ARCHITECTURE HERITAGE and DESIGN

Carmine Gambardella

XVIII INTERNATIONAL FORUM

Le Vie dei Mercanti

World Heritage and Contamination

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Surveying and Actioning the Tangible and Intangible dimensions of Rural Heritage in RURITAGE H2020 Project

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Abstract
Rural Heritage is as important as it is difficult to circumscribe, identify and survey but it can also play a major cultural, social and economic role. This paper focuses on the methodology developed by the funded Horizon 2020 Project "Ruritage" where digital tools constitute a focus strategy for the regeneration process for rural regions. In this process the cultural and natural heritage of rural regions includes both tangible and intangible features the identification and visualization of which are very important for the new understandings created and effectiveness of its potential to be developed by local communities. An Atlas permits a simultaneous contextualization of various pilots for the uses required by the project where several pilots create networks for mutual learning process. A digital platform including a web GIS, based on OpenStreetMap, and a database constitute Atlas final output. It is part of a set of digital tools devised to support local stakeholders and monitor territorial developments.
The paper will discuss different kinds of contaminations: (i) highlighting cultural and natural heritage together with other resources; (ii) processing different kinds of data for a common purpose (iii) matching direct involvement of individuals and digital tools; (iii) creating a multilevel approach to combining tangible and intangible heritage through a multidisciplinary team. Critical issues of the developed methodologies will also be discussed.

Keywords: Cultural Natural Heritage, Intangible Heritage, Atlas, Rural regeneration, Rural heritage

1. Introduction

Rural areas encompass a large variety of outstanding cultural and natural heritage assets. They are an important resource warranting preservation and exploitation for improved life and well-being in rural regions and for raised awareness of cultural and heritage assets among local communities. Both a suitable exploitation and strong awareness can foster sustainable development in rural regions. At the same time, these elements allow the richness of the cultural natural diversity of European heritage to be preserved.
The RURITAGE H2020 research project (Rural regeneration through systemic heritage-led) strategies builds on a crosscutting vision of cultural natural heritage assets in their territories with these being surveyed to be activated as component of social, economic and environmental systems. It should be noted that it is an ongoing European research project, coordinated by the University of Bologna. The Politecnico di Torino university leads the work package of the RURITAGE Resource Ecosystem and is responsible for the rural landscape mapping and the Atlas.
The research gives shape to a very broad scenario of 20 use cases in 15 different countries, in Europe, and outside Europe selected to identify six Systemic Innovation Areas (Pilgrimage, Sustainable Local Food Production, Migration, Art and Festival, Resilience, Integrated Landscape management) where the research process allows the heritage-led regeneration process to be explored and experienced. Some use cases are UNESCO Global Geoparks namely "unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development" (UNESCO).

This rich and various scenario thus offers a very articulated dimension of cultural natural heritage in rural territories, both tangible and intangible. However, only in 14 use cases is heritage a driver of rural territories, while in 6 there are huge unexploited resources. The successful cases in the RURITAGE methodology function as role models for the extraction of best practices that become a benchmark and a turning point for 6 replicators.
In line with this main objective, the digital tools of the research projects constitute both a multilayered methodology for surveying (both role models and replicators) and a focus strategy for providing information and instruments to facilitate local communities in the regeneration process of their regions (replicators). A digital platform allows the integration of the tools and their combined functions as steps in an embedded process.
The RURITAGE Atlas is one materialization of this approach, and, at the same time, is the output of a survey of cultural natural heritage in the rural areas providing information for rural developments. It aims to integrate different readings of rural areas by creating a digital environment permitting a synthetic and analytic visualization of the heritage within territories, linking assets, traditions and cultural social economic capital. The platform combines its functions with other research tools. It will be made accessible on an open online data platform.

Fig. 1: The RURITAGE Atlas within the RURITAGE Resource Ecosystem**.**

2. Surveying and Mapping Rural Heritage

The RURITAGE Atlas focuses on rural territories and their complex cultural natural landscapes. According to the European Landscape Convention, landscape is “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors” (ELC, Florence, article 1). The Atlas identifies and highlights the multiple layers and functions of rural areas and human-landscape interactions, and provides integrated georeferenced information linking gathered data, maps, images, 3D models, written information, textual and visual narratives. The data gathered and processed are represented and displayed in such a way as to be accessed and navigated according to an integral information management concept, capable of supporting the replication and upscaling of the heritage-led strategies. Following this mapping approach, RURITAGE territories have been mapped, visualized and narrated within the Atlas according to an approach that is not generalist but, rather, finalized to the objectives of the RURITAGE research project. The result is a combination of cultural natural landscape mapping and a methodology tailored to meet project challenges.
The overall methodology for defining both the RURITAGE Atlas interface and attributes has taken into account a twofold goal: on the one hand, interface and attributes aim to highlight the rural challenges and the crosscutting issues identified in RURITAGE; on the other, the research project stakeholders, with their specific needs, both role models and replicators, have been recognized as the leading actors and the final users.
For this purpose, a collaborative methodology based on questionnaires was implemented as an innovative rural landscape data gathering for mapping. The data gathering methodology, in fact, aims

to activate a collaborative and creative survey for acquiring information and documentation. In this aim two data gathering campaigns have been performed by actively involving role models and replicators stakeholders through a collaborative approach. This approach allowed local stakeholders identifying in their area sites of interest by co-mapping and drawing its boundaries, as well as defining the most relevant elements they recognize as representative of their territory.
The processed information can be visualized and interrogated in the Atlas. The availability of different kinds of visualization of the stored information, which is managed through databases, makes it possible to focus either on the single rural region or on crosscutting features. This information is stored in a database and linked to different applications in the ecosystem through web services in order to maximize their usability and allow integration with other tools that could be added. As a result, in order to create the information system knowledge representation of the RURITAGE rural areas:

(i) both “the common” and/or “the specific” features have been mapped and highlighted
(ii) the mapping focus takes into account the clustered rural regions in systemic innovation areas as well as each rural region;
(iii) Atlas entry points take into account these multiple layers;

at the data visualization stage, Atlas entry points follow the overall RURITAGE narrative based on systemic innovation areas, role models, replicators, and identified rural challenges.

