sustainability

MDPI

Article

Territorialised Agrifood Systems and Sustainability: Methodological Approach on the Spanish State Scale

Gema González-Romero [1,*], Rocío Silva-Pérez [1] and Fulgencio Cánovas-García [2]

[1] Department of Human Geography, University of Seville, 41004 Seville, Spain
[2] Department of Geography, History and Humanities, University of Almeria, 04120 Almería, Spain
* Correspondence: gemagonzalez@us.es

Abstract: This article presents a methodological approach for the location, characterisation and prospects of multifunctional agrifood systems territorialised on the Spanish State administrative scale. The proposal is applied to Spain, although it can be extrapolated to other locations. It is based on the determination of these systems' dimensions (spatiality, sustainability, proximity, governance and multifunctionality) and attributes. Indicators of each of the dimensions are identified from the perspective of sustainability. The research has shown that multifunctional territorialised agrifood systems present internal territorial contrasts and differentiated features, and three basic models have initially been identified: (i) metropolitan; (ii) mountain and highland areas, and (iii) great inland plains and coasts. It is concluded that a fourth, mixed metropolitan–mountain model exists; complex and multi-scale approaches must be included in the study of the models; state scales are the most suitable for analytical purposes; the sources are limited, and acknowledgement of these approaches by public policies is essential.

Keywords: localised agrifood systems; territorial agrifood systems; methodology; sustainable food systems; multifunctional agriculture; governance; Spain

Citation: González-Romero, G.; Silva-Pérez, R.; Cánovas-García, F. Territorialised Agrifood Systems and Sustainability: Methodological Approach on the Spanish State Scale. *Sustainability* **2022**, *14*, 11900. https://doi.org/10.3390/su141911900

Academic Editors: Teresa Graziano, Simona M. C. Porto and Agatino Russo

Received: 19 July 2022
Accepted: 16 September 2022
Published: 21 September 2022

1. Introduction

In recent decades, the interpretation of agrifood geography has depended on two paradigms: the agro-industrial paradigm and the integrated territorial paradigm [1,2]. The first of these emphasises the modernisation and universal standardisation of food production; the second highlights territoriality. The territorialised agrifood focus stresses the specific, tangible and intangible resources of agricultural spaces and links them to non-productive functions such as environmental protection and nature conservation, landscape preservation and an incentive for tourism activities. Various approaches converge in this focus, with localised agrifood systems (LAS) [3–5] and territorial agrifood systems (TAS) [6–9] being the most prominent. All the approaches highlight territory, but the way that they conceptualise and understand territory differs.

In the sphere of public policies, the territorialised agrifood paradigm has been used to address development and sustainability [10]. Institutions have taken its precepts into consideration, which is an advance in programmatic territorialisation. The documents, 'A Farm to Fork Strategy for a Fair, Healthy and Environmentally-Friendly Food System and Biodiversity Strategy' [11,12], the 'Plan San CELAC 2025 of the Community of Latin American and Caribbean States', and the United Nations' 2030 Agenda all acknowledge the territorialised agrifood paradigm approach [13].

This article is part of the Multifunctional Territorialised Agrifood Systems (MUTAS) for the Development of Rural Spaces in Spain, an R&D&I project that itself forms part of a research programme on agriculture, landscapes, heritage and territories that is underpinned by six projects (Table 1). The common denominator of all these projects is that they consider agriculture as territory by way of the concept of agricultural multifunctionality,

and recognise that agriculture not only supplies food and raw materials but also provides society with public goods (environmental, landscape, heritage, etc.) that can be activated in integrated territorial development projects [14,15]. Another of their premises is the complexity of the concept of territory, in all its meanings and on all scales.

Table 1. Research programme that underpins this article.

Projects	Topics
- Agricultural landscapes in Spain (Funded by: Ministry of Economy and Competitiveness, Government of Spain, 2006) - Basic agrarian landscape units in Spain: identification, delimitation, characterisation and evaluation (Funded by: Ministry of Economy and Competitiveness, Government of Spain, 2009)	Agriculture understood as landscape
- Heritage landscapes in Spain (Funded by: Ministry of Economy and Competitiveness, Government of Spain, 2012) - Methods and instruments for recognition of heritage landscapes in Andalusia (Funded by: Regional Government of Andalusia, 2013)	Agriculture understood as natural and cultural heritage
Cultural landscapes on the World Heritage List. Keys to identification and criteria for management (Funded by: Ministry of Economy and Competitiveness, Government of Spain, 2015)	Agrarian landscapes on the UNESCO World Heritage List
Spanish multifunctional territorialised agrifood systems, MUTAS (Funded by: Ministry of Science and Innovation, Government of Spain, 2019)	Territorialised agrifood and its relationships with territory and landscapes

Source: Prepared by authors.

Given these precedents, this article pursues two objectives:

1. To lay the foundations for the MUTAS project's differentiated contribution with approaches from other fields.
2. To propose a methodology for the identification and characterisation of MUTAS on the Spanish State administrative scale. The information's level of spatial disaggregation must show internal territorial contrasts (mountains, countryside, coasts, cities and metropolitan areas, etc.), which requires the use of municipal and administrative district information or, in any event, information at a more detailed level than the province.

Other secondary objectives are: to examine these systems' defining features and internal differences in-depth and to dig deeper into the available sources and indicators to understand them.

As a hypothesis, we start from the following premises:

- Territorialised agrifood is typically addressed on the local spatial scale, as it is on this scale that their territorial anchorage and linkage can be observed and made sense of. Even though the importance of inductive understanding (through case studies) is recognised, it still has to be addressed on a more general scale such as the state scale and using deductive approaches.
- There are three models of MUTAS related to different geographical frameworks depending on the logic of their spatial distribution and the way that they function: (i) metropolitan (MP), for densely populated urban areas with major land use conflicts; (ii) mountain and highland areas (M&HL), which present intrinsic difficulties for agricultural use, and (iii) great inland plains and coasts (GIP&C), which are the foundation of commercial and mechanised agrosystems.
- Agriculture is a basic inherent component of MUTAS. It occupies a surface area that outweighs its spatial and/or economic importance. A large part of its non-productive functions (number of landscapes and leisure areas and other environmental and heritage attributes) come from this size-related territorial characteristic. Apart from being territory, agriculture and the agrifood system as a whole form part of territorial areas that determine their functions and ability to generate development projects.

Three fundamental terms are used in the article: MUTAS, LAS and TAS. The term MUTAS is used both as an acronym for the research project and also to refer to the agrifood systems in which agriculture is considered a multifunction activity that not only supplies food and raw materials but also provides society with public goods (environmental, landscape, cultural, heritage, etc.), and in which agricultural sustainability and territories, the proximity of agrarian and agro-industrial components, and governance are basic qualities. The acronyms LAS and TAS refer to the basic theoretical frameworks that underpin the research.

2. Literature Review

There is an enormous amount of bibliography on territorialised agrifood. Two main focuses can be distinguished, although they agree on many aspects: TAS and LAS. A review of these that considers the concepts, dimensions and meanings of territory used offers some very telling results (Table 2).

Table 2. The scientific literature from the perspective of MUTAS. Focuses, dimensions and spatialities.

Main Approaches and Focuses	
Territorial Agrifood Systems	Localised Agrifood Systems
Concepts and Dimensions (Analytical Dimensions)	
Spatiality Proximity Sustainability Governance Multifunctionality	
Meanings of Territory and Spatial Scales	
▪ Territory as distance (local) ▪ As a cultural milieu or environment ▪ As a nature framework (provider of resources and receiver of impacts) ▪ As a political and administrative space ▪ Local scales/administrative district scales	

Source: Prepared by authors.

The TAS focus [7–9,16] is underpinned by agroecological principles, which means that being physically embedded in the territory is fundamental [17,18]. Territory is understood not only as agroecological embedment [19] but also as proximity, a social construction and a political space for collective action [20,21]. Studies on alternative networks in city-region agrifood systems are linked to this focus [22–24], which is also related to the Milan Urban Food Policy Pact. Prioritised spatial areas are the agrifood systems of the city region and its agricultural parks [25–28].

The LAS focus, which has basically been promulgated by the Franco-Mediterranean schools [3–5], picks up on the concepts of agricultural districts [29,30], agro-industrial districts [31] and agriculture-based local production systems [32]. Their precedents can be found in Marshall's industrial district and its derivations into local production systems and innovative environments [33].

Although the LAS and the TAS focuses agree on many aspects [9], the meaning that the former gives to 'local' and 'territory' differs somewhat. Local is not spatial but, above all, cultural. The cultural codes community generates an environment (or milieu) of trust that enables networks and, in the final instance, cooperation and governance to proliferate [34]; it also ignites the feeling of belonging that is projected over the productive world through the symbolic value of food and the claim to being specific to the local area as a marketing strategy [35]. Territory is conceived locally as a social construction and a political space for collective action [10]. This is where the so-called territorial focus and the European Union's top-down LEADER project development strategies derive from [36]. Rather than a physical territory, this is an intangible territory and a condenser of knowledge. In this approach, the

spaces that receive preference are rural areas where agricultural activity is integrated with processing industries. Recent areas of interest include bio-districts, which are understood as geographical and functional areas where actors interact to sustainably manage the resources based on ecological production and consumption principles and practices [37].

Even with the indicated differences, the two focuses agree on several concepts or dimensions of these systems: proximity, equated to the anchoring of agriculture to the territory and short food-chain circuits [1]; sustainability, derived from this anchoring and assimilated to biodiversity [38], high nature value farming systems (HNVFS) and landscape wealth [39]; governance, understood as agreement, action, and compromise [40], and sustainable participatory consumption [41].

The two focuses also coincide on the scale of analytical approximation and implementation (the local scale) and the methods for its understanding (inductive); these capture the essence of these systems but the results cannot always be replicated. General or state scales are rarely considered or at least not systematically or according to internal territorial differences.

3. Materials and Methods

The article is divided into two phases: epistemological and empirical (Figure 1).

