

Career Sheet: Phylogenetic Plant Ecologist Researcher



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My name is Rafael Molina Venegas and I teach and research at the Universidad Autónoma de Madrid (Spain). I did my PhD at the Vegetal Biology and Ecology Department of the University of Sevilla. My scientific career revolves around the ecological and evolutionary mechanisms that jointly shape species assemblages at the community and macroecological scales and the links between biodiversity and human well-being.



OVERVIEW OF THE JOB

It is frequently thought that there are scientific investigations that have no impact or are not interesting. This happened to the researcher Thomas Brock in the 1960s when he studied bacteria present in thermal waters in Yellowstone Park. These bacteria and his research have been essential for developing today's PCR diagnostic tests for COVID-19. This is an example of how research in the STEM field improves our lives.



WHAT INSPIRED YOU

Since I was a child, I'm interested in natural life and the environment. But without any doubt, my science teacher in my first year of secondary school marked my academic life and career. He was the person who sparked my interest in learning more about natural sciences and contributing to the knowledge in this field. There is no doubt that the role of secondary school teachers in motivating students for their future careers is very important.



TYPICAL WORKING DAY

A typical day for a researcher in any field involves reading scientific articles written by other colleagues to learn about new concepts, ideas, and theories. Likewise, I always try to make progress in my scientific articles, because all researchers together generate the knowledge necessary to advance in our area of research.



STUDY & CAREER PATH

I did my PhD thesis on Plant Biology and Ecology. During my first postdoc, I became interested in methodological issues related to the use of phylogenies¹ in ecology and macroevolution. Afterward, I spent my professional career in Switzerland at the Institute of Plant Sciences. Here, I worked for two years on a project about biodiversity and ecosystem conservation in Kilimanjaro. All this professional experience is what defined my current professional and research career: the relationship between biodiversity and human well-being.



KEY SKILLS

My availability to travel around the world doing my research and collaborating with other professionals has been very important for my research career. Moreover, in recent years, I made big use of my mathematical skills to define models aimed at understanding the behaviour of different ecosystems, something I didn't imagine when I was studying Biology at university. On the other hand, as a researcher, it is also very important to be published in scientific journals, so writing skills are also very necessary.



CAREER PROSPECT

I've never considered working out of academia so far, thus I don't have a certain answer for that. However, I'm pretty sure that my programming skills would be very much appreciated across many industry sectors. The skills developed as a researcher in this field allow me to work in medical research since I can apply the analysis of models of living organisms, something that can be applied to the study of the origin, development, and evolution of many diseases.



CHALLENGES

Perhaps the main challenge is producing high-quality manuscripts without neglecting lectures. I aim to contribute to the conservation of species by learning and sharing more about their history, the ecosystem services they provide, and the role they play in the global ecosystem.



YOUR ADVICE TO STUDENTS

My advice to students is to develop their studies and professional career in something they really like and to travel with this excuse as much as they can. It'll help them to meet people with the same intellectual interests and it'll always be an enhancing experience.

¹ Phylogenies refer to the study of the evolutionary development of a species or a group.



YOUR ADVICE TO TEACHERS AND PARENTS

My advice to parents is to make it easier for their children to study what they like and to give them access to STEM subjects.



LEARN MORE

If you'd like to know more about Rafael's work, have a look at his website:

<https://rafmolven.wixsite.com/rafmolven>

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