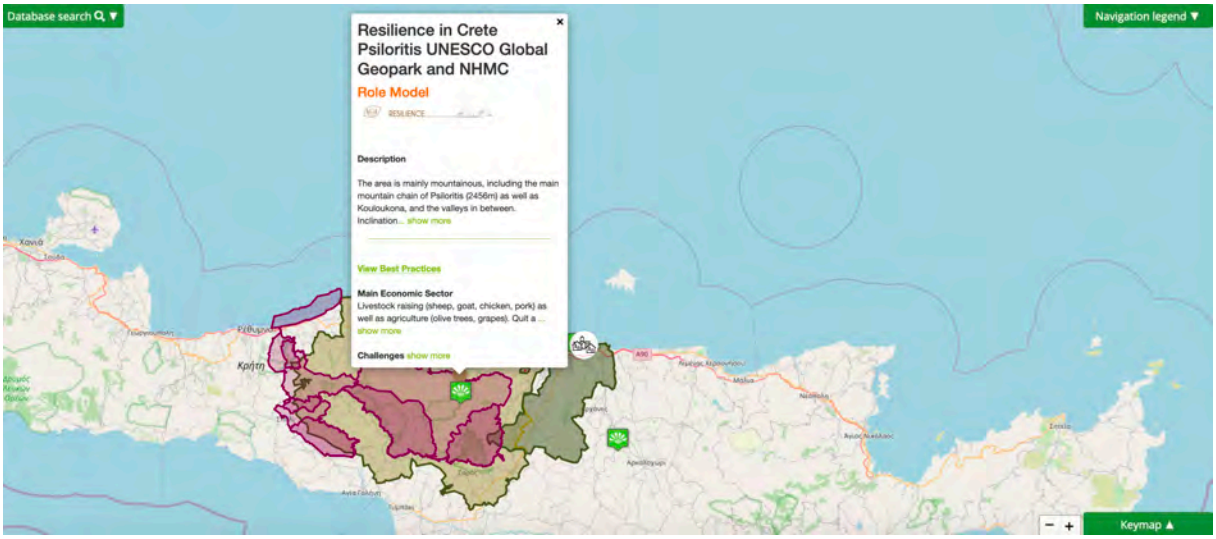

Fig. 2: The pop up window displaying general information about the role model in Crete.

Through the Atlas it is possible to visualize spatially the rural context for 20 use cases with their cultural natural heritage. However, the holistic RURITAGE approach to rural landscape that combines heritage with social, economic, and environmental visions, made it necessary to take into account such human interactions with the territories, and, as such, the mapped features of rural landscape integrate several aspects. In particular, features related to the characterization of the systemic innovation actions have been considered. To this end, the Atlas is the output of an extensive surveying and mapping of the rural regions.
The mapped areas are large-scale territories with many different specifications of rural landscapes and cultural natural heritage, including geoparks, UNESCO sites, cultural events, local food, cultural routes. Their rich diversity has enhanced an extraordinary broad spectrum of cultural and natural heritage characterization. The approach based on a simultaneous mapping of their features in 20 uses cases has also introduced a comparative perspective thus allowing the broad cultural, biological and landscape diversity of rural territories to be better taken into consideration.
on this articulated variety of rural landscape in Europe and beyond, the Atlas makes available the rich and varied functions of rural areas and human-landscape interactions by building an integrated digital environment based on WebGIS where data, maps, images, models and other information are linked and georeferenced. Data have been organized into attributes and spatialized. These mostly refer to perimeters, areas or sights that can be visualized as lines, polygons or points.
Compared to a traditional GIS, the RURITAGE Atlas offers more advanced and accessible visualization and interaction among data, images, and other tools (e.g. Rate my view, Best Practices, etc.), the possibility of making queries and modelling information to address queries. It allows an overview of rural landscapes, filtering information, and making queries about crosscutting information. It is possible to interrogate the database through a search mask. Mapped data have been clustered in sets of information significant for the context of the project and allow a guided search of the data stored. Lastly the Atlas also integrates and displays information from other research and data sources (e.g. CORIN

land cover and Nature 2000 data).

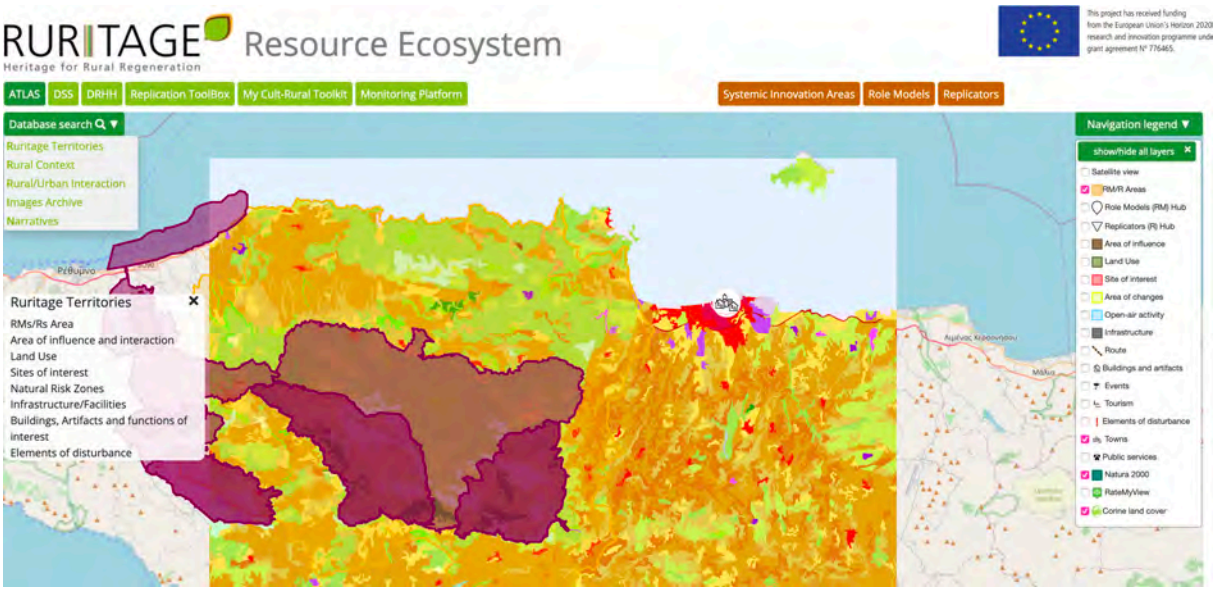

Fig. 3: Atlas queries and CORIN land cover data.

