Featured Mammal: Eastern Grey Squirrel *(Sciurus carolinensis)*

The grey morph of the eastern grey squirrel has a white underbelly, and a grey dorsal surface, and the common black morph is mostly black overall, sometimes with white or brown tinges. Its large bushy tail is almost as long as its body, providing the squirrel with exceptional balance. The average weight of this squirrel is between 400 to 600 grams.

This small mammal builds a type of nest known as a "drey" in the forks of trees. The nest consists of dry leaves and twigs. It may also build a nest in the attic or exterior walls of a house or may inhabit a permanent tree den.

The eastern grey squirrel is more active during the early and late hours of the day, and tends to avoid the heat in the middle of a summer day. They are active all year and do not transition into semi-hibernation like some other mammals in Toronto but stay in the nest on the coldest winter days. These squirrels have many predators in the city including hawks, raccoons, owls, dogs, cats and humans. They are also commonly killed by cars.

This squirrel breeds twice a year; December to February and May to June. After a gestation period of 40-44 days, the first litter is born in February to March, the second in June to July. There are normally two to six young in each litter, but this number can be as high as eight. Mother squirrels are very protective of their young and if threatened have been known to attack people and pets.

Its diet consists of a wide range of foods such as tree bark, many types of seeds and acorns, walnuts, and other nuts, and some types of fungi found in forests. They have a high tolerance for humans and will raid bird feeders for millet, corn and sunflower seed. The grey squirrel hoards food in numerous small caches for later recovery. It has been

Did you know... "Ah-ji-duh-mo" is the Chippewa word for grey squirrel. This translates to "tail in the air."

Eastern grey squirrel
photo: Ken Sproule

Grey squirrel (black morph)
photo: Julia Paillé

estimated that each squirrel makes several thousand caches each season, so gathering food is a time consuming activity for squirrels. The squirrel uses landmarks to remember the location of all of its food caches. Smell is used once the squirrel is within a few centimetres of the cache.

As a result of the squirrel's love for seeds and nuts, they play a big role in tree propagation. About 10-20% of buried nuts are lost under the ground and many of these grow into the trees that beautify our natural landscape.

Grey squirrel (white morph)
photo: Natalie Robertson

The White Squirrels of Trinity-Bellwoods Park

The grey squirrel comes in a variety of colour morphs, the most common being the black or grey varieties. However, their fur can be quite variable in colour, ranging from brown to rust to almost blond in colour. In the Trinity-Bellwoods Park area a few white individuals are known to exist. These are likely albino individuals, lacking pigment entirely, but some may be leucistic forms (reduced pigments, where the usual dark colours are replaced with light tans or white).

Featured Mammal: Red Squirrel *(Tamiasciurus hudsonicus)*

Red squirrels are well known to cottagers and rural property owners. Their chattering announcements are explosive and noisy. In the city, they are a bit harder to find, but the larger ravines or properties with tall evergreen trees are attractive to them.

The red squirrel breeds twice each year – February/March and June/July. The nest site is variable and includes underground chambers, tree cavities or spherical nests placed in the tree's branches. Three to seven (average four) young are born after a gestation period of 38 days. Born naked and blind, they finally open their eyes when about 30 days old. They stay with the female for several more weeks after that, learning how to hunt and avoid predators.

About the size of a chipmunk, its bright rusty colour and small bushy tail identify it immediately. It is a great forager and hoarder, gathering hundreds of nuts and pine cones to eat at a later date. Its diet also includes seeds, berries, mushrooms, sap, bird eggs and meat. It creates a huge pantry of hoarded food, which is often exploited by other species seeking a free meal. But the cached seeds and cones can also help with reforestation, as they germinate over time.

This small tree squirrel is an incredible climber and acrobat, easily maneuvering through any tree, and walking a high wire along utility lines. It can be problematic as it is prone to gnawing and can get into attics and unwanted spaces, sometimes causing problems. If you have a bird feeder, expect this little guy to come for dinner!

It is active mostly during the day throughout the year, but may hole up in the worst weather. Long-lived (10 years is not uncommon), they have few enemies, but hawks, owls and weasels are efficient predators. Sometimes, due to their propensity to swim, some are taken by large fish.

Did you know... Red squirrels gather food most actively during the fall and sometimes become covered in the gum that oozes from pine trees.

Red squirrel
photo: Brad Gates

Featured Mammal: Woodchuck, commonly known as Groundhog *(Marmota monax)*

Groundhogs, or woodchucks, are large stocky members of the rodent family, weighing 2 to 4 kg with brownish fur, tipped with white and short bushy tails. In Toronto, they are found in large, open natural areas with abundant food and den opportunities. They are excellent diggers and have strong claws they use to excavate complex burrows, where they can escape predators, rest, give birth and hibernate. Groundhogs are true hibernators, spending the winter in their underground den in a comatose state, relying on fat reserves to stay alive. Groundhogs mate as soon as they emerge from hibernation and typically 3 to 5 young are born after a gestation of one month. The young are born tiny and helpless but grow quickly, emerging from the den and eating solid foods after 5 or 6 weeks.

Groundhogs eat fresh herbaceous vegetation, but will eat bark and young tree branches in early spring. They may also eat snails, insects or carrion that they come across. They must develop enough body fat to survive their long hibernation. Groundhogs are fairly solitary creatures and when not eating or caring for their young, they spend much of their time sunning. They typically stay close to their burrows, are always alert for predators such as coyotes and will quickly run and dive into their burrow, or other types of cover, if threatened. Often they will give a shrill warning whistle to notify other groundhogs of danger.

Groundhog
photo: Ken Sproule

Did you know... Groundhogs are the largest member of the squirrel family.

Groundhog
photo: TRCA

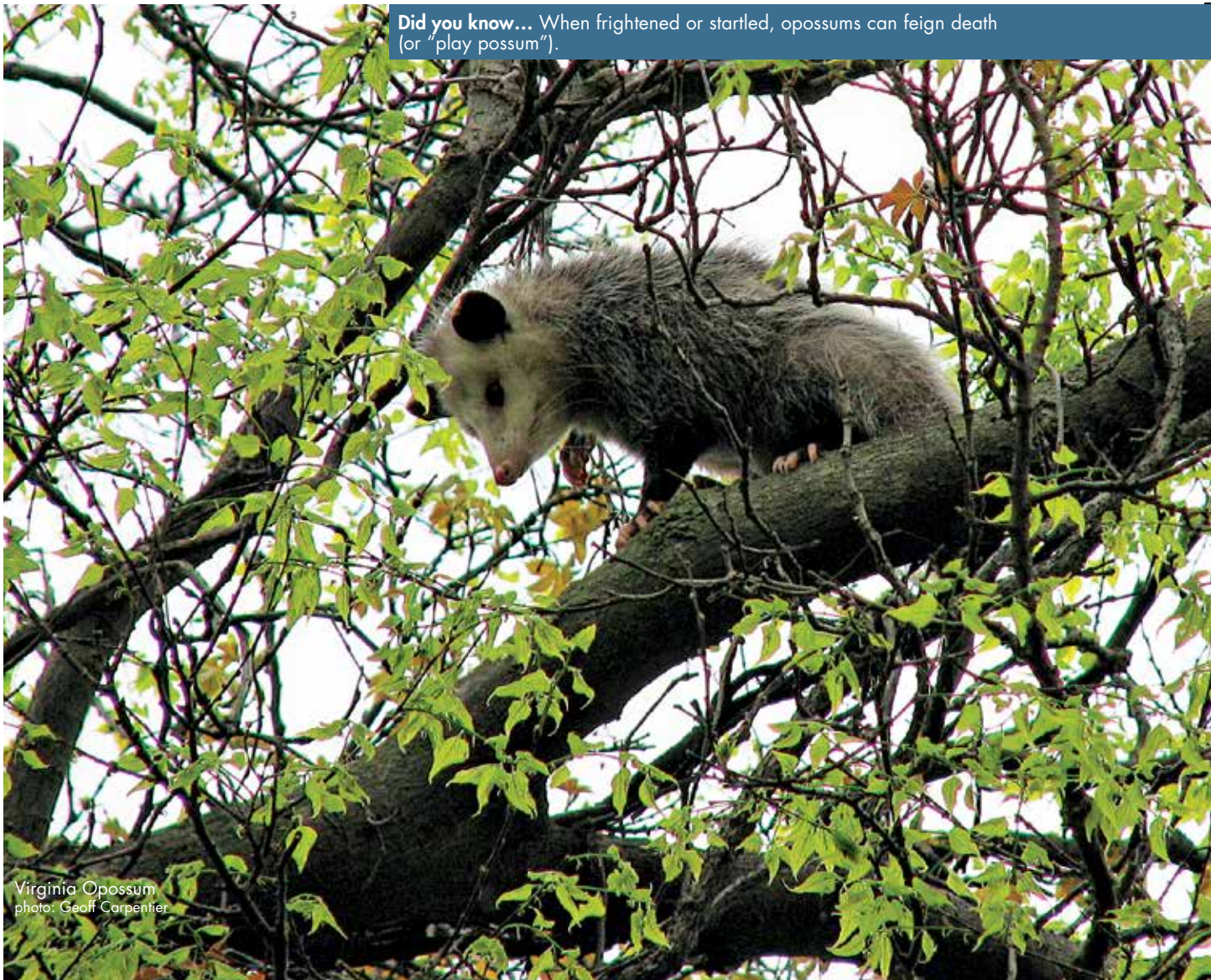
The groundhog, although mostly seen on the ground near its den, is an excellent tree climber. It may do this for several reasons: to escape terrestrial predators, to check for enemies from a higher perch or maybe just to reach the succulent tree buds in the spring.

