Report prepared for BC Parks by

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This document updates the Background Document for Cowichan River Provincial Park (March 1998).

Cover photo: Marie Canyon during high water flows, January 13, 2019, K. Albert
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1.0 INTRODUCTION

1.1 PLANNING AREA

PARK LOCATION AND DESCRIPTION

Located on southern Vancouver Island, Cowichan River Provincial Park is 1,418 hectares in size and protects a 34 km stretch of the Cowichan River, riparian habitat, patches of old-growth and ecologically diverse second growth forests within the Nanaimo Lowlands Ecosection.

The park was established in 1995. Its most defining feature is the Cowichan River which originates in Lake Cowichan flowing eastward for approximately 47 km before it discharges into Cowichan Bay and the Strait of Georgia. The fourth largest river system on Vancouver Island, the Cowichan River and its numerous tributaries, estimated at over 100 creeks and streams, drain approximately 90,000 hectares (Axys, 1998).

The park is located approximately 17 kilometers east of Lake Cowichan, a small town of 3,013 and 18 kilometers west of Duncan, a town with a population of 23,278 (Statistics Canada, 2016). See the regional context map in section 1.4 on page 9.

FIRST NATIONS TRADITIONAL TERRITORIES

Cowichan River Provincial Park is geographically located in the Hul'qumi'num Treaty Group consultative area, which encompasses the traditional territories of six member First Nations: Cowichan Tribes, Halalt, Lake Cowichan, Stz'uminus, Lyackson, and Penelakut (Consultative Areas Database, 2019). The Cowichan River is a culturally significant area with a long history of First Nations settlement and use, particularly by Cowichan Tribes. Cowichan Tribes has four reserves located adjacent to the provincial park. The Lake Cowichan and Ditidaht First Nations also have areas of traditional use within the park.

RECREATION

Outdoor recreation opportunities include swimming, canoeing, white-water kayaking, tubing, camping, fishing, hiking, and picnicking. The main trail through the park is the historic 20 kilometre long Cowichan River Footpath, which follows the meanders of the river, passes through several day use and picnic areas and crosses the restored 66-Mile Trestle on the Cowichan Valley section of the Trans-Canada Trail.

A popular recreation corridor, the Great Trail, formerly known as the Trans Canada Trail, follows a former Canadian National Railway (CNR) right-of-way. Not part of the provincial park, the right-of-way runs adjacent to and through the park, providing recreation opportunities for cyclists, hikers and horseback riders.
NEARBY PROTECTED AREAS

Two other provincial parks are within a short driving distance from Cowichan River Park. Gordon Bay Provincial Park is a 49-hectare park on the south shore of Cowichan Lake with a campground and day use area. Chemainus River Provincial Park, 119 hectares in size, lies 3 km northwest of Duncan and is managed for BC Parks by the Cowichan Valley Regional District (CVRD).

The Cowichan Valley Regional District owns Sandy Pool Regional Park at the eastern end of Cowichan River Provincial Park. This small regional park is sandwiched between two discontinuous sections of the provincial park (see map below). The CVRD’s Glenora Trails Head and Glenora Riverside parks abut the provincial park at its eastern end.

PRIMARY ACCESS ROUTES

Cowichan River Provincial Park is accessible by vehicle via three main access points:

The **West Access** is located off Skutz Falls Road, reached via Highway 18, and provides an entry point to the Skutz Falls day-use area, Horseshoe Bend Group Campsite, Marie Canyon day-use area and the Skutz Falls Trailhead of the Cowichan River Trail. Signage provides direction from Skutz Falls Road via Cowichan Lake Road and Mayo Road to Riverbottom Road.

The **Middle Access** is reached off Highway 18 via the Highway 18 Connector and provides access to the Stoltz Pool campground, group campsite and day-use areas. Signage directs drivers to Riverbottom Road.

The **South East Access** is located off Robertson Road in the Glenora area south of Duncan. From this entry point, one can reach Glenora Trail Head. To reach the trail head, drivers go west on Glenora Road, turn right onto Vaux Road and continue down Vaux Road, as it leads into Robertson Road.

CANADIAN AND BC HERITAGE RIVER STATUS

The park protects significant stretches of the Cowichan River, which holds important natural, heritage, recreational, and economic values for the area. Based on those values, the Cowichan River was designated as both a BC Heritage River in 1997 and a Canadian Heritage River in 2003. When it was designated as a Canadian Heritage River, it was the third river in British Columbia to be awarded this distinction (Cowichan Tribes, Ministry of Environment & Parks Canada, 2005), and remains one of only three Heritage Rivers in British Columbia and one of 42 Heritage Rivers in Canada, today (Canadian Heritage Rivers system, 2017). The Canadian Heritage River designation “gives national recognition to Canada’s outstanding rivers and encourages their long-term management to conserve their natural, cultural and recreational values for the benefit and enjoyment of Canadians, now and in the future” (Canadian Heritage Rivers system, 2017).
1.2 LEGISLATIVE FRAMEWORK

Cowichan River Park was established as a Class A park on July 12, 1995, by the Park Amendment Act, 1995. The park is named and described in Schedule D of the Protected Areas of British Columbia Act. Its management and development are directed by the Park Act.

Additional parcels of land totaling 661 hectares were added to the park in 2004. In 2018, two additional properties, Lot 27 and Lot 31, Block 2A, were added to the park on the north side of the river at Marie Canyon. This expanded the park to its current size of 1,418 hectares.

Class A parks are Crown lands dedicated to the preservation of the natural environment for the inspiration, use and enjoyment of the public. Development in Class A parks is limited to that which is necessary to maintain the park’s recreational values. Some activities that existed at the time a park was established (e.g., grazing, hay cutting) may be allowed to continue in certain Class A parks1 but commercial resource extraction or development activities are not permitted (e.g. logging, mining or hydroelectric development).

1.3 PLANNING AND ACQUISITION HISTORY

The BC Wildlife Federation and the Outdoor Recreation Council of BC began advocating for the protection of the Cowichan River as a park and recreational river as early as 1968. A number of years later, in 1986, BC Parks, the Cowichan Valley Regional District (CVRD) and a public advisory committee collaborated as part of the provincial Recreation Corridor Plan to conduct research, map the river corridor and evaluate the land status of the Cowichan River and upland area. In the early 1990s, the Parks and Wilderness for the 90’s planning process identified the Cowichan River corridor for further study and found strong public support for its protection.

In 1991, as part of the Rivers and Trails Program, BC Parks led the development of the Cowichan River Recreation Management Plan (CRRMP) which was to recommend actions to protect conservation and recreation values in the study area. A Steering Committee, which included representatives from the Cowichan Valley Regional District (CVRD), various provincial ministries and members of the public, hosted several open houses to seek public input on the management of the river corridor. Participants strongly supported the protection of the natural environment and recreation features and the designation of a provincial park along the river. In its final report, the Committee recommended the creation of a provincial park corridor along the Cowichan River to eventually protect 1,300 hectares of land along the river. Integrated resource management was to continue outside of the proposed park boundaries.

In 1992, the recommendations of the CRRMP were presented to the Commission on Resources and the Environment (CORE) — an independent multi-sector agency set up by the Province and tasked with overseeing the development of regional strategic land use plans. The land use plans were to identify appropriate use of provincial resource lands, including protection of parkland to meet the

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1 Applies to Class A parks listed in Schedule D of the Protected Areas of British Columbia Act.
target of the provincial Protected Areas Strategy to protect 12 percent of the Province by the year 2000. The protected areas system was to represent the full diversity of BC’s natural ecosystems and biogeoclimatic zones. The land use plan completed for Vancouver Island in 1994 identified the Cowichan River as having important conservation, cultural, recreation and tourism values.

Through funding provided by the Commonwealth Nature Legacy acquisition program, BC Parks was able to acquire a combination of undeveloped private properties at Stoltz Pool and parcels of Crown land along the Cowichan River. Cowichan River Park was formally established as a 750 hectare Class A Provincial Park on July 12, 1995.

The park includes three properties leased to BC Parks from the Nature Trust in October 1993 for a period of 99 years. The properties are commonly called the Oswald Bass Conservation area and are located at the western end of the park, close to Cowichan Lake.

Land acquisition efforts between 1995 and 2004 amassed $17.7 million in additional property that was added to the park in 2004, increasing the size of the park to 1,414 hectares. In 2015, BC Parks acquired two further properties, Lot 27 and Lot 31, Block 2A, on the north side of the river at Marie Canyon. These two lots were designated in 2018, expanding the park to its current size of 1,418 hectares.

1.3 ADJACENT LAND USE

SUMMARY

Cowichan River Park is surrounded by forestry and rural residential land uses. Much of the area surrounding Cowichan River Park is forested. There is a pocket of residential properties along Hudgrove Road, south of the Cowichan River and close to the community of Cowichan Lake. There are also several residential areas along Riverbottom Road, bordering the park’s northern boundary. Most of the residential properties are large (around 5 acres) and have retained significant patches of forest cover. As one moves further east, residential use to the north of the park increases in density and the amount of forest cover decreases. The most developed areas in proximity to the park are the rural communities of Sahtlam (to the northeast) and the rural residential and agricultural area of Glenora (to the Southeast). A number of Indian Reserves are located directly adjacent, or in close proximity, to the park. Almost the entire area to the South of the park consists of private, Crown and community forest lands. While pre-existing properties may have been developed since park establishment, there have been no new subdivisions immediately bordering the park.

INDIAN RESERVES

The total population of Indian Reserves within the Cowichan Valley Census Division is 4,076 (Statistics Canada, 2016). The following Indian Reserves are located in close proximity to Cowichan River Provincial Park:

- Skutz Indian Reserve 7 is located inside the park boundaries on the western side of the park.
- Skutz Indian Reserve 8 borders the western side of the park.
Kakalatza Indian Reserve 6 borders the central area of the park.
Tzart-lam Indian Reserve 5 also borders the central area of the park.
Cowichan Lake Indian Reserve is located west of the park on the north shore of Cowichan Lake.

See the regional context map in section 1.4 below for the location of the reserves.

**FORESTRY**

The Skutz Falls Forest Service Road right-of-way crosses the Cowichan River near Skutz Falls.

BC Timber Sales’ Cowichan Operating Area abuts the park’s northern border, encompassing approximately 975 hectares of forest land east of Skutz Falls Forest Service Road and north of Riverbottom Road West.

Adjoining the southeast side of the park, between Bear Creek and the Skutz Forest Service Road and extending almost as far east as Holt Creek, is a community forest tenure (1,672 hectares) managed by Khowutzen Forest Services, a partnership with Cowichan Tribes.

