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November 13–14, 2018

San Francisco

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November 13-14, 2018

The Presidio

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Editors: Nora Mitchell, Archer St. Clair, Jessica Brown, Brenda Barrett, and Anabelle Rodríguez

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Applying Resilience Thinking to Management of Cultural and Natural Heritage

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Abstract

Many definitions of heritage exist and none of these are more valid than the other. Overall, most define heritage as something inherited from the past and is valued today. Hence, by default, such definitions are based on an approach that is ‘backward-looking’. Yet, if we are to transmit the heritage resources we inherited from the past to future generations, we also need to adopt a ‘forward-looking’ approach that incorporates future developments of those resources as a basis for action. This article contends that resilience thinking encourages action that can help reconcile conservation and development of heritage. First, it analyses how most current approaches to heritage management are based on a command and control thinking aimed at diminishing variation, change and uncertainty and how such approaches often lead to a perception of conservation and development as an either/or proposition. Second, it explores key aspects of resilience thinking used in other fields and how these can provide a framework for understanding and addressing change in heritage places. Finally, it discusses how resilience thinking could be adapted to the heritage field and contribute to long-term conservation.

Keywords

cultural heritage, natural heritage, resilience, resilience thinking, change, complex systems, development

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Traditional approaches to heritage conservation

The term 'heritage' is used in many different contexts but often refers to resources inherited from the past which have some kind of present value. Heritage is therefore embedded in a 'past'. However, as something to be preserved for posterity, its frame of reference is the future as much as the past (Davison as cited in Feary et al., 2015). Yet, most heritage conservation approaches tend to be based mainly on a past frame of reference or 'backward-looking', aimed at maintaining heritage resources as unchanged as possible. For instance, the Burra Charter, considered to be one of the key guidance documents for heritage conservation, 'advocates a cautious approach to change: do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained' (Australia ICOMOS, 2013:1). Most conservation approaches follow a command and control thinking aimed at diminishing change, variation and uncertainty. This type of thinking is mainly implemented by setting standards, either by passing a law or introducing regulations, that are applicable uniformly (Lodge and Wegrich, 2012).

Whilst command and control thinking provides consistency and clarity, it can also lead to rigidity and lack of flexibility in accommodating the variation often found in heritage resources that do not reflect the most common or standard style. An example of this approach is the application of a set of regulations in an historic centre, determining for instance allowed heights, type of materials to be used, or permitted uses. In most cases, those standards are effective since, in principle, they were designed based on the characteristics of the majority of the historic buildings or other type of elements of the historic centre. However, its application to buildings or elements with different characteristics than those for which the standards were designed might prove counterproductive. For example, if the standard was designed to suit mainly wooden structures, enforcing it in a concrete structure is inadequate, and would require an exception. However, if the law or regulations apply uniformly to the whole listed area, exceptions may not be possible.

That type of approach also assumes a static model of the heritage place, which in many cases leads to an assumption that conservation and development are an either/or proposition. The reality however, is that change is always occurring and rigid attempts to prevent it may ultimately reduce part of the significance of a place. Heritage places are the result of cumulative changes over time, be it through the different historic layers of an historic settlement or a building or the evolution of a landscape or ecosystem. Therefore, heritage places need to be considered as complex and dynamic systems, made of many different parts that are interconnected and interact with one another. As such these places cannot be described by a single or limited number of rules. In fact, applying command and control approaches might prevent desirable changes, making the system more vulnerable in the long-run or even direct its evolution towards undesirable trajectories.

Heritage places as complex and dynamic systems

Complex systems consist of diverse but interrelated parts linked through many interconnections. First, understanding the relationship between those parts might not be possible merely from an understanding of their individual characteristics and second, they may display properties that emerge from those interconnections and these may be as important as the interconnections themselves or the individual parts (Bar-Yam, 2002). Heritage places as complex systems need to be seen as more than a sum of the heritage resources or elements they possess. When describing heritage places, heritage professionals tend to identify the different values assigned by humans to that place as well as the elements or attributes that convey those values. Seldom do they identify or describe the relationships between those values. Work carried out under the Connecting Practice Project, a joint IUCN²/ICOMOS³ initiative, has shown that attempting to do so requires significantly more effort but provides a better understanding of a heritage place as a whole (IUCN and ICOMOS 2015; Leitao et al., 2017).