2.1 Conceptualizing Cultural Natural Heritage

The Atlas provides evidence of cultural natural heritage in the territories of the role models and replicators with information about their relevance to the main aims of the Ruritage project for rural regeneration. The final system of spatialized information is the result of a systematic and analytical survey that makes available the Atlas as a tool for enhancing the knowledge of the rural landscapes with tangible and intangible opportunities and problematic issues in the landscape mapped in great detail. The combination within the Atlas of both of the above is intended to highlight local specific catalysts for various territories.

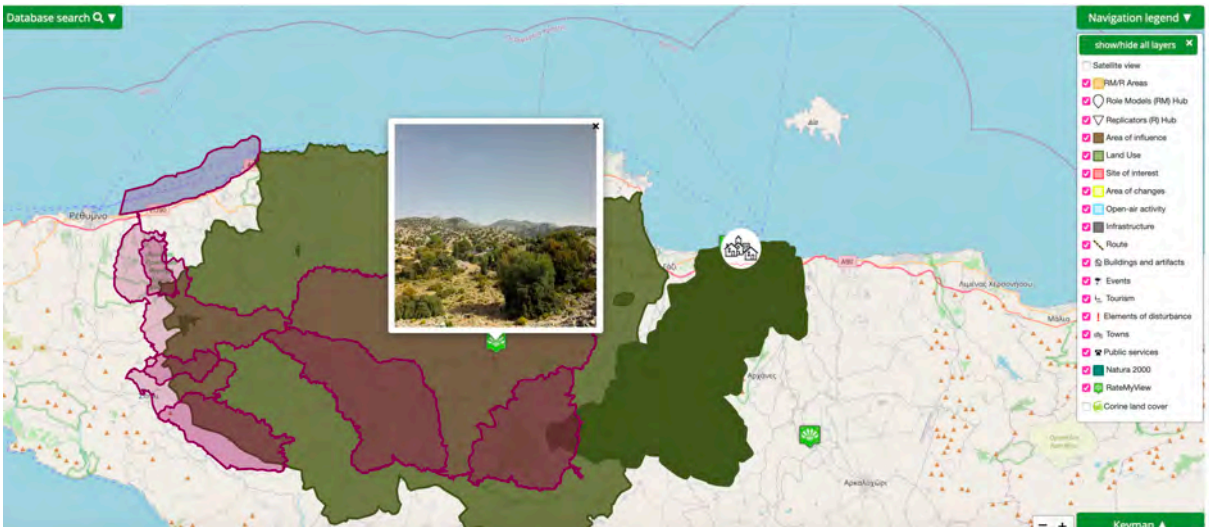

Fig. 4: Atlas navigation and visualization of Rate my view App photographs**.**

In the Atlas the mapped features focus on and illustrate tangible and intangible elements of the cultural and natural sites. These include some important specifications of the rural landscapes: topography, sites, built/unbuilt environment, activities and main functions, land uses, infrastructures, rural/peri-urban and urban interactions, itineraries and other features, including cultural natural heritage and (specifically for replicators) elements of disturbance and interference. They also highlight infrastructures, accessibility, elements of disturbance and the main relationships between rural and near urban areas. These features refer to a complex system of sites, traditions, activities and land uses that is strongly related to local historical developments. It also refers to interactions between rural areas (with their

villages) and cities nearby. In cities, in fact, populations of rural territories can find some essential functions that may not be available in their own territory (e.g. special cultural function such as an opera, central governance function, main infrastructures such as an airport, etc.). Attributes are defined to provide information about the heritage of the Past of these regions as well as to illustrate their Present, with current situation and uses/re-uses, accessibility, main infrastructures.
On the other hand, the simultaneous contextualization of the rural landscapes of the pilots in the RURITAGE project is also intended to create networks for mutual learning processes between role models and replicators. For this purpose, the common categories of landscape reading have been identified also including a specific check on the six systemic innovation areas that allow a comparative perspective. For instance, the Atlas includes data about some pilgrimages in all pilots when relevant. The database has been designed to this end, and a filter system has been shaped in order to provide clustered information by queries.

Fig. 5: The layers of a Rural territory in Lesvos visualized in the Atlas.

2.2 Strategies and boundaries of the Atlas design

The RURITAGE Atlas approach is based on the cultural landscape concept of human interactions with natural areas, which has created a cultural integration through a number of factors. The RURITAGE Atlas strategy for conceptualizing, collecting and representing data has been devised to achieve this integrated vision of the rural assets: cultural natural heritage within its historicized territories. The output combines the possibility to highlight and to navigate the physical natural features with the human and cultural dimensions of those territories, its changes, its activities. In this way, the approach integrates space and time in the concept of the heritage of rural regions.
The mapped features thus do not seek to achieve a complete overview or a canonic “cultural landscape” or rural landscape identification. Despite the number of historical and cultural layers of landscapes, rather than focusing on the historical dynamics of landscape creation, the mapping especially emphasizes the characteristics of the places and their potentials.
The scale of the project approach requires that huge areas be taken into account and that different systems (for the purposes of regeneration processes) and many different categories be integrated at the same time. This large scale did not allow the heritage categories to be covered in detail nor the historical changes to be analyzed. For this reason, historical insights have been developed only for the six rural regions that function as replicators.
The information about rural regions and their qualification is rounded out with some quantitative data (e.g. demographic information, dimensions such as surface areas, etc.). The output of this mapping consists finally in a huge number of rural landscape features.
The Atlas is intended for a non-specialized public. The quantity of mapped data together with the large size of the territories can create some difficulties in Atlas use. It can be difficult for users to prioritize the information by navigating the territories. They will meet a great quantity of points and layers on which to click and open a pop window with information. The quantity of information may be both a source of excitement and frustration: they may get lost due to the sheer volume of data. Furthermore, there are many IPR issues that make it difficult to provide a full use of images, and especially of music and video (traditional music and dance).
As mentioned above, a guided consultation is also made available to overcome this limitation. The database can be queried in order to facilitate data clustering through key features. The search mask guides users in their research by providing a menu with a list of selected information. The final output

