Amplification and spectral shifts of vocalizations inside burrows of the frog Eupsophus calcaratus (Leptodactylidae)

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A variety of animals that communicate by sound emit signals from sites favoring their propagation, thereby increasing the range over which these sounds convey information. A different significance of calling sites has been reported for burrowing frogs Eupsophus emiliopugini from southern Chile: the cavities from which these frogs vocalize amplify conspecific vocalizations generated externally, thus providing a means to enhance the reception of neighbor's vocalizations in chorusing aggregations. In the current study the amplification of vocalizations of a related species, E. calcaratus, is investigated, to explore the extent of sound enhancement reported previously. Advertisement calls broadcast through a loudspeaker placed in the vicinity of a burrow, monitored with small microphones, are amplified by up to 18 dB inside cavities relative to outside. The fundamental resonant frequency of burrows, measured with broadcast noise and pure tones, ranges from 842 to 1836 Hz and is significant