

Appendix B

Pets & the Environment

APPENDIX Pets & the Environment

Round 1 Engagement determined that the environment should be a key consideration in the development of a strategy for the shared use of Saanich's parks.

This section of the report highlights some case studies and findings related to the impact that pets can have on the environment and wildlife.

Dogs & Wildlife Disturbance

In a study on wildlife and dog disturbance in Boundary Bay Regional Park (near Tsawwassen), where 38% of observed dogs were on-leash, and 62% were off-leash, the following was observed:

Dogs disturbed wildlife **15%** of the time overall.

Of off-leash dogs, **25%** disturbed wildlife.



Of on-leash dogs, **2%** disturbed wildlife.

The study determined that waterfowl were disturbed the most frequently (38% of observations), followed by gulls and terns (32%), passerines (27%) and shorebirds (25%).

Of wildlife that was disturbed, 51% did not return to the scene of the disturbance (Gerst, 2002 as cited in Andrusiak, 2003).

Disturbance to foraging and nesting birds results in lost time spent foraging and time spent away from the nest, and may lead to declines in population (Environment & Climate Change Canada, 2022).

Disturbance increases alertness and stress response in wildlife, which can mean wildlife spend less time feeding, breeding, sleeping, and caring for young (Hennings, 2016).

Dog Waste & the Environment

Dog waste impacts people's enjoyment of parks:

A common complaint among park users in Saanich is the prevalence of dog waste in parks (Saanich, 2021; Saanich News, 2017, 2018, 2021). Because off-leash dogs are often out of sight of their owners, their waste is less likely to be removed from natural areas.

The nutrients in dog waste impact native ecosystems:

Dog waste is high in nitrogen and phosphorus, two nutrients that can enrich soil conditions in naturally nutrient poor ecosystems, and encourage the colonization of invasive plants (Frenne, 2022). Threatened ecosystems like Garry Oak Meadows are particularly susceptible to changes in nutrient levels and the influx of invasive plants (Goert, 2022).

Dog waste is a source of E. coli bacteria in the environment:

Two to three days worth of dog waste from approximately 100 dogs can contribute enough bacteria to a waterway to close a bay to swimming and shellfishing (Metro Vancouver, 2022).

Humans and wildlife can catch parasites and diseases from dog waste:

Humans and animals can contract Giardia, hookworms, tapeworms, roundworms, whipworms, E. coli and salmonella from dog waste (Associated Veterinary Medical Centre, 2020; Hennings, 2016).

The U.S. Environmental Protection Agency estimates that the typical dog generates three quarters of a pound of waste per day – or 274 pounds per year. With possibly 15,000-20,000 dogs in Saanich, that amounts to a total of 4.1-5.4 million pounds of dog waste per year. It is unknown how much of the total waste is disposed of properly.

Each year in Metro Vancouver Parks, dogs deposit the equivalent of:



Case Study: Cadboro Bay & The Victoria Harbour Migratory Bird Sanctuary

Saanich, Cadboro Bay, Gorge Waterway and Portage Inlet are located within the Victoria Harbour Migratory Bird Sanctuary and provide important stopping ground, and foraging and breeding habitat during migration and wintering periods.

Suitable habitats for many migratory birds in South-Coastal BC are limited and are declining due to development, climate change and human disturbance. According to the North American Bird Conservation Initiative (2019), the population of shorebirds in Canada has declined by 40% since 1970.

In a study conducted by Environment and Climate Change Canada, 73 different bird species were recorded at Cadboro Bay. Total bird abundance was high from late fall to spring, with the highest numbers in January (~850 birds) and November (~825 birds).

According to Ebird, a citizen bird watching site, 125 bird species have been seen in Cadboro Bay over the last 10 years. The following species of Special Concern have been seen multiple times at Cadboro Bay within the last year:

- Great Blue Heron
- Horned Grebe
- Double Crested Cormorant
- Brandt's Cormorant
- Common Murre
- Long-Tailed Duck
- Surf Scoter
- Western Grebe

Dogs at Cadboro Bay

Cadboro Bay provides suitable habitat for migratory and year round bird use, but may be currently limited by the level of human and dog activity (Environment and Climate Change Canada, 2022).

While dogs were permitted off-leash at Cadboro Bay beach in the fall of 2020, 45% of 125 respondents to a public survey indicated that dogs were chasing or harrassing birds. Most harassment was noted towards Great Blue Heron (30 responses), gulls (22 responses), and shorebirds (19 responses), and waterfowl (17 responses) (Environment & Climate Change Canada, 2022).

