



© Johanna Turner and Arroyos & Foothills Conservancy



City of **Chicago** | Mayor Lori E. Lightfoot

Chicago Wildlife Management & Coexistence Plan

Prepared by Chicago Animal Care and Control & the Lincoln Park Zoo's Urban Wildlife Institute

CACC Director: Mamadou Diakhate
Summer, 2021



About the Plan: This plan was developed by Chicago Animal Care and Control and Lincoln Park Zoo's Urban Wildlife Institute. The contents of this document are meant to guide strategic wildlife management efforts on the part of the city, as well as serve as a resource for Chicago Residents interested in learning more about local wildlife populations and appropriate management efforts.

Submitted To: The City of Chicago, Aldermen of the City, members of the public and other interested parties.

Contributors: Ilanah Taves, PhD Student; University of Cambridge, Department of Geography, Downing Site, Cambridge, England
Seth Magle, PhD; Urban Wildlife Institute, Lincoln Park Zoo, Chicago, Illinois
Mason Fidino, PhD; Urban Wildlife Institute, Lincoln Park Zoo, Chicago, Illinois
Cria Kay, MS; Urban Wildlife Institute, Lincoln Park Zoo, Chicago, Illinois
Liza Lehrer, MS; Urban Wildlife Institute, Lincoln Park Zoo, Chicago, Illinois
Jacqueline Buckley, M.S.; Urban Wildlife Institute, Lincoln Park Zoo, Chicago, Illinois
Maureen Murray, PhD; Urban Wildlife Institute, Lincoln Park Zoo, Chicago, Illinois
Kimberly Fake, MS; Urban Wildlife Institute, Lincoln Park Zoo, Chicago, Illinois

Resources: [City of Chicago Animal Care and Control](#)
[Lincoln Park Zoo Urban Wildlife Institute](#)
[Wildlife Illinois](#)

Table of Contents

BACKGROUND	4
STATE AND LOCAL GOVERNING LAW, CACC POLICIES AND PROCEDURES	5
CHICAGO'S WILDLIFE	6
<i>Skunk</i>	6
<i>Raccoon</i>	7
<i>Opossum</i>	8
<i>Squirrel (Fox and Gray)</i>	10
<i>Rabbit</i>	12
<i>Chipmunk</i>	13
<i>Bat</i>	14
<i>Beaver</i>	16
<i>Rat</i>	17
<i>Coyote</i>	18
<i>Red Fox</i>	20
<i>Deer</i>	22
<i>Canada Geese</i>	24
<i>Rock Dove</i>	26
<i>Snake</i>	28
<i>Bee</i>	29
CACC's ASSESSMENT AND MANAGEMENT METHODS	31
<i>Reporting, Monitoring, and Collecting Data</i>	31
<i>Wildlife Management Approaches</i>	32
<i>Local Ordinances</i>	32
CACC OFFICER PROTOCOL	33
<i>Resources for Officers</i>	33
WILDLIFE AND THE GENERAL PUBLIC	35
FURTHER CONSIDERATIONS	36
<i>Departmental Coordination</i>	36
<i>Connections with Local Wildlife Researchers</i>	36
<i>Planning for Wildlife</i>	36
SUGGESTIONS FOR RESIDENTS	37
GENERAL WILDLIFE RULES	38

Chicago is unique among major American cities. We have the great fortune of being located along the shores of Lake Michigan, and as such along a major migratory pathway for birds. We are located in the heart of the Midwest, where soils are fertile and plant diversity and abundance are high. We benefit from many early visionaries like Daniel Burnham, whose original plan for the city emphasized recreation and greenspace. Furthermore, Burnham worked to conserve a large network of natural areas in the region--collectively now known as Chicago Wilderness. As such, Chicago boasts an unusually large variety of wildlife populations compared to most cities its size. This abundance of animal life carries with it tremendous benefits for people--everything from opportunities for bird watching and nature education, to ecosystem services like garden pollination. Exposure to nature and wildlife can even improve people's physical and mental health. In a survey conducted by the Lincoln Park Zoo in 2020, nearly 90% of Chicago residents agreed that they enjoyed watching wildlife when they visited urban parks and one of the reasons they go to urban parks is to see wildlife. Over half of the respondents were even interested in making the area more attractive to wildlife, showing our ties to conservation and cohabitation still thrive today.

Unfortunately, wildlife also can come into conflict with people. When you combine a massive human population with a wide variety of animal species, some negative interactions are inevitable. Urban wildlife can cause property damage, transmit disease, create a safety hazard, and even, in very rare instances, attack pets or people. However, there are effective steps that people can take to minimize conflict with wildlife. This plan outlines the best practices, based on the best available science, to reduce conflicts and help people coexist with wildlife and nature in the Chicago area. Wildlife are part of the strength and the heritage of Chicago, and they're here to stay. Together we can keep Chicago both safe and wild.

Another unique aspect of Chicago is that we are home to many of the longest-running, and most thorough, studies of urban wildlife ever conducted. The Lincoln Park Zoo's Urban Wildlife Institute (UWI) has studied wildlife including raccoons, coyotes, bats, rats, mice, and many others across the Chicago area since 2010. UWI is building a partnership with Animal Care and Control (ACC) to establish research projects that will help make the process of wildlife management in the city easier, more humane, and more efficient. Other researchers have conducted a huge array of wildlife studies in Chicago dating back to the 1990s, including some of the earliest and most intensive studies of urban coyote survival, movement, and behavior (Cook County Coyote Project). Chicago's scientific resources are a rare and important asset that should not be overlooked.

UWI's research involves long-term data collection along three transects that initiate in the heart of the city and travel out through the suburbs, ultimately capturing a four-county region. They are well positioned to provide current data on mammal populations (including bats), as well as capture changing trends in populations. UWI is expanding data collection to include data on birds using acoustic monitors. Studies can be targeted to issues of management concern and can make a difference in the long term. By integrating research into wildlife management, it's possible to develop strategic interventions that benefit local ecosystems and may even avoid negative interactions between humans and wildlife in cities. These may include, identifying critical areas of conservation for mammal movement, providing materials for education and outreach around urban wildlife, providing recommendations for park placement and aiding in the deployment of monitoring

equipment to identify conflict animals like coyotes. UWI and other researchers may be able to provide insight into wildlife management challenges and regular communication between ACC and the local research community would be beneficial. The Urban Wildlife Institute's focus on Chicago's resident wildlife provides a wealth of studies to draw from when making management decisions. For example, a 2012 UWI study found the presence of three bird-borne zoonotic pathogens across Chicago, determining the relative risk of avian-transmitted diseases at different levels of urbanization. Another study looked at how an invasive plant common to the Chicago region, buckthorn, influences wildlife presence, finding significant decreases in white-tailed deer presence and increases of coyote and Virginia opossums where Buckthorn was located. UWI also studied one particularly contentious group of animals in the Chicagoland region, mesopredators (species which hunt smaller mammals while also being preyed upon by larger predators). This 2015 study found that coyotes and raccoons generally stay away from the most urban areas of the city, with coyotes adapting best to areas with a high average per capita income. These studies can be used to make biologically-informed decisions regarding land management, animal control, and even zoning and ordinances. For a full list of these publications and others, please visit UWI's [website](#).

In addition, Chicago is the hub for a global alliance of urban wildlife researchers, the Urban Wildlife Information Network (UWIN: urbanwildlifeinfo.org). This network pools data from dozens of cities to assess knowledge of urban wildlife and also to compare best practices for management and coexistence. Due to their vast scope and reach, UWIN is an important resource for ACC and other agencies tasked with managing wildlife in the future. This plan is intended as an educational resource for residents to learn about local wildlife, ways to mitigate negative encounters and become familiarized with ACC policies.

STATE AND LOCAL GOVERNING LAW, CACC POLICIES AND PROCEDURES

Chicago Animal Care and Control (CACC/ACC) only provides assistance when wildlife is considered a public safety threat or nuisance. Only in limited emergency circumstances will CACC provide traps or capture animals, in other cases a private agency may be called by homeowner assistance. CACC receives approximately 1,400 service requests annually for opossums, raccoons, skunks and squirrels. Requests for service must be handled in accordance with Illinois Law and in line with best practices. CACC occasionally partners with wildlife rehabilitation groups that may relocate wildlife in extenuating circumstances.

The Illinois Wildlife Code (520 ILCS 5/) classifies mink, muskrat, raccoon, striped skunk, weasel, bobcat, opossum, beaver, river otter, badger, red fox, gray fox, and coyotes as furbearers protected under the Code which means they require a license to harvest. If these animals become problematic in urban areas they may be removed if a nuisance wildlife permit is issued by the Illinois Department of Natural Resources district wildlife biologist or if a nuisance wildlife control operator holding a permit is hired for removal.

Residents should be advised to call a wildlife control center with assistance in wildlife removal. A list of local animal control organizations can be found here:

- [Wildlife Illinois](#)

Common Backyard Wildlife

Skunk

Species Profile



COMMON NAME: Striped Skunk

SCIENTIFIC NAME: *Mephitis mephitis*

LIFE SPAN: 7 years

FAST FACTS: Skunks are most active at night and during the winter months they will be inactive. Young skunks will be independent during the summer months of May or June.

CONFLICT ISSUES: Skunks dig in yards, take harborage in human-made structures, as a last resort, skunks can spray up to 15 feet when they feel threatened which can smell terrible but they will usually give a warning growl or stomp before.

ECOSYSTEM SERVICES: Skunks control insect populations. They also eat small mammals like mice and rodents, and keep other pests away.

MANAGEMENT APPROACHES: If you approach a skunk on the street, give it space as they will only spray if startled. If you have a skunk on your property, mesh fencing or one-way cloth doors can be installed, playing loud music and shining a light can encourage them to find a new location as a denning site.

Figure 1 Lincoln Park Zoo Urban Wildlife Institute, Photo by Joel Sartore

Skunks are hard to mistake for anything else - if their black and white stripes and waddling gait don't give them away, the smell usually does. Skunks have poor eyesight but good senses of hearing and smell. Urban skunks can be a bit bulkier than skunks outside of the city. They do not hibernate but become inactive in the winter months. They are most active at night and are mostly solitary animals, but will den together during cold temperatures. Although white stripes along the body are an identifying characteristic for skunks, the stripe pattern can vary, and has even been used to identify individual animals. Some skunks can have stripes that are very thin and appear almost entirely black, while others can have very thick, white stripes.

Striped skunks (the species local to Chicago) eat mostly insects, but will also prey upon small mammals, garbage, bird eggs, and wild fruit. They can be found in parks and fields, but also in backyards, golf courses, vacant buildings, and even industrial sites. They give birth once a year in the spring and do so within dens, which can take many different forms. Skunks are usually very shy and will not approach people. However, if they are surprised or threatened they may hiss and stomp their feet, and if necessary adopt a defensive posture, and spray as a last resort - to a range of up to 15 feet (see below). The spray takes time to regenerate, and since they rely on it for protection, skunks do not spray indiscriminately. Partly due to the spray, and partly due to their tough nature, skunks are rarely taken by predators.

While skunks are shy, smallish, and unlikely to directly cause physical harm to humans, they do generate several important management considerations. The spray is, of course, the most obvious and skunks can spray both humans and their pets. The spray is not medically dangerous but smells

terrible and tends to linger. A mixture of hydrogen peroxide, baking soda, and dish soap is most often recommended for washing it off. Some individuals will try to den underneath or even inside of buildings. Skunks have a habit of digging up lawns in search of grubs and will sometimes raid gardens. Probably the most critical potential health risks from skunks come from the diseases they carry. They can carry roundworm, leptospirosis, tularemia, and other pathogens, however disease transmission from skunks to humans is rare.