Featured Mammal: Virginia Opossum *(Didelphis virginiana)*

The Virginia opossum is a recent, natural invader that has expanded its range northward into Ontario from the United States, with other populations found as far south as Central America. We don't know why its distribution is increasing, but adaptability and omnivory are probably important factors to the success of the Virginia opossum in more northern climes. It is a scavenger that will eat just about anything it can find including plants, animals, carrion and garbage. The forest is its natural habitat, but agricultural areas and urban settings throughout Toronto and southern Ontario are not unusual nowadays as evidenced by road kills and sightings in the city.

About the size of a large cat, the Virginia opossum has grizzled white and grey fur, a pointy white face, and a thick scaly tail. It has a lumbering walk but climbs quite well.

Did you know... When frightened or startled, opossums can feign death (or "play possum").



Virginia Opossum
photo: Geoff Carpentier

Virginia opossum
Instead of running like most mammals, Virginia opossums freeze and show their teeth when they are frightened.
photo: Nathalie Karvonen

An opposable big toe on the hind feet and prehensile tail helps with holding onto branches and balancing in trees. Females have a pouch, where an average of 12 young will be attached to her teats for the first two months of their lives. The Virginia opossum is the only marsupial found in Canada and is a distant relative of the kangaroos and koalas of Australia.

Virginia opossum
photo: Geoff Carpentier

Featured Mammal: White-footed Mouse and Deer Mouse

Within Toronto, the white-footed mouse *(Peromyscus leucopus)* and deer mouse *(Peromyscus maniculatus)* co-exist in woodland habitats. The latter is more diverse in its habitat preferences and may also occur in grasslands. Both freely enter buildings, particularly rural or untended structures.

In general, the dorsal fur is cinnamon brown with the ventral fur white-tipped and grey based. It has a pointed nose, relatively large eyes and ears, and white feet. This mouse has a head and body length of up to 100 mm with a slightly shorter tail.

The white-footed mouse is usually found in wooded areas with deciduous trees and occasionally enters buildings and homes. It is primarily a nocturnal species that forages for seeds throughout the year and occasionally eats plants and insects. There are usually five litters per year averaging four young per litter. The typical lifespan is two to three years with captive mice living up to nine years.

It is common prey for predators such as snakes and owls. The white-footed mouse occurs in eastern North America from Mexico through the United States to southern Canada. Deer mice range south to northern Mexico and much further north than the similar white-footed mice, reaching well into the Hudson and James Bay Lowlands.

Deer mouse
photo: Geoff Carpentier

Typically, the **white-footed mouse** has pure white fur on the throat and forearms and an indistinctly bicoloured tail without hairs projecting from the tip.

The **deer mouse** has a slate-coloured base on the fur on the throat and legs, a distinctly bi-coloured tail, and a "pencil" of hair projecting from the end of the tail. However, these characteristics are variable, which may make visual identification difficult.

Did you know... Mouse tails have scales that help with climbing.

Featured Mammal: Meadow Vole *(Microtus pennsylvanicus)*

This widespread rodent occurs throughout all of Ontario in suitable habitat, and is one of the most important prey species for virtually all small to medium-sized predators in eastern Canada and the northeast USA. Its populations are cyclical and peak about every four years, but the peak may occur at different times across its range.

It is a generally dark brown to greyish brown in colour, with a short tail and small ears. It ranges in size from 120 mm to 188 mm in length. One to nine helpless young are born, after a gestation period of 21 days. By one week, they have some fur and can crawl about the nest. By day 8 they can see and they leave the nest at about two weeks of age. Females can breed when one month old, but males need about two weeks longer. In the wild they likely live about one year, but can, under ideal conditions, survive for 3-5 years.

The preferred habitats include forest edges, wetlands and grasslands, where it feeds on seeds, buds, bark and grasses and sedges. They are known to eat up to the equivalent of their body weight daily, but on average they consume 60 per cent every 24 hours. They build surface and subsurface runways, depending on cover availability and terrain. Elaborate networks, revealed during the spring thaw, are built in long grass and under snow, permitting them access to feeding and denning areas.

Did you know... The female meadow vole can give birth to her first litter when she is only six weeks old.

Meadow vole
photo: Bart B.Van Bockstaele

Meadow vole
photo: Ken Sproule

Featured Mammal: Eastern Cottontail *(Sylvilagus floridanus)*

Most Torontonians that have spent time in natural greenspaces have seen these cute little bunnies. Eastern cottontails are about 40 cm long, weigh about 1.1 kg and are brownish-grey above with paler sides and a white belly. They adapt well to different habitat types, requiring access to cover, usually shrub thickets, brush piles or buildings and a food supply, (herbaceous plants in the summer and woody vegetation in the winter).

Cottontails are typically solitary, spending most daylight hours silently resting in cover. They are an important prey item for a wide variety of predators including coyotes, foxes, owls and hawks. Typically, these rabbits are always on guard, ready to hop away from danger at a moment's notice; however, urban cottontails seem to be less wary and can be seen during the daytime. Usually cottontails are most active dusk through dawn.

Cottontails are known for their reproductive capacity, an important trait for a species that is a significant component of the food web. In Toronto cottontails typically breed from spring until fall with mating activities peaking during spring and summer. After a gestation period of about 28 days, an average of five kittens are born in a well-camouflaged nest. Cottontails can breed at just three months of age. The ability to produce multiple young at a young age and so frequently means that numbers can soar almost exponentially when food is plentiful. Often cottontail populations follow a cyclical pattern of high and then rapidly declining numbers as food supply dwindles in relation to the increasing population. Once the population has been reduced, food resources recover and the cottontail reproductive success rate improves, completing the cycle.

Did you know... The male rabbit is called a buck, the female is called a doe (like deer) and their babies are called kittens.

