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ABSTRACT VOLUME

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Mother – young vocal communication: Effects of open-mouth and closed-mouth call emission in three species of ruminants

Olga V. Sibiryakova[1*], Ilya A. Volodin[1,2], Roland Frey[3] and Elena V. Volodina[2]

[1]Department of Vertebrate Zoology, Faculty of Biology,
Lomonosov Moscow State University, Moscow, Russia
[2]Scientific Research Department, Moscow Zoo, Moscow, Russia
[3]Leibniz Institute for Zoo and Wildlife Research (IZW), Berlin, Germany
osibiryakova@bk.ru

Vocal communication and mutual vocal recognition is essential for supporting cohesion between mother and offspring in mammals. In ruminants, vocal recognition is complicated by presence of two call types: open-mouth oral and the close-mouth nasal calls. Oral and nasal calls have different acoustic structures, thus their communicative role and potential for encoding individuality may also be different. We analyzed acoustic structure and potential for individual recognition of oral and nasal calls of mothers and young in three species: Goitred gazelle (*Gazella subguttorosa*), Saiga antelope (*Saiga tatarica*) and two subspecies of red deer: Iberian red deer (*Cervus elaphus hispanicus*) and Siberian wapiti (*C. e. sibiricus*). Except for Siberian wapiti, the fundamental frequency decreased with age in all species, that might be related with the growth of the vocal folds with age. In Siberian wapiti, the fundamental frequency did not differ between mothers and young. Formant frequencies were significantly lower in the nasal than in the oral calls, in agreement with source–filter theory, suggesting the lower formants for the longer nasal than for the shorter oral vocal tract. Individual identity was well expressed in all the three species and exceeded two-to-three times the random value in either nasal or oral calls and in the pooled sample of oral and nasal calls, as well as the same acoustic variables were responsible for individual identity in both call types. Individual identity was higher in the oral than in the nasal calls in goitred gazelle young, in saiga mothers and in Iberian red deer young. The higher potential of oral calls to discriminate individuals may be related with the higher arousal of animals during the emission of the oral calls.