

“Landscape resilience”

Original

“Landscape resilience” / Aimar, F.. - In: PLANUM. - ISSN 1723-0993. - ELETTRONICO. - Planum Magazine:no. 39, vol. II/2019(2019), pp. 24-32.

Availability:

This version is available at: 11583/2859406 since: 2021-01-03T14:12:35Z

Publisher:

Planum. The Journal of Urbanism

Published

DOI:

Terms of use:

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

Publisher copyright

GENERICO -- per es. Nature : semplice rinvio dal preprint/submitted, o postprint/AAM [ex default]

(Article begins on next page)

Planum.
The Journal
of Urbanism

Servizio
monografico
ISSN 1723-0993
www.planum.net

PLANUM MAGAZINE

39/II
2019

UPhD GREEN

**L'Agenda 2030 e l'Obiettivo 11.
L'impegno dei dottorati nella costruzione
di città e comunità sostenibili**

A cura di

Giulia Fini, Valeria Saiu, Claudia Trillo

Introduzione di

Massimo Angrilli

Contributi di

Laura Fregolent, Gabriella Esposito De Vita, Eva Ratti

Testi di

Fabrizio Aimar, Elisa Caruso, Vito D'Onghia, Maddalena Floris,
Filippo Iodice, Luna Klapper, Francesca Leccis, Ilaria Odoguardi,
Vittorio Serra, Federica Vingelli

**UPhD Green. L'Agenda 2030 e l'Obiettivo 11.
L'impegno dei dottorati nella costruzione di città e comunità sostenibili**

a cura di Giulia Fini, Valeria Saiu, Claudia Trillo
Contributi selezionati nell'ambito del Convegno Urbanpromo PhD Green,
Università IUAV di Venezia, Venezia 20 settembre 2019.
Servizio monografico

Planum Magazine no. 39, vol. II/2019
© Copyright 2019 by Planum. The Journal of Urbanism

ISSN 1723-0993
Registered by the Court of Rome on 04/12/2001
Under the number 514-2001

È vietata la riproduzione, anche parziale, con qualsiasi mezzo effettuata,
anche ad uso interno e didattico, non autorizzata.
Diritti di traduzione, di memorizzazione elettronica, di riproduzione
e di adattamento, totale o parziale con qualsiasi mezzo sono riservati per tutti i Paesi.

Gli articoli di questo numero possono essere citati come segue:

Autore (2019), "Titolo", in Fini G., Saiu V., Trillo C. (a cura di),
"UPhD Green. L'Agenda 2030 e l'Obiettivo 11.
L'impegno dei dottorati nella costruzione di città e comunità sostenibili",
in *Planum. The Journal of Urbanism*, no. 39, vol. II/2019.
[I numeri di pagina di riferimento sono quelli indicati in ciascun contributo].

Redazione, impaginazione, ottimizzazione grafica delle immagini: Virginia Vecchi
Progetto grafico: Laura Infante, Teresa Di Muccio

Indice

Premessa

Giulia Fini, Valeria Saiu, Claudia Trillo7

Introduzione

Massimo Angrilli9

Il Dottorato come luogo esplorativo della ricerca sulla sostenibilità: opinioni a confronto. Quattro domande a Laura Fregolent, Gabriella Esposito De Vita, Eva Ratti

Giulia Fini, Valeria Saiu, Claudia Trillo13

Contributi

Landscape Resilience

Fabrizio Aimar24

Il ruolo dei Contratti di fiume nell'attivazione di reti dalla scala locale a quella di area vasta