Eastern cottontail
photo: Geoff Carpentier

Tracks and Signs

Trail of an Artist-Naturalist

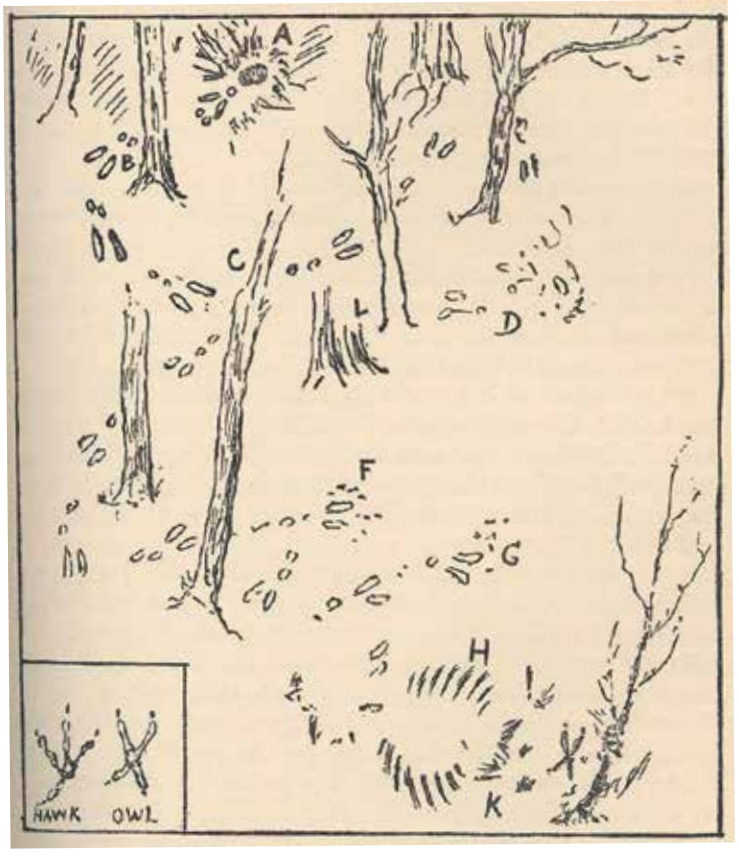
From *The Autobiography of Ernest Thompson Seton*, Charles Scribner's Sons (1940), pp. 202-203.

"I give another story of a trail observed inside the limits of Toronto City in February, 1885. It took place on Castle Frank Hill just north of Parliament Street.

Close by our home were the ravine and woods of Castle Frank. On one of the rare occasions when I took a walk for pleasure, I went down this ravine. Fresh snow on the ground made the tracking record most interesting.

Under some brush at A, I found the mark of a cottontail in the snow. Something caused him to leap out at B. Now the two long marks of the hind feet are ahead of the two dots made by the front feet, for the hind feet track ahead; and the faster he goes, the farther ahead are the marks of the hind feed. I wonder what would happen if he multiplied his speed by ten.

At C, D, he was dodging about as though trying to escape from some dreaded enemy. But what enemy?



Sketches of tracks
credit: from *The Autobiography of Ernest Thompson Seton*, 1940

There were no other tracks. I began to think the rabbit was crazy, trying to escape from some imaginary foe; possibly I was on the trail of a March hare.

But at F, I suddenly found a splash of blood, and at G another. Oho! The rabbit was in danger, trying to escape from some real enemy. But what? There was still no other trail.

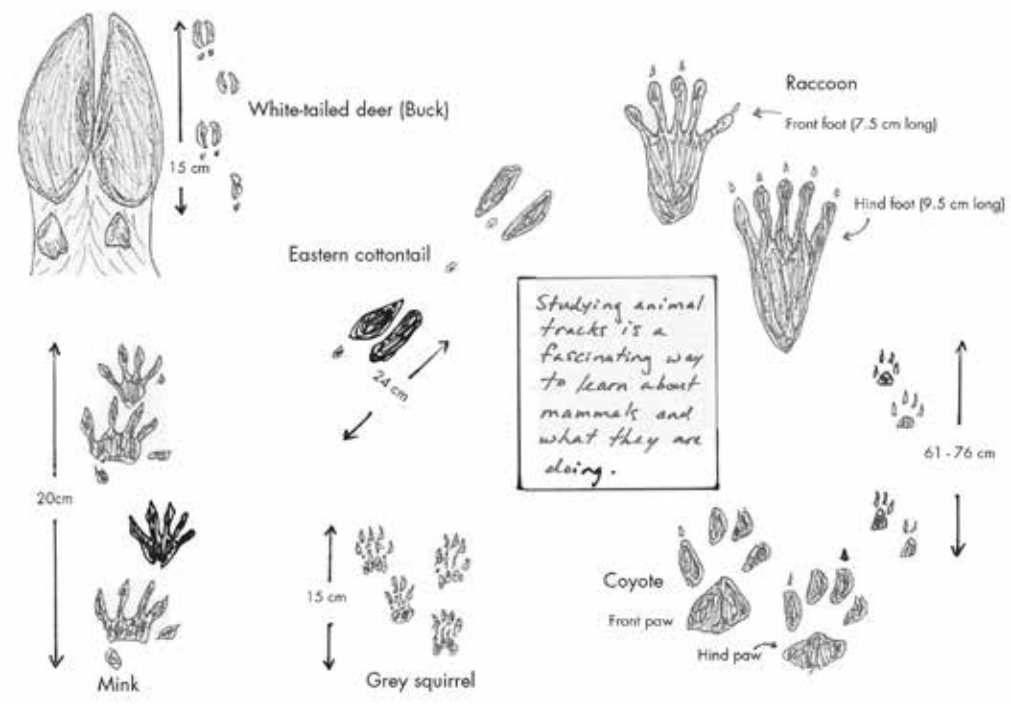
Then suddenly at H, I came on marks that were evidently made by wings. Now I understood; he was escaping from an eagle, a hawk, or an owl.

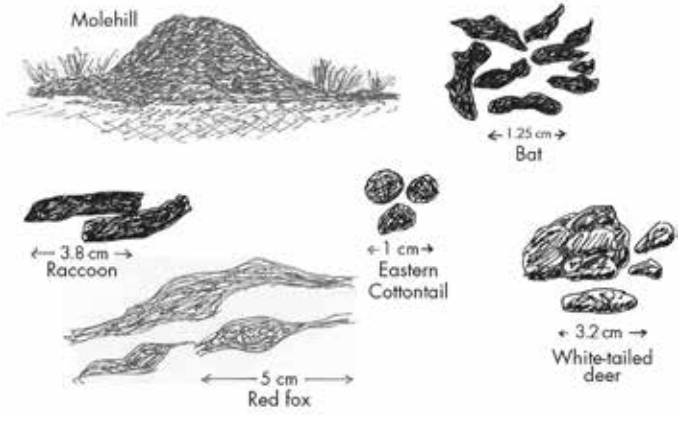
At K, I found at length the remains of the rabbit, partly devoured. That put the eagle out of the case, for an eagle would have gobbled him up, or wholly carried him off.

A hawk, or an owl then, it must have been. Which?

I looked for proof, and close by the remains, I found the two-toed track of an owl. Had it been a hawk, it would have been as in the sketch lower left".

They leave their mark in passing – Mammals go about living their lives without fanfare, and may live amongst us for years without our even realizing it. That is unless, you are observant. Watch for the telltale signs of their passing – tracks, evidence of feeding, dens, and droppings to learn more about their secretive lives.





illustrations: Geoff Carpentier

Myths and Misconceptions

- **Wild mammal parents will automatically reject their young if humans have touched them.**

  Fact: Under most circumstances, mammals will continue to care for their young, even if they've been touched by humans. Nevertheless, NEVER handle wild animals.

- **Squirrels remember where they hide their seeds and nuts.**

  Fact: Squirrels use their keen sense of smell to find their hidden stash. Other animals may also find the cached food and utilize it as a food source.

- **Bats suck your blood.**

  Fact: Bats in Toronto live on a diet of insects, not blood. There are vampire bats living in Mexico, Central and South America. These bats feed on the blood of warm-blooded animals such as horses and cattle. They do not suck the blood, but lick it from a small cut in the skin.

- **Bats make nests or get tangled in people's hair.**

  Fact: Bats never get in people's hair. This only happens in the movies.

- **Bats are blind.**

  Fact: Bats do not see in colour as we do, but according to the University of California at Berkeley, they see better at night than we do. They also use echolocation to navigate and to capture insects.

- **Bats live only in caves.**

  Fact: Bats will roost almost anywhere. They have been found behind window shutters, inside concrete block walls, beneath Spanish-style tile roofs, and of course in a house attic.

- **All bats have rabies.**

  Fact: Bats do carry rabies, but not commonly and rabid bats are seldom aggressive. Fewer than 40 people in the United States are known to have contracted rabies from bats during the past 40 years.

