

Reduced Ventral Coloration in a Male Mesquite Lizard (*Sceloporus grammicus*)

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Ventral coloration in lizards often functions as a secondary sexual trait involved in mate attraction and intrasexual signaling (Cooper and Greenberg 1992). In the Mesquite Lizard (*Sceloporus grammicus*), adult males typically exhibit conspicuous blue ventral patches that may vary in intensity depending on physiological and environmental factors (Hernández-Gallegos et al. 2026).

On 6 April 2026, which corresponds to the non-reproductive season for the species (Granados-González et al. 2025), a capture-mark-recapture survey of the Mesquite Lizard was conducted at “El Cerrillo, Piedras Blancas” Campus, Universidad Autónoma del Estado de México, México. A total of 11 adult males were captured during this sampling session, most individuals displayed the typical condition of intensely blue, well-defined, and symmetrical ventral patches. However, one individual exhibited noticeably less saturated ventral coloration.

This variation is illustrated by comparing two contrasting individuals. A male (Fig. 1; ID 23, left; SVL = 57 mm, tail length = 75 mm, body mass = 5.4 g) displayed highly saturated and clearly defined blue ventral patches. In contrast, the unusual male (Fig. 1; ID 24, right; SVL = 62 mm, tail length = 81 mm, body mass = 6.7 g), showed faint, diffuse blue patches with poorly defined margins, partially interrupted by grayish and orange tones.

To determine whether this individual represented an atypical case within the population, morphometric variables (snout-vent length and body mass) were compared with a box-and-whisker plot (Fig. 2) with those of the remaining adult males captured during the same survey. The analysis indicated that this male falls within the expected range for the population and does not represent an outlier in terms of body size or mass. Additionally, a drop of blood was collected from the tail and analyzed using a Mission HB hemoglobin meter, yielding a total hemoglobin concentration of 5 g/dL. This value is lower than those previously reported for populations of *S. grammicus* at similar elevations (7.6 g/dL; González-Morales et al. 2017), suggesting a potential physiological difference in this individual. Although the biological significance of this finding remains uncertain, reduced hemoglobin concentration could be associated with physiological

or health-related factors that may also influence the expression of ventral coloration.

Despite having greater body size and mass, this male showed a clear reduction in ventral color intensity. Because its morphometric characteristics fall within the normal range, this variation may be associated with physiological factors. Alternatively, it may be due to differences in steroid hormone levels such as testosterone, which are known to regulate the expression of secondary sexual traits and coloration in reptiles (Fox 1971, Cooper and Greenberg 1992, Argaez et al. 2021). Although parasitic infections can also alter coloration in species of the genus *Sceloporus* (Ressel and Schall 1988, Argaez et al. 2021), these changes are often associated with the darkening or melanization of the skin, a pattern that was not seen in this individual.

This observation highlights individual variation in ventral coloration among male *S. grammicus* and suggests that the intensity of this trait may depend not only on body size, but also on endocrine status, physiological condition, and the possible presence of parasites. Future studies incorporating hormone measurements and parasitological assessments will aid in testing this hypothesis more directly.

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Fig. 1. Ventral coloration of two adult males of Mesquite Lizard (*Sceloporus grammicus*) from "El Cerrillo, Piedras Blancas" Campus, Toluca, Estado de México, México. Individual ID 23 (left, SVL = 57 mm) exhibits the typical condition of intensely blue and well-defined ventral patches, whereas individual ID 24 (right, SVL = 62 mm) shows reduced and diffuse ventral coloration.

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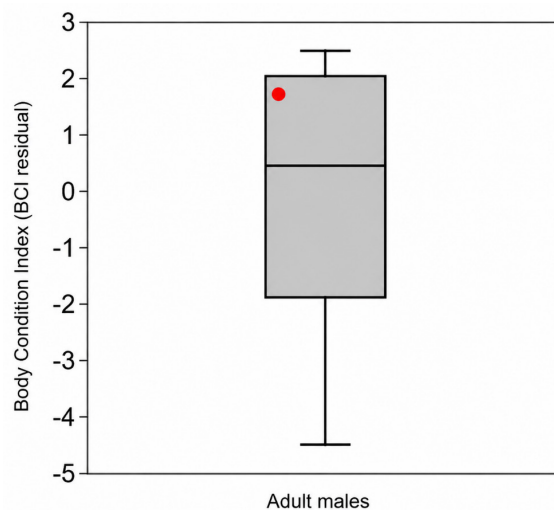


Fig. 2. Box-and-whisker plot of the body condition index (BCI residual) of 11 adult male *Sceloporus grammicus*. The highlighted individual (red dot) with reduced ventral coloration falls within the expected range of variation for the population.

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