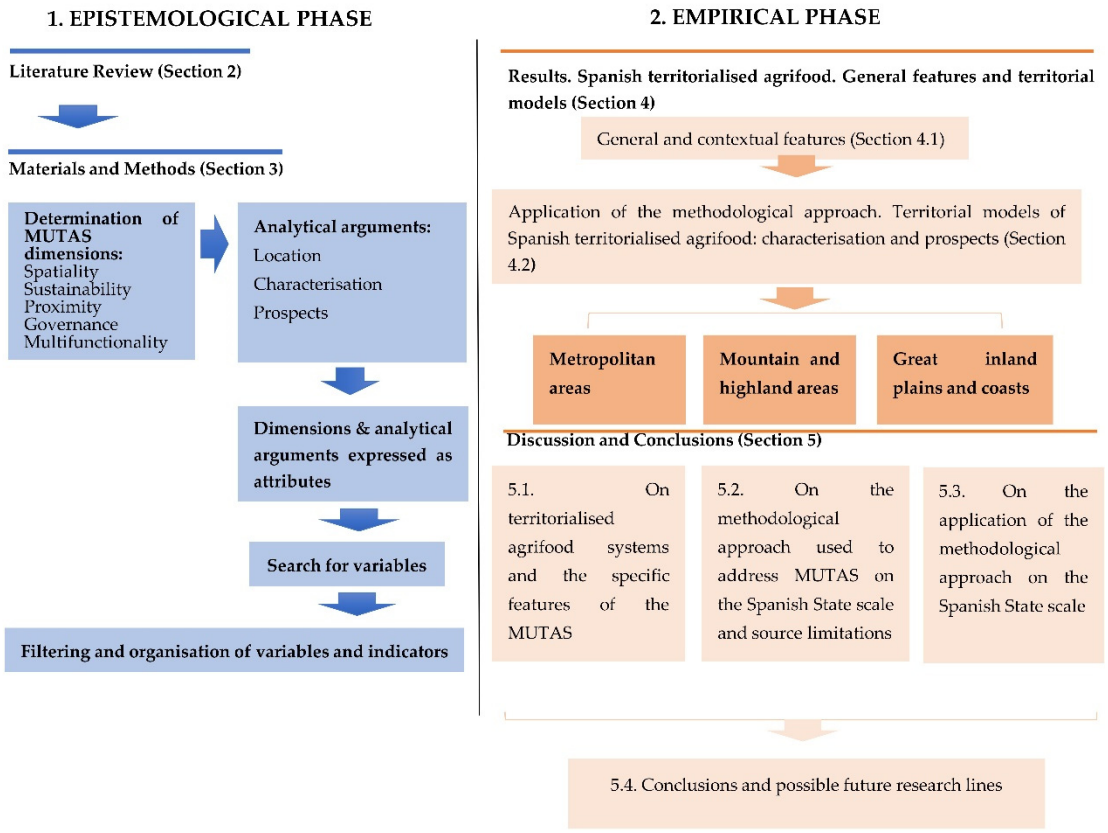

Figure 1. Methodological protocol. Stages, structure and procedures. Source: Prepared by authors.

The epistemological phase starts with a review of the scientific literature (Section 2). The Google Scholar and Scopus multidisciplinary databases were examined using the following keywords to systematise the search: 'Localised Agrifood Systems' and 'Territorial Agrifood Systems', with the addition of the terms 'methodology' and 'indicators'.

The review of the scientific literature enabled five dimensions (or basic features) to be identified for these systems: spatiality, sustainability, proximity, governance and multifunctionality. A methodological approach based on these dimensions was used to locate and characterise MUTAS at the Spanish State level and examine their prospects in great detail. The methodological approach proceeded as follows:

1. The dimensions or concepts detected in the review of the scientific literature were made to correspond to analytical arguments. 'Spatiality' was assimilated to territoriality and, after being contrasted, the hypothetical MUTAS models (MP, M&HL and GIP&C) were established in differentiated spatial areas/as independent variables to be used in the remainder of the analysis. 'Sustainability' and 'proximity' were used to characterise the MUTAS models or territorial areas, 'governance' and 'multifunctionality' to exemplify their prospects. Tables 3 and 4 summarise these procedures and their operational transfer (to attributes, sources, variables and indicators), with colours used to identify said dimensions and arguments.

2. After establishing conceptualisations and arguments, their defining attributes were determined. One basic aspect in this regard is the possibility of specifying attributes as variables and indicators for analysis disaggregated by municipality. Using the municipality as the basis for the information is essential as it later enables its aggregation in the MUTAS models.

The search for variables and indicators to express the attributes was difficult. The available scientific literature does not address territorialised agrifood systems on the general or state scale and there are no references to variables and indicators on this scale. Their selection was based on the expert opinion of this article's authors and their over- thirty-years' dedication to the analysis of all the multiple dimensions and facets of agricultural territoriality.

First, the following criteria were applied to compile a list with a selection of 20 variables (Table 3): that they should unequivocally represent each dimension, be available for the state as a whole, and be disaggregated by municipality. Even when they complied with these criteria, some of the identified variables were problematic and had to be discarded as they: were redundant, had low significance, were unrelated to territory, were spread over several organisations and administrations, or could not be used technically.

The empirical phase applied the proposed methodology to the Spanish State as a whole through two optics: a general, contextual review of Spanish territorialised agrifood (Section 4.1) and, above all, an analysis of internal contrasts through the MUTAS territorial models and their characterisations and prospects (Section 4.2). Section 5 describes in detail the specific features of the MUTAS in the framework of studies on territorialised agrifood (Section 5.1); the proposal's virtuality and the limitations of the sources (Section 5.2), and the results of its application to Spain (Section 5.3). Section 5.4. offers some conclusions and proposes some future lines of research.

Table 4 details the methodological procedure and the basis of the empirical transfer. As has been stated, 'spatiality' assimilates to being embedded in a location and territory. This is a basic dimension as it qualifies the other dimensions and determines the differences between the MUTAS. Its meaning changes depending on the scale; two complementary, superimposed scales are recognised, state and local. On the state scale, which is the scale addressed in this article, 'spatiality' is expressed in the three MUTAS models pre-established in the hypothesis (GIP&C, M&HL, and MP); despite being considered indispensable, the local model is set aside for later developments of the project.

Specifying the 'spatiality' dimension on the Spanish State scale in the three pre-established models was not easy and required the use of a variety of sources:

- The Atlas of Spanish Urban Areas [42] was used to delimit the MP model this article considers urban areas of over 500,000 inhabitants.
- The M&HL model was pre-located by addressing municipalities that comply with some of the following conditions: (a) being included in 'disadvantaged mountain areas' [43,44], (b) being classified as 'mountain municipalities' in 'model 2' in the Rationale for the Definition of Mountain Areas in Spain study and the study of the application of compensation in mountain areas [45]; (c) considering all the National Parks except Doñana, Tablas de Daimiel and the Atlantic Islands as 'areas with special difficulties' [46].
- GIP&C territories according to the Atlas of Spanish Landscapes [14].

Table 3. Initial identification, detection of problems and selection (The colours correspond to each of the analytical arguments and dimensions that support the article).

Analytical Arguments	Dimensions	Variables	Sources	Selection	Problem *
Location	**Spatiality**	Surface area by model (ha)	Ministry of Transport, Mobility and the Urban Agenda Ministry of the Environment Ministry for Ecological Transition and the Demographic Challenge Geographical Nomenclature of Municipalities and Population Groups, IGN	YES	
		Inhabitants	Geographical Nomenclature of Municipalities and Population Groups, IGN	YES	
Characterisation	**Sustainability**	No. of autochthonous livestock breeds	Ministry of Agriculture, Fisheries and Food	NO	4
		No. of local, traditional and autochthonous seed varieties	Spanish State seed networks	NO	4
		Ecological farming (ha)	Survey on the Structure of Agricultural Holdings, INE	YES	
		Ecological livestock farming (livestock units)	Survey on the Structure of Agricultural Holdings, INE	NO	1
		Conservation agriculture (ha)	Ministry of Agriculture, Fisheries and Food	NO	1 and 4
		Surface area comparable to High Nature Value Farming Systems (ha)	CORINE Land Cover	YES	
		Natura 2000 network Protected Natural Spaces (ha)	Ministry for Ecological Transition and the Demographic Challenge	YES	
	Proximity	No. of ecological operators in the production chain	General Registry of Ecological Operators, Ministry of Agriculture, Fisheries and Food	NO	3 and 4
		No. of farms that carry out agro-industrial processing	Survey on the Structure of Agricultural Holdings, INE	NO	5
		No. of producers involved in local food initiatives	Ministry of Agriculture, Fisheries and Food	NO	3 and 4
		No. of farms that sell directly to consumers	Survey on the Structure of Agricultural Holdings, INE	NO	4
		No. of Protected Designations of Origin	Ministry of Agriculture, Fisheries and Food	YES	
Prospects	**Governance**	Local action/Rural development groups	Ministry of the Environment and Rural and Marine Affairs	YES	2
		Producer associations/groups	Ministry of the Interior	NO	4
	Multifunctionality	No. of agrifood companies and industries	Autonomous Community agrifood industry registries	NO	1
		No. of people employed in agriculture	Survey of Active Population, INE	YES	
		No. of people employed in the 'Food, Beverage and Tobacco' industry	Survey of Active Population, INE	YES	
		Rural development: Other activities that complement agriculture	Survey on the Structure of Agricultural Holdings, INE	NO	4

* Problem areas:
1. Redundancies
2. Unrelated to territory
3. Spread over different organisations/administrations
4. Unviable to use
5. Low significance

IGN: Spanish National Geographical Institute
INE: Spanish National Statistics Institute

Source: Prepared by authors.

The dimensions 'sustainability' and 'proximity' are used for the characterisation of MUTAS. 'Sustainability' is expressed by wealth and biodiversity [47,48], which can be intrinsic (of the MUTAS) or extrinsic (of the territories where they are located). Wealth corresponds to the presence of potential HNVFS [39,49] and agroecological practices. HNVFS are identified and pre-located by matching the systems recognised as such by the specialist literature [50] to the following headings in CORINE Land Cover 2018 [51]: Rice paddy (2.1.3. Rice fields); Rainfed cereal (2.1.1. Non-irrigated arable land); Fruit trees (2.2.2. Fruit trees); Agricultural mosaics (2.4.1. Annual crops associated with permanent crops, 2.4.2. Complex cultivation patterns and 2.4.3. Land principally occupied by agriculture, with significant areas of natural vegetation); Olive groves (2.2.3. Olive groves); Vineyards (2.2.1. Vineyards); Agroforestry (2.4.4. Agroforestry areas); Meadows (2.3.1. Pastures).

Table 4. Methodological approach to locate, characterise and discern the prospects of MUTAS (The colours correspond to each of the analytical arguments and dimensions that support the article).

Analytical Arguments	Dimensions	Attributes		Variables/Indicators	Contrast Indicators
Location	**Spatiality**	State scale (MUTAS models)	Preliminary location of models	- Urban areas > 500,000 inhabitants - Disadvantaged mountain areas with special difficulties - Great inland plains and coasts area	-Agrarian Land Area -Total Area -Population
Characterisation	**Sustainability**	-Wealth and intrinsic biodiversity (of agrosystems)	High Nature Value Farming Systems (HNVFS)	- High Nature Value Farming Systems (ha) - Area of High Nature Value Farming Systems/Agrarian land (%)	
			Agro-ecological practices	- Ecological farming (ha) - Ecological farming/Agrarian land (%)	
		Extrinsic sustainability (of territories)	Areas of special natural wealth	- Protected Area (ha) - Protected Area/Total Area (%) - Municipalities with over 40% of their surface inside a Protected Area/Number of Municipalities	
	Proximity	Territorial anchorage of agricultural and agro-industrial productive phases	Protected Denominations of Origin (PDO)	- No. of Protected Denominations of Origin - Protected Denominations of Origin/10,000 ha Agrarian land	
Prospects	**Governance**	Presence of social, economic, and institutional agents Authorisation of programmes	Local socio-institutional agreements	- No. of Local Action Groups - No. of Agricultural parks - No. of Globally Important Agricultural Heritage Systems (GIAHS)	
	Multifunctionality	Role of agriculture in MUTAS	Agricultural multifunctionality	- Productive roles (provision of food and raw materials) - Non-productive economic roles ('sale' of landscape and heritage resources). - Environmental roles (biodiversity, mitigation of climate change).	
		Role of MUTAS in territorial development	Rural environment multifunctionality	- Contribution of MUTAS to the economy as a whole - Creation of employment	

Source: Prepared by authors.

