

INTERVENTION

Making a Case for an Environmental History of Dunes

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The author discusses some of the challenges of developing the environmental history of the nonhuman, presenting the reasons for undertaking a history of dunes and stressing the role of the environmental humanities in enforcing action against inertia when facing the present global environmental crisis.

Keywords: dunes; ocean; environment; history; Anthropocene; coastal

Introduction

Global environmental changes are now a major concern. They have become a latent threat: one that most people have heard about but few know how to cope with. Sea mean-level rise is one of the biggest menaces of this crisis. It will have serious impacts on coastal areas already deeply affected by human actions. Fluvial and maritime engineering works, agriculture, afforestation and urbanisation have been contributing to the reduction of the availability of sediment, and the destruction of the natural defences of coastal systems leaving them more vulnerable to extreme weather events (Neumann et al. 2015; Nicholls et al. 2007). Land loss, through erosion or submersion, puts at risk ecological, economic, social and cultural values and activities. Dune rehabilitation programs are therefore one of the key priorities in current coastal management as physical barriers in the protection of communities against maritime flooding (Portz et al. 2015).

Discussions on environmental issues have been mainly focused on present and future contexts. To look into the past is an essential tool to better understand recent changes and their challenges. The *longue durée* allows a deeper perspective on the subject, a step ahead of short-scale visions (Guldi & Armitage 2014), displaying how, in different times and places, humans faced environmental changes by adapting, migrating or succumbing to them (Bastos et al. 2018). Besides, historical analysis broadens horizons by showing that things normally thought as immutable – beliefs, norms, tools, technologies, institutions, and political and economic systems – are not only changeable but dynamic and fluid. Thus it is important to understand that the future is not written yet (McNeill 2011: 356). Using history to observe ‘the accidental chain of events that led us here,’ allows a long-term multi-perspective view, widening the capacity to see the available futures, the alternative paths and possibilities that were not considered or dreamed of (Harari 2017: 68–69).

Traditionally, studies about coastal dunes fall under the scope of the natural sciences, which are mainly interested in analysing their location, formation, morphology, vegetation, management and restoring processes. The interaction of people and dunes – the economic, political, social and cultural contexts concerning the human uses and transformation of these spaces – in the long term is poorly known. An environmental history of the dunes, in the way Joachim Radkau (Corona 2009) puts it, as a critical science, would fill this gap, bringing together the knowledge built within different disciplines. Historians, however, were taught that history is a narrative based in facts about mankind over time (LeCain 2017: 11–12). So, can they assemble the history of nonhumans? And why should they? Do the dunes have a history? And how can their history contribute to enhance the Humanities’ role in the discussions concerning the global changes that many call the Anthropocene?

History of the Nonhumans?

Latour (1997: 112) said that history isn’t any more just about humans: it has also started to address the agency of nonhumans. He added that there are hundreds of stories on how the subject makes the object, yet none of them mentions the other perspective: how the object makes the subject.

Twenty years later, most studies in environmental history focus mainly on the way humans are changing the world. Their footprint is so strong in some cases, such as toxic waste, energy regimes, fishing, agriculture and global commodities, that nature’s agency and its capacity to react is often forgotten. With some topics, though, such as the study of natural disasters and maritime and coastal issues, Latour’s point of view becomes quite clear: objects can impose their strength on subjects as well. For example, there are many stories of how moving dunes have forced populations to leave their homes, relocating their belongings – even churches – to start new lives in other places, as they could not stop the drifting sands.

Historians today remain encumbered by the traditional view of the discipline as the ‘history of mankind’: the

'anthropo-' still blocks attention to the fact that humans are not the only species/force able to make (or destroy) worlds (Tsing 2015). But, how would a history be written from an ocean's perspective, or from that of a whale, a bird or a dune? Which driving forces would they focus upon?

Humans cannot write the history of the oceans from the same angle as whales, birds or dunes. However, they should make the effort to produce environmental histories of the oceans in a way that makes possible a 'sound understanding of processes and phenomena from a non-anthropocentric but therefore nevertheless humane perspective' (Winiwarter 2006). Anna Tsing (2015) holds that we are contaminated by our encounters. She believes that it is not possible to keep being blind to the existing histories of other species and environments. Surviving requires collaboration, cross-species entanglements in contingency and conjuncture are part of common landscapes and components of historical times. Nonhuman organisms and natural forces may not 'tell stories,' but they contribute to the overlapping paths grasped as history. Which is, as Tsing puts it, 'the record of many trajectories of world making, human and not human.' She provides the example of pines that, across times and places, change the scene with their presence and transform the trajectories of others such as the *matsutake* and the forest dwellers (Tsing 2015: 168). If pines are historical actors, why can't whales and dunes be too?

