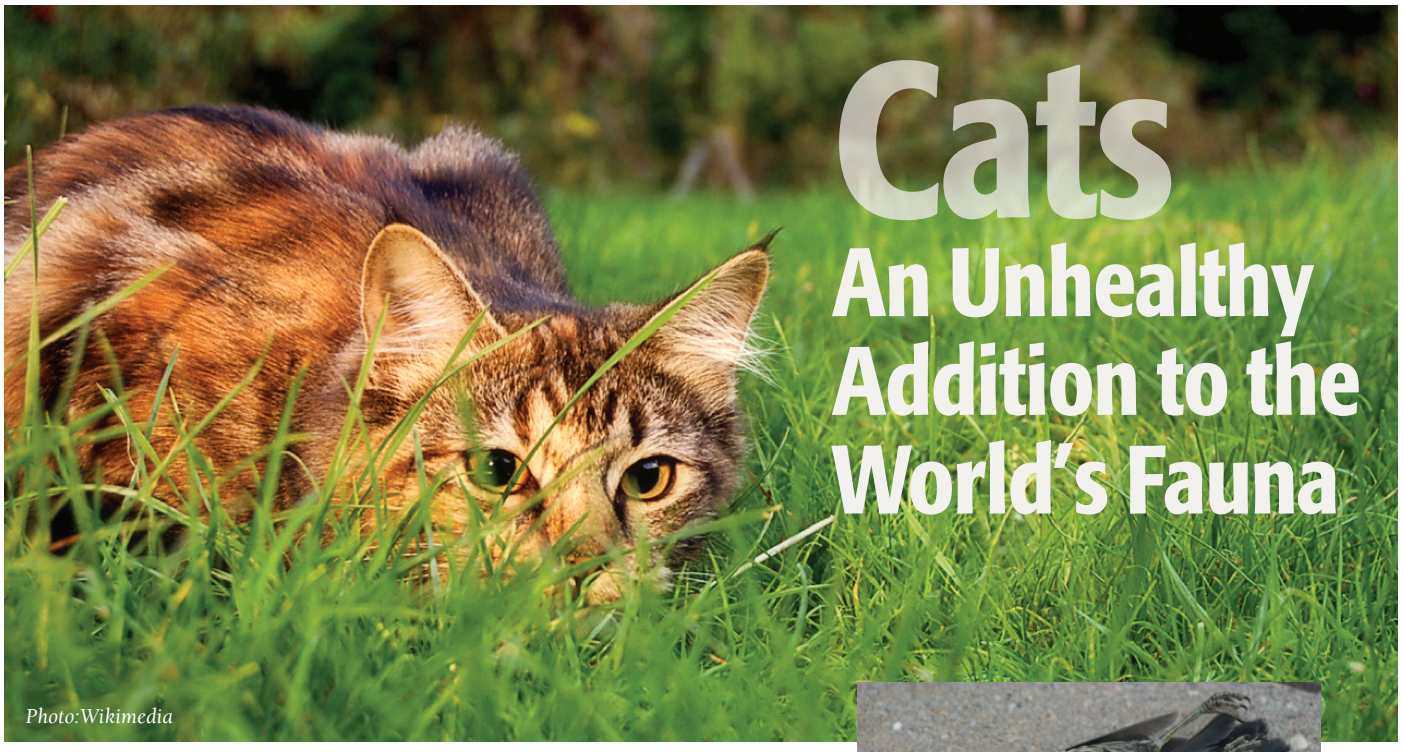

Cats
An Unhealthy Addition to the World's Fauna

Photo:Wikimedia

Each year about five per cent of Canadian birds are killed by cats – 269 million birds out of an estimated population of 10 billion

Geoff Carpentier

Red-winged Blackbird killed by cat. *Geoff Carpentier*

What a lovely sight! Look at Patches as she heads out for her morning jaunt in the fields near her home. How cute is she as she tiptoes through the dew-drenched grass, trying her best to keep her paws dry, but to no avail.

Everyday millions of cats do exactly this and the outcome is always devastating for myriad wildlife and sometimes for the cat as well. Each year about five per cent of Canadian birds are killed by cats — 269 million birds out of an estimated population of 10 billion — to be exact. Free-roaming cats live an average of five years, compared to seventeen for indoor cats, but during those five years they can do irreparable damage to local wildlife. Many predators are out there and would happily snap up an unwary cat for dinner — coyotes, in particular, seem to actually hunt cats in many urban centres, as cats are plentiful and generally less wary than most wild prey.

