

# How lemurs and monkeys exploit the social wisdom of crowds

Alan Boyle, Science Editor NBC News  
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*David Haring*

*Ring-tailed lemurs were among the species tested for their social (as well as non-social) cognitive skills.*

If you want to keep up with the humans, it's better if you're a social animal: That's the lesson learned from two studies focusing on the group dynamics and problem-solving skills of lemurs and squirrel monkeys.

In one study, six different species of lemurs were tested to see how savvy they were about stealing food when their human monitors weren't watching. In the other study, researchers studied two groups of squirrel monkeys to measure how quickly they learned how to open a puzzle box and get at the food inside.

"Both papers highlight the cognitive benefits of being in a social environment," said Duke University's Evan MacLean, the lead researcher for the lemur study appearing in the journal PLOS ONE.

In the species-to-species comparison, the lemurs who lived in bigger groups were more likely to try stealing a piece of food if the human wasn't watching them. The finding suggests that living in larger groups carries over to solving problems that call for figuring out what others might do. That may have given early humans an advantage hundreds of thousands of years ago.

## Facebook for monkeys

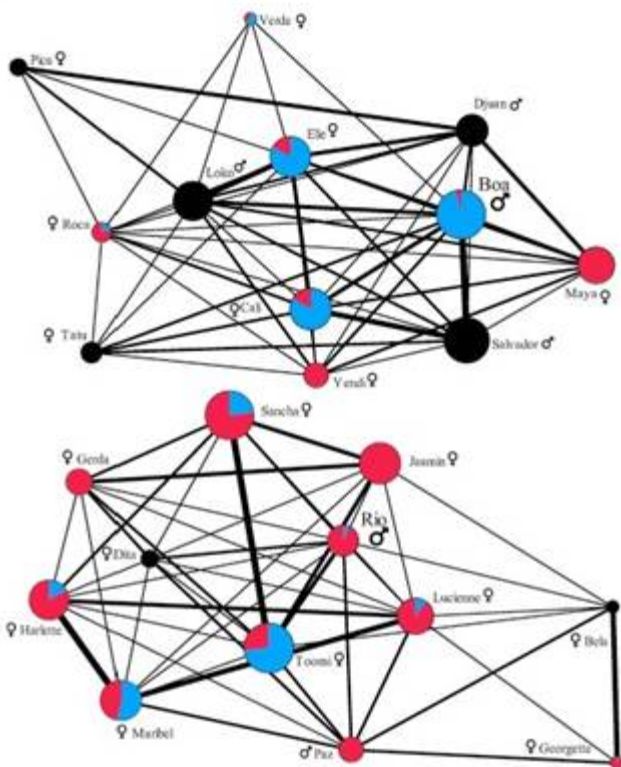
The squirrel monkey test was even more relevant to human experience. In order to get at their food rewards, the monkeys had to lift up a latch or pivot a door on the puzzle box in a certain way. If the puzzle-opening tricks were taught to a monkey that had lots of social connections, the whole group learned the tricks more quickly. The more socially connected monkeys picked up the new methods more successfully. But if the tricks were taught to a monkey with few social connections, it took longer for the group to catch on.

To track the connectedness of the monkey tribes, the research team observed the groups and mapped their interactions — creating, in effect, a Facebook for squirrel monkeys.

"Our study shows that innovations do not just spread out randomly in primate groups but, as in humans, are shaped by the monkeys' social networks," the University of St. Andrews' Andrew Whiten said in a news release. Whiten is the senior researcher for the study, published in *Current Biology*.

MacLean said the squirrel monkey study revealed that "social centrality predicts how likely you are to learn this information from others. ... It means that if your Facebook friends are on to something new, the more central you are in the network, the quicker you'll find out."

## How social is your brain?



*This map shows the interconnections between two groups of squirrel monkeys in a study of social intelligence.*

The lemur study added a couple of extra twists to the tale of two cognitive studies. The sociality of a particular species didn't seem to have an effect on the lemurs' ability to solve "non-social" problems, such

as finding a treat that was hidden inside a tube. And there was no clear connection between brain size and social intelligence — in fact, some species with smaller brains had more social smarts than their bigger-brained cousins.

"It's a puzzling finding, because we expected brain size to be related," MacLean told NBC News. "It may be that the lemurs we studied are doing the most they can do with the size of the brains they have, but beyond a certain threshold in complexity, a species would need to develop a bigger brain."

We definitely have the edge over other primates when it comes to group dynamics. "Humans are at the very extreme end of a spectrum of sociality," MacLean said. "Lemurs are part of a lineage that diverged from the human lineage 50 million years ago."

The species that were studied at the Duke Lemur Center live in groups ranging from five to 15, while humans are thought to be capable of maintaining about 150 social contacts in their heads. So how is it possible to keep track of thousands of Facebook friends? Anthropologists say that requires higher modes of social organization, which are put into practice by armies, industries, governments, religions — and online social networks.

*In addition to MacLean, the authors of "Group Size Predicts Social but Not Nonsocial Cognition in Lemurs" include Aaron Sandel, Joel Bray, Ricki Oldenkamp, Rachna Reddy and Brian Hare. In addition to Whiten, the authors of "Diffusion Dynamics of Socially Learned Foraging Techniques in Squirrel Monkeys" include Nicolas Claidiere, Emily Messer and William Hoppitt.*

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