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Seismic Risk and Intangible Landscape Heritage on São Jorge

Abstract

Examining remnants of seismic crises on São Jorge in the Azores, an island where risk forms part of memories and physical landscapes, the paper seeks to contrast agency and intangible landscape heritage with the way the risk is presented through centralised risk mapping. These landscapes become visual indicators of the seismic forces operating below, creating an awareness of both future risk and past disasters. The lens of the uncanny and non-representational theory is employed to understand the landscape as a process and thus explore the intangible landscape heritage of the site. Centring landscape architectural fieldwork undertaken on São Jorge in the aftermath of the 2022 seismic crisis, the paper traces the physical conditions and intangible landscape heritage of three sites where traces and memories of seismic crisis in 1808, 1964 and 1980 are visible, preserved or otherwise present. The sites reveal the entanglement of religion, science, emigration and abandonment in seismic crisis. This paper highlights memorial culture and post-disaster practices in the landscape of São Jorge, as uncovered by field work analysis, and argues that these constitute a form of intangible cultural heritage. Resilience can be seen as intangible heritage, as it offers a way of relating to specific local environmental factors and the community as a whole. The resilience and agency within intangible landscape heritage analysed through fieldwork is juxtaposed with the centralised analysis and mapping of risk in the maps published by the European Union (EU) Copernicus programme. Risk mapping projects a possibly disruptive future onto the present land and offers a perception of the landscape centring future zones of destruction and risk. This perception adds another layer of landscape experience to the existing intangible cultural heritage of interacting with post-disaster landscapes.

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Introduction and justification

Disasters are, most basically, terrible, tragic, grievous, and no matter what positive side effects and possibilities they produce, they are not to be desired. But by the same measure, those side effects should not be ignored because they arise amid devastation. The desires and possibilities awakened are so powerful they shine even from wreckage, carnage and ashes. What happens here is relevant elsewhere.” (Solnit 2009)

This paper explores different expressions of risk and resilience in post-disaster landscapes and seismic risk analysis. Examining remnants of seismic crises on São Jorge in the Azores, an island where risk forms part of memories and physical landscapes, the paper seeks to contrast agency and intangible landscape heritage with the way the risk is presented through centralised risk mapping. Forensic disaster analysis was recently emphasised by the United Nations Office for Disaster Risk Reduction, suggesting that actively learning from past, recent and unfolding hazard events is central to creating resilience (UNDDR 2024). The consequences of a disaster rarely end the moment the dust settles, and this paper attempts to examine the intangible heritage and resilience within living with post-disaster landscapes. The community-led landscape practices following hazard events can amount to a form of intangible cultural heritage, which in turn could strengthen community resiliency to future disasters.

Utilising presence on the site as a method for design research (Milligan 2018), fieldwork forms the basis of this post-

disaster landscape analysis. Landscapes can be analysed as sites containing memories and meaning (Schama 1995), and these experiences, memories and meanings can link landscapes with intangible cultural heritage (Roe 2016). The intangible landscape values of a site can be distilled through the way landscapes are experienced and the local practices through which the landscape is embodied. These body-landscape relations can be understood through a framework of non-representational theory (Macpherson 2009; Thrift 1996; Lorimer 2005; Micieli-Voutsinas and Person-Harm 2021; Waterton 2019), where the landscape is seen as emerging through practice and presence. The experience of being in a landscape where remnants of past events invoke an experience of unintentional memorialisation can be analysed through concepts of the uncanny (Trigg 2012; Mitchell and Petty 2020), giving another layer of depth to the experience of intangible cultural heritage of post-disaster sites. The lens of the uncanny and non-representational theory can be used to understand the landscape as a process and thus explore the intangible landscape heritage of the site.

The paper seeks to juxtapose the resilience and agency within intangible landscape heritage with the centralised analysis and mapping of risk in the reports published by the European Union (EU) Copernicus programme. In a world with increasing risk of climate change fuelled natural disasters, the São Jorge case can illuminate the dichotomy of hazard analysis and intangible heritage of resiliency in critical zones.

