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*Advances in mammalogy
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ABSTRACT BOOK

specimen. Neonate vocalizations of either sex were high in maximum fundamental frequency (800-900 Hz), but the beginning and minimum fundamental frequencies were significantly lower in males than in females. Body mass was larger in males than in females. The levels of serum testosterone were marginally higher in males and did not correlate with the acoustics or body mass. We discuss that the high-frequency calls of neonate Mongolian gazelles are more typical for closed-habitat neonate ruminants, whereas other open-habitat neonate ruminants (goitred gazelle *Gazella subgutturosa*, saiga antelope *Saiga tatarica* and reindeer *Rangifer tarandus*) neonates produce low-frequency (< 200 Hz) distress calls. The proximate cause for the high fundamental frequency of distress calls of neonate Mongolian gazelles is their very short, atypical vocal folds (4 mm) compared to the 7 mm vocal folds of neonate goitred gazelles, producing distress calls as low as 120 Hz. The study was supported by the Russian Science Foundation, grant 14-14-00237.

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Evolution of sexual dimorphism in musteloid crania

Chris J. Law¹, Rita S. Mehta¹

1. University of California, Santa Cruz, Santa Cruz, California, United States of America

The remarkable uneven diversity in both species richness and phenotypes represent one of the more perplexing evolutionary patterns across the Tree of Life. Although an increasing number of researchers have begun to understand what drives uneven diversity between species, few researchers have examined how differences within single species can affect these broad scale evolutionary patterns. One source of variation lies in the difference between the sexes. The primary goal of this research is to build upon evolutionary theory by examining how sex differences contribute to species and phenotypic diversity. Here, we use musteloids (badgers, otters, raccoons, skunks and weasels) as a model to examine the effects of sexual dimorphism (SD) on cranial disparity at the macroevolutionary scale. Musteloids are a taxonomically rich and phenotypically disparate clade whose lineages exhibit uneven patterns of diversity. We used 3D geometric morphometrics to quantify cranial size and shape. We then quantified the rates of cranial disparity through time in males and females separately and pooled together (species means) to test the hypothesis that incorporating sex enhances the pattern of adaptive radiation. A rate shift in cranial evolution is predicted to occur just after the onset of the Mid-Miocene Climate Transition when using the pooled male and female dataset. Second, we examined an ecological basis for sexual dimorphism by testing the hypothesis that the degree of carnivory corresponds with the evolution of sexual dimorphism in cranial shape and size across Musteloidea. Hypercarnivorous musteloids are predicted to exhibit the highest degree of cranial SD.

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Diversity of alarm calls across species of Ruminantia

Elena V. Volodina¹, Ilya A. Volodin², Elena V. Chelysheva³, Roland Frey⁴, Svetlana S. Gogoleva², Igor V. Palko⁵

1. Scientific Research Department, Moscow Zoo, Moscow, Russia

2. Faculty of Biology, Lomonosov Moscow State University, Moscow, Russia

3. Mara-Meru Cheetah Project, Nairobi, Kenya

4. Leibniz Institute for Zoo and Wildlife Research, Berlin, Germany

5. A.N. Severtsov Institute of Ecology and Evolution RAS, Moscow, Russia

Alarm calls in response to potential danger are widespread among mammals. We conduct a detailed analysis of alarm call acoustic structure in wild-living giraffe (*Giraffa camelopardalis*), sambar deer (*Rusa unicolor*) and Indian muntjac (*Muntiacus vaginalis*), and describe their vocal behaviour while mobbing people. Giraffe alarm calls represented broadband hisses of duration 0.24-1.04 s and the peak frequency at 0.69 Hz. Sambar alarm calls represented tonal barks with arc-shaped structure, the maximum fundamental frequency 0.98 kHz and the depth of frequency modulation 0.34 kHz. Muntjac alarm calls had much weaker frequency modulation, a maximum fundamental frequency 0.66 kHz and the depth of frequency modulation 0.10 kHz. Comparative data (our own and literature) suggest that ruminants have a few types of alarm calls. In giraffes, waterbucks, impala, Siberian musk deer, goitred gazelles and Western turs, the hiss, hiss-whistle and snort alarm calls are produced through the nose with an aerodynamic whistle mechanism. In sambar deer, Indian muntjacs, white-tailed gnu, greater kudu, red deer and sika deer, the bark alarm calls are produced through the open mouth and display a clear fundamental frequency. In the springbok and klipspringer, the fundamental frequencies along the aerodynamic whistle are presented. No evident relation between nasal or oral emission of the calls and animal taxonomy or habitat can be found. This suggests Ruminantia as a good model taxon for investigating the role of acoustic diversity in vigilance and alarm communication, in addition to the traditional model groups, birds, primates and ground-dwelling sciurids. Supported by RSF grant 14-14-00237 and RFBR grant 15-04-06241.

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Preliminary study of plantain squirrel (*Callosciurus notatus*) phylogeography in Southeast Asia

Tatsuo Oshida¹, Masatoshi Yasuda², Motoki Sasaki³

1. Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Hokkaido, Japan

2. Kyushu Research Center, Forestry and Forest Products Research Institute, Kumamoto, Japan

3. Laboratory of Veterinary Anatomy, Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Hokkaido, Japan

Divergence patterns among some *Callosciurus* squirrel species are affected by geographic isolation by Southeast Asia's huge rivers. Currently, divergence by rivers is found within *C. prevostii*, occurring widely in Sundaland. Therefore, there may be similar biogeographical effects on *Callosciurus* species sympatric with *C. prevostii*. To test this hypothesis, we examined phylogeographical characteristics of *C. notatus* based on mitochondrial cytochrome *b* gene sequences. This squirrel is widely