Pacific Great Blue Heron

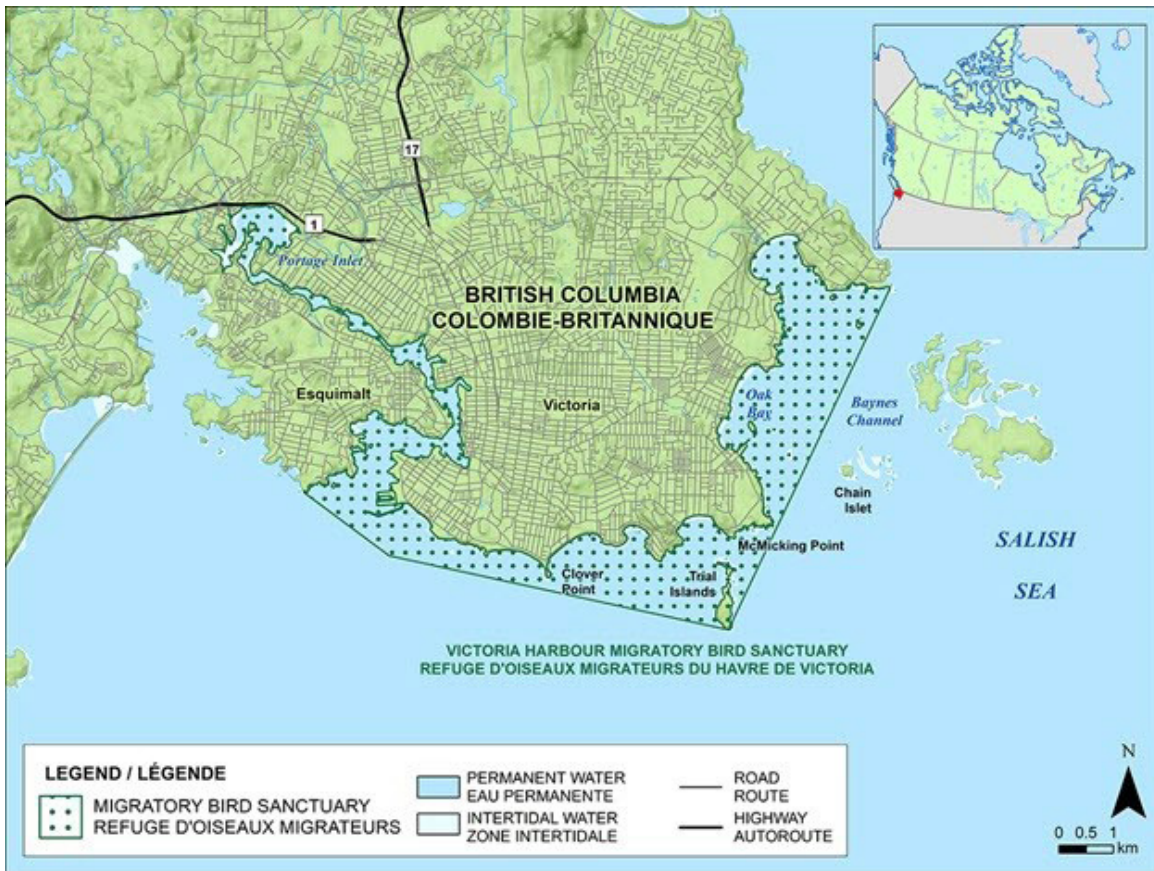
Pacific Great Blue Heron (subspecies *fanninii*) is listed by the Species At Risk Act (SARA) as a species of Special Concern. The BC population is in decline due to the loss of foraging locations and nesting habitat in South-Coastal BC.

Disturbance to nesting Great Blue Herons results in more opportunities for predation of eggs and young by Bald Eagles.

Great Blue Herons use Cadboro Bay year round for foraging and nests nearby at Mystic Pond. The highest numbers of Great Blue Heron are present at Cadboro Bay in July and August post-breeding (Environment & Climate Change Canada, 2022).



