

# Assessment of the Wildlife Potential of North Saanich Parks

## *Final Report 2022*



*Prepared for*

**Friends of North Saanich Parks**

**District of North Saanich  
British Columbia, Canada**

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**Cover photos:**

From left to right: Barred Owl (*Strix varia*) at RO Bull Park, Prentice Pond, Mallards (*Anas platyrhynchos*) at Green Park, and a wildlife tree at RO Bull Park. Photo credits: Riley Waytes.

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## SUMMARY

An assessment of the wildlife potential of eight parks in North Saanich was completed for the nonprofit organization Friends of North Saanich Parks. The parks include Quarry Park, Gulf View Park, Lillian Hoffar Park, Nymph Point Park, Green Park, Denham Till Park, RO Bull Park, and Prentice Pond Park. These parks vary in size, history, and in the types of habitats they offer. While these parks are important for human recreation, they also serve as valuable habitat for local wildlife. The wildlife, plants and ecosystems within the parks may be negatively impacted by human activity, and face threats from invasive plants and animals. In light of this, it is important to understand the species of wildlife that may be using the parks and how human activity and other factors may affect them. For each park a summary of common and rare species is provided with a brief discussion of habitat preferences, particularly relative to the habitats present in each park. A high-level discussion of disturbance regimes, including fragmentation at each park relative to wildlife is provided along with a brief discussion of the potential effects of climate change.

Using available data from the BC Species & Ecosystems explorer, the BC Conservation Data Centre, and eFauna BC, and the Global Biodiversity Information Facility that includes records from sources such as the Royal BC Museum, iNaturalist research-grade observations, eBird observation datasets, and the International Barcode of Life project, we generated a list of wildlife species that may occur in the parks from species known to occur in North Saanich. We identified five species of amphibians, two species of reptiles, eight species of mammals, 181 species of birds, and 22 species of invertebrates that occur in North Saanich and had the potential to occur in the parks. Of these species, thirty were confirmed as occurring in at least one of the parks by volunteers. Five were confirmed as occurring in at least one of the parks but not at a species level (e.g., 'rabbits' were reported in several parks, but it was unclear whether they were Eastern Cottontail (*Sylvilagus floridanus*), Domestic Rabbits (*Oryctolagus cuniculus*), or both). Twenty of the species that had the potential to occur in the parks were listed species on Blue or Red lists for BC, although none of those species had been confirmed by volunteers or during site visits.

Except for those species which were identified by volunteers, the wildlife list presented in this report represents potential wildlife which may occur in the parks and should not be considered comprehensive. Especially in the case of less charismatic or otherwise understudied taxonomic groups (such as arthropods), the absence of certain species in the list may be more representative of a lack of survey effort in North Saanich rather than an actual absence. Further ground-truthing would help confirm the presence of certain species. Furthermore, the park-specific assessments were completed at a broad level. This was done to create a generalized list of potential habitat requirements for each group as to address general habitat needs in the context of the parks and because interest in the habitat needs or requirements for specific species would require more in-depth surveys.

Recommendations are provided to increase the capacity for wildlife using the parks. For some of the parks, human use may be prioritized over wildlife use, such as the playground portion of Denham Till. However, wildlife presence is a valuable consideration for human enjoyment of the parks, and casual visitors as well as naturalists may value these parks for the presence and diversity of wildlife species. Furthermore, certain parks, such as RO Bull Park, afford some level of protection to valuable habitats such as old growth Douglas-fir and the wildlife species that rely on those habitat types.

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## 1.0 INTRODUCTION

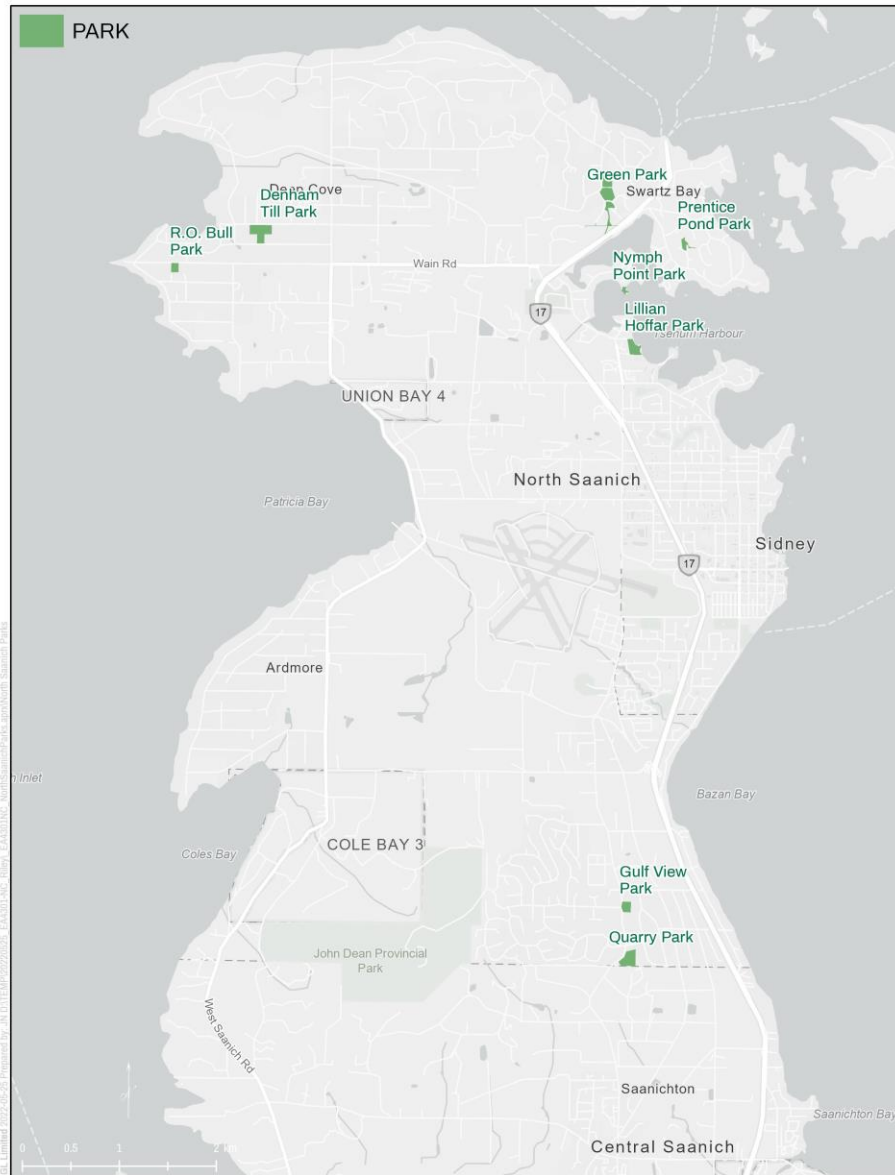
There are a number of municipal parks that exist in North Saanich for the enjoyment of residents and visitors. These parks vary in size, history, and in the types of habitats they offer. While these parks are important for human recreation, they also serve as valuable habitat for local wildlife. The wildlife, plants and ecosystems within the parks may be negatively impacted by human activity, and face threats from invasive plants and animals. In light of this, it is important to understand the species of wildlife that may be using the parks and how human activity and other factors may affect them.

We assessed the wildlife potential of eight parks in North Saanich for the nonprofit organization Friends of North Saanich Parks. The parks include Quarry Park, Gulf View Park, Lillian Hoffar Park, Nymph Point Park, Green Park, Denham Till Park, RO Bull Park, and Prentice Pond Park (Map 1).

The purpose of this report is to discuss what the current habitats of the eight parks offer to wildlife in the area, how that might be expected to change in the future due to impacts of climate change, and what steps can be taken to protect and enhance wildlife use of the parks. Specifically, our goals were to:

1. Summarize common and rare wildlife species that occur in North Saanich based on existing data sets and known species ranges;
2. Discuss the preferences of these species relative to what is known about the parks in terms of plant communities and habitat availability; and
3. Discuss the effects of disturbance regimes in the parks, climate change, and the habitat connectivity of the parks to other natural spaces.

The information presented in this report is best described as a current state of the knowledge summary for each park. Except for those species which were identified by volunteers, the wildlife list presented in this report represents potential wildlife which may occur in the parks and should not be considered comprehensive. Especially in the case of less charismatic or otherwise understudied taxonomic groups (such as arthropods), the absence of certain species in the list may be more representative of a lack of survey effort in North Saanich rather than an actual absence. Further ground-truthing would help confirm the presence of certain species. Similarly, any discussion of the potential effects of disturbance and/or climate change on habitats or wildlife present in each park is not presented in an exhaustive manner. This report provides a high-level overview only and further work is required to provide detailed assessment of wildlife presence and of the potential effects of climate change on those wildlife.



**Map 1.** Location of the eight parks in North Saanich, with park boundaries indicated in green. Parks include Gulf View, Quarry Park, RO Bull Park, Lillian Hoffar Park, Denham Till Park, Green Park, Nymph Point Park, and Prentice Pond.

### 1.1 Focal parks in North Saanich

The eight parks that are the focus of this report are located within North Saanich and range from 1.5 ha to 4 ha in size. They are located within the traditional territory of the WSÁNEĆ peoples.

For more in-depth description of the vegetation and habitats at the site, please see Williams (2021) and Adams (2021).

### 1.1.1 Quarry Park

This 2 ha park was the former site of a quarry (Figure 1). Forested areas in the park include a mixed-age Douglas-fir (*Pseudotsuga menziesii*) stand and a Western Redcedar (*Thuja plicata*) stand (Williams 2021). It also hosts a small Garry oak (*Quercus garryana*) meadow. There is a picnic area in the park and walking trails.



Figure 1. Site of the former quarry in Quarry Park. Nearby there is a picnic table and walking trail.

### 1.1.2 Gulf View Park

One of the smaller parks at 1.5 ha, this site was formerly farmland before being converted into a park. The site is comprised of a maintained grassy meadow intended for picnicking, surrounded by both young and mature mixed stands of Douglas-fir and Grand Fir (*Abies grandis*) (Adams 2021). There is also a small Garry Oak meadow in the park (Figure 2; Williams 2021).





Figure 2. A small Garry Oak meadow located in Gulf View Park.

