

# **Building the Urban Bioregion**

## Governance scenarios for urban and territorial planning

Edited by

Anna Maria Colavitti and Sergio Serra



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# RST

## RICERCHE E STUDI TERRITORIALISTI

COLLANA DIRETTA DA

Filippo Schilleci

La Collana *Ricerche e Studi Territorialisti*, pubblicata dalla SdT Edizioni, nasce da una precisa volontà della Società dei territorialisti e delle territorialiste. Le ragioni che hanno portato a questa scelta sono molteplici.

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## CONTENTS

<b>Introduction</b>	8
<i>Anna Maria Colavitti, Sergio Serra</i>	
SECTION I – THEORIES, IDEAS AND FORERUNNING EXPERIENCES. BIOREGIONAL FUNDAMENTALS AS TERRITORIAL DEVELOPMENT MODELS	
<b>The roots of the urban bioregion in the thinking of Patrick Geddes: from knowledge to citizens' involvement to build a new living</b>	12
<i>Maria Rita Gisotti</i>	
<b>Biomimicry as a tool for territorial planning</b>	25
<i>Matteo Trincas</i>	
<b>Exploitation of resources and human complexity: bioregional visions of territory as tools for overcoming the 'long century'</b>	38
<i>Fabio Parascandolo</i>	
<b>D'un SCoT prescriptif à un SCoT animateur: un retour aux sources de la proposition territorialiste biorégionale</b>	52
<i>Emmanuelle Bonneau</i>	
<b>Sardinia in hard changing times. Reflections on territory and new development models</b>	65
<i>Anna Maria Colavitti</i>	
<b>Conservation and bioregionalism. A methodological contribution for trans-disciplinary transitions</b>	81
<i>Donatella Rita Fiorino</i>	
<b>HORTUS CONCLUSUS. The Garden at the heart of Bio-region. Interpretations of idea of 'microclimate garden' into the city and landscape construction.</b>	92
<i>Adriano Dessì</i>	

SECTION II – PROJECTS  
BIOREGIONAL GOOD PRACTICES IN EUROPE

<b>Sustainable Urban-Rural Relationships in Romania within the Paradigm of Urban Bioregionalism</b>	<b>108</b>
<i>Oana-Ramona Ilovan, Ioana Alexandra Ciupe, Marian Marin</i>	
<b>Impacts territoriaux de la congestion urbaine et trajectoires d'évolution des différents sous-espaces de l'aire métropolitaine bordelaise</b>	<b>134</b>
<i>Ghislaine Deymier, Frédéric Gaschet</i>	
<b>Metropolitan places for bioregional projects: hypothesis of federative strategies between metropolis and bioregion for French regional planning</b>	<b>164</b>
<i>Luana Giunta</i>	
<b>The broken bond: unveiling the contribution of farmers in planning the transition spaces</b>	<b>179</b>
<i>Mirko Greco, Luca Lazzarini</i>	
<b>Architectural Stenobionts. The importance of bio-micro-interventions in the urban structure of Poznań</b>	<b>201</b>
<i>Maciej Janowski</i>	
<b>Protection of urban greenery as part of a Bioregion</b>	<b>213</b>
<i>Agnieszka Janowska</i>	
<b>Good practises in special order and urban planning at the beginning of XXI century. Polish approach.</b>	<b>225</b>
<i>Adam Nadolny</i>	
<b>The system of protected areas as the core element in a new vision of the Metropolitan City of Palermo</b>	<b>244</b>
<i>Filippo Schilleci</i>	
<b>Bioregional experimentations in Central Tuscany: the Left Bank of Arno Agricultural Park project and the Montalbano Organic District</b>	<b>257</b>
<i>Elisa Butelli</i>	

SECTION III - NEW LOCAL APPROACHES  
BIOREGIONAL EXPERIENCES IN SARDINIA REGION

<b>City-Countryside. Principles, invariants and project.</b>	<b>272</b>
<i>Carlo Atzeni, Francesco Marras</i>	
<b>Smart Tourism Governance for Urban Bioregion: An Evaluating Approach to the Relationship between Coastal and Inland Areas of South Sardinia</b>	<b>290</b>
<i>Alfonso Annunziata, Giulia Desogus, Chiara Garau</i>	
<b>A possible network of agreement for Santa Gilla lagoon in Cagliari</b>	<b>310</b>
<i>Michela Mascia</i>	
<b>Bioregional planning for the recovery and valorisation of military heritage in small Mediterranean islands. The experience of San Pietro island in Sardinia</b>	<b>326</b>
<i>Alessia Usai</i>	
<b>Local identity and territorial patterns in the Cagliari's bioregion</b>	<b>343</b>
<i>Francesco Pes</i>	
<b>Territorial dynamics and settlement development in low-density areas. The case of Ogliastra in Sardinia</b>	<b>356</b>
<i>Alessio Floris, Sergio Serra</i>	
<b>Green infrastructure and protected areas: A study concerning Sardinia</b>	<b>373</b>
<i>Sabrina Lai, Federica Leone, Corrado Zoppi</i>	
<b>Collaborative geodesign: sustainable scenarios for the Cagliari metro area</b>	<b>393</b>
<i>Michele Campagna</i>	



