivist approach (following the path of other sciences) and phenomenology, exceptionality and the indicative (typical of post-normal, transversal sciences and theories of complex systems). The second characterizes it more, as a comprehensive and social science, but it has to fight to recover the intermediate space of phronesis and common sense (the best possible option) against simple theory (episteme) or simple practice (techne) (Farinós and Vera, 2016). Choosing between one or the other options has repercussions on the

³ The aforementioned global approach to the environment is segmented according to its usefulness for certain disciplines that claim to be hegemonic themselves (ecology and economics, see Farinós, 2017).

very scientific consideration of the discipline: science, art, technique... all at the same time, a partial combination of them?

An argument widely shared by the academy and the group of geographers is that of the importance of territory, an integral concept, as an "object" of the discipline. Territorial patterns, trends and problems evolve, change, are replaced or appear again, in new forms or not, but in new spatial and temporal contexts. This takes us to the idea of the "geography of problems" as a useful discipline, but also to the question, more fundamentally, of the underlying and fundamental conceptualizations, methods and approaches (that do not change from moment to moment). It is on the latter that the "geography of the future" is based, and it is necessary to return to them, through an adequate and flexible balance between innovation and essence.

If geography evolves, and it must, to become both the "geography of problems" and the "geography of the future", this bears certain parallels with the debate on how flexible or rigid spatial planning and its instruments should be. And here the majority opinion is that long-term strategies remain stable and only specific projects and actions change at each time and place. This also applies, respectively, to these geographies "of the future" and "of the problems".

2. Connecting theory and practice. About the relations between Geography and Spatial Planning

The integral character, the relationships between man and nature (and in turn between nature, the territory and the landscape), the multiscalearity and multitemporality, and the combined interest in the past, the present (the produced space) and the future (the space in production and prospective), are also part of spatial planning and its own evolution.

Geography contributes to spatial planning with the necessary global understanding of space, and with a multi-scalar interpretation that is also necessary when it comes to wanting to articulate the decision system, at the different levels of competence, that makes it efficient. Although not only for spatial planning, but also for it, the role of geography is key. And not only for, based on rigorous methodologies, to analyze the functionality of the territorial system and explain facts, patterns and territorial trends; but also to visualize new trends and propose new concepts and territorial solutions, contributing to the improvement of existing planning practices and its effectiveness and performance (see Farinós (coord.), 2021).

Gómez Piñeiro (1987: 44) pointed out that the physical environment, together with the infrastructures (natural and artificial), the facilities and the social, economic and institutional dimensions define the territory; and, as a system, the relationships of all these elements to each other constitute the 'territorial structure'. Its recognition, more adjusted to reality when its consideration is more comprehensive and the capacity for synthesis is greater for better understanding, is essential to subsequently proceed to comprehensive spatial planning⁴. Therefore, the place of the geographer in this spatial

⁴ Faced with the consideration of land use planning as a supra-municipal urbanism, a second doctrinal position opens up that considers it as something very different from the mere planning of land uses. The reform of the Spanish Land Law of 2007 contributed to this, which replaced the traditional division between urban, developable and non-developable land (common regime or protected non-developable land) by the new one between urban and rural land. This change would eliminate the need to reserve developable land in urban municipal plans (Baño, 2020), leaving

planning is reinforced with his capacity for synthesis and transdisciplinarity. Not only for the phases of territorial analysis, where their presence is more common and with greater recognition, but also in the decisive phase of defining alternatives and the criteria to select the most appropriate one or ones according to the various criteria at stake.

Carrying out the territorial analysis requires the identification and delimitation of the territorial system and the subsystems that compose it and their interaction⁵. For Gómez Piñeiro (1987) it was the most complex part of planning (in the strict planning phase, prior to implementation and management ones, which require other capacities). However, based on it, so complex and much more decisive is the definition and justification of the best management alternatives, a true creation process (its selection seems more routine to us, with criteria and techniques that are easier to apply).

A comprehensive approach to spatial planning connects with the idea of planning the territorial system as a whole, beyond the urban, coordinating the different sectoral policies and other transversal policies such as of environment and of regional and local economic development. With the aim of guaranteeing the viability and sustainability of both social and ecological systems, and their interrelation with the existing territorial heritage system (Farinós and Peiró, 2022). However, far from an understanding of territory as a heritage and ecological system, what is usual in planning practice is an interpretation as the way to find the best and fastest options (so as not to incur opportunity costs) to locate economic activities in space (even more so in the current context of the recovery plan and the investments associated with its funds). It is for this reason that it is necessary to reclaim from geography concepts such as territory and landscape (as a cultural dimension of the geographical environment, today integrated into the more operative concept of green infrastructure, as said above).

Spatial planning has also evolved. It is no longer just a territorial (systemic) analysis leading to the formulation of alternatives, which are decided, processed and applied in accordance with a wide range of techniques, but it has also been gaining a clear and decisive political component (Farinós, 2021; Farinós et al., 2018).

transformations as specific projects within the general territorial model defined by spatial planning and its increasingly strategic instruments. In this case, Pérez Andrés (1998, quoted in Rando, 2019) identified three positions: a) those who grant spatial planning a new coordinating function for all activities with a physical impact on the territory (prioritizing its coordination function over another two for management and development); b) those who see it as a geographical embodiment of economic planning (in the style of the European regional policy of the 1980s); c) those that combine the two previous ones and understand it as a global public function (which we describe as “neo-comprehensive”, Farinós and Milder, 2007). The third one implies the coordination of all the policies with territorial impact, including those of economic development. All this under the premises of environmental, economic, social (fair and equal in terms of well-being and quality of life) and institutional sustainability (resilient over time through new forms of governance; assuming that all governance is essentially territorial. –Farinós and González Medina, 2021-)

⁵ This interaction is marked by mutual conditioning, a premise on which the logic of social-ecological systems is based, as inseparable parts of each other, which give rise to the territorial heritage system (Manero, 2017) and that of urban-rural relations that occur in it (Troitiño and Troitiño, 2015). Troitiño (2011) pointed out that the vision of the territory as a heritage system served as a new amalgam, by requiring greater attention to the relationships and interdependencies between the different components of the territorial system.

2.1. Geography and Spatial Planning: history of a shared evolution

Spatial planning had its first steps in the city environment. Overcoming this area, to come into contact with its hinterland, had as much to do with the industrialization process as with the development of the applied dimension of geography. This happened in the 1950s, in the midst of reconstruction after World War II, in clear competition with applied economists focused on regional economic development plans based on concepts such as development poles, functional urban regions, and economic regionalism, in the prelude to what we have called the “decade horribilis” (of the 1960s) for geography⁶.

This was the case of Active Geography (George et al., 1966) that will evolve incorporating multiscalarity and multifactoriality to Operational Geography (Ives Lacoste, 1976); of Dynamic Geography and Geography of Time (by Hägerstrand, 1991) that incorporate future projections (as will the Prospective that will be born within DATAR, created in 1963); of the Soviet Constructive Geography, which recovered the integrative vision between man-society-environment (Guerassimov et al., 1976); of Ecogeography, also with a transversal and synthetic vision between man-environment (Tricart and Killian, 1982). But above all of Applied Geography, about which Pierre George wondered and openly defended Phlipponneau, for whom “applied regional Geography, or regional planning, constitutes only one aspect, the most characteristic and the most important, without any doubt, of the possibilities of practical use of Geography” (1960: 8); and Labasse (1973), who will develop topics such as the specific one of spatial planning and regionalization (all of them collected in Farinós 2000 and 2014). The predominance of French authors was very evident, coinciding with the consolidation of the “Aménagement du Territoire” as a clear political priority in France.

In France, the Charter for the Birth of Spatial Planning, in 1950, alluded to the geographical and regional aspects of this public function, going beyond the mere strategy of regional economic development and focusing more on the best use of the different parts of the territory (Labasse , 1966); also with a political dimension (at the internal level, surpassing the municipal level and the urban planning plans affecting the regions of the entire national territory) and geopolitical (at the external level) (Santamaria, 2018).

⁶ The intention was to rebuild the cities destroyed by the war and regenerate the economy. In the British case, urban decentralization would lead to the growth of Greater London and the New Towns. But this decentralization had already started before, in the period that followed the First Great War (Sykes and O'Brien, 2018). From 1902 is the idea of Ebeneezer Howard's Garden Cities. From 1909 the first Housing and Townn Planning Act (later, in 1947, the Town and Country Planning Act, a British urban planning and land use law). From 1931, during the depression of the mining basins, the "Board of Trade" that sought to address the problem of unemployment through a better adjustment between territorial organization and economic planning, wanting to move from sectoral to spatial planning. From 1945 the Law for the Distribution of Industry and from 1946 the Law for the Development of New Towns (New Towns Act) (Rando, 2019). “The arrival of the fifties did not encourage the continuity of the previous years and could even be understood as a setback due to the dissolution of the regional offices and the Regional Planning Committees. It is again in the 1960s when public policies for the implementation of territorial planning in Great Britain are revived. At this time, the creation in 1964 of regions for economic planning stands out, the Regional Economic Planning Boards (REPB), in charge of coordinating the regional delegations of the ministries, and the Regional Economic Planning Councils (REPC) in charge of establishing planning strategies” (Rando, 2019: 307).

In Spain, starting in the 1940s, following the general trend at European level, Spanish geographers try to make up for lost time by taking an interest in strategic issues and land use planning, trying to link with this applied dimension of geography (Gómez Pineiro, 1987). However, there was a certain indifference from the academic world since the institutionalization of the discipline (from the 1950s), fearing that it would lose its scientific character. In the opinion of the aforementioned author, this slowed down the possible advances in the development of relations between geography and spatial planning.

In our view, these will recover at the end of the 1980s and in the 1990s, with the configuration of the State of Autonomies and the development of this spatial planning policy as a regional responsibility (see Farinós et al., 2019). And they will do it again from 2008, after the bursting of the real estate bubble. However, they will once again be called into question in a scenario of urgent and necessary economic and health recovery, after the COVID pandemic and subsequent economic crisis; to which the European recovery plan tries to respond, which requires spending the available funds in three years. The Russian invasion of Ukraine, and the economic measures against the invader, with their repercussions on the whole of Europe, including Spain, have only reaffirmed the economic urgencies, which usually take precedence over the values associated with spatial planning, which is usually seen as a limitation rather than as an opportunity. It is the usual response ("business as usual"), as already happened in the 1960s, with the option of developmentalism, and at the beginning of the 1980s, to solve the crisis caused by the oil prices of 1973 and 1979.

Returning to the question of the planning scale, local or supralocal (regional), following and expanding the argument of Paniagua and Tarancón (1993: 298-299), this scalar duality gave rise to an attempt to differentiate between regional planning (which we could interpret it as "regional" planning, in search of economic and functional balances and of the system of cities leading to what will later be called territorial cohesion) and the planning of the territory (or "spatial planning" itself). The second would be more typical of local scales (which should not be misunderstood as urban or city planning only), as building regulations, but planning of local spaces, metropolitan or regional; in the style of what the first attempts at functionalist planning of the first Falangist Franco regime that was behind the origins of the 1956 land law, but which would soon be replaced by the predominance of developmentalist, sectoral and infrastructural criteria typical of the new Opus Dei technocratic government in 1956 prior to the 1959 Stabilization Plan (Farinós, Peiró and Gomis, 2018).

The connection between both, regional planning and spatial planning will become clear in the European context (in the Council of Europe and its European Charter for Spatial Planning, CEMAT, 1983)⁷ and in the EU policies it was very clear (especially in

⁷ Although there had already been precedents such as those of Gottman (1966) who, in an attempt to give it a clear social dimension, defined spatial planning as a public function, as practice aimed at achieving a balanced distribution of the populations in the spaces, making it compatible with the physical environment. An idea that will be taken up by Sáenz de Buruaga (1980: 18), who defined it as "the interdisciplinary and prospective study of the optimal transformation of the regional space and the distribution of this transformation and of the total population between urban centers with functions and different hierarchies, with a view to their integration in supranational areas". This aforementioned social dimension had also been collected and

regional policy, later cohesion policy, and its instruments; from which the ESDP will be born in 1999 after a very long process of gestation and delivery whose motherhood was intended by the Dutch and British presidencies but which was finally German, being co-parenting between the European Commission and the then 15 member States).

In accordance with the European Charter for Spatial Planning, there are four fundamental objectives: the balanced socio-economic development of the regions, the improvement of the quality of life, the responsible management of natural resources and the protection of the environment, and the rational use of the territory. Today, and with the caveat regarding what to understand by quality of life and its necessary link to the concept of well-being, there has been a revision in the way of understanding two other objectives. On the one hand, protection, moving towards the more generous and potential concept of conservation (“prudent and creative”, according to the third of the guiding principles of the ESDP), in the way of understanding and managing risks (associated with climate change) and the role of socio-ecological systems, ecological services, nature-based solutions and green infrastructure (Latasa, 2021). On the other hand, the rational use of the territory, in the sense of determining which kind of rationality we are talking about (technical, population, political, power relations, context, political economy...), an issue that is on the very basis of planning theory, its discussions and advances (Benabent, 2016, Peiró, 2022). Only the old objective of territorial balance (cohesion) seems to remain, which is still maintained as one of the main elements of the European Union project (Farinós, 2020), materialized in European Regional (now Cohesion) Policy, a series of programs and funds that support it, and a set of specific instruments and tools for spatial planning at the local level (the Sustainable Urban Development Strategic Initiatives -SUDSI-, the Community Local -Based Initiatives - CLLD-, the regional development plans, the cross-border macro regional strategies), and financing, with new forms of justification and coordination of interventions (Integrated Territorial Investments -ITI-).

This entails an enormous effort, due to the complexity and novelty of the new forms of territorial governance (as stated for the first time in Farinós, 2007) in order to guarantee the coordination and coherence of the different actions and levels concerned, in an cross-sectoral and multiscalar synthesis effort; two issues on which geographers feel more comfortable than other disciplines. In addition to the fact that these general approaches must be specified and adjusted to each specific space (urban and metropolitan regions, rural, mountain, island, coastal, border areas...); which has also traditionally been the favorite object of regional geography and locality studies, for which local development strategies and plans are formulated. What has also been a field of professional application for the group of geographers since the constitution in Spain of

emphasized by Emilio Murcia (1978), who defined it as rationalization of the terrestrial space through a better distribution of elements (natural, population, economic and social activities...) that increases well-being. A concept, this of well-being, which has been progressively replaced in current institutional discourses (as in the case of the EU) by that of quality of life, defined both by the perception of individuals and as a result that define it, but not so much in terms of the necessary factors or elements that make it possible (properly of well-being, which must be dealt with by the public function, whoever supplies them, but always under public supervision in defense of the general interest).

their professional association through Law 16/1999, of May 4 (see Zoido and Mendoza (coords.), 2003; Rodríguez, Romero and García (coords.), 2003; Farinós, 2016).

2.2. On the approaches and moments of Planning and the Geography role

Spatial planning has had an evolution that has gone from the master plan and the city as the work of the designer to rational planning (the comprehensive rationality of the technical planner) to a new more participatory and strategic planning (Benabent, 2016). The latter is more focused on the development function of spatial planning, taking advantage of the existing potential to improve the quality of life of the population, rather than the simple control of land use to put order and the best location of the population, objects and activities on space, in order to ensure the proper functioning of the territorial system avoiding risks and absurdities (ordering function). With these new proposals for a renewed spatial planning, it is intended to exploit the existing territorial potential using an adequate framework of relations between economy and nature and, in turn, between these and the planning of land uses in accordance with the stakeholders' preferences and the technical and political commitments (strategic planning of last generation).

Under these new premises, space is produced, territorialized, in the form of new spatial visions. A methodological renewal in the process of drawing up plans, in a progressive mixture between a more traditional, orthodox and routine planning (the traditional "zoning") and another more prospective and strategic, more indicative and adapted to the characteristics and needs of the moment and of the place. This revisited interpretation of territorial development allows geography to return to its integrating character between the physical and the human, between research and action (Farinós, 2009).

Spatial visions, therefore, must be referred to and located in a specific space (place) (each rural, tourist, metropolitan, natural spaces...) in a context (social, economic, political, cultural and power), time and scale which will end up conferring very specific conditions that make it difficult to export or reproduce in other spaces. This means recovering not only the idea of geographical synthesis but also the uniqueness of each geographical space, revisiting the classic French regional geography (which would later serve as the basis for regional economic development planning- one of the four styles of planning in Europe – CE, 1997- combining population-economy-territory) with approaches typical of the studies of localities of the Los Angeles School (Albet, 1994; Soja, 2011) and with the multiscalar approach. Which leads us to the phenomenological approach and to the question of the exceptionality of geography (Schaefer, 1953), despite the fact that each phenomenon or situation responds to more general guidelines and processes. Which, in turn, finds its correlation with the new trend in planning, in which what are the great goals and long-term trajectories are distinguished (in the form of the aforementioned territorial visions of a regional nature, at the NUTS2 level, Autonomous Regions in the Spanish case), which are specified in supra-municipal level plans (NUTS4/LAU1 level) and specific projects and actions, which are the ones that are more variable and flexible and adjusted at the time of their implementation. Cases of sectoral plans, developed by administrations other than those in charge of territorial policy, which end up being considered as true territorial plans, are not unusual, as in the case of wind power, trade, forestry, etc.

These subregional spatial plans, proposed as integral and integrating instruments, capable of defining the strategic framework, the guidelines and even the strategic projects, as true strategies of territorial cohesion at a local scale that can be incardinated (vertically) with those of other levels or scales, and coordinated (horizontally) with that of neighboring territories (territorial cooperation), in the style of the SUDSI and the CLLD, open up an interesting professional opportunity for the geographer (Farinós, 2014; Farinós, 2016; Peiró and Farinós, 2018).

There is still a long way to go to complete in Spain the map of subregional spatial plans (evaluable and reviewable in continuity), which opens up an interesting professional opportunity for the geographer, as will be seen in the last point of this paper. This can be done by adapting the meaning of the plan to the character, feelings and needs of each territory. What is common, then, becomes the method, strategic and participatory, instead the name or the department of the administration to which it corresponds (see FARINÓS, 2010a); without this implying abandonment or prejudice to what the norm (bindingly) defines and allows it to be executed appropriately (as solution to a structured problem –for example, the typification of risk spaces-). It is, then, about promoting a new strategic, comprehensive, coherent and concurrent spatial planning (when sectoral), modular (being able to combine binding and non-binding planning), multilevel (especially in the case of urban and local plans), flexible, concrete and useful, effective and self-critical for what it knows, it insists on and commits to pursue.

3. On the organization of the territory in the study plans and the degrees on geography

3.1. About the denomination of undergraduate geography studies

In Farinós (2000) we argue about the space of opportunity that spatial planning meant for geography. However, there has been little clarity when defining the concept of spatial planning (Farinós, 2009) and its relationship and opportunity within geography. When the reform of study plans took place and the appearance of new degree titles in Spain, this relationship became evident (Farinós, 2014):

“Geography is a science of the territory, an environmental discipline as well as an eminently social one... From a theoretical and analytical perspective, Geography contributes decisively to the general understanding of territories at the various scales of analysis... The scientific and social interest of Geography today takes on a strategic dimension if we look at the caliber of the problems and potential conflicts that contemporary societies must face” (own translation).

(Report for the request for verification of the Geography and Environment Degree of the University of Valencia) and also regarding its applied and professionalizing nature, with the creation of the Association of Professional Geographers by Law 16/1999, BOE of 05.05.1999.

The denomination "Geography and Spatial Planning" was chosen for the new undergraduate degree at the Autonomous University of Barcelona, Autonomous University of Madrid, Complutense University of Madrid, University of Alicante (since 07.14.11, when it will replace the previous denomination given to the new degree), of Cantabria, of Castilla-La Mancha, of Extremadura, of La Laguna, of Las Palmas de Gran Canaria, of Lleida, of León, of Murcia, of Oviedo, of the Basque Country, the Rovira i Virgili University of Tarragona, of Santiago de Compostela, of Valladolid and of Zaragoza. The name 'Geography and Spatial Management' was chosen by the

Andalusian universities of Granada, Málaga and Seville. The University of Valencia preferred 'Geography and the Environment' and the University of Girona 'Degree in Geography, Spatial Planning and Environmental Management'. With more traditional denominations remained the universities of Jaén, Pablo de Olavide of Seville and the UNED, which opted for 'Geography and History', and those of Alicante (until 07.14.11), of Salamanca, of Vigo, of Barcelona and the of the Balearic Islands who preferred "Geography".

As the report of the Spanish Geography Association (AGE) (2016: 2) points out:

"Most universities have opted for a complex Degree, in Geography and another subject that is usually Territorial Planning (18, 69.2%), Environment (Valencia), Spatial Planning and Environmental Management (Girona), or Management of the Territory (11.5%) in the case of the three Andalusian universities, in this case not for scientific or epistemological reasons, but because of a decision by the regional government. Only the universities of Barcelona, the Balearic Islands and Salamanca have maintained the exclusive degree in Geography" (own translation).

They are joined by the new one from the University of Barcelona, "Geography, Environment and Spatial Planning" (4 years, professional in nature). The majority are located in the branch of Social and Legal Sciences; only in the cases of Oviedo, Castilla y León, Castilla-La Mancha, Girona, Lleida, Extremadura and Murcia, the Degree is located in the branch of Arts and Humanities.

Not all the academy feels comfortable with this close and direct link between geography and spatial planning (at least in undergraduate studies; in the case of official master's degrees, the situation does not offer any doubts in this regard and this link is very evident, according to the list available at <https://www.age-geografia.es/site/masteres/>). Presumably because of the risk that linking geography studies to a subject with an uncertain future could entail for the discipline. For this reason, in some cases management was insisted on, due to its greater applicability, as opposed to planning. In others, the major was denied and the focus was changed to move from the territorial to the environmental, which is socially and politically more acceptable and profitable, continuing the trend to corner geography as an integral and complex science. Something to which also the progressive trend towards hyper-specialization and a reductionist and distorted interpretation of the environment (as mentioned in the first point of this text) helps.

In our view, these reticence is due to a wrong understanding of spatial planning which, as has been argued, should be understood as comprehensive spatial planning (any type of planning with territorial incidence or applicable to any type of territory), instead of its usual interpretation as mere sectoral land use planning (Peiró and Farinós, 2019).

However, the explicit reference to spatial planning was already present years ago, in the precedent of the current Bachelor's degrees, specifically in the first guideline of RD 1,447/1990, of October 26, which established the previous official university degree of Bachelor of Geography (from 1993) and the general guidelines of the study plans leading to obtaining it. In such RD it is stated that

"The studies leading to the official title of Bachelor of Geography must provide adequate scientific training in the basic and applied aspects of geography, analysis and land use planning" (Farinós, 2014), (own translation).

An additional question is how this relationship will be reflected in the different curricula of the different degrees in each university, as we will see in the next section. In any case, it must not be forgotten, in accordance with that Royal Decree 1393/2007, of October 29, which establishes the organization of official university education, the Degree in Geography is not a technical career, but rather a general and with a first majority specialization (in spatial planning), which is also manifested, even more intensely, in the official Master's degrees (which, unlike others such as architecture or engineering, are not qualifying for the exercise of a regulated profession). Which in turn raises some problems, which the courts must resolve, regarding the professional associations capable of opting for certain tenders and commissions to which the group of geographers also wants to opt, whose number is much smaller than, for example, architects (estimated at a ratio of one to four, AGE, 2018).

As we indicated in Farinós (2014),

"The importance that Spatial Planning has for the formation of professional skills in the geographer, and vice versa (the importance of geographic training has for a better practice of Spatial Planning), means that it must have, in addition to a notable theoretical load, the necessary technical and practical load. The overall goal must be to guarantee the acquisition of the theoretical foundations of spatial planning and training in methods and instruments to be able to carry it out... The following are recognized as more specific but also basic objectives of this training: to ensure an adequate use of the basic concepts of spatial planning and management; allow adequate knowledge of how this occurs at different scales, from the European to the regional, knowing and being able to interpret the regulations and instruments of spatial planning at all these scales, operating in terms of interscalarity and multilevel governance; make it possible to put them in relation with those of management of the natural environment and regional economic development, in order to be able to settle the possibilities of confluence or integration between them" (own translation).

The need for a critical spirit and a greater link with decision-making, the power, in a progressive approach to law and political science and administration should also be added.

"When talking about the role of university education, one of the essentials is to help lay the foundations from which to generate intelligence that allows moving frontiers in the technological, but also in the social; preserving the value of understanding, complex, and humanism, as erudition, culture and critical thinking. It is not for nothing that the University cannot stop being (the last?) redoubt for the necessary and beneficial politicization of society; an essential element to be able to maintain democracy in a good state. Because nothing is more profitable than education, a good education, especially when compared to the costs that derive from ignorance... or from the decision to give up" (own translation).

3.2. On the structure and content of undergraduate studies and their implications for Spatial Planning

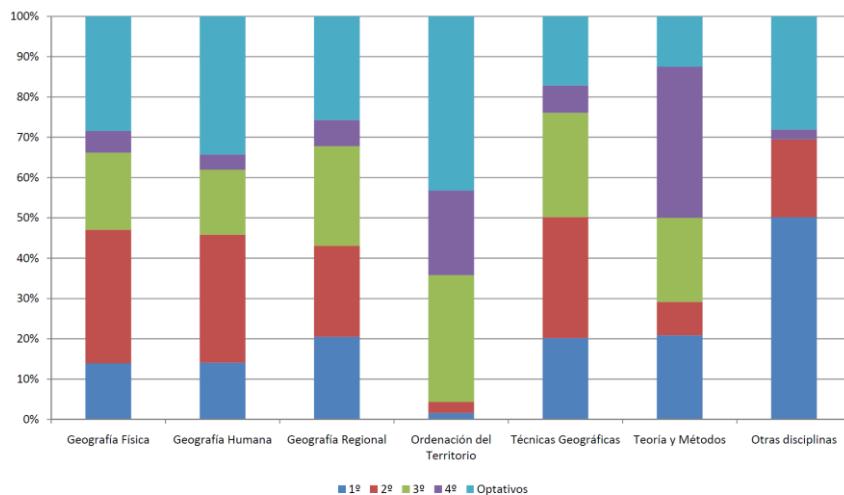
From the point of view of training, the link between geography and spatial planning can be said to be much more nominative than real. Both because the general nature of the Degree predominates, and because of the non-qualifying nature of the official Master's degrees, despite the frequent presence of the territorial in its contents and denomination. An analysis of the structure of geography degrees at Spanish universities (see AGE, 2016), is clearly illustrative of how inconsistent this pretended relationship is.

The set of basic, compulsory and optional training subjects present a balanced distribution in terms of number of credits/hours between Physical Geography (14.1%),

Human Geography (15.8%), Regional Geography (15.1%), Techniques group (for the treatment of geographic information, cartography and TIG) (15.5%) and Spatial Planning (15.2%). In the case of spatial planning, a series of unfavorable circumstances concur. When it comes to basic and compulsory subjects, their relative weight drops to 12% (compared to Physical Geography (14.1%), Human Geography (14.5%), Regional Geography (15.8%), Geographic Techniques (18%) and Other disciplines (16.6%)). These are not basic credits (they only account for a meager 0.6% of the total) but are compulsory (16% -compared to 21% in Geographical Techniques, 15.8% in Physical Geography, and 16.9% in Human Geography, or 17.6% of Regional Geography), located between the third year (where it represents 26.1%) and the fourth (another 26%), but without a necessary accommodation and preparation in previous years. It thus appears as a matter of a complex nature but poorly contextualized with the rest of the previous matters. Another of its defining elements is its hypertrophy in terms of elective credits/hours (22.9% -compared to 14.1% of Physical Geography, 18.9% of Human Geography, 13.4% of Regional Geography, 15.8 % of Other disciplines or the residual 0.9% of Theory and Methods). These are located mainly in the fourth and last year (representing 43.2% of the course) in which the preparation of the Final Degree Project also begins.

An unfavorable distribution, despite trying to justify, as it is an eminently applied subject; something that is not exclusive to it and that is also shared by others, which contrast widely with it due to a better articulation along the years of the Degree. It is, especially, the case of the techniques, with an almost identical distribution throughout the four courses, which allows them to be better incardinated, among themselves and with the rest of the subjects (see Figure 1).

Figure 1: Structure by subjects of the contents of the Geography Degree: distribution by courses (subjects / basic training credits, optional and compulsory of all universities teaching Geography Degree). Source: AGE (2016: 23).



Fuente: BOE, planes de estudio de las universidades españolas. Elaboración: C. Delgado Viñas, 2016

This leads us to think about the fundamentally instrumental aspect that has been given to the degree, which is manifested in professional practice (see Farinós, 2014 and Professional Association of Geographers, 2019). Just in the antipodes of what happens with theoretical knowledge and its historical, epistemological and methodological evolution, the history of the discipline (Theory and Methods only represents 2.5% of the total credits of basic and compulsory training). Thus, "Spatial Planning" and "Theory and Methods" are the two subjects with the lowest number of basic and compulsory training ETCS credits. Add to this the fact that the intended transversal nature with related subjects from other disciplines (which was at the base of the RD of 2007), in addition to concentrating on the most familiar and traditional ones (History (29.9%), Art (13.4%), Economy (12.5%), to which are added Law (8.4%), Communication (8.1%), Anthropology (5.3%), Sociology (4.6%), Philosophy (4.6%) and others more specific) occur mainly in the first year. Nor are they designed for spatial planning in many cases (in fact, in some universities there is a subject on planning methods as part of the compulsory subjects of the spatial planning block, which would also increase the weight of the technical subject), nor do they have a sufficient overlap with it, in addition to being separated in time (two years or more).

Only in the case of some geography degrees in some Spanish universities, testimonial as indicated by the aforementioned percentages of basic and compulsory spatial planning subjects in the first two years, is it possible to find an "introduction" subject to spatial planning in the second year. To which should be added the profile of the teaching staff responsible for the subject, whose analysis is not the subject of this text, but on which some comment can be made in a double sense. Over time, and unlike what might happen in the first moments of the new degrees, the subjects of the regional planning block have been left in the hands of new and even external teachers. Regarding the latter, often of an associated type and in relation to professional practice. There is no doubt that it provides significant added value in terms of the applicability of established routines and a focus on the geography of nearby problems; but, on the other hand, and except in exceptional cases, they do not enter the depths of either the theory and method of geography or planning (a space for reflection little traveled, as indicated by Benabent, 2014 and 2016), not serving to lay the foundations for a necessary "geography of the future" seeking advances for it.

These are all issues to take into account in the face of future revisions and reforms of the study plans of said degrees, or the appearance of some new ones already in preparation (in accordance with the new Royal Decree 822/2021, of September 28, which establishes the organization of university education and its quality assurance procedure). It has not been possible for the moment to move towards a more transversal model, such as the one that exists in some British universities in which it is possible to combine the Degree in Geography with other degrees, which gives rise to not obtaining a degree ("single honor") but a combined degree ("joint honor", which is not exactly a double degree) (AGE, 2018). The advances only have been taking place in the specializations, mentions or itineraries (which is not helped either by the load of elective subjects or their location in the final part of the Degree).

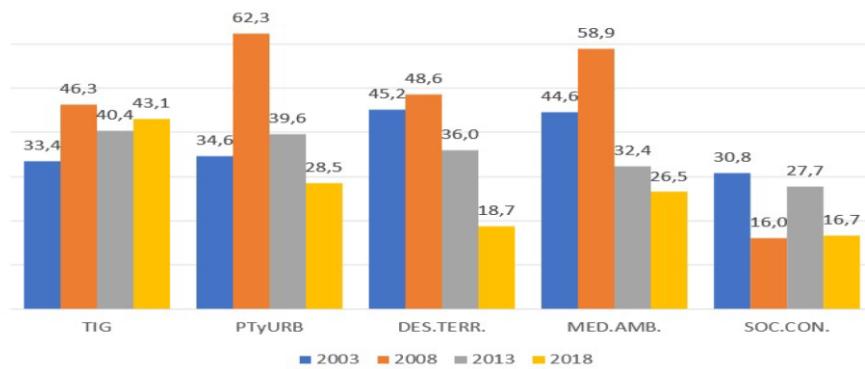
Precedo (2008), well aware of the political practice in this matter, already described it as a "multifaceted and mutating issue", which prevented its individualization with respect to other matters. He identified four main reasons for this, of which we

understand the first two have been overcome (the difficulty of combining theory and practice, and its demarcation with respect to other plans), but the last two still remain: its constant and rapid evolution with respect to principles and methods, giving rise to frequent changes in what he called "preferred main approaches", and their transversal nature, especially if sectoral visions continue to prevail and the integrality, in the sense of the aforementioned Luhmann (1991), does not materialize. In fact, each discipline whose graduates and professionals apply to it are reluctant to have their own transversal training, preferring to keep the personality of the traditional disciplines, as is the case above all with architects and geographers, also with engineers and, of course, with jurists.

4. Future prospects; some final considerations

Three major purposes of teaching geography have been pointed out: to train trainers to teach future generations, applied geography (with a fundamental role in comprehensive spatial planning) and training in techniques (fundamentally cartography and TIG, which are also instrumental for the other two previous options).

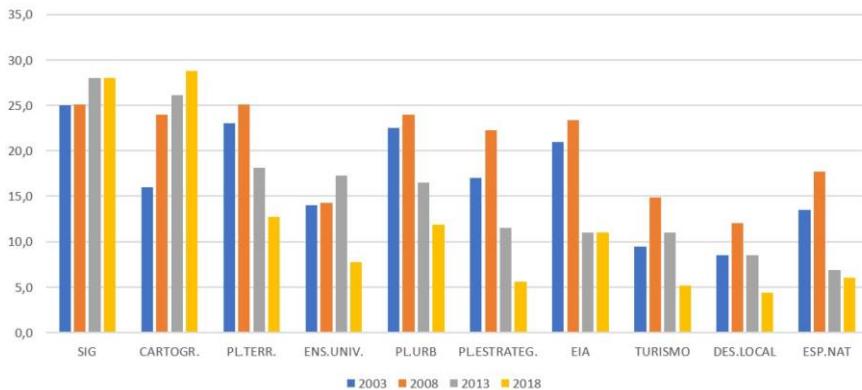
Figure 2: Evolution % Associates who work in "Work areas" of the Geography. 2003-2018. Source: Geographers Professional Association (2019: 23)*



NOTA: cada columna grupa al % de colegiados que ha afirmado trabajar en al menos un proyecto de los incluidos en cada "ámbito de trabajo".

* Each column groups the % of members who have stated that they work on at least one project included in each area of work: TIG (Geographic Information Technologies), PTyURB (Territorial and Urban Planning), DES.TERR (Territorial Development), MED.AMB (Environment), SOC.ECON (Knowledge Society).

Figure 3: Evolution of the most consolidated professional opportunities**. Source: Geographers Professional Association (2019: 23)



** GIS: Geographic Information Systems; CARTOGR.: Preparation of thematic cartography; PL.TERR.: Spatial planning; ENS.UNIV.: University education; PL.URB: Urban planning; PL.ESTRATEG.: Strategic planning; EIA: Environmental impact studies; TURISMO: Tourism; DES.LOCAL: Local development; ESP.NAT: Management of natural protected spaces.

From the point of view of professional applications, tools such as Geographic Information Technologies (GIT) have consolidated their importance and prominence in the employability of graduates (see Figure 2). They have even increased it given that the largest number of contracts in the last year of study (2018) occurred in GIS (28.8%), for the preparation of thematic cartography (28.8%), and the design and management of databases (23.7%). At a distance, in a second level, would be urban and spatial planning (12.7%), environmental impact assessments (11.0%) and strategic environmental assessments of plans and projects (9.2%), along with landscape projects (7%), university education (which has dropped to 7.7%) and citizen participation projects (7.1%) (Association of Professional Geographers, 2019: 30). They are the most consolidated professional opportunities (see figure 3).

According to the aforementioned report, spatial and urban planning have experienced a notable drop in half in the number of those who responded that they had worked on a project in this professional field. In the period between 2013-2018, the four areas where the reduction has been greater according to the aforementioned report (p. 34) are: cultural heritage, local development, trade and environmental education. This, however, contrasts openly with the importance of local planning and development if we look at the monthly information from the bidding and award alert service of the Professional Association of Spanish Geographers in the first three months of 2022. In that case, the most frequent offers are those related to the environment and those related to spatial and urban planning (significantly reduced to the acronym of “UR-Urbanism”). These two, which make up the highlighted block, are followed by offers in the field of local development and, at a distance, GIS and cartography. This should be put in relation to the competition and success rate of other professionals, as well as the possible concentration of hiring in the usual winners of these calls.

Returning to the world of academia, the catalog of research groups presented in the report prepared by the AGE in December 2020 (<https://www.age-geografia.es/site/grupos-de-investigacion/>) confirms the importance of the territorial issue, if we attend to its name, with frequent denominations relatives to the territory, its analysis and management. Something that, however, does not correspond to and contrasts very clearly with the small number of competitive research projects financed from 2012 to 2019, according to the list prepared by the AGE (<https://www.age-geografia.es/site/projects -of-research/>). Its role is testimonial, in favor of other star issues such as urban/city planning (which takes the cake), landscape or tourism. Something that also has its logical consequence in terms of the number of articles and publications on this subject by the group of geographers. The situation is somewhat better in terms of the number of doctoral theses presented from the academic year 2012/13 to 2018/19, with a very heterogeneous inventory of topics and titles (<https://www.age-geografia.es/site/tesis/>). Those defended at the University of Barcelona should be highlighted, not only because of their relative weight with respect to the total number of theses in this area, but also because of their constant maintenance throughout the entire period analysed. Something similar, on a second level, happens in the case of the University of Santiago de Compostela. In the rest of the universities, more has been done for years, especially in the first moments of the period: Autónoma de Madrid, Castilla-La Mancha, Complutense de Madrid, Granada, Rovira Virgili de Tarragona or Seville.

The preparation of the geographer as a planner should train him/her both in the techniques as well as in the processes, routines and work styles. Not only must their training be updated in the traditional tasks in which they have been participating to date (technical participation in the different phases of preparing the plans) but also for new functions within this same process, such as mediation, empowerment of the population and advice to decision makers; something that is very relevant given the increasingly political character of spatial planning, as many authors have been recognizing (Farinós, 2021; Garrido et al., 2021). Technicians can propose how to make the best possible order, endowing it not only with scientific and technical rationality, even phronetic and common sense depending on each context, but those who really decide are the economic actors and politicians. The challenge remains of knowing how to transfer and connect the applied knowledge that is necessary, establishing the necessary bridge between knowledge, technique and action, claiming the world of academia (the university) as the last redoubt of politicization of society (for promote an adequate political and territorial culture, see Farinós et al., 2017).

Along with this new field of professional application, mediator and facilitator in terms of planning, but also evaluation and, above all, implementation and management, there are other opportunities in this 'geography of problems'. It will be necessary to identify and anticipate them, conceptualize them (as a result of guidelines and trends resulting from a certain functioning of the structures that respond to certain values and narratives) and present well-founded solution proposals for them capable of guaranteeing their success and usefulness. Examples include the new guidelines, challenges and territorial processes such as climate change, areas of risk and conflict, metropolitan areas, mobility problems, new relations between the countryside and the

city, tourism and heritage as new articulators of the territory, integrated management of coastal zones, energy and new materials, regional blocks and geopolitics, among others.

As we pointed out in Farinós (2021b), spatial and urban planning faces a new stage through the necessary integration of climate change in its determinations, which implies a necessary transformation in the way of understanding it and carrying it out. Although it does not seem that this can lead by itself to a new planning style or paradigm, it will entail a change in the way of formulating the new strategies (and their respective plans) for adaptation in the different territorial areas (rivers, coasts, parts of the city and its surroundings...). At a regulatory level, RD 638/2016, which modifies the Public Hydraulic Domain Regulation, introduces some novelties for the consideration and treatment of the risk of flooding in spatial and urban planning, with the establishment of new strips of affection, "preferential flow zones", together with the traditional "police zones", or the obligation to provide a "Declaration of responsibility" in the processing of the file for the authorization of any action. Territorial, landscape and heritage risks become part of the scope elements of the sustainability report of the strategic environmental assessment process, mandatory for the approval of any plan and program.

Personally, each graduate will have a code of ethics and become a promoter of planning and a new territorial culture among civil society. Which leads us to the option of a geographical training in values, critical and committed to planning, as a way to move towards social and environmental justice, and to the question of how to combine it with training of a basic, technical and applied nature in a comprehensive way.

There are examples of this more critical nature in spatial planning, urban conflict, sustainability (fight against climate change) or geopolitics (global regional knowledge) that is behind highly visible and media conflicts such as conventional wars, but also of those that are not so much visible but that it is convenient to know how to unravel and warn. Geography as a weapon for different types of wars, paraphrasing Yves Lacoste. This training with a critical spirit, although it is not exclusive to geography, can and should be rooted in a good knowledge of the theoretical and epistemological foundations of the discipline (too absent in current curricula -AGE, 2016-). Opportunity spaces are opened for the discipline with a "Geography of problems" and their solutions, contributing to give a complete response to the different challenges and quick territorial transformations (both those of substance, on a global scale, and those specific to each local space), with training that improves skills with which to manage appropriately and be able to support decision-making to plan our future conveniently.

From the academy and those responsible, it is worth vindicating an effort to try to get away from neoliberal fundamentalisms about the role of universities and the teaching and research activities they develop. All this is worth, even more so, for understanding the territorial system in which we are located and the way in which we want to manage it in the future. In a liquid, fast, contingent and changing world, in which the less desirable version of 'realpolitik' is being imposed, arguments, reflection and complex thinking have little prestige. However, it is necessary for the proper understanding and explanation of territorial phenomena, which geography has been dealing with and should continue to do, and with this differential fact. A matter of method, but also of "timing", given the urgency of being able to comply with the procedures, which leads to focusing more on the form (the procedural) than on the substance (the substantive). This applies

both to planning, as we have explained (Farinós, 2021), and to the formation of the discipline.

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Spanish Geography and the renewed political agenda for landscape⁸

Rafael Mata Olmo

ORCID: 0000-0002-3495-5599

Autónoma University of Madrid

Nieves López-Estébanez

ORCID: 0000-0002-4556-0314

Autónoma University of Madrid

Abstract: Landscape analysis, the focus and scale of which are unequivocally regional, constitute a decisive contribution to landscape studies by Spanish Geography. The renewed interest in the landscape of citizens and politicians in reference to all types of territory and as an element of quality of life, promoted by the European Landscape Convention (European Council 2000), has given rise to a considerable increase in landscape studies in Spain as well as the involvement of Geography in the political agenda for landscape promoted by State Administration and in particular by the regional governments and by some local administrations. The present paper attempts to address the contribution made by Spanish Geography, based upon its specific understanding of landscape, to studies and instruments for regulation, planning, management and dissemination of landscape policy. Particular attention will be paid to landscape Atlases, studies and catalogues, as well as to landscape-specific regulations, strategies and plans or those possessing a significant content in relation to landscape protection, management and planning.

1. Introduction. The recent incorporation of landscape into the political agenda

With the launch of the European Landscape Convention (ELC) in Florence on October 20th 2000, landscape as an object of public interest was incorporated in a renewed manner into Spain's political agenda, into the State Administration, which will be ratified in November 2007 (coming into force on March 1st 2008), and above all, into the agenda of the regional autonomies, some of which have approved their own landscape laws in accordance with ELC, and to certain local island and municipal administrations.

Recovering its landscape tradition (Martínez de Pisón, 2008), Spain's Geography has returned to the landscape (Mateu and Nieto, 2008) and is playing a vital role in the

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implementation of the ELC, in particular at the regional and local scales (Gómez Mendoza, 2008). Its contribution has mainly been based upon the characterisation and assessment of the diversity of landscapes, but also in the design of different initiatives and instruments for protection, planning and management of landscapes, a context that had heretofore received little attention from the field of academic geography. We do not attempt to claim for Geography exclusiveness in the analytical and prospective treatment of landscapes. Nonetheless, the renewed understanding of landscape, in accordance with the Convention, as the character of the territory –of all territories– is perceived by the population and results from the interaction between society and nature; this endows Geography with its “capacity to see the landscape” (Martínez de Pisón 2010), which constitutes a significant role in the different phases of landscape policy. We are therefore currently witnessing “the time for geographers” with regard to landscape, a saying coined at the Congress for the Centenary of the International Geographical Union (IGU) in Paris.

Nonetheless, landscape had been considered in public policies in Spain and in other countries of our environment, long before the ELC was adopted by the European Council. Indeed, as has been indicated in publications in the field of geography (Gómez, 1992; Mata, 2000), protection and tutelage of nature’s most beautiful landscapes inspired the drafting of Spain’s first law on nature conservation –the law underlying the creation of the 1916 national parks– as well as the creation of the first two parks: the Montaña de Covadonga (currently Picos de Europa) National Park (Law dated July 1st 1918) and the Valle de Ordesa or del río Ara (Royal Decree August 16th 1918) National Park, and other protected areas created years after. In the words of the professor and naturalist Eduardo Hernández Pacheco, Commissioner for National Parks, in 1933, in his report presented to the Paris Parks Congress,

“(...) son los bellos paisajes, ornato de la tierra, lo que se trata de proteger, como asilos de tranquilidad y de paz en este turbulento y angustioso vivir de los tiempos modernos” (Beautiful landscapes, ornaments of the land, must be protected as oases of peace and quiet in these turbulent and anxious modern times” (Hernández-Pacheco, 1933:7).

From the arguments in support of landscapes that inspired the first law on national parks in 1916 to the rules established by the regional governments in the last few decades referring to protected areas, landscape is seen to constitute a constant element in the conservation policies at both State and regional levels, albeit at a very low level of concision and with no shared definition of the status of Protected Area. This status was introduced by Law 4/89, on Conservation of Natural Areas and of Wild Flora and Fauna, maintained in Law 42/2007, referring to Natural Heritage and Biodiversity – partially adapted to the ELC – and transferred with some interesting nuances to most of the regional conservation rules. However, the regional autonomies have declared very few Protected Landscapes, if compared to the success of other figures such as the Natural Parks According to EUROPARC-Spain, the Protected Areas declared represent 2% of the total area of protected natural areas and they respond to different criteria (aesthetic, geomorphological, ecological and referring to a harmonious relationship between society and nature) (EUROPARC-Spain, 2021).

Traditionally, the conservation of the landscape has also been present, more implicitly than explicitly, in the legislation applying to our historic-artistic and cultural heritage. We should remember the initial concern for conservation of the surroundings

g of the “urban historical areas” and the creation of the figure of “landscape protection zones” in a 1926 decree-law (Zárate, 2011). The basic State law in force, Law 16/1985, applying to Spain’s Historic Heritage, makes no mention of landscape, although it does establish protection for certain heritage-related goods which, due to their scale, characteristics and complexity, could fall within the sphere of protection of cultural landscapes. Together with the landscape content referring to Historic Gardens, Historic Urban Ensembles or Archaeological Zones, appears the Historic Site which, of the elements comprising Spain’s Historic heritage declared to be of National interest, is of greater landscape significance as:

“a place or spot associated with events or memories of the past, to popular tradition, popular creations or with nature and works of man possessing historical, ethnological, paleontological or anthropological value”.

Some regional laws on cultural heritage, specifically those of Cantabria (1998), La Rioja – with a specific reference to the Vineyard Cultural Landscape (2004), the Murcia Region (2007), the Madrid Regional Autonomy (2013), Galicia (2016) and the Canary Isles (2019) have explicitly incorporated the Cultural Landscape as a type of protected heritage, adopting definitions similar to those of the World Heritage Convention (Calderón and García, 2017); however, none of this detracts from the unequivocal landscape dimension of other cultural properties (Fernández, 2019) or from the notion of “surroundings” of the Cultural Interest Properties (CIP), present existing in Spain’s legal system (Agudo González, 2007). Also of particular interest, although it does not possess any legal status, is the National Plan for Cultural Landscape (PNPC), passed on October 4th 2012 by the Historic Heritage Council (Spanish Govt. Ministry of Culture and Sport); the plan involved a significant geographic element in its creation. By means of a Follow-up Commission, the PNPC is promoting and coordinating the protection of landscapes of high cultural interest and working on inter-administrative cooperation, in particular with the regional governments and with civil society (Mata, 2017; Cañizares, 2017). The reform underway in the Law on Spanish Artistic Heritage finally incorporates the figure of Cultural Landscape, based both on the definition of this category by the World Heritage Convention and of the European Landscape Convention.

Lastly, in his brief synthesis of how landscape is treated by Spain’s legislation prior to the approval of the CEP, we should refer to the town planning laws which, from the first *Ley de Régimen del Suelo y Ordenación Urbana* (Law regarding the Land and Urban Development Regime), dated 12th May 1956, to the current *Texto Refundido de la Ley del Suelo y Rehabilitación Urbana* (Reformed Text of the Law on Land and Urban Rehabilitation) in 2015 (TRLSRU), the so-called “direct application rules” have been included as a town planning technique for the protection of landscape values (Sánchez, 1999; Vicente, 2011). Essentially resuming the content of sections 60 of the 1956 law and section 73 from that of 1976, section 20 of the Reformed Text of the Law on Land and Urban Rehabilitation referring to basic urban criteria for land use states the following:

“2. Facilities, constructions and buildings must be conceptually adapted to their environment and to this end, in places with open and natural landscapes, whether rural or maritime, or in relation to the views provided by urban ensembles presenting historical-artistic, typical or traditional values, and in the vicinity of picturesque roads or trails, the situation, mass or height of buildings, walls, visual closure or the installation of other elements will not

be permitted to obstruct the view for contemplation of natural beauty, interrupt the harmony of the landscape or disfigure the perspective thereof" (art. 20.2).

Together with these "direct application (landscape) rules", which to date have been quite ineffectual in practical terms, both the general town planning legislation and those approved by the regional governments in the last three decades have incorporated a specific planning instrument such as the Special Plans, charged, among other functions, with the "protection of the landscape and of the roads network, and conservation of the rural environment in specific places" (arts. 13 y 15 de la ley de 1956) (Agudo, 2007; Mata and Galiana, 2008).

2. Geographical understanding of the landscape and the Florence Convention. Points of encounter

References to the landscape, both in the provisions established for conservation of nature and defence of historical and cultural heritage, and in those contained in town planning legislation, reference is made to unique areas or elements of great landscape interest (natural, cultural or scenic); they therefore have a very limited spatial scope of intervention and an essentially protective function; moreover, they do not define landscape as a juridical concept.

We do not wish to deny the geographical interest of these landscapes, which constitute a priority for protection; however, many other landscapes are ignored by the public policies; they do not present high values and they accommodate a large segment of the population in rural, urban and periurban contexts; they are everyday ordinary landscapes which have traditionally been studied by geographers. In this sense the European Landscape Convention and its predecessors, in particular the 1992 Seville Landscape Charter 1992 (Zoido Naranjo, 2021), involve a profound change in the way landscape is seen; it is now understood to represent a quality of the whole territory, of all places. Thus, as we have pointed out in other works, the landscape becomes "territorialised" and is impregnated with geography (Mata, 2006), which also involves, as we shall see, a significant increase in the scope of landscape policy.

At the first international treaty dedicated specifically to landscape, a decisive contribution of the CEP involved agreeing upon a shared definition of landscape as a juridical concept. According to the Convention, landscape is:

"any part of the territory, as seen by the population, whose character results from the interaction between natural and/or human factors" (translation of the *Instrumento de Ratificación del Convenio Europeo del Paisaje* (Instrument for Ratification of the European Landscape Convention), BOE de 5 de febrero de 2008).

This is a definition, as we pointed out in another previous text, that we follow herein (Mata, 2014), based upon three basic notions possessing a strong geographic significance: territory, perception and character. Indeed, in the first place the definition refers to territory, to "any part of the territory": On one hand this means that the Convention considers landscape, whilst recognising the importance of other approaches, from the territorial perspective, as a specific quality of the territory; on the other hand, that this quality is not restricted to landscapes presenting high landscape values, but rather applies to the whole territory of the Parties, encompassing natural, rural, urban and periurban spaces. Any territory, any part of it, is seen as a landscape and is contemplated as such; Consequently, all landscapes are of interest and merit the attention of governments. This is the most innovative message of the Agreement at the conceptual

and strategic levels. Therefore, the politics it advocates is not only reactive and a protector of noteworthy elements; above all it is proactive, intended for all landscapes, the outstanding and the banal, for the ordinary ones and those attracting visitors, for the quality of people's environments.

Moreover –and this is the second component of the definition – landscape does not only consist of the material constitution of the territory. Landscape arises from a sensitive relationship, from multi-sensorial perception of the territory observed and lived in by human beings. As we have also previously pointed out, from the perspective of a landscape involved in the sustainable management of the territory, the different perceptions and representations of people and social stakeholders are of interest, above all, as an expression of different ways of perceiving, living in, and valuing the landscape; they are closely linked to social participation and involvement.

Finally, what is perceived is not the mere physiognomy of the territory –which is also important– but rather its “character”; this character results from the action of natural and/or human factors and their interrelations, which looks back at the history of the landscape, its biography, to the footprints its leaves, but also considers the functions and processes that endow it with life and meaning in the present. A geographic reading of the definition of landscape by the ELC brings us to rearrange the ideas it comprises. Landscape will mean the perception of the territory's character, the result of the relationships between society and nature in the long term.

Thus, one understands the conceptual proximity between the landscape of the ELC and the landscape as it is seen within the scope of Geography. In this discipline, landscape has traditionally been treated in its materiality as a quality of the territory, as an expression of a way of life, presenting a distinctive and evolutionary face (Martínez de Pisón, 2004), shaped throughout time by ecological and social processes. But modern geographic landscape studies, based simultaneously upon reason and sentiment (Ortega, 2010), have also viewed landscape as experiencing the environment and as a symbolic or artistic representation.

All these circumstances demonstrate the fact that, as we previously pointed out, Geography has played a decisive role in the last twenty-five years, identifying, characterising and assessing landscapes at different scales in order to comply with section 6.C of the Convention: “Identification and assessment (of the landscapes)”. Studies in Geography have adopted, in a natural and committed manner, the idea of character of the territory as a nucleus for identification and cartography, as well as the description and identity of landscapes.

The attempt to decipher their character was also very closely related to tasks of assessment, more intended to appraise the character of each landscape in its territorial context than in making absolute evaluations of a quantitative nature. This explains why in numerous recent studies involving inventory and cataloguing of landscapes, there are some that present high values, both in the environments exhibiting very high values of naturalness and the ones associated with the first categories of nature conservation, such as intensely humanised landscapes which nonetheless possess character, that are coherent with their history and their ecological potential.

The ELC, on recognising the perceptive dimension of landscape and its contribution to citizens' wellbeing and quality of life, assigns an important role to public participation, both in the “assessment” of landscapes and in the definition of the so-called “landscape

quality objectives”; these “must respond to the aspirations of populations with regard to the landscape characteristics of their environment” (art. 1. c.). As we shall subsequently see, many recent works attempting to characterise landscapes with the participation of professionals from the sphere of Geography, in particular those at the regional and local scales and for prospective purposes, have developed multiple methods for consultation and participation in relation to landscape, thus responding to the requirements of the Convention. However, working with the stakeholders involved in landscape is nothing new in Geography; in this action-oriented phase of renewed interest in landscapes, the discipline has recovered its vast experience in fieldwork, in contacting the local population, currently employing new communication tools and more systematic methods, but revaluing the techniques of “informal participation” pertaining to the traditional landscape studies of a regional nature. The following text by Manuel de Terán in his study of the landscape of Ribamontán al Mar in Cantabria, published in 1951, and which we cite in a previous publication, constitutes a good example of the meaning of contacting the local people in the traditional geography method for characterisation of the landscape.

“From the heights of Galizano –writes Terán- we took in the panorama for the last time from Ribamontán al Mar. For many days we had observed from different points a landscape that had become familiar to us; we have spent time with the men, observing their toil and interests, following all the paths; we entered some homes, and the view we have now from this height seems cheerful and totally logical; all its forms are expressive physiognomic features. The landscape of Ribamontán unveils itself to us like the face of a friend, whose life and spiritual arcane have become transparent to us” Terán, 1951: 108; cited in Mata, 1987: 30).

Finally, another nexus between Geography’s landscape approach and the renewed landscape policy advocated by the Florence Convention lies in the protagonism the latter gives to land management and town planning for the protection, management and planning of landscapes (Zoido, 2010; Benabent, 2015), without prejudice to other policies involved, such as culture, environment, agriculture or economy. As a territorial science, in the last three decades Geography has been paying considerable attention to spatial planning, in both the academic and professional scopes, in particular at regional and supramunicipal scales. It should be pointed out that a Degree in Geography, adapted to the European Higher Education System, and promoted by the Spanish Association of Geography (AGE) and the College of Geographers, with the participation of almost all Spanish public universities, led to the creation of a White Paper for the Degree in Geography and Spatial Planning (ANECA, 2004). Degrees in Geography and Spatial Planning (or Geography and Spatial Management) have been inspired by this White Paper in many of Spain’s universities.

In the last two decades in Spain, Geographers have been trained both in landscape and spatial management, constituting a very active group of professionals in the design of spatial planning instruments involving content in landscape or specific plans, strategies or guidelines for landscape. Thus, Geography in Spain, with its conceptual and methodological experience in landscape research –i.e. all landscapes– has made a significant contribution to disseminating and developing the landscape policy of the ELC. At the same time, implementation of the Convention and its approach to landscape as an object of public action has also contributed to renewing the landscape tradition

throughout Spain, committing, along with other disciplines to the management and planning required.

A good example of our interest in academic landscape study and the projection thereof in the instruments and initiatives of landscape policy involves the creation in 2014 of the Landscape Work Group, under the auspices of the Spanish Geography Association. The Group currently has over 80 members and is conducting important work in debates and exchange of studies and projects through the Landscape Work Seminar, four editions of which have now been held in different territories presenting high landscape values.

3. The renewed landscape policy in Spain and the contribution by Geography

3.3. Recent landscape policy in Spain. Rules and instruments.

3.3.1. Development of landscape policy by the National Govt.

As we have already indicated, the implementation of landscape policy in Spain in the last two decades has responded to a great extent to the acceptance of the European Landscape Convention by the regional governments, even before the Spanish Government ratified it in November 2007. Application of the Convention by the National Govt. has heretofore been quite modest; however, certain references thereto have been included –in particular the definition of the ELC landscape– in two important national laws, the one referring to Natural Heritage and Biodiversity from 2007, and the 2013 law on Environmental Impact Assessment.

The former point out that, although landscape protection is established as one of the principles of protection of natural heritage and biodiversity, the law “(...), however, is not intended to serve as the instrument for implementing, in a generalised fashion, the landscape protection policies in Spain (...), policies whose technical content and general approach (...), call for the application of management instruments such as those established, albeit minimally, in the European Landscape Convention in Florence on October 20th 2000”. The Law on Natural Heritage and Biodiversity therefore recognises the need for specific legislation in order to develop the renewed landscape policy of the ELC, beyond mere protection due to these landscapes' natural and aesthetic values.

Moreover, the 2013 Law on Environmental Assessment, which transposes Directive 2011/92/UE, of December 13th, referring to the assessment of the consequences of certain public and private projects upon the environment, assumes the ELC when it states in its Preamble that “in Spain the European Landscape Convention is now completely applicable, and was ratified on November 26th 2007, and it should therefore be employed in environmental impact assessments and in strategic impact assessments”. Landscape appears as one of the aspects to be considered in strategic environmental reports and environmental impact studies when analysing the significant effects or possible effects of plans, programmes or projects and where necessary, when establishing measures for prevention, mitigation or correction, prior to adapting, approving or authorising them. In the environmental inventory which must compulsorily constitute a part of an environmental impact study, according to Annex IV of the law, landscape must be considered “in the terms of the European Landscape Convention”. If suitably applied, all this ought to have significant consequences because it is not merely a question of appraising the effects upon relevant natural or cultural

landscapes, but rather, in accordance with the ELC, upon landscapes in general, as a quality of the territory and a context of daily life.

Some new regional laws, such as Law 12/2016, dated August 17th, referring to the Environmental Assessment of the Balearic Isles, goes beyond what is established in the basic state law, indicating that:

“Apart from a minimum content established by the basic national law on environmental assessment, an environmental impact study must include an annex of landscape effects which identifies the landscape affected by the project, the effects thereof and, wherever necessary, measures for protection, correction or compensation” (art. 17.4).

This provision is justified in the Law from the Balearic Isles:

“keeping in mind both the landscape of the Balearic Isles represents an asset in the Balearic Isles, the validity of the European Landscape Convention, approved by the European Council on October 20th 2000, came into effect in Spain on March 1st 2008” (Preamble).

3.3.2. Landscape policy impetus by the regional governments. With and without a landscape law.

As we previously stated, the regional governments have developed the Convention to a greater extent than the National Govt. We believe that, among other reasons, this is due to the close relationship between the character of the landscape and regional identity, and to the fact that spatial and town planning, as the main vehicles for implementing actions in the landscape in accordance with the ELC, are the exclusive competency of the regional governments. It should, however, be pointed out that in any case, a development in the context of regulations or instruments is not always a guarantee of effective commitment to landscape conservation or improvement, as can be seen in multiple examples of deterioration or loss of valuable landscape, even in regions possessing specific legislation on landscapes.

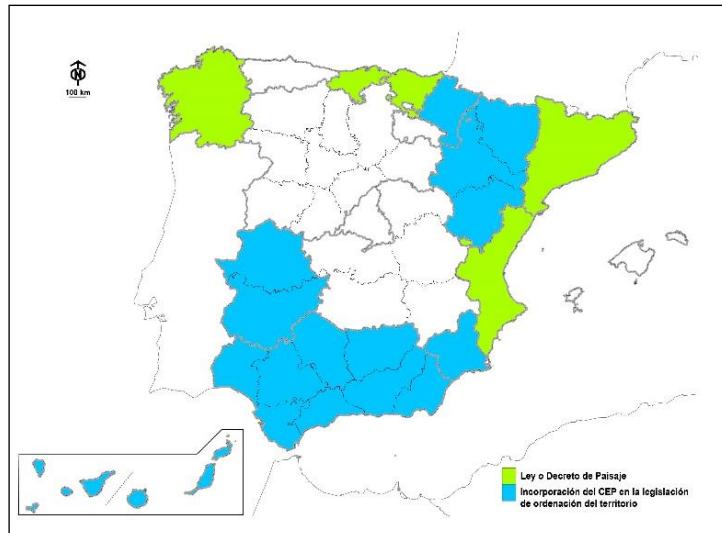
All the regional autonomies have currently adopted the ELC in one way or another and have implemented different lines of public action applying to landscape, with noteworthy participation by the sphere of Geography; in all cases, the landscape policy has also been associated with the spatial and town planning regimes, following the recommendations of the Convention, without prejudice to other references to landscape management in the different policies of the autonomous regions referring to landscape, such as agriculture and rural development, infrastructures, tourism or the above mentioned environmental assessment.

Some regional autonomies, such as Andalusia, Canary Isles, Catalonia, the Valencia Regional Autonomy and the Balearic Isles have included in their fundamental law –the revised Statutes of Autonomy– explicit references to landscape as a right of citizens and the obligation of the public administrations to conserve it. Other regions, together with the above mentioned ones, explicitly include landscape policy as an exclusive competency; this is the case of Galicia, the Murcia Region, La Rioja, Castilla-La Mancha and Castilla y León.

Implementation of landscape policy at regional scale, whether or not referred to in the Statutes, follows different routes, depending upon the commitment of each Region in this sense and on the regulatory framework adopted for its development. One initial difference involves, on one hand, the regional autonomies that have adopted a specific law on landscape in accordance with the ELC –in the shape of a law or decree– (Figure 1), and on the other, those (to date the majority) that, still lacking specific landscape

legislation, are adopting measures for landscape within the framework of laws on spatial planning, or simply planning instruments. In some cases, regional spatial planning instruments are adopted with the status of law, such as the Spatial Planning Guidelines of Extremadura (in Avance), so that the references to landscape they contain would be approved at the very highest legal level.

Figure 1. Regulatory framework of the regional autonomies in relation to the European Landscape Convention (ELC). Source: own design.



To date the parliaments of four regional autonomies have approved landscape laws, under different names but always in accordance with the guidelines of the ELC, and adopting its definition of landscape: the Valencia Regional Autonomy was the first, with the approval of Law 4/2004, dated June 30th, on Land Management and Landscape Protection; it integrated in one single law both Spatial Planning and Landscape Protection; this legal text was replaced by Law 5/2014, dated July 25th, on Spatial and Town Planning and Landscape, of the Valencia Regional Autonomy, currently in force, also integrates town planning, along with the two previous issues. They were followed by Catalonia, with the approval of Law 8/2005, dated June 8th, referring to Protection, Management and Planning of the Landscape and the regulation thereof by means of Decree 343/2006, dated September 19th, through which the aforementioned law is developed and the studies and reports on impacts and landscape integration are developed.

Years later Galicia was included in the group of Regional Autonomies governed by specific legislation on approving Law 7/2008, dated July 7th, referring to protection of Galicia's landscape; it will not be regulated until Decree 96/2020, dated May 29th, which approved the Regulation of Law 7/2008, on the protection of Galicia's landscapes. Subsequently, Cantabria was to follow suit with Law 4/2014, dated December 22nd, governing landscape. The Basque Country must be added to these four regional autonomies; in 2014 the government of this region approved Decree 90/2014, dated

June 3rd, referring to protection, management and planning of the territory of the Basque Country Regional Autonomy.

Whilst there may be some differences with regard to denomination and content, the most noteworthy fact is that all five laws adopt and expressly develop the commitment of the European Landscape Convention. They define their object -landscape- without qualifying, without previous appraisals, as is done by the ELC, adopting the definition described in the Ratification Instrument of the aforementioned Convention, or something very similar, in accordance with Sec. Art. 1 a) thereof. They all share the objective, i.e. the legal recognition of the landscape, as well as the integration thereof into the spatial and town planning regimes, along with the consideration of landscapes by all other sectorial policies directly or indirectly affecting landscape. Likewise, given that landscape is recognised as constituting a quality of the territory as a whole, which “refers to (in Cantabria’s law, for instance) rural, urban and periurban landscape that can be considered as exceptional, as well as ordinary landscapes and degraded ones” (Sei. 2), together with protection, the five laws establish as lines of landscape action, landscape management and landscape planning. Finally, these five provisions also highlight the importance of public participation in landscape policies, incorporating the notion of the “Landscape Quality Objectives” (LQO), contained in the Florence Convention, which associates participation with actions referring to landscape. Indeed, the LQO are defined –and set out in each of the aforementioned regulations– as “the formulation by the competent public authorities of the aspirations of the public with regard to the landscape features of their surroundings”.

Table 1 shows the main contents of the regulations referring to landscape of the above mentioned Regional Governments, classified into five sections. In relation to their implementation, different approaches can be observed between the regional autonomies applying laws passed over a decade ago and those enforcing laws that have been implemented much more recently; nonetheless, in the case of the Basque Country, the provisions of their 2014 Landscape Decree have been frequently in recent years.

Table 1. Main contents of the Regional Autonomies’ landscape legal rules (laws and Decree of the Basque Country) Source: Mata-Olmo and Ferrer-Jiménez, 2021: 209-210

AUTO-NOMOUS COMMUNITIES	LEGISLATION	STUDIES AND INSTRUMENTS FOR LANDSCAPE PROTECTION, MANAGEMENT, PLANNING AND INTEGRATION	INSTITUTIONAL ORGANS	CONCERTACION INSTRUMENTOS	AWARENESS, EDUCATION AND TRAINING
Catalonia	Law 8/2005, June 8 th , on Protection, Gestión and Ordenación of the Landscape and Decree 343/2006, on development of the Law	Landscape catalogues; Landscape guidelines; Impact study and landscape integration	Landscape observatory	Landscape charters	Measures for awareness, education and support

AUTO-NOMOUS COMMUNITIES	LEGISLATION	STUDIES AND INSTRUMENTS FOR LANDSCAPE PROTECTION, MANAGEMENT, PLANNING AND INTEGRATION	INSTITUTIONAL ORGANS	CONCERTATION INSTRUMENTS	AWARENESS, EDUCATION AND TRAINING
Galicia	Law 7/2008, July 7 th , on protection of the landscape of Galicia and Regulation/Reglamento, Decree 96/2020	Landscape catalogues; Landscape guidelines; Landscape studies (in spatial planning); Impact studies and landscape integration; Landscape action plans	Institute for Territorial Studies Landscape Assessment Council	Pacto and agreements referring to landscape	Actions for Training, awareness and education Best practices manuals and guides
Basque Country	DECREE 90/2014, from June 3 rd , on protection, management and planning of the landscape of the territory of the Basque Country Regional Autonomy	Landscape Catalogues; Landscape Determinations; Landscape Action Plans; Landscape Integration Studies	-	-	Measures aimed at awareness, training, research and support.
Valencia	Law 5/2014, July 25 th , on Spatial and Town Planning and Landscape of the Valencia Regional Autonomy	Landscape Studies; Landscape Integration Studies; Landscape Programmes; Protection catalogues	-	-	-
Cantabria	Ley 4/2014, de 22 de diciembre, del Paisaje	Special landscape Plans; Landscape Guidelines; Landscape Studies; Landscape Action Projects; Impact assessment/áááisis and landscape integration; Catalogue of Relevant Landscapes	-	-	Environmental education associated with the administration with competencies in education

As a synthesis of what is established by the aforementioned laws and their development, the following aspects can be highlighted:

- Catalogues and studies and instruments for landscape protection, management and planning.

The five laws focus very much on study of the landscape. A landscape policy that is applicable to the whole territory and which addresses all landscapes should be based upon analysis and diagnoses at the appropriate scale in order to evaluate the character of the landscapes and their tendencies. The laws of Catalonia and Galicia and the Basque

decree have opted for the so-called Landscape Catalogues (Noguér and Sala, 2018), landscape repertoires that usually correspond to the scopes of subregional territorial planning (Partial Territorial Plans in Catalonia and the Basque Country). The laws of the Valencia Regional Autonomy and Cantabria established what is termed Landscape Studies, with a similar analytical content which, in the case of Cantabria to each one of the twelve landscape units established by the law itself (sec. 10), and in the case of Valencia, to the Spatial Action Plans, Structural General Plans and Detailed Planning Plans. The landscape catalogues and studies therefore exhibit not only an analytical character, but also proactive, based on the characterisation and assessment of the “landscape units”.

- Protection, management and planning instruments.

Based upon the landscape catalogues and studies and on the objectives of landscape quality usually included in these documents, the aforementioned legal rules contain the instruments required to reach these objectives, to ensure their compatibility with the instruments of land planning and town planning and their relationships with other sectorial policies in relation to landscape. The Laws of Catalonia, Galicia and Cantabria establish the Landscape Guidelines, the Basque Decree and the Landscape Determinations; the Valencia law includes within its Landscape Studies “the necessary measures and actions to fulfil the aims of landscape quality and to prevent, reduce and, where possible, to attenuate any significant damage to the landscape that might result from the plan” (Anexo I. Content of the landscape study, h).

Together with this kind of instruments, the above mentioned rules tend to include other instruments for the implementation of specific actions. These are: the Landscape Intervention Projects pertaining to the law applied in Cantabria (sec. 18), the Landscape Action Plans of the Galicia law (art. 12) and the Basque Country decree (sec. 6) or the Landscape Programmes of Valencia’s LOTUP. In all cases these instruments attempt to define in sufficient detail interventions involving conservation, restoration, improvement and promotion of landscapes of interest or those requiring attention due to their state of deterioration, where possible, in accordance with the appropriate landscape catalogues and studies.

- Impact studies and landscape integration.

The landscape regulations of the Regional Autonomies consider landscape integration as a major issue from the perspective of evolutionary landscape management, which frequently has to adopt new uses affecting the landscape. The current legislation on environmental assessment of plans, programmes and projects addresses impacts in the landscape, the landscape rules highlight the need to consider landscapes in different scenarios; these rules establish the minimum contents of the impact and landscape integration studies in accordance with the legislation of Catalonia, Galicia and Cantabria, or simply landscape integration studies in the landscape law of Valencia Regional Autonomy (Muñoz, 2008) and the Basque Country; the Catalan regulations establish the competent body that must report on them.

- Landscape Observatories, instruments for consultation and tools for education and awareness

The Catalonia and Galicia laws created the Landscape Observatories as an “organism for support and collaboration –according to the Catalan rule– with the Administration of the Generalitat (Catalonia Regional Govt.) in all questions referring to the design,

application and management of landscape policies” (sec. 13.1.). Since its creation in 2004 the *Observatori del Paisatge de Catalunya* has been making a significant contribution, providing studies, assessments, dissemination, training and awareness in relation to landscape, reaching beyond the boundaries of this autonomous region. One can highlight the design of landscape catalogues (seven of these already implemented and approved, and the latest, referring to Penedés, underway) of the corresponding landscape quality objectives and landscape guidelines, two of which have been approved, those of Terres de l’Ebre and of the Comarques Gironines, with their corresponding legal provisions incorporated into the Partial Spatial Plans (subregional spatial plans).

Furthermore, the laws of Catalonia and Galicia have included more flexible instruments for social concertation of strategies for conservation and activation of landscape values in specific territories. In the case of Catalonia, the so-called Landscape Charters *Cartas del Paisaje* “can be promoted by the government, the regional councils, town councils and other local administrations”. Their content must consider what is set out in the landscape catalogues affecting the region. Seven charters have now been signed and one, for Garraf, initiated in 2017, is opening the necessary signing.

The five legal rules consider measures and actions for training, education, awareness and support in relation to landscape. Along these lines the Institute for Territorial Studies has published a total of eight interesting guides on different issues (impact and landscape integration Studies, landscape sustainability of the facilities of coastal fish farming and best practices for interventions in villages, farm enclosures, beach-dune systems, colours and materials of Galicia, urban spaces or public spaces. Additionally, the Catalonia Generalitat (Regional Govt.) has also published different guides for the landscape integration of industrial estates and areas of economic activity, urban and periurban market gardens or best practices for the Penedés vineyards. In 2012, the Valencia Regional Government’s *Consellería de Infraestructuras, Territorio y Medio Ambiente* (Dept. of Infrastructures, Territory and Environment) also published a useful methodological guide for landscape Studies.

- Funding landscape policy

Only the Catalonia law explicitly addresses funding for landscape policy; it has set up a Fund for landscape protection, management and planning as a financial instrument of the Generalitat, “for interventions intended to improve landscapes provided these are in accordance with the criteria established in the current law and the regulations set out in this sense” (sec. 15). Contributions to the Fund by the Government are from the budgets that the Generalitat designates annually to the competent Department in questions relating to landscape; funding can be obtained by public organisms, private non-profit organisations, private individuals or private corporate entities, in order to conduct interventions for purposes established by the law.

The remaining regional autonomies, although they lack specific landscape regulations, have set in motion different initiatives for landscape policy, in all cases in accordance with the recommendations of the Florence Convention and almost always within the scope of spatial planning. Herein there is insufficient space to define these initiatives. However, it should be pointed out that the most recent regional laws on spatial planning have incorporated, in one way or another, the guidelines of the ELC and its definition of landscape. (Figures 1 and 2).

Figure 2. Strategies, Guidelines or Landscape Plans in the regional, subregional or island scopes. Source: own design



For instance, the 2018 Law on Sustainable Spatial and Town Planning of Extremadura, addresses the landscape issue in its Statement of the Grounds, designating the development thereof to the Guidelines on Spatial Planning of the regional autonomy, which should be approved as a law. Indeed, the 2020 Advancement of these Guidelines contains numerous landscape legal determinations and a specific chapter on landscape planning. Something similar occurs with the 2017 Navarre Regional Law on Spatial and Town Planning, which in its Eleventh Additional Provision stipulates that “land planning and town planning instruments must adopt the variable “landscape”, in accordance with the indications of the European Landscape Convention, by means of a “Navarre Landscape Strategy” to be created by the Government of Navarre”; this is being developed by the Navarre Government’s Social Council for Territorial Policy, through its Landscape Commission.

In addition, at the regulatory level, the Murcia Autonomous Region, through its Law 13/2015, dated March 30th, on Spatial and Town Planning, has formulated a landscape axis within the scope of spatial planning that is comparable in certain aspects with what has previously been described in the above mentioned landscape laws. Aragón has also outlined its landscape policy associated with spatial planning in its consolidated legal text of the 2015 Law on Spatial Planning of Aragón; the Aragón Spatial Planning Strategy (ETA), involves the creation of strategies and guidelines for the “adoption of specific measures for landscape protection, management and planning” (sec. 69), as well as the integration of landscapes in public policies (sec. 70). In this sense, a very important implementation involves what is known as Landscape Maps (secs. 58 and 71), the minimum

content of which is contained in the law itself. The Canary Islands Regional Autonomy, which has included in its Statute of Autonomy, modified by Organic Law 1/2018, the right of citizens to “enjoy natural resources, as well as land and marine landscapes, within a framework of equality, making responsible use thereof”; moreover, its Law 4/2017, dated July 13, on the Land and Protected Natural Spaces of the Canary Islands, refers to the Landscape Observatory, constituted in 2016 and the Regulation of 2019. Together with the provisions on landscape referred to in the town planning regime, among other contents, the law entrusts the Spatial Planning Guidelines, an instrument for strategic spatial planning in the Canaries, with “formulating general strategies and criteria to enable the integration of landscapes in the spatial, environmental and town planning regimes, as well as the adoption of specific measures for planning, management and protection”.

The case of Andalusia merits particular attention – in this region, the contribution made by Geography in the academic and professional scopes has been decisive in the recent implementation of the landscape policy. The 1994 Law on Spatial Planning dedicated only one section (Section 11) to the landscape content of the spatial planning in the subregional scope. However, their development involved the incorporation of significant landscape contents, in certain aspects innovative, both in the Andalusia Spatial Plan, approved in 2006, and in numerous subregional plans. Andalusia also possesses a Landscape Strategy, approved in 2012 by the Regional Government. Since 2005, the Landscape and Territory Studies Centre has been operating; it was created by means of a collaboration agreement between the Department of Public Works and Transport of the Andalusia Region Govt. and the public universities of Andalusia; it involved a great deal of research, landscape cataloguing and evaluation of landscape policies and spatial planning. The recently approved Law 7/2021, dated December 1st, promotes the sustainability of the territory of Andalusia and integrates, at the highest level, the guidelines of the European Landscape Convention, already included in the 2012 Andalusia Landscape Strategy, into the land and town planning instruments and in general “into all sectorial policies in order to fulfil the objectives of landscape quality” (sec. 37); in addition, it establishes the content, functions and procedures for approval of the Landscape Catalogues.

As a complement to all this, Figure 2 shows, at the scale of autonomous regions or archipelagos, the territories possessing Strategies, Guidelines or Landscape Plans within the regional autonomy, subregional or island scopes, in some case in the development of landscape legislation (Catalonia, Basque Country, Galicia and Cantabria), of spatial planning rules and instruments (*Planes Territoriales Especiales de Paisaje Gran Canaria y de Tenerife* –Special Landscape Plans of Gran Canaria and Tenerife–, and *Directrices de Paisaje de la Revisión del Plan Territorial Insular de Menorca* –Landscape Directives of the Revised Island Territory Plan of Menorca), or the result of other kinds of decisions in relation to landscape taken by the competent administrations (Andalusia Landscape Strategy -2012- Landscape Strategy of the Murcia Region -2009- and the Landscape Strategy of the Consell (govt.) of Mallorca -2019-).

The following two sections address the studies of characterisation and assessment of the landscape, as well as some advances in public participation, promoted through the implementation of the ELC and for which the professionals from the discipline of Geography have made invaluable contributions.

3.2. Characterising and appraising landscapes in order to educate and take action. The role of Geography in the creation of landscape atlases, catalogues and inventories.

Throughout the time period we have been dealing with, there have been many studies that enable landscape to be considered from the perspective of characterisation. This issue was the first to be addressed by the countries that signed the Landscape Convention and it is obligatory for the signees because Section 6 obliges each party to: “i) identify their own landscapes throughout their territories; ii) analyse their characteristics and the forces and pressures transforming them; and iii) conduct a follow-up of their transformations”. Consequently, the first decade of the 2000s witnessed the start of the process of identification and characterisation of Spain’s landscapes. This first involved an approach at national scale promoted by the Ministry of the Environment’s Waters and Coasts Secretariat) and developed by a team of teachers from the department of Geography of Madrid’s Autónoma University (Mata and Sanz, 2003). Two significant advances were therefore made: a proposal for identification and characterisation, with cartography covering the whole territory of Spain (as indicated by the ELA: Section 1.a, “by ‘landscape’ one understands any part of the territory as perceived by the population, the character of which results from the action and interaction of natural and/or human factors”); the second advance involves the recognition of Geography’s capacity to take on this challenge in the coming decades.

Since 2003, the creation of landscape catalogues and atlases has been gaining ground at regional scale (Table 2, Figure 3); this is the competency of the regional administrations. It is in this moment that a discontinuous and diverse landscape layer can be discerned, depending on the different autonomous regions. Some of these administrations have catalogued the whole territory. This is the case, for example, of Catalonia, the Región de Murcia, Castilla-La Mancha, Aragón, La Rioja or the Basque Country, which is in a relatively advanced phase of development. In the case of Andalusia, which has had a Landscape Map of the region since 2005, included in the Atlas of Andalusia, the option has been that of provincial landscape catalogues. To date very few administrations have opted for a model lacking total cover of the territory, such as the Catalogues of Cantabria’s relevant landscapes. Importantly, however, some regional autonomies have not yet set in motion the systematic characterisation of their landscapes.

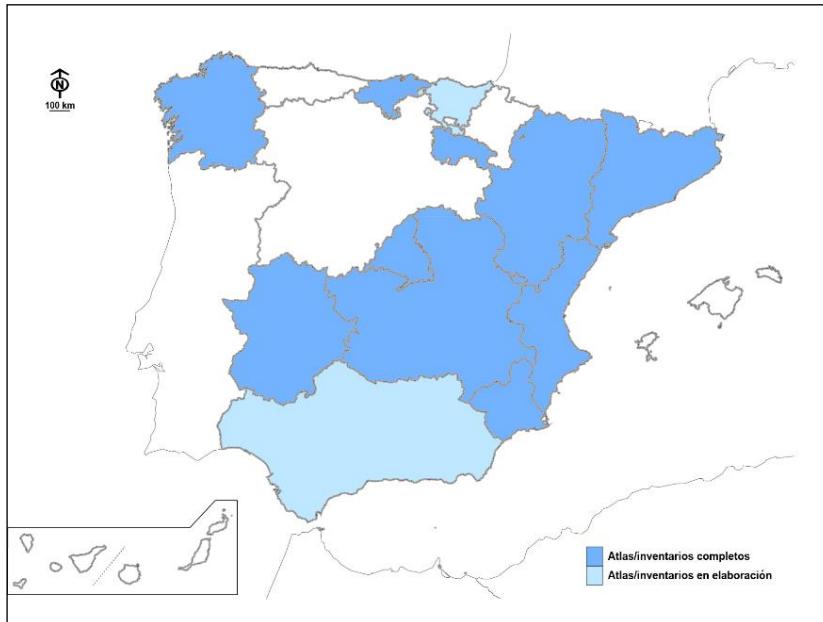
Table 2. Catalogues and atlases at national and regional scale. Source: Own design

YEAR	ATLAS/CATALOGUE	TERRITORIAL COVER
2003	Atlas of the Landscapes of Spain	complete
2005	Map of Andalusia’s Landscapes. Atlas of Andalucía, tome II	complete
A partir de 2008	Landscape Catalogues of Andalusia Catalonia	complete
2008	Landscape Cartography of La Rioja	complete
2008	Landscapes of the Madrid regional Autonomy	complete
2009	Altas of the Landscapes of the Región de Murcia Autonomy	complete

YEAR	ATLAS/CATALOGUE	TERRITORIAL COVER
2011	Atlas of the Landscapes of Castilla-La Mancha	complete
2011	Landscape Catalogues of Regional Relevance of the Valencia Regional Autonomy	
	(Quality Objectives and Technical Instructions for Planning and Management of Relevant Landscapes of the Valencia Regional Autonomy, 2021)	partial
2012	Atlas of the Valencia Regional Autonomy. Landscape Geography	complete
2014	Catalogues of the Landscapes of the Basque Country	complete
2014	Atlas of the Landscapes of Cáceres and Badajoz	complete
A partir de 2014	Catalogues of the Landscapes of Galicia	complete
2015	Catalogues of the Landscapes of the provinces of Andalusia (Seville, Granada, Málaga)	complete
A partir de 2015	Mapas of the Landscapes of the Regions of Aragón	complete
2018	Catalogues of the Relevant Landscapes of Cantabria	partial

One glance at the regional landscape atlases and catalogues reveals how a quite similar characterisation structure has become consolidated, addressing in general terms the following aspect: study of the landscape character; a description of the natural and human elements comprising the landscape; the relevance of the evolution of, and changes in, the landscape and consequently, an interest in the historical dimension of landscapes; recognition of landscape values; identification of two taxonomic levels for classification (Types of Landscapes and Landscape Units); interest in the visual resources of the landscape as viewpoints, landscape routes and organisation of visual basins. As can be seen, these are questions residing in the very core of the discipline of Geography, particularly the concept of landscape *character*, an aspect closely linked to a profound knowledge of territorial configurations, the uniqueness of spaces and the interrelations existing between natural and social aspects. As we have already pointed out, all geographers have felt quite at home when involved with this kind of landscape approach put forward by the ELC and adopted by the administrations. Furthermore, the methods employed to construct these characterisations are to be found within the sphere of Geography, with emphasis upon fieldwork and cartography.

