

Factsheet: IMPACTS OF DOGS ON WILDLIFE

Excerpts from research publications, literature reviews and science commentary

Compiled by **ProtectNatureTO** – a coalition of over 20 nature- and stewardship-based organizations advocating for the protection of wildlife and natural areas across the City of Toronto.

Introduction

Excerpt from:

Impacts of dogs on wildlife and water quality: A literature review

by Lori Hennings, Senior Natural Resource Scientist, Portland, 2016

https://www.researchgate.net/publication/301800852_Impacts_of_dogs_on_wildlife_and_water_quality

In summary, people and their dogs disturb wildlife, and people are not always aware of or willing to acknowledge the significance of their own impacts. Wildlife perceive dogs as predators. Dogs subject wildlife to physical and temporal displacement from habitat, and dog scent repels wildlife with lingering impacts. Dogs disturb wildlife which can induce long-term stress, impact animals' immune systems and reduce reproduction. Dogs spread disease to and outright kill wildlife. People with dogs are much more detrimental to wildlife than people alone; off leash dogs are worse; and off-trail impacts are highest.

Urban wildlife is subject to many human-induced stressors including habitat loss, degraded and fragmented habitat, impacts from a variety of user groups, roads, trails, infrastructure, noise and light pollution.

Impacts include:

- 1. Physical and temporal displacement** – The presence of dogs causes wildlife to move away, temporarily or permanently reducing the amount of available habitat in which to feed, breed and rest. Animals become less active during the day to avoid dog interactions. Furthermore, the scent of dogs repels wildlife and the effects remain after the dogs are gone.
- 2. Disturbance and stress response** – Animals are alarmed and cease their routine activities. This increases the amount of energy they use, while simultaneously reducing their opportunities to feed. Repeated stress causes long-term impacts on wildlife including reduced reproduction and growth, suppressed immune system and increased vulnerability to disease and parasites.
- 3. Indirect and direct mortality** – Dogs transmit diseases (such as canine distemper and rabies) to and from wildlife. Loose dogs kill wildlife.
- 4. Human disease and water quality impacts** – Dog waste pollutes water and transmits harmful parasites and diseases to people.

*“The evidence that dogs negatively impact wildlife is overwhelming. It is clear that people with dogs – on leash or off – are much more detrimental to wildlife than people without dogs. Dogs (*Canis lupus familiaris*) are considered to be a subspecies of wolves (*Canis lupus*), and wildlife perceive dogs as predators.” – Lori Hennings*

Disturbance and stress

Four-legged friend or foe? Dog walking displaces native birds from natural areas

By Peter B Banks and Jessica V Bryant, University of New South Wales, published in Biology Letters in December 2007

<http://rsbl.royalsocietypublishing.org/content/3/6/611>

This 2007 study compared 45 sites where dog-walking was allowed with 45 sites where dog-walking was prohibited in the urban fringe of Sydney, Australia.

Dog walking is among the world's most popular recreational activities, attracting millions of people to natural areas each year with diverse benefits to human and canine health. But conservation managers often ban dog walking from natural areas fearing that wildlife will see dogs as potential predators and abandon their natural habitats, resulting in outcry at the restricted access to public land.

Here we show that dog walking in woodland leads to a 35% reduction in bird diversity and 41% reduction in abundance, both in areas where dog walking is common and where dogs are prohibited. These results argue against access by dog walkers to sensitive conservation areas.

The dramatic reduction in bird diversity and abundance in response to dog walking has immediate implications for other popular recreational activities pursued by humans. This includes bird watching and ecotourism where visitor satisfaction shows a strong relationship to numbers of species seen.

It is also possible that the particular sensitivity of ground dwelling birds to dog walking may lead to a cascade of potential behavioural changes in birds with implications for their local conservation.

“Dog walking caused a 41% reduction in numbers of bird individuals detected and a 35% reduction in species richness”

Peter Banks & Jessica Bryant

Effects of human activity on the foraging behavior of sanderlings

By Katie Thomas and colleagues, California State University, Monterey Bay Institute for Earth Systems Science and Policy, published in Biological Conservation, 2003

https://www.researchgate.net/publication/240370318_Effects_of_human_activity_on_the_foraging_behavior_of_Sanderlings_Calidris_alba

Urbanization and coastal development has dramatically reduced the beach habitat available for foraging shorebirds worldwide. Observations conducted on two central California beaches from January through May and September through December of 1999 showed that the number and activity of people significantly reduced the amount of time sanderlings spent foraging.

Field observations (n = 488) indicated that number of people, type of activity, free running dogs and proximity of people can significantly reduce the time that sanderlings spend consuming prey. These four variables also had a statistically significant effect on the distances that sanderlings moved.

Based on these results, policy recommendations for minimizing the impact of human beach activities on foraging shorebirds include (1) people maintain a minimum distance of 30 m from areas where shorebirds concentrate and (2) strict enforcement of leash laws at primary bird foraging sites.