² International Union for the Conservation of Nature

³ International Council on Monuments and Sites

Heritage places are not just complex systems; they are also dynamic as they change over time. Change can be slow or fast as well predictable or unexpected. Understanding how the place has developed in the past can help identify patterns that can inform how it might continue developing in the future. However, if the dynamics influencing the system have changed, a different development trajectory might emerge. Using again the example of a historic centre, use patterns that have been fairly consistent over time can result in certain social dynamics and a specific sense of place amongst inhabitants. But if tourism activities start replacing traditional commercial or housing uses, that sense of place will change. The physical structures might be retained, however the place would have transformed into something different than it used to be. The so-called AirBnB phenomenon is illustrative of how changing uses result in many heritage places changing rapidly in a short period of time.

Resilience thinking

Resilience is a concept that has gained a lot of traction in the past few years and has been applied in many different fields. The concept used for the purposes of this article builds mainly from its application in relation to social-ecological systems and natural resources management. As Folke et al. explain:

“Resilience was originally introduced by Holling (1973) as a concept to help understand the capacity of ecosystems with alternative attractors to persist in the original state subject to perturbations... In some fields the term resilience has been technically used in a narrow sense to refer to the return rate to equilibrium upon a perturbation” (Folke et al., 2010:1).

Resilience thinking evolved over time beyond the core idea of persistence to incorporate notions of adaptability and transformability. Folke et al. (2010) note that the idea of adaptation and transformation to maintain the resilience of a social-ecological system might seem counterintuitive. However, this ‘framework broadens the description of resilience beyond its meaning as a buffer for conserving what you have and recovering to what you were’ (ibid:6). In

many ways, this description of resilience has been promoted in heritage conservation. However, like social-ecological systems, heritage places are complex and dynamic systems which are constantly changing. Therefore, their capacity to adapt and transform needs to be seen as part of a larger framework to ensure their resilience. Otherwise, there is a risk that the system might persist but in an undesired state.

Within this larger framework, persistence has become equated with the original aspect of resilience as ‘the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks’ (Walker et al. 2004: n.p.). Adaptability is defined as the capacity of a system ‘to adjust its responses to changing external drivers and internal processes and thereby allow for development within the current stability domain, along the current trajectory’ (Folke et al. 2010: 6). Transformability is the capacity of a system ‘to create new stability domains for development, a new stability landscape, and cross thresholds into a new development trajectory’ (Ibid: 6).

Adding to this framework, the Stockholm Resilience Centre has defined seven principles that it considers crucial for building resilience in social-ecological systems namely:

- 1) *Maintain diversity and redundancy* – in general, systems with many different components are more diverse and therefore more resilient. Redundancy provides ‘insurance’ within a system by allowing some components to compensate for the loss and failure of others.
- 2) *Manage connectivity* – connectivity can both enhance and reduce the resilience of a system. In a system with well-managed connectivity, desired effects can spread throughout the system over time while adverse effects can be contained.
- 3) *Manage slow variables and feedbacks* – fast changes often attract more attention, however, slow changes left undetected may cause a system to cross a threshold and reorganize in a different configuration or regime, which might be extremely difficult to revert.

- 4) *Foster complex adaptive systems thinking* – acknowledging that systems are based on a complex and unpredictable web of connections can promote innovation and engage multiple perspectives to solve system problems.
- 5) *Encourage learning* – systems are dynamic requiring constant learning and re-evaluation of existing knowledge.
- 6) *Broaden participation* – broad and well-functioning participation build trust, create shared understanding and uncover perspectives that may not be acquired through more traditional scientific processes.
- 7) *Promote polycentric governance systems* – well-connected governance structures provide broader levels of participation and can swiftly deal with rapid change and disturbance (Stockholm Resilience Centre 2015).

Applying resilience thinking to heritage management

So how could these resilience framework and principles be adapted to better suit heritage management? As already mentioned, in the heritage field, resilience thinking is often limited to aspects of persistence: the aim is to conserve what exists or to recover the system to a particular state. As also discussed earlier, this is influenced by command and control approaches aimed at diminishing change, variation and uncertainty in heritage places. However, applying that approach to all aspects of a system may lead to rigidity and undesirable states. For instance, using again the example of an historic centre, this could be a case of an approach centred mainly on the persistence of the built structures, without much consideration for social adaptations or transformations. If the local population starts moving out because of tourism pressures, leading to the gradual replacement of traditional uses, the place might become a sort of museum or theme park.

This is why it is necessary to expand the framework of resilience thinking to include all three aspects – persistence, adaptability and transformability. This can be achieved by a) identifying which parts of the system need to persist in order to maintain critical function, structure and identity aspects, b) identifying which parts need to adapt in response to certain dynamics and

thereby allow for development along the current trajectory and c) identifying which parts can be allowed to transform in order for the system to continue to evolve in a desired trajectory.