Skunk management carries significant challenges. In most cases skunks will quickly move on from an area in search of new food. However, if they are denning underneath an inhabited structure, raiding gardens, or if they are exhibiting unusual behavior indicative of potential disease, direct intervention may be called for. When skunks are denning underneath structures or raiding gardens, exclusion devices such as mesh fencing or one-way cloth doors can be installed - May or June is the best time because by then the young are relatively independent. In many cases shining light or playing loud music can also encourage them to leave a den site. Trapping them is difficult due to the spray, but is possible. Because of the risk of rabies transmission from skunks it is illegal to transport skunks across counties. In some municipalities trap-vaccinate-release programs have been successful for skunks and this may be considered in Chicago. While garbage is not a primary food source for skunks, it is always wise to keep food waste well secured to avoid conflict between humans and other species. Skunks provide important ecosystem services by helping to control insect populations and coexistence with them should be our goal. For more comprehensive skunk management strategies, please see the following resources:

- [Humane Society](#)
- [UC IPM](#)

Raccoon

Species Profile



COMMON NAME: Raccoon

SCIENTIFIC NAME: *Procyon lotor*

LIFE SPAN: 2-3 years

FAST FACTS: Raccoons live in most U.S. cities, and eat virtually anything, they are adept climbers but are typically solitary and give birth once to twice a year.

CONFLICT ISSUES: Raccoons can create property damage and take up residence in or very near to our homes. Also, because of their thumbs, they can get into garbage cans and are very good climbers, making it easier to get over fences.

ECOSYSTEM SERVICES: Raccoons eat just about anything, making them one of the urban wildlife species that help "clean up" excess food and because they are known to eat fruits and plants they are also seed dispersers.

MANAGEMENT APPROACHES: Do not leave pet food or human food out. Make sure that garbage bins are tightly secured as raccoons are very crafty. If you need to remove a raccoon please call an animal control professional.

Figure 2 Lincoln Park Zoo Urban Wildlife Institute, Photo by Joel Sartore

Raccoons are arguably the most successful urban carnivore in North America. They maintain large populations in most U.S. cities and are certainly just as prevalent in Chicago, though actual population estimates are unknown. Most anyone who has spent time outdoors at night has likely

seen one, and they are quite difficult to confuse with anything else - their rotund bodies, mask-like facial markings, and striped tails make them quite distinctive, and even perhaps charismatic.

A typical urban raccoon is an extreme generalist, able to eat virtually anything. Their diet includes earthworms, carrion, plant matter, cat food, and all manner of discarded human food waste. Raccoons are probably the most advanced of our dumpster diving wildlife, their paws are quite dexterous and enable them to access closed garbage bins and dumpsters. Raccoons are also adept climbers and can be found atop fences and in trees. While they are typically solitary, they are willing to tolerate crowds of other raccoons if high quality food resources are present. They give birth once and sometimes twice a year in late spring and make use of a wide variety of den sites, including hollow trees, chimneys, and storm sewers. Because they den in a variety of human structures, raccoons can be a source of human-wildlife conflict, through direct confrontation with humans, property damage caused by their activities, and, perhaps most critically, through the transmission of disease. Leptospirosis, canine distemper, raccoon roundworm (*Baylisascaris procyonis*), and rabies are the most important zoonotic diseases carried by raccoons. Rabies in particular has had a massive effect on raccoon populations and caused a public health outcry, to the point where use of vaccine baits have been attempted in some cities.

In most cases where raccoons are reported by the public, no management action is necessary. Large packs of raccoons, such as those often sighted along the Lakeshore path, likely suggest a large artificial food source, such as people deliberately feeding raccoons or uncontained garbage. These large gatherings present a high disease risk and people should be strongly discouraged from feeding raccoons or leaving food outside for them. In cases where there is evidence of disease, individual raccoons will need to be trapped and euthanized. For more comprehensive raccoon management strategies, please see the following resources:

- [Illinois DNR](#)
- [Wildlife Illinois](#)

Opossum

Species Profile



COMMON NAME: Virginia Opossum

SCIENTIFIC NAME: *Didelphis virginiana*

LIFE SPAN: 2-3 years

FAST FACTS: As the only marsupial we have, opossums are predominantly nocturnal and can breed twice a year. Their gestation period is 13 days and joeys will live in mom's pouch for 2-3 months.

CONFLICT ISSUES: Scavenging through trash, denning in human-made structures, startling people unintentionally, and being hit by cars.

ECOSYSTEM SERVICES: Opossums can eat over 5,000 ticks in a year, keeping us safe from tick-borne diseases. They also eat a variety of other insects and pests.

MANAGEMENT APPROACHES: Lock up and ensure your trash bins are free of holes. If you come in contact with an opossum, give them enough space to escape if needed. Lock up your shed and make sure that brush piles are clear of your property as this can be suitable denning material for them.

Figure 3 Lincoln Park Zoo, Urban Wildlife Institute, Photo by Farinosa

The only native marsupial found north of Mexico, the Virginia opossum (*Didelphis virginiana*) is a solitary and nocturnal animal about the size of a domestic house cat. With their slender snout and long hairless tail, opossum can sometimes be mistaken for large rodents. The fur on opossum generally fades from white on their head to a mottled gray on their body and dark brown on their legs. Like their tail, the paws and ears of opossum are hairless. Adept climbers, opossum have an opposable thumb on their hind legs, which makes their tracks easily identifiable.

Opossum are habitat generalists but are most often found in wooded areas near natural water sources. Their reliance on natural water sources, however, may be reduced in more suburban areas of Chicago due to the prevalence of anthropogenic water sources such as drainage ditches. Within more urbanized parts of Chicago, however, opossum are more likely to be found nearby natural water sources such as rivers or ponds. Opossum often have multiple denning sites within their home range, which are typically brush piles, inside of trees, or under human-made structures such as sheds.

With their bare feet and tails, opossum generally do not survive more than one winter in Chicago and typically live less than two years. Urban opossum may live longer than rural opossum, possibly because they can find anthropogenic food sources and denning sites to survive the winter which may, in turn, promote conflict with humans. Opossum breed up to twice a year in Chicago, with young dispersing in the spring and fall. While the gestation period for opossum is only 13 days, once born baby opossum will crawl up their mothers stomach to her pouch, latch onto a teat, and continue to grow for about two to three months. After this time they will leave the pouch and climb onto their mothers back for a month or two before leaving. Mother opossum often disperse to new habitat patches between litters, potentially to reduce the likelihood of her first litter competing for resources with her second litter.

Opossum have omnivorous diets and often scavenge for food, which may put them in contact with humans. Opossum eat fruit, nuts, insects, carrion, and anthropogenic food sources such as food waste or pet food. Opossum also often consume roadkill, and in turn may end up being killed by vehicles while scavenging roadkill. Opossum may help combat Lyme disease, as opossum have been known to eat up to 5,000 ticks per season. Likewise, opossum are also resistant to rabies because their body temperature is lower than most placental mammals. Overall, opossum typically avoid interactions with humans, but if provoked opossum will hiss and growl. In very threatening circumstances, opossum are known to “play dead” and emit a foul odor as a defensive reaction. This behavioral adaptation can discourage animals who typically eat live prey or convince larger animals that opossum are no threat to their young. For more comprehensive opossum management strategies, please see the following resources:

- [Illinois DNR](#)
- [Wildlife Illinois](#)

Squirrel (Fox and Gray)

Species Profile



COMMON NAME: Eastern Gray Squirrel

SCIENTIFIC NAME: *Sciurus carolinensis*

LIFE SPAN: 2-6 years

FAST FACTS: Chicago is home to two species of squirrels.

Squirrels are predominantly solitary and breed twice a year producing 2-4 young.

CONFLICT ISSUES: Squirrels can cause property damage to homes by taking shelter in human-made structures, and can dig up yards to store food over the winter. Squirrels can also damage powerlines.

ECOSYSTEM SERVICES: When squirrels bury their food such as nuts and seeds, they can sometimes inadvertently plant trees and other vegetation in the ground and assist in plant restoration. Squirrels are also important in the ecosystem food chain as they are a part of many other wildlife diets.

MANAGEMENT APPROACHES: Patch up holes around your house as squirrels can make homes anywhere. Do not feed squirrels as this can encourage them to come back. Adding bird feeder attachments to prevent squirrels from getting into feeders and adding covering to power lines can help resolve conflicts.

Figure 4 Lincoln Park Zoo Urban Wildlife Institute, Photo by Friends of the Mississippi River

There are over 200 species of squirrel across the globe, though Chicago is home to two common North American species: the eastern gray squirrel and the fox squirrel. These squirrels have overlapping native ranges, and are particularly common in the eastern part of the United States. Although both exhibit variation in their appearance, there are notable differences that can help an



Lincoln Park Zoo Urban Wildlife Institute

observer to tell these two species apart. Fox squirrels tend to be larger than eastern grays, with slightly longer coats and an orange-red tinge to their fur. Fox squirrels have bushy tails that exhibit a black outline around the tail, surrounded by a lighter, yellowish-orange halo. Gray squirrels, as their name implies, tend to have gray and brownish coats with white-furred bellies and throats, as well as fluffy tails that exhibit a white halo. Melanistic (black), leucistic (white), and albino eastern gray squirrels occur in Chicago as well.

These tree squirrels are urban adaptors, meaning that while they sometimes take advantage of human resources. Squirrels are not picky eaters, and will feed on food that is readily available to

them including fungi, seeds, nuts, fruits, eggs, small insects, and even small animals such as baby birds. Squirrels are often found on the ground foraging for food or in trees, where they like to make their nests. Both gray and fox squirrels prefer to make nests in tree cavities, though they will also make use of nests made of leaves in the upper branches of trees or occasionally human structures like attics. Tree squirrels are solitary animals, though they will happily coexist near one another as they are not territorial. Neither of these squirrels go into hibernation during the winter months, though they do have periods of reduced activity during severe cold weather events when they will take shelter in their nests. These squirrels have two breeding seasons, one during the winter and one in late spring or early summer. Past the age of 2, squirrels can have 2 litters per year, with each litter producing 2-4 young. Like most rodents, they have short life spans (1-2 years), though they can live to up to 12 years if they are not preyed upon or hurt before then.

Squirrels play a vital role in forest ecosystems, as well as in urban settings. First, squirrels bury seeds and nuts as caches of food, however, they will often bury more food than they actually go back to dig up. These forgotten seeds will sprout, aiding in forest regeneration. However, this can also be an issue in managed parks where trees are intentionally planted and maintained, leading to increased maintenance requirements. Second, these animals are also prey for several local species of charismatic birds and mammals, including red foxes, coyotes, owls and hawks. Lastly, both fox and gray squirrels are typically diurnal, meaning they are most active during the day. Their day-time activity means it is quite common for Chicago residents to come across a fox or gray squirrel during their day-to-day lives. These small interactions can be beneficial, as they connect people to their local native wildlife and can foster a sense of connectedness to our natural world.

Despite their role in healthy urban ecosystems, squirrels are sometimes seen as pests, and can be sources of human-wildlife conflict. Squirrels actually pose a relatively low disease risk to humans. However, Chicago residents may see squirrels with patchy fur, which can be caused by mange (a mite that burrows under the skin of mammals, causing itching and hair loss) or fungal disease, which healthy squirrels can often recover from. More concerning to humans is the damage to property that squirrels can cause. Fox and gray squirrels are fantastic climbers and may chew through siding or take advantage of openings to get into attics, where they can cause further damage to insulation or wiring. These animals also love to climb onto bird feeders to access bird seed, scaring away birds or damaging the structures. Squirrels occasionally will eat from gardens, or damage lawns as they bury nuts and seeds for their food caches.