Large upland areas surrounding the park are owned and managed by several timber companies, including Island Timberlands, TimberWest, and Hancock Timber Resources. Each of these companies has blocks of private forest land adjacent to the park boundary.

**INDUSTRIAL/EXTRACTION USES**

Aside from forestry, there are no industrial uses in the immediate vicinity of the park. The CVRD’s zoning bylaw for the area (Cowichan Valley Regional District Electoral Area E – Cowichan Station/Sahtlam/Glenora Zoning Bylaw No. 1840) does not currently permit industrial use near the park.

The flows in the Cowichan River are controlled from April 1st through to the first major rains in the fall by a weir at the outlet of Cowichan Lake, upstream of Cowichan River Park. Catalyst Paper, which operates a mill at Crofton, draws water from the lake under licence from the Ministry of Environment. The licence requires the company to regulate the flow into the river to maintain the lake elevations below certain thresholds to prevent flooding of surrounding properties and maintain adequate flows in the river during the dry season.

**RESIDENTIAL USES**

There is a large lot (up to 5 acres) residential area south of Cowichan Lake along Hudgrove Road. Most of the properties were developed with residences prior to park establishment. There are also pockets of residential properties along Riverbottom Road, north of the park boundary. Many are relatively large (5 acres and larger) and have been developed with summer cabins or homes. There is an area of smaller lots (approximately 1 acre in size) on the south side of Riverbottom Road and west of Indian Reserve 6. As in the other residential areas, many of the cabins and homes were

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2 2019 BC assessment data
developed prior to park establishment. However, several properties that were vacant at park establishment have been developed with private homes in recent years.³

Some of the residential properties have accessory commercial uses. For example, River Quest Charters, located on the park boundary, operates guided fishing tours on the river.

**OTHER USES**

The Cowichan River Bible Camp is situated on the river west of Sandy Pool Regional Park. The camp offers summer programs and camps for children.

**BC RECREATION SITES**

Smokey’s Pond is the closest BC Recreation Site to the park, located approximately one kilometer north of Cowichan River Provincial Park (see Figure 1). The site includes a small pond and picnic site off the Cowichan Valley section of the TransCanada Trail.

**REGIONAL PARKS**

Sandy Pool Regional Park is wedged between two areas of the Cowichan River Park towards its eastern end. The park is known for its sandy beach and great swimming holes in the Cowichan River. Key amenities are a drift boat ramp and an interpretive loop trail.

**THE GREAT TRAIL – COWICHAN VALLEY TRAIL SECTION**

The Cowichan Valley Trail section of the Great Trail, formerly known as the Trans-Canada Trail, runs along a former Canadian National Railway right-of-way. The Great Trail is excluded from the park and under the jurisdiction of the Ministry of Transportation and Infrastructure. The section running through Cowichan River Park stretches from the Glenora trail head to Skutz Falls, crossing the 66-Mile and Holt Creek trestles, two historic railway trestles that were restored and refurbished with bridge decking and railings to allow for hiking, cycling and horseback riding across the river. Users can enjoy spectacular views over the river canyon.

³ 2019 BC assessment data.
TRENDS AND CHANGES IN ADJACENT LAND USE SINCE PARK ESTABLISHMENT

As a result of its location in an area surrounded by private timber lands and timber forest licences, land use surrounding the park has not changed significantly since park establishment.

However, the communities of Cowichan Lake and Duncan are growing and satellite imagery from 2005 and 2016 show new residential development west of Sahtlam and south of Hillcrest.
While the communities of Sahtlam and Hillcrest can be expected to continue to grow, land use immediately adjacent to the park and surrounding the western portion of the park is expected to remain relatively constant over the coming years. Cowichan Valley Regional District zoning of those areas currently restricts land use to forestry and rural residential uses. The bylaw also restricts subdivision into smaller lots and limits the number of residences permitted on properties in the

![Figure 4: Zoning map showing surrounding land uses. Data retrieved from the Cowichan Valley Regional District Electoral Area E – Cowichan Station/Sahtlam/Glenora Zoning Bylaw No. 1840.](image)

Area. The Rural Residential zone permits up to two single dwellings, depending on the size of the property.

As displayed on the map above, the majority of the land surrounding Cowichan River Provincial Park is zoned Primary Forestry. The Primary Forestry zone allows for a range of uses including management and harvesting of primary forest products, agriculture, silviculture, horticulture, bed and breakfast accommodation, single family residential homes, and daycares and nursery schools accessory to residential use.

While zoning bylaws can be changed, the process is slow and requires local government and community support. Communities generally prefer to direct growth into urban and suburban areas. Consequently, uses adjacent to Cowichan River Park can be expected to stay fairly constant over the coming years.
1.4 REGIONAL CONTEXT MAP

Figure 5: Context Map
1.5 **Existing Management Direction**

**Management Direction**

In the early years after its establishment, management of Cowichan River Park was guided by the Cowichan River Recreation Management Plan (1992). Recommendations of the Cowichan River Trail Advisory Committee (2001) informed management of the park for a few years until the [Cowichan River Provincial Park Purpose Statement and Zoning Plan](#) was adopted in 2003.

At present, BC Parks’ annual management plans and the 2003 Cowichan River Purpose Statement and Zoning Plan provide management direction for the park. The 2003 document identifies three roles for the park. The primary role is “to protect the natural values associated with the scenic and world-renowned salmon bearing river”. This includes protection of fish habitat, the riparian environment and wildlife corridor, and the Douglas-fir and western hemlock forest communities.

Another role of the park is “to provide a wide variety of land and water-based recreation opportunities in a popular destination area of southern Vancouver Island.” The recreation opportunities are both river-based, such as fishing, swimming, kayaking and tubing and trail based, such as hiking, wildlife viewing, nature appreciation, camping and picnicking.

A further important role of the park is “to protect and present significant cultural and historic values”, including First Nations existing and historic uses, and the importance of the river to First Nations as well as to early settlers and the logging industry at the time.

1.6 **Existing Permits and Authorizations**

BC Parks has a number of active park use permits in the park. Following are the permits and the activities they permit in the park.

**BC Conservation Foundation** – Land use occupancy permit for a multi-year project to construct erosion protection to stabilize the toe of Stoltz Bluffs, a major source of fine sediment, in order to ensure the long term viability of fish stocks in the Cowichan River.

**BC Conservation Foundation** – Research permit to restore riparian habitat in the park to increase the quality and availability of juvenile salmonid rearing habitat in fresh water. The project goal is to rehabilitate a minimum of 1,000 m² of riparian habitat by March 31st, 2018 and rehabilitate approximately 3,500 m² of riparian habitat in each of the subsequent four years. This includes riparian habitat within and outside of the park in the Cowichan watershed.

**BC Hydro and Power Authority** – Land use occupancy permit for hydro transmission and distribution lines.
**Cowichan Fish and Game Club** – Land use occupancy permit for two outdoor shooting ranges and a 20 yard indoor shooting range, club house and a non-shooting picnic area. The Fish and Game Club also has a water licence (C033954) to draw water from the Cowichan River.

**Telus Communications Inc.** – Land use occupancy permit for telephone lines.

**Other current park use permits**
- Land use occupancy permit for a buried water pipeline and groundwater well that pre-dates park establishment.
- A commercial recreation permit for guided hiking and kayaking.
- A trapping permit for trapline TR010ST317

**Past park use permits**
Now expired, past park use permits were issued for guided kayaking and canoeing, guided angling, filming and the 2018 Cowichan BC Summer Games.

**Other tenures and encumbrances**
A water licence (C035828) for a water intake adjacent to the park on Gleadle Creek includes a water line that crosses the park.

A short section (approximately 100m) of the former Canadian National Railway right-of-way, now under the administration and control of the Ministry of Transportation and Infrastructure and used for the TransCanada Trail, is within the park.

There are no mineral tenures in the park.

### 2.0 VALUES AND ROLES OF THE PROTECTED AREA

#### 2.1 Significance

Cowichan River Park protects significant First Nations cultural heritage values. The Cowichan River is integral to the settlement, traditions and culture of the Cowichan peoples. Cowichan River Park is situated within the traditional territories of Cowichan Tribes, the Lake Cowichan First Nation and the Ditidaht First Nation. The park contributes to the protection of First Nations cultural values and traditional use areas within the Cowichan River watershed.

Recreation values of the park are highly diverse. No other park in the region provides the same quality recreational experience for those interested in river-based activities, particularly fishing and whitewater paddling.
Cowichan River Provincial Park protects approximately 34 km of the Cowichan River, roughly 72 percent of its entire length. The Cowichan River is one of only three rivers in British Columbia to be awarded Canadian Heritage River designation and is one of the most important salmon and steelhead rivers on Vancouver Island and in British Columbia. The river corridor provides diverse habitat for terrestrial animal species due to the mixed age stands of deciduous and coniferous trees and is an important east-west travel corridor for wildlife.

The park also makes a significant contribution to representation of the Nanaimo Lowlands (NAL) ecossection and the Coastal Western Hemlock eastern very dry maritime biogeoclimatic variant (CWHxm1) in the provincial protected area system.

### 2.2 BIODIVERSITY/NATURAL HERITAGE

**ECO-REGIONAL REPRESENTATION**

The majority of Cowichan River Park falls within the Nanaimo Lowlands ecossection (NAL) while a small portion at its western end extends into the Leeward Island Mountains ecossection (LIM).

The Nanaimo Lowlands ecossection is situated on the eastern margin of Vancouver Island stretching from Duncan to Campbell River. Its climate is tempered by its proximity to the ocean, the Strait of Georgia. The area receives little snowfall in the winters. Cowichan River Park is one of the largest provincial parks within this ecossection.

The Leeward Island Mountains ecossection is a mountainous area to the West of the Nanaimo Lowlands. It includes the Great Central Lake Basin, Port Alberni and Cowichan Lake at its lower elevations. The higher elevations extend to the crest of the Vancouver Island Ranges. Its climate is cooler and wetter than the climate in the Nanaimo Lowlands.

Only 4,129 ha or 1.38 percent of the NAL ecossection is protected in the province, and 31 percent or 1,302 ha falls within Cowichan River Park. Largely due to Strathcona Park, 16.2 percent or 151,193 ha of the LIM ecossection is protected. Cowichan River Park protects 0.07 percent or 106 ha of the LIM ecossection. See table 1 below.