How to do this is still a bit of a puzzle. But knowing now how the planet's systems are interconnected, is it possible to keep doing the same kind of history as before, leaving aside all that is not human? Even if this means challenging 'some of the conventions of history' – 'the anthropocentric, nationalistic and documentary bases of the discipline' (Griffiths 2002: 377) or even defying 'the very idea of historical understanding' (Chakrabarty, 2009: 220), is it possible to keep working as if the world is a stage only for human players?

Do Dunes Have a History?

Dunes, just as Helmreich (2014: 267) wrote about waves, 'are *scientific things*, entities at once material and measured, concrete and conceptual', with an existence of their own, independent from humans. Geologists, geographers and sedimentologists have been studying these entities for themselves, counting and analysing sand grains, dating and cataloguing dunes, developing formulae and models to explain how they are formed and why they move. Botanists, biologists and ecologists have recognised dunes as unique ecosystems with several environmental functions. They constitute ecological niches for species adapted to extreme conditions, offering refuge and nesting sites (O'Connell 2008). Dunes also provide services such as sequestering carbon, filtering pollutants and purifying water. Plus, they support a variety of socio-economic activities, recreational uses, aesthetic, psychological and therapeutic opportunities (Nordstrom 2008: 7). Dunes are materialised environments that offer goods and services, but they are also shaped by how they are perceived, studied, used, explored and managed. And

for all that, they are complex social objects (Helmreich 2014). So do dunes have a history? Yes, they do.

Many histories can be written about the entanglement of people and dunes. One, though, is particularly interesting and worth being told. It is the history of a recurrent problem concerning the dunes – sand drifting – common to many places and populations in the world, and the solution found to prevent it, namely afforestation. A strategy that shaped coastal landscapes until today, afforestation was not about conservation, but about survival and preventing disaster. By attempting to control sand, with trees, vegetation and fences, telling stories, transmitting ecological knowledge, writing reports and passing laws on dunes, humans transformed them into hybrid environments. These hybrid forms can be used to think across domains, working with dune phenomena as described by geologists, oceanographers, foresters, historians, writers, painters and coastal populations. Tracing the analogies and disanalogies conjured across such areas allows us to extend and query contemporary conversations between the human and the nonhuman (Helmreich 2014).

Several authors have tried to characterise relations between nature and society and the consequences of this entanglement. In the process, different concepts have been developed as analytical tools. For instance, White (1996) defined the Columbia River as an 'organic machine,' an energy system which, although modified by humans, retains a life of its own. Other authors prefer to use the terms 'socio-natural hybrids,' 'ecotechnological environments,' 'enviro-technological environments' or 'socio-natural sites' (Fischer-Kowalsky and Weisz 1999; Hughes 2005; Pritchard 2011; Winiwarter, Schmid & Dressel 2013). LeCain (2017: 129) took this further, stating that, since the most abstracted technologies are connected to natural cognitive functions and the material possibilities of the world, the gap between anthropogenic and natural technologies does not exist. The point, nevertheless, is that humans change the world, creating new attended and unattended environments, hybrid environments by which they are shaped as well.

Thinking about dunes in such a way is something new, because they are mostly regarded as 'natural environments,' and hardly ever as the product of the dynamic encounters between sea, sand and wind, vegetation, human bodies, knowledge and technology. Scientists may know much about the interactions of the first four elements, but little has been told, so far, about how perceptions, fears, property rights, local economies, traditional and technical knowledge, land reclamation, forest exploitation, state power, and restoration measures, have shaped these environments. And, simultaneously, how actors and institutions, knowledge and technology, identities and state building have been moulded by the need to address the challenge of stopping the drifting sands. Moreover, studying dunes allows us to infer the environmental consequences of dune management and how long-term legacies of these prior interventions can determine practices and future strategies (Winiwarter, Schmid & Dressel 2013), because this is a story that hasn't yet ended.