Figure 3. Landscape atlases, catalogues or studies in the Regional Autonomies. Source: own design



Together with the catalogues and atlases shown in table 2, which involved the vital participation of professional geographers, there is a need to refer to the systematic series of studies on agricultural and heritage landscapes; these representative inventories or atlases are the result of over one decade's research and were developed by teams of researchers from different Spanish universities through several projects funded by the Spanish Government's Ministry of Economy and Competitiveness. The collective contribution of these projects can be seen in three large-format dissemination works: The Agricultural Landscapes of Spain. Characterisation, Evolution and Typification (Molinero, Ojeda and Tort, 2011), the Atlas of Spain's Agricultural Landscapes (Molinero, 2013) and Heritage Landscapes of Spain (Molinero and Tort, 2019). The latter publication comes in three tomes and addresses, together with rural landscapes, the study of a broad spectrum of landscapes of great cultural interest (including, for instance, urban, periurban and industrial landscapes). Additionally, the study provides a conceptual and theoretical contribution referring to landscapes of high cultural interest, considered as heritage landscapes, and to heritagisation processes (Silva, Fernández and Mata, 2018). This constitutes a relevant issue in the recent cultural heritage policy in Spain, and was addressed in 2013 by the geographer Josefina Gómez Mendoza.

In the field of study and cataloguing of landscapes, in particular in the territory of Castilla y León, and in relation to the projection of landscape knowledge in the relevant policies, there is a need to highlight the contribution of the seminars and workshops of the *Instituto del Paisaje* (Landscape Institute), of the *Fundación Duques de Soria* (Duke and Duchess of Soria Foundation), founded in 1999 and directed by Eduardo Martínez de Pisón (Ortega, 2010).

3.3. Public participation in studies and proposals for landscape management. The geographic experience

The ELC incorporates within its text an important innovation which in the coming decades will transform the way we address landscape studies: public participation. In its definition the Convention stipulates that landscape is “any part of the territory as perceived by the population” (Chap. 1, Art. 1) and specifies that, among the national measures (Chap. 2, Art. 5) the signees pledge to “establish procedures for the participation of the population and of the local and regional authorities and other stakeholders in the formulation and application of landscape policies (...).” The ELC specifies public participation in the following aspects:

- Identification and Characterisation, including here landscape dynamics and transformations (Chap. 2, Art. 6, C. a).
- Assessment of the landscapes thus identified, taking into account the particular values assigned to them by the interested parties and the population concerned (Chap. 2, Sec. 6, C. b).
- Incorporation of a public consultation for the design of the Landscape Quality Objectives (Chap. 2, Sec. 6, D).

It is therefore a participatory approach characterised by mainstreaming and which attempts to incorporate public opinion in all the phases of development of the catalogues. In this way, there is an increase in public involvement and in the participatory experience, which are sometimes insufficiently promoted or encouraged by the administrations. For studies in geography, this participatory approach has consolidated the long trajectory of social research that had been employed by different approaches and schools for studies of a qualitative nature. Currently, perception of landscape by the public does not only attempt to incorporate the knowhow and experience of the population, but also the collective construction of quality landscapes through the participatory formulation of the Landscape Quality Objectives.

Despite the fact that the ELC has promoted this issue, no consensual participatory methodology has as yet been accepted into landscape studies. The first landscape documents in Spain to include public participation were the *Catálogos de Cataluña*, thus initiating a line of work that was to become the reference for subsequent studies (Nogué et al., 2010). Moreover, the method developed by the Landscape Catalogues strictly follows the indications of the ELC, integration of participation in all the phases of cataloging, including identification, denomination, delimitation and assessment of the units (Nogué et al., 2016). Furthermore, the population participated in the design of the Landscape Quality Objectives of each of the catalogues created.

Following the Catalonia experience, other regions have developed similar methodologies in which, through participatory workshops or online resources, have incorporated aspects such as landscape preferences, values, or identification of landscape areas. This is the case, among others, of the *Catálogos de Paisajes de Galicia* (Catalogues of Galicia), of the *Catálogos Provinciales de Paisaje de Andalucía* (Provincial Landscape Catalogues of Andalucia) or that of certain studies and initiatives referring to the landscapes of the Valencia Regional Autonomy, such as those developed by Valencia University’s *Cátedra de Participación Ciudadana y Paisajes Valencianos* (Cathedra for Citizen Participation and Valencia Landscapes) and the *Conselleria de Política Territorial, Obras Públicas y Movilidad* (Council for Land, Public Works and Mobility).

4. Some challenges: urban and periurban landscapes; a just energy transition with the landscape values

At the time of writing this text, almost 15 years have passed since Spain ratified the European Landscape Convention. In the years prior to the ratification, in the middle of a real estate boom, but also during subsequent ones; these were times of big changes in the territory which had a negative effect upon the quality and values of many landscapes. As we have seen, all this has occurred despite the fact that numerous regional governments, as well as the National Government have adopted laws and instruments for the conservation and management of the character of the landscape. Within the logic of the market, the intensity and speed of these changes in the territory, resulted to a great extent from uncontrolled urban development, but also from processes of agricultural intensification and abandonment; all this highlights the difficulties facing the landscape policies with regard to planning these processes. In the academic sphere there is a need for progress in the study of landscapes that are subjected to high levels of pressure, such as urban, periurban and tourism landscapes; these have been addressed to a lesser degree than the rural or natural ones, and they have been subjected to intense financial pressure through speculation. City landscapes and those of their outskirts are liable to possible interventions through town planning rules and instruments or those of cultural heritage, but they require specific methodologies for analysis of their characteristics and values – including economic ones generated by their consideration as quality landscapes–, as well as suitable intervention procedures. Spanish Geography has made important contributions in this sense (Zoido, 2012), addressing both the interior urban landscape (environmental, functional and scenic quality of the public space), and the image of the city as a whole and its insertion in the territory (Zoido, 2014), treatment of building fronts, silhouettes, landmarks and urban panoramic views (among others, Rodríguez and Venegas, 2002; Mérida and Pardo, 2017), urban accesses and fringes (Madrazo, García, Canosa and Sáez, 2017), as well as the specific characteristics and possibilities for the heritage activation of periurban landscapes used for agriculture (Pàul et al., 2006; Mata Olmo, 2015).

As a public and collective good, landscape –the results of society's perception and experience in relation to a territory's character– finds itself in the centre of the debate on the territorial model of the energy transition within the broader context of ecological transition. The urgent and irreversible situation that calls for decarbonisation of the conventional energy systems in order to mitigate the effects of the climate crisis must be compatible with the conservation of the natural, cultural and values of the territory, which are expressed by, and experienced in, the landscape. Geography shares the scientific consensus that a model of energy transition capable of facing the challenges posed by climate change cannot consist of a mere technological transition, as is occurring to a great extent, with little attention paid to the support upon which this technology rests: the territory and the perception of its landscapes.

As stated by the *Alianza Energía y Territorio* (Energy and Territory Alliance) «ALIENTE», a collective State institution initially supported by numerous organisations and hundreds of private individuals, including geographers, the centralised energy model proposed scatters the territory with a disorderly series of large projects for renewables and high-tension power lines. The lack of planning involving landscape criteria of these interventions has very negative effects upon the landscape and on biodiversity,

particularly in underpopulated areas, whose natural and landscape resources represent a strategic territorial capital for their development.

The concept of a fair energy transition, based on suitably distributed renewable energies, energy saving and self-consumption, all place defense of the territory and of its biodiversity and landscape at the centre of the transition process. In Spain, the discipline of Geography is involved in this process through different research projects and critical analyses in relation to the landscapes that emerge from the renewables, and on their effects on rural development (Espejo, 2004; Frolova, et al., 2014; Frolova, et al., 2015; Prados, et al., 2021); geographers are also involved in the proposal for criteria for planning and integration of power plants through spatial planning instruments or landscape integration techniques (Mérida and Lobón, 2013).

To conclude, in this sense a good example is the approach adopted, based on a geographic perspective) by the *Revisión del Plan Territorial Insular* (Reviewed Island Spatial Plan) of Menorca (PTIME) (Initial Approval December 2021) regarding the future use of renewable energies. The 2030 PTIME de 2003, containing a pioneering content referring to landscapes provided by the contribution by the geography scope in the design of this Plan (Mata Olmo, 2007), must now face the challenge of compatibilising and balancing Menorca's high landscape values with a radical energy transition strategy, based on both reducing consumption and on substituting fossils fuels with renewables (essentially eolic and photovoltaic) by means of a territorially distributed model.

There had already been an interesting debate on the island resulting from the planned creation of a large-sized photovoltaic park in Son Salomó, an *Área de Interés Paisajístico* (Area of Landscape Interest) – category of *Suelo Rustico Protegido* (Protected Undevelopable Rural Land) –

created by the 2003 PTIME) to the north of Ciutadella (Silva and Fernández, 2020). The conflict that arose, involving participation of the civil society, in particular of the *Societat Històrico Arqueològica Martí i Bella* (Martí i Bella Archaeological Historical Society), the electricity company and the owners of the land, and the *Consell Insular de Menorca* (Menorca Regional Govt.), recently reached a “Framework Agreement intended to compatibilise the safeguarding of the cultural landscape of Punta Nati and creating the Son Salomó II photovoltaic park” (20 de febrero de 2020). In conclusion, the agreement has led to a significant reduction in the size of the park, the initiation of a process to declare as a *Bien de Interés Cultural* (Site of Cultural Interest) due to the dry-stone landscape of Punta Nati constituting a Site of Ethnological Interest; the agreement also gave rise to certain interventions for rehabilitation, interpretation and public use of a site managed by the *Consell Insular* (Island's Govt.) as well as the adaptation of the planned infrastructures to the physiognomy of Menorca's rural landscape, with the use of traditional building materials intended to avoid defacing the existing landscape.

The 2020 Reviewed PTI, in accordance with the indications of Law 10/2019, dated February 22nd, on Climate Change and Energy Transition of the Illes Balears (Balearic Isles) and the *Directrices Estratégicas de Menorca* (Strategic Guidelines for Menorca) in its 2018 document "The first energy transition of Menorca" is intended to respond to the territorial model of renewable energies. This model was conceived as a part of an energy transition that was equitable the landscape and with what these values represent as a common amenity for the citizens of Menorca and for visitors to the island.

The issue is addressed within the framework of the Menorca Landscape Guidelines which, adopting the ELC, have been included in the reviewed PTI, both in the Planning Report and in the regulations of the Plan. Thus, in a regional autonomy like the Balearic Isles, which does not avail of specific landscape legislation, it is the Island's regulated spatial planning instrument that incorporated into the regulations the approaches and objectives of the Florence Convention. The Landscape Guidelines of Menorca define a total of 12 Landscape Quality Objectives (CQO) in accordance with the Plan, establishing different guidelines in this sense, and employing the categories of Protected Rural Land and the regulations corresponding to protecting the landscape values.

The LQO 10 is specifically dedicated to this issue, with the following stipulation: "Infrastructures for renewable energy in harmony with the landscape, avoiding terrain presenting higher intrinsic values and those that are more visually fragile, adopting the technical design and solutions that present the least visual impact possible". The PTI establishes certain legal regulations for the maintenance of the division of plots and the existing dry walls, for technical solutions intended to minimise the impacts of the facilities and to ensure their reversibility; it also established measures for landscape integration and for camouflaging the necessary auxiliary buildings and for leaving the terrain in the same condition it was in prior to the creation of the park, when the activity is finished: In accordance with the Balearic Law on climate change, the PTI also establishes Areas of Priority Interest for the creation of both eolic and photovoltaic energy. The PTI option for Menorca, in contrast to what is occurring in other territories, has consisted of defining the areas where renewable energy facilities should be set up, and not just the areas that should be excluded in this sense. The previous "not here" has changed to "this way is feasible".

Furthermore, the regulations of the PTI (sec. 111) also establish, within the Landscape Guidelines, and as a complement to the environmental impact assessments, what is known as "Landscape Impact and Integration Studies" (LIIS) as a guarantee that the activities are inserted into the landscape". These LIIS complete the effective protection, management and planning policies of the *Plan Insular*'s landscape, thus developing the recommendations of the European Landscape Convention and of these Landscape Guidelines, and they are applied in specific events provided for in the PTI. They are intended to contribute to the harmonious insertion of new elements in the landscape, and to the maintenance and improvement thereof as a fundamental component of Menorca's territorial heritage, of its diversity and identity. The contents enable the basis to be established to compatibilise interventions planned for protection and promotion of the landscapes in the *Plan Territorial Insular* and, where necessary, to establish the necessary corrective measures and modifications.

The commitment of the European Landscape Convention to protecting, managing and planning the territory poses a challenge for governance in order to improve peoples' quality of life. As we have previously stated, together with the coordination and cooperation of the public administrations, landscape policy should strengthen citizen participation and involvement. Apart from sound knowledge of the landscape and of well formulated and correctly designed intervention instruments, there is a need for:

"networks of citizens, institutions and technical experts committed to the values of the landscape and capable of unrelentingly promoting and applying the landscape agenda

regardless of political or economic factors, in a profound exercise of democracy and territorial culture" (Mata Olmo, 2014).

In the last few decades, the field of geography and the geographers in Spain have demonstrated their capacity to face the challenges posed by a renewed landscape policy in accordance with the ideas put forward by the ELC. There is an urgent need to forge ahead, generating rigorous knowledge and territorial landscape projects from the academic and professional spheres, with involvement in citizen networks and platforms for the proection, management, enhancement and public use of the landscape as a common.

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Forty years of Autonomous Statutes in Spain and their response to health, economic and political crises⁹

Josefina Gómez Mendoza
ORCID: 0000-0001-9188-7206
University Autónoma of Madrid

Abstract: Forty years on from introducing the figure of Autonomous Communities (ACs) as a subdivision of the Spanish State, it seems like a good moment to assess their current situation and problems, and to analyze their handling of the aspects of the Covid pandemic they controlled, considering how their relative success during this period has strengthened their position. However, the far-right political party VOX blames the Spanish Autonomous State (SAS) for the economic and political problems of the country, and it wants to eliminate them in order to recentralize state. Yet at the same time, VOX stands for election to occupy positions in the ACs to achieve a position of influence from which they can fight central government. As we progress, I maintain that we must exert caution in response to the simplistic tales and the metaphors being used in this battle, such as that of the “Empty Spain”, which favor populist movements and do not really describe the complexity of the true situation. In Spain, it is not only rural areas that are suffering depopulation but also, medium sized cities that serve and bring together these regions are also suffering a loss of their population. These cities can no longer compete with global metropoles, as reflected for example by the emigration occurring from some Castilian cities to Madrid. Thus, we argue that, at this point in time, the culture of political pluralism and multi-level administration should be maintained and even enhanced.

The health and economic crisis provoked by the Covid-19 pandemic dimmed any commemoration of the fortieth anniversary of the establishment of Autonomous¹⁰ States (ASs) in Spain, such as those in 2018 celebrating the fortieth anniversary of the 1978 Spanish Constitution (SC). On that occasion, a working group was set-up by the two Parliamentary Chambers, Congress and Senate, to not only celebrate the date but to assess the success of the constitution in that period, and to a lesser extent, to evaluate the failures relative to the program and the aims of the Constituent Assembly. During the celebrations, it was emphasized that the 1978 SC was ratified in a national

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¹⁰ In the Spanish Constitution 1978, the term Autonomy is used in the sense of territorial self-government as established to different degrees in the Constitution. This word is used always in this sense in this paper.

referendum in December of that year, with a very high vote in favor from Catalonia, above the national average (91%), while this vote was considerably lower in the Basque Country (between 65% and 73%). Subsequently, the Basque and Catalan Autonomous Statutes were the first to be approved, both on the 18th December 1979, while the statutes of the other autonomous communities were approved between 1981 and 1983. The first of these was that of Galicia, following the so-called "fast track" established in the Second Transitional Provision of the SC. By contrast, the other statutes were in accordance with SC Article 143 (the "slow track"), with the exception of the Autonomous Community of Navarre that was protected by the First Additional Provision on the historical rights of the foral territories. Finally, in 1995 the autonomous cities of Ceuta and Melilla were recognized by Article 144 of the SC. Notably, Andalusia represents a crucial development in the constitution of the Autonomous statutes, which occurred through referendum in 1980, claiming for a historic status, such as Catalonia, the Basque Country and Galicia proclaimed in the Second Republic.

It is not the intention here to review the development of the ASs until the so-called constitutional block was established through the SC and Autonomous Statutes. For this I refer to the book written by José Tudela in 2016, a lawyer in the Aragonese parliament (Cortes de Aragón) and professor of constitutional law at the UNED (National University of Distance Education), titled "*El fracasado éxito del Estado autonómico. Una historia española*" ("The failed success of the Spanish Autonomous State: A Spanish story") and edited by Marcial Pons (Madrid). A group of geographers also dealt with this issue at a meeting held in Toledo in April 2013, the proceedings of which were published under the title "*Repensar el Estado - crisis económica, conflictos territoriales e identidades políticas en España*" ("Rethinking the State: economic crisis, territorial conflicts and political identities": Gómez Mendoza, Lois and Nel.lo, 2013). On that occasion, I asked myself if it is possible that the crisis of accommodating Catalonia within the State as a whole was meant to reflect a crisis affecting all the ASs. The book ends with a call to work towards a new political-regional geography of Spain, or the plural Spain.

Accordingly, I now intend to return to this issue, which without having reached the resolution of the political crisis of the previous decade, we can now add the recent health crisis and its economic consequences. There is no doubt that the management of the pandemic has put the capabilities of the national and regional administrations to the test at all levels. The European Union (EU) itself was initially criticized for being absent during the first months of the pandemic in 2020 and yet it subsequently, saw its role strengthened by the procurement and distribution of vaccines, as well as by the establishment of an economic recovery program, the Next Generation funds. This program is designed to enable the most severely affected member states of the Union to recover, structurally transforming their economies and societies in both ecological and digital terms. On the other hand, how the ASs performed has yet to be weighed up and here, the intention is to offer an initial mildly positive evaluation of this. Consequently, the Autonomic Communities (ACs – "Comunidades Autónomas") have become much more visible in terms of their management and provision of services, and they have worked reasonably well with the other two levels of public administration (central and local), despite the errors that were made in these processes, and the poor response of some leaders at the political and human level.

I will refer first to how a territorial identitarianism, at times over vigorous, has spread, and then I will look into the current risks of the different populisms that have arisen of late. Whether it is right or left wing populism, they are always simplifying and delegitimizing democracy, in our case even that of the AS. These political movements feed off the unrest that arises in our societies, which enables them to gain leverage to establish an illiberal system, in our case, anti-European, anti-pluralist and anti-autonomic. These politicians often use constructs and territorial narratives that engender feelings of abhorrence at the present situation by knowingly instilling nostalgia for a past that never existed).

1. From constitutional asymmetry to statutory identities, the risks of an excess of identitarianism

It is recognized that autonomous territorial organization was not stipulated in the SC of 1978 but rather, there was only the "principle to exercise autonomy" ("Principio dispositivo") and the conditions were laid down to guide this. What was included was a principle of asymmetry that was contained in the differentiation between "nationalities" and "regions" for the purposes of self-government, preceded by the affirmation of the "indissoluble unity of the Spanish nation common and indivisible homeland of all Spaniards" (Article 2). While this principle of autonomy has been proposed to be one of the greatest of successes of the constitution, some now consider that it might become the greatest of its failures. Indeed, the professor of Constitutional Law, Juan José Solozábal (2017 in 2021: 271-273) rightly states that Article 2 contains a resounding statement expressed with certain rhetorical charge and pathos. Similar formulae are also found in the French constitution, whereby France is "an indivisible republic", in the Italian constitution such that Italy is "unique and indivisible", and even in the United States, by means of a Supreme Court ruling that refers to an "indestructible federation composed of indestructible states" (Solozábal, *ibid.*, 272). What is most relevant here is to show that the many clauses establishing Autonomous Statutes (Estatutos autonómicos), especially those setting out legislative reforms in the XXIst century, reproduce the substance and solemnity of the declaration in Article 2 of the SC. However, forty years after establishing the potential for decentralization, the CAs are still not specified in the text of the SC. Moreover, a report on constitutional reform that was drafted by the Presidency to the Council of State in 2006 unsuccessfully requested the inclusion of this information (Council of State, 2006), although the Autonomic Statutes have been incorporated into the constitutional block.

By contrast, the aforementioned asymmetry was established in the SC of 1978, which distinguishes regions with plebiscited self-government during the Second Republic (1931-1939: Catalonia, Basque Country and Galicia) and Navarre as a foral or chartered region. References to a "common historical, cultural and economic character" are also found in the SC in relation to the interprovincial autonomous initiative and to a "historical regional entity" in the case of a single province. These considerations were of no surprise after the constitution of the "pre-autonomous entities". Indeed, at that time Rafael Mata and myself, as well as others, argued that an autonomous territorial organization was the most appropriate from a modern geographical point of view (Gómez Mendoza and Mata Olmo, 1993). Yet even in 1978, the first president of the Constitutional Court, Manuel García Pelayo, considered the introduction of a principle of historical legitimacy inappropriate in a normative constitution, transferring legitimist

principles of another age to constitutional territorial entities (Tajadura in Rubio Llorente and Alvarez Junco, 2006, 640). In the same sense, Tudela also said that "history, in democratic politics, is burdened by the devil" (Tudela, 2018: 442), implying, like García Pelayo, that it would have been preferable to attribute legitimacy to constitutional construction.

The Andalusian referendum of November 1980 and the transition of this region to the category of a historical community broke the design of the Constituent Parliament. In a way, it meant extending political autonomy and the rights of self-government to all who requested it. Among geographers, Joan Romero has repeatedly dealt with the consequences of the Andalusian referendum (2006 and 2012, Mira-Perceval, Pérez and Romero, 2013, 97-98). For Tudela, this meant paving the way for the homogenization of the ACs within a framework already overwhelmed and that admitted imitation. As such, Aragon and the Canary Islands trod a similar path towards being considered historical communities. The asymmetrical model devised in the SC mutated into a quasi-federal model and under these conditions, Euskadi, Catalonia and Galicia warned that the plurinational state remained unresolved in the so-called Barcelona Declaration of 1998.

In his book, José Tudela notes that the autonomous model had been considered a success until about 2005 and that despite everything, the constitutional principle of plurality had been fulfilled, giving rise to different institutional organizations while respecting the equal rights of Spaniards. However, with the economic crisis that began in 2008, and the increase in social inequality and social unrest that ensued, a process of delegitimization of the Autonomous State began in both the conservative and sovereigntist media. In 2012, at a meeting of the FAES Foundation, an organ of the conservative Popular Party, it was maintained that the process "would have gotten out of hand" and would have become "unsustainable in economic terms" without enhancing the effectiveness of the centralized state (Mira-Perceval et al., 2013). So began a generalized questioning of autonomy, proposing it to be the main reason for excessive public spending, the high rate of debt, excessive bureaucracy, inefficiency, and even suggesting possible inequalities in citizen's rights between one community and another. The conflict over regional financing has become even more important, with reservations continuously aired about the Basque accord. The campaign launched from Catalonia "Spain steals from us" not only declares a grievance but it also implies that Catalonia should be outside of the Spanish state. It should be noted that all this happened in a context of increasing social and economic inequality caused by the economic crisis and for many, as a result of the unbridled globalization of the economy.

Consequently, the territorial organization spent its second twenty years passing from one crisis to another, which did not happen during its first twenty years, as the economic crisis of the 1970s was avoided. Hence, during the second decade of this century, a trend towards a homogenization of the Autonomic states began, from several perspectives: the legislative, in particular through Law 27/2013 on the Rationalization and Sustainability of the Administration; the jurisdictional, through a Constitutional Court that remains somewhat unbalanced; and also at the administrative level in terms of local legislation.

The second generation of Statutes, reforms of the first, took place in this second decade, and they are characterized by a strong identarian affirmation of the original texts

while enhancing the powers of regional governments. The new Catalan Statute inspired those that followed, as occurred in the 1980s, and it appealed to the historical rights of the Catalan people, its secular institutions, and legal traditions, also reinforcing the richness and diversity of its territories and people, describing the former as a "welcoming land" and the latter as an "integrating society". In the same way, the Preamble of the Andalusian Statute (2007) begins by referring to "the robust and solid identity that gives [Andalusia] a unique character, settled from millenary times in a singular geographic area, providing space for dialogue and encounters between diverse civilizations", although in this case, Andalusia is recognized within Spain based on the values of justice, equality and security.

In the other parts of these second-generation Statutes, there are grounds that support a similar identity for Valencia, the Balearic Islands, Aragón, Castile and León, Castilla La Mancha, albeit perhaps charged with less rhetoric and symbolic load. Aragón is defined as a historical nation with foral rights and an heir to the historical values of "pact, loyalty and freedom". Castilla and León is remembered for its heritage and history, the meeting of historical territories, the colonization of the Douro River, and the region is also identified with the "Camino de Santiago" (St James' Pilgrims Way) and the "Via de la Plata", a roman road from south to north of Spain which it characterized as an "example of respect and coexistence between cultures". It also takes advantage of the range of the Provision to highlight the contradiction between its historical significance in terms of the construction of Spain as a nation and the limited political voice attributed to it in the actual drafting of the constitution. In the Aragonese Statute, the course of the Ebro River forges an identity, as does the Mediterranean Sea in the Balearic Islands, and the Tagus and Guadiana rivers in Extremadura. This latter text is the only one with a rhetorical discourse, including a reference to the evolution towards contemporaneity, even if this may be in terms as exaggerated as "from the prehistoric caves to the technological centers". Finally, in the new Statute of the Canary Islands of 2008 we find the claim that "the Island's reality forged over centuries" has given it a unique nationality and identity "based on geographical, historical and cultural circumstances". The other communities did not modify their Statutes beyond that related to some specific issues and protocols.

So, an important part of those territories that had been called the "third territorial Spain", whose history is not referred to in the Constitution's text, adopt a reprisal in relation to their identity to justify their claim for more autonomy, more powers. This posture merits two considerations. First, that it is more about "territorialized history" than historical territories, and I think there is as much geography as history in these positions, even though using geography as a framework for history is considered a somewhat outdated concept. Second, and along similar lines as those laid out by Tudela, we are facing traits of "petrified identity". In this sense identity resides in the past, a static vision that is somewhat mythical, when not heroic, or at other times attributable to tectonic features, depressions and mountains, disregarding the dynamic shift of identity that is molded over time and that adapts to modern events. This petrified identity has repercussions on models of political organization and to some extent, it does not favor the construction of a modern, dynamic and flexible state, an institution that is above all reformable. In addition, the descriptions of kind, welcoming peoples, with a collective

history of peace and freedom, of pacts and covenants, suggest there are no obscure elements in the concept of self-government.

Nevertheless, the new Catalan Statute and the subsequent *procés* (process) towards political independence has contaminated everything, the movement to reinforce self-government in the ACs and of the levelling of powers has been quietly marginalized. The fact that Catalonia did not find a specific adaptation prevented the rifts established from deepening. As Spain was recriminated by the World Bank, the International Monetary Fund (IMF) and the EU for the economic situation, and the enormous volume of debt and deficit, Article 135 of the constitutional reform was put in place to establish budgetary balance in 2011 (singular and fast-track). For its part, the conservative government of Mariano Rajoy would months later propose a Law for the rationalization and sustainability of Public Administration, which had a clearly recentralizing character in terms of local autonomy.

Thus, the projects for constitutional reform that the territorial organization demanded were delayed, if not forgotten. There was almost unanimous legal consensus in the need for a general reform, and perhaps also for another one for Catalonia, yet everything was put on hold given the urgency that arose surrounding the Catalan “process”, and, through the confrontation and absence of any desire to reach an agreement between the political parties. There have been many who have aligned with the forecast of García Enterriá, who indicated that the success of democracy in Spain depends on the success of the autonomous territorial model. Yet, forty years after establishing the regional map we still find ourselves in stand-by mode.

2. The Autonomous States and their management of the Covid pandemic

To date, the autonomous state has generally been analyzed from the point of view of decentralization, regional expenditure, and competences, and as a structure complementary to the other two administrative levels: central and local. However, the Covid19 coronavirus epidemic meant adopting a completely new perspective, that of powers delegated by central government, not only in terms of health matters (powers that had already been transferred) but also, through autonomous presidents establishing general and provisional limitations on individual rights within a declaration by the chamber of a state of alarm, something quite different to anything that had passed before. Thus, it is now a good time to assess how effective the autonomous states handled the different situations that arose throughout the two years of the pandemic, in addition to addressing the legal aspects associated with the actions undertaken. Undoubtedly, when a detailed study of what happened is undertaken, the results will serve to reflect on the territorial model and to improve it.

As our point of departure, the start of the Covid-19 pandemic in March 2020 occurred in a climate of high tension, both political and economic, social and territorial. The Spanish territorial system was experiencing difficulties for all kinds of reasons, including the unresolved secessionist challenge, the resistance to autonomous collaboration, the growing economic and social inequalities resulting from the prolonged crisis that began in 2008, and the other territorial grievances being expressed in different ways, including the appearance of new provincial parties participating in general and local elections. Above all, citizen morale was low, with obvious signs of public fatigue

and distrust in the governing leaders (Solozábal 2021b). To this, we must add a very fragmented parliament, with no clear majorities and with eighteen groups present in the Congress of Deputies (the lower house). The first coalition government of democracy, formed by socialist party PSOE and a radical left “Unidas Podemos” (we can, united), had barely been established in January 2020, and only with the support of several other parties (included the nationalists), and it faced the opposition of all the right wing parties.

The two decrees of a state of alarm are the truly striking features of how the pandemic was handled in Spain, that of March 2020 that extended until June of that year, and the second that lasted for six months from October 2020 (a duration that was never sufficiently well justified), both employing two radically different models of management. The first involved an absolute centralized order that relieved the ACs of implementing temporary limitations of individual's rights, and which was simply communicated to them through the President's Conferences or via the Ministry of Health. By contrast, the decree of the long state of alarm was established through the almost universal delegation of all measures to the ACs, a model called co-governance (albeit without much reason). In between these two situations, that is between June and October 2020, a very disconcerting and without doubt confusing period was established that was called the "New Normal".

Although the issue has not yet been studied in detail, many jurists have expressed some reservations about the viability of these two quite different models. To begin with, Law 4/1981 regulates states of alarm, exception and siege, yet it does not enter into the territorial problems of this exceptional legislation at all. Secondly, it is worth noting that the exceptionality reflected in the text of the second decree led to a radical disintegration of the previous centralized order. For Tudela (2021), the fact that two such different models could have been implemented in such a short period was a symptom of a structural problem in the design of the territorial model.

Decree 926/2020 of October 25th declaring the second state of alarm, virtually gave regional authorities carte blanche (Solozábal, 2021), temporarily restricting (not suspending) citizen's rights "in view of the evolution of health, epidemiological, social and economic indicators". This power was exercised in two phases, one preventive with the communication of the measures, and later another, controlled by the respective parliamentary assembly. The State reserved certain powers through the decree of a New Normality and through the coordination of the measures via the Interterritorial National Health Service. This was an administrative body in which all the regional councilors were represented, and it was responsible for gathering information, organizing and overseeing cooperation, and providing information regarding the pandemic. It has never been made clear what majorities were needed to take decisions in this organism, because it was only an auxiliary political decision-making organ. In that sense and in those circumstances, it might have represented a forum for different opinions of debate and of confrontation, which almost always followed the same pattern. More than co-governance, simple models or sub-models of unilateral management coexisted.

Without being able to go into detail because of the nature of this text and, above all, because the issue requires more thorough investigation, some conclusions can be drawn.

First, in the first case of central governance, management of the pandemic suffered mainly from a paucity of healthcare resources and other means to deal with the disease. At times there was clearly global competition to obtain the material necessary to combat

the virus, even more so since the market suppliers were almost exclusively based in China. This competition not only existed between countries but also, there was fierce competition between regional communities and municipalities. Only now, as the cases reach the courts, are we becoming aware of the true extent of the outrageous behavior and scandalous contracts that were signed by ACs, municipalities and probably, also by central government, in a hyperspeculative market under maximal stress. In addition, there is no evidence that there were any acts of solidarity between the territories but rather quite the opposite, given the desire of the autonomous leaders to gain prominence through unvirtuous behaviors. A clear contrast to the solidarity and collaboration of the citizens that was evident in many initiatives.

The delegation and decentralization of measures in the second phase of the state of alarm was often complicated by the need for judicial ratification of the autonomous restrictions, what was described at the time as a crisis of "perimeter confinements" by prohibiting the entry or exit from an AC, a town or any part of either. In sometimes grotesque cases, judges denied in some places what they had authorized in others, using different arguments in similar situations. Not to mention the paradoxes that one autonomous territory might be closed to shield itself from another, which was in turn open to the former, a situation that repeatedly arose in the ACs neighboring Madrid in their attempts to protect themselves from the capital (an important point of entry of people from abroad). For months, there were multitudes of borders established and a variety of border phenomena, sometimes to ridiculous extremes, and these were of course the source of administrative contradictions. One particular picturesque example was undoubtedly that of the perimeter closures of "health zones" in the Community of Madrid, which led to closures on one side of some streets while the other remained open. This farcical situation was exaggerated by the fact that no one really knew what were the actual limits of the area served by their local health center, and when one passed from one area into that covered by another center.

All in all, and as indicated above, there were many positive aspects in the handling of the pandemic, although none were exhilarating. The ACs were responsible for carrying out the vaccination campaigns, through the means provided to them by central government. The success of this can be seen by comparing the results with those of other countries. As for the closures and the generalized limitations of mobility, which seemed sometimes incoherent in both space and time, they were implemented and followed, avoiding important public disorders of any kind. Nevertheless, rarely can the regional map of Spain be better transferred to the collective subconscious than in the period of the pandemic, given the reproduction of this image in the media ad nauseam, several times a day, establishing inter-regional comparisons of the numbers of infections and morbidities, and of the relative restrictions. Everything seemed difficult to understand and no provisional conclusions could be drawn, because any AC that seemed to be using best practices one day ran the risk of becoming the worst affected soon after, and vice versa. In short, the management of the pandemic dealt lavish lessons in humility.

These are all very qualitative estimates and perhaps too general, and the entire process will have to be studied in greater detail from a health, economic and social perspective. We have never had more restrictions, confinement and more borders. But the jurists who have voiced their opinion agree that it is not the decentralized and plural model that failed, quite the contrary. With all its imperfections and the need for reforms,

its general functionality was demonstrated, contradicting the summary judgments and the unfounded dismissal of this organization. What has occurred, without doubt, are bad practices and malicious behaviors, and those responsible must undoubtedly be brought to account to recognize their errors and misjudgments in front of the citizens, a contrast with their own penchant for proclaiming success. One of the inexcusable cases has been that of the excess mortality in the care homes for the elderly, a situation that must be clarified with transparency as an exercise in justice but also, as a minimal reflection of the health and dignity of our democracy.

3. Other territorial issues and populisms lying in wait

Eduardo García de Enterría linked the fate of democracy in Spain to that of the autonomous state. In the present crisis, I think it would be unwise to contradict this idea, not least as the goal of the burgeoning far-right populism is to practically destroy the ACs, a key item on its agenda. This would involve returning to the State large areas of the competences transferred to the ACs, limiting the rights of the autonomous parliaments to legislate, and recreating a unitary state, although it may be decentralized in administrative terms alone. This rejection of autonomic plurality is one of the distinctive features of Spanish radical populism relative to other contemporary populisms. On-line, the program of the right-wing political party “Vox” is accompanied by a collection of videos of its leaders under the title of the ‘*Silenced Spain*’, in each of which this idea is developed in one way or another.

This should warn us about the inconvenience of frivolously baptizing new territorialities, with a view to introducing narratives in public conversation with relative ease and in the collective imagination. Perhaps my profession as a geographer makes me more sensitive to these territorial baptisms, almost always founded in opposition to others. I confess I have zero empathy with all these Spains: the invertebrate¹¹, the deep rural, the peripheral, the interior, the looted, the abandoned, those of the dirty past, etc. Their ill-definition, their lack of historical foundation, their ideological manipulation, the grievances and discriminations, and even their trivialization of situations, seem to represent a calling for flags, and for leaders and crusades to save them, although their original intention was not that at all. The abyss that separates the center from the periphery in the consecrated duality, makes this an instrument of little use, but at least it was devoid of territorial characterization or caricaturization.

One particular case is that of the “*Empty Spain*” (or “*Vacated Spain*”). Anyone studying a map of population densities in Spain of a sufficient scale will be clearly struck by the large extension of territories with less than 8 Hab/km², a threshold for severe depopulation. This depopulation is particularly intense and continues in large areas of Castilla-Leon and Aragon, as well as in Extremadura and in the interior of some peripheral ACs, whereas the situation is neither so extreme nor so generalized in Andalusia for different reasons that are not relevant here. In terms of the rest of Europe, similar situations are only seen in Eastern countries, the distribution in Spain contrasting with that of France for example, where acceptable densities are maintained even in

¹¹ Invertebrate Spain was the name of famous book of José Ortega y Gasset a century ago and as such, it is unfair to use this in the same sense it may be given at present.

central and southern France. Of course, before starting to reason about this, it is convenient to study these issues in geographical and historical terms.

The denomination *La España Vacía* (Empty Spain) comes from the title of a book by Sergio del Molino (2016), the subtitle of which was “*Viaje por un país que nunca fue*”, (Travel through a country that never was) which clearly shows the author's intention was not to use this term in protest in the manner it is used today. Indeed, del Molino published another book in 2021 with the title of “*Contra la España vacía*” (Against the Empty Spain). Regardless of their origin, I think it is useful to warn against the cultural and metaphorical narratives of contemporaneity that, although they do not pretend to serve populisms, sometimes unintentionally benefit them. A similar situation arose in France, for example with the geographer Christophe Guilly's books *La France périphérique* and *Le crépuscule de la France d'en haut* that describe the fractures and the supposed divisions in French society. His thesis is that the roots (souche) of the French middle and popular classes have been sacrificed and impoverished by the globalization of the economy, and by cultural and social policies. The "New" poor from the rural world and the urban peripheries, are bulked out by the "new" French immigrants. These French populations exist in the "twilight" and they have been excluded from the gentrified urban centers, which are occupied by what Anglo-American and French literature calls the "BoBos", the bohemian bourgeois, who are among those who triumph in our modern society. Despite the success of those two books, critics have reproached the author not only for the simplified interpretation of the situation as opposed to describing the reality, but of contributing to the creation of this reality. On one hand there is the elite, especially those of the progressive bourgeoisie, with the immigrants on the other, twice are in this interpretation the real enemies of the true French nation.

There is something misleading about the term “Empty Spain” and other such metaphors. Indeed, the phrase does not coincide exactly with the lifestyle in rural areas, perhaps not even with the most aged and demographically depleted territories, although it is a recognized feature of them. Nor can they be compared with the richer cities, even though they are: the greatest poverty is still undoubtedly in the slums of the largest cities, as well as among the immigrants in urban areas. Contrasting an empty and ageing rural Spain with a city full of opulence and youth, is hazy, ill-defined and frustrating. It is also wrong, I think, to address the problems in public policies simply as a demographic challenge, when it is really a territorial challenge due to the lack of territorial cohesion, as well as a social problem due to the lack of equipment and services, particularly in the fields of health and education. That is why rural inhabitants become citizens stripped of the rights of urban dwellers. However, our focus should not deviate, the main problem in Spanish population dynamics resides in the fact that medium-sized cities are losing their effective population to the benefit of large metropoles, which are growing at the expense of the rest. The network of medium-sized urban towns, which provides services to the rural population, can no longer withstand metropolitan competition. As such, we are experiencing a process of territorial disarticulation that is reaching the limits of sustainability.

Nor is this a problem of democratic representation. The Spanish Constitution established a provincial electoral system with a minimum number of deputies for each province (the elective circumscription), whatever its population, and a system of proportional representation in accordance with the d'Hondt law. It is well known that in

practice this means that a representative in Madrid or Barcelona comes at a cost of more than 100,000 votes, while one in the province of Soria for example barely needs a quarter of these. Hence, the provincial electoral parties and associations that have been competing in the elections since the last general elections of 2019 (e.g., “Teruel Exists”), and in particular those in the latest regional elections in Castilla y León, have contributed to turning the Congress (the lower House of National Government) into an increasingly territorial chamber. This contrasts with the situation in the Senate (Upper House), which by nature should be the more territorial of the two. What is cannot be accepted is the idea that there is an underrepresentation of those provinces with the smallest population.

Finally, a very serious paradox arises in terms of the autonomous chambers, as for the first time in these autonomous governments, a political party like VOX is participating, whose declared objective is to put an end to the Autonomous State, or to at least reform it severely. There is another worrying paradox for the democratic system: populism uses the chambers of regional representation to confront national government and general legislation, to delay or impede the application of certain laws, to prevent their development and to invalidate them.

4. Conclusions

- The economic and political crises of the last decade have been used to encourage negative opinions of the autonomous organization of the State, beyond its obvious defects and inadequacies. For example, this structure has been made responsible for the excesses in spending and deficits. However, when the ACs took charge of the management of the pandemic during the second state of alarm in 2020-2021, the system worked reasonably well, despite many errors, the lack of inter-regional solidarity and some less than virtuous behavior. Not only were vaccines provided by health services and vaccination carried out on schedule, but even the lockdowns and the temporary restrictions of general fundamental rights were handled without inciting disorder. This governance resisted even the permanent media exposure and continuous comparisons that moved us all towards exasperation and grief. Nevertheless, when the corresponding evaluations are concluded, citizens will have the right to explanations for the errors that were committed and each administration will be accountable for providing these with maximum transparency. Not doing so, or at least not attempting to do so, would compromise the institution's authority.
- In my opinion, the Spanish Autonomous State has been consolidated in the forty years of its existence, strongly instilling itself in its citizens democratic conscience. Despite everything, a culture of political pluralism and multilevel administration has been generated, both of which can be considered positive effects. The failure to accommodate Catalonia in the State, and the process of independentism embarked upon by the sovereigntists cannot hide the success of having dismantled the complicated legacy of the dictatorship (1939-1979) in relatively few years, building an almost federal state. This is not without problems since the ACs have distanced themselves from the original asymmetry. Indeed, they have come to rely almost excessively on their supposedly distinctive features and identities in history (sometimes imagined), rather than identifying themselves through the construction of a democracy that strives to achieve equal rights and

obligations of all citizens. Identity is always dynamic, and it is constructed over time, particularly as we leave our origins behind.

- In my opinion, the greatest danger for the autonomous organization lies in the fact that one of the objectives of current populism is to destroy the CAs, seizing on the social discontent and frustration that has accumulated since the start of this century. At the same time, the traditional democratic parties appear to be unable to respond to the distortions presented by other parties with arguments and projects for the future. In addition, in provinces maligned by depopulation and a loss of services, there is a tendency to seek direct representation that to some extent turns the legislative chamber into a chamber of territorial representation, despite the number of seats representing the sovereignty of nation. The independentists set out their stall from the beginning. The State, central government and the parties are taking too long to modify the system of financing and reform the constitution. Consequently, we are witnessing the spectacle whereby an illiberal party that is opposed to the ACs seeks to gain power through them. Again, it is convenient to situate a correct and updated territorial diagnosis at the center of the debate. Frustratingly, this can no longer be performed only in a rural-urban key but rather, in terms of the large metropoles that accumulate power, wealth and population at the expense of the provincial capitals and other medium-sized cities, contributing to a loss of their articulating capacity. Approaches based on nostalgia for a time that no longer exists, and that perhaps never was, are irrelevant when considering the future problems that must be faced.
- The future of Spain depends on making our production and consumption systems sustainable. In other words, our future depends above all on the environmental and energy transition. However, it is obvious that many measures will not be popular in the short term and that new inequalities from this transition must be avoided. The burden of economic and social modernization cannot be placed on the same territories and populations that have already borne the costs of water and forestry policy. Some of the most immediate measures, such as the new renewable energy installations, wind and photovoltaic energy, tend to be installed in open and less populated territories, with the consequent impact on populations, landscapes and heritage. Human well-being depends on environmental well-being in times of climate change. However, the processes involved are difficult and the costs are not egalitarian, having to be carefully managed over time in these territories. Thus, along with representative democracy, we will need participatory democracy and local democracy, democracy of detail to use the term that Juan José Olozábal took from Azaola.

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On borders and boundaries in Spain: A state of the art

Juan-M. Trillo-Santamaría

ORCID: 0000-0003-3842-3079

Universidade de Santiago de Compostela

Abstract: Academic studies of border issues have undergone considerable growth at the international scale in recent years with the emergence of so-called *border studies*. In this line of research dedicated to borders and their socio-spatial repercussions, geography clearly has a key role to play. Here, I report a state of the art of Spanish geographical production in the field of border studies. However, given that, by definition, border studies is multidisciplinary, works undertaken in related disciplines are also reported. Finally, Spanish production is examined in relation to the broader international context, with the aim of detecting any possible shortcomings and providing ideas to strengthen research on borders and boundaries.

1. Introduction

To initiate a review about *border studies* by speaking of the impossibility of covering the whole spectrum of extent research has become almost an axiom. This was, indeed, how I had intended to begin my contribution, but in the final stages of putting this draft together, Russia launched a brutal act of aggression in Ukraine. This offensive serves to remind us that, in a world thought “borderless” in the 1990s, state boundaries continue to play a primary role in territorial sovereignty, a principle that is currently under attack in Ukraine — and, on a recurring basis in other latitudes, albeit perhaps at distances more removed from Western concerns. Geopolitics is very much the order of the day and it reminds us that a conflict like the one that broke out in February 2022 has multiple economic and social implications. And all this in a context in which the Covid-19 pandemic lingers on, a global phenomenon that has crossed borders, despite the fact that the measures taken to control it have been based on policies designed and implemented within state boundaries — and, as we shall see, within internal state boundaries too.

In this review, I wish to provide a brief — in this format it could hardly be otherwise — state of the art of Spanish geographical research in the field of border studies. Having said that, I recognise that, by definition, border studies is a multidisciplinary field and, while the geographical approach is my main focus, each line of research identified is complemented, wherever possible, with a description of contributions made from within other disciplines (economics, sociology, anthropology, law and political science, among others). I should also stress that I limit my attention to studies of Spain and its

borderlands, which means work conducted by Spanish universities or research centres analysing other territories is not discussed here.

My point of departure in undertaking this review is very much my own personal knowledge of the field, given that it constitutes one of my primary research interests. However, to be as exhaustive as possible, I have also exploited various search engines and databases (namely GS, WOS, SCOPUS, Dialnet and Teseo) and conducted searches in Spain's main geography journals. Most of the studies identified are written in Spanish; however, over the last decade an increasing number of articles have been published in English, above all in high impact journals.

In what follows, I propose an exploration of the world of border studies with the aim of contextualizing studies undertaken in Spanish geography. Here, I should stress that, given the specific object of study, while ties with the geographies of Spain's neighbours are inevitable, it is beyond the scope of the current discussion to pursue them further. Below, I outline the main lines of research identified, a body of work that considers the multiple dimensions of borders, and pay particular attention to the most recent studies. The review concludes by summarising the different lines of work and comparing the research undertaken in Spain with the work conducted in other academic contexts. By so doing, I seek to detect any possible research gaps and make proposals that might serve to bolster research on borders and boundaries in Spanish geography, as well as in its relations with other disciplines.

2. Border studies as a field of knowledge at its apogee

“It is not an easy task to suggest new research agendas for a field of study that has been in a state of constant flux for close to three decades. Border studies has emerged as a multidisciplinary and even post-disciplinary research area”. (Scott, 2020b: 1)

“Border studies had witnessed a major resurrection during the 1990s, which echoed wider international political and economic events and tendencies, as well as the emerging search for new theoretical/conceptual tools in border research”. (Paasi, 2021: 18)

“Proliferation of scholarly attention to borders, and the extensive and diverse research activity associated with it, are actually constituents of a systematic re-calibration of the border studies framework”. (Konrad, 2021: 713)

These three brief quotes from recent studies, by three eminent specialists in border studies, serve to demonstrate the rise of this multi- and interdisciplinary field — post-disciplinary even, in the words of Scott (2020b) — in the social and human sciences. The 1990s are typically identified as the decade that first attracted the interest of researchers to borders, at a time marked by the end of the Cold War. Since then, various attempts have been made to draw up a (critical) agenda for border studies (Newman and Paasi, 1995; Johnson et al., 2011; Parker and Vaughan-Williams, 2012; Scott, 2020b), in which certain terms and theoretical concepts have come to predominate (Kolossov and Scott, 2013). We can point to various collective works that might serve as manuals of border studies to get an idea of the multiplicity of themes addressed (Wastl-Walter, 2011; Wilson and Donnan, 2012; Sevastianov, Laine and Kireev, 2015; Scott, 2020a), which include such concerns as delimitation, demarcation and management of international borders; geopolitics at different territorial scales; borders, territory and identity; individual and social borders; migration and mobility policies; border control; securitization practices;

border ethics; de-bordering and re-bordering processes; territorial and cross-border cooperation; cross-border governance; the economic system and borders; border landscapes; *borderscapes*; art and borders, among many others. Each is marked by a strong theoretical content, in a constant dialogue about border ontology and epistemology.

Borders, in short, are no longer understood as mere boundaries or limits between nation-states, a subject for analysis by historical and political geography, but rather they are seen as resulting from complex socio-spatial processes, operating at different levels (from the individual to the collective) that end up institutionalizing them and ensuring they have an impact on people's daily lives. This means, as I have been at pains to point out, that they are the subject of analysis in many disciplines. Thus, as well as various specialized research centres, such as the Nijmegen Centre for Border Research (Radboud University) and the UniGR-Center for Border Studies, there are a number of international forums that provide a collective space for debate and reflection, including the Association for Borderlands Studies/*Asociación de Estudios Fronterizos*, which has promoted the journal *par excellence* in border studies: namely, the *Journal of Borderlands Studies*¹².

While the 1990s are usually acknowledged as being the decade of the so-called *b/ordering turn* (Houtum and Naerssen, 2002), it is true that, in other traditions, most notably the French, major studies opening up new research lines were being reported as early as 1970 (Guichonnet and Raffestin, 1974; Foucher, 1986; cf. Renard, 1997 and Trillo-Santamaría, 2010). In France, border studies, in general, and the geography of borders, in particular, took root in these years. So much so, that the country's civil service examinations, CAPES (*Certificat d'aptitude au professorat de l'enseignement du second degré*) and *Aggrégation* 2022-2023, to teach secondary school geography focus, specifically, on borders, which has led to a boom in publications focused on preparing candidates for these exams (Amilhat-Szary and Hamez, 2020; Cattaruzza, Monot and Paris, 2020; Sierra, 2020), which complement other recent works (Amilhat-Szary, 2015 and 2020; Mouillé, 2017)¹³.

3. Border studies in Spain: A view from geography

I begin this section by mentioning two studies, published twenty years apart, that have provided states of the art of geographical studies of border areas conducted in Spain. The first, the work of Cabero, Campesino and López Trigal (1995-1996) contextualizes the studies originating in Spain in the 1970s, heavily influenced by French geography, and which became more prolific in the 1990s with the development of regional policy and the first INTERREG programmes (cf. Paül et al., 2017). Geography

¹² It would be interesting to discuss why, originally, the journal — as well as the association on which it depends — chose the term “borderlands” for its name and not a more generic term such as “boundary” or “border”, a choice indicating a clear change in the range of themes covered. The Association was founded in 1976 to study the United States-Mexico borderlands but since then it has become a global association that understands and studies borders in their multiple dimensions — although it has not taken the step of changing its name. For more information about the Association visit <https://absborderlands.org/> [last consulted 30/3/22].

¹³ See the suggested reading lists offered by *Géoconfluences* to prepare for these exams: <http://geoconfluences.ens-lyon.fr/programmes/concours/frontieres-indications-bibliographiques> [last consulted 30/3/22].

is seen as an instrument of spatial analysis and diagnosis, aimed at supporting the various initiatives of the Community programs. More than twenty years later, López Trigal (2017), in an article introducing a special issue of the journal *Polygonos* dedicated to twenty-five years of cross-border cooperation, sought to update the previous contribution. Here, the focus is on Spanish geographic studies of Iberian land borders and, in particular, cross-border cooperation. The author provides an interesting analytical summary of various research lines on three borders — Spain-France, Spain-Portugal, Spain-Morocco — which stretch back to 1970 and the origins of studies of this type.

López Trigal's study (2017) is clearly a point of reference when it comes to providing a state of the art in the field. However, it has perhaps two limitations that can be usefully addressed in seeking to update our knowledge of border studies in Spain. On the one hand, it focuses above all on studies related to cross-border cooperation at the expense of other relevant themes; and, on the other, it suffers from a certain shortage of recent bibliographical references, particularly after the decade of the 2010s. For these two motives, I opt here not to focus on a single field of study and I seek to incorporate more recent studies, above all from the last ten years. Moreover, I propose not to be guided by the different sections of Spain's international borders, but rather I organize this review around main thematic areas, in which the border is not conceived solely as a boundary between states. Finally, as mentioned, I include references from other disciplines, a vision that the two earlier reviews avoided.

3.1 Historical geography of borders: delimitation, demarcation and management

The study of the historical processes of boundary delimitation and demarcation can be considered a classic line of research, albeit one that has experienced something of a revival in recent years. For example, the work of Capdevilla (2011) on the Spanish-French border, in which the author provides a detailed history of the boundary demarcation and associated conflicts, is indispensable in this respect. This line has been further reinforced, thanks, in large part, to various research projects coordinated by Jacobo García Álvarez (cf. Trillo-Santamaría, 2012), which study the processes of delimitation of the Spanish-Portuguese (see, among others, García Álvarez and Puente, 2017a and 2017b; García Álvarez, 2019; Puente and García Álvarez, 2021) and Spanish-French boundaries (García Álvarez and Puyo, 2019). Two special issues of the *Revista de Historiografía* (2015, nº 23; 2019, nº 30) bring together the efforts of some of the researchers involved in these projects. Such reflections provide an arena for the discussion of a number of widespread ideas, including the fact that the boundary between Spain and Portugal is the oldest in Europe (Trillo-Santamaría and Paül, 2014), in the sense that, like all limits of sovereignty of modern states, it is the outcome of the delimitation treaties and acts dating from the second half of the 19th and the beginning of the 20th centuries.

This particular theme is also of obvious interest within the discipline of history. The work of Jané (2008), for example, makes this quite patent not only in its study of the Spanish-French border in the modern age, but also by linking it to the present-day and exploring questions related to historical memory. Likewise, a considerable number of studies have been made within anthropology and political science, examining identity, cultural practices and memory associated with the Spanish-Portuguese border (among

others, Pereiro Risco and Llana, 2008; Cairo, Godinho and Pereiro, 2009; Cairo and Godinho, 2014; Lois, 2014). Finally, various studies have been published within the disciplines of law and international relations, which address, for example, the delimitation of maritime spaces (Gutiérrez, 2004) and the complex border delimitation and demarcation of Melilla and its present-day implications (Acosta, 2016).

3.2 Border landscapes

The impact of the border on the landscape has various readings. The first can be linked to the theme discussed in the section above, in the sense that the international boundary imbues the borderlands with a particular meaning, one loaded with memory, culture and quite specific socio-spatial practices. For example, it has been possible to analyse the recovery of the memory of a particular place — in this instance, the Couto Mixto — by adopting a geographical perspective based on fieldwork, documentary analysis and literary works (Paül and Trillo-Santamaría, 2014, 2015). This link between artistic productions on and around borders and the representations associated with them has yet to be fully explored in Spanish geography (Trillo-Santamaría, 2016). However, a recent PhD thesis completed in the field of sculpture (Suárez Fernández, 2015) sees the author analyse, from the perspective of art and his own practical experience of creation, the effects of the border both on personal and collective memory and identity, while two doctoral theses written in the field of architecture — Cimadomo (2013) and Giráldez (2019) — explore the material, but also symbolic, impact of the physical elements of the border (walls, enclosures, fences) on the landscape.

Second, these interstitial spaces are highly significant in terms of language, a fundamental element in the cultural makeup of border societies. This research line, which could fall under the heading of language geography or geolinguistics, has attracted little geographical interest to date. However, valuable contributions have been made from within language and literary studies, which serve to complement anthropological and ethnological studies concerned with the protection of a particular legacy of borderlands. Here, the work carried out by the project “The Spanish-Portuguese border: linguistic and bibliographic documentation” (FRONTESPO), which has created an online bibliographic and digital database, is of particular interest¹⁴.

Finally, the boundary, as a limit between political-administrative entities, has been an impediment to the planning and management of territories. Protected natural areas provide a good example of the disparate management measures taken on either side of the border, be it international or internal to the state (Trillo-Santamaría and Paül, 2016; Mulero, 2018; Vila-Lage, Paül and Trillo-Santamaría, 2020). Similarly, initiatives have been taken aimed at facilitating the management and planning of (cross)border landscapes, based, for example, on the joint mapping of the Pyrenees (Gárate and Ibarra, 2018) or on specific plans for a specific border area, the case for example of La Cerdanya (Nogué and Sala, 2018). The latter is a paradigmatic example of how geography can and should face the challenge of analysing, diagnosing and developing joint measures for a landscape that cannot be understood in a disjointed, incoherent fashion, given that the international boundary is the result of a political agreement that divides a highly

¹⁴ For further information, visit <https://www.frontespo.org/> [last consulted 30/3/22]. For a summary of the project, see Álvarez (2020).

homogenous tectonic trench in the Pyrenees, not only in terms of its natural endowment but also socially, culturally and economically. Likewise, water basin management faces many of the same challenges that beset the governance of shared natural environments. An interesting discussion of these issues is provided by Abitia's (2017) PhD thesis, which undertakes a study from the perspective of political science and sociology of, among others, the Miño and Limia river basins.

3.3 Borders, security and international migration

The border as a limit that closes off state territory and grants rights of citizenship, a dividing line between 'inside' and 'outside', underpins studies of the control of migratory flows. Here, the scale of interest ranges from the local, that is, border crossing points (above all, Ceuta and Melilla), to the global, with the analysis of Spanish policies of border control outsourcing, in particular, and those of the European Union, in general. This geopolitics of border controls has major implications for individuals (the migrant) and groups (the migrants, societies of origin, the host societies, etc.) alike.

Geography offers us a number of pioneering studies conducted in the 1990s, in particular that of Gozámez Pérez (1996), on African immigration to Spain, and indeed, since the end of the 2000s, such studies have multiplied. This is the case, for example, of Baraja's (2006) PhD thesis examining the Strait of Gibraltar, the work of Capote (2014) on Moroccan immigration in Andalusia, and the studies of Xavier Ferrer-Gallardo, which provide a critical vision of European and Spanish policies of border controls and securitization. Following on from his 2008 doctoral thesis, focused on the case of Ceuta, he has addressed this question for more than a decade — with studies extending from Ferrer-Gallardo (2008) to Ferrer-Gallardo and Gabrielli (2022) — as part of various international research networks within the framework of different European projects. In this time, the author has collaborated with other specialists on the matter from the field of political science including Ricard Zapata (Zapata and Ferrer-Gallardo, 2012), Keina Espiñeira (Ferrer-Gallardo and Espiñeira, 2015) and the aforementioned Lorenzo Gabrielli, with whom he published the book entitled *Estados de excepción en la excepción del Estado: Ceuta y Melilla* (States of exception in the State's exceptions: Ceuta and Melilla) (Ferrer-Gallardo and Gabrielli, 2018).

Other geographers, with a strong international profile, have conducted much of their work in research centres abroad. This is the case, for example, of Sebastián Cobarrubias, who has worked, among other questions, on migration routes and the role of security forces in controlling these movements (Casas-Cortés, Cobarrubias and Pickles, 2014) and providing a critical vision of the cartographies of European organizations that manage the routes of migrants (Cobarrubias, 2019). Settled for years in Canada, Luna Vives continues to direct her gaze to the peninsular context, analysing, for example, immigration control policies in the Canary Islands (Vives, 2017) and the effects of outsourcing, militarization, and the detention and deportation of unaccompanied minors, in a comparative study conducted in Spain and the United States (Vives, 2020).

Migration studies are not focused solely on Spain's southern border, as we also find works that are interested in the eastern border of the European Union and the eventual arrival of these migrants to Spain. This is the case of the work of Silvia Marcu, who since the 1990s, has stressed the need to study these phenomena from a geopolitical dimension (Marcu, 2015), linked in recent years to studies on mobilities (Marcu, 2021).

The question of international boundaries and migratory movements is addressed by a wide range of disciplines, in addition to geography. Anthropology has been concerned with shedding light on migratory flows between Spain and Morocco (Naranjo, 2014) as well as providing more general reflections on relations between the two countries and their societies (Karzazi, Arabi and Vázquez, 2016). Sociology has also addressed this question with studies of refugees on Spain's southern border (López-Sala and Moreno-Amado, 2020) and the image of immigrants perpetrated in the press (Antolínez and Rivero, 2016; a subject, incidentally, recently examined from a geographical perspective in Amado, Trillo-Santamaría and Paül, 2021). The images and representations created around Moroccan migration have also been analysed in literary studies (Nisha, 2012) and psychology (Español, 2018).

Finally, various studies addressing this issue have been undertaken in the field of law focused on the legal instruments that permit the surveillance and security of borders and migratory flows (Del Valle, 2019; Acosta, 2020). Studies of the southern border are not limited, however, to migratory control with respect to Morocco, since we also find references to Gibraltar's cross-border workers (Acosta, 2017; González et al., 2021). Indeed, Gibraltar has attracted considerable research interest in border studies, with a journal — *Cuadernos de Gibraltar-Gibraltar Reports* — dedicated specifically to the issues raised by this complex space. From a multidisciplinary perspective, albeit one in which geography is absent, mention should also be made of issue 122 of *Afers Internacionals* (2019), entitled “Espacio fronterizo; producción securitaria, violencia e (in)movilidad (España, Europa y América Latina)”, which examines such themes as security production, violence and (im)mobility in the borderlands of Spain, Europe and Latin America.

3.4 Territorial and cross-border cooperation

As discussed, the research carried out since the 1990s, and the launch of INTERREG, in the field of European territorial and cross-border cooperation has become one of the mainstays of border studies in Spain, with research projects being undertaken as part of different open call funding programmes. Such publications have increased markedly in recent years — including various doctoral theses — and cover a broad range of themes, including the creation of new (cross)border regions at different scales (macro regions, Euroregions, Eurocities); structures of cooperation and multilevel governance; local development; tourism; management of Community funds; socio-economic impact of borders, etc. For the purposes of this subsection, it is useful to organise the discussion around the work of different groups of researchers at different Spanish universities located in these borderlands.

We start this journey with the Departments of Geography at the Universities of León, Salamanca and Extremadura, and with the pioneering works of Lorenzo López Trigal, Valentín Cabero and Antonio Campesino, which are discussed in Trillo-Santamaría (2012) and López Trigal (2017). This line of work has been continued, among others, by Luis A. Hortelano in Salamanca (see, for example, Hortelano and Mansvelt, 2017). TURFRONT is a good example of a recent project, focused, in this instance, on border tourism, and which has resulted in three collective books on the subject, with contributions from different universities (the most recent being Campesino and Jurado, 2014). In Extremadura, Julián Mora Aliseda has published extensively on the border (or

raya in Spanish, *raia* in Portuguese), especially in relation to regional planning (Mora Aliseda, 2002) and more recently the management of transboundary river basins (Mora Aliseda, Garrido and Mora, 2018). A number of PhD theses — including Pérez Pintor (2011) — have also examined cross-border relations in the Extremadura-Alentejo-Região Centro.

In the southernmost section of the Spanish-Portuguese border, around the Guadiana, lies one of its most dynamic regions. This has attracted the research attention of Juan A. Márquez, José M. Jurado, Francisco J. Pazos and Jesús Felicidades — the doctoral thesis of this last author (Felicidades, 2013), supervised by Juan A. Márquez, studies the processes of cross-border regional construction in Bajo Guadiana and offers a detailed bibliographic review of this section of the border. A number of other individual (Márquez, 2012) and collective studies (Márquez, Jurado and Pazos, 2015) have focused on regional development policies in borderlands, as well as more recent works on Eurocities of the Iberian borderland (Jurado, Pazos and Castanho, 2020) and geographic information systems for cross-border regional planning (Felicidades et al., 2021).

If we travel up to the northern section of the border (or *raia* in Galician), relations between Galicia and the North of Portugal have been a rich vein of study in geography for years. For example, Lois-González (2000) presented an early discussion in a pioneering collective publication on the subject coordinated by the Rei Afonso Henriques Foundation. In 2007, his lecture on taking up his position as Professor of Geography at the University of Santiago de Compostela (USC) was entitled, precisely, *Fronteras y análisis geográfico: la raya gallego-portuguesa* (Borders and geographical analysis: the Galician-Portuguese border). In that same decade, other studies were published on different aspects of the borderlands, including mobility (Palmeiro and Pazos, 2008), structures of cooperation (Palmeiro, 2009) and the spatial dynamics of the northwest of the Iberian Peninsula (Lois-González, Pazos and Piñeira, 2009). In the 2010s, new researchers joined the Geography Department of the USC, including Juan-M. Trillo-Santamaría. Since then, in collaboration with other colleagues, including Rubén C. Lois-González himself and, above all, with Valerià Paül, various studies have been published addressing a range of different themes, including foreign action and cross-border cooperation (Trillo-Santamaría and Lois-González, 2014), Eurocities (Trillo-Santamaría, Lois-González and Paül, 2015; Trillo-Santamaría, Paül and Vila-Lage, 2021), protected natural areas (Trillo-Santamaría and Paül, 2018) and the economic impact of Covid-19 in the river Miño border area (Paül et al., 2022). During these years, in addition to various undergraduate dissertations and master's projects, a number of PhD theses have been dedicated to the theme, including Carballo (2020), a study of sociocultural relations in the context of the Galician Baixo Miño/Portuguese Alto Minho, and Gusman (2021), a study of the territorial conformation of the North Region of Portugal. These two researchers also published their initial research findings in earlier studies (for example, Lois-González and Carballo, 2014; Lois-González, Escudero and Gusman, 2019).

In the case of the Spanish-French border, mention should, first, be made of the work carried out in the Department of Geography at the University of Girona. Since early studies centred on the so-called Cross-Border Catalan Eurodistrict (e.g. Castañer, Feliu and Gutiérrez, 2011), a line of research has focused on the Pyrenean context, generating an analytical methodology applicable to other borderlands (Feliu et al., 2018). Under the

supervision of Mita Castañer, two doctoral theses have been presented in the last five years, one linked to border landscapes (Pastor, 2017) and another to cross-border cooperation (Martín, 2019). Second, the Department of Geography at the Autonomous University of Barcelona has produced a body of research that includes Oliveras's 2009 doctoral thesis on the transnational space of the Mediterranean Arc. He continued his research with studies conducted at a more local scale, in particular, La Cerdanya (Oliveras, 2013); currently, Xavier Oliveras is a researcher at the Colegio de la Frontera Norte, where his work is focused on the Mexico-United States border — a border previously studied by Luna (2002) and Molla (2011). Oliveras's thesis supervisor, Antoni Durà, has led a line of work on cross-border cooperation in Europe based on comparative case studies and which has resulted in an interesting catalogue of good practices for Euroregions (Durà et al., 2018). Two young researchers have formed part of this team: Matteo Berzi, who has continued the line of research focused on La Cerdanya (e.g. Berzi and Durà, 2021), in comparison with the Alps, the subject of his doctoral thesis (Berzi, 2017); and, Camonita (2019) whose doctoral thesis examined the Sicily-Malta cross-border region. Colleagues from the disciplines of political science and sociology have actively participated in these collective works (Colomb et al., 2017; Camonita, Durà and Noferini, 2020).

Finally, it is worth noting that geographers have not set up any research groups in other areas of the Pyrenees — at least, not on the Spanish side — dedicated to cross-border cooperation. For example, in the Basque Country this theme has been widely addressed in law, with the pioneering work of Fernández de Casadevante (1985), but there are hardly any studies from a geographical perspective. Similarly, while a broad line of work related to migration and border control has been undertaken in relation to the Mediterranean border, few geographical studies on cross-border cooperation policies, supported by specific Community instruments, have been undertaken. However, Ponce and Martí's (2019) analysis of the Melilla-Nador cross-border urban complex should be singled out for attention here.

Territorial and cross-border cooperation has, not unexpectedly, attracted the attention of other disciplines; indeed, the cases of law, political science and sociology have already been mentioned above. Here, law can offer special insights into the establishment of legal agreements on either side of an international border, and we find studies ranging from the analysis of the European Framework Agreement on cross-border cooperation (1981) and its additional protocols to the regulation of the European Groupings of Territorial Cooperation (Del Valle, 2021). In the case of political science, we find, for example, the research undertaken at the University of Vigo, in conjunction with historians (Cancela, 2010; Domínguez and Varela, 2015). Finally, sociology is interested in questions related to appraisals and perceptions of the cross-border cooperation of various actors (Gualda, Fragoso and Lucio, 2011; González and Gualda, 2016). The relationship between tourism and borderlands has also attracted the interest of anthropology, as revealed by studies conducted in the Bajo Guadiana (Hernández, 2017), and of economics, as revealed by studies of the Galician-Portuguese border (Pardellas and Padín, 2013). This last discipline has also addressed the effect that the border has on economic (Balaguer and Ripollès, 2018; Abadie and Chamorro, 2021) and socioeconomic relations (Covarrubias, 2016), on labour mobility (Falagán, de Carlos and Lorenzo, 2013; Brillant, 2015) and on international trade (Santamaría, 2019). Finally,

studies linked to the educational (Moreno, Castillo and Rodríguez-Mena, 2017) and environmental sciences (Cots, 2017) should also be mentioned.

3.5 Borders and internal boundaries: the deployment of a cooperative model of territorial organization

The research described up to this point shows that the main priority has been the study of borders as territorial limits of the state, that is, its “external borders”. Thus, if we return to the studies in the previous subsection, academic models for the institutionalization of cross-border cooperation are generally associated with international borders and, for the most part, have been developed as part of the Community territorial cooperation policy at the NUTS-2/NUTS-3 level. However, a new research line has recently been developed focused on “internal borders” — that is, the boundaries or administrative limits between Spain’s regions or autonomous communities (hereinafter, ACs) and municipalities¹⁵. The aim here has been to exploit the theoretical and methodological tradition developed in studying international territorial and cross-border cooperation and to apply it within the state, since very similar effects and dynamics are detected on the borders between ACs as on international borders.

In the case of Spain, the first studies conducted in this line of research can be traced to Romero (2006), who detected problems of horizontal territorial cooperation between ACs, and García Álvarez (2008), who stressed that one of the few exceptions in this regard was the existence of various inter-AC LEADER groups created between 2000 and 2006 (LEADER+) at the margin of what might strictly be considered inter-AC cooperation and directly dependent on the Ministry of Agriculture. From a sectoral perspective, Oliveras and Trillo-Santamaría (2014) published a pioneering study on cooperation between ACs in matters of healthcare. This study openly alluded to the need to reflect on the role of internal borders by drawing on insights acquired from cross-border cooperation. Within this same line of comparative approaches, we should include the work of two groups of researchers, one linked to the Department of Geography at the University of Barcelona and the other to the Department of Geography at the USC.

The Barcelona group has developed a line of research in close collaboration with the disciplines of law and political science. Between 2015 and 2018, Joan Tort coordinated a project entitled *La articulación geográfica-administrativa del hecho fronterizo: derecho, territorio y política en la construcción del municipio de frontera* (The geographical-administrative deployment of the border: law, territory and politics in the construction of the border municipality), which studied the border municipalities between Catalonia and the

¹⁵ Interestingly, a study published in 1990 openly refers to Andalusia’s *frontera interautonómica* (that is, to its border with other ACs) and to the “border effect” of this administrative limit: “The presence of the regional boundary supposes an additional handicap for the geo-economic disengagement of this space by virtue of the specific problems and dysfunctions that derive from the *border effect*” (Romero, 1990: 1). Similarly, Menéndez (2011) analyses the border effect in the context of Asturias and Galicia. These two references, although significant, have never been directly linked to border studies nor have their lines of research enjoyed any particular continuity, although there is no denying their originality.

Valencian Community and those between Catalonia and Aragon. The project culminated in the publication of a study, jointly edited by Tort and Galindo (2018), which has been the source for subsequent works published both in journals and as book chapters (Galindo, Santasusagna and Tort, 2019, 2020; Galindo, 2020; Santasusagna, Galindo and Tort, 2020). The group's most recent publications have stressed the importance of inter-AC boundaries in the management of the Covid-19 crisis, including a comparative case study of the situation on the French-Spanish border (Galindo, 2021; Galindo, Tort and Santasusagna, 2022).

The USC group, led by Valerià Paül and Juan-M. Trillo-Santamaría, seeks to transfer the knowledge acquired about the Galician-Portuguese border to the boundaries between Galicia, Castile and Leon and Asturias. One outcome of this interest has been a study of protected natural areas in eastern Galicia and its neighbouring ACs (Paül et al., 2018; Trillo-Santamaría and Paül, 2019; Vila-Lage, Paül and Trillo-Santamaría, 2020; Paül and Trillo-Santamaría, 2021b). Recently, the group has turned its attention to the problem of inter-AC boundaries in the management of the Covid-19 crisis, a research line that has led to a parallel consideration of the problems that emerged on the Portuguese-Spanish border (Paül and Trillo-Santamaría, 2021a; Trillo-Santamaría, Paül and Vila-Lage, 2021; Trillo-Santamaría, Vila-Lage and Paül, 2022). This crisis has shown that, at times, it appears easier to reach cross-border agreements between neighbouring states — for example, the *Estrategia común de desarrollo transfronterizo España-Portugal* (Spain-Portugal Common Cross-Border Development Strategy) approved for this purpose in 2020 — than to manage horizontal territorial cooperation within the state itself (Galindo, 2021; Trillo-Santamaría, Vila-Lage and Paül, 2022).

As pointed out, this line of research is linked to studies that identify deficiencies in horizontal cooperation between ACs, conducted from within both geography (Romero, 2017; Farinós, 2019), and law (Aja, 2014). Particular mention should be made of the work of Gomis (2019), which provides an inventory of all existing formulas of inter-municipal cooperation and concludes that, strictly, there are just two *cross-border* municipal associations: one involving municipalities of Valencia and Aragon, and another in which Catalan municipalities are also included. Addressing the municipal level of governance from a perspective of borders and boundaries can also enrich urban studies. For example, the dossier produced by *Scripta Nova* (vol. 25, nº 2, 2021) is dedicated specifically to urban borders; however, this theoretical framework does not seek to enter into dialogue with border studies, but rather with the concepts of dispossession, resilience and resistance. Interestingly, disciplines such as economics have been working on the border effect in economic terms for some time, based on the seminal works of McCallum (1995)¹⁶. This is further borne out by Gil-Pareja, Llorca-Vivero and Martínez Serrano (2006), in the case of the Basque Country, and by Olloqui and Sanz (2013) and Gallego (2015), with reference to all Spain's ACs.

¹⁶ John McCallum measured the difference in intensity in trade between the states of the United States and interprovincial trade in Canada, on the one hand, and international trade flows — i.e. between a Canadian province and a state in the United States — on the other. He showed that internal trade is much greater than international trade.

4. Final reflections and future lines of work

In this brief state of the art, my primary aim has been to identify the main current lines of research in border studies as they concern Spain, emphasising the geographical perspective, but without neglecting those of related disciplines. Despite my best efforts and given the ever-increasing number of works published in this field, some studies will almost certainly have been omitted from this review. As such, my work should be seen as part of the ongoing contribution to the identification of studies related to borders, a task that needs to be taken up by future studies with ambitions to be more complete. In this way, it should be possible to both examine theoretical and methodological concerns and undertake comparative epistemologies, so that we might link and contrast case studies already published with those being prepared and those planned for the future.

Studies carried out in the neighbouring geographies of Portugal and France, which logically consider the effects on the Spanish side of the border, have not been included in this review. Indeed, as regards analyses of territorial cooperation, the number of studies produced by David Giband in France, for instance, and Eduardo Medeiros in Portugal (most recent examples include Giband and Mary, 2018; Medeiros, 2021) is notable. In comparison, far fewer studies have been identified in the neighbouring geography of Morocco, although Attou's (2020) study of Ceuta and Melilla is an obvious exception. In Andorra, the Centre for Sociological Research of the *Institut d'Estudis Andorrans* has been working on themes related to border studies for years.

However, Spain's borders have been the object of study of other foreign authors, generally linked to research visits or contacts forged with researchers based in Spain. If we limit these to geographical studies, in the 2000s, the work of Sidaway (2001) on Olivença and that of Häkli (2004) on what she called "cross-border regionalization" along the Catalan border are widely cited. More recently, it is the southern border that has captured much of the research attention. For example, Krichker and Sarma (2021) carry out a comparative study of the India-Bangladesh (Assam) and Spain-Morocco (Melilla) borders; Melilla is also the focus of Johnson and Jones (2018), who analyse it from the theoretical perspective of biopolitics and what they call the geopolitics of "border enforcement", in relation to the control of migratory movements. Ceuta is the object of study of Poulaki et al. (2020), who analyse the possibilities of cross-border movements linked to tourist activity. Finally, Gibraltar is also a case that generates great interest, as shown by Bono and Stoffelen's (2020) analysis of everyday practices in the Gibraltar-La Línea borderlands in times of Brexit.

Some of the lines of research identified in this review have yet to be fully developed — the case, for example, of artistic productions and borders, which could be usefully examined from the perspective of the geohumanities. Other lines open up what promises to be a fruitful debate about the territorial model of the Spanish state, especially those that focus their attention on Spain's internal borders. Yet, in relation to specific borderlands, little geographical attention has been directed to the Western Pyrenees.

The publications mentioned in this review maintain a certain dialogue with border studies being undertaken internationally, especially those produced by the younger generations, who have had, and maintain, contact with international networks and publish in English. I refer above all to journal articles — some of them included in special issues —, but, what we lack for the time being, despite some specific examples (Trillo-Santamaría and Pires, 2016), are any efforts to bring this work together in book

format so as to provide a collective perspective on border studies, a companion guide to the different themes it addresses, as is the case in the Anglo- (Wastl-Walter, 2011; Wilson and Donnan, 2012; Sebastianov, Laine and Kireev, 2015; Scott, 2020a) and Francophone worlds (Amilhat-Szary and Hamez, 2020; Cattaruzza, Monot and Paris, 2020; Sierra, 2020). Mention, however, should be made here of a recent work that seeks to introduce border themes into current debates in geography (Farinós, Ojeda and Trillo-Santamaría, 2019), although it does not limit itself solely to such questions. Yet, it provides evidence of interest in the subject's theoretical dimension (Lois-González, 2019), the perspective provided by historical geography as linked to modern delimitation processes (García Álvarez, 2019), cross-border cooperation (Durà et al., 2019; López Trigal, 2019) and considerations of internal borders (Galindo, Santasugana and Tort, 2019; Trillo-Santamaría and Paül, 2019).

Achieving higher levels of output and a wider dissemination of border studies research in Spain may require (beyond, that is, specific projects in which researchers from different centres collaborate) promoting two objectives: on the one hand, establishing stable research networks, that can link different groups working on border studies in a permanent and active fashion (at times it is evident that studies are being undertaken in parallel but with little cross-dialogue that might lead to better outcomes); and, on the other, and perhaps as a subsequent step, a collective research centre might be created, which could also bring together researchers from other latitudes, in particular, from neighbouring countries. International references in this regard are provided by such centres as the Nijmegen Centre for Border Research (NCBR; Radboud University, Netherlands), the UniGR-Center for Border Studies (linked to seven universities of the Greater Region, located between Germany, France, Belgium and Luxembourg), the Centre for International Borders Research (CIBR; Queen's University, Ireland) and the International Boundaries Research Unit (IBRU; Durham University, Great Britain).

Examples also exist of networks supported by ambitious global research projects. This is the case, for example, of BIG-Borders in Globalisation, linked to the University of Victoria, which publishes its own journal (*BIG Review*). Meanwhile, at a more modest scale, we find in Latin America, GEFRE-*Grupo de Estudios sobre Fronteras y Regiones* (Study Group on Borders and Regions), operating in a context that has seen considerable growth in border studies thanks to a number of leading publications, including *Estudios Fronterizos* published by the Autonomous University of Baja California. It is certainly not beyond the realms of the imagination to think of the possibility of a specific, collectively produced, journal dedicated to border studies, which without seeking to imitate the *Journal of Borderlands Studies* or *Estudios Fronterizos*, might hope to emulate in some ways the *BIG Review*.

In a country such as Spain, which shares borders with five States (France, Portugal, Andorra, Great Britain and Morocco), the idea of such a research centre is not so outlandish. It could serve as a place where specialists from different organizations and institutions might collaborate. As well as the universities, it could usefully be supported by the Spanish Geographical Association (AGE), the Spanish Geographical Society (SGE) — which dedicated the 69th issue of the *Boletín SGE* to the subject —, the Elcano Royal Institute (RIE) and the Spanish Institute for Strategic Studies (IEEE). The collaboration of these institutions, for example, would be important for strengthening border studies in relation to international geopolitics, a subject that, to date, has attracted

little attention in Spanish geography. However, publications in this line have begun to appear, including the Geopolitical series edited by the *Síntesis* publishing house (2020-2021), with four of its six titles being the work of geographers, and recent studies of Eastern Europe and the Balkans (Bernabé, 2020 and 2021).

In short, there is clearly a need to continue probing into the different themes that emerge once it is understood that borders are not merely devices for delimiting and demarcating national state territory, but that they have also to be considered in their ontological plurality, at a range of different scales and levels. And in undertaking this epistemological task, a geographical perspective is undoubtedly critical as is the contribution of the other human and social sciences that can help discern the multiplicity of facets — social, territorial, political, cultural and economic — affected by the border.

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Biogeography as a discipline for landscape conservation, planning and management. Characterisation and biogeographical assessment of sessile oak forests in the north of the Iberian Peninsula

Pedro José Lozano Valencia
ORCID: 0000-0002-1345-5704

Universidad del País Vasco/Euskal Herriko Unibertsitatea.

María Cristina Díaz Sanz
ORCID: 0000-0002-9830-9545
Universidad de Castilla La Mancha.

Asier Lozano Fernández
ORCID: 0000-0002-3013-4929
Universidad del País Vasco/Euskal Herriko Unibertsitatea.

Rakel Varela Ona
ORCID: 0000-0001-5079-0627
Universidad del País Vasco/Euskal Herriko Unibertsitatea.

Guillermo Meaza Rodriguez
ORCID: 0000-0003-0705-2631
Universidad del País Vasco/Euskal Herriko Unibertsitatea.

Abstract: One of the main aspects of biogeography is its applied nature. thus, it is configured as a first-order tool for the conservation, planning and management of the landscape. Aware of this, the lurralte-on research group has been inventorying, characterizing and evaluating different patches of petrano oak (*Quercus petraea*) in the north of the Iberian Peninsula. Its relict, finicky and rare character means that it must be considered for its protection and correct management. We have worked on examples from the autonomous communities of Aragón, Navarra, Basque country and Castilla-León. The methodology used - lanbioeva (acronym of "landscape biogeographical evaluation") - is a tool for the analysis, diagnosis and management of biotic units and landscapes. Through a systematic inventory of 10 plots in 5 different patches, we are able to establish a good characterization of these forests, as well as their biogeographical evaluation. All these patches have important records in terms of conservation interest due to their broad territorial, mesological and cultural values. On the other hand, the conservation priority also shows important scores due to their scarcity and the existence of anthropic threats that should be reversed or controlled.

1. Introduction

One of the main tasks of Geography and of the geographer must be that which seeks to solve the most pressing problems of the present day. Global warming, the disappearance of species, the necessary balance between the integral development of societies and the conservation of an adequate and quality environment are some of the problems we face in our daily work.

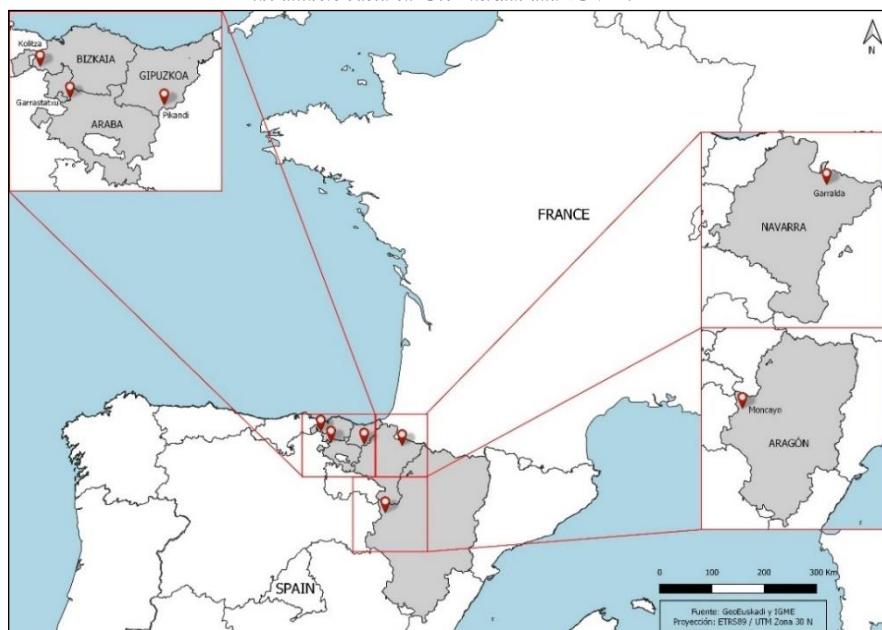
To a large extent, all the environmental, territorial, urban and landscape planning figures... must pursue this type of objectives and help in the achievement of the millennium objectives. In this context, for more than 30 years, the geographically rooted Biogeography and, specifically, the Lurralde-on research group has been working on planning figures where landscapes or plant groupings are characterised, evaluated and assessed biogeographically on a global scale (Lozano et al., 2021). To date, more than 200 plant groupings or landscapes in Europe, America and Africa have been studied and evaluated, so that a methodological and knowledge corpus has been accumulated that provides a good data base for establishing the necessary comparisons to generate adequate planning that contributes to the correct conservation, development and management of landscapes, as advocated by the European Landscape Convention (Council of Europe, 2000).