SECTION III - NEW LOCAL APPROACHES  
BIOREGIONAL EXPERIENCES IN SARDINIA REGION

## City-Countryside. Principles, invariants and project

*Carlo Atzeni, Francesco Marras*

### Abstract

This research is part of active and long studies of the DICAAR of Cagliari, about the relationship between architectural and landscape design in historical, urban and rural contexts. The city and the field are the result of centuries-old stratifications whose forms-structures are based on long modifying processes and which offer the architect and planner a complex field of action. Understanding the rules of both is a necessity for conscious intervention and in which the construction of knowledge can support choices in action. Urban analysis, type-morphological studies, the relationship of historical textures and settlement fabrics represent the essential tools of reflection in which the place acquires a key role in the ability of the project to be located. Two research projects are proposed here: the support for the Detailed Plan for the historic center of the city of Cagliari and research for the rural landscapes of Sardinia, guidelines for the sustainable design of inland areas. These show different aspects of an operational model on the city and on the countryside that uses the project as a tool for continuous testing on the territory. The general approach is to intervene in a systemic and inter-scalar way, through a concrete implementation and acupuncture in the actions.

The research aims to define an operational strategy that reconsiders the role of private individuals within the city and landscape project, triggering new conditions and ways of using spaces, in favour of hybrid forms of habitat and production. In the first case, the project proceeds through guiding projects that allow to activate new dynamics of interaction between the historical itineraries of the consolidated city and the voids caused by the bombings of 1943. In the second case, instead, the aim is to define an operational strategy for the project in the rural landscape by rethinking the role of companies and their relationships with historical infrastructures and rural routes. The construction of a renewed form of partnership in the landscape and in the historic city produces complex and multifunctional services and spaces for the construction of dynamic places able to reactivate and strengthen an awareness of the territorial context.

KEYWORDS: historical city, rural landscape, research by project

## 1. Introduction

This paper describes the development of an ongoing research work on the transformation of consolidated contexts which is divided in two research branches developed by DICAAR for the historic city of Cagliari and for the rural and agricultural landscapes of the inland areas of Sardinia, aimed at exploring the multi-functionality of the existing production facilities and the resulting opportunities in terms of architectural innovation for the city and the countryside. The research work questions the role that architecture could play in an idea of land development which is based on new paradigms of cultural and settlement sustainability (DE MATTEIS, 2009), without prejudice to active protagonism and the deep-rooted nature of the local communities.

The city and the countryside are equally the outcome of overlapping layers of centuries-old building practices and propose a complex framework for the project of their transformation. The construction of a transformation language is deeply tied to the specific site and cannot be ascribed to ready-made models or solutions; it is rather configured as something that deeply penetrates places like a silent modification of the specific present (GREGOTTI, 1984). In the two areas, the question of modification is related to a maintenance and care-taking approach applied to a consolidated heritage consisting of buildings but also of a regional-scale system made up of paths, trails, settlements networks and of land, water and soil-shaping management devices, capable of imparting shape and structure to the landscape in a productive direction.

The rethinking of the historical city and of the historical landscape starts from the reading of dynamic structures which are still capable of answering in an effective way to the needs of the communities that live there, according to a procedural logic that is based on a continuous transformation of the space of the habitat. A design reflection which, both for the Countryside and the City, is based on a research for relevancy with regards to the sites, with the aim of proposing a modification in continuity (ROGERS, 1997) with local settlement traditions, consistent with historical values and with the memory of places, which therefore contributes to rewriting tradition while keeping it alive (BAUMAN, 2011) and which, at the same time, frames the territory as a historical construction (TURRI, 2002). Inside the given framework, this paper focuses on two experiences:

- on one hand, the City, through the consultancy work provided for the Detailed Plan for the Historic Centre of Cagliari, seen as a strategic and operational rethinking tool which is based on projects which have an inter-

- scalar approach capable of being “acupunctural” and systemic at the same time;
- on the other hand, the Countryside, through an ongoing guide project in Marmilla, a historical region of south-central Sardinia, whose development has aimed at creating a multi-scale relationship between the multi-functionality of farms and the sustainability of construction work, using an adaptive and resilient design strategy which is founded on principles of intervention reversibility and of reconfiguration over time of the transformation processes.

This work is part of the series of studies undertaken by the Region of Sardinia for the future extension of the intervention guidelines for inland areas included in the Regional Landscape Plan.

