



# CANINE SCIENCE CONFERENCE 2019

Presented by the Canine Science Collaboratory  
October 18-20, 2019  
Arizona Science Center  
Phoenix, AZ

11:40 – 11:55 am

### **High-frequency Sonic Vocalization in Domestic Dogs: Polyphony & Effect of Body Size on the Acoustics**

*Olga V. Sibiryakova, Lomonosov Moscow State University*

Dogs use vocal fold vibrations to produce their whines with a low fundamental frequency ( $f_0$ ), the whistle mechanism to produce their squeaks with the high fundamental frequency ( $g_0$ ), and both mechanisms simultaneously to produce their biphonic calls. We examined spectrographically 649 dog calls (21–60 per individual) of 18 dogs (9 males, 9 females), differing in size from a 3.7-kg toy terrier to the 70-kg Caucasian shepherd. Calls were produced at frustration context modelled by dog owners. The maximum  $f_0$  of whines ( $0.80 \pm 0.27$  kHz, min-max: 0.59–1.17 kHz) was lower than the maximum  $g_0$  of squeaks ( $6.03 \pm 2.00$  kHz, min-max: 3.59–10.43 kHz). In biphonic calls, the maximum  $f_0$  ( $1.01 \pm 0.44$  kHz, min-max: 0.74–2.13 kHz) was lower than the maximum  $g_0$  ( $5.66 \pm 1.77$  kHz, min-max: 3.43–10.46 kHz). Therefore, whines of the smallest dog were always lower in frequency than squeaks of the largest dog. The maximum  $f_0$  was lower in whines than in biphonic calls of the same individual,  $F(1,17) = 28.1$ ,  $p < 0.001$ . The maximum  $g_0$  did not differ between squeaks and biphonic calls of the same individual,  $F(1,17) = 2.33$ ,  $p = 0.14$ . In either calls, all variables of  $f_0$  and  $g_0$  did negatively correlate with body size. Call duration did not correlate with body size.

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12:00 am – 12:45 pm

### **(Closing Plenary Lecture) Why Dogs Love Us**

*Clive D. L. Wynne, Arizona State University*

Since the revival of dog psychology in the 1990s the consensus among interested scientists has been that the adaptations that led to domestication have concerned unique forms of social cognition. I will present results refuting that position and supporting the contention that the secret to dogs' success in the human-dominated world isn't in their intelligence, but in an unprecedented - in fact quite abnormal - enthusiasm for forming emotional bonds. It is their ability to get people to care about them, and not their really quite pedestrian intelligence, that has made them the most widespread large mammal (besides humans) on the surface of this planet.

12:45 – 1:00 pm

### **Closing Remarks**

*Clive D. L. Wynne, Arizona State University*