### 1.1.3 Lillian Hoffar Park

This 1.6 ha waterfront park was historically part of the ancestral winter village of the WSIKEM (Tseycum) First Nation (Municipality of North Saanich n.d.). The middle of the park is a large grassy meadow containing ornamental shrubs and flowering plants (Figure 3), and the entrance path to the park is lined with ornamental trees. There are three forested areas of the park, including a young mixed Douglas-fir and Grand fir forest, a wet area with slough sedge and Western Redcedar, and a shrubby area with Black Cottonwood (*Populus trichocarpa*) and Red-osier Dogwood (*Cornus stolonifera*) (Adams 2021; Williams 2021). In addition to the forested and meadow areas, the park contains a stretch of marine foreshore which includes archaeological sites.





Figure 3. A maintained meadow area in the middle of Lillian Hoffar Park, surrounded by shrubs and trees.

#### 1.1.4 Nymph Point Park

A relatively small municipal park, Nymph Point has two main sections (Figure 4). The more inland portion of the park is shrub-dominated, with Red Alder (*Alnus rubra*), willows (*Salix* sp.), Hawthorne (*Crataegus monogyna*), and Red-osier Dogwood (Adams 2021). This area is relatively wet. The promontory portion of the site, which includes marine foreshore, is drier and has larger tree species such as Arbutus and Douglas-fir, as well as a small Garry Oak Meadow (Adams 2021) with a relatively open canopy. Similar to Lillian Hoffar Park, this park has marine foreshore and First Nations archaeological sites.



Figure 4. Two of the habitats present at Nymph Point Park; a wet, shrubby area (left) and a drier area with more mature trees (right).



### 1.1.5 Green Park

One of the larger parks at around 4 ha, this park was a former farm that contains a large variety of ecosystems and has two artificial ponds (Figure 5), in addition to a wetland area. The forest is relatively young, with the majority of trees around 45-65 years of age, with some more mature exceptions (Williams 2021). The main forest trees include Douglas-fir, Western Redcedar, Red Alder, Grand Fir, and Black Cottonwood (*Populus trichocarpa*). There is also a grassy maintained area in the park (Adams 2021).



Figure 5. A pond at Green Park.

### 1.1.6 Denham Till Park

Denham Till park is a former farm site that now hosts a large grassy area with a playground (Figure 6), a hazelnut orchard with some older fruit trees nearby, and a more mature (65-85 years old) Douglas-fir and Grand Fir forest stand (Williams 2021).



Figure 6. A large, mowed grass area at Denham Till Park.

### 1.1.7 RO Bull Park

This small (2 ha) park hosts a stand of old growth Douglas-fir (Figure 7), as well as Grand Fir, Western Redcedar, and a small Garry Oak meadow (Williams 2021). It is relatively undisturbed compared to other parks and has comparatively fewer invasive species (Adams 2021).





Figure 7. An old growth stand at RO Bull Park.

#### 1.1.8 Prentice Pond Park

Prentice Pond Park features a freshwater pond and some wetland areas. Tree species include Bigleaf Maple (*Acer macrophyllum*), Western Redcedar, Red Alder, and Douglas-fir (Figure 8). There are abundant ferns in the wet areas of the site, as well as salmonberry (*Rubus spectabilis*) and the invasive creeping buttercup (*Ranunculus repens*).





Figure 8. Walkway in Prentice Pond Park.

## 2.0 WILDLIFE POTENTIAL IN NORTH SAANICH PARKS

### 2.1 Methods

We generated a list of wildlife species that may occur in the parks from species known to occur in North Saanich. We first queried the BC Species & Ecosystems explorer (BSCEE, BC CDC 2022) for a list of vertebrates and invertebrates that might occur in the municipality of North Saanich. We then refined this list by cross-referencing the geographic location of known species records and ranges (such as those available from the BC Conservation Data Centre and the platform eFauna BC [Klinkenberg 2021]), as well as on the known habitat preferences of each species. Additionally, we queried the Global Biodiversity Information Facility (GBIF), a biodiversity data infrastructure which includes records from sources such as the Royal BC Museum, iNaturalist research-grade observations, eBird observation datasets, and the International Barcode of Life project. For the GBIF data we searched for animal species located within the administrative area of North Saanich (CAN.2.3.19\_1), limited the data to species and subspecies, and only included recent species records within the past 20 years (2001 to 2021) (GBIF 2022). We then cross-referenced this data set with the BSCEE-generated data. We eliminated marine animals and sea birds because the focus of the wildlife is restricted to the terrestrial and fresh-water portions of the parks and eliminated single records of bird species that were likely accidental occurrences (e.g., vagrants) unless the presence of the species had also been confirmed by a volunteer.

We asked volunteers who regularly worked in and were otherwise familiar with the parks to submit wildlife sightings. Wildlife records were restricted to 2020 to present, and included sample year, month or season, sight frequency, location, biota, and abundance. In cases where the species identification was not known, a higher taxonomic label was applied (e.g., 'owl' instead of Great Horned Owl [*Bubo virginianus*]). Volunteer

records were used to supplement as well as to confirm the list of wildlife that potentially could occur in the parks.

Except for those species which were identified by volunteers, the wildlife list presented in this report represents potential wildlife which may occur in the parks and should not be considered comprehensive. Especially in the case of less charismatic or otherwise understudied taxonomic groups (such as arthropods), the absence of certain species in the list may be more representative of a lack of survey effort in North Saanich rather than an actual absence. Further ground-truthing would help confirm the presence of certain species.

## 2.2 Results and discussion

### 2.2.1 Wildlife species list

We identified five species of amphibians, two species of reptiles, eight species of mammals, 181 species of birds, and 22 species of invertebrates that occur in North Saanich and had the potential to occur in the parks (see Appendix). Of these species, thirty were confirmed as occurring in at least one of the parks by volunteers. Five were confirmed as occurring in at least one of the parks but not at a species level (e.g., 'rabbits' were reported in several parks, but it was unclear whether they were Eastern Cottontail (*Sylvilagus floridanus*), Domestic Rabbits (*Oryctolagus cuniculus*), or both). Twenty of the species that had the potential to occur in the parks were listed species on Blue or Red lists<sup>1</sup> for BC, although none of those species had been confirmed by volunteers or during site visits.

Of the five amphibian species identified, Pacific Chorus Frog (*Pseudacris regilla*) and Rough-skinned Newt (*Taricha granulosa*) have been identified as occurring at Green Park, and Rough-skinned Newts have been recorded at Prentice Pond. Considerations for amphibians in the parks include access to habitats for breeding (water sources such as ponds, creeks, and wetlands), nearby terrestrial habitat (such as forested habitat), the presence of riparian and emergent vegetation near water for foraging and avoiding predators and reducing disturbance to important habitat by restricting human access (BC Government 2014). The presence of robust populations of aquatic and terrestrial invertebrates is also an important consideration as food availability for amphibians.

A snake species which was likely a Northwestern Garter Snake (*Thamnophis ordinoides*) was recorded in Green Park. Studies on Vancouver Island suggest that forests, and especially forest edges (or forests with less dense canopies), may be a preferred habitat for Northwestern Garter Snakes (Gregory 1984; Dixon-MacCallum 2008). Habitat features to consider for this species include basking sites, hibernation areas, and areas that provide cover (such as herbaceous undergrowth, rocks, or woody debris) (BC Government 2014). Invertebrates, especially earthworms and slugs, are an important component of the Northwestern Garter Snake diet on Vancouver Island (Gregory 1984).

Columbian Black-tailed Deer (*Odocoileus hemionus columbianus*) were the most recorded native mammal species in the parks. Other species included the Common Raccoon (*Procyon lotor*), American Mink (*Neogale vison*), and North American River Otter (*Lontra canadensis*). The dietary requirements of Columbian Black-tailed Deer shift based on seasonal availability, but important food resources include Douglas Fir, Western Redcedar, Salal (*Gaultheria shallon*), understory herbs such as Fireweed (*Chamerion angustifolium*), and lichens (Bunnell 1990). Other habitat considerations for Columbian Black-tailed Deer are the proximity of

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<sup>1</sup>Blue list: any species or ecosystem that is of special concern in BC; Red list: any species or ecosystem that is at risk of being lost (extirpated, endangered, or threatened) in BC.

roads to the park and the availability of shelter, both from the elements (e.g., snow, heat, or rain) and from predators (ability to hide, although predation is likely low due to the location of the parks in more urban environments). The preferred habitat for raccoons is forested areas near water, but they are known to occur in a variety of other habitat types and are very adaptable to suburban environments (Klinkenberg 2021). The proximity to water is an important consideration for Minks and River Otters, including both marine and freshwater sources, as is the availability of space to den nearby (such as previously excavated animal burrows, hollow trees, logs, and stumps, and other natural cavities) (BC CDC 1997; Hatler and Beal 2003).

A large diversity of bird species were identified as occurring in North Saanich. Vancouver Island is situated within the Pacific Flyway, making it an important stop for migratory birds, as well as hosting a number of species year-round. Due to the large number of species identified, we focused our discussion primarily on those birds confirmed by volunteers or during the park visits. These include songbirds, hummingbirds, waterbirds (including waterfowl and herons), woodpeckers, and birds of prey. Some of the species identified (such as many of the shorebirds) are unlikely to be found the parks except for potentially those close to the ocean, such as Lillian Hoffar Park.

A variety of songbirds were confirmed to occur in the parks, including Spotted Towhee (*Pipilo maculatus*), Chestnut-backed Chickadee (*Poecile rufescens*), and Pine Siskin (*Spinus pinus*). The diversity of songbird species is reflected in their various requirements for habitat; some nest in trees, including within tree cavities (such as Nuthatches or Chestnut-backed Chickadee), while others (such as Wilson's Warbler [*Cardellina pusilla*] and Spotted Towhee) nest on the ground. There is similarly a diverse requirement for food resources, as the species list includes insectivores, omnivores, and herbivores.

Volunteers noted that hummingbirds occurred in Lillian Hoffar and Gulf View Parks, which may be one or both of two species: Anna's Hummingbirds (*Calypte anna*) and Rufous Hummingbirds (*Selasphorus rufus*). Both require nectar sources from flowering plants, as well as insect species for their diet.

Waterbirds such as Mallard (*Anas platyrhynchos*) and Wood Duck (*Aix sponsa*) were recorded at Green Park, and Great Blue Heron (*Ardea herodias*) are known to have a rookery near Nymph Point Park. Access to freshwater ponds is important for waterfowl, as is vegetation cover nearby for the ground-nesting Mallards. Wood Ducks require tree cavities for nesting (All About Birds 2022). Great Blue Herons build large stick nests in trees and nest colonially; they typically forage in shallow water (BC MELP 1998).