## 2. City and Countryside

According to Mumford, the city is the point of maximum concentration of the energy and culture of a society, and it represents the symbol of social relationships between people. It also expresses a more physical and productive aspect, related to working with the soil as a result of the long process of time in its construction and sedimentation action (MUMFORD, 1938). The productive nature of the city binds it directly to the field, to such an extent that it actually constitutes its *raison d'être*. In this sense, the case of Sardinia is paradigmatic, although the more strictly urban phenomenon is limitedly developed. Nevertheless, the settlement dimension of the city of Cagliari had always been, up to the last century, strongly linked to the production areas of the primary sector; in particular, to the proximity scale of the horticultural culture of the “*appoderamento*” in the periurban areas and of the viticulture in the hills close to the main urban centre, while at a larger scale, such settlement is more related to the open-field cereal production in the great plain of the Campidano and in the upland system mainly in Trexenta and Marmilla.

The rural past of the urban centre left traces of the structure and of the morphological and typological setting of the historical fabrics of the settlement: here, in fact, some portions of fabric include parts of the historical gardens which used to surround the urban nucleus; for example, in the district of Villanova, next to the liberty-style villas dating back to the end of the nineteenth century, there is a fabric which, although being mainly characterised by the Gothic plot and terraced houses, embraces a porosity generated by the inclusion of old orchards inside the blocks. The deep relationship between urban forms

and countryside forms is an interesting aspect of Sardinian settlements where the relationship between the village and the countryside is an indissoluble bond governed by long-lasting rules and settlement invariants which have allowed and allow for the management of the dwelling-countryside ecological cycle which has historically supported the agricultural economy. This bond is the reason for compact settlement centres as a protection of the countryside in Sardinia, often far from major centres and the very few cities on the Island and still poorly connected (ORTU, SANNA, 2008). The Marmilla, where the villages have been resisting for several decades with increasing difficulty against the phenomenon of depopulation and economic crisis, is a tangible expression of this historical structure: agriculture is the primary activity and resource of the area in which the settlement fabric, made of small compact villages which are thinly distributed throughout the territory, is overlapped by a dense infrastructure network with a “neuronal” character, constituted by the system of paths that connect the villages to the fields, defining the identity of the rural landscape.

Communities are nowadays affected by the lack of balance that during the long-lasting pre-modern tradition held them bonded to their territories. This regional area, in fact, has been exploring and applying for several decades a model of local development which refers less to an “industrial” dimension of mass tourism and more to sustainable forms of tourism which rely on the cultural and rural structure of the territory and on the quality of the resulting production and archaeological landscapes. This model is based on the recognition of the specific nature of farming practices, the quality of the product and the identity of places. The farms are in fact - as main players in the rural landscape system which together with the quality of products constitute the base of a renewed development model - capable of expanding their offer of services and of common goods inside the paradigm of multi-functionality (VAN DER PLOEG, 2003), starting from traditional production activities and their specialisations. The inner areas can then be reconsidered and designed both as recipients but also and especially as providers of collective goods and ecosystemic services that work on the short chain and on an economy which is more and more oriented towards the principle of the “zero km”. This idea of the rural farm that turns into a production device and common-goods supplier is not only referred to production, but also to aspects that are mostly related to the operation, care and maintenance of the territorial network and its structures. Among these, for example, there is the continuous maintenance action of all those structures that allowed for the active and productive conservation of the landscape, of its biodiversity and, more generally, of the traditions and cultural heritage that have generated it; we should also point out the importance of

actions such as the regeneration and hydraulic control, the use of renewable energies, the reduction of the factors and behaviours that produce pollution, the recycling and even social inclusion, local services (such as education and training) and leisure activities. These are non-reproducible goods and services related to the territory which play a role in safeguarding and taking care of it (MAGNAGHI, 2000; DE MATTEIS, 2009).

### *2.1 Self-sustainability as a principle*

In this framework, the research projects presented herein, acquire centrality in the definition of a caring action towards the landscape where resources and communities are capable of finding new conditions of interaction and balance.

The challenge is to redefine alternative and proactive forms of co-production and eco-shared services (REBOIS, 2018), which see the places of rurality and the plots of the consolidated city as a structural palimpsest from which to be generated, with the aim of attracting people back to their territory, through forms of (consortium and/or cooperative) self-organisation. We are therefore referring to the hybridisation between forms of organisation that relate to the urban dimension and those that relate to the rural space, in a continuous and mutual admixture, without prejudice to their own identity, which is constituted by a plurality of characters, and to their complementary historical functionality (inhabited space/village, rural space/countryside, walled city/historical paths) (ATZENI, DESSI, MOCCI, 2018).

From the rethinking of the role of private entities/individuals, in fact, it is possible to trigger active and shared conditions of space usage: hospitality, sales, promotion and training. These activities may be an integrating action for both the small farms in the countryside, whether these are historical farms or more structured and established companies, and the fabric of villages, with the aim of increasing the hybridisation between habitat and production and, at the same time, creating shared and self-representation spaces. In this way, activities with a public-cultural and collective character can find place in special rural districts, activating a renewed functionality and use of the agricultural landscape through the knowledge and rediscovery of its ecological and environmental features.