makes available a large amount of data, a full representation of the rural layers in the space, an interactive data visualization by queries. By navigating and entering in the mapped layers, it is possible to open pop up windows with a textual identification of the mapped data, and associated images or making queries through selected features.
From a technical point of view, the mapping process includes a double conceptual and operational path. Data have been organised and visualised through QGIS free open source Geographic Information System to identify and spatialise areas, borders, features and layers. The georeferenced information migrates into the RURITAGE Ecosystem platform in order to achieve a new kind of usability of the georeferenced data to be more easily navigated and interrogated by users. The aim of this process is to move beyond a GIS system visualization towards a richer and more user-friendly access to data.

3. Actioning Heritage-led rural regeneration

Globalisation has introduced new challenges in rural areas too. Bio and cultural diversity loss and climate change are among of the most pressing challenges of our time. Moreover, globalization requires a level of local developments that is very difficult to achieve due to the demographic, economic, and technological disadvantages of rural territories. Regions with difficulties in their accessibility via fast connections suffer problems of competitiveness in the global economy. The uncertain condition is made worse in isolated territories when some more critical factors exacerbate their instability. This is the case with illegal migration and the need to integrate migrants. Some Mediterranean islands, such as Lesvos, show this critical situation. Other rural territories have major problems due to the destruction provoked by natural disasters. In the mountain area of the Italian Appennines, for instance, there are villages that are still struggling to recover years after the last earthquake. Both these geographical areas face problems of isolation or risk that are challenges to overcome even under ordinary conditions.
On the other hand, these places such as Lesvos or the villages in the Appennines, also benefit from exceptional natural and cultural resources. Landscape studies deal with the multidimensional tourism-landscape relationship, “a holistic approach to culture-nature, people-landscape, local-global, tangible-intangible, agriculture-nutrition, consumers-producers, and past-present relationships, appearing as a new tool for local development through the utilization of local natural, cultural, human, spatial, and social capital” (PAVLIS).
The RURITAGE project focuses on multidimensional layers of rural landscapes with the aim of “achieving sustainable development based on a balanced and harmonious relationship between social needs, economic activity and the environment” (as mentioned by the European Landscape Convention). For this purpose, it includes migration and resilience among its systemic innovation actions together with other important heritage assets in rural regions such as pilgrimages, local food, art and festivals and integrated landscape management.
It integrates socio-economic objectives and the need for a technical knowledge able to create and enhance an integrated information system that makes available replicable solutions. By doing so, the RURITAGE approach goes beyond the state of the art of the transformation of a landscape resource into an asset. This approach can contribute to provide concrete solutions to local territories for “a heritage-led rural regeneration” via step by step guided regeneration process.
The strategies for regeneration capitalize on successful rural regions, with which the project establishes mutual learning activities for fostering knowledge exchange. A comparative perspective empowers this approach allowing rich analyses. The analyzed processes, with their capitals, challenges and barriers provide cross-cutting keys to interpretations. They become clues for understanding indicators of successful actions and for designing strategies of replicability in other regions, with other features, at different times.
In this context, the purpose of the Atlas is to provide a coherent rural mapping approach. With its huge variety of mapped rural territories, both of role models and replicators, it makes understandable the uniqueness of each territory and its heritage together to potential affinities in its management. It represents, in an interactive online system, some affinities that are actual and allows users to search for other potential affinities. The numerosity of use cases and the comparative approach are finally a powerful tool for understanding the natural, cultural and historical significance of the rich diversity of rural landscapes in Europe and beyond.

4. Heritage in Context

The mapping for the RURITAGE Atlas frames the intangible heritage of rural landscapes. “The landscape is part of the land, as perceived by local people or visitors, which evolves through time as a result of being acted upon by natural forces and human beings” (Council of Europe).

The Atlas thus focuses on the specificity of a place, with its uniqueness of sites of interest, biodiversity, cultural characterization, archaeological remains and historical developments in countryside, villages and small towns. It encompasses multi-layered aspects of the intangible heritage of the landscape. On the other hand, through a holistic approach, it also integrates cultural and social functions, such as collections in museums as well as art, crafts and food festival, and heritage buildings. These tangible and intangible features are also strongly connected with the cultural natural heritage of the rural landscape. They refer in fact to cultural heritage in the region as a whole.
In this way the Atlas links intangible values of landscape to physical sites and human artefacts, such as buildings and activities that are relevant for history, heritage, culture, nature, society in local territory. It stores, filters and connects non-homogeneous data. The Atlas finally appears as a network of information. It geo-localises and makes understandable cultural natural heritage in territories, by providing related information such as institutions and private stakeholders.
The Atlas thus allows enhancing the local Identities of rural territories, with the diversity of cultural natural heritage. However, landscapes are part of a dynamic process of continuous change. For this purpose, the cultural and natural heritage is always made readable in its specific context.