But what of the animals your sweet little kitten hunts? Surprisingly I have several friends who are devout naturalists that willingly let their cats out, knowing the harm they do. This always puzzles me — if you cherish wildlife, why would you let your cat roam and kill wild things?

But let's get back to the story as this isn't about emotion but rather learning the facts. Well, actually it is about emotion. There are two distinct camps when it comes to this issue — those that let their cats out, because "cats need to roam and exercise their hunting instincts" and those that know it is wrong and want to protect wildlife. Around the world this debate rages and has done so for many decades.

In 1916, in his report to the Canadian Commission of Conservation, W.E. Saunders of the McIlwraith Ornithological Club of London wrote:

> *The cat, I think, comes fairly under the jurisdiction of the Conservation Commission. I wish it would appoint me Cat Ranger. If that were done, I can assure you the number of cats would suffer a very serious diminution every year because, as you know, every cat spends most of its time in an effort to kill. It kills not only the mice but every bird it can possibly catch and, as I look at it, each insectivorous bird killed by a cat is worth more than the cat itself. I have proved that there are some uses for cats. Buried under apple trees I have eaten them as apples, buried under rose bushes I have picked them in the form of roses. That is a very satisfactory way of disposing of cats.*

Recently many landmark studies have been undertaken around the world trying to determine what impacts the estimated 600 million pet cats have on wildlife. This number includes (a) feral (i.e. born in the wild), (b) escaped or released and now living wild and (c) those kept as pets but are free-roaming. Everyone agrees that the impact is significant and far-reaching and for the ease of analyzing data, most scientists lump the feral and escaped/released cats into one category, as these have a demonstrated greater impact on wildlife than free-roaming pets.

Around the world, domestic cats are recognized as a threat to global biodiversity and are known to have significantly contributed to the extinction of 33 species. The impacts are so great that the International Union for the Conservation of Nature (IUCN) now lists domestic cats as one of the world's worst non-native invasive species.

Research around the world

Outside North America, the number of kills is immense: According to the Royal Society for the Protection of Birds, 27 million birds are killed annually in Great Britain by the 7.2 million cats UK residents keep as pets. The data from another study, conducted by M. Woods, R. A. McDonald and S. Harris, estimates that the impacts in Great Britain may be as high as 150 million birds. In Switzerland, it is estimated that 100,000-300,000 birds are killed annually by cats. In Australia the problem is equally severe and based on the estimated 14.6 million cats (free-roaming and feral) found there, numbers are again staggering. The 2.6 million free-roaming Australian pet cats alone take an estimated 3.8 million animals with about 25 per cent of those being birds. Add the superior hunting feral cats to the mix (estimated to be 2.3-3 times as efficient as free-roaming cats) and the numbers likely approaches 41-54 million animals, including about 10-13 million birds. In 1996, C.R. Dickman presented a report to the Australian Nature Conservation and the Institute of Wildlife Research in Sydney, Australia regarding the Stephen's Island Wren. This flightless, nocturnal, wren from New Zealand, which went extinct about 1900, was never observed alive in the wild. Interestingly and sadly, most of the known museum specimens were collected by a single cat. An unscientific New Zealand study reported that an estimated 1.4 million free-roaming cats kill 19 million animals annually, including approximately 1.1 million birds.

In North America, recent studies concerning the impact of the estimated 30-80 million feral and 33.6 – 58.8 million free-roaming cats support these figures. Studies by various scientists estimate the average kill rate for each free-roaming cat to in the United States, to be between 4 and 54 birds per year, depending on location and degree of urbanization. An article by Scott Loss, Tom Will and Peter Marra in *Nature Communications* (2013) "The Impact of free-ranging domestic cats on wildlife in the United States", created a media frenzy as hundreds of articles ensued summarizing and critiquing their data. The original article, as published, contained some incorrect estimates of the number of animals killed by free-ranging domestic cats, and was re-issued in December 2013. Scott Loss was kind enough to send me a copy of the updated article (pers. comm.) and the summary presented here reflects the revised interpretation of the data.