Woodpeckers found in the parks include Downy (*Dryobates pubescens*) and Pileated Woodpeckers (*Dryocopus pileatus*). The presence of woodpeckers is important for other species that may depend on the cavities they create for nesting. Pileated Woodpeckers especially require trees large enough to support large cavities well above the ground for nesting purposes, which would be more typical in mature forests. Woody debris, especially that on the forest floor, is important for woodpeckers as it can be an important source of invertebrate food such as ants (Torgersen and Bull 1995).

Of the owl species recorded in North Saanich, three species were confirmed by volunteers in the parks: Barred Owl (*Strix varia*), Great Horned Owl, and Northern Saw-whet Owl (*Aegolius acadicus*). Barred Owls nest in cavities, typically in dead trees (Whiklo and Duncan 2014), as do Northern Saw-whet Owls. Great Horned Owls typically use stick nests built by other species (Cannings 2015). Considerations for these species therefore include the presence of trees with cavities (including standing dead trees) and trees with limbs that can support stick nests.

Bald Eagles (*Haliaeetus leucocephalus*) were recorded at several of the parks and are known to breed on the Saanich Peninsula. They require large trees for nesting, typically nesting near the top of the tree (Barry 2015). They have a varied diet, which includes scavenging as well as a wide range of vertebrate prey and are associated with aquatic habitats.

The species of invertebrates that were considered as potential occupants of the parks was small (comprising only 10% of the species list generated for this study), and very few of them were confirmed by volunteers. This is likely due to low survey effort, which is typical for invertebrate species, rather than a lack of invertebrates in the parks. Those species that were confirmed were larger and more charismatic and were limited to three species of bumble bees (*Bombus vosnesenskii*, *B. mixtus*, and *B. sitkensis*). Of the species list that had the potential to occur, there were a wide range of life history traits, habitat requirements, and food requirements. Some of the invertebrates identified were pollinators and therefore require floral resources; these may be general or specific, depending on the species. Some had very specific habitat requirements, such as Propertius Duskywings (*Erynnis propertius*), which are primarily found in Garry Oak ecosystems (GOERT 2003). Some depend on leaf litter for food, such as the Yellow-spotted Millipede (*Harpaphe haydeniana*) and the Pacific Bananaslug (*Ariolimax columbianus*), or for hibernation, such as bumble bees. Several species were semi-aquatic and depended on the presence of water for at least part of their development, including the Blue-eyed Darner (*Rhionaeschna multicolor*) and the Autumn Meadowhawk (*Sympetrum vicinum*).

### 2.2.2 Invasive species

A number of invasive animal species were identified as occurring or having the potential to occur in parks. These species may provide food for native species as prey but may also put pressure on other species in the area through predation or competition.

The invasive European Wall Lizard (*Podarcis muralis*) was confirmed to occur in Green Park and RO Bull Park, and likely occurs in more of the parks, considering their prevalence across Saanich Peninsula. These species was first introduced in 1967 and its range in Southern Vancouver Island has greatly expanded since then (ISC 2022a). It is unclear of the extent of their impact on native ecosystems, but they may compete with local species (such as the native Northern Alligator Lizards, *Elgaria coerulea*; Bertram 2004) and predate native arthropods.

Invasive mammal species include the Eastern Grey Squirrel (*Sciurus carolinensis*), rabbits, and rats (*Rattus* sp.). The Eastern Grey Squirrel may present a threat to native trees and plants due to foraging activities that damage trees or bulbs, can compete with other cavity-nesting animals for nesting space, and may predate birds and bird eggs (BC Ministry of Environment n.d.). Reports of rabbits in the parks by volunteers likely refer to Eastern Cottontail (*Sylvilagus floridanus*) or European Domestic Rabbits (*Oryctolagus cuniculus*), as species native to BC such as White-Tailed Jackrabbits (*Lepus townsendii*), Snowshoe Hares (*Lepus americanus*), and Mountain Cottontails (*Sylvilagus nuttallii*) are not known to occur in the area. Both introduced species of rabbits can threaten native plants and sensitive ecosystems such as Garry Oak habitats and are considered nuisance species (ISC 2022b and 2022c).

While rats may be a larger concern for human residences and health, they also may prey on ground-nesting birds (Wildsafe BC n.d.). A tangential concern for rats is the use of rodenticide to control their population, which can result in the secondary poisoning of other wildlife such as owls.

American Bullfrog (*Lithobates catesbeianus*) were not reported by any of the volunteers to occur in the parks but do occur in North Saanich. Bullfrogs are the largest species of frog to occur in BC and can outcompete native species. They are generalist foragers and will predate other species of amphibians, making them a threat to native species (ISC 2022d).

A number of earthworms were noted during soil pit excavation (soil pit results will be discussed in a separate report). Some earthworm species in North America, including the Common Earthworm (*Lumbricus terrestris*), are introduced (Reynolds and Wetzel 2012), and it is possible that the earthworms found in the parks are exotic species. However, several native earthworm species do exist in British Columbia, including



*Arctiostrotus vancouverensis* on Vancouver Island (McKey-Fender and Fender 1994). Closer examination would be required for identification to species.

### 3.0 ASSESSMENT OF INDIVIDUAL PARKS

#### 3.1 Methods

After generating a list of species that had a high potential to be in the parks (based on previous species records in North Saanich) or that were confirmed to be in the parks by in-person observations, we sorted the species into general groups. This was done to create a generalized list of potential habitat requirements for each group. It should be noted that these groups were deliberately kept broad as to address general habitat needs in the context of the parks; interest in the habitat needs or requirements for specific species would require more in-depth surveys. The groups of interest included amphibians, reptiles, birds, mammals (with a major focus on the Columbian Black-tailed deer), and invertebrates.

For amphibians we assessed the availability of water in the parks for breeding. In parks with available water, we also noted the presence of riparian and emergent vegetation around the water source, as this is an important consideration for foraging and protection from predators. We also evaluated the degree of disturbance (such as from human and canine trampling) around the edges of the water source. For the one native reptile identified as potentially being in the parks (*Thamnophis ordinoides*), which is thought to prefer edge habitats near forests (Gregory 1984; Dixon-MacCallum 2008 [M.Sc. thesis]), we identified areas of open ground near forest edges.

There is a breadth of bird species that may use the parks, from waterfowl to songbirds to birds of prey, and we assessed a number of different features to more fully incorporate this category. Trees are an important resource for a variety of bird species life history requirements. We noted the presence of large trees and standing dead trees for cavity nesting birds. We also noted trees with large branches or snags that offered space for roosting and perching. When possible, we noted any obvious wildlife use of trees, such as foraging or perching birds, as well as woodpecker feeding holes and cavities for nesting. We noted the presence of open water and the availability of cover in proximity to the water (such as forest habitat or riparian vegetation) for waterfowl. We noted trees, shrubs, and forbs that could provide sources of food, depending on the dietary requirement of the birds.

Our focus on mammal use of the parks was primarily on Columbian Black-tailed Deer, a charismatic wildlife species that is native to the area. Food considerations for these deer include Douglas-fir and Western Redcedar, particularly for winter forage, as well as various native plants such as Salal, *Rubus* species, and Fireweed (Bunnell 1990). Other habitat considerations include cover, both for security (hiding from predators) as well as protection from the weather.

To categorize the habitat needs of invertebrates poses a challenge, as this is a hugely diverse group with a variety of different life history requirements and is under-surveyed in the parks. While more dedicated study in this area is required, both in these parks specifically and in BC, we were limited to generalizations about habitat requirements. For ground-dwelling invertebrates, we considered the presence of litter on the forest floor, the presence of bare, undisturbed ground, and the degree of disturbance of the forest floor. We noted the presence of woody debris, an important resource for some invertebrates as well as other wildlife (such as hollow logs or stumps, which can provide homes for minks, racoons, or rodents). We noted the presence of water for aquatic or semi-aquatic invertebrates (such as dragonflies). We considered the availability of floral resources for pollinating insects.

In addition to evaluating the habitat for specific wildlife groups, we noted signs of disturbance in the parks. This included disturbance due to park management (e.g., mowing, pruning) and disturbance due to park visitors (e.g., trampling vegetation, litter). We also recorded invasive species that we encountered during surveys.

Finally, we assessed the connectivity of the parks relative to the surrounding area. This included noting nearby roads and development in proximity to the parks.

The in-person surveys were conducted on May 9 and 10 of 2022. They were informal (there were no dedicated surveys for wildlife or habitat) and are meant to compliment the list of wildlife species generated as potentially occurring in the parks, as well as previous surveys conducted on the vegetation communities in the parks (see Adams 2021 and Williams 2021).

### 3.2 Wildlife notes on individual parks

Below we discuss wildlife species confirmed to occur in the parks, the current condition of the park habitats, and factors which may affect wildlife use of the parks. We present wildlife species confirmed by volunteers in each park but would like to emphasize that there were no formal wildlife surveys conducted and that many more species occur in the parks than are listed here (see Section 2.0). In addition, we discuss implications of park connectivity as it relates to wildlife and potential impacts that climate change may have on the parks.

#### 3.2.1 Quarry Park

While some of the trees in the park are still young, there are mature trees present that would offer perching opportunities for birds. At least one owl species was recorded in the park (Table 1), although its unclear whether it nests in the area. Given the proximity of Gulf View Park and LAU, WELNEW/John Dean Park, wildlife such as deer likely frequent this park as well, although they were not reported by volunteers. There are limited standing dead trees, which are mostly limited to the cedar portion of the park, but there are a number of stumps and some deadfall on the forest floor.

Plant food resources available in the park include tree species such as Western Redcedar, Douglas-fir, and Bigleaf Maple trees, as well as Snowberry (*Symphoricarpos albus*), Thimbleberry (*Rubus parviflorus*), and Saskatoon (*Amelanchier alnifolia*).

The forest floor is largely intact in the forested areas of the park, but the picnic area in the site of the former quarry looked like it may have leaf litter cleared. Exposed soil in and around the base of the rock face in the park offers nesting opportunities for ground-dwelling invertebrates. Crevices in the rocky outcrop may provide nesting opportunities for smaller vertebrates and invertebrates.