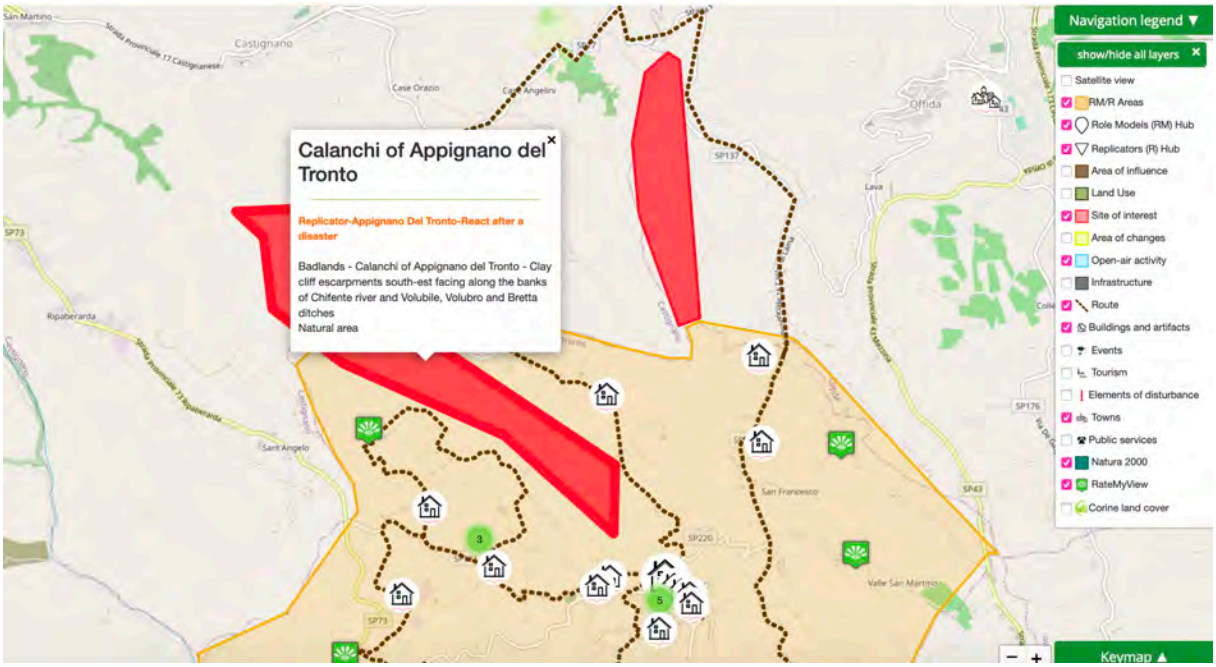

Fig. 6: Cultural Natural Heritage features in Appignano del Tronto react after a disaster replicator.

5. Conclusion

The rural heritage is mapped and appears in the Atlas in the context of its territory. Beyond symbolic, esthetic, and intangible dimensions of rural landscape, there is an integrated experience of rural heritage that is possible foster for enhancing a comprehensive vision of its values. This combination in the space of the current time can foster new understandings and strategies. The cross-cutting comprehension can activate cultural natural heritage as a catalyst for economic competitiveness and sustainable and inclusive growth.
Users can find in the Atlas a way for promoting the rich and diverse cultural natural heritage in rural territories, but also a tool for enhancing the awareness of this resource and the ‘sense of place’. By exploring the Atlas, in fact, with its identification of features and visualisation of different components of local specificities in the wider context of the RURITAGE project, the range of opportunities can be more easily recognised. It can support decision makers, policy makers, land managers, investors, teachers and citizens.
By addressing a non-specialised audience, the RURITAGE Atlas will increase public understanding of the unique characteristics of cultural natural heritage and raise awareness of its environmental significance at a global level. Taking steps to understand it, the Atlas will help to protect and activate rural heritage and fundamentally increase public knowledge.

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Table of content

15 ID 002. *Structures and infrastructures of the central Adriatic. Topics for new environmental policies*
Ottavia ARISTONE, Lucia SERAFINI

25 ID 005. *Çilehane as A Place for Thinking*
Melih KURNALI, Duygu KOCA

34 ID 006. *Processes behind regional planning in Lebanon's Hinterland: The Cases of the Unions of Municipalities of Jezzine and Tyr*
Balsam MADI

42 ID 007. *The "Terzo Paradiso": the meeting point between Man, Art, Agriculture*
Francesca MUZZILLO, Fosca TORTORELLI

47 ID 008. *The role of art for the regeneration of the public city. The experiences of the Metropolitan Cities of Palermo and Naples*
Chiara AMATO, Giulia BEVILACQUA

57 ID 009. *Abandoned for good? Peenemünde as an example for dealing with a cultural landscape facing multifaceted contamination issues*
Peter I. SCHNEIDER, Constanze RÖHL

65 ID 013. *Preliminary approach to conservative actions on artefacts of historical and monumental value. Application to 4 old bridges crossing the Savuto river in Calabria*
Caterina GATTUSO, Domenico GATTUSO

75 ID 014. *Urban regeneration policies to enhance touristic mobility and economy*
Domenico GATTUSO, GianCarla CASSONE, Margherita MALARA

85 ID 015. *Advanced knowledge techniques and proposals for a compatible reuse and enhancement of a disjointed urban area: Villa Bossi in Busto Arsizio and its surroundings*
Daniela ORENI, Gianfranco PERTOT

95 ID 016. *Structure/external envelope relationship in the Monte dei Paschi di Siena headquarters in Colle Val d'Elsa (SI) by Giovanni Michelucci*
Frida BAZZOCCHI, Cecilia CIACCI, Vincenzo DI NASO

104 ID 018. *Landscape aesthetic contamination, from weak point to urban redemption element: case Eleusis, Greece*
Costantino PATESTOS, Neratzia TZORTZI

115 ID 019. *Management Plans for cultural heritage sites, as tools for inclusive approach in the developing countries: Case study of Prizren Historic Center Management Plan*
Nora ARAPI KRASNIQI

123 ID 020. *The eighteenth-century lucanian landscape from 'drawings of travellers' and notebooks of land surveyors*
Enza TOLLA, Giuseppe DAMONE

132 ID 021. *Elena Mendia and women's professionalism in Neapolitan post-war architecture*
Chiara INGROSSO

142 ID 022. *Intermodal digital experiences for the documentation and storage of historical-critical data aimed at the enhancement and use of the historical-urban landscape*
Asia BARNOCCHI, Luca MENEGATTI

150 ID 023. *The Role of Evaluation and Participation in developing Cultural Heritage Enhancement Projects. A Participatory Multicriteria Analysis applied to the "Certosa di Pisa" in Calci (Tuscany, IT) case study*
Agnese AMATO, Massimo ROVAI, Maria ANDREOLI

160 ID 025. *Numerical evaluation of environmental performance of a renaissance building to address a comprehensive retrofit strategy: the case of Palazzo Tassoni Estense in Ferrara (Italy)*
Marta CALZOLARI, Barbara GHERRI, Victor MARANHAO, Davide POLETTI