São Jorge as a seismic landscape

Throughout the spring and early summer of 2022, the island of São Jorge was shaken by a seismic swarm, leading to widespread worries of devastation from earthquakes and volcanic eruptions. This led to intensified monitoring of the seismic movements and mapping of the possible implications of a disaster. Centring landscape architectural fieldwork undertaken on São Jorge in 2022, the paper traces the physical conditions and intangible landscape heritage of three sites where traces and memories of seismic crisis in 1808, 1964 and 1980, are visible, preserved or otherwise present. These landscapes become visual indicators of the seismic forces operating below, creating an awareness of both future risk and past disasters. The Azores archipelago is situated in the middle of the Atlantic Ocean, at a tectonic triple junction where the European plate, the African plate and the North American plate meet and create a seismic hot spot. São Jorge consists of a lifted plateau, 56 km long and 8 km wide at most, with steep sides, and debris plateaus at sea level from past landslides and eruptions. The population of 8,373, just 3.5% of the archipelago total¹, puts it at the relative socio-political peripheries of the archipelago itself and of Portugal and the European Union. Much of the archipelago's history can be read from traces in the landscape itself, showing land use, human presence and abandonment, active geological processes and disasters of the past. This paper examines the intangible heritage of risk and resilience on the island, examining remnants of

seismic activity of the landscape, and the way inhabitants relate to these. This paper argues that these post-disaster landscapes and built environments, the risks embedded in future seismic movements, and the way communities interact with these, constitutes intangible cultural heritage.

Frameworks for site-based analysis of intangible heritage

There are different typologies and methods for assessing intangible cultural heritage reflecting varying definitions of value as well as varying aims of the assessments (Taylor 2017). The intangible heritage embedded in living with seismic risk in the Azores can be seen as tied to a sense of identity and continuity recreated by communities in response to their environment, interaction with nature and their history (UNESCO 2003). Concepts of immaterial cultural heritage can also be seen through the work and definitions of the International Council of Monuments and Sites (ICOMOS).² Examining the vast open ICOMOS archive online³, it appears that much is written about preserving landscape heritage sites in seismic disasters, but limited on the intangible heritage

¹ Numbers from the Azores CENSOS 2021 – Principais Resultados Definitivos

² Work done by ICOMOS found here: <https://www.icomos.org/en/about-icomos/mission-and-vision/icomos-mission>

³ <https://openarchive.icomos.org/>

arising from disasters or originating in the relations between the built environment, natural disasters, and the people and practices of the landscape. Similarly, Roe (2016) reflects on how existing frameworks seem to lack the perspective that intangible cultural heritage can be living, developing or creating anew in new landscape experiences.

Texts that analyse intangible heritage use words such as immaterial and intangible (Costa et al 2015; Chatzigrigoriou et al 2021), and one could argue that these words are sometimes used to describe identical or similar phenomena. The word immaterial has been used extensively in relation to the process of creating architecture, as well as the way architecture is experienced. The immaterial is not equal to the absence of matter, but rather the perception of matter being absent, and thus dependent on the individual using or experiencing the space (Hill 2003). There is a precedent in landscape architecture to emphasise phenomenology in design (Shirazi 2012). Non-representational theory helps to understand landscapes not only through how they are experienced, but how landscapes themselves emerge through presence, practice and embodiment (Thrift 1996). Macpherson (2010) traces the development and application of the term 'non-representational theory', highlighting its different understandings and usages, as well as her own application in body-landscape relations. Non-representational theory is not necessarily a rejection of representation, but a range of theories seeking to move beyond the purely representational, and can be seen

as more-than-representational (Lorimer 2005). Non-representational theory can ground landscape architecture in actual landscapes, rather than abstractions and representations, and give a fuller understanding of our sense engagements with, and entanglements within, landscapes (Waterton 2019). In recent years, there has been a turn to analyse landscapes and the built environment through the lens of non-representational and more-than-representational lenses, applying these frameworks to locality research (Ruan and Prominski 2021) and explorations of affective architecture and memories of place (Micieli-Voutsinas and Person-Harm 2021). Landscapes emerge as a dynamic process and a living relic of the past, rather than a solidified palimpsest. It could be argued that abstraction, although helpful, has taken up too much space in design, leading to a situation where "We dwell in ideas and simulations more than we do actual landscapes," (Milligan 2022). Gaining experience of the specificities of landscapes and understanding landscapes as shaped by practice past and present, makes it possible for landscape architects, planners, as well as officials working with risks and other factors in the landscape, to respond to, and analyse, complex site-specific problems.