Pacific Great Blue Heron



Victoria Harbour Migratory Bird Sanctuary, Government of Canada

Saanich Wildlife Habitat

Riparian Areas:

- A riparian area is a transition zone between aquatic and upland ecosystems characterized by moisture loving vegetation such as Salmonberry, Elderberry and Skunk Cabbage.
- Riparian areas provide important habitat for many animals.
- Riparian areas reduce erosion, filter runoff, provide shade and food for aquatic creatures, mitigate floods, allow for groundwater infiltration, and function as wildlife corridors.
- *Dogs can impact riparian areas by trampling plants, compacting soil, cause erosion along riverbanks and deposit fecal waste into waterways.*

Wetlands:

- Wetlands provide critical habitat for fish, birds and other wildlife, including many species at risk.
- Wetlands absorb and filter pollutants and excess nutrients, recharge groundwater, control runoff, mitigate floods, store carbon, and stabilize shorelines.
- *Dogs can disturb species at risk found in wetlands and further endanger their survival.*

Estuaries & Mudflats:

- Estuaries and mudflats are often characterized by brackish salt marshes adapted to flooding and salty soils. Cuthbert Holmes Park in Saanich contains these habitats.
- Estuaries and mudflats provide crucial habitat for many mammals, fish species including juvenile salmon, waterfowl, shorebirds, shellfish and plant species.
- Estuaries and mudflats provide osmotic transition zone for salmon to adapt from freshwater to seawater and back.
- Estuaries and mudflats contain eelgrass beds that are important habitat for shellfish, fish, and waterfowl. Eelgrass beds also reduce erosion of coastlines, produce significant amounts of oxygen, sequester carbon, and purify water. Because eelgrass is rooted in mud, it is extremely sensitive to disturbance (Coastal Shore Stewardship, 2012; Oceana.ca, 2022).
- *Dogs can impact estuaries and mudflats by trampling plants, disturbing eelgrass beds, and disturbing wildlife, especially resting and feeding shorebirds and ground nesting birds.*

Coastal Douglas Fir Ecosystems:

- The Coastal Douglas Fir Biogeoclimatic Zone is a collection of rare and unique ecosystems, including Douglas fir forests, wetlands, coastal shorelines, riparian areas, and Garry Oak ecosystems. The distribution is limited to a small area of southeastern Vancouver Island, the Gulf Islands, and the Sunshine Coast.
- Coastal Douglas Fir ecosystems are one of the rarest forest types in BC and the smallest in distribution. Less than 1% of old growth Coastal Douglas Fir ecosystems still exist.
- Old growth stands support many species at risk including Northern Goshawk and Marbled Murrelet (South Coast Conservation Program, 2022).
- Douglas fir forests have the highest average bird counts of any forest type in North America (CRD, 2021).
- *Dogs can trample wildflowers, cause soil compaction and erosion on slopes, spread invasive plant seeds on fur, and disturb species at risk and ground nesting birds.*

Garry Oak Ecosystems:

- Garry Oak ecosystem in Canada is restricted to the southeast coast of Vancouver Island, adjacent Gulf Islands and two locations on the mainland of southwestern BC.
- Garry Oak ecosystems are characterized by Garry Oaks in the canopy, and Camas Lily and many native wildflowers in the understory.
- Garry Oak ecosystem are home to more plant species than any other terrestrial ecosystem in coastal BC, many of these species occur nowhere else in Canada.
- Less than 5% of these ecosystems remain in near-natural conditions, and are among the most endangered ecosystems in Canada.



Some examples of important ecosystems in Saanich (from left): Colquitz River mudflats and riparian restoration; Garry Oak Meadow; Western Screech Owl.

Photo credit from left: Cheryl Redhead and Angela Wyatt; DoS; Ann Nightingale.

- More than 100 species of plants, mammals, reptiles, birds, butterflies and other insects in Garry Oak ecosystems are listed as species at risk and many are protected under the Species At Risk Act (GOERT, 2022).
- *Dogs can impact Garry Oak ecosystems by trampling wildflowers, compacting soil, eroding slopes, and spreading of invasive plant seeds on fur. Also, nitrogen enrichment from dog feces increases soil nutrients that allow for colonization by plants such as blackberry and scotch broom.*

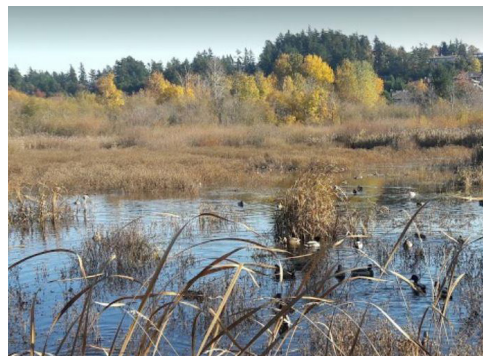
Great Blue Heron Nesting:

- Heron habitat includes riparian areas, estuaries, lakes, and lowland rivers. Herons prefer to forage on eelgrass beds, mudflats, beaches, and streams. They primarily eat fish, but will also eat amphibians, voles, mice and shrews. Heronries are typically located within 10km of foraging ground.
- From January to March adult herons return to the heronry to start constructing nests. Eggs are laid and chicks hatch from April to September (South Coast Conservation Program, 2022)
- *Dogs may disturb herons from foraging and may cause nesting herons to leave, and sometimes abandon their nests which increases the possibility of predation on young.*

Rare Species:

Saanich is home to 184 species at risk including:

- Sharp-Tailed Snake
- Western Screech Owl
- Common Nighthawk
- Northern Pacific Tree Toad
- Purple Martin



Some examples of important ecosystems in Saanich (from left): Douglas Fir forest; Garry Oak Meadow; Rithe's Bog.

Photo credit from left: Habitat Acquisition Trust; Lees+Assoc; Rithe's Bog Conservation Society.

Management Strategies

Toronto, Seattle, San Francisco, Edmonton, Vancouver, City of Victoria, Nanaimo, Metro Vancouver, and the Capital Region District have adopted a combination of these management strategies.



Creative waste management signage in the City of North Vancouver



Herefordshire signage explaining seasonal restrictions to protect ground nesting birds.

Keep Plants and Wildlife Healthy: Best Management Practices

- Keep dogs licensed and vaccinated.
- Stay on the trail.
- Keep dogs on leash unless in designated off-leash area.
- Pick up dog waste and deposit in appropriate bin.
- Do not let dogs chase wildlife.
- Keep dogs out of ecologically sensitive areas such as estuaries, riparian areas, wetlands and Garry Oak meadows.

Community Based Social Marketing

A study on proper dog waste disposal in Chicago, Illinois, found that signage alone was not effective in encouraging people to pick up dog waste, raising the compliance rates from the baseline 5% to 6% after signage was installed. However, personal education raised compliance to 63% (Jason et al, 1979). Similarly, leash compliance on Long Beach in Pacific Rim National Park Reserve on Vancouver Island increased from 39% to 60-70% after educational signage, beach patrols and personal interactions were implemented (Zharikov, 2019).

Beach Restrictions

Seattle does not allow dogs on beaches due to the environmental impact. Vancouver and the City of Victoria Area allow dogs on beaches only in designated Off-Leash Areas and at certain times of the year.

Seasonal Restrictions

Saanich, among other municipalities, has seasonal restrictions to protect nesting and wildlife habitat, as well as for public health.

Buffer Zones

Buffer zones created by fencing and/or signage around environmentally sensitive areas, or wildlife habitat, can be an effective management technique (Gomez-Serrano, 2020).

Stewardship Programs

The U.S. National Park Service has adopted the B.A.R.K. Ranger Program where dog owners volunteer to model good park behaviour and teach other dog owners about the environment.

B.A.R.K. stands for:

- Bag your pet's waste
- Always leash your pet
- Respect wildlife
- Know where you can go

The City of Seattle successfully partners with two volunteer stewardship groups to help monitor and maintain the city's Off-Leash Areas. The stewardship groups do day-to-day maintenance, which includes providing dog waste bags, volunteer management, fundraising, sponsorship, light trail maintenance, and amenity maintenance - anything that does not require heavy machinery (Seattle Department of Parks and Recreation, 2022).

The City of Vancouver has started a "Dogs for the Environment" Stewardship Program where participants will help to protect wildlife and the environment, contribute to change in Vancouver parks, build community through teamwork and nurture happy and healthy dogs (City of Vancouver, 2022).

Vaccinations & Timely Removal of Pet Waste

Ensuring timely vaccination and removal of outdoor pet feces will reduce the chance of disease transmission to wild animals. Many parasites require a few days to reach the infective stage, so disposing of waste immediately can effectively limit disease transmission (Associated Veterinary Medical Center, 2020).



An enthusiastic participant in the US National Park Service B.A.R.K. program



Specialized dog waste bins in the City of North Vancouver



A cat sporting a fashionable Birdbesafe collar.

Cat Management

Keeping your cat inside is the most effective way of eliminating its predation on birds and mammals. However, other strategies can be effective. A 2021 study in England (Cecchetti et al.) surveyed 355 cats over a 12 week trial. The authors found the following:

- Bright collars (e.g. brand Birdbesafe) reduced bird kills by 42%. Cat bells had no effect.
- Playing with cats 5-10 minutes per day reduced cat predation on small mammals by 25%.
- Feeding cats a grain-free meat based diet reduced hunting by 36%.
- Most mammal hunting takes place at night, so keeping cats inside at night can reduce its impact on mammal wildlife.

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