There was evidence of human activity in the park, including some garbage (Figure 9). The picnic area of the park looks well trodden. There were a number of exotic plant species present in this area, including English Daisy (*Bellis perennis*), Creeping Buttercup, and Herb Robert (*Geranium robertianum*).

**Table 1.** Wildlife species confirmed by volunteers for Quarry Park. The owl was not reported to species but was likely a Great Horned or Barred Owl.

| Class | Common name       | Scientific Name         |
|-------|-------------------|-------------------------|
| Aves  | Great Horned Owl* | <i>Bubo virginianus</i> |
|       | Dark-eyed Junco   | <i>Junco hyemalis</i>   |
|       | Barred Owl*       | <i>Strix varia</i>      |



Figure 9. Picnic bench in Quarry Park, with evidence of garbage left by a previous visitor.

### 3.2.2 Gulf View Park

There are some larger trees in the park that could provide perching or roosting opportunities for birds, such as the Northern Saw-whet Owl recorded in the park (Table 2). The dense shrubs near the front of the park and along the perimeter could offer secure bedding or nesting opportunities for wildlife. The Garry Oak portion of the park offers valuable habitat for species that depend on the availability of native plants such as Camas (*Camassia quamash*).

Food resources in the park includes tree species such Douglas-fir and Bigleaf Maple. There was evidence of at least two bird species (Chestnut-backed Chickadee and Wilson’s Warbler) eating maple flowers during the park visits. Other food species include Snowberry, Nootka Rose (*Rosa nutkana*), and Oregon Grape (*Mahonia aquifolium* and *nervosa*).

Woody debris was fairly limited in this park. Leaf litter was largely limited to the areas of the parks with denser shrubs.

The large open meadow area in the middle of the park, which looks like it is mowed, likely does not contribute much in the way of nesting or food resources to wildlife (Figure 10), except for possibly deer browse. There are a number of invasive plant species in this area, including clover (*Trifolium* sp.), English Daisies, and Dovefoot Geranium (*Geranium molle*). Invasive animal species in the area include rabbits. Some garbage was present in the park, possibly from road traffic.



**Table 2. Wildlife species confirmed by volunteers for Gulf View Park.** Records for hummingbirds and rabbits (indicated by an asterisk) were not reported to species and could be one of multiple species.

| Class    | Common name                 | Scientific Name                        |
|----------|-----------------------------|--|
| Aves     | Northern Saw-whet Owl       | <i>Aegolius acadicus</i>               |
|          | Anna's Hummingbird*         | <i>Calypte anna</i>                    |
|          | Wilson's Warbler            | <i>Cardellina pusilla</i>              |
|          | Chestnut-backed Chickadee   | <i>Poecile rufescens</i>               |
|          | Rufous Hummingbird*         | <i>Selasphorus rufus</i>               |
|          | California Quail            | <i>Callipepla californica</i>          |
| Mammalia | Columbian Black-tailed Deer | <i>Odocoileus hemionus columbianus</i> |
|          | Eastern Cottontail Rabbit*  | <i>Sylvilagus floridanus</i>           |
|          | Domestic Rabbit*            | <i>Oryctolagus cuniculus</i>           |
|          | Common Raccoon              | <i>Procyon lotor</i>                   |



**Figure 10.** The mowed portion of Gulf View Park may reduce resource availability for some wildlife.

### 3.2.3 Lillian Hoffar Park

Lillian Hoffar Park offers a variety of habitats to wildlife, and its proximity to the ocean makes it a valuable location for animals such as Bald Eagles and River Otters (Table 3). The park hosts large trees suitable for cavity nesters, including standing dead trees and snags for nesting and perching (Figure 11). Woodpecker activity was evident in the park. Patches of forest in the parks could provide cover for animals, and shrubs and forested areas would support nesting and bedding areas for wildlife. Available food plants in the park include Bigleaf Maple and Douglas-fir trees, as well as Salmonberry, Oregon Grape, and Saskatoon.



Some woody debris exists in the park, some of which looks like it may have been purposefully deposited. Tree litter (leaf and needle) exist in the forested areas of the park but is largely absent from the mowed meadow and garden area. A large concrete pad in part of the park prevents vegetation in that area.

The mowed portion of the park has many ornamental flower species, some of which seem to be ingressing into other, non-maintained parts of the park. Invasive plants such as English Daisy and Dandelion (*Taraxacum officinale*) are present in the maintained areas of the park. Creeping buttercup is present in some of the wetter areas of the park. Invasive animal species such as rabbits and rats have been recorded in the park. Tire tracks in the park may have been from park visitors or came about due to maintenance activities.

**Table 3. Wildlife species confirmed by volunteers for Lillian Hoffar Park.** Records for hummingbirds and rabbits (indicated by an asterisk) were not reported to species and could be one of multiple species.

| Class    | Common name                | Scientific Name                 |
|----------|----------------------------|---------------------------------|
| Aves     | Great Horned Owl           | <i>Bubo virginianus</i>         |
|          | Anna's Hummingbird*        | <i>Calypte anna</i>             |
|          | Bald Eagle                 | <i>Haliaeetus leucocephalus</i> |
|          | Dark-eyed Junco            | <i>Junco hyemalis</i>           |
|          | Spotted Towhee             | <i>Pipilo maculatus</i>         |
|          | Chestnut-backed Chickadee  | <i>Poecile rufescens</i>        |
|          | Bushtit                    | <i>Psaltriparus minimus</i>     |
|          | Rufous Hummingbird*        | <i>Selasphorus rufus</i>        |
|          | Red-breasted Nuthatch      | <i>Sitta canadensis</i>         |
|          | American Robin             | <i>Turdus migratorius</i>       |
|          | Insecta                    | Fuzzy-horned Bumble Bee         |
| Mammalia | Eastern Cottontail Rabbit* | <i>Sylvilagus floridanus</i>    |
|          | Domestic Rabbit *          | <i>Oryctolagus cuniculus</i>    |
|          | Rat                        | <i>Rattus sp.</i>               |
|          | North American River Otter | <i>Lontra canadensis</i>        |
|          | Common Raccoon             | <i>Procyon lotor</i>            |



**Figure 11.** Animal activity in downed woody debris (top left) and standing trees (top right) at Lillian Hoffar illustrate their importance for wildlife in the parks. Signs of disturbance in the parks included vehicle tracks on the grassy area of the park (bottom left). The park had many ornamental species, not all of which seemed intentionally planted (bottom right).

### 3.2.4 Nymph Point Park

Large trees growing on the promontory in proximity to the ocean can support local species such as Great Blue Herons and Bald Eagles (Table 4). A large portion of the park, however, is fairly shrubby and likely would not support larger birds. There is some woody debris, but not an extensive amount.

The area of the park with more shrubs is fairly wet and would be a poor choice for ground-nesting animals. There is leaf litter in this area. The more exposed portion of the park offers larger trees and a meadow area. Erosion along the shoreline could threaten some of the tree species there.

Invasive plants include Creeping Buttercup in the wet area of the park, and there are a number of invasive plants in the open meadow area of the park including Dovefoot Geranium and English Daisy.

**Table 4. Wildlife species confirmed by volunteers for Nymph Point Park.**

| Class    | Common name      | Scientific Name                 |
|----------|------------------|---------------------------------|
| Aves     | Great Blue Heron | <i>Ardea herodias</i>           |
|          | Bald Eagle       | <i>Haliaeetus leucocephalus</i> |
| Mammalia | Common Raccoon   | <i>Procyon lotor</i>            |



**Figure 12. The proximity of the marina and associated traffic may affect wildlife activity in Nymph Point Park. Erosion is an important consideration for habitat located near the water.**

### 3.2.5 Green Park

The ponds and wetlands in this park host a number of species that need water in some capacity, from waterfowl like Wood Ducks and Mallards to amphibian species such as Pacific Chorus Frogs and Rough-skinned Newts (Table 5; Figure 13). Vegetation is allowed to grow relatively undisturbed to the edge of the ponds for the majority of their perimeter, offering valuable habitat to amphibians and nesting ducks. Aquatic vegetation in the ponds adds additional habitat for aquatic invertebrates.

While many of the trees are relatively young (Williams 2021), there are some older trees in the park that could provide roosting opportunities for larger birds. Several wildlife trees in the park showed signs of woodpecker activity (Figure 13).

Woody debris on the forest floor, likely from windthrow, offers additional habitat to invertebrates and small vertebrates. Leaf and needle litter were present in the forested area of the parks, although tree litter was largely absent from the grassy meadow in the park.

At the time of the park visit the grass was fairly long in the meadow portion of the park, which offers better cover opportunities for invertebrates and small mammals, and a higher potential for pollinators to access flowering species. It is possible that this section of the park is mowed at other times of the year.

Signage in the park encouraged visitors to keep dogs on leash to avoid disturbing nesting ducks, and to not feed ducks bread. Interpretive signage like this is helpful to convey information to the public.

There were a number of exotic plants in the meadow portion of the park, including Dandelions, English Daisies, Clover, and Creeping Buttercup. Invasive animals confirmed to occur in the park include rabbits (Eastern Cottontail or Domestic Rabbits) and European Wall Lizards.



**Table 5. Wildlife species confirmed by volunteers for Green Park.** Records for rabbits (indicated by an asterisk) were not reported to species and could be one of multiple species.

| Class    | Common name                 | Scientific Name                        |
|----------|-----------------------------|--|
| Amphibia | Pacific Chorus Frog         | <i>Pseudacris regilla</i>              |
|          | Rough-skinned Newt          | <i>Taricha granulosa</i>               |
| Aves     | Wood Duck                   | <i>Aix sponsa</i>                      |
|          | Mallard                     | <i>Anas platyrhynchos</i>              |
|          | Downy Woodpecker            | <i>Dryobates pubescens</i>             |
|          | Pileated Woodpecker         | <i>Dryocopus pileatus</i>              |
|          | Spotted Towhee              | <i>Pipilo maculatus</i>                |
|          | American Robin              | <i>Turdus migratorius</i>              |
| Mammalia | Columbian Black-tailed Deer | <i>Odocoileus hemionus columbianus</i> |
|          | Eastern Cottontail Rabbit*  | <i>Sylvilagus floridanus</i>           |
|          | Domestic Rabbit*            | <i>Oryctolagus cuniculus</i>           |
| Reptilia | European Wall Lizard        | <i>Podarcis muralis</i>                |
|          | Northwestern Garter Snake   | <i>Thamnophis ordinoides</i>           |



**Figure 13.** Mallards (top left) are one of the waterfowl species found at Green Park. The ponds have plentiful vegetation along the shore (bottom left), which can offer additional habitat to species using the ponds. The park featured some excellent examples of wildlife trees (right).

