




# **Coyote Response and Coexistence Strategy**

CITY OF VAUGHAN, ONTARIO, CANADA



The By-law and Compliance, Licensing and Permit Services department is committed to ensuring a safe and orderly community for all who live, work and play in Vaughan by fostering active, safe and diverse communities, as outlined in the City's 2018-2022 Term of Council Service Excellence Strategic Plan. With a focus on enhancing community well-being and maintaining safety in our community, the Coyote Response and Coexistence Strategy positions the City to achieve the strategic goals and objectives set forth by Council.



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# Purpose

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The goal of this Coyote Response and Coexistence Strategy is to provide a program for reducing human-coyote conflicts while prioritizing human safety. The suggested actions outlined in this strategy are designed to increase citizens' knowledge and understanding of how coyotes behave

and make clear how such behaviour can be managed to reduce or eliminate conflicts with coyotes.



# Guiding Principles

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This Coyote Response and Coexistence Strategy is based on scientific research, a thorough understanding of coyote ecology and biology in urban settings, and the best-known practices and tools. This strategy is guided by the following basic principles:

1. Human safety is a priority in managing human-coyote interactions.
2. Coyotes serve an important role in ecosystems by helping to control the population of rodents, Canada Geese, rabbits and other urban mammals.
3. Preventive practices such as reduction and removal of food attractants, habitat modification and responding appropriately when interacting with wildlife are key to minimizing potential conflicts with coyotes.
4. Solutions for coyote conflicts must address both problematic coyote behaviours (such as incidents toward people and pets) and the problematic human behaviours (intentionally or unintentionally feeding coyotes and allowing pets outside unattended or to run off leash in parks) that contribute to conflicts.
5. Non-selective coyote removal programs are ineffective for reducing coyote population sizes or preventing human-coyote conflicts.
6. A community-wide program that involves residents is necessary for achieving coexistence among people, coyotes and pets.

An effective coyote response and coexistence strategy must consider both public safety and the benefits of having a healthy predator population to aid in the ecosystem balance.



# City of Vaughan Partnership with the University of Toronto

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City of Vaughan has partnered with the University of Toronto to study urban coyotes in Vaughan. The project has been named “Threat or neighbours? The behaviour and impact of coyotes in an urban environment.” This research opportunity project involves several Associate Professors and students from the University of Toronto.

This partnership started in 2021, but had delays due to the COVID-19 pandemic.

## **Objectives and methodology**

Neighbourhoods in Vaughan and across large municipalities in southern Ontario have had questions and concerns about such frequent sightings of coyotes in our urban environment. Interactions between a human and/or pet and a coyote can cause concern or create a perception of harm. The main goal of this project is to gather ecological data on estimated population size, movement, activity patterns, den locations and behavioural preferences. This data is being collected from 25 camera traps, field study, existing records by reports to the City on sightings and interactions, and existing literature on urban coyote populations. There is also comparative data collection set up at the Koffler Scientific Reserve with little to no traffic and impact

to compare coyote sightings to an urban environment.

Students are completing work studies to design a GIS website that would produce mapping and reporting capabilities for Vaughan Animal Services and make sightings reports easier for the residents of Vaughan and collect valuable data. This would be similar to reporting tools used by the Town of Oakville, City of Toronto and City of Niagara Falls.

The biology team includes two researchers at the University of Toronto who are involved in the Urban Wildlife Information Network (UWIN) as part of a study of habitat use by multiple wildlife species in urban landscapes. This additional partnership will allow the biology team to share wildlife data from different networks.

Another project students have completed is a survey for Vaughan residents to gather their perceptions of coyotes to assist with research input. Together, the City of Vaughan and University of Toronto would deploy a mailed paper survey, as well as an online survey.

Professors and students will complete a literature review and analyze report findings in the form of a formal report and/or presentation.



# About Coyotes

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Due to the intelligence and adaptability of coyotes, in addition to extensive urbanization and the subsequent decline of larger predators, such as wolves and bears, coyotes have successfully expanded their range across Canada. Eastern Coyotes are now found in all urban environments across Ontario and have become well-established in nearly every ecosystem. Often, it's only an evening chorus or group howling and yipping that alerts citizens to the presence of this wild canid in neighbourhoods. It is important to keep in mind that coyotes have been interacting with and adapting to people for at least the last 100 years.