170 ID 026. *Alternative museum in Rome. Industrial architecture heritage colonized by XXI century's art*
Miriam CONFETTO

180 ID 027. *The Experience of Parametric modeling design GIS: An Abruzzo hamlet case study*
Domenico D'UVA, Federico EUGENI

185 ID 028. *The representation for the knowledge and development of the city and its territory*
Massimo MALAGUGINI

195 ID 029. *Seismic aspects on architectural design*
Marsida TUXHARI, Markel BABALLËKU

204 ID 030. *Water as architecture*
Enrica PIERAGOSTINI, Salvatore SANTUCCIO

214 ID 031. *Notes on the material communication of design intentions: a case study in Molise of particular collective value*
Piero BARLOZZINI

223 ID 032. *Enhancing the Defensive System of the City of Sagunto*
Giulia PETTOELLO

231 ID 033. *Conserving the Chromatic Value of Plaza Doctor Collado in Valencia*
Giulia PETTOELLO

239 ID 034. *A perfect example of a Vitruvian atrium: the main atrium of the Casa del Centenario in Pompeii*
Alberto CUSTODI

249 ID 035. *The UN2030 Sustainable Development Goals and the Parrhasian Heritage Park*
Giuseppe BIAGINI

257 ID 040. *A Study on Distribution Planning for Citizens' Hydrants with the User Experimental Drill of Extra Connectable Hoses in Kiyomizu WCH Zone, Kyoto JAPAN*
Takeyuki OKUBO, Dowon KIM, Tomohiko OWADA, Michiko HAYASHI

267 ID 041. *The overseas contamination of Enlightenment legal thought. The correspondence between Gaetano Filangieri and Benjamin Franklin (1781-1787)*
Maria NATALE

276 ID 042. *Drawings and Utopias: A Never Built House by the Sea; A Project by Noronha da Costa to Magoito, Sintra, Portugal, 1971-∞*
Pedro António JANEIRO, José FERREIRA CRESPO

286 ID 043. *The Drawing and the Painting as a Possible or an "Impossible"(?) Architectural Project(s) or Hypothetical House(s) in Luís Noronha da Costa*
José FERREIRA CRESPO, Pedro António JANEIRO

295 ID 044. *The risks and dangers of planning and building on the universal values of the UNESCO heritage of the Natural and Cultural-Historical area of Kotor*
Goran RADOVIĆ, David RADOVIC

305 ID 045. *Small construction sites for the regeneration of public space*
Fernanda CANTONE, Francesca CASTAGNETO

315 ID 046. *Fès and its Medina: a key-case study of architectural contamination*
Elena DE SANTIS, Tiziano INNOCENZI

325 ID 048. *Revitalization the integrated values of the Darius I the Great inscription, as the cultural property belonging to humanity. Bisitun, Iran*
Sara POURYOUSEFZADEH

336 ID 050. *A network of slow routes between Italian UNESCO sites. A territorial strategy to enhance the in-between territories and the inner areas*
Andrea ROLANDO, Alessandro SCANDIFFIO

345 ID 051. *Interventions on Cultural Heritage: Architecture and Neuroscience for Mindful Projects*
Valeria MINUCCIANI, Nilufer SAGLAR ONAY

353 ID 052. *From Dawn to Dusk. Space and Contamination in Markets.*
Salvatore SANTUCCIO, Marta MAGAGNINI

363 ID 054. *From Italy to Montenegro: cultural contaminations and disciplines exchanges for the enhancement of the Roman town of Doclea*
Lucia ALBERTI, Bruna DI PALMA

373 ID 055. *A new Renaissance for the ancient villages: between field valorisation and guidelines*
Gigliola AUSIELLO, Manuela COMPAGNONE, Francesco SOMMESE

383 ID 057. *Discovering, conserving and communicating the past. Synergies and antagonies between archaeology, restoration and museography in order to make accessible the past legacy*
Michela BENENTE, Valeria MINUCCIANI, Melania SEMERARO

391 ID 059. *Without Borders. I don't see any enemies in my neighborhood*
Efisio PITZALIS, Caterina BELARDO, Barbara BONANN

399 ID 060. *Drawing as a Legacy: the drawn landscapes of the city and its reading in the thickness of the present*
Pedro António JANEIRO

408 ID 061. *For an intercultural approach to knowledge of cultural heritage*
Rossana GABAGLIO

414 ID 063. *Industrial heritage regeneration in Beijing: a sustainable case study*
Marichela SEPE

424 ID 066. *Art and public space. Between history and nature*
Laura RICCI, Francesco CRUPI

434 ID 067. *Famous architectures in urban contexts: the impact of colours and materials*
Gigliola D'ANGELO, Marina FUMO, Claudia LOMBARDI, Pia LOPEZ IZQUIERDO BOTÍN

444 ID 068. *Survey, Modeling, and Documentation for Preservation: Digitization Challenges towards Cultural Heritage Enhancement and Conservation*
Federica MAIETTI, Federico FERRARI, Marco MEDICI, Marinos IOANNIDES

453 ID 070. *Italy and China, between History and Nature. A network of networks for urban regeneration and territorial rebalancing*
Laura RICCI, Yezheng TANG, Chiara RAVAGNAN

463 ID 071. *Early medieval Benedictine settlements and monastic landscape in Italy. A shared path and a case study*
Ruggero LONGO, Enrico MONCALVO

475 ID 072. *Digital Technologies for preservation and promotion of Cultural Heritage: Tivoli and the Sanctuary of Hercules Victor.*
Giorgia CECCONI, Giulia LOPES FERREIRA

484 ID 078. *Strada Nuova: as an example of a resilient cultural landscape*
Patrizia BURLANDO, Sara GRILLO

494 ID 079. *Contaminated Architecture*
Luca ZECCHIN

504 ID 082. *Aversa towards a new instrument of territorial governance: a proposal*
Claudia DE BIASE, Irene D'AGOSTINO

515 ID 083. *Capri and modern architecture in Plinio Marconi's drawings*
Simona TALENTI

523 ID 085. *Surveying the material and immaterial qualities of a shared urban landscape. Flows of users in transit in a contemporary Adriatic city*
Antonella SALUCCI, Giovanni MATALONI, Francesca LIBERATORE