### 3.2.6 Denham Till Park

Large portions of Denham Till Park are mowed or otherwise require maintenance and upkeep; in general, the intent of this park seems first and foremost for human use and activity. Hedgerows planted on the perimeter of the park offer habitat to birds. The forested portion of the park does have some larger trees that could provide habitat for birds, and Bald Eagles have been previously spotted in the park (Table 6).

There were a few examples of cavities in some of the Western Redcedar, although there were limited standing dead trees. Shrubs offer additional habitat and cover to deer and other mammals.

The hedgerows and forested section of the park offered some native food sources, such as Douglas-fir, Bigleaf Maple, Salal, Nootka Rose, and Snowberry. The hazelnut orchard and some remnant fruit trees may offer additional food resources (Figure 14).

Stumps and some woody debris in the forested section of the park provide habitat for invertebrates and small mammals. Organic litter is mostly confined to the forested section of the park.

The large section of mowed lawn is of relatively low value for wildlife. There was some garbage on and near the path of the park. Invasive plant species include English Daisy, Dandelion, and Clover in the lawn area, as well as English Ivy (*Hedera helix*) and Himalayan Blackberry (*Rubus armeniacus*) near the forested area. At least one introduced species of rabbit (Eastern Cottontail) has been spotted in the park.

**Table 6. Wildlife species confirmed by volunteers for Denham Till Park.**

| Class    | Common name                 | Scientific Name                        |
|----------|-----------------------------|--|
| Aves     | Bald Eagle                  | <i>Haliaeetus leucocephalus</i>        |
|          | Spotted Towhee              | <i>Pipilo maculatus</i>                |
|          | American Robin              | <i>Turdus migratorius</i>              |
| Mammalia | Columbian Black-tailed Deer | <i>Odocoileus hemionus columbianus</i> |
|          | Eastern Cottontail Rabbit   | <i>Sylvilagus floridanus</i>           |



**Figure 14.** Planted hazelnut trees at Denham Till park may offer additional food resources to wildlife.

### 3.2.7 RO Bull Park

Despite its small size, this park is an excellent example of old-growth habitat. The large trees offer excellent perching and roosting opportunities for birds, and there were several examples of cavities in living and dead



trees as well (Figure 15). The trees provide quite a bit of canopy cover due to their age, which offers protection from weather (such as snow or heat). There was evidence of owl activity in the park (Table 7), including a hunting Barred Owl during the park visit. There were numerous native plant food sources present, including Douglas-fir, Big Leaf Maple, Oregon Grape, Trailing Blackberry (*Rubus ursinus*), and Osoberry (*Osmaronia cerasiformis*). Garry Oak habitat in the park offers additional native plant forage to pollinators.

The forest floor was fairly undisturbed and offered organic litter cover to invertebrates. Plentiful logs and other woody debris on the forest floor offered additional habitat to invertebrates and small vertebrates.

Park maintenance activities seemed minimal. There were some examples of introduced plant species, such as Creeping Buttercup, and the park has rabbits, Eastern Grey Squirrels, and European Wall Lizards (Table 7).



**Figure 15.** Wildlife trees and snags at RO Bull Park are important features for wildlife, providing space for cavity-nesting and perching animals. The extant old-growth trees in the park such as Western Redcedar and Douglas Fir provide additional roosting space.

**Table 7. Wildlife species confirmed by volunteers for RO Bull Park.** Records for rabbits (indicated by an asterisk) were not reported to species and could be one of multiple species.

| Class    | Common name                 | Scientific Name                        |
|----------|-----------------------------|--|
| Aves     | Great Horned Owl            | <i>Bubo virginianus</i>                |
|          | Dark-eyed Junco             | <i>Junco hyemalis</i>                  |
|          | Pine Siskin                 | <i>Spinus pinus</i>                    |
|          | Barred Owl                  | <i>Strix varia</i>                     |
|          | American Robin              | <i>Turdus migratorius</i>              |
|          | California Quail            | <i>Callipepla californica</i>          |
| Mammalia | Columbian Black-tailed Deer | <i>Odocoileus hemionus columbianus</i> |
|          | Eastern Grey Squirrel       | <i>Sciurus carolinensis</i>            |
|          | Eastern Cottontail Rabbit*  | <i>Sylvilagus floridanus</i>           |
|          | Domestic Rabbit*            | <i>Oryctolagus cuniculus</i>           |
|          | Common Raccoon              | <i>Procyon lotor</i>                   |
|          | American Mink               | <i>Neogale vison</i>                   |
| Reptilia | European Wall Lizard        | <i>Podarcis muralis</i>                |

### 3.2.8 Prentice Pond Park

Prentice Pond Park has a wetland area and small freshwater pond, providing valuable habitat for waterfowl, amphibians, and aquatic animals. Rough-skinned Newt were recorded in the area by volunteers (Table 8). The edges of the pond were minimally disturbed and had vegetation that could provide cover for amphibians and waterfowl.

Trees were large enough to support perching and roosting birds. There were signs of cavities in some of the standing dead trees, indicating woodpeckers in the area, as well as providing habitat for cavity-nesting animals.

Broadleaf Maples and Douglas-fir offer food resources to animals, as well as Salmonberry, Thimbleberry, and Snowberry. Pollinators recorded in the park, including the Sitka and Yellow-faced Bumble Bees, additionally benefit from the floral resources the shrubs provide.

The forest floor seemed minimally disturbed, with moss and a layer of organic debris. Tree stumps and fallen logs provided habitat for small mammals and invertebrates.

There were signs off the path indicating recreational use by park visitors, such as sticks arranged into a fort-like structure. There were also tarps present on the ground, which may have been related to park maintenance activities. There seemed to be some ingress of introduced plants from neighboring houses (Figure 16), and invasive plants like Creeping Buttercup and Herb Robert were present in the park. Introduced rabbits have been recorded in the parks as well.

**Table 8. Wildlife species confirmed by volunteers for Prentice Pond Park.** Records for rabbits (indicated by an asterisk) were not reported to species and could be one of multiple species.

| Class    | Common name                | Scientific Name              |
|----------|----------------------------|------------------------------|
| Amphibia | Rough-skinned Newt         | <i>Taricha granulosa</i>     |
| Aves     | Great Horned Owl           | <i>Bubo virginianus</i>      |
|          | Dark-eyed Junco            | <i>Junco hyemalis</i>        |
|          | Barred Owl                 | <i>Strix varia</i>           |
| Insecta  | Sitka Bumble Bee           | <i>Bombus sitkensis</i>      |
|          | Yellow-faced Bumble Bee    | <i>Bombus vosnesenskii</i>   |
| Mammalia | Eastern Cottontail Rabbit* | <i>Sylvilagus floridanus</i> |
|          | Domestic Rabbit*           | <i>Oryctolagus cuniculus</i> |



**Figure 16.** Some of the exotic plants in Prentice Pond Park may be ingress from nearby residences (left). Downed trees offer important habitat for wildlife, including invertebrates (right).

### 3.3 Park connectivity as it relates to wildlife

All the parks are fairly small in size (at a maximum of around 4 ha for the largest park). Because of their limited size, nearby habitat is important to support wildlife and reduce the affect of habitat fragmentation. For many of the parks, the surrounding habitat was mostly residential and suburban. Suburban and urban areas can still support wildlife if appropriate habitat is available, such as trees and shrubs. For example, areas with vegetation, especially with mature trees, have been found to support greater bird diversity in urban environments (Barth et al. 2015), and wooded streets in urban areas can act as wildlife corridors (Fernández-Juricic 2000). Nearby residential areas that offer mature trees can support wildlife in the parks. For some of the parks, nearby houses did offer additional treed habitat. This was not the case for all of the parks, and for Nymph Point especially, developed areas around the park (such as the nearby marina parking lot) served to fragment the park further.

Several parks had larger parks in their vicinity which could offer additional habitat to wildlife. This included ŁÁU,WELNEW/John Dean Park, located relatively close to Quarry and Gulf View Parks, and Horth Hill Park near Green Park. Barriers to wildlife movement to these parks include busy streets, which was the case for Quarry and Gulf View Parks, where animals must cross East Saanich Road to access this area. Fencing that existed around portions of the perimeter in Gulf View Park may further impede wildlife movement.

### 3.4 Potential impacts of climate change

The parks all exist within the Moist Maritime Coastal Douglas Fir (CDFmm) biogeoclimatic subzone, which is characterized by warm, dry summers and mild, wet winters. Average temperatures for all seasons have



increased on Vancouver Island compared to historical values (BC Ministry of Environment 2016) and are anticipated to continue to increase. Precipitation is anticipated to decrease in the summer and increase in the winter (PCIC 2022). This may exacerbate already dry summer conditions. Variable weather trends on the West Coast may result in seasonal droughts or flooding (PCIC n.d.). For example, recent extreme weather events that occurred in British Columbia in 2021 which may be attributable to climate change include a heat dome (an extreme temperature event) that occurred in late June and early July, a drought during the summer, and an atmospheric river that caused flooding in BC in November (Government of Canada 2021).

Impacts of climate change may disrupt hydrology in an area. It could impact soil moisture, water quality, or water availability (Gleick 1989). This could impact the suitability of freshwater sources for wildlife with aquatic or semi-aquatic life histories. These changes would likely not be immediate.

Trees such as Douglas-fir and Western Redcedar offer important habitat for wildlife in the parks. Douglas-fir has some capacity for drought resistance, and in some cases can acclimate to drier environments (Watts 2015). However, reduced water availability in the summer may impact Douglas-fir productivity, and extreme temperatures may damage the trees (Spittlehouse 2003). A study on Western Redcedar dieback suggested that soil substrate and summer drought may be major contributors, and that Western Redcedar may be more susceptible to dieback in drier sites (Seebacher 2003). Drought stress may also lead to a greater susceptibility of the trees to diseases and pest insects.

