

AGGRESSIVE CALLING IN TREEFROGS

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ABSTRACT

Acoustic communication plays a major role in many of the social activities of frogs. A great deal is known about communication in some contexts, such as mate choice. Aggressive communication, however, has received little attention in frogs. Most frog species produce some kind of aggressive vocalization. These aggressive calls are often given in the context of defense of territories or temporary calling spaces. Little is known about how aggressive calls are used to mediate these interactions. In particular, the communicative significance of aggressive calls, in terms of how assessment proceeds via aggressive calling, is unknown. The aim of my dissertation was to document the behavioral significance of aggressive calling behavior in two treefrog species. In *Dendropsophus ebraccatus*, a Neotropical treefrog, I examined i) the plasticity of the aggressive response; ii) the effects of multiple competitors and a changing social environment on aggressive calling; and iii) the importance of aggressive calls in competitive call timing interactions. I found that males are highly responsive to aggressive calls and that the aggressive call appears to function primarily to regulate competitive call timing interactions. In the gray treefrog *Hyla versicolor*, a common North American species, I staged interactions between males in order to examine the determinants of success and the level of escalation in contests. I specifically compared aggressive call characteristics of winners and losers of different types of aggressive interactions to determine whether or not assessment of aggressive calls may play a role in determining contest outcome. I found that body size played little role in determining the outcome of contests. However, certain characteristics of aggressive calls, particularly those that are likely related to energetic expenditure, were important in determining the eventual winner and loser of contests and are likely involved in competitor assessment.