The role of the biogeographer must necessarily focus on taking the necessary and correct technical and methodological steps to, as in this case, firstly, prospect the territory in order to map and locate the different patches of sessile oak forest [*Quercus petraea* (Mattuschka), Liebl]. In this case, the research group has been working for autonomous governments such as those of the Basque Country and Aragon, as well as for other administrative levels (provincial councils, town councils, etc.). Once the different populations have been located and mapped, it is necessary to obtain a good characterisation of each of the patches, so that a complete inventory of each of them is necessary. Based on a faithful and complete knowledge of its floristic composition and various ecological parameters, an analysis and diagnosis of its situation and state is undertaken in order to subsequently, by means of the LANBIOEVA methodology, undertake an in-depth assessment of each of the patches that will allow a subsequent evaluation of the situation of this forest landscape, which is so interesting and important due to its scarcity and danger of disappearance.

The sessile oak (*Quercus petraea*) is a tree species whose territorial distribution covers southern, central and western Europe and western Asia. In the Iberian Peninsula it shows very scattered patches, of limited extension, and always distributed throughout the northern half of the territory (except in Galicia). In fact, these patches are confined to mountain ranges such as the Cantabrian, the Basque and Cantabrian mountains, some foothills in the north of Burgos and isolated patches in the westernmost sector of the Iberian Cordillera (the largest, southernmost and easternmost patch is located in the Moncayo mountain range). The Central System is also home to sessile oak, but in the best of situations, these are small stands - if not isolated specimens - and on the mid-slopes. In the Serranía de Cuenca it reaches its southernmost populations (Blanco et al., 1997). From all this we can conclude that it is a relatively scarce taxon in the Iberian Peninsula where, at present, it maintains scarce and not very extensive populations in relatively inaccessible and often protected mountain systems, which is benefiting the scarce remnants.

The presence of sessile oak in the Iberian Peninsula dates back at least to the Upper Pleistocene (Pèlach et al., 2007; Gassiot et al., 2014). At the beginning of the Holocene, with the tempering of the Quaternary cold, it colonised the territory previously occupied by tundra and taiga formations. However, its populations began to dwindle when, perhaps weakened by the climatic crisis of the Boreal period, it had to compete in the Sub-Atlantic with *Fagus sylvatica*, a species that has since then caused it to disappear from the highest reaches of its initial potential jurisdiction (Loidi, 1983; Streiff, 1998; Pèlachs et al. 2016). Nowadays it is common to find patches of this forest type between 700-800 metres at its lowest limit and 1,000-1,200 metres at its highest (Lozano et al., 2021). It can therefore be stated, therefore, that it occupies the transitional band between the hill and mountain floors, within the Eurosiberian jurisdiction of the Iberian Peninsula. This is the case in four of the populations studied: Pikandi (Gipuzkoa), Garralda (Navarra), Garrastatxu (Bizkaia) and Monte Kolitza (border between Las Encartaciones de Bizkaia and Las Merindades de Burgos) (Figure 1), where this formation is located in the ecotone between *Quercus robur* forests in the lower part and *Fagus sylvatica* forests in the upper part. Here, the patches are unconnected and relatively small due to the heavy pressure that these areas have been subjected to both through deforestation and the cultivation of timber crops of species such as *Pinus radiata*, *Chamaecyparis lawsoniana* or *Picea abies*. In the inland Mediterranean area, it is always found in relatively high mountainous areas, as in the case of Moncayo (Figure 1), where it is found between 900 and 1,400 m above sea level. In the latter case, moreover, the orientation is to the northwest, which is where the wettest masses come from as they travel along the Cantabrian Coast and the Ebro Valley.

Figure 1. Location of the *Quercus petraea* forests inventoried, characterised and assessed to date. Prepared by the authors based on GeoEuskadi and IGME.



Everything seems to indicate that *Fagus sylvatica* was originally found in the Carpathian Mountains during the last glacial maximum and that, from these refuges, once the influence of the ice mass began to diminish, it colonised new areas towards the west, until it reached the Iberian Peninsula (Bennet, et al., 1991). However, according to these same authors, it is possible that, although the Carpathian Mountains were the original nucleus of dispersal, during the last glaciation there may have been small, more or less isolated refuges in the Balkans, the Alps and the Italian mountains. In any case, everything seems to indicate that *F. sylvatica* reached the Iberian Peninsula from the east, through the eastern Pyrenees 4,500 years ago (Jalut, 1988; Peñalba, 1994; Sánchez-Goñi and Hannon, 1999) and the Cantabrian Mountains between 4,000 and 3,500 years ago (Peñalba, 1994; Sánchez-Goñi and Hannon, 1999). This leads us to suggest that, prior to these dates, the montane floor now occupied by beech was previously colonised by sessile oak; and that, over the last 4,500 years, the latter has been progressively reducing its extent not only in patches and populations but also in overall metapopulation. Thus, at present, the last wooded extensions of this species survive; however, due to its frequent location within protected areas, this has not prevented a slight increase in its overall surface area.

2. Objectives

The main objective of the present work consists of characterising, inventorying and biogeographically assessing, using LANBIOEVA methodology, the patches studied to date (in the last 5 years) of *Quercus petraea* forests or forest remnants in the central sector of the northern Iberian Peninsula.

The method used makes it possible to obtain a series of indices and partial and global valuations that can provide the manager with a series of data for the correct protection, management and planning of these natural resources, as advocated by the CEP.

3. Methodology

3.1 Biogeographical inventory

The inventory model has been tested, contrasted and applied on successive occasions in order to collect all the geographical, environmental, heritage and biogeographical data necessary for the correct characterisation and subsequent evaluation of each of the areas detected and inventoried. Once the different areas to be studied had been delimited, the location of the plots (10 in each of them) was determined using a stratified and random method established within the Arcview 8.2 Geographic Information System (GIS). For each of the inventories or 20 x 20 m plots, the location and identification data of the site (UTM coordinates, toponyms, etc.), general geographical and environmental aspects and features, photographs of the plot, etc. are obtained. Next, the degree of cover of the muscinal, lichen and fungal tapestry is noted according to the growing substrate (epiphytes and terricolous-saxicolous), as well as that of leaf litter and of the soil or bare rock itself. The plots and inventories were visited three times during the year in order to avoid bias due to phenology and seasonality.

A sigmatistic valuation method of the Braun Blanquet school was used to determine the coverages, with a scale of 6 classes ($r =$ less than 1%, 1 between 1% and 10%, 2 between 10.1% and 25%, 3 between 25.1% and 50%, 4 between 50.1% and 75% and 5 between 75.1% and 100%) for each of the strata (more than 5 m (A), between 1 and 5

m (B), between 0.5 and 1 m (C) and below 0.5 m (D)) and the overall vegetation grouping; between 1 and 5 m (B); between 0.5 and 1 m (C) and below 0.5 m (D)] and the overall plant grouping. In summary, all the species divided into large physiognomic groups (trees and shrubs, bushes and climbers and herbaceous) are noted, and each of them is given a cover value within the 4 strata it can potentially occupy. In the case of trees, cover is estimated above 5 m, but also in the intermediate strata (B, C and D). In the case of herbaceous plants, logically, the cover of D is estimated and for those that exceed this, the cover they occupy within C is estimated. Afterwards, the global coverage of each of the collected species is estimated, i.e. calculated according to the three-dimensional space it occupies within the 20 by 20 metre surface area and also in height.

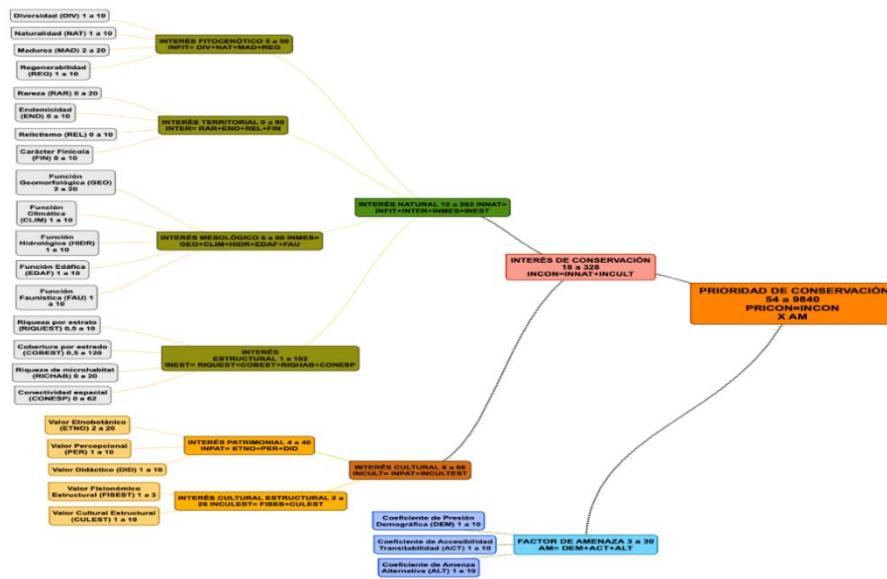
Before assessing the cover of mosses, lichens, fungi, leaf litter and bare soil or rocks, the number of species occurring in each of the 4 strata is counted. The overall cover of each of the strata (A, B, C and D) is then estimated in the same way as for the species. For the sake of accuracy, the cover data for each of the species in the 10 plots are converted to mean cover values. In the same way, the number of times that each taxon appears in each of the analysed patches is also specified. In this way we can perfectly characterise each of the forest stands analysed and compare them with the others.

3.2 Biogeographical evaluation

The LANBIOEVA valuation methodology is based on two fundamental and distinct valuation concepts: Conservation Interest and Conservation Priority. The first of these results from the sum of the ratings obtained for natural interest and cultural interest. The natural is composed of four groups of criteria: phytocoenotic, territorial, mesological and structural. Phytocoenotic interest encompasses intrinsic vegetation and landscape characteristics such as diversity, naturalness, maturity and spontaneous regeneration or resilience; territorial interest considers the attributes of rarity, endemicity, relict and finicultural character; the mesological evaluates geomorphological, climatic, hydrological, edaphic and faunal functions at a local scale; the structural evaluates richness per stratum, cover per stratum, microhabitat richness and connectivity and extent of vegetation patch. Cultural interest, on the other hand, takes into account two groups of values: heritage, which evaluates three sub-criteria (ethnobotanical, perceptual and didactic value), and structural cultural, which takes into account structural physiognomic value and structural cultural value.

The Conservation Priority is obtained by multiplying the Conservation Interest by the Threat Factor for the vegetation unit concerned. This is calibrated according to three parameters: population pressure, accessibility-transitability and alternative hazards. The population pressure coefficient gives priority to or penalises situations of high or low population density, with greater or lesser danger of alteration of the vegetation; the accessibility-transitability coefficient values the greater or lesser ease of access to the enclave, and the "friction" it shows to human traffic; the alternative threats coefficient calibrates other types of risks and dangers to which the integrity of the plant grouping concerned may be subjected (Figure 2).

Figure 2. Flow chart of the LANBIOEVA biogeographic valuation methodology. Own elaboration.



4. Results and discussion

Table 1 shows the syninventories or synthetic inventories for each of the locations where characterisations and assessments have been carried out.

Table 1. Synthetic inventories for each of the locations. Source: Own elaboration.

TAXONS	Pikandi	Garralda	Garrastaxu	Kolitzia	Moncayo	Nº de veces
<i>Quercus petraea</i>	4	4	4	4	4	5
<i>Acer campestre</i>		1				1
<i>Acer monspessulanum</i>					r	1
<i>Alnus glutinosa</i>	r					1
<i>Arbutus unedo</i>			2	1		2
<i>Betula celtiberica</i>				2		1
<i>Betula pendula</i>	r	r			r	3
<i>Buxus sempervirens</i>		2				1
<i>Castanea sativa</i>	r	1		2	r	4
<i>Chamaecyparis lawsoniana</i>				r		1
<i>Corylus avellana</i>	1	1		1		3
<i>Crataegus monogyna</i>	r	1		1	1	4
<i>Cytisus scoparius</i> subsp. <i>scoparius</i>					r	1

	<i>Erica arborea</i> subsp. <i>arborea</i>	r		1	1	2	4
	<i>Fagus sylvatica</i>	2	2	r	1		4
	<i>Frangula alnus</i> subsp. <i>alnus</i>	1	r		r		3
	<i>Fraxinus excelsior</i>		1		r	r	3
	<i>Ilex aquifolium</i>	2	r		3	r	4
	<i>Juniperus communis</i> subsp. <i>communis</i>		r			r	2
	<i>Larix decidua</i>	r					1
	<i>Ligustrum vulgare</i>					1	1
	<i>Malus sylvestris</i>					r	1
	<i>Pinus nigra</i>				r		1
	<i>Pinus sylvestris</i>					r	1
	<i>Populus tremula</i>		r				1
	<i>Prunus avium</i>	r	r			r	3
	<i>Prunus laurocerasus</i>				r		1
	<i>Prunus spinosa</i>		r		r	1	3
	<i>Pyrus cordata</i>		r		r		2
	<i>Quercus ilex</i> subsp. <i>ilex</i>				1		1
	<i>Quercus ilex</i> subsp. <i>rotundifolia</i>					r	1
	<i>Quercus pubescens</i>		r				1
	<i>Quercus pyrenaica</i>			1	2	1	3
	<i>Quercus robur</i>	r			2		2
	<i>Quercus</i> x <i>andegavensis</i>				r		1
	<i>Quercus</i> x <i>cahrescens</i>		r				1
	<i>Quercus</i> x <i>rosea</i>	1			r		2
	<i>Quercus</i> x <i>trabuti</i>			1	r		2
	<i>Sorbus aria</i>	r	r	r	1	r	5
	<i>Sorbus aucuparia</i>	1	r			r	3
	<i>Sorbus torminalis</i>	r		r		r	3
	<i>Taxus baccata</i>	r			r		2
	<i>Tilia platyphyllos</i>		r				1
	<i>Ulmus glabra</i>		r				1
BUSHES AND CLIMBERS	<i>Vaccinium myrtillus</i>	3	1	2	3		4
	<i>Calluna vulgaris</i>	1		1	r	r	4
	<i>Clematis vitalba</i>		1				1
	<i>Cytisus scoparius</i> subsp. <i>cantabricus</i>		r		r		2
	<i>Daboecia cantabrica</i>	1		1	2		3

	<i>Daphne laureola</i> subsp. <i>laureola</i>	r			r		2
	<i>Erica vagans</i>	1		r	2	r	4
	<i>Genista florida</i>					r	1
	<i>Hedera helix</i>	1	3	1	2	r	5
	<i>Hypericum androsaemum</i>	r			3		2
	<i>Hypericum pulchrum</i>				r	r	2
	<i>Lithodora prostrata</i> subsp. <i>prostrata</i>				r		1
	<i>Lonicera etrusca</i>					2	1
	<i>Lonicera implexa</i>					r	1
	<i>Lonicera periclymenum</i> subsp. <i>periclymenum</i>	1	3	1	3		4
	<i>Rosa arvensis</i>				4	1	2
	<i>Rosa canina</i> subsp. <i>squarrosa</i>		2		r		2
	<i>Rubia peregrina</i>				r	1	2
	<i>Rubus idaeus</i>				r		1
	<i>Rubus ulmifolius</i>	1	2	1	3	1	5
	<i>Ruscus aculeatus</i>	1		r	1	r	4
	<i>Smilax aspera</i>				2		1
	<i>Tamus communis</i>		2		r	r	3
HERBÁCEAS	<i>Agrostis curtisi</i>	r		1	r		3
	<i>Ajuga reptans</i>	r			1		2
	<i>Anemone nemorosa</i>	r	2		r		3
	<i>Angelica major</i>				r		1
	<i>Anthoxanthum odoratum</i>					r	1
	<i>Aquilegia vulgaris</i> subsp. <i>vulgaris</i>	r			r		2
	<i>Arenaria grandiflora</i> subsp. <i>grandiflora</i>		r				1
	<i>Arenaria montana</i> subsp. <i>montana</i>					r	1
	<i>Arum italicum</i>		r				1
	<i>Asphodelus albus</i>		2		r	r	3
	<i>Asplenium adiantum-nigrum</i>				r		1
	<i>Asplenium trichomanes</i>		r				1
	<i>Blechnum spicant</i>	1		1	1		3

<i>Brachypodium sylvaticum</i> subsp. <i>sylvaticum</i>	1	1	1	1	1	5
<i>Cardamine hirsuta</i>	r			r		2
<i>Carex sylvatica</i> subsp. <i>sylvatica</i>	r			r		2
<i>Cephalanthera damasonium</i>		r				1
<i>Circaea lutetiana</i> subsp. <i>lutetiana</i>	r					1
<i>Conopodium pyrenaeum</i>				r		1
<i>Crepis capillaris</i>		r				1
<i>Dactylis glomerata</i> subsp. <i>glomerata</i>		2		r	1	3
<i>Deschampsia flexuosa</i>	1	3	1	1	1	5
<i>Digitalis purpurea</i> subsp. <i>purpurea</i>				r		1
<i>Dryopteris affinis</i> subsp. <i>affinis</i>				1		1
<i>Dryopteris expansa</i>				r		1
<i>Erythronium dens-canis</i>	r					1
<i>Euphorbia amygdaloides</i> subsp. <i>amygdaloides</i>	r	1		r		3
<i>Euphorbia dulcis</i>	r	r	r	r		4
<i>Festuca</i> sp.				r		1
<i>Festuca paniculata</i>					1	1
<i>Fragaria vesca</i>		1			r	2
<i>Galeopsis carpetana</i>					r	1
<i>Galium odoratum</i>					r	1
<i>Geranium robertianum</i>		1		1		2
<i>Geum urbanum</i>		1				1
<i>Helleborus viridis</i>		r				1
<i>Hepatica nobilis</i>		1				1
<i>Hieracium murorum</i>					r	1
<i>Holcus mollis</i>		r		1		2
<i>Iris graminea</i>		1				1
<i>Lamium galeobdolon</i> subsp. <i>montanum</i>		1				1
<i>Laserpitium latifolium</i>				r		1

<i>Laserpitium prutenicum</i> subsp. <i>dufourianum</i>		1				1
<i>Lathraea clandestina</i>	r					1
<i>Lathyrus linifolius</i> var. <i>montanus</i>		r		r		2
<i>Lilium martagon</i>				r	1	2
<i>Lilium pyrenaicum</i>				r		1
<i>Luzula forsteri</i>				r	r	2
<i>Luzula sylvatica</i> subsp. <i>henryesii</i>	r			1		1
<i>Lysimachia nemorum</i>	r			r		2
<i>Melampyrum pratense</i>	r	1		1	1	4
<i>Melica uniflora</i>		1			2	2
<i>Orchis purpura</i>		r				1
<i>Oreopteris limbosperma</i>	1	r	r			3
<i>Oroblanchaceae</i>		r				1
<i>Oxalis acetosella</i>	r		r	1		3
<i>Phyteuma pyrenaicum</i>	r					1
<i>Piris hieracoides</i>		r				1
<i>Pilosella officinarum</i>				r		1
<i>Poa nemoralis</i>					1	1
<i>Polystichum setiferum</i>	r					1
<i>Polygala serpyllifolia</i>	r					1
<i>Polygonatum odoratum</i>	r	r		r		3
<i>Polypodium vulgare</i>		2		1	1	3
<i>Polystichum setiferum</i>				r		1
<i>Potentilla erecta</i>	r		1	r		3
<i>Primula acaulis</i> subsp. <i>acaulis</i>		2		r		2
<i>Primula veris</i>					r	1
<i>Prunella hastifolia</i>					r	1
<i>Pseudarrhenatherum longifolium</i>				1		1
<i>Pteridium aquilinum</i>	1	2	2	1		4
<i>Pulmonaria longifolia</i>		r				1
<i>Ranunculus nemorosus</i>		1		r		2
<i>Ranunculus tuberosus</i>	1					1
<i>Saxifraga hirsuta</i> subsp. <i>hirsuta</i>	r			r		2

<i>Scrofularia canina</i>		r				1
subsp. <i>canina</i>						
<i>Sedum forsterianum</i>					r	1
<i>Senecio sp.</i>		1		r		2
<i>Serratula tinctoraea</i>	r					1
subsp. <i>seoanei</i>						
<i>Silene latifolia</i>		r				1
subsp. <i>alba</i>						
<i>Silene nutans</i> subsp.				r		1
<i>nutans</i>						
<i>Silene vulgaris</i>				r		1
subsp. <i>vulgaris</i>						
<i>Simethis mattiazzii</i>				r		1
<i>Sisymbrium austriacum</i>				r		1
<i>Solidago virgaurea</i>	1	r		1		3
<i>Stachys officinalis</i>	r	r		r	1	4
subsp. <i>officinalis</i>						
<i>Stellaria media</i>		2		1		2
<i>Symplytum tuberosum</i>		r				1
<i>Taraxacum officinale</i>		1				1
<i>Teucrium scorodonia</i>	r	3	1	r	1	5
<i>Umbilicus rupestris</i>				r		1
<i>Veronica chamaedrys</i>		2			r	2
<i>Veronica montana</i>				r		1
<i>Veronica officinalis</i>					r	1
<i>Vicia cracca</i>		r				1
<i>Vicia sativa</i> subsp.			2			1
<i>cordata</i>						
<i>Vicia sepium</i>					r	1
<i>Viola reinchenbachiana</i>					1	1
<i>Viola riviniana</i>	r	1		r		3
Líquenes ligados						
troncos y ramas	3	3	3	1	2	5
Líquenes ligados a						
suelo y rocas	3	2	4	r	1	5
Musgos en						
troncos	3	2	3	1	1	5
Musgos en rocas y						
suelos	3	3	3	1	2	5
Hongos	3		r	r	1	4
Hojarasca	4	3	3	1	4	5

Suelo o roca desnuda	4	2	3	1	5
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As can be seen, the total number of taxa found in the 5 study sites corresponds to 44 trees and shrubs, 23 shrubs and climbers and 102 herbaceous plants. The diversity is quite high (Lozano et al, 2021), especially if we take into account the number of taxa that are repeated in different locations. As can be seen, the total number of taxa found in the 5 study sites corresponds to 44 trees and shrubs, 23 shrubs and climbers and 102 herbaceous plants. The diversity is quite high (Lozano et al, 2021), especially if we take into account the number of taxa that are repeated in different locations. This is only the case for *Quercus petraea* and *Sorbus aria* in trees and shrubs; *Hedera helix* and *Rubus ulmifolius* in bushes and climbers; and *Brachypodium sylvaticum* subsp. *sylvaticum*, *Deschampsia flexuosa* and *Teucrium scorodonia* in herbaceous plants. Thus, only 4.1% would be represented in all locations. Most of these taxa, moreover, are clearly acidophilic or indifferent to the acidity of the substrate. The following trees and shrubs appear on 4 occasions: *Castanea sativa*, *Crataegus monogyna*, *Erica arborea* subsp. *arborea*, *Fagus sylvatica* and *Ilex aquifolium*, in bushes and climbers: *Vaccinium myrtillus*, *Calluna vulgaris*, *Erica vagans*, *Lonicera periclymenum* subsp. *periclymenum* and *Ruscus aculeatus*; and in herbaceous plants: *Euphorbia dulcis*, *Melampyrum pratense*, *Pteridium aquilinum* and *Stachys officinalis* subsp. *officinalis*. Thus, only 8.3% would appear in 4 of the 5 locations. As was the case previously, most of the taxa noted show a clear tendency towards soils with an acid pH. The taxa found in 3 of the 5 locations were *Betula pendula*, *Corylus avellana*, *Frangula alnus* subsp. *alnus*, *Fraxinus excelsior*, *Prunus avium*, *Prunus spinosa*, *Quercus pyrenaica*, *Sorbus aucuparia* and *Sorbus torminalis* in trees and shrubs; *Daboecia cantabrica* and *Tamus communis* in bushes and climbers; and *Agrostis curtisii*, *Anemone nemorosa*, *Asphodelus albus*, *Blechnum spicant*, *Dactylis glomerata* subsp. *glomerata*, *Euphorbia amygdaloides* subsp. *amygdaloides*, *Oreopteris limbosperma*, *Oxalis acetosella*, *Polygonatum odoratum*, *Polypodium vulgare*, *Potentilla erecta*, *Solidago virgaurea* and *Viola riviniana* in herbaceous plants. This means that 15% of the taxa are found in 3 of the 5 locations studied. Acidophilic species or those indifferent to the pH of the substrate continue to dominate, as well as hygrophilous species or those with a chorological affiliation typical of the Atlantic or Eurosiberian world, i.e. taxa that like a certain soil and environmental humidity, more typical of the Atlantic side of Spain or of mountain areas where rainfall and relative humidity are higher. With 2 locations, 7 trees or shrubs, 7 shrubs and/or climbers and 18 herbaceous plants, i.e. 19%, would be found, so that most of them would only occur in one of the five locations studied: 21 trees or shrubs, 7 shrubs and climbers and 61 herbaceous plants. Thus, 53% of all the taxa detected are confined to only one of the locations studied.

Table 2 shows the number of taxa by location and by physiognomic group.

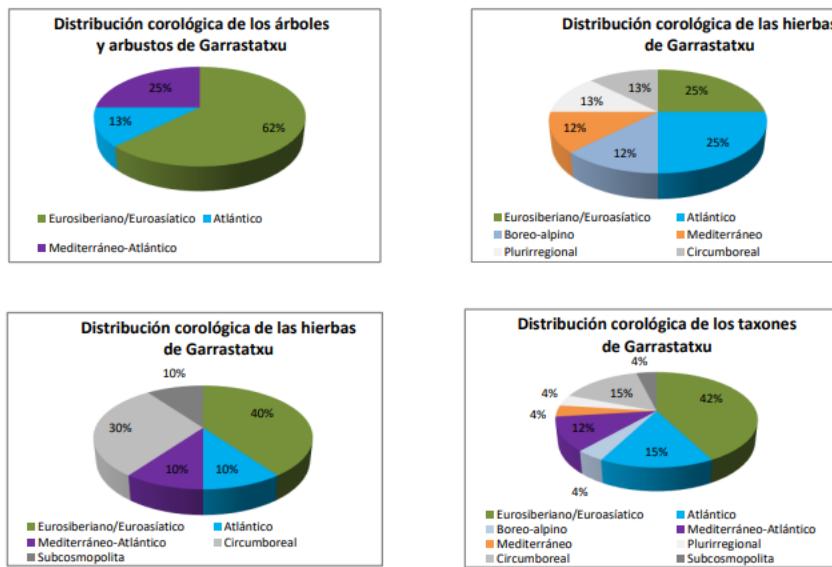
Table 2. Number of taxa by physiognomic groups located in each of the 5 locations. Own elaboration

	Pikandi	Garralda	Garrastatxu	Kolitza	Moncayo
Trees and shrubs	18	22	8	24	20
Shrubs and climbers	10	8	8	19	12

Herbaceous	31	47	10	53	26
Total	59	77	26	96	58

As can be seen, the numbers of taxa, both in general and for the different physiognomic groups, are relatively disparate, with minimum numbers in the case of Garrastatxu. In general, and with the exception of Garrastatxu, the number of trees and shrubs is relatively high compared to other plant groupings on a global scale (Lozano et al., 2020). It ranges from 18 in Pikandi to 24 in Kolitza. In bushes and climbers, however, there are notable differences between the only 8 taxa in Garralda and Garrastatxu and the 19 in Kolitza. In herbaceous plants there are also notable differences, with very high records for Kolitza, high for Garralda, moderate for Moncayo and Pikandi and, once again, low for Garrastatxu. In total numbers, Kolitza shows the highest taxon richness compared to plant groupings in the same bioenvironmental context (Lozano et al., 2021). Moncayo, Garralda and Pikandi show a relatively similar number, while Garrastatxu has a very small number. In the latter case, the oak grove is relatively mono cornered, standing on a very steep slope, with slopes of over 60%, on acid substrates and with little edaphic development. The forest is not particularly mature, but the canopy does not let too much light into the undergrowth. At the other end of the scale, the Kolitza oak grove shows quite an important geodiversity. Although acidic substrates dominate, we also find neutral pH, a high diversity of orientations and slopes, and some human modification, so that there are tesserae of young and to some extent dense forest, but others relatively mature and open, even on rocky and steep slopes. The geo-environmental diversity therefore favours greater taxonomic diversity. In general, these are patches on high slopes, with poorly developed substrates, normally leptosols or even lithosols, on relatively acid colluvium - with the exception of Garralda, where some patches are established on calcareous substrates, but with a neutral or slightly acid pH - and, above all, areas under some form of protection - with the exception of Kolitza -, which has meant that these stands have evolved favourably in recent years. It should be noted that we cannot propose a syninventory or synthetic list that would bring together and characterise all the oak groves studied. As can be seen, more than half of the taxa are confined to a single location. In any case, acidophilic species or those indifferent to soil pH dominate, and the main competitor of *Quercus petraea* is *Fagus sylvatica*, which appears in 4 of the 5 locations and with relatively high cover. Thus, the first conclusion to be drawn is the great variability in taxa, as more than half of them correspond to only one location. It is true that we have studied unconnected and relatively separate patches; but 3 of them are located on the Cantabrian coast of the Basque Country; another in the transition between the Cantabrian and the Mediterranean, but with a relatively northern location within Navarre; and one more in the Moncayo, clearly located in an inland Mediterranean context, but at a high altitude of more than 800 metres, which gives it a more humid and Euro-Siberian component. Figure 3 shows the chorological ascriptions of the taxa detected in each of the locations.

Figure 3. Chorological phyla of the taxa inventoried in each of the 5 study locations. Own elaboration.



In the 5 locations there is a clear dominance of Euro-Siberian or Eurasian components or affiliations, which exceed 50%. The only exception is Garrastatxu, where the Atlantic component is much higher than in the previous locations. The Mediterranean adscriptions are quite reduced, reaching the highest percentage in the Hercynian massif of Moncayo, with 12%, where the arrangement of the sessile oak grove responds, in part, to the regional context of the inland Mediterranean area; in the rest of the locations, located in the Atlantic or transition area, they are very reduced (between 3% in Pikandi and 6% in Kolitza and Garralda). Some authors (López, 1982; Rivas et al., 1991) state that the Petrano oak woodland would be a clear indicator of transitional conditions between the Atlantic and the Mediterranean, in a bioclimatic environment that we could define as sub-Atlantic or sub-Mediterranean. Therefore, taxa showing the transition between these two worlds are not negligible either. Curiously, Moncayo has the poorest record in this respect, with 2% of taxa, while in Garrastatxu they would account for 12% and would be the third largest chorological component. We cannot therefore fully agree with the assertion that the sessile oak grove is linked to a transitional sector since, in view of what has been observed in these five patches, the Euro-Siberian character is very clear.

If we look at the wide-ranging territorial affiliations (pluri-regional, circumboreal and sub-cosmopolitan), which are normally related to anthropophilous taxa, the largest records would be those from Moncayo (9%), where the forest, which was heavily managed and with a proliferation of tree stumps until relatively recently, is now protected. In second place is Kolitza, with 14%, which is also in a highly pressured environment, mainly due to repopulation with allochthonous species for pulp and paper. In this case, there is no protection status, so the oak woodlands are heavily exploited and at risk of disappearing. Third place goes to Pikandi, with 15% and within the Aizkorri

Natural Park; fourth to Garralda, with 21% of these anthropophilic species and, although protected, under clear human management/intervention; and finally, within the Gorbea Natural Park, but subject to intensive cutting or grazing until very recently, Garrastatxu, which has almost a quarter of the species included in these categories.

Closely related to the above are the introduced species. Only in one case, that of Kolitza, have taxa been detected in this category, which is related to the aforementioned plantations with allochthonous species; specifically, *Chamaecyparis lawsoniana* and *Pinus nigra*, which form part of the oak grove, albeit with very low cover, less than 1%.

The percentage of taxa endemic to these forests is not negligible either. Perhaps the richest is Kolitza, where *Cytisus scoparius* subsp. *cantabricus* (endemic to the north of the Iberian Peninsula and the south of France), *Lilium pyrenaicum* (endemic to the Cantabrian-Pyrenees), *Luzula sylvatica* subsp. *henriquesii* (endemic to the west of the Iberian Peninsula), *Angelica major* (endemic to the northern half of the Iberian Peninsula) and *Conopodium pyrenaicum* (endemic to the Pyrenees and other mountains of the Iberian Peninsula). No endemism was detected in the albar oak groves of Moncayo and Garrastatxu, but in the other two locations: in Pikandi *Luzula sylvatica* subsp. *henriquesii* and *Lathraea clandestina* (endemic to western Europe), and in Garralda *Cytisus scoparius* subsp. *cantabricus*.

It is worth noting the ease with which sessile oak can hybridise with other species of the same genus. In the case of Pikandi, hybrids of *Q. petraea* and *Q. robur* (*Q. x rosacea*) could be found; in Garralda *Q. petraea* and *Q. pubescens* (*Q. x calvescens*); in Garrastatxu *Q. petraea* and *Q. pyrenaica* (*Q. x trabutii*); in Kolitza, in addition to the above, *Q. pyrenaica* x *Q. robur* (*Q. x andegavensis*); no hybridisation was found in Moncayo.

Table 3 shows the assessment results for the 5 examples of sessile oak groves.

Table 3. Biogeographical valuations by criteria and interests of the different Petran oak groves analysed and following the LANBIOEVA methodology. Own elaboration.

VALUATION		PARAMETERS	Pikandi	Garralda	Garrastatxu	Kolitza	Moncayo
INCON	INFIT	DIVERSITY	7,1	7,1	5,1	8,0	5,8
		NATURALITY	9,9	10,0	10,0	9,9	9,9
		MATURITY (x2)	20,0	20,0	20,0	17,6	18,0
		REGENERABILITY	10,0	10,0	10,0	7,9	7,0
		SUM (INFIT GLOBAL)	47,0	47,1	45,1	43,4	40,7
	INTER	RARITY (x2)	14,7	14,1	12,0	11,7	12,8
		ENDEMICITY	0,2	0,0	0,0	1,0	0,0
		RELICTISM	3,0	3,0	3,0	3,0	3,0
		CAR. FINÍCOLA	0,0	0,0	0,0	0,0	4,5
		SUM (INTER GLOBAL)	17,9	17,1	15,0	15,7	20,3
	INMES	F. GEOMORPHOLOGICAL (x2)	20,0	20,0	20,0	20,0	16,0
		F. CLIMATE	10,0	10,0	10,0	10,0	9,0
		F. HYDROLOGICAL	10,0	10,0	10,0	10,0	8,0
		F. EDAPHICS	8,0	8,0	8,0	8,0	8,0
		F. FAUNISTICS	9,0	10,0	9,0	9,4	8,0
	SUM (INMES GLOBAL)		57,0	58,0	57,0	57,4	49,0
	INEST	RIQ. BY STRATOS (x0,5)	7,4	7,2	5,6	8,0	6,0

	COB. BY STRATOS (x0,5)	5,7	6,0	5,1	6,8	4,8
	RIQ. DE MICROHAB.	6,1	6,8	5,8	5,3	5,0
	CONECT. SPACIAL	18,0	16,1	16,0	11,9	18,0
	SUM (INEST GLOBAL)	37,2	36,1	32,5	31,9	33,8
	SUM (INNAT GLOBAL)	159,1	158,2	149,6	148,4	143,8
INCUL	INPAT	ETHNOBOTANICAL VALUE (X2)	15,2	20,0	14,6	14,6
		PERCEPTUAL VALUE	9,8	10,0	10,0	8,2
		EDUCATIONAL VALUE	10,0	10,0	10,0	7,5
		SUM (INPAT GLOBAL)	35,0	40,0	34,6	30,3
	INCULEST	FISIONÓ. STRUCT. VALUE	1,5	2,0	2,0	2,0
	INCULEST	STRUCT. CULTURAL VALUE	2,0	5,0	2,0	3,0
		SUM (INCULEST GLOBAL) (x2)	7,0	14,0	8,0	10,0
		SUM (INCULEST)	42,0	54,0	42,6	40,3
	SUM (INCON)	201,1	212,2	192,2	188,7	180,6
CONSERVATION PRIORITY	PRICON	DEMOGRAPHIC PRESSURE	1,0	1,0	1,0	1,0
		ACCESSIBILITY-TRANSITABILITY	5,7	5,2	3,0	2,4
		ALTERNATIVE THREATS	3,0	2,6	3,0	3,8
		GLOBAL THREAT FACTOR	9,7	8,8	7,0	7,2
	PRICON	1950,4	1867,4	1345,5	1358,6	2094,4

With regard to each of the criteria and groups of criteria, we can point out that, except in the case of Garrastatxu, the diversity parameter is high in the cases of Kolitza, Pikandi, and moderate in Moncayo and Garrastatxu. However, as mentioned above, the restrictive effect of steep slopes, oligotrophic and acidic substrates and poor soil development should be taken into account in the discussion.

With regard to the values and criteria of natural roots and, within these, the phytocoenotic value, the degree of naturalness corresponds to stands with very few introduced taxa and where these, moreover, have minimal cover; which demonstrates the good condition of the patches analysed. No allochthonous, xenophytic or invasive taxa were detected in Garralda or Garrastatxu. As far as maturity is concerned, the stands are fairly mature, with the exception of Kolitza and Moncayo, where the forest is relatively young. These last two locations have suffered significant cutting and anthropic impacts until very recently, and show a degree of development that can be compared to a plagioclimax or paraclimax, taking a few tens of years to reach their maximum level of development. In terms of regenerativity or resilience, once again the first three locations show the highest values as natural mesophilic forests, but of a relict and finnic character, while Kolitza and Moncayo represent a less developed version and, therefore, with a greater capacity for regeneration after a catastrophe or massive felling.

The sum of all these first 4 criteria makes up the phytocoenotic interest, whose registers are relatively high, between 40.7 in the case of Moncayo and 47.1 in Garralda.

Bearing in mind that the maximum for this parameter group is 50 points, the spots analysed would have outstanding values in Garralda, Piéjandi and Garrastatxu, and notable values in Kolitza and Moncayo.

The second group of criteria, those with territorial roots, tend to show low values in the area in question (Lozano et al., 2021). The highest scores are recorded for the rarity parameter; not only because the sessile oak woodland is scarce in this sector, but also because it has a high number of very rare, rare or scarce species (Aizpuru et al., 1999; Uribe-Echebarria and Zorrakin, 2004). For this parameter, the best records appear in Piéjandi (14.7), followed by Garralda (14.1), Moncayo (12.8) and Garrastatxu (12). Kolitza shows a relatively modest score (11.7) for this parameter because, although it is the most diverse in taxa, these are relatively common and not rare. As far as the endemism criterion is concerned, the sessile oak grove as a plant grouping cannot be considered as such, but some of the taxa that make it up can be. The highest scores - always within very discreet overall evaluations- are recorded by Kolitza (1 point) and Piéjandi (0.2). The rest show no noteworthy values for this parameter. The degree of relict, sessile oak woodland as a grouping should be considered as relict at sector level, as should *Q. petraea* itself. Therefore, all patches have mean scores of 3 points for this parameter. The spots analysed do not have a clear finnic character, except for the Moncayo spot, which is the most south-eastern spot on the Iberian Peninsula.

All in all, the sum of values constituting the territorial value is discreet, with Moncayo standing out with 20.3 points, followed by Piéjandi with 17.9, Garralda with 17.1, Kolitza with 15.7 and Garrastatxu with 15.

Higher scores are obtained within the criteria of ecological or mesological roots. The most important of these is geomorphological, in which all the patches have sufficient cover and development to guarantee a biostatic situation that prevents the existence of dragging and erosion downhill of a regolith which, on the other hand, is not very evolved and is associated with important colluvium and a certainly high degree of slope. This is why the maximum score is obtained in all locations, with the sole exception of Moncayo, where the degree of development and maturity of the patch is lower. Closely associated with the geomorphological criterion is the edaphic criterion, which is calibrated not only by the capacity to conserve the soil, but also to develop it and mineralise important quantities of organic matter. In this case, all the sessile oak stands studied obtained the same score (8), which corresponds to a tree vegetation with an average rate of retention or recyclability of organic matter. In terms of climatic function, the fact that these are relatively closed stands with good tree cover guarantees special microclimatic conditions; hence the maximum score is obtained in all cases, with the exception of Moncayo (9). The hydrological function is also noteworthy in all the stands as, once again, their high tree cover and degree of development mean that rainfall is damped and circulates gradually through both the vegetation and the regolith itself. Thus, all the patches receive the highest score, with the exception of Moncayo (8), which has dense tree vegetation, but relatively sparse undergrowth. In terms of faunistic function, the Garralda oak grove, which has many fruit-bearing plant species, a diversity of vegetation strata and interesting ecotones, obtains the highest score; the rest of the areas fluctuate between the 9.4 points of Kolitza and the 8 of Moncayo.

The sum achieved by the different stains for this group of mesological criteria can be considered as outstanding for all the stains; the exception being Moncayo, which registers remarkable scores.

The structural interest is shaped, in the first place, by the strata wealth criterion. Considering that the maximum potential is 20 points and that the best scores are recorded in Kolitza (8), Pikandi (7.4) and Garralda (7.2), it is clear that these are modest to low records; indeed, although these patches have a certain diversity of taxa, they do not show a great structural complexity and, on the other hand, a certain scarcity of taxa within the arborescent and shrub strata. This characteristic is aggravated in less developed or more monospecific forests, as is the case of Moncayo (6 points) or Garrastatxu with only 5.6. Closely related to the previous criterion, the strata cover criterion also shows modest or even low scores, fluctuating between 6.8 points in Kolitza and 4.8 in Moncayo. With regard to the criterion of richness in microenvironments, it should be noted that the records are quite significant since, on average, there would be 6.8 elements in the case of Kolitza and 5 in the case of Moncayo. In this respect, the microenvironments of boulders are particularly noteworthy, since most of the time these sessile oak groves are located either on heterometric colluvium or directly on decimetric boulders. So are the standing dead or live logs, the diversity of lichens and mosses and the occasional hypogean environment in the form of small rock shelters between the aforementioned boulders. The criterion of patch size and connectivity registers relatively modest scores. The spots with the best scores are those of Moncayo and Pikandi, as they show a greater extension than the rest and a high degree of connectivity, not only in relation to the different stands but also to other types of adjacent forests. The lowest scores would be for Kolitza because of very small and relatively unconnected copses. In any case, all the patches analysed so far are modest in extent, which should lead the manager to consider the possibility of establishing new plots more or less adjacent to each other so that this type of forest continues to spread gradually. This is especially noticeable in Kolitza, where the main tree line is completely embedded in exotic plantations.

All in all, the sum of the structural criteria offers modest values. The highest score is obtained by Pikandi (37.2), followed by Garralda (36.1), Moncayo (33.8), Garrastatxu (32.5) and, lastly, Kolitza (31.9). The fact that the score for this group of parameters can range from 1 to 102 points clearly indicates the modest or low scores recorded for this value by the different stains.

The sum of the phytocoenotic, territorial, mesological and structural values makes up the natural value, which for the assessed areas has the following hierarchy: Pikandi 159.1 points; Garralda 158.2; Garrastatxu 149.6; Kolitza 148.4; and Moncayo 143.8.

As far as cultural values and criteria are concerned, the first group includes those related to heritage value or interest and, within this group, three criteria of great relevance. The first of these is ethnobotanical, which has high values in all stains. The surveys and interviews carried out revealed a great interest on the part of the population, especially the local population, in valuing these areas very positively, as they provided and still provide very interesting resources such as timber (always taking into account selective and sustainable harvesting practices), as well as other ecosystem services such as the collection of plants and mushrooms, walking, contemplation, aesthetic value, etc. The Garralda forest stands out with 20 points, followed by Pikandi (15.2), Garrastatxu

and Kolitza (14.6) and, in last place, Moncayo with 14.4. The second criterion is the perceptual criterion, which also shows very high records for the first three locations and high records for the last two. The same applies to the didactic value, obtained through interviews with qualified agents (teachers at various educational levels). In this case the score is the maximum (10) for the first three locations and 7.5 and 7 points for Kolitza and Moncayo respectively.

The first of the criteria related to the structural cultural aspect is that of physiognomic value, which shows a certain homogeneity in all the areas concerned. In this case there are only three possibilities: high forest, low forest and pollarding. The sessile oak has usually been used, due to its good wood, for planking and as a quality material, so that we have only rarely been able to verify the existence of pollarded oaks. However, undergrowth or those species that are cut to death to cause pluricaule from the stump are more abundant. Species such as hazel, chestnut and arraíz are managed in this way; even in Moncayo the oak itself achieves this morphology by resprouting abundantly from the stump. In all cases there are, on average, two different dasotipologies; the exception is Pikandi, where strict protection maintains the high forest and some isolated pollarded trunks. The third is the structural cultural value, which in these locations contains ethnographic elements of some relevance, such as platforms for obtaining charcoal (rather than sessile oak wood, beech wood was used), dry stone walls, traditional locks or stakes, huts, ancient archaeological remains and even, in the case of Pikandi, high forges (very scarce and difficult to detect in most cases). In Garralda 5 of the aforementioned heritage elements were detected; in Pikandi, Garrastatxu and Moncayo 2; and in Kolitz 3.

En Garralda se detectaron 5 de los elementos patrimoniales mencionados; en Pikandi, Garrastatxu y Moncayo 2; y en Kolitz 3.

The final cultural value fluctuates between 54 points in Garralda and 36.8 in Moncayo. These are quite remarkable figures, bearing in mind that the maximum potential would be 66 points. It is clear that, while the structural cultural interest is not excessively great, the heritage interest is, on the other hand, outstanding, so that the former weighs down the latter.

When natural and cultural interest are added together, we obtain the Conservation Interest (which is a finalist value per se that can have the same importance, if not more, than that of Conservation Priority), which shows quite remarkable records in all cases. Logically, there are important differences between Garralda's outstanding 212.2 points and Moncayo's remarkable 180.6.

In order to properly calibrate the Conservation Priority, the threats to each of the assessed patches must be taken into account. The first of these is linked to human population density, which is fortunately very low (1 point) in all 5 sites (less than 50 inhabitants per square kilometre). The second is the degree of accessibility/transitability which, in both items, is low in all cases and especially in Kolitz (2 points). The exception is the Moncayo spot, which is located next to a road and is less steep than the rest; hence it receives the highest score (7.6). The alternative threats are low since, in most cases, there is little likelihood of fire; only some activities, such as hiking, may leave, as has been noted, a certain amount of litter and generate some small impacts. Records fluctuate between 3.8 points in Kolitz and 2.6 in Garralda.

All this means that the Conservation Priority is relatively low. Only in one case is the barrier of 2,000 points exceeded: in the Moncayo, which, curiously, has the lowest Conservation Interest value, although the highest degree of threat. In any case, as the Conservation Priority level is considered high above 1,500 points, Pikandi and Garralda would also fall into the upper bracket, unlike Garrastatxu and Kolitzá.

In order to further relativise the figures for each of the values and interests of the different stains in relation to the more than 200 plant groupings studied on a global scale, we add table 4 below.

Table 4. Biogeographical assessments by criteria and interests of the different Petran oak groves analysed and following the LANBIOEVA methodology. 1: Pikandi; 2: Garralda; 3: Garrastatxu; 4. Kolitzá; 5: Moncayo. Own elaboration.

Criteria groups / Interests	P 25	P 50	P 75	P 100	1	2	3	4	5
INFIT	28,0	39,0	42,2	48,5	47,0	47,1	45,1	43,4	40,7
INTER	2,2	6,1	12,6	28,9	17,9	17,1	15,0	15,7	20,3
INMES	37,8	46,0	51,4	60,0	57,0	58,0	57,0	57,4	49,0
INEST	15,3	19,0	23,9	92,9	37,2	36,1	32,5	31,9	33,8
INNAT	87,3	112,2	130,1	186,0	159,1	158,2	149,6	148,4	143,8
INPAT	18,9	25,0	30,0	40,0	35,0	40,0	34,6	30,3	28,8
INCULEST	4,0	5,7	8,0	17,2	7,0	14,0	8,0	10,0	8,0
INCOL	24,0	30,3	36,2	54,0	42,0	54,0	42,6	40,3	36,8
INCON	111,9	142,4	163,7	228,1	201,1	212,2	192,2	188,7	180,6
AM	8,0	12,0	15,3	26,0	9,7	8,8	7,0	7,2	11,6
PRICON	1129,0	1602,0	2103,0	4288,0	1950,4	1867,4	1345,5	1358,6	2094,4

As can be seen, in almost all groups of criteria or interests the different oak groves are in the third or fourth quartile, which means high scores. However, while for phytocoenotic interest the values are high, for territorial interest they are not so high and, in fact, although all the locations are in the fourth quartile, the difference with the limit of the last quartile is higher for all of them. For the ecological or mesological value they are again very high (among the best of the 200 groupings studied), however, in this case the Moncayo forest is located below the upper limit of the third quartile. With regard to the structural value, the scores obtained are modest if we take into account the record value of the last quartile (92.9), however, in this case all the locations appear to be in the last quartile and, therefore, among the highest scores obtained to date. The sum of these values gives rise to the natural interest, which once again records scores that in all cases are within the fourth quartile and, therefore, with high figures compared to the rest of the records obtained on a global scale. As far as cultural values are concerned, the first, heritage, does not differ either from the scores obtained within the natural criteria and marks, for all locations except Moncayo (which is in the third quartile, but close to the upper cut-off score), scores located in the fourth quartile of higher registers. Particularly noteworthy is the case of Garralda, who equals the highest score obtained to date. Structural cultural interest, however, registers more modest scores, although all of them straddling the third and fourth quartiles. However, the values of cultural interest are, in all cases, in the fourth quartile, i.e. in the 25% of cases where the scores were the highest.

There are notable differences since Moncayo is close to the lower limit of the quartile, but, in the same way, Garralda is at the maximum.

Conservation interest shows very good values for all five sites as they are, without exception, within the top 25% of the best scores obtained to date on a global scale. Particularly noteworthy are the cases of Garralda and Pikandi, with outstanding scores. Moncayo once again scores the worst of the five out of these magnificent scores. In relation to this, Pikandi and Garrastatxu, although in the latter place the forest is not of the same quality as in the former, have a figure of protection such as that of the natural park which is promoting not only the conservation of these masses, but also their relatively strict protection. These measures alone will allow the forest to continue to recover and be conserved. In the case of Garralda, although it belongs to a category of protection such as public utility forests, it should be protected with another category of greater importance or protection within Navarre's legislation. It is also possibly the most diverse and varied patch in terms of strata, facies, etc. In the case of Pikandi, it would be necessary to intervene to a greater extent through a figure of protection that would cover not only the unconnected patches, but the whole of the potential sector for the expansion of the Petrano oak. In this way, and bearing in mind that the price of pulpwood is gradually but inexorably falling, consideration should be given to the public purchase of adjacent land and, of course, a forestry policy in accordance with the conservation of existing patches and the recovery of the Petrano oak forest, directly or indirectly, in the aforementioned sectors. As for the Moncayo, the fact that the Petrano oak forest is located within the natural park of the same name is a guarantee of recovery and conservation. The previously recorded cuts should be avoided and special care should be taken with both vehicle and human traffic as they are close to the road that runs through the entire park.

As far as threats are concerned, the good news is that, in this case, the scores recorded are low, so that Garrastatxu and Kolitza would be in the first quartile or, in other words, in the 25% of the least pressured plant groupings or landscapes to date. In any case, the fact that the level of threat is low does not mean that measures should not be implemented for the correct management and conservation, not only of the two spots or locations mentioned, but also of the other three that are situated in the lower part of the second quartile, with a moderate to low level of threat. In any case, these low levels of threat give rise to a conservation priority which, in three cases (Pikandi, Garralda and above all Moncayo) are in the third quartile, while Kolitza and Garrastatxu are in the second quartile. In other words, although the conservation interest is high, the priority is moderate to high because they are not currently facing significant or worrying threats. However, we reiterate once again that we are dealing with a type of forest that is scarce, rare, relict, in some cases finicultural, and therefore needs to be relatively strictly protected.

5. Conclusions

With regard to the objective set for the present work, an intense and exhaustive inventory exercise has been carried out, followed by the characterisation and evaluation of the studied patches, so that we can conclude that the aim has been achieved. Once again, the LANBIOEVA methodology proves to be a powerful and efficient tool for the inventory, characterisation, analysis, diagnosis and assessment of vegetation landscapes.

Moreover, with these 5 patches, the number of groupings studied at a global scale is increased.

With regard to the biogeographical composition of the 5 clusters studied, there is a great diversity of taxa which, however, are practically not repeated or only a few can be found in all 5: *Quercus petraea*, *Sorbus aria*, *Hedera helix*, *Rubus ulmifolius*, *Brachypodium sylvaticum* subsp. *sylvaticum*, *Deschampsia flexuosa* and *Teucrium scorodonia*. Thus, only 4.1% would be represented in all locations. Up to 53% of the taxa inventoried are found in only one location. It is very difficult, therefore, to arrive at an inventory or a synthetic procession that represents all of them. Species indifferent to soil pH or clearly acidophilic dominate. Likewise, taxa of Euro-Siberian or Eurasian chorological affiliation dominate over Mediterranean taxa. Moreover, those with Atlantic affiliation show higher numbers than those with Mediterranean affiliation. However, there is also a percentage of taxa with mixed parentage, i.e., although the Eurosiberian component is the dominant one, there is a certain number of taxa associated with a transition between the Atlantic and Mediterranean worlds. The relatively small number of wide-ranging territorial phyla is interpreted as a good general condition of the studied patches as there are not too many anthropophilic taxa. Only in Kolitza were two introduced species detected and, moreover, with low overtures. There are interesting examples of endemic species (up to 6 taxa), relicts (the Petrano oak itself), as well as very rare, rare or scarce species. This again reiterates the quality of the courtships inventoried in the 5 patches.

With regard to the biogeographical assessment, in almost all groups of criteria or interests the different oak groves are in the third or fourth quartile of all plant groupings assessed so far on a global scale, which means high scores. Very high scores should be noted for criteria such as diversity, maturity, all the mesological and heritage criteria and, in general, conservation interest. This leads to the recommendation of strict conservation of all these forests and intervention to protect their continuity to a greater and better extent, as well as actions aimed at establishing greater extensions and a greater connection between the different patches within each location. For their part, the threats are not particularly great, so that the priority for conservation is not substantially urgent, although the implementation of protection measures for the most unprotected areas such as Kolitza or Garralda should not be neglected.

It is necessary to continue researching, inventorying, characterising and assessing the remaining small patches of Petrano oak in northern Spain.

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Pluviometric diversity in peninsular Spain

Javier Martín-Vide
ORCID: 0000-0002-1179-7380
Universidad de Barcelona.

Abstract: The contribution focuses on the diversity of precipitation in mainland Spain (including some references to the Balearic and Canary Islands), expressed with different indices and pluviometric variables, such as the interannual coefficient of variation, the consecutive disparity index, the daily Concentration Index, the rainfall intensity, the duration of the dry spells, the seasonal rainfall regime, and other characteristics. Starting from the average annual rainfall, which, between Cabo de Gata, probably the driest place in continental Europe, and some Galician and Basque places, is multiplied practically by 20, the marked contrasts between the values of the indices and variables analyzed and their spatial patterns are shown. The high daily concentration of rainfall in the eastern peninsular fringe or the puzzle of seasonal rainfall patterns are good examples. Finally, the recent evolution of some of the variables mentioned is analyzed.

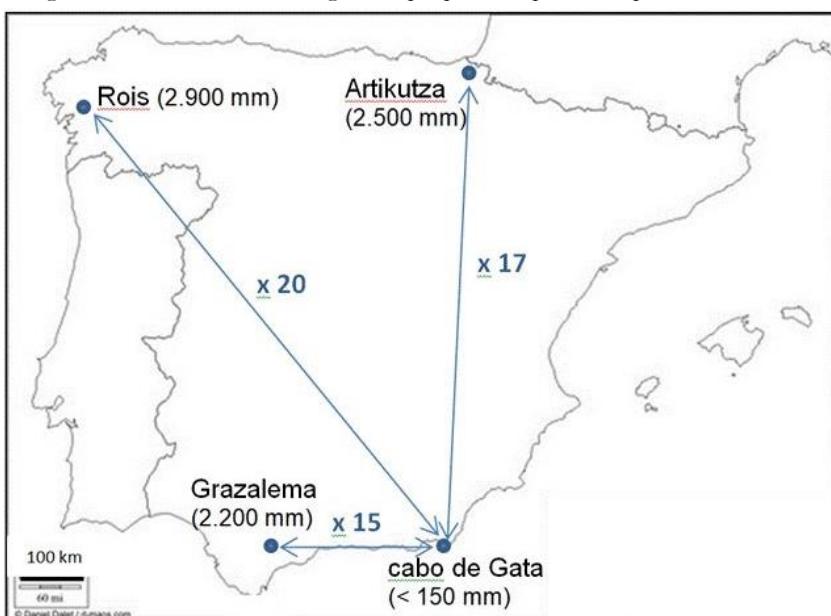
1. Introduction

Among climatic variables, rain certainly is the most decisive in Spain. In extratropical latitudes—where there is a clear contrast between summer and winter—temperature regulates seasons and daily life throughout the year. In a country such as Spain, however, with modest hydrological resources, many hours of sunshine, and high evapotranspiration in many regions, it is precipitation that critically conditions the water balance and catchment water resources, the situation of ecosystems, the phenologic state of rainfed crops, tourism and outdoor recreation, etc.

Furthermore, precipitation in Spain has contrasting features, even unique, that partially stems from its geographical diversity and especially from climatic variety; halfway between the Mediterranean climate, found in almost all of peninsular Spain and the Balearic Islands, and the maritime mid-latitude temperate climate in the Northern Iberian strip, from Galicia to Atlantic Navarra and even the Val d'Aran. As for the climates of the Canary Islands, they greatly differ since they are subtropical-tropical. To simply demonstrate the variety in rainfall, one can examine the diagonal that crosses the Iberian Peninsula, from Almería, in the southeast, to Pontevedra and A Coruña, in the northwest. The average annual precipitation is almost twenty-fold between the Cabo de Gata (Almería) and some of the mountain ranges near Pontevedra and A Coruña (Figure 1). Indeed, Cabo de Gata might be the driest place in continental Europe, amounting to

an annual average of only 150 mm, while in some Galician mountain ranges, Suído and Barbanza, precipitation can surpass 2,500 mm or may reach 3,000 mm. At a low altitude, the village of Rois in A Coruña could confirm this, with an annual average of about 2,900 mm. (<https://aemetblog.es/2017/02/15/caracteristicas-de-la-precipitacion-en-galicia/>). Following the meridian, the same pronounced pluviometric contrast happens, from the said cape in Almería to Artikutza in the municipality of Goizueta, at the border of Navarre and the Basque region of Gipuzkoa. Even in Andalusia, in a much shorter distance, about 300 km, the contrast is significant between the Cabo de Gata and the Grazalema (Cádiz) mountain range where in some sectors there are more than 2,000 mm annually.

Figure 1: Great contrasts in the average annual precipitation in peninsular Spain. Source: own work.



Besides average annual, seasonal, and monthly values, other variables and pluviometric indexes allow for a better understanding of precipitation. These are variables such as the interannual variation, the consecutive disparity index, the persistence of wet and dry days, daily precipitation concentration, intensity, the seasonal rainfall regime, etc. These variables and indexes explain spatial patterns that set the progressive mediterraneity from north to south, the growing influence of the Mediterranean basin from west to east, and the Atlantic influence and the mode of variability of the North Atlantic Oscillation in the center and western parts of the Spanish peninsula. In all these cases, rainfall diversity is noteworthy. A paradigmatic example is that in areas of peninsular Spain, pluviometric maximums exist for any of the four seasons. Even though winter is the wettest season and summer the driest in the prototypical seasonal regime both in the Mediterranean climate as well as the maritime mid-latitude temperate climate.

Some of the most important characteristics of precipitation in Spain were summarized in a 10-point list (Martín Vide, 1994; 1996) (Table 1).

Table 1: List of precipitation characteristics of Spain. Source: Martín Vide (1994, 1996).

1) Modest amounts
2) High interannual variation and disparity
3) Great irregularity/daily concentration
4) High daily and hourly intensity
5) Long dry periods
6) Aridity issues
7) Contrasting seasonal regimes
8) Poor seasonal distribution
9) Annual anomalies of a different sign between regions.
10) Complex pluviometric map.

As it will be explained later, the new reality of climate change forces the addition of another characteristic, hence it will be an 11-point list.

2. Modest amounts

All in all, Spain has modest amounts of rainfall. More than two-thirds of the country has an annual average of less than 700 mm. Although, as mentioned earlier, in other regions, the north, and central and southern mountain ranges have abundant rainfall, even compared to continental Europe. Average annual rainfall does not help set apart the two aforementioned Spanish climates because in the Mediterranean, in the center and south of the peninsula, and in the Balearic Islands, there are mountain ranges with annual values that surpass 1,000 mm. As is the case in the southern slopes of the mountain ranges of Gredos, Béjar, Francia, and Gata, in the western part of the Central System; in the Grazalema chain, or in the summits of the Tramuntana range in Mallorca. Hence, the following question arises: Which is the best criterion to separate Mediterranean rainfall from other types of rainfall? Given that a moderate annual average threshold would leave out of the Mediterranean climate the mentioned mountain ranges, which are definitely Mediterranean, from a biogeographical, landscape, cultural, and geographical perspective, albeit with hints of continentality in some cases.

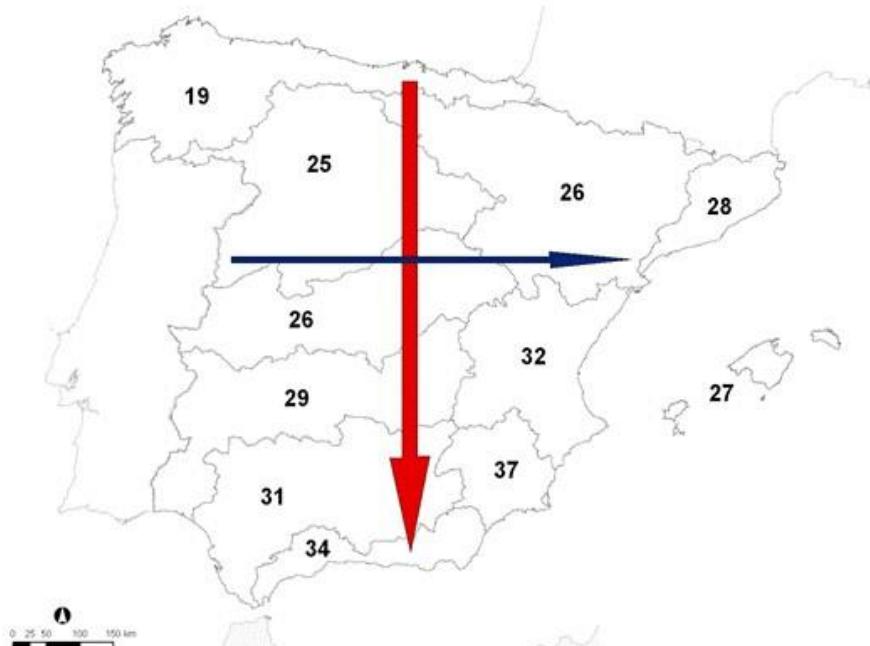
3. High variability

Pluviometric variability is one of the best variables that define precipitation. It is necessary to correctly understand the meaning of its averages. Interannual differences in the values of pluviometric series, whether annual, seasonal, or monthly, test the adaptation of ecosystems, and the resilience of human systems to contrasting climatic conditions to a greater or lesser extent. Variability can be evaluated through statistical dispersion factors, such as standard deviation, variance, or the coefficient of variation. Among these factors, the coefficient of variation is the most adequate because it allows for comparing places with very different average rainfall values.

Figure 2 shows the distribution of the mean values of the coefficient of variation by hydrographic basins based on 274 weather stations between 1949 and 1989. Only the northern and northwest slopes have a value of less than 20%. It is precisely this value, or the fork between 20% and 22% that establishes the best criterion to separate Mediterranean rainfall, that which is above this threshold, from non-Mediterranean

rainfall. Namely, there can be frankly wet places in the Mediterranean sphere, but they will always have high or notable interannual variability.

Figure 2: Mean values, by hydrographic basins, of the coefficient of variation of annual precipitation. Sources: Burgueño (1989) and Martin-Vide (1996, 2011).



A clear pattern emerges with growing values from north to south (red arrow): from the sphere of the maritime temperate climate (19%), the basins of Duero (25%), Tajo (26%), Guadiana (29%), Guadalquivir (31%) and the southern Mediterranean (34%), that illustrates the strengthening mediterraneity. Although less intense, there also is an increase in the values from west to east (blue arrow), related to the influence of the Mediterranean basin. In the Canary Islands, with a subtropical-tropical climate, the mean value of the coefficient of variation reaches 43%.

4. High consecutive disparity

The introduction of an index that measures the difference in amounts between consecutive periods, such as the values of annual, seasonal or monthly series, or the successive values of months; allows to complete the information provided by the coefficient of variation with an additional feature, that is the contrast or disparity between consecutive values. The definition of the suggested index, D , is:

$$D = \frac{1}{n-1} \cdot \sum_{i=1}^{n-1} \left| \ln \frac{p_{i+1}}{p_i} \right|$$

(Martin-Vide, 1987; 2022a)

in which p_i is the n^{th} value and n the length of the series, $\nabla p_i, p_{i+1} \neq 0$

Or, if there are small or null precipitation values, the index is:

$$D = \frac{1}{n-1} \cdot \sum_{i=1}^{n-1} \left| \ln \frac{p_{i+1} + c}{p_i + c} \right|$$

in which c is a constant that could be 1 mm. This avoids the numerical indetermination of dividing by 0.

Figures 3, 4, 5, and 6 show D annual maps of spring and summer, as well as a map of the consecutive months spanning 100 years between December 1915 and November 2015.

Figure 3: D index values of annual precipitation series in peninsular Spain. Source: Martin-Vide et al (2022a).

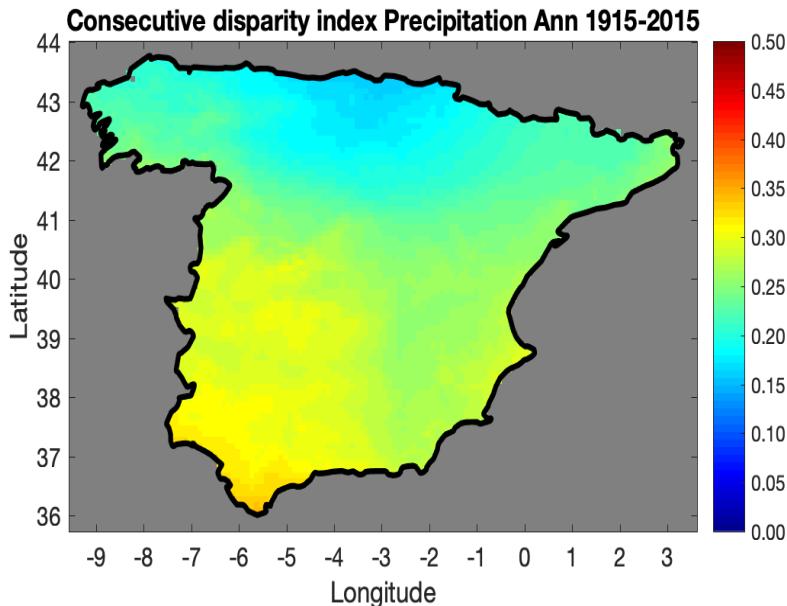


Figure 4: D index values of spring precipitation series in peninsular Spain. Source: Martin-Vide et al (2022a).

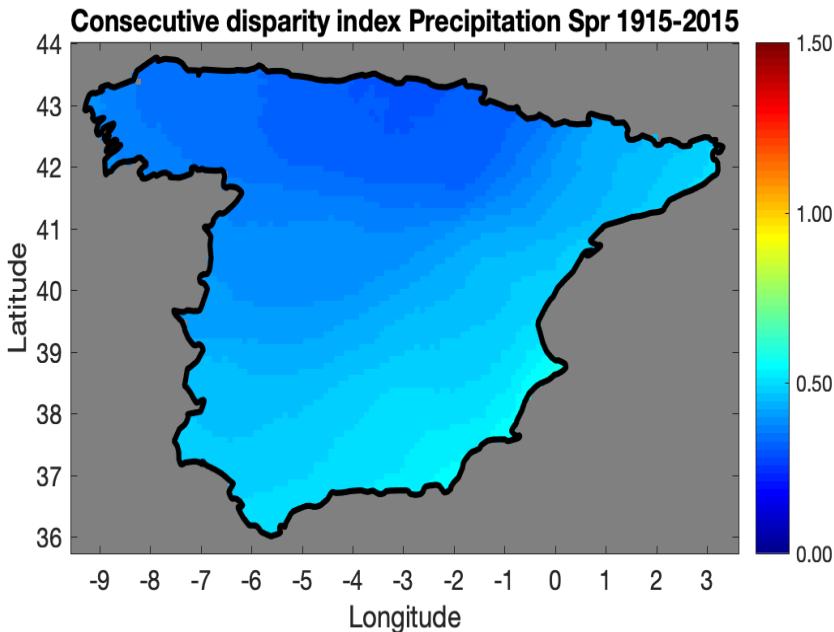


Figure 5: D index values of summer precipitation series in peninsular Spain. Source: Martin-Vide et al (2022a).

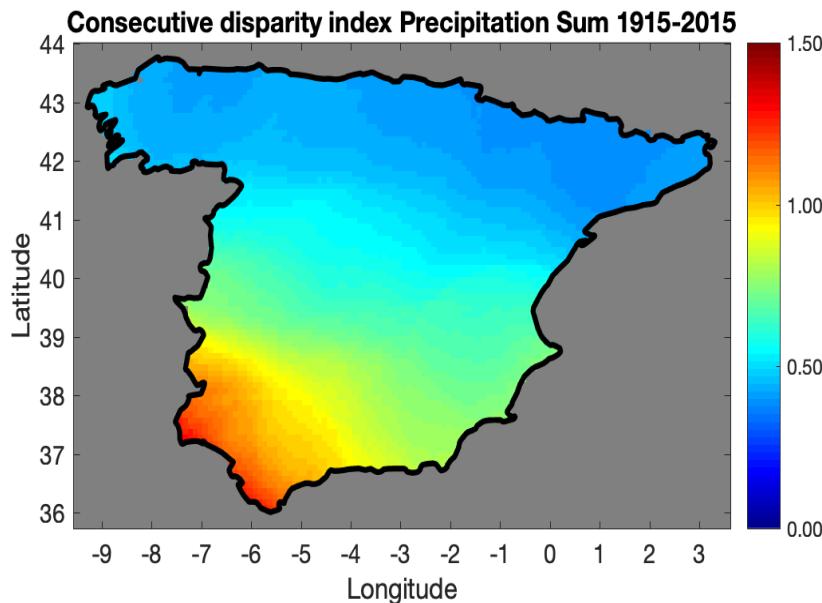
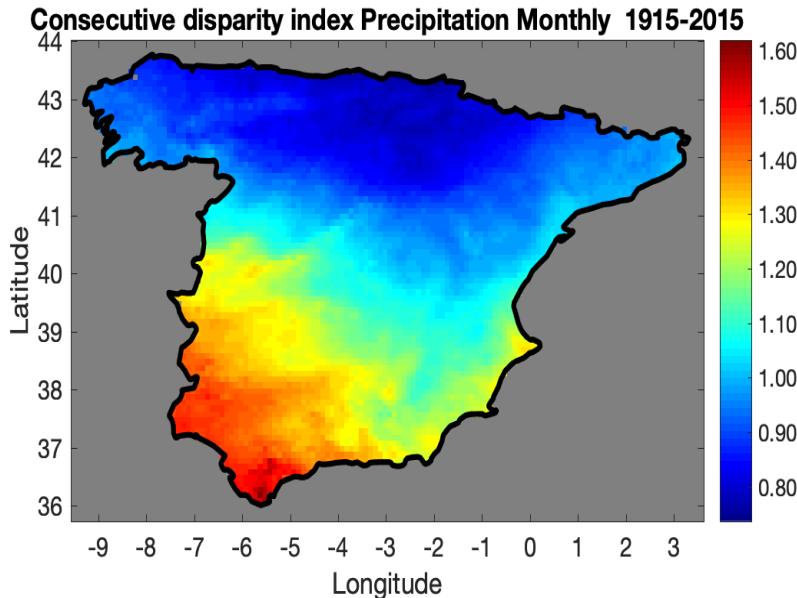


Figure 6: *D* index values of consecutive monthly precipitation from December 1915 until November 2015 in peninsular Spain: Source: Martin-Vide et al (2022a).



The contrast in consecutive annual totals is small in northern Spain and notable in most of the southern part of the peninsula, especially in its most southern point (Martin-Vide et al, 2022a) (Figure 3). Spring values are rather homogeneous. There is a general increasing pattern in a north-south and west-east direction, from the lowest values in the Basque Country and Cantabria, to the highest ones in the southeast region (Figure 4). However, in summer, the scarce precipitation in the Gulf of Cádiz and its vicinity greatly contrasts with the abundant and never lacking storms in the northeast (Figure 5). Lastly, the series of consecutive months display a marked contrast between the north and the southwest quadrant (Figure 6). In this last area, the positive or negative phase of the North Atlantic Oscillation index impacts the outcome of yearly rainfall. Dry when positive, and wet when negative.

5. Great daily precipitation concentration (in the east)

Data in the previous section was framed to monthly values. Here, instead, it is narrowed to daily values in terms of precipitation concentration on wet days. More specifically, it is analyzed through the Concentration Index (CI), which assesses the percentage weight of the rainiest days in annual totals. This index is linked with the pluviometric intensity variable.

CI formulation is similar to the Gini index, but not calculated based on the Lorenz empirical curve, but rather an exponential curve that adjusts the one by Lorenz, like this:

$$Y = aXe^{bX}$$

in which a and b are adjustable constants in the least squares approach. Therefore, CI is defined as:

$$CI = S/5000 \quad (\text{Martin-Vide, 2004})$$

in which S is the area outlined by the equidistribution line and the exponential curve (Figure 7). S is calculated by subtracting the surface underneath the exponential curve, that is, the integral defined between 0 and 100, from 5.000, which is the area of the triangle beneath the line of equidistribution.

Figure 7: Exponential curve and line of equidistribution when calculating CI. Source: own work

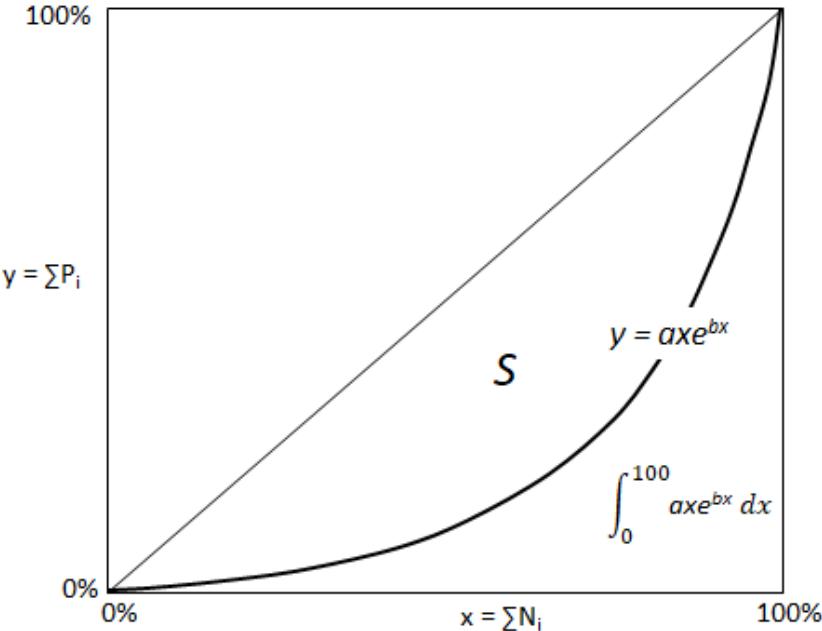


Figure 8 displays the CI distribution values based on 32 first-class weather observatories for peninsular Spain, throughout the 1951-1990 period. An interesting observation is that the highest daily precipitation concentration values are found in the eastern stripe of the peninsula. The Gulf of Valencia and the north of Alacant have peak values, precisely the same places that have the highest daily and hourly rainfall intensity rates in Spain. The Canary Islands have high CI values, between 0.63 and 0.71 (Máyer and Marzol, 2014). Other researchers have applied the CI in other countries and even at a global level (Monjo and Martin-Vide, 2016). Thus, a European study that collected data from more than 500 observatories, has proved that between 1971 and 2010 the highest pluviometric weight of the rainiest days occurred precisely in the east of Spain and the south of France, while values in Atlantic Europe are moderate or low (Cortesi, et al, 2012) (Figure 9).

Figure 8: CI isopleths in Peninsular Spain. (The value 0.61 tells apart high concentration values and roughly corresponds with the fact that 25% of the wettest days contribute 70% to the pluviometric total). Source: Adapted from Martín - Vide (2004)

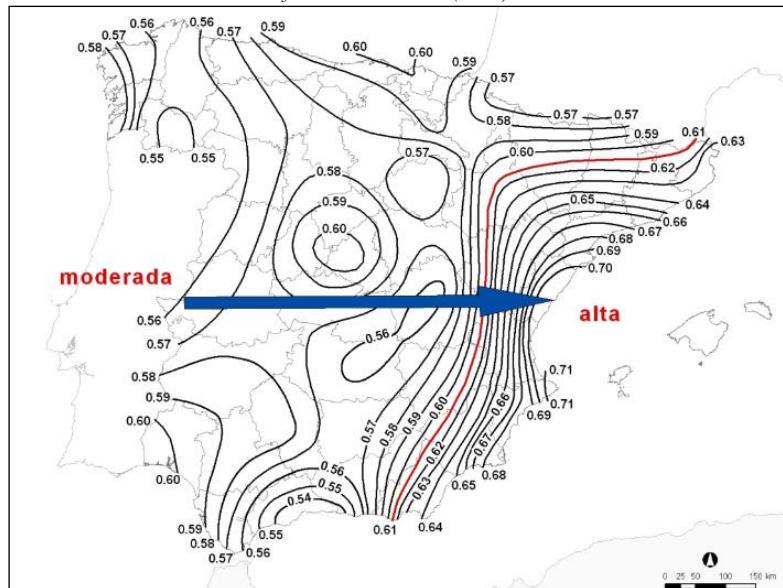
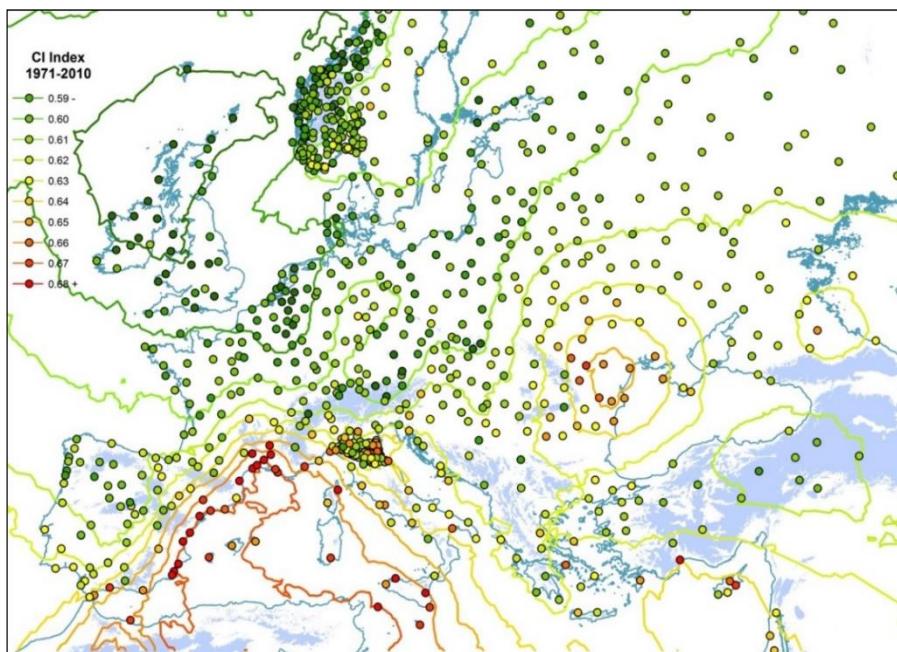


Figure 9: CI values in Europe. Source: Adapted from Cortesi et al (2012).



6. High daily and hourly intensity

Daily and hourly intensity is an essential variable for characterizing the torrentiality of precipitation, and its effects on runoff water, sometimes resulting in waterways and floods, land erosion, and even upsetting safe transport. González and Bech (2017), based on AEMET's database of more than 11,000 rainfall stations and a period extending from 1805 to 2014, identified maximum precipitation for different time intervals. Thus, they consider the 817.0 mm measured on November 3rd, 1987 in Oliva (Valencia) as the greatest amount of precipitation recorded in a single day in the country, although AEMET itself has doubts about this record. Gandía, a town close by, could have recorded on the same day and a few more hours, an amount close to a thousand millimeters. Exactly in two days, October 1st and 2nd, 1957 in Jávea (Alacant) 878.0 mm were measured. The highest daily rain concentration amounts in Spain are found in the southern point of the Gulf of Valencia, the south of the namesake province, and the north of Alacant, as several authors, such as Pérez Cueva (1993), have pointed out.

When the observation period is shortened to include sub-daily, hourly, and minute intervals, Oliva still is, on the same date, the town that holds the record for 12-hour concentration with 408.5 mm. In 6 hours, Huércal-Overa (Almería) has a record of 275.0 mm on September 28th, 2012. In 2 hours, in Donostia-San Sebastián on June 1st, 1997, 193.0 mm were recorded. In 1 hour, Santa Cruz de Tenerife recorded 129.9 mm on March 31st, 2002. Records for 30, 20, and 10 minutes are, respectively: 87.8 mm in Sineu (Balearic Islands), on October 12th, 2012; 74.2 mm in Cuevas de Nerja (Málaga), on September 21st, 2007; and 41.6 mm in the same town and date.

There is evidence in Spain of minute interval records that have surpassed 5 mm/min and even 7 mm/min, such as the 7.6 mm recorded at the Montserrat mountain (Sant Dimes, Barcelona) on September 4th, 2014. These authentic downpours, sometimes short-lived, are found in the Mediterranean side, the coast and coast range, especially in autumn, as well as in the eastern Pyrenees in summer. To add to this data, although not strictly considered intensity-wise, given that the time frame taken into account is broad, it is the mountain range of Grazalema in Cádiz which has the highest records for a gap of 1 week to 20 days, between more than 1,000 mm in 7 days and more than 1,400 mm in 20 days. In a period of between 3 months and a year, observatories near the coast in A Coruña and Pontevedra hold the record: more than 2,800 mm in a trimester, and more than 5,500 mm in 12 consecutive months (González and Bech, 2017). In other lengthy time intervals, observatories in Guipuzkoa stand out.

Table 2: Precipitation records in daily and sub-daily intervals. Source: González and Bech (2017) and own work.

Duration	Location (Province)	Meteorological service	Amount (mm)	Date (dd/mm/yy)
1 min	Montserrat (Barcelona)	SMC	7.6	04/09/2014
10 min	Cuevas de Nerja (Málaga)	AEMET	41.6	21/09/2007
30 min	Sineu (Balearic Islands)	AEMET	87.8	12/10/2012

60 min	Santa Cruz de Tenerife	AEMET	129.9	31/03/2002
3 hours	Donostia-San Sebastián (Gipuzkoa)	AEMET	204.7	01/06/1997
6 hours	Huércal-Overa (Almería)	AEMET	275.0	28/09/2012
12 hours	Oliva (Valencia)	AEMET	408.5	03/11/1987
1 day	Oliva (Valencia)	AEMET	817.0	03/11/1987

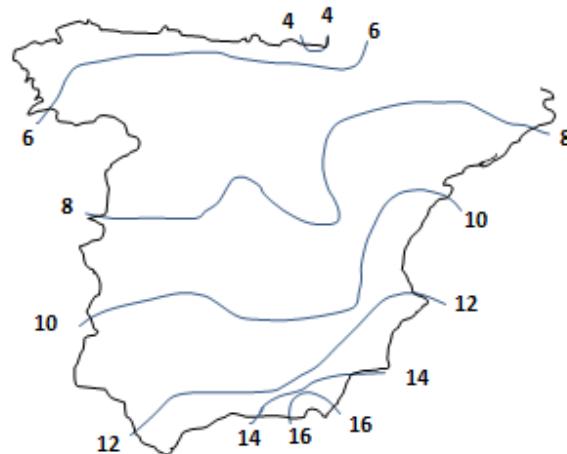
Altogether, peak values of pluviometric intensity for different time intervals are high, even if they are far from global maximums usually found in intertropical climates.