The research work focuses on the possibility of creating hybrid spaces, spaces of differences where new forms of relational space are capable of activating relationships between the public and private spheres, and increase the attractiveness, promoting economic and human resources according to a renewed paradigm of multi-functionality of the agricultural space. With these intentions, places can reactivate self-propulsive dynamics, restarting from their

heritage and the long-lasting elements which characterise them. The historical infrastructures and the ecological connections of the agricultural landscape running in parallel with the main paths and the roads which structure the urban areas, constitute the backbone of the territorial network. These are elements onto which we could fasten the design interventions and the measuring devices of the “acupunctural” operation, within limited and defined time intervals. In this sense, therefore, the paths that create a hierarchy and provide structure to the consolidated fabrics, constitute the body of the guide-projects which work on the walled city of Cagliari through the proposition of strategic and integrated transformations inside urban voids generated by the bombings of World War II which are still unused. The almost-random sequence of these voids, creates a new strategic potential at the urban and architectural scale, allowing for a morphological and typological rethinking in terms of permeability and porosity of fabrics, of passages which were impossible until now. All this would produce use and leisure possibilities for the historical city or for some of its significant portions which would create additional relational meanings between the existing parts and the new ones. In this complex and multi-layered palimpsest, the guide projects welcome and enhance the agricultural parts which are incorporated into the consolidated fabric; these, together with the rethinking of the public spaces in a sustainable way (new urban green areas, bioclimatic control through new drainage and permeable surfaces and natural shading systems), contribute to the definition on a punctual scale, of the already-large urban park system of the historical city which consists of the gardens located along the trace of the old walls, of the Botanical Gardens, the Parco di Palabanda, the Roman Amphitheatre and the linear park of Buoncammino. Furthermore, the paths, in this case concerning the accesses and the crossing of the rural mosaic and of the “*poderale*” mesh, introduce new use possibilities for the field according to the slow times of agricultural penetration.

In the proposed design experiences, the path represents the reorganisation tool of a series of historical traces which, inside the urban setting and the fields, constitute the base layer of the new architectural interventions, where the project often only removes or adds new layers in a selective way. Working on the network allows us to control the ecological dimension of production, ensuring a historical principle of places: self-sustainability. It is therefore necessary to promote the local capacity for self-organising, enhance the territorial “*milieus*” capable of providing examples of active territoriality which responds to external changes, the production of a territorial added-value for the management of public/common assets and of private companies that can embrace new possibilities for development within them.



1. Cagliari, Quartiere di Castello



2. Gersei, Regione storica della Trexenta



3. Cagliari, Torre dell'Elefante e Bastione Balice



4. Las Plassas, Il castello di Marmilla



5. Cagliari, Rapporto tra Bastione di Santa Croce e i Quartieri di Castello e Stampace



6. Regione storica della Marmilla, Rapporto tra villaggio e campo aperto

Fig. 1- Structures of longue durée. Fabrics, points and aggregates.



In addition it is useful to think about the changes and the project as a follow-up system, a memory and redefinition system of a process that is based on the multi-scale nature of the signs of the territory, the historical layers and principles that govern their management; in this framework, the operational and construction aspect of the project constitutes the element which is capable of fully controlling the production cycle by holding thought and action together and avoiding dangerous and harmful “energy dissipations”.

### **3. Cagliari: a plan for projects**

The research project on the historical city of Cagliari is based on a series of methodological tools for the Detailed Plan, which is inscribed in the context of a larger work on the historic city that the School of Architecture of the University of Cagliari has been carrying out since 2010. The Plan, in addition to an analysis of shapes and types in the four historical districts of Marina, Stampace, Villanova and Castello and to the specific study of the individual building units, offers a multi-scale project which creates a structure with a system of strategic and thematic projects (Urban Historical Park, the system of the walled city, Cagliari City of Culture-City as a Museum, Sustainable urban redevelopment-Pirri) and of guide projects which have a more operational nature and aim to redevelop complex and multi-layered compartments together with the definition of a number of strategic itineraries which connect the four historical districts of the city, reconnecting therefore the east and the west side of the city. In particular, two different itineraries produce this result: one is tangent to the walled city, under the walls in the margin between the districts of Marina and Castello, and the other one crosses the upper part of the city, defining ascent paths and internal crossings which, passing through Castello, connect the district of Stampace on the west side with that of Villanova on the east.