Elisa Caruso34

Nuovi paradigmi agro-urbani nelle aree periurbane tra città e campagna

Vito D'Onghia42

I servizi ecosistemici per la definizione di un nuovo urban spatial framework: il caso di studio della città di Cagliari Maddalena Floris	54
Sustainable cities and communities through observation of pollution and climate feedback from space Filippo Iodice, Federica D'Acunto	64
Il recepimento dell'Agenda 2030 per lo sviluppo sostenibile: spunti metodologici dalle esperienze statunitensi dei distretti d'innovazione dell'area di Boston Luna Kappler	76
Rischi e sfide ambientali nella città contemporanea. Le infrastrutture verdi come componenti strategiche del piano urbanistico Francesca Leccis	86
Le infrastrutture verdi e blu nel progetto della città contemporanea. Il dispositivo di un'operazione valoriale diffusa Ilaria Odoguardi	94
La frammentazione del paesaggio: teoria ed applicazioni Vittorio Serra	102
I rifiuti da costruzione e demolizione per la rigenerazione di territori in crisi Frederica Vingelli	112
Appendice	
Le ricerche presentate a UPhD 2019	122

Abstract

The landscape is living and constantly changing over time. In this framework, permanence, identity and retaining the memory require the integration of co-evolution in landscape planning. To fill the gap between the theoretical concept of resilience and its translations into spatial plans and projects, landscape resilience seems the emerging concept useful to this end. In this perspective, is recognized a lack of explicit adaptative resilient tools in the current Management Plans of the UNESCO World Heritage Sites, listed as Cultural Landscapes, about discounting identity in relation to the newcomers. In literature, the debate around the relationship between cultural heritage and resilience has opened (Brunetta et al., 2019) and falls into the UN Target 11.4 postulated by the SDG n.11. To better investigate this challenge, a specific UNESCO case-study is being selected: the Vineyard Landscape of Piedmont, Langhe-Roero and Monferrato, Italy (ref: 1390rev). So, it appears crucial grasping the ratio between permanence-memory and dynamic transformations, which interest a vast area in long-term strategies. How is resilience articulated with identity? What is the ratio between persistence and transformation, to reach both the robustness and allow changes for a community-led active protection? Qualitative results will produce both theoretical and practical outputs, useful to «reinforce the community role and the adaptive capacity of systems» (Brunetta et al., 2019), as the insertion of proactive landscape-resilient tools as part of a renewal of the UNESCO Management Plan.

Keywords

Landscape resilience, identity, UNESCO

* **Fabrizio Aimar**, Polytechnic University of Turin, Email: fabrizio.aimar@polito.it

* Article in this issue must be quoted as:

Aimar F. (2019), "Landscape resilience", in G. Fini, V. Saiu, C. Trillo (a cura di), *UPhD Green. L'Agenda2030 e l'Obiettivo 11. L'impegno dei dottorati nella costruzione di città e comunità sostenibili*, Servizio monografico, *Planum Magazine* no. 39, vol. II/2019, pp. 6-14.

Landscape Resilience

1 | Introduction

The landscape is living and constantly changing over time. In this framework, permanence, identity and retaining the memory require the integration of co-evolution in landscape planning. To fill the gap between the theoretical concept of resilience and its translations into spatial plans and projects, landscape resilience seems the emerging concept useful to this end.

In this perspective, is recognized a lack of explicit adaptive resilient tools in the current Management Plans of the United Nations Educational, Scientific and Cultural Organization World Heritage Sites, listed as Cultural Landscapes (UNESCO, 1992), about discounting the landscape identity in relation to newcomers. The ongoing variation of the anthropogenic component risks turning the quality of the landscape unstable, through potential alterations that risk to simplify the interpretation of its characters (Plieninger, Bieling, 2012) and to compromise the legibility of the permanencies. Thus, even the UNESCO Cultural Landscapes are in a potentially condition of progressive distortion (Devecchi, 2015). In literature, the debate around the relationship between cultural heritage and resilience has opened (Brunetta et al., 2019) and falls into the Target 11.4 «Strengthen efforts to protect and safeguard the world's cultural and natural heritage» postulated by the United Nations Sustainable Development Goal n.11 (UN, 2015). The target reveals an interesting operative potential in the UNESCO context, under the cultural mission of the UN SDGs. To better examine this challenge, a specific UNESCO case-study is being selected: the «Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato», Italy (ref: 1390rev).

