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Observation of a Mesquite Lizard (*Sceloporus grammicus*) With Low Body Condition

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Body condition is an ecological term used to denote the physical state or quality of an individual, usually serving as an indirect measure of energy status, this is, the amount of energy reserves (fat stores) available in one animal (Sion et al. 2021). In addition, body condition must reflect vulnerability to parasites and diseases (Argaez et al. 2018). This information helps explain the variations in individual fitness, since an animal with a better condition (more fat stores) has greater energy reserves compared to an animal in poor condition (Labocha et al. 2014). Body condition index is believed to have a direct impact on fitness and is used to evaluate the animal's health, and it is influenced by factors such as season, reproduction, survival, stress and fasting (McCaffrey et al. 2023).

The Mesquite Lizard (*Sceloporus grammicus*) is a small viviparous reptile, with populations distributed from sea level up to elevations above 4,000 m, with variations in coloration patterns and use of different microhabitats as rocks, trees, and is frequently found in human settlements (Ramírez-Bautista et al. 2014).

We collected lizards in El Cerrillo, Piedras Blancas in Toluca, Estado de México, México (located at 19.41181°N, -99.70067°W, datum WGS84, 2,605 m. elev.). The study site has a temperate sub-humid climate with a well-differentiated seasonality as well as

constant disturbance by both, agricultural and cattle raising practices (Gómez-Benitez et al. 2023).

On 29 January 2024, we captured 40 individuals (13 males and 27 females). The lizards were captured manually during sampling, and sexed based by the presence of post-cloacal scales in males. The following biometric data were recorded: snout vent length (SVL), and tail length (TL) were taken with a digital caliper (precision 0.01 mm) and body mass (BM) was obtained with a Pesola® spring scale (precision 0.5 g). Additionally, since the pregnancy period of the females alters weight, we only calculated the body condition index of males (BCI), from the residuals of a linear regression between log BM and log SVL (Rivera-Rea et al. 2023), where positive values signify that an individual has a greater body mass (a higher amount of stored fat) based on linear regression predicted by SVL, while negative values imply an individual has a lower body mass than expected (McCaffrey et al. 2023).

The SVL of a male was 63 mm, a tail of 82 mm, and mass of 5 g. This lizard showed emaciated conditions, without fat deposits visible in the body, a prominent easily visible vertebral column, and possessed a pale skin coloring (Fig. 1), this lizard had a low BCI = -2.68, compared to the average of other males collected in the same day (BCI = 0.19 ± 0.26 SE, range = from -1.3 to 1.82, $n = 12$; Fig. 2).

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Fig. 1. Adult male of *Sceloporus grammicus* with emaciated condition at El Cerrillo, Piedras Blancas, Toluca, Estado de México, México. Photo by Oswaldo Hernández-Gallegos.

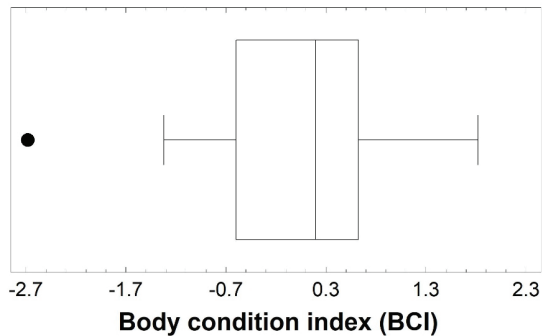


Fig. 2. Box-Plot of body condition index (BCI) estimated in males of Mesquite Lizard, *Sceloporus grammicus*. The filled circle corresponds to the emaciated lizard.

This finding is of special interest due to the rarity of observing this type of situation in the natural environment. It is probable that this lizard was ill, the signs and indicators being an unusually thin physical appearance, lusterless scales, limited movement, and a deficient escape behavior compared to conspecifics in the same study area, indicators of a lower healthy body condition. An emerging health problem in reptiles with similar symptoms is caused by *Cryptosporidium* spp. (Deming et al. 2008) or *Atadenovirus* (Wellehan et al. 2004), however, further studies are necessary to test this hypothesis.

Body condition in males has been suggested to respond to demands in supporting energy reserves, winter nutrition, and it may be affecting morphological or life-history traits such as growth rate and reproduction (Guillette and Bearce 1986, Ramírez-Bautista et al. 2006). Observations of this nature contribute to the understanding of the ecology and health of lizard populations and can be crucial for biodiversity conservation.

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