7. Persistent droughts and aridity problems

Even if they are not synonyms, there is a semantic intersection between these two concepts. A sharp distinction between these two terms is necessary for the Spanish case. Meteorological droughts are relatively long periods, from months to years, with a negative precipitation anomaly, that is, a circumstantial rain shortage. Aridity, however, is a structural shortage of rain, expressed in a negative difference between precipitation and potential evapotranspiration. All Spanish regions can experience droughts, but not all have an aridity-stricken climate. Aridity appears, to greater or lesser extent and duration, in regions with a Mediterranean climate, especially in the driest parts of the southeast and the Canary Islands. In a given period, Galicia may suffer a drought if the accumulated precipitation does not reach a percentage of what is normal, for example, 60%, while the southeast will not suffer droughts if it has stored the little it rains or more. In any case, the southeast suffers from aridity, but not Galicia. Then, droughts are a meteorological phenomenon, while aridity is a climate concept, and reality, as well as edaphic, landscape-related, etc. However, droughts are an actual risk of the Mediterranean climate because they are frequent and prolonged. This is the case of summer droughts, prevalent in the Mediterranean climate which has the lowest amount of rainfall in summer.

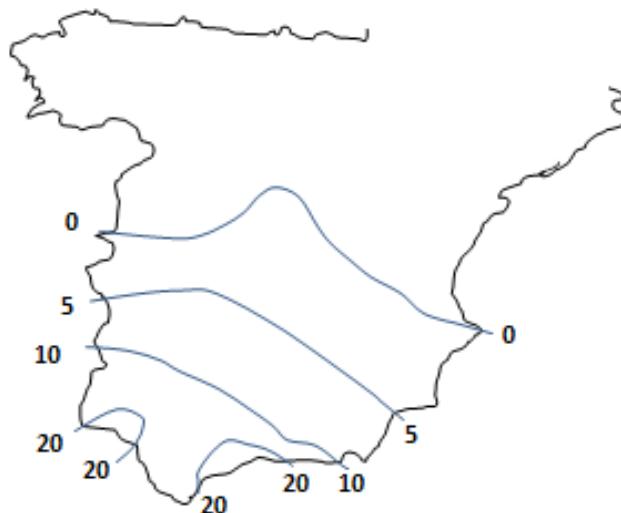
The analysis of dry streaks or spells, that is, the number of consecutive dry days is useful to assess the climatic frequency of droughts. Figure 10 exemplifies this. It shows the average duration, in days, of dry spells with a 1.0 mm threshold for peninsular Spain. A dry day is considered a day with less than 1 mm of precipitation. A rising north to south and slighter west to east pattern emerges. In Donostia-San Sebastián it hardly lasts four days, in Almería more than half a month.

Figure 10: Average duration in days of dry spells with a threshold of 1.0 mm. Source: Martín-Vide and Gómez-Navarro (1999).



In the southern half of Spain, dry spells lasting more than a month or even two or three are frequent. This also happens in the Canary Islands except in the areas between 600 m and 1500 m exposed to tradewinds. Figure 11 illustrates the number of dry spells, that last three months or more, observed between 1951 and 1990 with the strictest threshold (0.1 mm). The coasts of Huelva and Málaga, in southern Spain, have exceeded 20 cases, which means a prolonged dry spell every 2 years.

Figure 11. Number of dry spells with a duration equal to or greater than 90 days with the 0.1 mm threshold, in the 1951-1990 period. Source: Martín-Vide and Gómez-Navarro (1999).



In addition, a typology of droughts in Spain was suggested by Olcina (2001) and a historic database of droughts in Spain from 1961 until now can be found in Vicente-Serrano et al (2017).

8. A puzzled seasonal regime, and, often, untimely rainfall distribution

The maritime mid-latitude temperate climate and the prototypical Mediterranean climate present maximum rainfall in winter and minimum in summer, the latter strengthening in a southern direction. Therefore, a limited variability of seasonal rainfall regimes would be expected for peninsular Spain and the Balearic Islands. But this is not the case. Spain has a surprisingly complex mix of seasonal regimes. To sum it up, the雨iest season can be any of the four, even summer. This happens in the southern tip of the Iberian System, between Teruel and Castellón, and in the Catalan Pyrenees and its vicinity. Here, the regime is turned upside down: peak rainfall values occur in summer, while winter records the lowest rainfall. This pluviometric trend is similar to the continental mid-latitude and tropical climates. Both areas with summer highs are “rainstorm nests”, located in the peninsular east, downwind of Atlantic disturbed flows, they receive scant rainfall in winter and moderate or abundant in summer. In the rest of the country, other data stands out: the winter maximums in the regions most hit by Atlantic flow, spring peaks in regions of the east interior, and autumn highs in the peninsular east and the Balearic Islands. Throughout the Canary Islands winter is the雨iest season and summer the driest.

Of the 24 possible pluviometric regimes, as permutations of the four seasons, half are found in Spain, which represents an extraordinary variety. Even in the tiny region of the Val d’Aran (northwest of Catalonia), there is a well-balanced seasonal regime because the four seasons receive almost the same average precipitation.

On the other hand, the high periodic precipitation variability of the Mediterranean climate leads to a seasonal pluviometric distribution that some years greatly differs from the usual climate regime. For instance, there are dry autumns in parts of the Mediterranean, with precipitation totals surpassed by other seasons. The same happens with spring maximums in regions of the interior of the peninsula. This has negative consequences on agriculture and makes for challenging water management. Most of Spain has modest pluviometric totals, therefore, even if rainfall in some years is scarcer than normal, if it rains at the right moment, harvests are successful. Farmers know well that often what matters is when it rains rather than how much it does.

9. Different sign anomalies between counties and regions

In peninsular Spain, pluviometric anomalies of a different sign are not rare between regions in given years or periods. Occasionally, in some regions, there is a surplus of rainfall that may cause floods, whereas in others parts a lack of rainfall and droughts. An example to prove this fact is shown in Table 3, where extreme values are linked to the North Atlantic Oscillation (NAO), the main teleconnection pattern in Europe.

Table 3: Mean precipitation of December, and that recorded in December 1989 and December 1993 in two weather stations on the coast of Cantabria and three of the South Atlantic and South Mediterranean coasts, and NAO index of both Decembers. Source: own work.

	Weather stations	mean (mm)	1989 (mm)	1993 (mm)
Northern coast	Bilbao	139.0	14.0	208.9
	Donostia-San Sebastián	164.3	22.1	233.6
South Atlantic and South Mediterranean coasts	Huelva	70.1	252.3	0
	San Fernando	86.6	293.9	18.4
	Málaga	74.2	244.3	1.0
NAO index	---	---	-3.02	+2.12

On the northern coast of Spain or the Cantabrian coast, the two Basque weather stations in Table 3 have high December means, while the two southern observatories, in Andalusia, have averages that are lower but still substantial. In 1989, the Basque Country faced a pronounced drought, with some water restrictions. In December, in Bilbao, only one-tenth of normal rainfall was recorded, and in Donostia-San Sebastián values were well below the month's average. In the observatories in Andalusia, however, recorded rainfall was three or four times higher than the normal month's average, which accounted for half of the yearly average. This caused serious floods. The NAO index was sharply negative (-3.02) because of persistent low pressures in the Gulf of Cádiz and anticyclonic conditions in the North Atlantic.

In December 1993 the opposite was the case: the severe drought in the center and south of the Iberian Peninsula, which lasted until 1995, lead to below-average monthly records, even null, in the southern observatories. The reverse happened in the northern ones with above-average values. There were strict water restrictions in Sevilla and Cádiz, among other regions. In this case, the NAO index was substantially positive (+2.12) through an enduring and powerful anticyclone from the Azores, and low pressures in high latitudes of the North Atlantic, which defines a positive NAO phase.

10. *A complex pluviometric map*

Certainly, Spain has an intricate pluviometric map, be it the annual average, or the seasonal or monthly averages. As well, the matching maps of the indexes previously analyzed also show varied patterns. Its complexity stems from a variety of geographical factors (wide range of altitudes, an oceanic influence limited to the coastlines and the Guadalquivir valley, latitudinal differences, an ocean to the west and an almost enclosed sea to the east, etc.) and from the two main climates in the Iberian Peninsula. Still, geographical and climate factors explain the different maps because all of them have a geographical and climate coherence.

The frequency and type of mean precipitation values can be researched in the climate maps published by the Spanish State Meteorological Agency (Chazarra et al, 2018), and

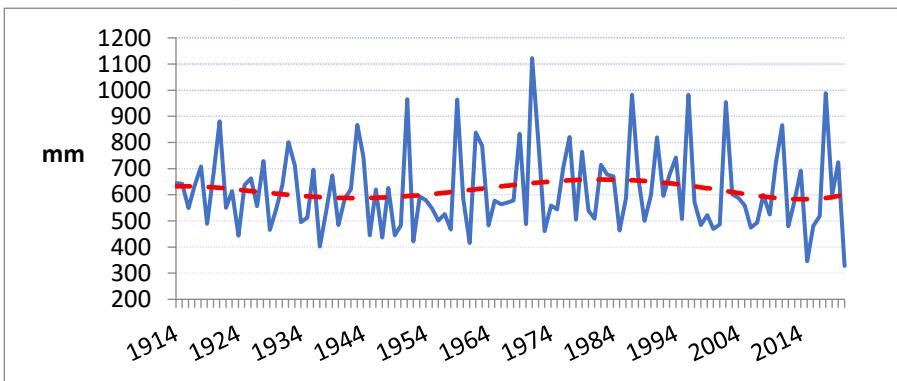
those of the *National Atlas of Spain, ANEXXI* of the National Geographic Institute of Spain (IGN, 2019). Although Spain's most northern strip stands out for the spatial constancy of its rainy character, the rest of the country has many rainy spots that match the location of mountain ranges, alternated with rain shadows. In the Canary Islands the contrast in rainfall between la Palma and Lanzarote and Fuerteventura, as well as the south of Tenerife and Gran Canaria, are remarkable. The same happens in the Balearic Islands between the summits of Mallorca and its southern coast, or with Formentera.

11. The 11th statement: Without general pluviometric trends, but with changes in the daily precipitation concentration and the seasonal regime

Climate change has had obvious effects in Spain; therefore, it is crucial to examine the possible trends that global warming is producing on the country's pluviometry. Hence, an 11th statement must be added to the initial list of 10 characteristics.

Based on the studies carried out by researchers on the longest available pluviometric series, it can not be stated that there is a general trend in rainfall in Spain. In most cases, there is no statistical proof of a decline in rainfall, when the analyzed period is broad, that is around 100 years. In most of Spain, it still rains as much as it did a century ago. For instance, the Fabra observatory in Barcelona, with 108 years of data (1914-2021) does not show a significant statistical trend for the given period, nor in the last 50 or 30 years (Figure 12). The same happens in Madrid, with data from the Retiro observatory, from 1893 to now. Some analyses of periods and locations indeed unveil a descending trend, but they do not involve large areas.

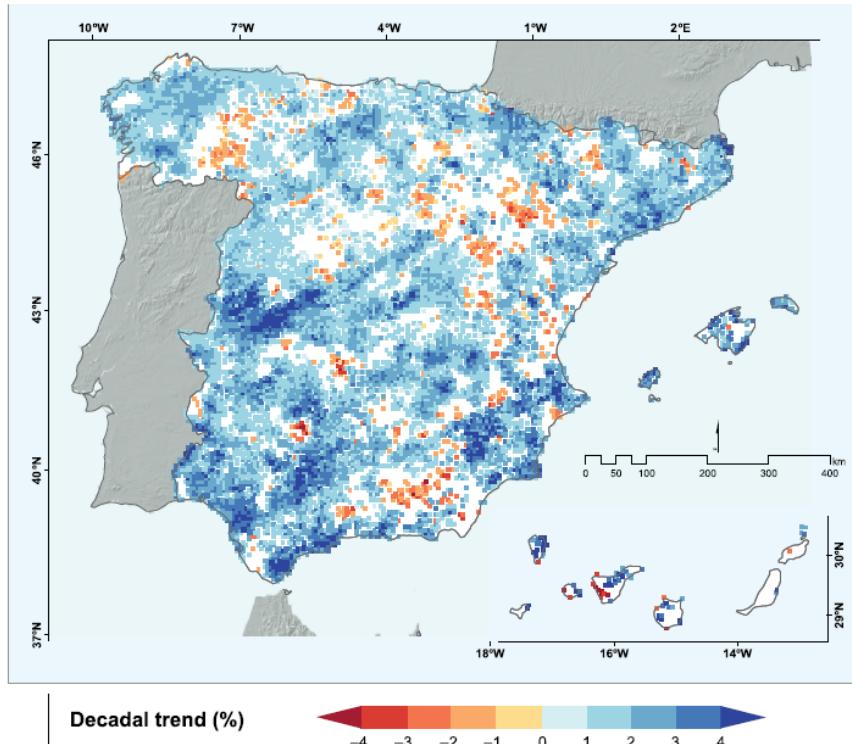
Figure 12: Evolution of annual precipitation in the Fabra observatory (Barcelona) in the 1914-2021 period and polynomial smoothing. Source: Martín-Vide (2022b).



Even though annual pluviometric series do not prove there has been an alteration in Spain, the analysis of some of the indexes and characteristics studied in this paper does reveal shifts. This is the case with daily precipitation concentration. Using a network model of Spain at a 5x5 km resolution, made up of 20,242 points or cells, trend analysis showed an important statistical growth of the CI in the 1950-2012 period in 57.3% of peninsular Spain, a significant negative trend in 3.8%, and no significant trend in 38.9% (Serrano-Notivoli et al., 2018) (Figure 13). Therefore, in most of the country, the daily precipitation concentration increased, even though the annual totals do not show a

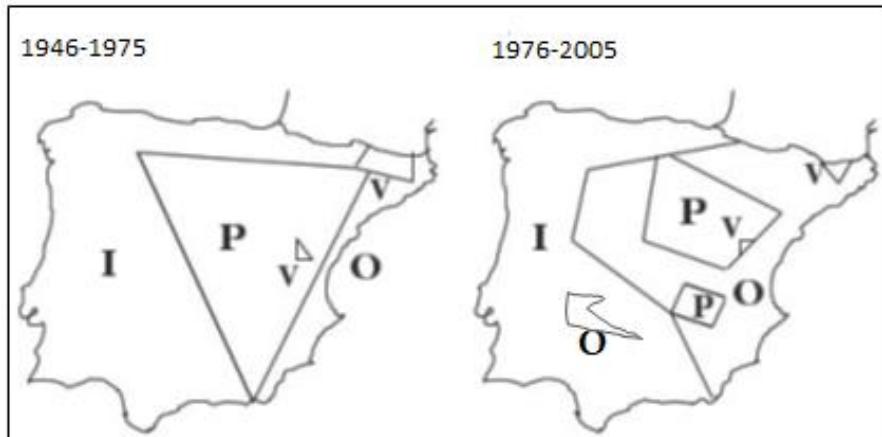
significant general variation. Indeed, there has been a hike in the percentage weight of a few very rainy days (Martín-Vide, 2020).

Figure 13: Annual CI percentage change by decades in Spain, for the 1950-2012 period (blue cells show a significant positive trend; in red, a significant negative trend; and in white, no significant trend). Source: Serrano-Notivoli et al. 2017.



Another striking change, based on data from 2,670 pluviometric stations, is the loss of spring maximums, substituted by autumn maximums when comparing two 30-year periods, one before global warming (1946-1975) with the following (1976-2005), hit by global warming (Figure 14). There is an important western expansion of the regimes with autumn maximums, to detriment of spring peaks. This could be linked to the increase in the temperature of the Mediterranean Sea.

Figure 14: Diagram of the spatial distribution of the rainiest season in peninsular Spain in the periods 1946-1975 and 1976-2005 (I, winter; P, spring; V, summer, and O, autumn). Source: Martín-Vide (2011).



Lastly, climate projections for the Mediterranean basin, and its surrounding lands, forecast a decline in precipitation throughout the century (IPCC, 2021). Anyways, even without this decreasing rainfall trend, the increase in temperatures, and the ensuing rise in evapotranspiration, will bring a fall in hydrological resources.

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Rural geography in Spain (1940-2020): from a strong French influence to a growing thematic and methodological diversity

Rubén C. Lois-González

ORCID: 0000-0003-4717-1061

University of Santiago de Compostela

Juan Ignacio Plaza-Gutiérrez

ORCID: 0000-0003-1942-2847

University of Salamanca

José M. Gómez-Espín

ORCID: 0000-0001-7287-4952

University of Murcia

Abstract: Rural Geography is presented as the branch of the discipline with the greatest historical tradition in Spain. Its development was due to the enormous influence in our country of the French School, of Vidalian origin, and for the need that the geographers of the first Franco regime to define a neutral profile, markedly academic in regional and landscape studies, as they faced the authoritarian regime's attempts to exploit geography for its purposes. For decades, practically until the 1980s, most of the geographical theses presented in Spain included rural content. Since that decade, the development of urban, geomorphological, geoeconomic or tourism studies, among others, has turned Rural Geography into another branch of our discipline. This has allowed it to evolve towards greater methodological and thematic diversity, to update its contents and gradually detach itself from the French hegemony when it comes to undertaking its investigations.

We will start by quoting a clear statement that has enjoyed consensus for decades: geography as a fully academic discipline consolidated in Spain around the middle of the 20th century, precisely when the country was beginning to undergo an accelerated transformation (Lois, 2009). Reviewing the studies on the history of our science, it is apparent that those relating to geography were institutionalised in universities in the 1920s and '30s, particularly in Madrid, Barcelona and other large cities (Bosque, 1982; Gómez Mendoza, 1997). However, the Spanish Civil War abruptly interrupted this process, and it won't be until the first decade of Franco's dictatorship, in the 1940s, when geography, together with history, is granted a fundamental role in the educational (and patriotic) training of the young generations of Spaniards, and generalised in primary, secondary and tertiary education (Capel, 1976). Geographic knowledge is promoted both in universities and at the Higher Council of Scientific Research (CSIC, in Spanish)

through the creation, for this purpose, of the Juan Sebastián Elcano Institute (Mata, 1987; Rodríguez Esteban, 1995; Gómez Mendoza, 1997). We must not forget that this takes place in an impoverished nation, still predominantly rural and subjected to a totalitarian regime. Support for geography had a clearly ideological basis, but the major cultivators of the discipline at that time mostly resorted to the paradigm of the French regional and landscape school in order to develop non-committed, politically neutral research, which was always intended to reaffirm the explanatory role of the discipline, without allowing the regime to take advantage of it (Mata, 1987; Cabo, 1987; Gómez Mendoza, 1997). Use of the regional method became mandatory until well into the 1960s, and the study of rural and agricultural areas was widely predominant in a country where a large part of its population still lived in villages, worked in agriculture (Capel, 1976; Arroyo, 1987), or had just migrated from the country to cities with numerous neighbourhoods under consolidation. Geographic studies of provinces, *comarcas* (counties) and local areas were the starting point for a researcher in geography and defined the subject of most of the theses presented between 1940 and 1970 (Bosque, 1982; Arroyo, 1987 Rodríguez Esteban, 1995). This space was almost always rural, with a principal town, and only in a few cases did the study focus on geomorphological or biogeographic explanations rather than on the relations between humans and the environment. It is during these decades that the so-called *Spanish School of Geography* became established. This school is a direct heir to the French school and is marked by the hegemony of the rural and agricultural theme (Gómez Mendoza, 1997).

In this contribution, we will first try to review the process of institutionalisation of Spanish geography (mainly regional and rural geography) in universities between 1940 and 1975 (year of death of Franco and foundation of the Association of Spanish Geographers, AGE). We will then focus on the first period of operation of the AGE and on the consolidation of an influential Group of Rural Geography within it. The third section will deal with the recent evolution of Spanish rural geography through its conferences and works of reference, and we will continue with a review of the academic offer of rural and agricultural studies in the curriculum of the Degree of Geography and other related degrees. Finally, immediately before a general conclusion, we will analyse the process of internationalisation of Spanish rural geography together with its new research topics.

1. The predominance of French influence and the rural theme in the process of institutionalisation of geography in Spain (1940-1975)

The end of the Spanish Civil War (1936-1939) was a very important turning point in the evolution of geography in Spain, as different authors have coincided in pointing out (Capel, 1976; Bosque, 1982; Mata, 1987; Rodríguez Esteban, 1995; Gómez Mendoza, 1997). On the one hand, excellent professionals in our discipline (P. Vila, G. de Reparaz and L. Martín Echevarría, among others) had to go into exile. On the other, both the dictator Franco and certain very relevant figures of his regime (such as the Minister of Education, J. Ibáñez Martín) gave geography a prominent place in the national educational and science system. In fact, in a country torn by the war, a huge effort was made to establish geography chairs in several universities, to replace the vacancies generated by the political exiles and, above all, to create a research institute within the CSIC (the equivalent of the French CNRS) dedicated to geographic research, the Juan

Sebastián Elcano Institute (Gómez Mendoza, 1997). This defined the basis of the academic presence of geography in the Spanish science system. Two leading figures in the discipline who had been appointed to their positions before the war, Amando Melón and Eloy Bullón, would take on this challenge in the first years.

In this context, certain favourable conditions arise that explain the subsequent satisfactory evolution of our discipline. Firstly, the two most relevant figures of Spanish geography in the second half of the 20th century, Manuel de Terán and José Manuel Casas Torres, the undisputed creators of the two classic lines of territorial research in Spain (Mata, 1987), obtain their positions at the university and the CSIC within a short interval. Neither can be considered a true ruralist, as their preference for urban and population studies, respectively, will become more pronounced over time, but the decision to give priority to the regionalist option of Spanish geography, with a markedly agricultural and rural theme, can be attributed to both (Rodríguez Esteban, 1995). Secondly, the institutionalisation of geography will combine the progressive introduction of geography in university, generally in arts faculties lacking resources, with the possibility of conducting research, holding scientific meetings and publishing journals of a high academic level, as offered by the Juan Sebastián Elcano Institute of the CSIC. This institute had offices in Madrid, Barcelona (under the leadership of geomorphologist Ll. Solé Sabarís) and Zaragoza. It is precisely these two latter departments that promoted the conferences of Pyrenean studies, the creation of a research centre in the border town of Jaca and, undoubtedly, the creation of a stable framework for Spanish-French collaboration in geography (Gómez Mendoza, 1997).

The French regional method, which was already widespread at that time, was to become fully hegemonic in Spanish research (theses, papers, monographs, etc.). In this regard, we should point out three milestones of the neighbouring country's influence on the way territorial studies are conceived. The first one is the participation of leading figures from French universities alongside Spanish colleagues in the scientific meetings that were for some time called Pyrenean, and later in more generic ones (the so-called *Geographical Surveys* or the international meetings of the IGU). In fact, there are records of the participation in these events, at different times, of P. Deffontaines, M. Sorre, L. Papy, P. Birot, E. De Martonne, J. Sermet, A. Perpillou, J. Tricart and A. Huetz de Lemps, among others (Arroyo, 1987; Gómez Mendoza, 1997). French influence kept growing in the post-war period and almost completely displaced the German influence that had made its presence felt until 1945 (and until a few years later through J. Gavira) in Spain (Arroyo, 1987; Gómez Mendoza, 1997). The second milestone of this enormous French ascendancy is the canonical application of the Vidalian regional method in all the theses and research carried out until the early 1970s. In this regard, two studies on rural areas of different characteristics should be considered pioneers in the adoption of the research model originating in our northern neighbour: the study of S. Llobet on the Montseny mountainous area (presented in 1944-45 and published shortly after) and the study of A. Floristán (in 1948-49) referring to the Tudela riverbank in Navarre (Llobet, 1947; Floristán, 1951). A major aspect of this influence, the third milestone, is the production by prestigious French professors of doctoral and state theses focused on the Spanish territory. In fact, in his well-documented analysis, F. Arroyo points out the defence of the works of Balabanian, Bissou, Bouhier, Daumas, Drain, Herin and Mignon between 1976 and 1980 (Arroyo, 1987), which would join the previous works carried out by some

of the leading figures of the Vidalian school of the mid-twentieth century mentioned above.

From the late 1940s to the 1970s –and even for a broader period, as A. Gil (1992) reminds us – the standard for becoming a true researcher specialising in geography was to produce a regional monograph (usually a thesis or dissertation) on a rural area. It was not until the late 1960s that this hegemonic criterion began to be dropped, with an increase of thematic studies in most cases with an urban, demographic or geomorphologic content, but at that time most of the university chairs distributed throughout the country had already been appointed and were about to give way to the university departments that continue to the present day (Bosque, 1982). Undoubtedly, both M. de Terán and J.M. Casas Torres encouraged their disciples to make their first steps on rural matters according to the criteria established by the French school. This was so even in spite of the fact that they were two very different personalities (liberal with a republican history, the former, and Catholic and a prominent member of Opus Dei, the latter), and yet they managed to agree on the system of access to geography professorships in Spain for decades, under a criterion of proportional distribution among their disciples with the possibility of entry of an *independent* candidate in rare cases (Capel, 1976). Thus, the thesis by S. Llobet directly inspired in France and the first thesis of the Casas Torres' group by A. Floristán, will be followed by the research studies of A. López Gómez on the human geography of Guadalajara in 1950-51, J. García Fernández on the region of Alcarriain 1953-54, A. Cabo on the Salamanca agricultural landscape in 1959-60, V. Roselló on South and Southeast Majorca in 1962-63 (already guided by A. López Gómez), F. Quirós on Campo de Calatrava in 1963-64, J. Gómez Mendoza on the Henares corridor in 1973-74 and M. Valenzuela on the Sierra de Madrid in 1973-74, which were supervised or directly influenced by M. de Terán, while the disciples of J. M. Casas Torres will be joined by R. Miralbés with a study on Soria in 1951-52, M. Ferrer on the Cariñena countryside in 1953-54, J. Vilá Valentí on the Bages region in 1955-56, E. García Manrique on the regions of Borja and Tarazonain 1956-57, S. Mensua on the Eastern Middle Navarre in 1959-60, A. Higuera on the Upper Guadalquivir in 1959-60, R. Puyol on the province of Almería in 1971 and J. Estébanez on the province of Cuenca in 1971, to name some of the most influential geographers of the period (Capel, 1976; Mata, 1987; Arroyo, 1987; Rodríguez Esteban, 1995). It was only at the end of this period that we witness a relative abandonment of rural and agricultural aspects, with the introduction of studies on areas in the process of suburbanization (Valenzuela, 1976; Gómez Mendoza, 1977), and provincial analyses with a clear socio-economic and applied content (Puyol, 1975; Estébanez, 1975).

As a very relevant fact related to this information, it is worth noting that these young doctors of the 1950s, '60s and '70s would, after a complex academic career, come to take up positions at such emblematic universities as Salamanca, Valladolid, Oviedo, Santiago de Compostela, Zaragoza, Barcelona, Murcia, Valencia, La Laguna and Madrid. They will be joined by younger disciples such as E. Burriel, P. Pérez Puchal, A. Gil, G. Cano, A. Morales and V. Gozálvez, trained by A. López Gómez and V. Roselló in Valencia., J. Ortega, F. Manero and F. Molinero, among others, in Valladolid, J. García Fernández, V. Cabero and Enrique Clemente in Salamanca, and M. de Bolós and B. Barceló by J. Vila i Valentí in Barcelona, which were some of the most reputable regional and ruralist nuclei at that time (Mata, 1987). The only exceptions to this rule can be found in the

theses of J. Bosque, on the urban geography of Granada, and E. Martínez de Pisón on the city of Segovia, both of which are also linked to the French method through the work of R. Blanchard (Bosque, 1962; Martínez de Pisón, 1976). In this regard, it is curious to note how, although the list of theses defended up to 1970 includes other research studies focusing on cities, population, historical cartography or mountain areas (Rodríguez Esteban, 1995), their authors either developed professional careers outside the discipline or disappear for different reasons from the annals of Spanish geographic thought.

The main groups of professors, disciples of Terán or Casas Torres, and their training as rural specialists, heirs to the regional method, allow us to draw a general map of Spanish geography in the mid 1970's. Thus, the rural tradition was kept alive in Salamanca and Valladolid with A. Cabo and J. García Fernández, in Santiago de Compostela with R. Miralbés and M^a.P. de Torres (disciple of A. Floristán), in Zaragoza with A. Higueras and L.M^a. Frutos, in Valencia with the teaching of A. López Gómez and V. Roselló, to a lesser extent in Barcelona and Murcia, where urban, didactic and physical geography themes were drawing increased attention, in Seville with the first works of G. Cano, F. Zoido and J. Cruz, in Granada with F. Villegas, F. Rodríguez and F. Ortega (although the latter will evolve towards geomorphology), in Málaga with E. García Manrique and in Córdoba with the ruralist A. López Ontiveros, among others. Rural issues will give way to other topics of interest in Palma de Mallorca, with B. Barceló and his disciples, in the Canary Islands, where an important group of physical geographers is established very early, and in Madrid, where the diversity of interests was already evident.

Regarding the topics that were most cultivated in this golden age of French-inspired rural geography in Spain, three articles mentioned above propose an arrangement that we will follow to a large extent (Mata, 1987; Arroyo, 1987; Gil, 1992). They agree on the importance of the Vidalian and French approach when dealing with any agricultural-based issue. The focus was on determining the way of life of peasant communities, and so traditional issues such as transhumance or the study of rural houses took on a certain prominence in the 1940s and '50s (Mata, 1987). All research manifested a marked historicism, which translated into a recurrent use of cadasters, interrogatories and memorials from the early modern period and the 19th century as a preliminary to a study that should focus on the present (Gil, 1992). Among the specific objects of study, land use analysis, the organization of agricultural land and the resulting rural landscapes are the ones that stand out (Arroyo, 1987). Within this framework we can highlight a culminating work of Spanish rural geography on the Atlantic regions, made in the University of Valladolid (García Fernández, 1975). Another focus of interest was agrarian structures and land tenure regimes, with works such as the one by A. López Ontiveros on the countryside of Cordoba (López Ontiveros, 1974). The study of agricultural production, crops and livestock draw the attention of a good deal of research during these decades, some of which as significant as the work of A. Cabo (1955), M^a.P. de Torres (1971) and A. Morales (1976). Once the issue of the rural home was relativised, the issues of habitat and settlement appear in all rural monographs. Worth mentioning among them, for its substantial theoretical and historiographical contribution, is the thesis of J. Ortega Valcárcel (1974). There are also numerous studies on the relations between the agricultural space, the environment, and some of its manifestations through

the expansion of irrigation and the practice of colonization. Standing out among these are A. López Gómez's work on Valencia (1964), F. Zoido's on Isla Mínima in the Guadalquivir Delta, and the much later work by the Valladolid-born F. Molinero (1982), to mention three of the most influential. Lastly, the transformations in the countryside are summarised in the advancing urbanisation process, which, as we noted above, were studied by professors J. Gómez Mendoza and M. Valenzuela in the early 1970s, noting in particular the influential work *Campo y ciudad en la Geografía española* (Country and town in Spanish geography) signed in Barcelona by J. Vila and H. Capel (1970).

2. The founding of the Association of Spanish Geographers (AGE) and the consolidation of the Group of Rural Geography (1975-1990)

After the precedents and the first steps of Spanish geography in its process of institutionalisation and presence in the scientific community since the end of the 19th century (creation of the Geographical Society of Madrid in 1876, establishment of the Elcano Institute of Geography within the CSIC in 1940, when the journal *Estudios Geográficos* started being published), the *Association of Spanish Geographers* (AGE in Spanish) was legally incorporated on 30 May 1977 under the Law of Associations of 24 December 1964, and entered in the Register of Associations of the Ministry of the Interior under number 17,766.

At that time in the mid-1970s, Spain was undergoing a profound process of political change that gradually led the country from the agonising 40-year-long Franco dictatorship to democracy, with its ups and downs and imperfections, but with a clear roadmap and horizon. It is in this context, in October 1975, that the 4th Geography Colloquium was held in the city of Oviedo under the auspices of professor Francisco Quirós Linares and the motto "City and Industry", colloquium that, as stated in the presentation of the work of Rodríguez Esteban (1995) "was the starting point of an association that, in accordance with the founding spirit, seeks to bring together and coordinate Spanish geographers, respecting their plurality and different talents, ideas, convictions and concerns". It was there where the decision was made to create the AGE, although its legal birth would come two years later.

The Association of Spanish Geographers (AGE), whose territorial scope of action is the whole of Spain, "was established for the promotion and development of Spanish geographic science". The AGE soon provided itself with a regulatory framework, as the General Assembly held on 7 October 1977 approved its first Statutes and Internal Regulation, subsequently amended on various occasions. The first two Presidents of the AGE were, in fact, two disciples of professor Manuel de Terán, who represented, to different extents, research in rural geography, namely professors Jesús García Fernández (University of Valladolid) for the period 1977-1981 and Ángel Cabo Alonso (University of Salamanca) for the period 1981-1985, followed by professor Antonio López Ontiveros (1985-89), another outstanding representative of Spanish rural geography from the University of Cordoba, as was the case, a decade and a half later, of a disciple of López Ontiveros and also an expert in rural studies, professor Rafael Mata Olmo (Autonomous University of Madrid). Thus, through these Presidents, rural geography has had an outstanding formal and institutional representation since the early days of the AGE, and also later, as such representation has to a certain extent persisted through the active participation of

prominent Spanish ruralises members of successive Boards of Trustees of the AGE to this date (Josefina Gómez Mendoza, Roser Majoral, Josefina Cruz, Bartolomé Valle, José Naranjo, Fernando Molinero, Valentín Cabero and José María Gómez Espín, among others).

The time when the AGE was created and the years that followed also coincided with a phase of growth and expansion of the university departments of geography, a regulatory change in Spanish university and the progressive appearance of new departments. Around 1978-1980, universities began to emerge in cities where until then they had either been extensions of older ones within former “university districts” (León was served from Oviedo, Cáceres from Salamanca, Badajoz from Seville, the Basque Country and Cantabria from Valladolid) and also strengthened their role and presence where they were already established (the Autonomous Community of Andalusia managed to have a public university in each province, and in some, like Seville, two or three). The new legal framework (the Law for the Reform of University, LRU, of the mid 1980s) also favoured a democratisation of the organic functioning of universities and a progressive increase in their autonomy, while facilitating at the same time staff increases and granting, by means of specifically designed tests, the status of university public officials to a large part of the teaching staff that had already been long working under different contractual arrangements. Geography, logically, was no exception.

For an improved and more comprehensive operation, AGE's activities are channelled through “Working Groups”, given the diversity of tasks involved in the geographic profession and the increasing thematic specialisation. As stated in article 45 of its Statutes, the promotion of these Working Groups is conceived as the ideal means “for the study of specific geographic fields”. They are an essential element in the functioning and organisation of the AGE. It was at the General Assembly held on 1 October 1987 in Zaragoza when it was agreed to include in the Statutes and in the Internal Regulations the possibility to create these groups, which two years later, in 1989, put the association in a new trajectory. These groups have demonstrated their ability to develop initiatives and activities, as they represent the suitable means to promote the research of geographers in specific fields of their discipline, to disseminate their scientific work and to favour relations with other scientific-professional groups. There are currently 15 groups.

The *Working Group on Rural Geography of the Association of Spanish Geographers* is one of the most numerous, consolidated and of longest tradition in Spanish geography. Rural, or rather agricultural, geography was for many years, as we said, the central research topic of the discipline. Although its formalisation as a group takes place in 1989, rural geographers had already been holding meetings for years. Therefore, at the time of its formalisation, the group had already a relatively high number of members, seventy in total, which reached almost two hundred at the beginning of the 21st century. The group was coordinated by Luisa María Frutos Mejías (University of Zaragoza) during its period of formation and drafting of bylaws; Roser Majoral Moliné (University of Barcelona) held the presidency from 1989 to 1993, creating the first web page and promoting international contacts with British ruralists; Antonio López Ontiveros (University of Cordoba) continued her work between 1993 and 1998. Eugenio Ruiz Urrestarazu (University of the Basque Country) chaired it from

1998 to 2002, promoting some activities and maintaining the elaboration of a small internal bulletin of great interest (now available in electronic format and for internal distribution), after whom the presidency was given to Bartolomé Valle Buenestado (University of Cordoba), who left it in the hands of Fernando Molinero Hernando (University of Valladolid) until 2010, period during which the website's contents and presentation were renewed. From 2010 to 2014, the president was Juan Ignacio Plaza Gutiérrez, of the University of Salamanca, where professor Cabo Alonso, renowned agricultural geographer, was teaching. The presidency of the following period (2014-2018) was held by José María Gómez Espín (University of Murcia), who handed the baton to the professor from the University of Granada Eugenio Cejudo (2018-2022). To date, it has held twenty specific colloquiums ("Colloquiums on Rural Geography"), with the twenty-first planned for October 2022 in Santiago de Compostela. The Group's objective is to promote the knowledge of rural landscapes, areas and societies, both in their origin and evolution as well as their future perspectives, their structures and dynamics, actors or agents, functions and problems, and the policies and actions that transform them. The changes that have taken place in rural areas during the second half of the 20th century and the first years of the 21st century have been of such magnitude that it is difficult to reconcile traditional research and issues with current ones. The Rural Geography Group, attentive to these changes and mutations, tries to apprehend them, explain them and give witness through its numerous activities. Perhaps one of the reference works that can best summarize the work, debates, and reflections of Spanish ruralists in those years is the publication, in 1980, of *Los paisajes rurales de España* (*The Rural Landscapes of Spain*), collective work resulting from the seminar specifically convened for this purpose within the AGE under the first presidency of professor García Fernández. This book gathered 40 contributions that made a detailed review of the varied typology of rural landscapes in Spain, covering all its regions, periphery, interior and insular areas. A decade later, one of his disciples, who later also became president of the Rural Geography Working Group, professor Fernando Molinero, published the handbook *Los espacios rurales. Agricultura y Sociedad en el mundo* (*Rural areas. Agriculture and society in the world*), an indispensable reference for the study of rural geography at university. And in 1981, professor García Ramón (Autonomous University of Barcelona) published the book *Métodos y conceptos en Geografía Rural* (*Methods and Concepts in Rural Geography*), a work which brought together very different articles written between 1973 and 1979 that focused on the geographic-human analysis of the rural environment, with an emphasis on methodological aspects. This subject was later again the focus of an article published in the journal *Agricultura y Sociedad* (*Agriculture and Society*) in 1992. From that same year is the outstanding publication edited in homage to one of the great agrarians of Spanish geography, professor Cabo Alonso, which gathers in two volumes contributions not only from geographers but also from many other professionals from related fields.

Also worthy of notice is the research by Spanish ruralists included in the prestigious publications of the Ministry of Agriculture in its series "Studies", such as Cruz Villalón's work on Lower Andalusia (1980), Romero González' on agricultural land ownership and rural society in the Valencian and Castilian regions in the 19th and 20th centuries (1983), Mata Olmo's on small and large farmland ownership in the

Guadalquivir depression (1987), the collective work of the participants in the 2nd Colloquium of Agricultural Geography on land tenure structure and regimes in Spain, and Alario Triguero's work on land concentration in Castilla y León (1991), among others. But the contribution of Spanish rural geography was multiple and very pluralistic, covering topics as diverse as animal husbandry (Cabo Alonso, 1986 and 1990; Segrelles Serrano, 1989); part-time agriculture (Cruz Villalón, 1985); gender issues and women's work in the rural world (Cánores Valiente et al., 1989; García Ramón, 1988, 1989 and 1990; Majoral Moliné, 1988 and 1991; Tullai Pujol, 1989); water, irrigation and hydraulic planning (Gil Olcina and Morales Gil, 1988, 1992 and 1995; Morales Gil, 1990; Molinero Hernando, 1986); farmland ownership (Mata Olmo and Romero González, 1988); hunting (López Ontiveros, 1986, 1990 and 1991; Mulero Mendigorría, 1991); techniques and methods (Frutos Mejías, 1985); suburban agriculture (Gómez Mendoza, 1987); forestry topics (Gómez Mendoza, 1992; Mata Olmo and Llop Palomares, 1989); etc. All of these fields of work have been continued and expanded by more geographers over the last two decades, in the 21st century.

Likewise, the rural theme has been present in the debates and conferences held by the AGE every two years. The following table shows a representative sample of its weight in the conferences held at the end of the 20th century and the first decade of the 21st century:

Table 1. Works on rural issues at the Spanish geographers' conferences at the end of the 20th century and beginning of the 21st century (Source: Plaza Gutiérrez, 2014 and prepared by the author based on the books of proceedings of the conferences for dates after 2011).

CONFERENCE	Total number of communications presented	Number of communications on rural issues	% of communications on rural issues/total
XI. Madrid-1989	127	19	15.0%
XII. Valencia-1991	75	15	20.0%
XIII. Seville-1993	94	8	8.4%
XIV. Salamanca-1995	117	28	23.9%
XV. Santiago-1997	116	13	11.1%
XVI. Málaga-1999	105	23	22.1%
XVII. Oviedo-2001	117	17	14.5%
XVIII. Barcelona-2003	117	19	16.2%
XIX. Santander-2005	102	8	7.8%
XX. Seville-2007	113	6	5.3%
XXI. Ciudad Real-2009	121	23	18.7%

XXII. Alicante-2011	101	8	7.9%
XXIII. Palma de Mallorca-2013	68	9	13.2%
XXIV. Zaragoza-2015	226	29	12.8%
XXV. Madrid-2017	254	30	11.8%
XXVI. Valencia-2019	129	15	11.6%
XXVII. La Laguna-2021	178	17	9.5%
TOTAL	2,160	287	13.3%

It seems clear that since there are already biennial meetings in the AGE Working Groups, and Rural is one of them, the choice of clearly specific topics, strictly in line with the group's general orientation, is reserved for the group, while new areas of analysis, reflection and debate, more transversal, more versatile and, as far as possible, linked to more recent orientations and innovative topics, are to be designed at the general conferences of the AGE. The distribution of the topics addressed by the papers presented at the Spanish geographers' conferences does not allow to establish fully differentiated groups. This is what has happened with a topic such as rural areas and complementary issues. Despite its modest presence among the topics of the seventeen conferences taken as a sample (representing 13.3% of the 2,160 total presentation, only being expressly addressed in four conferences, as the main theme of a presentation in another conference, Madrid 2017, and as an underlying theme in the most recent one at La Laguna in 2021), more wide-ranging presentations (such as the one dedicated to territorial development at the 2001 Conference in Oviedo, for example, or the panel presentation on current processes of territorial transformation in the Barcelona area, of 2003) did in fact address issues or problems related to agricultural activity and rural world and development.

Although rural geography is a long-established topic in geographic research, it has not been one of the thematic areas most present in the sample of conferences of Spanish geographers that has been taken as an example. It has only managed to be expressly addressed in one conference (in 1991 in Valencia, "New dynamics of rural areas", 15 presentations) and in two others as a panel presentation (Salamanca, 1995, "Regional implications of policies on primary activity and the rural environment", 23 contributions, and Santiago de Compostela, 1997, "Exploitation of marine resources: fishing, aquaculture and shell fishing", 11 contributions). Similarly, partially and transversally, rather than as a specific axis or sub-axis, it was part of the paper on natural areas presented at the Santander conference (2005), as it was included in lines of analysis such as public use in natural areas, mountains and mountain areas as areas of conflict, and mountains and mountain areas as border areas. So which aspects have been favoured by Spanish geographers in this field in national conferences? There have been different more specific aspects addressed: the instruments, means and programmes of intervention of European policies on primary activity and on the rural world and their

impact, influence, consequences, etc.; specific rural landscapes and environments and their transformations (new irrigated areas, traditional agricultural landscapes in certain areas of Spain, mountain areas and their relationship with rural development and socio-structural policy); rural and local development; as well as other more diverse topics (dairy policy, the CAP, communal farmland, the forestry sector, marginal rural areas, rural areas and the environment, agri-food systems, specific landscapes linked to certain uses and crops, etc.).

Finally, Spanish ruralists and the results of their research have also been present in another of the forums that was established very early on, almost at the same time as the AGE was founded. We are referring to the Colloquiums of Iberian Geography, held alternately in a Spanish and a Portuguese city. Practically all the universities on the “line” have hosted these meetings. They began to be held in Salamanca in 1978. The 2nd Iberian Colloquium was held in Lisbon in 1980, the 3rd in Barcelona in 1983, coinciding with the 8th AGE Colloquium, and since then and to date there have been sixteen editions of this Iberian and cross-border meeting and debate forum, and the 17th is to be held in the city of Salamanca in July 2022).

3. The recent evolution of rural geography in Spain through its colloquiums and conferences, handbooks and university textbooks, and the Bulletin of the Association of Spanish Geographers (BAGE)

To get to know the main research topics in agricultural and rural geography in Spain in the last decades, we must take a quick look at the national meetings held by Spanish ruralists. Under the auspices of the Spanish Association for the Progress of Sciences, in October 1965, what was then called the “1st Colloquium on Agricultural Geography” was held in the city of Salamanca, organised by one of the masters of Spanish Geography and an outstanding agricultural geographer, professor Ángel Cabo Alonso (1922-2016). This first meeting was divided into three sections: *Methodology and applications at the different education levels*, *Agricultural problems of the province of Salamanca*, and *Various aspects of peninsular agricultural geography*. There was a second meeting held in Madrid in 1978, promoted by Mr. Jesús García Fernández and financed by the Juan March Foundation, which, without being named “Colloquium on Agricultural Geography”, focused on *Agricultural landscapes in Spain*.

Twenty colloquiums have been held to date, starting with the one held in Alicante in 1980, which dealt with rural property ownership in Spain and its influence on the organisation of space. This was followed by the 2nd National Colloquium on Agricultural Geography, focused on the subject of *Land Structure and Tenure Regimes*, organised by the University of Seville in La Rábida (Huelva), between 27 and 30 June 1983, and the 3rd, in 1985, organised by the Geography Department of the University of Extremadura and held in Jarandilla de la Vera (Cáceres).

In 1987, the 4th National Colloquium on Agricultural Geography was organised in the Canary Islands. Depending on the venue, the organisers have always designated a paper and a panel of papers that particularly interested them or had a significant impact on their territory. In the Canary Islands, this was the competition for scarce water resources between commercial agriculture and tourism. Hence the first paper that was formulated: *Spatial competition between agriculture and tourism*. On 1 January 1986, the Kingdom of Spain joined the European Economic Community, so the second paper

was on *The Spanish countryside and the European Community. Economic and spatial transformations.*

The 5th Colloquium on Agricultural Geography was held in Santiago de Compostela from 29 May to 1 June 1989. The theme of the colloquium was organised into four papers, *The legal framework of rural property in the organisation of the agricultural space*, *The evolution of agricultural production*, *The marketing of agricultural products*, and *The impact of agrarian cooperativism*.

At the 6th Colloquium on Rural Geography, held in Madrid from 30 September to 3 October 1991, progress was made in the change from “agricultural” to “rural” within a process of conceptual renewal. The first paper was organised along these lines: *Rural geography, development and trends*, the second focused on the subject of *Forestry and hunting in Spain*, and the third on *Landscapes and agricultural systems in Latin America*. This last line of debate, incorporating the Ibero-American dimension, began to be a constant theme in the following colloquia held by Spanish ruralists. Moreover, this 6th Colloquium in Madrid coined the term “Rural Geography” in lieu of “Agricultural Geography” to name these meetings. The 7th Colloquium took place in Cordoba from 22 to 25 March 1994, under the title *Ownership, agricultural activity and environment in Spain*, and was organised into four papers: *Large properties and large farms in present-day Spain*; *Physical environment, agricultural activity and natural environment*; *Protected natural areas, ownership, agricultural activity and leisure*, and *Subsistence agriculture, new agriculture and hunger in Latin America*.

The 8th Colloquium on Rural Geography was held in the Pyrenean town of Jaca from 11 to 14 June 1996. In accordance with the geographical area in which it was held, the first paper focused on *Rural development in mountain areas*. The other topics were *Water and agriculture: recent transformations, environmental and socio-economic problems*; *Agro-industry and marketing of agricultural products*, and *Rural development issues in Latin America*.

This was followed by the 9th in Vitoria-Gasteiz from 16 to 19 June 1998, under the title: *Geographical perspectives on rural areas*; the 10th in Lleida from 25 to 29 September 2000 (*The rural world in the era of globalisation: uncertainty and potential*); the 11th in Santander from 1 to 4 October 2002 (*Rural areas between today and tomorrow*) and the 12th in León from 5 to 17 September 2004 (*What future for rural areas?*).

The topic of the European Union, specifically the Common Agricultural Policy (CAP), is a recurrent issue of great interest for geographical research due to the past and current repercussions of some of its organisations (CMO), funds (EAGGF, EAGF, ERDF, EAFRD, etc.), regulations of different productive sectors, measures for rural development, etc. The 13th Colloquium on Rural Geography, held in Baeza (Jaén) on 4, 5 and 6 October 2006 under the title *Spanish agriculture and the Common Agricultural Policy. 20 years on*, aimed to evaluate the first two decades of Spain within the European Union. The first paper dealt with *The Spanish agricultural sector and its adaptation to the Common Agricultural Policy over the last twenty years*, while the second analysed *European rural development policies and their impact on Spanish regions*. The third had to have a more Spanish focus, which is why it took as a reference the debate on *Agricultural policies in Latin America and Europe: similarities and differences*. The fourth focused on *The future of European rural areas in the light of the recent reforms of the Common Agricultural Policy*.

In September 2008, Murcia hosted the 14th Colloquium under the title *Spanish rural areas in the new century*, structured into three papers: *Livestock in Spain (1986-2008)*, *Modernisation of irrigation systems (1973-2008)*, and *Urbanisation in the rural environment*. This

scientific meeting focused on the new EU rural development policy for the period 2007-2013, with a financing and programming instrument such as the European Agricultural Fund for Rural Development (EAFRD).

The 15th Colloquium on Rural Geography was held in Cáceres from 28 to 30 September 2010, under the title *Territory, landscape and rural heritage*. It was structured around three papers: *Landscapes and agricultural economies*; *The management of water resources in rural areas*; and a third on *Rural Heritage*. The venues for presenting the papers and reports were magnificently combined with field trips to the Guadiana reservoirs and a visit to the World Biosphere Reserve of Monfragüe.

Seville coined the term "ColoRural" to give a more colourful name and profile to these colloquiums of the Rural Geography Group of the AGE. The 16th (ColoRural2012), held in this city from 10 to 12 May 2012 under the title *Researching rural*, was organised into three sessions of papers and communications: *New spaces, new settlers: stability and dynamism in rural areas*; *The look at the rural environment: landscape, heritage and natural environment*; *Gaining legitimacy: Government, micro-policies and rural community*.

The 17th Colloquium (ColoRural2014) was held in Girona from 3 to 6 September 2014, under the title *Revaluing the rural space: reading the past to win the future* and had four areas of study and debate: *Modernisation, competitiveness and agri-food chain*; *Common Agricultural Policy, Water Framework Directive and Land Management policy*; *Rural development: social, economic and environmental sustainability, heritage and territorial capital*, and *Biodiversity conservation, climate change and bioenergy*.

The 17th Colloquium, ColoRural2016, was held in Ciudad Real on 7, 8 and 9 September 2016. It was the first with an international character, and focused on the three decades of the Spanish rural world in the enlarged European Union under the title *Thirty years of the Common Agricultural Policy in Spain. Agriculture and multifunctionality in the context of the new rural world*. As the organisers of the University of Castilla La Mancha said in the presentation: "This colloquium will serve as a forum for reflection and debate on the consequences of the implementation of the Common Agricultural Policy (CAP) in Spain, after thirty years since its accession. It is also more than twenty years since the launch of the LEADER Initiative, an experience of rural development with a territorial, comprehensive and participatory approach. ColoRural 2016 presented two thematic axes, each with two sections, of which the first was the most directly related to the European theme (Axis 1 *Common Agricultural Policy: assessment and prospects in the context of globalisation*. Section 1: *The CAP and its territorial impacts. Assessment (1986-2016)*. Section 2: *The CAP and new ways of organising agri-food production in the context of globalisation*).

Under the title *New ruralities in times of crisis: territories, actors, processes and policies*, the Faculty of Philosophy and Letters of the University of Granada hosted in October 2018 the presentations and debates of the 19th ColoRural. Thematic innovation found accommodation in the incorporation of axes of discussion and study that reflected part of the new realities, thus defining four directions that structured this edition of the colloquium: 1) *Crisis and resilience of rural areas. Territories, actors and processes* (subdivided into three blocks: Resilience, crisis, post-crisis, social exclusion and gender; Population problems, rural world and social actors; and Nature, land use, land concentration, energy use and peri-urban agriculture); 2) *Modernisation, competitiveness and agri-food chain. New formulas for organising agri-food production and transformation in the context of globalisation*; 3) *Neoendogenous Rural Development. Rural development policy responses to the crisis* (structured in

four blocks: the first, related to the LEADER approach; the second revolving around social innovation and social capital/sustainable development; the third, on endogenous rural development, heritage and tourism, and the fourth block, on wine-growing landscapes and heritage); and finally the fourth 4) *The role of public policies in the context of crisis in the rural world. The Common Agricultural Policy (CAP) after 2020.*

Granada handed over the baton to the group of rural geographers from the Department of Geography of the University of Valladolid, who organised the 20thColoRural in the early autumn of 2020, in the midst of the Covid-19 pandemic (it was held online). Organised, as it was, in a University located in a territory where the problems of demographic fragility and weakness are very present, the theme of the colloquium was fit to this context: *Rural areas and demographic challenges: a view from the territories of depopulation*. As was rightly stated in the presentation of the book of papers for this ColloRural, “the aim is to address society's growing concern about the demographic problems of these territories and their consequences, questioning them and, above all, proposing answers”. Four papers were submitted: *Dynamics, discourses, values and representations: the differentiation of the rural space; Consequences of demographic decline: crisis and change in rural areas; Depopulation: emergence and deployment of public policies in Europe and Spain; and Strategies and functions of rural areas: from territories in crisis to resilient territories*.

And at the gates of spring 2022, the 21stColoRural has already been announced, which will take place in the city of Santiago de Compostela in early autumn (5-8 October), under the general motto, very appropriate for the moment, *Rural renaissance? Rural areas in post-pandemic times*, which will revolve around four lines of study and debate: *Post-2019 demographic dynamics in relation to the expansion of covid-19; The recent reconfiguration of agricultural and fishing activities; Multifunctionality in pandemic and post-pandemic times; and Landscape transformations and changes in rural land uses/ covers underway*.

With regard to university manuals on agricultural or rural geography, the most widely accepted is the one published by Editorial Ariel Geografía in 1990, by Fernando Molinero Hernando titled *Los espacios rurales. Agricultura y sociedad en el Mundo (Rural Spaces. Agriculture and Society in the World)*. It is divided into three parts: “The constraints of agricultural and rural space”; “The great agricultural systems in the world”, and “Recent problems and transformations of rural areas”. It follows the French tradition of authors such as R. Lebeau and J. Bonnamour. The object to be studied and taught, as indicated on the back cover, is “the rural space, which, on a planetary scale, continues to be fundamentally agricultural, has come under strong human pressure, both in the past and, above all, in the present, due to the demographic explosion, pressure which, in developed countries, has led to growing urbanisation and industrialisation, reversing traditional trends, and to a concern for territorial planning; while in underdeveloped countries it is all too often leading to the degradation of the agricultural space itself and progressive environmental deterioration” (Molinero, 1990). Also worth mentioning is number 10. *Geografía Rural (Rural Geography)*, of the Collection *Espacios y Sociedades (Spaces and Societies)* published by Editorial Síntesis, S.A., which follows the Anglo-Saxon tradition of rural studies. The authors M^a Dolors García Ramón, Antoni Tulla i Pujol, and Nuria Valdovinos Perdices articulate it in different blocks: “Recent evolution of rural geography”; “Rural space”; “Functions and processes that characterise rural space”; “Agriculture, food and hunger”; “Women and rural environment”; “Territorial

planning"; "Methods and techniques of analysis in rural geography" (García Ramón et al., 1995).

At university, in addition to the textbook, students must complete their training with a series of selected articles that allow them to update the topics of the course and also with a good atlas. Among the first, the articles, we should highlight professor R. Mata's article published as a supplement to issue 80-81 (1996) of the journal *Agricultura y Sociedad* (published by the Ministry of Agriculture), which focuses on "The Spanish rural geography through Agriculture and Society"; the same author published in 2002 a significant chapter on "Landscapes and agricultural systems of Spain" in the collective work *Agricultura y Sociedad en el cambio de siglo (Agriculture and society at the turn of the century)* coordinated by J.J. González Rodríguez and C. Gómez Benito and published by McGraw-Hill Interamericana de España. In the case of the Atlas, the *Atlas de la España rural*, coordinated by Molinero and others and published by the Ministry of Agriculture, Fisheries and Food in 1995; and the *Atlas de los paisajes agrarios de España*, published in 2013 and 2014 in two volumes, also by the Ministry of Agriculture, Food and Environment (MAGRAMA) and coordinated by F. Molinero, J. Tort, J.F. Ojeda, E. Ruiz, F. Martínez, R. Silva and R. Mata.

The Bulletin of the Association of Spanish Geographers (BAGE) began as a newsletter for members of the AGE (no. 4 of 1986 carried the structure of the University Departments and the main periodicals of geography) with features of a scientific journal by introducing topics of interest in monographic issues. Its evolution and the increasing quality of this journal led it to be valued as an impact journal included in the Journal Citation Report (JCR). Table 2 shows the rural issues published in the BAGE over the last decade.

During these years, the predominant research topics, by far the most important, were those related to rural landscapes and rural heritage, to a lesser extent livestock and forestry, and also those linked to production and marketing. They represent almost half (46%) of the articles published in the last ten years in the BAGE, which once again underlines the enormous weight of these subjects in Spanish geography tradition. Also worth noting is a thematic group ("Others") in which the diversity and breadth of rural topics is predominant, accounting for almost a third (30.1%).

4. The internationalisation of Spanish rural geography and the new research topics

Integration into an increasingly intercommunicated world has also led Spanish rural geographers to organise meetings with foreign colleagues, among which those with French and British geographers stand out. Three colloquiums have been held with the former in Cuenca (2001), Foix (2004) and Baeza (2007), and the same number with the British (Leicester, 1996; Valladolid, 2000 and Canterbury, 2009). In the case of relations with France, the visit of the Groupe de Geographers Rurales to Galicia and Northern Portugal in 1997 can be considered a direct precedent for these meetings (Recherches Rurales, 1998).

The relations established in recent years with Latin American countries through conferences and cooperation and exchange programmes have resulted in a custom or tradition for the Rural Geography Group to include a paper on Latin American rural issues in many of its colloquiums. These meetings have been attended by large groups

of geographers from Latin American countries. Very broad topics have always been chosen in order to include diverse contents.

With regard to the thematic presence of “the rural” in the recently held Colloquiums of Iberian Geography, it should be noted, as was pointed out above when detailing the contributions of Spanish rural geography (and of the Rural Working Group of the AGE) to the Congresses of Spanish Geographers, that such presence has not always had a fully explicit character, as often these topics have been subsumed in discussion axes or in papers whose statements are and have always been more versatile, open, integrated and comprehensive.

On the other hand, the transversality of rural research and its interrelation with other scientific fields and other groups of researchers justifies the fact that the Rural Geography Group of the AGE became in 2009 part of a new interdisciplinary forum that had many similarities to those that Spanish geography had itself set up years ago, that is the Iberian Colloquium of Rural Studies, CIER. This colloquium, which is held every two years and also alternately in a Portuguese and a Spanish city, like the Colloquiums of Iberian Geography, was initially promoted by the Spanish Association of Agricultural Economics (AEEA) and the Portuguese Society of Rural Studies (SPER). These were later joined by the Spanish Federation of Sociology, especially through two research groups (Rural Sociology and Food Sociology), the Spanish Society of Agricultural History (SEHA) and the Association of Spanish Geographers (AGE). It was in the 10th Colloquium held in the city of Palencia in 2014 where the presence of Spanish geography in these meetings became effective, institutionally and formally, forming part of both the Scientific Committee and the Organising Committee and always having one or two representatives of the Rural Geography Group. There are also social networks for works on the rural environment, such as the Network of Social Researchers on Water (RISSA network), which includes more than 1371 researchers from various countries.

Among the emerging topics or new areas of research are those related to alternative agriculture, sustainable agricultural development and, conversely, the impact of the environment on agriculture, with works on environmental pollution and the destruction of the landscape caused by certain types of agricultural activity. Similarly, continuity in the analysis and study of socio-structural and landscape transformations, as well as the new processes of the rural world and the new functions that it is progressively assuming, constitute the horizon that marks the research being carried out in these first decades of the 21st century. In the short and medium term, this research will deepen this trajectory and will also continue to contribute to the improvement and effectiveness of the policies, actions and interventions implemented in rural areas, due to their remarkable degree of applicability.

5. General conclusion: What have the last decades meant for the evolution of geographic studies on rural areas in Spain?

Throughout the pages of this contribution, we have tried to review the evolution of rural studies and, more specifically, of those focused on agricultural issues within Spanish geography over the last half century. This evolution explains how rural geography has ceased to be completely hegemonic in territorial analysis at the local, county and regional levels but remains one of the strongest and most influential traditions of geographical studies. Currently rural geography colloquiums maintain a high number of participants,

rural and agricultural issues introduce many of the contents of the general conferences of the discipline and the number of articles on these issues in the most representative journal of Spanish geography (the Bulletin of the AGE) is still very significant. The French Vidianian method served as a model to initiate many young PhD candidates and professors in geographical research during the Francoist period, when this politically aseptic approach allowed them to cultivate geographical knowledge without asserting an explicit ideological position or submitting to the pressures of the regime, which always intended to use Geography as a concrete spatial knowledge, classical and inspiring of patriotic values, for its own benefit. Spatial and territorial analysis in Spain was a satellite of the French one, focused on understanding a country where a large part of the population still lived in the countryside or whose rural memory was still very recent, and working on a specific, well-defined territory was a magnificent learning experience for the future. Today the picture has changed a lot. Geographers are aware that they live in a highly urbanised country, that the classical French school is only one of the methodological options that can be followed in research, and that agricultural activity, or life in low-density areas, is directly conditioned by public policies, in particular those derived from the European single market. However, rural issues continue to attract a significant number of colleagues. The situation in Spain is similar, as regards the more recent studies and topics, to that of neighbouring countries such as France, Italy or Portugal, and almost no colleague, because of being a geographer, shies away from participating in debates on the European Regional Development Funds (ERDF) or similar policies, the Common Agricultural Policy (CAP) or aid for economic diversification in the countryside. A markedly ruralist substratum still underlies geographic practice in Spain.

Undoubtedly, one of the weaknesses of Spanish geographical studies is the scant importance given to theoretical debate, perhaps a legacy of forty years of a totalitarian regime that insisted on repressing any critical debate in the classroom. This deficiency becomes a curiously positive attribute of rural geography as it is practised today, as dozens of geographers from different university departments continue to resort to agricultural and rural areas to carry out a multitude of practical research on current issues. The impact of European directives and policies on the countryside is a preferent area of research, and one that has been widely dealt with in articles and books, as is the case for the productivist or post-productivist content of agriculture that is currently being developed. Another area of interest is rural and mountain areas benefitting from natural or landscape protection measures. In particular, it is worth mentioning a very striking resurgence of landscape analysis in the form of catalogues, observatories and atlases born out of the European Landscape Convention signed in Florence in 2000, as part of the new rural-based geography being practiced. Other classic topics such as livestock farming, mountain uses, irrigation and intensive commercial agriculture remain, alongside new issues and approaches, such as rural tourism and gender studies, which have become widespread since the end of the 20th century.

Among the strengths of present-day Spanish geography, the one that especially stands out is its applied nature, its relation to land planning. In this regard, it should be recalled that the official undergraduate degree in most universities is called “Geography and Land Planning”, following the recommendations issued at the time by the Spanish Association of Geography (AGE). It is also important to note that in Spain, by decision

of the Spanish parliament in 1999, there is an Official College of Geographers with approximately 2,000 members. This College regulates the profession of geographer, which among its missions encourages geographers to participate in endogenous and rural development tasks, exercise as Local Development and Employment Agent, and take part in teams focused on agricultural land planning, landscape cataloguing and the protection of fragile or threatened rural areas. This practical aspect of rural geography influences everything studied by our discipline, which is often very interested in transferring the conclusions of its work to rural communities, Local Action Groups, agricultural unions, environmental groups, and many other actors working in the revitalisation of towns, villages and counties throughout the country. Indeed, some research studies on irrigated agriculture, the preservation of the rural landscape, designations of origin or the agri-food industry, among others, have had a great influence in guiding new policies and plans for the Spanish countryside.

Table 2. Publications on rural issues in the BAGE (2011-2021). Source: Prepared by the author based on the Bulletin of the Association of Spanish Geographers.

RURAL GEOGRAPHY TOPICS ANALYSED	YEARS											TO- TAL
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Agricultural structures, land ownership and land use	0	0	1	0	1	0	0	0	0	0	0	2
Agriculture and livestock production and marketing	0	0	2	0	3	1	1	1	1	0	1	10
Livestock and forestry	1	2	4	3	1	0	0	0	0	0	0	11
Water uses in the territory	2	1	2	1	2	0	0	0	0	0	0	8
Community policies, initiatives and funds	2	2	0	0	1	1	1	0	0	0	0	7
Rural landscapes and rural heritage	0	1	3	3	4	1	3	0	4	2	1	22
Rural development	1	2	0	0	1	1	0	1	0	0	0	6
Other: agro-industry, rural population, rural tourism	3	2	1	3	1	3	4	4	3	1	3	28
Rural subtotal	9	10	13	10	14	7	9	6	7	3	5	93
Total number of articles	28	30	30	31	31	55	62	74	58	57	54	510
Percentage subtotal/total	32.14	33.33	43.33	32.26	45.16	12.70	14.50	8.10	12.06	5.26	9.25	18.23

Table 3. Presence of Spanish rural geography in certain international meetings. Source: Prepared by the author.

CONFERENCES ON RURAL GEOGRAPHY BETWEEN FRANCE AND SPAIN			
I	2001	<i>The relationship between farming communities and the bush</i>	Cuenca
II	2004	<i>Living and living in low-density rural areas</i>	Foix
III	2007	<i>Protected natural areas/Protected natural areas</i>	Baeza
RURAL GEOGRAPHY CONFERENCES BETWEEN GREAT BRITAIN AND SPAIN			
I	1996	<i>Recent British-Spanish research in Rural Geography: from the traditional field to the post-productivist transition</i>	Leicester
II	2000		Valladolid
III	2009	<i>Changing European Rural and Agricultural Landscapes</i>	Canterbury
OTHER INTERNATIONAL SYMPOSIA			
	2014	<i>Colloque International Rural Conference 2014</i> <i>International conference of rural geography 2014</i> (“The countryside: places of innovation in an urban world” / Les campagnes: espaces d’innovation dans un monde urbain)	Nantes
	2017	<i>European Rural Geographies Conference 2017</i> <i>International Colloquium on Rural Geography 2017</i> (“New Rural Geographies in Europe: actors, processes, policies” / Nuevas Geografías Rurales en Europa: actores, procesos y políticas)	Braunschweig

Finally, we must emphasise the driving argument of this work. French regional and landscape geography encouraged the development of the discipline in Spain in the hard times of the post-Civil War period, providing it with an academic argument in the face of certain utilitarian pressures from the regime. A whole generation of Spanish geographers were trained in French rural studies and this legacy remains today in various forms. The first is the enormous respect for the contributions and new approaches coming from France. The second is the incorporation of a more social research agenda concerned with the effect of European policies on the countryside. The third is the interest in understanding the agriculture, livestock and food complex as a whole. Spanish

rural geography still suffers from a certain theoretical and epistemological weakness; however, its unquestionable applied nature gives it strength, respect and influence in many regions still marked by an important agricultural activity or affected by depopulation problems, where the geographer, together with the regional economist, the agronomist or forestry engineer and the sociologist, is one of the professionals most attached to the land, as a specialist involved in local and endogenous development. In this sense, Spanish geography coincides once again with French geography in its militant commitment to the rural world.

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Recent urban geography studies in Spain. Three decades interpreting the city and urbanisation processes (1992-2022)

Jesús M. González-Pérez
ORCID: 0000-0002-3751-174X
University of the Balearic Islands

María J. Piñeira-Mantiñán
ORCID: 0000-0003-3223-2239
University of Santiago de Compostela

Abstract: In recent decades, the city has changed in extraordinary ways, mainly as a consequence of urban processes and phenomena characteristic of post-fordism and globalisation. Since 2000, the effects on the city of the economic crisis and the bursting of the real estate bubble and, more recently, the COVID-19 pandemic, inaugurated a new type of research. As a result, in Spain, Urban Geography has positioned itself as one of the most dynamic geographical disciplines and has been able to read these changes in the city, both morphologically and socially.

In this context, the aim of this paper is to carry out a diagnosis of the bibliographical production of Urban Geography in Spain over the last three decades based on two types of sources. On the one hand, the publications of the Urban Geography Group of the Spanish Association of Geography (AGE); and, on the other, a selection of articles published in high impact journals according to four main variables: study territories (cities with more than 50,000 inhabitants), scales (urban or intra-urban, neighbourhoods), main themes, and characterisation of the selected journals. The methodology is based on a bibliographic search and the subsequent systematisation of the information collected. Although it is not our intention to quantify exactly the number of publications, we chose key words in the conceptual field investigated and carried out an exhaustive search in bibliographic repositories (Web of Science) since 2000.

1. Introduction

Urban geography is becoming one of the most dynamic lines of research in Spanish geography while the urban debate has also gained interest in recent years. It is a dynamism that can be assessed by taking different variables into account: an increase in the number of members in the AGE Urban Geography Group (GGU), outstanding scientific activity and a high capacity to adapt the study topics of publications and seminars to the new realities and socio-urban processes and, above all, the internationalisation and our geographers' publications in high impact journals.

Therefore, the objective of this work is to assess the bibliographic production on urban geography in Spain from the works that are the result of seminars and publications of the Urban Geography Group of the AGE (1992 and 2022), as well as from the most recent articles published in high impact scientific journals (2000-2022).

2. Methodology

The methodology used has combined quantitative and qualitative techniques. Using quantitative techniques, we have recorded the number of publications of the Urban Geography Group of the AGE and, above all, the articles in high impact journals. With the information collected, they were classified under different variables. The evolution of the total number of publications, the typology of journals or the level of internationalisation have been analysed taking these data into account. The qualitative techniques have focused on the selection of publications using different criteria (thematic, territory of study, scale, etc.) to explore the thematic and territorial evolution of urban studies in Spain. In this case, a more thorough analysis of the works was undertaken. Not only numerically but also attending to more qualitative and subjective variables, taking into account the opinions and personal assessments of the two authors of this chapter.

We have worked with two types of sources. Firstly, the AGE Urban Geography Group records on its members, scientific meetings and main publications: those that are the result of seminars (proceedings, monographs in journals, etc.) and the urban geographies produced from field trips.

Secondly, the consultation of articles on urban issues on the Web of Science through the FECYT website. In order to determine the search for articles on urban studies, three main filters were introduced: Topic (cities and Spain or Spanish), Research Area (Geography), Publication Years (2000-March 2022). The total number of results for these 22 years amounted to 6,286 articles. In order to adjust the selection and facilitate the interpretation and analysis of the results, those which mentioned Spanish cities with more than 50,000 inhabitants were taken into account, as well as those that referred to Spanish cities in general. In total, there were 966 records: 710 relating to a specific city and 256 to all Spanish cities. Based on these, 76 thematic areas were established to analyse trends.

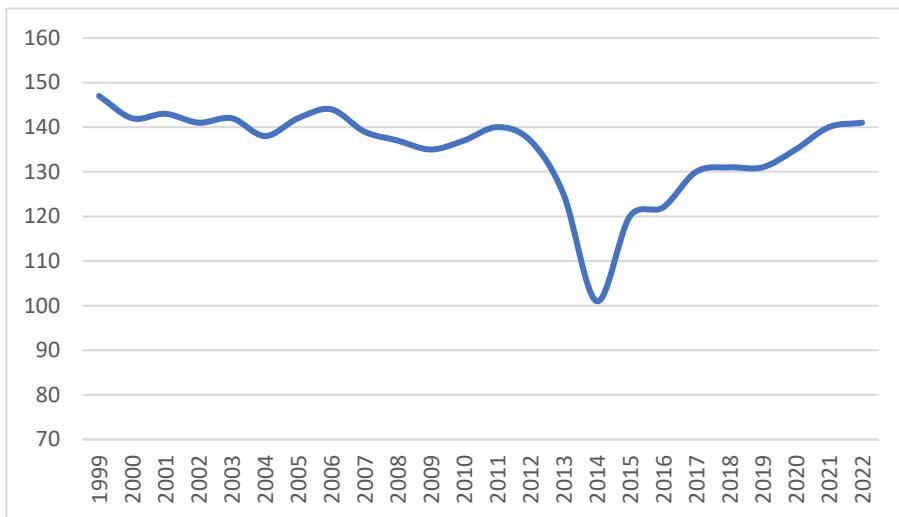
3. The AGE Urban Geography Group (1992-2022)

3.1. Composition and provenance of members

The Urban Geography Group was established in 1992. Its constitution took place with the celebration of the I Colloquium of Urban Geography held in Cuenca. In 1993, 70 members were registered. Thirty years later, at the beginning of 2022, this figure has doubled to a total of 141, making it the AGE working group with the largest number of members today. Between 1999 and 2012, the number ranged from 147 to 137 people. Since 2012, and probably as a result of the economic crisis, there was a significant fall to 101 members in 2014. Since then, we have witnessed a gradual and steady increase, reaching 141 members today (Figure 1). The members come mainly from universities although, due to the growing professionalisation of geography outside academia and in scientific and professional areas linked to urban studies and urbanism, there is a significant number of professionals coming from private companies and other public

administrations. In 2011, about 80% of the members came from universities. In 2022, these represent 71.63%.

Figure 1. Evolution of the number of Urban Geography Group members (1999-2022). Source: Authors' own work based on the Spanish Association of Geography (AGE)



By place of origin, Cantabria is the only Autonomous Region that has no representation. A total of four territories reach or exceed ten members each, which in this order, are: Andalusia, Madrid, Catalonia, Valencia and Castile-La Mancha. Although it is an eminently Spanish group, in recent years it has gained international importance. Thus, from a single foreign member in 2011 (Japan) it has risen to 12 in 2022. Of these, five are from China, two from Germany, and one from each of the following countries: Cuba, the United Kingdom, the United States, the Czech Republic, and Japan. (Table 1).

Table 1. Relative representation of the GGU members by Autonomous Region and foreign members in March 2022. Source: Authors' own work based on the Spanish Association of Geography (AGE)

Andalusia	Aragon	Asturias	Canary Islands	Cantabria	C.-La Mancha
14.18%	2.84%	4.26%	4.26%	0.00%	7.09%
Castile and Leon	Catalonia	Valencia	Extremadura	Galicia	Balearic Islands
6.38%	12.06%	9.93%	2.13%	6.38%	4.26%
Madrid	Murcia	Navarre	Basque Country	La Rioja	Foreign member
12.77%	0.71%	1.42%	1.42	1.42%	8.51%

3.2. Scientific colloquiums and meetings. Thematic diversification and progressive specialisation of publications

The records of colloquiums and other publications sponsored by the GGU help us monitor the topics and scientific advances of the members. Although the presentations proposed by the colloquium organisers decisively influence the topics to be developed

in the corresponding papers, we consider them to be a good indicator to analyse the evolution in methodologies and lines of research of the Urban Geography works. The studies are within the usual practice of diversity of epistemological currents that characterises our science today. Only one paper at the II Urban Geography Conference focused on the implementation of an approach to urban studies: the Geography of Perception.

Sixteen colloquiums in thirty years, more than 600 papers and presentations published in the books of proceedings, the publication of urban geographies of 30 cities, are just some indicators of the dynamism of GGU and Spanish urban geography in general.

Between the two major areas of Urban Geography, external analysis (city systems and urban networks) and internal analysis (intra-urban study of the city), Spanish geographers show a greater interest in the internal study of the city. Critical analysis is integrated in the vast majority of publications, however the descriptive and/or analytical component predominates. The studied territories usually coincide with cities in the authors' Autonomous Regions, and research in a field of study outside Spain is scarce.

The analysis of the papers presented at the first eleven colloquiums organised by the Urban Geography Group (1992-2010), González and Rullan (2013) highlighted seven main objectives:

- explain changes in urban systems and networks at different scales, from the functionality of medium and small cities to the consequences of metropolitanisation processes;
- analyse transformations in the morphology and structure of cities, showing special attention to the construction of urban peripheries (residential, industrial, tourist...);
- study urban policies and plans, mainly those aimed at urban rehabilitation (special plans);
- analyse the links between the city and the economy, mainly investigating the impact of tourism and industrial activities on urban functionality and structure;
- analyse urban changes through the construction of large transport infrastructures;
- study the role of public spaces and the new processes of privatisation of the city;
- describe housing policies, in some cases the real estate sector and the consequences of urban speculation.

Without ignoring some of these issues, the proceedings of the 2014-2020 colloquiums highlight a series of processes influenced by the housing bubble (1996-2007) and the impacts of the economic crisis (2008), where new lines almost always related to urban inequality stand out. In this regard, we highlight the following topics:

- Processes, causes and consequences of the housing bubble (1996-2007) and the subsequent housing and urban crises of 2008, mainly related to case studies;
- urban inequality, including social fragmentation, ethnic segregation and, in particular, gentrification;
- housing and dispossession (foreclosures and evictions);

- although to a much lesser extent, there are contributions on urban governance, and new lines of research into the study on metropolitanisation, urban peripheries and middle cities.

The titles and themes of three more specialised publications that are not part of the proceedings but are also the result of the colloquiums, manifest these new concerns: “Estudios de geografía urbana en tiempos de crisis: Territorios inconclusos y sociedades rotas en España” (Brandis, Del Río and Morales, 2016); “Land Squandering and Social Crisis in the Spanish City” (Cebrián, Piñeira and González Pérez, 2019); “Fragmented City: International Mobility and Housing in Spain” (Parreño, Piñeira and González Pérez, 2021). In this same line, in 2019, together with the Tourism Geography Working Group, the Manifesto for the Right to Housing was presented. Access to housing was one of the main urban, political and citizen debates back then, and also today.

Table 2. Colloquiums, conferences and seminars organised by GGU (1992-2022). Source: Authors' own work based on the Urban Geography Group (<https://www.ggu2015.com>)

Event	Year and city of celebration	Generic title of the event and publication	Total number of works (presentations, papers) published	Other related publications
I Colloquium on Urban Geography	1992. Cuenca	Spanish cities at the end of the 20th century	21	-
II Conference of Urban Geography	1994. Alicante	II Conference of Urban Geography	42	-
III Colloquium on Urban Geography	1996. Antequera	The city. Size and growth	43	-
IV Colloquium of Urban Geography and VI Colloquium of Geography of Tourism, Leisure and Recreation	1998. Las Palmas de G.C.	Tourism and city	51	-
V Colloquium of Urban Geography and VII Colloquium of Geography of Tourism, Leisure and Recreation	2000. Almería	Tourism and urban transformation in the 21st century	47	-

Event	Year and city of celebration	Generic title of the event and publication	Total number of works (presentations, papers) published	Other related publications
VI Colloquium on Urban Geography	2002. León	The city, new processes, new answers	38	-
VII Colloquium on Urban Geography	2004. Barcelona	The city and the environment	27	-
VIII Colloquium and field days of Urban Geography	2006. Maó, Palma, Eivissa	Post-Fordist urban processes	32	Urban studies and field guides to the Balearic Islands
I Meeting of Reflection and Debate on <i>Urban Geography</i>	2007. A Coruña	A	-	-
IX Colloquium on Urban Geography	2008. Seville, Cadiz, Ceuta	Cities, cultures, borders in a changing world	30	Urban studies and field guides to Andalusia and North Africa
X Colloquium on Urban Geography	2010. Oviedo, Santander, Bilbao	Urban spaces and landscapes: reflecting on their present to project their future	43	Urban studies and field guides to Asturias, Cantabria and the Basque Country
XI Colloquium and field days of Urban Geography	2012. Ferrol, Ourense, Porto	Cities and the urban system: a reflection in times of crisis	34	Urban studies and field guides to Galicia and northern Portugal
XII Colloquium on Urban Geography	2014. Madrid	Unfinished territories and broken societies	38	Urban studies and field guides to Madrid and Castile-La Mancha
		Book edited by Biblioteca Nueva		

Event	Year and city of celebration	Generic title of the event and publication	Total number of works (presentations, papers) published	Other related publications
XIII Colloquium on Urban Geography	2016. Girona	New urban scenarios: new conflicts and new policies	23	Urban studies and field guides to Girona and Perpignan
XIV Colloquium on Urban Geography	2018. Albacete, Valencia	Medium cities and metropolitan areas. From dispersion to regeneration	48	Special Issue Urban Science MPDI Ebook
XV Colloquium on Urban Geography	2020. Las Palmas de Gran Canaria ¹⁷	The Capitalist reconfiguration of urban spaces: transformations and inequalities	42	Urban studies and field guides to Gran Canaria and Fuerteventura
XVI Colloquium on Urban Geography	2022. Málaga, Melilla	Urban and tourist processes in post-pandemic scenarios. Visions on two continents	No data available ¹⁸	Urban studies and field guides to Malaga and Melilla.
				Proceedings Springer

In addition to being a good means to study the evolution of topics and lines of research, the publications produced by the Urban Geography colloquiums also serve to assess the group's activity and its level of specialisation. From the analysis of their publications, we can extract three main periods.

¹⁷Initially, the Colloquium had two venues: Las Palmas de Gran Canaria and Fuerteventura. Due to the restrictions caused by COVID-19, the congress was not in person, which meant that Las Palmas de Gran Canaria was the only venue.

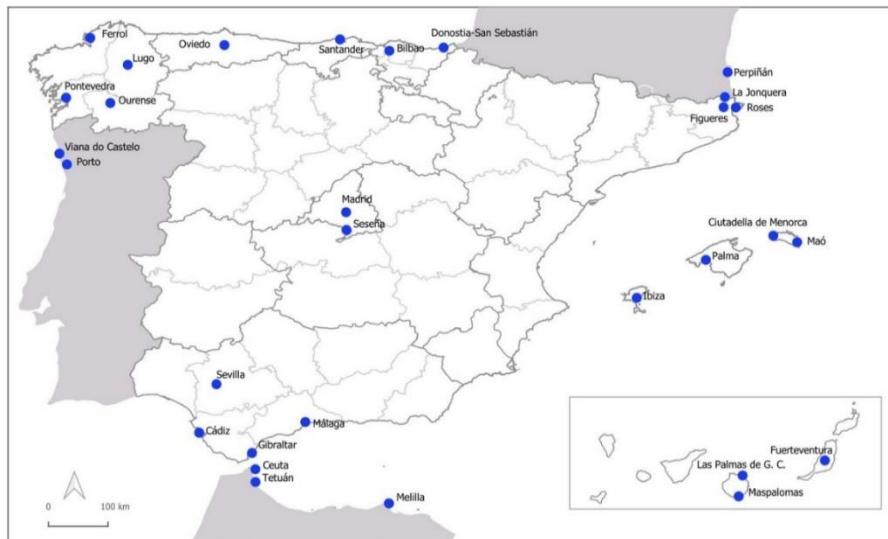
¹⁸At the time of writing of the chapter, the colloquium had not yet been held and, therefore, the number of published works was unknown.

The first begins with the first colloquium (1992) and the custom of publishing the proceedings with all the accepted papers and presentations. The second was in 2006, coinciding with organisational changes, related to a new type of congress with more than one venue, and itinerant, that is, taking place in more than one city and even more than one Autonomous Region, including field trips to cities in northern Morocco, northern Portugal and southern France. All this has led to the publication of books on the cities of study, in the form of guides or field notebooks in some cases, and authentic urban geographies in others. We placed the third period in 2018, when greater specialisation and internationalisation was promoted. Thus, in addition to the two types of publications mentioned, we can add the publication of a series of articles selected in monographic and miscellaneous issues of indexed journals (Urban Science and Vegueta), MPDI publishing house ebooks, as well as the publication of proceedings of some works presented at the XVI Colloquium held in Malaga and Melilla in 2022 by Springer publishing house. (Figure 2) (Figure 3).

*Figure 2. Cities that have been the venue or branch venue of Urban Geography colloquiums (GGU-AGE).
Source: Authors' own work based on Urban Geography Group (AGE)*



Figure 3. Cities that have urban geographies resulting from publications of field guides.
Source: Authors' own work based on Urban Geography Group (AGE)



3.3. Social networks. A new tool for analysis, dynamisation and internationalisation

The Urban Geography Group uses the social networks Twitter (@ggeourbana) and Instagram (ggeourbana) to disseminate activities and generate debate. The Twitter account was created in February 2015. Instagram in July 2018. In March 2022, Twitter had 2,133 followers and Instagram 1,565.

