Sesión 4: Invasiones Biológicas

Unravelling the consequences of invasive snakes for endemic lizards and their ecosystems in Ibiza: an integrative overview

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Abstract:

Invasive predators wreak havoc on island ecosystems worldwide. The impact of these invasions is particularly strong when they decimate predator naïve mesopredators, which often play key roles for ecosystem functioning. Our previous research has provided evidence that behavior determines survival of mesopredators exposed to novel predators. It is still not well understood, however, if behavior is a crucial factor determining the success of animal populations coping with invasive predators. In our research laboratory we are currently addressing this question taking advantage of a natural experiment in the Mediterranean. In Ibiza, an endemic keystone mesopredator, the iconic Ibiza wall lizard, is being rapidly decimated by a rapidly spreading predatory whiptail snake. By combining field and lab experiments with cuttingedge molecular tools we are trying to decipher the evolutionary dynamics of the behavior of both native mesopredators and invasive top predators. In addition, we examine whether and how these behavioral shifts alter ecological interactions and modify ecosystem functioning.
In this talk, I will provide an overview on the work my research lab is currently carrying out in Ibiza. Our integrative approach includes studying potential adaptive change in the behavior, morphology of endemic lizards as well as potential phenotypic shifts of their rapidly spreading predators. Importantly, we are also investigating if the reduction of number and even total extirpation of keystone lizards is having an impact through cascading consequences for other organisms (both animals and plants) at the level of the entire biological community across the island. In addition. Finally, I will also present our empirical work testing the hypothesis that urban areas might be acting as refuges for populations of this endemic lizard and introduce planned work for genomics.
Our integrative understanding of the dynamics of animal behavior from genes to ecosystems should transcend this study system and significantly contribute to the conservation of island ecosystems worldwide. We hope our work will promote wellinformed, effective, management strategies for biodiversity conservation of this delicate Mediterranean ecosystems but also for other threatened island ecosystems worldwide.