Due to the limited number of sources on the state scale, agroecological practices have been analysed based on the surface area dedicated to ecological farming using microdata from the Farm Structure Survey [52].

'Extrinsic sustainability' (of the territories) is expressed by the wealth of natural features as reflected in declarations of protected natural spaces and the Natura 2000 Network [53,54].

The 'proximity' dimension is related to the territorial anchoring of the agricultural and agro-industrial components, which are analysed using the Ministry of Agriculture, Fisheries and Food's Protected Denominations of Origin (PDO) [44]).

'Governance' and 'multifunctionality' are dimensions that express the prospects of MUTAS. 'Governance' is confirmed by the involvement and actions of the various agents (institutional, socio-economic, and civic) and their transfer to programmes [24]. It is analysed using (i) the list of local action groups that have managed European Union LEADER projects [55]; (ii) the territorial distribution of agricultural parks [28], and (iii) the localisation of FAO Globally Important Agricultural Heritage Systems (GIAHS) [56].

'Multifunctionality' can be agricultural or rural [57,58]. Agricultural multifunctionality is determined by the roles of agriculture in MUTAS (productive and non-productive); rural multifunctionality refers to the contribution made by MUTAS to territorial development. The analysis of both these functionalities and the synergies between them requires a detailed study and the use of qualitative research techniques (surveys and interviews). For obvious reasons, this is not viable on the state scale; however, it does not prevent the determination of some preliminary links between the two functionalities that can be tweaked in future works (local scale case studies).

Usable agricultural surface, total surface and population have been used as contrast indicators in all the dimensions and models.

4. Results: Spanish Territorialised Agrifood, General Features and Territorial Models

4.1. General and Contextual Features

MUTAS cannot be analysed and understood without a political-administrative territory. This is expressed as the Spanish State configured into seventeen autonomous communities (or regional governments) that are subsequently organised into provinces and municipalities. The autonomous communities are responsible for managing all the facets of these systems (agriculture and food policies, spatial planning, cultural and natural heritage, etc.) but international dialogue is the responsibility of the state, and this is the origin of a good number of the resources—programmatic and financial in the case of European agricultural policy [59]—and the prestige associated with the inclusion of some specific agricultural spaces on UNESCO heritage lists—cultural landscapes on the World Heritage List; the biosphere reserve network, etc. [60].

This administrative dysfunction is even greater for information management; this is also largely the responsibility of the regional governments, which rarely use standardised records. As a result, although there is abundant evidence of the importance of territorialised agrifood systems in Spain, their internal differences are not always apparent; in addition, no advance has been made in the inquiry of the sources to identify and understand them. The following provides an account of the above:

- In Spain, agriculture and food are strategic sectors. The former represents 2.8% of the gross national product [61], double that of the European Union, and rises to 10.6% if agroindustry is included [62]. It is even more important in social terms: 4% of employment is in agriculture, rising to 7% when the agrifood industry is included [63]. But it is its surface area and landscape, environmental and heritage correlations that are its most distinctive features: swathes of cropland and livestock pastures occupy half the surface area of the country [62].
- Many types of agriculture stand out for their biodiversity. HNVFS occupy 40–55% of the usable agricultural surface area [64] and are high in non-irrigated cereals (Ebro, Duero and Guadalquivir basins; the plains of Castile–La Mancha and Extremadura; the highland plateaux and depressions of the south-east); traditional olive groves and vineyards; immense livestock farms (pastures; Atlantic prairies), and rice paddies [50].
- The wealth of the territories in which these systems are located is similarly relevant: 4.17 million ha of agricultural land in the Natura 2000 Network (30% of the nationwide total forms part of this network) and the 52 biosphere reserves are a good illustration of this. The same is also true of cultural wealth: as many as four FAO GIAHS areas; a variety of cultural landscapes already on the UNESCO World Heritage List (Palmeral de Elche, Sierra de Tramuntana; the Mount Perdu–Pyrenees cross-border cultural landscape with France) and others with applications at a very advanced stage (Olive Grove Cultural Landscapes in Andalusia; Ribera Sacra; Priorat-Monsant-Siurana).
- Other exponents of the environmental importance of the Spanish territorialised agrifood system are: (i) the enormous areas of agricultural and agroforestry tree masses, which are crucial for climate change mitigation: 4.8 million ha of olives, vines and fruit trees and some 3.5–5 million ha of pastureland; (ii) the growth of ecological farming (2.4 million ha and 5% sustained annual growth [62], and (iii) the number and variety

of territorial indications of its foodstuffs (protected denominations of origin, protected geographical indications, Vinos de la Tierra, Vinos de Pago, etc.).

- However, if the aim is to reveal the differences between the various MUTAS (physical, functional, or other), the observations are diluted and cannot be established; this is a limitation, given the great contrasts on the Spanish mainland [65]. Different ecological constraining factors (on coasts, in mountains, inland plains, etc.) in conjunction with agrarian change processes organised by urban regions; small and medium-sized towns and cities, and rural nuclei, etc. involve different situations and models that require different approaches and responses. The resulting wealth and diversity (of uses and exploitation, landscapes, heritage constructions, infrastructure, ethnography, etc.) is another distinctive feature that private (and local) studies are unable to capture with their methods, and which are similarly not perceived in general and non-territorialised analyses.

4.2. Application of the Methodological Approach: Characterisation and Prospects of the Territorial Models of Spanish Territorialised Agrifood

4.2.1. MUTAS Territorial Models and Their Location

Applying the methodological approach gives the following results in the Spanish case (Table 5, Figure 2):

- Locating the three models considered in the hypothesis (MP, M&HL and GIP&C) reveals the existence of a fourth model that is mixed in type and results from the convergence of metropolitan spaces and mountain and highland areas (M&HL/MP).
- The MP model is widespread in the main urban agglomerations: the municipalities in the urban agglomerations of Madrid, Valencia, Seville, Zaragoza, Alicante–Elche, Murcia and the Bay of Cadiz in their entirety, and a large part of the metropolitan municipalities around Barcelona, Bilbao, Palma de Mallorca and Granada. This model amasses a large part of the population (17.6 million inhabitants, 36%) and major consumption centres. Despite their small surface area (1.4 million ha, 3% of the country's surface area as a whole), the proportion of agricultural land is relatively high (52%).
- The M&HL model is representative of the main mountain areas. The population is very small (8.1 million inhabitants, 17%) compared to the surface area (23.4 million ha, 46% of the country). Usable agricultural land is not very significant (6.5 million ha, 28%).
- The GIP&C model is representative of the two plateaux, the main river valleys, and the eastern and Atlantic coasts. This model stands out for its population (17.3 million inhabitants, 36%) and land area (25 million ha, half of the mainland territory). The significance of farmland is particularly relevant (16.8 million ha, 67%).
- The mixed model comprises all the municipalities in the Malaga, Vigo–Pontevedra, Las Palmas de Gran Canaria and Asturias urban areas, together with some of the urban areas of Barcelona, Bilbao, Palma de Mallorca and Granada. It has a high population volume (4.5 million inhabitants) and covers an insignificant area of land (0.575 million ha, 1%). Its mountains would explain the smaller relative proportion of agricultural land (0.172 million ha, 30%).

Table 5. MUTAS models. Basic indicators (Database available in Supplementary Materials, Database S1).

	Municipalities, 2020		**Area, 2020**		**Population, 2020**		**Agrarian Land, 2018**	
	No.	**%**	**Total Area (ha)**	**%**	**No.**	**%**	**Agrarian Land Area (ha)**	**Agrarian Land Area/Total Area (%)**
Metropolitan Model	299	4	1,403,436	3	17,630,426	37	736,200	52
Mountains and Highlands Model	3445	42	23,453,096	46	8,120,221	17	6,567,433	28
Great Inland Plains and Coasts Model	4245	52	25,043,848	50	17,166,982	36	16,779,799	67
Mixed Model	142	2	574,640	1	4,533,166	10	172,488	30
TOTAL	8131	100	50,475,020	100	47,450,795	100	24,255,921	48

Sources: [14,42,45,46,51,66].

4.2.2. Comparison of Sustainability and Proximity as MUTAS-Characterising Dimensions

- Sustainability and its properties

(a) Intrinsic sustainability of MUTAS: presence of potential HNVFS

The literature defines the land uses likely to form potential HNVFS [50] but does not locate or geo-reference them by municipality, which is essential; Figure 3 shows the locations of these land uses.

The spatial distribution of this indicator offers significant information, although the spatial distribution of these land uses on its own does not necessarily signify the presence of HNVFS—this is why reference is made to potential HNVFS (Figure 3, Table 6):

- The surface area of these systems stands out (21.5 million ha, 89% of agricultural land [51]), as does its overwhelming presence in the M&HL and M&HL/MP models (96% in both cases). Its significance in the GIP&C model is high (87%), as it is in the MP model (78%).
- Some differences can be perceived in the dominant forms of farming, depending on the location and model. Cereals are the dominant crop and some particularities can be detected in their correlation with other uses. The mixed model registers a high proportion of crop mosaics combined with pastures and prairies, largely concentrated in the northeast and on the Cantabrian coast. Other important spatial concentrations include olive systems (in upstream country areas of the Guadalquivir River and the foothills of the sub-Baetic and Sierra Morena mountains); agroforestry land and livestock farms characteristic of pastureland (eastern mainland); fruit trees (Mediterranean coast) and rice paddies (Guadalquivir River marshlands, Ebro delta, Guadiana river plains, and the Albufera of Valencia).

Table 6. The intrinsic and extrinsic sustainability of MUTAS (Database available in Supplementary Materials, Database S1).

	Intrinsic Sustainability					Extrinsic Sustainability
	Biodiversity: High Nature Value Farming Systems (HNVFS)			Agro-Ecological Practices: Ecological Farming		Natural Wealth: Protected Areas (PA)
	Potential HNVFS Total Area (ha)	Potential HNVFS Area/Agrarian Land (%)	Main Crops	Ecological Farming (ha)	Ecological Farming/ Agrarian Land Area (%)	Protected Area/Total Area (%)
MP	570,569	78	Cereals (42%); Crop mosaics (19%)	17,242	3	23
M&HL	6,275,420	96	Cereals (37%); Crop mosaics (21%)	330,385	4	40
GIP&C	14,518,541	87	Cereal (49%); Crop mosaics (13%); Agroforestry (13%)	507,056	4	18
M&HL/MP	165,725	96	Crop mosaics (50%); Pastureland (20%)	3279	6	20
TOTAL	21,530,256	89	Cereals (45%); Crop mosaics (15%)	857,962	4	28

Sources: [51–54,66].

(b) Intrinsic sustainability of MUTAS: agroecological practices

The main concentrations of ecological farming can be observed in the GIP&C (0.5 million ha) and M&HL (0.33 million ha) models. It is insignificant in the MP (0.017 million ha) and M&HL/MP (0.003 million ha) models. Agroecological practices do not surpass 6% of agrarian land in any model (Table 6).

(c) Extrinsic sustainability (sustainability of MUTAS territories): natural wealth

By protected areas we mean the Natura 2000 Network and protected natural spaces, which cover 28% of Spanish territory and are unevenly distributed [53,54]. Farming is extremely important in these spaces and the surface area of the protected areas where agriculture accounts for over 20% of the land is significant [67] (Figure 4).

