**INTRODUCTION**

To date, all studies of acoustic communication in the speckled ground squirrel and other Eurasian *Spermophilus* species were devoted to the most characteristic and prominent whistle alarm call (Nilol’skii, 1979, *Zool. Journal.*, 58: 1183-1194). However, captured into live-traps speckled ground squirrels produce also a lot of other calls. The purpose of this study was to provide quantitative and qualitative descriptions of their structures.

**ANIMALS AND METHODS**

Calls were recorded in summer 2003 and 2004 in natural colony of speckled ground squirrels in Moscow province, Russia. The animals called toward a human observer from wire-mesh live-traps. We included into analysis call records from 48 individually marked adult (24 males, 24 females) speckled ground squirrels, producing at least one call type besides the whistle alarm call. Totally 1313 calls were analyzed. Spectrographic analysis of calls was made with Avisoft SASLab Pro v. 4.3 © software.

**RESULTS**

We subdivided calls into two structural classes: **tonal** and **wideband**.

1. **Alarm whistle** (n=463) – most common, repeatedly produced high-frequency (mean±SD = 9.49±0.73 kHz), weakly modulated call. Duration (241±62 ms) is the longest among all call types.

2. **Chatter** (n=154) – very short (19±7 ms) call notes, varying in frequency from 3.45 to 10.59 kHz and produced in series of 1-5 units with irregular silence intervals (41±30 ms) and ended with alarm whistle.

3. **Chirping** (n=50) – short notes (29±12 ms), similar with chatter, but occurred independently from alarm whistle, singly or in series. Mostly consisted of a single call unit, more rarely a few units make up a series.

4. **Grunt** (n=203) – variable call of duration 84±47 ms, with two accented frequency ranges 0.43±0.12 kHz and 4.25±0.76 kHz.

5. **Chirr** (n=59) – long (123±56 ms) and intensive pulse call (pulse period 10.8±1.7 ms). The four accented frequency ranges were 0.44±0.09 kHz, 8.38±1.36 kHz, 3.46±0.72 kHz and 5.22±0.85 kHz.

6. **Rattle** (n=267) – short (32±10 ms) notes, occurred in series of 2-7 units, with silence duration 203±99 ms (n=84 series). The two accented ranges were 0.48±0.23 kHz and 4.51±0.75 kHz.

7. **Panting** (n=98) represents a series of forced exhalations, each 47±17 ms, with silence intervals 66±24 ms. Two frequency ranges were accented: 5.15±0.30 kHz and 9.29±0.79 kHz.

8. **Snarl** (n=19) - long (183±72 ms) call with an accented frequency range 0.37±0.05 kHz.

**CONCLUSION**

Similarly with American species of *Spermophilus*, the speckled ground squirrels produce the high diversity of agonistic calls.

The whistle alarm call is emitted in response to various factors of disturbance (both aerial and terrestrial). The wideband calls are used both for intraspecific communication and in other situations of close-range danger.

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