

Sumac Park and H.M.S. Plumper Park Overview

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Introduction

The parks of North Saanich play crucial roles in both the human and natural world. While parks are typically altered or manipulated for human recreation and enjoyment, it is important not to overlook the ecosystem services that these areas provide for the wildlife and natural processes of North Saanich. Public parks serve as a habitat for a wide array of plants and animals, acting as a network of islands of refuge within a much larger sea of human developments. The parks of North Saanich also aid in ecological processes such as the hydrology, nutrient cycling, erosion, and climate resilience of the region.

In addition to previous work done by Adams (2021) and Williams (2021), this report on Sumac Park and H.M.S. Plumper Park hopes to help inform future management policies for North Saanich parks. This report will analyze the histories as well as current conditions of the two parks, providing information to help structure policies which satisfy human wants as well as ecological needs.

Methods

Both Sumac and H.M.S. Plumper Park histories and site associations were to be determined in the scope of this report as both parks are relatively new to the Friends of North Saanich Parks (FNSP), for whom this data was collected. This was done by researching the history of the neighbourhoods which surround the parks, as well as the district of North Saanich as a whole. More significantly, data was collected from within the parks themselves. Factors such as hydrology, aspect, elevation, and plant communities were analyzed from within the parks to determine the specific CDFmm (Coastal Douglas-fir moist maritime) site associations that were in the two parks, as described in Terrestrial Ecosystem Mapping of the Coastal Douglas-Fir Biogeoclimatic Zone (Madrone Environmental Services LTD, 2008). This was accomplished through multiple site visits and in situ analysis of conditions over the course of May 2023. This information is the only information which falls within the scope of this report for Sumac Park, however, the analysis of H.M.S. Plumper Park goes into further detail.

In H.M.S. Plumper Park, a soil analysis was conducted to understand both the physical and ecological processes taking place within the park, as well as give more insight into the history of the area. This was done through the digging of a soil pit and the completion of a Soil Description form from the Field Manual for Describing Terrestrial Ecosystems handbook (B.C. Ministry of Forests and Range & B. C. Ministry of Environment, 2010). In addition to the soil analysis, a Tree Mensuration form from the same handbook was also completed for the park. The tree mensuration was completed with the help of Sharon Hope from the FNSP. A study area was determined using a prism, and the trees were measured for height, diameter, pathology, and age. The result is a more comprehensive report for H.M.S. Plumper Park. While not within the scope of this report, tree mensuration is planned to be completed for Sumac Park, as well as other parks by August 2023.

Limitations

Multiple limitations to this research arose both before and during the data collection, however, the most significant limitation was the time short time frame in which this work was conducted. Due to time restraints, only the month of May 2023 could be truly represented. Future research should aim to document these two parks at different times of the year to better understand the physical and ecological processes taking place within, as well as how human use is influenced by the changing of the seasons.

Sumac Park

Park Background

Sumac Park is a relatively large park occupying 4 hectares of a forested ravine in the Land's End neighbourhood of North Saanich, BC. The park and surrounding neighbourhood are located on the northern end of the Saanich Peninsula and are the traditional territory of the WSANEC peoples consisting of the BOKECEN (Pauqachin) and the WSIKEM (Tseycum) Nations, who have inhabited the land since time immemorial (*About North Saanich*, n.d.). The topography of the region is dominated by Horth Hill (136m) and Cloake Hill (157m), and due to Sumac Park's proximity to these features (northwest of Horth Hill and east-northeast of Cloake Hill), the park ranges in elevation between 84.5m and 105m above sea level (*North Saanich - GIS*, n.d.).

The park is directly connected to both Readings Park and the Eugene Bailin Memorial Trail and is centered within a network of parks in the area spanning from Green Park to Woodcreek Park. The ravine found within the borders of the park runs from the northwest to the southeast and is flanked by gentle slopes. While the trees in the park show signs of previous disturbances such as logging and fires (Figures 1-3), it is unclear when this area was last impacted. The aging of representative trees within the park would help to determine when this park was last disturbed and could serve as important information in understanding the ecological and human history of the region.

