

XXVI International Bioacoustics Congress

(October 8-13, 2017)



ABSTRACT VOLUME



Organized by

Department of Zoology and Environmental Science
Gurukula Kangri Vishwavidyalaya
Haridwar, India

Patterns of ultrasonic echolocation pulses in a Bush-climbing rodent species with reduced eyes

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In small mammals besides bats, ultrasonic clicks that potentially serve for echolocation are known only for some insectivores and for the blind bush-climbing rodent, the Vietnamese pygmy dormouse *Typhlomys chapensis*. Echolocation pulses of the dormouse are organized in bouts and further in series, separated with intervals over 0.3 s. Bouts consist of 1-6 pulses; 51.3% of bouts contain more than one pulse. This study investigated spectrographically 1481 bouts and 540 ultrasonic pulses from 234 high-quality bouts, produced by two adult male dormice. Pulse number per bout affected bout duration and inter-bout interval but not bout period (duration from start of previous to start of next bout). Thus, bout period was constant (80.0 ± 2.9 ms) in spite of the number of pulses per bout. Pulses displayed only the fundamental frequency band and no harmonics. Pulse duration was 0.68 ± 0.15 ms. Pulses showed a descending pattern of frequency modulation from 127.3 ± 6.3 kHz to 64.1 ± 4.6 kHz, with peak frequency at 93.3 ± 7.4 kHz. The mean within-bout pulse period was 13.03 ± 3.01 ms. Pulses of single-pulse bouts and start pulses of multi-pulse bouts differed from other pulses by frequency variables, whereas all other pulses within bouts were undistinguishable from each other. In contrast, pulse duration was independent of pulse position within bout. The longest inter-pulse period was found in 2-pulse bouts, and the inter-pulse period progressively shortened with the increase of pulse number per bout. The dormice ultrasonic pulses are remarkable similar with FM echolocation calls of *Myotis* bats. However, in the dormice, the pulses are higher in frequency, shorter and softer and have a convex contour of frequency modulation. Distinctively, the FM-echolocation calls of *Myotis* bats have a concave contour, with fundamental frequency decreasing much faster at the beginning than at the end of a call.