Cross-referencing data on the distribution of protected areas and the MUTAS models offers some interesting conclusions (Table 6):

- The M&HL model has the greatest area of protected spaces (40% of its surface is associated with some form of legal environmental protection).
- A total of 23% and 20% of the territory in the MP and M&HL/MP models, respectively, is affected by some legal protection. The differences between the two can be observed in relation to the municipalities with over 40% of protected land: in the MP model, this figure stands at 16% and in the M&HL/MP model, at 27%.
- Protected areas cover only 18% of the surface of the GIP&C model and barely 13% of the municipalities have over 40% of their territory included inside protected areas.

- Some indicators of proximity

Protected designations of origin (PDO) are a sign of product quality and their essential requirement is that all the agricultural and agro-industrial phases are within the demarcation area; their mere presence can be interpreted as an indicator of the proximity attributes required by these systems.

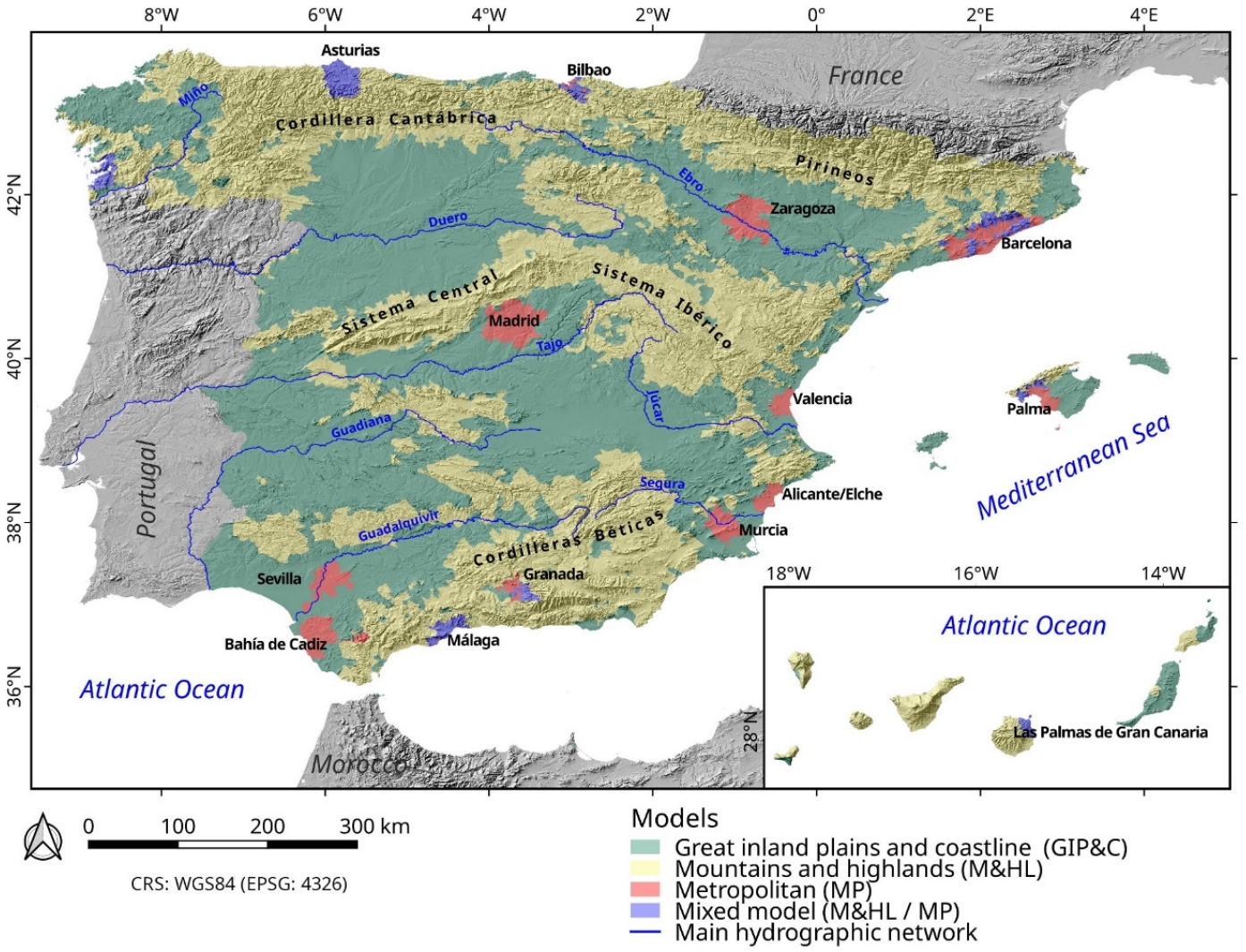

Figure 2. MUTAS models and their spatialities. Source: Prepared by authors (Database available in Supplementary Materials, Database S1).

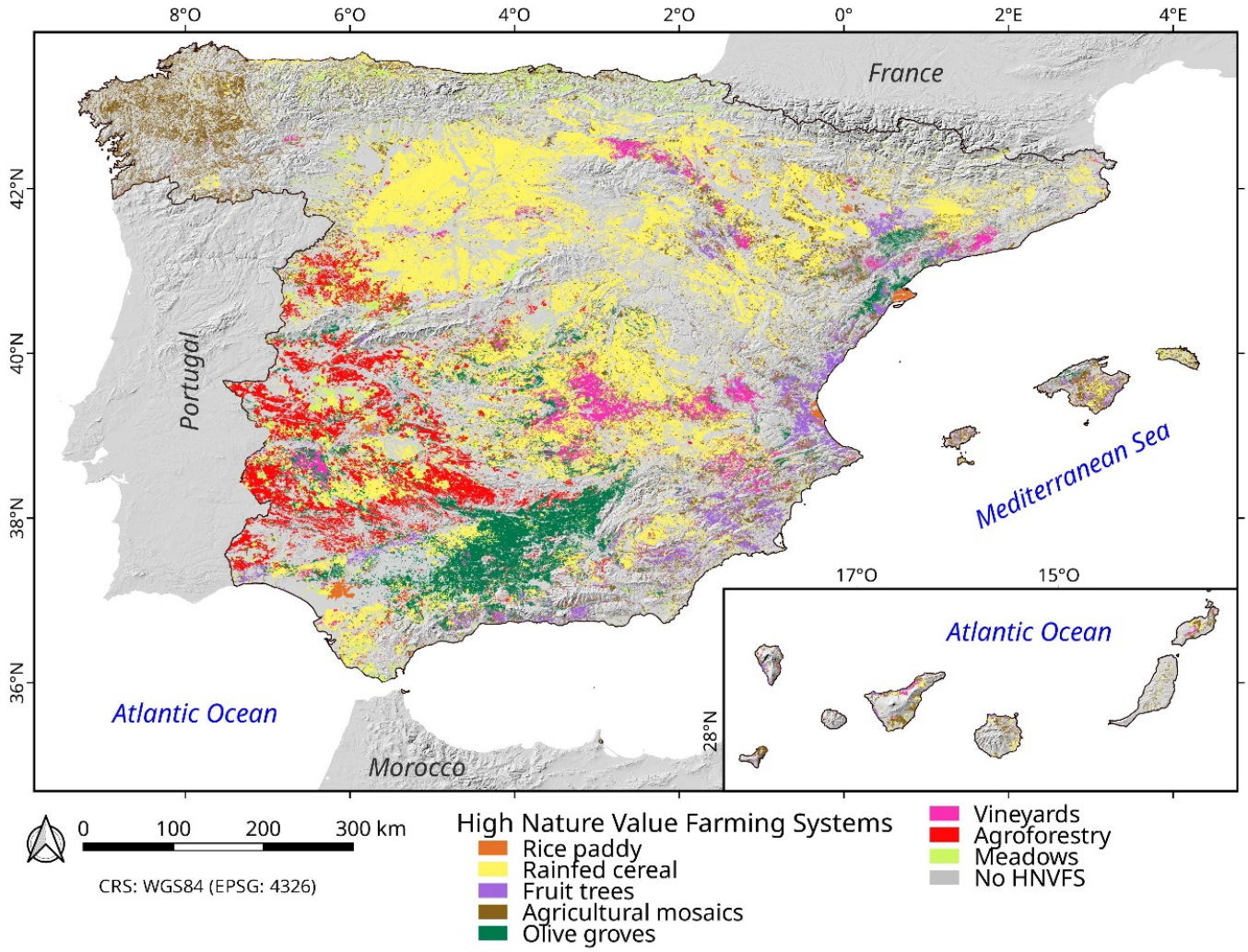

Figure 3. Potential high nature value farming systems. Sources: Prepared by authors, based on CORINE Land Cover 2018 [51].

There is a very high number of PDOs in Spain. Their sum total (8400) even exceeds the number of municipalities (8131), which implies that various PDOs meet in some of these [44]; consequently, their cartography is not very significant. In absolute terms, PDOs are concentrated in the GIP&C (4760) and M&HL (3237) models. The M&HL/MP and M&HL models stand out in relation to the agrarian surface (10.8 and 4.9 PDOs per 10,000 ha of agricultural land) (Table 7).

Table 7. Proximity in MUTAS (Database available in Supplementary Materials, Database S1).

	No. PDO	PDO (%)	PDO/ 10,000 ha Agrarian Land
MP	217	39	2.9
M&HL	3237	3	4.9
GIP&C	4760	57	2.8
M&HL/MP	186	2	10.8
TOTAL	8400	100	3.5

Sources: [44,51].

