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HONEST SIGNALLING IN MALE AND FEMALES SOUTHERN ELEPHANT SEALS (*MIROUNGA LEONINA*)

Honest signalling during agonistic contests is a very important component of animal communication, because it permits to resolve social conflicts without direct fights. As per the source filter theory, mammal acoustic signals can be honest because frequency formants depend on vocal tract length, that is structurally constrained by body and skull size. Although honest signalling has been tested more frequently in males, in many mammal species also females are using vocalizations to settle contests. The southern elephant seal (*Mirounga leonina*; SES hereafter) is the most polygynous and most sexually dimorphic of all mammal species, and vocalizations are frequently used to settle agonistic contests in both males and females. Therefore, honest signalling should be well developed, but phenotypic selection should act differently in the two sexes. We studied SES at Sea Lion Island (Falkland Islands), a small and isolated breeding colony, in which all seals are individually recognized and of known age. We recorded vocalization of 32 males and 88 females. We measured body size by 2D photogrammetry. We extracted the first five formants using PRAAT software, and we calculated formant dispersion. In both males and females, we found that frequency formants had the expected negative relationship with body size and age. In both sexes, the relationship with body size was stronger than the relationship with age. The relationship with both body size and age was stronger in males than in females. In both sexes, higher formants (four and five), that should be a better proxy of phenotype, had stronger relationships with both body size and age than lower formants. All together, formants are honest signals of phenotype in both male and female SES, but they are more accurate indices of phenotype for males than for females, as expected from the more important role of agonistic contests in male breeding behaviour.