2 | Material and methods

Towards a resilient scenario, a qualitative approach will be carried out including multi-, trans-disciplinary and systemic methodologies. Embracing the contemporary complexity and the post-postmodernism critical theory, any landscape observance moves from natural sciences, assuming values such as uncertainty and non-linearity (Common & Perrings, 1992), to the multifaceted social-cultural dimension of the human interactions. Considering the system in its analytical level, overall reflections tend to investigate the evolving framework, suggesting possible lines in the prior methodologies once defined the boundaries (Davoudi, 2012, 2013a) and clarified their possible conditions (Folke et al., 2010). However, this implies the «acceptance of ontological uncertainties» (Shaw, 2012), in which the «complexity theory is the epistemological basis of evolutionary resilience» (Davoudi, 2018).

To make them practical, these theoretical findings could be investigated using an on-ground case study, identified in the “Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato” serial site (ref: 1390rev). Inscribed as a UNESCO Cultural Landscape in June 22, 2014 (Decision: 38 COM 8B.41), it was included in the (ii) category «organically evolved landscape»; precisely, it falls in the «continuing landscape» sub-category (UNESCO, Operational Guidelines 2008, Annex 3, p. 86). The sub-category defines a continuing landscape as follow: «one which retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress. At the same time, it exhibits significant material evidence of its evolution over time» Consistently, the European Landscape Convention of the Council of Europe (2000) affirms that «... the landscape has an important public interest role in the cultural, ecological, environmental and social fields ...». Moreover, the Italian Code of the Cultural and Landscape Heritage (2004) also states that «The cultural heritage consists of cultural property and landscape assets» (point 1, p. 10). Consequently, to read its landscape, the Nomination File of this UNESCO World Heritage Site suggests a method of analysis that list 3 different components (natural, cultural-anthropoc and perceptive) and their related aspects (Table I).

The «Cultural-Anthropoc component» (p. 39) includes the «social-cultural structure» that refers to «the sense of belonging, rooting and recognition of the locations. ... The ‘identity’ aspect of the landscape, made up not only of the resident community but of a much broader society of users, is of fundamental importance in order to assign a recognised image to the locations, this being necessary to consolidate the local identity.»

Table I | The Landscape and its Components.

Source: UNESCO World Heritage List, The Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato, Nomination Format Book 1, Preliminary Remarks, 2. Description, Methodology for Reading and Analysing the Landscape, p.39. Author’s elaboration.

	Components	System/structure/features
Landscape	Natural	Geomorphological system
		Hydrogeographic system
		Soil
		Climate
	Cultural-Anthropoc	Agrarian/winegrowing system
		Settlement-architectural system
	Perceptive	Social-cultural structure
Aesthetic visual features		

Qualitative results, coming from surveys and comparisons of two possible case-studies, intend to produce both theoretical outputs, to discuss within the academe, as well as practical ones, useful for the local communities. Practical results could support the managing bodies to «...promote practices with incentives to reinforce the community role and the adaptive capacity of systems» (Brunetta et al., 2019), among which the possibility to insert proactive landscape-resilient tools as part of a renewal of the UNESCO Management Plan, planned with a voluntary deadline of 10

years. If this Plan is intended as an updatable document, a demand for its planning, implementation, monitoring, evaluation and feedback appears vital, as confirmed by the UNESCO's World Heritage Resource Manual (2011, p. 90). Moreover, the Manual explicitly claims for an effective integration of the Sustainable Development principles into the management and an inclusion of the risk preparedness too (p. 90).