The origin and age of the followers are a good indicator of the internationalisation of GGU and the importance of social networks in the renewal of the group.

On Instagram, almost 7 out of 10 followers are foreigners, and almost half are between 25 and 34 years old. Spaniards (35.5%) are followed by those from Brazil (10.1%), Chile (8.6%), Argentina (8.5%) and Mexico (7.6%). By age ranges, the majority are between 25 and 34 years old (45.9%), followed by other cohorts, mainly of adult age: 35-44 (24.3%), 18-24 (14.1%), 45-54 (10%), 55-64 (3.2%), over 65 years (1.9%), and 14-17 (0.3%).

On Twitter, the number of Spanish followers is higher (56.2%) than on Instagram, but also with a high representation of people from outside Spain, especially (as in the case of Twitter) from Latin America. In this order, the five most represented foreign nationalities are Argentina (6.5%), Mexico (5.34%), Colombia (5.25%), Chile (4.2%) and Brazil (3.91%).

In summary, 65% and 44% of the followers of the Urban Geography Group on Instagram and Twitter, respectively, are located outside Spain. These data are fundamental to interpret the level of internationalisation of GGU and its ability to attract the interest of new members.

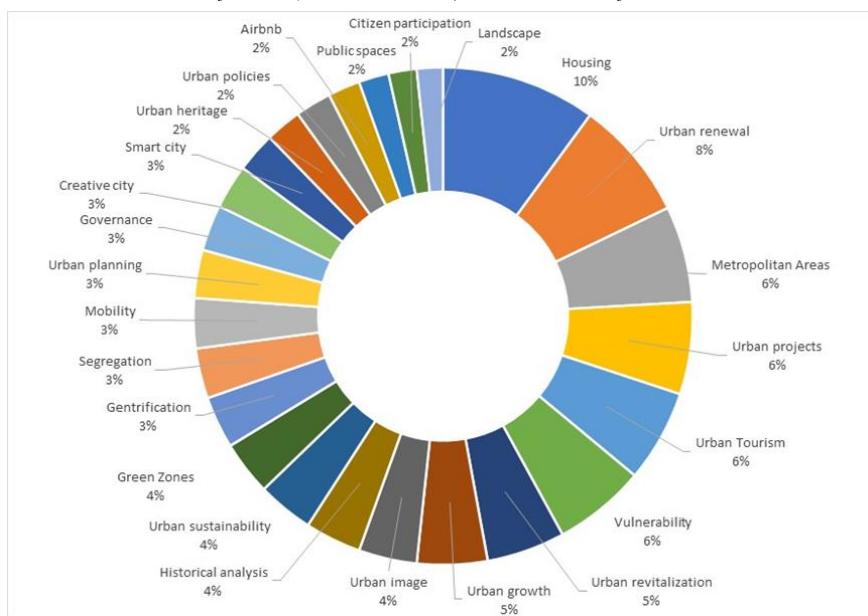
4. Scientific publications in indexed journals: web of science

4.1. Research topics

Housing is the main topic of study in articles on urban issues published by Spaniards in Web of Science (WOS) indexed journals between 2000 and March 2022, accounting for 10% of the total. It is approached both from a historical perspective, in relation to the policies carried out for its promotion, and from a current perspective, more linked to ownership, evictions and the difficulty of buying. This line corresponds to the real estate bubble period (1996-2007) and the subsequent burst and economic crisis in 2008.

Secondly, the urban rehabilitation of cities or neighbourhoods, a subject of study with a remarkable trajectory among city scholars in Spain, continues to be of interest to our colleagues (8%). Followed by 6% of urban projects, which, although in many cases they represent a type of urban rehabilitation, they seem to be individualised. Something similar happens with urban revitalisation (5%) and urban policies (2%) topics. If all these lines are grouped into a single one, they would be the main theme of urban studies in Spain. The importance of urban tourism in the last decade, mainly from the point of view of socio-urban impacts, and the inequalities that it produces in the centre of the city, are well represented in the published articles, especially since 2008, and have been measured through different indicators, where vulnerability stands out. Studies on urban tourism and vulnerability account separately for 6% of the articles. This percentage is similar to those related to metropolitan areas, the most popular topic among the works on a supra-municipal scale, something noteworthy after a few years with an impasse of publications on urban systems and networks. (Figure 4).

Figure 4. Representativeness of the 25 best represented themes in the articles published in indexed journals in Web of Science (2000-March 2022). Source: own work from WOS.



If we group these 25 topics by broad lines or blocks, we can organise them into eight main categories (table 3). The changing reality of cities since the beginning of the twenty first century, coupled with the succession of periods of crisis (2008 economic crisis and Covid in 2019), has resulted in new topics and a shift in lines of research. Although we identified some general traditional themes that continue to attract interest, the main themes are as follows:

- Historical analysis of cities.
- Expansion of cities across their peripheries: urban sprawl, metropolitan areas
- Transformation of intra-urban space: urban regeneration processes, economic revitalisation, urban projects, landscape and urban image.
- Medium cities (definition, typologies, networks).
- Urban planning and policies.
- Housing (policies, residential changes, access, residential mobility, etc.).
- Urban segregation.
- Intra-urban mobility.

A first classification of the articles in 75 thematic groups and subsequently by periods, helped to understand the evolution of urban studies in Spain and the adaptability of research to the most important urban processes or issues. It should also be noted that classifying 966 articles by topic is not easy, since, on many occasions, there are cross-sectional works and/or articles that could be included in more than one topic of study. Nevertheless, we developed a classification by themes and periods coinciding with urban processes of great importance: 2000-2006 (real estate bubble), 2007-2012 (bursting of the bubble and economic crisis), 2013-2019 (post-crisis), 2020-2022 (Covid-19 crisis) (Table 3).

Table 3. Temporary distribution of the topics in scientific publications. Source: own work from WOS.

Subject	2000-2006	2007-2012	2013-2019	2020-2022	Total
Housing	3	13	42	19	77
Urban rehabilitation	2	14	37	7	60
Metropolitan areas	4	17	14	13	48
Urban projects	2	6	29	9	46
Urban tourism		3	35	8	46
Vulnerability		2	31	13	46
Urban revitalisation	2	10	17	10	39
Urban growth	2	4	26	3	35
Urban image	2	5	17	5	29
Historical analysis	1	7	15	5	28
Urban sustainability	3	5	15	5	28
Green areas	5	2	11	9	27
Gentrification			14	12	26
Segregation	1	7	10	7	25
Mobility	2	3	17	3	25
Urban planning	1	7	12	4	24
Governance		4	10	9	23

Subject	2000-2006	2007-2012	2013-2019	2020-2022	Total
Creative city		3	16	3	22
Smart city			16	4	20
Urban heritage		5	10	4	19
Urban policies	2	3	10	3	18
Airbnb			2	14	16
Public spaces		1	11	3	15
Public participation		2	8	4	14
Landscape	1	3	6	3	13
Intra-urban inequalities		3	8	2	13
Covid-19			1	12	13
Sea fronts	1	1	8	2	12
Impact of the crisis		1	7	3	11
Grassroots movements	1	2	6	1	10
Urban design		1	6	2	9
Energy Transition			3	6	9
Urban resilience		1	4	3	8
University and City		3	3	1	7
Medium cities	1	1	1	3	6
Urban morphology		1	4	1	6
Gender			3	3	6
Overtourism			4	2	6
Peripheries			4	2	6
Urban climate	1		4		5
Quality of life			2	3	5
Evictions			2	3	5
Street Art		1	1	1	3
Historic centre		1	2		3
Urban structure		1	2		3
Financialisation		1	1	1	3
Urban cartography			2	1	3
Subsoil management			3		3
Urban allotments			2	1	3
Austerity policies			3		3
Events and city		1		1	2
Urban hierarchy		1		1	2
Street waste	1		1		2
Rebellious city			1	1	2
Ghost cities			1	1	2
Sustainable growth			2		2
Right to the city				2	2

Subject	2000-2006	2007-2012	2013-2019	2020-2022	Total
Disputed spaces			1	1	2
Urban insecurity			1	1	2
Shrinking cities			2		2
Urban toponymy			2		2
Identity	1				1
Urban region	1				1
Illegal settlements				1	1
Culture capital			1		1
Inclusive city			1		1
Secular city			1		1
Small cities				1	1
Group cohesiveness			1		1
Gypsy minority				1	1
Infrastructures			1		1
Floods			1		1
Social innovation				1	1
Unfinished territories				1	1
Tactical urbanism			1		1
TOTAL	40	146	535	245	966

Legend: green: themes that are present in all periods; blue: themes that start with the 2007 crisis and continue to the present; yellow: themes that begin in the post-crisis period; grey: themes that span from 2007 to 2013; orange: of intermittent nature. The ones that belong to each period are highlighted in blue (2000-2006), purple (2007-2012), brown (2013-2019) and pink (2020-2022).

The period 2000-2006 has the lowest scientific output (40 articles). These are the years of excessive construction, urbanisation excesses and generalisation of speculative practices associated with the real estate bubble. This probably explains the interest in studying metropolitan areas (4), housing (3) or urban growth (2). Even so, some novel aspects about the compact city were addressed such as urban waste, urban climate or green areas that, although they remained in the background for some time, they reappeared in 2013. The works where the social component prevails are underrepresented.

During the period of the crisis (2007-2013), the number of articles (146) increased almost fourfold while the debate became more widespread and public protests about the effects of the third real estate boom on the territory and society increased.

The most relevant topics are those related to:

- The effects derived from the neoliberal development model promoted in previous decades, its effects on the urban hierarchy and the associated financing processes.
- The impact of the crisis on the intra-urban space, through the analysis of vulnerability (economic, social, residential, environmental), and inequalities (income, access to services).
- New management models: governance, citizen participation.
- New initiatives: creative city, urban resilience.

- Treatment of urban space: urban morphology, university spaces and their relationship with the city, public spaces, art and urban design.
- Urban tourism, focused on tourist destinations, the wealth of heritage of historic centres to promote cultural tourism, tourism of major events and its impact on urban transformation, as well as the economic impact of tourism on cities.

The Urban Geography colloquiums of 2014 and 2016 addressed issues clearly related to the bubble and the crisis, with titles that illustrate the public debate of that time: "Unfinished territories and broken societies" and "New urban scenarios: new conflicts and new policies". Between 2013 and 2019, a total of 535 articles were published. The highest number in the last two decades. The most repeated keywords are congresses, housing, rehabilitation, urban tourism and vulnerability. The effects of the bubble, in terms of difficulty to access the housing market and the increase in excluded population, as well as the emergence of urban tourism and its impacts, are reflected in 41.87% of the publications. However, this period stands out above all for the emergence of new themes or the consolidation of other less known topics in Spain to date:

- Tourism and the incidence of platforms such as Airbnb in tourist rentals, as well as the negative effects generated by overtourism.
- Gentrification processes, mainly of urban neighbourhoods attracting tourism.
- Housing, analysed from the perspective of the increase in prices (sometimes as a result of the processes of gentrification and tourism), evictions, as well as unfinished real estate projects in our urban landscapes.
- The promotion of Smart cities, sustainable (urban water management, subsoil and air quality, flood control in consolidated urban space, urban gardens, energy transition, eco-neighbourhoods, etc.) and inclusion (social cohesion).

The two years of literature reviewed since 2020, however, shows an outstanding scientific production: 245 articles. An example of the level and tendency towards internationalisation and the choice of high impact journals as the place of publication for scientific results by city scholars in Spain. The lines of research are similar to the previous period, although two clearly interrelated themes (gentrification and Airbnb) are reinforced, and others that have been poorly developed to date (right to the city - rebel cities, stressed spaces, tactical urbanism, quality of life, citizen insecurity or illegal settlements), or new ones such as those related to Covid-19, emerge. These seem to be the main lines in the following years, with doubts as to whether the new 2022 crisis (Russian invasion of Ukraine) will lead to decisive global changes for the study and evolution of our cities.

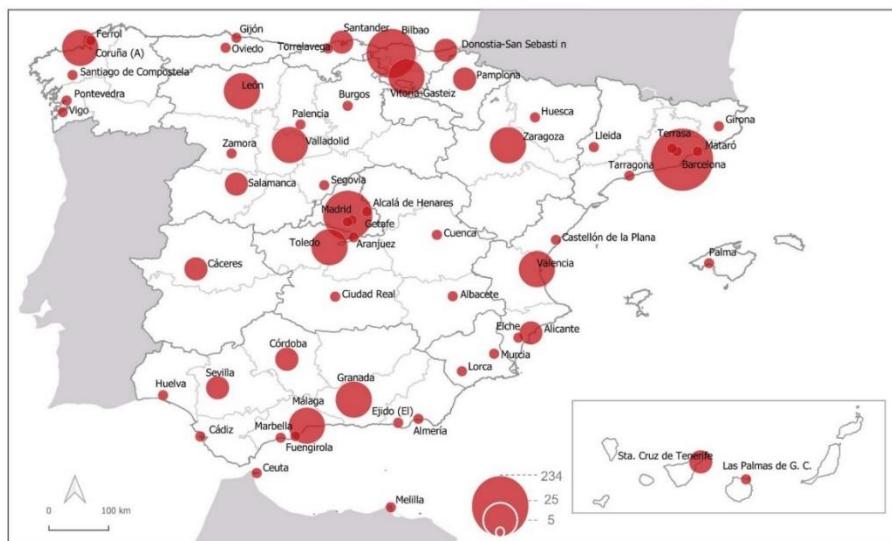
4.2. Study scales and territories

The total number of records of reviewed publications obtained from the Web of Science was 966. Of these, 256 (26.50%) took the Spanish cities in general as the analysis scale, while the remaining 710 (73.50%) responded to a specific city that, according to our methodological selection, was limited to those with more than 50,000 inhabitants. Among them are the two main Spanish urban areas, Barcelona and Madrid. Barcelona features individually in 234 records (24.22%), while Madrid features in less than half of this number (109), representing 11.28%. Bilbao is next in importance, with 62 records (6.42%) followed by Valencia with 25 (2.59%). From there, references to the rest of the cities are much smaller. Twelve cities have between 10-20 records (Malaga, Granada,

Valladolid, León, Salamanca, Toledo, Zaragoza, A Coruña, Vitoria, San Sebastián) and another ten between 5-10 records (Cáceres, Santa Cruz de Tenerife, Alicante, Pamplona, Santander, Burgos, Seville, Cordoba, Cadiz and Vigo). The remaining 37 cities have fewer than 5 records. Therefore, from a territorial perspective, the articles focus on four main areas (Figure 5):

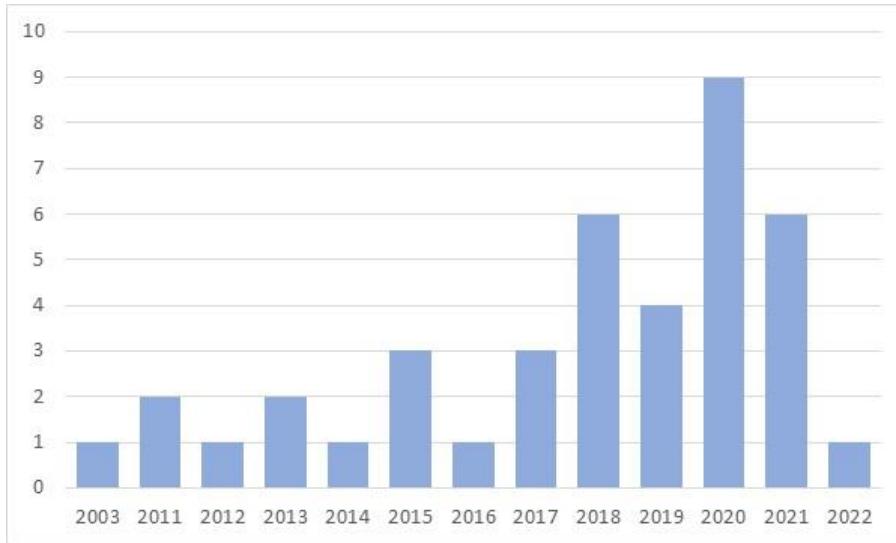
- The big cities (Madrid, Barcelona, Valencia, Bilbao, Zaragoza and Seville) of the Spanish urban system and their metropolitan areas.
- Development axes: Atlantic axis, Ebro corridor.
- Province capital cities.
- Cities with high tourism specialisation.

Figure 5. Distribution of the total number of published articles whose territory of study are Spanish cities with more than 50,000 inhabitants. Source: own work from WOS.



The external analysis of the city is losing importance with respect to the internal analysis, and intra-urban comparisons are proving to be the most appropriate for the study of variables such as urban inequality (gentrification, segregation, vulnerability, etc.). Although the neighbourhood scale is specifically addressed in only 40 articles (4.1% of the total), from 2018 the focus is shifted to these urban sectors as they are chosen to analyse various issues: urban regeneration processes and gentrification, social segregation, citizen insecurity and vulnerability and, more recently, the incidence of COVID-19 in mobility, initiatives aimed at achieving the energy transition, or citizen activist movements that fight to guarantee affordable access to housing, among others. (Figure 6).

Figure 6. Number of articles with the neighbourhood as a scale of analysis. Source: own work from WOS.



4.3. Journals and internationalisation

The 966 articles assessed have been published in 213 journals, of which only 29 are Spanish or use Spanish as a language. An indicator that foretells a trend linked to the increase in publications in high impact journals: internationalisation and visibility.

In the last twenty years, the publication of articles on urban issues in indexed journals and collected by the Web of Science has been very diverse. While in the first years of the century we counted only 40, from 2007 the greatest progress was recorded: 146 articles between 2007 and 2012, and 535 in the period 2013-2019. An upward trend that may continue in the coming years in view of the high number of works (245) published in the last two years.

If we look at the journals throughout the selected period, seven were preferred by the researchers, with more than 30 articles published, which are, in this order: *Sustainability*, *Boletín de la Asociación Española de Geografía* (BAGE), *Scripta Nova*, *Ciudad y Territorio*, *Cities*, *Eure* and *European Planning Studies*. Of these, Spanish is the main language in four of them (BAGE, Scripta Nova, Ciudad y Territorio and Eure), five are open access (all except Cities and European Planning Studies), five are indexed in *Journal Citation Reports - JCR* (all except Ciudad y Territorio) and only three (Ciudad y Territorio, Cities and Eure) are specialised exclusively in urban issues. (Figure 7).

Figure 7. The 25 journals with more articles published on urban issues in Spanish cities. Source: own elaboration from WOS.



Since 2000, the positioning of the 25 journals with more works has changed. Thus, in the period 2000-2006, the main ones in order of importance were Cities, Urban Studies, Landscape & Urban Planning, BAGE and Scripta Nova. Other important journals were Antipode, Habitat Internacional, Journal of Urban Planning & Development, Environmental Management or Regional Studies. Regarding Spanish journals, there were five among the top 25: BAGE, Scripta Nova, Ciudad y Territorio, Estudios Geográficos and Documents D'Anàlisi Geogràfica

The period 2007-2012 was a turning point in two respects. On the one hand, the only two Spanish Geography journals in JCR (Scripta Nova and BAGE) were the ones with more articles, 44 and 24 respectively; followed, at a great distance, by Cities (6 articles), European Urban & Regional Studies (5) and Journal of Urban History (5). Additionally, BAGE and Scripta Nova were the only Spanish magazines that were among the top 25.

In the 2013-2019 period, BAGE goes to the top of the classification, followed by Sustainability, Ciudad y Territorio, Scripta Nova and European Planning Studies. In addition, the number of Spanish journals increases among these 25, by improving their positioning Documents D'Analisi Geografica, Ciudad y Territorio, Ería, Estudios Geográficos, Cuadernos Geográficos and Ciudades-Revista del Instituto Universitario de Urbanística de la Universidad de Valladolid.

Finally, in recent years (2020-2022), Sustainability has taken the first position, and Ciudad y Territorio and Estudios Geográficos have become more relevant, with 15 and 11 articles respectively, surpassing BAGE (8 articles) and Scripta Nova (7). Also, all Spanish journals remain in the top 25, except Ería, and new ones such as Investigaciones Geográficas and Cuadernos de Vivienda y Urbanismo are added. In short, the remarkable increase in articles published in scientific journals and the commitment to internationalisation characterise the research of urban studies in Spain, without abandoning the publication in Spanish journals, which continue to be a good place to present scientific results.

5. Conclusions

In an urban society like the current one, the debate on the city has been remarkably relevant in recent years where, from citizen collectives to the media, it is understood as a place where to claim their rights as well as a place to inform about some of the most important changes that society knows. Gentrification, vulnerability and urban tourism are just some of the topics that have gone from merely scientific study, and have become popular topics of social debate or informative material.

The last financial crisis of 2008 is an urban crisis, in its causes and consequences (Harvey, 2012, 2013; Peck, 2012; Méndez, Abad and Echaves, 2015; Méndez, 2019). The most recent crisis caused by COVID-19 not only has had its greatest impact on cities, but cities also concentrate many of the most important associated social and economic impacts (González and Piñeira, 2020; Instituto Geográfico Nacional, 2021). The diversity and speed in the succession of problems and processes that take place in urban spaces need a scientific interpretation which is being addressed by Spanish urban geographers. On the one hand, the themes of study are renewed and adapted to new urban issues. Efforts are even made to translate reference works into Spanish, such as the case of "Seeking Spatial Justice" by E. Soja (2014). On the other hand, researchers are committed to publishing in impact journals and pursue internationalisation as a means to disseminate the results of their research.

In this chapter, we have tried to reflect on the evolution of the Spanish urban geography of the last few decades from a double analysis. Firstly, the activity of the Urban Geography Group of the AGE, especially its congresses and publications, since 1992. And secondly, based on a thorough analysis of articles published in journals (Web of Science) since 2000.

The sixteen colloquiums held, one every two years and uninterruptedly since 1992, are an example of the scientific activity and debate that exists in the Spanish urban geography. As a result, books of proceedings have been published with more than 600 papers and presentations, ten field guides understood as urban geographies studying 30 cities and, in recent years, monographic issues have been included in indexed journals as examples of internationalisation and search for visibility.

Additionally, the 966 selected articles (Web of Science) have contributed to more in-depth diagnosis of the state of our discipline in Spain and advancing new trends. From the point of view of the topics of study, some traditional topics have been of interest throughout the studied period such as urban rehabilitation, metropolitan areas and urban growth and even housing, although the latter has greatly evolved in its analysis perspectives. And others that have come into the debate to capitalise on the topics according to the period. Gentrification, urban tourism and problems of access to housing (including evictions) are good examples of recent years. As for the territories and scales of study, the analysis of specific cities predominates, especially leading cities of the Spanish urban system (Barcelona and Madrid) and, although not so much in the global scale, there is a tendency to approach research through intra-urban analysis. Finally, Spanish geographers have substantially increased the number of articles published in journals indexed in Web of Science over the 22 years studied. Spanish journals in JCR stand out, such as BAGE and Scripta Nova, although we are witnessing both high level and growing internationalisation. However, this does not imply a lack of interest in publishing in other good and well-valued Spanish journals (Ciudad y

Territorio, Estudios Geográficos, Documents d'Anàlisi Geogràfica, Cuadernos Geográficos, etc.).

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From the economic geography of crises to critical economic geography: contributions from Spain¹⁹

José Luis Sánchez Hernández
ORCID: 0000-0001-7556-6146

Universidad de Salamanca

Abstract: Economic geography claims to be a critical discipline since the blossoming of the radical perspective in the 1970s. Each economic crisis has given impetus to research on the dialectical relationship between capitalist accumulation and territorial transformations at different scales. However, since the real estate and financial crisis after 2008, the study of these economic downturns and their impacts coexists with a wealth of research topics focused on the systemic critique of capitalism: financialization, overpressure on territory, real estate dispossession, social innovation, or the proliferation of critical and alternative economies are just but some of these new insights. This text summarizes the contributions of Spanish economic geography to these research concerns. A brief outline of the Economic Geography Specialty Group of the Spanish Geography Association is also included.

1. Economic geography and the double crisis of 21st century

Labelling economic geography as *critical* in 2022 is a rather obvious statement. From clashing epistemological positions, the political economy school, in the 1970s, and post-structuralist criticism, since the 1990s, call capitalism into question as an economic system which roughly succeeds in producing wealth, but absolutely fails when it comes to fair distribution across people and regions. Between the industrial crisis and the bursting of the real estate bubble, Spanish economic geography focused its research efforts on two major issues (Sánchez, 2020).

First, until the late 1980s, the geography of the manufacturing crisis: industrial regions in decline, social affections (unemployment, exclusion), territorial impacts

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- "Alternative economic spaces and practices for building resilience in Spanish cities" (2016-2019). State Programme for R+D+i Oriented to the Challenges of Society - funded by MINECO and ERDF, reference CSO2015-65452-R.

(industrial wastelands), and industrial policies constituted the core of the discipline, very much headed on cities as the areas most affected by the deep industrial change.

Second, until 2006, the geography of innovation: why are some territories able to transform their economic foundations while others fail? What types of territories concentrate successful innovation? Is innovation restricted to large cities and digital technology-based economic activities? Do institutions and culture play a hidden but fundamental role in innovative processes? Either in urban or rural areas, this second period may be depicted as a joint effort to understand the territorial logic of innovation in Spain.

After 2008, the geographical study of innovation -the friendly face of capitalism- came to grips with the Great Recession. David Harvey's ideas about the chronic instability of capitalism returned to the fore of disciplinary concerns. The response of Western countries, which bailed out financial institutions while pursuing policies of budgetary austerity, evoked ideas of the regulation school about how states stabilize capitalism. Beyond the rapid growth of unemployment, once again, new geographical problems emerged from the sudden end of the real estate tsunami (Fernández and Cruz, 2011), such as foreclosures, urban disorder, and financial exclusion.

This coupled economic and social crisis engendered a third one, political in nature, embodied in the *indignados* and *15-M* movements. Their political representatives took office after the 2015 elections in major Spanish cities. These so-called *cities for change* (*ayuntamientos del cambio*, in Spanish) promoted the *new municipalism*, a set of transformative policies (remunicipalisation of services, affordable housing, sustainable mobility, healthy food) inspired by the idea of local policy as the most suitable geographical and political scale for meeting the needs and demands of disadvantaged social groups.

A fourth sort of crisis must be mentioned: the environmental crisis or, more precisely, the awareness of its breadth and depth. The Meadows Report raised global concern on this issue during the oil shock of 1973. Later, widespread controversy about the future of the planet has flourished and transition policies to a sustainable energy model have been enacted in advanced countries. In this process, the diffusion of the concept of Anthropocene has played an important role (Crutzen and Stoermer, 2000). The embeddedness of Anthropocene thinking in social sciences has sparked the debate on the responsibilities for the ecological crisis. Capitalism, again, fuelled by European colonisation and large-scale industrialisation, has been singled out as the great machine of nature's destruction, with terms such as Capitalocene (Moore, 2017, 2018).

The recent COVID-19 pandemic has added tension to this turmoil: unequal social and geographical impact of contagions and lock-ins, re-assessment of the role of the state and public goods (education and health systems, scientific knowledge) in economic and social life, frictions between individual preferences and community commitment... Moreover, critical fragilities of global capitalism have been exposed, such as its extreme dependence on long logistical supply chains and digital information networks. Nor has there been a lack of environmental readings of the pandemic that call for more political determination to accelerate the ecological transition.

At the beginning of 2022, Spanish economic geography, attuned with major international trends, has strengthened its critical profile. It is not just an economic geography of crises, but a critical economic geography as well, a discipline that reflects on the factors and processes that provoke capitalist crises and delves into the study of

emerging economic practices alternative to capitalism. It does not any longer looks at capitalism as the only economic system actually at work (what Gibson-Graham 2008 conceptualized as *capitalocentrism*) but it is also interested in the geographical foundations of other forms of economic coordination that have blossomed during the systemic crisis of the first quarter of the 21st century.

This text is structured in five sections. After this introduction, the second section profiles the community of Spanish economic geographers. The third one outlines the research fields addressed from this critical standpoint. The fourth section discusses the main results of the research project *Alternative Economic Spaces and Practices in Spanish Cities* (acronym PRESECAL, 2016-2019). The last section points out the emerging research concerns outlined by a new generation of research endeavours.

2. The institutional organisation of economic geography in Spain

The Economic Geography Specialty Group (acronym GGE, in Spanish) was established in 1987 as a branch of the Spanish Geographical Association (AGE), under the name of Industrial Geography Specialty Group, a neat expression of its original research topics. The growing concern for multidimensional processes (innovation, territorial development) prompted the switch to the current name in 2003, after a first stage devoted to the industrial restructuring after the 1975 crisis.

In December 2021, the GGE encompassed 70 people, a tiny 6.3 per cent of the total membership of the Association (AGE, 2021). GGE partners are based in 27 organisations. The Complutense University of Madrid is the main node -eight members- followed by Seville and Salamanca with six, Valencia with five, Valladolid with four, and Zaragoza and the Autonomous University of Barcelona with three each. These seven universities account for half of the GGE's membership. The region of Madrid is the main spot if six additional members from other different universities and research bodies are included as well.

In addition to activities common to any AGE specialty group (conferences, fieldtrips), GGE has been arranging biannual seminars since 2010 where the preliminary results of ongoing research projects are presented and discussed. However, its most distinctive practice is the engagement of local research groups (at the university level) in broader coordinated research projects. Under the same theoretical framework, each coordinated project develops empirical studies in different Spanish regions, a process that enables the identification of general trends and of nuanced specificities constructed in different local contexts (Sánchez, 2021a).

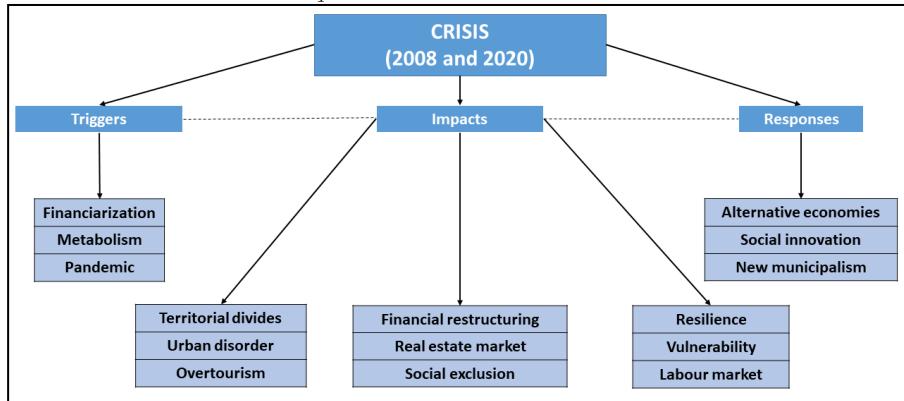
This long-term coordination has produced detailed and extensive knowledge on regional industrial change (Bosque and Méndez, coords., 1995), industrial districts and innovative milieus (Alonso and Méndez, eds., 2000; Alonso, Aparicio and Sánchez, coords., 2004; Salom and Albertos coords, 2009), relationships between industry and city (Méndez, and Pascual, eds., 2006), the role of business parks (Benito, dir., 2014), the place of medium-sized cities in the Spanish economic space (Méndez, ed., 2010), the deep transformations in metropolitan areas (Salom, coord., 2020; Sánchez, Salom, and Yacamán, eds., 2021), the 2008 crisis and its uneven territorial impact (Méndez, Abad and Echaves, 2015; Albertos and Sánchez, coords., 2014), the upsurge of alternative economies in Spanish cities (Sánchez, coord., 2019) or the strategies of deindustrialised spaces to recover their economic vitality (Benito, coord., 2022).

3. Main critical approaches in Spanish economic geography since 2008

3.1. An overview

Figure 1 showcases an interpretative outline of the development of a critical economic geography in Spain since 2008. It is based on publications by GGE members, although in some cases, due to their relevance, some contributions from outside the GGE are also discussed.

Figure 1. The 2008 and 2020 economic downturns and the evolution of a critical economic geography in Spain. Source: Author's elaboration



Most publications focus on impacts of the double crisis of the 21st century. Three thematic subsets can be sorted out. First, three territorial issues: the growing divide between metropolitan areas and middle-sized cities and rural regions, the urban chaos provoked by the crash of the real-estate bubble, and the saturation of public and private spaces due to over tourism in Spanish cities. Secondly, transformations in the financial and residential housing sectors, which have increased social exclusion by reshaping inequalities in access to basic services. Thirdly, the factors beneath unequal territorial vulnerability/resilience against the effects of crises, a topic closely interwoven with the spatial dynamics of the labour market.

Alongside this research core, the triggers of and the reactions to crises have also raised the interest of GGE members. The former includes the financialization of the economy, the overcoming of the regenerative capacity of the biophysical environment, and the 2020 pandemic outbreak. Among the latter, the diffusion of alternative economic initiatives, the rise of social innovation as a civic reaction to market and political failures, and the new policies enacted by *cities for change* after the local elections of 2015 stand out.

3.2. The triggers of economic crises

The double crisis of 2008 and 2020 unveiled several weaknesses of global capitalism that Spanish economic geography has promptly addressed. Some (namely, financialization) are deemed decisive on most of the effects and impacts listed in Figure 1. Other ones (overpressure on natural resources, diffusion of the pandemic) are related to the structural incompatibility between the current model of limitless growth and the need to respect the natural cycles of reproduction of biophysical resources.

The hegemony of financial capital has awakened the interest of Spanish economic geography in a field of study -financial geography- which had received little attention before 2008 (Murray and Blázquez, 2009). The global circulation of financial capital has been addressed by Fernández Cela in different articles (2014, 2015, 2019, 2021) which outline the European network of offshore financial centres, the geography of Spanish public debt's holders, the spatial distribution of tax haven asset holders, and the geography of foreign direct investment in Spain.

The influence of the flows and nodes of the global financial network on the economic fate of citizens and companies is captured by the metaphor of a *financial spider's web* launched by Méndez (2018) in his book on financialization. Méndez underlines the geographical concentration of financial actors in a small core of global cities that rule the flows of this multifaceted business. Independence from natural resources or logistical constraints allows the financial sector to optimize the advantages of spatial agglomeration, one of the classic research topics in economic geography.

The overexploitation of Earth and the exceeding of its metabolic capacity is a global process with sectoral and local expressions. The global demand for leisure and mobility, on the one hand, and the continuous development of new touristic destinations, on the other, merge to put touristic cities and regions under huge ecological pressures and social tensions. With the Balearic Islands as a test bed, Blázquez and Murray (Murray, Rullán and Blázquez, 2005; Blázquez and Murray, 2010) have developed an original research field on the Mediterranean tourism model. The relevance of tourism in the Spanish economic structure more than justifies these efforts to highlight the deep ecological footprint and the unsustainability of the demand-supply-demand cycle, especially when it is based on unlimited growth in the number of visitors and it affects fragile territories such as the Balearic archipelago. The concept of degrowth as a solution, perhaps the only one, to overtourism (Pons et al., coords., 2020) pops up in very recent papers (Torres, Morante and Murray, 2022) and connects with the philosophical background of alternative economies.

Spanish economic geography has not escaped to the influence of the SARS-CoV-2 virus outbreak. Méndez (2020) published a first essay on the origin of the pandemic, its diffusion patterns, its effects on global mobility and the functioning of global value chains, its socially unequal incidence in increasingly unequal societies and its potential geopolitical implications.

While many articles published since spring 2020 are framed in the context of the pandemic (at least in their titles), it seems preferable to be cautious before assessing the evolution of allegedly emerging societal trends: spread of teleworking, shortening of value chains in strategic products, relocation of certain socio-professional groups to more comfortable and healthy residential settings, timid revitalisation of rural areas, reduction of leisure mobility, encouragement of the *fifteen-minutes city*, relocation of food circuits, hegemony of e-commerce, commitment to community alternatives against the temporary withdrawal of market and state, or impact of European recovery funds on the production model and on the ecological and digital transitions...

As territorial processes, these phenomena require long periods to mature. Only a careful examination, with consistent data, might verify their conjunctural nature or confirm their integration into the longed-for new normality. Several coordinated

research projects launched by GGE members in 2020 and 2021 address these emerging issues (see section 5).

3.3. The impacts of crises along the 21st century

3.3.1. The territorial approach

A first research cluster is focused on the evolution of specific territories, on the production of new landscapes linked to the hegemony of some economic activities, or on the consequences of economic over-specialisation. Reflection on Spanish cities is shared by these three approaches: metropolitan areas, mostly, and medium-sized cities, secondly, have been scrutinized. Rural spaces, however, remain downplayed in research about the geography of crises.

The edited book *Geografía de la Crisis Económica en España* (Albertos and Sánchez, coords., 2014) released the pioneering case studies on the 2008 crisis in Madrid (Río and Rodríguez, 2014), Barcelona (Nel-lo and Donat, 2014) and Valencia (Salom and Pitarch, 2014). The three highlight the resilience of central areas, the socio-economic divergence of different sectors of metropolitan areas according to their exposure to the real estate bubble, and the speed up of tertiarization. In the same book, urban strategies to overcome the crisis are discussed as well, whether via science parks (Pascual and Benito, 2014), the digital economy (Dot, Casellas and Pallarés, 2014), or the creative sector (Michelini and Méndez, 2014).

Moreover, research has also underlined the high concentration of cultural, creative and knowledge activities in the largest Spanish cities (Méndez and Sánchez, 2011; Méndez et al., 2012), an issue that helps to understand inequalities across the urban system in terms of potential income sources. It is fair to note, however, that Escalona et al. (2016, 2018, 2022) call these conclusions into question by mapping creative economy clusters in towns below 50,000 inhabitants, showing that their economic contribution should not be overlooked in smaller cities.

After checking the impact of the crisis on large metropolitan areas, Spanish economic geography took a glance on medium-sized cities. A thematic research programme (Pascual and García, 2008; Méndez, ed., 2010; Méndez, 2013a) highlighted that their contribution to the overall Spanish industrial map is substantial but neglected. The industrial vitality of medium-sized cities is a long-term process: Andrés (2020) identifies 48 Spanish cities between 50,000 and 300,000 inhabitants that keep 23% of the country's urban population, but account for 25% of industrial employment and up to 33% of the business parks devoted to manufacturing, logistics and non-retail tertiary activities.

A third approach addresses industrial districts. These traditional manufacturing spaces have lost their formerly core position among Spanish economic geographers. Only in the Comunidad Valenciana, where their economic and territorial role is fairly evident, has their reaction to the crisis been considered (Salom and Albertos, 2014; Pitarch and Albertos, 2018). On a more local scale, several studies (Sánchez, Méndez, and Prada, 2012; Prada, 2014; Benito, 2016) have highlighted the ability of urban policies to reshape the local economic path, as in the city of Avilés.

Alongside this analysis of the dynamics of the different levels of the Spanish urban system, other authors are concerned by the new urban landscape emerged after the failure of the real-estate industry. If the crisis of heavy industry left a legacy of relicited factories, industrial wastelands and environmental devastation, the crisis of residential

construction has left its own landscape: *ghost cities* (Cañizares and Rodríguez, 2020) and *empty urbanism* (Burriel, 2014). These are residential developments left unfinished on the periphery of many Spanish cities -and in touristic regions as well- once their developers went bankrupt (Zornoza, 2014; Bellet and Alonso, 2016). The management of such unfinished urban districts is a major challenge for municipalities. Only a few cases located close to Madrid (Seseña, Valdeluz) seem to have become suitable for living.

This is not the case, as far as is known, of many urban developments in tourist areas, either coastal or elsewhere. But this is not the only tourism-related challenge. Some researchers highlight the transformations in urban downtowns with the greatest tourist influx: platform economy, embodied by AirBnB, has managed to increase the supply of accommodation in certain neighbourhoods of Madrid or Barcelona (Gutiérrez et al., 2017) to the extent of remaking their retail structure and ownership, and of crowding local population out due to the rise in rental housing prices.

3.3.2. The sectoral approach

A second bundle of research topics is the restructuring of economic activities and its sociospatial implications. It is key to recall that the real estate bubble of the 1996-2008 period was propelled by the financial sector with a huge supply of credit for developers and homebuyers. Therefore, the collapse of the construction sector dragged the financial sector down, which has undergone a process of consolidation. Almost all savings banks went bankrupt and were acquired by ever larger banks. The result is a deep concentration of financial services in the hands of a small number of corporations. The reduction in the number of bank branches is the main outcome of this process: such withdrawal has not been space-neutral but concentrated in rural areas and urban neighbourhoods with low-income residents whose savings and assets are not profitable enough to keep branches open. Several studies highlight this process for the whole of Spain and for the case of Zaragoza (Alonso et al., 2014a, 2014b; Alonso, López and Postigo, 2021).

Financialisation as a structural process is also apparent in urban real estate markets, both for rental and for property. New institutional actors (hedge funds, SOCIMI) have taken over banks and savings banks as hegemonic nodes of the finance-real estate complex (Méndez, 2019, 2021). These actors have met a huge source of profitability in the rental market of Spanish cities with greater economic dynamism and/or tourist attractiveness.

Coupled with the contraction in the supply of to-let housing caused by competition from the tourist market, the result is skyrocketing prices which extract substantial rents from low-income households: they do lack resources to access home ownership, but they also face increasingly demanding rents that are ultimately deepening social segregation within cities, such as Madrid, most affected by this process.

But these are not the only contributions of economic geography to the study of the social consequences of the housing market's dependence on the strategies of the financial sector. After 2008, Spain witnessed the phenomenon of housing evictions: the rapid growth of unemployment prevented many families from paying their monthly mortgage payments. The number of families who lost their homes increased throughout the country. Several studies have examined the uneven geography of evictions (Obeso, 2014; Méndez, Abad, and Plaza, 2014; Méndez and Plaza, 2016) and identified areas of

concentration of the phenomenon on the Mediterranean coastline and in the urban region of Madrid, as well as in some tourist destinations in inland Spain.

3.3.3. Vulnerability, resilience, and the geography of labour

After the 2008 crisis, Western economic geography resorted to the metaphor of *resilience* to conceptualize the unequal capacity of territories to overcome an external shock. This research pretends to isolate the factors that make some territories (cities, regions) resilient, while other vulnerable ones seem unable to recover their pre-crisis levels of prosperity. In this regard, contributions based on the regional evolution of employment (Sánchez, 2014) and others at the provincial and municipal level (Méndez, Abad, and Echaves, 2015) stand out, sorting data on employment, unemployment, personal income, business dynamics, and the real estate market to construct synthetic indices of regional and local vulnerability. Prada (2018a, 2018b) has focused on the case of Madrid to highlight the vulnerability of certain neighbourhoods and the formation of a complex social mosaic in the largest urban region in southern Europe.

The severity of unemployment in Spain after the 2008 crisis was deepened from 2011 onwards due to austerity policies enacted by the European Union, which resulted in a strict budgetary and fiscal adjustment that affected the workforces of public services. The intensity and geographical disparity of unemployment has not gone unnoticed by economic geography, which has considered it mainly at the urban scale (Méndez, 2013b, Caravaca, González and López, 2017), while its translation in terms of poverty and social exclusion at the regional scale was addressed by Pitarch (2014).

This section cannot conclude without underlining the other side of the socio-spatial divides. Although intense efforts have been devoted to revealing where and who has been hit by the economic crises in Spain, the fact is that some social groups, made up of highly skilled and well paid workers, enjoy an inter-urban mobility that Sánchez, Arellano and Díez (2018) or Albertos (2021a, 2021b) have related to the selective conditions that cities must produce to attract this talent, usually linked to the digital and knowledge economies. It remains unclear, at this point, whether the trends of digital nomads to take advantage of the context of the pandemic to telecommute from remote locations may affect the attractiveness of large metropolitan regions.

3.4. Coping with the crises

Unemployment, evictions, the withdrawal of public services, fiscal austerity policies and cases of political corruption led to civic demonstrations and political parties that took office in 2015 in major Spanish cities such as Madrid, Barcelona, Zaragoza, Valencia, Valladolid, La Coruña and Cádiz.

In these *cities for change*, local authorities enacted policies (the *new municipalism*) aimed at fostering the emergence and consolidation of economic experiences critical of capitalism, financialization, clientelism, and corporate power. These community initiatives flourished in Spanish cities since 2008 (see section 4) as popular responses to the new proof of capitalism's inability to generate economic prosperity, social equality, environmental sustainability, and more participatory democratic schemes.

This double phenomenon of contestation against the establishment and embryonic institutionalisation of such counterhegemonic forces was not overlooked by economic geography. Universities on the Mediterranean coast firstly adopted perspectives of social innovation (Salom, Pitarch and Sales, 2017) and social economy (Guirado et al., 2017)

to conceptualize the wide range of civic initiatives that fulfill social needs that neither markets nor states can cope with. Scholars from Madrid have also engaged in this approach in a recent edited book (Sánchez, Salom and Yacamán, eds., 2021; Yacamán, Sánchez and de la Fuente, 2021).

These contributions emphasize the articulation between collective action and absorption capacity of local authorities as a key node for understanding the extent to which the social and solidarity economies are able of stretching their influence after the 2008 crisis and the cycle of austerity ignited in 2011.

The concept of alternative economic practices has, on the other hand, underpinned a complementary research avenue (Sánchez, coord., 2019), closer to the variegated world of small community initiatives that usually avoid engagement with the formal political arena, and prefer to keep their organisational and decision-making autonomy. Section 4 develops the main results of this perspective.

4. Alternative economic practices in Spanish cities: a new glance to socio-economic space

The *Alternative Economic Spaces and Practices in Spanish Cities* (PRESECAL) research project was carried out between June 2016 and June 2019 with public funding and the participation of 21 researchers. Framed in the context of the Great Recession and its impacts, PRESECAL pursued four objectives: (i) to reflect on economic alternatives to capitalism; (ii) to identify the actors driving such alternatives and to figure their organisational arrangements out; (iii) to uncover their location patterns and their transformative power within cities; and (iv) to assess the support received on the part of local authorities.

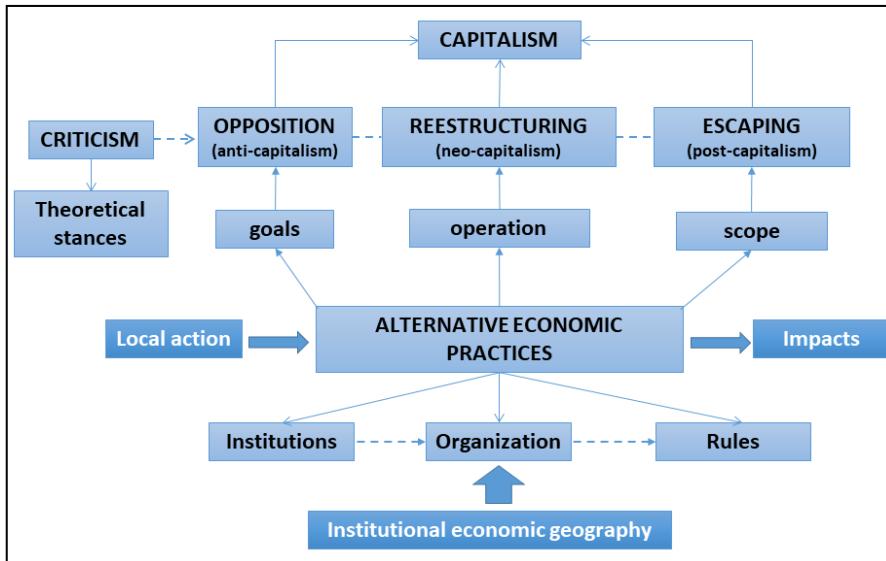
The literature review highlighted the diversity of non (fully) capitalist economic fixes in production, consumption, exchange, financing, housing, communication, education, and artistic creation. Between the informal (for-profit) economy and the formalised social economy (cooperatives, social firms, charities), there is a wide portfolio of experiences that make up a reality as vibrant as hard to be researched.

The first task consisted, then, in discussing a definition of alternative economic practices (AEPs) as "modalities of economic coordination (care, production, distribution, consumption, financing) whose participants are ruled by principles of autonomy, reciprocity and direct democracy, promote non-competitive values (such as solidarity, sustainability, cooperation, equity or inclusion) and aim to suppress, transform or overcome the variety of capitalism hegemonic in their geographical framework of action" (Sánchez, 2019, p. 43). These AEPs can deploy in extensive networks at the regional, national, or even international scale, without the need for face-to-face contact between their members; but many others are arranged around material premises set up for the collective encountering of partners. PRESECAL went for this second modality.

The second task was to choose the most appropriate theoretical framework for developing the project. Literature showed a clear bias to theories marginal to economic geography at large. PRESECAL, on the other hand, opted for disentangling the alternatives from the standpoint of widely acknowledged theoretical tools usually applied for studying profit-oriented capitalist firms, in order to identify not only the points of divergence, but also those of confluence. Hence, alongside the diverse economies approach of J.K. Gibson-Graham (2008), institutional economic geography (Sánchez

and Glückler, 2019) was picked up to research AEPs as institutional contexts who claim to be alternative in terms of values, norms and forms of organisation and participation.

Figure 2: Theoretical framework of the PRESECAL project. Source: Sánchez (2019, p. 46)



The empirical development followed four stages. First, the selection of cities: Madrid, Seville, Zaragoza, Alicante, Valladolid, Oviedo, Salamanca, León and Alcalá de Guadaíra are representative of every level of the Spanish urban hierarchy, a key choice to check the influence of city size on the density and soundness of AEPs. Second, the inventory of AEPs in each city and the selection of the six most frequent types for in-depth study. Those AEP types available in every city were selected, covering all stages of the economic process: care (time banks), production (urban gardens), distribution (producers' and barter markets), consumption (organic food coops), financing (social and local currency) and, finally, self-managed or squatted social centres as spaces for alternative socialisation and brainstorming. In total, 67 AEP cases were worked on, for which information was collected through fieldwork, monitoring of digital spaces, semi-structured interviews with all their spokespersons, and a questionnaire to the people involved that collected 468 responses.

The results of the project are presented below, although both the book (Sánchez, coord., 2019) and the articles that develop specific issues and which are listed in the text may be helpful for further reading.

4.1. The profile of alternative economic practices

Fifty-eight per cent of the 67 AEPs under research were founded between 2011 and 2015, between the 15-M campaigns and the municipal elections that gave birth to *cities for change*. Their promoters are, moreover, informal civic groups, although trade unions, neighbourhood partnerships and some local councils (for time banks or urban gardens) were also identified.

Processing the questionnaires yielded significant data (Pascual and Guerra, 2021). Slightly more than half of the sample (55 per cent) is made up of women and the average age is 47.5 years, with an average of five years of participation in the corresponding activity and 95 per cent Spanish nationality. AEP members live with their families, have a job, and are entitled with high educational diplomas (university or higher) that explain their income levels, close to or above the Spanish average. It is, therefore, the educated middle classes who are the driving force behind most of these practices.

When asked about their personal values and their motivations to get involved in these community economies, respondents first refer to their willingness to build a fairer society and to look after nature. With these goals in mind, they reject the conventional capitalist economy and consider the strategy of correcting/amending the most undesirable effects of capitalism to be more viable. There is a general yearning for a more participatory democracy as the basis for AEP decision-making. On a personal level, they acknowledge not to be attached to material or professional success and they also admit a link between food and health that leads them to take care of the former in order to protect the latter through the consumption of local and agro-ecological products.

The content analysis of the interviews reveals the values and arguments that the participants in the AEPs manage and deal with (Sánchez and Moro, 2019). Following the theory of orders of worth, appeals to community building concentrate 23 per cent of the transcribed text of the interviews, always with positive connotations. The issue of profit and the satisfaction of individual needs also has a notable record (21.5 percent), although here the debate is ambivalent: it is admitted that there must be a certain surplus to keep these AEPs alive, but the conversion of individual profit into the main objective of the economy is rejected. The search for the common good, sustainability and autonomy from public authorities are other strong points of the alternative discourse.

The organisational mechanisms of these AEPs (Sánchez, 2021b) embody such alternative hierarchy of orders of worth. AEPs are funded by voluntary contributions and members' resources. They lack material assets in property, they are carried out by their members' voluntary work and, to preserve the personal relationship and the idea of community, they tend to limit the scale of their activities. Rotation in the functions performed by each member is encouraged, contrary to the division of work integral to conventional firms. Decisions are taken in assemblies open to all participants and consensus is always sought so as not to create feelings of marginalisation or oppression. However, certain features link AEPs to capitalism, such as the use of rented premises (or facilities provided by the administration) and the use of legal currency as the main form of payment, despite the possibility of using social currencies (Caravaca and González, 2019).

Regarding location, if the number of AEPs recorded in the project is somewhat related to the demographic size of the city. This is, however, a non-linear relationship, with a sharp steep at the top of the urban hierarchy. The maturation and consolidation of AEPs thus seems to require an urban critical mass, but positive deviations were also detected in cities with an active workers' movement in the franquist period, as in the case of Valladolid.

At the intra-urban scale, AEPs are clustered at the historic centres and central areas of large cities (González and Caravaca, 2020, for Seville; Climent, Lardiés and Esteban, 2022, for Zaragoza), while in medium-sized cities they tend to settle in semi-central

districts with active neighbourhood or counter-cultural movements where the committed middle class that sustains these economic fixes is currently living (Sánchez et al., 2017 for Salamanca; Pascual, Gil and Guerra, 2018, for Valladolid; Benito and López, 2020, for León and Oviedo). This collective actor is scarce, however, in high-income central districts. In the most disadvantaged districts, population lacks the social and material capital to engage in community projects (Espinosa, Maćkiewicz and Rosol, 2017). In the new peripheral urban developments produced by the real estate bubble, the trust bonds required by these alternative economies to develop have not yet been consolidated.

4.2. Alternative economic practices: assessment, urban footprint, and interaction with local politics

A quick assessment of the strengths and weaknesses of AEPs would highlight their quest for a more equitable society that respects nature, the frugality and humanity of their members, their respect for direct, democratic, and inclusive participatory schemes, and their resilience against internal dissensions. These conflicts are usually solved by friendly splits that spread the alternative model in the urban fabric, relying on alliances with environmental, neighbourhood, youth, feminist, or trade union movements.

The weaknesses are more the flip side of the strengths and stem from the small size that many AEPs prefer to attach to: they supply a narrow portfolio of goods, lack resources, and demand a long-term personal commitment from the most active core of membership, which often leads to a fatigue and the likely disappearance of the AEP.

The debate between growth, professionalisation and involvement in politics, on the one hand, and communitarianism, participation, and autonomy, on the other, constitutes the great ideological divide of the alternative movement and affects both its urban impact and its participation in local policies, even when the political bias of the city councils is attuned to their ideals.

In the PRESECAL cities, except perhaps in Madrid, AEPs have not configured integrated alternative economic circuits of a certain complexity in terms of the variety of supply and the volume of exchanges. Perhaps the greatest impact is achieved in the realm of food, with the extension of producers' markets, urban gardening, cooperative supermarkets, and consumer coops, which also develop stable links with nearby primary producers and reconnect countryside and city around the objectives of sustainable food (Méndez and Monteserín, 2017; Michelini, Méndez and Abad, 2017; Sánchez and Espinosa, 2020; González and Cánovas, 2021).

These timid processes of alternative transformation require a collaborative attitude from local authorities. The examination of the influence of AEPs on local policies identified five basic modes of interaction. First, the city council allows the informal use of public spaces by AEPs, or shares premises and plots with them. Second, the city council promotes some initiatives for community leisure or to fight social exclusion. Thirdly, several municipalities take part in supra-municipal networks for the promotion of sustainable food, such as the Milan Urban Food Policy Pact or the Network of Cities for Agroecology. Fourth, municipalities include some AEPs in their formal sustainable urban development plans (e.g., EDUSI). The most sophisticated formula is the adoption and implementation of social and solidarity economy strategies, which encompass institutionalised AEPs. The general trend is for larger cities to develop the most complex

measures (as the MARES project in Madrid, for example, funded by the European Union), while smaller cities display to the simplest formulas.

In short, the alternative nature of these practices and economic spaces rest upon the articulation of plural, if not heterogeneous, organisational mechanisms and transformative objectives. They are framed by the goals of correcting the current state of affairs, not so much to break or overcome capitalism. AEPs are not external, but internal to a society organised around market and state. For this reason, surely, they cannot break the social, economic, and political space that nourishes them, nor live outside it, but rather, in practical terms, they commit to transforming it from within. To achieve this transformation, local and translocal networks of actors and resources are developed, whose objective is the reintegration of the natural, the social and the economic under the same regenerative, sustainable, and equitable logic.

5. Conclusions and future research avenues

This chapter has summarized the main achievements of critical economic geography in Spain during the 21st century. With the Great Recession as a background, progress has been made in the study of the underlying processes that caused the shock, its territorial, sectoral, and social impacts, and the subsequent civic and political reactions. However, this has not been the discipline's only research topic Spain, although it has caught a substantial part of its resources.

In fact, the new wave of coordinated research projects launched in 2021 insist on these critical approaches, now with the COVID-19 pandemic as a backdrop. Among urban studies, mention should be made of the project *Socio-economic innovation, trajectories, and strategies in the post-pandemic city* (UrbInn-COVID), carried out by the universities of Valencia, Autónoma de Barcelona, Complutense de Madrid, Lérida and Zaragoza. Its main objective is to study the socio-economic impact of the pandemic in Spanish metropolitan areas, as well as the adaptative strategies of their public and private actors: the extension of teleworking, the reinforcement of knowledge-intensive activities, the implications of reduced mobility, and the capacity of social innovation to offer inclusive alternatives are the main focuses of this project.

The links between rural and urban actors are considered in the project *Sustainable food networks as chains of values for agro-ecological and food transition. Implications for territorial public policies* (ALISOS), under the responsibility of the universities of Salamanca, Valladolid, Complutense and Autónoma de Madrid, plus the Instituto de Economía, Geografía y Demografía del Consejo Superior de Investigaciones Científicas (Madrid). With value chains as a theoretical framework, this project assumes that the territorial model (metropolitan regions such as Madrid, as opposed to low-density regions such as Castilla y León) influences the performance of alternative food networks and their capacity to promote the transition towards a more sustainable, fair, and localised food system.

These two issues will drive a substantial part of the research agenda in Spanish economic geography over the next four years. In any case, it is desirable that they do not become hegemonic topics, given the relevance of other research issues that should not be discarded: the development of fintech and the consequent restructuring of the financial sector, the impact of robotisation on the geography of production and work (industry 4.0), the restructuring of the automotive sector as a result of the spread of electric vehicles, the energy transition, the necessary transformation of tourism into an

activity that respects the territorial environment that makes it possible, the (very unequal) geography of the absorption capacity of Next Generation Europe funds, the evolution of territorial gaps in the Spanish socio-economic space... These are all issues that should not be neglected in the 2030 horizon.

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The Geographical Dimension of Human Mobility: A Spanish Perspective

Josefina Domínguez-Mujica
ORCID: 0000-0001-7460-5553
University of Las Palmas de Gran Canaria

Abstract: Population mobility and, particularly, migrations, have attracted the attention of an exiguous number of geographers, even though they hold an undeniable transforming power in spaces and societies. The transversal nature of this subject, at the intersection of the humanities and social sciences, has made it indebted to other disciplines: history, anthropology, sociology, etc. However, since the turn of the century, the transfer of study approaches, methods, and procedures within science has reinforced the role of geography in mobility research, giving it a renewed vitality. In turn, a review of its issues and analysis perspectives becomes a valuable instrument to identify the influence of the currents of thought guiding the future of geography and making the state of knowledge on human mobility an indicator of those paradigms that have been most successful.

1. From migration studies to the human mobility paradigm: an international perspective

1.1. Demography and migration research at the dawn of geographic science

A diachronic review of the contents of demography shows that any treatise in this discipline considers migratory processes as one of the components that condition the state of populations, intervening in their evolution and structures (Pressat, 1973). The same is true of geodemography which, in a broader sense, aims to analyze the spatial variations of the population, the factors that explain them and their consequences, giving an important role to migratory processes (Reques, 2006).

In the seventeenth and eighteenth centuries, the first research in the field of demography was concerned with the measurement of mortality, its incidence and the way to calculate it, with great success in the publications that dealt with it, both in France and in the rest of Europe. To these were added those related to population growth, which was boosted by Thomas R. Malthus' *Essay on the principle of population* (1798). And almost a century later, at the end of the 19th century, research on migration burst onto the scene, in the wake of geographer Ernst G. Ravenstein's article "The laws of migration" (1885), published in the *Journal of the Royal Statistical Society*.

His theorization of migrations represented a great advance for geography, showing the strength acquired by the discipline as a positive science, after the legacy of the great masters -Humboldt and Ritter- and the consolidation of empiricism. The influence of Darwinism and the role of the Geographical Societies, of which Ravenstein himself is a clear exponent -he was a prominent member of the *Royal Geographical Society*- made migrations a clear object of research from the postulates of positivism, that is, from a

conception of knowledge that arises from the application of a scientific method, contrasted from practice and experience. Thus, its laws made it possible to identify structures, patterns or characteristics that could be observed by comparing demographic data that reflected the spatial changes of the population (Reques, 2014).

At the end of the 19th century, from a completely different angle, Élisée Reclus argued that migrations and cultural mixing were essential factors for the development of civilization (García & Ortega, 2006). In his work “Du sentiment de la nature dans les sociétés modernes (The feeling of nature in modern societies)”, published in the *Revue de Deux Mondes (Review of Two Worlds)* (1866), Reclus defended the process of emigration towards cities and the movement of population towards their peripheries, because he understood that it was necessary to favor the contact of their inhabitants with nature, in order to make cities healthier (Oyón, 2017). However, this peculiar perspective informs us of a secondary attention to migratory processes, subordinated to ethical principles and evolutionism, the foundations of his scientific work (Gómez et al., 1982).

A few years later, in the first decades of the twentieth century, there was still a virtual absence of research on migration in the field of geography. This subject lost strength in the context of possibilism and the postulates of the French regional school, which prioritized the concepts of region, landscape, and genre of life. Human mobility and its transformative power were alien to the geographical school of Paul Vidal de la Blache and his disciples, who devoted their efforts to the elaboration of descriptive monographs that increasingly distanced geography from any theoretical reflection on the structures of society. They came to deny the possibility of finding laws in the human sciences, which resulted in the irrationalism or vitalism of the first decades of the twentieth century, or in the literary genre of regional narrative, as defined by Ortega Valcárcel (2000: 293).

Against this backdrop, it is not surprising that, from the second decade of the 20th century, sociology took the lead in migration studies. Within this discipline, research was specifically oriented towards understanding international migration and its social consequences. This trend emerged in the context of work on transatlantic migration to the United States, led by some representatives of the Chicago School, with whom urban sociologists such as Robert E. Park and Ernest W. Burgess converged, proponents of the so-called theory of migrant assimilation (Domenech & Gil-Araujo, 2016).

In this leading role of sociology in the second and third decades of the twentieth century, it is perhaps necessary to recognize the first signs that disciplinary boundaries began to blur within the social sciences, as evidenced by the fact that the topics of study and work procedures of the members of that school are a continuous reference for geographers, and migration studies are no stranger to this.

1.2. The consolidation of migration studies within geography since the middle of the 20th century

After World War II, new concepts and methods emerged in geography, because of the crisis of the postulates that had remained unalterable since the end of the 19th century. These changes are of enormous importance and derive from approaches and objectives that represent a certain rupture. This is what has come to be called the “theoretical-quantitative revolution” or “new geography”, which developed in the United States, the United Kingdom, Sweden and, later, in France, Germany, Italy, Spain

and other countries. The main characteristics of a new approach, which defends the neutrality of science and the rejection of historicist perspectives, become the appropriate framework for the formulation of new laws applicable to migratory processes.

The progressive use of logical schemes and mathematical language, the search for explanations by means of formulas from physics or economics, the construction of models, and the defense of theories explain the new focus of geographers on demography and migratory processes. As part of this approach, in which statistics took on renewed importance, it is worth mentioning the creation of the National Institute of Demographic Studies in France (1945), its counterparts at the universities of Louvain (Belgium) and Montreal (Canada), and the development of demographic studies in Italy, Great Britain and the United States in the 1950s.

From a geographical perspective, the quantitative revolution had a notable impact on the study of migration since the 1960s, with the development of interaction models, whose main objective was to identify correlations between socioeconomic, demographic, spatial and behavioral variables. These models were interested in estimating the volume of migration flows and their causes from individual and household data, which highlighted the relationships between migration, labor market and housing (Mendoza, 2016). A classic study of the application of quantitative techniques to migration was that of Goddard et al. (1975), who used regression analysis to develop a spatial interaction model of population movements in tropical Africa. However, there is no doubt that the most recognized author in the formulation of new “migration laws” was the famed geographer Wilbur Zelinsky (1971), whose migration transition hypothesis sought to link the regularities observed in the evolution of migrations to the sequence of phases of demographic and economic change (King, 2012), with the underlying idea that each type of society corresponded to differentiated forms of mobility.

Another author who considerably expanded migration studies was Torsten Hägerstrand, representative of the Lund school, who introduced the notion of the time axis and the sequence of events that make up the life of each human being. According to him, people's biographies are the ones that should count (Hägerstrand, 1975), a statement that puts us on the path of the structuration theory formulated by Anthony Giddens (1984) a few years later, as Lois (2010) rightly points out. Giddens examined the relationship between agency and structure, between the micro and macro levels, so that migration research could move beyond the perspective of migrants as independent actors who behave voluntarily, or as puppets whose actions are determined by structural mechanisms. In other words, the need to adopt an approach that explores the way in which migrants' geographies are made by migrants themselves, while being embedded in social and economic structures that migrants do not choose and that define, in part, their existence (Findlay & Li, 1999), prevailed from that moment on.

If we interpret these approaches, which combine time and space, as a sign of the influence of the postulates of the critical geographies that flourished in the 1970s and 1980s, it will be possible to understand that, from that moment on, the horizons in the geography of migration will broaden considerably. Thus, since the 1990s, there has been a diversification of analytical perspectives in the context of what was called postmodern geography, consolidating the study of lived spaces, the daily practices of migrants and their communities, the gender condition, as well as the symbolic and affective dimensions represented for migrants by the places of origin and reception. This cultural

turn of postmodernity is going to imply not only a modification of the study themes but also of the methodologies, as qualitative research techniques become widespread (Zapata-Barrero & Yalaz, 2018). And, as had happened previously, sociology plays a definitive role in this impulse.

As pointed out by Pisarevkaya et al. (2020), the increase in migration studies in the last three decades of our history implies a growing diversity of research, a fact that makes it necessary to select those concepts that have been most important in the current evolution of knowledge. From my point of view, and despite the difficult choice, the ones I consider most important and that should be elevated to the category of paradigms are those of transnationalism and human mobility.

Agreeing with Göler & Krisjane (2016: 25), “one of the key tools in contemporary migration research is the well-known concept of transnationalism, understood as increasing interconnections between nation states across borders”. This is a concept that emphasizes the interrelationships between two or more places and defines the transnational space as a realm of social interaction, a realm of confluences and divergences. This approach has been extensively developed by the demographer Alejandro Portes (Cuba-USA); the sociologists Timothy Dunn, Douglas Massey and Luis E. Guarnizo (USA), Peggy Levitt (USA-UK) and Thomas Faist (Germany); anthropologists Nina Glick Schiller (UK), Noel Salazar (Belgium) and Steven Vertovec (Germany); as well as by geographers Doreen Massey (UK), Daniel Hiernaux (Mexico), Russell King (UK), Alison Blunt (UK), Brenda S.A. Yeoh (Singapore) and Adrian J. Bailey (UK), among many other researchers.

As for the concept of “mobilities”, there is no doubt that the publication of the work of the late John Urry *Sociology beyond societies: mobilities for the twenty-first century* in 2000 represented a veritable manifesto, advocating the intersections of mobility from social (social classes, gender and ethnic groups) and geographical (regions, cities and places) perspectives (Montanari & Staniscia, 2016), through new forms of relationships (networks) that should be interpreted in the context of the fluidity of relationships generated by the process of globalization and the generalization of information technologies. Therefore, as pointed out by Domínguez-Mujica (2016: v): “owing to its ability to link locations and societies, human mobility has received increasing academic attention over the last few years in the context of the globalization”.

To echo this new “mobilities paradigm”, John Urry and Mimi Scheller created CeMoRe (Centre for Mobilities Research) in 2003 at Lancaster University, with a transdisciplinary perspective. And, in the same line of action, they founded the journal *Mobilities* in 2006, seeking to foster academic debate around the *mobilities turn*, with the analysis of global, national, and local movements of people, objects, capital and information. This broad perspective goes beyond the study of migratory movements, including other mobilities such as tourism, transportation, displacements in public and private space and the movement of material objects in everyday life.

As far as migration is concerned, it is necessary to recognize that the perspective of mobility is much more inclusive, since it allows for a much better interpretation of its complexity at the international level. Processes of circular mobility, cross-border mobility, return, re-emigration, seasonal, study, lifestyle, etc., are becoming increasingly frequent, while factors such as migration policies and policies to combat discrimination, exclusion and marginalization of migrants and ethnic communities are acquiring a

significant dimension. These policies correspond to the governance enunciated in eleven of the 17 United Nations Sustainable Development Goals (SDGs) (Agenda 2030 - <https://www.un.org/sustainabledevelopment/>), since they contain targets and indicators relevant to migration or displacement, in application of the basic principle of “leaving no one behind”.

In addition to this international mobility, there are internal migrations, which are the processes with the greatest impact on the pattern of human settlements in much of the world (Bell & Muhidin, 2009), especially in less developed countries, where the movements caused by regional imbalances and differences in opportunities between rural and urban areas are compounded by displacements due to the global climate crisis and internal socio-political conflicts. Finally, from a local point of view, we must remember daily mobility, which is so important in territorial planning and in the defense of sustainable cities and communities. On the other hand, this multiplicity of themes is analyzed with new approaches such as gender, age, the migration-development link, or that which emphasizes migrants' feelings of identity, otherness, etc., all of which, paraphrasing King (2020: 8) allows us to speak of “a new age of diversified mobilities” that have made “migration studies come of age”.

Although the paradigm of human mobility arises in the context of sociology, it has flourished notably in the field of geography. Among others, renowned geographers have theorized on this paradigm: William Clark (USA); Tim Cresswell (UK-USA); Michael Hall (New Zealand); Kevin Hannam (Macau); Aharon Kellerman (Israel) and Allam Williams (UK). Many geographers are also involved in research institutes specializing in migration studies, created under the auspices of many universities around the world, especially in North America. In addition, there is a considerable number of collaborators in IMISCOE (International Migration Research Network - <https://www.imiscoe.org/>), the largest European network of researchers in the field of migration, integration, and diversity studies. This network involves 61 institutions from almost all European countries and, having been created as a *Network of Excellence* in April 2004, within the EU *6th Framework program*, it was constituted as an independent network in 2009, when this program expired.

Another initiative of undoubtedly impact for the advancement of migration studies from the field of geography was the creation, in 2000, of the International Geographical Union's commission on “Global Change and Human Mobility”, also known by its acronym Globility (<https://globility.org/>). At the conference of this association, which was held in The Hague in August 1996, the proposal for the aforementioned commission was conceived at a meeting between William A. Clark, Armando Montanari, Ayelet Shachar and Allan Williams. Subsequently, it was approved at the general assembly of the *29th International Geographical Congress*, in Seoul (Korea, 2000). This commission has continued to function within the International Geographical Union and currently has 197 members, in addition to the ten members of its Steering Committee, its president and scientific secretary, and has actively participated in events organized by the IGU and other entities such as EUGEO (Association of Geographical Societies in Europe), EGAL (Meeting of Latin America Geographies) or the World Social Science Forum.

The dynamism shown by the examples we have given augurs a future in which studies on mobility will continue to contribute to the progress of geography and, in general, of the social sciences.

2. Research on human mobility in Spain

2.1 The Awakening of Migration Studies in Spain (1857-1949)

At a contemporary stage, when tracing the origins of geodemographic studies in Spain, in general, and of migratory processes, there is no doubt that we must refer, above all, to the production of statistical information, a task that constitutes the first keystone of the arch that supports research on human mobility in Spanish geography.

In the middle of the 19th century, specifically in 1856, during the reign of Isabel II and the government of General Narváez, the first Ley General de Estadística (General Statistics Law) was published, while the Comisión de Estadística General del Reino (General Statistics Commission of the Kingdom) was created. This fact explains why a few years later (1870) the Instituto Geográfico Nacional (National Geographical Institute) was established, with organic dependence on the Dirección de Estadística del Ministerio de Fomento (Statistics Directorate of the Ministry of Development), which became, from 1873, the Directorate of Statistics and the Geographic Institute of that Ministry.

In addition to this fact of great transcendence for the Spanish geography, there was a substantial legislative production of the Government in relation to statistics on migration, which reinforced the leading role of the Instituto Geográfico y Estadístico (Geographical and Statistical Institute). This is exemplified by the Royal Orders of August 26, 1882, and August 13, 1883, which entrusted it with the preparation of statistics on emigration and immigration, for which a Negociado de Emigraciones (Bureau of Emigrations) was created, as the body responsible for preparing the flow and migratory movement counts. It is a document with different names (from 1912 onwards it will be called “Estadística de Pasajeros por mar” (Sea Passenger Statistics) which will continue annually until the sixties of the 20th century, based on the entries and exits of passengers by sea registered in Spanish ports. They were published by the Geographic and Statistical Institute in normally quinquennial volumes (Ministry of Culture and Sport, 2022). Therefore, there is no doubt that these initiatives, as well as the enactment of different laws for the regulation of emigration, which increased as the years went by, can be interpreted in the context of the intensity of emigration abroad that Spain had registered since the second half of the 19th century, especially to Argentina, Brazil, Uruguay and other already independent Latin American countries, but also to the African colonies and to Cuba.

The creation of the Boletín de la Real Sociedad Geográfica (Bulletin of the Royal Geographical Society) in 1876 offers a clear example of this, since in its different issues it is possible to identify the importance given to the dissemination of information on population in general and migration in particular. In fact, to facilitate its consultation, the institution periodically disseminated directories of publications and tasks in which it is possible to recognize the importance of migration studies. Thus, in that made by Ricardo Beltrán y Rózpide in 1911 (Beltrán y Rózpide, 1911), we find, among many others, the following titles published between 1901 and 1911: “European Emigration (1901-1910)”; “Immigration and Colonization in Spanish America”; “Population and Immigration in the Argentine Republic”; “Indians and Immigrants (Peru and Ecuador)”, “Braceros and Spanish Immigration in Panama”; “Immigration in Cuba”; “The Emigration Congress in Santiago de Compostela”; etc. These pages also include the

signatures of geographers, historians, and other prestigious professionals of the time (Real Sociedad Geográfica de España, 2022).

To the production of statistics on foreign migrations, which reflect the data we have provided, must be added the work carried out by the aforementioned General Commission of Statistics of the Kingdom in terms of conducting modern Population²⁰. Thus, the statistical stage was inaugurated in Spain with the 1857 Population Census, although that which included, for the first time, the register of those “born in another province”, as well as the categories of “present, transients and absent” already contained in the 1860 Census, was that of 1877, all of which would facilitate the study of internal mobility (Instituto Nacional de Estadística -INE-, 2022; Silvestre Rodríguez, 2002).

This abundant information, which came to light in the second half of the 19th century, could have supported a more elaborate scientific analysis of mobility/migrations in Spain; however, the research carried out was descriptive in nature and, in very few cases, went beyond the mere enumeration of data. However, in the transition from the 19th to the 20th century, some figures appeared who studied these processes with a more reflective look. Most of them developed their work around the decade of the thirties and forties of the twentieth century and it is worth mentioning, among them, the geographer Leonardo Martín Echeverría, the commercial technician of the State, Javier Ruiz Almansa, and the economist Román Perpiñá Grau, among many others.

The first of them (Salamanca 1884-Veracruz, 1958) was an enthusiastic geographer, who entered the Instituto Escuela of Madrid as an Aspirant Professor of Geography in 1918 and obtained the Chair of Geography and History at the institute of Segovia in 1920. He participated in the introduction in Spain of modern geography, which before the 1920s had hardly any cultivator here and, since it was not possible to receive sufficient geographic training in the Faculties of Arts, he had to make an effort of self-training, driven by his entry into the faculty of the Instituto Escuela, by his learning of foreign languages, and by a stay in Germany (Real Academia de la Historia, 2022). Committed to the cause of the Second Republic, through the Republican Action party, he held various positions from 1931 until the end of the civil war, and went into exile in Mexico in 1939, where he died years later. His stay in Germany familiarized him with the European geographical schools and with Ratzel's anthropogeographic school, which left a mark on his publications and his editorial work. About the study of population and migrations, it should be noted that, in the *Geografía de España* (*Geography of Spain*) published by Labor in 1928, “the part devoted to population is perhaps the best resolved and is based on two questions: the ‘laws’ of its distribution and the ‘forms of agglomeration’” (Quirós Linares, 1997: 74). A similar scheme, with a clear Ratzellian influence, can be found in the book published in 1940 by the Atlante publishing house in Mexico, under the title *El país y los habitants* (*The country and its inhabitants*), in which he makes a brief allusion to rural-urban migrations, interpreting population densities in Spain from a deterministic perspective, pointing out altitude, climate and the industrializing process as causal factors.

The figures of Javier Ruiz Almansa (1888-1950) and Román Perpiñá Grau (1902-1991) have been selected, among many others, to illustrate the nature of migration

²⁰ As such, they should be understood as those that meet four minimum conditions: official sponsorship, defined territory, universality, and simultaneity.

studies at this stage because of the impetus they gave to the *Estudio Científico de los Problemas de Población* (*Scientific Study of Population Problems*), as they called the Association that brought them together with other professionals from different branches of knowledge to promote demographic studies, the holding of conferences and the publication of articles in the *Revista Internacional de Sociología* (*International Journal of Sociology*) (1943), whose edition was sponsored by the Instituto Balmes de Sociología (Balmes Institute of Sociology) (Consejo Superior de Investigaciones Científicas, 2022).

Javier Ruiz Almansa was a member of the special bodies of the Administration and published many articles on demography in that journal, in which he oversaw a section of *Noticias demográficas* (*Demographic News*). He began his work of scientific dissemination with a first work that saw the light of day in 1930, with the title *La población de España* (*The Population of Spain*), in which he ordered and systematized the statistics on the Spanish population since 1900. He also analyzed in greater depth the demographic evolution of Galicia, Aragón, and Madrid in successive issues of the *Revista Internacional de Sociología* (*International Journal of Sociology*) and elaborated the statistical series on Spanish emigration to Argentina, which he published in the same with the title *Emigración española a la Argentina. Series Estadísticas* (*Spanish emigration to Argentina. Statistical Series*) (Gascón, 1950).

Román Perpiñá Grau, a graduate of the Commercial University of Deusto (1918) and PhD from the University of Frankfurt (1929), after studying at the Institute of World Economics in Kiel, developed an intense work of research and dissemination on the Spanish economy, which transcended the borders of our country, which was recognized with the award of the Prince of Asturias Prize for Social Sciences in 1981. Among many other topics of economic policy and economics in general, he also wrote articles on population in the *Revista Internacional de Sociología* (*International Journal of Sociology*), such as the one he signed in its first issue with the title *Las migraciones: ley inexorable de los pueblos* (*Migration: an inexorable law of the people*) (Real Academia de la Historia, 2022).

In summary, in this first century of analysis, studies on migration are still scarce and their dissemination is the responsibility of a series of researchers of very diverse origins. At this stage, however, the Real Sociedad Geográfica y Estadística (Royal Geographical and Statistical Society) shines with its own light, carrying out an enormous task to organize and provide useful statistical information for the studies that will be developed in later stages, as well as the *Revista Internacional de Sociología* (*International Journal of Sociology*), which brings together a series of pioneering works that contributed to the scientific dissemination of demography and the study of migrations.

2.2 Migrations in the Spanish regional geography (1950-1975)

Migration studies within the geography of the population in Spain are marked by two fundamental facts, as we have been pointing out. On the one hand, by the evolution of geographical thought itself and, on the other, by the sequence of events inherent to the socioeconomic and political evolution of the country. For this reason, we have set the threshold of this stage in 1950, when the United Nations Organization accepted the reestablishment of diplomatic relations with Spain, in the still hard years of autocracy of Francisco Franco's regime. For its part, we have set the end of this period in 1975, the year of the dictator's death. Parallel to these political events, Spain underwent far-reaching changes in its socioeconomic structure, including the resumption of

industrialization and urban growth which, together with other types of political transformations, came to be defined as “developmentalism”. From a social point of view, these processes gave rise to an intense movement from rural areas to the cities, as well as a gradual resumption of foreign emigration to Latin America and, fundamentally, to Western Europe.

From the perspective of geographical thought, this stage is marked by the great influence exerted by French regional geography in Spain until well into the 1970s, while geographical knowledge is institutionalized at all educational levels, due to the role given to it by the dictatorship in the cultural reconstruction of the country, as a vehicle for nationalist ideologies (Capel, 1976). In this context, the triumph of possibilism and the acceptance of geography, in the words of Vidal de la Blache, as “the science of places and not of men” meant that the population was considered as one more element in the explanation of the landscape, analyzing only those aspects of it that were related to its greater or lesser adaptation to the physical environment (García Ballesteros, 1985). This subordination of population studies to the regional approach prevailed in the work of well-known geographers in the early development of the discipline, such as Pau Vila or Dantín Cereceda, who focused their attention on population studies.

From the point of view of the institutions that will promote geographic studies, the Instituto Juan Sebastián Elcano del CSIC (Juan Sebastián Elcano Institute of the CSIC) (1940) and its sections of Zaragoza and Barcelona stand out. In addition, the work of the most renowned geographers of the 1950s in regional and human geography, Professors Manuel de Terán Álvarez, José Manuel Casas Torres and Joan Vilá Valentí, contributed to the consolidation of a university community of geographers who gave a definitive impulse to this discipline in the 1960s and 1970s (García Ramón et al., 1992). As for the former (Madrid, 1904-1984), there is no doubt that he is the exponent, par excellence, of the renewal of geography in the years of the dictatorship and the democratic transition and a great intellectual of the Spain of his time (Asociación Española de Geografía -AGE-, 2019). This is evidenced by the numerous articles published as a tribute and recognition of his figure after his death (Ribeiro, 1983; Bullón & Troitiño, 1984; Vilá Valentí, 1984; Solé i Sabarís, 1984; de Torres Luna, 1985); the four round tables that, under the title “Manuel de Terán: maestro de geógrafos (Manuel de Terán: Master of geographers)”, were held in 2004 at the Real Academia de la Historia (Royal Academy of History), en la Residencia de Estudiantes (Students Residence) and at the Autónoma and Complutense Universities of Madrid (del Río Lafuente, 2007); and the exhibition entitled “Manuel de Terán: geógrafo (Manuel de Terán: geographer)” was held at the Students Residence, curated by professors Nicolás Ortega Cantero and Eduardo Martínez de Pisón in 2007 (UNED Canal, 2007; Olivera Poll, 2008).

Although in the 1950s, the influence of regional geography kept population studies away from Spanish geography, Professor Terán’s 1964 article “Geografía humana y sociología. Geografía social (Human geography and sociology. Social geography)”, in the words of Professor Aurora García Ballesteros, is that which “most profoundly proposes a social approach to population geography” (1985: 38). However, the human geography volume of the most outstanding work of these years was never published: the *Geografía regional de España (Regional geography of Spain)*, directed by Professor Manuel de Terán himself and by Lluís Solé Sabarís (1968) and which, in the words of Gómez Mendoza

(2018: 2), was “a school of thought that of the second-generation geographers of the century”.

Another geographer who made a strong defense of population studies in this period is Professor Casas Torres (Valencia, 1916 - Madrid, 2020). Although this academic joined the university in Valencia, he developed his research and teaching at the universities of Zaragoza and Complutense of Madrid. In the latter he created the Instituto de Geografía Aplicada (Institute of Applied Geography), and he also received tributes in recognition of his scientific work in 1972, 2007 and 2008. In the field of Population Geography his most outstanding work is that which he published in *Geographica*, in 1956, with the title “Un plan para el estudio de la geografía de la población española (A plan for the study of the geography of the Spanish population)”, a proclamation of his conception of the role of population within geography, as his words show: “it is necessary to situate this population, known statistically, in the place it occupies on the surface of the earth and to see it there as a passive subject of the influence of its environment, and of the other human collectivities in relation to it, at the same time as an active modifying agent of that environment” (1956: 31). These reflections show that population studies in Spanish geography were still confined to the schemes of regional geography, a perspective that Casas Torres intended to improve with his project to promote new research.

Finally, it is worth mentioning Professor Joan Vilá Valentí (Bages, 1925 - Barcelona, 2020), another teacher who developed a great task for the international recognition of Spanish geography (Asociación Española de Geografía -AGE-, 2020). He also played an important role in the *Societat Catalana de Geografia* (*Catalan Geographical Society*), an organization founded in 1935 by Pau Vila that contributed to the consolidation of this knowledge in Catalonia. At the University of Barcelona, he promoted the creation of the Department of Geography, initiated the *Revista de Geografía* (*Journal of Geography*) and created a university delegation in Palma, the seed of the current Universitat de les Illes Balears (University of the Balearic Islands). Regarding research on migrations, Vilá Valentí introduced a certain statistical rationality in his study, publishing early (1960) together with María de Bolós an article in *Geographica* entitled “Las migraciones y las densidades e índices migratorios (Migrations and migration densities and indexes)”, as well as other works related to the role of migrations in the growth of Barcelona (1958; 1960).

