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Sustainability of individual features in the alarm call of the speckled ground squirrel *(Spermophilus suslicus)*

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The main function of alarm call is warning. However, it can also bear concomitant information about individuality of a caller. In this study, we analyzed variability and stability of individual features of alarm calls with time in the speckled ground squirrel. The alarm whistles toward a human were recorded from 18 individually marked free-living adult squirrels sitting in wire mesh live-traps, within one hour after capture. From each individual, we recorded calls four times, so that each following record was made with interval of 1-2 days, two weeks, and one year in comparison with first. In total, we analyzed 710 alarm whistles, 10 per animal per record (but in two cases, two animals provided only 3 and 7 alarm whistles per record). In the ability to encode individuality, frequency parameters were the best, duration - worse, and frequency contour parameters - the worst. With a single record per animal included into discriminant analysis, correct assignment of calls to individuality was very high, about 90%. However, crossvalidation with discriminant functions counted for set of calls from first record per animal, applied to calls recorded over 1-2 days, over 2 weeks and over year, showed stepwise decrease of correct assignment to individual from record to record. Only 4 of 18 individuals showed sustainable high percentages of call assignment to individuality. Two-factors MANOVA and analysis of coefficients of variation confirmed the steady decline of individual features in calls with time. We discuss, that the unpredictable variability in structure of alarm calls helps to avoid habituation, attributed to highly stereotyped repeatedly produced calls. Also, it may help to ignore unnecessary information about individuality, and to take into account only common pattern of alarm call. For these small sciurid, living in high grass, predators are detected in close proximity, so, urgency of responses may be critical to survival. Supported by RFBR (grant 06-04-48400).