

Comparative analysis of isolation-induced pup ultrasonic calls of five gerbil species

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Gerbils inhabiting arid areas of Asia and Africa, display different ecological specializations and sociality. Adults primarily use ultrasound, but some species produce also audible vocalizations. Pup vocal behaviour is poorly known.

AIM

Comparing ultrasonic isolation calls of captive 6-10-day pups between five species: *Gerbillus campestris* (1), *Gerbillus perpallidus* (2), *Meriones unguiculatus* (3), *Meriones vinogradovi* (4), *Sekeetamys calurus* (5)

METHODS

- 5 pups from 5 litters for each of the 5 species
- 10 calls per pup
- 2-min isolation test at 22°C
- Call recording with Pettersson D1000X (384 kHz, 16 bit), weighting and measuring for body variables



Acoustic analysis:

- peak frequency
- 25, 50 and 75% quartiles
- duration
- f0beg, f0max, f0end, f0min



FFT-length 1024;
frame 50%,
overlap 87.5%,
Hamming window

RESULTS



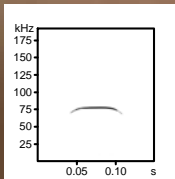
5.02±1.49 g
40.1±7.82 mm

8.82±2.99 g
49.2±7.01 mm

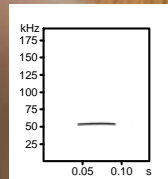
6.93±1.04 g
44.4±3.01 mm

9.04±1.52 g
47.1±5.70 mm

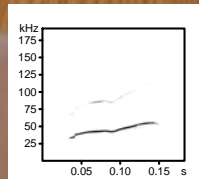
7.34±0.51 g
45.6±2.56 mm



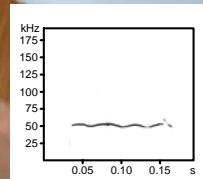
chevron



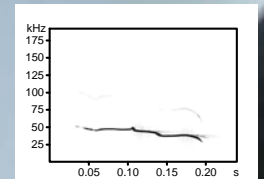
flat



up-FM

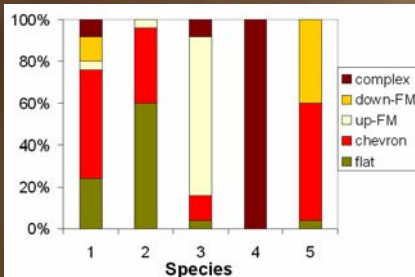


complex



down-FM

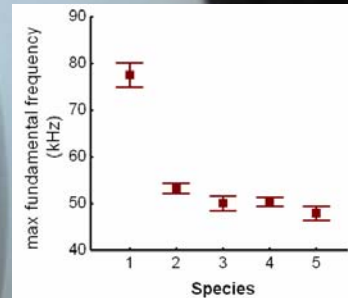
Types of frequency contours



CONCLUSION

Ultrasonic isolation calls differed prominently between species, the differences in fundamental frequency were stronger between two *Gerbillus* species than between pups of other species. This could be an effect of large differences in body size.

The maximum fundamental frequency was the highest in *G.c.* (77.5±6.34 kHz) and ranged of 47.9-53.2 kHz in other species



The shortest calls were produced by *G.c.* (85±52 ms) and *G.p.* (89±32 ms). The longest calls were produced by *M.v.* (184±37 ms)

