

Identity, species and sex-specific information is contained in the contact calls of northern and southern white rhinoceros

CINKOVÁ IVANA¹, POLICHT RICHARD^{2,3}

¹Palacký University, Faculty of Science, Dept. of Zoology and Lab of Ornithology, 17. listopadu 50, 771 46 Olomouc, CZECH REPUBLIC;
ivanacinkova@centrum.cz

²Institute of Animal Science, Dept. of Ethology, Přátelství 815, 104 00 Prague, CZECH REPUBLIC

³Czech University of Life Sciences Prague, Faculty of Forestry and Wood Sciences, Dept. of Game Management and Wildlife Biology, Kamýcká 129, 165 21 Prague, CZECH REPUBLIC

Vocal communication of rhinos has been until now studied only very little and although descriptions of vocal repertoire of several species have lately been published, no studies have reported any information contained in specific rhino calls or an ability of rhinos to perceive such information. Northern (*Ceratotherium cottoni*) and southern white rhinos (*Ceratotherium simum*) are the most social from all rhinoceros species and they also have a wide vocal repertoire. Acoustic recognition may therefore play an important role in their social interactions. White rhinos produce a repetitive contact call 'pant', which does not have parallel in any other rhinoceros species.

We acoustically analysed 385 pant calls of six northern and 14 southern white rhinos and we conducted playback experiments with pant calls on nine wild southern white rhino bulls. Pant calls were recorded in several zoological gardens and South African wildlife reserves and we investigated if they contain information about individual identity and species of the caller. Discriminant analysis showed that pant calls are highly individually distinctive and calls of individuals also clustered into obviously separated groups according to the species. Both species significantly differed in call duration and in several frequency parameters of their calls. We also examined if adult southern white rhino bulls were able to discriminate between the pant calls of female and male southern white rhinos. Playback experiments were conducted in several wildlife reserves in South Africa. Bulls were able to recognise caller's sex and showed more intensive reaction to female than male calls. The bulls were more active as they spent more time walking and running after they heard a playback of a female call in comparison to male call. The bulls also showed a shorter latency to mark their territory with urine or dung after a playback of female call.

Pant calls seem to have an important role in the social behaviour of white rhinos and due to their complex structure they might also encode other information than that reported in this study. Better knowledge of vocal communication of white rhinos is important for the improvement of their management in zoological gardens and wildlife reserves. Breeding success of white rhinos in captivity is very low and the use of playbacks of pant calls might be extremely helpful for the stimulation of their social and reproductive behaviour.