3 | Theory/calculation

That said, some queries arise. How is resilience articulated with identity? What is the ratio between persistence and transformation, to reach both the robustness and allow changes for a community-led active protection? It appears crucial grasp the ratio between permanence-memory and dynamic changes, which interest a vast area in long-term strategies. This relation stresses how «the capacity to preserve the know-how and approaches to protect cultural heritage depends on territorial governance, which leads to the possibility of increasing the intrinsic resilience of a system» (Brunetta et al., 2019). Compared to the newcomers in Langhe-Roero & Monferrato, in particular non-native paid labour mainly of Macedonian, Romanian and Bulgarian origin, it seems essential «...the need of local communities to reconstruct their sense of belonging, their history or cultural identity» (Brunetta et al., 2019). For example, Alta-Langa areas of Asti count on a good number of foreign citizens. Particularly, Canelli records 1,872 foreigners (ISTAT, 2019a) out of a total of 10.411 residents (ISTAT, 2019b), more represented by Macedonians (807; ISTAT, 2019c), Romanians (327; ISTAT, 2019c) and Bulgarians (200; ISTAT, 2019c).

Nonetheless, the term 'resilience' does not appear openly in the Dossier, nor in the Management Plan, despite these territories and their societies suffer of several vulnerabilities, including social ones. As listed by the SWOT analysis in the Management Plan (p. 58, fig. 12), the «increase of elderly population» (Weakness) and the «poor social inclusion policies» (Threats) represent critical phenomena, especially if set in a declining context of the agricultural sector (Threats). Indeed, in the UNESCO nomination of the Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato (Decision: 38 COM 8B.41), the World Heritage Committee concludes by further recommending Italy to consider the social values, under point 4.c. It states: «Paying greater attention to the social values that make an important contribution to the management and conservation of the property: winegrowers, companies and workers, wine-growing winemaking trade organizations, the transmission of expertise and know-how, popular traditions, etc.» The assertion is based on the reports drawn up by the International Council on Monuments and Sites (ICOMOS), which advises that «... the intangible social elements that contribute to authenticity should be given more prominence» (p. 312). Latter perfectly fits in the UNESCO definition of Cultural Landscape, which specifies that: «They [Cultural Landscapes, e.d.] are part of our collective identity». Previously, the Faro Convention (2005) has introduced a specific statement that reports: «cultural heritage is a group of resources inherited from the past which people identify, independently of ownership, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions» (point a). Therefore, the prior latent dynamics may cause «the degradation of memory and the community identity» (Brunetta et al., 2019) and the consequent «loss of the sense of belonging». As potential risk factors, they could also compromise both the coming image of the landscape and the sense of communities in the future, at different scales. This could lead to a general vulnerability of the system, undermining the Criterion (v) («... The winegrowing landscape also expresses great aesthetic qualities, making it into an

archetype of European vineyards») and Authenticity («... The Piedmont vineyard landscape is undoubtedly one of the most harmonious and most consistent with the ideal of a 'scenic' rural and vineyard landscape ...») recognized in the Statement of Outstanding Universal Value (OUV).

4 | Results and discussion

With the lens of sustainability, robustness «is the capacity of a system to preserve their stocks and identity after a shock (Anderies et al., 2013) through the reorganization and innovation ability (Adger et al., 2005) » (Voghera, Giudice, 2019). In this sense, examining the persistence of a territorial system seems vital to achieve an effective response, in which the «General resilience provides sources of memory ...» (Gunderson, Holling, 2002; Nykvist, von Heland, 2014; Folke, 2016). If such memory is understood as «the dynamic exercise of remembrance» (Latina, 2018), resilience can be intended as an operative tool to permit an active landscape conservation in a planning perspective (Elmqvist, 2014; Brunetta & Caldarice, 2019), facing challenges and vulnerabilities proper of a dynamic system in a co-evolutive setting. Assuming that «... the landscape contributes to the formation of local cultures and that it is a basic component of the European natural and cultural heritage ...» (European Landscape Convention, 2000), if the ratio between persistence and change implies an intertwined correlation that rely on endogenous community resources (Pratt, 2015), its reduction could diminish the ability of the system in terms of resilience, first locally and then in a larger area. Therefore, the main goal is «... to sustain and transmit to future generations» (point b) an intact or, at least, not further compromised, wine-growing landscape heritage.

