The sensory ecology of birds

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Abstrak

The natural world contains a huge amount of constantly changing information. Limitations on, and specializations within, sensory systems mean that each species receives only a small part of that information. In essence, information is filtered by sensory systems. Sensory ecology aims to understand the nature and functions of those filters for each species and sensory system. Fluxes of information, and the perceptual challenges posed by different natural environments, are so large that sensory and behavioural specializations have been inevitable. There have been many trade-offs in the evolution of sensory capacities, and trade-offs and complementarity between different sensory capacities within species. Many behavioural tasks may have influenced the evolution of sensory capacities in birds, but the principal drivers have been associated with just two tasksforaging and predator detection. The key task is the control of the position and timing of the approach of the bill towards a target. Other tasks, such as locomotion and reproduction, are achieved within the requirements of foraging and predator detection. Information thatguides behaviours may often be sparse and partial and key behaviours may only be possible because of cognitive abilities which allow adequate interpretation of partial information. Human modifications of natural environments present perceptual challenges that cannot always be met by the information available to particular birds. Mitigations of the negative effects of human intrusions into natural environments must take account of the sensory ecology of the affected species. Effects of environmental changes cannot be understood sufficiently by viewing them through the filters of human sensory systems.