- **A skunk will spray as soon as it sees you.**

  Fact: Skunks don't want to use up their spray. They have a limited supply and once it is gone, their body takes time to manufacture more. During this time, the skunk is defenseless, so a skunk will only use its spray when a threat is imminent. Baby skunks are not as good at judging an imminent threat as their parents are, so they might spray more readily!

- **Raccoons hibernate in the winter.**

  Fact: Raccoons do go through a period of reduced activity during the coldest part of winter, referred to as torpor, but raccoons are not true hibernators.

- **Raccoons wash their food.**

  Fact: Raccoons have very sensitive feet and use them to feel their food such as grubs and other invertebrate larvae and crayfish. This procedure looks almost like they are washing their food. The raccoon will sometimes place hard food in the water to soften it.

- **Fawns found lying still on the grass must be hurt and need help or their mother must be dead because the fawn is alone.**

  Fact: A mother deer will spend several hours at a time grazing at a different location to avoid attracting the attention of predators to her fawn. Fawns stay immobile to avoid detection, even upon close approach by a human or predator.

- **Coyotes are dangerous predators.**

  Fact: Coyotes prey on small animals and insects, and sometimes eat dead animals and garbage. Coyotes naturally possess a healthy fear of humans and usually just want to be left alone.

- **Opposums play dead whenever a threat is presented.**

  Fact: Although the opossum can use this defensive manoeuvre, most often they simply run away as would any other prey species.

A Chronology of Toronto's Mammals

January

Snow provides clues about mammalian movements, so it is often a great time to look for tracks in your local greenspace. Ice allows mammals to move across large bodies of water, including the Toronto Harbour, but also leaves them unsheltered and vulnerable. Look for telltale signs of predator-prey relationships, like coyote tracks following cottontail tracks. Between January and early March red fox and coyote will be entering their breeding cycle. Grey squirrels and Virginia opossums will also be mating. In addition to foraging for woody branches that they have stored under the ice, beavers, which mate for life, are also beginning their breeding cycle. Male white-tailed deer start shedding their antlers, providing mineral forage for small rodents like white-footed mice. During winters with deep snow, deer occupy "yards", conifer forests where the snow is not as deep, allow them to access nearby hardwood forests using trails.

February

Red fox and coyote breeding activities peak this month. Grey squirrel mating season continues and the first squirrel babies of the season are born and, if the weather is mild, red squirrels will begin their mating rituals. By the end of February, striped skunks will also be breeding. As North America's only marsupial, the Virginia opossum gives birth just two weeks after mating, but her young are tiny (an entire litter of 14 can fit in a teaspoon!) and crawl up to her pouch where they continue to develop and grow for the next two to three months. Meadow voles are still busy, using their summer runways to reach foraging areas under the snow. Look for their teeth marks at the base of trees and shrubs and dried grass clippings from their nests on top of the snow.

March

The longer, warmer days of March will rouse hibernating mammals, like skunks, groundhogs and chipmunks out of their dens and burrows. Groundhogs breed within a week of emerging from hibernation. Other mammals that do not hibernate, but whose physiology slows down during the winter are becoming more active. Raccoons and red squirrels are noticeably busier and are mating this month. Muskrats also start breeding in March and may even have a second litter later in the spring. Cottontail rabbits, deer mice and white-footed mice have several litters each year, and March marks an active breeding month for them. Mink breed in March, but experience a delayed pregnancy where the embryo does not start developing for another two months. River otters experience an even longer pregnancy delay; they mate in the spring, but do not give birth until the following spring, meaning that adult female river otters are almost always pregnant! Grey squirrel nests are teaming with helpless young by the end of the month and northern flying squirrels are just entering their mating season. Porcupines give birth to a single baby, whose quills harden within hours.

April

Many mammals that began their breeding activities in March are reaching peak activity now. Muskrats, chipmunks, flying squirrels, river otters, cottontails and even some late foxes and coyotes are still busy with their reproductive activities. Some of these species may also have young by now including, groundhogs, muskrats, mink, river otters, red squirrels, foxes and coyotes. Short-tailed weasels typically have their litters in April and breed shortly thereafter, but experience delayed pregnancy, so like their relative the river otter, are essentially pregnant all year! At this time of year, short-tailed and long-tailed weasels moult into their brownish summer coats. Male white-tailed deer start forming their antlers as new vegetative growth provides more energy for antler creation. Young porcupines begin eating green vegetation, even though they continue to nurse for several more months. Beavers, born last year, start leaving the family lodge to find territories of their own.

May

Most mammals have or will have had their young by the end of the month. Beavers, muskrats, striped skunks, raccoons, chipmunks, flying squirrels, long-tailed weasels and mink will all have litters in May. White-tailed deer give birth to one or two spotted fawns. Small rodents such as the meadow vole, and insectivores such as the star-nosed mole and northern short-tailed shrew have at least two litters each year, and May typically represents a peak in rodent reproduction. This is important as these small mammals play an important role in the food web as prey for many predators like fox and coyote that are busy feeding their growing families. Young opossums are getting large inside their mothers pouch, so may climb onto her back for a more comfortable ride. Grey squirrels born earlier this year are becoming independent now. Migrant bats, like the hoary bat, return to their summer breeding grounds.

June

This is still a time when mammals are having their young or are caring for their young. White-tailed deer, beaver, chipmunk, mink and coyote may still be giving birth. Mammals that mated earlier in the year may be mating again. Grey and red squirrels, cottontails, muskrats and other small rodents may be preparing to raise more litters. Some mammals with growing youngsters, such as red foxes, opossums and river otters, are weaning their young and introducing them to different foods. Young groundhogs start growing more rapidly as more vegetation becomes available as forage. Beaver babies gnaw on wood before they are even one month old! Female bats give birth to one or two young. The northern, little brown, big brown, eastern, hoary and silver-haired bats can all be seen within a few hours of dusk hunting for insects, especially near bodies of water.

July

Most young mammals have started venturing out on their own. Young foxes and raccoons will be leaving the den and young opossums will finally be leaving the safety of their mother's pouch or back. Striped skunk young and flying squirrel young are being weaned and river otter, short-tailed weasel and long-tailed weasel young will join their mother on hunting trips. Eastern chipmunks breed fairly late in the year and their young are slow to develop. Chipmunk babies have finally opened their eyes by July. Grey squirrels and muskrats that bred for a second time are giving birth again, while cottontails and small rodents such as mice and voles, and insectivores such as shrews, continue their more rapid reproduction cycles.

August

Male long-tailed weasels join the family group to mate with the female, but females experience delayed pregnancy and the embryos don't develop until the following spring. Young beaver have been weaned and along with muskrats can be seen foraging along the shorelines of wetlands and waterbodies. The last grey squirrel and red squirrel litters of the year have been born by August and young flying squirrels start gliding, but it takes about a month of practice for them to become skilled at it. Chipmunks are already busy caching seeds. Male white-tailed deer antlers stop growing and the velvet begins to dry and peel off. Many deer rub their antlers against small trees to rub the velvet off. Toronto's bats begin their mating season, but experience delayed fertilization and do not become pregnant until the following spring.

September

With the shortening days mammals can be seen preparing for winter. Beavers and muskrats begin building and reinforcing their lodges. Beavers cache tree limbs underwater and will bring sticks to their lodge to eat all winter long. Squirrels are gathering food for the winter. Many mammals moult and start developing thicker, winter coats. Young porcupines are often playful and may mock battle with their tails. Cottontails and small rodents will be winding down their long reproductive season. Young foxes will be leaving their natal territories to form new territories of their own. Silver-haired, hoary and eastern red bats begin their long migration south, while little brown, northern, tricoloured and eastern small-footed bats migrate shorter distances to their hibernation locations.