## Ecological Importance

Coyotes are found in every urban centre in North America and play a huge role in the ecosystem by regulating the number of skunks, foxes and raccoons. Without the coyote, the numbers of small mammals and rodents increase rapidly. When small predators increase the number of diverse species of birds decrease. Coyotes also eat livestock (such as poultry), groundhogs, fruits, berries, rabbits, snakes, frogs and insects, as well as scavenge on roadkill, pet food leftovers and garbage. Coyotes survive anywhere there is abundant food. In summer, they mostly eat rabbits, fawns, mice, berries, squirrels, insects, woodchucks and birds. In fall, they mostly eat corn, apples and watermelons. In winter, they eat mice and rabbits, and in spring, which is mating season, they switch back to summer foods. To thrive, a coyote needs an environment rich with rodents, livestock, such as poultry, and other small mammals they eat.

A coyote's home range is threatened when people invade their habitat to cut down trees and develop lands to build. The main predator of a coyote is a wolf, which is mostly absent in southern Ontario.



## General Biology, Reproduction and Behaviour

**Appearance and signs:** Most adult Eastern Coyotes weigh approximately 14-18 kilograms (approximately 30-40 pounds), although their long legs and thick fur make them appear larger. Coyote fur varies in colour from grey-brown to yellow-grey. They have a bushy, black-tipped tail that hangs toward the ground, which helps to distinguish them from other canids, such as foxes or domestic dogs. Coyotes also have yellow/amber eyes (which help to distinguish them from domestic dogs), large ears and narrow, pointed muzzles (which help to distinguish them from wolves).

Coyotes are naturally very wary of humans. Coyote prints are similar to a domestic dog's, but are usually observed in a straight line (as opposed to the meandering path of domestic dog tracks). More commonly, coyote howling, or other vocalizations, may often be heard. Coyotes produce a variety of sounds (including howls, barks, whines and yips) to communicate with one another. This vocalization is used to locate family, celebrate, mourn, warn each other of danger, defend their territory and during mating season. Small groups of coyotes (two to three) can emit a variety of vocalizations to sound like a group of 20 due to the way their sound travels (known as the "beau geste effect"). Coyotes also use scat (feces) to communicate by depositing it in the middle of a trail or on the edge of their territory. Coyote scat is similar to dog scat in size and appearance, but unlike dog scat, it is rope-like and typically filled with hairs, seeds and bones.



**Diet:** Coyotes are known as adaptive omnivores, and have great flexibility in their diet. They generally hunt small mammals, such as mice, rats, moles, rabbits, but will also eat eggs, insects, fruit and berries, and will even scavenge roadkill. In urban areas, coyotes are also known to eat pet food, unsecured garbage and compost. Most often, dogs are seen as potential competition for food resources or as a threat to coyote families – to a mate and/or pups. Coyotes may prey upon unattended or unleashed domestic small dogs or domestic cats left outdoors unattended. This does not indicate a danger to humans but is rather a natural coyote behaviour. This behaviour can be prevented by reducing human-associated food attractants in urban areas and not leaving pets outside unattended (unless protected by a coyote-proof enclosure or fence). Coyotes can become habituated to livestock when proper farming methods are ignored.



**Social Structure:** Most coyotes (called resident coyotes) live in family groups which vary depending on habitat, available food sources and human impact (urban/rural). This family group usually consist of two to three adults (one monogamous breeding pair) and their pups. Coyotes do not hunt in packs but work together to defend their territory from other coyote families. Other coyotes (called transient coyotes) live alone or as an isolated mated pair. Coyotes mate once per year, during their breeding season (which occurs from January to March). During the pup season (April to August), the breeding pair will give birth to pups (typically in April or May). Litter size depends on available resources and the number of coyotes in the area. The average litter size is three to seven pups with a high rate of infant mortality in the first year. Coyotes will place their pups in a den for the first six weeks, after which the pups will learn to hunt and forage with their parents. Coyote dens are found in steep banks, rock crevices and underbrush, as well as in open areas, but are only used during pup-rearing season. During dispersal season (September to December), the pups from the previous year (yearlings) will leave the family group and become transient coyotes in search of a new home range.

**Habitat:** Coyotes are most active at dawn and dusk, but often shift to more nocturnal (night) activity in urban and suburban areas. Coyotes prefer open space and naturally preserved areas over human-dominated landscapes, but are extremely adept at living in proximity to people. Coyotes thrive in these areas because food, water and shelter are abundant. Home range sizes vary for each individual coyote.