The neighbourhood of Land's End, which surrounds Sumac Park, has streets whose names honour plants such as Sumac, Oceanspray, Honeysuckle, Sycamore, and Hickory, symbolizing the significance of the natural environment in this area. The history of the park is difficult to trace due to the Municipality of North Saanich allocating resources primarily to historic buildings and residences (such as the Horth Residence, the Hodgson Residence, and the Holt Property), however, North Saanich as a whole came into fruition as a result of the Hudson's Bay Company (HBC) acquiring land from the WSANEC peoples in 1852. Following this acquisition, the HBC divided the land into North and South Saanich Districts only 3 years after the admission of Vancouver Island as a colony in the British Empire (*History - Sidney Museum*, n.d.). 1857 saw the first European settlers to North Saanich – John and Mark Coles – establishing a permanent colonial presence in the region (*History of Sidney / SET, TINES*, n.d.). The area of North Saanich hosted a relatively small population until 1940, following the establishment of the military forces base at the Victoria International Airport. Following the increase in population that the military base sparked, in 1965 the North Saanich Municipal District was formally established. The neighbourhood surrounding Sumac Park hosts houses and roads built in the 1980s, with development accelerating after 1985 (Google Earth, n.d.). While large portions of North Saanich are rural and a portion currently falls under Agricultural Land Reserve (ALR) (35%) (*Agriculture & Food Security*, 2023), the majority of the Land's End neighbourhood is occupied by single-family homes on parcels of land around 1 acre in size (*North Saanich - GIS*, n.d.).



Figure 1: Springboard notch on a Western redcedar stump – evidence of prior logging.



Figures 2 & 3: Fire scars found within Sumac Park on a Douglas-fir stump (left) and Western redcedar living tree (right).