In this paper we will mainly focus on the first transversal path because of its character of urban interstitium and because it represents an internal reading, re-discovery and re-signification device of the multi-layered nature of this portion of the historic city. Here, in fact, different cities or different phases of the same city overlap each other, and the layered system of fortifications (Pisan, Catalan and Piedmontese) interacts with the urban façades of the late nineteenth and early twentieth century, which are structured according to narrow medieval lots. The supporting subsoil of the stronghold and its bastions constitutes the base of the city and, at the same time, the karstic nature of its soil represents a vital

element because it allows for the collection and management of water inside the underground cavities and therefore allows the historical city to self-sustain itself.

The many underground water tanks allowed the district of Castello to have a constant supply of water through a system which allowed for its storage while protecting the resource from winds and surface evaporation; in addition, the network of underground passages, creates a dual crossing plot of the historical centre that represents a further layer of protected and hidden crossing paths mainly used as war shelters. The understanding and a new meaning interpretation of the base system of the historical city and of its almost-visceral relationship with the soil, together with its ascent paths, represent the main nucleus on the strategic transversal itinerary which reconnects in spatial and experiential succession a number of voids in the fabric caused by the bombing in 1943. These urban voids are configured as awaiting spaces, whose potential has not been addressed for decades. If on the one hand they keep the memory of the war disaster alive, on the other, they highlight a structural inertia to changes, with regards to which the community of Cagliari awaits answers.

Along the development of this transversal strategic itinerary, the historical walls and bastions constitute the backbone, the plan, topographic and architectural directrix which is marked by the terraces of the Bastione del Balice and of the Bastione di San Remy (both public spaces with a significant value which are incomplete in their urban potential. The voids caused by the bombing varied in terms of public or private ownership. For this reason a coordination between the parties is necessary, through public-private integrated programmes aimed at pursuing the following objectives:

- consolidating the public use of land, even in the spaces which are currently private property, in order to strengthen the relational dimension of collective spaces. This can be achieved by exchanging those spaces with other public properties;
- increasing the urban character of the micro-interventions by promoting architectural quality and the morphological, typological and use reinterpretation;
- encouraging the rethinking of open spaces through sustainable strategies that improve the micro-environmental living quality of the dense and consolidated city centre;
- activating quality processes with particular reference to design competitions which include the coordination and cooperation between public and private property.

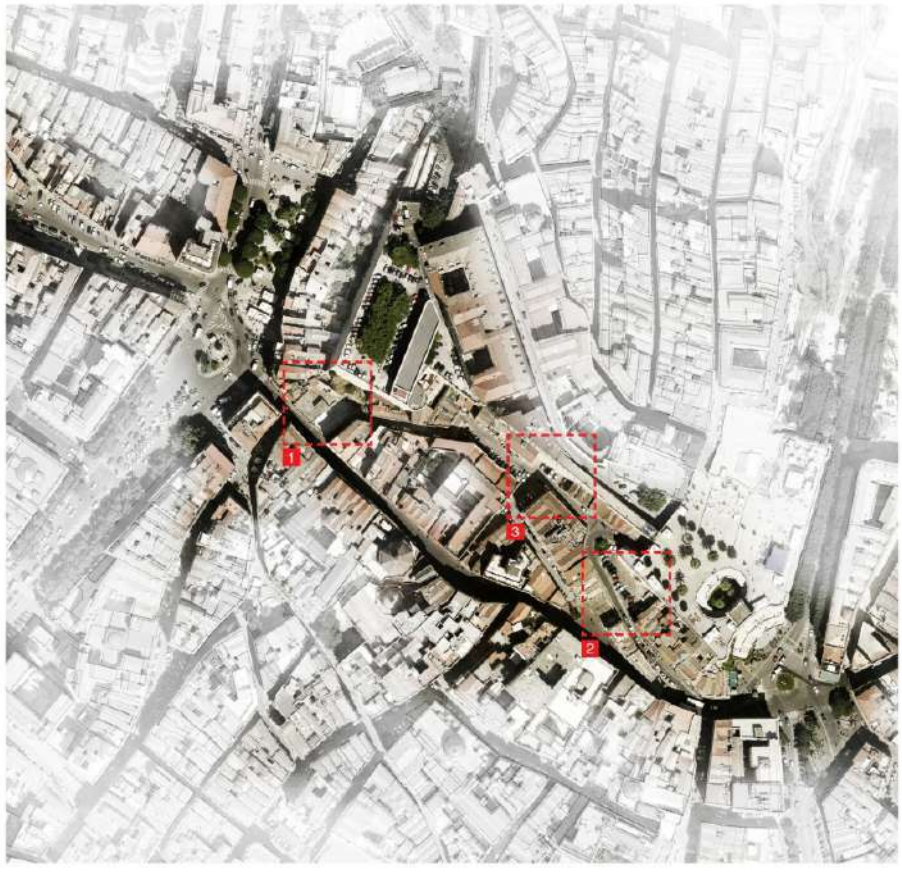
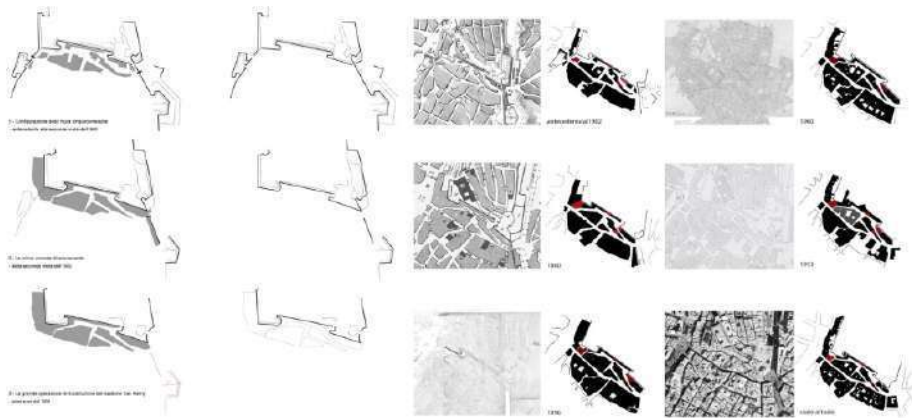


