

Discrimination of dynamic moving ripples in the zebra finch, *Taeniopygia guttata* (A)

J. Acoust. Soc. Am. Volume 111, Issue 5, pp. 2392-2393 (May 2002)

Issue Date: May 2002

Michael S. Osmanski and Robert J. Dooling

Dept. of Psych., Univ. of Maryland, College Park, MD 20742

Didier A. Depireux

Univ. of Maryland at Baltimore, Baltimore, MD

Auditory processing of complex broadband sounds known as moving ripples has been studied both physiologically at the cortical level in mammals and psychophysically in humans [Depireux *et al.* (2001); Chi *et al.* (1999)]. These stimuli share spectro-temporal properties with many natural sounds, including species-specific vocalizations and the formant transitions of human speech [Vernes and Shamma (1998)]. One test of the generality of ripple processing beyond mammals would be to examine a non-mammalian species. Zebra finches may be excellent subjects for such a study because they produce complex broadband harmonic songs and neuronal responses in their auditory forebrain may be exquisitely tuned to the specific spectro-temporal patterns of their songs [Theunissen and Doupe (1998)]. We trained these birds to discriminate between flat-spectrum broadband noise and moving ripples of different densities that move up or down in frequency at various rates. Results show that discrimination in zebra finches is better at those ripple densities and velocities which are prominent in their species-specific harmonic vocalizations. [Work supported by NIH Grant No. DC-00198 to RJD and NIDCD Training Grant No. DC-00046.]