Consequently, it seems necessary to base an effective reflection on the contribution of resilience, with respect to update identity in the new inhabitants settled down in these areas. This concept can be potentially included in the second and fourth of the objectives listed in the Management Plan of the UNESCO World Heritage Site «Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato» (named «A 'Social Landscape': (Where to live)» (p. 60) and «An 'Efficient Landscape': (Where to manage)» (p. 62). Specifically, the first one recognizes that: «A landscape is the mirror of local identity», whereas the second one states: «The plan must indicate a vision allowing to efficiently manage the available resources» to improve «... activities of protection, conservation and requalification. » From the combined reading of both, it emerges a common watermark which suggests that the «continuity between the past and future should be integrated in management systems accommodating the possibility for sustainable change» (point iv, p.167). Hence, it is necessary that any actions will be coordinated by the managing body of the Property, i.e. the «Association for the heritage of Vineyard Landscapes of Langhe-Roero and Monferrato». It is responsible for the governance of the territories and also «for the implementation of the Monitoring Plan associated with the Management Plan» (p. 63).

5 | Conclusions

Although the discussed aims reveal a hoped-for centrality in governance and policies, the UN SDGs explicitly discuss the Cultural and Natural Heritage only in the Target 11.4. However, an attempt to introduce the co-evolution in territorial planning can be identified in the Target 11.a but nonetheless does not seem entirely satisfactory for its partial formulation. Considering this state of the art, the current research could contribute to an approach to resilience related to a «strong sustainability understanding» (Neumayer, 2003; Voghera, Giudice, 2019) using it as

a valuable driver of territorial innovation. This auspice should determine possible actions to stimulate systemic resilience, focusing on the landscape to address vulnerabilities such as constant aging of the agricultural population, an insufficient generational turnover and a workforce from Central-Eastern European countries. These dynamics are already underway and are leading to a gradual transition towards new models of territorial governance. Therefore, this change requires to be faced and managed in order to plan possible responses, through specific tools/strategies/guidelines or rules supporting the intangible cultural heritage and foraging for the landscape identity (Butler et al., 2019) in newcomers. The timeline will include short, medium- and long-term actions that can contribute to redefine relationships with design specific policies oriented towards a real spatial resilience, assuming the cultural heritage «as a resource for sustainable development and quality of life in a constantly evolving society» (Faro Convention, 2005).

References

- Beller E., Robinson A., Grossinger R., Grenier L. (2015), *Landscape Resilience Framework: Operationalizing ecological resilience at the landscape scale. Prepared for Google Ecology Program. A Report of SFEI-ASC's Resilient Landscapes Program*, Publication #752, San Francisco Estuary Institute, Richmond, CA.
- Brand F.S., Jax K. (2007), "Focusing the meaning(s) of resilience: resilience as a descriptive concept and a boundary object", in *Ecology and Society*, vol. 12, no. 1, art. 23. DOI: 10.5751/ES-02029-120123
- Brunetta G., Voghera A. (2008), "Evaluating Landscape for Shared Values: Tools, Principles, and Methods", in *Landscape Research*, no. 1, vol. 33, pp. 71-87. DOI: 10.1080/01426390701773839
- Brunetta G., Voghera A. (2014), "Resilience Through Ecological Network", in *TeMA - Journal of Land Use, Mobility and Environment*, pp. 165-173. DOI: 10.6092/1970-9870/2539
- Brunetta G., Caldarice O. (2019), "Spatial Resilience in Planning: Meanings, Challenges, and Perspectives for Urban Transition", in Leal et al. (eds.), *Sustainable Cities and Communities, Encyclopedia of the UN Sustainable Development Goals*, Springer Nature Switzerland AG, Basel, pp. 1-12. DOI: 10.1007/978-3-319-71061-7_28-1
- Brunetta G., Ceravolo R., Barbieri C.A., Borghini A., de Carlo F., Mela A., Beltramo S., Longhi A., De Lucia G., Ferraris S., Pezzoli A., Quagliolo C., Salata S., Voghera A. (2019), "Territorial Resilience: Toward a Proactive Meaning for Spatial Planning", in *Sustainability*, no. 8, vol. 11, 2286, pp. 1-17. DOI: 10.3390/su11082286
- Butler A., Knez I., Åkerskog A., Sarlöv Herlin I., Sang Å. O., Ångman E. (2019), "Foraging for identity: the relationships between landscape activities and landscape identity after catastrophic landscape change", in *Landscape Research*, no. 3, vol. 44, pp. 303-319. DOI: 10.1080/01426397.2019.1580352
- Common M., Perrings C. (1992), "Towards an ecological economics of sustainability", in *Ecological Economics*, no. 1, vol. 6, pp. 7-34. DOI: 10.1016/0921-8009(92)90036-R
- Council of Europe (2000). European Landscape Convention, Florence, Strasbourg: Council of Europe. CETS no. 176, available on <https://www.coe.int/en/web/conventions/full-list/-/conventions/rms/0900001680080621>
- Council of Europe (2005). Framework Convention on the Value of Cultural Heritage for Society, Faro, Strasbourg: Council of Europe. No. 199. <https://www.coe.int/en/web/conventions/full-list/-/conventions/rms/0900001680083746>

