



Università degli Studi di Pavia

CIBRA

Centro Interdisciplinare di Bioacustica e Ricerche Ambientali

XXI IBAC

International Bio-Acoustic Council

International Congress
University of Pavia

September 15-18, 2007

Palazzo San Tommaso

Aula GI

The undistinguishable alarm whistle frequencies in adult and juvenile ground squirrels: the way to avoid an age-dependent risk?

V. A. Matrosova¹, I. A. Volodin^{1,2}, E. V. Volodina²

¹ Dept. of Biology, Moscow State Univ., Vorobiovi Gori, 119899, Russia,
Email matrosova_zoo@mail.ru

² Scientific Research Dept., Moscow Zoo, B. Gruzinskaya, 1, 123242, Russia

In most mammals, the larger body sizes of adult animals correlate with lower fundamental frequency and more closely spaced formants in their calls in comparison with juveniles. However, in alarm whistles of two free-living rodents, the speckled ground squirrel *Spermophilus suslicus* and yellow ground squirrel *S. fulvus*, lacked any cues to body size, in spite of the prominent differences in body weight, skull and larynx sizes between juveniles and adults. No significant correlations between the individual maximum fundamental frequency and body weight did occur both within the ages and for pooled samples of animals within species. Furthermore, the mean alarm whistle maximum fundamentals did not differ significantly between the ages in the speckled squirrel and were even significantly lower in juvenile yellow squirrels. We discuss the hypothesis, that the smearing of vocal differences between juvenile and adult squirrels may represent a special adaptation of pup vocal behaviour - some kind of "vocal mimicry", resulting in imitation of adult vocal pattern to avoid infanticide and age-dependent predation risk.

Supported by RFBR (grant 06-04-48400).

Howling playback as a tool for monitoring wolf packs: tests of signal propagation and acoustic frequency discrimination

F. Sebe¹, C. Duchamp², N. Heitz³, R. Latini⁴, T. Aubin⁵

¹ Equipe Comportement, PRC, UMR 6073 INRA/CNRS/Universite de Tours, 37380 Nouzilly, France

² ONCFS - Centre National d'étude et de recherche applique sur les prédateurs Micropolis - 05000 Gap, France

³ E.P.H.E. Laboratoire de biogéographie et écologie des vertébrés

⁴ Centro Studi Ecologici Appenninici Parco Nazionale d'Abruzzo 67032 Pescasseroli. Italie

⁵ Equipe communications acoustiques C.N.R.S. UMR 8620, NAMC Université Paris Sud-Orsay Bat F-91405 Orsay cedex, France

Wolves often respond vocally to each other or to playback. Howling surveys have been used for monitoring wolf packs. This study aimed at evaluating two aspects of wolf howling: (1) the signal degradation due to habitat and transmission distance; (2) the reliability of the method to determine whether pups are present in pack. We conducted several wolf howling playback experiments in Italy (winter and summer 2003) and in France (summer 2004 and 2005). The potential use of the wolf howling method to census the pack size is discussed.

Analyses of signals propagated at various distances, and in various environments show that the signal is strongly absorbed beyond a 2,5 km propagation (signal/noise = 1.1). Habitat-induced degradations increase with transmission distance. These propagation facts must be taken into account when using this technique of wolf monitoring during summer". Acoustic analyses of wolf vocal responses to playback during summer indicate that the mean chorus frequency is significantly higher for packs with pups than for packs without pups ($p < 0.05$). An individual discrimination based mainly on fundamental frequency values is possible but only if frequency modulations of each wolf howling within the pack is not too great ($CV < 15$).