



Occasional vegetarians: wall lizards usually eat insects and other small animals, but they will accept a piece of apricot.

68

Max Planck researchers collaborate with partners in more than 120 different countries. In this article, they write about their personal experiences and impressions. Nathalie Feiner of the Max Planck Institute for Evolutionary Biology in Plön has traveled to the Mediterranean to study the wall lizards found on many islands of the Tuscan archipelago over a two-month period. This reptile-loving biologist cannot be deterred from her quest for unexplored populations – not even by a swarm of jellyfish.

Why are there so many different species throughout the world? What factors have led to such incredible diversity? For me, these are some of the most exciting questions in biology. As part of my search for answers, I am studying wall lizards (*Podarcis* spp.), of which 28 different species are known from the Mediterranean region. These ag-

ile, intricately patterned reptiles are extremely fascinating from an evolutionary perspective: in some species, individuals can look exactly alike even when they live on widely separated islands and are genetically isolated from one another. Meanwhile, the populations of other species on islands located close to each other have diverged into an array of different colors and patterns. What could explain this?

To find answers, I go to the Mediterranean every year. This year I traveled from the Italian mainland to the Balearic island of Formentera via Elba and Sardinia, accompanied by Natalia Zajac and Iris Liesbeth Ruesink Bueno from my research group at the Institute in Plön. We selected a holiday rental in the coastal town of Marina di Campo as our home base, strategically chosen for exploring both Elba and the surrounding islands. For the fieldwork we are joined by research partner Geoff While, who comes up from Tasmania every year for the field season, along with two colleagues from the University of Lund in Sweden.

Naturalists first took an interest in Mediterranean wall lizards as far back as the 19th century. They preserved the animals they caught for research purposes in alcohol so they could be studied later in museums back in their home countries. But by the time they got around to examining the specimens, their bright colors and delicate patterns had faded. Today, we have high-tech cameras at our disposal that render the finest details – even in the UV range – visible. The human eye is unable to perceive the UV-blue spots on the lizard's flanks, but they are clearly visible to the eyes of reptiles. A tiny sample from the tip of a lizard's tail suffices to isolate DNA and sequence the creature's entire genome. That allows us to compare their external characteristics against genetic data – without having to kill the animals.

With a little practice, it's actually not that hard to catch lizards: they are unafraid, particularly on the smaller islands where there are hardly any predators. To catch them, we use a specialized snare pole – a fishing rod with a slipknot tied to the eyelet at the



MARINA DI CAMPO, ITALY

end using a thin thread. We sneak up on the lizards and slowly place the noose over their heads. One swift tug and they're caught. We place captured specimens in little cloth bags for later examination. These bags, by the way, are lovingly tailor-made: my mother personally sewed no fewer than 300 of them! Every lizard is measured and photographed, and we snip off a sample from the tip of their tails for genetic analysis. Then we release them. Whenever we're on expedition catching the lizards in towns and villages, it's quite common for an older Italian gentleman to come over to us at some point to share some tips on the best way to do it. I get the impression that every man in Italy must have hunted lizards as a kid. Of course, trying to catch lizards in front of curious onlookers often presents its own special challenge...

Some of the islands we visit are tiny – some no bigger than a volleyball court! We rent a boat with a local skipper to get out to the islands. If we can't find one, we'll swim out instead – providing that the island isn't too far away, of course. When we do that, we take

along a waterproof bag containing minimal gear: flip-flops, a snare pole, a ruler, scissors, sample tubes, a notepad, and a mobile phone for taking pictures. That way, we can at least find out whether the lizards on a particular island are relevant to our research, and whether a return visit would be worthwhile.

On one such occasion off the coast of Malta, I swam into a swarm of jellyfish. I arrived on the island a little sore, but I was still able to get my work done. As it happened, a luxury yacht was anchored just off the island, and the owners were interested in my research. They told me – a little too late, unfortunately – to watch out for jellyfish in the water. They took me out to another island and were nice enough to drop me off back on the mainland afterward. Though I was somewhat worse for wear, it was a worthwhile outing: the lizards I found that day actually had quite unusual colorings, despite living within swimming distance of their less striking-looking relatives of the same species!



PHOTO: PRIVATE

Nathalie Feiner

41, conducted research into American anole lizards at the universities of Oxford and Lund before discovering her fascination with Mediterranean wall lizards. She has been a Lise Meitner research group leader at the Max Planck Institute for Evolutionary Biology in Plön since June 2024.