## What Draws Coyotes to Urban and Suburban Areas

Coyotes are drawn into urban and suburban areas for the following reasons:

**Food:** Urban areas provide a bounty of natural food choices for coyotes, who primarily eat rodents, such as mice and rats. However, coyotes can be further attracted into suburban neighbourhoods by human-associated food, such as pet food, unsecured garbage or compost and fallen fruit in yards. Intentional and unintentional feeding can lead coyotes to associate humans with sources of food, which can result in negative interactions among coyotes, people and pets.

To reduce food attractants in residential areas:

- Never hand-feed a coyote.
- Never dispose of food scraps or household waste in residential areas, green spaces or waste containers in City parks.
- Avoid feeding pets outside. Remove sources of pet food and water. If feeding pets outside is necessary, remove the bowl and any leftover food promptly.
- Never compost any meat or dairy (unless the compost is fully secured).
- Maintain good landscaping, such as regularly raking areas around songbird feeders, to help discourage coyote activity near residences. Avoid the use of bird feeders in areas where coyotes frequent.
- Remove fallen fruit from the ground.
- Keep trash in high-quality containers with tight-fitting lids. Only place the cans curbside on the morning of collection. If you leave them out overnight, trash cans are more likely to be tipped over and broken into by a variety of animal species.
- Double bag attractive food wastes, such as meat scraps or leftover pet food. If it is several days before garbage will be picked up, freeze temporarily.



**Water:** Urban areas provide a year-round supply of water in the form of stormwater ponds and channels, artificial lakes, irrigation, pet water dishes, backyard decorative ponds or water features, which support both coyotes and their prey. In dry conditions, water can be as alluring as food, so remove water bowls set outside for pets and make watering cans unavailable.

**Access to shelter:** Parks, greenbelts, open spaces, golf courses, buildings, sheds, decks, crawl spaces and abandoned properties increase the amount and variety of cover for coyotes. They allow coyotes to safely and easily remain close to people, pets, homes and businesses without detection. In the spring, when coyotes give birth and begin to raise young, they concentrate their activities around dens or burrows in which their young are sheltered. Coyotes may take advantage of available spaces under sheds or decks for use as a den, bringing them into close proximity with people and pets. Wildlife-proof sheds, decks and crawl spaces by sealing off any area animals can enter. Keep property well-maintained and remove downed trees and dense brush to make yards less attractive for wildlife.

**Unattended Pets:** Pets are a normal part of an urban landscape. Within their territory, coyotes may consider pets as potential prey or potential competitors.

- **Free-roaming pets:** Cats and small dogs may attract coyotes into neighbourhoods. The best way to minimize risk to pets is to not leave pets outside unattended.
- **Cats:** Coyotes primarily eat small mammals, such as mice and rats, but will also prey on slightly larger mammals, such as rabbits and groundhogs. Approximately the same size as a groundhog or rabbit, free-roaming outdoor cats may also be seen as eligible prey by coyotes. It is important to note that predation on cats are normal coyote behaviour and do not indicate a danger to people. The only way to protect cats from coyotes (and the other dangers of outdoor life, such as cars, disease, dogs and other wildlife) is to keep cats indoors or only allow them outside in a secure enclosure or when accompanied by a person and under the control of a leash and harness.

- **Feral cats:** People should avoid feeding feral cats as coyotes will be attracted to both the outdoor pet food and the cats themselves as prey.
- **Dogs:** Although dogs are not considered a food source for coyotes, they are vulnerable to coyote confrontations. These incidents generally involve coyotes who are conditioned to people (usually due to wildlife feeding) or coyotes who are protecting their territory and pups (usually during breeding season) or competing for food sources.
  - Small, unattended dogs may be seen or misidentified as potential prey for coyotes. It is important to keep dogs on a leash six feet long or shorter (avoid retractable leads) when outdoors or to stay within six feet of them when outside in your yard. Coyotes may view a dog on a leash longer than six feet as an unattended pet. Attacks on unattended, small dogs are normal coyote behaviour and do not indicate a danger to people.
  - Although conflicts with larger dogs are rare, coyotes will sometimes go after a large dog when they feel their territory is threatened or when a food source is nearby. This generally occurs during the coyote breeding season, which takes place from January to March. During this time, it is especially important not to let dogs outside unattended and to keep them on leashes (six feet long or less) when walking. Keep pets indoors at night and inspect yards before letting pets outside into a fenced area. Never let pets interact with coyotes or other wild animals.
- Fences can be used to keep coyotes out of residential yards, but they must be “coyote-proof.” Coyote-proof fences should be made of a material that would make it difficult for coyotes to climb over or at least six feet tall including a protective device on top, such as a “coyote roller” that rolls off any coyotes (and dogs) that are trying to scramble over the fence. To prevent coyotes from digging under a fence, it should extend underground at least 12 inches or include an L-shaped mesh apron that extends outward at least 18 inches and is secured with landscape staples. Motion sensor lights can be helpful to discourage coyotes from entering private property at night. Reference the City’s Fence By-law, and its amendments, for the height and descriptions of all fences allowed in the city.