There are management methods that can be used to minimize Chicago resident's conflict with fox and eastern gray squirrels. First and foremost, Chicago residents and visitors should be strongly encouraged to respect squirrels as wild animals; habituation to humans through feeding encourages squirrels (and other wildlife) to become less afraid of people, and more willing to invade human spaces. Chicagoans should not approach or feed these animals. Chicago residents should also have an understanding of who to call if they come across a squirrel acting strangely, or one that is hurt, so they do not attempt to care for the animal independently ([Wildlife Illinois](#)). Other measures can prevent future conflict, including repairing holes and openings in attics and other human-made structures to stop squirrels from opportunistically using these spaces (after ensuring there are no animals inside the structure). Covering attic vents, chimneys, or other openings with hardware cloth can exclude squirrels from homes. Adding baffles, bird feeder attachments that prevent squirrels from climbing up to access bird seed, can stop squirrels from disrupting feeders. Similar metal collars can be placed around telephone poles to stop squirrels from climbing on and damaging power lines. Power lines can also be fitted with plastic pipes that rotate on wire, making it difficult for

squirrels to cross. Squirrels can jump up to 10 feet, so it is important to place the collars high enough to prevent jumping. Similarly, trimming tree branches back at least 10 feet from buildings can block access to attics. Taste repellents such as Capsaicin (the active components of red pepper) or Ropel can be applied to fences, posts, trees, and seeds to repel squirrels. Noise and light may temporarily discourage squirrels but, once they are used to the stimuli, they will become comfortable with using the space again. Squirrel removal should be seen as a last resort. For more comprehensive squirrel management strategies, please see the following resource:

- [Wildlife Illinois](#)

Rabbit

Species Profile



COMMON NAME: Eastern cottontail

SCIENTIFIC NAME: *Sylvilagus floridanus*

LIFE SPAN: 3 years

FAST FACTS: Rabbits are prolific breeders reproducing 3–4 times during the summer and spring have three to eight young

CONFLICT ISSUES: Rabbits can be a source of certain diseases and should not be handled if found deceased. Rabbits can also cause disturbances in gardens as they can dig up plants in search for nutrients.

ECOSYSTEM SERVICES: Rabbits help manage vegetation growth and are an essential part of the lower level of the food chain as many mammals and raptors predate upon them.

MANAGEMENT APPROACHES: One inch chicken wire can be installed to cover plants and can be buried six inches deep to discourage burrowing. There are repellants that can be sprayed on plants to deter rabbits from your garden.

Figure 5 Lincoln Park Zoo Urban Wildlife Institute, photo by Northwest Wildlife Preservation Society

Eastern cottontail rabbits are a ubiquitous urban species, and the only wild rabbit species living in Chicago. Rabbits are often gray, rust, and white-colored, easily distinguished by their white, puff-ball tail and their large, upright ears. Their presence may be indicated by the sign that they leave, most notably a Y-shaped track pattern, and small, disc-like feces. Rabbits are often found in residential areas, gardens, and parks with edges of taller vegetation or shrubs coupled with open lawn. In urban areas, their home ranges are rather small (rabbits were trapped repeatedly at locations < 40m apart in [this study](#) by the Urban Wildlife Institute). They are herbivores, eating grass, plants, berries, and sometimes vegetable gardens during the warmer weather. They remain active throughout the winter, and will chew and gnaw on woody shrubs and plants for food. Rabbits are more active at night, but may be seen eating during dawn and dusk hours. During the day, rabbits rest among tall vegetation or shrubs to avoid predators, which can include coyotes, owls, or hawks. If startled, they can run up to 18 miles per hour, in a zig-zag pattern, to avoid predation.

Rabbits reproduce often, typically 3-4 times during the spring/summer, with litters ranging from 3-8 young. Females give birth in shallow burrows on the ground called “warrens”, that are often covered with grass or leaves. Take care mowing grass or letting out dogs and cats unsupervised as this may result in mortality of baby rabbits. Females feed young 1-2 times per day, so encountering a nest without an adult does not necessarily mean that it is abandoned, and young are independent within 4-5 weeks. Because they reproduce prolifically, it can be difficult to control rabbit populations.

However, the Urban Wildlife Institute found ~30% annual survival for rabbits living on grounds at the Lincoln Park Zoo across three winter seasons. Populations are often reduced naturally by cold winters and predation. Rabbits also are vulnerable to disease, some of which can be harmful to humans, including [tularemia](#), a bacterial disease that is most commonly transmitted via contact with tissue or blood from an infected animal. As with all wildlife, care should be taken to avoid direct contact with rabbits, but observing them in the early morning or at dusk is safe and fun!

Conflict between people and rabbits can arise when rabbits eat plants and vegetables from gardens, or when rabbit feces accumulate in yards or public green spaces. Excluding rabbits starts by making your yard less inviting. Consider areas that provide shelter for rabbits from predators, such as overgrown vegetation or woodpiles. Protecting gardens with 1" chicken wire at least three feet high and ideally dug down into the dirt at least six inches to prevent digging underneath the fence. Protecting individual woody shrubs or seedlings may be achieved with 1" chicken wire braced such that rabbits cannot push against the mesh to nibble within the mesh openings; this is especially important in the winter when there is little else for rabbits to eat except woody material, or in the spring when new shoots are emerging from the ground. Repellents sprayed on plants may also be effective, but need to be re-applied frequently especially after rain. Ultimately, it may be worth identifying which plants rabbits prefer, and seeking out plants for your yard that are [less palatable](#). For more information on avoiding conflicts with rabbits, please see the following online resources:

- [Internet Center for Wildlife Damage Management](#)
- [Humane Society](#)
- [University of Missouri Extension](#)

Chipmunk

Species Profile



COMMON NAME: Eastern Chipmunk

SCIENTIFIC NAME: *Tamias striatus*

LIFE SPAN: 3 years

FAST FACTS: Chipmunks have two breeding seasons and can have 5-6 young in a typical litter. They live in wooded areas and do not hibernate.

CONFLICT ISSUES: Chipmunks can dig up gardens and can sometimes take up residence near homes but property damage is unlikely.

ECOSYSTEM SERVICES: Chipmunks help aerate the soil to introduce nutrients and encourage plants to grow deeper roots. Chipmunks are also important to the ecosystem food chain as they are a part of the diet of many other wild carnivores, omnivores, and raptors.

MANAGEMENT APPROACHES: Remove sources of seeds from your property as this can encourage chipmunks to come back to your garden. Be sure to patch up holes around your home and if needed, mesh material can be buried 6 inches deep around your yard. Pest professionals can be called to assist in the removal of chipmunks in your area.

Figure 6 Lincoln Park Zoo Urban Wildlife Institute Photo by CGTN

Chipmunks are the most common ground squirrel found in Chicago. These small rodents are identifiable by the light and dark stripes on their back, sides, and cheeks. Their fur is reddish-brown, with a white belly and sides. Chipmunks feed on nuts, seeds, flowers, fruits, fungi, and even small insects. Among their most well-known features are their cheek pouches used to transport food to bury as caches during the winter months. Chipmunks do not hibernate, though they are slightly less

active in the winter. They tend to burrow under rocks, logs, or even buildings. Like tree squirrels, chipmunks have two breeding seasons (one in spring, and one in late summer); 5-6 young comprise a typical litter. Though these rodents are solitary creatures, they are not territorial, so it is not uncommon to find chipmunks living in close proximity to one another - particularly when there is a consistent source of food nearby. Chipmunks prefer wooded areas, but are common in urban areas as well.

Chipmunks are particularly charismatic animals, and they are not typically thought of as pests. These rodents help to aerate soil to aid in plant growth; serve as a food source for native birds, mammals and snakes; and facilitate positive human-nature interactions. Chipmunks present minimal public health concerns. However, people should refrain from feeding, handling, or approaching these wild animals. Property damage is uncommon, though chipmunks may damage lawns and gardens as they search for and store food. Chicagoans can reduce interactions with chipmunks by removing seed bearing weedy plants that chipmunks look for as food sources. Hardware cloth (18 inch-high, ¼-½ inch mesh) buried at least 6 inches below ground can stop chipmunks from accessing gardens and plants. Additionally, holes in buildings can be patched or covered with hardware cloth, caulking, or other materials to block entry points. Although a permit is not needed to trap and remove chipmunks, residents should be encouraged to contact wildlife control centers for assistance and information on how to do so humanely if removal is needed. For more comprehensive chipmunk management strategies, please see the following resources:

- [Wildlife Illinois](#)

Local Chicago Species

Bat

Species Profile



COMMON NAME: Big Brown Bat

SCIENTIFIC NAME: *Eptesicus fuscus*

LIFE SPAN: 6 years (average)

FAST FACTS: Chicago is home to 8 different bat species. They can stretch 2-3 inches long and weigh about as much as a quarter. Bats usually have 1 pup a year and can adapt to a variety of habitats.

CONFLICT ISSUES: Bats using human made structures for roosting and can enter openings on houses as small as 1/2 an inch, and their roosting areas can cause a large build-up of guano, which can be unsightly.

ECOSYSTEM SERVICES: Bats eat insects including mosquitoes which can keep us safe from mosquito borne diseases and their pest control efforts save us over 4 billion dollars while also helping us cut down on pesticide use on crops.

MANAGEMENT APPROACHES: If you have a bat in your home, only have a trained professional remove them. Make sure small holes around your home are patched up, and the installation of a bat box near by has encouraged bats to move out and also provide mosquito management as an added benefit.

Figure 7 Lincoln Park Zoo Urban Wildlife Institute, Photo by Joel Sartore

With over 1400 known species worldwide, bats represent the second most diverse group of mammal species, next to rodents. Bats live in a variety of habitats, and many adapt to living in cities for the resources that they provide, including artificial water sources (i.e., ponds), insect concentrations

around street lighting, and shelter from an abundance of trees and buildings. Based on results from long-term research by the Urban Wildlife Institute, Chicago is home to 8 bat species: big brown, Eastern red, silver-haired, tricolored, hoary, evening, little brown, and the endangered Northern long-eared bat. Most bats in our area are approximately 2-3" in length and weigh less than a quarter. The only true flying mammal, bats may be confused with birds when observing them in flight, however they can be distinguished by their fast, erratic flight pattern, and nocturnal activity.

Chicago's bats eat a variety of insects, including mosquitoes, moths, midges, beetles, and flies, using ultrasonic (above human hearing) echolocation. As bats fly, they emit sound waves and listen to the return of those sound waves to navigate their environment and hone in on their prey. Despite their reputation, bats can actually see fairly well. Bats are typically present and active in Chicago during April through October. Although some may stick around during the winter months in low numbers, most bats leave the area to seek out warmer spots or hibernate elsewhere. Here, bat species generally fall into two categories based on the strategy that they employ to survive the winter, as well as some general ecological characteristics. Migratory bats leave the area to stay active during the winter in warmer areas, whereas cave-dwelling bats leave the area to seek out caves in order to hibernate. Migratory bats tend to be solitary, or only form small groups of individuals, whereas cave-dwelling bats form large maternity colonies, sometimes as large as hundreds of females, that gather together to rear their pups. Bats typically have just one pup per year, and occasionally twins. During the summer, males may roost together in smaller groups separate from the females.