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4 The other larger provincial park within this ecossection is Elk Falls, north of Campbell River.
Table 1: Representation of ecosections

<table>
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<tr>
<th>Ecosection</th>
<th>Number of protected areas in this ecosection</th>
<th>Area of this ecosection in Cowichan River Park (ha)</th>
<th>Total area of this eco-section protected in the province (ha)</th>
<th>% of Ecosection protected in the province that is contributed by the park</th>
<th>Percent of this eco-section area that is protected</th>
</tr>
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<tbody>
<tr>
<td>LIM – Leeward Island Mountains</td>
<td>22</td>
<td>106</td>
<td>151,193</td>
<td>0.07%</td>
<td>16.2%</td>
</tr>
<tr>
<td>NAL – Nanaimo Lowlands</td>
<td>30</td>
<td>1,302</td>
<td>4,129</td>
<td>31.5%</td>
<td>1.38%</td>
</tr>
</tbody>
</table>

**Climate**

The Cowichan region is located in a Maritime Mediterranean climatic zone, resulting in some of the warmest mean year round temperature in Canada. The mean annual temperature and precipitation varies depending on elevation and proximity to the ocean.

Duncan, to the East of the park, has a July mean maximum of 25.2 degrees centigrade and a July mean minimum of 11.6 degrees centigrade. The annual precipitation for Duncan is 109.2 cm with precipitation being highest between October and March. As one moves west along the river, the climate shifts to a Maritime climate. Near Cowichan Lake, at the west end of the park, annual precipitation increases to 212 cm and the snowfall is 180 cm compared to 75 cm in Duncan. The mean temperatures are similar at the western and eastern ends of the park in the summer but are one degree centigrade (2 F) cooler in the winter as one approaches Cowichan Lake.5

**Biogeoclimatic Zones and Variants**

Cowichan River Park extends across two biogeoclimatic zones (see figure 6 below). The western portion falls within the Coastal Western Hemlock (CWH) zone while the eastern portion lies within the Coastal Douglas-fir (CDF) zone.

The CDF zone occurs almost exclusively on the southeast (leeward) side of Vancouver Island and the Gulf Islands with the northern most occurrence on Hornby Island. This biogeoclimatic zone is characterized by low summer rainfall and a Mediterranean climate. The most widespread forest association within this zone is Douglas-fir-salal. The dominant tree species is Douglas-fir with some western hemlock, big-leaf maple and occurrences of western redcedar, western yew, arbutus and Garry oak in drier areas. The understory consists primarily of salal with lesser amounts of Oregon grape and red huckleberry. Sword fern, bracken fern and vanilla leaf are common along the river.

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5 See CVRD website.
The CWH zone is one of the wettest ecosystems in BC and commonly known as ‘temperate rainforest.’ The prevailing westerly winds bring storms off the Pacific ocean which release most of their moisture as they hit the Coast Mountains. Winter temperatures are moderated by the ocean and the Coast Mountains block cooler continental air masses from the interior. The result is high rainfall and mild winters.

Two subzone variants of the CWH biogeoclimatic zone exist within Cowichan River Park – eastern very dry maritime (CWHxm1) and western very dry maritime (CWHxm2). These two variants are the driest variants found within the CWH biogeoclimatic zone. Within these two variants, Douglas-fir is the dominant tree species with lesser stands of western hemlock and western redcedar. Black cottonwood and Sitka spruce occur in wetter sites along the river and in floodplain areas. Understory species include salal, dull Oregon grape, red huckleberry, sword fern, deer fern, step moss and Oregon beaked moss.

Most of the park falls within the CWHxm1 subzone variant (1,171 ha), with smaller areas within CWHxm2 (106 ha) and within CDFmm (131 ha). The pocket of CWHxm2 occurs west of Skutz Falls while the CDFmm subzone occurs on the eastern end of the park (see figure 6 below).
The CDFmm, CHWxm1 and CHWxm2 subzones are not well represented in the provincial protected area system. Only 4.3% of CDFmm, 2.3% of CWHxm1 and 2.3% of CWHxm2 are protected provincially. Cowichan River Park contributes a significant portion (11.6%) of CHWxm1 to the protected area system (see table 2 below). While the percentages of CDFmm and CWHxm2 protected by the Park are small in the context of BC’s protected area system, they are nonetheless important since those subzones are associated with a large number of species and ecological communities at risk.

See table 2 below for an overview of the representation of the biogeoclimatic units within Cowichan River Park and within the provincial protected area system.

**Table 2: Biogeoclimatic zone representation within the park and provincial protected areas system**

<table>
<thead>
<tr>
<th>Biogeoclimatic (BEC) zone</th>
<th>BEC subzone/subzone variant</th>
<th>Area of BEC subzone in park (ha)</th>
<th>Total area of BEC subzone protected in province (ha)</th>
<th>% of BEC subzone protected in the province that is contributed by the park</th>
<th>Total % BEC subzone protected in the province</th>
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<tr>
<td>CDF – Coastal Douglas-fir</td>
<td>CDFmm</td>
<td>131</td>
<td>10,613</td>
<td>1.2%</td>
<td>4.3%</td>
</tr>
<tr>
<td>CWH – Coastal Western Hemlock</td>
<td>CWHxm1</td>
<td>1,171</td>
<td>10,129</td>
<td>11.6%</td>
<td>2.3%</td>
</tr>
<tr>
<td></td>
<td>CWHxm2</td>
<td>106</td>
<td>20,379</td>
<td>0.5%</td>
<td>4.4%</td>
</tr>
</tbody>
</table>

**WILDLIFE**

A comprehensive wildlife inventory has not been completed for the park. However, one can expect the productive riparian corridor in Cowichan River Park to provide habitat for a wide variety of wildlife. Black bear have been observed in the park during salmon spawning. Black-tailed deer reside in the park for all or part of the year. Other large mammals present in the park include Roosevelt elk, a blue-listed species, Grey wolf and cougar. Medium sized mammals in the park include marten, racoons, river otters and beaver. River otters and beaver inhabit Cowichan Lake above the park and may also forage or live in the park. Small mammals in the park include red squirrel and mink.

The Vancouver Island ermine, a blue-listed species, was recorded between 1936 and 1959 in the vicinity of the park, near the north arm of Lake Cowichan, but there have not been any recent observations of this species documented in this area (B.C. CDC, 2019).

Amphibians that are common in the region and likely occur in the park are northwestern salamander, western red-backed salamander, Ensatina salamander, wandering salamander (blue-listed), northern red-legged frogs (blue-listed) and Pacific treefrogs. In addition, western toads
(blue-listed) are known to breed in the Cowichan River corridor, one of only a few toad breeding sites on Vancouver Island (Cowichan Valley western toad project, 2019). Reptiles include garter snakes and northern alligator lizards.

BIRDS

The Cowichan Valley sustains at least 200 different species of birds. The highest species diversity in the region can be found at Cowichan Bay. Bird Canada, an on-line data base built through contributions from birders worldwide, lists 194 different species in the Bay. The Cowichan River corridor is also a birding hot spot. Contributors to eBird Canada identify 69 different species at Stoltz Pools. The following checklist for Stoltz Pools was generated from ebird.org with additions from BC Park staff. Provincially red, blue and yellow-listed bird species are indicated in coloured font.

Waterfowl
- Canada Goose
- Mallard
- Bufflehead
- Common Goldeneye
- Hooded Merganser
- Common Merganser

Grouse, Quail and Allies
- California Quail
- Ruffed Grouse

Pigeons and Doves
- Band-tailed Pigeon
- Eurasian Collared-Dove

Nightjars
- Common Nighthawk

Hummingbirds
- Anna’s Hummingbird
- Rufous Hummingbird

Shorebirds
- Spotted Sandpiper

Gulls, Terns, and Simmers
- Glaucus-winged Gull gull sp.

Herons, Ibis, and Allies
- Great Blue Heron

Vultures, Hawks and Allies
- Turkey Vulture
- Cooper’s Hawk
- Bald Eagle
- Sharp-shinned Hawk
- Northern Goshawk
- Red-tailed Hawk

Kingfishers
- Belted Kingfisher

Woodpeckers
- Red-breasted Sapsucker
- Downy Woodpecker
- Hairy Woodpecker
- Pileated Woodpecker
- Northern Flicker

Tyrant Flycatchers: Pewees, Kingbirds, and Allies
- Western Wood-Pewee
- Hammond’s Flycatcher
- Pacific-slope Flycatcher

Vireos
- Hutton’s Vireo
- Warbling Vireo

Jays, Magpies, Crows and Ravens
- Steller’s Jay
- Common Raven

Martins and Swallows
- Northern Rough-winged Swallow
- Tree-Swallow
- Viloet-green Swallow
- Barn Swallow

Tits, Chickadees and Titmice
- Chestnut-backed Chickadee

Nuthatches
- Red-Breasted Nuthatch

Treecreepers
- Brown Creeper

Wrens
- Pacific Wren

Cardinals, Grosbeaks and Allies
- Western Tanager
- Black-headed Grosbeak

Kinglets
- Golden-crowned Kinglet
- Ruby-crowned Kinglet

Thrushes
- Varied Thrush
- Swainson’s Thrush
- Hermit Thrush
- American Robin

Starlings and Mynas
- European Starling

Finches, Euphonieas and Allies
- Purple Finch
- Red Crossbill
- Pine Siskin
- American Goldfinch

New World Sparrows
- Chipping Sparrow
- Dark-eyed Junco
- White-crowned Sparrow
- Golden-crowned Sparrow
- Song Sparrow
- Spotted Towhee

Blackbirds
- Bullock’s Oriole
- Red-winged Blackbird
- Brown-headed Cowbird

Wood Warblers
- Orange-crowned Warbler
- MacGillvray’s Warbler
- Yellow Warbler
- Yellow-rumped Warbler
- Wilsons Warbler

Dippers
- American Dipper

Source: eBird.org
While eBird Canada contributors did not identify owl species in Cowichan River Park, barred owls, northern pygmy owl, short-eared owl, western screech owl, snowy owl and great horned owl all have been sighted within the larger Cowichan Valley region and may use the park (ebird.org).

**Aquatic Species**

The Cowichan River is known for its variety and abundance of fish species: chinook, coho, and chum salmon, steelhead, rainbow trout, cutthroat trout (blue-listed) and Dolly Varden char (blue-listed) (Cowichan Watershed Board, 2019).

One of the reasons for the designation of Cowichan River as a Canadian Heritage River in 2004 was the significant abundance and variety of fish in the river. The Cowichan River is used as an indicator of abundance, survival, and exploitation of chinook in the broader region of the Georgia Basin. Historically, the river supported some of the largest spawning runs of chinook in the entire Georgia Basin (Commission of the Environment, 2010). In addition, there are many smaller fish, such as prickly sculpin, threespine stickleback and lamprey which are important parts of the river ecosystem (Cowichan Watershed Board, 2019).

