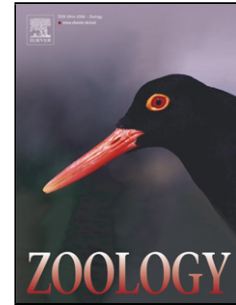


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## Analysis of morphological variability and heritability in the head of the Argentine Black and White Tegu (*Salvator merianae*): undisturbed vs. disturbed environments.

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### Highlights:

- Shape and size of the cephalic region of the tegu lizard was analyzed by geometric morphometrics
- The Cephalic shape and size were compared in individuals from natural vs. disturbed environment
- Individuals from disturbed environments were more homogeneous in shape and exhibited a greater cephalic size
- Intraspecific competition for food is hypothesized to be the determinants of shape and size
- High heritability values were found for cephalic shape and centroid size.

### **Abstract**

The heterogeneity of biotic and abiotic factors influencing fitness produce selective pressures that promote local adaptation and divergence among different populations of the same species. In order for adaptations to be maintained through evolutionary time, heritable genetic variation controlling the expression of the morphological features under selection is necessary. Here we compare morphological shape variability and size of the cephalic region of *Salvator merianae* specimens from undisturbed environments to those of individuals from disturbed environments, and estimated heritability for shape and size using geometric morphometric and quantitative genetics tools. The results of these analyzes indicated that there are statistically significant differences in shape and size between populations from the two environments. Possibly, one of the main determinants of cephalic shape and size is adaptation to the characteristics of the environment and to the trophic niche. Individuals from disturbed environments have a cephalic region with less shape variation and also have a larger centroid size when compared to individuals from undisturbed environments. The high heritability values obtained for shape and size in dorsal view and right side view indicate that these phenotypic characters have a great capacity to respond to the selection

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