

**1996, 761, Session T9, Poster****Free-field binaural masking release in budgerigars (*Melopsittacus undulatus*)**

*\*M.L. Dent, R.J. Dooling (University of Maryland, College Park); O.N. Larsen (Odense University, Odense, Denmark); S. Amagai, C.E. Carr (University of Maryland, College Park)*

The auditory mechanisms involved in the detection of signals in noise are important for understanding hearing under natural conditions. In humans, if a signal and noise are spatially separated, there is an improved ability to detect the signal. This effect is generally referred to as a Binaural Release from Masking or MLD (masking level difference). The classic explanation of masking release involves interaural time disparities, which are related to the distance between two ears. Consequently, masking release will be more pronounced in large animals and less pronounced in animals with smaller heads, like birds. In several experiments, we measured the detection of tones in noise by budgerigars with the tone and noise coming from the same source or separate sources. Budgerigars show a binaural release from masking of 11 dB when two sound sources were angularly separated by 90 degrees. This release is comparable to results found in a similar study with ferrets (Hine, Martin, & Moore, 1994). Plugging one ear of the budgerigar significantly reduced this masking release. Masking release as a function of angular separation between the noise and the tone source in azimuth, showed that the birds could detect tones at signal-to-noise ratios 10-12 dB smaller when the tone source was separated by more than 30 degrees from the noise source. Release from masking in budgerigars is discussed in relation to what is known about sound localization in this species and what is known from electrophysiological studies of the coding of temporal and intensity cues in the peripheral and central auditory systems of budgerigars and other small birds.

Supported by NIH Grants DC-00198 and MH-00982 to RJD, DC-00436 to CEC, and Danish National Research Foundation to ONL