Interpretation and memory are significant aspects of the embodied experience of landscapes. Just like the physical layers of the past are active and present in the landscape, there are layers of meaning and symbolism embedded in how we interact with landscapes (Schama 1995). Memory and place are intertwined in a multitude of ways (Schramm 2011), as

some landscapes are assigned meaning as a site for collective remembrance, with an intentional monumentality, designed to convey a memory onto visitors. There are countless examples of memorial culture being used to enforce narratives — monuments are intentional, created to reflect history as trauma (Foster 2010). The uncanny is a phenomenon mirroring memorialism, without the intentionality (Trigg 2011), covering the tension of places being familiar and strange at the same time. Mitchell and Petty (2020) highlight the different expressions of the uncanny, including the temporal aspect of the phenomenon, stating that the uncanny “invokes visions and experiences of the past and the future”, a perspective that is especially relevant on seismically active sites. The perspective of the uncanny can be a useful tool to analyse both the phenomenology of a place, and how the individual’s experience of familiarity, temporality, estrangement and discomfort shape their embodiment of the landscape.

The experience of being in the built environment or a landscape is also shaped by the way it is presented to us. As the seismic crisis on São Jorge in 2022 unfolded, local agencies monitored the situation closely and the EU Copernicus programme published a volcanic risk assessment, using geospatial data to create hazard maps and analyse the possible impact on people and infrastructure.⁴ It is relevant to look at what is included when risks are surveyed and defined. When risk zones are drawn onto a map, they become sites either to protect or sacrifice. These reflections are key to discourse on map-making and its ontology

(Kitchin and Dodge 2007) and models of environmental simulation (Carlsson 2017). Maps, with their data and projections, become part of the way landscapes are perceived. Responding to the fleeting, but useful, nature of map-making, this paper sees the Copernicus risk map as a valuable source of information but not a complete representation of how the landscape and its inhabitants respond to hazard.

⁴ Work done by Copernicus found here: https://emergency.copernicus.eu/mapping/sites/default/files/files/RRM_Reports/EMSNI29_Technical_Report_v01.pdf

Methods and materials

The three sites were chosen due to how they reflect the seismic events they have been shaped by. Building on Milligan's emphasis on "engaging our own bodies as an affective and effective medium for design research," (Milligan 2018), fieldwork is used as the main lens through which the intangible heritage of the sites are analysed. To approach and capture the phenomenology of the landscape, walking and filming the site has been a central qualitative fieldwork methodology. Additionally, the sites have been photographed and sketched, with supplementary notes of plants and materials. This methodology mirrors the landscape architecture practice of site visits, where the aim is often to impose new designs and functions onto the land. Surveying existing conditions, and leaving the landscape as is, can also be seen as landscape design (Treib 2016). Visiting a site is a way of transforming the landscape, as it emerges through presence. This methodology of phenomenology-centred fieldwork seeks to explore the body-landscape relations of the site. This can provide a lens for analysing embedded in post disaster landscapes. However, the research outcomes of this methodology, that is, the embodied encounter with a place, exists in the context of differences and power (Tolia-Kelly 2007), and should be seen as phenomenological observations rather than representations seeking to define the sites. This methodology may lead to different outcomes depending on who it is that experiences the landscape(s), their familiarity with the history or context and status as a visitor or inhabitant of the island. Furthermore, the methodology does not capture local, intergenerational and/or collective experiences of intangible cultural heritage.

Site 1: The church tower ruin in Urzelina



Figure 1: The ruin of the church tower in Urzelina, damaged by the 1808 eruption. The site appears well-kept, underscoring that the site has been carefully maintained by the local population through centuries of varying seismic activity and threats. Author's photograph.

