

### **03. Environmental conditions affect body condition of Israeli lacertids**

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Body condition of animals has an important effect on their fitness. An individual in good body condition has better chances of survival and reproduction than an animal with poor body condition. A commonly used measure for assessing body condition is the residuals of a regression of the body mass of an animal against its body size. The larger the residual, the better the condition of the animal is. Body mass may reflect the reproductive or nutritional state of an individual. It can be affected by biotic interactions. Predation pressure, for example, may limit foraging time. Cold climate or little rainfall may also limit foraging possibilities. Only a few studies addressed the geographic determinants of body condition in ectotherms. We tested the effects of climate and topography on body condition of lacertid lizards in Israel and the adjacent Sinai Desert (Egypt). This region shows a



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sharp north to south gradient of temperatures and precipitation, as well as considerable topographic variability, which also affects climate. We tested the effects of mean annual temperature, mean annual precipitation, net primary productivity (NPP) and altitude on lacertid body condition. We collected field and museum data for 1400 specimens, representing 13 species in four lacertid genera. Our results suggest that the body condition is better in hot, dry and low elevation areas. The effect of resource availability (represented by NPP rates) was non-significant. We suggest that these conditions allow lower energetic cost for activity, and more foraging time. These result in higher energetic reserves and thus a higher body mass for a given length.

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