October

Adult porcupines are entering their mating season, and undertake an elaborate courtship ritual. Young deer have lost most of their spots and are weaned from their mothers. Coyote pups will be leaving their family, or will form packs if enough food is available to sustain the pack. Many mammals continue to forage and cache food for the upcoming winter. Most groundhogs enter hibernation by the end of the month, while striped skunks are more mobile as they search for food in preparation for hibernation. Big brown bats start entering their hibernation sites. None of Toronto's squirrel species hibernate, so all are busy storing food. If hollow tree cavities are not available, grey squirrels and flying squirrels construct nests or "dreys", made up of mostly fallen leaves and twigs. Red squirrels den in tree cavities or in logs. Migratory bats start moving through Toronto on their way to wintering locations further south.

November

White-tailed deer breeding season or rut begins and male deer scrape pits to mark their scent and rub their antlers on tree saplings. Male deer may travel long distances and battle with other males during this period. Long-tailed and short-tailed weasels start to moult from their dark summer coat into white winter coats, improving their camouflage in snowy conditions. Striped skunks start denning, usually underground, as the weather cools and can sometimes be seen gathering leaves under their bodies and shuffling along to move the material back to their den. Usually a mother and her young will den together for the winter, but other skunks may join. Skunks, as well as raccoons and opossums, do not hibernate but enter a state of "torpor", or reduced physiological activity, during the winter months.

December

Young river otters will finally be leaving their mom, but siblings will usually remain together for a period of time. Porcupines are active all winter long, but during bad weather will den together in a group. During the winter they forage on the inner bark of trees, especially white pine and eastern hemlock. Listen for noisy chewing, look for droppings around the base of the trees and missing patches of bark. Eastern chipmunks will be denning, but may not enter true hibernation until their supply of seeds and nuts has been depleted. Coyotes and foxes are active all winter long and will seek shelter in shrub thickets and heavy bush during bad weather. Right after freeze up muskrats chew holes through the ice and push plant material and mud through the hole to create a roof. These are called "push-ups" and are used as a feeding station in winter when the muskrat chews off vegetation beneath the ice and carries it to a push-up to eat.

Checklist of the Mammals of Toronto

Common Name	Species	>100 years ago	Present Day
Artiodactyla			
☐ White-tailed deer	*Odocoileus virginianus*	√	√
☐ Elk	*Cervus canadensis*	√	
☐ Moose	*Alces alces*	√	
Carnivora			
☐ Striped skunk	*Mephitis mephitis*	√	√
☐ Northern river otter	*Lontra canadensis*	√	?
☐ Marten	*Martes americana*	√	
☐ Fisher	*Martes pennanti*	√	
☐ Short-tailed weasel	*Mustela erminea*	√	√
☐ Long-tailed weasel	*Mustela frenata*	√	√
☐ Mink	*Mustela vison*	√	√
☐ Raccoon	*Procyon lotor*	√	√
☐ Coyote	*Canis latrans*	√	√
☐ Wolf	*Canis lupus*	√	
☐ Red fox	*Vulpes vulpes*	√	√
☐ Canada Lynx	*Lynx canadensis*	√	
☐ Bobcat	*Lynx rufus*	√	
☐ Cougar	*Puma concolor*	√	
☐ Black bear	*Ursus americanus*	√	
Rodentia			
☐ Porcupine	*Erethizon dorsatum*		√
☐ Meadow jumping mouse	*Zapus hudsonius*	√	√
☐ Norway rat	*Rattus norvegicus*	√	√
☐ House mouse	*Mus musculus*	√	√
☐ Deer mouse	*Peromyscus maniculatus*	√	√
☐ White-footed mouse	*Peromyscus leucopus*	√	√
☐ Meadow vole	*Microtus pennsylvanicus*	√	√
☐ Red-backed vole	*Myodes gapperi*	√	
☐ Muskrat	*Ondatra zibethica*	√	√
☐ Beaver	*Castor canadensis*	√	√
☐ Eastern chipmunk	*Tamias striatus*	√	√
☐ Woodchuck (Groundhog)	*Marmota monax*	√	√

Common Name	Species	>100 years ago	Present Day
☐ Red squirrel	*Tamiasciurus hudsonicus*	√	√
☐ Eastern grey squirrel	*Sciurus carolinensis*	√	√
☐ Southern flying squirrel	*Glaucomys volans*	√	
☐ Northern flying squirrel	*Glaucomys sobrinus*		√
Lagomorpha			
☐ European hare	*Lepus europaeus*		√
☐ Snowshoe hare (Varying hare)	*Lepus americanus*	√	
☐ Eastern cottontail	*Sylvilagus floridanus*	√	√
Chiroptera			
☐ Northern bat	*Myotis septentrionalis*		√
☐ Little brown bat	*Myotis lucifugus*		√
☐ Eastern small-footed bat	*Myotis leibii*	√	√
☐ Eastern red bat	*Lasiurus borealis*	√	√
☐ Hoary bat	*Lasiurus cinereus*	√	√
☐ Silver-haired bat	*Lasionycteris noctivagans*	√	√
☐ Big brown bat	*Eptesicus fuscus*	√	√
Didelphimorphia			
☐ Virginia opossum	*Didelphis virginiana*	√	√
Soricomorpha			
☐ Hairy-tailed mole	*Parascalops breweri*	√	√
☐ Star-nosed mole	*Condylura cristata*	√	√
☐ Masked shrew	*Sorex cinereus*	√	√
☐ Smoky shrew	*Sorex fumeus*		√
☐ Pygmy shrew	*Sorex hoyi*		√
☐ Northern short-tailed shrew	*Blarina brevicauda*	√	√

"Gray Squirrel", 1991

Co-existing with Toronto's Wildlife

Wild mammals form an integral part of a quality urban environment, representing an important part of the ecosystem within our parks and green spaces. Over the years, wild mammals have been displaced from natural habitat due to urban development and as a result, a number of other species have adapted well to living closer to people in order to survive. This, combined with the increased naturalization of much of our parkland, has greatly increased the potential for human and/or pet to wildlife contact.

City of Toronto Policies

In the 1990s, the Ministry of Natural Resources (MNR) concluded that to best resolve, minimize or eliminate human/wildlife conflict, urban animal control services should emphasize effective public education and programs focused on changing the urban environment to promote ways in which people and wildlife can better co-exist.

In 1999, shortly after amalgamation, the new City used the recommendations in an action plan from MNR and agreed on a policy to use an educational approach when dealing with human/wildlife conflicts. Education is provided to help residents eliminate wildlife attractants, such as potential sources of food or shelter.

The City of Toronto also enforces a municipal bylaw that prohibits the keeping of some native wildlife species. Residents who come across orphaned, distressed or injured wild animals are encouraged to help the animal by immediately contacting a licensed wildlife rehabilitator. It is not legal for anyone, other than a licensed wildlife organization, to care for distressed wild animals; this is very specialized work and should not be attempted by anyone else.

Toronto Wildlife Centre, Toronto Animal Services and EMS staff with white-tailed deer in the Beaches
photo: Nathalie Karvonen

In addition to providing information to residents, the City provides field response when wild mammals and other wildlife present a real threat to public health and safety or when they are found sick, distressed or injured. In cases where a wild mammal has scratched or bitten a person, or where the person has come into contact with the blood, saliva or other body fluids of the animal, efforts are made to capture the animal and have it tested for rabies. Toronto Animal Services responds to over 3700 calls for sick, distressed or injured wild animals per year. Field response is provided 24 hours/day, 365 days/year.

Raccoon in dumpster
photo: Brad Gates

Raccoon in chimney
photo: Brad Gates

Toronto and Region Conservation

Toronto and Region Conservation (TRCA) has decades of experience protecting Toronto's environment, engaging local communities, and partnering with governments, businesses and individuals to help build The Living City.

The Terrestrial Natural Heritage Program is a science-based tool that helps inform planning and development decisions to protect important natural features and functions. It identifies and strengthens the region's critical network of natural areas by inventorying habitats and the wildlife that use those areas. Using this information, TRCA undertakes habitat restoration, improving the landscape for a wide variety of wildlife, including mammals.

Restoration work like wetland creation and enhancement directly benefits aquatic and semi-aquatic mammals, such as muskrat and mink, and provides food web related benefits to other species, for example a coyote eating a green frog. Green space connections, through natural corridor enhancement, are another key area in which TRCA helps mammals. By improving natural cover and food availability along corridors, TRCA helps ensure that mammals remain in the Toronto landscape.

