Counting on black crows to help us adapt to stressful situations

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It's hard not to catch sight of at least one black crow in the pursuit of our daily lives. For most of us, however, that is where the interaction ends. For Binghamton University Associate Professor of Biological Sciences Anne Clark, that single sighting is the open door to hours of observation.

Yes, Clark is a bird watcher but her interest in watching crows is much more than just a way to pass time. It is an important research tool in her role as a behavioral ecologist and she believes the birds can teach us humans a thing or two about adapting to our environment, including how to better manage stress.

"Crows do a lot of things the way people do," says Clark, noting that like humans, the birds are cooperative, simultaneously family and group oriented, and have a high capacity for adaptation.

Clark has spent the past decade of her research career deciphering the biological and social relationships among a population of some 2,000 American crows in the Southern Tier of New York.

According to Clark, behavioral ecologists study Corvus brachyrhynchos (American Crows), almost as often as primates, to gain insight into the evolutionary underpinnings of social relationships. The black birds, which seem to be everywhere, mate for life, can survive nearly two decades in the wild and collaborate in extended family groups to rear their young.

Clark and nearly a dozen Binghamton University graduate students spend many hours not just keeping an eye on the birds; they actually climb into the trees and collect nestlings in a bucket. The baby birds are then lowered to the ground where they are tagged and banded. A sample of blood is also taken from each chick before it is returned to the bucket and then the nest.

What will be done with all of this information? The next chapter for Clark and her team of researchers is to try to determine how the birds cope on a molecular level with stress. This is information humans could certainly appreciate.

"We're pretty sure that it involves some changes in genes associated with responses to stress, especially social stressors," Clark explains. "This includes things having to do with learning and memory."

Currently Clark is looking into variations in DRD4, a dopamine receptor gene that, in people, is associated with responsiveness to environmental cues. One of her first projects will aim to determine which crows thrive in suburban areas where life is more crowded. Clark says that through her observations, she knows that crows learn to put up with noise and crowding. She says they even learn to open a McDonald's bag in order to get food. Now she just wants to find out if it is indeed their genes that help them adapt.

Crows by the numbers

- **31**: estimated worldwide population of Corvus brachyrhynchos, in millions
- **2,145**: number of crows tagged by Anne Clark, Kevin McGowan and their team
- **19**: years lived by the oldest crow in McGowan and Clark's study

- **4–6**: average lifespan, in years, of a wild American crow
- **59**: age in years of the oldest captive of the species
- **7**: days the West Nile virus takes to kill an infected crow
- **0**: number of crows resistant to the virus
- **45**: percentage decline in crow populations since the West Nile virus came to the United States from Uganda in 1999
- **1**: average weight in pounds of a mature American crow
- **36**: length, in inches, of a crow's wingspan
- **1822**: year in which the American crow received its Latin name
- **31**: species of crows worldwide
- **4**: subspecies of American crow: Eastern, Western, Florida and Southern
- **25**: miles a crow will fly in a day while collecting food
- **30–60**: speed, in miles per hour, of a crow in flight
- **100**: feet, in height, that researchers climb to reach nests
- **3–9**: number of eggs in a clutch
- **50**: percent mortality of crows in their first year of life
- **16–18**: number of days until chicks hatch
- **35**: days from hatching for a chick to leave the nest
- **15**: maximum number of extended relations who help rear the young
- **100**: years crows have been known to roost in Auburn, N.Y.
- **63,000**: number of crows in the Auburn roost at its peak
- **1,061**: number of crows shot in the 2004 Auburn crow hunt
- **7**: months in New York's crow hunting season
- **0**: number of crows kept legally as pets

Provided by Binghamton University