Conflict with bats generally stems from bats using human structures for roosting. All bats rely on trees to some degree for shelter, either in tree cavities, among the leaves, or under bark, but some roost in leaf litter on the ground, rocky crevices, and built structures such as bridges, attics, and picnic shelters. Bats can enter buildings through gaps as small as ½" and roosting in built structures can cause large buildups of guano (bat feces) which can be unsightly, difficult to remove, and pose a disease risk to humans. Moreover, bats can carry rabies, a serious virus that can be fatal to humans, that can be spread via saliva (a bite), from an infected animal. Rabies rates among [bats submitted to the Illinois Department of Public Health](#) are low, however, the potential for transmission to humans should be taken seriously. Because bats are so small, a bite may not be obvious, and special concern should be given if a bat is found in a room with a person who was sleeping, incapacitated, unable to communicate, or a young child. As with all wildlife, bats should never be handled. If bats are found using a structure that is inhabited by humans, they should be removed by a professional. Bats can be removed humanely using non-lethal capture and exclusion techniques. If possible, we encourage property owners to install a bat house nearby to offer a replacement roosting habitat.

Bats are currently under conservation risk due to white nose syndrome, a deadly fungal pathogen that thrives in cave environments and infects bats when they are hibernating. WNS has had significant effects on populations of cave-dwelling bats in our area, including the Northern long-eared bat, little brown bat, and tricolored bat, causing mortality rates of 90% in some cave systems. Migratory bats are being severely impacted by wind-energy development throughout their migration routes. For reasons not fully understood, bats collide with wind turbines as they rotate, causing alarming rates of mortality for migratory species. Bats are of enormous ecological value to humans--it has been estimated that they contribute ~\$4 billion in natural pest control to the agricultural industry. Because they are easy to observe emerging at dusk, bats also provide meaningful opportunities to connect with wildlife. As cities can provide valuable habitat to many of these at-risk species, we strongly encourage people to seek ways to coexist with bats whenever possible. For

more information on humane removal of bats, bat houses, and bat ecology, see the following online resource:

- [Bat Conservation International](#)

Beaver

Species Profile



COMMON NAME: American Beaver

SCIENTIFIC NAME: *Castor canadensis*

LIFE SPAN: 10 – 15 years

FAST FACTS: Beavers can reach 2–3 feet in body length and their teeth grow throughout their lifetime. Beavers are monogamous, breed through the winter, and have litters of up to 4 kits in the spring. They have a unique sweat gland and a translucent membranes that protects their eyes underwater.

CONFLICT ISSUES: Beavers are avid chewers which can lead to knocking down valuable trees. Being "ecosystem engineers" they are skilled at building dams and dramatically changing landscapes which can cause flooding in certain areas and conflict with land owners.

ECOSYSTEM SERVICES: Beavers build dams to slow the flow of water which create new ponds and wetland areas that reduce erosion, raise the water table, and create habitat for fish, reptile, and amphibian species.

MANAGEMENT APPROACHES: To prevent beavers from taking down valuable trees, trunks should be wrapped with chicken wire or mesh with no more than a 2" gap in the wire. Guards should be 4' tall, with a 3–6" gap between the tree and the guard to allow for tree growth. In cold climates, it is important to factor in the potential snow height. If possible, leave some woody stems or non-valuable trees to provide some foraging and building material for the beavers. To protect groups of trees or shrubs, 3–4' fencing can be used.

Figure 8 Lincoln Park Zoo Urban Wildlife Institute, Photo by Steve Hersey

[Beavers are the largest rodents in North America](#), reaching lengths of 2-3 ft. in the body alone. They are easily recognized by their broad, flat tail; large, incisor teeth that grow continuously throughout their lifetime; and unique odor created by their glands. Beavers are monogamous and they breed during the winter and have litters of up to 4 kits during the early spring. Kits stay with the family group for the first two years, helping to find food and caring for young. Kits usually leave the family group by year three to find mates and establish their own territories. In Chicago, they do not have many natural predators, except for humans.

Beavers are semi-aquatic, and have several physical adaptations to living in water. For example, beavers have a translucent membrane that protects their eyes underwater and a beaver can hold its breath underwater for 15 minutes! Beavers eat tree bark and cambium (the soft growing tissue, under the bark), but also semi-aquatic plants, roots, and leaves. Beavers will travel on land in search of plants, as well as trees and woody stems that they use both for food and for creating dams or lodges. After taking down the trees or woody stems, beavers will drag these items back to the pond on land (or sometimes through underground canals or tunnels) to either store the items for eating later, or to use in the building of dams or lodges. Dams are created to slow the flow of water, allowing them to then build a lodge that is used for shelter and reproduction. These structures serve an important role in creating new ponds and wetlands that provide important habitat for fish, reptile, and amphibian species, purifying and raising the water table, and reducing erosion.

Because of the dramatic changes that they can make to the environment, beavers are considered "Ecosystem engineers". Although their activities are beneficial in many environments, beavers can be challenging to manage in urban areas like Chicago, but coexistence is possible. As with all wildlife, lethal removal is generally not an effective solution to beaver conflict, and other non-lethal management solutions should be attempted first. Beavers prefer willows, aspen, poplar, and cottonwood trees, although they will take down other tree species as needed. To prevent beavers from taking down valuable trees, trunks should be wrapped with chicken wire or mesh with no more

than a 2" gap in the wire. Guards should be 4' tall, with a 3-6" gap between the tree and the guard to allow for tree growth. In cold climates, it is important to factor in the potential snow height. If possible, leave some woody stems or non-valuable trees to provide some foraging and building material for the beavers. To protect groups of trees or shrubs, 3-4' fencing can be used. Be sure to check all tree protection regularly to ensure that it hasn't been compromised. Beavers may move farther away from the pond in search of forage, so it is important to regularly inspect trees for damage and monitor for any movement toward unprotected trees. If flooding is an issue, there are many recommended devices to maintain water flow or exclude beavers from blocking culverts. These often require professional installation. For more information on deterrents and beaver management please visit these sources:

- [Humane Society](#)
- [Beaver Institute](#)

Rat

Species Profile



COMMON NAME: Brown Rat

SCIENTIFIC NAME: *Rattus norvegicus*

LIFE SPAN: 2 years

FAST FACTS: Rats are successful breeders and two rats can grow to 15,000 in one year. They are highly adaptable and can live anywhere there is food, water, and some shelter

CONFLICT ISSUES: Rats have been known to spread diseases, and take up residence in human-made structures due to their ability to squeeze through tiny holes and their strong chewing abilities.

ECOSYSTEM SERVICES: Rats are also generalists and eat just about anything including our trash, deceased wildlife, and insects like roaches. Rats are also important part of the food chain as they are the main diet of other wildlife like owls, hawks, and other raptors.

MANAGEMENT APPROACHES: Ensure that all food and trash bins are properly sealed. Rats are very versatile and can live anywhere. Be sure to seal up even the smallest holes around your home and property. If you have a rat infestation, call a pest professional to assist in removing rats as soon as possible.

Figure 9 Lincoln Park Zoo Urban Wildlife Institute, Photo by DoYourOwnPestControl

The quintessential urban pest, brown rats are one of the most successful wildlife species on earth and live in nearly every city around the globe. The brown rat is likely so successful because it is an extreme generalist - it can tolerate a wide range of climates, can consume foods ranging from seeds to meat and garbage, and can live above or below ground. In addition to their diverse diet, rats are successful in cities because they breed extremely quickly and year round. With large litters and rapid development, a starting population of two rats can grow to 15,000 in one year. As a commensal species, rats benefit from the food and shelter humans unintentionally provide via unmanaged garbage and accessible buildings and sewers. Brown rats are relatively large rodents (100 - 500g) with small home ranges (45 - 150m) of approximately one city block.

Conflicts between rats and people are varied and can be severe. Rats cause billions of dollars in property damage ranging from spoiled food to fires from chewed wires. Rats also pose public health risks by carrying dozens of diseases that can be transmitted to people via bites, fleas, feces, or urine. These diseases can range in severity including food poisoning (e.g. E. coli or Salmonella infection) but sometimes can cause mortality, for example bubonic plague and leptospirosis. Many of these conflicts arise because rats can enter homes and other buildings. Because of their cylindrical body shape, rats can fit through holes in walls as small as a quarter. Rat teeth are also strong

enough to chew through concrete and metal. These aspects of rat biology make it quite difficult to rat-proof a building, though it is possible with regular monitoring and maintenance. Although rats are typically most active at night and rarely seen, signs of rats can indicate an infestation. These signs include burrows, feces (larger than a grain of rice), rub marks (dark residue on walls and corners), and runways (paths along walls with rub marks). Conflicts with rats tend to peak in the summer months when rat populations are highest.

Many rodent control strategies have been used to mitigate rat infestations. One of the most common is the use of anticoagulant rodenticides, poison bait which kills the rat. Although this method can be cheaper to distribute, rats have evolved resistance to certain rodenticides and these poisons also kill wildlife that consume the bait or consume poisoned rats. As an alternative, snap traps can be used to kill rats without chemicals and dry ice is sometimes placed down burrows to suffocate the rats inside. The use of free-ranging cats as a rat abatement strategy has garnered increasing attention but there is little evidence to support that cats kill enough rats to be effective. A more long-term and effective approach to preventing rats is to remove rat attractants such as food and shelter. The Urban Wildlife Institute found that alleys with more uncontained garbage had more rats and 311 rat complaints. In addition to food, rat harborage (e.g. clutter, unkempt vegetation) provides shelter for rats. Activities such as replacing damaged garbage cans, enforcing sanitation standards, and maintaining the structural integrity of buildings would prevent conflicts by reducing conditions that favor rats and rat access into buildings. For more detail on rat management, please review this resource:

- [City of Berkeley Environmental Health](#)

Coyote

Species Profile



Common name: Coyote

Scientific Name: *Canis latrans*

Life span: 4 years

FAST FACTS: Coyotes have their pups between May and August. Coyotes typically avoid people and can be loners or in packs of up to 6 adults.

Conflict Issues: Coyotes can be hit by cars and can eat stray cats. Diseases can be transmitted from coyotes to domestic dogs and coyotes will go through trash for food resources.

Ecosystem Services: Coyotes eat a variety of small mammals like rats, mice, squirrels, rabbits, and deer assisting in keeping their population low.

Management Approaches: Keep cats and cat food indoors as leaving them outside make cats vulnerable to coyote predation. Always keep dogs on a leash and ensure trash cans are secure to not encourage wildlife to forage through them. If you come across a coyote, make as much noise as possible to minimize problematic interactions

Figure 10 Lincoln Park Zoo Urban Wildlife Institute, Photo by Shutterstock/Paul Tessier

Coyotes have become ubiquitous in cities across North America, but are perhaps as notable for their ability to avoid people in the hearts of cities like Chicago as for their increasing urban populations. They vaguely resemble German shepherds but are typically longer-limbed with a long snout, large ears, and a very bushy tail.

Coyotes are extremely adaptable and flexible in their behavior, which has helped them to exploit urban areas. They can function alone or in packs of up to six adults, with accompanying pups. Even when living as a family group, coyotes typically search for food on their own because they do not hunt for large animals as often as wolves. They eat mostly small mammals such as rabbits, rats, mice, squirrels. Coyotes have also been known to predate on deer and domestic cats, although their importance varies based on location. Because of their flexible behavior and broad diet, coyotes will eat many human-associated foods such as garbage, compost, bird seed, cultivated fruit, and pet food. Managing these food sources is critical to preventing conflict with coyotes. However, by scavenging dead wildlife and eating overabundant animals such as mice, rats, and squirrels, some of whom are disease vectors, coyotes can provide valuable ecological services to humans. In urban areas coyotes are most active in the late night hours, and while they have proven surprisingly adept at crossing roads, being struck by cars is still their primary source of mortality.