Provincial Policies

The Ministry of Natural Resources (MNR) manages wildlife to ensure it is healthy today and available for future generations to enjoy.

MNR helps landowners and municipalities deal with human/wildlife conflict by making referrals to appropriate agencies and providing information on how to manage problem animals and how to hire a wildlife control agent.

In addition to various legislation, policies and programs, MNR has produced the Strategy for Preventing and Managing Human Wildlife Conflicts in Ontario. This document outlines broad strategies to prevent and manage a wide range of human-wildlife conflicts. Strategies facilitate the development and implementation of more detailed tools for dealing with specific human-wildlife conflicts and issues. For more information visit www.mnr.gov.on.ca

There are several pieces of legislation, both federal and provincial, that protect wild animals and flora in Ontario, including mammals, birds, fish, insects, reptiles, amphibians and plants. The following is a brief summary of selected acts. This summary is not meant to be inclusive of all applicable acts, regulations or requirements.

Fish and Wildlife Conservation Act, 1997 S.O. 1997, Chapter 41

This act deals with the hunting, trapping, possession, den destruction, and release of animals back into the wild. It also has jurisdiction for licensing wildlife rehabilitators.

Endangered Species Act, 2007, O.R. 242/08

This act requires that people do not kill, injure, possess, disturb, take or interfere with any endangered or threatened species, or destroy, disturb or interfere with the specific dwelling place of any of these species.

Species At Risk Act, 2002, c. 29 and S-15.3 (SARA)

People are not permitted to destroy the habitat or critical habitat of any listed endangered or threatened species. This includes areas, upon which the species relies, directly or indirectly, to carry out its life processes.

Health Protection and Promotion Act, 1990, O.R. 567

This act deals with human health and safety, and issues such as rabies.

Ontario Society for the Prevention of Cruelty to Animals, 1990, O.R. 60/09 (OSPCA)

This act addresses the humane treatment of animals.

Federal and International Policies – Response to Wild Mammals

COSEWIC

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is a non-governmental panel of wildlife experts who evaluate the status of species that are or may be at risk in Canada. Since its inception in 1977, COSEWIC has used scientific and traditional knowledge to determine the level of risk for species of interest. Species are assessed as Endangered, Threatened or of Special Concern. Depending on their classification, they may require differing levels of protection. According to COSEWIC (2010), "species assessed as Endangered are thought to have at least 20% probability of extinction over the next 100 years if current conditions persist. Wildlife species assessed as Threatened are likely to become Endangered if conditions persist. Special Concern wildlife species are not in imminent danger of disappearing from Canada, but they have characteristics that make them particularly susceptible to become "Threatened" if not properly managed or protected." If COSEWIC classifies a species as at-risk, then the Government of Canada has the authority to protect that species through the Species at Risk Act (see SARA section). Regardless of the Canadian government's decision to protect or not protect a species, COSEWIC re-assesses the designation of its species every ten years (or less) to determine if their status needs to be down- or up-graded.

CBD

In 1992, the United Nations held a Conference on Environment and Development (UNCED) in Rio de Janeiro – often referred to as the "Earth Summit" or "Rio Summit." It attracted more heads-of-state than any other conference to date, and put the environment at the centre of the world's political stage. The Convention on Biological Diversity (CBD) treaty emerged from this meeting and has garnered support from 193 states. Its main goals are to preserve and protect biodiversity, and ensure that its benefits are shared equally. The Secretariat of the CBD (SCBD) supports the implementation of the convention by servicing the Conferences of the Parties (COP), coordinating other relevant international organizations, and fulfilling the tasks that fall under its mandate (see www.cbd.int/).

CITES

The Convention on International Trade in Endangered Species (CITES) is a multilateral treaty to ensure that the international trade of wild plants and animals does not compromise the integrity and/or survival of wild species (see www.CITES.org). It came into force in 1975. Today, more than 30,000 species are protected by CITES. Within the CITES framework, species are listed in one of three categories: Appendix I (highly endangered species) no trade for primarily commercial purposes; non-commercial trade requires import permit and export or re-export permit, Appendix II (likely to become an endangered species if not properly managed) commercial trade allowed; trade requires export permit or re-export permit, or Appendix III (species of special concern) trade from listing party requires export permit, trade from non-listing party requires only certificate of origin. CITES-listed species that are historic to Toronto include: black bear, bobcat, lynx, river otter, and wolf (see www.cites.org).

White-footed mouse
photo: TRCA

Living with Wildlife

Human interactions with mammals can and should be enjoyable, recognizing that sometimes certain "up close and personal" encounters might be otherwise. So here are some helpful tips to ensure that we can live with our furry neighbours. They are sharing their natural homes with us, why can't we allow them some space?

Avoid conflict

There's a lot you can do to reduce conflicts and increase your enjoyment of our wild animals. Think about what type of animals you would welcome, and which you wish to discourage. You may enjoy a chipmunk, but 20 squirrels can be problematic.

Opportunistic squirrel – a squirrel taking advantage of a poorly maintained roof
photo: Mary Lou Leiher

What to do around your home

COMPOST
Make sure all composters have secure lids and are animal proof.

DECKS/SHEDS/PORCHES
Dig an 20 cm. deep trench around the perimeter of the structure and line the trench with galvanized steel screen in an "L" configuration, such that the screen runs away from area you are trying to protect.

DON'T FEED YOUR PET OUTSIDE

GARBAGE
Store garbage in animal proof containers – steel can with a lid that is secured by a bungee cord through the handles and lid and keep garbage indoors until the morning of pick-up.

LAWN CARE
In case of sod being flipped over, more than likely raccoons or skunks have found a food source of grubs. A lawn care/ wildlife control company should be consulted for treatment. It may take up to three years to solve the problem.

OVERHANG
Soffit vents: screen over vent when located near eavestrough downspout, tree branches, etc. that provide animal access.

ROOF
Chimneys: install screen and securely fasten
Shingles: replace curled, worn or missing shingles
Roof vents: secure perimeter of vent with screening
Eavestrough: remove debris (leaves, etc.) to prevent water overflow/wood rot
Open attic spaces: secure with metal/heavy screening

TREES AND BUSHES
Trim trees and bushes at least 5m back from the roof edges to prevent animals from having access to roof and stop debris from trees rotting on the roof. If you live beside a river or wetland, loosely wrap your trees with heavy gauge wire to protect beavers from chewing them.

TV ANTENNAS
If antennas are used, wrap sheet metal around it at least 1.3 meters high, burying it 15 cm. into the ground to prevent raccoons from climbing it. If antennae is not used, remove it.

WALLS
Stove/bathroom vents: install screen on existing covers
Window wells: screen or cover existing openings
Existing gaps: screen

Simple things like not providing a food source or nesting sites will go a long way to excluding them from your property. But remember that mammals are inquisitive and opportunistic, and will go where they think food and shelter exist.

You can try to tolerate animals by fencing the garden areas you want to protect, or trying companion plantings, such as daffodils next to tulips or marigold borders, to discourage visitors.

Avoid extreme or dangerous measures: cayenne pepper does not deter squirrels, anymore than mothballs keep rabbits away. The risk in using products that don't do the job can be greater than the harm the animals might do. If a child or pet eats a mothball, the consequences can be severe.

Orphaned or distressed animals

Sometimes we encounter injured or distressed animals. Injured animals are under a lot of stress – be careful when approaching them! It is always better to err on the side of caution and let professionals handle this, so if you encounter an animal in distress, call a licensed wildlife rehabilitator or Toronto Animal Services, and provide as many details as you can about species, behaviour and location.

Often when people find "orphaned" animals, they are simply young animals that are temporarily alone as the parent might be out foraging for food. Do not try to catch them. Watch them for a while – only if it is possible to stay a good distance away – and most times you will find the parents return to feed the young. If you truly believe the animals have been orphaned and are in need of help, call a licensed wildlife rehabilitator or Toronto Animal Services. For more information and some great tips when dealing with animals visit the Toronto Wildlife Centre: www.torontowildlifecentre.com/pages/programs/prog_serv.html.