“The most significant negative factor was the presence of free running dogs on the beach”

Katie Thomas

The effects of dogs on wildlife communities

By Benjamin Lenth and colleagues, Colorado State University, published in Natural Areas Journal, 2008.

https://www.researchgate.net/publication/232663987_The_Effects_of_Dogs_on_Wildlife_Communities

This study compared levels of activity of wildlife in areas that prohibited dogs with areas that allowed dogs. Wildlife activity was measured using five methods in Boulder, Colorado, Parks and Open Space.

Wildlife species that are sensitive to recreational disturbance are generally most sensitive to unpredictable spatial and temporal patterns of disturbance. Predictable activities, such as recreation restricted to trails, may allow wildlife to habituate to those activities. The spatial behavior of dogs off-leash is unpredictable; and when dogs wander off-trail, they are more likely to elicit flushing responses.

We found wildlife species that are preyed upon by native canids demonstrated sensitivity to the presence of domestic dogs. The appearance and behavior of dogs are similar to wild canids, and ungulates and small mammals may perceive dogs as such. Mule deer and small mammals were both less active in the presence of dogs, and both are typical prey of wolves, coyotes, and foxes throughout their evolutionary history.

Ecological impact of humans and dogs on wildlife in protected areas in eastern North America

By Arielle Parsons and colleagues, North Carolina Museum of Natural Sciences, published in Biological Conservation, 2016

<https://www.sciencedirect.com/science/article/abs/pii/S0006320716303603>

The establishment of protected areas is a key strategy for preserving biodiversity. However, human use of protected areas can cause disturbance to wildlife, especially in areas that allow hunting and if humans are accompanied by dogs.

We used citizen-science run camera traps to investigate how humans, dogs and coyotes used 33 protected areas in eastern North America and analyzed behavioral responses by three prey species: white-tailed deer, eastern gray squirrel and northern raccoon. We obtained 52,863 detections of native wildlife, 162,418 detections of dogs over 42,874 camera nights.

Most dogs were on the trail, and 89% of off-trail dogs were accompanied by humans. Prey avoided dogs, humans and coyotes temporally, but did not avoid them spatially or greatly increase vigilance. Our results indicate that humans are perceived as a greater risk than coyotes and this increases when dogs accompany their owners.

We found that dog management was effective: prohibiting dogs in protected areas reduced their use of an area by a factor of 10 and leash laws increased leashing rates by 21%. Although millions of dogs use natural areas in North America each year, regulations enacted by protected areas combined with responsible management of dog behavior greatly reduce the ecological impact of man's best friend.

“Disturbance of wildlife by recreationists may provoke anti-predator responses such as fleeing, increasing vigilance, and changes in habitat use” Arielle Parsons

Direct mortality

The ecological ‘pawprint’ of domestic dogs is much greater than previously realized

By Tim Doherty and colleagues, Centre for Integrative Biology, Deakin University, published in Biological Conservation, 2017

<https://www.researchgate.net/publication/316503371> [The global impacts of domestic dogs on threatened vertebrate rates](https://phys.org/news/2017-05-ecological-pawprint-domestic-dogs-greater.html) and online <https://phys.org/news/2017-05-ecological-pawprint-domestic-dogs-greater.html>

Humans and their canine companions share many close bonds. Wolves were the first animal domesticated by people, sometime between 15,000 and 50,000 years ago. There are now an estimated 1 billion domestic dogs across their near-global distribution. Our latest research reveals that the ecological ‘pawprint’ of domestic dogs is much greater than previously realized.

Aside from simply killing animals, dogs can harm wildlife in other ways, such as spreading disease, interbreeding with other canids, competing for resources such as food or shelter, and causing disturbances by chasing or harassment.

Using the IUCN Red List of Threatened Species, we counted how many species are negatively affected by dogs, assessed the prevalence of different types of impacts, and identified regions with the greatest number of affected species. We found dogs are implicated in the extinction of at least 11

species, and a known or potential threat to an additional 188 threatened species worldwide.

“These numbers place dogs in the number three spot after cats and rodents as the world’s most damaging invasive mammalian predators.”

Tim Doherty

Bark in the Park: A review of domestic dogs in parks

By Michael Weston and colleagues, Centre for Integrative Ecology, Deakin University, published in Environmental Management, 2014

<https://www.researchgate.net/publication/263586401> [Bark in the Park A Review of Domestic Dogs in Parks](https://www.researchgate.net/publication/263586401)

Of the studies examining the effect of dogs on wildlife (n = 67), 19 have investigated the effects of dogs preying on wildlife. Thirteen of these studies report observing either direct predation or strong evidence of predation by dogs, whereas the other six studies mention predation as the end result due to excessive disturbance caused by dogs.

