

EFFECTS OF FERAL CATS ON THE EVOLUTION OF ANTIPREDATOR BEHAVIORS IN THE AEGEAN ISLAND LIZARD *PODARCIS ERHARDII*

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Island endemics appear to be exceptionally susceptible to invasive predators because of small population size and lack of anti-predator defenses. Our goal here is to determine the impacts of feral cats (*Felis catus*) on the resident populations of Aegean Wall lizards (*Podarcis erhardii*, Lacertidae) in relationship to the expression of anti-predator behaviors. We estimated lizard population densities and anti-predator behavior including flight initiation distance (FID) and autotomy rate in areas with low cat density sites (LCD) versus high cat density (HCD) sites by conducting 100-m transect along drystone walls, on the island of Naxos, and its surrounding islets (Cyclades, Greece). We also staged controlled encounters with mounted cat decoys and quantified escaping responses. Our result shows that lizard densities at LCD sites were 110.8% higher than at HCD sites. Lizards had adapted their anti-predator behaviors in response to cat predation by extending their FID, increasing their capacity for tail autotomy, and by staying closer to refugia. In laboratory predation simulations, lizards from cat-free islets had significantly shorter FIDs than LCD lizards and in particular HCD lizards. However, a number of unique small islet behaviors, presumably evolved in response to lack of predators and to ameliorate chronic conditions of food shortage, appear to render islet lizards strongly susceptible to cat predation. These behaviors include reluctance to use refugia, and investigatory movements towards cats. Nonetheless, we found that repeated exposures over three trials led to significant increases in FID for all populations, indicating at least some behavioral plasticity.