

Geographic variation in the laryngeal morphology of a widely distributed South-American anuran: behavioural and evolutionary implications

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Abstract

Sound-producing organs generate acoustic signals that have a fundamental role in communication systems. In species exhibiting different biogeographic patterns, variations of these structures can explain a large part of interpopulation differences of their signals. *Pleurodema thaul* is an anuran with an extensive geographic distribution in Chile and presents an evident divergence in its acoustic signals among three genetic/bioacoustic groups (i.e. northern, central and southern). By means of classic histology and 3D-reconstructions, we study the geographic variation in the larynx of *P. thaul* males from these three groups. In addition, volumes of six laryngeal structures are used as predictors of acoustic characteristics of advertisement calls recorded in previous studies for the same subjects used in the current study. After removing the effect of body size, the arytenoid cartilage, dilator muscle and vocal cords show significant differences between the three bioacoustic groups. Furthermore, arytenoid cartilage and dilator muscle volumes predict some temporal parameters and also the dominant frequency of advertisement calls. Our results show important geographic variation in laryngeal morphology, which is in correspondence with acoustic, behavioural and genetic variation in this species.

Palabras clave

Palabras clave de autor: [3D-reconstruction](#); [advertisement call](#); [animal communication](#); [intraspecific variation](#); [larynx frog](#); [Pleurodema thaul](#); [sound](#); [voice](#)

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