- Davoudi S. (2012), "Resilience: A Bridging Concept or a Dead End?", in *Planning Theory & Practice*, no. 2, vol. 13, pp. 299-333. DOI: 10.1080/14649357.2012.677124
- Davoudi S. (2013), "On Resilience", in *disP - The Planning Review*, no. 1, vol. 49, pp. 4-5. DOI: 10.1080/02513625.2013.799852
- Davoudi S., Brooks E., Mehmood A. (2013), "Evolutionary Resilience and Strategies for Climate Adaptation", in *Planning Practice & Research*, no. 3, vol. 28, pp. 307-322. DOI: 10.1080/02697459.2013.787695
- Davoudi S. (2018), "Just Resilience", in *City & Community*, no. 1, vol. 17, pp. 3-7. DOI: 10.1111/cico.12281
- Devecchi M. (2015), "Landscape quality objectives in UNESCO areas: innovative design solutions", in Barovetti C., Rolfo D., Rosa V. (ed.), UNESCO Landscapes Langhe-Roero and Monferrato – World Heritage Site, *Atti e Rassegna Tecnica della Società degli Ingegneri e degli Architetti in Torino*, Turin, pp. 71-81.
- Diamond J. (2005), *Collapse - How Societies Choose to Fail or Succeed*, Viking Press, New York.
- Di Fazio S., Modica G. (2018), "Historic Rural Landscapes: Sustainable Planning Strategies and Action Criteria. The Italian Experience in the Global and European Context", in *Sustainability*, no. 11, vol. 10, 3834. DOI: 10.3390/su10113834
- Elmqvist T. (2014), "Urban Resilience Thinking", in *The Solutions Journal*, no. 5, vol. 5, pp. 26-30.
- Folke C. (2006), "Resilience: The emergence of a perspective for social-ecological systems analyses", in *Global Environmental Change*, no. 3, vol. 16, pp. 253-267. DOI: 10.1016/j.gloenvcha.2006.04.002
- Folke C., Carpenter S. R., Walker B., Scheffer M., Chapin T., Rockström J. (2010), "Resilience Thinking: Integrating Resilience, Adaptability and Transformability", in *Ecology and Society*, no. 4, vol. 15, art. 20. DOI: 10.5751/ES-03610-150420
- Folke C. (2016), "Resilience", in *Oxford Research Encyclopedia of Environmental Science*, Oxford University Press, pp. 1-63. DOI: 10.1093/acrefore/9780199389414.013.8
- Fröhlich K., Hassink R. (2018), "Regional resilience: a stretched concept?", in *European Planning Studies*, no. 9, vol. 26, pp. 1763-1778. DOI: 10.1080/09654313.2018.1494137
- Gunderson L.H., Holling C. S. (2002), *Panarchy: Understanding transformations in human and natural systems*, Island Press, Washington.
- Holling C.S. (1973), "Resilience and stability of ecological systems", in *Annual Review of Ecology and Systematics*, vol. 4, pp. 1-23. DOI: 10.1146/annurev.es.04.110173.000245
- Italian Republic (2004), Code of the Cultural and Landscape Heritage, Legislative Decree no. 42 of 22 January 2004, Italian Republic, Rome. <https://whc.unesco.org/document/155711>
- Istituto Nazionale di Statistica (2019a), Population and Households, Foreigners and Immigrants, Resident foreigners on 1st January: All municipalities. <http://dati.istat.it/Index.aspx?lang=en&SubSessionId=25312d0b-d9ff-4109-9bfa-d33fdc6d218d>
- Istituto Nazionale di Statistica (2019b), Population and Households, Population, Resident population on 1st January: All municipalities. <http://dati.istat.it/Index.aspx?lang=en&SubSessionId=25312d0b-d9ff-4109-9bfa-d33fdc6d218d>
- Istituto Nazionale di Statistica (2019c), Foreigners and Immigrants, Resident foreigners on 1st January - Citizenship: All municipalities. <http://dati.istat.it/Index.aspx?lang=en&SubSessionId=25312d0b-d9ff-4109-9bfa-d33fdc6d218d>