In addition to these three authors, we recognize the work of other prestigious geographers in the study of internal migrations at this stage, whose subject matter was explored based on case studies. These include Amando Melón (1952; 1962); Jesús García Fernández (1960 and 1964); Joaquín Bosque and Alfredo Floristán (1957); Francisco Quirós (1960); Ángel Cabo (1961); and Eusebio García Manrique (1961). This list of geographers is accompanied by other researchers in economics, sociology, history, etc. According to the rigorous bibliographic work done by Professor Horacio Capel in 1975, among those who had tackled the study of migration with solvency were, in addition, the economists Ramón Tamames, Alfonso García Barbáncho and Luis Martínez Cachero; the statisticians José Ros-Jimeno and José Ayuso Orejana; sociologists such as Víctor Pérez Díaz and Salustiano del Campo; and historians such as Jordi Nadal Oller and Nicolás Sánchez Albornoz. The latter played a decisive role in the advancement of knowledge, as they were the promoters, respectively, of the Centro de Estudios

Demográficos (Center for Demographic Studies) and the Asociación de Demografía Histórica (Association of Historical Demography), entities to which we will refer later.

About external migrations, the contributions of geography in this field of study are much scarcer, even though emigration to some Latin American countries and to Western Europe acquired great importance in this period. On this subject, a bibliographic review of the publications reveals, once again, that the weight of research rests on historians, demographers, economists, and sociologists. However, special mention should be made of the work of the Instituto Español de Emigración (Spanish Institute of Emigration) (1956), which was created to plan the departure of Spaniards in accordance with the migratory, social, and foreign policies of the immigration States, carrying out assisted migration programs (Calvo Salgado et al, 2009). At the same time, with the data collected in its central registry of emigration, it published a series of maps that were recognized as sources of great interest for geographical research (Rafael Puyol, 1972). Finally, it is worth mentioning the works of Professors Pérez Puchal (1975) and Estébanez and Puyol (1973) as an example of the overall studies carried out by geographers, to which other specific works on foreign emigration from certain Spanish provinces should be added.

We would not like to end this section without referring to what seems to us to be a magnificent testimony of the role that geographers gave to the territorial impact of mobility in this period. We refer to the book published in 1970 by Professor Joan Vilá Valentí and his young disciple at that time, Professor Horacio Capel, entitled *Campo y ciudad en la Geografía Española* (*The Countryside and the City in Spanish Geography*). This work reflects the transformations that took place in those years because of the so-called rural exodus, which has had such a transcendence in the socioeconomic imbalances of Spain. It is a work that had, in addition, a great diffusion thanks to the fact that it was part of a collection of Salvat Editores, with the collaboration of Alianza Editorial, called Biblioteca Básica Salvat Libros RTV, which combined academic rigor and diffusion.

2.3 Migratory transition at the pace of European integration (1976-2000): the emergence of migration studies in geodemography

The broad period that integrates this stage is defined by the years of democratic transition and consolidation, to which European integration has contributed definitively since 1986. This was a period in which, simultaneously, the migratory transition took place in Spain, since, in contrast to the negative external balances that had been recorded prior to the so-called oil crisis of 1973, the migratory balance became more balanced, with immigration predominating over emigration from the 1980s onwards (Alcaide et al., 2007). With respect to internal migration, there has also been an important change in direction (Ródenas & Martí, 2002), with the rural exodus, which had attracted so much attention among researchers in previous decades, having lost its strength.

It may seem arbitrary to choose the year 2000 as the end date of this period, however, beyond the fact that it marks the end of the 20th century, there are a series of circumstances related to the migratory transition that make it advisable to set this date as the end of this stage. With respect to foreign migration, a positive migratory balance had been recorded for some years, however, the stock of foreign-born residents had not yet reached the figure of one million people at that date, an amount that will be exceeded one year later (INE, 2022). The trend towards an increase in immigration flows led to the approval and enactment, precisely in 2000, of the Organic Law on the Rights and

Freedoms of Foreigners in Spain (4/2000, of January 11), marking a new path in the regulation of foreigners (Boletín Oficial del Estado, 2022). And, with respect to internal migrations, in the last decade of this period there had already been a change of direction, with residential variation from large cities to medium-sized cities and urban peripheries becoming increasingly important (García Coll and Puyol, 1997), in line with the process of suburbanization and with the beginning of the stage in which the housing sector began to evolve wildly (Domínguez-Mujica, 2021). All this meant that, in 2000, the intraregional migration rate reached a value of 11.42 emigrants per thousand inhabitants, surpassing interregional migrations (rate of 7.7 at that date) (Lago & Aguayo, 2004).

Finally, population studies in Spain were already well established within university geography, as evidenced by the fourteen years of existence of the *Grupo de Población de la Asociación Española de Geografía* (*Population Group of the Spanish Geographical Association*) (AGE, 2022), which held its seventh congress in Madrid in 2000, and the *Instituto de Economía, Geografía y Demografía -IEGD-* (*Institute of Economics, Geography and Demography*) of the CSIC, which had been created in the same year, 1986 (CSIC, 2022). A few years earlier, in 1983 and 1984, respectively, the *Asociación de Demografía Histórica -ADEH-* (*Spanish Historical Demography Association*) (ADEH, 2022) and the *Centre d'Estudis Demogràfics -CED-* (*Center for Demographic Studies*) (CED, 2022) had been founded. The temporal proximity in the constitution of these four entities means that we can consider the eighties of the twentieth century as the moment of hatching of research in the field of population geography. And, without any solution of continuity, we find them fully consolidated at the turn of the century. According to Vidal Bendito (1992: 130), their creation was much more than a mere formality, or an ephemeral declaration of intent.

The importance acquired by geodemographic studies at this stage is also related to the influence exerted by the new paradigms: the theoretical-quantitative revolution and the triumph of neopositivism, without excluding the critical perspective of the radical approach, whose imprint we recognize in many of the publications in which the influence exerted by the hidden forces of capitalism on migratory processes is revealed. Parallel to this triumph, the sources of analysis acquired a renewed impulse, generating statistical information of increasingly higher quality, with the participation of the statistical offices of the different autonomous communities, which had been created in the eighties, under the protection of the statutes of autonomy.

Another event of great importance at this stage was the development of the Internet, a decentralized set of interconnected communications networks, which gave rise to one of the most successful services, the World Wide Web (WWW or the Web), a series of protocols that allowed remote consultation of hypertext files, starting in 1990. In this way, the Web began to make it possible to consult demographic statistics online, giving a new dimension to the possibilities of disseminating demographic data and, therefore, to geodemographic research. Aware of this, some members of the Population Group of the Spanish Association of Geography published, precisely in 2000, a text in which Internet resources for population geographers were collected (García Coll et al., 2000) and, the following year, in the news and comments chapter of the journal *Estudios Geográficos* (*Geographical Studies*) they reflected on the possibilities that were opening up in this new stage of the emergence and expansion of the Internet (Reques et al., 2001).

In the 1980s, research methodologies also acquired great importance, as evidenced by the creation of the *Grupo de Trabajo de Tecnologías de la Información Geográfica* (*Geographic*

Information Technologies Working Group) within the Asociación Española de Geografía - AGE- (Spanish Geographical Association) in 1985, with many of its researchers collaborating in it as well as in the Population Geography Group. Increasingly refined analysis procedures were developed and, in the 1990s, with the commercialization of geographic information systems (GISs), a great advance was made in the quantitative treatment of information. The spread of these procedures, thanks to the generalization of personal computers, favored the georeferencing of demographic data, facilitating new processing methods combining statistical calculation and cartography.

In correspondence with this new panorama, regional research on population will gradually lose weight in relation to other areas of study, among which migration stands out. In the reflection made by Professor Vidal Bendito on the geography of population in Spain (1992), after reading the specialized bibliographic repertoires from 1975 to 1990, the growing weight of migratory studies was already evident. According to his research, works on migration, in that period, represented 18 percent of the publications in geodemography and were in second place, in order of importance, after regional studies (Vidal Bendito, 1992).

The process of transition towards new themes, new approaches, new sources and methodologies of analysis is evidenced by a review of the proceedings of the congresses of Population Geography. Thus, after the hatching to which we referred in the mid-1980s, research was oriented towards the study of the processes inherent to a post-transitional society: international immigration and foreign population; urban mobility linked to processes of suburbanization or metropolization; depopulation and demographic aging in rural areas; coexistence structures and gender, home and family studies linked, on many occasions, to the migratory processes themselves, i.e., human mobility gains enormous prominence as the axis of social transformation processes (Domínguez-Mujica et al., 2011). Therefore, the geography of the population in Spain becomes a faithful reflection of the socioeconomic changes of a stage that can be described as modernity, within the developed countries of Europe.

Allow me to point out, as a colophon to this bibliographical review, the works mentioned below as examples of the socioeconomic transformation linked to new mobility processes. With respect to international migration, Muñoz-Pérez and Izquierdo Escrivano published an article in 1989 in the journal *Population*, in which they defended the modification of the sign of international migration in Spain with the suggestive title “L’Espagne, pays d’immigration (Spain, a country of immigration)”. The article by Recaño and Cabré (2003) “Migraciones interregionales y ciclos económicos en España (Interregional migration and economic cycles in Spain) (1988-2001)” reveals the intimate relationship between the dynamics of internal mobility in the period under study and the economic conjunctures of that period, thus fulfilling the maxim so often stated by Reques (1996) that demography is a variable dependent on the economy.

2.4 Globalization and human mobility: the maturation of migration studies in the first decades of the 21st century

As we write these lines, it is difficult to define, with a single expression, the current situation of geographical research in Spain in the field of mobility and migration, since there are many factors that shape its character, while it is impossible to mention the

number of geographers dedicated to it. Nevertheless, the word that seems most appropriate to describe this stage of knowledge is that of maturity.

If we look at the socio-economic context of these years, from a structural point of view we must refer to a phase of late and post-industrial capitalism, which has become the focus of countless analyses at the pace of increasing socio-spatial interactions. Consequently, while persistent geostrategic and political tensions persist in the world, as well as income and wealth imbalances at all geographic scales of analysis, mobility flows are becoming more complex, influenced not only by factors such as work or housing, but also by gender, leisure, studies, consumption, remote work, etc., typical of a postmodern society. It is these components that condition the dynamics of human mobility, i.e., the attraction or repulsion of the population to certain areas, as well as daily movements.

From the point of view of historical junctures, the 21st century offers a sequence of events that make it a privileged laboratory for observing the dynamics of human mobility in Spain. The first years of this stage, up to 2008, correspond to a period of intense financial-real estate growth, which gave rise to an unprecedented urban expansion, because of the business expectations of landowners, developers and builders, and their collusion with the financial and political-administrative system. This situation was accompanied by a large influx of immigrants from abroad, due to the opportunities offered by the Spanish labor market, especially in certain activities related to low-skilled jobs in agriculture, construction, and personal services, which directed almost all the attention of geodemographers towards these flows. The consolidation of foreign population communities, for its part, also contributes to arouse the interest of scientists, because this fact generates new spatial dynamics (segregation processes, neighborhood transformation, gentrification, etc.) that are accompanied by cultural heterogeneity and diversity, as well as processes of transnationality.

Subsequently, in the economic outlook from 2008 onwards, economic overaccumulation and large capital surpluses led to a deep crisis, due to the lack of investment opportunities, falling profit rates and lack of effective demand in the market. To this was added an employment crisis, being dramatic the social consequences that they entailed and that became even more acute with the debt crisis, which was forced by the austerity policy of the European Union of the years 2011-2013. At this juncture, the attraction of foreign immigration decreased and the re-emigration and return of foreigners took place, as well as the emigration of an important group of Spaniards to other countries, reversing the external migratory balance. Gradually this situation is overcome since 2015, although the positive signs of evolution, much more recognizable in 2018 and 2019, in relation to the economy and the evolution of foreign migration, are abruptly interrupted by the expansion of the great pandemic of COVID-19, from 2020.

With regard to the impact of these circumstances on geodemographic research on internal migration, the bibliographic compilation carried out by Domínguez-Mujica in 2011, following the work carried out by the Red Temática para los estudios de Geografía y Población en España (Thematic Network for Geography and Population Studies in Spain), revealed that a significant part of the publications published in the first decade

of the 21st century continued to focus on rural exodus and depopulation, while at the same time there was an interest in recognizing the timid demographic recovery of certain sparsely populated municipalities. Conversely, the study of residential mobility in urban areas (suburbanization processes) had gained enormous weight, especially in large metropolitan areas. After the crisis, however, peri-urban areas became expulsive and reduced their attractiveness, while the flows that had contributed to slight population growth in certain rural municipalities decreased (Otero et al. 2019). Finally, in the years of economic recovery, we note the regained centrality of many cities, which gained prominence with the attraction of population from practically all other territories, while at the same time patterns of residential displacement develop in intraurban spaces, because of the ongoing gentrification processes.

The topics described show the vitality of studies on human mobility/migration within Spanish geography in this last stage of its history, in close correspondence with the evolution of the times and with the process of internationalization that characterizes it. It is no longer just a question of the strength of internal research, but of Spanish scientific production acquiring a global dimension, parallel to the participation of researchers in international events, European projects, international exchange programs, stays in foreign university centers or publications with an impact in a foreign language. At the same time, research teams are made up of specialists from different branches of knowledge, so that geographers work with anthropologists, sociologists, economists, etc., which enriches the perspectives of analysis and the channels of methodological transfer.

For their part, information technologies facilitate new quantitative and qualitative study procedures, such as the study of daily mobility through its trace in telephone devices, or the approach to migrants' social networks through virtual ethnography, to give just two examples. There is no doubt that new avenues of research have opened up with the computerization of analysis operations, not only with Geographic Information Systems but with all those that can be grouped under the generic term of Geographic Information Technologies or, even more, with the revolution of macro data, the so-called *big data*, based on new computer applications for their processing. We can also include in this quantitative revolution the progress in the processing of qualitative data, thanks to specialized programs that provide different software tools for the examination of such information. All this is yielding fruitful results that can be seen in many of the investigations underway.

In summary, the information provided, although it does not include a repertoire of authors and works of reference in this last stage, shows the thematic and methodological diversity of migration/mobility studies in this last period, studies that are keeping pace with the times. Thus, the qualifier of maturity seems to us to be fully justified to define the level reached by geographical studies in this field and their capacity to go beyond the limits of their diffusion in Spain.

3. Coda. The pandemic: a new challenge for geographical mobility studies.

It is very difficult to evaluate the changes to which the pandemic may have given or may give rise, since we do not have sufficient empirical information to assess whether or not the immobility that accompanied it during the confinement and the subsequent restrictions on mobility have been able to modify the patterns that had been observed in human mobility in the first decades of the 21st century, those defined by Schaffhauser Mizzi (2017) not only as a spatial process, but as an emotional, social, cultural and experiential displacement constituting a human coming and going.

Nor is it possible to estimate the impact of this immobility on the population as a whole, since the pandemic may have increased the social fracture and vulnerability of certain groups, for example, the elderly (more immobile than the rest of the population); forced migrants (more mobile because their survival depends on mobility); lower-skilled labor migrants (their professional activity requires mobility, even in times of pandemic, as is the case with seasonal agricultural workers or those engaged in care work). At the same time, the mobility of others has increased, such as the so-called digital nomads, who have been the object of attraction policies by some less developed countries during the pandemic (Latvia, Slovenia, Thailand, Indonesia, India, etc.).

At this point, therefore, there are more questions than certainties regarding the reconfiguration of human mobility in the coming years. And it could be said that there are as many questions as those concerning the evolution of the pandemic itself, since, given that human mobility is a right and a value, just like territory, work, education, culture, or health, we doubt that it will cease to play the leading role that geographers have conferred on it. Thus, theoretical reflections on immobility, on the new dimension of local mobility, on “digital mobilities” or on the resilient behavior of migrants must guide much of the research underway, since the pandemic has been a real litmus test that forces us to redefine and rethink the world in which we live and the role that mobility plays in it as a nexus connecting spaces and societies.

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Research in Tourism Geography conducted by the Tourism Group of AGE (2012-2020)

Asunción Blanco-Romero
ORCID: 0000-0002-5869-8603
Universitat Autònoma de Barcelona

Carmen Mínguez
ORCID: 0000-0002-9544-3802
Universidad Complutense de Madrid

Abstract: Tourism centered research has enjoyed a long history as an independent branch in Spanish geography, due to the magnitude and importance that this sector holds in our territory. This reality has its most consistent manifestation, among many other forums, in the activity carried out by the Tourism Group of the Spanish Geography Association. Its scope and relevance is especially evident in its biennial conferences, whose topics and contributions are used to conduct a small review of the scientific production carried out by the research groups between 2012 and 2020. Its preliminary diagnosis reveals great dynamism in the adaptation of the research to the lines of interest that have been institutionalized through the financing of the various projects. However, certain shortcomings are still evident; especially, in relation to the critical treatment of tourism, the economic, social and environmental dynamics derived from global change and the incorporation of analyses with a focus on gender.

1. Introduction

The concept and analysis of the tourism space has been evolving over time and throughout the implementation of the tourism industry. Being a space where tourism supply is based and towards which the demand is oriented, the approach has been expanding towards new interpretations arising from the interest in researching the management and planning of this territory, its perception, ownership and enjoyment. Tourism is a major consumer and generator of space, which converts it into an important transformation factor of the territories in which it is developed. This transformation does not always occur in a balanced way, due to the different interests of the actors involved and the important role played by power relations in these processes. Hence, there is an interest in more holistic approaches that address the tourism space as a system which is not exclusively determined by tourism activities, but which is immersed in a dialectic (not always harmonious) between actions and stakeholders.

These considerations fully justify the crucial role that geography has as a discipline in the analysis of these territorial phenomena and, consequently, the importance of

tourism geography as a line of teaching and research. With respect to teaching, the participation that tourism geography has had and continues to have in higher education qualifications in Tourism, with compulsory and optional subjects, is highly relevant (López Palomeque, 2010). With the approval of the regulations for incorporating higher education studies in tourism into universities (R.D. 259/1996 of 16 February), the qualification evolved from being oriented towards business management and tourism activities to a qualification in which territory has greater relevance, together with its different forms of organisation and economic, social and environmental concerns (Vera, 2001). In this way, geography has acquired presence and relevance and is visible in the new Degree, Doctorate and Master's degrees which have proliferated in recent decades in practically all of the Spanish public and private universities.

Meanwhile, geographical research focused on tourism has acquired greater prominence in Spanish academia as an autonomous field, particularly in the territories in which the incidence of the sector is higher. The need for a better understanding of the tourism phenomenon and a rigorous knowledge of the characteristics and trends of its dialectic with the territory have given rise to an increasing effort to adequately respond, in both a basic and applied way, highlighting the leading role of the university in this process (López Palomeque et al., 2014). A reflection of this protagonism is the emergence of scientific journals promoted from tourism geography (*Cuadernos de Turismo, Investigaciones Turísticas, Papers de Turisme*) and the noteworthy number of papers written by Spanish researchers as well as the increase in the number of articles on tourism published in the scientific journals specialised in geography.

The first analyses carried out in 1996 on the studies of tourism activity from a geographical perspective considered that the scientific production was scarce in proportion to the importance of the tourism phenomenon in Spain (Antón et al., 1996). Nevertheless, pioneer studies have been conducted since the 1960s, such as those by J. Vilà Valentí (1962) "El valor económico del turismo", by B. Barceló (1964) "El turisme a les Illes Balears", or the studies by E. García Manrique (1968) and (1969) on the implications of tourism for the regional economy of Mallorca and on Spanish tourism. Furthermore, several degree theses were presented in the universities of Murcia (Sarrión, 1962; Melendreras, 1964; Rodríguez, 1965), Zaragoza (Pons, 1967) and Barcelona (Rexac, 1967). Currently, according to the *Informe sobre la investigación geográfica en España: 2013-2020* (Report on geographical research in Spain: 2013-2020), there are 17 research groups dedicated to tourism from a geographical perspective. This is the most prolific line of research of Spanish geography in terms of the number of publications, research projects and doctoral theses (Fernández-Mayoralas, 2021).

Spanish tourism geography has also produced an interesting number of reviews and analyses of its scientific production, covering contributions from the beginning of the 1960s to 2013, published both in national journals such as *Estudios Turísticos* (Antón, López Palomeque, Marchena and Vera, 1996), *Agricultura y Sociedad* (López Ontiveros and Mulero, 1997), *Anales de Geografía de la Universidad Complutense* (García and de la Calle, 2004) or the *Boletín de la Asociación de Geógrafos Españoles* (Corral and de San Eugenio, 2013), and national publications, such as *Antrophos* (Luis Gómez, 1988) and international publications, contemplating the analysis from a European perspective, *Emerald* (Wilson and Antón, 2013).

A relevant role in these types of studies and in the efforts to keep the research up to date has been played by the *Grupo de trabajo de Turismo, ocio y recreación* (founded in 1992 in Castellón) and currently called the *Grupo de trabajo de Geografía del Turismo de la Asociación Española de Geografía -AGE* (Tourism Geography working group of the Spanish Geography Association) (López Palomeque, 2008). An example of this dedication are the papers presented in the national symposia of AGE, such as those by López Palomeque, (1984) and Troitiño Vinuesa (2008); the monograph on tourism geography research in the different autonomous regions, coordinated by Fernández Tabales, García and Ivars, in 2010 or the contributions to international congresses, such as the text presented in Spain's contribution to the 27th Congress of the UGI presented by Valenzuela, López Palomeque, Marchena and Vera (1992). Moreover, in autumn 1997, the first report on tourism research in the autonomous regions of the *Boletín Informativo Grupo 10* (nº 0) was published (López Palomeque, 1997). This first report was dedicated to Catalonia and was followed by the other autonomous regions. Years later, contributions began to be made in different formats, revealing the concern about the impacts generated by tourism, such as the *Manifiesto por el derecho a la vivienda* (Grupo de Turismo y Grupo de Geografía Urbana, 2019) and more recently, in 2021, about bringing the research closer to training and management with the *Diccionario de Turismo*, which includes the terms relating to current Spanish geotourism research (Blanco et al, 2021).

Within this framework, over the last three decades, the Tourism Group, known as Gruop10 has organised a biennial symposium in order to present and contribute research on the recent evolution of the tourism phenomenon from a geographical perspective. The symposia reflect the dynamism of the Group which has notably increased the number of its members over the last decade. The table shows how each edition has been organised by different universities, which allows the reality of the different territories to be seen *in situ*. On each occasion, the minutes of the main contributions have been published and are included in the bibliography section of this text.

Table 1. *Symposia carried out by the tourism, leisure, and recreation group (AGE) 1990-2022. Source: own elaboration based on information from Grupo10. *The minutes may be consulted at: <https://www.age-geografia-turismo.com/publicaciones/actas-de-coloquios-1/1990-2002/> and <https://www.age-geografia-turismo.com/publicaciones/actas-de-coloquios-1/2008/>*

Year	Item	Themes	Organiser/Place
1990	Tourism and territory in Spain	Theoretical perspectives Case studies	Universitat de les Illes Balears. Palma (Mallorca)
1992	Tourism and geography	Tourism and development The restructuring of tourist destinations Impacts of tourism Tourism and education	Universitat Jaume I. Castellón
1993	Tourism education, the restructuring of destinations and new products	Innovation and product development The restructuring of mature destinations Tourism and education.	Universitat de les Illes Balears. Palma (Mallorca)

Year	Item	Themes	Organiser/ Place
1995	Inland and urban tourism	Development Experiences Policies	Universidad Autónoma de Madrid Toledo
1996	Tourism and destination planning	Good practices in planning Management methods and tools Development policies of new tourism products	Universitat Rovira i Virgili. Tarragona
1998	Tourism and the city	Cultural tourism The tertiarization of Spanish cities Urban planning and tourism planning Higher education courses in tourism	Universidad de Las Palmas. Las Palmas de Gran Canaria
2000	Tourism and urban transformations in the twenty-first century	Cities and large events: tourism and urban transformations Tourism and planning in spaces of natural interest: synergies and conflicts The urban heritage of the twenty-first century Local policy and management of tourist spaces	University of Almería Almería
2002	The geography and management of tourism	New technologies in tourism planning and management Teaching, research and professional activity in the field of tourism	University of Santiago de Compostela. Santiago de Compostela
2004	Tourism and territorial change: Emergence, acceleration, overflow?	Growth of mature destinations Alternative uses of new tourist destinations	University of Zaragoza. Zaragoza
2006	Tourist destinations Old problems, new solutions?	Opportunities for urban tourism Rural and interior tourism destinations Coastal tourist destinations Tourism geography in teaching, research and	Universidad Complutense de Madrid and Universidad de Castilla La Mancha Cuenca

Year	Item	Themes	Organiser/ Place
2008	Tourism spaces. Commodification, landscape and identity	professional activity, elements for debate Policies and planning of tourist areas: The contribution of geography Landscape and identity in the promotion of the image of tourist destinations. Landscape, local identity and territorial competitiveness: new analysis and planning techniques	Institut Universitari d'Investigacions Turístiques (IUIT) University of Alicante. Alicante
2010	Tourist spaces and destinations in times of globalisation and crisis	Tourism, city and transport Images and cultural representations of tourist spaces Coastal and interior tourist spaces and destinations	Universidad Carlos III. Colmenarejo
2012	Tourism and territory. Innovation, renovation and challenges	Tourist destinations, between renovation and reinvention New tourist places and products Tourism in the face of climate change	Universitat de Barcelona and Universitat Autònoma de Barcelona. Barcelona
2014	Tourist spaces and territorial smartness. Responses to crisis	Challenge of the ICTs in the tourist destinations in the twenty-first century Tourist spaces responding to crisis: from resilience to opportunity?	Universidad de Málaga and Universidad de Sevilla. Málaga and Seville
2016	Tourism and crisis, collaborative tourism and ecotourism	Tourism and crisis Ecotourism and nature conservation Collaborative or social economy and tourism	Universitat de les Illes Balears. Palma (Mallorca)
2018	Theories, models and tourist destinations in times of change	New theories and practices on tourist displacements Planning and territorial management of tourism Tourism and gender	Universidad de León, Universidad de Valladolid and Universidad de Salamanca. León

Year	Item	Themes	Organiser/ Place
2020	Tourism sustainability: <i>overtourism vs undertourism</i>	Tourism sustainability: theoretical framework, diagnostic indicators, planning and management proposals, etc. Time-space models of <i>overtourism and undertourism</i>	Universitat de les Illes Balears and IME Maó (Menorca)
2022	Between the recovery and transformation of tourism in a post-COVID world: a geographical perspective	New socio-economic dynamics and territorial processes New paradigms New perspectives and research methods Interior destinations	University of Castilla La Mancha Cuenca

Based on this evidence, this study seeks to conduct an updating exercise, reviewing the scientific production which is reflected in the contributions made by the research groups in the tourism geography symposia of the Group between the years 2012 and 2020. It is considered that the systematisation of these contributions contemplates the most consolidated approaches in Spanish tourism geography, without excluding its previous roots in our academia and in the activity developed by other areas of study or in other institutional environments other than the AGE. An interesting task for the future, on a larger scale, would be the compilation and exhaustive analysis of studies, lines, research groups, production, theses carried out, etc. in tourism geography in Spain from 2010, the date of the study carried out by Fernández Tabales, García and Ivars so as to continue the existing tradition.

2. Topics addressed in the symposia from 2012 to 2020

Each of the symposia of the Group has had a defined theme structured around two or three topics addressed by the contributions. The topics correspond to the lines of interest of each moment, revealing a parallelism with the themes addressed institutionally in tourism and identifying with the strategic lines of tourism planning and the finance of research projects in order to respond to social challenges. There is also a geographical approach focused on the critical analysis of the phenomenon. Resuming the aforementioned review and analysis tasks of the previous scientific production, below, each of the five biennial symposia held between 2012 and 2020 are presented individually. The information is systematised with a summary of the topics addressed in each symposium, with relevant quantitative information represented in three graphs which show the evolution and enable comparisons to be made. They include i) the distribution by sex of the authors of the papers and posters; ii) the topic of the contributions received in each edition and iii) the word cloud elaborated with the keywords of each paper and poster, eliminating the terms *tourism* and *tourist* in order to highlight the most studied topics.

2.1 Tourism and territory. Innovation, renovation and challenges

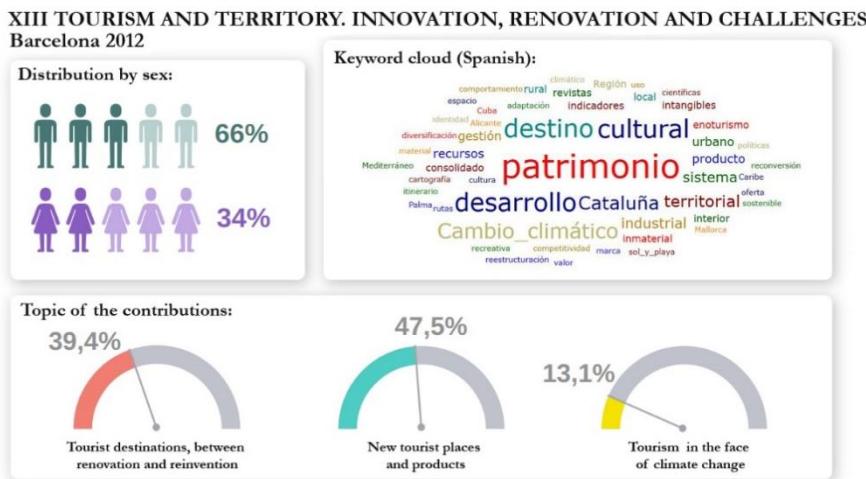
There have been many tourism symposia whose keywords have included the terms *crisis, challenges or changes* throughout the history of Grupo10. Nevertheless, as expressed by J.A. Corral in a review of the study “Turismo y territorio. Innovación, renovación y desafíos” (López Palomeque et al., 2014), going beyond this concept, the greatest presence is had by the prefix “re” before a number of verbs to express the intention to resolve problems caused by an unsustainable tourism development model in many of the destinations analysed (restructure, reconvert, reinvent, reconfigure, redirect, reposition, regenerate, revalue, rediscover, revitalise, rejuvenate, rehabilitate...) (Corral, 2015:651).

In the 13th Symposium of the Tourism, Leisure and Recreation Group held in Barcelona in 2012 by the Universitat de Barcelona and the Universitat Autònoma de Barcelona, the proposed lines of action focused on this underlying idea of a crisis of the model which had been latent in certain mature destinations. In this respect, both the opening conference, given by Dr. Douglas Pearce (Victoria University of Wellington), with the title “Tourist Destinations: concepts and implications for their management in times of change”, and the first paper, presented by Dr. Enrique Navarro Jurado (Universidad de Málaga), “La reestructuración de los destinos litorales. Entre la retórica y la lentitud de los cambios” (The restructuring of coastal destinations. The rhetoric and slowness of the changes), were framed within Line 1- “Tourist destinations, between renovation and reinvention” as a clear proposal for research and contributions focused on the attempts of many destinations to overcome saturation and decline. Additionally, Line 2 “New tourist places and products” sought to address the initiatives of many emerging destinations to reach phases of development and consolidation through the enhancement in different cases of the natural and cultural heritage. The proposal of Dr. María García Hernández (Universidad Complutense de Madrid) analysed the tourism scenarios at the turn of the millennium in Spain, reviewing the tourist consumption trends, the changes in products, in the business environment through technologies (ICTs) and in the destination planning and management models. In Line 3 “Tourism in the face of climate change”, Dr. Jorge Olcina Cantos (Universitat d’Alacant) addressed the challenge that the tourism activity and certain specific destinations have to address urgently to respond to a climate which is not immutable. In a scenario of globalisation, the relationship between tourism and territory is changing, with climate change acquiring great relevance as a result of the global warming experienced on the surface of the planet over the last few decades. This implies that the phenomenon of climate change constitutes one of the major environmental, social and economic challenges faced by the tourism sector. This is how it should be considered and it is necessary to find response strategies which, from adaptation and/or mitigation, can maximise opportunities and minimise drawbacks. Furthermore, the capacity of adaptation and reinvention of the tourist activities affected constitute a path to maintain competitiveness in regional economies and protagonism in territories facing new climate scenarios. In parallel, examining these lines of reflection reveals that among the research teams there is a permanent principal line of interest, which is the public management of tourism, addressed in this case within the framework of a round table, with the title “The public management of tourism: Past, present and future”. All of the contributions received were

published in a volume titled “Tourism and territory. Innovation, renovation and challenges”, edited by Tirant lo Blanch, in 2014.

Figure 1. Summary table of the 13th Tourism and Territory Symposium held in Barcelona in 2012.

Source: own elaboration



2.2 Tourist spaces and territorial smartness: responses to the crisis

As in the case of other spaces for debate, the central themes of the symposia organised by the Group seek to address the problems of the moment affecting the inter-relationships between the territory and the tourist and leisure activities, focusing on the processes and most relevant trends emerging in response to the future, giving visibility to the social reality and the interests of the research groups. In 2014, the coordinators of the 14th Symposium of the Universities of Málaga and Seville addressed the challenge of overcoming the mere descriptive analysis of a hot topic which is still controversial today: the relationship between tourist spaces and territorial smartness as a response to crisis. Today, this topic could form part of the debate of the Smart Tourist Destinations (STDs), as the presence in subsequent symposia shows, and could even constitute the principal theme of the 2022 symposium in which territorial smartness is related to the digital transition as elements to respond to the current crises.

In order to study propositional and projective aspects in more depth and the responses that can be adopted by tourist spaces to the problems inherent in them, the research presented by the different groups and authors is aimed at addressing the conceptual, methodological and instrumental keys for understanding and explaining the dynamics which form the base on which tourist spaces can become “smart territories”. At that time, smart territories were understood as being those that sought a balance between economic competitiveness, social cohesion and sustainability, able to use the appropriate technical and political instruments to construct their own competitive advantages as tourist destinations in a global context.

Within the overall debate, one of the proposed themes addressed a recurring topic in the research in tourism geography, the response to “tourist spaces responding to crisis:

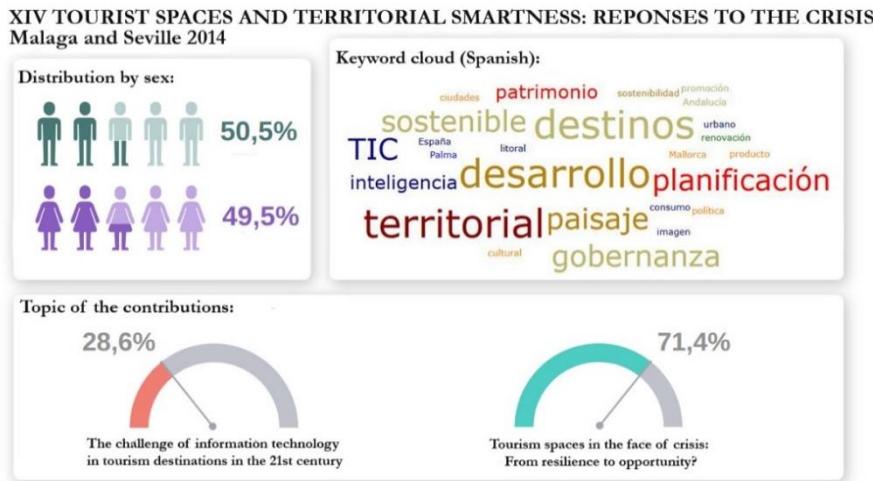
from resilience to opportunity?", which was of crucial interest as this topic had the most number of contributions: 20 of a total of 28 (Fig. 2). The papers presented evidently show how the tourist spaces and destination could not remain detached from the systemic crisis that was affecting Spain in its various manifestations.

Despite being one of the sectors that was experiencing a high level of activity, tourism was marked by uncertainty, particularly due to the surety that the crisis would change the economic, institutional, socio-labour and cultural context in which it had developed over the previous decades. Based on this consideration, with respect to the coastal, rural or urban tourist spaces, a wide range of options materialised in different proposals: from resilience strategies focused on attempting to recover action guidelines in the territory, similar to those prevailing in the pre-crisis phase; to those that advocated the need to use the crisis to rethink and reformulate the essential lines which, until then, had marked the relationships between tourism and territory, giving rise to new concepts based on a more harmonious relationship between the two. The conference of Dr. Daniel Hiernaux (Universidad Autónoma de Querétaro) titled "Territorio y turismo en los países emergentes en un contexto de globalización: imaginario y realidad" (Territory and tourism in emerging countries within a context of globalisation: imaginary and reality) addressed the key concepts that were manifested in the majority of the research papers presented: territorial development, planning and sustainability (Fig. 2).

As a future formula in this respect, the second line of debate was opened with its corresponding contributions (less than in the first). The conference of Dr. Carlos Lamsfus (CICtourGUNE- and Universidad de Deusto) focused on the challenges that information technologies had (and continue to have) in the tourist destinations of the twenty-first century, highlighting the importance of the Information and Communication Technologies (ICTs) in the different components of the tourism sector, particularly in the destinations. The research presented showed how the mechanisms of promotion, information and reservation have changed rapidly to adapt to consumers who increasingly plan their trips autonomously. Therefore, ICTs have acquired a decisive role in the promotion of destinations, in information, planning instruments and increasingly in the integrated management of the destination in order to obtain a higher online presence and contribute to improving their image, attracting more visitors and learning the direct opinion of the client. Many contributions considered that ICTs were also essential for Territorial Smartness to advance by offering a tourist territory accessible to the demand and residents, better integrating the visitors and increasing the quality of the tourist experience and the life of the residents. In order to gain a better understanding of the dynamics, the territorial structures and the instruments necessary for the generation and use of this knowledge, it is essential to coordinate the actors, manage information, detect impacts, etc., through a good use of ICTs. The risk of confusing the smart destination with the digital destination has already been indicated; ICTs are only an instrument to obtain a better management of the territory in benefit of the local society.

All of the contributions presented were included in the minutes of the symposium "Tourist spaces and territorial smartness. Responses to crisis", coordinated by the Scientific Committee of the universities of Málaga and Seville in 2014.

Figure 2. Summary table of the 14th Symposium on tourist spaces and territorial smartness: responses to the crisis, held in Málaga and Seville 2014. Source: own elaboration



2.3. Tourism, crisis, nature and the collaborative economy

The 15th symposium on Tourism, Leisure and Recreation, held in Palma in 2016 and organised by the Universitat de les Illes Balears, was framed within the evolution that the tourist destinations were experiencing, between the search for sustainability and alternatives to saturation at a moment of maximum tension and global crisis. As is usually the case in the proposals of Grupo10, the principal objective was to foster the debate on hot topics in the agenda of Spanish and international geography, which, on this occasion, focused on the analysis of the relationship between tourism and the crisis from an ecological and political point of view, taking the critical and international approach of critical geography. The first theme opened with the conference of Dr. Robert Fletcher (Wageningen University), titled *“Cannibal Tours Revisited: The Political Ecology of Tourism”*, proposed a debate on the relationship between tourism and the systemic crisis being experienced. The most number of contributions corresponded to this topic (31 of 53) which emphasised the reactivation of the tourism and real estate sector, with a prominence of concepts such as territorial management, economy, crisis, but also new elements of tourism development and commodification, such as Airbnb (Fig. 3).

Within these responses to the crisis, those considered particularly interesting were related to the collaborative or social economy, the topic of the second line of discussion. The debate was conducted in a round table with the participation of the different social agents involved, such as: Albert Arias, ex-director of the Strategic Tourism Plan of Barcelona 2016-2020, Joan Miralles, of the Asociación de Apartamentos y Viviendas de Alquiler de Temporada de Baleares (APTUR) and Dr. Asunción Blanco, geography professor at the UAB and member of the TUDISTAR research group. These participants held an intense introductory debate on the proposals of the so-called collaborative economy. Deregulation promoted by the platform economy in the field of tourism (through cases such as Uber or Airbnb), tourist rental, urban functional

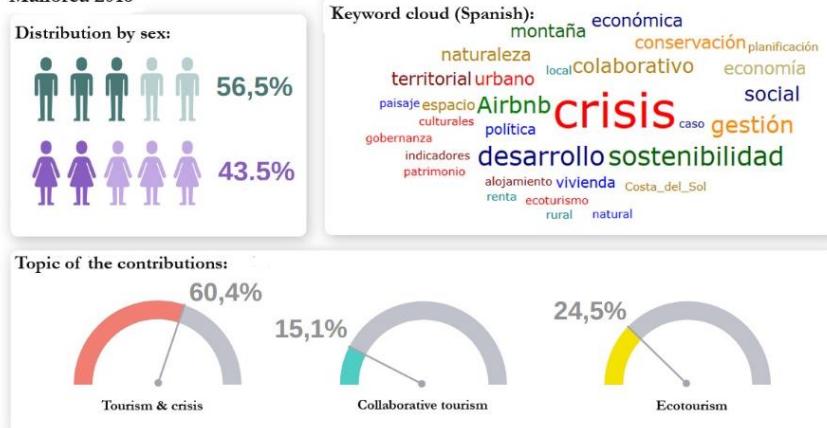
transformations, the increase in housing prices and the frictions between resident groups and the tourism sector constitute some of the eight contributions focused on the positive and negative aspects of the so-called “collaborative tourism” and analyse the pros and cons of commodifying the public space.

The third theme focused on analysing the introduction of nature conservation in tourism markets through the promotion of ecotourism and the green economy as alternatives in the crisis. The participants of the session included members of the academy, such as Dr. María García (Universidad Complutense de Madrid) and Dr. Miquel Mir, of the research group of Biogeography, Geodynamics and Sedimentation of the Western Mediterranean (BIOGEOMED-UIB) and social agents specialised in the care of the territory, such as Macu Férriz from the Mediterranean Wildlife Foundation. The growing commodification and privatisation of natural spaces, in which nature conservation is a complement and the ecological crisis caused by the demand for energy, water, territory and resources constituted some of the 16 contributions that reveal the relationship between protection and tourism, referring to the conflict of the scarcity of resources and public goods for the management of nature.

This symposium reinforced the internationalisation of the contributions with the participation of speakers from foreign universities and introduced transdisciplinarity, extending the scientific spectrum of the meeting of geographers with contributions from other disciplines equally interested in the tourism phenomenon. These results were reported in the publication edited by the Societat d'Història Natural de les Balears in a series of monographs, with the title “Turismo y crisis, turismo colaborativo y ecoturismo” (Tourism and crisis, collaborative tourism and ecotourism), in 2016.

Figure 3. Summary table of the 15th Symposium on tourism, crisis, nature and the collaborative economy, held in Palma 2016. Source: own elaboration

XV TOURISM, CRISIS, NATURE AND THE COLLABORATIVE ECONOMY Mallorca 2016



2.4.Theories, models and tourist destinations in times of change

Following the lines developed in the Working Group, the 16th Symposium, organised by the Universidad de León, focused the debate under the title “Theories, models and tourist destinations in times of change”. The opening conference, “*Approaching Tourism Destinations: Past, Present and Future*”, by Professor Chris Cooper (Leeds Beckett University) and the contributions made by professionals and academics from across Spain and other countries revealed the complexity of the studies on tourism, with a variety of topics and approaches and the need to carry out multidisciplinary studies. However, above all, they demonstrated the fundamental role of geography tourism in the research.

The proposal was based on three principal topics of debate. The first line, with six contributions, sought to respond to one of the determining themes of tourism and one which is currently controversial, namely mobility, contextualised by the paper “Nuevas teorías y prácticas sobre los desplazamientos turísticos” (New theories and practices on tourist displacements), by Dr. Javier Gutiérrez Puebla (Universidad Complutense de Madrid). In 2018, the increase in the mobility of the global population was an undeniable fact, as shown by all of the statistics of the different national and international bodies. However, the economic crisis gave rise to a social change, which, among many other aspects, also affected this inherent element of tourism. Before, speed and displacements were associated with the idea of progress and freedom. However, the economic conditions imposed by the crisis gave rise to new models of tourist displacements based on proximity movements, a slow pace and even vacations at home (*staycations*), even before the COVID-19 pandemic. In this respect, the use of ICTs and smart mobile devices provides tools for identifying the patterns of tourist displacements, opening fields of research so as to formulate new theories regarding the displacements made by tourists, as they may always be geolocalised.

In turn, Dr. Rubén C. Lois González (Universidade de Santiago de Compostela) opened the second line of debate: “Planificación y gestión territorial del turismo” (Planning and the territorial management of tourism). This theme, with the maximum contributions received (40 of 46), marked the principal debate, seeking to establish an overall view of the implementation and management of the different planning experiences that have been developed over the decades in different Spanish territories. From this starting point, the time perspective enabled the positive and negative aspects of different case studies to be highlighted, both in coastal and interior spaces, referring to different types of tourism. Furthermore, it addressed how the types of tourism plans developed in Spain have been instrumentalised in different ways, creating, over time, a wide range of sectoral planning instruments which have sought to order, invigorate and qualify the tourism activities. Furthermore, many other elements of analysis relating to tourism planning were presented in this line of research, such as the different theoretical approaches, methodological aspects, financial problems and effective implementation, policy strategies, the economic interests of the private sector, conflicts with other activities, the participation of local society, territorial rivalries or environmental impacts.

Finally, the organization of the symposium inserted an enormously important line of research due to its complexity, but also with little visibility in these types of events until now: “Tourism and gender”, with the paper titled “Turismo y género, la cuadratura del círculo”, (Tourism and gender, the squaring of the circle) by Dr. Gemma Cánoves

Valiente (Universitat Autònoma de Barcelona). In this case, the objective was to foster contributions of research related to the gender approach in the study of tourism, an area of analysis promoted by different organisations, such as the WTO or the United Nations, which periodically elaborate reports and documents to reinforce the autonomy of women through tourism. On the other hand, the enormous presence of female employment in tourism activities, the fragile conditions that prevent effective equality (wage gap, “glass ceilings”, “sticky floors”, etc.) and their territorial implications seem to warrant a profound analysis from a tourism geography perspective. Similarly, the social recognition and a greater respect for affective-sexual diversity and the interests of the tourism industry to segment the demand and offer preferential products and destinations for each type of target group, has generated new developments of LGTB tourism, particularly in America and Europe. The interest to promote LGTBIQ+ tourism has reached the public bodies, which, within their advertising campaigns, have introduced specific messages, which could contribute to promoting the visibility of this group and tolerance among people with different sexual orientations. However, this debate topic did not receive any contributions from the research groups, showing that, despite the importance of this phenomenon in the tourism sector, it is an issue that has not been analysed in depth by Spanish academia and tourism geography. The result of the variety and complexity of the contributions received was the publication of the minutes under the title “De lugar geográfico a destino turístico: análisis, planificación y gestión de los procesos de cambio generados por el turismo” (From a geographical place to a tourist destination: analysis, planning and the management of the change processes generated by tourism), edited by the Universidad de León and the Spanish Geographical Association in 2018.

Figure 4. Summary table of the 16th Symposium on theories, models and tourist destinations in times of change held in León in 2018. Source: own elaboration



2.5. Tourism sustainability: *overtourism vs undertourism*

The symposium of October 2020 was conditioned by the pandemic situation on a global level. Based on the results of the previous symposium of 2018 and seeking to respond to the current tourism phenomenon, the 17th Symposium of the Tourism Group was finally held in Maó (Menorca), organised by the Universitat de les Illes Balears and with the collaboration of the Permanent Commission of the AGE Group. Continuing with the objectives of internationalisation and multidisciplinarity, it benefited from the collaboration of the Tourism Commission of the International Geographical Union, which converted it into the first symposium of the Group that could be considered as international (with contributions from places such as Chile, Mexico, Argentina, the Czech Republic, etc.) and was included in the programmes of activities of this commission. The COVID scenario of this year conditioned the organisation of the symposium, but did not affect the objectives sought, supported by the many contributions from the research groups that participated, with 49 papers and a total of 99 authors (Fig. 5), in a hybrid format (online-in person) for the first time, which enabled the participation of all of the people registered.

The principal objective of the symposium was to give centre stage to the territorial dimension of the tourism phenomenon, deepening the critical analysis carried out from a geographical perspective. With the title “Tourism sustainability: overtourism vs undertourism”, it was considered possible to highlight the permanent topic of interest in geography (tourism sustainability) at the same time as emphasising the duality of the phenomenon (overtourism and undertourism) and the realities of territorial imbalance. To do this, three approaches were taken for the contextualisation by academic experts on an international level. Dr. Marina Novelli (University of Brighton) and Dr. Claudio Milano (Universitat Autònoma de Barcelona) presented their reflection on the paradox of mobility in difficult times, where COVID-19 caused the shift from tourism saturation to sudden undertourism. Meanwhile, Dr. Ivan Murray (Universitat de les Illes Balears) examined the reality of planetary touristification and the dialectic between overtourism and undertourism, an uneven geographical development delimited by hypertouristified and infratouristified spaces. Finally, the reflection on the need, and enormous difficulty to materialise, strategies, instruments, or actions suitable for achieving the long-desired sustainable tourism was presented by Dr. Anna Torres (Universitat de Barcelona).

Up until the outbreak of the pandemic, the tourist destinations in Europe were experiencing a new tourism bubble. This was due to the fact that in some destinations, principally urban, the social conflicts arising from tourist saturation had led to reactions not only from neighbourhood associations, but also in the form of public policies to manage the contention of the growth of the tourism supply or even promote its degrowth. On the other hand, in other territorial contexts (interior and rural areas or impoverished countries), tourism is considered as another possible resilient alternative for development or subsistence, where it is essential to implement balanced and sustainable tourism development models. This context of territorial polarisation, which globalisation had exacerbated between urban and rural spaces, between coastal and interior areas or as a result of the spatial segregation arising from social class, ethnicity or gender, among others, marked the lines of debate through the different diagnoses and alternative proposals. Based on this approach, for the study of territorial polarisation, responses were sought to the different questions existing about the possibilities of

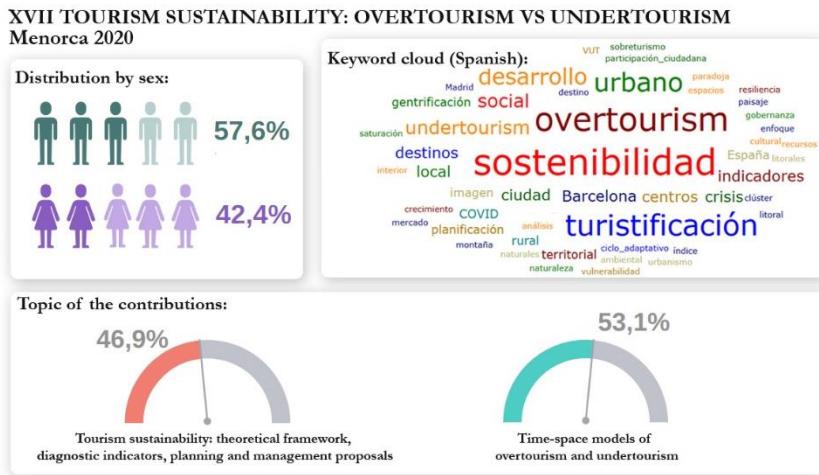
sustainable development in tourism. To do this, two principal lines of study focused on “Tourism sustainability: theoretical framework, diagnostic indicators, planning and management proposals, etc.” and on “Time-space models of *overtourism* and *undertourism*”. Therefore, thanks to almost a hundred authors who shared their research, it was possible to debate and clarify key issues related to the incidence of crises in tourism sustainability (Fig.5).

Within the first theme, topical issues were reflected, such as emptied rural Spain, coastal tourist destinations, territorial inequalities, territorial quality and landscape as a strategy for interior and nature tourism, tourist pressure in urban centres, urban planning as an instrument to order the tourism activity, theme parks, the evaluation of tourism sustainability, land custody, the consequences of over-saturation in socio-environmental aspects, public responses in scenarios of overtourism, megaprojects... but also individual studies related to water management and tourism growth, the evaluation of new digital instruments as an element to compare the organic image and the induced image in non-urban destinations (Fig. 5).

Several problems were addressed within the second theme: precariousness of labour, citizen participation as an essential element in the social dimension of the *Smart Destination*, smart rural tourism, the future of the sun and beach tourist city, gentrification and tourism processes, the cultural motivation of tourists, the tourist use of housing in the rural environment, charter companies in Spain, interior tourism, case study analysis that can be extrapolated to other places, such as the commercial gentrification of the public space with the terraces of bars and restaurants in historical quarters, LGTB tourism as a new source of tourism development, the relationship between the frequentation and evolution of the beach area, urban overtourism and demographic changes, new tourism dynamics in the “Camino de Santiago”, reflections on a living environment and tourist destination, tourism and inequality or the analysis of more global characteristics such as the study and evolution of changes in the use of coastal land in Spain.

All of these issues, which continue to be central in the debate today, were addressed in the publication “Sostenibilidad turística: *overtourism* vs *undertourism*” (Tourism Sustainability: overtourism vs undertourism) edited by the Societat d’Història Natural de les Balears en 2020. This publication refers, first, to the socio-territorial inequality and its structural connection with neoliberal capitalism; second, to the environmental and social risks derived from systemic vulnerability and from the tourism-real estate specialisation and, third, to the democratic restructuring opportunities through planning.

Figure 5. Summary table of the 17th Symposium on Tourism Sustainability: overtourism vs undertourism, held in Maó in 2020. Source: own elaboration



3. Conclusions

The evolution of the tourism phenomenon from the beginning of the twenty-first century until the pandemic in 2020 formed part of the acceleration and intensification processes of globalisation, of the contexts of the different crises occurring and of the trend scenario of the transformation of culture, work and leisure, within the framework of the sustainability paradigm. Within this scenario, tourism constitutes a factor shaping the new society and territorial model. As shown by the research over the last few years, the changes taking place in tourism demand and supply have led to the emergence of a new tourism scenario, with the incorporation of new places and products. Furthermore, the hegemony of the conventional model of traditional tourist destinations has been questioned.

The research conducted by geographers on these transformations has been carried out in Spain mainly in universities, where its presence has increased in collaboration with other disciplines such as tourism, humanities, anthropology or environmental sciences. A sign of this increase is the activity carried out by the Tourism Working Group of the AGE, considered to be one of the most ideal forums for sharing the advances in geographical research on tourism. This gives the symposia the capacity to "push" the state of the research, which, as we have seen, maintains a good line of work and volume of contributions. Therefore, it may be considered that the dynamism of the research groups in geography and tourism and the Working Group is continuously increasing.

Among the wide diversity and complexity of the issues addressed in recent years, pressing questions continue to arise in tourism geography research, such as the changes in the tourism-territory dialectic, the role played by territory in the tourism change processes, management in times of crisis, the roles of the tourism agents in new scenarios, among many others. Of these, it can be seen that public planning and

management continue to constitute a principal line of research, similarly to the frequent use of case studies as a way to approach the theoretical concepts of Spanish geography.

In parallel, although the study topics are sometimes conditioned to follow lines of finance and interest in accordance with tourism policy, the objective of responding from a geographical perspective to the social challenges has given rise to the emergence, although scarce, of critical studies. Of these, those focused on the effects that the tourism industry has caused over the last few decades in the territory are prominent (working conditions, overtourism-undertourism, touristification, gentrification, tourismphobia and inequality).

In this respect, the contributions to the Symposia of the Tourism Group reflect the efforts made by the research groups in terms of transdisciplinarity and internationalisation, which are visible in the chosen case studies, the language, the collaboration between authors, the origin of the people attending and the guest speakers.

However, there are some underdeveloped lines related to the transformation of a place in a tourist destination and to the process of change that it generates: spatial, social, economic, cultural, among others. The role of geography in the study of a social activity so closely related to the specific characteristics of the territory, such as tourism, is crucial. Therefore, it is highly interesting to analyse the tourism sector from a physical geography point of view, although such studies are still scarce. Also lacking is a greater development of key aspects for the sector, such as climate change, resource consumption, the management of the waste generated and those studies that do exist are still closely related to the natural space and its management. Similarly other lines to consider are: the study of mobility, the repercussions that the necessary infrastructures have on the territory, accessibility or the study of tourism from a gender perspective in all its complexity, the consumption of energy and materials, new economic models, democratic decision-making, the design of reliable indicators of the real socio-economic impact of tourism on local or regional levels, among others.

Tourism geography still faces important challenges, not only due to the transformation that the sector has experienced as a result of the different crises in which our societies have been immersed, but also due to its future projection as a discipline concerned with an appropriate analysis and planning of these transformations. Geographical research on tourism should go beyond mere descriptive local studies and offer the scientific community propositional research in which sustainability is always a key element, as well as providing more depth in the theoretical and methodological rationale. In this way, it would be interesting to promote the creation of inter-university research groups at an international level for the development and geographical analysis of tourism, which would increase the relevance of the discipline. At the same time, the Tourism Group could be an ideal means through which to reinforce the much desired transfer and dissemination of the research carried out, channelling collaborations and promoting new communication channels.

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Activating local and regional development in the Iberian borderlands

Juan Antonio Márquez Domínguez

ORCID: 0000-0002-0533-9260

Universidad de Huelva

José Manuel Jurado Almonte

ORCID: 0000-0001-8948-3165

Universidad de Huelva

Jesús Felicidades García

ORCID: 0000-0002-4194-8768

Universidad de Huelva

Abstract: The Iberian border, the *Raya*, is the oldest in Europe and stretches for 1,234 km, crossing different regions and territories. Border communities have often suffered from conflict and distance from state powers, which has led to difficult development. Today they are characterised by depopulation and demographic ageing, the abandonment of primary activities, the weakness of the industrial fabric and the precariousness of services. Over the last 30 years, the EU has policies and resources to promote cross-border cooperation. As a result, new institutions or structures for relations and shared governance are emerging. From the perspective of Regional Geography, these new borders represent an opportunity for applied geography, activating local and regional development and territorial resilience. In this context, the singularity and diversity of the border, its persistent demographic crisis and territorial cooperation are addressed, especially from new instruments such as Euroregions and Eurocities.

1. Introduction

The Spanish-Portuguese border, known as la Raya in Spanish and a Raia in Portuguese (literally 'the Stripe' in English) can claim to be one of the oldest in the world, dating from the end of the 13th century and virtually unchanged since then. Since it was established, it has exercised a major influence on the populations living alongside it, with periods of conflict alternating with periods of peace, as distant, unrelated political ambitions played out. These territories are historically marked out as being isolated and economically precarious, with a long history of cross-border exchanges of both a legal and illegal nature.

In 1986 a new period in the history of this border area began when Spain and Portugal were accepted into what was to evolve into the European Union (EU). This event led to the adoption of common policies and regulatory frameworks, alongside

structural and cohesion funds. For the border regions, accession to the EU was particularly noted in terms of the removal of custom checks, the free movement of goods and persons, the implantation of the single currency, and improved connectivity and accessibility. Within a few years, these areas went from being considered the end of the line to being more fully integrated into the transport networks of both countries. Among the initiatives promoting public investment in border territories, the INTERREG programme, initiated in 1990, is especially noteworthy. After being renewed across various multi-year frameworks, the programme became an EU goal, namely European Territorial Cooperation (ETC).

Nevertheless, despite the investment cycles, the renewed projects and strategies promoting territorial collaboration, the creation of cross-border working communities, and the implementation of development plans, population decline and a migratory outflow from the territories remain a major problem, which has accelerated a decline in activities, heritage and services – a situation affecting many other rural areas in the peninsula. In fact, large parts of the Raya record population densities below 12.5 people per km², the threshold which the EU recently set as indicative of the need to incentivise such areas to adhere to its new policy for cohesion 2021-2027.

As a result of this process of population decline, the Raya is a partially hollowed-out region, with an average population density of 15.8 persons per km² in the municipalities contiguous with the border, in comparison with the 2021 baseline figures of 112 for Portugal as a whole, and 94 for Spain. These border areas constitute a historically weak urban system in which the centres of population continue to decline as a consequence of the continued outflow of the youngest members of the workforce and an increasingly ageing population. The only municipalities which, for the moment, escape this decline are those situated on the confluences along the rivers Miño and Guadiana, along with the city of Badajoz.

The EU's reinforcement of its Regional and Urban Policy for border regions has undoubtedly improved certain structural elements, such as bridges, roads and other infrastructure, but has proved less successful in stemming the cycle of depopulation, isolation (Medeiros, 2019) and weak economic growth along the greater part of the Iberian Raya. At the same time, it has been unable to revive the shrinking, traditionally commercial, local economies along the border regions. Having come to this pass, local institutions and communities are now looking for new forms of cooperation which can repair the damage to the socioeconomic fabric, thus bringing about new perceptions of territorial integrity, such as the Eurocity, incorporating new formulae for institutional organisation and local development.

The working hypothesis this paper is that the crisis facing the border regions is more entrenched than in other rural spaces, and that improvements in accessibility and public services have been insufficient to redress the population balance and ensure stability and sustainability across the territory. Notwithstanding, the territory is not without resources and potential. Local development strategies are incorporating new inclusive and participative tools and processes, and the new cross-border cooperation policies – above all Euroregions and Eurocities – could represent a remedy to the ongoing population crisis

2. Research and the Iberian Raya

The unique geography and history of the Spanish-Portuguese borderlands, and their current territorial transformations and challenges have attracted the interest of a wide range of researchers, not only within the academic field of geography, but also historians, political scientists, economists, sociologists and anthropologists. This is due to the fact that this space has generated, among other things, a significant impact on the societies and way of life of its inhabitants. In many cases, chiefly among geographers (López Trigal, Lois & Guichard, 1997), the border areas have been considered places of extraordinary marginalisation, caused principally by political decisions taken in the state capitals. Over the course of centuries of mistrust and isolation, the borderlands were configured according to different territorial identities and imaginaries. By this means, obeying the socio-economic imperatives governing places that always lose out, the circumstances of the Spanish-Portuguese border became a demographic disincentive which drained all possibility of cohesion, growth, progress and development (Márquez, 2011). Broadly speaking, the border amplified the features of geographical periphery, territorial disintegration and economic underdevelopment (López Trigal, 1997 and 2000).

In these circumstances, in the 20th century, two completely independent models of territorial organisation developed in Spain and Portugal (Gaspar, 1995), although sharing a common element: the duality coastal/inland, and the dichotomy urban/rural. It is thus completely logical that the demographic processes turned out to be ambivalent (Felicidades et al., 2020). Currently, two elements have encompassed this territorial scheme. The first concerns the accession of the two Iberian countries to the European Union in 1986, and the gradual international expansion of their factors of production. This created the opportunity for bilateral relations and stimulated the contact between border communities, with the overall objective of territorial cohesion. The second element is closely related to the first, and is that in the last few decades borders have undergone a profound reconceptualisation. The geopolitical shifts which took place towards the end of the 20th century – modern reinterpretations of globalization and territoriality, and hence the discourse of a ‘borderless world’ – brought about a clear change not only in the focus and analysis of borders, but indeed in the way that the very concept and the socio-spatial effects of borders were understood. The previous conception of borders as static and linear (Márquez, 2011; Felicidades, 2021) was replaced with one of a territorial process that was mobile and shifting along its length, where the borderlands could become areas of attraction and resources for promoting territorial development (Trillo, 2010; Lois & Carballo, 2015). In this respect, the opportunities that the border made available could enable it to overcome the very obstacles that it originated.

Elsewhere, research into the population of the Raya has traditionally focused on the cooperation and territorial and demographic dynamics on each side of the border (Guichard, 1997; López Trigal, 2000; Felicidades et al., 2022). Other studies have examined the system of populating the area (Campesino, 1997; Gaspar, 2000; Felicidades, 2013). Heritage and tourism have also received attention from researchers (Campesino & Jurado, 2014; Jurado & Pazos, 2018). Finally, the potential for cooperation across the Iberian border has been considered across a range of studies in

the fields of geography and economics (Márquez, 1997; López Trigal, 2000; Cabero, 2002; Lois & Plaza, 2003; Trillo, 2010; Medeiros, 2011).

The processes of territorial construction and the configuration of Euroregions and Eurocities have been explored by a number of researchers. In this regard, Cortizo (2017) edited an interesting monographic study in the journal *Polígonos* on the then 25 years of cross-border cooperation. López Trigal (2017) provides an excellent overview in this collection of the range of studies on the Iberian borders.

The constitution of Euroregions and Working Communities has implied the creation of entities (cross-border offices and territorial observation networks), which in turn has generated a wealth of technical documentation on territories and sectors, most of which is available for download from the respective websites (Table 3). To this can be added the documentation available from the POCTEP Joint Technical Secretariat (<https://www.poctep.eu/>). There are, too, significant doctoral theses and other studies of the new Euroregions: Carrera (2000) on Castilla y León and Portugal; Trillo (2010) on Galicia-Northern Portugal; Gualda (2010) on Alentejo-Algarve-Andalucía; and Campesino (2017) and Pérez Pintor (2017) on Alentejo-Centro-Extremadura (EUROACE).

With respect to Eurocities, there is a range of interesting research: Chaves-Verín (Lois Barrio, 2013), Elvas-Badajoz (Castanho et al., 2017), Tui-Valença (Lima, 2012), Bayona-Donostia (Alberdi, 2019), Douro-Duero (Manero, 2012), la Cerdanya (Oliveras, 2013) and the Lower Guadiana (Márquez et al 2017; Márquez, 2021; Felicidades et al, 2022). There have also been valuable studies into the Iberian border as a whole (Domínguez, 2013; López-Davalillo, 2016; Castanho et al, 2019; Jurado et al, 2020).

3. Diversity, uniqueness and geohistory of the Iberian Border

The Spanish-Portuguese border sits in its entirety on the Devonian-Carboniferous basement. This gives rise, in general, to slate soils, poorly suited to agriculture and more appropriate for forestry and livestock. This agrologic disposition has left its mark on its primary economy for much of its history. The demarcation of borders relied in many sections on the course taken by rivers, a type of landscape border sometimes referred to (by Spanish geographers) as a “wet border”, in opposition to a “dry border”, where the boundary lines are not so easy or so clear-cut as those defined by the thread of a river channel. The Raya starts and ends with two international watercourses formed by the estuaries of the Rivers Miño and Guadiana. Both are navigable to an extent, and feature small port enclaves, which support traditional river and maritime fishing of certain importance to the local economy, especially in the case of the River Miño. Other stretches of the Rivers Miño, Duero, Tajo and Guadiana also demarcate the border, along with smaller rivers such as the Chanza, Ardila, Sever and Erjas.

This border divides the drainage basins of the Rivers Miño, Duero, Tajo and Guadiana which rise in Spanish territory and flow across the peninsula into the Atlantic, and coming under the administration of different water authorities. The management of the international stretches of the rivers and their use became the major achievement of Spanish-Portuguese cooperation at the start of the 20th century, long before the two states joined the European Union. More recently, in 1998 the Albufera Convention was signed with the aim of consolidating and regulating cooperation in the use of shared watercourses. The first treaties set out a framework for sharing this resource, with a

series of reservoirs and hydroelectric dams along the rivers, from the Arribes del Duero to the Chanza reservoir at its confluence with the River Guadiana. These are the most important hydroelectric scheme on the peninsula, although they come under the control of large scale companies which are located far away from the Raya, which consequently receives little territorial or environmental benefit.

Various climatic variations can be found along the length of the border, resulting in distinctive landscapes, and giving rise to diverse geographic and environmental habitats – marked by a minimum of anthropic transformation – finally preserved under the auspices of various figures and regulations. The cultural landscape most characteristic of the area is the dehesa (Spanish) or montado (Portuguese), a multifunctional, agrosilvopastoral system consisting of Mediterranean forest and used chiefly for grazing. In areas of higher rainfall and greater availability of water, oak and chestnut stands and riparian forests can be found. As a result, there is a vast, diverse natural heritage along the Raya, with an abundance of natural spaces both within the Nature 2000 network, and protected by state and regional environmental planning. Of particular mention among these cross-border protected areas are the Tajo Valley Nature Reserve and the Parque Xurés/Gerês Biosphere Reserve.

To all of this can be added a great range of tangible and intangible heritage which are scattered along the border. From the mouth of the Miño to the Guadiana estuary, there runs a long chain of castles, bastions and fortifications – silent witnesses to periods of conflict – alongside archaeological remains, monuments and historic towns and villages. This wide range of heritage represents a tourism resource which can make the border region a tourist destination and cultural itinerary (Campesino & Jurado, 2014; Jurado & Pazos, 2018).

Historical analysis of the Spanish-Portuguese border reveals a constant disconnect between the local communities and the power of the States – two actors with very different interests. While for the nation States the border is a territorial limit which must be demarcated so as to separate and construct national identities, the Raya has for centuries been an ungoverned locale of life, commerce and contraband, the scene of the *coto mixto* (an independent microstate), the *povos promiscuos* (three villages of mixed sovereignty) and the *contiendas* (period of conflict). It has been termed the magical, festive frontier, one of understandings and tacit alliances, the border of everyday life (Valcuende, 1995). Within this framework, the process of construction and deconstruction of the Iberian border can be divided into three historical stages according to the mode of organising and experiencing the territory (Márquez, 2011).

Table 1. The dialectic of the deconstruction of the Portuguese-Spanish border. Source: Updated from Márquez, J. (2021).

Actores: Etapas	Estados: Crear la frontera	Comunidades locales: Vivir en la Raya
Construction: Medieval and modern ages 1267/1297-1774	Delineating boundaries. medieval wars Fortresses for keeping watch 1640-1668 (Portuguese Restoration War)	Fear and extortion Strife. Enemies and neighbours. The so-called 'promiscuous' villages

Consolidation: Contemporary age 1774-1977	Customs and trade. Founding of Vila Real de S. Antonio and Rosal de la Frontera. Geographic formalization of the border	New opportunities for contraband and business. The so-called 'promiscuous villages'. Rural crisis. Strong migratory outflow
Deactivation: 1977-1986-Present	Free movement Deactivation of the border. Iberian summits. European funds. Euroregions and other Working Communities. Emergence of Eurocities	Loss of the border advantages of the <i>Raya</i> . Persistence of migratory outflow and depopulation. Marginalisation and destruction of the <i>Raya</i>

The first stage can be identified with the creation of the border. Broadly speaking, it began between 1267 and 1297, with the treaties of Badajoz and Alcañices, respectively, which established the jurisdictions of the kingdoms of Portugal and Castile over their bordering areas. This marked the beginning of what would become the oldest border in Europe, still in force today. Bastions and fortifications were built for patrolling the border and to serve as defensive points. All the while, local communities were of scant interest to the powers, although they periodically suffered the consequences of political decisions and conflicts. Among such conflicts was the Portuguese Restoration War of 1640-1668, during which the border bastions were refortified.

The second stage can be said to begin with the founding in 1774 of the town of Vila Real de Santo António, at the mouth of the Guadiana on the opposite bank to Ayamonte. The period saw the cessation of tension and violence, and is symbolised in the Pombaline style of the new town, built on the remains of San António de Arenilha, and displaying a new urban concept, open to commerce and with scant defences. Despite this newfound architectural confidence, the inhabitants of the *Raya* were subject to a precarious economy, which only increased the rural exodus.

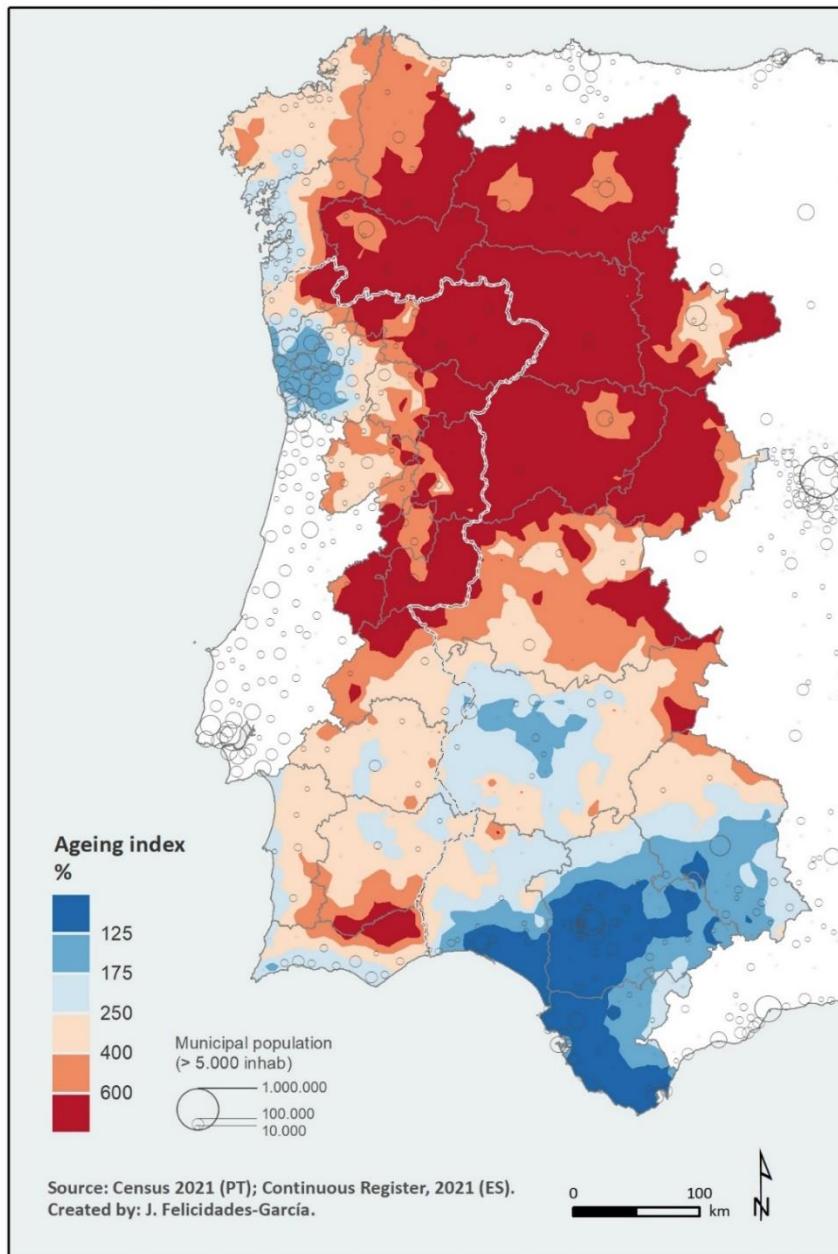
The third stage saw the deactivation of the border. It began in the context of the fall of the dictatorships of Salazar/Caetano and Franco in the mid-1970s. The formalization of the Treaty of Friendship and Cooperation in November 1977 was important in opening up relations and cooperation that had been absent from the Iberian "non-aggression" Pact of 1942. This was followed by new pacts, summits and treaties along the route to coeval membership of the European structures and institutions in 1986, bringing access to structural funds within the framework of cross-border programs, rural development and territorial cooperation. Another development that proved decisive for life in the borderlands was the Schengen Agreement, originally signed in 1985 and implemented 1995, which allows the free movement of citizens, goods and capital within Europe. Only with the recent Covid-19 pandemic have border controls and transit bans been temporarily reinstated. The restrictions brought about by the closure of the borders were keenly felt by those living along the *Raya*, who effectively represented an impermeable human line separating states and communities.

4. The ongoing demographic crisis of the Raya

The demographic evolution of the Raya has been punctuated with historical difficulties and economic weaknesses. For centuries life in this fortified, strongly defended area was harsh, and Portugal and Spain watched each other suspiciously under the ever-present threat of hostilities breaking out. Indeed, there were sporadic clashes in certain border areas, and peace and political stability were not definitively established until well into the 18th century (Carriazo, 1998).

From that point onwards, as in other rural areas on the peninsula, the population slowly increased. However, the early years of the 20th century saw the start of a rural exodus in both Spain and Portugal, which continued throughout the century and became more pronounced in the 1950s, as people migrated to coastal areas and the capital cities, or left the peninsula to find work in Europe's more industrialised countries. The phenomenon of emigration and the concomitant ageing of the remaining population only served to make the Raya an even less attractive place to live (Jurado & Pazos, 2018; 2022; Felicidades et al., 2020). Figure 1 shows the ageing index across the region, where notably high levels can be noted in the Centro-Norte area of the *Raya*.

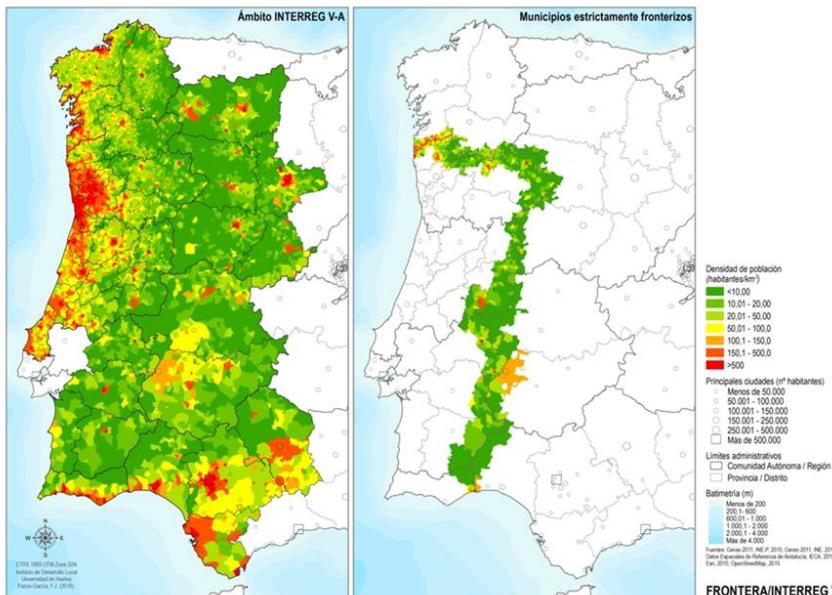
Figure 1. Population ageing (ageing index) over the area delimited by the POCTEP programme by municipal population, 2021



This information is complemented by Figure 2, which illustrates the state of demographic collapse affecting the Raya. It shows the population densities across the whole area covered by the POCTEP programme. It is particularly notable how the densities decrease the closer to the border one gets.

Figure 2. Population densities over the area delimited by the Interreg V Programme and municipalities strictly on the border. Source: InfoRegio, 2015; INE-P, 2015; INE, 2015.

Reproduced with permission from Jurado & Pazos (2018)



Although the migratory process is less marked today than in the 60s and 70s of the last century, it remains a problem, especially among the youth. The consequences of this decline in the population are a decrease in birth rates and an increase in the average age. Further, businesses and other economic activities become unprofitable and close, which can also affect the provision of public services. These areas find themselves in a vicious circle of population decline, lack of accessibility, minimal opportunities for training, and a weakened labour market (Camarero, 2020: 24).

In terms of population distribution, the Raya is generally speaking largely rural, with over 50% of the population living in municipalities of fewer than 10,000 inhabitants. There is no network of major towns (López Trigal, 1997; Felicidades et al, 2020), and in fact the only town of any considerable size is Badajoz, with a population of 150,000, while Vigo and Huelva are each some 50 kilometres from the border. With the exception of these enclaves, the population along the Raya is dispersed into numerous very small communities with a large proportion of ageing populations.

5. Cross-border cooperation

5.1. Beginnings and the constitution of institutions

There have been a number of parallelisms between Spanish and Portuguese history, but none more significant than the transition to democracy in the mid-1970s and their incorporation into the European Union in 1986, both of which were cornerstones of their subsequent development. Since then, various programmes and formulae have been launched within the framework of European cooperation, aimed at benefiting the border regions. These projects have been co-funded by the European Regional Development Fund (ERDF) and channelled through INTERREG I (1990-1993), INTERREG II (1994-1999) e INTERREG III (2000-2006), POCTEP (2007-2013), INTERREG VA (2014-2020) and currently INTERREG VI (2021-2027). The last three decades have seen developments in budgeting, regulations, administrative procedures, lines of action, the territories and programming limits. Broadly speaking, all projects prior to 2006 could be termed ‘first generation’ or infrastructure projects, in that they chiefly involved developing the communication network across the territory (chiefly bridges).

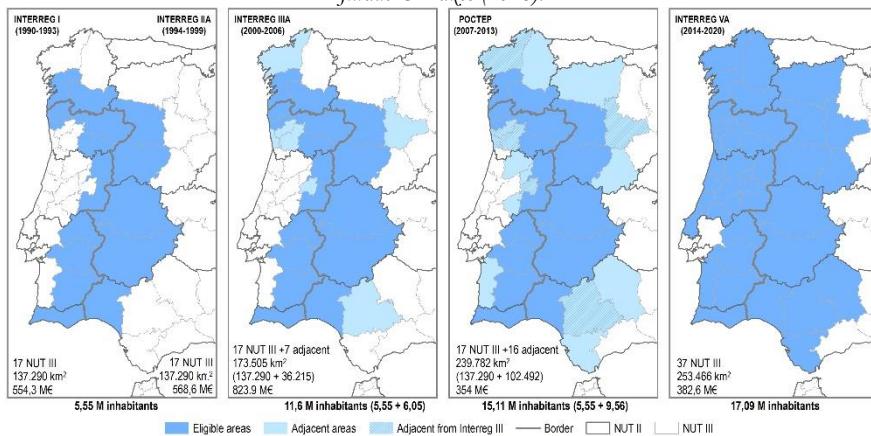
The POCTEP (2007-2013) and INTERREG VA (2014-2020) projects launched the second generation of projects focused on achieving a greater degree of direct participation between public institutions and associations (Medina, 2012). The current INTERREG VI (2021-2027) builds on this cooperation, although incorporating, in what is being termed the third generation (Medina, 2021), a greater degree of decentralisation. At the same time, these lines of action are being carried out in conjunction with the 2030 Agenda for Sustainable Development Goals (SDGs) . Regulation (EC) No 1082/2006 represented a major milestone in the development of cross-border cooperation. It introduced a new tool in the form of European Grouping of Territorial Cooperation (EGTC), the purpose of which was to enable different Member States to come together under a new entity with the power to delegate certain tasks relating to territorial cooperation under the premises of multilevel governance, and bring together all actors involved. The significance of this regulation is reflected in the fact that in the distribution of the ERDF for the European Grouping of Territorial Cooperation (EGTC), passed in 2013, the EGTCs were the key entities for the management and receipt of the funds. Former Working Communities are also opting for this route, as they allow cooperation to be decentralised, while some Euroregions and Eurocities are following the same path.

Over the years, cross-border projects have extended the limits of the “cooperation across borders”, with initiatives reaching areas ever more removed from the actual border, including urban areas such as Seville and Oporto, and even A Coruña, Córdoba and Valladolid. Notwithstanding, it should be recognised that such communities, by virtue of their location, have no experience, now or in the past, of the processes of construction, consolidation and deactivation associated with the border and the impact of these processes on the community’s social, economic and cultural life. It also goes without saying that the Raya in no way features in their everyday life or in their imaginaries and territorial identities.

Figure 3 shows the development of the geographical range of programmes over time, including the current cycle (2021-2027). This has undoubtedly had the effect of blurring the actual border and distorting the contiguous territory, while at the same time

intensifying competition between areas that are potential candidates for what scarce funding there is.

Figure 3. Evolution of the cross-border cooperation zones between Spain and Portugal from INTERREG I to INTERREG VA ()(*)INTERREG VI (2021-2027) covers the same geographical programming area as Interreg V (2014-2020).Source: InfoRegio, 2015; INE-P, 2015; INE, 2015. Reproduced with permission from Jurado & Pazos (2018).*



Various structures, entities and cross-border cooperative projects have been developed under the overarching framework of the European Structural and Investment Funds (ESIFs), cooperation policies, community regulations, and new territorial configurations. In the case of Spain and Portugal, after over 30 years of cooperation, various new institutions and structures for facilitating relations and shared governance have been developed (Table 2). At the same time, existing protocols and agreements promoting cooperation have been renewed, while networks for streamlining communications and cooperation have been reinforce.

Table 2. New territorial structures of governance in the Spain-Portugal border region. Source: Ministry of Territorial Policy and Public Functions. Secretary of State for Territorial Policy and Public Functions (2021). Own elaboration.

EGTC	Galicia-North Portugal Euroregion, Duero-Douro, ZAS-NET (three mancommunities), Eurocities (Chaves-Verín; Lower Guadiana), Iberian Pyrite Belt; EGTC León-Bragança, Interpal-Medio Tejo (province of Palencia and the Portuguese region Medio Tejo)
European Grouping of Territorial Cooperation	Alentejo-Centro-Extremadura Euroregion (EuroACE). Alentejo-Algarve-Andalucía Euroregion. Castilla y León/ Centro Region Working Community Castilla y León-North Portugal Working Community Southeastern Europe Macroregion (RESOE). Castilla y León-Galicia-Asturias-Cantabria-Centro and North Portugal
Euroregions or assimilated	Eixo Atlántico del Noroeste Peninsular (Cross-border Association of 39 local Authorities in Galicia and Northern Portugal). Asociación Ibérica de Municipios Ribereños del Duero (Iberian Association of Municipalities on the River Duero).

	Asociación do Vale do Miño Transfronterizo (Pontevedra Provincial Council and the Vale do Minho Intermunicipal Community). Red Ibérica de Entidades Transfronterizas de Cooperación (Iberian Network of Cross-border Cooperative Entities).
Associations or assimilated	Tui-Valença do Minho Eurocity, Chaves-Verín Eurocity, Cerveira-Tomiño Eurocity, Monção-Salvaterra de Miño Eurocity, Guadiana Eurocity (Ayamonte-Vila Real de Santo António-Castro Marim), Badajoz-Elvas-Campo Maior Eurocity, Ciudad Rodrigo-Fuentes de Oñoro-Almeida-Vilar Formoso Eurocity
Municipalities or assimilated	Centro de Estudios Eurorrexionais (Universities of Trás-os-Montes Alto Douro, A Coruña, Santiago de Compostela, Vigo, do Minho y do Porto). Conference of Rectors of the Southwestern European Universities (RED CRUSOE, incorporating 8 universities from Castilla y León, 3 from Galicia, 3 from Portugal and 4 polytechnic institutes headed by the Instituto de Bragança). Centro de Estudios Ibéricos (Universities of Coimbra and Salamanca, and the municipal council of Guarda).