The Cowichan Lake lamprey (*Entosphenus macrostomus*) is a provincially red-listed species and is endemic to Vancouver Island. The Conservation Data Centre shows records of the species in Cowichan Lake. Cowichan Lake lamprey does not swim out to sea but spends its entire life cycle in freshwater lakes. This species may enter the Cowichan River.

Two other species of lamprey, Western brook lamprey (*Lampetra richardsoni*) and Pacific lamprey (*Entosphenus tridentatus*), may also occur in the river system. Pacific lamprey is known to migrate to saltwater where it spends its adult life. It re-enters freshwater river systems to breed.

The Cowichan River also contains two species of freshwater mussels – western pearlshell and western floater. Research carried out under permit from BC Parks by Rick Harbo, André Martel, Jackie Madill and Greg Wilson in 2015 identified high densities of western pearlshell mussels (*Margaritifera falcata*) in the Cowichan River, exceeding 300 mussels/m² in some areas.⁶

There are several introduced species of fish in the Cowichan River. The Cowichan Watershed Board website identifies Atlantic salmon, brook trout, brown catfish and brown trout. Brown trout has become established throughout the entire river system (CVRD, 2010, Axys, 1998). The species is native to Scotland and was introduced to BC as a hatchery fish in 1932. The eggs were hatched at the Cowichan River hatchery and the fry were released into the river to provide a fish for summer angling (McMullan, 2016).

Naturally spawning coho and chinook salmon populations are in decline in the river. The 2010 State of the Environment Report prepared by the Environment Commission of the CVRD documented that between 2005 and 2010, the number of returning spawners for two of the Cowichan River’s primary salmon runs – fall coho and chinook – declined by approximately 90% from levels

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⁶ See study summary in appendix 2.
documented in the previous 80 years. The decline in population has continued over the past several years (Cowichan Watershed Board, 2019).

Other species, such as chum, were found to have remained fairly stable (Environment Commission, 2010, Cowichan Watershed Board, 2019).

Reasons for the decline in fish populations in the Cowichan River are a combination of low summer flows in the river, rising water temperatures and limited spawning and rearing habitat. Over the past decade a number of studies have researched the effects of low summer flows and habitat conditions on fish populations (Ayers, 2017; Craig, 2016; Kerr Wood Leidal, 2011; and Komori, 2010).

The flows in the Cowichan River are controlled from April 1st through to the first major rains in the fall by a weir at the outlet of Cowichan Lake, upstream of Cowichan River Park. After June 16, minimum flows are to be maintained at 7.08 m3/s from June 16th until lake storage is replenished by fall rains and the weir is deactivated for the season.

The ability to sustain adequate maintenance flows for the Cowichan River during the summer is dependent on available water storage in the lake and precipitation. In their report, “Determining River Flows for Fish in 2017 and Beyond,” Ayers et al found a declining trend in seasonal flows over the past several decades. Over that time period, flows have not met the 7.08 m3/s licensed flows for up to as many as 114 days during the summer (Ayers, 2017). The study identifies flow requirements of different fish species in the river through the seasons and recommends that flows during the summer seasons be increased to meet those requirements. The authors acknowledge that increasing flows would require additional storage in Cowichan Lake, raising the water levels in the lake and increasing the likelihood of flooding of residences around the lake. The Cowichan Watershed Board is working with stakeholders to identify solutions including potentially new license and operating procedures for the weir to improve the conditions for fish in the Cowichan River. Some of the key habitat and slope stabilization projects that have been undertaken to improve water quality and fish survival rates in the Cowichan River are summarized in Appendix A.

**SPECIES AND ECOSYSTEMS AT RISK**

The BC Conservation Data Centre of the Ministry of Environment collects and disseminates information related to the distribution, trends and threats to species and ecosystems at risk in BC. Red listed species are at risk of being lost, that is, at risk of extirpation or extinction. Blue listed species are at risk of population declines and are of special concern because they have characteristics that make them particularly sensitive or vulnerable to human activities or natural disturbances. Yellow listed species are believed to be secure and not at risk of extinction. However, yellow-listed species may have red- or blue-listed subspecies.

The subzone variants of the CWH zone in Cowichan River Park – CWHxm1 and CWHxm2 – and the CDFmm zone have been highly altered by human activities. Loss of old growth forest (forests older than 250 years), habitat fragmentation and loss of natural area due to conversion to human settlements are common in all three zones. The CDFmm is the most altered zone in BC and contains a large number of species and ecosystems at risk. Less than one percent of the CDFmm
zone remains as old growth forests (Environment Commission, 2010). Historically, about 50 percent of the CDF zone would have been old growth forest. Within the Nanaimo Lowlands ecossection, only 0.3 percent of the CDF zone is old growth forest. Of the CWHxm1 and CWHxm2 variants, two and four percent, respectively, remain in old growth forest, compared to an estimated historic level of 50 percent or more (Environment Commission, 2010). In this context, the small patches of old growth within Cowichan River Park are important remnants of these three ecosystems.

There are a number of listed ecological communities within Cowichan River Park. They include three red-listed ecological communities: Western redcedar/common snowberry; Grand-fir/dull Oregon-grape; red alder/slough sedge [black cottonwood]; and two blue listed communities: black cottonwood-red alder/salmonberry; and, red alder/salmonberry/common horsetail (CDC iMap, 2019).

A number of vascular plant species at risk have been recorded in Cowichan River Park. The records available through the BC Conservation Data Centre date back several decades and it is unknown whether the populations in the park are increasing, are stable or have declined. Following are known red and blue listed species in the park:

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Provincial Rank</th>
<th>BC List</th>
</tr>
</thead>
<tbody>
<tr>
<td>California tea</td>
<td>Rupertia physodes</td>
<td>S3</td>
<td>Blue</td>
</tr>
<tr>
<td>Common bluecup</td>
<td>Githopsis specularioides</td>
<td>S2</td>
<td>Red</td>
</tr>
<tr>
<td>Cup clover</td>
<td>Trifolium cyathiferum</td>
<td>S3</td>
<td>Blue</td>
</tr>
<tr>
<td>Fern-leafed desert parsley</td>
<td>Lomatium dissectum</td>
<td>S3</td>
<td>Blue</td>
</tr>
<tr>
<td>Macoun’s grounseal</td>
<td>Packera Macounii</td>
<td>S3</td>
<td>Blue</td>
</tr>
</tbody>
</table>

There are also records of yellow listed species, most notably white fawn lily (*Erythorionium oregonum*) and large-flowered blue-eyed Mary (*Collinsia grandiflora*).
The Conservation Data Centre identifies a total of 72 animal species that are known to be at risk (red or blue listed) in forest and riparian ecosystems in the Cowichan Valley region (Ecosystem Explorer, Conservation Data Centre, 2019). Of those, 20 are birds, 12 are gastropods, 15 are insects, eight are mammals, two are reptiles and two are ray-finned fishes. The list also includes the Cowichan Lake lamprey and an amphibian species.

There are no Conservation Data Centre records of animal species at risk in Cowichan River Park. This does not mean that there are no species at risk that rely for at least part of their lifecycle on habitat within the park. However, a comprehensive species inventory for the park has not been completed.

The dun skipper butterfly and Vancouver Island ermine were sighted in proximity to the park. The last recorded dun skipper sighting dates back to 2003. The last recorded sighting of Vancouver Island ermine was in 1956.

In addition, Roosevelt elk are reported as using Cowichan River Park. Roosevelt elk are ranked by the Conservation Data Centre (2015) as S3S4 (Vulnerable to Apparently Secure) and are on the Provincial Blue List (Special Concern).

Given the conservation status of Roosevelt elk and the high demand for cultural, subsistence, recreational and commercial uses, the provincial management goal for the species is to increase the population, expanding its distribution and mitigating threats, such that the subspecies could be removed from the Provincial Blue List within the 2015-2025 time period (Ministry of Forests, Lands and Natural Resource Operation, 2015). The herd closest to Cowichan River Park is the South Cowichan Lake sub-population, estimated at 20 elk in 2015. The management objective is to increase that population (FLNRO, 2015). Habitat preferences for elk are mature forests and riparian areas, habitat characteristics which are found in Cowichan River Park.

**Invasive Plant Species**

Invasive species tend to follow humans into new environments. They are often introduced into natural environments through the transport of seeds on vehicle wheels, recreational equipment, as well as on hiking boots, clothing or backpacks. Seeds are also transported along river corridors, carried in by birds or on the fur of animals.

Species are considered invasive when they become overly prevalent within a region, outcompeting native species and pushing them out of their natural habitat niches. The ecological impact of invasive species can be significant. Their rapid spread can radically alter the ecology of an area by affecting food supplies for other species that have co-evolved with the native species that have been displaced. Invasive species can also alter chemical processes within ecosystems, such as the nutrient content of soils, resulting in changes to successional pathways of plant communities.

According to the BC Invasive Alien Plant Program on-line database, eleven invasive species have been recorded within Cowichan River Park. A twelfth one, carpet burweed, has been identified by BC Parks staff. It is probable that more are present since more than 30 invasive plant species are
found within the larger CVRD region. Table 3 shows the invasive plant species recorded within Cowichan River Park.