The vast majority of coyotes in urban areas never create conflict with humans. They do pose a risk to outdoor cats, and can put motorists at risk as they cross roadways. On rare occasions, coyotes can attack humans, and there has been one documented human attack in the city of Chicago in January, 2020. This was an isolated incident of human-coyote conflict followed by swift action on the part of ACC and partnering agencies resulting in the ultimate capture of the coyote. These events are often precipitated by inappropriate contact with humans, such as both intentional and unintentional human feeding. Coyotes can also harbor diseases and parasites of public health concern such as rabies, tularemia, and the tapeworm *Echinococcus multilocularis*, which is spread through coyote feces and can be fatal if left untreated. Several coyote parasites and diseases can be transmitted to domestic dogs such as canine distemper, canine hepatitis, and sarcoptic mange.



Lincoln Park Zoo Urban Wildlife Institute

In most cases, lethal management of coyotes is not necessary and Chicago adopted ordinance MCC 7-12-365 requiring the executive director of CACC maintain a coyote management program emphasizing co-existence. However, ongoing proactive management of coyote attractants is critical to preventing conflicts. Cats and their food should be kept inside, both to protect cats from coyotes, and to protect bird and small mammal communities from cats. Securing garbage, bird seed, and fallen fruit can also reduce attraction of coyotes to homes and yards. If certain intersections exhibit high rates of coyotes being struck by cars, signage for motorists or, in extreme cases, exclusionary fencing and/or the construction of underpasses may be necessary, though expensive. Inappropriate behavior such as approaching humans or yards can often be deterred with hazing, such as shouting, throwing objects near coyotes, or banging pots and pans to startle the animal. Some hazing programs have been successful but they need to be consistent and residents should avoid cornering the coyote to prevent defensive behavior. If coyotes are approaching people in a park or neighborhood, signage to deter people from feeding coyotes and encourage coyote hazing can help

minimize problematic interactions. Conflicts also commonly occur near coyote den sites, typically in forested areas with good cover. Coyotes can be very defensive toward humans and dogs if they approach the den site when pups are present (May - August). Signage warning residents about nearby den sites and to restrict off-leash dogs can help prevent such aggressive encounters. When individual animals are engaged in extreme and persistent behavior such as aggression against humans, the city will likely need to intervene. For more comprehensive coyote management strategies, please see the following resources:

- [Illinois DNR](#)
- [Urban Coyote Research Project](#)

Red Fox

Species Profile



COMMON NAME: Red Fox

SCIENTIFIC NAME: *Vulpes vulpes*

LIFE SPAN: 2–6 years

FAST FACTS: Red foxes are typically smaller than coyotes, weighing 7–15 pounds on average. Easily recognizable by their red coats, they are characterized by black “socks” or black markings on their feet, black tipped ears, and a long, bushy, tail.

CONFLICT ISSUES: Red foxes can dig dens under homes and buildings. Occasionally, foxes may prey upon outdoor cats or chickens. As with any wild animal, it is important to never feed red foxes, either directly or indirectly as this may cause them to lose their natural fear of humans and exhibit atypical behaviors. In some cases, red foxes may become too habituated to humans.

ECOSYSTEM SERVICES: Red foxes help to control populations of their prey animals, such as rodents, eastern cottontail rabbits, birds, reptiles, carrion, insects and fruit. They also may disperse seeds by eating fruit.

MANAGEMENT APPROACHES: Keep cats indoors and exclude foxes from areas by enclosing the space with wire mesh. Avoid any disturbance to kits and adults. Store all garbage in secure trash cans and remove any sources of food, including pet food, outdoor compost piles, and fruit that may fall from trees. Hazing may be an appropriate strategy when red foxes exhibit bold behavior or approach humans.

Figure 11 Lincoln Park Zoo Urban Wildlife Institute, Photo by Doris Potter

Red foxes range throughout much of United States, with the exception of the southwest. In Chicago, they are not common in high numbers, but are still present in certain pockets of the city, including residential areas. Coyotes are thought to compete with red foxes, and the thriving coyote population and limited habitat in Chicago may be related to the low densities of red foxes in the area.

Red foxes are typically smaller than coyotes, weighing 7-15 pounds on average and standing up to 20 inches (shoulder height). Easily recognizable by their striking red coats, red foxes also are characterized by black “socks” or black markings on their feet, black tipped ears, as well as a long, bushy, white-tipped tail that extends to almost the length of the body. Unlike the coyote, the tail of a red fox is not tapered. See the figures below to see the described characteristics of red foxes.

Generally solitary, red foxes do not form packs like other canids (dog-like animals such as coyotes or wolves). Adults pair during the breeding season to raise young (known as kits) in dens that can occur in burrows in the ground (sometimes dug by other animals like groundhogs), fallen trees, or other natural or artificial structures. They are typically active at night (nocturnal) or crepuscular (dawn and dusk). As omnivores, red foxes eat a variety of foods including rodents, eastern cottontail rabbits, birds, reptiles, carrion, insects and fruit. Red foxes may store food in “caches”, where they pile up prey items to consume later. Their main predators include birds of prey (young), coyotes via competition, and humans. Red foxes are also vulnerable to disease, including rabies (rare), canine distemper, and sarcoptic mange, a parasitic mite that causes skin infections that can lead to death due to starvation or hypothermia if not treated.



Lincoln Park Urban Wildlife Institute

Red foxes may come into conflict with people by digging dens under homes or buildings, or when leaving their food caches in undesirable places. Occasionally foxes may prey upon outdoor cats or chickens. Keep cats indoors and exclude foxes from these areas by enclosing the space with wire mesh. If possible, avoid any disturbance to kits until they are independent and begin taking trips away from the den. In some cases, red foxes may become too habituated to humans. As with any wild animal, it is important to never feed red foxes, either directly or indirectly as this may cause them to lose their natural fear of humans and exhibit atypical behaviors. Store all garbage in secure trash cans and remove any sources of food, including pet food, outdoor compost piles, and fruit that may fall from fruit trees. Hazing may be an appropriate strategy when red foxes exhibit bold behavior or approach humans. See the coyote section for hazing strategies (page 19). For more comprehensive red fox management strategies, please see the following resources:

- [Humane Society](#)
- [Wildlife Illinois](#)

Deer

Species Profile



COMMON NAME: White- Tailed Deer

SCIENTIFIC NAME: *Odocoileus virginianus*

LIFE SPAN: 6 years

FAST FACTS: Fawns are typically born in the spring time and by fall they are independent. Males will have a larger home range than females.

CONFLICT ISSUES: Deer collisions with cars are a large source for insurance claims and human lives lost, deer can also be carriers for certain diseases and ticks that can be transferred to our domestic pets. As herbivores, deer can dig up gardens in more suburban areas.

ECOSYSTEM SERVICES: Deer aid in controlling over growing plant populations and are sometimes consumed by coyotes, aiding in the ecosystem food chain.

MANAGEMENT APPROACHES: Do not feed deer, this can encourage deer to come back and can encourage the spread of diseases within the deer population and domestic animals. Commercially made deterrents are available to purchase and tall fences can be installed. Deer can also be deterred by loud noises and installing under or overpasses for deer near high collision areas can save human lives and capital.

Figure 11 Lincoln Park Zoo Urban Wildlife Institute, Photo by © Jupiterimages

The only large ungulate in the Chicago region is the white-tailed deer. They are incredibly numerous in the forest preserves and other wooded areas both within and adjacent to the city and, as such, they do sometimes find themselves in Chicago where they can represent a significant challenge for management.

White-tailed deer may be the most well-studied mammal in North America and an enormous amount is known about their ecology and physiology. Deer prefer to live in edge habitat, transition zones between forest, grassland, and other habitat types, but can thrive in suburban habitats. Females live in overlapping matrilineal territories, with males ranging over much wider areas. Deer eat almost entirely plant material, including grasses and forbs, and will eagerly graze lawns and gardens. They give birth in the spring, and by the fall some yearlings begin to disperse--this is the most likely time to find them in the city. Dispersals can be very long distance and involve numerous road crossings. Coyotes sometimes predate deer fawns, but deer do not seem able to avoid coyotes at a broad scale in urban habitats (Magle et al. 2014, Gallo et al. 2019).

Deer generate conflict in many different ways, some of them quite serious. They are the most common cause of fatal animal-vehicle collisions in North America due to their large size and lack of proficiency at crossing roads. In addition to causing numerous deaths (for humans and for deer), these collisions cause hundreds of millions of dollars of damage annually across the US. Deer are a primary host for ticks that can carry dangerous diseases such as Lyme disease, and may carry other diseases such as bovine tuberculosis. In addition, deer can cause a significant amount of damage to plantings and other vegetation. On the other hand, people very much enjoy watching deer--sometimes to the unfortunate point of feeding them, which can concentrate them in one area and exacerbate conflict.

Traditionally, deer management has been dominated by lethal control, usually with firearms--major cities like Chicago, where this approach is usually inappropriate, thus face special challenges. Some communities have attempted nonlethal strategies for deer population control. Highland Park attempted a surgical sterilization project for a few years around 2005, it was partially successful but extremely expensive. Chemical sterilization treatments are under development for deer and these efforts should be closely monitored. Most likely permanent populations of deer will not establish themselves in Chicago given the lack of large forested land, but management strategies for wandering migrants and other periodic visitors would be useful. Because deer are likely to migrate to Chicago from nearby suburbs, communication with officials from those suburbs and the county forest preserves to coordinate deer management, perhaps even through the creation of regional deer management plans, would be very useful. Feeding of deer should be discouraged by the strongest possible means.

When deer are present and damaging vegetation, commercially available repellents have sometimes proven effective--odor-based repellents, such as putrescent whole egg solids, seem to work best on deer. Supplemental feeding can be used to lure deer away from a given area, but you would need a suitable destination to lure them to. Fencing can be used to exclude deer from a given area, but they are expert jumpers and such fences typically have to be either very high (eight feet or so) or electrified. Alternately, barrier fencing around certain plants tends to protect those plants from herbivory. If herbivory of plants is a significant problem, landowners are encouraged to select plants for their yards [that deer find less palatable](#). In some cases, deer can be hazed using loud noises or dogs--but it is critical to be careful not to scare the animal into traffic. If areas are identified as key animal-vehicle collision zones, there are approaches such as signage, fencing and roadside reflectors that can help, as well as, in the long term, planning for construction of wildlife underpasses or overpasses. Managing vegetation near busy roadways to be less attractive to deer may also be an effective strategy.

When deer are creating significant conflict and cannot be easily urged into more appropriate behavior, the only choice may be live-capture and translocation. Capturing deer is a highly complex process, requiring either the use of large traps, nets, or chemical immobilization. Each process is challenging and the assistance of a veterinarian may be necessary. In addition, a relocation site for the deer will have to be assigned unless the animal is to be euthanized. Deer, while still presently infrequent visitors to Chicago, are a huge management challenge for cities. However, as the only large ungulate in our region, they are also of pivotal ecological importance. While it may be tempting to continue to manage period deer arrivals in Chicago on a case-by-case basis, a more systematic and regional approach will save time, effort, and lives (both human and deer) in the long run. This document for suburban deer management provides much more detail on many of the management approaches suggested here:

- [Managing White Tailed Deer in Suburban Environments](#)

Urban Birds

Canada Geese

Species Profile



COMMON NAME: Canadian Geese
SCIENTIFIC NAME: *Branta canadensis*
LIFE SPAN: 3 years
FAST FACTS: Pairs will build ground nests with 2-8 eggs in a single brood. Geese can migrate long distances for the winter months and return in the spring time.

