

# Sexual dimorphism in the Caucasian Rock Agama, *Laudakia caucasia* (Sauria: Agamidae)

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**Abstract.** Fourteen morphometric and 10 meristic characters in 71 males and 38 females of the Caucasian Rock Agama, *Laudakia caucasia*, from 8 localities on the Iranian Plateau have been examined to quantify sexual dimorphism. Males have larger bodies and limbs, more pointed and more voluminous heads and often more developed callous scales on the midventral and preanal regions, but none of the meristic characters differs significantly between the two sexes. The sexual dimorphism of this species thus agrees with the sexual dimorphism pattern of the agamid and iguanid lizards. Nevertheless, multivariate methods (Multidimensional Scaling and Factor Analysis) cannot generate a fine discrimination between the two sexes, probably because of their slight morphological distance or the overlap of the measured characters in newly-matured individuals.

**Kurzfassung.** Bei 71 Männchen und 38 Weibchen der Kaukasischen Agame, *Laudakia caucasia*, vom Iranischen Plateau wurden 14 morphometrische und 10 meristische Merkmale untersucht, um den Sexualdimorphismus zu quantifizieren. Die Männchen haben größere Körperlängen und längere Körperglieder, spitzigere und voluminösere Köpfe und dazu in der Midventral- und Präanal-Region häufig auch eine stärker entwickelte Beschuppung. Keine der meristischen Eigenschaften unterscheidet sich zwischen den Geschlechtern signifikant. Der Sexualdimorphismus entspricht damit dem Muster innerhalb der agamiden und iguaniden Echsen. Mit Hilfe multivariater Methoden (multidimensionale Skalierung und Faktoranalyse) kann zwischen den Geschlechtern keine Feinunterscheidung herausgearbeitet werden, wahrscheinlich aufgrund der geringen morphologischen Distanz oder aufgrund der Überlappung morphologischer Eigenschaften bei jungen Altieren.

**Key words.** *Laudakia caucasia*, morphometric and meristic analysis, sexual dimorphism, Multidimensional Scaling.

## Introduction

The Caucasian Agama, *Laudakia caucasia* (Eichwald, 1843), is widespread and its range extends from eastern Turkey in the west to eastern Turkmenistan in the east and Transcaucasia in the north (ANDERSON 1999, RASTEGAR-POUYANI & NILSON 2002). On the Iranian plateau, it covers Azerbaijan, Alborz, Kopet Dagh and the eastern slopes of the Zagros (RASTEGAR-POUYANI & NILSON 2002); it reaches its southern limit in Kalahrud (33°38'N, 51°27'E), north of Esfahan Province (ANDERSON 1999). Despite a considerable amount of work that has been carried out on different biological aspects of this lizard, the Iranian populations are still poorly known. We report here our results on sexual dimorphism, which has not been studied before.

## Material and methods

We examined morphometric and meristic characters in 71 males and 38 females. The material was collected during expeditions between March 2004 and September 2005, and from 8 localities