Not So Eagle Eyed: New Study Reveals Why Birds Collide with Manmade Objects

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From office block windows to power lines and wind turbines, many species of bird are prone to colliding with large manmade objects, many of which appear difficult not to notice to human eyes. A new study by a University of Birmingham Emeritus Professor outlines a new approach to understanding how birds see the world and why they find pylons and turbines so hard to avoid.

The problem of bird collisions is a serious concern for conservationists. Research suggests that bird mortality caused by collisions with human artifacts is the largest unintended human cause of avian fatalities worldwide.

Collisions with large and prominent obstacles may even threaten the survival of endangered species. In Europe over a 16-year period it was estimated that approximately 25% of juvenile and 6% of adult White Storks Ciconia ciconia died annually from power line collisions and electrocutions.

“From a human perspective it appears very odd that birds so often collide with large objects as if they don’t see them. It is widely held that flight in birds is primarily controlled by vision, an idea captured by the phrase ‘a bird is a wing guided by an eye”, said Professor Graham Martin from the University of Birmingham’s Centre for Ornithology. “However birds live in a different visual world to humans.”

To get a clearer understanding of how birds view the world Professor Martin turned to sensory ecology, a field of study which investigates how sensory information underlies an animal’s behaviour and it’s interactions with the environment.

“When we consider bird collisions most proposed solutions only consider a human perspective of the problem,” said Martin. “Put simply, it has been a matter of finding a solution to bird collision problems based upon making the perceived hazard more conspicuous to human observers, not birds.”

The research reveals that a subtle set of interrelationships exists between a bird’s visual capacities, the interpretation of sensory information and the behaviour of birds when flying in open airspace.

“When in flight, birds may turn their heads to look down, either with the binocular field or with the lateral part of an eye’s visual field,” said Martin. “Such behaviour results in certain species being at least temporarily blind in the direction of travel.”

Dr Martin also explores how avian frontal vision is tuned for the detection of movement, rather than spatial detail. When a bird is hunting this detection may be more important than simply looking ahead into open airspace.

Birds also have a restricted range of flight speeds making it difficult to adjust the rate of information they gain if visibility is reduced by rain, mist or low level lights.

“Armed with this understanding of bird perception we can better consider solutions to the problem of collisions,” said Martin. “While solutions may have to be considered on a species by species basis, where collision incidents are high it may be more effective to divert or distract birds from their flight path rather than attempt to make the hazard more conspicuous.”

It may also be best to assume that birds are more likely to be looking down and laterally rather than forwards, meaning a signal placed on an obstacle may also be missed. Instead alerting sounds or signals placed a suitable distance from the hazard may be more efficient.

“The human viewpoint provides just one way of appreciating and understanding the world. Yet such is the difference between human and birds’ eye views that a human perspective on the problem of bird collisions is quite misleading,” concluded Martin. “The evidence outlined in this study explains why some species are more vulnerable to collisions with obstacles than others, and helps to inform the development of guidelines for reducing collisions.”

For more information, please contact Kate Chapple, Press Office, University of Birmingham, tel 0121 414 2772 or 07789 921164.

Notes to Editors

This research has been published in a paper in IBIS. Media wishing to request a copy should contact **Lifesciencenews@wiley.com (mailto:Lifesciencenews@wiley.com)** or 01243 770 375.

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