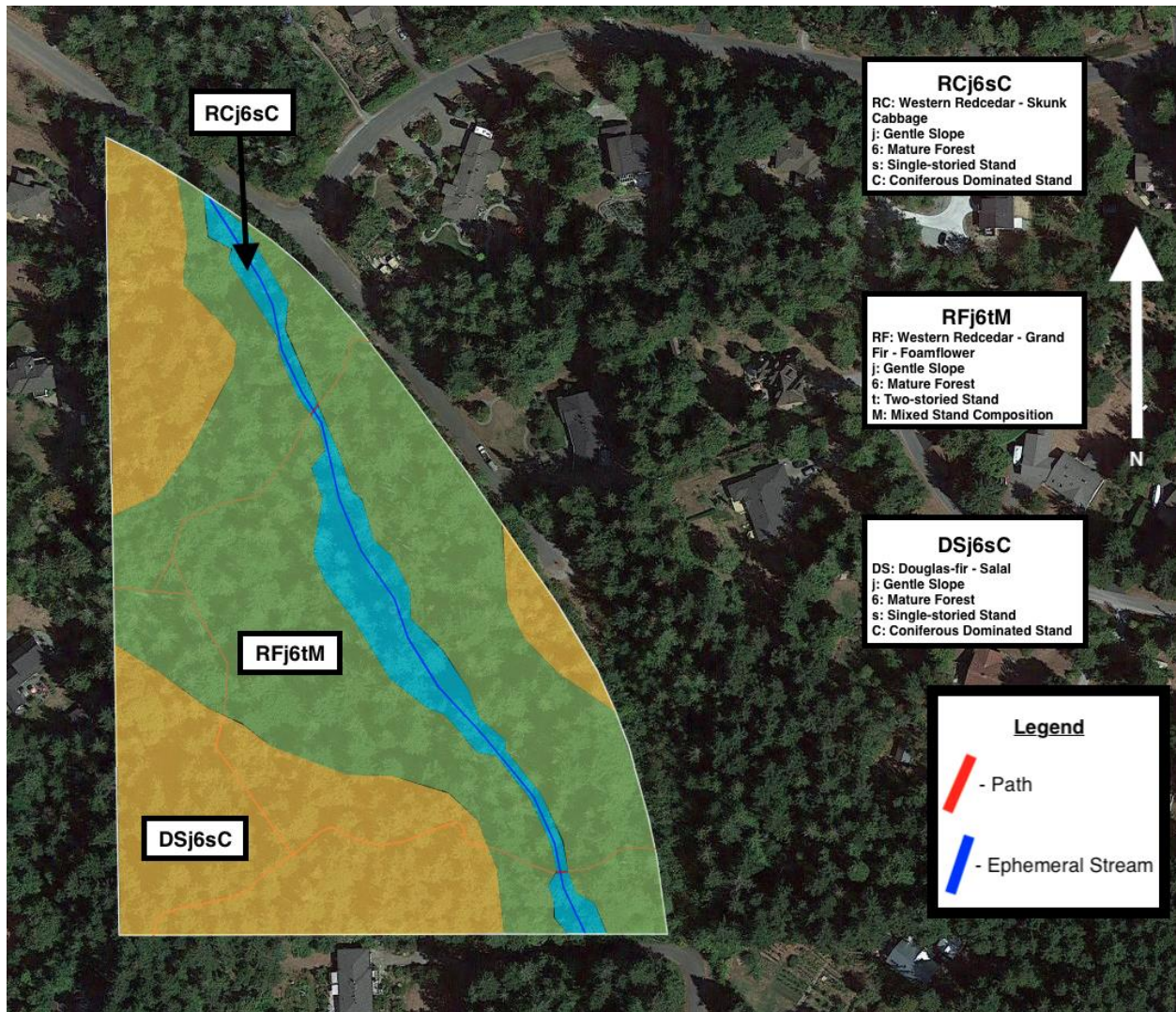


Figure 4. Map of Sumac Park and the plant/site associations found within.

Park Description

Within Sumac Park, three site associations (subgroups of the larger CDFmm zone found in the Georgia Depression) can be found following a similar orientation to the ephemeral stream at the bottom of the ravine at different areas of the slope. The reason why these site associations are found at different elevations within the ravine is due to the nature of water as it moves through the soil. Higher elevation areas more readily lose water, while lower elevation areas receive water. Due to the nature of plant communities and site associations being highly influenced by water availability, a change in position on the slope of a ravine often results in a change in site association.

At the bottom of the ravine where water is abundant, the site association of RCj6sC is found (Figure 4). This site association occurs in areas of poor drainage and is often found in topographical depressions (Madrone Environmental Services LTD, 2008). The plant community in a mature forest such as the one found in Sumac Park often consists of Western Redcedar (*Thuja plicata*), Western skunk cabbage (*Lysichiton americanus*), Salmonberry (*Rubis spectabilis*), and Lady Fern (*Athyrium filix-femina*).

At slightly higher elevations where water is slightly less abundant, the site association of RFj6tM is found (Figure 4). Within this site series, the plant community is often comprised of Western Sword Fern (*Polystichum munitum*), dull Oregon Grape (*Mahonia nervosa*), and Salal (*Gaultheria shallon*), with a canopy comprising mostly of Douglas-fir (*Pseudotsuga menziesii*) and Western Redcedar, in addition to Grand Fir (*Abies grandis*) and Bigleaf Maple (*Acer macrophyllum*).

At the highest elevations within Sumac Park where water is the scarcest, the site association of DSj6sC is located (Figure 4). The plant community in this site series within Sumac Park consists of thickets of Oceanspray (*Holodiscus discolor*) and Salal, as well as a canopy comprised of primarily Douglas-fir, Grand Fir, and the occasional Arbutus (*Arbutus menziesii*). The site association of DS (Douglas-fir – Salal) is representative of the climate for the CDFmm region as a whole (Madrone Environmental Services LTD, 2008).

H.M.S. Plumper Park

Park Background

H.M.S. Plumper Park, a former ecological reserve, is relatively small consisting of 0.2 hectares of south-facing waterfront land on Curteis Point, North Saanich, BC (*North Saanich Guide to Parks Trails and Beach Accesses*, 2015). Located on the north shore of Tsehum Harbour (a bird sanctuary), the park is situated on the traditional lands of the WSANEC peoples consisting of the BOKECEN (Pauqachin) and the WSIKEM (Tsecum) (*About North Saanich*, n.d.).