Some wildlife species, especially generalists such as Mule Deer, are expected to be able to adapt to climate change (Price and Daust 2016). Other groups, such as amphibians, may be more sensitive to changes in local climate. Invasive species are anticipated to increase with climate change (Price and Daust 2016). Generalists species such as American Bullfrogs and those from warmer climates such as European Wall Lizards will likely continue to expand in population.

Ultimately, it is difficult to say with certainty how climate change will affect the parks and whether it is possible to proactively mitigate its effects. Long-term monitoring activities could help indicate environmental shifts due to climate change.

#### 4.0 RECOMMENDATIONS

These suggestions are based on the current conditions of the parks and our understanding of the wildlife which may use the parks. Their intent is to increase the capacity for wildlife using the parks. For some of the parks, human use may be prioritized over wildlife use, such as the playground portion of Denham Till. However, wildlife presence is a valuable consideration for human enjoyment of the parks. Casual visitors as well as naturalists may value these parks for the presence and diversity of wildlife species

- 1. When possible, conserve wildlife trees in the parks.** Standing dead trees are important for cavity-nesting birds and mammals and are a vital part of a forest ecosystem. These trees should be assessed to ensure they do not cause a hazard to park visitors.
- 2. Leave fallen trees and woody debris on the forest floor.** Woody debris is important for forest productivity, as it contributes to soil nutrition and carbon sequestration, and provides habitat for small mammals and vertebrates.
- 3. Organic debris (such as leaf and needle litter) should be left undisturbed as much as possible.** Organic litter supplies nutrients to the soil, helps to retain soil moisture, and can be important for organisms such as detritivores and soil-dwelling invertebrates.
- 4. Provide trash receptacles in parks to discourage littering.** Accessible trash bins may discourage visitors from leaving litter in the parks.

5. **Avoid excessive pruning of trees and shrubs.** Excessive pruning may cause permanent damage or reduce food and habitat availability for wildlife. Wildlife species depend on many of the trees and shrubs in the parks for foraging, nesting, and shelter.
6. **Control invasive plant species.** Invasive plants may outcompete and prevent the establishment of native plant species. This is a particular concern for animals that are dependent on specific native host plants. Efforts are already being conducted by the Friends of North Saanich Parks to control the ingress of invasive plants, but due to the tenacious nature of the plants this will likely be an ongoing requirement.
7. **Monitor invasive animal species.** It is unclear if there are currently any efforts to control invasive animal species, or how effective control efforts might be. Invasive animals may outcompete or predate native wildlife, and their populations should be monitored. In particular, the ponds at Green Park and Prentice Pond Park should be monitored for signs of Bull Frogs.
8. **Keep visitors on pathways.** Clearly marked pathways and paths where visitors are impeded from going off trail (such as with the use of fences or logs) can limit trampling of the forest floor while allowing visitors to enjoy the park.
9. **Consider encouraging native plants.** There were Garry Oak trees planted relatively recently in several of the parks, which enhance the habitat for birds and other wildlife. Planting and encouraging native plants are important for the wildlife that depend upon their presence. There is potential in some of the parks to create wildflower or Garry Oak meadows, which could benefit local pollinators, birds, and other wildlife, and replace grassy habitat dominated by invasive plants.
10. **Reduce mowing in the parks.** Mowing can disturb wildlife and invertebrates. A reduction in urban mowing has been found to increase insect biodiversity (Helden et al. 2018), which benefits invertebrates as well as insectivores. A reduction in mowing may increase wildflower availability, which would benefit pollinators.
11. **Consider adding permanent interpretive signage.** Educational signage is valuable for helping visitors to understand the importance of natural spaces, as well as to offer instruction to deter negative behaviours. Green Park had signage discouraging visitors from feeding ducks and encouraging visitors to keep dogs on leash to avoid disturbing nesting birds. Signage could enforce good visitor behaviours while they use the parks.
12. **Survey parks for rare or endangered species identified as potentially occurring there.** While we identified numerous rare or threatened species which may occur in the parks, dedicated surveys would help confirm their presence. This would have important implications for management decisions in the parks.
13. **Consider incorporating wildlife enhancements in some of the parks.** This could include adding nesting boxes for wood ducks at Green Park or the addition of bat boxes at some of the parks.

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## 6.0 APPENDIX

**Wildlife species with the potential to occur at eight parks in North Saanich.** Parks include Gulf View (GV), Quarry Park (QP), RO Bull Park (ROB), Lillian Hoffar Park (LH), Denham Till Park (DT), Green Park (GP), Nymph Point Park (NP), and Prentice Pond (PP). Species origin is native (indicated by '.') unless labelled as exotic. SARA labels include Special Concern (SC), Threatened (T), and Endangered (E). Data source indicates where the record originated: GBIF, BCSEE, or volunteer sighting. If species was not observed in a park by a volunteer, it was indicated by '.'; in situations where the species may have been observed, this was indicated by 'possible.'

| Class            | Common name                 | Scientific Name                | Origin | SARA | BC List | Data Source | Observed in park? | Parks observed in |
|------------------|-----------------------------|--------------------------------|--------|------|---------|-------------|-------------------|-------------------|
| Amphibia         | Pacific Chorus Frog         | <i>Pseudacris regilla</i>      | .      | .    | .       | GBIF        | Yes               | GP                |
|                  | Red-legged Frog             | <i>Rana aurora</i>             | .      | SC   | Blue    | GBIF; BCSEE | .                 | .                 |
|                  | Rough-skinned Newt          | <i>Taricha granulosa</i>       | .      | .    | .       | GBIF        | Yes               | GP, PP            |
|                  | American Bullfrog           | <i>Lithobates catesbeianus</i> | Exotic | .    | .       | GBIF        | .                 | .                 |
|                  | Wandering Salamander        | <i>Aneides vagrans</i>         | .      | SC   | Blue    | BCSEE       | .                 | .                 |
| Arachnida        | Running Crab Spider         | <i>Philodromus dispar</i>      | Exotic | .    | .       | GBIF        | .                 | .                 |
| Aves             | Common Redpoll              | <i>Acanthis flammea</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Cooper's Hawk               | <i>Accipiter cooperii</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Sharp-shinned Hawk          | <i>Accipiter striatus</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Spotted Sandpiper           | <i>Actitis macularius</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Northern Saw-whet Owl       | <i>Aegolius acadicus</i>       | .      | .    | .       | GBIF        | Yes               | GV                |
|                  | Red-winged Blackbird        | <i>Agelaius phoeniceus</i>     | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Wood Duck                   | <i>Aix sponsa</i>              | .      | .    | .       | GBIF        | Yes               | GP                |
|                  | Northern Pintail            | <i>Anas acuta</i>              | .      | .    | .       | GBIF        | .                 | .                 |
|                  | American Wigeon             | <i>Mareca americana</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Northern Shoveler           | <i>Spatula clypeata</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Green-winged Teal           | <i>Anas crecca</i>             | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Cinnamon Teal               | <i>Spatula cyanoptera</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Blue-winged teal            | <i>Spatula discors</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Eurasian Wigeon             | <i>Mareca penelope</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Mallard                     | <i>Anas platyrhynchos</i>      | .      | .    | .       | GBIF        | Yes               | GP                |
|                  | Gadwall                     | <i>Mareca strepera</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Greater White-fronted Goose | <i>Anser albifrons</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|                  | American Pipit              | <i>Anthus rubescens</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Golden Eagle                | <i>Aquila chrysaetos</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Great Blue Heron            | <i>Ardea herodias</i>          | .      | .    | .       | GBIF; BCSEE | Yes               | NP                |
|                  | Short-eared Owl             | <i>Asio flammeus</i>           | .      | SC   | Blue    | GBIF; BCSEE | .                 | .                 |
|                  | Ring-necked Duck            | <i>Aythya collaris</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|                  | Canvasback                  | <i>Aythya valisineria</i>      | .      | .    | .       | GBIF        | .                 | .                 |
| Cedar Waxwing    | <i>Bombycilla cedrorum</i>  | .                              | .      | .    | GBIF    | .           | .                 |                   |
| Bohemian Waxwing | <i>Bombycilla garrulus</i>  | .                              | .      | .    | GBIF    | .           | .                 |                   |

| Class        | Common name            | Scientific Name                | Origin | SARA | BC List | Data Source | Observed in park? | Parks observed in |
|--------------|------------------------|--------------------------------|--------|------|---------|-------------|-------------------|-------------------|
| Aves (cont.) | Canada Goose           | <i>Branta canadensis</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Cackling Goose         | <i>Branta hutchinsii</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Snowy Owl              | <i>Bubo scandiacus</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | Great Horned Owl       | <i>Bubo virginianus</i>        | .      | .    | .       | GBIF        | Yes               | LH, PP, ROB, QP*  |
|              | Red-tailed Hawk        | <i>Buteo jamaicensis</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Rough-legged Hawk      | <i>Buteo lagopus</i>           | .      | .    | Blue    | GBIF        | .                 | .                 |
|              | Broad-winged Hawk      | <i>Buteo platypterus</i>       | .      | .    | Blue    | GBIF; BCSEE | .                 | .                 |
|              | Swainson's Hawk        | <i>Buteo swainsoni</i>         | .      | .    | Red     | GBIF        | .                 | .                 |
|              | Lapland Longspur       | <i>Calcarius lapponicus</i>    | .      | .    | .       | GBIF        | .                 | .                 |
|              | Sanderling             | <i>Calidris alba</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Dunlin                 | <i>Calidris alpina</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | Baird's Sandpiper      | <i>Calidris bairdii</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Stilt Sandpiper        | <i>Calidris himantopus</i>     | .      | .    | .       | GBIF        | .                 | .                 |
|              | Western Sandpiper      | <i>Calidris mauri</i>          | .      | .    | .       | GBIF        | .                 | .                 |
|              | Pectoral Sandpiper     | <i>Calidris melanotos</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Least Sandpiper        | <i>Calidris minutilla</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Semipalmated Sandpiper | <i>Calidris pusilla</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Anna's Hummingbird     | <i>Calypte anna</i>            | .      | .    | .       | GBIF        | Possible          | GV*, LH*          |
|              | Wilson's Warbler       | <i>Cardellina pusilla</i>      | .      | .    | .       | GBIF        | Yes               | GV                |
|              | Turkey Vulture         | <i>Cathartes aura</i>          | .      | .    | .       | GBIF        | .                 | .                 |
|              | Hermit Thrush          | <i>Catharus guttatus</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Swainson's Thrush      | <i>Catharus ustulatus</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Brown Creeper          | <i>Certhia americana</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Vaux's Swift           | <i>Chaetura vauxi</i>          | .      | .    | .       | GBIF        | .                 | .                 |
|              | Semipalmated Plover    | <i>Charadrius semipalmatus</i> | .      | .    | .       | GBIF        | .                 | .                 |
|              | Killdeer               | <i>Charadrius vociferus</i>    | .      | .    | .       | GBIF        | .                 | .                 |
|              | Snow Goose             | <i>Anser caerulescens</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Common Nighthawk       | <i>Chordeiles minor</i>        | .      | T    | .       | GBIF; BCSEE | .                 | .                 |
|              | Northern Harrier       | <i>Circus cyaneus</i>          | .      | .    | .       | GBIF        | .                 | .                 |
|              | Marsh Wren             | <i>Cistothorus palustris</i>   | .      | .    | .       | GBIF        | .                 | .                 |
|              | Northern Flicker       | <i>Colaptes auratus</i>        | .      | .    | .       | GBIF        | .                 | .                 |