5.2. Euroregions

The concept of Euroregion arose from the need to identify an emerging territorial configuration, composed of a region between two or more states which enjoyed economic, cultural or social interchanges. Euroregions have a well-established history within the EU, with more than 60 having been established, the first in 1948, even before the creation of the EEC. The majority, however, came into being in the 1990s and 2000s within a framework of European Territorial Cooperation (ETC).

Table 3 shows the Euroregions that have been established in the last few decades between Spain, Portugal and France. The oldest of these is the Galicia-Northern Portugal Euroregion, which started life in 1991 as a Working Community before becoming an EGTC in 2008. In like fashion, other Spanish borderland communities have come together with the NUTS 2 regions in Portugal to form the EuroACE Euroregion (2009), and similarly the AAA (Alentejo-Algarve-Andalusia) Euroregion (2010). The Working Communities of Castilla y León/Centro Region (1995) and Castilla and León-Northern Portugal (2000), meanwhile, have retained their original configuration. Some of the protocols and agreements covering these Euroregions and Working Communities have recently been renewed in view of their positive experiences of collaboration (Ministry of Territorial Policy and Public Functions, 2021).

All these structures are regional constructs developed within the ETC framework and concern contiguous regions with geographic similarities. Nevertheless, the practicalities are not always focused on the communities living strictly along the Raya. A case in point is the AAA Euregion, which includes the province of Almería at the opposite end of Andalusia, a region in which only the province of Huelva actually shares a border with Portugal.

A similar issue concerns the competences conferred by political structures of the two countries involved in these Euroregions. On the one hand, the Spanish autonomous communities enjoy a high degree of administrative and legislative freedom, while on the other, the NUTS 2 regions of Portugal come under the jurisdiction of the Regional

Coordination and Development Commission (CCDR), which is centrally administered by the Portuguese government.

Table 3. Euroregions and Working Communities in the Iberian Peninsula and France

Constitution	Name	Countries	WEB
1995	CT Castilla y León/ Centro Region	Spain and Portugal	https://eucyl.jcyl.es/web/es/cooperacion-portugal/cooperacion-centro-portugal.html
1999	Atlantic Area Euroregion	Spain, France, United Kingdom, Portugal, and Ireland	https://ec.europa.eu/regional_policy/es/atlas/programmes/2014-2020/spain/2014tc16rftn002
2000	CT Castilla y León-Northern Portugal	Spain and Portugal	https://eucyl.jcyl.es/web/es/cooperacion-portugal/cooperacion-norte-portugal.html
2004	Pyrenees-Mediterranean Euroregion (Catalonia, Balearics and Languedoc-Roussillon)	Spain and France	http://www.caib.es/sites/pirineus_mediterrania/es/presentacion-42901/
2008	Galicia-Northern Portugal Euroregion	Spain and Portugal	https://galicia-nortept.xunta.es/es/eurorregi%C3%B3n/
2008	New Aquitaine-Euskadi-Navarra Euroregion	Spain and France	https://www.euroregion-naen.eu/es/
2009	EuroACE Euroregion, Alentejo-Centro-Extremadura	Spain and Portugal	https://www.euro-ace.eu/
2010	AAA Euroregion, Alentejo-Algarve-Andalusia	Spain and Portugal	https://www.euroaaa.eu/site/es
2010	Southwestern Europe Macroregion (RESOE). Castilla y León - Galicia - Asturias - Cantabria - Centro and Northern Portugal	Spain and Portugal	https://eucyl.jcyl.es/web/es/cooperacion-portugal/macrorregion-resoe.html

5.3. Eurocities

Eurocities derive from the concept of Cross-Border Regions (CBRs), although at a markedly local and municipal scale. More than Euroregions and/or other EGTCs, Eurocities have played a leading role in recent Spanish-Portuguese cooperation.

Although they are a relatively recent creation, they offer a wide range of opportunities for governance in terms of managing services and facilities, as they operate on a local scale and are well received by the community they serve.

The Eurocity concept is an interesting formula for providing structure and substance to projects aiming to cut through bureaucracy and institutional conventionality and the lack of political will. The formula aims to constitute entities with full powers to propose and carry out cross-border projects, as well as to seek out other options and assistance at the provincial, regional and state levels. By constituting themselves as EGTCs, Eurocities gain a significant degree of flexibility, so most tend to go down this route, as in the case of Chaves-Verín and the Guadiana Eurocity. An alternative is to become associated with an EGTC of a larger territorial scale, as in the case of Rio Minho (Southern Galicia-Northern Portugal).

These three Galician-Portuguese Eurocities, established in 2006, represent a very interesting associative nexus. They enjoy a high degree of administrative autonomy, but need to incorporate high levels of cooperative goodwill in order to meet their responsibilities, which without a sizeable demographic and administrative base are not readily fulfilled.

The Eurocities along the Raya illustrate an interesting process of assimilation. With minor differences, they all follow the same institutional and executive design, with the aim of reaching the critical mass, demographically and economically speaking, to be able to compete for projects and funding from the regional, state or European administrations, and thus offer common services and generally strengthen the socio-territorial integration. In short, they intend to institutionalise and deepen the cooperation between frontier municipalities which they have always maintained throughout a long history of cultural and socio-economic links.

This is especially true in the case of the Raya, which boasts seven Eurocities (see Table 4 and Figure 4). The seven are different, with varying populations and economic weight, running from one extreme, represented by the 'Cerveira-Tomiño' and the Puerta de Europa (Ciudad Rodrigo-Fuentes de Oñoro-Almeida-Vilar Formoso) Eurocities, with populations of around 20,000, to the other, occupied by the 'Elvas-Badajoz-Campo Maior' Eurocity, with a population of around 190,000.

Nevertheless, it is unlikely that any initiatives of a similar size arise in the future, as the urban system along the Spanish-Portuguese border is very sparse. Until now, those Eurocities which have been constituted, have been comprised of the few nuclei of demographic concentration there are. This raises the question of how to adapt the current structures (and even how to generate new tools, if necessary) so that the more rural areas, along with those with higher rates of ageing, can also form associations and benefit from cooperation. After all, these are the areas which have suffered most acutely the "frontier effect", whilst at the same time being the least prepared to apply for funding in a context of fierce competition with too broad a programmatic scope.

Figure 4 Eurocities and European Groupings of Territorial Cooperation (EGTCs) in the Iberian Raya. Source: Jurado, Pazos & Castanho (2020)

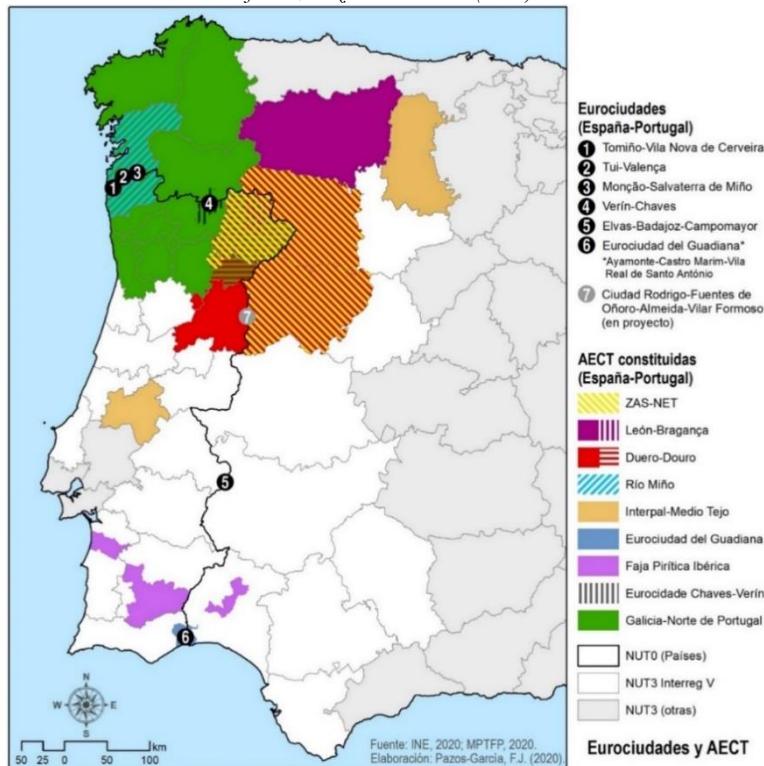


Table 4. Eurocities in the Portugal-Spain border regions. The Monção-Salvaterra, Cerveira-Tomiño and Tui-Valença do Minho Eurocities are also integrated into the Rio Miño EGTC, established in Valença on 24 February 2018 in order to promote projects in this cross-border territory. Source: Authors' own research and various websites (2020). Elaborated from Jurado, Pazos & Castanho (2020)

Designation	Date established	Population (approx.)	Website
EGTC Chaves-Verín Eurocity	18.12.2007 EGTC in 17.07.2013	55,500	http://es.eurociudadechavesverin.eu/ https://www.chaves.pt/
Tui-Valença do Minho Eurocity	10.02.2012	31,000	http://www.cm-valenca.pt http://www.ciudadetui.es/eurociudad-tui-valenca
Guadiana Eurocity (Ayamonte-Vila Real de Santo António-Castro Marim)	09.05.2013 EGTC in 07.02.2018	46,000	http://ayamonte.es/ayuntamiento-por-areas/eurociudad-cooperacion/ http://www.cm-vrsa.pt/pt/Default.aspx https://cm-castromarim.pt/site/conteudo/eurociudad-do-guadiana

Monção-Salvaterra de Miño Eurocity	28.03.2015	29,000	http://www.concellodesalvaterra.com/eurocidade www.cm-moncao.pt https://eurocidade.wixsite.com/moncaosalvaterra
EUROBEC Eurocity (Elvas-Badajoz-Campo Maior)	03.05.2018	190,000	http://www.cm-elvas.pt/municipio/ http://badajozcapitalenlafrontera.com/eurociudad.htm
Cerveira-Tomiño Eurocity	04.10.2018	23,000	https://eurociudadecerveiratomino.eu/
Ciudad Rodrigo-Fuentes de Oñoro-Almeida-Vilar Formoso Eurocity	01.02.2020	19,000	https://eltrapezio.eu/es/ (Es una web de una asociación local)

In general terms, the Iberian Eurocities have displayed several strong points (Jurado, Pazos & Castanho, 2020):

- Despite being in their relative infancy, they have become significant agents of cross-border cooperation, autonomous and self-sufficient.
- They are entities working towards sustainable territorial development, on the basis of cooperation and shared management of public services and facilities. The various strategic plans that have been developed or are in operation are evidence of this desire for sustainability.
- They were created to provide common public services in cross-border areas: “one city as the ultimate objective”.
- They aspire to be territorial lobbies, generating a critical mass to leverage higher administrative entities, chiefly community, but also state and regional.
- They can become structures or pressure groups within other cross-border institutions (Euroregions) in order to achieve projects.
- As part of their development strategies, they bolster niche activities based on their particular environmental and historical heritage. This makes the most of their productive potential while at the same time preserving and revaluing it through specific or general projects, many of which cannot be achieved without European, state or regional funding.

By the same token, there are weak points to the Eurocities that should be mentioned:

- The existence of quite low demographic thresholds makes it difficult in the majority of cases to obtain greater EU funding.
- There are still legal and administrative restrictions, which cannot be resolved by the Eurocities themselves, but rather by regional and, above all, state intervention.
- There is a high degree of dependence on European funds on the part of Eurocities for their development. The prospect of a reduction in funding leads to considerable insecurity and can require a change in priorities.

- The persistence of national sovereignties within the European Union means that in certain circumstances, the internal borders may “rise” again. This has happened, in part and temporarily, in some circumstances, and in response to certain events by which member states used their powers (state of alarm) to close the borders. This was the case in the health crisis triggered by the Covid-19 pandemic in 2020, when it became apparent that prohibitions and rules concerning borders did not take into account the particular needs, such as work mobility, of the Eurocities. Any other similar episode could undo decades of integration and free movement within the EU.

With respect to the last point above, the seven Eurocities along the Raya took a significant step when they published a Manifesto, signed on the 5th May 2020, underlining the role of cross-border cooperation and demanding recognition of its uniqueness on the part of the public administration of both states. They called for a protocol to be devised for establishing the response to crisis situations, such as that caused by Covid-19, that would guarantee cross-border mobility and maintain normal functioning.

6. Conclusions

For centuries, the Iberian Raya was a bastion of surveillance for the central powers, who displayed little knowledge or interest in the precarious life of the people who lived there. It was only in the 18th century that it began to be regarded as an area where legal trade could take place, albeit illegal contraband continued all the while, yet it remained a no man’s land, largely inaccessible to the rest of Spain and Portugal. Not until 1986, with the joint admission to the then EEC, was the Spanish-Portuguese border dismantled, giving rise to the discourse of international cooperation, by which people who had been separated began to establish relations. For these to flourish, it was necessary to develop the transport network with the construction of bridges – such as those at the mouths of the Rivers Miño and Guadiana, along with other more modest ones – which would stitch together the so-called “wet” border of the Raya. Hence the European cross-border cooperation initially took the form of the construction of new bridges (and new roads), which also became a symbolic expression of the new territorial union and the disappearance of the “wall” which the old border represented. As a result, the border between Spain and Portugal has achieved unprecedented levels of accessibility by land, which, along with the abolishment of customs and the arrival of the single currency, has transformed the Raya into an experimental laboratory of Europeanization.

Nevertheless, infrastructure is not favourable only to the processes of local territorial development; it can equally favour those very factors which cause the population to move away from the border territory. Hence, currently the chief threat facing the region is population decline, and the challenge is to find ways to retain the population. This is despite the substantial resources with respect to territory, agriculture, mining, energy production, natural landscapes and culture, the Raya has to offer, and which should lead the area to be re-evaluated.

A great deal of the literature concurs in demonstrating that Spain and Portugal’s entry into the EU, alongside the dismantling of the border and the development of cross-border cooperative programmes, have been insufficient to register any improvement in the socio-territorial indicators, or, in short, to offer a brighter future to the communities

along the Raya. For this reason, additional efforts need to be made, which both contribute to the process of cohesion and convergence, and eliminate the frontier effect blocking territorial development.

Broad-based territorial cooperation structures, such as some Euroregions, obscure the needs and priorities of the communities living on the border. It would be more appropriate to agree on delimiting the territorial scope of the action in a way that is more consistent and better aligned with the requirements of local authorities and actors, as can happen in Eurocities.

The increase in cooperation and links between states and regions should not obviate the fact that the way forward is to strengthen the role of Eurocities. They are the first groupings that go beyond the political and institutional will underlying a project to become part of the social and economic fabric of the border territories. They are a formulation that undoubtedly enhances the dual challenge of territorial governance and local development. Eurocities represent a novel configuration for empowerment, cooperation and governance for the future of border territories. The common factors shared by these groupings are sharing public resources, creating synergies and being visible in the administrative sphere.

There is no doubt that there is still a long way to go in terms of cross-border cooperation, Eurocities and local development, as well as in the implementation of cross-border governance structures. The opportunities offered by EGTCs should be grasped, under the auspices of their legal framework, as should the new tools of decentralization, co-management and local participation in decision-making, such as the European Urban Agenda and Community-Led Local Development (CLLD) methodology. At the same time, the EU's 2030 Agenda will permeate the new frameworks of the coming European Territorial Cooperation programmes.

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A century (and more) of international geographic education from Spain

Rafael de Miguel González

ORCID: 0000-0002-9347

5296

University of Zaragoza and EUROGEO

"Geography is the thermometer of culture and of the greatness of Nations".

Odón de

Buen My

memoirs, 2003

Abstract: The Spanish presence with contributions on geographical education at the International Geographical Congresses dates back to the end of the 19th century, at the conferences prior to 1922. However, after the founding of the IGU a century ago, the presence of geographical education went relatively unnoticed during three decades of International Geographical Congresses, until the creation in 1952, at the XVII Congress, of the then called Commission on the Teaching of Geography in Schools, currently the Commission on Geographical Education of the International Geographical Union (IGU-CGE), which Spain joined twelve years later. This contribution aims to review the debates, contents and contributions of Spanish geographers to international geographic education up to the centenary year 2022, through the scientific contributions to the IGU and the aforementioned Commission, such as the IGU Congresses, the IGU-CGE Symposia, the publications, activities and projects of the Commission and, above all, the International Charters on Geographic Education.

1. Introduction

In previous Spanish contributions to the *Congresses of the International Geographical Union* (IGU), an assessment of Spanish school geography and geographic education in the immediately preceding period has been made (Crespo and Fernández, 1992; Souto, 2004). On this occasion it is not necessary, since similar recent analyses of the most current period, that of the first two decades of the 21st century, have been carried out (De Miguel, 2017; Jerez and Córdoba, 2015; Sebastiá and Tonda, 2015; De Lázaro et al., 2012). The continuous scientific productions of the Geography Didactics group of the Spanish Association of Geography (AGE), especially the journal *Didáctica Geográfica* and the proceedings of the Geography Didactics Congresses, constitute the main references-available on the group's own website- that

allow us to know the evolution of our hybrid discipline (between Education and Geography), although they are not the only ones, since there are other journals, books, publications and entities that also contribute to innovation and research in geographic education in Spain.

And it is less precise, given the constant uncertainty of the changes in the national educational laws, with their impact on the autonomous regulations of the social sciences curriculum in the six years of primary education of the geography and history curriculum in the four years of compulsory secondary education, and of the Geography curriculum in the second year of baccalaureate. The recent joint allegations of the Royal Geographical Society, the Association of Spanish Geographers and the College of Geographers, before the draft Royal Decree of minimum teachings derived from the *Organic Law 3/2020* (LOMLOE), as in its day was done to those of the *Organic Law 8/2013* (LOMCE) and *Organic Law 2/2006* (LOE), show the interest of the community of Geography teachers to update the contents and methodology of Geography teaching in schools, as well as to increase the social projection of Geography at a time when sustainable development, geopolitics and globalization are spatial concepts of everyday language.

On the other hand, this scientific community has been decapitalizing in recent years, since the list of University Professors of Didactics of Social Sciences with a Geography profile has been retiring or is about to retire Pilar Benejam, Mercedes Tatjer, Clemente Herrero, Alberto Luis, Julián Plata, Francisco Rodríguez, María Jesús Marrón, Francisco García, José Manuel Souto (unless there is an error or involuntary omission). As a result, only a small group of tenured professors remain active, all of them linked to the Didactics of Geography group of the AGE: Rafael de Miguel, Emilia Tonda, Rafael Sebastián, Oscar Jerez, Jesús Delgado, Alfonso García and Rosa Medir (unless there is an error or involuntary omission), as well as a growing group of contracted professors with doctorates. Although it is no less true that the new generations and young researchers represent an illusion and a hope for the renewal of research in geographic education, as can be seen, edition after edition, in the didactics congresses of the AGE. The academic weakness of a young area of knowledge, created by Royal Decree 188/1984, often coming from Teacher Training Colleges (which until 2009 and the implementation of the Master of Teachers did not have formal teaching in official degrees of Didactics of Geography in Secondary Education), coupled with profiles of history didactics, heritage didactics, or cross-cutting profiles of education for citizenship, has hindered its international projection and especially in the IGU and its Commission on Geographical Education. The "youth" of the Geography Didactics Group (created in 1986) has also been a factor that has conditioned its scarce internationalization, without prejudice to the intense relations with Portuguese colleagues in the Iberian Congresses of Geography Didactics, or more recently in the didactics sections of the three Spanish-French Conferences, or the linking of Geoforo (promoted by José Manuel Souto) with Redlago and the community of Geography didactics in Latin America.

In this way, the Spanish contribution to the IGU in geographic education was replaced by geographers from the areas of Human Geography or Regional Geographic Analysis (Juan Vilá Valentí, Agustín Hernando Rica, María Luisa de Lázaro Torres), until in recent years José Manuel Souto and especially the author of these

lines have become more involved in the geographic education initiatives of the International Geographical Union, whose centenary we also honor in this Spanish book. Forgive the reader for the personal references, but they allow a better understanding of the purpose and structure of this contribution, which complements the chapter on a century of international geographic education that we have written for the Centenary book of the International Geographical Union itself (De Miguel and Donert, 2022), at the request of the former IGU President, Professor Kolosov, and the current one, Professor Meadows.

In addition to being part of the board of the Didactics of Geography Group of the Spanish Association of Geography, I belong to the board of the Royal Spanish Geographical Society, one of the eight founding entities of the IGU, whose nature as an Institute of Public Instruction has meant a constant vocation, more than a hundred years old, for geographical education. Before being elected President of EUROGEO in 2019, I have been and continue to be the regional contact for Spain of the IGU Commission on Geographical Education, and therefore, an active member of its activities, congresses and publications for a decade. This conjunction of geographical institutions allows us to have a fairly complete picture of the presence of Spanish geographical education in the international sphere, and especially in the IGU and its Commission on Geographical Education, during the last hundred years, and more, as follows.

2. Congress activity

2.1. International Geography Congresses

2.1.1. Precedents up to the creation of the IGU in 1922

After the creation of the various geographical societies of Paris (1821), Berlin (1828), London (1830), and others, the Geographical Society of Madrid was founded in 1876, that is, five years after the First International Geographical Congress held in Antwerp in 1871, which was already attended by Spanish representatives (Martín, 2016: 156). However, until the Fourth Congress held in Paris in 1889, there is no record of Spanish contributions related to education. At this congress, Rafael Torres Campos, Secretary of the Geographical Society of Madrid, was appointed President of the 5th group, on geographical education (Martín, 2016: 164). Rafael Torres himself participated in the two following congresses in Bern, in 1891 (Martín, 2016: 166), and London, in 1895 (Martín, 2016: 169; Hernando, 1984), with contributions on the teaching of Geography.

In the following three congresses there are no Spanish references in education, despite the fact that in 1901 the Geographical Society of Madrid was transformed into the Royal Geographical Society, regulated as an Institute of Public Instruction as established by the third article of the Royal Decree of February 18, 1901, and the strong link of the Royal Geographical Society for geographical education in the Spain of the Restoration (Arroyo, 2014). And despite the fact that in 1904 there was an attempt to create a permanent geographic education section within the International Geography Congresses (Scheinder, 1972). Nevertheless, in the tenth congress held in Rome in 1913, Ricardo Beltrán Rózpide participated with a communication on the teaching of Geography in its various grades (Martín, 2016: 176).

During July 25-29, 1922, two representatives of the Royal Spanish Geographical

Society participated in the meeting of the International Research Council that proceeded to formally create the International Geographical Union: Severo Gómez Núñez and Odón de Buen y de Cos. Among the 22 founding delegates of the IGU, representing eight national geographical societies (seven of which were European), only two of them had published works related to the teaching of Geography, the Frenchman Emmanuel de Martonne and the Spaniard Odón de Buen (1909). In his posthumous memoirs, almost six decades after his death, he recalls the initial difficulties²¹, as well as the importance of geographic education for the consolidation of the discipline, as we have mentioned in the initial quotation of this chapter.

2.1.2. Period 1922-1992 and Vice-Presidency of the IGU by Vilá Valentí

After the creation of the IGU, the first congresses until the Second World War (Cairo, 1925, Cambridge, 1928, Paris, 1931) had no contributions from education, neither from Spanish nor foreign geographers, while the Warsaw Congress in 1934 (fourth section, methods of teaching Geography) and Amsterdam in 1938 (sixth section, methodology and didactics of Geography) did have several communications, although none of them made by Spaniards (De Miguel, 2021). After the world war, the next congress was in Lisbon, where the Professor of Secondary School in Vitoria, Isidoro Escagüés Javierre presented a communication on the teaching of Geography in secondary education, aiming to separate Geography from History at this educational stage, as in Anglo-Saxon educational systems (Martín, 2017: 298). In fact, this contribution is the first Spanish contribution of education to the Congresses since the founding of the IGU, thirty-six years after Beltrán's contribution in Rome.

However, from 1949 to 1951 there was a very intense activity, product of the relationship between IGU and the newly created UNESCO, due to its interest in Geography, History and other Social Sciences and their educational value in contributing to the UN agency's own objectives for education: knowledge and mutual understanding among nations for the maintenance of world peace (Brouillet and Vilá Valentí, 1971). This led to the organization of three publications in 1949, a joint IGU-UNESCO seminar in Montreal in 1950, and an additional publication in 1951 (De Miguel, 2021), all articulated under the educational principle of international understanding (*International Understanding*), which would later constitute, in 1974, one of UNESCO's own reference Recommendations²¹.

The principal author of the 1951 publication ("Handbook of Suggestions for the Teaching of Geography. Towards International Understanding") was Neville Scarve, who, the following year at the 17th Congress in Washington, was elected the first president of the then constituted IGU Commission on the Teaching of Geography in Schools. Given the political and historical circumstances of our country, Spanish Geography was absent from all this important impulse to geographic education by the IGU, between 1949 and 1952. It should be remembered that Spain did not join the UN

²¹ "It is that, in the difficult and painful beginnings of things, few want to commit themselves and my colleagues from Spain had not seen that this organization was called to have great importance" (Buen, 2003: 273).

2 1974 UNESCO Recommendation concerning Education for International Understanding, Cooperation and Peace and Education relating to Human Rights and Fundamental Freedoms.

until 1951, and UNESCO until 1953.

Thus, in the following three IGU congresses (Washington, 1952; Rio de Janeiro, 1956; Stockholm, 1960), there was no Spanish contribution in the field of education either, although Juan Vilá Valentí presented papers in Rio and Stockholm, but on the field of Agricultural Geography (Martín, 2017). From the London Congress of 1964, there is already a publication that collects all the Spanish contributions presented in each of the IGU Congresses up to the present, which allows us to have a better follow-up (Majoral, 1995) (Martín, 2017). The reading of each of them until the one in 1992, indicates that the only contribution in all this time was that of Vilá Valentí himself at the 20th Congress in London in 1964, where he presented a brief communication on Regional Geography in the first two courses of the then Elementary Baccalaureate, which he also presented to the Commission Symposium in the pre-congress, also in London (Vilá Valentí, 1964) (Vilá Valentí, 1965). At the following Congress in New Delhi in 1968, there was no Spanish contribution on education, although the Commission changed its name to the current Commission on Geographical Education, of which Vilá Valentí himself was a member from 1969 to 1980 as Secretary (successively with Commission Presidents Fernando Gribaudi, Benoît Brouillette and Norman Graves). In 1980, he ceased to participate actively in the Commission on Geographical Education, since he was elected Vice President of the IGU at the 24th Congress held in Tokyo.

But the educational contribution of Vilá Valentí during all this period (first, secretary of the Commission, then Vice President of the IGU) was greater in the Symposia of the Commission or in the Regional Conference of Barcelona in 1986 (and consequent Symposium of Sitges) than in the International Congresses of Geography, as we will see in the following section. The same happens to Agustín Hernando Rica, who succeeded Vilá Valentí as Spanish representative in the Commission on Geographical Education, who found the Commission's Symposia more interesting than the education sessions of the International Congresses, as he recounts on his return from the 26th Congress held in Sydney in 1988 (Hernando, 1989), where the Spanish IGU Committee was formally constituted. This opinion is also shared by the author of these lines, after his experience in both formats of scientific events in recent editions.

In summary, we only have two Spanish contributions related to education (Escagüés in Lisbon and Vilá in London) in seventy years of the IGU's existence organizing the International Geography Congresses. Or seventy-nine years, if the reference (Annex I) is the antecedent of Ricardo Beltrán in Rome.

2.1.3. Period 1992-2004

In the following International Geography Congresses, there was a constant presence of communications related to geographic education, except for the Seoul Congress in 2000, perhaps due to the distance. However, within the geographical education section, there have been more contributions related to higher education than to school education, as a result of the necessary reflection on the implementation of *Law 11/1983, on University Reform*, throughout the eighties and nineties, as well as the approval of *Organic Law 6/2001, on Universities*, and its effects on the integration into the European Higher Education Area.

Thus, the publication of the Spanish contribution to the 27th Congress held in

Washington in 1992 included a chapter on the teaching of Geography in Spanish universities by Antonio López Ontiveros, another on university curricula by Agustín Hernando Rica, and a third chapter on the teaching of Geography in primary and secondary education. The latter (Crespo and Fernández, 1992) presented a balance of the teaching of Geography during the validity of *Law 14/1970, General Education Law*, but above all, the challenges posed by the entry into force of *Law 1/1990, General Organization of the Educational System* (LOGSE) and its effects on the teaching of Geography in the new stage of Compulsory Secondary Education.

A more developed analysis of the impact of the LOGSE on the teaching of Geography in schools, its subsequent reform by *Law 10/2002, on the Quality of Education*, as well as a presentation of the activities of the Geography Didactics Group of the AGE, was carried out in the contribution to the 30th Congress in Glasgow in 2004 (Souto, 2004), whose volume also included three chapters on the teaching of Geography at the university level, signed by Eugenio Burriel, José Sancho and Manuel Valenzuela.

Between the two contributions, the current Secretary General of EUROGEO made a pioneering communication on one of the key issues of current geographic education, geoinformation in the classroom, during the 28th Congress held in The Hague in 1996, which does not appear in the book of the Spanish contribution, but does appear in the book of proceedings of the sessions of the IGU Commission on Geographic Education (De Lázaro, 1996).

2.1.4. Period 2004-2022

During a couple of subsequent IGU congresses, Spanish geographic education was again conspicuous by its absence: Tunis 2008 and Cologne 2012, although in the latter there is a contribution on landscape by two professors who have been, respectively, President and Member of the Group of Didactics of Geography of the AGE, María Luisa de Lázaro and María Jesús González. The same is recorded in the Congress program (but not in the book of contributions) of a presentation by Miguel Pazos on the school curriculum, in the session *State of the Art in Geography Education 2*. Also from EUROGEO we participated indirectly in the Cologne Congress twice, in the organization of the pre-Congress in Istanbul in 2010 (Martín, 2017: 333) and in the GI- Forum Congress held in Salzburg in July 2012, a month before the 32nd Cologne Congress. There I presented the results of the European project digital-earth.eu together with Daniela Schminck, Professor at the University of Cologne itself, at that time a member of the Steering Committee of the IGU Commission on Geographical Education and Secretary General of EUROGEO, and consequently coordinator of the geographical education sessions at the 32nd Congress. The results of this project (in which we had collaborated together with María Luisa de Lázaro, María Jesús González and Isaac Buzo from EUROGEO and from the Digitalearth-Real Sociedad Geográfica center of excellence) were presented again a month later in Cologne in the *Innovative Learning - New & Traditional Media* session, which for family reasons I could not attend. This session was co-chaired by Daniela Schminck herself and Joop Van der Schee, then President of the Commission on Geographical Education, and active member of EUROGEO and of the digital-earth.eu project itself.

At the next two IGU congresses, 33rd Congress in Beijing in 2016 and 34th Congress in Istanbul in 2021, we have been presenting the outcome of our recent research on

digital geographic education, the impact of the geospatial revolution in high school classrooms and the acquisition of geographic thinking skills (De Miguel, Buzo, De Lázaro, 2016; De Lázaro, De Miguel, Morales, & Sebastián, 2020), in parallel to the respective pre-congresses of the Commission in Singapore and Prague, although in the case of Istanbul delayed a year and virtually due to the consequences derived from the pandemic.

In addition, there are two additional contributions to these last congresses. José Manuel Souto sent a poster to the 33rd Congress, *The Teaching Practice in Geography Education*, together with Professors Santos and Neto, from the Brazilian Federal University of Alagoas. The author of these lines had a second contribution at the 34th Congress, as President of EUROGEO, coordinating the session *Geography: Bridging the Continents Regional Geographical Associations* and presenting a paper on the contribution of the European Association of Geographers in international geographical education.

For this extraordinary Congress of the Paris Centenary in 2022, I co-presented two sessions: a joint EUGEO-EUROGEO-UGI session on the Centenary of European Geography (De Miguel and Donert, 2022), as well as a EUROGEO session on the geographic education project *GEODEM: Geography, democracy, European citizenship and the digital age*.

2.2. IGU Commission on Geographic Education Symposia and Conferences

2.2.1. Period 1952-1980 and Commission Secretariat by Vilá Valentí

In the previous section we have described the background of geographic education in the IGU until the creation of the Commission in 1952. A more detailed analysis (De Miguel, 2021) also notes the absence of Spanish geographers in the two attempts to link geography to international understanding after the two world wars: the first in the 1920s, linked to the League of Nations and the *World Federation of Education Associations*; the second, promoted by the newly created UNESCO and by a group of geographers led by Neville Scarfe and Benoît Brouillet, who would end up being the first two Presidents of the Commission. Scarfe between 1952 and 1956, and Brouillet between 1956 and 1968, plus an interim period between 1971 and 1972, after the death of Gribaudi. In 1972 Norman Graves was elected Chairman, a position he held until 1980.

If the initiatives were intense between 1949 and 1951, the activities were feverish from the beginning of the Commission and especially from 1960 onwards, when relations and financing with UNESCO were strengthened. The story of this period is told in first person by its protagonists, a Canadian, President of the Commission on Geographical Education since 1956, and a Spaniard, who was his close collaborator in the Commission and its Secretary from 1969 to 1980 (Brouillet and Vilá Valentí, 1971). This primary source is confirmed by another essential reference that narrates the more complete becoming of the Commission, also in the first person, by the successive presidents of the Commission, between 1972 and 1980, and between 1980 and 1988 (Graves and Stoltman, 2015).

Although Vilá Valentí did not participate directly in the elaboration of the *Method for the teaching of Geography* (UNESCO, 1965) as the first great intellectual result of the Commission, he did take part in its dissemination in the Spanish-speaking world, as he attended the 20th International Congress in London in 1964, as well as the previous

Symposium of the Commission, where he had the opportunity to have access to the first galley proofs of the *Method*, as Brouillette himself acknowledges, who also points to his collaborator Juan Vilá Valentí as one of the main promoters of the Commission's project in Latin America. Thus, Vilá Valentí was involved in the organization of a UNESCO colloquium in Santiago de Chile in 1967, a meeting in Caracas in 1969, and another in Mexico in 1970. These three events served to disseminate the *Method* in Spanish-speaking countries, but above all to prepare a version suitable for Latin American countries. The collective book had Vilá Valentí himself as secretary of the editorial committee, although its definitive publication was delayed a few more years (Brouillette and Vilá Valentí, 1975) and was a true bibliographical reference in the didactics of Geography for Ibero-American countries.

Unlike the International Geography Congresses, where we have a publication on the Spanish contribution, in the Commission's Symposia the proceedings are not always available or published, but the sources are the programs of presentations (*papers*, in the Anglo-Saxon terminology, which does not imply the writing of a communication in use) or the publications of the authors themselves. From them, we know that Juan Vilá Valentí participated in the London symposium in 1964 (Vilá Valentí, 1965), and later in those of Madras in 1968, Quebec in 1972 (Brouillette and Vilá Valentí, 1971), and we also have evidence of his participation in the pre-congresses of Moscow in 1976 and Tsukuba in 1980. We also know from his own publications about the different meetings of the Commission that he participated in, complementary to the Symposia, those of Budapest in 1971 (Brouillette and Vilá Valentí, 1971) and Ibiza in 1977 (Vilá Valentí, 1977), where he recounts the preparatory work of what ended up being the *New Method for the teaching of Geography*, which was finally published by Norman Graves in 1982 (in Spain, the edition is from 1989).

2.2.2. Eighties and nineties.

After his appointment as Vice President of the IGU, Vilá Valentí ceased to have a direct relationship with the Commission on Geographical Education, except for the Sitges Symposium, as will be seen below. However, and in spite of not being part of the steering committee of the Commission on Geographical Education and the fact that the commission lost a little of its international character to focus on Anglo-Saxon production²², Spain continued to maintain for more than a decade its presence in the Commission and in the meetings and Symposia it organized, through another professor of the University of Barcelona, Agustín Hernando Rica.

The magnificent chronicles published in the now defunct *Revista de Geografía*, allow us to verify in detail his participation, but also the course of the Pre-Congresses of the

²² The presidency of Norman Graves, a Briton, succeeded by Joseph Stoltman, an American, contributed to this. And later, still under the presidency of the German Hartwig Haubrich, the commission secretaries from Australia, Rod Gerber and John Lidstone, who also ended up chairing the Commission on Geographical Education. Lex Chalmers (New Zealand), Clare Brooks (United Kingdom), Chew Hung Chang (Singapore) and Michael Solem (United States) have been the other Chairs of the Commission up to the present time, reinforcing the Anglophilic character of the Commission. Only the presidency of the Dutchman Joop van der Schee has meant a parenthesis of a more inclusive and open attitude towards other languages and geographic cultures in the evolution of the IGU Commission on Geographical Education.

Commission in Freiburg (Hernando, 1984), Brisbane (Hernando, 1989) and Boulder (Hernando, 1993), as well as the sessions of the Commission in the International Congresses, numbers 25, 26 and 27, held in Paris, Sydney and Washington, respectively. Special mention should be made of the Geographic Education Commission Symposium held in Sitges, within the IGU Regional Conference of Mediterranean Countries held in Barcelona in 1986, widely cited (Ascón and Villanueva, 1987; Majoral, 1995; Graves and Stoltman, 2015). Attended by 47 participants and with the contribution of 34 papers, it was coordinated by Agustín Hernando, who also edited the proceedings (Hernando, 1986), and had the presence and support of Vilá Valentí, who in his capacity as Vice President of the IGU was also President of the Organizing Committee of this Regional Conference.

Agustín Hernando did not attend the next pre-congress in The Hague in 1996, although his presence in the Commission was covered by María Luisa de Lázaro in the geographic education session of the 28th Congress. However, he did attend the Oporto Congress (Hernando 1998), together with José Manuel Souto, who presented a paper on textbooks (Souto, 1998).

2.2.3. Absence at the turn of the century

Either because of the Anglophilic orientation of the commission, or because of the "Iberophile" orientation of the didactics of Spanish Geography, it is evident that between the 1998 Porto Symposium and the 2015 London Symposium, which I attended, Spanish Geography was absent from the twelve scientific events organized by the IGU Commission on Geographical Education in these seventeen years, as shown in Annex II.

2.2.4. From 2010 to 2022 and De Miguel's chairmanship of EUROGEO

Although our regular attendance at IGU Symposia begins at the 2015 London Symposium, since the beginning of the decade we (both María Luisa de Lázaro and the author of these lines) have been collaborating with the Commission through EUROGEO. In 2009, we proceeded to the change of legal status of the European Association of Geographers, which the following year contributed to the IGU Regional Congress Symposium in Istanbul (Martin, 2017: 333), as well as in the successive ones in London (2011), Freiburg and Cologne (2012) and Krakow (2014), due to the opportunities offered by the HERODOT project (De Miguel and Donert, 2022).

A few months after the London Symposium, we met again the Commission on Geographical Education in Moscow, on the occasion of the IGU Regional Conference 2015 (De Miguel, 2015), where several joint activities were carried out with EUROGEO, such as the celebration of the *IGY Day for schools. Schools for IGU Day*. In addition, in my personal capacity I presented a communication on spatial thinking, while José Manuel Souto presented a poster on textbooks with María Tonini and Sergio Claudino.

In any case, this double attendance in 2015 to the London and Moscow meetings marked the beginning of the most constant and numerous presence that Spanish Geography has had in the Commission on Geographical Education, through the eight Symposia in which I have participated, which is reflected in the different proceedings books of Singapore (De Miguel, 2016), Lisbon (De Miguel, 2017b), Quebec (De Miguel, 2018), London (De Miguel, 2019) and Prague (De Miguel, 2021b), where I have presented the result of my research on the *Digital School Atlas* and geoinformation, or on

the Geography curriculum. In 2022, the IGU Commission on Geographical Education has wanted me to deliver one of the plenary lectures at its Rennes Symposium, prior to the Centennial Congress, taking stock of the century of international geographical education, but also pointing out the future challenges for the improvement of Geography teaching through educational research.

3. Publications and activities

3.1. International Declarations

As explained above, Spain did not participate in the drafting of either of the two reference manuals promoted by the Commission with the support of UNESCO (the *1965 Method*, and the *New Method* of 1982), although the editorial coordination of Vilá Valentí was decisive for one of its complementary works, the *Geography of Latin America*. However, the new Commission elected at the 26th Congress in Sydney decided to reorient the Commission's reference documents and to promote an *International Declaration on Geographical Education*, mainly drafted by the new President of the Commission, Hartwig Haubrich, and approved in 1992 by the IGU at the 27th Congress in Washington. Agustín Hernando was in charge of the Spanish translation and its dissemination among Spanish geographers (Hernando, 1989).

This Declaration had two complementary initiatives, the *International Declaration on Geographical Education for Cultural Diversity*, adopted at the 29th Seoul Congress in 2000, and the *Lucerne Declaration on Geographical Education for Sustainable Development*, adopted at the 2007 Commission Symposium, which have also been translated into Spanish.

Subsequently, we have had the opportunity to make Spanish Geography present in a series of three subsequent initiatives, through EUROGEO, due to the greater spirit of collaboration of the President of the Commission, Joop Van der Schee, as we have exposed before: the *Joint Declaration on Geographical Education in Europe*, subscribed by IGU, by its Commission on Geographical Education, by EUGEO, and by EUROGEO (at the IV EUGEO Congress in Rome, 2013); the *International Strategy for Geographical Education*, presented in 2014 at two successive events (the EUROGEO Congress in Malta and the Symposium of the Commission on Geographical Education during the IGU Regional Congress in Krakow); and the *International Declaration on Research in Geographical Education*, proclaimed at the aforementioned 2015 IGU Regional Conference event in Moscow (De Miguel and Van der Schee, 2015).

Finally, at the 33rd International Congress of Geography, a new *International Declaration on Geographical Education* was proclaimed, adapted to the new times, where the efforts of Joop Van der Schee and John Lidstone consisted in defining an International Action Plan to improve the quality of geographical education and research in geographical education at international level. The Spanish contribution to this Declaration has been twofold: on the one hand, from EUROGEO we have been consulted and we have been able to make some suggestions that have been included in the final draft; on the other hand, following the example of Agustín Hernando, we have proceeded to translate - jointly with Professor Pablo Fernández de Arróyabe – the Declaration into Spanish, as well as to promote its dissemination among Spanish-speaking geographers (Kolosov, 2016).

3.2. Books

Once the stage of the reference manuals, the two editions of the *Method*, designed mainly for developing countries that were in the process of mass literacy and in need of a reference for teacher training, was overcome, the Commission on Geographic Education - institutionally or individually by its most prominent members - has been involved in the development of manuals and collective works that reflect the state of the art of research in geographic education. Without wishing to be exhaustive, the main references have already been previously highlighted (De Miguel, 2017), or can be consulted directly in the bibliographical selection made by the former presidents of the Commission (Graves and Stoltman, 2015) or by Simon Catling since 2000²³. The Spanish contribution included in the first selection is also reflected in the bibliography of this chapter, the chronicles of Vilá Valentí and Hernando, and our analysis on international understanding. The second selection only includes a book edited by a Spaniard, the author of these lines, but it is not the product of the work of the Commission but of the aforementioned EUROGEO digital-earth.eu project, although the then President of the Commission, Joop Van der Schee, wrote a chapter in it.

The latest and practically the only publishing initiative of the IGU Commission on Geographical Education is, since 2017, the series called *International Perspectives on Geographical Education*, published by Springer. Up to the present time, six collective books have been published that provide insight into the concerns, projects and current lines of research promoted by the Commission: *Learning Progressions in Geography Education*, *The Power of geographical thinking*, *Geography education for global understanding*, *Geography Education research in the UK*, *Geographical reasoning and learning*, *Recontextualising Geography in Education*. Of these, only two books have Spanish contributions, the chapter on learning progressions in the Spanish curriculum (De Miguel, 2017c), and the co-edition of the book on global understanding (Demirci, De Miguel and Bednarz, 2018), which also included a chapter on Spain (which we wrote with María Luisa de Lázaro) and another on Ibero-America (written by José Manuel Souto with Sergio Claudino and Fabián Araya).

3.3. Geographic Education Commission Journal

Prior to the Springer editorial series, the IGU Commission on Geographical Education had promoted its own scientific journal in 1992, coinciding with the United Nations Conference on the Environment in Rio de Janeiro, which institutionalized the concept of sustainable development. In this way, the environmental dimension was included as a fundamental aspect of geographic education, thus being named *International Research in Geographical and Environmental Education*, which in 2019 reached the first quartile of SCOPUS in the education section. The Spanish presence in this journal consists in the fact that there are two Spanish geographers in its Editorial Board: the one who writes this and Jesús Granados. On the other hand, among the 1,038 articles published to date

²³ Although it has not been updated since 2016, it can be consulted on the website of the Commission on Geographic Education.

<https://www.igu-cge.org/wp-content/uploads/2018/02/IGU-CGE-Books-suggestions-April-2016.pdf>

we have located a meager twelve signed by Spanish researchers (1'15% of the total), but only five geographers (Dolors García Ramón, Pilar Benejam, Agustín Hernando, María Villanueva and Rafael de Miguel) since its environmental education orientation has caused other types of education researchers in Spain to have also published in this journal.

3.4 Activities of the IGU Geographic Education Commission

The main activity of dissemination and promotion of school Geography carried out by the Commission is the International Geographic Olympiad, held since 1996 on an annual basis in summer, coinciding every four years with the International Geographic Congresses, and with the IGU Regional Congresses, when these have been held. Despite our insistence in previous editions, especially in Quebec 2018, to organize a Spanish delegation resulting from the national phase Geography Olympiad, Spain is the only founding country of the IGU -along with Italy- that has not participated in any of the seventeen editions. This fact does not fail to produce an unpleasant sensation when one is attending these Olympiads during the Congresses, which are attended -among other countries- by students from Armenia, Mongolia, Nepal, Nigeria, or Tajikistan (who deserve all our respect and admiration, given their social and scholastic context), but we miss the Spanish high school students who have shone in the national phase, and who would undoubtedly obtain equal or better results than any of the participants from these or other nations, more developed and with more tradition of geographic education. Forgive the reader for this license, but at the time of writing these lines in the cold winter of Zaragoza, I am especially grateful for the Agreement of the Spanish UGI Committee, dated February 17, 2022, which has approved the management of Spanish participation, trusting that this Centennial year can break this trend, so that Spanish students can participate for the first time in the International Geographical Olympiad in Paris in 2022.

A second outstanding activity was the impulse of the International Year of Global Understanding in 2016, which resulted in the international storymap competition, co-organized by the IGU Commission on Geographical Education, EUROGEO and ESRI, and where the Spanish participation was through our presence in EUROGEO.

Likewise, EUROGEO and the IGU Commission on Geographical Education have collaborated in the development of a bank of digital resources for the teaching of Geography in times of Covid, virtual and distance learning, and the application of digital geographic education. It is available on the Commission's website and it can be seen that we have managed to highlight the Digital School Atlas, one of the main references carried out by five Spanish Geography teachers. It can be consulted at <https://www.igu-ce.org/covid-resources/>

Finally, the IGU Commission on Geographic Education does not coordinate any research project, although its current Presidents, Michael Solem and Chew Hung Chang, who are also Presidents respectively of the National Council for Geographic Education (NCGE) and the Southeast Asian Geography Association (SEAGA), are promoting two essential projects to understand the current state of research in geographic education, especially with regard to curriculum design, geography teacher training and geographic learning outcomes: Geocapabilities and TIGAS (Trends in International Geography Assessment). Both projects have again that English-speaking orientation and are not directly participated by Spanish geographers, but EUROGEO has coordinated the third

phase of the *Geocapabilities* project, whose website and results are hosted on EUROGEO's servers and Moodle. Likewise, the initial results of the TIGAS project are going to be published in a book of the collection that EUROGEOO publishes in Springer, *Key Challenges in Geography*, so my editorial direction of the collection will involve an editorial review of it, together with the editors of the book.

4. Conclusions

In this century of existence of the International Geographical Union, and seventy years of activity of its Commission on Geographical Education, we can conclude that the Spanish presence has been quite small compared to the presence of Spanish geographers in other IGU commissions or in other specific fields of geographical research. And this is so, despite the fact that the teaching of Geography in Primary and Secondary Education is one of the reasons for the creation of Geographical Societies in the 19th century, and even a determining factor for the university institutionalization of European and Spanish Geography, as Horacio Capel and José Estébanez so clearly explained in their reference works on the epistemological evolution of the geographical discipline.

Only the period of Juan Vilá Valentí, continued by Agustín Hernando Rica, from the mid-sixties to the early nineties, and the period of the last decade with my presence in the Commission on Geographic Education, are the notable moments of Spanish contribution to geographic education in the International Geographical Union, without prejudice to occasional contributions by José Manuel Souto and María Luisa de Lázaro. Our membership in EUROGEO, and later my Presidency, have unquestionably helped to strengthen this Spanish presence. In 2005 a collaboration agreement was signed between the then President of IGU (Adalberto Vallega) and my predecessor in the Presidency of EUROGEO (Karl Donert), which was especially fruitful when Joop Van der Schee, an active member of EUROGEO; was President of the Commission between 2012 and 2016. Although the following period has followed this collaboration, EUROGEO has sometimes been perceived as a threat by the Commission, having numerous European projects (and therefore more funding), more activity (including editorial) and more interlocution with international bodies such as the Council of Europe, the European Commission or the United Nations Organization.

Returning to our country, there still exist the "castizos" invariants (as Chueca Goitia would say) of Spanish school Geography with which Vilá Valentí and Hernando were confronted: Geography together with History in Secondary Education, which is an anomaly in the international panorama, except in French-speaking and Spanish-speaking countries); the increasingly weak initial teacher training in Geography, aggravated because the implementation of the LRU made the degree of Philosophy and Letters (Geography and History, the so-called "common courses") disappear; the lack of understanding of Geography by the students, mostly History graduates, of the Master of Secondary Education implemented in 2009 (at the University of Zaragoza, only 7% of the students are geographers in a statistical series of thirteen courses and almost 1,000 students, similar data to any other university in Spain).000 students, similar data to any Spanish University); the obsolescence of the theoretical syllabus, the practical test and the didactic programming in the competitive examinations for admission and access to the teaching function; the memoristic and theoretical orientation of the contents, to the

detriment of geographic information procedures and an instrumental approach; and especially, the curricular weakness of Geography (hardly identifiable as such in the knowledge of the environment of primary school, easily suppressed by historical contents in the first and second year of ESO, non-existent in the fourth year of ESO and in the first year of Bachillerato, marginalized in a second year of Bachillerato, which is taken by less than 10% of students who started ESO, which means that almost 90% of Spanish students never study Geography again in their lives since the age of 15).

In addition, there are new challenges, such as the heterogeneity of students, interests and motivations, the fashions of "pedagogical innovators", evaluation systems, digital geographic education, the geospatial revolution, the omnipresence of geographic content in today's society and in the media and social networks (globalization, sustainable development and SDGs, geopolitics). And above all, legal uncertainty: six organic laws since 1970 (or five organic laws in democratic period, in only thirty years), with their respective Royal Decrees of basic teachings (currently euphemistically called minimum teachings), with the thousands of pages of Decrees of the Autonomous Communities, have not favored at all a serene debate of education in general, and consequently of geographic education in Spain, as it has been repeatedly analyzed in the Congresses of the Group of Didactics of Geography of the AGE.

However, Spanish geographic education is called to a greater integration with the European system of competency-based training and lifelong learning. For this reason alone, it is worthwhile to continue working in EUROGEO and in the IGU Commission on Geographical Education, to define more clearly the competencies of geographical thinking (De Miguel, 2021c), to acquire knowledge and disseminate it for more and better teaching of Geography, and to continue developing, as we have said colloquially on numerous occasions, our work of "secular apostolate" for Geography in education.

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Annex 1. Spanish contribution on education in the International Geographic Congresses. Source: Martín, T. (2016, 2017) and own elaboration

Year	City	International Geographic Congress	Spanish Contribution
1871	Antwerp	I International Geographic Congress	
1875	Paris	II International Geographic Congress	
1881	Venice	III International Geographic Congress	
1889	Paris	IV International Geographic Congress	Rafael Torres Campos
1891	Bern	V International Geographic Congress	Rafael Torres Campos
1895	London	VI International Geographic Congress	Rafael Torres Campos
1899	Berlin	VII International Geographic Congress	
1904	Washington DC	VIII International Geographic Congress	
1908	Geneva	IX International Geographic Congress	
1913	Rome	X International Geographic Congress	Ricardo Beltrán Rózpide

Year	City	International Geographic Congress	Spanish Contribution
1922	Brussels	General Assembly International Research Council. UGI Foundation	Odón de Buen y del Cos
1925	Cairo	XI International Geographic Congress	
1928	Cambridge	XII International Geographic Congress	
1931	Paris	XIII International Geographic Congress	
1934	Warsaw	XIV International Geographic Congress	
1938	Ámsterdam	XV International Geographic Congress	
1949	Lisbon	XVI International Geographic Congress	Isidoro Escagüés Javierre
1952	Washington DC	XVII International Geographic Congress	
1956	Rio de Janeiro,	XVIII International Geographic Congress	
1960	Stockholm	XIX International Geographic Congress	
1964	London	XX International Geographic Congress	Juan Vilá Valentí
1968	New Delhi	XXI International Geographic Congress	
1972	Montreal	XXII International Geographic Congress	
1976	Moscow	XXIII International Geographic Congress	
1980	Tokio	XXIV International Geographic Congress	
1984	Paris	XXV International Geographic Congress	
1988	Sydney	XXVI International Geographic Congress	
1992	Washington DC	XXVII International Geographic Congress	Antonio López Ontiveros Agustín Hernando Rica Jesús Crespo Redondo y Eloísa Fernández de Diego
1996	The Hague	XXVIII International Geographic Congress	María Luisa de Lázaro Torres
2000	Seoul	XXIX International Geographic Congress	Eugenio Burriel de Orueta
2004	Glasgow	XXX International Geographic Congress	José Sancho Comíns José Manuel Souto González Manuel Valenzuela Rubio
2008	Tunisia	XXXI International Geographic Congress	
2012	Colony	XXXII International Geographic Congress	
2016	Beijing	XXXIII International Geographic Congress	Rafael de Miguel González, Isaac

Year	City	International Geographic Congress	Spanish Contribution
			Buzo Sánchez y María Luisa de Lázaro Torres
2021	Istanbul	XXXIV International Geographic Congress	Rafael de Miguel González María Luisa de Lázaro Torres, Rafael de Miguel González, Francisco Morales Yago, María Sebastián López
2022	Paris	Extraordinary Centennial Congress	Rafael de Miguel González

Annex 2. Spanish contribution to the Symposia and Conferences of the Commission on Geographical Education of the International Geographical Union (IGU-CGE). Source: Graves and Stoltman (2015) and own elaboration.

Year	City	Symposium Commission on Geographic Education related to IGU event	Spanish contribution
1952	Washington	17 IGU International Geographical Congress	
1956	Rio de Janeiro	18 IGU International Geographical Congress	
1960	Stockholm	19 IGU International Geographical Congress	
1964	London	20 IGU International Geographical Congress	Juan Vilá Valentí
1968	Madras	21 IGU International Geographical Congress	Juan Vilá Valentí
1972	Quebec City	22 IGU International Geographical Congress	Juan Vilá Valentí
1974	Palmerston	IGU Regional Conference	
1976	Moscow	23 IGU International Geographical Congress	Juan Vilá Valentí
1978	Lagos	IGU Regional Conference	
1980	Tsukuba	24 IGU International Geographical Congress	Juan Vilá Valentí
1982	Curitiba	IGU Regional Conference	
1984	Freiburg	25 IGU International Geographical Congress	Agustín Hernando Rica
1986	Sitges, Barcelona	IGU Regional Conference	Juan Vilá Valentí Agustín Hernando Rica
1988	Brisbane	26 IGU International Geographical Congress	Agustín Hernando Rica

Year	City	Symposium Commission on Geographic Education related to IGU event	Spanish contribution
1990	Hong Kong	IGU Regional Conference	
1992	Boulder	27 IGU International Geographical Congress	Agustín Hernando Rica
1994	Berlin	IGU Regional Conference	
1996	La Haya	28 IGU International Geographical Congress	María Luisa de Lázaro
1998	Porto	IGU Regional Conference	José Manuel Souto González
1999	London		
2000	Gyeonggi	29 IGU International Geographical Congress	
2002	Durban	IGU Regional Conference	
2004	Glasgow	30 IGU International Geographical Congress	
2006	Brisbane	IGU Regional Conference	
2007	Lucerne		
2008	Tunis	31 IGU International Geographical Congress	
2010	Istanbul	IGU Regional Conference	
2011	Santiago	IGU Regional Conference	
2011	London		
2012	Freiburg	32 IGU International Geographical Congress	
2014	Krakow	IGU Regional Conference	
2015	London		Rafael de Miguel González
2015	Moscow	IGU Regional Conference	Rafael de Miguel González
2016	Singapore	33 IGU International Geographical Congress	Rafael de Miguel González
2017	Lisbon		Rafael de Miguel González
2018	Quebec City	IGU Regional Conference	Rafael de Miguel González
2019	London		Rafael de Miguel González
2021	Prague	34 IGU International Geographical Congress	Rafael de Miguel González
2022	Rennes	IGU Centennial Conference	Rafael de Miguel González

Post scriptum

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The Recent Evolution of Spanish Terrestrial Military Cartography

Óscar Luis Miguel Castro
Army Geographical Center

Abstract: It is undeniable that technological evolution has changed how we produce and consume cartography, as well as the classic understanding of the map itself. Gone are the typical users of paper maps, as cartography now involves technologically advanced individuals, digitally interconnected through computers and mobile devices, used to consuming large amounts of information and who demand and produce all manner of georeferenced data to interact with and move about their surroundings with ease. In the last thirty years, we have gone from using traditional paper cartography to being surrounded by geospatial information, and any piece of information in a geographical context can now be used directly or analyzed in information, command and control and navigation systems.

The military field is no stranger to this technological revolution, and modern weapons, navigation, and military information systems demand a large amount of increasingly accurate, precise, detailed, and timely geospatial data from any area of global geographical interest. This demand has forced geospatial information producer organizations to make various efforts: modernizing techniques and procedures for capturing, processing, storing and distributing geospatial information; combining formats and procedures to guarantee interoperability between producers and users of allied armies, and agreeing on information co-production projects to minimize costs and risks. All this has given rise to an important transfer of technology and knowledge.

1. Introduction

According to Instruction 14/2021 dated March 8, issued by the Army Chief of Staff, the Army Geographical Center (CEGET in Spanish) is the body responsible for equipping military organizations and units with the necessary capacity to provide geospatial support, assistance on the ground, and support in operations and exercises (Chief of Staff of the Army, 2021). Likewise, Royal Decree 1545/2007 of the National Cartographic System establishes that the Army Geographical Center is responsible for the production of topographic military cartography. Although the manner in which this is done has changed over the years, the responsibility has been the same since its inception. At first this fell to the Staff Corps (1810), and later it was shared between this Corps and the War Depot (1838). In 1939, these units evolved into the Army Geographical Service with its Working and Topographic Group, eventually becoming the current Army Geographical Center (1998).

Focusing on the modern era, the last thirty years have been frenetic, both in the field of technology applied to earth sciences and in the evolution of information systems (which include hardware and software developments, implementation of spatial data

infrastructures, improvement of positioning systems, and technological evolution of all types of sensors that can be mounted on terrestrial, satellite or aircraft platforms). In our context of geospatial information production, the technological leap has been abysmal. Traditional military users required paper cartography to position their units, plan and study the terrain prior to a deployment or operation (figure 1), continue with that study of the terrain during the conduct of the operation and, of course, orient themselves in situ on the ground. All this changed in the 1990s, due to the evolution of the risks and threats that the Armed Forces have to face today. The short-term scenario is now unknown, the near future is characterized by urgency and immediacy, the old areas of interest or influence have been expanded to cover the entire world given the expeditionary nature of the Force, and operational planning requires an enormous amount of very detailed data in order to avoid undesirable side effects.

Figure 1. Command post CG.FUL (2012). Source: The Spanish Army



Likewise, the technological evolution of society in recent years has created individuals who consume large amounts of information, but who also generate large volumes of data that often require filtering, processing, analysis and storage. Of course, technology has made a large number of applications and systems that help with these tasks available to users, and processing these huge amounts of information without them would be unfathomable today. The military world is no stranger to this paradigm. Modern military information systems and weapons systems that help in the study of the variables necessary for planning and conducting military operations, as well as in the development of these operations, require highly qualified personnel, both in traditional military disciplines and in numerous areas of information technology, geomatics and cartography.

2. The need for standardization. Interoperability

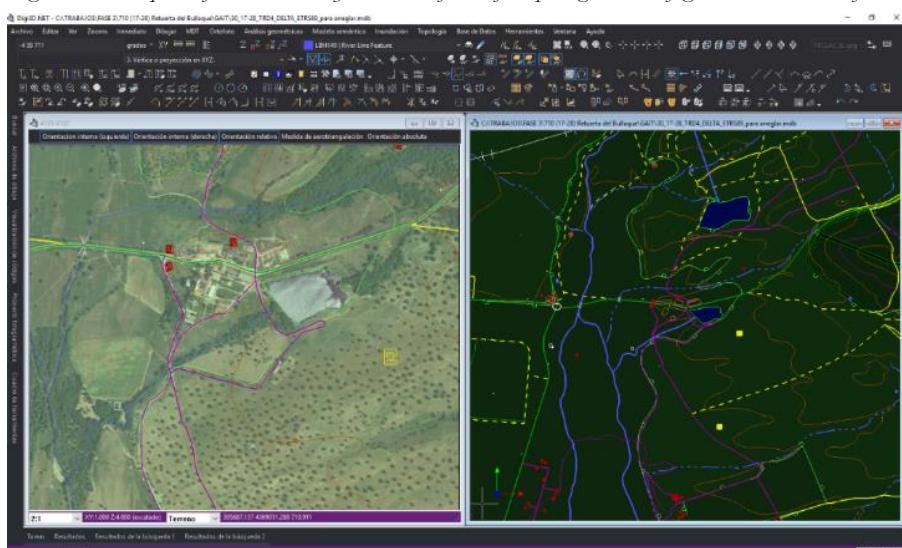
Spain's membership in various multinational organizations in the field of security and defense, and the participation of Spanish military units therein, as well as their

deployment in numerous international missions of a humanitarian, peacekeeping or enforcement nature, and assistance and security, make the term interoperability, understood in the broadest sense, of paramount importance for effective integration in these international organizations and forces.

For organizations responsible for providing support and geospatial information to these forces, which must also comply with the geospatial policies of the organizations to which they belong, the challenge of ensuring interoperability has evolved as technology has advanced in all fields. But perhaps the phrase that sums up this immense concept of interoperability is one that appears in the document NATO Geospatial Policy 296/3: “operate off the same map” (North Atlantic Military Committee, 2016), going far beyond the old concept of interoperability, which was limited to the joint use of information systems.

There has been a great deal of innovation in the last thirty years in the field of geospatial information. Starting with the paradigm shift of data capture in photogrammetry (figure 2) for the publication of traditional cartographic products on paper, up to the current situation where we can speak of massive data capture by multiple types of georeferenced sensors and its analysis and processing through emerging technologies (model inference with technologies such as “Data Mining”, “Business Intelligence”, “Machine Learning” and “Artificial Intelligence”). All this without forgetting the dissemination of geospatial information through distributed information systems, service-oriented architectures and software, and spatial data infrastructures.

Figure 2. Data capture of national territory in MGCP format from photogrammetric flight with DIGI 3D software.



From the perspective of military producers and users, as well as in the civilian area, the development of unifying policies and the adoption of norms and standards is essential to ensure the necessary interoperability in the storage, management and exploitation of geospatial information in the field of defense, where units from different armies and nationalities work together in common structures and organizations. Of

course, the policies of the Spanish Ministry of Defense, set forth in the publication of the Cartographic Plans for the Armed Forces, have been integrated into the National Cartographic Plans. These plans encompass the production of all public bodies in the field of geospatial information, and guide and direct the Department's policy in this area to meet the needs of the Armed Forces. In addition, these guidelines reflect the needs and guidelines agreed upon in the area of the supranational security and defense organizations to which Spain belongs. In this framework, the evolution of the production of terrestrial geospatial data has been clearly guided by Spain's contribution in numerous international missions that have promoted participation in several multinational geospatial information co-production programs. In addition to the production system itself, this has meant the *de facto* implementation of numerous standards that ensure interoperability in the phases of identification of needs, data acquisition and capture, analysis, data processing and information production, and storage, dissemination and exploitation of geospatial information.

3. Co-production projects

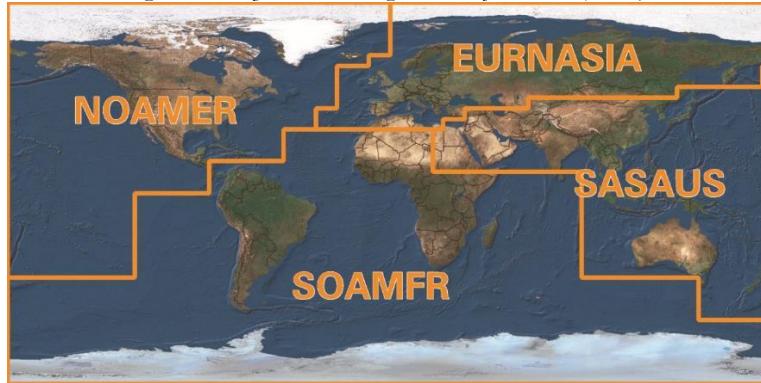
Participation in multinational Peacekeeping Operations (PKO) and the integration and participation of Spanish military units in exercises and maneuvers within the scope of the multinational organizations of which Spain is a member (the North Atlantic Treaty Organization [NATO], Eurocorps and Battlegroup in the European Union, etc.) have required great efforts on the part of the organizations that produce geospatial information and the geospatial support elements of the different units and organizations of the Armed Forces; among these, aligning their cartographic policies to those of allied organizations to meet the interoperability requirements demanded by joint operations. Over time, this necessary uniformity in geospatial support formats, methods and procedures has led to the development and adoption of military norms and standards in the field of geospatial information and support, promoting a series of multinational geospatial information production projects that have brought about a revolution in the sector.

3.1. The Digital Chart of the World and Vector Smart Map project – VMAP 0

This project, carried out by the US National Imagery and Mapping Agency (NIMA), compiled the existing cartography of the entire world at a scale of 1:1,000,000 from the Operational Navigation Charts (ONC) aerial navigation charts, generating a new cross product specification called MIL-D-89009 (US. Department of Defense, 1992). The resulting product Digital Chart of the World was a global digital geospatial information database, designed for use in information systems for the planning of military operations at the strategic-operational level, and distributed on four CD-ROMs with five libraries:

- *BROWSE Library*: It contains the global data for a guide-map visualization at a scale of 1:31,000,000.
- Four libraries (figure 3) organized in the following manner: SASAUS for South Asia and Australia, EURNASIA for Europe and North Asia, NOAMER for North America and SOAMFR for South America, Africa and the Antarctic continent, with the digitized data of the 270 sheets that make up the ONC series supplemented with data from six sheets of the Jet Navigation Charts (JNC) series of aerial navigation charts at a scale of 1:2,000,000 in the Antarctic area.

Figure 3. Library distribution Digital Chart of the World (DCW).

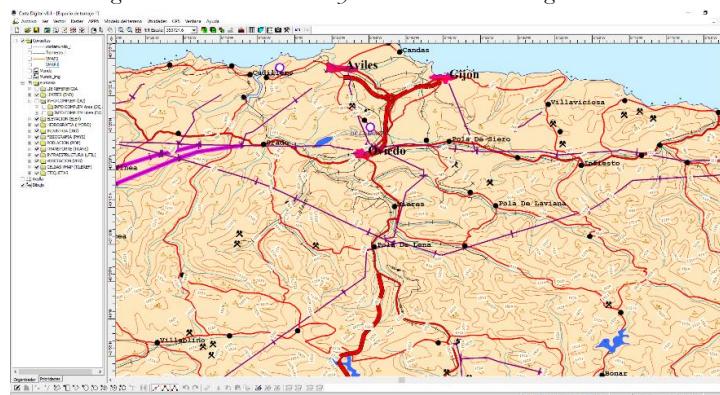


The DCW geodatabase uses the Vector Product Format (VPF) complex vector format with vector primitives in the WGS-84 reference system (figure 4). This relational vector format follows the MIL-STD-600006 specification (US. Department of Defense, 1992), and is characterized by using complex vectors with attribution encoded in relational tables, with complete topological rules and stored in directories. For their logical structuring, vector feature classes are grouped into 17 thematic layers:

Table 1. Themes "Digital Chart of the World".

<i>Aeronautical AE</i>	<i>Hypsography HY</i>
<i>Cultural Landmarks CL</i>	<i>Hypsography-Supplemental HS</i>
<i>Data Quality DQ</i>	<i>Land Cover LC</i>
<i>Drainage DN</i>	<i>Ocean Features OF</i>
<i>Drainage-Supplemental DS</i>	<i>Populated Places PP</i>
<i>Physiography PH</i>	<i>Railroads RR</i>
<i>Political/Oceans PO</i>	<i>Transportation Structure TS</i>
<i>Roads RD</i>	<i>Vegetation VG</i>
<i>Utilities UT</i>	

Figure 4. EURNASIA library loaded into the GIS "Digital Chart".



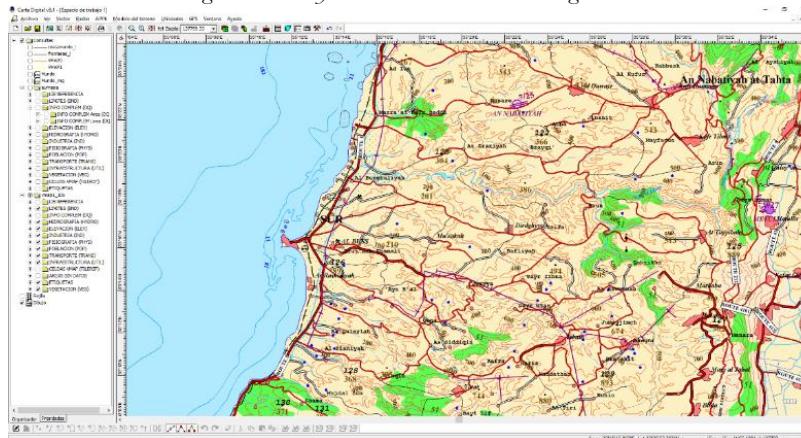
The evolution of DCW gave way to the Vector Smart Map level 0 product (VMAP0), which, under the MIL-STD-2407 specification (US. Department of Defense, 1996), improved the product in terms of data density and updating, and reorganized the thematic layers, grouping the classes of entity in four reference libraries and 12 thematic libraries:

Table 2. *Vector Smart Map Themes.*

Reference Library	
Library Reference libref	Political Entities polbnd
Database Reference dbref	Place Names placenam
Data Libraries	
Library Reference libref	Boundaries bnd
Tile Reference tileref	Data Quality dq
Elevation elev	Transportation trans
Hydrography hydro	Industry ind
Physiography phys	Vegetation veg
Population pop	Utilities util

3.2. The Vector Smart Map Project - VMAP 1

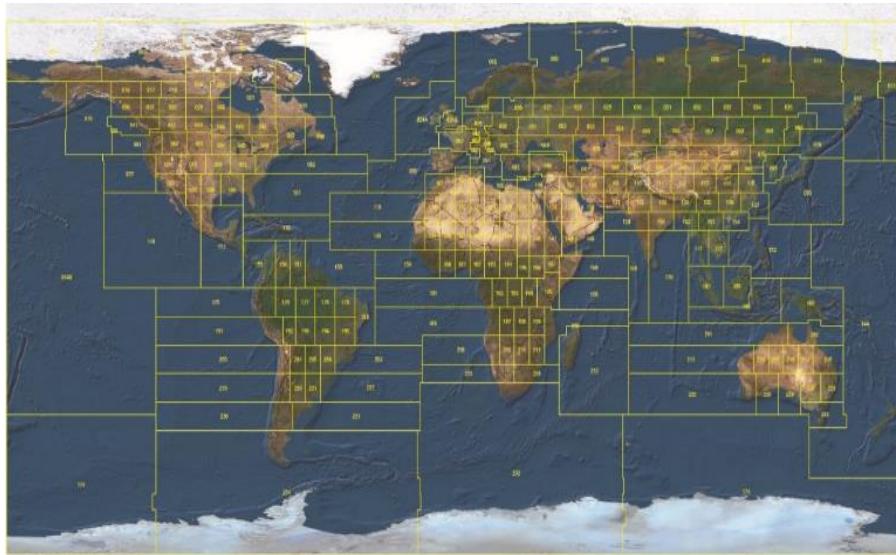
The VMAP 1 project can truly be considered the first major modern multinational co-production project for geospatial information, the result of the cooperation of allied countries within the framework of the Atlantic Alliance. With the experience accumulated by NIMA and under its leadership, the MIL-PRF-89033 specification was developed for the development of a new vector product (US. Department of Defense, 1995). This product has the same VMAP0 characteristics in terms of coding and structure, but with a level 1 of information equivalent to a scale of 1:250,000 (figure 5) and also global coverage, drawing on the information used in the formation of the cartographic series Joint Operations Graphics Air & Ground (JOG-A, JOG-G)²⁴.

Figure 5. *Library 106 loaded into the GIS "Digital Chart".*

For Spain, VMAP 1 was the first major multinational geospatial information co-production project. The Spanish contribution, produced entirely at the Army Geographical Center, was a revolution in the field of automatic cartography, management of relational databases with topology and quality assurance. From this moment on, the Digital Geographical Information Exchange Standard (DIGEST) began to gain great importance in the implementation of geospatial information products. These standards are developed by organizations such as the Defense Geospatial Information Working Group (DGIWG)²⁵, a leader in standardizing geospatial information for military use. Within the VMAP1 program, Spain produced libraries 83, 119 and 120, and thanks to this participation there was access to a total of 254 libraries that complete the program (figure 6). For almost 25 years, this data has been the basis for the training of geospatial products for the planning and execution of military operations at the operational level, serving as a basis for updating, training and editing cartography in JOG format in a satisfactory manner. However, the closure of the program in the first version of the product without contemplating its successive updates, as well as the obsolescence of the coding format used, have been a true Achilles' heel for what was at the time a magnificent product.

For Spanish military cartographers, participation in this program was the starting point for active collaboration in the DGIWG. Since then, CEGET staff has participated in the development of new specifications related to geospatial information for security and defense uses.

Figure 6. Distribution of Digital Chart of the World libraries.



²⁵ At that time, the DGIWG was called the “Digital Geographic Information Working Group”..

3.3. The Multinational Geospatial Co-Production Program – MGCP Project

With the experience gained in the VMAP program, in 2005 the US National Geospatial Intelligence Agency (NGA), heir to the NIMA, formulated a new project to obtain vector planimetry data from areas of interest for the planning of tactical level operations. That same year, Spain's Ministry of Defense, through the Cartographic Coordination Unit (UCC in Spanish) of its General Technical Secretariat, and the Geographical Center of the Army, made contact and began to attend technical and plenary meetings to evaluate Spain's participation in a new, and much more ambitious, multinational co-production project: the Multinational Geospatial Co-Production Program (MGCP).

MGCP is a multinational co-production project that aims to capture level-2 planimetry vectors from high-resolution orthoimages, with an equivalent scale of 1:50,000 and 1:100,000, and their implementation in a geospatial database of the areas of interest of the participating countries with global coverage. This project was created with strong cooperation in mind, and it was envisaged that all members would participate in management policies and technical developments by consensus. Ultimately, it became a true success where 34 information-producing countries were included.

In 2008, the Memorandum of Understanding of Spain's accession to the program was signed²⁶, the program office was created and production began. It is noteworthy that, despite starting production work two years after the official start of the program, Spain adheres to it as a main nation, with an initial production commitment of 202 planimetry cells of 1°x1° in length and a commitment to undertake quality control concerning the production of other partners, initially 400 cells.

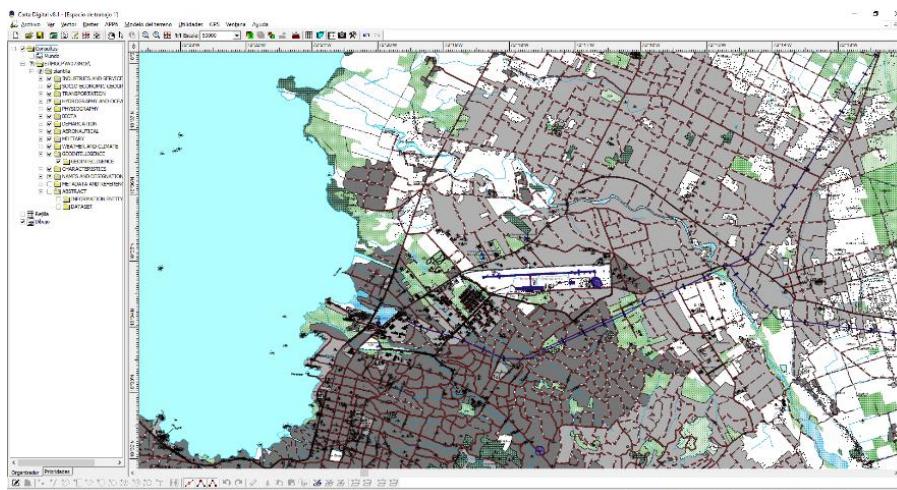
It was initially envisaged that the program would last 6 years, from 2006 to 2012. During that period, Spanish production would be distributed as follows:

- The CEGET is responsible for the orthorectification of images and quality assurance of this process, ensuring that the images meet the specifications and can be used for the capture and extraction of vector data.
- There is a public tender and outsourcing of image supply work for the project and capture and extraction of vector data, in which companies in the sector are responsible for carrying out the work. All this is supervised by the UCC.
- The CEGET is responsible for undertaking the first national control of this capture of information and of sending it to the main program partner, which will be in charge of applying international quality controls. In 2010, the first Spanish production cell approved by the program was certified and uploaded to the International Geospatial Warehouse (IGW).

²⁶ The possible forms of joining the program are:

- As a main nation: a production commitment of more than 200 cells of 1°x1°; participation in technical development and program management groups; custody of the documentation of some of the production processes; access to all data produced by the program and commitment to undertake quality control concerning the production of other partners.
- As a partner nation: a production commitment greater than 5 cells; access to program data in an amount proportional to own production; and participation in the program's technical and management development groups.

Figure 7. MGCP data loaded into the GIS “Digital Chart”.



Officially, the program ended in January 2012 with the production of the originally committed areas of interest, which obviously do not cover the entire length and breadth of the globe. During this period, the MGCP program has been evolving the technical specifications necessary for the data produced to meet all the geospatial information requirements and quality standards necessary to assist in the planning and conduct of operations at the tactical level in any area of interest in the world. This has meant that the geospatial data produced in the MGCP program is the most important source of geospatial information available on the areas of interest to Spain's National Defense and the rest of the member countries of the project. For this reason, and by common agreement between the MGCP member countries, the project has been extended sine die, increasing the extension of the areas to be produced and beginning to update others already produced, either due to the geostrategic interest of the area or because of the need to update the information and the version of the data model used (figure 7).

Today, the MGCP project is more alive than ever, with a total production of almost 4,900 cells and a scheduled future evolution of the data model that will ensure its future compatibility and interoperability with the DGIF – Defense Geospatial Information Working Group Framework and the NGIF – NATO Geospatial Information Framework. Upon completion of these developments, NGIF will become the future Allied Geospatial Information Interoperability Framework.

The Spanish contribution to MGCP continues to be as a “main nation”, ensuring a minimum production of 15 annual cells measuring $1^\circ \times 1^\circ$ (outsourced to companies in the sector through public tender) and maintaining the quality assurance of these nationally produced data cells plus the quality assurance of 40 cells per year from other producers.

The agreement reached in 2008 within NATO's Geospatial Requirement Working Group (GRWG) for the mass production of traditional 1:50,000-scale cartography of Afghanistan from MGCP data deserves a special mention. This production for the benefit of the International Security Assistance Force (ISAF) made it possible to avoid

duplication in production through a coordinated program, saving time and costs, and generating a single product throughout the country according to the principle “operate off the same map” (figure 8). To achieve this project, the countries responsible or outstanding forces in the mission distributed the production of cartography, drawing up and editing maps of the whole of Afghanistan. This co-production effort was coordinated by NATO’s Joint Force Command Brunssum Headquarters, and Spain participated by publishing 56 mapping sheets of the Badghis area, where Spanish forces were deployed. This project was a complete success, and the acceptance was immediate by the Spanish units deployed in the West Regional Command, which were working with old Soviet maps with translated toponymy (figure 9).

Figure 8. Sheet 1686 IV MGCP Derived Graphics (MDG) of Qal’eh-ye Now (Afghanistan).

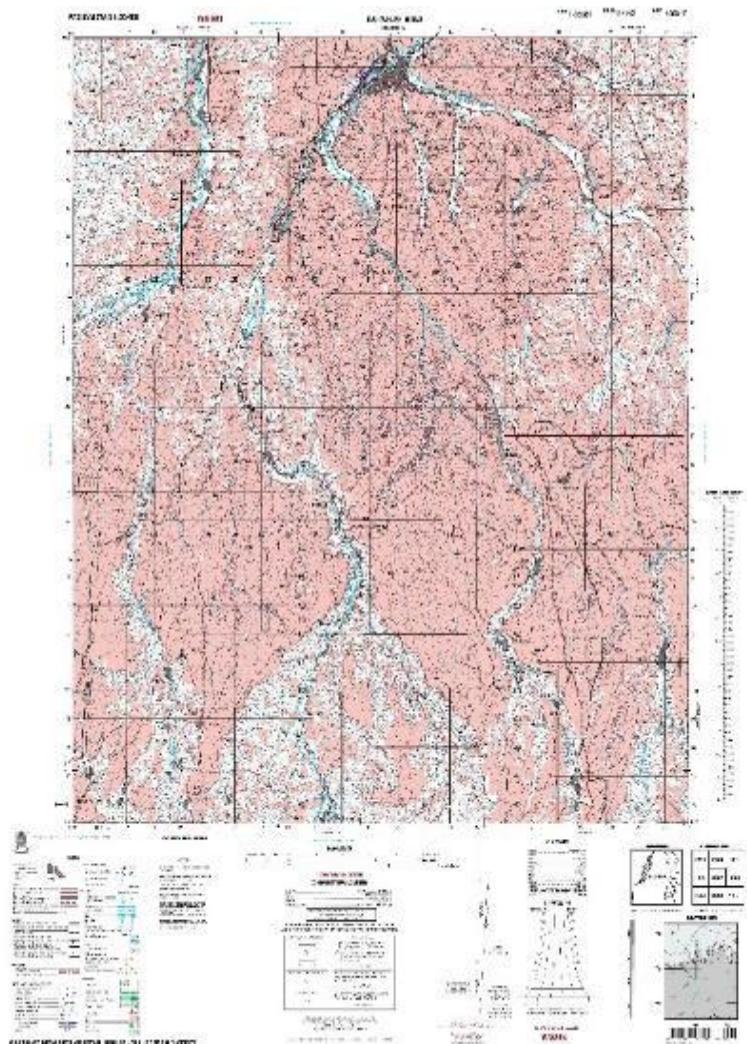
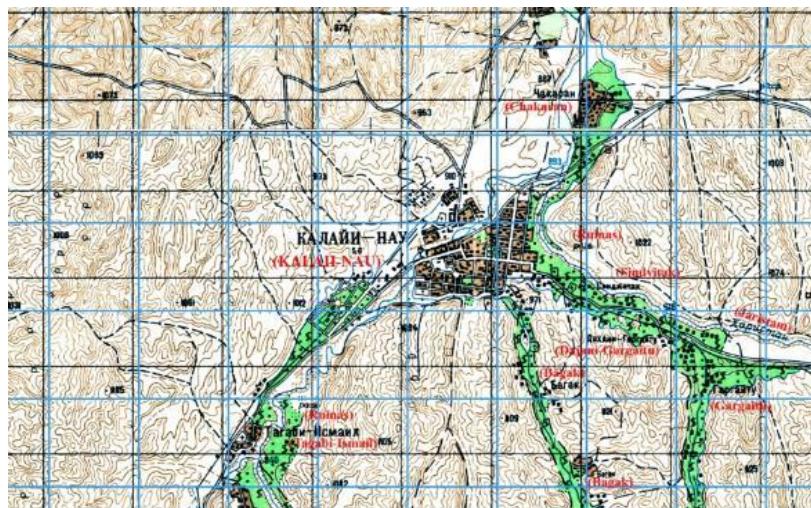
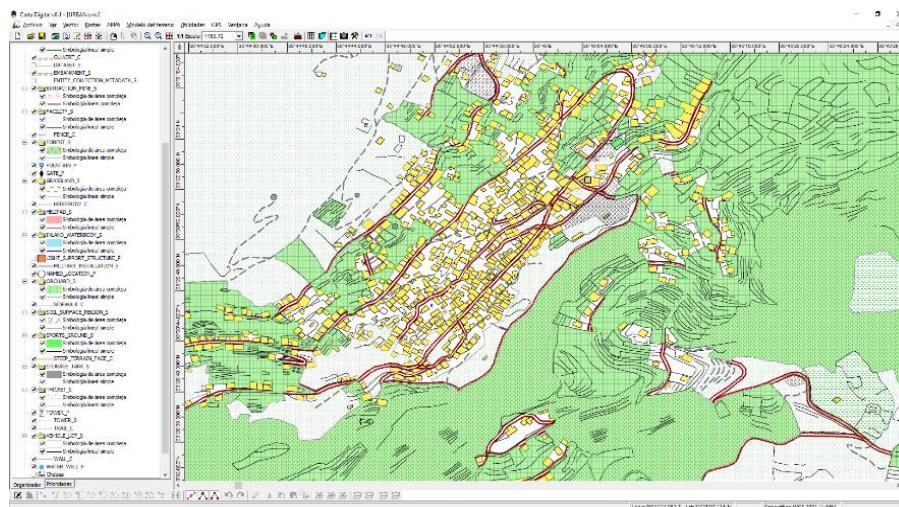


Figure 9. Soviet-sourced raster data for the Qal'eh-ye Now area (Afghanistan).



