

Male owls pitch their hoots to advertise body weight to competitors

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Why do male owls hoot? Researchers from the Centre d'Études Biologiques de Chizé (France) and the University of Sussex (UK) have studied the vocal communication of male European Scops owls, one of the smallest living species of nocturnal raptors. The study, published in the April issue of the *American Naturalist*, was conducted between June 2003 and June 2005 on the isle of Oléron, off the west coast of France, where Christian Bavoux and Guy Burneleau have been studying the local scops owl population since 1981.

The authors have analyzed several hundreds of hoots recorded from 17 territorial males and demonstrated that the pitch of the vocalization reflects the body weight of the male: the heavier the male, the lower the pitch of his hoots. In order to see whether this information is actually used by male owls during territorial interactions, the authors conducted a series of playback experiments (commonly used in studies of animal communication in order to assess the function of vocal signals), monitoring the reaction of subjects to the broadcast of vocalizations. To do this they modified the pitch of several hoots, creating stimuli that mimicked the hoots given by males from a range of body weights.

They then played back these recordings to males with established territories, and observed and quantified their response (a combination of approaches and vocal responses). The results show that male owls respond more strongly to the high-pitched calls that simulate lighter individuals, confirming that territorial males attend to pitch information advertising body weight in the calls of their competitors. The authors

also found that the territory owners give slightly lower pitched hoots in response to calls mimicking heavier males, probably indicating that they attempted to sound heavier when challenged by more threatening individuals.

"The fact that owls are essentially active during the night puts a strong emphasis on acoustic communication as a means of assessment, both during male competition and during mate choice," says Loïc Hardouin who recently completed a PhD on acoustic communication and territoriality in owls. "The next step is to see whether females use these quality cues when they choose their mating partner." "The vocal communication of owls has interesting similarities to that of terrestrial mammals where the information is typically encoded in acoustic components of the calls rather than in the diversity of the vocal repertoire as it is in songbirds," says Reby, who is an expert in the study of mammal vocal communication.

Source: University of Chicago

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