| Class        | Common name              | Scientific Name                 | Origin | SARA | BC List | Data Source | Observed in park? | Parks observed in |
|--------------|--------------------------|---------------------------------|--------|------|---------|-------------|-------------------|-------------------|
| Aves (cont.) | Olive-sided Flycatcher   | <i>Contopus cooperi</i>         | .      | T    | Blue    | GBIF; BCSEE | .                 | .                 |
|              | Western Wood-Pewee       | <i>Contopus sordidulus</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | American Crow            | <i>Corvus brachyrhynchos</i>    | .      | .    | .       | GBIF        | .                 | .                 |
|              | Common Raven             | <i>Corvus corax</i>             | .      | .    | .       | GBIF        | .                 | .                 |
|              | Blue Jay                 | <i>Cyanocitta cristata</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Steller's Jay            | <i>Cyanocitta stelleri</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Trumpeter Swan           | <i>Cygnus buccinator</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Tundra Swan              | <i>Cygnus columbianus</i>       | .      | .    | Blue    | GBIF; BCSEE | .                 | .                 |
|              | Black Swift              | <i>Cypseloides niger</i>        | .      | E    | Blue    | GBIF; BCSEE | .                 | .                 |
|              | Downy Woodpecker         | <i>Dryobates pubescens</i>      | .      | .    | .       | GBIF        | Yes               | GP                |
|              | Pileated Woodpecker      | <i>Dryocopus pileatus</i>       | .      | .    | .       | GBIF        | Yes               | GP                |
|              | Pacific-slope Flycatcher | <i>Empidonax difficilis</i>     | .      | .    | .       | GBIF        | .                 | .                 |
|              | Hammond's Flycatcher     | <i>Empidonax hammondii</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Willow Flycatcher        | <i>Empidonax traillii</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Rusty Blackbird          | <i>Euphagus carolinus</i>       | .      | SC   | Blue    | GBIF        | .                 | .                 |
|              | Brewer's Blackbird       | <i>Euphagus cyanocephalus</i>   | .      | .    | .       | GBIF        | .                 | .                 |
|              | Merlin                   | <i>Falco columbarius</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Peregrine Falcon         | <i>Falco peregrinus</i>         | .      | SC   | .       | GBIF; BCSEE | .                 | .                 |
|              | American Kestrel         | <i>Falco sparverius</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | American Coot            | <i>Fulica americana</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | Wilson's Snipe           | <i>Gallinago delicata</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | MacGillivray's Warbler   | <i>Geothlypis tolmiei</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Common Yellowthroat      | <i>Geothlypis trichas</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Sandhill Crane           | <i>Antigone canadensis</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Black Oystercatcher      | <i>Haematopus bachmani</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | House Finch              | <i>Haemorhous mexicanus</i>     | .      | .    | .       | GBIF        | .                 | .                 |
|              | Purple Finch             | <i>Haemorhous purpureus</i>     | .      | .    | .       | GBIF        | .                 | .                 |
|              | Bald Eagle               | <i>Haliaeetus leucocephalus</i> | .      | .    | .       | GBIF        | Yes               | DT, LH, NP        |
|              | Evening Grosbeak         | <i>Hesperiphona vespertina</i>  | .      | SC   | .       | GBIF        | .                 | .                 |
|              | Barn Swallow             | <i>Hirundo rustica</i>          | .      | T    | Blue    | GBIF        | .                 | .                 |
|              | Bullock's Oriole         | <i>Icterus bullockii</i>        | .      | .    | .       | GBIF        | .                 | .                 |

| Class        | Common name            | Scientific Name                  | Origin | SARA | BC List | Data Source | Observed in park? | Parks observed in |
|--------------|------------------------|----------------------------------|--------|------|---------|-------------|-------------------|-------------------|
| Aves (cont.) | Varied Thrush          | <i>Ixoreus naevius</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Dark-eyed Junco        | <i>Junco hyemalis</i>            | .      | .    | .       | GBIF        | Yes               | QP, PP, LH, ROB   |
|              | Northern Shrike        | <i>Lanius borealis</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Herring Gull           | <i>Larus argentatus</i>          | .      | .    | .       | GBIF        | .                 | .                 |
|              | Short-billed Gull      | <i>Larus brachyrhynchus</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | California Gull        | <i>Larus californicus</i>        | .      | .    | Blue    | GBIF        | .                 | .                 |
|              | Ring-billed Gull       | <i>Larus delawarensis</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Glaucous-winged Gull   | <i>Larus glaucescens</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | Iceland Gull           | <i>Larus glaucoides</i>          | .      | .    | .       | GBIF        | .                 | .                 |
|              | Heermann's Gull        | <i>Larus heermanni</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Western Gull           | <i>Larus occidentalis</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Orange-crowned Warbler | <i>Leiothlypis celata</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Hairy Woodpecker       | <i>Leuconotopicus villosus</i>   | .      | .    | .       | GBIF        | .                 | .                 |
|              | Franklin's Gull        | <i>Leucophaeus pipixcan</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Short-billed Dowitcher | <i>Limnodromus griseus</i>       | .      | .    | Blue    | GBIF        | .                 | .                 |
|              | Long-billed Dowitcher  | <i>Limnodromus scolopaceus</i>   | .      | .    | .       | GBIF        | .                 | .                 |
|              | Hooded Merganser       | <i>Lophodytes cucullatus</i>     | .      | .    | .       | GBIF        | .                 | .                 |
|              | Red Crossbill          | <i>Loxia curvirostra</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | Belted Kingfisher      | <i>Megaceryle alcyon</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | Swamp Sparrow          | <i>Melospiza georgiana</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Lincoln's Sparrow      | <i>Melospiza lincolni</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Song Sparrow           | <i>Melospiza melodia</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | Common Merganser       | <i>Mergus merganser</i>          | .      | .    | .       | GBIF        | .                 | .                 |
|              | Red-breasted Merganser | <i>Mergus serrator</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Brown-headed Cowbird   | <i>Molothrus ater</i>            | .      | .    | .       | GBIF        | .                 | .                 |
|              | Townsend's Solitaire   | <i>Myadestes townsendi</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Long-billed Curlew     | <i>Numenius americanus</i>       | .      | SC   | Blue    | GBIF        | .                 | .                 |
|              | Whimbrel               | <i>Numenius phaeopus</i>         | .      | .    | Red     | GBIF        | .                 | .                 |
|              | Osprey                 | <i>Pandion haliaetus</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | Savannah Sparrow       | <i>Passerculus sandwichensis</i> | .      | .    | .       | GBIF        | .                 | .                 |
|              | Fox Sparrow            | <i>Passerella iliaca</i>         | .      | .    | .       | GBIF        | .                 | .                 |

| Class        | Common name                 | Scientific Name                  | Origin | SARA | BC List | Data Source | Observed in park? | Parks observed in |
|--------------|-----------------------------|----------------------------------|--------|------|---------|-------------|-------------------|-------------------|
| Aves (cont). | Lazuli Bunting              | <i>Passerina amoena</i>          | .      | .    | .       | GBIF        | .                 | .                 |
|              | Band-tailed Pigeon          | <i>Patagioenas fasciata</i>      | .      | SC   | Blue    | GBIF        | .                 | .                 |
|              | Cliff Swallow               | <i>Petrochelidon pyrrhonota</i>  | .      | .    | .       | GBIF        | .                 | .                 |
|              | Black-headed Grosbeak       | <i>Pheucticus melanocephalus</i> | .      | .    | .       | GBIF        | .                 | .                 |
|              | Spotted Towhee              | <i>Pipilo maculatus</i>          | .      | .    | .       | GBIF        | Yes               | GP, LH, DT        |
|              | Western Tanager             | <i>Piranga ludoviciana</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Snow Bunting                | <i>Plectrophenax nivalis</i>     | .      | .    | .       | GBIF        | .                 | .                 |
|              | Pacific Golden-Plover       | <i>Pluvialis fulva</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Black-bellied Plover        | <i>Pluvialis squatarola</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Pied-billed Grebe           | <i>Podilymbus podiceps</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Chestnut-backed Chickadee   | <i>Poecile rufescens</i>         | .      | .    | .       | GBIF        | Yes               | LH*, GV           |
|              | Vesper Sparrow              | <i>Pooecetes gramineus</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Purple Martin               | <i>Progne subis</i>              | .      | .    | Blue    | GBIF; BCSEE | .                 | .                 |
|              | Bushtit                     | <i>Psaltriparus minimus</i>      | .      | .    | .       | GBIF        | Yes               | LH                |
|              | Common Grackle              | <i>Quiscalus quiscula</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Virginia Rail               | <i>Rallus limicola</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Ruby-crowned Kinglet        | <i>Corthylio calendula</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Golden-crowned Kinglet      | <i>Regulus satrapa</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Bank Swallow                | <i>Riparia riparia</i>           | .      | T    | .       | GBIF        | .                 | .                 |
|              | Rufous Hummingbird          | <i>Selasphorus rufus</i>         | .      | .    | .       | GBIF        | Possible          | GV*, LH*          |
|              | Yellow-rumped Warbler       | <i>Setophaga coronata</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Black-throated Gray Warbler | <i>Setophaga nigrescens</i>      | .      | .    | .       | GBIF        | .                 | .                 |
|              | Palm Warbler                | <i>Setophaga palmarum</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Yellow Warbler              | <i>Setophaga petechia</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Townsend's Warbler          | <i>Setophaga townsendi</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | Mountain Bluebird           | <i>Sialia currucoides</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Red-breasted Nuthatch       | <i>Sitta canadensis</i>          | .      | .    | .       | GBIF        | Yes               | LH                |
|              | Red-breasted Sapsucker      | <i>Sphyrapicus ruber</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | Pine Siskin                 | <i>Spinus pinus</i>              | .      | .    | .       | GBIF        | Yes               | ROB               |
|              | American Goldfinch          | <i>Spinus tristis</i>            | .      | .    | .       | GBIF        | .                 | .                 |
|              | Chipping Sparrow            | <i>Spizella passerina</i>        | .      | .    | .       | GBIF        | .                 | .                 |