# Monitoring and Collecting Data

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Monitoring and data collection are critical components of an effective coyote response and coexistence strategy. This is best accomplished with input from both residents and City officials, reporting all coyote interactions to Vaughan Animal Services (VAS) by phone or email. VAS has a [dedicated webpage](#) for coyote information. VAS, in partnership with the University of Toronto, is developing a tool to record sighting locations and generate reports which will allow VAS to monitor and respond to resident's sightings, encounters and interactions with coyotes.

The purpose of monitoring human-coyote interactions is to document where coyotes are frequently seen and to identify human-coyote encounter hotspots, rather than to count how many coyotes are within an area. Gathering specific data on any incidents will allow for targeted educational campaigns and conflict mitigation efforts, as well as the ability to measure success in reducing conflicts over time.

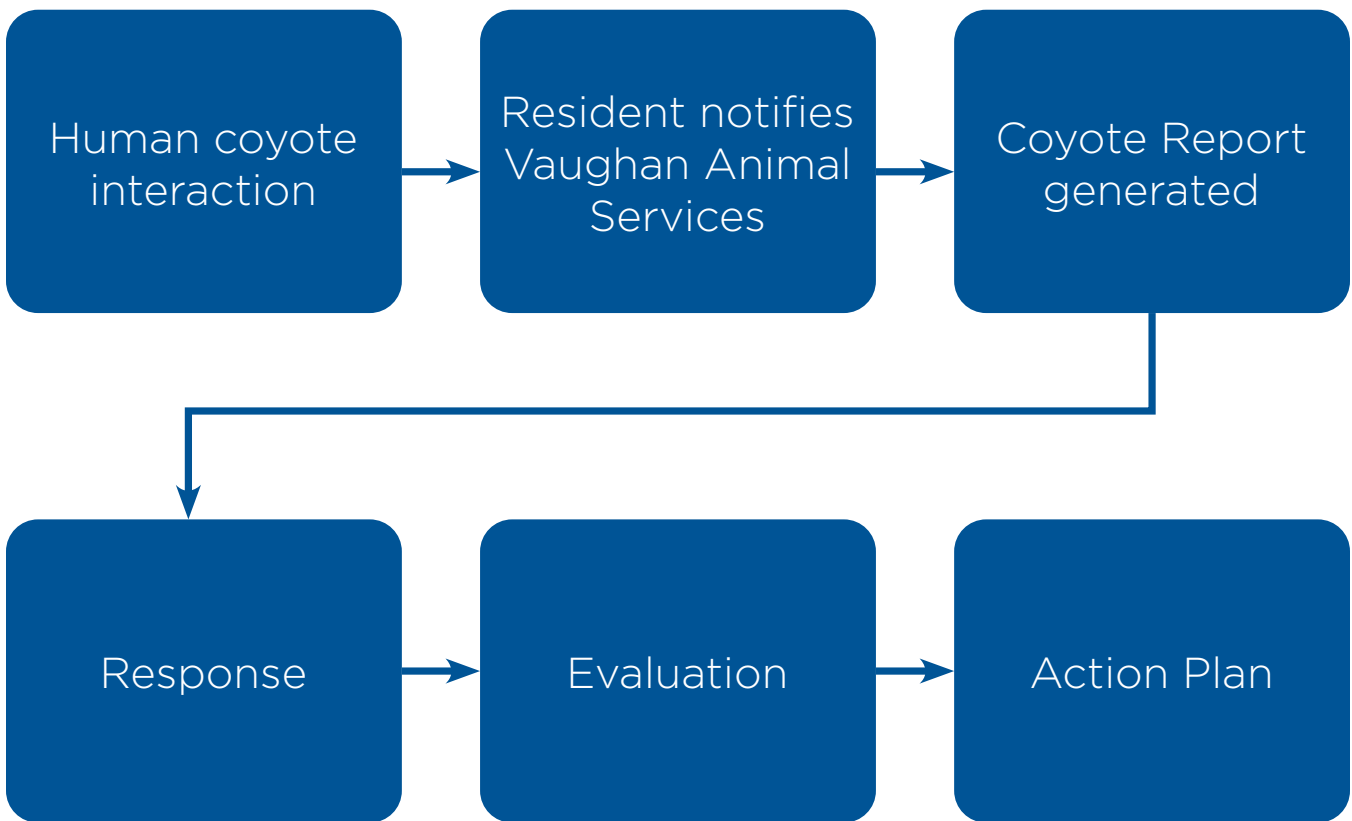




# Coyote Response Plan

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## Response Process





## Reporting Classification

Classification	Definition	Action Plan
<b>Observation</b>	The act of noticing signs of a coyote(s), such as tracks, scat or vocalizations, but without visual observation of a coyote.	Provide education and key messages from City of Vaughan and directed to Vaughan Animal Services website.
<b>Sighting</b>	A visual observation of a coyote. A sighting may occur at any time of the day or night.	Provide education and key messages from City of Vaughan and directed to Vaughan Animal Services website.
<b>Encounter</b>	A direct meeting between a human and a coyote with no physical contact and is without incident.	Provide education and key messages from City of Vaughan and directed to Vaughan Animal Services website.
<b>Sick/Injured</b>	Coyote appears lethargic, indifferent, or aggressive. Shows signs of sarcoptic mange (hair loss) or appears to be injured, e.g., limping.	Investigation by Vaughan Animal Services and provide education. Attempt to capture and work with licensed rehabilitation center.
