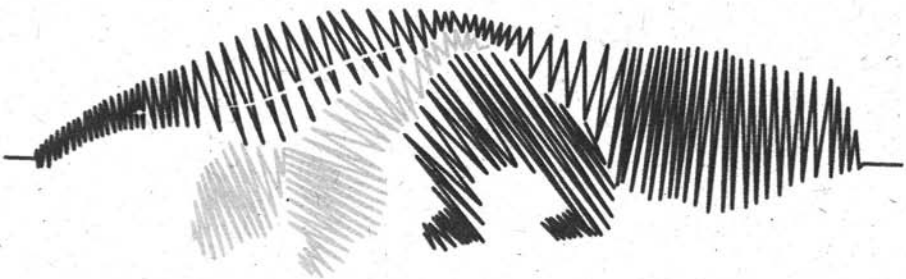
IBAC Brazil 2013



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frequency modulation (all in kHz), number of inflection points and duration (milliseconds). Whistle discrimination is important for the development of automatic detection and classification algorithms, which can be used in acoustic monitoring of delphinid species. Financial Support: CNPq, CAPES, Cetacean Society International.

Sound Recognition in Real-time at, and Beyond the Human Expert Standard

Neil Boucher, *SoundID, Australia;* Michihiro Jinnai, *Nagoya Women's University, Japan;* Hollis Taylor, *University of Technology, Sydney, Australia.*

Abstract. We demonstrate a real time or faster recognition system that can work with any sound type at a precision equal to or better than a human expert. The system can be used either in real-time or to process pre-recorded files of a terabyte or more. We demonstrate its capabilities on range of sounds including a dawn chorus (with an ability to separate and identify nearly simultaneous calls), Right Whale, and Bat calls. And finally human heart murmurs. We describe a way to calibrate the recognition when it is running on files too noisy for verification even by a human expert. We demonstrate a similarity metric known as the Geometric Distance, the use of negative as well as positive matching, and the use of the S/N as a recognition parameter. We also demonstrate the ability to search simultaneously for multiple unrelated sounds.

Sex differences in calls of Iberian red deer *Cervus elaphus hispanicus*

Ilya Volodin, *Lomonosov Moscow State University, Russia;* Vera Matrosova, *Engelhardt Institute of Molecular Biology RAS, Russia;* Elena Volodina, *Scietnific Research Department, Moscow Zoo, Russia.*

Abstract. Stag rutting roars are strongly different among subspecies of *Cervus elaphus*. Data on vocalization of hinds are scarce. We examined vocal sex dimorphism during the rut in Iberian red deer *Cervus elaphus hispanicus* kept in an experimental farm. In addition, we compared rutting roars of the farmed stags and wild stags from a natural locality. Rutting roars of Iberian stags are higher in fundamental frequency compared to other European subspecies of red deer. Call maximum and mean fundamental frequencies were higher in farmed than in wild stags, and were lower in farmed hinds compared to any stags. These results suggest a reversed vocal sex dimorphism and effects of emotional arousal on the fundamental frequency in farmed red deer stags. The call minimum fundamental frequency was indistinguishable between farmed hinds, farmed stags and wild stags. Call fundamental frequency ranges were very close in wild stags (107-224 Hz), farmed stags (103-270 Hz) and in hinds (103-209 Hz). Comparison of own and reported data on vocal variation across subspecies of *Cervus elaphus* suggests parallel evolution of stag and hind calls in European red deer and Siberian/North American elk.

Whistle repertoire of wild bottlenose dolphin (*Tursiops truncatus*) in Southeast of Brazil.

Israel Maciel, *Universidade Federal do Rio de Janeiro, Brazil;* Luciana Figueiredo, *Universidade Federal Rural do Rio de Janeiro, Brazil;* Sheila Simão, *Universidade Federal Ruaral do Rio de Janeiro, Brazil.*

Abstract. In general the bottlenose dolphin (*Tursiops truncatus*) is the most studied species of cetaceans in all aspects (ecological, behavioral, bioacoustical, etc.). However at the Brazilian coast there are not many studies of this species repertoire. This study seeks to contribute to the knowledge of the whistles repertoire of wild bottlenose dolphin on the region of Cabo Frio (Rio de Janeiro, Brazil). To characterize the whistles of *Tursiops truncatus*, 3 hours and 16 minutes of underwater recordings on 10 different days of observation were analyzed. The recordings were made with a sample rate of 96 kHz obtained by using a hydrophone at 2m depth. The data were analyzed using software Raven Pro 1.4 for the whistles quantitative characterization. All whistles that had clearly defined contours were use for analysis. The parameters analyzed were: Start Frequency, Finish Frequency, Low Frequency, High Frequency, Delta Frequency, Delta Time, Number of Inflections, Number of Harmonics, Peak Frequency and Peak Time. The whistles analyzed had many inflections (MED = 8; MAX= 65; MIN= 0) and few harmonics (MED= 0.21; MAX= 2; MIN= 0). From a total of 348 whistles analyzed, 5.81% presenting harmonics and 97.4% presenting inflection points. Analysis of the proposed parameters showed them to be similar to the patterns described in the literature for other populations.

Test of acoustic adaptation hypothesis in birds in open and dense environment in Cerrado biome

Anamaria Ferreira, *Universidade Estadual de Goias, Brazil;* Rogério Bastos, *Universidade Federal de Goiás, Brazil.*

Abstract. Acoustic signals can play major role in the animal communication influencing individual behaviors. Similar to any sound signal, the song is degraded during its transmission. Therefore, different habitats would be related to different structures of the sound signal. Acoustic adaptation hypothesis establishes that sound signals are structured in order to maximize its performance under the environmental acoustic which characterizes the habitat. Once neither all the sounds spread equally in certain habitats, selective forces should provide the use of