Skunk caught in hockey net
photo: Nathalie Karvonen

Vehicles and Mammals

Cars versus mammals usually spells disaster for either or both parties involved. Not only are many people hurt in accidents involving wildlife, tens of thousands of mammals are killed annually on Ontario roads. Few mammals have learned to avoid cars, and most don't recognize them as a threat. Some are not quick or agile enough to avoid collisions, and still others become blinded and confused by approaching headlights and simply do not move out of the way.

We can help, by being aware of animals and by not assuming that they simply will move out of the way as we approach. Avoiding animals should be undertaken as long as we don't put ourselves and those around us, in jeopardy. Slow down and give our animals a brake!

Report wildlife road encounters to the Ontario Road Ecology Group www.torontozoo.com/conservation/RoadEcologyGroup.asp

Feeding wildlife

While feeding wild animals seems like a fun thing to do, it can be dangerous to both you and the animals you feed. Wild animals may seem to be unafraid, but are just habituated and are still wary. Simply stated, they may become used to us, but they never lose their natural instincts to fight or flee if threatened. A "friendly" squirrel can suddenly turn into a set of teeth and claws that can hurt someone, particularly kids. A raccoon you've known and fed for months may suddenly become fearful or aggressive. When animals become too comfortable with our presence, often they have to be trapped and destroyed because we let them get too reliant on us by providing easy pickings! Feeding wildlife will also create an unnatural food source which can upset the natural population balance of wildlife in your neighbourhood. Many people believe that wild animals need humans to give them food to survive …they don't! They are here because there is so much food and shelter already available to them and when it is not, they will move on. So do your part – don't feed wild animals – let them live free and amongst us on their own and enjoy them from a distance.

Professional Urban Wildlife Management

Once you have exhausted all other avenues (e.g. implementing exclusion and/or prevention techniques) to manage mammals that are using your property, sometimes you have no choice, but to take affirmative action, and if so, do it wisely and use a professional.

When seeking a professional, most people want to solve their problem in a humane way. It's a good idea to contact your local animal welfare (humane society, OSPCA, etc.) or animal care and control agency to get information on the few legal stipulations that govern wildlife removal in Ontario. Upon contacting a company, ask the representative to discuss the behaviour of the particular animal that you are dealing with and find out the potential reasons and solutions for the problem you are experiencing. The company should be knowledgable enough to talk about this in depth on the phone. If they offer only a quick explanation, be concerned that they may not have enough knowledge to offer a humane solution.


Raccoon
photo: Margo Watt

Make sure that the company you use is in the business of humane wildlife control. There is an important difference between pest management and wildlife management! You'll also want to ensure that the company of your choice has sufficient resources to deal with the problem. Humane wildlife management can be labour intensive and often requires frequent follow ups.

Conflicts with wildlife are often caused by an attractant, such as access to shelter or food. It's important to ensure that your problem is solved at its root. Simply trapping and relocating an animal is often not humane, can be illegal and leaves the root of the problem behind for another animal to move in! Take it upon yourself to be sure you are being offered a permanent solution.

A reputable company will offer you a free estimate of the work and a guarantee for a period of time – up to one year. They will also carry adequate insurance to safeguard you from any potential personal liability.

Control your pets

Toronto's animal related bylaw prohibits dogs from running off leash or unsupervised in most public areas. Cats in Toronto should also be supervised or they may be deemed to be a nuisance under the bylaw and could end up in a shelter. Conflicts between wild animals and pets are frequent and sometimes dangerous. Your playful dog, running at large, can drive a deer into a roadway, endangering people and the animal. A cat can chase a squirrel out into the open, where an aerial predator might catch it.

All municipalities have dogs at large bylaws, and some have imposed similar bylaws for cats. Generally, if cats and dogs are always under control, conflicts that are harmful to either the pet or the wild animal can be eliminated or minimized. Cats are known to have devastating impacts on wild bird and small mammal populations, killing literally millions in North America each year. Do your part – control your pets.

Learn about urban wildlife

To better understand the mammals that live with us one should be aware of how and where they live, when they breed, what they eat and the good they do.

Often when animals come into conflict with us, they are presumed to be bad or dangerous. Knowing the potential risks that might be associated with these animals is critical and will make the encounter more enjoyable. Do they carry diseases or parasites that could harm us if we got too close? Can they damage property? Is there a danger to humans or pets? What good do they do? Do they control other pests or clean up garbage? Do they do any harm at all?

Walking your dogs on a leash
photo: Laura Heslin

"Lucas Porch"
© Robert Bateman

Cats and Wildlife

Free-roaming outdoor cats have a devastating effect on wildlife populations. Research estimates that in North America outdoor cats annually kill well over a billion small mammals, including many native and some at-risk species. Cats are a domestic, non-native predator – this means that cats' predation on wild mammals is not sustainable, and can impair normal functioning of wild ecosystems. For example, when cats prey on wild birds and small mammals, it takes food away from wild predators that depend on those animals as a food source. With estimates of over 100 million outdoor cats in North America, the threat to wildlife is simply immense.

Additionally, outdoor cats themselves face many dangers, including predation by other animals, injury from cars, human cruelty, displacement, and exposure to poisonous chemicals and debilitating diseases. As a result of these dangers, the average life span of an outdoor cat is under five years, more than ten years less than their indoor counterparts. Because of these significant health risks, two out of three veterinarians recommend keeping pet cats indoors.

Keeping cats indoors or giving them outdoor play time in a protected enclosure help protect the health of your pet and the wildlife in your neighbourhood.

For more information on cats and wildlife, and keeping indoor cats happy visit
www.keepanimalssafe.ca.
www.abcbirds.org/abcprograms/policy/cats/index.html

Kids in particular need and want to have encounters with wild things. Learning about wildlife early will ensure they have fulsome experiences that are both rewarding and safe. Be prepared to answer their delving questions, but do so accurately – be sure of your facts, for they will believe whatever you tell them. Don't guess.

Instilling a love of nature at an early age will also teach kids much about environmental protection and the hidden benefits of wildlife, from aesthetic, health and environmental perspectives. Children who love nature, love life! Joining a nature club can provide valuable experiences to both adults and children, as local experts share their knowledge and enthusiasm.

Enjoy the little pleasures

Quiet moments with wildlife are the best – observing a chipmunk foraging for food, trying to study the raccoon asleep in a tree or watching a rabbit nibbling clover will create memories that will last for years. Watch them and enjoy the simple pleasures they bring. Do it alone or with a friend. Photograph them, sketch them or simply look at them. All will bring a sense of well-being.

White-tailed deer
photo: TRCA

Keep your distance

Mammals seem cute and cuddly, but there can be a risk if encounters become too intimate. The urge to take a baby squirrel or raccoon in as a pet can have disastrous results. They have claws and teeth and can be very unpredictable. An animal can turn quickly, if startled or threatened, and can inflict serious injury!

When people hand feed squirrels and chipmunks, they expose themselves to risk, as wildlife is unpredictable. Wild animals can carry parasites or diseases. Better to watch from a distance and let them do what comes naturally.

White-tailed deer
photo: Tracy Munson

If you are bitten or scratched by an animal, seek medical attention immediately. Advise your doctor what type of animal was involved, where it was and the nature of the encounter. If you see an animal behaving uncharacteristically, do not approach it! Call Toronto Animal Services and let professionals handle the situation.

Don't underestimate them – wild animals are just that – wild! They are unpredictable and do not understand your good intentions. Respect them and conflicts will be minimized. Remember that the cute squirrel can and will bite if provoked! Even an adorable cottontail can inflict injury with its strong hind legs if picked up!

Share the wealth – donations of time, money and support

You don't have to only watch these critters at home – enjoy them in the parks and other quiet places. But make sure you do your part to ensure that suitable habitat is preserved for them. You can help in many ways: volunteer for tree planting projects in parks, donate to worthwhile causes, support local politicians that have a strong environmental conscience, and encourage planning and development people to consider the environment first and foremost. Every action we take, no matter how small it may seem, will have lasting and positive impacts.