Fig. 2 – Cagliari walled city. The Itinerary Bastione del Balice - Porta dei Leoni.



The guide projects, with their architectural references, aim at defining a set of founding principles for the redevelopment of the voids, starting from the concept of continuity understood as a historical consciousness (ROGERS 1997), i.e. from the willingness to create an interpretive modification capable of implementing the transformation impulses of the city. Within this framework, the type represents one of the structural invariants of the urban fabric that is the object of the design, with the idea of introducing those modifications which allow for the evolution of the type itself, making it a dynamic and lively concept for the shape of the city, according to the logic of continuity mentioned above. The wall and its “massivity” represent architectural characters of the city and not only of its buildings, with which we can interact with an approach which is punctual and systemic at the same time. Similarly, the porosity which makes the void penetrable on an urban scale, ensures bioclimatic conditions of greater habitability of the public space and a thermal and hygrometric functioning which is controlled and sustainable. This aspect represents the reinterpretation of a topic of the stone-built historical city, which has always and can still welcome natural elements within its fabric. These principles have a significant role in two projects which have been selected because of their role of new doors for the upper part of the town. The first one is the void between via Manno and Via Spano, which is configured as a rediscovered access to the upper part of the city and to the path below the walls of the city; the second one is the void between via Manno and via Mazzini which is part of the ascent path towards the Porta dei Leoni and Bastione dello Sperone. In these two areas, with the aim of recreating the urban façade, the type and its variation, the wall “massivity” and the porosity are combined with the intention of reinterpreting some of the founding features of the settlement cultures which typically belong to the consolidated city and propose new urban architecture elements which are permeable and deep-rooted (ATZENI 2017).

The relationship with the monumental defence structures of the city is solved by introducing green areas, in continuity with a historical process which positions green spaces right behind the walls. In the cases under consideration, these interstitial spaces, in addition to preserving the integrity and readability of the fortifications, allow for the enhancement of the public and private green spaces, thus improving the micro-climatic conditions at the small scale.

### *3.1 Marmilla: projects for a plan*

The site-specific approach to places is developed inside a research project that is framed within the studies of the DICAAR on the rural landscapes of

Sardinia. In this case, the relationship between a rural settlement structure with a narrow mesh configuration is combined with a system of farms with the aim of defining a guide project which creates an interaction between the public and private spheres and defines a production system inside the historical region of Marmilla. The “neuronal” network forming the system of historical paths and public spaces captures, at the different scales, the geography of the mutations and the processes which activate practices and uses, thus defining spatial configurations that are often founded on the principle of self-organisation.

The field plots, the volume and the type of tree crops, the lines of windbreaks and the water-management systems and devices, allow the project to reinterpret uses, habits, resources and weaknesses of the place through the rethinking of spaces to be used for new activities at the service of the countryside. These take on a role of liaison and mediation with the rural world which is no longer understood as an environment of work and production but also as a scope of collective enjoyment. The objective is to confer an active role to the spatial crossing systems and the countryside public management, a new importance to activate possible uses which have been unexpected and unthinkable until now: a public space in the countryside conceived as an infrastructure of the “slow time” where one can come into contact with the operating dimension of the productive landscape which transforms each one of us (TURRI, 2001) into a potential vision which is the actor of the rural space and no longer a mere spectator. All this requires an idea of development which relies on strategic areas, on rural farms and aggregates and proposes the recovery of the existing structures with a strong historical and cultural character that are typical of the long-lasting settlements and are suitable to embrace new uses. We are referring, for example, to the architectural rethinking and reinterpretation of old castles, of the stations of the railway line which were abandoned several decades ago, or the “road workers’ houses” along the internal road network. These structures are dotted around the territory and represent shared reference and recognition elements for the communities, sometimes even representing proper icons (or *iconemi*, TURRI 2001) for the same communities. Architecture establishes a dialectic relationship with the place. The overlapping of the collective and private networks allows us to intervene on the place through the activation of new and different life cycles of the same portion of territory.

