

Professor studies army-ant-following birds

In the jungles of Central and South America, a group of birds has evolved a unique way of finding food – by following hordes of army ants and letting them do all the work.

Robb Brumfield, assistant curator of genetic resources at the LSU Museum of Natural Science and assistant professor of biological sciences, first witnessed this peculiarity in 1989 when he accompanied then-LSU graduate student Ken Rosenberg to Peru as an assistant.

“Rosenberg’s project investigated dead-leaf-foraging, which is a specialized way that some tropical bird species have devised to find food. These species find their insect prey by probing dead, curled leaves suspended in vine tangles,” Brumfield said. But as he walked endless jungle trails each day in search of these dead-leafing birds, he became captivated by another novel approach some applied to hunting for food: army-ant following.

With this type of specialization, flocks of birds track army-ant swarms through the forest. “When millions of these army ants are on the move, they consume every insect, spider and lizard they come across,” said Brumfield. “Naturally, any animal that hears them coming – and they’re very, very loud – runs the other way. The army-ant-following birds have learned to take advantage of the swarm by perching above it and preying on insects and other small animals trying to escape. It’s reminiscent of the mockingbird that follows me when I’m mowing the grass, picking off the insects that had been hiding there.”

Now, nearly 20 years after that first trip to Peru, Brumfield has again teamed up with Rosenberg, who is now at Cornell University’s Laboratory of Ornithology, along with Jose Tello of the American Museum of Natural History and three other LSU researchers – Matt Carling, Zac Cheviron and Nanette Crochet – to study the evolution of army-ant following.

“Over the last 50 years there has been some outstanding work on the ecology and behavior of army-ant-following birds, but the details of how the specialization evolved had not yet been examined,” Brumfield said.

The team published their findings in this month’s issue of *Molecular Phylogenetics and Evolution*.

“Using a hypothesis of the evolutionary relationships among antbird species that we reconstructed from DNA gene sequences, what we found is that army-ant following has been around a long time, possibly as long as six million years, and that its evolution followed a logical progression from least specialized to most specialized,” said Brumfield.

There are three main categories of specialization found in army-ant-following birds. The first, called occasional army-ant followers, are the most casual of the three, utilizing the insects to round up food but only as the swarm passes through their territory. Regular army-ant followers, the next level up in specialization, will follow the army ants outside of the flock’s territory but are not completely dependent on the ants to provide food. These birds regularly hunt for themselves. The final, and perhaps most interesting, category is that of the professional army-ant followers. These birds are completely reliant on the army ants for food, presenting a problem almost as unique as the situation itself.

“These birds depend almost solely on one species of army ant, called *Eciton burchellii*,” said Brumfield. “This makes the professional army-ant followers sensitive to many of the very real threats to this ecosystem, like deforestation, global warming and other similar issues. If anything affects the ant population, it could be devastating for these birds. But what is perhaps most surprising is that, despite the bird’s dependence on one primary ant species, the specialization has persisted for millions of years.”

Source: Louisiana State University

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