<b>Incident</b>	A conflict between a human and a coyote where the coyote exhibits any of the following behaviours: growling, baring teeth, lunging or making physical contact with the person, but person is NOT bitten.	Investigation by Vaughan Animal Services to identify behaviour and what caused conflict, e.g., feeding, dogs off leash, den conflict. Educate neighbourhood about coyote hazing. Perform property audits and patrols to identify possible causes, e.g., feeding.
<b>Unattended Pet Attack</b>	Pet is roaming free, walking off leash more than six feet from a person, or on a leash longer than six feet. Pet is injured or killed.	Investigation by Vaughan Animal Services to identify behaviour and what caused conflict, e.g., feeding, dogs off leash, den conflict. Educate neighbourhood about coyote hazing. Perform property audits and patrols to identify possible causes, e.g., feeding.
<b>Attended Pet Attack</b>	Pet is on a leash less than six feet in length or is in the presence of a person less than six feet away. Pet is injured or killed.	Investigation by Vaughan Animal Services to identify behaviour and what caused conflict, e.g., feeding, dogs off leash, den conflict. Educate neighbourhood about coyote hazing. Perform property audits and patrols to identify possible causes, e.g., feeding. Vaughan Animal Services will attend and respond with appropriate coyote hazing.
<b>Human Attack</b>	Unprovoked physical contact between a human and a coyote, human is injured or bitten.	Investigation by Vaughan Animal Services to identify behaviour and conflict assessment. Animal is removed and humanly euthanized.

## Action Plan

### Education and Outreach

A critical element of a successful wildlife management plan is the education and awareness of residents. Along with support from City staff, education is the key to helping residents make 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 coyote behaviour. An ongoing educational campaign will focus on how residents can coexist with coyotes successfully.



