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SPATIAL AND VOCAL RESPONSES TO HETEROSPECIFIC VOCALIZATIONS IN A NATIVE-INVASIVE FROG PAIR IN NEW MEXICO AND IMPLICATIONS FOR CONSERVATION OF THE THREATENED NATIVE SPECIES

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Rationale. To avoid heterospecific interference, frog species, which rely on acoustic communication for mating, have evolved unique calls and differentiate in temporal, spatial, or structural acoustic dimensions. Anthropogenic frog introductions, or natural range expansions, may however result in co-occurrence of frog species with similar vocalizations but no co-evolutionary history. The effects of the introduction of novel vocalizations of invading species on native species is in general understudied but has many potential impacts on the survival of native populations. With each species of an invader-native frog pairing naïve to the heterospecific calls, there is potential for species misidentification and spatial attraction to heterospecifics. Novel invader calls may also mask the acoustic signal of a native species. If male frogs are unable to exhibit vocal plasticity, females may be unsuccessful in finding mates, which could reduce reproduction in populations and be a source of declines. There are only a few studies investigating these impacts and they have all focused solely on whether native frogs exhibit vocal plasticity in response to invader calls. This research proposes to assess these impacts of vocalizations of invasive frogs in the pairing of the now co-occurring threatened Chiricahua leopard frog and introduced American bullfrog in New Mexico.

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