

KYRIAKI GONI

The mountain-island shall mourn us eternally (Dolomites Data Garden), 2022

Video

Courtesy l'artista

In the video, a hybrid between the *Saxifraga depressa* (an indigenous plant of the Dolomites) and the *Ortiseia leonardii* (a 260-million-year-old fossil conifer) addresses humans on behalf of an entire species.

It describes the migration of plant life to higher altitudes as a response to global warming and the depletion of natural resources. The plant talks about a decentralised alliance of interspecies techno-schamanic communities scattered across the planet, known as *Data Gardens*, i.e. endemic gardens of native plants with a restricted geographical and ecological habitat.

Small secret societies located all over the world preserve their digital memory in the DNA of plants, while also protecting and honouring them, with an emphasis on solidarity and cross-species nurturing.

Through a narrative that mixes reality and fiction, Kyriaki Goni turns the spotlight on a real phenomenon that has long been affecting mountains around the world: over-exploitation of resources, environmental issues and rising global temperatures are forcing many plant species in mountainous areas to migrate to the summits, looking for cooler temperatures.

In the future, plants will increasingly move towards the summits and eventually become extinct.

What future awaits our mountains in terms of ecosystem and landscape? And what scenarios lie ahead for human habitats, if hopes for change are not translated into tangible action?

Credits

Commissioned by the 8th Gherdeina Biennale curated by Lucia Pietroiusti, Head of Ecologies at Serpentine Galleries and Filipa Ramos, writer and curator, curator of the Art Basel Film.

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CGI video edit, 3D model, photogrammetry: Martin Demetz

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The plant in the video states that all living organisms are forever part of a “geological process”. Through the lens of geological processes, we are introduced to the birth of a mountain from what was originally an island under the sea. This for me is a fascinating angle as we biologists study mountain tops, and we often refer to them as islands, because the alpine vegetation is interrupted as elevation decreases, pretty much akin to what happens to vegetation cover as the emerged land of islands become submerged in the ocean that surrounds them.

The plant *Saxifraga depressa*, currently specialized to rocky high elevation outcrops and endemic to the Dolomites, has been witness to the complex processes that have created the Dolomites as we know them today.

Plants certainly have an ancient history of land colonization that long predates humans. They do connect earth and sky and do nurture all higher life on the planet, two details of great importance.

From our chaperon, we learn that the processes forming a Mountain Island, although rooted in geology, are the result of kinship and of collaborative forces. This is certainly true, because it is a myriad of living organisms that collectively create the landscape.

Messaging within and among plant species has been indeed a hot topic of discovery in the past decades: we know now that plants can talk to each other through organic volatile compounds they release in the air (often distress calls), they can certainly communicate – and even share resources – underground through their complex interconnected root systems, they can communicate thanks to signals in the fungal mycelial networks that connects root tips of multiple individuals, and they can communicate intergenerationally with their progeny, by storing critical information in the cytoplasm of their cells. Furthermore, plants emit chemical and electrical signals that allow them to communicate with fungi and insects. According to the plant in the video, human individuals cannot understand communication among plants.

In my interpretation, those who do not understand this high-level communication, including us humans, may fail to part take in the collaborative process that shapes an ecosystem. However, our speaker piercingly reminds us that humans

are shaping the key physical components of the ecosystem because of their exploitation of the ecosystem.

Saxifraga depressa can only survive in cooler climates and thus it has to move, or migrate, upwards towards the tops of the mountains. The same will be true for plants in flatlands that will have to move North. As we know, plants are sessile, so all of any spatially significant movement has to occur through seed dispersal. If warming rates in temperatures are too rapid, such dispersal may never occur.

It is almost impossible not to think of assisted migration i.e. the practice of planting plants higher up or at more northern latitudes than where they are currently found. This practice is a possible tool to counter global warming, but it comes with its own complexities, and it does not address the possibility of slowing down global warming, in fact it kind of accelerates the processes caused by warming, but in doing so it prevents that intermediate phase in which habitat replacement will happen through degenerative processes of plants suddenly growing in unsuitable climates and thus becoming subjected to diseases, insects and wildfires.

One possible interpretation is that of an inevitable tragic ending, in which we will witness the extinction of this plant. This interpretation focuses on what will be lost rather than on what will be gained, as climate changes. In actuality, in a warmer world, entire ecosystem will disappear, but other ecosystems, better adapted to warmer weather, will thrive. Another interpretation is that by choosing *S. depressa*, an endemic organism that has migrated in evolutionary times from lowlands to the top of the mountains, we may have opened a conversation with an organism that has truly witnessed and survived all past climate changes, and as such, can share a deeper local wisdom.

I also note that that the genus *Saxifraga* is known for evolutionary leaps mediated by hybridization between two species, possibly suggesting a non-linear but abrupt possibility of a new hybrid to adapt to the new environments caused by climate change.

One of the undertones of this piece is the affirmation that an alternative intelligence, a deeper knowledge and a biological memory exist in the covenant of all organisms and that in the



↑ sharing and in the complicity among living organisms, but also between the biological and the physical world, lies a possible key to our survival in face of climate change. We do not need a superhero, but a superorganism may be our best chance of survival.

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PARCO FLUVIALE
GESSO E STURA:
ESPERIENZA
DI NATURA

Plant species account for 99.7% of life on Earth, while animals account for just 0.3%.

“Our understanding of plants is quite limited, and often, this limited knowledge is inaccurate. We believe that plants lack the ability to perceive their environment, when in fact they are more sensitive than animals. We are confident that their word is a silent one, whereas plants are excellent communicators. We are convinced that they do not engage in any social interaction, when in fact they are entirely social beings. Most importantly, we firmly believe that plants are incapable of moving. On this we are adamant. Plants do not move, obviously, just look at them. Isn't this exactly the main distinction between animal organisms (living, capable of motion) and plants? Here too, our understanding is flawed: plants are not motionless at all. They move a lot, but over long periods of time. Indeed, plants do not change position, but they do move, albeit not during their lifetime”. [Stefano Mancuso, L'incredibile viaggio delle piante, Laterza, 2018].

Research indicates that changes in average temperature, no matter how small, can have a significant impact on the physiological

functions of plant species due to their sensitivity to climatic variations. The plant world is experiencing effects from the current global warming, including earlier flowering and growth changes, both directly and indirectly through factors like decreased snow cover and soil moisture. High temperatures, together with prolonged droughts, can compromise the photosynthetic capacity of plants and their absorption of carbon dioxide.

The Mediterranean area faces significant risks of species extinction and modifications in community composition, as well as changes in the spread of plant life and woodlands, with the risk of more severe fires and a rise in erosion phenomena.

In Alpine climates found in high-mountain areas, plant communities undergo alterations in their composition and structure, sometimes leading to species moving to higher altitudes. This process forces us to consider the future of plant species that are predominantly found in cold environments and are already confined to the highest summits.

Some studies were carried out as part of the Alcotra CclimaTT Project, of which the Parco fluviale Gesso e Stura was the lead partner.



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