Study finds ability to solve food puzzles is the only predictor of innovation, brain size in wild birds

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Credit: Mélanie Couture/Rockefeller University

When certain species of wild birds and primates discover new ways of finding food in the wild, it can serve to measure their flexibility and

intelligence.

In the largest experimental study ever conducted on this topic, a team of researchers from Rockefeller University headed by postdoctoral fellow Jean-Nicolas Audet, in collaboration with McGill's Louis Lefebvre, has shown that foraging problems requiring overcoming obstacles, such as removing the lid off a container of food, are the only predictors of brain size and innovative behavior in the wild.

They also studied two other actions but did not find them to be associated with innovation rate in the wild. The findings are published in the journal *Nature Ecology & Evolution*.

The results of the study—which included 203 individual animals from 15 species, 13 of which were wild-caught—integrate observational studies of animal intelligence in the wild and experimental studies in captivity.

"Our results provide an effective way to study innovations in the lab using appropriate behavioral tasks in controlled conditions, allowing future investigations on their precise neurobiological, psychological, and ecological underpinnings," said Audet. "We now have a more valid model to study the evolution of intelligence."

More information: Jean-Nicolas Audet et al, Problem-solving skills are predicted by technical innovations in the wild and brain size in passerines, *Nature Ecology & Evolution* (2024). DOI: 10.1038/s41559-024-02342-7

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