- Jacobs K., Malpas J. (2018), "The Language of Resilience: Ideas and Action in Contemporary Policy-making", in *Housing, Theory and Society*, no. 4, vol. 35, pp. 394-409. DOI: 10.1080/14036096.2017.1308435
- Keane R.E., Loehman R.A., Holsinger L.M., Falk D.A., Higuera P., Hood S.M., Hessburg P.F. (2018), "Use of landscape simulation modeling to quantify resilience for ecological applications", in *Ecosphere*, vol. 9, no. 9, e02414. DOI: 10.1002/ecs2.2414
- Latina V. (2018), "Diego Repetto, Memoriale ai Partigiani caduti a Neive", in *AND*, no. 34, p. 78. ISSN: 1723-9990
- Local Land Services, State of New South Wales, Australia (2016), *Building landscape resilience*, Central West Local Land Services, Dubbo.
- McGreavy B. (2016), "Resilience as Discourse", in *Environmental Communication*, vol. 10, no. 1, pp. 104-121. DOI: 10.1080/17524032.2015.1014390
- Neumayer E. (2003), *Weak versus Strong Sustainability*, Edward Elgar Publishing, Northampton. ISBN: 978-1-78100-707-5
- Nykqvist B., von Heland J. (2014), "Social-ecological memory as a source of general and specified resilience", in *Ecology and Society*, vol. 19, no. 2, art. 47. DOI: 10.5751/ES-06167-190247
- Plieninger T., Bieling C. (2012), "Connecting cultural landscapes to resilience", in Plieninger T., Bieling C. (ed.), *Resilience and the Cultural Landscape: Understanding and Managing Change in Human-Shaped Environments.*, Cambridge University Press, Cambridge, pp. 3-26. DOI: 10.1017/CBO9781139107778.003
- Pratt A.C. (2015), "Resilience, locality and the cultural economy", in *City, Culture and Society*, no. 3, vol. 6, pp. 61-67. DOI: 10.1016/j.ccs.2014.11.001
- Redman C.L. (2014), "Should sustainability and resilience be combined or remain distinct pursuits?", in *Ecology and Society*, no. 2, vol. 19, art. 37. DOI: 10.5751/ES-06390-190237
- Rogers P. (2017), "The Etymology and Genealogy of a Contested Concept", in Chandler D., Coaffee J. (ed.), *The Routledge Handbook of International Resilience*, Routledge, London and New York, pp. 12-23.
- Shaw K. (2012), "The Rise of the Resilient Local Authority?", in *Local Government Studies*, no. 3, vol. 38, pp. 281-300. DOI: 10.1080/03003930.2011.642869
- Tainter J.A., Taylor T.G. (2014), "Complexity, problem-solving, sustainability and resilience", in *Building Research & Information*, no. 2, vol. 42, pp. 168-181. DOI: 10.1080/09613218.2014.850599
- United Nation (2015), *A/RES/70/1, Transforming our world: the 2030 Agenda for Sustainable Development*, UN, New York.
- United Nations Development Programme (2018), *Assessing Landscape Resilience: Best Practices and Lessons Learned from the COMDEKS Programme*, UNDP, New York.
- United Nations Educational, Scientific and Cultural Organization. International Centre for the Study of the Preservation and Restoration of Cultural Property, International Council on Monuments and Sites. International Union for Conservation of Nature (2013), *Managing Cultural World Heritage*, UNESCO, Paris.
- United Nations Educational, Scientific and Cultural Organization, Culture, World Heritage Centre, Activities, Cultural Landscapes. <https://whc.unesco.org/en/culturallandscape/>
- United Nations Educational, Scientific and Cultural Organization, Culture, World Heritage Centre, The List, World Heritage List, Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato <https://whc.unesco.org/en/list/1390/>
- United Nations Educational, Scientific and Cultural Organization, Culture, World Heritage Centre, About World Heritage, The Committee, Committee Decisions,

