

Parrots do tricks without looking

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Ornithologists at the University of Birmingham have discovered that parrots cannot see what they are doing when they carry out the tricky manipulations of objects, for which they are renowned. While parrots have a good field of vision in front, above and behind their head, they cannot see below their bill into the region where all the manipulation occurs. The research is published today (Wed 27 April) in the journal Proceedings of the Royal Society B.

The researchers have been studying Senegal Parrots, which are popular cage birds but come originally from West Africa, where they inhabit woodland and savannah. They live on a diet of seeds, nuts, blossoms and fruit, and are known for their exploratory, playful behaviour and manipulative abilities.

The Birmingham Scientists have discovered that the parrots' visual field is unlike those of any other bird species. It has a broad frontal binocular field and a near comprehensive view around the head. The scientists suggest that tactile cues that parrots receive from their unique bill-tip organ have led to the absence of visual coverage of the region below the bill. Parrots simply feel what they are doing with an object using a special touch sensitive bill-tip organ, but they cannot see what they are doing. The eyes are placed high in the skull to give an extensive field of view in front, above and behind the head, which is very useful for seeing predators or checking out what other parrots are up to nearby.

Because of their dexterity with their feet and legs parrots can if they wish bring food and other items up into their field of vision for close inspection before exploring them with the bill.

Zoe Demery, from the University's School of Biosciences, says, 'It has always been argued that foraging method is the prime determinant of a bird's visual field configuration, but here we show that an investigative, playful nature can also affect how a bird's visual field evolves. We were very keen to study the Senegal parrot as parrots are so unique in terms of their anatomy, foraging technique and intelligence.'

Dr Jackie Chappell, who was a co-author on the study adds, 'Parrot fields of vision have never been investigated before. This research suggests that their vision has developed in this way because they are able to do so many things with their bill using touch that they don't need to be able to see what they are holding. At the same time, with this expansive field of vision they can be vigilant against predators.'

Graham Martin, Professor of Avian Sensory Science, who also took part in the study, says, 'We have never seen a visual field configuration like this in any other bird, and we have now looked at over 50 different species. It has always been known that parrots have many special features. We now know that their vision also makes parrots special.'

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Notes to Editors

This research is published in the journal Proceedings of the Royal Society B, entitled 'Vision, touch and object manipulation in Senegal parrots *Poicephalus senegalus*'. Authors: Zoe Demery, Jackie Chappell and Graham Martin, Centre for Ornithology, School of Biosciences, University of Birmingham.

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