In their paper, the authors state in part,

> *We estimate that free-ranging domestic cats kill 1.3-4.0 billion birds and 6.3-22.3 billion mammals annually. Un-owned cats, as opposed to owned pets, cause the majority of this mortality. Our findings suggest that free-ranging cats cause substantially greater wildlife mortality than previously thought and are likely the single greatest source of anthropogenic mortality for US birds and mammals.*

Un-owned cats are defined to include farm/barn cats, strays that are fed by humans but not granted access to habitation, cats in subsidized colonies and cats that are feral. Sixty-nine percent of the mortality is attributed to non-owned cats, showing their superior prowess and efficiency as hunters. Their study also showed that between 6.3 and 22.3 billion mammals are killed annually by cats. Free-roaming pet cats were responsible for 221 million to 1.7 billion bird deaths and 512 million to 2.8 billion mammalian deaths. They go on to conclude that between 228 to 871 million reptiles and 86 and 320 million amphibians could be killed by cats in the contiguous United States each year. Other studies support these disturbing conclusions. The authors of a Wisconsin study report that 39 million birds are killed annually in that state alone and in a Michigan study, 800 to 3100 cats killed between 16,000 and 47,000 birds during one breeding season. A Wedge-tailed Shearwater colony in Hawaii exhibited total reproductive failure and almost all the adult shearwaters at this site were apparently killed by cats.

Canadian Cat Predation Studies

In Canada, similar studies by Environment Canada conclude that cats appear to kill as many birds as all other anthropogenic (*i.e.* human induced) impacts combined.

Feral and pet cats are believed to kill more than 100 million birds per year in Canada, with an estimated 60% of those killed by feral cats. Collisions with electricity transmission and distribution lines have been identified as the second largest human-caused source of bird mortality in Canada, with 10-41 million birds killed annually. Collisions with buildings are responsible for the death of an estimated 16-42 million birds annually and approximately 13.8 million birds are killed in collisions with vehicles.

A study by P. Blancher (2013) entitled "Estimated number of birds killed by house cats (*Felis catus*) in Canada", published in *Avian Conservation and Ecology*, concludes that cats are estimated to kill between 105 and 348 million birds per year in Canada, with the majority likely to be killed by feral cats. This conclusion was based on an estimated 8.5 million pet cats and 1.4 to 4.2 million feral cats. These estimates suggest that between two and seven per cent of all the birds in southern Canada are killed by cats every year. They reference previous Canadian studies where Guthrie, B.B. in *Nature Spring* (2009) estimated that 165 million birds were killed annually, Dunn and Tessaglia, in the *Journal of Field Ornithology* (1994), attributed 29 per cent of bird kills to cats and the Rithet's Bog Conservation Society (2011) reported that 22 per cent of all attacks on Song Sparrows were generated by cats. Guthrie went on to analyze which species and families might be more susceptible to cat predation and concluded that insular species (*i.e.* both those living on islands and those living in artificially isolated and/or fragmented habitats such as those surrounded by subdivisions for example) were most prone, while interior forest species were less likely to be predated. Free-roaming pet cats were more likely to take small songbirds at feeders, while feral cats generally took larger birds.

Twenty-three species at risk in Canada (COSEWIC 2012) are among the potentially vulnerable species identified. Among COSEWIC listed ground-nesting species, three of 11 prairie-nesting species and three of four species of grass and scrub-nesting species are at risk from cat predation.

Cats are the only predators that typically stalk adult healthy birds by choice, rather than taking fledglings and weakened birds.

Study after study reaches the same conclusion, whether it is about Gray Catbirds suffering 79 per cent mortality primarily due to cats, seabird populations being wiped out on sub-Antarctic islands, or California Quail and Thrasher extirpated in a park where cats hunted. Even more interesting is that the cats were choosing to kill birds and native mammals but avoided non-native mammals, such as rats, such that the number of rats in the cat-infested area was nine times higher than in the cat-free zone.