- Decision: 38 COM 8B.41 - Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato (Italy). <https://whc.unesco.org/en/decisions/6127>)
- United Nations Educational, Scientific and Cultural Organization, Culture, World Heritage Centre, Activities, Cultural Landscapes, Categories and Subcategories. <https://whc.unesco.org/en/culturallandscape/>
- United Nations Educational, Scientific and Cultural Organization, Culture, World Heritage Centre, The List, World Heritage List, Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato, Documents, Advisory Bodies Evaluations, Advisory Body Evaluation (ICOMOS), Vineyard Landscape of Langhe-Roero and Monferrato (Italy) - No 1390 rev. <https://whc.unesco.org/en/list/1390/documents/>
- United Nations Educational, Scientific and Cultural Organization (2011), World Heritage Resource Manual, *Preparing World Heritage Nominations (Second edition, 2011)*, Defining and understanding the property, Management, pp. 89-91. <https://whc.unesco.org/en/preparing-world-heritage-nominations/>
- United Nations Educational, Scientific and Cultural Organization World Heritage List (2014), *The Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato, Executive Summary, Nomination Format Book 1, Nomination Format Book 2, Management Plan*. <https://whc.unesco.org/uploads/nominations/1390rev.pdf>
- United Nations Educational, Scientific and Cultural Organization Institute of Statistics, Explore Themes, Culture, Sustainable Development Goal 11.4. <http://uis.unesco.org/en/topic/sustainable-development-goal-11-4>
- United Nations Educational, Scientific and Cultural Organization World Heritage Centre (2004), *Linking Universal and Local Values: Managing a Sustainable Future for World Heritage, Conclusions and Recommendations of the Conference*. World Heritage Paper 13, Paris. http://whc.unesco.org/documents/publi_wh_papers_13_en.pdf
- Voghera A. (2011), *After the European Landscape Convention. Policies, Plans and Evaluation*, Alinea Editrice, Florence.
- Voghera A. (2015), "Resilience Through Community Landscape Project", in *UNISCAPE En-Route International Seminar*, Ascoli-Piceno, 13-14 April 2015, no. 2, pp. 103-108.
- Voghera A., Giudice B. (2019), "Evaluating and Planning Green Infrastructure. A Strategic Perspective for Sustainability and Resilience", in *Sustainability*, no. 10, vol. 11, 2726, pp. 1-21. DOI: 10.3390/su11102726
- Zebrowski C. (2013), "The nature of resilience", in *Resilience*, no. 3, vol. 1, pp. 159-173. DOI: 10.1080/21693293.2013.804672

Acknowledgements

The author thanks his academic tutor, Prof. Arch. Angioletta Voghera, and even Dr. Ing. Marco Valle, for the kind support in this investigation.