Conflict Issues: Manicured lawns near bodies of water create areas for foraging and nesting while easily watching out for predators. Canada geese can cause traffic hazards, damage lawns, collide with aircrafts, and can become aggressive with people approaching their nesting areas. Unsightly goose feces in parks where humans frequent can raise hygiene concerns.

Ecosystem Services: Geese can serve as seed dispersers and they play an important role in the food chain as geese, goslings, and eggs are often predated upon by other animals.

Management Approaches: Do not feed geese as this attracts more geese to the area and food typically offered is bad for geese health. Hazing geese with loud noises, placing plastic coyote figurines, and planting thick vegetation around water edges will deter geese from nesting and foraging in an area. Around airports, bird balls placed in bodies of water and specially trained dogs can be used to discourage geese activity on or near landing strips.

Figure 12 Lincoln Park Zoo Urban Wildlife Institute, Photo by USFWS/Tom Koerner

Canada Geese are a common and abundant North American bird found in many urban parks, golf courses, airports, or other areas with large lawns near a body of water. They are a large waterfowl bird with a brownish body, pale breast, and long black neck with white cheeks.

Canada geese are particularly attracted to urban areas for the many grassy lawns near small bodies of water. These herbivores can often be seen grazing on lawns or dabbling in shallow water by tipping forward and extending their necks underwater to reach for aquatic plants. Canada geese tend to gather in large flocks and can be seen flying over in the classic V formation. In Chicago, Canada geese may remain in the city throughout the year, although many geese migrate long distances to more southern sections of their range for the winter or northward in spring to breed in the Northern US or Canada. In spring, Canada geese will break out into breeding pairs and defend territories surrounding their nesting sites. Each breeding season, pairs build large open cup ground nests and lay 2-8 eggs which are raised in a single brood. Urban habitats are also attractive to this species as manicured lawns make it easy when grazing with young to keep watch for approaching predators. It is, however, their use of these urban areas that often leads to conflicts with humans.

As Canada Geese numbers rise, so do their conflicts with humans. Common conflicts include damage to landscaping, traffic hazards, interactions with aggressive nesting birds, and collisions with aircrafts. Flocks may start small but quickly expand. Grazing and nesting Canada Geese may trample and damage gardens and landscaping. Defecation from large flocks often angers and spurs health concerns for human visitors utilizing the same spaces for recreation. Canada geese feces can contain bacteria of public health concern such as *Escherichia coli* and *Salmonella*, especially because geese can inhabit wastewater treatment plants. However, these concerns are relatively low compared to diseases from other wildlife. Geese may also cross roads when foraging or moving between nesting sites and bodies of water, slowing traffic or becoming a roadway hazard. Breeding

birds can be aggressive when defending nests or goslings. Although, direct injuries by aggressive geese are uncommon, people sometimes fall and incur injuries when surprised by a charging goose. Additionally, people often feed the birds. Not only are the types of food people typically provide, such as bread, unhealthy for the birds, but this encourages high concentrations of geese leading to more aggressive behavior and higher risk of avian botulism and avian cholera. Lastly, aircraft-bird conflicts are estimated to be rising, likely due to increasing numbers of aircrafts, but also increases in populations of certain bird species, including Canada Geese. Although collisions rarely result in an accident, they often cause costly damage to aircrafts.

There are four main strategies to employ to reduce conflicts with Canada geese: 1) site aversion, 2) habitat modification, 3) reducing reproduction and 4) exclusion. The first three strategies are most effective when used in combination, while the fourth is an extreme measure which could potentially negatively affect other wildlife.

The first strategy, site aversion, is the method of harassing or scaring the Canada geese away from a site. This method is most useful when the geese are new to the site or after goslings begin to fly in late summer. High pressure water sprayers, air horns, beating pots and pans together, physically chasing the birds, and specially designed fireworks and propane cannons can be employed to disrupt and frighten geese away from a site. Also, a trained dog can be used by an experienced handler to drive birds away from the site and into flight. However, if done incorrectly or without a professionally trained dog, birds may just be forced into the water or could be injured by the untrained dog. Lastly, plastic figures of predators such as coyotes can be effective, but must be moved periodically within the site.

Habitat modification, the second strategy aims to reduce sources of food, increase vulnerability to predators, and reduce ideal nesting sites. Posting signs instructing people not to feed wildlife can be helpful in reducing human provided food sources. Also, Canada Geese prefer to consume the young shoots in lawn areas, which can be reduced by replacing grasses with other planting, allowing lawns to grow out and “naturalize”, and ending or reducing fertilizing and watering. Sightlines within a site can be reduced making geese more vulnerable to predators. This can be accomplished by planting long grasses, shrubs, or other tall dense plants within a site, particularly along shorelines. Planting thick dense vegetation at the shoreline can have an added benefit by making building nests along the shoreline difficult. When nesting sites are difficult to eliminate, signs can be placed near nesting sites to warn people of potentially aggressive geese nearby. Shorelines can also be modified to deter Canada Geese. Canada Geese prefer shallow shorelines that make entering and exiting the water easy, so creating a steeper slope will make the habitat less appealing; however, such changes could negatively affect the ability of other species to access the water.

When site aversion and habitat modification alone are not effective, the third strategy of reducing Canada Geese reproduction can be implemented. Limiting reproduction can be accomplished through addling, in which eggs are humanely made unviable by oiling, removing them from the nest, or replacing eggs with dummy eggs. To be humane addling should occur during the earliest stages of incubation. It is important to note that all native bird species, including Canada Geese, are protected under the Migratory Bird Treaty Act, therefore a Federal permit must be obtained from the United States Fish and Wildlife Service before addling. Some residential (non-migratory) populations of Canada Geese may be exempt and, thus, a permit is not needed, but the property must still be registered with USFWS before addling is used and reports must be made to the USFWS on addling activities each year. Likewise, state permitting through the Illinois Department of Natural Resources is required before addling practices are implemented.

The fourth strategy is exclusion, in which modifications are made to a site to prevent the geese from utilizing the space. Exclusion is an extreme measure that should be used with caution as it may also disrupt use of the space by other wildlife. Canada geese can be excluded from a small body of water by placing a grid system of cables or a large number of floating balls (referred to as Bird Balls) at the water's surface. These methods interrupt the long glide the geese need to take off and land on the water. Bird balls are usually only used at airports or industrial sites due to their ability to eliminate all bird use of a body of water. They may also block sunlight, negatively affecting aquatic plants. Fencing can be used to exclude geese, or prevent access of the geese to pedestrian or roadway areas; however, added fencing may inhibit movement of other urban wildlife. For more comprehensive information on Canada Geese management strategies, please refer to the following resources:

- [Cornell University Ecommons](#)
- [Wildlife Illinois](#)
- [Humane Society](#)
- [EPA](#)
- [USDA](#)

Rock Dove

Species Profile



COMMON NAME: Rock Dove or Pigeon

SCIENTIFIC NAME: *Columba livia*

LIFE SPAN: 3–5 years

FAST FACTS: Pigeons can lay eggs up to six times a year with two young. Cities equip pigeons with food year round allowing them to breed all year long

CONFLICT ISSUES: Due to their diet in cities, the uric acid in their fecal material can damage the facade of buildings and their nests can clog gutters near homes.

ECOSYSTEM SERVICES: Pigeons are seed dispersers and also eat insects. Pigeons are also an important part of the ecosystem food chain as they are a food source for many birds of prey.

MANAGEMENT APPROACHES: Do not feed wild birds and contain your trash as this can inadvertently feed them. Installing spikes and netting around building ledges can deter pigeons from nesting there.

Figure 13 Lincoln Park Zoo Urban Wildlife Institute, Photo by ©Luke Seitz

What we think of as the common urban pigeon is a feral descendent of the rock dove (*Columba livia*), a bird native to Europe and Western Asia. Settlers introduced rock doves to North America in the 1600's for meat and, over time, these birds escaped domestication and thrived in urban areas. Cities have a lot to offer pigeons, as tall buildings and window ledges mimic the natural nesting habitat of Rock doves along cliffs. Urban residents also provide abundant food for pigeons either intentionally, such as feeding pigeons bird seed or bread, or unintentionally by leaving out food waste. In addition to human-sourced food, pigeons have a broad diet including seeds, berries, and insects. Pigeons can also be abundant in cities because pigeon hobbyists (e.g. pigeon racing, show breeding) release domesticated birds into the urban environment who then later breed with feral populations.

Pigeons are an issue for urban wildlife managers in cities around the world because they can be highly abundant in cities and congregate in large flocks for feeding and nesting. Pigeons can typically be found nesting on window ledges, roofs, and water towers and can find shelter indoors in vacant buildings. Pigeons can lay eggs up to six times per year, each with two young, and both females and males feed their young using a specialized substance they produce known as “crop milk”. In cities, pigeons can breed year-round because there are typically adequate food resources. Although pigeons are socially monogamous, they live in flocks of up to 500 birds. These large flocks can cause conflicts mainly by creating large amounts of feces.

Large and persistent congregations of pigeon flocks can cause considerable conflicts with people. The uric acid in pigeon feces makes it quite acidic and a large amount of droppings damage the façade of stone buildings and metal statues. The droppings of urban pigeons can be even more damaging than rural pigeons because a diet high in human food produces more acidic droppings. Nesting groups can also block gutters and create fire hazards. Apart from property damage, large flocks of urban pigeons can create concerns from disease. Exposure to pigeon droppings can cause a variety of ailments in humans including Bronchial asthma, fungal infections such as Aspergillosis, and atypical pneumonia from Psittacosis. These diseases are rare; however, the acidity of pigeon droppings can be a trigger for asthma attacks. Disease in pigeons is also of concern for urban biodiversity conservation because pigeons are a common prey source for urban raptors such as peregrine falcons, which can contract the avian disease trichomoniasis from consuming infected pigeons.

To mitigate conflicts with pigeons, managers have used several methods to deter pigeon presence or decrease pigeon abundance. Managers have used lethal tools such as poisons; however, this approach typically does not have sustained results because the remaining pigeons breed rapidly. Further, many poisons are not species-specific and can harm other urban birds or mammals. Pigeon contraceptive products, for example “OvoControl P”, are new technologies that may present a more environmentally-friendly alternative. Other programs to reduce nest success involve removing the eggs and replacing them with dummy eggs. This method has had mixed success because it can be difficult to access nests or attract pigeons to nest houses. Non-lethal methods include deterring pigeon activity by installing spikes along ledges or covering features with netting. Ultimately, preventing conflicts relies on removing food sources for urban pigeons. For example, many urban residents feed pigeons in parks. This could be curbed through public education campaigns once we understand the public’s motivation for feeding (e.g. connection with nature) or by enforcing anti-feeding bylaws. Pigeons also access a large amount of food from uncontained food garbage in public spaces, which could be prevented through sanitation practices, more frequent garbage can servicing, and public education. Ensuring public cooperation with feeding restrictions or cleaning up food waste is difficult but will ultimately be the most successful solution to decreasing overly abundant pigeon populations. For more information on pigeon management strategies, please refer to the following resources:

- [Healthy WA](#)
- [Pigeon Control Resource Centre](#)

Other Critters

Snake

Species Profile



COMMON NAME: Ribbon Snake

SCIENTIFIC NAME: *Thamnophis saurita*

LIFE SPAN: 3 – 6 years

FAST FACTS: Illinois is home to 40 different snake species. Snakes use their tongue to detect prey. Snakes typically hibernate during the winter and breed in the springtime. They usually avoid humans.

CONFLICT ISSUES: People are usually afraid of snakes as they can sometimes take-up residence in warm houses during winter months.

ECOSYSTEM SERVICES: Snakes eat rodent and other pest that can cause damage to homes. Snakes should be left alone so they can continue to help remove pests. Snakes can also be prey to some large mammals and large birds.