Visiting three post-disaster landscapes

In the Azores, religion is visible through small religious structures (imperios), plaques and public artworks depicting churches, and annual religious processions through the landscape. The religious aspect of seismic resilience and experiences is particularly present on the Urzelina site. Lava flows damaged the church, leaving only the tower and it has remained until today as a symbol and reminder the presence of both seismic risk and religious connotations. In the midst of earthquakes, volcanic eruptions, pyroclastic clouds and evacuations, religious processions took place (Chester et al 2022). There is evidence of similar views and religious significance of volcanic activity, often shown through processions, however this does not equal fatalism and resignation as responses to disaster. The relation between people, the land, and religion leads to practices that amount to intangible heritage. Processions are part of intangible cultural heritage both in the Azores and in other parts of Portugal, often existing outside of but parallel to the rituals of the Catholic Church. However, these spiritual practices are in decline on the mainland (Costa et al 2022). In the Azores these practices of popular spirituality have however been more robust. These religious practices could fall under the UNESCO convention's definition of intangible heritage, due to their "...response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity," (UNESCO 2003).

During a fieldwork visit in October 2022, there were signs of plants and moss occupying the abandoned structure, however, it did not look neglected, indicating that someone was overseeing upkeep of the ruin. The maintenance, presumably undertaken by the local population, is an embodied practice performed on the site. The surrounding space appeared lush and green, and there were no obvious remnants of lava. There was certainly an experience of the immaterial on this site, in both the absence of the church structure, and in the absence of the volcanic forces destroying it. The experience of being on a site with a rather picturesque ruin juxtaposed with past disasters and future seismic movements was peculiar and can be interpreted through the lens of the uncanny (Trigg 2011). The tower was all that remained of the church, so it was not a functioning place of worship. However, the tower is imbued with a significance experienced as symbolic of religion and of resilience, a set of meanings embedded in the landscape (Schama 1996). The site of the church tower in Urzelina allows an experience of the uncanny in the contrast of present tranquility and past disaster. At the same time, the site illuminates the embodied local practices, spanning centuries, related to the ruin through its maintenance and preservation. The Urzelina ruin has survived subsequent seismic crises and can be seen as a symbol of continuous resilience in the landscape.

Site 2: The Velas mural



Figure 2: Mural in Velas of the aftermath of the 1964 earthquake. The memorial presents a structured narrative centring both resilience and emigration, highlighting local post-disaster experiences. Author's photograph.

The varying yet persistent seismic risk of the Azores archipelago over time, and the subsequent culture of recovery and resilience leads to great variation in the way crisis is memorialised. In the central square of Velas, São Jorge's largest village, is a mural with a memorial marking 50 years passing since the February 1964 earthquake. It is estimated that 400 houses were destroyed and a further 900 damaged (Chester, 2022). The drawings and composition of the mural show both disruption and chaos, and community solidarity during the 1964 earthquake. Consisting of white tiles and blue paint, it is in the style of other murals seen on the islands.

Different motifs showcase aspects of the 1964 crisis. There is a gathering of people surrounded by furniture, cooking equipment and milk buckets underneath a shelter structure. A sea full of ships and smaller boats with the silhouette of São Jorge is shown as seen from the south, perhaps representing the evacuation of a significant portion of residents to the nearby islands. At the heart of the mural with farm animals on the roofs. The pavilion in the Velas urban park is depicted, alongside a human and more animals, and a shelter next to a ruin. Paper sheets seem to flow across the mural and turn into birds, perhaps a symbol of the emigration happening after the disaster. The background of the mural shows seismograph readings. This suggests a strong relationship to the scientific understanding of seismic crisis. However, the church still sits undamaged at the centre of the memorial, creating a link to the resilience of the Urzelina church tower.

The memorial tells a story of chaotic crisis, perhaps serving as a rationale for emigration - the population of São Jorge was halved in the six years following this earthquake. In a sense, the mural is also a memorial to those who left the archipelago, highlighting an absence in the community. However, the mural seems to uplift resiliency and solidarity, both in the moment of disaster and in rebuilding, and continuing to live on the island, highlighting the sense of community arising from disaster (Solnit 2009). Behind this resiliency lies a cultural way of relating to the environment. This tradition of adjusting, rebuilding and coping as a community constitutes an intangible heritage that is embedded in the landscape. The memorial is on the central square, yet slightly hidden, making it appear as if one accidentally discovered it is thus an expression of intentional memorialisation showcasing local post-disaster practices. This placed the embodied experience in relation with both the site as it is, a calm village square, and the memorial depicting events happening at the same place.