532 ID 087. *Rethinking the building envelope. Rehabilitation project and maintenance strategies for the RAI Auditorium in Naples*
Pasquale MIANO, Maria Rita PINTO, Stefania DE MEDICI

542 ID 088. *Ancient Noto. Reading the "absence" as a strategy in the conservation and enhancement of the archaeological ruins*
Sofia TONELLO, Emanuela SORBO

552 ID 091. *From historical railways to cycleways. Re-functioning the heritage of linear monuments*
Andrea Alberto DUTTO, Stefano DIGHERO, Erika FRANCO GONZALEZ

562 ID 092. *From the project drawing to the survey model: the Enrico Fermi school in Celano 1932-1934*
Alessandra TATA

570 ID 093. *The power of collective imagination: A methodological opportunity for reading the presence of architecture's hidden explanatory potential*
Francesca SIBILIO

575 ID 094. *Crisis and Conflict resolution in Periurban Agriculture*
Maria Gabriella ERRICO, Anna ATTADEMO

585 ID 095. *Cultural and Agri-Cultural Heritage "contamination" at the Milan south periphery*
Nerantzia TZORTZI, Laura GUAITA, Aspassia KOUZOUPI

596 ID 096. *Coast-amination. Regeneration paths between water and land along the Lazio southern coast*
Francesca ROSSI, Antonella CANTARO

606 ID 097. *Towards Eco-Planning principles. Torre-Cancello decommissioned railway in Campania Region a regeneration masterplan proposal*
Salvatore LOSCO, Claudia de BIASE

616 ID 099. *Surveying and Actioning the Tangible and Intangible dimensions of Rural Heritage in RURITAGE H2020 Project*
Rosa TAMBORRINO

624 ID 100. *3D data modeling toward social innovation. The documentation of the minor cultural heritage damaged by the earthquake*
Fabiana RACO

632 ID 101. *KHAN EL ECHLE, SAIDA: a case study for the building stratigraphic analysis supporting the structural strengthening and conservation design*
Laura NICOLINI

642 ID 102. *Built heritage contamination: the case of João Pessoa, Paraíba, Brazil*
Ivan CAVALCANTI FILHO, Jessica SOARES DE ARAÚJO RABELLO, Emanoel Víctor PATRÍCIO DE LUCENA

652 ID 104. *Liberty winter gardens in Palermo: contamination from solar design*
Simona COLAJANNI, Calogero VINCI, Marco BELOMO

660 ID 106. *Acireale Living Lab Culture and Technology. Small towns, internal areas and new landscapes: strategies to protect heritage*
Mariagrazia LEONARDI

669 ID 107. *Under modernity sky. Pierre Bossan's industriousness in 19th century European sacred architecture*
Maria Carolina CAMPONE

679 ID 109. *Locus Umbria. The project as a recomposition of the tradition/innovation antinomy*
Paolo BELARDI

689 ID 111. *History and project. Reuse of historical tracks*
Efisio PITZALIS, Marco RUSSO, Annarita ZARRILLO

699 ID 112. *The creation of values through Art and Design thinking*
Mariacarla PANARIELLO

705 ID 115. *Waterfront regeneration in front of heritage protection: challenges and opportunities in Catania waterfront*
Daniele RONSIVALLE

713 ID 116. *Contamination Through a Second Skin on Contemporaneity Architectonics*
Alexandra AI QUINTAS, Mário SALEIRO FILHO

723 ID 117. *Fortress town of Palmanova. Actions on the driver of cultural values: designing contemporary borders enhancing overall landscape quality and identity*
Claudia BATTAINO

732 ID 119. *The analyses of the settlement strategies of the minor historic centres. The case study of Piedicastello in Trento*
Valerio DA CANAL

740 ID 120. *Intimate, etymological design contamination-confines Mediterranean*
Maria Dolores MORELLI

750 ID 121. *Urban Revitalization: "Domus in via degli Orti" Area, in Santa Maria Capua Vetere*
Francesco Pio ARCELLA

760 ID 124. *Intangible heritage between landscape protection and territory development. A plan for the Island of Pantelleria*
Giorgia DE PASQUALE, Serena SAVELLI

766 ID 126. *Historical Vessels as Cultural Heritage. An Italian heritage nowadays underrated by law and community*
Maria Carola MOROZZO DELLA ROCCA, Giulia ZAPPIA

776 ID 128. *Abstract Architectural Design for the Contamination by Cultural Ideas*
Dominik LENGYEL, Catherine TOULOUSE

786 ID 129. *Risks and Landscapes: exploring relationships and opportunities in the Campania Region*
Adriana GALDERISI, Giuseppe GUIDA

794 ID 130. *Villa La Gallietta on Lake Como: an example of best practice in the design, restoration, management and development of cultural heritage*
Roberto DE PAOLIS

803 ID 134. *Reinterpreting urban open spaces as hub with high technological performance*
Rossella FRANCHINO, Caterina FRETTOLOSO, Francesca MUZZILLO

811 ID 135. *A new baroque for the environmental quality of the city*
Roberta COCCI GRIFONI, Maria Federica OTTONE, Graziano Enzo MARCHESANI

817 ID 136. *Contamination between architecture and contemporary art: good practices of temporary use of spaces in the historic city*
Daniele DABBENE

825 ID 137. *"Sapienza" University District, between management and enhancement*
Williams TROIANO, Giuseppe PAGANELLI, Giovanna CRESCIANI

836 ID 140. *Restoration and Ruins. Achievements and Theoretical Issues*
Clara VERAZZO, Mariangela BITONTI

846 ID 141. *The incorporation of vernacular traditions in 20th century erudite architecture and music: a choice of freedom*
Clara Germana GONÇALVES

856 ID 143. *Retrofitting practices: an opportunity to "re-design" the urban built heritage*
Antonio BIXIO, Giuseppe D'ANGIULLI

864 ID 145. *Renewed Sicilian Urban Landscapes. Transformation, Regeneration and Reuse of degraded areas*
Teresa CILONA

874 ID 146. *Learning from Berlin: The Case for Heritage Contamination as Mnemonic Device in Post-Yugoslav Space*
Erika LINDSAY