MANAGEMENT APPROACHES: Snakes will usually be in areas where there are small rodents. To discourage snakes from your property, cleaning up litter and stray food material while containing your garbage will discourage rodents and thus discourage snakes from the area around your home.

Figure 14 Lincoln Park Zoo Urban Wildlife Institute, Photo by Jeff Lelere

Illinois is home to about forty species of snakes, though the four most common species that live in Chicago are the common garter snake, the northern water snake, the smooth green snake and the fox snake. Common garter snakes are variable in color, but they typically have three light stripes that run along their black, brown, gray or olive bodies (one down the center, and two on each lower side of the body). These snakes are relatively small, typically growing to be a little less than 1 foot long. They prefer moist, grassy environments with plenty of cover and are often found near water. The northern water snake can be a variety of dark colors ranging from gray to brown, though juveniles are often brighter than adults. These snakes can grow between 2 and 4.5 feet long, and live in aquatic habitats (preferably those with slow-moving or standing water). The smooth green snake, as their name implies, is bright green in color, which helps them blend into the grassy habitats where they prefer to dwell. These small snakes range from 1 to 2 feet in length. Finally, the fox snake is grayish-white with dark blotches across its body. These reptiles are typically found in black-soil prairies and reach about 3 to 5 feet in length.

All species of snakes are cold-blooded, meaning their body temperature is the same temperature as their environment. Snakes do not have eyelids or ears, and thus cannot blink or hear, however, they use their tongue to detect odors and locate prey. Snakes shed their skin throughout the year so they can grow larger throughout their lifespan. These reptiles hibernate during the winter, and emerge in the spring to find mates and breed.

Although many people are afraid of snakes, many of these fears are unfounded. It is important to note that all four of these species are nonvenomous, and pose little to no risk to humans. These snakes benefit their human neighbors by eating rodents and other pests. It is important to note that simply seeing a snake in your backyard or neighborhood is no cause for alarm. Snakes prefer to avoid people, though they will often vibrate their tails and flatten their heads when they feel

threatened. As a biological control of pests and an essential part of our urban ecosystem, these animals should be left alone when people come into contact with them.

Although Chicago snakes are on the whole harmless, there are strategies for minimizing contact with them. Removing cover such as tall grass, vegetation, and wood cover will minimize the amount of usable habitat for these animals. Removing trash and food scraps will also lower the number of rodents in and around your property, which are attractants to the snakes that feed on them. For more comprehensive snake management strategies, please see the following resources:

- [Illinois DNR](#)
- [Wildlife Illinois](#)
- [Illinois Nature History Survey](#)
- [Wildlife Illinois](#)

Bee

Species Profile



COMMON NAME: Honey Bees

SCIENTIFIC NAME: *Apis, Linnaeus*

LIFE SPAN: 7 weeks

FAST FACTS: Honey bees have hair on their body to help them gather as much pollen as possible. They have complex hive structures made up of workers, drones, and a queen.

CONFLICT ISSUES: Bees can sometimes make homes in areas that are too close for comfort for some people. For those who are allergic to insect stings and bites, honey bees do not usually sting but can if provoked and usually get confused for their more temperamental relatives the wasps and hornets.

ECOSYSTEM SERVICES: Scientists estimate that one out of every three bites of the food we eat is because of pollinators like bees, and native bees increase crop yields. This helps the agricultural industry as well as keeping food on our plates

MANAGEMENT APPROACHES: Because of their attraction to sugar based items, be sure to rinse out cans that you plan on recycling. If you find yourself with a hive near your home, call a local beekeeper to have it removed for you. For those who have severe allergies, having an epinephrine auto-injector device accessible at all times is advised.

Figure 15 Lincoln Park Zoo Urban Wildlife Institute, Photo by Joel Sartore

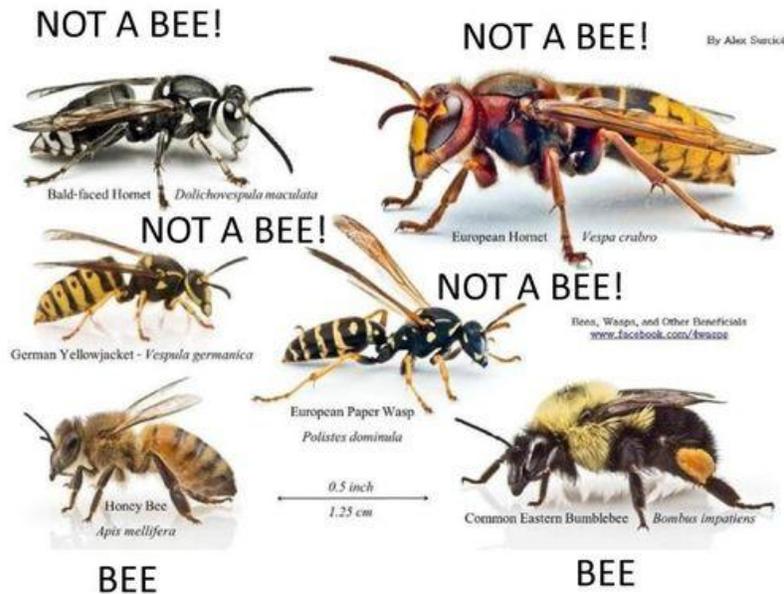
In Illinois, there are anywhere from 400-500 native bee species and their habitat is varied, ranging from wetland, woodland, grassland, to urban habitat. Living in urban areas like Chicago provides for a wider variety of plant species from residential flowers to those found in city parks. For bees, this increases their pollen diversity and even changes the taste of their honey. As a pollinator, bees promote the existence to a variety of plant species that require pollination to reproduce and, thus, bees are connected to the existence of all terrestrial animals including humans. Bees are the most economically beneficial insects because they help pollinate more than half of the fruits and vegetables found in our grocery stores and provide wax and honey.

Some bees are considered solitary but other bees, like the bumblebees and honey bees, have complex social societies and live together in large numbers from hundreds to 60,000 individuals with different roles. Generally, these roles are called castes and they are categorized into: drones, workers, or queens and the life cycle of bees is in four stages: egg, larva, pupa, and adult. Drones are male bees produced from unfertilized eggs and their responsibility is to reproduce with queens from neighboring hives, but die once they reproduce. Worker bees are female bees, born from

fertilized eggs but are infertile themselves. Worker bees engage in: tending to larvae, making honey, guarding the hive and their life span is about 7 weeks. Queens are fully fertile females and are responsible for laying upwards of 1,500 eggs a day with the sperm she has saved from drones from neighboring hives. There is only one queen per hive and she, unlike her workers and drones, can live for several years. When the health of the queen declines or when the hive is preparing to swarm (take half of their population to move to a new location) the queen will emit a pheromone to help create new virgin queens. In the event of this, workers create a few "queen cups" and an egg will be laid in each of the queen cups, as these larvae develop they will exclusively be fed "royal jelly." The larvae that are fed royal jelly will develop into queens making them able to reproduce and lay eggs. Once the queens emerge from their respective cups, they will attempt to remove each other until there is only one left, who will then become the queen bee of the hive.

While bees generally do not disturb humans, there are some conflicts that do occur when bees decide to relocate into human structures to create a new hive. Honey bees will usually relocate to high tree limbs, hollowed trees, and rock crevices but as bees and humans live closer together, bees will make a hive in places like vacant homes, and park gazebos. One of the best ways to remove a hive of bees is to call a local bee colony keeper also known as an apiarist. Services like this benefit the bees, as they will not be killed or introduced to harmful pesticides. It also benefits the area where the hive was because the hive is now removed and the environment around the area was not exposed to harmful toxins. The beekeepers benefit from this as they can collect the hive to relocate it to a new area or farm where it can increase the genetic diversity of the bee colonies in the area, and pollinate more plants in their new area. Generally, the services to remove bees by an apiarist is more affordable than traditional exterminators and is done in a very timely manner.

Another fear that is sometimes associated with bees is being stung. While honeybees and bumblebees can sting, they usually do not unless they perceive a threat to their hive or are injured or stepped on. Bees are also commonly mistaken for wasps and hornets, which are also pollinators but are very territorial and capable of stinging many times. If a single one of these insects is flying around someone, it is important not to swat at them as it may anger them. If it does happen that a bee, wasp, or hornet stings someone, it is recommended by the CDC that the site be washed with soap and water, the stinger be removed (if still present) with gauze but not tweezers, ice is applied to the affected area, and to seek medical attention if needed. For the few individuals that are highly sensitive to bee, wasp, hornet, and other insect stings and bites, it is strongly recommended they carry an epinephrine auto-injector device at all times, avoid areas with open trash, and be aware of ripe flowering fruit areas and wood piles. While they are all pollinators, there are some other distinct differences between bees, wasps and hornets, starting with how they look. Aside from temperament, bees also differ in coloration and size. Honey bees are oval shaped, stretching 2.5 cm long and are hairy, which help them pick up pollen and are predominantly gold with burnt orange stripes. Alternately, wasps and hornets have a sleek appearance and are narrow waisted and brightly yellow colored with black patterns.



City Bee Savers

Bees differ based on their diet as well, seeking out flowers for nectar and pollen. In urban settings, bees may be found near areas where items like ice cream, soda, or other sugar-rich food items have been spilled. Wasps and hornets usually eat flies, insects, bees, and in urban areas, you may find them where open garbage is uncovered as they will also eat discarded food. To avoid potential conflict with these insects, ensuring small spaces and crevices on the outside of your home and windows are sealed, rinsing out bottles, cans, and containers before recycling them, as well as covering up trash cans and compost containers will minimize the likelihood of interacting with them.

For more comprehensive bee management strategies, please use the following resources:

- [City Bee Savers](#)
- [Chicago Honey Coop](#)
- [Illinois DNR](#)
- [Field Museum](#)

CACC'S ASSESSMENT AND MANAGEMENT METHODS

Reporting, Monitoring and Collecting Data

Reporting, monitoring and data collection are critical components of CACC wildlife management. This is best accomplished with input from both residents and city officials. CACC has recently initiated a system through Salesforce that records, stores and categorizes wildlife complaint call data. To report a wildlife complaint, residents must call 311 and make a formal report. The resident must provide contact information, including the date, time, name, address and phone number of the individuals filing the report as well as specific information about the incident. This information is collected and stored by CACC and is used to guide management efforts.

Wildlife Management Approaches

Education

A critical element of successful municipal wildlife management is taking steps to promote education and awareness. Educating residents on local wildlife populations will guide individuals in making appropriate decisions regarding their safety and managing their property and pets. This involves decreasing food attractants, taking precautions with pets and creating tolerance of normal wildlife behavior. To foster coexistence, it is important to provide residents with facts about wildlife and the steps they can take to reduce potential for negative interactions. Residents must understand the role they play in shaping the behavior of local wildlife populations and the importance of their responses to encounters and incidents. People should also be encouraged to avoid wildlife feeding, such as leaving trash out for extended periods of time. An educational campaign should focus on how residents can coexist with local wildlife successfully. Outreach opportunities include:

1. Educational materials

Brochures, E-Newsletters, informational postcards mailed or hand-delivered to specific neighborhoods with a high number of wildlife complaint calls, detailed information and appropriate links made available on the City of Chicago website and social media accounts

2. Community outreach

CACC employees participating in ward meetings and other scheduled speaking events, CACC director leading open forums in response to instances of conflict, officers responding to complaint calls and educating residents on removing coyote attractants on their property

Physical Removal

As removal is a last resort, prevention is a key strategy in driving coexistence between humans and wildlife in Chicago. Individuals must keep in mind that there are a number of ways to reduce the likelihood of negative interactions. The presence of food sources is often the leading cause of issues in communities, attracting animals to houses and back yards. Strategies to decrease food availability include: Securing garbage bins properly or using a device/cord to attach bins to a structure, refraining from leaving pet food and water outside and removing bird feeders that attract forms of wildlife to an area. In addition, individuals may consider removing wood piles and shrubbery serving as potential den sites.

