

Vocal signaling among male northern elephant seals: behavioral field studies of honesty vs. associative learning

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Northern elephant seals (*Mirounga angustirostris*) are large, highly polygynous mammals that have a breeding system based on the defense of female harems by dominant males. The species provides a unique opportunity for the study of vocal recognition and communication. Acoustic signaling plays an important role in settling otherwise costly interactions between competing males, as stereotyped vocal displays often elicit appropriate behavioral responses from spatially separated individuals without physical contact. We recorded the vocalizations of adult male elephant seals during two breeding seasons to characterize their individual signatures. To determine whether these calls were sufficient to control the behavior of receivers, we conducted a series of playback experiments using calls recorded from individuals of known size, rank, and familiarity. The results show strong and predictable differential phonotaxis and calling behavior based on hierarchical status of the receiver relative to the playback. Call qualities reflecting duration, level, and frequency were evaluated for dependence on body size and rank to determine whether the vocalizations were honest indicators of resource holding potential. The absence of significant correlations supports the notion that these unique signals may not be honest signals but rather serve to convey information about individuals that is managed through associative learning.