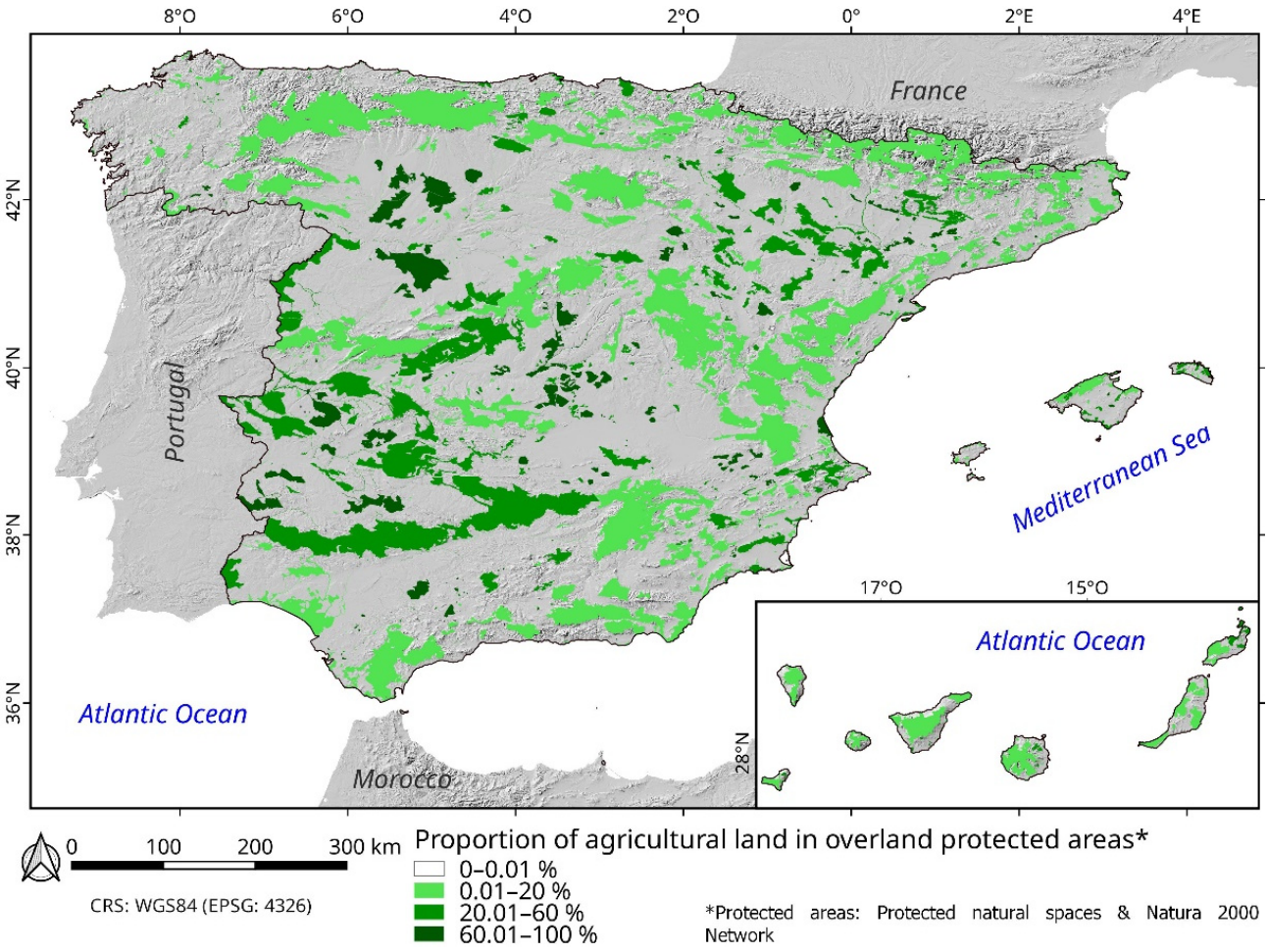

Figure 4. Farming in protected areas. Sources: Prepared by authors, based on CORINE Land Cover 2018 [51,53].

4.2.3. Multifunctionality and Governance as Prospects of the MUTAS

- Agricultural multifunctionality and rural multifunctionality in the MUTAS

The multiple functions of agriculture are inherent in all MUTAS but the facets of the dominant functional dimensions vary from model to model (Table 8). The productive function is the most important in the GIP&C model, whereas the environmental dimension dominates in the M&HL model. In the MP and M&HL/MP models, agriculture would fulfil the social-recreational and mixed (social-recreational/environmental) functions. The significance of agriculture and the MUTAS in territorial development is high or very high in the GIP&C model; medium–high and medium–low in the M&HL and M&HL/MP models, respectively, and low or very low in the MP model.

Table 8. Agricultural and rural multifunctionality.

	Dominant Functions in MUTAS (Agricultural or Intrinsic Multifunctionality)	Significance of MUTAS for Territorial Development (Rural or Extrinsic Multifunctionality)
MP	Social-recreational	Low/very low
M&HL	Environmental	Medium–high
GIP&C	Productive	High/very high
M&HL/MP	Mixed (socio-recreational/environmental)	Medium–low

Source: Prepared by authors.

- Governance situations

The governance situations and the instruments that foster governance differ depending on the territory and the model; Figure 5 helps to clarify their relationships:

- The nationwide proliferation of local action groups diminishes the analytical virtuality of this indicator. A total of 97% of the local action groups can be found in the GIP&C and M&HL models, whereas their presence is anecdotal in the remainder of the models.
- Agricultural parks are more selective of their location, both in respect of their location by model and where they are sited in geographical terms. They are concentrated in the MP model (72%) and on the Mediterranean coast (and are very widespread in the autonomous community of Catalonia).
- The GIAHS basically articulate governance in rural areas with depressed economies (Xenia olive groves in Tarragona province; raisin grapes in La Axarquía, in Malaga province; Valle Salado de Añara), although some examples also exist in metropolitan areas (Horta de València).

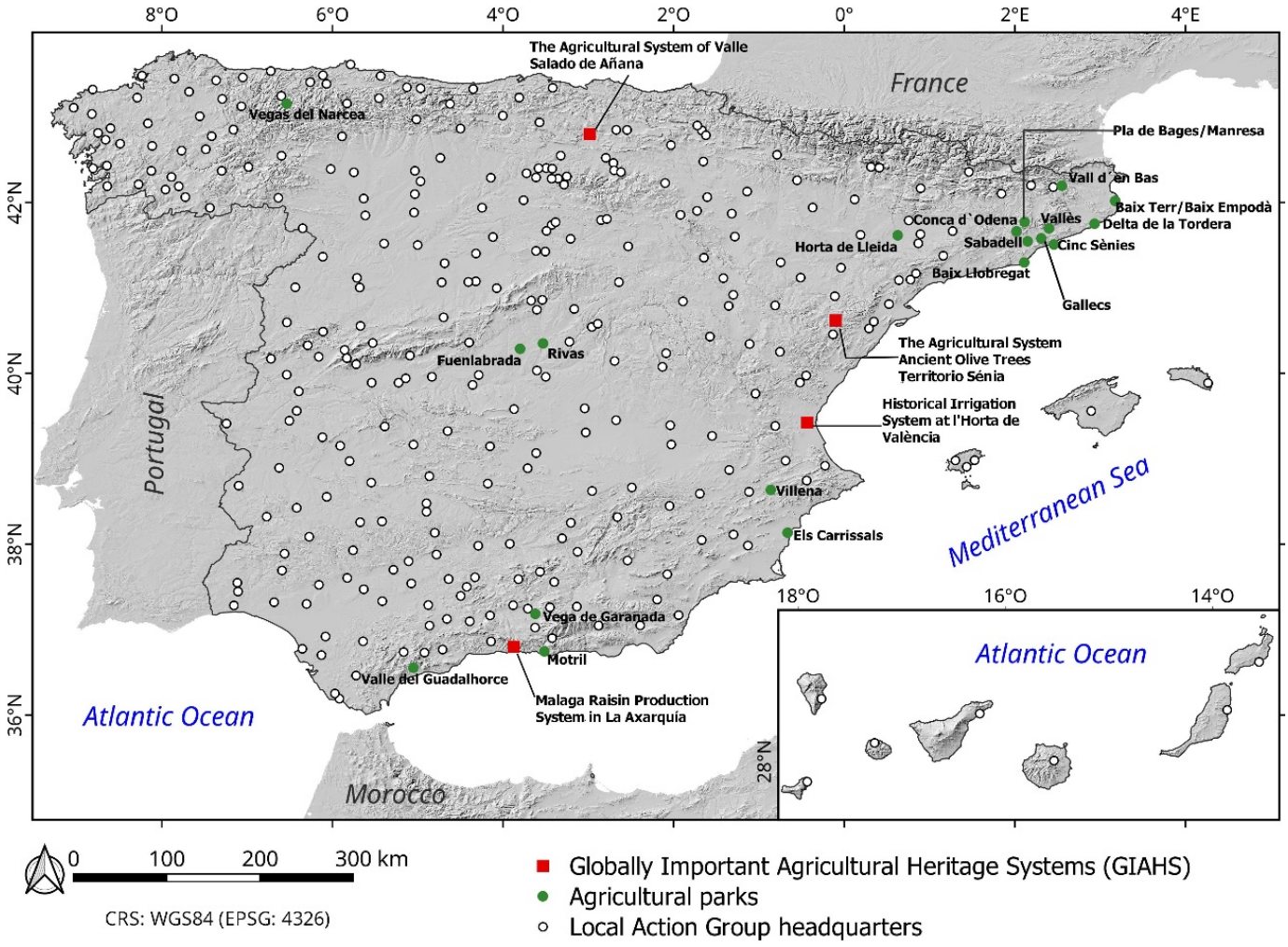

Figure 5. Governance in the MUTAS. Sources: Prepared by authors, based on [28], Ministry of the Environment and Rural and Marine Affairs [55] and FAO [56].

5. Discussion and Conclusions

5.1. Regarding Territorialised Agrifood Systems and the Specific Features of the MUTAS

Territorialised agrifood systems are attracting growing interest underlain by concern for the after-effects of the green revolution (biodiversity loss, soil and water pollution, territorial imbalances, emigration and demographic vacuums, trivialisation of heritage

and landscape deterioration [7,8]), unease about decoupling (of agriculture and territory, of the various agricultural phases, of production–processing–consumption, etc.) and disaffection with globalised agrifood (social, environmental, identity) [1]. In addition, all this is occurring at a time when climate change, rural depopulation and commitment to sustainable food value chains have invaded political sensitivities [11,12,68,69] and when the world of food is monopolising the attention of the media (food crises, excessive intake of high calorie and low nutrition foods, malnutrition and famines).

This interest is not new; the novelty lies in the joint treatment of the links in the food chain (production–processing–consumption) and the use of the epithets 'territorial' or 'territorialised' that is associated with them, with different meanings and a common denominator: the assimilation of this territoriality to alternative patterns through which to address the outrageous excesses of intensive agriculture and the imbalances of neoliberal globalisation; and as a kind of antidote to overcome them.

Studies agree that territoriality is the core element of these systems but the ways that they understand it differ: as a milieu or environment (cultural and intangible), as distance (giving priority to proximity and short circuits), as locations (coordinates), and as expanses (surface area). Territoriality is seen to be skewed towards some specific scales (local), spatial areas (urban regions and high nature value spaces) and agrarian systems (traditional farming and areas of polyculture).

This article takes these assumptions into consideration and reorients them in three directions according to the specifics of the project and the MUTAS concept:

1. By considering two complementary scales in the analysis and prospects of these systems: local scales, condensers of their quintessence, the understanding of which (through specific analyses or case studies) is put off for later project developments; and general or state scales, less addressed in studies and considered essential in prospective and programmatic terms. This article addresses the latter. This article is also aware of the complexity of the concept of territory in its multiple meanings and conceives it as two-dimensional: as a political space expressed in administrative units that nest inside one another (in the Spanish case: municipalities, provinces, autonomous communities, state) and as a space conceptualised in geographical terms and expressed in territorial structures (topographical and hydrographical frameworks and of other exponents of the physical environment, land use, settlement units, etc.), with more diffuse boundaries that do not always coincide with the contours of the political and administrative space.
2. By taking multifunctionality as an inherent feature of these systems and their prospects with a dual meaning (agricultural and rural). Agricultural multifunctionality, as it was defined at the Rio de Janeiro Earth Summit (1992), starts with the recognition that croplands not only supply society with food and raw materials but also public goods (environmental, landscape, cultural, heritage, etc.) [57,70]. Despite being considered 'non-commercial', their economic reversibility is undeniable, to the point that some agricultural systems bring in a greater amount of revenue through the valorisation of their landscapes and heritage as leisure and entertainment spaces than their productive merchandise; Spanish pastures and the Portuguese *montado* are examples of this [71]. Rural multifunctionality was first set out in the document, 'The Future of the Rural World' [72], and is related to economic diversification and the search for alternative activities to farming (especially rural tourism) and territorial development projects. Studies and norms rarely distinguish between these two multifunctionalities and their complementarities. Their differentiated and interlinked understanding is one of the MUTAS project's contributions. In MUTAS, agricultural multifunctionality is assimilated to the various functional dimensions of agriculture (intrinsic multifunctionality). Rural multifunctionality corresponds to the roles played by the MUTAS in the development of the territories in which they are located (extrinsic multifunctionality).
3. Another particularity is the vindication of agriculture as a fundamental and essential component: if there is no agriculture, there are no MUTAS. This might appear

obvious were it not for the fact that a fast-growing number of studies are focusing on consumption and the last links in the food chain [73], whereas the agricultural component is becoming diluted or disappearing.

