

# New research shakes belief that forethought is unique to humans

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Experiments at the University of Cambridge show the birds are able to plan for future food shortages by caching food. Researchers believe this is the first example of future planning in animals other than humans. Credit: University of Cambridge

Some birds recognise the idea of ‘future’ and plan accordingly, researchers at the University of Cambridge have discovered. According to their findings, published today in the journal *Nature*, western scrub-jays will store food items they believe will be in short supply in the future.

Planning for the future is a complex skill that was previously believed to be unique to humans. Other animals were perceived to be incapable of dissociating themselves from the present and any current motivation. Sometimes animals may appear to recognise future needs, but they are only exhibiting behaviours that are either instinctual (e.g. nest building) or prompted by immediate needs like hunger (e.g. food hoarding).

In order to determine whether some animals plan for future food needs or are simply acting on instinct, Professor Nicky Clayton and her team at the Department of Experimental Psychology tested the western scrub-jay.

Every morning, eight scrub-jays either were allowed into the compartment with ‘no breakfast’ or the compartment with ‘breakfast’. They were then allowed to eat for the rest of the day. After several days, the birds were then provided with pine nuts suitable for caching (hoarding) in the evening. In anticipation of a morning without breakfast, the scrub-jays consistently hid food in the ‘no breakfast’ compartment rather than the ‘breakfast’ compartment, demonstrating an understanding of future needs (rather than just their immediate needs).

In a similar experiment, the scrub-jays were given either dog food in one compartment or peanuts in a second compartment for breakfast. When they were allowed to cache either food where they liked in the evenings, they once again demonstrated an understanding of future needs and a desire for a varied diet by hoarding peanuts in the dog food compartment and dog kibble in the peanut compartment. If they were caching for current hunger, they would not have discriminated between the types of food or the location of the cache.

Professor Nicky Clayton said, “The western scrub-jays demonstrate behaviour that shows they are concerned both about guarding against food shortages and maximising the variety of their diets in the future. It

suggests they have advanced and complex thought processes as they have a sophisticated concept of past, present and future, and factor this into their planning.”

Together with her colleague Professor Tom Dickinsons, Professor Clayton and her team have published a number of papers demonstrating the remarkable memories of scrub-jays. Some forms of memory and future thinking are believed to be linked in the human brain and the scientists were interested to see if the same might be true of the scrub-jay brain.

Source: University of Cambridge

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