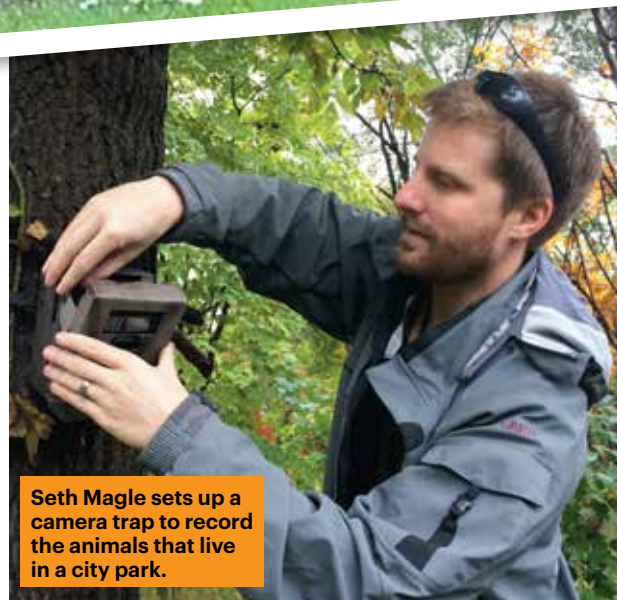


# LIVING WITH CITY CRITTERS

## Can learning about animals we call pests help us accept them?

**F**our times a year, wildlife biologist Seth Magle heads into the field to look for animals. He spends hours driving to his research sites. Then he hikes to a series of spots he's selected and sets up motion-activated cameras. They will photograph the wildlife he's studying. But he's not searching for rare species on a far-flung continent—Magle is visiting parks, cemeteries, and golf courses in the bustling city of Chicago.



Seth Magle sets up a camera trap to record the animals that live in a city park.



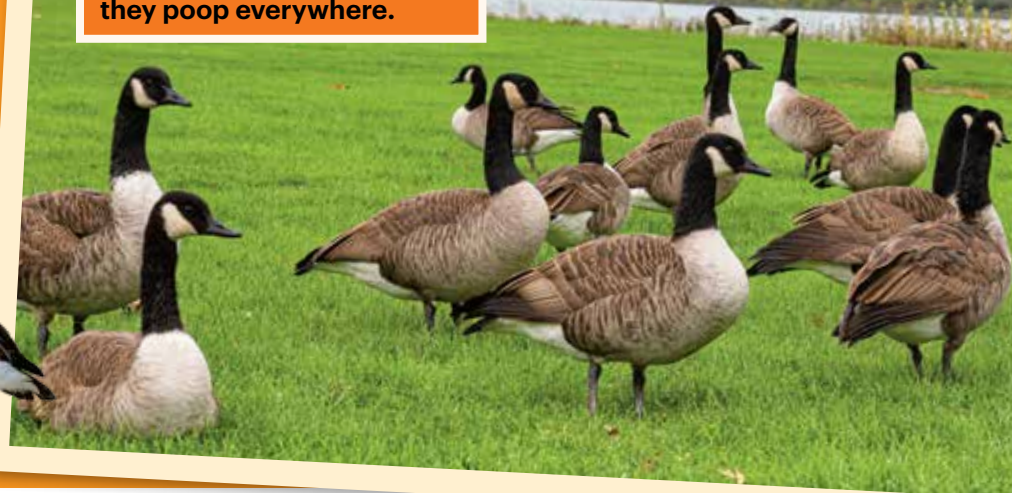
A protective goose attacks a woman who got too close to its babies.

## GEESE

**NATURAL INSTINCTS:** Flocks of geese migrate across the continent and pick places with plenty of food to rest.



**POTENTIAL CONFLICT:** Open fields, city parks, and ponds are an all-you-can-eat buffet for the birds. Then they poop everywhere.



ZHI CHOW/CATERS NEWS AGENCY LTD (MOTHER GOOSE); LINCOLN PARK ZOO, URBAN WILDLIFE INSTITUTE (MAGLE, CAMERA); SHUTTERSTOCK.COM (GOOSE); ISTOCKPHOTO/GETTY IMAGES (GEESE)

Magle is the director of the Urban Wildlife Institute (UWI) at Chicago's Lincoln Park Zoo. He and his colleagues study animals that make their home in the city—everything from squirrels and pigeons to raccoons, opossums, coyotes, and more. "People are often surprised when I tell them that we know a lot more about the lions in the Serengeti than we know about the squirrels in our own backyard," he says. "But if we want to connect people to nature, a natural place to start is where they live."

### WE'RE MISUNDERSTOOD

One reason Magle's work is surprising is that people don't always think fondly of the animals they share cities and suburbs with. Squirrels are notorious for stealing from bird feeders, and opossums will nest in people's attics or under sheds. "Raccoons create conflict because they get into our garbage," says Magle. "Geese and pigeons? Well, they poop on everything."