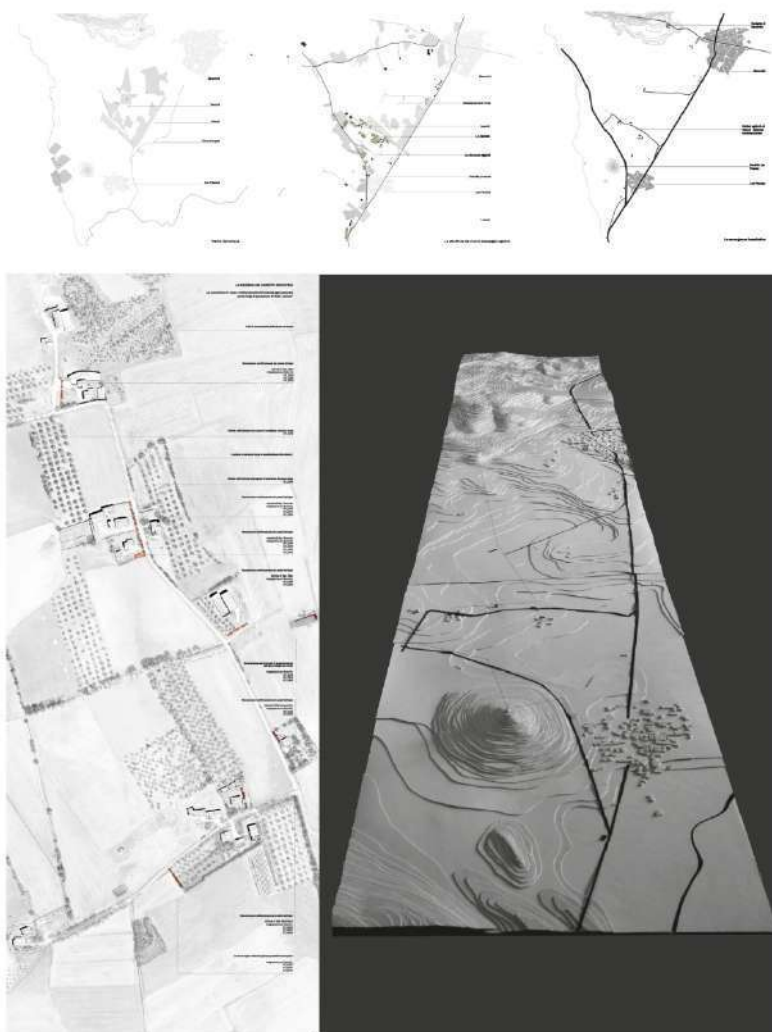


Fig. 4 – The historical region of Marmilla. Axis of archeological sites: the Castle of LasPlassas, the nuragic complex of Barumini. Result project of International Summer School of Architecture. Sardegna il Territorio dei Luoghi: I paesaggi rurali. 2015. Atelier coordination: C. Atzeni S. Mocchi, A. Dessi, F. Marras, A. Perra

