

The vegetation of Gran Canaria changed after the arrival of humans

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The arrival of the indigenous people affected the vegetation on the island and led to the decrease or disappearance of some trees. Credit: José Antonio Peñas/Sinc

Thanks to the analysis of fossil pollen and charcoal remains, a team of

scientists has reconstructed the evolution of the vegetation from Gran Canaria between 4,500 and 1,500 years ago. The study reveals that the disappearance of forests in some parts of the island is due in part to the rise in fires and the cultivation of cereals. Both factors are closely related to the arrival of the first indigenous people to the island.

In recent years, [fossil pollen](#) remains found on the Canary Islands of Tenerife and La Gomera have helped researchers to learn about changes in the composition of these islands' forests during the Holocene (starting around 9,600 years ago approximately), as well as how humans have influenced these variations.

A team of scientists led by the University of La Laguna has now conducted the first study on the vegetation of Gran Canaria by analysing fossil pollen. This analysis has illuminated the dynamics of the vegetation before and after human colonisation of the island. The results of their study have been published in the journal *The Holocene*.

"We have brought to light the importance of thermophilous vegetation (in this case junipers and palms), in the northern part of the island for at least the last 4,500 years, where it was thought that the dominant vegetation prior to the arrival of humans was mainly laurel forests," explains to SINC Lea de Nascimento, a researcher at the University of La Laguna (Tenerife) and the main author of the study.

This study was carried out at Laguna de Valleseco, located in the northern part of the island, where fossil pollen and charcoal remains were extracted, making it possible to determine the natural features of the area during a period of time from approximately 2550 B.C. to 450 A.D.

The decline of the forests

According to the study, about 4,500 years ago the most abundant plant growth in this area of northern Gran Canaria was thermophilous vegetation, whose forests prefer warm temperatures. Among the species, trees of the genus *Juniperus* and the Canary Island date palm (*Phoenix canariensis*) are notable.

Nevertheless, trees began to disappear about 2,300 years ago from the area that was studied, a period of time which coincides with a rise in the frequency of fires caused by volcanic eruptions or by human presence on the island. "Volcanism during that period of time was very low in intensity and probably did not affect the forests being studied," stresses the researcher. Therefore, "[the fires] were most likely caused by humans," she states.

Furthermore, according to the scientist, the data indicate that the earliest inhabitants of Gran Canaria would have arrived to the island a few centuries before the earliest date of human presence known on the island according to archaeological records (1,900 years ago).

From this time onwards, the presence of shrubs and herbaceous plants progressively increases, while other types of vegetation, such as pine and laurel forests, continue to maintain a relatively low presence.

Another of the most significant pieces of data provided by the study is the increase in cereal cultivation -especially from the 2nd century A.D. onwards- a reflection of how this agricultural activity gradually developed on the island.

The cultivation of cereals remained stable from then on, while no recovery of trees -especially fire trees (*Morella faya*)- is observed until the final time period studied, i.e. between the 4th and 5th centuries.

Consequences of human actions

In addition to the pollen remains, fragments of charcoal have been found in the Laguna de Valleseco, a remnant of the fires that took place then. The researchers believe that the inhabitants of the island burned large areas of land in order to obtain new farmland.

De Nascimento points out that the situation in Tenerife was similar to that of Gran Canaria. The arrival of the [indigenous people](#) affected the vegetation on the island and led to the decrease or disappearance of some trees, as well as the expansion of shrubs and [herbaceous plants](#). More fires also broke out and an increase in grasses was detected.

Nevertheless, the study of La Gomera did not reveal any significant change in the composition of the forest following the arrival of humans, which could be explained by the fact that it is a small island that was colonised more recently, about 1,800 years ago, and thus had a smaller population.

"The only way to approximate the original state of the vegetation in the area studied would be to plant the plant species that existed there before the arrival of humans, and to eliminate those that are currently present as a result of human activity," says de Nascimento.

At present, the scientists continue to work in Gran Canaria and Tenerife and are also analysing samples from Lanzarote and Fuerteventura. Outside of Spain, their new research focuses on other islands of Madeira and Cape Verde..

"Our main goal is to reconstruct the dynamics of the vegetation on the islands of Macaronesia over time and to link possible changes in the vegetation with climate change and human impact. Furthermore, we strive to integrate the palaeoecological information into the conservation and management of the nature of the [islands](#)," concludes de Nascimento.

More information: L. de Nascimento et al. Reconstructing Holocene vegetation on the island of Gran Canaria before and after human colonization, *The Holocene* (2015). [DOI: 10.1177/0959683615596836](https://doi.org/10.1177/0959683615596836)

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