MUTAS are territories with projects focused on agriculture and articulated locally, although they can be addressed on a range of spatial scales.

5.2. Regarding the Methodological Approach Used to Address MUTAS on the Spanish State Scale and Source Limitations

There is not the same wealth of works with methodological approaches to the study of territorialised agrifood as on the topic itself. The spatial scales on which the systems are projected are not explicitly stated. In recent years, the proposals that have proliferated have been focused on measuring the sustainability and environmental impact of food systems on the world scale [47,48,74] or in reference to state and regional administrative units [75,76]. None disaggregates the information on the local scale (municipal or district), as this study seeks to do.

The specialist literature focuses, above all, on piecemeal studies with case studies analysed using inductive methodological procedures [9,77]. Whilst recognising their importance, this article calls for a deductive focus and state scales but analysed with municipal scale indicators. There are precedents to this proposal in studies of industrial districts and local productive systems [32,78], underpinned by an epistemology that is closely related to that of territorialised agrifood systems.

The deductive procedure is developed and matched to the meaning of political and administrative space on the Spanish State scale; however, it is addressed from the complex perspective of geographical territory expressed as the three MUTAS territorial models preestablished as a working hypothesis (MP, M&HL and GIP&C). After contrasting these models spatially, they are converted into independent variables or differentiated territorial areas that are used as the study object in the rest of the analysis. Thus, these systems' dimensions or basic features (spatiality, sustainability, proximity, governance and multifunctionality) are identified and turned into analytical arguments for their characterisation and predictive analysis using municipalised indicators that are later aggregated in the aforementioned territorial models.

This challenge was not without its difficulties related to the sources being widely dispersed across regional governments, and the lack of standardisation; there were also issues with obsolescence and delay. Indirect indicators and metadata had to be used, which did not always yield significant results.

The preliminary location of the models was also difficult. As maximum spatial disaggregation was required (municipal), some sources had to be discarded and various test runs had to be made. Some indicators also had to be rejected, such as the official records of livestock breeds and autochthonous seeds, and others related to biodiversity, given the problems that their transfer to cartography presented.

Some indicators did not yield the expected results. Such was the case of the PDOs. The indicator is appropriate: compared to other indications (protected geographical indications, guaranteed traditional specialties, de la Tierra products, etc.), one distinctive feature of PDOs is that all their phases (production, processing and preparation or manufacture) must be established in their geographical demarcations. However, despite being the correct choice, their spatial transfer is not very significant: practically the whole of the Spanish territory is affected by one or several PDOs and this diminishes the virtuality of a quality indication that, in principle, should be discriminatory. Some studies have been plagued by these and other defects [79].

The use of ecological farming as an exponent of sustainability has also presented some difficulties [80]. Despite its evaluation being based on microdata [52], the fact that the information was spread across the seventeen autonomous communities pointed to inaccurate results. However, the problem went deeper: the products (agricultural and livestock) and processes (in agro-industrial production, such as wines, vegetable oils, and

cheeses) are tested by certifying companies, not territories. This would require a step up in the scale (from product–company to territory–space) which is not envisaged in current ecological certification logic. Some studies propose alternative indications such as regenerative agriculture [81].

The territorialised agrifood paradigm requires territorialised sources and indicators, which calls for advances in their standardisation and inter-administration coordination. The indicators themselves also need to be rethought, including those such as ecological farming that are viewed as 'sacred' endorsed exponents of sustainability (in agro-environmental measures, eco-conditionalities, and eco-schemes, among other CAP measures).

5.3. Regarding the Application of the Methodological Approach on the Spanish State Scale

Notwithstanding all the above-mentioned difficulties, it has been possible to demonstrate that the analytical approach on the Spanish State scale is not only necessary but feasible, despite all the difficulties that it presents. This approach would also seem to be a must: both to discriminate these systems from intensive and industrial systems and because this is what is required by the prospective nature of MUTAS and Eco schemes, and the central government's role in dialogue and programmatic management in the lead-up to the agroecological transition.

The results have been enlightening. The identification of different MUTAS models has shown itself very useful for their differentiated territorial characterisation and advancing in their prospects. A mixed model (M&HL/MP) has been found to exist that was not initially envisaged, the result of the convergence of metropolitan spaces and mountain areas.

In keeping with their demographic weight, the main centres of agrifood logistics, distribution and consumption characterise the metropolitan model (MP). Farming is a residual activity in this model and occupies interstitial spaces in the diffuse city, in disorderly and chaotic landscapes [82]; this corresponds to a lower relative presence of ecological and high nature value farming. Even so, despite its role being trivial in economic terms and in the generation of employment, the surface area occupied by farming continues to be considerable (52% of the total area, which demonstrates that agriculture remains a use with a high presence in Spanish urban agglomerations). In conjunction with the presence of a critical mass of citizens interested in agrifood's sustainability and the heritage and identity values of cropland [83], this contributes to the creation of agricultural parks and other governance systems [28]. Proximity and governance are the defining features of the metropolitan model, in which agriculture plays a landscape and recreational role (integrating the public free-space networks); a lack of order and unsustainability are the main stumbling blocks.

The mountains and highlands model (M&HL) occupies a particularly large surface area of mountains, plateaux, and peneplains in the geography of Spain. Its population is insignificant and agrifood is in freefall due to both the limitations imposed by the physical environment and the population vacuums generated by the emigration processes that began in the 1960s [84]. The presence of land that is unworkable or restricts agriculture (rocks, steep inclines, agrologically meagre soil, extreme climates) explains the extremely low significance of useful agricultural areas (28%). Sustainability, expressed as natural wealth (protected natural areas) and high nature value ecological farming, is the M&HL model's most important defining feature, with agriculture's environmental and landscape roles taking precedence over its productive role. Even so, agriculture and livestock farming are still relatively important for its economic structure and are crucial for its development strategies. The lack of initiatives and projects is an obstacle that rural development programmes are trying to overcome in the recovery of agricultural systems, but without much success [85].

The great inland plains and coasts model (GIP&C) stands out for its large proportion of useful agricultural surface (67%). Together with its location in particularly agrologically-rich sedimentary and alluvial territories, this confirms its assimilation to productive agriculture. The importance of the protected designations of origin for its useful agricultural space is an endorsement of the productive-commercial function of its farming. It also plays

a considerable environmental role, particularly in rice, cereal, and olive growing areas that coincide with special protection areas for birds (SPABS). This latter would explain the significance of high nature value farming systems in this model.

The mixed model (M&HL/MP) does not cover a very large area (0.58 million ha). Its agricultural surface is proportionately low due to its mountainous nature, which, in other respects, affords it high levels of intrinsic sustainability (it is the model with the greatest proportion of ecological practices) and extrinsic sustainability (declared protected areas account for 20% of its surface area). Its urban nature also results in major population and market volumes, which are to the benefit of proximity and governance. In short, this is a model that combines two of the most important features of territorialised agrifood systems—proximity and sustainability—and needs to be further investigated.

5.4. Conclusions and Possible Future Research Lines

This analysis has enabled advances to be made in the study of internal differentiations in the Spanish territorialised agrifood system through the use of a methodological approach supported by solid epistemological bases, sources and indicators that give insights into the distinctions and differences between the territorial models. Despite being extremely challenging and difficult, this work has allowed progress in the characterisation of these systems at a scale (the Spanish State scale) that is innovative (as it is not commonly used in these studies) and a necessity (in a decentralised state where international dialogue is carried out by the central government while administrative competencies come under the 17 autonomous communities) and, in addition, regarding the internal differentiations of the MUTAS and their models; an aspect that is also inherent in a very extensive state with many contrasting features (in physical, human and agrifood terms).

Nonetheless, there is still a long way to go. The detection of contradictions and gaps in some of the sources and virtualities in others will enable future works to make further headway in several different directions: (i) a better characterisation of the MUTAS and their models with weighted analyses of dimensions and variables and aided by the recent publication of the latest Agricultural Census (unavailable when this article was being written); (ii) a deeper look at their prospects, for which statistical sources do not provide any significant data, which requires the selection of case studies that are representative of each of the models and that must be analysed with quantitative sources that are already being trialled (surveys and interviews); (iii) a deeper examination of the mixed M&HL/MP model, the quintessential condenser (of the sustainability and proximity of these systems) is another direction that can be explored.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su141911900/s1, Database S1: Statistics by municipalities.

Author Contributions: G.G.-R.: Conceptualisation, methodology; formal analysis; research; writing—original draft; writing—review and editing; visualisation; supervision; project administration; funding acquisition. R.S.-P.: Conceptualisation; methodology; research; writing—original draft; writing—review and editing; supervision; project administration; funding acquisition. F.C.-G.: Formal analysis; data curation; visualisation; writing—review and editing. All authors have read and agreed to the published version of the manuscript.

Funding: Grant PID2019-105711RB-C62 funded by MCIN/AEI/10.13039/501100011033.

Informed Consent Statement: Not applicable.

Data Availability Statement: The databases used in this research are referenced as sources: [52,61,63,66].

Acknowledgments: We thank the three anonymous reviewers whose suggestions have substantially improved this manuscript.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study, in the collection, analysis or interpretation of data, in the writing of the manuscript, or in the decision to publish the results.