882 ID 149. *Creative-driven firms. When economics and art merge*
Massimiliano AGOVINO, Maria Carmela GAROFALO, Sabina MARTUSCIELLO, Enrica PAGANO

890 ID 150. *The impact of creative workers on economic prosperity. A regional level analisis in Italy*
Massimiliano CERCIELLO, Antonio GAROFALO, Maria Carmela GAROFALO

898 ID 151. *Echoes of the European "paths": the paths of San Corrado a Noto between history and enhancement of the landscape*
Lucia TRIGILIA, Alessia CICERO

907 ID 152. *Low Frequency Noise Estimation and Reduction in Conditions of Urban Territories (Russian Experience)*
Andrey V. VASILYEV

913 ID 153. *Estimation, Forecasting and Reduction of Vibration Caused by Transport and Industry*
Andrey V. VASILYEV

921 ID 154. *From private to public to cult site. The changing architecture of Pagani's Toselli*
Maria MARTONE, Alessandra Marina GIUGLIANO

931 ID 155. *New tools of strategic management for revitalizing small historical centers: the "Historical Small Smart City" Protocol*
Valentina PICA

944 ID 159. *Landscape and memory of places. The new insert of sacred buildings*
Saverio CARILLO

954 ID 161. *The restoration of the facades of the Royal Palace of Caserta: a new contribution in the knowledge of the materials of the architectural surfaces*
Amalia GIOIA

962 ID 164. *Advanced representation for preservation and communication of cultural heritage*
Giulia PELLEGRI, Francesca SALVETTI

971 ID 165. *The Vases Collections of the Museo Campano. Acquisitions and Installations*
Gianluca DE ROSA

977 ID 166. *Smart materials and Phase Change Material (PCM): potential applications to architectural design*
Federico ORSINI, Paola MARRONE

985 ID 167. *The invention of Castel Sant'Elmo in Naples*
Cesare CUNDARI, Gian Carlo CUNDARI, Maria Rosaria CUNDARI

991 ID 168. *The "measurements" of the Complex of San Carlo alle Quattro Fontane*
Giuseppe ANTUONO

1000 ID 169. *4D-HBIM for the conservation and valorization of cultural heritage*
Cesare VERDOSCIA, Antonella MUSICCO, Giovanni MONGIELLO, Riccardo TAVOLARE, Alessia SALOMONE

1009 ID 170. *Cultural Capital vs. Technological Capital: A Critique of Online Learning Commodity Fetishism*
Rachel Suet Kay CHAN

1017 ID 171. *Sana-school project*
Giuseppe D'ANGELO, Rosaria SAVASTANO

1025 ID 172. *Digital cultural heritage: some notes from conservative experience*
Laura BARATIN, Francesca GASPARETTO

1035 ID 173. *The industrial area of Crotone: from problem to opportunity for development*
Domenico PASSARELLI, Pasquale CITRIGNO, Ferdinando VERARDI

1047 ID 174. *Fascist summer camps. Space, hygiene and distance*
Antonella MARCIANO

1055 ID 175. *Experimental preservation: art, air-pollution, preservation and Jorge Otero-Pailos*
Marina D'APRILE

1065 ID 176. *The conservation of the living religious heritage site of Bagan*
Davide MEZZINO, Tatiana K. KIROVA

1075 ID 177. *Urban archaeology and digital applications: the Amba Aradam station of the underground line C in Rome*
Emanuel DEMETRESCU, Simona MORRETTA, Rossella REA

1085 ID 180. *Design and Bim for the management of hospitals and nursing homes: proposals at the time of Covid-19*
Rosaria PARENTE

1097 ID 187. *Design of contemporary architectures and urban spaces in Paris*
Alessandro CIAMBRONE

1107 ID 188. *Rockfall Hazard and Heritage Sites: a Risk Acceptability Perspective*
Maddalena MARCHELLI, Valerio DE BIAGI

1115 ID 189. *Territorial government polcies for migration management: between generation and overcoming of situations of vulnerability*
Marco CALABRÒ, Laura PERGOLIZZI

1125 ID 190. *Spaces 'con_fusione'*
Enrica BISTAGNINO, Maria Linda FALCIDIENO

1135 ID 191. *Is the conservation of Lombard Industrial Heritage a potential cultural/economic trigger at small/medium urban scale? The study case of Carugo - CO*
Alessia SILVETTI, Chiara BONAITI, Marco STELLATO

1144 ID 192. *Inhabiting the Memory: The Ineffable Contamination*
Maria João MOREIRA SOARES, João Miguel COUTO DUARTE

1152 ID 193. *Urban compositions inspired by memories and possible scenarios*
Enrico PIETROGRANDE, Alessandro DALLA CANEVA

1160 ID 194. *Notes about lieux, space and memory*
Daniele Giovanni PAPI, Fulvio PAPI

1166 ID 195. *Sea, cruises and cities: images and communication of a new status*
Maria Elisabetta RUGGIERO, Ruggero TORTI

1172 ID 196. *Eternitten Village 21: the city of knowledge. From industrial contamination to social and cultural contamination*
Alessandra BADAMI

1182 ID 197. *Design experiments for the Domitian Coast Masterplan*
Gianluca CIOFFI, Alessandro CECE

1192 ID 198. *Historicity and Presentism. Convergences and Conflicts in Heritage Conservation*
Bernard HAUMONT

1196 ID 199. *Protected and degraded landscapes in the La Campana- Peñuelas Biosphere Reserve territory. Central Zone of Chile*
María Dolores MUÑOZ, Gerardo AZOCAR

1205 ID 200. *Built Heritage, Contamination and Aesthetic Theory*
Natasa ZIVALJEVIC-LUXOR, Hartmut PASTERNAK

1213 ID 201. *An intervention on an emerging industrial architectural heritage: the transformation of a chemical plant in Tarragona*
Josep M. TOLDRÀ DOMINGO, Jesus M. ÀLVAREZ ESCOLANO,
Joan Manuel ZAGUIRRE FERNANDEZ, Àngels CANELLAS GENIUS

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