

Vocal identity and nonlinear phenomena in the alarm calls of a lagomorph species, the Alpine pika *Ochotona alpina*

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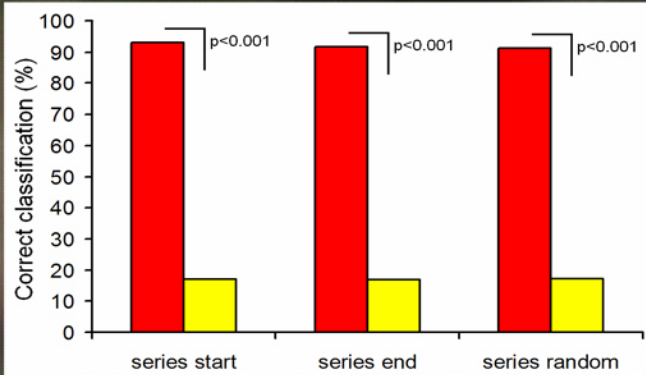


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INDIVIDUALITY

36 individual series (8-27 calls per series), 458 calls in total.



8 calls per individual in each DFA

Call classifying to individual

- Actual value
- By chance value

Parameters mostly contributing to discrimination: duration, dist_to_f0max, f0beg, f0end



STUDY SITE AND ANIMALS

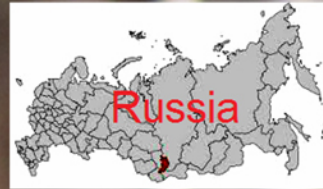
Russia, Republic of Khakasia (52°07'N, 89°32'E)

September 2012

Wild-living Alpine pikas

100 individuals/hectare

2734 recorded alarm calls



ACOUSTIC VARIATION

Second calls in series containing at least 2 alarm calls, 442 calls in total.

f0max = 12.3 ± 1.2 kHz

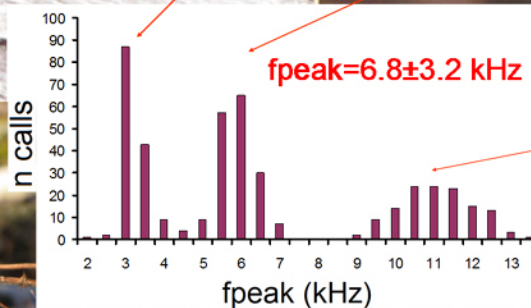
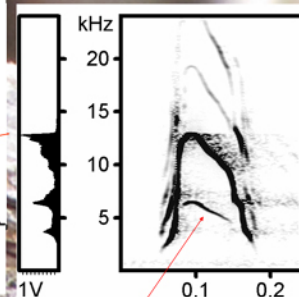
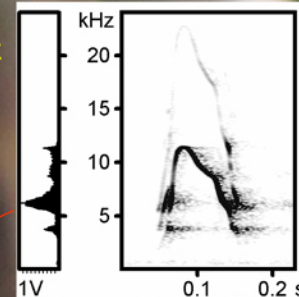
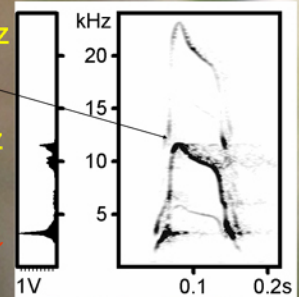
f0beg = 2.2 ± 0.5 kHz

f0end = 2.5 ± 0.3 kHz

df0 = 10.3 ± 1.1 kHz

duration = 0.104 ± 0.013 s

dist_to_f0max = 30.0 ± 6.5%



nonlinear phenomenon

nonlinear vocal phenomena	n calls	%%
lacking	196	44.34
cover less than half of call duration	31	7.01
cover more than half of call duration	215	48.64

Alarm calls of Alpine pikas are strongly individualistic and nonlinear phenomena might play a role in their individualization.