Be tolerant

Too often we look at animals as dangerous or annoying and something that should be enjoyed only when convenient to us. This perspective is risky and limiting.

For the most part, urban mammals are wary of us, and forgiving of our actions. Rarely are they dangerous or deserving of control. They may eat your favourite bulbs or get into your garbage, but this is a response to convenience, to a food source – not an act of malice.

Appreciate wildlife by learning about them and being tolerant of them sharing this city.

Conclusion

Wild mammals have been living in the Toronto region for thousands of years before urbanization of the area. Some of the mammalian species, which were not suited to living in close proximity to humans, are no longer living in Toronto, but many of them are thriving more successfully than ever.

Strong communities and a competitive economy rely on a healthy natural environment. The City of Toronto is connected by a wonderful system of green space. More than 3,000,000 trees dominate our ravines, line our boulevards and beautify our parks from beaches to bluffs. They provide shade, clean air and residency for numerous wildlife species. As Toronto continues to grow, we must be proactive in ensuring that we not only protect the existing open space but also work to enhance it. This system is vital to both our quality of life and to the health of our natural ecosystem.

Many people see urban wildlife as pests that invade homes and gardens, but for many others, wild animals are a reminder of our place as one species in the universe. The emotional bond that can be felt by humans for nature's wild animals can be a very primal and vital part of life that helps us to feel part of the big picture. Observing wildlife offers quality moments that allow us to learn, meditate, and feed the soul. We are very fortunate in Toronto to have the opportunity to experience personal growth by embracing and learning about wildlife, to teach our children respect for other creatures and inspire responsibility for the world we share with them, and to find some relief from our busy lives by appreciating the wonders of nature.

Porcupine
illustration: Ann Sanderson

"Through the Birches"
© Robert Bateman

Select Mammal Resources

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WEBSITES

Ontario Society for Prevention of Cruelty to Animals (OSPCA) - Work includes animal cruelty investigation, care, sheltering, fostering and wildlife programs for abused or injured animals. www.ontariospca.ca

Toronto Animal Services (TAS) - Promotes responsible pet ownership, encourages voluntary compliance with animal-related laws, promotes pet adoption and pet identification. TAS works to further promote and support a harmonious environment where humans and animals can co-exist free from conditions that adversely affect their health and safety.

TAS also provides services to pet owners (e.g., lost pets, owner surrender, cremation, etc.) and services to citizens in the City of Toronto (e.g., pick up of sick and/or injured wildlife, removal of dead animals, etc.). For more information contact Toronto Animal Services at 416-338-PAWS (7297). www.toronto.ca/animal_services/

Wildlife Ontario – This group provides a "voice for wildlife" in its advocacy role, and provides information about biology, control and interactions with wild animals. www.wildlifeontario.ca

Toronto Wildlife Centre – provides services such as rescuing wildlife in distress, and providing medical care and rehabilitation to sick, injured and orphaned wild animals with the goal of releasing recovered patients back into the wild, and offering advice about wildlife issues. www.torontowildlifecentre.com

Toronto and Region Conservation (TRCA) - Works with its partners to ensure "The Living City" is built on a natural foundation of healthy rivers and shorelines, greenspace and biodiversity, and sustainable communities. www.trca.on.ca

Ministry of Natural Resources (MNR) - Ontarians are encouraged to learn about the fascinating variety of lands, waters, forests, animals and plants found across Ontario's one million square kilometres, and how MNR manages this abundant natural wealth. www.mnr.gov.on.ca

Stanley Park Ecological Society (Vancouver) - The Stanley Park Ecology Society promotes awareness of and respect for the natural world by playing a leadership through collaborative initiatives in education, research and conservation. www.stanleyparkecology.ca

National Geographic Kids - http://kids.nationalgeographic.com/kids/animals/creaturefeature

Purdue University Scientific Literacy Project - www.purduescientificliteracyproject.org/LivingThings/tabid/143/Default.aspx

Kidzone – an interactive site to teach kids about mammals. www.kidzone.ws/animals/index.html

Teach the Children Well an interactive site to teach kids about mammals and how they live - www.teachthechildrenwell.com

Kid's Planet - www.kidsplanet.org/factsheets/map.html

CITES - The Convention on International Trade in Endangered Species of Wild Fauna and Flora is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. www.cites.org

The Convention on Biological Diversity (CBD) is an international treaty to sustain the rich diversity of life on Earth - http://www.cbd.int

Acknowledgements

Contributing Authors

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- Toronto and Region Conservation's Paddle the Don Fund: **www.paddlethedon.ca**

Partners

The Living City Foundation: **www.thelivingcity.org**
Royal Ontario Museum: **www.rom.on.ca**
Toronto Field Naturalists: **www.torontofieldnaturalists.org**
Toronto and Region Conservation: **www.trca.on.ca**
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Contributing Artists

Robert Bateman – Robert's fascination with nature dates from his boyhood in Toronto, where he began his lifelong education as a naturalist by studying and sketching the species he saw in the ravine behind his house. An internationally acclaimed artist whose paintings can be found in collections worldwide, he is the best-selling author of several books. An officer of the Order of Canada, the recipient of nine honorary doctorates and an honorary life member of many conservation organizations, he devotes a great deal of his time to finding ways to preserve the natural world.

Geoff Carpentier – Geoff's interest in nature started when he was 13 as he used to wander through the woods and countryside near his northern Canadian home, learning about nature first hand. Recently retired from the Ontario Public Service, he now works as an international nature guide. Geoff's passion for wildlife is expressed in his photography, writing and art. His most recent triumph is the publication of his second book, *Antarctica – First Journey*, a resource guide for Antarctic travellers. He has travelled the world, visiting approximately 65 countries on all seven continents, where he has shared time with polar bears, Amazonian snakes and piranhas, observed the private lives of lions, avoided riots in Venezuela, hiked the Andes, camped with Pademelons, walked with penguins and canoed Ontario's northern lakes. Visit Geoff's website for more information at www.avocetnatureservices.com.

Booklet designed by City of Toronto Information Production, City Clerk's Office (2012)

Barry Kent MacKay – Based in Markham, Ontario, Barry is an artist, activist, naturalist, writer and a pioneer in wildlife rehabilitation. It was Barry and his mother Phyllis who first started rescuing birds fatally attracted to lights on Toronto's buildings and structures in the 1960s. Thus, it is very fitting that his beautiful depictions of the birds of Toronto are featured here. He is well known and respected for his Nature Trail column (published in the *Toronto Star* for 25 years) and his ongoing involvement in national and international ornithological and conservation organizations. Barry is the Canadian Representative of Born Free USA.

Fiona Reid – Fiona A. Reid has a B.A. degree in biology from Cambridge University and an MSc in Animal Behaviour from SUNY at Stony Brook, New York. She is author of a number of scientific papers on small mammals of the Neotropics, focusing on taxonomy, distribution, and conservation. She has written and/or illustrated more than a dozen books on mammals, including *A Field Guide to the Mammals of Central America and Southeast Mexico*, Oxford University Press, second edition, 2009. While researching that book she lived in Central America for two years, capturing small mammals and drawing them from life. Fiona also wrote and illustrated a *Peterson Field Guide to Mammals of North America*, published in 2006 by Houghton-Mifflin. For this work she captured and drew from life almost all the bats and small rodents that occur in North America. She illustrated *The Golden Guide to Bats of the World*, *Bats of Papua New Guinea*, and *Mammals of the Neotropics (volumes 1–3)*. Fiona is a Departmental Associate of the Centre for Biodiversity and Conservation Biology at the Royal Ontario Museum in Toronto.

Ann Sanderson – Born and raised in Toronto, Ann has had a life long fascination with both science and the arts. After completing an undergraduate degree in Zoology from the University of Toronto, she attended the Science Illustration program at the University of California in Santa Cruz. Ann honed her skills as an illustrator while interning in New York at both *Scientific American* Magazine and the American Museum of Natural History. She now works as a freelance illustrator in Toronto where she enjoys the biodiversity of the city while walking the Belt Line trail. www.annsciart.com

Raccoons
illustration: Ann Sanderson

Back cover: "On the Move - Red Fox", 1999


Robert Bateman 1995