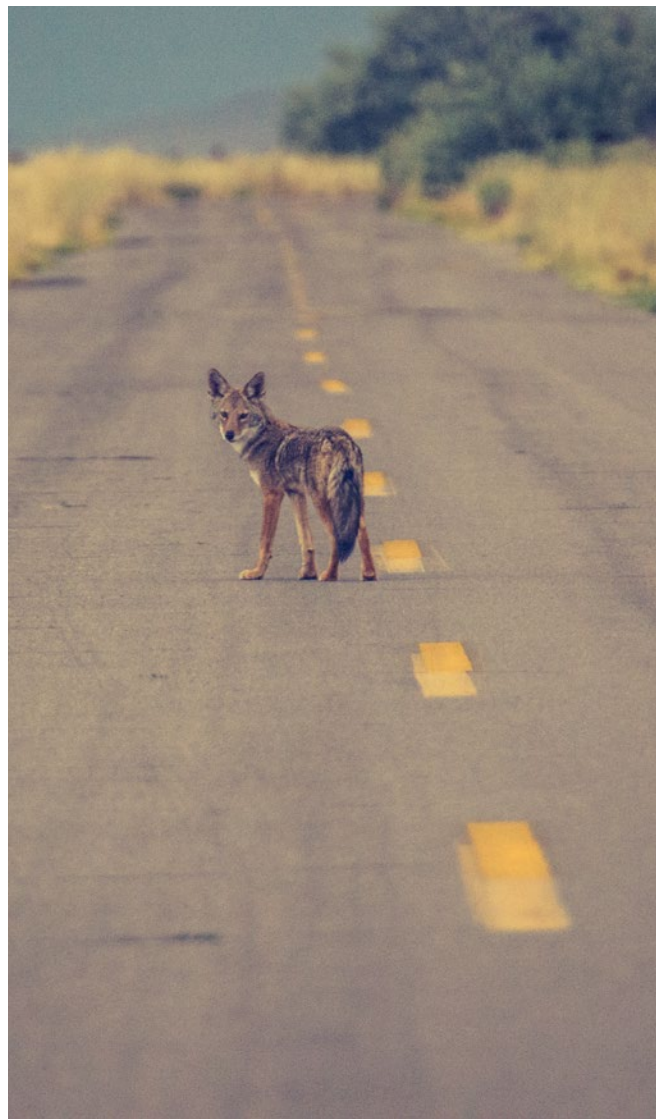
Educational outreach opportunities include:

1. Educational materials: Distribute brochures and/or informational door-hangers to specific neighbourhoods if there are incidents. Detailed information and appropriate links made available through City's channels, such as the website, eNewsletters and social media. Post coyote signage in appropriate parks and open spaces.
2. Training: Incorporate coyote education in schools and make educational information and videos available to the public.
3. Outreach, education and response: Trained Animal Services Officers will provide community outreach, online information-sharing sessions, classrooms safety tips and education, and follow up directly with individuals and neighbourhoods who have concerns. Vaughan Animal Services will be available 24 hours a day, seven days a week to respond to any human-wildlife conflict situation.

## Hazing

Generally, coyotes are reclusive animals who avoid human contact. However, coyotes in urban and suburban environments may learn that neighbourhoods provide easy sources of human-associated food while presenting few real threats. These coyotes, having lost their wariness of humans, may visit yards and public areas even when people are present and may be involved in conflicts with people and pets. Humans contribute to this conditioning of coyotes by not reacting when they see a coyote. Humans may have a tendency to either avoid them due to fear or to be enamored by them because they are wild and it is “cool” to see one. To coexist safely, it is important to modify these behaviours and attitudes regarding resident coyote populations.

Humane hazing, or aversive conditioning, is an activity or series of activities that is conducted in an attempt to modify behaviours of conditioned coyotes and/or to reestablish a healthy wariness of people in the local coyote population. Aversive techniques include generating loud noises, spraying water, shining bright lights, throwing small objects and using a deep strong voice. Hazing can help maintain a coyote’s wariness of humans and deter them from neighbourhood spaces, such as backyards and play spaces. A hazing program encourages the use of harassing actions without employing weapons or causing bodily harm to the coyote. The more often an individual animal is hazed, the more effective hazing is in modifying coyote behaviour. Being highly intelligent animals, coyotes who are hazed quickly learn to avoid neighbourhoods, people and pets.



The goals of hazing are to:

- discourage coyotes from entering public areas, such as parks, playgrounds and yards when people are present
- discourage coyotes from approaching people and pets
- empower residents by giving them tools to use when they encounter a coyote, thereby reducing their fear of coyotes
- increase awareness about coyote behaviour among residents and involve the community in coyote response efforts

**Basic hazing:** This consists of directly facing the coyote and appearing big and loud by waving your arms over your head, clapping your hands and making loud noises. Using a variety of different hazing tools is critical because coyotes can become desensitized to the continued use of just one technique, sound or action. NEVER turn your back to or run from a coyote or any canids.