References

1. Wiskerke, J.S.C. On places lost and places regained: Reflections on the alternative food geography and sustainable regional development. *Int. Plan. Stud.* **2010**, *14*, 369–387. [CrossRef]
2. Lamine, C.; Renting, H.; Rossi, A.; Wiskerke, J.S.C.; Brunori, G. Agri-Food systems and territorial development: Innovations, new dynamics and changing governance mechanisms. In *Farming Systems Research into the 21st Century: The New Dynamic*; Darnhofer, I., Gibbon, D., Dedieu, B., Eds.; Springer: Dordrecht, The Netherlands, 2012; Volume 3, pp. 154–196. [CrossRef]
3. Muchnik, J.; Sautier, D. *Proposition D'action Thématique Programmée: Systémes Agroalimentaires Localisés et Construction de Territoires*, 3rd ed.; CIRAD: Montpellier, France, 1998.
4. Muchnik, J.; de Sainte Marie, C. (Eds.) *Le Temps des SYALs. Techniques, Vivres et Territoires*; QUAE: Versailles, France, 2010.
5. Bowen, S.; Mutersbaugh, T. Local or localized? Exploring the contributions of Franco-Mediterranean agrifood theory to alternative food research. *Agric. Hum. Values* **2014**, *31*, 201–213. [CrossRef]
6. Goodman, D.; DuPuis, E.M.; Goodman, M.K. *Alternative Food Networks. Knowledge, Practice and Politics*; Routledge: London, UK, 2011.
7. Lamine, C.; Bui, S.; Ollivier, G. Pour une approche systémique et pragmatique de la transition écologique des systèmes agri-alimentaires. *Cah. Rech. Sociol.* **2015**, *58*, 95–117. [CrossRef]
8. Bui, S.; Cardona, A.; Lamine, C.; Cerf, M. Sustainability transitions: Insights on processes of niche-regime interaction and regime reconfiguration in agri-food systems. *J. Rural. Stud.* **2016**, *48*, 92–103. [CrossRef]
9. Lamine, C.; Garçon, L.; Brunori, G. Territorial agrifood systems: A Franco-Italian contribution to the debates over alternative food networks in rural areas. *J. Rural. Stud.* **2019**, *68*, 159–170. [CrossRef]
10. Fournier, S.; Muchnik, J. El enfoque "SIAL" (Sistemas Agroalimentarios Localizados) y la activación de los recursos territoriales. *Agroalimentaria* **2012**, *18*, 133–144. Available online: https://www.redalyc.org/pdf/1992/199222712011.pdf (accessed on 1 February 2022).
11. European Commision. Strategic Communication "From Farm to Fork". A Healthier and More Sustainable EU Food System Is a Cornerstone of the European Green Deal; European Commision. 2020. Available online: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/farm-fork_en (accessed on 13 December 2021).
12. European Commision. EU Biodiversity Strategy for 2030. Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions; Brussels, 20.05.2020; European Commision. 2020. Available online: https://ec.europa.eu/info/sites/default/files/communication-annex-eu-biodiversity-strategy-2030_en.pdf (accessed on 1 February 2022).
13. Rodríguez, A.G. *Agenda 2030 Para el Desarrollo Sostenible y Sistemas Alimentarios Sostenibles: Una Propuesta Para la Formulación de Políticas Integradoras*; CEPAL: Santiago de Chile, Chile, 2017; Available online: https://repositorio.cepal.org/handle/11362/42356?show=full (accessed on 29 September 2021).
14. Atlas de los Paisajes de España, Ministerio para la Transición Ecológica y el Reto Demográfico. Available online: https://www.miteco.gob.es/es/biodiversidad/servicios/banco-datos-naturaleza/informacion-disponible/Paisajes_descargas.aspx (accessed on 24 October 2021).
15. Molinero, F.; Tort, J. *(Coords.) Paisajes Patrimoniales de España*; Ministerio para la Transición Ecológica and Universidad Autónoma de Madrid: Madrid, Spain, 2018.
16. Deverre, C.; Lamine, C. Les systèmes agroalimentaires alternatifs. Une revue de travaux anglophones en sciences sociales. *Économie Rural.* **2010**, *3*, 57–73. [CrossRef]
17. Ollivier, G.; Magda, D.; Mazé, A.; Plumecocq, G.; Lamine, C. Agroecological transitions: What can sustainability transition frameworks teach us? An ontological and empirical analysis. *Ecol. Soc.* **2018**, *23*, 5. [CrossRef]
18. González De Molina, M.; Lopez-Garcia, D. Principles for designing Agroecology-based Local (territorial) Agri-food Systems: A critical revision. *Agroecol. Sustain. Food Syst.* **2021**, *45*, 1050–1082. [CrossRef]
19. Wezel, H.; Brives, M.; Casagrande, C.; Clément, A.; Dufour, P.; Vandenbroucke, P. Agroecology territories: Places for sustainable agricultural and food systems and biodiversity conservation. *Agroecol. Sustain. Food Syst.* **2016**, *40*, 132–144. [CrossRef]
20. Rosset, P.M.; Torres, M.E.M. Agroecology, territory, re-peasantization and social movements. In *Estudios Sociales. Revista de Alimentación Contemporánea y Desarrollo Regional*; Centro de Investigación en Alimentación y Desarrollo: Hermosillo, Mexico, 2016; Volume 25, pp. 275–299. Available online: https://www.ciad.mx/estudiosociales/index.php/es/article/view/318 (accessed on 2 September 2021).
21. Vaarst, M.; Escudero, A.G.; Chappell, M.J.; Brinkley, C.; Nijbroek, R.; Arraes, N.A.M.; Andreasen, L.; Gattinger, A.; Almeida, G.F.D.; Bossio, D.; et al. Exploring the Concept of Agroecological Food Systems in a City-Region Context. *Agroecol. Sustain. Food Syst.* **2017**, *42*, 686–711. [CrossRef]
22. Jarosz, L. The city in the country: Growing alternative food networks in Metropolitan areas. *J. Rural. Stud.* **2008**, *24*, 231–244. [CrossRef]
23. Morris, C.; Kirwan, J. Ecological embeddedness: An interrogation and refinement of the concept within the context of alternative food networks in the UK. *J. Rural. Stud.* **2011**, *27*, 322–330. [CrossRef]
24. López García, D.; Pontijas Ramiro, B.; González de Molina, M.; Delgado Cabeza, M.; Guzmán Casado, G.I.; Infante-Amate, J. Saltando de escala … ¿hacia dónde? El papel de los actores convencionales en los sistemas alimentarios alternativos. *Ager Rev. Estud. Sobre Despoblación Desarro. Rural.* **2018**, *25*, 99–127. [CrossRef]
25. Fanfani, D.; Magnaghi, A. Il parco agricolo, un nuevo instrumento para la planicación del territorio abierto. In *Patto Cittá Campagna. un Progetto di Bioregione Urbana per la Toscana Centrale*; Magnaghi, A., Fanfani, D., Eds.; Alinea: Firenze, Italy, 2010; pp. 154–196.

26. Sazada, I. Multifunctional peri-urban agricultura-A review of societal demands and de provision of goods and services by farming. *Land Use Policy* **2011**, *28*, 639–648. [CrossRef]
27. Filippini, R.; Lardon, S.; Bonari, E.; Marraccini, E. Unraveling the contribution of periurban farming systems to urban food security in developed countries. *Agron. Sustain. Dev.* **2018**, *38*, 21. [CrossRef]
28. Zazo Moratalla, A.; Paül, V. What is an Agricultural Park? Observations from the Spanish Experience. *Land Use Policy* **2022**, *112*, 105584. [CrossRef]
29. Iacoponi, L. *Dal Distretto Agricolo al Distretto Rurale in Valorosi F. (a cura di), Lo Sviluppo del Sistema Agricolo Nell'economia Post-Industriale*; Franco Angeli: Milan, Italy, 2002.
30. Toccaceli, D. Agricultural districts in the Italian regions: Looking toward 2020. *Agric. Econ.* **2015**, *3*, 14. [CrossRef]
31. Becattini, G. Distrettualità tra industria e agricoltura. QA. *Riv. Dell'assoc. Ross.-Doria* **2000**, *2*, 1000–1016.
32. Sforzi, F.; Mancini, M.C. A reinterpretation of the agri-food system and its spatial dynamics through the industrial district. In *Local Agri-Food Systems in a Global World: Market, Social and Environmental Challenges*; Arfini, F., Mancini, M.C., Donati, M., Eds.; Cambridge Scholars Publishing: Newcastle, UK, 2012; pp. 9–27.
33. Pecqueur, B. Territoire, territorialité et développement. In Proceedings of the Actes du Colloque international, Industrie et Territoire: Les Systèmes Productifs Localisés, Grenoble, France, 21–24 October 1992.
34. Pachoud, C.; Labeyrie, V.; Polge, E. Collective action in Localized Agrifood Systems: An analysis by the social networks and the proximities. Study of a Serrano cheese producers' association in the Campos de Cima da Serra/Brazil. *J. Rural. Stud.* **2019**, *72*, 58–74. [CrossRef]
35. Ramírez-García, S.; Mancha-Cáceres, O.M.; Del Canto-Fresno, C. Las agriculturas territorializadas, oportunidades y retos frente al paradigma agroindustrial. *Doc. D'anàlisi Geogràfica* **2016**, *62*, 636–660. [CrossRef]
36. Esparcia Pérez, J.; Escribano Pizarro, J. La dimensión territorial en la programación comunitaria y el nuevo marco de políticas públicas: Desarrollo rural territorial, reforma de la PAC y nuevo LEADER. *An. Geogr. Univ. Complut.* **2012**, *32*, 227–252. [CrossRef]
37. L'agricoltura Biologica per lo Sviluppo Territoriale: L'esperienza dei Distretti Biologici. Available online: https://www.reterurale.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/19806 (accessed on 18 January 2022).
38. Bele, B.; Norderhaug, A.; Sickel, H. Localized agri-food systems and biodiversity. *Agriculture* **2018**, *8*, 22. [CrossRef]
39. Schmitz, M.F.; Arnaiz-Schmitz, C.; Sarmiento-Mateos, P. High Nature Value Farming Systems and Protected Areas: Conservation Opportunities or Land Abandonment? A Study Case in the Madrid Region (Spain). *Land* **2021**, *10*, 721. [CrossRef]
40. Esparcia, J.; Abbasi, F. *Territorial Governance and Rural Development: Challenge or Reality?* Cejudo, E., Navarro, F., Eds.; Springer: New York, NY, USA, 2020; pp. 33–60. [CrossRef]
41. Gómez Benito, C.; Lozano, C. ¿Consumidores o Ciudadanos? Reflexiones Sobre el Concepto de Ciudadanía Alimentaria. *Panor. Soc.* **2014**, 19. Available online: https://www.funcas.es/wp-content/uploads/Migracion/Articulos/FUNCAS_PS/019art07.pdf (accessed on 22 February 2022).
42. Atlas Estadístico de las Áreas Urbanas. Available online: https://www.mitma.gob.es/portal-del-suelo-y-politicas-urbanas/atlas-estadistico-de-las-areas-urbanas (accessed on 8 December 2021).
43. Zonas Desfavorecidas de Montaña (Listado 28 March 2012). Available online: https://otri.ugr.es/media/files/proyectos/2007-2013%20ZONAS%20DESFAVORECIDAS%2028-03-2012.pdf (accessed on 15 January 2022).
44. Zonas de Calidad Diferenciada: Denominaciones de Origen Protegidas (DOP) e Indicaciones Geográficas Protegidas (IGP), Ministerio de Agricultura, Pesca y Alimentación. Available online: https://www.mapama.gob.es/ide/metadatos/index.html?srv=metadata.show&uuid=5210b5ac-557b-48d0-a8ef-138b08fbd970 (accessed on 11 October 2021).
45. Fundamentos Para la Definición de Zona de Montaña en España y Estudio de la Aplicación de la Aplicación de la Indemnización Compensatoria en Zonas de Montaña, Ministerio de Medio Ambiente. Available online: https://www.miteco.gob.es/es/biodiversidad/temas/ecosistemas-y-conectividad/fundamento_definicion_montania_tcm30-203351.pdf (accessed on 29 September 2021).
46. Zonas con Dificultades Especiales (Listado 6 May 2009). Available online: https://www.mapa.gob.es/eu/desarrollo-rural/temas/programas-ue/zonas_desfavorecidas_tcm35-151719.pdf (accessed on 15 January 2022).
47. Bené, C.; Prager, S.D.; Achicanoy, H.A.E.; Toro, P.A.; Lamotte, L.; Bonilla, C.; Mapes, B.R. Global map and indicators of food system sustainability. *Sci. Data* **2019**, *6*, 279. [CrossRef]
48. Chaudhary, A.; Gustafson, D.; Mathys, A. Multi-indicator sustainability assessment of global food systems. *Nat. Commun.* **2018**, *9*, 848. [CrossRef]
49. Oppermann, R.; Beaufoy, G.; Jones, G. *High Nature Value Farming in Europe*; Verlag Regionalkultur: Ubstadt-Weiher, Germany, 2012; Available online: https://verlag-regionalkultur.de/media/pdf/a1/3c/b2/bib_657_3.pdf (accessed on 15 September 2021).
50. Oñate, J.J.; Pereira, D.; Acebes, P.; García, E. *Propuesta Metodológica Para la Identificación y Valoración de Sistemas de Alto Valor Natural (Proyecto SAVN)*; WWF: Madrid, Spain, 2014.
51. Copernicus Global Land Service, 2021. CORINE Land Cover 2018. Available online: https://land.copernicus.eu/pan-european/corine-land-cover (accessed on 15 January 2021).
52. Encuesta de la Estructura de las Explotaciones Agrícolas, 2016, Instituto Nacional de Estadística. Available online: https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176854&menu=resultados&idp=1254735727106 (accessed on 15 June 2021).