But we shouldn't hold these behaviors against the animals, which are just following their natural instincts, says Magle. Raccoons

are intelligent and omnivorous—meaning they eat many different types of food—so unsecured garbage is an easy target. Pigeons evolved to nest on cliffs, and tall buildings make a good substitute. Geese like vast expanses of short grasses they can graze on, and that's exactly what they get in a sprawling city park or golf course. "We have just built a giant goose buffet, so we shouldn't be surprised when they show up and use it," Magle says.

Partly because we perceive these common critters as pests, scientists haven't always paid much attention to them. But Magle and others are now trying to learn more about their habits, populations, and abilities. Sarah Benson-Amram is an urban ecologist at the University of British Columbia in Canada. She designs food puzzles to test how raccoons learn new things and solve problems. She's found that they perform about as well as human children!

"The more we study this, the better we'll be at designing effective mitigation strategies" to keep them from causing trouble for us, says Benson-Amram.

### CITY SCIENCE

Magle and his colleagues want to understand how different species are using urban and suburban landscapes. Since 2010, they've set up cameras at dozens of sites around Chicago and left them there for a month every January, April, July, and October. Motion sensors trigger the cameras to turn on anytime an animal climbs, lumbers, or scurries in front of them. With help from volunteers, Magle's team then tallies which animals—specifically mammals—were detected and where.

The data they collect can't actually tell them how many of each animal is in the city, explains Mason Fidino, an ecologist and statistician at the UWI. That's because there's no way of knowing if two raccoon photos from the same camera are showing the same individual or different ones. But it can tell them which types of habitats around the city different species use and whether their ranges are growing or shrinking. And it can reveal patterns, like when opossum populations boom suddenly in

*Continued on the next page →*



# SQUIRRELS

**NATURAL INSTINCTS:** Squirrels search for and store nuts and seeds to make it through the winter months.



**POTENTIAL CONFLICT:** The critters dig in gardens and ransack bird feeders, an easy source of food.



some years and virtually disappear the next.

Over the years, the team has made some unexpected discoveries. Flying squirrels, which Magle assumed didn't live in Chicago, are actually common—but they come out only at night. Beavers and otters, which used to be rare in the city's rivers and streams, have been showing up more often. "I think it speaks to the fact that our waterways have really been cleaned up over time," Magle says.

about their animal neighbors, which can help reduce conflicts.

Fidino particularly loves talking about opossums and says he's seen people's attitudes toward them improve over time. "If you're trying to teach people about conserving wildlife, it's much easier if you can make connections to the wildlife they actually interact with," he says. "And there are a lot of really great, charismatic species that live right beneath our noses that they may not even know about."

—Mara Grunbaum

# OPOSSUMS

**NATURAL INSTINCTS:** They seek out safe, warm places to hide—especially if the weather is bad.



**POTENTIAL CONFLICT:** They may take shelter in attics, basements, or sheds, leaving a mess of poop and food scraps behind.



## FINDING PERCENTS



When working with percents, you must pay attention to the parts and wholes of your data set. You can use proportions to keep track of your work while solving for an unknown variable.

**EXAMPLE:** According to the table below, at what percent of monitored sites were gray squirrels detected in Chicago?

**Step 1** Write a proportion to set up the problem:

$$\frac{\text{Part}}{\text{Whole}} = \frac{\text{Percent}}{100}$$

**Step 2** Fill in the known quantities from Chicago:

$$\frac{71}{98} = \frac{\text{Percent}}{100}$$

**Step 3** Cross multiply to solve the proportion and find the percent:

$$98 \times \text{Percent} = 71 \times 100$$

$$98 \times \text{Percent} = 7,100$$

$$\text{Percent} = \frac{7,100}{98}$$

$$\text{Percent} = 72.448 \dots$$

rounds to 72%

→ So gray squirrels were detected at 72% of the sites in Chicago.



UWI scientists use motion-sensitive cameras to see which animals visit different sites. The percent of sites at which each species is detected tells them roughly how common it is in the area. The chart below shows the data collected on three species in four cities in April 2019. Use it to answer the questions. Round answers to the nearest percent.

CITY	TOTAL SITES MONITORED	SITES WITH RACCOONS	SITES WITH GRAY SQUIRRELS	SITES WITH OPOSSUMS
Chicago, Illinois	98	50	71	49
Atlanta, Georgia	31	21	29	22
Rochester, New York	23	16	20	9
Seattle, Washington	32	14	21	7
Total	184	101	141	87

**1** At what percent of monitored sites were squirrels detected in Rochester?

**2 A.** At what percent of monitored sites were opossums spotted in Chicago?

**2B.** At what percent of sites were opossums detected in Atlanta?

**2C.** In which city was the percent of sites with opossums the greatest?

**3** Of all the monitored sites on the chart, what percent were in Seattle?

**4 A.** Which species was least widespread in Atlanta?

**4B.** At what percent of sites was it detected?

**5** In which of the four cities on the chart were raccoons at the greatest percent of sites?

**6** Which species was most common overall in the four cities? Explain your reasoning.

SHUTTERSTOCK.COM (SQUIRREL); JOHN EVESON/FLPA/MINDEN PICTURES (BIRD FEEDER); ISTOCKPHOTO/GETTY IMAGES (OPOSSUM); JOE McDONALD/GETTY IMAGES (DOG)