**Table 3: Invasive Species in Cowichan River Park**

<table>
<thead>
<tr>
<th>Map Label</th>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BO</td>
<td>Bohemian knotweed</td>
<td>Fallopia x bohemicum</td>
</tr>
<tr>
<td>BT</td>
<td>Bull thistle</td>
<td>Cirsium vulgare</td>
</tr>
<tr>
<td>BW</td>
<td>Blueweed</td>
<td>Echium vulgare</td>
</tr>
<tr>
<td></td>
<td>Carpet burweed</td>
<td>Soliva sessilis</td>
</tr>
<tr>
<td>CD</td>
<td>Curled dock</td>
<td>Rumex crispus</td>
</tr>
<tr>
<td>CT</td>
<td>Canada thistle</td>
<td>Cirsium arvense</td>
</tr>
<tr>
<td>GK</td>
<td>Giant knotweed</td>
<td>Fallopia sachalinensis</td>
</tr>
<tr>
<td>HI</td>
<td>Himalayan blackberry</td>
<td>Rubus armeniacus</td>
</tr>
<tr>
<td>JK</td>
<td>Japanese knotweed</td>
<td>Fallopia japonica</td>
</tr>
<tr>
<td>SB</td>
<td>Scotch broom</td>
<td>Cytisus scoparius</td>
</tr>
<tr>
<td>TC</td>
<td>Common tansy</td>
<td>Tanacetum vulgare</td>
</tr>
<tr>
<td>YI</td>
<td>Yellow iris</td>
<td>Iris pseudachorus</td>
</tr>
</tbody>
</table>

Source: Invasive Alien Plant Program at https://www.for.gov.bc.ca/hra/plants/application.htm and observations by BC Parks staff

Japanese knotweed, in particular, poses a significant threat to the riparian ecosystems along the Cowichan River. The CVRD’s 2014 State of the Environment Report recognized that early efforts at treatment for this species in the region, which began in 2006, may have resulted in its further spread along the Cowichan River. Knotweed’s extensive and almost inexhaustible root system and sprouting ability makes it extremely difficult to control. Attempting to cut it down or to dig it out causes the plants to send more roots underground and increases the infestation size. Fragments of the plants can easily get spread and may re-sprout in another area. To date, herbicide treatments are the only known effective means of removal (Invasive Species Council of BC, 2019). However, the use of herbicides close to the Cowichan River could negatively impact aquatic species. Any mechanical removal of the plant requires strict controls to ensure that small pieces of the plant are not left or moved to new sites. The Coastal Invasive Species Council has identified a great need to develop an aquatic friendly herbicide that can be used to control this very aggressive species adjacent to watercourses (CVRD, 2014).
UNIQUE OR SPECIAL HABITAT FEATURES

Almost all of the Cowichan Valley was logged at the beginning of the 20th century. Nonetheless, pockets of old growth forest and mature trees can be found in the park. The most significant stand of old growth is north of Stoltz Pool on the south side of the river. Mature Douglas-fir forests also grow at Cabin Pool and Stoltz Pool.

Stoltz Flats contains an open forest prairie meadow ecosystem, which is uncommon in the upper to mid-Cowichan River watershed. The meadows are covered by a ground layer (cryptogamic crust) of mosses, primarily roadside rock moss (*Racometrium canescens*), and swards of kinickinnick. Plant species documented in Stoltz Flats include Indian consumption plant (*Lomatium nudicale*), Long-stolened sedge (*Carex inops*), wild strawberry (*Fragaria virginiana*), Wild onion (*Allium sp*), Narrow-leafed montia (*Montia linearis*), death camas (*Zygodenous venosus*), entire-leafed saxifrage (*Saxifraga integrifolia*), Big-leafed Sandwort (*Moehringia macrophylla*), Small-flowered lupine (*Lupinus polycarpus*), and yarrow (*Achillea millefolium*). The area also has native grasses, including Roemer’s fescue (*Festuca roemerii*). Pearly everlasting flowers and purple violets (Viola adunca) have been observed adjacent to the meadow. Roosevelt Elk browse has also been observed on shrubs.

An unusual occurrence this far West on Vancouver Island are small stands of Garry oak on rocky outcrops above the river at Horseshoe Bend and at Marie Canyon. They are the believed to be the most western stands of Garry oak recorded in British Columbia. Garry oak occurrences within the Coastal Western Hemlock biogeoclimatic zone are rare. Garry oak are more commonly associated with the drier and warmer Coastal Douglas-fir zone.

GEOLOGIC/GEOGRAPHICAL FEATURES

The Pleistocene period, commonly referred to as the last Ice Age, started roughly 30,000 years ago, covering large parts of North America under sheets of ice. The ice was hundreds of metres thick, so heavy that Vancouver Island was depressed by more than 150 metres. Around 15,000 years ago the climate began to warm and the ice sheets slowly melted and retreated. The release of their weight caused the land to rebound resulting in some of Vancouver Island’s hills and mountain ranges. Moving and melting ice cut major features into the landscape, including the U-shaped Cowichan Valley, the deep depression of Lake Cowichan, and the channels of the Cowichan River. The ice left large deposits of glacial till (a mixture of soil, clay, sand and gravel) behind. Rivers transported this material to the lowlands, forming fertile pockets such as the Cowichan estuary (Environment Commission, 2010).
While previous studies on glaciation in the region suggest an ice sheet that covered the entire Cowichan Valley, research undertaken in the park by Kirsten Miskelly in 2012, suggests that parts of Cowichan River Park may have escaped the last glaciation. The researcher sampled sediment and radiocarbon from the Skutz Falls area. These were used to show changes in vegetation and climate from the late Olympia Interstade through the Fraser Glaciation. Further research needs to be completed to confirm these preliminary findings.

The Cowichan River displays four main changes in slope, two of which occur in the park. In the upper reaches between Lake Cowichan and Skutz Falls, the river’s gradient is gentle, dropping about 1.15 metre per km. The gradient steepens for 14.5 km between Skutz Falls and Holt Creek. In some places along this stretch, the river drops almost 8 metres per km. Skutz Falls itself has a drop of 5.4 metres over a run of 90 metres. In this area, the river has fluctuating water levels and strong currents and log jams and sweepers are common. Strong rapids exist in Marie Canyon and at Skutz Falls throughout the year.

Much of the Cowichan River within the park is characterized by steep banks, canyons and overhanging cliffs. Rock types along the river range from resistant volcanics to clastic detrital rocks including conglomerates, shale and sandstones which are covered in drift deposits of up to 30 metres thick (Axys, 1998).

Upland from the steep river canyons are gently sloping hillsides rising to mountains up to 600 and 800 metres in height. Some of the highest mountains in the region are Mount Tzouhalem at 536 metres and Mount Prevost at 788 metres – both rise up on the north side of the river.

The most distinctive geologic feature in the park is Marie Canyon. The erosion within the canyon has exposed angled layers of sedimentary rock. Another prominent feature is Stoltz Bluff. The bluff is comprised of a thick sequence of glacial sediments known as the Quadra Foundation. Most of the sediments are interglacial deposits formed in the period between the last two glaciations. Exposure along the bluff indicates that the sediments consist of a series of bedded sand, gravelly sand, fine sandy silt, and silt/clay (Quarrie, 2017). Stoltz Bluff is naturally over-steepened due to fluvial erosion.

### 2.3 Cultural Values

**First Nations Cultural Heritage**

The Cowichan River is a culturally and spiritually significant area for the Cowichan people. There is a long history of First Nations use within Cowichan River Park, particularly by Cowichan Tribes. The Lake Cowichan and Ditidaht First Nations also have areas of traditional use within the park.

The following information is based on: “Those Who Fell from the Sky: A history of the Cowichan peoples”, by Daniel P. Marshall and the 1998 Cowichan River Park background report by Axys Consulting. The history and practices of the Cowichan people are described in historical terms in
those two texts. It is important to recognize that cultural, spiritual and traditional uses of Cowichan River Park continue and are integral to the cultural heritage of the place.

The name Cowichan is derived from the Coast Salish word ‘Khowutzun’ meaning “land warmed by the sun”. Cowichan is the collective name for the seven traditional villages: Kw’amutsun, Qwum’yiqun’, Hwulqwselu, S’amuna’, L’uml’umuluts, Hinupsum, Tl’ulpalus. A further eight village sites are known to have existed along the Cowichan River in the past (see figure 7). Many of the village sites were in close proximity to fish weirs which the Cowichan installed in the river to catch salmon (Marshall, 1999).

The wet but mild climate is ideal for settlement, supporting large permanent villages along the lower river which have been continuously inhabited to the present. Named places of cultural significance are found along the entire course of the river and speak to a deep and abiding relationship between the Cowichan people and the River.

The Cowichan people traditionally relied heavily on the salmonid populations that exist in the river, as well as a variety of other fish species, plants, and animals associated with the river and near shore marine environment.

Historically, the main source of food was salmon. Weirs were used to catch salmon migrating up the river. At one time, there were between 15 and 21 separate weirs on the Cowichan River from the bay up to the river bend at a former village site known by the Cowichan as Heeltl, located upriver from Skutz Falls within the far east segment of the park (see figure 7). The Cowichan developed three different kinds of weir structures. Close to mouth of the river tidal weirs were used to trap salmon behind a network of upright poles at a receding tide. Further upriver, the Cowichan installed river weirs that were anchored into the river banks. The weirs extended across the river providing a barrier to migrating salmon apart from a few openings which led into traps and pens (Stewart 1977). At the former Skwutz village site, the weir was set up approximately 100 metres south of Skutz Falls. Fishing was also done from canoes using nets, hooks, and spears or from the river bank. The Cowichan would line the banks of the river from the present-day bridge to where the fish ladder is now located to fish with spears or triple-pronged harpoons (Marshall, 1999). The third type of weir used by the Cowichan were rock weirs. One was installed east of Skutz Falls Heeltl (Marshall, 1999). The rock weir was used to block ascending fish, diverting them into the banks of the river where they were speared.

Marshall (1999) reports as many as nine separate weir sites from the mouth of the river at Quamichan village up to Skutz Falls. Multiple weir sites were found at the larger villages of
Quamichan and Somenos (Dale, 2011). Figure 7, developed by Marshall (1999) and adapted by Dale (2011) shows the locations of villages and weir sites on the Cowichan River.

The Cowichan people travelled far to access resources and to trade with neighbouring tribes (Marshall, 1999). According to Marshall (1999), harvesting and trading took the Cowichan peoples well beyond the Cowichan Valley to neighbouring islands, the Saanich peninsula and to the mouth of the Fraser River. The Cowichan also travelled to the inland areas around the Cowichan River to hunt and to harvest plants and berries. The river was used as a travel corridor to Lake Cowichan, a historic meeting place. Here, the villagers collected sqwil’muhwulp (trailing blackberry) and sqwuqwtusu’sulp (red huckleberry) which were dried and preserved for winter (Marshall, 1991, Axys, 1998). The leaves of qwa’upulp (Pacific crab apple) were harvested to make poultice for wounds. The men hunted for deer, elk, ducks and geese. At times, hunters followed large elk herds as far north as Port Hardy (Marshall, 1999).

