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FIELD NOTES By **MONIQUE PALMA** / APRIL 27, 2021 @ 8:00 AM

LIKE A GRAIN OF SAND



Doing research on dunes is like being a grain of sand on a very wide beach; there are so many factors to consider and so many ways of looking at them. Sand dunes are interdisciplinary, an approach taken by ***DUNES: Sea, Sand and People***, a project led by **Joana Gaspar de Freitas**, an environmental historian passionate about coastal issues. As anyone knows, passions can be contagious—as I have discovered when I fell for the dunes, too.



DUNES ~ SEA SAND PEOPLE

Logo of the **DUNES** project.

[Image description: a logo that resembles an open book, where the left half is the sea and the right half is sand. Below that, a caption that reads "DUNES ~ SEA SAND PEOPLE"]

I found the project's call for researchers when I was finishing my PhD, just before my defense. I thought it was an out-of-the-box project, and felt compelled to apply. I ended up being selected to be part of the research team. I was very happy and thankful for being entrusted with this task. The new position allowed me to continue working in environmental history, and to work on dunes for the first time. *DUNES* aims to explore the origins, reasons, and means of attempts to transform dunes into forests—a process called afforestation—around the world. We also look at how the creation of such new landscapes impacts local communities and ecosystems, and examine the paradigm shifts that occur when dunes become coastal defenses and rehabilitated environments.



Vegetation used to fix the dunes at Praia da Costa da Caparica, Portugal. Photo by Ana Marcelino, 2019.

[Image description: dunes with vegetation with an elevated wooden ramp for pedestrians to walk over. In the background on the right of the image, a seemingly full beach.]



techniques were part of a broad process of knowledge transfer across Europe and the rest of the world. [1] Why? What could some grains of sand do? Well, blown by the wind, dunes can move and cover churches, lighthouses, villages, or fields, as they did in some regions of Portugal at that time. Before being stabilized with fences, vegetation, and trees, sand dunes were feared and considered dangerous by many.

In the nineteenth century, the transformation of dunes into green forests completely changed local landscapes, causing severe impacts on those ecosystems and nearby communities. In many countries, such as Portugal and France, afforestation works were promoted by the state and carried out by new forestry services. In the United Kingdom, though, afforestation was put into practice by the landowners affected by sand drifting. In the Portugal and France, public authorities considered the stabilization of the dunes as a national priority, while the British government saw the task as a private, local matter.



Praia da Costa da Caparica, Portugal. Photo by Ana Marcelino, 2019.

[Image description: a sign, with an image of a fenced dune, attached to a fence. In the top left corner, it reads "DUNAS EM RECUPERAÇÃO." In the top right corner, "Atenção – Perigo, Erosão marinha." In the middle of the sign, it reads "Por favor, não atravesse esta zona para evitar derrocadas e degradação desta barreira natural."]

In the bottom left corner, it reads "REDUNA," which is the name of the recovery and ecological restoration project on São João da Caparica dune system. In the bottom right corner, a website address "www.m-almada.pt/ambiente".]



infrastructure, pedestrian accesses, and car parks in dunes and coastal forests put these fragile ecosystems at risk. **[2]** Therefore, in light of rising sea levels, coastal managers have increasingly paid more attention to dune systems as part of wider coastal defense strategies. At the beach of Costa da Caparica in Portugal, for instance, local authorities have implemented a program to rehabilitate the dune field, using vegetation and fences to reinforce its capacity to retain sand and work as a barrier against sea flooding. Similar works can be found in other parts of Portugal as well as in Spain, France, Germany and the U.S. **[3]**

Variouly depicted as a feared element or a defense against sea rise, sand dunes conquered a space in human lives. Dunes are protected environments. Dunes are valuable. Dunes are heritage. Dunes are full of history and stories, showing that humans and things are contaminated by encounters. **[4]**

Dunes continue to establish a border between the ocean and the human domains in the coast. In the ocean, considered the origin of all of us, the sand in the seabed is what holds the ground, providing the stability that gives safety in that watery world. **[5]** We do not fear dunes anymore; all those grains clutched together appear to be a solid barrier. Yet this protection may end soon. Sand has become a commodity and is being removed from beaches across the world, sold as material for construction and industry. **[6]** Dunes are being destroyed. This makes the work at *DUNES* all the more relevant; we need to explain and communicate how important these landforms are.



Praia da Memória, Portugal. The obelisk was built in memory of the July 8, 1832 landing of a 7,500-men army commanded by Pedro IV (of Portugal) and I (of Brazil) (for more, see [here](#)). Photo by author (2020).

[*Image description:* a photo of sand dunes fills the image beneath a blue sky. The ocean borders the left of the image, in the middle and to the right wooden fencing and sparse vegetation show efforts to manage dunes.

In the back right corner of the image, an obelisk stands in the distance.]



Praia do Marreco, Portugal. Photo by author, 2021.

[Image description: an empty beach, in front sand dunes with vegetation appear before an elevated wooden ramp for pedestrians to walk over the dune. In the background, a few buildings stand on the left of the image while the right fades into ocean.]

The team at *DUNES* works on different global case studies, with each one of us focusing on a specific area. After working on initial research and setting up a first outline on an individual basis, we come together to improve our outputs, looking at them through an interdisciplinary view. My first case is about the beach of Costa da Caparica. At the moment, I am completing historical research about human intervention at Caparica, starting in the nineteenth century with the first dunes' survey, sand afforestation experiences and implementation, and the construction of a drainage system to eliminate the local wetlands (note: for those interested in this case study, I plan to write about it in another piece for EHN).

Joining this team and working on the *DUNES* project has made me feel like a tiny grain of sand. There is so much that I want to know, there is so much that I still need to learn. Like a tiny grain, I'm in movement, collaborating with my colleagues to fill the blanks, to strengthen our connections, and to build a solid base that allows us to better understand our world of sand.

[1] José Bonifácio de Andrada e Silva, *Memória sobre a necessidade e utilidades do plantio de novos bosques em Portugal* (Lisboa: Tipografia da Academia das Ciências, 1815).



Global Assessment," **PLOS ONE** 10, no. 3 (2015); R.J. Nicholls et al., "Coastal Systems and Low-Lying Areas," in *Climate Change 2007: Impacts, Adaptation and Vulnerability*, ed. Martin Parry et al. (New York, NY: Cambridge University Press, 2007), 361-409.

[3] Matthew M. Linham and Robert J. Nicholls, "Dune Construction and Stabilisation," **Climate Technology Centre & Network**; **NSW Department of Land and Water Conservation**, "Coastal Dune Management: A Manual of Coastal Dune Management and Rehabilitation Techniques" (October 2001)

https://www.coolgeography.co.uk/gcsen/PL_Coastal_Management.php; **RISC-KIT**, "Dune Strengthening, Rehabilitation and Restoration."

[4] Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton, NJ: Princeton University Press, 2015).

[5] Peter Godfrey-Smith, *Other Minds: The Octopus, the Sea, and the Deep Origins of Consciousness* (London: William Collins, 2018); Joana Gaspar Freitas, "Making a Case for an Environmental History of Dunes," **Anthropocenes – Human, Inhuman, Posthuman** 1, no. 1 (2020): 5.

[6] See e.g. John R. Gillis, "Why Sand is Disappearing," **The New York Times** (November 4, 2014).

*Cover image: Praia da Memória, Portugal. Photo by author, 2020.

[Cover image description: The photo shows the dune under fixing process with fences and plants. In the front, a fence line; in the background, a fence consisting of three sides almost forming a square]

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