



Crows

Documenting the behavior of a bird that helps its parents.

Much too common for some people's tastes and largely neglected by ornithologists, the plain old American crow gets special attention from one Cornell University researcher. Kevin J. McGowan and his Cornell student helpers prepare their climbing gear each spring and ascend to the tree-top nests where they tag young crows four weeks after they hatch.

He documents a none-too-common inclination among birds of any kind:

American crows (*Corvus brachyrhynchos*) tend to hang around home for years to help their parents raise more crows.

"Most young birds leave their parents soon after leaving the nest -- probably because they're chased away -- and never see the parents again," McGowan explained. **"But American crows never chase away their offspring. Some crows stay with their parents for up to five years or longer.** There's a 6-year-old crow I marked during the first year of my study that's still associated with its parents and younger siblings."

Such helping behavior is of particular interest to evolutionary biologists, who try to understand why sexually mature animals sometimes forgo breeding and instead help closely related kin. With each crow coded by year of birth and parentage, McGowan can return to the ground with his binoculars and watch the extended family dynamics.

"Crows almost never breed before they're 2 years old. Most don't leave home to breed until age 4 or 5," he said. "While they wait for a breeding opportunity, most crows help their parents raise young in several ways. They help feed the incubating female, they feed the nestlings and fledglings, they defend the nest and surrounding territory and they stand guard over other family members while they forage."

With an average production of three fledgling crows per year, and the likelihood that two will survive to the next breeding season, extended families can grow quickly, McGowan said. "I've seen five adult crows at a single nest at once, all with their heads in the nest feeding the young." Extended families of 15 crows are not unusual. Of the 350 nests McGowan has chronicled, 80 percent were attended by three or more adult crows.

Crows don't nest in eye-level birdhouses, so McGowan takes his eyes and other tools of the trade where his subjects are -- usually in coniferous trees as much as 120 feet off the ground. Crows tend to prefer evergreens, he notes, because the foliage protects the early-spring nesters in the weeks before deciduous trees leaf out, although crows sometimes nest in deciduous trees anyway.

With a national reputation as one ornithologist who looks up to crows, McGowan is often called on by news media to comment on apparent increases in urban crow populations. His usual answer: There are probably no more crows in North America than before; but they're learned to hang around town to avoid hunters. McGowan grew up in Springfield, Ohio, the annual winter roosting site for an estimated 150,000 crows.

His observations help explain what some of the noisy crow arguments are about. "If a female crow pairs with the male 'next door,' that male crow can keep all the visiting crows away, including visiting members of the female's family," McGowan reported. "But if a son pairs with the girl next door, she can do little to chase away visiting brothers-in-law. She may keep out her mate's sisters, but she can't drive away the males."

The new home, when the crows finally leave, may be as near as 75 meters from mom and dad, McGowan has learned. And he's had reports of his Ithaca-tagged crows nesting in Geneva, N.Y., some 65 kilometers away.

That's about 40.365 miles. As the crow flies.

Are crows territorial? What constitutes a crow family? What is each bird's role in the family group? Do differences exist between rural and urban crows?

- McGowan has tagged 651 individual crows from 560 nests over the past 10 years. And he has made some basic discoveries.
- First, American Crows are cooperative breeders.
- They apparently mate for life, or until a mate becomes incapacitated, and often several generations of a single family can be found helping at a nest.
- Older siblings, known as helpers, may take part in building the nest, feeding the incubating female, feeding the hatchlings, and chasing away predators. "Some of these families are amazing," says McGowan. "One marvelously successful crow family lives at St. Catherine's

Church in Ithaca--a breeding pair and up to seven generations of siblings live on or next to the home territory there."

- Each breeding pair has an established home territory (averaging about 10 acres in the city and much larger in the country), where they build their nests and raise young. And they hold these territories throughout the year.
- Non breeders or helpers associated with the territory may leave for a while in the winter, but many of them eventually return to their parents and their home territories. Young crows wait at least two or more years before breeding, so family groups can grow quite large--the family at St. Catherine's Church has up to 15 individuals--and it's not unusual to have three or more adults attending a single nest. This can make the demographics of the home territory pretty complicated.
- Crows have several ways to become breeders: they can leave home; they can wait for another crow in the neighborhood to die and then take its territory; they can take over a portion of their parents' territory; or they can essentially inherit their parents' territory when they die.
- American Crow family groups are dominated by males--male offspring tend to stay close to home whereas their sisters disperse.
- He tracks between 50 and 75 nests each year, and between 45 and 75 percent of them successfully produce young. "I tend to keep track of the crow families I've followed the longest," says McGowan, but he also adds new families each year to expand his research pool.
- Each nest produces on average four-and-one-half eggs annually, from which three birds usually fledge.
- Great Horned Owls, Red-tailed Hawks, raccoons, and even squirrels prey on crow eggs and nestlings, so crow parents go to great lengths to conceal and then protect their nests.
- "Nests are not homes," stresses McGowan. "They're just temporary structures that serve a purpose." It behooves the young birds to get out of the nest as quickly as possible, so that they will be less vulnerable to nest predators. Compared to the nest-success rate of birds that build small open-cup nests (only one-third of their young fledge), the nest-success rate of American Crows is high.
- Crows rebuild their nests every year, so in March, when McGowan starts looking for crow nests, he knows that a nest won't be in the same location as it was the previous year, but that it will be somewhere on the family's territory.
- From late summer until the following spring, a lot more activity takes place away from the territory because the need to feed and defend the young is gone.

- But toward dusk, you'll notice all of a sudden that no crows are around--they've all gone to congregation areas to prepare for the night's roost. "There's a lot of talking back and forth and playing around at these pre roosting sites," says McGowan. Then as it gets dark, they take off and head into the trees and their roost. Even the breeders sleep in the roost and leave early in the morning to head back to their territories.
- A roost in Cayuga Heights, a suburb of Ithaca, that had about 1,200 birds in it, which is actually not that large compared to some. Apparently a roost at the state penitentiary in Auburn, New York, numbers between 25,000 and 40,000 crows. And these are big, noisy birds.
- "Crows didn't move into towns and cities until the late 1950s," says McGowan. And although crows are opportunistic, he was curious about how well they were adapting to city life. What he found surprised him.
- "The urban nests are marginally, though not significantly, more likely to succeed," says McGowan.
- "But the rural crows produce one more young per successful nest and the nestlings are substantially larger--50 grams larger--than urban nestlings."

This finding surprised McGowan. After all, the city birds have a constant food source with the weekly trash pickups. Then he found part of his answer. Several years ago a drought hit the area--it was among the top 10 driest winters on record and one of the driest springs ever--and, according to McGowan, the urban crows fared poorly. That led him to realize how dependent even the urban crows are on one particular food source: earthworms, which were extremely scarce and rarely came to the surface during the drought.

McGowan also suspects that city territories are too small and that urban crows are not getting reliable cues about how large a territory needs to be to ensure survival. But to McGowan this just illustrates how little we know about the rules crows follow about territories--for example, how are they established, who stays, and who leaves...