Tsehum Harbour owes its name to the Cowichan word for clay and is named after the vast mud flats which could be found in the harbour prior to the marine commercial developments we see today (Welch & Payne, 2015). H.M.S. Plumper Park itself owes its name to the survey ship Her Majesty's Ship Plumper, which also appears on the city of Sidney's crest (*About North Saanich*, n.d.).

The geologic feature of Curteis Point, on which the park is located, is a rocky peninsula jutting out from the Saanich Peninsula south of Swartz Bay Terminal in a southeastern orientation. Despite the rocky and hilly nature of Curteis Point as a whole, H.M.S. Plumper Park is relatively flat and has well-developed soils in the northern region of the park. Since this park is located on the waterfront, coastal erosion has resulted in the formation of steep slopes on the southern portion of the park which restricts access to the beach. Today, the neighbourhood of Curteis Point consists of single-family lots of varying sizes, as well as multiple commercial waterfront lots hosting some of North Saanich's many marinas (*North Saanich - GIS*, n.d.).



Figure 5: Map of H.M.S. Plumper Park and the plant/site associations found within.

Park Description

Based on the site conditions within H.M.S. Plumper Park, two CDFmm site associations can be found within its borders. As discussed above in the Sumac Park Description, location on the slope affects the hydrology, influencing what plants can be found and where.

As one enters the park from its highest elevation (13m ASL) at the north end of the park, the site association of DS6mC is found (Figure 5). This site association, similar to the DSj6sC site association situated on the upper slope of Sumac Park (Figure 4), is characteristic of drier sites where water is more readily lost (Madrone Environmental Services LTD, 2008). In H.M.S. Plumper Park, this site association hosts Douglas-fir, Salal, Oceanspray, and Western Redcedar.

The other site association found in H.M.S. Plumper Park is found at the lower reaches of the park as it slopes down to the ocean, being RK5iM. This site association is found in moisture-receiving areas, typically on the lower portion of gentle slopes (Madrone Environmental Services LTD, 2008). The plant community consists of Grand Fir, Red Alder (*Alnus ruba*), and Salal, with other moisture-loving species such as Willow (*Salix sp.*) and Common Horsetail (*Equisetum arvense*) found within this area.

Soil Analysis

The soil found at H.M.S Plumper Park is classified as GL.SB (Gleyed Sombric Brunisol) due to the thick and dark-coloured Ah horizon and the presence of mottling in the C horizon attributing it with the modifier “g” (*The Canadian System of Soil Classification*, 1998). This mottling, as well as the gentle slope of the site, are indicative of imperfect drainage. Understanding the soil composition and characteristics allows us to better understand the plant community, hydrology, and nutrient cycling occurring in the park. The results of the soil analysis are summarized in Table 1 and photos of the soil pit can be seen in Figures 7-9.

Table 1: H.M.S. Plumper Park soil summary.

Horizon	Depth (cm)	Texture, Consistency & Structure	% Coarse Fragments	Colour	Roots	Comments
LFH	-2 to 0	Type: Moder Dominated by L, relative lack of F and H			None	No observed fecal influence
Ah	0 to 23	Loamy sand; non-sticky, non-plastic; Weak very fine subangular blocky	20% (10% gravel, 5% cobble, 5% stone)	10 YR 3/3	Abundant fine, plentiful medium	Pores present
Bm	23 to 57	Sandy Loam; Slightly sticky, slightly plastic, weak to moderate fine subangular blocky	25% (5% gravel, 5% cobble, 10% stone)	10 YR 4/4	Plentiful medium, few coarse	Presence of large boulder may skew “% Coarse Fragments”, pores present
Cg	57 to 87+	Silty clay loam; Moderately sticky, plastic; moderate fine subangular blocky	5% gravel	2.5 Y 5/2	Few medium	Prominent mottling

Notes: This site is located on the lower slope of Curteis Point in a relatively flat terrace with an aspect of 180° S and elevation of 10m ASL. The site is located at 48.67627, -123.40663. The soil is classified as Gleyed Sombric Brunisol (GL.SB). This soil is part of the Fairbridge Series (Day et al., 1959).