The Cowichan wore fur and hides as robes and winter garments. Clothing was also made by shredding the inner bark of cedar trees into fibres that were then woven into skirts, capes and hats. (Axys, 1998). Cedar was also the preferred material for building longhouses and carving canoes. The canoes were suitable for travel by river or sea and carried the Cowichan across the Strait of Georgia on their journeys to the mouth of the Fraser River. Remnants of a cedar bark canoe was found near Skutz Falls (Axys, 1998).
EUROPEAN SETTLER HERITAGE

The Cowichan River and lake areas were once surrounded by old-growth forests. Early settlers who travelled or resided in the area were hunters, trappers, surveyors, and prospectors. A number of exploratory trips, by foot and by canoe up the Cowichan River, were taken as early as 1857 with the purpose of scouting out the mining and logging possibilities in inland areas. The first permanent European settlers to the region arrived in 1862 when the HMS Hectate dropped anchor in Cowichan Bay. One hundred settlers were on board representing the nucleus of pioneer settlement in the Cowichan-Chemainus district (Marshall, 1999).

The rich soils and water supply made agriculture the foundation of the economy in the valley in the early years after colonial settlement. As interior areas became more heavily travelled, mining began to supersede agriculture as the primary industry. As the forest industry began to grow, it became the greatest influence on development and settlement in the region. The advent of the Esquimalt and Nanaimo Railway in 1886 opened up the area to the lumber industry. The line to Lake Cowichan and the Canadian National Rail (CNR) line were completed in 1913 and 1924 respectively (Axys, 1998).

The Cowichan River was a key feature of the landscape and served various roles for the settlers. Before the railways the river was used as a corridor for transporting logs to Cowichan Bay from where they were shipped to other markets. The tributaries to the Cowichan River were used to provide a water supply for steam mills. Commercial logging negatively impacted the ecology of the river and estuary – heavy logging in the upland areas increased soil erosion and sediment entering the river. The river bed and banks were impacted by explosives regularly used to clear up log jams. After the railways were completed, the Cowichan Valley changed rapidly. Logging boomed as more companies purchased timber rights and new settlers arrived and cleared land for homesteads and agriculture (Axys, 1998).

Most of the old-growth forests of the region were logged early in the century but forestry activities have continued to this day. The rail lines were discontinued in 1988 and much of the former railbeds have been converted to trails used by hikers, cyclists and horseback riders. Along the historic route trail users can still find footings from old water towers. Four trestle bridges have been restored and the decking converted to allow for use as a trail (Axys, 1998).

HISTORY OF RECREATIONAL USE

According to a long time resident of the Cowichan Valley, the Cowichan River was promoted as a fishing destination in England as early as the 1900s. He and his parents settled in the valley after having visited on a fishing trip from England. In the 1930s, the brown trout was introduced into the river system to support the growing interest in sport fishing on the river.

As the railway and later logging roads improved access into the area, the river began to receive higher numbers of recreational users. This also meant more properties along the river were being purchased for private use. In the 1950’s the Cowichan Fish and Game Association became concerned that public access to the river was being lost. By the 1960’s, the association began construction of a footpath along the river from their club property near Duncan to the headwaters.

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7 Based on conversation between resident and BC Parks staff.
of the Cowichan River, a distance of 19 miles. With volunteer and assistance from other clubs and individuals, the project was completed in 1969. At first the path was mostly used by anglers, but as word spread it soon became a main access route to the river for other activities such as hiking, camping, and day use. Today the trail is considered an important historic and community resource and shows the dedication and connection the community has to the Cowichan River. The heritage values of the Cowichan River Footpath are also linked to its role as a traditional travel route, and a contemporary access point, for cultural use by the Cowichan peoples.

One of the early records of recreational canoeing on the Cowichan River dates to April 7, 1930 when Marie Adelaide, Viscountess Willingdon and wife of the then-Governor General of Canada canoed the river from Cowichan Lake to Duncan (Duggan, 2017). According to Duggan, Marie Canyon was names after Marie Adelaide.

There is no known record of when whitewater kayaking first arrived on the Cowichan River. Generally, the sport gained in popularity with the availability of molded polyethylene boats in the 1970s which made the kayaks more affordable and more resistant to wear and tear. Whitewater kayaking on the Cowichan River may have gained in popularity around that time as evidenced by the clubs that formed to support the sport and its participants. The Victoria Canoe and Kayak Club (VCKC) formed in 1969, Nanaimo Canoe Kayak Club in 1988 and the Cowichan Canoe and Kayak Club followed in 1994.

While local residents have enjoyed drifting down the calm sections of the Cowichan River in inner tubes and inflatable boats for many decades, the number of residents and tourists tubing on the Cowichan River has gained popularity especially over the last two decades. In 2009, Lake Cowichan River Tubing started renting tubes and offering a shuttle service that picks up tubers after a 2.5 to 3 hour trip at Little Bach, at the west end of Cowichan River Park. To meet the demand, a second kayaking and tubing company, Orka, now offers similar services.

In 2017, the final gap in the Great Trail route\textsuperscript{8} on Southern Vancouver Island was closed connecting the CVRD-managed Cowichan Valley Trail to the Capital Regional District’s trail system in the Sooke Hills Wilderness and at Goldstream Heights. The Cowichan Valley Trail section of the Great Trail connecting from the South currently ends at the CVRD’s Glenora Trails Head Park on the east end of Cowichan River Park. The trail continues along an unmaintained section of the former Canadian National Railway line through Cowichan River Park to Lake Cowichan. From there it heads back east along a CVRD-maintained section on the south side of Highway 18 to Duncan. While it is not part of Cowichan River Park, the Great Trail has connected Cowichan River Park to a larger trail network in the region and, over time, may bring additional visitors to the park’s trails, campgrounds and day use areas.

\textsuperscript{8} Formerly known as the Trans Canada Trail
### Regional Significance

The outdoor recreation opportunities in Cowichan River Park complement those of other parks in the region. Nearby provincial parks include Gordon Bay, Chemainus River and Koksilah River. These parks also offer day-use and picnic areas and overnight camping. The Cowichan Valley Regional District has an extensive system of community parks as well as four regional parks including Sandy Pool Regional Park on the banks of the Cowichan River. However, few parks in the region provide the same quality recreational experience for those interested in river-based activities, particularly fishing and white water paddling.

Following are short descriptions of the recreation opportunities in the park.

#### Hiking

Many developed and undeveloped trails can be found throughout the park, including:

**Stoltz Pool Loop Trail** travels along the river and can be accessed through the Stoltz Pool Day-use Area. The trail leads to several premium fishing spots before traveling inland.

**Skutz/66-Mile Loop Trail** is 8 km in length and travels through a steep canyon section of the Cowichan River. The trail crosses the river at the Skutz Falls forest service bridge and the historic 66-Mile Trestle.

**Cowichan River Footpath** travels for 20 km along the river from Glenora to Skutz Falls. It offers easy to moderate level of hiking.

**Cowichan Valley Trail** is part of the Great Trail route and not actually part of the park. The multi-use trail follows the former Canadian National Railway right of way alongside and through the park from Glenora to Skutz Falls. It passes over the restored 66-Mile and Holt Creek Trestles and offers stunning views over the Cowichan River canyon.

#### Horseback Riding

Horseback riding is permitted only on the Trans-Canada Trail which is not part of the park.

#### Cycling

Cycling is permitted only on the Trans-Canada Trail which is not part of the park.
WILDLIFE VIEWING

The diverse and abundant wildlife attract a large number of visitors to the park. Many of the trails, day-use and camping areas are ideal spots to view the natural features of the park. The river corridor is recognized as one of the hotspots for birding in the Cowichan Valley Regional District.

In recent years, salmon viewing has also become popular. Visitors observe salmon ascending the river and going up the falls from a number of spots along the river.
**FISHING**

The Cowichan River is known as a prime fishing spot due to its variety and abundance of fish species including chinook, coho, and chum salmon, steelhead and rainbow, cutthroat and Brown trout. The river is widely considered one of the finest trout fishing streams in British Columbia.

**WATER RECREATION**

The Cowichan River has become a popular area for swimming and tubing in the summer months when the water levels are lower and travel down the river is safe. Two companies now offer tube rentals at Cowichan Lake and shuttle service back to the starting point from Little Beach.

The river is used for snorkeling, scuba diving and underwater fish viewing. The river is also a prime spot to whitewater kayak and canoe. New forms of boating are making their way onto the river, such as pontoon boaters, drift boaters, and water masters (a type of bottomless, inflatable dinghy used for fishing). The Cowichan River is used by several clubs such as the University of Victoria Kayak Club, the Victoria Canoe and Kayak Club and the Cowichan Canoe and Kayak Club. The Cowichan River Youth Festival has been held at the park by Canoe Kayak BC each April since 2013.

**RECREATIONAL FACILITIES** available at the Cowichan River Provincial Park include:

**HORSESHOE BEND GROUP CAMPGROUND**

This group campground has a shelter and consists of 11 tent pads situated beside Cowichan River amongst the trees. Other amenities include parking, a sink, wood stoves, a water pump, and picnic tables.

**STOLTZ POOL CAMPGROUND**

The Stoltz Pool Campground includes 39 drive-in campsites and four walk-in sites and features a variety of amenities such as trails, beaches, firepits, picnic tables, toilets, garbage and recycling containers, and drinking water. This campground includes 16 tent pads for group campsites with trails leading to each one.
**STOLTZ POOL DAY-USE AREA**

This day-use area is adjacent to the campground and provides parking, riverside trails, wheelchair-accessible picnic areas, an all-purpose playing field, and a hand launch only boat launch. A small area is dedicated to the Burma Star Memorial Cairn which was erected by the Burma Star Association to commemorate the story of Major Hoey and the Allied Second World War campaign in East Asia.

**SKUTZ FALLS DAY-USE AREA**

Skutz Falls Day-use Area is located at the western trailhead for the Cowichan River Footpath and offers parking, toilets, picnic tables, boat pull-out, and signs with current trail and park information.

**MARIE CANYON DAY-USE AREA**

This day-use area gives both access to and views of the river. It is ideal for picnicking and provides parking, toilet facilities and signs with current park information.

**COMMERCIAL RECREATION**

Commercial recreation activities are limited within the park. There is currently only one park use permit for commercial recreation (guided kayaking) in the park.

**COWICHAN FISH AND GAME ASSOCIATION**

The Cowichan Fish and Game Association has a park use permit to use a 7.4 hectare property within the park at the end of Robertson Road near Holt Creek. The property includes a club house and rifle, trap and handgun shooting ranges which pre-existed the establishment of the park.

The property includes barbecue, grill and kitchen facilities and horseshoe pitches, a fire pit, and washrooms.

**VEHICLE ACCESS**

Vehicle access to the park on the north side of the river is provided via Highway 18 which intersects the Trans-Canada Highway just north of Duncan, or via Riverbottom Road which runs west out of Duncan and follows the path of the river. Once in the vicinity of the park there are several formal access points leading to camping and day-use areas, and numerous informal access points which have historically been developed by recreational users. In some areas, these informal access points trespass through private property.