Site 3: The abandoned lighthouse at Rosais



Figure 3: The Rosais lighthouse and the Atlantic Ocean. The monumental modernist architecture is now characterized by its neglect and abandonment. Absence becomes the defining attribute of the site, and this draws people to experience the uncanniness of the ruin. Author's photograph.

Not all post-disaster sites are memorialised, and the lighthouse run on the westernmost Rosais cliffs offers an alternative experience of ruin and recovery. The 7.2 Magnitude earthquake happened

January 1st of 1980 and severely impacted communities in Terceira, as well as some areas of São Jorge and the other islands in the central group of the archipelago. The earthquake led to severe damages on the

lighthouse structure and the surrounding area, and the lighthouse keeper and their family abandoned the structure.⁵ The ruin of the Rosais lighthouse offers an immersive experience of the devastation and ruin of the seismic tensions the island rests upon. During the fieldwork visit, the landscape was both tranquil and sublime as the traces of the earthquake was overgrown with ruderal plants. Still, the abandoned and visibly damaged structure gave an inescapable awareness of the earthquakes of the past and the risks of the present. This is accentuated by the steep 200 metre cliff the site rests upon, giving the landscape a fragile and stilted appearance.

The lighthouse ruin gate has signposted warnings in Portuguese and English, yet it is clear that the site is visited and that people are seeking out this experience of ruin and abandonment. The towering concrete lighthouse structure, brutalist and monumental in its own way, seemed to symbolise significance far beyond the site, or even the island itself, tied to both its utilitarian purpose and its Estado Novo modernist architecture. The site is straightforwardly experienced through the lens of the uncanny, with its scenic location juxtaposing neglected structures and seismic risk. The very visible abandonment makes the immateriality of the architecture appear almost as present as the ruinous structures. The site stands as a monument and a memory of both past and present unstable seismic conditions, and is, in some ways, experienced as more connected to the present seismic reality than the Urzelina and Velas site. Whereas intangible heritage often appears tied to

presence and practice, the Rosais site, with absence being the defining character, seems disconnected from people. At the same time, this uncanny character draws people to visit and experience the site. The lighthouse is a very visible structure as one approaches the island, appearing as an unintentional monument in the distance.

⁵ <https://www.amn.pt/DF/Paginas/FaroldosRosais.aspx>

Mapping risk

The seismic crises of 1808, 1964 and 1980 and their imprint in the physical landscape and intangible heritage of São Jorge, formed part of the backdrop of the 2022 seismic crisis. The Copernicus risk analysis of the 2022 seismic crisis (Copernicus 2022) sought to provide updated geospatial data, modelling of possible lava flows, and analysis of the potential impact on people and infrastructure. Risk mapping is useful because it is a set of practices using a predetermined and shared representation and style, with the result that mapping works as a tool (Kitchin and Dodge 2007), and in a crisis, these maps and datasets can provide useful information for evacuation and minimising damages. The areas marked as within possible lava flow paths can be irretrievably damaged, and are thus sites of potential future abandonment. The unpredictability of seismic crisis leads to a lived reality of living with risk over generations, and possibly living through devastating seismic disasters. Risk

mapping provides an alternative way of reading and experiencing the landscape, projecting future crisis onto present landscapes. There is a potential contrast in seeing the landscape through the lens of past disasters and resilience, and through the potential risks projected onto the landscape.

A notable aspect of the Copernicus risk analysis is the distinction between high season and low season for tourism when mapping. This may not merely be due to the increased amount of people potentially at risk, but also due to the different ways local communities and tourists need support in a time of seismic crisis. Fundamentally, both groups would need basic needs met in a crisis, as well as evacuation assistance if necessary. However, local communities have lived for generations with these risks, and may experience a crisis within a framework of experiences, narratives, practicalities and intangible heritage that is part of the local culture. Intangible heritage is important to consider in “rural, peripheral or vulnerable territories at risk of depopulation (...) as it broadens the scope for anchoring the local population,” (Costa et al 2022), and the way the local population maneuvers around and interacts with post-disaster landscapes could be part of what anchors them to the archipelago. Increasingly, landscapes are visualised in terms of digital maps on phones, and in the Azorean context, this might mean that the potential seismic disruption, as projected through risk mapping, becomes part of how landscapes are embodied and experienced by both locals and tourists.