| Class        | Common name                   | Scientific Name                      | Origin | SARA | BC List | Data Source | Observed in park? | Parks observed in |
|--------------|-------------------------------|--------------------------------------|--------|------|---------|-------------|-------------------|-------------------|
| Aves (cont.) | Northern Rough-winged Swallow | <i>Stelgidopteryx serripennis</i>    | .      | .    | .       | GBIF        | .                 | .                 |
|              | Parasitic Jaeger              | <i>Stercorarius parasiticus</i>      | .      | .    | Red     | GBIF        | .                 | .                 |
|              | Barred Owl                    | <i>Strix varia</i>                   | .      | .    | .       | GBIF        | Yes               | PP, ROB, QP*      |
|              | Western Meadowlark            | <i>Sturnella neglecta</i>            | .      | .    | .       | GBIF        | .                 | .                 |
|              | Tree Swallow                  | <i>Tachycineta bicolor</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Violet-green Swallow          | <i>Tachycineta thalassina</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Bewick's Wren                 | <i>Thryomanes bewickii</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Lesser Yellowlegs             | <i>Tringa flavipes</i>               | .      | .    | .       | GBIF        | .                 | .                 |
|              | Greater Yellowlegs            | <i>Tringa melanoleuca</i>            | .      | .    | .       | GBIF        | .                 | .                 |
|              | Solitary Sandpiper            | <i>Tringa solitaria</i>              | .      | .    | .       | GBIF        | .                 | .                 |
|              | House Wren                    | <i>Troglodytes aedon</i>             | .      | .    | .       | GBIF        | .                 | .                 |
|              | Pacific Wren                  | <i>Troglodytes pacificus</i>         | .      | .    | .       | GBIF        | .                 | .                 |
|              | American Robin                | <i>Turdus migratorius</i>            | .      | .    | .       | GBIF        | Yes               | LH, GP, ROB, DT   |
|              | Western Kingbird              | <i>Tyrannus verticalis</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Cassin's Vireo                | <i>Vireo cassinii</i>                | .      | .    | .       | GBIF        | .                 | .                 |
|              | Warbling Vireo                | <i>Vireo gilvus</i>                  | .      | .    | .       | GBIF        | .                 | .                 |
|              | Hutton's Vireo                | <i>Vireo huttoni</i>                 | .      | .    | .       | GBIF        | .                 | .                 |
|              | Red-eyed Vireo                | <i>Vireo olivaceus</i>               | .      | .    | .       | GBIF        | .                 | .                 |
|              | Yellow-headed Blackbird       | <i>Xanthocephalus xanthocephalus</i> | .      | .    | .       | GBIF        | .                 | .                 |
|              | Mourning Dove                 | <i>Zenaida macroura</i>              | .      | .    | .       | GBIF        | .                 | .                 |
|              | White-throated Sparrow        | <i>Zonotrichia albicollis</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Golden-crowned Sparrow        | <i>Zonotrichia atricapilla</i>       | .      | .    | .       | GBIF        | .                 | .                 |
|              | White-crowned Sparrow         | <i>Zonotrichia leucophrys</i>        | .      | .    | .       | GBIF        | .                 | .                 |
|              | Harris's Sparrow              | <i>Zonotrichia querula</i>           | .      | .    | .       | GBIF        | .                 | .                 |
|              | Eurasian Skylark              | <i>Alauda arvensis</i>               | Exotic | .    | .       | GBIF        | .                 | .                 |
|              | California Quail              | <i>Callipepla californica</i>        | Exotic | .    | .       | GBIF        | Yes               | GV, ROB           |
|              | Rock Pigeon                   | <i>Columba livia</i>                 | Exotic | .    | .       | GBIF        | .                 | .                 |
|              | Mute Swan                     | <i>Cygnus olor</i>                   | Exotic | .    | .       | GBIF        | .                 | .                 |
|              | House Sparrow                 | <i>Passer domesticus</i>             | Exotic | .    | .       | GBIF        | .                 | .                 |
|              | Ring-necked Pheasant          | <i>Phasianus colchicus</i>           | Exotic | .    | .       | GBIF        | .                 | .                 |
|              | Eurasian Collared-Dove        | <i>Streptopelia decaocto</i>         | Exotic | .    | .       | GBIF        | .                 | .                 |



| Class        | Common name                             | Scientific Name                        | Origin | SARA | BC List | Data Source | Observed in park? | Parks observed in             |
|--------------|---|--|--------|------|---------|-------------|-------------------|-------------------------------|
| Aves (cont.) | European Starling                       | <i>Sturnus vulgaris</i>                | Exotic | .    | .       | GBIF        | .                 | .                             |
| Diplopoda    | Yellow-spotted Millipede                | <i>Harpaphe haydeniana</i>             | .      | .    | .       | GBIF        | .                 | .                             |
| Gastropoda   | Pacific Bananaslug                      | <i>Ariolimax columbianus</i>           | .      | .    | .       | GBIF        | .                 | .                             |
|              | Pacific Sidebrand                       | <i>Monadenia fidelis</i>               | .      | .    | .       | GBIF        | .                 | .                             |
| Insecta      | Ocean Spray Fairy Moth                  | <i>Adela septentrionella</i>           | .      | .    | .       | GBIF        | .                 | .                             |
|              | Black-tailed Bumble Bee                 | <i>Bombus melanopygus</i>              | .      | .    | .       | GBIF        | .                 | .                             |
|              | Fuzzy-horned Bumble Bee                 | <i>Bombus mixtus</i>                   | .      | .    | .       | Volunteer   | Yes               | LH                            |
|              | Sitka Bumble Bee                        | <i>Bombus sitkensis</i>                | .      | .    | .       | Volunteer   | Yes               | PP                            |
|              | Yellow-faced Bumble Bee                 | <i>Bombus vosnesenskii</i>             | .      | .    | .       | GBIF        | Yes               | PP                            |
|              | Common Loopwing Aphideater              | <i>Eupeodes lapponicus</i>             | .      | .    | .       | GBIF        | .                 | .                             |
|              | Western Tent Caterpillar                | <i>Malacosoma californica</i>          | .      | .    | .       | GBIF        | .                 | .                             |
|              | Faithful Leafcutting Bee                | <i>Megachile fidelis</i>               | .      | .    | .       | GBIF        | .                 | .                             |
|              | Furry Leafcutting Bee                   | <i>Megachile perihirta</i>             | .      | .    | .       | GBIF        | .                 | .                             |
|              | Pale Swallowtail                        | <i>Papilio eurymedon</i>               | .      | .    | .       | GBIF        | .                 | .                             |
|              | Blue-eyed darner                        | <i>Rhionaeschna multicolor</i>         | .      | .    | .       | GBIF        | .                 | .                             |
|              | Asian Ladybeetle                        | <i>Harmonia axyridis</i>               | Exotic | .    | .       | GBIF        | .                 | .                             |
|              | Western Bumble Bee                      | <i>Bombus occidentalis</i>             | .      | T    | Blue    | BCSEE       | .                 | .                             |
|              | Common Ringlet, insulana subspecies     | <i>Coenonympha tullia insulana</i>     | .      | .    | Red     | BCSEE       | .                 | .                             |
|              | Propertius Duskywing                    | <i>Erynnis propertius</i>              | .      | .    | Red     | BCSEE       | .                 | .                             |
|              | Autumn Meadowhawk                       | <i>Sympetrum vicinum</i>               | .      | .    | Blue    | BCSEE       | .                 | .                             |
| Malacostraca | Common Pill-bug                         | <i>Armadillidium vulgare</i>           | Exotic | .    | .       | GBIF        | .                 | .                             |
|              | Rough Woodlouse                         | <i>Porcellio scaber</i>                | Exotic | .    | .       | GBIF        | .                 | .                             |
| Mammalia     | Mule Deer (Columbian Black-tailed Deer) | <i>Odocoileus hemionus columbianus</i> | .      | .    | .       | GBIF        | Yes               | DT, GP, GV, ROB               |
|              | Eastern Grey Squirrel                   | <i>Sciurus carolinensis</i>            | Exotic | .    | .       | GBIF        | Yes               | ROB                           |
|              | Eastern Cottontail Rabbit               | <i>Sylvilagus floridanus</i>           | Exotic | .    | .       | GBIF        | Possible          | DT, GP*, GV*, LH*, PP*, ROB*  |
|              | Domestic Rabbit                         | <i>Oryctolagus cuniculus</i>           | Exotic | .    | .       | Volunteer   | Possible          | DT*, GP*, GV*, LH*, PP*, ROB* |
|              | Rat                                     | <i>Rattus sp.</i>                      | Exotic | .    | .       | Volunteer   | Yes               | LH                            |
|              | North American River Otter              | <i>Lontra canadensis</i>               | .      | .    | .       | Volunteer   | Yes               | LH                            |
|              | Common Raccoon                          | <i>Procyon lotor</i>                   | .      | .    | .       | Volunteer   | Yes               | GV, LH, NP, ROB               |
|              | American Mink                           | <i>Neogale vison</i>                   | .      | .    | .       | Volunteer   | Yes               | ROB                           |
| Reptilia     | European Wall Lizard                    | <i>Podarcis muralis</i>                | Exotic | .    | .       | GBIF        | Yes               | GP, ROB                       |

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| Class    | Common name               | Scientific Name              | Origin | SARA | BC List | Data Source | Observed in park? | Parks observed in |
|----------|---------------------------|------------------------------|--------|------|---------|-------------|-------------------|-------------------|
| Reptilia | Northwestern Garter Snake | <i>Thamnophis ordinoides</i> | .      | .    | .       | Volunteer   | Possible          | GP                |

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