

Landscape complexity affects pigeons' navigation

4 February 2014, by David Naylor



Pigeons find their way around better if the landscape contains easily recognisable landmarks.

(Phys.org) —Homing pigeons' ability to learn and remember routes depends on the complexity of the landscape below. Hedges and boundaries between urban and rural areas provide ideal landmarks for navigation.

By releasing 31 pigeons from four sites around Oxford, for an average of 20 flights each, researchers found that pigeons are better able to memorise flight paths when the landscape below is of a certain complexity.

The study, led by Dr Richard Mann at the Department of Mathematics, Uppsala University, together with researchers at Oxford University and the Zoological Society of London, was recently published in *Biology Letters*.

"We discovered that pigeons' ability to memorise routes is highly influenced by the visual properties of the landscape in a 250 metre radius below them", says lead author Dr Richard Mann of Uppsala University Sweden, formerly of Oxford University where he conducted the study.

"Pigeons have a harder time remembering routes

when the landscape is too bland like a field or too busy like a forest or dense urban area. The sweet spot is somewhere in between – relatively open areas with hedges, trees or buildings dotted about. Boundaries between rural and [urban areas](#) are also good."

Understanding how [pigeons](#) find their way around is important because they are able to navigate exceptionally well considering their small brains. Whatever method they use to remember routes must make highly efficient use of their limited mental power.

More information: Richard P. Mann, Chris Armstrong, Jessica Meade, Robin Freeman, Dora Biro, and Tim Guilford. "Landscape complexity influences route-memory formation in navigating pigeons." *Biol. Lett.* January, 2014 10 1 20130885; [DOI: 10.1098/rsbl.2013.0885](https://doi.org/10.1098/rsbl.2013.0885) 1744-957X

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