53. Espacios Naturales Protegidos, Ministerio para la Transición Ecológica y el Reto Demográfico. Available online: https://www.miteco.gob.es/es/biodiversidad/servicios/banco-datos-naturaleza/informacion-disponible/ENP.aspx (accessed on 19 September 2021).
54. Red Natura 2000, Ministerio para la Transición Ecológica y el Reto Demográfico. Available online: https://www.miteco.gob.es/es/biodiversidad/servicios/banco-datos-naturaleza/informacion-disponible/red_natura_2000_inf_disp.aspx (accessed on 21 September 2021).
55. Grupos de Acción Local LEADER 2007-2013. Ministerio de Medio Ambiente y Medio Rural y Marino. Available online: https://www.mapa.gob.es/es/desarrollo-rural/publicaciones/publicaciones-de-desarrollo-rural/GRUPOS%20LEADER%202007-2013_tcm30-131210.pdf (accessed on 30 January 2022).
56. FAO. Globally Important Agricultural Heritage Systems 2021, Rome. Available online: https://www.fao.org/giahs/en/ (accessed on 8 May 2021).
57. Renting, H.; Rossing, W.A.H.; Groot, J.C.J.; Van der Ploeg, J.D.; Laurent, C.; Perraud, D.; Stobbelaar, D.J.; Van Ittersum, M.K. Exploring multifunctional agriculture. A review of conceptual approaches and prospects for an integrative transitional framework. *J. Environ. Manag.* **2009**, *90*, 112–123. [CrossRef]
58. Silva-Pérez, R. Multifuncionalidad agraria y territorio. Algunas reflexiones y propuestas de análisis. *Eure* **2010**, *36*, 5–33. [CrossRef]
59. Moyano Estrada, E. La agricultura española entre el reconocimiento, la incertidumbre y la oportunidad. *Economistas* **2021**, *171*, 55–63. Available online: https://digital.csic.es/handle/10261/237957 (accessed on 15 February 2022).
60. Silva-Pérez, R.; Fernández-Salinas, V. La consideración (y desconsideración) del territorio en los programas patrimoniales territoriales de la Unesco: Convención del Patrimonio Mundial, Programa Hombre y Biosfera (MaB) y Programa Internacional de Ciencias de la Tierra y Geoparques. *Boletín Asoc. Geógrafos Españoles* **2020**, *86*, 1–44. [CrossRef]
61. Contabilidad Nacional de España. Instituto Nacional de Estadística. 2021. Available online: https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736164439&menu=ultiDatos&idp=1254735576581 (accessed on 8 May 2020).
62. Arquitectura Verde de la PAC POST-2020. Profundizando en Eco-Esquemas. Available online: https://www.mapa.gob.es/es/pac/la-arquitectura-verde-de-la-PAC-POST-2020-eco-esquemas/ (accessed on 9 September 2021).
63. Encuesta de Población Activa, Instituto Nacional de Estadística. Available online: https://ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176918&menu=ultiDatos&idp=1254735976595 (accessed on 10 May 2020).
64. Zabalza, S.; Peiteado, C.; Carricindo, A.; Astrain, C.; Den Toom, M.; Velasco, M. *Sistemas de Alto Valor Natural: Análisis de la Programación de Desarrollo Rural 2014-2020. Medidas Agroambiente y Clima*; SeoBirdLife: Madrid, Spain; WWF: Gland, Switzerland; Gestión Ambiental de Navarra: Pamplona, Spain, 2017; Available online: http://awsassets.wwf.es/downloads/informe_pdr_agorambientales_y_savn_seoywwf.pdf (accessed on 4 November 2021).
65. Molinero, F. El espacio rural en España: Evolución, delimitación y clasificación. *Cuad. Geogr.* **2019**, *58*, 19–56. [CrossRef]
66. Nomenclátor Geográfico de Municipios y Entidades de Población, 2020, Instituto Geográfico Nacional. Available online: https://centrodedescargas.cnig.es/CentroDescargas/index.jsp (accessed on 7 July 2021).
67. Garzón-García, R.; Vega-Pozuelo, R. Ordenación de usos agrarios en áreas protegidas de media montaña mediterránea. Estudio de la Sierra Morena andaluza. *Investig. Geográficas* **2022**, *77*, 279–301. [CrossRef]
68. FAO. Developing Sustainable Food Value Chains Guiding Principles. Food and Agriculture Organization of the United Nations 2014, Rome. Available online: https://www.fao.org/3/I3953E/i3953e.pdf (accessed on 18 January 2022).
69. Camarero, L. Los patrimonios de la despoblación. La diversidad del vacío. PH. *Boletín Inst. Andal. Patrim. Histórico* **2019**, *27–28*, 50–69. [CrossRef]
70. Van Huylenbroeck, G.; Vandermeulen, V.; Mettepenningen, E.; Verspecht, A. Multifunctionality of Agriculture: A Review of Definitions, Evidence and Instruments. *Living Rev. Landsc. Res.* **2007**, *1*, 3. Available online: http://www.lrlr.landscapeonline.de/Articles/lrlr-2007-3/download/lrlr-2007-3Color.pdf (accessed on 8 January 2022).
71. Silva-Pérez, R. La dehesa vista como paisaje cultural. Fisonomías, funcionalidades y dinámicas históricas. *Ería* **2010**, *82*, 143–157. Available online: https://idus.us.es/bitstream/handle/11441/73747/Dialnet-LaDehesaVistaComoPaisajeCultural-3330772-1-15.pdf?sequence=1 (accessed on 14 September 2021).
72. Comisión Europea. El Futuro del Mundo Rural. Comunicación de la Comisión al Parlamento Europeo y al Consejo el 29 de julio de 1988. Boletín de las Comunidades Europeas Suplemento 4/88. Available online: http://repositori.uji.es/xmlui/bitstream/handle/10234/48437/Suplemento4-88..pdf?sequence=1 (accessed on 4 November 2021).
73. Almazán Castro, V.; Herrera Gil, M.; Escobar Cruz, M. *Sistemas Agroalimentarios Territorializados en España. 100 Iniciativas Locales Para una Alimentación Responsable y Sostenible*; Fundación CERAI y Fundación CARASSO: Valencia, Spain, 2019; Available online: https://cerai.org/wordpress/wp-content/uploads/2019/09/Cuaderno-aprendizajes-SAT-Carasso.pdf (accessed on 12 December 2021).
74. Talukder, B.; Hipel, K.; Van Loon, G. Developing Composite Indicators for Agricultural Sustainability Assessment: Effect of Normalization and Aggregation Techniques. *Resources* **2017**, *6*, 66. [CrossRef]
75. Fallah-Alipour, S.; Mehrabi Boshrabadi, H.; Zare Mehrjerdi, M.R.; Hayati, D. A Framework for Empirical Assessment of Agricultural Sustainability: The Case of Iran. *Sustainability* **2018**, *10*, 4823. [CrossRef]
76. de Carvalho, A.M.; Verly, E., Jr.; Marchioni, D.M.; Jones, A.D. Measuring sustainable food systems in Brazil: A framework and multidimensional index to evaluate socioeconomic, nutritional, and environmental aspects. *World Dev.* **2021**, *143*, 105470. [CrossRef]

77. Darolt, M.R.; Lamine, C.; Brandenburg, A.; Alencar, M.D.C.F.; Abreu, L.S. Redes alimentares alternativas e novas relações produção-consumo na França e no Brasil. *Ambiente Soc.* **2016**, *19*, 1–22. [CrossRef]
78. ISTAT. *Distretti Industriali e Sistemi Locali del Lavoro*; Collana Censimenti: Rome, Italy, 2006.
79. Pizarro-Gómez, A.; García Delgado, F.J.; Pérez-Mora, C. Cambios en la industria de transformación del cerdo ibérico en la Sierra de Huelva (2002–2020). *Cuad. Geográficos* **2021**, *60*, 203–224. [CrossRef]
80. González de Molina, M.; Alonso, A.M.; Guzman, G.I. La agricultura ecológica en España desde una perspectiva agroecológica. *Rev. Española Estud. Agrosoc. Pesq.* **2007**, *214*, 47–73. Available online: https://ageconsearch.umn.edu/record/167362 (accessed on 9 April 2021).
81. Rhodes, C.J. The imperative for regenerative agriculture. *Sci. Prog.* **2017**, *100*, 80–129. [CrossRef]
82. Lovell, S.T. Multifunctional urban agriculture for sustainable land use planning in the United States. *Sustainability* **2010**, *2*, 2499–2522. [CrossRef]
83. Sanz Sanz, E.; Yacamán, C.; Mata Olmo, R. Sistemas agroalimentaarios, apropiación del territorio a través de la alimentación. Los ejemplos de Aviñón y de Madrid. In *Cultura Territorial e Innovación Social: ¿Hacia un Nuevo Modelo metropolitano en Europa del Sur?* Baron-Yelles, N., Romero González, J., Eds.; Universidad de Valencia: Valencia, Spain, 2018; pp. 449–471. Available online: https://parqueagrariofuenlabrada.es/wp-content/uploads/2018/06/Sanz-Yacaman-Mata_2018.pdf (accessed on 18 October 2021).
84. Delgado Urrecho, J.M. 2018. Más allá del tópico de la España vacía: Una geografía de la despoblación. In *Informe España 2018*; Blanco, A., Chueca, A., López-Ruiz, J.A., Mora, S., Eds.; Universidad Pontificia Comillas: Madrid, Spain, 2018; pp. 232–295. Available online: http://uvadoc.uva.es/handle/10324/38457 (accessed on 22 January 2022).
85. Navarro, F.A.; Woods, M.; Cejudo, E. The LEADER Initiative has been a Victim of Its Own Success. The Decline of the Bottom-Up Approach in Rural Development Programmes. The Cases of Wales and Andalusia. *Sociol. Rural.* **2015**, *56*, 270–287. [CrossRef]