Research and Conservation of Slovenian Wall Lizards

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"What exactly is so interesting about lizards that made you start working with them?" was a question a friend of mine, an engineer, recently asked. He wanted a practical and applicable reason for it. My answer though, similar to most animal ecologists when talking to their friends and family about work, started at a very broad scale. Why is nature important? How much do we know, and how can we preserve something if we don't first learn about it? What captivates me are the laws of nature that apply the same wherever you go. It doesn't matter if you are in a tropical forest or at the north cap, basic ecological principles apply for all living organisms. A key predator must find its prey, plants need sunlight to photosynthesize, water is circling through the water cycle, and debris needs to be somehow decomposed to nutrients to become available again.

Horvath's Rock Lizard (Iberolacerta horvathi) *is the species more abundant at higher elevations of the Northern Dinaric mountains. (Photo: Miha Krofel)*

The Common Wall Lizard (Podarcis muralis) *occurs in higher densities in the lowlands. (Photo: Miha Krofel)*

Coming out of this general fascination, lizards are my love. I could say they are "in the middle" of the whole food web. My study species are small lizards from the family Lacertidae. Adults measure only 50 to 60 mm from snout to vent. Being small-sized lizards, they can be eaten by bigger lizards, snakes and other predators, and at the same time they themselves are predators and eat prey that is smaller than them (mostly invertebrates). Their influence is therefore important in both directions, and they have a key role in the ecosystem. In natural communities, interactions between the members of community are diverse and common. In reptile assemblages as well, lizards of the same size and similar ecological characteristics are more likely to interact in places where they occur together. Doing my bachelor thesis I've come across these two small, brown similar-looking species of lizards, but found them in three different combinations: each occurring alone, or occurring together. When conducting transect counts I also found that one species is more abundant in the lower locations and the other in locations higher up. What was fascinating to me was how it's possible that they look almost the same in their outer appearance and prefer very similar microhabitats but are not occurring evenly throughout their distributional ranges. What are the factors that influence their spatial segregation, and is there some type of interaction going on between them that is not obvious at first observation?

I am working with different people involved in this topic, and we are investigating different parts of the fundamental niches of both species, their thermal preferences, water-loss properties, behavioral thermoregulation, diet, and parasites. Secondly, we are also investigating their habitat use and predator pressure. We would like to know as much as possible to be able to compare the species and infer possible influences of interactions. Since one of the species is confined to higher elevations at the highest tops of mountains in our study area, possible competition interaction with the more abundant lowland species could in the future under climate change (and the associated raising of environmental temperatures) cause the lowland species to spread higher up and outcompete the species now more abundant there. So, in the end most of the work of biologists leads toward trying to answer some sort of nature-conservation question. In my case, I would like to know as much as possible about my two lizard species to be able to more effectively predict what the future holds for them and to keep them "safe". I don't know if I answered my friend's question as he was expecting from me, but I can only add one more thing—lizards were here before us!