Conclusion

The landscape fieldwork undertaken in the aftermath of the 2022 seismic crisis illuminated the variation of both physical characteristics and phenomenology of post-disaster sites in São Jorge. The sites reveal the entanglement of religion, science, emigration and abandonment in seismic crisis. This paper highlights memorial culture and post-disaster practices in the landscape of São Jorge, as uncovered by field work analysis and argues that these constitute a form of intangible cultural heritage.

Although the social contexts in which the seismic crisis of 1808, 1964 and 1980 happened within vary greatly, there is a similar thread of cultural responses to experiencing disaster and living with memories of disruption. Resilience can be seen as intangible heritage, as it offers a way of relating to specific local environmental factors and the community as a whole. Further study of Azorean relations to landscape and resilience, assessing other aspects of local agency, community and identity, is necessary to define and preserve the intangible cultural heritage of the Azores, and potentially situate it within the UNESCO framework.

Methods centring experience can illuminate aspects of risk in the landscape and built environment that seldom are expressed through map-making. Centralised risk mapping, akin to the Copernicus maps, can offer a spatial language for emergency response and planning necessary in volatile seismic situations like the Azores and in other

vulnerable regions. Risk mapping projects a possibly disruptive future onto the present land and offers a perception of the landscape centring future zones of destruction and risk. This perception adds another layer of landscape experience to the existing intangible cultural heritage of interacting with post-disaster landscapes.

The objective of the methodology, emphasising landscape architectural analysis and the embodied experience of the sites, is not in itself to define the

intangible cultural heritage of seismic risk at the sites, but to illuminate its presence and the way people interact with it within the post-disaster landscape. In order to de-centre individual experiences and capture a broader scope of entanglements with the landscape, the methodology could be expanded to include a variation of local experiences of embodied presence on São Jorge or other post-disaster sites where this lens could illuminate heritage and resilience through body-landscape relations.

References

Carlsson, M.K. 2017. "Environmental Design, Systems Thinking, and Human Agency: McHarg's Ecological Method and Steinitz and Rogers's Interdisciplinary Education Experiment." *Landscape journal*. 36 (2): 37–52. <https://doi.org/10.3368/lj.36.2.37>.

CENSOS 2021 – Principais Resultados Definitivos. 2022. SREA - Serviço Regional de Estatística dos Açores. https://srea.azores.gov.pt/Conteudos/Artigos/detalhe_artigo.aspx?idc=26&ida=11061&lang_id=1.

Chatzigrigoriou, Pavlos, Vasiliki Nikolakopoulou, Theodoros Vakkas, Spyros Vosinakis, and Panayiotis Koutsabasis. 2021. "Is Architecture Connected with Intangible Cultural Heritage? Reflections from Architectural Digital Documentation and Interactive Application Design in Three Aegean Islands." *Heritage* 4, no. 2: 664–89. <https://doi.org/10.3390/heritage4020038>.

Chester, David K, Angus Duncan, Rui Coutinho, and Nicolau Wallenstein. 2022. *Earthquakes and Volcanic Activity on Islands: History and Contemporary Perspectives from the Azores*. Routledge.

Copernicus Emergency Management Service Risk and Recovery Mapping. Volcanic Risk Assessment in Sao Jorge, Azores Islands (Portugal). 2022. https://emergency.copernicus.eu/mapping/sites/default/files/files/RRM_Reports/EMSNI29_Technical_Report_v01.pdf.

Costa, Miguel Reimão, Susana Gómez Martínez, Aniceto Delgado Méndez, Catarina Alves Costa, Ana Costa Rosado, and Blanca Del Espino Hidalgo. 2022. "Sustainable Development in Rural and Peripheral Areas Through the Safeguarding of Their Immaterial Cultural Heritage." *Architecture, City and Environment* 17, no. 50. <https://doi.org/10.5821/ace.17.50.11386>.