Figure 7: Interior view of the soil pit at H.M.S. Plumper Park.

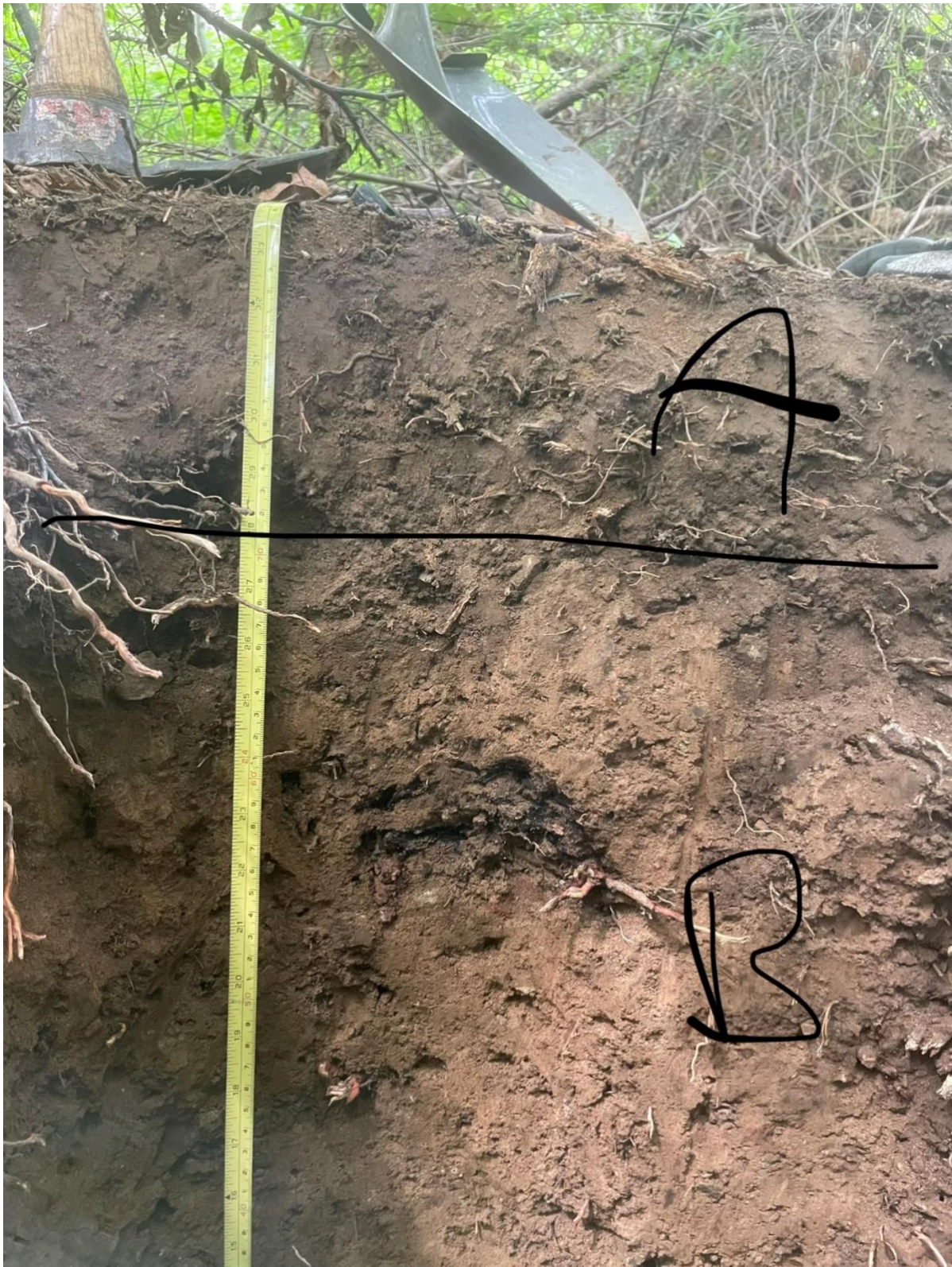


Figure 8: Boundary between the Ah and Bm horizons at H.M.S. Plumper Park.