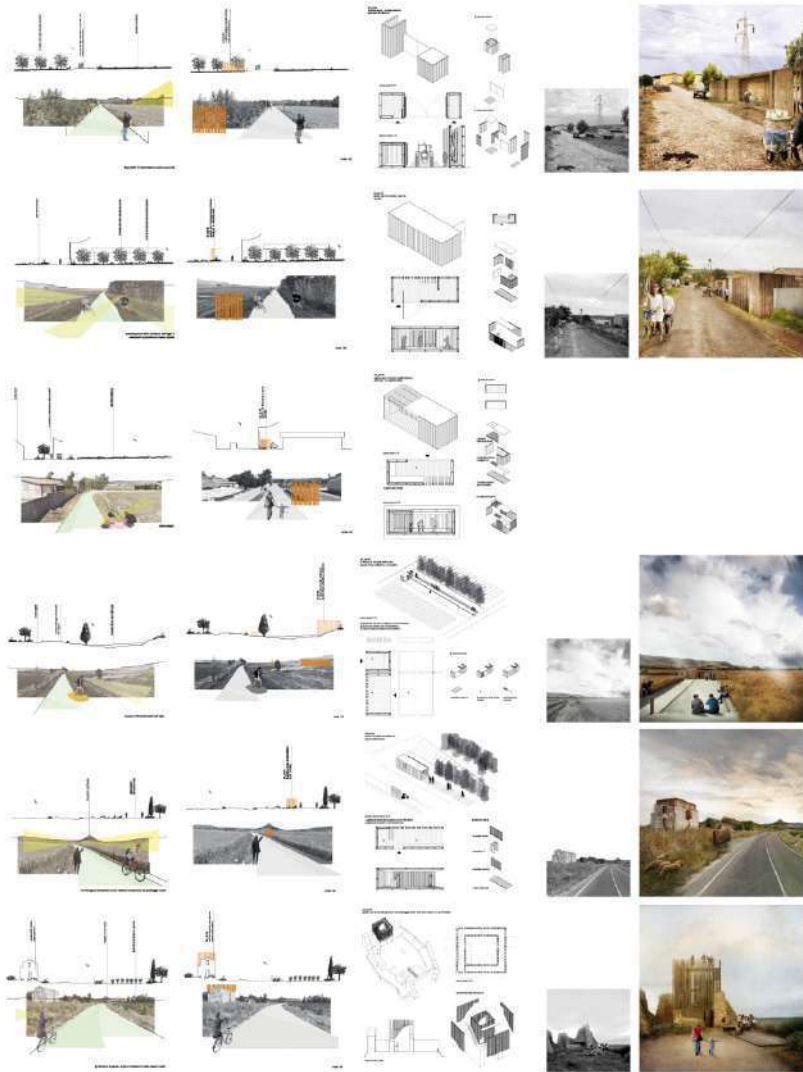


Fig 5- Matrix of invariants. The scheme shows the interface between farm and public space, water spaces and points of control of the territory: the castle of Las Plassas and roadman's houses.

These processes translate into the formal and architectural principles of a kit at the service of the countryside and of its public spaces: devices that are completely adaptable to the place and reversible, small volumes, platforms and multifunctional walls, thus contribute to enrich the network. New spaces for events and experiences, collective and recreational spaces to stay, equipped with



“niche-volumes” and “shelter-volumes” for people and for gentle mobility means; the multifunctional walls along the existing windbreaks define a spatial reconfiguration and potential use façade, new accesses, thresholds which create relationships between spaces and spatial transitions, areas to rest and to selectively contemplate the context. All these elements/objects which populate the countryside can evolve and adapt through time assuming a clearly greater value in hospitality terms. This design approach acts according to a principle of capillarity, of percolation between the existing weaves, with the goal of building and/or re-building a structure of public spaces as an integration of the complex private and production network.

In this regard, the farm can represent the decisive factor for the construction of a rural multifunctional network. In particular, the project focused on the network of farms established by ETFAS. The regular mesh of the “appoderamento” and the proximity solutions of the farms offer the possibility of discovering the theme of the agricultural district which opens up to multifunctionality, with the intent of verifying the capacity of architecture to transform these spaces. The project explores the definition of an enclosure-wall as an element of spatial appropriation which marks and consolidates the presence of the farm in the territory, relying on the contemporary reinterpretation of an archetype of the land protection farmhouse. The intention is not to introduce an additional degree of urbanity, but rather to ensure a better permeability between inside and outside, defining a “light” perimeter which is completely reversible with respect to the “hard core” inside the farm. The idea is that the enclosure has a “thickness” which can be used to create new multifunctional spaces for the farm and generate a new interface with the public space.

The minimum unit of the enclosure is the rural kit (in its variant for supporting the farm), i.e. a number of devices which are capable of introducing new spaces for different uses. The rural kit consists of simple and self-constructable elements: a base platform, a roof, a continuous wall and a slat wall through which the composition is capable of articulating the parts of the enclosure. These elements combine two aspects, self-construction and the definition of a coordinated image of the farm. The kit aims at reducing the heterogeneity which is usually related to the current forms of self-construction, connecting it to a common image of the farm and of the potential rural district. The modularity of the elements of the kit define spaces with different permeability, open to the uses of contemporary hospitality (short stop for lunch), micro-commerce (selling products of the farm) and energy production (integration with micro-wind turbines and solar panel systems). The project, in

this way, searches for a sustainability model based not only on the recyclability of materials and on their reversibility, but also and above all on a cultural sustainability which challenges the themes of the self-production and self-construction of the building elements with an active community engagement.

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The book focuses on bioregionalist theories and experiences as an alternative way of reading and designing local contexts, based on the recovery of the co-evolutionary relationship between human settlements and territories to achieve a self-sustainable and non-hierarchical system of urban and rural centers, according to Alberto Magnaghi's vision. The work has developed a broader discussion among researchers from different European backgrounds about the ways in which processes related to bioregionalism, looked at in a transdisciplinary way, can lead to interesting applications and analytical insights, that are useful for reviewing and strengthening community self-organization and reflecting on the constitutive foundations of the relationship between communities and their territories. The collaboration between the French school of Bordeaux, the Tuscany school and the Cagliari school gives back a diversified overview of materials and references for the possible application of the bioregionalist model. The contributions discuss many issues related to the governance of metropolitan areas and the management of the urban-rural relationship with suggestions for interpretation and design in a bioregionalist perspective, the themes of urban green, land vulnerability, and agricultural supply chains in rural and peri-urban spaces and new food economies in metropolitan areas.

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