The trapping of wildlife requires a permit issued by the Illinois Department of Natural Resources and it is illegal to relocate fur-bearing animals off your own property. The Illinois Wildlife Code (520 ILCS 5/) uses the category “fur-bearing mammals” for the following: mink, muskrat, raccoon, striped skunk, weasel, bobcat, opossum, beaver, river otter, badger, red fox, gray fox, and coyote. In urban or suburban areas, the Illinois Department of Natural Resources recommends hiring a Nuisance Wildlife Control Operator to remove problem wildlife or seeking a permit from an Illinois Department of Natural Resources District Wildlife Biologist. However, this method is emphasized as a last resort and only applicable in cases where the animal is a threat to human safety or is causing clear damage to property

Local Ordinances

In addition to the suggested responses above, the following community-wide ordinances may be helpful:

- **Anti-Feeding Ordinance.** Banning the feeding of wildlife and establishing a monetary fine may be helpful in addressing problematic feeding behavior that can lead to the habituation or increased presence of many forms of wildlife. This is something wards should consider implementing, as feeding is often central to events of conflict.

- **Leash Law.** Enforcing leash laws and monetary fines for off-leash dogs can help address problematic encounters between pets and local wildlife like coyotes. Residents should be instructed to keep pets on a leash six feet long or less.

CACC OFFICER PROTOCOL

CACC officers are expected to follow protocol for handling particular issues between humans and wildlife. Some conflicts are deserving of more detailed responses, such as those between humans and coyotes, while others may require a less involved intervention. That being said, CACC is responsible for reviewing management strategies annually and following trends in local wildlife communities in the Chicago area. Developing comprehensive wildlife management techniques is of utmost importance for the wellbeing of Chicago residents and local wildlife alike and the department will continue to devote attention to fostering coexistence-based management practices

Resources for Officers

(Example) Official Incident Report Form for Coyote Complaint Calls

Date: _____ Time of incident: _____ Duration of event:

Name of reporting party:

Address of reporting party:

Phone number of reporting party:

Address of Incident:

Location Type (*park, residential property, commercial property etc.*)

Type of Interaction and Classification (*sighting, encounter, attack*)

Activity of reporting party at time of incident (*i.e. walking, running, riding bike, walking pet etc.*)

Was the coyote provoked?

Yes__ No__

Was the coyote visibly injured?

Yes__ No__

Was the Coyote intentionally fed?

Yes__ No__

Was there any type of food present?

Yes__ No__

Was there a pet present?

Yes__ No__

If so, What kind?

Cat __ Dog__ Other__

Description of pet:

Description of Interaction:

Actions taken by reporting officer (*none, hazed coyote, called for further patrol of site*):

How did the coyote respond to the officer's efforts (*was the coyote present upon arrival? Did the coyote flee after hazing techniques were followed? Did the coyote remain on the site despite the officer's efforts?*)

Outcome of incident

Human injuries:

Rabies vaccine recommended?

Yes__ No__

Pet injuries:

Coyote injuries:

Euthanized?

Yes__ No__

Relocated?

Yes__ No__

Public opinion is an important consideration of wildlife management in cities. It is certainly more difficult to manage wildlife if the public is not supportive of those actions. To better understand Chicago resident attitudes about urban wildlife, the Urban Wildlife Institute distributed a survey in the spring of 2020. This was an online survey mainly focused on issues with rats during the stay-at-home order, but provided ample information on public views of local wildlife more generally. Over 70% of survey respondents wanted to learn more about Chicago's wildlife and enjoyed seeing wildlife around their homes and neighborhoods. These trends suggest that many Chicagoans have positive experiences with wildlife and would likely engage with education campaigns about living with wildlife. In recent decades, prevailing public attitudes about wildlife management have shifted against lethal management. In Chicago, survey respondents appear to have diverse opinions about wildlife management. When asked if wildlife should be managed to benefit people, roughly a third agreed, a third disagreed, and 40% were undecided. Survey respondents were similarly split when asked if it is acceptable to kill animals for management if that type of animal is common (38% agreed, 35% disagreed, 27% were undecided). These trends underscore how difficult it is to design management plans that are acceptable to all residents, but this may be facilitated by working with diverse stakeholders.

Unsurprisingly, the public's attitudes about wildlife often depend on the species in question. Many survey respondents described positive feelings about backyard birds, for example that they enjoy feeding birds or hearing birdsong from their window. Conversely, nearly all respondents had strongly negative attitudes about rats. Respondents expressed that they were disgusted by rats, afraid of rats entering their homes, and frustrated with their neighbors for attracting rats. Respondents were especially concerned about the spread of disease and property damage caused by rats (52% and 44% were very concerned about these damages, respectively). Despite high levels of concern, two thirds (66%) of respondents did not call 311 about the rats that they saw in their homes or on their block. It is currently not clear why some residents do not report their rat sightings, but awareness campaigns may help. For example, when we asked where residents looked for information about rats, the most common response was that they do not look for information about rats (37%), followed closely by City of Chicago posters (35%). Public education campaigns may help prevent conflicts with rats while also providing a way for residents to learn more about the wildlife they enjoy seeing in Chicago parks.

The city may consider a variety of approaches to connecting the public to accurate and helpful information about wildlife. For example, developing relationships with local community centers and supplying them with informational resources will ensure that residents have access to beneficial material. Additionally, maintaining relationships with local research groups, such as Lincoln Park Zoo's Urban Wildlife Institute, will connect the city to the most up-to-date information about local wildlife communities. Fostering lines of communication between CACC and local hubs is a productive way to get information to people, and strengthening ties between the department and experts is a resourceful approach to obtaining information.

Departmental Coordination

Collective department and agency organization is key to securing and sustaining cohesive, effective and far-reaching wildlife management efforts. Chicago Animal Care and Control coordinates and exchanges communication with other city departments (Streets and Sanitation, Chicago Police Department, Chicago Fire Department), sister agencies (Chicago Park District, Chicago Public Schools) and Aldermanic Offices for effective and productive wildlife management efforts.

Connections with Local Wildlife Researchers

Another crucial tool that CACC relies on is developing relationships with the local wildlife researcher community. The Lincoln Park Zoo's Urban Wildlife Institute (UWI) is an important partner and their wildlife monitoring project is a major point of reference for the city. For example, for more serious conflicts between humans and wildlife these researchers are looped in so they can advise the city on appropriate management responses. UWI also works with the city to develop strategies and is a major contributor to the information outlined in this plan.

Planning for Wildlife

The city of Chicago is fortunate enough to have expansive greenspace. Recreational areas are central to the identity of the city and even serve as a foundational component of Burnham's original plan for Chicago. While an amenity for urban residents, these areas also play key roles in shaping the lives of urban wildlife. Urban parks, greenways, trails, and golf courses are refuges and reservoirs for many animals and offer den sites and routes for travel and movement. Maintaining these spaces is crucial to shaping our encounters with many forms of wildlife. Cutting grass and shrubbery around trails, for example, may have the effect of steering wildlife away from heavily trafficked areas. Placing signs in public parks with information about wild animals is another useful tool. This could be especially beneficial during events like coyote pupping season in the spring when coyotes may exhibit more aggressive behavior.

Cities may also champion planning efforts that consider the health of local wildlife populations. Improving connectivity between habitats influences the movement of wildlife. Alterations to infrastructure may benefit local wildlife communities and lessen events of roadkill. The construction of under-passages and over-passages both in and around the city may allow species to move safely and lessen the potential for automobile collisions. Fencing along major roadways will also encourage wild animals to stay out of the road. These structural changes, if implemented, may alleviate the negative effects of urban development on wildlife.

1. Stash your trash
 - a) Urban animals can grow dependent on garbage—if it's accessible. Check your garbage cans or dumpsters for holes or other damage. If there's a problem, either replace your garbage containers or contact your city or waste disposal company to fix the issue.
2. Observe don't disturb
 - a) Observe wild animals without feeding or touching them. Keep wildlife safe by keeping your distance.
 - b) Use bird feeders designed to feed native birds, and be careful to keep food from piling up too much on the ground beneath the feeder.
3. Limit your footprint
 - a) When visiting natural areas, gardens, and the beach, stay on the path to avoid stepping on plants and disrupting wildlife. When traveling between areas, ensure that shoes and recreation equipment are clean of soil, seeds, and other unwanted hitchhikers to avoid the spread of disease or invasive plants.
 - b) Don't let cats outside, and certainly never leave cat food outdoors.
4. Build wildlife habitat
 - a) Turn your yard into a wildlife habitat. Planting native plants, like milkweed, can help wildlife thrive, and adding trees and shrubs creates a diverse, multi-layered habitat. If you don't have a yard, you can garden in planters on your deck. Or, you can reach out to your local schools or community gardens, which might make a space for other species in your neighborhood.
5. Spread the word
 - a) Tell friends and family, both in conversation and on social media, how small lifestyle changes benefit local wildlife. Follow the zoo's social media channels to see relevant updates on how you can Take Action With Us, and share those updates on your channels.
6. Haze if you have to
 - a) Many urban wildlife species will move away from an area if you disturb them with loud noise or, in a worse case scenario, throwing objects in their direction. It's not good for wildlife to have positive associations with humans, even in cities.
7. If you have nuisance wildlife in your home or notice something concerning involving wildlife outside your property, call it in
 - a) Wildlife may find their way into residential homes for a variety of reasons. If you have an issue inside your home, you can call 311 City Services (312.744.5000) for assistance. Or, for residents struggling with especially problematic wildlife on their property, please refer to this list of wildlife control agencies: <https://www.wildlifeillinois.org/class-a-operators/>. In addition, if you see an animal behaving unusually or are concerned about wildlife in an area outside your property you may also call 311 City Services (312.744.5000).

Chicago is a unique city, home to many forms of wildlife. Understanding how to cohabitate with these creatures is necessary to drive coexistence. Appropriately navigating direct encounters and avoiding potentially negative future events is, therefore, crucial. Some helpful rules include: giving animals space when you see them, eliminating waste and repairing damage on your property, and contacting professionals in cases of wildlife related problems. Local wildlife offer opportunities to experience nature in the city and understanding how to share space will ensure that we promote positive interactions.

GENERAL RULES TO AVOID
CONFLICT WITH
WILDLIFE

**Share the place and give wildlife
S p a c e**

Wildlife are more afraid of you than you are of them, so it's a good idea to give them space. It can be dangerous for both you and an animal if you try to feed, touch, or approach them. If an animal appears aggressive, back away slowly and find another route as they may be territorial or protecting their young.



Always call a professional

Using city resources like 3-1-1 is always a good first step. If you need to remove wildlife from your property, call a pest management specialist. Never take in young or injured wildlife, but do call a local wildlife rehabilitation center if you find a young or injured animal; these professionals are trained in giving wildlife their best chance.



Remove and reduce waste

Brush and piles of leaves are used by wildlife to make their homes. Things like human food from uncontained trash and pet food left outside are easy food sources for wildlife. If you remove those things from your outside spaces, it is unlikely wildlife will stay.



Replace and Repair

If you don't want them living in your home, don't give them a reason to stay. Repair holes around your home and replace trash cans with holes or cracks by requesting new ones with your alderman's office.



Figure 16 Lincoln Park Zoo, Urban Wildlife Institute