Dogs (*Canis familiaris*) and dholes (*Cuon alpinus*) squeak close to ultrasound

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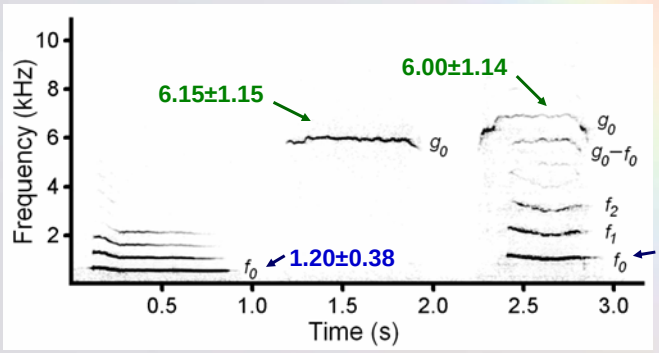
What we know:

Dogs and dholes produce monophonic low-frequency and high-frequency calls and the biphonic calls. Interaction of the low (f0) and the high (g0) fundamental frequencies creates the combinatory frequency bands = *n**f0±*m**g0.

All dog-like canids, African wild dogs *Lycaon pictus* and all *Canis* species, have both f0 and g0 and biphonation. All fox-like canids have only monophonic calls with f0 and no g0.

3 males, 4 females

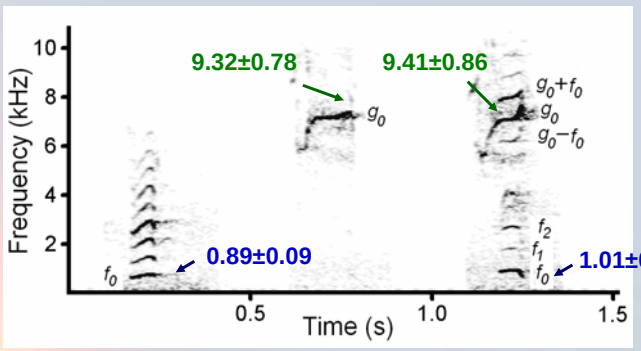
1 male, 3 females



n=122 n=99 n=57

f0max single < f0max biphon (p<0.001)

g0max single = g0max biphon (p=0.44)



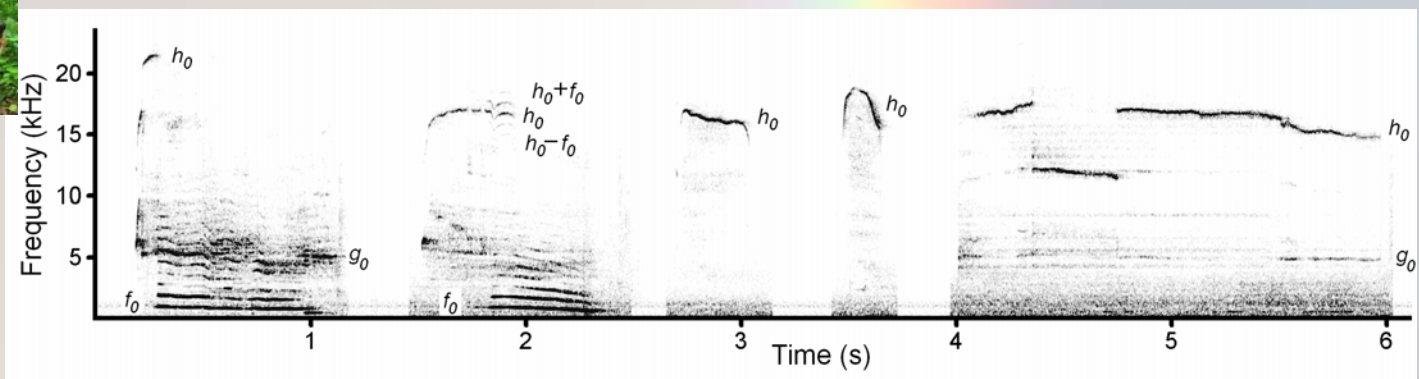
n=104 n=98 n=89

f0max single < f0max biphon (p<0.001)

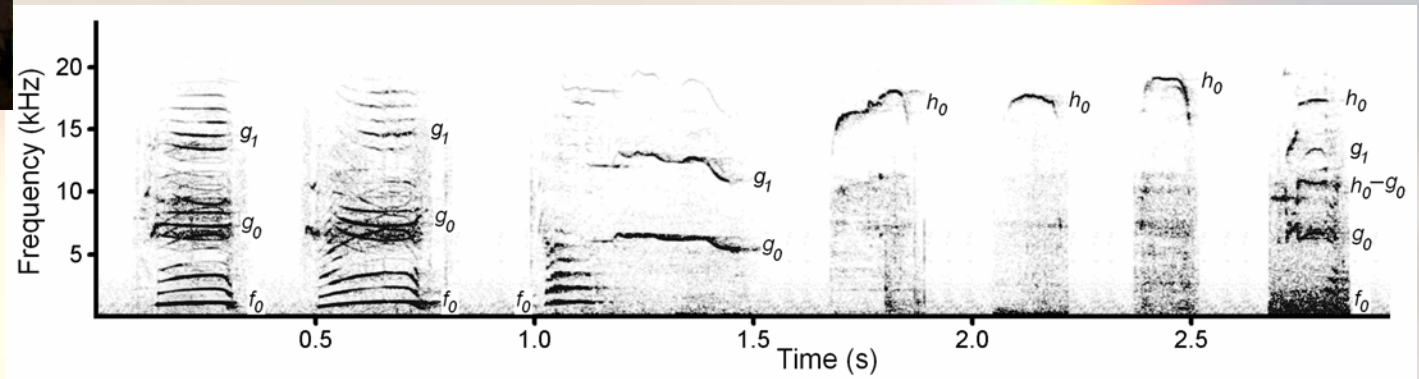
g0max single = g0max biphon (p=0.81)

What we discovered:

The third super-high fundamental frequency h0 at the range close to ultrasound. The h0 occurred either singly or in combinations with f0 and/or g0, interacting with them with appearance of the combinatory frequency bands.



In the dog, the f0max ranged of 0.7-1.8 kHz, the g0max of 4.3-12.0 kHz and the h0max of 14-22 kHz.



In the dhole, the f0max ranged of 0.8-1.1 kHz, the g0max of 8.8-10.2 kHz and the h0max of 16-19 kHz.

Support: Russian Science Foundation, grant 14-14-00237