Overwhelmingly, these studies report chasing and killing of prey by dogs, but none report eventual consumption of prey. Direct mortality is reported infrequently in the literature, but sometimes may be substantial; in addition to ground dwelling mammals and flying birds, at least one flightless bird (cassowary) and one arboreal mammal that climbs to the ground to move between trees (koala) suffered dog-related losses significant enough to constitute a conservation problem.

“The main threat from dogs is predation. Even if prey escapes from a dog attack, they waste large amounts of energy fleeing the dogs, leaving them exhausted and vulnerable to other predators” Rebecca Lovell

<https://mresbec.wordpress.com/2018/11/22/is-wildlife-the-underdog-the-overlooked-impact-of-mans-best-friend/>

Disease transmission

Fido, Fluffy and wildlife conservation: The environmental consequences of domesticated animals

By William Twardek and colleagues, Carleton University, published in Environmental Reviews, 2017

<https://www.researchgate.net/publication/318039244> [Fido Fluffy and wildlife conservation The environmental consequences of domesticated animals](https://www.researchgate.net/publication/318039244)

In 2017, researchers at Carleton University reviewed over 300 papers on the impacts of domestic dogs and cats on wildlife conservation worldwide.

Multi-host pathogens such as canine distemper virus (CDV), rabies virus, canine parvovirus (CPV) and canine adenoviruses (CAV) can be transmitted from domestic dogs to wild species.

CDV is a lethal and highly contagious virus transmitted by domestic dogs through bodily fluids either directly, indirectly in food or waste products in the environment, or through aerosol droplets. Domestic dogs are implicated in the spread of CDV to foxes, badgers and wolves. Additionally, long-term research on lions in the Serengeti suggests that major CDV outbreaks in domestic dogs were initially responsible for infections in lions, but other wildlife species became hosts that then maintained the pathogen's prevalence in the long term.

Domestic dogs and cats may also be a source of rabies to wildlife. Rabies is spread through the saliva of an infected dog or cat when it bites another individual. Dogs are suggested to have transmitted rabies to at least 10 species of wild carnivores including the endangered African wild dog.

Policies and Education

“Many dog walkers who visit nature reserves with their pets are unaware of the potential negative impacts on wildlife.

Understanding the harm dogs cause should encourage more responsible behavior: staying marked paths and keeping dogs on leads within sensitive conservation areas are important steps in protecting wildlife.” Is wildlife the underdog? The overlooked impact of man’s best friend By Rebecca Lovell, 2018

<https://mresbec.wordpress.com/2018/11/22/is-wildlife-the-underdog-the-overlooked-impact-of-mans-best-friend/>

Dogs are more than wet kisses and tail wags: domestic dogs as invasive species

By G. Zapata-Rios, published in Animal Conservation, 2018
<https://zslpublications.onlinelibrary.wiley.com/doi/10.1111/acv.12440>

Problems with domestic dogs are not new, but many of their impacts as invasive species have been overlooked until fairly recently. As predators, dog populations have significant impacts on native species, and as a consequence have the potential to alter ecosystem structure and function in priority conservation areas. They also can compete with native predators for prey, cause losses to livestock, and transmit disease. Thus, the impacts of

domestic dogs can be much more far-reaching than previously thought. A series of policy measures are required to successfully address the problem of domestic dogs as an invasive species. The scope of policy measures should be to control and manage free-ranging and feral dog populations. Policy should be based on three main premises: invasive domestic dogs pose serious ecological impacts and human health problems because the impacts of invasive domestic dogs are linked to human population density and human activities, control of domestic dogs has to be accompanied by changes in human behavior to be effective and, the promotion of responsible dog ownership can significantly reduce the number of free-ranging and feral dogs, and the extension and intensity of their negative impacts.

Education is probably the most important element of a policy designed to reduce the impacts of invasive domestic dogs.

“In addition, communication programs need to be developed to educate and engage people about the ecological impacts of domestic dogs on native species and their potential impacts on human health.

How people perceive dog-wildlife interactions will be fundamental for managing the extent to which dogs are allowed to roam freely. If people see such interactions as a problem, then it would be easier to address the issue and minimize the impacts that dogs have on native ecosystems.” G. Zapata-Rios

Fido, Fluffy and Wildlife Conservation

By William Twardek and colleagues, Carleton University
<http://blog.cdnsiencepub.com/fido-fluffy-and-wildlife-conservation-the-impact-of-pets-on-the-environment/>

The strong relationship that owners have with their pets can influence people's beliefs and attitudes towards wildlife.

Ownership of a pet can increase the time people spend in nature which corresponds to decreased fear of wild animals, as well as greater understanding, appreciation, and connectedness towards nature. Overall, positive attitudes towards nature increase the likelihood that pet owners will engage in environmentally respectful behaviours and will be concerned about environmental issues.

“Keeping control of the dog on a leash, allowing off-leash time only in designated areas, and being mindful of wildlife will all reduce the direct impact of dogs” William Twardek