Formal access points on the north side of the river include Stoltz Pool Campground and Day-use Area, and day-use areas at Marie Canyon and Skutz Falls. A small parking area off Robertson Road provides access to the east end of the park.

**DAY USE ATTENDANCE**

Data shown in figure 9 below was collected using a visual count of vehicles at various areas in the park a minimum of 5 days per month. Daily tallies were then used to project monthly and annual totals.
The estimates indicate an average yearly attendance of 5,839 visitors at Stoltz Pool, 5,420 at Skutz Falls, 2,173 at Marie Canyon, 4,488 at Holt Creek and 3,341 at the 66 Mile Trestle day use area.

The highest annual day use attendances were recorded in 2015 at Stoltz Pool and Skutz Falls with 8,293 and 9,346 visitors respectively. The lowest annual day use attendance in the four year period were in 2017 and 2018 at Marie Canyon with 1,526 and 1,718 visitors respectively. 2017 was also a relatively low day use attendance year at 66 Mile Trestle with an estimate of 2,107 attendees over the course of that year.

At a regional level, BC Parks day use attendance grew by 125 percent in the West Coast region between 2010/11 and 2015/16 (BC Parks, 2016)

**Campground Use**

Figure 10 below shows large fluctuations in the use of Horseshoe Bay group campsite between 2000 and 2017. In comparison, use of the individual campsites at Stoltz Pool (figure 11) show a steady increase in campsite bookings between 2000 and 2017. This increase more closely matches trends in camping bookings in BC provincial parks in the West Coast region which increased by 19 percent over a five year period from 2010/2011 to 2015/2016 (BC Parks, 2016).
Figure 10: Horseshoe Bend Group Camp Use

Figure 11: Stoltz Pool campground use
Occupancy of the Horseshoe Bend Group campsites (the percent of the time that the site is booked) is highest during the months of July and August, although it stays below 45% throughout the year as shown in figure 12 below.

Figure 12: Horseshoe Bend group camp site occupancy

The Stoltz Pool campground, which has 47 sites, experiences 80% to 90% occupancy during July and August. The busiest year was 2018 with 90% occupancy during those two summer months. May

Figure 13: Stoltz Pool Campground Occupancy
and June are also fairly busy months with occupancies of up to 55%. The campground is open year round and a few visitors enjoy the camping between November and March.

Note: In 2006, data was not recorded between June and September.

### 2.5 Research and Education

**Research**

Due to its unique and diverse natural environment and interest in restoration work in the park, Cowichan River Provincial Park has been the site of several research projects. Research projects have included a slope hazard assessment of Stoltz Bluff (2017); old growth and climate change research (2015-16); ecological implications of climate change in dry south coast forest ecosystems (2015); a Broadway run slope stability and remediation study (2015); freshwater mussel surveys (2015); a sediment and radiocarbon study to document changes in vegetation and climate during the Fraser glaciation (2012); and research on Garry oak ecosystems, in particular plant-pollinator interactions (2005 and 2009).

A short summary of each of these recent research projects is provided in Appendix B.

**Education**

Cowichan River Park is maintained and operated by K2 Services under contract to BC Parks. The company also operates a number of other Vancouver Island and Gulf Island parks for BC Parks. It currently does not offer nature programs in Cowichan River Park.

Several non-profit organizations such as Cowichan Valley Nature and Naturekids Cowichan Valley occasionally offer guided walks or nature programs in the park. The Cowichan Lake and River Stewardship Society leads restoration projects in the park and has undertaken a number of education and outreach activities including a riparian education brochure and installation of interpretive signage on tributary creeks to raise awareness of riparian ecosystems.

There are additional nature education opportunities in proximity to Cowichan River Park. For example, in 2012, the Cowichan Estuary Nature Centre opened in Cowichan Bay. The centre hosts programs for school groups on river and estuarine ecosystems.

### 2.6 Climate Change

**Regional Climate Change Trends and Projections for the Cowichan River Valley**

Climate change trends documented by the BC Ministry of Environment show a decrease in snow depth of 6 percent per decade between 1950 and 2014 in the Georgia Depression Ecoprosin, which includes the Nanaimo Lowlands ecoson and the Cowichan Valley (Environmental Reporting BC, 2019). A reduced snow pack, combined with earlier warming in spring means an
earlier spring freshet and reduced water flow in the summer. Combined with warmer temperatures, an earlier freshet also means warmer water in lakes and rivers in the summer.

In general, climate change in the Cowichan Valley is expected to result in milder and wetter winters and drier summers, with some local and regional variation. More frequent severe flooding in the Lower Cowichan Basin has raised awareness of the environmental, social and economic costs of such events.

On the other hand, warmer air temperatures and less rain in the summer result in lower soil moisture and more stress on plant species such as Western redcedar that have low drought tolerance. In addition, drier summer conditions may increase the severity of natural disturbances, such as wildfire and pest outbreaks.

An increase in surface water temperatures (due to warmer air temperatures) and a decrease in flow rates (due to less snow and therefore less water storage in lakes) are predicted to have significant impacts on the habitat and recharge of lakes and rivers. This can result in the collapse of fish stocks. For example, during the summer of 2009, the water temperature in Cowichan Lake measured 26° Celsius as it was released into the river (Environment Commission, 2010). Salmon show signs of physiological stress at temperatures above 18° Celsius. Several days of 20° Celsius or higher leads to severe stress and fish mortality.

PROJECTED IMPACTS OF CLIMATE CHANGE ON PARK VALUES

In 2013, Madrone Environmental Services Ltd. prepared a 10 year monitoring report for the Cowichan Valley Regional District for submission to the Canadian Heritage Rivers Board. This report identified climate change as a challenge to the integrity of the Cowichan River due to the increase in the frequency and intensity of extreme flood and drought events and declining water flows during the summer. The report predicted that climate change and the resulting shifts in weather patterns will cause changes to the water flow regimes and water temperatures of the Cowichan River, impacting the survival rate of fish and causing increased problems with invasive species (Madrone Environmental Services Ltd., 2013).

Among a myriad of other problems, invasive species have the potential to increase bank erosion. For example, Japanese knotweed likely affects how riverine systems function in response to moderate floods. Knotweed colonizes river banks in the summer. However, in the winter the plant dies back, affecting bank stability during high flows. Climate change is expected to significantly increase the ease of colonization by invasive species (Environment Commission, 2010).

The Cowichan Lake and River Stewardship Society has observed the following effects of climate change on the Cowichan watershed:

- 33 percent decline in summer rainfall totals between 1998 and 2018;
- warmer, wetter winters, less snowpack, and hotter drier summers;
- eight of the fifteen years preceding 2018 and all of the past four summers (2015-2018) experienced drought.
The Cowichan Lake and River Stewardship Society projects the following will occur if current climate change trends continue:

- lower water levels on average in Cowichan Lake;
- the need to pump water out of Cowichan Lake to keep the Cowichan River flowing;
- salmon in the lake and river will be negatively impacted;
- decline in fishing tourism;
- negative impacts on recreation tourism;
- less recharge of aquifers;
- not enough water during summer months to dilute sewage.

The projected trend for lower water levels in the Cowichan River in the summer seasons could impact park access and recreation tourism, in particular fishing tourism. The recorded and projected higher water levels in the winter and the more extreme flood events could result in riverside trail erosion and partial park closures.

In recent years, several trail, campground and parking lot closures have been recorded in Cowichan River Provincial Park as a result of extreme weather events. For example, heavy rainfalls and high river flows resulted in flooding and erosion of the parking lot at Stoltz group campsite over a period of 10 years prior to its eventual closure in 2019. The winter of 2019 also saw a section of the trail heading west from Skutz Falls day use area eroding into the river. The Stoltz Bluffs trails have been closed due to extremely unstable slopes and increased risk of landslides following heavy rain events in December 2018. In 2015, winter storms caused trail damage to the Cowichan River Footpath, including damage to boardwalks and bridges due to fallen trees and erosion of the Footpath near Holt Creek. Winter storms in 2009/2010 caused damage to a section of the Cowichan River Footpath at Stoltz Falls and a trail from the Stoltz group campsite to the day use area. Both trail section eventually eroded into the river. A flood in 2006 closed Stoltz Bluff trail and possibly other trails.

With more frequent extreme weather events expected in the region, erosion damage to trails and parking lots is likely to continue.

### 3.0 INFORMATION GAPS

Research for this background report identified the following data gaps:

- No biophysical inventory identifying park ecosystems, common and rare species.
- No record of invasive terrestrial animal species in the park.
- No recent records of species at risk in the park or their specific location.
- Additional climate change analysis is needed, including ecosystem change and projected shifts in biogeoclimatic zones, as well as associated effects on species migration.
- Additional information is needed on First Nations cultural significance and values.
4.0 REFERENCES

REPORTS


Cowichan Valley Regional District. 2017. Climate Projections for the Cowichan Valley Regional District.
Cowichan Valley western toad project. 2019. Retrieved from cowichanvalleywesterntoadproject.blogspot.com
eBird Canada. 2019. Birding checklist for Cowichan River retrieved from ebird.org


**Mapping Programs and Resources**

BC iMap at https://maps.gov.bc.ca/ess/hm/imap4m/

BC Invasive Alien Plant Program at https://www.for.gov.bc.ca/hra/plants/application.htm

BC Protected Areas System overview at http://maps.gov.bc.ca/ess/hm/paso/

BC Species and Ecosystem Explorer at http://a100.gov.bc.ca/pub/eswp/

Conservation Data Centre iMap at http://maps.gov.bc.ca/ess/hm/cdc/

Consultative Areas Database at http://maps.gov.bc.ca/ess/hm/cadb/

Cowichan Valley Regional District web map at https://www.cvrd.bc.ca/2025/Maps-GIS

GeoBC at https://www2.gov.bc.ca/gov/content/data/about-data-management/geobc

Google Earth at https://earth.google.com/web/

Integrated Land and Resource Registry at https://a100.gov.bc.ca/apps/ilrr/html/ILRRWelcome.html
APPENDIX A: RESTORATION AND STEWARDSHIP IN THE WATERSHED

The Cowichan River has been the focus of a number of restoration and stewardship projects aimed at improving water quality and restoring fish habitat.

The Stoltz Bluff Restoration Project, initiated in 2006, is one of the most remarkable river restoration projects in Canada. The project diverted a one kilometer stretch of the Cowichan River to dry out the channel; moved over 40,000 cubic metres of river sediment, kept 30,000 stranded fish alive; provided a bypass for over 3,000 river recreationalists during the summer, and returned the river post-project to its original course.