Applying such a framework therefore requires defining the desired trajectory or forward-looking approach: how do we expect the heritage place to be in a 20- or 30-year period? What is the model of development we want? What is the long-term vision for the place? Whilst scenario development is used in a variety of sectors to explore different ways the future might unfold, it is rarely the case in heritage management. Yet it could provide a critical tool for the field as it could advance thinking about critical factors driving change in a place and decide what to do in order to guide it.

Heritage management already employs a number of tools to deal with sudden changes or expected impacts, namely impact assessments or risk management. Yet, in general, these tools are not the best to address slow changes, which cumulatively, if left unaddressed, can lead the system to develop towards an undesired state. This offers a clear example of the potential to adapt (either fully or partly) resilience thinking principles, as those proposed by the Stockholm Resilience Centre, to better suit the needs of the heritage field. For instance, one of those principles, managing slow variables and feedbacks, could prove quite useful to address recurrent issues in heritage management such as changes in farming practices in agricultural landscapes, or loss of traditional knowledge, or gradual replacement of commercial activities that benefit locals by other uses that benefit mainly tourists. This requires first the identification of those variables and second the reinforcement of monitoring systems to include those variables.

Applying the principle of managing connectivity could equally be helpful. For instance, the conservation of many heritage resources requires the use of traditional materials. However, often those materials start gradually disappearing, either due to over exploitation or lack of economic viability, to a point that they are no longer available and new and sometimes unsuitable materials are introduced. Understanding how different aspects of a system interact, including identifying

elements on which that system depends but are not necessarily considered heritage resources, is critical to ensure the resilience of the heritage place in the long-term.

Encourage learning is another important principle to explore. In many heritage places, maintaining traditional practices is critical to conserve their values. But it is important to remember that traditional practices are the result of decades and sometimes centuries-long processes, involving experimentation. Encouraging learning and innovation is not only in line with the nature of those practices but might prove critical to allow those practices to evolve within a desired trajectory and ensure their survival. For example, a certain ritual or process might have been traditionally practiced just by men. However, changes in the society (migration, better job opportunities, etc.) might require women to start practicing it to ensure continuity.

Similar reflections on other resilience thinking principles could be undertaken, however this paper's intention is only to point to the usefulness of adapting those principles to the heritage field rather than attempting to suggest how this could be done in detail. What is considered critical is to advocate for an expansion of the concept of resilience beyond an idea of persistence.

Conclusion

Overall, this article argues that a better understanding of how to manage and adapt to continuous change is needed within the heritage field. Punctuated interventions designed to address sudden disturbances or the impacts of individual projects are insufficient for dealing with ongoing change. Heritage places should be seen as complex and dynamic systems which are the result of change over time, are always evolving and will continue to do so in the future. As systems, they are made of many interrelated tangible and intangible parts and a detailed understanding of those individual parts alone is insufficient. Understanding how they contribute to the dynamics of the system and the interconnections between them is critical to understand the system in its entirety and complexity.

Protecting heritage places for future generations requires a frame of reference that should be anchored in the past but with a vision for the future. This can be achieved with the support of long-term management strategies informed by the use of potential scenarios of different development trajectories. Such strategies should clearly define which heritage resources should persist in an original or static state, which ones should adapt but within the same stability domain and which ones should be allowed to transform into a different kind of resource or to become redundant and be replaced by new types of resources or elements.

Adapting and applying resilience thinking frameworks used in other fields to heritage management could also bring additional perspectives on how to deal with slow changes in heritage places that are often neglected and may give a false sense of stability. Identifying those variables, and their potential cumulative effect, and reinforcing monitoring systems accordingly is also crucial to ensure the long-term resilience of heritage places. A proactive rather than reactive approach to change and development should be fostered amongst heritage organisations and practitioners so that the heritage places we aim to transmit to future generations are not limited to what we have inherited from the past but are enhanced with elements of the present.

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Biographical Notes

Leticia Leitaõ has over fifteen years' experience working with cultural and natural heritage and currently works as an independent consultant. Prior to that, she coordinated several projects for IUCN, ICCROM and ICOMOS, focusing on capacity building and interlinkages between natural and cultural heritage. Trained as an architect, she pursued her doctoral work at the University of Edinburgh, where her research focused on the protection of World Heritage settlements and their surroundings. She also holds an Executive Master in Public Administration with London School of Economics.