Foster, Hal. 2010. "New Monumentality: Architecture and Public Space." *Perspecta* 42: 135–39. <https://www.jstor.org/stable/41679230?seq=2>.

Hill, Jonathan. 2003. "Hunting the Shadow - Immaterial Architecture." *Journal of Architecture* (London, England) 8, no. 2: 165–79. <https://doi.org/10.1080/13602360309588>.

ICOMOS "Mission and Vision" <https://www.icomos.org/en/about-icomos/mission-and-vision/icomos-mission>.

Kitchin, Rob, and Martin Dodge. 2007. "Rethinking Maps." *Progress in Human Geography* 31, no. 3: 331–44. <https://doi.org/10.1177/0309132507077082>.

Lorimer, Hayden. 2005. "Cultural Geography: The Busyness of Being 'more-than-Representational.'" *Progress in Human Geography* 29, no. 1: 83–94. doi:10.1191/0309132505ph531pr.

Macpherson, Hannah. 2010. "Non-Representational Approaches to Body-Landscape Relations." *Geography Compass* 4, no. 1: 1–13. doi:10.1111/j.1749-8198.2009.00276.x.

Mieli-Voutsinas, Jacque, and Angela Person-Harm, eds. 2021. *Affective Architectures: More-than-Representational Geographies of Heritage*. 1st ed. Routledge, Taylor & Francis Group.

Milligan, Brett. 2022. "Field Notes on Design Activism: 7." *Places Journal*. <https://doi.org/10.22269/221122>.

Milligan, Brett. 2018. "Design Fieldwork: Reclaiming Affect and Experience as a Primary Locus of Design Knowledge and Expertise." *Landscape Review* (Lincoln) 18, no. 1: 37–55.

Mitchell, Jon P, and Karis Jade Petty. 2020. "Uncanny Landscapes: An Introduction." *Material Religion* 16, no. 4: 401–9. doi:10.1080/17432200.2020.1794576.

Roe, Maggie. 2017. "Landscape and Intangible Cultural Heritage: Interactions, Memories and Meanings." *The Routledge Companion to Intangible Cultural Heritage*, 1st ed., 342–55. Routledge. doi:10.4324/9781315716404-31.

Ruan, Huiting, and Martin Prominski. 2023. "Understanding and Developing Locality with a Non-representational Approach: Cases of Waterfront Spaces along the River Rhine." *River Research and Applications* 39, no. 7: 1356–66. doi:10.1002/rra.3923.

Schama, Simon. *Landscape and Memory*. Fontana, 1996.

Schramm, Katharina. 2011. "Introduction: Landscapes of Violence: Memory and Sacred Space." *History and Memory* 23, no. 1: 5–22. <https://doi.org/10.1353/ham.2011.0001>.

Shirazi, M. Reza. 2012. "On Phenomenological Discourse in Architecture." *Environmental and Architectural Phenomenology*. 23: 11–15.

Solnit, Rebecca. *A Paradise Built in Hell: The Extraordinary Communities That Arise in Disasters*. Viking, 2009. Print.

Taylor, Ken. 2017. "Cultural Landscape Meanings and Values." *Research in Landscape Architecture*, 211–34. Routledge. doi:10.4324/9781315396903-13.

Thrift, N. J. 1996. *Spatial Formations*. SAGE.

Tolia, Kelly, D. 2007. "Fear in paradise: The affective registers of the English Lake District landscape revisited." *Senses and Society*, 2(3), 329–351.

Treib, Marc. 2016. *Austere Gardens: Thoughts on Landscape, Restraint, & Attending*. First edition. ORO Editions.

Trigg, Dylan. 2011. *The Memory of Place a Phenomenology of the Uncanny*. Ohio University Press.

UNESCO. Convention for the Safeguarding of the Intangible Cultural Heritage. 2003. <https://ich.unesco.org/en/convention>.

UNDDR. "GAR Special Report 2024 Forensic Insights for Future Resilience: Learning from Past Disasters." UNDRR, September 17, 2024. <https://www.undrr.org/gar/gar2024-special-report>.

Waterton, Emma. 2019. "More-than-Representational Landscapes." *The Routledge Companion to Landscape Studies*, 2nd ed., 91–101. Routledge. doi:10.4324/9781315195063-7.