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[Andrea Estrada](#)

UCSB Researcher to Study Cognition in Wild Birds

You say "birdbrain" like it's a bad thing. But if you consider recent discoveries in avian brain anatomy and the cognitive feats of large-brained birds, you'll find the moniker isn't necessarily the insult you perceive it to be.

So says Corina Logan, a junior research fellow at UC Santa Barbara's SAGE Center for the Study of the Mind, whose work is focused on the cognitive abilities of the great-tailed grackle. She has received a National Geographic Society/Waitt Grant to study what she describes as a highly innovative bird. The grant will allow her to set up a field site in Santa Barbara, which is home to about 100 or so birds from this particular species.

"Grackles have many different ways of finding food, more than would be expected for their relatively small brain size," she explained. "I will investigate how they solve their foraging problems by testing their knowledge of their physical and social world."

The grant will also support a trip to New Caledonia, where Logan will conduct comparative tests on New Caledonian crows. "Crows have larger brains, use tools, and are very innovative and extremely clever at solving cognitive tasks," Logan said. "By comparing test performance between crows and grackles, I will be able to identify specific ways in which large brains provide cognitive benefits."

According to Logan, in North America, crows are the most innovative group of birds -- not surprising, given their large brain size. The second-most innovative group, she said, are the grackles. "But they don't have the second-largest brain. They have about the sixth-largest, according to a limited analysis I performed. So what's going on here?"

Grackles, which are expanding their range north, from Central America into the United States, have many different ways of finding and processing food, Logan continued. In Texas, for example, the birds eat dead insects off the license plates of parked cars. (Not very appetizing, maybe, but certainly innovative.) "There are crows in the same parking lot, but they don't do this," said Logan. "So how is it that the grackles came up with this foraging innovation?"

To study the grackles, Logan will capture as many birds as she can find and put colored rings on their legs. These will allow her to identify each bird and study its behavior over time. By placing a GPS tracker on one individual in each flock, she'll be able to know where they are at any given time on any particular day. "Then I'll just go watch them," she said. "They tend to hang out in shopping mall parking lots and scrounge for food. They also like the Andree Clark Bird Refuge and the Santa Barbara Zoo."

Logan will observe the birds' behavior -- which among them are friends and which are enemies, for example, and whether they follow any kind of dominance hierarchy. She'll also set up the same tests with the grackles as she does with the New Caledonian crows, such as a string-pulling exercise to see if they demonstrate knowledge of connectivity. "You have a perch and a length of string hanging down with a piece of food at the end. The birds have to stand on the perch and use their beaks to pull the string up, holding it in place with their feet."

According to Logan, the field of avian cognition has exploded following a revision in 2005 of the officially accepted brain anatomy. "Before, anatomists based bird brain anatomy on how similar the structures were to those in the mammalian brain," she explained. "But bird brains are structured very differently from mammalian brains, so it looked as though birds didn't have a structure similar to the mammalian neocortex, which, is the cognitive processing center. However, if you base avian brain anatomy on the function each region performs, then birds do have an area that is similar to the mammalian neocortex."

In addition to doing fieldwork in parking lots, at the bird refuge, and anywhere else the grackles spend their time, Logan will bring her research to the Santa Barbara Zoo as an exhibit of science in action. "I can do some public education, talk to small groups," she said. "I'll have small billboards explaining my research. People will be able to see fieldwork as it happens."

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