

## Some apes, birds can think ahead, studies show

By Maggie Fox, Health and Science Correspondent New York Times/Reuter | May 18, 2006

WASHINGTON (Reuters) - Apes that remember to carry the right tools to retrieve treats and scrub jays that hide food a second time when they think a rival is watching prove animals can think ahead—a trait once believed to be uniquely human, scientists have found.

Two carefully planned sets of experiments to be published on Friday in the journal *Science* show intelligent birds and great apes can plan into the future in a way that transcends simple food caching, as squirrels, foxes and other animals do.

"Planning for future needs is not uniquely human," Thomas Suddendorf of the University of Queensland in Brisbane, Australia, wrote in a commentary.

"Apes and jays can also anticipate future needs by remembering past events, contradicting the notion that such cognitive behavior only emerged in hominids."

In one experiment, Nicholas Mulcahy and Josep Call of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, tested bonobos, close relatives of chimpanzees, and orangutans at the local zoo.

They set up several experiments that required the apes to remember a complex way to retrieve a treat and offered them the opportunity to use tools to do so.

So far, observations of tool use and planning have involved only immediate hunger on the part of the animals, which does not involve long-term thinking, Mulcahy and Call argued.

"Thus, when chimpanzees transport stones to use them to crack open nuts, or New Caledonian crows make hook-shaped tools to fish for insects, they do so in an attempt to satisfy their current hunger state, not some future one," they wrote.

In one experiment, they rigged up a metal cylinder with a piece of uncooked spaghetti holding two bunches of grapes.

"To obtain the reward subjects had to break the spaghetti by inserting a plastic tube through the top hole over the cylinder. That caused the grapes to fall down and hang in front of the bottom holes thus allowing subjects access to them," the researchers wrote.

In another test, the apes had to use a metal hook to fish out a bottle of grape juice.

To pass the tests, the apes had to remember to bring the right tool out of the room with them, and bring it back with them some time later. Both orangutans and bonobos passed the tests several times, the researchers said.

### 'NOT A UNIQUELY HUMAN ABILITY'

"Together with recent evidence from scrub jays, our results suggest that future planning is not a uniquely human ability, thus contradicting the notion that it emerged in hominids only within the past 2.5 to 1.6 million years," Mulcahy and Call wrote.

Joanna Dally of the University of Cambridge in Britain and colleagues tested captive scrub jays, and saw the birds could remember which other birds were watching them when they first hid some treats.

If a bird dominant to the jays saw them store their food, the jays would move the cache later when the dominant bird was not watching.

But if the bird allowed to watch the treat being hidden was subordinate, or a mate, the jays did not later re-cache their food—presumably because they could fight off subordinates that try to steal their food, the researchers wrote.

"These results suggest scrub-jays remember who observed them make specific caches," Dally's team wrote.

Jays are members of a group of birds called corvids, which include crows, jays and ravens and which biologists consider to be the most intelligent species of bird.

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