Figure 9: The boundary between the Bm and Cg horizons at H.M.S. Plumper Park.

Tree Mensuration

Through tree mensuration, we are able to understand the history and conditions of the landscape as well as make informed assessments about how the park may look in the future. Factors such as species composition, diameter at breast height (DBH), tree height, tree age and pathology can be used to determine the current and past growing conditions within the park, as well as give insight into disturbance regimes or threats to the stand. Through the use of a prism to determine the study area, four trees representative of the two plant associations found within the park were analyzed and the findings are documented in Table 2, with additional information found in Table 3.

Table 2: H.M.S. Plumper Park tree mensuration summary.

Tree #	SPP.	DBH (m)	Total Height (m) (based on calculation)	Comments
016	Cw	1.935	20.53	Dead top
019	Ra	1.725	17.93	Fungus present at base, sweep

				in the bottom 2/3, fork in the top 1/3
015	Fdc	1.325	24.17	Conk and broken top
014	Mb	3.475	21.92	Fork near the base, large conks near fork
021	Fdc	3.165	28.65	Evidence of previous ivy
Notes: This site is located on the lower slope of Curteis Point on a relatively flat terrace with an aspect of 180° S an elevation of 11m ASL. A prism was implemented to determine which trees fell within the mensuration plot. Tree species codes used can be found in the <i>Field Manual for Describing Terrestrial Ecosystems Second Edition</i> (B.C. Ministry of Forests and Range & B.C. Ministry of Environment, 2010).				

Table 3: H.M.S. Plumper Park additional tree mensuration summary

Tree #	SPP.	DBH (m)	Total Height (m) (based on calculation)	Age (years)	Comments
009	Fdc	2.041	34.88	119	Poor growing conditions as determined based on height and age
003	Fdc	1.935	30.00	85	Medium to poor growing conditions based on height and age
Notes: This site is located on the lower slope of Curteis Point on a relatively flat terrace with an aspect of 180° S and an elevation of 11m ASL. This analysis fell outside of the original tree mensuration plot, however the findings are determined to be significant for the report. Tree species codes used can be found in the <i>Field Manual for Describing Terrestrial Ecosystems Second Edition</i> (B.C. Ministry of Forests and Range & B.C. Ministry of Environment, 2010).					

Discussion

There are several differences between Sumac Park and H.M.S. Plumper Park including elevation, proximity to the coast, slope, hydrology, and other factors which influence their respective plant communities. That being said, both parks show signs of anthropogenic disturbances, such as logging in Sumac Park, and recreational development in H.M.S. Plumper Park. This is to be expected in urban parks, however, signs also show that these parks are likely facing other stressors.

While no tree mensuration was conducted for Sumac Park within the scope of this report, the presence of trees with dead or dying tops indicates that the site is likely under ecological stress. This is supported by findings from H.M.S. Plumper Park, where Alder snags are present. More significantly, based on tree age compared to height analyses performed on Douglas-firs within H.M.S. Plumper Park, it was determined that growing conditions are poor. The cause of the poor growing conditions present at both parks is unclear, however, as the climate of North Saanich continues to change, it is likely that this trend will continue.

Recommendations

This report focused on two new parks in which the Friends of North Saanich Parks will be operating and is to be used in conjunction with previous work done by Adams (2021) and Williams (2021). The above work has analyzed a total of ten parks within the municipality of North Saanich, however, more work is needed in order to better understand the stresses facing both individual parks and the Municipality as a whole. It is recommended that the findings from this report are revisited at a future date to monitor any changes to the conditions of the parks. It is also recommended that the work in this report is used as a foundation for more in-depth analyses to take place. Further canopy studies similar to the one conducted at H.M.S. Plumper Park in this report will take place in the remaining 9 parks in which the Friends of North Saanich Parks operate, including Sumac Park, by the end of August 2023.

Acknowledgements

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