The MGCP has tacitly used this experience to expand to the production of traditional cartography in standardized formats MDG – MGCP Derived Graphics (obsolete as of 2017) and MTM – MGCP Topographic Maps, at scales of 1:50,000 and 1:100,000 from the data produced by the program, and which is called the MGCP Mapping Program. The program has nearly 16,000 1:50,000 scale sheets and 1,700 1:100,000 scale sheets edited from around the world and generated directly from MGCP data. Currently, the inclusion in this program of the production of cartography at a 1:250,000 scale in JOG – Joint Operation Graphics format from generalized MGCP data is being developed to support the planning and conduct of military operations at the operational level.

Figure 10. MUVD data loaded into the GIS "Digital Chart".



3.4. The Multinational Geospatial Co-Production Program Urban Vector Data Project – MUVDP

As part of the MGCP program, work began in 2018 to assess a new project for the co-production of geospatial information, aimed at capturing vector planimetric information on urban areas of interest to the participating countries (figure 10). Over these four years, the road traveled has been hard but successful, with 2021 being the milestone for the official start of the program after achieving the first five signatories of the adhesion agreements as an appendix to the Memorandum of Understanding of the MGCP program, and developing a data model and all the documentation associated with the extraction of information and quality assurance. There are currently 15 member countries adhering to the program and another 7 that have shown interest in participating, with a unique form of participation in which each producing nation commits to an annual minimum established by consensus.

On the technical side, perhaps the most important achievement to date of this program, the production of which began in 2022, is its compatibility with the DGIF and NGIF developments mentioned above, which ensures the interoperability of data exploitation in the Allied military information systems.

3.5. The TANDEM High Resolution Elevation Data Exchange Project – TREx

It seems obvious that once these multinational co-production programs for capturing and extracting vectorial planimetry information from areas of interest were successfully established, the next step was the extraction of high-resolution altimetry data that would allow the detailed geospatial products to be formed and edited. This altimetry data should have a higher quality than existing global products, such as the Shuttle Radar Terrain Mission (SRTM) or Aster GDEM, both from the North American Space Agency (NASA). Thus, in 2010, the TREx project was born, led by the American NGA and the German Bundeswehr GeoInformation Office.

TREx is a multinational co-production project that aims to obtain a high-resolution digital elevation model (12-meter grid spacing), homogeneous and corrected from radar interferometry with images from the TerraSAR-X and TanDEM-X satellites. After processing the data for the calculation of the elevation model, the errors detected are corrected from altimetry data from other sources evaluated and approved by the program's technical management, and the product subsequently undergoes a national quality control process by the producing body itself and an international control process by another producing country.

The program began in 2016, and Spain joined it immediately. Currently, there are 32 participating countries. The Spanish production office (Local Production Center – LPC) was set up in the CEGET, and this office provided most of the staff, assisted by staff from the GEOINT Section of the Spanish Defense Staff and the Cartographic and Photographic Center of the Air Force. The office achieved its production certification in 2017 and its certification as an international quality control body in 2020. To date, the program has generated more than 6,100 high-resolution elevation model cells.

3.6. The International Project for Human Geography – IPHG

In 2016, the North American National Geospatial-Intelligence Agency (NGA) published a proposal for a conceptual model for human geography. This was the starting point for a new project for the international co-production of geospatial information

with the aim of generating high-quality human geography data and with homogeneous procedures that allow analysis and provide detailed knowledge of the human environment in a collaborative manner among the members of the project. Likewise, the project aims to be innovative in the development and application of techniques aimed at the production of this type of information.

IPHG uses thirteen themes to structure the information on human geography. The first six in Table 3 are considered critical due to their importance.

Table 3. Themes of the International Project for Human Geography.

TEMA	DESCRIPCIÓN
Ethnicity	Ethnic affiliation and characteristics of a human population, including tribes, clans, power structure, kinship systems, and cultural traditions
Religion	Religious groups of a population; including major and minor religions, sects, organizations and celebrations
Groups and Organizations	Formal and informal groups (for example, civil, political, criminal, and ideological), including leadership, relationships, loyalties and assets, areas and means of influence
Demographics and Population	Measurable characteristics of a population, including sex and age structure, settlement patterns, and temporary trends
Economy	Economic factors determining how populations are sustained, including main industries and businesses, patterns of trade, distribution of wealth, energy, supplies, etc.
Languages	Languages of a population, including distribution, dialects, and use in different locations and settings
Education	Educational and literacy characteristics of a population, including infrastructure, ownership and biases of institutions
Health and Doctors	Health indicators of a population, including infrastructure, access to health care, diseases and vulnerabilities
Communications and Use of Media	Means of dissemination of information, including ownership, biases, control of content and distribution, and access for populations and geographical areas
Transportation	Means of transportation by which people and goods circulate within a geographical region, including types of transport, capacities, routes and access
Water Supply	Water supply and control of groundwater and surface water resources in a given area, including ownership, control and access by a population
Territory Management	Dominant land use and/or human activities (for example, agriculture, industry, commerce, or residence) in an area, including ownership, control and access by a population, as well as areas with special cultural significance
Hechos significativos	Hechos significativos. Hechos históricos y recientes (derivados de la acción humana y/o natural) que han dado forma a una población o área

Human geography information should follow the technical standards developed by the Defense Geospatial Information Working Group (DGIWG). This will facilitate interoperability and favor the development of common tools and procedures among project members. Initially, the project is planned in two initial phases:

Phase 1 (January 2020 – December 2022): development and consolidation of the project's technical documentation, work procedures and quality assurance, and adaptation to the IPHG program's standardized information production model.

Phase 2: (January 2023 – December 2025): production of information according to the level of commitment of each country. The responsibilities of the Senior and Leader member countries also increase with regard to performing quality controls on other countries and contributing to the training of other participants.

Access to the IPHG program is through three levels of participation: Leader, Senior and Member. The chosen modality of participation in the program implies a series of obligations involving the production of geospatial information, quality assurance of the production of other participants and maintenance of documentation, while on the other hand it allows different rights of access to geospatial data produced by other countries.

There are currently 14 countries adhering to this program, including Spain, which has joined as a Leader Nation. The Spanish production for this program is led by the GEOINT Section of the Defense Staff, and there are plans to open the production of data to the participation of universities.

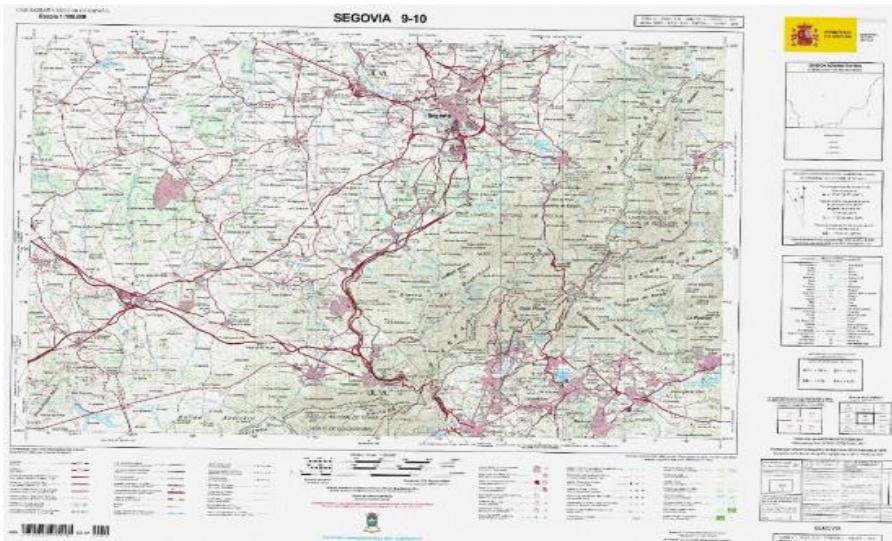
3.7. The National Topographic Base Project 100 (BTN100)

We will close this section with a project for the co-production of geospatial information on Spanish territory. At the end of 2010 and under Law 14/2010 of July 5, on geographical information infrastructures and services in Spain, a cooperation agreement was established between the National Geographical Institute (IGN in Spanish) and the CEGET for the development and production of the Harmonized Topographic Base at a scale of 1:100,000 (BTN100). This product is intended to serve as a basis for the subsequent production of derived information at medium scales (up to 1:500,000).

BTN100 is defined as a multipurpose geographical information system that houses topographic and thematic data, and is capable of supporting both geographical queries and the production of various cartographic products (Merino Martín & Sánchez Tello, 2012).

During the development of the project, a data model was established for the production of BTN100 from the products BCN200 of the IGN and Series L (M7814 and P613) of the CEGET, originally at scales of 1:200,000 and 1:50,000. The harmonized model features about 60 types of entity with simple geometries, no topology storage, and spread across 8 themes.

Figure 11. Sheet 9-10 Segovia series M682 from BTN100 data (CEGET).



For the CEGET, this project was the first participation in a large co-production project at the national level, serving to develop documentation, work methodologies and procedures different from the aforementioned projects, being a truly enriching experience.

At a production level, the IGN is responsible for maintaining and updating the BTN100 since its first edition was published. For the CEGET, the BTN100 product is currently the basis for the production of military cartography of Spanish territory at a scale of 1:100,000 (M682 and P613 Series, figure 11), with the project for the future series of the Joint Operations Graphics Ground of Spanish territory at a scale of 1:250,000 based on generalized data from BTN100.

4. The evolution of cartography and the near future

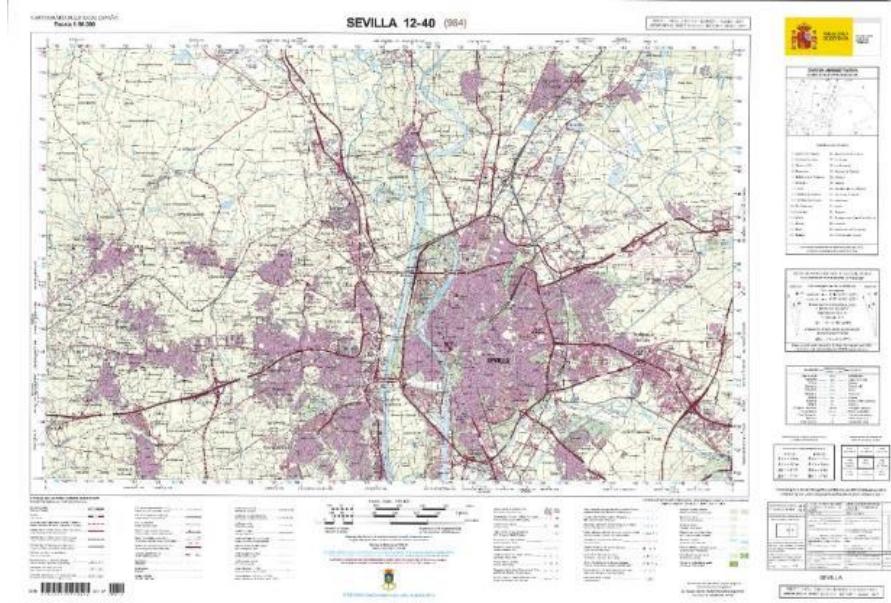
4.1. The “new” traditional cartography of Spanish territory

The first evolution of the cartographic production of the CEGET is the consequence of the unification and implementation of a geospatial policy within the scope of the Atlantic Alliance at the end of the 1980s. To adapt to these new requirements, the CEGET began to create and edit the new series of traditional terrestrial cartography of Spanish territory adapted to the needs arising from international commitments and Spain's membership of the North Atlantic Treaty Organization (NATO). In this first evolution, the production of the old Spanish series 8C, 4C, and 2C at scales 1:800,000, 1:400,000 and 1:200,000, respectively, was discontinued, and production began on the cartography of Spanish territory of the 1404 series at scale 1:500,000 and 1501 Joint Operations Graphics Ground, at 1:250,000 scale; and series C and L at scales 1:100,000 and 1:50,000 were adapted to the new series M681 and P612 at 1:100,000 scale for the Peninsula and the Canary Islands, respectively, and M7814, P735 and P713 at 1:50,000 scale for the Peninsula, Ceuta and Melilla and the Canary Islands, respectively.

From the restitution data used in the M7814, P735 and P713 series, the terrain models of the entire national territory were obtained with a grid spacing of 10 m., obtaining sub-sampled products therefrom at 25, 50 and 100 m. This meant a revolution in the 1990s, with the introduction of computer-assisted systems and automatic cartography processes in the production of cartography that until then had been carried out in an exhaustively precise way, but with eminently mechanical procedures.

A second evolution took place at the end of the 1990s, when the new computer-assisted procedures became established in production flows, and technological evolution allowed us to move from Computer-Aided Design (CAD) drawing systems to the first Geographical Information Systems (GIS). Data collection to produce traditional paper maps gave way to the new paradigm of obtaining geospatial data, broadly opening the range of subsequent uses thereof, such as geospatial analysis, the production of topographic cartography, the production of thematic mapping or its use in weapons systems and military information systems. Particular attention should be given to the development of the first digital products, such as the “Military Map of Spain” (which would later lead to the “Digital Chart” software) and the programming libraries of the “Military Geographical Information System” (SIGMIL), which has formed the GIS core of most of the command and control systems and weapons systems developed by the Spanish defense industry in the last 25 years, and is still in use in many of them.

Figure 12. Sheet 12-40 Seville of the M7815 series (CEGET).



In 2007, Royal Decree 1071/2007 dated July 27 was approved, which regulates the new geodetic reference system. We should take note of the modification of the productive flows of geospatial information to adapt the cartographic series to the new system, wherein the M7815 (figure 12) and M682 series entered into production at scales 1:50,000 and 1:100,000 for mainland Spain and the Balearic Islands.

In 2015, the last great evolution in the terrestrial cartographic production of the CEGEET began, a process in which it is still immersed. With the experience accumulated over the last thirty years in the production of geospatial information from any part of the world, together with the evolution of the terrestrial geospatial information needs of the Armed Forces for their activities, and always bearing in mind the concepts of standardization and interoperability, work for the development and implementation of new productive flows to adapt all the Center's production to international standards has begun. For this purpose, the first series to be transformed is the special CMT series of Maneuver and Shooting Ranges, which adapt to the MTM-MGCP Topographic Map specification (Multinational Geospatial Co-Production Program, 2017) in terms of the cartographic product, and MGCP TRD 4.5.1 in terms of the vector data model. The resulting products are integrated into the new mapping series of training areas M781S and M881S (figure 13) at scales of 1:50,000 and 1:25,000, respectively, with the same appearance and characteristics as the mapping of areas of operations abroad produced based on data from the MGCP co-production program. The only difference is the inclusion of a military-installations-themed layer according to the NATO standard AGeoP-15 (North Atlantic Treaty Organization, 2016). After the studies and subsequent adaptation of production flows, the pilot map of the M881S series of the "Los Alijares" maneuvering field in Toledo was published in 2019, with both series definitively entering production in 2020. Based on this first experience and with the same specifications, in 2021 the production of the new P714 series of the Canary Islands began at a scale of 1:50,000 (figure 14).

Figure 13. TRZRENEDO sheet of the M881S series of training areas.

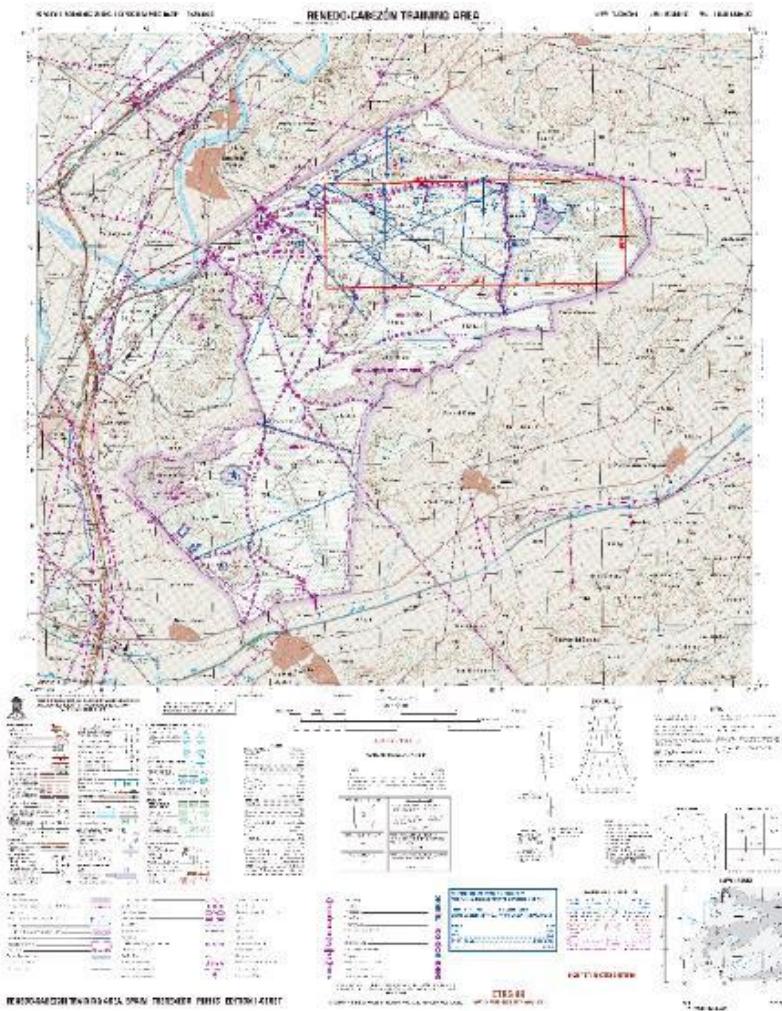
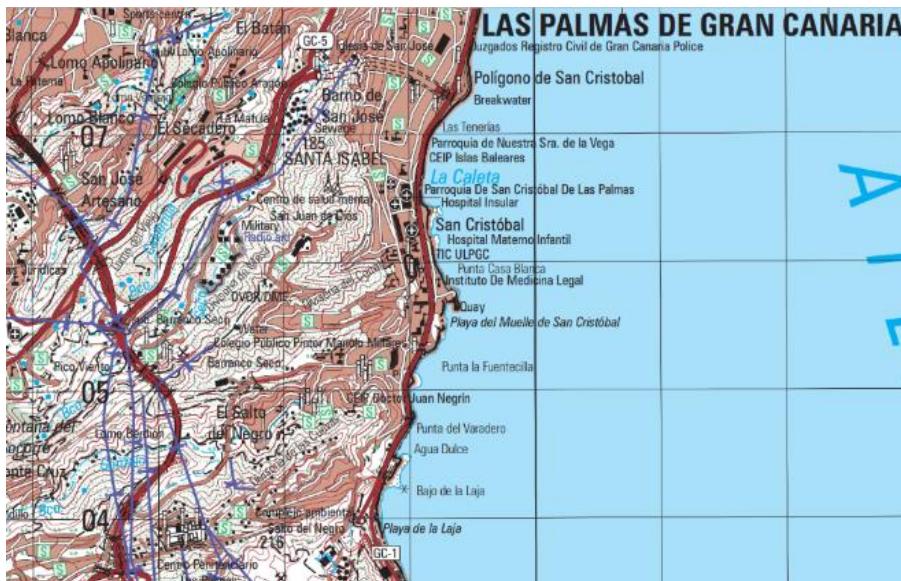


Figure 14. Detail of sheet 42-42 of the P714 series.



At the same time, studies began in 2020 to adapt cartography at scales of 1:250,000 and smaller to the new Joint Operations Graphics DPS v.1.0 (National Geospatial-Intelligence Agency, 2018) and Tactical Pilotage Chart DPS v.1.0 specifications (National Geospatial-Intelligence Agency, 2020), which use the Topographic Data Store v7.0 data model. The plan is to develop the procedures and tools for this production based on the updates of the BTN100 data of Spanish territory, using data generalization and automatic formation techniques in order to draw up the sheets.

As we have shown, the immediate future of traditional cartography lies in the adoption of norms and standards, unifying the types of products, using common data models and product specifications, and seeking synergy not only between the different product lines, but also between organizations that produce geospatial information. But the future starts here.

As a body that produces terrestrial military cartography, the CEGET is immersed in several ambitious studies and short and medium-term projects to be able to take full advantage of the technological evolution of GIS systems and of techniques and tools in the fields of data mining and Big Data, Machine Learning (ML) and artificial intelligence (AI) oriented to geospatial information production projects.

For all these projects, the close collaboration of geospatial information producer organizations, companies in the sector and university research groups that are at the forefront of these technological developments and their implementation in production flows is of great importance.

Among these studies and projects, the following stand out: the formation of medium-scale cartography based on the automatic generalization of level-2 geospatial information through on-demand production services; mapping editing with automatic completion techniques using ML algorithms; the planning of geospatial information updating through automatic change detection on spatial orthoimagery; the semi-

automatic extraction of 3D entities (by means of AI from point clouds obtained by laser-scanner sensors or by autocorrelation of photogrammetric sensor blocks on RPAS systems), and the generation of “digital twins” of infrastructures that allow their behavior to be studied through modeling algorithms.

Likewise, a significant effort is being made in digital transformation activities to allow greater efficiency in the dissemination and use of geospatial information by military users through different information services within military infrastructures and information systems.

4.2. The near future of terrestrial military mapping

As technology is advancing, we believe that the future of terrestrial military mapping lies in the immersion of users in very high-quality, three-dimensional scenarios and great realism produced from geospatial data obtained by multiple types of sensors (figure 15).

Figure 15. Training area of “Casas de Uceda”. 3D model from autocorrelation of photographic sensor images. CEGET Geodrone Mapper RTK RPAS system.



On this “hyperrealistic” cartographic base produced by integrating geospatial data, users will be able to present, visualize, analyze and draw conclusions from data from other sensors or information produced by other organizations. This will allow information to be integrated into 3D viewers such as virtual reality glasses or holographic systems (figure 16), 4D data (representing spatio-temporal variables) and artificial intelligence (AI) technologies employed. This technology will allow the influence of the variables studied to be modeled and predicted, which means that events, movements and transactions within an area may be analyzed and connections between people, places and objects can be discovered. The term interoperability should again be mentioned, necessary for the correct integration of sensors, information systems and data within a geospatial context of virtual reality and augmented reality that will allow users to make decisions based on the information processed and modeled through AI algorithms.

Figure 16. Zebra Imaging holographic display.



Applied to the decision process, this technology will allow military commanders to gain a better understanding of the geospatial environment in which they are going to act. In turn, this will allow large volumes of georeferenced information to be presented, as well as possible lines of action resulting from the analysis and predictions of the models, making it easier to base decisions on the planning and execution of military operations. Likewise, they allow data and results to be visualized with a real perspective, increasing the communication capacity of the decisions taken by military commanders and their understanding by subordinate units (figure 17).

Figure 17. Prototype web GIS system for emergency support (CEGET).

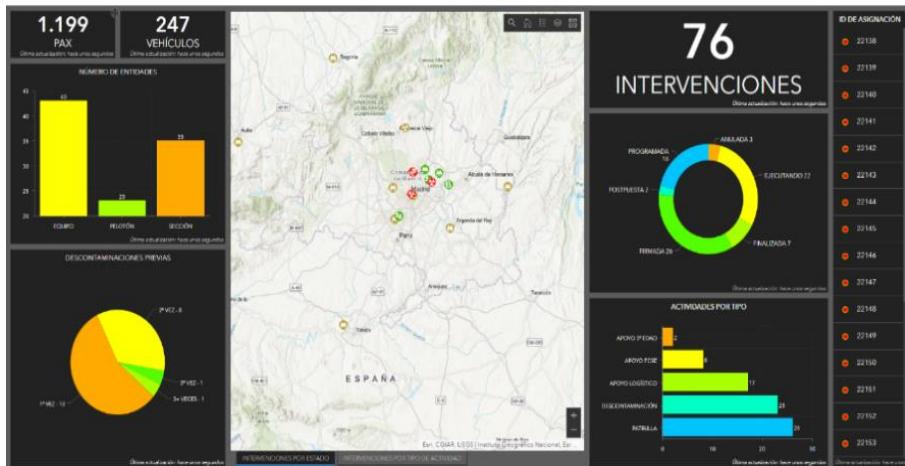


Figure 18. 3D scene prototype CMT “A. de Sotomayor” (CEGET).



In addition to the capabilities provided by these new technologies—based on geospatial information and applied to planning and decision making—, we should mention the possibility of using 3D virtual reality scenarios in simulation activities (figure 18). In this manner, units can be trained in highly realistic contexts, simulating potential operations scenarios. This will provide much higher chances of success than traditional training, as they will be capable of facing situations for which they have already been trained in a simulated reality setting. In short, we work to offer geospatial capabilities and products of the future to assist military commanders with traditional problems:

“In general terms, army commanders must familiarize themselves thoroughly with maps beforehand in order to determine which paths will be difficult for carts and wagons, those in which the water is too deep for vehicles and known mountains passes, the main rivers, the location of the highlands and hills, the places where reeds, forests and rushes grow profusely, the length of roads, the importance of towns and cities, the cities that are known and those that are abandoned and the places where there are fertile orchards. All this information must be known in detail, as well as the layout of the demarcation lines”. (Tzu, 2201).

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Catalan Geography in Times of Crisis

Valerià Paül i Carril

ORCID: 0000-0003-3007-1523

Universidade de Santiago de Compostela | Societat Catalana de Geografia

Rafael Giménez-Capdevila

ORCID: 0000-0002-4825-7724

Societat Catalana de Geografia

Abstract: This contribution provides a critical review of the geographical literature produced about Catalonia since 2010. Although other references are mentioned in the text, the focus is to review two multi-authored books published in 2021. On the one hand, *La nova Geografia de la Catalunya postcovid* ('The New Geography of post-covid Catalonia'). On the other, a history of the *Societat Catalana de Geografia* ('Catalan Society of Geography'), an institution founded in 1935 that serves as a meeting point for Catalan geographers. By so doing, the current Catalan geography (as a territory) and the evolution and state of Geography (as a discipline) in Catalonia are critically examined.

The contents are structured around four crises considered significant for understanding the current tasks of Catalan Geography: (1) the crisis that was initiated in 2008, initially impacting the property market and the financial sector, but which later would have far-reaching socioeconomic effects for the whole of Catalonia; (2) the Covid-19 crisis, which broke out in March 2020 and which is profoundly reconfiguring the lives of people everywhere, including in Catalonia; (3) the geopolitical crisis in Spain and Catalonia, whose origin can be traced to 2010; and, finally, (4) the global environmental crisis, which, if we adhere to one of the recent theories about the Anthropocene, began with the industrial revolution but whose effects did not acquire a combined human signature until the last decades of the 20th century or even the beginning of the current one.

To sum up, current Catalan geographical research is responding in real time to the multifaceted manifestations of these four crises. However, this ability to conduct geographical analyses of Catalonia that has developed in the course of the last decade should not be separated from the highly idiosyncratic sustained tradition enjoyed by Geography as a consolidated science in Catalonia. Likewise, many Catalan geographers have lately been involved in the discipline's applied and future-oriented dimension, including policy-making.

1. Introduction

The year 2014 was a milestone for the history of Catalonia and, at the same time, for Catalan geographers. In 2014, Catalonia commemorated the tercentenary of the fall of Barcelona into the hands of Philip V's army during the Spanish War of Succession, an event that led to the abolition of the institutions that had existed in Catalonia since the Middle Ages and, most significantly of all, the dissolution of its Government (the *Generalitat*). In the 1930s, the *Generalitat* would be restored, now as a subordinate institution of the Spanish Republic, and after the 1936–1939 civil war, it survived in exile, until, in 1977, it was re-established for a second time. In 1979, thanks to the passing of a Statute of Autonomy, provided for under the Spanish Constitution and adopted the previous year, it once again began to operate within the institutional framework of the Spanish State. Coinciding with this tercentenary, in 2014 the *Generalitat* organised a popular consultation on the political future of Catalonia²⁷, a self-determination referendum that would subsequently be suspended by the Spanish Constitutional Court before it was held and declared unconstitutional by the same court in 2015. The referendum formed one of the events of the so-called *procés*, that is, the 'process' which would supposedly lead to the independence of Catalonia (a subject we return to in the following pages), initiated in 2010²⁸ and culminated in 2017²⁹, albeit that at the beginning of the 2020s it is not entirely clear that it has yet run its course.

This chain of extraordinary events has had, as we show below, a marked impact on Catalan Geography. In 2014, Catalan geographers were also celebrating their own anniversary, the year marking fifty years since the publication of *Geografia de Catalunya* ('Geography of Catalonia') — an edited book coordinated by Solé i Sabaris (1958–1974) and published in three volumes — which can be considered fundamental in the evolution of Catalan Geography. The *Societat Catalana de Geografia* (SCG, 'Catalan Society of Geography'), an institution that serves as a meeting point for Catalan geographers and founded in 1935 as a subsidiary of the *Institut d'Estudis Catalans* (IEC, 'Institute for Catalan Studies')³⁰, chose to commemorate the half century that has elapsed since its publication by organising a series of debates on how the *geography* — the territory — and the *Geography* — the discipline — of Catalonia have changed over the last fifty years. A

²⁷ Some 2.3 million votes were cast (from a census of 6.3 million). Of these 84% voted 'Yes-Yes', that is, 'Yes' to Catalonia becoming a state and 'Yes' to this state being independent.

²⁸ Usually considered the year in which the *procés* began, given it was when the Spanish Constitutional Court delivered its ruling on the lack of constitutionality of key articles of the 2006 Statute of Autonomy of Catalonia, opening the floodgates to massive, openly pro-independent protests (Paül i Carril, 2021).

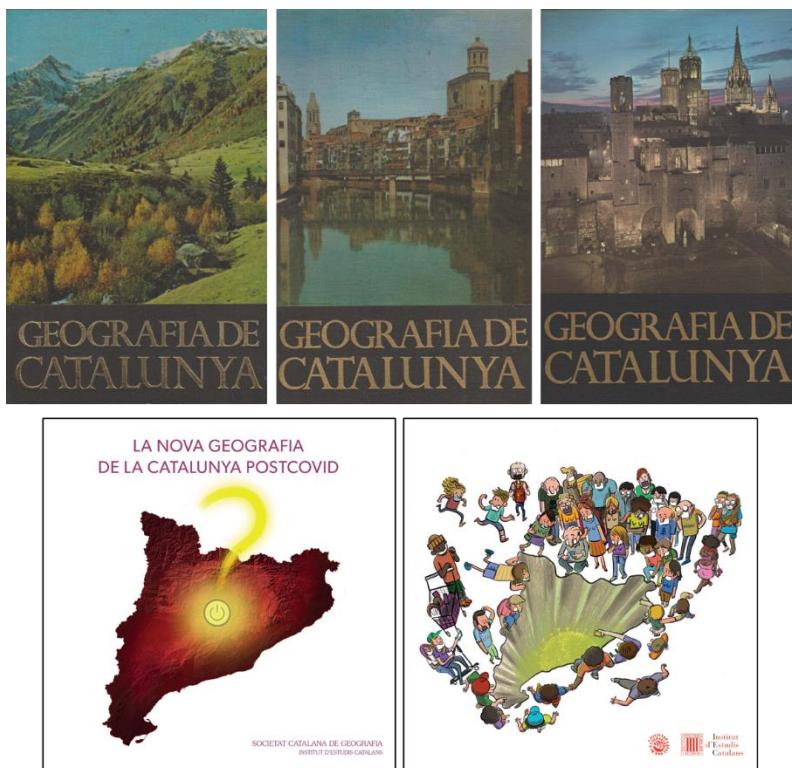
²⁹ The year in which the independence referendum was held and although preventively suspended by the Spanish Constitutional Court, voting went ahead. On this occasion, nearly 2.3 million votes were also cast (from a census of 5.3 million), of whom 92% voted in favour of Catalonia becoming "an independent state in the form of a republic".

³⁰ The Institute for Catalan Studies is the national academy of the sciences and humanities in Catalonia. It concerns itself with all disciplines of knowledge, including Geography, and its scope of action is the whole of the Catalan-speaking territories. One of its main tasks is standardising the Catalan language. The SCG was the fifth affiliated section to be created under its auspices (Bertran, 2021: 17), which currently number 28 (see https://www.ice.cat/institucio/entrada.asp?c_epigraf_num=600; accessed on March 2022).

number of general acts were first celebrated to mark the occasion (2014 and 2015) and, later, a series of round tables were held dedicated to discussions focused on five specific themes: landscape (2016), population (2016), mobility (2017), geomorphology (2018) and rural areas (2020). In 2021, the SCG proceeded with the publication of a new multi-authored Geography of Catalonia, entitled *La nova Geografia de la Catalunya postcovid* ('The New Geography of post-covid Catalonia'). The publication, coordinated by Burgueño (2021a), sought to establish a connection with the earlier work, as its introductory chapter, contributed by Burgueño and Oliveras i Samitier (2021), makes patent. Indeed, the inside sleeve of the dust jacket claims that:

If the *Geografia de Catalunya* [...] overseen by Lluís Solé Sabaris [(1958-1974)] was the point of reference for Catalan geography at the end of the Franco regime and during the transition, the *Societat Catalana de Geografia* has believed it necessary that the geographers of the first decades of the 21st century make their own collective contribution to our understanding of the new country emerging from this period of multi-crises³¹.

Figure 1. Covers of the three volumes of the *Geografia de Catalunya* coordinated by Solé i Sabaris (1958–1974) and the front and back cover of *La nova Geografia de la Catalunya postcovid* coordinated by Burgueño (2021a).



³¹ This translation, like those that follow, is our own.

In 2021, the SCG also published a history of the institution, coordinated by Bertran (2021), analysing 85 years (1935–2020) of virtually interrupted activity (with the exception of the years 1939 to 1947, coinciding with the start of the Franco dictatorship). As such, recent output by Catalan geographers includes both an in-depth reflection on the evolution and state of Geography as well as a study of Catalan geography in the form of a collective monograph in which a series of different crises play a central role in the narrative told. It is against this backdrop that the present contribution has been written in the hope of providing a critical review of this and other recent literature published since 2010, but firmly grounded in the traditions of the discipline as it has developed in Catalonia. Nel·lo's (2021) epilogue provides what might be considered the guiding principle for this present article, since what the author does is to take stock of the 29 chapters and the 24 brief contributions that make up Burgueño's (2021a) *Geografía* and he does so by organising his discussion around five “regional challenges” — population/cities, mobility/location of activities, cohesion/access to services, sustainability/energy and government/citizen organisation — albeit that here we adopt a slightly different classification, as will become clear below.

In previous works similar to the volume in which this article appears — we refer, above all, to Nadal (2004) and Junta de Gobierno de la SCG (2020) — the specific contribution of the SCG has been essentially institutional in character, that is, it has stressed above all the importance of the role played by the institution itself. The present article seeks to take a somewhat different orientation and it structures its discussion around four crises that we consider significant for understanding the current tasks of Catalan Geography: (1) the crisis that was initiated in 2008, initially impacting the property market and the financial sector, but which later would have far-reaching socioeconomic effects for the whole of Catalonia; (2) the Covid-19 crisis, which broke out in March 2020 and which is profoundly reconfiguring the lives of people everywhere, including in Catalonia; (3) the geopolitical crisis in Spain and Catalonia, whose origin, as mentioned above, can be traced to 2010; and, finally, (4) the global environmental crisis, which, if we adhere to one of the recent theories about the Anthropocene, began with the industrial revolution but whose effects did not acquire a combined human signature until the last decades of the 20th century or even the beginning of the current one.

2. The long shadow cast over Catalonia by the socioeconomic crisis initiated in 2008

Although the emphasis of the contributions in the collection edited by Burgueño (2021a) is very much on the pandemic that broke out in 2020 (a crisis that we return to later), it should be borne in mind that the pre-pandemic situation, to which their authors often refer, is marked by an earlier crisis. In fact, there must be some doubt as to whether this crisis had been fully overcome by this date. Thus, Gutiérrez-Palomero and Domènech (2021), for example, record that the bursting of the housing bubble in 2008³² was followed by a period of more than 100,000 foreclosures (evictions) in Catalonia as home owners defaulted on their loans, a devastating situation that persisted with the recovery of housing prices in the years after 2016, when we would enter a new expansionary cycle of the property market. So, although the macroeconomic indicators

³² Lehman Brothers filed for bankruptcy on 15 September 2008, symbolising the beginning of the global financial crisis, which would soon affect the rest of the world, Catalonia being no exception.

suggested the crisis had been left behind some seven or eight years after it first broke out, its social effects not only did not disappear, but rather they grew worse and continued to be present throughout Catalonia.

Based on specific data charting the demographic evolution and changes in the labour market, Alberich (2021) and Pujadas and Bayona-i-Carrasco (2021) conclude that as of 2015 Catalonia was enjoying something of a recovery: on the one hand, because the number of people being furloughed fell from almost 80,000 in 2012 to little more than 10,000 in 2016 and, from then until 2019, the numbers held steady at around or below this level; and, on the other, because of the reactivation of immigration, among other reasons, thanks to the recovery of the labour market, with the consequent entry of new population — in 2019, the number of new immigrants once again exceeded an annual figure of 100,000, returning to pre-2008 levels. And yet Pujadas and Bayona-i-Carrasco (2021: 40) point out that “immigration is growing again, not so much because of the incipient economic recovery as because of the persistence of expulsion factors in the areas of origin”. Here, they refer above all to Latin America and Africa, the two main regions supplying population born abroad according to 2020 data (some 1.5 million of Catalonia’s present population of 7.7 million inhabitants). In short, towards 2015 these indicators were used to infer the end of the crisis that had begun in 2008, but, as mentioned, other persisting effects cannot be ignored.

A study of the Catalan geographical literature dedicated to the 2008 crisis highlights that the downturn was a consequence of the extraordinary bubble in property prices that formed in the 1997–2007 cycle — somewhat appropriately referred to in Spain as the “prodigious” decade of construction (Burriel de Orueta, 2008). The effects of the bursting of this bubble in Catalonia have been analysed by Domènec and Gutiérrez-Palomero (2018), a book published by the SCG, whose main title eloquently translates as ‘Landscapes After the Battle: Geographies of the Housing Crisis’ (*Paisatges després de la batalla: geografies de la crisi immobiliària*). This study, as well as that undertaken by Gutiérrez-Palomero i Domènec (2021), shows that the geography of evictions — the most dramatic phenomenon associated with the post-2008 crisis — is highly uneven, affecting, above all, the most vulnerable neighbourhoods, that is, those with the highest rates of unemployment, the most non-European immigrants and the lowest levels of education, etc., in such a way that it exacerbates existing socio-economic inequalities. According to Bertran (2021: 218), Domènec and Gutiérrez-Palomero’s (2018) study “is the book in the collection [i.e. the SCG collection, comprising 21 works published between 1998 and 2021, one per year, approximately] cited most frequently in the news media, a study that showcases the importance of the contribution of the work of geographers in analysing the main issues of the day”.

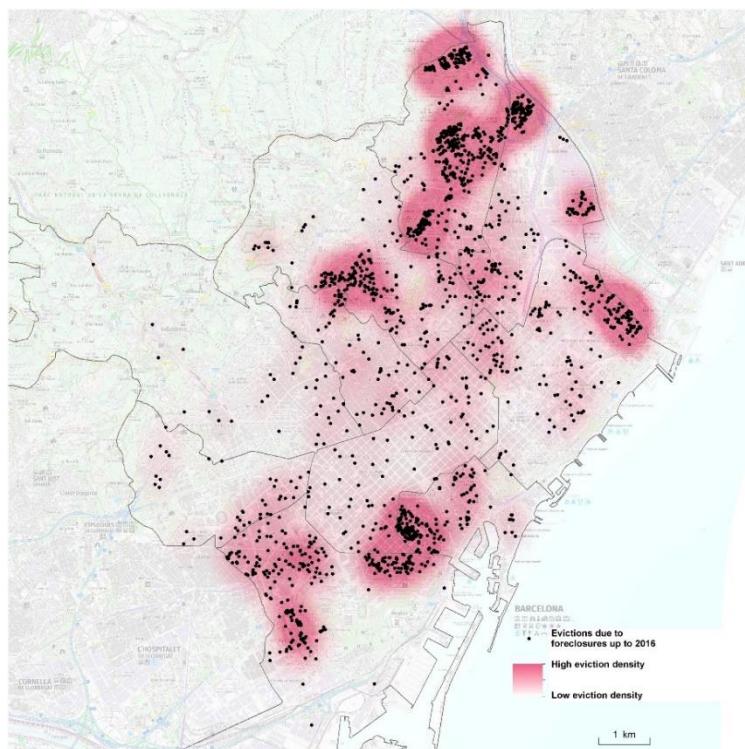
The social consequences of the post-2008 crisis in Catalonia are clearly captured in the following excerpt:

It had a far-reaching impact on the labour system [...], resulting in a dramatic reduction in jobs and a highly significant increase in unemployment. The most immediate consequences were an increase in poverty and social exclusion for one part of the population and a reduction in the well-being and quality of life for the other part. Over the last decade, [...] [there occurred] a general rise in poverty with a fall in the mean family income, an increase in poor households with dependent children, a reduction in the ability of some families to face unforeseen expenses and a chronification of poverty. [...] Between 2013 and 2018 [as such, well beyond

the alleged end of the crisis], there was talk of the risk of the chronification of these situations, and even of the polarisation of the social structure. (Ortiz and Solana-Solana, 2021: 70–71).

Nel·lo and Donat (2014), Prats et al. (2015) and Blanco-Fillola & Nel·lo (2018), among others, have dedicated studies to the socioeconomic effects of the post-2008 crisis from a geographical perspective. Of particular note is the geographical contribution made by Nel·lo and Checa (2019) to the report on social cohesion in Catalonia (edited by Cardús, 2019), which focuses on territorial fractures or divides and which encapsulates much of this previous research. In this work, the authors return to previous contributions, including Nel·lo (1991, 2001), that showed that the geographical treatment of spatial divides is nothing new, being associated, for example, with the notion of the spatial imbalances which geographers have been concerned with for decades. Nel·lo and Checa (2019) report that spatial divides have increased with the post-2008 crisis with regards to both poverty levels and segregation. This is true of Catalonia as a whole, at the level of the comarcas (roughly speaking, equivalent to ‘counties’ in English), but also within metropolitan areas, along urban corridors, and within municipalities, neighbourhoods and even between streets. Indeed, Blanco-Fillola and Nel·lo (2018) show that urban segregation in Catalonia is currently dictated by the obstacles the poorest face to escape the areas they inhabit and, just as much if not more, by the efforts taken by the most affluent to distance themselves from these areas.

Figure 2. Evictions in Barcelona up to 2016. Source: Burgueño (2021a: 329).



In this discussion of the socioeconomic crisis, we cannot ignore questions related to gender inequality. In practice, Catalan Geography has not been slow to adopt feminist approaches (Baylina and Rodó-de-Zárate, 2019). Salamaña (2021) shows that the most feminized sectors of the economy — corresponding to those with a high occupational segregation of women — have been hit hardest by the cuts associated with the post-2008 crisis, the case, in particular, of healthcare and primary and secondary education. This has led to a widespread increase in the precarious nature of both job contracts and wages, with the consequent rise in female unemployment and a greater loss of purchasing power among women workers. In parallel with this, Salamaña (2021) reports that the crisis has led many women to opt for a reduction in their working hours in an effort to reconcile family life with their work and that this has served to widen the gap between women and men.

One notable effect of the post-2008 crisis has been the emergence of gentrification, a term with more than half a century of history — its origins usually being traced to a seminal work by Glass (1964) — but in Catalonia it has only really begun to be used in the last decade, achieving, for example, a considerable presence in the media and in public debates about the city, sparking conflict even in some neighbourhoods (Blanco-Romero and Blázquez-Salom, 2018; López-Gay, 2021). The epicentre of gentrification is, undoubtedly, Barcelona, where it has been associated with the city's rapid touristification. López-Gay (2021: 352) holds that the emergence of gentrification occurred in the wake of the economic recovery, i.e. around 2015 based on macroeconomic indicators, while Blanco-Romero and Blázquez-Salom (2018: 10) argue that it was the crisis which began in 2008 that led to a restructuring of capital and the massive buying and selling of real estate by large property holdings and corporations — in short, a process of property concentration that, ultimately, led to gentrification.

The recovery undergone by immigration has also contributed to the processes of gentrification, above all in the city of Barcelona, particularly since the flows recorded in the second half of the 2010s (an average of more than 25,000 people each year) are no longer dominated entirely by non-European Union, low-income contingents as was the case prior to 2008, and they now include a significant percentage of qualified people (with university studies) from other European countries, that is, with higher incomes (López-Gay, 2021). This new wave of demand is impacting on a property market already suffering the past stresses — including, the so-called, *airbnbification* (Gutiérrez-Puebla et al., 2017) — and reconfigured, as discussed, by the crisis that broke out in 2008. Closely related to these processes of gentrification, Benach (2021) carries out an analysis based on a deconstruction of the discourse of the city of Barcelona since the 1992 Olympic Games, a subject she broaches in part in an earlier study (Benach, 2015). We have been at pains to emphasise here that this particular crisis ends with the social effects of the Covid-19 crisis, but Benach (2021: 348) stresses that “none of this [what has been observed since March 2020] has been, in fact, the result of the pandemic”, stressing that the pandemic has merely served to exacerbate prior processes already in motion and reinforced since 2008: “the urban planning violence and poverty already existed; they form part of a system that is, by nature, unfair and which no vaccine can solve”.

3. The effects of the Covid-19 crisis in Catalonia since March 2020

The target set the authors in Burgueño's (2021a) new Geography was to analyse the consequences for Catalonia of the pandemic that broke out in March 2020³³, which means here we shall seek merely to summarise these contributions. To do so, we distinguish between two main blocks of research carried out into this question: first, the effects on the Catalan population and its settlement dynamics; and, second, its impact on mobility and the economy. Between the two blocks we examine a question linked to the first of these, concerning the recent Rural Geography of Catalonia, but which, as we shall see, dates back to a period pre-Covid-19. Finally, two additional lines of research are briefly introduced that are closely related to the geographical studies undertaken on this matter: namely, climate and geopolitics.

In discussions of the demographic impact of the pandemic, Domingo et al. (2021) report quite alarming figures of its effects: some 20,000 deaths attributable to the virus in the first year of the pandemic (from February 2020 to February 2021, that is, 2.7‰³⁴) and a consequent fall in life expectancy of 1.7 years in 2020 (having stood at 83.8 years in 2019). Moreover, Domingo et al. (2021) predict other effects of the disease on Catalan demography in addition to this excess mortality, including a deterioration in health conditions as a consequence of the virus and the impact on other causes of mortality, such as cancer, because they have not been detected in time or it has not been possible to treat them properly. They also predict a further fall in fertility and a stemming of the flows of immigration, changes that, if confirmed by data for 2021 and 2022, will make it difficult for Catalonia to achieve the 8 million inhabitants that demographic models have forecast for the end of this decade.³⁵ Finally, it should be borne in mind that Ortiz and Solana-Solana (2021) stress that the impact of the pandemic has been much more marked among the disadvantaged. And, operating within the framework of Gender Geography, Salamaña (2021) shows that women have been particularly affected by the crisis, finding themselves overburdened with reproductive work as a direct result of the

³³ Paül i Carril and Trillo (2022) provide a detailed chronology of the out-break of Covid-19 in Catalonia. In February 2020 the first cases had been reported, but it was not until the week commencing March 9 that the spread of the virus led to the taking of a series of unprecedented decisions: on March 12, the first territorial confinement was announced in Conca d'Òdena (L'Anoia, Central Catalonia) and, then, on the (long) weekend of March 14–15, a series of meeting and debates would end in the declaration of the first 'state of alarm', with a general lockdown of the entire Spanish population.

³⁴ For indicative purposes only, and without considering the structural defect of the crude mortality rate, this ratio stood at between 8 and 9‰ between the years 2000 and 2019, except in two years when it fell below 8‰ and one when it slightly exceeded 9‰ (reaching 9.07‰ in 2003, the year of the major summer heat wave). In 2020 it climbed almost two points per 1,000 inhabitants to 10.32‰. At the beginning of 2022, the latest annual crude mortality rate available was still that of 2020. Source: <https://www.idescat.cat/indicadors/?id=anuals&n=10344&col=1> (accessed on March 2022).

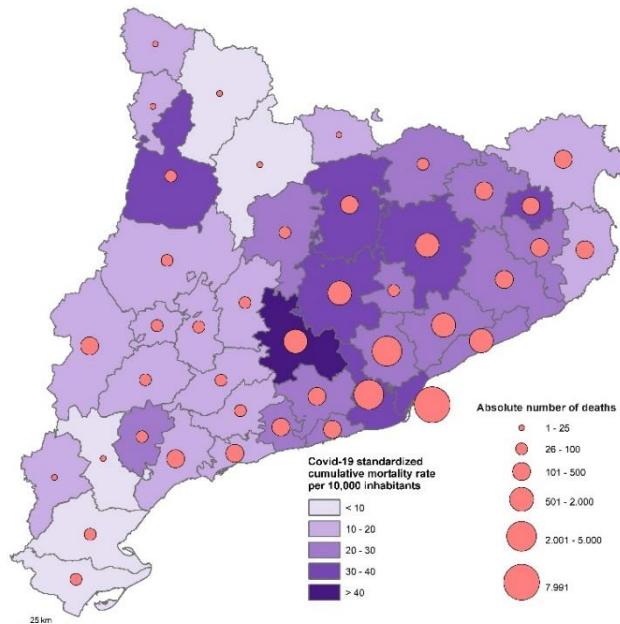
³⁵ The latest projection made by the Institut d'Estadística de Catalunya ('Statistical Institute of Catalonia', 2021–2071, average scenario) suggests the 8 million threshold will not be reached until 2027. The Instituto Nacional de Estadística ('National Statistics Institute' of Spain), which only offers a forecast for the 2035 horizon, also forecasts a Catalan population at over 8 million by that year. Sources: <https://www.idescat.cat/pub/?id=proj> and https://www.ine.es/prensa/2020_2070.pdf (accessed on March 2022).

lockdowns, the largely mandatory implementation of remote working and the associated psychological effects and impact on wellbeing of having to care for children and dependents.

Baylina (2020), Aldomà (2021) and Nel·lo (2021), in discussing the impact on Catalonia's settlement dynamics, reflect on a certain discourse, widely disseminated in the media since the outbreak of the pandemic, to the effect that because of the virus, there is, or will be, a shift of the population from denser urban areas towards less dense (perhaps, rural) areas. The links between this discourse and that of the sanitary movement of the 19th century and with the idealisation of the countryside (Baylina, 2020; Paül i Carril et al., 2020) are more than evident. However, initial analyses based on data of residential census displacements for 2020 and 2021 indicate that the vast majority (88%) of those recorded from the Barcelona metropolitan region have as their destination other urban municipalities and that only the remaining 12% have taken up residence in municipalities with fewer than 5,000 inhabitants. In fact, it seems that a significant proportion of the residential changes reflect registrations in second homes and that many of these were reversed before the year was out.³⁶ In short, if in certain Catalan rural comarcas characterised by depopulation and ageing it was thought that there would be a change in these trends due to an influx of urban population to the countryside, this does not seem to be happening. Another thing is that domestic rural tourism (of Catalans visiting rural Catalan comarcas on staycations) has increased dramatically since the summer of 2020, the one immediately following the first strict lockdowns, unlike international urban tourism that visited Barcelona and the coastal regions, which has fallen dramatically since that date (Paül i Agustí and López Palomeque, 2021).

³⁶ Keynote address delivered by Jordi Domingo “*Covid-19 i migracions: parèntesi o canvi de paradigma?*” at the IEC on 19 January 2022.

Figure 3. Deaths attributable to Covid-19 as of 2 March 2021 by comarcas. Source: Burgueño (2021a: 23), with data from the Department of Health of the Generalitat de Catalunya.



This is an opportune moment to mention a specific characteristic of Catalan Rural Geography that has emerged in recent years in relation to Spanish Rural Geography, and which is in part linked to the pandemic. Spanish Rural Geography has been dominated by the debate on the so-called *España vacía* or *vaciada* ('Empty or Hollowed out Spain'), a term coined by Del Molino (2016), to such an extent that the 2020 Spanish Rural Geography conference was devoted to this demographic challenge. The debate generated, initially in the media and academic circles, has had a rapid reflection in the political map, with the emergence of provincial candidates in the interior of the peninsula that have won parliamentary seats in the Spanish general elections and in some autonomous regions, based on the perception of grievances in Spain's rural communities attributable to the cities, above all Madrid (Paül i Carril, 2020; Paül i Carril et al., 2021). The origin of this debate can be traced to 2016, although, since the outbreak of Covid-19, the controversy has been renewed, largely due to the role played by the news media. Indeed, it is argued that it should be possible to correct this negative dynamic, although, if the studies conducted in Catalonia are anything to go on, this does not seem to be happening nor does it seem likely to happen in the foreseeable future.

Yet, in Catalonia this debate centred on an *empty* or *hollowed out* rural space hardly seems relevant, given that Catalonia's rural communities have, for decades now, presented both positive demographic and economic indicators (Garcia-Coll and Sánchez-Aguilera, 2005; Aldomà, 2009, 2015, 2021), with the result that Catalan Rural Geography has developed in a different direction exploring other avenues of research. In fact, a recent book published in this subdiscipline, co-edited by Cesarols and Nogué (2022), offers a fresh, exciting vision of the Catalan countryside, one that is full of hope

for its future. It reports a plethora of positive experiences, which have little to do with the pessimistic discourse of Spanish Rural Geography critical of the recession affecting its rural areas. In many ways, this particular vision of Catalonia's rural geography was already present in previous studies, including that of Monllor (2015) on young rural dwellers. On the other hand, we cannot overlook the fact that Catalan Geography has developed a whole line of territorial thinking on the relationship between Barcelona and Catalonia, embodied in the work of Casassas (1977, 1991), a debate continued in Burgueño's (2021a) new Geography, with the contributions of Castañer and Martín-Uceda (2021) and Nadal (2021), in which it is evident that the nature of the relationship between the capital and the rest of the Catalan territory is highly idiosyncratic.

Having digressed to examine for a moment the concerns of Catalan Rural Geography, we now return to the second block of geographical analyses of the effects of Covid-19 in Catalonia territory focused on mobility and the location of activities. The reduction in mobility that characterised the lockdowns impacted the population enormously, especially in middle- and high-income neighbourhoods, and above all the collective transport sector (Checa et al., 2020; Miralles-Guasch et al., 2021; Nel·lo, 2021). The enforced adoption of remote working constitutes one of the main reasons (Alberich, 2021; Blanco-Romero, 2021). Despite this, it appears that neither international trade nor Catalan internal trade have suffered the effects; in fact, they have actually remained buoyant thanks to e-commerce, although the distribution activity of local, zero-km, trade has been impacted (Carreras and Frago, 2021; Pallarès-Barberà and Vera, 2021; Salamaña, 2021). And, as mentioned, tourist mobility has decreased significantly across the board, with the exception of Catalan domestic demand for Catalan destinations (Paül i Agustí and López Palomeque, 2021). Likewise, urban mobility has been transformed, so that, in the case of Barcelona, for example, there has been a rapid expansion of personal mobility vehicles (bicycles, scooters and other devices), to the detriment of collective public transport (Miralles-Guasch et al., 2021).

One of the main socioeconomic consequences of the Covid-19 crisis has been a new rise in unemployment, which, as we have seen, had recovered in relation to the previous crisis. The unemployment associated with the pandemic has impacted, above all, the services sector, particularly in those coastal municipalities specialised in tourism, both on the Costa Daurada and the Costa Brava (Alberich, 2021). Alberich (2021) reports quite alarming figures: if during the post-2008 crisis almost 80,000 workers were furloughed each year, in 2020 a million workers were affected in one blow, multiplying by a hundred the number of workers affected in 2019. Once again, the impact on female workers has been especially marked, among other reasons, because the destruction of jobs has been higher in the more feminized sectors of the economy characterized, that is, by a high occupational segregation of women (Salamaña, 2021).

One specific outcome of the Covid-19 crisis that should be mentioned here is the improvement experienced in air quality due to the decrease in pollution, especially from transport, during the months of lockdown (spring 2020). This reduction has been clearly documented in the case of Barcelona by Martín-Vide et al. (2021). These authors report that during this period the emissions of CO₂ and other greenhouse gases derived from the use of fossil fuels fell. Although the reduction was still insufficient, they conclude that we should have taken advantage of this change in trend to build a new energy model,

a critical opportunity given the seriousness of the global environmental crisis (see below for a more complete discussion).

Finally, Paül i Carril and Trillo (2022) adopt an original approach to the study of the Covid-19 crisis that ties in with the discussion in the following section. They employ a geopolitical perspective to demonstrate that much of the debate in the first month of the pandemic centred on the political management of the crisis was a response to the Catalonia/Spain conflict. Their study also emphasises that the post-1978 Constitution “Spain of the autonomous communities” model was put under considerable strain and while this was not a problem exclusive to Catalonia, the tensions here were notable. Indeed, Burgueño (2021b), Galindo et al. (2022) and Trillo et al. (2022) highlight these tensions in studies of the specific characteristics of the regionalisation of healthcare in Catalonia, at variance with the regional map of the Spanish State in Catalonia. This, in fact, is not a new topic, since questions concerning political divisions (*organització territorial* in Catalan) within Catalonia is one of the most timeworn aspects — or, dare we say, the most timeworn — of Catalan Geography since the foundation of the SCG (Bertran, 2021).

4. The “Catalan crisis”

Among the different names coined to refer to the stormy political debate centred on the possible independence of Catalonia over the last decade — the *procés*, as we have called it so far — the “Catalan crisis” has been one of the most frequently used. However, Geography has not been the most active discipline in the undertaking of analyses of this conflict, although various contributions can be found, for example, Paül i Carril (2021). In fact, of the five chapters of Burgueño’s new Geography (2021a) included under the heading *Atzucac polític* (‘A Political Blind Alley’), only one, that of Paül i Carril (2021), refers directly to the “Catalan crisis”, while two of the others — as mentioned above — concern themselves with the relationship between Barcelona and Catalonia (Castañer and Martín-Uceda, 2021 and Nadal, 2021), one focuses its attention specifically on Northern (French) Catalonia (Becat, 2021; we return to this study below) and a fifth, ironically, is the “*procés* seen by a historian” (Puigvert, 2021).

When all is said and done, the response of Catalan Geography to the “Catalan crisis” has been timid. As Paül i Carril (2021) points out, it is evident that geographers from other parts of the Catalan language area have paid more attention to this conflict — the case, for example, of Rullan and Vives-Miró (2020) based in Mallorca, and the prolific output of Romero (2006, 2009, 2012, 2017) based in the Valencian Country. Significantly, the SCG opted to mark the end of the 2020–2021 academic year with an address given by Joan Romero and it has recently invited Onofre Rullan to deliver the address corresponding to the current academic year. It would seem, therefore, that in Geography it has been more common to approach the crisis from ‘abroad’, but based on the proximity that comes from belonging to the same language community. Moreover, and again according to Paül i Carril (2021), in the few studies examining the Geopolitics of Catalonia carried out by Catalan geographers, a largely retrospective historical component dominates, normally starting in modern history, as indeed we began the present article. As such, what can be regarded as being more strictly geographic in nature tends to have less weight in this debate.

One of the motives for the apparent lack of *appetite* shown by Geography for this debate might be attributed to a degree of conservatism, inertia even, among geographers,

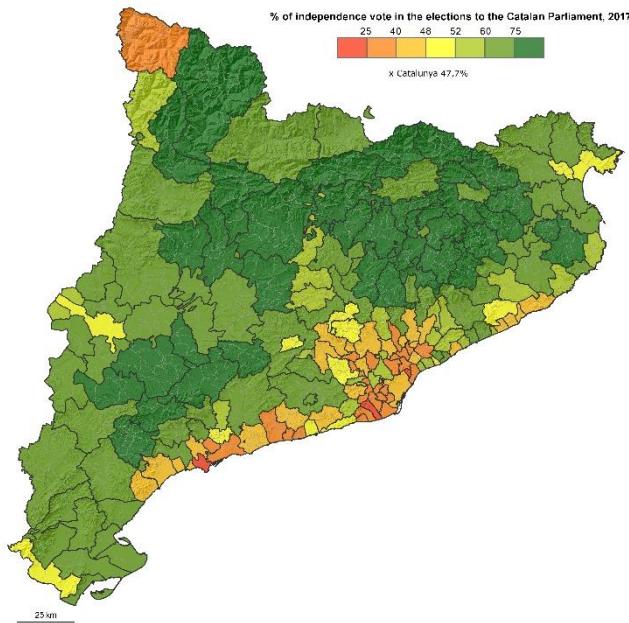
unable to break free from the political map inherited from previous generations (Paül i Carril, 2021). For this reason, the argument defended by Font (2013) to the effect that Catalan Geography³⁷ is built on Catalan nationalism must be questioned; at least, it is not especially evident in current academic Geography. This attitude of relative indifference towards internal geopolitics contrasts with the unreserved geopolitical interest aroused from ‘abroad’, as exemplified by the case of French Geography years ago, with a study dedicated to this question (Loyer, 2006).

Among geographical studies, Nel·lo (2013) offered his own somewhat unique take on the “Catalan crisis”, arguing that it had much to do with the effects of the 2008 crisis, which saw many members of the Catalan middle classes embrace independence because they understood that the Spanish Government (or, perhaps, more accurately, the Spanish State as a whole) was not doing anything to help them, rather just the opposite. And, yet, analyses of the electoral geography (including Nel·lo and Gomà, 2018, and Paül i Carril, 2021) fail to bear this out fully, as they do not find a spatial correlation between socioeconomic variables, on the one hand, and electoral behaviour (grouping pro- and non-independent stances), on the other.

Other geographers who have conducted specific analyses that provide a distinct understanding of the causes of the Catalan independence movement include Vicente (2019) and Nogué and de San Eugenio (2020). The former considers that the conflict is due to an ‘antagonism of nationalisms’ (Catalan and Spanish), where reconciliation is impossible. The latter, on the other hand, recognise the civic, participatory and democratic foundations on which the procés is built, disconnected, that is, from more formal party politics. Elsewhere, Olcina (2013), Oliveras i Samitier (2019) and others stress the role played by questions of language and culture as the trigger for the post-2010 “Catalan crisis”. Meanwhile, within the framework of the theorisation of the Geopolitics of Regional Planning (Subra, 2007), Giménez-Capdevila (2008) identifies the massive disruption suffered by the suburban commuter rail network in 2007 — associated, in part, with the disastrous work being carried out on the high-speed train project and in the broader context of the highly deficient Spanish State management of Catalan infrastructure — as a possible trigger of the growing support for independence.

³⁷ In the past, a marked Catalan nationalistic sentiment, even pro-independence, was evident among the first generations of the SCG. This was true of Casassas (1977, 1991) and, at an earlier date, of Pau Vila. The latter’s writings, included in the anthology edited by Tort (2004), offer little doubt of this. For example, “Now in light of the insistence of the Catalans to reasonably assert *the indisputable right that we have to govern and administer ourselves alone*, now in a generous spirit of brotherhood with the other peoples of Spain, *we are content, instead of the complete freedom that corresponds to us, with autonomy*; [...] the [port] of Barcelona and that of Tarragona [are] [...] the only two ports that really count in our *national* economy. [...] It is a true usurpation, because it must be recognised that the *Spanish State has no right to our ports* [...]. [T]hey are, then, very much ours; therefore, as they are consubstantial with our economy, which is the life of us all, we should be able to dispose of them fully. In the *national interest*, the *Generalitat* must act accordingly” (Vila, 1934, in Tort, 2004: 69–71; italics added). Incidentally, these arguments are similar to those of Giménez-Capdevila (2008) three quarters of a century later in a study of the origins of growing sentiments of independence in the last decade.

Figura 4. Distribució electoral de l'independentisme per àrees bàsiques de salut (2017). Font: Burgueño (2021a: 385).



Elsewhere, the analyses of electoral geography carried out by Frago (2019) and Paül i Carril (2021) show that in recent electoral contests there has been a contrast between Catalonia's two main metropolitan areas (Barcelona and Tarragona), on the one hand, and the rest of the Catalan territory, on the other. In general, support for independence in the latter area is above the average, while support in the two great metropolitan areas falls below. Yet, it should be borne in mind that these metropolitan spaces contribute hundreds of thousands of votes that are key for the *procés*. Likewise, it ought not to be forgotten that, outside these two metropolitan areas, the urban system is particularly dense (Casassas, 1977, 1991; Nel·lo, 2001; Aldomà, 2015), so that we are not dealing with a simple rural/urban divide. Indeed, comarcas such as Penedès, which is often considered "metropolitan" (Paül i Carril, 2017), are markedly pro-independence in terms of their voting behaviour.

As mentioned above, a fairly unique geographical contribution is provided by Becat (2021), in a study that seeks to relocate Northern Catalonia — under French sovereignty since the 17th century — within Catalan territory, by describing, for example, its contribution to the *procés*, by providing storage for the ballot boxes that were to be used in the 2017 referendum and which the Spanish authorities sought to confiscate. Becat's (2021) point of view, together with the geographical gaze — as discussed — from other territories in the same language area as that of the "Catalan crisis", highlight another issue that is also key in this debate, namely, the deployment from a geopolitical perspective of the Catalan-speaking territories — often referred to as the *Països Catalans*

(‘Catalan Countries’) (Rullan and Vives-Miró, 2020), albeit a name that attracts few adherents, especially in the Valencian Country. Without specifically invoking this name, Boira (2011, 2021) has referred on numerous occasions to the consolidation of a Catalan-Valencian corridor as being key for both regions in their efforts to counter the influence of a radial Spanish system centred on Madrid. In all circumstances, this is a geopolitical reading subordinated to present-day Spain, in line with various geographers who maintain that “[a]n independent Catalan republic might be the wish, but it is one that is quite removed from reality” (Oliveras i Samitier, 2019: 54).

Oliveras i Samitier (2019) and Rullan and Vives-Miró (2020) offer a list of possible ways out of the “Catalan crisis”, which range from upholding the *status quo* to independence, passing through various intermediate steps of (con)federalism of the Spanish State. Whatever the outcome, since the Covid-19 crisis — and even before — geographical research has confirmed the consolidation of a Spanish nationalist position as part of a recentralising position that seeks to reconfigure the “Spain of the autonomous communities” introduced with the 1978 Constitution (see, among others, Giménez-Capdevila, 2008; Romero, 2006, 2009, 2012, 2017; Vicente, 2019; Rullan and Vives-Miró, 2020; Paül i Carril, 2021; Boira, 2021; Paül i Carril and Trillo, 2022).

Finally, an issue that bears a close relation to the “Catalan crisis” has emerged in the study of borders, as Paül i Carril and Trillo (2022) report. They refer not only to the present-day international borders, but also to Catalonia’s borders with Aragon and the Valencian Country (internal borders within Spain). This question is a longstanding one in Catalan Geography (Paül i Carril, 2017) and one that the emerging agenda of Border Studies has brought to the forefront once more (Paül i Carril et al., 2017), while it has also gained increasing relevance as a result of the *procés* and its current, or potential, geopolitical fallout. Specific examples of this academic output include analyses of the creation of a cross-border Euroregion — often seen as emulating the so-called expanded Països Catalans or the former Crown of Aragon (Durà and Oliveras González, 2010; García-Álvarez and Trillo, 2013) —, the cooperation established between the autonomous community of Catalonia under Spanish sovereignty and the *département* of the Pyrénées-Orientales — coinciding largely with Northern Catalonia under French sovereignty — (Castañer and Feliu, 2012; Oliveras González, 2013; Berzi, 2017; Paül i Carril et al., 2017; Becat, 2021) and the problems created by the borders between the autonomous community of Catalonia, on the one hand, and those of Aragon and the Valencian Country, on the other (Sancho and Tort, 2012; Tort and Galindo, 2018).

5. The global environmental crisis and its impact on Catalonia

An entire block of contributions to Burgueño’s (2021a) new Geography, under the heading “Environmental Emergency”, addresses the global environmental crisis, from which, of course, Catalonia is not immune. Chronologically, this crisis cannot be compared to the three crises analysed up to this point, all of which can be clearly delimited in time, since its origins cannot be pinpointed with any accuracy.³⁸ In Catalan

³⁸ Any discussion of the debate concerning the onset of the global environmental change lies outside our remit here. Having said that, a consensus appears to have been reached to the effect that the 18th century represented a point of no return in the acceleration of the anthropic impact on the Earth’s natural systems, although these effects on the environment are clearly observable since, at least, the Neolithic and many of the indicators employed to speak in terms of the

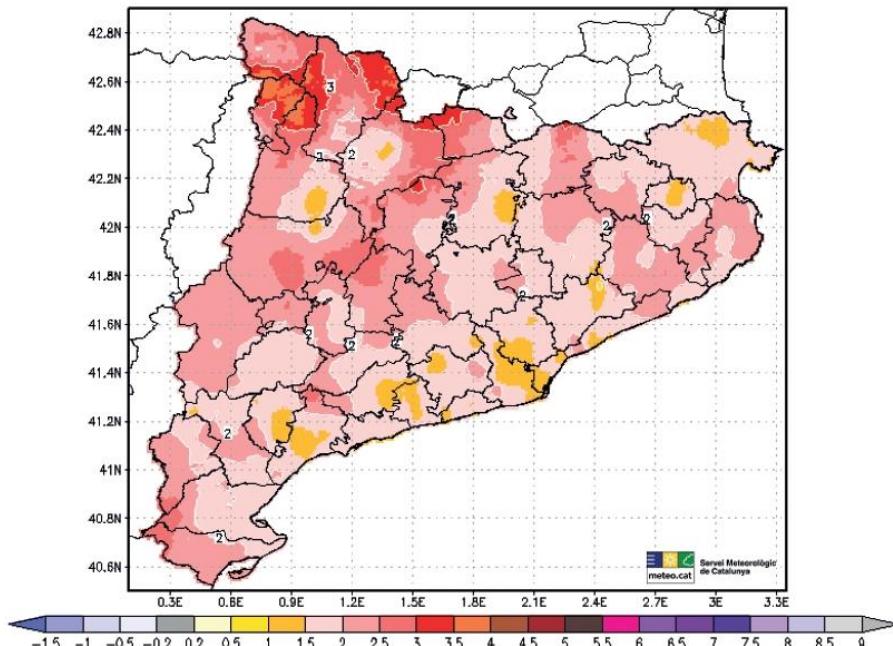
Geography, Boada and Saurí (2002) wrote a key book focused on *global change*, which might well mark the awakening of interest in this matter. These authors illustrated the magnitude of the planetary change induced by mankind by resorting to studies previously conducted in Catalonia, for example, in the Montseny natural park. In the words of Ribas (2021: 252), recorded in Burgueño's (2021a) new Geography “by global environmental change we understand the alterations caused by human activities to the functioning of the natural systems, the effects of which cannot be assigned to one specific location, but rather they affect the whole of the Earth”.

It is significant to point out here that Javier Martín-Vide, one of Catalonia's most highly renowned geographers, was to change his opinion in the early 2000s about the causes of the variation in climate recorded in preceding decades. Having previously maintained that it was attributable to natural climate variability, he was to recognise that it is a consequence of anthropic action (Martín-Vide, 2007). His shift in thinking coincided with the period between the third and fourth reports issued by the Intergovernmental Panel on Climate Change (IPCC), that is, between 2001 and 2007, when the claim that climate change is “likely” caused by human action shifted to a recognition of the fact that this was a “very likely” explanation. In fact, from the fourth report onwards (2007), Martín-Vide has participated in the IPCC reports and coordinated the third report on climate change in Catalonia (Martín-Vide, 2016), the conclusions of which he examines (Martín-Vide, 2021) in his contribution to the book edited by Burgueño (2021a).

Martín-Vide (2016, 2021) documents that the climate of Catalonia is currently warmer than a century ago, with statistically significant rates of temperature increase, corresponding to a “very high level of confidence”. This results in a greater recurrence of tropical (minimum temperature of >20 °C) and torrid nights (>25 °C) in summer, particularly in cities, with a notable contribution from the urban heat island. On the other hand, rainfall does not show a statistically significant trend during the same period, despite the fact that water needs are greater because the temperature rise increases evapotranspiration. Looking to the future, Martín-Vide (2016, 2021) and López-Bustins and Martín-Vide (2020) indicate that climate projections foresee marked increases in temperature, even if global emissions of greenhouse gases decrease — something that is not occurring but, if it were to occur, the inertia of the climate system would not facilitate a direct change in the trend either. The climate models also predict a reduction in annual precipitation, with greater annual and interannual variability and a consequent increase in droughts.

Anthropocene did not begin to rise dramatically until well into the 20th century (Castell and Terrades, 2019).

Figure 5. Projected variation in mean annual temperature (in °C) between 1971–2000 and 2021–2050 for the RCP 4.5 scenario. Source: Burgueño (2021a: 232), with data from the Catalan Meteorological Service.



As Martín-Vide (2007) explains, the atmosphere is fully interrelated with the hydrosphere, the lithosphere, the biosphere, the cryosphere and the socioeconomic system, so that climate change interacts and has effects on these other five components. Summarising the research carried out on this crisis, if we adhere to the sequence adopted by Burgueño (2021a), the first aspect to consider is hydrology, the focus of the study by Farguell and Pavón (2021). On the one hand, these authors show how rates of river discharge are tending to fall, largely because the increase in forested areas traps or intercepts a good part of the precipitation — as occurs in the Montnegre mountains, according to Otero et al. (2011). On the other hand, Farguell and Pavón (2021) observe an increase in the recurrence of flooding, a phenomenon studied by other geographers, including Aldomà (2007) and Ribas et al. (2020). This trend correlates with an intensification of rainfall irregularity, but also with an increase in vulnerability.

Here, it is worth mentioning that in 2020, the SCG journal, *Treballs*, published a special issue, coordinated by Ribas and Saurí (2020), dedicated to Storm Gloria, an extreme meteorological event that occurred in January of the same year. Much of the work focused on floods, for example, Pavón and Panareda (2020) studied the Tordera basin and Ribas (2020) the Ter basin. The special issue also contains a number of studies based on what is strictly climate research that debate whether Gloria constitutes a short- or medium-term episode of climate change (Barriendos and Barriendos, 2020; López-Bustins and Martín-Vide, 2020), while other contributions examine the storm's impact on coastal areas (Blay and Àvila, 2020; Pintó et al., 2020; Santasusagna and Tort, 2020).

Another aspect that tends to correlate with climate change is the coastal regression being experienced in Catalonia due, among other phenomena, to the rise in sea level attributable to the melting of planetary ice masses. This process is, in turn, associated with the major artificialisation of the coastline and a decrease in the sediment levels provided by the rivers, due, among other factors, to the building of reservoirs. Pintó (2021) focuses on these processes, reporting evidence of the regression of the three main Catalan deltas: the Ebro, Llobregat and Tordera. Yet, Pavón and Panareda (2020) explain how the latter actually grew due to the effects of Storm Gloria. Pintó et al. (2020) also refer to this delta and extend their reflections to the whole of the Catalan coast. Blay and Àvila (2020) specifically analyse the case of the regression of the Ebro Delta, a particularly heart-wrenching account. It should be noted, here, that a number of geographers, including Josep Pintó, have participated in joint studies led by experts from other disciplines, the case, for example, of the third of the reports on nature in Catalonia entitled *Natura, ús o abús?* ('Nature, use or abuse?') (Folch et al., 2019), in which the chapter on the coastline was contributed by Pintó et al. (2019).

Turning to the cryosphere, studies here connect with a deep-rooted line of Geomorphological research in Catalan Geography (Oliva, 2018). To give a recent relevant example, Oliva et al. (2019) analysed the almost absolute contraction of the cryosphere in the Pyrenees, correlating it with global environmental change.

Mention has already been made of a number of studies that report the increase in forest area in Catalonia and how this affects runoff (the case of Otero et al., 2011 and Farguell and Pavón, 2021). In Burgueño's (2021a) new Geography, Panareda (2021), Pèlachs and Vila-Subirós (2021) and Úbeda (2021) also address this problem. These geographers have vast experience in the study of the environment, especially its vegetation, from different perspectives. One that we wish to highlight here is the increase in, and also the *deseasonalisation*, of forest fires due to climate change, with an increase in the intensity of the large fires that affect wooded areas, with more and more episodes occurring out-of-season in autumn, this despite the fact that it is the season marked by the highest rates of rainfall in most of Catalonia and, therefore, when there is most humidity available (López-Bustins and Martín-Vide, 2020). Indeed, if we correlate forest fires and torrential equinoctial rains, it is clear that the intensity of flood events increases.

Panareda (2021), Pèlachs and Vila-Subirós (2021) and Úbeda (2021) also all confirm changes in biodiversity and the landscape — in particular, the reduction of areas dedicated to crops and of agroforestry mosaics, which has consequences not only strictly for the environment, but also for food security in Catalonia and its sustainability (Paül i Carril, 2009). Here, studies confirm that protectionist policies and the proactive management of nature and landscapes have been limited, despite the fact that various geographers have been particularly active in such efforts. This is the case of Joan Nogué, as illustrated by the vast literature produced during his years heading the Landscape Observatory (2005-2017), above all the seven landscape catalogues prepared under the auspices of the *Generalitat*³⁹ (Nogué et al., 2016). The importance of Joan Nogué's

³⁹ From the Landscape Catalogue of the Terres de Lleida, in 2008, to that of Central Catalonia, in 2016. The eighth catalogue, dedicated to the Penedès, is currently under preparation, and re-plans a region which to date has been the subject of three previously approved catalogues by the *Generalitat*. See <http://www.catpaisatge.net/cat/catalegs.php> (accessed on March 2022).

research is also evident in his contribution to an edited volume on the Anthropocene, directed by Castell and Terrades (2019), in which he analyses the state of Catalan landscapes (Nogu  , 2019).

The global environmental crisis has initiated a profound reconsideration of the need to change the energy model, a change that involves a reduction in the use of fossil fuels and, in parallel, the promotion of renewable energy sources such as solar and wind power. In this discussion, Saladi   Gil and Saladi   Borraz (2021) ask whether such a global energy transition is actually taking place, supported by a radical reset of political thinking, but they find the answer to be negative. However, this is by no means a new issue if we consider that the conflicts centred on the expansion of wind farms, especially in the Terres de l'Ebre (the southernmost Catalan region), have been raging since the beginning of the present century, as reported at the time in the edited work coordinated by Nel·lo (2003) and, more recently, in the specific study undertaken by Saladi   Gil (2018).

6. Conclusions

As we have seen at the beginning of our discussion here, the dust jacket of the book coordinated by Burgue  o (2021a) defines the current situation as a period of “multi-crises” and Catalan Geography has certainly not been immune to these upheavals at this the start of the 21st century. Indeed, it has had to respond in real time to the multifaceted manifestations of the crises throughout the geographical region, including floods, elections, lock-downs and evictions, to mention, in reverse order, significant examples of each of them as discussed in the preceding paragraphs. We can, as such, conclude that Catalan Geography has been able to overcome the usual geographical preference for the recent past (Haggett, 1975), which Mendiz  bal (2013) summed up with the claim (or curse, perhaps) that “there is no Geography that is not Historical Geography”. In fact, as we have seen in this review, many studies have been published the same year, or the year after, the events occurred: Storm Gloria, political demonstrations, the gentrification of city neighbourhoods, etc. We have even reported climatic or demographic forecasts — to give two highly credible examples — which show that Geography has acquired the capacity to make future projections. Likewise, as we have also shown, many geographers have been involved in the discipline’s applied dimension, including that of politics, and have participated in decision-making in areas that range from landscapes, city neighbourhoods and housing to river basins, to mention again the examples described in the preceding pages.

However, this ability to conduct geographical analyses of Catalonia that has developed in the course of the last decade should not be separated from the sustained tradition enjoyed by Geography as a consolidated science in Catalonia. Hence the constant references made, as facilitated by Bertran (2021), to the history of the SCG, which is the history of the geographic discipline in Catalonia. Similarly, we should stress that many of the considerations made about the current crises refer to works by previous generations of geographers, for example, by many of those who participated in the *Geografia de Catalunya* by Sol   i Sabar  s (1958-1974), reflecting on such concerns as spatial imbalances, spatial and regional organisation, borders, evolution of vegetation cover, etc.

According to Oliveras i Samitier (2020) and Bertran (2021), the vehicle of expression of the first generation of SCG geographers was the regional monograph conducted at the scale of the *comarca*. One of the first and best known was a study of La Cerdanya

(Vila, 1926), later analysed by Nel·lo (1984), Tort (2004, 2019) and Oliveras i Samitier (2020). Indeed, Solé i Sabarís and Vila (1964) would return to the geography of this *comarca* four decades later and update its contents. In Paül i Carril et al. (2017), we argue that this *comarca* constitutes a highly convenient “laboratory” for examining the evolution of the geography, as well as the Geography, of Catalonia. Today, this comarca is dependent on winter tourism and the property sector and, as a result, it has been hit hard by the post-2008 crisis, with a property market that has become dissociated from the territory itself. It is also suffering the problems of sustainability faced by the snow sports sector due to the global environmental crisis. In addition, its cross-border character has led to it being the object of practices of cooperation, including a cross-border landscape plan (Nogué and Sala, 2016) and the only truly cross-border hospital in Europe (Berzi, 2017; Paül i Carril et al., 2017), which has adopted fairly unique management practices during the Covid-19 pandemic, a crisis characterised elsewhere by the strengthening of the borders between the Member States of the European Union (Galindo et al., 2022; Paül i Carril and Trillo, 2022). Indeed, La Cerdanya has been one of the main scenarios for this crisis, at least in the media, due to the massive arrival of those living in Barcelona to take up residence in their second homes, despite restrictions on mobility. Nor should we forget the geopolitical role that this comarca has played in the peculiar deployment of the Northern and Southern *Catalonias* (Becat, 2021), a question that Vila himself (1926) had, in his way, earlier addressed. In short, thanks to this unique “laboratory”, the continuity between tradition and current research in the Geography of Catalonia is made patent.

At the present juncture, the current political-administrative map, and the mental framework of the nation-states that have determined it, appears to hold sway in Catalan Geography. Indeed, with the exception of the aforementioned chapter dedicated to Northern Catalonia (Becat, 2021), the other Catalan-speaking territories (the Valencian Country, the Balearic Islands, Andorra, the *Franja* of eastern Aragon and L'Alguer in Sardinia) are as good as absent from the discussions included in Burgueño (2021a). Nor do they get a mention in their role as neighbours of Catalonia. However, the vocation of the SCG, in keeping with that of the IEC, is to protect and to take a broader perspective on all of these areas, in line with the best Geography of one of the classic geographers in the history of the SCG according to Bertran (2021): that is, Deffontaines and his essay on *La Méditerranée catalane* (1975).

Although the Geography of the incipient SCG produced a *Resum de Geografia de Catalunya* (‘A Brief Geography of Catalonia’) by Vila (1928–1935, reissued by the SCG in 2003 with a prologue by Tort, 2003), we would have to wait for the *Geografia de Catalunya* edited by Solé i Sabarís (1958–1974) to have a monographic work specifically conceived as such, among other reasons, because Vila (1928–1935) divided his Geography in three major regions — coastal and pre-coastal, the Central Depression and the Pyrenees/Pre-Pyrenees — and, therefore, he did not provide a global overview of the territory of Catalonia. Since then, the Geographies that have been produced (for example, the work edited by Majoral, 2002), have adopted approaches and include contents that coincide with those of Solé i Sabarís (1958–1974). In contrast, the work of Burgueño (2021a), which we have reviewed closely here, has involved a reorganisation of the classic sequence of contents of a Geography of Catalonia, witness for example the interpretation made by Nel·lo (2021) of the five “territorial challenges” that Catalonia

faces and which we have listed in the introduction to this contribution, and the organisation of the edited work in five major blocks: public healthcare issues, the economic impact of the Covid-19 crisis, the environmental emergency, urban conflicts and the (geo)political situation. We think that this innovation responds to the adaptation that Geography has undergone with respect to this period of “multi-crises”, which we have focused on here in our discussion of four different, albeit interrelated, crises. However, it is not, we believe, entirely appropriate to consider it a *new Geography*, as Burgueño’s (2021a) title suggests — if anything a *renewed Geography* — given that the work continues to be rooted in a well-established tradition (Bertran, 2021).

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