Other impacts

Why should we care? Well beyond the obvious impacts on wild populations of birds, mammals and herptiles, there is a secondary impact on avian and mammalian predators. If the cats kill most of the prey, what is left for the native predators? Studies in Maryland showed that the loss of native prey (i.e. chipmunks) to cats resulted in the Cooper's Hawks choosing alternate prey and subsequently having a much reduced reproductive success rate. Native predators tend to be in balance with their prey -— fewer prey species lead to fewer predators. But this is not the case with cats — pets have it all — food, shelter and protection. The pressures that control natural predators do not affect them the same way and their populations burgeon unchecked. Unlike natural predators, cats typically kill prey whether they intend to eat it or not, further decimating wild prey populations. Cats tend to be active in daylight hours when birds are least suspecting, since their natural predators are mostly nocturnal. This again artificially raises the kill rate and hunting success of the cats. Finally, cats are the only predators that typically stalk adult healthy birds by choice, rather than taking fledglings and weakened birds.

There is another emerging issue of concern. Free-roaming cats, both domestic and feral, act as reservoirs and vectors for many diseases and parasites that may jeopardize wildlife, such as feline leukemia and feline parvovirus. But most importantly, cats play an integral role in the life cycle of the protozoan parasite *Toxoplasmosis gondii*, where the cat is a definitive host. *T. gondii* has infected more than 50 bird species worldwide. The parasite is shed in the feces of infected cats and a broad range of animals (including humans) may act as intermediate hosts and may develop clinical disease as a result of this infection. Add to this that cats appear to be selectively avoiding rats as prey, should we not be more concerned about vector spread diseases as rat populations increase due to reduced predator pressure? Additionally, all dogs are vaccinated for rabies — is this true of cats? Many are but likely most, particularly feral cats, are not. Cats may therefore inadvertently become a reservoir for the rabies virus in some instances.

What can be done?

The trap-neuter-release or trap-neuter-return (TNR) movement is well-funded and entrenched as part of the solution for cat problems. It advocates opposition to the use of euthanasia to control cat populations, while promoting feeding and sterilization programs. Evidence suggests that TNR is not the solution to the problem as the sterilization efforts can never be widespread enough to offset the breeding success of non-neutered individuals. On the contrary, TNR often leads to perpetual colony maintenance, huge costs, magnified volunteer efforts and sometimes even an increase in cat populations as the cats are well-fed and protected by the cat guardians, as witnessed by one TNR program in Hawaii which grew from about 100 to over 1000 cats. On the moral side of the question, many veterinary and animal rights and welfare professionals deem TNR to be inhumane, since it may encourage pet abandonment, as owners of unwanted pets are assured their cat will be well taken care of when released. Clearly, the rights of the wild animals are never factored in when TNR is implemented as hundreds of thousands of wild animals die when these cats persist.

Cat owners need to accept responsibility for the actions of their cats. It is not sufficient to simply say that "cats have a right to run free and if they hunt and kill, so be it — that's what cats do." Some municipalities such as Ajax, Burlington, Oshawa and London have bylaws prohibiting cats at large. Kingston's bylaw prohibits urban cat owners from allowing their cats to trespass. Other municipalities clearly put the responsibility on cat owners to control the actions of their cats as they impact other residents, but most fail to address the devastating environmental impacts these cats cause. This is not an exhaustive list of what Ontario municipalities are doing about cats, but rather a sampling of their efforts. For you, the reader, please encourage your Council to enact a cats at large bylaw and ask local newspapers to continue to educate the public about the impacts of cats at large. The current research, summarized herein, shows the impacts of cats, both feral and domestic, but also provides information to help you help our wild animals.There is much still to be done to assist wildlife, but the ground swell has clearly started.

What should you do?

Each person has to weigh the facts and decide for themselves. For me, it has always been easy. I have a fourteen year old cat that has never been out of the house (except to go to the vet for her shots annually) and she is a happy, pleasant and content cat. She knows what birds are as she will look out the window at them but never attempts to catch them. The hunting instinct is there but the opportunity is not. She seems satisfied just knowing she can do it, without necessarily killing something. Cats can be leash-trained despite popular thought and if one still insists they must be allowed to be outside, an enclosure can be built for them, much as one would for a dog.

We will not solve the conflict here, but each time someone chooses Nature over his/her cat's freedom, many wild things will survive for generations to come.

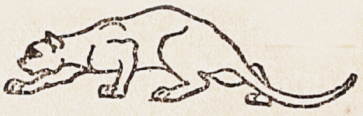

Illustration: Edward Howe Forbush (1858-1929)