The restoration project stabilized the Stoltz Bluff over the Cowichan River. This silt bluff was eroding over many years, releasing large amounts of fine sediment into the river. This erosion resulted in the destruction of fish habitat and spawning grounds and adversely affected water quality downstream. The survival rate of Cowichan Chinook salmon and steelhead was less than six percent in some years and the species were in danger of a severe decline. A partnership for the project was facilitated by the Cowichan Stewardship Roundtable and included active participation by Cowichan Tribes, federal and provincial government agencies, industry, non-governmental organizations and community representatives.

The stabilization of the Stoltz Bluff has contributed greatly to the restoration of spawning grounds. The project’s success is attributed to the collaborative, multi-agency community stewardship approach to river conservation (Madrone Environmental, 2013). The Cowichan Stewardship Roundtable won the National River Conservation Award for the Stolz Bluff Restoration Project in 2009.

Follow-up monitoring and maintenance on the project by Living Rivers and the BC Conservation Foundation continues. In addition, in 2010, the partners completed a slope stability study of the Broadway Run, a steep slope upstream of Skutz Falls; and undertook Cowichan Steelhead and resident trout stock monitoring.

In 2010, the Cowichan Watershed Board was formed to oversee and direct the implementation of the Cowichan Basin Water Management Plan. The mandate of the Board is to provide leadership for sustainable water management to protect and enhance environmental quality and the quality of life in the Cowichan watershed and adjoining areas. The Board is a partnership between Cowichan Tribes and local government (the CVRD) in conjunction with the federal and provincial governments. It is co-chaired by an elected member from each of the CVRD and Cowichan Tribes.

Since its establishment, the Cowichan Watershed Board has been actively engaged in research, education and stewardship. Initiatives supported by the Cowichan Watershed Board and its partners include a water conservation workshop for local water surveyors, an irrigation water conservation workshop for farmers, lakeshore erosion workshop for Cowichan Lake residents, a groundwater takings and trends survey through the BC Ministry of Forests, Lands and Natural Resources (MFLNRO), a water use and knowledge survey (doorstep interviews of 560 homes in the watershed), LiDAR and cadastre mapping related to a long term solution to ensuring adequate
summer flows in the river in face of climate change as well as numerous watershed tours to raise awareness of issues related to the watershed and river (Madrone Environmental, 2013).

In 2011, a geotechnical assessment of the stability of the Broadway Run was completed to assess the probability and likely impact of further slope failures due to bank erosion. This site is the second greatest sediment threat to upper Cowichan fish habitat quality behind Stoltz Bluff (which was remediated in 2006 – 2007). The purpose of the assessment was to assess failure mechanisms and identify design options to stabilize the Broadway Run slope.

Within a year of having formed as a Society in 2010, the Cowichan Lake and River Stewardship Society (CLRSS) completed two river bank stabilization projects using willow cuttings and native plants to stop erosion and protect property and habitat.

Cowichan Chinook Recovery Workshop of experts held in early March 2013 to identify critical Chinook habitat and threats. Lower summer flows during migration, gravel deposition in the lower Cowichan and climate change were identified as major threats to continued health of the Chinook run.

The Ministry of Forests, Lands and Natural Resource Operations supported additional LiDAR and cadastre mapping of the Cowichan Lake shoreline to assist in finding short term solutions in support of adequate flows in the river given climate change impacts.

Over the past few years, the Cowichan River Lake and Stewardship Society (CLRSS) has organized a salmon fry rescue in the Cowichan River and tributaries. As river flows decrease in the summer, salmon fry get stranded in pools. A number of tributaries to Cowichan Lake, such as Robertson River, Sutton Creek, Meade Creek dry up. CLRSS volunteers, community members and Cowichan Tribes members have worked to trap fry and relocate them to the lake to increase summer survival. In 2018, CLRSS, volunteers and partners moved approximately 100,000 fry into the lake (Cowichan River Lake and Stewardship Society, 2018).

CLRSS also organizes an annual river clean-up event. On foot and by water, volunteers clean up trash and beverage containers in the upper Cowichan River corridor.

These and other restoration and stewardship projects are contributing to improving water quality in the river and protecting riparian ecosystems along the river corridor and within the provincial park.

The BC and Canadian heritage river programs encourage sustainable management and community-based stewardship of the natural, human and recreational values of the river corridor. A management plan entitled Managing the Cowichan River as a Canadian Heritage River was completed in 2003 as one of the conditions for the designation of the Cowichan as a Canadian Heritage River. While not a BC Parks planning document, the management plan has implications for the management of Cowichan River Park. The plan identifies the following seven actions to protect the Cowichan River:

1. Monitor and protect habitat to sustain healthy fish populations.
2. Encourage community and public support of programs promoting river stewardship.
3. Provide river-based and river-side recreational opportunities.
4. Recognize and protect important cultural and heritage sites.
5. Encourage and strengthen partnerships between local, provincial and federal agencies, First Nations and stakeholders.
6. Continue research and monitoring to ensure the support of the rivers’ heritage values.
7. Celebrate and promote Cowichan’s Canadian Heritage River designation.

Under the Canadian Heritage Rivers program, managing jurisdictions commit to preparing a ten-year monitoring report for submission to the Canadian Heritage Rivers Board. The report is to document the health of the river and identify management actions to ensure it continues to possess the outstanding natural, cultural and recreational values for which it was designated.

The managing jurisdictions for the river (BC Parks, the Cowichan Regional District, Fisheries and Oceans Canada, Cowichan Tribes and the Cowichan Watershed Board) and local stewardship groups (BC Wildlife Federation, Cowichan Valley Naturalists, Cowichan Lake and River Stewardship Society and the BC Conservation Foundation) formed a steering committee and hired Madrone Environmental Services to produce the first 10 year report in 2013.

The Cowichan: A Canadian Heritage River 10 Year Monitoring Report (2003-2013) provides an overview of events over a 10 year time span and assesses the condition of the natural, cultural and recreational values for which the river was designated. The report also identifies changes and threats to those values, reports on the Canadian Heritage River system integrity guidelines and provides a progress update on the seven action items, listed above, from the Managing the Cowichan River as a Canadian Heritage River (2003) management plan. The update confirms that progress has been made on all seven action items between 2003 and 2013 but also identifies a number of threats facing the river due to drier summer conditions and low summer water flows.
APPENDIX B: SUMMARY OF RESEARCH PROJECTS IN THE PARK

**Stoltz Bluff Slope Hazard Assessment, 2017**
Prepared by McQuarrie Geotechnical Consultants for BC Conservation Foundation and Cowichan Watershed Board
The main objective of this project was to assess a gullied feature near the downstream end of the Stoltz Bluff Slope and to determine the cause of a dramatic increase in landslides and bank failures. The geotechnical consultants found that the landslides were caused by a combination of concentrated surface water and increased groundwater infiltration. The report concludes that failure of the over-steepened slopes can be reduced over the long term by stabilizing the base. This could be partly achieved by reducing downcutting of the small tributary stream flowing along the base of the gully.

**Old Growth Permanent Plot and Climate Change Research Activities within Southcoast Provincial Protected Areas, 2015-16**
Sari C. Saunders, Ministry of Forests, Lands, and Natural Resource Operations
This project was designed to assist in developing multiscale structural and functional benchmark data to provide a baseline for long-term monitoring and research on indicators of ecosystem resilience to climate change. The ongoing research monitors microclimates, salal productivity and regeneration, decomposition rates, dendrochronology, and bryophyte productivity.

**Establishment of an Interdisciplinary Project to Evaluate Ecological Implications of Climate Change in Dry South Coast Forest Ecosystems, 2015**
This project was established in 2010 to evaluate ecological attributes of sites with different relative soil moisture and nutrient conditions and subregional climates. The project focussed on dry south coast forests and was directed towards refining and quantifying a conceptual model of ecosystem function across spatial scales, establishing hypotheses regarding ecosystem change with projected climate shift, and identifying effective field indicators of climate change and its impacts on structure, species composition, and function in these forests.

**Cowichan River - Broadway Run Slope Stability Remediation Progress to early June 2015**
J.C. Wightman, BC Conservation Foundation
This study analyzed an area of land within Cowichan River Park located approximately 5 km upstream of Skutz Falls. The area contains the Broadway Run Site, the second greatest source of fine sediment introduction to the Cowichan River. The study's main objectives were to monitor the Broadway slope and implement strategies to stabilize the slope. The report documents the success of live-staking the slope with black cottonwood and willow stakes and outlines further strategies for future remediation work.

**Freshwater Mussel Surveys in the Nanaimo and Cowichan Rivers, 2015**
Rick Harbo, André L. Martel, Jackie Madill and Greg Wilson
High densities of Western Pearlshell mussels were found in both the Nanaimo River and Cowichan River. The researchers also found the western floater mussel, *Anodonta kennerlyi*, in the upper
reaches of the Cowichan River. Both types of mussels require host fishes for reproduction. The preferred host fishes for the western floater are sticklebacks and sculpins while western pearlshell mussels require salmon and trout hosts for reproduction. Because of this dependence, a decline in fish species would affect the two mussel populations. The mussels prefer sand, gravel and cobble substrates in stable areas of streams. Generally, large boulders that do not move during strong currents are preferred anchoring surfaces. In streams where host fish are abundant and the required physical habitat is present, mussels can grow in very high densities (E-fauna BC, 2017).

The study concludes that the Nanaimo and Cowichan rivers hold some of the highest densities of freshwater mussels recorded in Canada.

Vegetation and Climate History of the Fraser Glaciation on Southeastern Vancouver Island, 2012
Kirsten Miskelly, Thesis
Sediment and radiocarbon samples were taken from the Skutz Falls area in Cowichan River Provincial Park and were used to document changes in vegetation and climate from the late Olympia Interstade through the Fraser Glaciation. The study enhances the scientific community’s understanding of phytogeographic patterns of Pacific Northwest flora and provides a historical perspective on the origin of coastal alpine ecosystems. Preliminary findings suggest that parts of Cowichan River Park may have escaped the last glaciation which currently is believed to have reached as far as Saanich.

Research papers on Garry Oak Ecosystems, 2005 and 2009
Elizabeth Elle, Associate Professor in collaboration with several graduate students from Simon Fraser University
This research examined Garry Oak and associated ecosystems lacking oaks but containing the associated wildflower community. Research was conducted on plant-pollinator interactions with the Garry Oak ecosystem and their influences on a number of parks, including Cowichan River Park.