Effects of species and body size on the acoustic variables of pup ultrasonic isolation calls in six gerbil species

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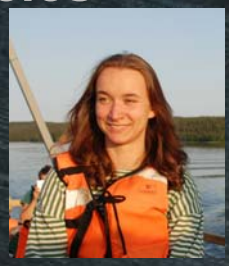


WHAT AIM?

Gerbils of arid areas of Asia and Africa are different in ecological specializations and sociality. Adults primarily use ultrasound, but some species produce also audible calls.

We compare pup ultrasonic isolation calls in six gerbils species:

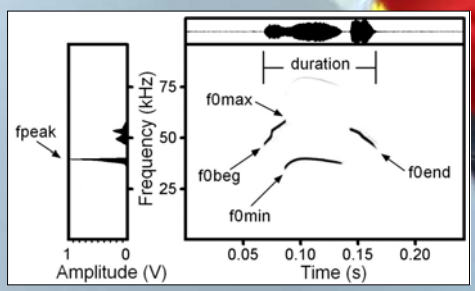
Dipodillus campestris (1)
Gerbillus perpallidus (2)
Meriones unguiculatus (3)
Meriones vinogradovi (4)
Sekeetamys calurus (5)
Pachyuromys duprasi (6)

WHAT METHODS?

6-10-day pups

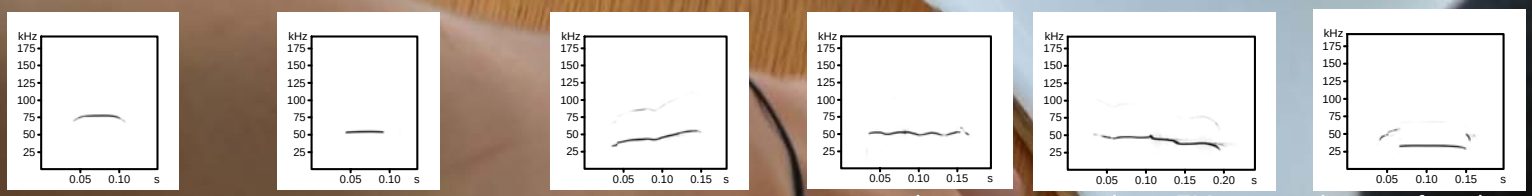
-10 pups from 5-7 litters for each of the 6 species
- 20 USV calls per pup
- 2-min isolation test at 22°C
- Call recording with Pettersson D1000X (384 kHz, 16 bit), weighting and measuring for body variables

Acoustic analysis:



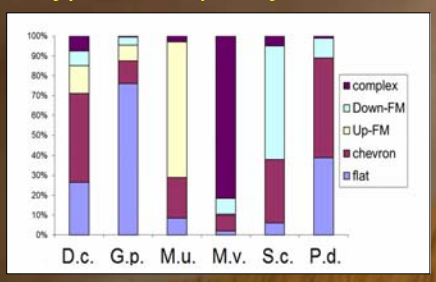
WHAT RESULTS?

D.c. 1	G.p. 2	M.u. 3	M.v. 4	S.c. 5	P.d. 6
5.43±1.67 g 42.8±6.3 mm	7.33±2.39 g 47.1±5.6 mm	6.79±0.75 g 44.2±2.4 mm	9.43±1.52 g 49.7±4.9 mm	7.08±0.86 g 45.2±2.4 mm	6.60±0.58 g 49.3±1.56 mm



chevron | flat | up-FM | complex | down-FM | chevron+freq. jump

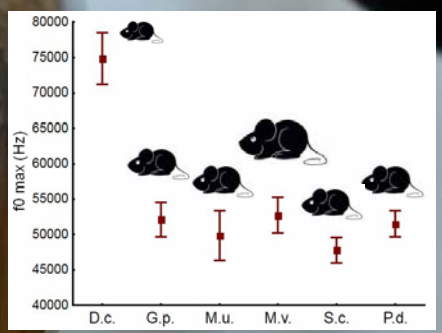
Types of frequency contours



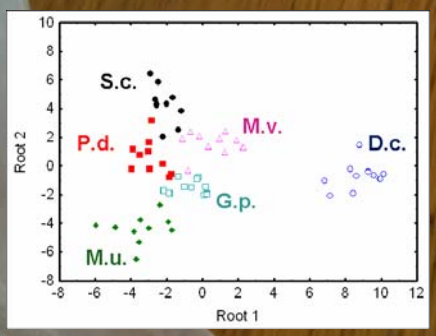
CONCLUSION

Pup species stronger affected the acoustics of ultrasonic isolation calls than pup body size.

Pup maximum fundamental frequency was the highest in *D.c.* (74.8 kHz) and ranged of 47.8-52.7 kHz in other species



100% classifying to correct species



Species affects acoustic variables stronger than body size

	duration	f0beg	f0max	f0end	f0min	fpeak
Species	***	***	***	***	***	***
Size	ns	ns	ns	ns	*	ns

GLMM, *** - p<0.001; * – p<0.05; ns – non significant

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