Basic hazing techniques include:

- Stand tall, make yourself appear big, wave your arms while stomping in the direction of coyote until the coyote has left the area
- Make loud noises, stomp your feet, clap your hands above head, bang pots together while in a deep, authoritative voice shout “GO COYOTE, GO!”
- Throw small projectiles such as sticks, rocks, cans, tennis balls or rubber balls near (not at) the coyote
- Squirt water from a hose, water gun or spray bottle

[Watch the City of Vaughan’s educational video with tips on what to do if you are approached by a fox or coyote.](#)

**High-intensity hazing:** This should only be carried out by trained professionals, such as Animal Services Officers. High-intensity hazing should be used in specific areas and only in

response to more egregious incidents.

### **Additional Measures**

It is illegal to trap and relocate wildlife under the provincial Fish and Wildlife Conservation Act. Trapping coyotes would only be considered if they are sick or injured and require licensed rehabilitation. If there is a particularly problematic coyote in the area, Vaughan Animal Services have the resources to safely deal with the animal. Due to the intelligence of coyotes, it is difficult to catch any coyote in a trap.

Lethal control programs may seem like a quick fix to problems among coyotes, people and pets. However, removal programs are not effective in reducing coyote populations or addressing the root causes of conflicts. Coyote removal programs are costly (due to the difficulty of catching coyotes) and controversial. The City of Vaughan will maximize the use of coexistence measures to minimize the need to use lethal measures in response to coyote behaviour, with the ability to escalate response as necessary to address more serious situations.

When implementing lethal control, it is extremely difficult to ensure that the problem-causing coyote will be the one that is located. Firearms are unsafe and illegal to use in urban and suburban areas.



Research has shown that when lethally controlled, coyotes exhibit a “rebound effect” (a surge in their reproductive rates), allowing for quick regeneration of their population numbers. The disruption of their family group structure leads to an increase in the number of females breeding in the population, and the increase in available resources leads to larger litter sizes, earlier breeding ages among females and higher survival rates among pups. This allows coyote populations to bounce back quickly, even when as much as 70 per cent of their numbers are removed through lethal control efforts.

For these reasons, lethal programs are not effective at reducing coyote populations, and non-selective coyote trapping programs are ineffective at solving conflicts. In addition, coyotes removed from an area will quickly be replaced by transient coyotes looking

for a vacant home range. If the root causes of human-coyote conflicts have not been addressed, incoming coyotes will quickly become nuisance coyotes. It will be safer for the community to have well-behaved resident coyotes who will hold territories and keep transients at bay, than to risk having to deal with newcomers who do not know the “rules.”

Coyote capture will only be considered in the event of an unprovoked, confirmed attack on a human. If implemented, capture efforts will focus on the offending coyote only, rather than the coyote population at large. This requires significant surveillance efforts to ensure the correct animal is targeted and removed by trained Animal Services Officers.



## Instrumental By-law Measures

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The City of Vaughan has increased fine amounts for allowing domestic pets to roam at large or off leash, as well as for feeding or leaving attractants for wildlife, since these activities directly contribute to potential conflict with coyotes and must be addressed to support coexistence with Vaughan's ecosystem. Animal Control By-law 066-2020 serves to regulate the keeping of animals in the City of Vaughan, including provisions for animal identification.

# Summary

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The likelihood of a coyote biting a human in Canada is extremely rare. Reducing human-coyote conflicts is the responsibility of all citizens. Coyote ecology changes rapidly. Ongoing studies on this, as well as the effectiveness of aversive conditioning (humane hazing), coyote foraging behaviour, domestic animal behaviour in the presence of coyotes, and alternative methods of discouraging coyotes will all assist City staff with continued development of a successful Coyote Response and Coexistence Strategy in Vaughan. A collaborative approach among Canadian cities

and research teams will result in a more effective overview and a better plan for generalizing municipal responses to human-coyote conflict. Staff will continue to collaborate with organizations and other municipalities to review current practices and determine if the approach outlined in this strategy requires updating. Staff will also continue to take an evidence-based approach to coyote response while keeping human safety at the forefront.



# References

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- Coyote Watch Canada
- City of Calgary
- City of Markham
- City of Niagara Falls
- Town of Collingwood
- Town of Oakville
- Ministry of Northern Development, Mines, Natural Resources and Forestry

# Resources

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- [City of Vaughan – Animal Services](#)
- [Coyote in the Urban Landscape: An Information Module for Urban Residents](#)
- [Coyote Watch Canada](#)
- [Ministry of Northern Development, Mines, Natural Resources and Forestry](#)







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