In the last decades, sand has become a much sought-after commodity: it is an important raw material to many industries and building activities (Gillis 2014). Cities rely on it to expand since it is an essential component of cement, to the point that, in some regions of the world, its illegal extraction is now a lucrative business (Dinh 2020). Meanwhile, as human interventions – like dredging, dams and groynes – are reducing the amount of sediment arriving at the seashore, many beaches are disappearing and have to be maintained through artificial sand nourishments. With all the infrastructures built on the shore and with mean sea-level rise, coastal protection has become a top priority and dune rehabilitation has been included in shore-protection projects as a ‘building with nature’ solution (Elko et al. 2016). Coastal managers and scientists are working to recover these systems, testing (new) techniques, but ignoring often previous ad hoc trial-and-error attempts, feedbacks and the serendipity of former interventions. A history of these past experiences can be useful in developing the knowledge and expertise needed to face today’s challenges.

Ecological restoration programmes are focused on rearranging natural environments. But for that, much more than good intentions and new technologies are necessary. Strategies concerning dunes must account for humans, vegetation, sand, wind and sea, as they all make these environments together. Dunes are, as Tsing (2015) puts it, the product of the unintentional design of the overlapping world-making activities of many agents, human and not human. This consideration is fundamental to avoid the pitfall of overestimating the human capability to control and fix the world: the often counterproductive fight of societies to live safely on shores is a good lesson in how these environments ‘are radical tools for decentering human hubris’ (Tsing 2015: 152).

The Anthropocene: What Do You Do When Your World Is Falling Apart?

The idea of hubris leads to what Brannen (2019) calls the arrogance of the Anthropocene, considering that the concept inflates humans’ relevance based on the belief of the species’ peculiarity. It is not difficult to think like this if the focus is strictly on human action. A broader definition of the concept is that the Anthropocene is a scientific hypothesis based on the premise that humankind has become a global forcing mechanism as important as water circulation, climate, biodiversity, geochemical cycles and sedimentation patterns (Leinfelder 2013: 9). This does not mean that humans are more relevant than the natural systems, only that they have become a driving force among others, affecting an established *equilibrium* that threatens their own existence. This also implies, as Latour puts it, accepting that the world is full of entities – independent of humans – that have the power of acting according to their intention, force, will, need or function (Bartha 2017: 15–16). It implies recognising it as a powerful and dangerous place that escapes human control (LeCain 2015: 23). Precarity, says Tsing, ‘is the condition of our time.’ (Tsing 2015: 20) The twentieth-century illusion of stability and progress, supported by

modern engineering and technological developments, is falling apart in confrontation with the troubles piling up, as ‘we can’t fix anything, even what we have broken, by ourselves.’ Mushrooms, pines, whales and dunes ‘remind us of our dependence on more-than-human natural processes’ (Tsing 2015: 20, 257) and that we have to make a common cause with other living beings.

Humbleness and respect should be the key attitudes concerning the available paths ahead. People can no longer think about the environment on the basis of natural ecosystems or resource exploitation; they have to perceive it also as a heritage, the product of a long coexistence between systems and species, human and nonhuman. The entanglement between humans and the world they belong to is both empowerment and a trap. The manipulation of things is a two-way street (Hodder 2012; LeCain 2017): as past examples have shown, engineered environments are full of unexpected surprises, often only seen after many generations. In fact, natural scientists are still working to understand all the implications of past anthropic actions. Meanwhile, humanities scholars are debating environmental global changes from a philosophical, legal, aesthetic, pedagogical and cultural point of view, trying to offer ‘new kinds of knowledge production and politics, culture, and lifestyles’ (Trischler 2013: 5). These aim to present other modes of thinking and of feeling the problems, proposing new ways of being-in-the-world, and changing the manner by which humans see themselves as part of the environment rather than separate to it (Fiskio 2017: 107; Sture 2012: 430).

In this setting, what can an environmental history of dunes do to contribute to a new order of things? Not much, in fact. Except (maybe) encouraging scholars to ‘make nonhuman organisms and things more central to their narratives’ (LeCain 2017:135), helping to recognise how dependent humans are on the exceptional biotic and abiotic conditions that make their existence possible on earth. Positive and negative examples are needed to temper the anthro-arrogance of trying to fix everything by ourselves, and also to enforce action to fight present inertia.

‘What do you do when your world starts to fall apart?’ asks Anna Tsing (2015: 1).

I go for a walk by the ocean. That helps me to think, to find new paths, to react. Walking on the beach is hard and tiring, the wind is often cold and rough, but the beauty of that landscape forged between the land and the sea, the strength and persistency of the scarce vegetation, the near-absence of human presence, have this therapeutic effect that makes one decide that shutting down is not an option. There, I find stories to inspire others.

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Image, Coto Doñana National Park: <https://www.grida.no/resources/1341>.

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