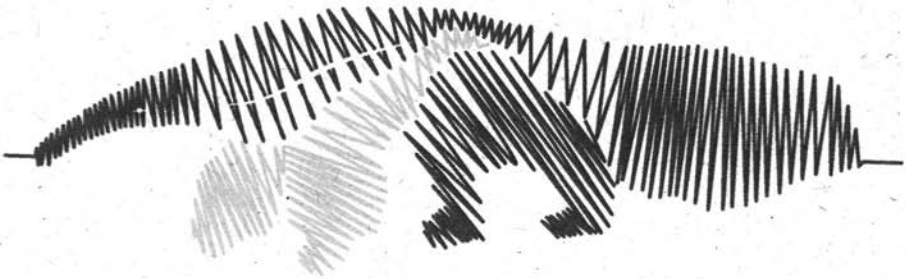
IBAC Brazil 2013



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Interspecific aggression can play an important role in determining species distributions by mediating competitive exclusion at the range edge. In this study, I evaluate the role of interspecific aggression in maintaining the abrupt replacement of Alstons singing mice (*Scotinomys teguina*) by Chiriqui singing mice (*S. xerampelinus*) on the highest mountains of Costa Rica and Panamá. Males of both species commonly emit species-specific trills that are used in male-male aggression and mate attraction. Comparative biogeographical surveys, interspecific behavioral trials, and reciprocal removal experiments indicate that *S. teguina* is limited by the presence of dominant heterospecifics, whereas *S. xerampelinus* may be limited by abiotic factors. Character displacement in response to playback suggests that *S. teguina* perceives heterospecific song differently in allopatry than in local sympatry, reflecting emancipation from interspecific aggression. Accordingly, the auditory tuning of mouse brains differs between sympatric and allopatric populations to accommodate the ecological salience of song. The findings highlight how behavioral interactions mediated through acoustic signaling contribute to altitudinal zonation in Neotropical singing mice. Financial Support: American Museum of Natural History, American Society of Mammalogists, National Science Foundation, Organization for Tropical Studies, Society for Integrative and Comparative Biology, Sigma Xi, University of Florida.

Acoustic communication and genomic data as markers of divergence among populations of speckled ground squirrels.

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Abstract. A comparison of call structures between and within populations of the same species may highlight mechanisms of divergence of acoustic features at initial stages of speciation. We compared the alarm call structure between two populations of speckled ground squirrels *Spermophilus suslicus* (Zarajsk and Lipetsk, Russia), located in 540 km from each other on the axis north-south. We analyzed alarm calls of 160 individuals, 80 individuals per population, 20 individuals per age/sex class (males, females, adults, pups), 10 alarm calls per animal. Recordings were made within a month after emergence from hibernation, from animals captured in live-traps and calling toward approach of surrogate predator (human). MANOVA did not reveal effects of sex on the alarm call fundamental frequency (f0) variables ($F_{1,156}=0.56$; $p=0.45$); however showed a small significant effect of age ($F_{1,156}=5.60$; $p < 0.05$), and and a strong and significant effect of population ($F_{1,156}=183.35$; $p < 0.001$). The f0max of alarm calls of Zarajsk ground squirrels was much higher compared to those of Lipetsk ground squirrels (9.71±0.60 vs 8.47±0.57 kHz) and lower in adults compared to pups (8.98±0.84 *vs* 9.20±0.85 kHz), but did not differ between sexes (9.06±0.78 *vs* 9.10±0.92 kHz). Genetic distances between populations were calculated based on data of genetic polymorphism of mitochondrial DNA D-loop control region (1150 b.p.), obtained by a method of direct sequencing of individuals, included into the acoustic analysis. The examined mtDNA marker was found very conservative at within-population level, but the variation was found sufficient for the between-population comparison. This study should be expanded with adding more number of populations and by applying more variable genomic markers (microsatellites from nuclear DNA). Financial Support: RFBR grants 12-04-00260 and 12-04-31274.

Analysis of the Agoutis distress call (*Dasyprocta leporina*) in captivity

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Abstract. The distress calls tend to present a typical pattern along different groups of animals. This call is uttered by the majority of animals in situations of threat against a predator in nature or during human containment activities in captivity. The last one was the situation when we recorded the Agoutis distress call (*Dasyprocta leporina*), a diurnal rodent from the neotropical region with low sociability and relatively simple acoustic repertoire. We recorded ten distress calls of agoutis in captive in the Federal University of Para (Brazil) in a total of 23 minutes of recordings. We performed these recordings during the handling of the animals by the keepers (activities of feeding and cleaning cages) or when they were subjected to human presence and approach. The Agoutis distress call is composed by series of short duration notes. The mean duration of the notes is 897 ms (± 453; n = 539) and the mean bandwidth of the call varies from 73 (± 54; n = 539) to 639 Hz (± 139; n = 539) with the mean intensity of 160 dB (± 6; n = 539). These results indicate that Agoutis distress call is a loud and low pitch signal. Bioacoustics analysis of distress call in other vertebrate groups shows that there is also a predominance of