How male owls pitch their wits to show who's who

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A male scops owl holding a moth, ringed and equipped with VHF transmitter for identification and localisation. Photo: Jacques Auger

A male owl's hoot may not be all it seems to rivals when it comes to defending valuable territory, new research has revealed.

A study carried out by animal communication scientists Dr Loic Hardouin and Dr David Reby from the Department of Psychology at the University of Sussex, UK and colleagues from the Centre d'Études Biologiques de Chizé, France, demonstrated that the pitch of the vocalisation in male owls reflects the body weight of the male: the heavier the male, the lower the pitch of his hoots.

They observed that the territorial owls responded more readily to rivals' calls that were higher in pitch, suggesting that male owls relate body weight to pitch of call in others. It was also discovered that male owls defending territory against rivals perceived as bigger will pitch their hoots slightly lower to mimic the sound of a heavier bird to discourage potentially dangerous challenges.

The findings, published in the April issue of the *American Naturalist*, are the result of studies of the vocal communication of male European Scops owls, one of the smallest living species of nocturnal raptors (birds of prey).

The study was conducted between June 2003 and June 2005 on the isle of Oléron, off the west coast of France, where co-authors Christian Bavoux and Guy Burneleau have been studying the local scops owl population since 1981.

Several hundred hoots were recorded from 17 territorial males to see whether this information is actually used by male owls during territorial interactions. To do this, the authors conducted a series of playback experiments (commonly used in studies of animal communication to assess the function of vocal signals), monitoring the reaction of subjects to the broadcast of vocalisations.

The team modified the pitch of several hoots, mimicking the hoots given by males from a range of body weights. The recordings were then played back to males with established territories, and their response observed and quantified (a combination of approaches and vocal responses).

Dr Hardouin, who recently completed a PhD on acoustic communication and territoriality in owls, says: "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. The next step is to see whether females use these quality cues when they choose their mating partner."

Dr Reby, who is an expert in the study of mammal vocal communication, says: "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."

Source: University of Sussex